



RF TEST REPORT

Report No.: SET2021-17339

Product Name: RCP-P1

Model No. : HSA-20NP-PB, HSA-20NP-PA

FCC ID: 2AHPN-HSA-20NP-PB

IC: 6434C-HSA20NPPB

Applicant: Harman International Industries Incorporated

Address: 30001, Cabot Drive, Novi, MI 48377, USA

Dates of Testing: 11/11/2021 - 12/21/2021

Issued by: CCIC Southern Testing Co., Ltd.

Lab Location: Electronic Testing Building, No. 43 Shahe Road, Xili Street,
Nanshan District, Shenzhen, Guangdong, China.

Tel: 86 755 26627338 **Fax:** 86 755 26627238

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Test Report

Product: RCP-P1

Brand Name.....: Ride Command Plus

Applicant: Harman International Industries Incorporated

Applicant Address: 30001, Cabot Drive, Novi, MI 48377, USA

Manufacturer: Harman International Industries Incorporated

Manufacturer Address: 30001, Cabot Drive, Novi, MI 48377, USA

Test Standards: FCC:47 CFR Part 2/22/24/27
IC: RSS-Gen-Issue 5
RSS-130, issue 2
RSS-132, Issue 3
RSS-133, Issue 6
RSS-139, issue 3
RSS-199, issue 3

Test Result.....: PASS

Tested by

 2021.12.22

Sun, Test Engineer

Reviewed by.....:

 2021.12.22

Chris You, Senior Engineer

Approved by.....:

 2021.12.22

Shuangwen Zhang, Manager



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Change History		
Issue	Date	Reason for change
1.0	2021.12.22	First edition



1. GENERAL INFORMATION

1.1 EUT Description

EUT Name	RCP-P1
Hardware Version	V1.0
Software Version	N75NA_POPLS_R6.2.4
EUT supports Radios application	LTE Band 2/4/5/7/12/13/66
Frequency Range(Tx)	LTE Band 2: 1850.7MHz~1909.3MHz LTE Band 4: 1710.7MHz~1754.3MHz LTE Band 5: 824.7MHz~848.3MHz LTE Band 7: 2502.5MHz~2567.5MHz LTE Band 12: 699.7MHz~715.3MHz LTE Band 13: 779.5MHz~784.5MHz LTE Band 66: 1710.7MHz~1779.3MHz
Maximum Output Power to Antenna	LTE Band 2: 23.46dBm LTE Band 4: 23.13dBm LTE Band 5: 24.43dBm LTE Band 7: 24.43dBm LTE Band 12: 24.20dBm LTE Band 13: 24.53dBm LTE Band 66: 23.99dBm
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 LTE Band 13: 5MHz/10MHz LTE Band 66: 1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz
Modulation Type	QPSK/16QAM/64QAM(downlink only)
Antenna Gain	LTE Band 2/4/5/7/12/13/66: 1.0 dBi
Antenna Type	Internal Antenna
Power supply	DC 9V-16V



1.2 Maximum ERP/EIRP, Frequency Tolerance, and Emission Designator

FCC/IC					
Band	Type of Modulation	BW (MHz)	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP/EIRP(W)
LTE Band 2	QPSK	1.4	1M09G7D	—	0.195
LTE Band 2	16QAM	1.4	1M09W7D	—	0.159
LTE Band 2	QPSK	3	2M68G7D	—	0.194
LTE Band 2	16QAM	3	2M68W7D	—	0.168
LTE Band 2	QPSK	5	4M49G7D	—	0.195
LTE Band 2	16QAM	5	4M49W7D	—	0.176
LTE Band 2	QPSK	10	8M91G7D	0.004	0.208
LTE Band 2	16QAM	10	8M91W7D	—	0.157
LTE Band 2	QPSK	15	13M4G7D	—	0.206
LTE Band 2	16QAM	15	13M4W7D	—	0.184
LTE Band 2	QPSK	20	17M9G7D	—	0.212
LTE Band 2	16QAM	20	17M9W7D	—	0.155
LTE Band 4	QPSK	1.4	1M09G7D	—	0.185
LTE Band 4	16QAM	1.4	1M08W7D	—	0.166
LTE Band 4	QPSK	3	2M68G7D	—	0.186
LTE Band 4	16QAM	3	2M68W7D	—	0.160
LTE Band 4	QPSK	5	4M49G7D	—	0.185
LTE Band 4	16QAM	5	4M49W7D	—	0.153
LTE Band 4	QPSK	10	8M92G7D	0.006	0.185
LTE Band 4	16QAM	10	8M91W7D	—	0.151
LTE Band 4	QPSK	15	13M4G7D	—	0.186
LTE Band 4	16QAM	15	13M4W7D	—	0.151
LTE Band 4	QPSK	20	17M8G7D	—	0.187
LTE Band 4	16QAM	20	17M8W7D	—	0.153



LTE Band 7	QPSK	5	4M49G7D	—	0.196
LTE Band 7	16QAM	5	4M49W7D	—	0.157
LTE Band 7	QPSK	10	8M90G7D	0.005	0.206
LTE Band 7	16QAM	10	8M90W7D	—	0.155
LTE Band 7	QPSK	15	13M4G7D	—	0.206
LTE Band 7	16QAM	15	13M4W7D	—	0.173
LTE Band 7	QPSK	20	17M9G7D	—	0.208
LTE Band 7	16QAM	20	17M8W7D	—	0.149
LTE Band 12	QPSK	1.4	1M09G7D	—	0.120
LTE Band 12	16QAM	1.4	1M09W7D	—	0.085
LTE Band 12	QPSK	3	2M68G7D	—	0.121
LTE Band 12	16QAM	3	2M68W7D	—	0.092
LTE Band 12	QPSK	5	4M49G7D	—	0.121
LTE Band 12	16QAM	5	4M48W7D	—	0.086
LTE Band 12	QPSK	10	8M90G7D	-0.027	0.123
LTE Band 12	16QAM	10	8M90W7D	—	0.093
LTE Band 13	QPSK	5	4M48G7D	—	0.120
LTE Band 13	16QAM	5	4M49W7D	—	0.102
LTE Band 13	QPSK	10	8M91G7D	-0.005	0.121
LTE Band 13	16QAM	10	8M90W7D	—	0.099
LTE Band 66	QPSK	1.4	1M09G7D	—	0.174
LTE Band 66	16QAM	1.4	1M09W7D	—	0.139
LTE Band 66	QPSK	3	2M69G7D	—	0.167
LTE Band 66	16QAM	3	2M68W7D	—	0.140
LTE Band 66	QPSK	5	4M49G7D	—	0.167
LTE Band 66	16QAM	5	4M49W7D	—	0.133
LTE Band 66	QPSK	10	8M91G7D	-0.006	0.171
LTE Band 66	16QAM	10	8M90W7D	—	0.137
LTE Band 66	QPSK	15	13M4G7D	—	0.175



LTE Band 66	16QAM	15	13M4W7D	—	0.141
LTE Band 66	QPSK	20	17M8G7D	—	0.188
LTE Band 66	16QAM	20	17M8W7D	—	0.129

FCC					
Band	Type of Modulation	BW (MHz)	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP(W)
LTE Band 5	QPSK	1.4	1M09G7D	—	0.121
LTE Band 5	16QAM	1.4	1M09W7D	—	0.099
LTE Band 5	QPSK	3	2M68G7D	—	0.122
LTE Band 5	16QAM	3	2M68W7D	—	0.100
LTE Band 5	QPSK	5	4M49G7D	—	0.121
LTE Band 5	16QAM	5	4M48W7D	—	0.088
LTE Band 5	QPSK	10	8M90G7D	-0.004	0.122
LTE Band 5	16QAM	10	8M90W7D	—	0.090

IC					
Band	Type of Modulation	BW (MHz)	Emission Designator	Frequency Tolerance (ppm)	Maximum EIRP(W)
LTE Band 5	QPSK	1.4	1M09G7D	—	0.198
LTE Band 5	16QAM	1.4	1M09W7D	—	0.163
LTE Band 5	QPSK	3	2M68G7D	—	0.200
LTE Band 5	16QAM	3	2M68W7D	—	0.164
LTE Band 5	QPSK	5	4M49G7D	—	0.198
LTE Band 5	16QAM	5	4M48W7D	—	0.144
LTE Band 5	QPSK	10	8M90G7D	-0.004	0.201
LTE Band 5	16QAM	10	8M90W7D	—	0.148



1.3 Test Standards and Results

The objective of the report is to perform testing according to FCC/IC Certification:

1. 47 CFR Part 2, 22(H), 24(E), 27(L).
2. ANSI C63.26:2015.
3. FCC KDB 971168 D01 Power Meas License Digital Systems v03r01.
4. RSS-GEN Issue 5.
5. RSS-130 Issue 2, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3, RSS-199 Issue 3.

