Partial FCC Test Report

(Part 27 – WCDMA B4, LTE B4/B7/B12/B13/B17/B66)

Report No.:	RFBBGM-WTW-P22110832-2
FCC ID:	WIYSLM500QA
Test Model:	SLM500
Received Date:	Nov. 30, 2022
Test Date:	Dec. 28, 2022 ~ Jan. 11, 2023
Issued Date:	Mar. 14, 2023
Applicant:	CASTLES TECHNOLOGY CO., LTD.
Address:	6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT, NEW TAIPEI CITY 23143, TAIWAN (R. O. C.)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RFBBGM-WTW-P22110832-2	Original release	Mar. 14, 2023

1 Certificate of Conformity

Product:	Smart module
Brand:	CASTLES TECHNOLOGY
Test Model:	SLM500
Sample Status:	Identical Prototype
Applicant:	CASTLES TECHNOLOGY CO., LTD.
Test Date:	Dec. 28, 2022 ~ Jan. 11, 2023
Standards:	FCC Part 27, Subpart C, F, H, L, M

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Mar. 14, 2023

Celine Chou / Senior Specialist

Approved by : Jeremy Lin , **Date:** Mar. 14, 2023

Jeremy Lin / Project Engineer

2 Summary of Test Results

For WCDMA B4, LTE Band 4, LTE Band 66

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Emission Bandwidth	N/A	Refer to Note
2.1051 27.53(h)	Out of Band Emission Measurements	N/A	Refer to Note
27.50(d)(5)	Peak To Average Ratio	N/A	Refer to Note
2.1051 27.53(h)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -29.45dB at 3490.00MHz.

Note:

1. This report is a Class II change partial report. Therefore, only test item of Radiated Spurious Emissions tests and Eequivalent Isotropically Radiated Power were performed for this report. Other testing data please refer to SGS report no.: SZCR210300003006 & SZCR210300003007 (Smart module, Brand: Meig Link, Model: SLM500, FCC ID: 2APJ4-SLM500).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 7

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(h)(2)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Emission Bandwidth	N/A	Refer to Note
2.1051 27.53(m)(4)(6)	Channel Edge / Out of Band Emission Measurements	N/A	Refer to Note
--	Peak To Average Ratio	N/A	Refer to Note
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -21.05dB at 5070.00MHz.

Note:

1. This report is a Class II change partial report. Therefore, only test item of Radiated Spurious Emissions tests and Eequivalent Isotropically Radiated Power were performed for this report. Other testing data please refer to BV CPS report no.: RFBBGM-WTW-P21120093-2 for Smart module (Brand: CASTLES, Model: SLM500).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 12, LTE Band 17

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(c)	Effective radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Emission Bandwidth	N/A	Refer to Note
2.1051 27.53(g)	Out of Band Emission Measurements	N/A	Refer to Note
--	Peak To Average Ratio	N/A	Refer to Note
2.1051 27.53(g)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -33.24dB at 1420.00MHz.

Note:

1. This report is a Class II change partial report. Therefore, only test item of Radiated Spurious Emissions tests and Effective Radiated Power were performed for this report. Other testing data please refer to BV CPS report no.: RFBBGM-WTW-P21120093-2 for Smart module (Brand: CASTLES, Model: SLM500).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 13

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(b)	Effective radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Emission Bandwidth	N/A	Refer to Note
2.1051 27.53(c)	Out of Band Emission Measurements	N/A	Refer to Note
--	Peak To Average Ratio	N/A	Refer to Note
2.1051 27.53(c)(f)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(c)(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -2.29dB at 1564.00MHz.

Note:

1. This report is a Class II change partial report. Therefore, only test item of Radiated Spurious Emissions tests and Effective Radiated Power were performed for this report. Other testing data please refer to BV CPS report no.: RFBBGM-WTW-P21120093-2 for Smart module (Brand: CASTLES, Model: SLM500).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.44 dB
	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 27, 2022	Apr. 26, 2023
Signal Analyzer Agilent	N9010A	MY52220207	Jan. 06, 2022	Jan. 05, 2023
			Jan. 03, 2023	Jan. 02, 2024
Loop Antenna TESEQ	HLA 6121	45745	Jul. 27, 2022	Jul. 26, 2023
Pre-amplifier EMCI	EMC001340	980201	Sep. 23, 2022	Sep. 22, 2023
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	Jan. 15, 2022	Jan. 14, 2023
Preamplifier EMCI	EMC 330H	980112	Oct. 01, 2022	Sep. 30, 2023
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Oct. 21, 2022	Oct. 20, 2023
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 01, 2022	Sep. 30, 2023
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 13, 2022	Nov. 12, 2023
Preamplifier EMCI	EMC 012645	980115	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable EMCI	EMC104-SM-SM-8000	171005	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 01, 2022	Sep. 30, 2023
RF FLITER MICRO-TRONICS	BRM50716	060	Jan. 10, 2022	Jan. 09, 2023
			Jan. 11, 2023	Jan. 10, 2024
RF FLITER MICRO-TRONICS	BRM17690	004	Jan. 10, 2022	Jan. 09, 2023
			Jan. 11, 2023	Jan. 10, 2024
Pre-Amplifier EMCI	EMC 184045	980116	Oct. 01, 2022	Sep. 30, 2023
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	148	Nov. 13, 2022	Nov. 12, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Jul. 09, 2022	Jul. 08, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Jul. 09, 2022	Jul. 08, 2023
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-440H	AT93021705	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller Max-Full	MF-7802	NA	NA	NA
Boresight antenna tower fixture BV	BAF-02	7	NA	NA
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 26, 2021	Aug. 22, 2023

Note: 1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HY - 966 chamber 5.

3 General Information

3.1 General Description of EUT

Product	Smart module	
Brand	CASTLES TECHNOLOGY	
Test Model	SLM500	
Sample Status	Identical Prototype	
Power Supply Rating	3.55-4.40Vdc	
Modulation Type	WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM	
Operating Frequency	WCDMA Band 4	1712.4MHz ~ 1752.6MHz
	LTE Band 4 (Channel Bandwidth 1.4MHz)	1710.7MHz ~ 1754.3MHz
	LTE Band 4 (Channel Bandwidth 3MHz)	1711.5MHz ~ 1753.5MHz
	LTE Band 4 (Channel Bandwidth 5MHz)	1712.5MHz ~ 1752.5MHz
	LTE Band 4 (Channel Bandwidth 10MHz)	1715.0MHz ~ 1750.0MHz
	LTE Band 4 (Channel Bandwidth 15MHz)	1717.5MHz ~ 1747.5MHz
	LTE Band 4 (Channel Bandwidth 20MHz)	1720.0MHz ~ 1745.0MHz
	LTE Band 7 (Channel Bandwidth 5MHz)	2502.5MHz ~ 2567.5MHz
	LTE Band 7 (Channel Bandwidth 10MHz)	2505.0MHz ~ 2565.0MHz
	LTE Band 7 (Channel Bandwidth 15MHz)	2507.5MHz ~ 2562.5MHz
	LTE Band 7 (Channel Bandwidth 20MHz)	2510.0MHz ~ 2560.0MHz
	LTE Band 12 (Channel Bandwidth 1.4MHz)	699.7MHz ~ 715.3MHz
	LTE Band 12 (Channel Bandwidth 3MHz)	700.5MHz ~ 714.5MHz
	LTE Band 12 (Channel Bandwidth 5MHz)	701.5MHz ~ 713.5MHz
	LTE Band 12 (Channel Bandwidth 10MHz)	704.0MHz ~ 711.0MHz
	LTE Band 13 (Channel Bandwidth 5MHz)	779.5MHz ~ 784.5MHz
	LTE Band 13 (Channel Bandwidth 10MHz)	782.0MHz
	LTE Band 17 (Channel Bandwidth 5MHz)	706.5MHz ~ 713.5MHz
	LTE Band 17 (Channel Bandwidth 10MHz)	709.0MHz ~ 711.0MHz
	LTE Band 66 (Channel Bandwidth 1.4 MHz)	1710.7MHz ~ 1779.3 MHz
	LTE Band 66 (Channel Bandwidth 3 MHz)	1711.5MHz ~ 1778.5 MHz
	LTE Band 66 (Channel Bandwidth 5 MHz)	1712.5MHz ~ 1777.5 MHz
	LTE Band 66 (Channel Bandwidth 10 MHz)	1715.0MHz ~ 1775.0 MHz
	LTE Band 66 (Channel Bandwidth 15 MHz)	1717.5MHz ~ 1772.5 MHz
	LTE Band 66 (Channel Bandwidth 20 MHz)	1720.0MHz ~ 1770.0 MHz

Max. EIRP Power	WCDMA Band 4	153.815mW (21.87dBm)	
		QPSK	16QAM
	LTE Band 4 (Channel Bandwidth 1.4MHz)	140.281mW (21.47dBm)	108.643mW (20.36dBm)
	LTE Band 4 (Channel Bandwidth 3MHz)	141.579mW (21.51dBm)	112.202mW (20.50dBm)
	LTE Band 4 (Channel Bandwidth 5MHz)	145.881mW (21.64dBm)	112.980mW (20.53dBm)
	LTE Band 4 (Channel Bandwidth 10MHz)	145.211mW (21.62dBm)	114.551mW (20.59dBm)
	LTE Band 4 (Channel Bandwidth 15MHz)	145.881mW (21.64dBm)	113.763mW (20.56dBm)
	LTE Band 4 (Channel Bandwidth 20MHz)	147.571mW (21.69dBm)	115.611mW (20.63dBm)
	LTE Band 7 (Channel Bandwidth 5MHz)	52.602mW (17.21dBm)	42.364mW (16.27dBm)
	LTE Band 7 (Channel Bandwidth 10MHz)	53.088mW (17.25dBm)	42.170mW (16.25dBm)
	LTE Band 7 (Channel Bandwidth 15MHz)	53.333mW (17.27dBm)	41.783mW (16.21dBm)
	LTE Band 7 (Channel Bandwidth 20MHz)	53.703mW (17.30dBm)	42.364mW (16.27dBm)
	LTE Band 66 (Channel Bandwidth 1.4 MHz)	154.525mW (21.89dBm)	121.619mW (20.85dBm)
	LTE Band 66 (Channel Bandwidth 3 MHz)	151.008mW (21.79dBm)	113.763mW (20.56dBm)
	LTE Band 66 (Channel Bandwidth 5 MHz)	153.109mW (21.85dBm)	114.025mW (20.57dBm)
	LTE Band 66 (Channel Bandwidth 10 MHz)	153.815mW (21.87dBm)	114.551mW (20.59dBm)
	LTE Band 66 (Channel Bandwidth 15 MHz)	154.882mW (21.90dBm)	113.501mW (20.55dBm)
	LTE Band 66 (Channel Bandwidth 20 MHz)	155.955mW (21.93dBm)	115.878mW (20.64dBm)

