FCC Test Report

(PART 27)

Report No.: RFBGSN-WTW-P21120080-7

FCC ID: 2AX8C-3545

Test Model: FL44TE

Received Date: Dec. 09, 2021

Test Date: Dec. 29, 2021 ~ Jan. 10, 2022

Issued Date: Jan. 24, 2022

Applicant: Amazon.com Services LLC

Address: 410 Terry Ave N, Seattle, Washington 98109

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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FCC Registration / Designation Number: 788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RFBGSN-WTW-P21120080-7	Original Release	Jan. 24, 2022

1 Certificate of Conformity

Product: Fleet Edge

Brand: N/A

Test Model: FL44TE

Sample Status: Engineering Sample

Applicant: Amazon.com Services LLC

Test Date: Dec. 29, 2021 ~ Jan. 10, 2022

Standards: FCC Part 27, Subpart C, H, F, L

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 : Gina Liu , **Date:** Jan. 24, 2022

Gina Liu / Specialist

Approved by : Jeremy Lin , **Date:** Jan. 24, 2022

Jeremy Lin / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (WCDMA)			
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	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.57 dB at 87.23 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
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	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.09 dB at 3465.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 12)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(c)	Equivalent radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
--	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -32.40 dB at 237.58 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 13)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(b)	Equivalent radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(c)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
--	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(c)(f)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(c)(f))	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -11.79 dB at 1564.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 66)			
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	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -37.11 dB at 3540.00 MHz.

Note: 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	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Sep. 22, 2021	Sep. 21, 2022
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 03, 2021	Dec. 02, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 12, 2021	Apr. 11, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 14, 2021	Nov. 13, 2022
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	209	Nov. 14, 2021	Nov. 13, 2022
Fixed Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	Apr. 13, 2021	Apr. 12, 2022
Loop Antenna	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC 012645	980115	Oct. 05, 2021	Oct. 04, 2022
Preamplifier EMCI	EMC 184045	980116	Oct. 05, 2021	Oct. 04, 2022
Preamplifier EMCI	EMC 330H	980112	Oct. 05, 2021	Oct. 04, 2022
RF Coaxial Cable EMCI	EMC104-SM-SM-8000	171005	Oct. 05, 2021	Oct. 04, 2022
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-100 0(140807)	Oct. 05, 2021	Oct. 04, 2022
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 05, 2021	Oct. 04, 2022
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 26, 2021	Aug. 25, 2022
Radio Communication Analyzer Anritsu	MT8821C	6201462755	Feb. 07, 2021	Feb. 06, 2022
Temperature & Humidity Chamber GIANT FORCE	GTH-120-40-CP-AR	MAA1306-019	Sep. 10, 2021	Sep. 09, 2022
DC power supply Keysight	U8002A	MY56330015	NA	NA
Digital Multimeter Fluke	87-III	70360742	Jun. 24, 2021	Jun. 23, 2022

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 10.

3 General Information

3.1 General Description of EUT

Product	Fleet Edge	
Brand	N/A	
Test Model	FL44TE	
Status of EUT	Engineering Sample	
Power Supply Rating	12 Vdc (Power Supply)	
Modulation Type	WCDMA	QPSK
	LTE	QPSK, 16QAM
Frequency Range	WCDMA	1712.4 ~ 1752.6 MHz
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1754.3 MHz
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1753.5 MHz
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1752.5 MHz
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1750.0 MHz
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1747.5 MHz
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1745.0 MHz
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	699.7 ~ 715.3 MHz
	LTE Band 12 (Channel Bandwidth: 3 MHz)	700.5 ~ 714.5 MHz
	LTE Band 12 (Channel Bandwidth: 5 MHz)	701.5 ~ 713.5 MHz
	LTE Band 12 (Channel Bandwidth: 10 MHz)	704.0 ~ 711.0 MHz
	LTE Band 13 (Channel Bandwidth: 5 MHz)	779.5 ~ 784.5 MHz
	LTE Band 13 (Channel Bandwidth: 10 MHz)	782.0 MHz
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1779.3 MHz
	LTE Band 66 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1778.5 MHz
	LTE Band 66 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1777.5 MHz
	LTE Band 66 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1775.0 MHz
	LTE Band 66 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1772.5 MHz
	LTE Band 66 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1770.0 MHz
Emission Designator	WCDMA	4M15F9W
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 4 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 4 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 4 (Channel Bandwidth: 10 MHz)	8M98G7D
	LTE Band 4 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 4 (Channel Bandwidth: 20 MHz)	18M0D7W
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 12 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 12 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 12 (Channel Bandwidth: 10 MHz)	9M01D7W
	LTE Band 13 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 13 (Channel Bandwidth: 10 MHz)	8M96D7W
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 66 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 66 (Channel Bandwidth: 5 MHz)	4M49G7D

	LTE Band 66 (Channel Bandwidth: 10 MHz)	8M98G7D
	LTE Band 66 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 66 (Channel Bandwidth: 20 MHz)	18M0D7W
Max. ERP Power	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	153.815 mW (21.87dBm)
	LTE Band 12 (Channel Bandwidth: 3 MHz)	154.882 mW (21.90dBm)
	LTE Band 12 (Channel Bandwidth: 5 MHz)	157.761 mW (21.98dBm)
	LTE Band 12 (Channel Bandwidth: 10 MHz)	158.125 mW (21.99dBm)
	LTE Band 13 (Channel Bandwidth: 5 MHz)	236.048 mW (23.73dBm)
	LTE Band 13 (Channel Bandwidth: 10 MHz)	236.592 mW (23.74dBm)
Max. EIRP Power	WCDMA	820.352 mW (29.14dBm)
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	769.130 mW (28.86dBm)
	LTE Band 4 (Channel Bandwidth: 3 MHz)	809.096 mW (29.08dBm)
	LTE Band 4 (Channel Bandwidth: 5 MHz)	810.961 mW (29.09dBm)
	LTE Band 4 (Channel Bandwidth: 10 MHz)	818.465 mW (29.13dBm)
	LTE Band 4 (Channel Bandwidth: 15 MHz)	810.961 mW (29.09dBm)
	LTE Band 4 (Channel Bandwidth: 20 MHz)	753.356 mW (28.77dBm)
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	727.780 mW (28.62dBm)
	LTE Band 66 (Channel Bandwidth: 3 MHz)	749.894 mW (28.75dBm)
	LTE Band 66 (Channel Bandwidth: 5 MHz)	765.597 mW (28.84dBm)
	LTE Band 66 (Channel Bandwidth: 10 MHz)	779.830 mW (28.92dBm)
	LTE Band 66 (Channel Bandwidth: 15 MHz)	799.834 mW (29.03dBm)
	LTE Band 66 (Channel Bandwidth: 20 MHz)	737.904 mW (28.68dBm)
Antenna Type	Refer to Note as below	
Accessory Device	N/A	
Data Cable Supplied	N/A	

Note:

1. The EUT contains following accessory devices.

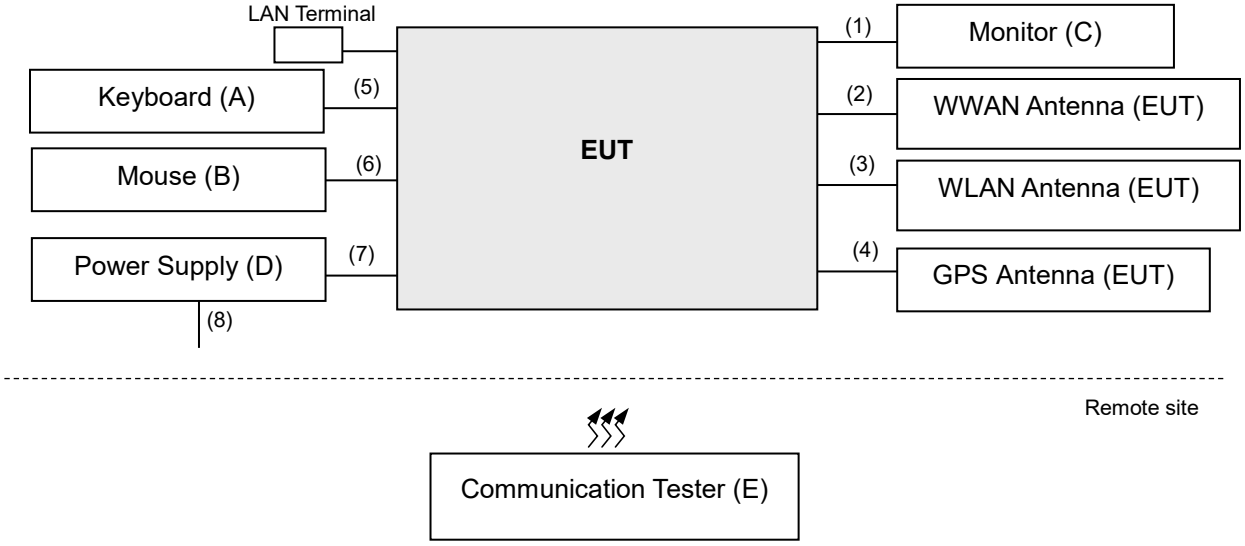
Product	Brand	Model	Description
BT/WLAN Module	Intel	9560NGW	802.11 a/b/g/n/ac Wireless LAN + Bluetooth 5
WWAN Module	Quectel	EM06-A	WCDMA, LTE
CPU	Intel	i5-9500TE	CFL-S, 6C 35W
SO-DIMM	Innodisk	--	2667MHz, 8G&16G
LTE Main Antenna	Rivian	N/A	Cable length: 2445mm P/N: J7-1
LTE Aux Antenna	Rivian	N/A	Cable length: 3520mm P/N: J6-1
WiFi Main Antenna	Rivian	PT00206181-A	Cable length: 3550mm P/N: J5-1
WiFi Aux Antenna	Rivian	PT00207642-A	Cable length: 2475mm P/N: J4-1

2. The antenna information is listed as below.

Antenna information		Antenna gain (dBi)			
Type	**Ant.**	**WCDMA 4 / LTE 4**	**LTE 12**	**LTE 13**	**LTE 66**
Multiband Antennas	Main	5.21	-1.4	0.05	5.21
	Aux	4.63	0.05	1.91	4.63

3. 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.
4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

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	Keyboard	Lenovo	KB1021	N/A	N/A	--
B	Mouse	DELL	MS111-P	CN-011D3V-71581-1CJ-092E	N/A	--
C	Monitor	HP	HP Z24s	6CM5172L56	N/A	--
D	Power Supply	NA	NA	NA	N/A	--
E	Communication Tester	R&S	CMU200	123295	N/A	For WCDMA
		ANRITSU	MT8821C	6201462755	N/A	For LTE

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	HDMI Cable	1	2 m	N	0	-
2.	RF Cable	1	2445 mm	N	0	Accessory of the EUT
		1	3520 mm	N	0	Accessory of the EUT
3.	RF Cable	1	3550 mm	N	0	Accessory of the EUT
		1	2475 mm	N	0	Accessory of the EUT
4.	RF Cable	1	0.5 m	N	0	Accessory of the EUT
5.	USB Cable	1	2.4 m	N	0	-
6.	USB Cable	1	2.2 m	N	0	-
7.	DC power Cable	1	1.2 m	N	0	-
8.	AC power Cable	1	1.8 m	N	0	-

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, XYZ axis, and antenna ports

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	ERP / EIRP	Radiated Emission
WCDMA	X-plane	X-axis
LTE Band 4	X-plane	X-axis
LTE Band 12	X-plane	X-axis
LTE Band 13	X-plane	X-axis
LTE Band 66	X-plane	X-axis

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
-	Modulation Characteristics	1312 to 1513	1413	WCDMA
-	Frequency Stability	1312 to 1513	1312, 1513	WCDMA
-	Occupied Bandwidth	1312 to 1513	1312, 1413, 1513	WCDMA
-	Band Edge	1312 to 1513	1312, 1513	WCDMA
-	Peak to Average Ratio	1312 to 1513	1312, 1413, 1513	WCDMA
-	Conducted Emission	1312 to 1513	1312, 1413, 1513	WCDMA
-	Radiated Emission	1312 to 1513	1312, 1413, 1513	WCDMA

Note: For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	20050 to 20300	20175	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Frequency Stability	19957 to 20393	19957, 20393	1.4 MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965, 20385	3 MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975, 20375	5 MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000, 20350	10 MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20025, 20325	15 MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20300	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Band Edge	19957 to 20393	19957	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20393	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		19965 to 20385	19965	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			20385	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		19975 to 20375	19975	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			20375	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		20000 to 20350	20000	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			20350	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		20025 to 20325	20025	15 MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			20325	15 MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		20050 to 20300	20050	20 MHz	QPSK	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			20300	20 MHz	QPSK	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
-	Conducted Emission	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK	1 RB / 0 RB Offset

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 above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

LTE Band 12

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23060 to 23130	23095	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	Frequency Stability	23017 to 23173	23017, 23173	1.4 MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025, 23165	3 MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035, 23155	5 MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23130	10 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	Peak to Average Ratio	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Band Edge	23017 to 23173	23017	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			23173	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		23025 to 23165	23025	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			23165	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		23035 to 23155	23035	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			23155	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		23060 to 23130	23060	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			23130	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
-	Conducted Emission	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK	1 RB / 0 RB Offset

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 above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

LTE Band 13

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23230	23230	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	Frequency Stability	23205 to 23255	23205, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	Peak to Average Ratio	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Band Edge	23205 to 23255	23205	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			23255	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			23230	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
-	Conducted Emission	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset

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 above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

LTE Band 66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	132072 to 132572	132322	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Frequency Stability	131979 to 132665	131979, 132665	1.4 MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	131987, 132657	3 MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997, 132647	5 MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132022, 132622	10 MHz	QPSK	1 RB / 0 RB Offset
		132047 to 132597	132047, 132597	15 MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072, 132572	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Band Edge	131979 to 132665	131979	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			132665	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		131987 to 132657	131987	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			132657	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		131997 to 132647	131997	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			132647	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		132022 to 132622	132022	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			132622	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		132047 to 132597	132047	15 MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			132597	15 MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		132072 to 132572	132072	20 MHz	QPSK	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			132572	20 MHz	QPSK	1 RB / 99 RB Offset
						100 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK	1 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK	1 RB / 0 RB Offset

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 above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP / EIRP	25 deg. C, 65 % RH	12 Vdc	Rui Chan
Modulation Characteristics	25 deg. C, 65 % RH	12 Vdc	Rui Chan
Frequency Stability	25 deg. C, 65 % RH	12 Vdc	Rui Chan
Occupied Bandwidth	25 deg. C, 65 % RH	12 Vdc	Rui Chan
Band Edge	25 deg. C, 65 % RH	12 Vdc	Rui Chan
Peak to Average Ratio	25 deg. C, 65 % RH	12 Vdc	Rui Chan
Conducted Emission	25 deg. C, 65 % RH	12 Vdc	Rui Chan
Radiated Emission	21 deg. C, 63 % RH	120 Vac, 60 Hz	Tim Chen, 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 63.26-2015

Note: All test items have been performed and recorded as per the above standards.

References Test Guidance:
KDB 971168 D01 Power Meas License Digital Systems v03r01
ANSI/TIA/EIA-603-E 2016

Note: 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 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.

For LTE Band 12:
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 WCDMA Band 4, LTE Band 4, 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.

4.1.2 Test Procedures

Conducted Power Measurement:

a. The EUT was set up for the maximum power with WCDMA and LTE link data modulation and link up with simulator.
b. 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

EIRP / ERP Measurement:

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA IV		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	23.74	23.56	23.93

LTE Band 4

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	23.56	23.36	23.32	0	15M	QPSK	1	0	23.75	23.88	23.83	0
		1	50	23.43	23.32	23.30	0			1	37	22.96	23.02	22.88	0
		1	99	23.35	23.29	23.28	0			1	74	23.74	23.74	23.52	0
		50	0	22.55	22.54	22.62	1			36	0	22.80	22.85	22.70	1
		50	25	22.51	22.55	22.56	1			36	19	22.49	22.60	22.40	1
		50	50	22.59	22.61	22.68	1			36	39	22.73	22.81	22.68	1
		100	0	22.46	22.53	22.69	1			75	0	22.66	22.67	22.53	1
	16QAM	1	0	22.67	22.84	22.74	1		16QAM	1	0	23.26	23.31	23.36	1
		1	50	22.20	22.34	22.31	1			1	37	22.52	22.58	22.69	1
		1	99	22.48	22.69	22.62	1			1	74	22.39	22.49	22.54	1
		50	0	21.57	21.82	21.68	2			36	0	21.66	21.81	21.87	2
		50	25	21.29	21.62	21.38	2			36	19	21.40	21.65	21.67	2
		50	50	21.42	21.74	21.49	2			36	39	21.43	21.72	21.73	2
		100	0	21.27	21.54	21.39	2			75	0	21.27	21.55	21.65	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20000	20175	20350				Channel		19975	20175	20375	
		Frequency (MHz)		1715.0	1732.5	1750.0				Frequency (MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	23.92	23.82	23.70	0	5M	QPSK	1	0	23.88	23.56	23.67	0
		1	24	23.68	23.51	23.38	0			1	12	23.78	23.48	23.50	0
		1	49	23.71	23.63	23.48	0			1	24	23.74	23.41	23.38	0
		25	0	22.84	22.69	22.58	1			12	0	22.86	22.54	22.41	1
		25	12	22.68	22.55	22.41	1			12	6	22.74	22.51	22.38	1
		25	25	22.79	22.67	22.58	1			12	13	22.75	22.58	22.46	1
		50	0	22.75	22.65	22.63	1			25	0	22.68	22.52	22.47	1
	16QAM	1	0	23.24	23.21	23.12	1		16QAM	1	0	23.16	22.86	22.98	1
		1	24	22.69	22.75	22.69	1			1	12	22.96	22.67	22.89	1
		1	49	22.64	22.70	22.62	1			1	24	22.86	22.61	22.81	1
		25	0	21.56	21.65	21.60	2			12	0	21.66	21.42	21.63	2
		25	12	21.53	21.65	21.58	2			12	6	21.53	21.38	21.57	2
		25	25	21.41	21.63	21.60	2			12	13	21.72	21.55	21.64	2
		50	0	21.47	21.63	21.58	2			25	0	21.57	21.45	21.44	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		19965	20175	20385				Channel		19957	20175	20393	
		Frequency (MHz)		1711.5	1732.5	1753.5				Frequency (MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	23.51	23.58	23.87	0	1.4M	QPSK	1	0	23.54	23.47	23.65	0
		1	7	23.40	23.57	23.82	0			1	2	23.27	23.27	23.52	0
		1	14	23.24	23.36	23.51	0			1	5	23.38	23.34	23.49	0
		8	0	22.37	22.53	22.69	1			3	0	23.47	23.36	23.58	0
		8	3	22.32	22.51	22.71	1			3	1	23.41	23.40	23.56	0
		8	7	22.25	22.50	22.62	1			3	3	23.35	23.29	23.45	0
		15	0	22.17	22.47	22.67	1			6	0	22.48	22.46	22.60	1
	16QAM	1	0	22.94	23.14	22.85	1		16QAM	1	0	22.64	22.54	22.64	1
		1	7	22.90	23.07	22.81	1			1	2	22.54	22.49	22.63	1
		1	14	22.68	22.88	22.55	1			1	5	22.35	22.27	22.39	1
		8	0	21.39	21.63	21.25	2			3	0	22.22	22.15	22.35	1
		8	3	21.32	21.61	21.33	2			3	1	22.39	22.28	22.49	1
		8	7	21.27	21.63	21.27	2			3	3	22.56	22.38	22.63	1
		15	0	21.33	21.62	21.25	2			6	0	21.71	21.52	21.73	2

LTE Band 12

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23060	23095	23130				Channel		23035	23095	23155	
		Frequency (MHz)		704.0	707.5	711.0				Frequency (MHz)		701.5	707.5	713.5	
10M	QPSK	1	0	24.06	24.09	23.97	0	5M	QPSK	1	0	24.01	24.07	24.02	0
		1	24	23.83	23.82	23.61	0			1	12	23.76	23.85	23.84	0
		1	49	23.72	23.68	23.42	0			1	24	23.73	23.89	23.89	0
		25	0	24.08	24.02	23.70	1			12	0	23.79	23.93	23.96	1
		25	12	23.97	23.96	23.63	1			12	6	23.80	23.98	24.02	1
		25	25	23.92	23.93	23.69	1			12	13	23.83	23.95	24.08	1
		50	0	24.00	23.97	23.74	1			25	0	23.71	23.91	23.97	1
	16QAM	1	0	23.85	23.98	23.92	1		16QAM	1	0	23.92	24.05	23.88	1
		1	24	23.77	23.85	23.89	1			1	12	23.62	23.74	23.66	1
		1	49	23.95	23.96	24.09	1			1	24	23.85	23.95	23.84	1
		25	0	23.72	23.81	23.88	2			12	0	23.83	24.01	23.87	2
		25	12	23.95	23.96	24.03	2			12	6	23.74	24.00	23.79	2
		25	25	23.93	23.94	23.96	2			12	13	23.64	23.98	23.84	2
		50	0	23.92	23.88	23.98	2			25	0	23.70	23.96	23.73	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23025	23095	23165				Channel		23017	23095	23173	
		Frequency (MHz)		700.5	707.5	714.5				Frequency (MHz)		699.7	707.5	715.3	
3M	QPSK	1	0	23.96	24.00	23.92	0	1.4M	QPSK	1	0	23.88	23.97	23.81	0
		1	7	23.99	23.97	23.80	0			1	2	23.87	23.90	23.75	0
		1	14	23.84	23.87	23.80	0			1	5	23.74	23.87	23.72	0
		8	0	23.80	23.93	23.88	1			3	0	23.86	23.94	23.71	0
		8	3	23.69	23.92	23.88	1			3	1	23.82	23.95	23.67	0
		8	7	23.71	23.97	23.84	1			3	3	23.75	23.93	23.55	0
		15	0	23.63	23.95	23.82	1			6	0	23.70	23.91	23.57	1
	16QAM	1	0	23.87	23.98	23.85	1		16QAM	1	0	23.82	23.95	23.73	1
		1	7	23.70	23.89	23.75	1			1	2	23.75	23.94	23.82	1
		1	14	23.67	23.85	23.68	1			1	5	23.63	23.91	23.85	1
		8	0	23.77	23.90	23.79	2			3	0	23.63	23.87	23.76	1
		8	3	23.89	23.96	23.82	2			3	1	23.57	23.85	23.84	1
		8	7	23.86	23.97	23.75	2			3	3	23.55	23.92	23.77	1
		15	0	23.77	23.94	23.65	2			6	0	23.48	23.88	23.69	2

LTE Band 13

BW	MCS Index	RB Size	RB Offset		Mid		3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel			23230					Channel		23205	23230	23225	
		Frequency (MHz)			782.0					Frequency (MHz)		779.5	782.0	784.5	
10M	QPSK	1	0		23.98		0	5M	QPSK	1	0	23.84	23.97	23.83	0
		1	24		23.75		0			1	12	23.62	23.81	23.71	0
		1	49		23.78		0			1	24	23.61	23.79	23.72	0
		25	0		22.95		1			12	0	22.70	22.98	22.89	1
		25	12		23.05		1			12	6	22.56	22.88	22.82	1
		25	25		22.95		1			12	13	22.55	22.95	22.90	1
		50	0		23.02		1			25	0	22.43	22.91	22.96	1
	16QAM	1	0		23.26		1		16QAM	1	0	23.05	23.28	23.13	1
		1	24		23.18		1			1	12	22.90	23.05	22.87	1
		1	49		23.07		1			1	24	23.01	23.19	23.02	1
		25	0		21.91		2			12	0	21.60	21.88	21.70	2
		25	12		22.04		2			12	6	21.64	21.92	21.73	2
		25	25		22.06		2			12	13	21.65	21.97	21.84	2
		50	0		22.16		2			25	0	21.65	21.93	21.87	2

LTE Band 66

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572	
		Frequency (MHz)		1720.0	1745.0	1770.0	
20M	QPSK	1	0	23.31	23.41	23.47	0
		1	50	23.35	23.39	23.42	0
		1	99	23.25	23.36	23.33	0
		50	0	22.32	22.44	22.35	1
		50	25	22.36	22.41	22.39	1
		50	50	22.37	22.39	22.31	1
		100	0	22.47	22.46	22.31	1
	16QAM	1	0	22.52	22.69	22.76	1
		1	50	22.55	22.66	22.82	1
		1	99	22.52	22.58	22.69	1
		50	0	21.46	21.51	21.61	2
		50	25	21.48	21.47	21.48	2
		50	50	21.38	21.39	21.44	2
		100	0	21.42	21.45	21.50	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132047	132322	132597	
		Frequency (MHz)		1717.5	1745.0	1772.5	
15M	QPSK	1	0	23.67	23.76	23.82	0
		1	37	23.08	23.23	23.26	0
		1	74	23.34	23.52	23.56	0
		36	0	22.37	22.63	22.63	1
		36	19	22.17	22.40	22.30	1
		36	39	23.11	23.37	23.17	1
		75	0	22.13	22.49	22.36	1
	16QAM	1	0	22.92	23.14	23.12	1
		1	37	22.30	22.54	22.44	1
		1	74	22.57	22.78	22.70	1
		36	0	21.30	21.61	21.63	2
		36	19	21.00	21.41	21.42	2
		36	39	21.00	21.39	21.48	2
		75	0	21.16	21.51	21.51	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132022	132322	132622	
		Frequency (MHz)		1715.0	1745.0	1775.0	
10M	QPSK	1	0	23.67	23.71	23.68	0
		1	24	23.40	23.45	23.36	0
		1	49	23.39	23.53	23.42	0
		25	0	22.39	22.50	22.39	1
		25	12	22.20	22.36	22.35	1
		25	25	22.06	22.32	22.34	1
		50	0	22.10	22.39	22.33	1
	16QAM	1	0	22.72	22.76	22.65	1
		1	24	22.57	22.67	22.59	1
		1	49	22.65	22.67	22.56	1
		25	0	21.47	21.51	21.49	2
		25	12	21.38	21.43	21.36	2
		25	25	21.34	21.39	21.30	2
		50	0	21.41	21.44	21.33	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131997	132322	132647	
		Frequency (MHz)		1712.5	1745.0	1777.5	
5M	QPSK	1	0	23.54	23.63	23.42	0
		1	12	23.32	23.45	23.28	0
		1	24	23.28	23.38	23.12	0
		12	0	23.26	23.37	23.06	1
		12	6	23.19	23.37	22.97	1
		12	13	23.15	23.31	22.86	1
		25	0	23.07	23.32	22.87	1
	16QAM	1	0	22.48	22.65	22.45	1
		1	12	22.34	22.53	22.41	1
		1	24	22.32	22.51	22.46	1
		12	0	21.18	21.45	21.32	2
		12	6	21.06	21.41	21.35	2
		12	13	21.01	21.36	21.33	2
		25	0	21.08	21.39	21.26	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131987	132322	132657	
		Frequency (MHz)		1711.5	1745.5	1778.5	
3M	QPSK	1	0	23.37	23.54	23.25	0
		1	7	23.32	23.47	23.09	0
		1	14	23.23	23.37	22.90	0
		8	0	22.17	22.41	22.04	1
		8	3	22.04	22.32	21.99	1
		8	7	22.02	22.35	21.97	1
		15	0	22.03	22.36	21.94	1
	16QAM	1	0	22.42	22.68	22.31	1
		1	7	22.35	22.53	22.19	1
		1	14	22.20	22.45	22.15	1
		8	0	21.24	21.46	21.25	2
		8	3	21.20	21.51	21.22	2
		8	7	21.11	21.47	21.28	2
		15	0	20.98	21.38	21.21	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131979	132322	132665	
		Frequency (MHz)		1710.7	1745.0	1779.3	
1.4M	QPSK	1	0	23.14	23.41	22.96	0
		1	2	23.05	23.32	22.92	0
		1	5	23.03	23.28	22.96	0
		3	0	23.13	23.31	23.02	0
		3	1	23.19	23.36	22.97	0
		3	3	23.18	23.33	23.00	0
		6	0	22.18	22.34	21.93	1
	16QAM	1	0	22.58	22.54	22.23	1
		1	2	22.52	22.51	22.19	1
		1	5	22.34	22.37	22.10	1
		3	0	22.29	22.36	22.18	1
		3	1	22.42	22.45	22.33	1
		3	3	22.37	22.32	22.16	1
		6	0	21.54	21.46	21.40	2

ERP / EIRP Power (dBm)

Band	WCDMA IV		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	28.95	28.77	29.14

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 4

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	28.77	28.57	28.53	0	15M	QPSK	1	0	28.96	29.09	29.04	0
		1	50	28.64	28.53	28.51	0			1	37	28.17	28.23	28.09	0
		1	99	28.56	28.50	28.49	0			1	74	28.95	28.95	28.73	0
		50	0	27.76	27.75	27.83	1			36	0	28.01	28.06	27.91	1
		50	25	27.72	27.76	27.77	1			36	19	27.70	27.81	27.61	1
		50	50	27.80	27.82	27.89	1			36	39	27.94	28.02	27.89	1
		100	0	27.67	27.74	27.90	1			75	0	27.87	27.88	27.74	1
	16QAM	1	0	27.88	28.05	27.95	1		16QAM	1	0	28.47	28.52	28.57	1
		1	50	27.41	27.55	27.52	1			1	37	27.73	27.79	27.90	1
		1	99	27.69	27.90	27.83	1			1	74	27.60	27.70	27.75	1
		50	0	26.78	27.03	26.89	2			36	0	26.87	27.02	27.08	2
		50	25	26.50	26.83	26.59	2			36	19	26.61	26.86	26.88	2
		50	50	26.63	26.95	26.70	2			36	39	26.64	26.93	26.94	2
		100	0	26.48	26.75	26.60	2			75	0	26.48	26.76	26.86	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20000	20175	20350				Channel		19975	20175	20375	
		Frequency (MHz)		1715.0	1732.5	1750.0				Frequency (MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	29.13	29.03	28.91	0	5M	QPSK	1	0	29.09	28.77	28.88	0
		1	24	28.89	28.72	28.59	0			1	12	28.99	28.69	28.71	0
		1	49	28.92	28.84	28.69	0			1	24	28.95	28.62	28.59	0
		25	0	28.05	27.90	27.79	1			12	0	28.07	27.75	27.62	1
		25	12	27.89	27.76	27.62	1			12	6	27.95	27.72	27.59	1
		25	25	28.00	27.88	27.79	1			12	13	27.96	27.79	27.67	1
		50	0	27.96	27.86	27.84	1			25	0	27.89	27.73	27.68	1
	16QAM	1	0	28.45	28.42	28.33	1		16QAM	1	0	28.37	28.07	28.19	1
		1	24	27.90	27.96	27.90	1			1	12	28.17	27.88	28.10	1
		1	49	27.85	27.91	27.83	1			1	24	28.07	27.82	28.02	1
		25	0	26.77	26.86	26.81	2			12	0	26.87	26.63	26.84	2
		25	12	26.74	26.86	26.79	2			12	6	26.74	26.59	26.78	2
		25	25	26.62	26.84	26.81	2			12	13	26.93	26.76	26.85	2
		50	0	26.68	26.84	26.79	2			25	0	26.78	26.66	26.65	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		19965	20175	20385				Channel		19957	20175	20393	
		Frequency (MHz)		1711.5	1732.5	1753.5				Frequency (MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	28.72	28.79	29.08	0	1.4M	QPSK	1	0	28.75	28.68	28.86	0
		1	7	28.61	28.78	29.03	0			1	2	28.48	28.48	28.73	0
		1	14	28.45	28.57	28.72	0			1	5	28.59	28.55	28.70	0
		8	0	27.58	27.74	27.90	1			3	0	28.68	28.57	28.79	0
		8	3	27.53	27.72	27.92	1			3	1	28.62	28.61	28.77	0
		8	7	27.46	27.71	27.83	1			3	3	28.56	28.50	28.66	0
		15	0	27.38	27.68	27.88	1			6	0	27.69	27.67	27.81	1
	16QAM	1	0	28.15	28.35	28.06	1		16QAM	1	0	27.85	27.75	27.85	1
		1	7	28.11	28.28	28.02	1			1	2	27.75	27.70	27.84	1
		1	14	27.89	28.09	27.76	1			1	5	27.56	27.48	27.60	1
		8	0	26.60	26.84	26.46	2			3	0	27.43	27.36	27.56	1
		8	3	26.53	26.82	26.54	2			3	1	27.60	27.49	27.70	1
		8	7	26.48	26.84	26.48	2			3	3	27.77	27.59	27.84	1
		15	0	26.54	26.83	26.46	2			6	0	26.92	26.73	26.94	2

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 12															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23060	23095	23130				Channel		23035	23095	23155	
		Frequency (MHz)		704.0	707.5	711.0				Frequency (MHz)		701.5	707.5	713.5	
10M	QPSK	1	0	21.96	21.99	21.87	0	5M	QPSK	1	0	21.91	21.97	21.92	0
		1	24	21.73	21.72	21.51	0			1	12	21.66	21.75	21.74	0
		1	49	21.62	21.58	21.32	0			1	24	21.63	21.79	21.79	0
		25	0	21.98	21.92	21.60	1			12	0	21.69	21.83	21.86	1
		25	12	21.87	21.86	21.53	1			12	6	21.70	21.88	21.92	1
		25	25	21.82	21.83	21.59	1			12	13	21.73	21.85	21.98	1
		50	0	21.90	21.87	21.64	1			25	0	21.61	21.81	21.87	1
	16QAM	1	0	21.75	21.88	21.82	1		16QAM	1	0	21.82	21.95	21.78	1
		1	24	21.67	21.75	21.79	1			1	12	21.52	21.64	21.56	1
		1	49	21.85	21.86	21.99	1			1	24	21.75	21.85	21.74	1
		25	0	21.62	21.71	21.78	2			12	0	21.73	21.91	21.77	2
		25	12	21.85	21.86	21.93	2			12	6	21.64	21.90	21.69	2
		25	25	21.83	21.84	21.86	2			12	13	21.54	21.88	21.74	2
		50	0	21.82	21.78	21.88	2			25	0	21.60	21.86	21.63	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23025	23095	23165				Channel		23017	23095	23173	
		Frequency (MHz)		700.5	707.5	714.5				Frequency (MHz)		699.7	707.5	715.3	
3M	QPSK	1	0	21.86	21.90	21.82	0	1.4M	QPSK	1	0	21.78	21.87	21.71	0
		1	7	21.89	21.87	21.70	0			1	2	21.77	21.80	21.65	0
		1	14	21.74	21.77	21.70	0			1	5	21.64	21.77	21.62	0
		8	0	21.70	21.83	21.78	1			3	0	21.76	21.84	21.61	0
		8	3	21.59	21.82	21.78	1			3	1	21.72	21.85	21.57	0
		8	7	21.61	21.87	21.74	1			3	3	21.65	21.83	21.45	0
		15	0	21.53	21.85	21.72	1			6	0	21.60	21.81	21.47	1
	16QAM	1	0	21.77	21.88	21.75	1		16QAM	1	0	21.72	21.85	21.63	1
		1	7	21.60	21.79	21.65	1			1	2	21.65	21.84	21.72	1
		1	14	21.57	21.75	21.58	1			1	5	21.53	21.81	21.75	1
		8	0	21.67	21.80	21.69	2			3	0	21.53	21.77	21.66	1
		8	3	21.79	21.86	21.72	2			3	1	21.47	21.75	21.74	1
		8	7	21.76	21.87	21.65	2			3	3	21.45	21.82	21.67	1
		15	0	21.67	21.84	21.55	2			6	0	21.38	21.78	21.59	2

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

LTE Band 13															
BW	MCS Index	RB Size	RB Offset		Mid		3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel			23230					Channel		23205	23230	23225	
		Frequency (MHz)			782.0					Frequency (MHz)		779.5	782.0	784.5	
10M	QPSK	1	0		23.74		0	5M	QPSK	1	0	23.60	23.73	23.59	0
		1	24		23.51		0			1	12	23.38	23.57	23.47	0
		1	49		23.54		0			1	24	23.37	23.55	23.48	0
		25	0		22.71		1			12	0	22.46	22.74	22.65	1
		25	12		22.81		1			12	6	22.32	22.64	22.58	1
		25	25		22.71		1			12	13	22.31	22.71	22.66	1
		50	0		22.78		1			25	0	22.19	22.67	22.72	1
	16QAM	1	0		23.02		1		16QAM	1	0	22.81	23.04	22.89	1
		1	24		22.94		1			1	12	22.66	22.81	22.63	1
		1	49		22.83		1			1	24	22.77	22.95	22.78	1
		25	0		21.67		2			12	0	21.36	21.64	21.46	2
		25	12		21.80		2			12	6	21.40	21.68	21.49	2
		25	25		21.82		2			12	13	21.41	21.73	21.60	2
		50	0		21.92		2			25	0	21.41	21.69	21.63	2

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

LTE Band 66

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572	
		Frequency (MHz)		1720.0	1745.0	1770.0	
20M	QPSK	1	0	28.52	28.62	28.68	0
		1	50	28.56	28.60	28.63	0
		1	99	28.46	28.57	28.54	0
		50	0	27.53	27.65	27.56	1
		50	25	27.57	27.62	27.60	1
		50	50	27.58	27.60	27.52	1
		100	0	27.68	27.67	27.52	1
	16QAM	1	0	27.73	27.90	27.97	1
		1	50	27.76	27.87	28.03	1
		1	99	27.73	27.79	27.90	1
		50	0	26.67	26.72	26.82	2
		50	25	26.69	26.68	26.69	2
		50	50	26.59	26.60	26.65	2
		100	0	26.63	26.66	26.71	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132047	132322	132597	
		Frequency (MHz)		1717.5	1745.0	1772.5	
15M	QPSK	1	0	28.88	28.97	29.03	0
		1	37	28.29	28.44	28.47	0
		1	74	28.55	28.73	28.77	0
		36	0	27.58	27.84	27.84	1
		36	19	27.38	27.61	27.51	1
		36	39	28.32	28.58	28.38	1
		75	0	27.34	27.70	27.57	1
	16QAM	1	0	28.13	28.35	28.33	1
		1	37	27.51	27.75	27.65	1
		1	74	27.78	27.99	27.91	1
		36	0	26.51	26.82	26.84	2
		36	19	26.21	26.62	26.63	2
		36	39	26.21	26.60	26.69	2
		75	0	26.37	26.72	26.72	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132022	132322	132622	
		Frequency (MHz)		1715.0	1745.0	1775.0	
10M	QPSK	1	0	28.88	28.92	28.89	0
		1	24	28.61	28.66	28.57	0
		1	49	28.60	28.74	28.63	0
		25	0	27.60	27.71	27.60	1
		25	12	27.41	27.57	27.56	1
		25	25	27.27	27.53	27.55	1
		50	0	27.31	27.60	27.54	1
	16QAM	1	0	27.93	27.97	27.86	1
		1	24	27.78	27.88	27.80	1
		1	49	27.86	27.88	27.77	1
		25	0	26.68	26.72	26.70	2
		25	12	26.59	26.64	26.57	2
		25	25	26.55	26.60	26.51	2
		50	0	26.62	26.65	26.54	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131997	132322	132647	
		Frequency (MHz)		1712.5	1745.0	1777.5	
5M	QPSK	1	0	28.75	28.84	28.63	0
		1	12	28.53	28.66	28.49	0
		1	24	28.49	28.59	28.33	0
		12	0	28.47	28.58	28.27	1
		12	6	28.40	28.58	28.18	1
		12	13	28.36	28.52	28.07	1
		25	0	28.28	28.53	28.08	1
	16QAM	1	0	27.69	27.86	27.66	1
		1	12	27.55	27.74	27.62	1
		1	24	27.53	27.72	27.67	1
		12	0	26.39	26.66	26.53	2
		12	6	26.27	26.62	26.56	2
		12	13	26.22	26.57	26.54	2
		25	0	26.29	26.60	26.47	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131987	132322	132657	
		Frequency (MHz)		1711.5	1745.5	1778.5	
3M	QPSK	1	0	28.58	28.75	28.46	0
		1	7	28.53	28.68	28.30	0
		1	14	28.44	28.58	28.11	0
		8	0	27.38	27.62	27.25	1
		8	3	27.25	27.53	27.20	1
		8	7	27.23	27.56	27.18	1
		15	0	27.24	27.57	27.15	1
	16QAM	1	0	27.63	27.89	27.52	1
		1	7	27.56	27.74	27.40	1
		1	14	27.41	27.66	27.36	1
		8	0	26.45	26.67	26.46	2
		8	3	26.41	26.72	26.43	2
		8	7	26.32	26.68	26.49	2
		15	0	26.19	26.59	26.42	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131979	132322	132665	
		Frequency (MHz)		1710.7	1745.0	1779.3	
1.4M	QPSK	1	0	28.35	28.62	28.17	0
		1	2	28.26	28.53	28.13	0
		1	5	28.24	28.49	28.17	0
		3	0	28.34	28.52	28.23	0
		3	1	28.40	28.57	28.18	0
		3	3	28.39	28.54	28.21	0
		6	0	27.39	27.55	27.14	1
	16QAM	1	0	27.79	27.75	27.44	1
		1	2	27.73	27.72	27.40	1
		1	5	27.55	27.58	27.31	1
		3	0	27.50	27.57	27.39	1
		3	1	27.63	27.66	27.54	1
		3	3	27.58	27.53	27.37	1
		6	0	26.75	26.67	26.61	2

