FCC Test Report
(Part 27: LTE Band 4, 12)

Report No.:	RF161004D09E-1
FCC ID:	HFS-C401U
Test Model:	C401U
Received Date:	Jan. 12, 2018
Test Date:	Mar. 29 ~ Mar. 30, 2018
Issued Date:	Mar. 31, 2018
Applicant:	QUANTA COMPUTER INC.
Address:	188, WEN HUA 2ND RD., GUISHAN DIST., TAO YUAN CITY 33377, TAIWAN
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration/ Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF161004D09E-1	Original release	Mar. 31, 2018

1 Certificate of Conformity

Product:	Clover Flex
Brand:	clover
Test Model:	C401U
Sample Status:	Engineering sample
Applicant:	QUANTA COMPUTER INC.
Test Date:	Mar. 29 ~ Mar. 30, 2018
Standards:	FCC Part 27, Subpart L, H

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 : , **Date:** Mar. 31, 2018

Pettie Chen / Senior Specialist

Approved by : , **Date:** Mar. 31, 2018

Bruce Chen / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2				
FCC Clause		Test Item	Result	Remarks
LTE Band 4	LTE Band 12			
2.1046 27.50(d)(4)	2.1046 27.50(b)(10)	Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
----	----	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 27.54	2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049 27.53(m)(6)	2.1049 27.53(m)(6)	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(c)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(c)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(c)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -7.9dB at 1415.00MHz.

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	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY51210137	Jun. 23, 2017	Jun. 22, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	May 11, 2017	May 10, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Dec. 12, 2017	Dec. 11, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Aug. 08, 2017	Aug. 07, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A01638	Feb. 22, 2018	Feb. 21, 2019
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2018	Jan. 14, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Aug. 08, 2017	Aug. 07, 2018
RF signal cable Woken	8D-FB	Cable-CH9-01	Aug. 01, 2017	Jul. 31, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 07, 2017	Jun. 06, 2018
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Aug. 09, 2017	Aug. 08, 2018
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

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 9.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-9.

3 General Information

3.1 General Description of EUT

Product	Clover Flex		
Brand	clover		
Test Model	C401U		
HVIN	C401ULTE		
Status of EUT	Engineering sample		
Power Supply Rating	7.6 Vdc (Battery) 12Vdc (Adapter)		
Modulation Type	QPSK, 16QAM		
Operating Frequency	LTE Band 4	Channel Bandwidth 1.4MHz	1710.7MHz ~ 1754.3MHz
		Channel Bandwidth 3MHz	1711.5MHz ~ 1753.5MHz
		Channel Bandwidth 5MHz	1712.5MHz ~ 1752.5MHz
		Channel Bandwidth 10MHz	1715MHz ~ 1750MHz
		Channel Bandwidth 15MHz	1717.5MHz ~ 1747.5MHz
		Channel Bandwidth 20MHz	1720MHz ~ 1745MHz
	LTE Band 12	Channel Bandwidth 1.4MHz	699.7MHz ~ 715.3MHz
		Channel Bandwidth 3MHz	700.5MHz ~ 714.5MHz
		Channel Bandwidth 5MHz	701.5MHz ~ 713.5MHz
		Channel Bandwidth 10MHz	704MHz ~ 711MHz
Max. EIRP Power	LTE Band 4	Modulation: QPSK	
		Channel Bandwidth 1.4MHz	208.930mW (23.2dBm)
		Channel Bandwidth 3MHz	223.872mW (23.5dBm)
		Channel Bandwidth 5MHz	213.796mW (23.3dBm)
		Channel Bandwidth 10MHz	234.423mW (23.7dBm)
		Channel Bandwidth 15MHz	229.883mW (23.8dBm)
		Channel Bandwidth 20MHz	229.087mW (23.6dBm)
		Modulation: 16QAM	
		Channel Bandwidth 1.4MHz	169.824mW (22.3dBm)
		Channel Bandwidth 3MHz	181.970mW (22.6dBm)
		Channel Bandwidth 5MHz	162.181mW (22.1dBm)
		Channel Bandwidth 10MHz	177.828mW (22.5dBm)
		Channel Bandwidth 15MHz	177.828mW (22.5dBm)
		Channel Bandwidth 20MHz	181.970mW (22.6dBm)

Max. ERP Power	LTE Band 12	Modulation: QPSK	
		Channel Bandwidth 1.4MHz	144.544mW (21.6dBm)
		Channel Bandwidth 3MHz	134.896mW (21.3dBm)
		Channel Bandwidth 5MHz	144.544mW (21.6dBm)
		Channel Bandwidth 10MHz	141.254mW (21.5dBm)
		Modulation: 16QAM	
		Channel Bandwidth 1.4MHz	112.202mW (20.5dBm)
		Channel Bandwidth 3MHz	109.648mW (20.4dBm)
		Channel Bandwidth 5MHz	112.202mW (20.5dBm)
		Channel Bandwidth 10MHz	109.648mW (20.4dBm)
Emission Designator	LTE Band 4	Modulation: QPSK	
		Channel Bandwidth 1.4MHz	1M08G7D
		Channel Bandwidth 3MHz	2M70G7D
		Channel Bandwidth 5MHz	4M47G7D
		Channel Bandwidth 10MHz	8M98G7D
		Channel Bandwidth 15MHz	13M5G7D
		Channel Bandwidth 20MHz	18M0G7D
		Modulation: 16QAM	
		Channel Bandwidth 1.4MHz	1M09W7D
		Channel Bandwidth 3MHz	2M69W7D
		Channel Bandwidth 5MHz	4M47W7D
		Channel Bandwidth 10MHz	8M98W7D
		Channel Bandwidth 15MHz	13M4W7D
		Channel Bandwidth 20MHz	18M1W7D
	LTE Band 12	Modulation: QPSK	
		Channel Bandwidth 1.4MHz	1M08G7D
		Channel Bandwidth 3MHz	2M70G7D
		Channel Bandwidth 5MHz	4M47G7D
		Channel Bandwidth 10MHz	8M98G7D
		Modulation: 16QAM	
		Channel Bandwidth 1.4MHz	1M09W7D
		Channel Bandwidth 3MHz	2M69W7D
		Channel Bandwidth 5MHz	4M47W7D
		Channel Bandwidth 10MHz	8M98W7D
Antenna Type	Refer to Note		
Antenna Connector	Refer to Note		
Accessory Device	Charging Dock (Brand: Clover, Model: K400) Microhub (Brand: Clover, Model: H400)		
Data Cable Supplied	0.8m shielded Type-C cable without core		

Note:

1. The EUT consumes power from the following battery and adapter.

Battery	
Brand	LG Chem, Ltd.
Model	MPPCLOYJ4
Rating	7.6Vdc, 2170mAh (Typ)

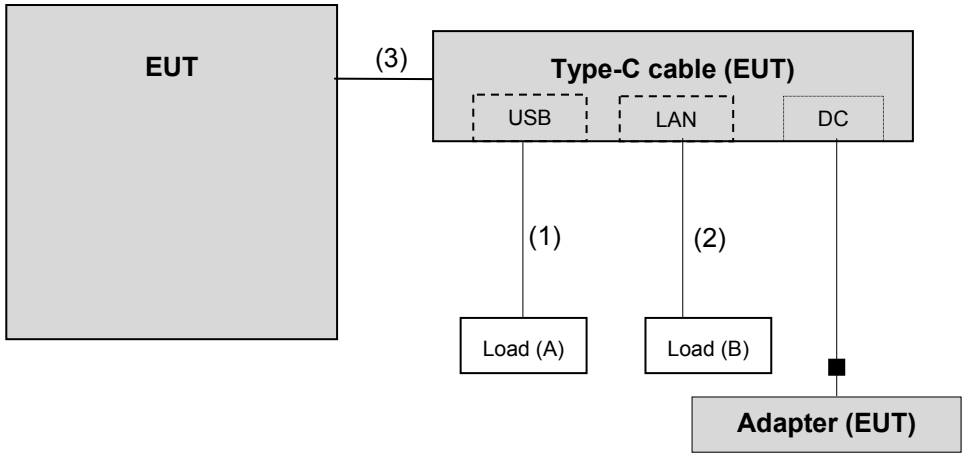
Adapter	
Brand	clover
Model	FSP040-RHBN2 A
Input Power	100-240Vac~,1.5A,50-60Hz
Output Power	12.0Vdc / 3.33A
Power Line	1.2m shielded DC cable with one core

2. The EUT uses following antennas.

Antenna	Vendor	Antenna Type	Antenna Connector	Frequency Range (MHz)	Antenna Gain (dBi)
Antenna 1 (Main)	Amphenol	PIFA	NA	LTE Band 4	-3.58
				LTE Band 12	-4.49
Antenna 1 (Aux.)	Amphenol		IPEX MHF4	LTE Band 4	Rx only
				LTE Band 12	Rx only
Antenna 2 (Main)	Luxshare-ICT	PIFA	NA	LTE Band 4	-2.7
				LTE Band 12	-2.2
Antenna 2 (Aux.)	Luxshare-ICT		IPEX MHF4	LTE Band 4	Rx only
				LTE Band 12	Rx only

*Antenna 2 was the worst for the final test.

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.	Load	N/A	N/A	N/A	N/A	-
B.	Load	N/A	N/A	N/A	N/A	-
C.	Universal Radio Communication Tester	R&S	CMU200	123112	NA	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	1.8	N	0	-
2.	LAN cable	1	1.8	N	0	-
3.	Type-C cable	1	0.8	Y	0	Accessory of EUT

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 on X-plane. Following channel(s) was (were) selected for the final test as listed below:

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Output Power	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	19957 to 20393	20175(1732.5MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20175(1732.5MHz)	20MHz	QPSK,	100 RB / 0 RB Offset
-	Frequency Stability	19957 to 20393	20175(1732.5MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
-	Emission Bandwidth	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Band Edge	19957 to 20393	19957(1710.7MHz), 20393(1754.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20385(1753.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20375(1752.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20350(1750.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20325(1747.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20300(1745.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset 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	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK	6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK	15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK	75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK	100 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	19957 to 20393	19957(1710.7MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset

LTE Band 12

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Output Power	23017 to 23171	23017 (699.7MHz) 23095(707.5MHz) 23173 (715.3MHz)	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz) 23095(707.5 MHz) 23165(714.5MHz)	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz) 23095(707.5MHz) 23155(713.5MHz)	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23060 to 23130	23060(704MHz) 23095(707.5 MHz) 23130(711.0 MHz)	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23017 to 23171	23095(707.5MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23095(707.5 MHz)	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Frequency Stability	23017 to 23171	23017 (699.7MHz) 23095(707.5MHz) 23173 (715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz) 23095(707.5 MHz) 23165(714.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz) 23095(707.5MHz) 23155(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060(704MHz) 23095(707.5 MHz) 23130(711.0 MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Emission Bandwidth	23017 to 23171	23017 (699.7MHz) 23095(707.5MHz) 23173 (715.3MHz)	1.4MHz	QPSK / 16QAM	6 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz) 23095(707.5 MHz) 23165(714.5MHz)	3MHz	QPSK / 16QAM	15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz) 23095(707.5MHz) 23155(713.5MHz)	5MHz	QPSK / 16QAM	25 RB / 0 RB Offset
		23060 to 23130	23060(704MHz) 23095(707.5 MHz) 23130(711.0 MHz)	10MHz	QPSK / 16QAM	50 RB / 0 RB Offset
-	Band Edge	23017 to 23171	23017 (699.7MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 6 RB / 0 RB Offset
			23173 (715.3MHz)	1.4MHz	QPSK	1 RB / 5 RB Offset 6 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 15 RB / 0 RB Offset
			23165(714.5MHz)	3MHz	QPSK	1 RB / 14 RB Offset 15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			23155(713.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23060 to 23130	23060(704MHz)	10MHz	QPSK	1 RB / 0 RB Offset 50 RB / 0 RB Offset
			23130(711.0 MHz)	10MHz	QPSK	1 RB / 49 RB Offset 50 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	23017 to 23171	23017 (699.7MHz) 23095(707.5MHz) 23173 (715.3MHz)	1.4MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz) 23095(707.5 MHz) 23165(714.5MHz)	3MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz) 23095(707.5MHz) 23155(713.5MHz)	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		23060 to 23130	23060(704MHz) 23095(707.5 MHz) 23130(711.0 MHz)	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Conducted Spurious Emission	23017 to 23171	23017 (699.7MHz) 23095(707.5MHz) 23173 (715.3MHz)	1.4MHz	QPSK	6 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz) 23095(707.5 MHz) 23165(714.5MHz)	3MHz	QPSK	15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz) 23095(707.5MHz) 23155(713.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		23060 to 23130	23060(704MHz) 23095(707.5 MHz) 23130(711.0 MHz)	10MHz	QPSK	50 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23017 to 23171	23017 (699.7MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060(704MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23017 to 23171	23017 (699.7MHz) 23095(707.5MHz) 23173 (715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025 (700.5MHz) 23095(707.5 MHz) 23165(714.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz) 23095(707.5MHz) 23155(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060(704MHz) 23095(707.5 MHz) 23130(711.0 MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, low, mid and high channels were pre-tested in chamber with 1.4MHz mode. Low channel was found to be the worst case and therefore had been chosen for all final tests.
2. The conducted output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only Emission Bandwidth had been tested under QPSK and 16QAM modes, the others test items were performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25deg. C, 66%RH	120Vac, 60Hz	James Yang
Modulation characteristics	25deg. C, 66%RH	120Vac, 60Hz	James Yang
Frequency Stability	25deg. C, 66%RH	120Vac, 60Hz	James Yang
Occupied Bandwidth	25deg. C, 66%RH	120Vac, 60Hz	James Yang
Band Edge	25deg. C, 66%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	25deg. C, 66%RH	120Vac, 60Hz	James Yang
Conducted Emission	25deg. C, 66%RH	120Vac, 60Hz	James Yang
Radiated Emission	25deg. C, 66%RH	120Vac, 60Hz	James Yang Greg Lin

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

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

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 1 watts e.i.r.p for LTE Band 4 and 3 watts e.r.p for LTE Band 12.

4.1.2 Test Procedures

EIRP / ERP Measurement:

a. All measurements were done at low, middle and high operational frequency range. RWB and VBW is 5MHz for LTE Mode.

b. Substitution method is used for E.I.R.P measurement. 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.

c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value“ of step b. Record the power level of S.G

d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

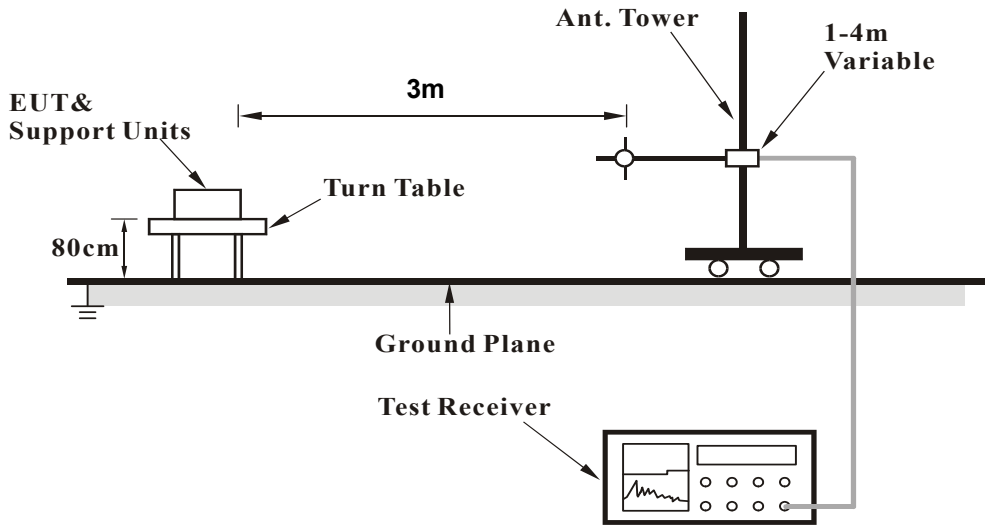
Conducted Power Measurement:

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

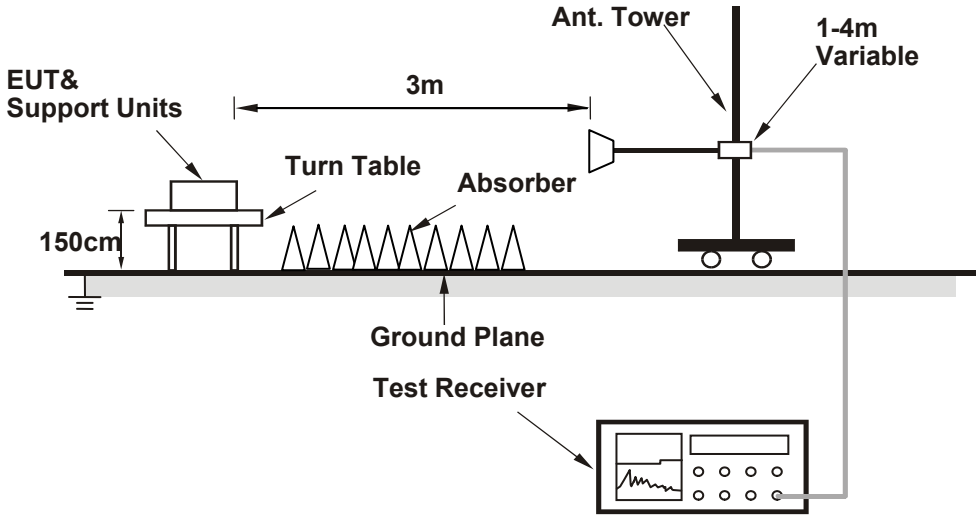
4.1.3 Test Setup

EIRP / ERP MEASUREMENT:

For Radiated Emission below or equal 1GHz



For Radiated Emission above 1GHz



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

CONDUCTED POWER MEASUREMENT:

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

4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 4

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 19957	Mid CH 20175	High CH 20393	Low CH 19957	Mid CH 20175	High CH 20393
			1710.7 MHz	1732.5 MHz	1754.3 MHz	1710.7 MHz	1732.5 MHz	1754.3 MHz
4 / 1.4M	1	0	22.27	22.30	22.12	21.23	21.26	21.08
	1	2	21.75	21.76	21.72	20.71	20.72	20.68
	1	5	21.66	21.36	21.44	20.62	20.32	20.40
	3	0	21.14	21.24	21.08	20.10	20.20	20.06
	3	1	21.15	21.17	21.13	20.09	20.13	20.04
	3	3	21.07	21.09	21.03	20.06	20.11	20.03
	6	0	20.95	20.99	20.93	19.91	19.95	19.89
Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 19965	Mid CH 20175	High CH 20385	Low CH 19965	Mid CH 20175	High CH 20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz	1711.5 MHz	1732.5 MHz	1753.5 MHz
4 / 3M	1	0	22.40	22.43	22.25	21.36	21.39	21.21
	1	7	21.88	21.89	21.85	20.84	20.85	20.81
	1	14	21.79	21.49	21.57	20.75	20.45	20.53
	8	0	21.27	21.37	21.11	20.23	20.33	20.07
	8	3	20.94	21.00	20.93	19.90	19.96	19.89
	8	7	20.97	20.84	20.87	19.93	19.80	19.83
	15	0	21.08	21.12	21.06	20.04	20.08	20.02
Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 19975	Mid CH 20175	High CH 20375	Low CH 19975	Mid CH 20175	High CH 20375
			1712.5 MHz	1732.5 MHz	1752.5 MHz	1712.5 MHz	1732.5 MHz	1752.5 MHz
4 / 5M	1	0	22.46	22.49	22.31	21.42	21.45	21.27
	1	12	21.94	21.95	21.91	20.90	20.91	20.87
	1	24	21.85	21.55	21.63	20.81	20.51	20.59
	12	0	21.33	21.43	21.17	20.29	20.39	20.13
	12	6	21.00	21.06	20.99	19.96	20.02	19.95
	12	13	21.03	20.90	20.93	19.99	19.86	19.89
	25	0	21.14	21.18	21.12	20.10	20.14	20.08

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 20000	Mid CH 20175	High CH 20350	Low CH 20000	Mid CH 20175	High CH 20350
			1715.0 MHz	1732.5 MHz	1750.0 MHz	1715.0 MHz	1732.5 MHz	1750.0 MHz
4 / 10M	1	0	22.57	22.60	22.42	21.53	21.56	21.38
	1	24	22.05	22.06	22.02	21.01	21.02	20.98
	1	49	21.96	21.66	21.74	20.92	20.62	20.70
	25	0	21.44	21.54	21.28	20.40	20.50	20.24
	25	12	21.11	21.17	21.10	20.07	20.13	20.06
	25	25	21.14	21.01	21.04	20.10	19.97	20.00
	50	0	21.25	21.29	21.23	20.21	20.25	20.19
Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 20025	Mid CH 20175	High CH 20325	Low CH 20025	Mid CH 20175	High CH 20325
			1717.5 MHz	1732.5 MHz	1747.5 MHz	1717.5 MHz	1732.5 MHz	1747.5 MHz
4 / 15M	1	0	22.66	22.69	22.51	21.62	21.65	21.47
	1	37	22.14	22.15	22.11	21.10	21.11	21.07
	1	74	22.05	21.75	21.83	21.01	20.71	20.79
	36	0	21.53	21.63	21.37	20.49	20.59	20.33
	36	19	21.20	21.26	21.19	20.16	20.22	20.15
	36	39	21.23	21.10	21.13	20.19	20.06	20.09
	75	0	21.34	21.38	21.32	20.30	20.34	20.28
Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 20050	Mid CH 20175	High CH 20300	Low CH 20050	Mid CH 20175	High CH 20300
			1720.0 MHz	1732.5 MHz	1745.0 MHz	1720.0 MHz	1732.5 MHz	1745.0 MHz
4 / 20M	1	0	22.73	22.76	22.58	21.69	21.72	21.54
	1	50	22.21	22.22	22.18	21.17	21.18	21.14
	1	99	22.12	21.82	21.90	21.08	20.78	20.86
	50	0	21.60	21.70	21.44	20.56	20.66	20.40
	50	25	21.27	21.33	21.26	20.23	20.29	20.22
	50	50	21.30	21.17	21.20	20.26	20.13	20.16
	100	0	21.41	21.45	21.39	20.37	20.41	20.35

LTE Band 12

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 23017	Mid CH 23095	High CH 23173	Low CH 23017	Mid CH 23095	High CH 23173
			699.7 MHz	707.5 MHz	715.3 MHz	699.7 MHz	707.5 MHz	715.3 MHz
12 / 1.4M	1	0	21.79	22.03	21.96	20.74	20.98	20.91
	1	2	21.60	21.83	21.70	20.55	20.78	20.65
	1	5	21.75	21.95	21.82	20.70	20.90	20.77
	3	0	20.82	20.98	20.85	19.77	19.93	19.80
	3	1	20.70	20.94	20.89	19.65	19.89	19.84
	3	3	20.80	20.90	20.87	19.75	19.85	19.82
	6	0	20.74	20.93	20.90	19.69	19.88	19.85
Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 23025	Mid CH 23095	High CH 23165	Low CH 23025	Mid CH 23095	High CH 23165
			700.5 MHz	707.5 MHz	714.5 MHz	700.5 MHz	707.5 MHz	714.5 MHz
12 / 3M	1	0	21.88	22.12	22.05	20.83	21.07	21.00
	1	7	21.69	21.92	21.79	20.64	20.87	20.74
	1	14	21.84	22.04	21.91	20.79	20.99	20.86
	8	0	20.91	21.07	20.94	19.86	20.02	19.89
	8	3	20.79	21.03	20.98	19.74	19.98	19.93
	8	7	20.89	20.99	20.96	19.84	19.94	19.91
	15	0	20.83	21.02	20.99	19.78	19.97	19.94
Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 23035	Mid CH 23095	High CH 23155	Low CH 23035	Mid CH 23095	High CH 23155
			701.5 MHz	707.5 MHz	713.5 MHz	701.5 MHz	707.5 MHz	713.5 MHz
12 / 5M	1	0	22.00	22.24	22.17	20.95	21.19	21.12
	1	12	21.81	22.04	21.91	20.76	20.99	20.86
	1	24	21.96	22.16	22.03	20.91	21.11	20.98
	12	0	21.03	21.19	21.06	19.98	20.14	20.01
	12	6	20.91	21.15	21.10	19.86	20.10	20.05
	12	13	21.01	21.11	21.08	19.96	20.06	20.03
	25	0	20.95	21.14	21.11	19.90	20.09	20.06
Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH 23060	Mid CH 23095	High CH 23130	Low CH 23060	Mid CH 23095	High CH 23130
			704 MHz	707.5 MHz	711 MHz	704 MHz	707.5 MHz	711 MHz
12 / 10M	1	0	22.08	22.32	22.25	21.03	21.27	21.20
	1	24	21.89	22.12	21.99	20.84	21.07	20.94
	1	49	22.04	22.24	22.11	20.99	21.19	21.06
	25	0	21.11	21.27	21.14	20.06	20.22	20.09
	25	12	20.99	21.23	21.18	19.94	20.18	20.13
	25	25	21.09	21.19	21.16	20.04	20.14	20.11
	50	0	21.03	21.22	21.19	19.98	20.17	20.14

EIRP Power (dBm)

LTE Band 4

Modulation: QPSK

Channel Bandwidth: 1.4MHz

MODE		TX channel 19957					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1710.70	-18.3	19.7	0.7	20.4	30.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1710.70	-15.4	22.4	0.7	23.1	30.0	-6.9

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-17.9	20.5	0.6	21.1	30.0	-8.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-15.7	22.6	0.6	23.2	30.0	-6.8

MODE		TX channel 20393					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1754.30	-18.4	20.4	0.5	20.9	30.0	-9.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1754.30	-16.3	22.6	0.5	23.1	30.0	-6.9

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 3MHz

MODE	TX channel 19965						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1711.50	-18.3	19.7	0.7	20.4	30.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1711.50	-15.2	22.6	0.7	23.3	30.0	-6.7

MODE	TX channel 20175						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-18.2	20.2	0.6	20.8	30.0	-9.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-15.4	22.9	0.6	23.5	30.0	-6.5

MODE	TX channel 20385						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1753.50	-18.6	20.2	0.5	20.7	30.0	-9.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1753.50	-16.2	22.7	0.5	23.2	30.0	-6.8

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 5MHz

MODE		TX channel 19975					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.50	-19.3	18.8	0.7	19.5	30.0	-10.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.50	-18.7	19.2	0.7	19.9	30.0	-10.1

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-18.6	19.8	0.6	20.4	30.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-16.4	21.9	0.6	22.5	30.0	-7.5

MODE		TX channel 20375					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1752.50	-17.6	21.2	0.5	21.7	30.0	-8.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1752.50	-16.0	22.8	0.5	23.3	30.0	-6.7

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE		TX channel 20000					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.00	-18.5	19.6	0.7	20.3	30.0	-9.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.00	-15.3	22.6	0.7	23.3	30.0	-6.7

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-18.2	20.2	0.6	20.8	30.0	-9.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-15.2	23.1	0.6	23.7	30.0	-6.3

MODE		TX channel 20350					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1750.00	-17.8	21.0	0.5	21.5	30.0	-8.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1750.00	-16.1	22.7	0.5	23.2	30.0	-6.8

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 15MHz

MODE		TX channel 20025					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.50	-17.3	20.8	0.7	21.5	30.0	-8.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.50	-15.3	22.7	0.7	23.4	30.0	-6.6

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-17.7	20.7	0.6	21.3	30.0	-8.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-15.7	22.6	0.6	23.2	30.0	-6.8

MODE		TX channel 20325					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-17.5	21.2	0.5	21.7	30.0	-8.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-13.3	23.3	0.5	23.8	30.0	-6.2

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 20MHz

MODE		TX channel 20050					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.00	-17.5	20.7	0.7	21.4	30.0	-8.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.00	-15.1	22.9	0.7	23.6	30.0	-6.4

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-18.0	20.4	0.6	21.0	30.0	-9.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-15.8	22.5	0.6	23.1	30.0	-6.9

MODE		TX channel 20300					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1745.00	-17.9	20.8	0.5	21.3	30.0	-8.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1745.00	-15.7	23.0	0.5	23.5	30.0	-6.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation: 16QAM

Channel Bandwidth: 1.4MHz

MODE	TX channel 19957						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1710.70	-19.5	18.5	0.7	19.2	30.0	-10.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1710.70	-16.5	21.3	0.7	22.0	30.0	-8.0

MODE	TX channel 20175						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-18.8	19.6	0.6	20.2	30.0	-9.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-16.6	21.7	0.6	22.3	30.0	-7.7

MODE	TX channel 20393						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1754.30	-19.3	19.5	0.5	20.0	30.0	-10.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1754.30	-17.2	21.7	0.5	22.2	30.0	-7.8

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 3MHz

MODE	TX channel 19965						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1711.50	-19.5	18.5	0.7	19.2	30.0	-10.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1711.50	-16.4	21.4	0.7	22.1	30.0	-7.9

MODE	TX channel 20175						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-19.0	19.4	0.6	20.0	30.0	-10.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-16.3	22.0	0.6	22.6	30.0	-7.4

MODE	TX channel 20385						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1753.50	-19.5	19.3	0.5	19.8	30.0	-10.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1753.50	-17.2	21.7	0.5	22.2	30.0	-7.8

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 5MHz

MODE		TX channel 19975					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.50	-20.4	17.7	0.7	18.4	30.0	-11.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.50	-19.7	18.2	0.7	18.9	30.0	-11.1

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-19.6	18.8	0.6	19.4	30.0	-10.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-17.5	20.8	0.6	21.4	30.0	-8.6

MODE		TX channel 20375					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1752.50	-18.8	20.0	0.5	20.5	30.0	-9.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1752.50	-17.2	21.6	0.5	22.1	30.0	-7.9

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE		TX channel 20000					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.00	-19.7	18.4	0.7	19.1	30.0	-10.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.00	-16.5	21.4	0.7	22.1	30.0	-7.9

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-19.2	19.2	0.6	19.8	30.0	-10.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-16.4	21.9	0.6	22.5	30.0	-7.5

MODE		TX channel 20350					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1750.00	-18.7	20.1	0.5	20.6	30.0	-9.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1750.00	-17.3	21.5	0.5	22.0	30.0	-8.0

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 15MHz

MODE		TX channel 20025					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.50	-18.3	19.8	0.7	20.5	30.0	-9.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.50	-16.3	21.7	0.7	22.4	30.0	-7.6

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-18.6	19.8	0.6	20.4	30.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-16.6	21.7	0.6	22.3	30.0	-7.7

MODE		TX channel 20325					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-18.4	20.3	0.5	20.8	30.0	-9.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1747.50	-16.7	22.0	0.5	22.5	30.0	-7.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 20MHz

MODE		TX channel 20050					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.00	-18.4	19.8	0.7	20.5	30.0	-9.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.00	-16.3	21.7	0.7	22.4	30.0	-7.6

MODE		TX channel 20175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-18.8	19.6	0.6	20.2	30.0	-9.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1732.50	-16.6	21.7	0.6	22.3	30.0	-7.7

MODE		TX channel 20300					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1745.00	-18.9	19.8	0.5	20.3	30.0	-9.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1745.00	-16.6	22.1	0.5	22.6	30.0	-7.4