Max. ERP Power		QPSK	16QAM
	LTE Band 12 (Channel Bandwidth 1.4MHz)	5.929mW (7.73dBm)	4.487mW (6.52dBm)
	LTE Band 12 (Channel Bandwidth 3MHz)	5.998mW (7.78dBm)	4.305mW (6.34dBm)
	LTE Band 12 (Channel Bandwidth 5MHz)	6.026mW (7.80dBm)	4.285mW (6.32dBm)
	LTE Band 12 (Channel Bandwidth 10MHz)	6.138mW (7.88dBm)	4.305mW (6.34dBm)
	LTE Band 13 (Channel Bandwidth 5MHz)	31.405mW (14.97dBm)	22.080mW (13.44dBm)
	LTE Band 13 (Channel Bandwidth 10MHz)	31.769mW (15.02dBm)	22.182mW (13.46dBm)
	LTE Band 17 (Channel Bandwidth 5MHz)	5.902mW (7.71dBm)	4.121mW (6.15dBm)
	LTE Band 17 (Channel Bandwidth 10MHz)	5.970mW (7.76dBm)	4.140mW (6.17dBm)
Antenna Type	Refer to Note as below		
Antenna Connector	Refer to Note as below		
Accessory Device	NA		
Cable Supplied	NA		

Note:

1. The EUT is authorized for use in specific End-product.

Product	Brand	Model
POS Terminal	CASTLES TECHNOLOGY	SATURN1000MINI

2. The End-product contains following accessory devices.

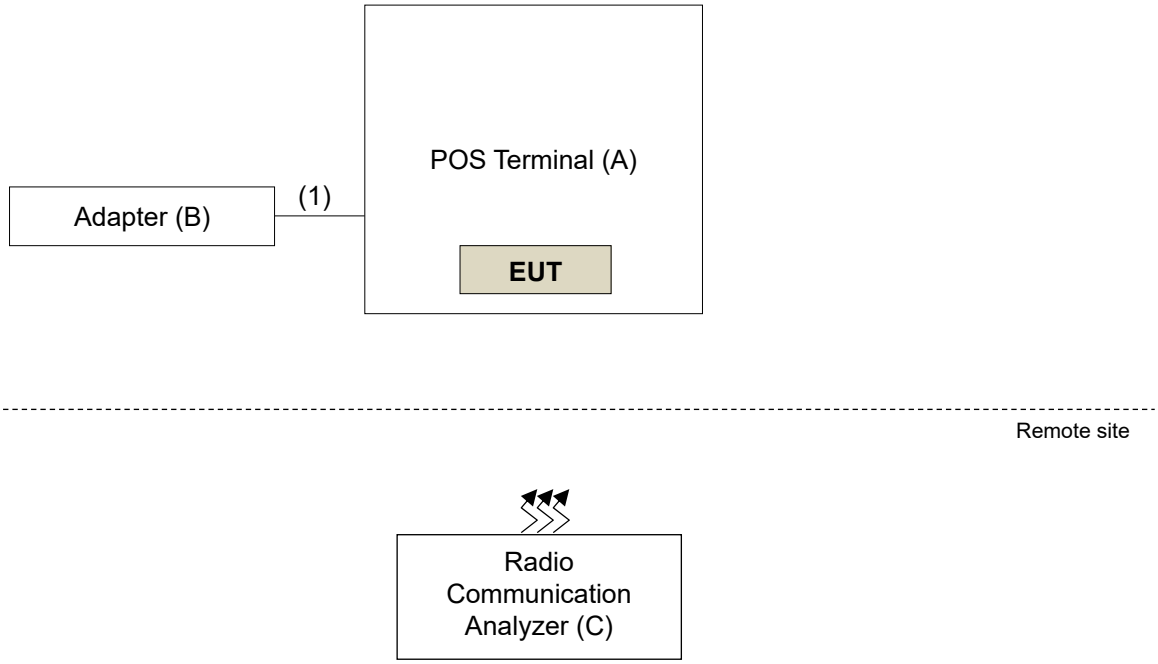
Part	Brand	Model	Specification
Adapter	CASTLES TECHNOLOGY	1A52-UB52A	I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A, 10W
Battery	CASTLES TECHNOLOGY	S1Mini	Rating: 3.7Vdc, 1600mAh, 5.92Wh
USB Cable	CHANG YANG ELECTRON CO.,LTD	CY-AS-HK0059	0.95m shielded cable without core

3. The following antennas were provided to the End-product.

Type	Connector	Gain (dBi)							
		GSM 850	GSM 1900	WCDMA B2	WCDMA B4	WCDMA B5	LTE B2	LTE B4	LTE B5
PIFA	ipex(MHF)	-3.62	-0.95	-0.95	0.56	-3.62	-0.95	0.56	-3.62
		LTE B7	LTE B12	LTE B13	LTE B17	LTE B25	LTE B26 (814-824 MHz)	LTE B26 (824-849 MHz)	LTE B66
		-2.99	-12.50	-5.21	-12.50	-0.95	-4.21	-3.62	0.56

* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	POS Terminal	CASTLES TECHNOLOGY	SATURN1000MINI	NA	NA	Provided by manufacturer
B.	Adapter	CASTLES TECHNOLOGY	1A52-UB52A	NA	NA	Provided by manufacturer
C.	Radio Communication Analyzer	Anritsu	MT8820C	6201300640	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item C acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	0.95	Y	0	Provided by manufacturer

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and XYZ axis. The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	Radiated Emission
WCDMA Band 4	Y-Plane
LTE Band 4	Y-Plane
LTE Band 7	Y-Plane
LTE Band 12	Y-Plane
LTE Band 13	Y-Plane
LTE Band 17	Y-Plane
LTE Band 66	Y-Plane

WCDMA Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	1312 to 1513	1312 (1712.4MHz), 1413 (1732.6MHz), 1513 (1752.6MHz)	WCDMA, HSDPA, HSUPA
-	Radiated Emission Below 1GHz	1312 to 1513	1513 (1752.6MHz)	WCDMA
-	Radiated Emission Above 1GHz	1312 to 1513	1312 (1712.4MHz), 1413 (1732.6MHz), 1513 (1752.6MHz)	WCDMA

Note: For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957 (1710.7MHz), 20175 (1732.5MHz), 20393 (1754.3MHz)	1.4MHz	QPSK / 16QAM	1 Half Full
		19965 to 20385	19965 (1711.5MHz), 20175 (1732.5MHz), 20385 (1753.5MHz)	3MHz	QPSK / 16QAM	1 Half Full
		19975 to 20375	19975 (1712.5MHz), 20175 (1732.5MHz), 20375 (1752.5MHz)	5MHz	QPSK / 16QAM	1 Half Full
		20000 to 20350	20000 (1715.0MHz), 20175 (1732.5MHz), 20350 (1750.0MHz)	10MHz	QPSK / 16QAM	1 Half Full
		20025 to 20325	20025 (1717.5MHz), 20175 (1732.5MHz), 20325 (1747.5MHz)	15MHz	QPSK / 16QAM	1 Half Full
		20050 to 20300	20050 (1720.0MHz), 20175 (1732.5MHz), 20300 (1745.0MHz)	20MHz	QPSK / 16QAM	1 Half Full
-	Radiated Emission Below 1GHz	20050 to 20300	20300 (1745.0MHz)	20MHz	QPSK	1
-	Radiated Emission Above 1GHz	19957 to 20393	19957 (1710.7MHz), 20175 (1732.5MHz), 20393 (1754.3MHz)	1.4MHz	QPSK	1
		19975 to 20375	19975 (1712.5MHz), 20175 (1732.5MHz), 20375 (1752.5MHz)	5MHz	QPSK	1
		20050 to 20300	20050 (1720.0MHz), 20175 (1732.5MHz), 20300 (1745.0MHz)	20MHz	QPSK	1

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
3. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.

LTE Band 7

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK / 16QAM	1 Half Full
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10MHz	QPSK / 16QAM	1 Half Full
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15MHz	QPSK / 16QAM	1 Half Full
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK / 16QAM	1 Half Full
-	Radiated Emission Below 1GHz	20850 to 21350	21100 (2535.0MHz)	20MHz	QPSK	1
-	Radiated Emission Above 1GHz	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK	1
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	1

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
3. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest & highest channel bandwidth for final test.

LTE Band 12

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK / 16QAM	1 Half Full
		23025 to 23165	23025 (700.5MHz), 23095 (707.5MHz), 23165 (714.5MHz)	3MHz	QPSK / 16QAM	1 Half Full
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK / 16QAM	1 Half Full
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0 MHz)	10MHz	QPSK / 16QAM	1 Half Full
-	Radiated Emission Below 1GHz	23060 to 23130	23095 (707.5MHz)	10MHz	QPSK	1
-	Radiated Emission Above 1GHz	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK	1
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK	1
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0MHz)	10MHz	QPSK	1

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
3. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.

LTE Band 13

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205 (779.5MHz), 23230 (782.0MHz), 23255 (784.5MHz)	5MHz	QPSK / 16QAM	1 Half Full
		23230	23230 (782.0MHz)	10MHz	QPSK / 16QAM	1 Half Full
-	Radiated Emission Below 1GHz	23230	23230 (782.0MHz)	10MHz	QPSK	1
-	Radiated Emission Above 1GHz	23205 to 23255	23205 (779.5MHz), 23230 (782.0MHz), 23255 (784.5MHz)	5MHz	QPSK	1
		23230	23230 (782.0MHz)	10MHz	QPSK	1

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
3. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest & highest channel bandwidth for final test.

LTE Band 17

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23755 to 23825	23755 (706.5MHz), 23790 (710.0MHz), 23825 (713.5MHz)	5MHz	QPSK / 16QAM	1 Half Full
		23780 to 23800	23780 (709.0MHz), 23790 (710.0MHz), 23800 (711.0MHz)	10MHz	QPSK / 16QAM	1 Half Full
-	Radiated Emission Below 1GHz	23755 to 23825	23790 (710.0MHz)	5MHz	QPSK	1
-	Radiated Emission Above 1GHz	23755 to 23825	23755 (706.5MHz), 23790 (710.0MHz), 23825 (713.5MHz)	5MHz	QPSK	1
		23780 to 23800	23780 (709.0MHz), 23790 (710.0MHz), 23800 (711.0MHz)	10MHz	QPSK	1

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
3. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest & highest channel bandwidth for final test.

