BCTC Building & 1-2F, East of B Building, Pengzhou Industrial Park,
Fuyuan 1st Road, Qiaotou, Fuyong Street, Bao'an District, Shenzhen,
Guangdong, China

Certificate of Compliance

Certificate Number: BCTC2008000394C

Applicant : **MYBESTSOUND CO., LTD**
301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China

Manufacturer : **MYBESTSOUND CO., LTD**
301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China

Product : **Sound bar**

M/N : **S6520**
S8520, S9920, SD9621, ST01, ST02, ST03, ST04, ST05, ST06, ST07, ST08, ST09, SQ01, SQ02, SQ03, SQ04, SQ05, SQ06, SQ07, SQ08, SQ09, SR01, SR02, SR03, SR04, SR05, SR06, SR07, SR08, SR09, SP01, SP02, SP03, SP04, SP05, SP06, SP07, SP08, SP09, SD01, SD02, SD03, SD04, SD05, SD06, SD07, SD08, SD09, SE01, SE02, SE03, SE04, SE05, SE06, SE07, SE08, SE09, SG01, SG02, SG03, SG04, SG05, SG06, SG07, SG08, SG09, SK01, SK02, SK03, SK04, SK05, SK06, SK07, SK08, SK09, S7020, S7021, S9820, S9821, S7621, S9620, S9621, SW01, SW02, SW03, SW05, SW06, SW08, SW09, SW65A, SW65B, SW65C, SW65D, SW80A, SW80B, SW80C, SW80D, SW100, SW100A, SW100B, SW100C, SW100D

Essential requirement		Applied Specifications/Standards	Report No.
Art.3.1(a)	Safety	EN 62368-1: 2014+A11:2017	BCTC2008000298S
Art.3.1(a)	Health	EN 62479:2010	BCTC2008000394-1E
Art.3.1(b)	EMC	ETSI EN 301 489-1 V2.2.3 (2019-11) Draft ETSI EN 301 489-17 V3.2.2 (2019-12)	BCTC2008000394-2E
Art.3.2	Radio	ETSI EN 300 328 V2.2.2 (2019-07)	BCTC2008000394-3E

The EUT described above has been tested according to the listed standards and found in compliance with the council Radio Equipment Directive(RED) 2014/53/EU.The observations and test results referenced from this Certificate are relevant only to the sample tested. This Certificate is for the exclusive use of BCTC's Client and is provided pursuant to the agreement between BCTC and its Client. This Certificate is part of the full test report(s) and should be read in conjunction with it.

CE

Zero Zhou/Manager
August 24, 2020

Tel: 400-788-9558 or 0755-32936262
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TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number.....:	BCTC2008000298S
Date of issue.....:	Aug. 24, 2020
Total number of pages.....:	62
Testing Laboratory.....:	**Shenzhen BCTC Testing Co., Ltd.**
Address .....:	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Applicant's name.....:	MYBESTSOUND CO.,LTD
Address.....:	301, Building A3, Haocheng (Heping) Industrial Park, 66 Hexiu West Road, Heping Community, Fuhai Street, Bao 'an District, Shenzhen
Test specification:	
Standard.....:	IEC 62368-1:2014 (Second Edition) EN 62368-1:2014+A11:2017
Test procedure.....:	CE-LVD
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC62368_1B
Test Report Form(s) Originator.....:	UL(US)
Master TRF.....:	2014-03

Test Item description ..... :	Sound bar
Trade Mark ..... :	N/A
Manufacturer..... :	Same as applicant
Model/Type reference ..... :	**S6520**, S8520.S9920.SD9621.ST01.ST02.ST03.ST04.ST05.ST06.ST07.ST08.ST09.SQ01.SQ02.SQ03.SQ04.SQ05.SQ06.SQ07.SQ08.SQ09.SR01.SR02.SR03.SR04.SR05.SR06.SR07.SR08.SR09.SP01.SP02.SP03.SP04.SP05.SP06.SP07.SP08.SP09.SD01.SD02.SD03.SD04.SD05.SD06.SD07.SD08.SD09.SE01.SE02.SE03.SE04.SE05.SE06.SE07.SE08.SE09.SG01.SG02.SG03.SG04.SG05.SG06.SG07.SG08.SG09.SK01.SK02.SK03.SK04.SK05.SK06.SK07.SK08.SK09.S7020.S7021.S9820.S9821.S7621.S9620.S9621.SW01.SW02.SW03.SW05.SW06.SW08.SW09.SW65A.SW65B.SW65C.SW65D.SW80A.SW80B.SW80C.SW80D.SW100.SW100A.SW100B.SW100C.SW100D
Ratings ..... :	Input: 19V ⎓ 1.89A

Testing procedure and testing location:

Testing Laboratory.....:	**Shenzhen BCTC Testing Co., Ltd.**
Address.....:	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Date of Test.....:	Aug. 05, 2020 to Aug. 11, 2020
Tested by (name + signature).....:	Kevin Yan Kevin Yan
Reviewed by (name + signature).....:	Seven Zheng Seven Zheng
Approved by (name + signature).....:	Kevin Wong Kevin Wong

List of Attachments (including a total number of pages in each attachment):

-- Attachment I : 11 pages for EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

-- Attachment II: 4 pages for Photo documentation.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
-- EN 62368-1:2014+A11:2017; The submitted samples were found to comply with the requirements of above specification.	Shenzhen BCTC Testing Co., Ltd. BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Sound bar
Model: S6520
Input: 19V⎓ 1.89A

Importer: XXXXXX
Address: XXXXXX
Manufacturer: MYBESTSOUND CO.,LTD
Address: 301, Building A3, Haocheng (Heping) Industrial Park, 66 Hexiu West Road, Heping Community, Fuhai Street, Bao 'an District, Shenzhen

MADE IN CHINA

Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

TEST ITEM PARTICULARS:	
Classification of use by..... :	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☒ Children likely to be present
Supply Connection..... :	☐ AC Mains ☐ DC Mains ☐ External Circuit – not Mains connected -☒ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance..... :	☐ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☒ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other: Supplied by AC adaptor
Considered current rating of protective device as part of building or equipment installation..... :	_____ A; Installation location: ☐ building; ☐ equipment
Equipment mobility..... :	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment ..... :	☐ Class I ☐ Class II ☒ Class III
Access location ..... :	☐ restricted access location ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	___25__ °C
IP protection class ..... :	☒ IPX0 ☐ IP___
Power Systems ..... :	☐ TN ☐ TT ☐ IT – 230 V $_{L-L}$
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ 5000 m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg) ..... :	☒ 2.38kg
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object..... :	N/A

- test object does meet the requirement..... :	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
TESTING:	
Date of receipt of test item.....:	Aug. 05, 2020
Date (s) of performance of tests..... :	Aug. 05, 2020 to Aug. 11, 2020
GENERAL REMARKS:	
"(See Enclosure #)" refers to additional information appended to the report. **"(See appended table)" refers to a table appended to the report.** **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	☐ **Yes** ☒ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... :	Same as applicant
GENERAL PRODUCT INFORMATION:	
Product Description: 1.The apparatus is a Class III Sound bar used for audio video, information and communication technology equipment.	
Model Differences – All models have same schematic diagram, PCB Layout and construction except model name and appearance.	
Additional application considerations – (Considerations used to test a component or sub-assembly) – N/A	

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +18 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
All circuits inside the equipment enclosure	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
All circuits inside the equipment enclosure	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Equipment mass	MS1
Sharp edges and corners	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
Accessible surface	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
N/A	N/A

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
SEE ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE **☐ ES ☐ PS ☐ MS ☐ TS ☐ RS**

OVERVIEW OF EMPLOYEDSAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced(Enclosure)
Ordinary	ES1:All circuits inside the equipment enclosure	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
equipment enclosure	PS2: All circuits inside the equipment enclosure	No parts exceeding 90% of its spontaneous Ignition temperature	Fire enclosure:V-0	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3: High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Sharp edges and corners	N/A	N/A	N/A
Ordinary	MS1: Equipment mass	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Accessible surface	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests.....:	(See Annex T.2, T.4, T.5)	P
4.4.4.3	Drop tests.....:	(See Annex T.7)	P
4.4.4.4	Impact tests..... :	(See Annex T.6)	N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:		N/A
4.4.4.6	Glass Impact tests..... :		N/A
4.4.4.7	Thermoplastic material tests.....:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard..... :	(See Annex T)	N/A
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion		P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to ..... :	Internal wire or component	P
4.7	Equipment for direct insertion into mains socket – outlets		N/A
4.7.2	Mains plug part complies with the relevant standard..... :		N/A
4.7.3	Torque (Nm)..... :		N/A
4.8	Products containing coin/button cell batteries	No such battery	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....:		—
4.8.4	Battery Compartment Mechanical Tests.....:		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications..... :	19Vd.c supplied apparatus, only ES1 existed	P
5.2.2	ES1, ES2 and ES3 limits	ES1	P
5.2.2.2	Steady-state voltage and current..... :	(See appended table 5.2)	N/A
5.2.2.3	Capacitance limits..... :	(See appended table 5.2)	N/A
5.2.2.4	Single pulse limits..... :		N/A
5.2.2.5	Limits for repetitive pulses..... :		N/A
5.2.2.6	Ringing signals ..... :		N/A
5.2.2.7	Audio signals ..... :	See clause E.1	P
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	The accessible parts of the equipment were considered as ES1.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES1 circuit only	P
5.3.2.2	Contact requirements	ES1 circuit only	P
	a) Test with test probe from Annex V..... :	(See Annex V)	N/A
	b) Electric strength test potential (V)..... :		N/A
	c) Air gap (mm) ..... :		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Humidity conditioning..... :	(See sub-clause 5.4.8)	N/A
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4)	N/A
5.4.1.5	Pollution degree..... :		—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.3	Ball pressure ..... :		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage ..... :		N/A
	a) a.c. mains transient voltage..... :		—
	b) d.c. mains transient voltage ..... :		—
	c) external circuit transient voltage..... :		—
	d) transient voltage determined by measurement ..... :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages..... :		N/A
5.4.3	Creepage distances..... :		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group ..... :		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation ..... :	(See appended table 5.4.4.2)	N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material	(See appended Table 5.4.9)	N/A
	Number of layers (pcs)..... :		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material..... :		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz..... :	(See appended Table 5.4.9)	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ)..... :		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.6	Insulation of internal wire as part of supplementary safeguard.....:		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%)..... :		—
	Temperature (°C) .....:		—
	Duration (h).....:		—
5.4.9	Electric strength test.....:		N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... :		N/A
5.4.10.2.3	Steady-state test.....:		N/A
5.4.11	Insulation between external circuits and earthed circuitry..... :		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op}(V)..... :		—
	Nominal voltage U_{peak}(V)..... :		—
	Max increase due to variation U_{sp}..... :		—
	Max increase due to ageing ΔU_{sa}.....:		—
	$U_{op}= U_{peak}+ \Delta U_{sp}+\Delta U_{sa}$..... :		—
5.5	Components as safeguards		
5.5.1	General		N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	No such component	N/A
5.5.3	Transformers	(See Annex G.5.3)	N/A
5.5.4	Optocouplers	(See Annex G.12)	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's	(See Annex G.8)	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable..... :		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) ..... :		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2)..... :		—
	Protective current rating (A)..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm)..... :		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω)..... :		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current..... :		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	System of interconnected equipment (separate connections/single connection)..... :	Single connection.	—
	Multiple connections to mains (one connection at a time/simultaneous connections)..... :	Single connection to mains	—
5.7.4	Earthed conductive accessible parts..... :		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V)..... :		—
	Measured current (mA)..... :		—
	Instructional Safeguard..... :		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA)..... :		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)..... :		N/A
6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault.... :	See 6.2.2.	P
6.2.2.3	Power measurement for worst-case power source fault..... :	See 6.2.2.	P
6.2.2.4	PS1 ..... :	See 6.2.2.	P
6.2.2.5	PS2 ..... :	See 6.2.2.	P
6.2.2.6	PS3 ..... :		N/A
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :		N/A
6.2.3.2	Resistive PIS ..... :		P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials..... :	(See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.3.1 (b)	Combustible materials outside fire enclosure	Class V-0	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control of fire spread	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		P
6.4.3.1	General		P
6.4.3.2	Supplementary Safeguards		P
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		P
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards .....:	(See appended tables 4.1.2)	P
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General.....:		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Fire enclosure class V-0	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions(mm) .....:	No openings.	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm).....:	No openings.	N/A
	Flammability tests for the bottom of a fire enclosure ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....:	Fire enclosure class V-0	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm^2) ..... :		—
6.5.3	Requirements for interconnection to building wiring..... :		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		P
7.2	Reduction of exposure to hazardous substances		P
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions.....:		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010).....:		—
7.6	Batteries..... :		P
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General		P
8.2	Mechanical energy source classifications	MS1	P
8.3	Safeguards against mechanical energy sources	No additional safeguards is needed to against mechanical energy sources	P
8.4	Safeguards against parts with sharp edges and corners		P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks.....:		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N).....:		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :		N/A
8.6	Stability		N/A
8.6.1	Product classification	MS1	N/A
	Instructional Safeguard..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force.....:		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)..... :		N/A
	Position of feet or movable parts.....:		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) ..... :		N/A
8.7.2	Direction and applied force..... :		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force .....:		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard.....:		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force.....:		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N).....:		—
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N*.....:		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....		N/A
	Button/Ball diameter (mm).....:		—
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	Classified as TS1	P
9.3	Safeguard against thermal energy sources	Enclosure is used as safeguard.	P
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard .....:		N/A
10	**RADIATION**		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard.....:		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	radiation		
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons.....:		N/A
10.4.1.b)	RS3 accessible to a skilled person..... :		N/A
	Personal safeguard (PPE) instructional safeguard..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1..:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions .....:		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation.....:		N/A
10.4.1.g)	Materials resistant to degradation UV..... :		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions..... :		N/A
10.4.2	Instructional safeguard.....:		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment:		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition.....:		N/A
	Maximum radiation (pA/kg).....:		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A).....:		N/A
	Output voltage, unweightedr.m.s.....:		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards.....:		N/A
	Equipment safeguard prevent ordinary person to RS2.....:		—
	Means to actively inform user of increase sound pressure.....:		—
	Equipment safeguard prevent ordinary person to		—

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Clause	Requirement + Test	Result - Remark	Verdict
	RS2.....:		
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq}acoustic pressure output.....:		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....:		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....:		—
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements.....:	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers..... :	(See Annex E)	P
B.2.3	Supply voltage and tolerances		N/A
B.2.5	Input test.....:	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		N/A
B.3.1	General requirements.....:	(See appended table B.3)	N/A
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector..... :	Full range	N/A
B.3.5	Maximum load at output terminals.....:	(See appended table B.3)	N/A
B.3.6	Reverse battery polarity	Can't replaceable by ordinary person	P
B.3.7	Abnormal operating conditions as specified in Clause E.2.		P
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited.....:		N/A
B.4.3	Motor tests		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :		N/A
B.4.4	Short circuit of functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnect of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions.....:		N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		P
E.1	Audio amplifier normal operating conditions		P
	Audio signal voltage (V).....:	3.31	—
	Rated load impedance (Ω) .....:	6	—
E.2	Audio amplifier abnormal operating conditions		P
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Instructions – Language .....:	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification .....:	See copy of marking plate	—
F.3.2.2	Model identification .....:	See copy of marking plate	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		P
F.3.3.3	Nature of supply voltage.....:	See copy of marking plate	—
F.3.3.4	Rated voltage.....:	See copy of marking plate	—
F.3.3.4	Rated frequency.....:	See copy of marking plate	—
F.3.3.6	Rated current or rated power.....:	See copy of marking plate	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings.....:		N/A
F.3.5.2	Switch position identification marking.....:		N/A
F.3.5.3	Replacement fuse identification and rating markings.....:		N/A
F.3.5.4	Replacement battery identification marking.....:		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking ..... :	Equipment is not intended for other than IP20.	—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking	Marking label is tested in appliance	P
F.3.10	Test for permanence of markings	After the test, the marking remains legible.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present – marking	The accessibility of equipment isevaluated using the test probe of Figure V.1	N/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		P
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)..... :		—
	Single Fault Condition..... :		—
	Test Voltage (V) and Insulation Resistance (Ω)..:		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....:		N/A
G.4	**Connectors**		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration .....:		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound Components**		N/A
G.5.1	Wire insulation in wound components.....		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)..... :		—
	Temperature (°C).....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....:		N/A
	Position.....:		—
	Method of protection .....:		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....:		—
G.5.3.3	Overload test.....:		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures – Alternative test method		N/A
G.5.4	**Motors**		N/A
G.5.4.1	General requirements		N/A
	Position .....:		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....:		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....:		—
G.5.4.5.3	Tested on the Bench – Alternative test method; test time (h) .....:		N/A
	Electric strength test (V).....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.6.3	Tested on the bench – Alternative test method; test time (h).....:		N/A
	Electric strength test (V).....:		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.9	Series motors		N/A
	Operating voltage ..... :		—
G.6	**Wire Insulation**		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements		N/A
	Type..... :		—
	Rated current (A)..... :		—
	Cross-sectional area (mm^2), (AWG)..... :		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)..... :		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry..... :		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) ..... :		—
	Diameter (m)..... :		—
	Temperature (°C)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test..... :		N/A
G.8.3.3	Temporary overvoltage..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA .....:		—
G.9.1 d)	IC limiter output current (max. 5A).....:		—
G.9.1 e)	Manufacturers' defined drift .....:		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....:		N/A
	Type test voltage Vini.....:		—
	Routine test voltage, Vini,b.....:		—
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction).....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs).....:		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements .....:		N/A
G.15	**Liquid filled components**		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage .....:		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....:		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....:		—
D3)	Resistance .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA):..... :		—
H.3.2	Tripping device and monitoring voltage..... :		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)..... :		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
	General requirements		N/A
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance..... :	(See appended table B.4)	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method..... :		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) ..... :		N/A
K.7.2	Overload test, Current (A)..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test ..... :	(See appended table 5.4.11)	N/A
L	**DISCONNECT DEVICES**		N/A
L.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements	The battery pack and its cell complied with EN 62133 (See append table 4.1.2)	N/A
M.2.2	Compliance and test method (identify method)... :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery	(See append table Annex M.3)	N/A
M.3.3	Compliance .....:	(See append table Annex M.3)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature.....:	(See append table Annex M.4)	—
M.4.2.2 b)	Single faults in charging circuitry.....:	(See append table Annex M.4)	—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault	Component cell complied with IEC62133 2nd. And UL1642 approved component and complied with Impact Test whose test condition and criteria can cover those in IEC62281 Impact test.	N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) ..... :		N/A
M.6.2	Leakage current (mA) ..... :		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) .....:		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Metal(s) used.....:		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Figures O.1 to O.20 of this Annex applied.....:		—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		N/A
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts.....:		N/A
P.2.3.2	Openings in transportable equipment in relation to etalized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C).....:		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing .....:		N/A
P.4.2 c)	Mechanical strength testing..... :		N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output		P
Q.1.1 b)	Impedance limited output		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) ..... :		—
	Current limiting method.....:		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). ..... :		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material.....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Wall thickness (mm)....:		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material....:		—
	Wall thickness (mm)....:		—
	Conditioning (test condition), (°C)....:		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	**MECHANICAL STRENGTH TESTS**		P
T.1	General requirements		P
T.2	Steady force test, 10 N ....:	(See appended table T.2)	N/A
T.3	Steady force test, 30 N ....:	(See appended table T3)	N/A
T.4	Steady force test, 100 N ....:	(See appended table T.4)	N/A
T.5	Steady force test, 250 N ....:	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test ....:	(See appended table T.7)	N/A
T.8	Stress relief test....:	(See appended table T.8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)....:		—
	Height (m)....:		—
T.10	Glass fragmentation test....:		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....:		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Plastic enclosure	SUMITOMO BAKELITE CO LTD	AV-Lite DP 901	V-0, Min.130°C, Min. 2.5mm	UL 94 UL 746C	UL E41429
(Alternative)	CHI MEI CORPORATION	PA-765A(+)	V-0, 85°C, min. 1.5mm thcknesss	UL 94, UL 746	UL E56070
PCB	SHENZHEN LE WOOD TECHNOLOGY CO LTD	LZM-M	V-0,130℃	UL94,UL796	UL E501257
Speaker	Interchangeable	Interchangeable	6ohm	IEC/EN 62368	Test with appliance
Adapter	SHENZHEN FIT-POWER TECHNOLOGY CO.,LTD	TP04-190189U	Input :100-240V~, 50-60Hz,1.0A Output:19V 1.89A	EN62368-1:2014+A11:2017	Certified By Watt Power,CertificateNo.:WTY19121701001S

Supplementary information:

[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.

[2)] Description line content is optional. Main line description needs to clearly detail the component used for testing

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests	N/A
(The following mechanical tests are conducted in the sequence noted.)		
4.8.4.2	TABLE: Stress Relief test	—

Part	Material	Oven Temperature (°C)	Comments

4.8.4.3	TABLE: Battery replacement test	—
Battery part no.....:		—

Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
	1	
	2	
	3	
	4	
	5	
	6	

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Clause	Requirement + Test	Result - Remark	Verdict

	8	
	9	
	10	

4.8.4.4	TABLE: Drop test		—
Impact Area	**Drop Distance**	**Drop No.**	**Observations**
		1	
		2	
		3	

4.8.4.5	TABLE: Impact		—
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**

4.8.4.6	TABLE: Crush test		—
Test position	**Surface tested**	**Crushing Force (N)**	**Duration force applied (s)**

Supplementary information:

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result		N/A
Test position	**Surface tested**	**Force (N)**	**Duration force applied (s)**

Supplementary information:

5.2	Table: Classification of electrical energy sources					P
5.2.2.2 –Steady State Voltage and Current conditions						
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				U (Vrms or Vpk)	I (Apk or Arms) / Hz	
1	DC19V	All circuits	Normal	＜60Vrms	-- / --	ES1
			Abnormal	＜60Vrms	-- / --	

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Clause	Requirement + Test	Result - Remark	Verdict

			Single fault – SC/OC	＜60Vrms	--	--	

5.2.2.3 – Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
--	--	--	Normal	--	--	--
			Abnormal	--	--	
			Single fault – SC/OC	--	--	

5.2.2.4 – Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
			Normal	--	--	--	
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

5.2.2.5 – Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

Test Conditions:

Normal – N/A

Abnormal –N/A

Supplementary information: SC=Short Circuit, OC=Short Circuit

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V) ..... :	19V	--	--	--	—
	Test condition	Condition A	--	--	--	--
	Tma (°C) ..... :	25.0	--	--	--	—

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Clause	Requirement + Test	Result - Remark	Verdict

Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)
DC inlet	36.9	--	--	--	75
EC1 body	42.4	--	--	--	105
EC2 body	42.3	--	--	--	105
PCB near IC1	46.4	--	--	--	130
L5 body	45.2	--	--	--	130
PCB near U1	44.2	--	--	--	130
EC5 body	52.4	--	--	--	105
Enclosure inside	36.7	--	--	--	Ref.
Enclosure outside	32.5	--	--	--	77
Ambient	24.0	--	--	--	--

Supplementary information:

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

Supplementary information:
Note 1: Tma should be considered as directed by appliable requirement.

5.4.1.10.2	TABLE: Vicatsoftening temperature of thermoplastics		N/A
Penetration (mm)..... :			—
Object/ Part No./Material		Manufacturer/trademark	T softening (°C)

supplementary information:

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			N/A
Allowed impression diameter (mm) ..... :		2mm		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance	N/A

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Supplementary information:							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage	N/A
	Overvoltage Category (OV):	II
	Pollution Degree:	2

Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)
--	--	--	--
--	--	--	--
Supplementary information:			

5.4.2.4	TABLE: Clearances based on electric strength test	N/A

Test voltage applied between:	Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Supplementary information:			

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements	N/A

Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
--	--	--	--	--	--

Supplementary information:
Note 1: Electric strength tests are also conducted after sub-clause 5.4.8 for all sources.

5.4.9	TABLE: Electric strength tests	N/A

Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:			

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Clause	Requirement + Test	Result - Remark	Verdict

--	--	--	--
--	--	--	--
Basic/supplementary:			
--	--	--	--
Reinforced:			
--	--	--	--
--	--	--	--
Routine Tests:			
--	--	--	--
Supplementary information:			

5.5.2.2	TABLE: Stored discharge on capacitors				N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
--	--	--	--	--	--

Supplementary information:
X-capacitors installed for testing are:
☐ bleeding resistor rating:
☐ ICX:
Notes:
A. Test Location:
Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth
B. Operating condition abbreviations:
N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

5.6.6.2	TABLE: Resistance of protective conductors and terminations				N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Supplementary information:					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part	N/A
Supply voltage.....:	--	—
Location	Test conditions specified in 6.1 of	Touch current

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Clause	Requirement + Test	Result - Remark	Verdict

	IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	(mA)
Line/Neutral to metal enclosure	1	--
	2*	--
	3	--
	4	--
	5	--
	6	--
	8	--

Supplementary Information:

Notes:
[1] Supply voltage is the anticipated maximum Touch Voltage
[2] Earthed neutral conductor [Voltage differences less than 1% or more]
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
USB	Worst-case fault	Power (W) :	--	16.6	PS2
		V_A (V) :	--	4.6	
		I_A (A) :	--	3.6	
USB	Worst-case power source fault-C73/SC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	

Supplementary Information:
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits.
(**) For worst case power source fault results are shut down.

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No
--	--	--	--	--

Supplementary information:

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
USB	Normal	15.5	15.5	Yes	Yes

Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type..... :			—
Manufacturer..... :			—
Cat no..... :			—
Pressure (cold) (MPa)..... :			MS_
Pressure (operating) (MPa)..... :			MS_
Operating time (minutes)..... :			—
Explosion method..... :			—
Max particle length escaping enclosure (mm). :			MS_
Max particle length beyond 1 m (mm)..... :			MS_
Overall result ..... :			

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
19	0.451	1.89	8.569	--	--	--	Pink noise signal adjust to Maximum non-clipping output power. USB load:5V0.5A Bluetooth mode
19	0.273	1.89	5.187	--	--	--	Pink noise signal adjust to Maximum non-clipping output power. USB mode
19	0.420	1.89	7.98	--	--	--	Pink noise signal adjust to Maximum non-clipping output power. USB load:5V0.5A AUX mode
19	0.420	1.89	7.98	--	--	--	Pink noise signal adjust to Maximum non-clipping output power. USB load:5V0.5A Line in mode

Supplementary information:
Speaker=4Ω×2
Bluetooth mode: , output voltage=3.6V, output power=3.24W
USB mode: , output voltage=3.2V, output power=2.56W
Line in/AUX mode: , output voltage=3.7V, output power=3.42W
Equipment may be have rated current or rated power or both. Both should be measured.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.3	TABLE: Abnormal operating condition tests		N/A
Ambient temperature (°C) .....:		See below	—
Power source for EUT: Manufacturer, model/type, output rating ..:		See cover page for details	—

Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Speaker	Maximum non-clipping output power	DC19V	1h27mins	--	--	PCB near U1	97.7	Current: 1.513A Unit normal operation, no hazard.
						Plastic enclosure outside	42.0	
						Ambient	24.1	
Speaker	SC	DC19V	10mins	--	--	--	--	Current: 0.290A Speaker no voice, no hazard.
USB	OL	DC19V	3h52mins	--	--	PCB near U1	76.4	Current: 0.451 to 0.916 to 1.319 to 0.002A Unit shutdown when output current overload to 3.2A, no high temperature, no hazard.
						Plastic enclosure outside	38.4	
						Ambient	23.8	
USB	SC	DC19V	10mins	--	--	--	--	Current: 0.002A Unit shutdown, no damage, no hazard

B.4	TABLE: Fault condition tests		P
Ambient temperature (°C) .....:		See below	—
Power source for EUT: Manufacturer, model/type, output rating .....:		See cover page for details	—

Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
CE2	SC	19	10mins	--	--	--	--	Current: 0.001A Unit shutdown immediately,no damage, no hazard.

IEC 62368-1								
Clause	Requirement + Test			Result - Remark				Verdict
CE6	SC	15	10mins	--	--	--	--	Current: 0.001A Unit shutdown immediately,no damage, no hazard.
CE5	SC	15	10mins	--	--	--	--	Current: 0.001A Unit shutdown immediately,no damage, no hazard.

Supplementary information:
Results Key: NB=No indication of dielectric breakdown; NC=Cheesecloth remained intact; NT=Tissue paper remained intact; IP=Internal protection operated (list component); CD=Components damaged (list damaged components); @ = Tests were repeated 2 more times (Totally 3 times) and get the same result; I/P = Input; O/P = Output, NSF=No Ignition, TC=Touch Current measured.

Annex Q.1	**TABLE: Circuits intended for interconnectionwith building wiring (LPS)**						P
Note: Measured UOC (V) with all load circuits disconnected:							
Output Circuit	Components	U_{oc} (V)	I_{sc}(A)		S (VA)		
			Meas.	Limit	Meas.	Limit	
USB	Normal	5.1	3.2	≤8	15.2	≤100	
USB	C73,SC	0	0	≤8	0	≤100	
Supplementary Information:							

T.2, T.3, T.4, T.5	**TABLE: Steady force test**				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Enclosure (top)	See table 4.1.2	--	250	5	No damage ,no hazard
Enclosure (side)	See table 4.1.2	--	250	5	No damage ,no hazard
Enclosure (bottom)	See table 4.1.2	--	250	5	No damage ,no hazard
Supplementary information:N/A.					

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure (top)	See table 4.1.2	--	1300	No damage ,no hazard	
Enclosure (side)	See table 4.1.2	--	1300	No damage ,no hazard	
Supplementary information:N/A					

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Supplementary information:N/A.					

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure	See appended table 4.1.2	2.0	70	7	No damage, no hazard	
Supplementary information:N/A.						

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT
IEC 62368-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to..... :	EN 62368-1:2014+A11:2017
Attachment Form No..... :	EU_GD_IEC62368_1B_II
Attachment Originator.....:	Nemko AS
Master Attachment..... :	Date 2017-09-22

	CENELEC COMMON MODIFICATIONS (EN)	
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	P
CONTENTS	**Add** the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	P

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

	For special national conditions, see Annex ZB.		--
1	**Add** the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.	No connection to externalcircuit.	N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.	No radiation.	N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions:* *In addition to the normal operating conditions, all controls Bluetooth headphonefrom the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.	Added.	N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.	Added.	N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.	Added.	N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		--
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatetsstikpropskaltilsluttes en stikkontakt med jordsom giver forbindelsetilstikproppensjord.” In **Finland**: "Laite on liitettäväsuojakoskettimillavarustettuunpistorasiaan" In **Norway**: “Apparatetmåtilkoplesjordetstikkontakt” In **Sweden**: “Apparatenskallanslutas till jordatuttag”	Class II equipment.	N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	No high touch currentmeasured.	N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.	No connection to such anetwork.	N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipmenttype A** shall comply with G.10.1 and the test of G.10.2.	No such resistor used.	N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Added.	N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.	Added.	N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	**Norway and Sweden** To the end of the subclause the following is added:The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparatersomerkoplettilbeskyttelsesjord via nettpluggog/eller via annetjordtilkopletutstyr – ogertilkoplet et koaksialbasertkabel-TV nett, kanforårsakebrannfare. For å unngådetteskaldetvedtilkoplingavapparatertilk abel-TV nettinstalleres en galvanisk isolator mellomapparatetogkabel-TV nettet.”Translation toSwedish:”Apparatersomärkopplad till skyddsjord via jordatvägguttagoch/eller via annanutrustningochsamtidigtärkopplad till kabel-TV nätkan i vissa fall medföra risk för brand. Förattundvikadettaskall vid anslutningavapparaten till kabel-TV nätgalvanisk isolator finnasmellanapparatenochkabel-TV nätet.”.		N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A

IEC 62368-1 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		--
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-TechnischeBundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de	Not such equipment.	N/A

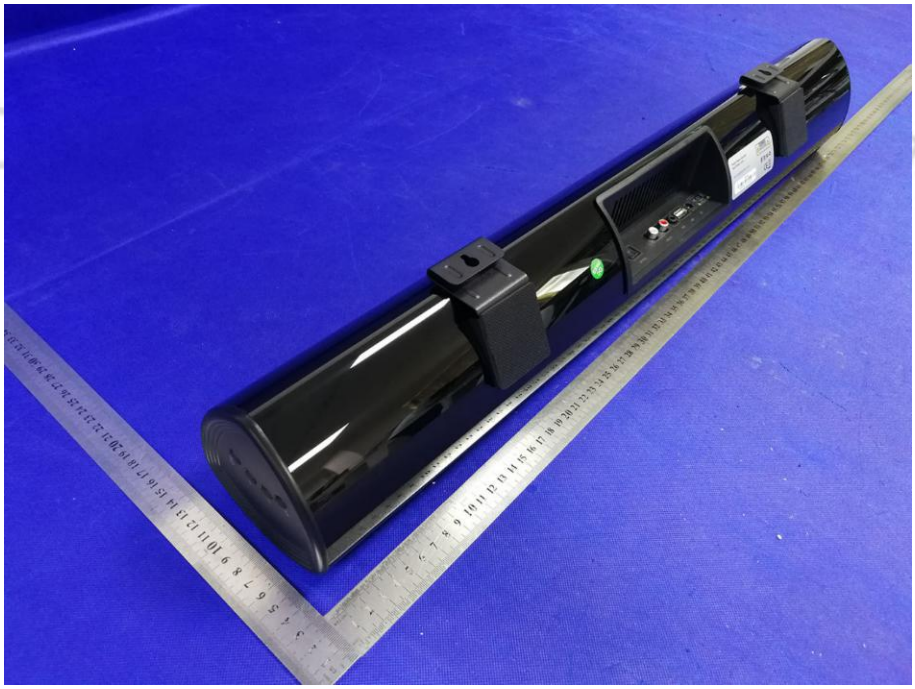
Attachment II:

Photo-documentation

EUT PHOTO 1

EUT PHOTO 2

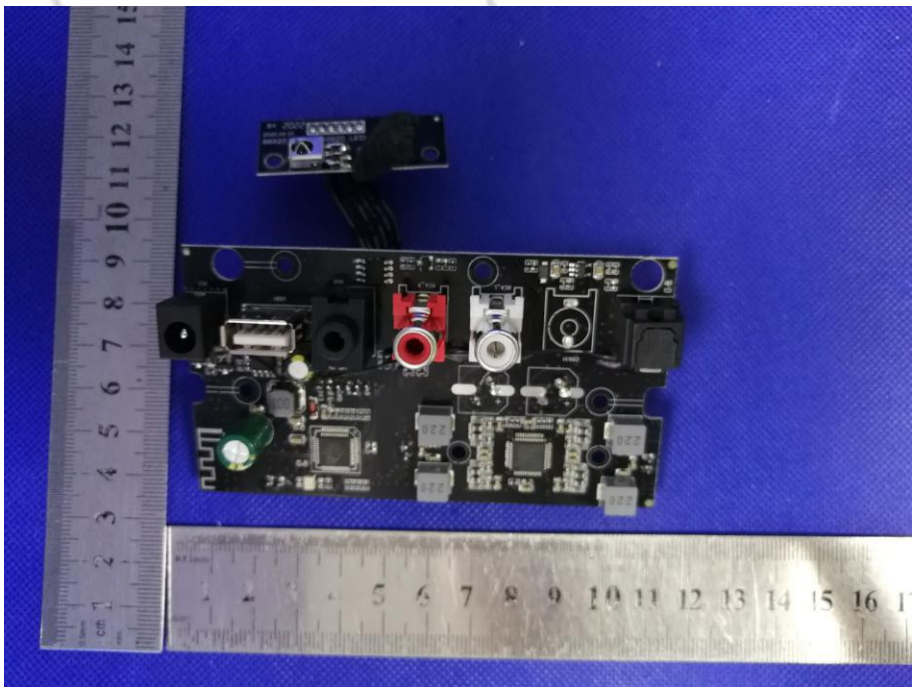
EUT PHOTO 3



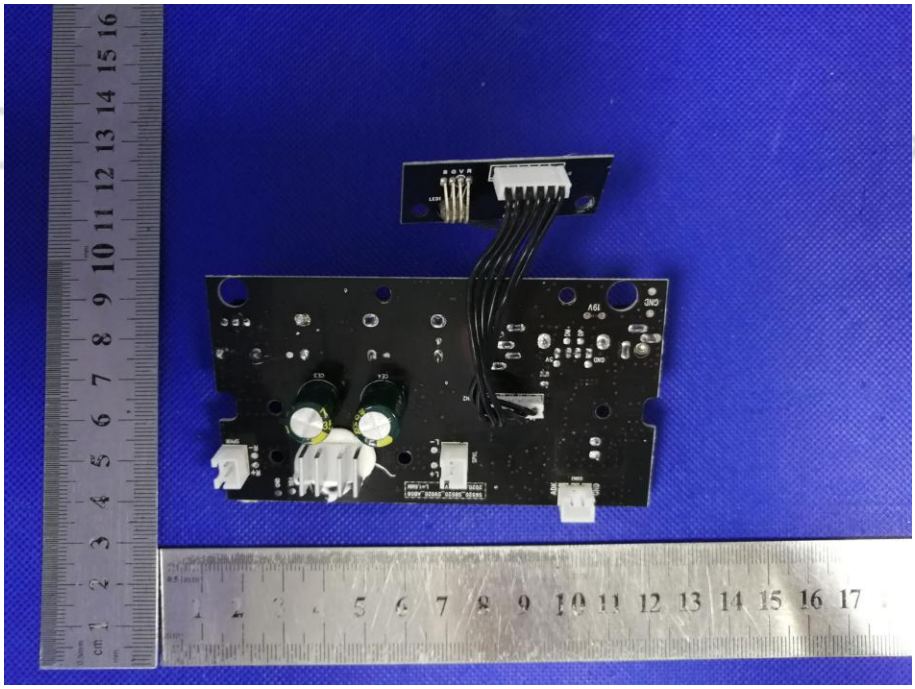
EUT PHOTO 4

EUT PHOTO 5

EUT PHOTO 6



EUT PHOTO 7



EUT PHOTO 8

※※※※※ END OF REPORT ※※※※※

TEST REPORT

Product Name:	Sound bar
Trademark:	N/A
Model Number:	Refer to section 2.1
Prepared For:	MYBESTSOUND CO., LTD
Address:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Manufacturer:	MYBESTSOUND CO., LTD
Address:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Sample Received Date:	Aug. 05, 2020
Sample tested Date:	Aug. 05, 2020 to Aug. 18, 2020
Issue Date:	Aug. 19, 2020
Report No.:	BCTC2008000394-1E
Test Standards	EN 62479:2010
Test Results	PASS
Remark:	This is RED Health test report.

Compiled by:	Reviewed by:	Approved by:
Willem Wang	Eric Yang	Zero Zhou/Manager

The test report is effective only with both signature and specialized stamp.This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full.The tested sample(s) and the sample information are provided by the client.

TABLE OF CONTENT

(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2008000394-1E	Aug. 19, 2020	Original	Valid

2. PRODUCT INFORMATION AND TEST SETUP

2.1 Product Information

Model(s):	S6520 S8520, S9920, SD9621, ST01, ST02, ST03, ST04, ST05, ST06, ST07, ST08, ST09, SQ01, SQ02, SQ03, SQ04, SQ05, SQ06, SQ07, SQ08, SQ09, SR01, SR02, SR03, SR04, SR05, SR06, SR07, SR08, SR09, SP01, SP02, SP03, SP04, SP05, SP06, SP07, SP08, SP09, SD01, SD02, SD03, SD04, SD05, SD06, SD07, SD08, SD09, SE01, SE02, SE03, SE04, SE05, SE06, SE07, SE08, SE09, SG01, SG02, SG03, SG04, SG05, SG06, SG07, SG08, SG09, SK01, SK02, SK03, SK04, SK05, SK06, SK07, SK08, SK09, S7020, S7021, S9820, S9821, S7621, S9620, S9621, SW01, SW02, SW03, SW05, SW06, SW08, SW09, SW65A, SW65B, SW65C, SW65D, SW80A, SW80B, SW80C, SW80D, SW100, SW100A, SW100B, SW100C, SW100D
Model Description:	All the model are the same circuit and RF module, except model names.
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	Bluetooth: 2402-2480MHz
Max. RF output power:	Bluetooth:-4.15dBm
Type of Modulation:	Bluetooth(EDR): GFSK, Pi/4 DQPSK, 8DPSK
Antenna installation:	PCB antenna
Antenna Gain:	Bluetooth : 0dBi
Ratings:	DC 19V
Adapter 1:	MODEL: AS3601A-1901980DM INPUT: 100-240V~50/60Hz 1.0A MAX OUTPUT: 19V 1.98A 37.62W
Adapter 2:	MODEL: TP04-190189E INPUT: 100-240V~50/60Hz 1A MAX OUTPUT: 19V 1.89A

3. HEALTH REQUIREMENTS

3.1 Limits

According to Council Recommendation: the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation.

Reference levels for electric, magnetic and electromagnetic fields (10MHz to 300GHz)
Low-power electronic and electrical equipment is deemed to comply with the provisions of this standard if it can be demonstrated using routes B, C or D that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level Pmax.
Annex A contains example values for Pmax derived from existing exposure limits listed in the bibliography, such as the ICNIRP guidelines [1], IEEE Std C95.1-1999 [2], and IEEE Std C95.1-2005 [3].
For wireless devices operated close to a person's body with available antenna powers and/or average total radiated powers higher than the Pmax values given in Annex A, the alternative Pmax values (called Pmax′), described in Annex B can also be used.

For low power equipment using pulsed signals, other limits may apply in addition to those considered in Annex A and Annex B. Both ICNIRP guidelines [1] and IEEE standards [2], [3] have specific restrictions on exposures to pulsed fields, and the requirements of those standards with respect to exposure to pulses shall be met. Annex C discusses this topic further.

Exposure tier	Region of body	Exclusion level Pmax
General public	Head and trunk	20mW(13dBm)
General public	Limbs	40mW(16dBm)

3.2 Exposure Evaluation

Mode	The worst e.i.r.p. (dBm)	Pmax(dBm)	Result
Bluetooth Classic	-4.15	13	PASS
Remark: 1,refer to RF test report for e.i.r.p. 2, After performed the test at low/middle/high channel, the record is the worst.			

