

FCC Test Report (Part 27)

Report No.: RF180504E08-2

FCC ID: NKR-IMG2

Test Model: IMG2

Received Date: May 16, 2018

Test Date: Aug. 05 ~ Aug. 06, 2018

Issued Date: Aug. 10, 2018

Applicant: Wistron NeWeb Corporation

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

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
RF180504E08-2	Original release	Aug. 10, 2018

1 Certificate of Conformity

Product: IMG2 LTE module

Brand: Wistron Neweb Corporation

Test Model: IMG2

Sample Status: Engineering sample

Applicant: Wistron NeWeb Corporation

Test Date: Aug. 05 ~ Aug. 06, 2018

Standards: FCC Part 27, Subpart L, F

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 : Pettie Chen, **Date:** Aug. 10, 2018
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Aug. 10, 2018
Bruce Chen / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2				
FCC Clause		Test Item	Result	Remarks
LTE Band 4	LTE Band 13			
2.1046 27.50 (d)(4)	2.1046 27.50 (b)(10)	Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
----	----	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 27.54	2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049 27.53 (m)(6)	2.1049 27.53 (m)(6)	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(c)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(c)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(c)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -18.99dB at 1569.00MHz.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~ 1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Agilent	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer Agilent	N9010A	MY52220314	Nov. 24, 2017	Nov. 23, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	148	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 12, 2017	Nov. 11, 2018
Preamplifier EMCI	EMC 012645	980115	Oct. 20, 2017	Oct. 19, 2018
MXG Vector signal generator Agilent	N5182B	MY53050430	Oct. 24, 2017	Oct. 23, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 06, 2017	Dec. 05, 2018
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 16, 2017	Aug. 15, 2019
Preamplifier EMCI	EMC 330H	980112	Oct. 13, 2017	Oct. 12, 2018
Power Meter Anritsu	ML2495A	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8000 &3000	140811+170717	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(1 40807)	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 20, 2017	Oct. 19, 2018
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

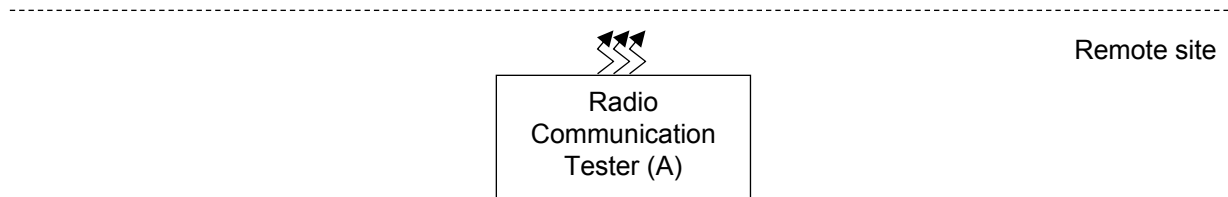
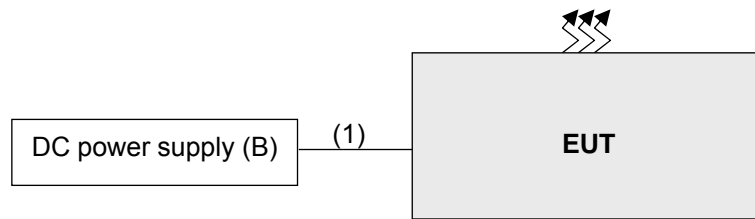
- Note: 1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-10.

