RADIO TEST REPORT-LTE
47 CFR FCC Part 2&22&24&27

Client Information:

Applicant:	Neutron Holdings, Inc.
Applicant add.:	85 2nd St, San Francisco, CA 94105 USA
Manufacturer:	MeiG Smart Technology Co., Ltd.
Manufacturer add.:	1/2/3F A, Building A, B, No.5 Lingxia Road, 4th Fenghuang Industrial Park, Fuyong Street, Baoan District, Shenzhen, Guangdong, China

Product Information:

Product Name:	Central controller
Model No.:	Lime-4.1-GL
Brand Name:	Lime
FCC ID:	2APB2-LIME41GL

Prepared By:

Dongguan Yaxu (AiT) Technology Limited

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Date of Receipt:	Dec. 30, 2021	Date of Test:	Dec. 30, 2021~Jan. 20, 2022
Date of Issue:	Jan. 21, 2022	Test Result:	Pass

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

Reviewed by: Simba Huang **Approved by:** Seal.chen

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1. SUMMARY OF TEST

1.1 TEST FACILITY

The test facility is recognized, certified or accredited by the following organizations:

CNAS- Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2017 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on Aug.04, 2020

FCC-Registration No.: 703111 Designation Number: CN1313

Dongguan Yaxu (AiT) technology Limited 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.

IC —Registration No.: 6819A CAB identifier: CN0122

The 3m Semi-anechoic chamber of Dongguan Yaxu (AiT) technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6819A

A2LA-Lab Cert. No.: 6317.01

Dongguan Yaxu (AiT) technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

1.2 MEASUREMENT UNCERTAINTY

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

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	0.009MHz-30MHz	3.10dB	(1)
Radiated Emission	30MHz-1GHz	3.75dB	(1)
Radiated Emission	1GHz-18GHz	3.88dB	(1)
Radiated Emission	18GHz-40GHz	3.88dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	1.20dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Manufacturer:	MeiG Smart Technology Co., Ltd.
Manufacturer Address:	1/2/3F A, Building A, B, No.5 Lingxia Road, 4th Fenghuang Industrial Park, Fuyong Street, Baoan District, Shenzhen, Guangdong, China
Equipment :	Central controller
Trade Mark:	Lime
Model Name:	Lime-4.1-GL
Serial Model:	N/A
NB-IOT	
Support Band:	FDD Band 2 FDD Band 4 FDD Band 12 FDD Band 13 FDD Band 17
SIM CARD :	The EUT has one SIM Card sockets
Power Class:	E-UTRA :3
Modulation Mode:	QPSK/16QAM
Antenna:	PIFA: B2: -2.8 dBi B4: -3.3 dBi B12: -2.5 dBi B13: -2.8 dBi B17: -2.5 dBi
H/W No.:	N/A
S/W No.:	N/A
Model different:	N/A

2.2 LIST OF TEST EQUIPMENTS

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Spectrum Analyzer	R&S	FSV40	101470	2021.08.30	2022.08.29
2	EMI Measuring Receiver	R&S	ESR	101660	2021.08.30	2022.08.29
3	Low Noise Pre Amplifier	HP	HP8447E	1937A01855	2021.08.30	2022.08.29
4	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2021.08.30	2022.08.29
5	Passive Loop	ETS	6512	00165355	2020.09.05	2022.09.04
6	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2021.08.29	2024.08.28
7	Broadband Horn Antenna	SCHWARZBECK	BBHA9120D	452	2021.08.29	2024.08.28
8	SHF-EHF Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA9170367d	2020.11.24	2023.11.23
9	EMI Test Receiver	R&S	ESCI	100124	2021.08.30	2022.08.29
10	LISN	Kyoritsu	KNW-242	8-837-4	2021.08.30	2022.08.29
11	LISN	R&S	ESH3-Z2	0357.8810.54101161-S2	2021.08.30	2022.08.29
12	Pro.Temp&Humi.chamber	MENTEK	MHP-150-1C	MAA08112501	2021.08.30	2022.08.29
13	RF Automatic Test system	MW	MW100-RFCB	21033016	2021.08.30	2022.08.29
14	Signal Generator	Agilent	N5182A	MY501430009	2021.08.30	2022.08.29
15	Wideband Radio communication tester	R&S	CMW500	1201.0002K50	2021.08.30	2022.08.29
16	RF Automatic Test system	MW	MW100-RFCB	21033016	2021.08.30	2022.08.29
17	DC power supply	ZHAOXIN	RXN-305D-2	28070002559	N/A	N/A
18	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A
19	CE Software	EZ	EZ-EMC_CE	Ver.AIT-03A	N/A	N/A
20	RF Software	MW	MTS 8310	2.0.0.0	N/A	N/A
21	temporary antenna connector(Note)	NTS	R001	N/A	N/A	N/A

2.3 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 12:699~716MHz LTE Band 13:777~787MHz LTE Band 17:704~716MHz
Rx Frequency	LTE Band 2:1930 ~1990MHz LTE Band 4:2110~2155MHz LTE Band 12:729~746MHz LTE Band 13:746~756MHz LTE Band 17:734~746MHz
Bandwidth	LTE Band 2: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz /20MHz LTE Band 12: 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 13: 5MHz / 10MHz LTE Band 17: 5MHz / 10MHz
Maximum Output Power	LTE Band 2: 24.59 dBm LTE Band 4: 24.56 dBm LTE Band 12: 24.69 dBm LTE Band 13: 24.23 dBm LTE Band 17: 24.23 dBm
Type of Modulation	QPSK /16QAM

