



CERTIFICATE *of* EXAMINATION

NOTIFIED BODY EU-TYPE EXAMINATION CERTIFICATE

SHES208 / 19 Jan 2021 / Rev A

Radio Equipment Directive (RED) 2014/53/EU

MiCOM Labs Inc., Notified Body Number 2280 declares, on the basis of the assessment of the tests and the technical documentation provided by the applicant that the following product complies with the essential requirements of the above noted Directive.

Product Name:
Smart Watch

Approval Holder Name:
Shenzhen YQT Electronic Technology Co.,Ltd




Gordon Hurst, Product Certifier

This Certificate is Issued under the Authority of:
MiCOM Labs Inc., 575 Boulder Court, Pleasanton, California 94566, USA
Notified Body Number: 2280

Product Name:

Smart Watch

Product Model Numbers: T5, Q1, Q2, Q5, Q6, Q6S, Q7S, Q9, Q11, Q11S, Q11CW, Q12, Q12G, Q12B, Q12CW, Q12W, Q12T, Q13, Q13W, Q15, Q15F, Q16, Q17, Q18, Q18F, Q19, Q19F, Q19CW, Q19-XZ6, Q19-360, Q20, Q21, Q22, Q23, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q50, Q523, Q523-1.22, Q528, Q529, Q750, Q610S, Q60, Q60S, Q49, Q68, Q72, Q86, T3, T5S, T6, T8, T8W, T8L, T10, T10S, T10-360, T11, T12, T13, T15, T16, T17, T18, T19, T20, T27, T28, T29, T30, T31, T32, T33, T35, T36, W02S, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, Q13Z, Z1, S20

Brand Name: YQT

Approval Holder: Shenzhen YQT Electronic Technology Co.,Ltd, F5, Bldg4, Hua Feng No.1 Science & Technology Zone, Xixiang, Bao'an, Shenzhen, China

Product Manufacturer: Shenzhen YQT Electronic Technology Co.,Ltd, F5, Bldg4, Hua Feng No.1 Science & Technology Zone, Xixiang, Bao'an, Shenzhen, China

Standards

Group	Name
Article 3.1(a) Health & Safety	EN 62368-1:2014/A11:2017
	EN 50663: 2017
	EN 62479: 2010
	EN 62209-2: 2010
	EN 50566: 2017
Article 3.1(b) Electromagnetic Compatibility	EN 301 489-1 V2.2.3
	EN 301 489-17 V3.2.4
	EN 301 489-19 V2.1.1
	Draft EN 301 489-52 V1.1.2
Article 3.2 Effective Use of Spectrum	EN 301 511 V12.5.1
	EN 301 908-1 V13.1.1
	EN 301 908-2 V11.1.2
	EN 301 908-13 V13.1.1
	EN 300 328 V2.2.2
	EN 303 413 V1.1.1

Annex 1 to EU-Type Examination
**EU-Type examination on the essential requirements
Article 3**

Article 3.1 - a) Health and Safety	Assessed
Article 3.1 - b) Electromagnetic compatibility	Assessed
Article 3.2 - Effective use of radio spectrum	Assessed
Article 3.3 - a) interworks with Accessories/Chargers	Not Applicable
Article 3.3 - b) interworks with Radio Networks	Not Applicable
Article 3.3 - c) can connect to interfaces	Not Applicable
Article 3.3 - d) does not harm the network, misuse network resources	Not Applicable
Article 3.3 - e) privacy protections	Not Applicable
Article 3.3 - f) fraud protections	Not Applicable
Article 3.3 - g) emergency services access	Not Applicable
Article 3.3 - h) assist users with disabilities	Not Applicable
Article 3.3 - i) integrity of software	Not Applicable

Description of Apparatus

Company Name	Shenzhen YQT Electronic Technology Co.,Ltd
Certification No.	SHES208
Issue Date / Rev	19 Jan 2021 / Rev A
Equipment Description	Smart Watch
Hardware Version	G4H-MB-V1.0
Firmware Version	G4P_EMMC_240_5M_COM MON_OVERSEA_20190919_17.19.00

Emission Information

Technology	Frequency		Emission Designator	RF Power		
	From	To		Max.	Type	Field Strength
GSM900	880 MHz	915 MHz	GXW, G7W	34.28dBm	Conducted	--
DCS1800	1710 MHz	1785 MHz	GXW, G7W	29.15dBm	Conducted	--
UTRA Band 1	1920 MHz	1980 MHz	F9W	24.19dBm	Conducted	--
UTRA Band 8	880 MHz	915 MHz	F9W	24.11dBm	Conducted	--
E-UTRA Band 1	1920 MHz	1980 MHz	G7D, W7D	20.75dBm	Conducted	--
E-UTRA Band 3	1710 MHz	1785 MHz	G7D, W7D	22.79dBm	Conducted	--

Emission Information - Continued

Technology	Frequency		Emission Designator	RF Power		Field Strength
	From	To		Max.	Type	
E-UTRA Band 7	2500 MHz	2570 MHz	G7D, W7D	21.08dBm	Conducted	--
E-UTRA Band 8	880 MHz	915 MHz	G7D, W7D	22.82dBm	Conducted	--
E-UTRA Band 20	832 MHz	862 MHz	G7D, W7D	22.97dBm	Conducted	--
E-UTRA Band 28	703 MHz	748 MHz	G7D, W7D	23.00dBm	Conducted	--
WIFI	2412 MHz	2472 MHz	G1D, D1D	15.04dBm	EIRP	--
GPS	1575.42 MHz	1575.42 MHz	--	--	--	--

Technical Construction File Details: (Documents Reviewed)
Technical Report(s):

Article 3.1(a) Health & Safety:

STS2012165H02

STS2012165A01

Article 3.1(b) Electromagnetic Compatibility:

STS2012165E01

Article 3.2 Effective Use of Spectrum:

STS2012165W01

STS2012165W02

STS2012165W03

Supporting Documentation:

Service Agreement

Agent Authorization

EU Application

EU Declaration of Conformity

Block Diagram

BOM or Parts List

External Photographs

Internal Photographs

Label and its Location

Operational Description

PCB Layout

Schematics

User Manual

Risk Assessment

Notes

This device will not be marketed or sold on the French market due to non-compliance with the latest SAR requirements.

Scope

This EU-Type Examination Certificate is given in respect of compliance of radio spectrum use Article 3 Paragraph 2 of the RED Directive 2014/53/EU. The scope of the evaluation and this certificate relates only to those items identified in 'Annex 1 to EU - Type Examination Certificate' for the specific product and Certificate number referenced above.

EU Type Examination was performed according to Module B: EU-type examination procedure per Annex III the Directive on the essential requirements in Article 3, for the specific product and Certificate Number referenced above.

This EU Type Examination Certificate is based upon the review of the Technical Documentation and supporting evidence for the adequacy of the technical design solution, it is only valid in conjunction with the attached Annexes. The scope of this statement relates to a single sample of the apparatus identified above and of the submitted documents only.

**Annex 2 to EU-Type Examination
Obligations of the Applicant****Ref RED 2014/53/EU Article 10 - Obligations of manufacturers**

1. When placing their radio equipment on the market, manufacturers shall ensure that it has been designed and manufactured in accordance with the essential requirements set out in Article 3.
2. Manufacturers shall ensure that radio equipment shall be so constructed that it can be operated in at least one Member State without infringing applicable requirements on the use of radio spectrum.
3. Manufacturers shall draw up the technical documentation referred to in Article 21 and carry out the relevant conformity assessment procedure referred to in Article 17 or have it carried out. Where compliance of radio equipment with the applicable requirements has been demonstrated by that conformity assessment procedure, manufacturers shall draw up an EU declaration of conformity and affix the CE marking.
4. Manufacturers shall keep the technical documentation and the EU declaration of conformity for 10 years after the radio equipment has been placed on the market.
5. Manufacturers shall ensure that procedures are in place for series production to remain in conformity with this Directive. Changes in radio equipment design or characteristics and changes in the harmonised standards or in other technical specifications by reference to which conformity of radio equipment is declared shall be adequately taken into account.

When deemed appropriate with regard to the risks presented by radio equipment, manufacturers shall, to protect the health and safety of end-users, carry out sample testing of radio equipment made available on the market, investigate, and, if necessary, keep a register of complaints, of non-conforming radio equipment and radio equipment recalls, and shall keep distributors informed of any such monitoring.

6. Manufacturers shall ensure that radio equipment which they have placed on the market bears a type, batch or serial number or other element allowing its identification, or, where the size or nature of the radio equipment does not allow it, that the required information is provided on the packaging, or in a document accompanying the radio equipment.
7. Manufacturers shall indicate on the radio equipment their name, registered trade name or registered trade mark and the postal address at which they can be contacted or, where the size or nature of radio equipment does not allow it, on its packaging, or in a document accompanying the radio equipment. The address shall indicate a single point at which the manufacturer can be contacted. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
8. Manufacturers shall ensure that the radio equipment is accompanied by instructions and safety information in a language which can be easily understood by consumers and other end-users, as determined by the Member State concerned. Instructions shall include the information required to use radio equipment in accordance with its intended use. Such information shall include, where applicable, a description of accessories and components, including software, which allow the radio equipment to operate as intended. Such instructions and safety information, as well as any labelling, shall be clear, understandable and intelligible.

The following information shall also be included in the case of radio equipment intentionally emitting radio waves:

- (a) frequency band(s) in which the radio equipment operates;
- (b) maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates.

9. Manufacturers shall ensure that each item of radio equipment is accompanied by a copy of the EU declaration of conformity or by a simplified EU declaration of conformity. Where a simplified EU declaration of conformity is provided, it shall contain the exact internet address where the full text of the EU declaration of conformity can be obtained.
10. In cases of restrictions on putting into service or of requirements for authorisation of use, information available on the packaging shall allow the identification of the Member States or the geographical area within a Member State where restrictions on putting into service or requirements for authorisation of use exist. Such information shall be completed in the instructions accompanying the radio equipment. The Commission may adopt implementing acts specifying how to present that information. Those implementing acts shall be adopted in accordance with the advisory procedure referred to in Article 45(2).

11. Manufacturers who consider or have reason to believe that radio equipment which they have placed on the market is not in conformity with this Directive shall immediately take the corrective measures necessary to bring that radio equipment into conformity, to withdraw it or recall it, if appropriate. Furthermore, where the radio equipment presents a risk, manufacturers shall immediately inform the competent national authorities of the Member States in which they made the radio equipment available on the market to that effect, giving details, in particular, of the noncompliance, of any corrective measures taken and of the results thereof.

12. Manufacturers shall, further to a reasoned request from a competent national authority, provide it with all the information and documentation in paper or electronic form necessary to demonstrate the conformity of the radio equipment with this Directive, in a language which can be easily understood by that authority. They shall cooperate with that authority, at its request, on any action taken to eliminate the risks posed by radio equipment which they have placed on the market.

Ref RED 2014/53/EU Article 11 - Authorised representatives

1. A manufacturer may, by a written mandate, appoint an authorised representative.

The obligations laid down in Article 10(1) and the obligation to draw up technical documentation laid down in Article 10(3) shall not form part of the authorised representative's mandate.

2. An authorised representative shall perform the tasks specified in the mandate received from the manufacturer. The mandate shall allow the authorised representative to do at least the following:

(a) keep the EU declaration of conformity and the technical documentation at the disposal of national market surveillance authorities for 10 years after the radio equipment has been placed on the market;

(b) further to a reasoned request from a competent national authority, provide that authority with all the information and documentation necessary to demonstrate the conformity of radio equipment;

(c) co-operate with the competent national authorities, at their request, on any action taken to eliminate the risks posed

Article 19 General principles of the CE marking

1. The CE marking shall be subject to the general principles set out in Article 30 of Regulation (EC) No 765/2008.

2. On account of the nature of radio equipment, the height of the CE marking affixed to radio equipment may be lower than 5 mm, provided that it remains visible and legible.

Article 20 Rules and conditions for affixing the CE marking and the identification number of the notified body

1. The CE marking shall be affixed visibly, legibly and indelibly to the radio equipment or to its data plate, unless that is not possible or not warranted on account of the nature of radio equipment. The CE marking shall also be affixed visibly and legibly to the packaging.

2. The CE marking shall be affixed before the radio equipment is placed on the market.

3. Member States shall build upon existing mechanisms to ensure correct application of the regime governing the CE marking and shall take appropriate action in the event of improper use of that marking.

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RADIO TEST REPORT

Report No.: STS2012165W07

Issued for

Shenzhen YQT Electronic Technology Co., Ltd

F5, Bldg4, Hua Feng No.1 Science & Technology Zone,
Xixiang, Bao'an, Shenzhen, China

Product Name:	Smart Watch
Brand Name:	YQT
Model Name:	T5
Series Model:	Q1, Q2, Q5, Q6, Q6S, Q7S, Q9, Q11, Q11S, Q11CW, Q12, Q12G, Q12B, Q12CW, Q12W, Q12T, Q13, Q13W, Q15, Q15F, Q16, Q17, Q18, Q18F, Q19, Q19F, Q19CW, Q19-XZ6, Q19-360, Q20, Q21, Q22, Q23, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q50, Q523, Q523-1.22, Q528, Q529, Q750, Q610S, Q60, Q60S, Q49, Q68, Q72, Q86, T3, T5S, T6, T8, T8W, T8L, T10, T10S, T10-360, T11, T12, T13, T15, T16, T17, T18, T19, T20, T27, T28, T29, T30, T31, T32, T33, T35, T36, W02S, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, Q13Z, Z1, S20
FCC ID:	2AKM6-T5
Test Standard:	47 CFR Part 2, 22, 24(E), 27

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Shenzhen STS Test Services Co., Ltd.

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ,
Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail: sts@stsapp.com



**TEST RESULT CERTIFICATION**

Applicant's Name.....: Shenzhen YQT Electronic Technology Co.,Ltd
Address: F5, Bldg4, Hua Feng No.1 Science & Technology Zone, Xixiang, Bao'an, Shenzhen, China
Manufacturer's Name: Shenzhen YQT Electronic Technology Co.,Ltd
Address: F5, Bldg4, Hua Feng No.1 Science & Technology Zone, Xixiang, Bao'an Shenzhen, China
Product Description
Product Name: Smart Watch
Brand Name: YQT
Model Name: T5
Series Model: Q1, Q2, Q5, Q6, Q6S, Q7S, Q9, Q11, Q11S, Q11CW, Q12, Q12G, Q12B, Q12CW, Q12W, Q12T, Q13, Q13W, Q15, Q15F, Q16, Q17, Q18, Q18F, Q19, Q19F, Q19CW, Q19-XZ6, Q19-360, Q20, Q21, Q22, Q23, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q50, Q523, Q523-1.22, Q528, Q529, Q750, Q610S, Q60, Q60S, Q49, Q68, Q72, Q86, T3, T5S, T6, T8, T8W, T8L, T10, T10S, T10-360, T11, T12, T13, T15, T16, T17, T18, T19, T20, T27, T28, T29, T30, T31, T32, T33, T35, T36, W02S, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, Q13Z, Z1, S20
Test Standards.....: 47 CFR Part 2, 22, 24(E), 27
Test Procedure: KDB 971168 D01 v03r01, ANSI C63.26 2015
This device described above has been tested by STS, 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 STS, this document may be altered or revised by STS, personal only, and shall be noted in the revision of the document.
Date of Test.....:
Date of receipt of test item.....: 23 Dec. 2020
Date (s) of performance of tests.: 23 Dec. 2020 ~ 31 Dec. 2020
Date of Issue: 31 Dec. 2020
Test Result: Pass

Testing Engineer :

(Chris Chen)

Technical Manager :

(Sean she)

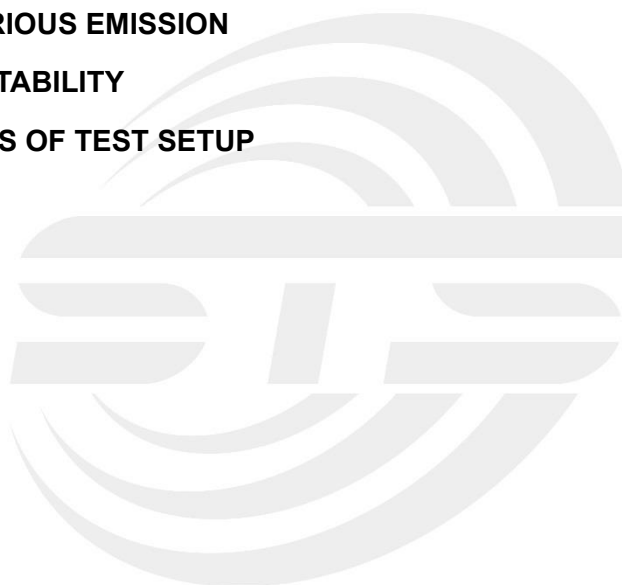
Authorized Signatory :

(Vita Li)





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**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	31 Dec. 2020	STS2012165W07	ALL	Initial Issue





1. TEST FACTORY & MEASUREMENT UNCERTAINTY

1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, 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	RF output power, conducted	$\pm 0.68\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
3	All emissions, radiated 30-1GHz	$\pm 4.39\text{dB}$
4	All emissions, radiated 1G-6GHz	$\pm 5.10\text{dB}$
5	All emissions, radiated >6G	$\pm 5.48\text{dB}$
6	Conducted Emission (9KHz-150KHz)	$\pm 2.79\text{dB}$
7	Conducted Emission (150KHz-30MHz)	$\pm 2.80\text{dB}$



2. GENERAL INFORMATION

2.1 TECHNICAL SPECIFICATIONS AND REGULATIONS

2.1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Name	Smart Watch
Trade Name	YQT
Model Name	T5
Series Model	Q1, Q2, Q5, Q6, Q6S, Q7S, Q9, Q11, Q11S, Q11CW, Q12, Q12G, Q12B, Q12CW, Q12W, Q12T, Q13, Q13W, Q15, Q15F, Q16, Q17, Q18, Q18F, Q19, Q19F, Q19CW, Q19-XZ6, Q19-360, Q20, Q21, Q22, Q23, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q50, Q523, Q523-1.22, Q528, Q529, Q750, Q610S, Q60, Q60S, Q49, Q68, Q72, Q86, T3, T5S, T6, T8, T8W, T8L, T10, T10S, T10-360, T11, T12, T13, T15, T16, T17, T18, T19, T20, T27, T28, T29, T30, T31, T32, T33, T35, T36, W02S, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, Q13Z, Z1, S20
Model Difference	Only difference in model names and appearance.
Frequency Bands	U.S. Bands: LTE FDD Band 2 LTE FDD Band 4 LTE FDD Band 5 LTE FDD Band 7 LTE FDD Band 12
SIM Card	SIM 1 and SIM 2 is a chipset unit and tested as single chipset, SIM 1 is used to tested.
Antenna	PIFA
Antenna gain	0dBi
Battery parameter	Rated Voltage:3.7V Charge Limit Voltage:4.2V Capacity: 680mAh
Adapter	Input: DC 5V 1A
Extreme Vol. Limits	4.2V to 3.5V (Nominal 3.7V)
Extreme Temp. Tolerance	-30℃ to +50℃
Hardware version number	G4H-MB-V1.0
Software version number	G4P_EMMC_240_5M_COMMON_OVERSEA_20190919_17.1 9.00

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sa-mple identified in the report.



2.1.2 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Product Specification Subjective To This Standard	
Tx Frequency	LTE Band 2:1850~1910MHz LTE Band 4:1710~1755MHz LTE Band 5:824~849MHz LTE Band 7:2500~2570MHz LTE Band 12:699~716MHz
Rx Frequency	LTE Band 2:1930 ~1990MHz LTE Band 4:2110~2155MHz LTE Band 5:869~894MHz LTE Band 7:2620~2690MHz LTE Band 12:729~746MHz
Bandwidth	LTE Band 2: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz /20MHz LTE Band 5: 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7: 5MHz / 10MHz / 15MHz /20MHz LTE Band 12: 1.4MHz / 3MHz / 5MHz / 10MHz
Maximum Output Power	LTE Band 2: 22.77 dBm LTE Band 4: 24.42 dBm LTE Band 5: 26.26 dBm LTE Band 7: 22.93 dBm LTE Band 12: 25.38 dBm
Type of Modulation	QPSK /16QAM

RF Function	Band	UE Category UL	Modulation	Power Class	Ant Gain (dBi)	Ant Type	SIM Card
LTE	FDD:2/4/5/7/1 2	4	QPSK, 16QAM	3	0	PIFA	2 SIM 1 is used to tested.



2.1.3 EMISSION DESIGNATOR

LTE Band 2	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M69G7D	2M69W7D
5	4M54G7D	4M55W7D
10	8M95G7D	8M95W7D
15	13M5G7D	13M5W7D
20	18M0G7D	18M0W7D
LTE Band 4	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M69G7D	2M69W7D
5	4M54G7D	4M55W7D
10	8M95G7D	8M95W7D
15	13M5G7D	13M5W7D
20	18M0G7D	18M0W7D
LTE Band 5	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M69G7D	2M69W7D
5	4M54G7D	4M55W7D
10	8M95G7D	8M95W7D
LTE Band 7	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
5	4M53G7D	4M55W7D
10	8M95G7D	8M94W7D
15	13M5G7D	13M5W7D
20	18M0G7D	18M0W7D
LTE Band 12	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M11W7D
3	2M69G7D	2M69W7D
5	4M55G7D	4M55W7D
10	8M95G7D	8M95W7D



2.1.4 TEST CONFIGURATION OF EQUIPMENT UNDER TEST

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 v03r01 and ANSI C63.26 2015 Power Meas. License Digital Systems with maximum output power. Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Remark:

1. The mark 'v' means that this configuration is chosen for testing
2. The mark '-' means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated.

