FCC Test Report

(PART 27)

Report No.:	RF181123D01-1
FCC ID:	P27-TPM540
Test Model:	TPM540; TPM540G
Received Date:	Nov. 23, 2018
Test Date:	Dec. 05, 2018 ~ Dec. 27, 2018
Issued Date:	Jan. 07, 2019
Applicant:	Sercomm Corp.
Address:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C. (NanKang Software Park)
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
RF181123D01-1	Original Release	Jan. 07, 2019

1 Certificate of Conformity

Product:	Cat-M1 Module
Brand:	Sercomm
Test Model:	TPM540; TPM540G
Sample Status:	Engineering Sample
Applicant:	Sercomm Corp.
Test Date:	Dec. 05, 2018 ~ Dec. 27, 2018
Standards:	FCC Part 27, Subpart C, H, F, L

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

Prepared by : Gina Liu , **Date:** Jan. 07, 2019

Gina Liu / Specialist

Approved by : , **Date:** Jan. 07, 2019

Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 27.53(h)	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(h)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -17.57 dB at 6842.80 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 12)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(c)(10)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(g)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -32.40 dB at 1430.60 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 13)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(b)(10)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(c)(2)(4)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(c)(2)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(c)(2)&(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -5.16 dB at 1564.00 MHz.

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	Expended Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 13, 2018	Dec. 12, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Nov. 23, 2018	Nov. 22, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
MXG Vector signal generator Agilent	N5182B	MY53050162	Jan. 10, 2018	Jan. 09, 2019
Preamplifier EMCI	EMC 012645	980115	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 330H	980112	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8000&3000	140811+170717	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 12, 2018	Oct. 11, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6201502978	Jul. 20, 2018	Jul. 19, 2019
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 05, 2018	Sep. 04, 2019
DC Power Supply Topward	33010D	807748	N/A	N/A

Note:
1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is 7450F-10.

3 General Information

3.1 General Description of EUT

Product	Cat-M1 Module	
Brand	Sercomm	
Test Model	TPM540; TPM540G	
Status of EUT	Engineering Sample	
Power Supply Rating	5.0 Vdc (adapter)	
Modulation Type	LTE	QPSK, 16QAM
Frequency Range	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1754.3 MHz
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1753.5 MHz
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1752.5 MHz
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1750.0 MHz
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1747.5 MHz
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1745.0 MHz
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	699.7 ~ 715.3 MHz
	LTE Band 12 (Channel Bandwidth: 3 MHz)	700.5 ~ 714.5 MHz
	LTE Band 12 (Channel Bandwidth: 5 MHz)	701.5 ~ 713.5 MHz
	LTE Band 12 (Channel Bandwidth: 10 MHz)	704.0 ~ 711.0 MHz
	LTE Band 13 (Channel Bandwidth: 5 MHz)	779.5 ~ 784.5 MHz
	LTE Band 13 (Channel Bandwidth: 10 MHz)	782.0 MHz
Emission Designator	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1M08G7D
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1M09G7D
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1M09G7D
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1M09G7D
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1M09G7D
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 12 (Channel Bandwidth: 3 MHz)	1M08G7D
	LTE Band 12 (Channel Bandwidth: 5 MHz)	1M08G7D
	LTE Band 12 (Channel Bandwidth: 10 MHz)	1M09G7D
	LTE Band 13 (Channel Bandwidth: 5 MHz)	1M08G7D
	LTE Band 13 (Channel Bandwidth: 10 MHz)	1M09G7D
Max. ERP Power	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	317.69 mW
	LTE Band 12 (Channel Bandwidth: 3 MHz)	301.30 mW
	LTE Band 12 (Channel Bandwidth: 5 MHz)	285.10 mW
	LTE Band 12 (Channel Bandwidth: 10 MHz)	270.40 mW
	LTE Band 13 (Channel Bandwidth: 5 MHz)	182.39 mW
	LTE Band 13 (Channel Bandwidth: 10 MHz)	170.61 mW
Max. EIRP Power	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	651.63 mW
	LTE Band 4 (Channel Bandwidth: 3 MHz)	618.02 mW
	LTE Band 4 (Channel Bandwidth: 5 MHz)	583.45 mW
	LTE Band 4 (Channel Bandwidth: 10 MHz)	553.35 mW
	LTE Band 4 (Channel Bandwidth: 15 MHz)	523.60 mW
	LTE Band 4 (Channel Bandwidth: 20 MHz)	496.59 mW

Antenna Type	Monopole (PCB) Antenna	
Antenna Gain	LTE Band 4	4.68 dBi
	LTE Band 12	2.04 dBi
	LTE Band 13	2.22 dBi
Accessory Device	N/A	
Data Cable Supplied	N/A	

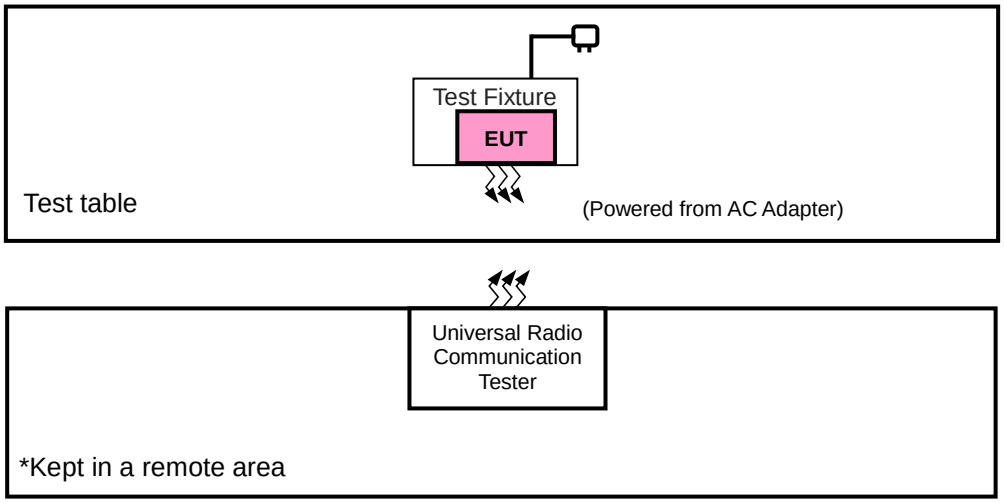
Note:

1. All models are listed as below.

Brand	Model	Difference
Sercomm	TPM540	Without GPS function
	TPM540G	With GPS function
* Above two models had been pre-tested, and the worst case was found on model TPM540. Therefore, only this model was chosen for the final test and presented in the test report.		

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

3.2 Configuration of System under Test



3.2.1 Description of Support Units

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

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Adapter	Kted	KSA0050500100VUD	N/A	N/A
2.	Test Fixture	N/A	N/A	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A
2.	N/A

Note:

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

2. Item 1-2 were provided by client.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

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

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	1 RB / 5 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM	1 RB / 5 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM	4 RB / 2 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM	3 RB / 3 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM	3 RB / 0 RB Offset
-	Modulation Characteristics	20050 to 20300	20175	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Frequency Stability	19957 to 20393	19957, 20393	1.4 MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965, 20385	3 MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975, 20375	5 MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000, 20350	10 MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20025, 20325	15 MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20300	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
-	Peak to Average Ratio	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Band Edge	19957 to 20393	19957	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20393	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		19965 to 20385	19965	3 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20385	3 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		19975 to 20375	19975	5 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20375	5 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		20000 to 20350	20000	10 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20350	10 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		20025 to 20325	20025	15 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20325	15 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		20050 to 20300	20050	20 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20300	20 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
-	Conducted Emission	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK	1 RB / 5 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK	1 RB / 5 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK	4 RB / 2 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK	3 RB / 3 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK	3 RB / 0 RB Offset
-	Radiated Emission	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK	1 RB / 5 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK	3 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 12

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

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 13

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM	1 RB / 5 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM	1 RB / 5 RB Offset
-	Modulation Characteristics	23230	23230	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Frequency Stability	23205 to 23255	23205, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
-	Peak to Average Ratio	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Band Edge	23205 to 23255	23205	5 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			23255	5 MHz	QPSK	1 RB / 24 RB Offset
						6 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			23230	10 MHz	QPSK	1 RB / 49 RB Offset
						6 RB / 0 RB Offset
-	Conducted Emission	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1 RB / 5 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 5 RB Offset
-	Radiated Emission	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1 RB / 5 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 5 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP / EIRP	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei
Modulation Characteristics	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Frequency Stability	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Occupied Bandwidth	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Band Edge	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Peak to Average Ratio	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Conducted Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei

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 v03r01
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

Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

Portable stations (hand-held devices) operating in the 746-757 MHz, 776-788 MHz and 805-806 MHz band are limited to 3 watts ERP

Portable stations (hand-held device) operating in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

4.1.2 Test Procedures

EIRP / ERP Measurement:

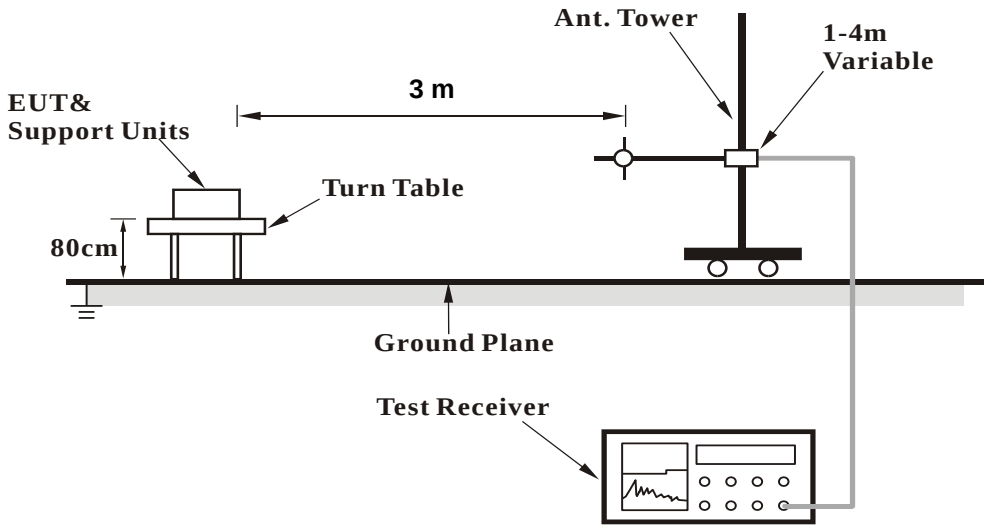
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
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 - 2.15 dB.

Conducted Power Measurement:

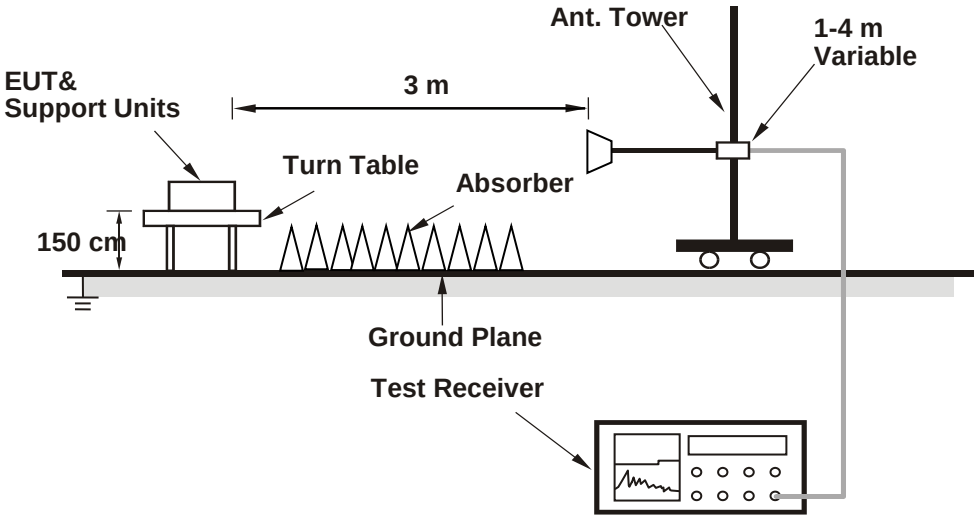
a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

EIRP / ERP Measurement:
<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

Band 4

BW(MHz):	1.4

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	19957	1710.7	1957	2110.7	QPSK	1	0	0	-85	23.3
					QPSK	1	5	0	-85	23.27
					QPSK	3	3	0	-85	21.9
					QPSK	6	0	0	-85	21.12
					16QAM	1	0	0	-85	22.46
					16QAM	1	5	0	-85	22.51
					16QAM	3	0	0	-85	21.1
					16QAM	5	0	0	-85	20.8
Mid Range	20175	1732.5	2175	2132.5	QPSK	1	0	0	-85	23.31
					QPSK	1	5	0	-85	23.92
					QPSK	3	3	0	-85	22.01
					QPSK	6	0	0	-85	21.19
					16QAM	1	0	0	-85	22.51
					16QAM	1	5	0	-85	22.56
					16QAM	3	0	0	-85	21.25
					16QAM	5	0	0	-85	20.84
High Range	20393	1754.3	2393	2154.3	QPSK	1	0	0	-85	23.27
					QPSK	1	5	0	-85	23.24
					QPSK	3	3	0	-85	21.84
					QPSK	6	0	0	-85	21.23
					16QAM	1	0	0	-85	22.58
					16QAM	1	5	0	-85	22.61
					16QAM	3	0	0	-85	21.32
					16QAM	5	0	0	-85	20.96

BW(MHz):	3

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	19965	1711.5	1965	2111.5	QPSK	1	0	0	-85	23.44
					QPSK	1	5	0	-85	23.57
					QPSK	1	0	1	-85	23.4
					QPSK	1	5	1	-85	23.29
					QPSK	3	3	0	-85	22.16
					QPSK	3	3	1	-85	22.2
					QPSK	6	0	0	-85	21.16
					QPSK	6	0	1	-85	21.2
					16QAM	1	0	0	-85	22.09
					16QAM	1	5	0	-85	22.17
					16QAM	1	0	1	-85	22.25
					16QAM	1	5	1	-85	22.26
					16QAM	3	0	0	-85	21.39
					16QAM	3	3	1	-85	21.39
					16QAM	5	0	0	-85	20.9
					16QAM	5	0	1	-85	21.12
Mid Range	20175	1732.5	2175	2132.5	QPSK	1	0	0	-85	23.35
					QPSK	1	5	0	-85	23.28
					QPSK	1	0	1	-85	23.46
					QPSK	1	5	1	-85	23.4
					QPSK	3	3	0	-85	22.2
					QPSK	3	3	1	-85	22.23
					QPSK	6	0	0	-85	21.27
					QPSK	6	0	1	-85	21.28
					16QAM	1	0	0	-85	22.19
					16QAM	1	5	0	-85	22.17
					16QAM	1	0	1	-85	22.26
					16QAM	1	5	1	-85	22.34
					16QAM	3	0	0	-85	21.43
					16QAM	3	3	1	-85	21.43
					16QAM	5	0	0	-85	21.12
					16QAM	5	0	1	-85	21.06
High Range	20385	1753.5	2385	1915	QPSK	1	0	0	-85	23.32
					QPSK	1	5	0	-85	23.29
					QPSK	1	0	1	-85	23.42
					QPSK	1	5	1	-85	23.48
					QPSK	3	3	0	-85	22.19
					QPSK	3	3	1	-85	22.26
					QPSK	6	0	0	-85	21.23
					QPSK	6	0	1	-85	21.3
					16QAM	1	0	0	-85	22.15
					16QAM	1	5	0	-85	22.13
					16QAM	1	0	1	-85	22.28
					16QAM	1	5	1	-85	22.2
					16QAM	3	0	0	-85	21.48
					16QAM	3	3	1	-85	21.41
					16QAM	5	0	0	-85	21.02
					16QAM	5	0	1	-85	21.21

BW(MHz):	5

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	19975	1712.5	1975	2112.5	QPSK	1	0	0	-85	23.57
					QPSK	1	5	0	-85	23.72
					QPSK	1	0	1	-85	23.69
					QPSK	1	5	1	-85	23.7
					QPSK	1	0	3	-85	23.67
					QPSK	1	5	3	-85	23.62
					QPSK	3	0	0	-85	22.69
					QPSK	3	3	3	-85	22.47
					QPSK	6	0	0	-85	22.42
					QPSK	6	0	1	-85	22.42
					QPSK	6	0	3	-85	22.52
					16QAM	1	0	0	-85	23.56
					16QAM	1	5	0	-85	23.58
					16QAM	1	0	1	-85	23.58
					16QAM	1	5	1	-85	23.61
					16QAM	1	0	3	-85	23.47
					16QAM	1	5	3	-85	23.42
					16QAM	3	0	0	-85	22.79
					16QAM	3	3	3	-85	22.82
					16QAM	5	0	0	-85	21.3
					16QAM	5	0	1	-85	21.28
					16QAM	5	0	3	-85	21.48
Mid Range	20175	1732.5	2175	2132.5	QPSK	1	0	0	-85	23.65
					QPSK	1	5	0	-85	23.67
					QPSK	1	0	1	-85	23.64
					QPSK	1	5	1	-85	23.61
					QPSK	1	0	3	-85	23.7
					QPSK	1	5	3	-85	23.76
					QPSK	3	0	0	-85	22.73
					QPSK	3	3	3	-85	22.51
					QPSK	6	0	0	-85	22.5
					QPSK	6	0	1	-85	22.49
					QPSK	6	0	3	-85	22.51
					16QAM	1	0	0	-85	23.48
					16QAM	1	5	0	-85	23.5
					16QAM	1	0	1	-85	23.61
					16QAM	1	5	1	-85	23.61
					16QAM	1	0	3	-85	23.58
					16QAM	1	5	3	-85	23.56
					16QAM	3	0	0	-85	22.86
					16QAM	3	3	3	-85	22.84
					16QAM	5	0	0	-85	21.42
					16QAM	5	0	1	-85	21.38
					16QAM	5	0	3	-85	21.38

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	20375	1752.5	2375	2152.5	QPSK	1	0	0	-85	23.65
					QPSK	1	5	0	-85	23.76
					QPSK	1	0	1	-85	23.85
					QPSK	1	5	1	-85	23.9
					QPSK	1	0	3	-85	23.75
					QPSK	1	5	3	-85	23.77
					QPSK	3	0	0	-85	22.78
					QPSK	3	3	3	-85	22.44
					QPSK	6	0	0	-85	22.49
					QPSK	6	0	1	-85	22.5
					QPSK	6	0	3	-85	22.52
					16QAM	1	0	0	-85	23.58
					16QAM	1	5	0	-85	23.52
					16QAM	1	0	1	-85	23.63
					16QAM	1	5	1	-85	23.67
					16QAM	1	0	3	-85	23.67
					16QAM	1	5	3	-85	23.69
					16QAM	3	0	0	-85	22.87
					16QAM	3	3	3	-85	22.85
					16QAM	5	0	0	-85	21.43
					16QAM	5	0	1	-85	21.4
					16QAM	5	0	3	-85	21.4

BW(MHz):	10

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	20000	1715	2000	2115	QPSK	1	0	0	-85	22.18
					QPSK	1	5	0	-85	21.77
					QPSK	1	0	3	-85	21.53
					QPSK	1	5	3	-85	21.44
					QPSK	1	0	7	-85	22.47
					QPSK	1	5	7	-85	22.65
					QPSK	4	0	0	-85	21.85
					QPSK	4	2	7	-85	22.48
					QPSK	6	0	0	-85	20.66
					QPSK	6	0	7	-85	21.44
					16QAM	1	0	0	-85	21.79
					16QAM	1	5	0	-85	21.75
					16QAM	1	0	3	-85	20.79
					16QAM	1	5	3	-85	20.87
					16QAM	1	0	7	-85	22.08
					16QAM	1	5	7	-85	22.31
					16QAM	4	2	0	-85	21.62
					16QAM	4	2	7	-85	21.62
					16QAM	5	0	0	-85	20.61
					16QAM	5	0	7	-85	21.49

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Mid Range	20175	1732.5	2175	2132.5	QPSK	1	0	0	-85	22.87
					QPSK	1	5	0	-85	22.74
					QPSK	1	0	3	-85	23.22
					QPSK	1	5	3	-85	23.22
					QPSK	1	0	7	-85	23.21
					QPSK	1	5	7	-85	23.14
					QPSK	4	0	0	-85	22.75
					QPSK	4	2	7	-85	23.27
					QPSK	6	0	0	-85	21.57
					QPSK	6	0	7	-85	22.27
					16QAM	1	0	0	-85	22.61
					16QAM	1	5	0	-85	22.51
					16QAM	1	0	3	-85	23.21
					16QAM	1	5	3	-85	23.26
					16QAM	1	0	7	-85	23.19
					16QAM	1	5	7	-85	23.22
					16QAM	4	2	0	-85	21.66
					16QAM	4	2	7	-85	22.34
					16QAM	5	0	0	-85	21.67
					16QAM	5	0	7	-85	21.89
High Range	20350	1750	2350	2150	QPSK	1	0	0	-85	23.22
					QPSK	1	5	0	-85	23.21
					QPSK	1	5	7	-85	23.33
					QPSK	1	0	3	-85	23.15
					QPSK	1	5	3	-85	23.27
					QPSK	1	0	7	-85	23.31
					QPSK	4	0	0	-85	23.25
					QPSK	4	2	7	-85	23.43
					QPSK	6	0	0	-85	22.34
					QPSK	6	0	7	-85	22.23
					16QAM	1	0	0	-85	23.14
					16QAM	1	5	0	-85	23.11
					16QAM	1	0	3	-85	23.01
					16QAM	1	5	3	-85	22.77
					16QAM	1	0	7	-85	23.16
					16QAM	1	5	7	-85	23.17
					16QAM	4	2	0	-85	22.17
					16QAM	4	2	7	-85	22.81
					16QAM	5	0	0	-85	22.28
					16QAM	5	0	7	-85	21.25

BW(MHz):	15

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	20025	1717.5	2025	2117.5	QPSK	1	0	0	-85	23.14
					QPSK	1	5	0	-85	23.16
					QPSK	1	0	5	-85	23.23
					QPSK	1	5	5	-85	23.17
					QPSK	1	0	11	-85	23.35
					QPSK	1	5	11	-85	23.13
					QPSK	3	0	0	-85	23.37
					QPSK	3	3	11	-85	23.29
					QPSK	6	0	0	-85	23.21
					QPSK	6	0	11	-85	23.41
					16QAM	1	0	0	-85	22.7
					16QAM	1	5	0	-85	23.08
					16QAM	1	0	5	-85	22.94
					16QAM	1	5	5	-85	22.76
					16QAM	1	0	11	-85	23.08
					16QAM	1	5	11	-85	23.07
					16QAM	3	0	0	-85	23.49
					16QAM	3	3	11	-85	23.57
					16QAM	5	0	0	-85	22.97
					16QAM	5	0	11	-85	23.26
Mid Range	20175	1732.5	2175	2132.5	QPSK	1	0	0	-85	23.28
					QPSK	1	5	0	-85	23.27
					QPSK	1	0	5	-85	23.41
					QPSK	1	5	5	-85	23.29
					QPSK	1	0	11	-85	23.27
					QPSK	1	5	11	-85	23.15
					QPSK	3	0	0	-85	23.41
					QPSK	3	3	11	-85	23.23
					QPSK	6	0	0	-85	23.42
					QPSK	6	0	11	-85	23.19
					16QAM	1	0	0	-85	23.29
					16QAM	1	5	0	-85	23.23
					16QAM	1	0	5	-85	23.1
					16QAM	1	5	5	-85	23.11
					16QAM	1	0	11	-85	23.27
					16QAM	1	5	11	-85	23.11
					16QAM	3	0	0	-85	23.42
					16QAM	3	3	11	-85	23.21
					16QAM	5	0	0	-85	23.11
					16QAM	5	0	11	-85	23.44

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	20325	1747.5	2325	2147.5	QPSK	1	0	0	-85	23.13
					QPSK	1	0	5	-85	23.2
					QPSK	1	5	5	-85	23.22
					QPSK	1	0	11	-85	23.22
					QPSK	1	5	11	-85	23.23
					QPSK	3	0	0	-85	23.41
					QPSK	3	3	11	-85	23.32
					QPSK	6	0	0	-85	23.31
					QPSK	6	0	11	-85	23.33
					16QAM	1	0	0	-85	23.02
					16QAM	1	5	0	-85	23.05
					16QAM	1	0	5	-85	23.11
					16QAM	1	5	5	-85	23.12
					16QAM	1	0	11	-85	23.18
					16QAM	1	5	11	-85	23.01
					16QAM	3	0	0	-85	23.51
					16QAM	3	3	11	-85	23.27
					16QAM	5	0	0	-85	23.02
					16QAM	5	0	11	-85	23.43

BW(MHz):	20

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	20050	1720	2050	2120	QPSK	1	0	0	-85	23.23
					QPSK	1	5	0	-85	23.24
					QPSK	1	0	7	-85	23.26
					QPSK	1	5	7	-85	23.32
					QPSK	1	0	15	-85	23.15
					QPSK	1	5	15	-85	23.24
					QPSK	3	0	0	-85	23.46
					QPSK	3	3	15	-85	23.43
					QPSK	6	0	0	-85	23.31
					QPSK	6	0	15	-85	23.39
					16QAM	1	0	0	-85	23.35
					16QAM	1	5	0	-85	23.11
					16QAM	1	0	7	-85	22.46
					16QAM	1	5	7	-85	23.01
					16QAM	1	0	15	-85	22.97
					16QAM	1	5	15	-85	22.98
					16QAM	3	0	0	-85	23.42
					16QAM	3	3	15	-85	23.25
					16QAM	5	0	0	-85	23.26
					16QAM	5	0	15	-85	23.43

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Mid Range	20175	1732.5	2175	2132.5	QPSK	1	0	0	-85	23.09
					QPSK	1	5	0	-85	23.37
					QPSK	1	0	7	-85	23.16
					QPSK	1	5	7	-85	23.12
					QPSK	1	0	15	-85	23.12
					QPSK	1	5	15	-85	23.16
					QPSK	3	0	0	-85	23.34
					QPSK	3	3	15	-85	23.22
					QPSK	6	0	0	-85	23.22
					QPSK	6	0	15	-85	23.29
					16QAM	1	0	0	-85	22.81
					16QAM	1	5	0	-85	23.05
					16QAM	1	0	7	-85	22.97
					16QAM	1	5	7	-85	23.12
					16QAM	1	0	15	-85	23.23
					16QAM	1	5	15	-85	23.08
					16QAM	3	0	0	-85	23.32
					16QAM	3	3	15	-85	23.12
					16QAM	5	0	0	-85	23.34
					16QAM	5	0	15	-85	23.23
High Range	20300	1745	2300	2145	QPSK	1	0	0	-85	23.28
					QPSK	1	5	0	-85	23.38
					QPSK	1	0	7	-85	23.31
					QPSK	1	5	7	-85	23.34
					QPSK	1	0	15	-85	23.11
					QPSK	1	5	15	-85	23.05
					QPSK	3	0	0	-85	23.4
					QPSK	3	3	15	-85	23.33
					QPSK	6	0	0	-85	23.36
					QPSK	6	0	15	-85	23.38
					16QAM	1	0	0	-85	23.23
					16QAM	1	5	0	-85	23.16
					16QAM	1	0	7	-85	23.02
					16QAM	1	5	7	-85	23.11
					16QAM	1	0	15	-85	23.01
					16QAM	1	5	15	-85	23.08
					16QAM	3	0	0	-85	23.32
					16QAM	3	3	15	-85	23.27
					16QAM	5	0	0	-85	23.22
					16QAM	5	0	15	-85	22.91

Band 12

BW(MHz):	1.4

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23017	699.7	5017	729.7	QPSK	1	0	0	-85	22.82
					QPSK	1	5	0	-85	22.79
					QPSK	3	3	0	-85	21.59
					QPSK	6	0	0	-85	20.89
					16QAM	1	0	0	-85	22.25
					16QAM	1	5	0	-85	22.26
					16QAM	3	0	0	-85	20.81
					16QAM	5	0	0	-85	20.37
Mid Range	23095	707.5	5095	737.5	QPSK	1	0	0	-85	22.91
					QPSK	1	5	0	-85	22.96
					QPSK	3	3	0	-85	21.67
					QPSK	6	0	0	-85	20.98
					16QAM	1	0	0	-85	22.44
					16QAM	1	5	0	-85	22.59
					16QAM	3	0	0	-85	20.71
					16QAM	5	0	0	-85	20.67
High Range	23173	715.3	5173	745.3	QPSK	1	0	0	-85	23.14
					QPSK	1	5	0	-85	23.12
					QPSK	3	3	0	-85	21.85
					QPSK	6	0	0	-85	21.14
					16QAM	1	0	0	-85	22.75
					16QAM	1	5	0	-85	22.74
					16QAM	3	0	0	-85	21.14
					16QAM	5	0	0	-85	20.74

BW(MHz):	3

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23025	700.5	5025	730.5	QPSK	1	0	0	-85	22.78
					QPSK	1	5	0	-85	22.67
					QPSK	1	0	1	-85	22.67
					QPSK	1	5	1	-85	22.68
					QPSK	3	3	0	-85	21.67
					QPSK	3	3	1	-85	21.63
					QPSK	6	0	0	-85	20.81
					QPSK	6	0	1	-85	20.75
					16QAM	1	0	0	-85	21.79
					16QAM	1	5	0	-85	21.87
					16QAM	1	0	1	-85	21.69
					16QAM	1	5	1	-85	21.89
					16QAM	3	0	0	-85	20.77
					16QAM	3	3	1	-85	20.89
					16QAM	5	0	0	-85	20.41
					16QAM	5	0	1	-85	20.34
Mid Range	23095	701.5	5095	737.5	QPSK	1	0	0	-85	22.85
					QPSK	1	5	0	-85	22.82
					QPSK	1	0	1	-85	22.81
					QPSK	1	5	1	-85	22.82
					QPSK	3	3	0	-85	21.77
					QPSK	3	3	1	-85	21.77
					QPSK	6	0	0	-85	21.01
					QPSK	6	0	1	-85	20.88
					16QAM	1	0	0	-85	21.89
					16QAM	1	5	0	-85	21.91
					16QAM	1	0	1	-85	21.75
					16QAM	1	5	1	-85	21.77
					16QAM	3	0	0	-85	20.9
					16QAM	3	3	1	-85	20.78
					16QAM	5	0	0	-85	20.81
					16QAM	5	0	1	-85	20.58
High Range	23165	714.5	5165	228	QPSK	1	0	0	-85	22.86
					QPSK	1	5	0	-85	22.87
					QPSK	1	0	1	-85	22.94
					QPSK	1	5	1	-85	22.91
					QPSK	3	3	0	-85	21.89
					QPSK	3	3	1	-85	21.89
					QPSK	6	0	0	-85	21.07
					QPSK	6	0	1	-85	21.12
					16QAM	1	0	0	-85	21.89
					16QAM	1	5	0	-85	21.89
					16QAM	1	0	1	-85	22.05
					16QAM	1	5	1	-85	21.99
					16QAM	3	0	0	-85	20.97
					16QAM	3	3	1	-85	20.9
					16QAM	5	0	0	-85	20.61
					16QAM	5	0	1	-85	20.62

BW(MHz):	5

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23035	701.5	5035	731.5	QPSK	1	0	0	-85	22.75
					QPSK	1	5	0	-85	22.91
					QPSK	1	0	1	-85	22.87
					QPSK	1	5	1	-85	22.87
					QPSK	1	0	3	-85	23.02
					QPSK	1	5	3	-85	22.87
					QPSK	3	0	0	-85	21.96
					QPSK	3	3	3	-85	21.93
					QPSK	6	0	0	-85	21.74
					QPSK	6	0	1	-85	21.92
					QPSK	6	0	3	-85	21.91
					16QAM	1	0	0	-85	22.81
					16QAM	1	5	0	-85	22.87
					16QAM	1	0	1	-85	22.98
					16QAM	1	5	1	-85	23.01
					16QAM	1	0	3	-85	22.67
					16QAM	1	5	3	-85	23.03
					16QAM	3	0	0	-85	22.04
					16QAM	3	3	3	-85	21.74
					16QAM	5	0	0	-85	20.76
					16QAM	5	0	1	-85	20.46
					16QAM	5	0	3	-85	20.95
Mid Range	23095	707.5	5095	737.5	QPSK	1	0	0	-85	22.78
					QPSK	1	5	0	-85	22.71
					QPSK	1	0	1	-85	22.86
					QPSK	1	5	1	-85	22.86
					QPSK	1	0	3	-85	23.01
					QPSK	1	5	3	-85	23.04
					QPSK	3	0	0	-85	22.08
					QPSK	3	3	3	-85	22.06
					QPSK	6	0	0	-85	21.96
					QPSK	6	0	1	-85	21.02
					QPSK	6	0	3	-85	21.17
					16QAM	1	0	0	-85	23.01
					16QAM	1	5	0	-85	23.01
					16QAM	1	0	1	-85	23.11
					16QAM	1	5	1	-85	22.89
					16QAM	1	0	3	-85	22.98
					16QAM	1	5	3	-85	23.08
					16QAM	3	0	0	-85	21.91
					16QAM	3	3	3	-85	21.82
					16QAM	5	0	0	-85	20.79
					16QAM	5	0	1	-85	20.97
					16QAM	5	0	3	-85	21.71

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	23155	713.5	5155	743.5	QPSK	1	0	0	-85	23.01
					QPSK	1	5	0	-85	22.84
					QPSK	1	0	1	-85	22.84
					QPSK	1	5	1	-85	22.78
					QPSK	1	0	3	-85	21.86
					QPSK	1	5	3	-85	21.75
					QPSK	3	0	0	-85	22.13
					QPSK	3	3	3	-85	21.81
					QPSK	6	0	0	-85	21.07
					QPSK	6	0	1	-85	22.02
					QPSK	6	0	3	-85	22.89
					16QAM	1	0	0	-85	23.01
					16QAM	1	5	0	-85	23.02
					16QAM	1	0	1	-85	21.34
					16QAM	1	5	1	-85	21.55
					16QAM	1	0	3	-85	22.77
					16QAM	1	5	3	-85	22.06
					16QAM	3	0	0	-85	22.07
					16QAM	3	3	3	-85	21.35
					16QAM	5	0	0	-85	21.02
					16QAM	5	0	1	-85	21.87
					16QAM	5	0	3	-85	21.01

BW(MHz):	10

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23060	704	5060	734	QPSK	1	0	0	-85	22.91
					QPSK	1	5	0	-85	22.76
					QPSK	1	0	3	-85	22.76
					QPSK	1	5	3	-85	22.66
					QPSK	1	0	7	-85	22.77
					QPSK	1	5	7	-85	22.98
					QPSK	4	0	0	-85	22.75
					QPSK	4	2	7	-85	22.92
					QPSK	6	0	0	-85	21.74
					QPSK	6	0	7	-85	21.87
					16QAM	1	0	0	-85	23.02
					16QAM	1	5	0	-85	22.89
					16QAM	1	0	3	-85	23.04
					16QAM	1	5	3	-85	23.03
					16QAM	1	0	7	-85	23
					16QAM	1	5	7	-85	23.1
					16QAM	4	2	0	-85	21.91
					16QAM	4	2	7	-85	21.89
					16QAM	5	0	0	-85	21.71
					16QAM	5	0	7	-85	21.68

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Mid Range	23095	707.5	5095	737.5	QPSK	1	0	0	-85	22.78
					QPSK	1	5	0	-85	22.66
					QPSK	1	0	3	-85	22.89
					QPSK	1	5	3	-85	22.91
					QPSK	1	0	7	-85	22.82
					QPSK	1	5	7	-85	22.84
					QPSK	4	0	0	-85	22.89
					QPSK	4	2	7	-85	23.01
					QPSK	6	0	0	-85	21.87
					QPSK	6	0	7	-85	22.13
					16QAM	1	0	0	-85	22.94
					16QAM	1	5	0	-85	23.02
					16QAM	1	0	3	-85	23
					16QAM	1	5	3	-85	23.01
					16QAM	1	0	7	-85	23.06
					16QAM	1	5	7	-85	22.81
					16QAM	4	2	0	-85	21.89
					16QAM	4	2	7	-85	23.02
					16QAM	5	0	0	-85	21.79
					16QAM	5	0	7	-85	22.09

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	23130	711	5130	741	QPSK	1	0	0	-85	23.01
					QPSK	1	5	0	-85	22.86
					QPSK	1	5	7	-85	22.85
					QPSK	1	0	3	-85	22.69
					QPSK	1	5	3	-85	22.78
					QPSK	1	0	7	-85	22.99
					QPSK	4	0	0	-85	22.65
					QPSK	4	2	7	-85	23.01
					QPSK	6	0	0	-85	21.71
					QPSK	6	0	7	-85	21.84
					16QAM	1	0	0	-85	23.02
					16QAM	1	5	0	-85	23.01
					16QAM	1	0	3	-85	23.05
					16QAM	1	5	3	-85	23.13
					16QAM	1	0	7	-85	22.99
					16QAM	1	5	7	-85	23.12
					16QAM	4	2	0	-85	22.02
					16QAM	4	2	7	-85	22.03
					16QAM	5	0	0	-85	22.03
					16QAM	5	0	7	-85	21.56

Band 13

BW(MHz):	5

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23205	779.5	5205	748.5	QPSK	1	0	0	-85	20.77
					QPSK	1	5	0	-85	20.58
					QPSK	1	0	1	-85	21.12
					QPSK	1	5	1	-85	21.08
					QPSK	1	0	3	-85	21.28
					QPSK	1	5	3	-85	21.15
					QPSK	3	0	0	-85	21.01
					QPSK	3	3	3	-85	20.66
					QPSK	6	0	0	-85	21.49
					QPSK	6	0	1	-85	20.83
					QPSK	6	0	3	-85	20.87
					16QAM	1	0	0	-85	20.73
					16QAM	1	5	0	-85	20.78
					16QAM	1	0	1	-85	21.16
					16QAM	1	5	1	-85	21.24
					16QAM	1	0	3	-85	21.17
					16QAM	1	5	3	-85	21.24
					16QAM	3	0	0	-85	21.02
					16QAM	3	3	3	-85	21.19
					16QAM	5	0	0	-85	20.75
					16QAM	5	0	1	-85	20.73
					16QAM	5	0	3	-85	20.77
Mid Range	23230	782	5230	751	QPSK	1	0	0	-85	20.81
					QPSK	1	5	0	-85	21.16
					QPSK	1	0	1	-85	21.26
					QPSK	1	5	1	-85	21.17
					QPSK	1	0	3	-85	21.38
					QPSK	1	5	3	-85	21.33
					QPSK	3	0	0	-85	21.19
					QPSK	3	3	3	-85	20.82
					QPSK	6	0	0	-85	20.91
					QPSK	6	0	1	-85	20.82
					QPSK	6	0	3	-85	20.91
					16QAM	1	0	0	-85	21.08
					16QAM	1	5	0	-85	21.15
					16QAM	1	0	1	-85	21.23
					16QAM	1	5	1	-85	21.33
					16QAM	1	0	3	-85	21.39
					16QAM	1	5	3	-85	21.41
					16QAM	3	0	0	-85	21.05
					16QAM	3	3	3	-85	21.31
					16QAM	5	0	0	-85	20.77
					16QAM	5	0	1	-85	20.72
					16QAM	5	0	3	-85	20.72

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	23255	784.5	5255	753.5	QPSK	1	0	0	-85	20.63
					QPSK	1	5	0	-85	21.08
					QPSK	1	0	1	-85	21.18
					QPSK	1	5	1	-85	21.13
					QPSK	1	0	3	-85	21.28
					QPSK	1	5	3	-85	21.17
					QPSK	3	0	0	-85	20.81
					QPSK	3	3	3	-85	20.66
					QPSK	6	0	0	-85	20.73
					QPSK	6	0	1	-85	20.78
					QPSK	6	0	3	-85	20.86
					16QAM	1	0	0	-85	21.04
					16QAM	1	5	0	-85	21.09
					16QAM	1	0	1	-85	21.25
					16QAM	1	5	1	-85	21.37
					16QAM	1	0	3	-85	21.29
					16QAM	1	5	3	-85	21.39
					16QAM	3	0	0	-85	21.22
					16QAM	3	3	3	-85	21.37
					16QAM	5	0	0	-85	20.77
					16QAM	5	0	1	-85	20.69
					16QAM	5	0	3	-85	20.89

BW(MHz):	10

Test Frequency ID	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]	Test Configuration Initial of Power				EUT	
					Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Mid Range	23230	782	5230	751	QPSK	1	0	0	-85	20.89
					QPSK	1	5	0	-85	20.92
					QPSK	1	0	3	-85	21.01
					QPSK	1	5	3	-85	21.03
					QPSK	1	0	7	-85	21.12
					QPSK	1	5	7	-85	21.14
					QPSK	4	0	0	-85	21.02
					QPSK	4	2	7	-85	21.04
					QPSK	6	0	0	-85	20.76
					QPSK	6	0	7	-85	20.98
					16QAM	1	0	0	-85	20.36
					16QAM	1	5	0	-85	20.64
					16QAM	1	0	3	-85	20.89
					16QAM	1	5	3	-85	21.39
					16QAM	1	0	7	-85	21.35
					16QAM	1	5	7	-85	21.41
					16QAM	4	2	0	-85	21.17
					16QAM	4	2	7	-85	20.53
					16QAM	5	0	0	-85	20.53
					16QAM	5	0	7	-85	21.07

ERP Power (dBm)

LTE Band 12							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
X	23017	699.7	-3.19	30.36	25.02	317.69	H
	23095	707.5	-3.23	30.17	24.79	301.30	
	23173	715.3	-3.44	30.17	24.58	287.08	
	23017	699.7	-11.76	32.03	18.12	64.86	V
	23095	707.5	-12.05	31.98	17.78	59.98	
	23173	715.3	-12.30	32.06	17.61	57.68	
Channel Bandwidth: 1.4 MHz / 16QAM							
X	23017	699.7	-4.20	30.36	24.01	251.77	H
	23095	707.5	-4.24	30.17	23.78	238.78	
	23173	715.3	-4.45	30.17	23.57	227.51	
	23017	699.7	-12.77	32.03	17.11	51.40	V
	23095	707.5	-13.06	31.98	16.77	47.53	
	23173	715.3	-13.31	32.06	16.60	45.71	