RF Function	Band	UE Category UL	Modulation	Power Class	Ant Gain(dBi)	Ant Type	SIM Card
LTE	FDD:2/4/12/13 /17	4	UL：QPSK, 16QAM DL：QPSK, 16QAM	3	B2: -2.8 B4: -3.3 B12: -2.5 B13: -2.8 B17: -2.5	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	2M68G7D	2M68W7D
5	4M52G7D	4M52W7D
10	8M94G7D	8M94W7D
15	13M5G7D	13M5W7D
20	17M9G7D	17M9W7D
LTE Band 4	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M68G7D	2M68W7D
5	4M52G7D	4M52W7D
10	8M95G7D	8M94W7D
15	13M5G7D	13M5W7D
20	18M0G7D	17M9W7D

LTE Band 12	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M68G7D	2M68W7D
5	4M50G7D	4M52W7D
10	8M97G7D	8M97W7D
LTE Band 13	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
5	4M52G7D	4M52W7D
10	8M93G7D	8M92W7D
LTE Band 17	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
5	4M51G7D	4M52W7D
10	8M93G7D	8M94W7D

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 tofind the maximum emission.

Remark:

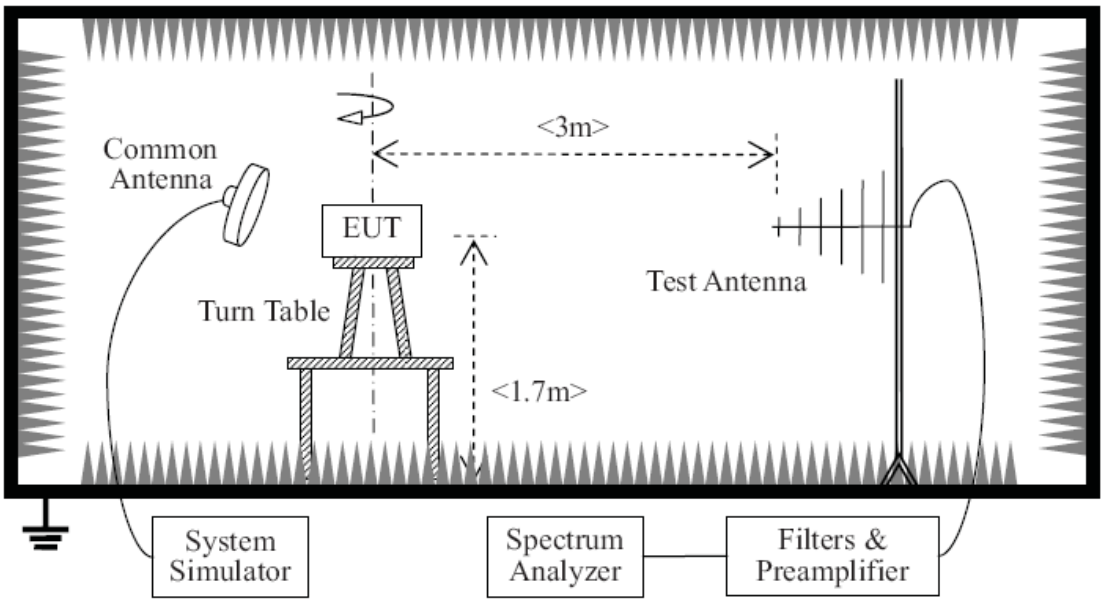
1. The mark ‘v’means that this configuration is chosen for testing
2. The mark ‘-’means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated.

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
	12	v	v	v	v			v	v	v	v	v	v	v	v
	13			v	v			v	v	v	v	v		v	
	17			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
	12				v			v	v	v		v	v	v	v
	13				v			v	v	v		v		v	
	17				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
	12	v	v	v	v			v	v			v	v	v	v
	13			v	v			v	v			v		v	
	17			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
	12	v	v	v	v			v	v	v		v	v	v	v
	13			v	v			v	v	v		v		v	
	17			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
	12	v	v	v	v			v	v	v			v	v	v
	13			v	v			v	v	v				v	
	17			v	v			v	v	v			v	v	v
Frequency Stability	2				v			v				v		v	
	4				v			v				v		v	
	12				v			v				v		v	
	13				v			v				v		v	
	17				v			v				v		v	

E.R.P.& E.I.R.P.	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
	12	v	v	v	v			v	v	v	v	v	v	v	v
	13			v	v			v	v	v	v	v		v	
	17			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
	12	v	v	v	v			v		v			v	v	v
	13			v	v			v		v				v	
	17			v	v			v		v			v	v	v

2.5 TEST SETUP

1. Radiated Spurious Emission Test Setup



The EUT, which is powered by USB 5V, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. LTE FDD band Power Control Level = 3), and only the test result of the maximum output power was recorded.

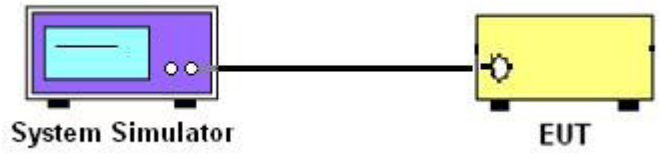
3. CONDUCTED OUTPUT POWER

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.