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12

Modulation: QPSK

Channel Bandwidth: 1.4MHz

MODE	TX channel 23017						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-6.9	17.6	3.5	21.1	34.8	-13.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm))	Limit (dBm)	Margin (dB)
1	699.70	-14.8	12.7	3.5	16.2	34.8	-18.6

MODE	TX channel 23095						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-7.4	17.3	3.5	20.8	34.8	-14.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.9	12.9	3.5	16.4	34.8	-18.4

MODE	TX channel 23173						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-6.9	18.1	3.5	21.6	34.8	-13.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-14.6	13.0	3.5	16.5	34.8	-18.3

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 3MHz

MODE	TX channel 23025						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-7.1	17.4	3.5	20.9	34.8	-13.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-14.6	13.0	3.5	16.5	34.8	-18.3

MODE	TX channel 23095						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-7.1	17.6	3.5	21.1	34.8	-13.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.4	13.3	3.5	16.8	34.8	-18.0

MODE	TX channel 23165						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-7.2	17.8	3.5	21.3	34.8	-13.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-14.9	12.7	3.5	16.2	34.8	-18.6

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 5MHz

MODE	TX channel 23035						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-7.9	16.7	3.4	20.1	34.8	-14.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-15.0	12.7	3.4	16.1	34.8	-18.7

MODE	TX channel 23095						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-6.6	18.1	3.5	21.6	34.8	-13.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.1	12.6	3.5	16.1	34.8	-18.7

MODE	TX channel 23155						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-7.2	17.8	3.5	21.3	34.8	-13.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-14.8	13.0	3.5	16.5	34.8	-18.3

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE	TX channel 23060						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-7.1	17.6	3.5	21.1	34.8	-13.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-14.9	12.7	3.5	16.2	34.8	-18.6

MODE	TX channel 23095						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-7.4	17.3	3.5	20.8	34.8	-14.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.9	12.8	3.5	16.3	34.8	-18.5

MODE	TX channel 23130						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-7.0	18.0	3.5	21.5	34.8	-13.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-15.0	12.6	3.5	16.1	34.8	-18.7

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation: 16QAM

Channel Bandwidth: 1.4MHz

MODE		TX channel 23017					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-9.9	16.7	3.5	20.2	34.8	-14.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm))	Limit (dBm)	Margin (dB)
1	699.70	-17.8	11.8	3.5	15.3	34.8	-19.5

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-10.8	16.1	3.5	19.6	34.8	-15.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.0	11.9	3.5	15.4	34.8	-19.4

MODE		TX channel 23173					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-10.1	17.0	3.5	20.5	34.8	-14.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-17.6	12.1	3.5	15.6	34.8	-19.2

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 3MHz

MODE	TX channel 23025						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-10.0	16.6	3.5	20.1	34.8	-14.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-17.6	12.1	3.5	15.6	34.8	-19.2

MODE	TX channel 23095						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-10.4	16.5	3.5	20.0	34.8	-14.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-17.5	12.4	3.5	15.9	34.8	-18.9

MODE	TX channel 23165						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-10.2	16.9	3.5	20.4	34.8	-14.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-18.1	11.7	3.5	15.2	34.8	-19.6

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 5MHz

MODE	TX channel 23035						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-10.9	15.8	3.4	19.2	34.8	-15.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-18.2	11.6	3.4	15.0	34.8	-19.8

MODE	TX channel 23095						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-9.9	17.0	3.5	20.5	34.8	-14.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.1	11.8	3.5	15.3	34.8	-19.5

MODE	TX channel 23155						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-10.3	16.8	3.5	20.3	34.8	-14.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-18.0	11.9	3.5	15.4	34.8	-19.4

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE	TX channel 23060						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-10.2	16.6	3.5	20.1	34.8	-14.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-18.0	11.8	3.5	15.3	34.8	-19.5

MODE	TX channel 23095						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-10.8	16.1	3.5	19.6	34.8	-15.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.0	11.9	3.5	15.4	34.8	-19.4

MODE	TX channel 23130						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-10.2	16.9	3.5	20.4	34.8	-14.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-18.0	11.7	3.5	15.2	34.8	-19.6

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

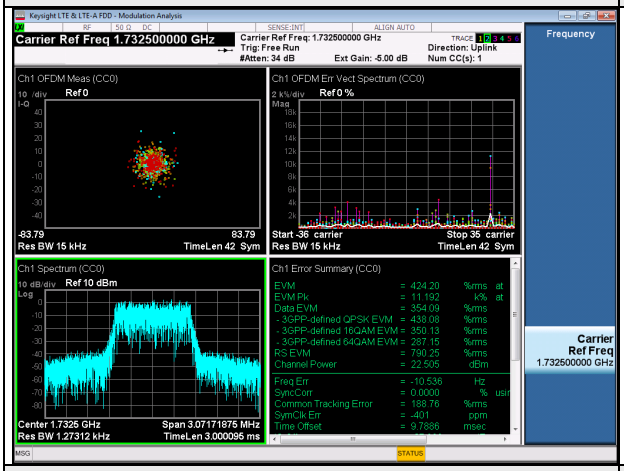
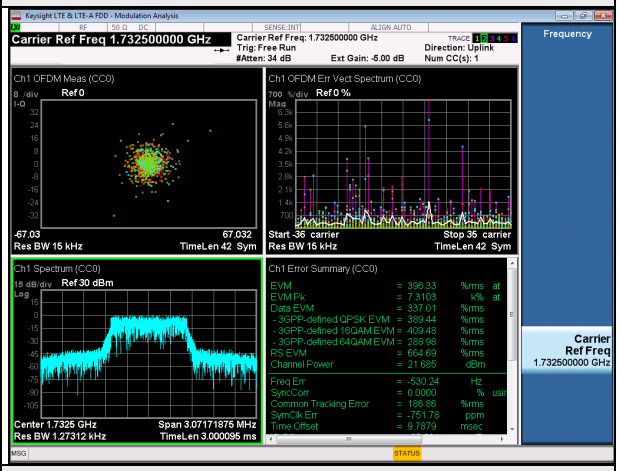
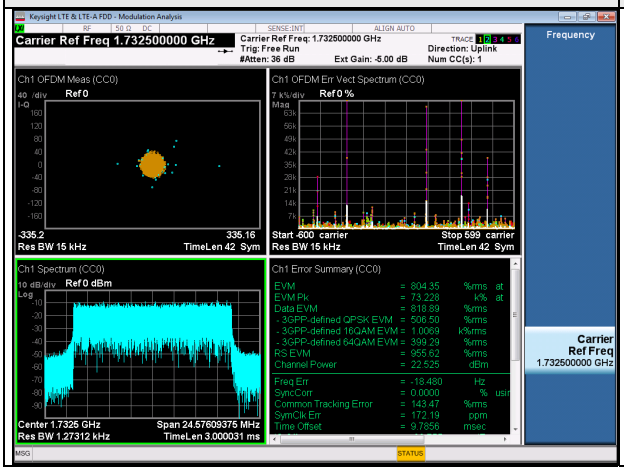
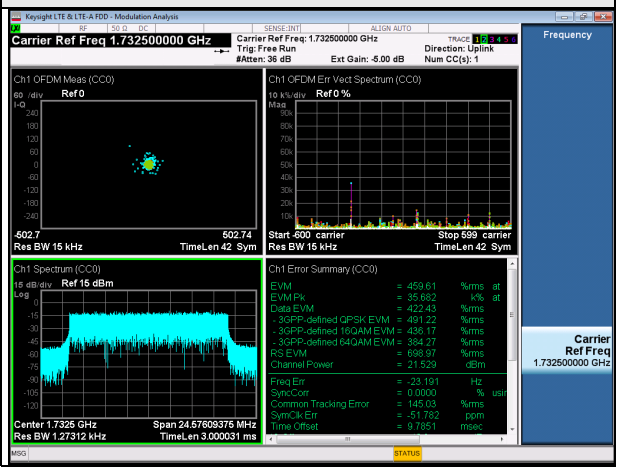
N/A

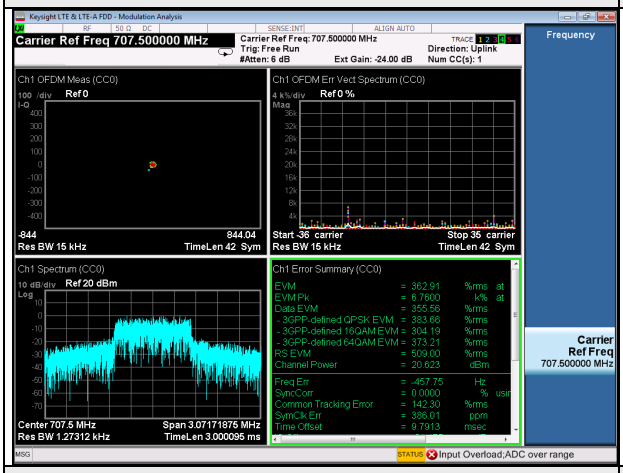
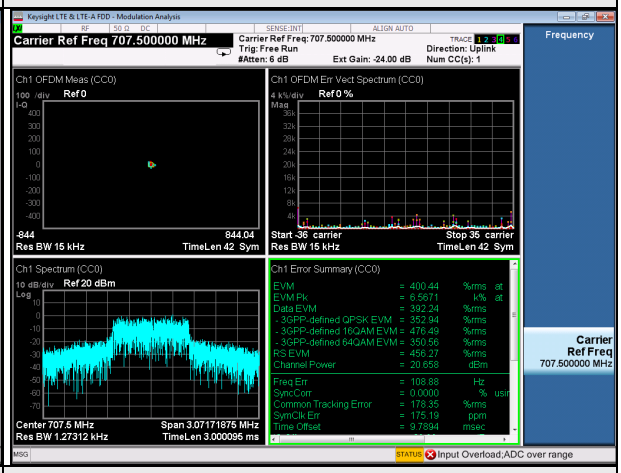
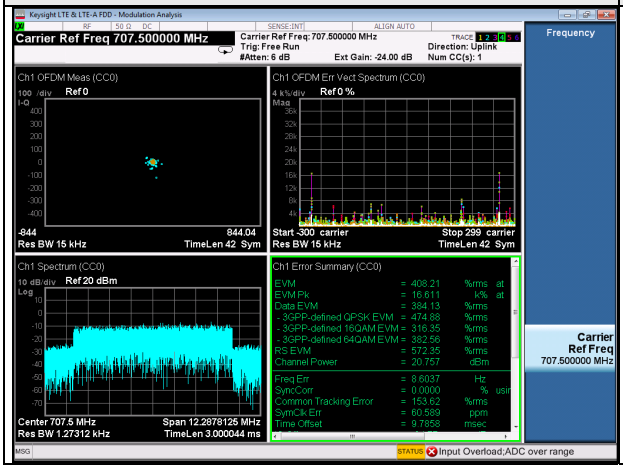
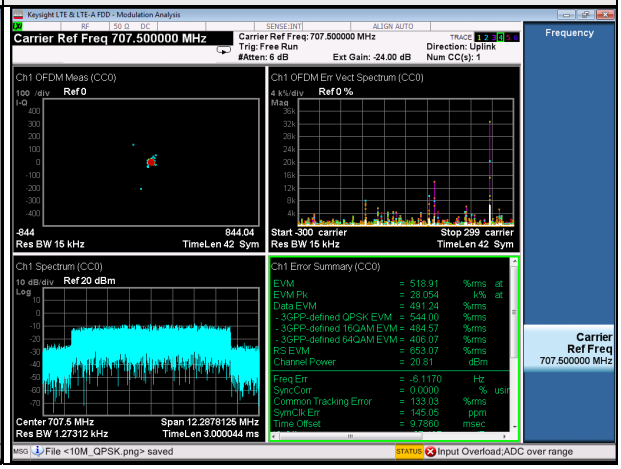
4.2.2 Test Procedure

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.

4.2.3 Test Setup

4.2.4 Test Results

LTE Band 4	
Spectrum Plot of Measurement Value	
Channel: 20175 / Frequency (MHz): 1732.5MHz	
Channel Bandwidth: 1.4MHz / QPSK	Channel Bandwidth: 1.4MHz / 16QAM
	
Channel Bandwidth: 20MHz / QPSK	Channel Bandwidth: 20MHz / 16QAM
	

LTE Band 12	
Spectrum Plot of Measurement Value	
Channel: 23095 / Frequency (MHz): 707.5 MHz	
Channel Bandwidth: 1.4MHz / QPSK	Channel Bandwidth: 1.4MHz / 16QAM
	
Channel Bandwidth: 10MHz / QPSK	Channel Bandwidth: 10MHz / 16QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT -30℃ ~ 50℃.

4.3.2 Test Procedure

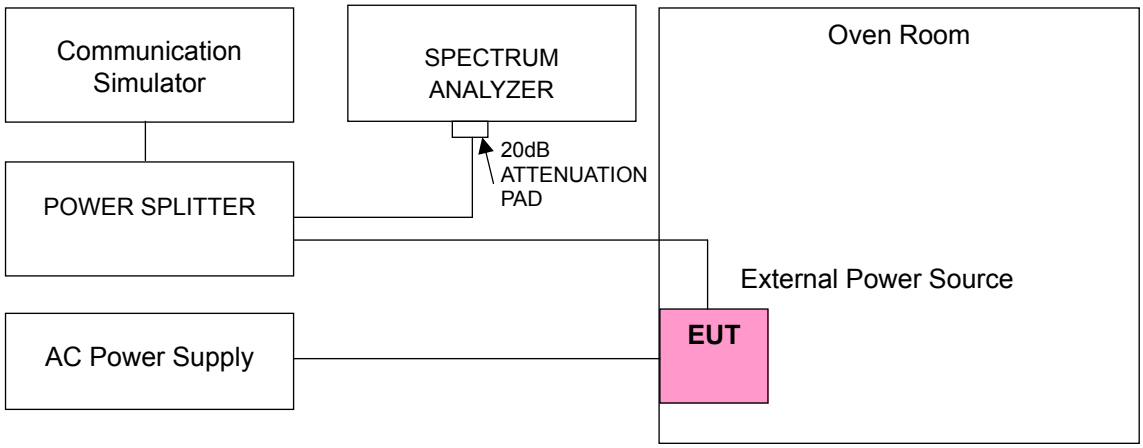
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the AC 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)	Frequency Error (ppm)		Limit (ppm)
	LTE Band 4	LTE Band 12	
138	-0.005	-0.013	2.5
120	-0.004	-0.011	2.5
102	-0.004	-0.010	2.5

Note: The applicant defined the normal working voltage is from 102Vac to 138Vac.

Frequency Error vs. Temperature

Voltage (Volts)	Frequency Error (ppm)		Limit (ppm)
	LTE Band 4	LTE Band 12	
50	-0.006	-0.014	2.5
40	-0.006	-0.013	2.5
30	-0.005	-0.012	2.5
20	-0.004	-0.011	2.5
10	-0.005	-0.012	2.5
0	-0.006	-0.015	2.5
-10	-0.008	-0.018	2.5
-20	-0.009	-0.019	2.5
-30	-0.008	-0.019	2.5

4.4 Emission Bandwidth Measurement

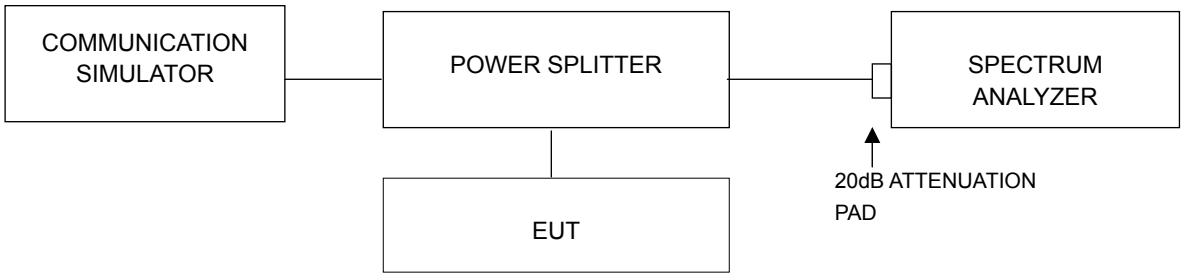
4.4.1 Limits of Emission Bandwidth Measurement

According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

4.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 30kHz and VBW = 100kHz (Channel Bandwidth: 1.4MHz), RBW = 51kHz and VBW = 150kHz (Channel Bandwidth: 3MHz and 5MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 10MHz), RBW = 200kHz and VBW = 620kHz (Channel Bandwidth: 15MHz) and RBW = 430kHz and VBW = 1.2MHz (Channel Bandwidth: 20MHz). The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.4.3 Test Setup



4.4.4 Test Result

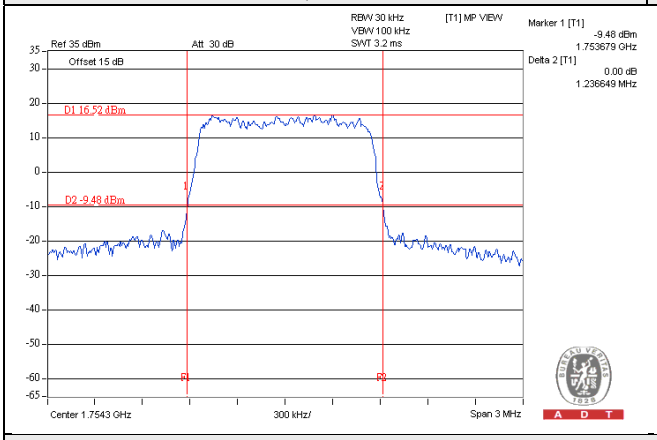
LTE Band 4

Channel Bandwidth: 1.4MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19957	1710.7	1.236	1.220	1.0884	1.0901
20175	1732.5	1.237	1.235	1.0875	1.0889
20393	1754.3	1.237	1.229	1.0897	1.0888

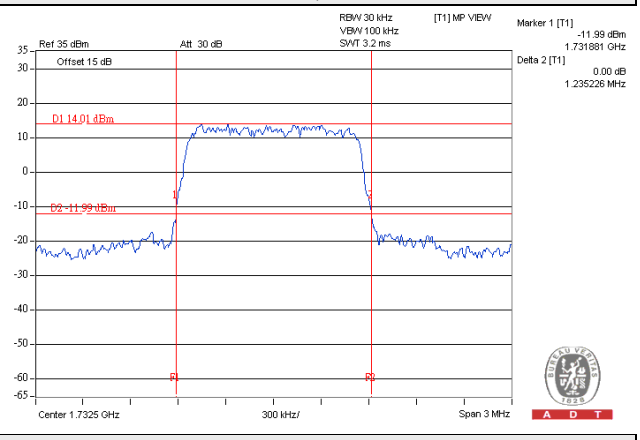
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK



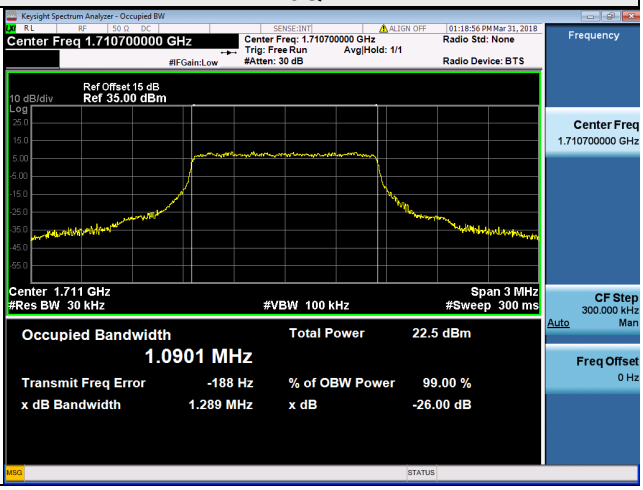
16QAM



Occupied Bandwidth

QPSK

16QAM

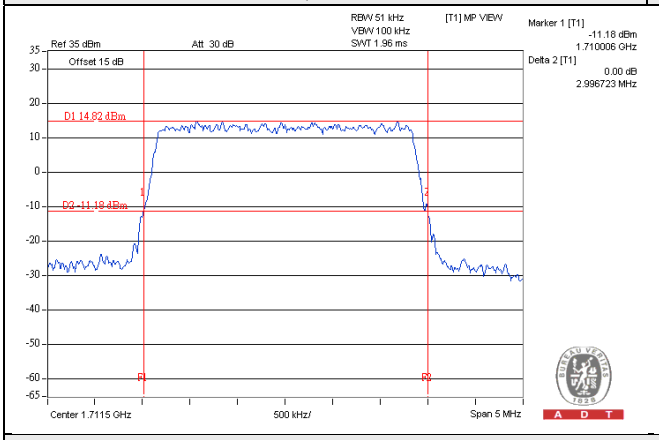


Channel Bandwidth: 3MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19965	1711.5	2.997	2.950	2.7010	2.6960
20175	1732.5	2.973	3.003	2.7002	2.6966
20385	1753.5	2.966	2.987	2.7004	2.6971

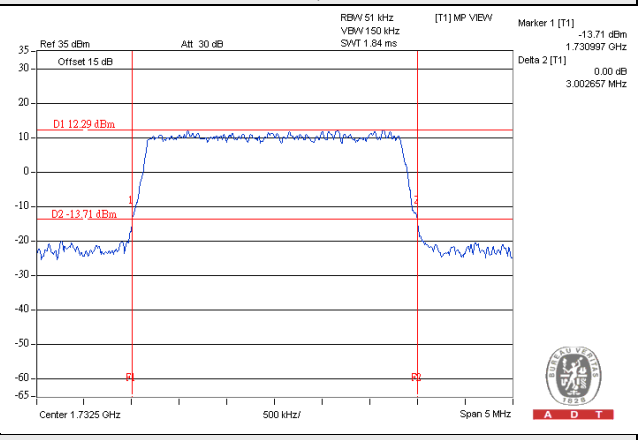
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

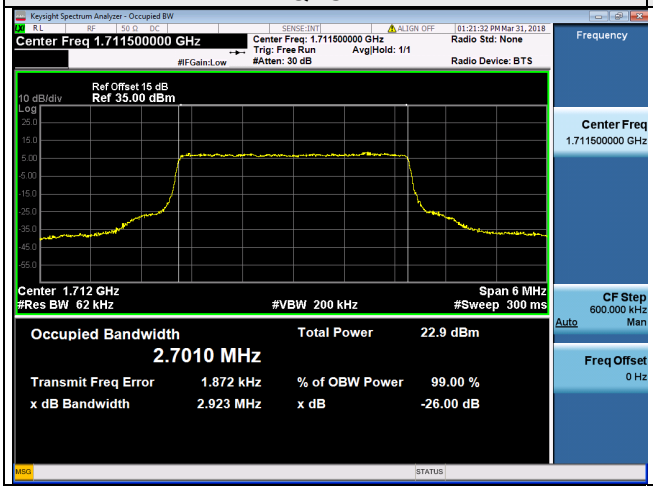


16QAM

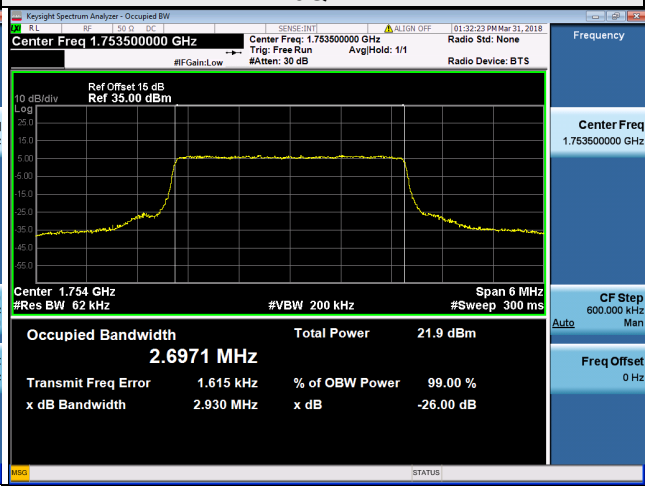


Occupied Bandwidth

QPSK



16QAM

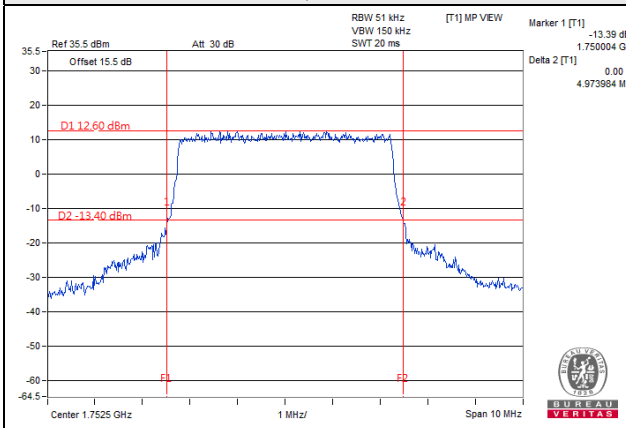


Channel Bandwidth: 5MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19975	1712.5	4.95	4.97	4.46	4.46
20175	1732.5	4.94	4.99	4.46	4.47
20375	1752.5	4.97	4.97	4.47	4.47

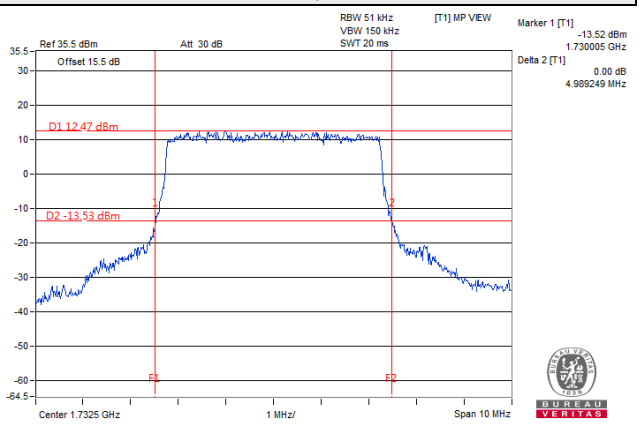
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

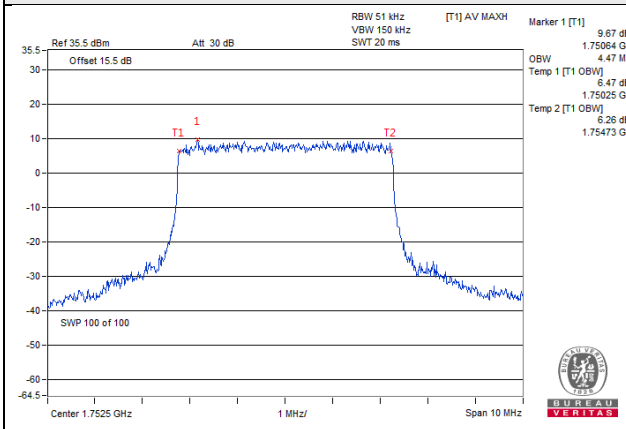


16QAM

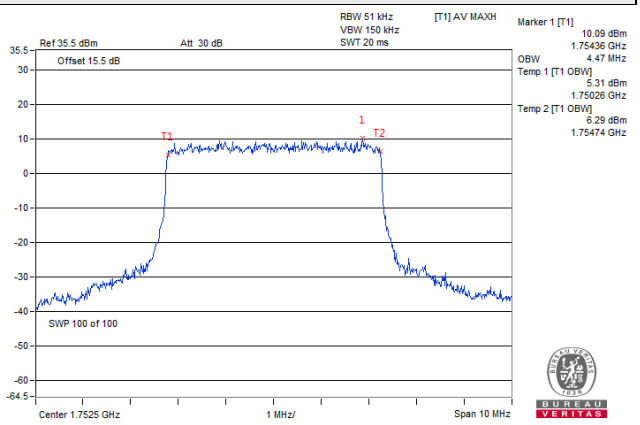


Occupied Bandwidth

QPSK



16QAM

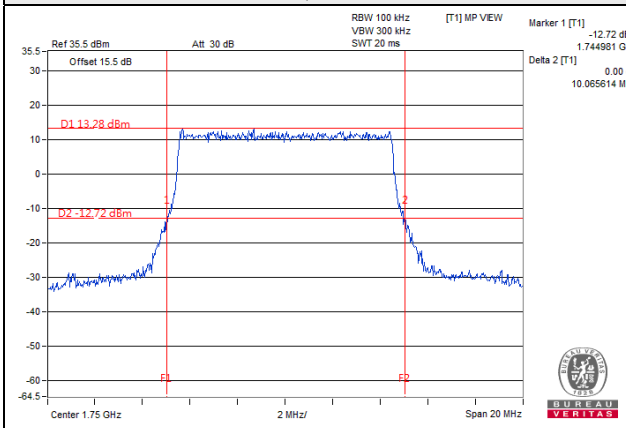


Channel Bandwidth: 10MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20000	1715.0	9.97	9.98	8.95	8.98
20175	1732.5	10.03	9.98	8.98	8.95
20350	1750.0	10.07	10.12	8.98	8.95

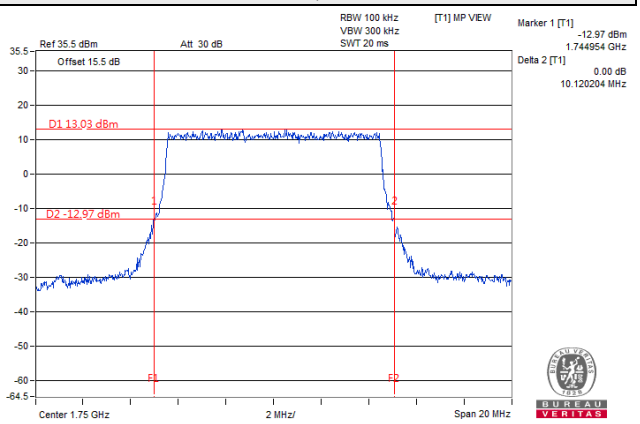
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

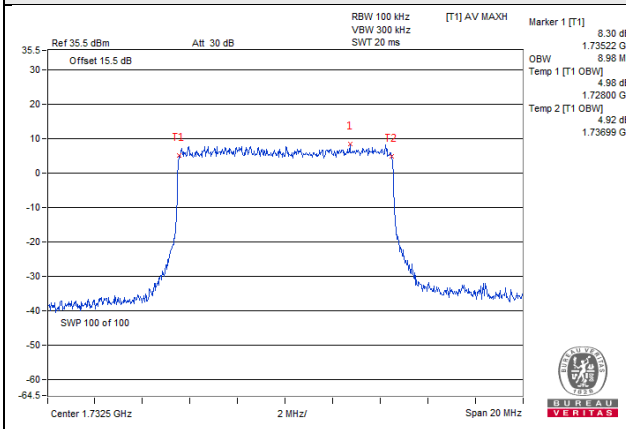


16QAM

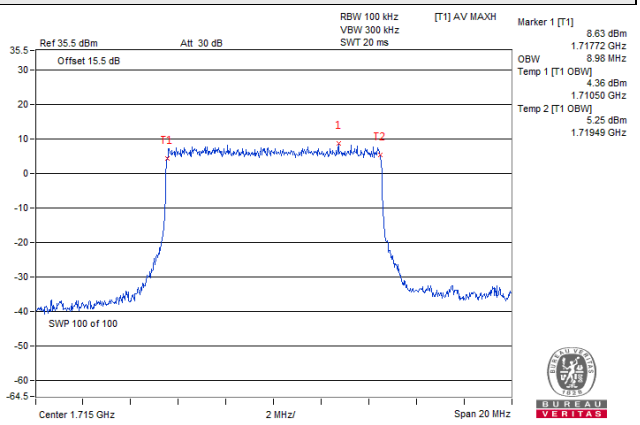


Occupied Bandwidth

QPSK



16QAM

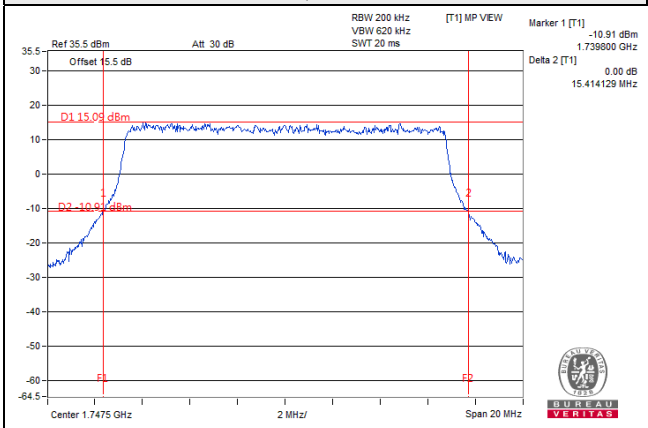


Channel Bandwidth: 15MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20025	1717.5	15.37	15.37	13.42	13.44
20175	1732.5	15.34	15.37	13.50	13.47
20325	1747.5	15.41	15.27	13.50	13.47