Test detailed items/section required by FCC/IC rules and results are as below:

No.	FCC Rule	IC Rule	Description	Limit	Result
1	2.1046	N/A	Conducted RF Output Power	Reporting Only	PASS*
2	24.232 (d) 27.50 (d)(5) 22.913 (d)	RSS-130, 4.4 RSS-132, 5.4 RSS-133, 6.4 RSS-139, 6.5	Peak to Average Ratio	<13dB	PASS*
3	22.913 (a)(5)	RSS-132, 5.4	Effective Radiated Power (FCC) Equivalent Isotropic Radiated Power (IC)	FCC: ERP < 7Watt IC: EIRP < 11.5Watt	PASS
	24.232(c)	RSS-133,6.4	Equivalent Isotropic Radiated Power (Band 2)	EIRP < 2Watt	PASS
	27.50 (b)(10) 27.50 (c)(10)	RSS-130,4.6	Effective Radiated Power (Band 12/13)	ERP < 3Watt	PASS
	27.50 (d)(4)	RSS-139,6.5	Equivalent Isotropic Radiated Power (Band 4/66)	EIRP < 1Watt	PASS
	27.50 (h)(2)	RSS-199,4.4	Equivalent Isotropic Radiated Power (Band 7)	EIRP < 2Watt	PASS
4	2.1049	RSS-GEN,6.7	Occupied Bandwidth	Reporting Only	PASS*



5	2.1051 22.917 (a) 24.238 (a) 27.53 (c) 27.53 (g) 27.53 (h)	RSS-GEN, 6.13 RSS-130,4.7 RSS-132,5.5 RSS-133,6.5 RSS-139,6.6	Conducted Spurious Emission and Conducted Band Edge Measurement (Band 2/4/5/12/13/66)	< 43+10log ₁₀ (P [watt]) for Band13 refer to 27.53 (c) and RSS-130, 4.7	PASS*
	2.1051 27.53 (m)(4)	RSS-GEN, 6.13 RSS-199,4.5	Conducted Spurious Emission and Conducted Band Edge Measurement (Band 7)	Refer to 27.53(m)(4) (Band7)	PASS*
6	2.1053 22.917 (a) 24.238 (a) 27.53 (c) 27.53 (g) 27.53 (h)	RSS-GEN, 6.13 RSS-130,4.7 RSS-132,5.5 RSS-133,6.5 RSS-139,6.6	Radiated Spurious Emission (Band 2/4/5/12/13/66)	< 43+10log ₁₀ (P [watt])	PASS
	2.1051 27.53 (m)(4)	RSS-GEN, 6.13 RSS-199,4.5	Radiated Spurious Emission (Band 7)	< 55+10log ₁₀ (P [watt])	PASS
7	2.1055 22.335 24.235 27.54	RSS-GEN,6.11 RSS-130,4.5 RSS-132,5.3 RSS-133,6.3 RSS-139,6.4	Frequency Stability	<2.5ppm Within the Authorized Band	PASS
8	/	RSS-GEN,6.8	Transmit antenna	Refer to RSS-GEN,6.8	PASS

Remark:

1. PASS*: Test data reference report: CG142024BTX, Canada IC: 21545-N75NA.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. This EUT has also been tested and complied with the requirements of FCC Part 15 Subpart B and ICES-003 Issue 7 October 2020, recorded in a separate test report.



1.4 Test Configuration of Equipment Under Test

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test 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 and ERP/EIRP	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	5	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
	7			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	12	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
	13			✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
	66	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Peak-to-Average Ratio	2						✓		✓	✓		✓	✓	✓	✓
	4						✓		✓	✓		✓	✓	✓	✓
	5			✓						✓		✓	✓	✓	✓
	7						✓		✓	✓		✓	✓	✓	✓
	12			✓						✓		✓	✓	✓	✓
	13			✓						✓		✓	✓	✓	✓
	66						✓		✓	✓		✓	✓	✓	✓
26dB and 99% Bandwidth	2	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	5	✓	✓	✓	✓			✓	✓			✓	✓	✓	✓
	7			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	12	✓	✓	✓	✓			✓	✓			✓	✓	✓	✓
	13			✓	✓			✓	✓			✓	✓	✓	✓
	66	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Conducted Band Edge	2	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	5	✓	✓	✓	✓			✓	✓	✓		✓	✓		✓
	7			✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	12	✓	✓	✓	✓			✓	✓	✓		✓	✓		✓
	13			✓	✓			✓	✓	✓		✓	✓		✓
	66	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
Conducted Spurious Emission	2	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓



	5	✓	✓	✓	✓			✓		✓			✓	✓	✓
	7			✓	✓	✓	✓	✓		✓			✓	✓	✓
	12	✓	✓	✓	✓			✓		✓			✓	✓	✓
	13			✓	✓			✓		✓			✓	✓	✓
	66	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓
Frequency Stability	2				✓			✓				✓		✓	
	4				✓			✓				✓		✓	
	5				✓			✓				✓		✓	
	7				✓			✓				✓		✓	
	12				✓			✓				✓		✓	
	13				✓			✓				✓		✓	
	66				✓			✓				✓		✓	
Radiated Spurious Emission	2	Worst case												✓	
	4	Worst case												✓	
	5	Worst case												✓	
	7	Worst case												✓	
	12	Worst case												✓	
	13	Worst case												✓	
	66	Worst case												✓	
Note:1. The mark “ ✓ ” means that this configuration is chosen for testing.															



1.5 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 + Power Splitter + attenuator factor..

Following shows an offset computation example with cable loss 1dB, 3dB Power Splitter, 10dB attenuator.

Example: Offset (dB) = RF cable loss(dB) + Power Splitter(dB) + attenuator factor(dB).
= 1 + 3 + 10 = 14 (dB)

1.6 Facilities and Accreditations

1.6.1 Test Facilities

CNAS-Lab Code: L1659

CCIC-SET is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

FCC-Registration No.: CN1283

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until June 30th, 2021.

ISED Registration: 11185A-1

CAB identifier: CN0064

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until June 30th, 2021

A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

1.6.2 Test Environment Conditions

Temperature (°C):	15°C - 35°C
Relative Humidity (%):	30% -60%
Atmospheric Pressure (kPa):	86KPa-106KPa

During the measurement, the environmental conditions were within the listed ranges:

2. TEST REQUIREMENTS

2.1 Conducted RF Output Power and ERP/EIRP

2.1.1 Requirement

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5(Part 22).

The EIRP of mobile transmitters must not exceed 11.5 Watts for LTE Band 5(RSS-132).

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 2 and Band 7.

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4 and Band 66.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 12 and Band 13.

According to KDB 412172 D01 Determining ERP and EIRP v01r01.

$EIRP = PT + GT - LC$, $ERP = EIRP - 2.15$, where

PT = transmitter output power in dBm

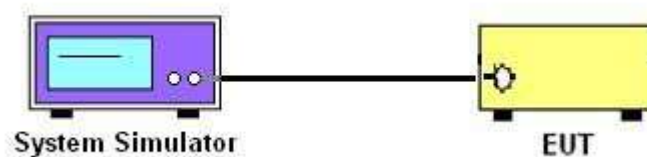
GT = gain of the transmitting antenna in dBi

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

2.1.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.1.3 Test Setup





2.1.4 Test Procedures

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



2.1.5 Test Results

Note: Conducted Output Power reference report: CG142024BTX, Canada IC: 21545-N75NA.

LTE Band 2 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18607	18900	19193			
			1850.7MHz	1880.0MHz	1909.3MHz			
QPSK	1	0	21.62	21.81	21.78	1.00	22.90	33.00
	1	2	21.71	21.87	21.82			
	1	5	21.72	21.67	21.79			
	3	0	21.75	21.83	21.76			
	3	1	21.83	21.85	21.74			
	3	2	21.84	21.79	21.90			
	6	0	20.76	20.71	20.78			
16QAM	1	0	20.62	20.39	20.89	1.00	22.02	33.00
	1	2	20.65	21.02	20.76			
	1	5	20.42	20.53	20.67			
	3	0	20.73	20.76	20.68			
	3	1	20.71	20.91	20.91			
	3	2	20.89	20.77	20.76			
	6	0	19.73	19.82	19.92			
LTE Band 2 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18615	18900	19185			
			1851.5MHz	1880.0MHz	1908.5MHz			
QPSK	1	0	21.53	21.53	21.82	1.00	22.87	33.00
	1	7	21.67	21.70	21.87			
	1	14	21.87	21.77	21.73			
	8	0	20.78	20.77	20.86			
	8	4	20.79	20.88	20.85			
	8	7	20.80	20.82	20.91			
	15	0	20.75	20.89	20.80			
16QAM	1	0	20.59	20.85	21.04	1.00	22.26	33.00
	1	7	20.71	21.26	21.14			
	1	14	20.60	21.15	20.50			
	8	0	19.71	20.01	19.88			
	8	4	19.88	19.83	20.06			
	8	7	19.84	20.03	19.88			
	15	0	19.83	19.76	19.74			



LTE Band 2 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18625	18900	19175			
			1852.5MHz	1880.0MHz	1907.5MHz			
QPSK	1	0	21.66	21.49	21.66	1.00	22.89	33.00
	1	12	21.86	21.86	21.87			
	1	24	21.87	21.89	21.65			
	12	0	20.83	20.87	20.89			
	12	6	20.89	20.85	20.93			
	12	11	20.82	20.83	20.82			
	25	0	20.81	20.82	20.85			
16QAM	1	0	20.82	20.88	20.62	1.00	22.45	33.00
	1	12	21.03	21.45	20.79			
	1	24	20.42	21.03	20.62			
	12	0	19.73	19.76	19.88			
	12	6	19.68	19.76	19.77			
	12	11	19.82	19.87	19.92			
	25	0	19.87	19.78	19.87			
LTE Band 2 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18650	18900	19150			
			1855.0MHz	1880.0MHz	1905.0MHz			
QPSK	1	0	21.41	21.48	21.56	1.00	23.19	33.00
	1	24	21.91	21.85	22.19			
	1	49	21.56	21.47	21.48			
	25	0	20.59	20.66	20.79			
	25	12	20.58	20.69	20.73			
	25	24	20.57	20.79	20.68			
	50	0	20.59	20.65	20.73			
16QAM	1	0	20.38	20.82	20.96	1.00	21.96	33.00
	1	24	20.54	20.61	20.73			
	1	49	20.89	20.94	20.61			
	25	0	19.80	19.76	19.97			
	25	12	19.60	19.75	19.78			
	25	24	19.48	19.78	19.91			
	50	0	19.61	19.79	19.88			