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

LTE Band 12							
Channel Bandwidth: 3 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
X	23025	700.5	-3.23	30.17	24.79	301.30	H
	23095	707.5	-3.46	30.17	24.56	285.76	
	23165	714.5	-3.68	30.18	24.35	272.27	
	23025	700.5	-11.92	31.96	17.89	61.52	V
	23095	707.5	-12.28	31.98	17.55	56.89	
	23165	714.5	-12.50	32.03	17.38	54.70	
Channel Bandwidth: 3 MHz / 16QAM							
X	23025	700.5	-4.24	30.17	23.78	238.78	H
	23095	707.5	-4.47	30.17	23.55	226.46	
	23165	714.5	-4.69	30.18	23.34	215.77	
	23025	700.5	-12.93	31.96	16.88	48.75	V
	23095	707.5	-13.29	31.98	16.54	45.08	
	23165	714.5	-13.51	32.03	16.37	43.35	

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

LTE Band 12							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	23035	701.5	-3.47	30.17	24.55	285.10	H
	23095	707.5	-3.70	30.17	24.32	270.40	
	23155	713.5	-3.92	30.18	24.11	257.63	
	23035	701.5	-12.16	31.96	17.65	58.21	V
	23095	707.5	-12.52	31.98	17.31	53.83	
	23155	713.5	-12.74	32.03	17.14	51.76	
Channel Bandwidth: 5 MHz / 16QAM							
X	23035	701.5	-4.48	30.17	23.54	225.94	H
	23095	707.5	-4.71	30.17	23.31	214.29	
	23155	713.5	-4.93	30.18	23.10	204.17	
	23035	701.5	-13.17	31.96	16.64	46.13	V
	23095	707.5	-13.53	31.98	16.30	42.66	
	23155	713.5	-13.75	32.03	16.13	41.02	

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

LTE Band 12							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	23060	704.0	-3.70	30.17	24.32	270.40	H
	23095	707.5	-3.93	30.17	24.09	256.45	
	23130	711.0	-4.15	30.18	23.88	244.34	
	23060	704.0	-12.39	31.96	17.42	55.21	V
	23095	707.5	-12.75	31.98	17.08	51.05	
	23130	711.0	-12.97	32.03	16.91	49.09	
Channel Bandwidth: 10 MHz / 16QAM							
X	23060	704.0	-4.74	30.17	23.28	212.81	H
	23095	707.5	-4.97	30.17	23.05	201.84	
	23130	711.0	-5.19	30.18	22.84	192.31	
	23060	704.0	-13.43	31.96	16.38	43.45	V
	23095	707.5	-13.79	31.98	16.04	40.18	
	23130	711.0	-14.01	32.03	15.87	38.64	

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

LTE Band 13							
Channel Bandwidth: 5 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
X	23205	779.5	-7.48	32.24	22.61	182.39	H
	23230	782.0	-7.47	32.17	22.55	179.89	
	23255	784.5	-7.48	32.11	22.48	177.01	
	23205	779.5	-12.26	32.43	18.02	63.39	V
	23230	782.0	-12.61	32.42	17.66	58.34	
	23255	784.5	-12.83	32.46	17.48	55.98	
Channel Bandwidth: 5 MHz / 16QAM							
X	23205	779.5	-8.49	32.24	21.60	144.54	H
	23230	782.0	-8.48	32.17	21.54	142.56	
	23255	784.5	-8.49	32.11	21.47	140.28	
	23205	779.5	-13.27	32.43	17.01	50.23	V
	23230	782.0	-13.62	32.42	16.65	46.24	
	23255	784.5	-13.84	32.46	16.47	44.36	

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

LTE Band 13							
Channel Bandwidth: 10 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
X	23230	782.0	-7.70	32.17	22.32	170.61	H
	23230	782.0	-12.84	32.42	17.43	55.34	V
Channel Bandwidth: 10 MHz / 16QAM							
X	23230	782.0	-8.69	32.17	21.33	135.83	H
	23230	782.0	-13.83	32.42	16.44	44.06	V

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

EIRP Power (dBm)

LTE Band 4							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	19957	1710.7	-8.48	36.45	27.97	626.61	H
	20175	1732.5	-8.66	36.80	28.14	651.63	
	20393	1754.3	-9.12	36.94	27.82	605.34	
	19957	1710.7	-14.00	37.28	23.28	212.81	V
	20175	1732.5	-14.11	37.63	23.52	224.91	
	20393	1754.3	-14.66	37.64	22.98	198.61	
Channel Bandwidth: 1.4 MHz / 16QAM							
X	19957	1710.7	-9.49	36.45	26.96	496.59	H
	20175	1732.5	-9.67	36.80	27.13	516.42	
	20393	1754.3	-10.13	36.94	26.81	479.73	
	19957	1710.7	-15.01	37.28	22.27	168.66	V
	20175	1732.5	-15.12	37.63	22.51	178.24	
	20393	1754.3	-15.67	37.64	21.97	157.40	

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

LTE Band 4							
Channel Bandwidth: 3 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	19965	1711.5	-8.71	36.45	27.74	594.29	H
	20175	1732.5	-8.89	36.80	27.91	618.02	
	20385	1753.5	-9.35	36.94	27.59	574.12	
	19965	1711.5	-14.23	37.28	23.05	201.84	V
	20175	1732.5	-14.34	37.63	23.29	213.30	
	20385	1753.5	-14.89	37.64	22.75	188.36	
Channel Bandwidth: 3 MHz / 16QAM							
X	19965	1711.5	-9.74	36.45	26.71	468.81	H
	20175	1732.5	-10.09	36.80	26.71	468.81	
	20385	1753.5	-10.23	36.94	26.71	468.81	
	19965	1711.5	-10.57	37.28	26.71	468.81	V
	20175	1732.5	-10.92	37.63	26.71	468.81	
	20385	1753.5	-10.93	37.64	26.71	468.81	

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

LTE Band 4							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	19975	1712.5	-8.96	36.45	27.49	561.05	H
	20175	1732.5	-9.14	36.80	27.66	583.45	
	20375	1752.5	-9.60	36.94	27.34	542.00	
	19975	1712.5	-14.48	37.28	22.80	190.55	V
	20175	1732.5	-14.59	37.63	23.04	201.37	
	20375	1752.5	-15.14	37.64	22.50	177.83	
Channel Bandwidth: 5 MHz / 16QAM							
X	19975	1712.5	-9.97	36.45	26.48	444.63	H
	20175	1732.5	-10.15	36.80	26.65	462.38	
	20375	1752.5	-10.61	36.94	26.33	429.54	
	19975	1712.5	-15.49	37.28	21.79	151.01	V
	20175	1732.5	-15.60	37.63	22.03	159.59	
	20375	1752.5	-16.15	37.64	21.49	140.93	

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

LTE Band 4							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	20000	1715.0	-9.38	36.64	27.26	532.11	H
	20175	1732.5	-9.36	36.80	27.43	553.35	
	20350	1750.0	-9.69	36.80	27.11	514.04	
	20000	1715.0	-14.87	37.44	22.57	180.72	V
	20175	1732.5	-14.82	37.63	22.81	190.99	
	20350	1750.0	-15.37	37.64	22.27	168.66	
Channel Bandwidth: 10 MHz / 16QAM							
X	20000	1715.0	-10.39	36.64	26.25	421.70	H
	20175	1732.5	-10.38	36.80	26.42	438.53	
	20350	1750.0	-10.70	36.80	26.10	407.38	
	20000	1715.0	-15.88	37.44	21.56	143.22	V
	20175	1732.5	-15.83	37.63	21.80	151.36	
	20350	1750.0	-16.38	37.64	21.26	133.66	

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

LTE Band 4							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	20025	1717.5	-9.43	36.45	27.02	503.50	H
	20175	1732.5	-9.61	36.80	27.19	523.60	
	20325	1747.5	-10.07	36.94	26.87	486.41	
	20025	1717.5	-14.95	37.28	22.33	171.00	V
	20175	1732.5	-15.06	37.63	22.57	180.72	
	20325	1747.5	-15.61	37.64	22.03	159.59	
Channel Bandwidth: 15 MHz / 16QAM							
X	20025	1717.5	-10.45	36.45	26.00	398.11	H
	20175	1732.5	-10.63	36.80	26.17	414.00	
	20325	1747.5	-11.09	36.94	25.85	384.59	
	20025	1717.5	-15.97	37.28	21.31	135.21	V
	20175	1732.5	-16.08	37.63	21.55	142.89	
	20325	1747.5	-16.63	37.64	21.01	126.18	

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

LTE Band 4							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	20050	1720.0	-9.66	36.45	26.79	477.53	H
	20175	1732.5	-9.84	36.80	26.96	496.59	
	20300	1745.0	-10.30	36.94	26.64	461.32	
	20050	1720.0	-15.18	37.28	22.10	162.18	V
	20175	1732.5	-15.29	37.63	22.34	171.40	
	20300	1745.0	-15.84	37.64	21.80	151.36	
Channel Bandwidth: 20 MHz / 16QAM							
X	20050	1720.0	-10.70	36.45	25.75	375.84	H
	20175	1732.5	-10.88	36.80	25.92	390.84	
	20300	1745.0	-11.34	36.94	25.60	363.08	
	20050	1720.0	-16.22	37.28	21.06	127.64	V
	20175	1732.5	-16.33	37.63	21.30	134.90	
	20300	1745.0	-16.88	37.64	20.76	119.12	

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

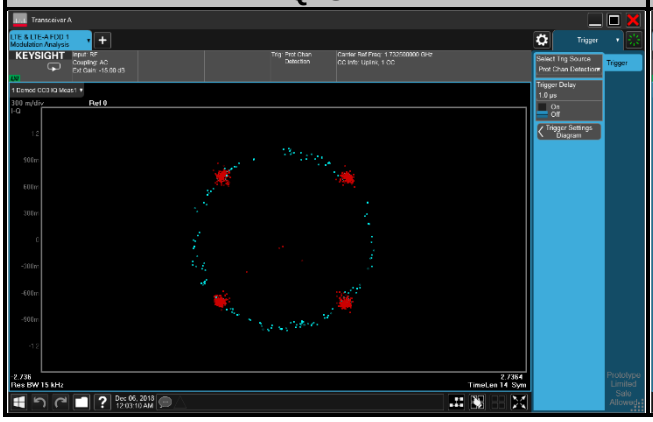
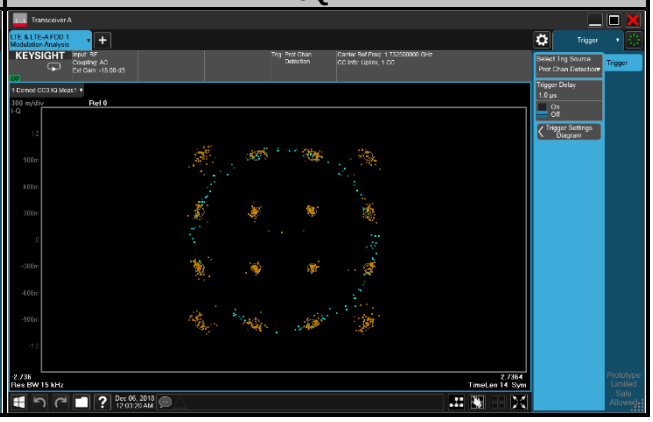
N/A

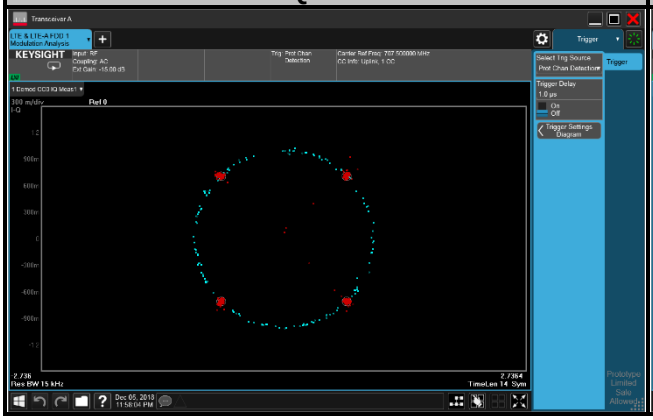
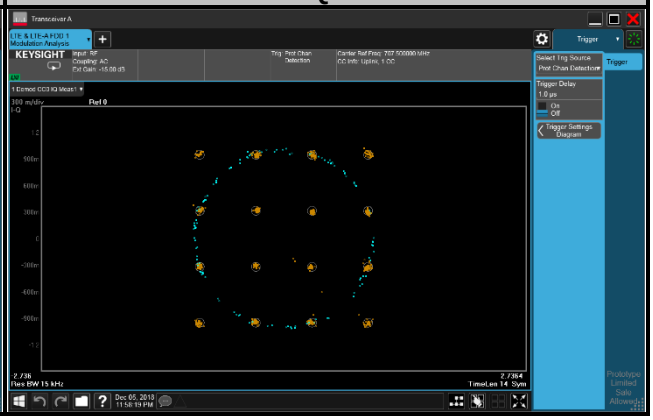
4.2.2 Test Setup

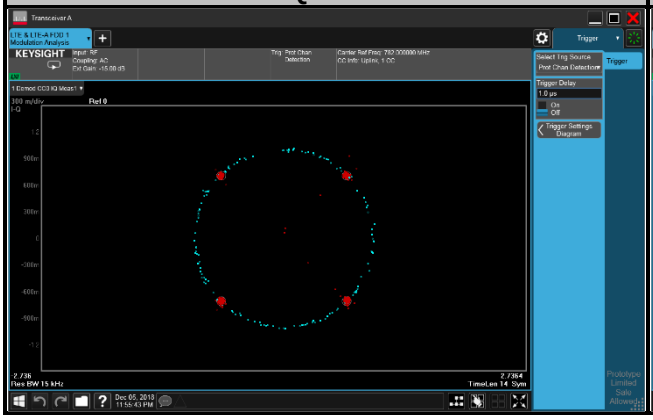
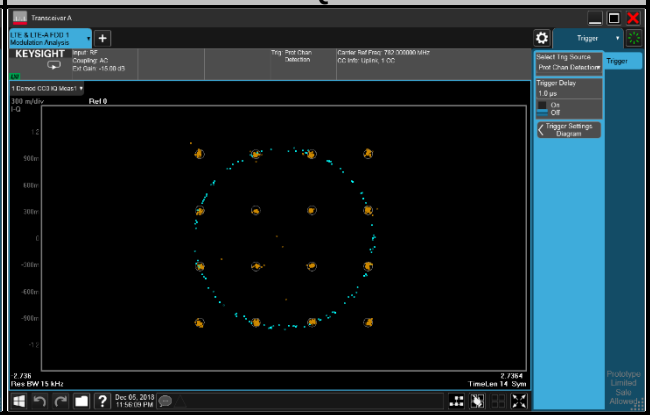
4.2.3 Test Procedure

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

4.2.4 Test Results

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

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

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

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

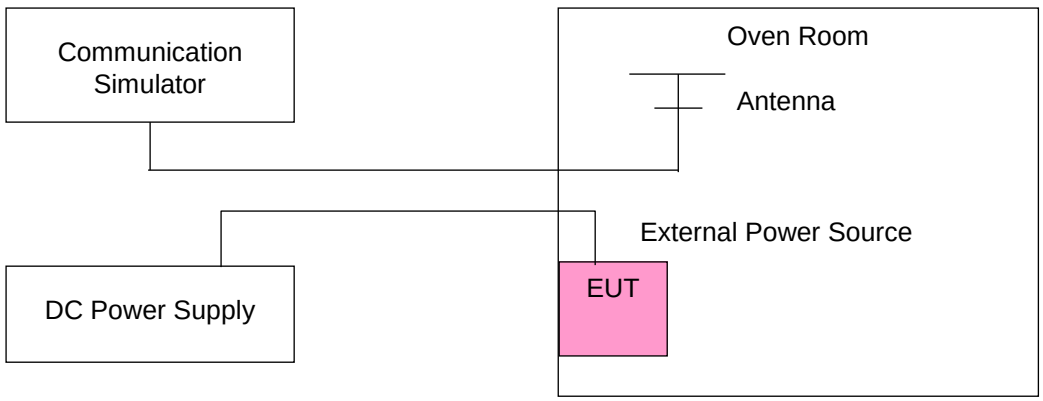
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Procedure

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

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1710.700003	0.002	1754.300002	0.001
4.25	1710.700001	0.001	1754.300001	0.001
5.75	1710.700002	0.001	1754.300003	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700004	0.002	1754.300002	0.001
-20	1710.700001	0.001	1754.300002	0.001
-10	1710.700003	0.002	1754.300002	0.001
0	1710.700004	0.002	1754.300004	0.002
10	1710.700003	0.002	1754.300003	0.001
20	1710.699997	-0.002	1754.299998	-0.001
30	1710.699999	-0.001	1754.299998	-0.001
40	1710.699998	-0.001	1754.299997	-0.002
50	1710.699997	-0.002	1754.299999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1710.700002	0.001	1754.300004	0.002
4.25	1710.700003	0.002	1754.300004	0.002
5.75	1710.700004	0.002	1754.300003	0.001

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700002	0.001	1754.300003	0.002
-20	1710.700002	0.001	1754.300002	0.001
-10	1710.700002	0.001	1754.300002	0.001
0	1710.700003	0.002	1754.300002	0.001
10	1710.700004	0.002	1754.300003	0.001
20	1710.699999	-0.001	1754.299997	-0.002
30	1710.699998	-0.001	1754.299996	-0.002
40	1710.699997	-0.002	1754.299996	-0.002
50	1710.699999	-0.001	1754.299998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1710.700002	0.001	1754.300002	0.001
4.25	1710.700002	0.001	1754.300003	0.002
5.75	1710.700002	0.001	1754.300004	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700004	0.002	1754.300003	0.001
-20	1710.700004	0.002	1754.300002	0.001
-10	1710.700002	0.001	1754.300002	0.001
0	1710.700001	0.001	1754.300003	0.002
10	1710.700004	0.002	1754.300001	0.001
20	1710.699997	-0.002	1754.299997	-0.002
30	1710.699998	-0.001	1754.299996	-0.002
40	1710.699998	-0.001	1754.299997	-0.002
50	1710.699999	-0.001	1754.299999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1710.700002	0.001	1754.300002	0.001
4.25	1710.700003	0.002	1754.300001	0.001
5.75	1710.700001	0.001	1754.300002	0.001

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700004	0.002	1754.300001	0.001
-20	1710.700003	0.002	1754.300002	0.001
-10	1710.700001	0.001	1754.300003	0.001
0	1710.700004	0.002	1754.300002	0.001
10	1710.700003	0.002	1754.300002	0.001
20	1710.699997	-0.002	1754.299998	-0.001
30	1710.699997	-0.002	1754.299999	-0.001
40	1710.699997	-0.002	1754.299999	-0.001
50	1710.699997	-0.002	1754.299997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1710.700002	0.001	1754.300002	0.001
4.25	1710.700002	0.001	1754.300002	0.001
5.75	1710.700003	0.001	1754.300001	0.001

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700004	0.002	1754.300003	0.002
-20	1710.700003	0.002	1754.300001	0.001
-10	1710.700004	0.002	1754.300001	0.001
0	1710.700004	0.002	1754.300002	0.001
10	1710.700003	0.002	1754.300001	0.001
20	1710.699998	-0.001	1754.299999	-0.001
30	1710.699998	-0.001	1754.299997	-0.001
40	1710.699996	-0.002	1754.299997	-0.002
50	1710.699997	-0.002	1754.299998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1710.700004	0.002	1754.300002	0.001
4.25	1710.700004	0.002	1754.300002	0.001
5.75	1710.700004	0.002	1754.300002	0.001

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700001	0.001	1754.300003	0.001
-20	1710.700001	0.001	1754.300002	0.001
-10	1710.700003	0.002	1754.300004	0.002
0	1710.700003	0.002	1754.300003	0.002
10	1710.700003	0.002	1754.300003	0.002
20	1710.699999	-0.001	1754.299999	-0.001
30	1710.699998	-0.001	1754.299996	-0.002
40	1710.699998	-0.001	1754.299997	-0.001
50	1710.699998	-0.001	1754.299996	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	699.700003	0.004	715.300002	0.002
4.25	699.700003	0.004	715.300002	0.003
5.75	699.700002	0.003	715.300003	0.004

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700003	0.004	715.300002	0.003
-20	699.700002	0.003	715.300004	0.005
-10	699.700002	0.003	715.300004	0.006
0	699.700003	0.004	715.300001	0.002
10	699.700002	0.003	715.300004	0.005
20	699.699997	-0.005	715.299997	-0.004
30	699.699997	-0.004	715.299998	-0.003
40	699.699997	-0.005	715.299996	-0.005
50	699.699998	-0.003	715.299999	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	699.700001	0.001	715.300001	0.002
4.25	699.700003	0.004	715.300004	0.005
5.75	699.700004	0.005	715.300003	0.004

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700003	0.004	715.300002	0.003
-20	699.700004	0.005	715.300004	0.005
-10	699.700002	0.003	715.300003	0.003
0	699.700003	0.004	715.300002	0.003
10	699.700004	0.006	715.300003	0.004
20	699.699999	-0.002	715.299999	-0.002
30	699.699998	-0.003	715.299997	-0.004
40	699.699997	-0.005	715.299997	-0.004
50	699.699997	-0.004	715.299997	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	699.700004	0.006	715.300002	0.002
4.25	699.700004	0.005	715.300001	0.002
5.75	699.700003	0.004	715.300002	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700003	0.004	715.300002	0.002
-20	699.700002	0.003	715.300001	0.002
-10	699.700003	0.004	715.300003	0.004
0	699.700003	0.005	715.300002	0.002
10	699.700002	0.003	715.300003	0.005
20	699.699998	-0.003	715.299999	-0.002
30	699.699998	-0.003	715.299996	-0.005
40	699.699997	-0.004	715.299997	-0.005
50	699.699997	-0.005	715.299997	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	699.700003	0.004	715.300001	0.001
4.25	699.700002	0.002	715.300002	0.003
5.75	699.700003	0.004	715.300002	0.003

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700002	0.003	715.300002	0.003
-20	699.700003	0.004	715.300003	0.004
-10	699.700002	0.003	715.300002	0.002
0	699.700004	0.005	715.300003	0.004
10	699.700001	0.002	715.300003	0.004
20	699.699998	-0.003	715.299998	-0.003
30	699.699998	-0.003	715.299997	-0.004
40	699.699998	-0.002	715.299996	-0.005
50	699.699998	-0.003	715.299998	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	779.500001	0.002	784.500004	0.005
4.25	779.500003	0.003	784.500004	0.005
5.75	779.500004	0.005	784.500003	0.004

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	779.500001	0.002	784.500002	0.002
-20	779.500002	0.003	784.500002	0.002
-10	779.500003	0.003	784.500003	0.004
0	779.500002	0.002	784.500002	0.002
10	779.500004	0.004	784.500002	0.003
20	779.499999	-0.002	784.499998	-0.003
30	779.499998	-0.002	784.499999	-0.002
40	779.499999	-0.002	784.499997	-0.004
50	779.499997	-0.004	784.499997	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
5.00	779.500002	0.003
4.25	779.500004	0.005
5.75	779.500002	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
-30	779.500002	0.002
-20	779.500002	0.002
-10	779.500003	0.004
0	779.500004	0.004
10	779.500001	0.002
20	779.499997	-0.003
30	779.499999	-0.002
40	779.499998	-0.003
50	779.499999	-0.002

4.4 Occupied Bandwidth Measurement

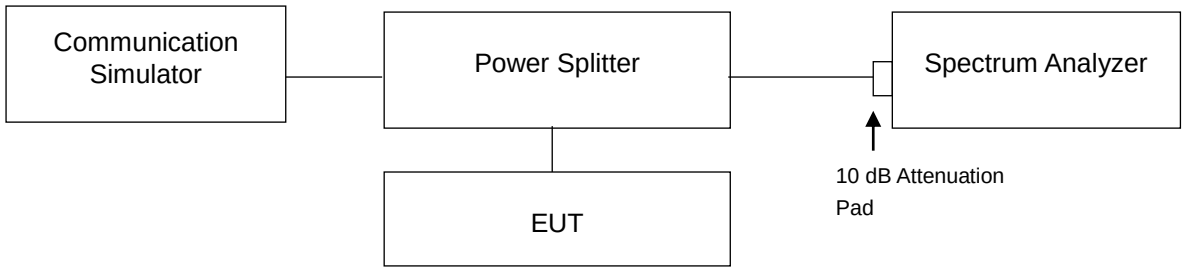
4.4.1 Limits of Occupied Bandwidth Measurement

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

4.4.2 Test Procedure

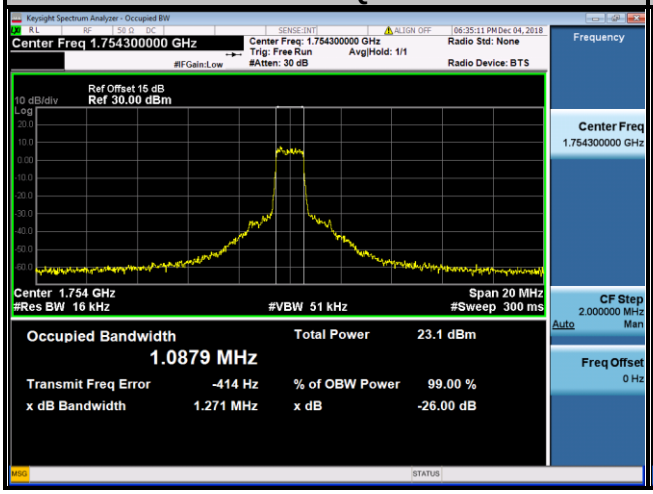
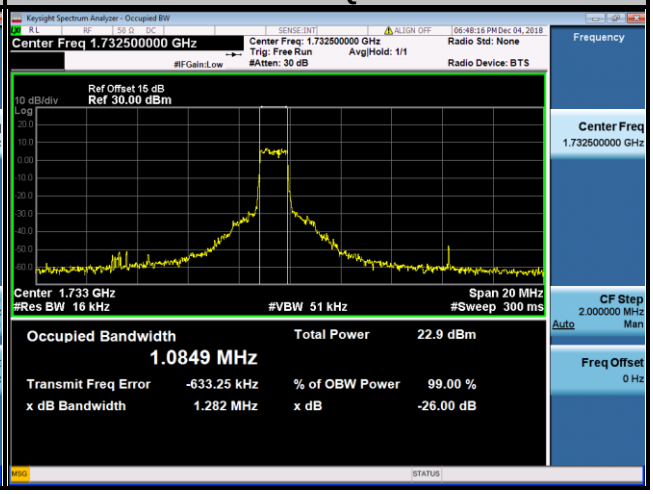
a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.4.3 Test Setup

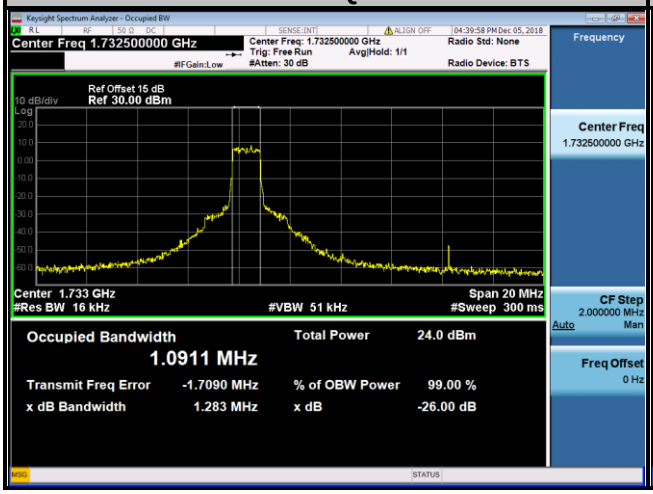
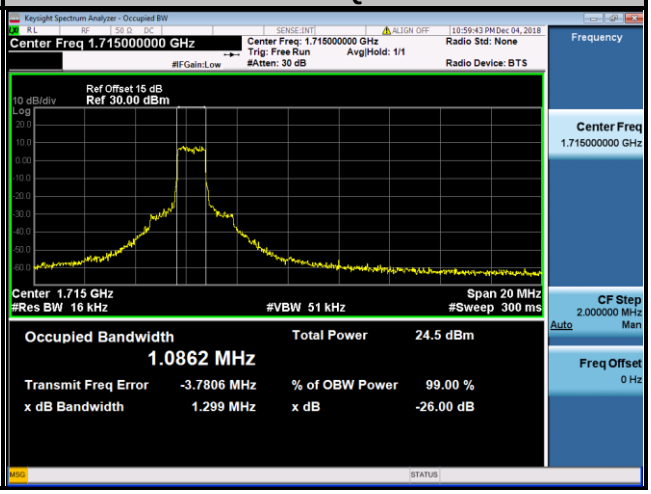


4.4.4 Test Result

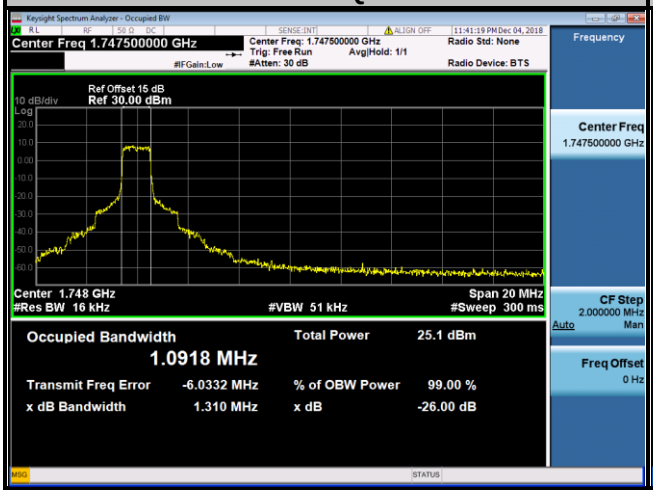
LTE Band 4							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.088	0.912	19965	1711.5	1.081	0.918
20175	1732.5	1.086	0.915	20175	1732.5	1.085	0.919
20393	1754.3	1.088	0.914	20385	1753.5	1.084	0.917

Spectrum Plot of Worst Value	
1.4 MHz / QPSK	3 MHz / QPSK
	

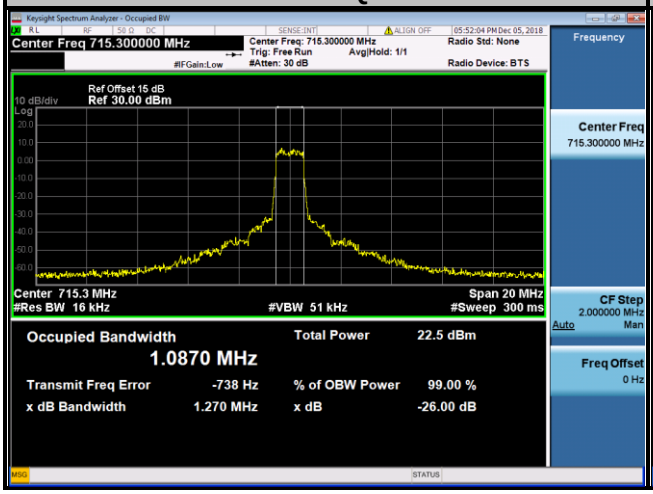
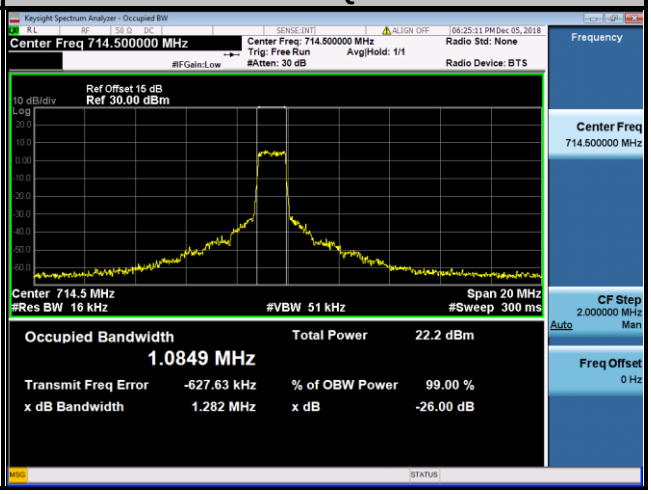
LTE Band 4							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	1.086	0.917	20000	1715.0	1.086	0.912
20175	1732.5	1.091	0.916	20175	1732.5	1.083	0.915
20375	1752.5	1.079	0.918	20350	1750.0	1.086	0.917

Spectrum Plot of Worst Value	
5 MHz / QPSK	10 MHz / QPSK
	

LTE Band 4							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	1.087	0.927	20050	1720.0	1.089	0.917
20175	1732.5	1.083	0.921	20175	1732.5	1.089	0.918
20325	1747.5	1.092	0.912	20300	1745.0	1.091	0.916

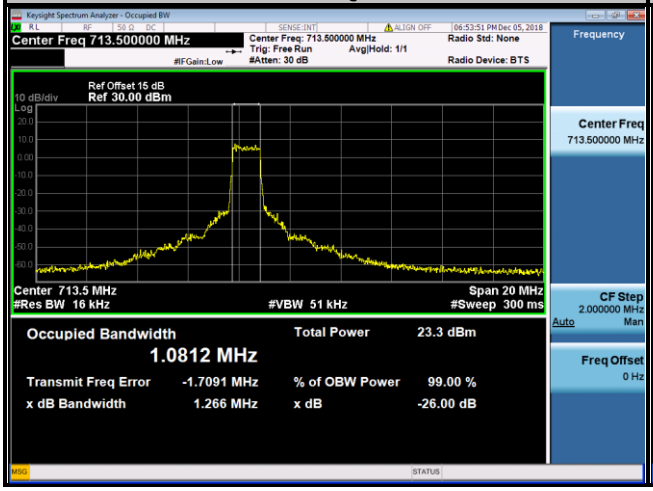
Spectrum Plot of Worst Value	
15 MHz / QPSK	20 MHz / QPSK
	

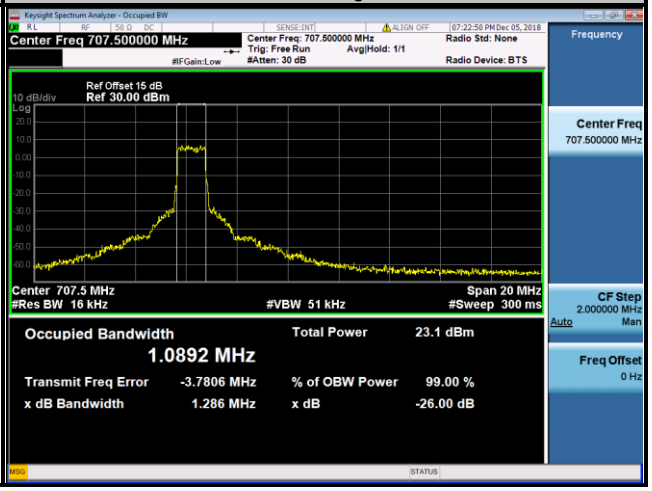
LTE Band 12							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
23017	699.7	1.087	0.914	23025	700.5	1.080	0.911
23095	707.5	1.087	0.911	23095	707.5	1.085	0.914
23173	715.3	1.087	0.913	23165	714.5	1.085	0.907

Spectrum Plot of Worst Value	
1.4 MHz / QPSK	3 MHz / QPSK
	

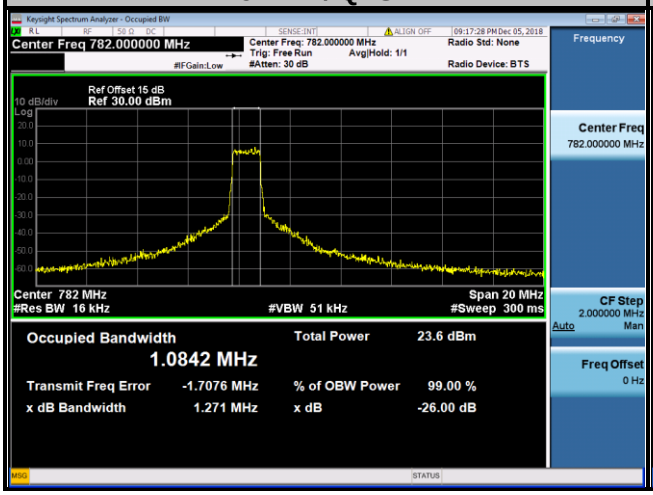
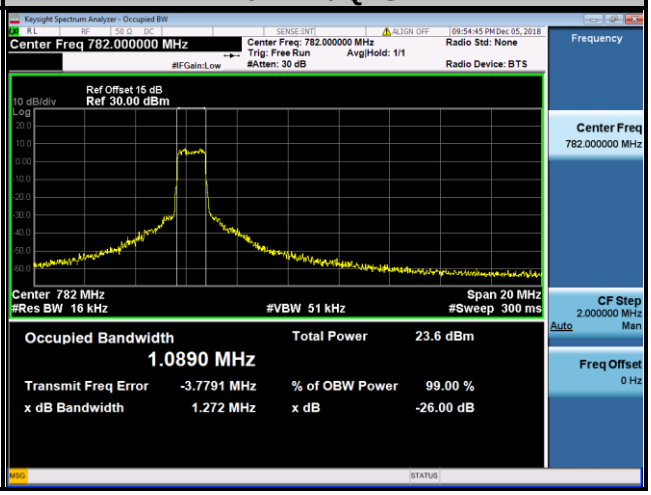
LTE Band 12							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
23035	701.5	1.081	0.914	23060	704.0	1.085	0.916
23095	707.5	1.079	0.922	23095	707.5	1.089	0.915
23155	713.5	1.081	0.923	23130	711.0	1.089	0.911

Spectrum Plot of Worst Value	
5 MHz / QPSK	10 MHz / QPSK





LTE Band 13							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
23205	779.5	1.081	0.909	23230	782.0	1.089	0.914
23230	782.0	1.084	0.916				
23255	784.5	1.083	0.917				

Spectrum Plot of Worst Value	
5 MHz / QPSK	10 MHz / QPSK
	

4.5 Band Edge Measurement

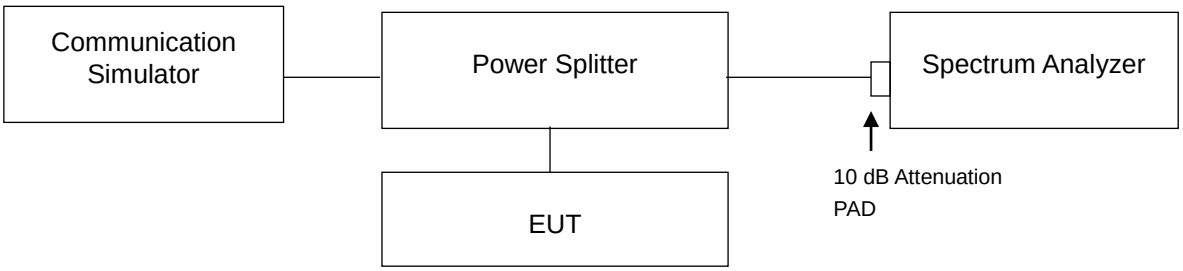
4.5.1 Limits of Band Edge Measurement

For operations in the 698-787 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.
However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For operations in the 746-758 MHz band and the 776-788 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.
On all frequencies between 763-775 MHz and 793-805 MHz, by a factor no less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

For operations in the 1710–1755 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB.

