FCC TEST REPORT

Application No.:	DNT2512100198R14537-18092
Applicant:	FJ Dynamics Co.,Ltd.
Address of Applicant:	Floor 21, Das Tower, No. 28, 1st South Keji Road, High-tech Zone, Yuehai Subdistrict, Nanshan District, Shenzhen, China
EUT Description:	Robotic Lawn Mover
Model No.:	FRX
FCC ID:	2A2LL-FRX
Power supply:	Input:120V/60Hz,DC 50.4V(Battery pack)
Trade Mark:	FJD
Standards:	47 CFR Part 2 47 CFR Part 22 subpart H 47 CFR Part 24 subpart E 47 CFR Part 27 subpart C 47 CFR Part 90 subpart R
Date of Receipt:	2025/12/10
Date of Test:	2025/12/11 to 2025/12/24
Date of Issue:	2026/04/14
Test Result:	**PASS**

Prepared By: _____ (Testing Engineer)

Reviewed By: _____ (Project Engineer)

Approved By: _____ (Manager)

Note: If there is any objection to the results in this report, please submit a written inquiry to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp, and is issued by the company in accordance with the requirements of the "Conditions of Issuance of Test Reports" printed in the attached page. Unless otherwise stated, the results presented in this report only apply to the samples tested this time. Partial reproduction of this report is not allowed unless approved by the company in writing.

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	April 14, 2026	Valid	Original Report

Contents

1 Test Summary 4
2 General Information 5
2.1 Test Location 5
2.2 General Description of EUT 6
2.3 Test Environment 7
2.4 Assistant equipment used for test 7
2.5 Test Facility 7
2.6 Equipment List 8
2.7 Measurement Uncertainty 9
3 Description of Tests 10
3.1 RF Power Output and Effective Isotropic Radiated Power 10
WCDMA Band II 11
WCDMA Band IV 12
WCDMA Band V 13
LTE Band 2 14
LTE Band 4 18
LTE Band 5 22
LTE Band 12 24
LTE Band 13 27
LTE Band 14 29
LTE Band 66 31
LTE Band 71 35
3.2 Field Strength of Spurious Radiation 38

1 Test Summary

No.	Test Item	Clause in FCC rules	Verdict
1	RF power output	2.1046/90.635 (b)	PASS
2	Effective(Isotropic) Radiated Power	22.913(a)(5)/24.232(c)/ 27.50(d)(4)/27.50(b)(10)/27.50 (c)(10)/27.50(h)(2)/90.542	PASS
3	Occupied Bandwidth	2.1049/90.209	Data reference FCC ID:XMR201909EC25AFX
4	Band Edge Compliance	2.1051/ 22.917(a)/24.238(a)/ 27.53(h)/27.53(g)/27.53(f)/27.53(c)/27.53(m)/90.543	Data reference FCC ID:XMR201909EC25AFX
5	Peak-to-Average Power Ratio	22.913(d)/24.232/27.50(d)/ KDB 971168 D01(5.7)	Data reference FCC ID:XMR201909EC25AFX
6	Frequency Stability	2.1055/ 22.355/24.235/27.54/ 90.539 (c)	Data reference FCC ID:XMR201909EC25AFX
7	Spurious Emissions at Antenna Terminals	2.1051/22.917(a)/24.238(a)/ 27.53(h)/27.53(g)/27.53(f)/ 90.543 (e)	Data reference FCC ID:XMR201909EC25AFX
8	Radiates Spurious Emission	2.1053/22.917 (a)/24.238(a)/ 27.53(h)/27.53(g)/27.53(f)/ 90.543 (e)	PASS

Note:

The module in this product has already finished the certification FCC ID: XMR201909EC25AFX, Reference the results in the original test report.

2 General Information

2.1 Test Location

Company:	Dongguan DN Testing Co., Ltd
Address:	No. 1, West Fourth Street, South Xinfa Road, Wusha Liwu, Chang ' an Town, Dongguan City, Guangdong P.R.China
Test engineer:	Gali Lin

2.2 General Description of EUT

Manufacturer:	FJ Dynamics Co.,Ltd.
Address of Manufacturer:	Floor 21, Das Tower, No. 28, 1st South Keji Road, High-tech Zone, Yuehai Subdistrict, Nanshan District, Shenzhen, China
Factory	FJ Dynamics Technology (Fujian) Co., Ltd.
Factory of Manufacturer:	Unit 3, Yimei Zhineng Industrial Park, No. 30 Zhihui Avenuee, Nanyu Town, Gaoxin District, Fuzhou City, Fujian Province, China
EUT Description:	Robotic Lawn Mover
Model No.:	FRX
Additional Model(s):	/
Power Supply:	Input:120V/60Hz,DC 50.4V(Battery pack)
Trade Mark:	FJD
Hardware Version:	V1.0
Software Version:	V1.0
Test Modulation	WCDMA:QPSK; LTE:QPSK/16QAM;

Frequency Range(s):

Mode	Tx (MHz)	Rx (MHz)	Gain(dBi)
WCDMA Band II	1850 ~ 1910	1930 ~ 1990	4.9
WCDMA Band IV	1710 ~ 1755	2110 ~ 2155	4.1
WCDMA Band V	824 ~ 849	869 ~ 894	3.3
LTE Band 2	1850 ~ 1910	1930 ~ 1990	4.9
LTE Band 4	1710 ~ 1755	2110 ~ 2155	4.1
LTE Band 5	824 ~ 849	869 ~ 894	3.3
LTE Band 12	699 ~ 716	729 ~ 746	2.6
LTE Band 13	777 ~ 787	746 ~ 756	3.2
LTE Band 14	788 ~ 798	758 ~ 768	3.9
LTE Band 66	1710 ~ 1780	2110 ~ 2200	4.1
LTE Band 71	663 ~ 698	617 ~ 652	2.6

Sample Type:	☐ Portable Device, ☒ Mobile Device
Antenna Type:	☐ External, ☒ Integrated
RF Cable*:	☒ Provided by applicant 0.5dB(0.6~1GHz); 0.8dB(1.4~2GHz); 1.0dB(2.1~2.7GHz); 1.5dB(3~4GHz); 1.8dB(4.4~6GHz);

Note:
*Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, DNT is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2.3 Test Environment

Operating Environment:		
Humidity:	45~56 % RH	
Atmospheric Pressure:	101.0~101.30 KPa	
Temperature	NT	20~25 °C
Voltage:	LV	2.97V
	NV	3.30V
	HV	3.63V

Remark: LV= lower extreme test voltage; NV= nominal voltage
HV= upper extreme test voltage; NT= normal temperature

2.4 Assistant equipment used for test

Code	Equipment	Manufacturer	Model No.	Equipment No.
1	/	/	/	/

2.5 Test Facility

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

Lab A:

• FCC, USA

Designation Number: CN1348

• A2LA (Certificate No. 7050.01)

DONGGUAN DN TESTING CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 7050.01.

