TEST REPORT

Report Number	:	TZ0029250403FRF10
Product Name	:	LEARNING CAMERA
Model/Type reference	:	DEX-01
FCC ID	:	2BOSD-DEX-01
Prepared for	:	Worldex Lab, Inc. 201 Spear St, STE 1100, ROOM 11, San Francisco, CA 94105

Prepared By	:	Shenzhen Tongzhou Testing Co.,Ltd. 1st Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China
Standards	:	FCC CFR Title 47 Part 22, FCC CFR Title 47 Part 24, FCC CFR Title 47 Part 27, FCC CFR Title 47 Part 90, ANSI C63.26:2015
Date of Test	:	2025-04-17 ~ 2025-05-28
Date of Issue	:	2025-05-29

Prepared by	:	Lena Wen	
Reviewed by	:	Allen Lai	
Approved by	:	Max Zhang (Authorized Officer)	

** Report Revise Record **

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2025-05-29	Valid	Initial release

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1. SUMMARY

1.1. Client Information

Applicant	:	Worldex Lab, Inc.
Address	:	201 Spear St, STE 1100, ROOM 11, San Francisco, CA 94105
Manufacturer	:	Worldex Lab, Inc.
Address	:	201 Spear St, STE 1100, ROOM 11, San Francisco, CA 94105

1.2. Description of Device (EUT)

Product Name	:	LEARNING CAMERA
Trade Mark	:	
Model Number	:	DEX-01
Model Declaration	:	N/A
Test Model	:	DEX-01
Power Supply	:	Input: DC 3.7V by battery or DC 5V by adapter
Hardware version	:	DL01-V1.1-20241230
Software version	:	DL01_20250225142131_User

1.3. Wireless Function Tested in this Report

E-UTRA		
E-UTRA Operation Frequency	:	FDD Band 2 (UL: 1850 – 1910 MHz/DL: 1930 – 1990 MHz) FDD Band 4 (UL: 1710 – 1755 MHz/DL: 2110 – 2155 MHz) FDD Band 5 (UL: 824 – 849 MHz/DL: 869 – 894 MHz) FDD Band 7(UL: 2500 – 2570 MHz/DL:2620 – 2690 MHz) FDD Band 12 (UL: 699 – 716MHz/DL:729 – 746 MHz) FDD Band 13 (UL: 777 – 787 MHz/DL:746 – 756 MHz) FDD Band 14 (UL: 788 – 798 MHz/DL:758 – 768 MHz) FDD Band 17 (UL: 704 – 716 MHz/DL:734 – 746 MHz) FDD Band 25 (UL: 1850 – 1915 MHz/DL: 1930 – 1995 MHz) TDD Band 38 (UL/DL: 2570 – 2620 MHz) TDD Band 40 (UL/DL pair1: 2305 – 2315 MHz; UL/DL pair2:2350 – 2360 MHz) TDD Band 41 (UL/DL: 2496 – 2690 MHz) FDD Band 66 (UL: 1710 – 1780 MHz/DL:2110 – 2200 MHz)
Modulation Technology	:	OFDM (16QAM, QPSK)
Antenna Type And Gain	:	Internal Antenna Band 2:0.85 dBi, Band 4:1.61 dBi, Band 5:-2.3 dBi, Band 7:2.47 dBi, Band 12:-2.23 dBi, Band 13:-1.77 dBi, Band 14:-0.2 dBi, Band 17:-2.23 dBi, Band 25:0.85 dBi, Band 38:1.97 dBi, Band 40(2305-2315):0.58 dBi, Band 40(2350-2360):0.53 dBi, Band 41:2.59 dBi, Band 66:1.61 dBi

Note 1: Antenna position refer to EUT Photos.
Note 2: the above information was supplied by the applicant.

Test Channel List:

Band	Bandwidth(MHz)	UL Frequency(MHz)		
		Low	Middle	High
2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
	15	706.5	707.5	708.5
13	1.4	777.7	782	786.3
	3	778.5	782	785.5
	5	779.5	782	784.5
	10	--	782	--
14	1.4	788.7	793	797.3
	3	789.5	793	796.5
	5	790.5	793	795.5
	10	--	793	--
17	1.4	704.7	710	715.3
	3	705.5	710	714.5
	5	706.5	710	713.5
	10	709	710	711
25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860	1882.5	1905

38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610
40(2305-2315)	5	2307.5	2310	2312.5
	10	--	2310	--
40(2350-2360)	5	2352.5	2355	2357.5
	10	--	2355	--
41	5	2498.5	2593	2687.5
	10	2501	2593	2685
	15	2503.5	2593	2682.5
	20	2506	2593	2680
66	1.4	1710.7	1745	1779.3
	3	1711.5	1745	1778.5
	5	1712.5	1745	1777.5
	10	1715	1745	1775
	15	1717.5	1745	1772.5
	20	1720	1745	1770

1.4. Normal Accessory setting

Fully charged battery was used during the test.

1.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2BOSD-DEX-01** filing to comply with FCC Rules.

1.6. Modifications

No modifications were implemented to meet testing criteria.

2. TEST ENVIRONMENT

2.1. Test Facility

FCC

Designation Number: CN1275

Test Firm Registration Number: 167722

Shenzhen Tongzhou Testing Co.,Ltd has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA

Certificate Number: 5463.01

Shenzhen Tongzhou Testing Co.,Ltd has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

IC

ISED#: 22033

CAB identifier: CN0099

Shenzhen Tongzhou Testing Co.,Ltd has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4 and CISPR 16-1-4:2010

2.2. Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to ETSI TR 100 028 " Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics" and is documented in the Shenzhen Tongzhou Testing Co.,Ltd. quality system acc. to ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Tongzhou Testing Co.,Ltd. is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.10 dB	(1)
Radiated Emission	1~18GHz	3.70 dB	(1)
Radiated Emission	18-40GHz	3.90 dB	(1)
Conducted Disturbance	0.15~30MHz	1.63 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occuiped Bandwidth	9KHz~40GHz	-	(1)
Frequency Error	9KHz~40GHz	1×10^{-7}	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3. SUMMARY OF TEST RESULTS