4. EUT PHOTOGRAPHS

EUT Photo 1

EUT Photo 2

EUT Photo 3

EUT Photo 4

EUT Photo 5

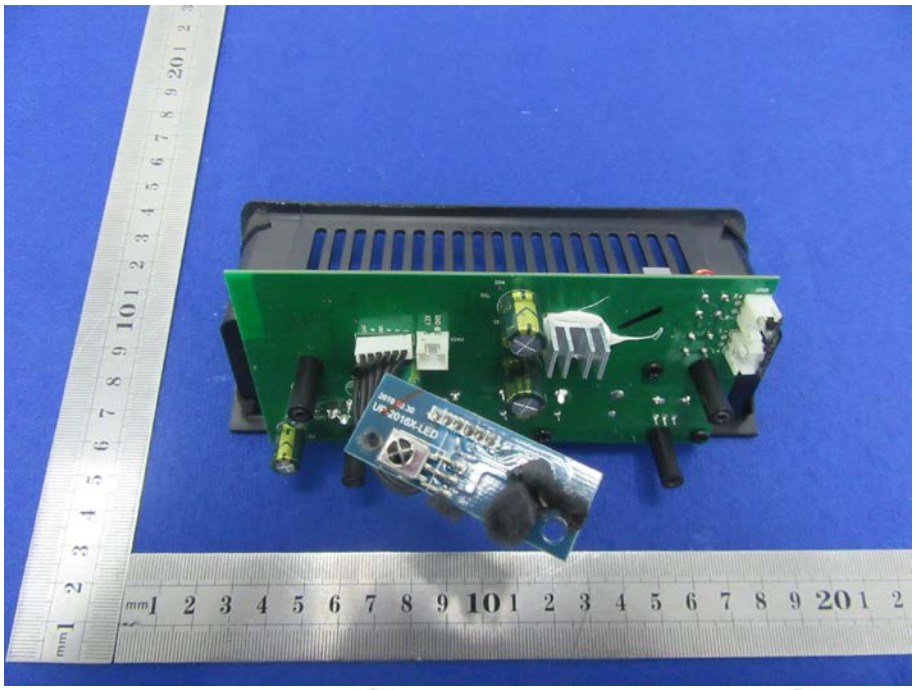
EUT Photo 6

EUT Photo 7

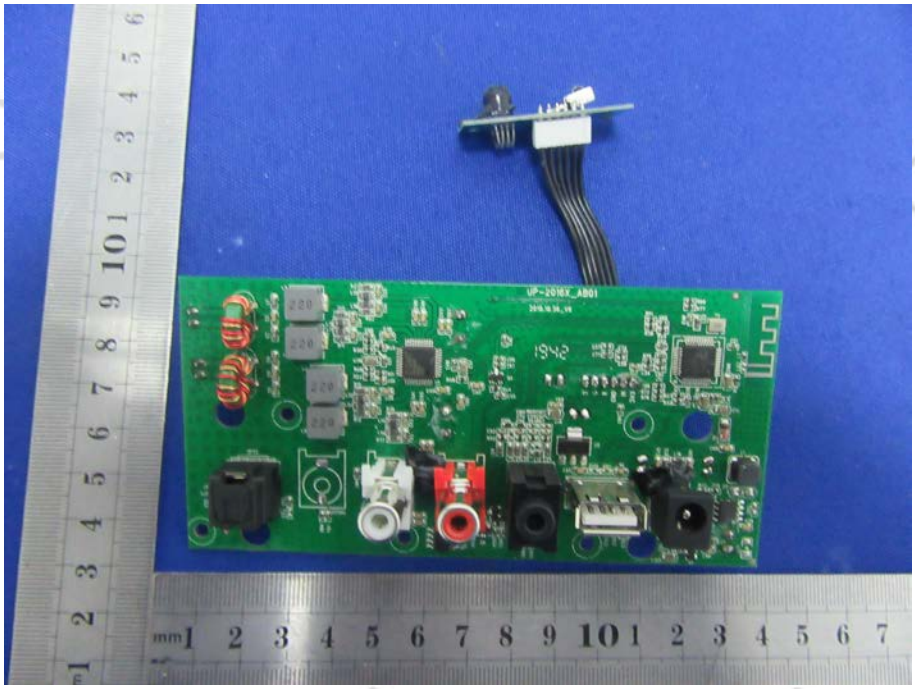
EUT Photo 8

EUT Photo 9

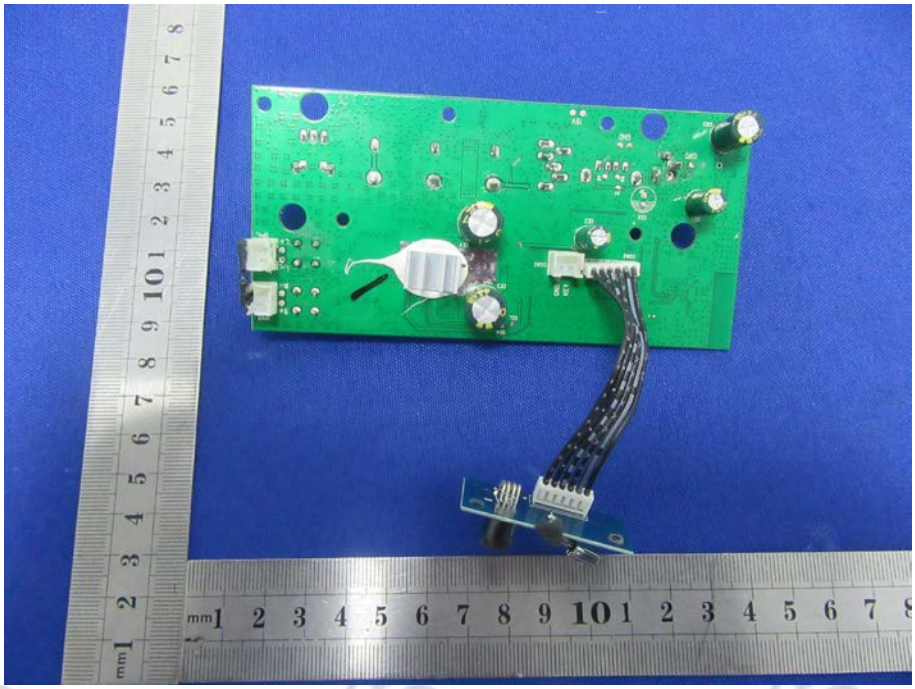
EUT Photo 10



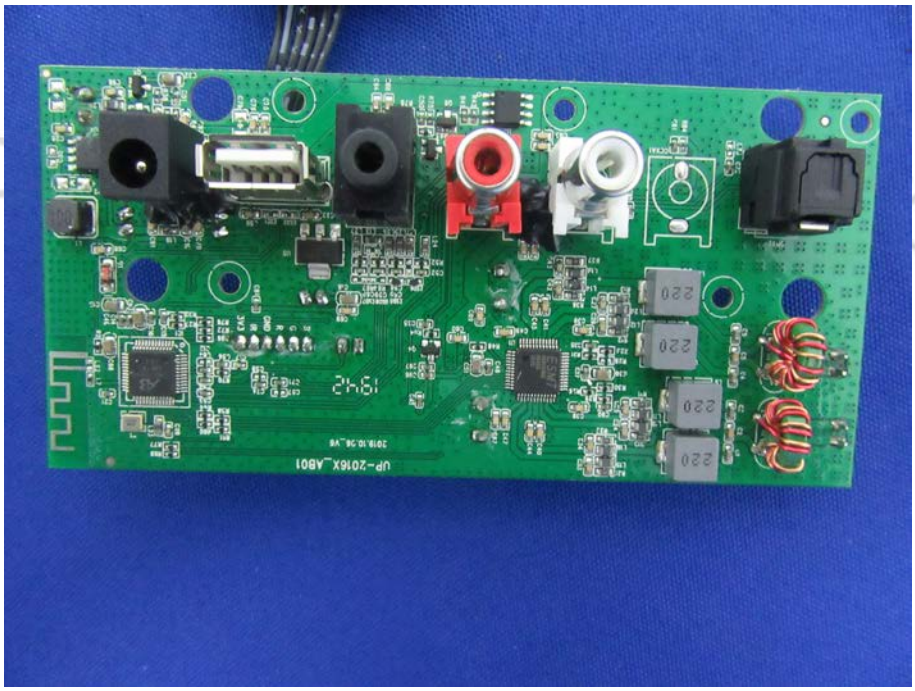
EUT Photo 11



EUT Photo 12



EUT Photo 13



※※※※※ END OF REPORT ※※※※※

TEST REPORT

Product Name:	Sound bar
Trademark:	N/A
Model Number:	Refer to section 4.1
Prepared For:	MYBESTSOUND CO., LTD
Address:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Manufacturer:	MYBESTSOUND CO., LTD
Address:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Sample Received Date:	Aug. 05, 2020
Sample tested Date:	Aug. 05, 2020 to Aug. 18, 2020
Issue Date:	Aug. 19, 2020
Report No.:	BCTC2008000394-3E
Test Standards	ETSI EN 300 328 V2.2.2 (2019-07)
Test Results	PASS

Compiled by:	Reviewed by:	Approved by:
Willem Wang	Eric Yang	Zero Zhou/Manager

The test report is effective only with both signature and specialized stamp.This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full.The tested sample(s) and the sample information are provided by the client.

TABLE OF CONTENT

(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2008000394-3E	Aug. 19, 2020	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
Transmitter Parameters			
1	RF output power	4.3.1.2	PASS
2	Duty Cycle, Tx-sequence, Tx-gap	4.3.1.3	N/A
3	Accumulated Transmit Time, Frequency Occupation and Hopping Sequence	4.3.1.4	PASS
4	Hopping Frequency Separation	4.3.1.5	PASS
5	Medium Utilization (MU) factor	4.3.1.6	N/A
6	Adaptivity (Adaptive Frequency Hopping)	4.3.1.7	N/A
7	Occupied Channel Bandwidth	4.3.1.8	PASS
8	Transmitter unwanted emissions in the out-of-band domain	4.3.1.9	PASS
10	Transmitter unwanted emissions in the spurious domain	4.3.1.10	PASS
Receiver Parameters			
11	Receiver spurious emissions	4.3.1.11	PASS
12	Receiver Blocking	4.3.1.12	PASS
13	Geo-location Capability	4.3.1.13	N/A
Note: N/A is an abbreviation for Not Applicable and means this test intem is not applicable for this device according to the technology characteristic of device.			

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3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	uncertainty
RF frequency	1 x 10^{-7}
RF power, conducted	± 1.0 dB
Conducted spurious emission (30MHz-1GHz)	1.28 dB
Conducted spurious emission (1GHz-18GHz)	1.576 dB
Radiated Spurious emission (30MHz-1GHz)	4.30 dB
Radiated Spurious emission (1GHz-18GHz)	4.5 dB
Temperature	0.59 ℃
Humidity	5.3 %

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	S6520 S8520, S9920, SD9621, ST01, ST02, ST03, ST04, ST05, ST06, ST07, ST08, ST09, SQ01, SQ02, SQ03, SQ04, SQ05, SQ06, SQ07, SQ08, SQ09, SR01, SR02, SR03, SR04, SR05, SR06, SR07, SR08, SR09, SP01, SP02, SP03, SP04, SP05, SP06, SP07, SP08, SP09, SD01, SD02, SD03, SD04, SD05, SD06, SD07, SD08, SD09, SE01, SE02, SE03, SE04, SE05, SE06, SE07, SE08, SE09, SG01, SG02, SG03, SG04, SG05, SG06, SG07, SG08, SG09, SK01, SK02, SK03, SK04, SK05, SK06, SK07, SK08, SK09, S7020, S7021, S9820, S9821, S7621, S9620, S9621, SW01, SW02, SW03, SW05, SW06, SW08, SW09, SW65A, SW65B, SW65C, SW65D, SW80A, SW80B, SW80C, SW80D, SW100, SW100A, SW100B, SW100C, SW100D
Model Description:	All the model are the same circuit and RF module, except model names.
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	Bluetooth: 2402-2480MHz
Max. RF output power:	Bluetooth:-4.15dBm
Type of Modulation:	Bluetooth(EDR): GFSK, Pi/4 DQPSK, 8DPSK
Antenna installation:	PCB antenna
Antenna Gain:	Bluetooth : 0dBi
Ratings::	DC 19V
Adapter 1:	MODEL: AS3601A-1901980DM INPUT: 100-240V~50/60Hz 1.0A MAX OUTPUT: 19V 1.98A 37.62W
Adapter 2:	MODEL: TP04-190189E INPUT: 100-240V~50/60Hz 1A MAX OUTPUT: 19V 1.89A

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
-	-	-	-	-	-	-

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

CH No.	Frequency (MHz)	CH No.	Frequency (MHz)	CH No.	Frequency (MHz)	CH No.	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480		

4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test mode	Low channel	Middle channel	High channel
Transmitting (GFSK/Pi/4DQPSK/8DPSK)	2402MHz	2441MHz	2480MHz
Receiving (GFSK/Pi/4DQPSK/8DPSK)	2402MHz	2441MHz	2480MHz

4.6 Test Environment

1. Normal Test Conditions:

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Temperature(℃):	26
Test Voltage(AC):	230V

2.Extreme Test Conditions:

For tests at extreme temperatures, measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer.

For tests at extreme voltages, measurements shall be made over the extremes of the power source voltage range as declared by the manufacturer.

Test Conditions	LT	HT
Temperature (℃)	0	35

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
2	Receiver	R&S	ESR3	102075	Jun. 04, 2020	Jun. 03, 2021
3	Spectrum Analyzer	Agilent	E4407B	MY45109572	Jun. 08, 2020	Jun. 07, 2021
4	Amplifier	Schwarzbeck	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021
5	Amplifier	Schwarzbeck	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021
6	TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-942	Jun. 08, 2020	Jun. 07, 2021
7	Horn Antenna	SCHWARZBECK	BBHA9120D	1201	Jun. 10, 2020	Jun. 09, 2021
8	band rejection filter	ZBSF	ZBSF-C2441.5	1706003605	Jun. 13, 2020	Jun. 12, 2021
9	Signal Generator	Keysight	N5181A	MY50143748	Jun. 04, 2020	Jun. 03, 2021
10	Communication test set	R&S	CMU200	119435	Jun. 04, 2020	Jun. 03, 2021
11	Spectrum Analyzer	Keysight	N9020A	MY49100060	Jun. 04, 2020	Jun. 03, 2021
12	Signal Generator	Keysight	N5182B	MY56200519	Jun. 04, 2020	Jun. 03, 2021
13	Power Meter	Keysight	E4419B	\	Jun. 08, 2020	Jun. 07, 2021
14	Power Sensor	Keysight	E9 300A	\	Jun. 08, 2020	Jun. 07, 2021
15	Horn antenna	SCHWARZBECK	BBHA9170	822	Jun. 10, 2020	Jun. 09, 2021
16	Preamplifier	MITEQ	TTA1840-35-HG	2034381	Jun. 08, 2020	Jun. 07, 2021
17	Software	Frad	EZ-EMC	FA-03A2 RE	\	\
18	Software	Keysight	Keysight.ETSLTest system	1.02.05	\	\
19	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
20	Loop Antenna	Schwarzbeck	FMZB1519B	1182	Jun. 08, 2020	Jun. 07, 2021
21	3-Loop Antenna	DAZE	ZN30401	13017	Jun. 04, 2020	Jun. 03, 2021
22	Current probe	FCC	F-65A	170594	Jun. 13, 2020	Jun. 12, 2021

6. INFORMATION AS REQUIRED

ETSI EN 300 328 V2.2.2 Annex E

a) The type of modulation used by the equipment:
☒FHSS ☐non-FHSS
b) In case of FHSS :
☐In case of non-Adaptive FHSS equipment:
The number of Hopping Frequencies: _
☒In case of Adaptive Frequency Hopping Equipment:
The maximum number of Hopping Frequencies: 79 *The minimum number of Hopping Frequencies: 79*
☒*The (average) Dwell Time: 307.20 maximum*
c) Adaptive / non-adaptive equipment:
☐non-adaptive Equipment ☒adaptive Equipment without the possibility to switch to a non-adaptive mode ☐adaptive Equipment which can also operate in a non-adaptive mode
d) In case of adaptive equipment:
The maximum Channel Occupancy Time implemented by the equipment: 1228.80ms
☐The equipment has implemented an LBT mechanism
☐In case of non-FHSS equipment:
☐The equipment is Frame Based equipment ☒The equipment is Load Based equipment ☐The equipment can switch dynamically between Frame Based and Load Based equipment
The CCA time implemented by the equipment: ..... μs
☐ The equipment has implemented a DAA mechanism
☐ The equipment can operate in more than one adaptive mode
e) In case of non-adaptive Equipment:
The maximum RF Output Power (e.i.r.p.):
The maximum (corresponding) Duty Cycle:
Equipment with dynamic behaviour, that behaviour is described here. (e.g. the different combinations of duty cycle and corresponding power levels to be declared): ……
f) The worst case operational mode for each of the following tests:
☒RF Output Power: GFSK
☐Power Spectral Density:
☐Duty cycle, Tx-Sequence, Tx-gap:
☒Accumulated Transmit time, Frequency Occupation & Hopping Sequence (only for FHSS equipment): 8DPSK
☒Hopping Frequency Separation (only for FHSS equipment): GFSK
☐Medium Utilization:
☒Adaptivity & Receiver Blocking: GFSK
☒Nominal Channel Bandwidth: 8DPSK
☒Transmitter unwanted emissions in the OOB domain: PI/4 DQPSK
☒Transmitter unwanted emissions in the spurious domain: GFSK
☒Receiver spurious emissions : GFSK

g) The different transmit operating modes (tick all that apply):
☒Operating mode 1: Single Antenna Equipment
☒Equipment with only one antenna
☐Equipment with two diversity antennas but only one antenna active at any moment in time
☐Smart Antenna Systems with two or more antennas, but operating in a (legacy) mode where only One antenna is used (e.g. IEEE 802.11™ legacy mode in smart antenna systems)
☐Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming
☐Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ legacy mode)
☐High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1
☐High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2
NOTE 1: Add more lines if more channel bandwidths are supported.
☐Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming
☐Single spatial stream / Standard throughput (e.g. IEEE 802.11™ [i.3] legacy mode)
☐High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1
☐High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2
NOTE 2: Add more lines if more channel bandwidths are supported.
h) In case of Smart Antenna Systems:
The number of Receive chains:
The number of Transmit chains:
☐symmetrical power distribution
☐asymmetrical power distribution
In case of beam forming, the maximum (additional) beam forming gain:
NOTE: The additional beam forming gain does not include the basic gain of a single antenna.
i) Operating Frequency Range(s) of the equipment:
Operating Frequency Range 1: Refer to section 4.1
Operating Frequency Range 2:_
NOTE: Add more lines if more Frequency Ranges are supported.
j) Nominal Channel Bandwidth(s):
Nominal Channel Bandwidth *1.198MHz Max.*
NOTE: Add more lines if more channel bandwidths are supported.
k) Type of Equipment (stand-alone, combined, plug-in radio device, etc.):
☒Stand-alone
☐Combined Equipment
☐Plug-in radio device
☐Other
l) The normal and the extreme operating conditions that apply to the equipment:
Refer to section 4.6
m) The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p. levels:
Antenna Type:
☒ PCB antenna
Antenna Gain: Refer to section 4.1
If applicable, additional beamforming gain (excluding basic antenna gain):
☐Temporary RF connector provided

☐No temporary RF connector provided

☐Dedicated Antennas (equipment with antenna connector)

☐Single power level with corresponding antenna(s)

☐Multiple power settings and corresponding antenna(s)

Number of different Power Levels:

Power Level 1:

Power Level 2:

Power Level 3:

NOTE 1: Add more lines in case the equipment has more power levels.

NOTE 2: These power levels are conducted power levels (at antenna connector).

For each of the Power Levels, provide the intended antenna assemblies, their corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable

Power Level 1:

Number of antenna assemblies provided for this power level:

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1			
2			
3			
4			

NOTE 3: Add more rows in case more antenna assemblies are supported for this power level.

Power Level 2:

Number of antenna assemblies provided for this power level:

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1			
2			
3			
4			

NOTE 4: Add more rows in case more antenna assemblies are supported for this power level.

Power Level 3:

Number of antenna assemblies provided for this power level:

Assembly #	Gain (dBi)	e.i.r.p.(dBm)	Part number or model name
1			
2			
3			
4			

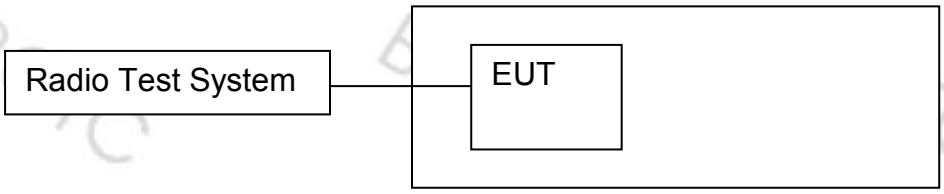
NOTE 5: Add more rows in case more antenna assemblies are supported for this power level.

n) The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:

Refer to section 4.
o) Describe the test modes available which can facilitate testing: ……
p) The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], IEEE 802.15.4™ [i.4], proprietary, etc.):……
q) If applicable, the statistical analysis referred to in clause 5.4.1 q)
(to be provided as separate attachment)
r) If applicable, the statistical analysis referred to in clause 5.4.1 r) (to be provided as separate attachment)
s) Geo-location capability supported by the equipment:
☐Yes
☐The geographical location determined by the equipment as defined in clause 4.3.1.13.2 or clause 4.3.2.12.2 is not accessible to the user
☒No

7. RF OUTPUT POWER

7.1 Block Diagram Of Test Setup



7.2 Limit

The RF output power for FHSS equipment shall be equal to or less than 20 dBm.

NOTE: For Non-adaptive FHSS equipment, the manufacturer may have declared a reduced RF Output Power (see clause 5.4.1 m)) and associated Duty Cycle (see clause 5.4.1 e)) that will ensure that the equipment meets the requirement for the Medium Utilization (MU) factor further described in clause 4.3.1.6. This is verified by the conformance test referred to in clause 4.3.1.6.4.
For non-adaptive FHSS equipment, where the manufacturer has declared an RF output power lower than 20 dBm e.i.r.p., the RF output power shall be equal to or less than that declared value.

This limit shall apply for any combination of power level and intended antenna assembly.

Limit
20dBm

7.3 Test procedure

Step 1:

- • Use a fast power sensor with a minimum sensitivity of -40 dBm and capable of minimum 1 MS/s..
- Use the following settings:
- Sample speed 1 MS/s or faster.
- The samples shall represent the RMS power of the signal.
- Measurement duration: For non-adaptive equipment: equal to the observation period defined in clause 4.3.1.3.2 or clause 4.3.2.4.2. For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) are captured.
  NOTE 1: For adaptive equipment, to increase the measurement accuracy, a higher number of bursts may be used.

Step 2:

• For conducted measurements on devices with one transmit chain:

- Connect the power sensor to the transmit port, sample the transmit signal and store the raw data. Use these stored samples in all following steps.

• For conducted measurements on devices with multiple transmit chains:

- Connect one power sensor to each transmit port for a synchronous measurement on all transmit ports.

- Trigger the power sensors so that they start sampling at the same time. Make sure the time difference between the samples of all sensors is less than 500 ns.

- For each individual sampling point (time domain), sum the coincident power samples of all ports and store them. Use these summed samples as the new stored data set..

Step 3:

• Find the start and stop times of each burst in the stored measurement samples. The start and stop times are defined as the points where the power is at least 30 dB below the highest value of the stored samples in step 2.

In case of insufficient sensitivity of the power sensor (e.g. in case of radiated measurements), the value of 30 dB may need to be reduced appropriately.

Step 4:

• Between the start and stop times of each individual burst calculate the RMS power over the burst using the formula below. The start and stop points shall be included. Save these Pburst values, as well as the start and stop times for each burst.

$$P_{burst} = \frac{1}{k}\sum_{n=1}^{k} P_{sample}(n)$$

with 'k' being the total number of samples and 'n' the actual sample number

Step 5:

• The highest of all Pburst values (value "A" in dBm) will be used for maximum e.i.r.p. calculations.

Step 6:

• Add the (stated) antenna assembly gain "G" in dBi of the individual antenna.

• ◦ In case of smart antenna systems operating in mode with beamforming (see clause 5.3.2.2.4), add the additional beamforming gain Y in dB.

• ◦ If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used.

• The RF Output Power (Pout) shall be calculated using the formula below::

$$P_{out} = A + G + Y$$

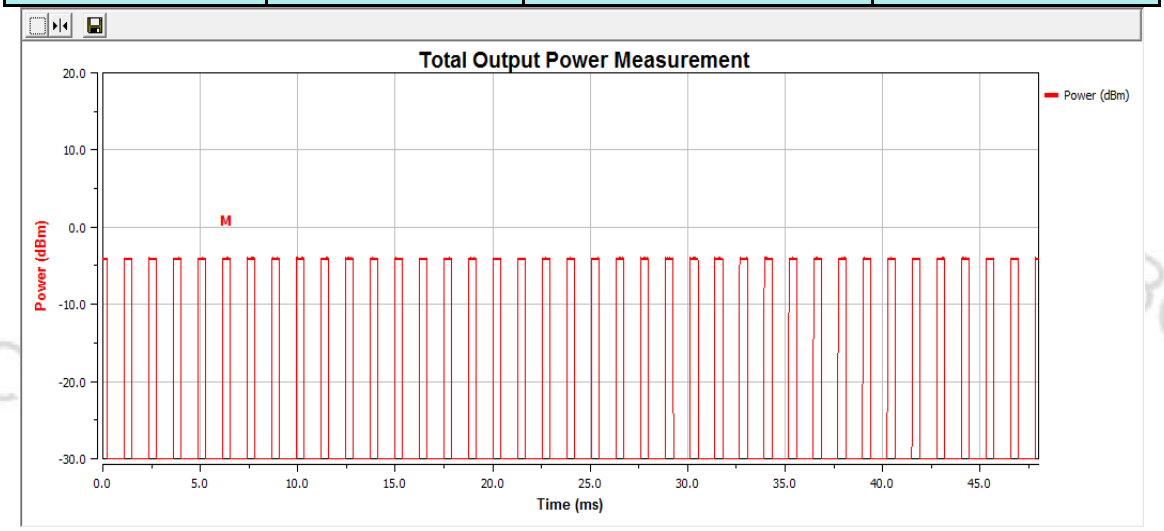
• This value, which shall comply with the limit given in clause 4.3.1.2.3 or clause 4.3.2.2.3, shall be recorded in the test report.

7.4 Test Result

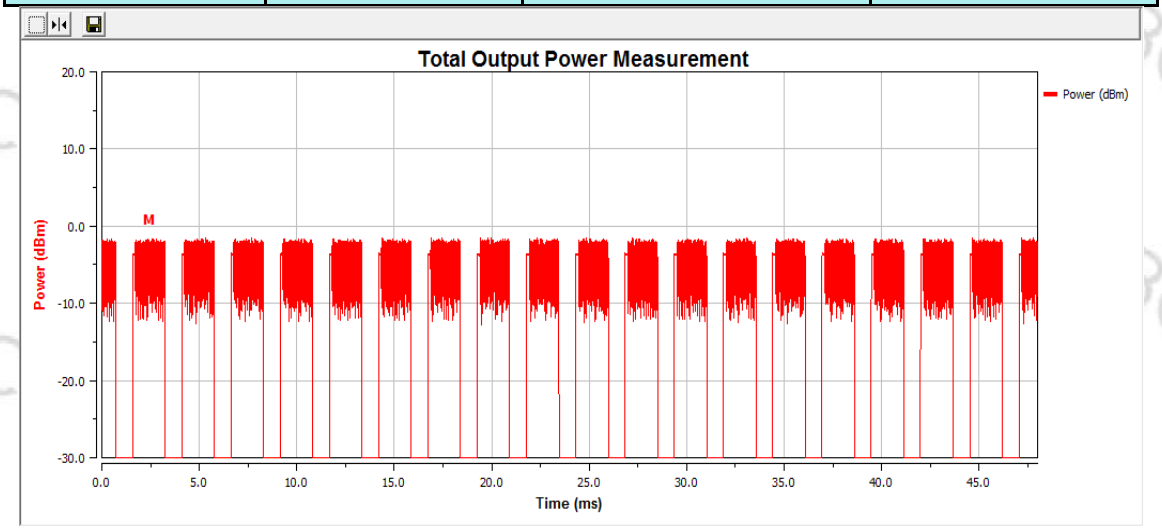
Modulation	Test conditions (Temperature)	EIRP (dBm)
		Hopping mode
GFSK	Normal	-4.15
	Lower	-4.52
	Upper	-4.84
Pi/4DQPSK	Normal	-4.19
	Lower	-4.37
	Upper	-4.41
8DPSK	Normal	-4.70
	Lower	-4.50
	Upper	-4.46
Limit		≤100mW (20dBm)
Remark: P = A + G + Y,G=-0.68 dBi, x=100%		

Test Plots

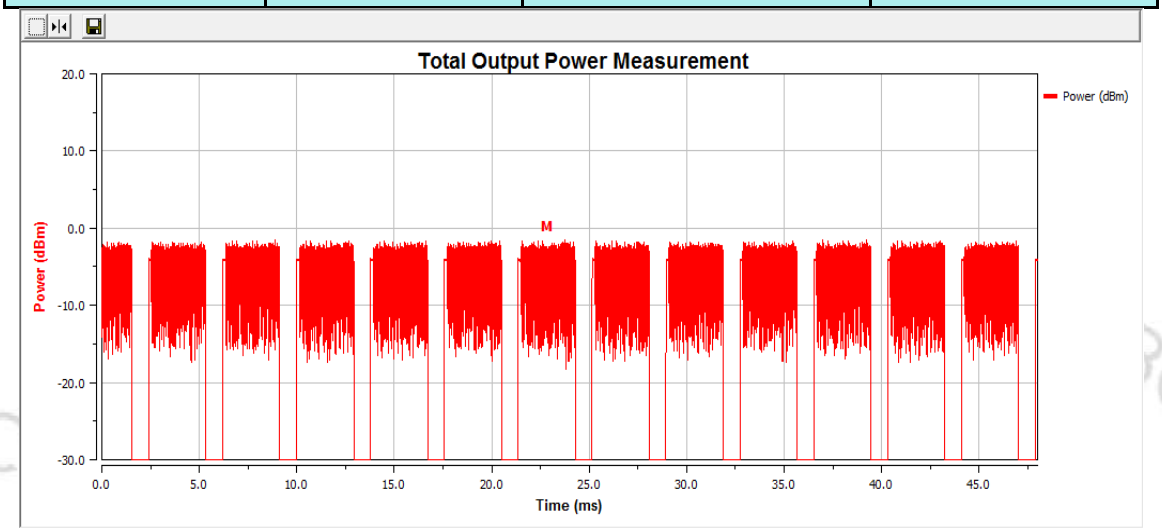
Modulation	Voltage	Conducted Power (dBm)	EIRP (dBm)
GFSK	Normal	-4.15	-4.15



Modulation	Voltage	Conducted Power (dBm)	EIRP (dBm)
Pi/4DQPSK	Normal	-4.19	-4.19

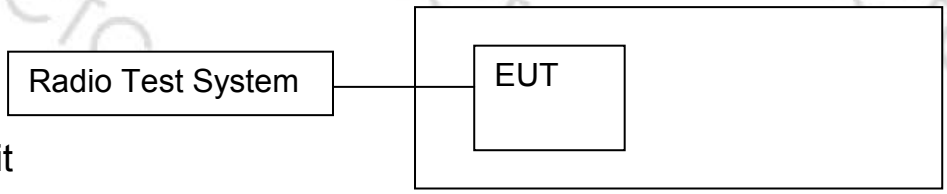


Modulation	Voltage	Conducted Power (dBm)	EIRP (dBm)
8DPSK	Normal	-4.70	-4.70



8. ACCUMULATED TRANSMIT TIME, MINIMUM FREQUENCY OCCUPATION AND HOPPING SEQUENCE

8.1 Block Diagram Of Test Setup



8.2 Limit

Adaptive FHSS equipment shall be capable of operating over a minimum of 70 % of the band specified in table 1.
The Accumulated Transmit Time on any hopping frequency shall not be greater than 400 ms within any observation period of 400 ms multiplied by the minimum number of hopping frequencies (N) that have to be used.
In order for the FHSS equipment to comply with the Frequency Occupation requirement, it shall meet either of the following two options:

Option 1: Each hopping frequency of the Hopping Sequence shall be occupied at least once within a period not exceeding four times the product of the dwell time and the number of hopping frequencies in use.
Option 2: The occupation probability for each frequency shall be between ((1 / U) × 25 %) and 77 % where U is the number of hopping frequencies in use.
The Hopping Sequence(s) shall contain at least N hopping frequencies at all times, where N is either 15 or the result of 15 MHz divided by the minimum Hopping Frequency Separation in MHz, whichever is the greater.
NOTE: See also clause 4.3.1.5.3.2 for the Hopping Frequency Separation applicable to adaptive FHSS equipment.
For Adaptive FHSS equipment, from the N hopping frequencies defined above, the equipment shall consider at least one hopping frequency for its transmissions. Providing that there is no interference present on this hopping frequency with a level above the detection threshold defined in clause 4.3.1.7.2.2, point 5 or clause 4.3.1.7.3.2, point 5, then the equipment shall have transmissions on this hopping frequency. For Adaptive FHSS equipment using LBT, if a signal is detected during the CCA, the equipment may jump immediately to the next hopping frequency in the Hopping Sequence (see clause 4.3.1.7.2.2, point 2) provided the limit for Accumulated Transmit Time on the new hopping frequency is respected.

hopping sequence shall be occupied at least once within a period not exceeding four times the product of the dwell time and the number of hopping frequencies in use.
Option 2: The occupation probability for each frequency shall be between ((1 / U) × 25 %) and 77 % where U is the number of hopping frequencies in use.
The hopping sequence(s) shall contain at least N hopping frequencies at all times, where N is 15 or 15 divided by the minimum Hopping Frequency Separation in MHz, whichever is the greater.

8.3 Test procedure

Step 1:

• The output of the transmitter shall be connected to a spectrum analyzer or equivalent.

• The analyzer shall be set as follows:

- Centre Frequency: Equal to the hopping frequency being investigated

- Frequency Span: 0 Hz

- RBW: ~ 50 % of the Occupied Channel Bandwidth

- VBW: ≥ RBW

- Detector Mode: RMS

- Sweep time: Equal to the applicable observation period (see clause 4.3.1.4.3.1 or clause 4.3.1.4.3.2)

- Number of sweep points: 30 000

- Trace mode: Clear / Write

- Trigger: Free Run

Step 2:

• Save the trace data to a file for further analysis by a computing device using an appropriate software application or program.

Step 3:

• Identify the data points related to the frequency being investigated by applying a threshold.

The data points resulting from transmissions on the hopping frequency being investigated are assumed to have much higher levels compared to data points resulting from transmissions on adjacent hopping frequencies. If a clear determination between these transmissions is not possible, the RBW in step 1 shall be further reduced. In addition, a channel filter may be used.

• Count the number of data points identified as resulting from transmissions on the frequency being investigated and multiply this number by the time difference between two consecutive data points.

Step 4:

• The result in step 3 is the Accumulated Transmit Time which shall comply with the limit provided in clause 4.3.1.4.3.1 or clause 4.3.1.4.3.2 and which shall be recorded in the test report.

Step 5:

This step is only applicable for equipment implementing Option 1 in clause 4.3.1.4.3.1 or Option 1 in clause 4.3.1.4.3.2 for complying with the Frequency Occupation requirement. .

• Make the following changes on the analyser and repeat step 2 and step 3.

Sweep time: 4 × Dwell Time × Actual number of hopping frequencies in use

The hopping frequencies occupied by the equipment without having transmissions during the dwell time (blacklisted frequencies) should be taken into account in the actual number of hopping frequencies in use. If this number cannot be determined (number of blacklisted frequencies unknown) it shall be assumed that the equipment uses the maximum possible number of hopping frequencies.

• The result shall be compared to the limit for the Frequency Occupation defined in clause 4.3.1.4.3.1 or clause 4.3.1.4.3.2. The result of this comparison shall be recorded in the test report.

Step 6:

• Make the following changes on the analyzer:

- Start Frequency: 2 400 MHz

- Stop Frequency: 2 483,5 MHz

- RBW: ~ 50 % of the Occupied Channel Bandwidth (single hopping frequency)

- VBW: ⩾ RBW

- Detector Mode: Peak

- Sweep time: 1 s, this setting may result in long measuring times. To avoid such long measuring times, an FFT analyser may be used

-Number of sweep points: ~ 400 / Occupied Channel Bandwidth (MHz); the number of sweep points may need to be further increased in case of overlapping channels

- Trace Mode: Max Hold

- Trigger: Free Run

• Wait for the trace to stabilize. Identify the number of hopping frequencies used by the hopping sequence.

• The result shall be compared to the limit (value N) defined in clause 4.3.1.4.3.1 or clause 4.3.1.4.3.2. This value shall be recorded in the test report.

For equipment with blacklisted frequencies, it might not be possible to verify the number of hopping frequencies in use. However they shall comply with the requirement for Accumulated Transmit Time and Frequency Occupation assuming the minimum number of hopping frequencies (N) defined in clause 4.3.1.4.3.1 or clause 4.3.1.4.3.2 is used.

Step 7:

• For adaptive FHSS equipment, it shall be verified whether the equipment uses 70 % of the band specified in table 1. This verification can be done using the lowest and highest -20 dB points from the total spectrum envelope obtained in step 6. The result shall be recorded in the test report..

8.4 Test Result

Hopping channel

Modulation	Number of hopping channel	Limit	Result
GFSK	79	>15	PASS
Pi/4DQPSK	79	>15	PASS
8DPSK	79	>15	PASS

Dwell time

Mode	Channel	Pulse time (ms)	Dwell time (ms)	Limit	Result
DH1	Low	0.37	118.40	<400ms	PASS
	Mid	0.37	118.40		
	High	0.37	118.40		
DH3	Low	1.64	262.40		
	Mid	1.64	262.40		
	High	1.64	262.40		
DH5	Low	2.88	307.20		
	Mid	2.88	307.20		
	High	2.88	307.20		
Note: DH1=1600/(79*(DH))*79*0.4* Pulse time .(DH1=2, DH3=4)					

Accumulated Transmit Time

Mode	Channel	Dwell time(ms)	Mini frequency occupation Time(ms)	Result
DH1	Low/Mid/High	118.40	473.6	PASS
DH3	Low/Mid/High	262.40	1049.6	
DH5	Low/Mid/High	307.20	1228.80	
Remark: Accumulated Transmit Time (ms)=4*Dwell time(ms)				

Operating hopping Bandwidth:

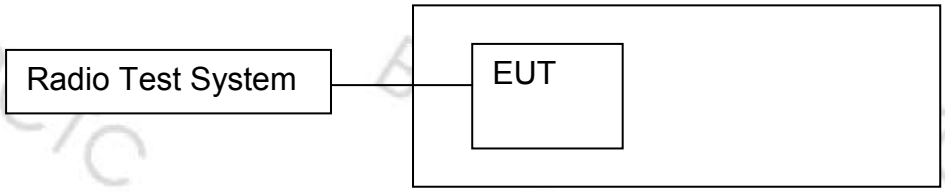
Mode	Bandwidth (MHz)	Limit(MHz)	Result
GFSK	79.41	58.45	PASS

Hopping sequence

Mode	Hopping Sequence(%)	Limit	Result
GFSK	95.10	>70%	PASS
Note: 1. For adaptive systems, using the lowest and highest -20 dB points from the total spectrum envelope, it shall be verified whether the system uses 70 % of the band specified. 2. Hopping Sequence(%) = (20dB BW/83.5)*100			

9. HOPPING FREQUENCY SEPARATION

9.1 Block Diagram Of Test Setup



9.2 Limit

For Non-adaptive frequency hopping systems
The minimum Hopping Frequency Separation shall be equal to Occupied Channel Bandwidth (see clause 5.3.1.5.3) of a single hop, with a minimum separation of 100 kHz.
For Adaptive frequency hopping systems
The minimum Hopping Frequency Separation shall be 100 kHz.

9.3 Test procedure

The Hopping Frequency Separation as defined in clause 4.3.1.5 shall be measured and recorded using any of the following options. The selected option shall be stated in the test report.

Option 1

Step 1:

• The output of the transmitter shall be connected to a spectrum analyser or equivalent.
• The analyser shall be set as follows:
- Centre Frequency: Centre of the two adjacent hopping frequencies
- Frequency Span: Sufficient to see the complete power envelope of both hopping frequencies
- RBW: 1 % of the span
- VBW: 3 × RBW
- Detector Mode: Max Peak
- Trace Mode: Max Hold
- Sweep time: Auto

Step 2:

• Wait for the trace to stabilize.
• Use the marker function of the analyser to define the frequencies corresponding to the lower -20 dBr point and the upper -20 dBr point for both hopping frequencies F1 and F2. This will result in $F1_L$ and $F1_H$ for hopping frequency F1 and in $F2_L$ and $F2_H$ for hopping frequency F2. These values shall be recorded in the report.

Step 3:

• Calculate the centre frequencies $F1_C$ and $F2_C$ for both hopping frequencies using the formulas below. These values shall be $F1_C = \frac{F1_L + F1_H}{2}$ $F2_C = \frac{F2_L + F2_H}{2}$

• Calculate the Hopping Frequency Separation (FHS) using the formula below. This value shall be recorded in the report.

$$F_{HS} = F2_C - F1_C$$

• Compare the measured Hopping Frequency Separation with the limit defined in clause 4.3.1.5.3.

• See figure 4:

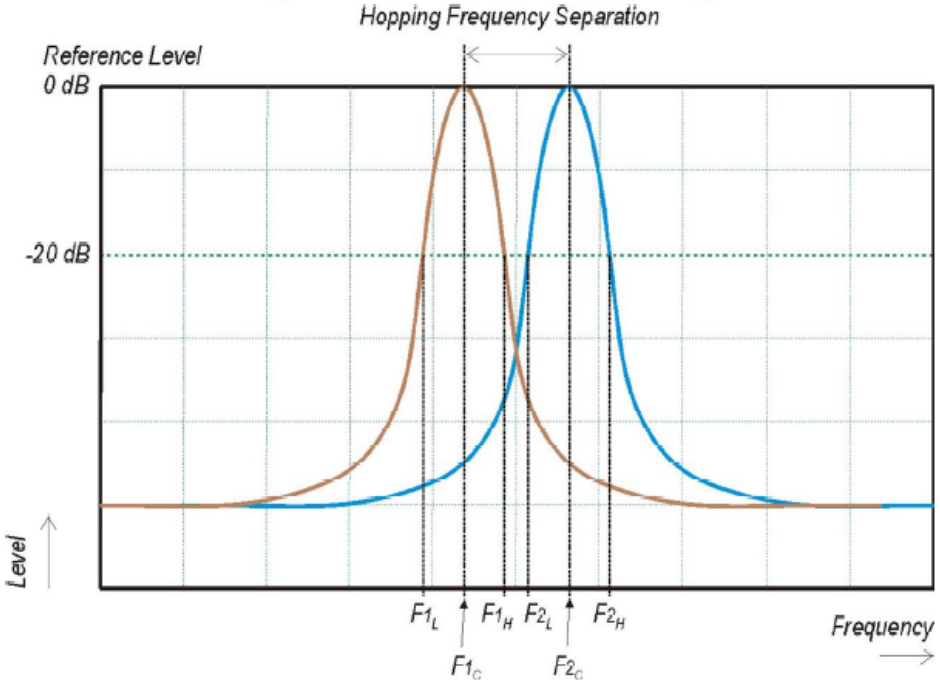


Figure 4: Hopping Frequency Separation

For adaptive equipment, in case of overlapping channels which prevents the definition of the -20 dBr reference points F1H and F2L, a higher reference level (e.g. -10 dBr or -6 dBr) may be chosen to define the reference points F1L; F1H; F2L and F2H.

Alternatively, special test software may be used to:

• force the UUT to hop or transmit on a single Hopping Frequency by which the -20 dBr

reference points can be measured separately for the two adjacent Hopping Frequencies; and/or

• force the UUT to operate without modulation by which the centre frequencies F1C and F2C can be measured directly.

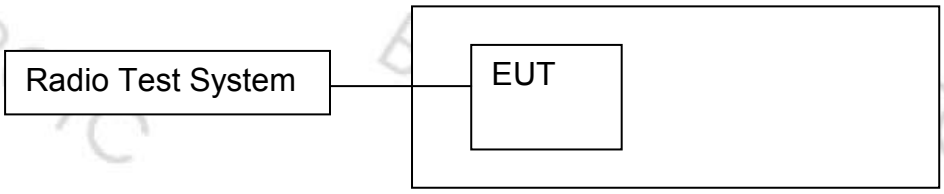
The method used to measure the Hopping Frequency Separation shall be documented in the test report.

9.4 Test Result

Mode		Measurement (MHz)	Limit (MHz)	Result
GFSK	DH1	1.01	0.1	PASS
	DH3	1.00	0.1	
	DH5	1.00	0.1	

10. OCCUPIED CHANNEL BANDWIDTH

10.1 Block Diagram Of Test Setup



10.2 Limit

The Occupied Channel Bandwidth for each hopping frequency shall be within the band given in 2.4GHz to 2.4835GHz.
In addition, for non-adaptive FHSS equipment with e.i.r.p. greater than 10 dBm, the Occupied Channel Bandwidth for every occupied hopping frequency shall be equal to or less than 5 MHz.

10.3 Test procedure

Step 1:

Connect the UUT to the spectrum analyser and use the following settings:

- Centre Frequency: The centre frequency of the channel under test
- Resolution BW: ~ 1 % of the span without going below 1 %
- Video BW: 3 × RBW
- Frequency Span: 2 × Nominal Channel Bandwidth
- Detector Mode: RMS
- Trace Mode: Max Hold
- Sweep time: 1 s

Step 2:

Wait for the trace to stabilize.

Find the peak value of the trace and place the analyser marker on this peak.

Step 3:

Use the 99 % bandwidth function of the spectrum analyser to measure the Occupied Channel Bandwidth of the UUT.

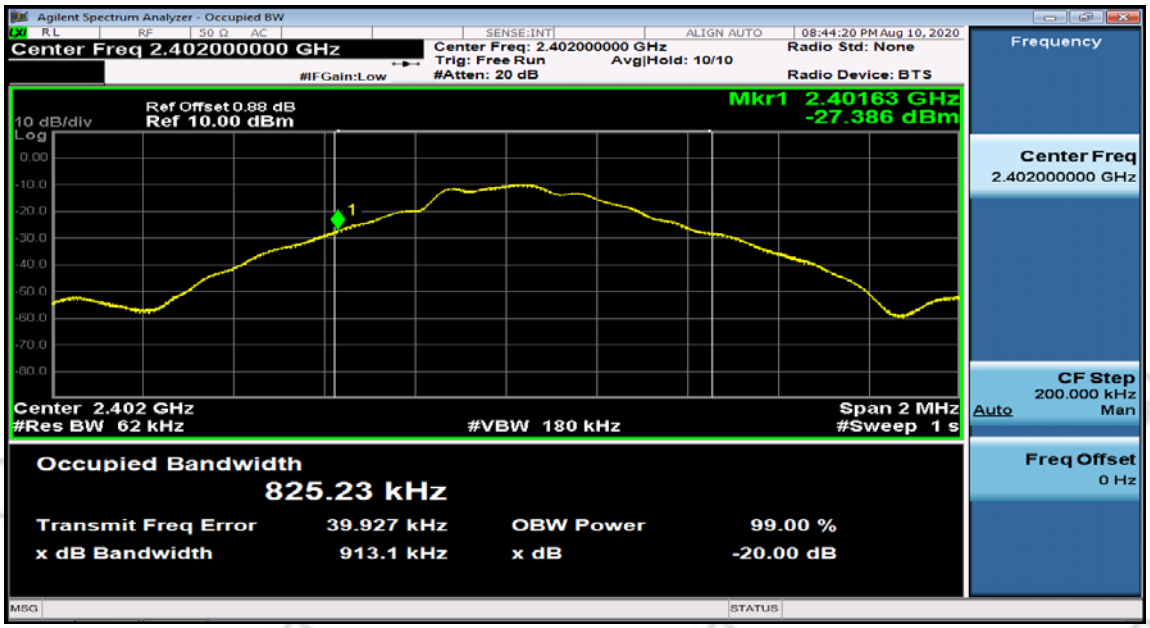
This value shall be recorded.