• Innovation, Science and Economic Development Canada

DONGGUAN DN TESTING CO., LTD. EMC Laboratory has been recognized by ISED as an accredited testing laboratory. CAB identifier is CN0149.

IC#: 30755.

2.6 Equipment List

RSE & Tonscend Test System							
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Previously Cal. Date (yyyy-mm-dd)**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
1	frequency analyser	Keysight	N9010A	JS-DN-EMC-011	2024-10-23	2025-10-21	2026-10-20
2	Radio Communication Analyzer	R&S	CMW500	JS-DN-EMC-006	2024-10-23	2025-10-21	2026-10-20
3	pre-amplifier 30MHz-6GHz	S&B	BBV9743B	JS-DN-EMC-042	2024-10-23	2025-10-21	2026-10-20
4	pre-amplifier 1GHz-18GHz	ETS-LINDGREN	3117-PA	JS-DN-EMC-043	2024-10-23	2025-10-21	2026-10-20
5	pre-amplifier 10GHz-40GHz	ETS-LINDGREN	3116C-PA	JS-DN-EMC-085	2024-10-23	2025-10-21	2026-10-20
6	Log-periodic hybrid antenna	ETS-LINDGREN	VULB 9168	JS-DN-EMC-023	2024-10-23	2025-10-21	2026-10-20
7	Broadband Horn Antenna	ETS-LINDGREN	3117	JS-DN-EMC-045	2024-10-23	2025-10-21	2026-10-20
8	Double ridged waveguide antenna	ETS-LINDGREN	3116C	JS-DN-EMC-084	2024-10-23	2025-10-21	2026-10-20
9	Signal Generator	Keysight	N5181A-6G	JS-DN-RF-001	2024-10-23	2025-10-21	2026-10-20
10	power supply	Keysight	E3640A	JS-DN-RF-003	2024-10-23	2025-10-21	2026-10-20
11	Radio Communication Tester	R&S	CMW500	JS-DN-RF-005	2024-10-23	2025-10-21	2026-10-20
12	Spectrum Analyzer	Keysight	N9020A	JS-DN-RF-009	2024-10-23	2025-10-21	2026-10-20
13	Signal Generator	Keysight	N5182A	JS-DN-RF-010	2024-10-23	2025-10-21	2026-10-20
14	RF Test Software	Tonscend	JS1120-3 V3.2.46	JS-DN-RF-014	NA	NA	NA

2.7 Measurement Uncertainty

For a 95% confidence level (k = 2), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Lab A:

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	±0.41dB
2	RF power density, conducted	±1.96dB
3	Spurious emissions, conducted	±0.41dB
4	Radio Frequency	±7.10 x 10^{-8}
5	Duty Cycle	±0.49%
6	Occupied Bandwidth	±0.2%

Lab B:

No.	Item	Measurement Uncertainty
1	Radiated Emission	± 4.8dB (Below 1GHz)
		± 4.8dB (1GHz to 6GHz)
		± 4.5dB (6GHz to 18GHz)
		± 5.02dB (Above 18GHz)

3 Description of Tests

3.1 RF Power Output and Effective Isotropic Radiated Power

Measurement Procedure: FCC KDB 971168 D01 V03r01 ; C63.26 (2015)
Calculate power in dBm by the following formula:
ERP (dBm) = Conducted Power (dBm) + antenna gain (dBd)
EIRP(dBm) = Conducted Power (dBm) + antenna gain (dBi)
EIRP=ERP+2.15dB

Measurement Procedure: FCC KDB 971168 D01 V03r01 ; ANSI/C63.26 (2015)

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 0.8m high table in the chamber. The antenna of the transmitter was extended to its maximum length.
2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.
5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.
6). The output power into the substitution antenna was then measured.
7). Steps 5) and 6) were repeated with both antennas polarized.
8). Calculate power in dBm by the following formula:

ERP (dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

Where:

Pg is the generator output power into the substitution antenna.

Above 1GHz test procedure as below:

1). Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber
2). Calculate power in dBm by the following formula:

EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

EIRP=ERP+2.15dB

Where:

Pg is the generator output power into the substitution antenna.

3). Test the EUT in the lowest channel, the middle channel the Highest channel
4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
5). Repeat above procedures until all frequencies measured was complete.

TEST DATA

WCDMA Band II

WCDMA Band II		EIRP Power(dBm)		
		Channel 9262	Channel 9400	Channel 9538
		1852.4(MHz)	1880(MHz)	1907.6(MHz)
RMC		24.07	23.91	23.92
HSDPA	Sub - Test 1	23.03	22.93	22.86
	Sub - Test 2	23.02	22.91	22.84
	Sub - Test 3	22.51	22.36	22.33
	Sub - Test 4	22.5	22.47	22.36
HSUPA	Sub - Test 1	23.09	22.95	22.88
	Sub - Test 2	22.48	22.3	22.3
	Sub - Test 3	22.95	22.78	22.79
	Sub - Test 4	22.41	22.27	22.27
	Sub - Test 5	23.02	22.93	22.85
DC-HSDPA	Sub - Test 1	23.41	23.27	23.26
	Sub - Test 2	23.4	23.26	23.25
	Sub - Test 3	22.98	22.75	22.76
	Sub - Test 4	22.97	22.74	22.75