LTE Band 2 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18675	18900	19125			
			1857.5MHz	1880.0MHz	1902.5MHz			
QPSK	1	0	21.79	21.66	21.64	1.00	23.14	33.00
	1	37	22.10	22.13	22.14			
	1	74	21.82	21.95	21.77			
	36	0	20.79	20.87	21.06			
	36	16	20.85	20.95	20.97			
	36	35	20.79	20.97	21.00			
	75	0	20.78	20.91	20.96			
16QAM	1	0	20.71	20.66	20.95	1.00	22.65	33.00
	1	37	21.65	21.43	20.82			
	1	74	20.49	20.69	20.66			
	36	0	19.86	19.87	20.10			
	36	16	19.96	19.86	19.98			
	36	35	19.82	19.99	19.87			
	75	0	19.79	19.93	19.88			
LTE Band 2 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			18700	18900	19100			
			1860.0MHz	1880.0MHz	1900.0MHz			
QPSK	1	0	21.60	21.58	21.78	1.00	23.27	33.00
	1	49	21.89	22.27	21.98			
	1	99	21.37	21.88	21.60			
	50	0	20.78	20.89	20.93			
	50	24	20.69	20.88	20.98			
	50	49	20.79	20.90	20.84			
	100	0	20.83	20.87	20.98			
16QAM	1	0	20.68	20.83	20.83	1.00	21.90	33.00
	1	49	20.81	20.84	20.90			
	1	99	20.55	20.72	20.69			
	50	0	19.83	20.01	20.03			
	50	24	19.93	19.80	20.10			
	50	49	19.82	20.01	19.97			
	100	0	19.82	19.88	20.01			



LTE Band 4 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19957	20175	20393			
			1710.7MHz	1732.5MHz	1754.3MHz			
QPSK	1	0	21.56	21.45	21.62	1.00	22.67	30.00
	1	2	21.65	21.66	21.67			
	1	5	21.42	21.67	21.67			
	3	0	21.02	21.12	21.15			
	3	1	21.08	21.04	21.26			
	3	2	21.04	21.04	21.23			
	6	0	21.05	21.00	21.12			
16QAM	1	0	21.08	20.70	21.20	1.00	22.21	30.00
	1	2	21.21	21.10	21.13			
	1	5	21.02	20.66	20.78			
	3	0	20.12	20.11	20.07			
	3	1	20.21	20.31	20.16			
	3	2	20.11	20.29	20.18			
	6	0	20.14	20.05	20.24			
LTE Band 4 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19965	20175	20385			
			1711.5MHz	1732.5MHz	1753.5MHz			
QPSK	1	0	21.66	21.56	21.65	1.00	22.69	30.00
	1	7	21.65	21.68	21.69			
	1	14	21.63	21.51	21.60			
	8	0	20.71	20.68	20.71			
	8	4	20.72	20.71	20.74			
	8	7	20.64	20.70	20.61			
	15	0	20.66	20.69	20.71			
16QAM	1	0	20.86	21.05	20.79	1.00	22.05	30.00
	1	7	20.87	20.78	20.51			
	1	14	20.68	20.67	20.50			
	8	0	19.78	19.67	19.67			
	8	4	19.54	19.71	19.71			
	8	7	19.74	19.72	19.85			
	15	0	19.42	19.52	19.62			



LTE Band 4 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			19975	20175	20375			
			1712.5MHz	1732.5MHz	1752.5MHz			
QPSK	1	0	21.52	21.41	21.68	1.00	22.68	30.00
	1	12	21.61	21.62	21.63			
	1	24	21.38	21.63	21.63			
	12	0	20.67	20.64	20.80			
	12	6	20.73	20.69	20.91			
	12	11	20.69	20.69	20.88			
	25	0	20.70	20.65	20.77			
16QAM	1	0	20.73	20.35	20.85	1.00	21.86	30.00
	1	12	20.86	20.75	20.78			
	1	24	20.67	20.31	20.43			
	12	0	19.60	19.76	19.72			
	12	6	19.63	19.96	19.81			
	12	11	19.63	19.94	19.83			
	25	0	19.79	19.70	19.89			
LTE Band 4 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20000	20175	20350			
			1715.0MHz	1732.5MHz	1750.0MHz			
QPSK	1	0	21.58	21.38	21.62	1.00	22.68	30.00
	1	24	21.63	21.68	21.63			
	1	49	21.34	21.55	21.58			
	25	0	20.80	20.72	20.85			
	25	12	20.69	20.67	20.92			
	25	24	20.65	20.64	20.78			
	50	0	20.78	20.73	20.87			
16QAM	1	0	20.48	20.53	20.77	1.00	21.78	30.00
	1	24	20.34	20.74	20.71			
	1	49	20.78	20.31	20.53			
	25	0	19.80	19.69	20.06			
	25	12	19.71	19.66	20.17			
	25	24	19.62	19.98	19.92			
	50	0	19.66	19.79	19.91			



LTE Band 4 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20025	20175	20325			
			1717.5MHz	1732.5MHz	1747.5MHz			
QPSK	1	0	21.69	21.49	21.67	1.00	22.69	30.00
	1	37	21.67	21.61	21.69			
	1	74	21.60	21.45	21.69			
	36	0	20.71	20.79	20.83			
	36	16	20.79	20.72	20.86			
	36	35	20.68	20.58	20.81			
	75	0	20.72	20.69	20.84			
16QAM	1	0	20.54	20.33	20.51	1.00	21.79	30.00
	1	37	20.79	20.26	20.65			
	1	74	20.39	20.47	20.22			
	36	0	19.83	19.63	19.88			
	36	16	19.78	19.71	19.93			
	36	35	19.69	19.59	19.90			
	75	0	19.74	19.73	19.82			
LTE Band 4 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20050	20175	20300			
			1720.0MHz	1732.5MHz	1745.0MHz			
QPSK	1	0	21.64	21.66	21.64	1.00	22.73	30.00
	1	49	21.62	21.73	21.62			
	1	99	21.63	21.65	21.47			
	50	0	21.03	20.91	21.07			
	50	24	20.95	20.90	21.00			
	50	49	20.91	20.74	21.02			
	100	0	20.98	20.93	21.05			
16QAM	1	0	20.78	20.80	20.84	1.00	21.84	30.00
	1	49	20.76	20.70	20.83			
	1	99	20.60	20.56	20.69			
	50	0	20.05	20.04	20.09			
	50	24	20.07	20.01	19.96			
	50	49	20.03	20.01	20.09			
	100	0	20.00	19.95	19.90			



FCC: LTE Band 5 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20407	20525	20643			
			824.7MHz	836.5MHz	848.3MHz			
QPSK	1	0	21.55	21.97	21.75	1.00	20.82	38.45
	1	2	21.57	21.85	21.82			
	1	5	21.51	21.60	21.40			
	3	0	20.78	20.89	20.70			
	3	1	20.73	20.86	20.74			
	3	2	20.75	20.66	20.58			
	6	0	20.68	20.68	20.63			
16QAM	1	0	20.58	20.76	20.31	1.00	19.96	38.45
	1	2	21.11	20.49	20.99			
	1	5	20.87	20.41	20.55			
	3	0	19.50	19.77	19.81			
	3	1	19.60	19.50	19.77			
	3	2	19.53	19.68	19.70			
	6	0	19.53	19.65	19.69			
FCC: LTE Band 5 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20415	20525	20635			
			825.5MHz	836.5MHz	847.5MHz			
QPSK	1	0	21.60	22.02	21.80	1.00	20.87	38.45
	1	7	21.62	21.90	21.87			
	1	14	21.56	21.65	21.45			
	8	0	20.83	20.94	20.75			
	8	4	20.78	20.91	20.79			
	8	7	20.80	20.71	20.63			
	15	0	20.73	20.73	20.68			
16QAM	1	0	20.63	20.81	20.36	1.00	20.01	38.45
	1	7	21.16	20.54	21.04			
	1	14	20.92	20.46	20.60			
	8	0	19.55	19.82	19.86			
	8	4	19.65	19.54	19.82			
	8	7	19.58	19.73	19.75			
	15	0	19.58	19.70	19.74			



FCC: LTE Band 5 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20425	20525	20625			
			826.5MHz	836.5MHz	846.5MHz			
QPSK	1	0	21.44	21.69	21.54	1.00	20.82	38.45
	1	12	21.75	21.84	21.97			
	1	24	21.43	21.23	21.42			
	12	0	20.73	20.70	20.74			
	12	6	20.78	20.70	20.77			
	12	11	20.79	20.65	20.76			
	25	0	20.74	20.73	20.72			
16QAM	1	0	20.53	20.52	20.44	1.00	19.43	38.45
	1	12	20.58	20.58	20.51			
	1	24	20.51	20.55	20.19			
	12	0	19.43	19.62	19.55			
	12	6	19.77	19.56	19.77			
	12	11	19.75	19.85	19.73			
	25	0	19.58	19.78	19.72			
FCC: LTE Band 5 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			20450	20525	20600			
			829.0MHz	836.5MHz	844.0MHz			
QPSK	1	0	21.44	21.21	21.43	1.00	20.88	38.45
	1	24	21.81	22.03	21.91			
	1	49	21.89	21.42	21.45			
	25	0	20.69	20.73	20.66			
	25	12	20.69	20.68	20.69			
	25	24	20.74	20.68	20.72			
	50	0	20.73	20.68	20.70			
16QAM	1	0	20.44	20.44	20.63	1.00	19.55	38.45
	1	24	20.68	20.70	20.68			
	1	49	20.58	20.32	20.64			
	25	0	19.55	19.88	20.00			
	25	12	19.85	19.79	19.77			
	25	24	19.79	19.62	19.76			
	50	0	19.61	19.72	19.59			