LTE Band 66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK / 16QAM	1 Half Full
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK / 16QAM	1 Half Full
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK / 16QAM	1 Half Full
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK / 16QAM	1 Half Full
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK / 16QAM	1 Half Full
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK / 16QAM	1 Half Full
-	Radiated Emission Below 1GHz	132072 to 132572	132572 (1770.0MHz)	20MHz	QPSK	1
-	Radiated Emission Above 1GHz	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1

Note:
1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
3. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP / ERP	25deg. C, 60%RH	120Vac, 60Hz (System)	Willy Cheng
Radiated Emission	24deg. C, 78%RH, 19deg. C, 67%RH	120Vac, 60Hz (System)	Vincent Chen, Thomas Cheng

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and References:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For WCDMA Band 4, LTE Band 4, LTE Band 66:
Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

For LTE Band 7:
Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

For LTE Band 12, LTE Band 17:
Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.
Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

For LTE Band 13:
Control stations and mobile stations in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.
Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

4.1.2 Test Procedures

Conducted Power Measurement:

The EUT was set up for the maximum power with WCDMA, LTE link data modulation and link up with simulator. The power measurement was performed on emulator and power value was measured from power function on emulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$EIRP = P_{Meas} + G_T$

$ERP = P_{Meas} + G_T - 2.15$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.3 Test Setup

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA IV		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	21.31	21.27	21.15
HSDPA Subtest-1	20.22	20.16	20.08
HSDPA Subtest-2	20.17	20.07	20.00
HSDPA Subtest-3	19.72	19.66	19.61
HSDPA Subtest-4	19.65	19.59	19.54
DC-HSDPA Subtest-1	20.12	19.99	19.88
DC-HSDPA Subtest-2	20.08	19.97	19.83
DC-HSDPA Subtest-3	19.53	19.39	19.29
DC-HSDPA Subtest-4	19.46	19.32	19.17
HSUPA Subtest-1	20.01	19.88	19.82
HSUPA Subtest-2	18.33	18.21	18.07
HSUPA Subtest-3	19.46	19.35	19.24
HSUPA Subtest-4	18.28	18.16	18.02
HSUPA Subtest-5	19.91	19.85	19.72

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	20.85	21.13	21.11
		1	50	20.83	21.08	21.06
		1	99	20.61	20.86	20.81
		50	0	19.62	19.85	19.83
		50	25	18.70	19.00	18.94
		50	50	19.44	19.76	19.69
		100	0	19.47	19.79	19.72
20M	16QAM	1	0	19.25	19.63	19.55
		1	50	19.80	20.07	20.03
		1	99	19.02	19.41	19.32
		50	0	18.49	18.75	18.69
		50	25	18.37	18.72	18.64
		50	50	18.39	18.68	18.60
		100	0	18.39	18.66	18.65
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	20.81	21.08	21.01
		1	37	20.80	21.00	21.00
		1	74	20.52	20.84	20.78
		36	0	19.59	19.77	19.77
		36	19	18.61	18.95	18.92
		36	39	19.43	19.69	19.67
		75	0	19.47	19.79	19.72
15M	16QAM	1	0	19.18	19.63	19.54
		1	37	19.80	20.00	19.95
		1	74	18.96	19.40	19.26
		36	0	18.39	18.72	18.68
		36	19	18.31	18.63	18.64
		36	39	18.39	18.59	18.56
		75	0	18.34	18.60	18.56

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	20.76	21.06	21.04
		1	24	20.83	21.03	20.99
		1	49	20.52	20.83	20.72
		25	0	19.57	19.73	19.76
		25	12	18.67	18.92	18.90
		25	25	19.43	19.71	19.68
		50	0	19.40	19.73	19.72
10M	16QAM	1	0	19.23	19.59	19.49
		1	24	19.72	20.03	20.03
		1	49	19.02	19.34	19.25
		25	0	18.41	18.70	18.69
		25	12	18.32	18.67	18.61
		25	25	18.38	18.59	18.50
		50	0	18.33	18.65	18.59
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	20.85	21.03	21.02
		1	12	20.82	21.08	21.06
		1	24	20.53	20.78	20.77
		12	0	19.56	19.79	19.83
		12	6	18.62	19.00	18.89
		12	13	19.34	19.68	19.61
		25	0	19.41	19.69	19.63
5M	16QAM	1	0	19.15	19.63	19.51
		1	12	19.71	19.97	19.93
		1	24	18.97	19.34	19.24
		12	0	18.40	18.67	18.67
		12	6	18.37	18.71	18.61
		12	13	18.38	18.66	18.55
		25	0	18.38	18.66	18.65

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	20.71	20.93	20.95
		1	7	20.70	20.92	20.89
		1	14	20.48	20.73	20.63
		8	0	19.51	19.63	19.63
		8	3	18.59	18.87	18.74
		8	7	19.26	19.64	19.52
		15	0	19.29	19.69	19.56
3M	16QAM	1	0	19.09	19.52	19.44
		1	7	19.64	19.94	19.90
		1	14	18.88	19.28	19.13
		8	0	18.39	18.64	18.51
		8	3	18.24	18.54	18.48
		8	7	18.23	18.56	18.46
		15	0	18.26	18.55	18.50
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	20.58	20.91	20.86
		1	2	20.56	20.85	20.78
		1	5	20.43	20.67	20.63
		3	0	20.39	20.61	20.55
		3	1	19.51	19.86	19.73
		3	3	20.20	20.56	20.42
		6	0	19.25	19.56	19.51
1.4M	16QAM	1	0	19.00	19.46	19.39
		1	2	19.63	19.80	19.79
		1	5	18.87	19.25	19.07
		3	0	19.39	19.56	19.42
		3	1	19.19	19.50	19.47
		3	3	19.14	19.43	19.34
		6	0	18.25	18.51	18.46

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	20.29	20.19	20.21
		1	50	20.25	20.14	20.18
		1	99	20.21	20.03	20.13
		50	0	19.26	19.10	19.16
		50	25	19.23	19.18	19.21
		50	50	19.21	19.05	19.11
		100	0	18.43	18.33	18.42
20M	16QAM	1	0	19.26	19.20	19.22
		1	50	19.05	18.90	18.99
		1	99	18.82	18.70	18.75
		50	0	17.62	17.58	17.60
		50	25	17.42	17.37	17.41
		50	50	17.39	17.27	17.31
		100	0	17.48	17.38	17.39
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	20.26	20.15	20.13
		1	37	20.23	20.13	20.12
		1	74	20.11	20.03	20.11
		36	0	19.21	19.08	19.11
		36	19	19.18	19.14	19.14
		36	39	19.17	18.98	19.08
		75	0	18.42	18.23	18.36
15M	16QAM	1	0	19.18	19.20	19.14
		1	37	19.01	18.87	18.93
		1	74	18.81	18.68	18.75
		36	0	17.58	17.58	17.54
		36	19	17.41	17.37	17.37
		36	39	17.30	17.24	17.30
		75	0	17.45	17.31	17.38

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	20.24	20.16	20.12
		1	24	20.22	20.13	20.13
		1	49	20.21	19.96	20.05
		25	0	19.23	19.02	19.07
		25	12	19.19	19.13	19.15
		25	25	19.17	19.05	19.04
		50	0	18.41	18.31	18.38
10M	16QAM	1	0	19.24	19.18	19.21
		1	24	18.97	18.83	18.91
		1	49	18.75	18.65	18.69
		25	0	17.57	17.58	17.60
		25	12	17.36	17.28	17.38
		25	25	17.34	17.22	17.31
		50	0	17.41	17.36	17.35
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	20.19	20.18	20.20
		1	12	20.20	20.08	20.11
		1	24	20.17	19.95	20.10
		12	0	19.25	19.05	19.06
		12	6	19.13	19.12	19.11
		12	13	19.18	18.99	19.02
		25	0	18.37	18.27	18.33
5M	16QAM	1	0	19.26	19.11	19.18
		1	12	18.95	18.82	18.93
		1	24	18.78	18.68	18.74
		12	0	17.54	17.56	17.59
		12	6	17.32	17.35	17.40
		12	13	17.30	17.25	17.21
		25	0	17.42	17.29	17.37

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	22.53	22.39	22.28
		1	24	22.46	22.36	22.26
		1	49	22.28	22.20	22.13
		25	0	21.26	21.23	21.18
		25	12	21.32	21.29	21.26
		25	25	21.25	21.25	21.24
		50	0	21.29	21.23	21.20
10M	16QAM	1	0	20.99	20.97	20.95
		1	24	20.82	20.79	20.69
		1	49	20.68	20.64	20.59
		25	0	20.22	20.12	20.09
		25	12	20.29	20.23	20.20
		25	25	20.13	20.03	19.97
		50	0	20.26	20.20	20.10
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	22.45	22.35	22.20
		1	12	22.38	22.27	22.19
		1	24	22.26	22.20	22.11
		12	0	21.25	21.23	21.10
		12	6	21.32	21.27	21.22
		12	13	21.22	21.23	21.19
		25	0	21.22	21.23	21.19
5M	16QAM	1	0	20.93	20.97	20.87
		1	12	20.75	20.70	20.67
		1	24	20.63	20.59	20.52
		12	0	20.16	20.09	19.99
		12	6	20.20	20.20	20.11
		12	13	20.07	20.02	19.96
		25	0	20.18	20.19	20.04

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	22.43	22.38	22.21
		1	7	22.41	22.28	22.21
		1	14	22.20	22.17	22.11
		8	0	21.23	21.22	21.16
		8	3	21.26	21.24	21.18
		8	7	21.17	21.17	21.21
		15	0	21.29	21.18	21.16
3M	16QAM	1	0	20.99	20.90	20.89
		1	7	20.73	20.76	20.64
		1	14	20.61	20.62	20.55
		8	0	20.12	20.06	20.07
		8	3	20.22	20.18	20.16
		8	7	20.07	19.95	19.92
		15	0	20.16	20.13	20.04
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	22.38	22.21	22.11
		1	2	22.29	22.21	22.09
		1	5	22.09	22.01	22.03
		3	0	22.12	22.09	22.04
		3	1	22.09	22.11	21.99
		3	3	22.11	22.00	22.07
		6	0	21.15	21.02	21.05
1.4M	16QAM	1	0	20.75	20.78	20.74
		1	2	20.66	20.71	20.45
		1	5	20.43	20.42	20.50
		3	0	21.05	20.96	20.87
		3	1	21.17	21.09	21.02
		3	3	21.07	20.82	20.87
		6	0	20.09	20.06	20.02

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low		
		Channel		23230		
		Frequency (MHz)		782		
10M	QPSK	1	0	22.38		
		1	24	22.33		
		1	49	22.22		
		25	0	21.11		
		25	12	21.05		
		25	25	21.02		
		50	0	21.06		
10M	16QAM	1	0	20.82		
		1	24	20.77		
		1	49	20.67		
		25	0	20.04		
		25	12	20.02		
		25	25	19.98		
		50	0	20.02		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	22.32	22.33	22.18
		1	12	22.19	22.30	22.14
		1	24	22.09	22.15	21.98
		12	0	21.00	21.10	20.87
		12	6	20.96	20.97	21.00
		12	13	20.85	20.95	20.81
		25	0	21.04	21.00	20.91
5M	16QAM	1	0	20.76	20.80	20.63
		1	12	20.64	20.74	20.63
		1	24	20.62	20.65	20.52
		12	0	19.98	20.03	19.94
		12	6	19.89	19.96	19.95
		12	13	19.94	19.92	19.96
		25	0	19.92	20.02	19.82

LTE Band 17						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23780	23790	23800
		Frequency (MHz)		709	710	711
10M	QPSK	1	0	22.41	22.38	22.34
		1	50	22.22	22.19	22.17
		1	99	21.95	21.85	21.88
		50	0	21.07	20.99	21.00
		50	25	21.01	21.00	20.98
		50	50	20.96	20.90	20.89
		100	0	21.06	21.06	21.04
10M	16QAM	1	0	20.82	20.76	20.73
		1	50	20.78	20.72	20.69
		1	99	20.63	20.56	20.59
		50	0	20.22	20.22	20.13
		50	25	20.17	20.09	20.09
		50	50	20.11	20.09	20.08
		100	0	20.13	20.06	20.04
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23755	23790	23825
		Frequency (MHz)		706.5	710	713.5
5M	QPSK	1	0	22.36	22.31	22.27
		1	37	22.15	22.11	22.09
		1	74	21.93	21.76	21.88
		36	0	21.03	20.91	20.96
		36	19	20.96	20.94	20.90
		36	39	20.91	20.80	20.83
		75	0	20.98	21.05	20.99
5M	16QAM	1	0	20.80	20.67	20.68
		1	37	20.70	20.70	20.63
		1	74	20.63	20.47	20.50
		36	0	20.12	20.14	20.07
		36	19	20.16	20.00	20.07
		36	39	20.07	20.03	19.98
		75	0	20.07	20.02	20.03