3 General Information

3.1 General Description of EUT

Product	IMG2 LTE module			
Brand	Wistron Neweb Corporation			
Test Model	IMG2			
Status of EUT	Engineering sample			
Power Supply Rating	3.8Vdc (host)			
Modulation Type	LTE: QPSK, 16QAM			
Operating Frequency	LTE Band 4	Channel Bandwidth 1.4MHz	1710.7MHz ~ 1754.3MHz	
		Channel Bandwidth 3MHz	1711.5MHz ~ 1753.5MHz	
		Channel Bandwidth 5MHz	1712.5MHz ~ 1752.5MHz	
		Channel Bandwidth 10MHz	1715.0MHz ~ 1750.0MHz	
		Channel Bandwidth 15MHz	1717.5MHz ~ 1747.5MHz	
		Channel Bandwidth 20MHz	1720.0MHz ~ 1745.0MHz	
	LTE Band 13	Channel Bandwidth 5MHz	779.5MHz ~ 784.5MHz	
		Channel Bandwidth 10MHz	782.0MHz	
Max. EIRP Power	LTE Band 4		QPSK	16QAM
		Channel Bandwidth 1.4MHz	179.89mW (22.55dBm)	143.22mW (21.56dBm)
		Channel Bandwidth 3MHz	190.99mW (22.81dBm)	150.66mW (21.78dBm)
		Channel Bandwidth 5MHz	201.84mW (23.05dBm)	159.59mW (22.03dBm)
		Channel Bandwidth 10MHz	211.84mW (23.26dBm)	168.66mW (22.27dBm)
		Channel Bandwidth 15MHz	224.91mW (23.52dBm)	178.24mW (22.51dBm)
		Channel Bandwidth 20MHz	237.14mW (23.75dBm)	187.50mW (22.73dBm)
Max. ERP Power	LTE Band 13	Channel Bandwidth 5MHz	305.49mW (24.85dBm)	243.22mW (23.86dBm)
		Channel Bandwidth 10MHz	282.49mW (24.51dBm)	223.87mW (23.50dBm)
Emission Designator	LTE Band 4		QPSK	16QAM
		Channel Bandwidth 1.4MHz	1M12G7D	1M12W7D
		Channel Bandwidth 3MHz	2M72G7D	2M71W7D
		Channel Bandwidth 5MHz	4M48G7D	4M48W7D
		Channel Bandwidth 10MHz	8M93G7D	8M96W7D
		Channel Bandwidth 15MHz	13M4G7D	13M4W7D
	Channel Bandwidth 20MHz	17M9G7D	17M9W7D	
	LTE Band 13	Channel Bandwidth 5MHz	4M50G7D	4M48W7D
Channel Bandwidth 10MHz		8M96G7D	8M96W7D	
Antenna Connector	LTE Band 4: Dipole antenna with 1.62dBi gain LTE Band 13: Dipole antenna with 1.66dBi gain			
Antenna Connector	NA			
Accessory Device	NA			
Data Cable Supplied	NA			

3.2 Configuration of System under Test



3.2.1 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Tester	Anritsu	MT8820C	6201300640	NA	-
B.	DC power supply	Topward	3303D	NA	NA	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1.0	N	0	-

3.3 Test Mode Applicability and Tested Channel Detail

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

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	19957 to 20393	20175(1732.5MHz)	1.4MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20175(1732.5MHz)	20MHz	QPSK / 16QAM	100 RB / 0 RB Offset
-	Frequency Stability	19957 to 20393	20175(1732.5MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
-	Emission Bandwidth	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK / 16QAM	6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK / 16QAM	15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK / 16QAM	25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK / 16QAM	50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK / 16QAM	75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK / 16QAM	100 RB / 0 RB Offset
-	Band Edge	19957 to 20393	19957(1710.7MHz), 20393(1754.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20385(1753.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20375(1752.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20350(1750.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20325(1747.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20300(1745.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset

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

LTE Band 13

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23205 to 23255	23230(782.0MHz),	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		23230	23230(782.0MHz),	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Frequency Stability	23205 to 23255	23230(782.0MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Emission Bandwidth	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK / 16QAM	25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK / 16QAM	50 RB / 0 RB Offset
-	Band Edge	23205 to 23255	23205(779.5MHz), 23255(784.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Peak to Average Ratio	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK / 16QAM	25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK / 16QAM	50 RB / 0 RB Offset
-	Conducted Emission	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23230	23230(782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 50 RB / 0 RB Offset

Note:

1. The conducted output power for QPSK, 16QAM, and measured value of QPSK is higher than 16QAM mode. Therefore, only occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM modes, the other test items were performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP/ERP	22deg. C, 66%RH	120Vac, 60Hz	Han Wu
Modulation characteristics	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Frequency Stability	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Occupied Bandwidth	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Band Edge	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Conducted Emission	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Radiated Emission	22deg. C, 66%RH	120Vac, 60Hz	Jisyong Wang

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

Mobile / Portable station are limited to 1 watts e.i.r.p for LTE Band 4 and 3 watts e.r.p for LTE Band 13.

4.1.2 Test Procedures

EIRP / ERP Measurement:

- a. All measurements were done at low, middle and high operational frequency range. RWB and VBW is 5MHz for LTE Mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15\text{dBi}$.