5. Limit

Operating band	FCC Limit	ISED Limit
Band 2	EIRP 2 watts	EIRP 2 watts
Band 4	EIRP 1 watts	EIRP 1 watts
Band 26 Lower Band	< 100 watts	N/A
Band 26 Upper Band	ERP 7 watts	ERP 11.5 watts
Band 66	EIRP 1 watts	EIRP 1 watts

Note: ERP or EIRP = $P_{Meas} + G_T$
Where ERP or EIRP: effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g. dBm)
P_{Meas}: measured transmitter output power, in dBm
G_T: gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

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	20.31	19.99	20.34
1.4	1	2		20.05	19.76	20.07
1.4	1	5		19.81	19.52	19.80
1.4	3	0		19.53	19.29	19.51
1.4	3	1		19.32	19.08	19.25
1.4	3	2		19.03	18.85	19.02
1.4	6	0		18.77	18.58	18.72
1.4	1	0	16-QAM	20.09	19.70	20.07
1.4	1	2		19.88	19.43	19.85
1.4	1	5		19.68	19.14	19.57
1.4	3	0		19.41	18.86	19.35
1.4	3	1		19.18	18.63	19.06
1.4	3	2		18.96	18.41	18.81
1.4	6	0		18.66	18.17	18.52
3	1	0	QPSK	20.46	20.60	20.35
3	1	7		20.24	20.33	20.11
3	1	14		19.96	20.04	19.87
3	8	0		19.67	19.82	19.64
3	8	4		19.43	19.57	19.36
3	8	7		19.15	19.31	19.14
3	15	0		18.91	19.06	18.90
3	1	0	16-QAM	20.23	20.40	20.15
3	1	7		19.95	20.19	19.91
3	1	14		19.69	19.96	19.65
3	8	0		19.49	19.69	19.44
3	8	4		19.19	19.47	19.21
3	8	7		18.93	19.25	18.92
3	15	0		18.70	18.98	18.67

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	20.30	20.54	20.40
5	1	12		20.03	20.26	20.14
5	1	24		19.78	20.02	19.88
5	12	0		19.53	19.77	19.59
5	12	6		19.26	19.55	19.38
5	12	11		19.00	19.25	19.12
5	25	0		18.72	19.03	18.89
5	1	0	16-QAM	20.03	20.31	20.19
5	1	12		19.77	20.09	19.93
5	1	24		19.50	19.89	19.71
5	12	0		19.22	19.68	19.46
5	12	6		18.96	19.45	19.24
5	12	11		18.68	19.17	18.96
5	25	0		18.42	18.92	18.74
10	1	0	QPSK	20.11	20.46	20.08
10	1	24		19.85	20.19	19.85
10	1	49		19.62	19.94	19.65
10	25	0		19.32	19.67	19.43
10	25	12		19.03	19.45	19.16
10	25	24		18.82	19.22	18.91
10	50	0		18.56	18.93	18.64
10	1	0	16-QAM	19.83	20.22	19.78
10	1	24		19.60	20.00	19.53
10	1	49		19.39	19.79	19.27
10	25	0		19.16	19.51	18.99
10	25	12		18.88	19.22	18.73
10	25	24		18.67	18.95	18.53
10	50	0		18.38	18.66	18.25

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	20.23	19.97	20.43
15	1	37		19.99	19.69	20.15
15	1	74		19.76	19.40	19.93
15	36	0		19.46	19.14	19.64
15	36	18		19.24	18.90	19.40
15	36	39		19.00	18.60	19.11
15	75	0		18.78	18.39	18.85
15	1	0	16-QAM	20.01	19.72	20.22
15	1	38		19.77	19.49	19.98
15	1	75		19.56	19.27	19.77
15	36	0		19.31	19.04	19.49
15	36	18		19.11	18.74	19.23
15	36	39		18.89	18.52	19.00
15	75	0		18.68	18.26	18.74
20	1	0	QPSK	20.43	20.63	20.19
20	1	49		20.19	20.42	19.93
20	1	99		19.97	20.16	19.63
20	50	0		19.75	19.95	19.39
20	50	24		19.45	19.67	19.13
20	50	49		19.20	19.40	18.92
20	100	0		18.95	19.10	18.66
20	1	0	16-QAM	20.20	20.36	19.94
20	1	49		19.93	20.13	19.71
20	1	99		19.63	19.92	19.47
20	50	0		19.37	19.68	19.26
20	50	24		19.08	19.44	19.06
20	50	49		18.87	19.15	18.84
20	100	0		18.66	18.90	18.63

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.40	21.05	20.89
1.4	1	2		21.11	20.77	20.61
1.4	1	5		20.84	20.47	20.35
1.4	3	0		20.61	20.21	20.05
1.4	3	1		20.31	19.95	19.79
1.4	3	2		20.10	19.67	19.50
1.4	6	0		19.89	19.46	19.27
1.4	1	0	16-QAM	21.18	20.81	20.59
1.4	1	2		20.97	20.59	20.35
1.4	1	5		20.76	20.35	20.11
1.4	3	0		20.49	20.15	19.82
1.4	3	1		20.21	19.91	19.59
1.4	3	2		19.97	19.69	19.32
1.4	6	0		19.70	19.47	19.07
3	1	0	QPSK	20.97	21.06	21.38
3	1	7		20.73	20.80	21.15
3	1	14		20.51	20.50	20.94
3	8	0		20.26	20.30	20.72
3	8	4		19.98	20.09	20.50
3	8	7		19.74	19.79	20.26
3	15	0		19.51	19.57	19.98
3	1	0	16-QAM	20.72	20.78	21.11
3	1	7		20.49	20.51	20.82
3	1	14		20.29	20.24	20.62
3	8	0		19.99	20.03	20.34
3	8	4		19.75	19.82	20.06
3	8	7		19.49	19.57	19.79
3	15	0		19.28	19.32	19.56