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	21.16	21.37	21.25
		1	50	21.11	21.32	21.21
		1	99	21.08	21.29	21.22
		50	0	20.29	20.48	20.41
		50	25	20.17	20.36	20.27
		50	50	20.16	20.29	20.22
		100	0	20.17	20.38	20.31
20M	16QAM	1	0	19.93	20.08	19.98
		1	50	19.84	20.03	19.93
		1	99	19.66	19.92	19.80
		50	0	19.24	19.47	19.34
		50	25	19.26	19.42	19.37
		50	50	19.18	19.39	19.30
		100	0	19.13	19.34	19.21
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	21.16	21.34	21.15
		1	37	21.08	21.22	21.21
		1	74	21.01	21.24	21.20
		36	0	20.21	20.45	20.38
		36	19	20.11	20.27	20.25
		36	39	20.15	20.27	20.16
		75	0	20.14	20.37	20.23
15M	16QAM	1	0	19.84	19.99	19.90
		1	37	19.76	19.93	19.92
		1	74	19.63	19.85	19.79
		36	0	19.18	19.43	19.29
		36	19	19.21	19.39	19.27
		36	39	19.12	19.32	19.26
		75	0	19.11	19.30	19.15

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	21.14	21.31	21.25
		1	24	21.10	21.26	21.12
		1	49	21.04	21.23	21.18
		25	0	20.26	20.42	20.39
		25	12	20.08	20.36	20.21
		25	25	20.14	20.24	20.22
		50	0	20.17	20.33	20.21
10M	16QAM	1	0	19.91	20.03	19.96
		1	24	19.84	19.96	19.86
		1	49	19.60	19.84	19.70
		25	0	19.18	19.44	19.25
		25	12	19.22	19.33	19.37
		25	25	19.13	19.36	19.28
		50	0	19.08	19.29	19.19
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	21.08	21.27	21.15
		1	12	21.02	21.23	21.17
		1	24	21.03	21.29	21.13
		12	0	20.19	20.39	20.33
		12	6	20.16	20.30	20.17
		12	13	20.10	20.28	20.15
		25	0	20.10	20.29	20.30
5M	16QAM	1	0	19.93	20.01	19.96
		1	12	19.84	20.01	19.83
		1	24	19.65	19.84	19.73
		12	0	19.23	19.42	19.28
		12	6	19.20	19.38	19.27
		12	13	19.18	19.31	19.23
		25	0	19.08	19.34	19.14

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	21.09	21.23	21.11
		1	7	21.00	21.23	21.12
		1	14	20.95	21.22	21.11
		8	0	20.20	20.38	20.32
		8	3	20.11	20.29	20.14
		8	7	20.02	20.24	20.11
		15	0	20.05	20.32	20.20
3M	16QAM	1	0	19.82	20.00	19.84
		1	7	19.71	19.88	19.79
		1	14	19.55	19.82	19.72
		8	0	19.18	19.42	19.23
		8	3	19.21	19.35	19.30
		8	7	19.05	19.25	19.17
		15	0	19.06	19.20	19.06
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	20.97	21.19	21.10
		1	2	20.98	21.13	21.01
		1	5	20.81	21.16	21.04
		3	0	21.07	21.33	21.20
		3	1	20.94	21.11	21.08
		3	3	21.01	21.08	21.17
		6	0	20.01	20.10	20.14
1.4M	16QAM	1	0	19.77	19.83	19.83
		1	2	19.61	19.95	19.78
		1	5	19.42	19.79	19.68
		3	0	20.00	20.29	20.18
		3	1	20.09	20.16	20.14
		3	3	20.08	20.17	20.12
		6	0	18.97	19.06	19.02

EIRP / ERP Power (dBm)

Band	WCDMA IV		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	21.87	21.83	21.71
HSDPA Subtest-1	20.78	20.72	20.64
HSDPA Subtest-2	20.73	20.63	20.56
HSDPA Subtest-3	20.28	20.22	20.17
HSDPA Subtest-4	20.21	20.15	20.10
DC-HSDPA Subtest-1	20.68	20.55	20.44
DC-HSDPA Subtest-2	20.64	20.53	20.39
DC-HSDPA Subtest-3	20.09	19.95	19.85
DC-HSDPA Subtest-4	20.02	19.88	19.73
HSUPA Subtest-1	20.57	20.44	20.38
HSUPA Subtest-2	18.89	18.77	18.63
HSUPA Subtest-3	20.02	19.91	19.80
HSUPA Subtest-4	18.84	18.72	18.58
HSUPA Subtest-5	20.47	20.41	20.28

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	21.41	21.69	21.67
		1	50	21.39	21.64	21.62
		1	99	21.17	21.42	21.37
		50	0	20.18	20.41	20.39
		50	25	19.26	19.56	19.50
		50	50	20.00	20.32	20.25
		100	0	20.03	20.35	20.28
20M	16QAM	1	0	19.81	20.19	20.11
		1	50	20.36	20.63	20.59
		1	99	19.58	19.97	19.88
		50	0	19.05	19.31	19.25
		50	25	18.93	19.28	19.20
		50	50	18.95	19.24	19.16
		100	0	18.95	19.22	19.21
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	21.37	21.64	21.57
		1	37	21.36	21.56	21.56
		1	74	21.08	21.40	21.34
		36	0	20.15	20.33	20.33
		36	19	19.17	19.51	19.48
		36	39	19.99	20.25	20.23
		75	0	20.03	20.35	20.28
15M	16QAM	1	0	19.74	20.19	20.10
		1	37	20.36	20.56	20.51
		1	74	19.52	19.96	19.82
		36	0	18.95	19.28	19.24
		36	19	18.87	19.19	19.20
		36	39	18.95	19.15	19.12
		75	0	18.90	19.16	19.12

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	21.32	21.62	21.60
		1	24	21.39	21.59	21.55
		1	49	21.08	21.39	21.28
		25	0	20.13	20.29	20.32
		25	12	19.23	19.48	19.46
		25	25	19.99	20.27	20.24
		50	0	19.96	20.29	20.28
10M	16QAM	1	0	19.79	20.15	20.05
		1	24	20.28	20.59	20.59
		1	49	19.58	19.90	19.81
		25	0	18.97	19.26	19.25
		25	12	18.88	19.23	19.17
		25	25	18.94	19.15	19.06
		50	0	18.89	19.21	19.15
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	21.41	21.59	21.58
		1	12	21.38	21.64	21.62
		1	24	21.09	21.34	21.33
		12	0	20.12	20.35	20.39
		12	6	19.18	19.56	19.45
		12	13	19.90	20.24	20.17
		25	0	19.97	20.25	20.19
5M	16QAM	1	0	19.71	20.19	20.07
		1	12	20.27	20.53	20.49
		1	24	19.53	19.90	19.80
		12	0	18.96	19.23	19.23
		12	6	18.93	19.27	19.17
		12	13	18.94	19.22	19.11
		25	0	18.94	19.22	19.21

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	21.27	21.49	21.51
		1	7	21.26	21.48	21.45
		1	14	21.04	21.29	21.19
		8	0	20.07	20.19	20.19
		8	3	19.15	19.43	19.30
		8	7	19.82	20.20	20.08
		15	0	19.85	20.25	20.12
3M	16QAM	1	0	19.65	20.08	20.00
		1	7	20.20	20.50	20.46
		1	14	19.44	19.84	19.69
		8	0	18.95	19.20	19.07
		8	3	18.80	19.10	19.04
		8	7	18.79	19.12	19.02
		15	0	18.82	19.11	19.06
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	21.14	21.47	21.42
		1	2	21.12	21.41	21.34
		1	5	20.99	21.23	21.19
		3	0	20.95	21.17	21.11
		3	1	20.07	20.42	20.29
		3	3	20.76	21.12	20.98
		6	0	19.81	20.12	20.07
1.4M	16QAM	1	0	19.56	20.02	19.95
		1	2	20.19	20.36	20.35
		1	5	19.43	19.81	19.63
		3	0	19.95	20.12	19.98
		3	1	19.75	20.06	20.03
		3	3	19.70	19.99	19.90
		6	0	18.81	19.07	19.02

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	17.30	17.20	17.22
		1	50	17.26	17.15	17.19
		1	99	17.22	17.04	17.14
		50	0	16.27	16.11	16.17
		50	25	16.24	16.19	16.22
		50	50	16.22	16.06	16.12
		100	0	15.44	15.34	15.43
20M	16QAM	1	0	16.27	16.21	16.23
		1	50	16.06	15.91	16.00
		1	99	15.83	15.71	15.76
		50	0	14.63	14.59	14.61
		50	25	14.43	14.38	14.42
		50	50	14.40	14.28	14.32
		100	0	14.49	14.39	14.40
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	17.27	17.16	17.14
		1	37	17.24	17.14	17.13
		1	74	17.12	17.04	17.12
		36	0	16.22	16.09	16.12
		36	19	16.19	16.15	16.15
		36	39	16.18	15.99	16.09
		75	0	15.43	15.24	15.37
15M	16QAM	1	0	16.19	16.21	16.15
		1	37	16.02	15.88	15.94
		1	74	15.82	15.69	15.76
		36	0	14.59	14.59	14.55
		36	19	14.42	14.38	14.38
		36	39	14.31	14.25	14.31
		75	0	14.46	14.32	14.39

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	17.25	17.17	17.13
		1	24	17.23	17.14	17.14
		1	49	17.22	16.97	17.06
		25	0	16.24	16.03	16.08
		25	12	16.20	16.14	16.16
		25	25	16.18	16.06	16.05
		50	0	15.42	15.32	15.39
10M	16QAM	1	0	16.25	16.19	16.22
		1	24	15.98	15.84	15.92
		1	49	15.76	15.66	15.70
		25	0	14.58	14.59	14.61
		25	12	14.37	14.29	14.39
		25	25	14.35	14.23	14.32
		50	0	14.42	14.37	14.36
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	17.20	17.19	17.21
		1	12	17.21	17.09	17.12
		1	24	17.18	16.96	17.11
		12	0	16.26	16.06	16.07
		12	6	16.14	16.13	16.12
		12	13	16.19	16.00	16.03
		25	0	15.38	15.28	15.34
5M	16QAM	1	0	16.27	16.12	16.19
		1	12	15.96	15.83	15.94
		1	24	15.79	15.69	15.75
		12	0	14.55	14.57	14.60
		12	6	14.33	14.36	14.41
		12	13	14.31	14.26	14.22
		25	0	14.43	14.30	14.38

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	7.88	7.74	7.63
		1	24	7.81	7.71	7.61
		1	49	7.63	7.55	7.48
		25	0	6.61	6.58	6.53
		25	12	6.67	6.64	6.61
		25	25	6.60	6.60	6.59
		50	0	6.64	6.58	6.55
10M	16QAM	1	0	6.34	6.32	6.30
		1	24	6.17	6.14	6.04
		1	49	6.03	5.99	5.94
		25	0	5.57	5.47	5.44
		25	12	5.64	5.58	5.55
		25	25	5.48	5.38	5.32
		50	0	5.61	5.55	5.45
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	7.80	7.70	7.55
		1	12	7.73	7.62	7.54
		1	24	7.61	7.55	7.46
		12	0	6.60	6.58	6.45
		12	6	6.67	6.62	6.57
		12	13	6.57	6.58	6.54
		25	0	6.57	6.58	6.54
5M	16QAM	1	0	6.28	6.32	6.22
		1	12	6.10	6.05	6.02
		1	24	5.98	5.94	5.87
		12	0	5.51	5.44	5.34
		12	6	5.55	5.55	5.46
		12	13	5.42	5.37	5.31
		25	0	5.53	5.54	5.39