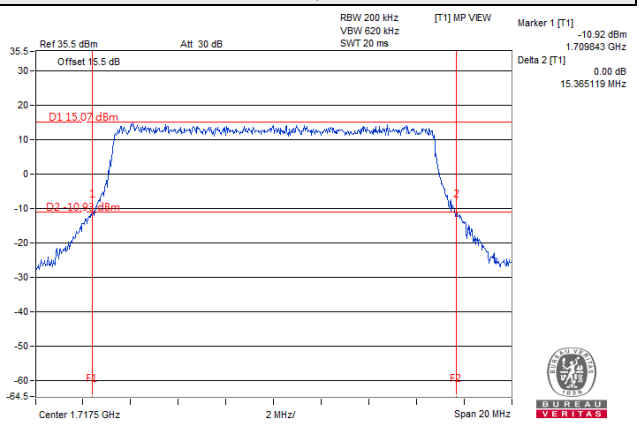
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

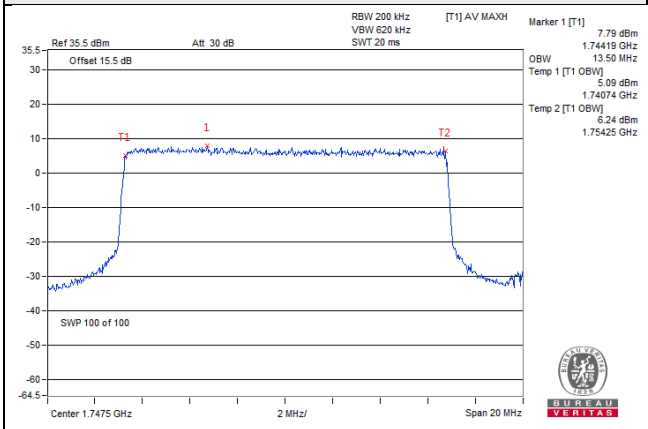


16QAM

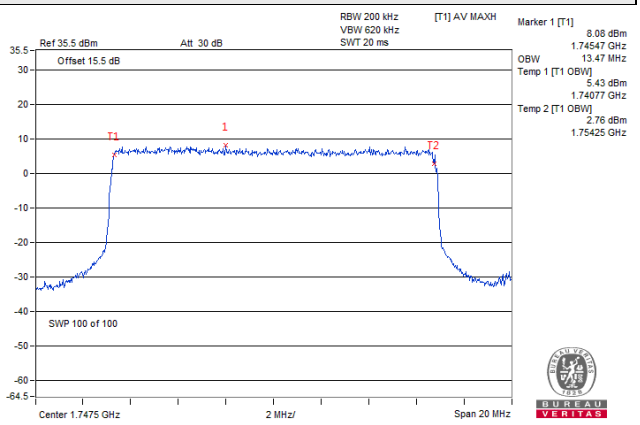


Occupied Bandwidth

QPSK



16QAM

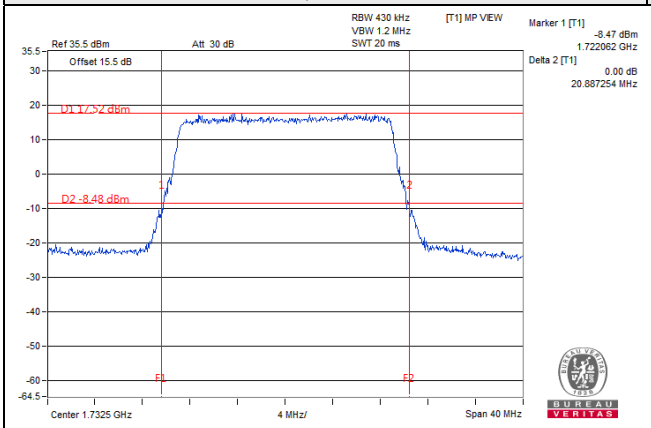


Channel Bandwidth: 20MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20050	1720.0	20.87	21.01	18.08	18.14
20175	1732.5	20.89	20.76	18.08	18.08
20300	1745.0	20.80	20.85	18.08	18.08

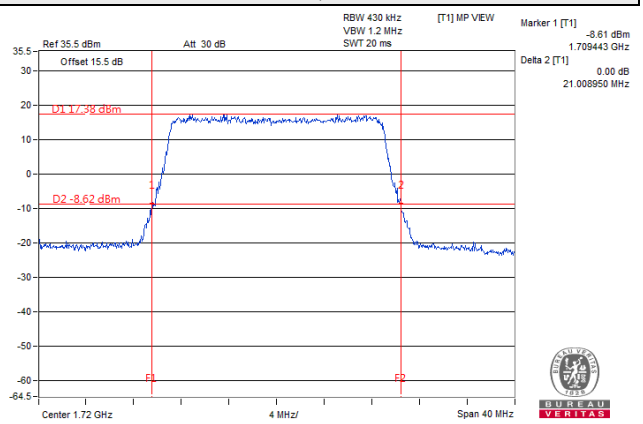
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

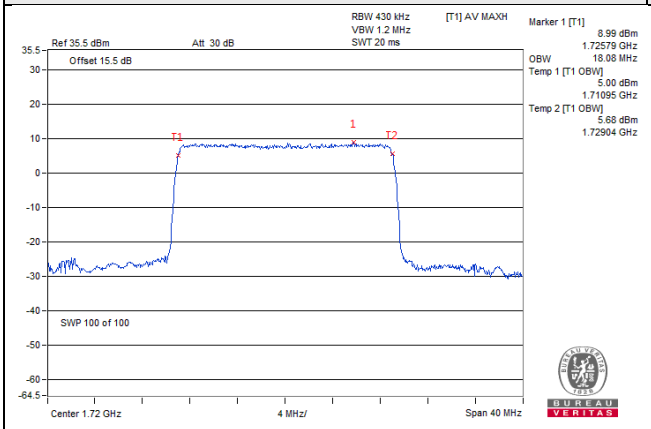


16QAM

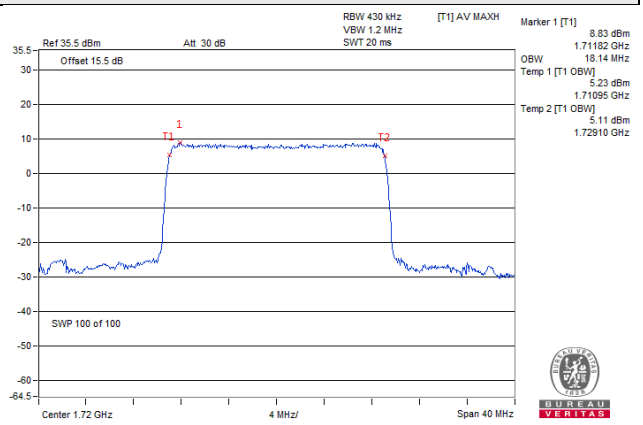


Occupied Bandwidth

QPSK



16QAM



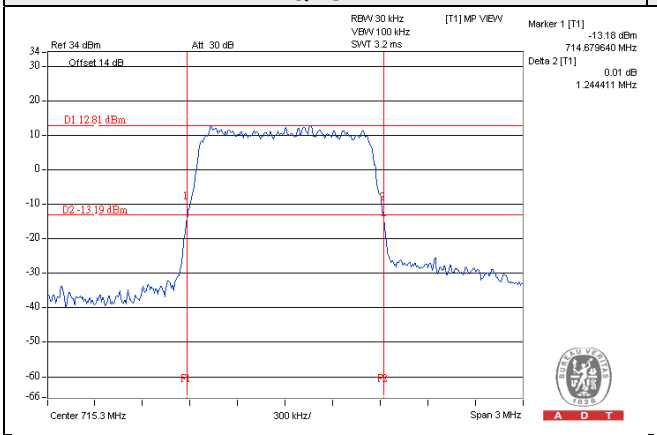
LTE Band 12

Channel Bandwidth: 1.4MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23017	699.7	1.235	1.230	1.0878	1.0898
23095	707.5	1.229	1.245	1.0892	1.0918
23173	715.3	1.244	1.237	1.0898	1.0889

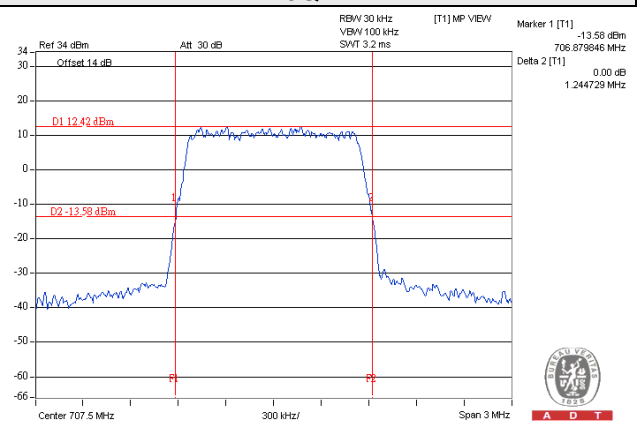
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

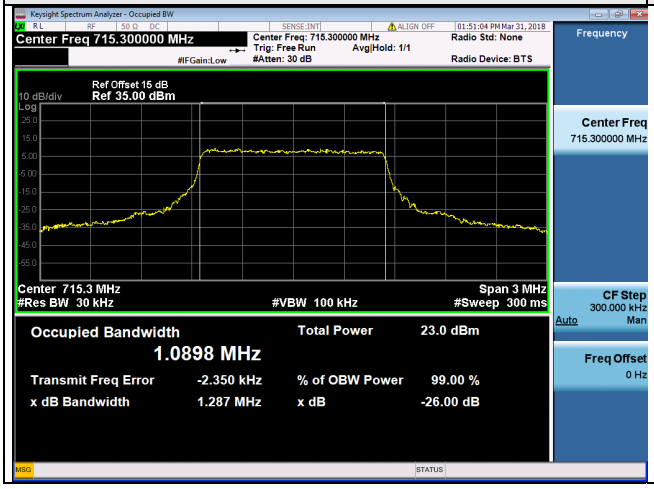


16QAM

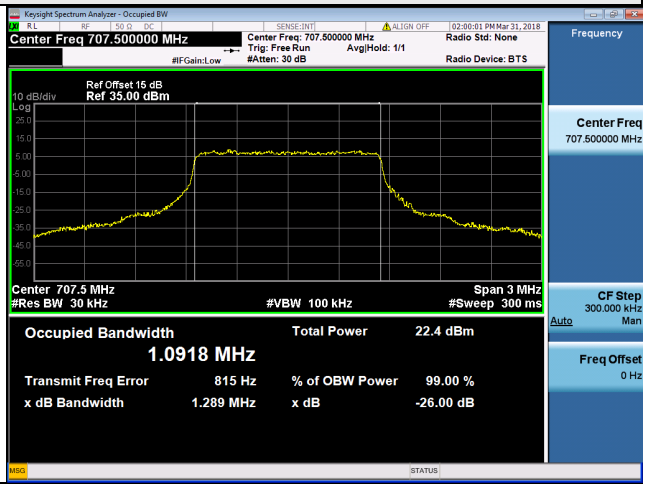


Occupied Bandwidth

QPSK



16QAM

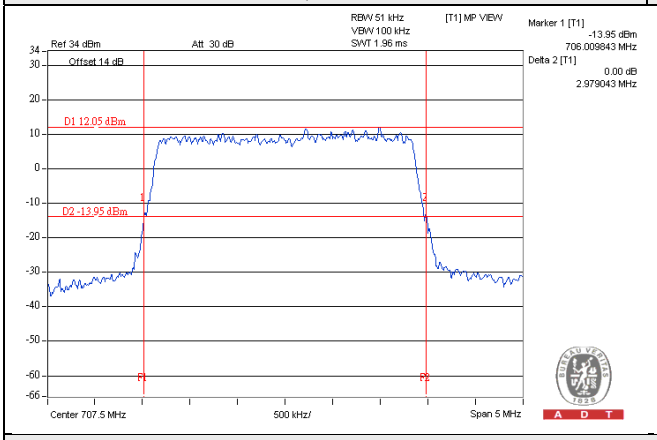


Channel Bandwidth: 3MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23025	700.5	2.977	2.969	2.6923	2.6931
23095	707.5	2.979	2.959	2.7016	2.6979
23165	714.5	2.977	2.914	2.7014	2.6958

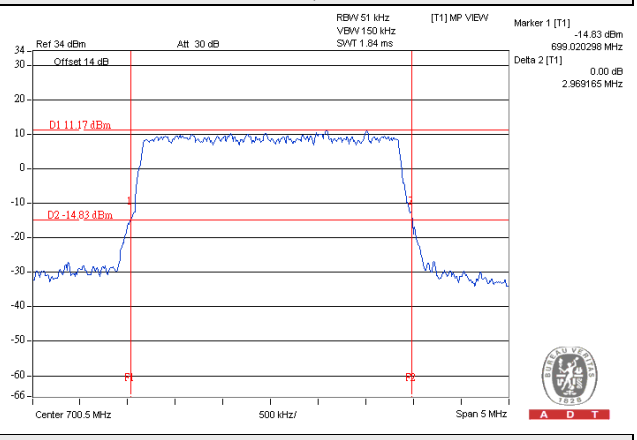
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

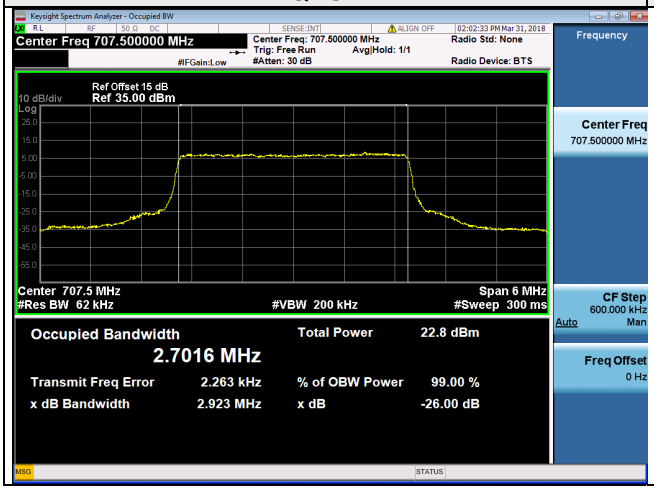


16QAM

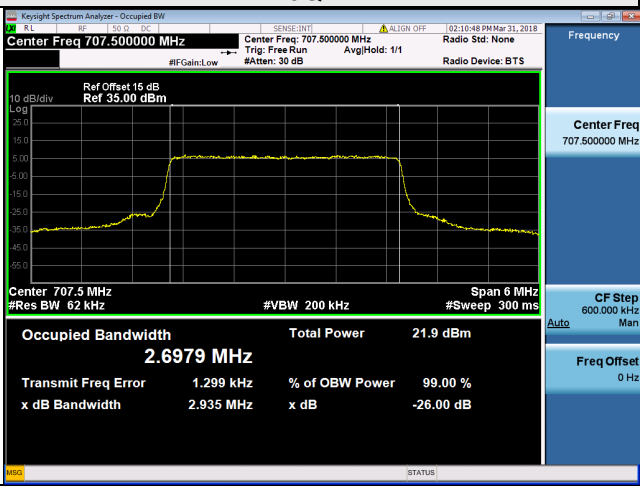


Occupied Bandwidth

QPSK



16QAM

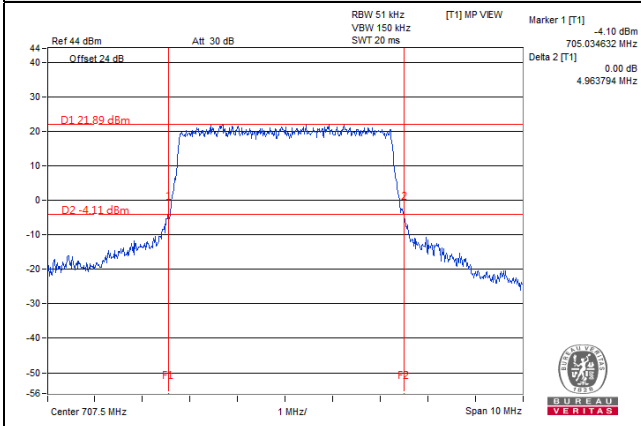


Channel Bandwidth: 5MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23035	701.5	4.95	4.91	4.46	4.43
23095	707.5	4.96	4.96	4.47	4.47
23155	713.5	4.93	4.95	4.44	4.46

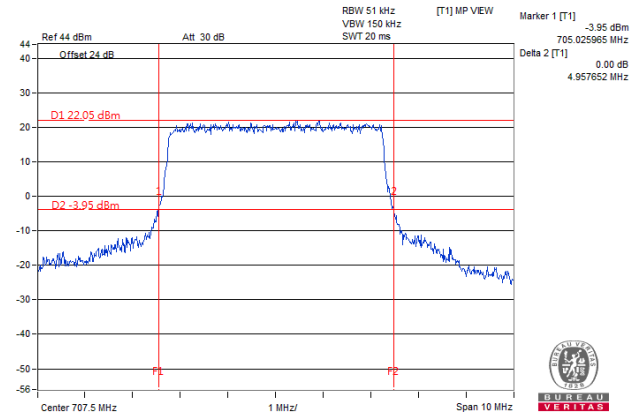
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

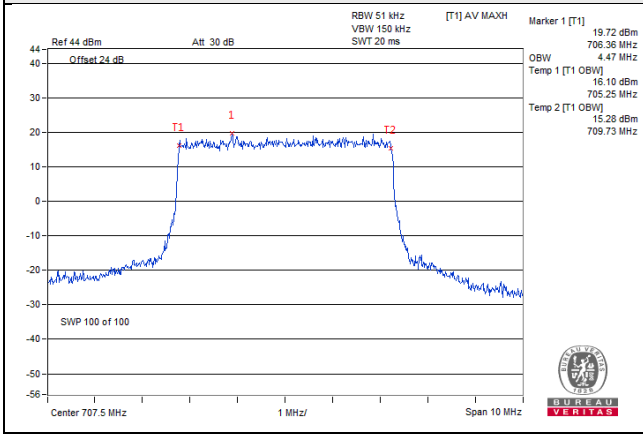


16QAM

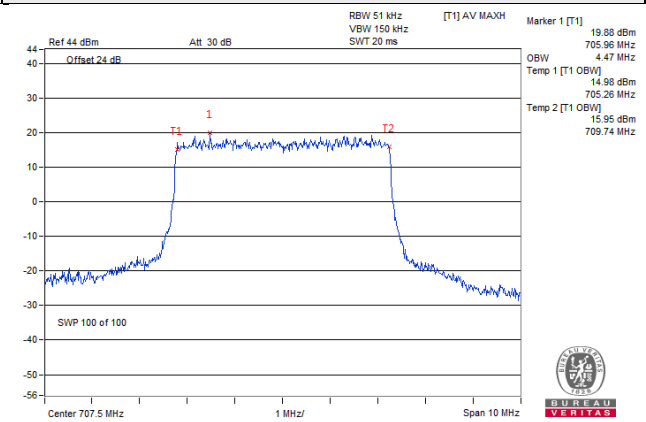


Occupied Bandwidth

QPSK



16QAM

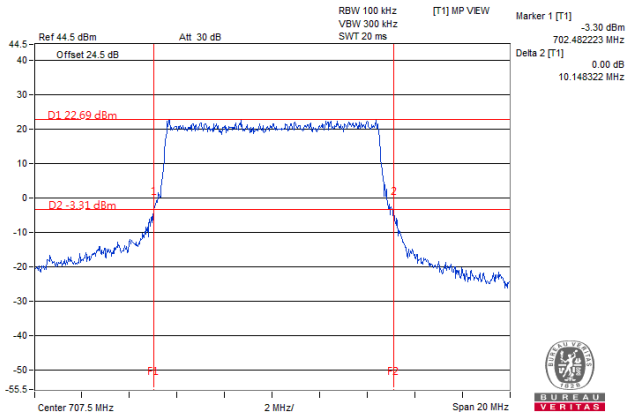


Channel Bandwidth: 10MHz					
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)		Occupied Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23060	704	9.90	9.98	8.95	8.92
23095	707.5	10.15	10.15	8.98	8.98
23130	711	9.95	9.86	8.92	8.92

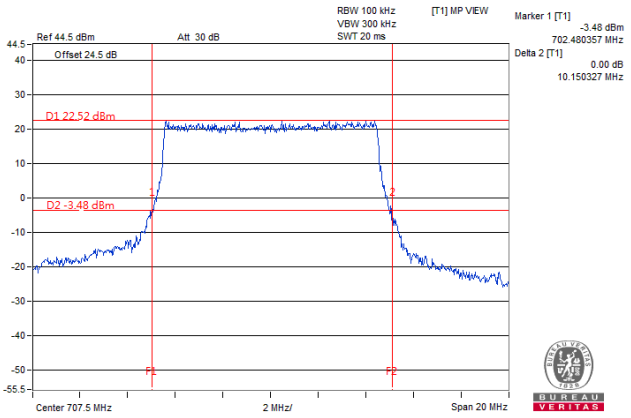
Spectrum Plot of Worst Value

26dBc Bandwidth

QPSK

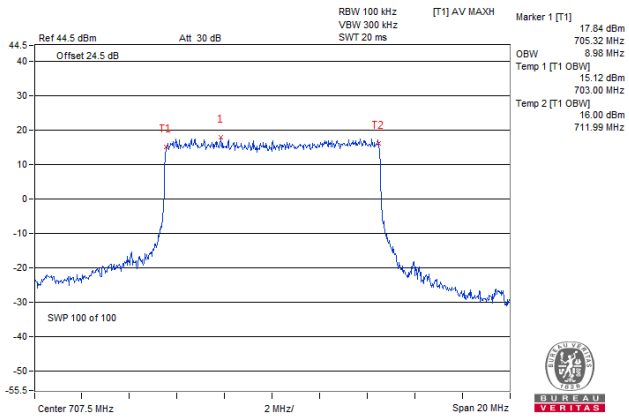


16QAM

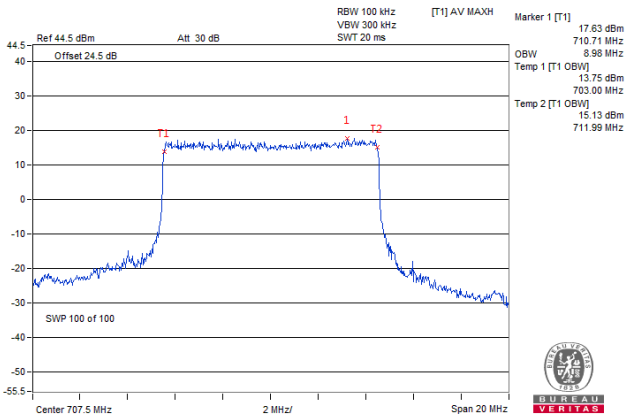


Occupied Bandwidth

QPSK



16QAM



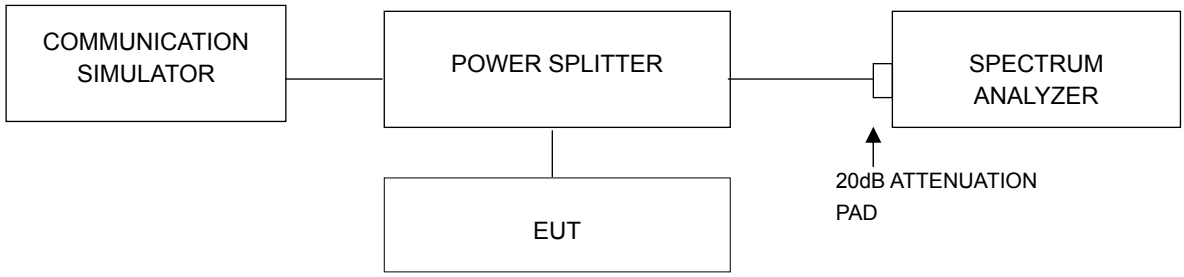
4.5 Channel Edge Measurement

4.5.1 Limits of Band Edge Measurement

For LTE Band 4
According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 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 log10 (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. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

4.5.2 Test Setup



4.5.3 Test Procedures

a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.

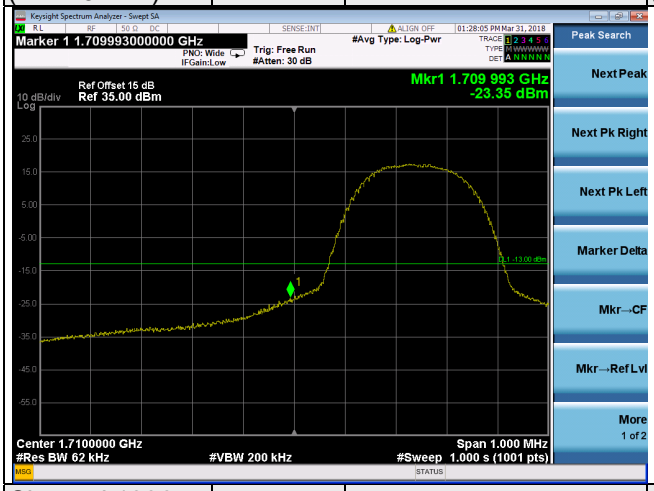
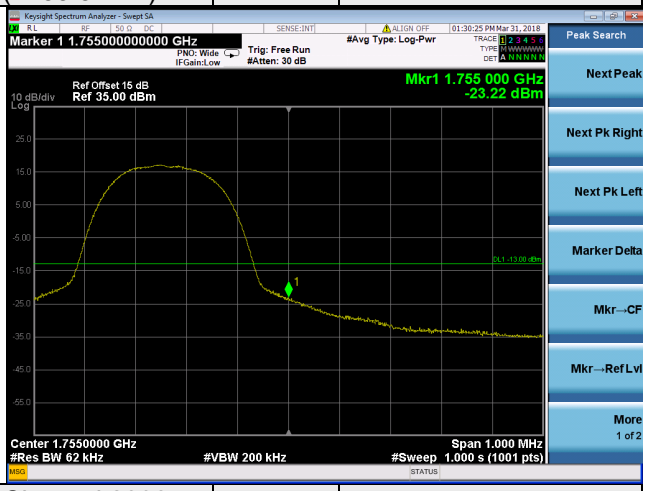
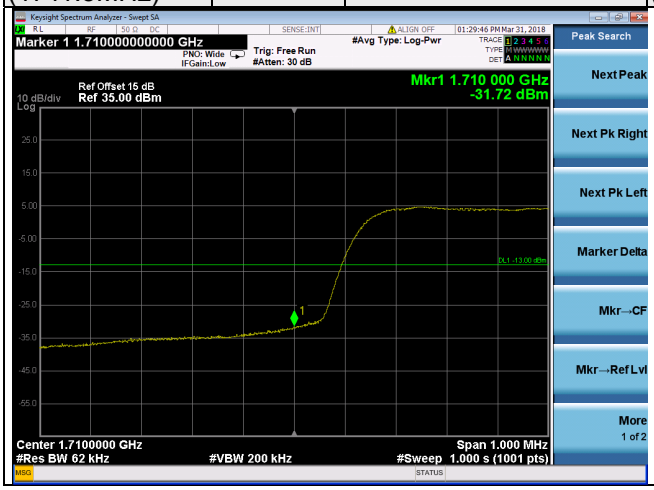
b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RBW = 30kHz and VBW = 100kHz (Channel Bandwidth: 1.4MHz), RBW = 62kHz and VBW = 200kHz (Channel Bandwidth: 3MHz), RBW = 51kHz and VBW = 150kHz (Channel Bandwidth: 5MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 10MHz), RBW = 200kHz and VBW = 620kHz (Channel Bandwidth: 15MHz) and RBW = 430kHz and VBW = 1.2MHz (Channel Bandwidth: 20MHz).

c. Record the max trace plot into the test report.