NOTE: Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

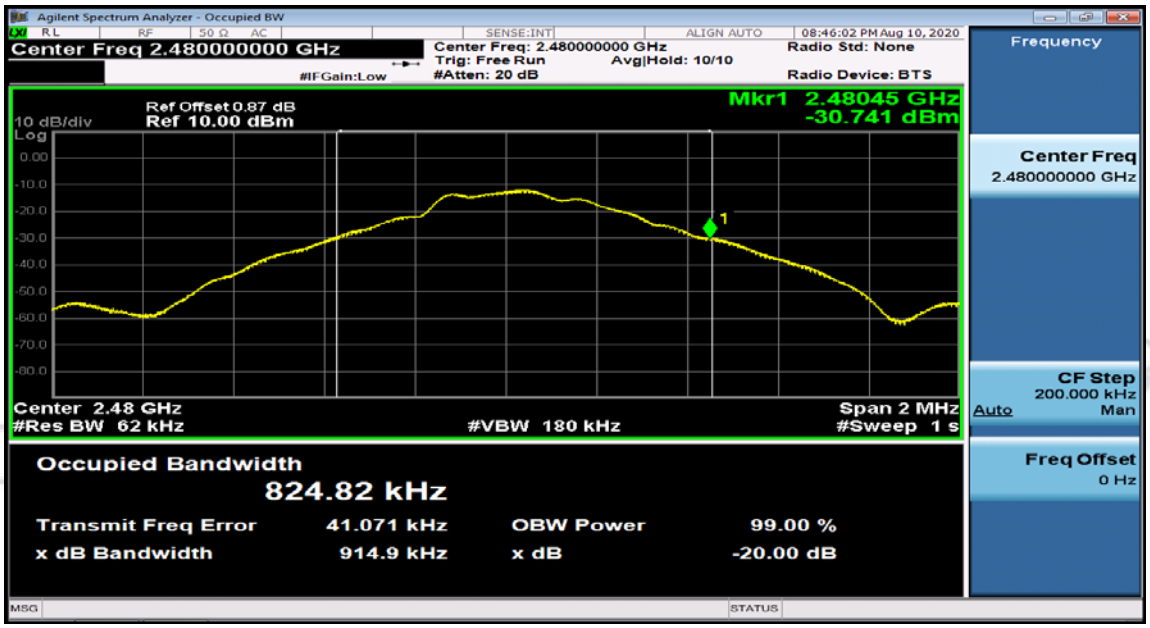
10.4 Test Result

Modulation	Frequency (MHz)	Frequency Range (MHz)		Occupied Channel (MHz)
GFSK DH1	Low	2401.63	/	0.825
	High	/	2480.45	0.825
Pi/4DQPSK (2M) DH3	Low	2401.44	/	1.190
	High	/	2480.63	1.190
8DPSK(3M) DH5	Low	2401.44	/	1.197
	High	/	2480.64	1.198

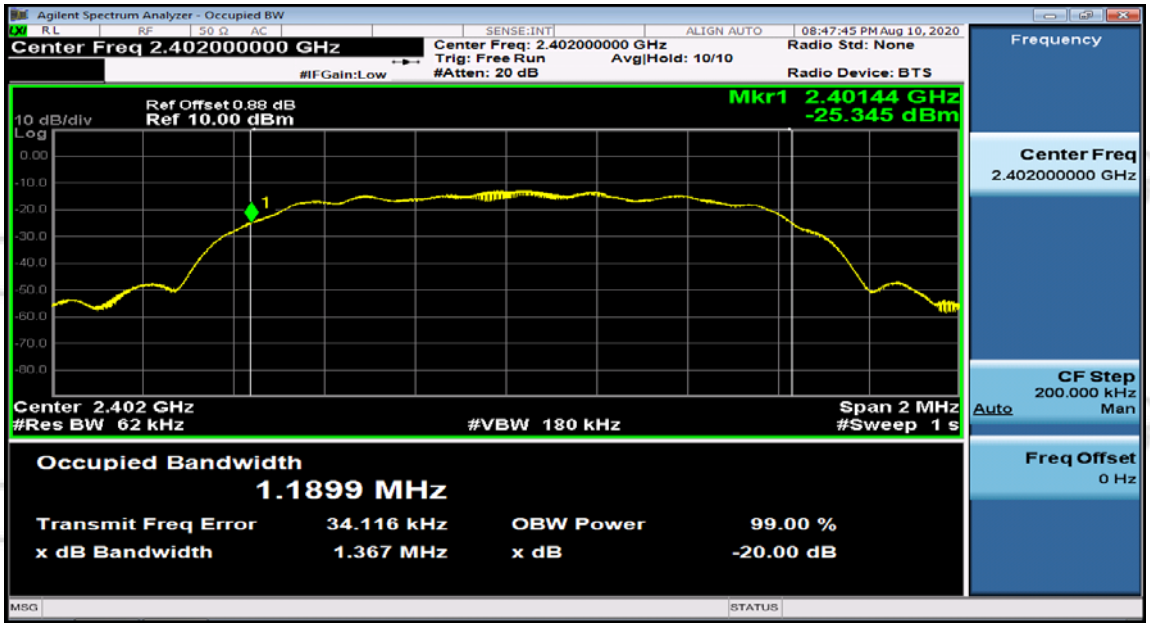
Test Plots
GFSK DH1
Low Channel



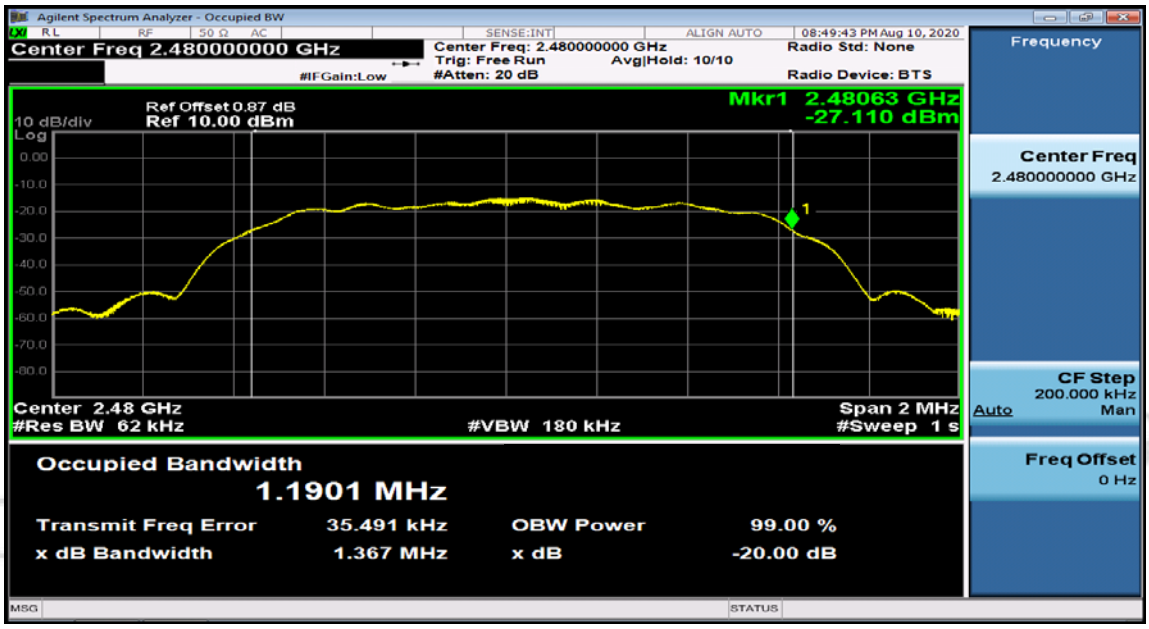
High Channel



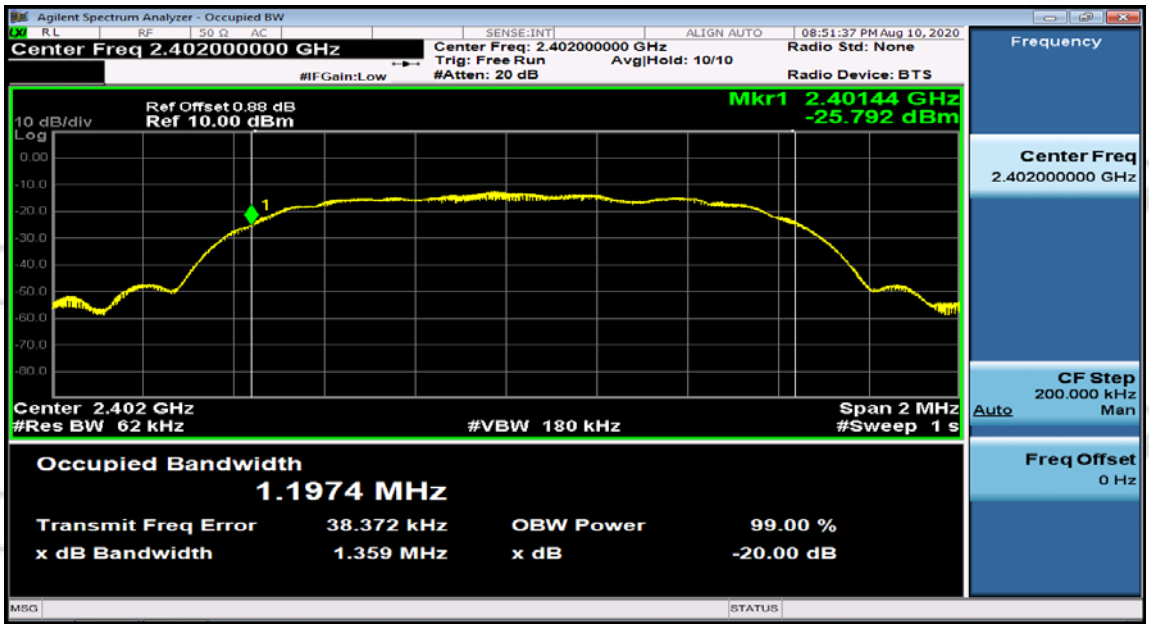
Pi/4DQPSK (2M) DH3
Low Channel



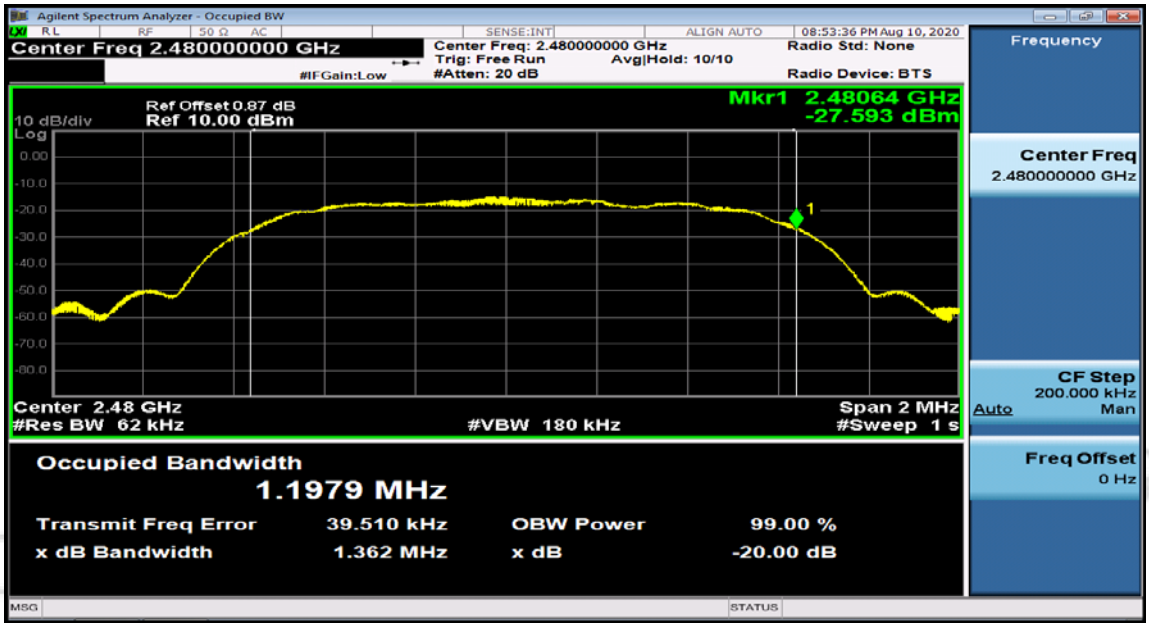
High Channel



8DPSK 3DH5
Low Channel

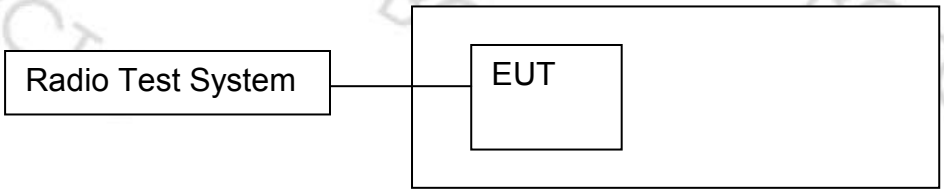


High Channel



11. TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN

11.1 Block Diagram Of Test Setup



11.2 Limit

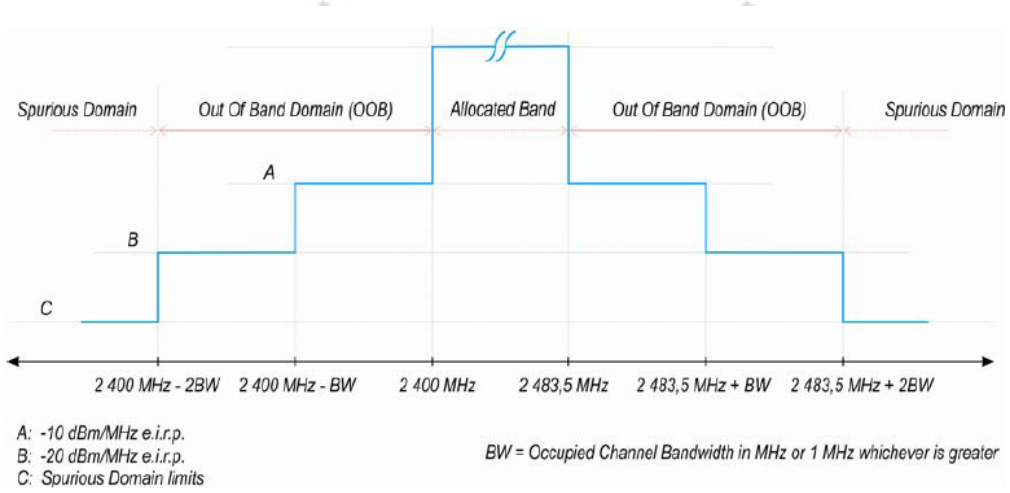


Figure 3: Transmit mask

11.3 Test procedure

The applicable mask is defined by the measurement results from the tests performed under clause 5.4.7 (Occupied Channel Bandwidth).

The Out-of-band emissions within the different horizontal segments of the mask provided in figure 1 and figure 3 shall be measured using the procedure in step 1 to step 6 below. This method assumes the spectrum analyser is equipped with the Time Domain Power option.

Step 1:

- Connect the UUT to the spectrum analyser and use the following settings:

-Measurement Mode: Time Domain Power

- Centre Frequency: 2 484 MHz

- Span: Zero Span

- Resolution BW: 1 MHz

- Filter mode: Channel filter

- Video BW: 3 MHz

- Detector Mode: RMS

- Trace Mode: Max Hold

- Sweep Mode: Single Sweep

- Sweep Points: Sweep time [µs] / (1 µs) with a maximum of 30 000

- Trigger Mode: Video

-Sweep Time: ＞120 % of the duration of the longest burst detected during the measurement of the RF Output Power

Step 2 (segment 2 483,5 MHz to 2 483,5 MHz + BW):

• The measurement shall be performed and repeated while the trigger level is increased until no triggering takes place.

• For FHSS equipment operating in a normal hopping mode, the different hops will result in signal bursts with different power levels. In this case the burst with the highest power level shall be selected.

• Set a window (start and stop lines) to match with the start and end of the burst and in which the RMS power shall be measured using the Time Domain Power function..

• Select RMS power to be measured within the selected window and note the result which is the RMS power within this 1 MHz segment (2 483,5 MHz to 2 484,5 MHz). Compare this value with the applicable limit provided by the mask.

•Increase the centre frequency in steps of 1 MHz and repeat this measurement for every 1 MHz segment within the range 2 483,5 MHz to 2 483,5 MHz + BW. The centre frequency of the last 1 MHz segment shall be set to 2 483,5 MHz + BW - 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

Step 3 (segment 2 483,5 MHz + BW to 2 483,5 MHz + 2BW):

• Change the centre frequency of the analyser to 2 484 MHz + BW and perform the measurement for the first 1 MHz segment within range 2 483,5 MHz + BW to 2 483,5 MHz + 2BW. Increase the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 483,5 MHz + 2 BW - 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

Step 4 (segment 2 400 MHz - BW to 2 400 MHz):

• Change the centre frequency of the analyser to 2 399,5 MHz and perform the measurement for the first 1 MHz segment within range 2 400 MHz - BW to 2 400 MHz Reduce the centre frequency in 1 MHz steps and repeat the measurements to cover this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 400 MHz - BW + 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

Step 5 (segment 2 400 MHz - 2BW to 2 400 MHz - BW):

• Change the centre frequency of the analyser to 2 399,5 MHz - BW and perform the measurement for the first 1 MHz segment within range 2 400 MHz - 2BW to 2 400 MHz - BW. Reduce the centre frequency in 1 MHz steps and repeat the measurements to cover

this whole range. The centre frequency of the last 1 MHz segment shall be set to 2 400 MHz - 2BW + 0,5 MHz (which means this may partly overlap with the previous 1 MHz segment).

Step 6:

• In case of conducted measurements on equipment with a single transmit chain, the declared antenna assembly gain G in dBi shall be added to the results for each of the 1 MHz segments and compared with the limits provided by the mask given in figure 1 or figure 3. If more than one antenna assembly is intended for this power setting, the antenna with the highest gain shall be considered.

• In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), the measurements need to be repeated for each of the active transmit chains. The declared antenna assembly gain "G" in dBi for a single antenna shall be added to these results. If more than one antenna assembly is intended for this power setting, the antenna with the highest gain shall be considered. Comparison with the applicable limits shall be done using any of the options given below:

- Option 1: the results for each of the transmit chains for the corresponding 1 MHz segments shall be added. The additional beamforming gain "Y" in dB shall be added as well and the resulting values compared with the limits provided by the mask given in figure 1 or figure 3.

- Option 2: the limits provided by the mask given in figure 1 or figure 3 shall be reduced by 10 × log10(Ach) and the additional beamforming gain Y in dB. The results for each of the transmit chains shall be individually compared with these reduced limits.

NOTE: Ach refers to the number of active transmit chains.

It shall be recorded whether the equipment complies with the mask provided in figure 1 or figure 3.

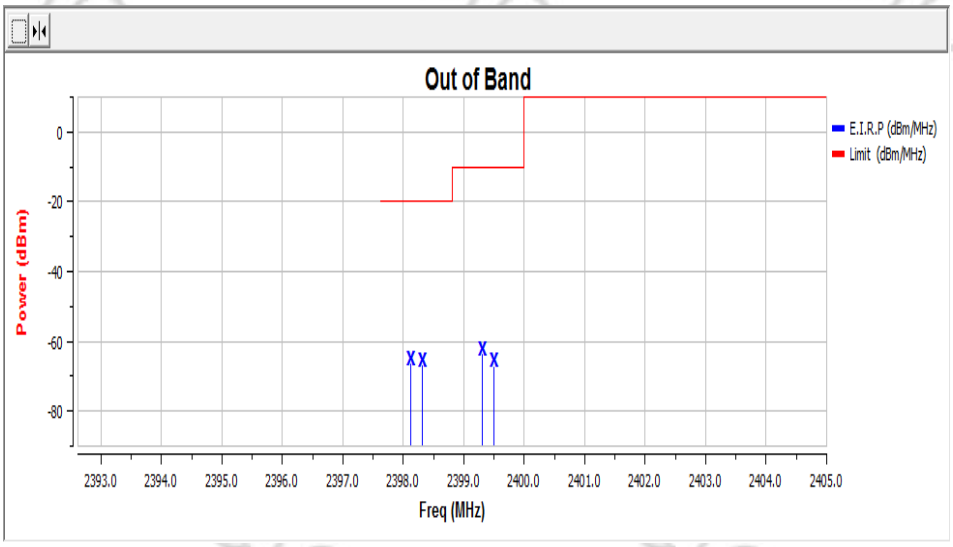
11.4 Test Result

Condition: Normal

Test Condition			Lower Band Edge		Higher Band Edge	
Test Mode	Temp	Voltage	Segment A (dBm/MHz)	Segment B (dBm/MHz)	Segment A (dBm/MHz)	Segment B (dBm/MHz)
PI/4 DQPSK	Normal	Normal	-63.88	-67.27	-66.84	-66.82
Limit			-10	-20	-10	-20
Conclusion			PASS			
Remark: All modulations of EUT have been tested, but only show the test data of the worst case in this report.						

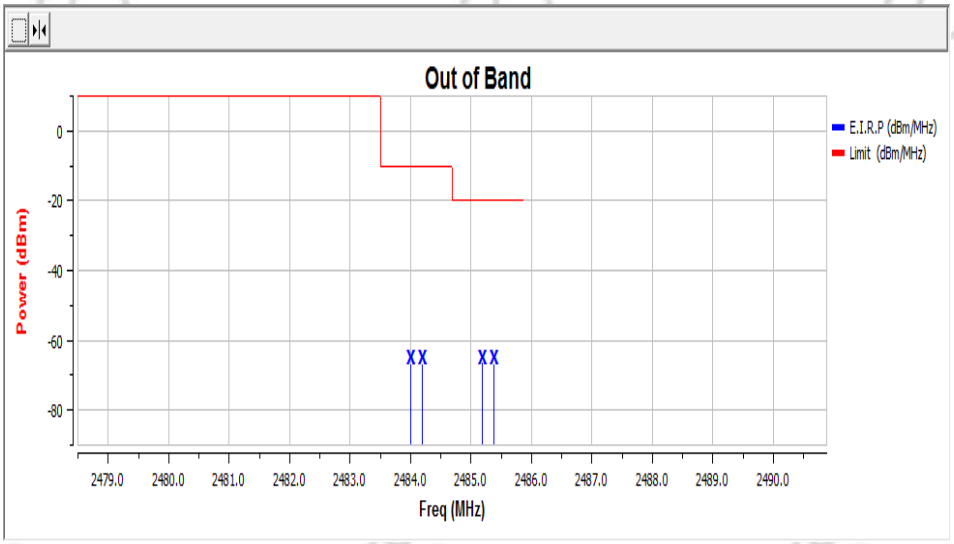
CH Low (Normal Temp)

Test Freq (MHz)	Antenna	Freq(MHz)	Level	Limit
2402	Antenna 1	2399.31	-63.88	-10
2402	Antenna 1	2398.31	-67.27	-20



CH High (Normal Temp)

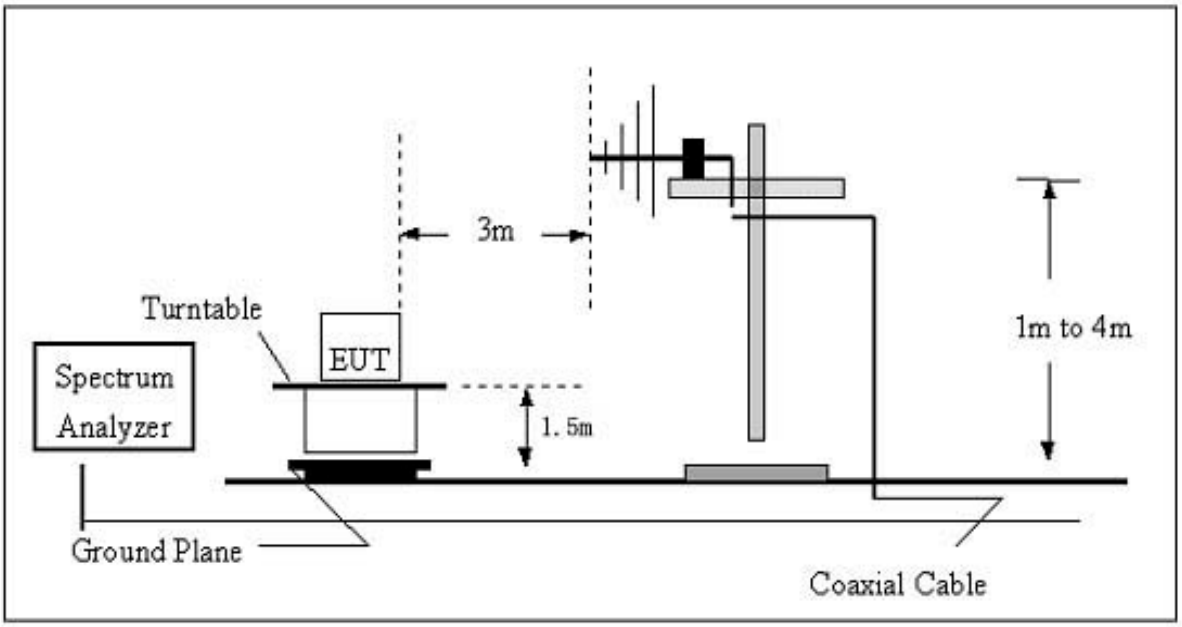
Test Freq (MHz)	Antenna	Freq(MHz)	Level	Limit
2480	Antenna 1	2484.19	-66.84	-10
2480	Antenna 1	2485.19	-66.82	-20



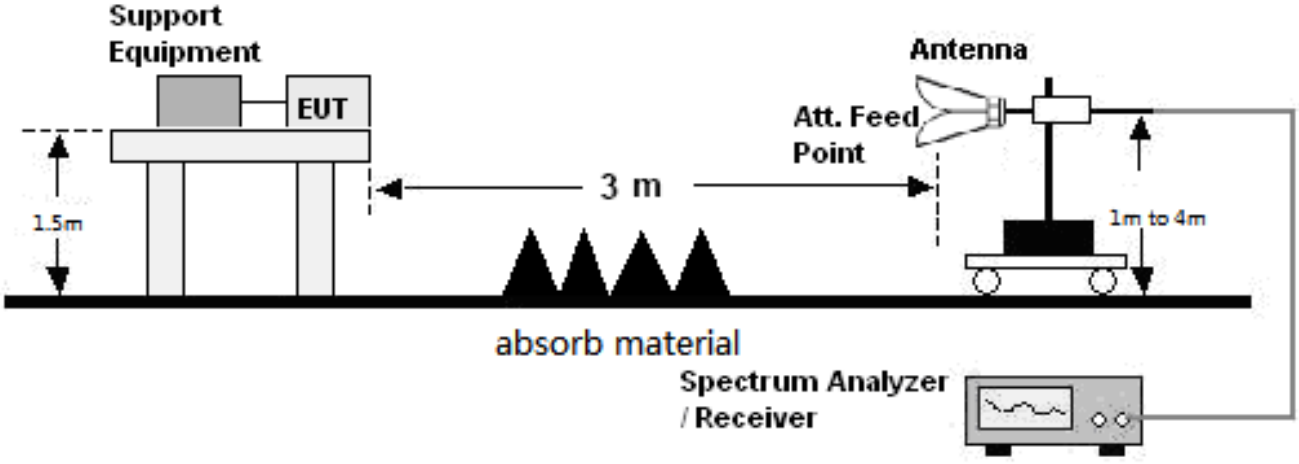
12. TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

12.1 Block Diagram Of Test Setup

(A)Radiated Emission Test Set-Up Frequency Below 1GHz.



(B)Radiated Emission Test Set-Up Frequency Above 1GHz.



12.2 Limits

Frequency range	Maximum power, e.r.p. (≤ 1 GHz) e.i.r.p. (> 1 GHz)	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz/
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 694 MHz	-54 dBm	100 kHz
694 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 12,75 GHz	-30 dBm	1 MHz

12.3 Test Procedure

30MHz ~ 1GHz:

a. The Product was placed on the nonconductive turntable 1.5m above the ground in a full anechoic chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

a. The Product was placed on the non-conductive turntable 1.5 m above the ground in a full anechoic chamber..

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

12.4 Test Results

Modulation : GFSK (the worst data)

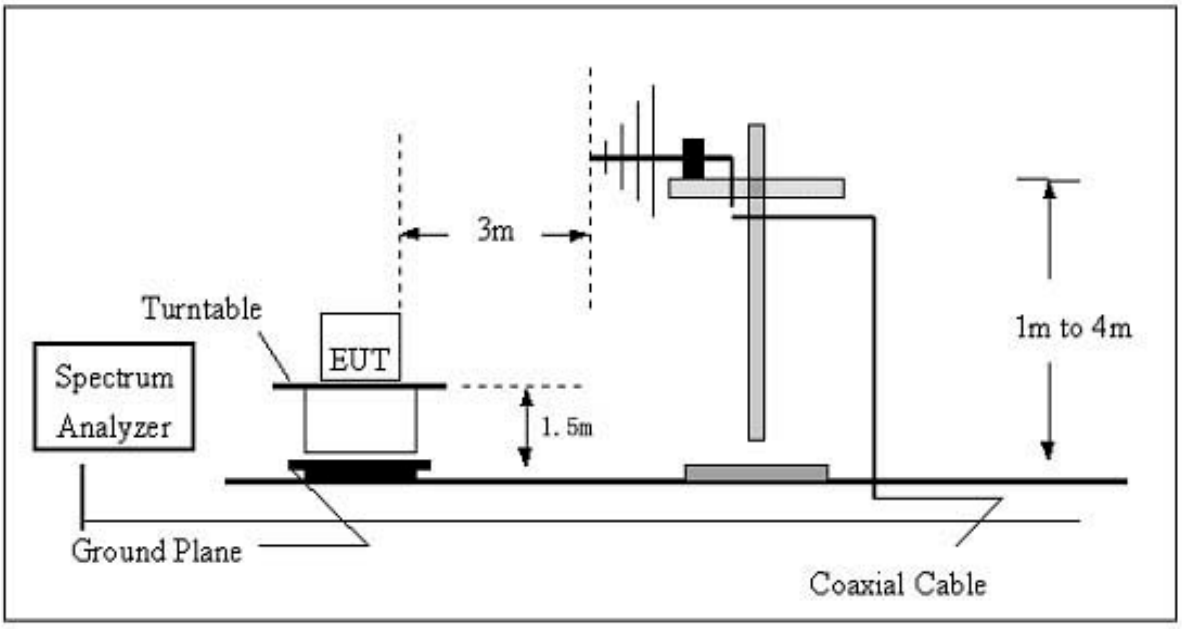
Frequency	Receiver Reading	Turn table Angle	RX Antenna		Correct	Absolute Level	Result	
			Height	Polar	Factor		Limit	Margin
(MHz)	(dBm)	Degree	(m)	(H/V)	(dBm)	(dBm)	(dBm)	(dB)
GFSK low channel								
562.32	-54.27	108	1.9	H	-7.39	-61.66	-54	-7.66
562.32	-57.83	360	1.1	V	-7.39	-65.22	-54	-11.22
4804.00	-49.19	237	1.3	H	-0.43	-49.62	-30	-19.62
4804.00	-49.35	112	1.5	V	-0.43	-49.78	-30	-19.78
7206.00	-58.41	88	1.1	H	8.31	-50.10	-30	-20.10
7206.00	-59.38	100	1.2	V	8.31	-51.07	-30	-21.07
GFSK Mid channel								
562.32	-53.99	223	1.3	H	-7.39	-61.38	-54	-7.38
562.32	-57.47	193	1.9	V	-7.39	-64.86	-54	-10.86
4882.00	-49.93	138	1.4	H	-0.37	-50.30	-30	-20.30
4882.00	-49.48	266	1.4	V	-0.37	-49.85	-30	-19.85
7323.00	-57.63	134	1.6	H	8.83	-48.80	-30	-18.80
7323.00	-60.10	334	1.8	V	8.83	-51.27	-30	-21.27
GFSK high channel								
562.32	-53.55	136	1.1	H	-7.39	-60.94	-54	-6.94
562.32	-58.31	274	1.1	V	-7.39	-65.70	-54	-11.70
4960.00	-49.52	352	1.8	H	-0.32	-49.84	-30	-19.84
4960.00	-49.51	238	1.4	V	-0.32	-49.83	-30	-19.83
7440.00	-58.66	149	1.2	H	9.35	-49.31	-30	-19.31
7440.00	-60.34	107	1.3	V	9.35	-50.99	-30	-20.99

Remark:
Absolute Level = Receiver Reading + Factor
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

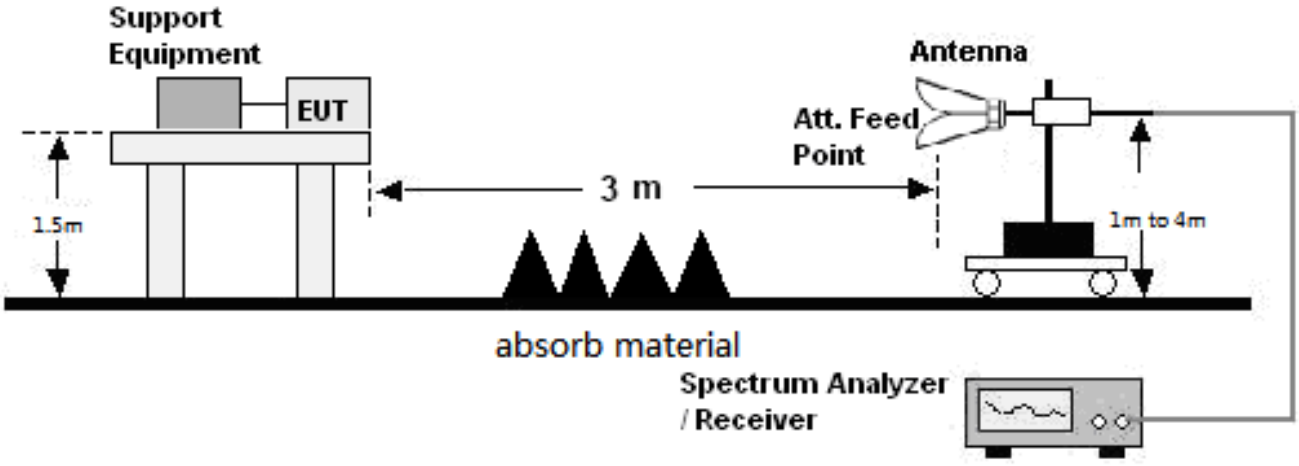
13. RECEIVER SPURIOUS EMISSIONS

13.1 Block Diagram Of Test Setup

(A)Radiated Emission Test Set-Up Frequency Below 1GHz.



(B)Radiated Emission Test Set-Up Frequency Above 1GHz.



13.2 Limits

Frequency(MHz)	Limit	Bandwidth
30-1000	-57dBm	100 kHz
1000-12750	-47dBm	1 MHz

.

13.3 Test Procedure

30MHz ~ 1GHz:

a. The Product was placed on the nonconductive turntable 1.5m above the ground in a full anechoic chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

a. The Product was placed on the non-conductive turntable 1.5 m above the ground in a full anechoic chamber..

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

13.4 Test Results

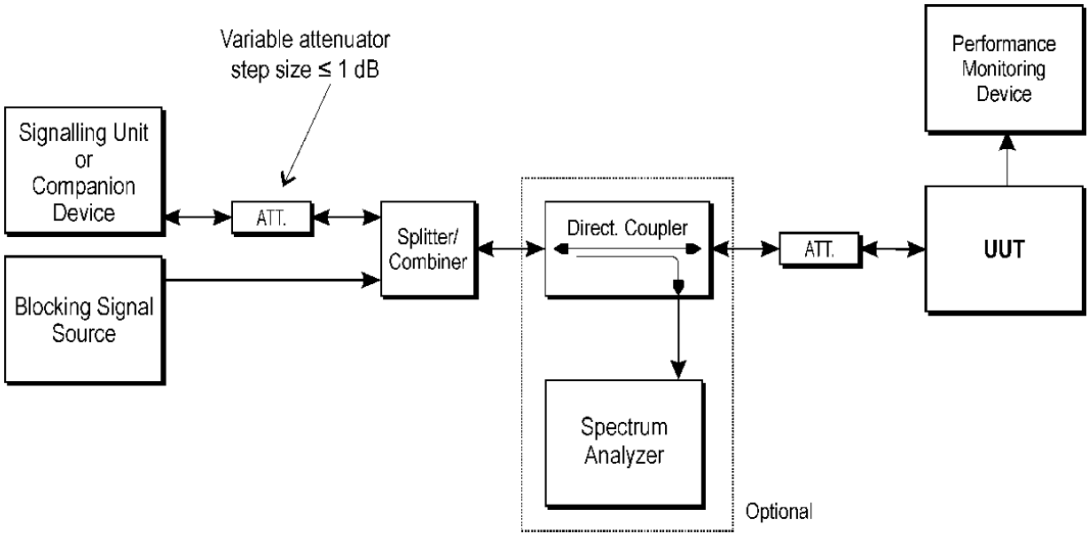
Modulation : GFSK (the worst data)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Correct	Absolute Level	Result	
			Height	Polar	Factor		Limit	Margin
(MHz)	(dBm)	Degree	(m)	(H/V)	(dBm)	(dBm)	(dBm)	(dB)
GFSK low channel								
362.38	-54.52	277	1.1	H	-11.93	-66.45	-57.00	-9.45
362.38	-55.68	197	1.9	V	-11.93	-67.61	-57.00	-10.61
2485.94	-51.21	200	1.2	H	-6.80	-58.01	-47.00	-11.01
2485.94	-53.16	305	1.3	V	-6.80	-59.96	-47.00	-12.96
GFSK Mid channel								
362.38	-54.15	212	1.9	H	-11.93	-66.08	-57.00	-9.08
362.38	-55.10	239	1.2	V	-11.93	-67.03	-57.00	-10.03
2485.94	-50.86	283	1.0	H	-6.80	-57.66	-47.00	-10.66
2485.94	-53.84	201	1.7	V	-6.80	-60.64	-47.00	-13.64
GFSK high channel								
362.38	-54.64	223	1.5	H	-11.93	-66.58	-57.00	-9.58
362.38	-56.61	296	1.5	V	-11.93	-68.54	-57.00	-11.54
2485.94	-50.25	287	1.3	H	-6.80	-57.04	-47.00	-10.04
2485.94	-53.65	343	1.2	V	-6.80	-60.44	-47.00	-13.44

Remark:
Absolute Level = Receiver Reading + Factor
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

14. RECEIVER BLOCKING

14.1 Block Diagram Of Test Setup



14.2 Limit

Table 8: Receiver Blocking parameters receiver Category 3 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139 dBm + 10 × $\log_{10}$(OCBW) + 20 dB) or (-74 dBm + 20 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW

NOTE 1: OCBW is in Hz.
NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative the test may be performed using a wanted signal up to P_{min} + 30 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.
NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

14.3 Test procedure

Refer to ETSI EN 300 328 V2.2.2 (2019-07) Clause 5.4.11.2.

14.4 Test Result

Modulation : GFSK (the worst data)

Receiver Category 3					
GFSK Transmitting	Wanted Signal Power(dBm)	Blocking Frequency(MHz)	Blocking Power(dB)	Measured PER(%)	Limit (%)
2402	-59.84	2380	-34	0.05	10
2402	-59.84	2504	-34	0.96	10
2402	-59.84	2300	-34	0.08	10
2402	-59.84	2584	-34	0.72	10
2480	-59.84	2380	-34	0.58	10
2480	-59.84	2504	-34	0.87	10
2480	-59.84	2300	-34	0.41	10
2480	-59.84	2584	-34	0.23	10
NoteNote:This report only shows the worst case test data. OCBW=825000Hz (-139dBm+10*log10(OCBW)+20dB)=-59.84dBm (-74dBm+20dB)=-54dBm -59.84dBm≤-54dBm Wanted Signal Power=-59.84dBm					

15. EUT PHOTOGRAPHS

EUT Photo 1

EUT Photo 2

EUT Photo 3

EUT Photo 4

EUT Photo 5

EUT Photo 6

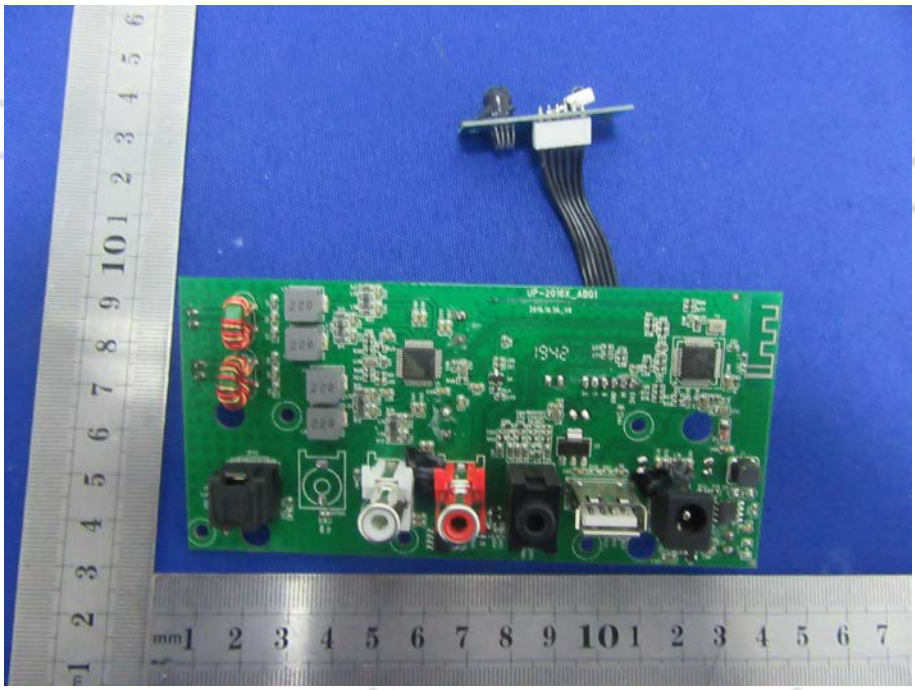
EUT Photo 7

EUT Photo 8

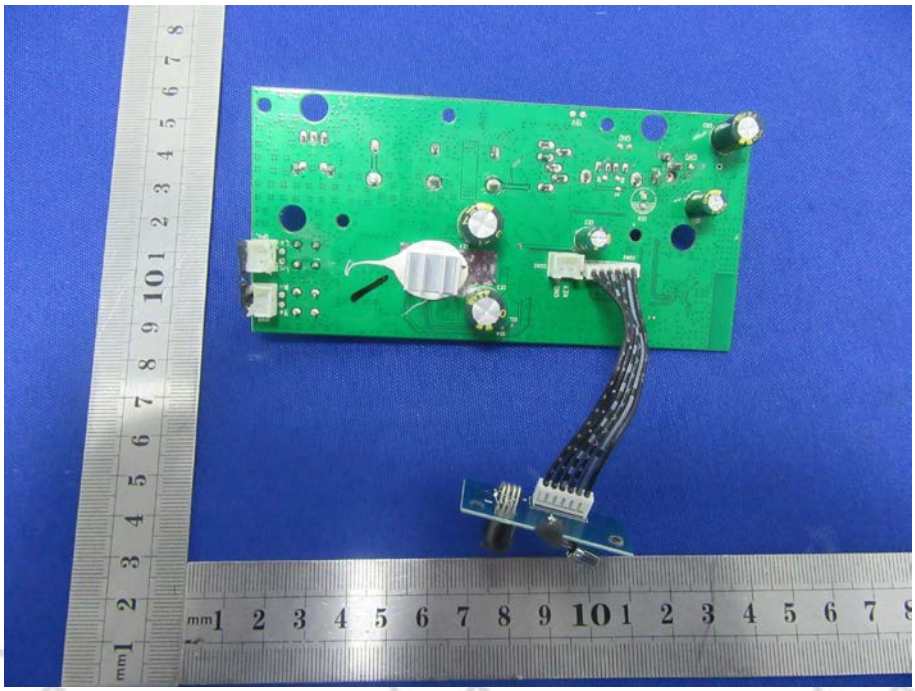
EUT Photo 9

EUT Photo 10

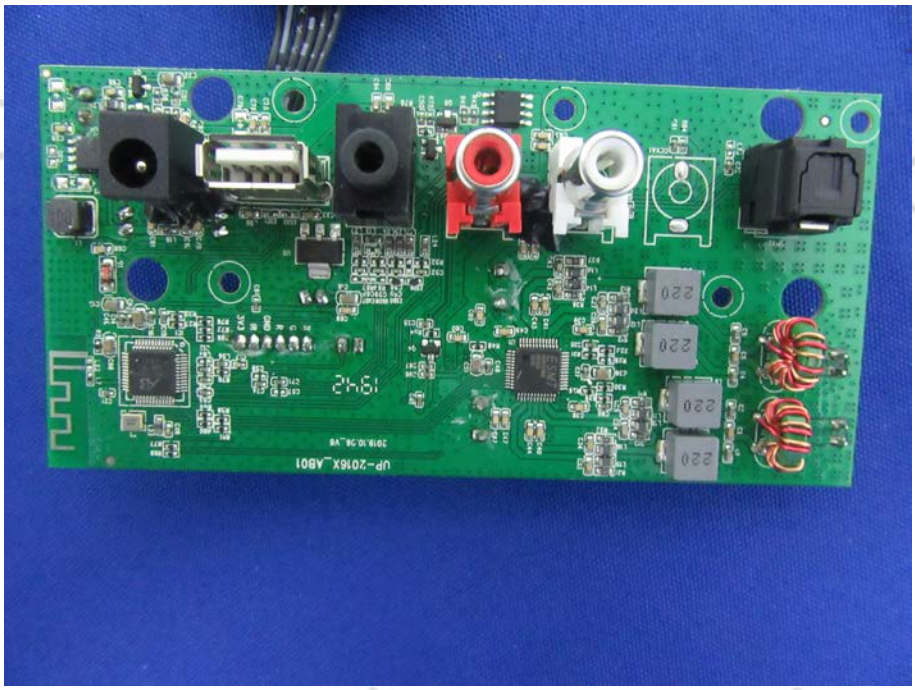
EUT Photo 11



EUT Photo 12



EUT Photo 13



16. EUT TEST SETUP PHOTOGRAPHS

Spurious emissions

※※※※※ END OF REPORT ※※※※※

TEST REPORT

Product Name:	Sound bar
Trademark:	N/A
Model Number:	Refer to section 4.1
Prepared For:	MYBESTSOUND CO., LTD
Address:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Manufacturer:	MYBESTSOUND CO., LTD
Address:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Sample Received Date:	Aug. 05, 2020
Sample tested Date:	Aug. 05, 2020 to Aug. 18, 2020
Issue Date:	Aug. 19, 2020
Report No.:	BCTC2008000394-2E
Test Standards	ETSI EN 301 489-1 V2.2.3 (2019-11) Draft ETSI EN 301 489-17 V3.2.2 (2019-12)
Test Results	PASS
Remark:	This is RED EMC test report.