ITEMS	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v			v	v	v	v	v	v	v	v
	7			v	v	v	v	v	v	v	v	v	v	v	v
	12	v	v	v	v			v	v	v	v	v	v	v	v
Peak&Avera Ratio	2						v	v	v	v		v	v	v	v
	4						v	v	v	v		v	v	v	v
	5				v			v	v	v		v	v	v	v
	7						v	v	v	v		v	v	v	v
	12				v			v	v	v		v	v	v	v
26dB&99% Bandwidth	2	v	v	v	v	v	v	v	v			v	v	v	v
	4	v	v	v	v	v	v	v	v			v	v	v	v
	5	v	v	v	v			v	v			v	v	v	v
	7			v	v	v	v	v	v			v	v	v	v
	12	v	v	v	v			v	v			v	v	v	v
Conducted Band Edge	2	v	v	v	v	v	v	v	v	v		v	v	v	v
	4	v	v	v	v	v	v	v	v	v		v	v	v	v
	5	v	v	v	v			v	v	v		v	v	v	v
	7			v	v	v	v	v	v	v		v	v	v	v
	12	v	v	v	v			v	v	v		v	v	v	v
Conducted Spurious Emission	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	5	v	v	v	v			v	v	v			v	v	v
	7			v	v	v	v	v	v	v			v	v	v
	12	v	v	v	v			v	v	v			v	v	v
Frequency Stability	2				v			v				v		v	
	4				v			v				v		v	
	5				v			v				v		v	
	7				v			v				v		v	
	12				v			v				v		v	



E.R.P.& E.I.R.P.	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	5	v	v	v	v			v	v	v			v	v	v
	7			v	v	v	v	v	v	v			v	v	v
	12	v	v	v	v			v	v	v			v	v	v
Radiated Spurious Emission	2	v	v	v	v	v	v	v		v			v	v	v
	4	v	v	v	v	v	v	v		v			v	v	v
	5	v	v	v	v			v		v			v	v	v
	7			v	v	v	v	v		v			v	v	v
	12	v	v	v	v			v		v			v	v	v





2.1.5 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for filing to comply with the 47 CFR Part 2, 22, 24(E), 27.

2.1.6 SPECIAL ACCESSORIES

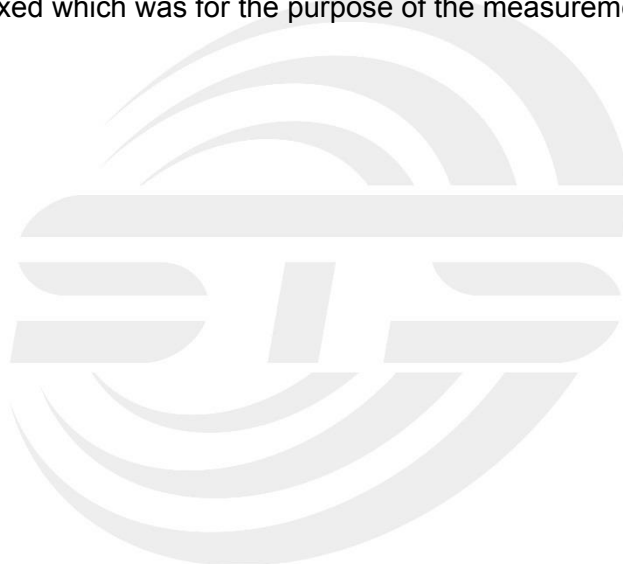
The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for fcc grant together.

2.1.7 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.1.8 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.





2.1.9 CONFIGURATION OF EUT SYSTEM

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

E-1
EUT

Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	Length	Note
N/A	N/A	N/A	N/A	N/A

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (2) “YES” is means “with core”; “NO” is means “without core”.



2.1.10 MEASUREMENT INSTRUMENTS

The radiated emission testing was performed according to the procedures of ANSI C63.26 2015 and FCC CFR 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2020.10.12	2021.10.11
Signal Analyzer	R&S	FSV 40-N	101823	2020.10.10	2021.10.09
Signal Generator	Agilent	83752A	3610A02740	2020.10.10	2021.10.09
Wireless Communications Test Set	R&S	CMW 500	133884	2020.03.05	2021.03.04
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2019.10.15	2021.10.14
Bilog Antenna	TESEQ	CBL6111D	45873	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1343	2020.10.12	2022.10.11
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2020.10.12	2021.10.11
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2020.10.12	2021.10.11
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2020.10.10	2021.10.09
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	BULUN	BL410-E/18.905			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Universal Radio communication tester	R&S	CMU200	119907	2020.10.12	2021.10.11
Wireless Communications Test Set	R&S	CMW 500	133884	2020.03.05	2021.03.04
Signal Analyzer	Agilent	N9020A	MY52440124	2020.03.05	2021.03.04
Temperature& Humidity test chamber	Safety test	AG80L	171200018	2020.03.05	2021.03.04
Programmable power supply	Agilent	E3642A	MY40002025	2020.10.12	2021.10.11
Temperature & Humidity	SW-108	SuWei	N/A	2020.03.07	2021.03.06
Test SW	FARAD	LZ-RF /LzRf-3A3			



2.1.11 MEASUREMENT RESULTS EXPLANATION EXAMPLE

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF Cable Loss + Attenuator Factor.



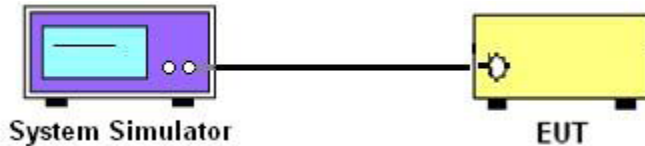
3. CONDUCTED OUTPUT POWER

3.1 DESCRIPTION OF THE CONDUCTED OUTPUT POWER MEASUREMENT

3.1.1 MEASUREMENT METHOD

A system simulator was used to establish communication with the eut. Its parameters were set to force the eut transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.
Configuration follows KDB 971168 D01 v03r01.

3.1.2 TEST SETUP



3.1.3 TEST PROCEDURES

1. The transmitter output port was connected to system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest/middle/highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.



3.1.4 TEST RESULTS

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.47	22.64	22.61
1.4	1	2		22.26	22.35	22.34
1.4	1	5		21.98	22.10	22.07
1.4	3	0		21.73	21.80	21.82
1.4	3	1		21.50	21.56	21.59
1.4	3	2		21.22	21.27	21.34
1.4	6	0		21.00	21.03	21.04
1.4	1	0	16-QAM	22.18	22.36	22.34
1.4	1	2		21.90	22.14	22.04
1.4	1	5		21.63	21.93	21.81
1.4	3	0		21.34	21.65	21.55
1.4	3	1		21.08	21.39	21.34
1.4	3	2		20.86	21.14	21.07
1.4	6	0		20.62	20.89	20.82
3	1	0	QPSK	22.61	22.64	22.56
3	1	7		22.32	22.39	22.32
3	1	14		22.07	22.11	22.06
3	8	0		21.79	21.84	21.85
3	8	4		21.58	21.56	21.61
3	8	7		21.36	21.34	21.37
3	15	0		21.13	21.10	21.08
3	1	0	16-QAM	22.40	22.42	22.32
3	1	7		22.15	22.14	22.03
3	1	14		21.91	21.86	21.78
3	8	0		21.61	21.60	21.58
3	8	4		21.36	21.31	21.30
3	8	7		21.14	21.08	21.02
3	15	0		20.87	20.87	20.75



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.63	22.57	22.60
5	1	12		22.41	22.29	22.30
5	1	24		22.20	22.06	22.08
5	12	0		21.95	21.78	21.86
5	12	6		21.73	21.51	21.65
5	12	11		21.46	21.30	21.45
5	25	0		21.19	21.02	21.24
5	1	0	16-QAM	22.39	22.36	22.38
5	1	12		22.14	22.12	22.17
5	1	24		21.93	21.89	21.93
5	12	0		21.71	21.66	21.66
5	12	6		21.46	21.42	21.44
5	12	11		21.25	21.14	21.23
5	25	0		21.01	20.84	20.94
10	1	0	QPSK	22.55	22.72	22.53
10	1	24		22.33	22.45	22.28
10	1	49		22.09	22.19	21.99
10	25	0		21.85	21.91	21.78
10	25	12		21.60	21.62	21.55
10	25	24		21.40	21.39	21.27
10	50	0		21.12	21.10	20.99
10	1	0	16-QAM	22.30	22.42	22.27
10	1	24		22.07	22.16	21.99
10	1	49		21.78	21.88	21.71
10	25	0		21.53	21.61	21.48
10	25	12		21.25	21.32	21.27
10	25	24		21.00	21.05	20.98
10	50	0		20.77	20.80	20.71



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.51	22.49	22.51
15	1	37		22.24	22.22	22.22
15	1	74		21.96	22.01	21.97
15	36	0		21.75	21.74	21.72
15	36	18		21.47	21.49	21.46
15	36	39		21.23	21.25	21.23
15	75	0		20.95	21.03	20.94
15	1	0	16-QAM	22.25	22.24	22.23
15	1	38		22.01	21.98	22.01
15	1	75		21.75	21.75	21.80
15	36	0		21.47	21.55	21.52
15	36	18		21.23	21.31	21.26
15	36	39		20.99	21.05	21.01
15	75	0		20.72	20.80	20.80
20	1	0	QPSK	22.77	22.74	22.62
20	1	49		22.50	22.52	22.35
20	1	99		22.26	22.23	22.06
20	50	0		21.99	21.93	21.85
20	50	24		21.79	21.69	21.58
20	50	49		21.56	21.48	21.36
20	100	0		21.34	21.26	21.14
20	1	0	16-QAM	22.56	22.49	22.40
20	1	49		22.27	22.29	22.19
20	1	99		22.03	22.07	21.92
20	50	0		21.80	21.80	21.66
20	50	24		21.59	21.56	21.44
20	50	49		21.31	21.33	21.18
20	100	0		21.06	21.04	20.89



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.92	24.16	24.05
1.4	1	2		23.68	23.90	23.84
1.4	1	5		23.41	23.65	23.59
1.4	3	0		23.17	23.40	23.36
1.4	3	1		22.90	23.13	23.15
1.4	3	2		22.70	22.90	22.92
1.4	6	0		22.49	22.63	22.66
1.4	1	0	16-QAM	23.68	23.96	23.77
1.4	1	2		23.48	23.74	23.48
1.4	1	5		23.24	23.49	23.25
1.4	3	0		23.01	23.28	23.05
1.4	3	1		22.72	23.05	22.77
1.4	3	2		22.46	22.82	22.51
1.4	6	0		22.23	22.57	22.31
3	1	0	QPSK	24.36	24.25	24.19
3	1	7		24.11	24.02	23.90
3	1	14		23.88	23.79	23.70
3	8	0		23.67	23.59	23.45
3	8	4		23.46	23.29	23.23
3	8	7		23.24	23.03	22.93
3	15	0		22.98	22.78	22.64
3	1	0	16-QAM	24.15	23.97	23.94
3	1	7		23.92	23.71	23.72
3	1	14		23.70	23.44	23.49
3	8	0		23.41	23.18	23.22
3	8	4		23.18	22.95	22.99
3	8	7		22.94	22.66	22.71
3	15	0		22.65	22.44	22.49



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.05	24.12	24.04
5	1	12		23.76	23.91	23.77
5	1	24		23.47	23.67	23.57
5	12	0		23.25	23.46	23.34
5	12	6		23.03	23.24	23.05
5	12	11		22.75	23.01	22.79
5	25	0		22.46	22.74	22.54
5	1	0	16-QAM	23.80	23.86	23.83
5	1	12		23.58	23.64	23.56
5	1	24		23.34	23.42	23.28
5	12	0		23.07	23.17	23.00
5	12	6		22.83	22.88	22.72
5	12	11		22.59	22.63	22.46
5	25	0		22.34	22.38	22.18
10	1	0	QPSK	24.19	24.19	24.16
10	1	24		23.93	23.92	23.87
10	1	49		23.72	23.64	23.59
10	25	0		23.52	23.35	23.34
10	25	12		23.24	23.05	23.10
10	25	24		23.00	22.81	22.88
10	50	0		22.76	22.56	22.58
10	1	0	16-QAM	23.98	23.93	23.96
10	1	24		23.71	23.73	23.71
10	1	49		23.42	23.47	23.50
10	25	0		23.18	23.20	23.23
10	25	12		22.88	22.99	22.99
10	25	24		22.68	22.69	22.75
10	50	0		22.46	22.40	22.54



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	24.19	24.18	24.00
15	1	37		23.95	23.93	23.79
15	1	74		23.69	23.68	23.52
15	36	0		23.47	23.48	23.24
15	36	18		23.22	23.19	22.95
15	36	39		22.95	22.94	22.71
15	75	0		22.72	22.73	22.47
15	1	0	16-QAM	23.99	23.92	23.78
15	1	38		23.76	23.64	23.54
15	1	75		23.49	23.39	23.25
15	36	0		23.23	23.11	22.96
15	36	18		22.99	22.81	22.67
15	36	39		22.76	22.60	22.46
15	75	0		22.48	22.38	22.23
20	1	0	QPSK	24.20	24.42	24.29
20	1	49		23.99	24.07	24.01
20	1	99		23.73	23.84	23.76
20	50	0		23.45	23.59	23.46
20	50	24		23.15	23.34	23.17
20	50	49		22.93	23.14	22.94
20	100	0		22.69	22.92	22.70
20	1	0	16-QAM	23.92	24.07	23.99
20	1	49		23.67	23.81	23.73
20	1	99		23.47	23.58	23.45
20	50	0		23.19	23.31	23.23
20	50	24		22.97	23.08	22.99
20	50	49		22.74	22.79	22.77
20	100	0		22.53	22.52	22.52



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	26.02	26.21	26.01
1.4	1	2		25.79	25.98	25.73
1.4	1	5		25.50	25.68	25.46
1.4	3	0		25.26	25.40	25.19
1.4	3	1		25.04	25.19	24.96
1.4	3	2		24.80	24.93	24.66
1.4	6	0		24.54	24.67	24.38
1.4	1	0	16-QAM	25.79	25.93	25.77
1.4	1	2		25.52	25.72	25.52
1.4	1	5		25.28	25.50	25.31
1.4	3	0		25.03	25.27	25.06
1.4	3	1		24.76	24.98	24.77
1.4	3	2		24.49	24.77	24.53
1.4	6	0		24.26	24.48	24.29
3	1	0	QPSK	25.90	26.02	26.02
3	1	7		25.61	25.73	25.81
3	1	14		25.34	25.52	25.58
3	8	0		25.14	25.32	25.37
3	8	4		24.87	25.09	25.17
3	8	7		24.65	24.87	24.94
3	15	0		24.37	24.67	24.72
3	1	0	16-QAM	25.70	25.76	25.81
3	1	7		25.42	25.55	25.52
3	1	14		25.13	25.32	25.24
3	8	0		24.88	25.02	25.03
3	8	4		24.61	24.81	24.76
3	8	7		24.40	24.61	24.49
3	15	0		24.17	24.32	24.27



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	25.97	26.07	25.87
5	1	12		25.73	25.83	25.66
5	1	24		25.50	25.60	25.41
5	12	0		25.23	25.39	25.12
5	12	6		24.94	25.11	24.83
5	12	11		24.72	24.90	24.61
5	25	0		24.51	24.67	24.37
5	1	0	16-QAM	25.75	25.81	25.66
5	1	12		25.49	25.59	25.39
5	1	24		25.20	25.37	25.15
5	12	0		24.91	25.08	24.93
5	12	6		24.70	24.84	24.66
5	12	11		24.41	24.59	24.40
5	25	0		24.21	24.37	24.19
10	1	0	QPSK	26.01	26.11	26.26
10	1	24		25.74	25.83	25.87
10	1	49		25.46	25.56	25.59
10	25	0		25.16	25.30	25.36
10	25	12		24.92	25.01	25.13
10	25	24		24.67	24.76	24.90
10	50	0		24.43	24.51	24.69
10	1	0	16-QAM	25.73	25.86	25.91
10	1	24		25.44	25.62	25.64
10	1	49		25.20	25.38	25.38
10	25	0		24.95	25.12	25.14
10	25	12		24.66	24.88	24.90
10	25	24		24.44	24.59	24.62
10	50	0		24.15	24.36	24.37



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.85	22.83	22.66
5	1	12		22.57	22.60	22.37
5	1	24		22.34	22.34	22.13
5	12	0		22.12	22.08	21.90
5	12	6		21.90	21.81	21.68
5	12	11		21.62	21.55	21.44
5	25	0		21.39	21.33	21.21
5	1	0	16-QAM	22.57	22.57	22.44
5	1	12		22.29	22.37	22.15
5	1	24		22.09	22.10	21.93
5	12	0		21.82	21.83	21.73
5	12	6		21.56	21.62	21.45
5	12	11		21.32	21.40	21.24
5	25	0		21.12	21.20	20.99
10	1	0	QPSK	22.72	22.55	22.65
10	1	24		22.47	22.35	22.37
10	1	49		22.17	22.07	22.09
10	25	0		21.91	21.80	21.83
10	25	12		21.65	21.54	21.61
10	25	24		21.42	21.25	21.38
10	50	0		21.17	21.05	21.14
10	1	0	16-QAM	22.49	22.34	22.35
10	1	24		22.28	22.13	22.14
10	1	49		22.00	21.93	21.90
10	25	0		21.73	21.67	21.62
10	25	12		21.51	21.40	21.35
10	25	24		21.24	21.14	21.07
10	50	0		20.99	20.94	20.81



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.83	22.87	22.77
15	1	37		22.63	22.67	22.55
15	1	74		22.40	22.42	22.32
15	36	0		22.19	22.17	22.06
15	36	18		21.98	21.97	21.84
15	36	39		21.69	21.67	21.56
15	75	0		21.41	21.44	21.33
15	1	0	16-QAM	22.57	22.61	22.48
15	1	38		22.36	22.40	22.20
15	1	75		22.06	22.15	21.93
15	36	0		21.77	21.90	21.67
15	36	18		21.55	21.67	21.42
15	36	39		21.26	21.43	21.20
15	75	0		21.05	21.15	20.95
20	1	0	QPSK	22.88	22.93	22.93
20	1	49		22.67	22.64	22.64
20	1	99		22.37	22.34	22.36
20	50	0		22.08	22.14	22.14
20	50	24		21.81	21.90	21.86
20	50	49		21.52	21.63	21.64
20	100	0		21.27	21.35	21.35
20	1	0	16-QAM	22.58	22.66	22.67
20	1	49		22.34	22.42	22.38
20	1	99		22.12	22.18	22.15
20	50	0		21.90	21.95	21.88
20	50	24		21.60	21.73	21.59
20	50	49		21.40	21.45	21.30
20	100	0		21.12	21.20	21.03



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	24.69	25.02	24.84
1.4	1	2		24.47	24.81	24.58
1.4	1	5		24.26	24.55	24.31
1.4	3	0		23.98	24.29	24.03
1.4	3	1		23.74	24.02	23.76
1.4	3	2		23.53	23.80	23.50
1.4	6	0		23.27	23.58	23.23
1.4	1	0	16-QAM	24.44	24.73	24.60
1.4	1	2		24.15	24.49	24.35
1.4	1	5		23.88	24.22	24.12
1.4	3	0		23.63	23.94	23.91
1.4	3	1		23.36	23.67	23.64
1.4	3	2		23.06	23.38	23.41
1.4	6	0		22.85	23.09	23.21
3	1	0	QPSK	24.69	25.01	25.32
3	1	7		24.46	24.78	25.06
3	1	14		24.17	24.55	24.82
3	8	0		23.95	24.28	24.60
3	8	4		23.75	24.07	24.34
3	8	7		23.51	23.82	24.13
3	15	0		23.30	23.55	23.90
3	1	0	16-QAM	24.41	24.71	25.06
3	1	7		24.21	24.50	24.80
3	1	14		23.91	24.27	24.55
3	8	0		23.68	23.98	24.34
3	8	4		23.46	23.73	24.13
3	8	7		23.23	23.51	23.89
3	15	0		23.00	23.26	23.68



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.98	25.10	24.76
5	1	12		24.73	24.89	24.52
5	1	24		24.52	24.62	24.27
5	12	0		24.25	24.37	23.98
5	12	6		24.00	24.12	23.68
5	12	11		23.80	23.90	23.41
5	25	0		23.50	23.65	23.15
5	1	0	16-QAM	24.77	24.83	24.47
5	1	12		24.48	24.59	24.23
5	1	24		24.20	24.36	23.99
5	12	0		23.93	24.13	23.77
5	12	6		23.72	23.91	23.56
5	12	11		23.46	23.68	23.34
5	25	0		23.24	23.40	23.05
10	1	0	QPSK	25.02	25.38	24.87
10	1	24		24.78	24.89	24.67
10	1	49		24.51	24.68	24.44
10	25	0		24.27	24.39	24.17
10	25	12		24.01	24.11	23.89
10	25	24		23.81	23.84	23.60
10	50	0		23.52	23.62	23.37
10	1	0	16-QAM	24.73	24.88	24.59
10	1	24		24.49	24.66	24.39
10	1	49		24.26	24.42	24.14
10	25	0		24.06	24.16	23.88
10	25	12		23.81	23.87	23.64
10	25	24		23.57	23.63	23.41
10	50	0		23.33	23.38	23.15

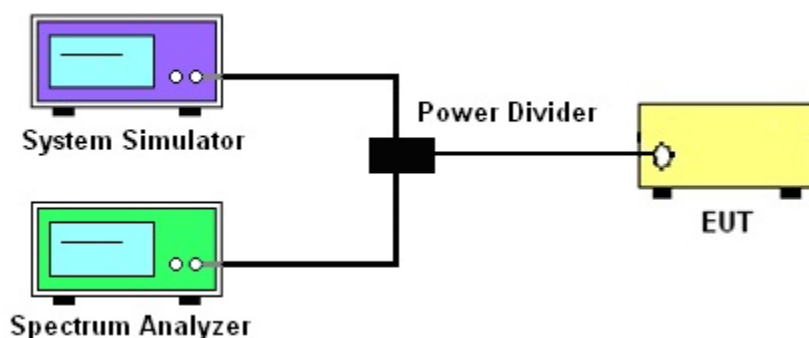
4. PEAK-TO-AVERAGE RATIO

4.1 DESCRIPTION OF THE CONDUCTED OUTPUT POWER MEASUREMENT

4.1.1 MEASUREMENT METHOD

Use one of the procedures presented in 4.1.3 to measure the total peak power and record as PPK. Use one of the applicable procedures presented 4.1.3 to measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:
 $PAPR (dB) = PPK (dBm) - PAvg (dBm)$.