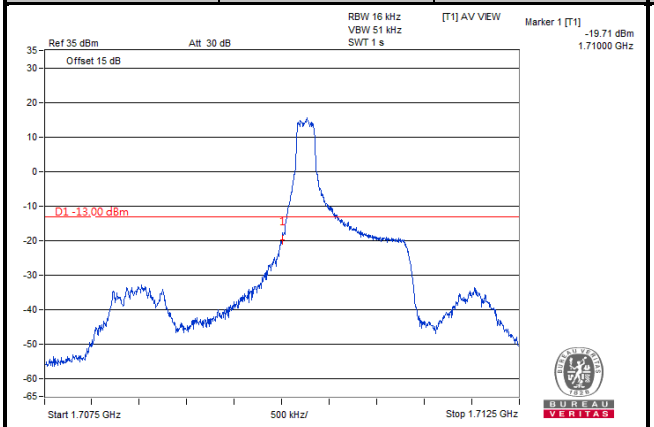
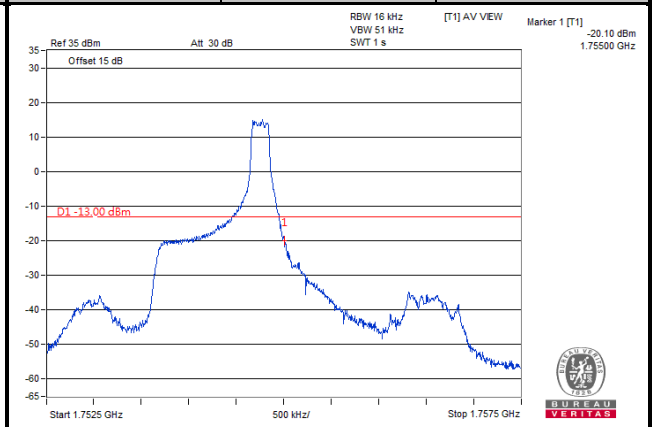
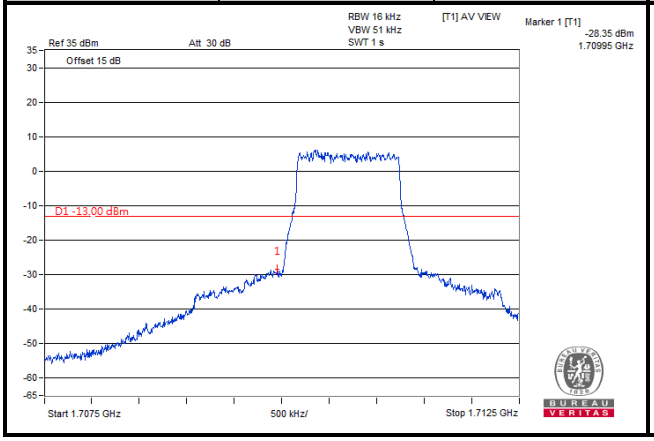
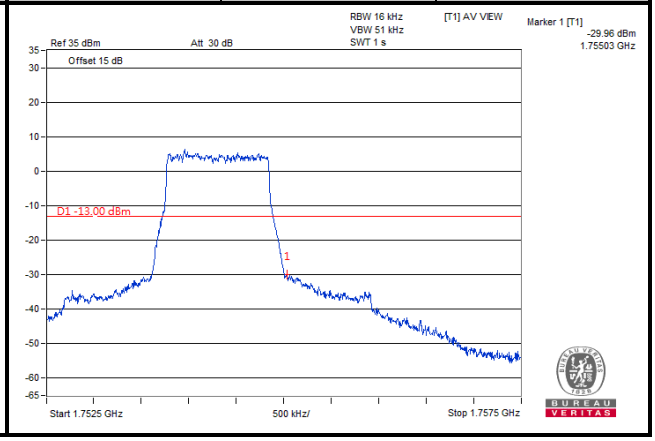
4.5.2 Test Setup

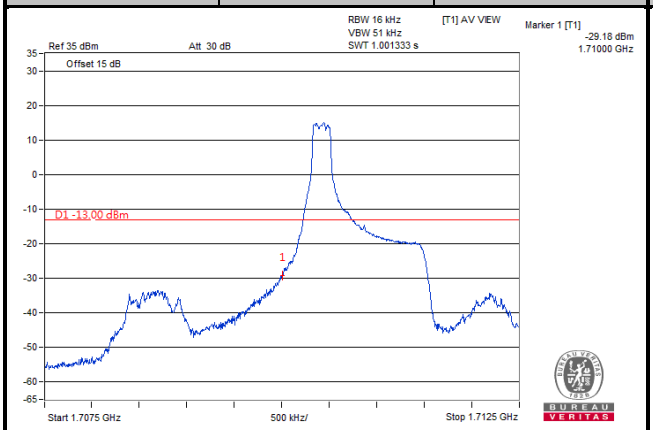
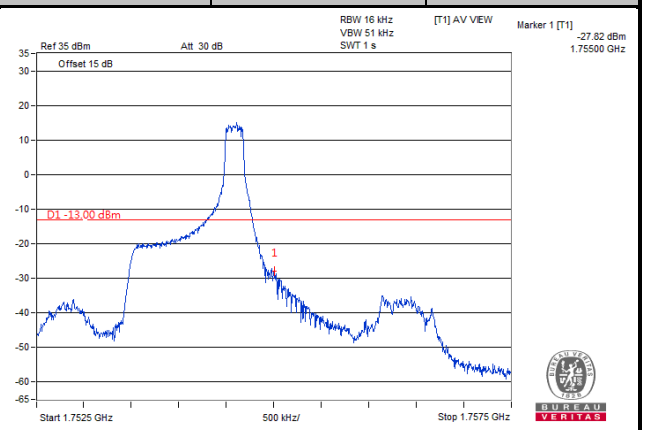
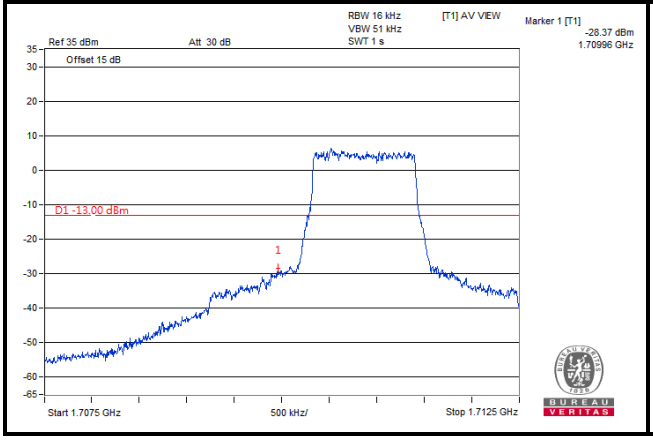
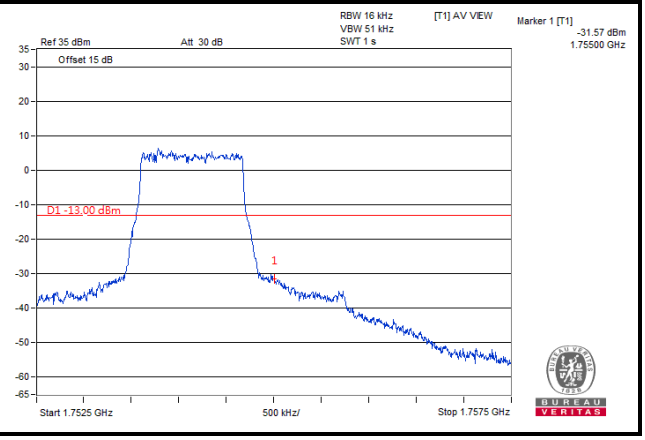


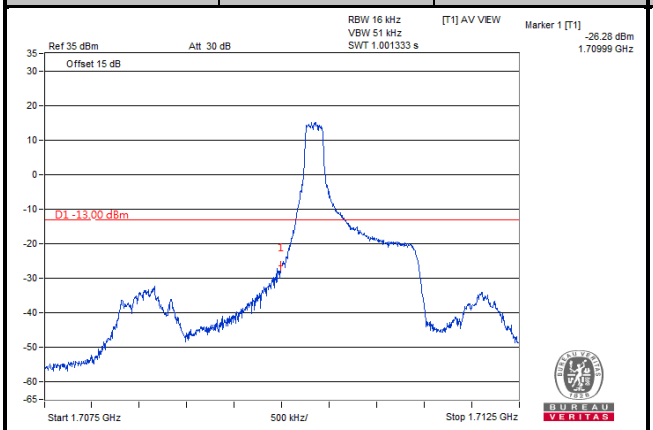
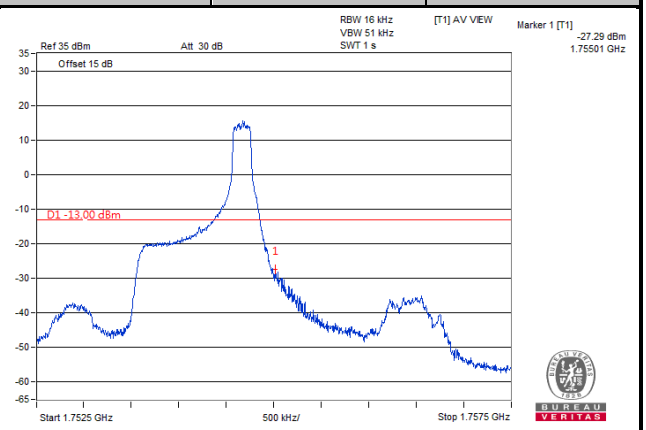
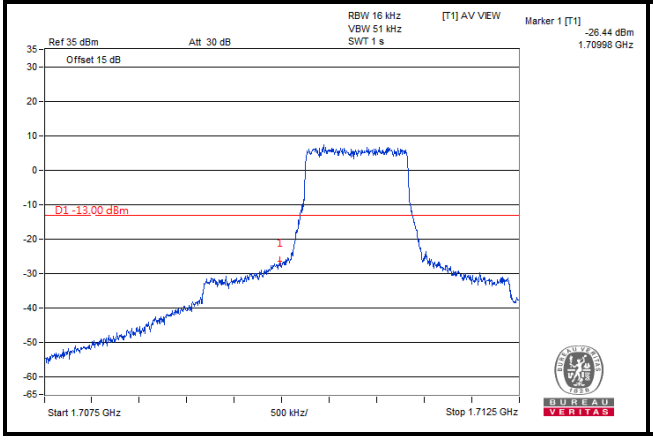
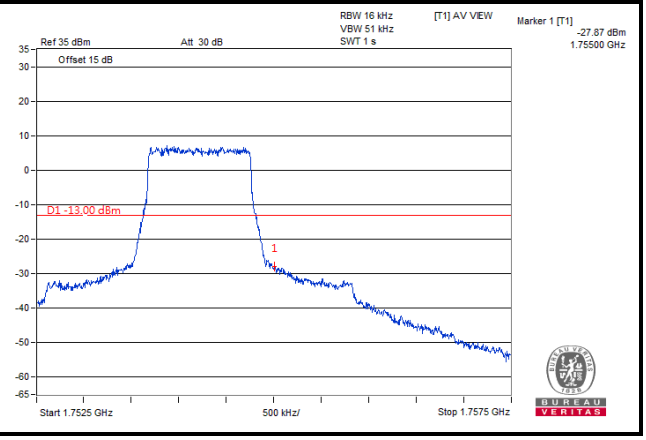
4.5.3 Test Procedures

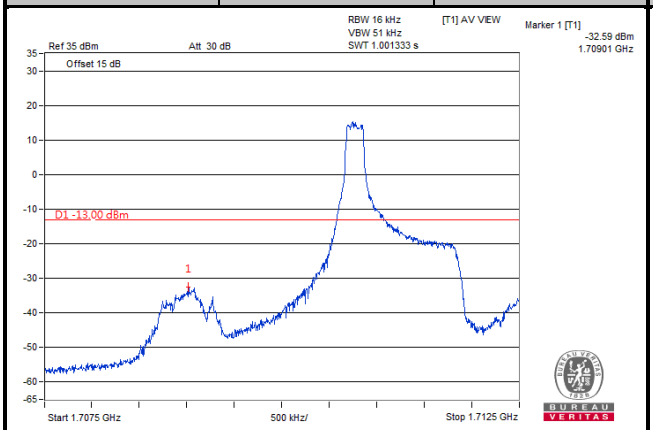
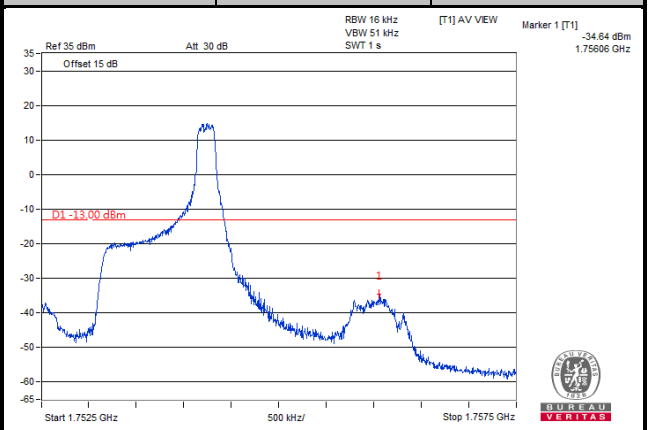
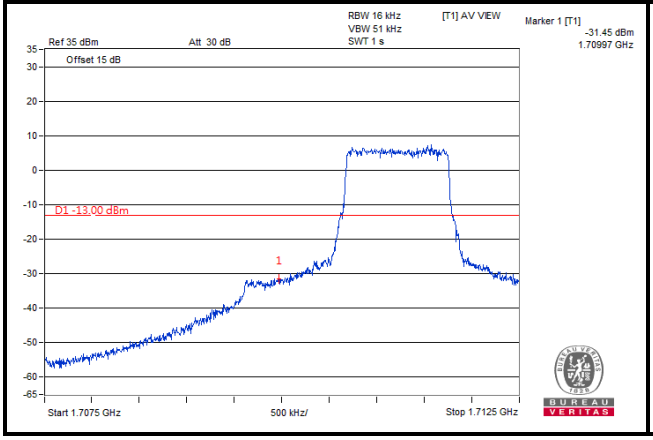
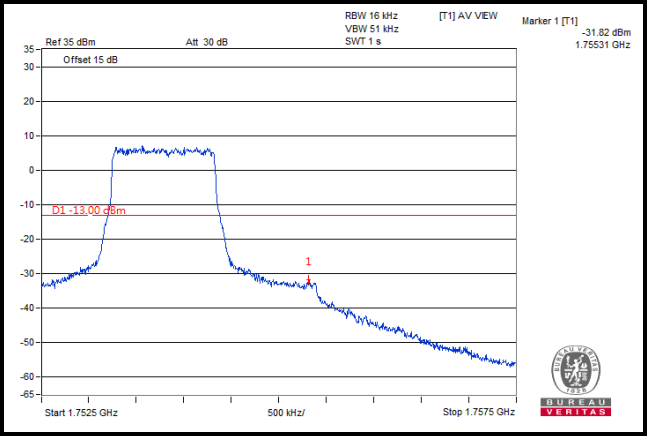
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 16 kHz and VB of the spectrum is 51 kHz.
c. Record the max. trace plot into the test report.

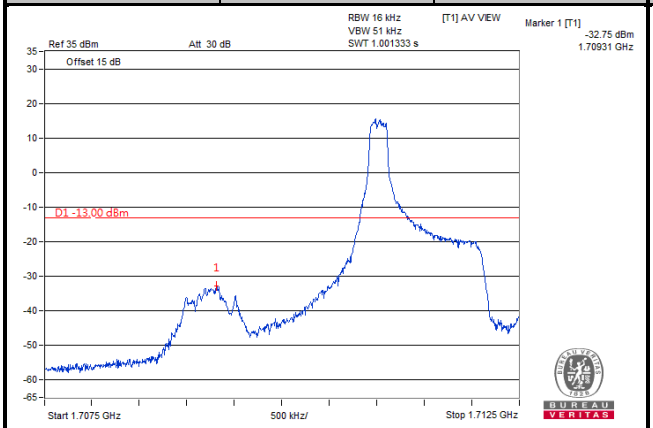
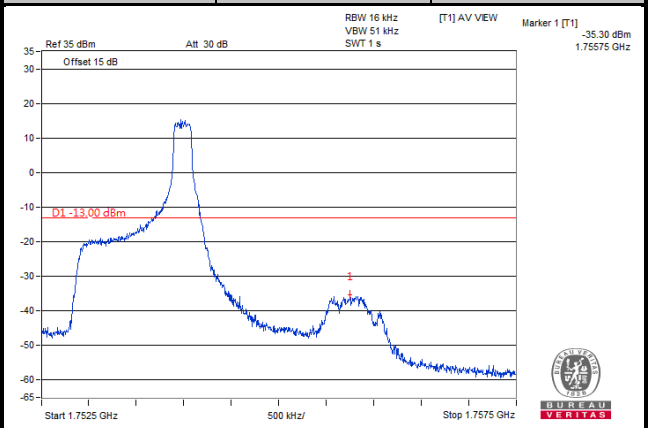
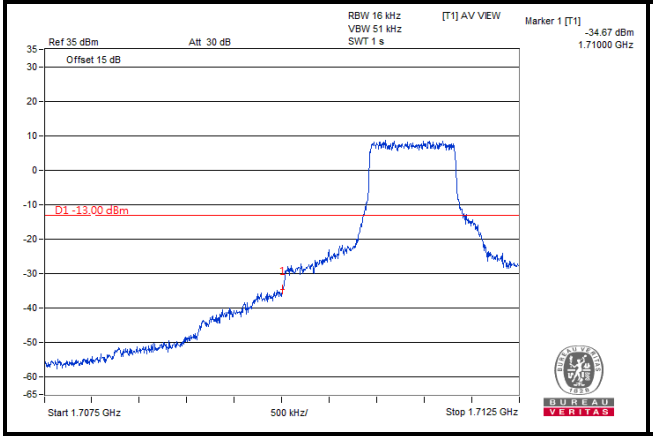
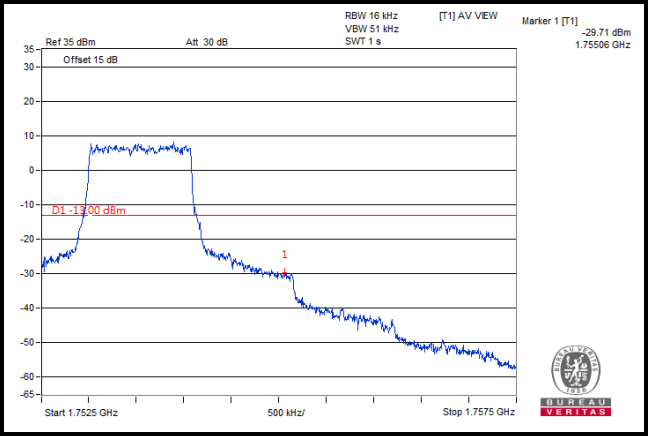
4.5.4 Test Results

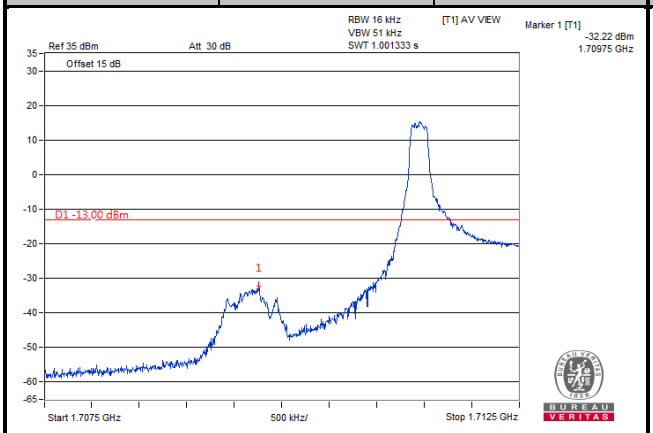
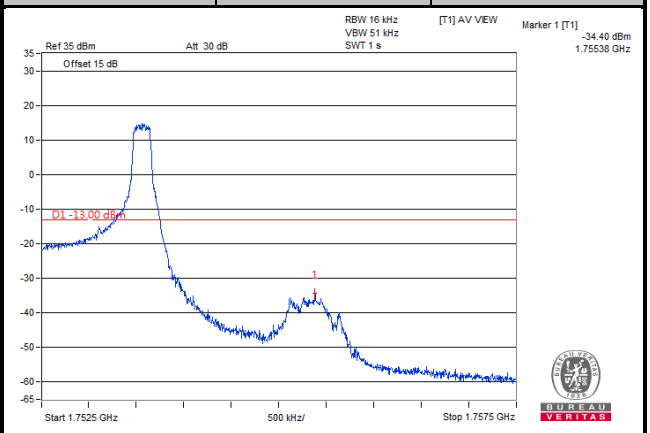
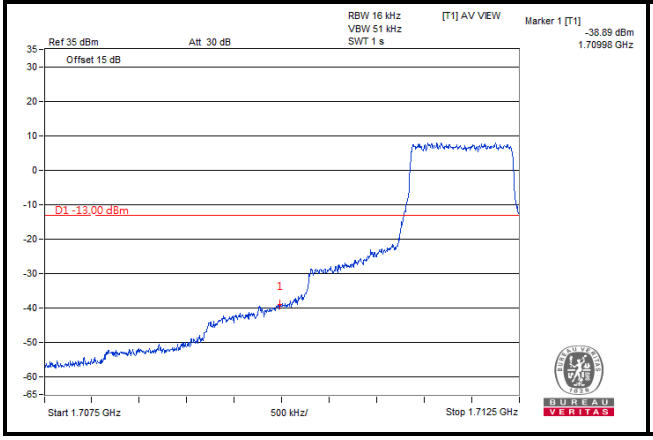
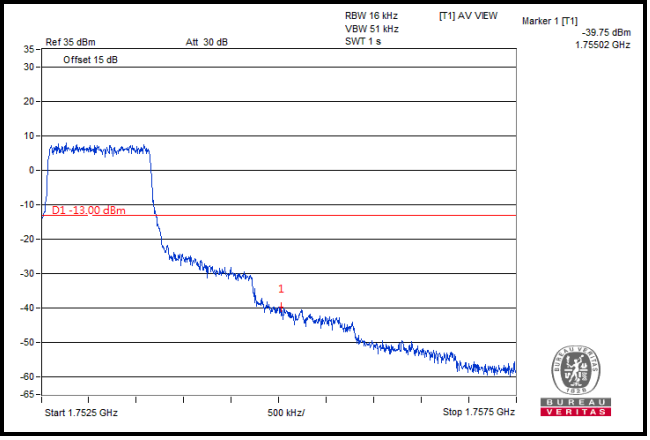
LTE Band 4					
Channel Bandwidth: 1.4 MHz					
Channel	19957	1 RB	Channel	20393	1 RB
					
Channel	19957	6 RB	Channel	20393	6 RB
					

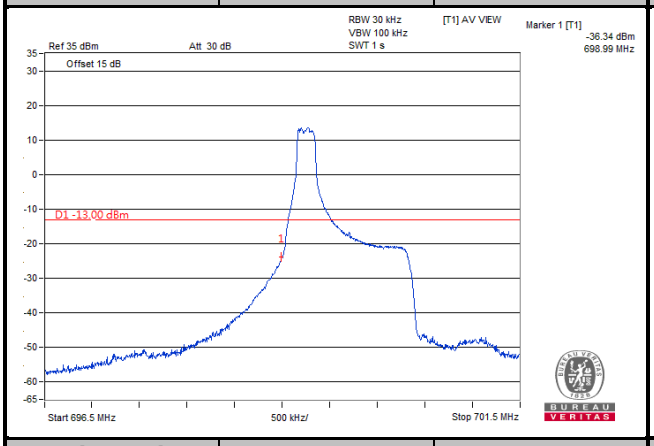
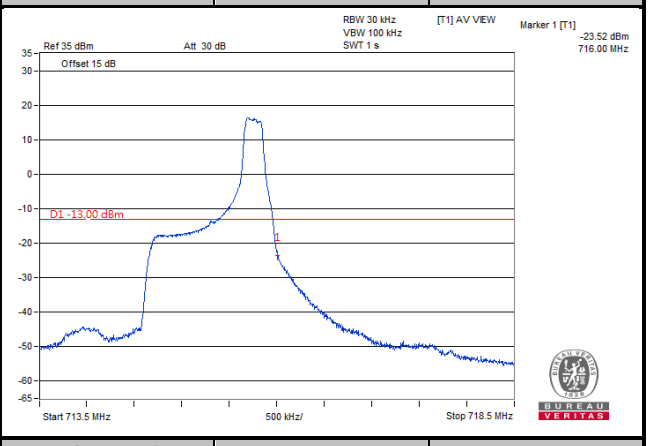
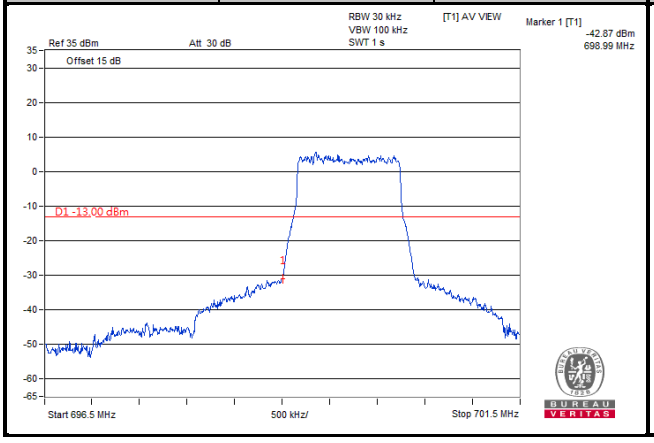
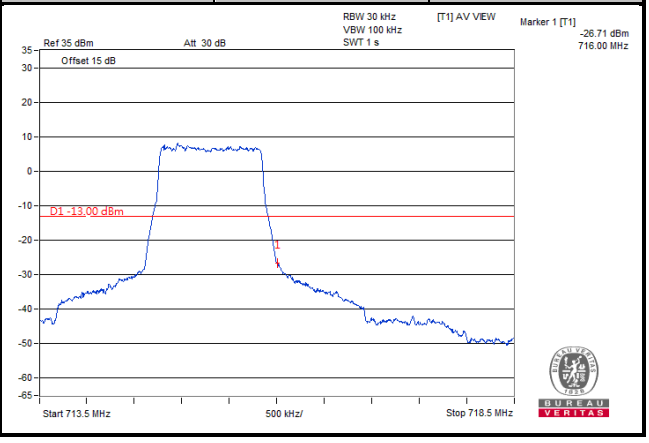
LTE Band 4					
Channel Bandwidth: 3 MHz					
Channel	19965	1 RB	Channel	20385	1 RB
					
Channel	19965	6 RB	Channel	20385	6 RB
					

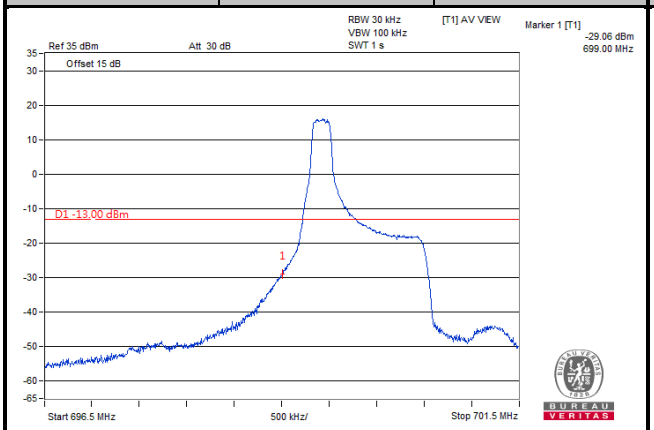
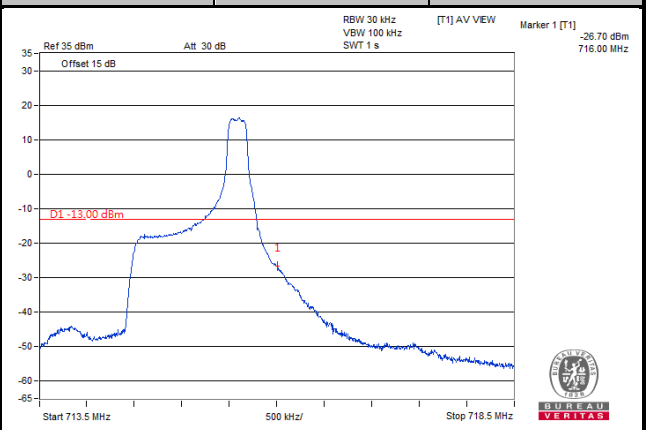
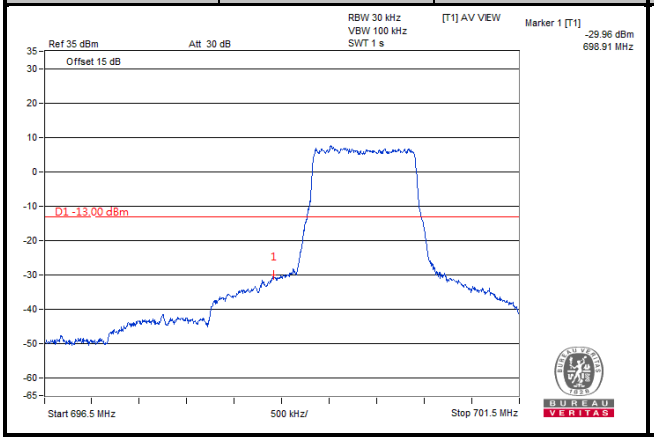
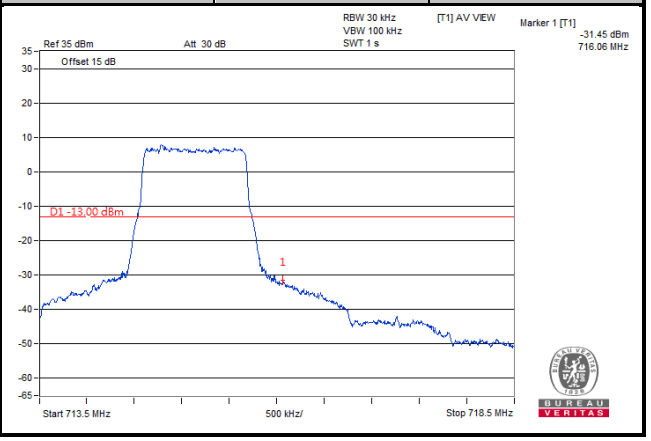
LTE Band 4					
Channel Bandwidth: 5 MHz					
Channel	19975	1 RB	Channel	20375	1 RB
					
Channel	19975	6 RB	Channel	20375	6 RB
					

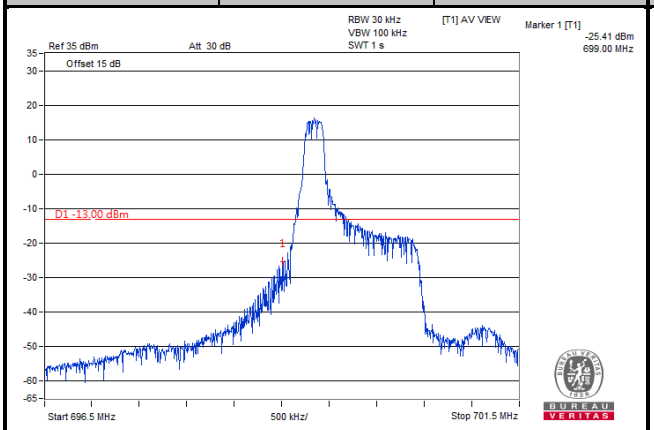
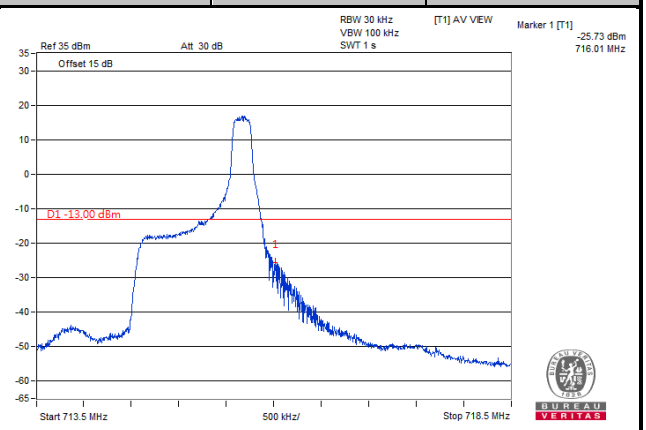
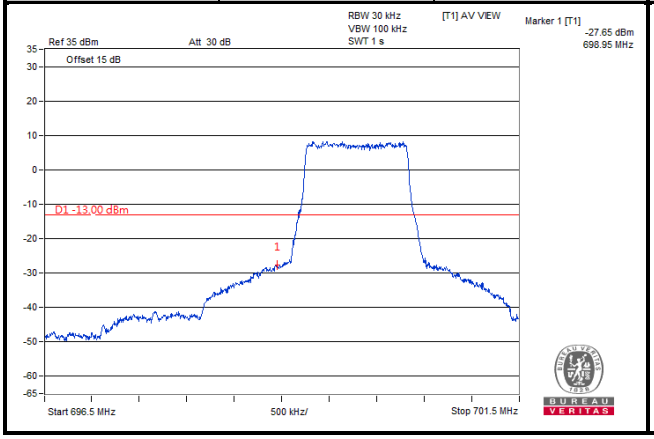
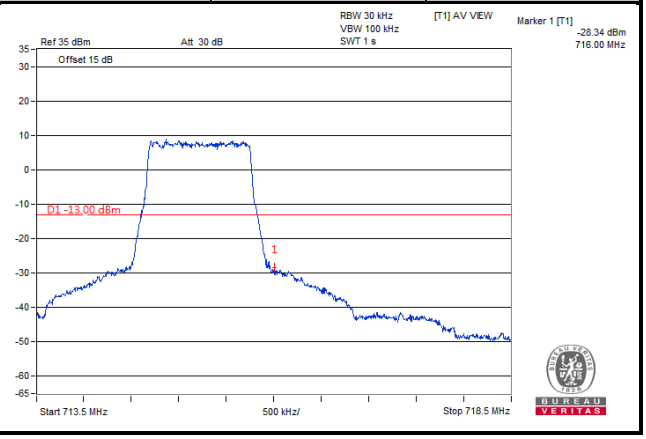
LTE Band 4					
Channel Bandwidth: 10 MHz					
Channel	20000	1 RB	Channel	20350	1 RB
					
Channel	20000	6 RB	Channel	20350	6 RB
					

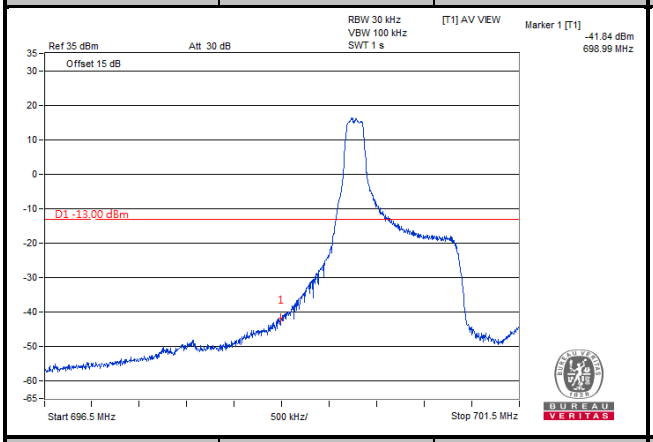
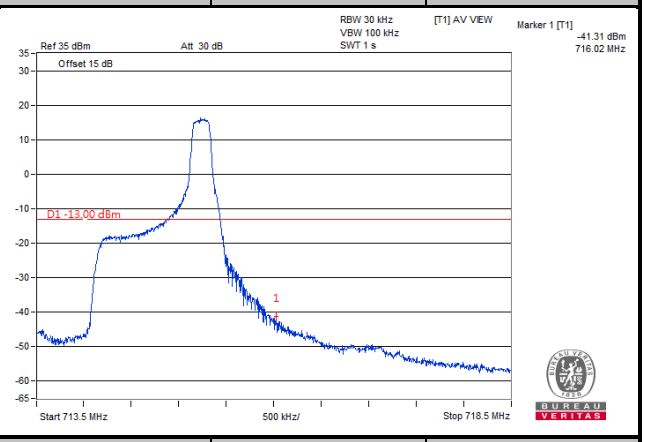
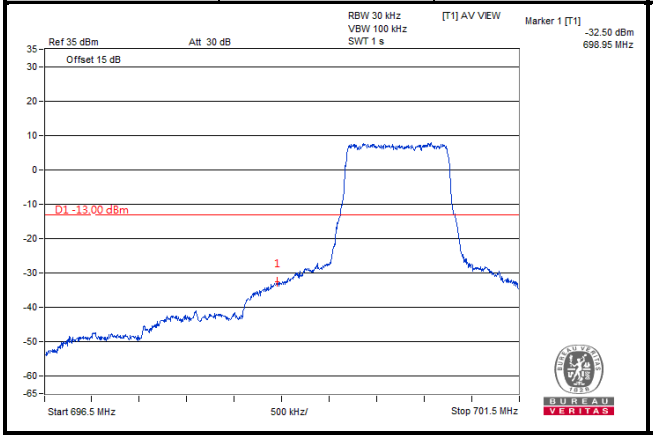
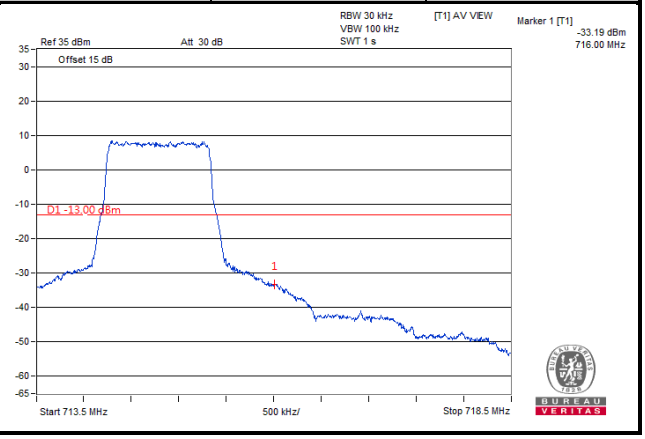
LTE Band 4					
Channel Bandwidth: 15 MHz					
Channel	20025	1 RB	Channel	20325	1 RB
					
Channel	20025	6 RB	Channel	20325	6 RB
					

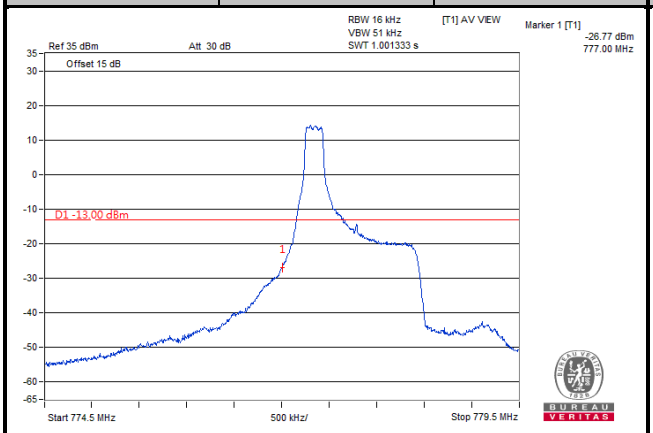
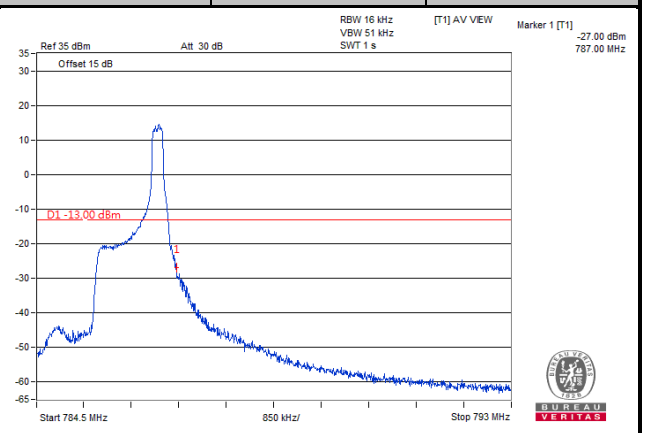
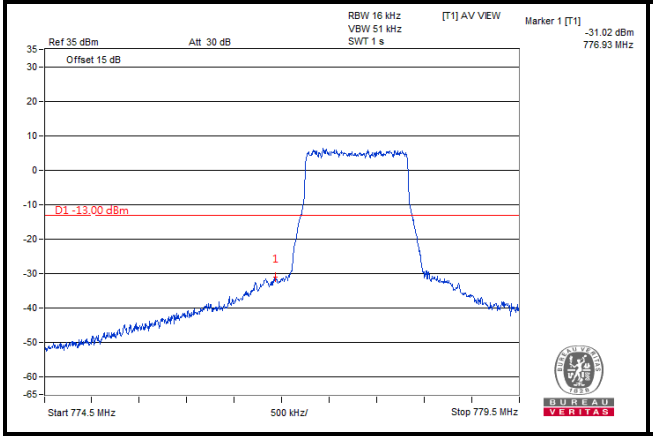
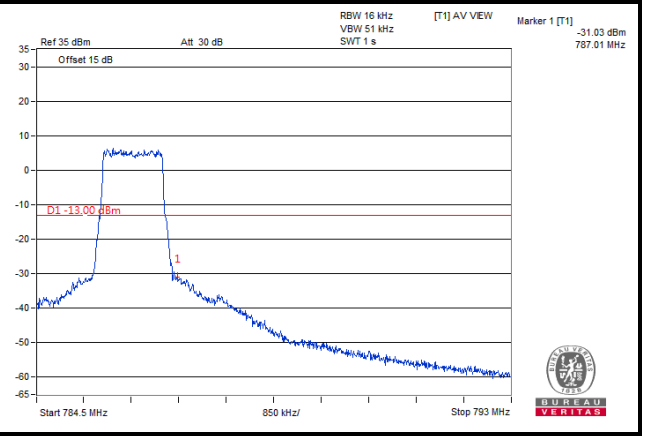
LTE Band 4					
Channel Bandwidth: 20 MHz					
Channel	20050	1 RB	Channel	20300	1 RB
					
Channel	20050	6 RB	Channel	20300	6 RB
					

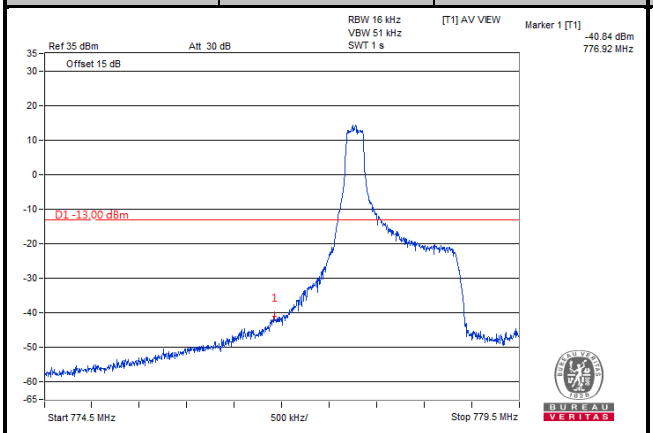
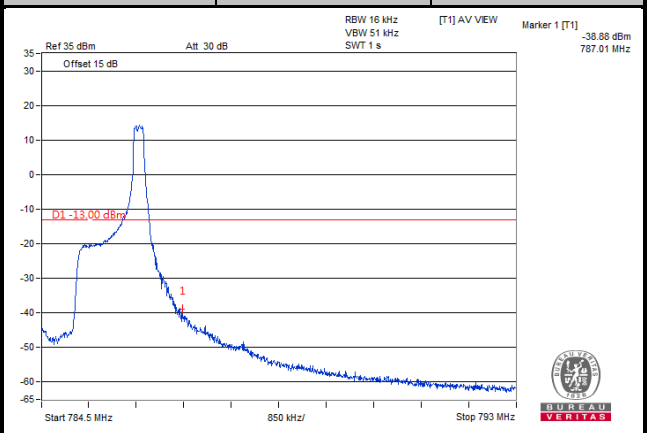
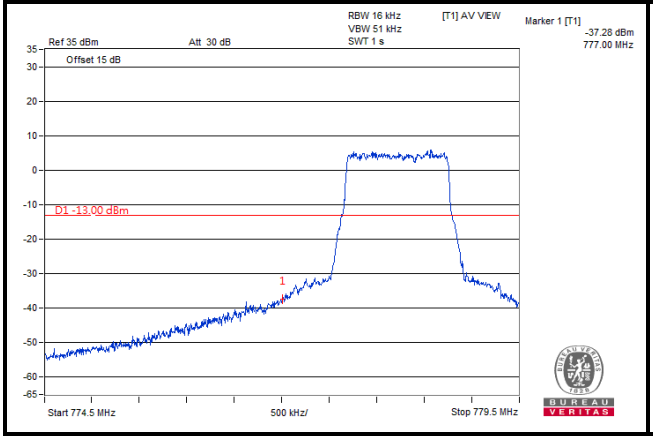
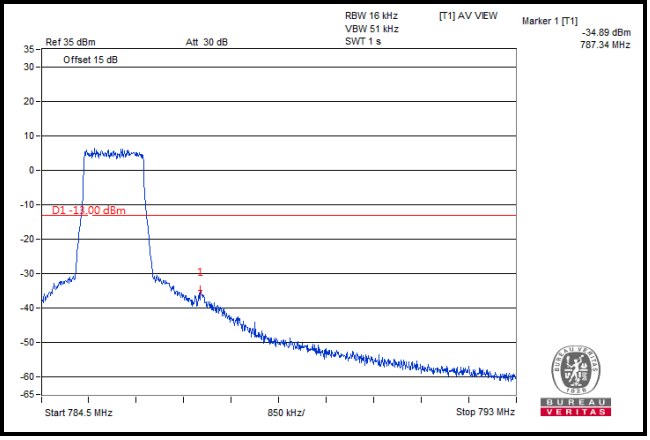
LTE Band 12					
Channel Bandwidth: 1.4 MHz					
Channel	23017	1 RB	Channel	23173	1 RB
					