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

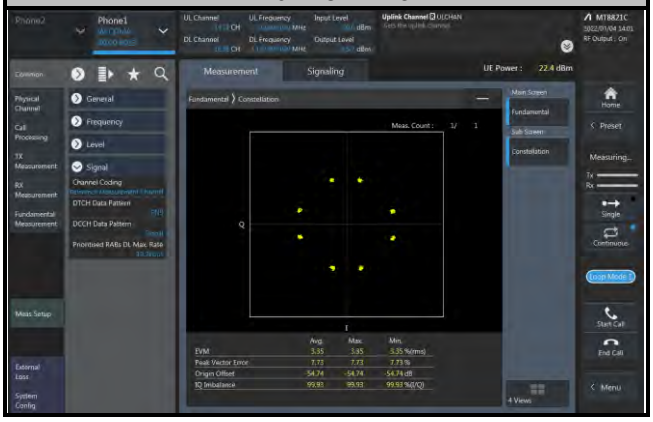
4.2.2 Test Setup

4.2.3 Test Procedure

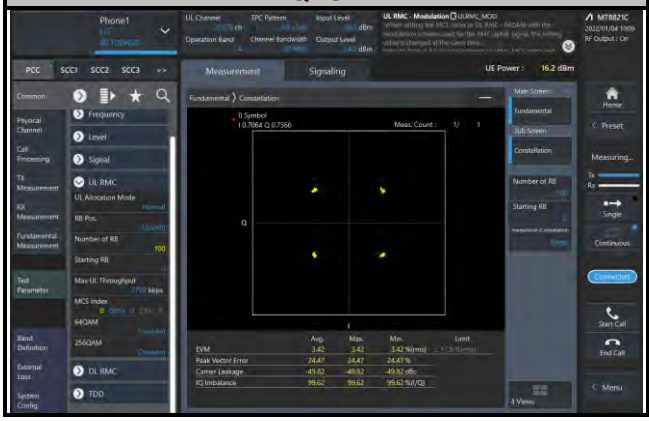
Connect the EUT to Communication Simulator via the antenna connector. The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

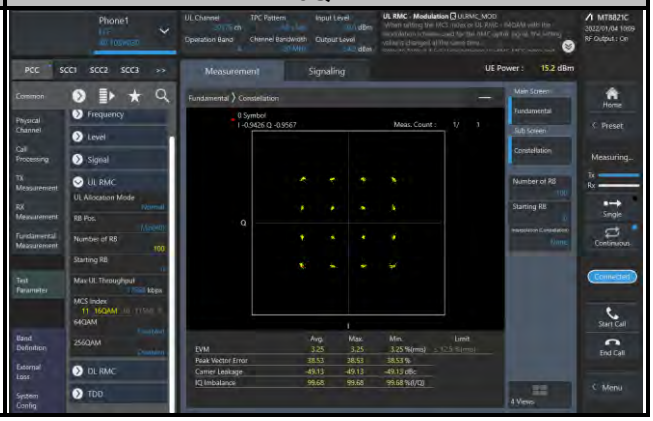
4.2.4 Test Results

Spectrum Plot of Measurement
WCDMA
Channel 1413

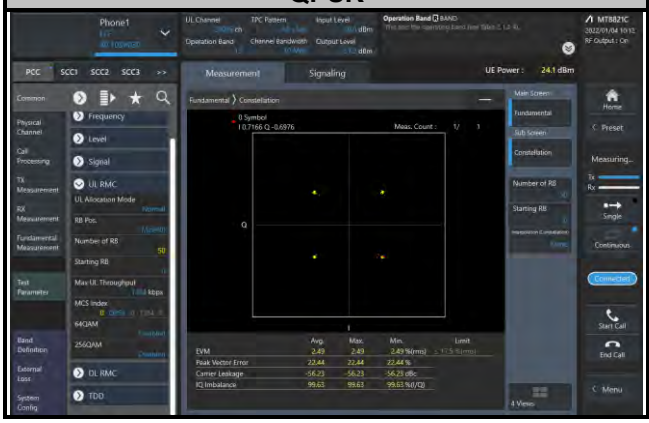


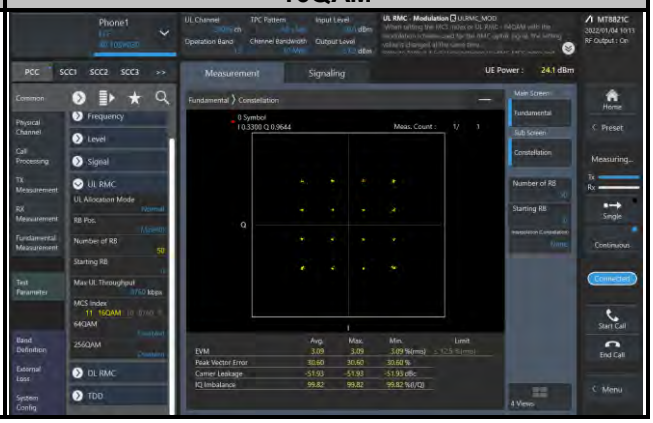
Spectrum Plot of Measurement	
LTE Band 4	
Channel 20175	
QPSK	16QAM

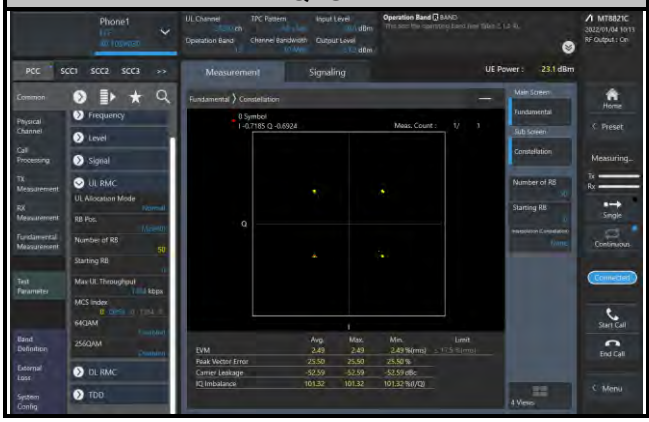
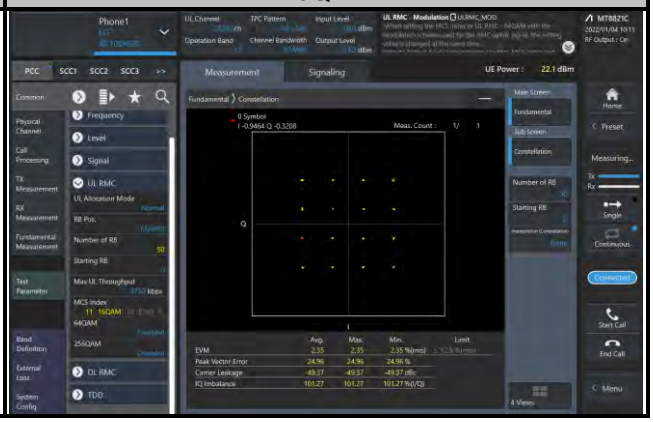


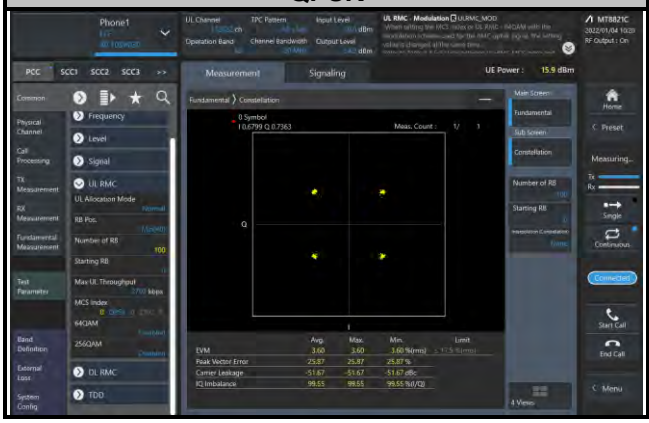
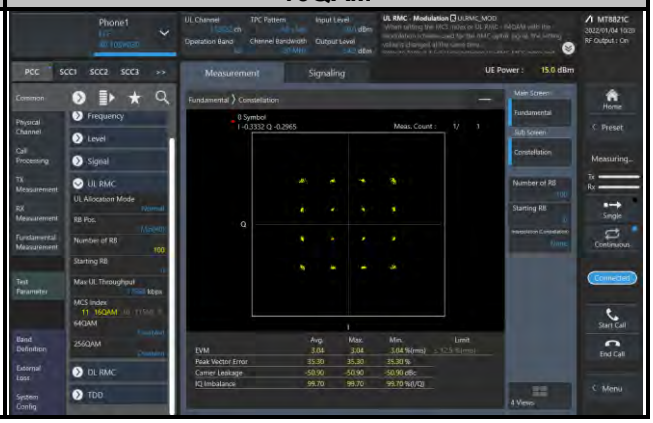


Spectrum Plot of Measurement	
LTE Band 12	
Channel 23095	
QPSK	16QAM





Spectrum Plot of Measurement	
LTE Band 13	
Channel 23230	
QPSK	16QAM
	

Spectrum Plot of Measurement	
LTE Band 66	
Channel 132322	
QPSK	16QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

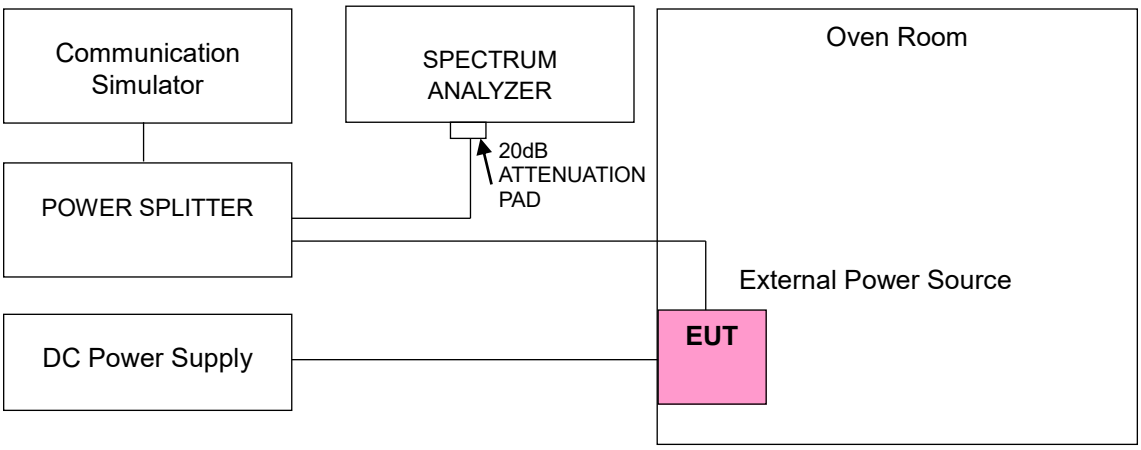
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Procedure

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1712.400003	0.002	1752.600004	0.002
10.2	1712.400002	0.001	1752.600003	0.002
13.8	1712.400004	0.002	1752.600004	0.002

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.400004	0.002	1752.600001	0.001
-20	1712.400003	0.002	1752.600004	0.002
-10	1712.400004	0.002	1752.600002	0.001
0	1712.400003	0.001	1752.600002	0.001
10	1712.400004	0.002	1752.600004	0.002
20	1712.399998	-0.001	1752.599997	-0.002
30	1712.399998	-0.001	1752.599997	-0.002
40	1712.399997	-0.002	1752.599997	-0.002
50	1712.399997	-0.002	1752.599999	-0.001
60	1712.399996	-0.002	1752.599998	-0.001
70	1712.399997	-0.002	1752.599999	-0.001
80	1712.399998	-0.001	1752.599998	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1710.700003	0.002	1754.300004	0.002
10.2	1710.700002	0.001	1754.300002	0.001
13.8	1710.700002	0.001	1754.300002	0.001

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700001	0.001	1754.300004	0.002
-20	1710.700003	0.002	1754.300004	0.002
-10	1710.700001	0.001	1754.300004	0.002
0	1710.700002	0.001	1754.300003	0.002
10	1710.700002	0.001	1754.300002	0.001
20	1710.699999	-0.001	1754.299998	-0.001
30	1710.699997	-0.002	1754.299999	-0.001
40	1710.699999	-0.001	1754.299996	-0.002
50	1710.699999	-0.001	1754.299999	-0.001
60	1710.699997	-0.002	1754.299997	-0.002
70	1710.699997	-0.002	1754.299998	-0.001
80	1710.699999	-0.001	1754.299996	-0.002

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1711.500002	0.001	1753.500003	0.001
10.2	1711.500004	0.002	1753.500003	0.002
13.8	1711.500001	0.001	1753.500004	0.002

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.500003	0.002	1753.500001	0.001
-20	1711.500004	0.002	1753.500003	0.002
-10	1711.500003	0.002	1753.500001	0.001
0	1711.500002	0.001	1753.500003	0.002
10	1711.500003	0.002	1753.500002	0.001
20	1711.499998	-0.001	1753.499997	-0.002
30	1711.499997	-0.002	1753.499997	-0.002
40	1711.499997	-0.002	1753.499999	-0.001
50	1711.499998	-0.001	1753.499999	-0.001
60	1711.499998	-0.001	1753.499998	-0.001
70	1711.499996	-0.002	1753.499997	-0.001
80	1711.499998	-0.001	1753.499999	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1712.500003	0.002	1752.500004	0.002
10.2	1712.500004	0.002	1752.500002	0.001
13.8	1712.500003	0.002	1752.500001	0.001

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500003	0.002	1752.500004	0.002
-20	1712.500003	0.002	1752.500003	0.001
-10	1712.500003	0.002	1752.500003	0.002
0	1712.500002	0.001	1752.500001	0.001
10	1712.500002	0.001	1752.500001	0.001
20	1712.499998	-0.001	1752.499996	-0.002
30	1712.499999	-0.001	1752.499997	-0.002
40	1712.499997	-0.002	1752.499998	-0.001
50	1712.499998	-0.001	1752.499996	-0.002
60	1712.499997	-0.002	1752.499999	-0.001
70	1712.499997	-0.002	1752.499998	-0.001
80	1712.499997	-0.002	1752.499998	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1715.000004	0.002	1750.000003	0.001
10.2	1715.000002	0.001	1750.000002	0.001
13.8	1715.000003	0.002	1750.000002	0.001

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.000002	0.001	1750.000003	0.002
-20	1715.000002	0.001	1750.000004	0.002
-10	1715.000004	0.002	1750.000002	0.001
0	1715.000001	0.001	1750.000003	0.002
10	1715.000004	0.002	1750.000003	0.002
20	1714.999997	-0.002	1749.999996	-0.002
30	1714.999999	-0.001	1749.999999	-0.001
40	1714.999998	-0.001	1749.999999	-0.001
50	1714.999999	-0.001	1749.999996	-0.002
60	1714.999997	-0.002	1749.999997	-0.002
70	1714.999998	-0.001	1749.999996	-0.002
80	1714.999998	-0.001	1749.999997	-0.002

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1717.500002	0.001	1747.500003	0.002
10.2	1717.500003	0.002	1747.500002	0.001
13.8	1717.500003	0.002	1747.500002	0.001

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500001	0.001	1747.500003	0.002
-20	1717.500001	0.001	1747.500002	0.001
-10	1717.500003	0.002	1747.500004	0.002
0	1717.500002	0.001	1747.500004	0.002
10	1717.500002	0.001	1747.500003	0.002
20	1717.499996	-0.002	1747.499998	-0.001
30	1717.499997	-0.002	1747.499998	-0.001
40	1717.499998	-0.001	1747.499999	-0.001
50	1717.499996	-0.002	1747.499999	-0.001
60	1717.499999	-0.001	1747.499999	-0.001
70	1717.499997	-0.002	1747.499997	-0.002
80	1717.499997	-0.002	1747.499998	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1720.000004	0.002	1745.000003	0.002
10.2	1720.000004	0.002	1745.000004	0.002
13.8	1720.000002	0.001	1745.000002	0.001

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.000004	0.002	1745.000002	0.001
-20	1720.000004	0.002	1745.000001	0.001
-10	1720.000004	0.002	1745.000002	0.001
0	1720.000003	0.002	1745.000002	0.001
10	1720.000002	0.001	1745.000002	0.001
20	1719.999997	-0.002	1744.999997	-0.002
30	1719.999998	-0.001	1744.999998	-0.001
40	1719.999998	-0.001	1744.999996	-0.002
50	1719.999998	-0.001	1744.999997	-0.002
60	1719.999999	-0.001	1744.999997	-0.002
70	1719.999997	-0.002	1744.999999	-0.001
80	1719.999998	-0.001	1744.999999	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	699.700002	0.003	715.300004	0.005
10.2	699.700002	0.003	715.300003	0.004
13.8	699.700003	0.005	715.300004	0.005

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700002	0.003	715.300002	0.003
-20	699.700004	0.005	715.300003	0.004
-10	699.700002	0.002	715.300004	0.005
0	699.700002	0.003	715.300004	0.005
10	699.700003	0.004	715.300002	0.003
20	699.699996	-0.006	715.299999	-0.002
30	699.699998	-0.004	715.299997	-0.004
40	699.699998	-0.003	715.299998	-0.003
50	699.699997	-0.005	715.299996	-0.005
60	699.699998	-0.003	715.299997	-0.004
70	699.699998	-0.003	715.299997	-0.004
80	699.699997	-0.004	715.299998	-0.003

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	700.500002	0.003	714.500002	0.003
10.2	700.500004	0.005	714.500001	0.002
13.8	700.500003	0.004	714.500002	0.003

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	700.500002	0.003	714.500003	0.004
-20	700.500002	0.002	714.500003	0.005
-10	700.500002	0.003	714.500001	0.002
0	700.500004	0.005	714.500004	0.005
10	700.500004	0.006	714.500002	0.003
20	700.499997	-0.004	714.499997	-0.004
30	700.499997	-0.004	714.499999	-0.002
40	700.499997	-0.004	714.499998	-0.002
50	700.499998	-0.003	714.499997	-0.004
60	700.499997	-0.005	714.499998	-0.003
70	700.499998	-0.002	714.499998	-0.002
80	700.499997	-0.004	714.499996	-0.005

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	701.500003	0.004	713.500002	0.002
10.2	701.500002	0.003	713.500002	0.003
13.8	701.500002	0.003	713.500004	0.005

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	701.500004	0.005	713.500002	0.002
-20	701.500003	0.004	713.500003	0.004
-10	701.500001	0.001	713.500002	0.003
0	701.500004	0.006	713.500002	0.003
10	701.500002	0.003	713.500004	0.006
20	701.499997	-0.004	713.499996	-0.006
30	701.499998	-0.003	713.499997	-0.004
40	701.499998	-0.003	713.499999	-0.002
50	701.499997	-0.004	713.499998	-0.004
60	701.499999	-0.002	713.499996	-0.005
70	701.499999	-0.002	713.499998	-0.003
80	701.499998	-0.002	713.499997	-0.005

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	704.000003	0.004	711.000004	0.005
10.2	704.000003	0.004	711.000002	0.003
13.8	704.000003	0.004	711.000002	0.003

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	704.000003	0.005	711.000004	0.005
-20	704.000002	0.002	711.000003	0.004
-10	704.000002	0.003	711.000002	0.002
0	704.000003	0.004	711.000004	0.005
10	704.000003	0.005	711.000002	0.003
20	703.999996	-0.006	710.999999	-0.002
30	703.999997	-0.004	710.999998	-0.002
40	703.999997	-0.004	710.999997	-0.004
50	703.999997	-0.005	710.999999	-0.002
60	703.999996	-0.005	710.999999	-0.002
70	703.999996	-0.006	710.999998	-0.003
80	703.999996	-0.005	710.999999	-0.002

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	779.500003	0.003	784.500003	0.003
10.2	779.500002	0.003	784.500003	0.004
13.8	779.500003	0.003	784.500004	0.005

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	779.500003	0.004	784.500001	0.002
-20	779.500001	0.002	784.500003	0.003
-10	779.500003	0.004	784.500002	0.003
0	779.500002	0.002	784.500001	0.002
10	779.500003	0.004	784.500004	0.004
20	779.499997	-0.004	784.499998	-0.003
30	779.499999	-0.001	784.499998	-0.003
40	779.499999	-0.001	784.499999	-0.001
50	779.499998	-0.002	784.499997	-0.003
60	779.499996	-0.005	784.499999	-0.002
70	779.499996	-0.005	784.499998	-0.003
80	779.499998	-0.002	784.499997	-0.004

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
12	782.000002	0.002
10.2	782.000002	0.002
13.8	782.000003	0.004

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
-30	782.000002	0.003
-20	782.000003	0.004
-10	782.000004	0.005
0	782.000001	0.001
10	782.000001	0.002
20	781.999998	-0.002
30	781.999996	-0.005
40	781.999997	-0.004
50	781.999997	-0.003
60	781.999997	-0.004
70	781.999998	-0.003
80	781.999998	-0.002

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1710.700001	0.001	1779.300003	0.002
10.2	1710.700003	0.002	1779.300001	0.001
13.8	1710.700002	0.001	1779.300003	0.002

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700004	0.002	1779.300003	0.001
-20	1710.700004	0.002	1779.300003	0.002
-10	1710.700003	0.002	1779.300001	0.001
0	1710.700002	0.001	1779.300003	0.001
10	1710.700003	0.002	1779.300002	0.001
20	1710.699998	-0.001	1779.299997	-0.002
30	1710.699997	-0.002	1779.299998	-0.001
40	1710.699998	-0.001	1779.299999	-0.001
50	1710.699996	-0.002	1779.299999	-0.001
60	1710.699999	-0.001	1779.299998	-0.001
70	1710.699998	-0.001	1779.299996	-0.002
80	1710.699998	-0.001	1779.299998	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1711.500003	0.002	1778.500002	0.001
10.2	1711.500001	0.001	1778.500001	0.001
13.8	1711.500002	0.001	1778.500004	0.002

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.500004	0.002	1778.500001	0.001
-20	1711.500001	0.001	1778.500002	0.001
-10	1711.500001	0.001	1778.500002	0.001
0	1711.500002	0.001	1778.500001	0.001
10	1711.500002	0.001	1778.500002	0.001
20	1711.499997	-0.002	1778.499999	-0.001
30	1711.499999	-0.001	1778.499999	-0.001
40	1711.499999	-0.001	1778.499996	-0.002
50	1711.499997	-0.002	1778.499997	-0.002
60	1711.499999	-0.001	1778.499997	-0.002
70	1711.499998	-0.001	1778.499999	-0.001
80	1711.499998	-0.001	1778.499997	-0.002

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1712.500004	0.002	1777.500002	0.001
10.2	1712.500002	0.001	1777.500003	0.001
13.8	1712.500003	0.002	1777.500002	0.001

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500002	0.001	1777.500004	0.002
-20	1712.500003	0.002	1777.500001	0.001
-10	1712.500004	0.002	1777.500004	0.002
0	1712.500004	0.002	1777.500001	0.001
10	1712.500004	0.002	1777.500002	0.001
20	1712.499998	-0.001	1777.499997	-0.002
30	1712.499996	-0.002	1777.499997	-0.002
40	1712.499999	-0.001	1777.499996	-0.002
50	1712.499998	-0.001	1777.499999	-0.001
60	1712.499996	-0.002	1777.499999	-0.001
70	1712.499998	-0.001	1777.499998	-0.001
80	1712.499996	-0.002	1777.499998	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1715.000004	0.002	1775.000004	0.002
10.2	1715.000002	0.001	1775.000003	0.002
13.8	1715.000004	0.002	1775.000003	0.002

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.000001	0.001	1775.000002	0.001
-20	1715.000003	0.002	1775.000004	0.002
-10	1715.000002	0.001	1775.000002	0.001
0	1715.000003	0.002	1775.000002	0.001
10	1715.000002	0.001	1775.000001	0.001
20	1714.999999	-0.001	1774.999997	-0.002
30	1714.999996	-0.002	1774.999997	-0.002
40	1714.999996	-0.002	1774.999997	-0.002
50	1714.999998	-0.001	1774.999997	-0.002
60	1714.999999	-0.001	1774.999997	-0.002
70	1714.999998	-0.001	1774.999997	-0.001
80	1714.999997	-0.002	1774.999998	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1717.500002	0.001	1772.500002	0.001
10.2	1717.500002	0.001	1772.500002	0.001
13.8	1717.500002	0.001	1772.500004	0.002

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500004	0.002	1772.500003	0.001
-20	1717.500004	0.002	1772.500001	0.001
-10	1717.500002	0.001	1772.500003	0.002
0	1717.500002	0.001	1772.500003	0.002
10	1717.500002	0.001	1772.500003	0.002
20	1717.499997	-0.002	1772.499999	-0.001
30	1717.499999	-0.001	1772.499998	-0.001
40	1717.499996	-0.002	1772.499998	-0.001
50	1717.499997	-0.002	1772.499997	-0.002
60	1717.499998	-0.001	1772.499996	-0.002
70	1717.499997	-0.002	1772.499999	-0.001
80	1717.499997	-0.002	1772.499997	-0.002

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
12	1720.000003	0.002	1770.000004	0.002
10.2	1720.000002	0.001	1770.000003	0.002
13.8	1720.000003	0.002	1770.000001	0.001

Note: The applicant defined the normal working voltage of the battery is from 10.2 Vdc to 13.8 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.000002	0.001	1770.000004	0.002
-20	1720.000003	0.002	1770.000003	0.002
-10	1720.000002	0.001	1770.000002	0.001
0	1720.000003	0.002	1770.000004	0.002
10	1720.000003	0.002	1770.000003	0.002
20	1719.999998	-0.001	1769.999998	-0.001
30	1719.999997	-0.002	1769.999999	-0.001
40	1719.999996	-0.002	1769.999999	-0.001
50	1719.999996	-0.002	1769.999996	-0.002
60	1719.999997	-0.002	1769.999997	-0.002
70	1719.999998	-0.001	1769.999999	-0.001
80	1719.999999	-0.001	1769.999998	-0.001

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 80˚C.
2. The EUT would shut down automatically as below -30˚C.

4.4 Occupied Bandwidth Measurement

4.4.1 Limits of Occupied Bandwidth Measurement

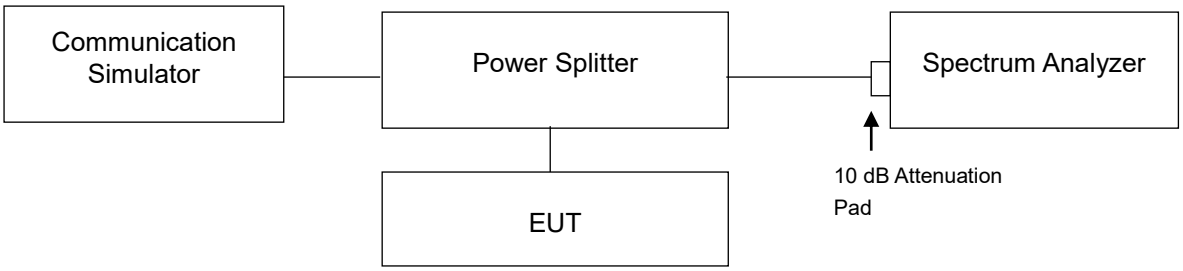
The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.4.2 Test Procedure

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Measurement method, please refer to section 5.4.4 of ANSI C63.26. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

For the 26dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

4.4.3 Test Setup

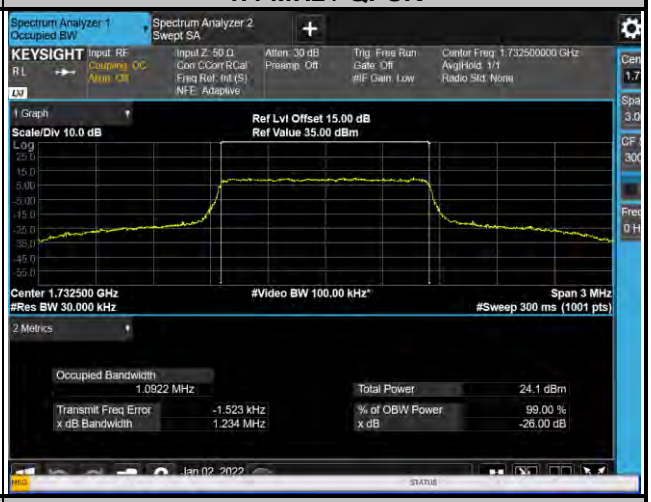
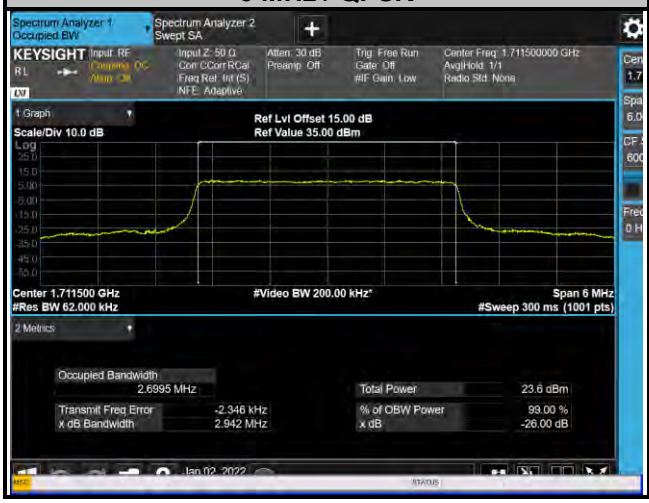


4.4.4 Test Result

WCDMA			
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**	**26 dB Bandwidth (MHz)**
1312	1712.4	4.14	4.72
1413	1732.6	4.15	4.76
1513	1752.6	4.14	4.71

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	**26 dB Bandwidth**

LTE Band 4					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19957	1710.7	1.09	1.09	1.23	1.22
20175	1732.5	1.09	1.09	1.23	1.23
20393	1754.3	1.09	1.09	1.23	1.22
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19965	1711.5	2.70	2.70	2.94	2.94
20175	1732.5	2.70	2.70	2.96	2.95
20385	1753.5	2.70	2.70	2.93	2.95

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
1.4 MHz / QPSK	1.4 MHz / QPSK
	
3 MHz / QPSK	3 MHz / QPSK
	

LTE Band 4					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19975	1712.5	4.50	4.49	4.84	4.82
20175	1732.5	4.50	4.49	4.89	4.83
20375	1752.5	4.49	4.49	4.82	4.80
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20000	1715.0	8.98	8.98	9.54	9.52
20175	1732.5	8.97	8.96	9.56	9.53
20350	1750.0	8.98	8.98	9.54	9.51

Spectrum Plot of Worst Value

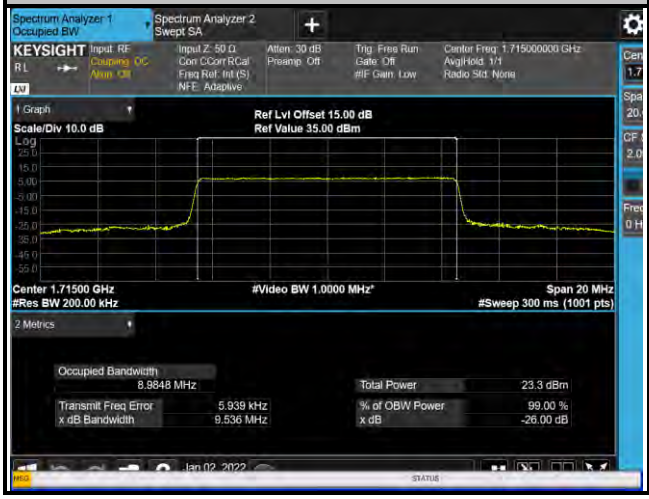
99 % Occupied Bandwidth

5 MHz / QPSK

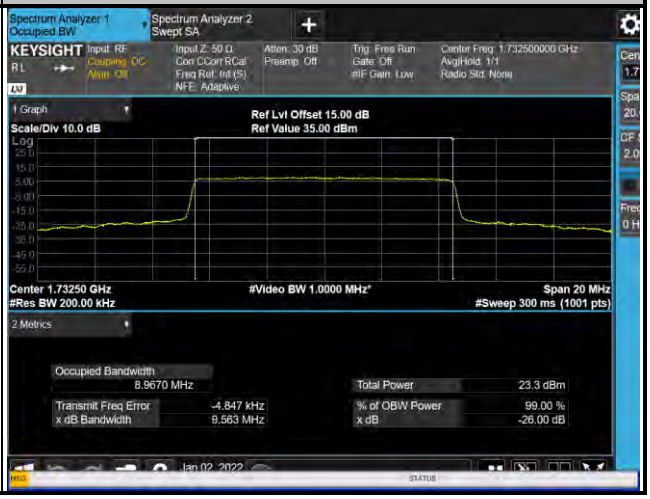
26 dB Bandwidth

5 MHz / QPSK

10 MHz / QPSK



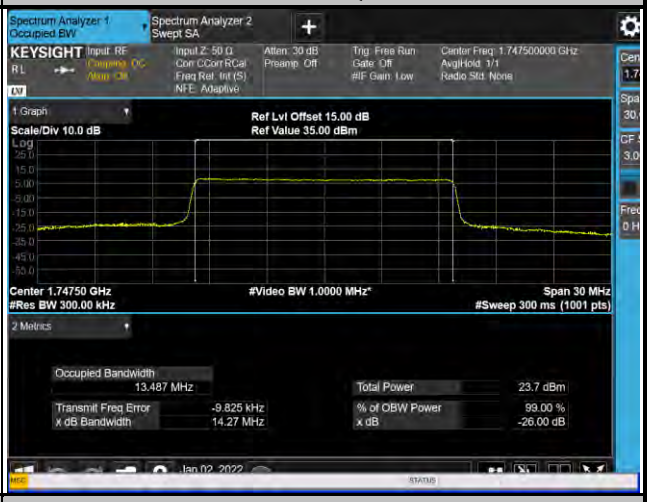
10 MHz / QPSK



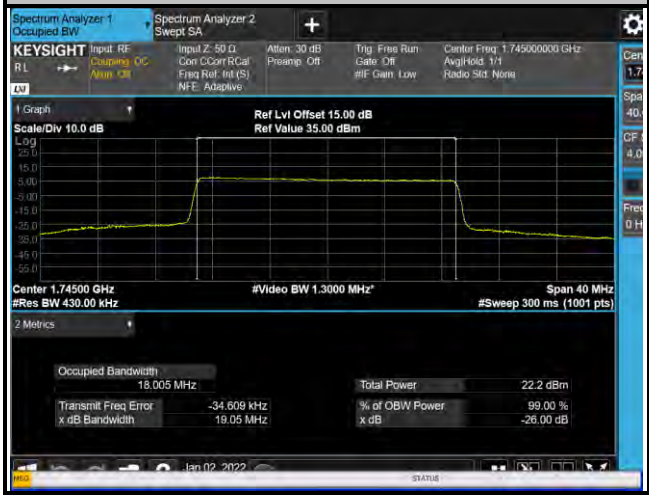
LTE Band 4					
Channel Bandwidth: 15 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20025	1717.5	13.50	13.49	14.26	14.25
20175	1732.5	13.44	13.43	14.26	14.25
20325	1747.5	13.49	13.47	14.27	14.27
Channel Bandwidth: 20 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20050	1720.0	17.99	18.00	19.04	19.04
20175	1732.5	17.88	17.89	19.04	19.03
20300	1745.0	17.99	18.00	19.09	19.05

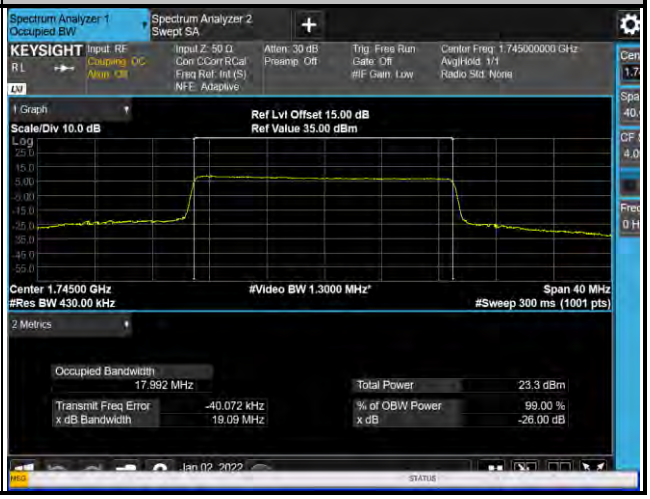
Spectrum Plot of Worst Value

99 % Occupied Bandwidth	26 dB Bandwidth
15 MHz / QPSK	15 MHz / QPSK



20 MHz / 16QAM	20 MHz / QPSK

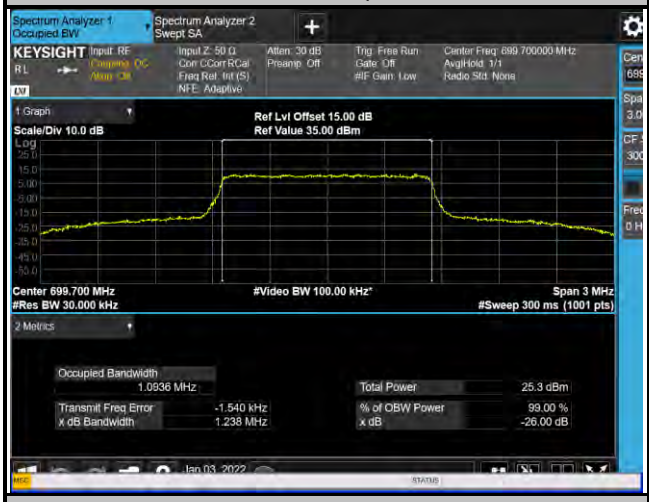




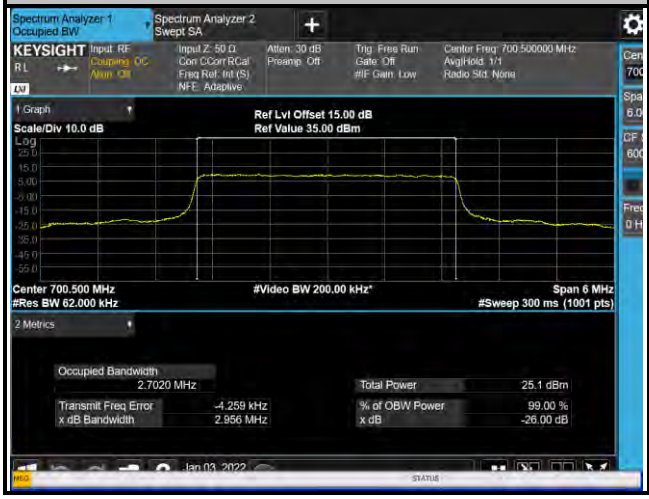
LTE Band 12					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23017	699.7	1.09	1.09	1.24	1.25
23095	707.5	1.09	1.09	1.22	1.21
23173	715.3	1.09	1.09	1.23	1.21
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23025	700.5	2.70	2.70	2.96	2.97
23095	707.5	2.70	2.69	2.92	2.92
23165	714.5	2.70	2.70	2.92	2.94

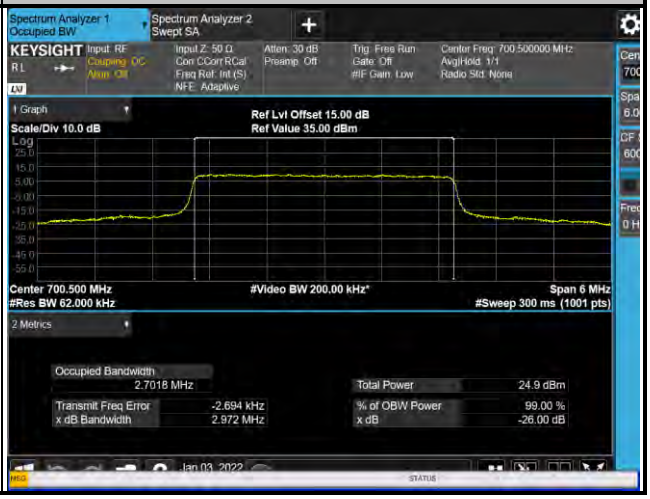
Spectrum Plot of Worst Value

99 % Occupied Bandwidth	26 dB Bandwidth
1.4 MHz / QPSK	1.4 MHz / 16QAM

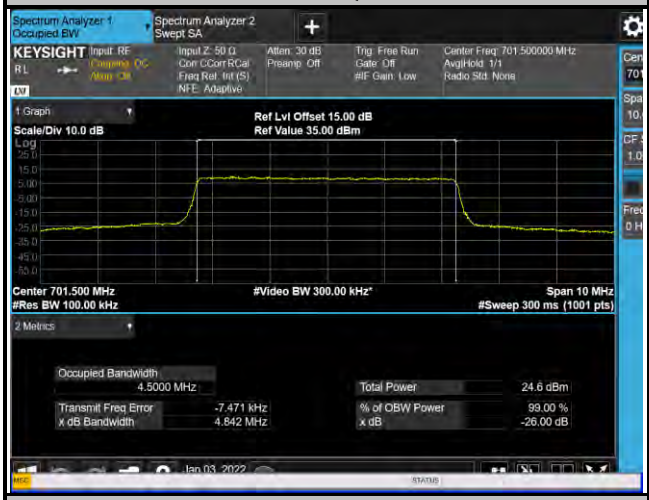


3 MHz / QPSK	3 MHz / 16QAM

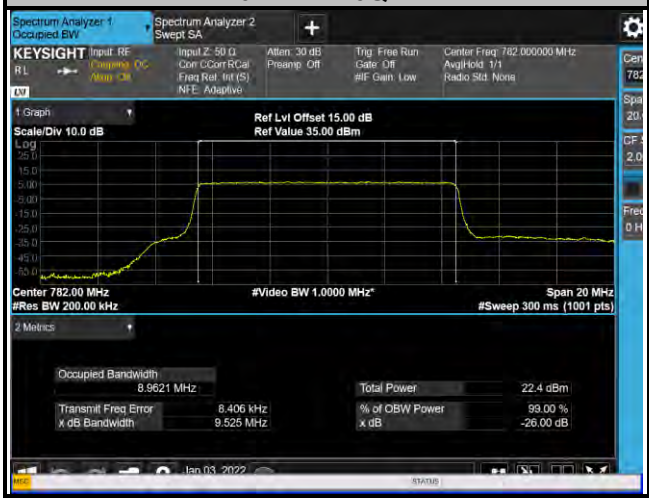
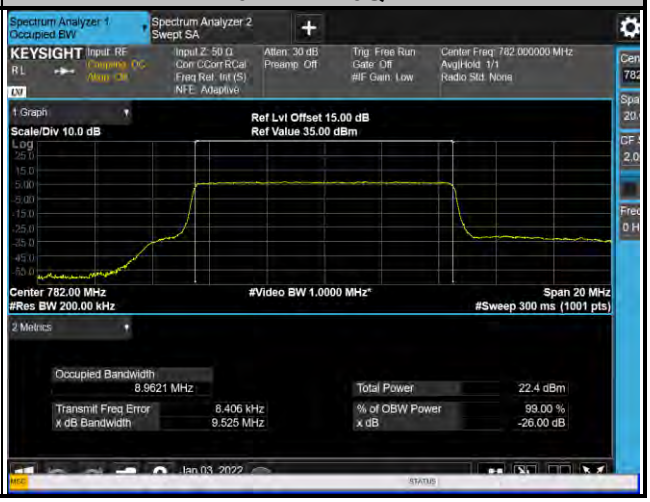