4.1.2 TEST SETUP



4.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.7 and ANSI C63.26 2015 Section 5.2.6.
2. The EUT was connected to spectrum and system simulator via a power divider
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Set the test probe and measure the peak and average power of the spectrum analyzer
5. Record the deviation as Peak to Average Ratio.

	LTE					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	30kHz	100kHz	100kHz	300kHz	300kHz
VBW	100kHz	100kHz	300kHz	300kHz	1000kHz	1000kHz
Detector	PK/AVG	PK/AVG	PK/AVG	PK/AVG	PK/AVG	PK/AVG
Trace	Max	Max	Max	Max	Max	Max
Sweep Count	Auto	Auto	Auto	Auto	Auto	Auto



4.1.4 TEST RESULTS

LTE Band 2 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
20	1	QPSK	5.38	5.36	5.65
20	100		5.6	5.71	5.57
20	1	16-QAM	6.6	6.34	6.22
20	100		6.35	6.51	6.2
Limit			≤13dB		

LTE Band 4 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
20	1	QPSK	6.32	5.34	5.96
20	100		5.73	5.9	5.51
20	1	16-QAM	6.4	6.33	6
20	100		6.62	6.45	6.14
Limit			≤13dB		

LTE Band 5 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
10	1	QPSK	5.83	5.78	5.18
10	50		5.73	5.51	5.28
10	1	16-QAM	6.09	5.82	5.69
10	50		6.23	6.19	6.11
Limit			≤13dB		

LTE Band 7 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
20	1	QPSK	5.13	5.47	4.76
20	100		5.13	5.64	5.24
20	1	16-QAM	5.25	5.98	5.5
20	100		5.83	6.27	6
Limit			≤13dB		

LTE Band 12 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
10	1	QPSK	5.13	5.48	6.03
10	50		6.06	5.64	5.7
10	1	16-QAM	6.71	6.03	6.99
10	50		6.84	6.53	6.54
Limit			≤13dB		

Note: Test chart See Appendix D

5. RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

5.1 DESCRIPTION OF THE ERP/EIRP MEASUREMENT

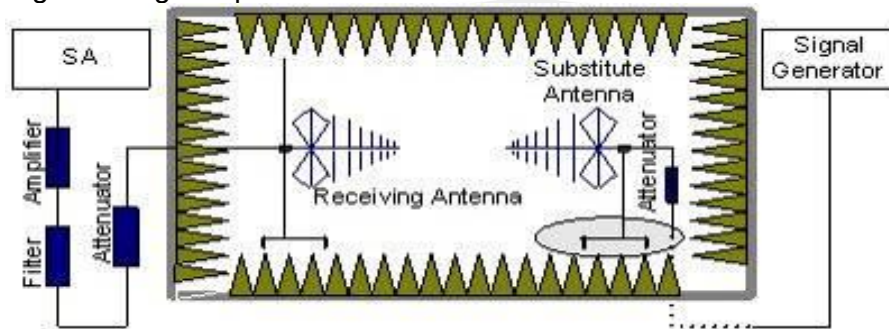
5.1.1 MEASUREMENT METHOD

Effective radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems. Mobile and portable (hand-held) stations operating are limited to average ERP, Equivalent isotropic radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas, Mobile and portable (hand-held) stations operating are limited to average EIRP.

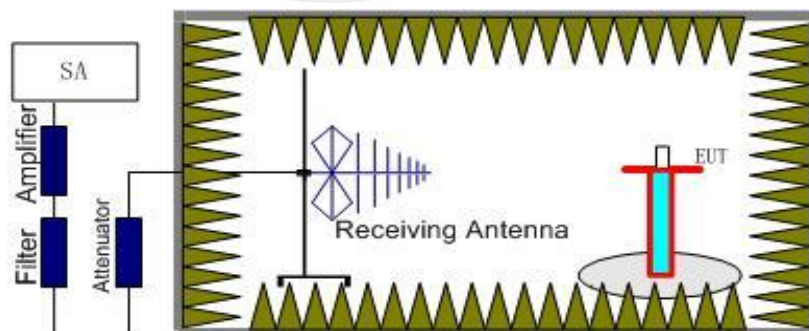
5.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, $RSE = R_x \text{ (dBuV)} + CL \text{ (dB)} + SA \text{ (dB)} + \text{Gain (dBi)} - 107 \text{ (dBuV to dBm)}$ The SA is calibrated using following setup.



b) EUT was placed on a 1.5m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:

Power=PMea+ARpl



5.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01v03r01 Section 5.6 and ANSI C63.26 2015 Section 5.2.
2. The EUT was placed on a non-conductive rotating platform 1.5 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with Peak detector.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 m in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to ANSI C63.26 2015. The EUT was replaced by dipole antenna (substitution antenna) at same location and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. $EIRP = S.G \text{ Level} + \text{Gain} - \text{Cable loss}$; $ERP = S.G \text{ Level} + \text{Gain} - \text{Cable loss} - 2.15$.
5. RB Set greater than bandwidth, VB Set spectrum analyzer Maximum support.





5.1.4 TEST RESULTS

Note: Test is divided into three directions, X/Y/Z. X pattern for the worst.

Radiated Power (EIRP) for LTE Band 2 / 1.4M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	11.67	2.37	10.40	19.70	Horizontal	Pass
	1	0	Middle	11.86	2.39	10.42	19.89	Horizontal	Pass
	1	0	Highest	11.85	2.40	10.44	19.89	Horizontal	Pass
	1	0	Lowest	13.1	2.37	10.40	21.13	Vertical	Pass
	1	0	Middle	13.32	2.39	10.42	21.35	Vertical	Pass
	1	0	Highest	13.23	2.40	10.44	21.27	Vertical	Pass
16QAM	1	0	Lowest	11.5	2.37	10.40	19.53	Horizontal	Pass
	1	0	Middle	11.55	2.39	10.42	19.58	Horizontal	Pass
	1	0	Highest	11.67	2.40	10.44	19.71	Horizontal	Pass
	1	0	Lowest	12.85	2.37	10.40	20.88	Vertical	Pass
	1	0	Middle	13.02	2.39	10.42	21.05	Vertical	Pass
	1	0	Highest	13.07	2.40	10.44	21.11	Vertical	Pass
Limit	EIRP<2W=33dBm								

Radiated Power (EIRP) for LTE Band 2 / 3M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	11.89	2.37	10.40	19.92	Horizontal	Pass
	1	0	Middle	11.97	2.39	10.42	20.00	Horizontal	Pass
	1	0	Highest	11.76	2.40	10.44	19.80	Horizontal	Pass
	1	0	Lowest	13.33	2.37	10.40	21.36	Vertical	Pass
	1	0	Middle	13.29	2.39	10.42	21.32	Vertical	Pass
	1	0	Highest	13.13	2.40	10.44	21.17	Vertical	Pass
16QAM	1	0	Lowest	11.58	2.37	10.40	19.61	Horizontal	Pass
	1	0	Middle	11.82	2.39	10.42	19.85	Horizontal	Pass
	1	0	Highest	11.48	2.40	10.44	19.52	Horizontal	Pass
	1	0	Lowest	12.98	2.37	10.40	21.01	Vertical	Pass
	1	0	Middle	13.14	2.39	10.42	21.17	Vertical	Pass
	1	0	Highest	12.89	2.40	10.44	20.93	Vertical	Pass
Limit	EIRP<2W=33dBm								



Radiated Power (EIRP) for LTE Band 2 / 5M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	11.79	2.37	10.40	19.82	Horizontal	Pass
	1	0	Middle	11.89	2.39	10.42	19.92	Horizontal	Pass
	1	0	Highest	11.95	2.40	10.44	19.99	Horizontal	Pass
	1	0	Lowest	13.27	2.37	10.40	21.30	Vertical	Pass
	1	0	Middle	13.26	2.39	10.42	21.29	Vertical	Pass
	1	0	Highest	13.28	2.40	10.44	21.32	Vertical	Pass
16QAM	1	0	Lowest	11.63	2.37	10.40	19.66	Horizontal	Pass
	1	0	Middle	11.6	2.39	10.42	19.63	Horizontal	Pass
	1	0	Highest	11.61	2.40	10.44	19.65	Horizontal	Pass
	1	0	Lowest	13.09	2.37	10.40	21.12	Vertical	Pass
	1	0	Middle	12.99	2.39	10.42	21.02	Vertical	Pass
	1	0	Highest	13.09	2.40	10.44	21.13	Vertical	Pass
Limit	EIRP<2W=33dBm								

Radiated Power (EIRP) for LTE Band 2 / 10M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	11.99	2.37	10.40	20.02	Horizontal	Pass
	1	0	Middle	12.18	2.39	10.42	20.21	Horizontal	Pass
	1	0	Highest	11.7	2.40	10.44	19.74	Horizontal	Pass
	1	0	Lowest	13.31	2.37	10.40	21.34	Vertical	Pass
	1	0	Middle	13.49	2.39	10.42	21.52	Vertical	Pass
	1	0	Highest	13.12	2.40	10.44	21.16	Vertical	Pass
16QAM	1	0	Lowest	11.52	2.37	10.40	19.55	Horizontal	Pass
	1	0	Middle	11.64	2.39	10.42	19.67	Horizontal	Pass
	1	0	Highest	11.57	2.40	10.44	19.61	Horizontal	Pass
	1	0	Lowest	12.96	2.37	10.40	20.99	Vertical	Pass
	1	0	Middle	12.99	2.39	10.42	21.02	Vertical	Pass
	1	0	Highest	13	2.40	10.44	21.04	Vertical	Pass
Limit	EIRP<2W=33dBm								



Radiated Power (EIRP) for LTE Band 2 / 15M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	11.85	2.37	10.40	19.88	Horizontal	Pass
	1	0	Middle	11.72	2.39	10.42	19.75	Horizontal	Pass
	1	0	Highest	11.76	2.40	10.44	19.80	Horizontal	Pass
	1	0	Lowest	13.17	2.37	10.40	21.20	Vertical	Pass
	1	0	Middle	13.18	2.39	10.42	21.21	Vertical	Pass
	1	0	Highest	13.18	2.40	10.44	21.22	Vertical	Pass
16QAM	1	0	Lowest	11.6	2.37	10.40	19.63	Horizontal	Pass
	1	0	Middle	11.4	2.39	10.42	19.43	Horizontal	Pass
	1	0	Highest	11.6	2.40	10.44	19.64	Horizontal	Pass
	1	0	Lowest	12.99	2.37	10.40	21.02	Vertical	Pass
	1	0	Middle	12.87	2.39	10.42	20.90	Vertical	Pass
	1	0	Highest	12.95	2.40	10.44	20.99	Vertical	Pass
Limit	EIRP<2W=33dBm								

Radiated Power (EIRP) for LTE Band 2 / 20M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	12.07	2.37	10.40	20.10	Horizontal	Pass
	1	0	Middle	12	2.39	10.42	20.03	Horizontal	Pass
	1	0	Highest	11.93	2.40	10.44	19.97	Horizontal	Pass
	1	0	Lowest	13.43	2.37	10.40	21.46	Vertical	Pass
	1	0	Middle	13.49	2.39	10.42	21.52	Vertical	Pass
	1	0	Highest	13.37	2.40	10.44	21.41	Vertical	Pass
16QAM	1	0	Lowest	11.79	2.37	10.40	19.82	Horizontal	Pass
	1	0	Middle	11.65	2.39	10.42	19.68	Horizontal	Pass
	1	0	Highest	11.56	2.40	10.44	19.60	Horizontal	Pass
	1	0	Lowest	13.26	2.37	10.40	21.29	Vertical	Pass
	1	0	Middle	13.14	2.39	10.42	21.17	Vertical	Pass
	1	0	Highest	13.01	2.40	10.44	21.05	Vertical	Pass
Limit	EIRP<2W=33dBm								



Radiated Power (EIRP) for LTE Band 4 / 1.4M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	13.25	2.35	10.13	21.03	Horizontal	Pass
	1	0	Middle	13.79	2.36	10.16	21.59	Horizontal	Pass
	1	0	Highest	13.44	2.37	10.22	21.29	Horizontal	Pass
	1	0	Lowest	14.74	2.35	10.13	22.52	Vertical	Pass
	1	0	Middle	15.12	2.36	10.16	22.92	Vertical	Pass
	1	0	Highest	14.85	2.37	10.22	22.70	Vertical	Pass
16QAM	1	0	Lowest	13.2	2.35	10.13	20.98	Horizontal	Pass
	1	0	Middle	13.55	2.36	10.16	21.35	Horizontal	Pass
	1	0	Highest	13.3	2.37	10.22	21.15	Horizontal	Pass
	1	0	Lowest	14.63	2.35	10.13	22.41	Vertical	Pass
	1	0	Middle	14.89	2.36	10.16	22.69	Vertical	Pass
	1	0	Highest	14.61	2.37	10.22	22.46	Vertical	Pass
Limit	EIRP<1W=30dBm								

Radiated Power (EIRP) for LTE Band 4 / 3M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	13.88	2.35	10.13	21.66	Horizontal	Pass
	1	0	Middle	13.66	2.36	10.16	21.46	Horizontal	Pass
	1	0	Highest	13.7	2.37	10.22	21.55	Horizontal	Pass
	1	0	Lowest	15.29	2.35	10.13	23.07	Vertical	Pass
	1	0	Middle	15.16	2.36	10.16	22.96	Vertical	Pass
	1	0	Highest	15.01	2.37	10.22	22.86	Vertical	Pass
16QAM	1	0	Lowest	13.59	2.35	10.13	21.37	Horizontal	Pass
	1	0	Middle	13.55	2.36	10.16	21.35	Horizontal	Pass
	1	0	Highest	13.44	2.37	10.22	21.29	Horizontal	Pass
	1	0	Lowest	14.99	2.35	10.13	22.77	Vertical	Pass
	1	0	Middle	14.87	2.36	10.16	22.67	Vertical	Pass
	1	0	Highest	14.87	2.37	10.22	22.72	Vertical	Pass
Limit	EIRP<1W=30dBm								



Radiated Power (EIRP) for LTE Band 4 / 5M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	13.58	2.35	10.13	21.36	Horizontal	Pass
	1	0	Middle	13.5	2.36	10.16	21.30	Horizontal	Pass
	1	0	Highest	13.51	2.37	10.22	21.36	Horizontal	Pass
	1	0	Lowest	14.91	2.35	10.13	22.69	Vertical	Pass
	1	0	Middle	14.94	2.36	10.16	22.74	Vertical	Pass
	1	0	Highest	14.9	2.37	10.22	22.75	Vertical	Pass
16QAM	1	0	Lowest	13.3	2.35	10.13	21.08	Horizontal	Pass
	1	0	Middle	13.3	2.36	10.16	21.10	Horizontal	Pass
	1	0	Highest	13.25	2.37	10.22	21.10	Horizontal	Pass
	1	0	Lowest	14.73	2.35	10.13	22.51	Vertical	Pass
	1	0	Middle	14.73	2.36	10.16	22.53	Vertical	Pass
	1	0	Highest	14.7	2.37	10.22	22.55	Vertical	Pass
Limit	EIRP<1W=30dBm								

Radiated Power (EIRP) for LTE Band 4 / 10M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	13.69	2.35	10.13	21.47	Horizontal	Pass
	1	0	Middle	13.68	2.36	10.16	21.48	Horizontal	Pass
	1	0	Highest	13.57	2.37	10.22	21.42	Horizontal	Pass
	1	0	Lowest	15.05	2.35	10.13	22.83	Vertical	Pass
	1	0	Middle	15.08	2.36	10.16	22.88	Vertical	Pass
	1	0	Highest	15	2.37	10.22	22.85	Vertical	Pass
16QAM	1	0	Lowest	13.54	2.35	10.13	21.32	Horizontal	Pass
	1	0	Middle	13.38	2.36	10.16	21.18	Horizontal	Pass
	1	0	Highest	13.48	2.37	10.22	21.33	Horizontal	Pass
	1	0	Lowest	14.88	2.35	10.13	22.66	Vertical	Pass
	1	0	Middle	14.85	2.36	10.16	22.65	Vertical	Pass
	1	0	Highest	14.81	2.37	10.22	22.66	Vertical	Pass
Limit	EIRP<1W=30dBm								



Radiated Power (EIRP) for LTE Band 4 / 15M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	13.78	2.35	10.13	21.56	Horizontal	Pass
	1	0	Middle	13.58	2.36	10.16	21.38	Horizontal	Pass
	1	0	Highest	13.55	2.37	10.22	21.40	Horizontal	Pass
	1	0	Lowest	15.1	2.35	10.13	22.88	Vertical	Pass
	1	0	Middle	15.01	2.36	10.16	22.81	Vertical	Pass
	1	0	Highest	14.9	2.37	10.22	22.75	Vertical	Pass
16QAM	1	0	Lowest	13.61	2.35	10.13	21.39	Horizontal	Pass
	1	0	Middle	13.37	2.36	10.16	21.17	Horizontal	Pass
	1	0	Highest	13.18	2.37	10.22	21.03	Horizontal	Pass
	1	0	Lowest	14.98	2.35	10.13	22.76	Vertical	Pass
	1	0	Middle	14.78	2.36	10.16	22.58	Vertical	Pass
	1	0	Highest	14.65	2.37	10.22	22.50	Vertical	Pass
Limit	EIRP<1W=30dBm								

Radiated Power (EIRP) for LTE Band 4 / 20M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	13.73	2.35	10.13	21.51	Horizontal	Pass
	1	0	Middle	13.9	2.36	10.16	21.70	Horizontal	Pass
	1	0	Highest	13.78	2.37	10.22	21.63	Horizontal	Pass
	1	0	Lowest	15.21	2.35	10.13	22.99	Vertical	Pass
	1	0	Middle	15.25	2.36	10.16	23.05	Vertical	Pass
	1	0	Highest	15.19	2.37	10.22	23.04	Vertical	Pass
16QAM	1	0	Lowest	13.29	2.35	10.13	21.07	Horizontal	Pass
	1	0	Middle	13.74	2.36	10.16	21.54	Horizontal	Pass
	1	0	Highest	13.48	2.37	10.22	21.33	Horizontal	Pass
	1	0	Lowest	14.79	2.35	10.13	22.57	Vertical	Pass
	1	0	Middle	15.06	2.36	10.16	22.86	Vertical	Pass
	1	0	Highest	14.87	2.37	10.22	22.72	Vertical	Pass
Limit	EIRP<1W=30dBm								



Radiated Power (ERP) for LTE Band 5 / 1.4M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	20.02	1.27	6.70	2.15	23.30	Horizontal	Pass
	1	0	Middle	20.38	1.28	6.70	2.15	23.65	Horizontal	Pass
	1	0	Highest	20.1	1.29	6.70	2.15	23.36	Horizontal	Pass
	1	0	Lowest	21.44	1.27	6.70	2.15	24.72	Vertical	Pass
	1	0	Middle	21.69	1.28	6.70	2.15	24.96	Vertical	Pass
	1	0	Highest	21.41	1.29	6.70	2.15	24.67	Vertical	Pass
16QAM	1	0	Lowest	19.87	1.27	6.70	2.15	23.15	Horizontal	Pass
	1	0	Middle	19.84	1.28	6.70	2.15	23.11	Horizontal	Pass
	1	0	Highest	19.71	1.29	6.70	2.15	22.97	Horizontal	Pass
	1	0	Lowest	21.18	1.27	6.70	2.15	24.46	Vertical	Pass
	1	0	Middle	21.27	1.28	6.70	2.15	24.54	Vertical	Pass
	1	0	Highest	21.17	1.29	6.70	2.15	24.43	Vertical	Pass
Limit	ERP<7W=38.45dBm									

Radiated Power (ERP) for LTE Band 5 / 3M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	19.87	1.27	6.70	2.15	23.15	Horizontal	Pass
	1	0	Middle	20.05	1.28	6.70	2.15	23.32	Horizontal	Pass
	1	0	Highest	20.15	1.29	6.70	2.15	23.41	Horizontal	Pass
	1	0	Lowest	21.32	1.27	6.70	2.15	24.60	Vertical	Pass
	1	0	Middle	21.38	1.28	6.70	2.15	24.65	Vertical	Pass
	1	0	Highest	21.47	1.29	6.70	2.15	24.73	Vertical	Pass
16QAM	1	0	Lowest	19.86	1.27	6.70	2.15	23.14	Horizontal	Pass
	1	0	Middle	19.83	1.28	6.70	2.15	23.10	Horizontal	Pass
	1	0	Highest	19.86	1.29	6.70	2.15	23.12	Horizontal	Pass
	1	0	Lowest	21.17	1.27	6.70	2.15	24.45	Vertical	Pass
	1	0	Middle	21.28	1.28	6.70	2.15	24.55	Vertical	Pass
	1	0	Highest	21.32	1.29	6.70	2.15	24.58	Vertical	Pass
Limit	ERP<7W=38.45dBm									