Compiled by:	Reviewed by:	Approved by:
Willem Wang	Eric Yang	Zero Zhou/Manager

The test report is effective only with both signature and specialized stamp.This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full.The tested sample(s) and the sample information are provided by the client.

TABLE OF CONTENT

(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2008000394-2E	Aug. 19, 2020	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

EMISSION		
Standard	**Test Item**	**Test result**
EN 55032	Conducted emissions from the AC mains power ports	Pass
EN 55032	Radiated emissions	Pass
EN 61000-3-2	Harmonic current emission(H)	N/A[1]
EN 61000-3-3	Voltage fluctuations & flicker(F)	Pass

IMMUNITY		
Standard (EN 55035)	**Test Item**	**Test result**
IEC 61000-4-2	Electrostatic discharge (ESD)	Pass
IEC 61000-4-3	Continuous RF electromagnetic field disturbances(RS)	Pass
IEC 61000-4-4	Electrical fast transients/burst (EFT)	Pass
IEC 61000-4-5	Surges	Pass
IEC 61000-4-6	Radio frequency, common mode	Pass
IEC 61000-4-11	Voltage dips and interruptions (DIPS)	Pass

Remark:
1. The Product belongs to Class A, and its power is less than 75W, so it deems to fulfil this standard without testing.

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.20
Radiated Emission(30MHz~1GHz)	4.80
Radiated Emission(1GHz~6GHz)	4.90

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	S6520 S8520, S9920, SD9621, ST01, ST02, ST03, ST04, ST05, ST06, ST07, ST08, ST09, SQ01, SQ02, SQ03, SQ04, SQ05, SQ06, SQ07, SQ08, SQ09, SR01, SR02, SR03, SR04, SR05, SR06, SR07, SR08, SR09, SP01, SP02, SP03, SP04, SP05, SP06, SP07, SP08, SP09, SD01, SD02, SD03, SD04, SD05, SD06, SD07, SD08, SD09, SE01, SE02, SE03, SE04, SE05, SE06, SE07, SE08, SE09, SG01, SG02, SG03, SG04, SG05, SG06, SG07, SG08, SG09, SK01, SK02, SK03, SK04, SK05, SK06, SK07, SK08, SK09, S7020, S7021, S9820, S9821, S7621, S9620, S9621, SW01, SW02, SW03, SW05, SW06, SW08, SW09, SW65A, SW65B, SW65C, SW65D, SW80A, SW80B, SW80C, SW80D, SW100, SW100A, SW100B, SW100C, SW100D
Model Description:	All the model are the same circuit and RF module, except model names.
Hardware Version:	N/A
Software Version:	N/A

Operation Frequency:	Bluetooth: 2402-2480MHz
Max. RF output power:	Bluetooth:-4.15dBm
Type of Modulation:	Bluetooth(EDR): GFSK, Pi/4 DQPSK, 8DPSK
Antenna installation:	PCB antenna
Antenna Gain:	Bluetooth : 0dBi
Ratings:	DC 19V From adapter

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	-	-	-	-	-	-

Notes

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Test Mode

Test item	Test Mode		Test Voltage
Conducted emissions from the AC mains power ports (150KHz-30MHz) Class B	BT	Adapter 1	AC 230V/50Hz *
		Adapter 2	AC 230V/50Hz
Radiated emissions(30MHz-1GHz) Class B	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz
	USB	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz
	AUX	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz*
Voltage fluctuations & flicker(F)	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz
Electrostatic discharge (ESD) A ☒Air Discharge: ±8kV ☒Contact Discharge: ±4kV ☒HCP & VCP: ±4kV	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz*
Continuous RF electromagnetic field disturbances(RS) A 80MHz-1000MHz,1800MHz,2600MHz,3500 MHz, 5000MHz, 3V/m,80% Front, Rear, Left, Right H/V	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz*
Electrical fast transients/burst (EFT) A ☒1kV AC(Input) ☐0.5kV DC(Input) ☐0.5kV signal,Telec,control	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz*
Surges ☒1kV Line-Line, B ☐2kV Line-PE, N-PE B ☐0.5kVDC(Input) B ☐1KV,☐4KV signal,Telec, control C Line-Line:90°+1kV,270°-1kV Line-PE:90°+2kV,270°-2kV N-PE:90°-2kV,270°+2kV	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz*

Continuous induced RF disturbances (CS) A 0.15MHz to 80MHz 3V ☒ AC(Input) ☐ DC(Input) ☐ signal, Telec, control	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz*
Voltage dips and interruptions (DIPS) Less 5% 0.5P B 70% 500ms C Voltage Interruptions less5% 5000ms C	BT	Adapter 1	AC 230V/50Hz
		Adapter 2	AC 230V/50Hz*
All test mode were tested and passed, only Conducted Emissions, Radiated Emissions and Voltage Fluctuations and Flicker shows (*) is the worst case mode which were recorded in this report.			

4.5 Test Environment

Temperature:	26
Humidity:	54
Atmospheric Pressure:	101kPa

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Conducted emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
LISN	R&S	ENV216	101375	Jun. 04, 2020	Jun. 03, 2021
ISN	HPX	ISN T800	S1509001	Jun. 04, 2020	Jun. 03, 2021
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

Radiated emissions Test (966 chamber)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
Receiver	R&S	ESRP	101154	Jun. 08, 2020	Jun. 07, 2021
Amplifier	Schwarzbeck	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021
Amplifier	Schwarzbeck	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-942	Jun. 08, 2020	Jun. 07, 2021
Horn Antenna	SCHWARZBECK	BBHA9120D	1201	Jun. 10, 2020	Jun. 09, 2021
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Harmonic / Flicker Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Harmonic & Flicker Tester	LAPLAEC	AC2000A	439263	Jun. 22, 2020	Jun. 21, 2021
AC Power Supply	LAPLAEC	PCR4000 M	631589	Jun. 08, 2020	Jun. 07, 2021
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Electrostatic discharge Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
ESD Tester	KIKUSUI	KES4201A	UH002321	Jul. 10, 2020	Jul. 09, 2021

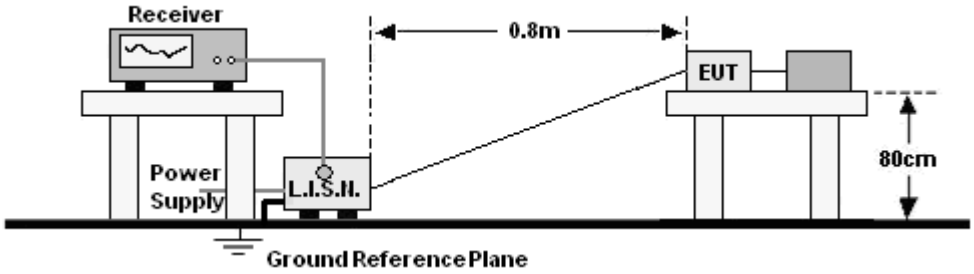
Continuous RF electromagnetic field disturbances Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Power meter	Keysight	E4419B	GB42421440	Jun. 08, 2020	Jun. 07, 2021
Power sensor	Keysight	E9300A	US39211305	Jun. 08, 2020	Jun. 07, 2021
Power sensor	Keysight	E9300A	US39211659	Jun. 08, 2020	Jun. 07, 2021
Amplifier	SKET	HAP_801000M-250W	\	Jun. 04, 2020	Jun. 03, 2021
Amplifier	SKET	HAP_0103G-75W	\	Jun. 04, 2020	Jun. 03, 2021
Amplifier	SKET	HAP_0306G-50W	\	Jun. 04, 2020	Jun. 03, 2021
Stacked double Log.-Per. Antenna	Schwarzbeck	STLP 9129	077	\	\
Field Probe	Narda	EP-601	80256	Jul. 07, 2020	Jul. 06, 2021
Signal Generator	Agilent	N5181A	MY50143748	Jun. 04, 2020	Jun. 03, 2021
Software	SKET	EMC-S	1.2.0.18	\	\

EFT and Surge and Voltage dips and interruptions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Compact Generator	TRANSIENT	TRA2000	646	Jun. 22, 2020	Jun. 21, 2021
Coupling Clamp	PARTNER	CN-EFT1000	CN-EFT1000-1624	Jun. 08, 2020	Jun. 07, 2021

Continuous induced RF disturbances Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
C/S Test System	SCHLODER	CDG-6000-75	126B1405/2016	Jun. 04, 2020	Jun. 03, 2021
Attenuator	SCHLODER	6DB DC-1G	HA1630	Jun. 04, 2020	Jun. 03, 2021
CDN	SCHLODER	CDN M2/M3	A2210389/2016	Jun. 04, 2020	Jun. 03, 2021
Injection Clamp	SCHLOBER	EMCL-20	132A1272/2016	Jun. 04, 2020	Jun. 03, 2021
Software	HUBERT	HUBERT EN 61000-4-6	1.4.1.0	\	\

6. CONDUCTED EMISSIONS

6.1 Block Diagram Of Test Setup



6.2 Limit

Limits for Conducted emissions at the mains ports of Class B MME

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

For mains ports:

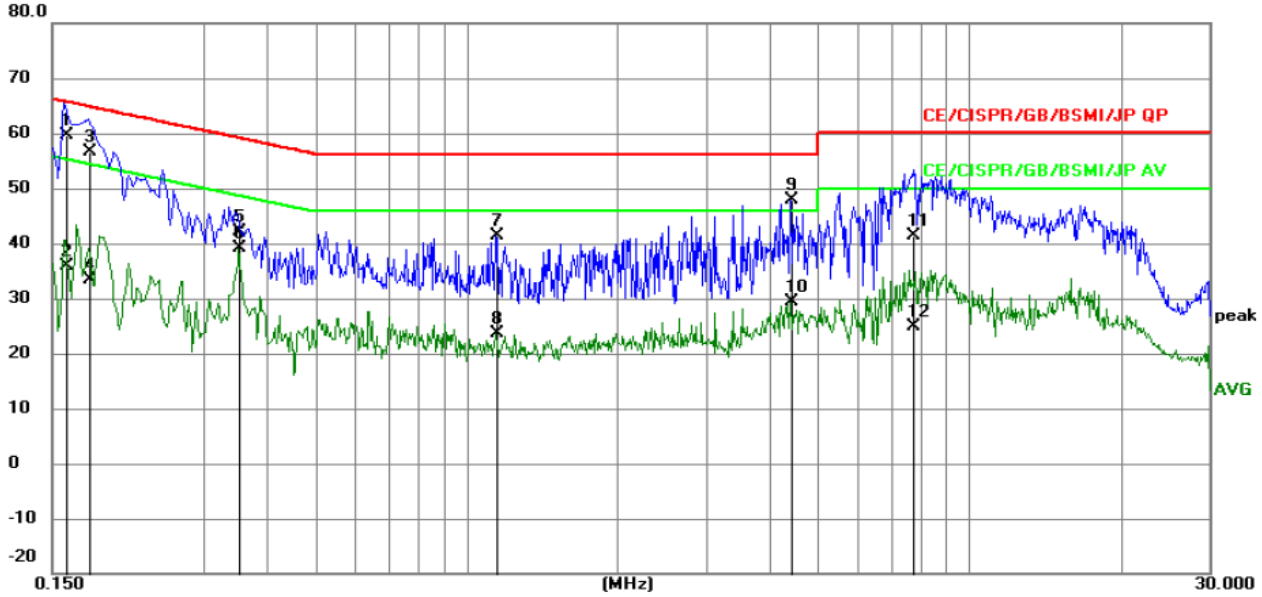
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

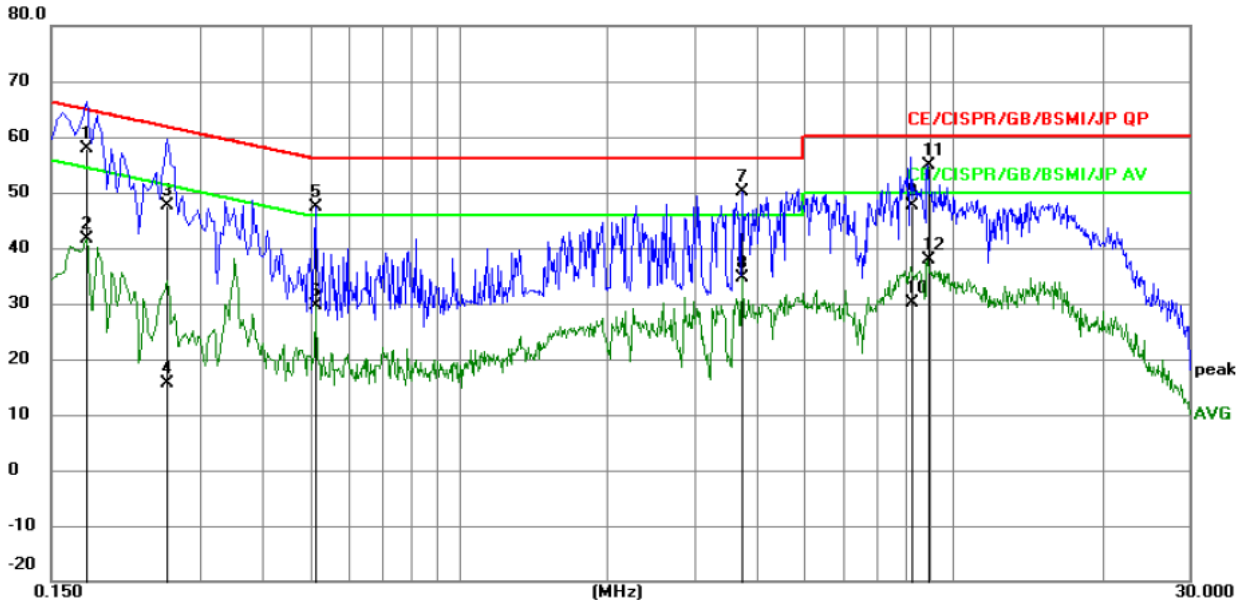
6.4 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Mode	The Worst Mode	Remark:	N/A



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1600	50.02	9.51	59.53	65.46	-5.93	QP	
2		0.1600	26.25	9.51	35.76	55.46	-19.70	AVG	
3		0.1770	47.17	9.49	56.66	64.63	-7.97	QP	
4		0.1770	23.84	9.49	33.33	54.63	-21.30	AVG	
5		0.3525	32.69	9.54	42.23	58.90	-16.67	QP	
6		0.3525	29.51	9.54	39.05	48.90	-9.85	AVG	
7		1.1444	31.90	9.57	41.47	56.00	-14.53	QP	
8		1.1444	14.04	9.57	23.61	46.00	-22.39	AVG	
9		4.4250	38.07	9.76	47.83	56.00	-8.17	QP	
10		4.4250	19.64	9.76	29.40	46.00	-16.60	AVG	
11		7.6940	31.61	9.71	41.32	60.00	-18.68	QP	
12		7.6940	15.24	9.71	24.95	50.00	-25.05	AVG	

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Mode	The Worst Mode	Remark:	N/A

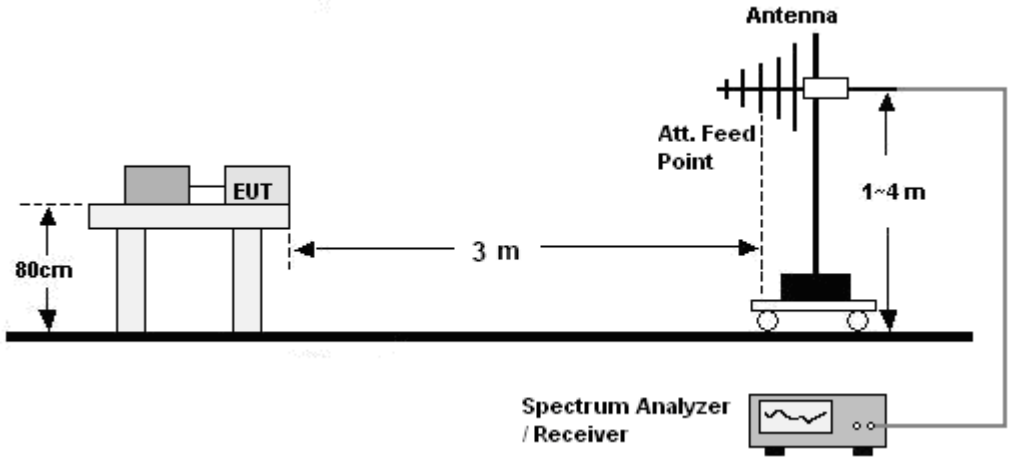


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1		0.1760	48.50	9.49	57.99	64.67	-6.68	QP	
2		0.1760	32.10	9.49	41.59	54.67	-13.08	AVG	
3		0.2570	38.21	9.53	47.74	61.53	-13.79	QP	
4		0.2570	6.12	9.53	15.65	51.53	-35.88	AVG	
5		0.5128	37.82	9.64	47.46	56.00	-8.54	QP	
6		0.5128	20.10	9.64	29.74	46.00	-16.26	AVG	
7		3.7395	40.44	9.71	50.15	56.00	-5.85	QP	
8		3.7395	24.85	9.71	34.56	46.00	-11.44	AVG	
9		8.2420	37.85	9.71	47.56	60.00	-12.44	QP	
10		8.2420	20.30	9.71	30.01	50.00	-19.99	AVG	
11	*	8.8692	45.17	9.70	54.87	60.00	-5.13	QP	
12		8.8692	28.14	9.70	37.84	50.00	-12.16	AVG	

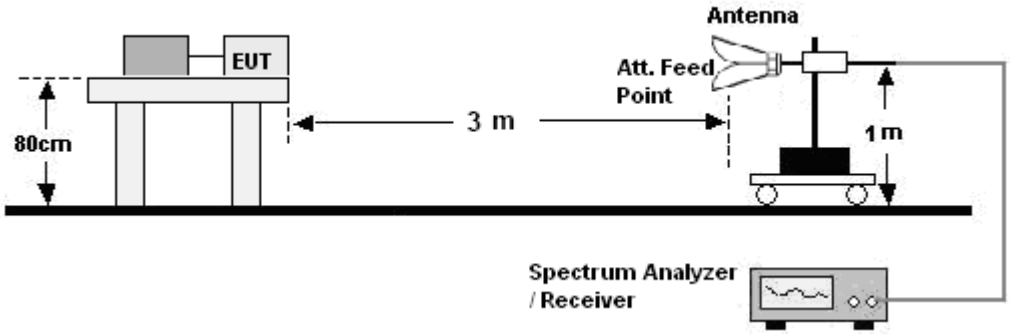
7. RADIATED EMISSIONS TEST

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



Above 1GHz:



7.2 Limits

Limits for radiated disturbance of Class B MME

Frequency (MHz)	Quasi-peak limits at 3m dB(μV/m)	
30-230	40	
230-1000	47	
Frequency (GHz)	limit above 1G at 3m dB(μV/m)	
	Average	peak
1-3	50	70
3-6	54	74

Note: The lower limit shall apply at the transition frequencies.

7.3 Test Procedure

30MHz ~ 1GHz:

a. The Product was placed on the nonconductive turntable 0.8m above the ground in a semi anechoic chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

a. The Product was placed on the non-conductive turntable 0.8 m above the ground in a full anechoic chamber..

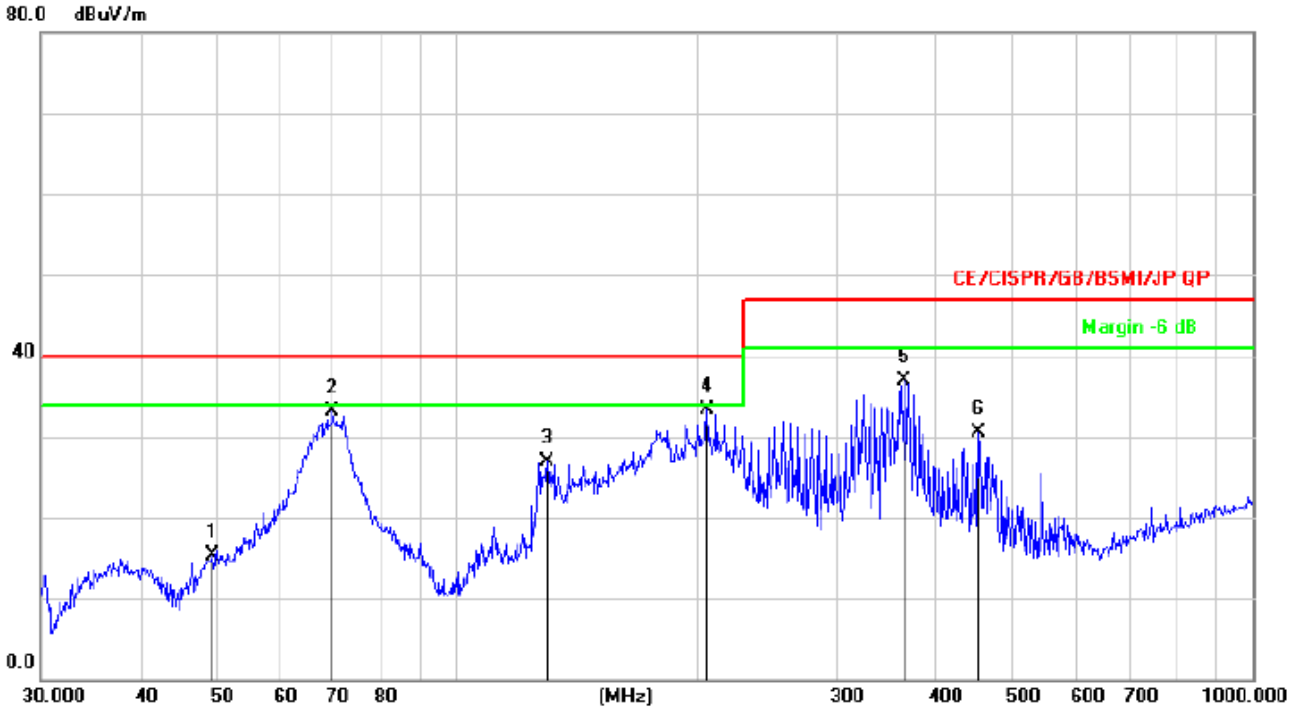
b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

7.4 Test Results

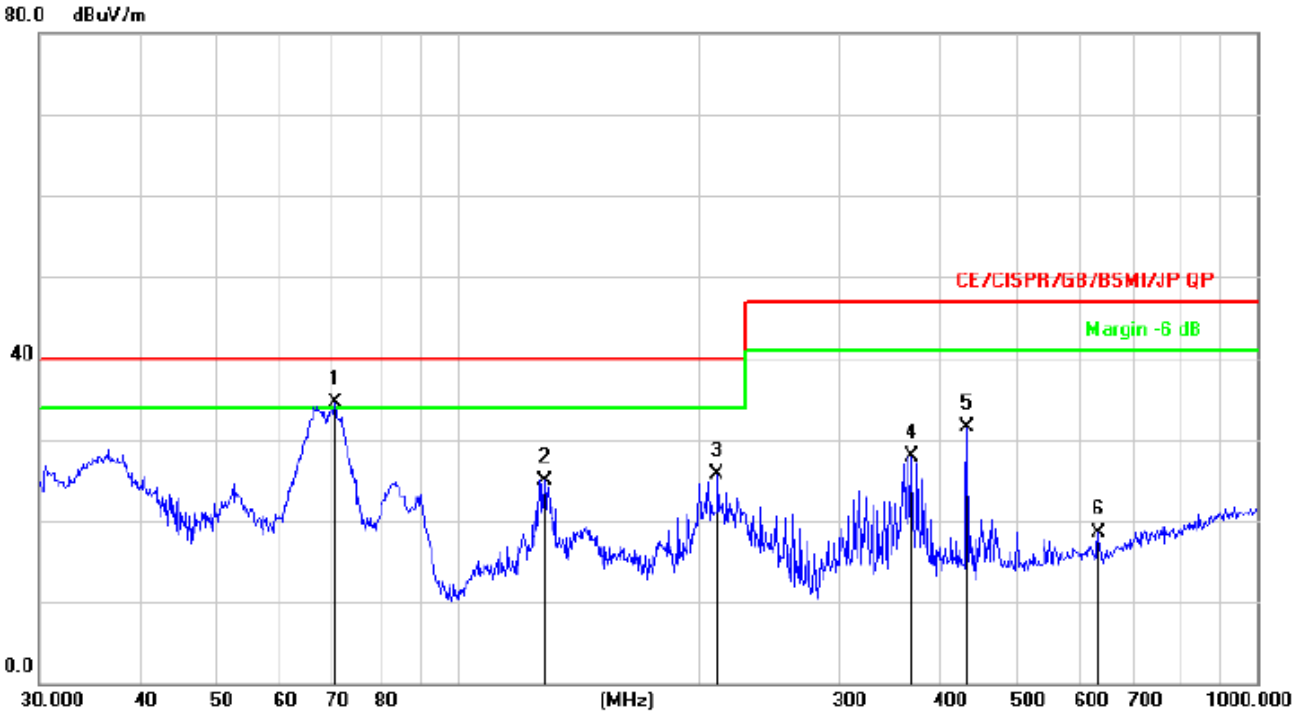
Below 1GHz

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization :	Horizontal
Test Mode	The Worst Mode	Remark:	N/A



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		49.3594	30.21	-14.89	15.32	40.00	-24.68	QP
2		69.8450	51.34	-18.15	33.19	40.00	-6.81	QP
3		129.9225	45.08	-18.21	26.87	40.00	-13.13	QP
4	*	206.3976	49.49	-16.15	33.34	40.00	-6.66	QP
5		364.2595	48.79	-11.90	36.89	47.00	-10.11	QP
6		452.7196	40.39	-9.91	30.48	47.00	-16.52	QP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization :	Vertical
Test Mode	The Worst Mode	Remark:	N/A



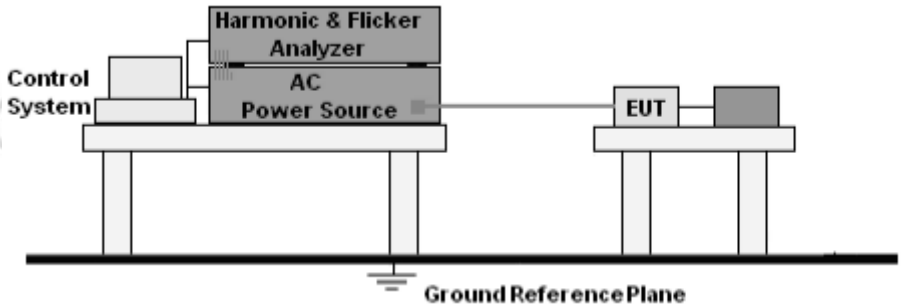
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	70.3365	52.73	-18.26	34.47	40.00	-5.53	QP
2		128.5630	43.04	-18.12	24.92	40.00	-15.08	QP
3		211.5265	41.66	-16.03	25.63	40.00	-14.37	QP
4		369.4047	39.73	-11.79	27.94	47.00	-19.06	QP
5		434.0651	41.89	-10.33	31.56	47.00	-15.44	QP
6		633.9072	25.20	-6.72	18.48	47.00	-28.52	QP

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Above 1GHz
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

8. HARMONIC CURRENT EMISSION(H)

8.1 Block Diagram of Test Setup



8.2 Limit

EN 61000-3-2:2014 Clause 7.

8.3 Test Procedure

a. The Product was placed on the top of a non-conductive table above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

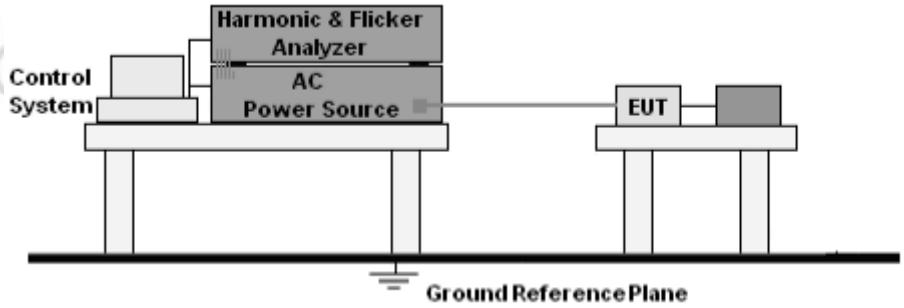
b. The correspondent test program of test instrument to measure the current harmonics emanated from Product was chosen. The measure time shall be not less than the time necessary for the Product to be exercised.

8.4 Test Results

The Product belongs to Class A, and its power is less than 75W, so it deems to fulfil this standard without testing.

9. VOLTAGE FLUCTUATIONS & FLICKER(F)

9.1 Block Diagram of Test Setup



9.2 Limit

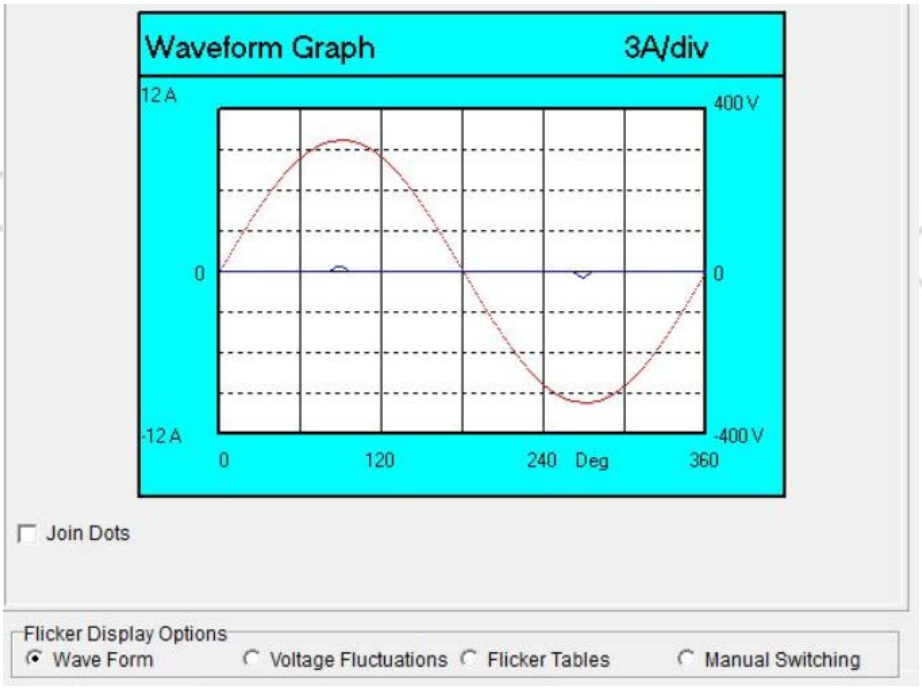
EN 61000-3-3:2013 Clause 5.

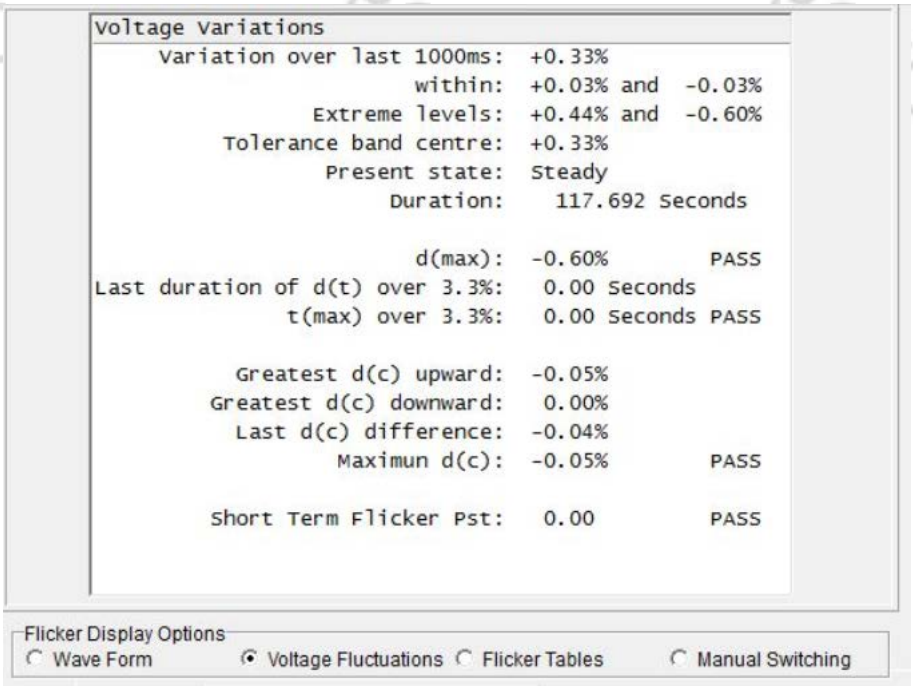
9.3 Test Procedure

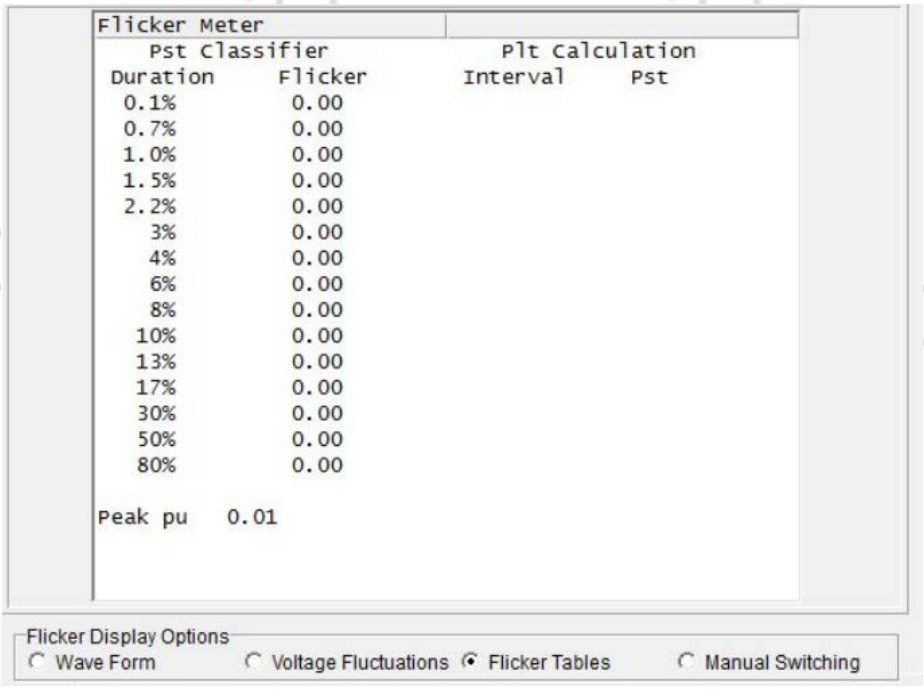
a. The Product was placed on the top of a non-conductive table above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b. During the flick test, the measure time shall include that part of whole operation cycle in which the Product produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

9.4 Test Results






Flicker Meter
Pst Classifier
Plt Calculation
Duration
Flicker
Interval
Pst
0.1% 0.00
0.7% 0.00
1.0% 0.00
1.5% 0.00
2.2% 0.00
3% 0.00
4% 0.00
6% 0.00
8% 0.00
10% 0.00
13% 0.00
17% 0.00
30% 0.00
50% 0.00
80% 0.00
Peak pu 0.01
Flicker Display Options
Wave Form
Voltage Fluctuations
Flicker Tables
Manual Switching

10. IMMUNITY TEST OF GENERAL THE PERFORMANCE CRITERIA

According To EN 301489 -17standard, The General Performance Criteria As Following:

Criteria	During test	After test (i.e. as a result of the application of the test)
A	Shall operate as intended. (see note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance. Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no loss of critical stored data.
NOTE: Operate as intended during the test allows a level of degradation in accordance with Minimum performance level. Minimum performance level: For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %. For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.		

PERFORMANCE FOR TT

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR TR

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR CT

The performance criteria A shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an Acknowledgement (ACK) or Not Acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR CR

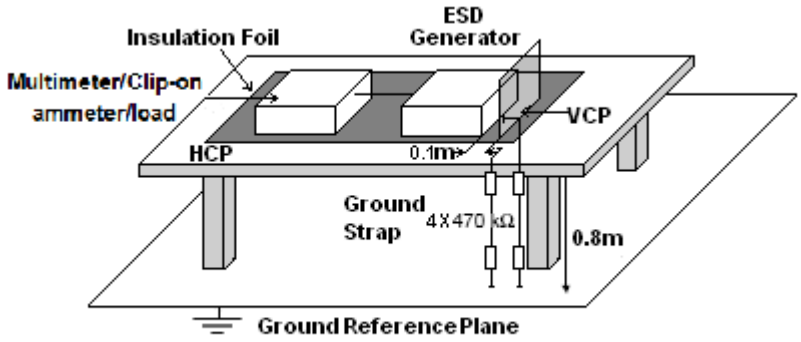
The performance criteria A shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

11. ELECTROSTATIC DISCHARGE (ESD)

11.1 Test Specification

Test Port	:	Enclosure port
Discharge Impedance	:	330 ohm / 150 pF
Discharge Mode	:	Single Discharge
Discharge Period	:	one second between each discharge

11.2 Block Diagram of Test Setup



11.3 Test Procedure

a. Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.

e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

.

11.4 Test Results

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Mode：	BT

Mode	Air Discharge (Test result)								Contact Discharge (Test result)								Observation	Perform Criteria	Judgment
Test level (kV)	2		4		8		15		2		4		6		8				
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-			
HCP									B	B	B	B					CT,CR	B	PASS
VCP									B	B	B	B					CT,CR	B	PASS
USB Port									B	B	B	B					CT,CR	B	PASS
enclosure	B	B	B	B	B	B											CT,CR	B	PASS

Note:

1) P/N denotes the Positive/Negative polarity of the output voltage.
2) Test condition:
Direct / Indirect (HCP/VCP) discharges: Minimum 50 times (Positive/Negative) at each point. Air discharges: Minimum 10 times (Positive/Negative) at each point.
3) N/A - denotes test is not applicable in this test report
4)There was not any unintentional transmission in standby mode

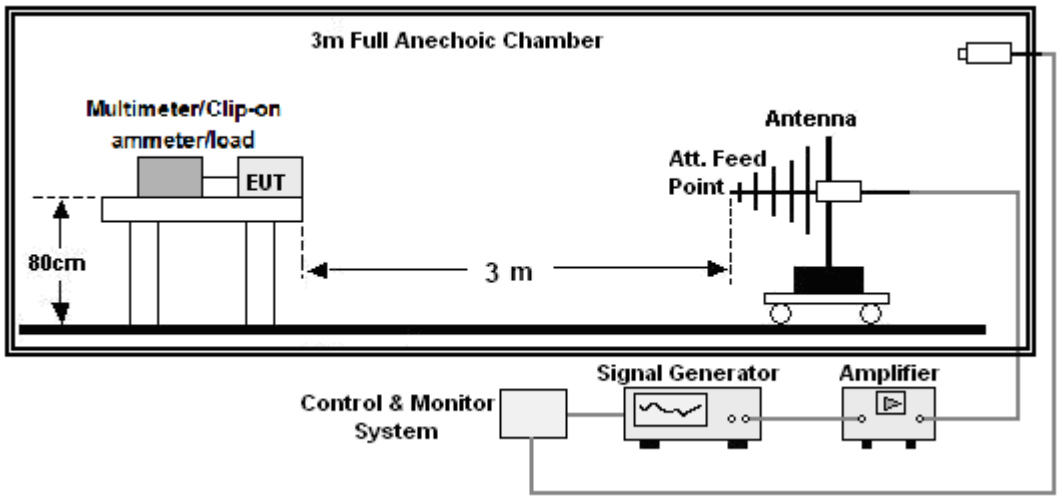
12. CONTINUOUS RF ELECTROMAGNETIC FIELD DISTURBANCES(RS)

12.1 Test Specification

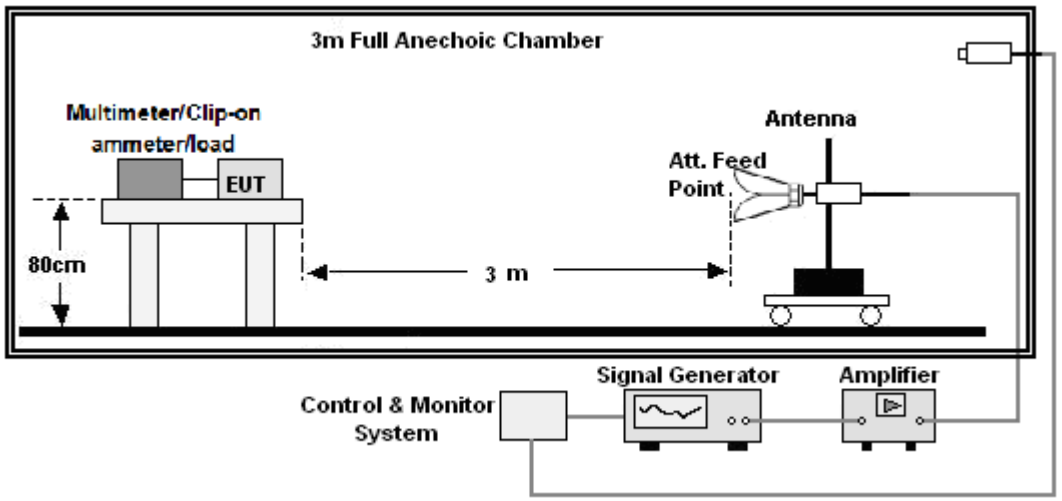
Test Port	:	Enclosure port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	1 second
Polarization	:	Horizontal & Vertical

12.2 Block Diagram of Test Setup

Below 1GHz:



Above 1GHz:



12.3 Test Procedure

a. The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.

b. The frequency range is swept from 80MHz to 6000MHz,with the signal 80% amplitude modulated with a 1 kHz sine wave,and the step size was 1%.

c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to be able to respond, but should not exceed 5 s at each of the frequencies during the scan.

d. The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.

e. For Broadcast reception function:Group 2 not apply in this test.

12.4 Test Results

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Mode：	BT

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform Criteria	Test Result	Judgment
80~6000	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	CT,CR	A	A	PASS
			Rear				
			Left				
			Right				

Note:

1) P/N denotes the Positive/Negative polarity of the output voltage.
2) N/A - denotes test is not applicable in this test report.
3) There was no change operated with initial operating during the test.
4) There was not any unintentional transmission in standby mode

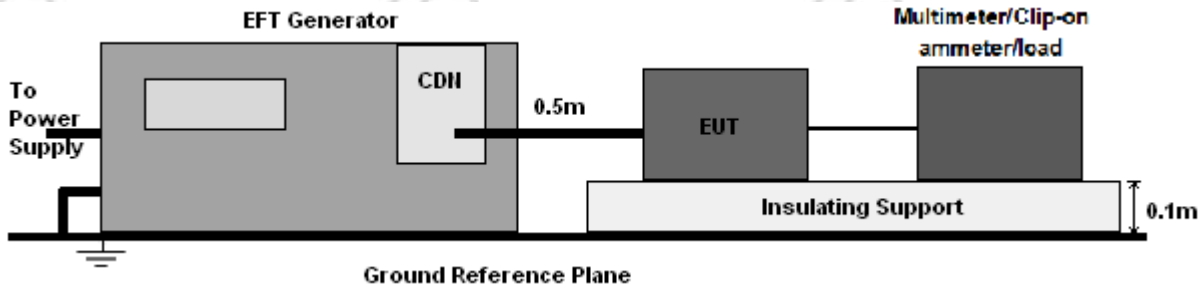
13. ELECTRICAL FAST TRANSIENTS/BURST (EFT)

13.1 Test Specification

Test Port	:	input AC/DC power port
Impulse Frequency	:	5 kHz
Impulse Wave-shape	:	5/50 ns
Burst Duration	:	15 ms
Burst Period	:	300 ms
Test Duration	:	2 minutes per polarity

13.2 Block Diagram of EUT Test Setup

For input ACDC power port:



13.3 Test Procedure

a. The Product and support units were located on a non-conductive table above ground reference plane.

b. A 0.5m-long power cord was attached to Product during the test.