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.10	21.45	20.94
5	1	12		20.89	21.17	20.68
5	1	24		20.59	20.88	20.41
5	12	0		20.32	20.63	20.21
5	12	6		20.05	20.34	19.99
5	12	11		19.76	20.04	19.72
5	25	0		19.46	19.83	19.50
5	1	0	16-QAM	20.89	21.18	20.66
5	1	12		20.62	20.98	20.42
5	1	24		20.42	20.69	20.16
5	12	0		20.13	20.42	19.95
5	12	6		19.84	20.20	19.68
5	12	11		19.58	19.90	19.38
5	25	0		19.35	19.68	19.18
10	1	0	QPSK	20.88	21.09	21.33
10	1	24		20.59	20.84	21.06
10	1	49		20.36	20.59	20.84
10	25	0		20.10	20.37	20.63
10	25	12		19.88	20.12	20.39
10	25	24		19.63	19.86	20.10
10	50	0		19.43	19.61	19.90
10	1	0	16-QAM	20.65	20.87	21.10
10	1	24		20.43	20.57	20.82
10	1	49		20.23	20.33	20.59
10	25	0		19.97	20.09	20.36
10	25	12		19.73	19.85	20.09
10	25	24		19.46	19.57	19.82
10	50	0		19.17	19.31	19.62

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.40	21.11	21.24
15	1	37		21.17	20.83	20.99
15	1	74		20.93	20.54	20.75
15	36	0		20.68	20.27	20.50
15	36	18		20.41	20.05	20.25
15	36	39		20.16	19.79	20.00
15	75	0		19.89	19.56	19.77
15	1	0	16-QAM	21.15	20.89	20.99
15	1	38		20.93	20.60	20.71
15	1	75		20.68	20.37	20.48
15	36	0		20.43	20.16	20.27
15	36	18		20.14	19.93	19.97
15	36	39		19.85	19.65	19.75
15	75	0		19.61	19.38	19.50
20	1	0	QPSK	21.26	21.63	21.54
20	1	49		21.04	21.41	21.27
20	1	99		20.83	21.11	20.98
20	50	0		20.55	20.90	20.69
20	50	24		20.27	20.65	20.42
20	50	49		20.02	20.44	20.19
20	100	0		19.74	20.19	19.94
20	1	0	16-QAM	20.96	21.38	21.29
20	1	49		20.76	21.14	21.09
20	1	99		20.51	20.87	20.87
20	50	0		20.29	20.66	20.59
20	50	24		20.06	20.39	20.37
20	50	49		19.82	20.18	20.10
20	100	0		19.52	19.89	19.85

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.84	21.98	22.03
1.4	1	2		21.59	21.71	21.73
1.4	1	5		21.31	21.45	21.51
1.4	3	0		21.06	21.24	21.22
1.4	3	1		20.78	20.96	20.94
1.4	3	2		20.54	20.69	20.73
1.4	6	0		20.28	20.43	20.44
1.4	1	0	16-QAM	21.58	21.72	21.77
1.4	1	2		21.36	21.50	21.56
1.4	1	5		21.12	21.21	21.27
1.4	3	0		20.90	20.96	21.05
1.4	3	1		20.64	20.71	20.81
1.4	3	2		20.39	20.43	20.57
1.4	6	0		20.15	20.19	20.30
3	1	0	QPSK	22.15	21.84	21.68
3	1	7		21.87	21.63	21.43
3	1	14		21.64	21.42	21.21
3	8	0		21.42	21.19	20.97
3	8	4		21.17	20.97	20.76
3	8	7		20.88	20.70	20.50
3	15	0		20.63	20.41	20.27
3	1	0	16-QAM	21.86	21.62	21.43
3	1	7		21.57	21.36	21.15
3	1	14		21.32	21.14	20.90
3	8	0		21.06	20.93	20.63
3	8	4		20.85	20.73	20.37
3	8	7		20.57	20.45	20.09
3	15	0		20.31	20.24	19.79

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.08	21.84	21.86
5	1	12		21.82	21.60	21.62
5	1	24		21.52	21.33	21.38
5	12	0		21.31	21.11	21.10
5	12	6		21.06	20.90	20.88
5	12	11		20.79	20.66	20.62
5	25	0		20.55	20.39	20.38
5	1	0	16-QAM	21.79	21.56	21.58
5	1	12		21.50	21.30	21.36
5	1	24		21.29	21.02	21.12
5	12	0		21.02	20.76	20.88
5	12	6		20.80	20.49	20.59
5	12	11		20.54	20.22	20.36
5	25	0		20.33	19.95	20.12
10	1	0	QPSK	22.01	22.29	21.97
10	1	24		21.74	22.01	21.68
10	1	49		21.46	21.76	21.43
10	25	0		21.23	21.54	21.16
10	25	12		20.95	21.33	20.92
10	25	24		20.66	21.11	20.62
10	50	0		20.41	20.89	20.35
10	1	0	16-QAM	21.72	22.04	21.74
10	1	24		21.45	21.78	21.48
10	1	49		21.18	21.54	21.18
10	25	0		20.96	21.28	20.91
10	25	12		20.74	21.01	20.63
10	25	24		20.47	20.77	20.43
10	50	0		20.19	20.56	20.15