WCDMA Band IV

WCDMA Band IV		EIRP Power(dBm)		
		Channel 1312	Channel 1413	Channel 1513
		1712.4 (MHz)	1732.6 (MHz)	1752.6(MHz)
RMC		23.49	23.44	23.35
HSDPA	Sub - Test 1	22.46	22.26	22.29
	Sub - Test 2	22.54	22.24	22.36
	Sub - Test 3	21.93	21.74	21.88
	Sub - Test 4	22.02	21.79	21.86
HSUPA	Sub - Test 1	22.23	22.25	22.17
	Sub - Test 2	21.9	21.83	21.73
	Sub - Test 3	22.37	22.31	22.22
	Sub - Test 4	22.47	22.23	22.26
	Sub - Test 5	22.54	22.28	22.29
DC-HSDPA	Sub - Test 1	22.83	22.8	22.92
	Sub - Test 2	22.82	22.79	22.68
	Sub - Test 3	22.4	22.28	22.19
	Sub - Test 4	22.39	22.27	22.44

WCDMA Band V

WCDMA Band V		ERP Power(dBm)		
		Channel 4132	Channel 4183	Channel 4233
		826.4(MHz)	836.6(MHz)	846.6(MHz)
RMC		22.69	22.64	22.55
HSDPA	Sub - Test 1	22.31	22.3	22.29
	Sub - Test 2	21.44	21.48	21.46
	Sub - Test 3	21.5	21.51	21.45
	Sub - Test 4	20.94	20.9	20.96
HSUPA	Sub - Test 1	20.91	20.89	20.95
	Sub - Test 2	20.69	20.68	20.67
	Sub - Test 3	18.68	18.67	18.66
	Sub - Test 4	19.66	19.66	19.65
	Sub - Test 5	18.65	18.65	18.64
DC-HSDPA	Sub - Test 1	21.42	21.44	21.43
	Sub - Test 2	21.65	21.66	21.63
	Sub - Test 3	21.64	21.65	21.62
	Sub - Test 4	21.22	21.14	21.13

LTE Band 2

LTE Band 2				EIRP Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18607/1850.7	18900/1880	19193/1909.3
1.4MHz	QPSK	1	0	24.27	24.31	23.89
		1	2	24.31	24.69	23.89
		1	5	24.23	24.16	23.81
		3	0	24.25	24.19	24.02
		3	2	24.08	23.99	24.11
		3	3	24.27	24.16	23.8
		6	0	23.13	23.39	22.97
	16QAM	1	0	23.26	23.81	23.58
		1	2	23.31	23.84	23.9
		1	5	23.1	23.85	23.92
		3	0	23.23	23.09	23.06
		3	2	23.32	23.06	22.97
		3	3	23.21	23.19	22.96
		6	0	22.26	22.19	22.2
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18615/1851.5	18900/1880	19185/1908.5
3MHz	QPSK	1	0	24.29	24.35	23.92
		1	7	24.34	24.74	23.93
		1	14	24.26	24.21	23.85
		8	0	23.35	23.31	23.15
		8	4	23.2	23.09	23.23
		8	7	23.37	23.27	22.9
		15	0	23.16	23.43	23
		1	0	23.29	23.83	23.61
		1	7	23.34	23.89	23.94
		1	14	23.12	23.89	23.95
		8	0	22.34	22.22	22.18

	16QAM	8	4	22.43	22.19	22.09
		8	7	22.31	22.31	22.09
		15	0	22.29	22.23	22.23
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18625/1852.5	18900/1880	19175/1907.5
5MHz	QPSK	1	0	24.26	24.33	23.88
		1	13	24.32	24.7	23.9
		1	24	24.23	24.16	23.81
		12	0	23.32	23.26	23.11
		12	6	23.18	23.05	23.18
		12	13	23.35	23.25	22.86
		25	0	23.14	23.42	22.98
	16QAM	1	0	23.26	23.79	23.58
		1	13	23.31	23.87	23.91
		1	24	23.09	23.87	23.91
		12	0	22.32	22.18	22.15
		12	6	22.4	22.14	22.05
		12	13	22.28	22.26	22.05
		25	0	22.27	22.19	22.18
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18650/1855	18900/1880	19150/1905
	QPSK	1	0	24.28	24.34	23.91
		1	25	24.35	24.75	23.94
		1	49	24.25	24.2	23.84
		25	0	23.35	23.31	23.15
		25	13	23.21	23.1	23.22
		25	25	23.37	23.29	22.91
		50	0	23.22	23.44	23.02
		1	0	23.28	23.82	23.6
		1	25	23.12	23.89	23.94

10MHz	16QAM	1	49	22.35	22.23	22.19
		25	0	22.42	22.18	22.08
		25	13	22.31	22.31	22.09
		25	25	22.3	22.24	22.22
		50	0	23.12	23.89	23.94
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18675/1857.5	18900/1880	19125/1902.5
15MHz	QPSK	1	0	24.27	24.3	23.89
		1	38	24.33	24.74	23.91
		1	74	24.22	24.15	23.8
		36	0	23.33	23.27	23.12
		36	18	23.18	23.05	23.18
		36	39	23.34	23.26	22.87
		75	0	23.2	23.4	22.97
	16QAM	1	0	23.23	23.8	23.58
		1	38	23.32	23.88	23.92
		1	74	23.09	23.85	23.91
		36	0	22.32	22.21	22.16
		36	18	22.39	22.13	22.04
		36	39	22.29	22.27	22.06
		75	0	22.27	22.19	22.18
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18700/1860	18900/1880	19100/1900
	QPSK	1	0	24.24	24.26	23.86
		1	50	24.32	24.7	23.89
		1	99	24.2	24.14	23.77
		50	0	23.3	23.22	23.08
		50	25	23.16	23.01	23.15
		50	50	23.31	23.21	22.83

		100	0	23.17	23.35	22.93
		1	0	23.21	23.76	23.53
		1	50	23.28	23.86	23.88
20MHz		1	99	23.07	23.82	23.89
		50	0	22.29	22.17	22.13
	16QAM	50	25	22.36	22.11	22.01
		50	50	22.26	22.22	22.02
		100	0	22.25	22.15	22.15