13.4 Test Results

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101 KPa	Test Mode：	BT

Coupling Line		Test level (KV)l								Obser vation	Perform Criteria	Test Result	Judg ment
		0.5		1		2		4					
		+	-	+	-	+	-	+	-				
AC Line	L	A	A	A	A					CT,CR	B	A	PASS
	N	A	A	A	A							A	PASS
	L+N	A	A	A	A							A	PASS
	PE												
	L+PE												
	N+PE												
	L+N+PE												
DC Line													
Signal Line		A	A	A	A							A	PASS

Note:

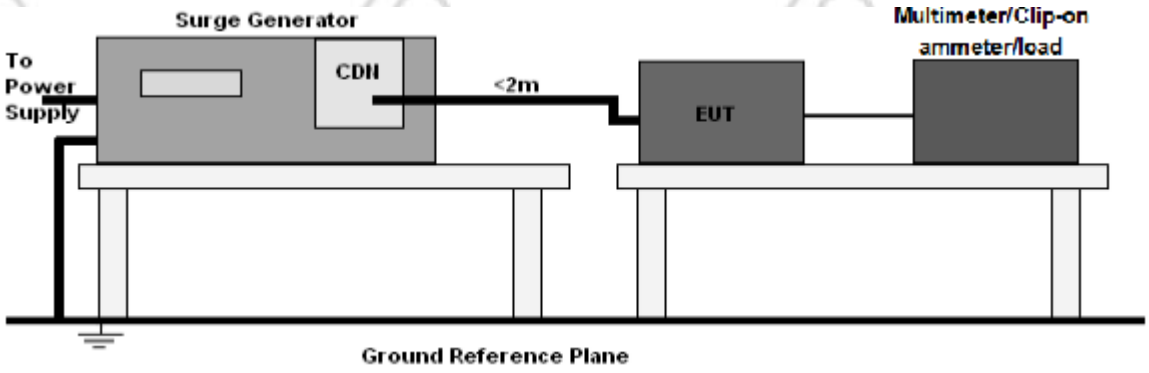
1) P/N denotes the Positive/Negative polarity of the output voltage.
2) N/A - denotes test is not applicable in this test report.
3) There was not any unintentional transmission in standby mode

14. SURGES IMMUNITY TEST

14.1 Test Specification

Test Port	:	input AC/DC power port
Wave-Shape	:	Open Circuit Voltage - 1.2 / 50 us Short Circuit Current - 8 / 20 us
Pulse Repetition Rate	:	1 pulse / min.
Phase Angle	:	0° / 90° / 180° / 270°
Test Events	:	5 pulses (positive & negative) for each polarity

14.2 Block Diagram of EUT Test Setup



14.3 Test Procedure

a. The surge is to be applied to the Product power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave.

b. The power cord between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter). Interconnection line between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter).

14.4 Test Result

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101 kPa	Test Mode：	BT

Coupling Line			Test level (KV) Test Result								Observation	Perform Criteria	Judgment
			0.5		1		2		4				
			+	-	+	-	+	-	+	-			
AC Line	L-N	0°	A	A	A	A					CT,CR	A	PASS
		90°	A	A	A	A							
		180°	A	A	A	A							
		270°	A	A	A	A							
	L-PE	0°											
		90°											
		180°											
		270°											
	N-PE	0°											
		90°											
		180°											
		270°											
DC Line													
Signal Line			A	A	A	A							PASS

Note:

1) Polarity and Numbers of Impulses：5 Pst / Ngt at each tested mode
2) N/A - denotes test is not applicable in this Test Report
3) There was not any unintentional transmission in standby mode

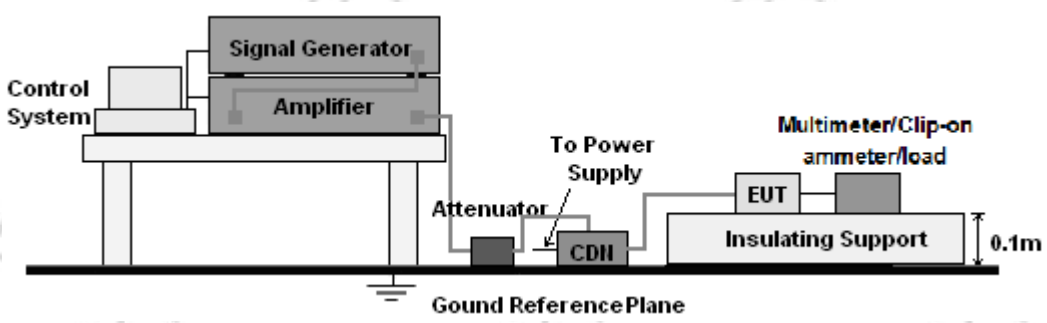
15. CONTINUOUS INDUCED RF DISTURBANCES (CS)

15.1 Test Specification

Test Port	:	input AC/DC. power port analogue/digital data port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	1 second

15.2 Block Diagram of EUT Test Setup

For input AC/DC power port:



15.3 Test Procedure

For input AC/DC power port:

a. The Product and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.

b. The frequency range is swept from 150 kHz to 10MHz, 10MHz to 30MHz, 30MHz to 80MHz with the signal 80% amplitude modulated with a 1 kHz sine wave, and the step size was 1% of fundamental.

c. The dwell time at each frequency shall be not less than the time necessary for the Product to be able to respond.

15.4 Test Result

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Mode：	BT

Test Ports (Mode)	Freq. Range (MHz)	Field Strength Azimuth	Observation	Perform Criteria	Test Result	Judgment
Input/ Output AC. Power Port	0.15-80	3 V/m (rms) AM Modulated 1000Hz, 80%	**CT,CR**	A	A	PASS
Input/ Output DC. Power Port	0.15-80		N/A	N/A	N/A	N/A
Signal Line	0.15-80		**CT,CR**	N/A	N/A	N/A

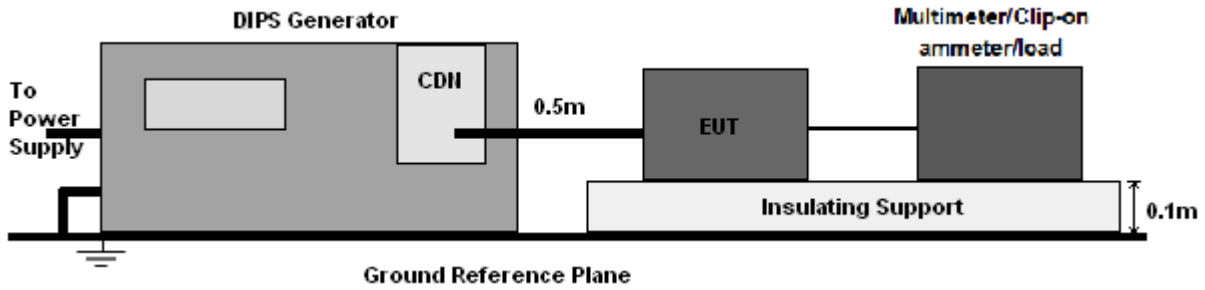
Note: “A” stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

16. VOLTAGE DIPS AND INTERRUPTIONS (DIPS)

16.1 Test Specification

Test Port : input AC power port
Phase Angle : 0°, 180°
Test cycle : 3 times

16.2 Block Diagram of EUT Test Setup



16.3 Test Procedure

a. The Product and support units were located on a non-conductive table above ground floor.

b. Set the parameter of tests and then perform the test software of test simulator.

c. Conditions changes to occur at 0 degree crossover point of the voltage waveform.

16.4 Test Result

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101 kPa	Test Mode：	BT

Voltage Reduction	Duration (ms)	Observation	Perform Criteria	Test Result	Judgment
Voltage dip 0%	10	**TT, TR**	**B**	**A**	**PASS**
Voltage dip 0%	20	**TT, TR**	**B**	**A**	**PASS**
Voltage dip 70%	500	**TT, TR**	**B**	**B**	**PASS**
Voltage interruptions	5000	**TT, TR**	**C**	**B**	**PASS**

Note:

1) There was not any unintentional transmission in standby mode

17. EUT PHOTOGRAPHS

EUT Photo 1

EUT Photo 2

EUT Photo 3

EUT Photo 4

EUT Photo 5

EUT Photo 6

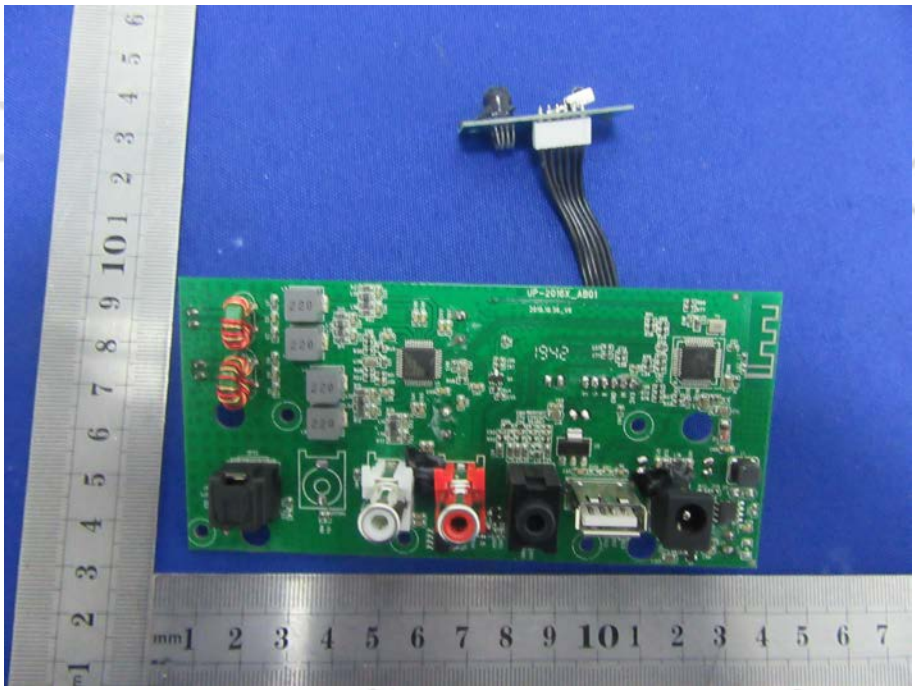
EUT Photo 7

EUT Photo 8

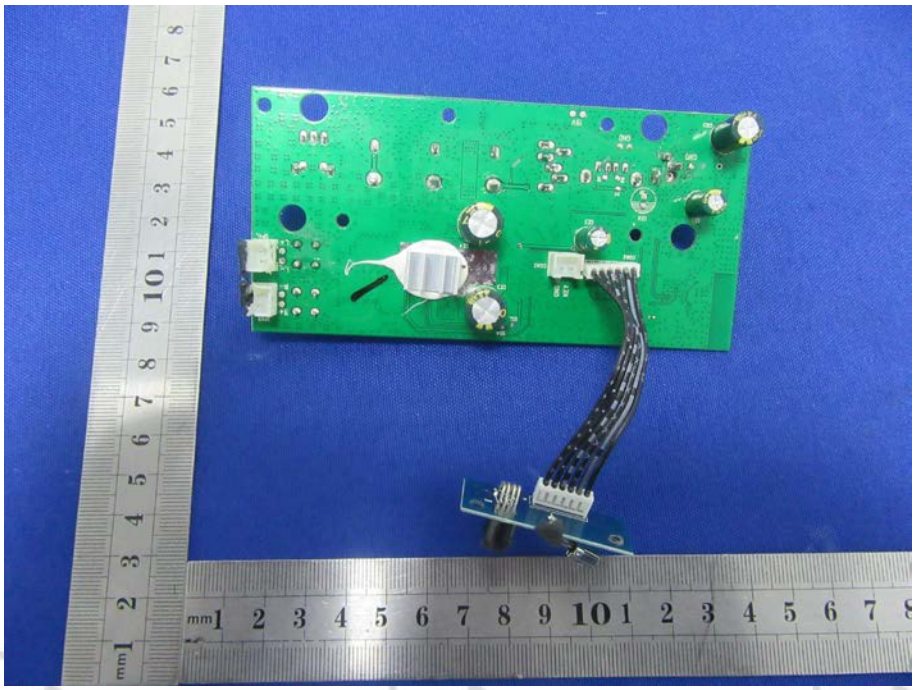
EUT Photo 9

EUT Photo 10

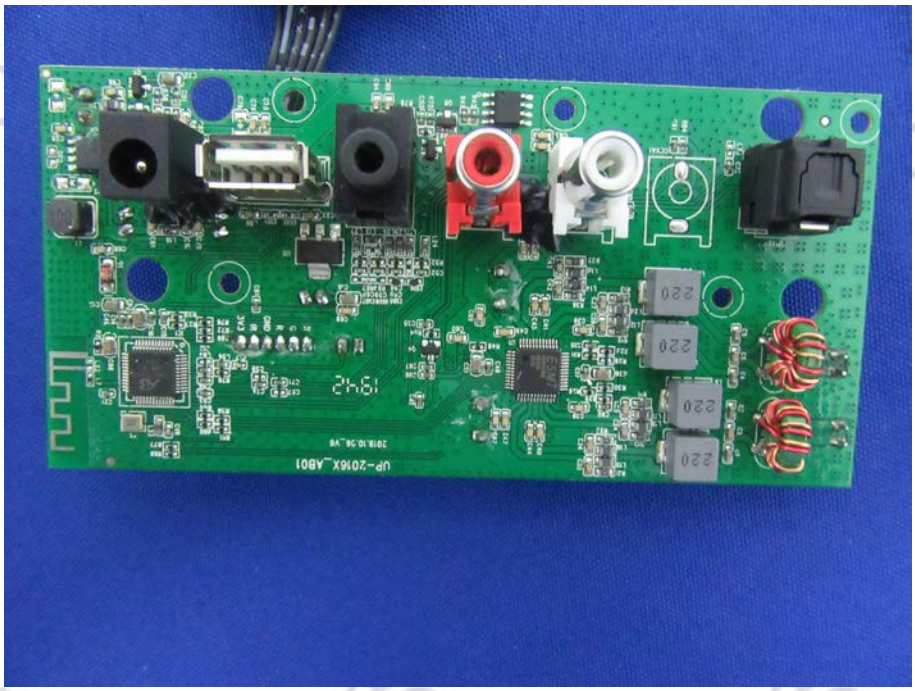
EUT Photo 11



EUT Photo 12



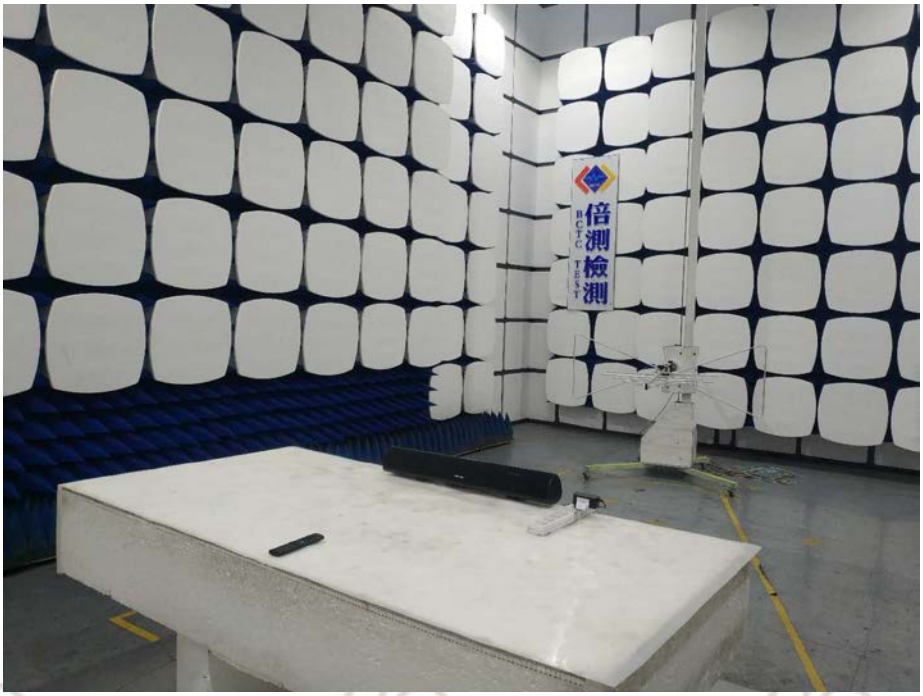
EUT Photo 13



18. EUT TEST SETUP PHOTOGRAPHS

Conducted emissions

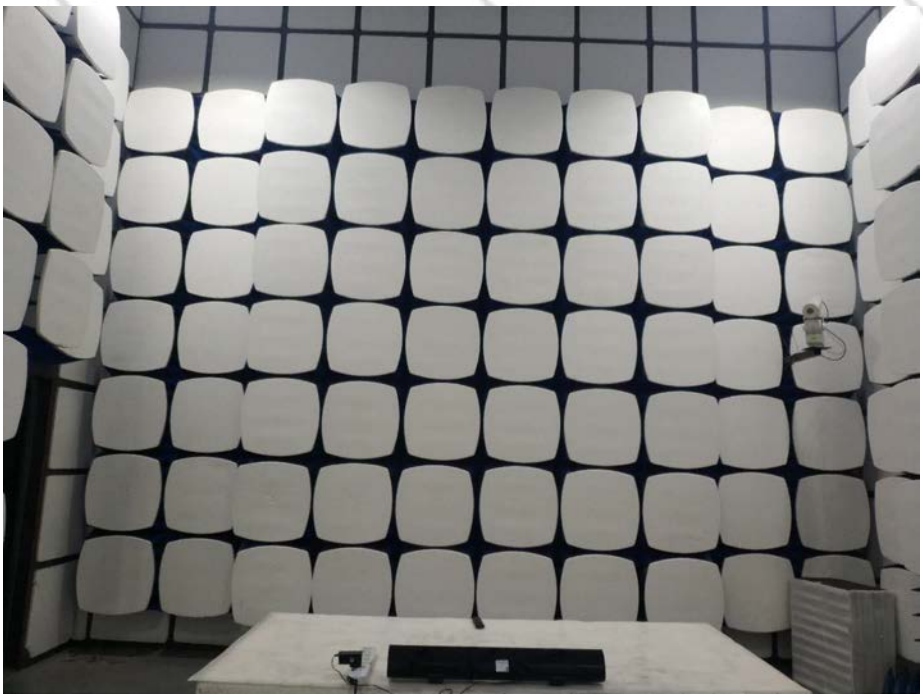
Radiated emissions



H/F


定义
布置
测试布置图布置
IEC 61000-3-2
EN 61000-3-2
IEC 61000-3-3
EN 61000-3-3
AC Mains
AC Power Source
EUT
LAPLACE INSTRUMENTS LTD

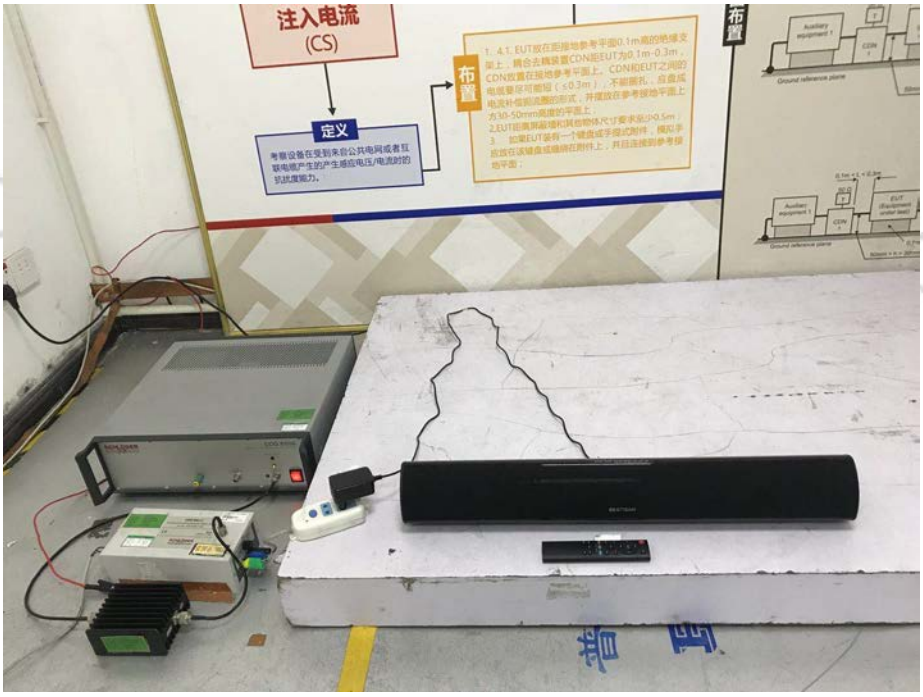
RS



ESD

EFT/DIPS/SURGE

CS



※※※※※ END OF REPORT ※※※※※

FCC Part 15C Test Report

FCC ID: 2AXCSSOUNDBAR

Product Name:	Sound bar
Trademark:	N/A
Model Name :	Refer to section 4.1
Prepared For :	MYBESTSOUND CO., LTD
Address :	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Prepared By :	Shenzhen BCTC Testing Co., Ltd.
Address :	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Test Date:	Aug. 05, 2020 – Aug. 18, 2020
Date of Report :	Aug. 19, 2020
Report No.:	BCTC2008000395E

TEST RESULT CERTIFICATION

Applicant's name .....:	MYBESTSOUND CO., LTD
Address.....:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Manufacture's Name .....:	MYBESTSOUND CO., LTD
Address.....:	301, Building A3, Haocheng (Heping) Industrial Park, No. 66 Hexiu West Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China
Product description	
Product name .....:	Sound bar
Trademark .....:	N/A
Model and/or type reference	Refer to section 4.1
Standards .....:	FCC Part15.247 ANSI C63.10:2013

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of BCTC, this document may be altered or revised by BCTC, personal only, and shall be noted in the revision of the document.

Prepared by(Engineer):	Willem Wang	Willem Wang
Reviewer(Supervisor):	Eric Yang	
Approved(Manager):	Zero Zhou	

Table of Contents

(Note: N/A means not applicable)

1. TEST SUMMARY

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.205(a) 15.209 15.247(d)	Radiated Spurious Emissions	PASS	
15.247(d)	Conducted Spurious emissions	PASS	
15.247(d) 15.205(a)	Band edge	PASS	
15.207	Conducted Emission	PASS	
15.247(a)	20dB Bandwidth	PASS	
15.247(b)	Maximum Peak Output Power	PASS	
15.247(a)	Frequency Separation	PASS	
15.247(a)	Number of Hopping Frequency	PASS	
15.247(a)	Dwell time	PASS	
15.203	Antenna Requirement	PASS	
Note: (1)" N/A" denotes test is not applicable in this Test Report			

2. TEST FACILITY

Shenzhen BCTC Testing Co., Ltd.
Add. : BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Test Firm Registration Number: 712850
IC Registered No.: 23583

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %。

No.	Item	Uncertainty
1	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.576dB
6	Conducted output power uncertainty below 1G	U=1.28dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59℃

4. GENERAL INFORMATION

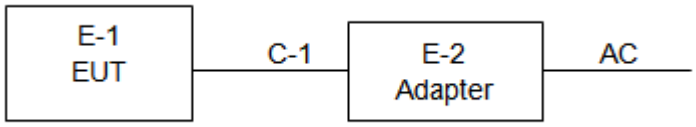
4.1 GENERAL DESCRIPTION OF EUT

Equipment	Sound bar
Trade Name	N/A
Model Name	S6520 S8520, S9920, SD9621, ST01, ST02, ST03, ST04, ST05, ST06, ST07, ST08, ST09, SQ01, SQ02, SQ03, SQ04, SQ05, SQ06, SQ07, SQ08, SQ09, SR01, SR02, SR03, SR04, SR05, SR06, SR07, SR08, SR09, SP01, SP02, SP03, SP04, SP05, SP06, SP07, SP08, SP09, SD01, SD02, SD03, SD04, SD05, SD06, SD07, SD08, SD09, SE01, SE02, SE03, SE04, SE05, SE06, SE07, SE08, SE09, SG01, SG02, SG03, SG04, SG05, SG06, SG07, SG08, SG09, SK01, SK02, SK03, SK04, SK05, SK06, SK07, SK08, SK09, S7020, S7021, S9820, S9821, S7621, S9620, S9621, SW01, SW02, SW03, SW05, SW06, SW08, SW09, SW65A, SW65B, SW65C, SW65D, SW80A, SW80B, SW80C, SW80D, SW100, SW100A, SW100B, SW100C, SW100D
Model Difference	All the model are the same circuit and RF module, except model names.
Product Description	The EUT is a Sound bar Operation Frequency: 2402-2480 MHz Modulation Type: GFSK, Pi/4DQPSK, 8DPSK Number Of Channel 79CH Antenna Designation: PCB antenna Antenna Gain 0dBi
Channel List	Please refer to the 4.4.
Ratings	DC 19V
Adapter 1	MODEL: AS3601A-1901980DM INPUT: 100-240V~50/60Hz 1.0A MAX OUTPUT: 19V 1.98A 37.62W
Adapter 2	MODEL: TP04-190189E INPUT: 100-240V~50/60Hz 1A MAX OUTPUT: 19V 1.89A
Connecting I/O Port(s)	Please refer to the User's Manual

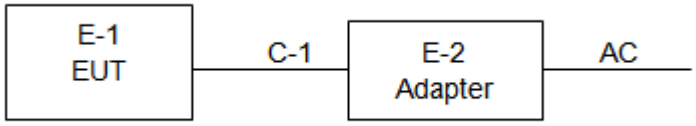
4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP Photographs for the actual

Conducted Emission Test



Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Data Cable
E-1	Sound bar	N/A	S6520	N/A	EUT
E-2	Adapter	N/A	AS3601A-1901 980DM TP04-190189E	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1M	DC cable unshielded

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	79	/

4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

The EUT is Continue Transmitting.

The software is installed in operation system, named “RFTestTool.apk” ,Version 1.0.

Test Mode	Test mode	Low channel	Middle channel	High channel
1	Transmitting(GFSK)	2402MHz	2441MHz	2480MHz
2	Transmitting(Pi/4DQPSK)	2402MHz	2441MHz	2480MHz
3	Transmitting(8DPSK)	2402MHz	2441MHz	2480MHz
4	Transmitting (Conducted Emission and Radiated emission)			

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

RF conduction and Radiation Test equipment

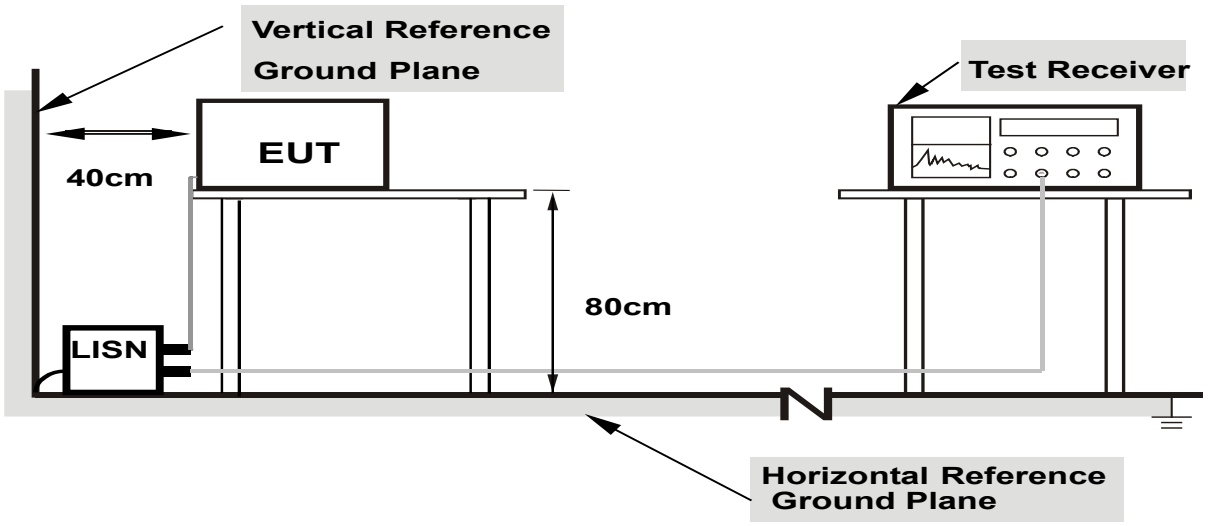
Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4407B	MY45109572	Jun. 08, 2020	Jun. 07, 2021
2	Test Receiver (9kHz-7GHz)	R&S	ESR7	101154	Jun. 08, 2020	Jun. 07, 2021
3	Bilog Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	VULB9163-942	Jun. 08, 2020	Jun. 07, 2021
4	Horn Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA9120D	1541	Jun. 10, 2020	Jun. 09, 2021
5	Horn Antenna (18GHz-40GHz)	SCHWARZBECK	BBHA9170	822	Jun. 10, 2020	Jun. 09, 2021
6	Amplifier (9KHz-6GHz)	SCHWARZBECK	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021
7	Amplifier (0.5GHz-18GHz)	SCHWARZBECK	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021
8	Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	Jun. 08, 2020	Jun. 07, 2021
9	Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519B	014	Jun. 08, 2020	Jun. 07, 2021
10	RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	Jun. 08, 2020	Jun. 07, 2021
11	RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	Jun. 08, 2020	Jun. 07, 2021
12	RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	Jun. 08, 2020	Jun. 07, 2021
13	Power Metter	Keysight	E4419B	\	Jun. 08, 2020	Jun. 07, 2021
14	Power Sensor (AV)	Keysight	E9 300A	\	Jun. 08, 2020	Jun. 07, 2021
15	Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	Jun. 04, 2020	Jun. 03, 2021
16	Spectrum Analyzer 9kHz-40GHz	Agilent	FSP40	100363	Jun. 13, 2020	Jun. 12, 2021
17	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
18	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
2	LISN	SCHWARZBECK	NSLK8127	8127739	Jun. 13, 2020	Jun. 12, 2021
3	LISN	R&S	ENV216	101375	Jun. 04, 2020	Jun. 03, 2021
4	RF cables	Huber+Suhnar	9kHz-30MHz	B1702988-0008	Jun. 08, 2020	Jun. 07, 2021
5	Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

6. CONDUCTED EMISSIONS

6.1 Block Diagram Of Test Setup



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

6.2 Limit

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

6.3 Test procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

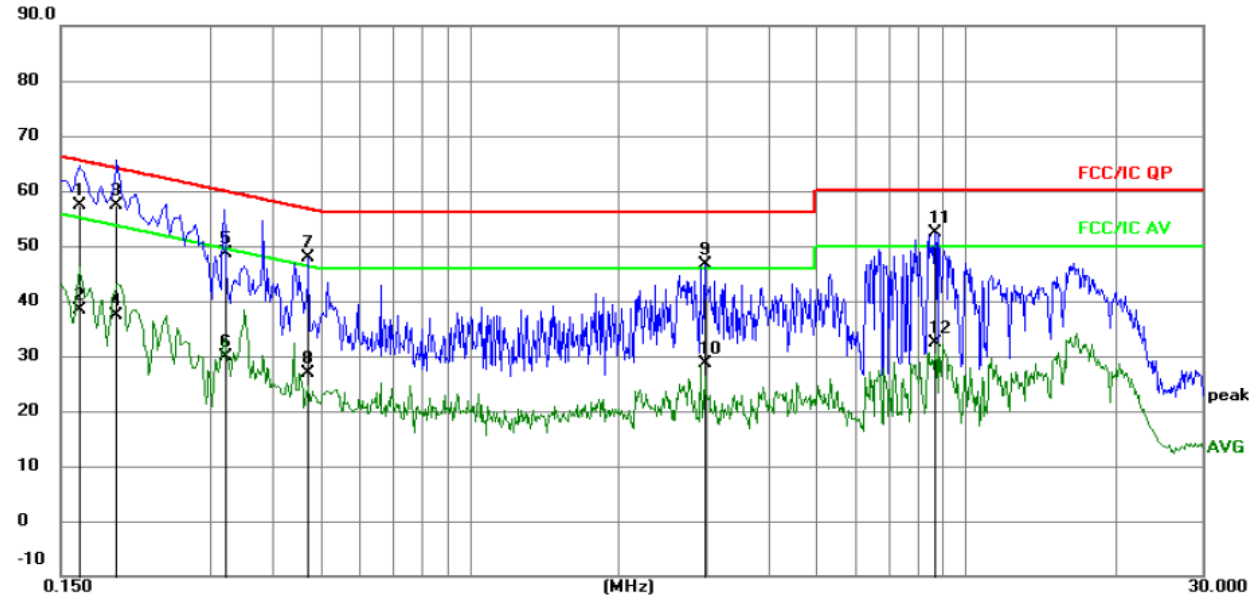
d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

6.4 Test Result

Adapter 1

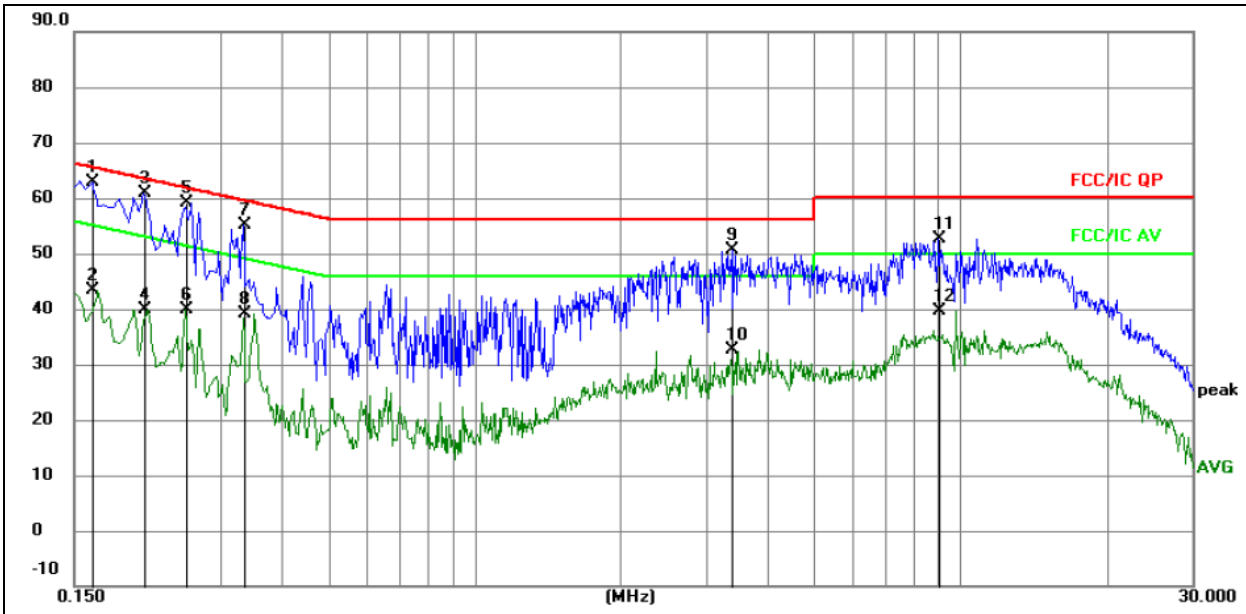
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	L
Test Voltage ：	AC120V/60Hz	Test Mode：	Mode 4



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1		0.1640	47.91	9.50	57.41	65.26	-7.85	QP	
2		0.1640	28.94	9.50	38.44	55.26	-16.82	AVG	
3	*	0.1940	47.83	9.47	57.30	63.86	-6.56	QP	
4		0.1940	27.98	9.47	37.45	53.86	-16.41	AVG	
5		0.3209	39.02	9.56	48.58	59.68	-11.10	QP	
6		0.3209	20.30	9.56	29.86	49.68	-19.82	AVG	
7		0.4736	38.35	9.57	47.92	56.45	-8.53	QP	
8		0.4736	17.35	9.57	26.92	46.45	-19.53	AVG	
9		2.9776	36.93	9.66	46.59	56.00	-9.41	QP	
10		2.9776	18.86	9.66	28.52	46.00	-17.48	AVG	
11		8.6832	42.65	9.70	52.35	60.00	-7.65	QP	
12		8.6832	22.64	9.70	32.34	50.00	-17.66	AVG	

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	N
Test Voltage ：	AC120V/60Hz	Test Mode：	Mode 4

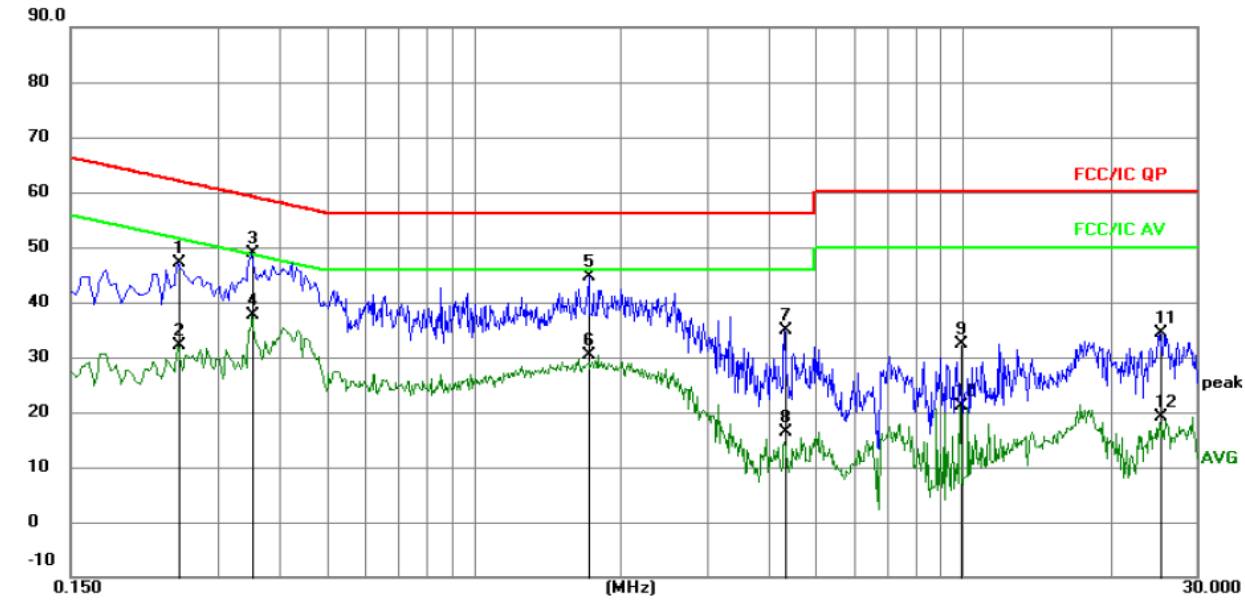


Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1		0.1635	53.37	9.50	62.87	65.28	-2.41	QP	
2		0.1635	33.93	9.50	43.43	55.28	-11.85	AVG	
3	*	0.2085	51.40	9.47	60.87	63.26	-2.39	QP	
4		0.2085	30.50	9.47	39.97	53.26	-13.29	AVG	
5		0.2535	49.49	9.52	59.01	61.64	-2.63	QP	
6		0.2535	30.42	9.52	39.94	51.64	-11.70	AVG	
7		0.3345	45.55	9.55	55.10	59.34	-4.24	QP	
8		0.3345	29.57	9.55	39.12	49.34	-10.22	AVG	
9		3.3945	40.94	9.69	50.63	56.00	-5.37	QP	
10		3.3945	22.84	9.69	32.53	46.00	-13.47	AVG	
11		9.0195	43.01	9.70	52.71	60.00	-7.29	QP	
12		9.0195	29.96	9.70	39.66	50.00	-10.34	AVG	

Adapter 2

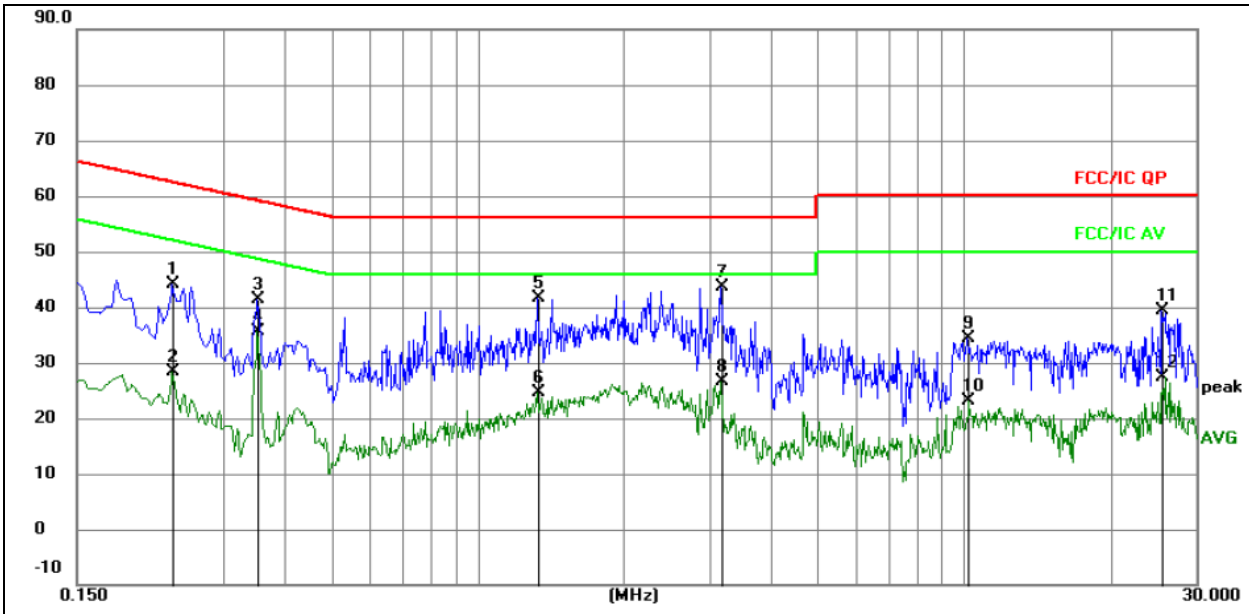
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	L
Test Voltage ：	AC120V/60Hz	Test Mode：	Mode 4



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1		0.2490	37.62	9.52	47.14	61.79	-14.65	QP	
2		0.2490	22.65	9.52	32.17	51.79	-19.62	AVG	
3	*	0.3525	39.34	9.54	48.88	58.90	-10.02	QP	
4		0.3525	28.15	9.54	37.69	48.90	-11.21	AVG	
5		1.7205	35.09	9.58	44.67	56.00	-11.33	QP	
6		1.7205	20.68	9.58	30.26	46.00	-15.74	AVG	
7		4.3170	25.12	9.75	34.87	56.00	-21.13	QP	
8		4.3170	6.61	9.75	16.36	46.00	-29.64	AVG	
9		9.8969	22.64	9.69	32.33	60.00	-27.67	QP	
10		9.8969	11.40	9.69	21.09	50.00	-28.91	AVG	
11		25.2105	24.59	9.74	34.33	60.00	-25.67	QP	
12		25.2105	9.27	9.74	19.01	50.00	-30.99	AVG	

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	N
Test Voltage ：	AC120V/60Hz	Test Mode：	Mode 4