BW (MHz)	RB Size	RB offset	Modulation	Middle
5	1	0	QPSK	23.59
	1	12		23.50
	1	24		23.33
	12	0		23.24
	12	6		23.16
	12	11		23.00
	25	0		22.96
	1	0	16QAM	23.59
	1	12		23.36
	1	24		23.23
	12	0		23.24
	12	6		23.15
	12	11		22.81
	25	0		22.76
10	1	0	QPSK	24.23
	1	24		24.17
	1	49		24.07
	25	0		23.87
	25	12		23.87
	25	24		23.83
	50	0		23.80
	1	0	16QAM	24.06
	1	24		23.98
	1	49		23.96
	25	0		23.73
	25	12		23.69
	25	24		23.77
	50	0		23.69

LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.09	21.84	21.48
5	1	12		21.87	21.60	21.21
5	1	24		21.62	21.38	20.94
5	12	0		21.39	21.16	20.70
5	12	6		21.10	20.95	20.47
5	12	11		20.88	20.67	20.20
5	25	0		20.68	20.45	19.98
5	1	0	16-QAM	21.80	21.58	21.20
5	1	12		21.55	21.32	20.95
5	1	24		21.32	21.06	20.72
5	12	0		21.03	20.78	20.52
5	12	6		20.80	20.54	20.24
5	12	11		20.59	20.33	20.02
5	25	0		20.36	20.04	19.78
10	1	0	QPSK	21.94	22.12	22.07
10	1	24		21.71	21.90	21.81
10	1	49		21.46	21.70	21.57
10	25	0		21.18	21.45	21.34
10	25	12		20.97	21.16	21.07
10	25	24		20.73	20.89	20.82
10	50	0		20.49	20.64	20.62
10	1	0	16-QAM	21.72	21.92	21.85
10	1	24		21.51	21.64	21.58
10	1	49		21.29	21.41	21.28
10	25	0		21.05	21.16	21.03
10	25	12		20.79	20.86	20.80
10	25	24		20.49	20.59	20.59
10	50	0		20.23	20.31	20.37

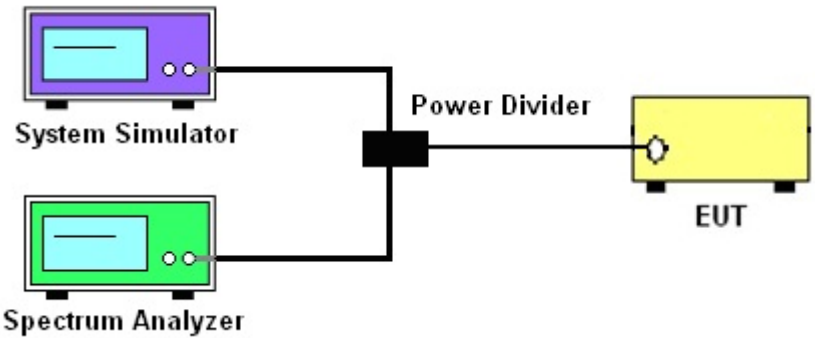
4. PEAK-TO-AVERAGE RATIO

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 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	5.44	4.39	4.78
20	100		5.7	5.37	5.31
20	1	16-QAM	6.6	5.61	4.76
20	100		6.44	6.07	5.97
Limit			≤13dB		

LTE Band 4 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
20	1	QPSK	5.26	4.78	5.82
20	100		5.5	5.65	5.42
20	1	16-QAM	6.36	5.22	6.45
20	100		6.32	6.33	6.41
Limit			≤13dB		

LTE Band 12 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
10	1	QPSK	4.39	3.42	4.31
10	50		4.85	4.94	5.18
10	1	16-QAM	5.38	4.08	5.04
10	50		5.76	5.93	6.05
Limit			≤13dB		

LTE Band 13 PAR [dBm]			
BW [MHz]	RB Size	Modulation	Middle
			P-A
10	1	QPSK	5.07
10	50		5.32
10	1	16-QAM	5.6
10	50		6.11
Limit			≤13dB

LTE Band 17 PAR [dBm]					
BW [MHz]	RB Size	Modulation	Lowest	Middle	Highest
			P-A	P-A	P-A
10	1	QPSK	4.22	4.21	4.64
10	50		5.23	5.33	5.42
10	1	16-QAM	4.67	4.88	5.39
10	50		6.2	6.15	5.98
Limit			≤13dB		

Note: Test chart See Appendix G

5. OCCUPIED BANDWIDTH

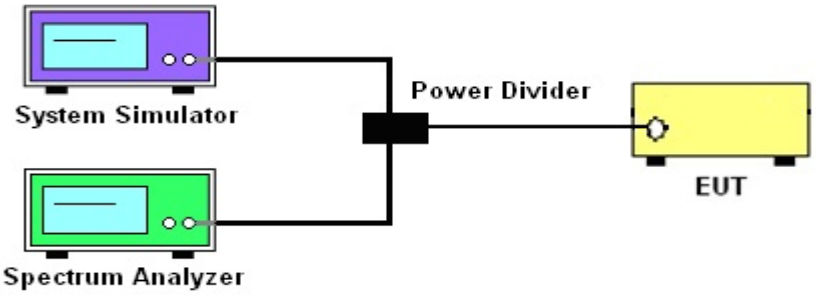
5.1 DESCRIPTION OF OCCUPIED BANDWIDTH MEASUREMENT

5.1.1 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.