FDD Band 2/25[Part 24]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 24.232(c)	EIRP ≤ 2W(33dBm)	Pass	TZ0029250403-1#
Bandwidth	2.1049 24.238(a)	OBW: No limit. EBW: No limit.	Pass	TZ0029250403-1#
Band Edges	2.1051, 24.238(a)	-13dBm	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 24.238(a)	-13dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 24.238(a)	-13dBm	Pass	TZ0029250403-2#
Frequency Stability	2.1055, 24.235	the fundamental emission stays within the authorized frequency block.	Pass	TZ0029250403-1#
Peak to average ratio	24.232(d)	<13dB	Pass	TZ0029250403-1#

FDD Band 5[Part 22]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 22.913(a)	ERP ≤ 7W(38.5dBm)	Pass	TZ0029250403-1#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ0029250403-1#
Emission Bandwidth	22.917(b)	EBW: No limit.	Pass	TZ0029250403-1#
Band Edges Compliance	2.1051, 22.917(a)(b)	-13dBm	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 22.917	-13dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 22.917	-13dBm	Pass	TZ0029250403-2#
Frequency Stability	2.1055, 22.355	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ0029250403-1#
Peak to average ratio	2.1046, 22.913(a)	<13dB	Pass	TZ0029250403-1#

FDD Band 4/66[Part 27]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 27.50(d)	EIRP ≤ 1W(30dBm)	Pass	TZ0029250403-1#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ0029250403-1#
Emission Bandwidth	2.1049	EBW: No limit.	Pass	TZ0029250403-1#
Band Edges Compliance	2.1051, 27.53(h)	⩽ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 27.53(h)	-13dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 27.53(h)	-13dBm	Pass	TZ0029250403-2#
Frequency Stability	2.1055, 27.54	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ0029250403-1#
Peak to average ratio	2.1046, 27.50(d)	<13dB	Pass	TZ0029250403-1#

LTE Band 12/17[Part 27]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 27.50(c)	ERP ≤ 3W(34.8dBm)	Pass	TZ0029250403-1#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ0029250403-1#
Emission Bandwidth	2.1049	EBW: No limit.	Pass	TZ0029250403-1#
Band Edges Compliance	2.1051, 27.53(g)	⩽ -13 dBm/30kHz in 100 kHz bands immediately outside and adjacent to the frequency block.	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 27.53(g)	-13dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 27.53(g)	-13dBm	Pass	TZ0029250403-2#
Frequency Stability	2.1055, 27.54	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ0029250403-1#
Peak to average ratio	2.1046, 27.50(c)	<13dB	Pass	TZ0029250403-1#

LTE Band 13[Part 27]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 27.50(b)	ERP ≤ 3W(34.8dBm)	Pass	TZ0029250403-1#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ0029250403-1#
Emission Bandwidth	2.1049	EBW: No limit.	Pass	TZ0029250403-1#
Band Edges Compliance	2.1051, 27.53(c)	⩽ -13 dBm/30kHz in 100 kHz bands immediately outside and adjacent to the frequency block. On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 27.53(c)	-13dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 27.53(c)	-13dBm	Pass	TZ0029250403-2#
Frequency Stability	2.1055, 27.54	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ0029250403-1#
Peak to average ratio	2.1046, 27.50(b)	<13dB	Pass	TZ0029250403-1#

LTE Band 14[Part 90]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 90.541(d)	ERP ≤ 3W(34.8dBm)	Pass	TZ0029250403-1#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ0029250403-1#
Emission Bandwidth	2.1049	EBW: No limit.	Pass	TZ0029250403-1#
Band Edges Compliance	2.1051, 90.543(e)	⩽ -13 dBm/30kHz in 100 kHz bands immediately outside and adjacent to the frequency block. On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 90.543(e)	-13dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 90.543(e)	-13dBm	Pass	TZ0029250403-2#

Frequency Stability	2.1055, 90.539	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ0029250403-1#
Peak to average ratio	2.1046	<13dB	Pass	TZ0029250403-1#

LTE Band 7/38/41[Part 27]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 27.50(h)(2)	EIRP ≤ 2W(33dBm)	Pass	TZ0029250403-1#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ0029250403-1#
Emission Bandwidth	2.1049	EBW: No limit.	Pass	TZ0029250403-1#
Band Edges (Out of Band Emission) Compliance	2.1051, 27.53(m)	27.53(m) for detail the limit	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 27.53(g)	-25dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 27.53(g)	-25dBm	Pass	TZ0029250403-2#
Frequency Stability	2.1055, 27.54	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ0029250403-1#
Peak to average ratio	2.1046, 27.50(h)	<13dB	Pass	TZ0029250403-1#

LTE Band 40[Part 27]

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 27.50(a)	EIRP ≤ 250mW/5MHz	Pass	TZ0029250403-1#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ0029250403-1#
Emission Bandwidth	2.1049	EBW: No limit.	Pass	TZ0029250403-1#
Band Edges (Out of Band Emission) Compliance	2.1051, 27.53(a)	27.53(a) for detail the limit	Pass	TZ0029250403-1#
Spurious Emission at Antenna Terminals	2.1051, 27.53(a)	-40dBm	Pass	TZ0029250403-1#
Field Strength of Spurious Radiation	2.1053, 27.53(a)	-40dBm	Pass	TZ0029250403-2#
Frequency Stability	2.1055, 27.54	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ0029250403-1#
Peak to average ratio	2.1046, 27.50(a)	<13dB	Pass	TZ0029250403-1#

Remark: The measurement uncertainty is not included in the test result.