LTE Band 4

LTE Band 4				EIRP Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				19957/1710.7	20175/1732.5	20393/1754.3
1.4MHz	QPSK	1	0	23.65	23.3	23.52
		1	2	23.54	23.63	23.56
		1	5	23.3	23.64	23.78
		3	0	23.42	23.32	23.65
		3	2	23.38	23.43	23.5
		3	3	23.41	23.52	23.49
		6	0	22.4	22.5	22.74
	16QAM	1	0	22.55	22.35	23.37
		1	2	22.62	22.89	23.25
		1	5	22.48	23.08	23.47
		3	0	22.33	22.42	22.53
		3	2	22.42	22.49	22.36
		3	3	22.49	22.57	22.57
		6	0	21.44	21.58	21.78
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				19965/1711.5	20175/1732.5	20385/1753.5
3MHz	QPSK	1	0	23.67	23.34	23.55
		1	7	23.57	23.68	23.6
		1	14	23.33	23.69	23.82
		8	0	22.52	22.44	22.78
		8	4	22.5	22.53	22.62
		8	7	22.51	22.63	22.59
		15	0	22.43	22.54	22.77
		1	0	22.58	22.37	23.4
		1	7	22.65	22.94	23.29
		1	14	22.5	23.12	23.5
		8	0	21.44	21.55	21.65

	16QAM	8	4	21.53	21.62	21.48
		8	7	21.59	21.69	21.7
		15	0	21.47	21.62	21.81
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				19975/1712.5	20175/1732.5	20375/1752.5
5MHz	QPSK	1	0	23.64	23.32	23.51
		1	13	23.55	23.64	23.57
		1	24	23.3	23.64	23.78
		12	0	22.49	22.39	22.74
		12	6	22.48	22.49	22.57
		12	13	22.49	22.61	22.55
		25	0	22.41	22.53	22.75
	16QAM	1	0	22.55	22.33	23.37
		1	13	22.62	22.92	23.26
		1	24	22.47	23.1	23.46
		12	0	21.42	21.51	21.62
		12	6	21.5	21.57	21.44
		12	13	21.56	21.64	21.66
		25	0	21.45	21.58	21.76
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20000/1715	20175/1732.5	20350/1750
10MHz	QPSK	1	0	23.66	23.33	23.54
		1	25	23.58	23.69	23.61
		1	49	23.32	23.68	23.81
		25	0	22.52	22.44	22.78
		25	13	22.51	22.54	22.61
		25	25	22.51	22.65	22.6
		50	0	22.49	22.55	22.79
		1	0	22.57	22.36	23.39
		1	25	22.65	22.96	23.29

	16QAM	1	49	22.5	23.12	23.49
		25	0	21.45	21.56	21.66
		25	13	21.52	21.61	21.47
		25	25	21.59	21.69	21.7
		50	0	21.48	21.63	21.8
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20025/1717.5	20175/1732.5	20325/1747.5
15MHz	QPSK	1	0	23.65	23.29	23.52
		1	38	23.56	23.68	23.58
		1	74	23.29	23.63	23.77
		36	0	22.5	22.4	22.75
		36	18	22.48	22.49	22.57
		36	39	22.48	22.62	22.56
		75	0	22.47	22.51	22.74
	16QAM	1	0	22.52	22.34	23.37
		1	38	22.63	22.93	23.27
		1	74	22.47	23.08	23.46
		36	0	21.42	21.54	21.63
		36	18	21.49	21.56	21.43
		36	39	21.57	21.65	21.67
		75	0	21.45	21.58	21.76
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20050/1720	20175/1732.5	20300/1745
20MHz	QPSK	1	0	23.62	23.25	23.49
		1	50	23.55	23.64	23.56

		1	99	23.27	23.62	23.74
		50	0	22.47	22.35	22.71
		50	25	22.46	22.45	22.54
		50	50	22.45	22.57	22.52
		100	0	22.44	22.46	22.7

	16QAM	1	0	22.5	22.3	23.32
		1	50	22.59	22.91	23.23
		1	99	22.45	23.05	23.44
		50	0	21.39	21.5	21.6
		50	25	21.46	21.54	21.4
		50	50	21.54	21.6	21.63
		100	0	21.43	21.54	21.73

LTE Band 5

LTE Band 5 ERP Power(dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	22.28	22.41	22.45	1	0	22.35	22.43	22.54
	1	2	22.37	22.74	22.55	1	7	22.24	22.76	22.45
	1	5	22.39	22.49	22.47	1	14	22.48	22.43	22.45
	3	0	22.3	22.61	22.45	8	0	21.38	21.47	21.43
	3	1	22.31	22.56	22.24	8	3	21.28	21.45	21.34
	3	3	22.44	22.35	22.52	8	7	21.36	21.36	21.36
	6	0	21.41	21.43	21.44	15	0	21.36	21.44	21.38
16QAM	1	0	21.3	21.07	21.12	1	0	21.14	20.95	21.08
	1	2	20.99	21.04	20.99	1	7	21.09	21.21	21.17
	1	5	21.18	21.02	20.95	1	14	21.21	21.03	20.98
	3	0	21.37	21.61	21.36	8	0	20.25	20.58	20.45
	3	1	21.3	21.38	21.22	8	3	20.23	20.37	20.17
	3	3	21.5	21.52	21.16	8	7	20.47	20.57	20.18
	6	0	20.21	22.33	20.16	15	0	20.28	22.36	20.28
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	22.25	22.31	22.62	1	0	22.43	22.46	22.62
	1	12	22.31	22.82	22.55	1	24	22.39	22.91	22.65
	1	24	22.46	22.48	22.53	1	49	22.5	22.53	22.58
	12	0	21.44	21.56	21.36	25	0	21.47	21.61	21.53
	12	6	21.21	21.59	21.28	25	12	21.37	21.63	21.44
	12	13	21.42	21.44	21.38	25	25	21.48	21.52	21.52
	25	0	21.26	21.45	21.49	50	0	21.46	21.57	21.51
16QAM	1	0	21.24	21.01	21.05	1	0	21.31	21.15	21.24
	1	12	21.1	21.07	21.16	1	24	21.15	21.24	21.18
	1	24	21.19	21.06	21.06	1	49	21.22	21.12	21.13
	12	0	20.33	20.59	20.42	25	0	20.43	20.67	20.51
	12	6	20.33	20.31	20.28	25	12	20.38	20.5	20.37