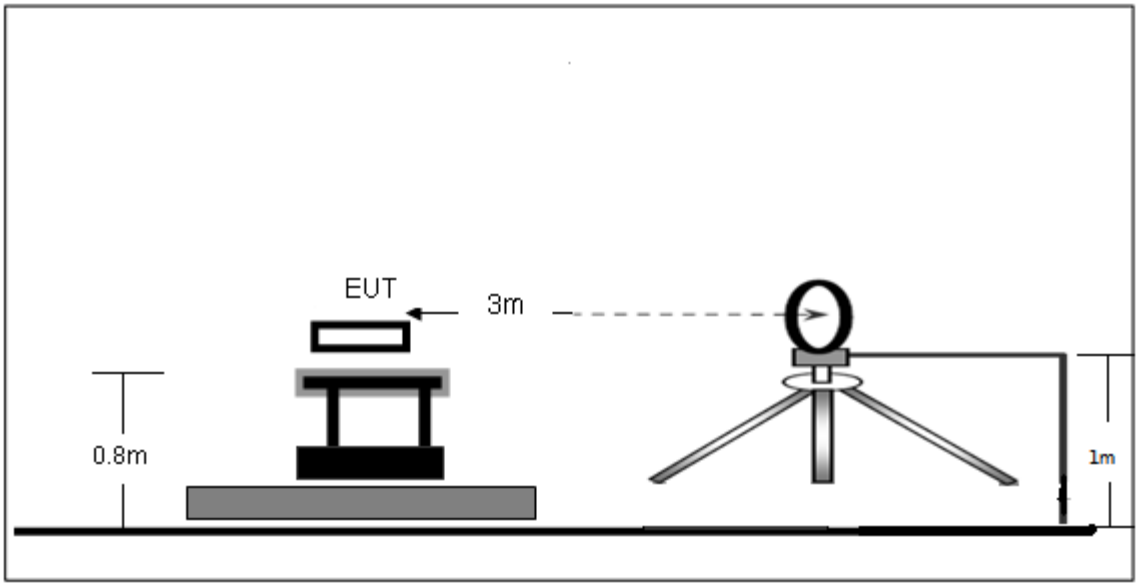
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1		0.2355	34.51	9.50	44.01	62.25	-18.24	QP	
2		0.2355	18.83	9.50	28.33	52.25	-23.92	AVG	
3		0.3525	31.93	9.54	41.47	58.90	-17.43	QP	
4		0.3525	26.04	9.54	35.58	48.90	-13.32	AVG	
5		1.3290	32.04	9.58	41.62	56.00	-14.38	QP	
6		1.3290	15.04	9.58	24.62	46.00	-21.38	AVG	
7	*	3.1605	33.97	9.67	43.64	56.00	-12.36	QP	
8		3.1605	17.01	9.67	26.68	46.00	-19.32	AVG	
9		10.1310	24.59	9.69	34.28	60.00	-25.72	QP	
10		10.1310	13.51	9.69	23.20	50.00	-26.80	AVG	
11		25.5120	29.57	9.74	39.31	60.00	-20.69	QP	
12		25.5120	17.52	9.74	27.26	50.00	-22.74	AVG	

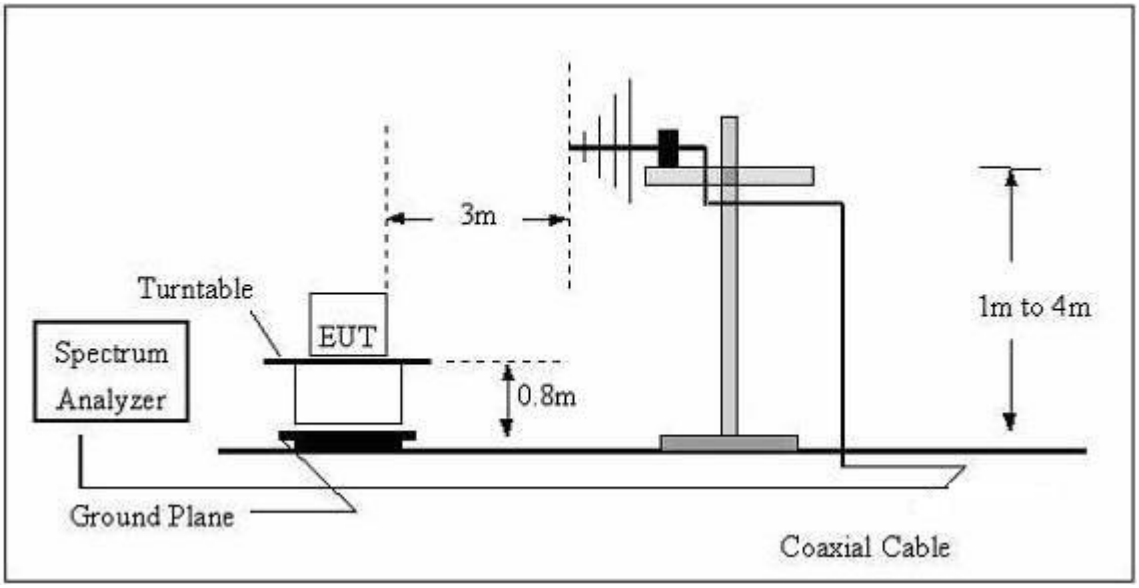
7. RADIATED EMISSIONS

7.1 Block Diagram Of Test Setup

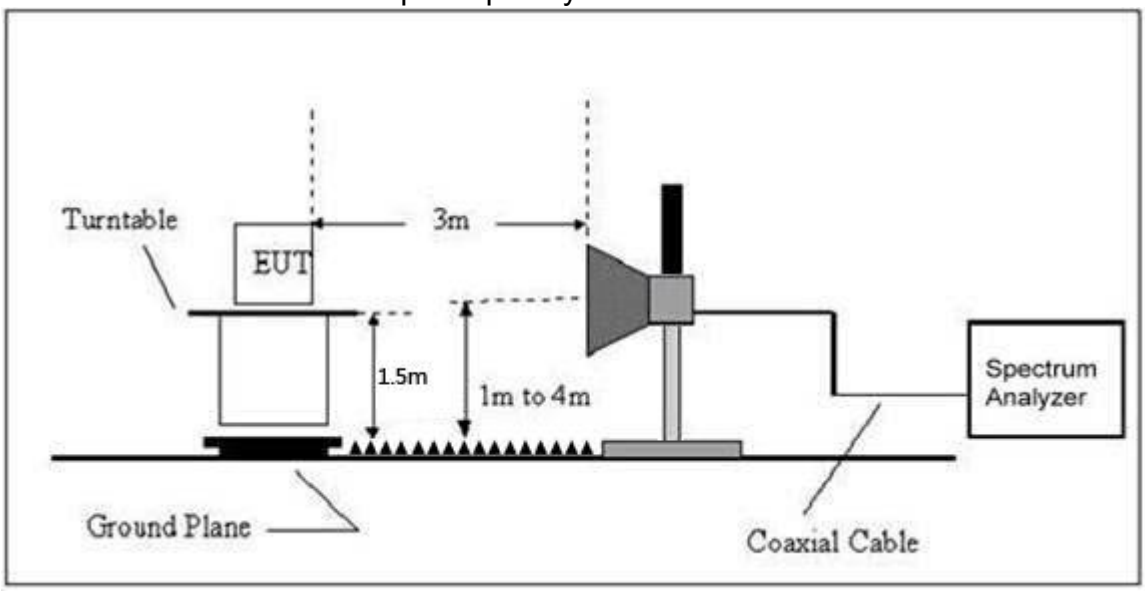
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



7.2 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency	Field Strength	Distance	Field Strength Limit at 3m Distance	
(MHz)	uV/m	(m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))}$ + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))}$ + 40
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)}$ + 40
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

7.3 Test procedure

Receiver Parameter	Setting
Attenuation	Auto
9kHz~150kHz	RBW 200Hz for QP
150kHz~30MHz	RBW 9kHz for QP
30MHz~1000MHz	RBW 120kHz for QP

Spectrum Parameter	Setting
1-25GHz	RBW 1 MHz /VBW 1 MHz for Peak, RBW 1 MHz / VBW 10Hz for Average

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).

h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

7.4 Test Result

Between 9KHz – 30MHz

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101 kPa	Test Voltage ：	AC120V/60Hz
Test Mode ：	Mode 4	Polarization :	--

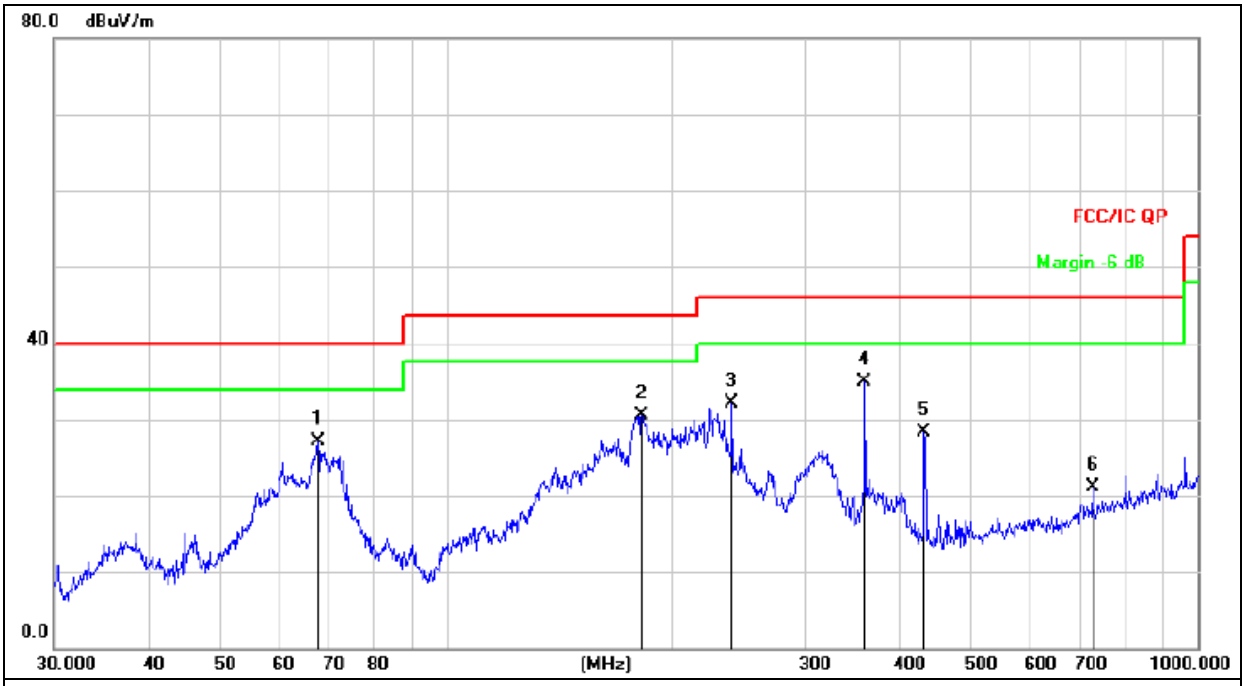
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.
Test all the modes and only worst case was reported.

Adapter 1

Between 30MHz – 1GHz

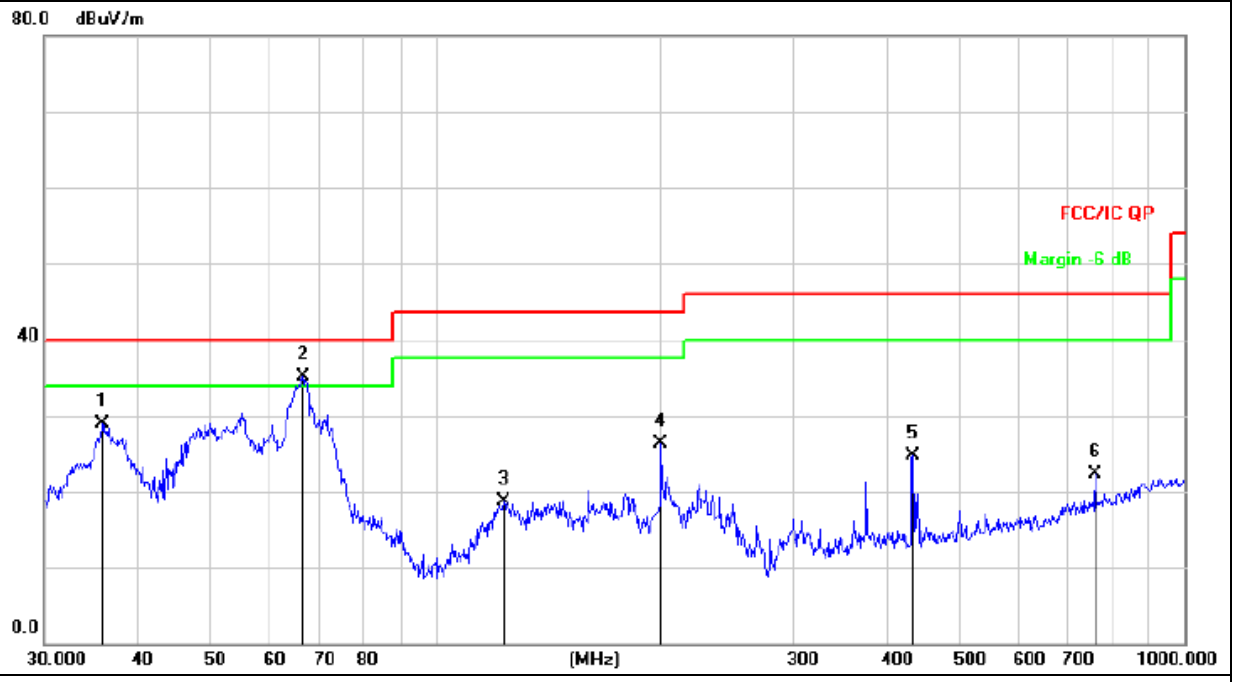
Temperature：	26℃	Relative Humidtity：	54%
Pressure：	101kPa	Test Voltage ：	AC120V/60Hz
Test Mode ：	Mode 4	Polarization :	Horizontal



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		67.4382	44.64	-17.61	27.03	40.00	-12.97	QP
2		181.9202	47.99	-17.46	30.53	43.50	-12.97	QP
3		239.9874	47.42	-15.38	32.04	46.00	-13.96	QP
4	*	360.4476	46.90	-11.99	34.91	46.00	-11.09	QP
5		432.5457	38.58	-10.36	28.22	46.00	-17.78	QP
6		724.2611	25.77	-4.75	21.02	46.00	-24.98	QP

Temperature：	26℃	Relative Humidtity：	54%
Pressure：	101kPa	Test Voltage ：	AC120V/60Hz
Test Mode ：	Mode 4	Polarization :	Vertical



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

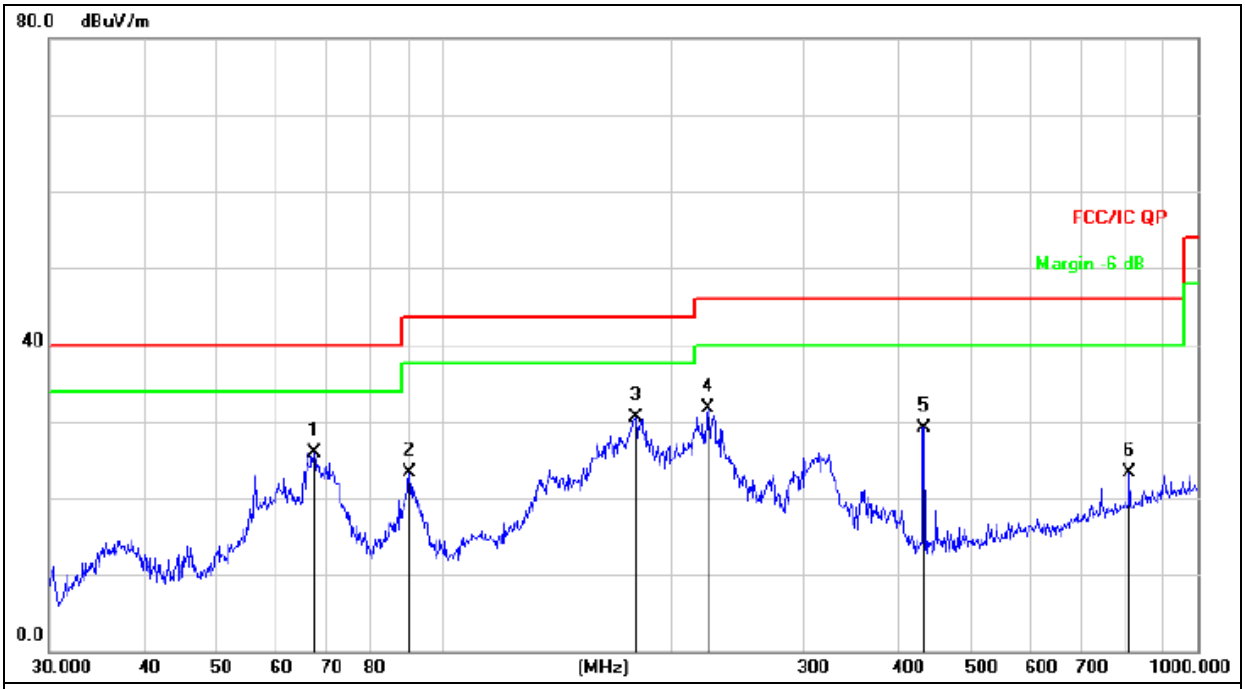
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		35.8746	45.12	-16.18	28.94	40.00	-11.06	QP
2	*	66.4989	52.41	-17.39	35.02	40.00	-4.98	QP
3		123.2655	36.57	-17.78	18.79	43.50	-24.71	QP
4		199.9856	42.57	-16.30	26.27	43.50	-17.23	QP
5		434.0651	35.10	-10.33	24.77	46.00	-21.23	QP
6		760.7036	26.51	-4.19	22.32	46.00	-23.68	QP

Remark:
Test all the modes and only worst case was reported. The worst mode is GFSK, Low Channel.

Adapter 2

Between 30MHz – 1GHz

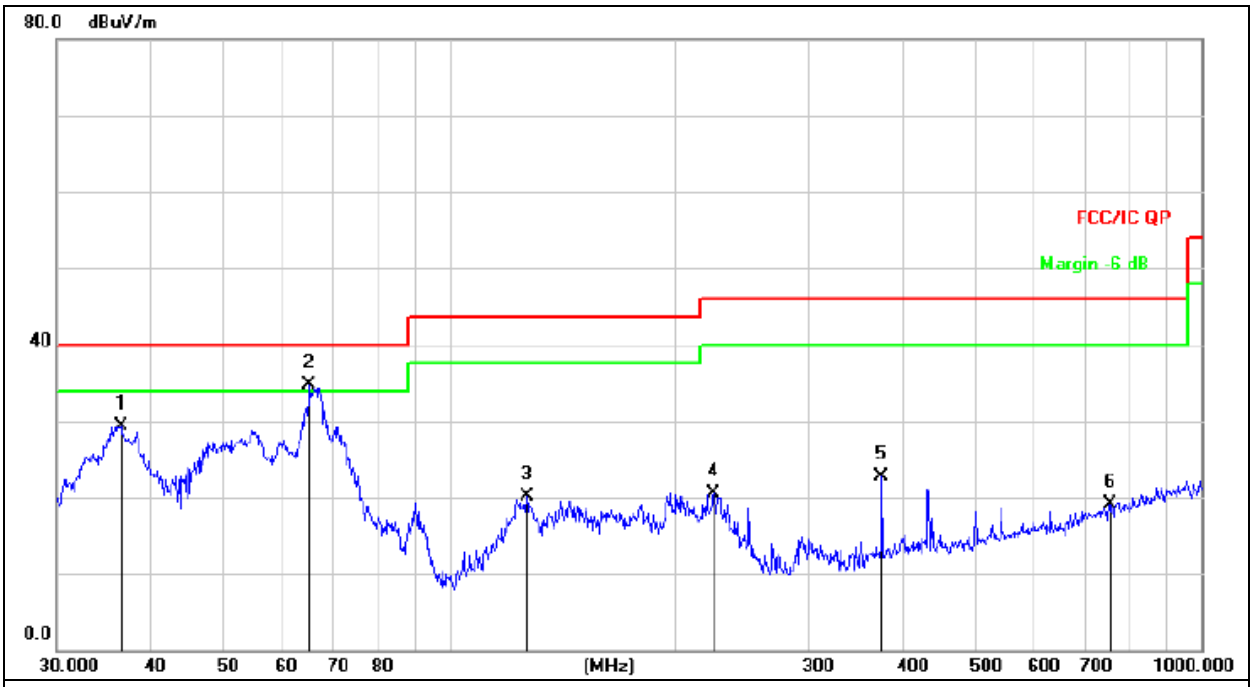
Temperature：	26℃	Relative Humidtity：	54%
Pressure：	101kPa	Test Voltage ：	AC120V/60Hz
Test Mode ：	Mode 4	Polarization :	Horizontal



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		67.4382	43.59	-17.61	25.98	40.00	-14.02	QP
2		90.2205	41.27	-18.06	23.21	43.50	-20.29	QP
3	*	180.0165	48.18	-17.58	30.60	43.50	-12.90	QP
4		224.5193	47.50	-15.74	31.76	46.00	-14.24	QP
5		434.0651	39.42	-10.33	29.09	46.00	-16.91	QP
6		813.1115	26.74	-3.35	23.39	46.00	-22.61	QP

Temperature：	26℃	Relative Humidtity：	54%
Pressure：	101kPa	Test Voltage ：	AC120V/60Hz
Test Mode ：	Mode 4	Polarization :	Vertical



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		36.5092	45.28	-16.06	29.22	40.00	-10.78	QP
2	*	65.1145	51.70	-17.08	34.62	40.00	-5.38	QP
3		126.7723	38.06	-18.00	20.06	43.50	-23.44	QP
4		224.5193	36.33	-15.74	20.59	46.00	-25.41	QP
5		375.9385	34.41	-11.64	22.77	46.00	-23.23	QP
6		755.3872	23.46	-4.26	19.20	46.00	-26.80	QP

Remark:
Test all the modes and only worst case was reported. The worst mode is GFSK, Low Channel.

Between 1-25GHz

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
GFSK Low Channel:2402MHz									
V	4804.00	53.76	35.91	8.11	29.36	55.32	74.00	-18.68	Pk
V	4804.00	43.55	35.91	8.11	29.36	45.11	54.00	-8.89	AV
V	7206.00	49.07	35.66	9.63	34.21	57.25	74.00	-16.75	Pk
V	7206.00	40.88	35.66	9.63	34.21	49.06	54.00	-4.94	AV
H	4804.00	50.34	35.91	8.11	29.36	51.90	74.00	-22.10	Pk
H	4804.00	43.69	35.91	8.11	29.36	45.25	54.00	-8.75	AV
H	7206.00	49.36	35.66	9.63	34.21	57.54	74.00	-16.46	Pk
H	7206.00	40.41	35.66	9.63	34.21	48.59	54.00	-5.41	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
GFSK Middle Channel:2441MHz									
V	4882.00	52.98	35.89	8.23	29.47	54.79	74.00	-19.21	Pk
V	4882.00	43.84	35.89	8.23	29.47	45.65	54.00	-8.35	AV
V	7323.00	52.77	35.65	9.66	34.33	61.11	74.00	-12.89	Pk
V	7323.00	40.86	35.65	9.66	34.33	49.20	54.00	-4.80	AV
H	4882.00	51.60	35.89	8.23	29.47	53.41	74.00	-20.59	Pk
H	4882.00	43.08	35.89	8.23	29.47	44.89	54.00	-9.11	AV
H	7323.00	50.85	35.65	9.66	34.33	59.19	74.00	-14.81	Pk
H	7323.00	40.18	35.65	9.66	34.33	48.52	54.00	-5.48	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
GFSK High Channel:2480MHz									
V	4960.00	52.52	35.83	8.32	29.51	54.52	74.00	-19.48	Pk
V	4960.00	43.09	35.83	8.32	29.51	45.09	54.00	-8.91	AV
V	7440.00	48.49	35.72	9.71	34.62	57.10	74.00	-16.90	Pk
V	7440.00	40.84	35.72	9.71	34.62	49.45	54.00	-4.55	AV
H	4960.00	54.15	35.83	8.32	29.51	56.15	74.00	-17.85	Pk
H	4960.00	43.19	35.83	8.32	29.51	45.19	54.00	-8.81	AV
H	7440.00	51.59	35.72	9.71	34.62	60.20	74.00	-13.80	Pk
H	7440.00	40.64	35.72	9.71	34.62	49.25	54.00	-4.75	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. All the Modulation are test, the worst mode is GFSK, the data recording in the report.

7.5 RADIATED BAND EMISSION MEASUREMENT AND RESTRICTED BANDS OF OPERATION

Test Requirement:

FCC Part15 C Section 15.209 and 15.205

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

TEST PROCEDURE

Above 1GHz test procedure as below:

a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
g. Test the EUT in the lowest channel,the Highest channel

Note:

Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

TEST RESULT

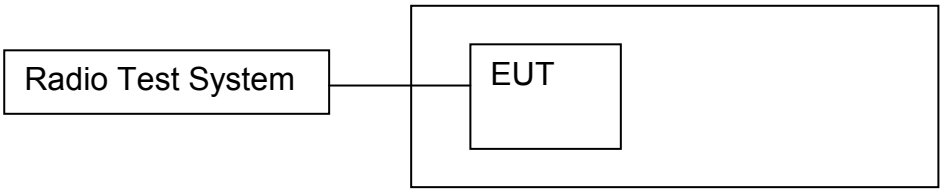
	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission evel (dBuV/m)	Limits (dBuV/m)		Result
							PK	PK	AV	
GFSK	Low Channel 2402MHz									
	H	2390.00	63.35	38.06	7.42	20.15	52.86	74.00	54.00	PASS
	H	2400.00	52.76	38.06	7.42	20.15	42.27	74.00	54.00	PASS
	V	2390.00	62.43	38.06	7.42	20.15	51.94	74.00	54.00	PASS
	V	2400.00	55.11	38.06	7.42	20.15	44.62	74.00	54.00	PASS
	High Channel 2480MHz									
	H	2483.50	60.59	38.17	7.45	20.54	50.41	74.00	54.00	PASS
	H	2485.50	54.82	38.17	7.45	20.54	44.64	74.00	54.00	PASS
	V	2483.50	62.64	38.17	7.45	20.54	52.46	74.00	54.00	PASS
	V	2485.50	55.58	38.17	7.45	20.54	45.40	74.00	54.00	PASS
Pi/4DQPSK	Low Channel 2402MHz									
	H	2390.00	60.20	38.06	7.42	20.15	49.71	74.00	54.00	PASS
	H	2400.00	53.37	38.06	7.42	20.15	42.88	74.00	54.00	PASS
	V	2390.00	61.55	38.06	7.42	20.15	51.06	74.00	54.00	PASS
	V	2400.00	53.00	38.06	7.42	20.15	42.51	74.00	54.00	PASS
	High Channel 2480MHz									
	H	2483.50	61.44	38.17	7.45	20.54	51.26	74.00	54.00	PASS
	H	2485.50	55.08	38.17	7.45	20.54	44.90	74.00	54.00	PASS
	V	2483.50	61.91	38.17	7.45	20.54	51.73	74.00	54.00	PASS
	V	2485.50	53.63	38.17	7.45	20.54	43.45	74.00	54.00	PASS
8DPSK	Low Channel 2402MHz									
	H	2390.00	61.20	38.06	7.42	20.15	50.71	74.00	54.00	PASS
	H	2400.00	53.25	38.06	7.42	20.15	42.76	74.00	54.00	PASS
	V	2390.00	60.54	38.06	7.42	20.15	50.05	74.00	54.00	PASS
	V	2400.00	53.45	38.06	7.42	20.15	42.96	74.00	54.00	PASS
	High Channel 2480MHz									
	H	2483.50	60.16	38.17	7.45	20.54	49.98	74.00	54.00	PASS
	H	2485.50	54.50	38.17	7.45	20.54	44.32	74.00	54.00	PASS
	V	2483.50	59.98	38.17	7.45	20.54	49.80	74.00	54.00	PASS
	V	2485.50	52.28	38.17	7.45	20.54	42.10	74.00	54.00	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
3 In restricted bands of operation, The spurious emissions below the permissible value more than 20dB
4. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

8. CONDUCTED EMISSION

8.1 Block Diagram Of Test Setup



8.2 Limit

Regulation 15.247 (d),In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

8.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer:

Below 30MHz:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

Above 30MHz:

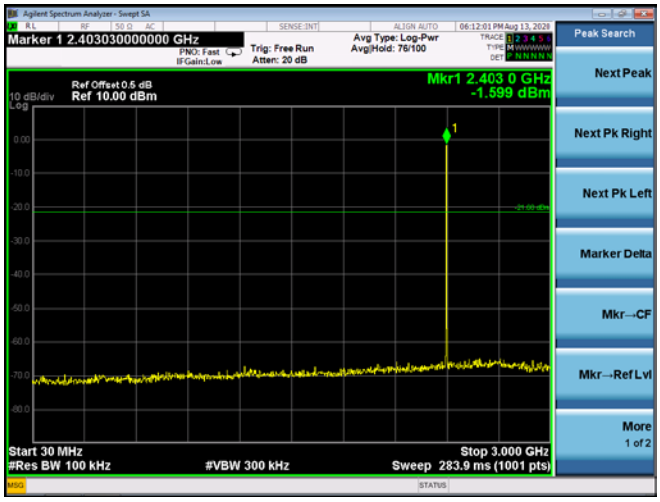
RBW = 100KHz, VBW = 300KHz, Sweep = auto

Detector function = peak, Trace = max hold

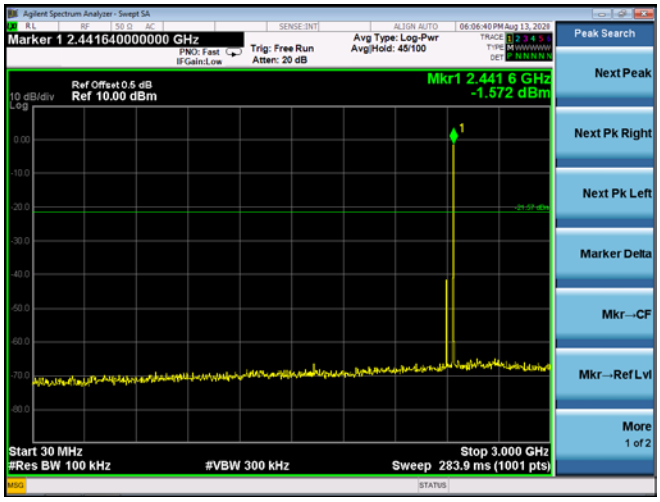
8.4 Test Result

30MHz – 25GHz

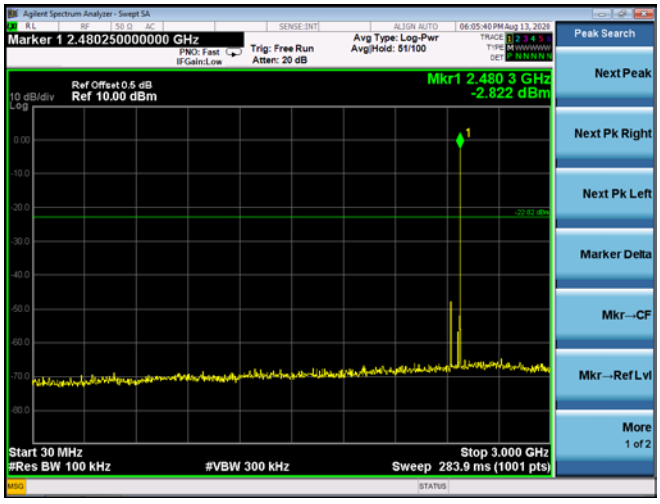
GFSK Low Channel



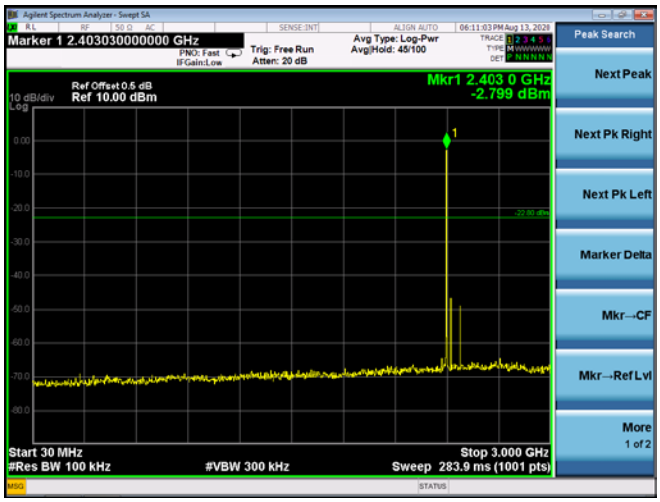
GFSK Middle Channel



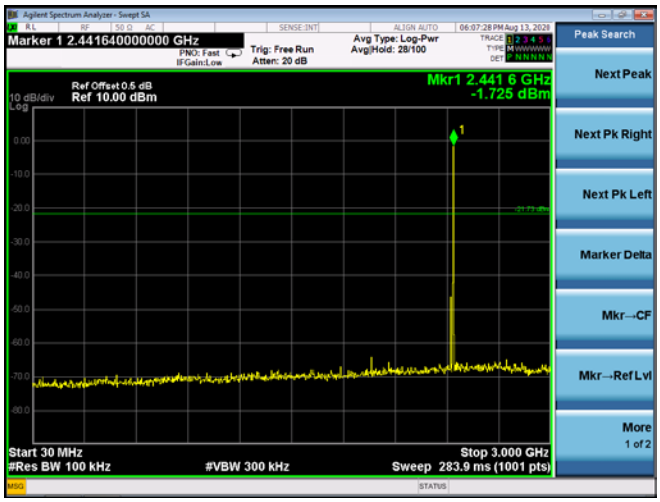
GFSK High Channel



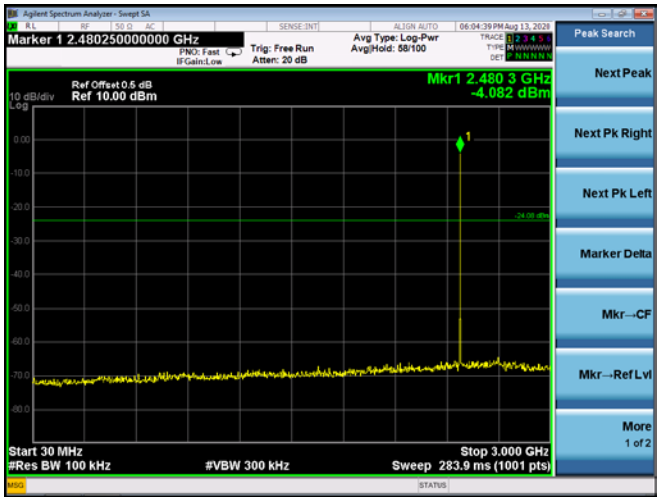
Pi/4 DQPSK Low Channel



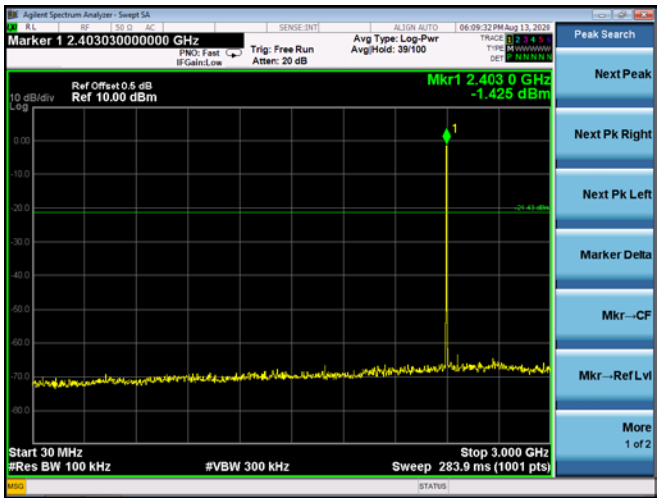
Pi/4 DQPSK Middle Channel



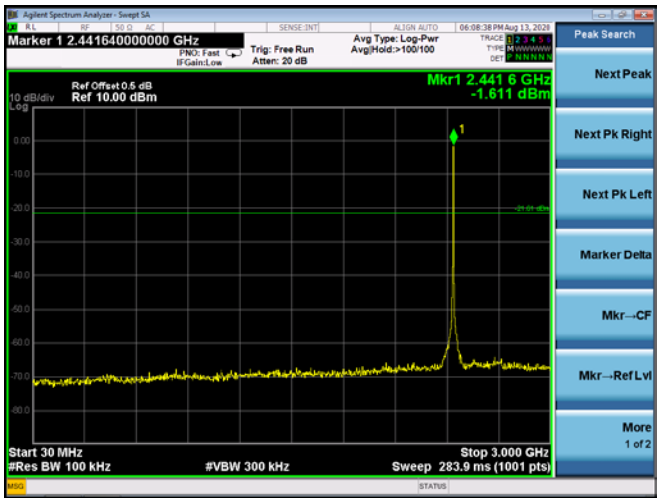
Pi/4 DQPSK High Channel



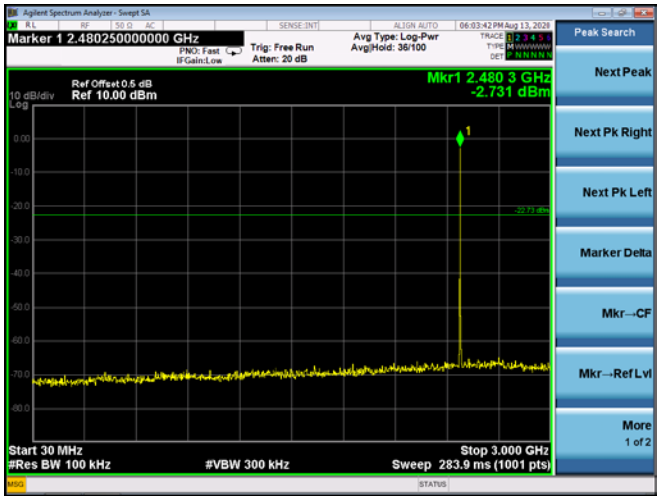
8DPSK Low Channel



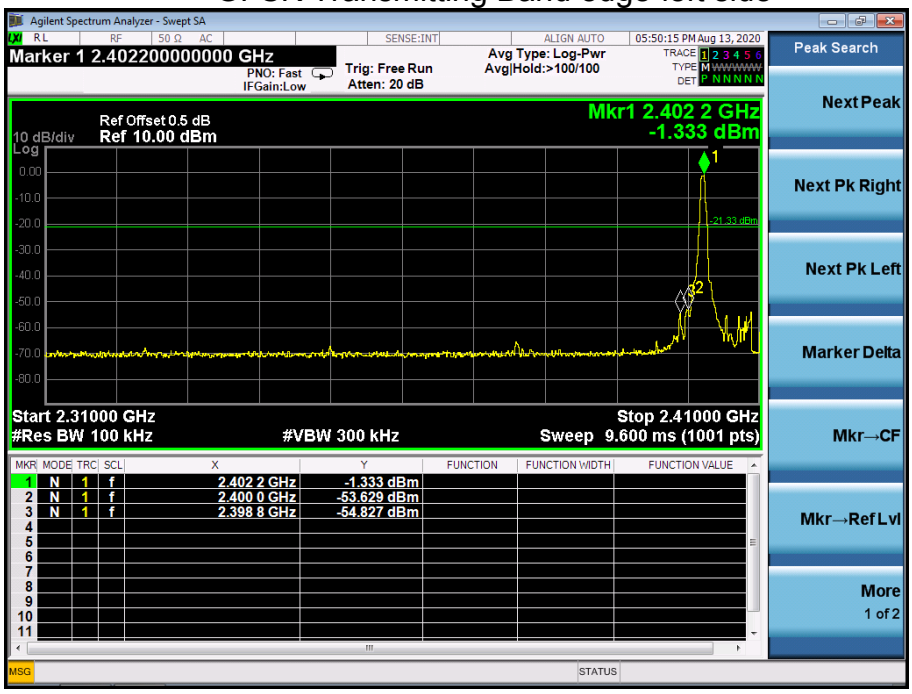
8DPSK Middle Channel



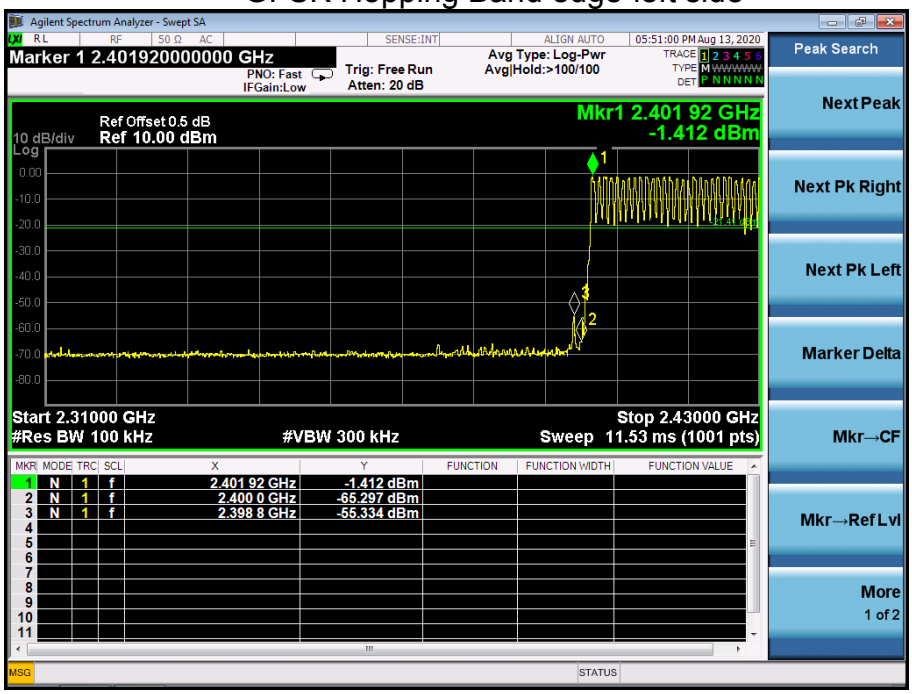
8DPSK High Channel



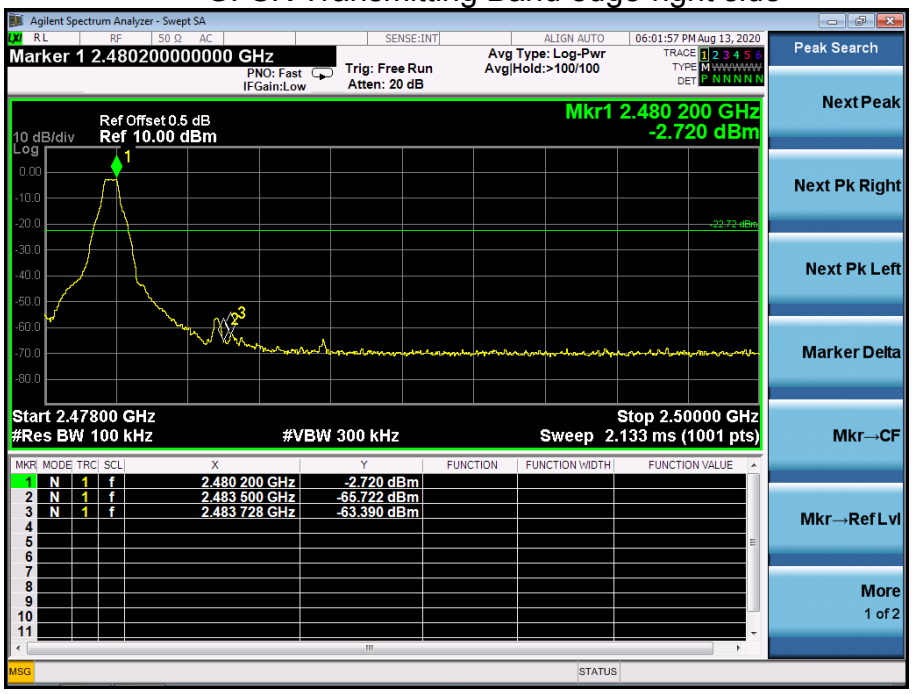
GFSK Transmitting Band edge-left side



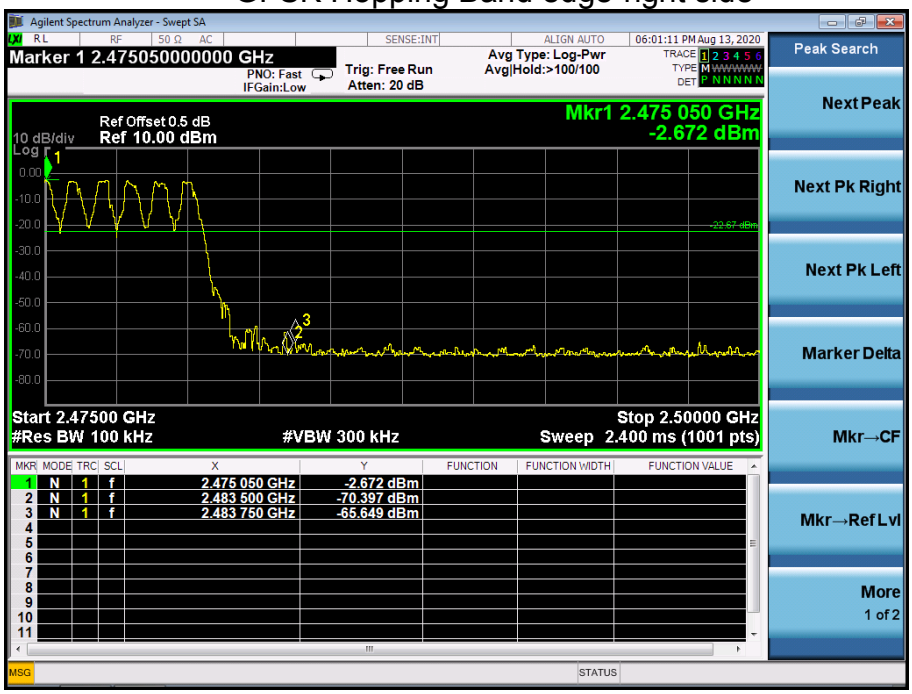
GFSK Hopping Band edge-left side



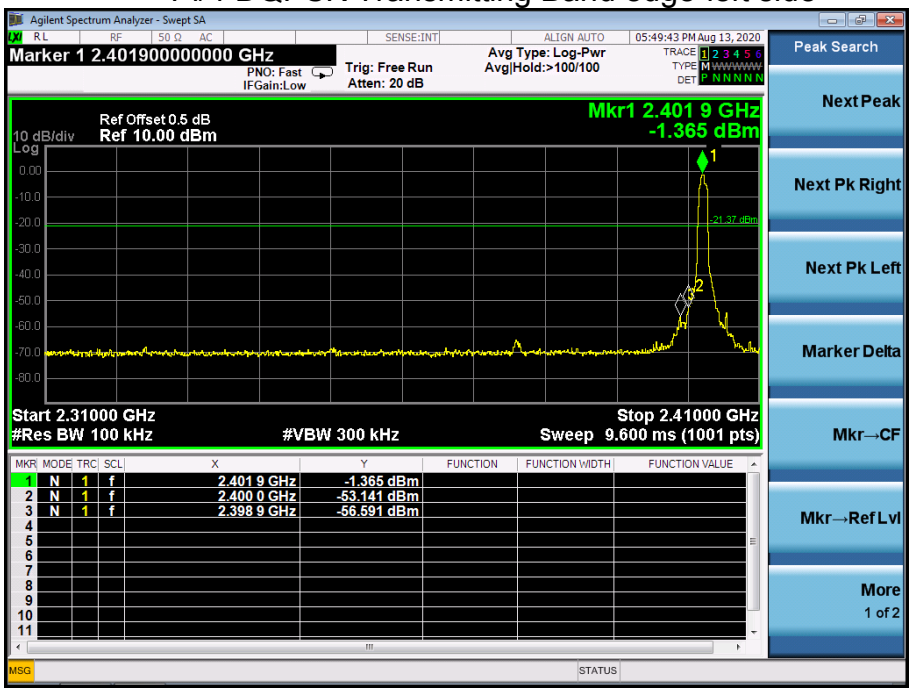
GFSK Transmitting Band edge-right side



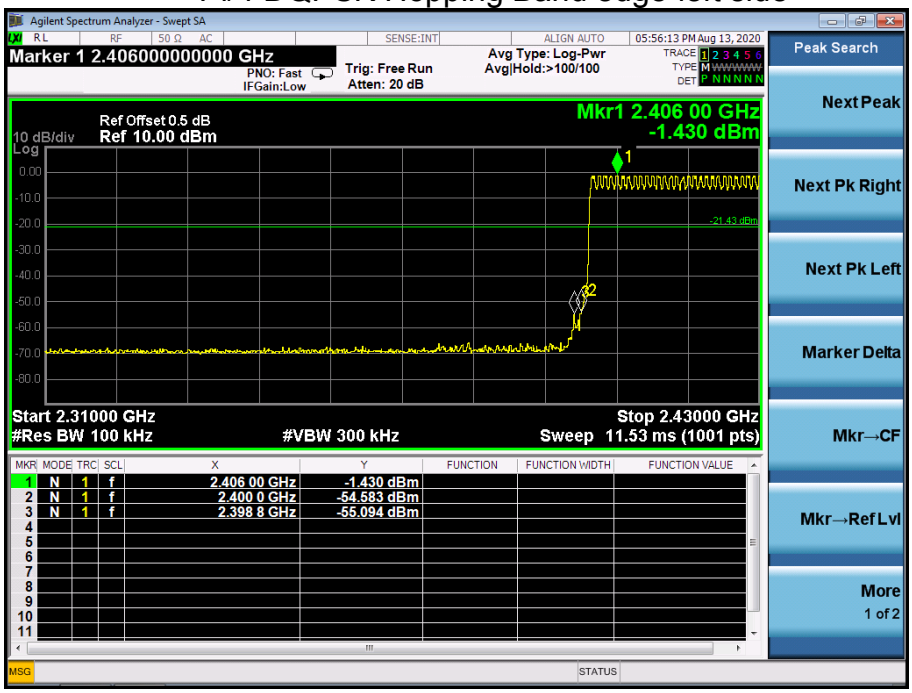
GFSK Hopping Band edge-right side



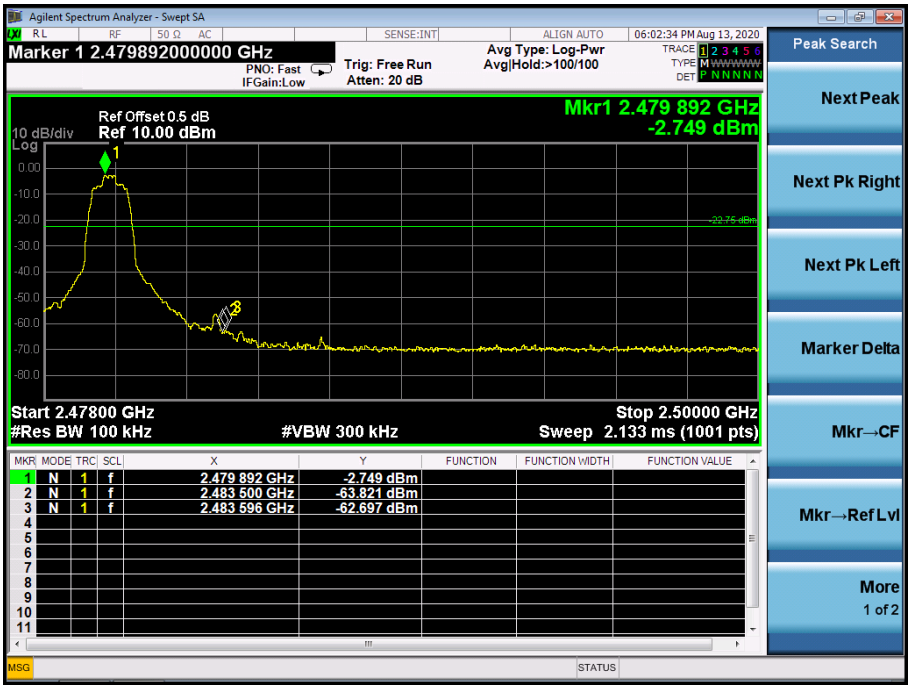
Pi/4 DQPSK Transmitting Band edge-left side