IC: LTE Band 5 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20407	20525	20643			
			824.7MHz	836.5MHz	848.3MHz			
QPSK	1	0	21.55	21.97	21.75	1.00	22.97	40.61
	1	2	21.57	21.85	21.82			
	1	5	21.51	21.60	21.40			
	3	0	20.78	20.89	20.70			
	3	1	20.73	20.86	20.74			
	3	2	20.75	20.66	20.58			
	6	0	20.68	20.68	20.63			
16QAM	1	0	20.58	20.76	20.31	1.00	22.11	40.61
	1	2	21.11	20.49	20.99			
	1	5	20.87	20.41	20.55			
	3	0	19.50	19.77	19.81			
	3	1	19.60	19.50	19.77			
	3	2	19.53	19.68	19.70			
	6	0	19.53	19.65	19.69			
IC: LTE Band 5 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20415	20525	20635			
			825.5MHz	836.5MHz	847.5MHz			
QPSK	1	0	21.60	22.02	21.80	1.00	23.02	40.61
	1	7	21.62	21.90	21.87			
	1	14	21.56	21.65	21.45			
	8	0	20.83	20.94	20.75			
	8	4	20.78	20.91	20.79			
	8	7	20.80	20.71	20.63			
	15	0	20.73	20.73	20.68			
16QAM	1	0	20.63	20.81	20.36	1.00	22.16	40.61
	1	7	21.16	20.54	21.04			
	1	14	20.92	20.46	20.60			
	8	0	19.55	19.82	19.86			
	8	4	19.65	19.54	19.82			
	8	7	19.58	19.73	19.75			
	15	0	19.58	19.70	19.74			



IC: LTE Band 5 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20425	20525	20625			
			826.5MHz	836.5MHz	846.5MHz			
QPSK	1	0	21.44	21.69	21.54	1.00	22.97	40.61
	1	12	21.75	21.84	21.97			
	1	24	21.43	21.23	21.42			
	12	0	20.73	20.70	20.74			
	12	6	20.78	20.70	20.77			
	12	11	20.79	20.65	20.76			
	25	0	20.74	20.73	20.72			
16QAM	1	0	20.53	20.52	20.44	1.00	21.58	40.61
	1	12	20.58	20.58	20.51			
	1	24	20.51	20.55	20.19			
	12	0	19.43	19.62	19.55			
	12	6	19.77	19.56	19.77			
	12	11	19.75	19.85	19.73			
	25	0	19.58	19.78	19.72			
IC: LTE Band 5 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20450	20525	20600			
			829.0MHz	836.5MHz	844.0MHz			
QPSK	1	0	21.44	21.21	21.43	1.00	23.03	40.61
	1	24	21.81	22.03	21.91			
	1	49	21.89	21.42	21.45			
	25	0	20.69	20.73	20.66			
	25	12	20.69	20.68	20.69			
	25	24	20.74	20.68	20.72			
	50	0	20.73	20.68	20.70			
16QAM	1	0	20.44	20.44	20.63	1.00	21.70	40.61
	1	24	20.68	20.70	20.68			
	1	49	20.58	20.32	20.64			
	25	0	19.55	19.88	20.00			
	25	12	19.85	19.79	19.77			
	25	24	19.79	19.62	19.76			
	50	0	19.61	19.72	19.59			



LTE Band 7 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20775	21100	21425			
			2502.5MHz	2535.0MHz	2567.5MHz			
QPSK	1	0	21.41	21.55	21.46	1.00	22.92	33.00
	1	12	21.80	21.67	21.92			
	1	24	21.51	21.49	21.52			
	12	0	20.75	20.74	20.99			
	12	6	20.80	20.73	20.99			
	12	11	20.69	20.71	20.87			
	25	0	20.58	20.75	20.87			
16QAM	1	0	20.64	20.65	20.60	1.00	21.96	33.00
	1	12	20.25	20.28	20.93			
	1	24	20.00	20.80	20.96			
	12	0	19.65	19.71	19.89			
	12	6	19.66	19.64	20.04			
	12	11	19.55	19.71	20.13			
	25	0	19.55	19.65	19.62			
LTE Band 7 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20800	21100	21400			
			2505.0MHz	2535.0MHz	2565.0MHz			
QPSK	1	0	21.40	21.50	21.40	1.00	23.14	33.00
	1	24	21.51	21.90	22.14			
	1	49	21.24	21.24	21.45			
	25	0	20.70	20.73	20.87			
	25	12	20.45	20.77	20.84			
	25	24	20.53	20.65	20.84			
	50	0	20.57	20.71	20.96			
16QAM	1	0	20.16	20.72	20.62	1.00	21.91	33.00
	1	24	20.58	20.91	20.78			
	1	49	20.34	20.31	20.45			
	25	0	19.58	19.53	19.97			
	25	12	19.71	19.57	20.14			
	25	24	19.60	19.61	20.10			
	50	0	19.64	19.47	19.84			



LTE Band 7 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20825	21100	21375			
			2507.5MHz	2535.0MHz	2562.5MHz			
QPSK	1	0	21.29	21.59	21.55	1.00	23.14	33.00
	1	37	21.67	22.11	22.14			
	1	74	21.58	21.41	21.78			
	36	0	20.66	20.66	20.86			
	36	16	20.66	20.66	20.82			
	36	35	20.65	20.69	20.91			
	75	0	20.70	20.68	20.79			
16QAM	1	0	20.60	20.41	20.41	1.00	22.39	33.00
	1	37	20.33	21.27	21.39			
	1	74	20.67	20.32	20.37			
	36	0	19.58	19.48	19.81			
	36	16	19.72	19.53	19.81			
	36	35	19.48	19.56	19.75			
	75	0	19.63	19.68	19.79			
LTE Band 7 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			20850	21100	21350			
			2510.0MHz	2535.0MHz	2560.0MHz			
QPSK	1	0	21.24	21.22	21.23	1.00	23.18	33.00
	1	49	21.59	21.87	22.18			
	1	99	21.26	21.22	21.74			
	50	0	20.64	20.66	20.75			
	50	24	20.64	20.70	20.84			
	50	49	20.54	20.68	20.85			
	100	0	20.51	20.71	20.90			
16QAM	1	0	20.27	20.18	20.00	1.00	21.73	33.00
	1	49	20.51	20.46	20.73			
	1	99	20.36	20.29	20.61			
	50	0	19.59	19.55	19.74			
	50	24	19.59	19.68	19.92			
	50	49	19.49	19.66	19.85			
	100	0	19.46	19.55	19.78			



LTE Band 12 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			23017	23095	23173			
			699.7MHz	707.5MHz	715.3MHz			
QPSK	1	0	21.14	21.60	21.29	1.00	20.79	33.77
	1	2	21.85	21.74	21.94			
	1	5	21.78	21.21	21.40			
	3	0	20.41	20.52	20.46			
	3	1	20.55	20.41	20.51			
	3	2	20.56	20.44	20.48			
	6	0	20.53	20.43	20.40			
16QAM	1	0	20.13	20.19	20.43	1.00	19.28	33.77
	1	2	20.10	19.80	20.26			
	1	5	20.08	20.11	20.40			
	3	0	19.56	19.40	19.67			
	3	1	19.70	19.52	19.60			
	3	2	19.76	19.46	19.65			
	6	0	19.66	19.53	19.50			
LTE Band 12 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			23025	23095	23165			
			700.5MHz	707.5MHz	714.5MHz			
QPSK	1	0	21.21	21.48	21.31	1.00	20.81	33.77
	1	7	21.96	21.68	21.30			
	1	14	21.63	21.08	21.42			
	8	0	20.41	20.46	20.32			
	8	4	20.55	20.48	20.26			
	8	7	20.44	20.37	20.29			
	15	0	20.45	20.48	20.31			
16QAM	1	0	20.11	20.67	20.66	1.00	19.66	33.77
	1	7	20.37	20.32	20.81			
	1	14	20.68	20.28	20.17			
	8	0	19.37	19.52	19.28			
	8	4	19.73	19.24	19.47			
	8	7	19.66	19.17	19.37			
	15	0	19.52	19.50	19.35			



LTE Band 12 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			23035	23095	23155			
			701.5MHz	707.5MHz	713.5MHz			
QPSK	1	0	21.18	21.64	21.33	1.00	20.83	33.77
	1	12	21.89	21.78	21.98			
	1	24	21.82	21.25	21.44			
	12	0	20.45	20.56	20.50			
	12	6	20.59	20.45	20.55			
	12	11	20.60	20.48	20.52			
	25	0	20.57	20.47	20.44			
16QAM	1	0	20.17	20.23	20.47	1.00	19.32	33.77
	1	12	20.14	19.84	20.30			
	1	24	20.12	20.15	20.44			
	12	0	19.60	19.44	19.71			
	12	6	19.74	19.42	19.64			
	12	11	19.80	19.50	19.69			
	25	0	19.70	19.57	19.54			
LTE Band 12 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			23060	23095	23130			
			704.0MHz	707.5MHz	711.0MHz			
QPSK	1	0	21.58	21.57	21.65	1.00	20.91	33.77
	1	24	22.06	21.30	21.57			
	1	49	21.18	21.44	21.44			
	25	0	20.56	20.52	20.46			
	25	12	20.55	20.52	20.62			
	25	24	20.47	20.40	20.55			
	50	0	20.65	20.55	20.64			
16QAM	1	0	20.33	20.39	20.82	1.00	19.69	33.77
	1	24	20.52	20.41	20.84			
	1	49	20.28	20.35	20.35			
	25	0	19.65	19.65	19.55			
	25	12	19.86	19.71	19.71			
	25	24	19.56	19.58	19.56			
	50	0	19.77	19.54	19.81			