LTE Band 12					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23035	701.5	4.50	4.50	4.84	4.83
23095	707.5	4.49	4.49	4.83	4.80
23155	713.5	4.50	4.50	4.83	4.81
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23060	704.0	9.00	9.01	9.55	9.56
23095	707.5	8.96	8.97	9.52	9.50
23130	711.0	8.94	8.95	9.49	9.50

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
5 MHz / QPSK	5 MHz / QPSK
	
10 MHz / 16QAM	10 MHz / 16QAM

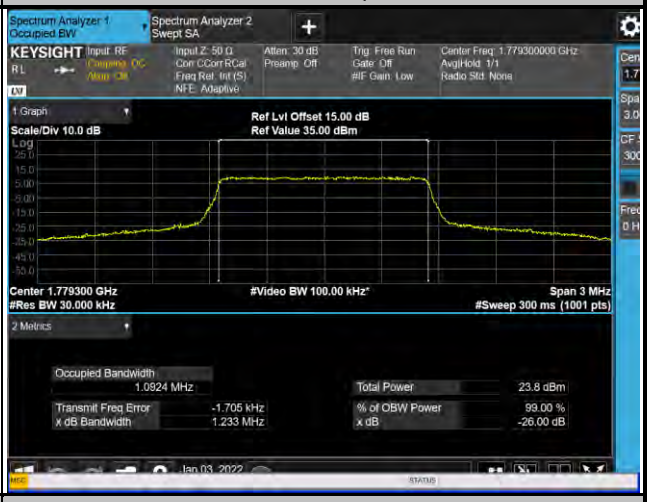
LTE Band 13					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23205	779.5	4.49	4.48	4.82	4.79
23230	782.0	4.49	4.49	4.84	4.80
23255	784.5	4.50	4.49	4.84	4.80
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23230	782.0	8.96	8.96	9.50	9.53

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
5 MHz / QPSK	5 MHz / QPSK
10 MHz / 16QAM	10 MHz / 16QAM
	

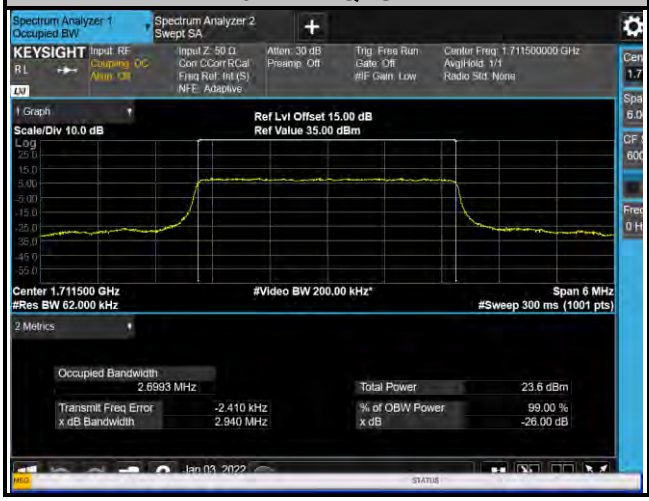
LTE Band 66					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
131979	1710.7	1.09	1.09	1.23	1.22
132322	1745.0	1.09	1.09	1.23	1.22
132665	1779.3	1.09	1.09	1.23	1.22
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
131987	1711.5	2.70	2.70	2.94	2.94
132322	1745.0	2.70	2.70	2.93	2.94
132657	1778.5	2.70	2.70	2.95	2.94

Spectrum Plot of Worst Value

99 % Occupied Bandwidth	26 dB Bandwidth
1.4 MHz / QPSK	1.4 MHz / QPSK



3 MHz / QPSK	3 MHz / QPSK

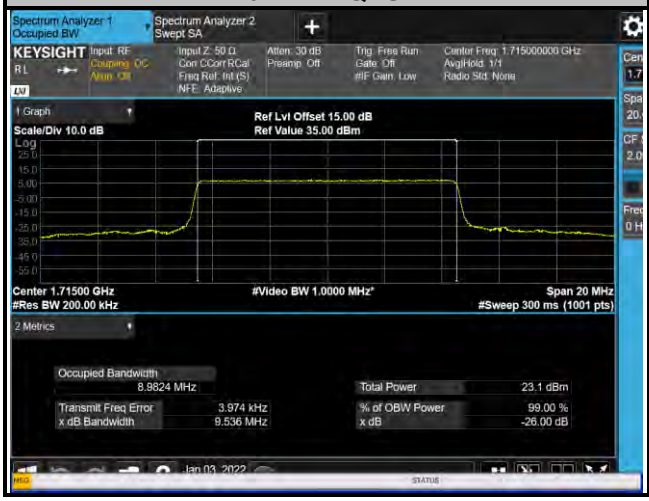


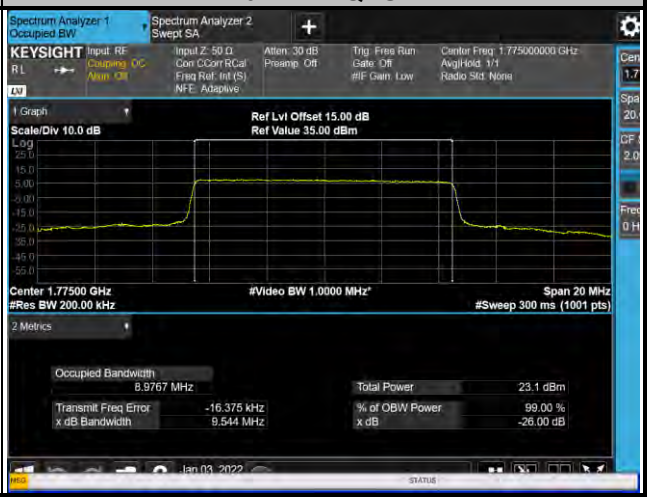
LTE Band 66					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
131997	1712.5	4.49	4.49	4.83	4.82
132322	1745.0	4.49	4.49	4.84	4.81
132647	1777.5	4.49	4.49	4.83	4.81
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
132022	1715.0	8.98	8.98	9.54	9.52
132322	1745.0	8.98	8.97	9.53	9.52
132622	1775.0	8.98	8.97	9.54	9.53

Spectrum Plot of Worst Value

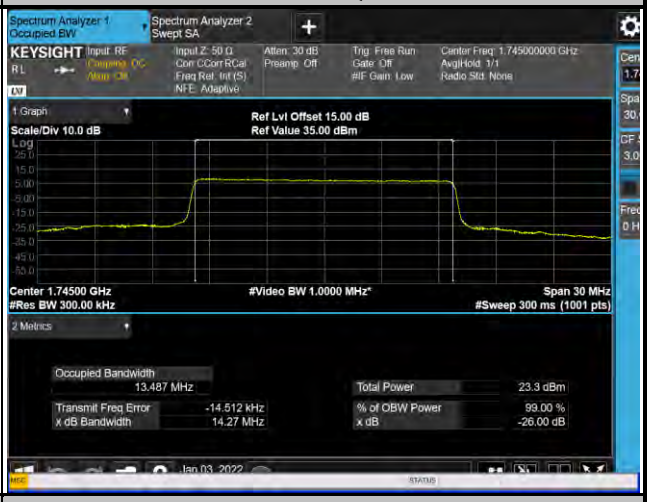
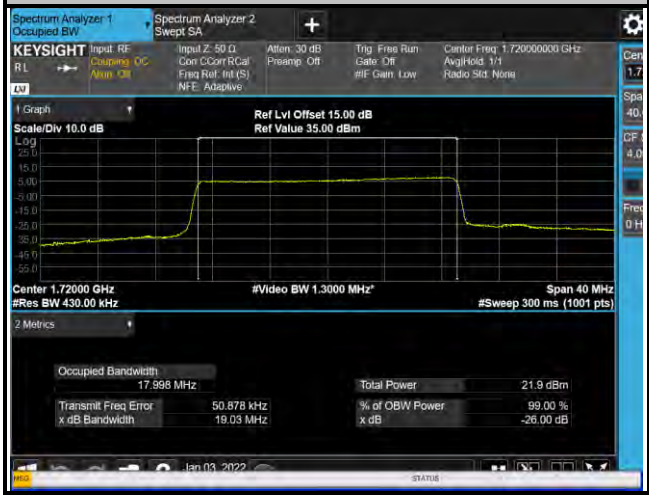
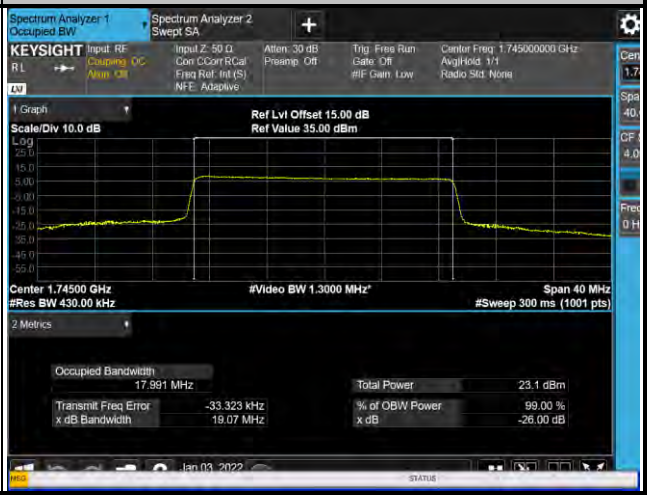
99 % Occupied Bandwidth	26 dB Bandwidth
5 MHz / QPSK	5 MHz / QPSK

10 MHz / QPSK	10 MHz / QPSK





LTE Band 66					
Channel Bandwidth: 15 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
132047	1717.5	13.50	13.48	14.26	14.26
132322	1745.0	13.49	13.47	14.27	14.27
132597	1772.5	13.45	13.44	14.26	14.25
Channel Bandwidth: 20 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
132072	1720.0	17.98	18.00	19.03	19.03
132322	1745.0	17.99	17.99	19.07	19.05
132572	1770.0	17.90	17.91	19.04	19.01

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
15 MHz / QPSK	15 MHz / QPSK
	
20 MHz / 16QAM	20 MHz / QPSK
	

4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

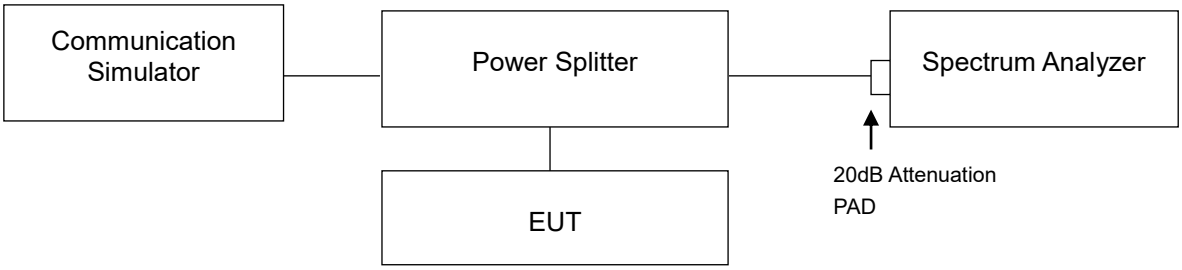
For WCDMA band 4, LTE Band 4, 66:
According to FCC 27.53(h), for operations in the 1695-1710MHz, 1710-1755MHz, 1755-1780 MHz, 1915-1920MHz, 1995-2000 MHz, 2000-2020MHz, 2110-2155MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

For LTE Band 12:
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. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For LTE Band 13:
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. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to 27.53(c)(4), on all frequencies between 763-775MHz and 793-805MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations

4.5.2 Test Setup



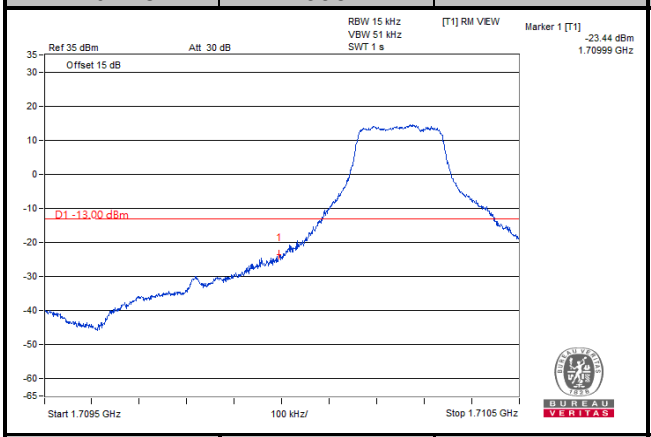
4.5.3 Test Procedures

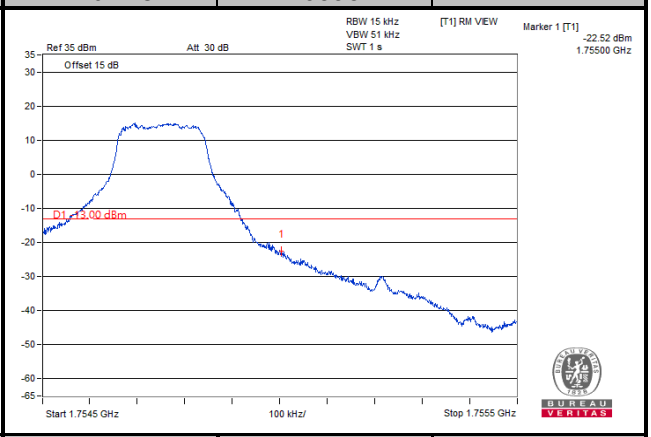
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 2 MHz. RB of the spectrum is 51 kHz and VB of the spectrum is 160 kHz (WCDMA).
c. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 15 kHz or 30 kHz and VB of the spectrum is 51 kHz or 100 kHz (LTE Bandwidth 1.4 MHz).
d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 30 kHz and VB of the spectrum is 100 kHz (LTE Bandwidth 3 MHz).
e. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 51 kHz and VB of the spectrum is 160 kHz (LTE Bandwidth 5 MHz).
f. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (LTE Bandwidth 10 MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 150 kHz and VB of the spectrum is 470 kHz (LTE Bandwidth 15 MHz).
h. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 200 kHz and VB of the spectrum is 1 MHz (LTE Bandwidth 20 MHz).
i. Record the max. trace plot into the test report.

4.5.4 Test Results

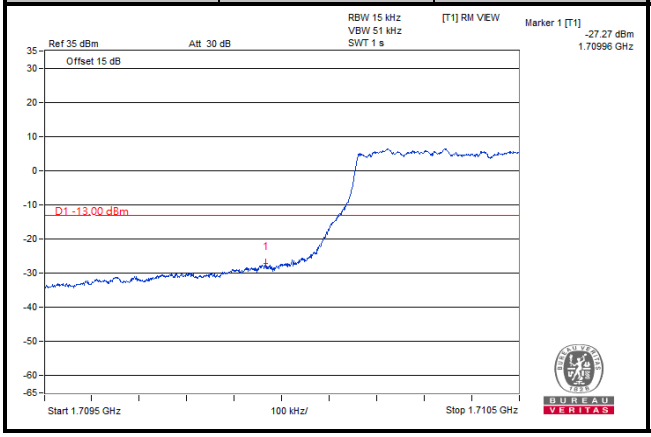
WCDMA			
Channel	1312	Channel	1513

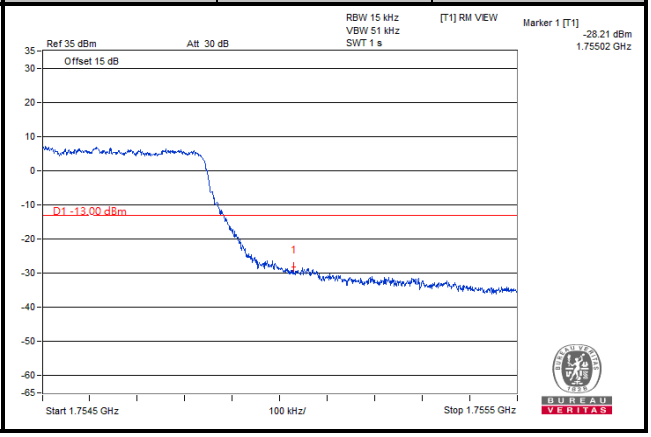
LTE Band 4					
Channel Bandwidth: 1.4 MHz					
Channel	19957	1 RB	Channel	20393	1 RB

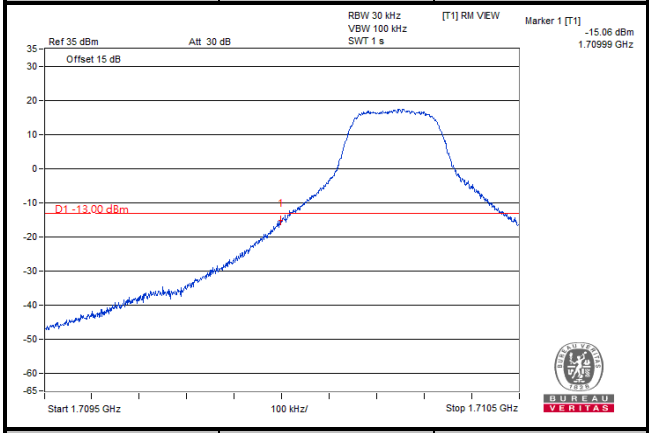
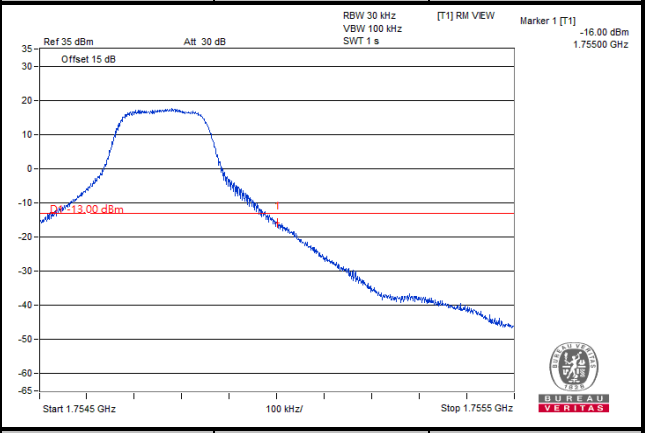
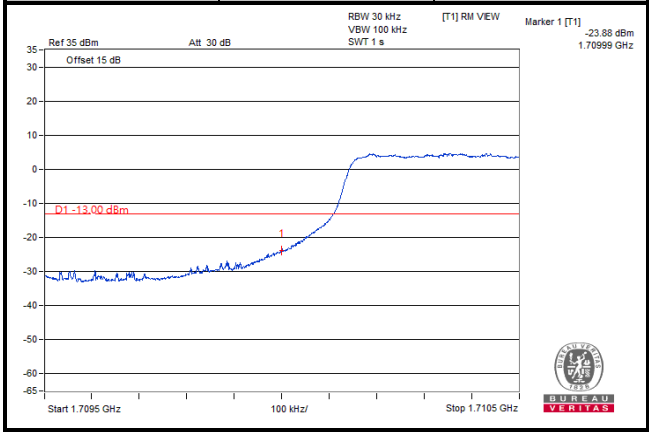
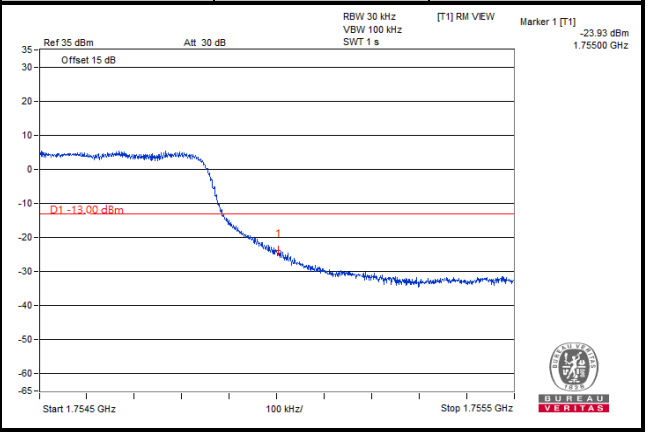


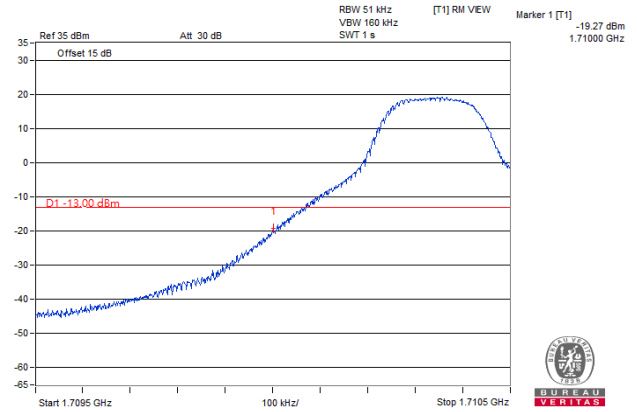
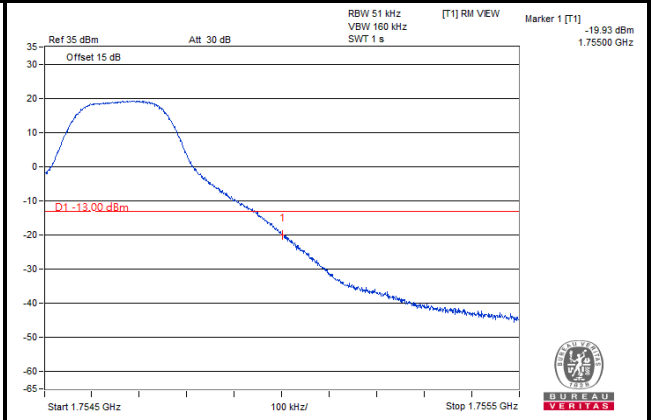
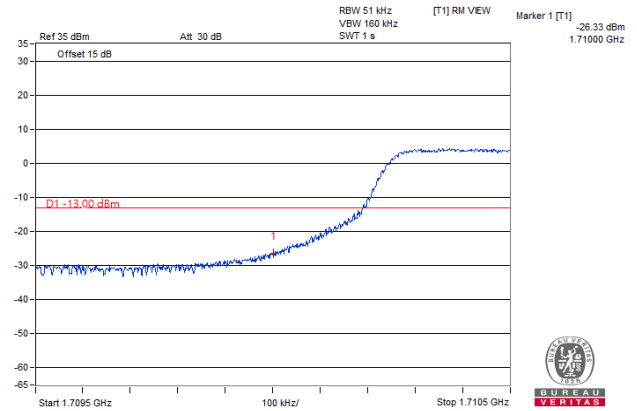
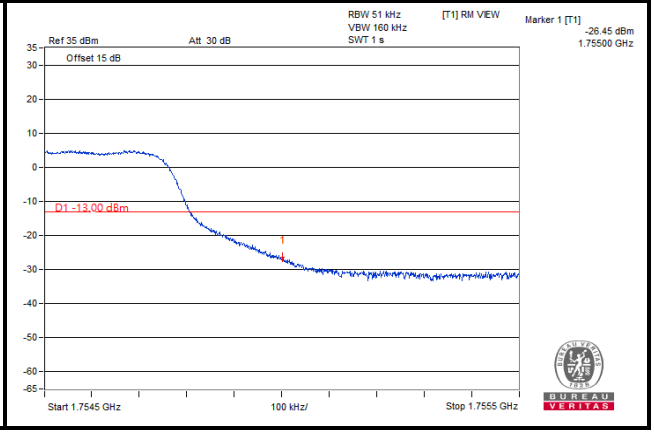


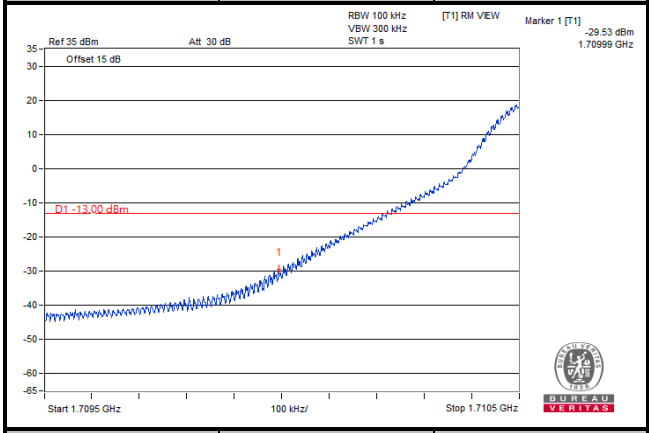
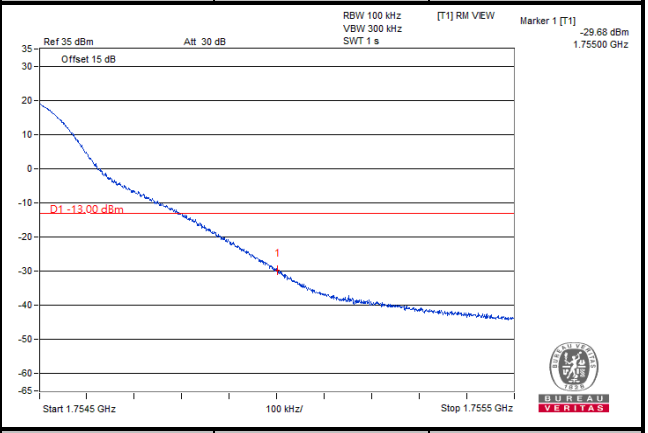
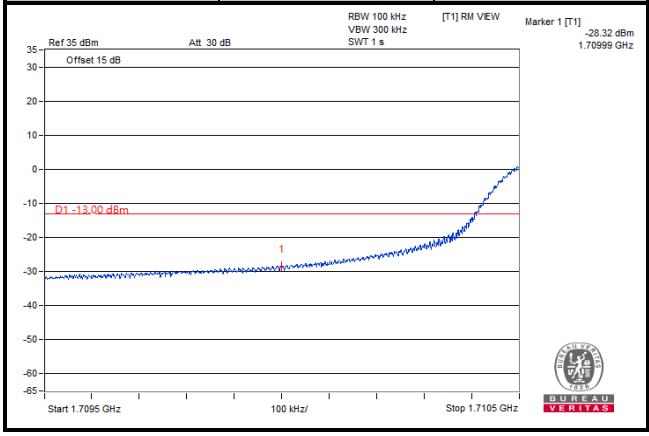
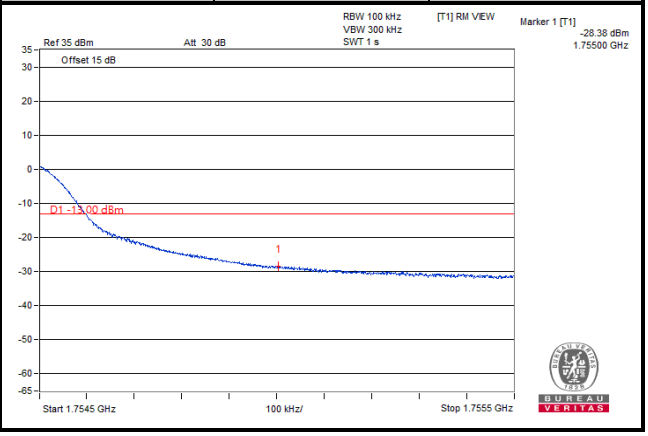
Channel	19957	6 RB	Channel	20393	6 RB

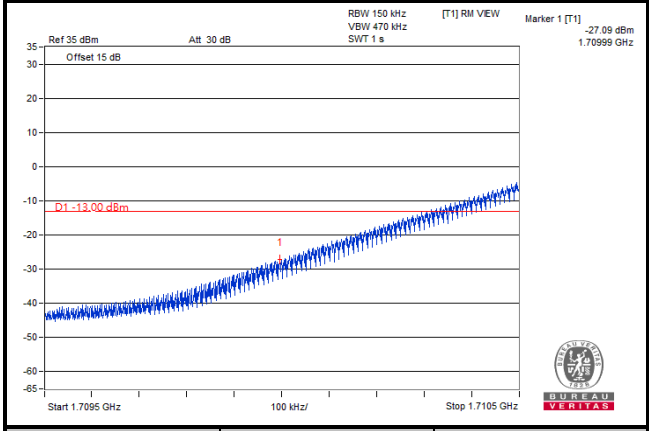
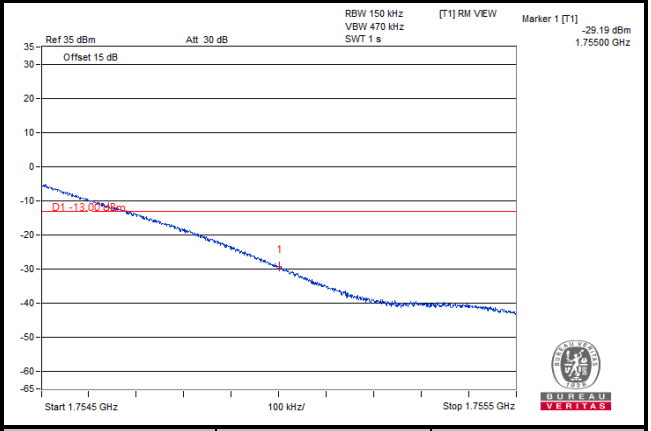
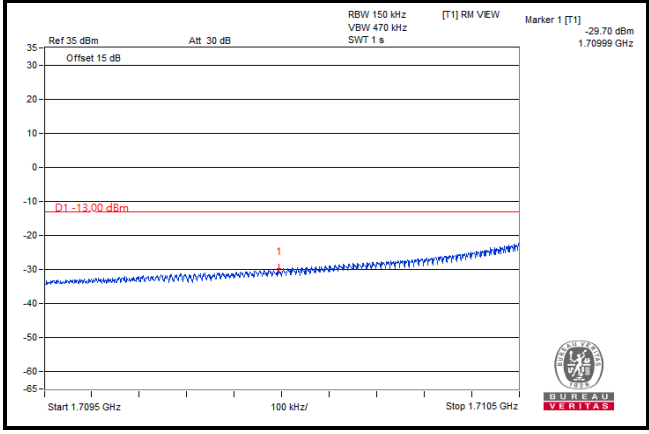
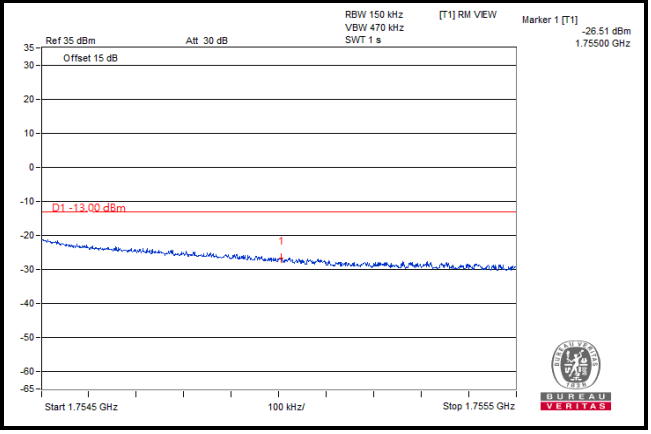


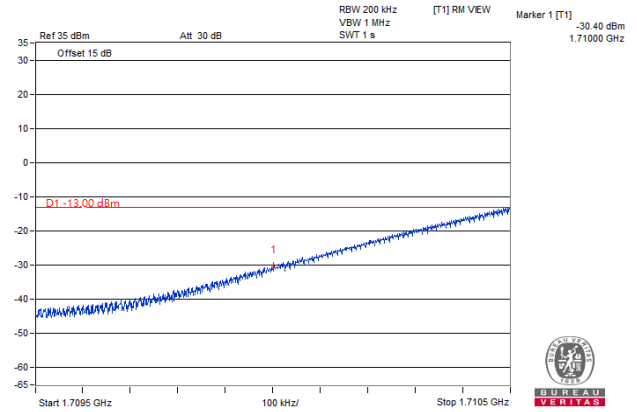
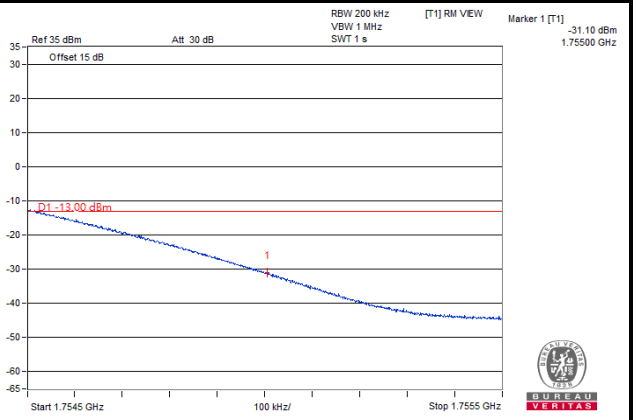
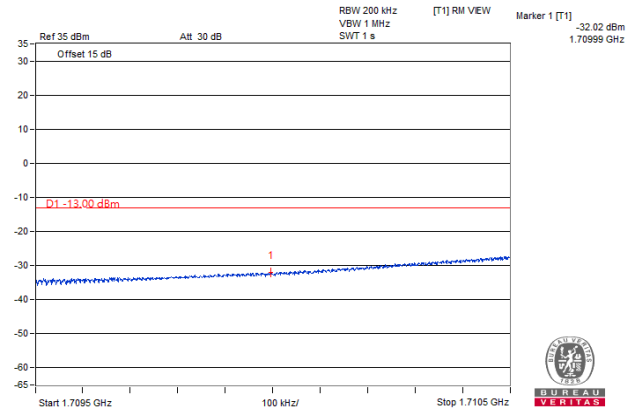
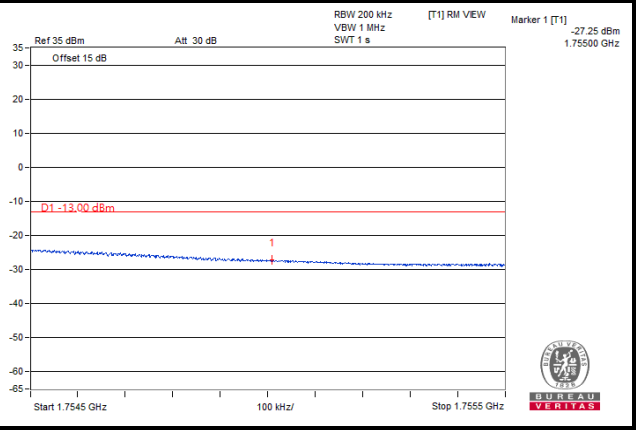


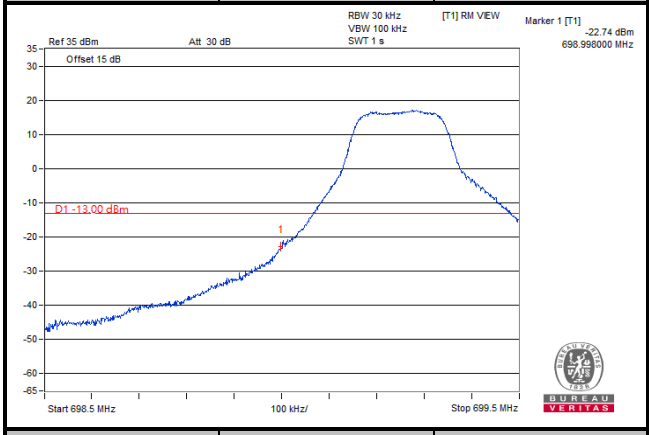
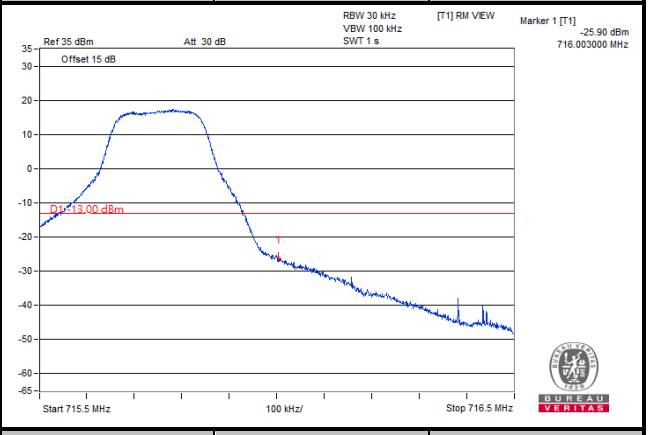
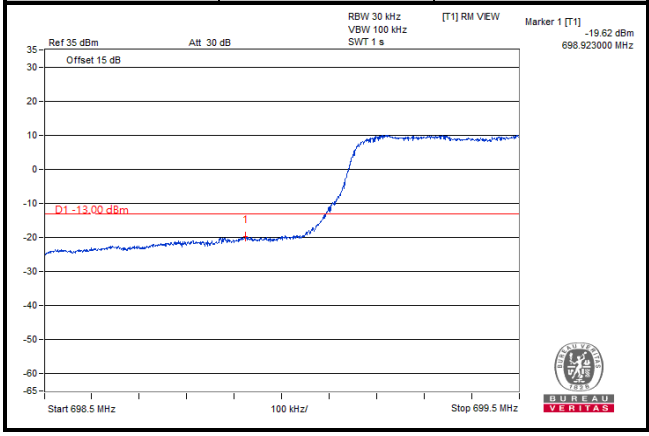
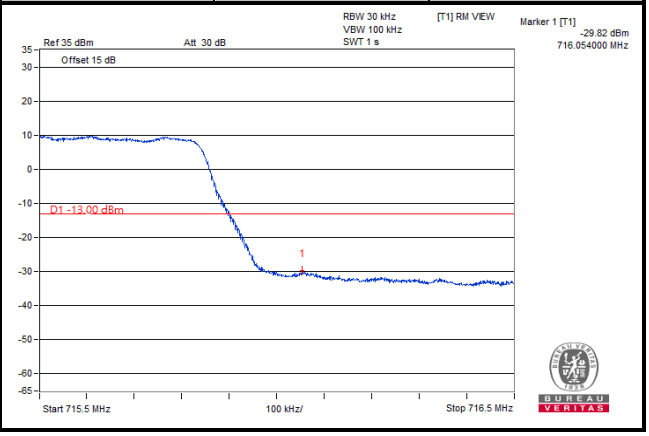
LTE Band 4					
Channel Bandwidth: 3 MHz					
Channel	19965	1 RB	Channel	20385	1 RB
					
Channel	19965	15 RB	Channel	20385	15 RB
					

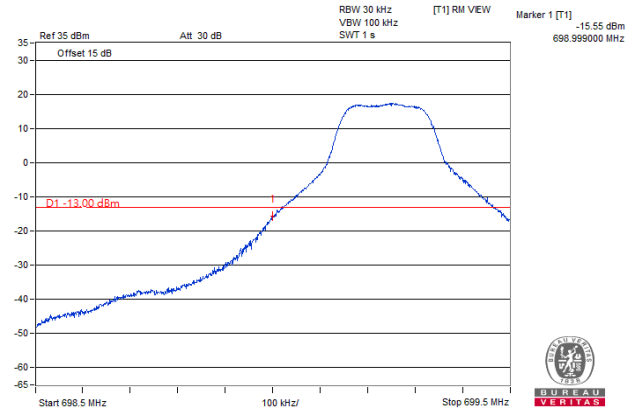
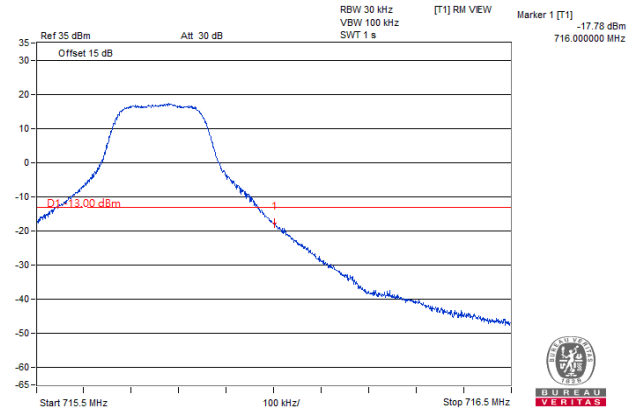
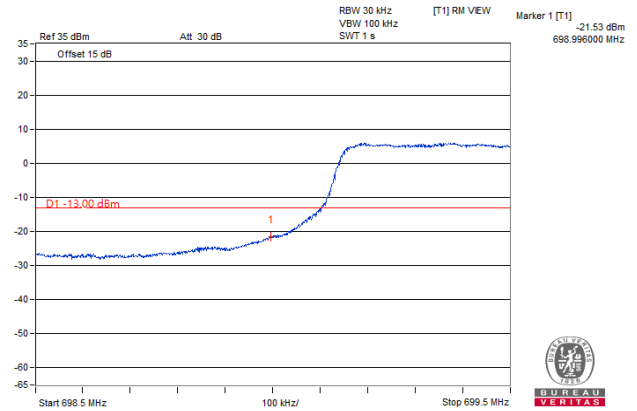
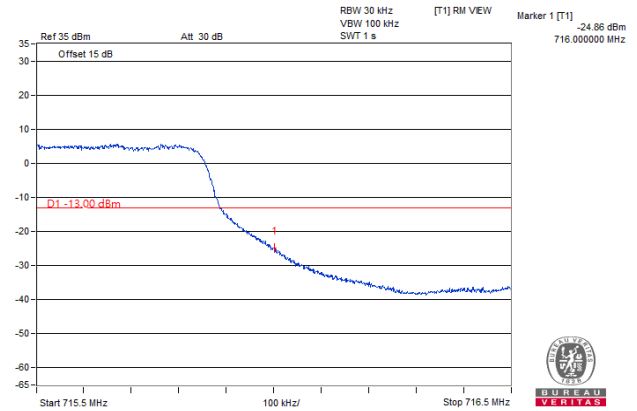
LTE Band 4					
Channel Bandwidth: 5 MHz					
Channel	19975	1 RB	Channel	20375	1 RB
					