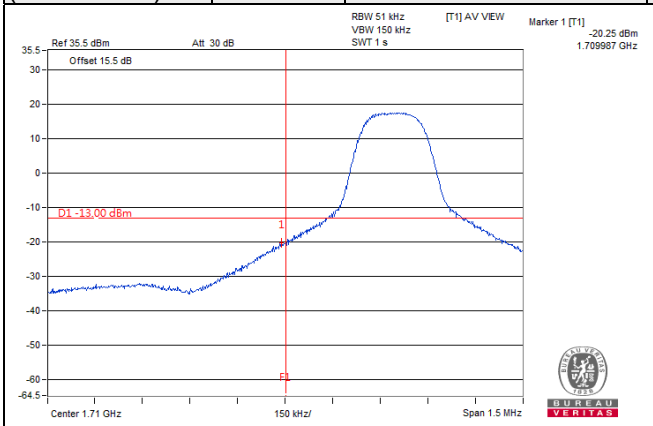
4.5.4 Test Results

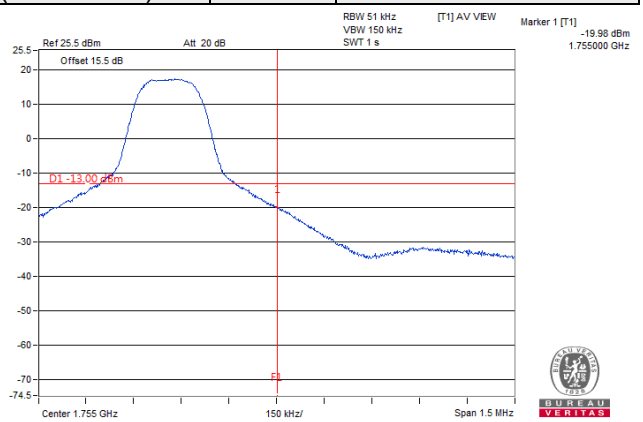
LTE Band 4

Channel Bandwidth: 1.4MHz					
Channel 19957 (1710.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 20393 (1754.3MHz)	QPSK	1 RB / 5 RB Offset
Channel 19957 (1710.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 20393 (1754.3MHz)	QPSK	6 RB / 0 RB Offset

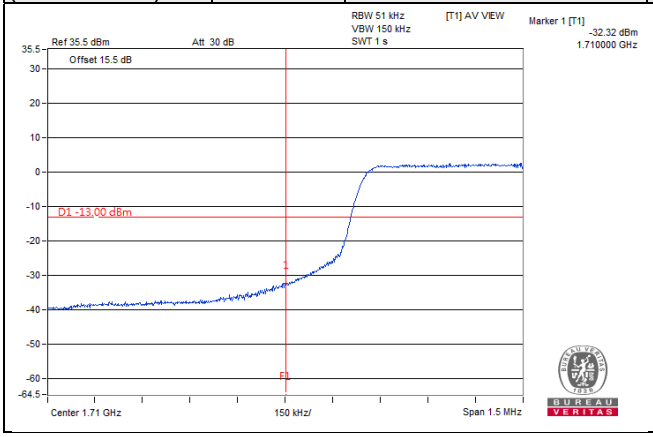
Channel Bandwidth: 3MHz					
Channel 19965 (1711.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20385 (1753.5MHz)	QPSK	1 RB / 14 RB Offset
					
Channel 19965 (1711.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 20385 (1753.5MHz)	QPSK	15 RB / 0 RB Offset
					

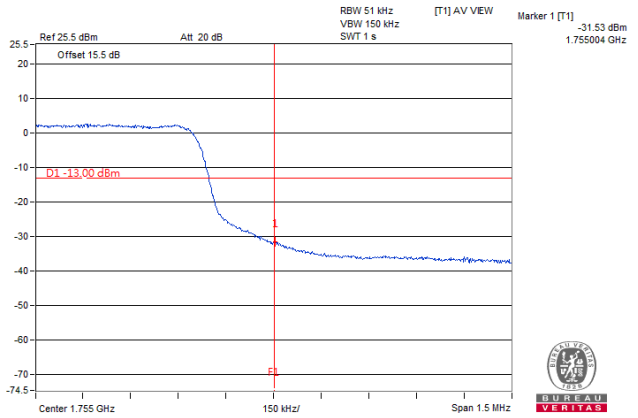
Channel Bandwidth: 5MHz					
Channel 19975 (1712.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20375 (1752.5MHz)	QPSK	1 RB / 24 RB Offset



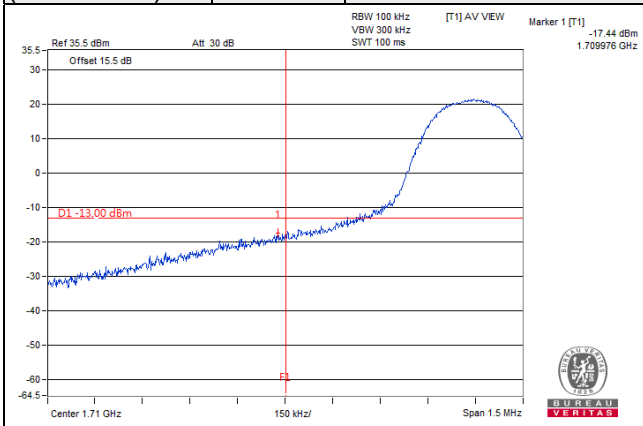


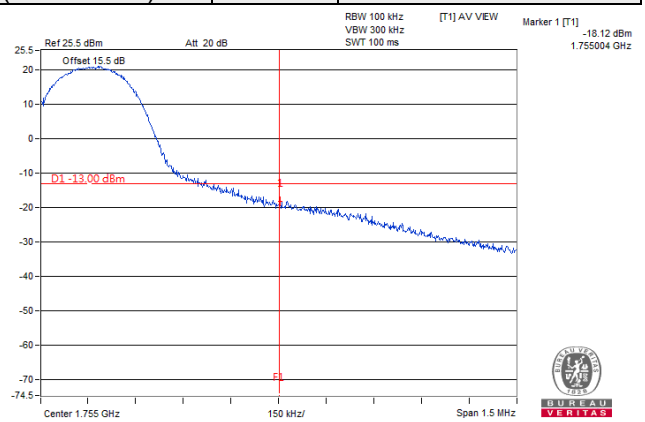
Channel 19975 (1712.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 20375 (1752.5MHz)	QPSK	25 RB / 0 RB Offset



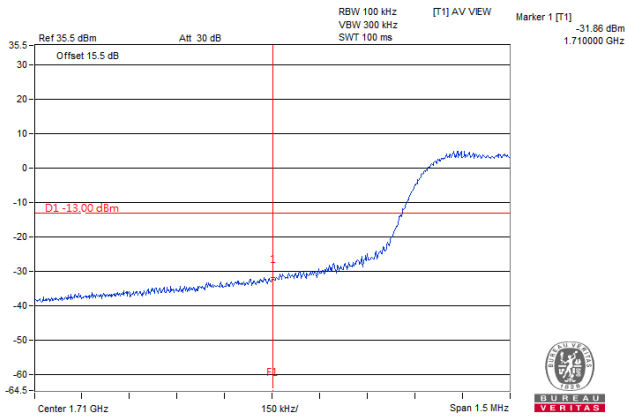


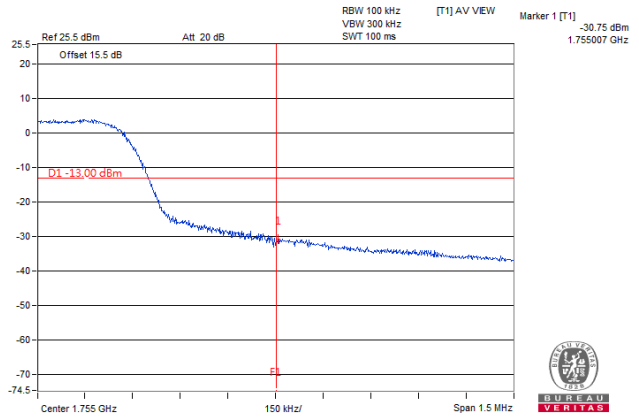
Channel Bandwidth: 10MHz					
Channel 20000 (1715.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 20350 (1750.0MHz)	QPSK	1 RB / 49 RB Offset



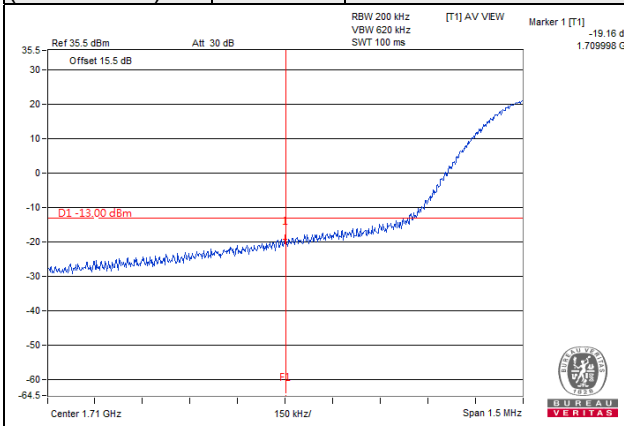


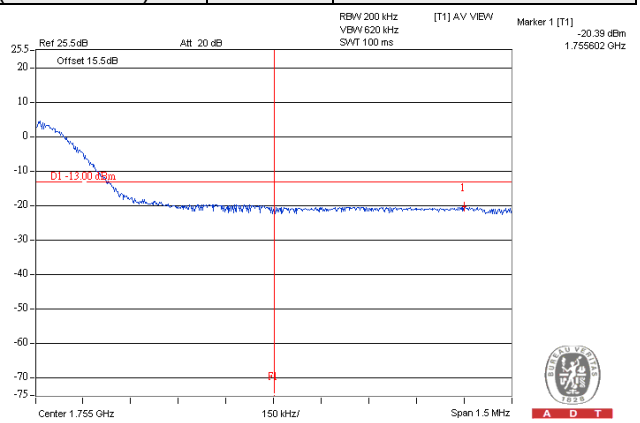
Channel 20000 (1715.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 20350 (1750.0MHz)	QPSK	50 RB / 0 RB Offset



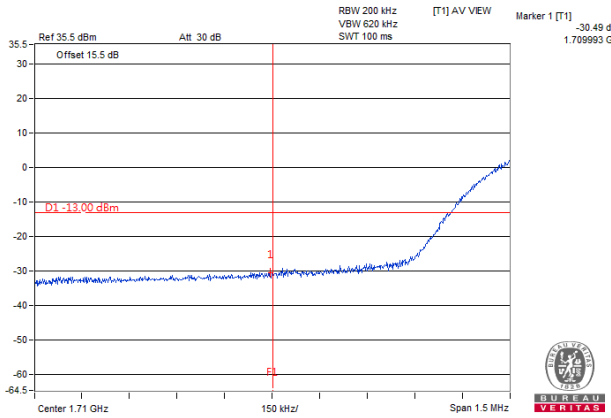


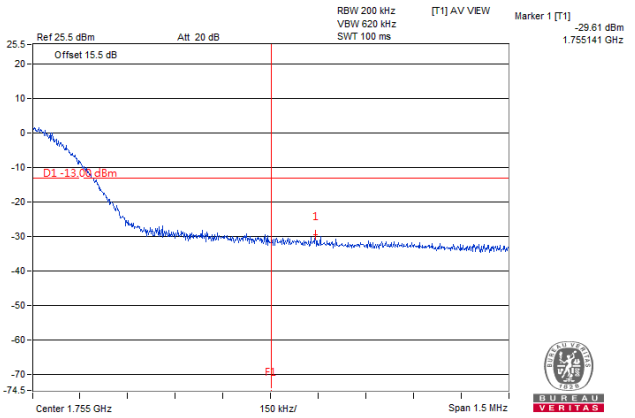
Channel Bandwidth: 15MHz					
Channel 20025 (1717.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	QPSK	1 RB / 74 RB Offset



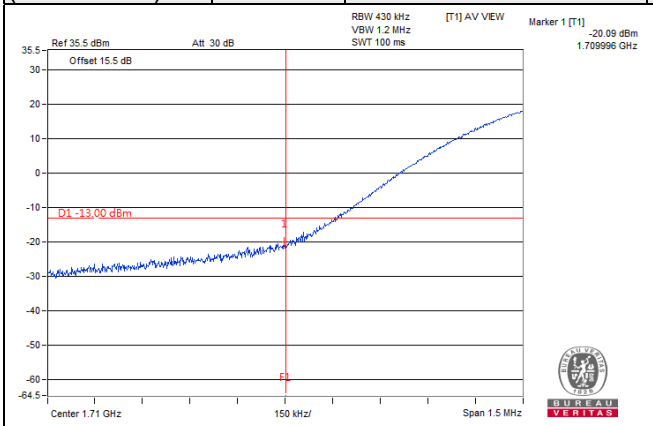


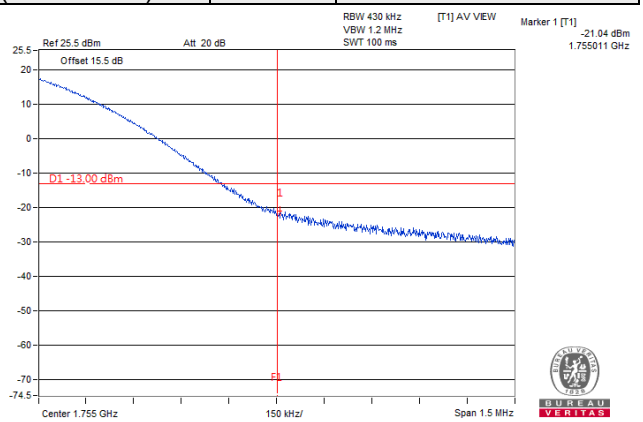
Channel 20025 (1717.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	QPSK	75 RB / 0 RB Offset



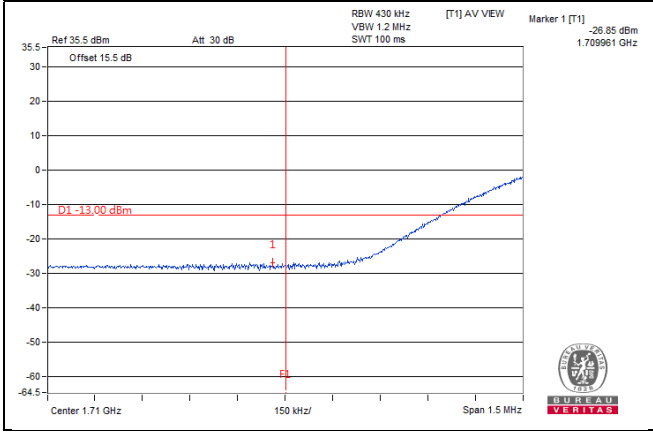


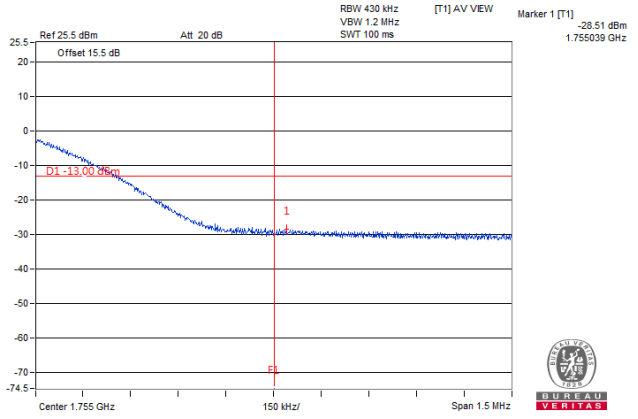
Channel Bandwidth: 20MHz					
Channel 20050 (1720.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 20300 (1745.0MHz)	QPSK	1 RB / 99 RB Offset



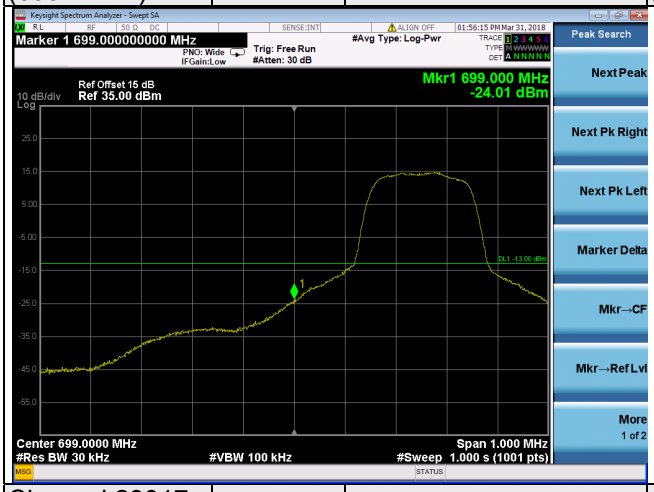
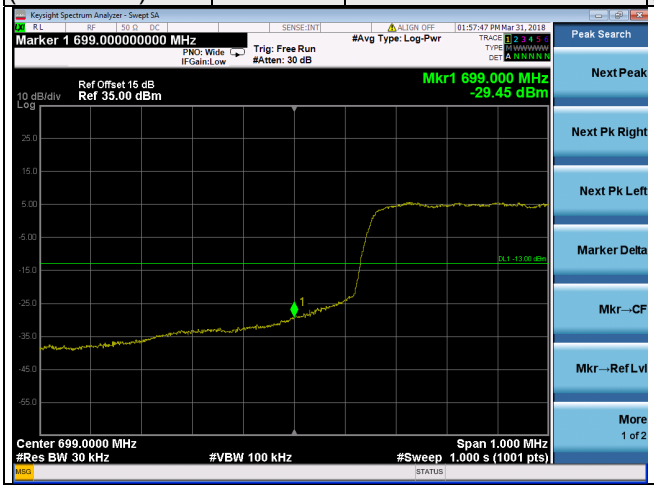


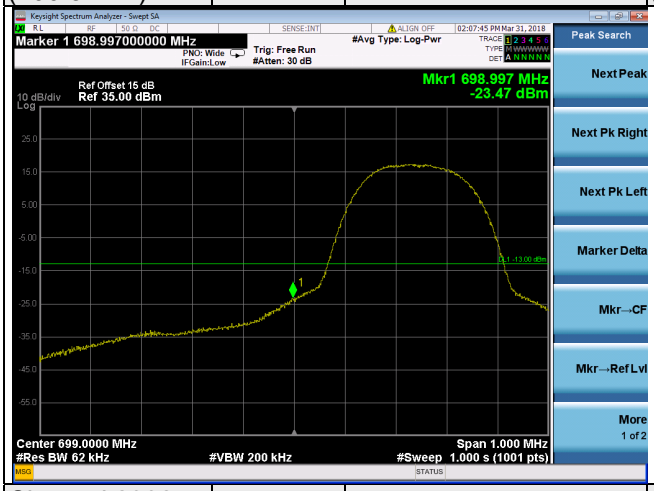
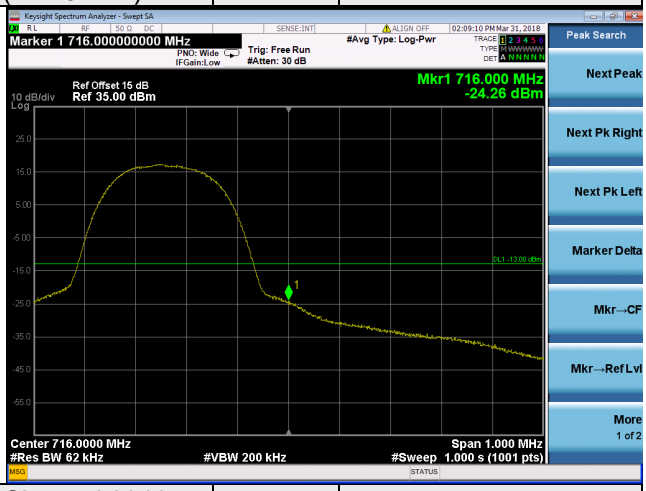
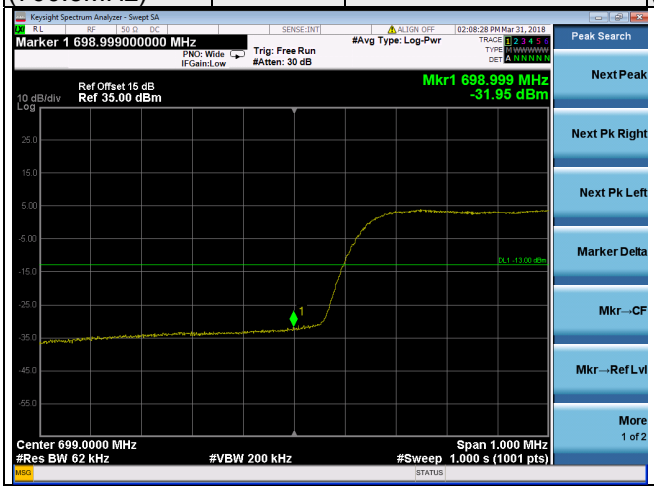
Channel 20050 (1720.0MHz)	QPSK	100 RB / 0 RB Offset	Channel 20300 (1745.0MHz)	QPSK	100 RB / 0 RB Offset



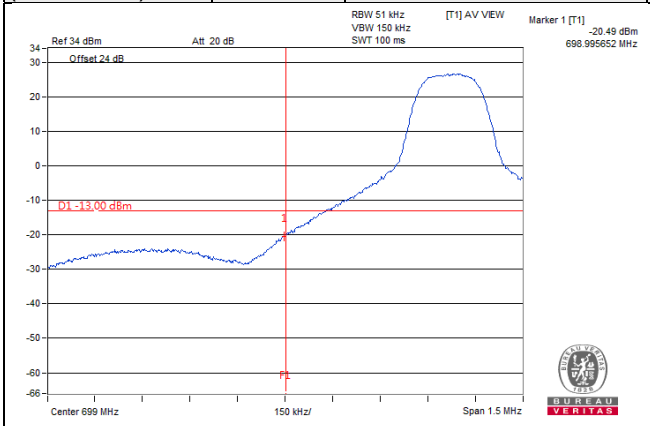


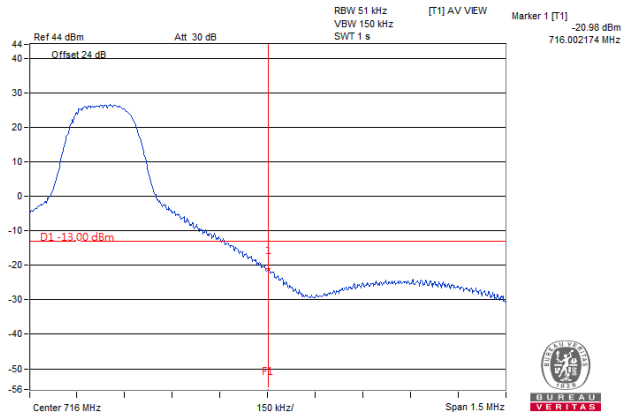
LTE Band 12

Channel Bandwidth: 1.4MHz					
Channel 23017 (699.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 23171 (715.3MHz)	QPSK	1 RB / 5 RB Offset
					
Channel 23017 (699.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 23171 (715.3MHz)	QPSK	6 RB / 0 RB Offset
					

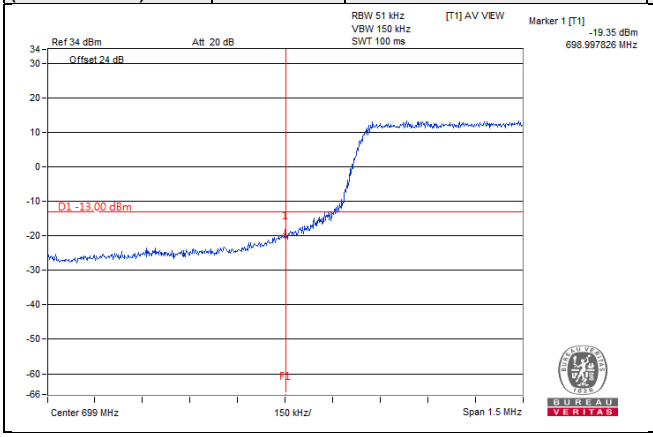
Channel Bandwidth: 3MHz					
Channel 23025 (700.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23165 (714.5MHz)	QPSK	1 RB / 14RB Offset
					
Channel 23025 (700.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 23165 (714.5MHz)	QPSK	15 RB / 0 RB Offset
					

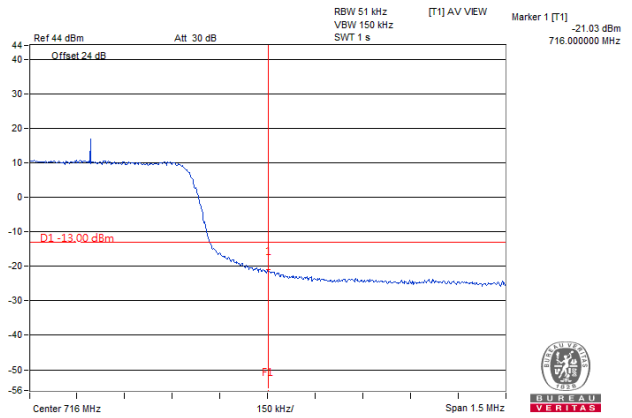
Channel Bandwidth: 5MHz					
Channel 23035 (701.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23155 (713.5MHz)	QPSK	1 RB / 24RB Offset



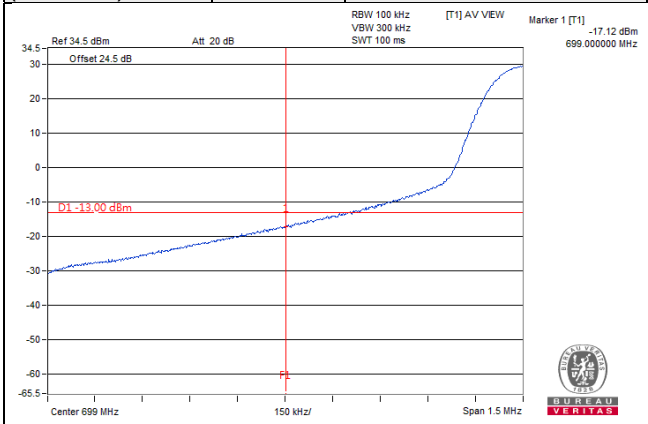


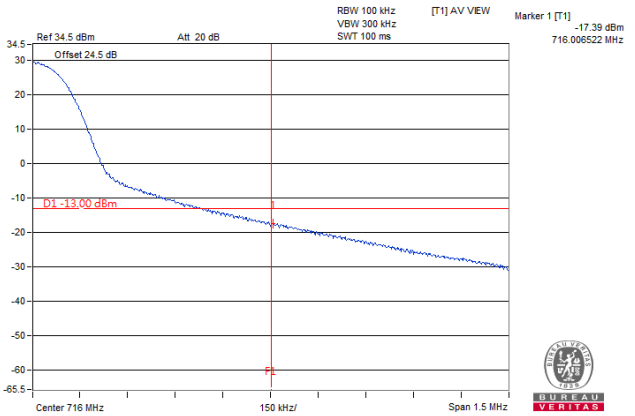
Channel 23035 (701.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 23155 (713.5MHz)	QPSK	25 RB / 0 RB Offset



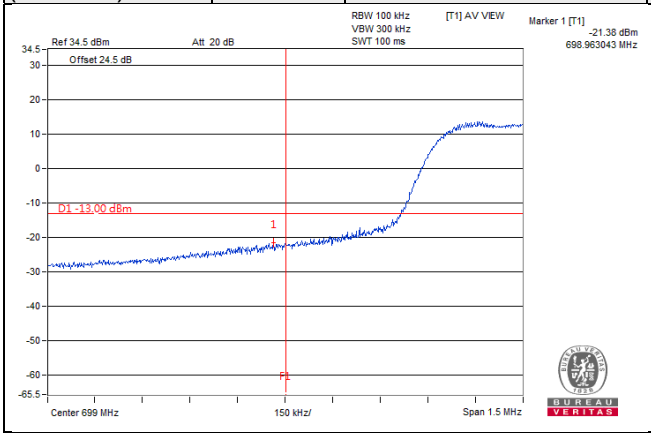


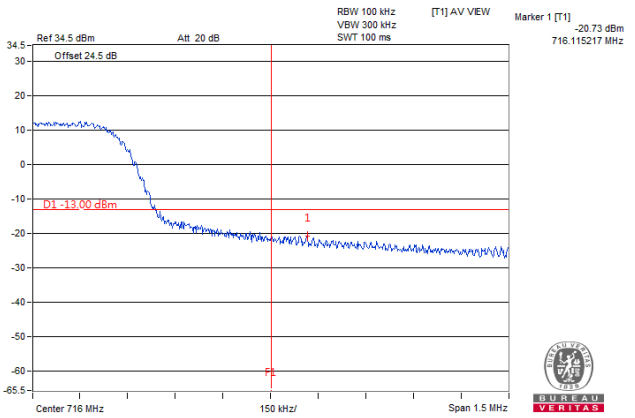
Channel Bandwidth: 10MHz					
Channel 23060 (704MHz)	QPSK	1 RB / 0 RB Offset	Channel 23130 (711MHz)	QPSK	1 RB / 24RB Offset





Channel 23060 (704MHz)	QPSK	50 RB / 0 RB Offset	Channel 23130 (711MHz)	QPSK	25 RB / 0 RB Offset



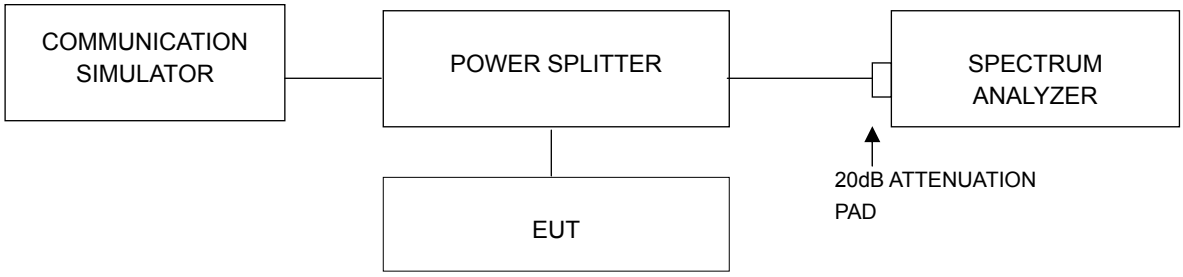


4.6 Peak to Average Ratio

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

a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;

b. Set the number of counts to a value that stabilizes the measured CCDF curve;

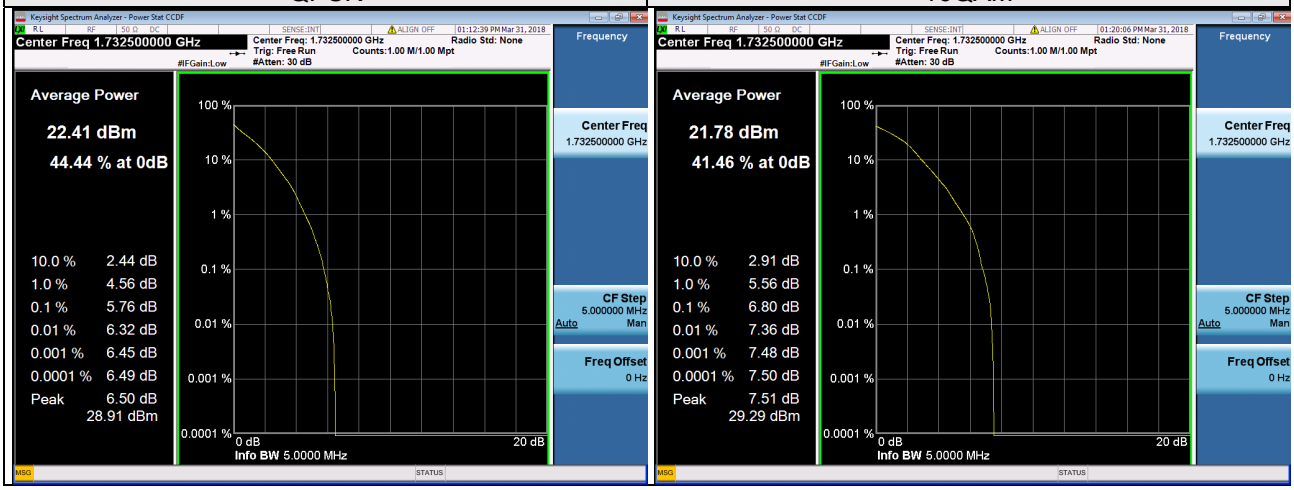
c. Record the maximum PAPR level associated with a probability of 0.1%.