LTE Band 13 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			23205	23230	23255			
			779.5MHz	782.0MHz	784.5MHz			
QPSK	1	0	21.95	21.54	21.68	1.00	20.80	33.77
	1	12	21.92	21.91	21.94			
	1	24	21.72	21.75	21.66			
	12	0	21.11	21.04	21.19			
	12	6	21.09	21.15	21.10			
	12	11	20.94	21.06	21.06			
	25	0	21.09	21.10	21.14			
16QAM	1	0	20.99	20.88	20.89	1.00	20.07	33.77
	1	12	20.87	21.22	21.08			
	1	24	20.87	20.83	20.81			
	12	0	19.95	19.96	20.24			
	12	6	20.10	20.16	20.14			
	12	11	20.21	20.11	19.94			
	25	0	20.08	20.13	20.11			
LTE Band 13 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. ERP (dBm)	ERP Limit (dBm)
			/	23230	/			
			/	782.0MHz	/			
QPSK	1	0	/	21.82	/	1.00	20.82	33.77
	1	24	/	21.97	/			
	1	49	/	21.77	/			
	25	0	/	21.04	/			
	25	12	/	21.13	/			
	25	24	/	21.06	/			
	50	0	/	21.10	/			
16QAM	1	0	/	20.90	/	1.00	19.96	33.77
	1	24	/	21.11	/			
	1	49	/	20.77	/			
	25	0	/	20.06	/			
	25	12	/	20.23	/			
	25	24	/	20.27	/			
	50	0	/	20.03	/			



LTE Band 66 - 1.4MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			131979	132322	132665			
			1710.7MHz	1745.0MHz	1779.3MHz			
QPSK	1	0	20.86	21.11	20.98	1.00	22.40	30.00
	1	2	21.08	21.40	21.08			
	1	5	21.14	20.87	20.58			
	3	0	20.13	20.43	20.19			
	3	1	20.13	20.30	20.18			
	3	2	20.08	20.18	20.13			
	6	0	20.12	20.35	20.13			
16QAM	1	0	20.20	20.14	20.34	1.00	21.43	30.00
	1	2	20.03	20.43	19.99			
	1	5	19.68	19.83	19.56			
	3	0	19.23	19.33	19.07			
	3	1	19.24	19.40	19.00			
	3	2	19.11	19.18	19.08			
	6	0	19.03	19.40	19.22			
LTE Band 66 - 3MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			131987	132322	132657			
			1711.5MHz	1745.0MHz	1778.5MHz			
QPSK	1	0	21.01	21.14	20.98	1.00	22.23	30.00
	1	7	20.88	21.20	21.23			
	1	14	20.93	20.93	20.83			
	8	0	20.07	20.16	20.09			
	8	4	19.96	20.18	20.20			
	8	7	19.91	20.21	20.08			
	15	0	19.92	20.15	20.09			
16QAM	1	0	19.79	20.33	20.47	1.00	21.47	30.00
	1	7	19.93	20.39	19.63			
	1	14	19.67	20.10	19.92			
	8	0	19.12	19.07	19.08			
	8	4	19.09	19.15	19.10			
	8	7	19.00	19.30	19.19			
	15	0	18.84	19.25	18.76			



LTE Band 66 - 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			131997	132322	132647			
			1712.5MHz	1745.0MHz	1777.5MHz			
QPSK	1	0	21.02	21.22	20.97	1.00	22.22	30.00
	1	12	21.04	21.17	21.08			
	1	24	20.56	20.90	20.58			
	12	0	20.00	20.25	20.20			
	12	6	19.98	20.25	20.09			
	12	11	19.94	20.11	20.08			
	25	0	19.96	20.20	20.06			
16QAM	1	0	19.31	19.84	19.84	1.00	21.24	30.00
	1	12	19.65	20.02	19.78			
	1	24	19.29	20.24	19.75			
	12	0	19.02	19.17	19.07			
	12	6	18.98	19.14	18.91			
	12	11	18.78	19.14	19.09			
	25	0	18.86	19.24	19.09			
LTE Band 66 - 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			132022	132322	132622			
			1715.0MHz	1745.0MHz	1775.0MHz			
QPSK	1	0	20.80	21.05	20.92	1.00	22.34	30.00
	1	24	21.02	21.34	21.02			
	1	49	21.08	20.81	20.52			
	25	0	20.07	20.37	20.13			
	25	12	20.07	20.24	20.12			
	25	24	20.02	20.12	20.07			
	50	0	20.06	20.29	20.07			
16QAM	1	0	20.14	20.08	20.28	1.00	21.37	30.00
	1	24	19.97	20.37	19.93			
	1	49	19.62	19.77	19.50			
	25	0	19.17	19.27	19.01			
	25	12	19.18	19.34	18.94			
	25	24	19.05	19.12	19.02			
	50	0	18.97	19.34	19.16			



LTE Band 66 - 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			132047	132322	132597			
			1717.5MHz	1745.0MHz	1772.5MHz			
QPSK	1	0	20.80	21.12	20.97	1.00	22.44	30.00
	1	37	20.89	21.44	21.39			
	1	74	20.92	21.01	20.90			
	36	0	19.97	20.34	20.16			
	36	16	19.90	20.26	20.17			
	36	35	19.89	20.12	20.03			
	75	0	20.01	20.12	20.13			
16QAM	1	0	19.48	20.34	19.79	1.00	21.49	30.00
	1	37	19.83	19.87	20.49			
	1	74	19.56	19.79	20.01			
	36	0	19.05	19.24	19.08			
	36	16	19.01	19.19	19.09			
	36	35	18.88	19.15	19.02			
	75	0	19.04	19.13	19.02			
LTE Band 66 - 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Average Power (dBm)			Ant. Gain (dBi)	Max. EIRP (dBm)	EIRP Limit (dBm)
			132072	132322	132572			
			1720.0MHz	1745.0MHz	1770.0MHz			
QPSK	1	0	20.88	21.28	20.87	1.00	22.74	30.00
	1	49	20.98	21.74	21.43			
	1	99	20.66	20.82	20.68			
	50	0	19.97	20.32	20.20			
	50	24	20.10	20.32	20.08			
	50	49	20.04	20.14	20.07			
	100	0	20.08	20.31	20.07			
16QAM	1	0	19.81	20.09	19.89	1.00	21.09	30.00
	1	49	19.92	20.08	20.01			
	1	99	19.81	19.73	19.75			
	50	0	19.05	19.35	19.22			
	50	24	19.12	19.25	19.07			
	50	49	19.03	19.28	19.10			
	100	0	19.09	19.26	19.03			

2.2 Frequency Stability

2.2.1 Requirement

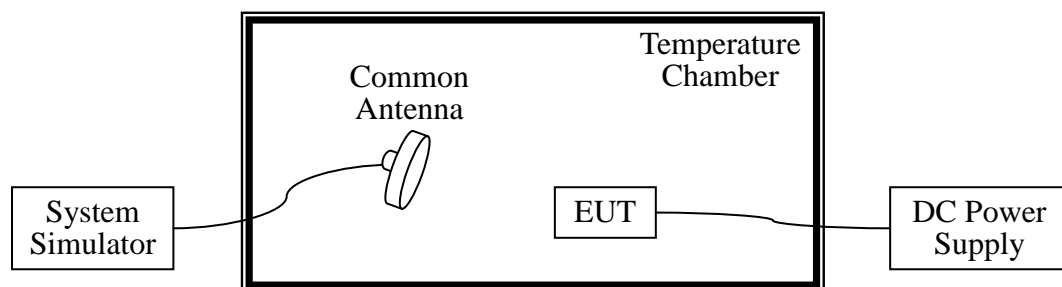
According to FCC/IC requirement, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental 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. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from $-30\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$ at intervals of not more than $10\text{ }^{\circ}\text{C}$.
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.2.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.2.3 Test Setup



2.2.4 Test Procedures

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 $-30\text{ }^{\circ}\text{C}$ 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.
4. The nominal, highest and lowest extreme voltages were tested, which are specified by the applicant; the normal temperature here used is 25 °C.
5. The variation in frequency was measured for the worst case.