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	7.78	7.73	7.56
		1	7	7.76	7.63	7.56
		1	14	7.55	7.52	7.46
		8	0	6.58	6.57	6.51
		8	3	6.61	6.59	6.53
		8	7	6.52	6.52	6.56
		15	0	6.64	6.53	6.51
3M	16QAM	1	0	6.34	6.25	6.24
		1	7	6.08	6.11	5.99
		1	14	5.96	5.97	5.90
		8	0	5.47	5.41	5.42
		8	3	5.57	5.53	5.51
		8	7	5.42	5.30	5.27
		15	0	5.51	5.48	5.39
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	7.73	7.56	7.46
		1	2	7.64	7.56	7.44
		1	5	7.44	7.36	7.38
		3	0	7.47	7.44	7.39
		3	1	7.44	7.46	7.34
		3	3	7.46	7.35	7.42
		6	0	6.50	6.37	6.40
1.4M	16QAM	1	0	6.10	6.13	6.09
		1	2	6.01	6.06	5.80
		1	5	5.78	5.77	5.85
		3	0	6.40	6.31	6.22
		3	1	6.52	6.44	6.37
		3	3	6.42	6.17	6.22
		6	0	5.44	5.41	5.37

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low		
		Channel		23230		
		Frequency (MHz)		782		
10M	QPSK	1	0	15.02		
		1	24	14.97		
		1	49	14.86		
		25	0	13.75		
		25	12	13.69		
		25	25	13.66		
		50	0	13.70		
10M	16QAM	1	0	13.46		
		1	24	13.41		
		1	49	13.31		
		25	0	12.68		
		25	12	12.66		
		25	25	12.62		
		50	0	12.66		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	14.96	14.97	14.82
		1	12	14.83	14.94	14.78
		1	24	14.73	14.79	14.62
		12	0	13.64	13.74	13.51
		12	6	13.60	13.61	13.64
		12	13	13.49	13.59	13.45
		25	0	13.68	13.64	13.55
5M	16QAM	1	0	13.40	13.44	13.27
		1	12	13.28	13.38	13.27
		1	24	13.26	13.29	13.16
		12	0	12.62	12.67	12.58
		12	6	12.53	12.60	12.59
		12	13	12.58	12.56	12.60
		25	0	12.56	12.66	12.46

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15

LTE Band 17						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23780	23790	23800
		Frequency (MHz)		709	710	711
10M	QPSK	1	0	7.76	7.73	7.69
		1	50	7.57	7.54	7.52
		1	99	7.30	7.20	7.23
		50	0	6.42	6.34	6.35
		50	25	6.36	6.35	6.33
		50	50	6.31	6.25	6.24
		100	0	6.41	6.41	6.39
10M	16QAM	1	0	6.17	6.11	6.08
		1	50	6.13	6.07	6.04
		1	99	5.98	5.91	5.94
		50	0	5.57	5.57	5.48
		50	25	5.52	5.44	5.44
		50	50	5.46	5.44	5.43
		100	0	5.48	5.41	5.39
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23755	23790	23825
		Frequency (MHz)		706.5	710	713.5
5M	QPSK	1	0	7.71	7.66	7.62
		1	37	7.50	7.46	7.44
		1	74	7.28	7.11	7.23
		36	0	6.38	6.26	6.31
		36	19	6.31	6.29	6.25
		36	39	6.26	6.15	6.18
		75	0	6.33	6.40	6.34
5M	16QAM	1	0	6.15	6.02	6.03
		1	37	6.05	6.05	5.98
		1	74	5.98	5.82	5.85
		36	0	5.47	5.49	5.42
		36	19	5.51	5.35	5.42
		36	39	5.42	5.38	5.33
		75	0	5.42	5.37	5.38

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	21.72	21.93	21.81
		1	50	21.67	21.88	21.77
		1	99	21.64	21.85	21.78
		50	0	20.85	21.04	20.97
		50	25	20.73	20.92	20.83
		50	50	20.72	20.85	20.78
		100	0	20.73	20.94	20.87
20M	16QAM	1	0	20.49	20.64	20.54
		1	50	20.40	20.59	20.49
		1	99	20.22	20.48	20.36
		50	0	19.80	20.03	19.90
		50	25	19.82	19.98	19.93
		50	50	19.74	19.95	19.86
		100	0	19.69	19.90	19.77
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	21.72	21.90	21.71
		1	37	21.64	21.78	21.77
		1	74	21.57	21.80	21.76
		36	0	20.77	21.01	20.94
		36	19	20.67	20.83	20.81
		36	39	20.71	20.83	20.72
		75	0	20.70	20.93	20.79
15M	16QAM	1	0	20.40	20.55	20.46
		1	37	20.32	20.49	20.48
		1	74	20.19	20.41	20.35
		36	0	19.74	19.99	19.85
		36	19	19.77	19.95	19.83
		36	39	19.68	19.88	19.82
		75	0	19.67	19.86	19.71

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	21.70	21.87	21.81
		1	24	21.66	21.82	21.68
		1	49	21.60	21.79	21.74
		25	0	20.82	20.98	20.95
		25	12	20.64	20.92	20.77
		25	25	20.70	20.80	20.78
		50	0	20.73	20.89	20.77
10M	16QAM	1	0	20.47	20.59	20.52
		1	24	20.40	20.52	20.42
		1	49	20.16	20.40	20.26
		25	0	19.74	20.00	19.81
		25	12	19.78	19.89	19.93
		25	25	19.69	19.92	19.84
		50	0	19.64	19.85	19.75
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	21.64	21.83	21.71
		1	12	21.58	21.79	21.73
		1	24	21.59	21.85	21.69
		12	0	20.75	20.95	20.89
		12	6	20.72	20.86	20.73
		12	13	20.66	20.84	20.71
		25	0	20.66	20.85	20.86
5M	16QAM	1	0	20.49	20.57	20.52
		1	12	20.40	20.57	20.39
		1	24	20.21	20.40	20.29
		12	0	19.79	19.98	19.84
		12	6	19.76	19.94	19.83
		12	13	19.74	19.87	19.79
		25	0	19.64	19.90	19.70

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	21.65	21.79	21.67
		1	7	21.56	21.79	21.68
		1	14	21.51	21.78	21.67
		8	0	20.76	20.94	20.88
		8	3	20.67	20.85	20.70
		8	7	20.58	20.80	20.67
		15	0	20.61	20.88	20.76
3M	16QAM	1	0	20.38	20.56	20.40
		1	7	20.27	20.44	20.35
		1	14	20.11	20.38	20.28
		8	0	19.74	19.98	19.79
		8	3	19.77	19.91	19.86
		8	7	19.61	19.81	19.73
		15	0	19.62	19.76	19.62
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	21.53	21.75	21.66
		1	2	21.54	21.69	21.57
		1	5	21.37	21.72	21.60
		3	0	21.63	21.89	21.76
		3	1	21.50	21.67	21.64
		3	3	21.57	21.64	21.73
		6	0	20.57	20.66	20.70
1.4M	16QAM	1	0	20.33	20.39	20.39
		1	2	20.17	20.51	20.34
		1	5	19.98	20.35	20.24
		3	0	20.56	20.85	20.74
		3	1	20.65	20.72	20.70
		3	3	20.64	20.73	20.68
		6	0	19.53	19.62	19.58

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

For WCDMA Band 4, LTE Band 4, LTE Band 66:
According to FCC 27.53(h), for operations in the 1695-1710MHz, 1710-1755MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB.

For LTE Band 7:
According to FCC 27.53(m)(4),on any frequency outside a licensee’s frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least 55 + 10 log (P) dB. The emission limit equal to –25dBm.

For LTE Band 12, LTE Band 17:
According to FCC 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. The limit of emissions is equal to -13 dBm.

For LTE Band 13:
According to FCC 27.53(c)(2), for 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. The limit of emissions is equal to -13 dBm.

According to FCC 27.53(f), for operations in the 775-788 MHz, emissions in the band 1559-1610MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

4.2.2 Test Procedure

a. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height 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 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
d. Following C63.26 section 5.5 and 5.2.7.
   EIRP (dBm) = E (dBμV/m) + 20log (D) - 104.8; where D is the measurement distance (in the far field region) in m.
   ERP (dBm) = E (dBμV/m) + 20log (D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

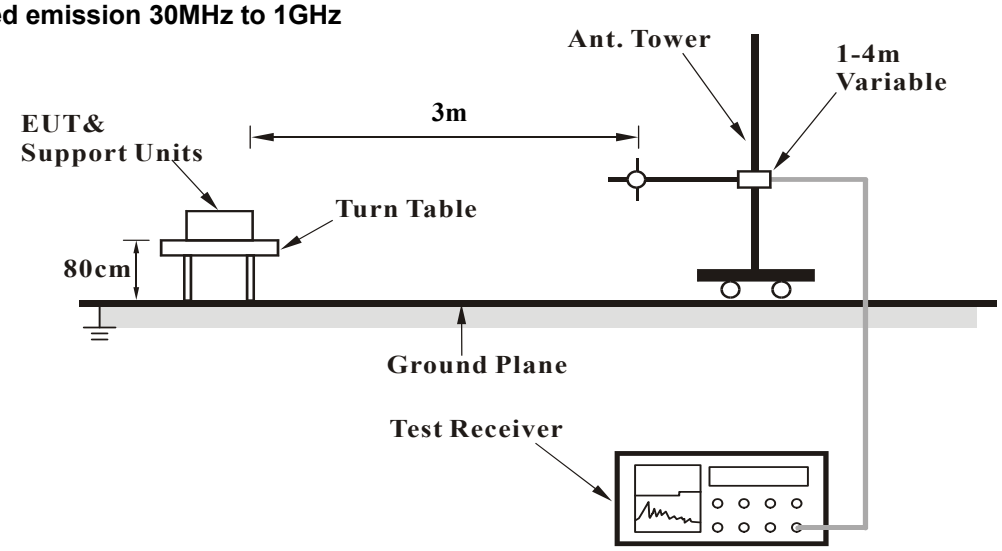
Note:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

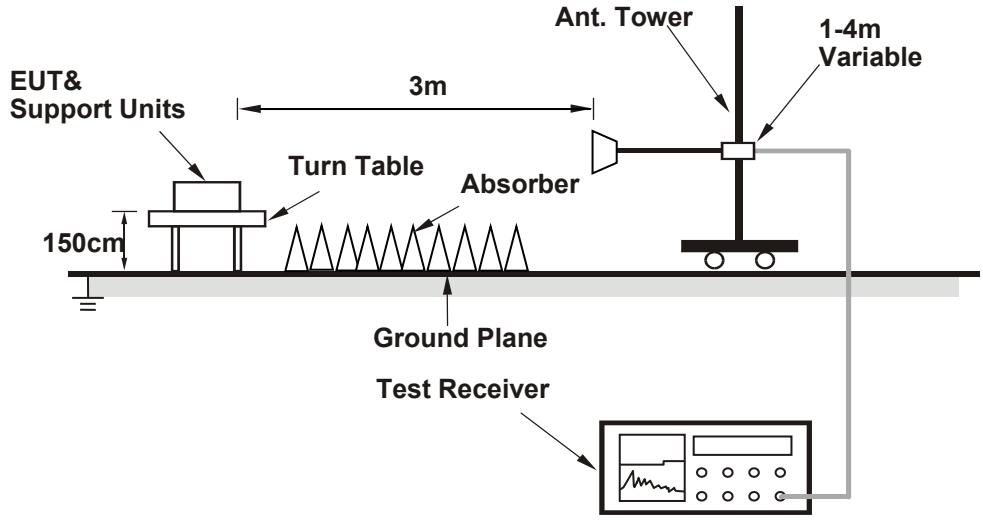
No deviation.