4.6.4 Test Results

LTE Band 4

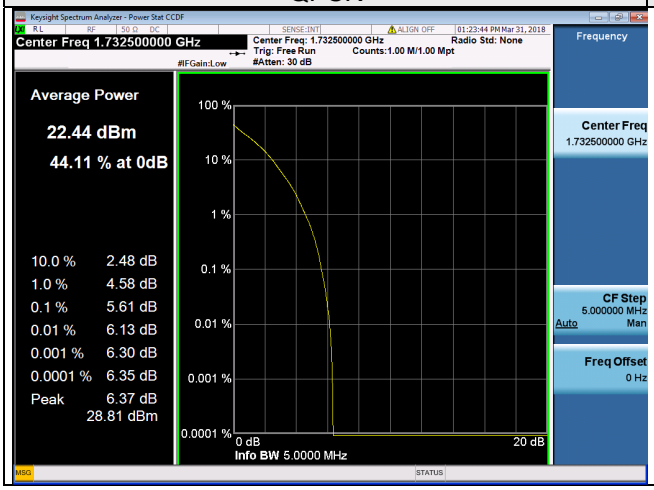
Channel Bandwidth: 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19957	1710.7	5.59	6.55
20175	1732.5	5.76	6.80
20393	1754.3	5.75	6.68

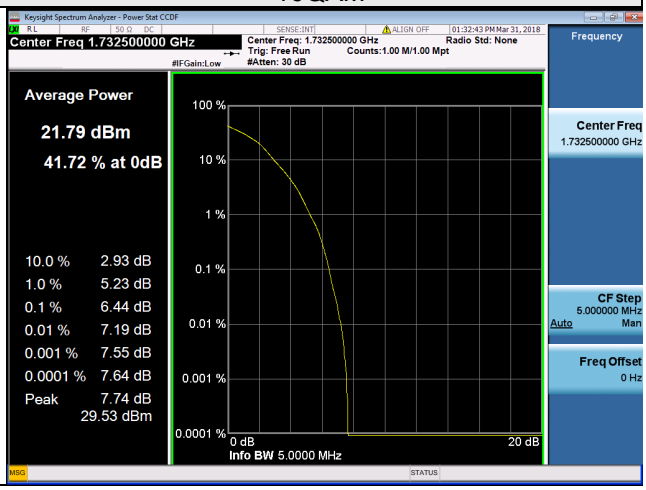
Spectrum Plot of Worst Value	
QPSK	16QAM



Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19965	1711.5	5.43	6.20
20175	1732.5	5.61	6.44
20385	1753.5	5.58	6.41

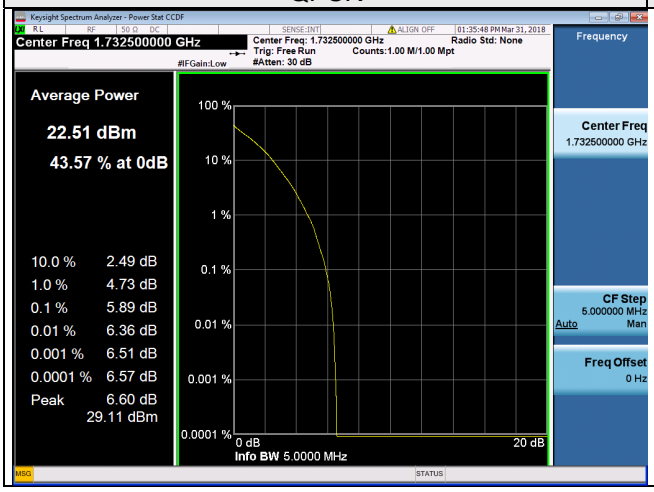
Spectrum Plot of Worst Value	
QPSK	16QAM

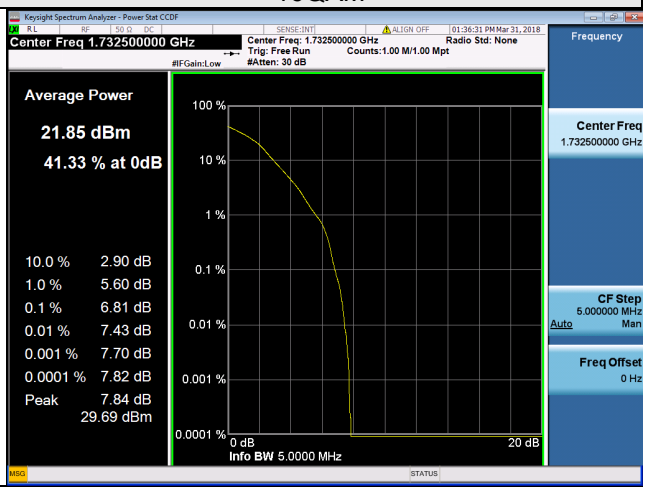




Channel Bandwidth: 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19975	1712.5	5.63	6.56
20175	1732.5	5.89	6.81
20375	1752.5	5.82	6.72

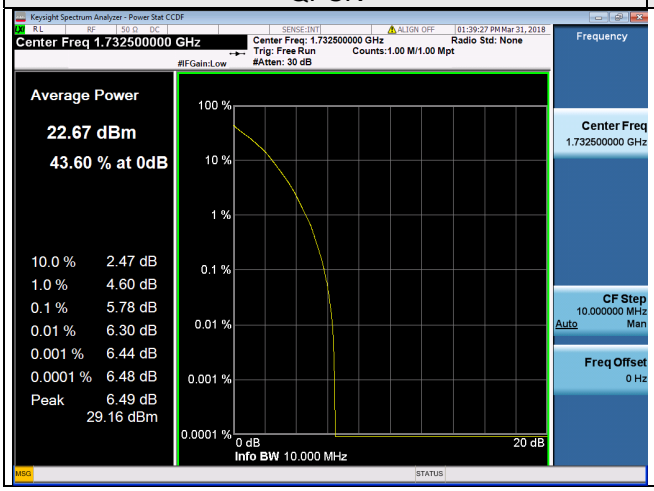
Spectrum Plot of Worst Value	
QPSK	16QAM

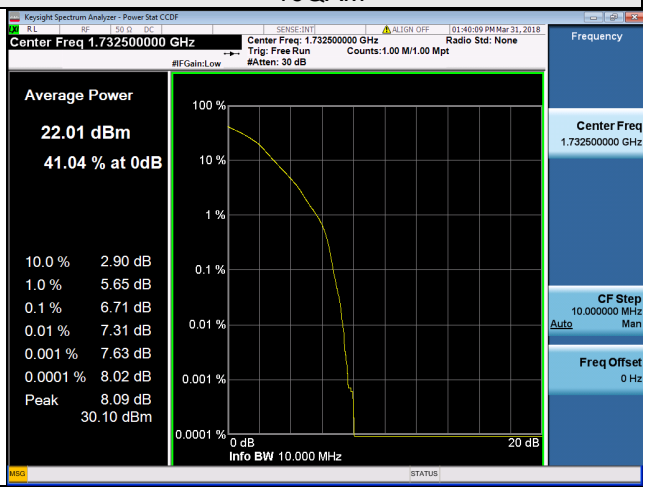




Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20000	1715.0	5.53	6.41
20175	1732.5	5.78	6.71
20350	1750.0	5.61	6.45

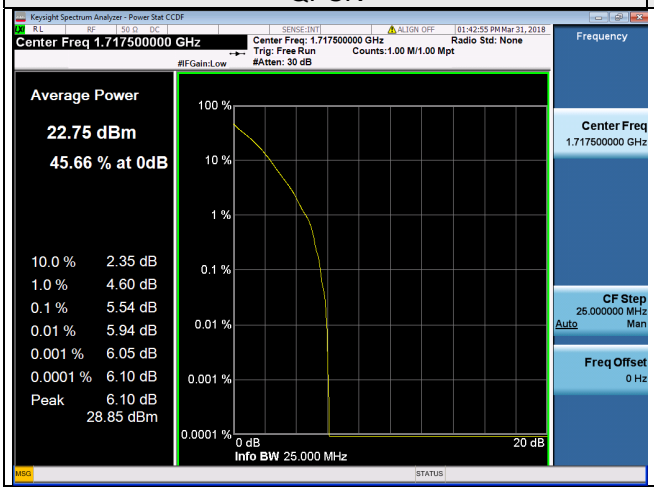
Spectrum Plot of Worst Value	
QPSK	16QAM

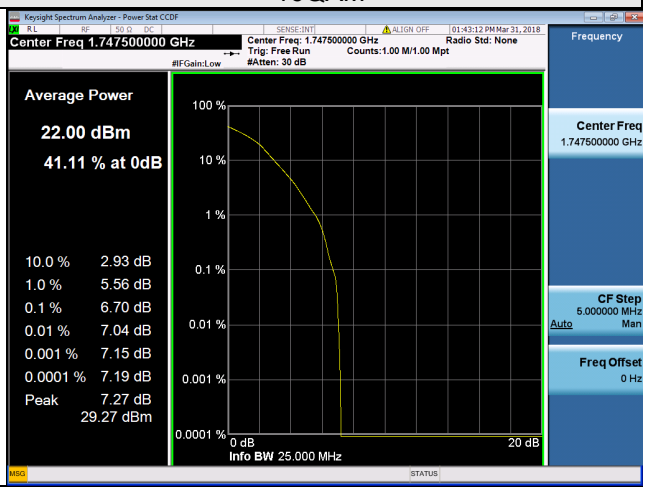




Channel Bandwidth: 15MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20025	1717.5	5.54	6.45
20175	1732.5	5.47	6.64
20325	1747.5	5.38	6.70

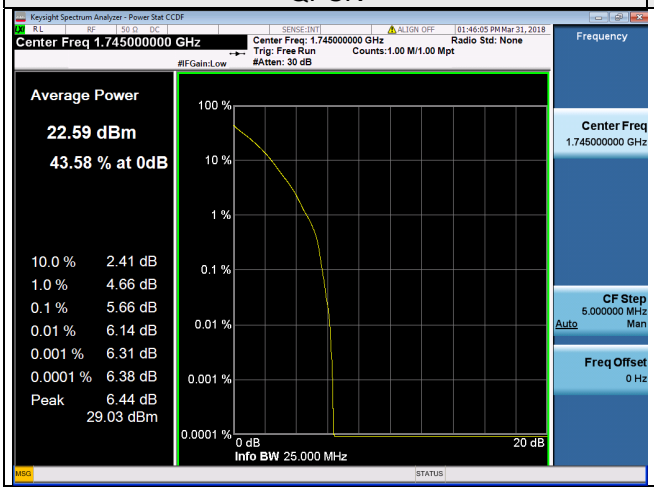
Spectrum Plot of Worst Value	
QPSK	16QAM

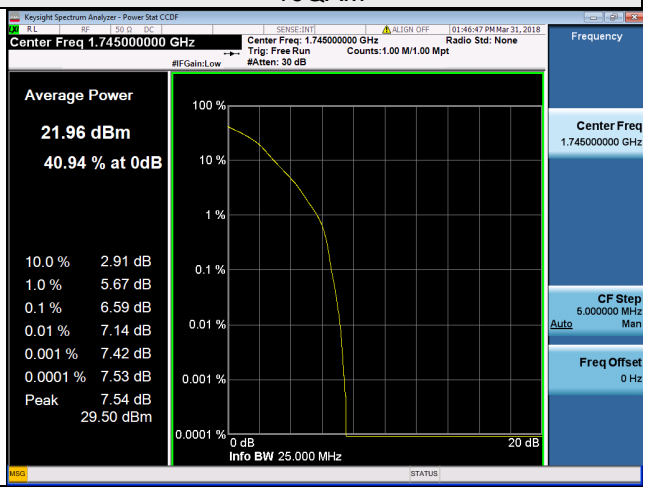




Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20050	1720.0	5.53	6.19
20175	1732.5	5.56	6.52
20300	1745.0	5.66	6.59

Spectrum Plot of Worst Value	
QPSK	16QAM

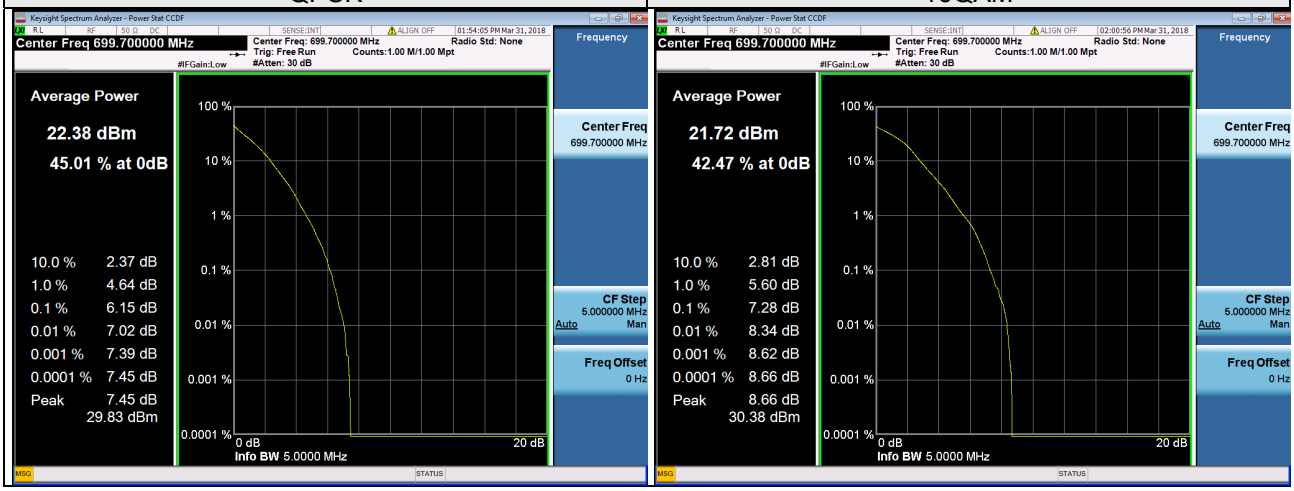




LTE Band 12

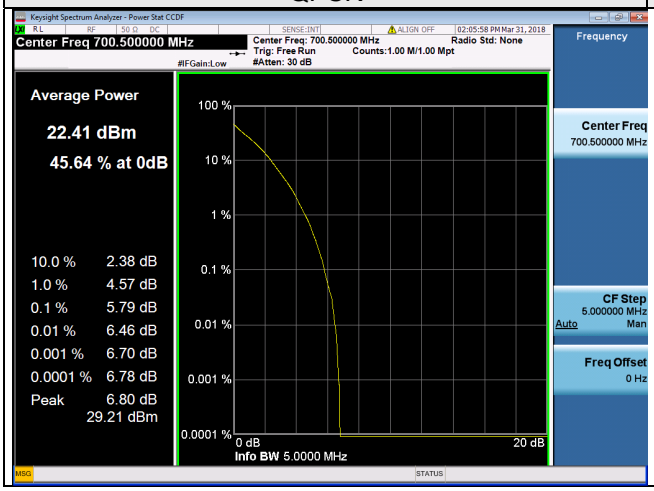
Channel Bandwidth: 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23017	699.7	6.15	7.28
23095	707.5	5.68	6.64
23173	715.3	5.50	6.50

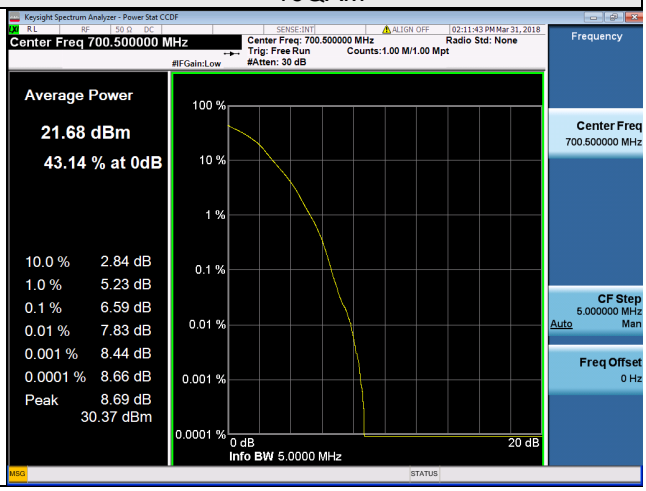
Spectrum Plot of Worst Value	
QPSK	16QAM



Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23025	700.5	5.79	6.59
23095	707.5	5.41	6.26
23165	714.5	4.62	5.37

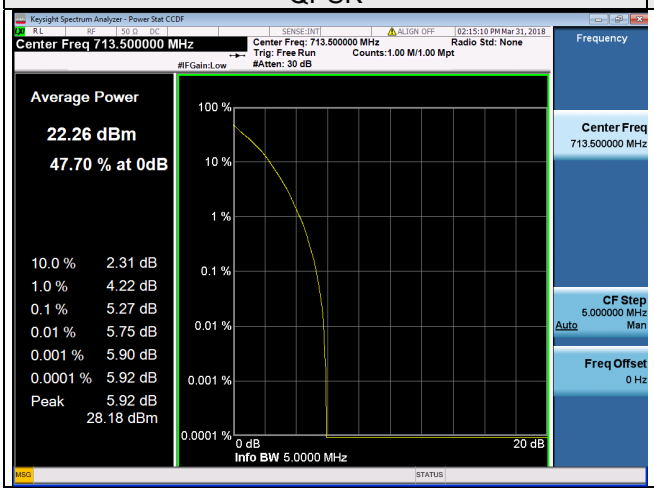
Spectrum Plot of Worst Value	
QPSK	16QAM

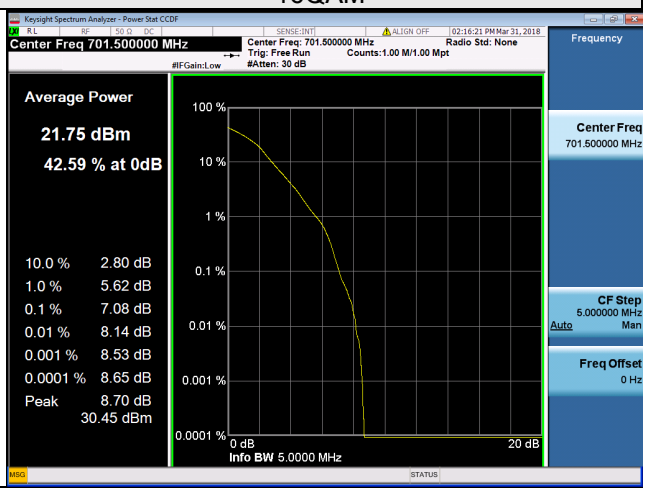




Channel Bandwidth: 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23035	701.5	6.03	7.08
23095	707.5	5.17	6.05
23155	713.5	5.27	6.21

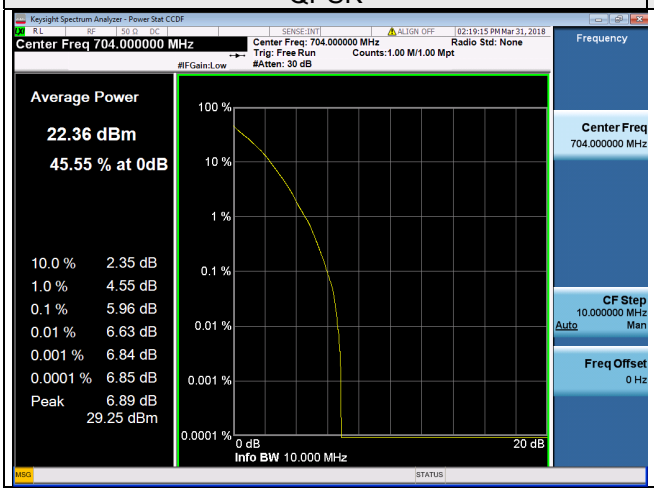
Spectrum Plot of Worst Value	
QPSK	16QAM

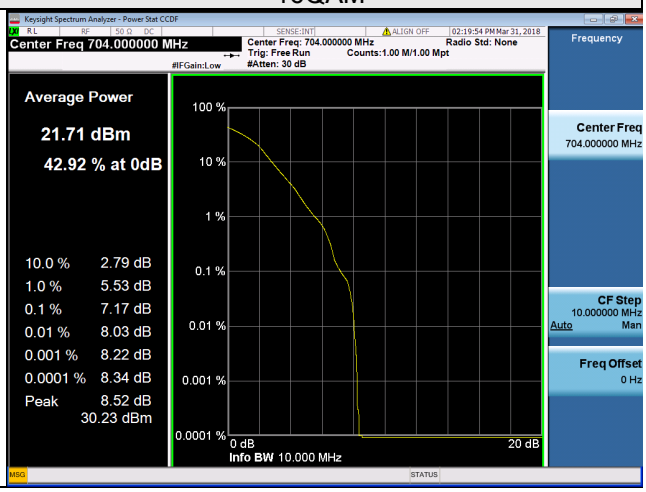




Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23060	704.0	5.96	7.17
23095	707.5	5.33	6.30
23130	711.0	5.62	6.53

Spectrum Plot of Worst Value	
QPSK	16QAM





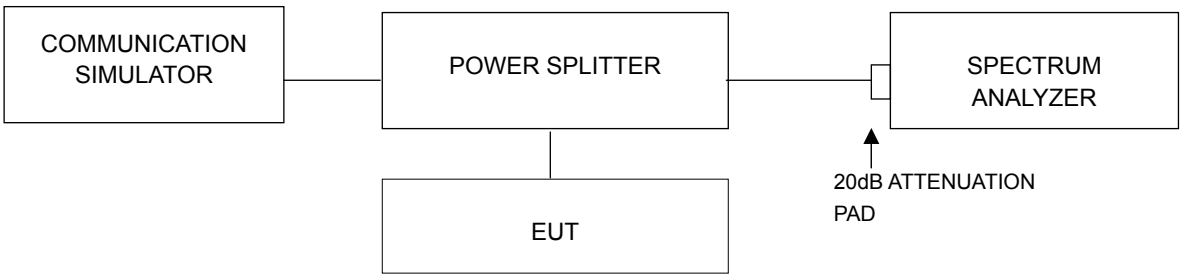
4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

For LTE Band 4
In the FCC 27.53(m) (4),On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. The emission limit equal to –13dBm.

For LTE Band 12
In the FCC 27.53(m) (4),On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. The emission limit equal to –13dBm.

4.7.2 Test Setup



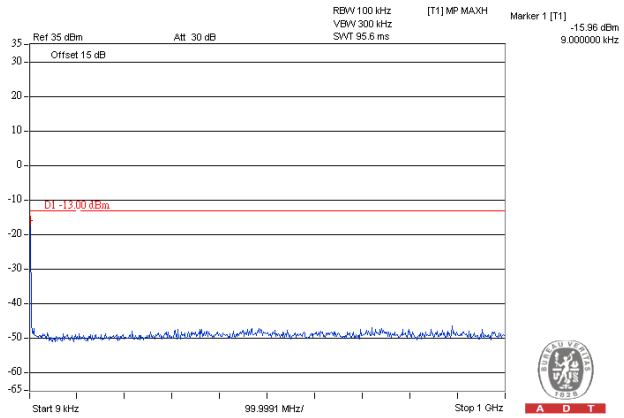
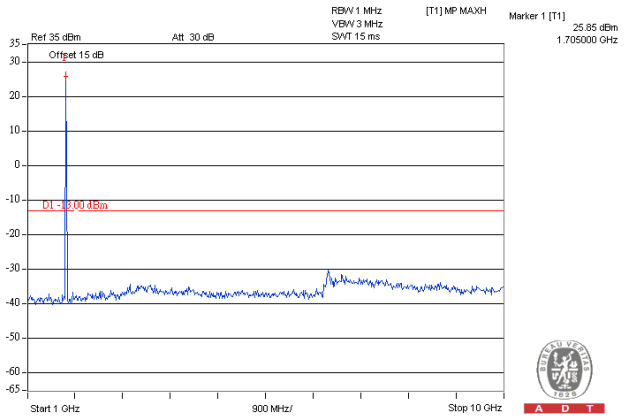
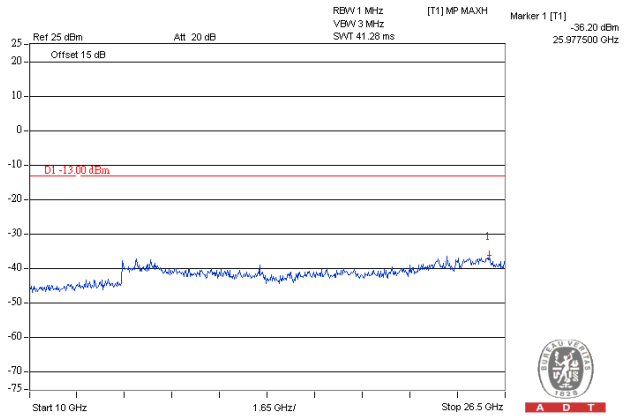
4.7.3 Test Procedure

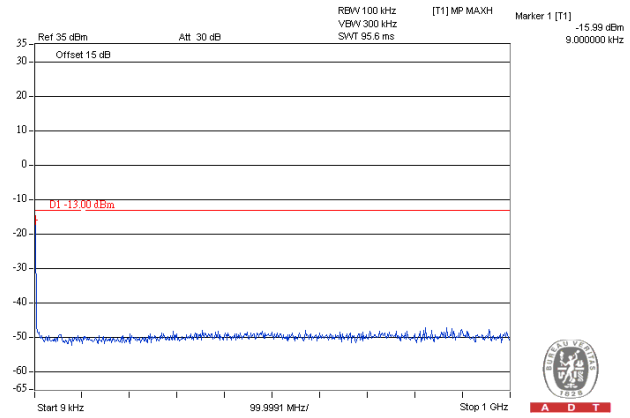
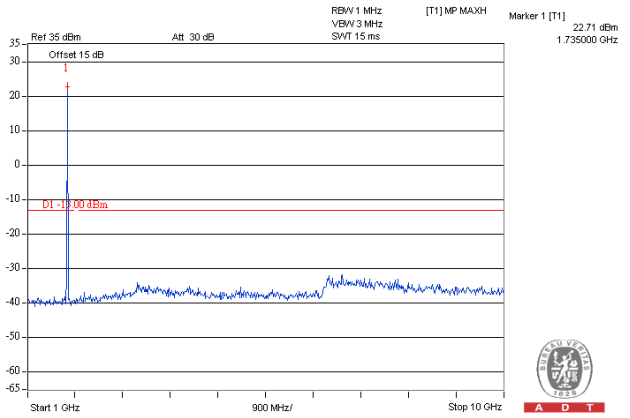
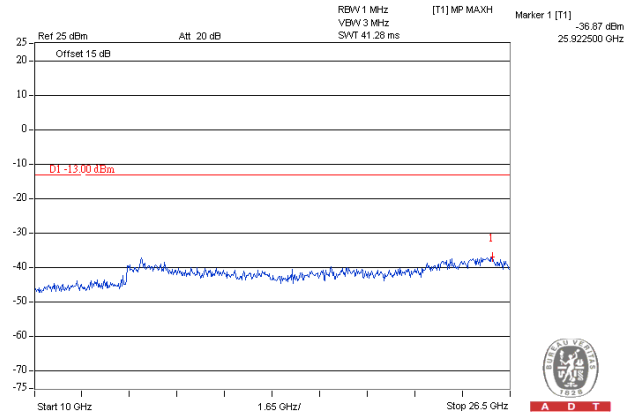
a. All measurements were done at 3 channels: low, middle and high operational frequency range.

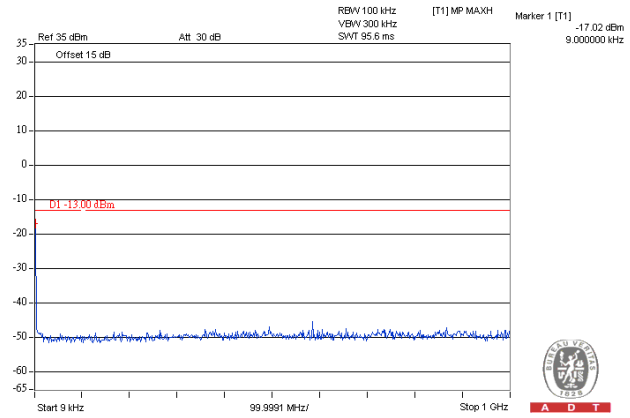
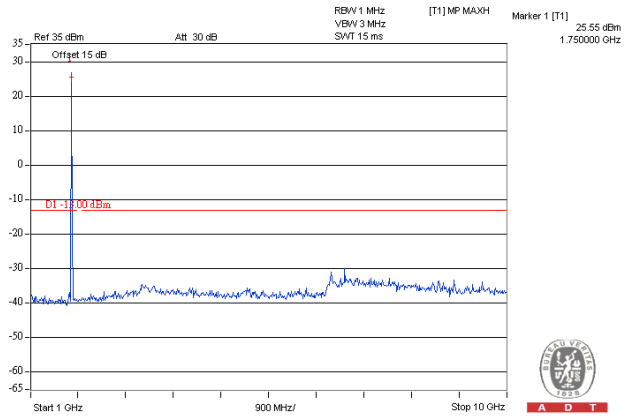
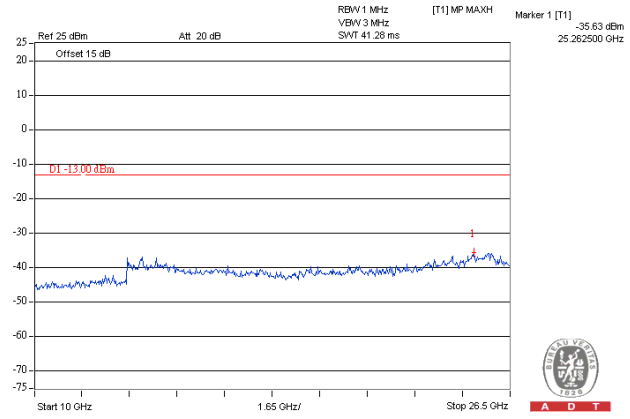
b. When the spectrum scanned from 9kHz to 26.5GHz, it shall be connected to the attenuator with the carried frequency.