Channel	23017	6 RB	Channel	23173	6 RB
					

LTE Band 12					
Channel Bandwidth: 3 MHz					
Channel	23025	1 RB	Channel	23165	1 RB
					
Channel	23025	6 RB	Channel	23165	6 RB
					

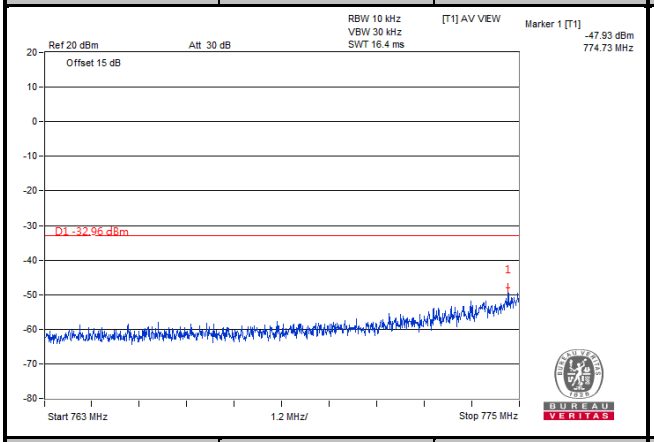
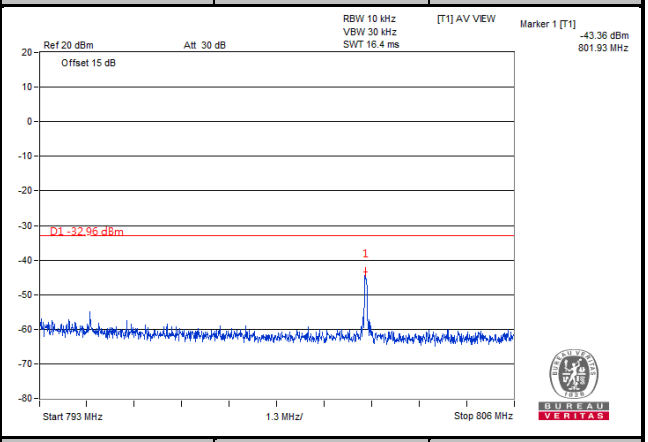
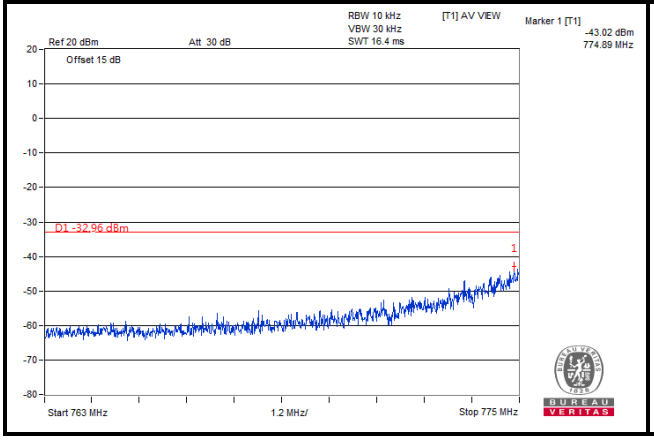
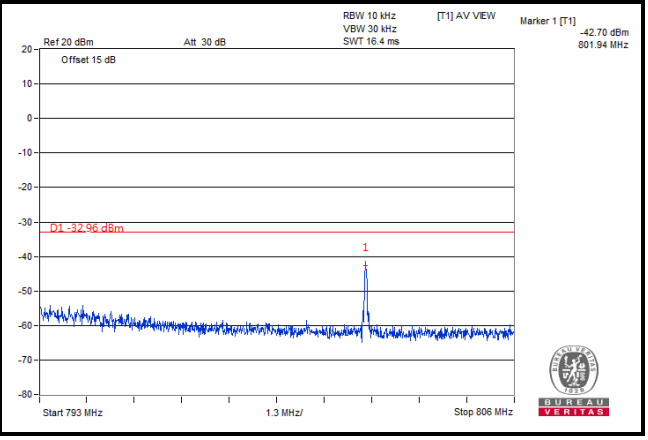
LTE Band 12					
Channel Bandwidth: 5 MHz					
Channel	23035	1 RB	Channel	23155	1 RB
					
Channel	23035	6 RB	Channel	23155	6 RB
					

LTE Band 12					
Channel Bandwidth: 10 MHz					
Channel	23060	1 RB	Channel	23130	1 RB
					
Channel	23060	6 RB	Channel	23130	6 RB
					

LTE Band 13					
Channel Bandwidth: 5 MHz					
Channel	23205	1 RB	Channel	23255	1 RB
					
Channel	23205	6 RB	Channel	23255	6 RB
					

LTE Band 13					
Channel Bandwidth: 10 MHz					
Channel	23230	1 RB	Channel	23230	1 RB
					
Channel	23230	6 RB	Channel	23230	6 RB
					

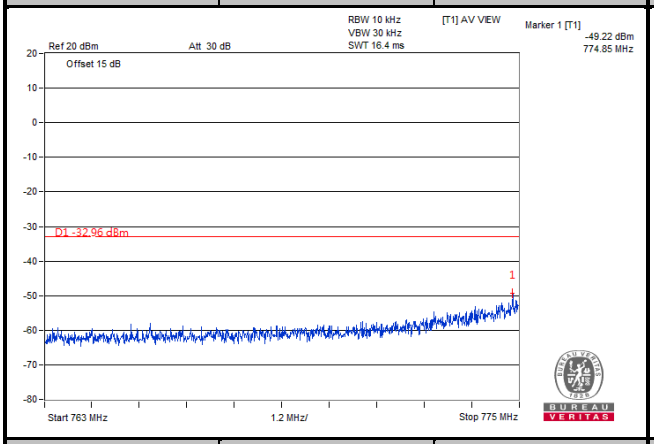
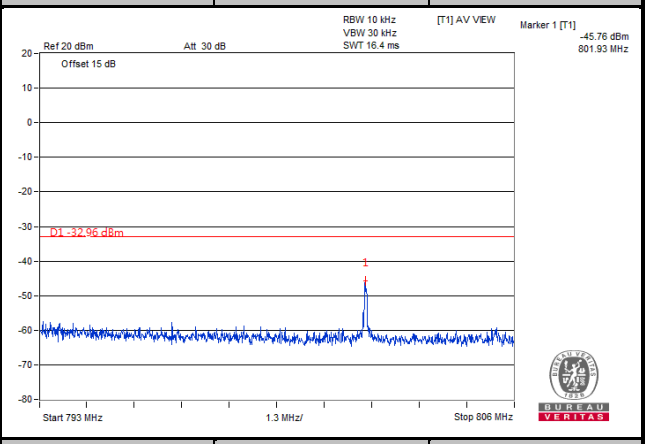
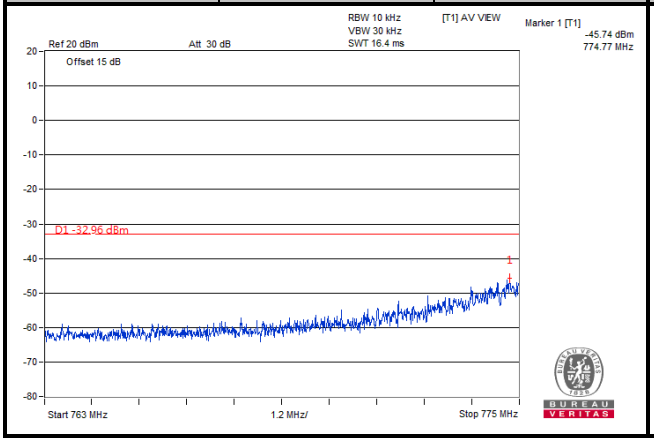
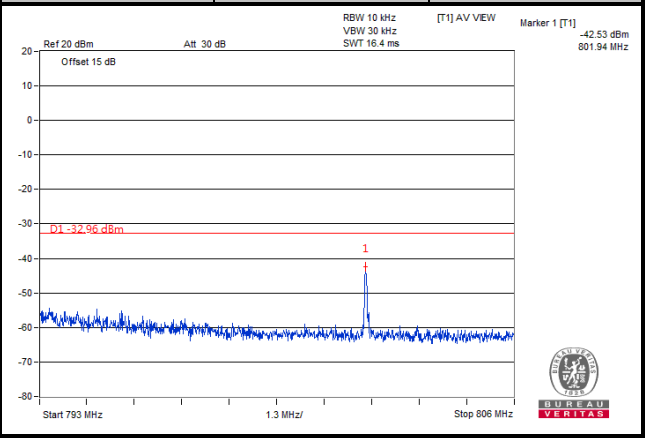
Emission Mask

LTE Band 13					
Channel Bandwidth: 5 MHz					
Channel	23205	1 RB	Channel	23255	1 RB
					
Channel	23205	6 RB	Channel	23255	6 RB
					

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

10log(10kHz/6.25kHz) = 2.04 dB

Limit line = -35 dBm + 2.04 dB = -32.96 dBm

LTE Band 13					
Channel Bandwidth: 10 MHz					
Channel	23230	1 RB	Channel	23230	1 RB
					
Channel	23230	6 RB	Channel	23230	6 RB
					

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

10log(10kHz/6.25kHz) = 2.04 dB

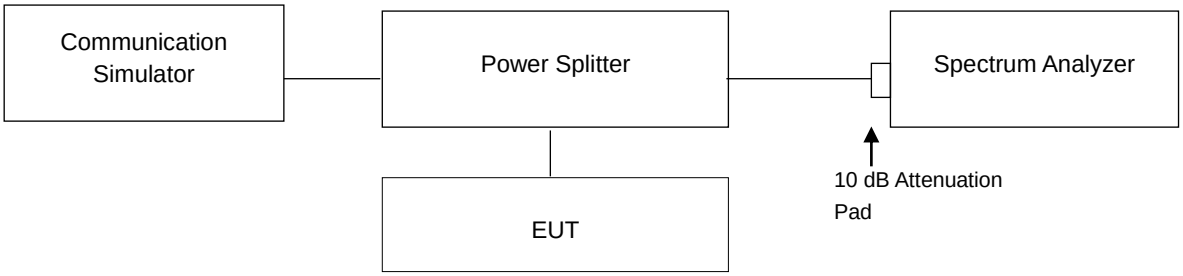
Limit line = -35 dBm + 2.04 dB =-32.96 dBm

4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup

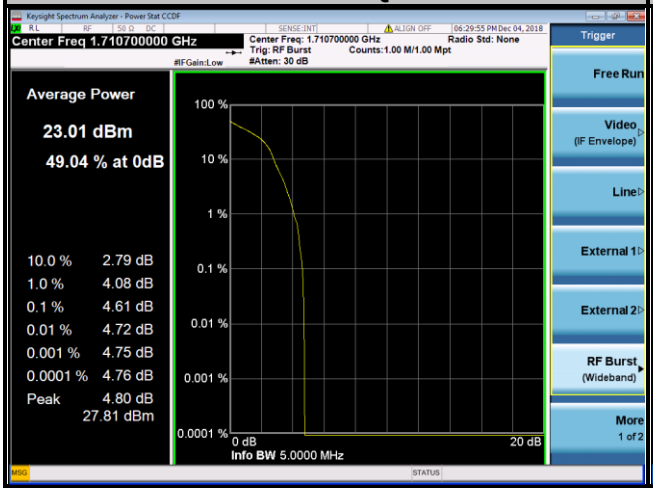
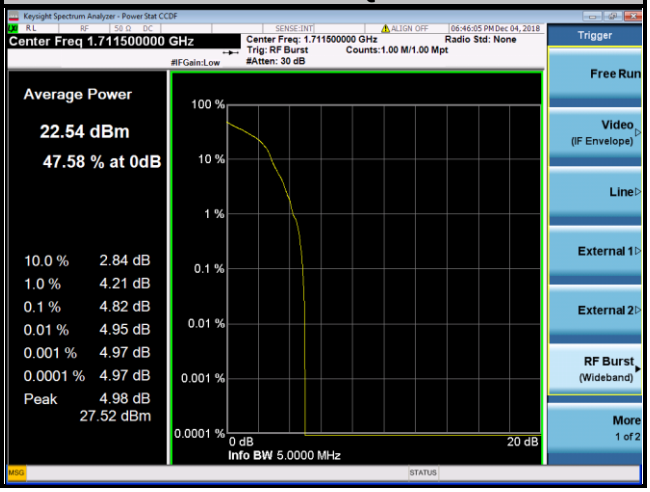


4.6.3 Test Procedures

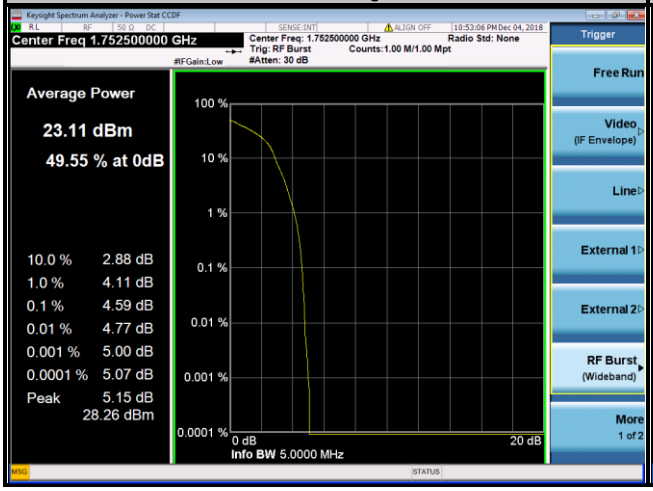
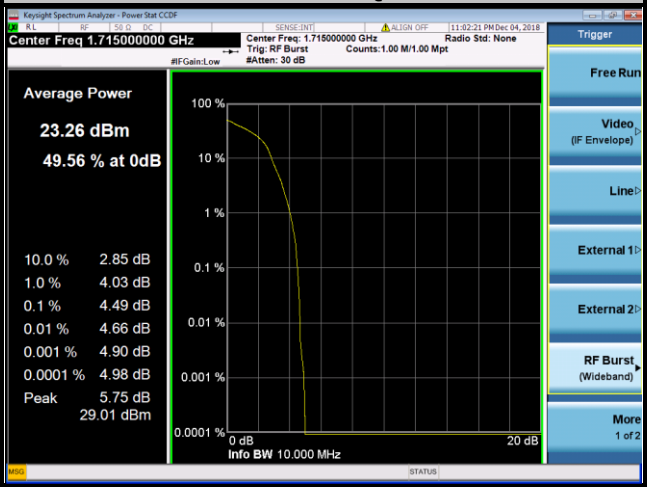
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

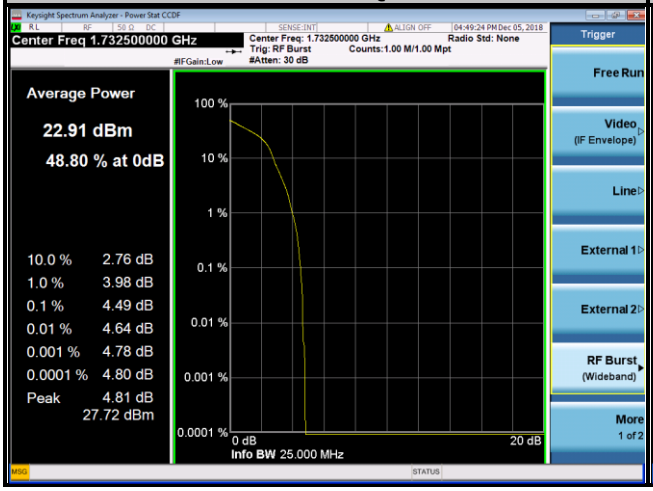
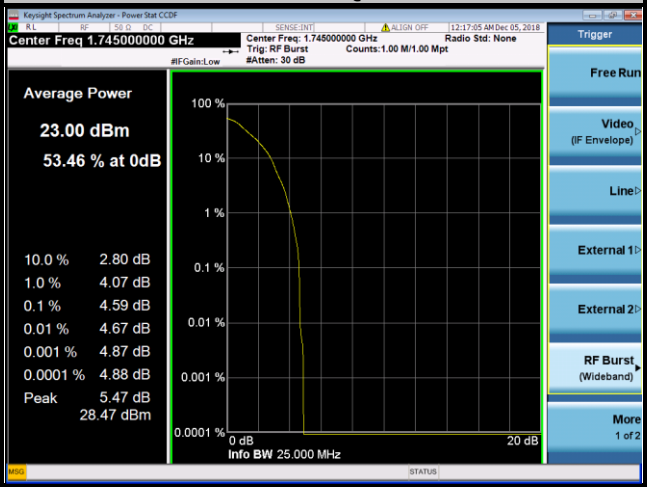
LTE Band 4							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	3.87	4.61	19965	1711.5	4.10	4.82
20175	1732.5	3.69	4.40	20175	1732.5	4.05	4.77
20393	1754.3	3.96	4.44	20385	1753.5	3.97	4.73

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

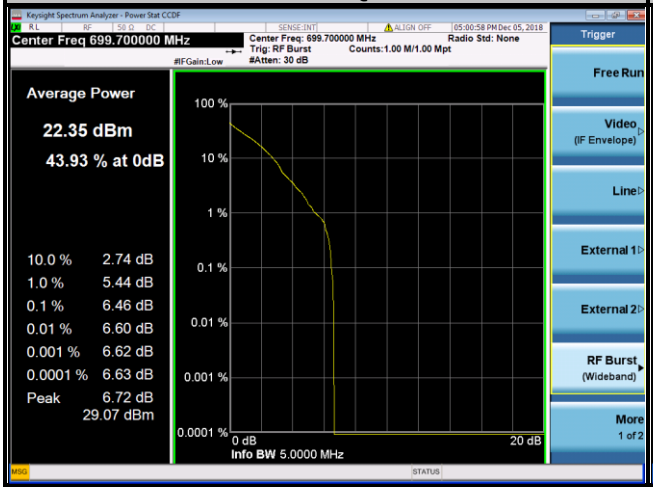
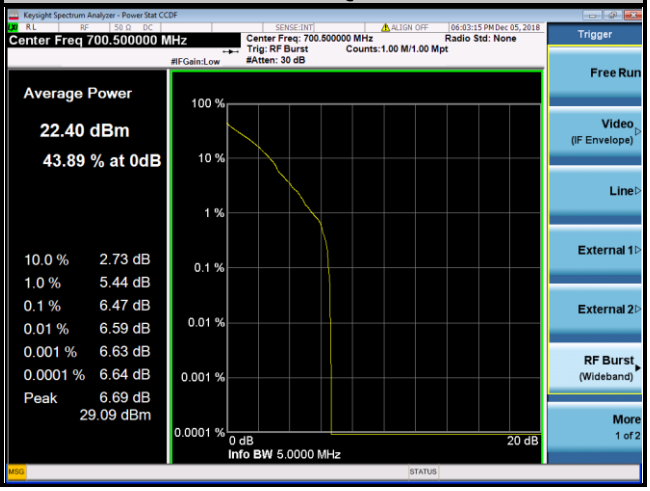
LTE Band 4							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	4.12	4.38	20000	1715.0	4.35	4.49
20175	1732.5	4.12	4.31	20175	1732.5	4.14	4.34
20375	1752.5	4.19	4.59	20350	1750.0	4.18	4.30

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

LTE Band 4							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	4.13	4.45	20050	1720.0	4.50	4.26
20175	1732.5	4.08	4.49	20175	1732.5	3.99	4.27
20325	1747.5	4.02	4.27	20300	1745.0	4.59	4.29

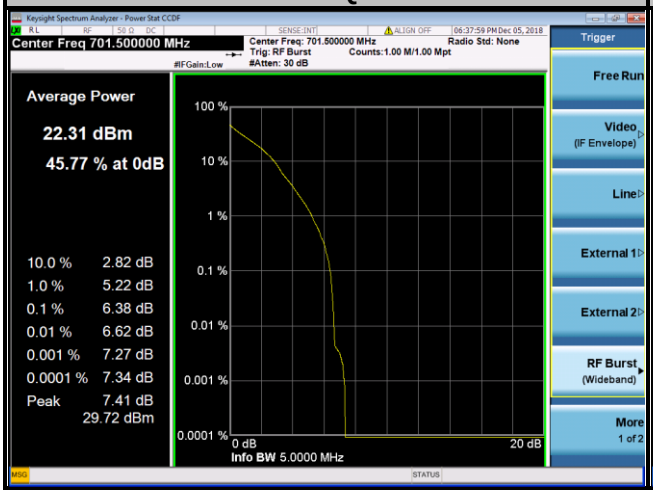
Spectrum Plot of Worst Value	
15 MHz / 16QAM	20 MHz / QPSK
	

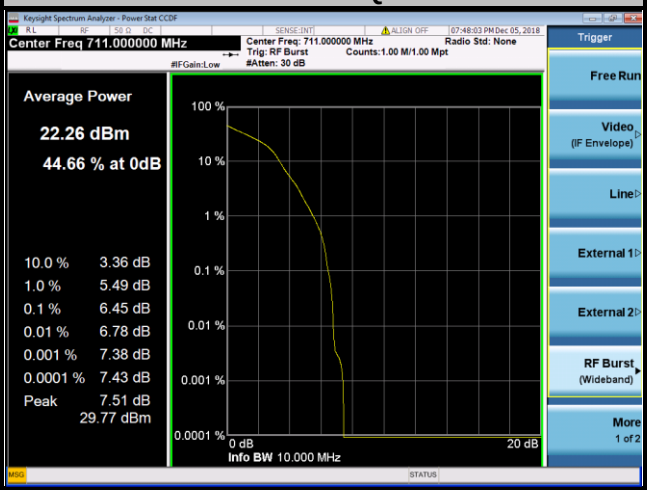
LTE Band 12							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23017	699.7	6.46	6.11	23025	700.5	6.47	6.13
23095	707.5	6.34	5.99	23095	707.5	6.39	6.09
23173	715.3	6.13	5.96	23165	714.5	6.39	6.07

Spectrum Plot of Worst Value	
1.4 MHz / QPSK	3 MHz / QPSK
	

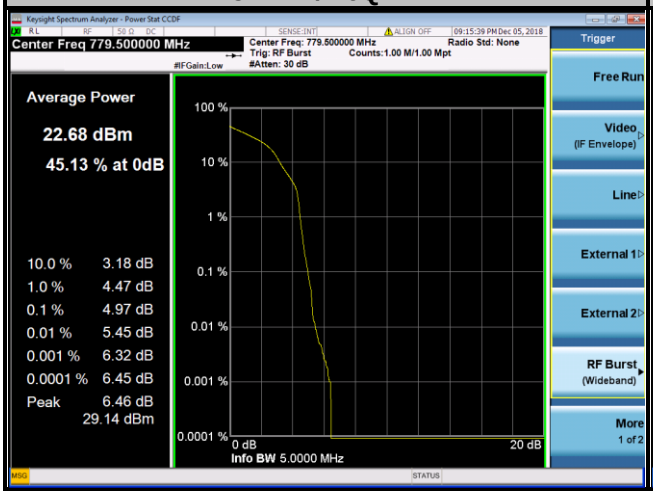
LTE Band 12							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23035	701.5	6.38	6.28	23060	704.0	6.44	6.40
23095	707.5	6.22	6.32	23095	707.5	6.30	6.31
23155	713.5	6.38	6.15	23130	711.0	6.15	6.45

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





LTE Band 13							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23205	779.5	4.86	4.97	23230	782.0	4.92	4.83
23230	782.0	4.80	4.89				
23255	784.5	4.74	4.83				

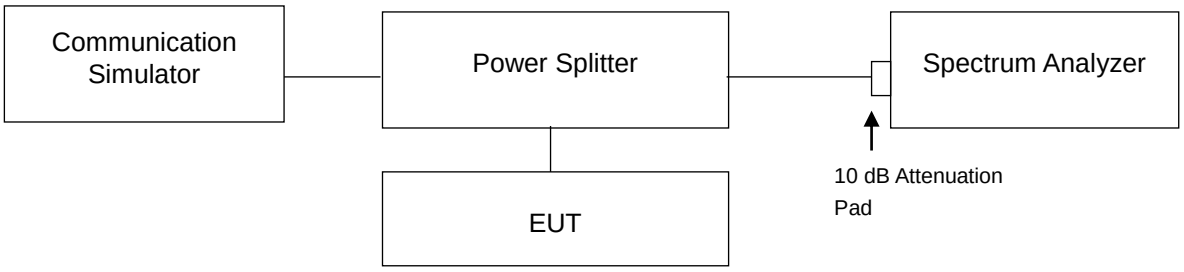
Spectrum Plot of Worst Value	
5 MHz / 16QAM	10 MHz / QPSK
	

4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission is equal to -13 dBm.

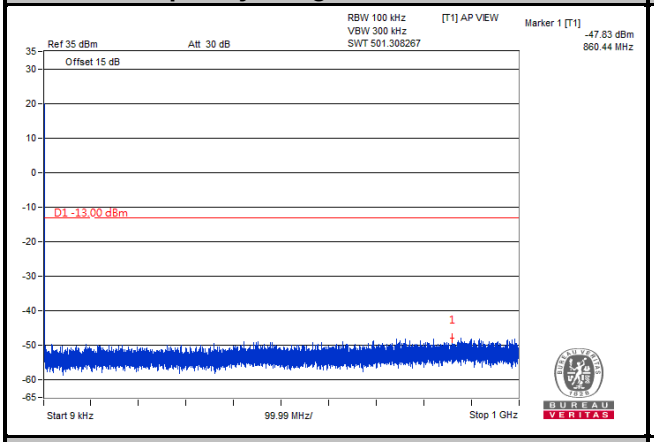
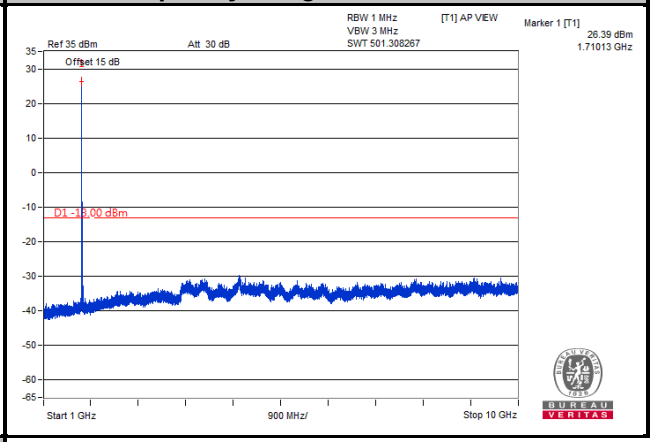
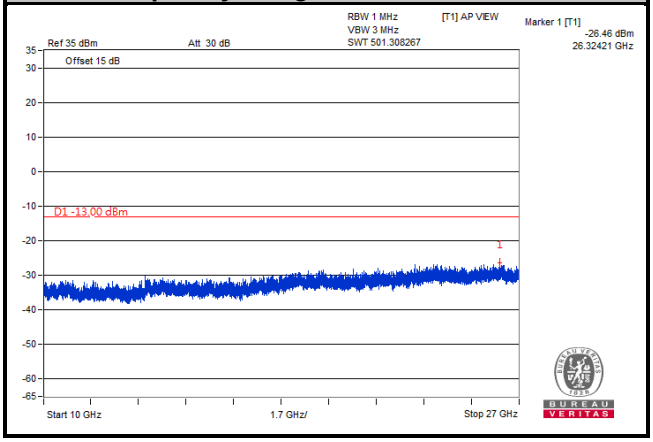
4.7.2 Test Setup



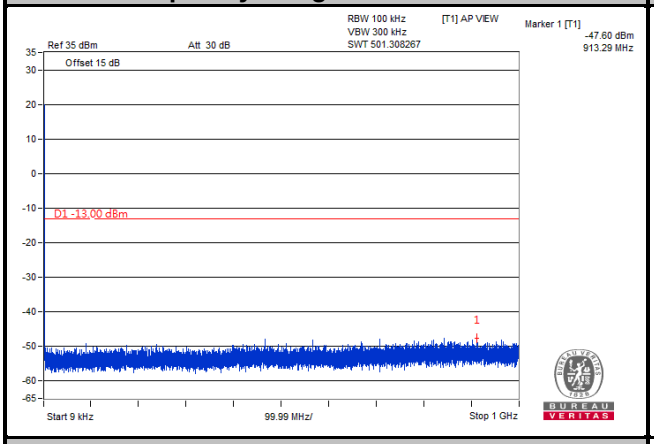
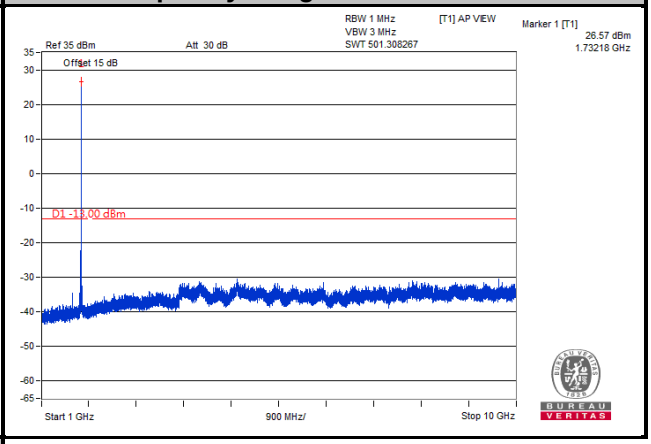
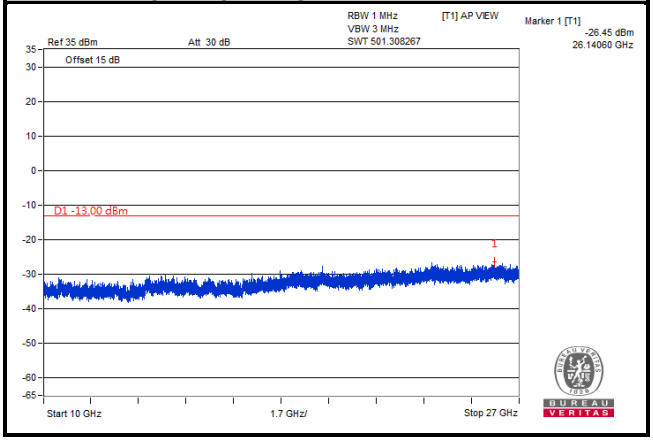
4.7.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz is used for conducted emission measurement.
c. Measuring frequency range is from 1 GHz to 10 GHz / 27 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

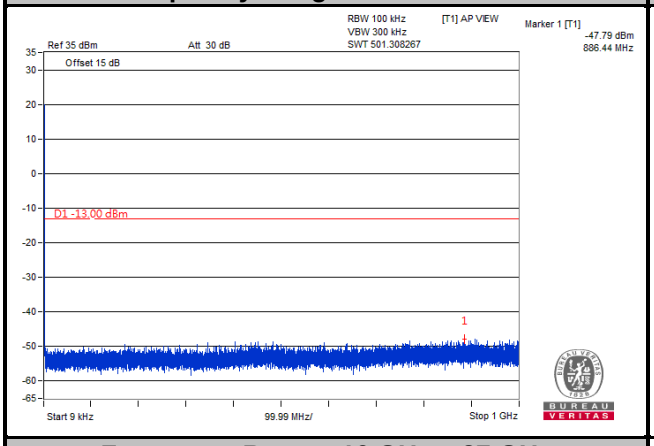
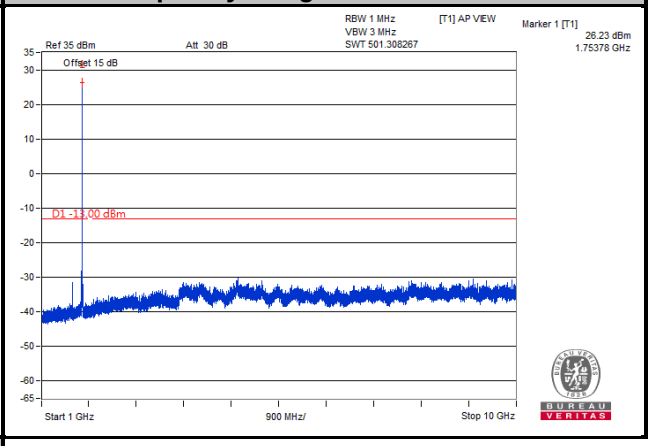
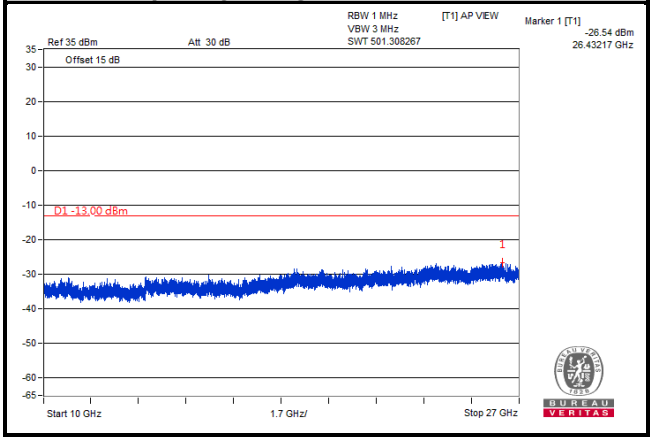
4.7.4 Test Results

LTE Band 4	
Channel Bandwidth: 1.4 MHz	
Channel 19957	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

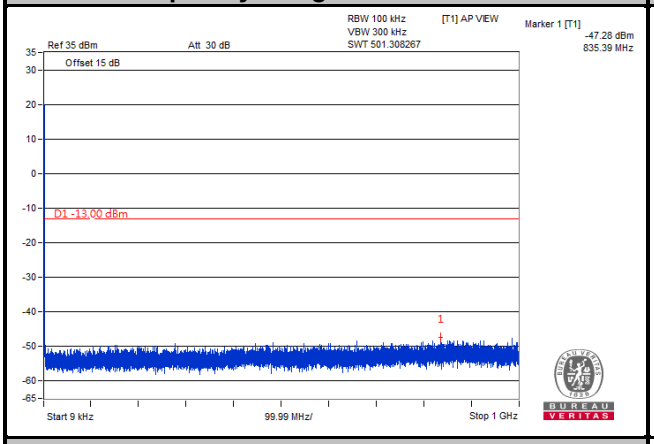
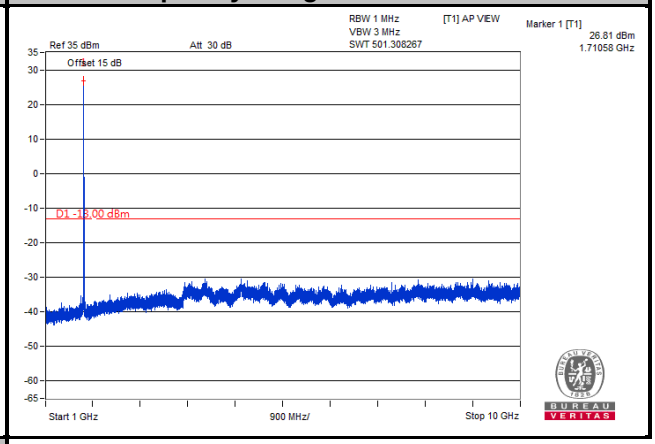
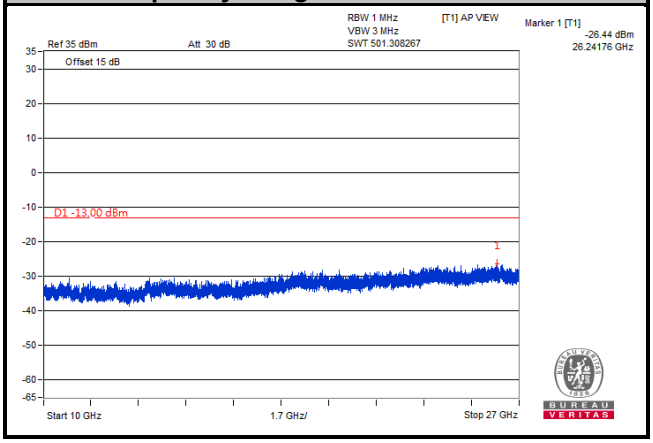
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 1.4 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

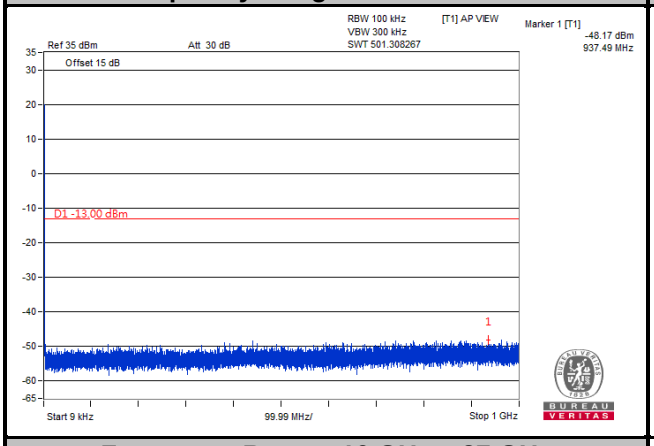
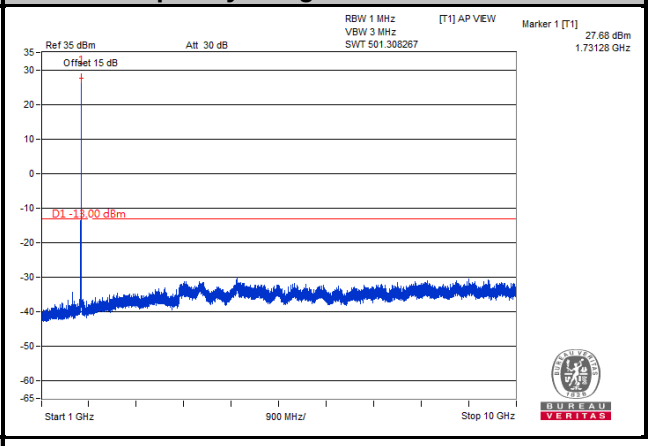
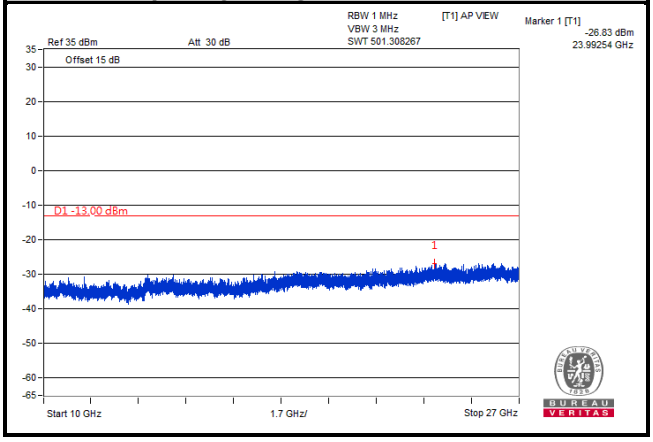
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 1.4 MHz	
Channel 20393	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