Channel	19975	25 RB	Channel	20375	25 RB
					

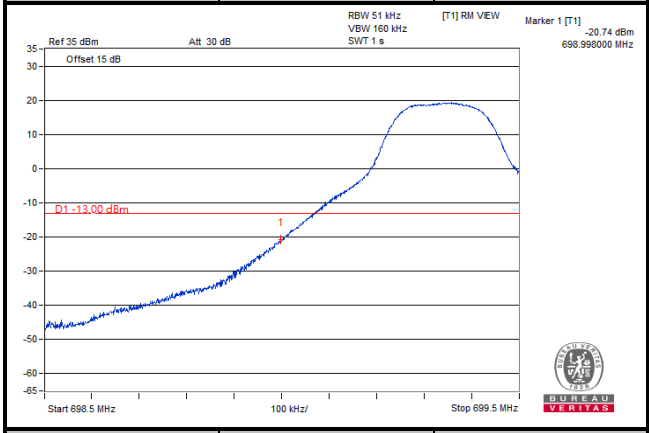
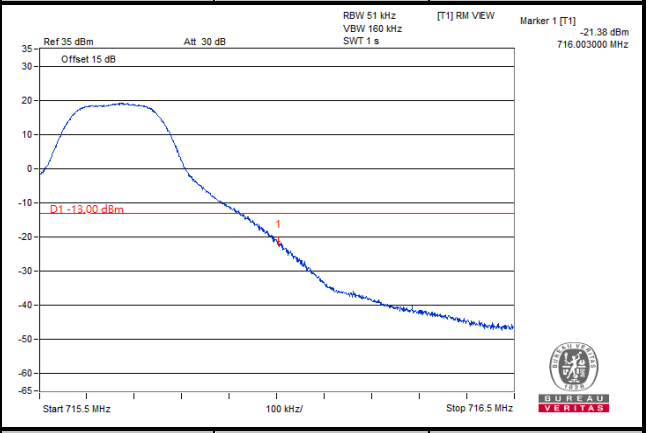
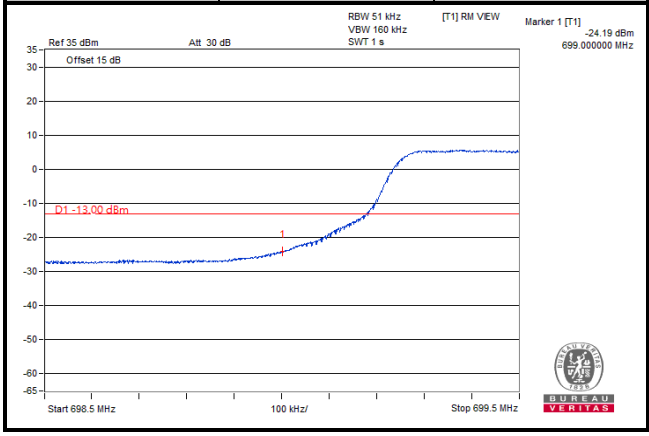
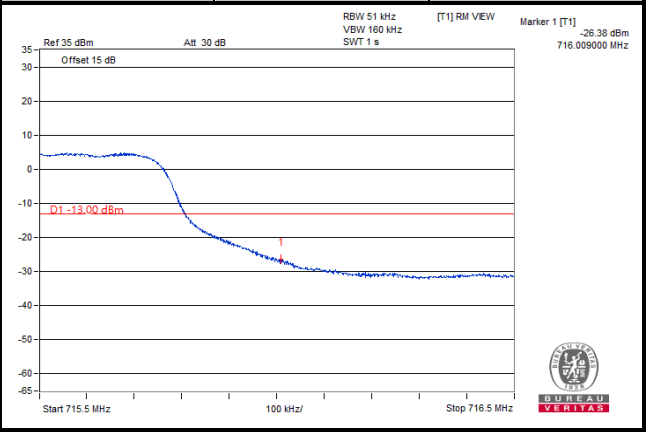
LTE Band 4					
Channel Bandwidth: 10 MHz					
Channel	20000	1 RB	Channel	20350	1 RB
					
Channel	20000	50 RB	Channel	20350	50 RB
					

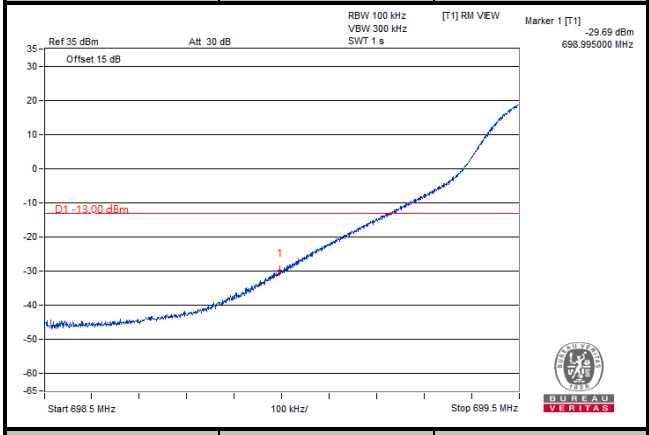
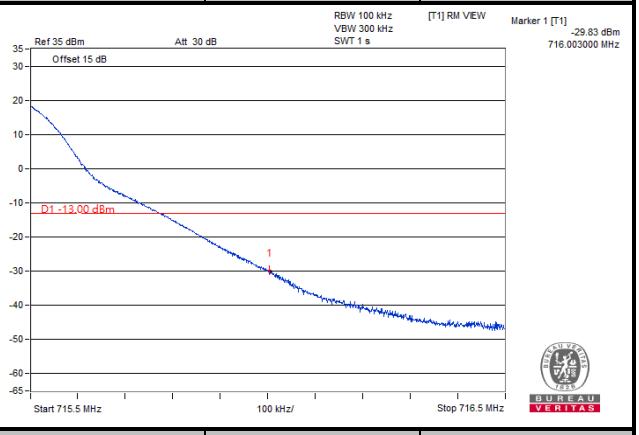
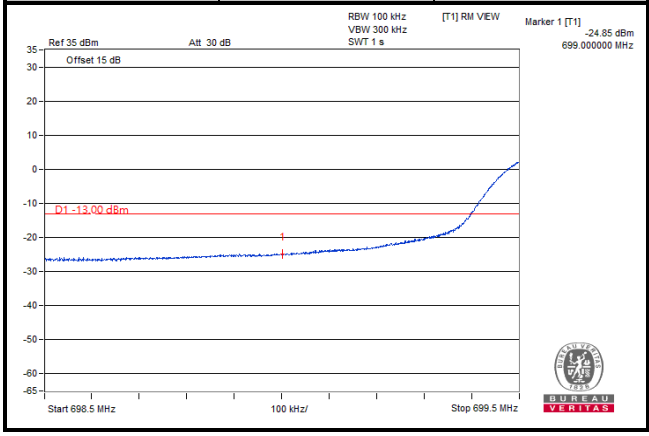
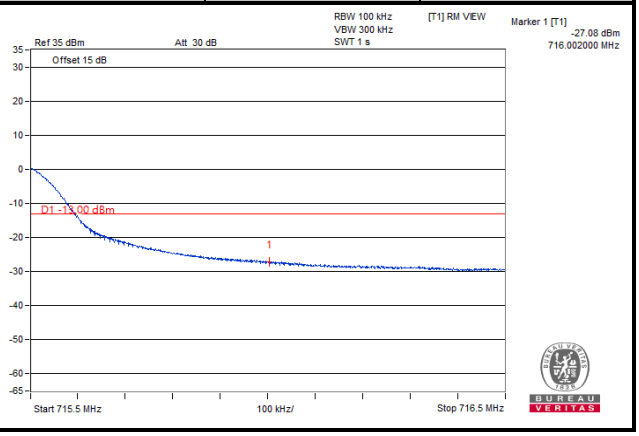
LTE Band 4					
Channel Bandwidth: 15 MHz					
Channel	20025	1 RB	Channel	20325	1 RB
					
Channel	20025	75 RB	Channel	20325	75 RB
					

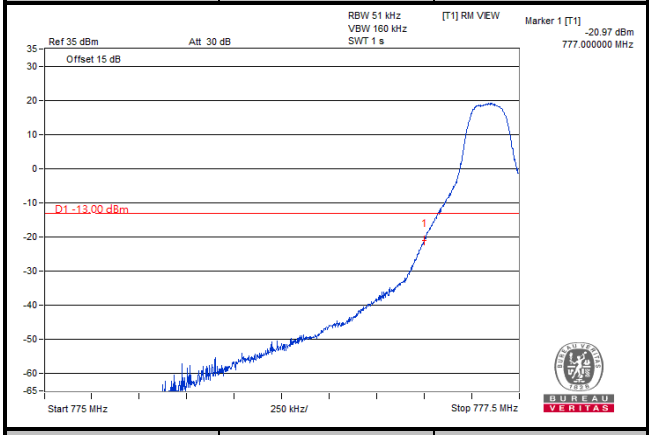
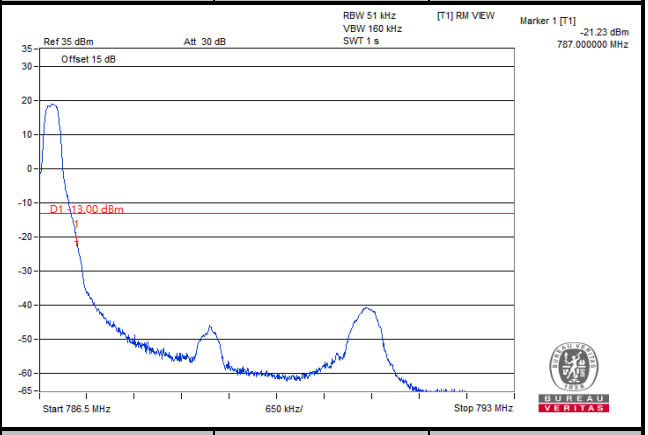
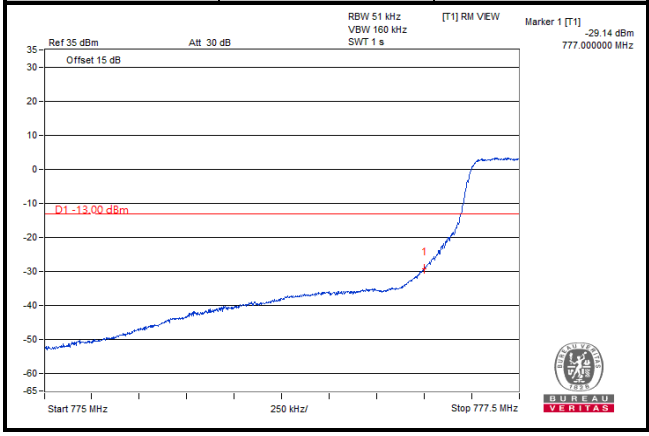
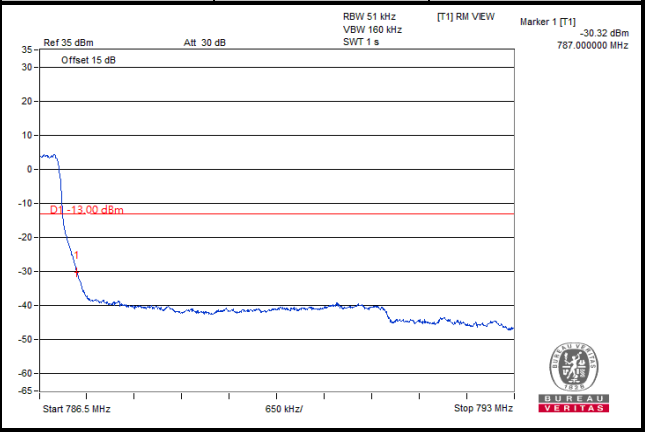
LTE Band 4					
Channel Bandwidth: 20 MHz					
Channel	20050	1 RB	Channel	20300	1 RB
					
Channel	20050	100 RB	Channel	20300	100 RB
					

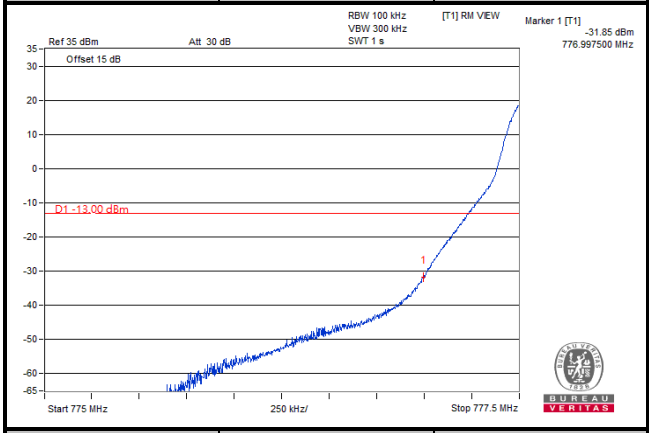
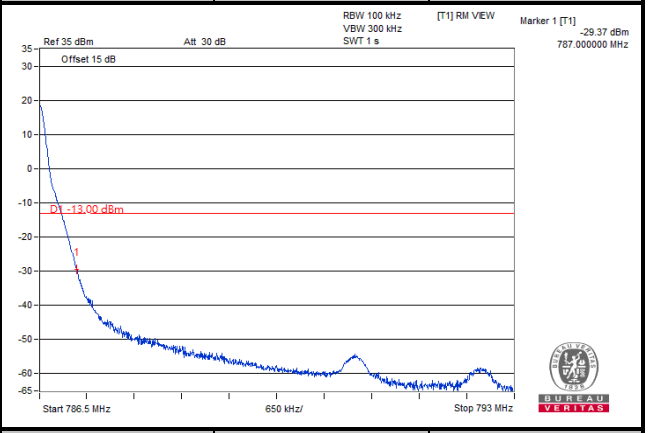
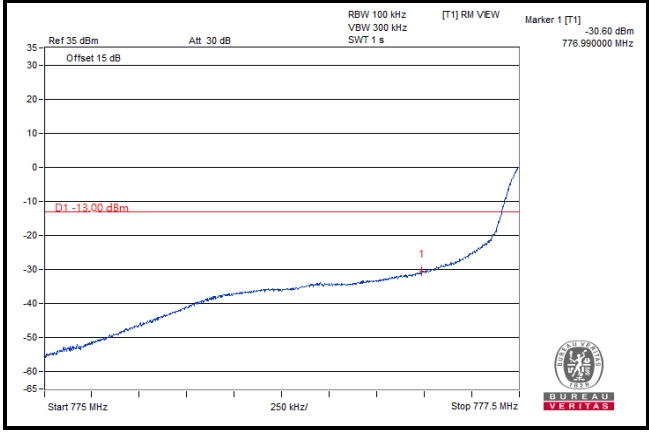
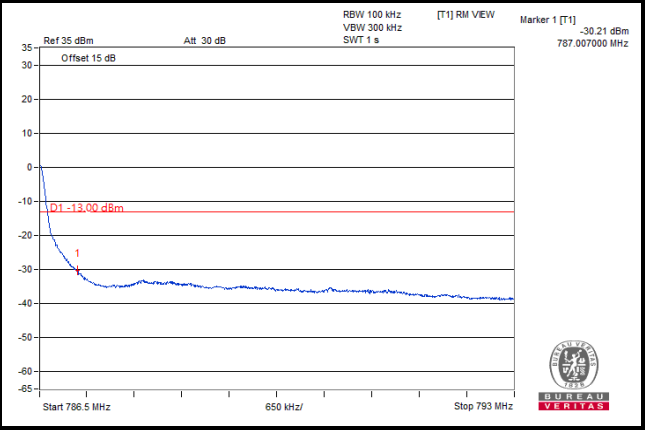
LTE Band 12					
Channel Bandwidth: 1.4 MHz					
Channel	23017	1 RB	Channel	23173	1 RB
					
Channel	23017	6 RB	Channel	23173	6 RB
					

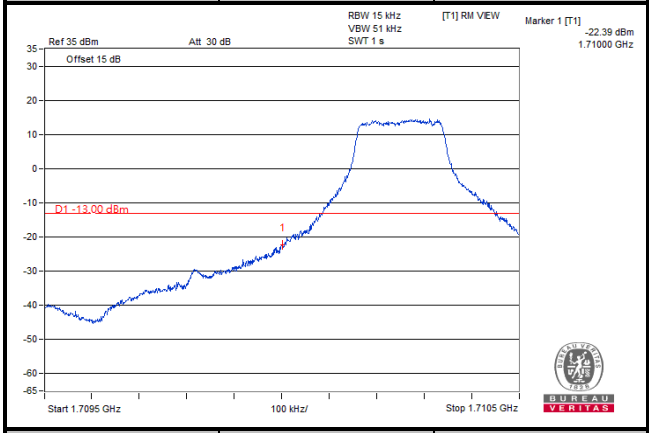
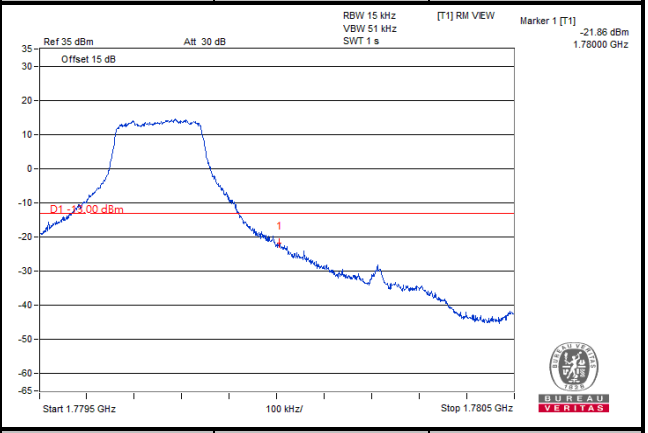
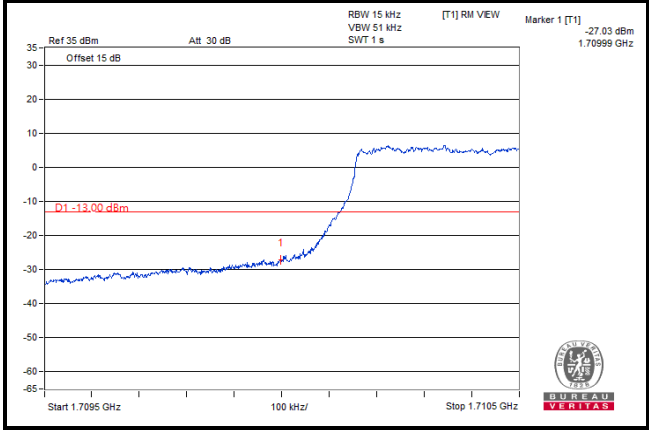
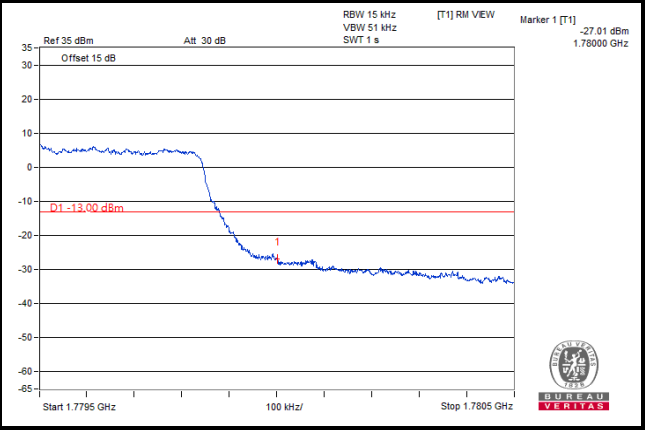
LTE Band 12					
Channel Bandwidth: 3 MHz					
Channel	23025	1 RB	Channel	23165	1 RB
					
Channel	23025	15 RB	Channel	23165	15 RB
					

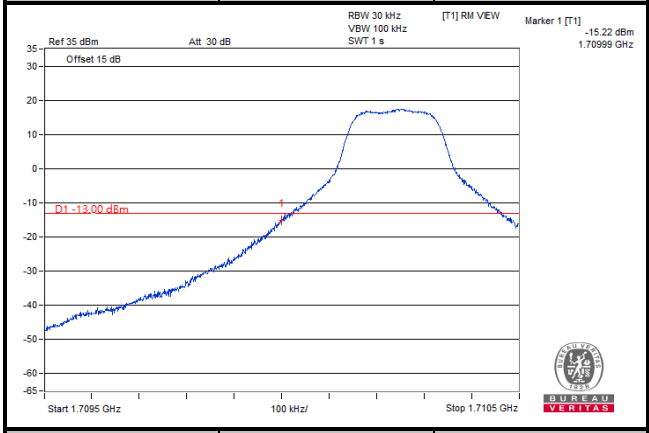
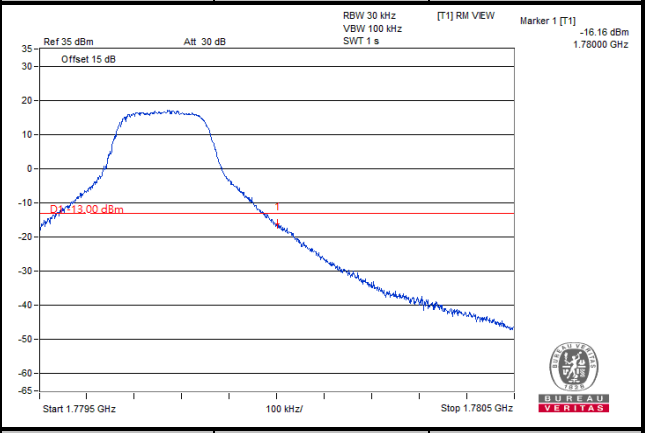
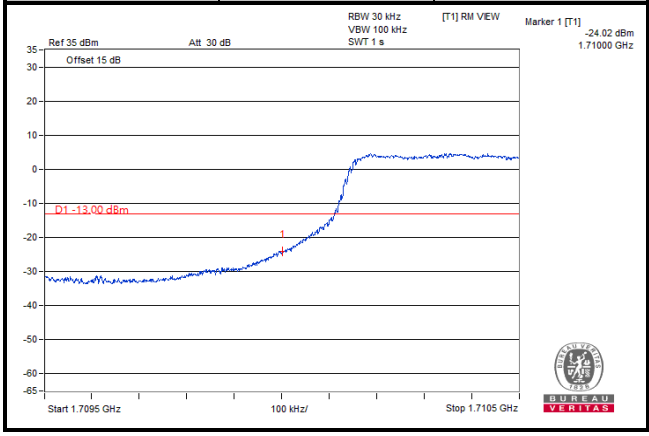
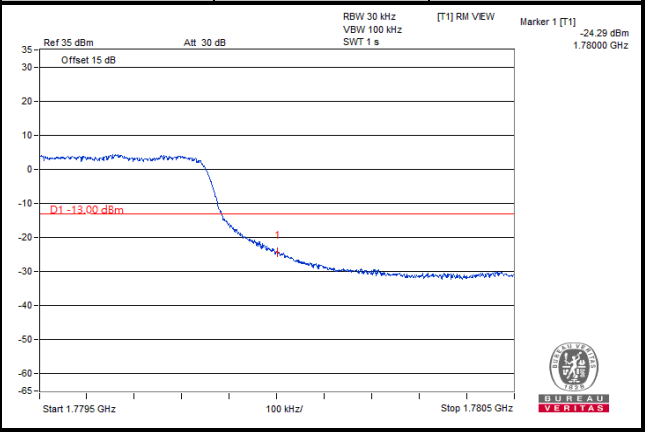
LTE Band 12					
Channel Bandwidth: 5 MHz					
Channel	23035	1 RB	Channel	23155	1 RB
					
Channel	23035	25 RB	Channel	23155	25 RB
					

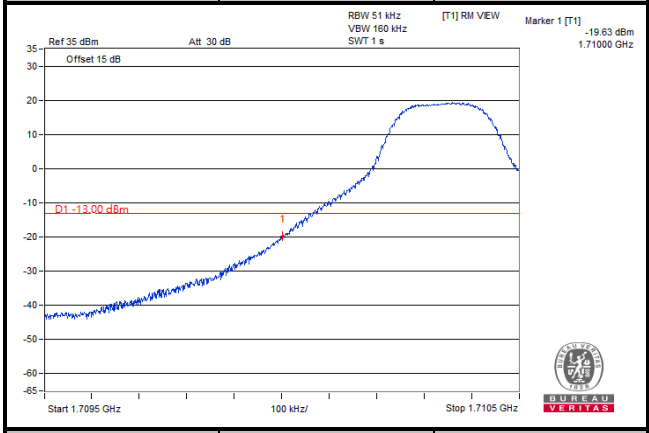
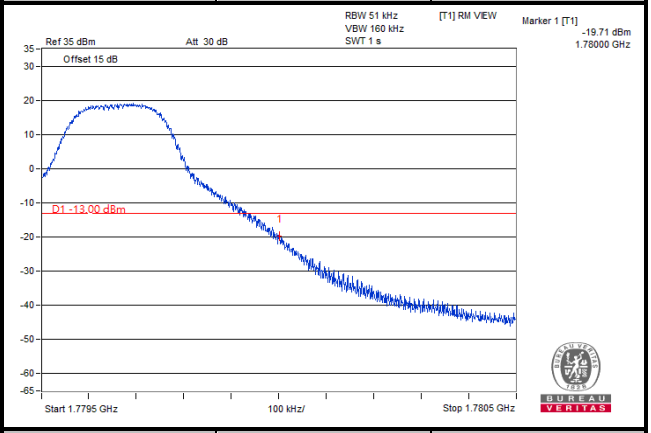
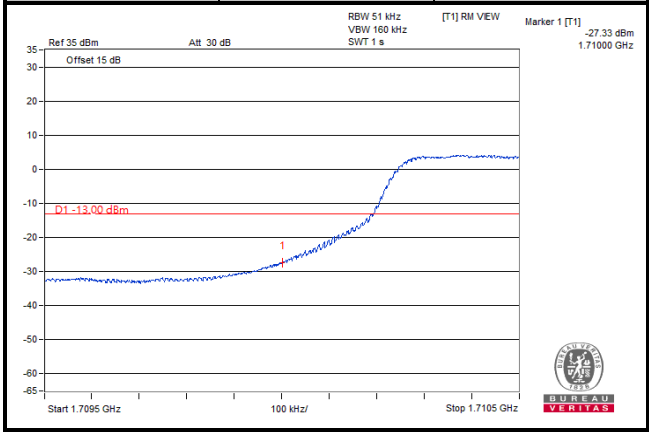
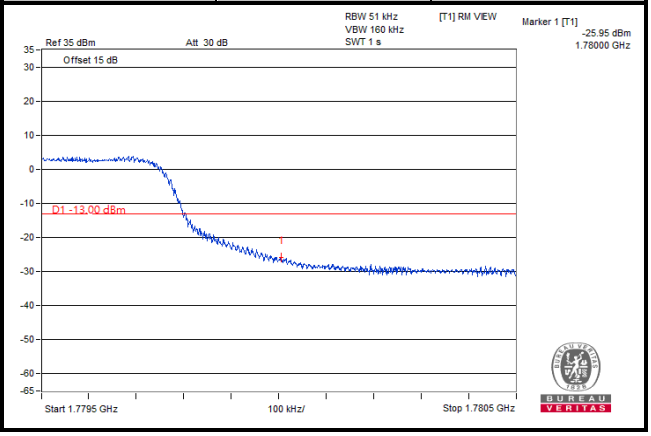
LTE Band 12					
Channel Bandwidth: 10 MHz					
Channel	23060	1 RB	Channel	23130	1 RB
					
Channel	23060	50 RB	Channel	23130	50 RB
					

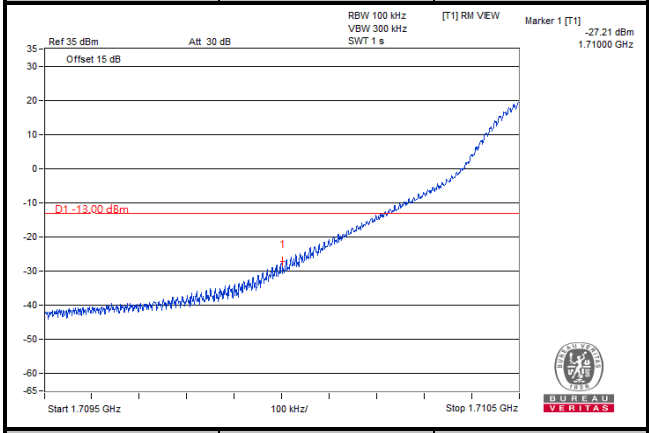
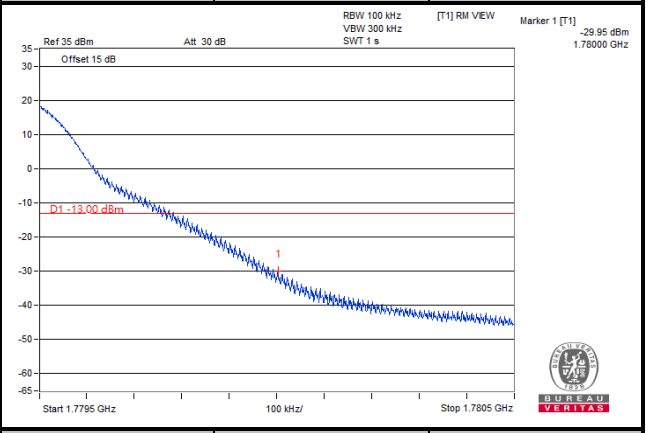
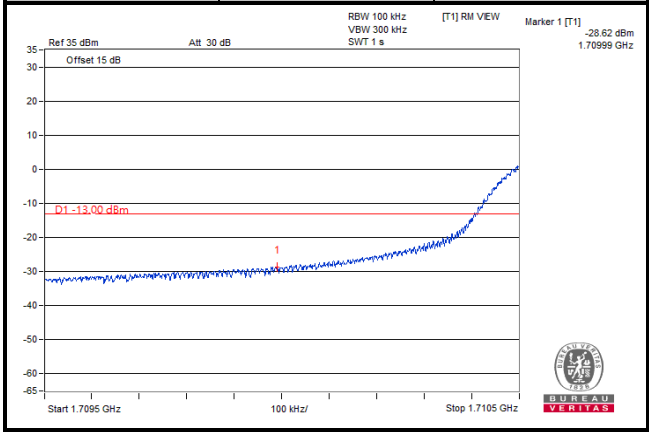
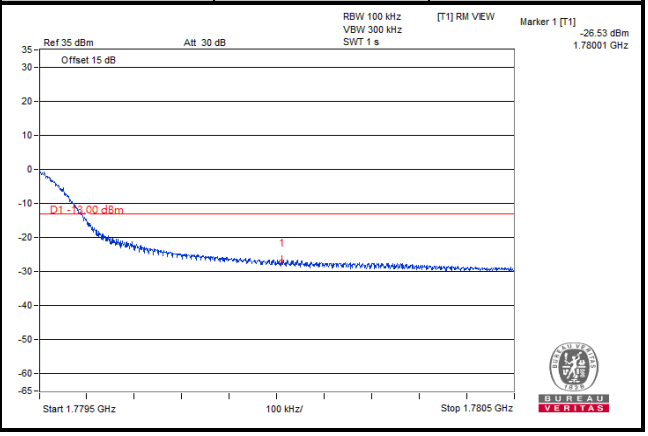
LTE Band 13					
Channel Bandwidth: 5 MHz					
Channel	23205	1 RB	Channel	23255	1 RB
					
Channel	23205	25 RB	Channel	23255	25 RB
					

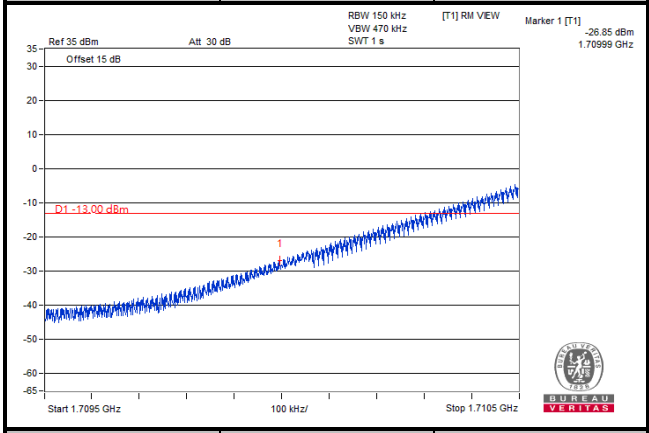
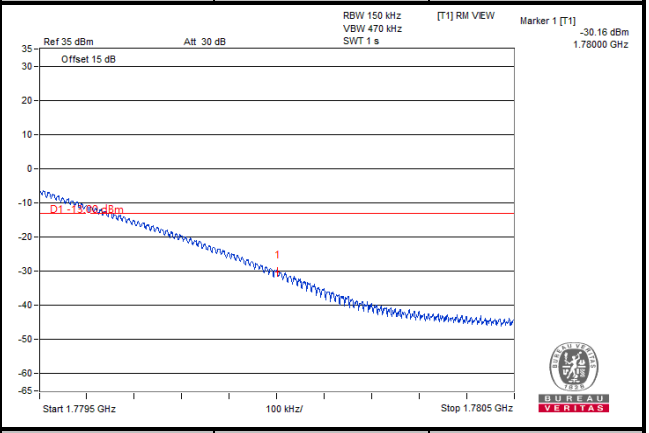
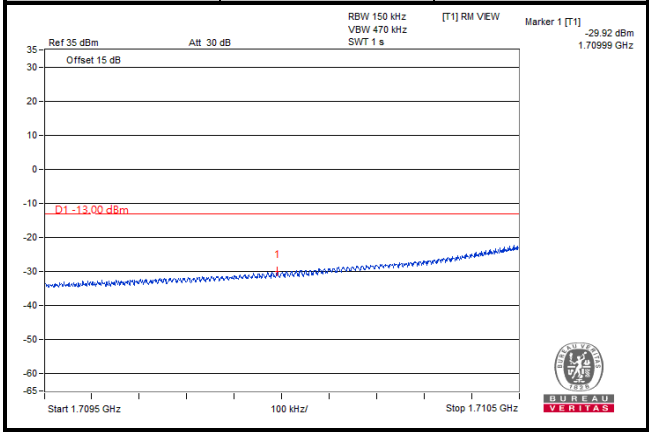
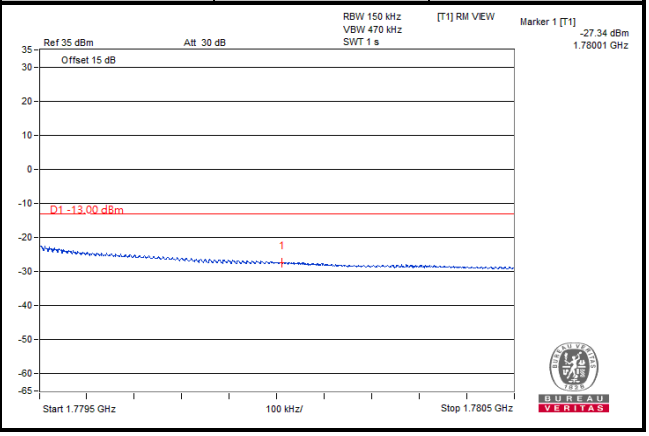
LTE Band 13					
Channel Bandwidth: 10 MHz					
Channel	23230	1 RB	Channel	23230	1 RB
					
Channel	23230	50 RB	Channel	23230	50 RB
					

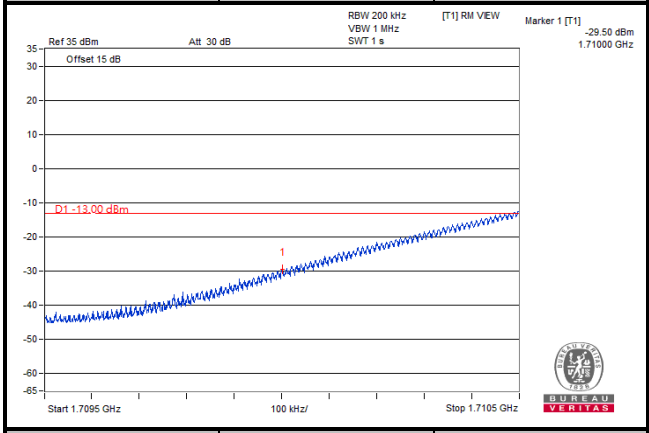
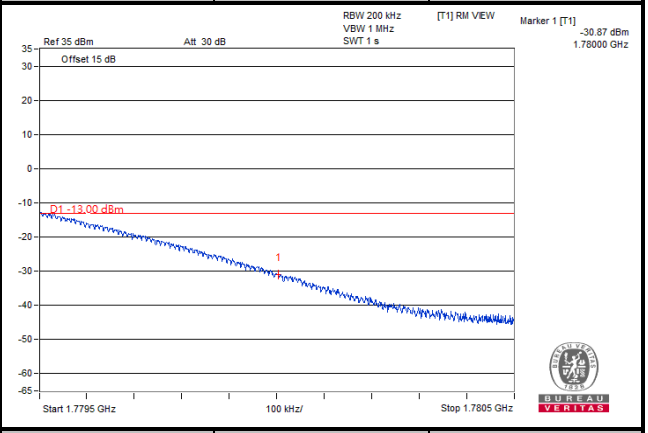
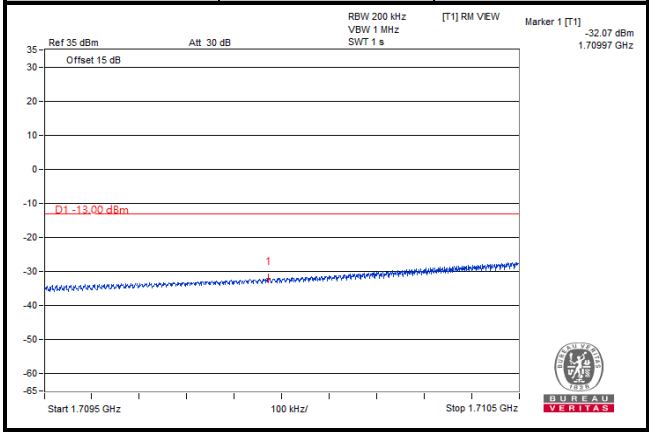
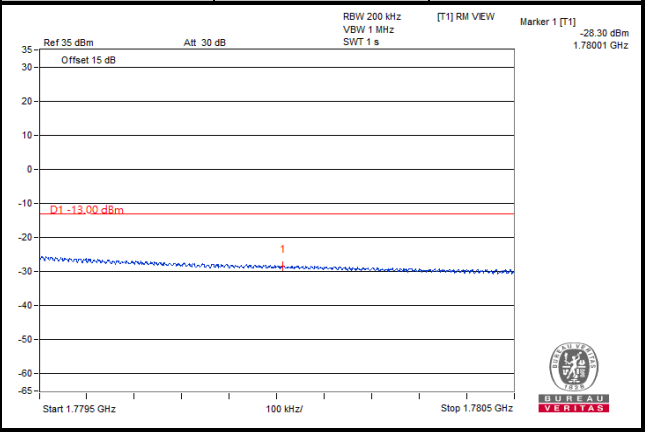
LTE Band 66					
Channel Bandwidth: 1.4 MHz					
Channel	131979	6 RB	Channel	132665	6 RB
					
Channel	131979	25 RB	Channel	132665	25 RB
					

LTE Band 66					
Channel Bandwidth: 3 MHz					
Channel	131987	1 RB	Channel	132657	1 RB
					
Channel	131987	15 RB	Channel	132657	15 RB
					

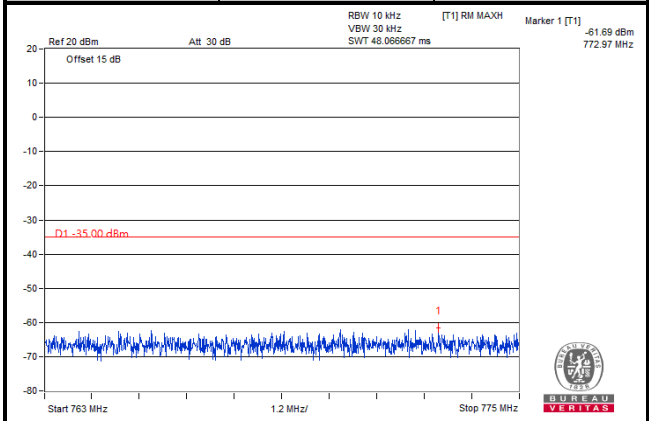
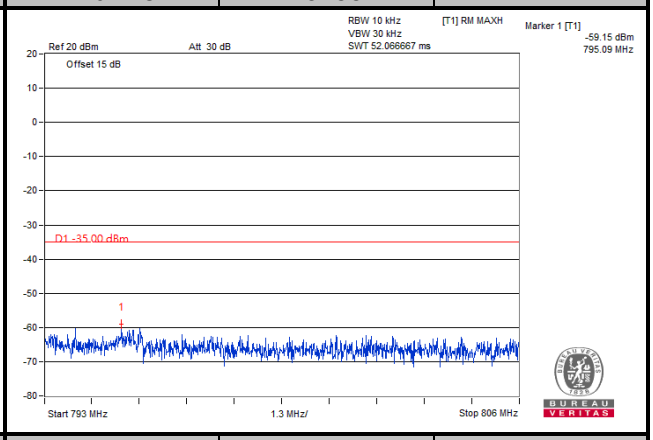
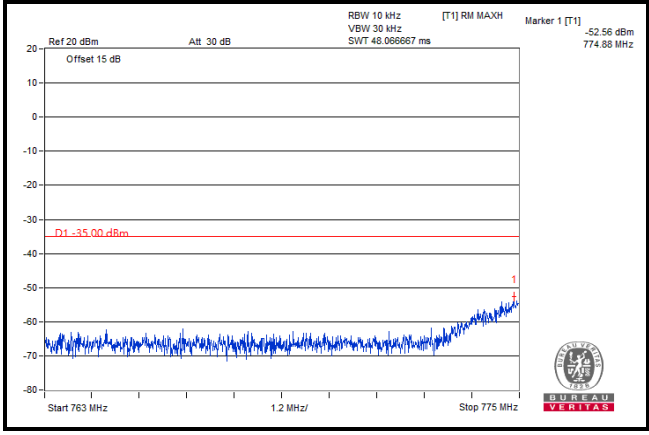
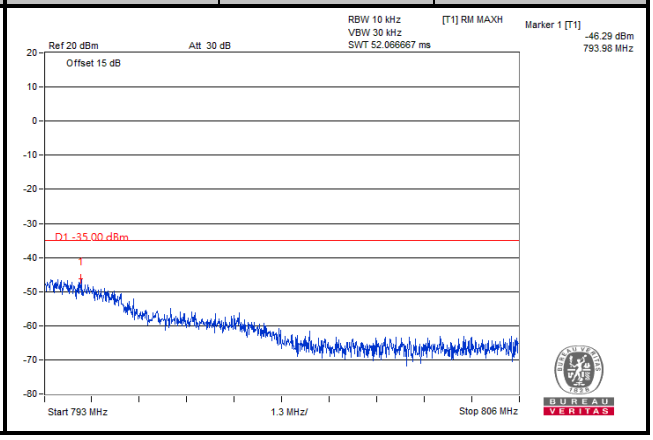
LTE Band 66					
Channel Bandwidth: 5 MHz					
Channel	131997	1 RB	Channel	132647	1 RB
					