4.2.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.5 Test Results

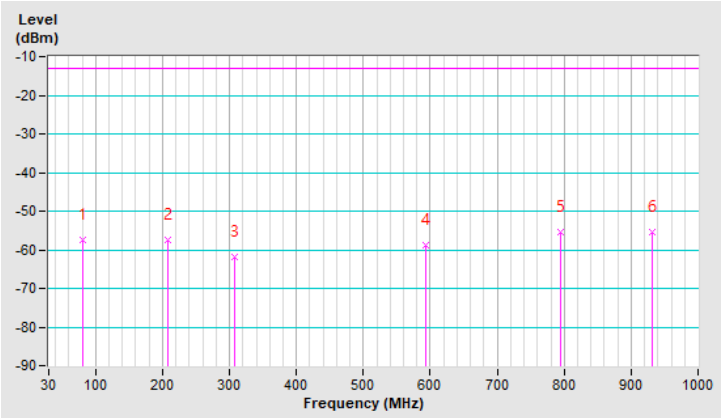
Below 1GHz
WCDMA Band 4

Mode	TX channel 1513 (1752.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	80.44	-57.29	-13.00	-44.29	1.00 H	198	54.91	-112.20
2	208.48	-57.40	-13.00	-44.40	1.50 H	266	53.52	-110.92
3	307.42	-61.76	-13.00	-48.76	2.00 H	89	45.09	-106.85
4	592.60	-58.93	-13.00	-45.93	1.50 H	241	41.85	-100.78
5	795.33	-55.48	-13.00	-42.48	1.00 H	329	41.37	-96.85
6	932.10	-55.29	-13.00	-42.29	2.00 H	23	40.69	-95.98

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

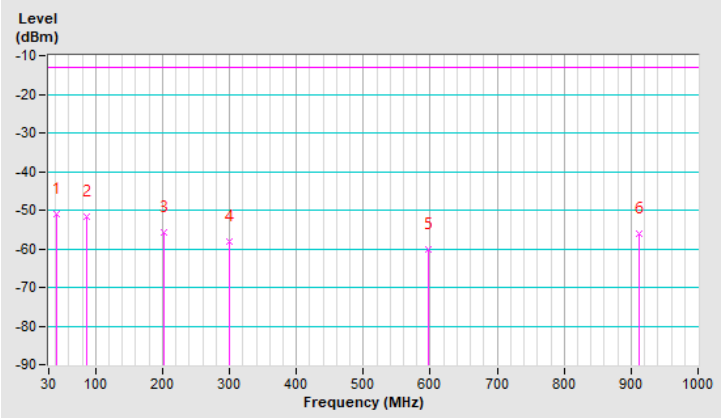


Mode	TX channel 1513 (1752.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-50.92	-13.00	-37.92	1.00 V	104	56.67	-107.59
2	87.23	-51.83	-13.00	-38.83	1.50 V	188	61.39	-113.22
3	202.66	-55.75	-13.00	-42.75	2.00 V	4	55.17	-110.92
4	300.63	-57.99	-13.00	-44.99	1.50 V	151	49.01	-107.00
5	596.48	-60.33	-13.00	-47.33	1.50 V	352	40.38	-100.71
6	912.70	-56.01	-13.00	-43.01	2.00 V	299	40.11	-96.12

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



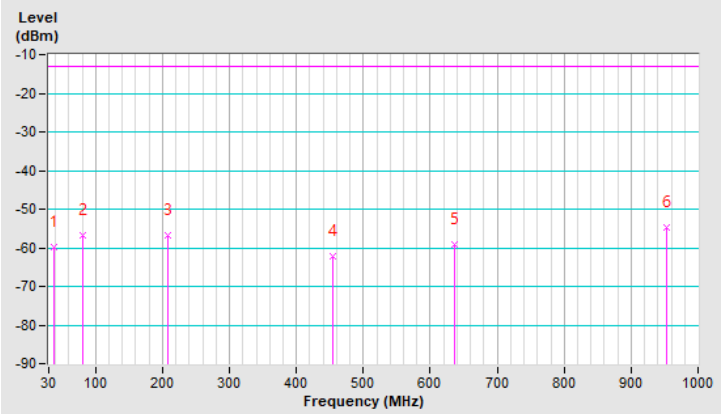
LTE Band 4, Channel Bandwidth 20MHz

Mode	TX channel 20300 (1745.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	38.73	-59.98	-13.00	-46.98	1.00 H	191	47.80	-107.78
2	81.41	-56.94	-13.00	-43.94	1.00 H	209	55.49	-112.43
3	208.48	-56.86	-13.00	-43.86	1.50 H	257	54.06	-110.92
4	454.86	-62.30	-13.00	-49.30	2.00 H	272	40.88	-103.18
5	636.25	-59.10	-13.00	-46.10	2.00 H	2	40.66	-99.76
6	952.47	-54.62	-13.00	-41.62	2.00 H	337	41.02	-95.64

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

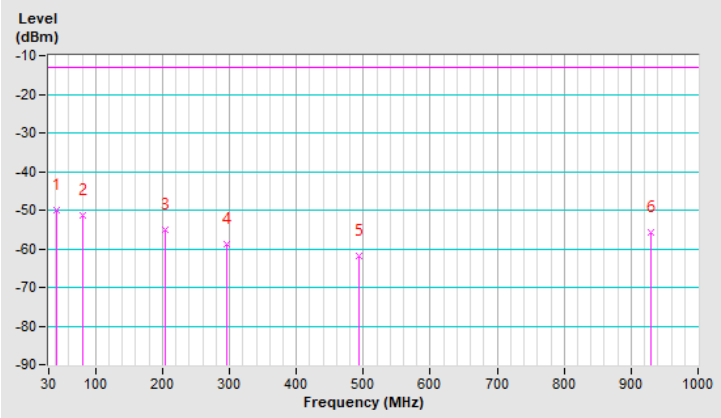


Mode	TX channel 20300 (1745.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-49.99	-13.00	-36.99	1.00 V	102	57.60	-107.59
2	81.41	-51.43	-13.00	-38.43	1.50 V	157	61.00	-112.43
3	204.60	-55.20	-13.00	-42.20	1.50 V	348	55.75	-110.95
4	296.75	-58.98	-13.00	-45.98	2.00 V	141	48.13	-107.11
5	493.66	-62.00	-13.00	-49.00	2.00 V	106	40.33	-102.33
6	929.19	-55.66	-13.00	-42.66	1.50 V	272	40.32	-95.98

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



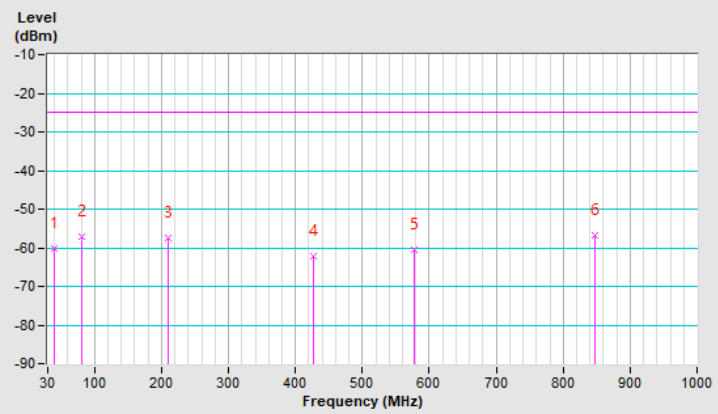
LTE Band 7, Channel Bandwidth 20MHz

Mode	TX channel 21100 (2535.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	40.67	-60.06	-25.00	-35.06	1.00 H	50	47.64	-107.70
2	80.44	-57.07	-25.00	-32.07	1.50 H	233	55.13	-112.20
3	210.42	-57.60	-25.00	-32.60	2.00 H	265	53.32	-110.92
4	426.73	-62.33	-25.00	-37.33	1.50 H	348	41.65	-103.98
5	577.08	-60.56	-25.00	-35.56	2.00 H	71	40.56	-101.12
6	846.74	-56.74	-25.00	-31.74	1.50 H	314	40.07	-96.81

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

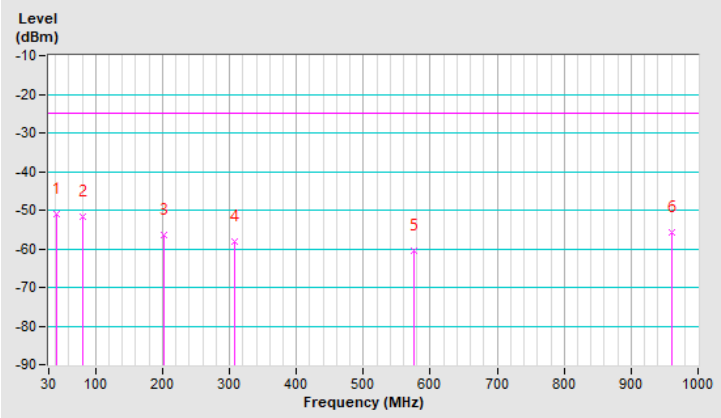


Mode	TX channel 21100 (2535.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-50.93	-25.00	-25.93	2.00 V	86	56.66	-107.59
2	81.41	-51.55	-25.00	-26.55	1.50 V	138	60.88	-112.43
3	202.66	-56.39	-25.00	-31.39	1.00 V	2	54.53	-110.92
4	308.39	-58.26	-25.00	-33.26	1.50 V	149	48.56	-106.82
5	576.11	-60.34	-25.00	-35.34	1.50 V	168	40.80	-101.14
6	961.20	-55.61	-25.00	-30.61	1.00 V	201	39.86	-95.47

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



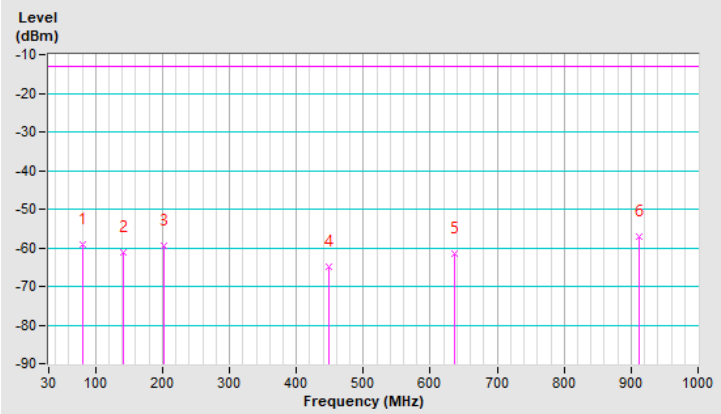
LTE Band 12, Channel Bandwidth 10MHz

Mode	TX channel 23095 (707.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	80.44	-59.19	-13.00	-46.19	2.00 H	210	55.16	-114.35
2	140.58	-61.28	-13.00	-48.28	1.50 H	241	48.89	-110.17
3	202.66	-59.40	-13.00	-46.40	1.50 H	259	53.67	-113.07
4	448.07	-64.87	-13.00	-51.87	2.00 H	188	40.65	-105.52
5	637.22	-61.46	-13.00	-48.46	1.50 H	2	40.43	-101.89
6	911.73	-57.16	-13.00	-44.16	1.00 H	282	41.12	-98.28