3.1. Environmental conditions

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

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

4. EQUIPMENTS USED DURING THE TEST

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	MXA Signal Analyzer	Keysight	N9020A	MY52091623	2024-12-31	2025-12-30
2	Power Sensor	Agilent	U2021XA	MY5365004	2024-12-31	2025-12-30
3	Loop Antenna	schwarzbeck	FMZB1519 B	00023	2022-11-13	2025-11-12
4	Wideband Antenna	schwarzbeck	VULB 9163	958	2022-11-13	2025-11-12
5	Horn Antenna	schwarzbeck	BBHA 9120D	01989	2022-11-13	2025-11-12
6	EMI Test Receiver	R&S	ESCI	100849/003	2024-12-31	2025-12-30
7	Controller	MF	MF7802	N/A	N/A	N/A
8	Amplifier	schwarzbeck	BBV 9743	209	2024-12-31	2025-12-30
9	Amplifier	Tonscend	TSAMP-0518SE	--	2024-12-31	2025-12-30
10	RF Cable(below 1GHz)	HUBER+SUHNER	RG214	N/A	2024-12-31	2025-12-30
11	RF Cable(above 1GHz)	HUBER+SUHNER	RG214	N/A	2024-12-31	2025-12-30
12	RE test software	Tonscend	JS32-RE	V5.0.0.0	N/A	N/A
13	Test Software	Tonscend	JS1120-3	V3.2.22	N/A	N/A
14	Horn Antenna	A-INFO	LB-180400-KF	J211020657	2024-12-31	2025-12-30
15	Amplifier	Chengyi	EMC184045SE	980508	2024-09-20	2025-09-19
16	Spectrum Analyzer	R&S	FSV40	101321	2024-06-07	2025-06-06
17	UNIVERSAL RADIO COMMUNICATION	R&S	CMW500	101855	2024-12-31	2025-12-30
18	Signal Generator	Keysight	N5182A	MY4620709	2024-12-31	2025-12-30
19	Climate Chamber	KRUOMR	KRM-1000	KRM16072901	2024-12-31	2025-12-30
20	Horn Antenna	ETS	3117	00218874	2022-11-13	2025-11-12
21	Wideband Antenna	Sunol	JB3	A020115	2022-07-03	2025-07-02
22	RF Coupler	Anritsu	K241B	N/A	2024-12-31	2025-12-30

5. TEST CONDITIONS AND RESULTS

5.1. Conducted Output Power / E.I.R.P / E.R.P / Peak-to-Average Ratio (PAR)

5.1.1. TEST APPLICABLE

During the process of testing, the EUT was controlled via R&S Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation. This result contains output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

5.1.2. LIMIT

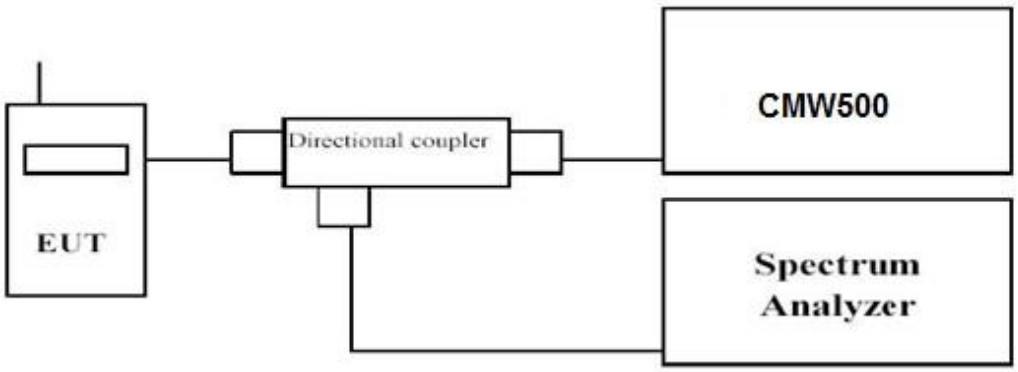
For Conducted Power
Within Tune-up Value

For Radiated Power
The conduction test is carried out in a shielded room.
According to the test, connect the device under test to the antenna port on the non-conductive platform directly to the test device for evaluation and measurement (ANSI-C63.26-2015 Clause 5.2)
The following rules are for the maximum radiated power limit requirements of the product:

Mode	Nominal Max. Power
LTE Band 2	< 2 Watts max. EIRP (33dBm)
LTE Band 4	< 1 Watts max. EIRP (30dBm)
LTE Band 5	< 3 Watts max. ERP (34.8dBm)
LTE Band 7	< 2 Watts max. EIRP (33dBm)
LTE Band 12	< 3 Watts max. ERP (34.8dBm)
LTE Band 13	< 3 Watts max. ERP (34.8dBm)
LTE Band 14	< 3 Watts max. ERP (34.8dBm)
LTE Band 17	< 3 Watts max. ERP (34.8dBm)
LTE Band 25	< 2 Watts max. ERP (33dBm)
LTE Band 38	< 2 Watts max. EIRP (33dBm)
LTE Band 40	< 250mW/5MHz max. EIRP (24dBm)
LTE Band 41	< 2 Watts max. EIRP (33dBm)
LTE Band 66	< 1 Watts max. EIRP (30dBm)

For Peak-to-Average Ratio (PAR)
The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

5.1.3. TEST CONFIGURATION



5.1.4. TEST PROCEDURE

1. Place the EUT on a bench and set it in transmitting mode.
2. Connect a low loss RF cable from the antenna port to a CMW500 by an Att.
3. EUT Communicate with CMW500 then selects a channel for testing.
4. Add a correction factor to the display CMW500, and then test.
5. Record the Peak power(P1) and Average power(P2).
6. Peak-to-Average Ratio (PAR) = Peak power(P1) - Average power(P2)
7. EIRP = Average power(P2) + Antenna Gain(dBi), ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

5.1.5. TEST RESULTS

Pass

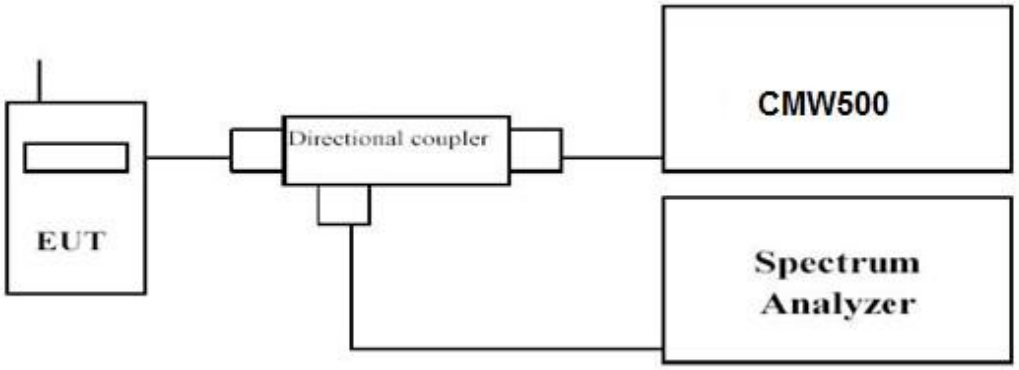
Remark:
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth as list in section 3.3 of this report;
2. please refer to RF output power in Appendix Test data for LTE Band2.
3. please refer to RF output power in Appendix Test data for LTE Band4.
4. please refer to RF output power in Appendix Test data for LTE Band5.
5. please refer to RF output power in Appendix Test data for LTE Band7.
6. please refer to RF output power in Appendix Test data for LTE Band12.
7. please refer to RF output power in Appendix Test data for LTE Band13.
8. please refer to RF output power in Appendix Test data for LTE Band14.
9. please refer to RF output power in Appendix Test data for LTE Band25
10. please refer to RF output power in Appendix Test data for LTE Band38.
11. please refer to RF output power in Appendix Test data for LTE Band40(2305-2315).
12. please refer to RF output power in Appendix Test data for LTE Band40(2350-2360).
13. please refer to RF output power in Appendix Test data for LTE Band41.
14. please refer to RF output power in Appendix Test data for LTE Band66.