Pi/4 DQPSK Hopping Band edge-left side

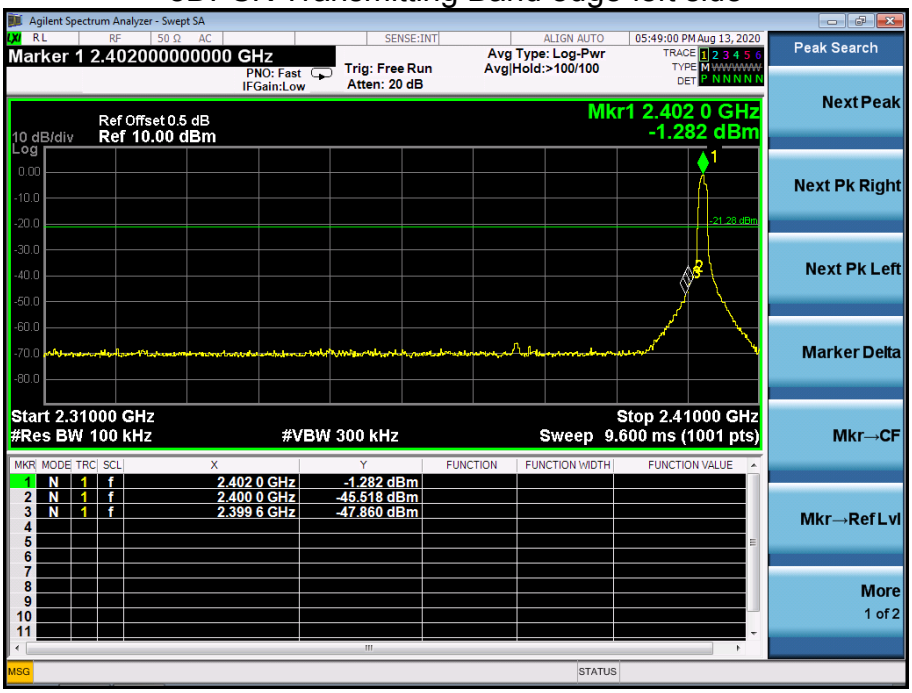


Pi/4 DQPSK Transmitting Band edge-right side

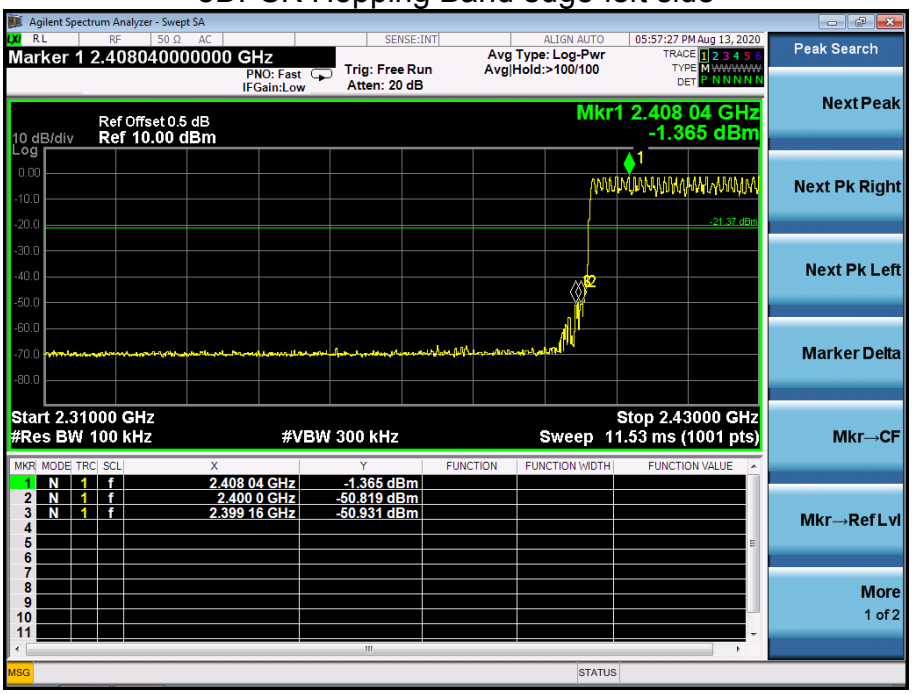


Pi/4 DQPSK Hopping Band edge-right side

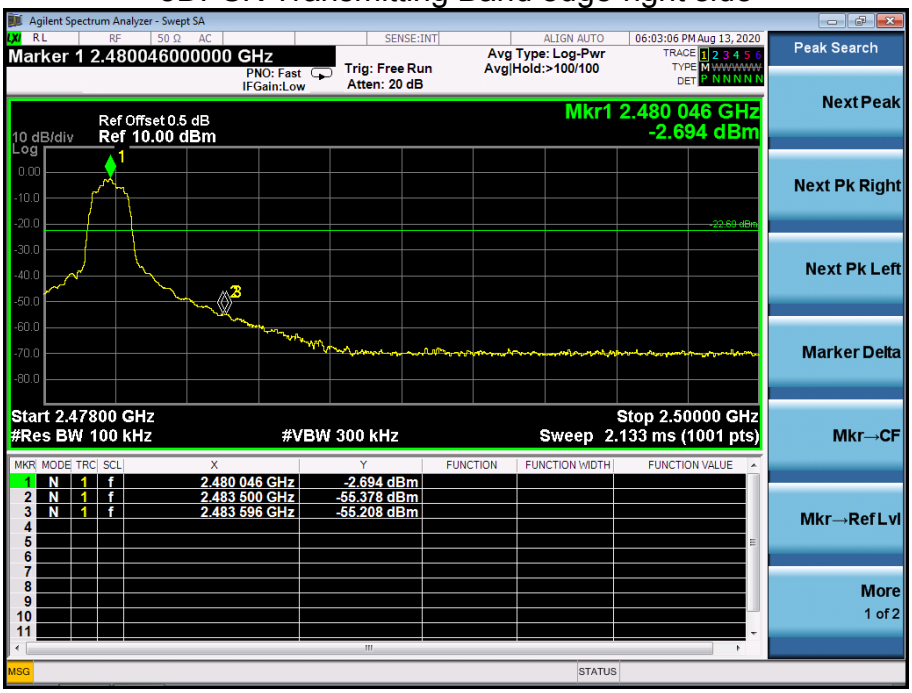
8DPSK Transmitting Band edge-left side



8DPSK Hopping Band edge-left side



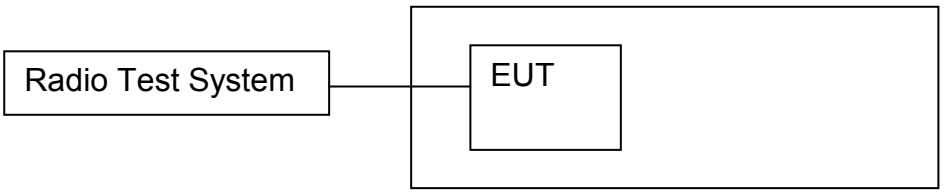
8DPSK Transmitting Band edge-right side



8DPSK Hopping Band edge-right side

9. 20 DB BANDWIDTH

9.1 Block Diagram Of Test Setup



9.2 Limit

N/A

9.3 Test procedure

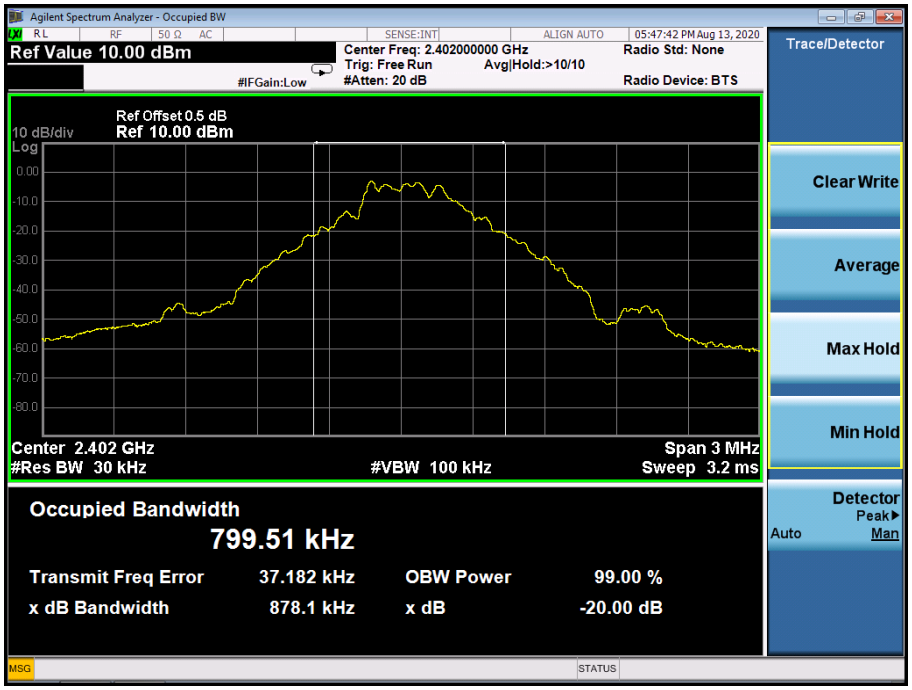
1. Set RBW = 30 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

9.4 Test Result

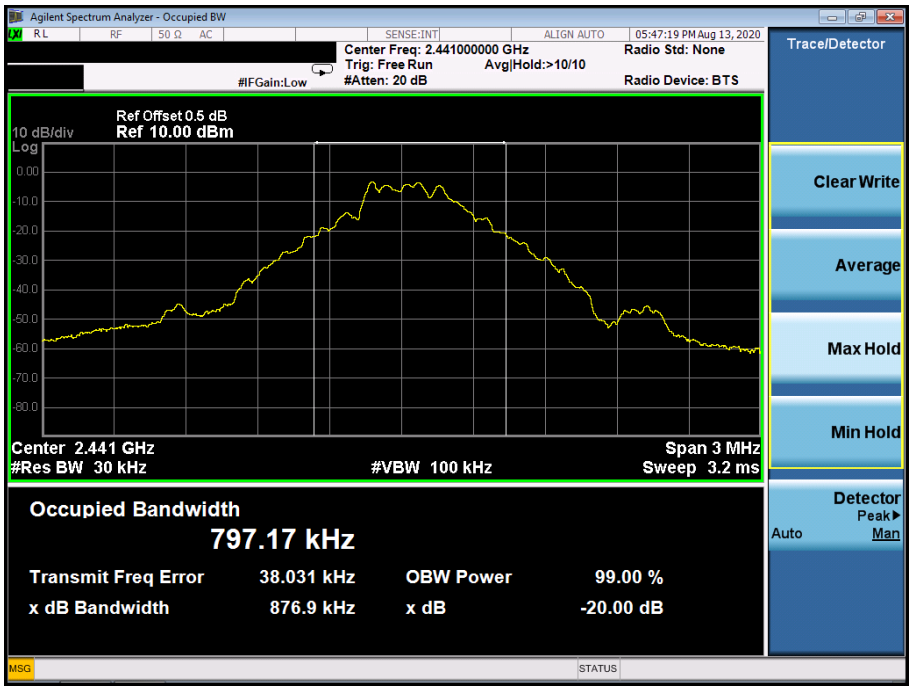
Modulation	Test Channel	Bandwidth(MHz)
GFSK	Low	0.878
GFSK	Middle	0.877
GFSK	High	0.882
Pi/4 DQPSK	Low	1.269
Pi/4 DQPSK	Middle	1.268
Pi/4 DQPSK	High	1.271
8DPSK	Low	1.258
8DPSK	Middle	1.256
8DPSK	High	1.258

Test plots

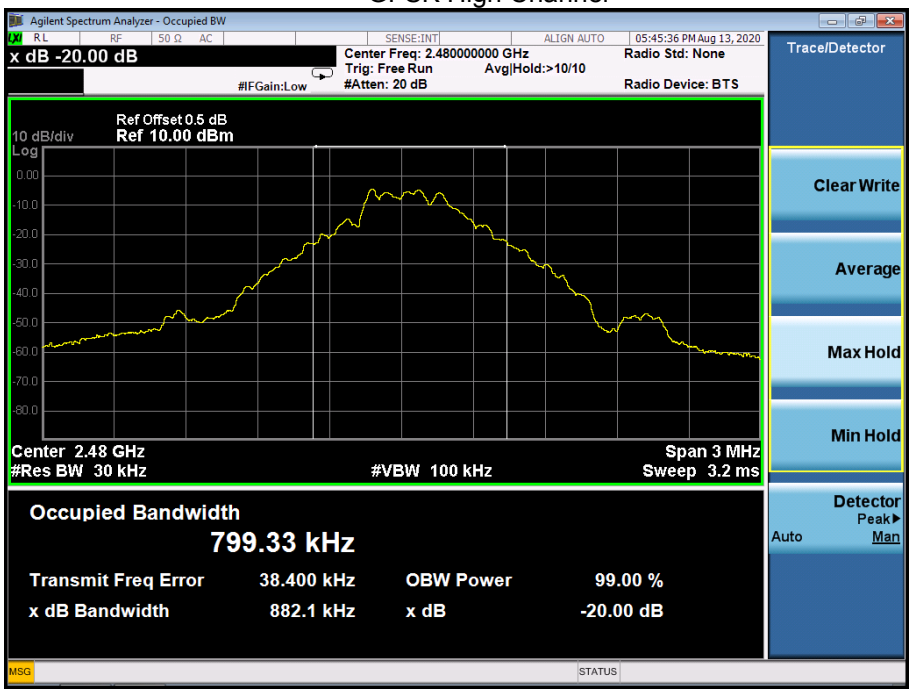
GFSK Low Channel



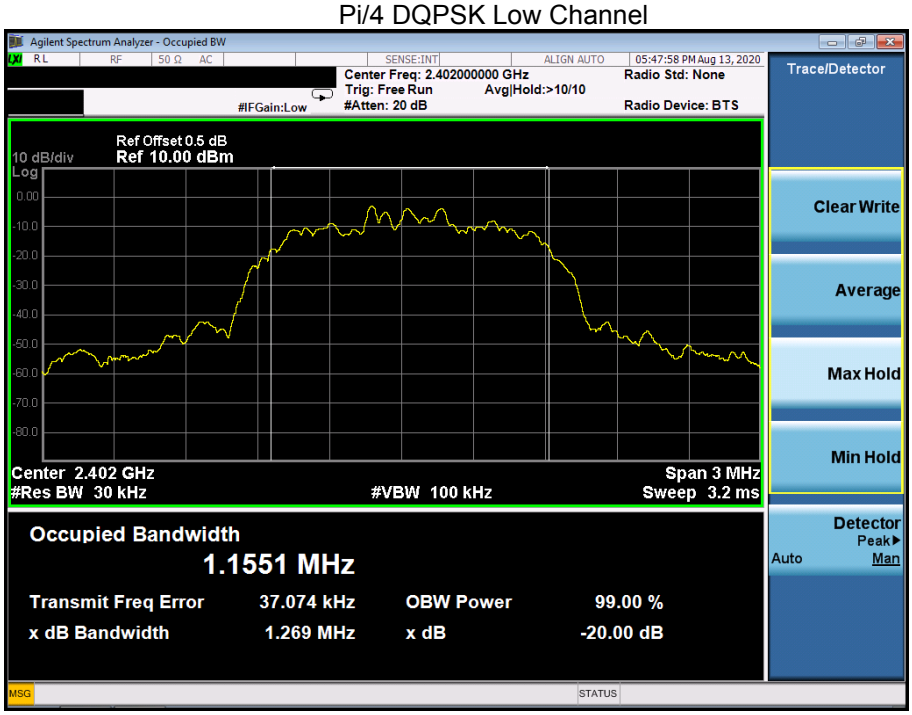
GFSK Middle Channel



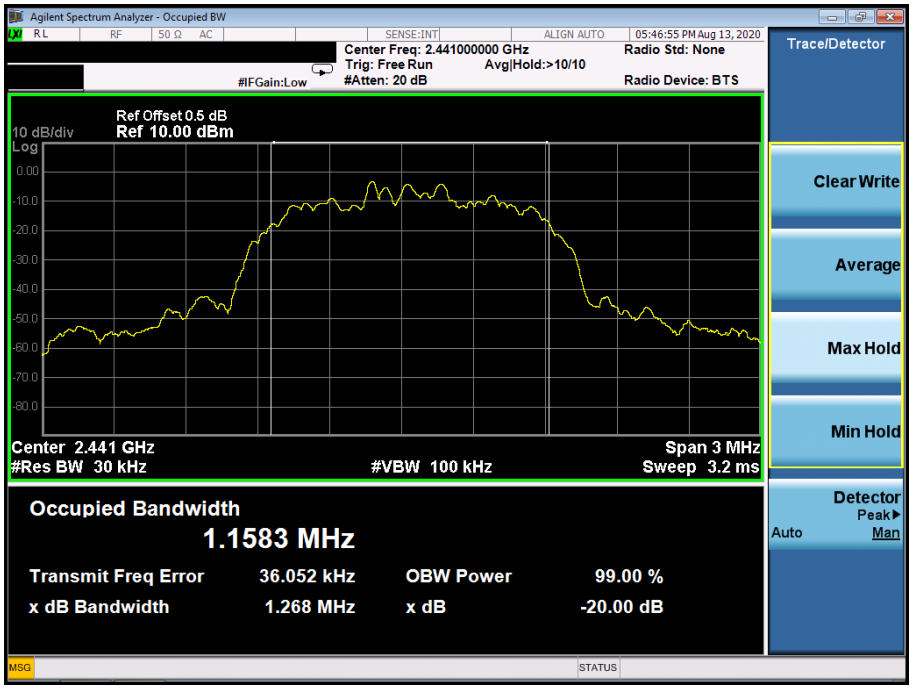
GFSK High Channel



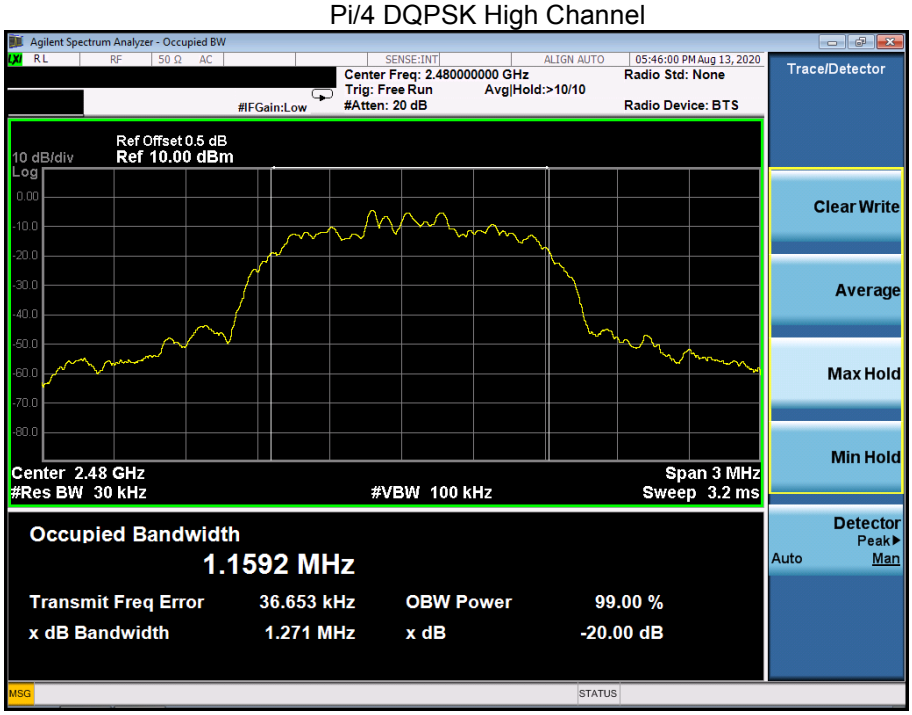
Pi/4 DQPSK Low Channel



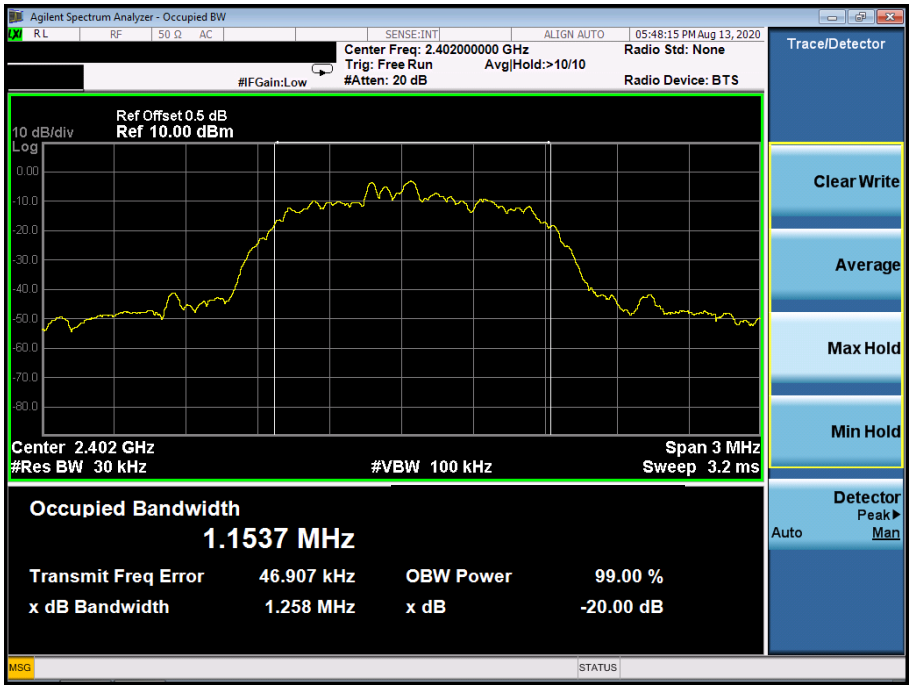
Pi/4 DQPSK Middle Channel



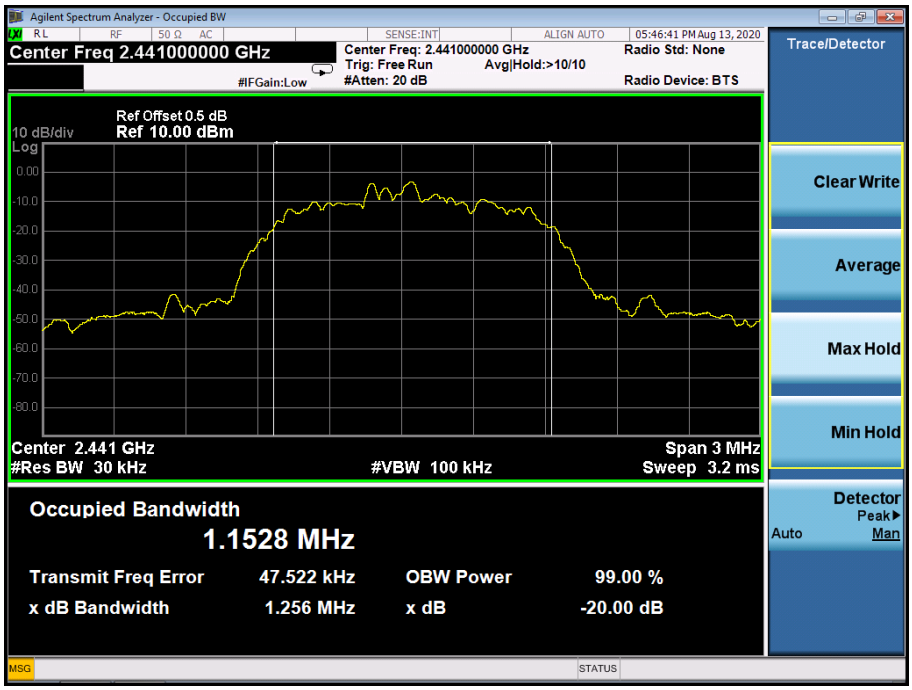
Pi/4 DQPSK High Channel



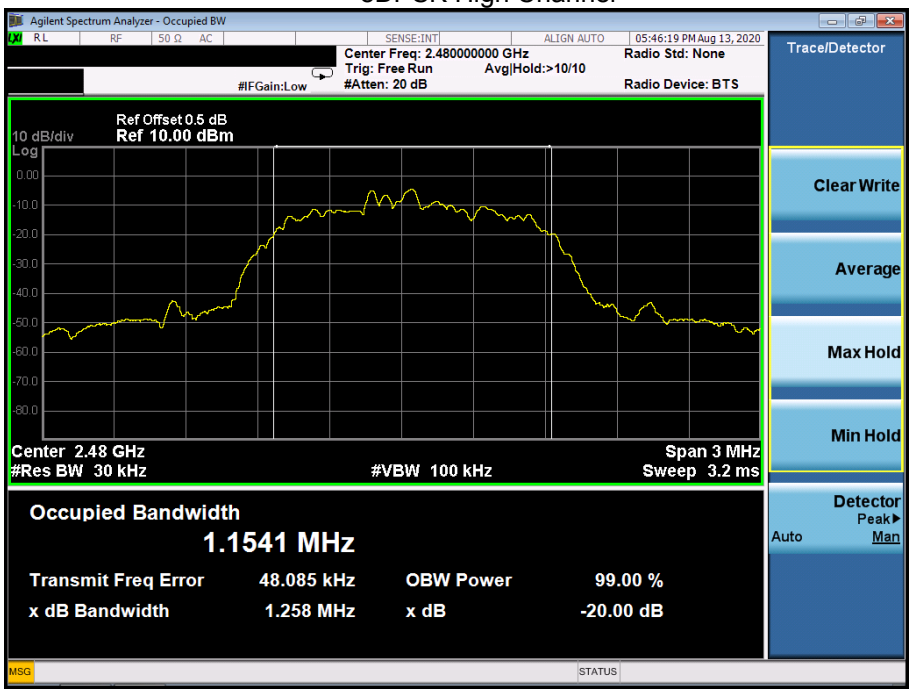
8DPSK Low Channel



8DPSK Middle Channel

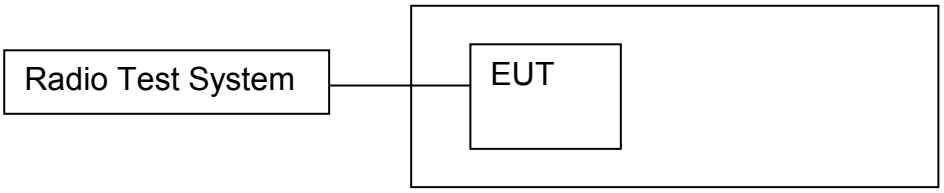


8DPSK High Channel



10. MAXIMUM PEAK OUTPUT POWER

10.1 Block Diagram Of Test Setup



10.2 Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

10.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 3MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak.

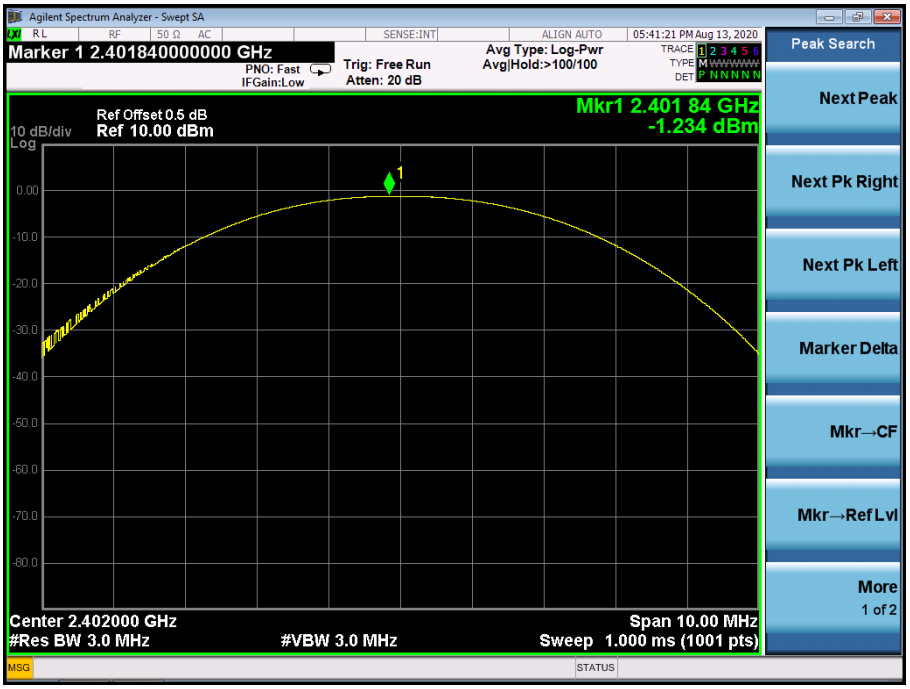
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

10.4 Test Result

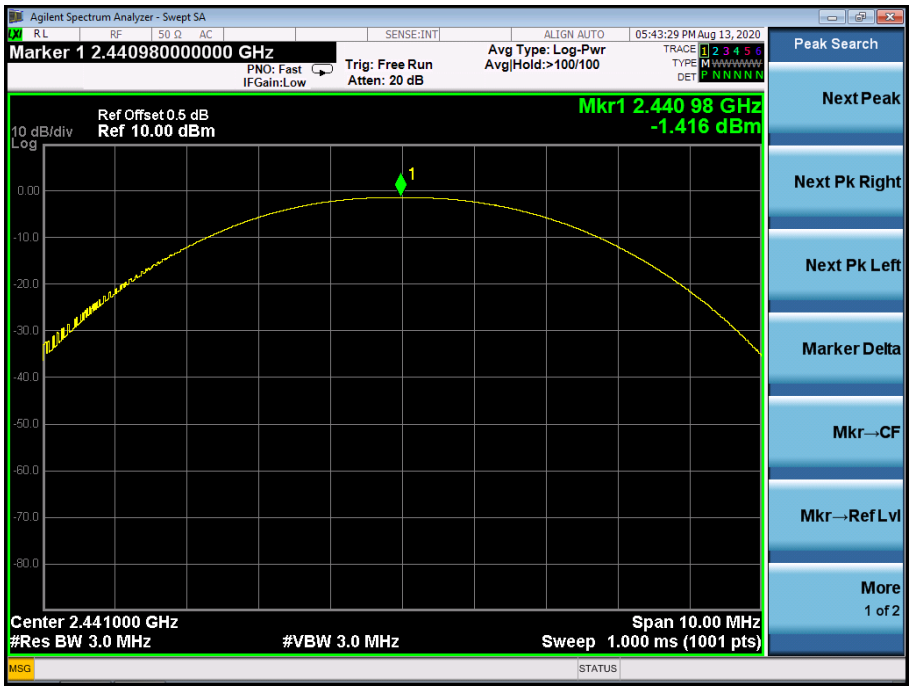
Modulation	Test Channel	Output Power (dBm)	Limit (dBm)
GFSK	Low	-1.23	21
GFSK	Middle	-1.42	21
GFSK	High	-2.62	21
Pi/4 DQPSK	Low	0.98	21
Pi/4 DQPSK	Middle	0.79	21
Pi/4 DQPSK	High	-0.44	21
8DPSK	Low	1.64	21
8DPSK	Middle	1.47	21
8DPSK	High	0.24	21

Test plots

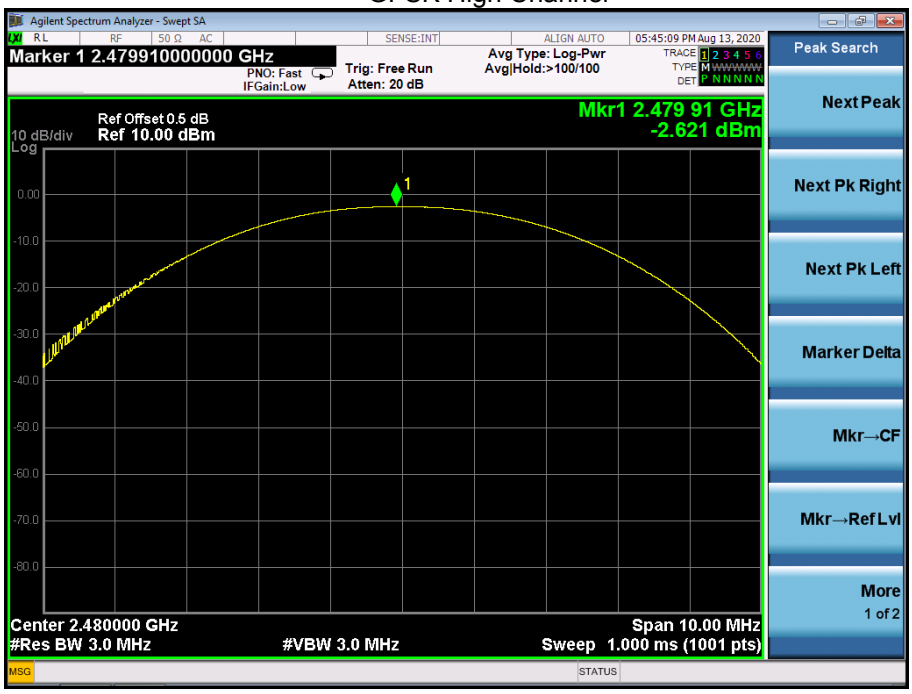
GFSK Low Channel



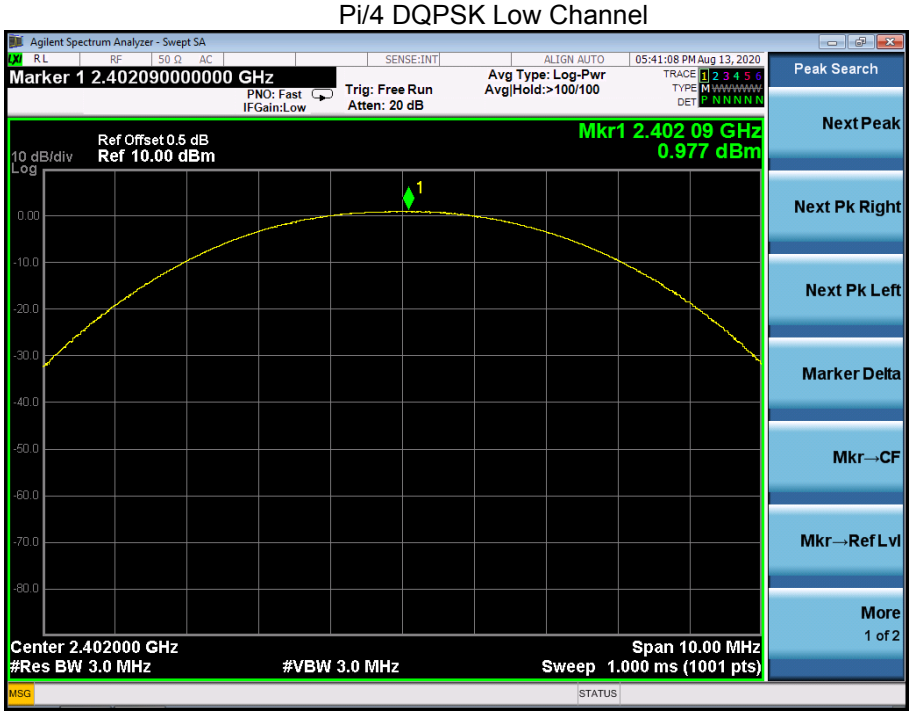
GFSK Middle Channel



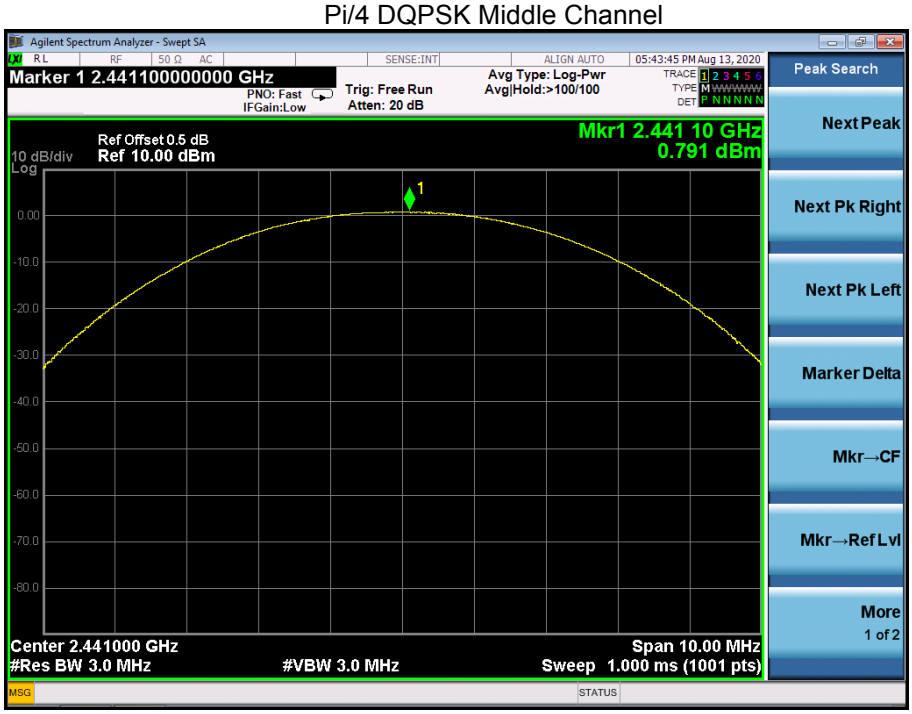
GFSK High Channel



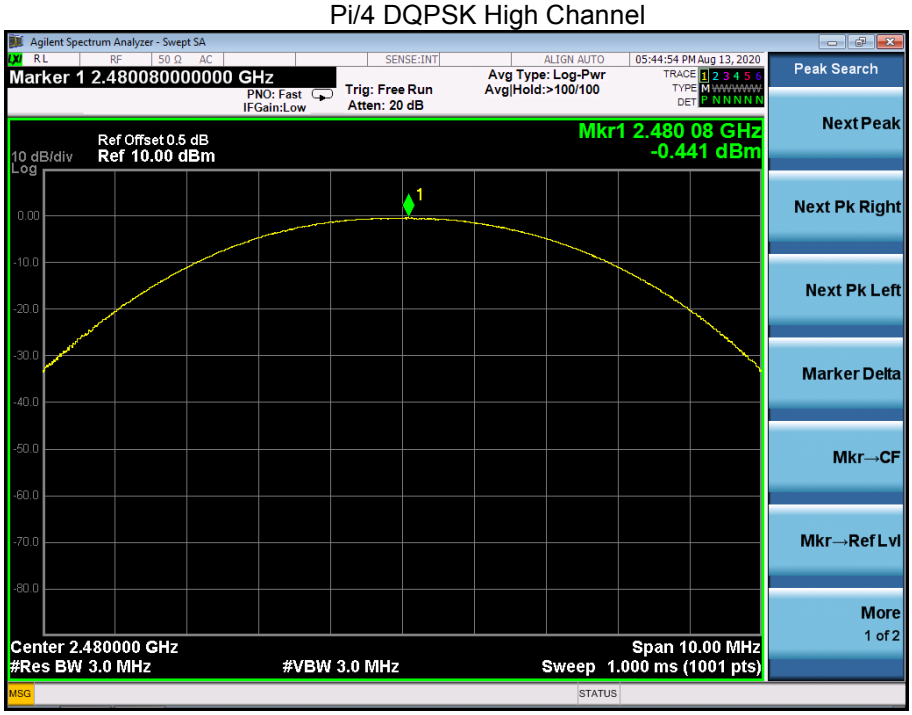
Pi/4 DQPSK Low Channel



Pi/4 DQPSK Middle Channel



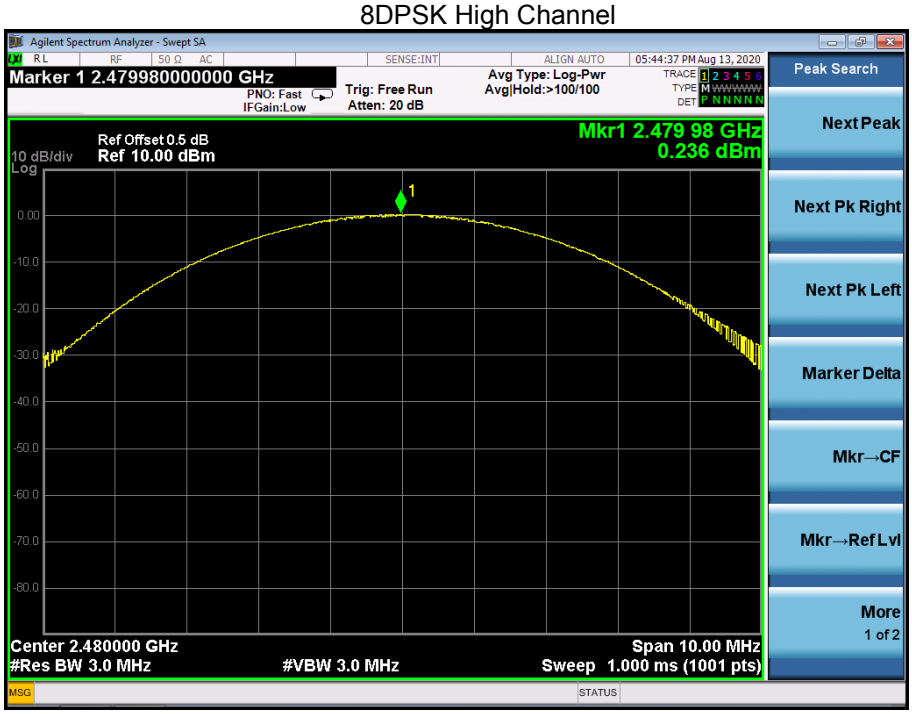
Pi/4 DQPSK High Channel



8DPSK Low Channel

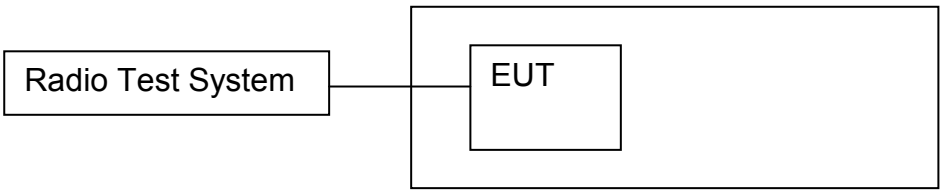
8DPSK Middle Channel

8DPSK High Channel



11. HOPPING CHANNEL SEPARATION

11.1 Block Diagram Of Test Setup



11.2 Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 0.125W.