Radiated Power (ERP) for LTE Band 5 / 5M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	19.99	1.27	6.70	2.15	23.27	Horizontal	Pass
	1	0	Middle	20.09	1.28	6.70	2.15	23.36	Horizontal	Pass
	1	0	Highest	19.92	1.29	6.70	2.15	23.18	Horizontal	Pass
	1	0	Lowest	21.39	1.27	6.70	2.15	24.67	Vertical	Pass
	1	0	Middle	21.43	1.28	6.70	2.15	24.70	Vertical	Pass
	1	0	Highest	21.37	1.29	6.70	2.15	24.63	Vertical	Pass
16QAM	1	0	Lowest	19.8	1.27	6.70	2.15	23.08	Horizontal	Pass
	1	0	Middle	19.73	1.28	6.70	2.15	23.00	Horizontal	Pass
	1	0	Highest	19.81	1.29	6.70	2.15	23.07	Horizontal	Pass
	1	0	Lowest	21.24	1.27	6.70	2.15	24.52	Vertical	Pass
	1	0	Middle	21.19	1.28	6.70	2.15	24.46	Vertical	Pass
	1	0	Highest	21.2	1.29	6.70	2.15	24.46	Vertical	Pass
Limit	ERP<7W=38.45dBm									

Radiated Power (ERP) for LTE Band 5 / 10M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	19.91	1.27	6.70	2.15	23.19	Horizontal	Pass
	1	0	Middle	20.1	1.28	6.70	2.15	23.37	Horizontal	Pass
	1	0	Highest	20.24	1.29	6.70	2.15	23.50	Horizontal	Pass
	1	0	Lowest	21.36	1.27	6.70	2.15	24.64	Vertical	Pass
	1	0	Middle	21.55	1.28	6.70	2.15	24.82	Vertical	Pass
	1	0	Highest	21.59	1.29	6.70	2.15	24.85	Vertical	Pass
16QAM	1	0	Lowest	19.74	1.27	6.70	2.15	23.02	Horizontal	Pass
	1	0	Middle	19.9	1.28	6.70	2.15	23.17	Horizontal	Pass
	1	0	Highest	19.91	1.29	6.70	2.15	23.17	Horizontal	Pass
	1	0	Lowest	21.06	1.27	6.70	2.15	24.34	Vertical	Pass
	1	0	Middle	21.26	1.28	6.70	2.15	24.53	Vertical	Pass
	1	0	Highest	21.35	1.29	6.70	2.15	24.61	Vertical	Pass
Limit	ERP<7W=38.45dBm									



Radiated Power (EIRP) for LTE Band 7 / 5M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	12.14	2.56	10.60	20.18	Horizontal	Pass
	1	0	Middle	12.2	2.67	10.65	20.18	Horizontal	Pass
	1	0	Highest	12.07	2.72	10.70	20.05	Horizontal	Pass
	1	0	Lowest	13.48	2.56	10.60	21.52	Vertical	Pass
	1	0	Middle	13.55	2.67	10.65	21.53	Vertical	Pass
	1	0	Highest	13.43	2.72	10.70	21.41	Vertical	Pass
16QAM	1	0	Lowest	11.79	2.56	10.60	19.83	Horizontal	Pass
	1	0	Middle	11.96	2.67	10.65	19.94	Horizontal	Pass
	1	0	Highest	11.73	2.72	10.70	19.71	Horizontal	Pass
	1	0	Lowest	13.27	2.56	10.60	21.31	Vertical	Pass
	1	0	Middle	13.31	2.67	10.65	21.29	Vertical	Pass
	1	0	Highest	13.22	2.72	10.70	21.20	Vertical	Pass
Limit	EIRP<2W=33dBm								

Radiated Power (EIRP) for LTE Band 7 / 10M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	11.98	2.56	10.60	20.02	Horizontal	Pass
	1	0	Middle	11.77	2.67	10.65	19.75	Horizontal	Pass
	1	0	Highest	11.84	2.72	10.70	19.82	Horizontal	Pass
	1	0	Lowest	13.33	2.56	10.60	21.37	Vertical	Pass
	1	0	Middle	13.21	2.67	10.65	21.19	Vertical	Pass
	1	0	Highest	13.3	2.72	10.70	21.28	Vertical	Pass
16QAM	1	0	Lowest	11.74	2.56	10.60	19.78	Horizontal	Pass
	1	0	Middle	11.62	2.67	10.65	19.60	Horizontal	Pass
	1	0	Highest	11.61	2.72	10.70	19.59	Horizontal	Pass
	1	0	Lowest	13.16	2.56	10.60	21.20	Vertical	Pass
	1	0	Middle	13.04	2.67	10.65	21.02	Vertical	Pass
	1	0	Highest	13.06	2.72	10.70	21.04	Vertical	Pass
Limit	EIRP<2W=33dBm								



Radiated Power (EIRP) for LTE Band 7 / 15M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	12.26	2.56	10.60	20.30	Horizontal	Pass
	1	0	Middle	12.14	2.67	10.65	20.12	Horizontal	Pass
	1	0	Highest	12.19	2.72	10.70	20.17	Horizontal	Pass
	1	0	Lowest	13.56	2.56	10.60	21.60	Vertical	Pass
	1	0	Middle	13.62	2.67	10.65	21.60	Vertical	Pass
	1	0	Highest	13.58	2.72	10.70	21.56	Vertical	Pass
16QAM	1	0	Lowest	11.92	2.56	10.60	19.96	Horizontal	Pass
	1	0	Middle	12.02	2.67	10.65	20.00	Horizontal	Pass
	1	0	Highest	11.74	2.72	10.70	19.72	Horizontal	Pass
	1	0	Lowest	13.3	2.56	10.60	21.34	Vertical	Pass
	1	0	Middle	13.36	2.67	10.65	21.34	Vertical	Pass
	1	0	Highest	13.22	2.72	10.70	21.20	Vertical	Pass
Limit	EIRP<2W=33dBm								

Radiated Power (EIRP) for LTE Band 7 / 20M									
Modulation	RB		Channel	Result					Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P.(dBm)	Polarization Of Max. EIRP	
QPSK	1	0	Lowest	12.32	2.56	10.60	20.36	Horizontal	Pass
	1	0	Middle	12.35	2.67	10.65	20.33	Horizontal	Pass
	1	0	Highest	12.29	2.72	10.70	20.27	Horizontal	Pass
	1	0	Lowest	13.63	2.56	10.60	21.67	Vertical	Pass
	1	0	Middle	13.68	2.67	10.65	21.66	Vertical	Pass
	1	0	Highest	13.61	2.72	10.70	21.59	Vertical	Pass
16QAM	1	0	Lowest	11.94	2.56	10.60	19.98	Horizontal	Pass
	1	0	Middle	12.06	2.67	10.65	20.04	Horizontal	Pass
	1	0	Highest	11.98	2.72	10.70	19.96	Horizontal	Pass
	1	0	Lowest	13.24	2.56	10.60	21.28	Vertical	Pass
	1	0	Middle	13.46	2.67	10.65	21.44	Vertical	Pass
	1	0	Highest	13.33	2.72	10.70	21.31	Vertical	Pass
Limit	EIRP<2W=33dBm								



Radiated Power (ERP) for LTE Band 12 / 1.4M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	18.97	1.21	6.40	2.15	22.01	Horizontal	Pass
	1	0	Middle	19.2	1.22	6.40	2.15	22.23	Horizontal	Pass
	1	0	Highest	19.1	1.23	6.40	2.15	22.12	Horizontal	Pass
	1	0	Lowest	20.4	1.21	6.40	2.15	23.44	Vertical	Pass
	1	0	Middle	20.66	1.22	6.40	2.15	23.69	Vertical	Pass
	1	0	Highest	20.45	1.23	6.40	2.15	23.47	Vertical	Pass
16QAM	1	0	Lowest	18.63	1.21	6.40	2.15	21.67	Horizontal	Pass
	1	0	Middle	19.09	1.22	6.40	2.15	22.12	Horizontal	Pass
	1	0	Highest	18.85	1.23	6.40	2.15	21.87	Horizontal	Pass
	1	0	Lowest	20.06	1.21	6.40	2.15	23.10	Vertical	Pass
	1	0	Middle	20.48	1.22	6.40	2.15	23.51	Vertical	Pass
	1	0	Highest	20.29	1.23	6.40	2.15	23.31	Vertical	Pass
Limit	ERP<3W=34.77dBm									

Radiated Power (ERP) for LTE Band 12 / 3M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	19.07	1.21	6.40	2.15	22.11	Horizontal	Pass
	1	0	Middle	19.31	1.22	6.40	2.15	22.34	Horizontal	Pass
	1	0	Highest	19.62	1.23	6.40	2.15	22.64	Horizontal	Pass
	1	0	Lowest	20.39	1.21	6.40	2.15	23.43	Vertical	Pass
	1	0	Middle	20.65	1.22	6.40	2.15	23.68	Vertical	Pass
	1	0	Highest	21.07	1.23	6.40	2.15	24.09	Vertical	Pass
16QAM	1	0	Lowest	18.71	1.21	6.40	2.15	21.75	Horizontal	Pass
	1	0	Middle	18.87	1.22	6.40	2.15	21.90	Horizontal	Pass
	1	0	Highest	19.34	1.23	6.40	2.15	22.36	Horizontal	Pass
	1	0	Lowest	20.05	1.21	6.40	2.15	23.09	Vertical	Pass
	1	0	Middle	20.33	1.22	6.40	2.15	23.36	Vertical	Pass
	1	0	Highest	20.81	1.23	6.40	2.15	23.83	Vertical	Pass
Limit	ERP<3W=34.77dBm									



Radiated Power (ERP) for LTE Band 12 / 5M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	19.23	1.21	6.40	2.15	22.27	Horizontal	Pass
	1	0	Middle	19.27	1.22	6.40	2.15	22.30	Horizontal	Pass
	1	0	Highest	18.99	1.23	6.40	2.15	22.01	Horizontal	Pass
	1	0	Lowest	20.59	1.21	6.40	2.15	23.63	Vertical	Pass
	1	0	Middle	20.74	1.22	6.40	2.15	23.77	Vertical	Pass
	1	0	Highest	20.45	1.23	6.40	2.15	23.47	Vertical	Pass
16QAM	1	0	Lowest	19.03	1.21	6.40	2.15	22.07	Horizontal	Pass
	1	0	Middle	19.11	1.22	6.40	2.15	22.14	Horizontal	Pass
	1	0	Highest	18.79	1.23	6.40	2.15	21.81	Horizontal	Pass
	1	0	Lowest	20.52	1.21	6.40	2.15	23.56	Vertical	Pass
	1	0	Middle	20.54	1.22	6.40	2.15	23.57	Vertical	Pass
	1	0	Highest	20.1	1.23	6.40	2.15	23.12	Vertical	Pass
Limit	ERP<3W=34.77dBm									

Radiated Power (ERP) for LTE Band 12 / 10M										
Modulation	RB		Channel	Result						Conclusion
	Size	Offset		S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P.(dBm)	Polarization Of Max. ERP	
QPSK	1	0	Lowest	19.25	1.21	6.40	2.15	22.29	Horizontal	Pass
	1	0	Middle	19.39	1.22	6.40	2.15	22.42	Horizontal	Pass
	1	0	Highest	19.09	1.23	6.40	2.15	22.11	Horizontal	Pass
	1	0	Lowest	20.72	1.21	6.40	2.15	23.76	Vertical	Pass
	1	0	Middle	20.86	1.22	6.40	2.15	23.89	Vertical	Pass
	1	0	Highest	20.47	1.23	6.40	2.15	23.49	Vertical	Pass
16QAM	1	0	Lowest	18.94	1.21	6.40	2.15	21.98	Horizontal	Pass
	1	0	Middle	19.18	1.22	6.40	2.15	22.21	Horizontal	Pass
	1	0	Highest	18.88	1.23	6.40	2.15	21.90	Horizontal	Pass
	1	0	Lowest	20.39	1.21	6.40	2.15	23.43	Vertical	Pass
	1	0	Middle	20.54	1.22	6.40	2.15	23.57	Vertical	Pass
	1	0	Highest	20.36	1.23	6.40	2.15	23.38	Vertical	Pass
Limit	ERP<3W=34.77dBm									

6. OCCUPIED BANDWIDTH

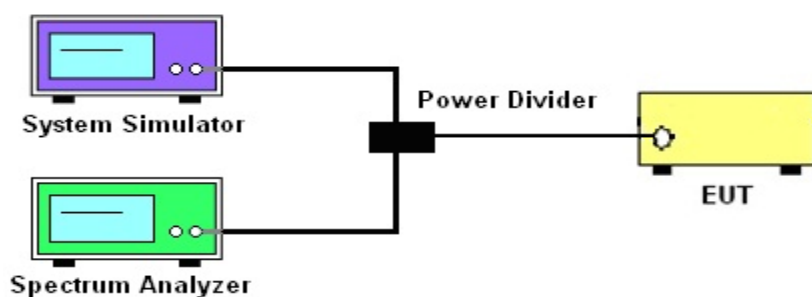
6.1 DESCRIPTION OF OCCUPIED BANDWIDTH MEASUREMENT

6.1.1 MEASUREMENT METHOD

1.The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

2.The 26 db emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 db below the maximum in-band spectral density of the modulated signal. spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

6.1.2 TEST SETUP



6.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01 v03r01 Section 4.2 and 4.3.
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Set the test probe and measure the Occupied Bandwidth of the spectrum analyzer.
5. Measure and record the Occupied Bandwidth from the Spectrum Analyzer.

	LTE					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	30kHz	100kHz	100kHz	300kHz	300kHz
VBW	100kHz	100kHz	300kHz	300kHz	1000kHz	1000kHz
Detector	PK	PK	PK	PK	PK	PK
Trace	Max	Max	Max	Max	Max	Max
Sweep Count	Auto	Auto	Auto	Auto	Auto	Auto



6.1.4 MEASUREMENT RESULT

LTE Band 2 Bandwidth [MHz]							
BW [MHz]	Mode	Lowest		Middle		Highest	
		99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
1.4	QPSK	1.098	1.263	1.1	1.297	1.102	1.301
1.4	16-QAM	1.101	1.298	1.092	1.271	1.092	1.282
3	QPSK	2.693	3.002	2.694	2.999	2.686	2.975
3	16-QAM	2.685	3.023	2.684	2.993	2.6877	3.028
5	QPSK	4.511	5.204	4.502	5.451	4.5362	5.268
5	16-QAM	4.54	5.493	4.551	5.453	4.525	5.293
10	QPSK	8.943	9.737	8.934	9.443	8.955	9.768
10	16-QAM	8.929	9.72	8.95	9.858	8.939	9.796
15	QPSK	13.47	15.54	13.51	15.42	13.45	15.27
15	16-QAM	13.488	14.91	13.51	14.93	13.497	15.16
20	QPSK	17.9	19.58	18.011	20.05	17.943	19.63
20	16-QAM	17.952	19.73	17.97	19.87	17.968	19.8

LTE Band 4 Bandwidth [MHz]							
BW [MHz]	Mode	Lowest		Middle		Highest	
		99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
1.4	QPSK	1.0984	1.275	1.098	1.291	1.104	1.299
1.4	16-QAM	1.1045	1.272	1.0967	1.292	1.101	1.302
3	QPSK	2.692	3.007	2.686	2.989	2.69	2.996
3	16-QAM	2.686	3.049	2.69	3.021	2.685	2.982
5	QPSK	4.518	5.319	4.517	5.446	4.538	5.25
5	16-QAM	4.547	5.516	4.548	5.481	4.528	5.287
10	QPSK	8.937	9.761	8.942	9.869	8.95	9.74
10	16-QAM	8.948	9.903	8.946	10.04	8.939	9.725
15	QPSK	13.452	15.39	13.492	15.75	13.496	15.21
15	16-QAM	13.516	15.23	13.483	14.87	13.511	15
20	QPSK	17.978	19.92	17.949	19.81	17.917	19.67
20	16-QAM	17.955	20.11	17.975	19.88	17.931	19.63

LTE Band 5 Bandwidth [MHz]							
BW [MHz]	Mode	Lowest		Middle		Highest	
		99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
1.4	QPSK	1.0966	1.264	1.0965	1.269	1.0986	1.306
1.4	16-QAM	1.0992	1.297	1.102	1.261	1.095	1.281
3	QPSK	2.687	2.993	2.688	2.986	2.687	3.006
3	16-QAM	2.688	3.023	2.687	2.975	2.6852	3.038
5	QPSK	4.538	5.288	4.512	5.217	4.514	5.401
5	16-QAM	4.521	5.268	4.532	5.429	4.5465	5.328
10	QPSK	8.935	9.808	8.939	9.861	8.948	9.697
10	16-QAM	8.946	9.917	8.944	9.877	8.928	9.835



LTE Band 7 Bandwidth [MHz]							
BW [MHz]	Mode	Lowest		Middle		Highest	
		99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
5	QPSK	4.511	5.473	4.533	5.287	4.518	5.244
5	16-QAM	4.552	5.384	4.527	5.328	4.551	5.367
10	QPSK	8.9375	9.812	8.949	9.822	8.942	9.726
10	16-QAM	8.944	9.857	8.941	9.937	8.945	9.769
15	QPSK	12.492	15.39	13.516	15.26	13.445	15.12
15	16-QAM	13.487	14.87	13.514	15.11	13.507	15.14
20	QPSK	17.878	19.56	17.996	19.7	17.925	19.57
20	16-QAM	17.924	19.64	17.975	20.21	17.984	19.68
LTE Band 12 Bandwidth [MHz]							
BW [MHz]	Mode	Lowest		Middle		Highest	
		99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
1.4	QPSK	1.098	1.278	1.098	1.293	1.1047	1.293
1.4	16-QAM	1.1028	1.259	1.11	1.282	1.102	1.313
3	QPSK	2.689	2.992	2.6915	2.992	2.6852	2.862
3	16-QAM	2.687	2.99	2.6854	3.002	2.69	3.037
5	QPSK	4.527	5.366	4.5	5.286	4.545	5.429
5	16-QAM	4.554	5.457	4.539	5.297	4.538	5.333
10	QPSK	8.93	9.677	8.911	9.707	8.9535	9.659
10	16-QAM	8.951	9.874	8.91	9.808	8.936	9.755

Note: Test chart See Appendix A



7. CONDUCTED BAND EDGE

7.1 DESCRIPTION OF CONDUCTED BAND EDGE MEASUREMENT

7.1.1 MEASUREMENT METHOD

1. §22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

2. §24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed

3. §27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

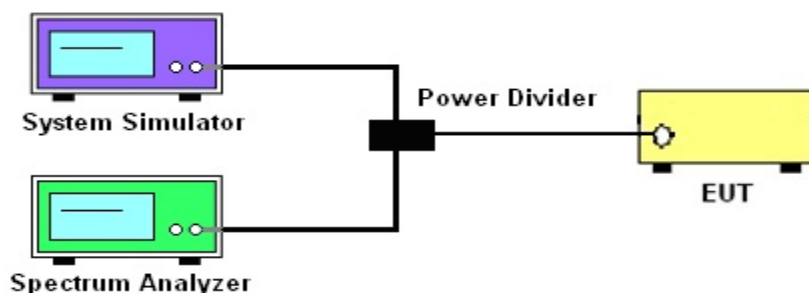
4. §27.53(m)(4)

For operations in the 2500 MHz ~ 2570 MHz band this section, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

5. §27.53 (g)

For operations in the 698 -746 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

7.1.2 TEST SETUP



7.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26 2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS/AVG detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}.$$

Band 7:

$$= P(W) - [55 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [55 + 10\log(P)] \text{ (dB)}$$

$$= -25\text{dBm}.$$

	LTE					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	12MHz	13MHz	15MHz	20MHz	25MHz	30MHz
RBW	30kHz	30kHz	100kHz	100kHz	300kHz	300kHz
VBW	100kHz	100kHz	300kHz	300kHz	1000kHz	1000kHz
Detector	RMS	RMS	RMS	RMS	RMS	RMS
Trace	Max	Max	Max	Max	Max	Max
Sweep Count	Auto	Auto	Auto	Auto	Auto	Auto

7.1.4 MEASUREMENT RESULT

Note: Test chart See Appendix B

8. CONDUCTED SPURIOUS EMISSION

8.1 DESCRIPTION OF CONDUCTED SPURIOUS EMISSION MEASUREMENT

8.1.1 MEASUREMENT METHOD

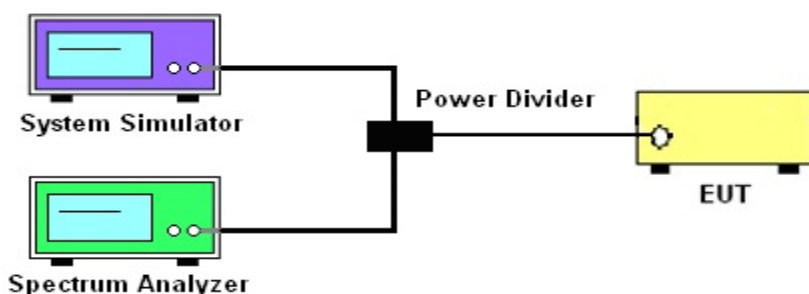
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For Band 7:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

8.1.2 TEST SETUP



8.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26 2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement
4. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)} = [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

For Band 7: $P(W) - [43 + 10\log(P)] \text{ (dB)} = -25\text{dBm}$

	LTE					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	Auto	Auto	Auto	Auto	Auto	Auto
RBW	1000kHz	1000kHz	1000kHz	1000kHz	1000kHz	1000kHz
VBW	3000kHz	3000kHz	3000kHz	3000kHz	3000kHz	3000kHz
Detector	PK	PK	PK	PK	PK	PK
Trace	Max	Max	Max	Max	Max	Max

8.1.4 TEST RESULTS

Note: Test chart See Appendix C

9. RADIATED SPURIOUS EMISSION

9.1 DESCRIPTION OF RADIATED SPURIOUS EMISSION

9.1.1 MEASUREMENT METHOD

The radiated spurious emission was measured by substitution method according to ANSI C63.26 2015. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For Band 7 The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

9.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, $RSE = Rx \text{ (dBuV)} + CL \text{ (dB)} + SA \text{ (dB)} + Gain \text{ (dBi)} - 107 \text{ (dBuV to dBm)}$ The SA is calibrated using following setup.