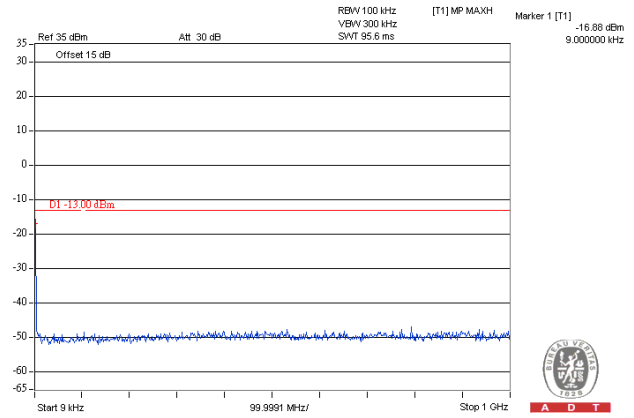
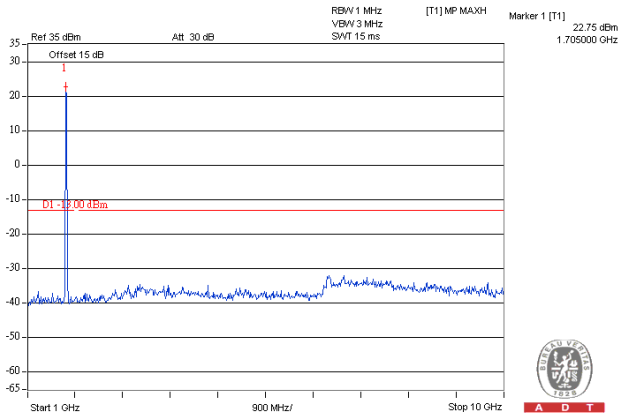
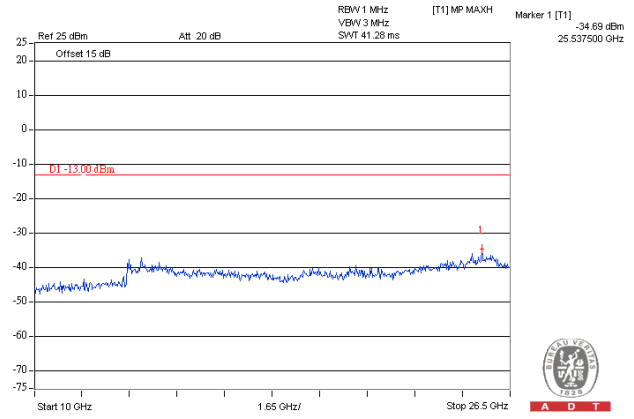
4.7.4 Test Results

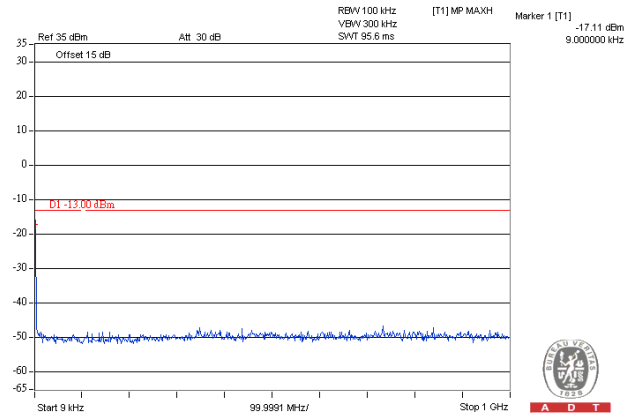
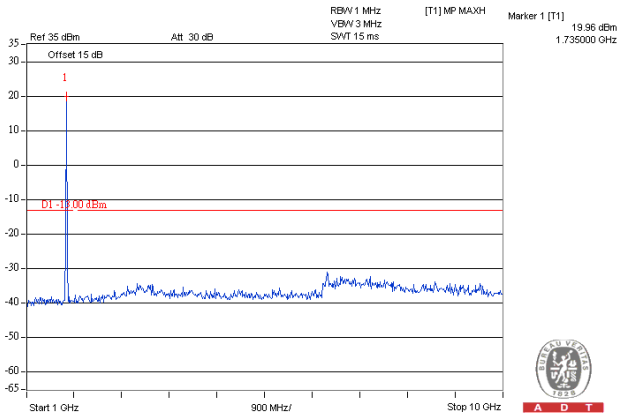
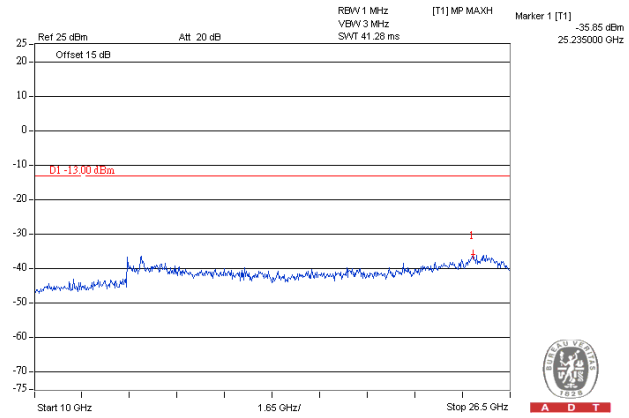
LTE Band 4

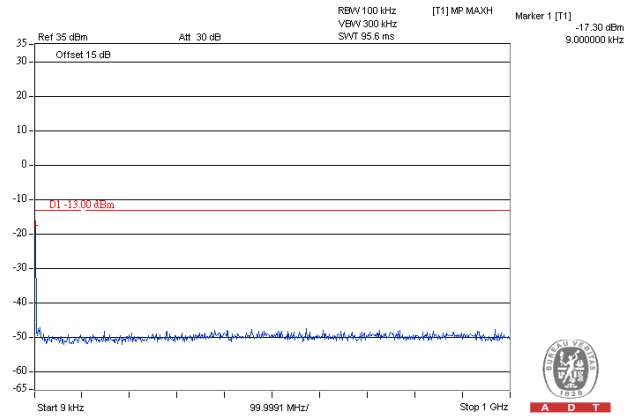
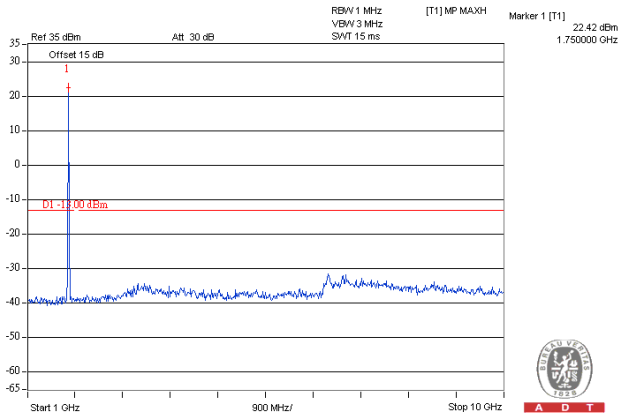
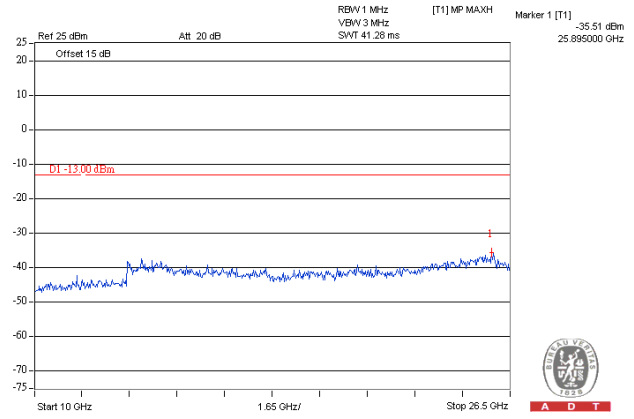
Channel Bandwidth: 1.4MHz	
Channel 19957 (1710.7MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

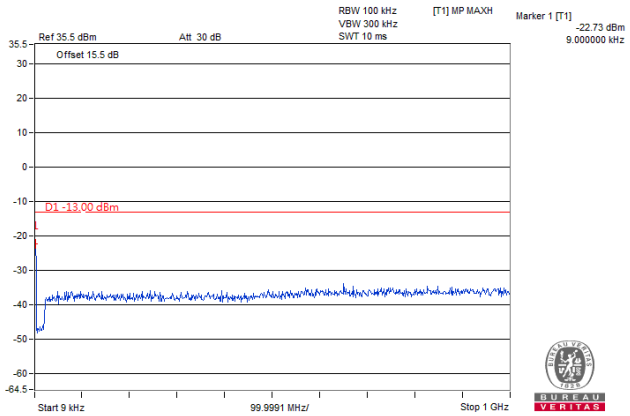
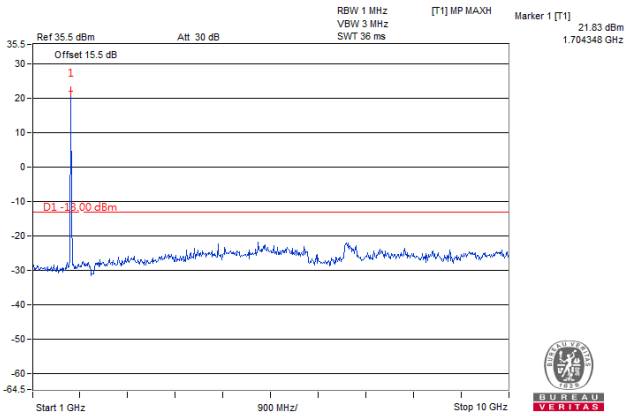
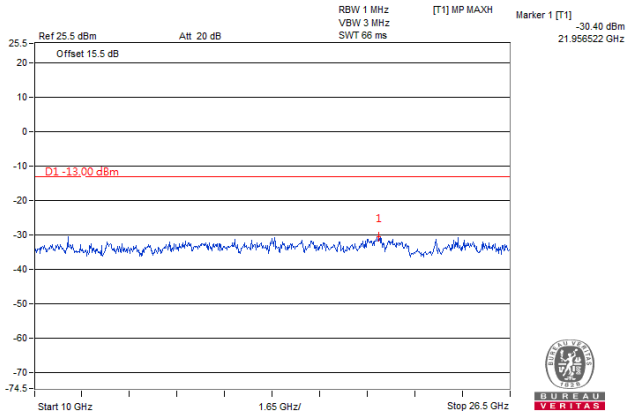
Channel Bandwidth: 1.4MHz	
Channel 20175 (1732.5MHz)	
Frequency Range :9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

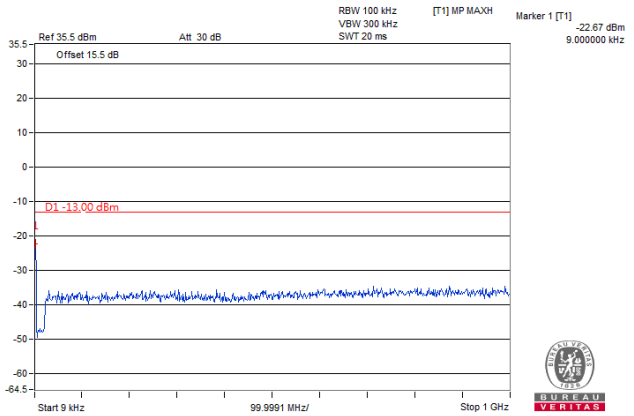
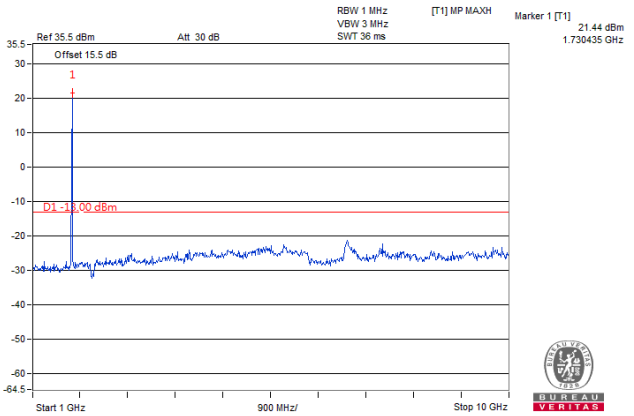
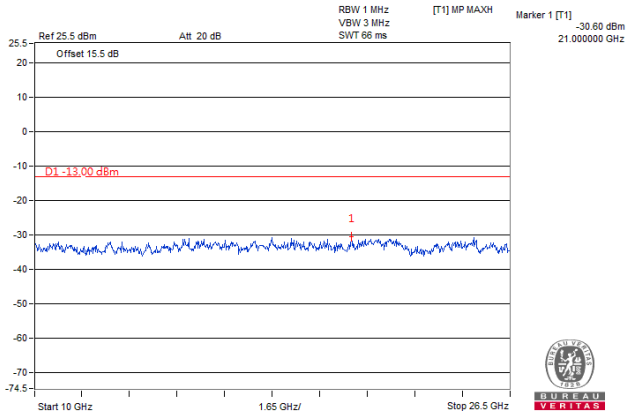
Channel Bandwidth: 1.4MHz	
Channel 20393 (1754.3MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

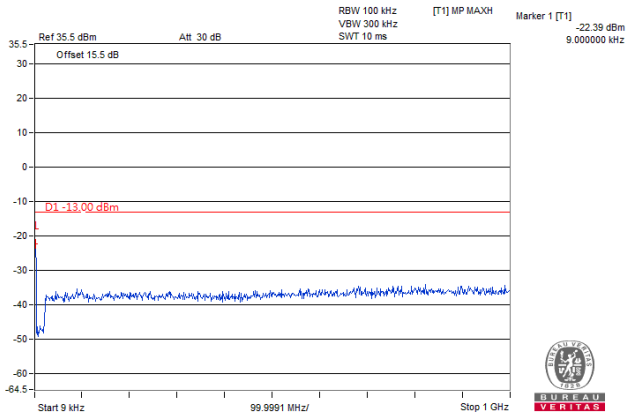
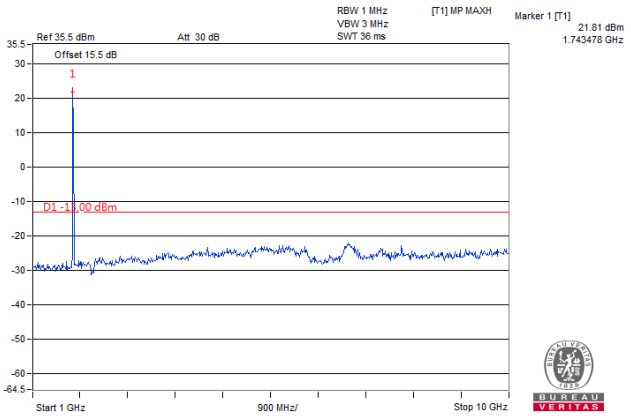
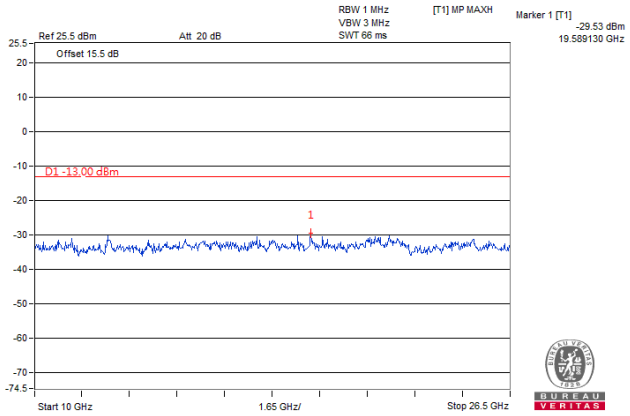
Channel Bandwidth: 3MHz	
Channel 19965 (1711.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

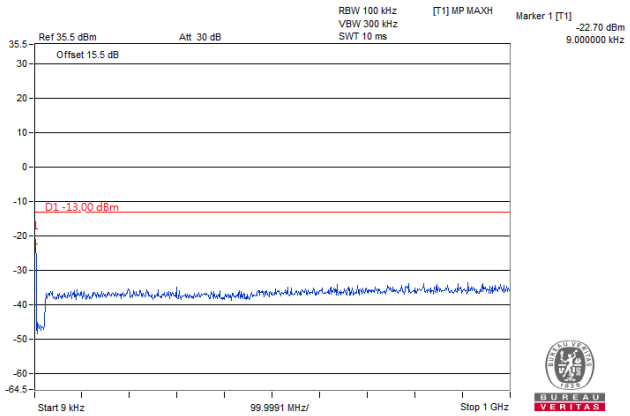
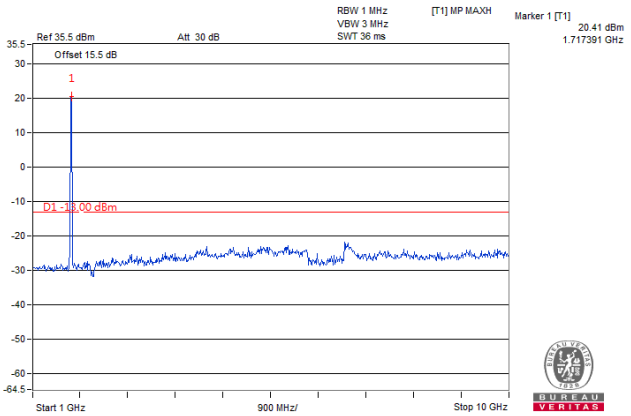
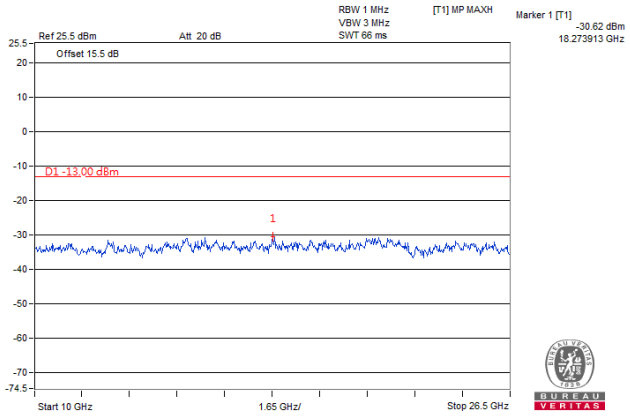
Channel Bandwidth: 3MHz	
Channel 20175 (1732.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

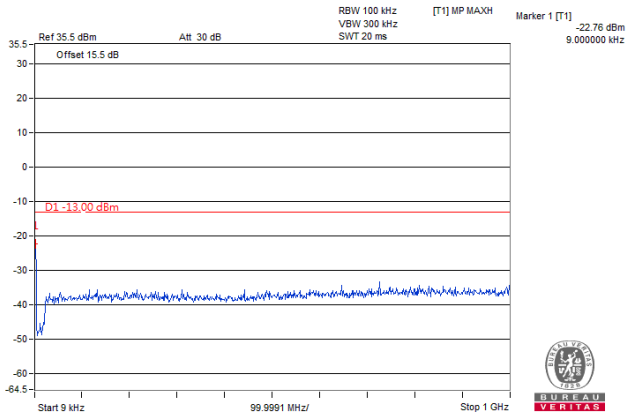
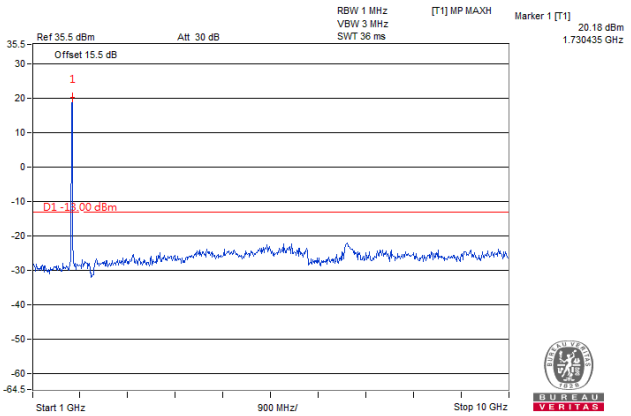
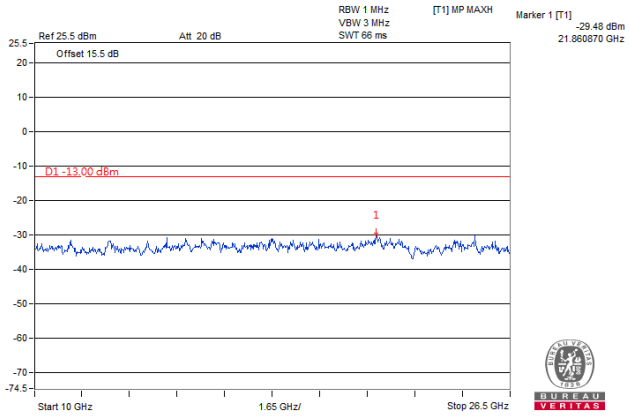
Channel Bandwidth: 3MHz	
Channel 20385 (1753.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

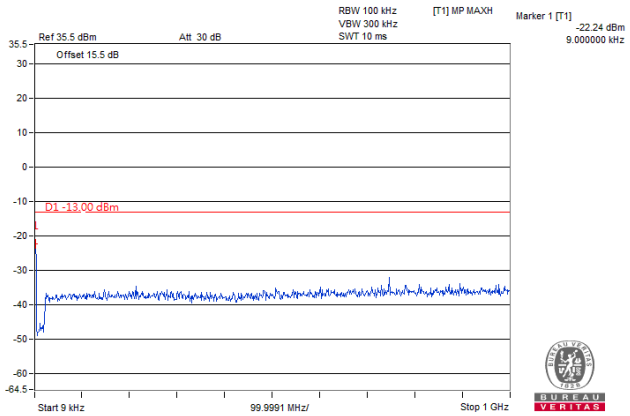
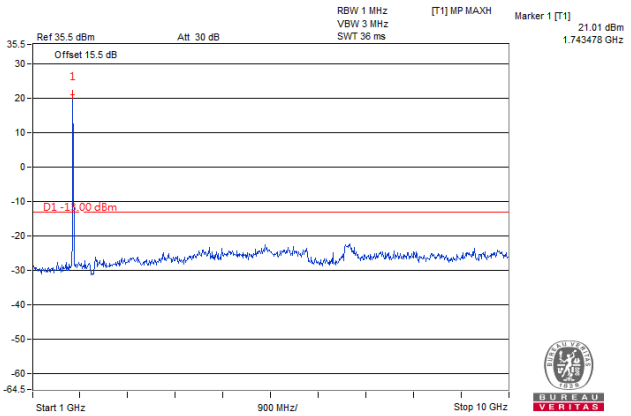
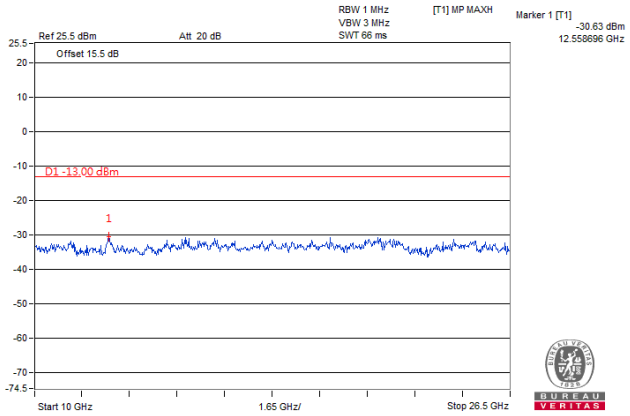
Channel Bandwidth: 5MHz	
Channel 19975 (1712.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

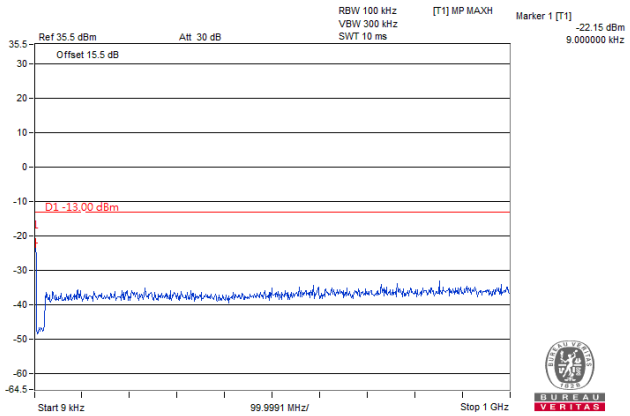
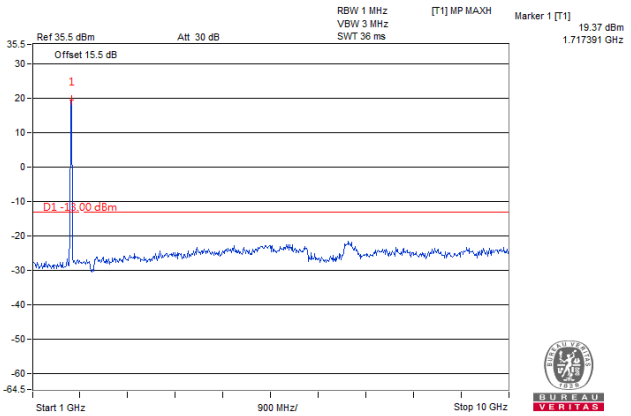
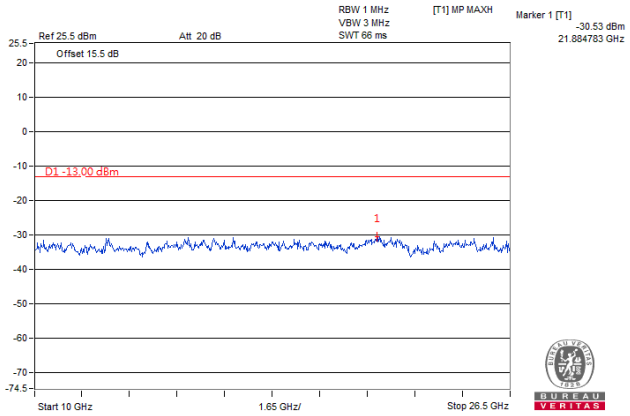
Channel Bandwidth: 5MHz	
Channel 20175 (1732.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

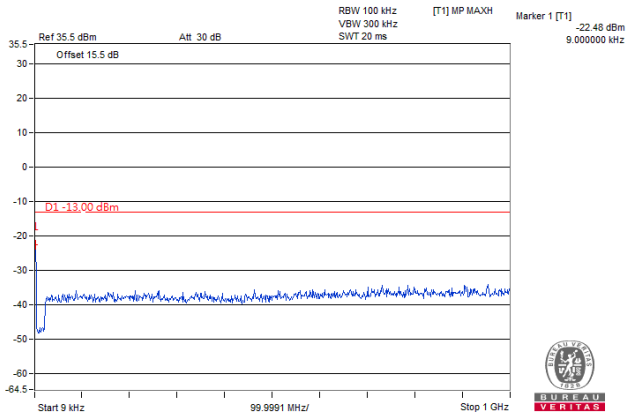
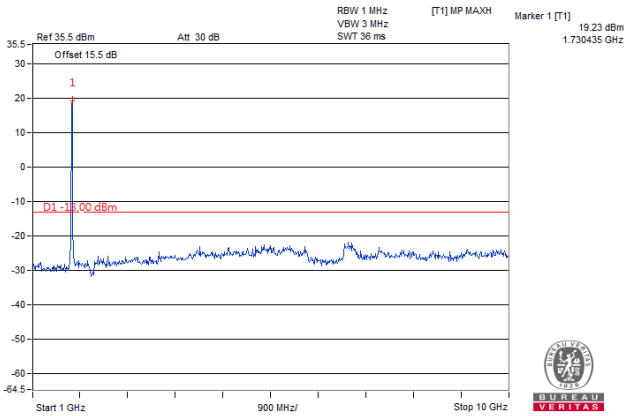
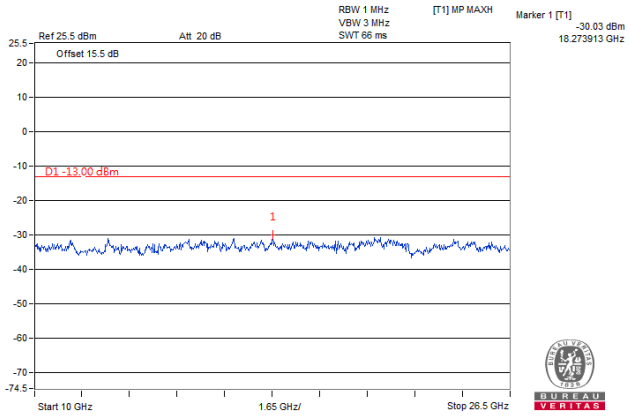
Channel Bandwidth: 5MHz	
Channel 20375 (1752.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

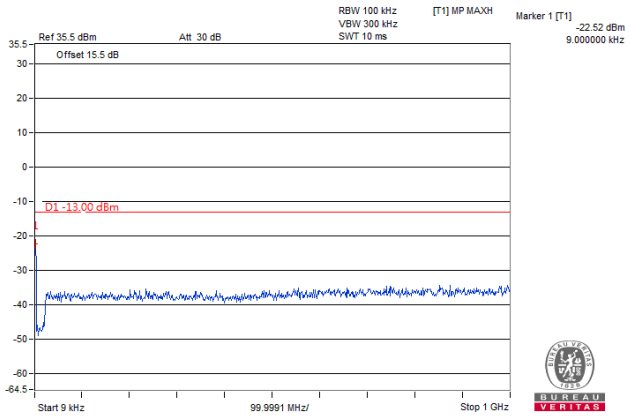
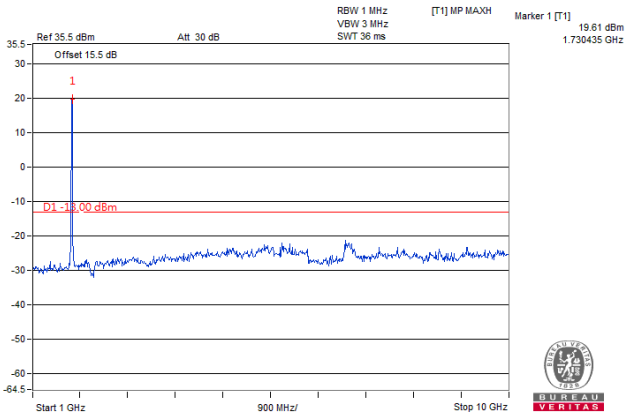
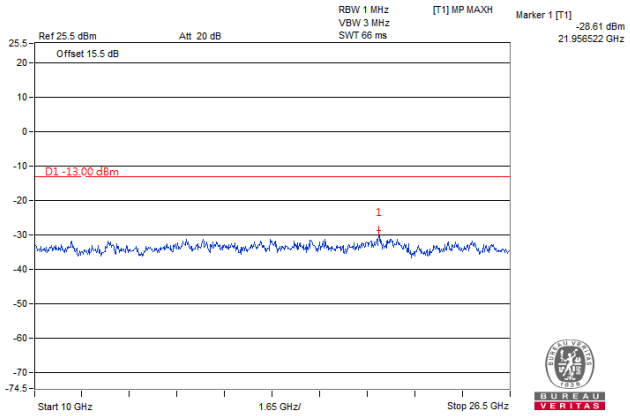
Channel Bandwidth: 10MHz	
Channel 20000 (1715.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

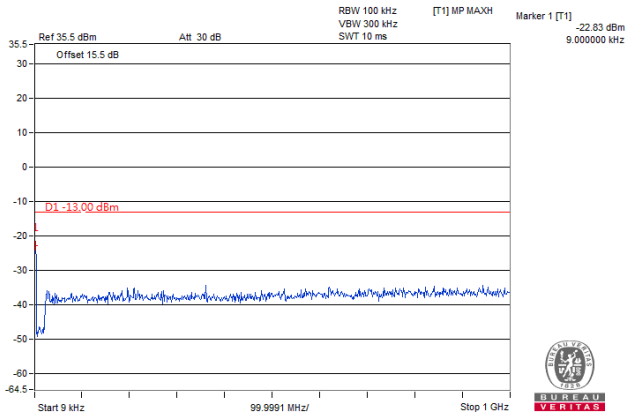
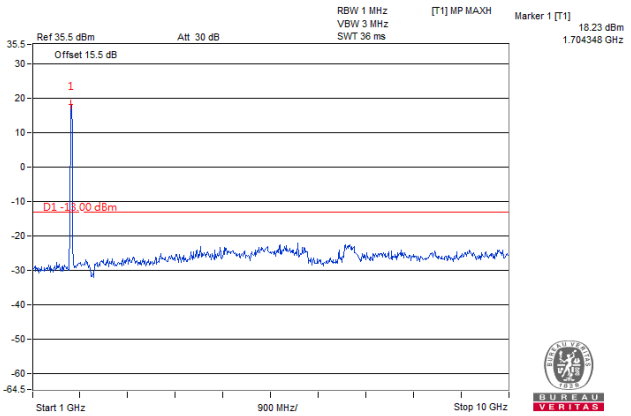
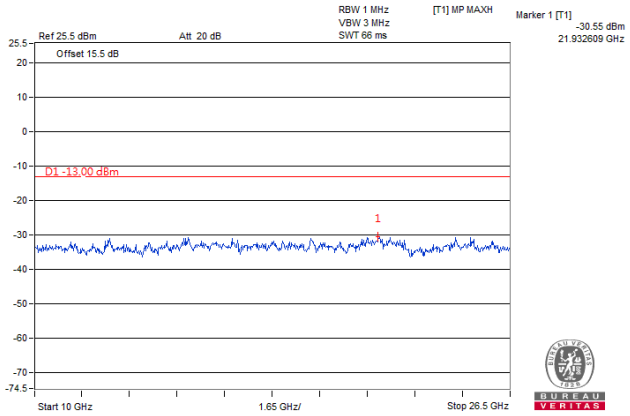
Channel Bandwidth: 10MHz	
Channel 20175 (1732.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