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

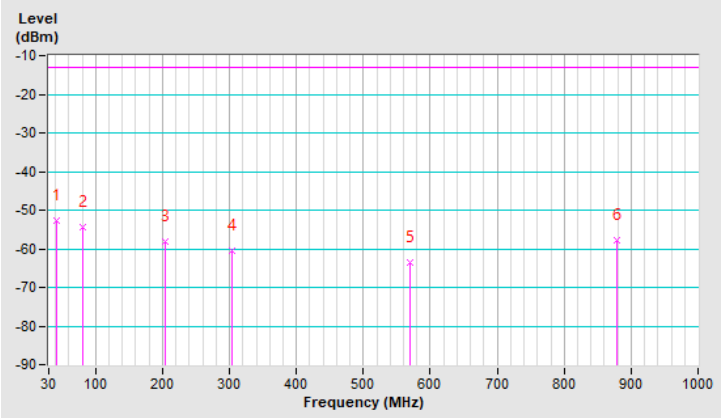


Mode	TX channel 23095 (707.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-52.69	-13.00	-39.69	1.00 V	127	57.05	-109.74
2	81.41	-54.26	-13.00	-41.26	1.50 V	151	60.32	-114.58
3	204.60	-58.02	-13.00	-45.02	1.00 V	338	55.08	-113.10
4	304.51	-60.47	-13.00	-47.47	1.50 V	145	48.59	-109.06
5	570.29	-63.39	-13.00	-50.39	1.00 V	354	40.05	-103.44
6	878.75	-57.64	-13.00	-44.64	1.00 V	37	41.05	-98.69

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



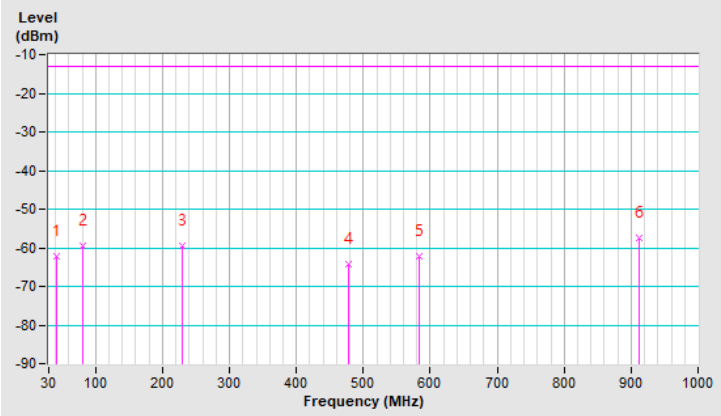
LTE Band 13, Channel Bandwidth 10MHz

Mode	TX channel 23230 (782.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-62.16	-13.00	-49.16	1.00 H	106	47.58	-109.74
2	81.41	-59.61	-13.00	-46.61	1.50 H	216	54.97	-114.58
3	228.85	-59.36	-13.00	-46.36	2.00 H	13	53.42	-112.78
4	477.17	-64.14	-13.00	-51.14	1.50 H	260	40.71	-104.85
5	583.87	-62.32	-13.00	-49.32	2.00 H	17	40.80	-103.12
6	911.73	-57.56	-13.00	-44.56	2.00 H	233	40.72	-98.28

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

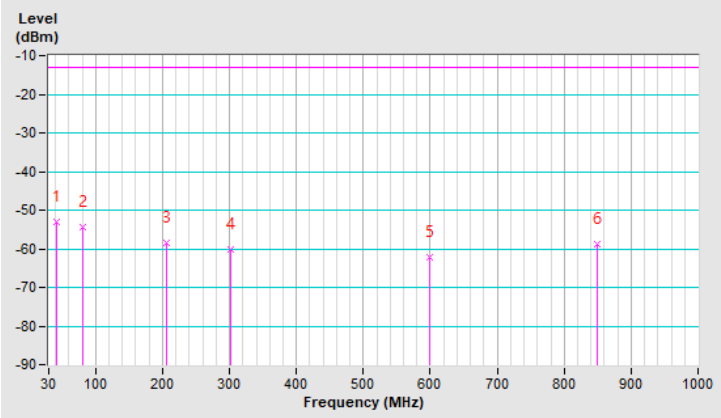


Mode	TX channel 23230 (782.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-53.12	-13.00	-40.12	1.00 V	125	56.62	-109.74
2	81.41	-54.45	-13.00	-41.45	1.50 V	188	60.13	-114.58
3	205.57	-58.47	-13.00	-45.47	2.00 V	349	54.62	-113.09
4	302.57	-60.14	-13.00	-47.14	1.50 V	143	48.96	-109.10
5	598.42	-62.15	-13.00	-49.15	1.00 V	126	40.67	-102.82
6	849.65	-58.71	-13.00	-45.71	2.00 V	357	40.26	-98.97

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



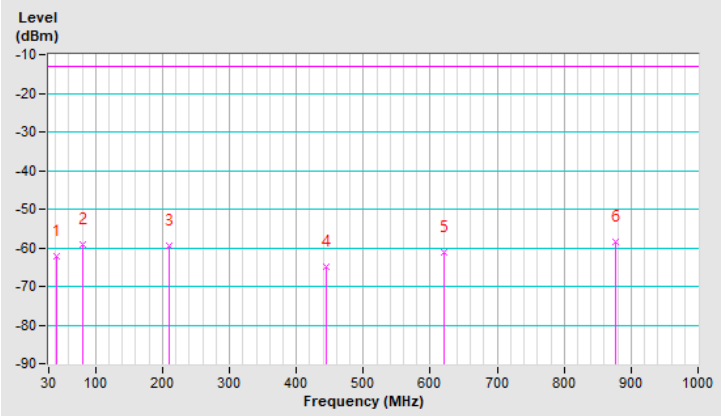
LTE Band 17, Channel Bandwidth 5MHz

Mode	TX channel 23790 (710.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-62.04	-13.00	-49.04	1.00 H	106	47.70	-109.74
2	81.41	-59.21	-13.00	-46.21	1.50 H	208	55.37	-114.58
3	209.45	-59.42	-13.00	-46.42	1.00 H	266	53.64	-113.06
4	444.19	-65.06	-13.00	-52.06	1.50 H	168	40.57	-105.63
5	620.73	-61.06	-13.00	-48.06	2.00 H	337	41.17	-102.23
6	876.81	-58.33	-13.00	-45.33	1.50 H	353	40.40	-98.73

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

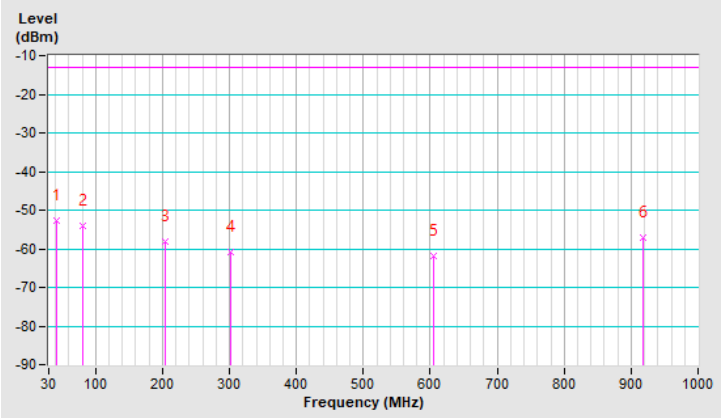


Mode	TX channel 23790 (710.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.61	-52.63	-13.00	-39.63	2.00 V	150	57.13	-109.76
2	81.41	-54.11	-13.00	-41.11	1.50 V	158	60.47	-114.58
3	203.63	-58.10	-13.00	-45.10	1.00 V	4	54.98	-113.08
4	301.60	-60.77	-13.00	-47.77	1.50 V	148	48.37	-109.14
5	605.21	-62.01	-13.00	-49.01	2.00 V	141	40.66	-102.67
6	918.52	-57.20	-13.00	-44.20	1.00 V	235	41.04	-98.24

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



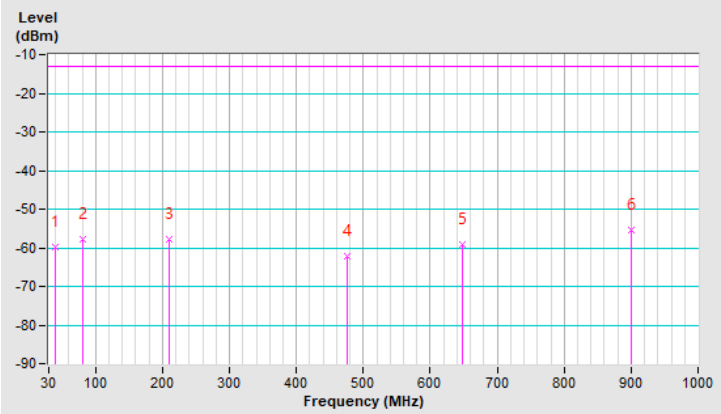
LTE Band 66, Channel Bandwidth 20MHz

Mode	TX channel 132572 (1770.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	40.67	-59.87	-13.00	-46.87	1.00 H	60	47.83	-107.70
2	81.41	-57.71	-13.00	-44.71	1.50 H	213	54.72	-112.43
3	209.45	-57.70	-13.00	-44.70	2.00 H	257	53.21	-110.91
4	476.20	-62.24	-13.00	-49.24	1.50 H	6	40.49	-102.73
5	648.86	-59.08	-13.00	-46.08	1.00 H	145	40.52	-99.60
6	900.09	-55.51	-13.00	-42.51	1.00 H	79	40.83	-96.34

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

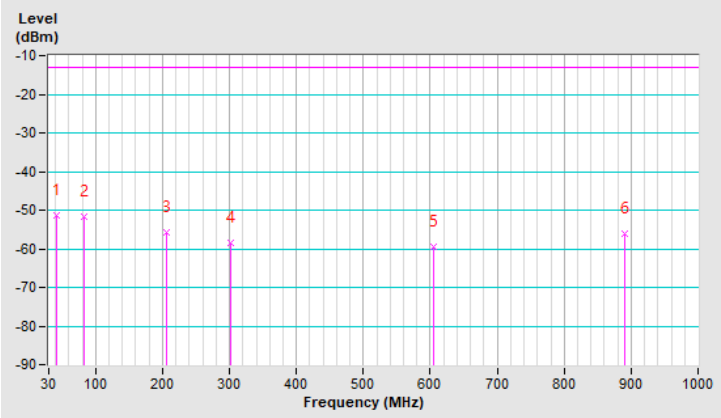


Mode	TX channel 132572 (1770.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 78%RH	Input Power	120Vac, 60Hz (System)
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	41.64	-51.42	-13.00	-38.42	1.00 V	124	56.17	-107.59
2	82.38	-51.54	-13.00	-38.54	1.50 V	164	61.04	-112.58
3	205.57	-55.78	-13.00	-42.78	1.00 V	2	55.16	-110.94
4	301.60	-58.48	-13.00	-45.48	1.50 V	145	48.51	-106.99
5	604.24	-59.36	-13.00	-46.36	2.00 V	105	41.19	-100.55
6	890.39	-55.95	-13.00	-42.95	2.00 V	2	40.43	-96.38