	12	13	20.53	20.47	20.23	25	25	20.57	20.58	20.31
	25	0	20.11	22.37	20.29	50	0	20.3	22.44	20.32

LTE Band 12

LTE Band 12				ERP Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23017/699.7	23095/707.5	23173/715.3
1.4MHz	QPSK	1	0	22.23	22.24	22.21
		1	2	22.27	22.17	22.29
		1	5	22.21	22.1	22.3
		3	0	22.1	22.14	22.23
		3	2	22.05	22.1	22.14
		3	3	22.26	22.22	22.23
		6	0	21.21	21.17	21.25
	16QAM	1	0	21.55	20.78	21.56
		1	2	21.54	21.15	21.8
		1	5	21.36	20.96	21.46
		3	0	21.18	21.2	21.34
		3	2	21.12	21.1	21.11
		3	3	21.12	21.18	21.06
		6	0	20.31	20.23	20.44
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23025/700.5	23095/707.5	23165/714.5
3MHz	QPSK	1	0	22.25	22.28	22.24
		1	7	22.3	22.22	22.33
		1	14	22.24	22.15	22.34
		8	0	21.2	21.26	21.36
		8	4	21.17	21.2	21.26
		8	7	21.36	21.33	21.33
		15	0	21.24	21.21	21.28
	16QAM	1	0	21.58	20.8	21.59
		1	7	21.57	21.2	21.84

		1	14	21.38	21	21.49
		8	0	20.29	20.33	20.46
		8	4	20.23	20.23	20.23
		8	7	20.22	20.3	20.19
		15	0	20.34	20.27	20.47
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23035/701.5	23095/707.5	23155/713.5
5MHz	QPSK	1	0	22.23	22.23	22.21
		1	13	22.29	22.22	22.31
		1	24	22.2	22.09	22.29
		12	0	21.18	21.22	21.33
		12	6	21.15	21.16	21.21
		12	13	21.33	21.32	21.3
		25	0	21.28	21.18	21.25
	16QAM	1	0	21.52	20.77	21.56
		1	13	21.55	21.19	21.82
		1	24	21.35	20.96	21.45
		12	0	20.27	20.32	20.44
		12	6	20.19	20.17	20.18
		12	13	20.2	20.26	20.16
		25	0	20.32	20.23	20.42
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23060/704	23095/707.5	23130/711
	QPSK	1	0	22.2	22.19	22.18
		1	25	22.28	22.18	22.29
		1	49	22.18	22.08	22.26
		25	0	21.15	21.17	21.29
		25	13	21.13	21.12	21.18
		25	25	21.3	21.27	21.26
		50	0	21.25	21.13	21.21
		1	0	21.5	20.73	21.51

10MHz	16QAM	1	25	21.51	21.17	21.78
		1	49	21.33	20.93	21.43
		25	0	20.24	20.28	20.41
		25	13	20.16	20.15	20.15
		25	25	20.17	20.21	20.12
		50	0	20.3	20.19	20.39

LTE Band 13

LTE Band 13				ERP Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23205/779.5	23230/782	23255/784.5
5MHz	QPSK	1	0	22.92	22.83	22.98
		1	13	22.99	22.88	22.97
		1	24	22.78	22.89	22.85
		12	0	22.07	21.97	22.02
		12	6	22.05	22	22.06
		12	13	21.95	22.02	22.03
		25	0	22.01	21.94	22
	16QAM	1	0	22.26	21.61	21.8
		1	13	22.34	21.65	21.55
		1	24	22.23	21.36	21.63
		12	0	20.7	20.72	20.88
		12	6	20.83	20.95	20.85
		12	13	20.96	20.8	20.77
		25	0	20.94	21.16	20.82
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				/	23230/782	/
10MHz	QPSK	1	0	/	22.96	/
		1	25	/	23.05	/
		1	49	/	22.91	/
		25	0	/	22.07	/
		25	13	/	21.99	/
		25	25	/	22.08	/
		50	0	/	21.94	/
		1	0	/	22.31	/
		1	25	/	22.61	/
		1	49	/	22.14	/
		25	0	/	20.98	/

	16QAM	25	13	/	21.03	/
		25	25	/	21.08	/
		50	0	/	21.02	/

LTE Band 14

LTE Band 14				ERP Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23305/790.5	23330/793	23355/795.5
5MHz	QPSK	1	0	23.71	23.49	23.49
		1	13	23.54	23.74	23.65
		1	24	23.58	23.78	23.8
		12	0	22.73	22.73	22.65
		12	6	22.67	22.7	22.61
		12	13	22.72	22.75	22.67
		25	0	22.79	22.66	22.63
	16QAM	1	0	22.4	22.37	22.32
		1	13	22.28	22.51	22.44
		1	24	22.11	22.47	22.12
		12	0	21.55	21.58	21.64
		12	6	21.74	21.49	21.75
		12	13	21.57	21.4	21.55
		25	0	21.67	21.63	21.59
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				/	23330/793	/
10MHz	QPSK	1	0	/	23.63	/
		1	25	/	23.75	/
		1	49	/	23.43	/
		25	0	/	22.74	/
		25	13	/	22.68	/
		25	25	/	22.72	/
		50	0	/	22.73	/
		1	0	/	22.6	/
		1	25	/	23.28	/
		1	49	/	22.75	/
		25	0	/	21.54	/

	16QAM	25	13	/	21.7	/
		25	25	/	21.66	/
		50	0	/	21.67	/

LTE Band 66

LTE Band 66				EIRP Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				131979/1710.7	132322/1745	132665/1779.3
1.4MHz	QPSK	1	0	23.52	23.67	23.66
		1	2	23.4	23.86	23.67
		1	5	23.47	23.74	23.55
		3	0	23.57	23.68	23.36
		3	2	23.45	23.85	23.43
		3	3	23.69	23.65	23.46
		6	0	22.61	22.83	22.44
	16QAM	1	0	22.94	22.48	22.3
		1	2	22.53	22.86	22.67
		1	5	22.67	22.52	22.32
		3	0	22.63	22.67	22.37
		3	2	22.42	22.86	22.53
		3	3	22.79	22.72	22.55
		6	0	21.75	21.94	21.55
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				131987/1711.5	132322/1745	132657/1778.5
3MHz	QPSK	1	0	23.54	23.71	23.69
		1	7	23.43	23.91	23.71
		1	14	23.5	23.79	23.59
		8	0	22.67	22.8	22.49
		8	4	22.57	22.95	22.55
		8	7	22.79	22.76	22.56
		15	0	22.64	22.87	22.47
		1	0	22.97	22.5	22.33
		1	7	22.56	22.91	22.71
		1	14	22.69	22.56	22.35