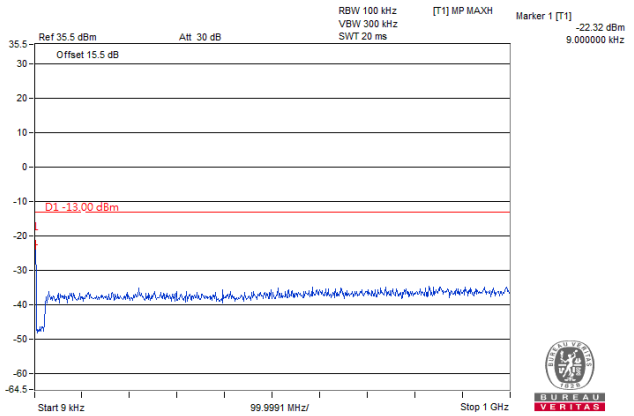
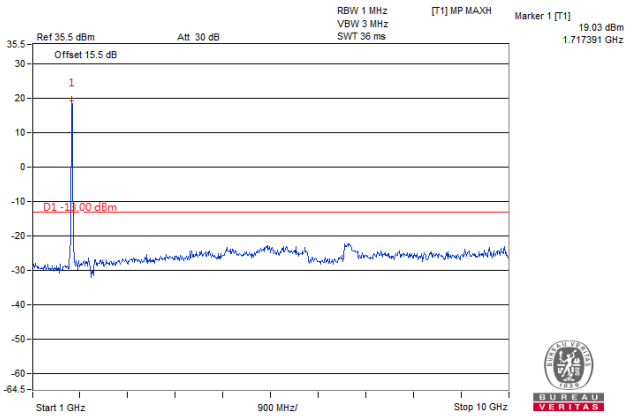
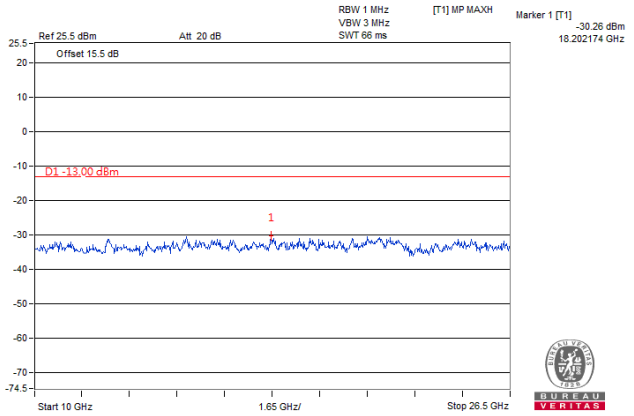
Channel Bandwidth: 10MHz	
Channel 20350 (1750.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

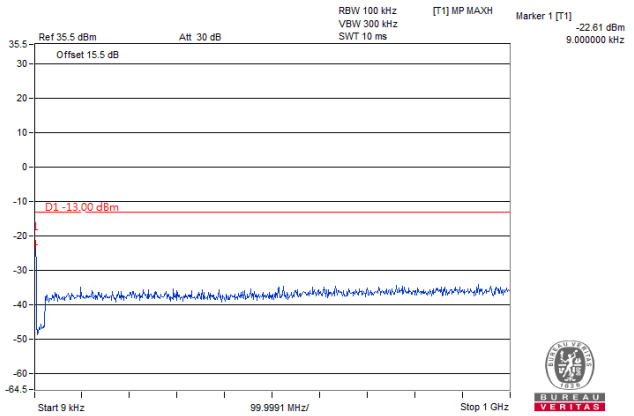
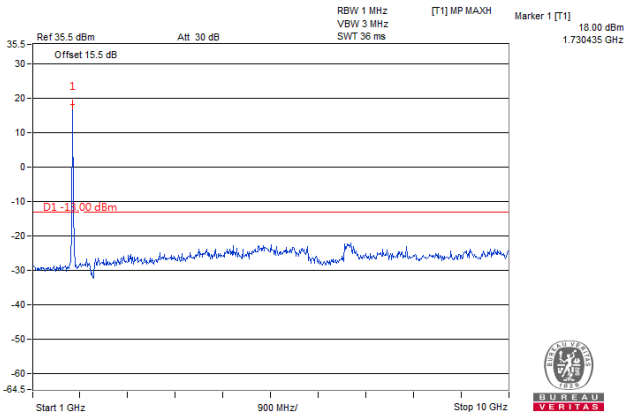
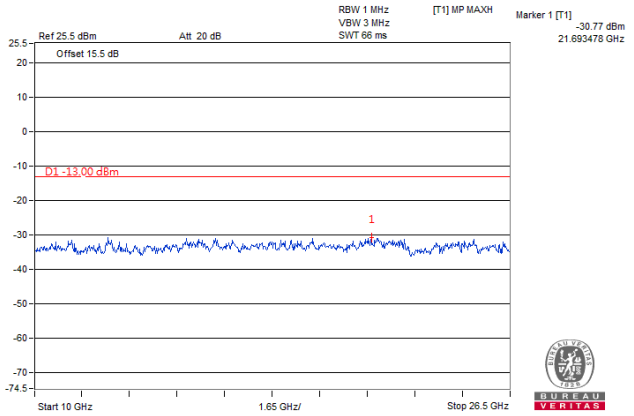
Channel Bandwidth: 15MHz	
Channel 20025 (1717.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

Channel Bandwidth: 15MHz	
Channel 20175 (1732.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

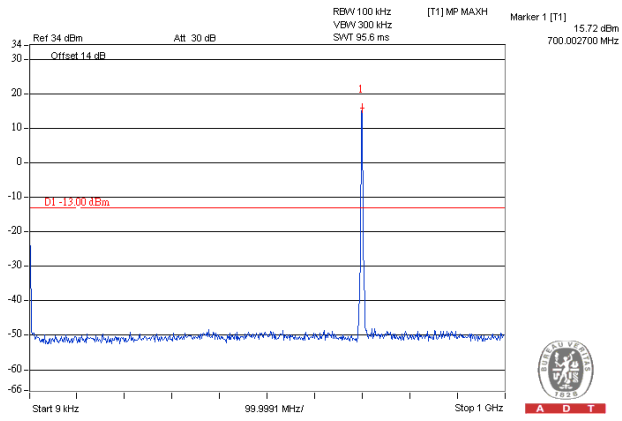
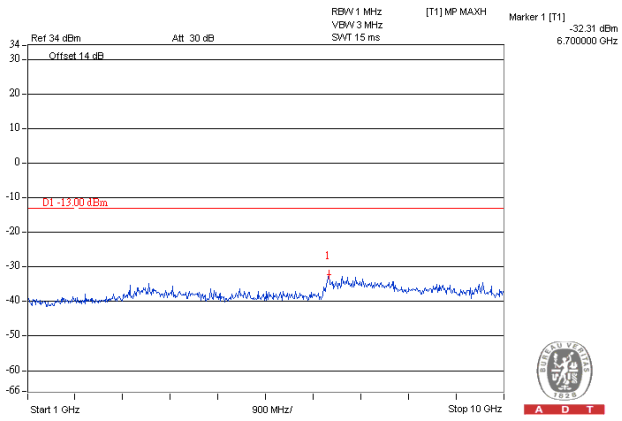
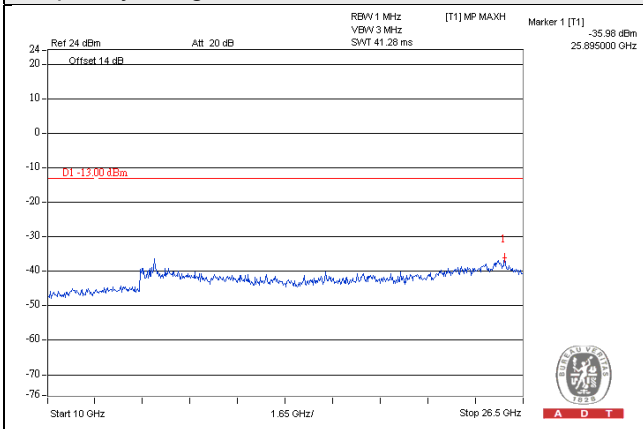
Channel Bandwidth: 15MHz	
Channel 20325 (1747.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

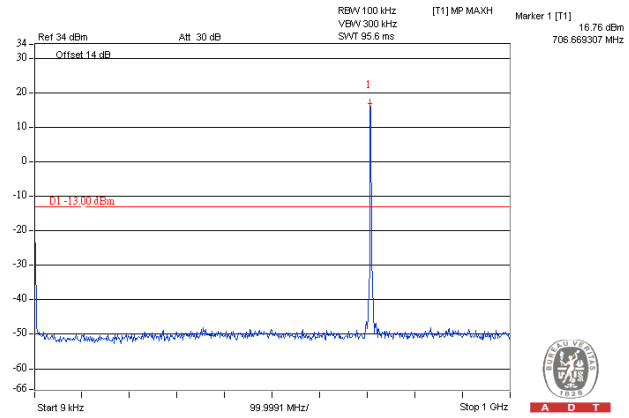
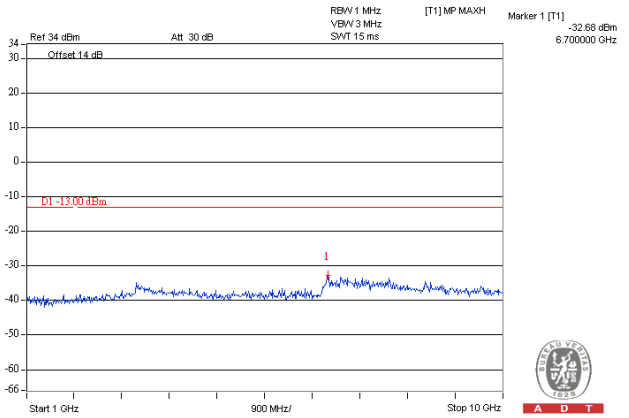
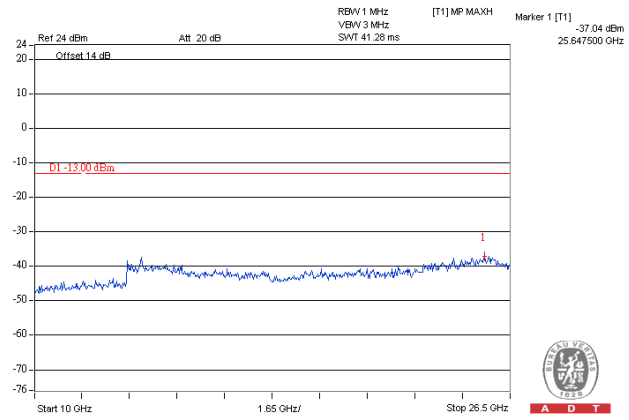
Channel Bandwidth: 20MHz	
Channel 20050 (1720.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

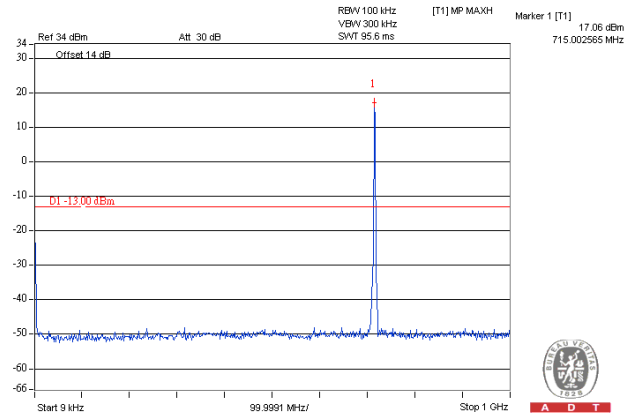
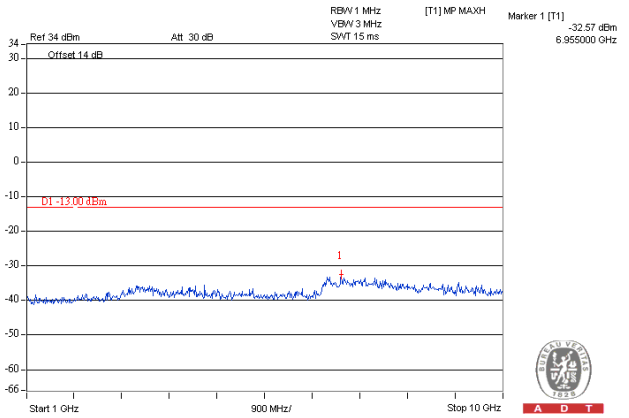
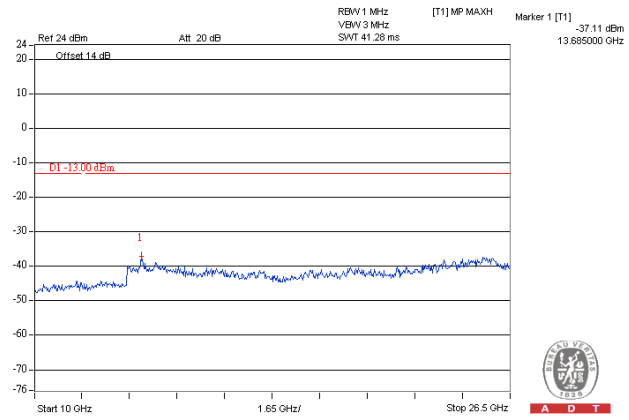
Channel Bandwidth: 20MHz	
Channel 20175 (1732.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

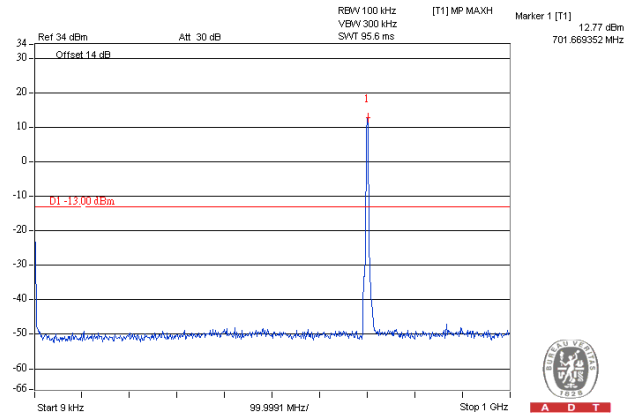
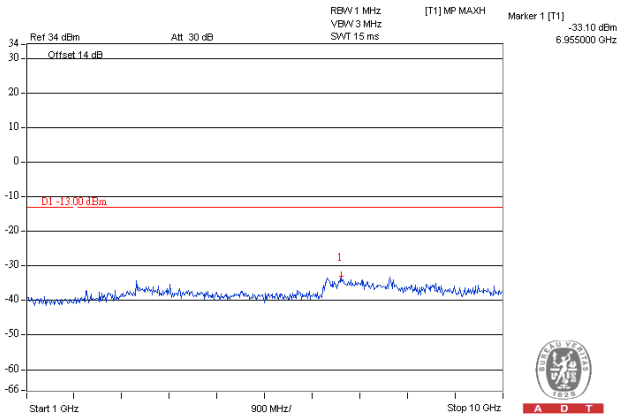
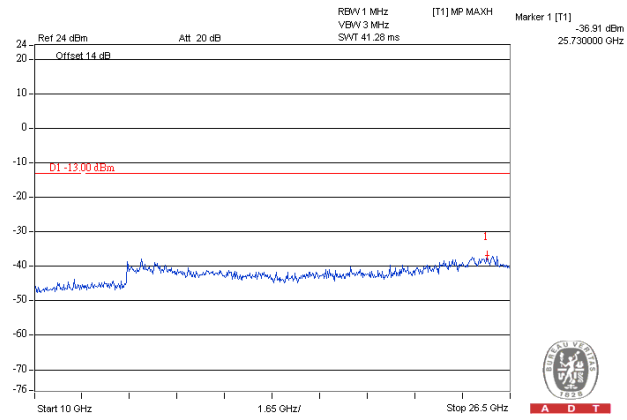
Channel Bandwidth: 20MHz	
Channel 20300 (1745.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

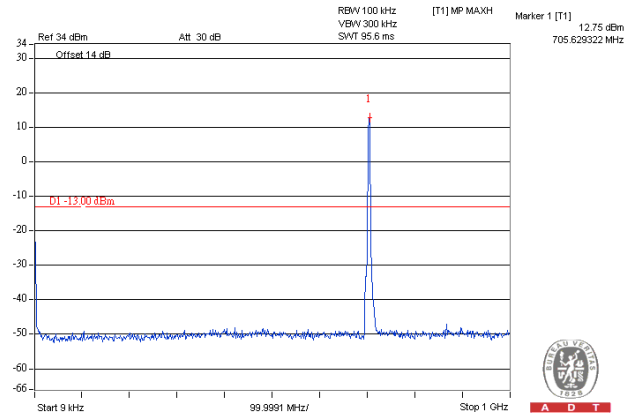
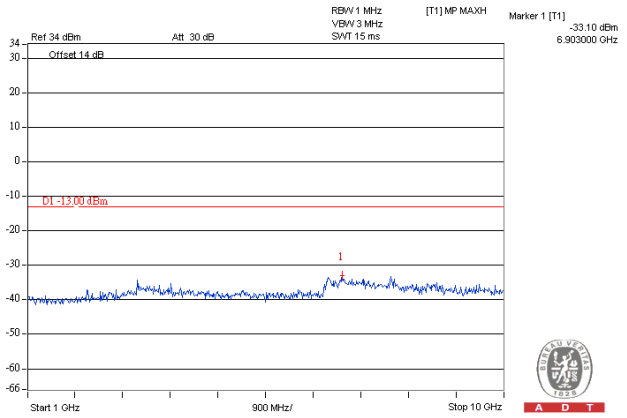
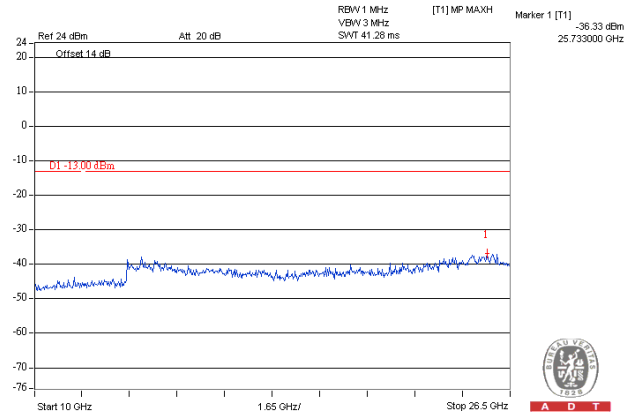
LTE Band 12

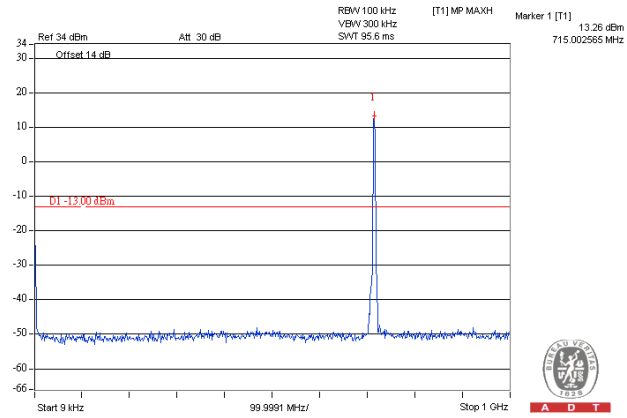
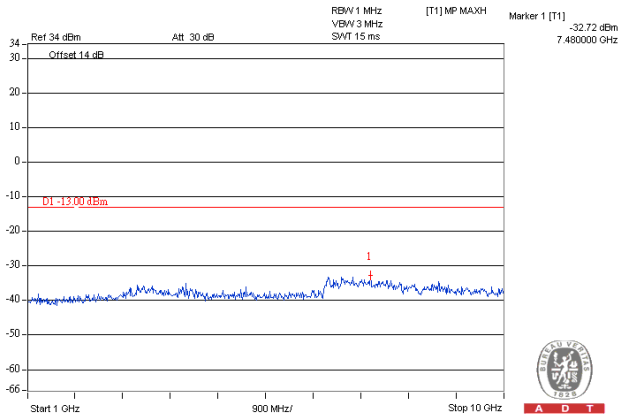
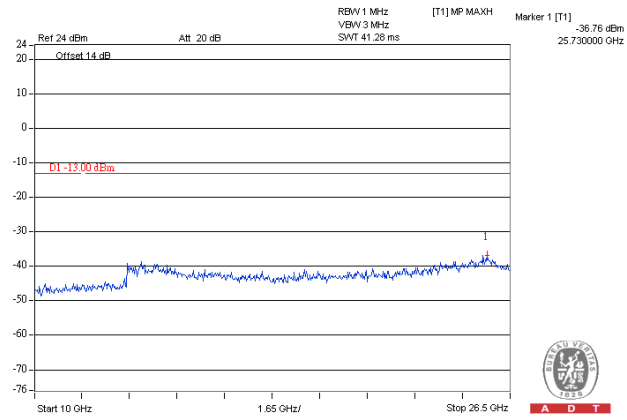
Channel Band width: 1.4MHz	
Channel 23017 (699.7MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

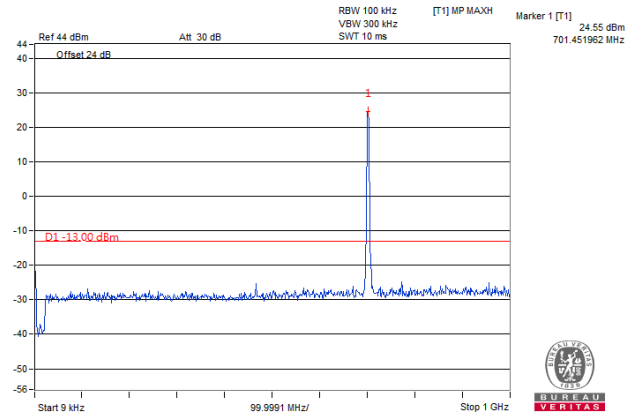
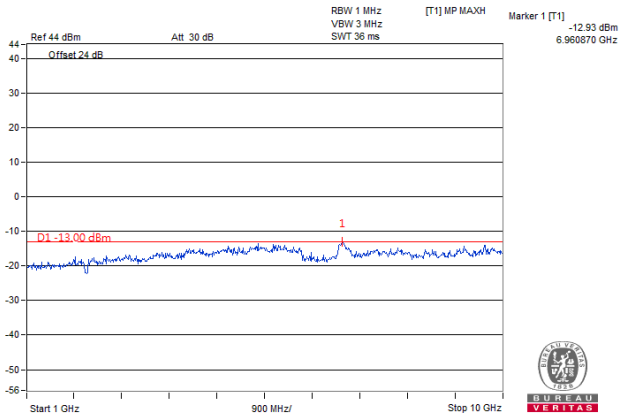
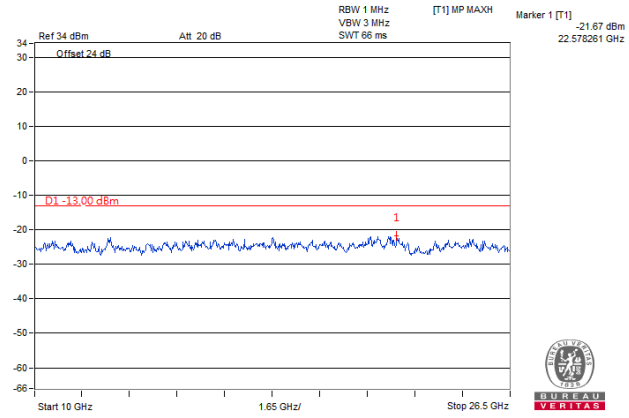
Channel Band width: 1.4MHz	
Channel 23095 (707.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

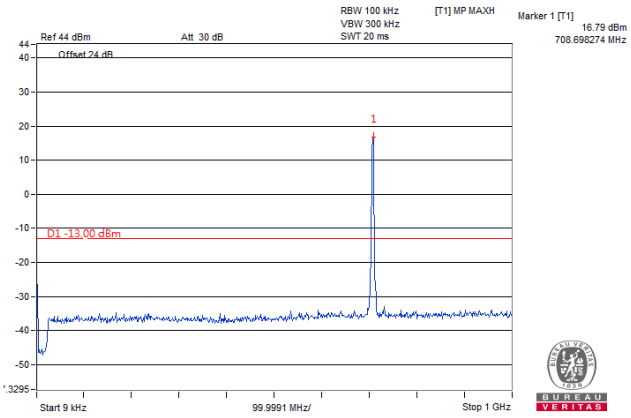
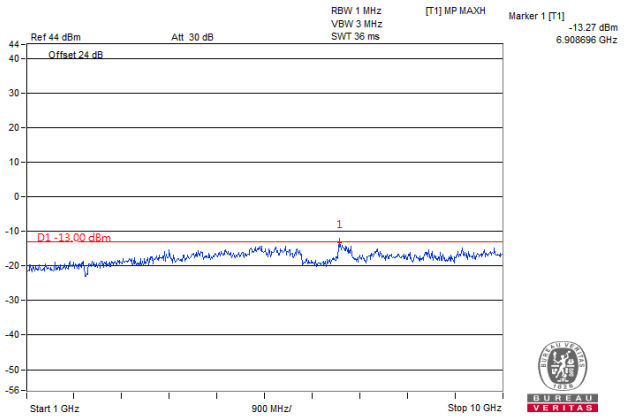
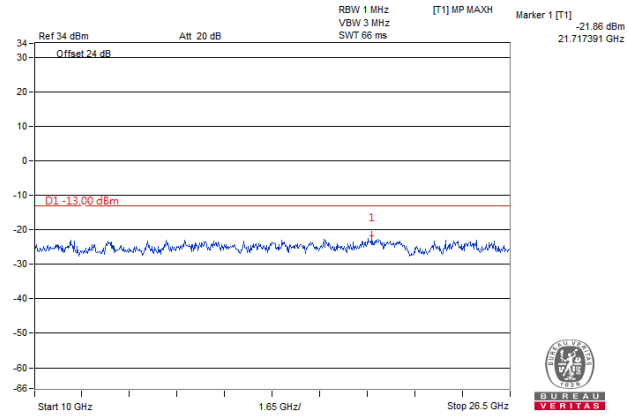
Channel Band width: 1.4MHz	
Channel 23173 (715.3MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

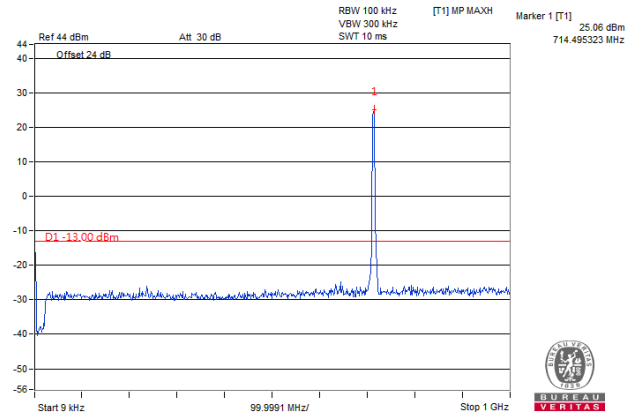
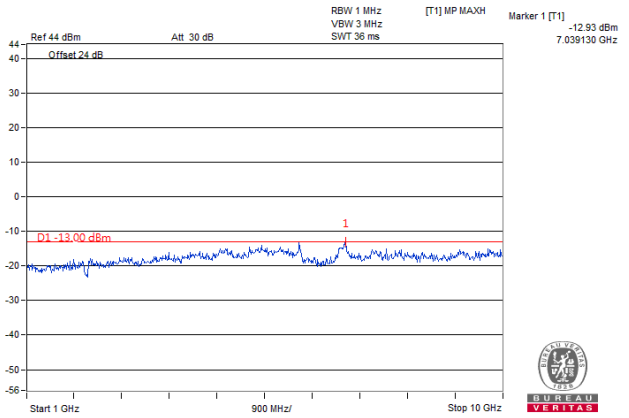
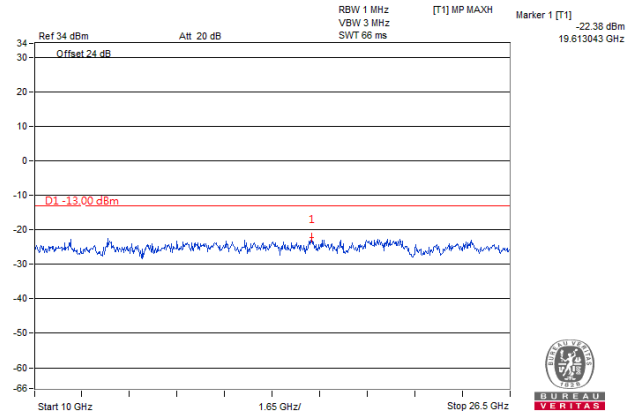
Channel Band width: 3MHz	
Channel 23025 (700.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

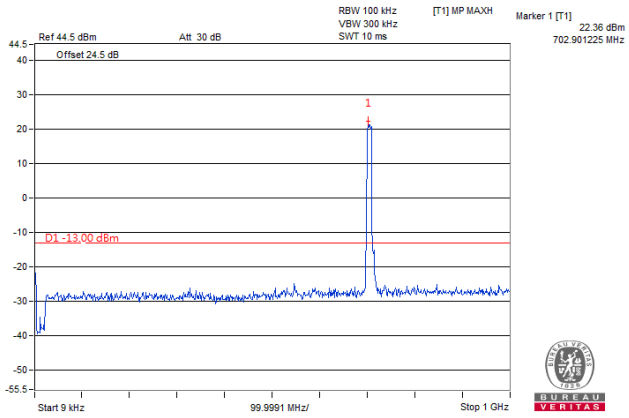
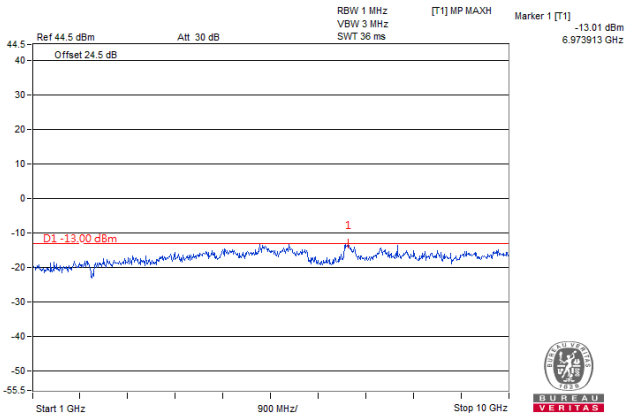
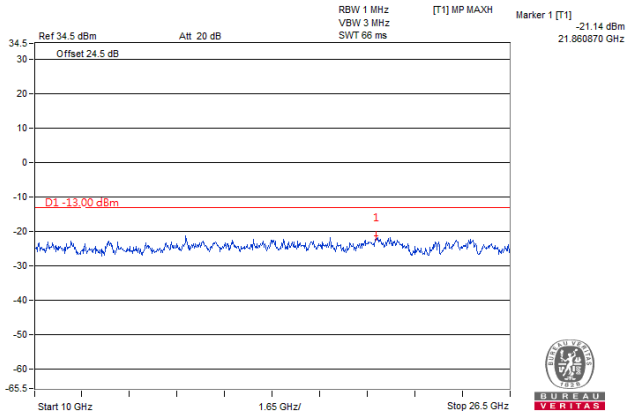
Channel Band width: 3MHz	
Channel 23095 (707.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