2.2.5 Test Result of Frequency Stability

Frequency Stability NormalTC_NormalVol									
Temperature (°C)	Voltage (°C)	Band	BandWidth (MHz)	RbMode	Modulation	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
Normal	Low	FDD02	10	fullRB	QPSK	8.43	0.004	±2.5	Pass
Normal	Normal	FDD02	10	fullRB	QPSK	6.11	0.003	±2.5	Pass
Normal	High	FDD02	10	fullRB	QPSK	7.95	0.004	±2.5	Pass
50	Normal	FDD02	10	fullRB	QPSK	-2.50	-0.001	±2.5	Pass
40	Normal	FDD02	10	fullRB	QPSK	-4.25	-0.002	±2.5	Pass
30	Normal	FDD02	10	fullRB	QPSK	7.38	0.004	±2.5	Pass
20	Normal	FDD02	10	fullRB	QPSK	-3.78	-0.002	±2.5	Pass
10	Normal	FDD02	10	fullRB	QPSK	-3.09	-0.002	±2.5	Pass
0	Normal	FDD02	10	fullRB	QPSK	1.82	0.001	±2.5	Pass
-10	Normal	FDD02	10	fullRB	QPSK	6.05	0.003	±2.5	Pass
-20	Normal	FDD02	10	fullRB	QPSK	5.22	0.003	±2.5	Pass
-30	Normal	FDD02	10	fullRB	QPSK	4.58	0.002	±2.5	Pass
Normal	Low	FDD04	10	fullRB	QPSK	10.54	0.006	±2.5	Pass
Normal	Normal	FDD04	10	fullRB	QPSK	-6.32	-0.003	±2.5	Pass
Normal	High	FDD04	10	fullRB	QPSK	8.10	0.004	±2.5	Pass
50	Normal	FDD04	10	fullRB	QPSK	8.15	0.004	±2.5	Pass
40	Normal	FDD04	10	fullRB	QPSK	5.59	0.003	±2.5	Pass
30	Normal	FDD04	10	fullRB	QPSK	2.57	0.001	±2.5	Pass
20	Normal	FDD04	10	fullRB	QPSK	4.13	0.002	±2.5	Pass
10	Normal	FDD04	10	fullRB	QPSK	-6.11	-0.003	±2.5	Pass
0	Normal	FDD04	10	fullRB	QPSK	5.28	0.003	±2.5	Pass
-10	Normal	FDD04	10	fullRB	QPSK	6.11	0.003	±2.5	Pass
-20	Normal	FDD04	10	fullRB	QPSK	7.05	0.004	±2.5	Pass
-30	Normal	FDD04	10	fullRB	QPSK	6.32	0.003	±2.5	Pass
Normal	Low	FDD05	10	fullRB	QPSK	-2.93	-0.002	±2.5	Pass
Normal	Normal	FDD05	10	fullRB	QPSK	-6.17	-0.004	±2.5	Pass
Normal	High	FDD05	10	fullRB	QPSK	3.78	0.002	±2.5	Pass
50	Normal	FDD05	10	fullRB	QPSK	-3.18	-0.002	±2.5	Pass



40	Normal	FDD05	10	fullRB	QPSK	-2.89	-0.002	±2.5	Pass
30	Normal	FDD05	10	fullRB	QPSK	1.65	0.001	±2.5	Pass
20	Normal	FDD05	10	fullRB	QPSK	4.11	0.002	±2.5	Pass
10	Normal	FDD05	10	fullRB	QPSK	-2.17	-0.001	±2.5	Pass
0	Normal	FDD05	10	fullRB	QPSK	-3.69	-0.002	±2.5	Pass
-10	Normal	FDD05	10	fullRB	QPSK	-4.52	-0.003	±2.5	Pass
-20	Normal	FDD05	10	fullRB	QPSK	-3.88	-0.002	±2.5	Pass
-30	Normal	FDD05	10	fullRB	QPSK	-5.59	-0.003	±2.5	Pass
Normal	Low	FDD07	10	fullRB	QPSK	3.83	0.002	±2.5	Pass
Normal	Normal	FDD07	10	fullRB	QPSK	2.43	0.001	±2.5	Pass
Normal	High	FDD07	10	fullRB	QPSK	8.03	0.005	±2.5	Pass
50	Normal	FDD07	10	fullRB	QPSK	4.38	0.003	±2.5	Pass
40	Normal	FDD07	10	fullRB	QPSK	-1.77	-0.001	±2.5	Pass
30	Normal	FDD07	10	fullRB	QPSK	4.76	0.003	±2.5	Pass
20	Normal	FDD07	10	fullRB	QPSK	8.14	0.005	±2.5	Pass
10	Normal	FDD07	10	fullRB	QPSK	-2.76	-0.002	±2.5	Pass
0	Normal	FDD07	10	fullRB	QPSK	-3.52	-0.002	±2.5	Pass
-10	Normal	FDD07	10	fullRB	QPSK	3.99	0.002	±2.5	Pass
-20	Normal	FDD07	10	fullRB	QPSK	3.08	0.002	±2.5	Pass
-30	Normal	FDD07	10	fullRB	QPSK	5.95	0.003	±2.5	Pass
Normal	Low	FDD12	10	fullRB	QPSK	-36.61	0.021	±2.5	Pass
Normal	Normal	FDD12	10	fullRB	QPSK	-47.12	-0.027	±2.5	Pass
Normal	High	FDD12	10	fullRB	QPSK	-28.37	-0.016	±2.5	Pass
50	Normal	FDD12	10	fullRB	QPSK	-36.59	-0.021	±2.5	Pass
40	Normal	FDD12	10	fullRB	QPSK	-18.60	-0.011	±2.5	Pass
30	Normal	FDD12	10	fullRB	QPSK	-46.31	-0.027	±2.5	Pass
20	Normal	FDD12	10	fullRB	QPSK	-4.13	-0.005	±2.5	Pass
10	Normal	FDD12	10	fullRB	QPSK	-3.59	-0.005	±2.5	Pass
0	Normal	FDD12	10	fullRB	QPSK	-3.98	-0.005	±2.5	Pass
-10	Normal	FDD12	10	fullRB	QPSK	-3.05	-0.004	±2.5	Pass
-20	Normal	FDD12	10	fullRB	QPSK	2.80	0.004	±2.5	Pass
-30	Normal	FDD12	10	fullRB	QPSK	2.28	0.003	±2.5	Pass



Normal	Low	FDD13	10	fullRB	QPSK	-4.74	-0.003	±2.5	Pass
Normal	Normal	FDD13	10	fullRB	QPSK	-5.85	-0.003	±2.5	Pass
Normal	High	FDD13	10	fullRB	QPSK	-5.84	-0.003	±2.5	Pass
50	Normal	FDD13	10	fullRB	QPSK	-5.54	-0.003	±2.5	Pass
40	Normal	FDD13	10	fullRB	QPSK	-7.71	-0.004	±2.5	Pass
30	Normal	FDD13	10	fullRB	QPSK	-2.20	-0.003	±2.5	Pass
20	Normal	FDD13	10	fullRB	QPSK	3.42	0.004	±2.5	Pass
10	Normal	FDD13	10	fullRB	QPSK	-2.89	-0.004	±2.5	Pass
0	Normal	FDD13	10	fullRB	QPSK	-1.49	-0.002	±2.5	Pass
-10	Normal	FDD13	10	fullRB	QPSK	-3.48	-0.005	±2.5	Pass
-20	Normal	FDD13	10	fullRB	QPSK	-3.51	-0.005	±2.5	Pass
-30	Normal	FDD13	10	fullRB	QPSK	-2.93	-0.004	±2.5	Pass
Normal	Low	FDD66	10	fullRB	QPSK	-3.98	-0.005	±2.5	Pass
Normal	Normal	FDD66	10	fullRB	QPSK	1.76	0.002	±2.5	Pass
Normal	High	FDD66	10	fullRB	QPSK	-4.62	-0.006	±2.5	Pass
50	Normal	FDD66	10	fullRB	QPSK	-5.22	-0.006	±2.5	Pass
40	Normal	FDD66	10	fullRB	QPSK	-3.20	-0.004	±2.5	Pass
30	Normal	FDD66	10	fullRB	QPSK	-3.68	-0.004	±2.5	Pass
20	Normal	FDD66	10	fullRB	QPSK	-1.89	-0.002	±2.5	Pass
10	Normal	FDD66	10	fullRB	QPSK	-5.41	-0.006	±2.5	Pass
0	Normal	FDD66	10	fullRB	QPSK	-2.26	-0.003	±2.5	Pass
-10	Normal	FDD66	10	fullRB	QPSK	1.69	0.002	±2.5	Pass
-20	Normal	FDD66	10	fullRB	QPSK	-2.35	-0.003	±2.5	Pass
-30	Normal	FDD66	10	fullRB	QPSK	3.30	0.004	±2.5	Pass

Note:

1. Normal Voltage=12.0V, Low Voltage=10.2V, High Voltage=13.8V, Normal Temperature = 25°C.
2. Judge based on the measured frequency error result, the fundamental wave emission of Band 4/7/12/13/66 is kept within the authorized frequency band.

2.3 Radiated Out of Band Emissions

2.3.1 Requirement

The radiated spurious emission was measured by substitution method according to ANSI / TIA /EIA-603-C-2004.