Channel	131997	25 RB	Channel	132647	25 RB
					

LTE Band 66					
Channel Bandwidth: 10 MHz					
Channel	132022	1 RB	Channel	132622	1 RB
					
Channel	132022	50 RB	Channel	132622	50 RB
					

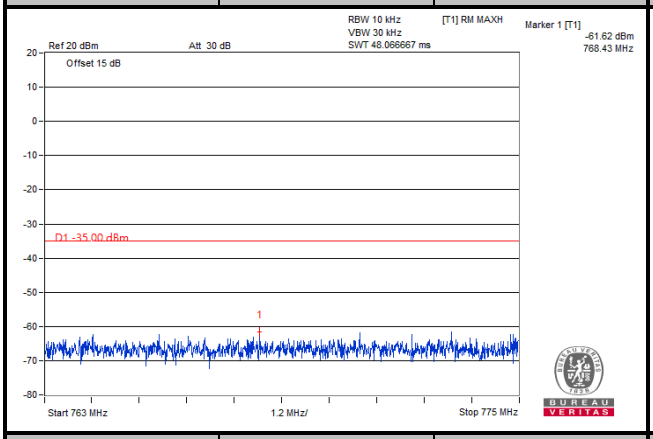
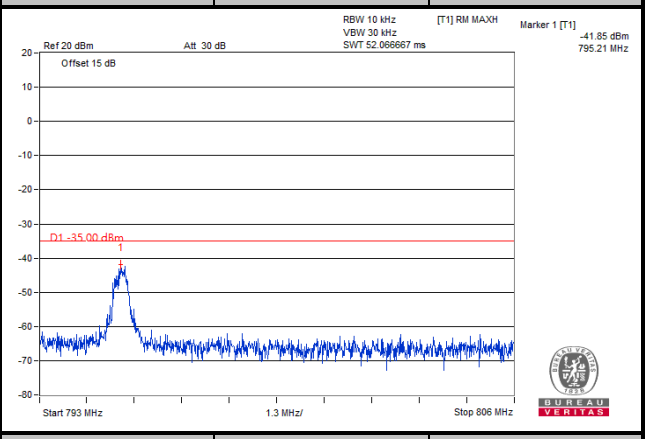
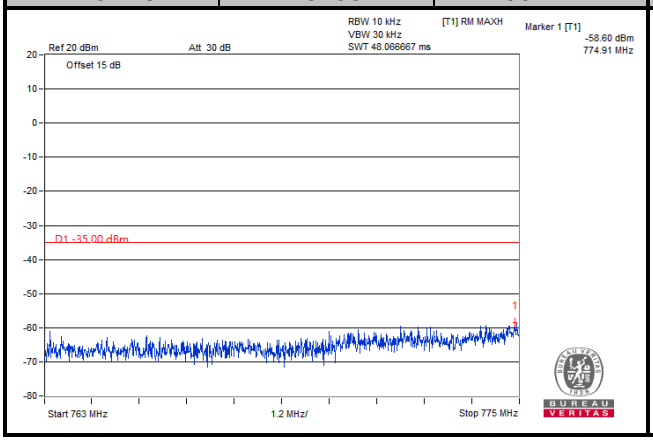
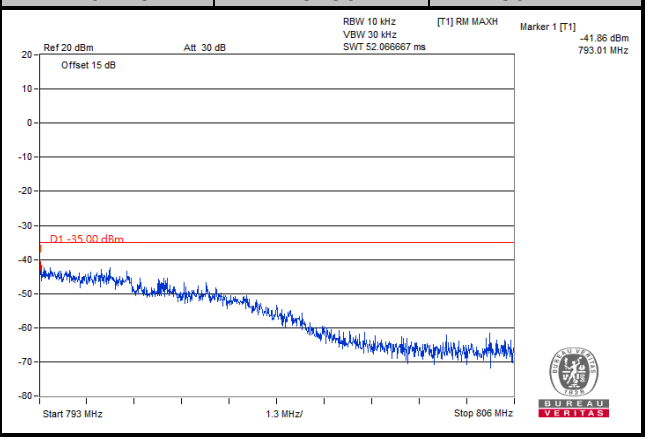
LTE Band 66					
Channel Bandwidth: 15 MHz					
Channel	132047	1 RB	Channel	132597	1 RB
					
Channel	132047	75 RB	Channel	132597	75 RB
					

LTE Band 66					
Channel Bandwidth: 20 MHz					
Channel	132072	1 RB	Channel	132572	1 RB
					
Channel	132072	100 RB	Channel	132572	100 RB
					

Emission Mask

LTE Band 13					
Channel Bandwidth: 5 MHz					
Channel	23205	1 RB	Channel	23255	1 RB
				
Channel	23205	25 RB	Channel	23255	25 RB
				

For the 763 - 775 MHz and 793 - 805 MHz band, the FCC limit is 65+10log(P[watt]) in a 6.25 kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

LTE Band 13					
Channel Bandwidth: 10 MHz					
Channel	23230	1 RB	Channel	23230	1 RB
					
Channel	23230	50 RB	Channel	23230	50 RB
					

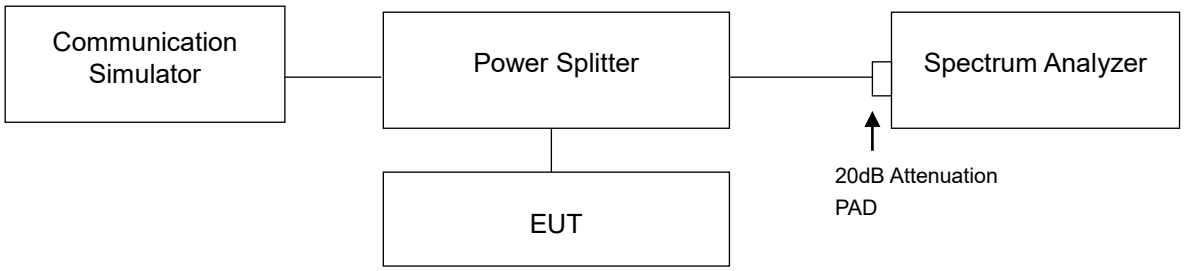
For the 763 - 775 MHz and 793 - 805 MHz band, the FCC limit is 65+10log(P[watt]) in a 6.25 kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.6.2 Test Setup



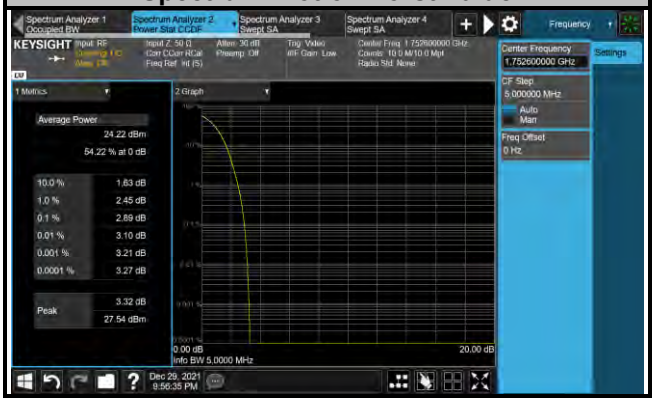
4.6.3 Test Procedures

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

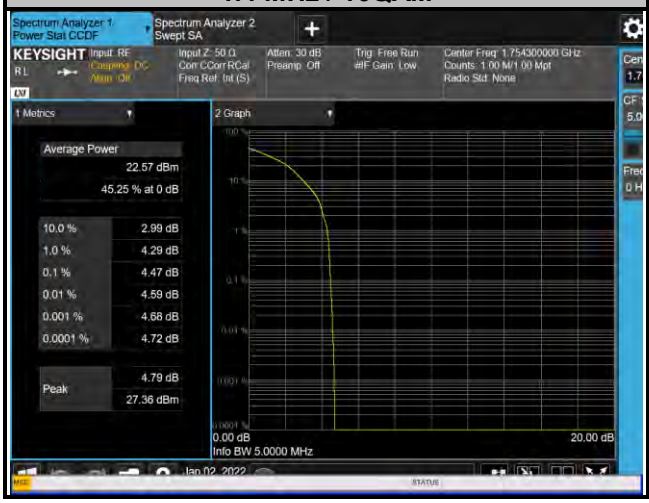
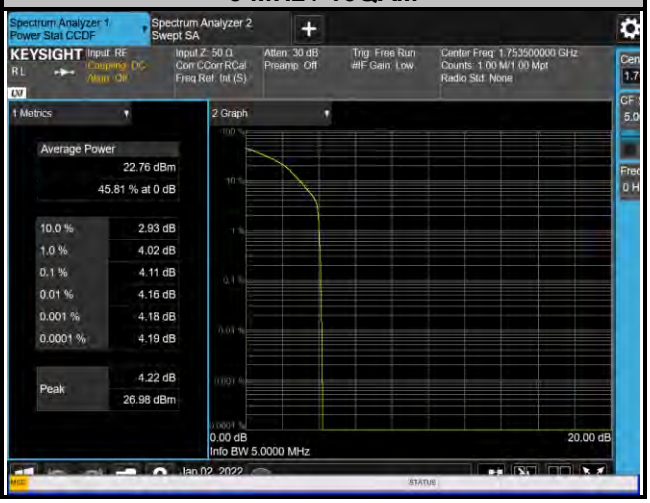
WCDMA		
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**
1312	1712.4	2.83
1413	1732.6	2.57
1513	1752.6	2.89

Spectrum Plot of Worst Value

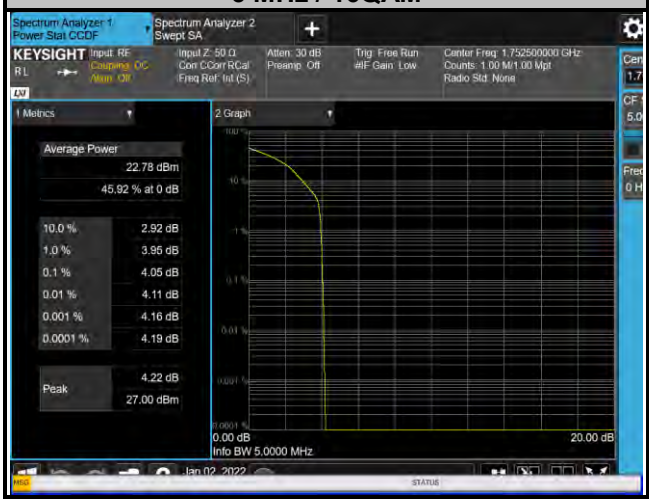


LTE Band 4							
Channel Bandwidth: 1.4 MHz				**Channel Bandwidth: 3 MHz**			
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**		**Channel**	**Frequency (MHz)**	**Peak to Average Ratio (dB)**	
		QPSK	**16QAM**			**QPSK**	**16QAM**
19957	1710.7	3.34	3.96	19965	1711.5	3.19	3.82
20175	1732.5	3.37	4.11	20175	1732.5	3.17	3.96
20393	1754.3	3.67	4.47	20385	1753.5	3.30	4.11

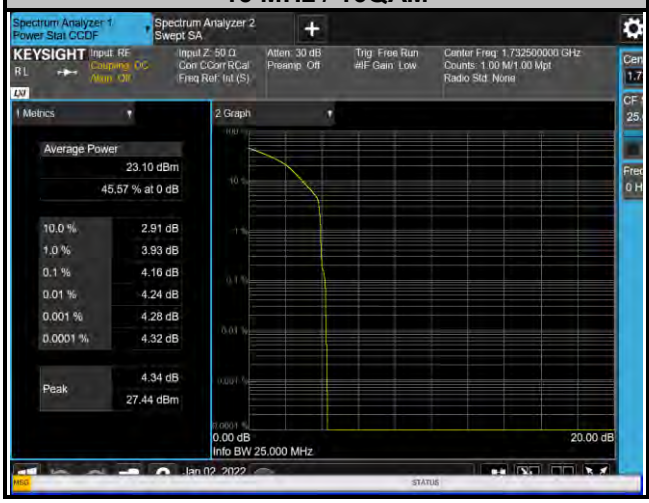
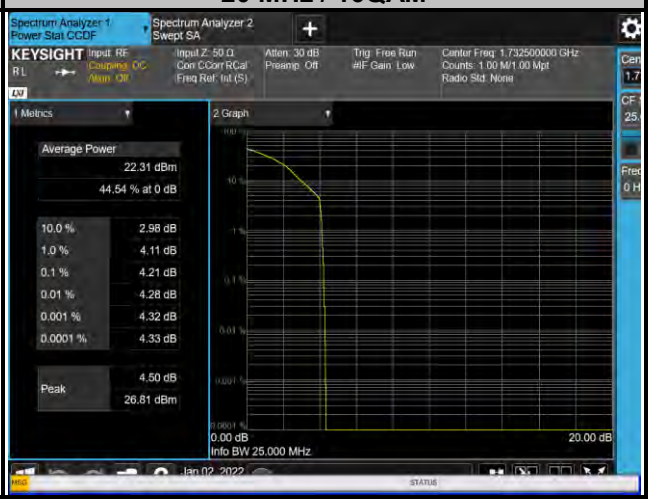
Spectrum Plot of Worst Value

1.4 MHz / 16QAM	3 MHz / 16QAM
	

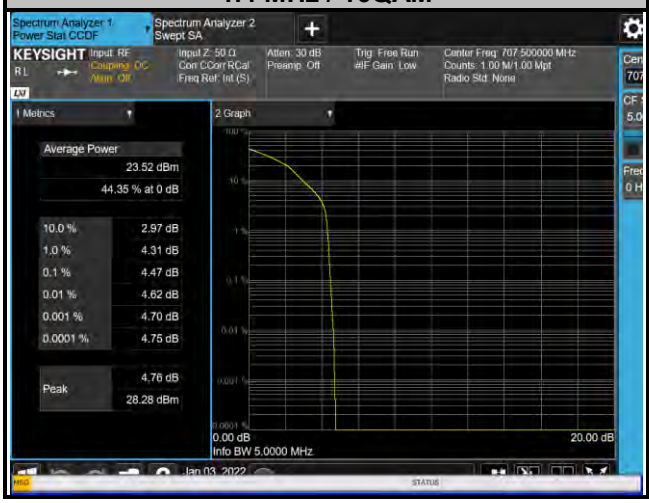
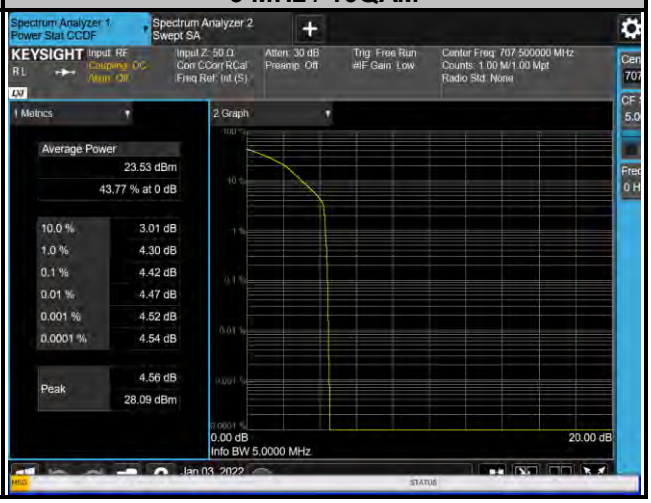
LTE Band 4							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	3.07	3.89	20000	1715.0	2.96	3.80
20175	1732.5	3.16	3.96	20175	1732.5	3.22	4.01
20375	1752.5	3.26	4.05	20350	1750.0	3.07	3.92

Spectrum Plot of Worst Value	
5 MHz / 16QAM	10 MHz / 16QAM
	

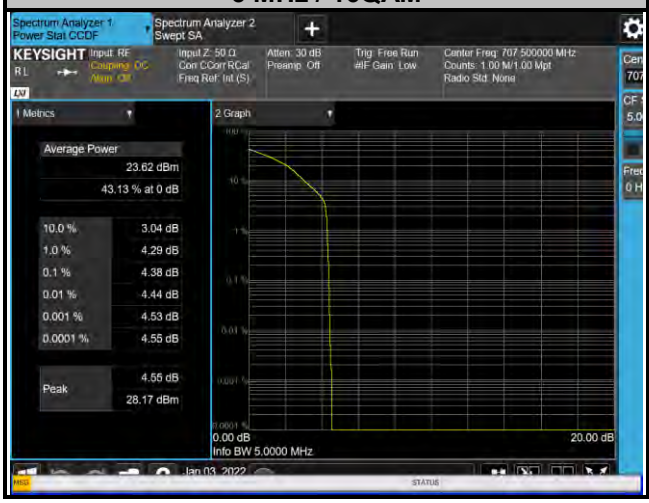
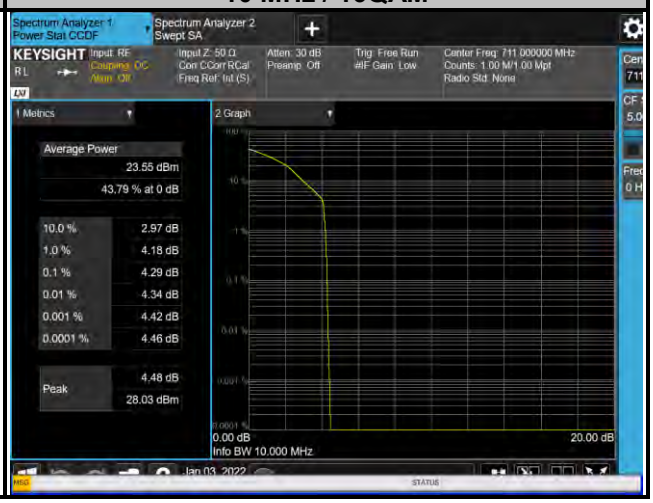
LTE Band 4							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	2.93	3.64	20050	1720.0	3.25	3.93
20175	1732.5	3.43	4.16	20175	1732.5	3.46	4.21
20325	1747.5	2.76	3.54	20300	1745.0	3.00	3.88

Spectrum Plot of Worst Value	
15 MHz / 16QAM	20 MHz / 16QAM
	

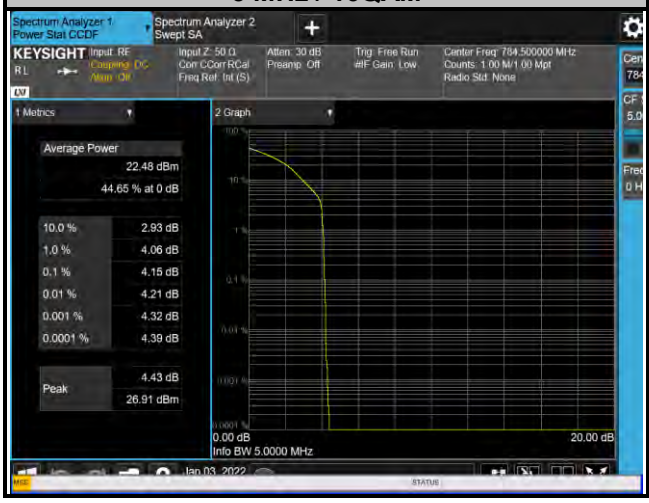
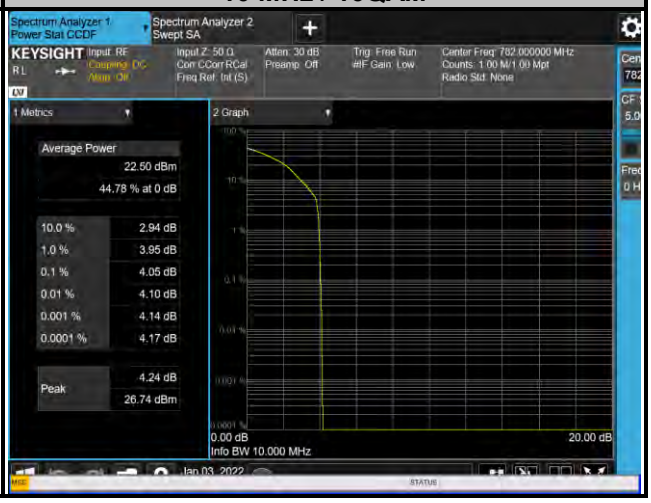
LTE Band 12							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23017	699.7	3.14	3.49	23025	700.5	2.96	3.32
23095	707.5	3.86	4.47	23095	707.5	3.74	4.42
23173	715.3	3.86	4.28	23165	714.5	3.47	4.02

Spectrum Plot of Worst Value	
1.4 MHz / 16QAM	3 MHz / 16QAM
	

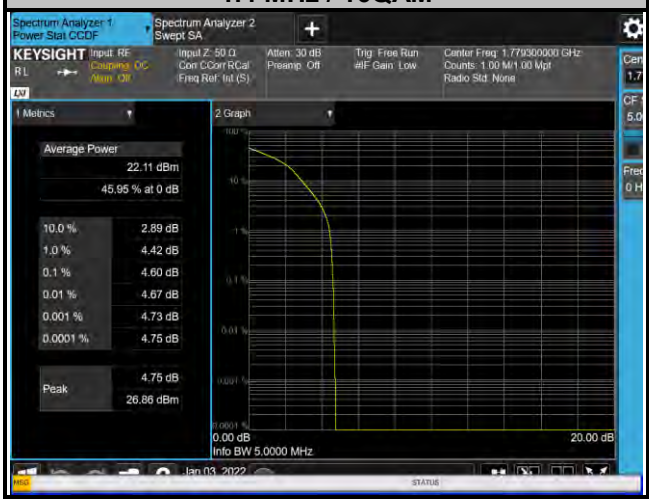
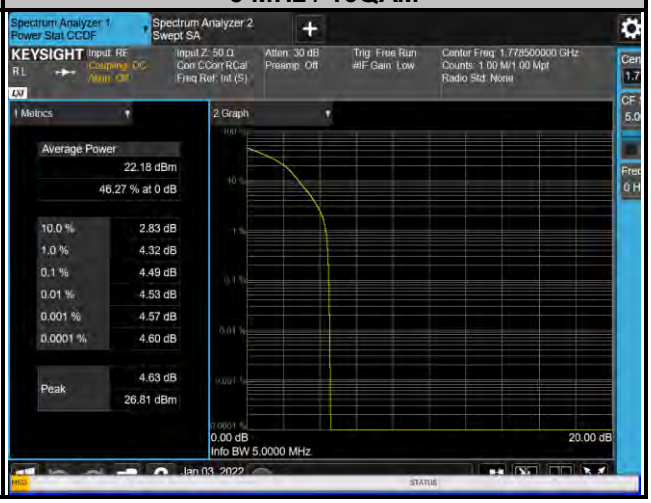
LTE Band 12							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23035	701.5	2.92	3.37	23060	704.0	2.92	3.35
23095	707.5	3.76	4.38	23095	707.5	3.61	4.19
23155	713.5	3.15	3.67	23130	711.0	3.59	4.29

Spectrum Plot of Worst Value	
5 MHz / 16QAM	10 MHz / 16QAM
	

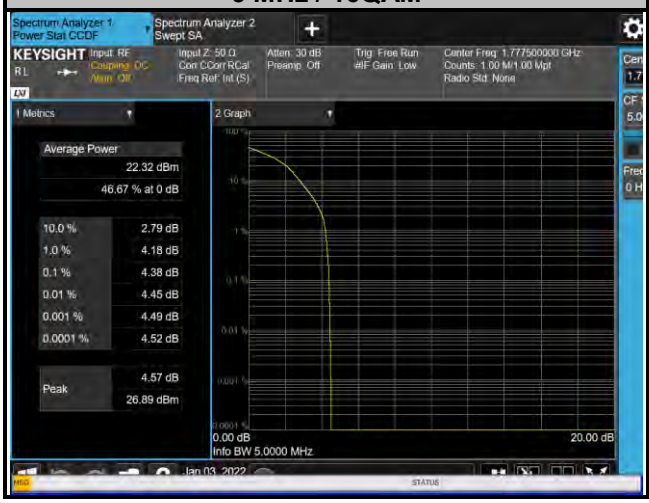
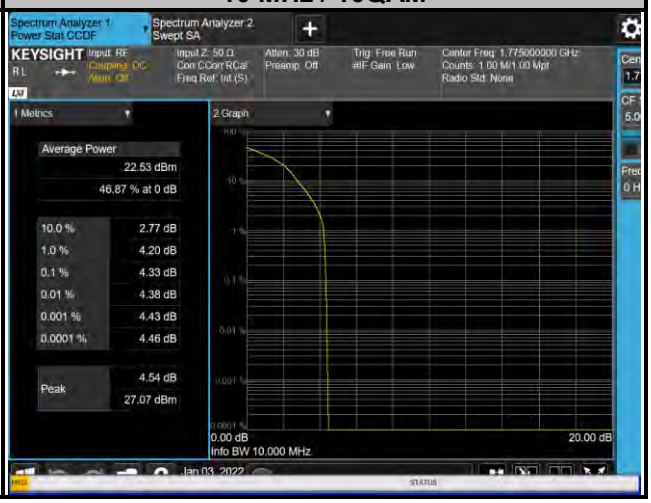
LTE Band 13							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23205	779.5	3.27	4.04	23230	782.0	3.28	4.05
23230	782.0	3.31	4.00				
23255	784.5	3.39	4.15				

Spectrum Plot of Worst Value	
5 MHz / 16QAM	10 MHz / 16QAM
	

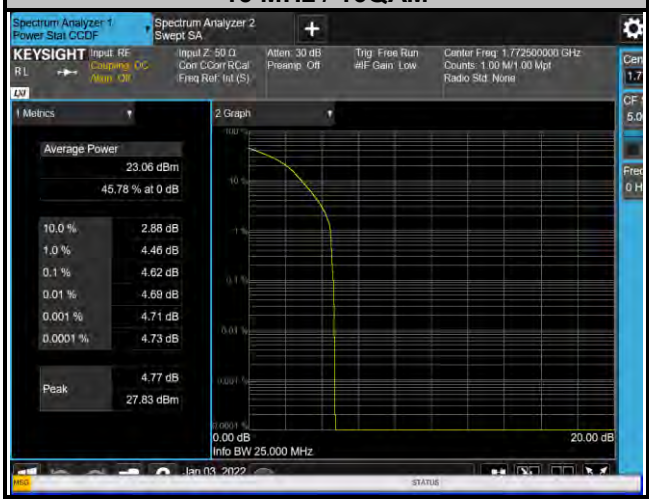
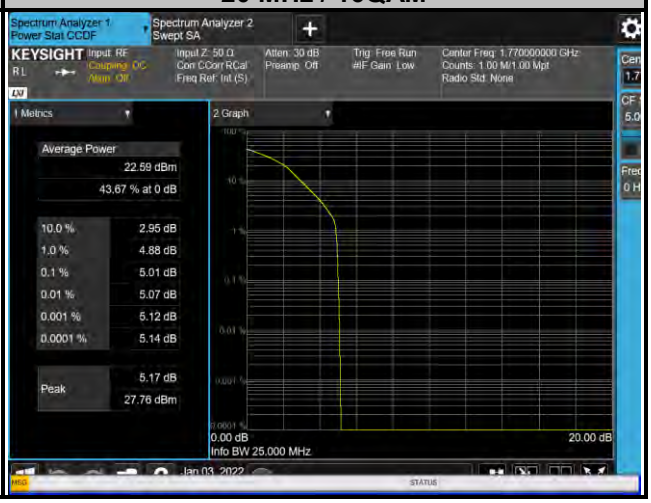
LTE Band 66							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
131979	1710.7	3.68	4.39	131987	1711.5	3.49	4.27
132322	1745.0	3.85	4.57	132322	1745.0	3.68	4.44
132665	1779.3	3.83	4.60	132657	1778.5	3.61	4.49

Spectrum Plot of Worst Value	
1.4 MHz / 16QAM	3 MHz / 16QAM
	

LTE Band 66							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
131997	1712.5	3.34	4.28	132022	1715.0	3.23	4.15
132322	1745.0	3.50	4.33	132322	1745.0	3.26	4.09
132647	1777.5	3.47	4.38	132622	1775.0	3.47	4.33

Spectrum Plot of Worst Value	
5 MHz / 16QAM	10 MHz / 16QAM
	

LTE Band 66							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
132047	1717.5	3.28	3.95	132072	1720.0	3.59	4.31
132322	1745.0	3.29	3.90	132322	1745.0	3.56	4.31
132597	1772.5	3.74	4.62	132572	1770.0	4.19	5.01

Spectrum Plot of Worst Value	
15 MHz / 16QAM	20 MHz / 16QAM
	

4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

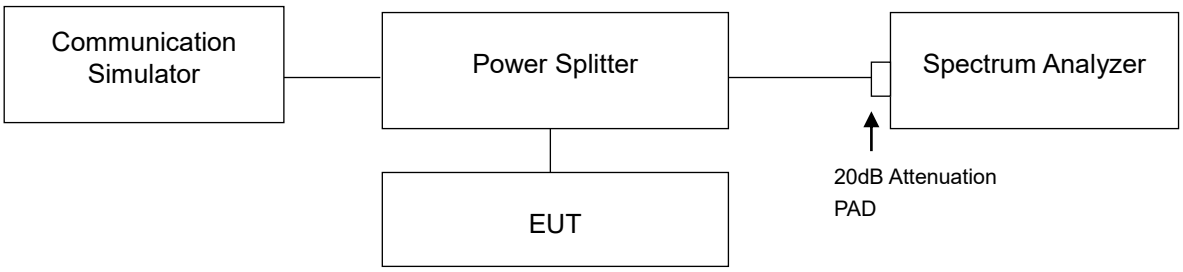
For WCDMA band 4, LTE Band 4, 66:
According to FCC 27.53(h), for operations in the 1695-1710MHz, 1710-1755MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB.

For LTE Band 12:
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.

4.7.2 Test Setup



4.7.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz are used for LTE Band 12 and Band 13conducted emission measurement.
c. Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz are used for WCDMA, LTE Band 4 and Band 66 conducted emission measurement.
d. Measuring frequency range is from 1 GHz to 8 GHz / 18 GHz / 20 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

4.7.4 Test Results

WCDMA	
Channel 1312	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz

Frequency Range: 10 GHz ~ 20 GHz

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

WCDMA	
Channel 1413	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz

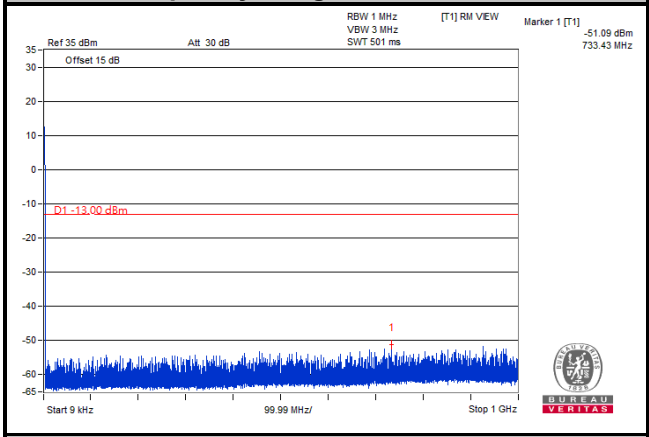
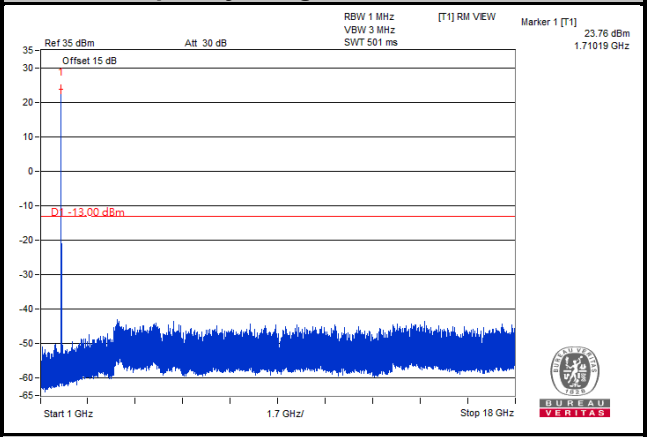
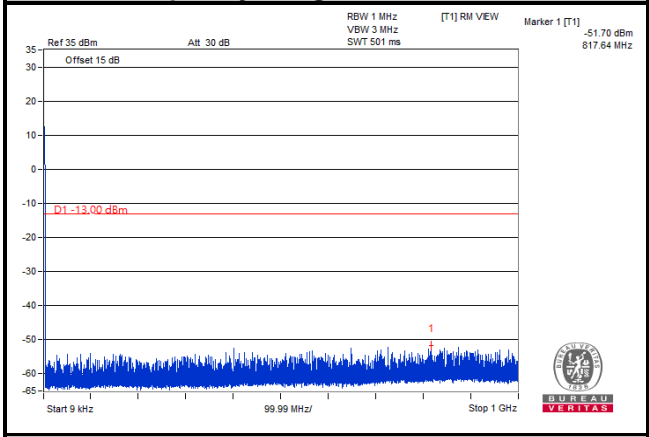
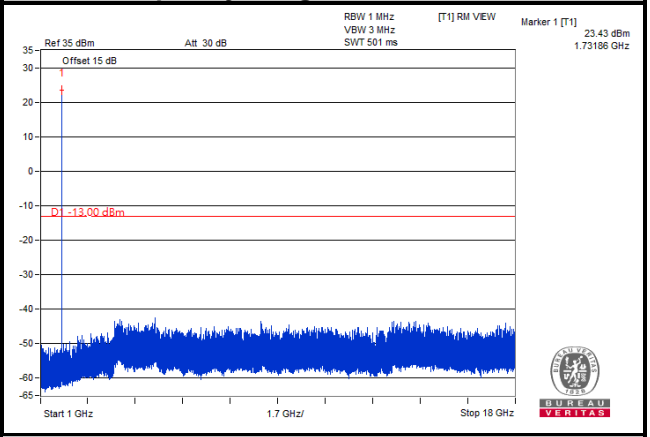
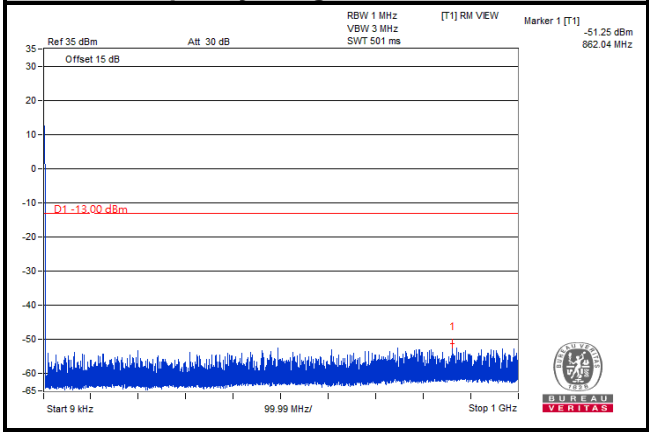
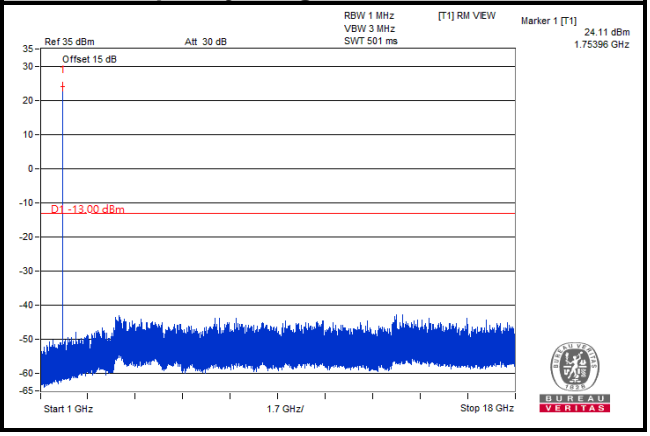
Frequency Range: 10 GHz ~ 20 GHz

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

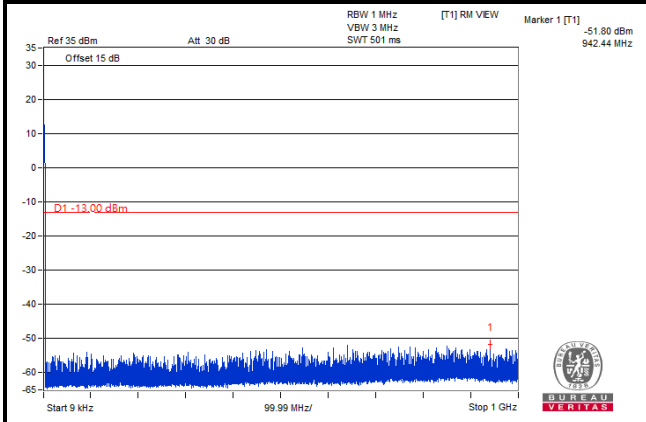
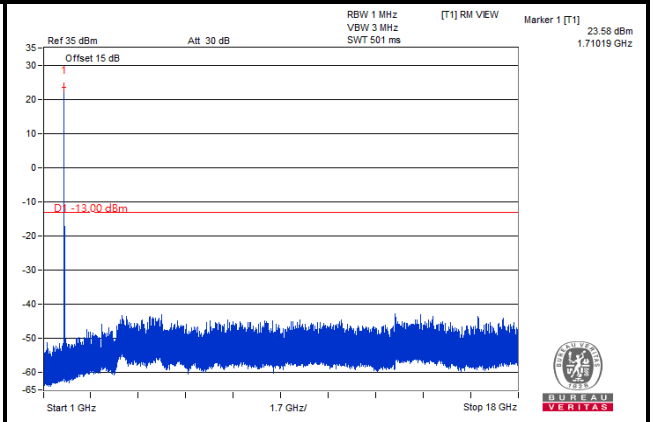
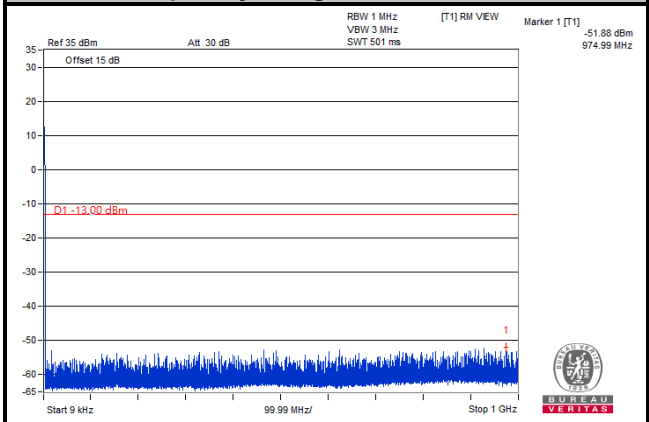
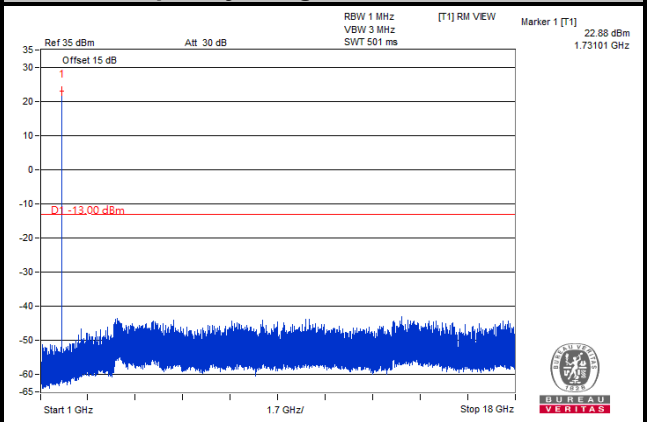
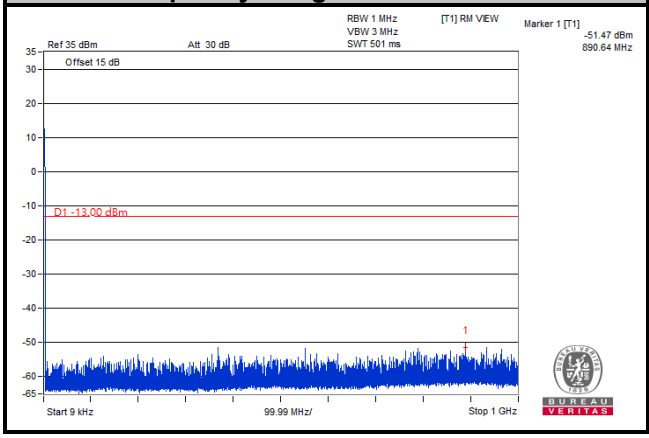
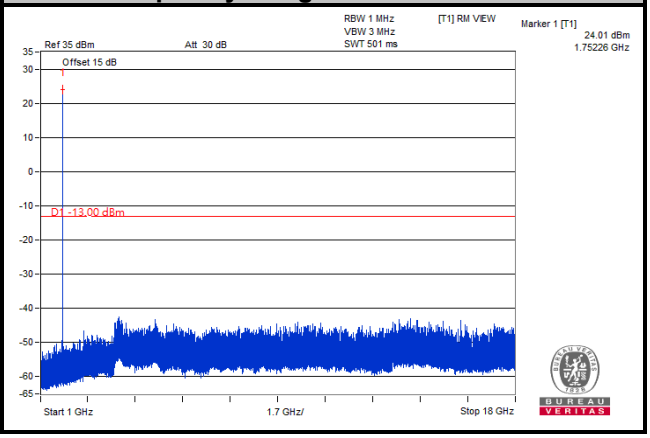
WCDMA	
Channel 1513	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz

Frequency Range: 10 GHz ~ 20 GHz

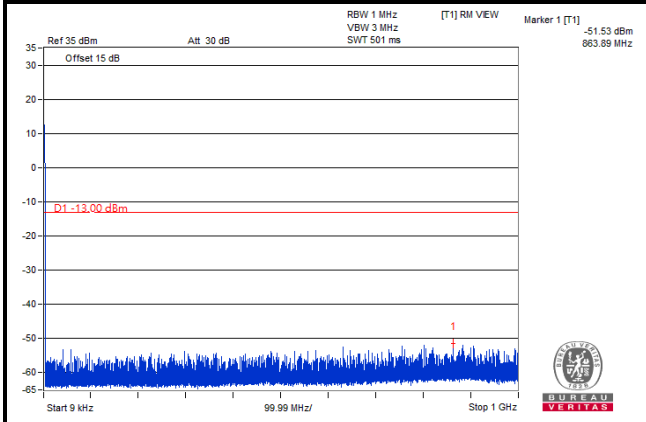
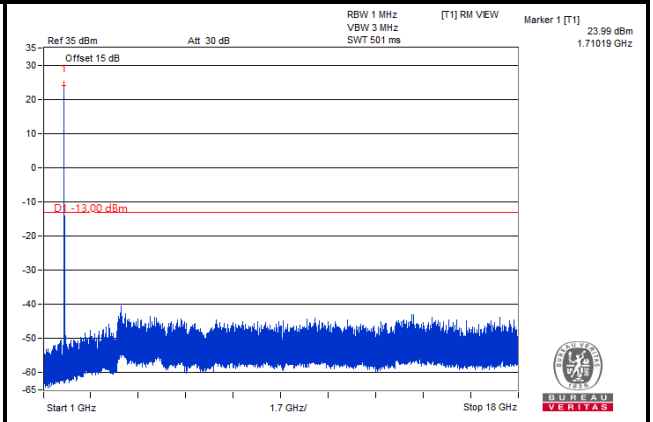
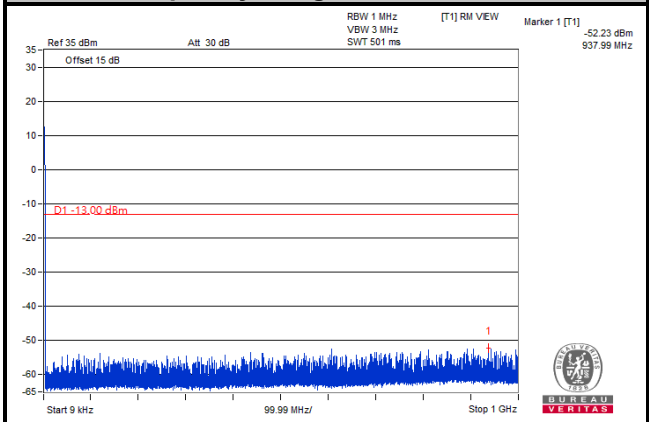
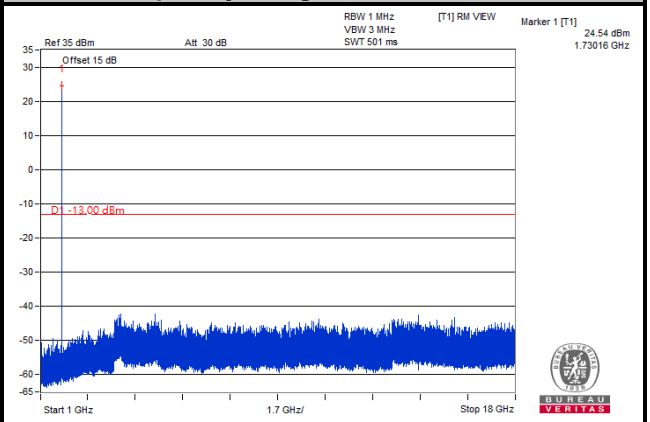
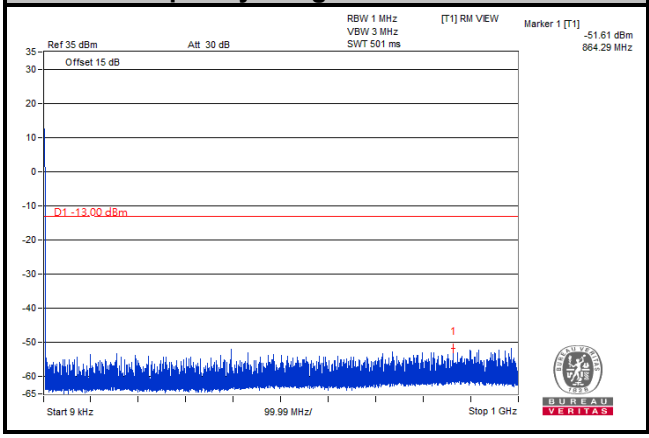
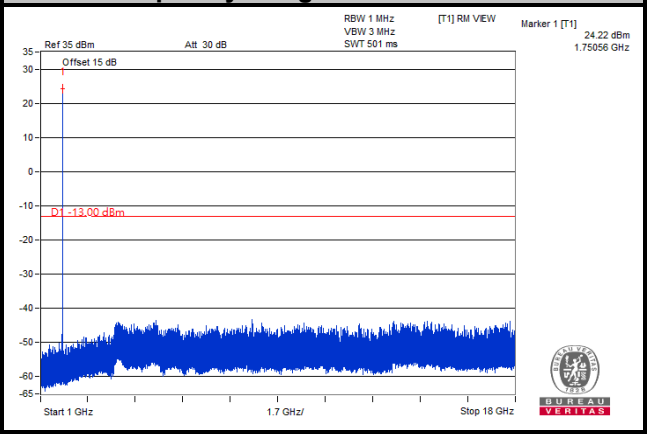
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 1.4 MHz	
Channel 19957	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20393	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	

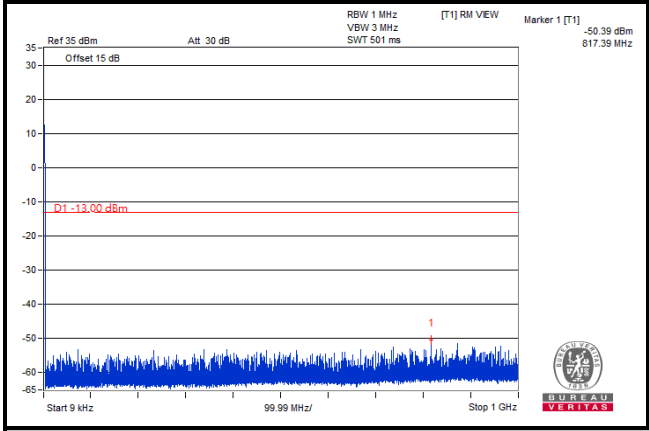
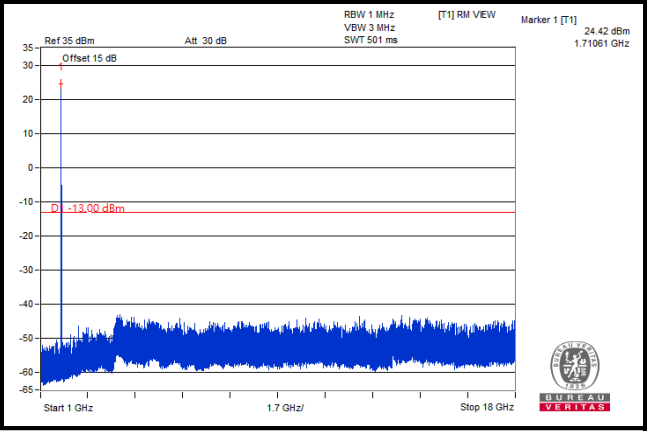
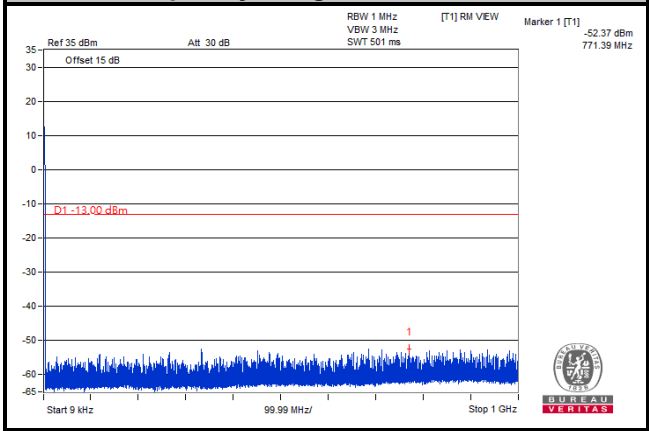
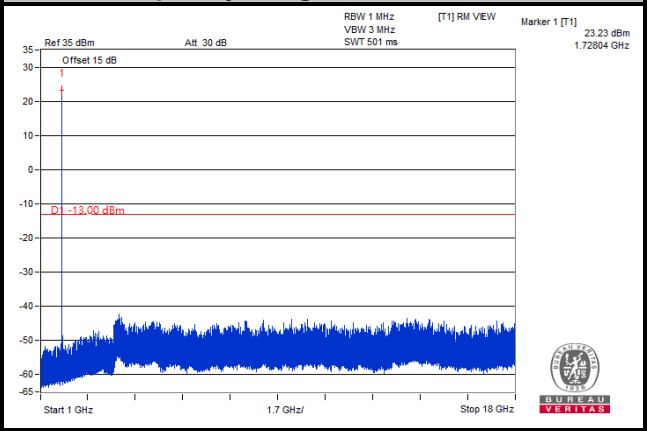
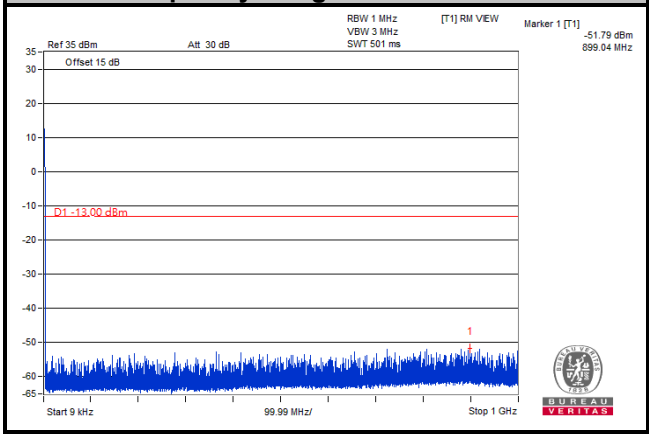
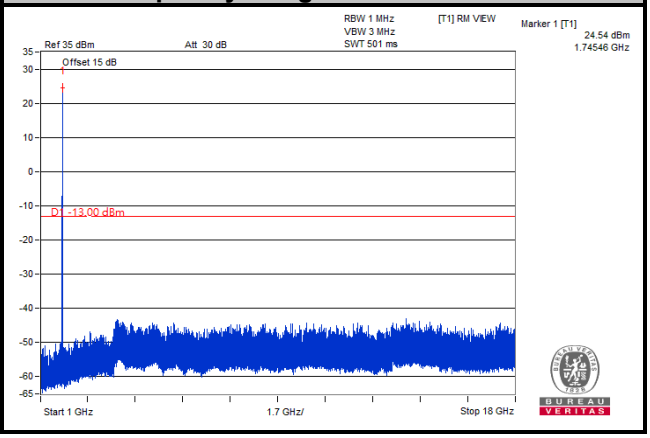
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 3 MHz	
Channel 19965	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20385	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

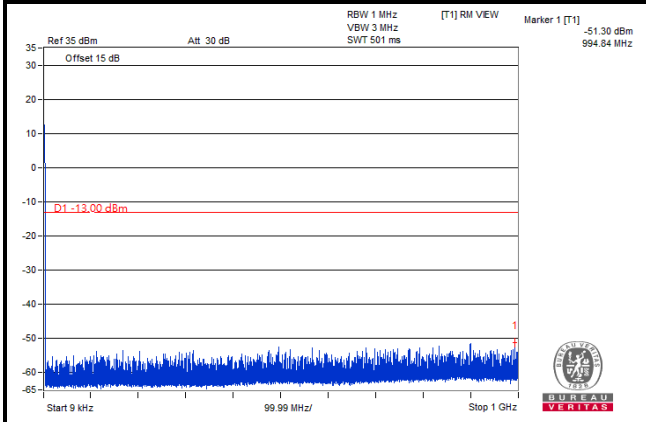
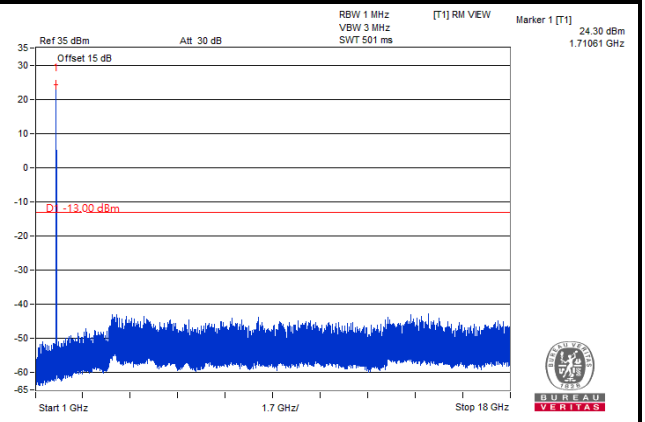
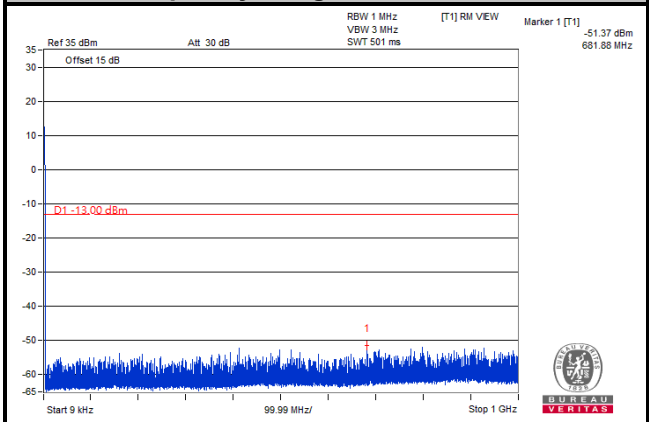
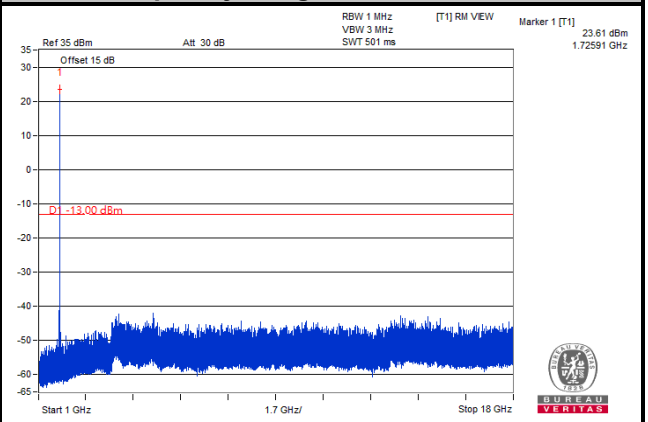
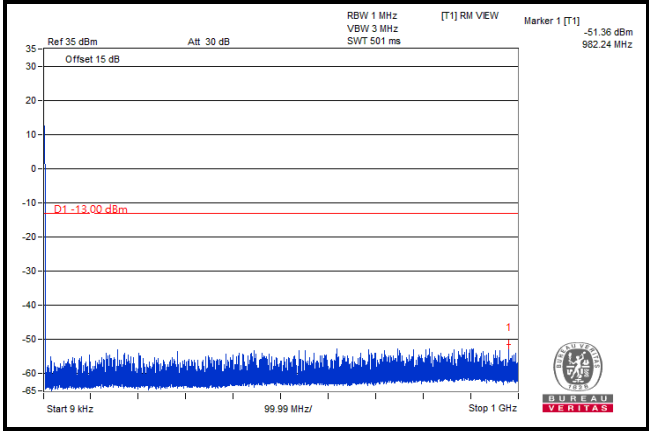
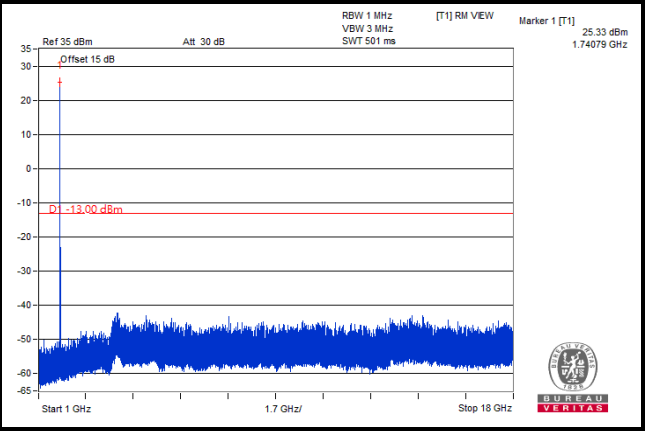
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 5 MHz	
Channel 19975	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20375	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

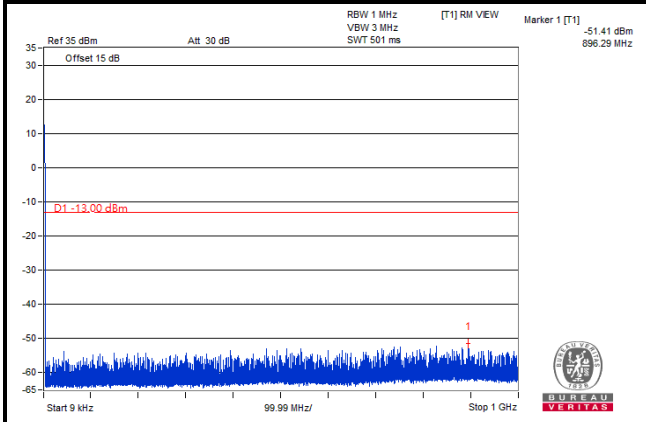
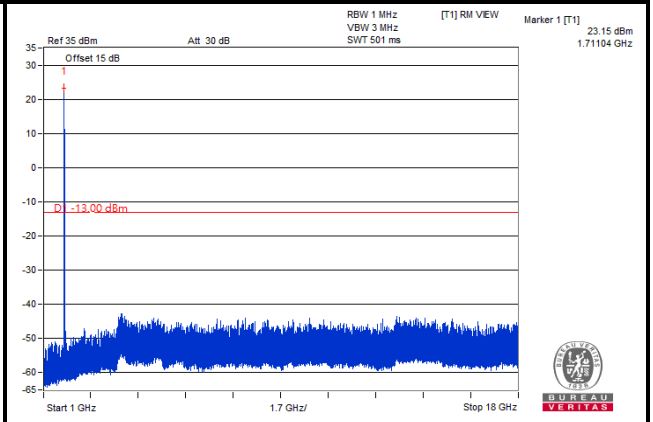
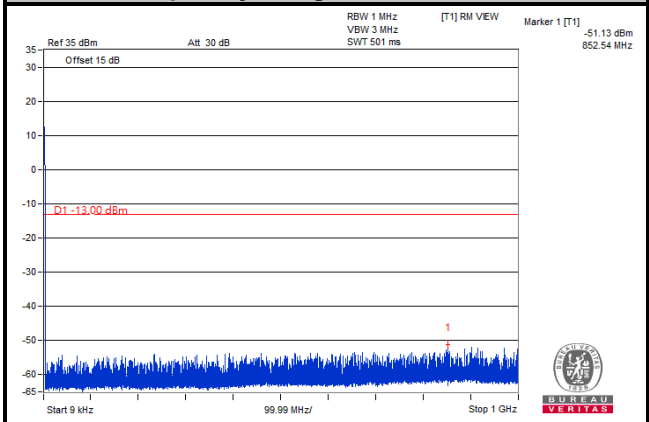
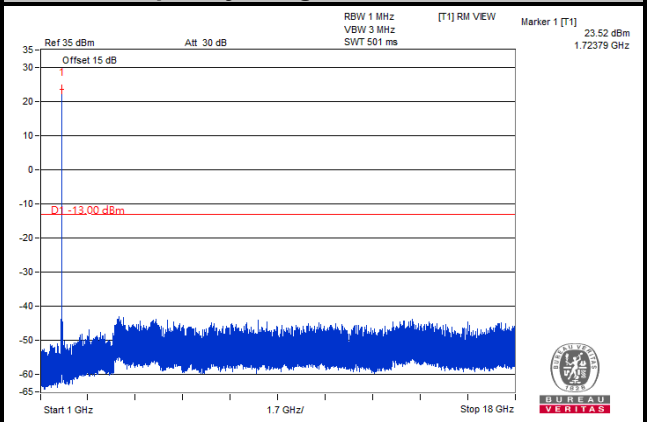
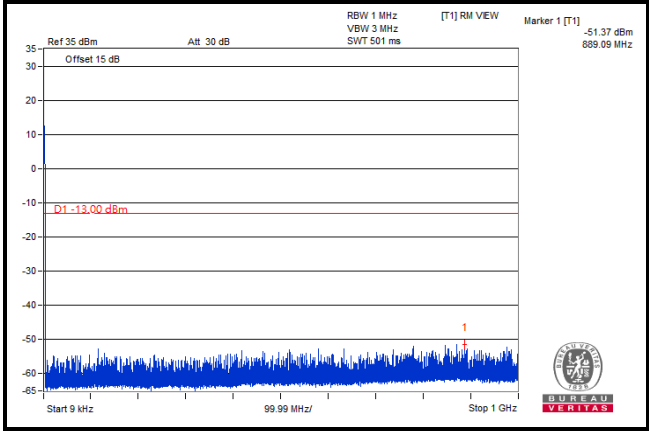
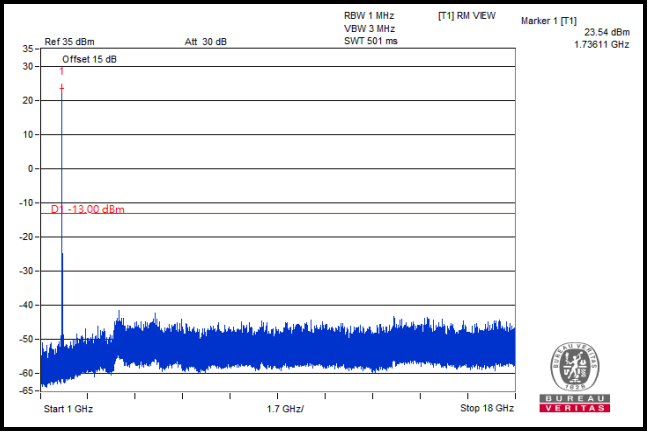
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 10 MHz	
Channel 20000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20350	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

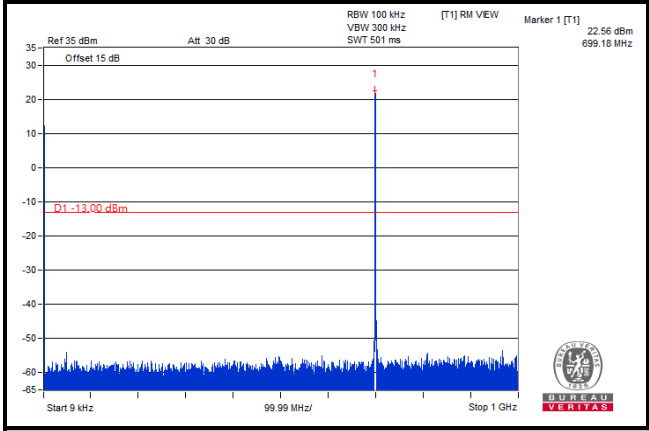
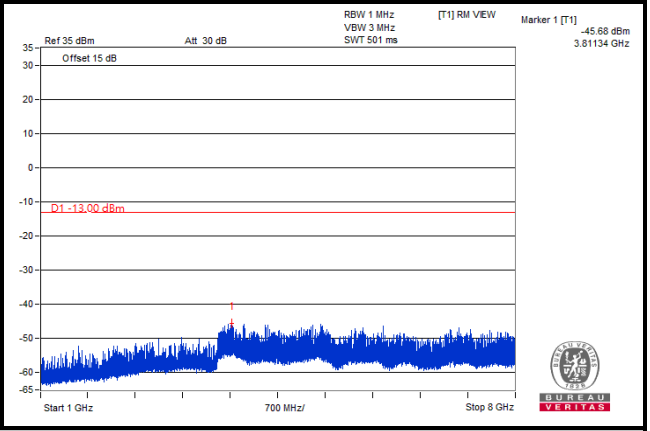
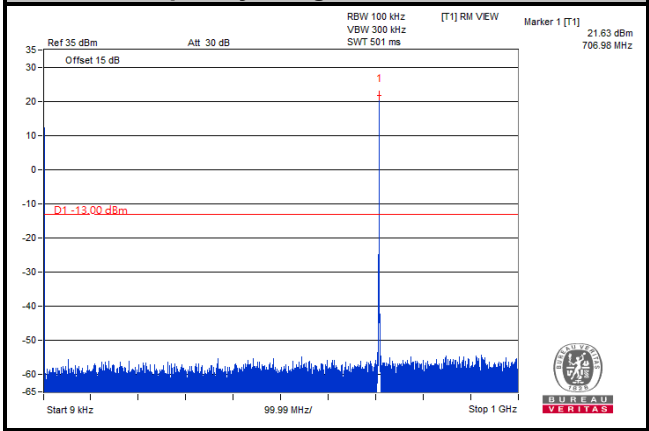
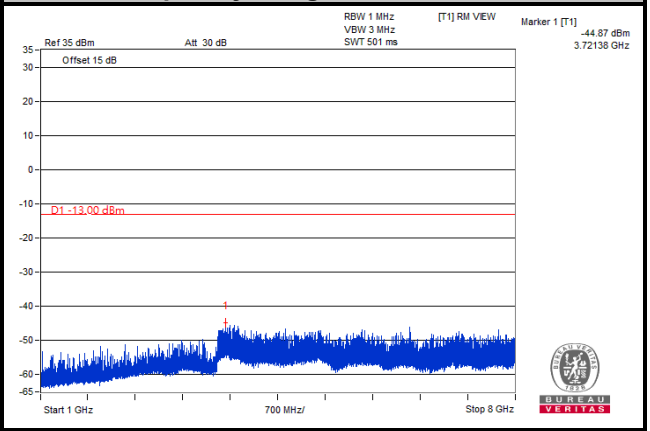
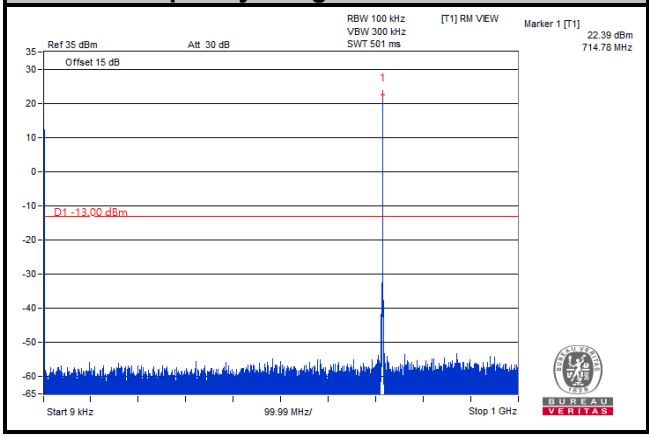
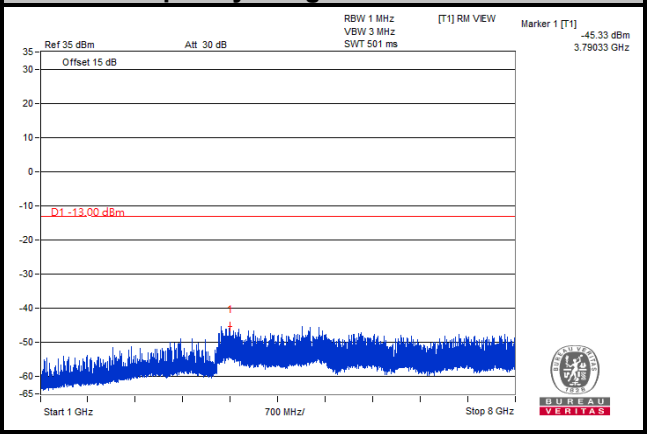
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 15 MHz	
Channel 20025	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20325	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

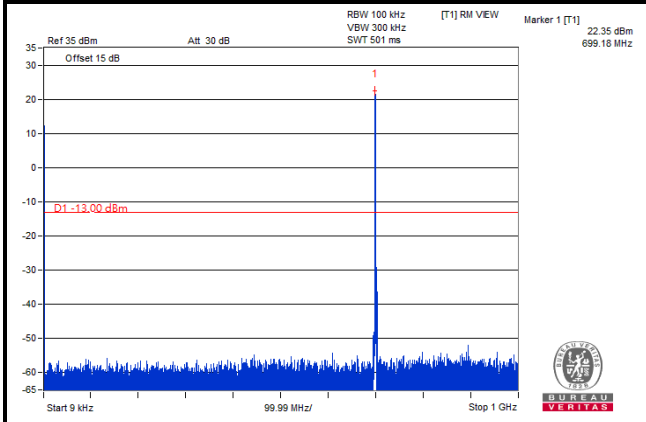
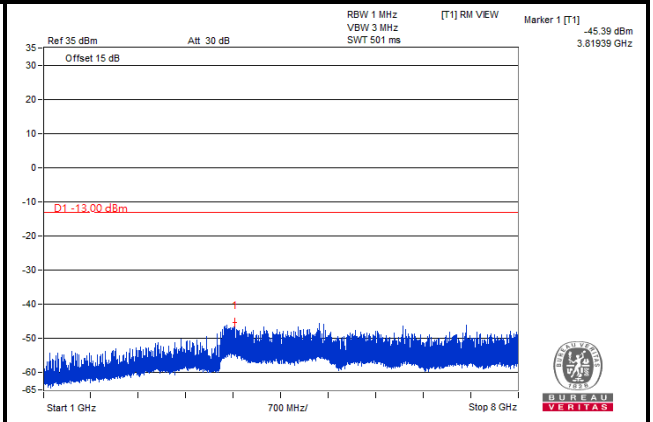
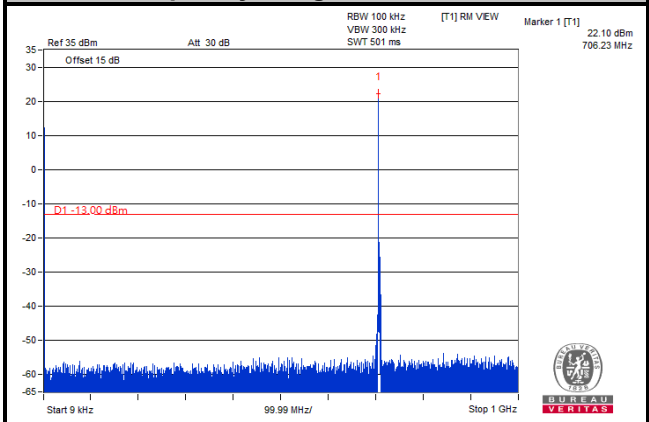
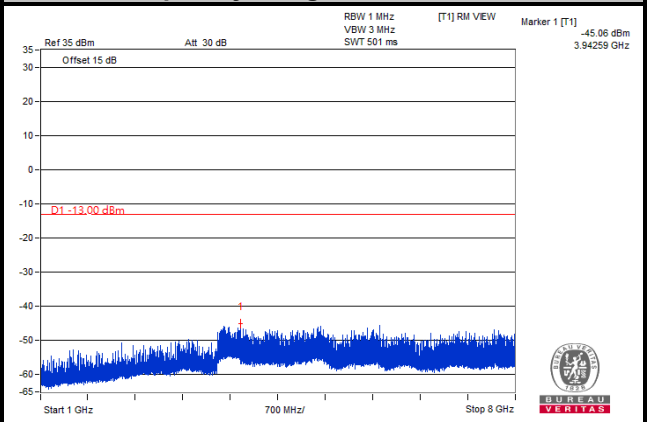
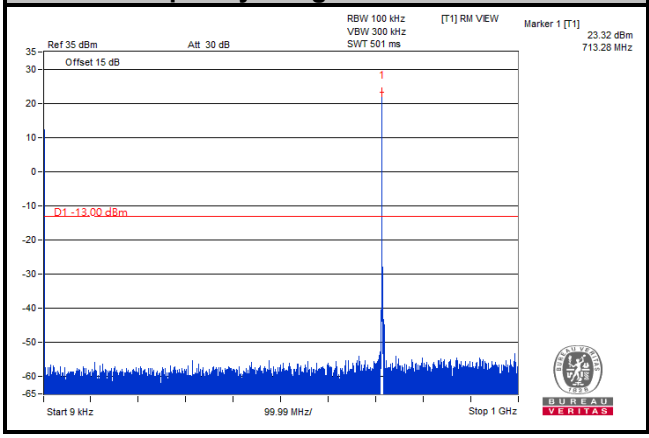
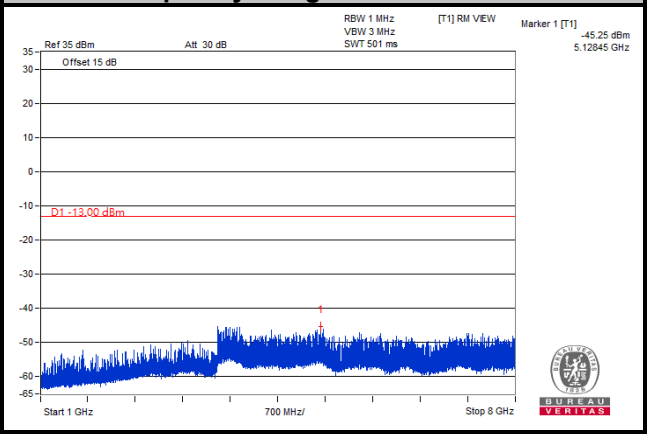
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 20 MHz	
Channel 20050	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 20300	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

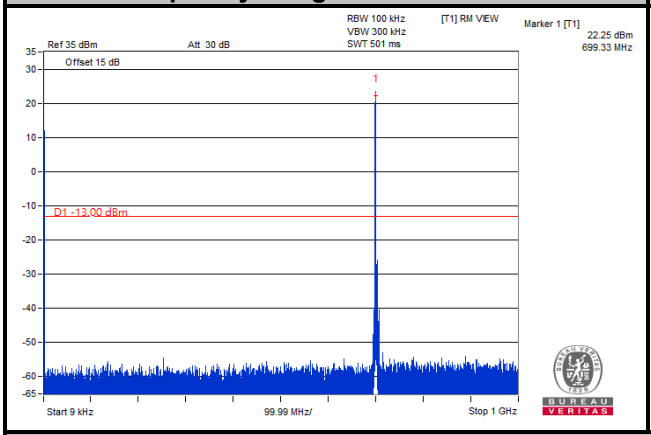
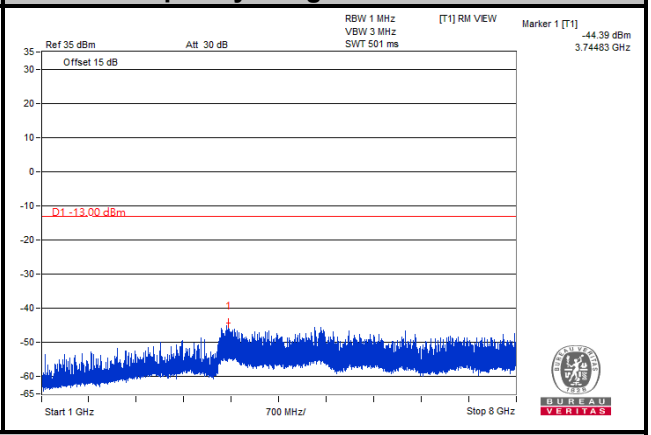
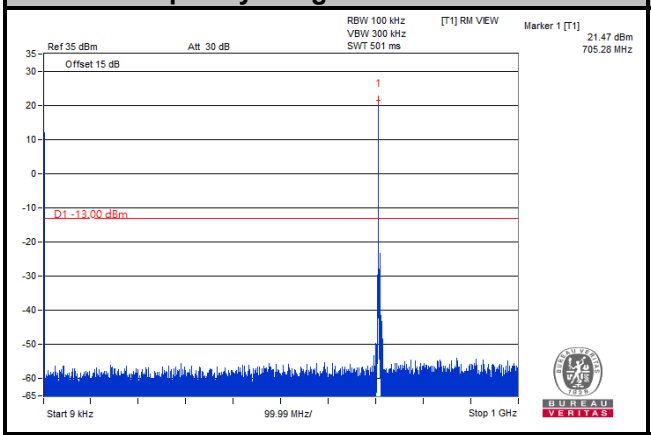
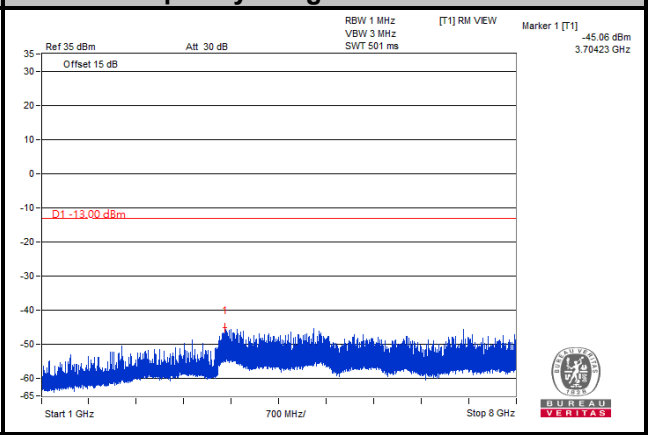
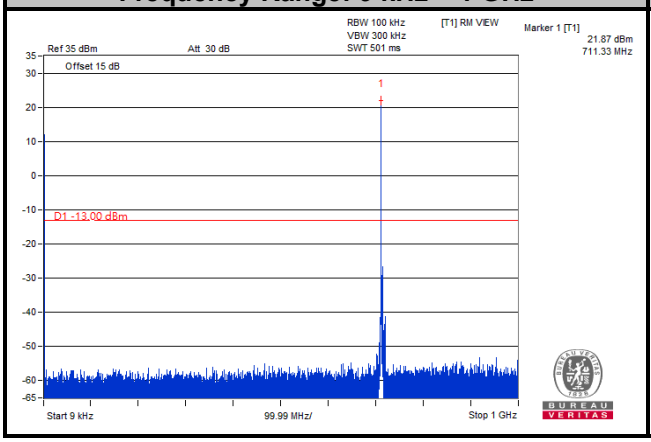
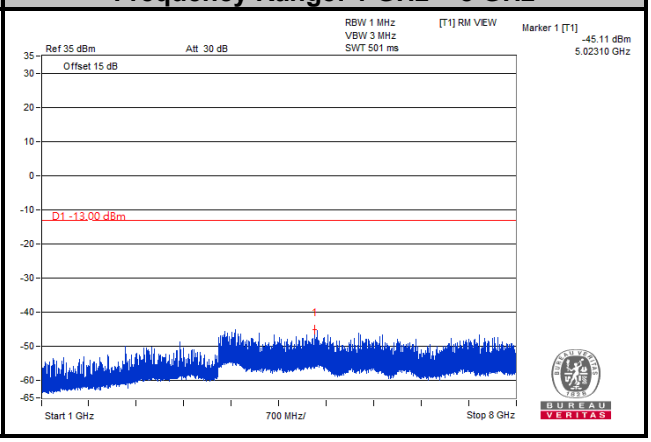
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 12	
Channel Bandwidth: 1.4 MHz	
Channel 23017	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23095	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23173	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	