11.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 30kHz. VBW = 100kHz , Span = 2.0MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

11.4 Test Result

Modulation	Test Channel	Separation (MHz)	Limit(MHz)	Result
GFSK	Low	0.996	0.585	PASS
GFSK	Middle	1.004	0.585	PASS
GFSK	High	0.992	0.588	PASS
Pi/4 DQPSK	Low	1.006	0.846	PASS
Pi/4 DQPSK	Middle	1.004	0.845	PASS
Pi/4 DQPSK	High	0.996	0.847	PASS
8DPSK	Low	1.006	0.839	PASS
8DPSK	Middle	1.000	0.837	PASS
8DPSK	High	0.996	0.839	PASS

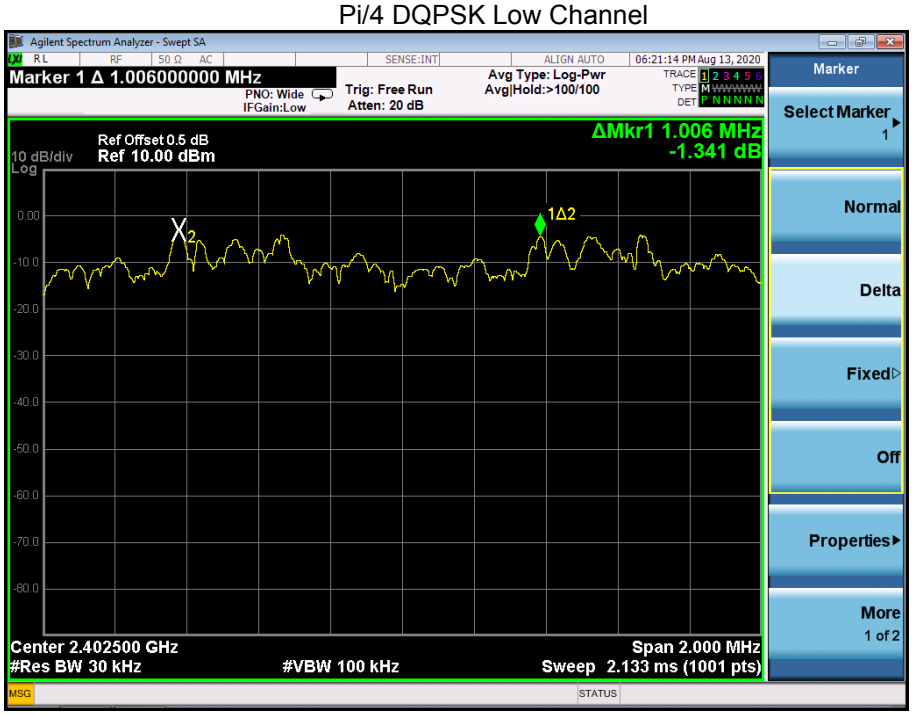
Test plots

GFSK Low Channel

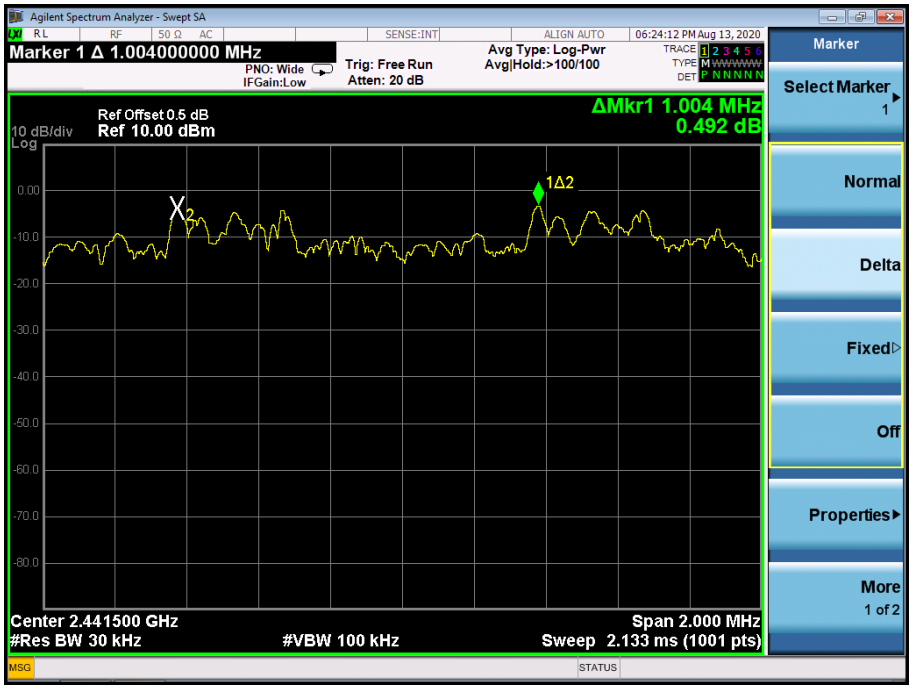
GFSK Middle Channel

GFSK High Channel

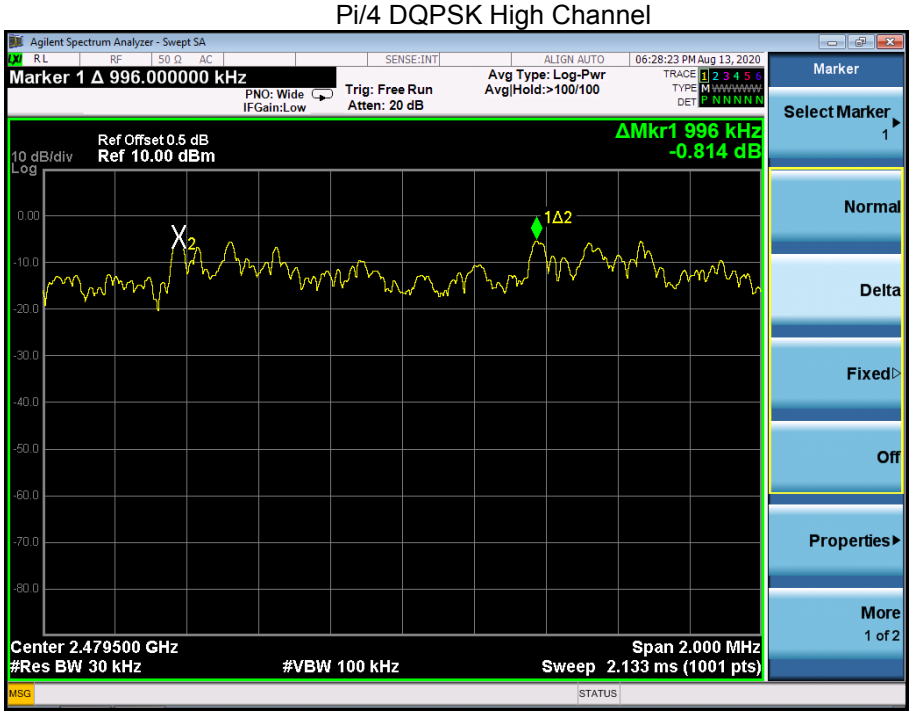
Pi/4 DQPSK Low Channel



Pi/4 DQPSK Middle Channel

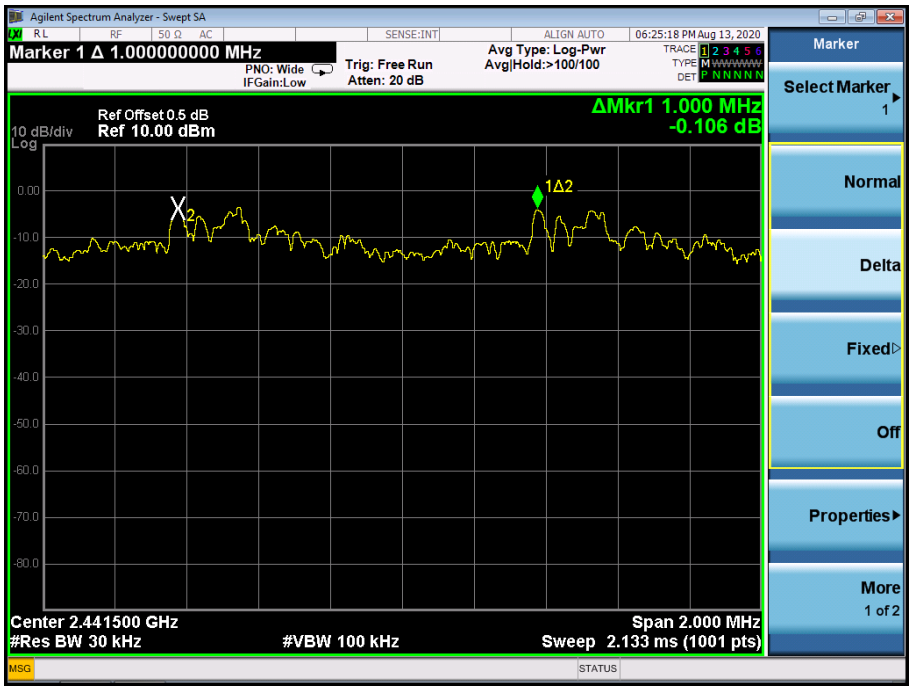


Pi/4 DQPSK High Channel



8DPSK Low Channel

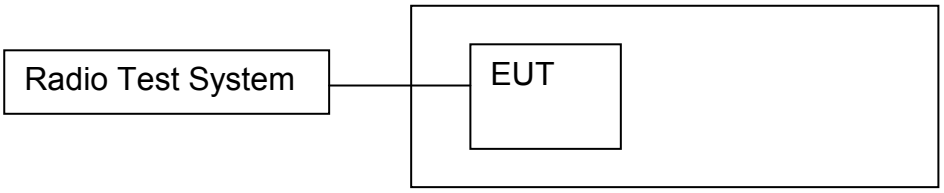
8DPSK Middle Channel



8DPSK High Channel

12. NUMBER OF HOPPING FREQUENCY

12.1 Block Diagram Of Test Setup



12.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

12.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.

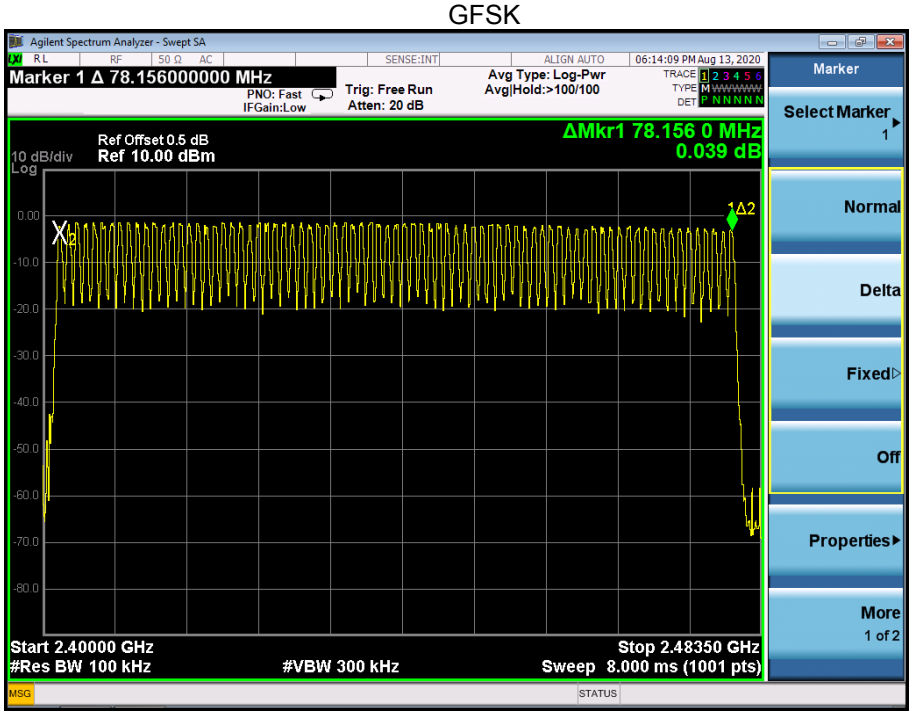
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.4835GHz. Sweep=auto;

12.4 Test Result

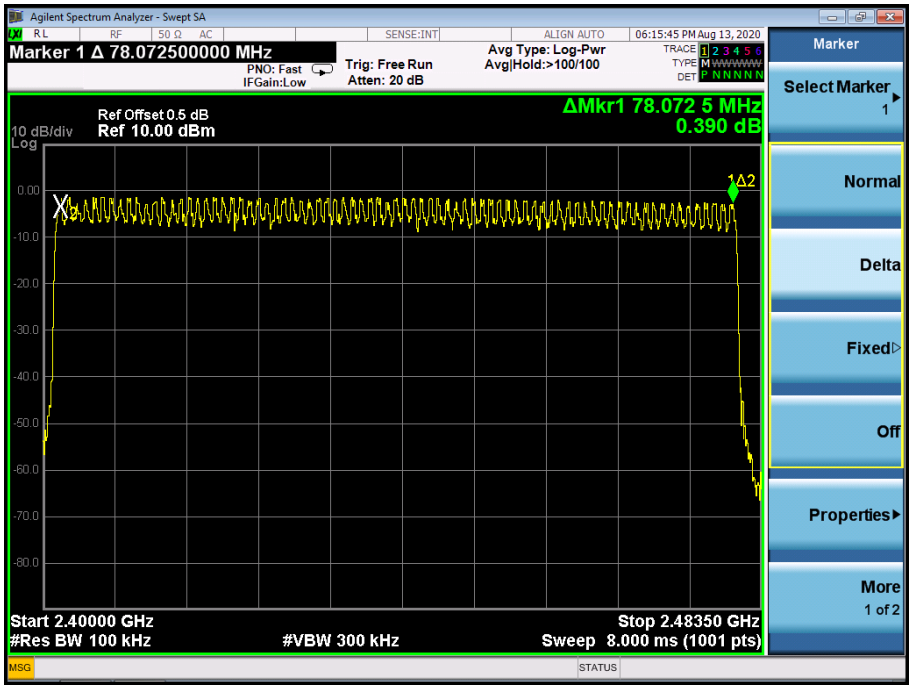
Test Plots:

79 Channels in total

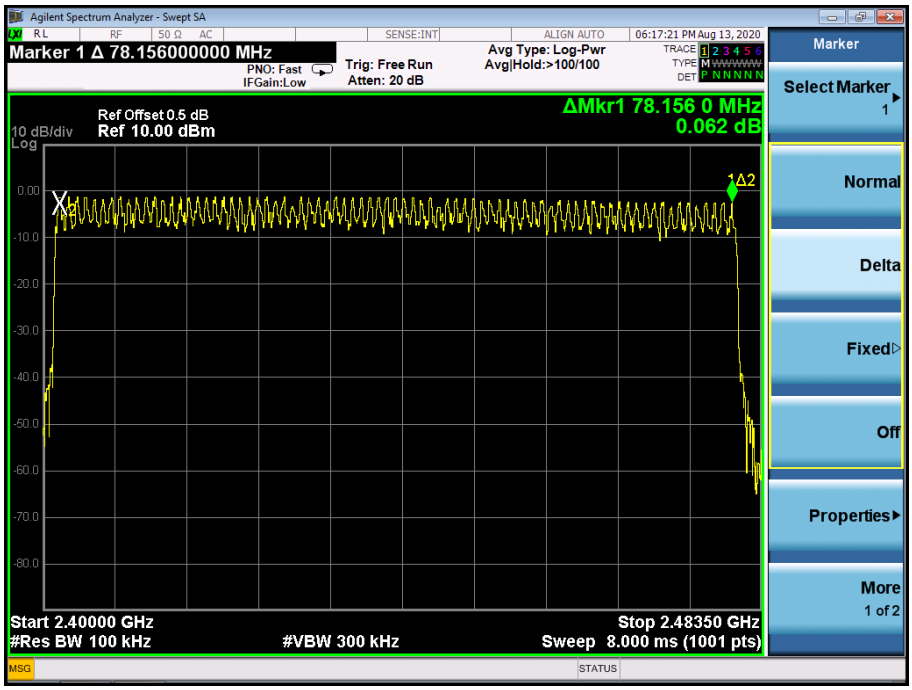
GFSK



Pi/4 DQPSK

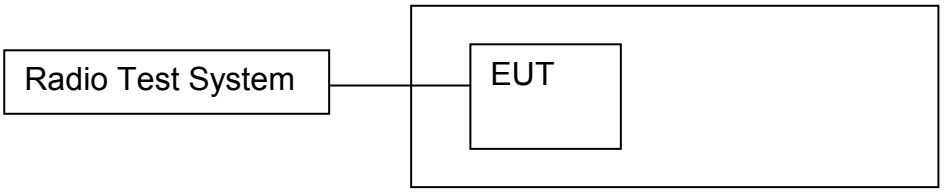


8DPSK


Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 78.156000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:17:21 PM Aug 13, 2020
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
ΔMkr1 78.156 0 MHz
0.062 dB
1Δ2
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (1001 pts)
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2
MSG
STATUS

13. DWELL TIME

13.1 Block Diagram Of Test Setup



13.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

13.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set spectrum analyzer span = 0. Centred on a hopping channel;

3. Set RBW = 1MHz and VBW = 3MHz.Sweep = as necessary to capture the entire dwell time per hopping channel. Set the EUT for DH5, DH3 and DH1 packet transmitting.

4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate. modulation format. etc.). repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

13.4 Test Result

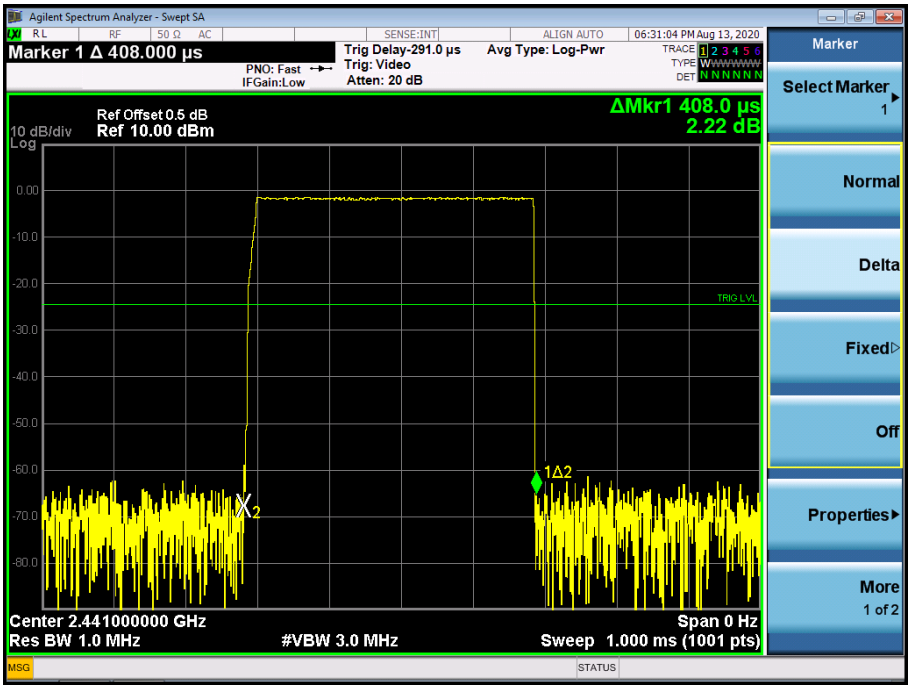
DH5 Packet permit maximum 1600 / 79 / 6 hops per second in each channel (5 time slots RX, 1 time slot TX).
DH3 Packet permit maximum 1600 / 79 / 4 hops per second in each channel (3 time slots RX, 1 time slot TX).
DH1 Packet permit maximum 1600 / 79 /2 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the Dwell Time can be calculated as follows:

DH5:1600/79/6*0.4*79*(MkrDelta)/1000
DH3:1600/79/4*0.4*79*(MkrDelta)/1000
DH1:1600/79/2*0.4*79*(MkrDelta)/1000
Remark: Mkr Delta is once pulse time.

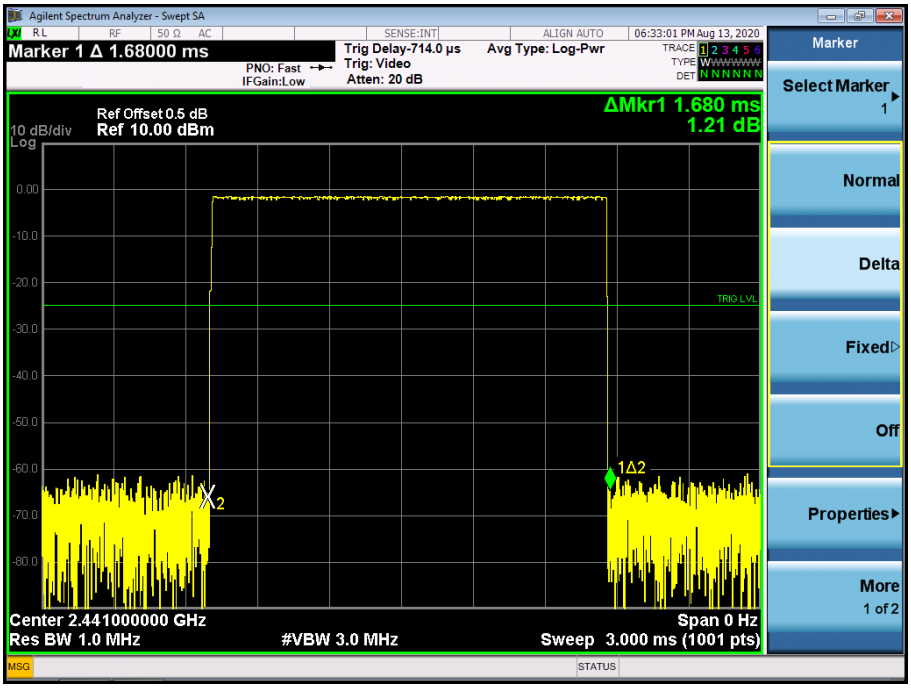
Modulation	Channel Data	Packet	pulse time(ms)	Dwell Time(s)	Limits(s)
GFSK	Middle	DH1	0.408	0.131	0.4
		DH3	1.680	0.269	0.4
		DH5	2.930	0.313	0.4
Pi/4DQPSK	Middle	2DH1	0.420	0.134	0.4
		2DH3	1.674	0.268	0.4
		2DH5	2.930	0.313	0.4
8DPSK	Middle	3DH1	0.418	0.134	0.4
		3DH3	1.680	0.269	0.4
		3DH5	2.940	0.314	0.4

Test Plots

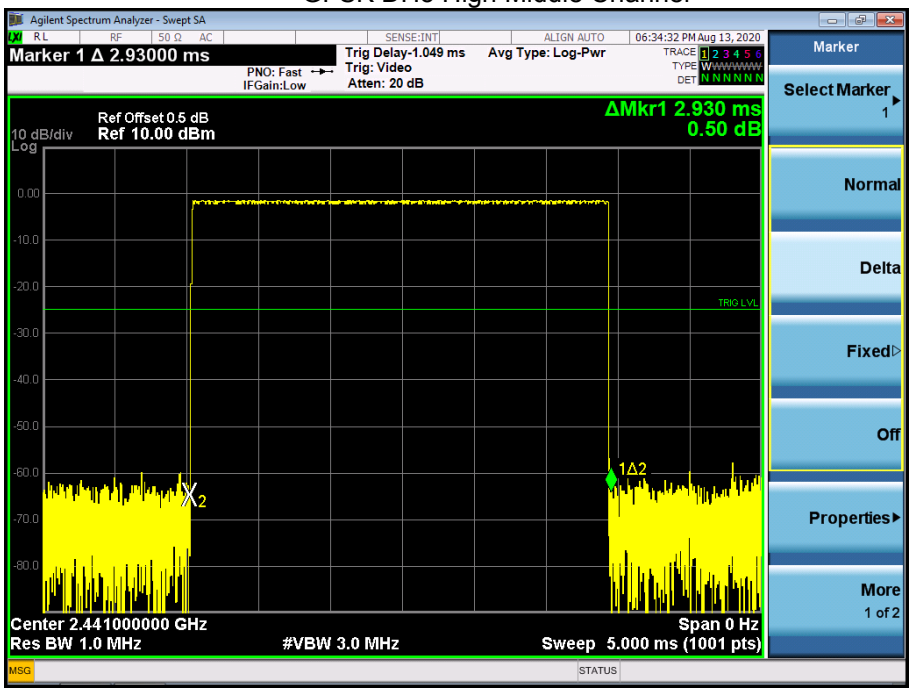
GFSK DH1 Middle Channel



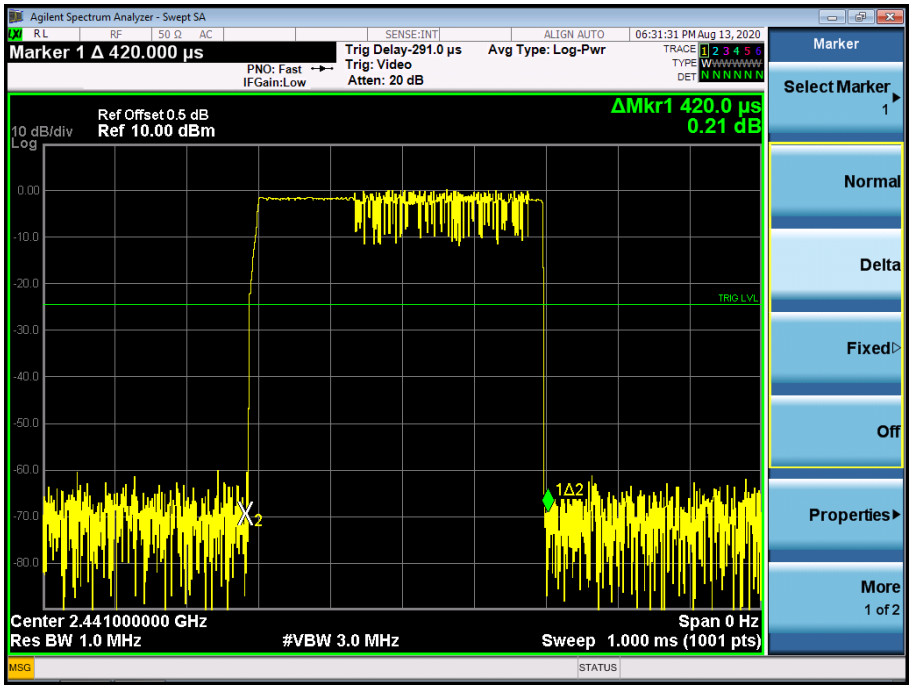
GFSK DH3 Middle Channel



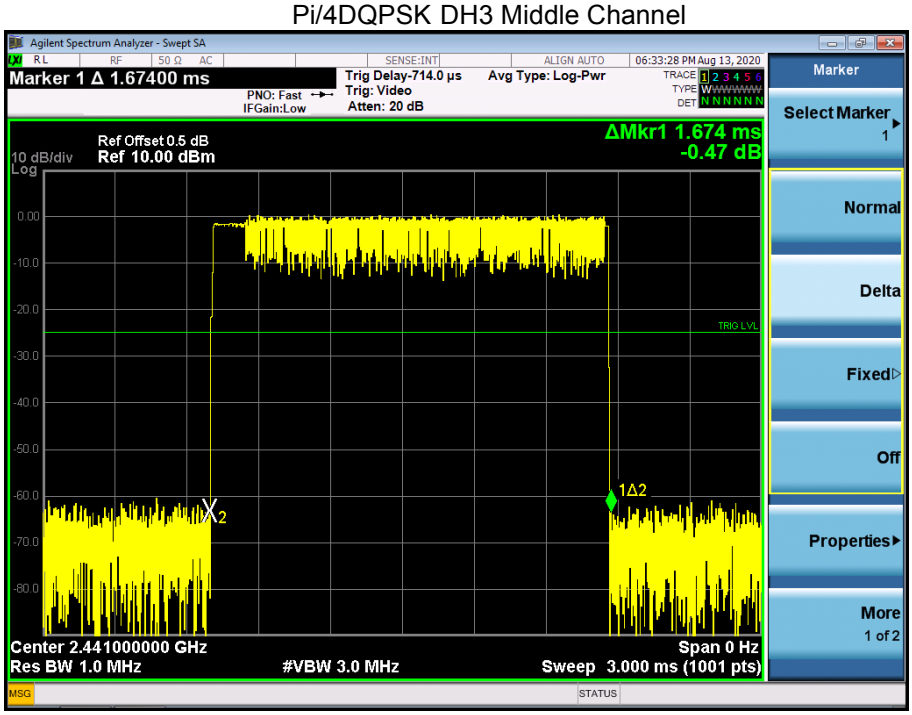
GFSK DH5 High Middle Channel



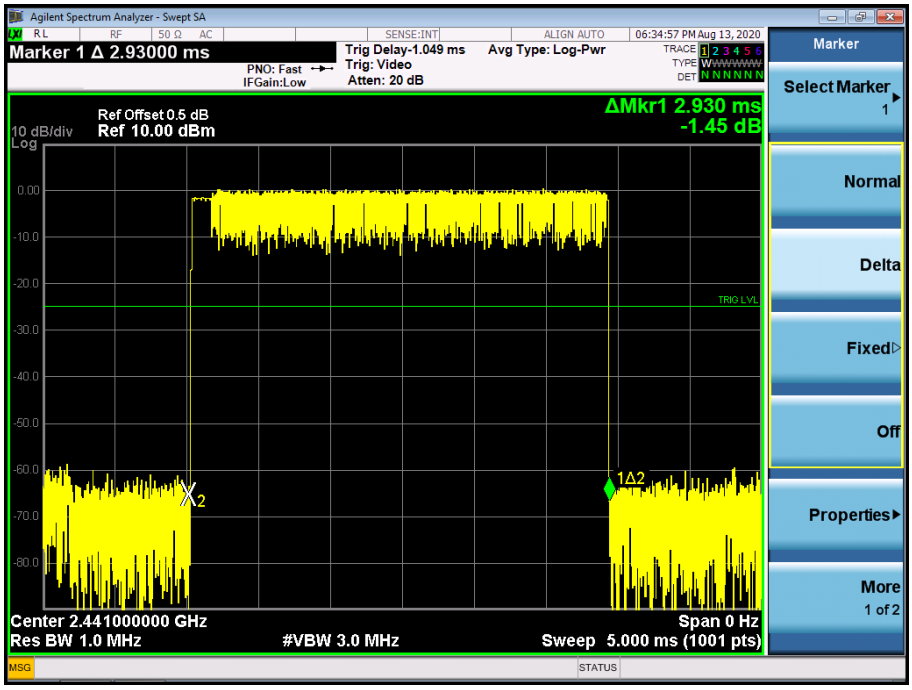
Pi/4DQPSK DH1 Middle Channel



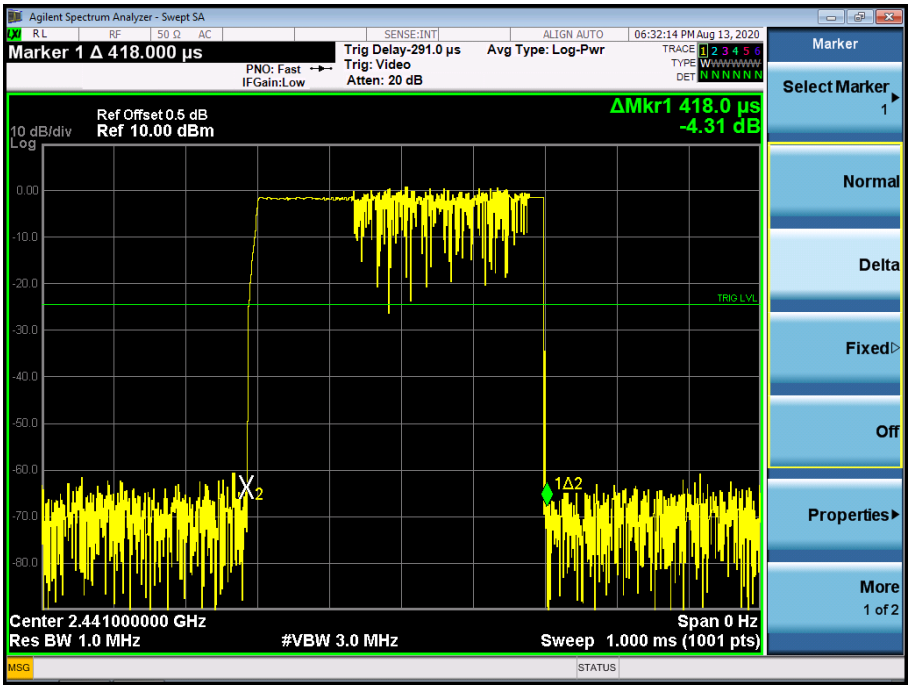
Pi/4DQPSK DH3 Middle Channel



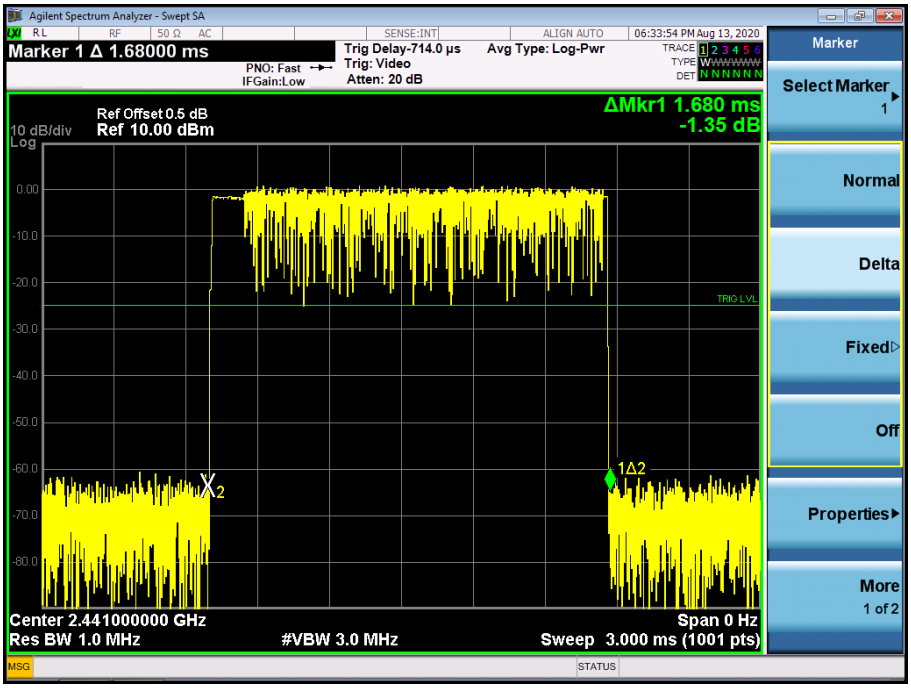
Pi/4DQPSK DH5 Middle Channel



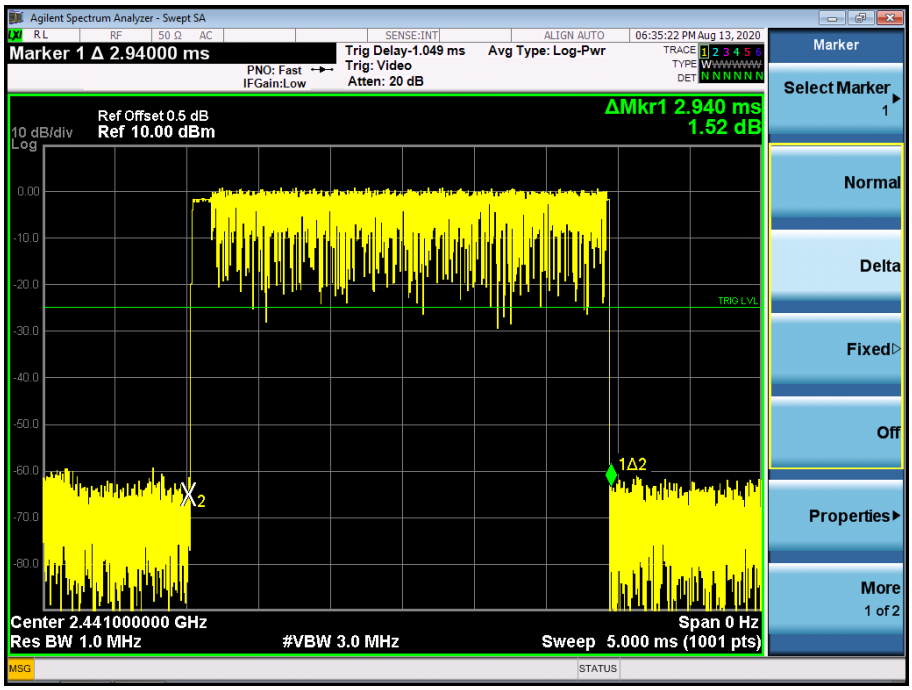
8DPSK DH1 Middle Channel



8DPSK DH3 Middle Channel



8DPSK DH5 Middle Channel



14. ANTENNA REQUIREMENT

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

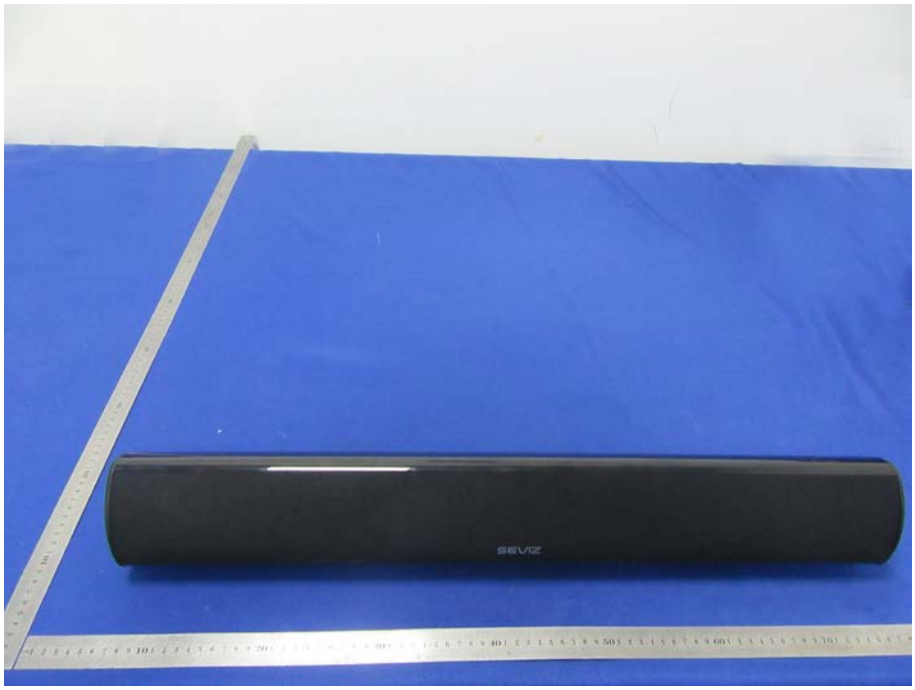
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

The EUT antenna is PCB antenna, antenna Gain 0 dBi. It comply with the standard requirement.

15. EUT PHOTOGRAPHS

EUT Photo 1

EUT Photo 2

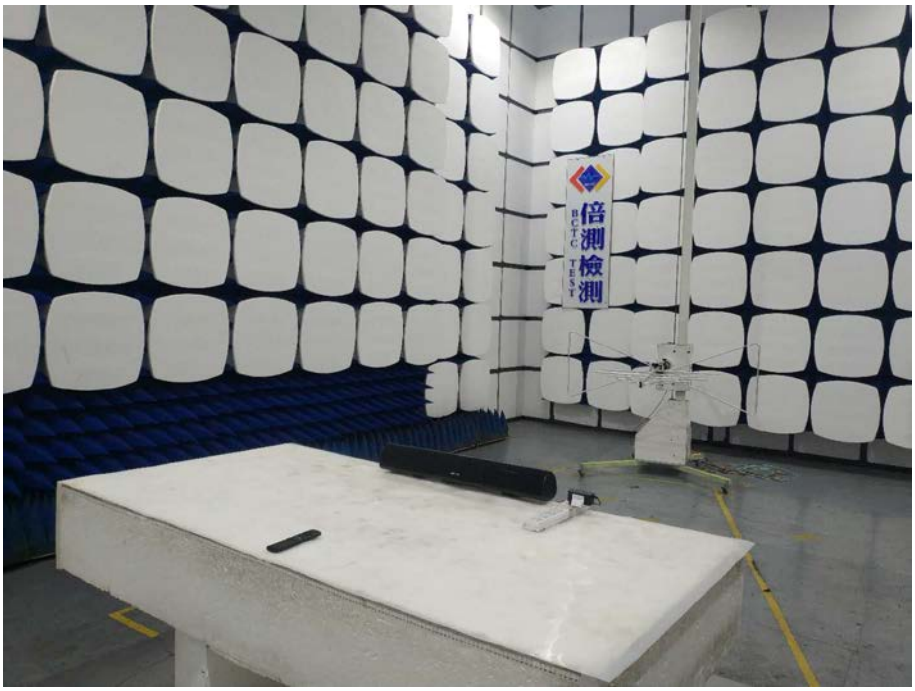


EUT Photo 3

16. EUT TEST SETUP PHOTOGRAPHS

Conducted Measurement Photos

Radiated Measurement Photos



※※※※※ END OF REPORT ※※※※※

TCB

GRANT OF EQUIPMENT AUTHORIZATION

TCB

Certification
Issued Under the Authority of the
Federal Communications Commission
By:

Eurofins MET Laboratories, Inc.
914 W. Patapsco Avenue
Baltimore, MD 21230-3432

Date of Grant: 09/01/2020

Application Dated: 09/01/2020

MYBESTSOUND CO., LTD
301, Building A3, Haocheng (Heping) Industrial
Park, No. 66 Hexiu West Road, Heping Community,
Fuhai Street, Baoan District,
China

Attention: Li Zexing

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: 2AXCSSOUNDBAR
Name of Grantee: MYBESTSOUND CO., LTD
Equipment Class: Part 15 Spread Spectrum Transmitter
Notes: Sound bar

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
	15C	2402.0 - 2480.0	0.00146		

Output power listed is conducted power. The antenna used with this transmitter must be installed to provide a minimum separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi- transmitter product procedures. End-users must be provided with operating procedures for satisfying RF exposure compliance.