For Band 2 & 4 & 5 & 12 & 13 & 66:

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:

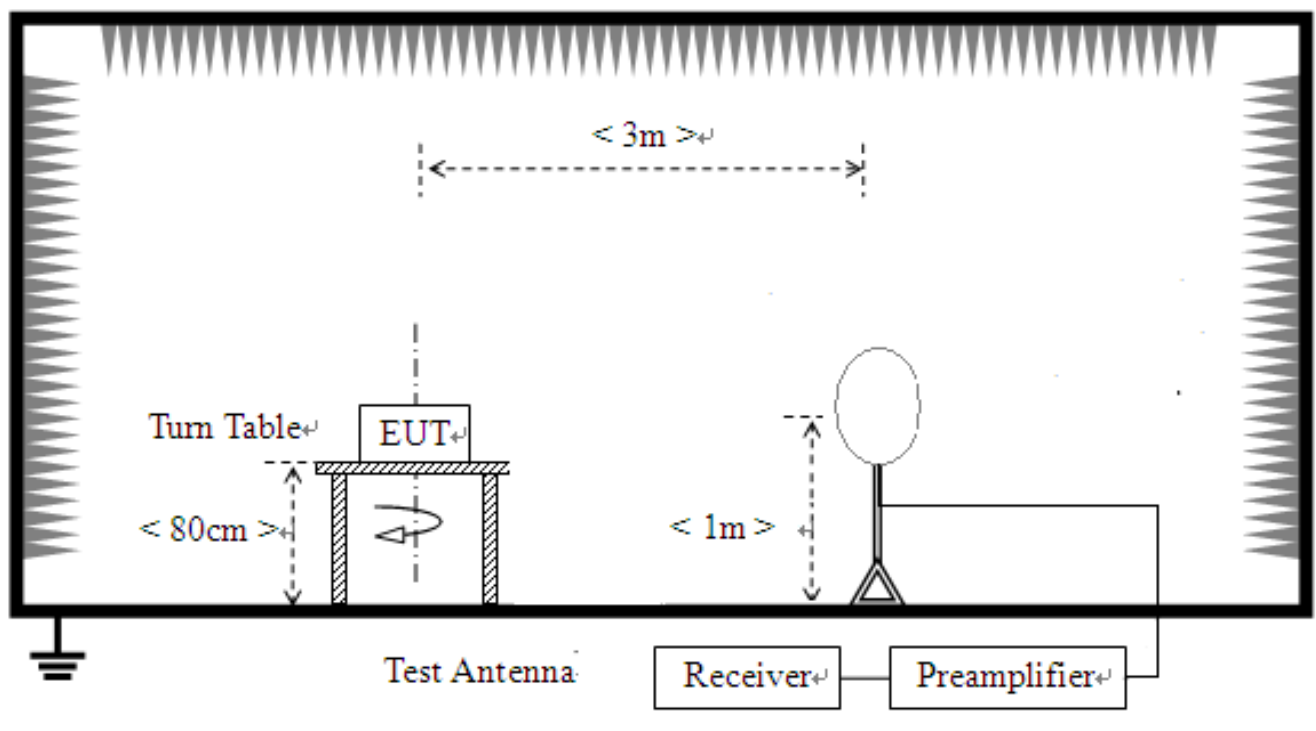
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB.

2.3.2 Measuring Instruments

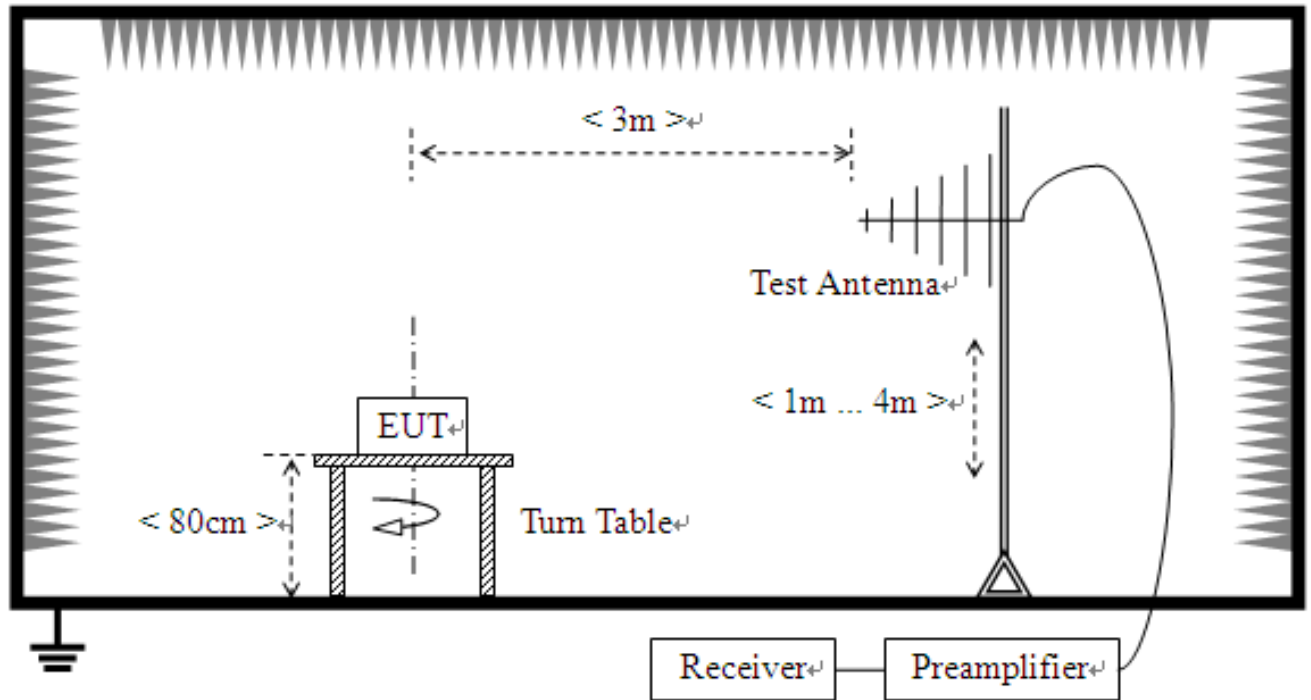
The measuring equipment is listed in the section 3 of this test report.

2.3.3 Test Setup

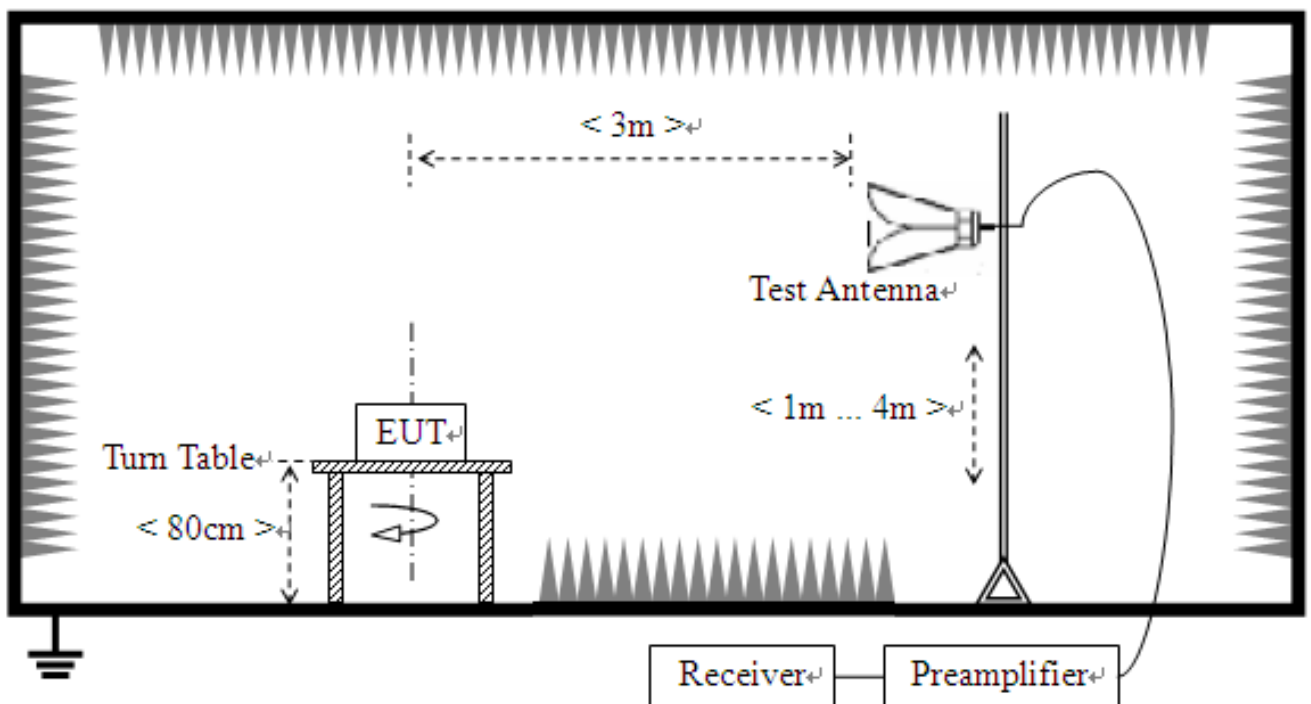
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz





2.3.4 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. 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.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. All Spurious Emission tests were performed in X, Y, Z axis direction and low, middle, high channel. And only the worst axis test condition was recorded in this test report.
11. The spectrum is measured from 9 KHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. The worst case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
12. For 9KHz to 30MHz: the amplitude of spurious emissions are attenuated by more than 20dB below the permissible value has no need to be reported.
13. The maximum RB configurations of the Radiated Spurious Emissions as RB Size 1, RB Offset 0.