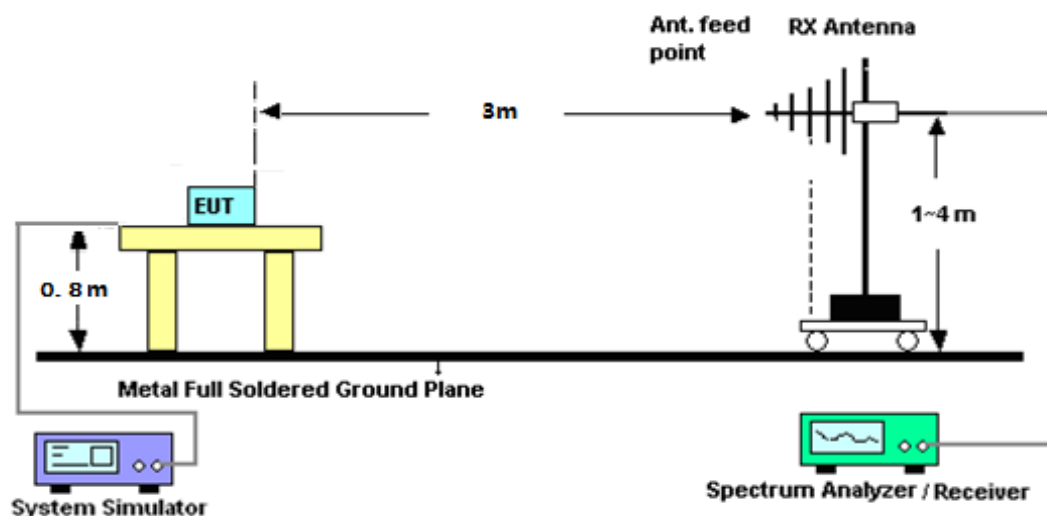
b) EUT was placed on 1.5 m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

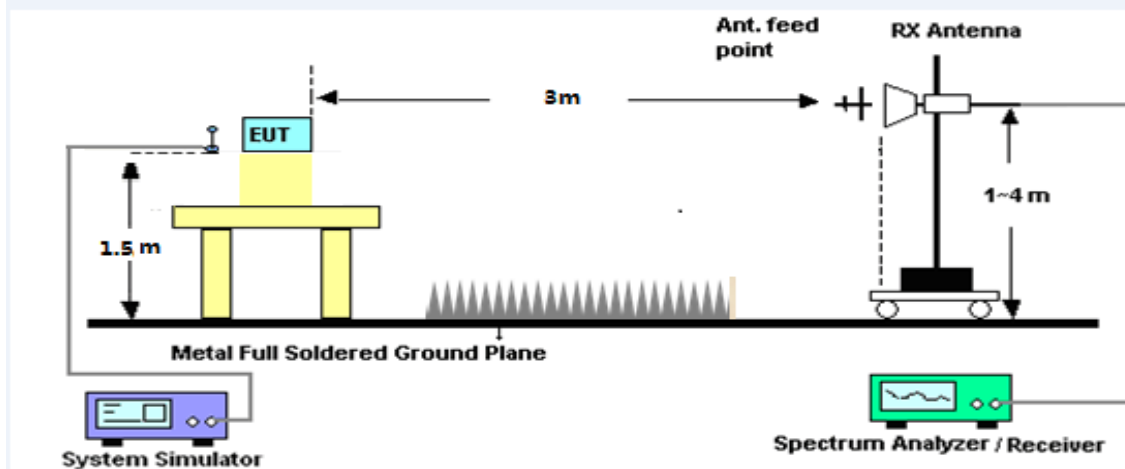
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:

Power=PMea+ARpl

For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz



9.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 Section 7 and ANSI C63.26 2015 Section 5.5.
2. The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13$ dBm

For Band 7:

The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= [30 + 10\log(P)]$ (dBm) - $[55 + 10\log(P)]$ (dB)
 $= -25$ dBm

$P_{Mea} = S.G \text{ Level} + \text{Ant-Cable loss}$; $\text{Margin} = P_{Mea} - \text{Limit}$.



9.1.4 TEST RESULTS

LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3703.58	-34.65	12.60	12.93	-34.98	-13.00	-21.98	H
5557.29	-34.74	13.10	17.11	-38.75	-13.00	-25.75	H
7409.67	-33.21	11.50	22.20	-43.91	-13.00	-30.91	H
3703.58	-34.54	12.60	12.93	-34.87	-13.00	-21.87	V
5557.29	-35.05	13.10	17.11	-39.06	-13.00	-26.06	V
7409.67	-31.81	11.50	22.20	-42.51	-13.00	-29.51	V
LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3759.50	-34.61	12.60	12.93	-34.94	-13.00	-21.94	H
5639.63	-35.23	13.10	17.11	-39.24	-13.00	-26.24	H
7519.88	-33.10	11.50	22.20	-43.80	-13.00	-30.80	H
3759.50	-35.30	12.60	12.93	-35.63	-13.00	-22.63	V
5639.63	-35.20	13.10	17.11	-39.21	-13.00	-26.21	V
7519.88	-31.91	11.50	22.20	-42.61	-13.00	-29.61	V
LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3817.85	-33.67	12.60	12.93	-34.00	-13.00	-21.00	H
5727.62	-34.56	13.10	17.11	-38.57	-13.00	-25.57	H
7636.89	-33.04	11.50	22.20	-43.74	-13.00	-30.74	H
3817.85	-35.26	12.60	12.93	-35.59	-13.00	-22.59	V
5727.62	-34.13	13.10	17.11	-38.14	-13.00	-25.14	V
7636.89	-32.90	11.50	22.20	-43.60	-13.00	-30.60	V



LTE Band 2 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3703.68	-33.60	12.60	12.93	-33.93	-13.00	-20.93	H
5557.33	-34.25	13.10	17.11	-38.26	-13.00	-25.26	H
7409.65	-32.92	11.50	22.20	-43.62	-13.00	-30.62	H
3703.68	-35.86	12.60	12.93	-36.19	-13.00	-23.19	V
5557.33	-34.80	13.10	17.11	-38.81	-13.00	-25.81	V
7409.65	-32.78	11.50	22.20	-43.48	-13.00	-30.48	V
LTE Band 2 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3759.59	-34.17	12.60	12.93	-34.50	-13.00	-21.50	H
5639.85	-35.19	13.10	17.11	-39.20	-13.00	-26.20	H
7519.93	-32.41	11.50	22.20	-43.11	-13.00	-30.11	H
3759.59	-35.41	12.60	12.93	-35.74	-13.00	-22.74	V
5639.85	-35.07	13.10	17.11	-39.08	-13.00	-26.08	V
7519.93	-32.17	11.50	22.20	-42.87	-13.00	-29.87	V
LTE Band 2 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3818.19	-33.72	12.60	12.93	-34.05	-13.00	-21.05	H
5727.63	-34.50	13.10	17.11	-38.51	-13.00	-25.51	H
7636.96	-33.60	11.50	22.20	-44.30	-13.00	-31.30	H
3818.19	-35.61	12.60	12.93	-35.94	-13.00	-22.94	V
5727.63	-35.16	13.10	17.11	-39.17	-13.00	-26.17	V
7636.96	-31.90	11.50	22.20	-42.60	-13.00	-29.60	V



LTE Band 2 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3704.71	-34.28	12.60	12.93	-34.61	-13.00	-21.61	H
5557.81	-35.27	13.10	17.11	-39.28	-13.00	-26.28	H
7410.39	-32.52	11.50	22.20	-43.22	-13.00	-30.22	H
3704.71	-35.27	12.60	12.93	-35.60	-13.00	-22.60	V
5557.81	-33.99	13.10	17.11	-38.00	-13.00	-25.00	V
7410.39	-33.16	11.50	22.20	-43.86	-13.00	-30.86	V
LTE Band 2 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3759.89	-34.77	12.60	12.93	-35.10	-13.00	-22.10	H
5639.43	-34.40	13.10	17.11	-38.41	-13.00	-25.41	H
7519.81	-33.55	11.50	22.20	-44.25	-13.00	-31.25	H
3759.89	-35.37	12.60	12.93	-35.70	-13.00	-22.70	V
5639.43	-34.36	13.10	17.11	-38.37	-13.00	-25.37	V
7519.81	-32.97	11.50	22.20	-43.67	-13.00	-30.67	V
LTE Band 2 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3813.84	-34.87	12.60	12.93	-35.20	-13.00	-22.20	H
5721.41	-35.34	13.10	17.11	-39.35	-13.00	-26.35	H
7628.41	-32.33	11.50	22.20	-43.03	-13.00	-30.03	H
3813.84	-36.00	12.60	12.93	-36.33	-13.00	-23.33	V
5721.41	-34.51	13.10	17.11	-38.52	-13.00	-25.52	V
7628.41	-31.95	11.50	22.20	-42.65	-13.00	-29.65	V



LTE Band 2 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3710.62	-34.64	12.60	12.93	-34.97	-13.00	-21.97	H
5565.55	-34.81	13.10	17.11	-38.82	-13.00	-25.82	H
7420.64	-33.63	11.50	22.20	-44.33	-13.00	-31.33	H
3710.62	-35.45	12.60	12.93	-35.78	-13.00	-22.78	V
5565.55	-34.63	13.10	17.11	-38.64	-13.00	-25.64	V
7420.64	-32.83	11.50	22.20	-43.53	-13.00	-30.53	V
LTE Band 2 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3759.82	-34.59	12.60	12.93	-34.92	-13.00	-21.92	H
5639.78	-34.88	13.10	17.11	-38.89	-13.00	-25.89	H
7519.95	-33.26	11.50	22.20	-43.96	-13.00	-30.96	H
3759.82	-35.78	12.60	12.93	-36.11	-13.00	-23.11	V
5639.78	-34.48	13.10	17.11	-38.49	-13.00	-25.49	V
7519.95	-32.21	11.50	22.20	-42.91	-13.00	-29.91	V
LTE Band 2 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3809.07	-33.60	12.60	12.93	-33.93	-13.00	-20.93	H
5713.35	-34.81	13.10	17.11	-38.82	-13.00	-25.82	H
7618.04	-32.32	11.50	22.20	-43.02	-13.00	-30.02	H
3809.07	-35.48	12.60	12.93	-35.81	-13.00	-22.81	V
5713.35	-35.17	13.10	17.11	-39.18	-13.00	-26.18	V
7618.04	-32.60	11.50	22.20	-43.30	-13.00	-30.30	V



LTE Band 2 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3715.83	-33.45	12.60	12.93	-33.78	-13.00	-20.78	H
5573.88	-35.28	13.10	17.11	-39.29	-13.00	-26.29	H
7618.38	-33.52	11.50	22.20	-44.22	-13.00	-31.22	H
3715.83	-34.68	12.60	12.93	-35.01	-13.00	-22.01	V
5573.88	-34.50	13.10	17.11	-38.51	-13.00	-25.51	V
7618.38	-32.25	11.50	22.20	-42.95	-13.00	-29.95	V
LTE Band 2 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3759.89	-33.82	12.60	12.93	-34.15	-13.00	-21.15	H
5639.72	-34.92	13.10	17.11	-38.93	-13.00	-25.93	H
7520.02	-32.23	11.50	22.20	-42.93	-13.00	-29.93	H
3759.89	-34.57	12.60	12.93	-34.90	-13.00	-21.90	V
5639.72	-34.20	13.10	17.11	-38.21	-13.00	-25.21	V
7520.02	-33.11	11.50	22.20	-43.81	-13.00	-30.81	V
LTE Band 2 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3803.19	-33.53	12.60	12.93	-33.86	-13.00	-20.86	H
5705.41	-34.77	13.10	17.11	-38.78	-13.00	-25.78	H
7607.09	-33.59	11.50	22.20	-44.29	-13.00	-31.29	H
3803.19	-35.87	12.60	12.93	-36.20	-13.00	-23.20	V
5705.41	-35.24	13.10	17.11	-39.25	-13.00	-26.25	V
7607.09	-32.70	11.50	22.20	-43.40	-13.00	-30.40	V



LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3721.36	-34.33	12.60	12.93	-34.66	-13.00	-21.66	H
5581.12	-34.80	13.10	17.11	-38.81	-13.00	-25.81	H
7441.54	-33.09	11.50	22.20	-43.79	-13.00	-30.79	H
3721.36	-35.65	12.60	12.93	-35.98	-13.00	-22.98	V
5581.12	-34.06	13.10	17.11	-38.07	-13.00	-25.07	V
7441.54	-32.51	11.50	22.20	-43.21	-13.00	-30.21	V
LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3759.64	-34.83	12.60	12.93	-35.16	-13.00	-22.16	H
5639.60	-34.71	13.10	17.11	-38.72	-13.00	-25.72	H
7519.81	-33.44	11.50	22.20	-44.14	-13.00	-31.14	H
3759.64	-35.84	12.60	12.93	-36.17	-13.00	-23.17	V
5639.60	-34.24	13.10	17.11	-38.25	-13.00	-25.25	V
7519.81	-31.74	11.50	22.20	-42.44	-13.00	-29.44	V
LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3798.36	-33.76	12.60	12.93	-34.09	-13.00	-21.09	H
5697.06	-34.89	13.10	17.11	-38.90	-13.00	-25.90	H
7596.55	-33.43	11.50	22.20	-44.13	-13.00	-31.13	H
3798.36	-35.82	12.60	12.93	-36.15	-13.00	-23.15	V
5697.06	-34.84	13.10	17.11	-38.85	-13.00	-25.85	V
7596.55	-32.13	11.50	22.20	-42.83	-13.00	-29.83	V



LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3421.13	-34.80	12.90	12.56	-34.46	-13.00	-21.46	H
5131.86	-34.31	13.10	16.32	-37.53	-13.00	-24.53	H
6842.62	-32.35	12.33	21.13	-41.15	-13.00	-28.15	H
3421.13	-34.63	12.90	12.56	-34.29	-13.00	-21.29	V
5131.86	-34.71	13.10	16.32	-37.93	-13.00	-24.93	V
6842.62	-32.45	12.33	21.13	-41.25	-13.00	-28.25	V
LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.60	-34.27	12.90	12.56	-33.93	-13.00	-20.93	H
5196.98	-34.05	13.10	16.32	-37.27	-13.00	-24.27	H
6929.88	-32.37	12.33	21.13	-41.17	-13.00	-28.17	H
3464.60	-35.63	12.90	12.56	-35.29	-13.00	-22.29	V
5196.98	-34.41	13.10	16.32	-37.63	-13.00	-24.63	V
6929.88	-32.76	12.33	21.13	-41.56	-13.00	-28.56	V
LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3508.37	-34.08	12.90	12.56	-33.74	-13.00	-20.74	H
5262.23	-34.68	13.10	16.32	-37.90	-13.00	-24.90	H
7015.59	-32.24	12.33	21.13	-41.04	-13.00	-28.04	H
3508.37	-35.60	12.90	12.56	-35.26	-13.00	-22.26	V
5262.23	-34.43	13.10	16.32	-37.65	-13.00	-24.65	V
7015.59	-31.98	12.33	21.13	-40.78	-13.00	-27.78	V



LTE Band 4 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3423.68	-34.52	12.90	12.56	-34.18	-13.00	-21.18	H
5136.17	-35.06	13.10	16.32	-38.28	-13.00	-25.28	H
6848.75	-32.41	12.33	21.13	-41.21	-13.00	-28.21	H
3423.68	-35.42	12.90	12.56	-35.08	-13.00	-22.08	V
5136.17	-33.96	13.10	16.32	-37.18	-13.00	-24.18	V
6848.75	-32.89	12.33	21.13	-41.69	-13.00	-28.69	V
LTE Band 4 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3464.88	-34.15	12.90	12.56	-33.81	-13.00	-20.81	H
5197.03	-35.32	13.10	16.32	-38.54	-13.00	-25.54	H
6930.08	-32.87	12.33	21.13	-41.67	-13.00	-28.67	H
3464.88	-34.78	12.90	12.56	-34.44	-13.00	-21.44	V
5197.03	-34.65	13.10	16.32	-37.87	-13.00	-24.87	V
6930.08	-32.27	12.33	21.13	-41.07	-13.00	-28.07	V
LTE Band 4 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3505.90	-34.01	12.90	12.56	-33.67	-13.00	-20.67	H
5262.02	-34.63	13.10	16.32	-37.85	-13.00	-24.85	H
7012.37	-33.11	12.33	21.13	-41.91	-13.00	-28.91	H
3505.90	-34.73	12.90	12.56	-34.39	-13.00	-21.39	V
5262.02	-34.55	13.10	16.32	-37.77	-13.00	-24.77	V
7012.37	-32.37	12.33	21.13	-41.17	-13.00	-28.17	V



LTE Band 4 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3424.91	-33.56	12.90	12.56	-33.22	-13.00	-20.22	H
5137.07	-34.04	13.10	16.32	-37.26	-13.00	-24.26	H
6849.80	-32.85	12.33	21.13	-41.65	-13.00	-28.65	H
3424.91	-35.63	12.90	12.56	-35.29	-13.00	-22.29	V
5137.07	-34.58	13.10	16.32	-37.80	-13.00	-24.80	V
6849.80	-32.60	12.33	21.13	-41.40	-13.00	-28.40	V
LTE Band 4 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.50	-34.49	12.90	12.56	-34.15	-13.00	-21.15	H
5196.98	-34.16	13.10	16.32	-37.38	-13.00	-24.38	H
6929.54	-33.07	12.33	21.13	-41.87	-13.00	-28.87	H
3464.50	-35.39	12.90	12.56	-35.05	-13.00	-22.05	V
5196.98	-33.80	13.10	16.32	-37.02	-13.00	-24.02	V
6929.54	-32.02	12.33	21.13	-40.82	-13.00	-27.82	V
LTE Band 4 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3505.18	-33.88	12.90	12.56	-33.54	-13.00	-20.54	H
5257.07	-34.19	13.10	16.32	-37.41	-13.00	-24.41	H
7010.01	-32.96	12.33	21.13	-41.76	-13.00	-28.76	H
3505.18	-34.97	12.90	12.56	-34.63	-13.00	-21.63	V
5257.07	-34.53	13.10	16.32	-37.75	-13.00	-24.75	V
7010.01	-32.84	12.33	21.13	-41.64	-13.00	-28.64	V



LTE Band 4 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3429.97	-34.28	12.90	12.56	-33.94	-13.00	-20.94	H
5145.00	-35.09	13.10	16.32	-38.31	-13.00	-25.31	H
6860.37	-33.62	12.33	21.13	-42.42	-13.00	-29.42	H
3429.97	-35.89	12.90	12.56	-35.55	-13.00	-22.55	V
5145.00	-34.46	13.10	16.32	-37.68	-13.00	-24.68	V
6860.37	-32.17	12.33	21.13	-40.97	-13.00	-27.97	V
LTE Band 4 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.78	-34.75	12.90	12.56	-34.41	-13.00	-21.41	H
5196.68	-35.26	13.10	16.32	-38.48	-13.00	-25.48	H
6929.69	-33.21	12.33	21.13	-42.01	-13.00	-29.01	H
3464.78	-34.83	12.90	12.56	-34.49	-13.00	-21.49	V
5196.68	-34.90	13.10	16.32	-38.12	-13.00	-25.12	V
6929.69	-31.78	12.33	21.13	-40.58	-13.00	-27.58	V
LTE Band 4 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3500.30	-34.01	12.90	12.56	-33.67	-13.00	-20.67	H
5250.48	-34.01	13.10	16.32	-37.23	-13.00	-24.23	H
6999.75	-32.44	12.33	21.13	-41.24	-13.00	-28.24	H
3500.30	-35.66	12.90	12.56	-35.32	-13.00	-22.32	V
5250.48	-35.05	13.10	16.32	-38.27	-13.00	-25.27	V
6999.75	-31.80	12.33	21.13	-40.60	-13.00	-27.60	V



LTE Band 4 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3434.60	-33.80	12.90	12.56	-33.46	-13.00	-20.46	H
5152.53	-34.44	13.10	16.32	-37.66	-13.00	-24.66	H
6870.44	-32.68	12.33	21.13	-41.48	-13.00	-28.48	H
3434.60	-34.90	12.90	12.56	-34.56	-13.00	-21.56	V
5152.53	-35.14	13.10	16.32	-38.36	-13.00	-25.36	V
6870.44	-32.69	12.33	21.13	-41.49	-13.00	-28.49	V
LTE Band 4 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3465.07	-33.55	12.90	12.56	-33.21	-13.00	-20.21	H
5196.60	-34.91	13.10	16.32	-38.13	-13.00	-25.13	H
6930.17	-33.17	12.33	21.13	-41.97	-13.00	-28.97	H
3465.07	-35.48	12.90	12.56	-35.14	-13.00	-22.14	V
5196.60	-34.19	13.10	16.32	-37.41	-13.00	-24.41	V
6930.17	-32.98	12.33	21.13	-41.78	-13.00	-28.78	V
LTE Band 4 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3495.49	-34.41	12.90	12.56	-34.07	-13.00	-21.07	H
5242.08	-34.36	13.10	16.32	-37.58	-13.00	-24.58	H
6990.26	-33.21	12.33	21.13	-42.01	-13.00	-29.01	H
3495.49	-34.74	12.90	12.56	-34.40	-13.00	-21.40	V
5242.08	-34.09	13.10	16.32	-37.31	-13.00	-24.31	V
6990.26	-31.71	12.33	21.13	-40.51	-13.00	-27.51	V



LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3439.93	-34.42	12.90	12.56	-34.08	-13.00	-21.08	H
5160.13	-35.15	13.10	16.32	-38.37	-13.00	-25.37	H
6880.61	-32.24	12.33	21.13	-41.04	-13.00	-28.04	H
3439.93	-35.71	12.90	12.56	-35.37	-13.00	-22.37	V
5160.13	-34.74	13.10	16.32	-37.96	-13.00	-24.96	V
6880.61	-32.20	12.33	21.13	-41.00	-13.00	-28.00	V
LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.77	-34.70	12.90	12.56	-34.36	-13.00	-21.36	H
5196.33	-34.65	13.10	16.32	-37.87	-13.00	-24.87	H
6929.77	-32.35	12.33	21.13	-41.15	-13.00	-28.15	H
3464.77	-35.05	12.90	12.56	-34.71	-13.00	-21.71	V
5196.33	-33.93	13.10	16.32	-37.15	-13.00	-24.15	V
6929.77	-32.90	12.33	21.13	-41.70	-13.00	-28.70	V
LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3490.53	-33.62	12.90	12.56	-33.28	-13.00	-20.28	H
5235.22	-35.35	13.10	16.32	-38.57	-13.00	-25.57	H
6979.34	-32.67	12.33	21.13	-41.47	-13.00	-28.47	H
3490.53	-35.55	12.90	12.56	-35.21	-13.00	-22.21	V
5235.22	-35.03	13.10	16.32	-38.25	-13.00	-25.25	V
6979.34	-32.24	12.33	21.13	-41.04	-13.00	-28.04	V



LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1648.67	-34.71	9.56	9.72	-34.87	-13.00	-21.87	H
2473.33	-35.47	10.50	10.86	-35.83	-13.00	-22.83	H
3298.33	-32.72	12.78	11.57	-31.51	-13.00	-18.51	H
1648.67	-35.36	9.56	9.72	-35.52	-13.00	-22.52	V
2473.33	-34.40	10.50	10.86	-34.76	-13.00	-21.76	V
3298.33	-32.08	12.78	11.57	-30.87	-13.00	-17.87	V
LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.49	-34.44	9.56	9.72	-34.60	-13.00	-21.60	H
2509.28	-34.54	10.50	10.86	-34.90	-13.00	-21.90	H
3345.42	-32.88	12.78	11.57	-31.67	-13.00	-18.67	H
1672.49	-34.84	9.56	9.72	-35.00	-13.00	-22.00	V
2509.28	-34.96	10.50	10.86	-35.32	-13.00	-22.32	V
3345.42	-32.79	12.78	11.57	-31.58	-13.00	-18.58	V
LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1696.34	-34.53	9.56	9.72	-34.69	-13.00	-21.69	H
2544.71	-35.23	10.50	10.86	-35.59	-13.00	-22.59	H
3392.87	-33.63	12.78	11.57	-32.42	-13.00	-19.42	H
1696.34	-35.14	9.56	9.72	-35.30	-13.00	-22.30	V
2544.71	-34.18	10.50	10.86	-34.54	-13.00	-21.54	V
3392.87	-32.53	12.78	11.57	-31.32	-13.00	-18.32	V



LTE Band 5 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1650.06	-34.36	9.56	9.72	-34.52	-13.00	-21.52	H
2475.94	-35.22	10.50	10.86	-35.58	-13.00	-22.58	H
3301.67	-32.19	12.78	11.57	-30.98	-13.00	-17.98	H
1650.06	-35.44	9.56	9.72	-35.60	-13.00	-22.60	V
2475.94	-34.82	10.50	10.86	-35.18	-13.00	-22.18	V
3301.67	-31.83	12.78	11.57	-30.62	-13.00	-17.62	V
LTE Band 5 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.10	-34.49	9.56	9.72	-34.65	-13.00	-21.65	H
2508.78	-34.97	10.50	10.86	-35.33	-13.00	-22.33	H
3345.85	-33.11	12.78	11.57	-31.90	-13.00	-18.90	H
1672.10	-35.43	9.56	9.72	-35.59	-13.00	-22.59	V
2508.78	-34.32	10.50	10.86	-34.68	-13.00	-21.68	V
3345.85	-31.72	12.78	11.57	-30.51	-13.00	-17.51	V
LTE Band 5 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1694.63	-33.89	9.56	9.72	-34.05	-13.00	-21.05	H
2541.93	-34.42	10.50	10.86	-34.78	-13.00	-21.78	H
3389.19	-33.45	12.78	11.57	-32.24	-13.00	-19.24	H
1694.63	-35.84	9.56	9.72	-36.00	-13.00	-23.00	V
2541.93	-34.58	10.50	10.86	-34.94	-13.00	-21.94	V
3389.19	-32.65	12.78	11.57	-31.44	-13.00	-18.44	V



LTE Band 5 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1652.45	-34.24	9.56	9.72	-34.40	-13.00	-21.40	H
2478.77	-34.51	10.50	10.86	-34.87	-13.00	-21.87	H
3305.74	-32.36	12.78	11.57	-31.15	-13.00	-18.15	H
1652.45	-35.84	9.56	9.72	-36.00	-13.00	-23.00	V
2478.77	-35.15	10.50	10.86	-35.51	-13.00	-22.51	V
3305.74	-32.94	12.78	11.57	-31.73	-13.00	-18.73	V
LTE Band 5 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.42	-34.19	9.56	9.72	-34.35	-13.00	-21.35	H
2508.93	-34.00	10.50	10.86	-34.36	-13.00	-21.36	H
3345.27	-32.58	12.78	11.57	-31.37	-13.00	-18.37	H
1672.42	-34.89	9.56	9.72	-35.05	-13.00	-22.05	V
2508.93	-34.38	10.50	10.86	-34.74	-13.00	-21.74	V
3345.27	-33.16	12.78	11.57	-31.95	-13.00	-18.95	V
LTE Band 5 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1692.44	-34.75	9.56	9.72	-34.91	-13.00	-21.91	H
2539.05	-35.03	10.50	10.86	-35.39	-13.00	-22.39	H
3385.74	-32.55	12.78	11.57	-31.34	-13.00	-18.34	H
1692.44	-35.83	9.56	9.72	-35.99	-13.00	-22.99	V
2539.05	-34.66	10.50	10.86	-35.02	-13.00	-22.02	V
3385.74	-32.18	12.78	11.57	-30.97	-13.00	-17.97	V



LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1657.86	-34.63	9.56	9.72	-34.79	-13.00	-21.79	H
2486.18	-35.00	10.50	10.86	-35.36	-13.00	-22.36	H
3315.18	-32.77	12.78	11.57	-31.56	-13.00	-18.56	H
1657.86	-34.70	9.56	9.72	-34.86	-13.00	-21.86	V
2486.18	-33.99	10.50	10.86	-34.35	-13.00	-21.35	V
3315.18	-32.78	12.78	11.57	-31.57	-13.00	-18.57	V
LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.53	-34.36	9.56	9.72	-34.52	-13.00	-21.52	H
2508.98	-34.24	10.50	10.86	-34.60	-13.00	-21.60	H
3345.47	-32.73	12.78	11.57	-31.52	-13.00	-18.52	H
1672.53	-35.56	9.56	9.72	-35.72	-13.00	-22.72	V
2508.98	-33.91	10.50	10.86	-34.27	-13.00	-21.27	V
3345.47	-32.60	12.78	11.57	-31.39	-13.00	-18.39	V
LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1687.62	-34.59	9.56	9.72	-34.75	-13.00	-21.75	H
2531.46	-35.00	10.50	10.86	-35.36	-13.00	-22.36	H
3375.58	-33.22	12.78	11.57	-32.01	-13.00	-19.01	H
1687.62	-35.85	9.56	9.72	-36.01	-13.00	-23.01	V
2531.46	-34.59	10.50	10.86	-34.95	-13.00	-21.95	V
3375.58	-32.85	12.78	11.57	-31.64	-13.00	-18.64	V



LTE Band 7 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5004.98	-34.04	12.66	15.86	-37.24	-25.00	-12.24	H
7507.64	-35.25	11.46	19.28	-43.07	-25.00	-18.07	H
10010.30	-33.23	12.79	23.19	-43.63	-25.00	-18.63	H
5004.98	-35.05	12.66	15.86	-38.25	-25.00	-13.25	V
7507.64	-34.15	11.46	19.28	-41.97	-25.00	-16.97	V
10010.30	-32.49	12.79	23.19	-42.89	-25.00	-17.89	V
LTE Band 7 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5069.92	-33.81	12.72	15.86	-36.95	-25.00	-11.95	H
7604.73	-34.47	11.46	19.28	-42.29	-25.00	-17.29	H
10140.05	-32.79	12.09	23.19	-43.89	-25.00	-18.89	H
5069.92	-35.01	12.72	15.86	-38.15	-25.00	-13.15	V
7604.73	-33.82	11.46	19.28	-41.64	-25.00	-16.64	V
10140.05	-32.48	12.09	23.19	-43.58	-25.00	-18.58	V
LTE Band 7 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5133.95	-33.78	12.76	15.86	-36.88	-25.00	-11.88	H
7701.24	-34.60	11.45	19.28	-42.43	-25.00	-17.43	H
10268.22	-33.54	12.28	23.19	-44.45	-25.00	-19.45	H
5133.95	-34.64	12.76	15.86	-37.74	-25.00	-12.74	V
7701.24	-34.56	11.45	19.28	-42.39	-25.00	-17.39	V
10268.22	-32.63	12.28	23.19	-43.54	-25.00	-18.54	V



LTE Band 7 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5010.50	-33.64	12.66	15.86	-36.84	-25.00	-11.84	H
7515.55	-34.93	11.46	19.28	-42.75	-25.00	-17.75	H
10020.38	-32.25	12.79	23.19	-42.65	-25.00	-17.65	H
5010.50	-35.73	12.66	15.86	-38.93	-25.00	-13.93	V
7515.55	-34.93	11.46	19.28	-42.75	-25.00	-17.75	V
10020.38	-32.40	12.79	23.19	-42.80	-25.00	-17.80	V
LTE Band 7 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5069.69	-34.01	12.72	15.86	-37.15	-25.00	-12.15	H
7604.89	-34.82	11.46	19.28	-42.64	-25.00	-17.64	H
10139.64	-32.21	12.09	23.19	-43.31	-25.00	-18.31	H
5069.69	-35.72	12.72	15.86	-38.86	-25.00	-13.86	V
7604.89	-33.77	11.46	19.28	-41.59	-25.00	-16.59	V
10139.64	-32.52	12.09	23.19	-43.62	-25.00	-18.62	V
LTE Band 7 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5128.92	-34.85	12.76	15.86	-37.95	-25.00	-12.95	H
7693.70	-34.37	11.45	19.28	-42.20	-25.00	-17.20	H
10258.71	-33.14	12.28	23.19	-44.05	-25.00	-19.05	H
5128.92	-35.02	12.76	15.86	-38.12	-25.00	-13.12	V
7693.70	-34.56	11.45	19.28	-42.39	-25.00	-17.39	V
10258.71	-31.79	12.28	23.19	-42.70	-25.00	-17.70	V



LTE Band 7 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5015.52	-34.93	12.66	15.86	-38.13	-25.00	-13.13	H
7523.99	-34.16	11.46	19.28	-41.98	-25.00	-16.98	H
10031.97	-33.33	12.79	23.19	-43.73	-25.00	-18.73	H
5015.52	-35.62	12.66	15.86	-38.82	-25.00	-13.82	V
7523.99	-34.91	11.46	19.28	-42.73	-25.00	-17.73	V
10031.97	-32.76	12.79	23.19	-43.16	-25.00	-18.16	V
LTE Band 7 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5069.99	-33.95	12.72	15.86	-37.09	-25.00	-12.09	H
7605.06	-34.52	11.46	19.28	-42.34	-25.00	-17.34	H
10139.63	-33.64	12.09	23.19	-44.74	-25.00	-19.74	H
5069.99	-36.00	12.72	15.86	-39.14	-25.00	-14.14	V
7605.06	-35.10	11.46	19.28	-42.92	-25.00	-17.92	V
10139.63	-33.01	12.09	23.19	-44.11	-25.00	-19.11	V
LTE Band 7 / 15MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5123.16	-33.45	12.76	15.86	-36.55	-25.00	-11.55	H
7523.95	-35.10	11.45	19.28	-42.93	-25.00	-17.93	H
10032.16	-33.34	12.28	23.19	-44.25	-25.00	-19.25	H
5123.16	-34.92	12.76	15.86	-38.02	-25.00	-13.02	V
7523.95	-34.49	11.45	19.28	-42.32	-25.00	-17.32	V
10032.16	-33.03	12.28	23.19	-43.94	-25.00	-18.94	V



LTE Band 7 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5020.91	-33.82	12.66	15.86	-37.02	-25.00	-12.02	H
7531.17	-34.42	11.46	19.28	-42.24	-25.00	-17.24	H
10258.89	-32.90	12.79	23.19	-43.30	-25.00	-18.30	H
5020.91	-36.00	12.66	15.86	-39.20	-25.00	-14.20	V
7531.17	-35.16	11.46	19.28	-42.98	-25.00	-17.98	V
10258.89	-32.33	12.79	23.19	-42.73	-25.00	-17.73	V
LTE Band 7 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5069.96	-34.84	12.72	15.86	-37.98	-25.00	-12.98	H
7604.66	-35.14	11.46	19.28	-42.96	-25.00	-17.96	H
10139.74	-32.82	12.09	23.19	-43.92	-25.00	-18.92	H
5069.96	-34.96	12.72	15.86	-38.10	-25.00	-13.10	V
7604.66	-33.95	11.46	19.28	-41.77	-25.00	-16.77	V
10139.74	-31.84	12.09	23.19	-42.94	-25.00	-17.94	V
LTE Band 7 / 20MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
5118.71	-33.91	12.76	15.86	-37.01	-25.00	-12.01	H
7678.02	-34.08	11.45	19.28	-41.91	-25.00	-16.91	H
10237.81	-33.48	12.28	23.19	-44.39	-25.00	-19.39	H
5118.71	-34.63	12.76	15.86	-37.73	-25.00	-12.73	V
7678.02	-35.16	11.45	19.28	-42.99	-25.00	-17.99	V
10237.81	-32.43	12.28	23.19	-43.34	-25.00	-18.34	V



LTE Band 12 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1398.95	-33.54	8.17	9.34	-34.71	-13.00	-21.71	H
2098.61	-35.26	9.53	10.42	-36.15	-13.00	-23.15	H
2798.39	-33.63	11.27	11.12	-33.48	-13.00	-20.48	H
1398.95	-35.17	8.17	9.34	-36.34	-13.00	-23.34	V
2098.61	-35.00	9.53	10.42	-35.89	-13.00	-22.89	V
2798.39	-32.37	11.27	11.12	-32.22	-13.00	-19.22	V
LTE Band 12 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.54	-34.15	8.17	9.34	-35.32	-13.00	-22.32	H
2122.47	-35.40	9.53	10.42	-36.29	-13.00	-23.29	H
2829.54	-33.13	11.27	11.12	-32.98	-13.00	-19.98	H
1414.54	-35.89	8.17	9.34	-37.06	-13.00	-24.06	V
2122.47	-34.20	9.53	10.42	-35.09	-13.00	-22.09	V
2829.54	-32.22	11.27	11.12	-32.07	-13.00	-19.07	V
LTE Band 12 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1430.38	-34.87	8.17	9.34	-36.04	-13.00	-23.04	H
2145.51	-35.44	9.53	10.42	-36.33	-13.00	-23.33	H
2860.81	-32.99	11.27	11.12	-32.84	-13.00	-19.84	H
1430.38	-35.46	8.17	9.34	-36.63	-13.00	-23.63	V
2145.51	-35.22	9.53	10.42	-36.11	-13.00	-23.11	V
2860.81	-32.12	11.27	11.12	-31.97	-13.00	-18.97	V



LTE Band 12 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1400.72	-33.75	8.17	9.34	-34.92	-13.00	-21.92	H
2101.30	-34.69	9.53	10.42	-35.58	-13.00	-22.58	H
2801.90	-33.54	11.27	11.12	-33.39	-13.00	-20.39	H
1400.72	-34.69	8.17	9.34	-35.86	-13.00	-22.86	V
2101.30	-33.99	9.53	10.42	-34.88	-13.00	-21.88	V
2801.90	-32.36	11.27	11.12	-32.21	-13.00	-19.21	V
LTE Band 12 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.72	-34.32	8.17	9.34	-35.49	-13.00	-22.49	H
2122.22	-34.20	9.53	10.42	-35.09	-13.00	-22.09	H
2829.55	-33.24	11.27	11.12	-33.09	-13.00	-20.09	H
1414.72	-35.82	8.17	9.34	-36.99	-13.00	-23.99	V
2122.22	-34.79	9.53	10.42	-35.68	-13.00	-22.68	V
2829.55	-32.34	11.27	11.12	-32.19	-13.00	-19.19	V
LTE Band 12 / 3MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1428.53	-34.36	8.17	9.34	-35.53	-13.00	-22.53	H
2143.37	-35.13	9.53	10.42	-36.02	-13.00	-23.02	H
2857.68	-33.19	11.27	11.12	-33.04	-13.00	-20.04	H
1428.53	-34.65	8.17	9.34	-35.82	-13.00	-22.82	V
2143.37	-34.47	9.53	10.42	-35.36	-13.00	-22.36	V
2857.68	-33.12	11.27	11.12	-32.97	-13.00	-19.97	V



LTE Band 12 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1402.85	-33.67	8.17	9.34	-34.84	-13.00	-21.84	H
2104.01	-35.34	9.53	10.42	-36.23	-13.00	-23.23	H
2805.66	-32.78	11.27	11.12	-32.63	-13.00	-19.63	H
1402.85	-34.94	8.17	9.34	-36.11	-13.00	-23.11	V
2104.01	-34.66	9.53	10.42	-35.55	-13.00	-22.55	V
2805.66	-32.62	11.27	11.12	-32.47	-13.00	-19.47	V
LTE Band 12 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.86	-34.32	8.17	9.34	-35.49	-13.00	-22.49	H
2122.40	-34.58	9.53	10.42	-35.47	-13.00	-22.47	H
2829.96	-33.20	11.27	11.12	-33.05	-13.00	-20.05	H
1414.86	-35.46	8.17	9.34	-36.63	-13.00	-23.63	V
2122.40	-34.72	9.53	10.42	-35.61	-13.00	-22.61	V
2829.96	-31.83	11.27	11.12	-31.68	-13.00	-18.68	V
LTE Band 12 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1426.77	-34.89	8.17	9.34	-36.06	-13.00	-23.06	H
2140.42	-34.24	9.53	10.42	-35.13	-13.00	-22.13	H
2853.56	-32.46	11.27	11.12	-32.31	-13.00	-19.31	H
1426.77	-35.78	8.17	9.34	-36.95	-13.00	-23.95	V
2140.42	-34.51	9.53	10.42	-35.40	-13.00	-22.40	V
2853.56	-32.69	11.27	11.12	-32.54	-13.00	-19.54	V



LTE Band 12 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1407.63	-33.99	8.17	9.34	-35.16	-13.00	-22.16	H
2111.88	-35.32	9.53	10.42	-36.21	-13.00	-23.21	H
2815.59	-33.63	11.27	11.12	-33.48	-13.00	-20.48	H
1407.63	-35.63	8.17	9.34	-36.80	-13.00	-23.80	V
2111.88	-34.82	9.53	10.42	-35.71	-13.00	-22.71	V
2815.59	-31.72	11.27	11.12	-31.57	-13.00	-18.57	V
LTE Band 12 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.96	-33.93	8.17	9.34	-35.10	-13.00	-22.10	H
2122.48	-34.97	9.53	10.42	-35.86	-13.00	-22.86	H
2829.71	-33.54	11.27	11.12	-33.39	-13.00	-20.39	H
1414.96	-35.13	8.17	9.34	-36.30	-13.00	-23.30	V
2122.48	-34.21	9.53	10.42	-35.10	-13.00	-22.10	V
2829.71	-32.54	11.27	11.12	-32.39	-13.00	-19.39	V
LTE Band 12 / 10MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1421.68	-34.62	8.17	9.34	-35.79	-13.00	-22.79	H
2132.88	-34.39	9.53	10.42	-35.28	-13.00	-22.28	H
2843.94	-32.18	11.27	11.12	-32.03	-13.00	-19.03	H
1421.68	-35.67	8.17	9.34	-36.84	-13.00	-23.84	V
2132.88	-34.30	9.53	10.42	-35.19	-13.00	-22.19	V
2843.94	-32.96	11.27	11.12	-32.81	-13.00	-19.81	V

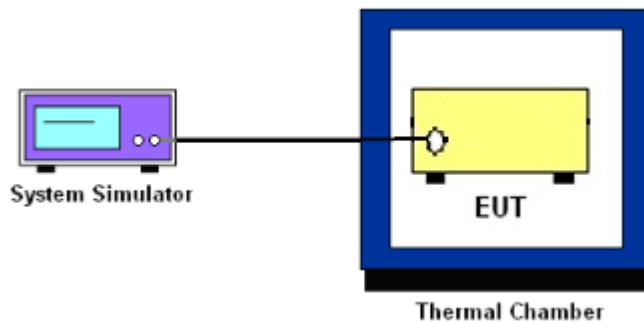
10. FREQUENCY STABILITY

10.1 DESCRIPTION OF FREQUENCY STABILITY MEASUREMENT

10.1.1 MEASUREMENT METHOD

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

10.1.2 TEST SETUP



10.1.3 TEST PROCEDURES FOR TEMPERATURE VARIATION

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

10.1.4 TEST PROCEDURES FOR VOLTAGE VARIATION

1. The testing follows FCC KDB 971168 D01v01r03 Section 9.
2. The EUT was placed in a temperature chamber at $25 \pm 5^{\circ}\text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.