5.1.2 TEST SETUP



5.1.3 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 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

5.1.4 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	1.097	1.304	1.092	1.283	1.0967	1.307
1.4	16-QAM	1.0905	1.28	1.094	1.294	1.1006	1.311
3	QPSK	2.677	2.862	2.674	2.856	2.682	2.857
3	16-QAM	2.676	2.847	2.673	2.855	2.673	2.866
5	QPSK	4.504	4.983	4.512	4.931	4.505	4.958
5	16-QAM	4.508	4.939	4.513	4.966	4.49	4.916
10	QPSK	8.94	9.577	8.942	9.87	8.935	9.628
10	16-QAM	8.932	9.534	8.939	9.602	8.941	9.519
15	QPSK	13.457	14.64	13.485	14.66	13.452	14.52
15	16-QAM	13.48	14.58	13.474	14.57	13.486	14.56
20	QPSK	17.942	19.26	17.895	19.23	17.914	19.34
20	16-QAM	17.896	19.14	17.922	19.19	17.915	19.23

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	1.098	1.28	1.1	1.284	1.091	1.285
1.4	16-QAM	1.099	1.308	1.0905	1.287	1.095	1.299
3	QPSK	2.674	2.854	2.675	2.846	2.681	2.865
3	16-QAM	2.675	2.851	2.674	2.857	2.674	2.862
5	QPSK	4.493	4.89	4.511	4.942	4.502	4.95
5	16-QAM	4.508	4.947	4.496	4.955	4.489	4.895
10	QPSK	8.928	9.546	8.934	9.52	8.937	9.594
10	16-QAM	8.932	9.589	8.9436	9.505	8.941	9.566
15	QPSK	13.465	14.68	13.446	14.57	13.455	14.64
15	16-QAM	13.448	14.5	13.479	14.62	13.453	14.55
20	QPSK	17.915	19.6	17.906	19.23	17.891	19.16
20	16-QAM	17.872	19.14	17.945	19.24	17.863	19.14

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	1.314	1.102	1.286	1.094	1.303
1.4	16-QAM	1.102	1.304	1.0891	1.292	1.0969	1.288
3	QPSK	2.6757	2.854	2.6791	2.866	2.679	2.879
3	16-QAM	2.674	2.852	2.674	2.852	2.678	2.861
5	QPSK	4.534	5.239	4.528	5.203	4.524	5.234
5	16-QAM	4.542	5.25	4.536	5.201	4.527	5.207
10	QPSK	8.953	9.86	8.948	9.884	8.949	9.853
10	16-QAM	8.964	9.723	8.946	9.861	8.935	9.773

LTE Band 13 Bandwidth [MHz]							
BW [MHz]	Mode	Lowest		Middle		Highest	
		99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
5	QPSK	4.493	4.925	4.495	4.942	4.52	4.973
5	16-QAM	4.48	4.928	4.508	4.966	4.521	5.036
10	QPSK	N/A	N/A	8.932	9.581	N/A	N/A
10	16-QAM	N/A	N/A	8.921	9.53	N/A	N/A

LTE Band 17 Bandwidth [MHz]							
BW [MHz]	Mode	Lowest		Middle		Highest	
		99% BW	26dB BW	99% BW	26dB BW	99% BW	26dB BW
5	QPSK	4.505	5.148	4.528	5.17	4.525	5.246

5	16-QAM	4.544	5.223	4.507	5.137	4.541	5.201
10	QPSK	8.935	9.814	8.942	9.971	8.928	9.729
10	16-QAM	8.936	9.756	8.928	9.796	8.937	9.765

Note: Test chart See Appendix D

6. CONDUCTED BAND EDGE

6.1 DESCRIPTION OF CONDUCTED BAND EDGE MEASUREMENT

6.1.1 MEASUREMENT METHOD

1. §22.917(a) For operations in the 824 – 849 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(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 + 10log10(P[Watts]) dB below the transmitter power P(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 + 10log10(P[Watts]) dB below the transmitter power P(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.

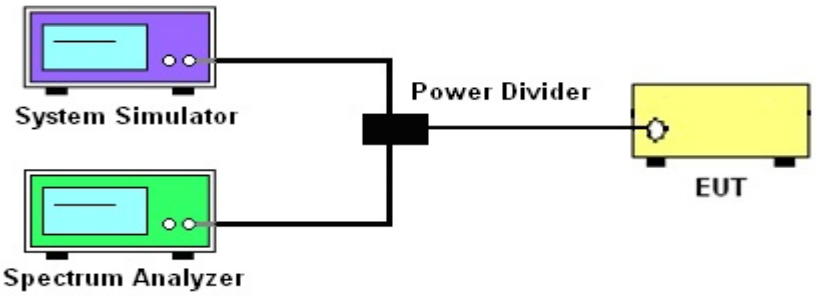
4. §27.53(m)(4)

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 MHzand 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licenseesoperating on frequencies below 2495 MHz may also submit a documented interference complaintagainst 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 + 10log10(P[Watts]) dB below the transmitter power P(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.

6.1.2 TEST SETUP



6.1.3 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 >= 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 frquency band.

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

Band 7:
= P(W)- [55 + 10log(P)] (dB)
= [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)
= -25dBm.