5.2. Occupied Bandwidth and Emission Bandwidth

5.2.1. LIMIT

N/A

5.2.2. TEST CONFIGURATION



5.2.3. TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at low, middle and high channel in each band. The -26dBc Emission bandwidth was also measured and recorded.
Set RBW was set to about 1% of emission BW, VBW≥3 times RBW.
-26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

5.2.4. TEST RESULTS

Pass

Remark:
1. We were tested full RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth as list in section 3.3 of this report;
2. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band2.
3. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band4.
4. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band5.
5. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band7.
6. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band12.
7. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band13.
8. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band14.
9. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band25
10. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band38.
11. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band40(2305-2315).
12. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band40(2350-2360).
13. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band41.
14. please refer to Emission bandwidth and OBW in Appendix Test data for LTE Band66.

5.3. Band Edge compliance

5.3.1. LIMIT

For LTE Band 2/25: Per §24.238(a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

For LTE Band 5: Per 22.917(a): The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

For LTE Band 4/26: Per §27.53(h): For operations in the 814–849 MHz band, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

For LTE Band 12/17: Per §27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. 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.

For LTE Band 13: Per §90.543:
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.
(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.
(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.
(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

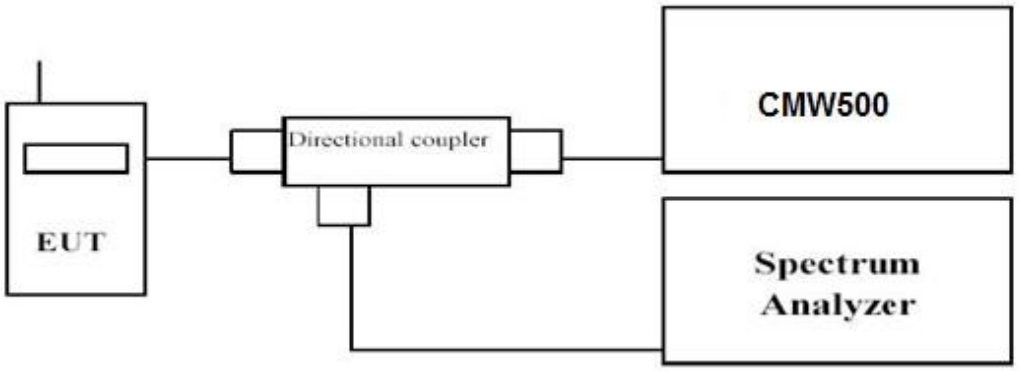
For LTE Band 14: Per §27.53
(c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;
(5) Compliance with the provisions of paragraphs (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
(6) Compliance with the provisions of paragraphs (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (−70 dBW/MHz = −40 dBm/MHz).

For LTE Band 7/38/41: Per §27.53(m)(4): For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

For LTE Band 40: Per §27.53(a)(4)For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:
(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;
(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

5.3.2. TEST CONFIGURATION



5.3.3. TEST PROCEDURE

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest and highest channels for each band and different modulation.
5. Measure Band edge using RMS (Average) detector by spectrum

5.3.4. TEST RESULTS

Pass

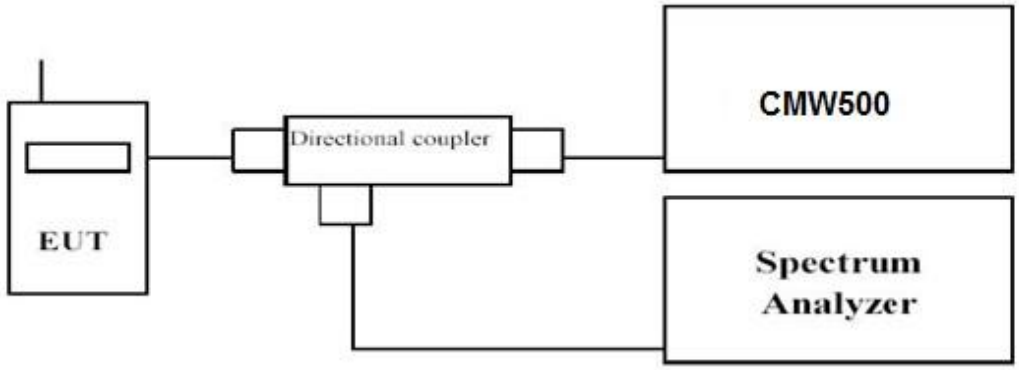
Remark:
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth as list in section 3.3 of this report;
2. please refer to Band Edge Emission in Appendix Test data for LTE Band2.
3. please refer to Band Edge Emission in Appendix Test data for LTE Band4.
4. please refer to Band Edge Emission in Appendix Test data for LTE Band5.
5. please refer to Band Edge Emission in Appendix Test data for LTE Band7.
6. please refer to Band Edge Emission in Appendix Test data for LTE Band12.
7. please refer to Band Edge Emission in Appendix Test data for LTE Band13.
8. please refer to Band Edge Emission in Appendix Test data for LTE Band14.
9. please refer to Band Edge Emission in Appendix Test data for LTE Band25
10. please refer to Band Edge Emission in Appendix Test data for LTE Band38.
11. please refer to Band Edge Emission in Appendix Test data for LTE Band40(2305-2315).
12. please refer to Band Edge Emission in Appendix Test data for LTE Band40(2350-2360).
13. please refer to Band Edge Emission in Appendix Test data for LTE Band41.
14. please refer to Band Edge Emission in Appendix Test data for LTE Band66.