10.1.5 TEST RESULTS

LTE Band 2 (QPSK) / 1880MHz / BW10M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	21.23	0.011	2.5ppm	PASS
40		19.69	0.010		
30		26.00	0.014		
20		24.03	0.013		
10		24.63	0.013		
0		31.29	0.017		
-10		28.99	0.015		
-20		28.21	0.015		
-30		18.22	0.010		
20	Maximum Voltage	19.31	0.010		
20	BEP	22.78	0.012		

LTE Band 2 (QPSK) / 1880MHz / BW20M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	19.71	0.010	2.5ppm	PASS
40		28.53	0.015		
30		22.72	0.012		
20		35.94	0.019		
10		34.91	0.019		
0		33.45	0.018		
-10		22.09	0.012		
-20		15.36	0.008		
-30		26.65	0.014		
20	Maximum Voltage	29.64	0.016		
20	BEP	20.72	0.011		



LTE Band 4 (QPSK) / 1733MHz / BW10M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	30.30	0.017	2.5ppm	PASS
40		16.71	0.010		
30		32.28	0.019		
20		27.06	0.016		
10		31.30	0.018		
0		33.42	0.019		
-10		20.69	0.012		
-20		12.97	0.007		
-30		12.65	0.007		
20	Maximum Voltage	26.29	0.015		
20	BEP	30.50	0.018		

LTE Band 4 (QPSK) / 1733MHz / BW20M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	25.14	0.015	2.5ppm	PASS
40		13.46	0.008		
30		22.44	0.013		
20		16.78	0.010		
10		12.14	0.007		
0		22.82	0.013		
-10		32.48	0.019		
-20		25.50	0.015		
-30		15.52	0.009		
20	Maximum Voltage	12.82	0.007		
20	BEP	32.12	0.019		



LTE Band 5 (QPSK) / 836.5MHz / BW5M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	30.47	0.043	2.5ppm	PASS
40		28.37	0.040		
30		27.42	0.039		
20		30.71	0.043		
10		28.89	0.041		
0		29.29	0.041		
-10		20.98	0.003		
-20		27.27	0.038		
-30		20.77	0.029		
20	Maximum Voltage	19.08	0.027		
20	BEP	26.57	0.037		

LTE Band 5 (QPSK) / 836.5MHz / BW10M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	23.43	0.033	2.5ppm	PASS
40		12.88	0.018		
30		29.33	0.041		
20		18.77	0.026		
10		32.76	0.046		
0		14.19	0.020		
-10		32.52	0.005		
-20		15.62	0.022		
-30		32.45	0.046		
20	Maximum Voltage	22.06	0.031		
20	BEP	11.80	0.017		



LTE Band 7 (QPSK) / 2535MHz / BW10M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	24.01	0.009	2.5ppm	PASS
40		18.19	0.007		
30		21.59	0.009		
20		33.58	0.013		
10		16.48	0.007		
0		23.12	0.009		
-10		17.99	0.007		
-20		20.35	0.008		
-30		14.62	0.006		
20	Maximum Voltage	16.35	0.006		
20	BEP	29.11	0.011		

LTE Band 7 (QPSK) / 2535MHz / BW20M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	31.78	0.013	2.5ppm	PASS
40		33.42	0.013		
30		30.77	0.012		
20		26.55	0.010		
10		26.19	0.010		
0		16.28	0.006		
-10		16.83	0.007		
-20		26.01	0.010		
-30		35.80	0.014		
20	Maximum Voltage	26.74	0.011		
20	BEP	34.64	0.014		



LTE Band 12 (QPSK) / 707.5MHz / BW5M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	21.66	0.031	2.5ppm	PASS
40		15.15	0.021		
30		31.56	0.044		
20		13.37	0.019		
10		18.73	0.026		
0		13.60	0.019		
-10		20.48	0.003		
-20		18.65	0.026		
-30		19.50	0.027		
20	Maximum Voltage	29.74	0.042		
20	BEP	18.75	0.026		

LTE Band 12 (QPSK) / 707.5MHz / BW10M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	14.72	0.021	2.5ppm	PASS
40		29.39	0.041		
30		23.59	0.033		
20		26.61	0.037		
10		29.96	0.042		
0		12.75	0.018		
-10		15.81	0.002		
-20		33.82	0.048		
-30		21.96	0.031		
20	Maximum Voltage	34.68	0.049		
20	BEP	29.18	0.041		



APPENDIX-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※END OF THE REPORT※※※※※





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Applicant : Shenzhen YQT Electronic Technology Co.,Ltd
Address: F5, Bldg4, Hua Feng No.1 Science & Technology Zone, Xixiang, Bao'an, Shenzhen, China

The following sample(s) and sample information was/were submitted and identified by client as:

Sample Name: Smart Watch
Model/Style/Item #: T5
Series Model#: QXXXXXX(X=1-9, X-Z or blank) 、 TXXXXXX(X=1-9, X-Z or blank) 、 WXX(X=1-9, X-Z or blank), A1, Z1, S20, SY-600, 718S
Brand/Customer: YQT
Supplier/Manufacturer: Shenzhen YQT Electronic Technology Co.,Ltd
Supplier/Manufacturer Address: F5, Bldg4, Hua Feng No.1 Science & Technology Zone, Xixiang, Bao'an Shenzhen, China
Receiving Date: 5-Jan-2021,20-Jan-2021
Test Period: From 5-Jan-2021 to 26-Jan-2021
Add Information: This report shall replace STSGZ2101050002

Test Summary:

#	Test Item(s)	Reference Standard/Method	Result
1	Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP and DIBP EU RoHS Directive 2011/65/EU and its amendment directives (EU) 2015/863 (RoHS)	IEC 62321-3-1:2013 IEC 62321-4:2013+A1:2017 IEC 62321-5:2013 IEC 62321-6:2015 IEC 62321-7-1:2015 IEC 62321-7-2:2017 IEC 62321-8:2017	PASS

Signed for and on behalf of STS


Kevin Liu
(Chemical Test Manager)



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Guangzhou Depuhua Test Services Co. Ltd.

A301, 3/F., Xinghui Building, Guanqiao, Shilou, Panyu District, Guangzhou, Guangdong e-mail: stsgz@stsapp.com
Phone: +86 (0)20-6664 1688 Fax: +86 (0)20-6664 1699 Web://www.stsgz.com



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Result:

1.1 EU RoHS Directive 2011/65/EU and its amendment directives on XRF IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	Cyan soft plastic, frame	BL	BL	BL	BL	BL
2	Cyan/dark blue soft plastic, watchband	BL	BL	BL	BL	BL
3	Silvery metal,buckle frame	BL	BL	BL	BL	NA
4	Silvery metal,buckle pin	BL	BL	BL	BL	NA
5	Silvery metal, tube	BL	BL	BL	BL	NA
6	Silvery metal, handle	BL	BL	BL	BL	NA
7	Silvery metal, axis	BL	BL	BL	BL	NA
8	Golden plated silvery metal, spring	BL	BL	BL	X	NA
9	Dark blue plastic,holder	BL	BL	BL	BL	BL
10	Silvery metal, screw	BL	BL	BL	X	BL
11	Silvery metal,small screw	BL	BL	BL	X	NA
12	Cyan plastic, shell	BL	BL	BL	BL	BL
13	Silvery magnet	BL	BL	BL	BL	NA
14	Golden plated silvery metal, contact pin	X	BL	BL	BL	NA
15	Transparent glass	BL	BL	BL	BL	NA
16	Black coating,inner	BL	BL	BL	BL	BL
17	Transparent glass	BL	BL	BL	BL	NA
18	Transparent gray plastic film, interlining	BL	BL	BL	BL	BL
19	Black glue,binding	BL	BL	BL	BL	BL
20	Yellow/black plastic,flat cable	BL	BL	BL	BL	BL
21	White body, LED	BL	BL	BL	BL	X
22	Translucent silvery plastic,film	BL	BL	BL	BL	BL
23	Translucent white plastic,film	BL	BL	BL	BL	BL
24	Black plastic,holder	BL	BL	BL	BL	BL

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A301, 3/F., Xinghui Building, Guanqiao, Shilou, Panyu District, Guangzhou, Guangdong e-mail: stsgz@stsapp.com

Phone: +86 (0)20-6664 1688

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25	Transparent plastic, film	BL	BL	BL	BL	BL
26	Black plastic adhesive tape	BL	BL	BL	BL	BL
27	White plastic, film	BL	BL	BL	BL	BL
28	White soft plastic, binding	BL	BL	BL	BL	BL
29	Blue PCB	BL	BL	BL	BL	X
30	Silvery metal, cover	BL	BL	BL	BL	NA
31	Silvery metal, tube	BL	BL	BL	BL	NA
32	Silvery metal, axis	BL	BL	BL	BL	NA
33	Black plastic, washer	BL	BL	BL	BL	BL
34	Silvery metal, base	BL	BL	BL	BL	NA
35	Transparent plastic, film	BL	BL	BL	BL	BL
36	Silvery metal, button	BL	BL	BL	BL	NA
37	White plastic adhesive tape	BL	BL	BL	BL	BL
38	Black body, resistor	BL	BL	BL	BL	BL
39	Black body, audition	BL	BL	BL	BL	BL
40	Brown body, capacitor	BL	BL	BL	BL	BL
41	Yellow body, LED	BL	BL	BL	BL	X
42	Silvery metal, sheet	BL	BL	BL	BL	NA
43	Black plastic, cover	BL	BL	BL	BL	BL
44	Transparent plastic sheet	BL	BL	BL	BL	BL
45	Black plastic, cover	BL	BL	BL	BL	BL
46	Silvery metal sheet	BL	BL	BL	BL	NA
47	Silvery magnet	BL	BL	BL	BL	NA
48	Coppery enamelled wire	BL	BL	BL	BL	BL
49	Transparent plastic film	BL	BL	BL	BL	BL
50	Black plastic adhesive tape	BL	BL	BL	BL	BL
51	Golden plated silvery metal, cover	BL	BL	BL	BL	NA
52	Translucent plastic, washer	BL	BL	BL	BL	BL
53	Purple plastic, washer	BL	BL	BL	BL	BL

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Phone: +86 (0)20-6664 1688

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54	Silvery metal sheet	BL	BL	BL	BL	NA
55	Silvery metal, ring	BL	BL	BL	BL	NA
56	Silvery metal sheet	BL	BL	BL	BL	NA
57	Green PCB	BL	BL	BL	BL	X
58	Silvery metal, solder	BL	BL	BL	BL	NA
59	Silvery metal, cover	BL	BL	BL	BL	NA
60	Black plastic, holder	BL	BL	BL	BL	BL
61	Silvery metal, contact pin	BL	BL	BL	BL	NA
62	Black magnet, holder	BL	BL	BL	BL	NA
63	Coppery enamelled wire	BL	BL	BL	BL	BL
64	Silvery metal, lead	BL	BL	BL	BL	NA
65	Black plastic, socket holder	BL	BL	BL	BL	BL
66	Silvery metal, contact pin	BL	BL	BL	BL	NA
67	Black body, resistor	BL	BL	BL	BL	BL
68	Black body, audion	BL	BL	BL	BL	BL
69	Brown body, capacitor	BL	BL	BL	BL	BL
70	Blue body, IC	BL	BL	BL	BL	BL
71	Black body, IC	BL	BL	BL	BL	BL
72	Black body, diode	BL	BL	BL	BL	BL
73	Silvery metal, solder	BL	BL	BL	BL	NA
74	Silvery metal, contact plate	BL	BL	BL	BL	NA
75	Silvery body, crystal oscillator	BL	BL	BL	BL	BL
76	White soft plastic, cover	BL	BL	BL	BL	BL
77	Silvery metal, shell	BL	BL	BL	BL	NA
78	White plastic, holder	BL	BL	BL	BL	BL
79	Silvery metal, contact pin	BL	BL	BL	BL	NA
80	Silvery metal, solder	BL	BL	BL	BL	NA
81	White soft plastic, thick wire jacket	BL	BL	BL	BL	BL
82	Black soft plastic, wire jacket	BL	BL	BL	BL	BL

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Phone: +86 (0)20-6664 1688 Fax: +86 (0)20-6664 1699 Web://www.stsgz.com



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83	Red soft plastic, wire jacket	BL	BL	BL	BL	BL
84	Coppery metal, wire core	BL	BL	BL	BL	NA
85	White plastic, plug cover	BL	BL	BL	BL	BL
86	Silvery magnet	BL	BL	BL	BL	NA
87	Coppery metal, contact pin	BL	BL	BL	BL	NA
88	Coppery metal, spring	BL	BL	BL	X	NA
89	Silvery metal,solder	BL	BL	BL	BL	NA

Remark:

- (1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	$BL \leq 70-3\sigma < X < 130+3\sigma \leq OL$	$BL \leq 70-3\sigma < X < 130+3\sigma \leq OL$	$BL \leq 50-3\sigma < X < 150+3\sigma \leq OL$
Pb	mg/kg	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 500-3\sigma < X < 1500+3\sigma \leq OL$
Hg	mg/kg	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 500-3\sigma < X < 1500+3\sigma \leq OL$
Cr	mg/kg	$BL \leq 700-3\sigma < X$	$BL \leq 700-3\sigma < X$	$BL \leq 500-3\sigma < X$
Br	mg/kg	$BL \leq 300-3\sigma < X$	--	$BL \leq 250-3\sigma < X$

Note:

BL = Below Limit

OL = Over Limit

X = Inconclusive

NA = Not Applicable

- (2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2011/65/EU and its amendment directives (EU) 2015/863 :

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A301, 3/F., Xinghui Building, Guanqiao, Shilou, Panyu District, Guangzhou, Guangdong

e-mail: stsgz@stsapp.com

Phone: +86 (0)20-6664 1688

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RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenyl ethers (PBDEs)	1000

(4) Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes. The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

(5) The selection of test portions was recommended by the client and the conclusion of chemical test is only for the selected portions.

(6) The data of #73, #76, #80, #81 and #89 were retesting result.

1.2 Hexavalent Chromium (Cr(VI))

Metal: IEC 62321-7-1:2015, extracted by boiling water and analyzed by UV-Vis

Non-metal: IEC 62321-7-2:2017, alkaline digested and analyzed by UV-Vis

Compound		Material				Limit	RL
		8	10	11	88		
1	Hexavalent Chromium (Cr(VI))	Negative	Negative	Negative	Negative	#	-
	Conclusion	PASS	PASS	PASS	PASS	-	-

Remark(s) (a) ug/cm²: microgram per square centimeter

(b) RL: Report Limit

(c) Negative = Sample Cr(VI) concentration is less than 0.10 ug/cm²

Positive = Sample Cr(VI) concentration is greater than 0.13 ug/cm²

(d) # = Positive indicates the presence of Cr(VI) on the tested areas and result be regarded as conflict with RoHS requirement.

Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as no conflict with RoHS requirement.

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Phone: +86 (0)20-6664 1688

Fax: +86 (0)20-6664 1699

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1.3 Lead Content (Pb)

IEC62321-5:2013, acid digested and determined by AAS

Compound		Material	Limit (mg/kg)	RL (mg/kg)
		14		
1	Lead (Pb)	24609	1000	10
Conclusion		PASS*	-	-

Remark(s): (a) * = Copper alloy containing up to 4% lead by weight

(b) mg/kg: milligrams per kilogram

(c) RL: Report limit

(d) N.D.: Not detected (result is less than RL)

1.4 Polybrominated Biphenyls and Polybrominated Diphenyl Ethers (PBBs and PBDEs)

IEC 62321-6:2015, solvent extract and determined by GC/MS

Compound		Material				Limit (mg/kg)	RL (mg/kg)
		21	29	41	57		
1	Monobromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
2	Dibromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
3	Tribromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
4	Tetrabromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
5	Pentabromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
6	Hexabromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
7	Heptabromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
8	Octabromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
9	Nonabromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
10	Decabromo biphenyl	N.D.	N.D.	N.D.	N.D.	-	50
11	Monobromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
12	Dibromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
13	Tribromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50

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e-mail: stsgz@stsapp.com

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14	Tetrabromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
15	Pentabromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
16	Hexabromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
17	Heptabromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
18	Octabromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
19	Nonabromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
20	Decabromo diphenyl ether	N.D.	N.D.	N.D.	N.D.	-	50
21	Sum of PBBs	N.D.	N.D.	N.D.	N.D.	1000	-
22	Sum of PBDEs	N.D.	N.D.	N.D.	N.D.	1000	-
Conclusion		PASS	PASS	PASS	PASS	-	-

Remark(s): (a) mg/kg: milligram per kilogram
(b) RL: Report limit
(c) N.D.: Not detected (result is less than RL)

1.5 Phthalates – (DBP, BBP, DEHP, DIBP) IEC 62321-8:2017, Solvent extract and determined by GC/MS

Compound			Material				Limit (%)	RL(%)
			1+2+28	9+12+20	16	18+22+23		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	PASS	-	-

Compound			Material				Limit (%)	RL(%)
			19	21+41	24+25+33	26		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005

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Phone: +86 (0)20-6664 1688

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3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	PASS	-	-

Compound			Material				Limit (%)	RL(%)
			27	29+57	35+43+44	37+50		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	PASS	-	-

Compound			Material				Limit (%)	RL(%)
			38+39+40	45+49+52	48+63	53+60+65		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	PASS	-	-

Compound			Material				Limit (%)	RL(%)
			67+68+69	70+71	72+75	76		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	PASS	-	-

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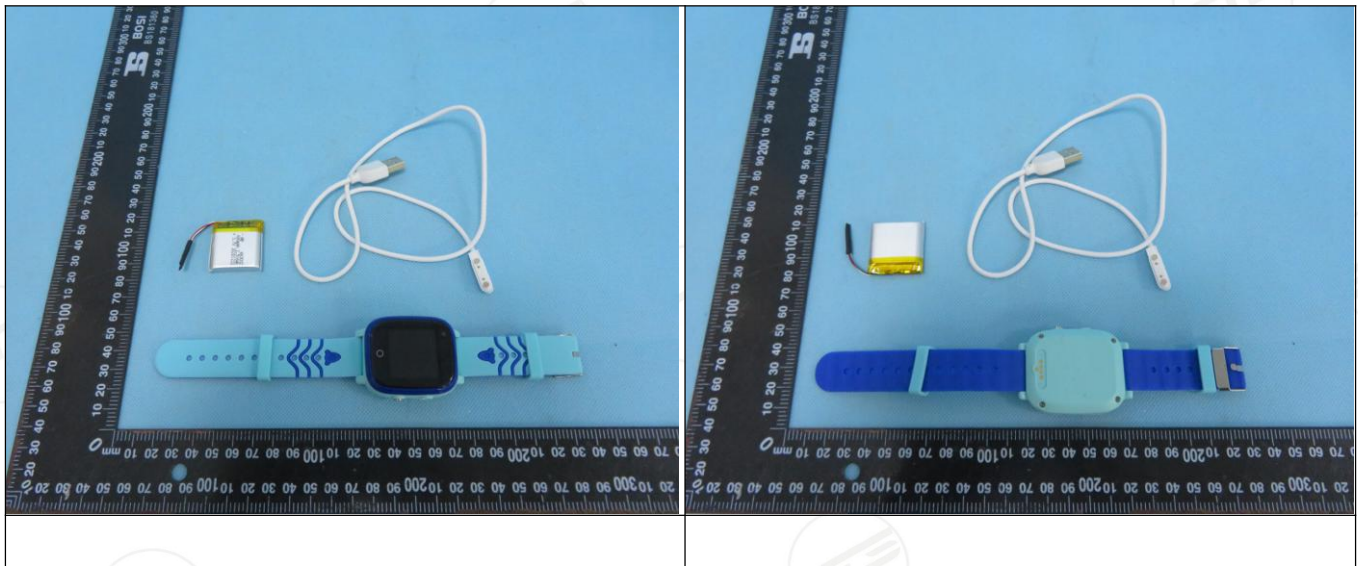
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Compound			Material			Limit (%)	RL(%)
			81	78+85	82+83		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	-	-

Remark(s): (a) RL: Report limit
(b) N.D.: Not detected (result is less than RL)