	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

6.1.4 MEASUREMENT RESULT
Note: Test chart See Appendix E

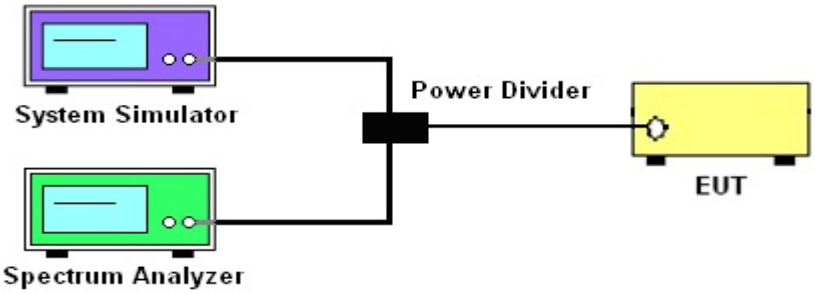
7. CONDUCTED SPURIOUS EMISSION

7.1 DESCRIPTION OF CONDUCTED SPURIOUS EMISSION MEASUREMENT

7.1.1 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.

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 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 frquency band.
6.The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB) = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
= -13dBm.
For Band 7: P(W)- [43 + 10log(P)] (dB) =-25dBm

	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

7.1.4 TEST RESULTS

Note: Test chart See Appendix F

8. RADIATED SPURIOUS EMISSION

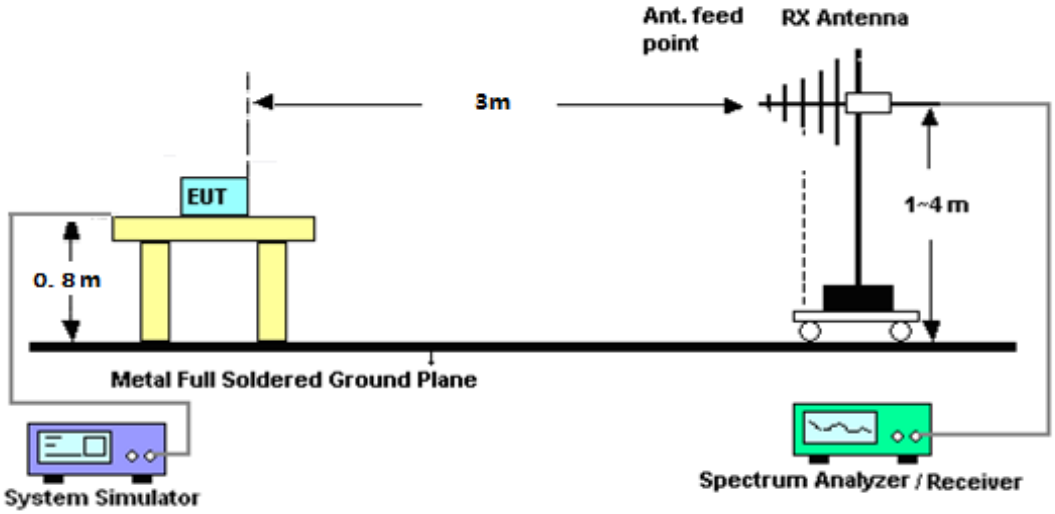
8.1 DESCRIPTION OF RADIATED SPURIOUS EMISSION

8.1.1 MEASUREMENT METHOD

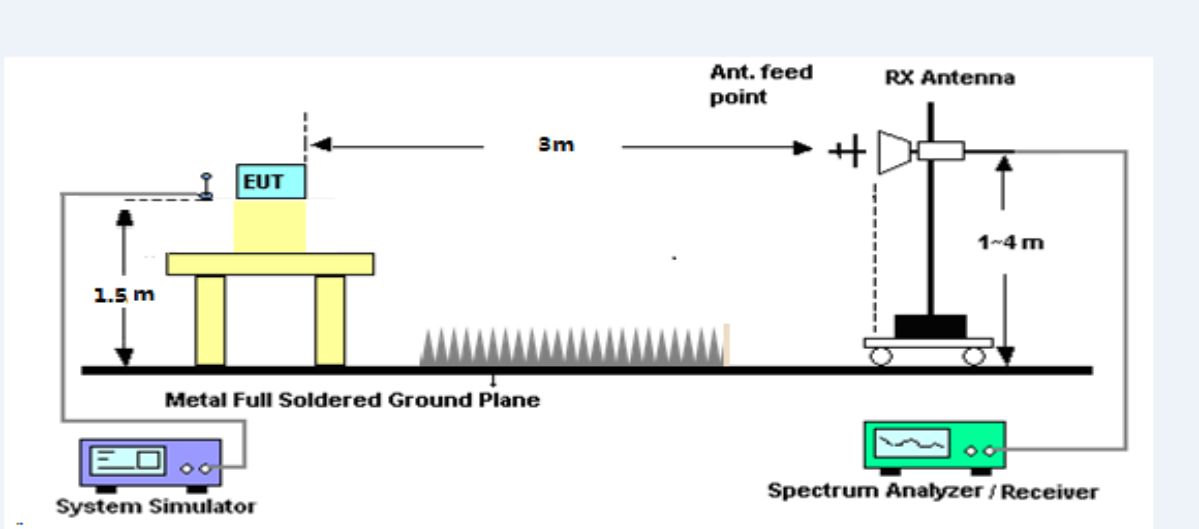
The radiated spurious emission was measured by substitution method according to ANSI C63.26 2015. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.
For Band 7 The power of any emission outside of the authorized operating frequency ranges must 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.