5.4. Spurious Emission on Antenna Port

5.4.1. LIMIT

Refer to section 3.3 of this report for each frequency band

5.4.2. TEST CONFIGURATION



5.4.3. TEST PROCEDURE

The EUT was setup according to ANSI C63.26

a. Place the EUT on a bench and set it in transmitting mode.

b. Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.

c. EUT Communicate with CMW500, then select a channel for testing.

d. Add a correction factor to the display of spectrum, and then test.

e. The resolution bandwidth of the spectrum analyzer was set sufficient scans were taken to show the out of band Emission if any up to10th harmonic.

f. Please refer to following tables for test antenna conducted emissions.

Sub range (GHz)	RBW	VBW	Sweep time (s)
0.000009~0.000015	1KHz	3KHz	Auto
0.000015~0.03	10KHz	30KHz	Auto
0.03~26	1 MHz	3 MHz	Auto

5.4.4. TEST RESULTS

Pass

Remark:

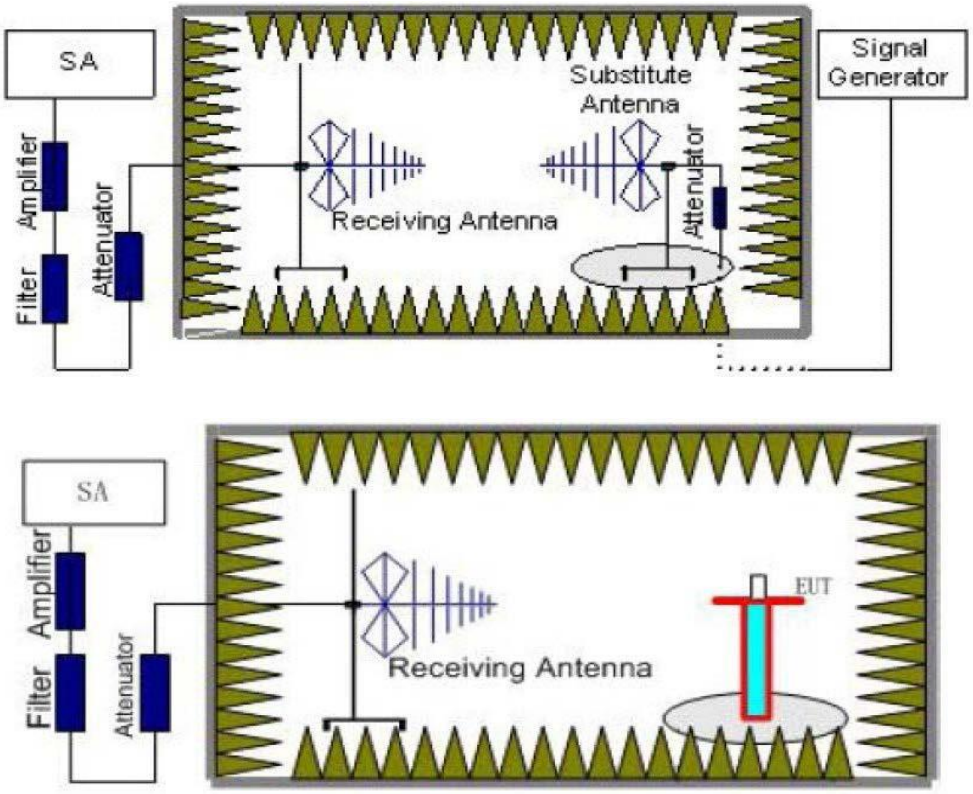
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth as list in section 3.3 of this report;
2. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band2.
3. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band4.
4. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band5.
5. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band7.
6. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band12.
7. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band13.
8. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band14.
9. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band25
10. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band38.
11. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band40(2305-2315).
12. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band40(2350-2360).
13. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band41.
14. please refer to Conducted Spurious Emission in Appendix Test data for LTE Band66.

5.5. Radiated Spurious Emission

5.5.1. LIMIT

Refer to section 3.3 of this report for each frequency band

5.5.2. TEST CONFIGURATION



5.5.3. TEST PROCEDURE

1. Setup as illustrated above the DUT placed on the 0.8m height (for frequencies < 1GHz) or 1.5m (for frequencies > 1GHz) of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power.

2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.

3. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz, And the maximum value of the receiver should be recorded as (P_r).

4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the

previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{cl}) ,the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test.

The measurement results are obtained as described below: Power(EIRP)=P_{Mea}+ P_{Ag} - P_{cl} + G_a

It can omit power amplifier if signal generator level meets requirement;

6. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

7. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

8. In order to make sure test results more clearly, we set frequency range and sweep time for difference frequency range as follows table:

Subrange (GHz)	RBW	VBW	Sweep time (s)
0.00009~0.15	1KHz	3KHz	30
0.00015~0.03	10KHz	30KHz	10
0.03~1	100KHz	300KHz	10
1~2	1 MHz	3 MHz	2
2~5	1 MHz	3 MHz	3
5~8	1 MHz	3 MHz	3
8~10th	1 MHz	3 MHz	3

5.5.4. TEST LIMITS

According to rules specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Channel	Frequency Range	Verdict
Low	9 KHz – 10th GHz	PASS
Middle	9 KHz – 10th GHz	PASS
High	9 KHz – 10th GHz	PASS

5.5.5. TEST RESULTS

Pass

Temperature	24.8℃	Humidity	58%
Test Engineer	Anna Hu		

Remark:
1. We tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth as list in section 3.3 of this report;
2. EIRP=PMea(dBm)-Pcl(dB) +Ga(dBi)
3. We were not recorded other points as values lower than limits.
4. Margin = EIRP - Limit

LTE FDD Band 2_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3705	-53.48	1.26	3	12.1	-42.64	-13	29.64	H
3705	-56.17	1.26	3	12.1	-45.33	-13	32.33	V
5557.5	-51.46	1.7	3	12.58	-40.58	-13	27.58	H
5557.5	-54.54	1.7	3	12.58	-43.66	-13	30.66	V