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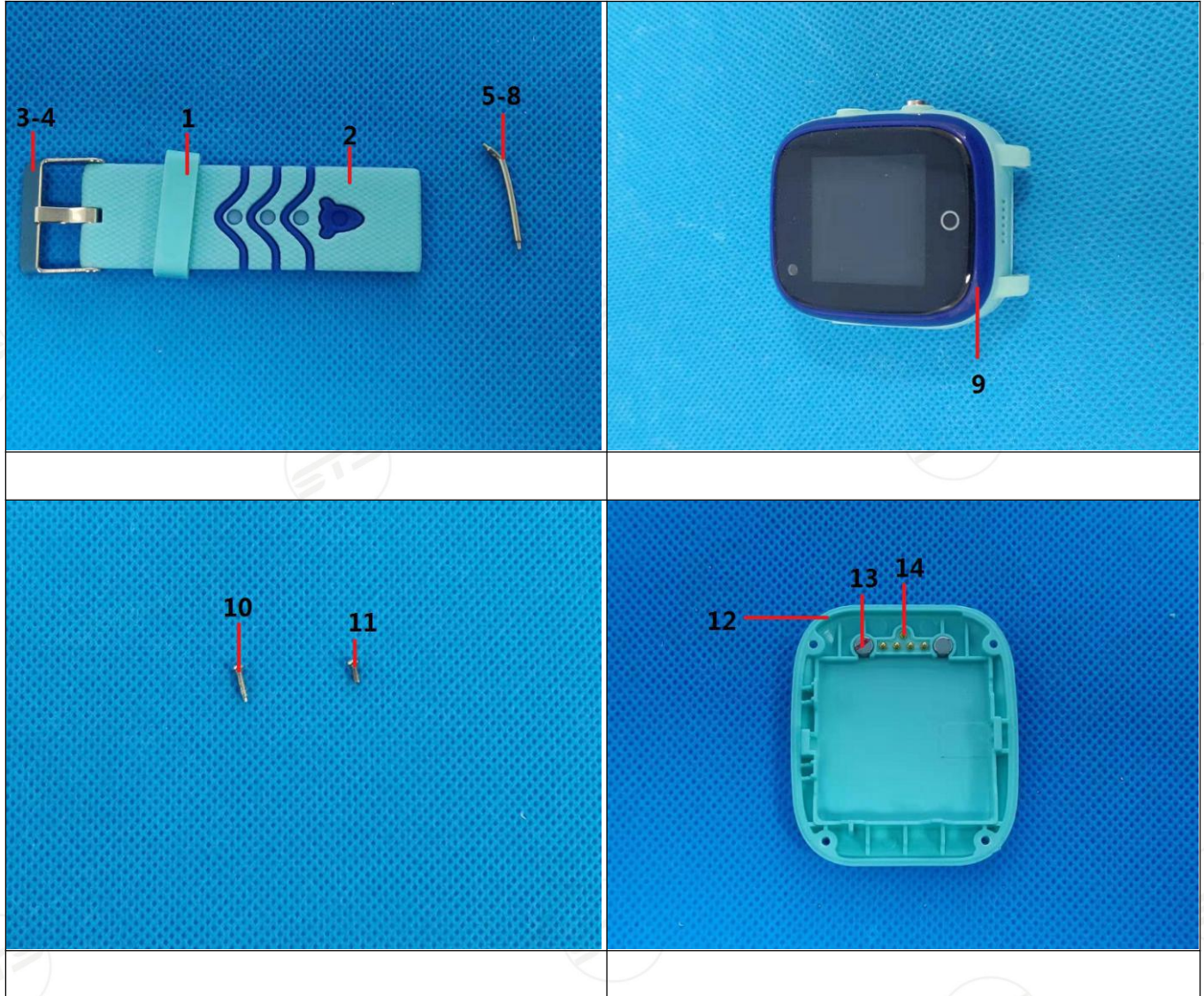
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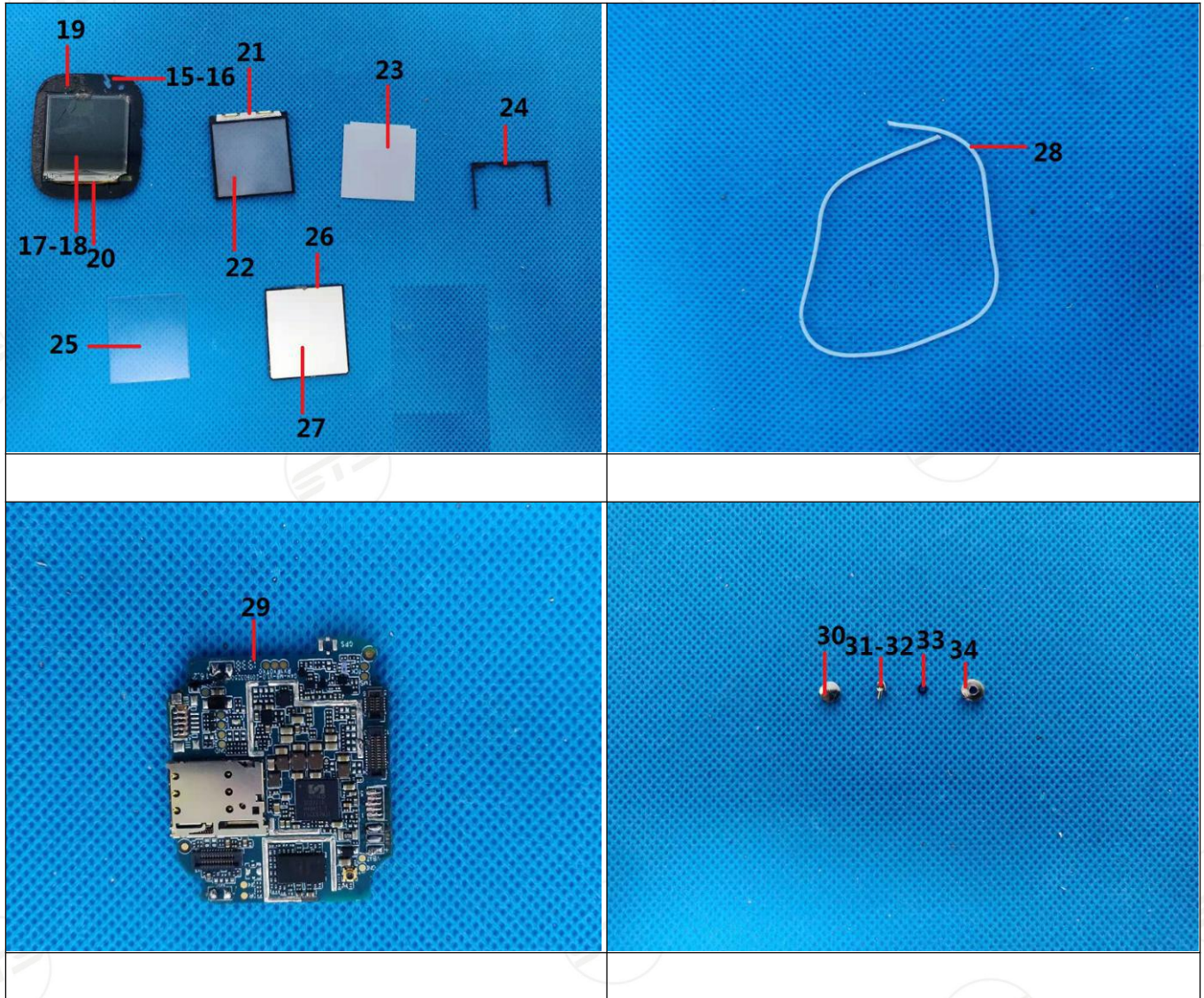


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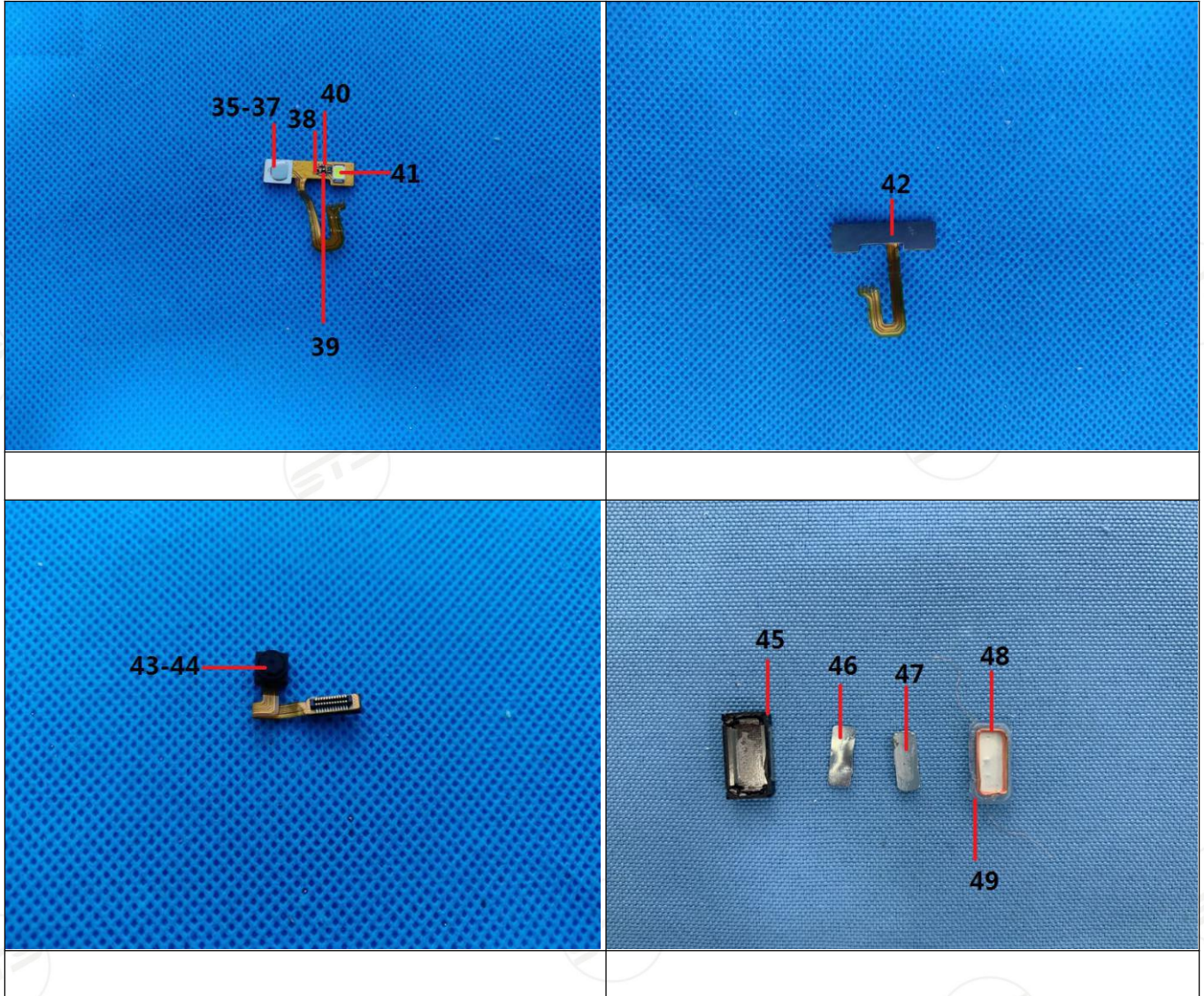


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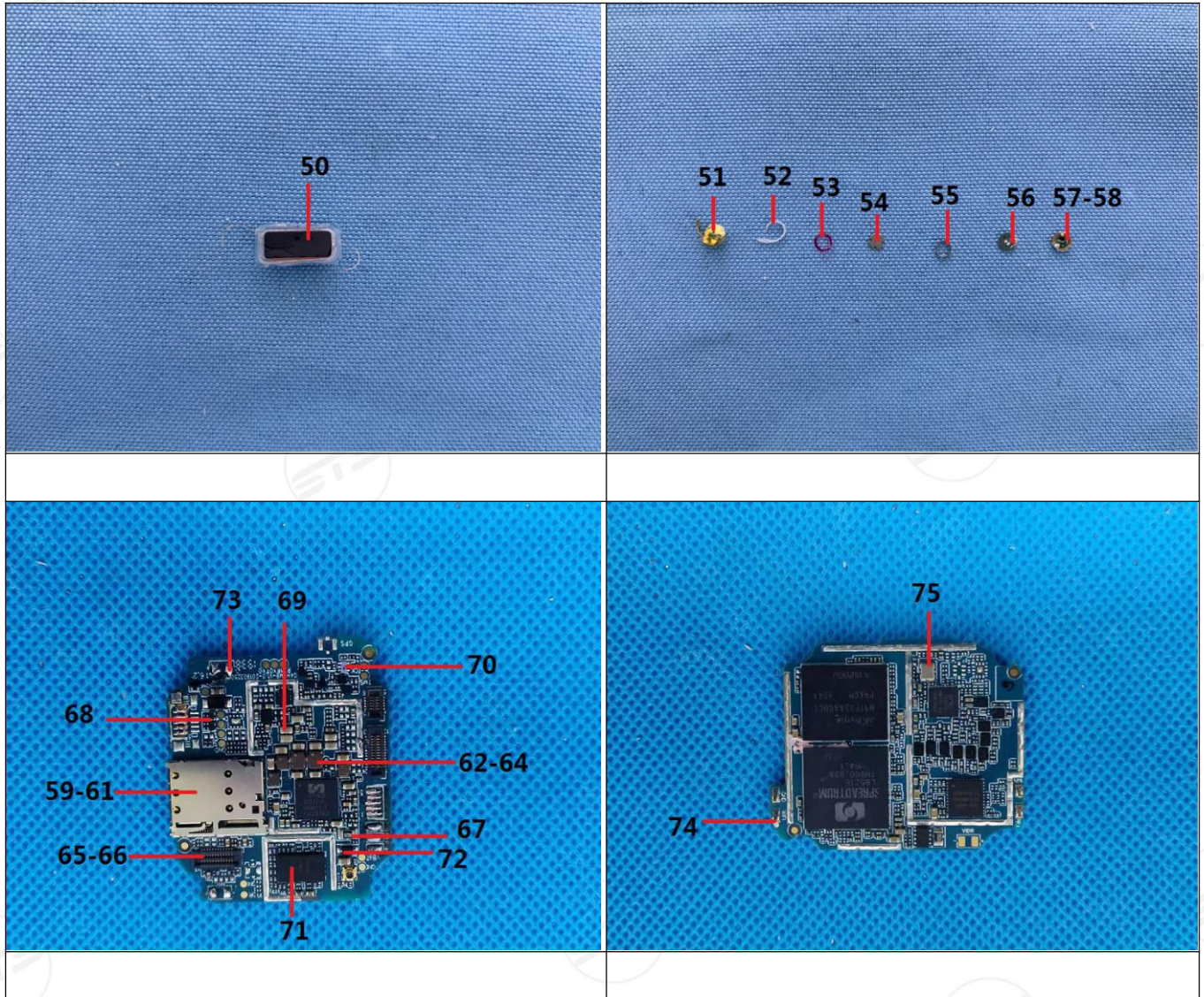


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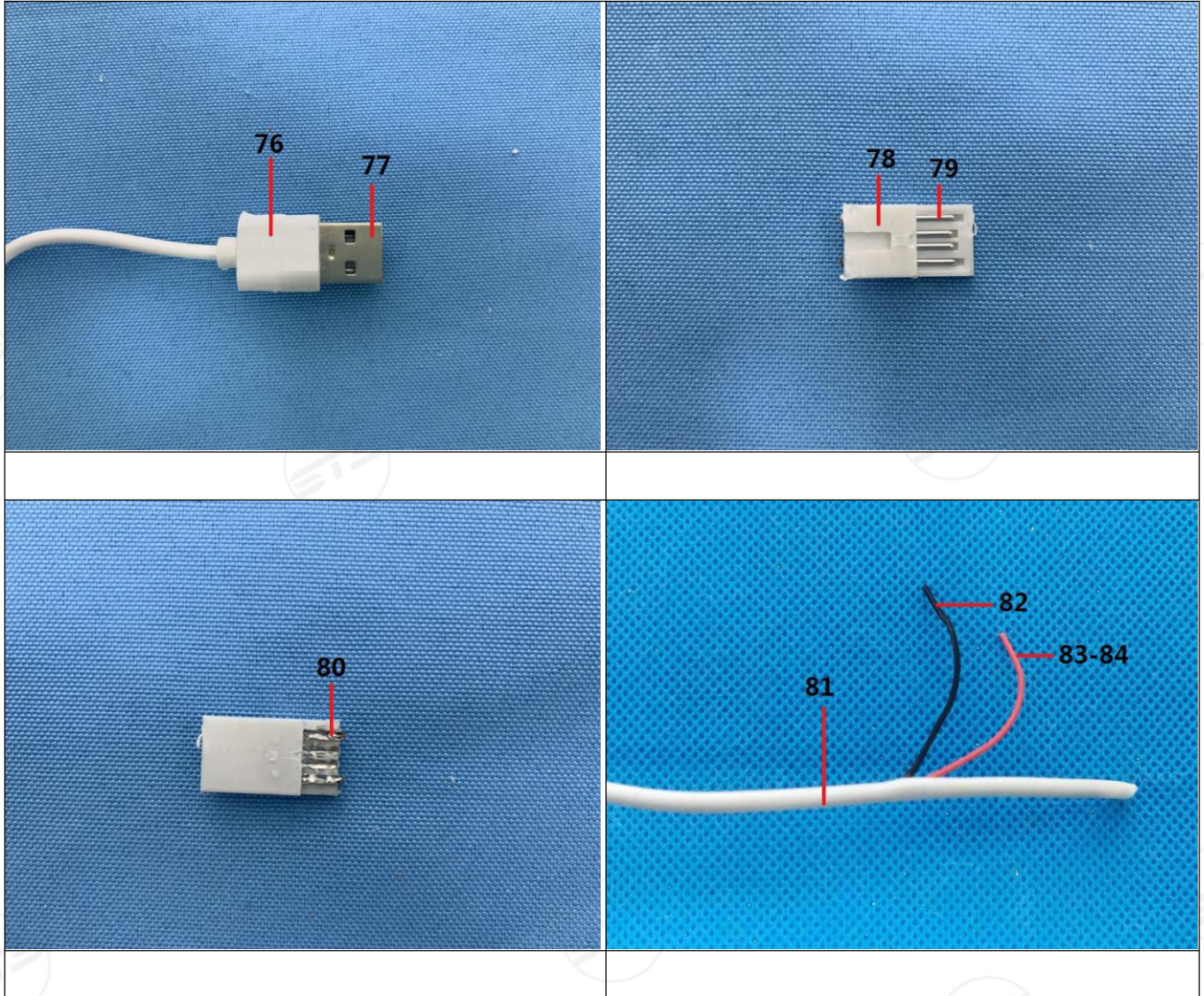


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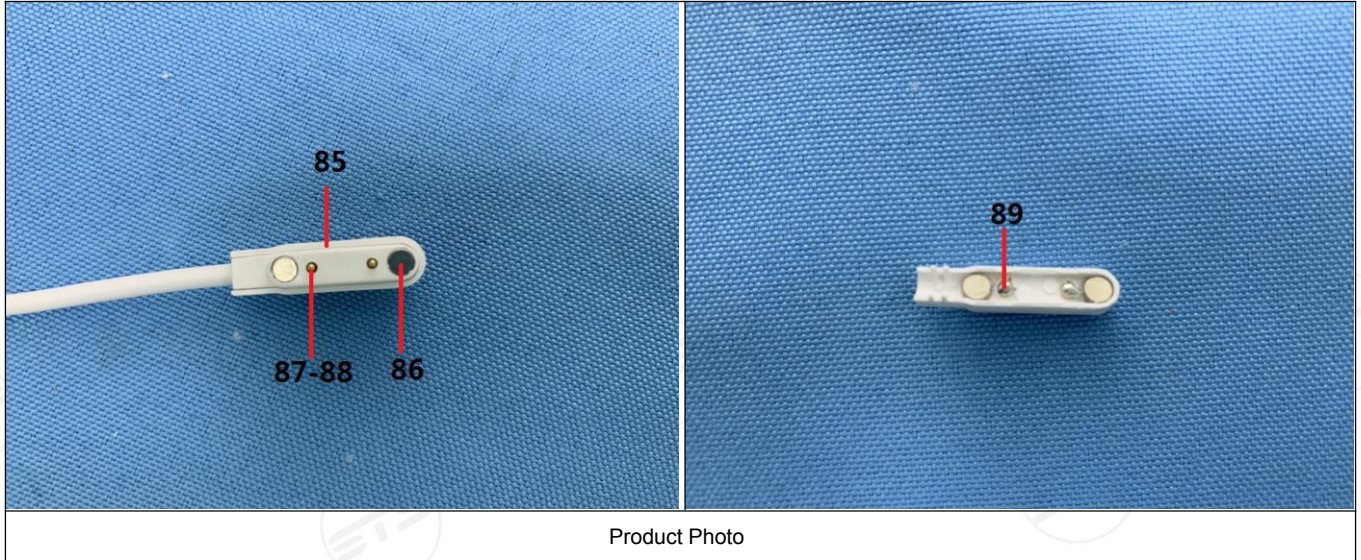


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e-mail: stsgz@stsapp.com

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8. 若需要在法院审理程序或者仲裁过程中使用测试报告,客户必须在提交测试样品前将该意图告知本公司。
Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
9. 该测试报告的支持数据和信息本公司保存 10 年。个别评审机构有特别要求的,检测数据和报告的保存期可依情况变动。一旦超过上述提交的保存期限,数据和信息将被处理掉。任何情况下,本公司不必提供任何被处理的过期数据或信息。即使本公司事先被告知可能会发生相关的损害,本公司在任何情况下也不必承担任何损害,包括(但不限于)补偿性赔偿、利润损失、数据遗失、或任何形式的特殊损害、附带损害、间接损害、从属损害或任何违反约定、违反承诺、侵权(包括疏忽)、产品责任或其他原因的惩罚性损害。
Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of ten years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.
10. 报告的签发记录可通过登录 www.stsgz.com 查询。如需进一步查询报告有效性或核实报告,需与本公司联系。
Issuance records of the Report are available on the internet at www.stsgz.com. Further enquiry of validity or verification of the Report should be addressed to the company.