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



Above 1GHz
WCDMA Band 4

Mode	TX channel 1312 (1712.4MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3424.80	-48.63	-13.00	-35.63	2.32 H	157	61.23	-109.86
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3424.80	-52.46	-13.00	-39.46	1.18 V	295	57.40	-109.86

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 1413 (1732.6MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.20	-48.10	-13.00	-35.10	2.23 H	142	61.35	-109.45
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.20	-51.89	-13.00	-38.89	1.06 V	287	57.56	-109.45

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 1513 (1752.6MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3505.20	-47.53	-13.00	-34.53	2.23 H	134	61.45	-108.98
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3505.20	-51.35	-13.00	-38.35	1.26 V	275	57.63	-108.98

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 4, Channel Bandwidth 1.4MHz

Mode	TX channel 19957 (1710.7MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3421.40	-43.66	-13.00	-30.66	1.22 H	105	66.23	-109.89
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3421.40	-48.66	-13.00	-35.66	1.56 V	293	61.23	-109.89

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-42.97	-13.00	-29.97	1.09 H	111	66.49	-109.46
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-48.01	-13.00	-35.01	1.45 V	269	61.45	-109.46

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 20393 (1754.3MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3508.60	-42.62	-13.00	-29.62	1.10 H	105	66.36	-108.98
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3508.60	-47.60	-13.00	-34.60	1.47 V	222	61.38	-108.98

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 4, Channel Bandwidth 5MHz

Mode	TX channel 19975 (1712.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3425.00	-43.48	-13.00	-30.48	1.04 H	119	66.38	-109.86
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3425.00	-48.51	-13.00	-35.51	1.22 V	269	61.35	-109.86

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-42.89	-13.00	-29.89	1.12 H	106	66.57	-109.46
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-47.88	-13.00	-34.88	1.32 V	257	61.58	-109.46

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 20375 (1752.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3505.00	-42.54	-13.00	-29.54	1.06 H	123	66.45	-108.99
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3505.00	-47.52	-13.00	-34.52	1.45 V	312	61.47	-108.99

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 4, Channel Bandwidth 20MHz

Mode	TX channel 20050 (1720.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3440.00	-43.21	-13.00	-30.21	1.03 H	232	66.53	-109.74
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3440.00	-48.29	-13.00	-35.29	1.52 V	293	61.45	-109.74

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-42.70	-13.00	-29.70	1.41 H	136	66.76	-109.46
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-47.78	-13.00	-34.78	1.46 V	283	61.68	-109.46

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 20300 (1745.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**3490.00**	**-42.45**	**-13.00**	**-29.45**	**1.56 H**	**332**	**66.68**	**-109.13**
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3490.00	-47.60	-13.00	-34.60	1.32 V	296	61.53	-109.13

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 7, Channel Bandwidth 5MHz

Mode	TX channel 20775 (2502.5MHz)	Frequency Range	1GHz ~ 26GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5005.00	-46.74	-25.00	-21.74	1.00 H	63	59.35	-106.09
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5005.00	-48.86	-25.00	-23.86	1.05 V	178	57.23	-106.09

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 21100 (2535.0MHz)	Frequency Range	1GHz ~ 26GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5070.00	-46.24	-25.00	-21.24	1.03 H	72	59.47	-105.71
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5070.00	-48.34	-25.00	-23.34	1.25 V	206	57.37	-105.71

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 21425 (2567.5MHz)	Frequency Range	1GHz ~ 26GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5135.00	-46.22	-25.00	-21.22	1.14 H	52	59.53	-105.75
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5135.00	-48.36	-25.00	-23.36	1.02 V	188	57.39	-105.75

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 7, Channel Bandwidth 20MHz

Mode	TX channel 20850 (2510.0MHz)	Frequency Range	1GHz ~ 26GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5020.00	-46.61	-25.00	-21.61	1.07 H	45	59.42	-106.03
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5020.00	-48.78	-25.00	-23.78	1.26 V	204	57.25	-106.03

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 21100 (2535.0MHz)	Frequency Range	1GHz ~ 26GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**5070.00**	**-46.05**	**-25.00**	**-21.05**	**1.00 H**	**21**	**59.66**	**-105.71**
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5070.00	-48.23	-25.00	-23.23	1.18 V	195	57.48	-105.71

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 21350 (2560.0MHz)	Frequency Range	1GHz ~ 26GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5120.00	-46.10	-25.00	-21.10	1.03 H	45	59.53	-105.63
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5120.00	-48.28	-25.00	-23.28	1.12 V	187	57.35	-105.63

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 12, Channel Bandwidth 1.4MHz

Mode	TX channel 23017 (699.7MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1399.40	-49.43	-13.00	-36.43	1.15 H	127	68.35	-117.78
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1399.40	-48.33	-13.00	-35.33	1.63 V	133	69.45	-117.78

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-49.29	-13.00	-36.29	1.03 H	158	68.53	-117.82
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-48.15	-13.00	-35.15	1.77 V	126	69.67	-117.82

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23173 (715.3MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1430.60	-49.40	-13.00	-36.40	1.00 H	152	68.46	-117.86
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1430.60	-48.34	-13.00	-35.34	1.65 V	110	69.52	-117.86

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 12, Channel Bandwidth 5MHz

Mode	TX channel 23035 (701.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1403.00	-49.47	-13.00	-36.47	1.04 H	131	68.32	-117.79
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1403.00	-48.34	-13.00	-35.34	1.52 V	120	69.45	-117.79

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-49.25	-13.00	-36.25	1.12 H	138	68.57	-117.82
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-48.15	-13.00	-35.15	1.52 V	128	69.67	-117.82

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23155 (713.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1427.00	-49.44	-13.00	-36.44	1.02 H	128	68.42	-117.86
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1427.00	-48.29	-13.00	-35.29	1.72 V	99	69.57	-117.86

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 12, Channel Bandwidth 10MHz

Mode	TX channel 23060 (704.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1408.00	-49.39	-13.00	-36.39	1.16 H	158	68.42	-117.81
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1408.00	-48.26	-13.00	-35.26	1.57 V	123	69.55	-117.81

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-49.16	-13.00	-36.16	1.07 H	140	68.66	-117.82
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-48.10	-13.00	-35.10	1.60 V	117	69.72	-117.82

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23130 (711.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1422.00	-49.27	-13.00	-36.27	1.12 H	133	68.58	-117.85
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1422.00	-48.18	-13.00	-35.18	1.52 V	123	69.67	-117.85

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 13, Channel Bandwidth 5MHz

Mode	TX channel 23205 (779.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1559.00	-55.85	-40.00	-15.85	1.14 H	196	60.04	-115.89
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1559.00	-42.54	-40.00	-2.54	1.52 V	177	73.35	-115.89

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 23230 (782.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1564.00	-50.66	-40.00	-10.66	1.12 H	209	65.23	-115.89
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1564.00	-42.37	-40.00	-2.37	1.67 V	185	73.52	-115.89

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 23255 (784.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1569.00	-50.75	-40.00	-10.75	1.23 H	204	65.15	-115.90
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1569.00	-42.42	-40.00	-2.42	1.53 V	177	73.48	-115.90

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 13, Channel Bandwidth 10MHz

Mode	TX channel 23230 (782.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1564.00	-50.57	-40.00	-10.57	1.27 H	205	65.32	-115.89
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**1564.00**	**-42.29**	**-40.00**	**-2.29**	**1.52 V**	**174**	**73.60**	**-115.89**

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 17, Channel Bandwidth 5MHz

Mode	TX channel 23755 (706.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1413.00	-49.41	-13.00	-36.41	2.49 H	155	68.40	-117.81
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1413.00	-46.31	-13.00	-33.31	1.55 V	123	71.50	-117.81

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23790 (710.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1420.00	-49.45	-13.00	-36.45	2.51 H	156	68.38	-117.83
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**1420.00**	**-46.24**	**-13.00**	**-33.24**	**1.53 V**	**133**	**71.59**	**-117.83**

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23825 (713.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1427.00	-49.61	-13.00	-36.61	1.44 H	352	68.25	-117.86
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1427.00	-46.44	-13.00	-33.44	2.68 V	216	71.42	-117.86

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 17, Channel Bandwidth 10MHz

Mode	TX channel 23780 (709.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1418.00	-49.39	-13.00	-36.39	1.36 H	52	68.44	-117.83
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1418.00	-46.31	-13.00	-33.31	2.30 V	75	71.52	-117.83

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23790 (710.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1420.00	-49.30	-13.00	-36.30	2.69 H	274	68.53	-117.83
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1420.00	-46.30	-13.00	-33.30	1.44 V	230	71.53	-117.83

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 23800 (711.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1422.00	-49.42	-13.00	-36.42	1.94 H	324	68.43	-117.85
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1422.00	-46.28	-13.00	-33.28	1.20 V	228	71.57	-117.85

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 66, Channel Bandwidth 1.4MHz

Mode	TX channel 131979 (1710.7MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3421.40	-47.77	-13.00	-34.77	1.02 H	72	62.12	-109.89
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3421.40	-51.23	-13.00	-38.23	1.78 V	244	58.66	-109.89

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132322 (1745.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3490.00	-46.75	-13.00	-33.75	1.10 H	69	62.38	-109.13
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3490.00	-50.29	-13.00	-37.29	1.63 V	255	58.84	-109.13

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132665 (1779.3MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3558.60	-46.59	-13.00	-33.59	1.17 H	78	62.29	-108.88
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3558.60	-50.12	-13.00	-37.12	1.72 V	242	58.76	-108.88

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 66, Channel Bandwidth 5MHz

Mode	TX channel 131997 (1712.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3425.00	-47.65	-13.00	-34.65	1.14 H	50	62.21	-109.86
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3425.00	-51.00	-13.00	-38.00	1.83 V	256	58.86	-109.86

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132322 (1745.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3490.00	-46.70	-13.00	-33.70	1.20 H	32	62.43	-109.13
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3490.00	-50.19	-13.00	-37.19	1.72 V	242	58.94	-109.13

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132647 (1777.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3555.00	-46.52	-13.00	-33.52	1.10 H	56	62.35	-108.87
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3555.00	-50.00	-13.00	-37.00	1.65 V	239	58.87	-108.87

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 66, Channel Bandwidth 20MHz

Mode	TX channel 132072 (1720.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3440.00	-47.39	-13.00	-34.39	1.14 H	25	62.35	-109.74
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3440.00	-50.92	-13.00	-37.92	1.72 V	302	58.82	-109.74

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132322 (1745.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3490.00	-46.63	-13.00	-33.63	1.11 H	46	62.50	-109.13
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3490.00	-50.09	-13.00	-37.09	1.64 V	276	59.04	-109.13

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132572 (1770.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	19deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Thomas Cheng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3540.00	-46.43	-13.00	-33.43	1.08 H	39	62.47	-108.90
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3540.00	-49.92	-13.00	-36.92	1.52 V	287	58.98	-108.90

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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