LTE FDD Band 2_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760	-53.94	1.28	3	12.16	-43.06	-13	30.06	H
3760	-58.32	1.28	3	12.16	-47.44	-13	34.44	V
5640	-46.79	1.72	3	12.62	-35.89	-13	22.89	H
5640	-58.16	1.72	3	12.62	-47.26	-13	34.26	V

LTE FDD Band 2_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3815	-56.55	1.29	3	12.22	-45.62	-13	32.62	H
3815	-55.87	1.29	3	12.22	-44.94	-13	31.94	V
5722.5	-53.57	1.74	3	12.66	-42.65	-13	29.65	H
5722.5	-59.41	1.74	3	12.66	-48.49	-13	35.49	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 4_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3425	-55.98	1.2	3	11.82	-45.36	-13	32.36	H
3425	-53.71	1.2	3	11.82	-43.09	-13	30.09	V
5137.5	-50.08	1.6	3	12.37	-39.31	-13	26.31	H
5137.5	-52.24	1.6	3	12.37	-41.47	-13	28.47	V

LTE FDD Band 4_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3465	-55.13	1.21	3	11.86	-44.48	-13	31.48	H
3465	-54.76	1.21	3	11.86	-44.11	-13	31.11	V
5197.5	-46.43	1.61	3	12.4	-35.64	-13	22.64	H
5197.5	-52.62	1.61	3	12.4	-41.83	-13	28.83	V

LTE FDD Band 4_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505	-54.36	1.22	3	11.9	-43.68	-13	30.68	H
3505	-55.04	1.22	3	11.9	-44.36	-13	31.36	V
5257.5	-45.84	1.63	3	12.43	-35.04	-13	22.04	H
5257.5	-57.57	1.63	3	12.43	-46.77	-13	33.77	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 5_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1653	-52.99	0.83	3	8.61	-45.21	-13	32.21	H
1653	-52.03	0.83	3	8.61	-44.25	-13	31.25	V
2479.5	-50.59	1	3	10.72	-40.87	-13	27.87	H
2479.5	-53.09	1	3	10.72	-43.37	-13	30.37	V

LTE FDD Band 5_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673	-52.62	0.83	3	8.69	-44.76	-13	31.76	H
1673	-50.25	0.83	3	8.69	-42.39	-13	29.39	V
2509.5	-51.16	1	3	10.76	-41.40	-13	28.40	H
2509.5	-54.29	1	3	10.76	-44.53	-13	31.53	V

LTE FDD Band 5_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1693	-54.90	0.84	3	8.78	-46.96	-13	33.96	H
1693	-51.51	0.84	3	8.78	-43.57	-13	30.57	V
2539.5	-45.76	1.01	3	10.8	-35.97	-13	22.97	H
2539.5	-52.07	1.01	3	10.8	-42.28	-13	29.28	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 7_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5005	-54.51	1.57	3	12.3	-43.78	-25	18.78	H
5005	-55.75	1.57	3	12.3	-45.02	-25	20.02	V
7507.5	-47.30	2	3	11.25	-38.05	-25	13.05	H
7507.5	-55.40	2	3	11.25	-46.15	-25	21.15	V

LTE FDD Band 7_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5070	-54.00	1.58	3	12.34	-43.24	-25	18.24	H
5070	-57.73	1.58	3	12.34	-46.97	-25	21.97	V
7605	-51.16	2.01	3	11.22	-41.95	-25	16.95	H
7605	-54.86	2.01	3	11.22	-45.65	-25	20.65	V

LTE FDD Band 7_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5135	-56.25	1.6	3	12.37	-45.48	-25	20.48	H
5135	-53.44	1.6	3	12.37	-42.67	-25	17.67	V
7702.5	-47.21	2.03	3	11.19	-38.05	-25	13.05	H
7702.5	-52.11	2.03	3	11.19	-42.95	-25	17.95	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 12_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1403	-52.60	0.83	3	8.61	-44.82	-13	31.82	H
1403	-52.43	0.83	3	8.61	-44.65	-13	31.65	V
2104.5	-50.87	1	3	10.72	-41.15	-13	28.15	H
2104.5	-53.51	1	3	10.72	-43.79	-13	30.79	V

LTE FDD Band 12_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1415	-53.00	0.83	3	8.69	-45.14	-13	32.14	H
1415	-50.70	0.83	3	8.69	-42.84	-13	29.84	V
2122.5	-51.07	1	3	10.76	-41.31	-13	28.31	H
2122.5	-54.30	1	3	10.76	-44.54	-13	31.54	V

LTE FDD Band 12_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1427	-55.15	0.84	3	8.78	-47.21	-13	34.21	H
1427	-52.05	0.84	3	8.78	-44.11	-13	31.11	V
2140.5	-45.80	1.01	3	10.8	-36.01	-13	23.01	H
2140.5	-51.61	1.01	3	10.8	-41.82	-13	28.82	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 13_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1559	-53.15	0.83	3	8.61	-45.37	-40	5.37	H
1559	-52.58	0.83	3	8.61	-44.80	-40	4.80	V
2338.5	-50.91	1	3	10.72	-41.19	-13	28.19	H
2338.5	-53.56	1	3	10.72	-43.84	-13	30.84	V

LTE FDD Band 13_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1564	-52.23	0.83	3	8.69	-44.37	-40	4.37	H
1564	-50.43	0.83	3	8.69	-42.57	-40	2.57	V
2346	-51.41	1	3	10.76	-41.65	-13	28.65	H
2346	-53.92	1	3	10.76	-44.16	-13	31.16	V

LTE FDD Band 13_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1569	-55.14	0.84	3	8.78	-47.20	-40	7.20	H
1569	-51.96	0.84	3	8.78	-44.02	-40	4.02	V
2353.5	-46.06	1.01	3	10.8	-36.27	-13	23.27	H
2353.5	-52.32	1.01	3	10.8	-42.53	-13	29.53	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 14_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1581	-52.44	0.83	3	8.61	-44.66	-40	4.66	H
1581	-51.96	0.83	3	8.61	-44.18	-40	4.18	V
2371.5	-50.21	1	3	10.72	-40.49	-13	27.49	H
2371.5	-53.50	1	3	10.72	-43.78	-13	30.78	V