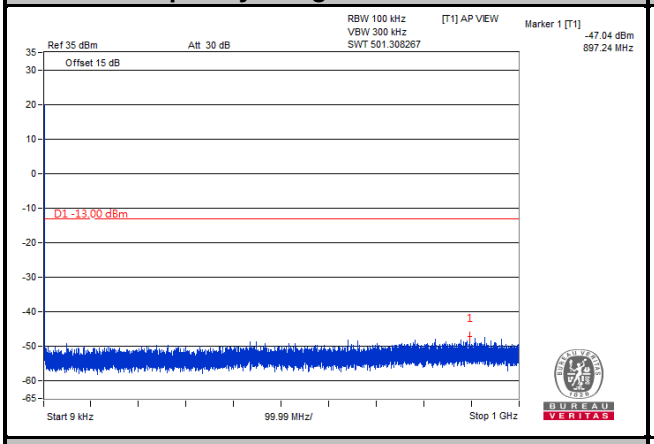
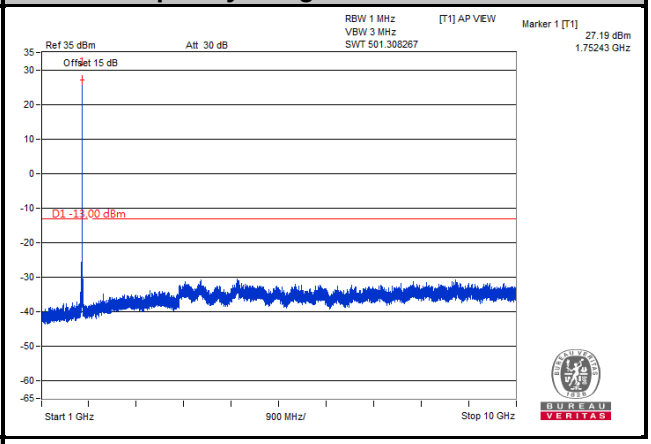
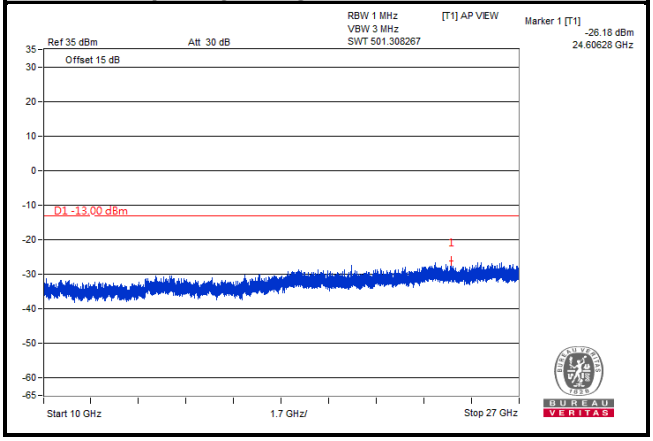
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 3 MHz	
Channel 19965	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

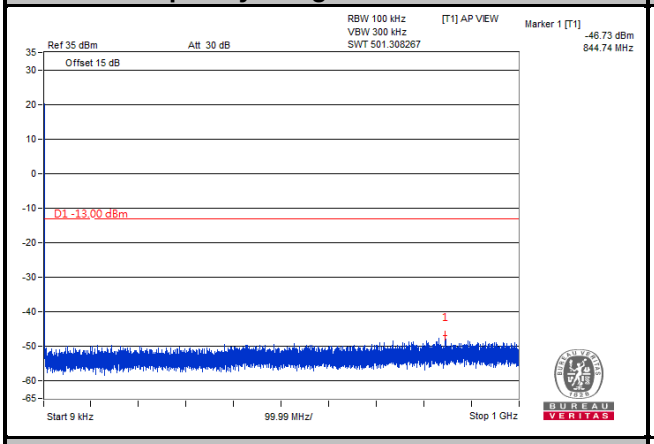
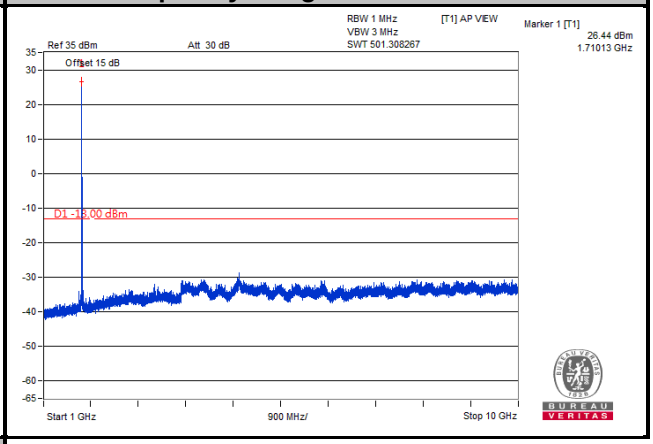
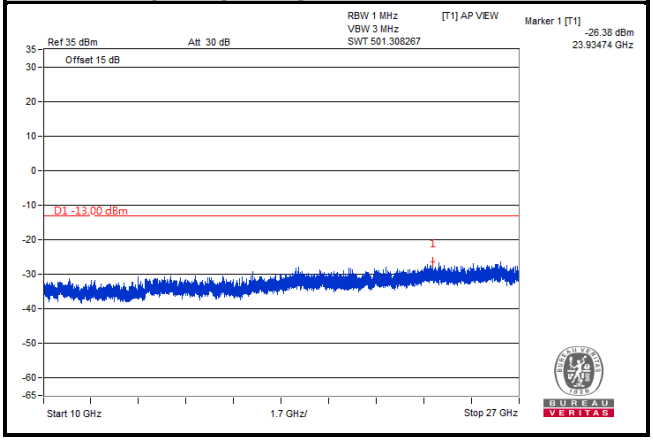
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 3 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

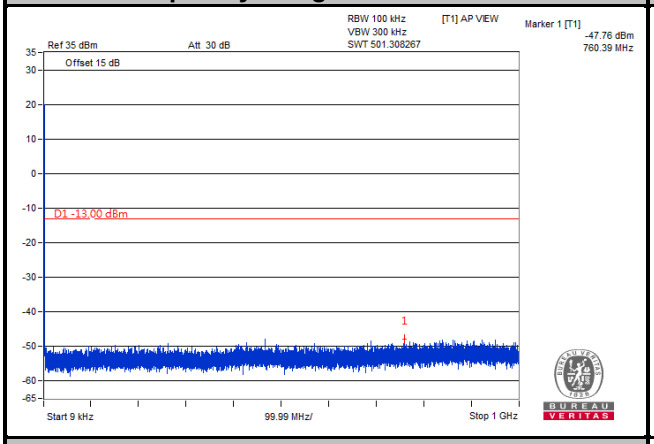
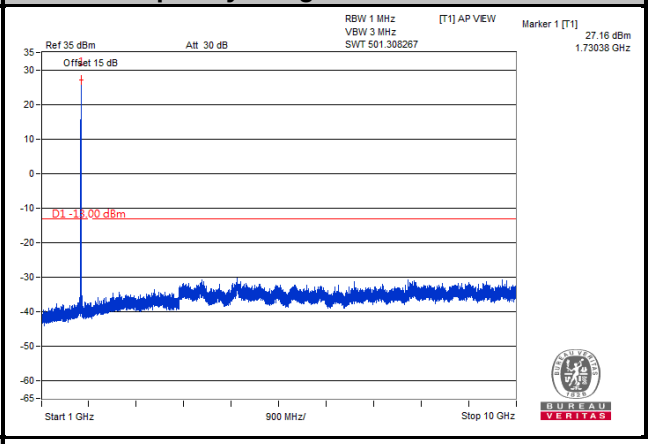
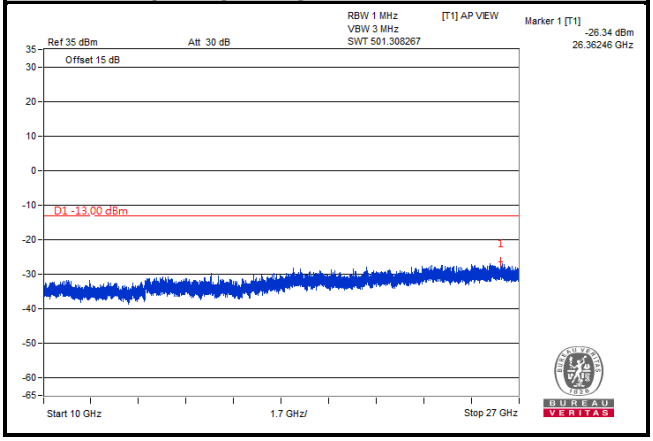
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 3 MHz	
Channel 20385	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

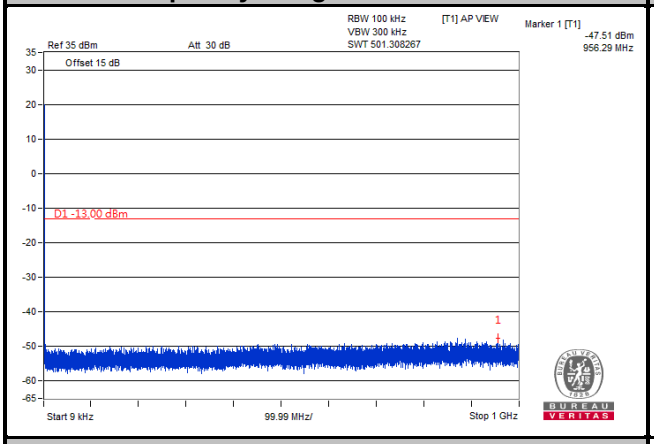
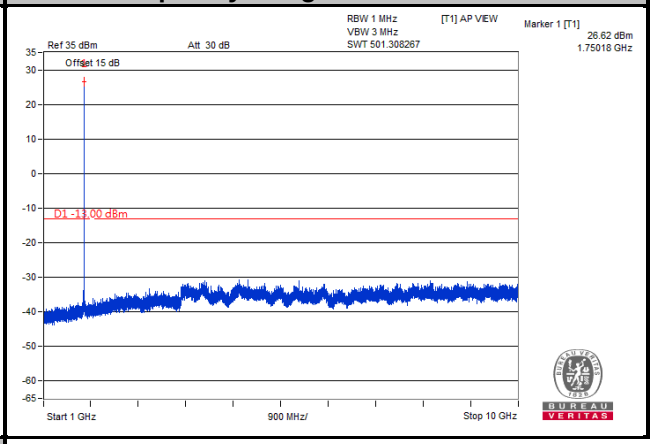
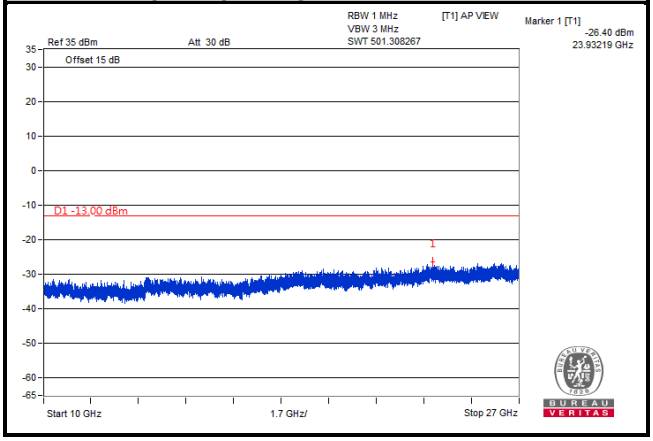
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 5 MHz	
Channel 19975	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

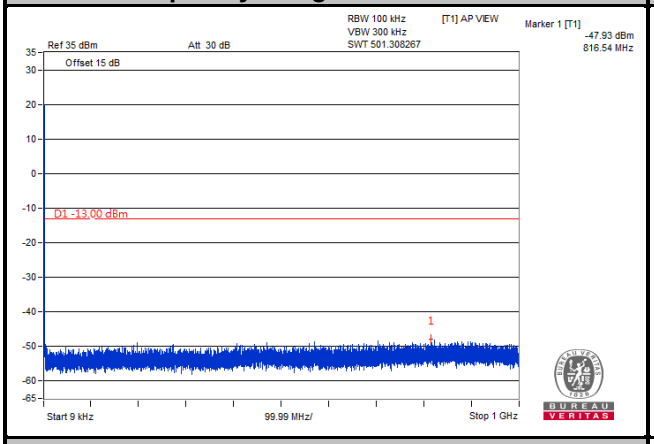
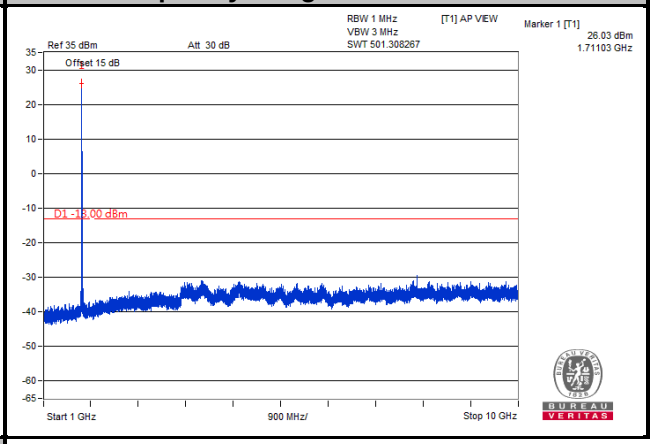
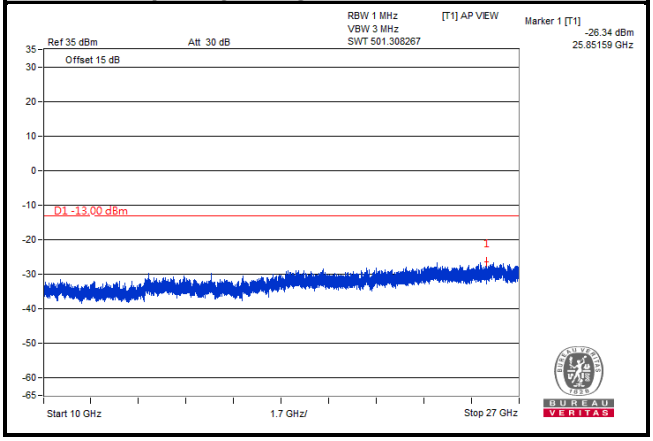
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 5 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

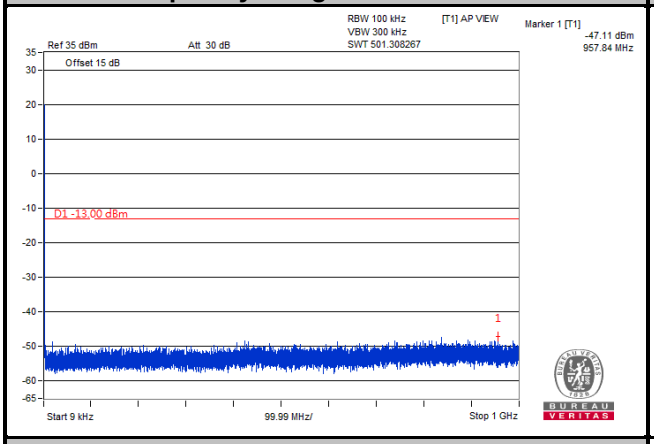
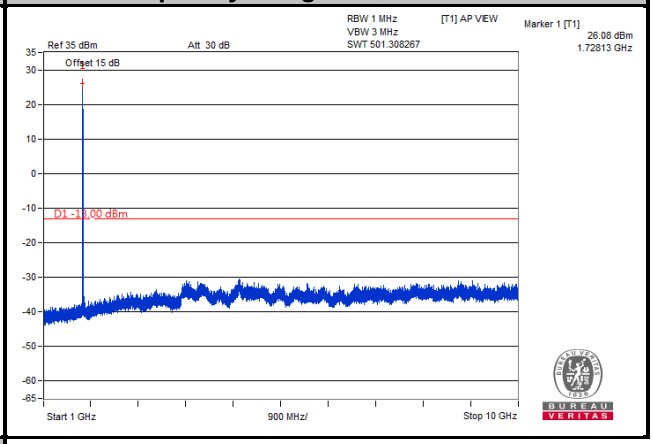
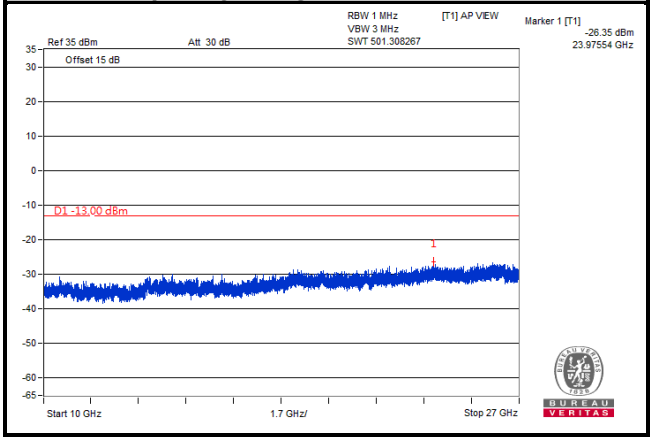
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 5 MHz	
Channel 20375	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

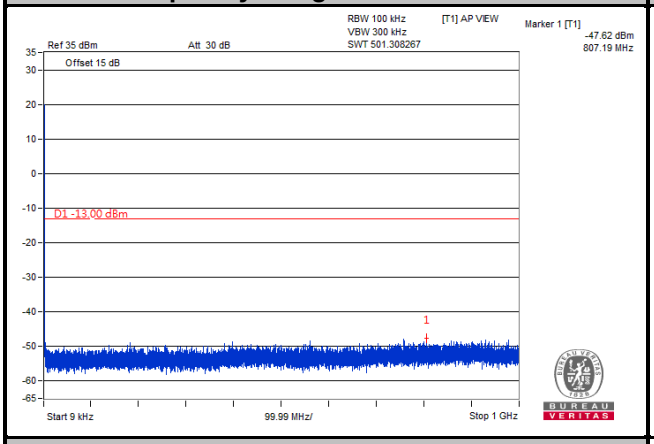
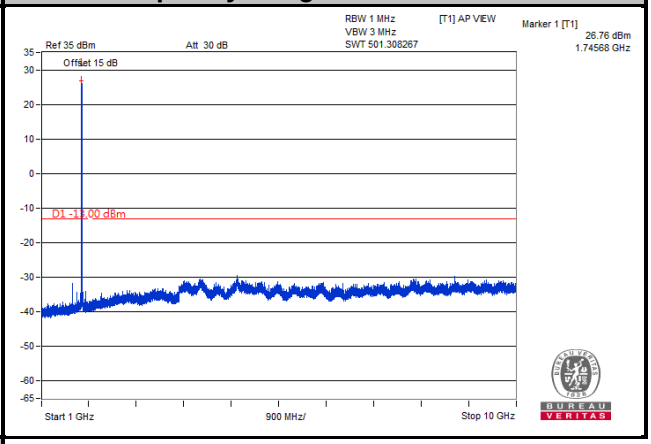
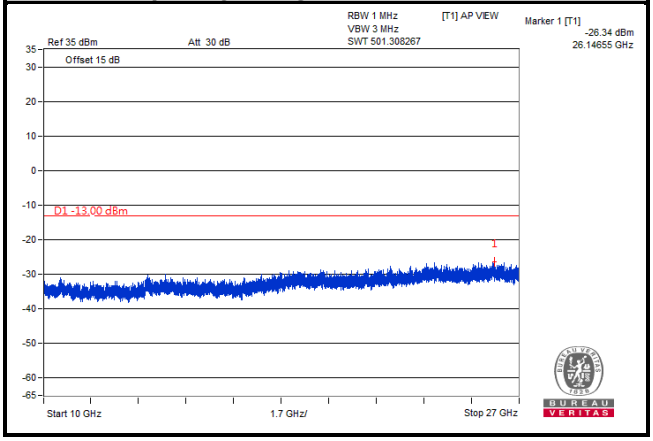
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 10 MHz	
Channel 20000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

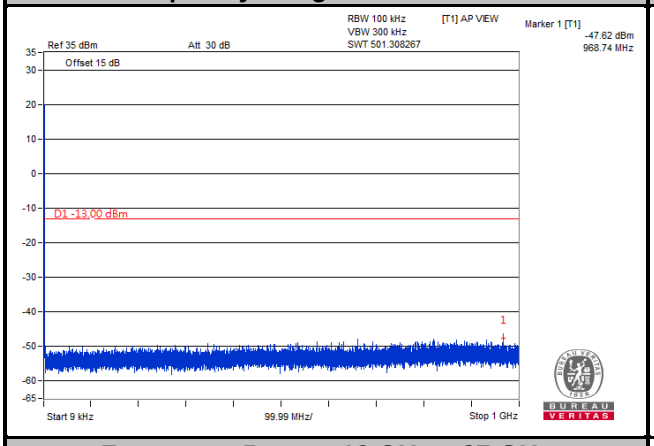
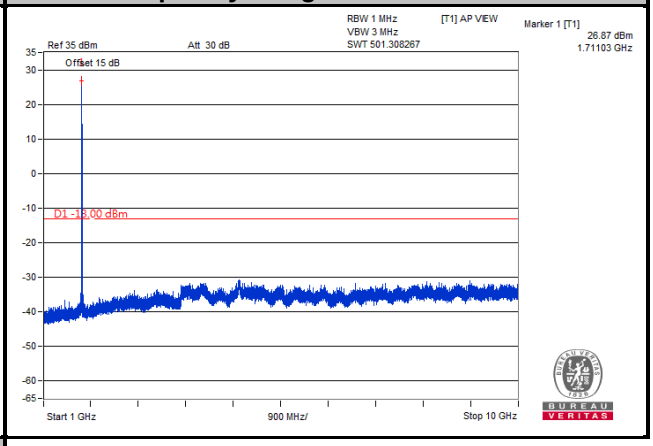
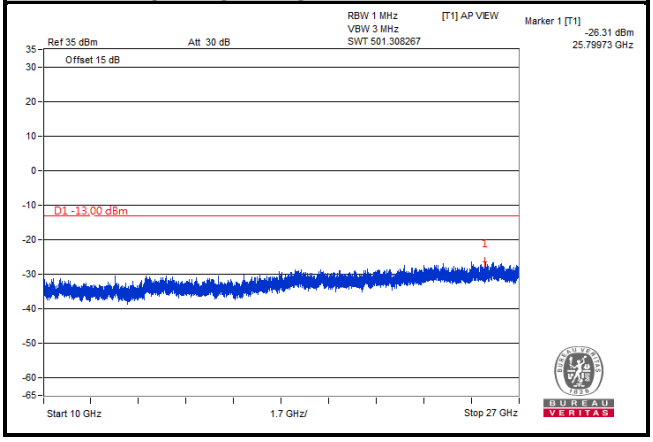
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 10 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

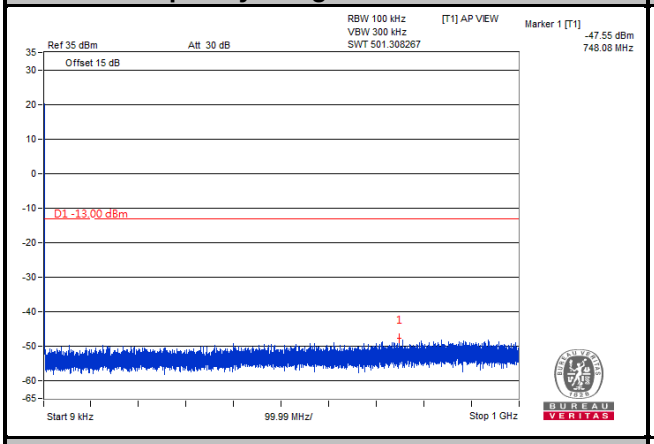
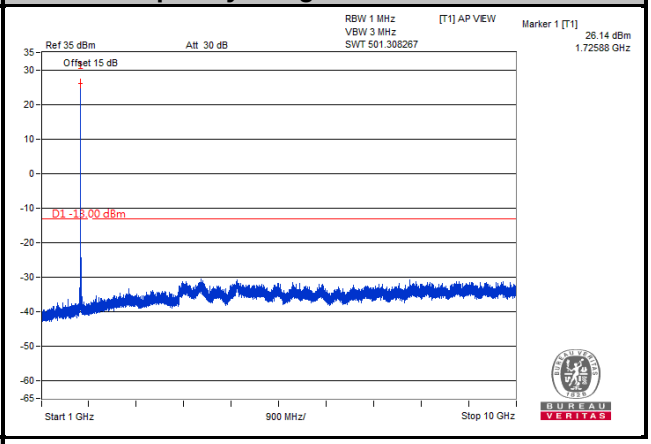
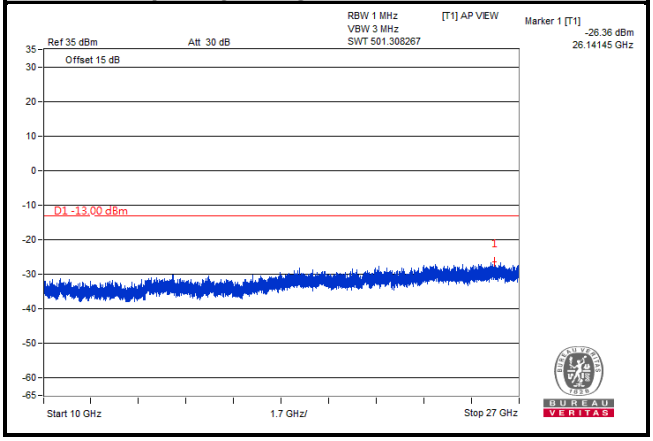
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 10 MHz	
Channel 20350	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

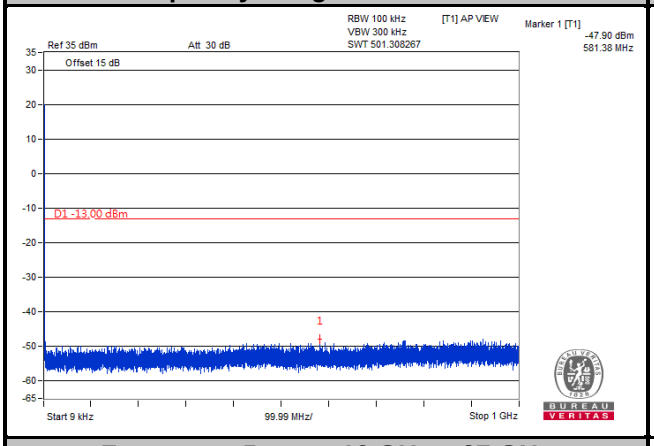
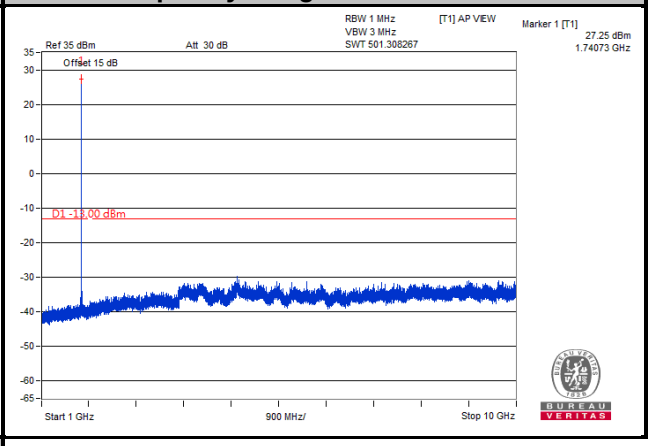
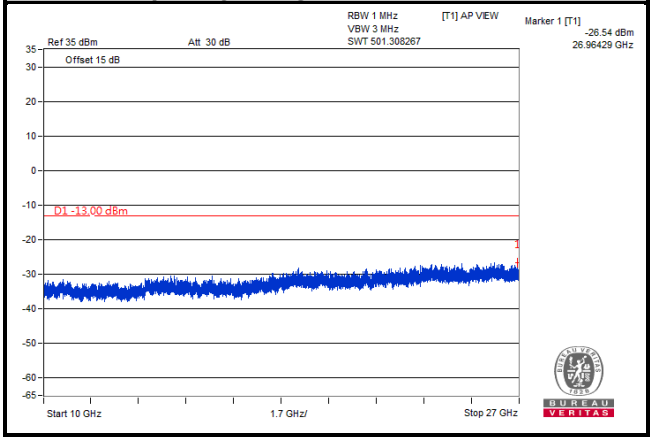
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 15 MHz	
Channel 20025	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

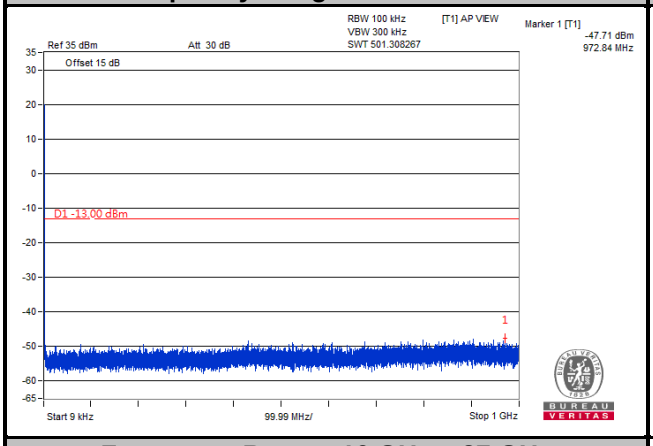
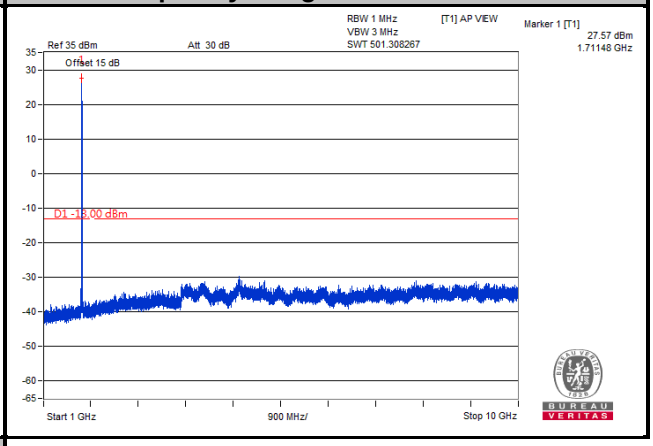
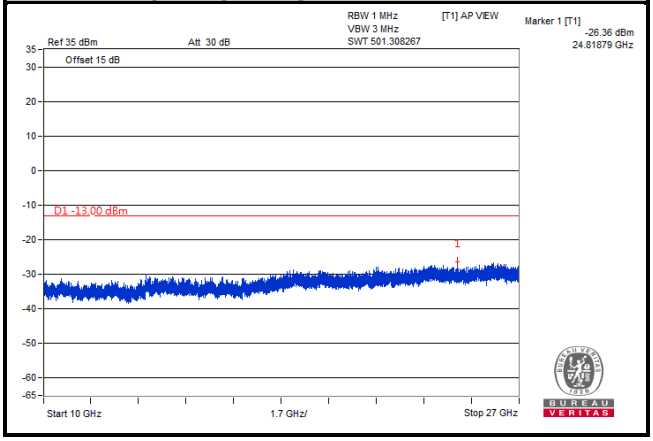
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 15 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

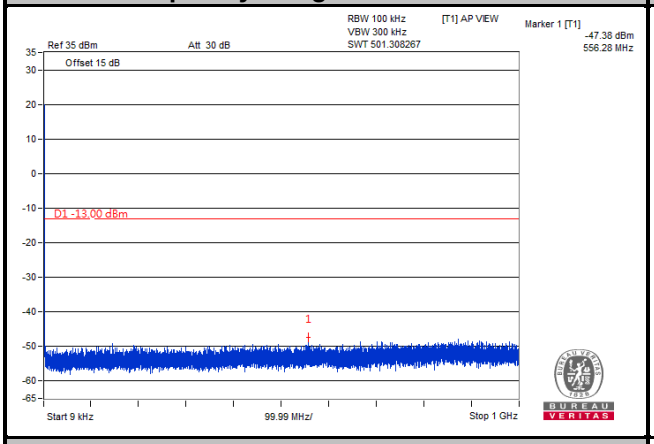
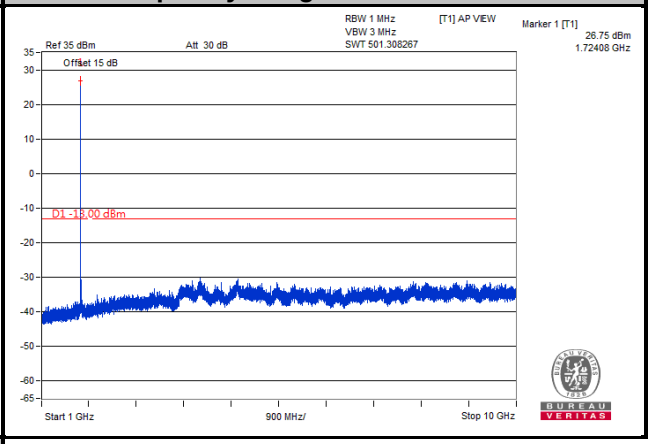
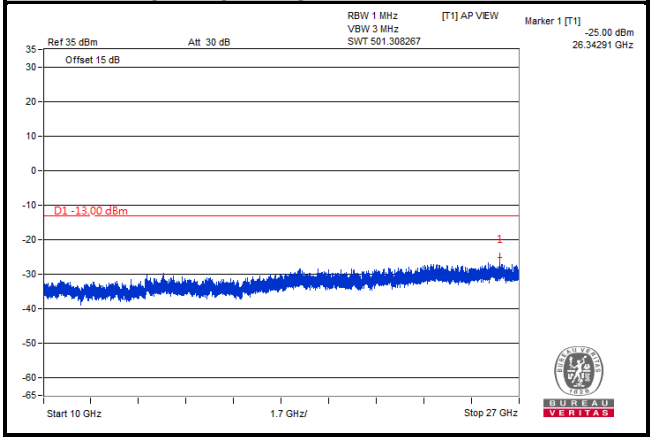
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 15 MHz	
Channel 20325	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

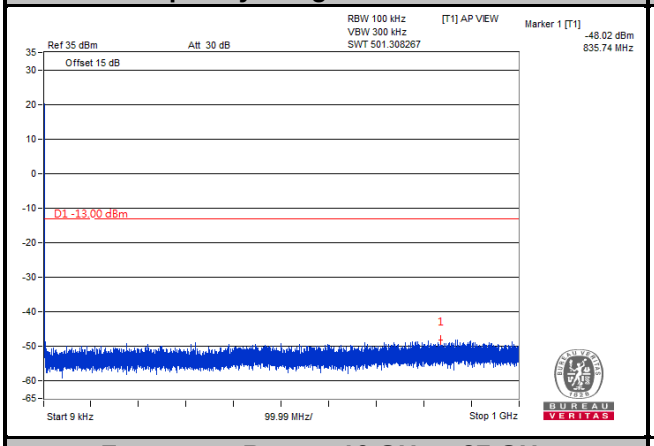
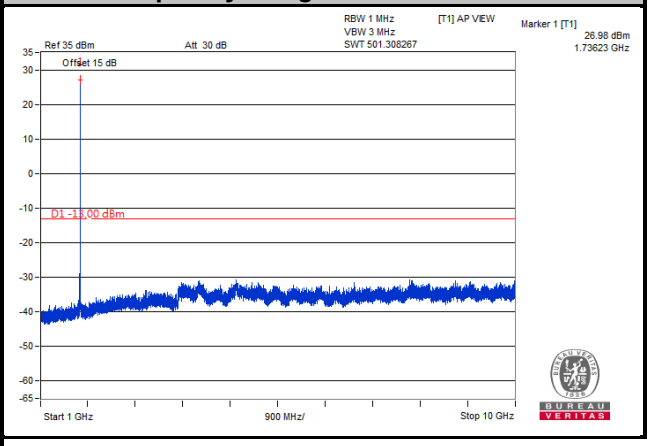
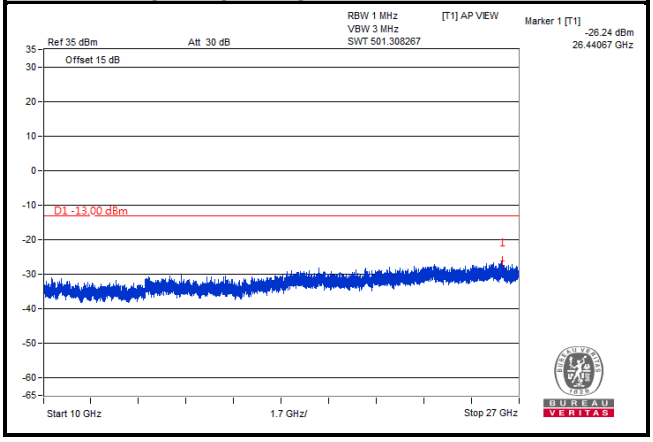
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 20 MHz	
Channel 20050	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

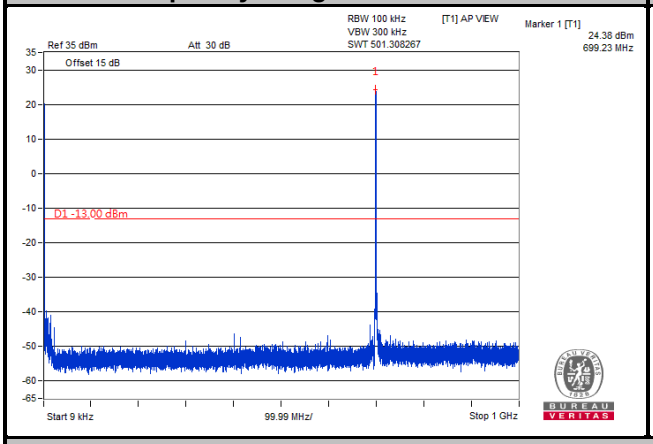
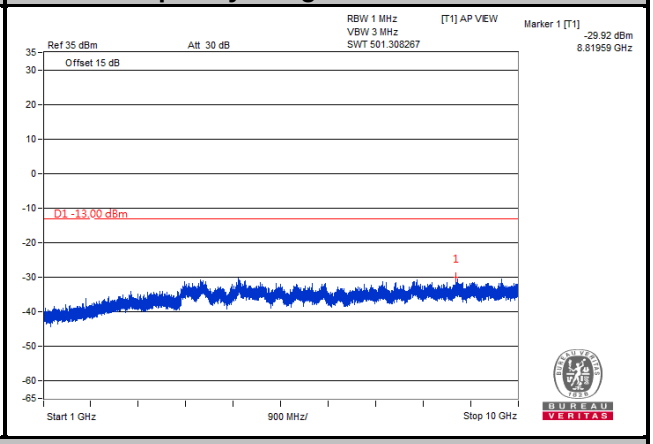
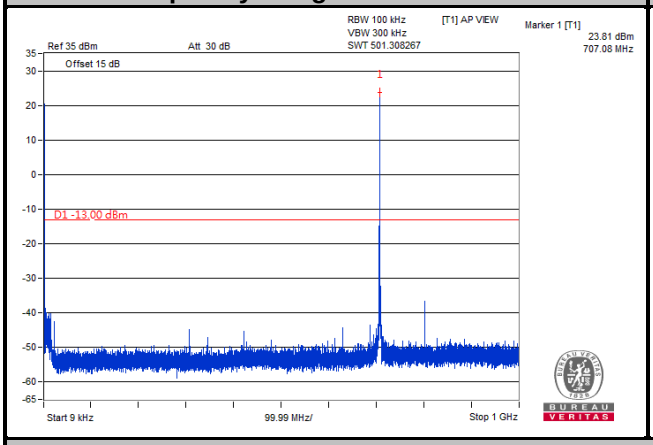
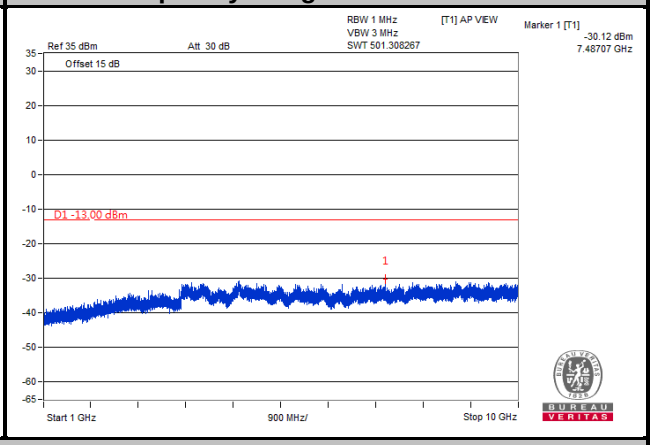
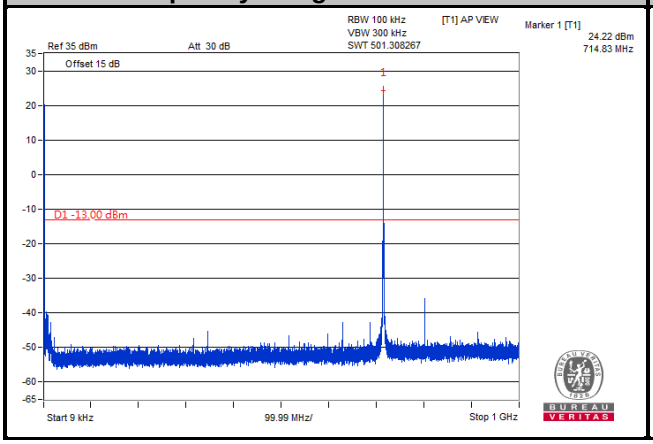
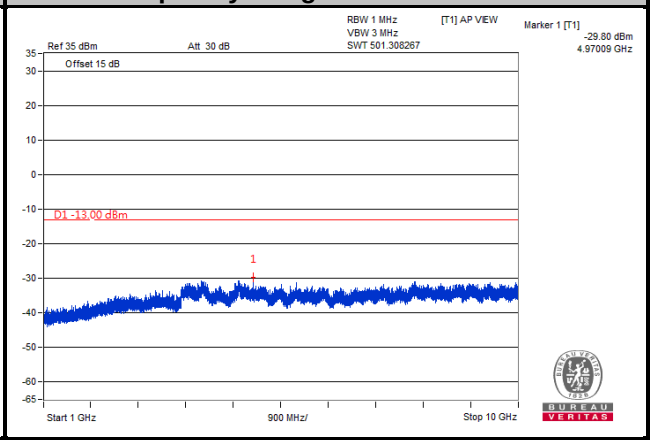
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 20 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