	16QAM	8	0	21.74	21.8	21.49
		8	4	21.53	21.99	21.65
		8	7	21.89	21.84	21.68
		15	0	21.78	21.98	21.58
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				131997/1712.5	132322/1745	132647/1777.5
5MHz	QPSK	1	0	23.51	23.69	23.65
		1	13	23.41	23.87	23.68
		1	24	23.47	23.74	23.55
		12	0	22.64	22.75	22.45
		12	6	22.55	22.91	22.5
		12	13	22.77	22.74	22.52
		25	0	22.62	22.86	22.45
	16QAM	1	0	22.94	22.46	22.3
		1	13	22.53	22.89	22.68
		1	24	22.66	22.54	22.31
		12	0	21.72	21.76	21.46
		12	6	21.5	21.94	21.61
		12	13	21.86	21.79	21.64
		25	0	21.76	21.94	21.53
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		

				132022/1715	132322/1745	132622/1775
	QPSK	1	0	23.53	23.7	23.68
		1	25	23.44	23.92	23.72
		1	49	23.49	23.78	23.58
		25	0	22.67	22.8	22.49
		25	13	22.58	22.96	22.54
		25	25	22.79	22.78	22.57
		50	0	22.7	22.88	22.49
		1	0	22.96	22.49	22.32

10MHz	16QAM	1	25	22.56	22.93	22.71
		1	49	22.69	22.56	22.34
		25	0	21.75	21.81	21.5
		25	13	21.52	21.98	21.64
		25	25	21.89	21.84	21.68
		50	0	21.79	21.99	21.57
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				132047/1717.5	132322/1745	132597/1772.5
15MHz	QPSK	1	0	23.52	23.66	23.66
		1	38	23.42	23.91	23.69
		1	74	23.46	23.73	23.54
		36	0	22.65	22.76	22.46
		36	18	22.55	22.91	22.5
		36	39	22.76	22.75	22.53
		75	0	22.68	22.84	22.44
	16QAM	1	0	22.91	22.47	22.3
		1	38	22.54	22.9	22.69
		1	74	22.66	22.52	22.31
		36	0	21.72	21.79	21.47
		36	18	21.49	21.93	21.6
		36	39	21.87	21.8	21.65
		75	0	21.76	21.94	21.53
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				132072/1720	132322/1745	132572/1770
20MHz	QPSK	1	0	23.49	23.62	23.63
		1	50	23.41	23.87	23.67
		1	99	23.44	23.72	23.51
		50	0	22.62	22.71	22.42
		50	25	22.53	22.87	22.47
		50	50	22.73	22.7	22.49
		100	0	22.65	22.79	22.4

	16QAM	1	0	22.89	22.43	22.25
		1	50	22.5	22.88	22.65
		1	99	22.64	22.49	22.29

		50	0	21.69	21.75	21.44
		50	25	21.46	21.91	21.57
		50	50	21.84	21.75	21.61
		100	0	21.74	21.9	21.5

LTE Band 71

LTE Band 71				ERP Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				133147/665.5	133297/680.5	133447/695.5
5MHz	QPSK	1	0	21.75	21.83	21.56
		1	13	22.04	21.83	21.68
		1	24	21.85	21.66	21.67
		12	0	20.75	20.93	20.89
		12	6	20.8	20.79	20.81
		12	13	20.98	20.96	20.93
		25	0	20.77	21	20.8
	16QAM	1	0	20.68	21.24	21.5
		1	13	20.8	21.45	21.51
		1	24	20.82	21.03	21.38
		12	0	19.89	19.83	19.67
		12	6	19.85	19.88	19.86
		12	13	19.98	19.83	19.73
		25	0	19.92	20.1	19.91
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				133172/668	133297/680.5	133422/693
10MHz	QPSK	1	0	21.77	21.84	21.59
		1	25	22.07	21.88	21.72
		1	49	21.87	21.7	21.7
		25	0	20.78	20.98	20.93
		25	13	20.83	20.84	20.85
		25	25	21	21	20.98
		50	0	20.85	21.02	20.84
		1	0	20.7	21.27	21.52
		1	25	20.83	21.49	21.54
		1	49	20.85	21.05	21.41
		25	0	19.92	19.88	19.71

	16QAM	25	13	19.87	19.92	19.89
		25	25	20.01	19.88	19.77
		50	0	19.95	20.15	19.95
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				133197/670.5	133297/680.5	133397/690.5
15MHz	QPSK	1	0	21.76	21.61	21.57

		1	38	22.05	21.71	21.69
		1	74	21.84	21.69	21.66
		36	0	20.76	20.85	20.9
		36	18	20.8	20.81	20.81
		36	39	20.97	20.73	20.94
		75	0	20.83	20.71	20.79
	16QAM	1	0	20.65	20.67	21.5
		1	38	20.81	20.69	21.52
		1	74	20.82	20.82	21.38
		36	0	19.89	19.85	19.68
		36	18	19.84	19.8	19.85
		36	39	19.99	19.72	19.74
		75	0	19.92	19.71	19.91
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				133222/673	133322/683	133372/688
20MHz	QPSK	1	0	21.73	21.76	21.54
		1	50	22.04	21.83	21.67
		1	99	21.82	21.64	21.63
		50	0	20.73	20.89	20.86
		50	25	20.78	20.75	20.78
		50	50	20.94	20.92	20.9
		100	0	20.8	20.93	20.75
		1	0	20.63	21.21	21.45
		1	50	20.77	21.44	21.48

	16QAM	1	99	20.8	20.98	21.36
		50	0	19.86	19.82	19.65
		50	25	19.81	19.85	19.82
		50	50	19.96	19.79	19.7
		100	0	19.9	20.06	19.88

3.2 Field Strength of Spurious Radiation

Measurement Procedure: FCC KDB 971168 D01 V03r01

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized.