LTE FDD Band 14_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1586	-52.76	0.83	3	8.69	-44.90	-40	4.90	H
1586	-50.80	0.83	3	8.69	-42.94	-40	2.94	V
2379	-50.91	1	3	10.76	-41.15	-13	28.15	H
2379	-54.00	1	3	10.76	-44.24	-13	31.24	V

LTE FDD Band 14_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1591	-55.01	0.84	3	8.78	-47.07	-40	7.07	H
1591	-52.03	0.84	3	8.78	-44.09	-40	4.09	V
2386.5	-46.54	1.01	3	10.8	-36.75	-13	23.75	H
2386.5	-52.19	1.01	3	10.8	-42.40	-13	29.40	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 17_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1413	-53.15	0.83	3	8.61	-45.37	-13	32.37	H
1413	-52.52	0.83	3	8.61	-44.74	-13	31.74	V
2119.5	-50.94	1	3	10.72	-41.22	-13	28.22	H
2119.5	-53.59	1	3	10.72	-43.87	-13	30.87	V

LTE FDD Band 17_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1420	-52.46	0.83	3	8.69	-44.60	-13	31.60	H
1420	-50.73	0.83	3	8.69	-42.87	-13	29.87	V
2130	-51.16	1	3	10.76	-41.40	-13	28.40	H
2130	-54.02	1	3	10.76	-44.26	-13	31.26	V

LTE FDD Band 17_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1427	-54.90	0.84	3	8.78	-46.96	-13	33.96	H
1427	-51.71	0.84	3	8.78	-43.77	-13	30.77	V
2140.5	-46.62	1.01	3	10.8	-36.83	-13	23.83	H
2140.5	-52.40	1.01	3	10.8	-42.61	-13	29.61	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 25_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3710	-53.64	1.26	3	12.1	-42.80	-13	29.80	H
3710	-56.18	1.26	3	12.1	-45.34	-13	32.34	V
5565	-52.18	1.7	3	12.58	-41.30	-13	28.30	H
5565	-54.97	1.7	3	12.58	-44.09	-13	31.09	V

LTE FDD Band 25_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3765	-53.49	1.28	3	12.16	-42.61	-13	29.61	H
3765	-57.86	1.28	3	12.16	-46.98	-13	33.98	V
5647.5	-47.38	1.72	3	12.62	-36.48	-13	23.48	H
5647.5	-58.33	1.72	3	12.62	-47.43	-13	34.43	V

LTE FDD Band 25_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3820	-56.57	1.29	3	12.22	-45.64	-13	32.64	H
3820	-55.77	1.29	3	12.22	-44.84	-13	31.84	V
5730	-53.66	1.74	3	12.66	-42.74	-13	29.74	H
5730	-59.41	1.74	3	12.66	-48.49	-13	35.49	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE TDD Band 38_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5145	-52.45	1.57	3	12.3	-41.72	-25	16.72	H
5145	-52.47	1.57	3	12.3	-41.74	-25	16.74	V
7717.5	-50.42	2	3	11.25	-41.17	-25	16.17	H
7717.5	-53.47	2	3	11.25	-44.22	-25	19.22	V

LTE TDD Band 38_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190	-52.67	1.58	3	12.34	-41.91	-25	16.91	H
5190	-50.76	1.58	3	12.34	-40.00	-25	15.00	V
7785	-50.92	2.01	3	11.22	-41.71	-25	16.71	H
7785	-54.34	2.01	3	11.22	-45.13	-25	20.13	V

LTE TDD Band 38_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5235	-55.04	1.6	3	12.37	-44.27	-25	19.27	H
5235	-51.14	1.6	3	12.37	-40.37	-25	15.37	V
7852.5	-46.00	2.03	3	11.19	-36.84	-25	11.84	H
7852.5	-51.61	2.03	3	11.19	-42.45	-25	17.45	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE TDD Band 40(2305-2315)_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4615	-52.47	1.57	3	12.3	-41.74	-40	1.74	H
4615	-57.75	1.57	3	12.3	-47.02	-40	7.02	V
6922.5	-53.17	2	3	11.25	-43.92	-40	3.92	H
6922.5	-56.72	2	3	11.25	-47.47	-40	7.47	V

LTE TDD Band 40(2305-2315)_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4620	-52.85	1.58	3	12.34	-42.09	-40	2.09	H
4620	-55.39	1.58	3	12.34	-44.63	-40	4.63	V
6930	-53.95	2.01	3	11.22	-44.74	-40	4.74	H
6930	-57.19	2.01	3	11.22	-47.98	-40	7.98	V

LTE TDD Band 40(2305-2315)_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4625	-55.69	1.6	3	12.37	-44.92	-40	4.92	H
4625	-56.99	1.6	3	12.37	-46.22	-40	6.22	V
6937.5	-52.95	2.03	3	11.19	-43.79	-40	3.79	H
6937.5	-58.30	2.03	3	11.19	-49.14	-40	9.14	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE TDD Band 40(2350-2360)_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4705	-52.69	1.57	3	12.3	-41.96	-40	1.96	H
4705	-58.05	1.57	3	12.3	-47.32	-40	7.32	V
7057.5	-53.33	2	3	11.25	-44.08	-40	4.08	H
7057.5	-56.68	2	3	11.25	-47.43	-40	7.43	V

LTE TDD Band 40(2350-2360)_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4710	-53.07	1.58	3	12.34	-42.31	-40	2.31	H
4710	-55.30	1.58	3	12.34	-44.54	-40	4.54	V
7065	-54.14	2.01	3	11.22	-44.93	-40	4.93	H
7065	-57.53	2.01	3	11.22	-48.32	-40	8.32	V

LTE TDD Band 40(2350-2360)Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4715	-55.11	1.6	3	12.37	-44.34	-40	4.34	H
4715	-56.25	1.6	3	12.37	-45.48	-40	5.48	V
7072.5	-53.26	2.03	3	11.19	-44.10	-40	4.10	H
7072.5	-58.13	2.03	3	11.19	-48.97	-40	8.97	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE TDD Band 41_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4997	-52.57	1.57	3	12.3	-41.84	-25	16.84	H
4997	-52.02	1.57	3	12.3	-41.29	-25	16.29	V
7495.5	-50.24	2	3	11.25	-40.99	-25	15.99	H
7495.5	-53.26	2	3	11.25	-44.01	-25	19.01	V