2.3.5 Test Result (Plots) of Radiated Spurious Emission

Note: 1. within 30MHz-1GHz were found more than 20dB below limit line

Note: 2. Absolute Level=Reading Level + Factor

LTE Band 2 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.5573	-79.90	-59.39	-13.00	46.39	20.51	Horizontal
2	60.085	-75.85	-56.52	-13.00	43.52	19.33	Horizontal
3	356.083	-104.58	-75.78	-13.00	62.78	28.80	Horizontal
4	502.626	-103.65	-71.02	-13.00	58.02	32.63	Horizontal
5	4954.47	-69.46	-55.60	-13.00	42.60	13.86	Horizontal
6	7114.55	-69.84	-53.31	-13.00	40.31	16.53	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	45.0425	-80.33	-60.85	-13.00	47.85	19.48	Vertical
2	57.6588	-76.18	-56.41	-13.00	43.41	19.77	Vertical
3	454.102	-104.62	-75.19	-13.00	62.19	29.43	Vertical
4	922.361	-105.07	-67.48	-13.00	54.48	37.59	Vertical
5	2836.91	-67.24	-62.29	-13.00	49.29	4.95	Vertical
6	5014.00	-69.66	-55.32	-13.00	42.32	14.34	Vertical

LTE Band 4 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.5573	-82.63	-62.12	-13.00	49.12	20.51	Horizontal
2	63.967	-81.18	-61.84	-13.00	48.84	19.34	Horizontal
3	367.243	-105.34	-76.99	-13.00	63.99	28.35	Horizontal
4	509.905	-103.53	-70.94	-13.00	57.94	32.59	Horizontal
5	608.894	-103.14	-71.88	-13.00	58.88	31.26	Horizontal
6	5031.01	-69.95	-55.59	-13.00	42.59	14.36	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.072	-82.45	-62.84	-13.00	49.84	19.61	Vertical
2	64.9375	-81.48	-60.85	-13.00	47.85	20.63	Vertical
3	303.191	-105.17	-79.78	-13.00	66.78	25.39	Vertical
4	768.539	-103.51	-67.57	-13.00	54.57	35.94	Vertical
5	5005.50	-70.50	-56.17	-13.00	43.17	14.33	Vertical
6	7148.57	-70.27	-53.40	-13.00	40.40	16.87	Vertical



LTE Band 5 QPSK 10MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.5573	-81.54	-61.03	-13.00	48.03	20.51	Horizontal
2	62.5113	-81.62	-62.28	-13.00	49.28	19.34	Horizontal
3	354.627	-105.33	-76.47	-13.00	63.47	28.86	Horizontal
4	671.976	-103.49	-68.81	-13.00	55.81	34.68	Horizontal
5	4945.97	-69.11	-55.34	-13.00	42.34	13.77	Horizontal
6	7335.66	-70.38	-53.24	-13.00	40.24	17.14	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	43.1016	-84.27	-64.53	-13.00	51.53	19.74	Vertical
2	62.026	-81.53	-61.24	-13.00	48.24	20.29	Vertical
3	392.476	-105.07	-77.10	-13.00	64.10	27.97	Vertical
4	650.625	-103.96	-70.98	-13.00	57.98	32.98	Vertical
5	3474.73	-68.26	-60.70	-13.00	47.70	7.56	Vertical
6	7259.12	-70.81	-53.43	-13.00	40.43	17.38	Vertical

LTE Band 7 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	64.4522	-79.67	-60.33	-25.00	35.33	19.34	Horizontal
2	547.753	-89.49	-57.88	-25.00	32.88	31.61	Horizontal
3	817.063	-91.70	-54.61	-25.00	29.61	37.09	Horizontal
4	5056.02	-59.29	-43.05	-25.00	18.05	16.24	Horizontal
5	7509.75	-60.08	-39.46	-25.00	14.46	20.62	Horizontal
6	14300.6	-63.56	-32.17	-25.00	7.17	31.39	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	62.9965	-81.58	-61.18	-25.00	36.18	20.40	Vertical
2	299.794	-92.30	-66.96	-25.00	41.96	25.34	Vertical
3	1615.30	-55.88	-54.47	-25.00	29.47	1.41	Vertical
4	5183.59	-59.42	-43.43	-25.00	18.43	15.99	Vertical
5	14330.6	-63.12	-32.01	-25.00	7.01	31.11	Vertical
6	16131.5	-64.25	-31.31	-25.00	6.31	32.94	Vertical



LTE Band 12 QPSK 10MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	43.1016	-82.69	-61.84	-13.00	48.84	20.85	Horizontal
2	59.5998	-80.54	-61.21	-13.00	48.21	19.33	Horizontal
3	354.627	-105.75	-76.89	-13.00	63.89	28.86	Horizontal
4	519.609	-103.68	-71.40	-13.00	58.40	32.28	Horizontal
5	4928.96	-69.31	-55.71	-13.00	42.71	13.60	Horizontal
6	7344.17	-69.97	-52.88	-13.00	39.88	17.09	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.072	-82.77	-63.16	-13.00	50.16	19.61	Vertical
2	64.4522	-80.52	-59.95	-13.00	46.95	20.57	Vertical
3	184.792	-105.90	-85.90	-13.00	72.90	20.00	Vertical
4	408.974	-105.01	-76.54	-13.00	63.54	28.47	Vertical
5	1450.72	-69.24	-72.32	-13.00	59.32	-3.08	Vertical
6	5022.51	-69.95	-55.60	-13.00	42.60	14.35	Vertical

LTE Band 13 QPSK 10MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.5573	-81.39	-60.88	-13.00	47.88	20.51	Horizontal
2	63.4817	-79.85	-60.51	-13.00	47.51	19.34	Horizontal
3	352.201	-105.46	-76.51	-13.00	63.51	28.95	Horizontal
4	493.891	-103.63	-71.44	-13.00	58.44	32.19	Horizontal
5	1824.91	-70.92	-71.12	-13.00	58.12	-0.20	Horizontal
6	3857.42	-69.43	-60.83	-13.00	47.83	8.60	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	40.6753	-84.68	-64.62	-13.00	51.62	20.06	Vertical
2	63.967	-80.73	-60.22	-13.00	47.22	20.51	Vertical
3	330.365	-105.53	-79.61	-13.00	66.61	25.92	Vertical
4	2564.78	-68.45	-65.05	-13.00	52.05	3.40	Vertical
5	5073.53	-69.38	-54.96	-13.00	41.96	14.42	Vertical
6	7216.60	-71.13	-53.76	-13.00	40.76	17.37	Vertical



LTE Band 66 QPSK 20MHz BW Middle Channel							
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.5573	-82.12	-61.61	-13.00	48.61	20.51	Horizontal
2	62.5113	-81.30	-61.96	-13.00	48.96	19.34	Horizontal
3	329.394	-105.04	-77.26	-13.00	64.26	27.78	Horizontal
4	5116.05	-70.25	-55.86	-13.00	42.86	14.39	Horizontal
5	7216.60	-69.95	-52.58	-13.00	39.58	17.37	Horizontal
6	12183.0	-71.83	-52.85	-13.00	39.85	18.98	Horizontal
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	44.5573	-81.36	-61.81	-13.00	48.81	19.55	Vertical
2	62.9965	-80.46	-60.06	-13.00	47.06	20.40	Vertical
3	313.381	-105.99	-80.42	-13.00	67.42	25.57	Vertical
4	527.858	-104.22	-73.11	-13.00	60.11	31.11	Vertical
5	5056.52	-69.68	-55.28	-13.00	42.28	14.40	Vertical
6	7250.62	-70.88	-53.50	-13.00	40.50	17.38	Vertical



2.4 Transmit antenna

2.4.1 Applicable Standard

According to RSS GEN issue5 6.8, The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below). When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer. The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

2.4.2 Antenna Information

Antenna Category: Internal Antenna

A internal Antenna was soldered to the antenna port of EUT via an adaptor cable, can't be removed.

Antenna General Information:

No.	EUT	Operating frequency range	Ant. Type	Ant. Gain (Max)
1	RCP-P1	LTE Band 2: 1850.7MHz~1909.3MHz LTE Band 4: 1710.7MHz~1754.3MHz LTE Band 5: 824.7MHz~848.3MHz LTE Band 7: 2502.5MHz~2567.5MHz LTE Band 12: 699.7MHz~715.3MHz LTE Band 13: 779.5MHz~784.5MHz LTE Band 66: 1710.7MHz~1779.3MHz	Internal	1.0 dBi

2.4.3 Result: comply

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.



3. LIST OF MEASURING EQUIPMENT

Description	Manufacturer	Model	Serial No.	Cal. Date	Due Date	Remark
EMI Test Receiver	R&S	ESR3	A181103297	2021.06.25	2022.06.24	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2019.04.26	2022.04.25	Radiation
Broadband antenna (30MHz~1GHz)	Schwarbeck	BBHA 9120 J	A190503537	2019.01.07	2022.01.06	Radiation
Broadband antenna (30MHz~1GHz)	R&S	VULB9160	A0805560	2019.05.24	2022.05.23	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100150	2019.04.27	2022.04.26	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100149	2019.04.17	2022.04.16	Radiation
Horn antenna (18GHz~26.5GHz)	AR	AT4510	A0804450	2020.06.19	2023.06.18	Radiation
Horn antenna (18GHz~26.5GHz)	AR	AT4003A	0329293	2020.09.17	2022.08.16	Radiation
Amplifier 30M~1GHz	MILMEGA	80RF1000-10004	A140101634	2020.09.22	2023.09.21	Radiation
Amplifier 1G~18GHz	MILMEGA	AS0104R-800/40 0	A160302517	2021.01.26	2022.01.25	Radiation
Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2021.04.26	2022.04.25	Conducted
Test Receiver	R&S	ESIB7	A0501375	2021.05.24	2022.05.23	Conducted
Temperature chamber	TABAI	PS-232	A8708054	2021.09.24	2022.09.23	Temperature chamber
Wideband Radio Communication tester	R&S	CMW500	A130101034	2021.01.26	2023.01.25	Conducted
Power Supply	R&S	WYJ-60100	A141102031	2020.01.16	2023.01.15	Conducted



4. UNCERTAINTY OF EVALUATION

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence . The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Emission Measurement (150KHz~30MHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	2.6dB
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Uncertainty of Radiated Emission Measurement (30MHz~1GHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	2.4dB
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Uncertainty of Radiated Emission Measurement (1GHz~40GHz)

Measuring Uncertainty for a level of confidence of 95%($U=2U_c(y)$)	2.8dB
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** END OF REPORT **