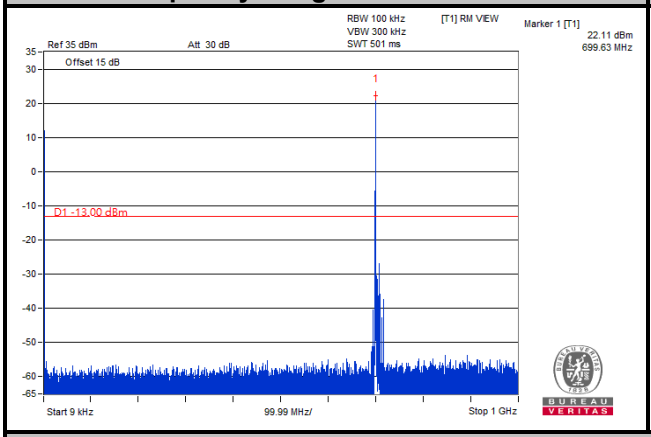
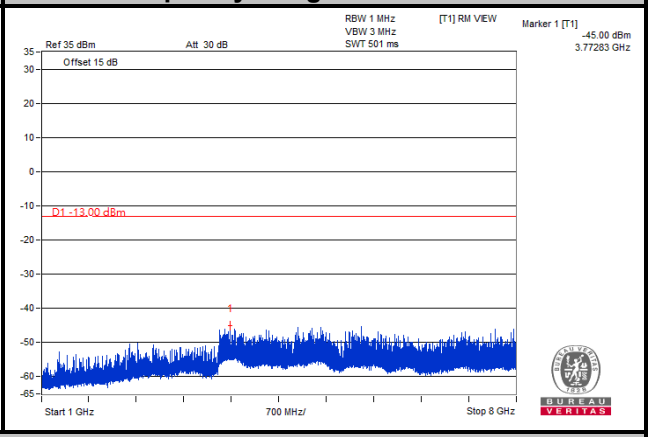
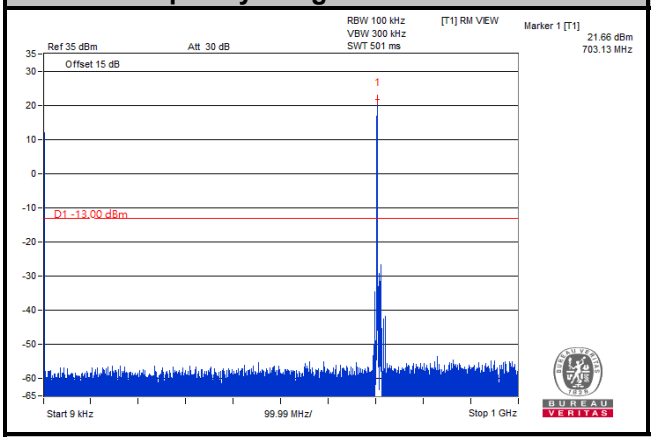
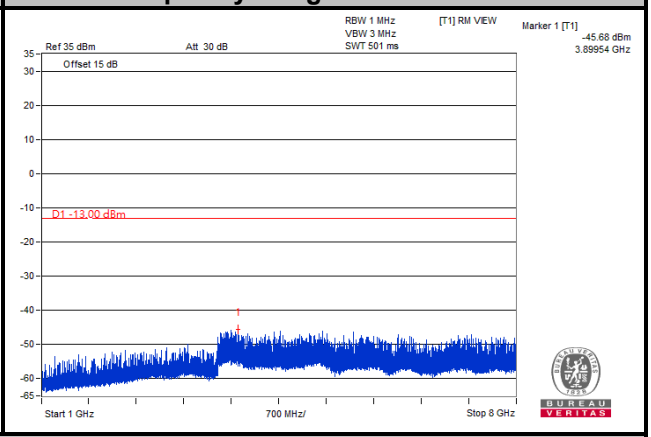
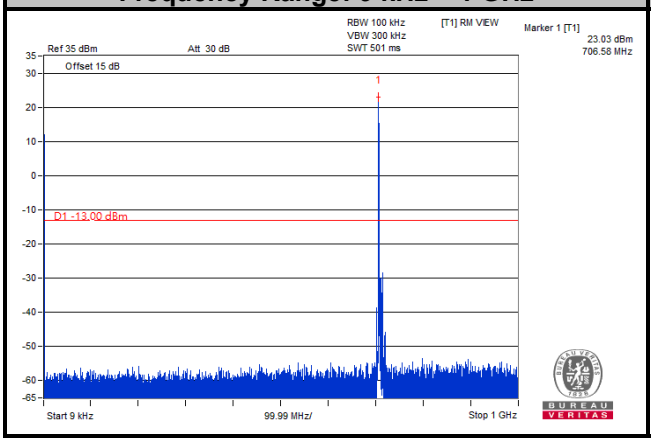
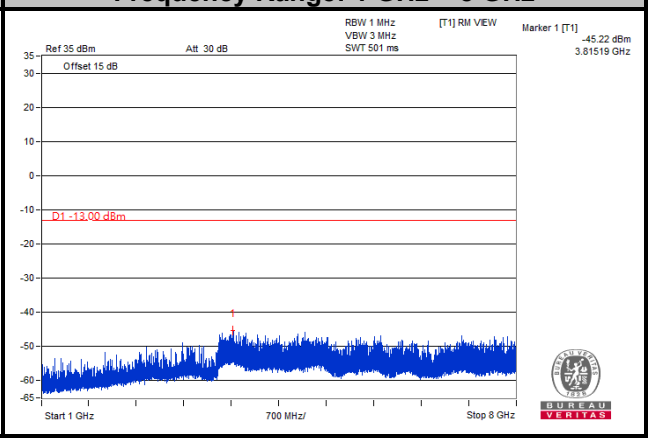
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 12	
Channel Bandwidth: 3 MHz	
Channel 23025	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23095	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23165	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	

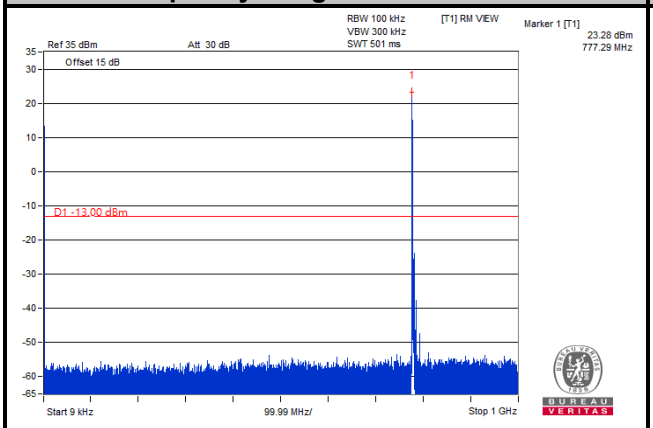
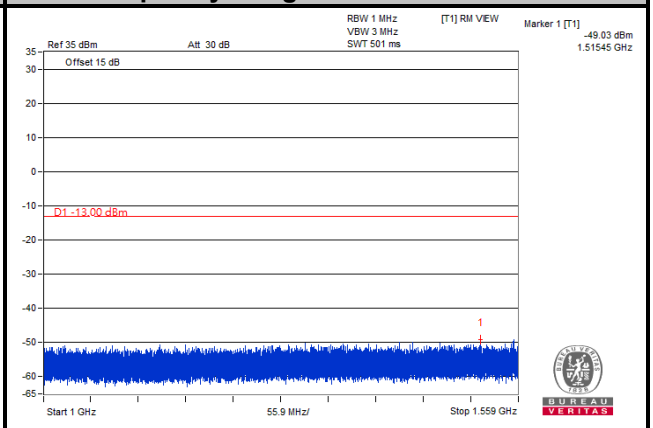
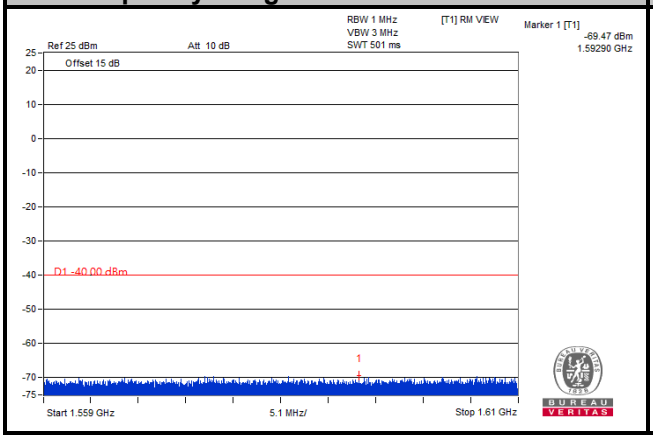
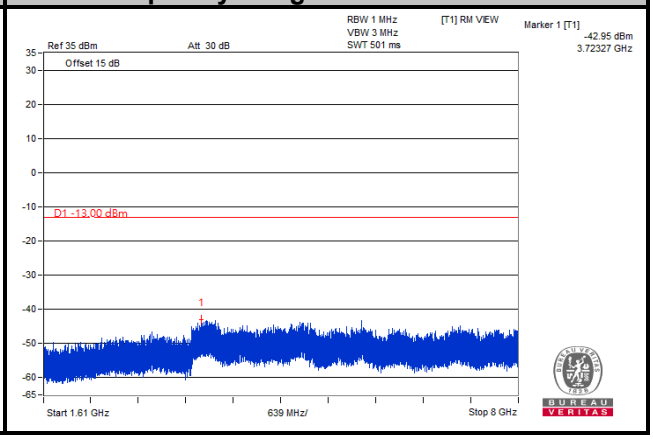
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 12	
Channel Bandwidth: 5 MHz	
Channel 23035	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23095	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23155	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	

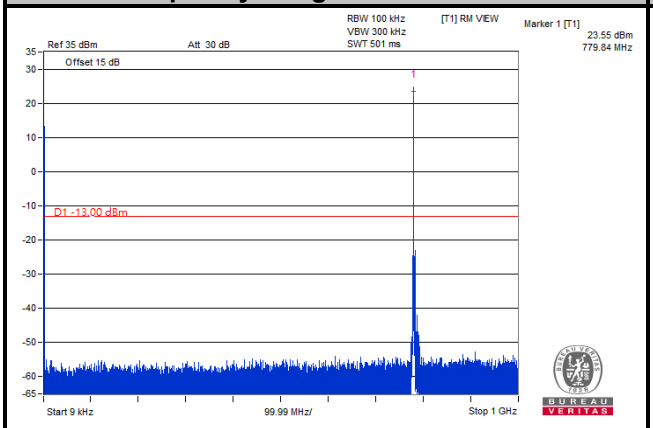
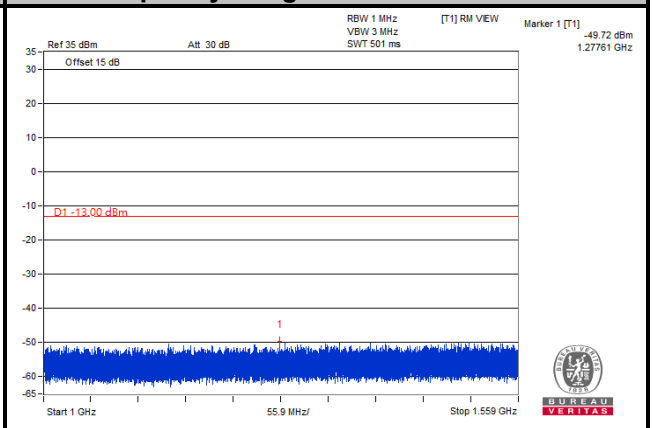
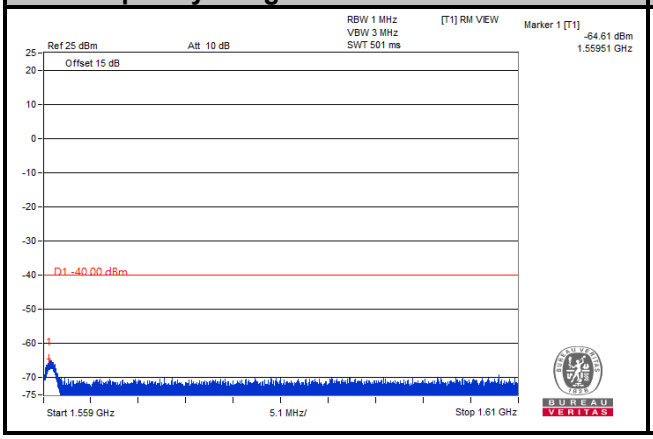
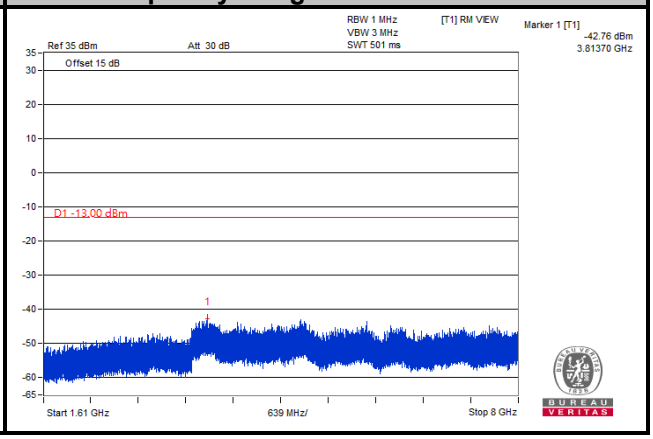
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 12	
Channel Bandwidth: 10 MHz	
Channel 23060	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23095	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	
Channel 23130	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 8 GHz
	

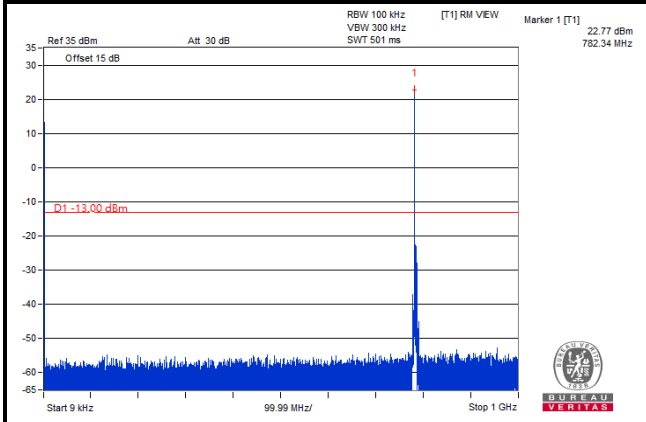
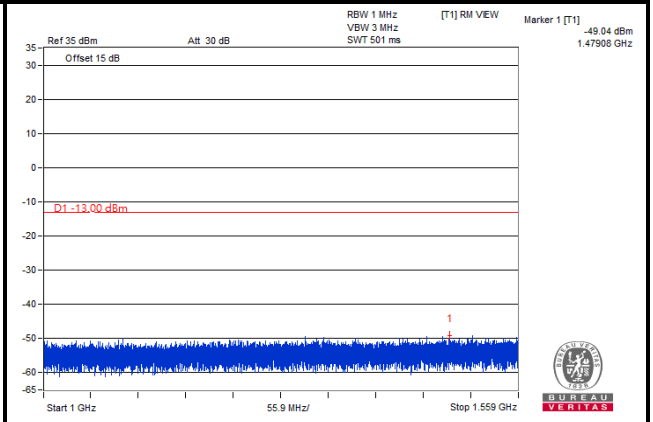
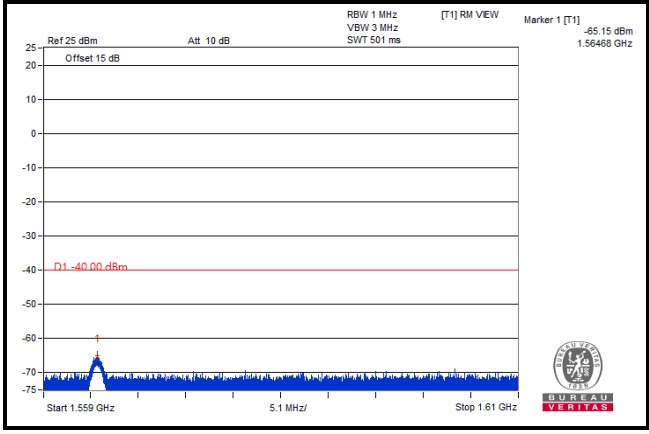
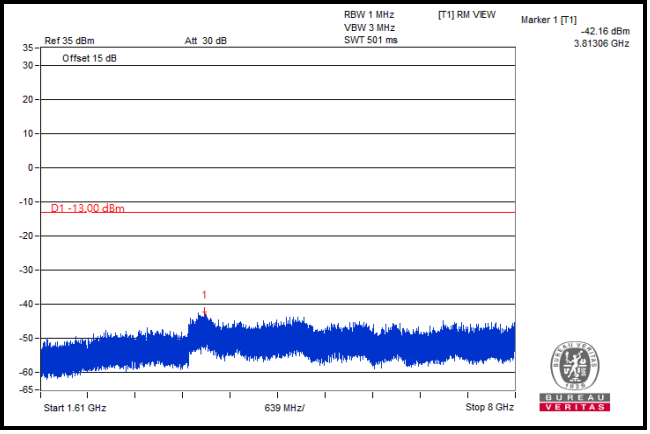
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 13	
Channel Bandwidth: 5 MHz	
Channel 23205	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 1.559 GHz
	
Frequency Range: 1.559 GHz ~ 1.61 GHz	Frequency Range: 1.61 GHz ~ 8 GHz
	

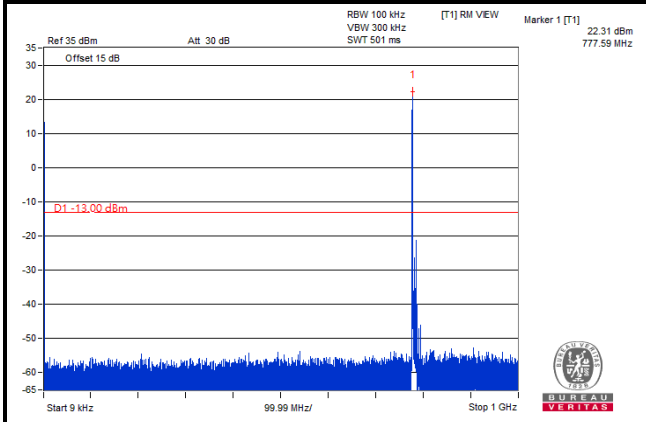
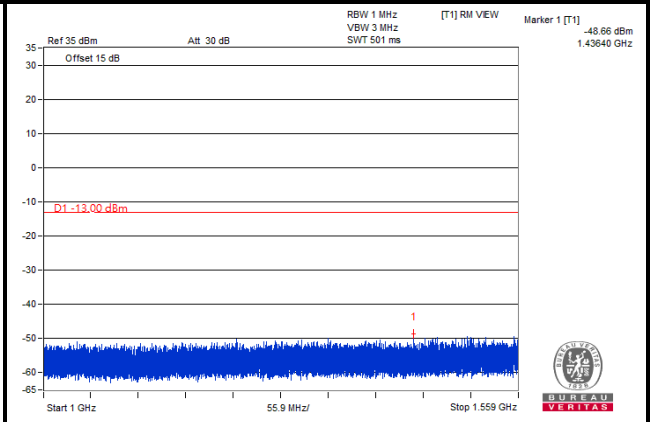
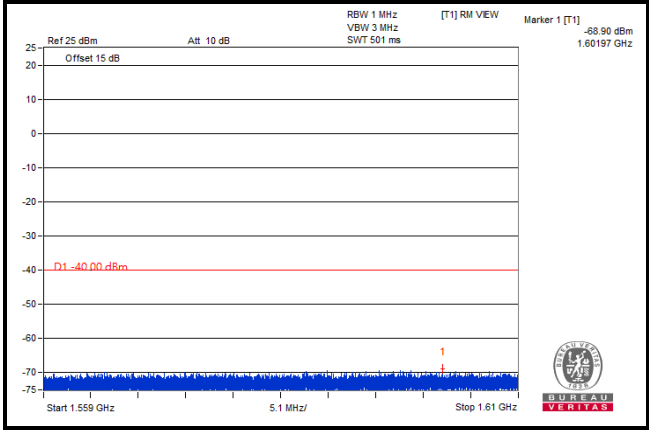
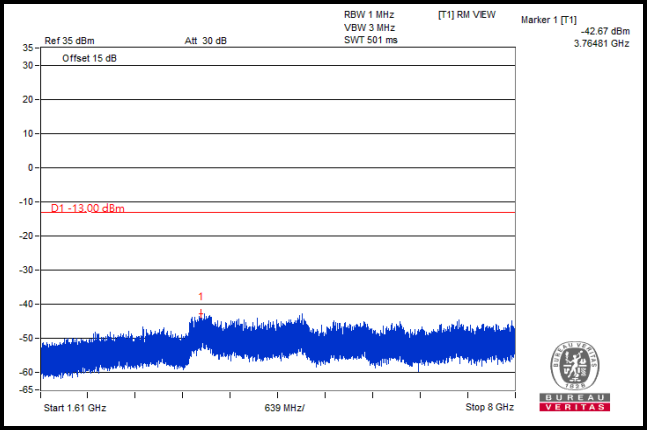
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 13	
Channel Bandwidth: 5 MHz	
Channel 23230	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 1.559 GHz
	
Frequency Range: 1.559 GHz ~ 1.61 GHz	Frequency Range: 1.61 GHz ~ 8 GHz
	

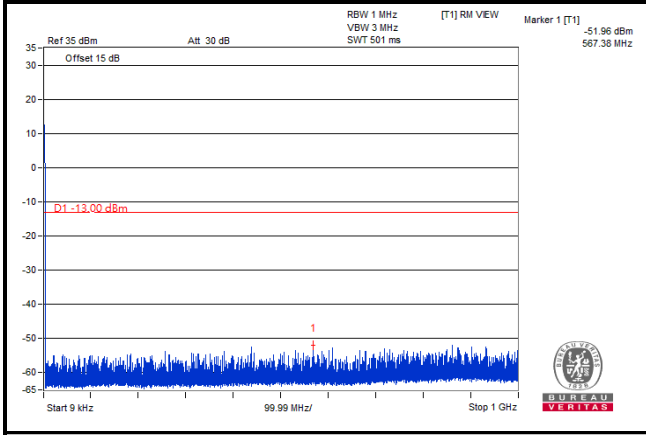
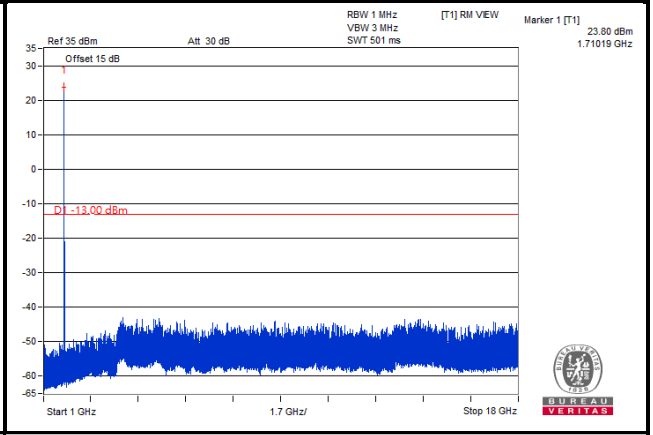
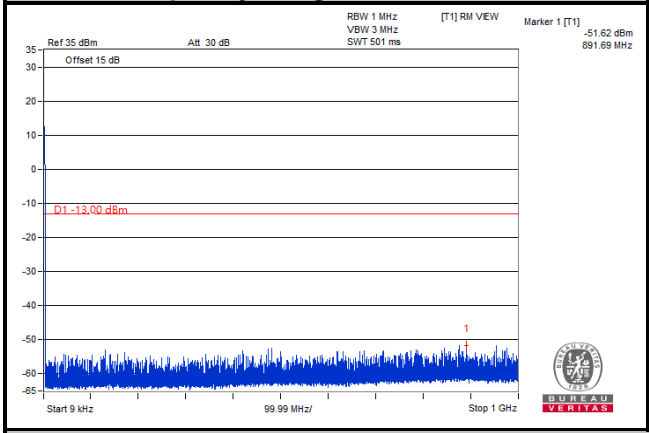
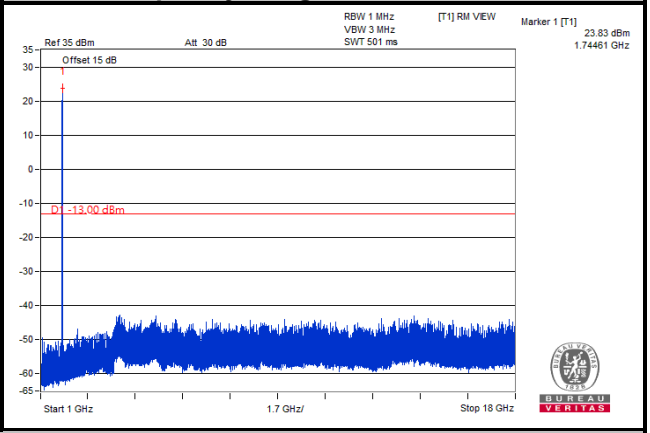
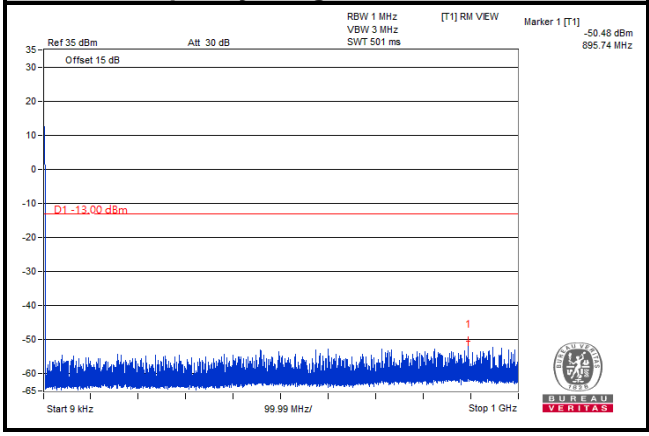
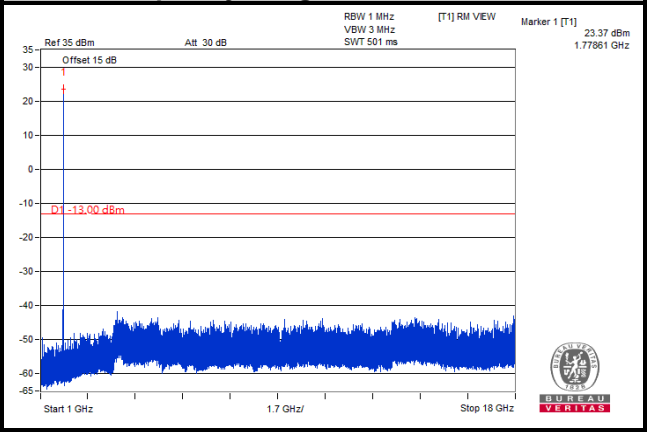
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 13	
Channel Bandwidth: 5 MHz	
Channel 23255	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 1.559 GHz
	
Frequency Range: 1.559 GHz ~ 1.61 GHz	Frequency Range: 1.61 GHz ~ 8 GHz
	

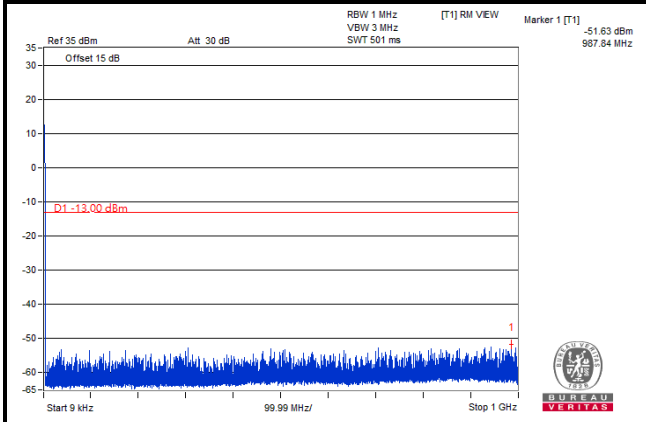
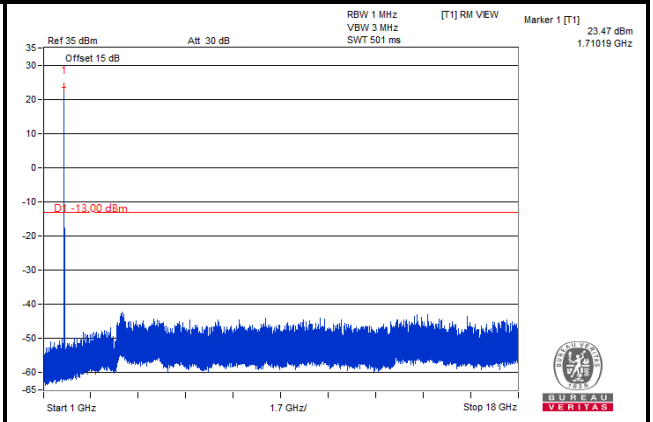
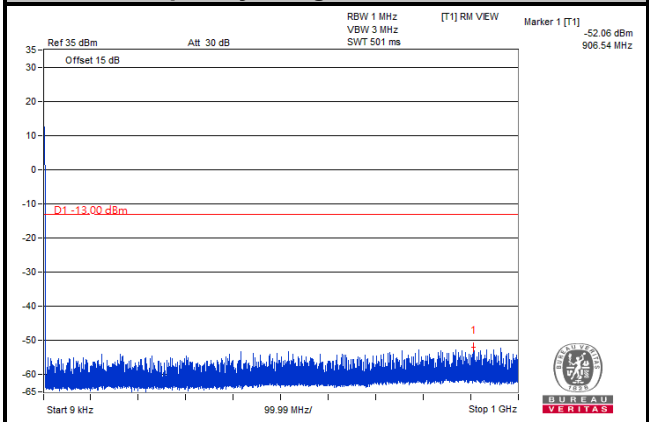
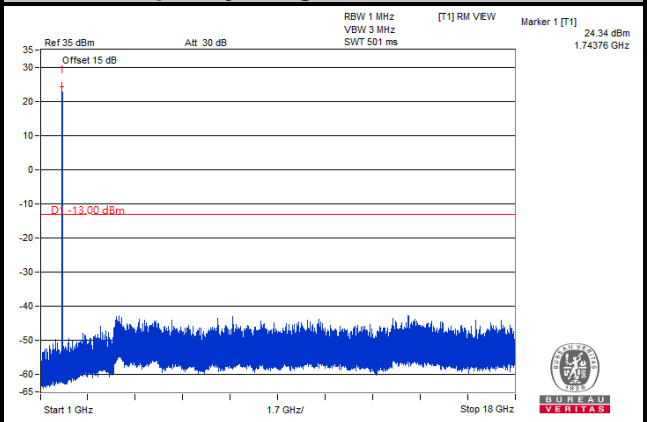
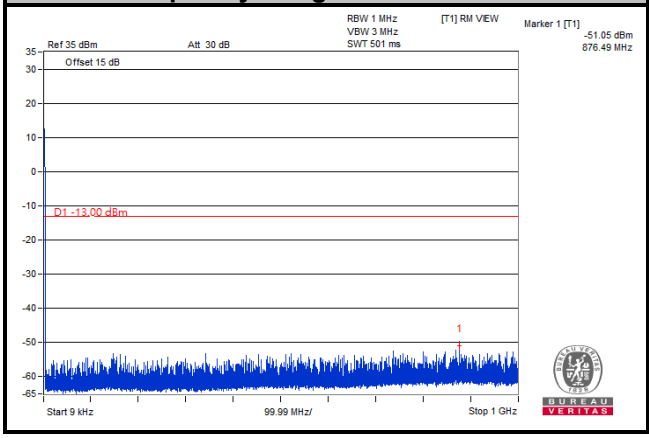
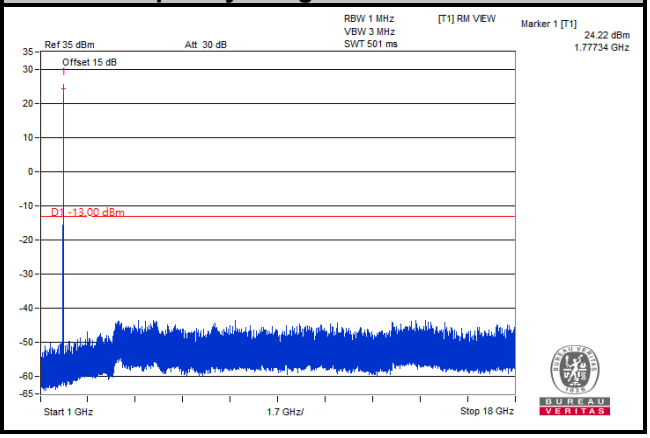
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 13	
Channel Bandwidth: 10 MHz	
Channel 23230	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 1.559 GHz
	
Frequency Range: 1.559 GHz ~ 1.61 GHz	Frequency Range: 1.61 GHz ~ 8 GHz
	

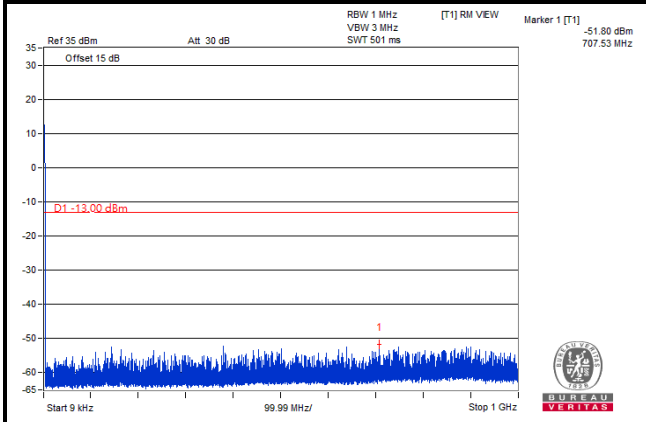
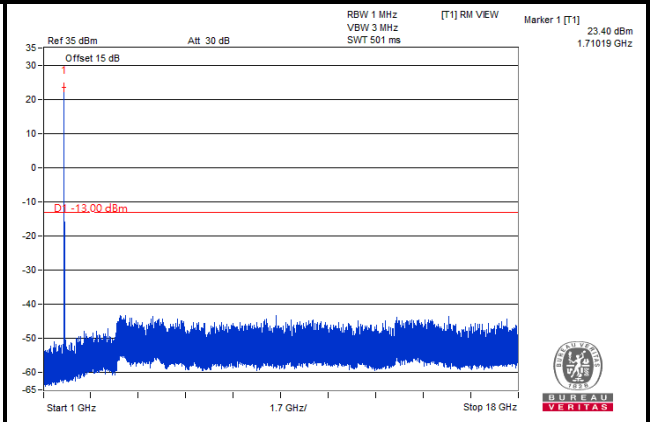
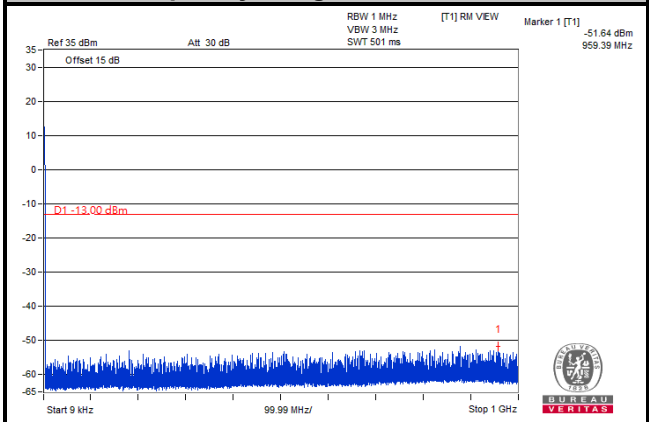
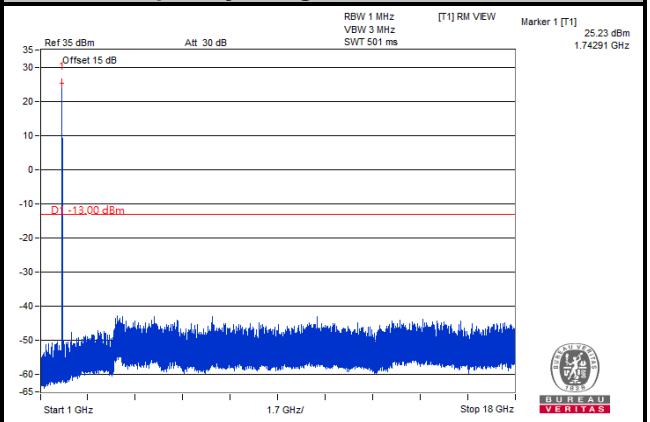
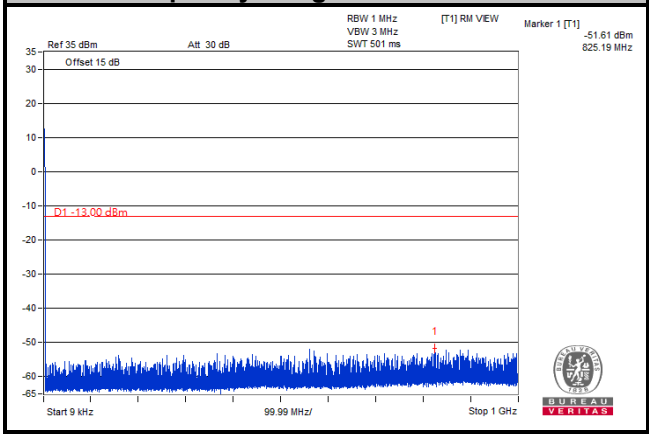
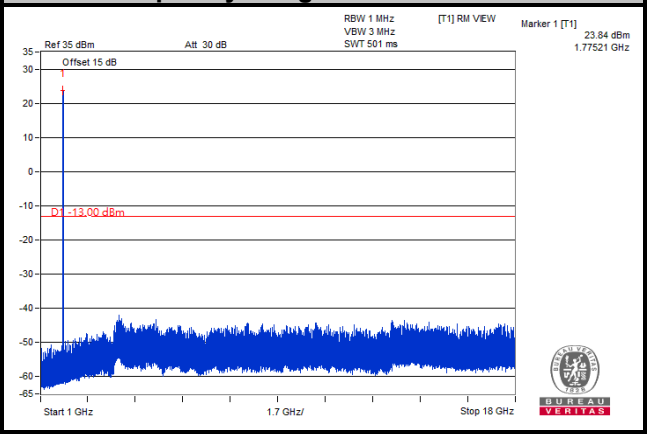
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 66	
Channel Bandwidth: 1.4 MHz	
Channel 131979	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132665	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

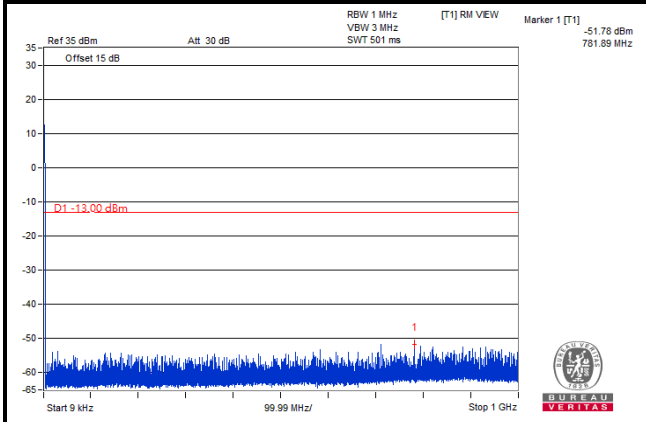
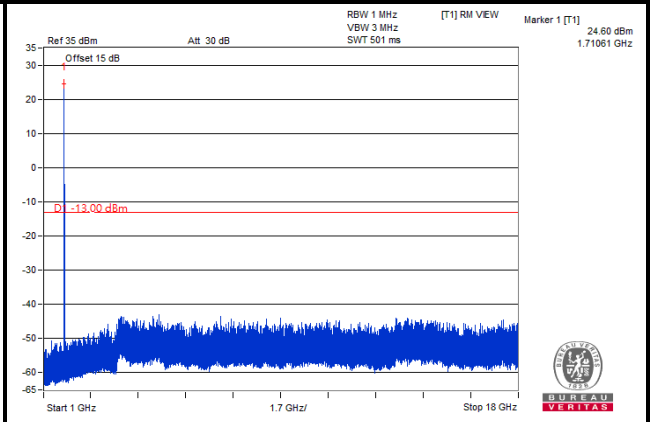
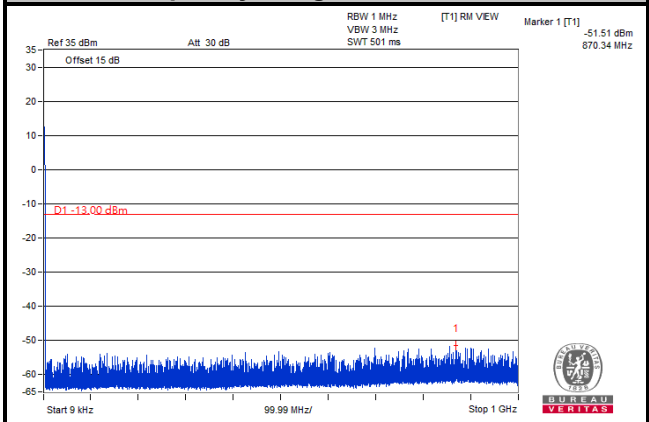
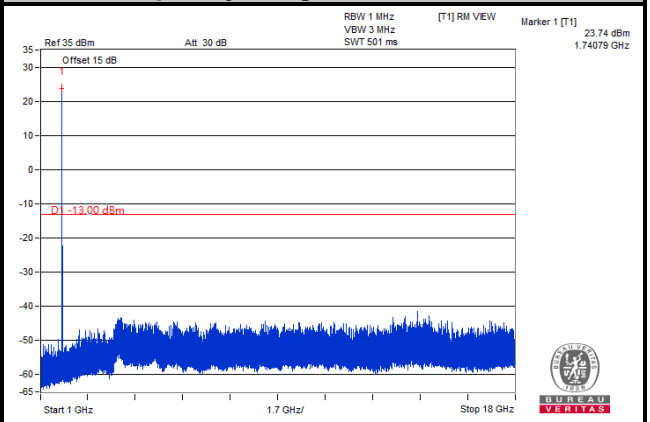
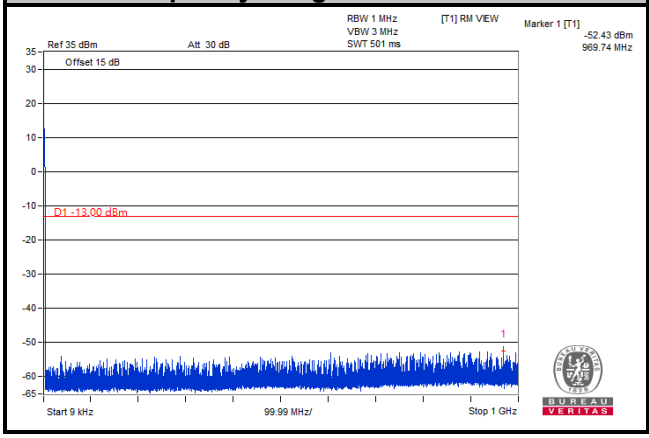
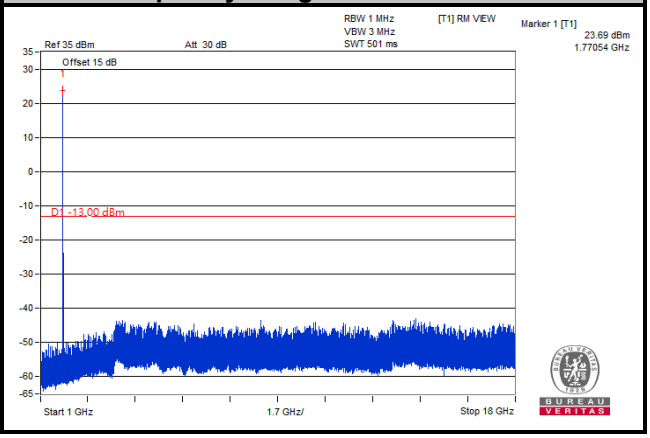
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 66	
Channel Bandwidth: 3 MHz	
Channel 131987	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132657	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