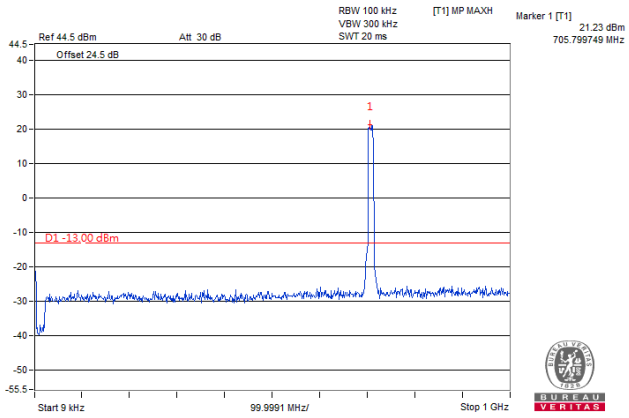
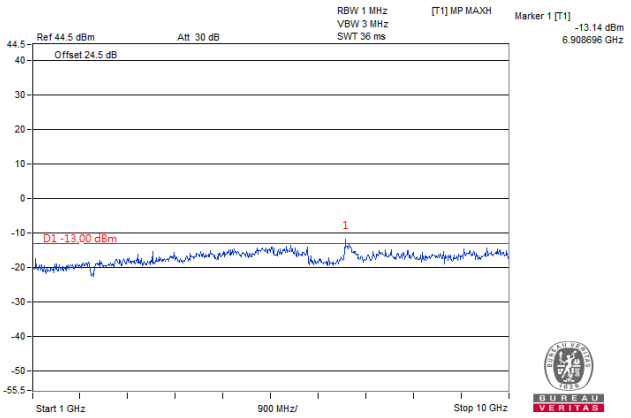
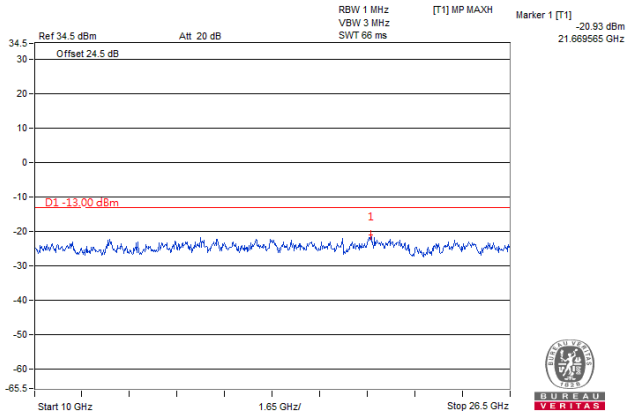
Channel Band width: 3MHz	
Channel 23165 (714.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

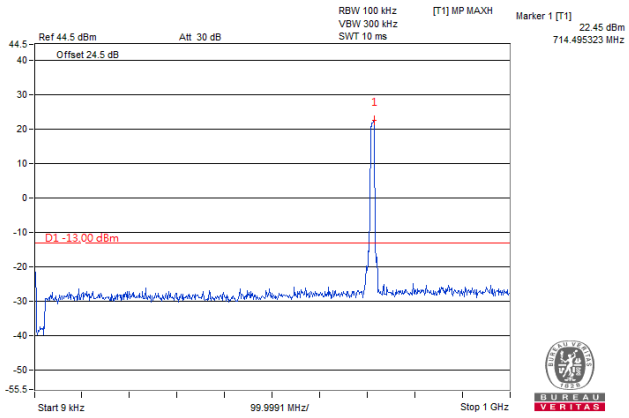
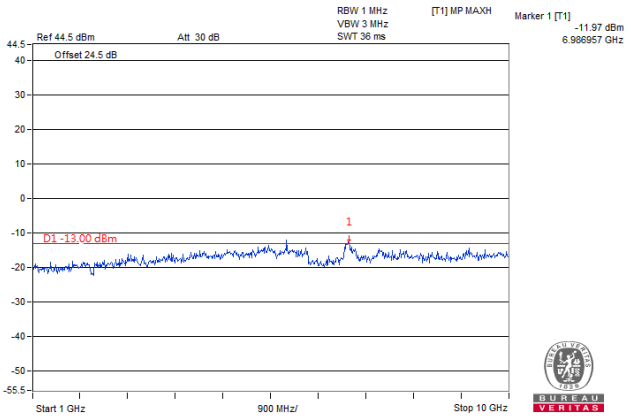
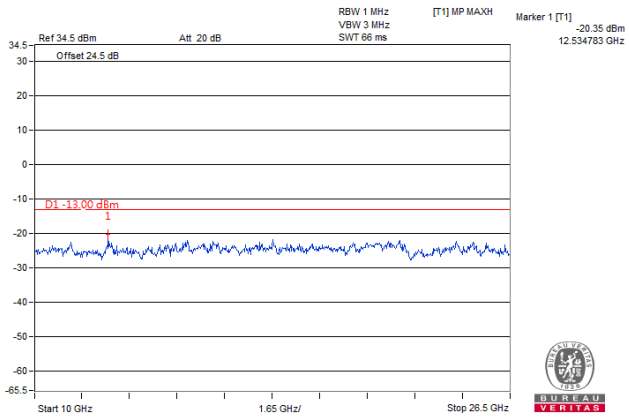
Channel Band width: 5MHz	
Channel 23035 (701.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

Channel Band width: 5MHz	
Channel 23095 (707.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

Channel Band width: 5MHz	
Channel 23155 (713.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

Channel Band width: 10MHz	
Channel 23060 (704MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

Channel Band width: 10MHz	
Channel 23095 (707.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

Channel Band width: 10MHz	
Channel 23130 (711MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

For LTE Band 4
According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 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 log10 (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. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

4.8.2 Test Procedure

a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)

b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m 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.

c. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G

d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution antenna.

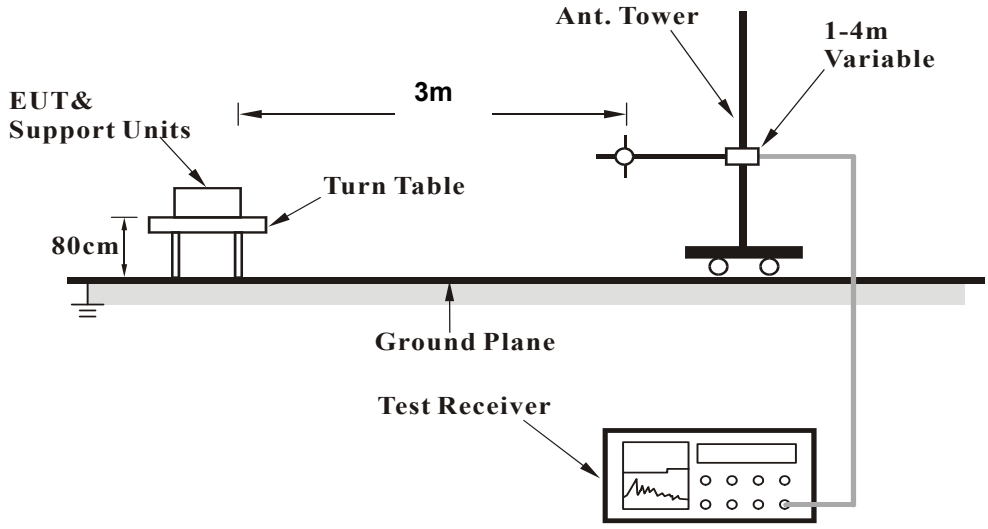
Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.8.3 Deviation from Test Standard

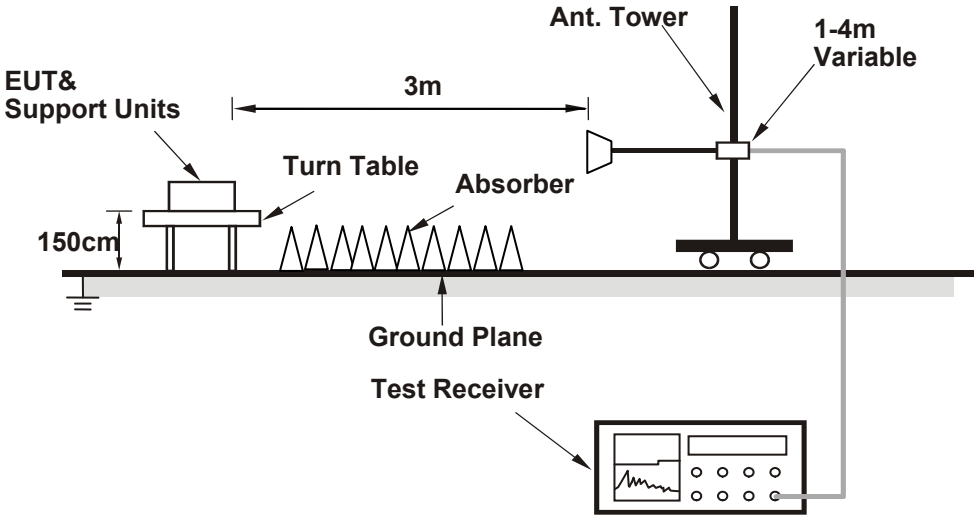
No deviation.

4.8.4 Test Setup

For Radiated Emission below or equal 1GHz



For Radiated Emission above 1GHz



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

4.8.5 Test Results

Below 1GHz

LTE Band 4

Channel Bandwidth: 1.4MHz

Mode	TX channel 19957 (1710.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.97	-34.4	-11.9	-18.8	-30.7	-13.0	-17.7
2	230.79	-53.9	-60.0	-1.7	-61.7	-13.0	-48.7
3	411.21	-68.6	-72.1	3.3	-68.8	-13.0	-55.8
4	635.28	-66.7	-68.2	3.7	-64.5	-13.0	-51.5
5	718.70	-51.8	-52.1	3.5	-48.6	-13.0	-35.6
6	943.74	-69.2	-64.6	3.7	-60.9	-13.0	-47.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.97	-39.4	-30.8	-18.8	-49.6	-13.0	-36.6
2	109.54	-58.5	-64.2	-2.5	-66.7	-13.0	-53.7
3	274.44	-70.2	-65.8	-1.6	-67.4	-13.0	-54.4
4	555.74	-68.7	-70.7	3.7	-67.0	-13.0	-54.0
5	695.42	-68.4	-66.1	3.4	-62.7	-13.0	-49.7
6	910.76	-69.5	-64.6	3.5	-61.1	-13.0	-48.1

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 3MHz

Mode	TX channel 19965 (1711.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	44.55	-53.6	-41.4	-10.9	-52.3	-13.0	-39.3
2	238.55	-59.0	-64.4	-1.5	-65.9	-13.0	-52.9
3	441.28	-68.5	-72.2	3.5	-68.7	-13.0	-55.7
4	642.07	-68.7	-70.2	3.6	-66.6	-13.0	-53.6
5	726.46	-63.5	-63.5	3.7	-59.8	-13.0	-46.8
6	952.47	-69.9	-65.3	3.8	-61.5	-13.0	-48.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	47.46	-42.4	-41.1	-9.2	-50.3	-13.0	-37.3
2	134.76	-62.9	-63.3	-3.2	-66.5	-13.0	-53.5
3	283.17	-69.1	-64.7	-1.7	-66.4	-13.0	-53.4
4	611.03	-68.3	-67.4	3.7	-63.7	-13.0	-50.7
5	759.44	-68.2	-64.8	3.8	-61.0	-13.0	-48.0
6	964.11	-68.9	-63.6	3.7	-59.9	-13.0	-46.9

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 5MHz

Mode	TX channel 19975 (1712.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	34.85	-49.3	-29.7	-16.5	-46.2	-13.0	-33.2
2	95.96	-59.7	-67.6	-1.2	-68.8	-13.0	-55.8
3	270.56	-67.4	-70.2	-1.4	-71.6	-13.0	-58.6
4	518.88	-69.2	-72.8	3.8	-69.0	-13.0	-56.0
5	826.37	-68.3	-65.4	3.9	-61.5	-13.0	-48.5
6	969.93	-69.6	-64.8	3.7	-61.1	-13.0	-48.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	110.51	-52.9	-58.3	-2.6	-60.9	-13.0	-47.9
2	232.73	-61.0	-61.9	-1.6	-63.5	-13.0	-50.5
3	395.69	-67.5	-71.4	3.2	-68.2	-13.0	-55.2
4	547.98	-68.4	-70.6	3.8	-66.8	-13.0	-53.8
5	744.89	-68.3	-65.0	3.7	-61.3	-13.0	-48.3
6	964.11	-68.9	-63.6	3.7	-59.9	-13.0	-46.9

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

Mode	TX channel 20000 (1715.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50.37	-60.3	-53.2	-7.9	-61.1	-13.0	-48.1
2	152.22	-68.5	-69.9	-2.8	-72.7	-13.0	-59.7
3	228.85	-56.3	-62.5	-1.7	-64.2	-13.0	-51.2
4	529.55	-67.3	-70.9	3.9	-67.0	-13.0	-54.0
5	713.85	-58.5	-58.7	3.5	-55.2	-13.0	-42.2
6	835.10	-68.6	-65.5	3.8	-61.7	-13.0	-48.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	54.25	-51.2	-52.3	-5.7	-58.0	-13.0	-45.0
2	197.81	-69.0	-67.4	-2.4	-69.8	-13.0	-56.8
3	283.17	-69.1	-64.7	-1.7	-66.4	-13.0	-53.4
4	676.99	-66.9	-64.9	3.6	-61.3	-13.0	-48.3
5	827.34	-69.3	-65.8	3.9	-61.9	-13.0	-48.9
6	970.90	-69.3	-63.9	3.7	-60.2	-13.0	-47.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 15MHz

Mode	TX channel 20025 (1717.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	50.37	-60.3	-53.2	-7.9	-61.1	-13.0	-48.1
2	128.94	-65.2	-68.2	-3.2	-71.4	-13.0	-58.4
3	257.95	-66.2	-69.8	-1.6	-71.4	-13.0	-58.4
4	577.08	-67.6	-70.3	3.7	-66.6	-13.0	-53.6
5	713.85	-58.5	-58.7	3.5	-55.2	-13.0	-42.2
6	835.10	-68.6	-65.5	3.8	-61.7	-13.0	-48.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	45.52	-40.9	-38.8	-10.4	-49.2	-13.0	-36.2
2	110.51	-52.9	-58.3	-2.6	-60.9	-13.0	-47.9
3	230.79	-59.8	-61.3	-1.7	-63.0	-13.0	-50.0
4	633.34	-68.0	-66.7	3.6	-63.1	-13.0	-50.1
5	828.31	-68.9	-65.4	3.9	-61.5	-13.0	-48.5
6	970.90	-69.3	-63.9	3.7	-60.2	-13.0	-47.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 20MHz

Mode	TX channel 20050 (1720.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	81.41	-64.1	-69.7	0.5	-69.2	-13.0	-56.2
2	152.22	-68.5	-69.9	-2.8	-72.7	-13.0	-59.7
3	417.03	-68.7	-72.2	3.4	-68.8	-13.0	-55.8
4	625.58	-67.9	-69.6	3.7	-65.9	-13.0	-52.9
5	826.37	-68.3	-65.4	3.9	-61.5	-13.0	-48.5
6	969.93	-69.6	-64.8	3.7	-61.1	-13.0	-48.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	32.91	-37.2	-30.1	-17.7	-47.8	-13.0	-34.8
2	128.94	-60.0	-62.2	-3.2	-65.4	-13.0	-52.4
3	283.17	-69.1	-64.7	-1.7	-66.4	-13.0	-53.4
4	611.03	-68.3	-67.4	3.7	-63.7	-13.0	-50.7
5	759.44	-68.2	-64.8	3.8	-61.0	-13.0	-48.0
6	935.01	-68.8	-63.6	3.7	-59.9	-13.0	-46.9

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 12

Channel Bandwidth: 1.4MHz

Mode	TX channel 23017 (699.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	47.46	-52.9	-45.7	-9.2	-54.9	-13.0	-41.9
2	72.68	-58.6	-66.7	-0.1	-66.8	-13.0	-53.8
3	225.94	-57.4	-65.7	-1.7	-67.4	-13.0	-54.4
4	439.34	-66.8	-72.6	3.5	-69.1	-13.0	-56.1
5	643.04	-65.9	-69.6	3.7	-65.9	-13.0	-52.9
6	958.29	-67.2	-64.7	3.8	-60.9	-13.0	-47.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-31.7	-24.3	-19.4	-43.7	-13.0	-30.7
2	127.97	-57.9	-62.4	-3.2	-65.6	-13.0	-52.6
3	231.76	-58.0	-61.3	-1.6	-62.9	-13.0	-49.9
4	674.08	-66.5	-66.7	3.6	-63.1	-13.0	-50.1
5	818.61	-66.3	-65.2	3.9	-61.3	-13.0	-48.3
6	911.73	-66.0	-63.4	3.6	-59.8	-13.0	-46.8

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 3MHz

Mode	TX channel 23025 (700.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	44.55	-51.2	-41.2	-10.9	-52.1	-13.0	-39.1
2	137.67	-62.3	-67.4	-3.2	-70.6	-13.0	-57.6
3	390.84	-67.0	-73.1	3.4	-69.7	-13.0	-56.7
4	609.09	-65.9	-69.9	3.7	-66.2	-13.0	-53.2
5	711.91	-62.4	-64.9	3.5	-61.4	-13.0	-48.4
6	925.31	-66.0	-63.6	3.7	-59.9	-13.0	-46.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	45.52	-38.8	-38.9	-10.4	-49.3	-13.0	-36.3
2	151.25	-61.1	-62.5	-2.8	-65.3	-13.0	-52.3
3	236.61	-62.5	-65.2	-1.5	-66.7	-13.0	-53.7
4	605.21	-66.8	-68.5	3.7	-64.8	-13.0	-51.8
5	794.36	-66.0	-65.4	4.0	-61.4	-13.0	-48.4
6	975.75	-67.8	-64.1	3.6	-60.5	-13.0	-47.5

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 5MHz

Mode	TX channel 23035 (701.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	34.85	-50.2	-32.8	-16.5	-49.3	-13.0	-36.3
2	235.64	-55.6	-63.4	-1.5	-64.9	-13.0	-51.9
3	430.61	-67.1	-73.3	3.5	-69.8	-13.0	-56.8
4	607.15	-66.5	-70.6	3.6	-67.0	-13.0	-54.0
5	723.55	-61.8	-64.0	3.6	-60.4	-13.0	-47.4
6	894.27	-61.6	-59.9	3.5	-56.4	-13.0	-43.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	55.22	-48.5	-52.2	-5.4	-57.6	-13.0	-44.6
2	78.50	-53.6	-61.6	0.6	-61.0	-13.0	-48.0
3	283.17	-67.3	-65.1	-1.7	-66.8	-13.0	-53.8
4	539.25	-66.8	-71.5	3.8	-67.7	-13.0	-54.7
5	712.88	-66.0	-65.7	3.5	-62.2	-13.0	-49.2
6	942.77	-67.2	-64.0	3.8	-60.2	-13.0	-47.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

Mode	TX channel 23060 (704MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-50.0	-30.5	-18.3	-48.8	-13.0	-35.8
2	230.79	-51.8	-60.1	-1.7	-61.8	-13.0	-48.8
3	457.77	-65.9	-71.6	3.5	-68.1	-13.0	-55.1
4	629.46	-65.1	-68.9	3.6	-65.3	-13.0	-52.3
5	718.70	-60.5	-63.0	3.5	-59.5	-13.0	-46.5
6	885.54	-59.2	-57.6	3.4	-54.2	-13.0	-41.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	33.88	-39.1	-34.8	-17.1	-51.9	-13.0	-38.9
2	133.79	-60.2	-63.0	-3.3	-66.3	-13.0	-53.3
3	234.67	-62.1	-64.9	-1.6	-66.5	-13.0	-53.5
4	455.83	-66.7	-72.5	3.5	-69.0	-13.0	-56.0
5	759.44	-66.5	-65.2	3.8	-61.4	-13.0	-48.4
6	928.22	-67.0	-64.0	3.6	-60.4	-13.0	-47.4

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Above 1GHz
LTE Band 4
Channel Bandwidth: 1.4MHz

Mode	TX channel 19957 (1710.7MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3421.40	-53.2	-44.6	1.3	-43.3	-13.0	-30.3
2	5132.10	-53.0	-40.8	1.4	-39.4	-13.0	-26.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3421.40	-51.2	-43.1	1.3	-41.8	-13.0	-28.8
2	5132.10	-52.0	-40.2	1.4	-38.8	-13.0	-25.8

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-52.9	-44.5	1.4	-43.1	-13.0	-30.1
2	5197.50	-51.9	-40.3	1.4	-38.9	-13.0	-25.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-50.9	-43.1	1.4	-41.7	-13.0	-28.7
2	5197.50	-52.9	-40.7	1.4	-39.3	-13.0	-26.3

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20393 (1754.3MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3508.60	-52.7	-44.4	1.4	-43.0	-13.0	-30.0
2	5262.90	-52.5	-40.7	1.5	-39.2	-13.0	-26.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3508.60	-50.2	-42.5	1.4	-41.1	-13.0	-28.1
2	5262.90	-52.5	-40.9	1.5	-39.4	-13.0	-26.4

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 3MHz

Mode	TX channel 19965 (1711.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3423.00	-53.1	-44.5	1.3	-43.2	-13.0	-30.2
2	5134.50	-53.1	-40.9	1.4	-39.5	-13.0	-26.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3423.00	-51.2	-43.1	1.3	-41.8	-13.0	-28.8
2	5134.50	-52.4	-40.6	1.4	-39.2	-13.0	-26.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-53.0	-44.6	1.4	-43.2	-13.0	-30.2
2	5197.50	-52.5	-40.9	1.4	-39.5	-13.0	-26.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-50.7	-42.9	1.4	-41.5	-13.0	-28.5
2	5197.50	-53.0	-40.8	1.4	-39.4	-13.0	-26.4

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20385 (1753.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3507.00	-52.8	-44.5	1.4	-43.1	-13.0	-30.1
2	5260.50	-52.7	-40.9	1.5	-39.4	-13.0	-26.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3507.00	-52.3	-44.6	1.4	-43.2	-13.0	-30.2
2	5260.50	-51.9	-40.3	1.5	-38.8	-13.0	-25.8

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 5MHz

Mode	TX channel 19975 (1712.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-52.9	-44.3	1.3	-43.0	-13.0	-30.0
2	5137.50	-52.7	-40.5	1.4	-39.1	-13.0	-26.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-50.8	-42.7	1.3	-41.4	-13.0	-28.4
2	5137.50	-52.4	-40.5	1.4	-39.1	-13.0	-26.1

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-52.6	-44.2	1.4	-42.8	-13.0	-29.8
2	5197.50	-52.2	-40.6	1.4	-39.2	-13.0	-26.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-50.3	-42.5	1.4	-41.1	-13.0	-28.1
2	5197.50	-52.3	-40.1	1.4	-38.7	-13.0	-25.7

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20375 (1752.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3505.00	-53.0	-44.8	1.5	-43.3	-13.0	-30.3
2	5257.50	-52.7	-40.9	1.5	-39.4	-13.0	-26.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3505.00	-50.2	-42.6	1.5	-41.1	-13.0	-28.1
2	5257.50	-52.4	-40.8	1.5	-39.3	-13.0	-26.3

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

Mode	TX channel 20000 (1715.0MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3430.00	-52.8	-44.3	1.4	-42.9	-13.0	-29.9
2	5145.00	-52.7	-40.6	1.4	-39.2	-13.0	-26.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3430.00	-52.2	-44.2	1.4	-42.8	-13.0	-29.8
2	5145.00	-52.0	-40.1	1.4	-38.7	-13.0	-25.7

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-52.5	-44.1	1.4	-42.7	-13.0	-29.7
2	5197.50	-52.4	-40.8	1.4	-39.4	-13.0	-26.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-52.7	-44.9	1.4	-43.5	-13.0	-30.5
2	5197.50	-52.8	-40.6	1.4	-39.2	-13.0	-26.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20350 (1750.0MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3500.00	-52.4	-44.2	1.5	-42.7	-13.0	-29.7
2	5250.00	-52.1	-40.4	1.5	-38.9	-13.0	-25.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3500.00	-51.8	-44.2	1.5	-42.7	-13.0	-29.7
2	5250.00	-52.8	-41.1	1.5	-39.6	-13.0	-26.6

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 15MHz

Mode	TX channel 20025 (1717.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3435.00	-52.6	-44.0	1.3	-42.7	-13.0	-29.7
2	5152.50	-52.0	-40.0	1.4	-38.6	-13.0	-25.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3435.00	-51.5	-43.4	1.3	-42.1	-13.0	-29.1
2	5152.50	-52.3	-40.3	1.4	-38.9	-13.0	-25.9

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-52.9	-44.5	1.4	-43.1	-13.0	-30.1
2	5197.50	-51.4	-39.8	1.4	-38.4	-13.0	-25.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-51.3	-43.5	1.4	-42.1	-13.0	-29.1
2	5197.50	-52.5	-40.3	1.4	-38.9	-13.0	-25.9

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20325 (1747.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-51.6	-43.4	1.5	-41.9	-13.0	-28.9
2	5242.50	-51.9	-40.1	1.4	-38.7	-13.0	-25.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3495.00	-52.3	-44.7	1.5	-43.2	-13.0	-30.2
2	5242.50	-52.0	-40.1	1.4	-38.7	-13.0	-25.7

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 20MHz

Mode	TX channel 20050 (1720.0MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-52.1	-43.6	1.3	-42.3	-13.0	-29.3
2	5160.00	-52.2	-40.2	1.4	-38.8	-13.0	-25.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-51.9	-43.9	1.3	-42.6	-13.0	-29.6
2	5160.00	-52.1	-40.1	1.4	-38.7	-13.0	-25.7

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-52.3	-43.9	1.4	-42.5	-13.0	-29.5
2	5197.50	-51.5	-39.9	1.4	-38.5	-13.0	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-51.3	-43.5	1.4	-42.1	-13.0	-29.1
2	5197.50	-52.5	-40.3	1.4	-38.9	-13.0	-25.9

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 20300 (1745.0MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-52.9	-44.7	1.5	-43.2	-13.0	-30.2
2	5235.00	-51.6	-39.8	1.4	-38.4	-13.0	-25.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-51.2	-43.6	1.5	-42.1	-13.0	-29.1
2	5235.00	-51.2	-39.3	1.4	-37.9	-13.0	-24.9

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 12

Channel Bandwidth: 1.4MHz

Mode	TX channel 23017 (699.7MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1399.40	-40.0	-31.6	0.9	-30.7	-13.0	-17.7
2	2099.10	-45.3	-38.2	-0.3	-38.5	-13.0	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1399.40	-38.8	-31.5	0.9	-30.6	-13.0	-17.6
2	2099.10	-52.5	-46.8	-0.3	-47.1	-13.0	-34.1

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23095 (707.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-39.7	-31.0	0.9	-30.1	-13.0	-17.1
2	2122.50	-45.3	-38.2	-0.3	-38.5	-13.0	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-38.8	-31.3	0.9	-30.4	-13.0	-17.4
2	2122.50	-52.8	-46.9	-0.3	-47.2	-13.0	-34.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23173 (715.3MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1430.60	-40.6	-31.7	1.0	-30.7	-13.0	-17.7
2	2145.90	-44.6	-37.5	-0.3	-37.8	-13.0	-24.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1430.60	-38.7	-31.0	1.0	-30.0	-13.0	-17.0
2	2145.90	-52.6	-46.5	-0.3	-46.8	-13.0	-33.8

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 3MHz

Mode	TX channel 23025 (700.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1401.00	-39.4	-31.0	0.9	-30.1	-13.0	-17.1
2	2101.50	-44.2	-37.1	-0.3	-37.4	-13.0	-24.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1401.00	-38.1	-30.8	0.9	-29.9	-13.0	-16.9
2	2101.50	-52.6	-46.9	-0.3	-47.2	-13.0	-34.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23095 (707.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-39.8	-31.1	0.9	-30.2	-13.0	-17.2
2	2122.50	-44.2	-37.1	-0.3	-37.4	-13.0	-24.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-38.9	-31.4	0.9	-30.5	-13.0	-17.5
2	2122.50	-52.8	-46.9	-0.3	-47.2	-13.0	-34.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23165 (714.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1429.00	-40.4	-31.6	1.0	-30.6	-13.0	-17.6
2	2143.50	-44.9	-37.8	-0.3	-38.1	-13.0	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1429.00	-39.2	-31.5	1.0	-30.5	-13.0	-17.5
2	2143.50	-52.9	-46.9	-0.3	-47.2	-13.0	-34.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 5MHz

Mode	TX channel 23035 (701.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1403.00	-40.2	-31.7	0.9	-30.8	-13.0	-17.8
2	2104.50	-44.9	-37.8	-0.3	-38.1	-13.0	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1403.00	-38.5	-31.2	0.9	-30.3	-13.0	-17.3
2	2104.50	-53.1	-47.4	-0.3	-47.7	-13.0	-34.7

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23095 (707.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**1415.00**	**-30.5**	**-21.8**	**0.9**	**-20.9**	**-13.0**	**-7.9**
2	2122.50	-38.4	-31.3	-0.3	-31.6	-13.0	-18.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-29.8	-22.3	0.9	-21.4	-13.0	-8.4
2	2122.50	-47.1	-41.2	-0.3	-41.5	-13.0	-28.5

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23155 (713.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-48.0	-39.2	1.0	-38.2	-13.0	-25.2
2	2140.50	-37.2	-30.1	-0.3	-30.4	-13.0	-17.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-38.8	-31.1	1.0	-30.1	-13.0	-17.1
2	2140.50	-52.9	-46.9	-0.3	-47.2	-13.0	-34.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

Mode	TX channel 23060 (704MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1408.00	-39.7	-31.1	0.9	-30.2	-13.0	-17.2
2	2112.00	-44.9	-37.8	-0.3	-38.1	-13.0	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1408.00	-38.9	-31.5	0.9	-30.6	-13.0	-17.6
2	2112.00	-53.2	-47.4	-0.3	-47.7	-13.0	-34.7

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23095 (707.5MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-40.6	-31.9	0.9	-31.0	-13.0	-18.0
2	2112.50	-45.0	-37.9	-0.3	-38.2	-13.0	-25.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-38.8	-31.3	0.9	-30.4	-13.0	-17.4
2	2112.50	-52.7	-46.9	-0.3	-47.2	-13.0	-34.2

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 23130 (711MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	James Yang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-39.9	-31.2	1.0	-30.2	-13.0	-17.2
2	2133.00	-44.9	-37.7	-0.4	-38.1	-13.0	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-39.2	-31.6	1.0	-30.6	-13.0	-17.6
2	2133.00	-52.8	-46.7	-0.4	-47.1	-13.0	-34.1

Remarks:
1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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

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