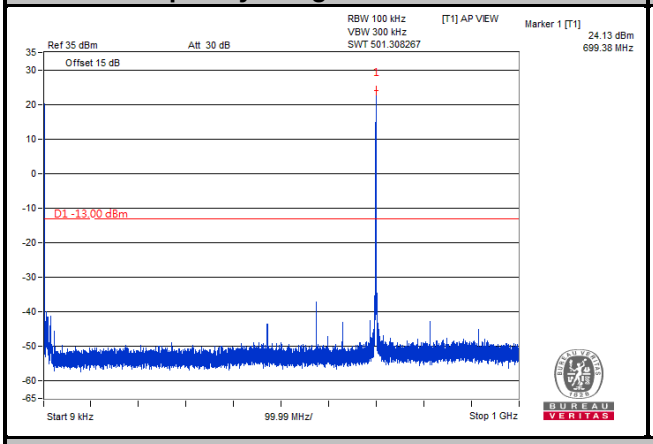
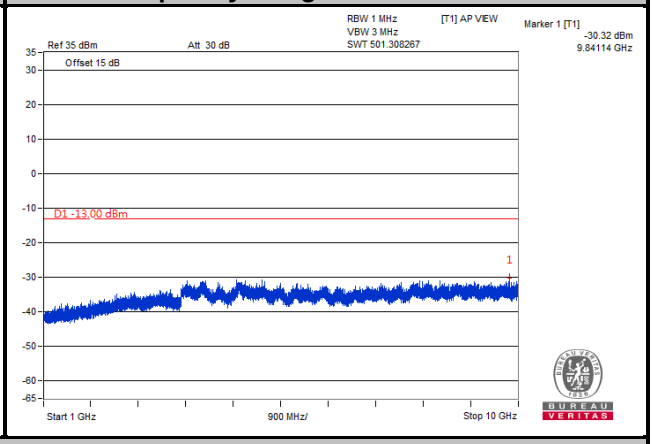
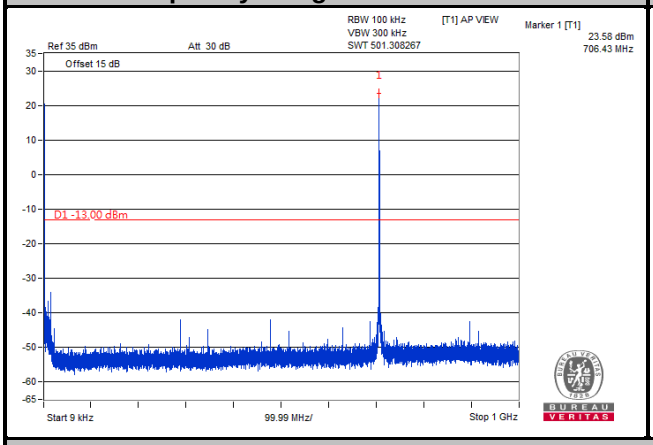
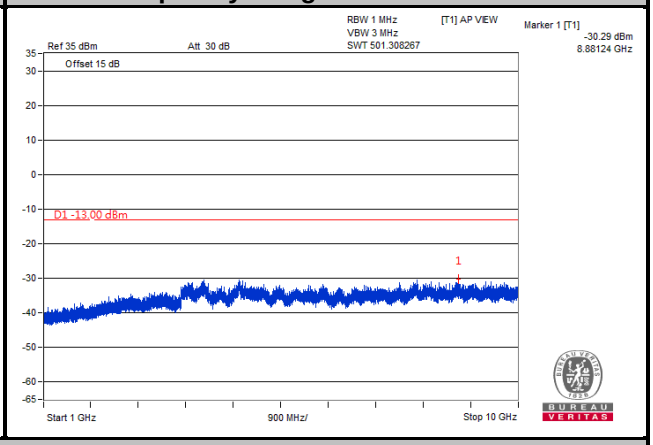
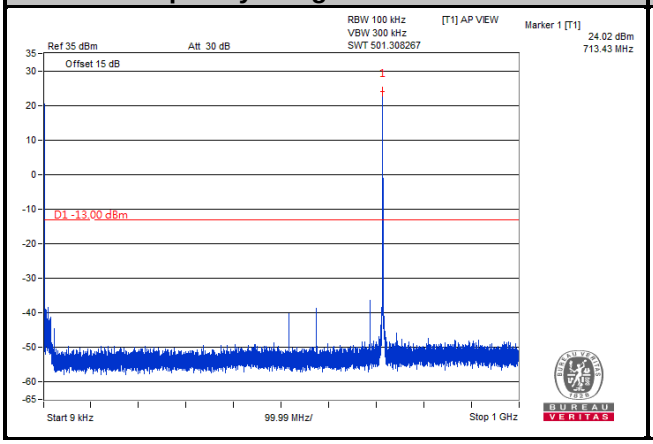
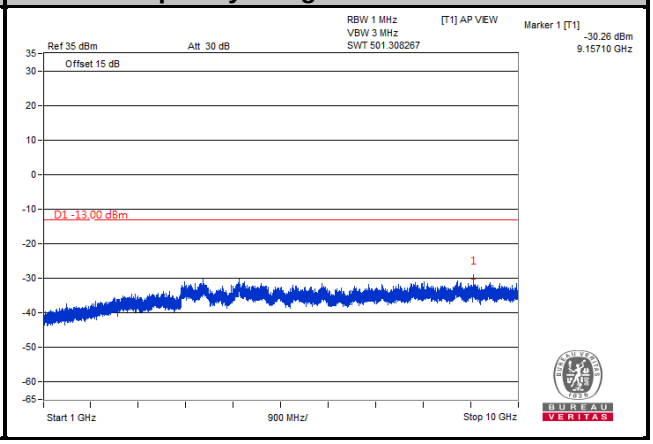
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4	
Channel Bandwidth: 20 MHz	
Channel 20300	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

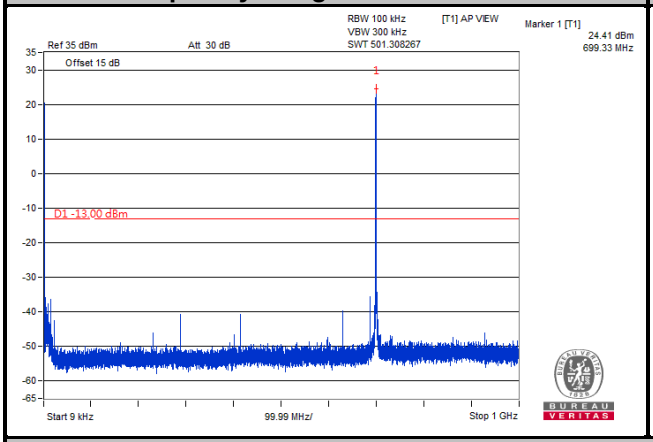
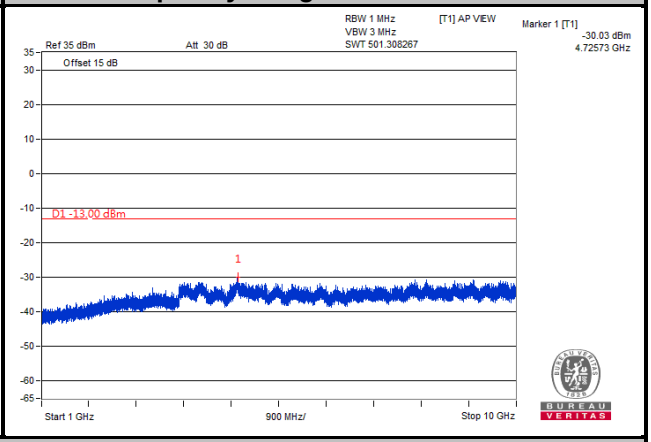
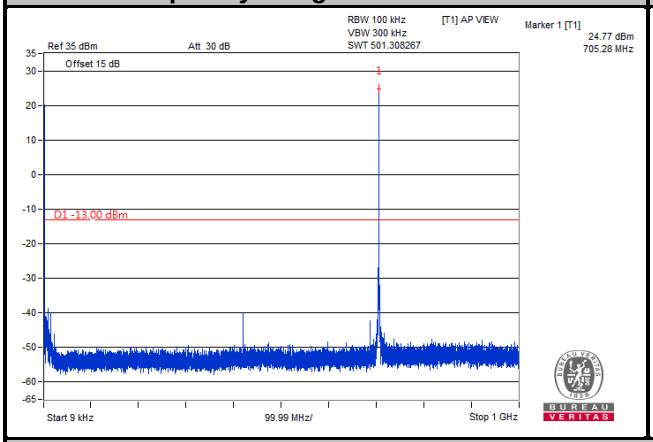
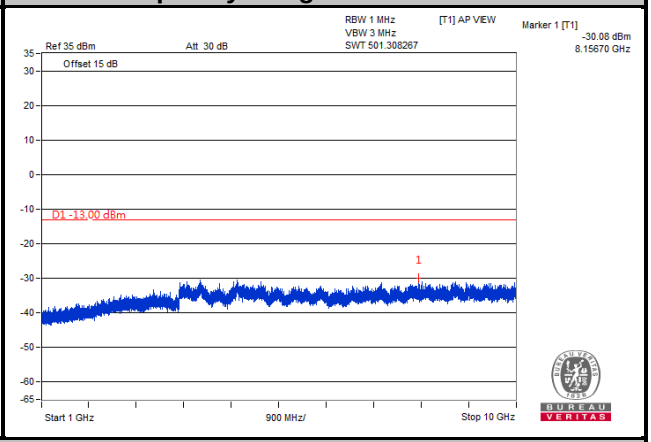
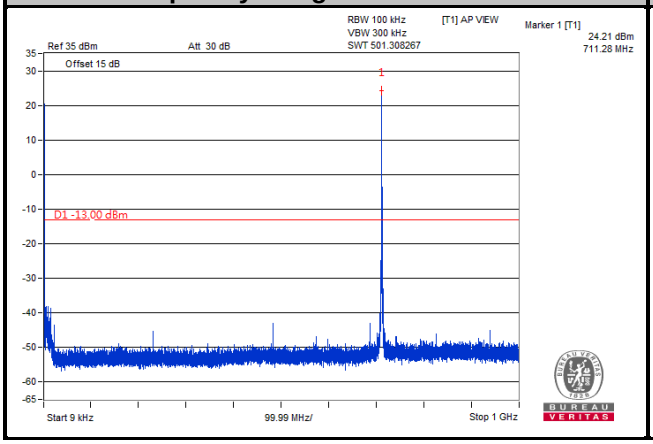
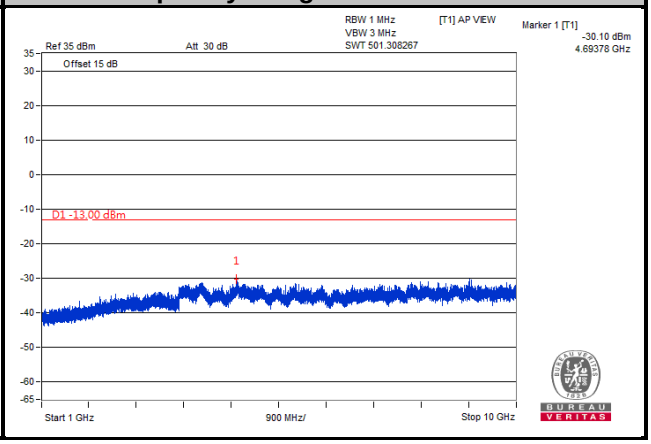
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 12	
Channel Bandwidth: 1.4 MHz	
Channel 23017	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23095	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23173	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	

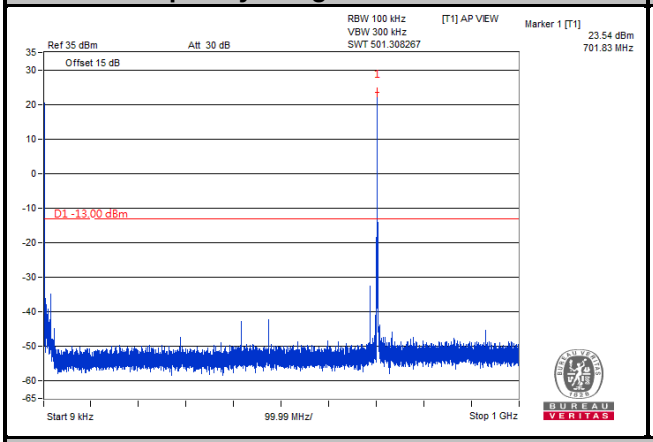
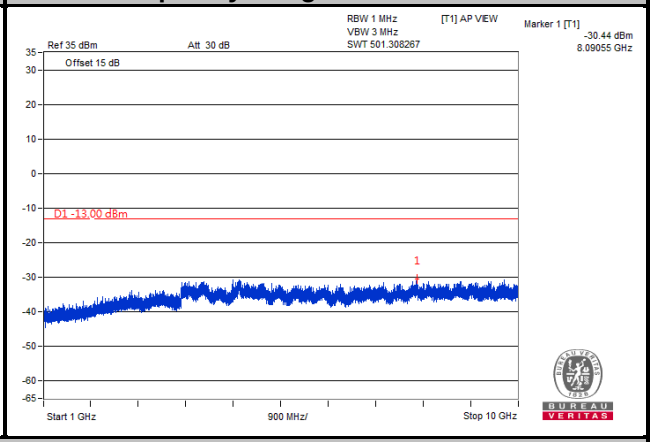
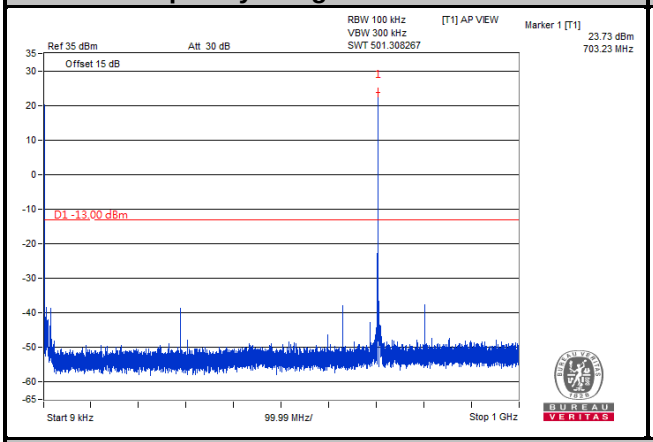
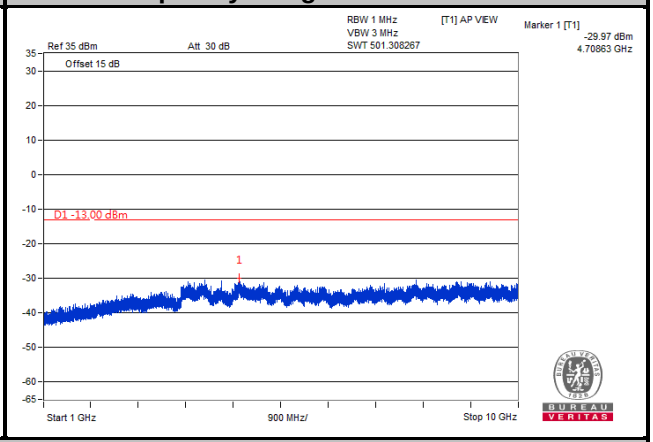
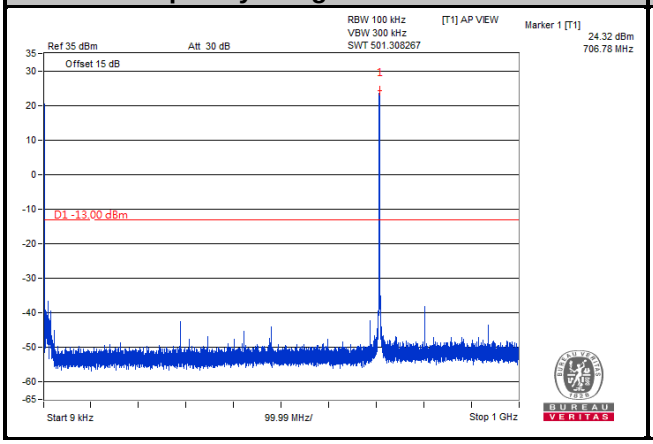
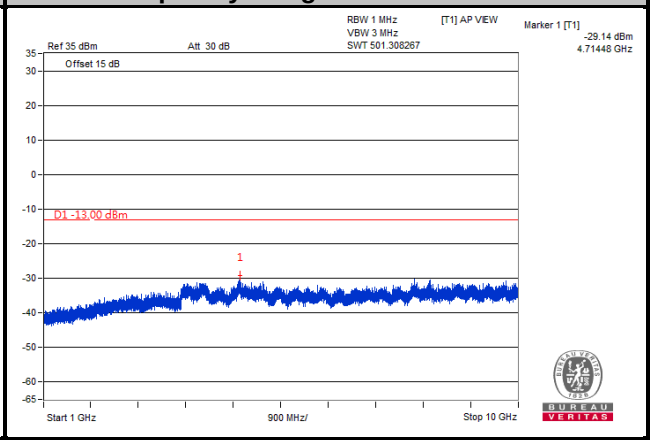
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 12	
Channel Bandwidth: 3 MHz	
Channel 23025	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23095	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23165	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	

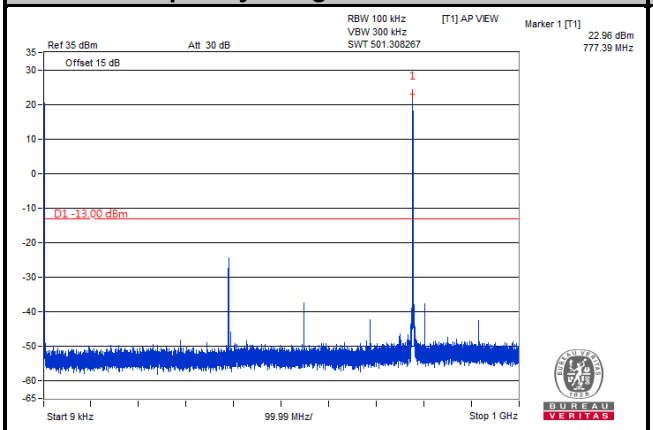
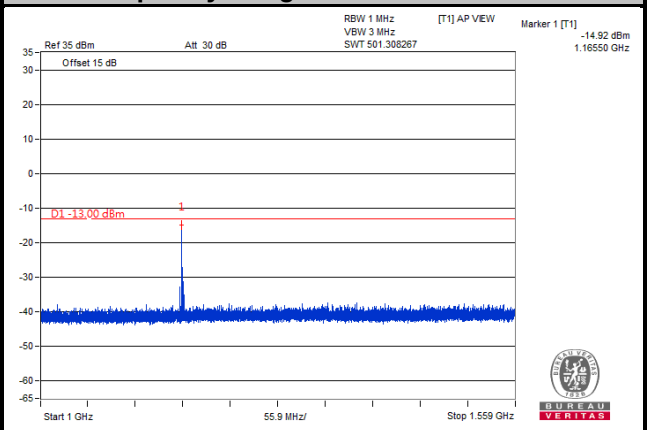
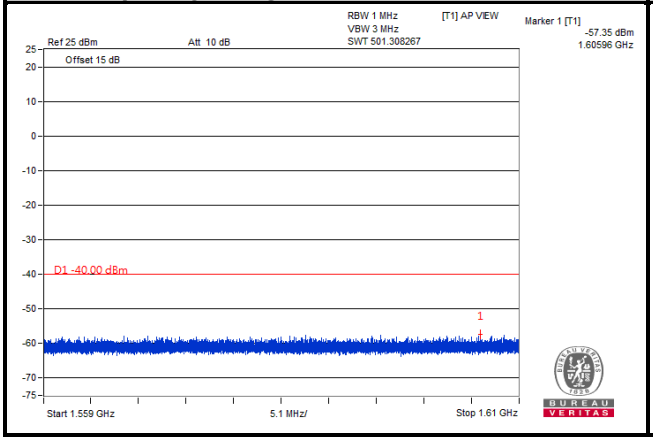
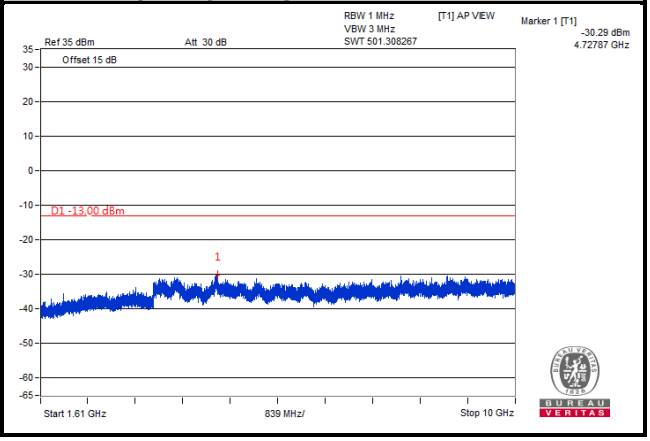
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 12	
Channel Bandwidth: 5 MHz	
Channel 23035	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23095	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23155	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	

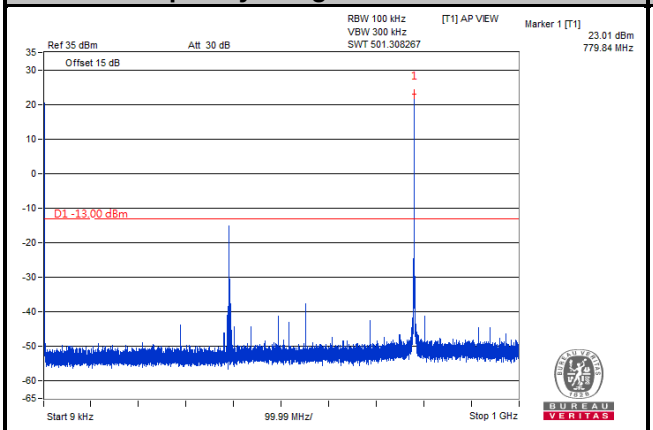
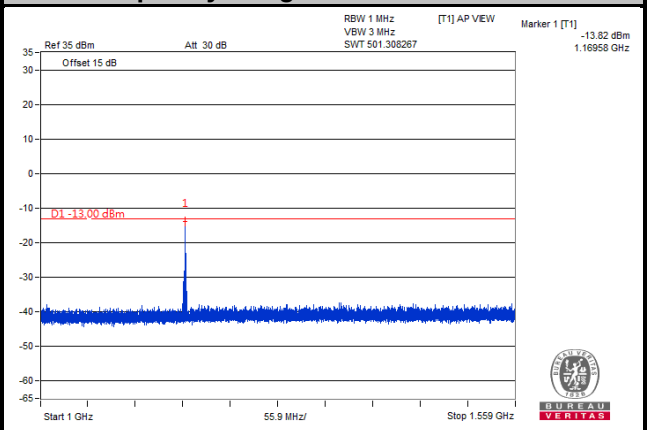
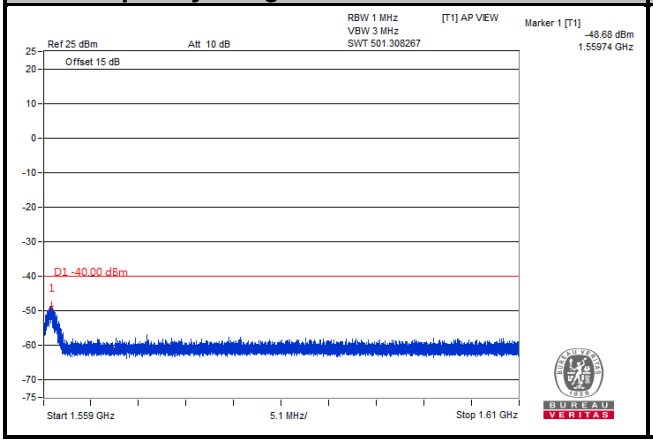
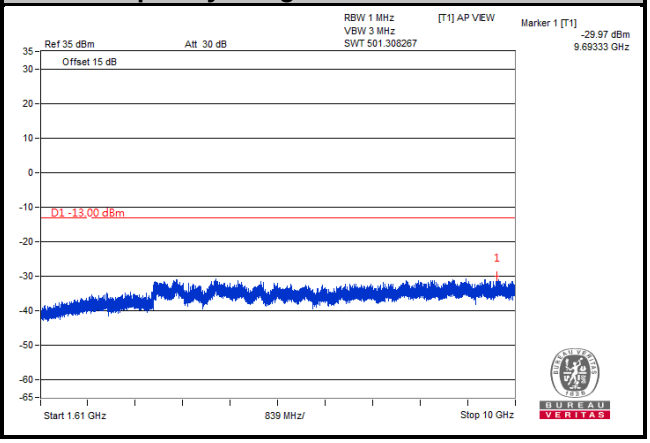
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

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

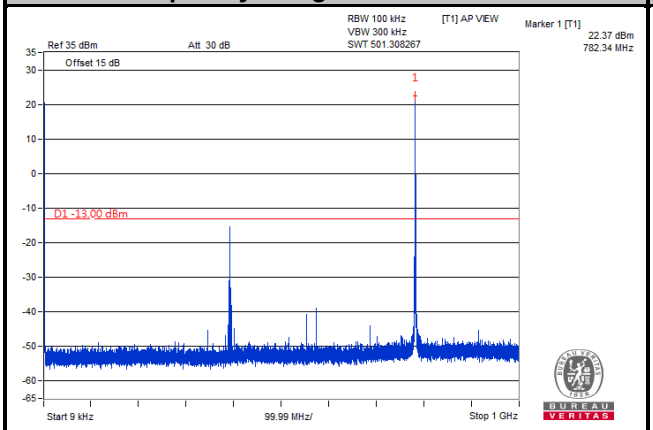
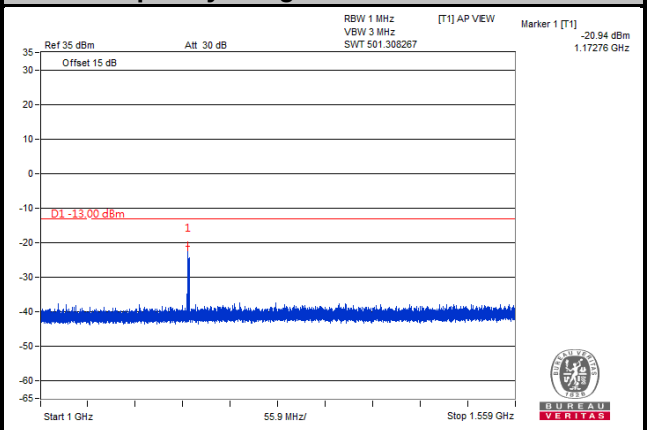
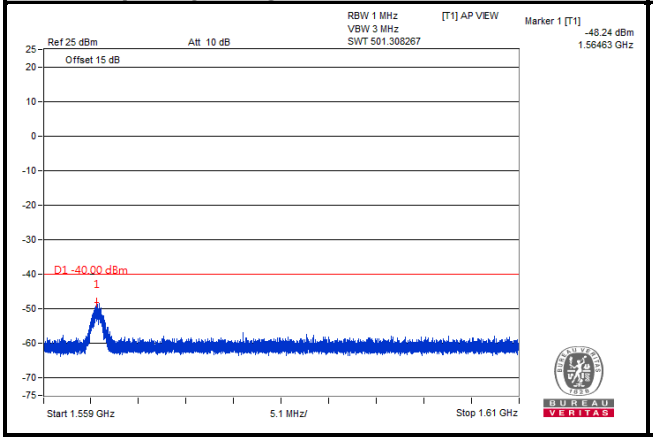
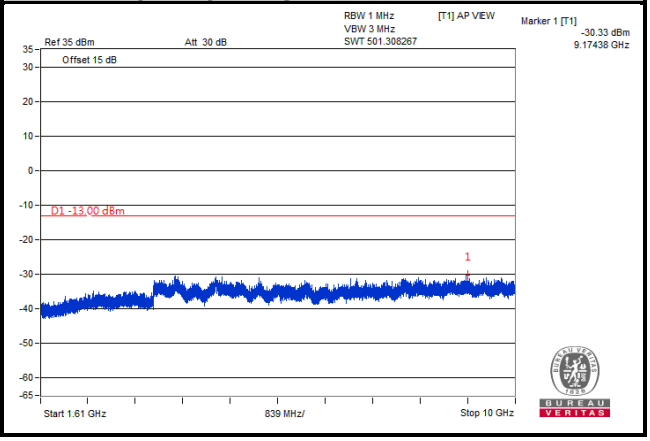
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 13	
Channel Bandwidth: 5 MHz	
Channel 23205	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 1.559 GHz
	
Frequency Range: 1.559 GHz ~ 1.61 GHz	Frequency Range: 1.61 GHz ~ 10 GHz
	

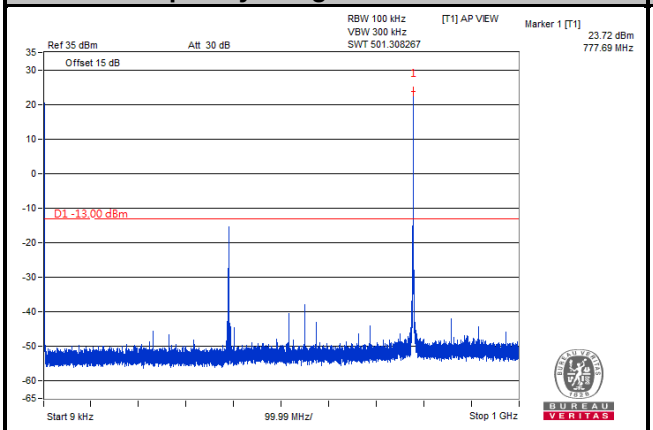
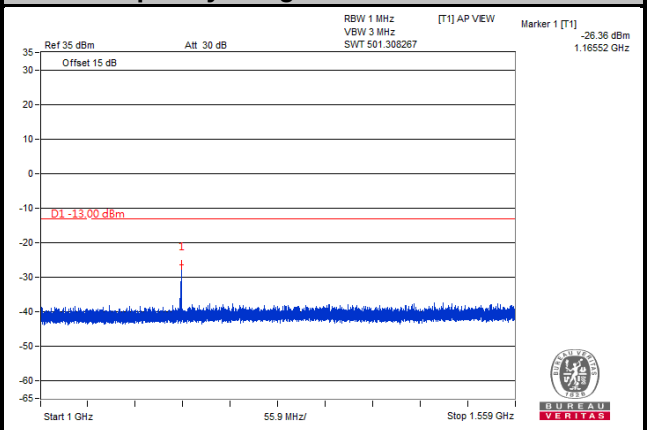
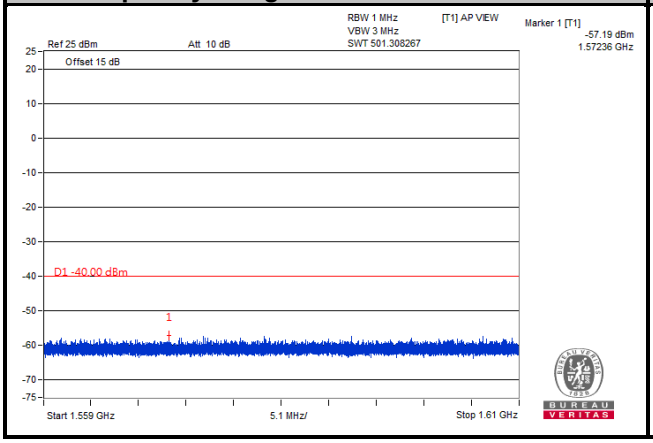
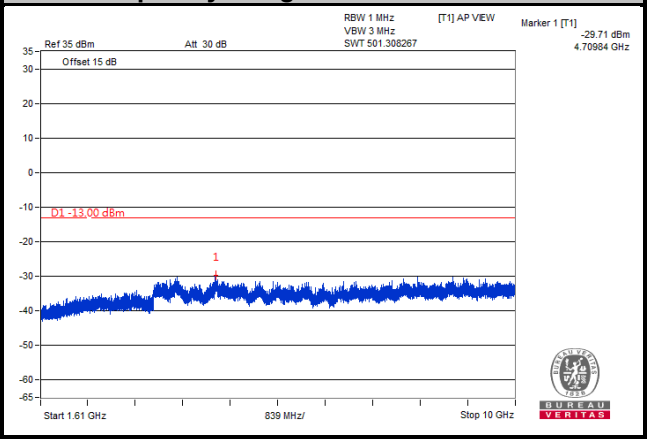
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 13	
Channel Bandwidth: 5 MHz	
Channel 23230	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 1.559 GHz
	
Frequency Range: 1.559 GHz ~ 1.61 GHz	Frequency Range: 1.61 GHz ~ 10 GHz
	

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

LTE Band 13	
Channel Bandwidth: 5 MHz	
Channel 23255	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 1.559 GHz
	
Frequency Range: 1.559 GHz ~ 1.61 GHz	Frequency Range: 1.61 GHz ~ 10 GHz
	

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

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

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

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

a. The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission is equal to -13 dBm.
b. For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz. The limit of emissions is equal to -40 dBm.

4.8.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. The 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 a. Record the power level of S.G.
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. 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 - 2.15 dB.

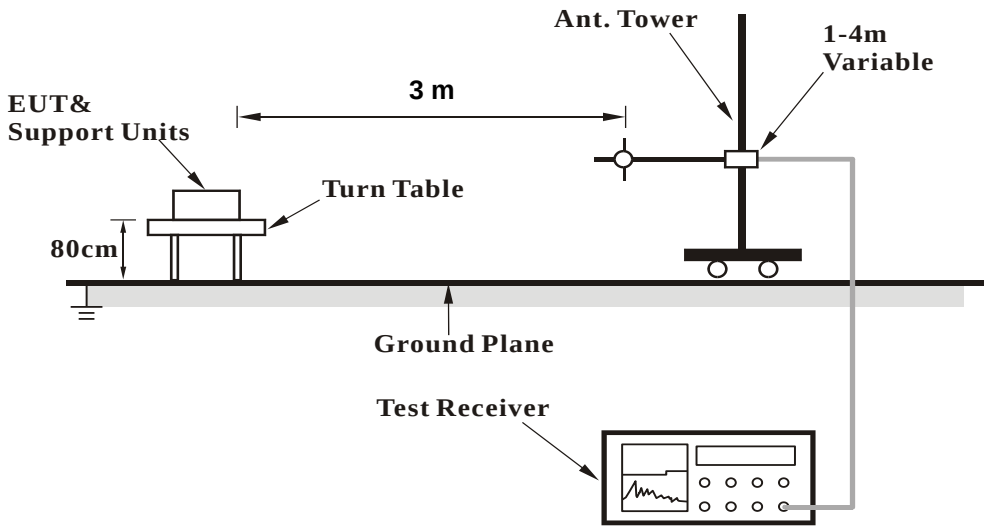
Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.8.3 Deviation from Test Standard

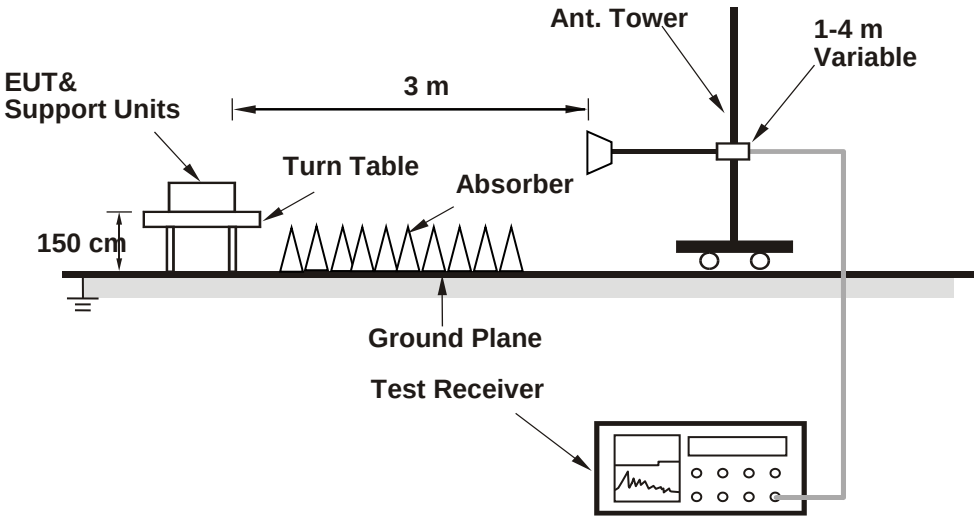
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

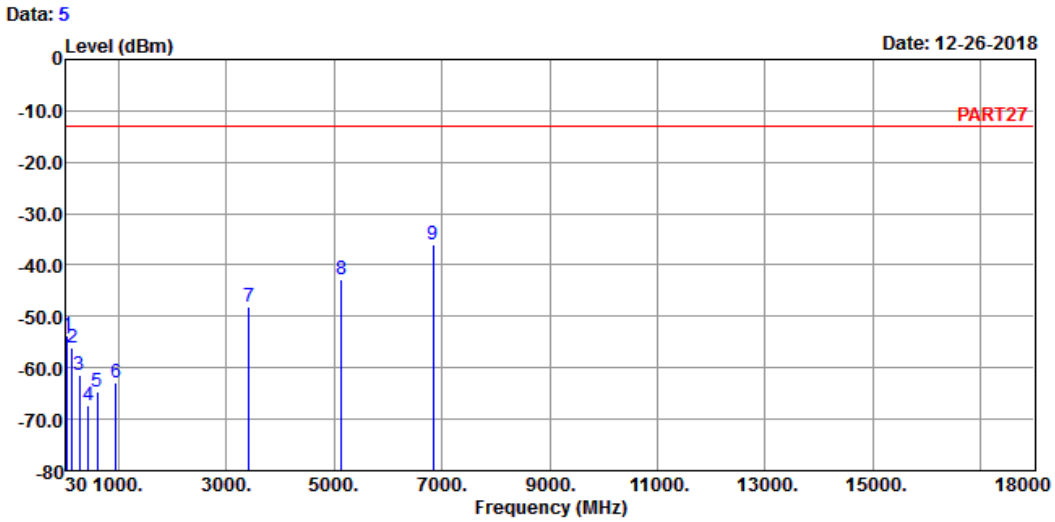
4.8.5 Test Results

LTE Band 4

Channel Bandwidth: 1.4 MHz / QPSK

Low Channel

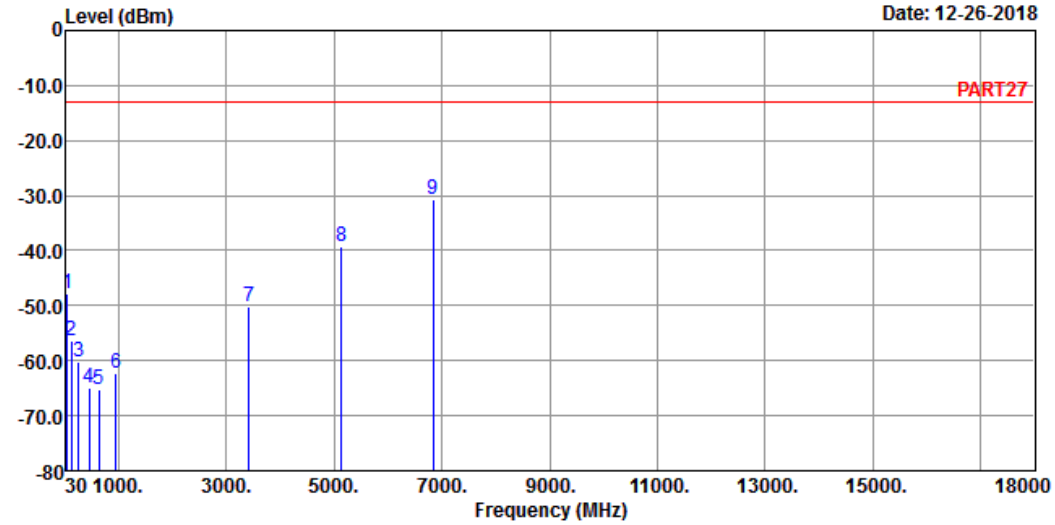
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_1.4M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-53.69	-51.70	-13.00	-40.69	-1.99	Peak
2	146.40	-56.17	-48.20	-13.00	-43.17	-7.97	Peak
3	277.35	-61.37	-54.82	-13.00	-48.37	-6.55	Peak
4	447.10	-67.22	-61.65	-13.00	-54.22	-5.57	Peak
5	605.21	-64.61	-63.84	-13.00	-51.61	-0.77	Peak
6	960.23	-62.75	-64.93	-13.00	-49.75	2.18	Peak
7	3421.40	-48.23	-39.89	-13.00	-35.23	-8.34	Peak
8	5132.10	-42.69	-40.95	-13.00	-29.69	-1.74	Peak
9 pp	6842.80	-36.03	-38.34	-13.00	-23.03	2.31	Peak

Data: 6

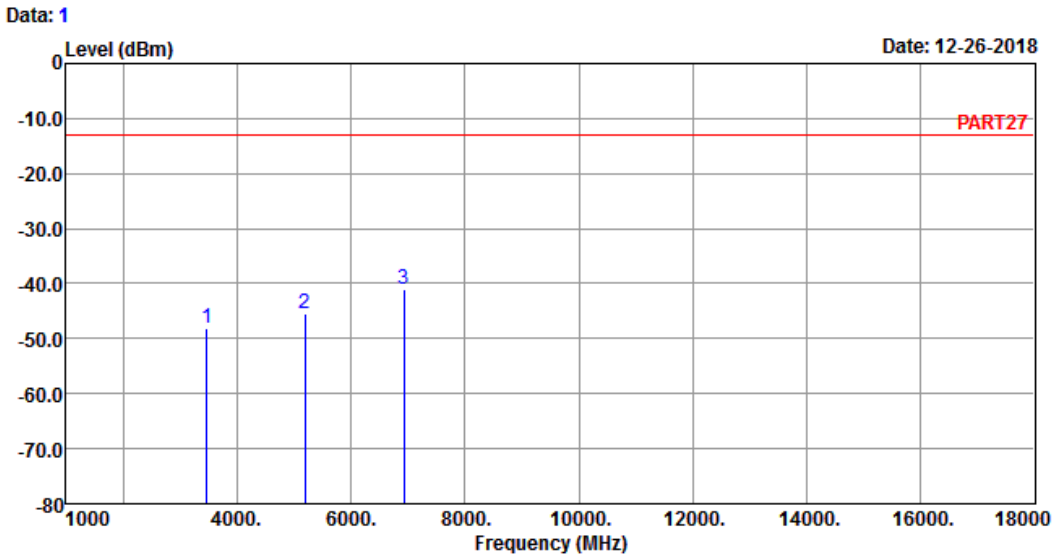


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_1.4M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	42.61	-47.69	-46.75	-13.00	-34.69	-0.94	Peak
2	119.24	-56.43	-46.54	-13.00	-43.43	-9.89	Peak
3	258.92	-60.20	-54.03	-13.00	-47.20	-6.17	Peak
4	454.86	-65.08	-59.62	-13.00	-52.08	-5.46	Peak
5	635.28	-65.12	-64.27	-13.00	-52.12	-0.85	Peak
6	951.50	-62.20	-64.07	-13.00	-49.20	1.87	Peak
7	3421.40	-50.19	-41.85	-13.00	-37.19	-8.34	Peak
8	5132.10	-39.18	-37.44	-13.00	-26.18	-1.74	Peak
9 pp	6842.80	-30.57	-32.88	-13.00	-17.57	2.31	Peak