LTE TDD Band 41_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5186	-52.64	1.58	3	12.34	-41.88	-25	16.88	H
5186	-50.52	1.58	3	12.34	-39.76	-25	14.76	V
7779	-50.84	2.01	3	11.22	-41.63	-25	16.63	H
7779	-53.92	2.01	3	11.22	-44.71	-25	19.71	V

LTE TDD Band 41_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5375	-55.29	1.6	3	12.37	-44.52	-25	19.52	H
5375	-51.30	1.6	3	12.37	-40.53	-25	15.53	V
8062.5	-46.53	2.03	3	11.19	-37.37	-25	12.37	H
8062.5	-51.52	2.03	3	11.19	-42.36	-25	17.36	V

Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

LTE FDD Band 66_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3425	-55.90	1.2	3	11.82	-45.28	-13	32.28	H
3425	-53.94	1.2	3	11.82	-43.32	-13	30.32	V
5137.5	-50.59	1.6	3	12.37	-39.82	-13	26.82	H
5137.5	-52.34	1.6	3	12.37	-41.57	-13	28.57	V

LTE FDD Band 66_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490	-55.59	1.21	3	11.86	-44.94	-13	31.94	H
3490	-55.03	1.21	3	11.86	-44.38	-13	31.38	V
5235	-46.60	1.61	3	12.4	-35.81	-13	22.81	H
5235	-52.96	1.61	3	12.4	-42.17	-13	29.17	V

LTE FDD Band 66_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Distance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3555	-54.02	1.22	3	11.9	-43.34	-13	30.34	H
3555	-54.98	1.22	3	11.9	-44.30	-13	31.30	V
5332.5	-46.61	1.63	3	12.43	-35.81	-13	22.81	H
5332.5	-57.74	1.63	3	12.43	-46.94	-13	33.94	V

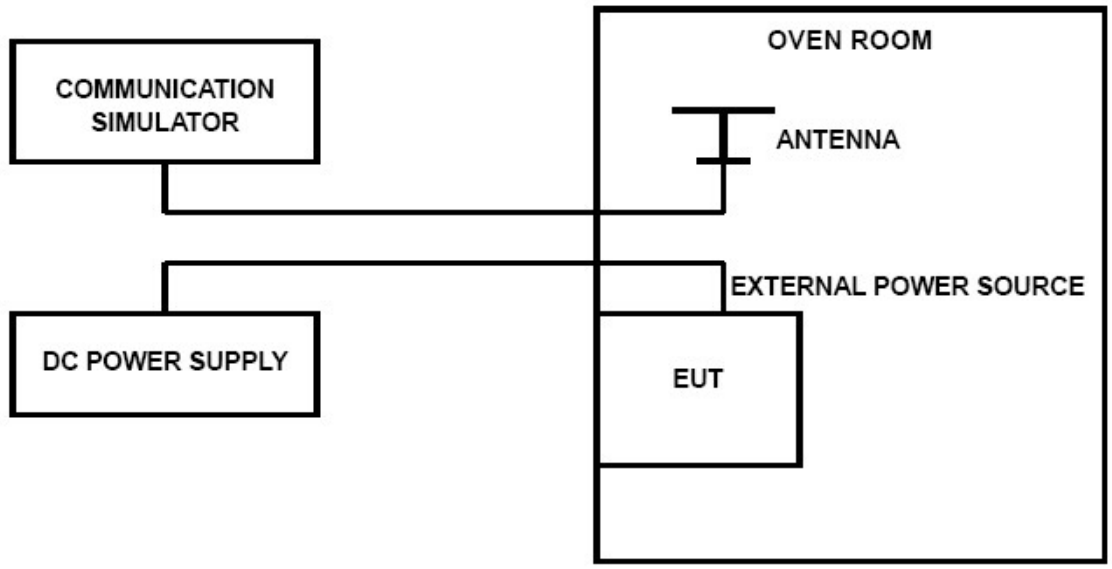
Note: All the modes had been tested, the 5MHz Bandwidth is the worst case recorded.

5.6. Frequency Stability under Temperature & Voltage Variations

5.6.1. LIMIT

According to FCC §2.1055, §22.355, §24.235 and §27.54 and §90.213 requirement, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation and should not exceed 2.5ppm.

5.6.2. TEST CONFIGURATION



5.6.3. TEST PROCEDURE

The EUT was setup according to ANSI C63.26.

5.6.4. Frequency Stability Under Temperature Variations:

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel for Specific band, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 ℃ increments from +50℃ to -30℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements
9. At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

5.6.5. Frequency Stability Under Voltage Variations:

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

5.6.6. TEST RESULTS

Pass

Remark:
1. We tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth as list in section 3.3 of this report,and record the worst case in this report.
2. please refer to Frequency Stability in Appendix Test data for LTE Band2.
3. please refer to Frequency Stability in Appendix Test data for LTE Band4.
4. please refer to Frequency Stability in Appendix Test data for LTE Band5.
5. please refer to Frequency Stability in Appendix Test data for LTE Band7.
6. please refer to Frequency Stability in Appendix Test data for LTE Band12.
7. please refer to Frequency Stability in Appendix Test data for LTE Band13.
8. please refer to Frequency Stability in Appendix Test data for LTE Band14.
9. please refer to Frequency Stability in Appendix Test data for LTE Band25
10. please refer to Frequency Stability in Appendix Test data for LTE Band38.
11. please refer to Frequency Stability in Appendix Test data for LTE Band40(2305-2315).
12. please refer to Frequency Stability in Appendix Test data for LTE Band40(2350-2360).
13. please refer to Frequency Stability in Appendix Test data for LTE Band41.
14. please refer to Frequency Stability in Appendix Test data for LTE Band66.

6. TEST SETUP PHOTOS OF THE EUT

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

7. EXTERNAL PHOTOS OF THE EUT

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

8. INTERNAL PHOTOS OF THE EUT

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

----------THE END OF REPORT----------