8) Calculate power in dBm by the following formula:

ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

Where:

Pd is the dipole equivalent power, Pg is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to Pg [dBm] – cable loss [dB]. The calculated Pd levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log10(Power [Watts]).

Above 1GHz test procedure as below:

1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber

2) Calculate power in dBm by the following formula:

EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

EIRP=ERP+2.15dB

Where:

Pg is the generator output power into the substitution antenna.

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

4. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.

5. Repeat above procedures until all frequencies measured was complete

Remark1:Reference test setup 2

Remark2:The emission below 18G were measured at a 3m test distance, while emissions above 18GHz were measured at a 1m test distance.

Test Settings:

1. RBW=100kHz for emission below 1GHz and 1MHz for emission above 1GHz
2. VBW≥3*RBW
3. Number of sweep point≥2*span/RBW
4. Detector=RMS
5. Trace mode=Average (Max Hold for pulsed emissions)
6. The trace was allowed to stabilize

Test Setup

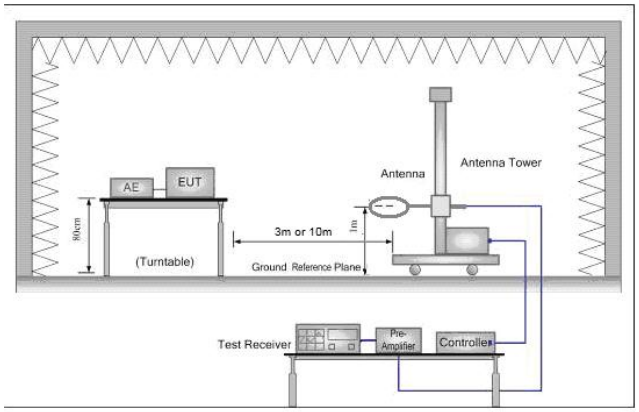


Figure 1. Below 30MHz

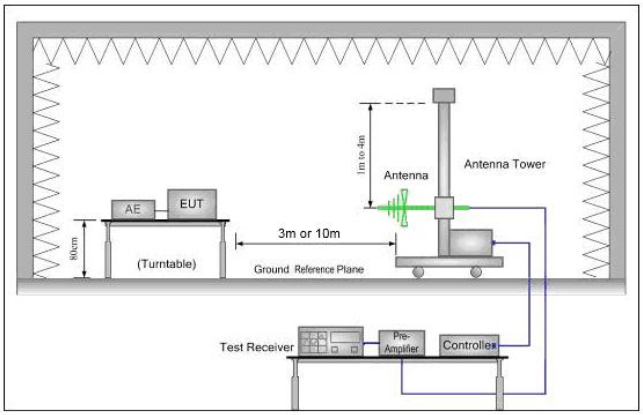


Figure 2. 30MHz to 1GHz

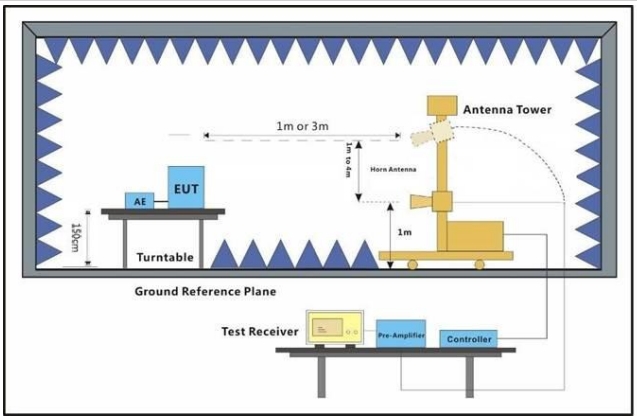
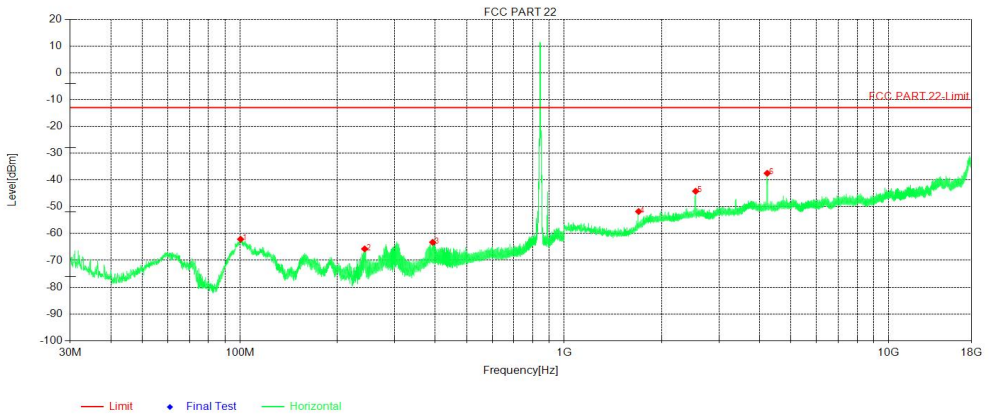