Middle Channel

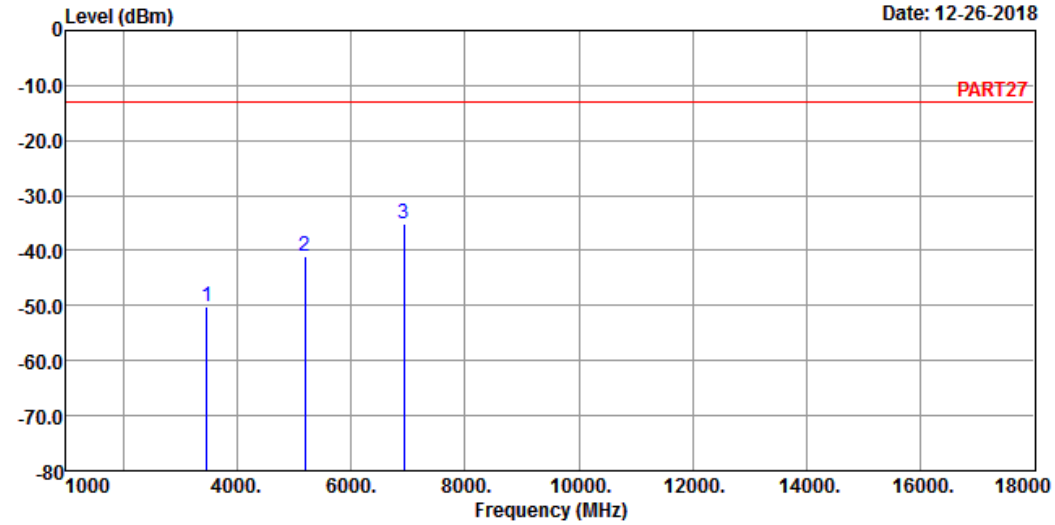
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_1.4M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3465.00	-47.99	-40.11	-13.00	-34.99	-7.88	Peak
2	5197.50	-45.60	-43.53	-13.00	-32.60	-2.07	Peak
3 pp	6930.00	-40.95	-43.64	-13.00	-27.95	2.69	Peak

Data: 2

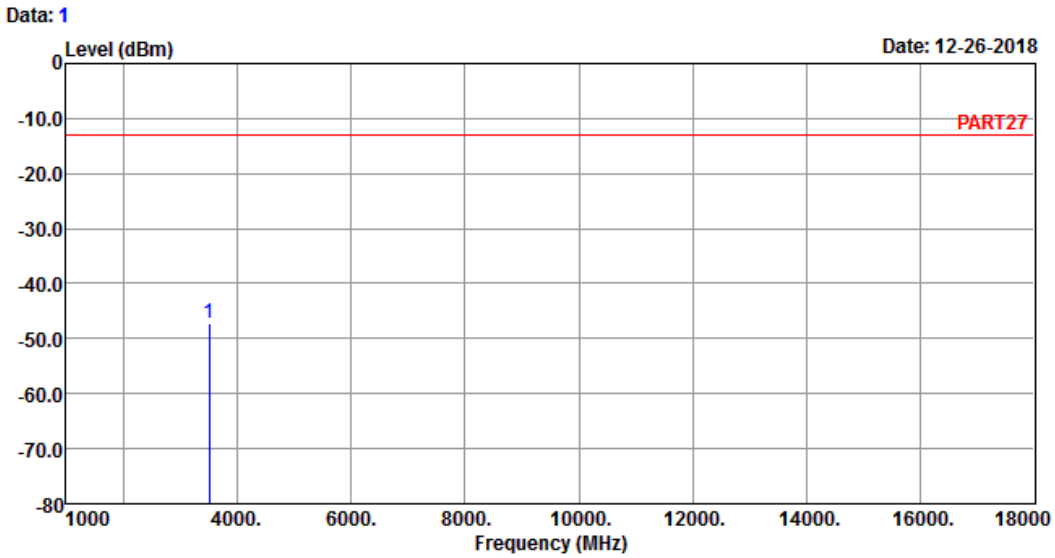


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_1.4M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3465.00	-50.07	-42.19	-13.00	-37.07	-7.88	Peak
2	5197.50	-41.09	-39.02	-13.00	-28.09	-2.07	Peak
3 pp	6930.00	-35.03	-37.72	-13.00	-22.03	2.69	Peak

High Channel

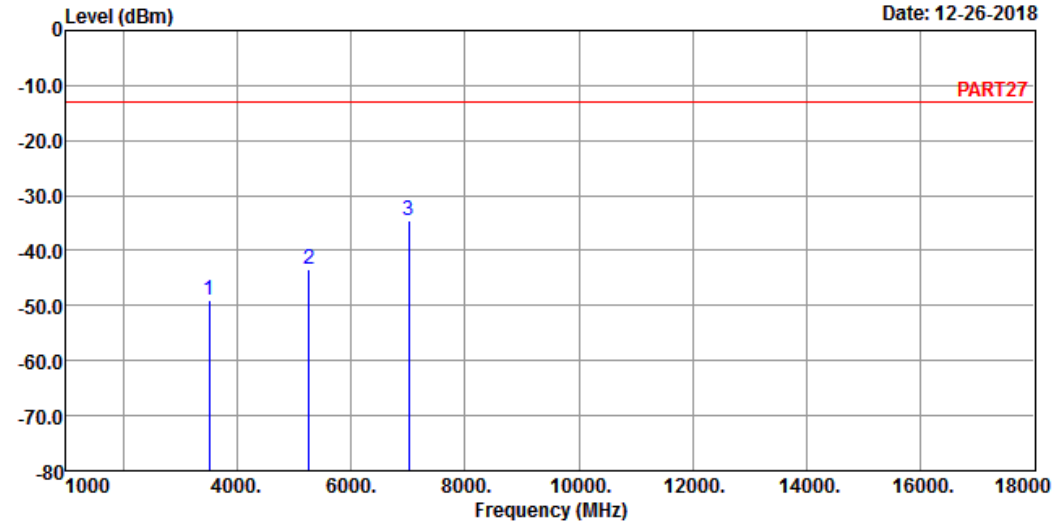
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_1.4M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3508.60	-47.27	-39.82	-13.00	-34.27	-7.45	Peak

Data: 2

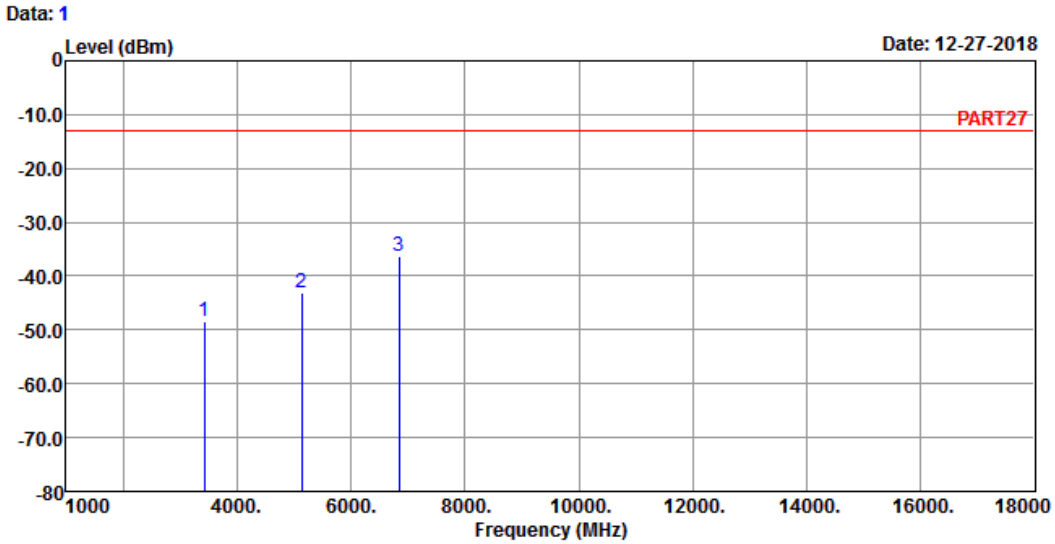


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_1.4M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3508.60	-49.08	-41.63	-13.00	-36.08	-7.45	Peak
2	5262.90	-43.25	-40.73	-13.00	-30.25	-2.52	Peak
3 pp	7017.20	-34.56	-37.75	-13.00	-21.56	3.19	Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

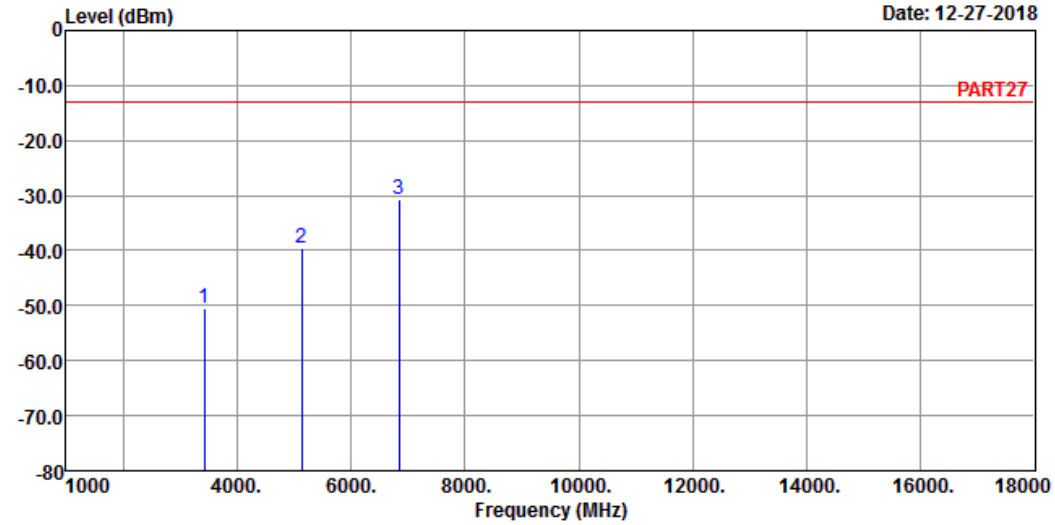
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_5M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3425.00	-48.54	-40.20	-13.00	-35.54	-8.34	Peak
2	5137.50	-43.01	-41.27	-13.00	-30.01	-1.74	Peak
3 pp	6850.00	-36.41	-38.72	-13.00	-23.41	2.31	Peak

Data: 2

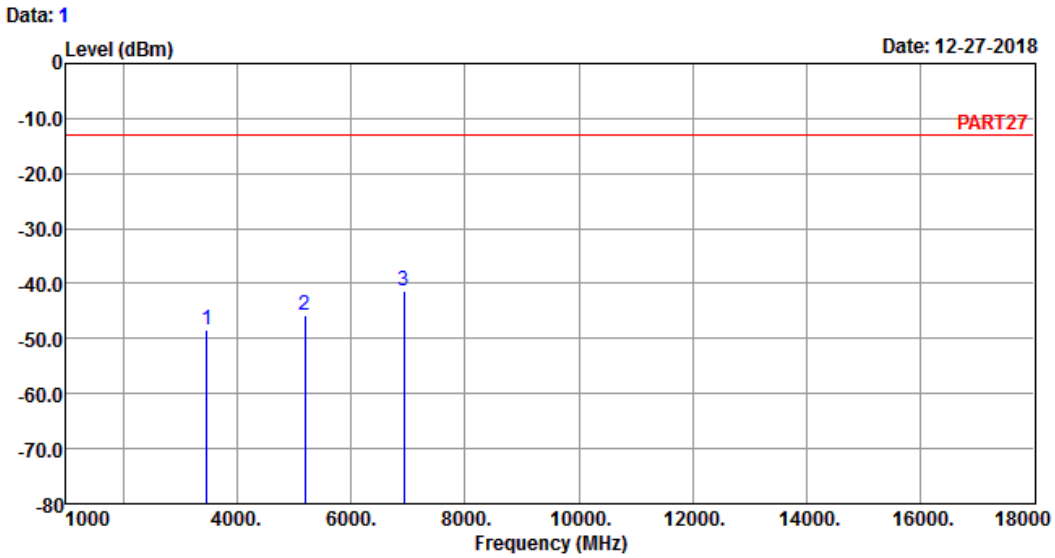


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_5M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3425.00	-50.57	-42.23	-13.00	-37.57	-8.34	Peak
2	5137.50	-39.55	-37.81	-13.00	-26.55	-1.74	Peak
3 pp	6850.00	-30.83	-33.14	-13.00	-17.83	2.31	Peak

Middle Channel

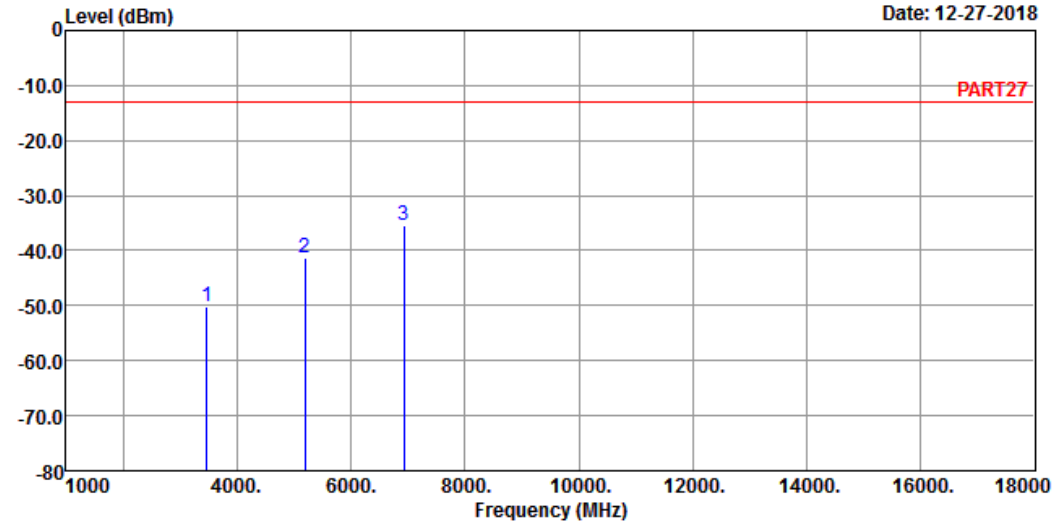
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_5M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3465.00	-48.31	-40.43	-13.00	-35.31	-7.88	Peak
2	5197.50	-45.83	-43.76	-13.00	-32.83	-2.07	Peak
3 pp	6930.00	-41.23	-43.92	-13.00	-28.23	2.69	Peak

Data: 2

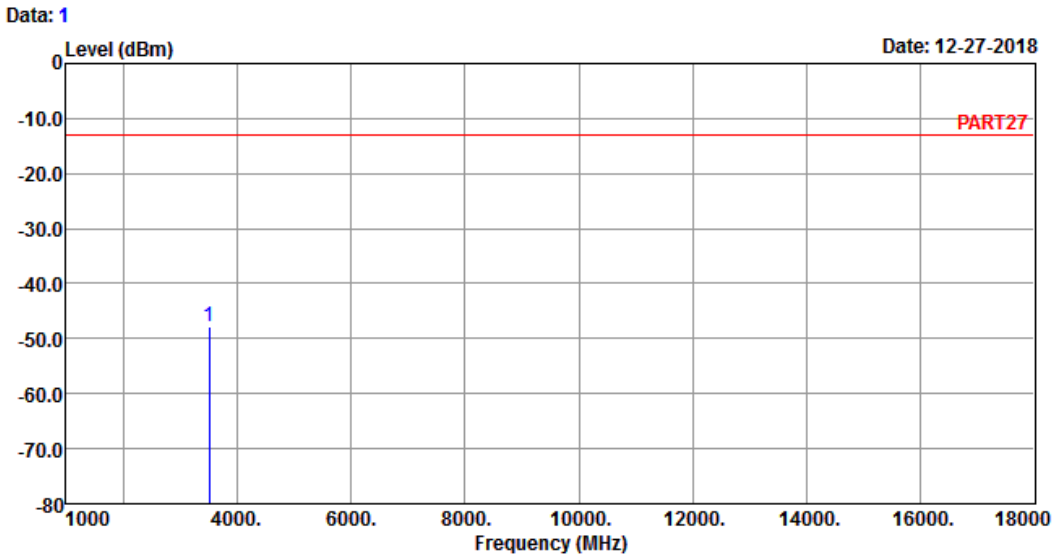


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_5M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3465.00	-50.28	-42.40	-13.00	-37.28	-7.88	Peak
2	5197.50	-41.36	-39.29	-13.00	-28.36	-2.07	Peak
3 pp	6930.00	-35.52	-38.21	-13.00	-22.52	2.69	Peak

High Channel

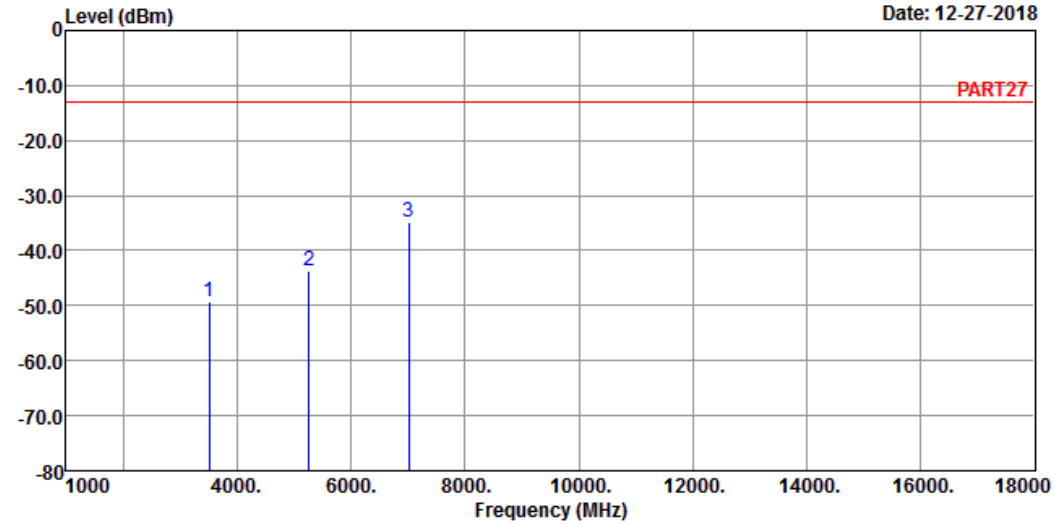
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_5M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3505.00	-47.75	-40.30	-13.00	-34.75	-7.45	Peak

Data: 2

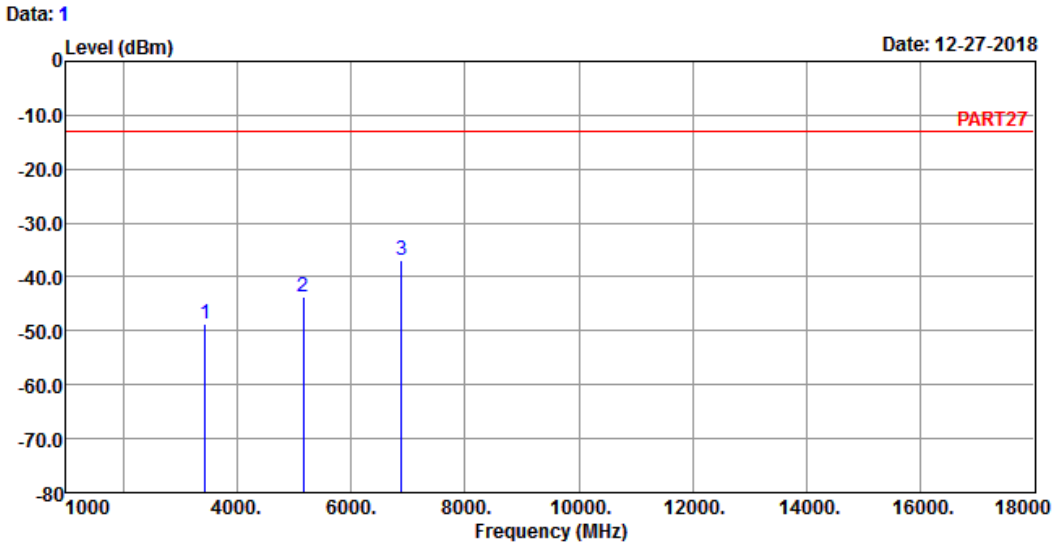


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_5M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3505.00	-49.43	-41.98	-13.00	-36.43	-7.45	Peak
2	5257.50	-43.66	-41.14	-13.00	-30.66	-2.52	Peak
3 pp	7010.00	-34.80	-37.99	-13.00	-21.80	3.19	Peak

Channel Bandwidth: 20 MHz / QPSK
Low Channel

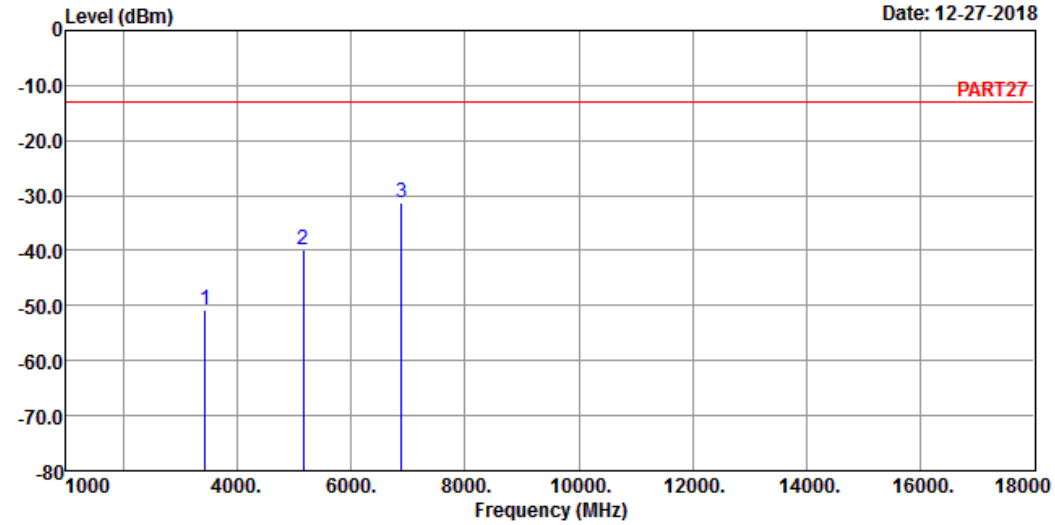
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3440.00	-48.82	-40.60	-13.00	-35.82	-8.22	Peak
2	5160.00	-43.69	-41.78	-13.00	-30.69	-1.91	Peak
3 pp	6880.00	-36.92	-39.40	-13.00	-23.92	2.48	Peak

Data: 2

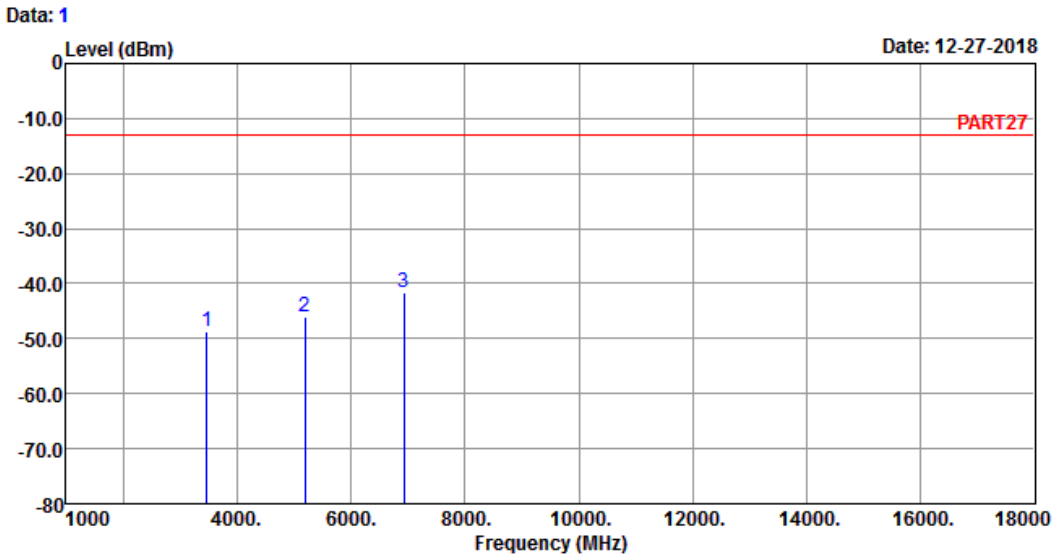


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3440.00	-50.89	-42.67	-13.00	-37.89	-8.22	Peak
2	5160.00	-39.78	-37.87	-13.00	-26.78	-1.91	Peak
3 pp	6880.00	-31.42	-33.90	-13.00	-18.42	2.48	Peak

Middle Channel

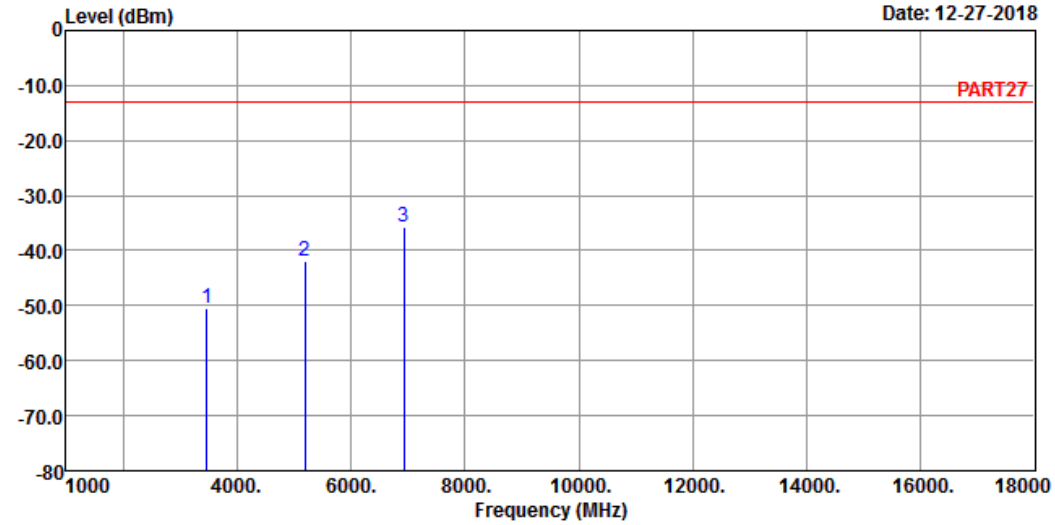
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_20M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3465.00	-48.72	-40.84	-13.00	-35.72	-7.88	Peak
2	5197.50	-46.12	-44.05	-13.00	-33.12	-2.07	Peak
3 pp	6930.00	-41.59	-44.28	-13.00	-28.59	2.69	Peak

Data: 2

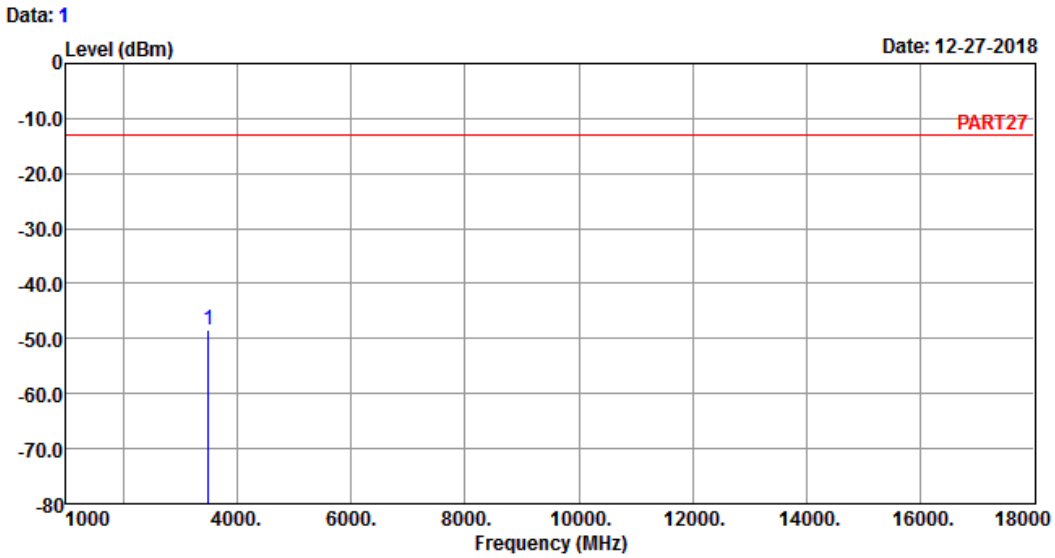


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_20M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3465.00	-50.46	-42.58	-13.00	-37.46	-7.88	Peak
2	5197.50	-41.77	-39.70	-13.00	-28.77	-2.07	Peak
3 pp	6930.00	-35.87	-38.56	-13.00	-22.87	2.69	Peak

High Channel

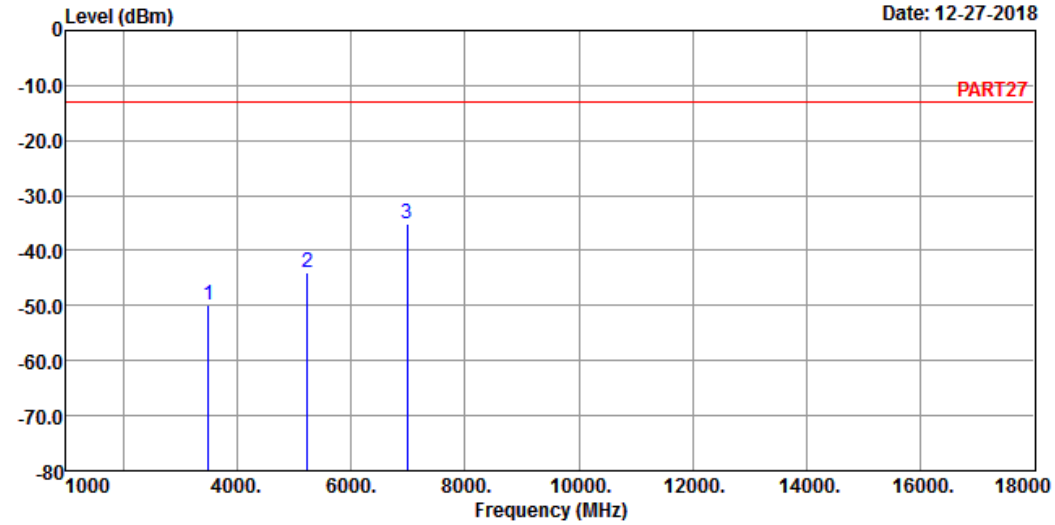
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_20M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3490.00	-48.32	-40.67	-13.00	-35.32	-7.65	Peak

Data: 2

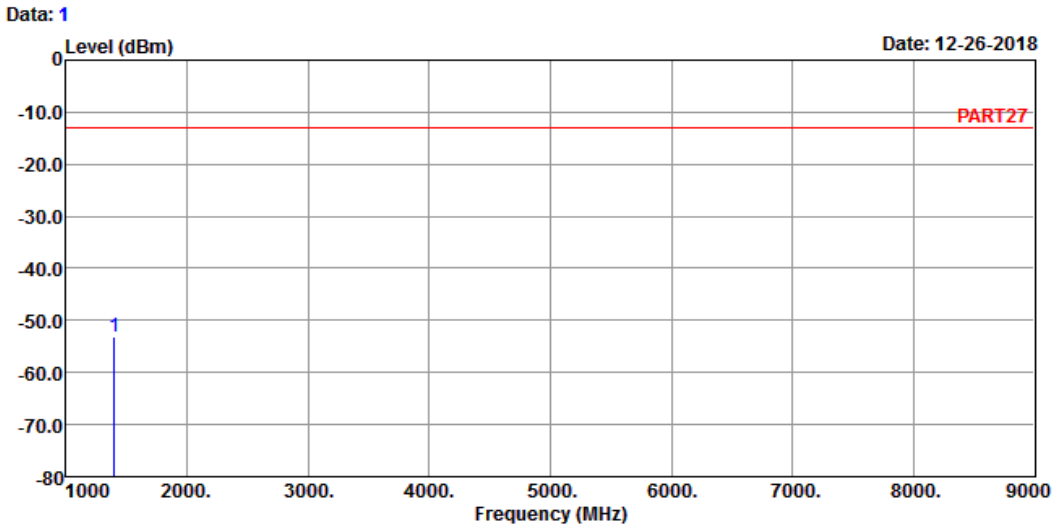


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 4 QPSK_20M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3490.00	-49.78	-42.13	-13.00	-36.78	-7.65	Peak
2	5235.00	-43.97	-41.56	-13.00	-30.97	-2.41	Peak
3 pp	6980.00	-35.09	-38.15	-13.00	-22.09	3.06	Peak

LTE Band 12
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

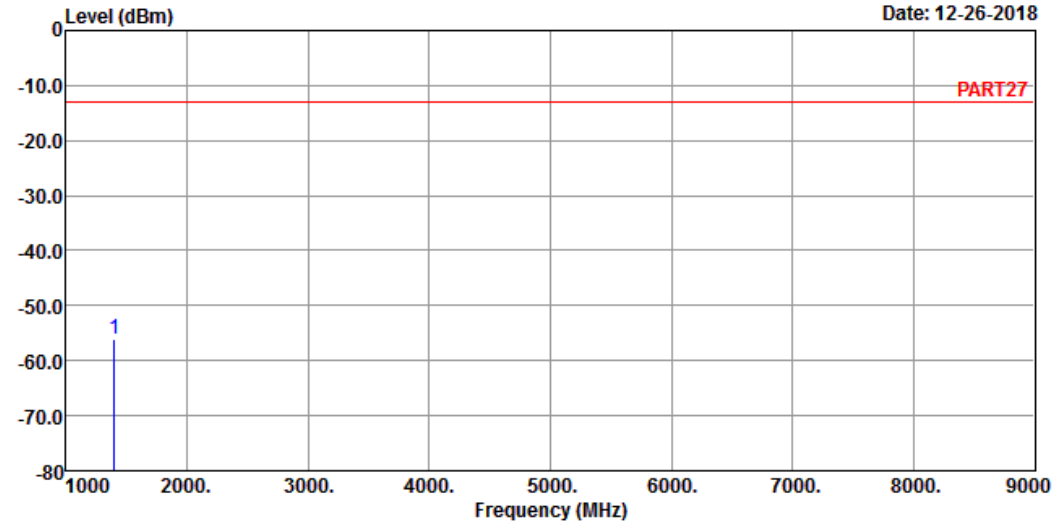
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 12 QPSK_1.4M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1399.40	-53.01	-41.16	-13.00	-40.01	-11.85	Peak

Data: 2

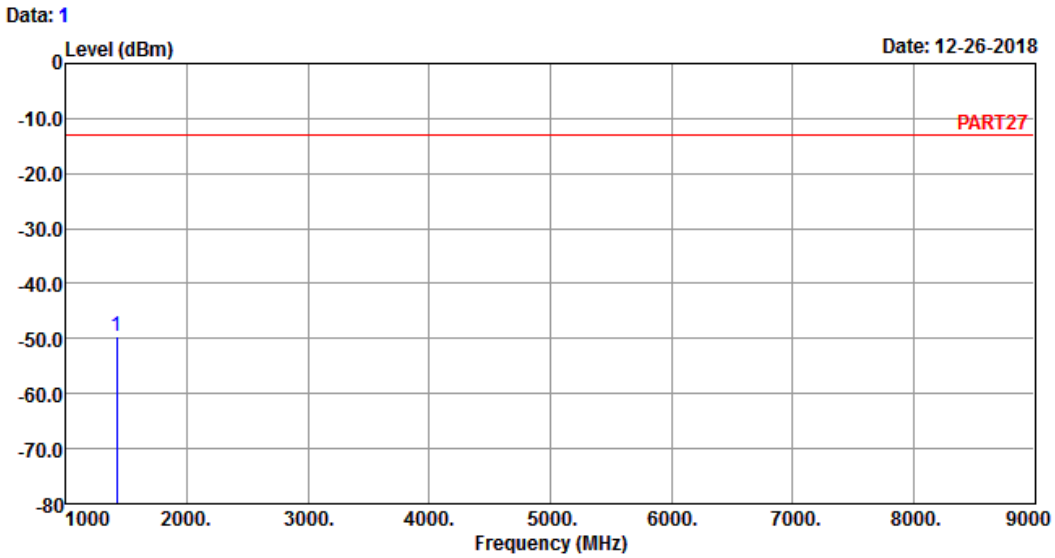


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 12 QPSK_1.4M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1399.40	-56.17	-44.32	-13.00	-43.17	-11.85	Peak

Middle Channel

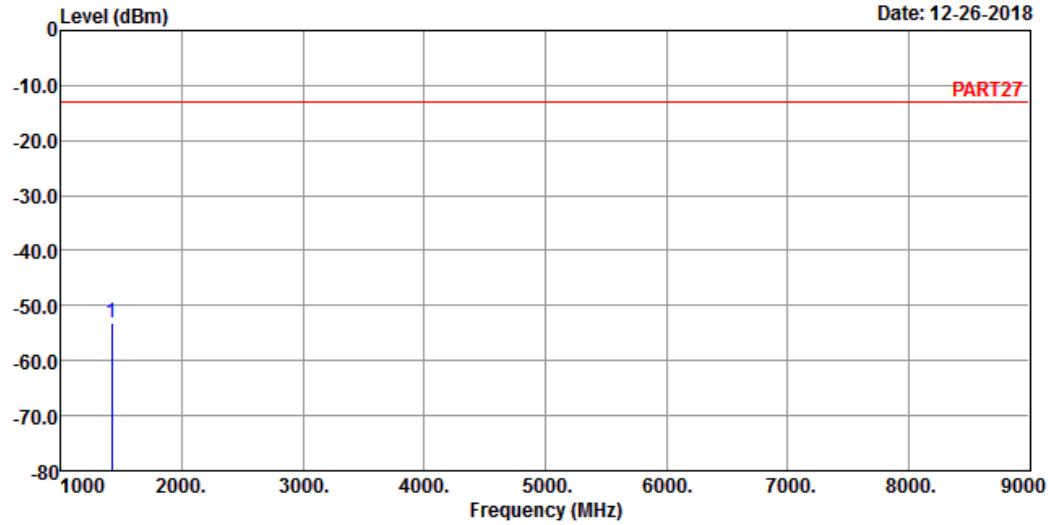
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 12 QPSK_1.4M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-49.45	-37.37	-13.00	-36.45	-12.08	Peak

Data: 2

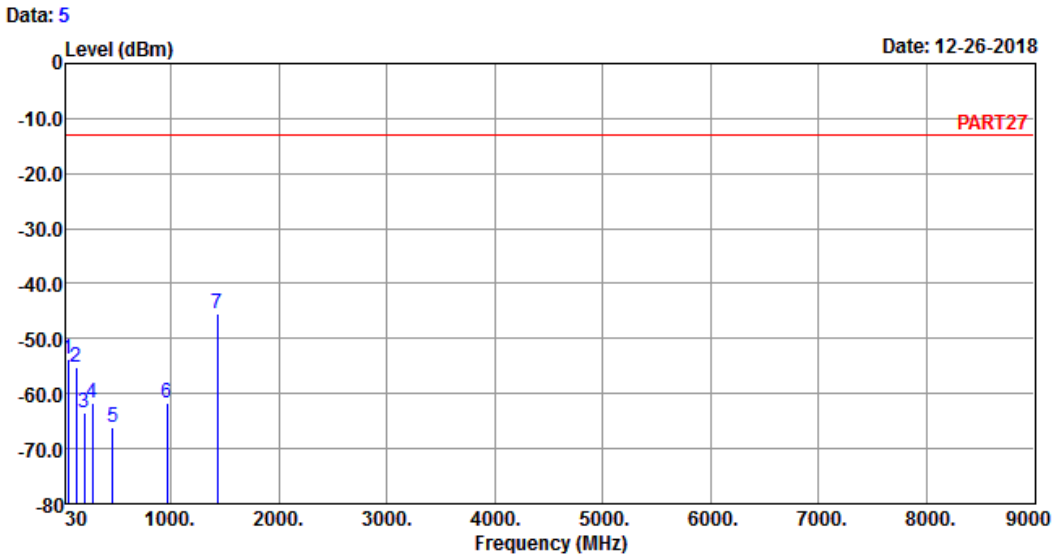


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : LTE Band 12 QPSK_1.4M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-53.01	-40.93	-13.00	-40.01	-12.08	Peak