8.1.2 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（dBuV）+CL（dB）+SA（dB）+Gain（dBi）-107（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



8.1.3 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 + 10log(P)dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB)
= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
= -13dBm

8.1.4 TEST RESULTS

Note: Test data See Appendix G

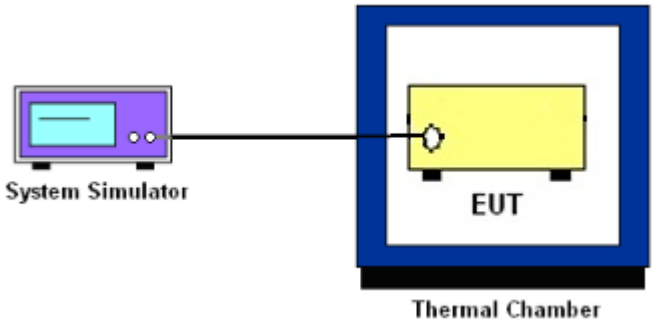
9. FREQUENCY STABILITY

9.1 DESCRIPTION OF FREQUENCY STABILITY MEASUREMENT

9.1.1 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 ±0.00025% (±2.5ppm) of the center frequency.

9.1.2 TEST SETUP



9.1.3 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.

9.1.4 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±5° C and connected with the system simlator.

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.

9.1.5 TEST RESULTS

LTE Band 2 (QPSK) / 1880MHz / BW10M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	17.53	0.009	2.5ppm	PASS
40		28.41	0.015		
30		22.83	0.012		
20		17.17	0.009		
10		12.09	0.006		
0		23.79	0.013		
-10		25.47	0.014		
-20		33.73	0.018		
-30		29.90	0.016		
20	Maximum Voltage	33.16	0.018		
20	BEP	33.42	0.018		

LTE Band 2 (QPSK) / 1880MHz / BW20M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	33.59	0.018	2.5ppm	PASS
40		27.08	0.014		
30		30.39	0.016		
20		15.12	0.008		
10		18.81	0.010		
0		22.10	0.012		
-10		18.64	0.010		
-20		21.96	0.012		
-30		14.72	0.008		
20	Maximum Voltage	29.41	0.016		
20	BEP	36.14	0.019		

LTE Band 4 (QPSK) / 1733MHz / BW10M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	30.96	0.018	2.5ppm	PASS
40		32.54	0.019		
30		14.64	0.008		
20		15.41	0.009		
10		25.64	0.015		
0		14.98	0.009		
-10		15.75	0.009		
-20		21.30	0.012		
-30		30.79	0.018		
20	Maximum Voltage	19.57	0.011		
20	BEP	23.21	0.013		

LTE Band 4 (QPSK) / 1733MHz / BW20M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	35.02	0.020	2.5ppm	PASS
40		20.97	0.012		
30		18.26	0.011		
20		29.49	0.017		
10		28.08	0.016		
0		13.08	0.008		
-10		34.58	0.020		
-20		11.79	0.007		
-30		28.70	0.017		
20	Maximum Voltage	22.65	0.013		
20	BEP	28.15	0.016		

LTE Band 12 (QPSK) / 707.5MHz / BW5M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	17.26	0.024	2.5ppm	PASS
40		12.51	0.018		
30		27.97	0.039		
20		33.18	0.047		
10		27.97	0.039		
0		32.85	0.046		
-10		30.17	0.004		
-20		28.99	0.041		
-30		21.26	0.030		
20	Maximum Voltage	32.87	0.046		
20	BEP	17.10	0.024		

LTE Band 12 (QPSK) / 707.5MHz / BW10M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	33.00	0.046	2.5ppm	PASS
40		15.90	0.022		
30		31.05	0.044		
20		12.52	0.018		
10		22.47	0.032		
0		22.39	0.032		
-10		32.62	0.005		
-20		24.74	0.035		
-30		30.74	0.043		
20	Maximum Voltage	26.70	0.038		
20	BEP	29.84	0.042		

LTE Band 13 (QPSK) / 782MHz / BW5M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	11.73	0.017	2.5ppm	PASS
40		27.93	0.039		
30		14.28	0.020		
20		24.97	0.035		
10		32.95	0.046		
0		31.64	0.045		
-10		30.01	0.004		
-20		14.78	0.021		
-30		14.84	0.021		
20	Maximum Voltage	24.81	0.035		
20	BEP	15.37	0.022		

LTE Band 13 (QPSK) / 782MHz / BW10M					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	19.12	0.027	2.5ppm	PASS
40		11.98	0.017		
30		23.18	0.033		
20		32.47	0.046		
10		19.68	0.028		
0		30.33	0.043		
-10		17.69	0.002		
-20		16.53	0.023		
-30		19.61	0.028		
20	Maximum Voltage	16.36	0.023		
20	BEP	14.47	0.020		

LTE Band 17 (QPSK) / 710MHz / BW5M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	35.89	0.051	2.5ppm	PASS
40		34.08	0.048		
30		14.83	0.021		
20		19.12	0.027		
10		26.70	0.038		
0		21.38	0.030		
-10		11.98	0.002		
-20		18.96	0.027		
-30		26.32	0.037		
20	Maximum Voltage	22.20	0.031		
20	BEP	13.36	0.019		

LTE Band 17 (QPSK) / 710MHz / BW10M					
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result
50	Normal Voltage	32.92	0.046	2.5ppm	PASS
40		24.57	0.035		
30		23.79	0.034		
20		27.29	0.038		
10		27.70	0.039		
0		21.75	0.031		
-10		35.70	0.005		
-20		34.30	0.048		
-30		33.65	0.047		
20	Maximum Voltage	32.08	0.045		
20	BEP	13.10	0.018		

APPENDIX ——PHOTOS

TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

EXTERNAL PHOTOGRAPHS OF EUT

Please refer to separated files for External Photos of the EUT.

INTERNAL PHOTOGRAPHS OF EUT

Please refer to separated files for Internal Photos of the EUT.

End of report