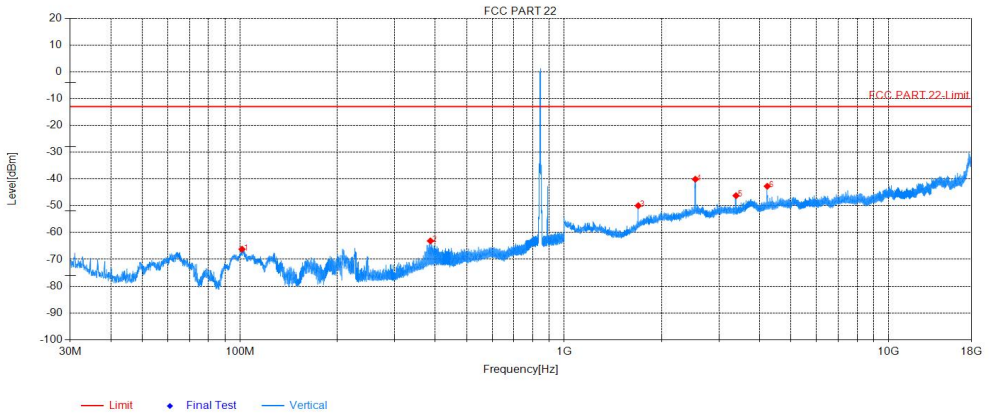
Figure 3. Above 1 GHz

TEST DATA

WCDMA Band V CH4233

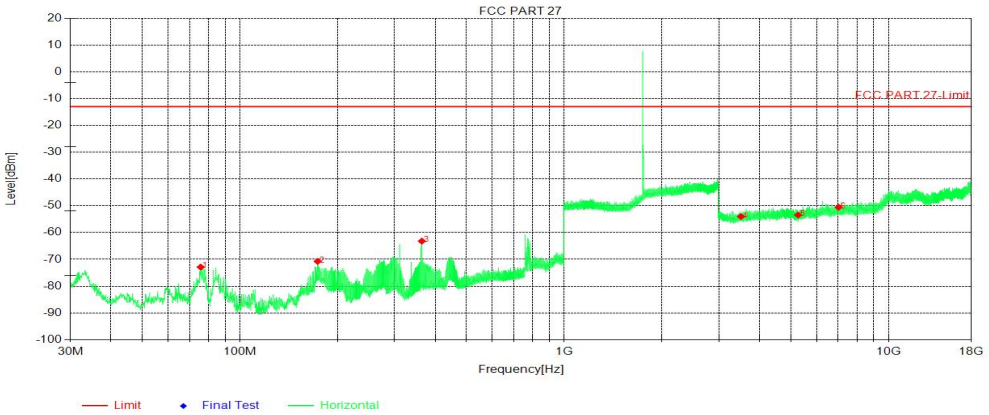


NO.	Freq. [MHz]	Reading Level [dBm]	Correct Factor [dB/m]	Result Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	100.52	-54.50	-7.63	-62.13	-13.00	49.13	150	160	Horizontal
2	242.49	-63.63	-2.10	-65.73	-13.00	52.73	150	160	Horizontal
3	393.14	-65.65	2.38	-63.27	-13.00	50.27	150	181	Horizontal
4	1695.8	-48.95	-2.81	-51.76	-13.00	38.76	150	181	Horizontal
5	2542.5	-46.49	2.29	-44.20	-13.00	31.20	150	140	Horizontal
6	4227.2	-43.39	5.89	-37.50	-13.00	24.50	150	140	Horizontal

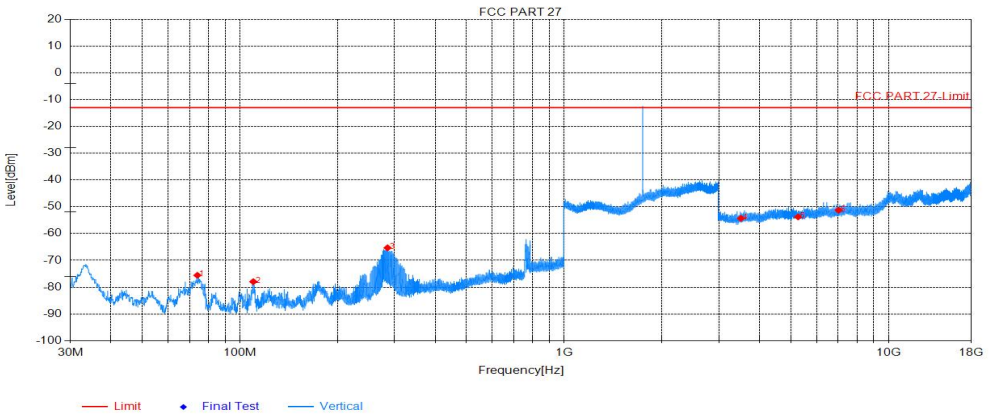


NO.	Freq. [MHz]	Reading Level [dBm]	Correct Factor [dB/m]	Result Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	101.54	-58.51	-7.71	-66.22	-13.00	53.22	150	267	Vertical
2	386.93	-65.00	1.87	-63.13	-13.00	50.13	150	224	Vertical
3	1691.9	-47.12	-2.86	-49.98	-13.00	36.98	150	330	Vertical
4	2537.4	-42.90	2.80	-40.10	-13.00	27.10	150	330	Vertical
5	3386.8	-49.67	3.43	-46.24	-13.00	33.24	150	161	Vertical
6	4226.7	-48.80	6.07	-42.73	-13.00	29.73	150	201	Vertical

LTE Band 4 CH20393



NO.	Freq. [MHz]	Reading Level [dBm]	Correct Factor [dB/m]	Result Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	75.69	-65.57	-7.34	-72.91	-13.00	59.91	150	300	Horizontal
2	173.67	-64.02	-6.74	-70.76	-13.00	57.76	150	360	Horizontal
3	364.00	-64.47	1.25	-63.22	-13.00	50.22	150	80	Horizontal
4	3508.0	-58.68	4.65	-54.03	-13.00	41.03	150	220	Horizontal
5	5262.0	-60.09	6.63	-53.46	-13.00	40.46	150	120	Horizontal
6	7016.1	-59.94	9.38	-50.56	-13.00	37.56	150	0	Horizontal



NO.	Freq. [MHz]	Reading Level [dBm]	Correct Factor [dB/m]	Result Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	73.95	-68.50	-7.08	-75.58	-13.00	62.58	150	140	Vertical
2	110.03	-70.68	-7.29	-77.97	-13.00	64.97	150	320	Vertical
3	285.33	-62.59	-2.76	-65.35	-13.00	52.35	150	140	Vertical
4	3508.0	-58.98	4.64	-54.34	-13.00	41.34	150	140	Vertical
5	5262.0	-61.11	7.34	-53.77	-13.00	40.77	150	320	Vertical
6	7016.1	-60.72	9.43	-51.29	-13.00	38.29	150	160	Vertical

Note:

1. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe including Ant.Factor and the Cable Factor etc.), The basic equation is as follows:

Result Level= Reading Level + Correct Factor(including Ant.Factor, Cable Factor etc.)

2. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

3. The amplitude of 18GHz to 25GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be report.

4. All channels had been pre-test, only the worst case was reported.