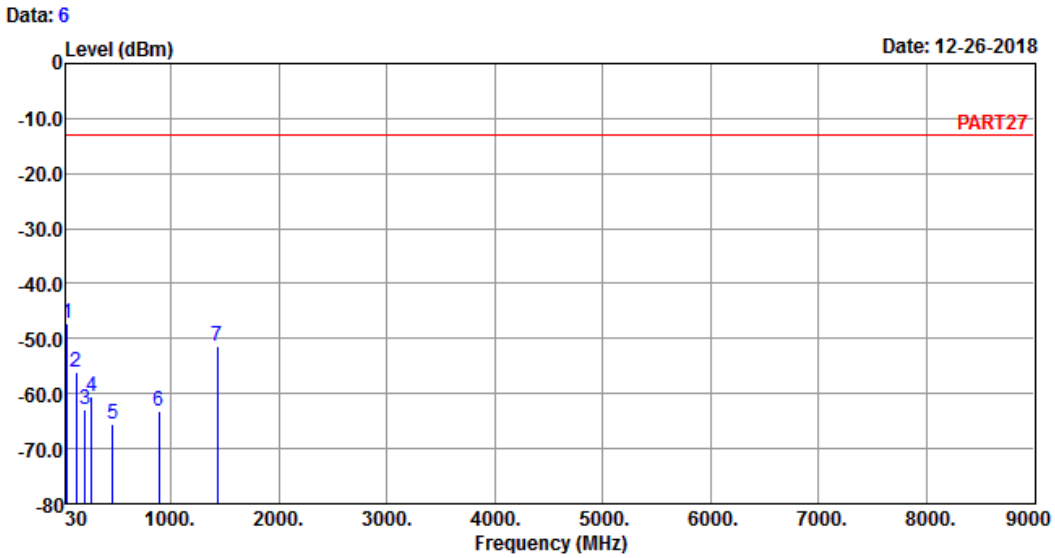
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_1.4M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.58	-53.68	-52.21	-13.00	-40.68	-1.47	Peak
2	120.21	-55.26	-45.41	-13.00	-42.26	-9.85	Peak
3	193.93	-63.37	-55.91	-13.00	-50.37	-7.46	Peak
4	273.47	-61.68	-55.21	-13.00	-48.68	-6.47	Peak
5	463.59	-66.11	-60.81	-13.00	-53.11	-5.30	Peak
6	963.14	-61.59	-63.87	-13.00	-48.59	2.28	Peak
7 pp	1430.60	-45.40	-33.09	-13.00	-32.40	-12.31	Peak

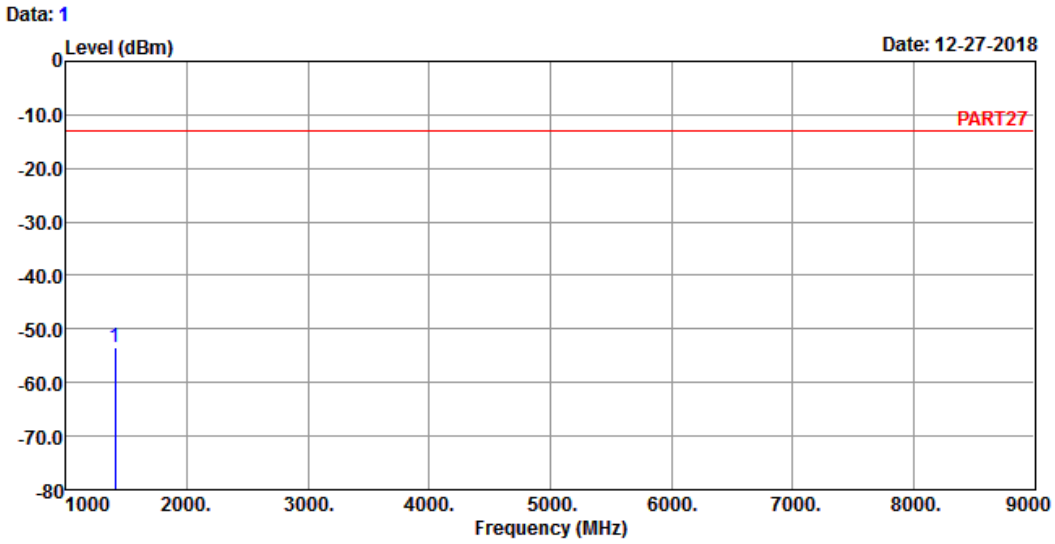


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 12 QPSK_1.4M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	42.61	-47.13	-46.19	-13.00	-34.13	-0.94	Peak
2	121.18	-56.23	-46.50	-13.00	-43.23	-9.73	Peak
3	203.63	-62.80	-54.94	-13.00	-49.80	-7.86	Peak
4	264.74	-60.59	-54.30	-13.00	-47.59	-6.29	Peak
5	459.71	-65.46	-60.09	-13.00	-52.46	-5.37	Peak
6	890.39	-63.15	-63.67	-13.00	-50.15	0.52	Peak
7	1430.60	-51.25	-38.94	-13.00	-38.25	-12.31	Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

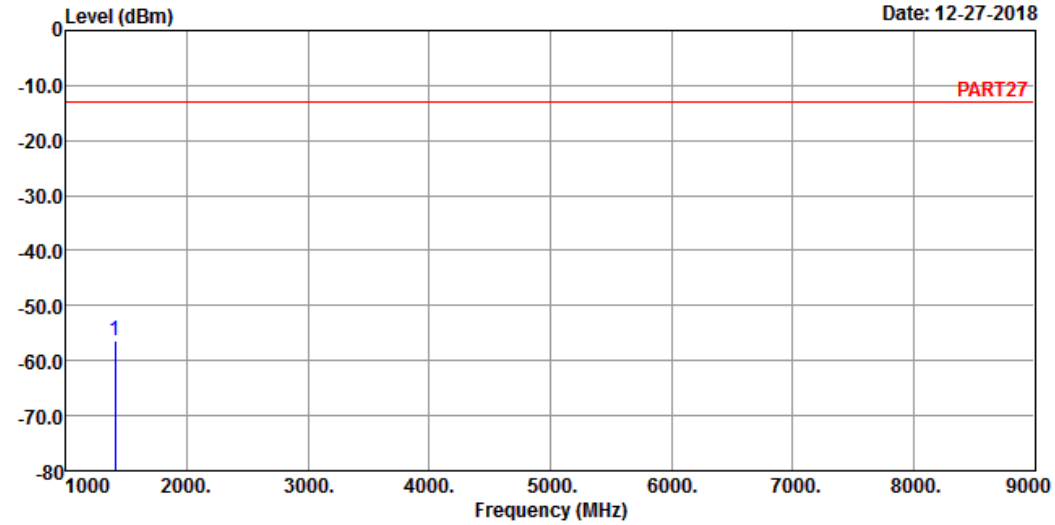
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_5M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1403.00	-53.37	-41.46	-13.00	-40.37	-11.91	Peak

Data: 2

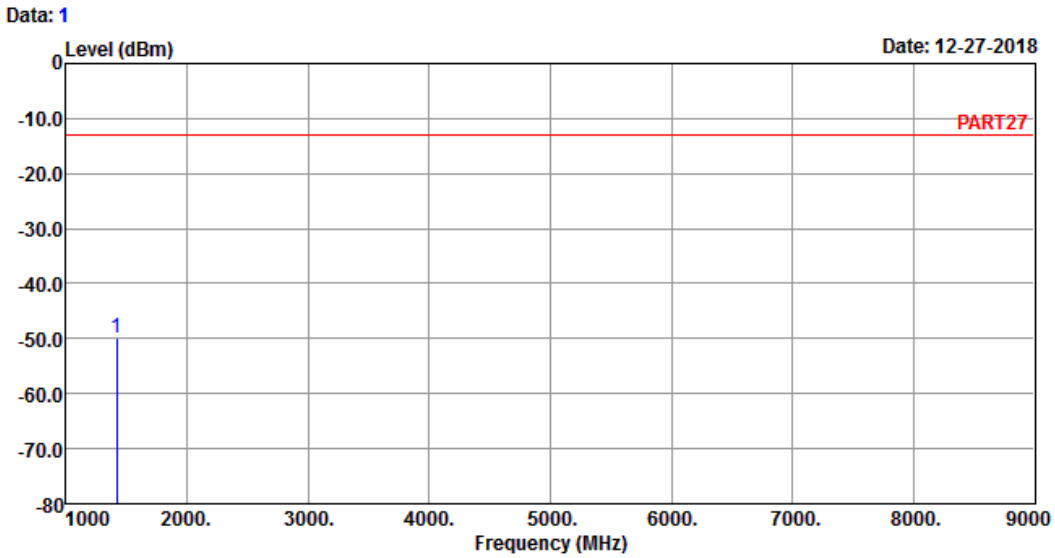


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 12 QPSK_5M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1403.00	-56.43	-44.52	-13.00	-43.43	-11.91	Peak

Middle Channel

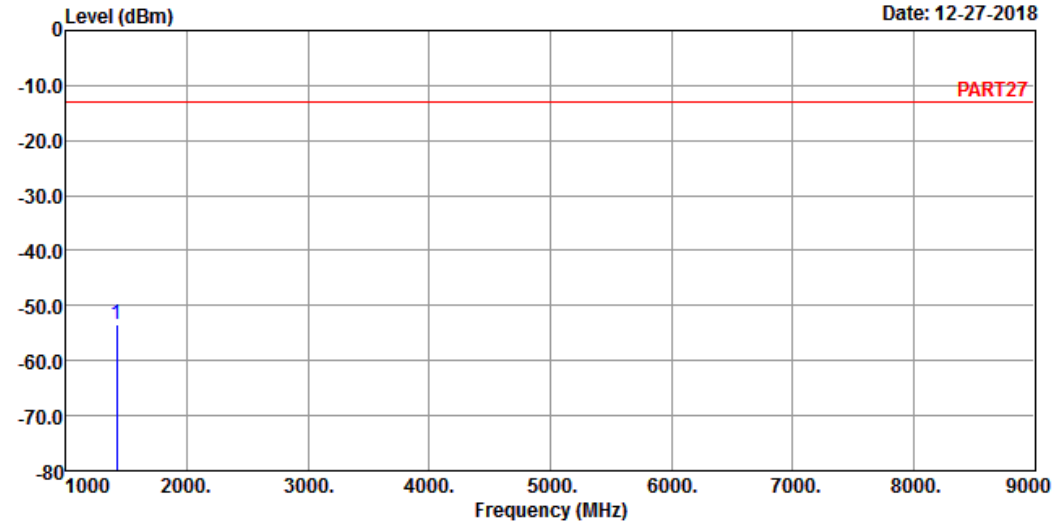
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_5M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-49.77	-37.69	-13.00	-36.77	-12.08	Peak

Data: 2

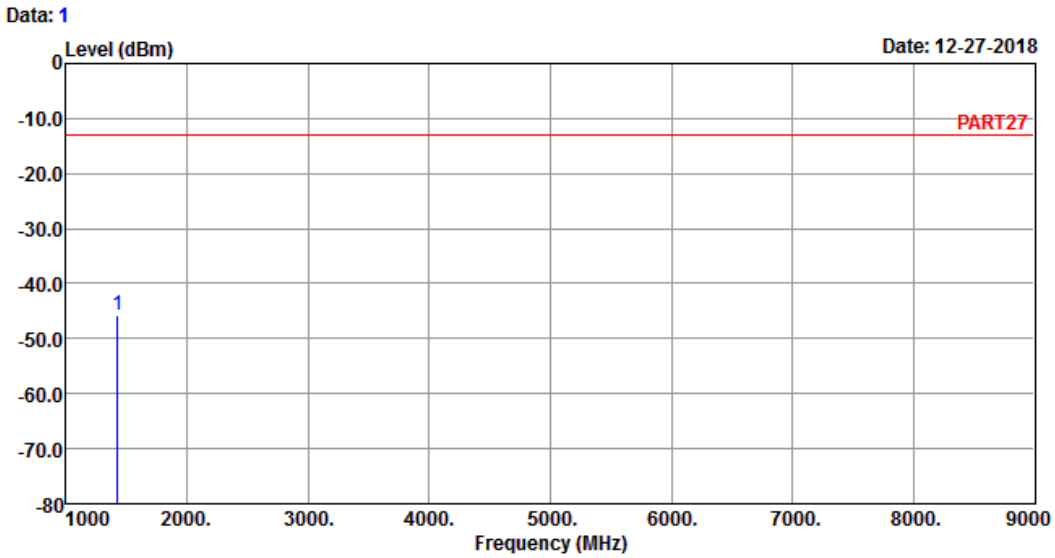


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 12 QPSK_5M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-53.55	-41.47	-13.00	-40.55	-12.08	Peak

High Channel

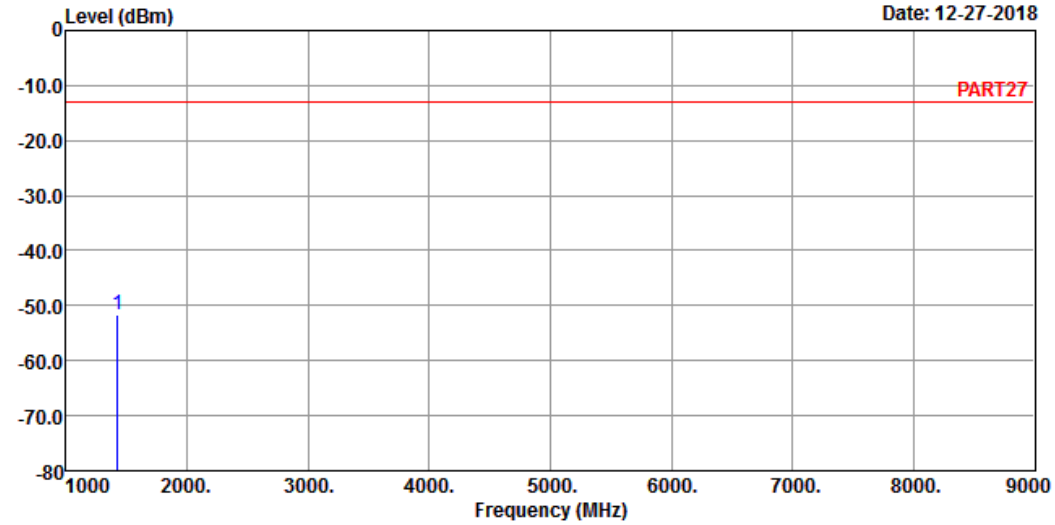
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_5M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1427.00	-45.72	-33.47	-13.00	-32.72	-12.25	Peak

Data: 2

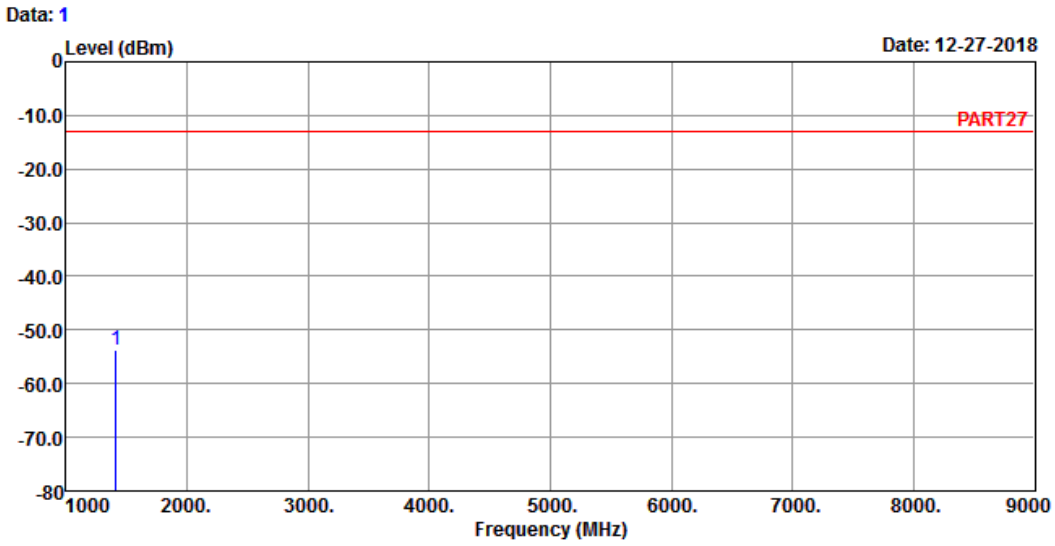


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 12 QPSK_5M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1427.00	-51.63	-39.38	-13.00	-38.63	-12.25	Peak

Channel Bandwidth: 10 MHz / QPSK
Low Channel

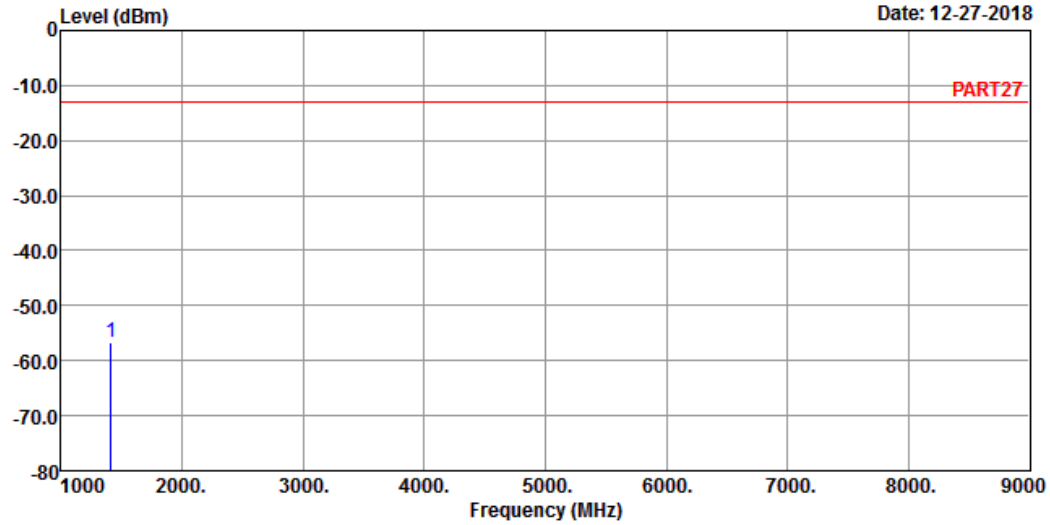
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_10M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1408.00	-53.58	-41.62	-13.00	-40.58	-11.96	Peak

Data: 2

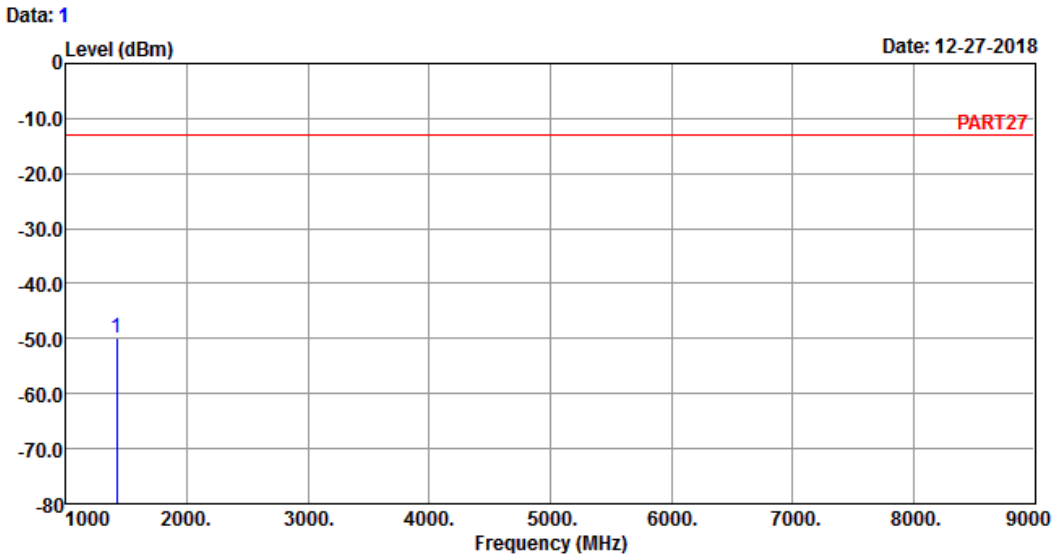


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 12 QPSK_10M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1408.00	-56.81	-44.85	-13.00	-43.81	-11.96	Peak

Middle Channel

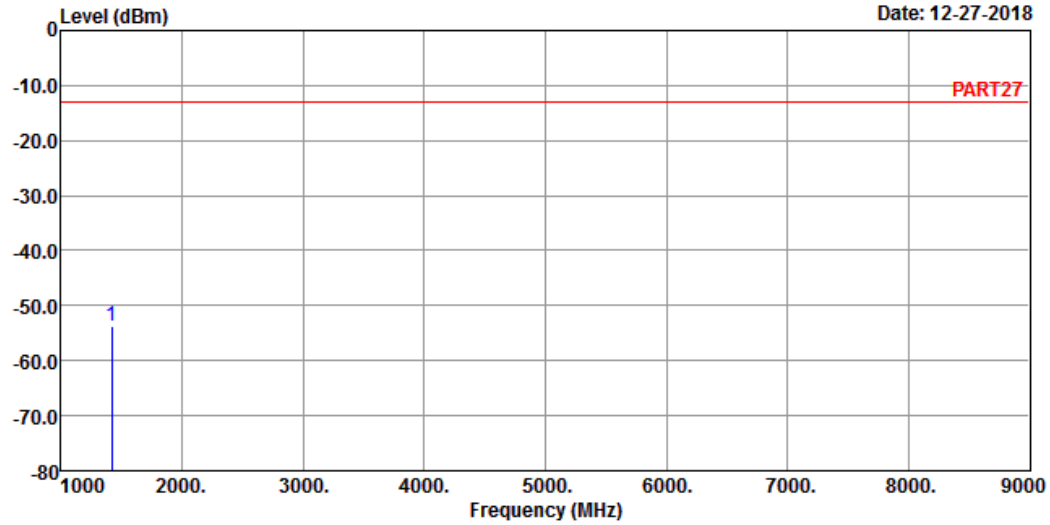
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_10M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-50.03	-37.95	-13.00	-37.03	-12.08	Peak

Data: 2

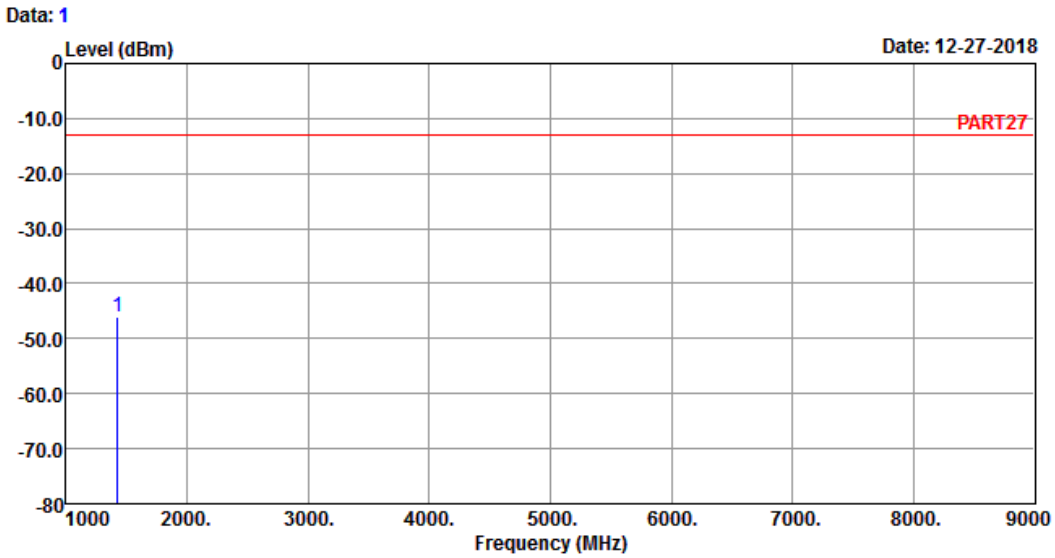


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 12 QPSK_10M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-53.86	-41.78	-13.00	-40.86	-12.08	Peak

High Channel

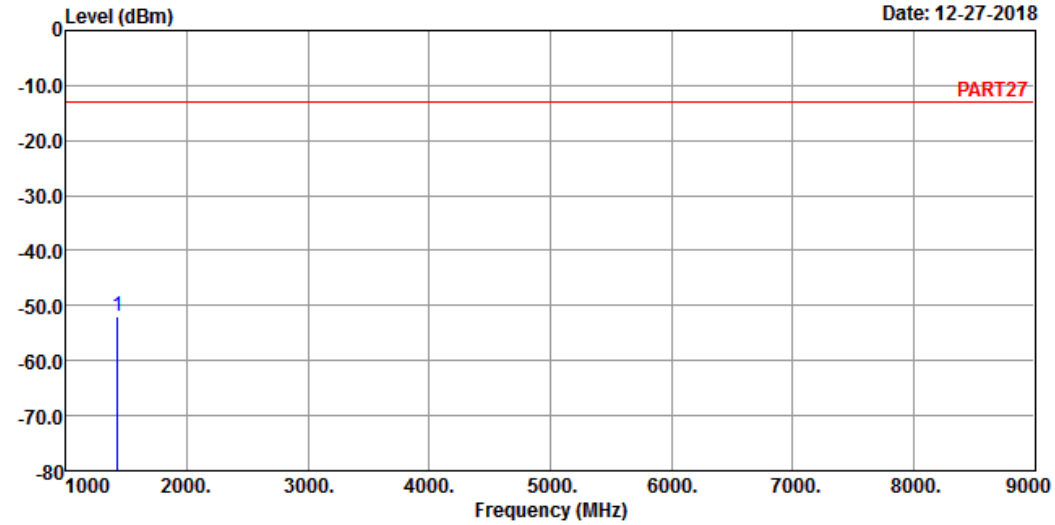
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_10M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1422.00	-46.11	-33.92	-13.00	-33.11	-12.19	Peak

Data: 2

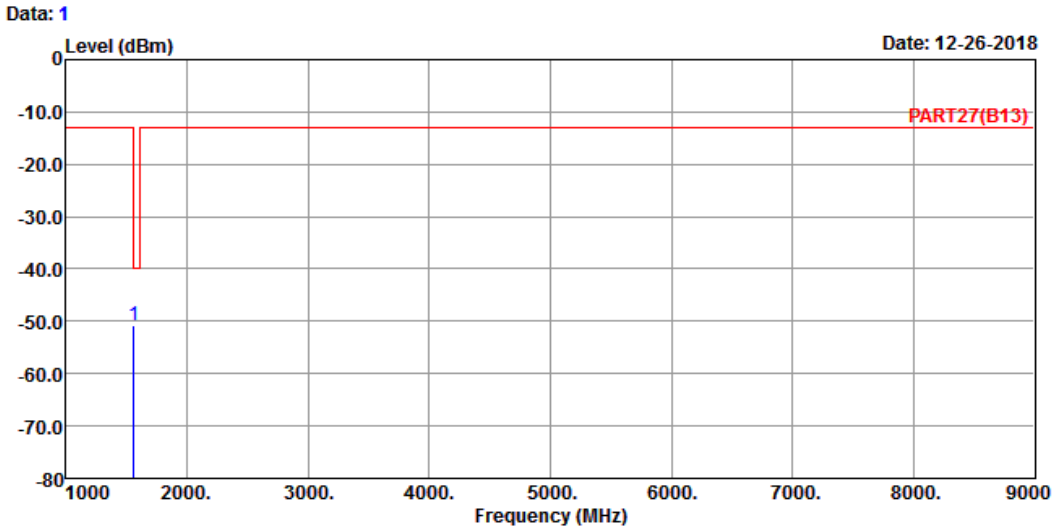


Site : 966 Chamber 5
Condition: PART27 VERTICAL
Remak : Cat-M1 Band 12 QPSK_10M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1422.00	-52.08	-39.89	-13.00	-39.08	-12.19	Peak

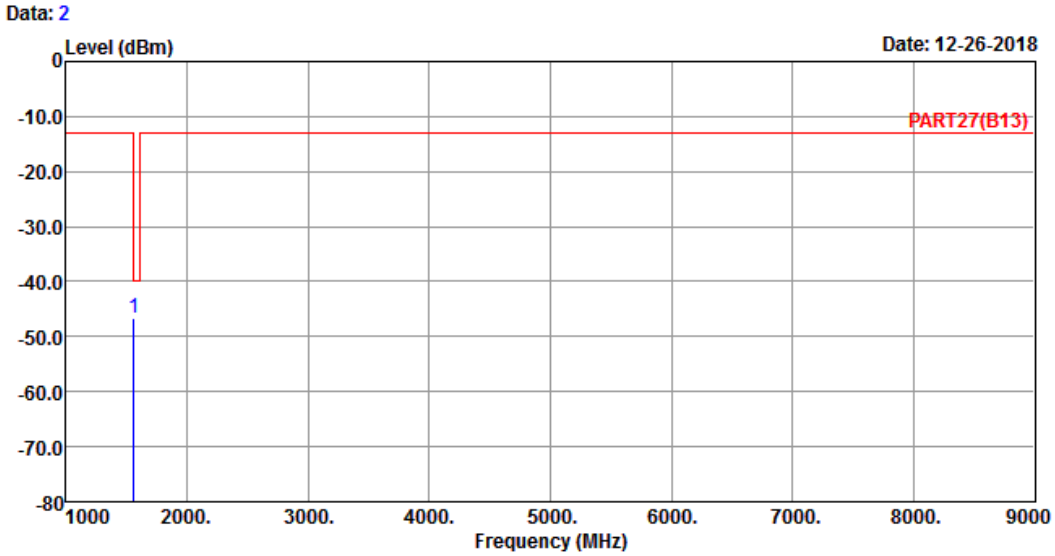
LTE Band 13
Channel Bandwidth: 5 MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : Cat-M1 Band 13 QPSK_5M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1559.00	-50.72	-37.40	-40.00	-10.72	-13.32	Peak

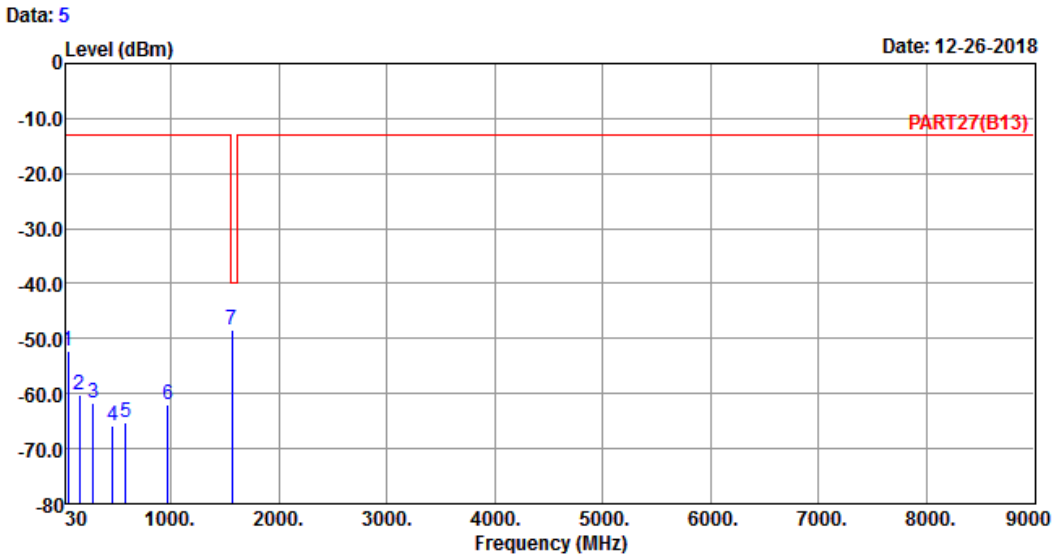


Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : Cat-M1 Band 13 QPSK_5M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1559.00	-46.71	-33.39	-40.00	-6.71	-13.32	Peak

Middle Channel

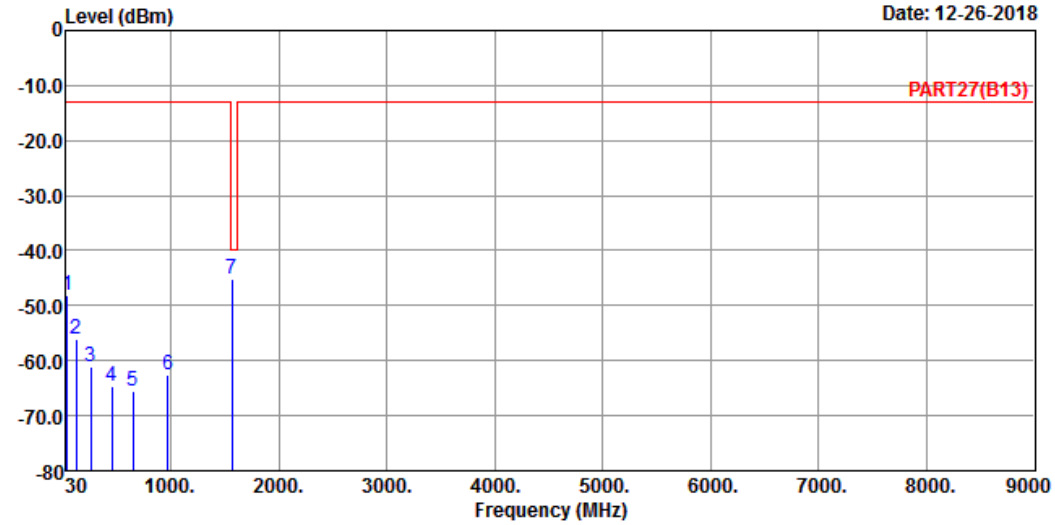
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : Cat-M1 Band 13 QPSK_5M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-52.21	-50.22	-13.00	-39.21	-1.99	Peak
2	151.25	-60.25	-52.95	-13.00	-47.25	-7.30	Peak
3	280.26	-61.82	-55.21	-13.00	-48.82	-6.61	Peak
4	458.74	-65.85	-60.46	-13.00	-52.85	-5.39	Peak
5	580.96	-65.25	-63.69	-13.00	-52.25	-1.56	Peak
6	967.99	-61.97	-64.42	-13.00	-48.97	2.45	Peak
7 pp	1564.00	-48.38	-35.04	-40.00	-8.38	-13.34	Peak

Data: 6

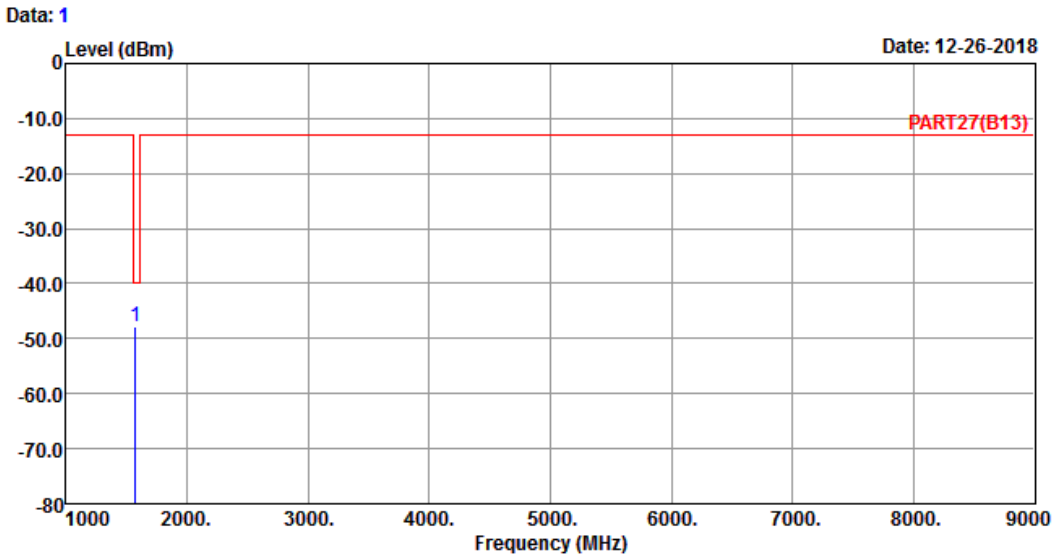


Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : Cat-M1 Band 13 QPSK_5M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	42.61	-48.13	-47.19	-13.00	-35.13	-0.94	Peak
2	121.18	-56.11	-46.38	-13.00	-43.11	-9.73	Peak
3	257.95	-61.10	-54.95	-13.00	-48.10	-6.15	Peak
4	454.86	-64.72	-59.26	-13.00	-51.72	-5.46	Peak
5	648.86	-65.45	-64.57	-13.00	-52.45	-0.88	Peak
6	973.81	-62.48	-65.13	-13.00	-49.48	2.65	Peak
7 pp	1564.00	-45.16	-31.82	-40.00	-5.16	-13.34	Peak

High Channel

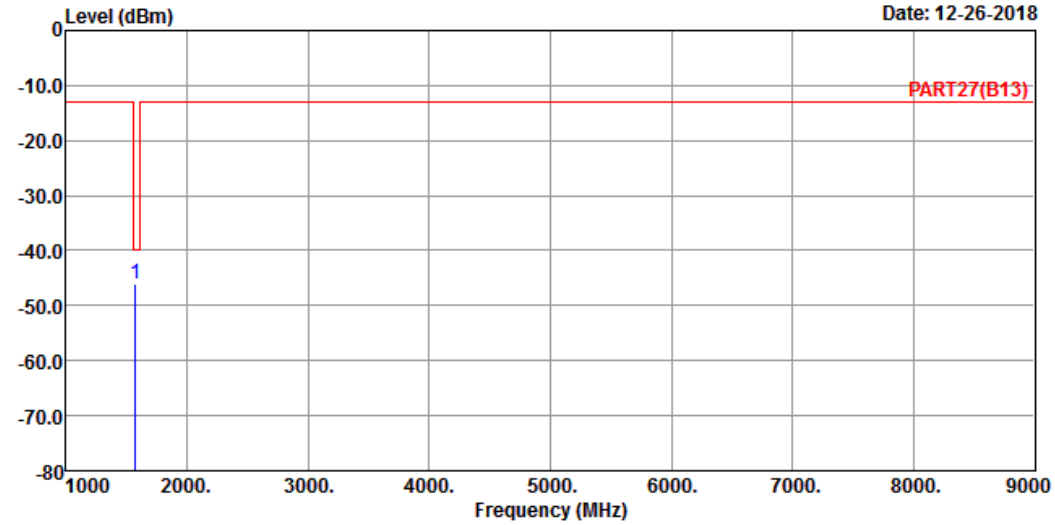
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : Cat-M1 Band 13 QPSK_5M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1569.00	-47.69	-34.34	-40.00	-7.69	-13.35	Peak

Data: 2

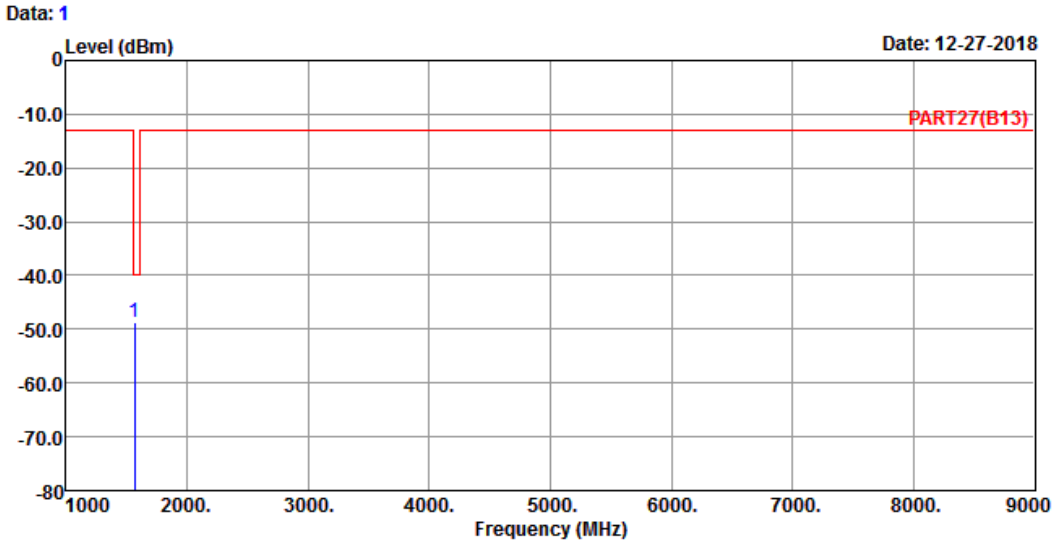


Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : Cat-M1 Band 13 QPSK_5M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1569.00	-46.13	-32.78	-40.00	-6.13	-13.35	Peak

Channel Bandwidth: 10 MHz / QPSK
Middle Channel

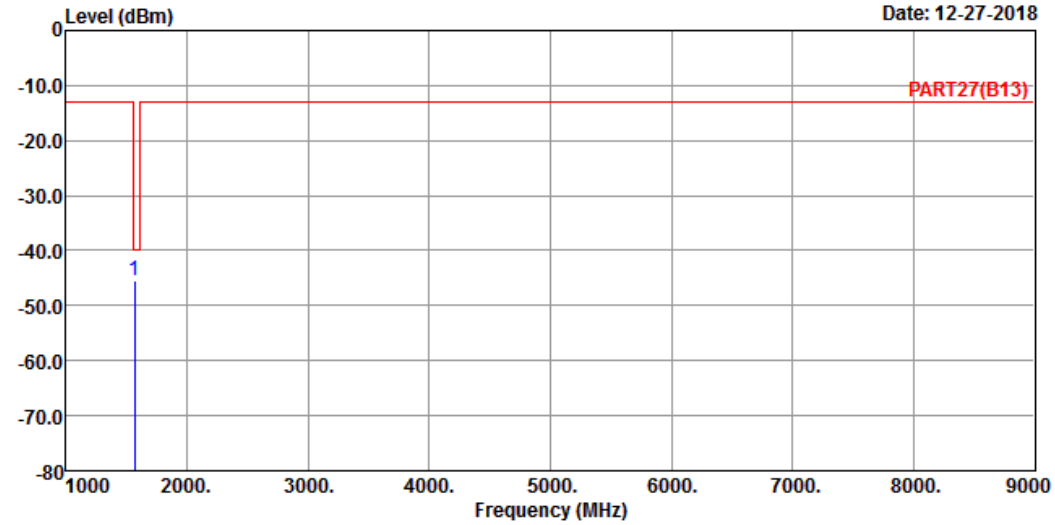
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : Cat-M1 Band 13 QPSK_10M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1564.00	-48.71	-35.37	-40.00	-8.71	-13.34	Peak

Data: 2



Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : Cat-M1 Band 13 QPSK_10M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1564.00	-45.42	-32.08	-40.00	-5.42	-13.34	Peak

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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