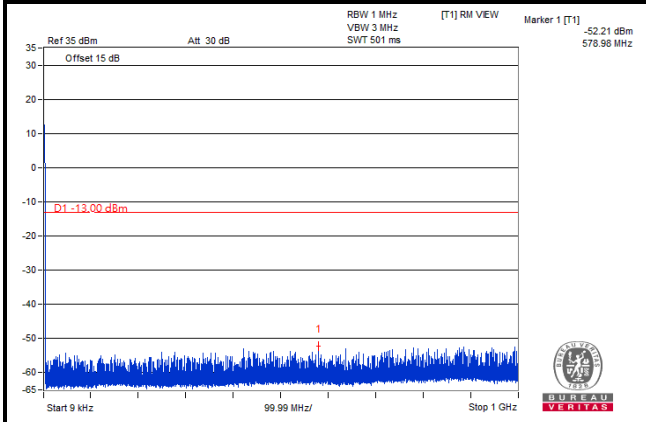
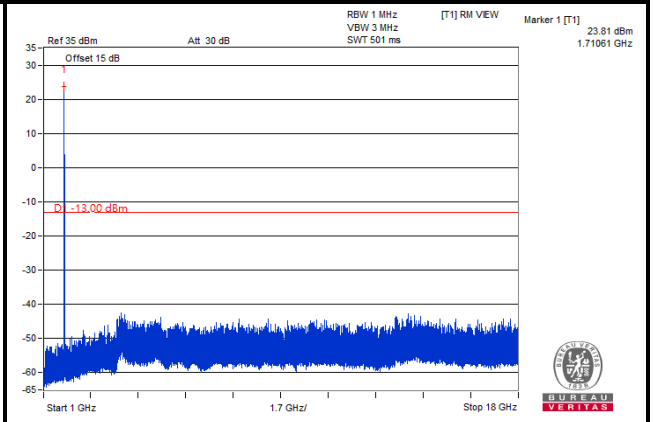
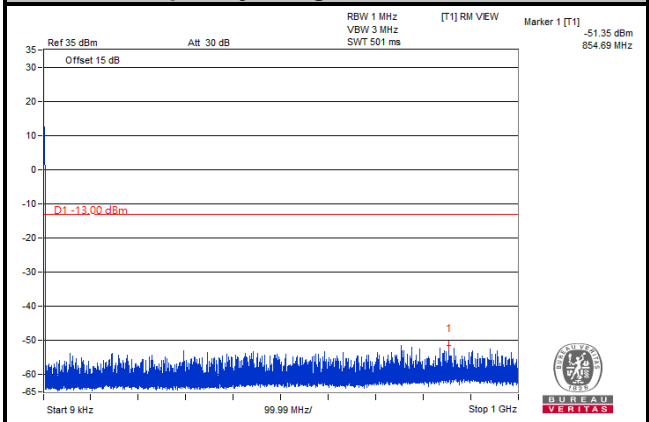
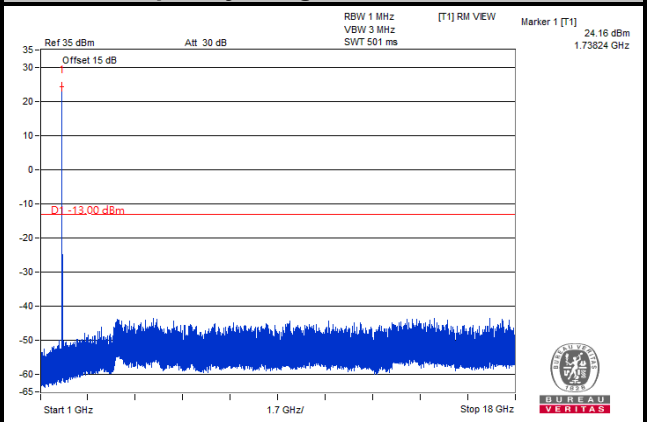
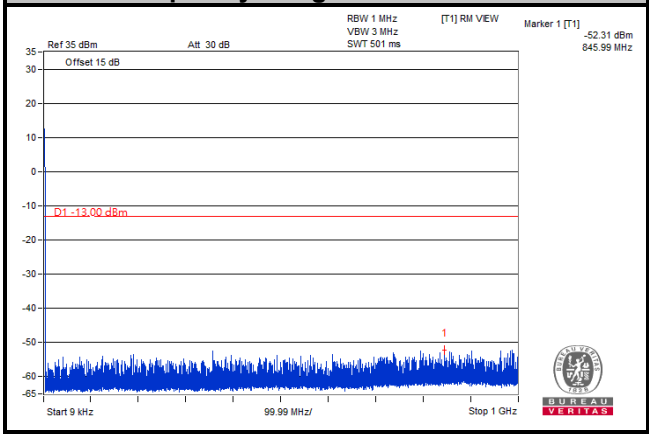
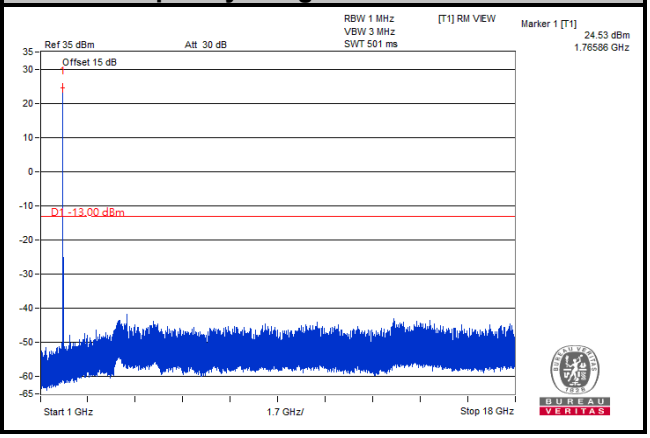
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 66	
Channel Bandwidth: 5 MHz	
Channel 131997	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132647	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

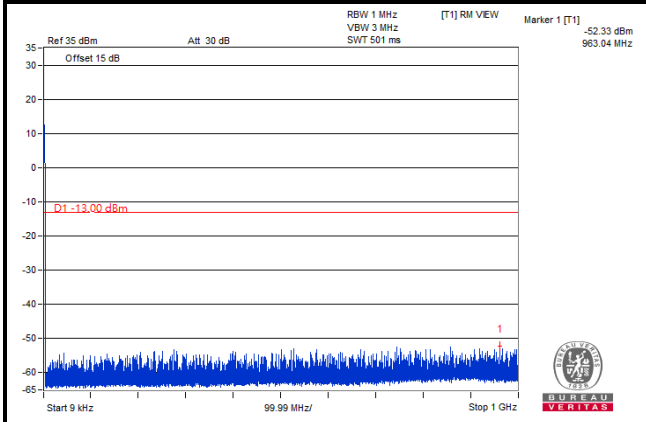
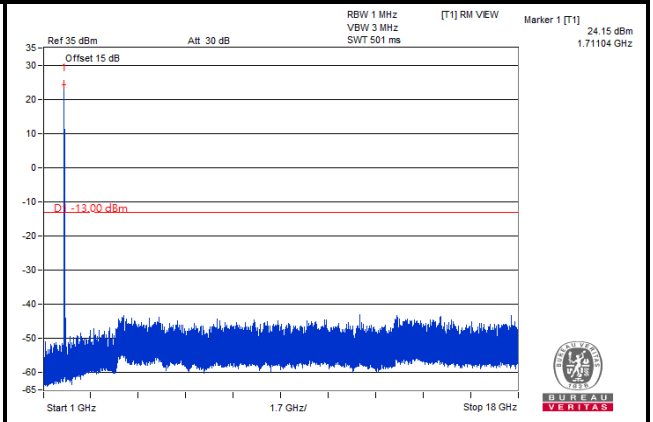
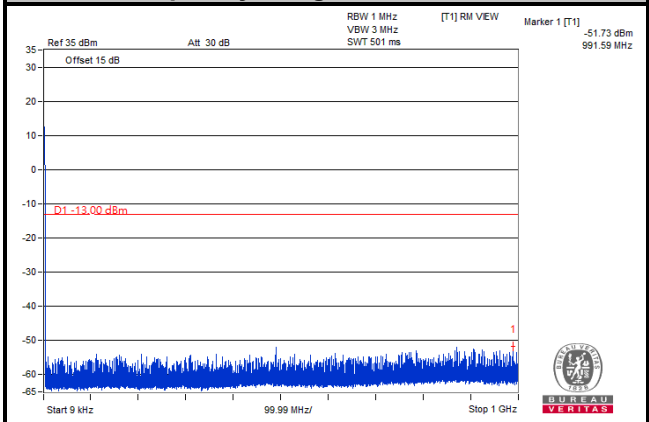
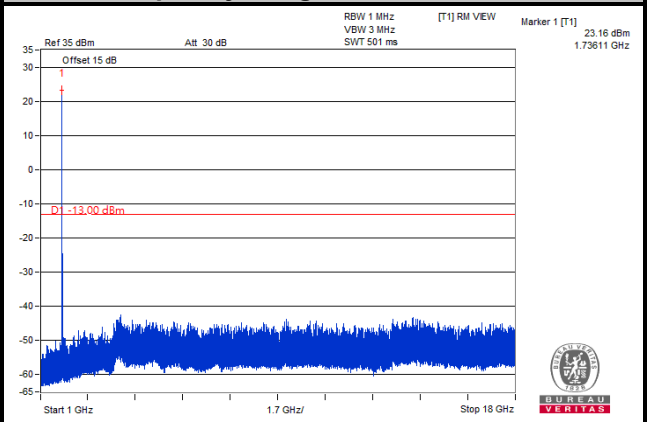
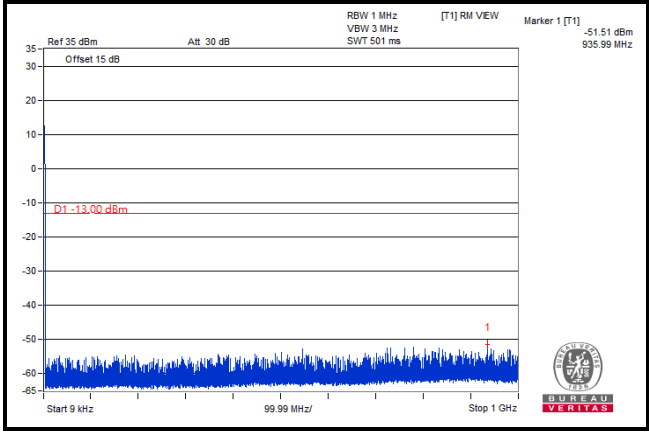
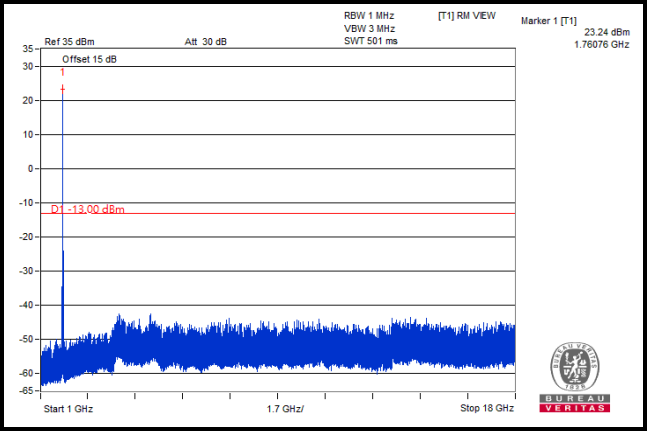
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 66	
Channel Bandwidth: 10 MHz	
Channel 132022	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132622	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 66	
Channel Bandwidth: 15 MHz	
Channel 132047	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132597	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 66	
Channel Bandwidth: 20 MHz	
Channel 132072	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 132572	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

For WCDMA band 4, LTE Band 4, 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 12:
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.

4.8.2 Test Procedure

a. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) 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 1m to 4m 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:

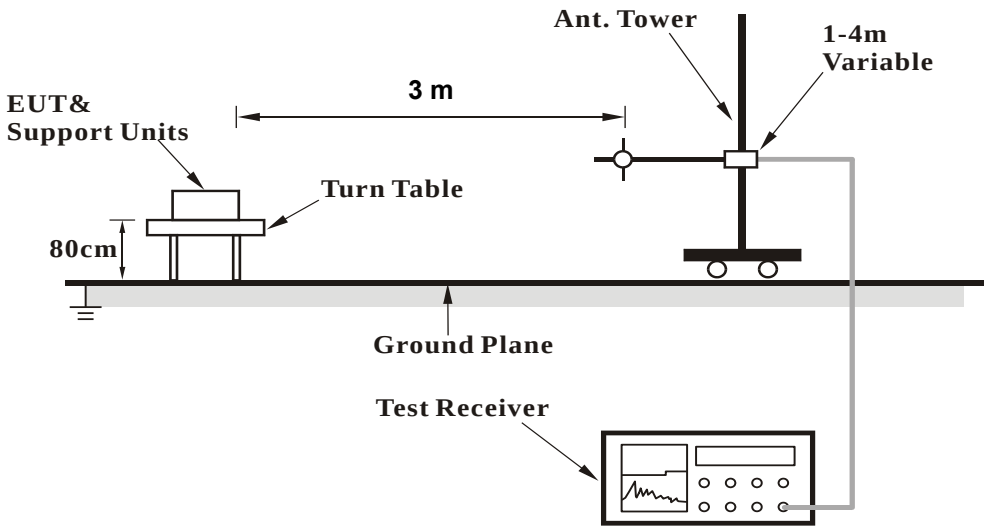
1. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.
2. The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.8.3 Deviation from Test Standard

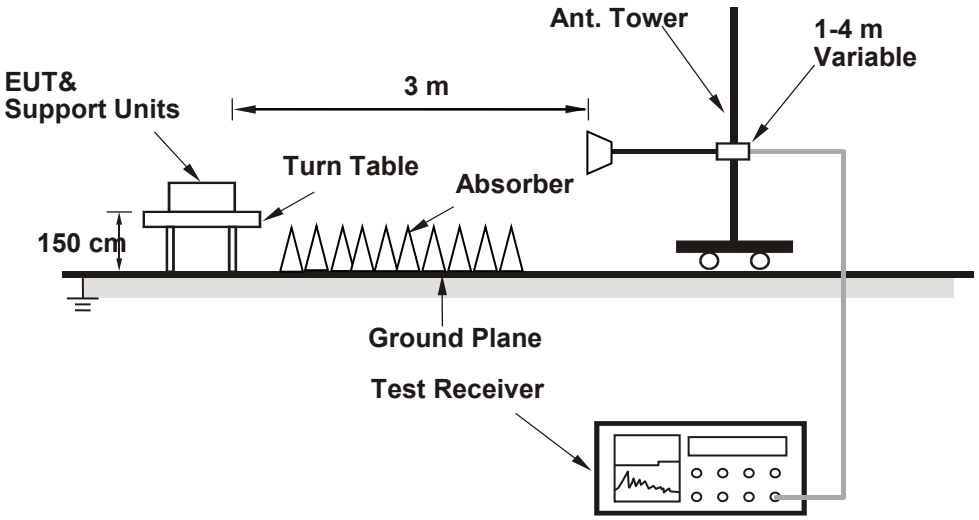
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.8.5 Test Results

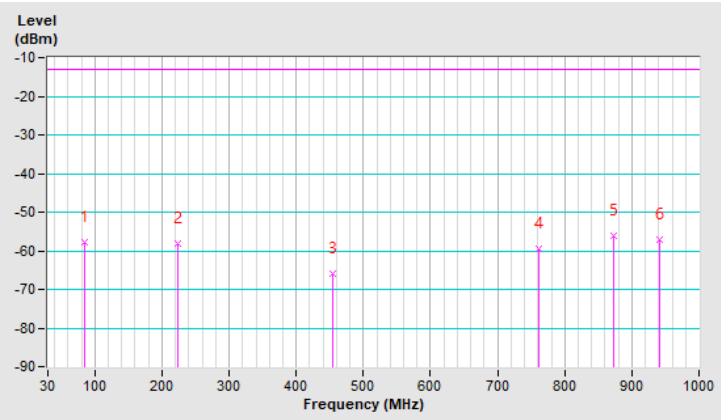
Below 1 GHz

RF Mode	TX WCDMA Band IV	**Channel**	CH 1413：1732.6 MHz
Frequency Range	30MHz ~ 1GHz		

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	84.32	-57.92	-13.00	-44.92	1.11 H	125	55.61	-113.53
2	224.00	-58.30	-13.00	-45.30	1.06 H	14	53.45	-111.75
3	453.89	-66.00	-13.00	-53.00	1.13 H	143	36.48	-102.48
4	761.38	-59.43	-13.00	-46.43	1.22 H	206	36.30	-95.73
5	872.93	-56.09	-13.00	-43.09	1.22 H	206	37.83	-93.92
6	940.83	-57.03	-13.00	-44.03	1.11 H	74	35.67	-92.70

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.

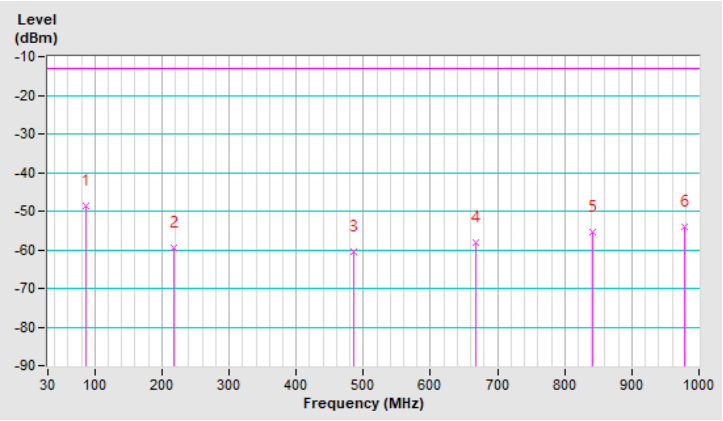


RF Mode	TX WCDMA Band IV	Channel	CH 1413：1732.6 MHz
Frequency Range	30MHz ~ 1GHz		

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	**87.23**	**-48.57**	**-13.00**	**-35.57**	**1.04 V**	**85**	**65.11**	**-113.68**
2	218.18	-59.42	-13.00	-46.42	1.17 V	36	52.14	-111.56
3	484.93	-60.39	-13.00	-47.39	1.37 V	272	41.44	-101.83
4	667.29	-58.07	-13.00	-45.07	1.22 V	161	39.41	-97.48
5	840.92	-55.43	-13.00	-42.43	1.18 V	14	38.72	-94.15
6	978.66	-54.06	-13.00	-41.06	1.04 V	235	38.18	-92.24

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.

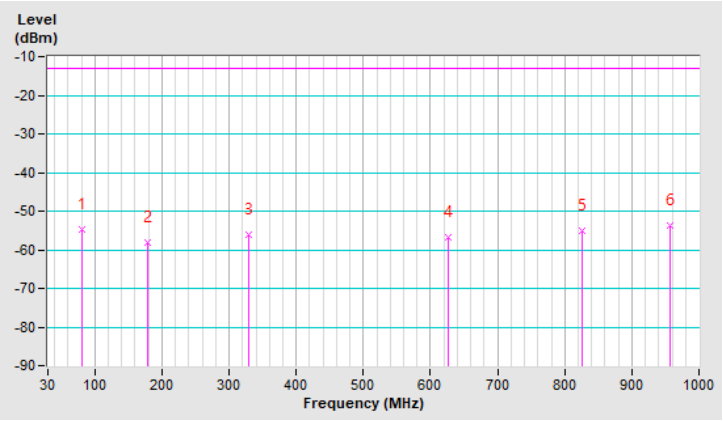


RF Mode	TX LTE Band IV-20MHz	Channel	CH 20175：1732.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	-54.60	-13.00	-41.60	1.31 H	151	58.36	-112.96
2	179.38	-58.29	-13.00	-45.29	1.16 H	322	51.14	-109.43
3	329.73	-55.97	-13.00	-42.97	1.17 H	114	50.17	-106.14
4	626.55	-56.78	-13.00	-43.78	1.01 H	129	41.27	-98.05
5	826.37	-55.00	-13.00	-42.00	1.32 H	201	39.39	-94.39
6	956.35	-53.73	-13.00	-40.73	1.05 H	43	38.76	-92.49

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.

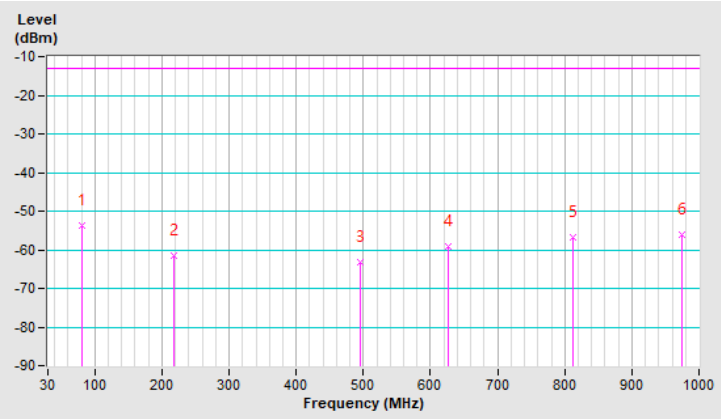


RF Mode	TX LTE Band IV-20MHz	Channel	CH 20175：1732.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	80.44	-53.82	-13.00	-40.82	1.14 V	185	59.14	-112.96
2	217.21	-61.61	-13.00	-48.61	1.04 V	157	49.92	-111.53
3	495.60	-63.21	-13.00	-50.21	1.24 V	338	38.22	-101.43
4	625.58	-59.17	-13.00	-46.17	1.07 V	151	38.92	-98.09
5	811.82	-56.71	-13.00	-43.71	1.36 V	190	38.04	-94.75
6	974.78	-56.22	-13.00	-43.22	1.03 V	192	35.96	-92.18

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.

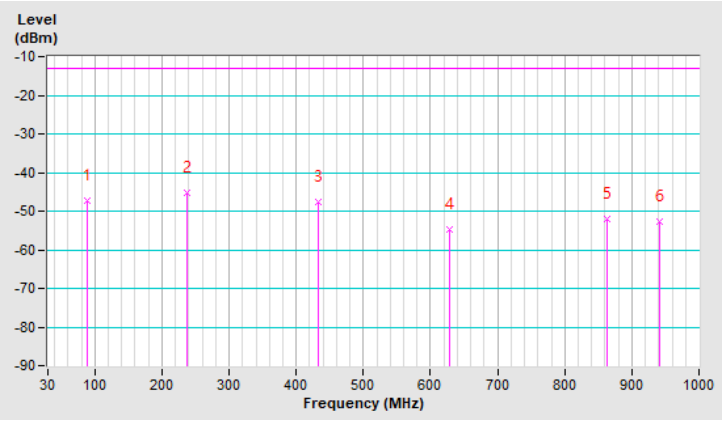


RF Mode	TX LTE Band XII-10MHz	Channel	CH 23060：704 MHz
Frequency Range	30MHz ~ 1GHz		

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	89.17	-47.13	-13.00	-34.13	1.17 H	333	68.65	-115.78
2	**237.58**	**-45.40**	**-13.00**	**-32.40**	**1.32 H**	**168**	**66.93**	**-112.33**
3	432.55	-47.52	-13.00	-34.52	1.11 H	287	57.82	-105.34
4	628.49	-54.90	-13.00	-41.90	1.24 H	341	45.25	-100.15
5	863.23	-51.99	-13.00	-38.99	1.39 H	56	44.29	-96.28
6	941.80	-52.56	-13.00	-39.56	1.29 H	97	42.25	-94.81

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.

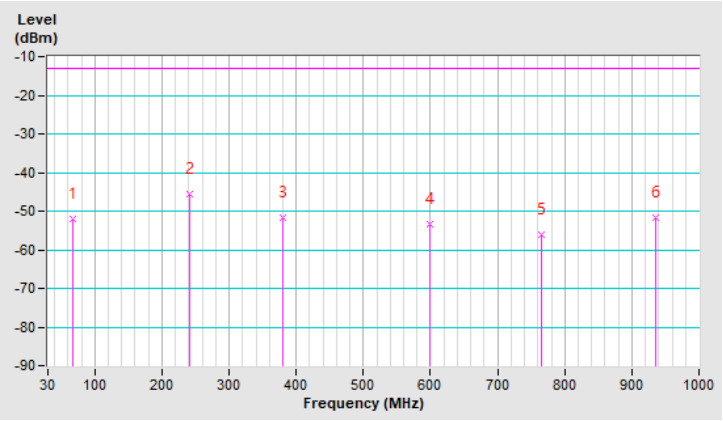


RF Mode	TX LTE Band XII-10MHz	Channel	CH 23060：704 MHz
Frequency Range	30MHz ~ 1GHz		

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	66.86	-52.16	-13.00	-39.16	1.27 V	105	59.50	-111.66
2	241.46	-45.61	-13.00	-32.61	1.34 V	151	66.50	-112.11
3	380.17	-51.86	-13.00	-38.86	1.24 V	141	55.10	-106.96
4	598.42	-53.39	-13.00	-40.39	1.03 V	133	47.58	-100.97
5	765.26	-56.19	-13.00	-43.19	1.09 V	103	41.50	-97.69
6	935.98	-51.83	-13.00	-38.83	1.26 V	343	43.34	-95.17

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.

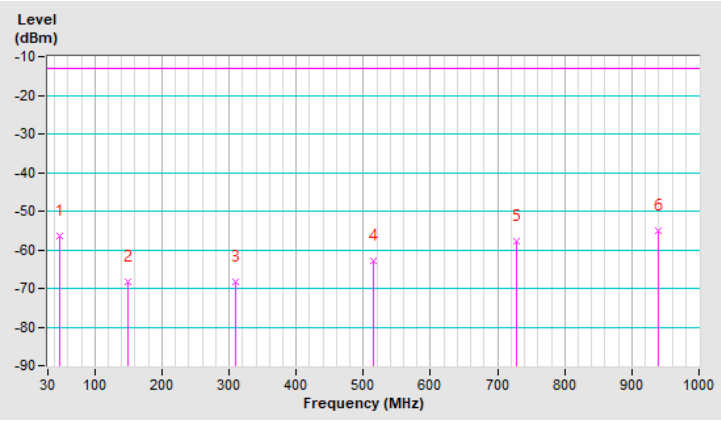


RF Mode	TX LTE Band XIII-10MHz	Channel	CH 23230：782 MHz
Frequency Range	30MHz ~ 1GHz		

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	48.43	-56.37	-13.00	-43.37	1.25 H	131	53.62	-109.99
2	149.31	-68.31	-13.00	-55.31	1.39 H	291	41.27	-109.58
3	309.36	-68.25	-13.00	-55.25	1.12 H	199	40.79	-109.04
4	514.03	-62.74	-13.00	-49.74	1.01 H	322	40.52	-103.26
5	727.43	-57.66	-13.00	-44.66	1.20 H	306	41.10	-98.76
6	938.89	-55.14	-13.00	-42.14	1.22 H	141	39.80	-94.94

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.

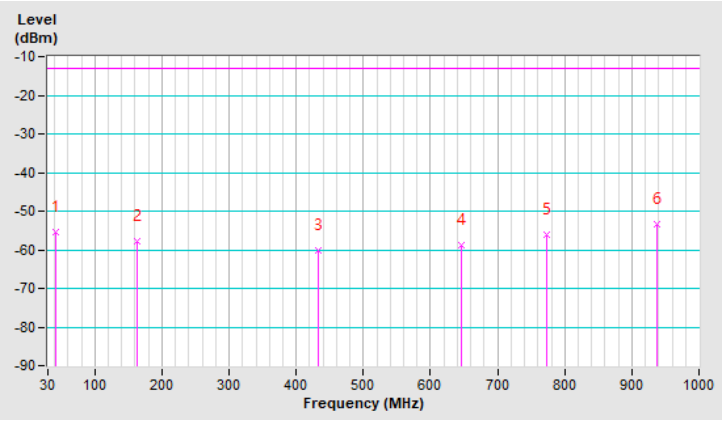


RF Mode	TX LTE Band XIII-10MHz	Channel	CH 23230：782 MHz
Frequency Range	30MHz ~ 1GHz		

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	-55.46	-13.00	-42.46	1.15 V	61	54.92	-110.38
2	163.86	-57.96	-13.00	-44.96	1.10 V	4	52.18	-110.14
3	432.55	-60.15	-13.00	-47.15	1.29 V	67	45.19	-105.34
4	645.95	-58.88	-13.00	-45.88	1.00 V	322	41.05	-99.93
5	773.99	-56.12	-13.00	-43.12	1.26 V	344	41.38	-97.50
6	936.95	-53.55	-13.00	-40.55	1.21 V	211	41.54	-95.09

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.

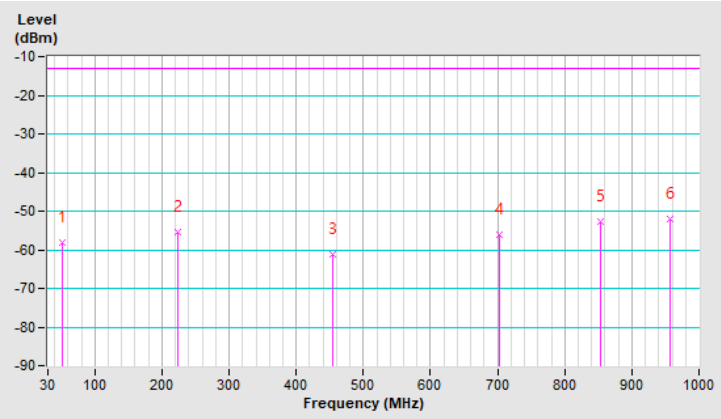


RF Mode	TX LTE Band 66-20MHz	Channel	CH 132572 : 1770.0 MHz
Frequency Range	30MHz ~ 1GHz		

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	51.34	-58.02	-13.00	-45.02	1.34 H	330	49.85	-107.87
2	224.00	-55.30	-13.00	-42.30	1.05 H	195	56.45	-111.75
3	453.89	-61.14	-13.00	-48.14	1.17 H	240	41.34	-102.48
4	702.21	-56.02	-13.00	-43.02	1.18 H	127	41.10	-97.12
5	852.56	-52.86	-13.00	-39.86	1.00 H	107	41.36	-94.22
6	957.32	-52.05	-13.00	-39.05	1.36 H	51	40.43	-92.48

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.

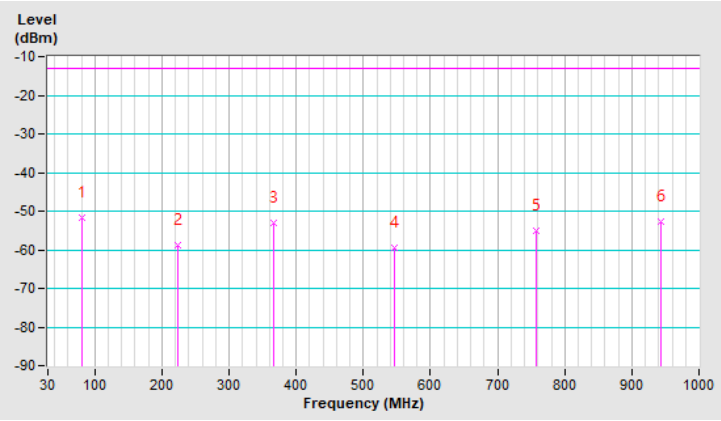


RF Mode	TX LTE Band 66-20MHz	Channel	CH 132572 : 1770.0 MHz
Frequency Range	30MHz ~ 1GHz		

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	80.44	-51.85	-13.00	-38.85	1.10 V	57	61.11	-112.96
2	223.03	-58.95	-13.00	-45.95	1.18 V	168	52.76	-111.71
3	366.59	-53.11	-13.00	-40.11	1.41 V	345	52.13	-105.24
4	547.01	-59.36	-13.00	-46.36	1.05 V	307	41.13	-100.49
5	758.47	-55.10	-13.00	-42.10	1.22 V	294	40.68	-95.78
6	942.77	-52.55	-13.00	-39.55	1.00 V	41	40.08	-92.63

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.



Above 1GHz

RF Mode	TX WCDMA Band IV	Channel	CH 1312：1712.4 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-55.38	-13.00	-42.38	1.36 H	228	61.09	-116.47
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	-53.68	-13.00	-40.68	2.09 V	333	62.79	-116.47

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.

RF Mode	TX WCDMA Band IV	Channel	CH 1413：1732.6 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-53.21	-13.00	-40.21	1.63 H	127	63.11	-116.32
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	-48.97	-13.00	-35.97	1.78 V	55	67.35	-116.32

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.

RF Mode	TX WCDMA Band IV	Channel	CH 1513：1752.6 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.89	-13.00	-41.89	2.09 H	323	61.17	-116.06
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	-52.18	-13.00	-39.18	1.41 V	202	63.88	-116.06

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.

RF Mode	TX LTE Band IV-1.4MHz	Channel	CH 19957：1710.7 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-55.05	-13.00	-42.05	1.23 H	22	61.42	-116.47
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	-53.45	-13.00	-40.45	2.06 V	104	63.02	-116.47

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.

RF Mode	TX LTE Band IV-1.4MHz	Channel	CH 20175：1732.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-52.74	-13.00	-39.74	2.39 H	137	63.58	-116.32
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	-48.55	-13.00	-35.55	1.52 V	232	67.77	-116.32

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.

RF Mode	TX LTE Band IV-1.4MHz	Channel	CH 20393：1754.3 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.59	-13.00	-41.59	1.15 H	327	61.45	-116.04
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	-51.86	-13.00	-38.86	1.97 V	104	64.18	-116.04

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.

RF Mode	TX LTE Band IV-5MHz	Channel	CH 19975：1712.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.74	-13.00	-41.74	1.63 H	207	61.72	-116.46
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	3425.00	-52.99	-13.00	-39.99	1.88 V	23	63.47	-116.46

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.

RF Mode	TX LTE Band IV-5MHz	Channel	CH 20175：1732.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-52.51	-13.00	-39.51	1.04 H	297	63.81	-116.32
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	-48.31	-13.00	-35.31	1.85 V	231	68.01	-116.32

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.

RF Mode	TX LTE Band IV-5MHz	Channel	CH 20375：1752.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.24	-13.00	-41.24	3.15 H	45	61.82	-116.06
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	-51.53	-13.00	-38.53	2.43 V	256	64.53	-116.06

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.

RF Mode	TX LTE Band IV-20MHz	Channel	CH 20050：1720 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.49	-13.00	-41.49	3.52 H	311	61.95	-116.44
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	-52.80	-13.00	-39.80	2.43 V	267	63.64	-116.44

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.

RF Mode	TX LTE Band IV-20MHz	Channel	CH 20175：1732.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-52.29	-13.00	-39.29	3.26 H	39	64.03	-116.32
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**	**-48.09**	**-13.00**	**-35.09**	**2.09 V**	**249**	**68.23**	**-116.32**

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.

RF Mode	TX LTE Band IV-20MHz	Channel	CH 20300：1745 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.16	-13.00	-41.16	3.27 H	20	62.00	-116.16
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	-51.45	-13.00	-38.45	2.47 V	253	64.71	-116.16

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.

RF Mode	TX LTE Band XII-1.4MHz	Channel	CH 23017：699.7 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-61.50	-13.00	-48.50	2.04 H	54	59.57	-121.07
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	-59.31	-13.00	-46.31	1.54 V	223	61.76	-121.07

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.

RF Mode	TX LTE Band XII-1.4MHz	Channel	CH 23095：707.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-61.39	-13.00	-48.39	1.21 H	333	59.75	-121.14
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	-59.91	-13.00	-46.91	2.03 V	154	61.23	-121.14

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.

RF Mode	TX LTE Band XII-1.4MHz	Channel	CH 23173：715.3 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-61.18	-13.00	-48.18	2.89 H	204	60.04	-121.22
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	-60.08	-13.00	-47.08	1.04 V	323	61.14	-121.22

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.

RF Mode	TX LTE Band XII-5MHz	Channel	CH 23035：701.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-61.19	-13.00	-48.19	1.52 H	354	59.89	-121.08
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	-58.95	-13.00	-45.95	2.34 V	222	62.13	-121.08

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.

RF Mode	TX LTE Band XII-5MHz	Channel	CH 23095：707.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-61.12	-13.00	-48.12	1.97 H	220	60.02	-121.14
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	-59.63	-13.00	-46.63	2.14 V	325	61.51	-121.14

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.

RF Mode	TX LTE Band XII-5MHz	Channel	CH 23155：713.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-60.89	-13.00	-47.89	1.47 H	114	60.31	-121.20
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	-59.77	-13.00	-46.77	1.56 V	253	61.43	-121.20

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.

RF Mode	TX LTE Band XII-10MHz	Channel	CH 23060：704 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-60.95	-13.00	-47.95	1.62 H	243	60.16	-121.11
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	-58.77	-13.00	-45.77	2.63 V	171	62.34	-121.11

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.

RF Mode	TX LTE Band XII-10MHz	Channel	CH 23095：707.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-60.91	-13.00	-47.91	1.37 H	223	60.23	-121.14
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	-59.42	-13.00	-46.42	2.63 V	167	61.72	-121.14

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.

RF Mode	TX LTE Band XII-10MHz	Channel	CH 23130：711 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-60.64	-13.00	-47.64	2.34 H	159	60.54	-121.18
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	-59.50	-13.00	-46.50	1.45 V	223	61.68	-121.18

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.

RF Mode	TX LTE Band XIII-5MHz	Channel	CH 23205：779.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.96	-40.00	-14.96	1.24 H	112	64.86	-119.82
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	-51.94	-40.00	-11.94	1.13 V	146	67.88	-119.82

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.

RF Mode	TX LTE Band XIII-5MHz	Channel	CH 23230：782 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.87	-40.00	-14.87	1.72 H	317	64.97	-119.84
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	-52.58	-40.00	-12.58	1.72 V	317	67.26	-119.84

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.

RF Mode	TX LTE Band XIII-5MHz	Channel	CH 23255：784.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-55.04	-40.00	-15.04	3.93 H	215	64.84	-119.88
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	1569.00	-52.40	-40.00	-12.40	1.17 V	318	67.48	-119.88

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.

RF Mode	TX LTE Band XIII-10MHz	Channel	CH 23230：782 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-54.91	-40.00	-14.91	1.02 H	258	64.93	-119.84
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**	**-51.79**	**-40.00**	**-11.79**	**1.37 V**	**11**	**68.05**	**-119.84**

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.

RF Mode	TX LTE Band 66-1.4MHz	Channel	CH 131979 : 1710.7 MHz
Frequency Range	1GMHz ~ 18GHz		

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	3421.14	-53.51	-13.00	-40.51	3.22 H	111	62.96	-116.47
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	3421.14	-52.19	-13.00	-39.19	1.42 V	25	64.28	-116.47

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.

RF Mode	TX LTE Band 66-1.4MHz	Channel	CH 132322 : 1745.0 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-53.15	-13.00	-40.15	2.82 H	106	63.01	-116.16
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	-51.75	-13.00	-38.75	1.15 V	23	64.41	-116.16

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.

RF Mode	TX LTE Band 66-1.4MHz	Channel	CH 132665 : 1779.3 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-51.36	-13.00	-38.36	3.71 H	209	64.51	-115.87
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	3558.60	-50.45	-13.00	-37.45	2.04 V	337	65.42	-115.87

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.

RF Mode	TX LTE Band 66-5MHz	Channel	CH 131997 : 1712.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-53.15	-13.00	-40.15	2.87 H	264	63.31	-116.46
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	3425.00	-51.85	-13.00	-38.85	1.35 V	297	64.61	-116.46

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.

RF Mode	TX LTE Band 66-5MHz	Channel	CH 132322 : 1745.0 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-52.84	-13.00	-39.84	3.25 H	201	63.32	-116.16
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	-51.41	-13.00	-38.41	1.87 V	102	64.75	-116.16

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.

RF Mode	TX LTE Band 66-5MHz	Channel	CH 132647 : 1777.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-50.91	-13.00	-37.91	2.87 H	112	64.97	-115.88
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	3555.00	-50.29	-13.00	-37.29	1.55 V	220	65.59	-115.88

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.

RF Mode	TX LTE Band 66-20MHz	Channel	CH 132072 : 1720.0 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-52.92	-13.00	-39.92	2.99 H	311	63.52	-116.44
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	-51.59	-13.00	-38.59	2.30 V	258	64.85	-116.44

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.

RF Mode	TX LTE Band 66-20MHz	Channel	CH 132322 : 1745.0 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-52.62	-13.00	-39.62	3.11 H	305	63.54	-116.16
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	-51.17	-13.00	-38.17	2.31 V	267	64.99	-116.16

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.

RF Mode	TX LTE Band 66-20MHz	Channel	CH 132575 : 1770.0 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-51.19	-13.00	-38.19	3.23 H	311	64.74	-115.93
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**	**-50.11**	**-13.00**	**-37.11**	**2.24 V**	**238**	**65.82**	**-115.93**

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 according to ISO/IEC 17025.

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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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