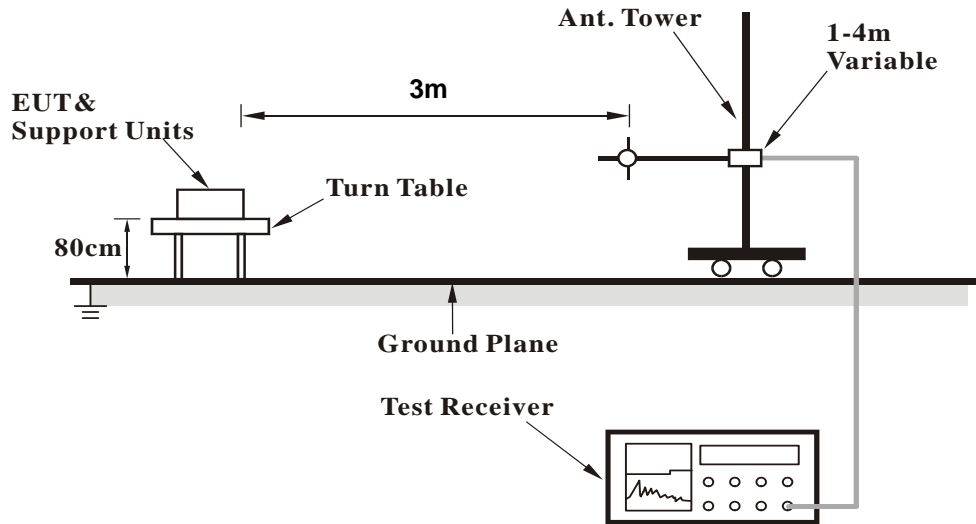
Conducted Power Measurement:

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

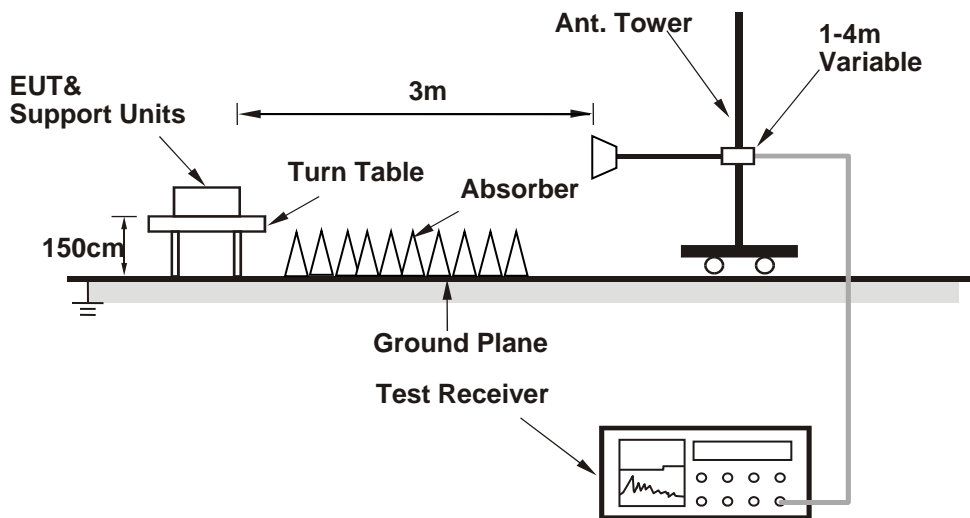
4.1.3 Test Setup

EIRP / ERP MEASUREMENT:

For Radiated Emission below or equal 1GHz

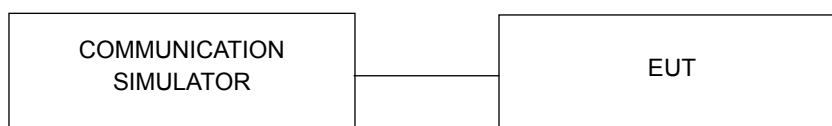


For Radiated Emission above 1GHz



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

CONDUCTED POWER MEASUREMENT:



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

4.1.4 Test Results

Conducted Output Power (dBm)

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19957	20175	20393	19957	20175	20393
			1710.7	1732.5	1754.3	1710.7	1732.5	1754.3
			MHz	MHz	MHz	MHz	MHz	MHz
4 / 1.4M	1	0	23.92	24.11	24.01	22.76	22.99	22.87
	1	2	23.87	24.03	23.98	22.65	22.96	22.73
	1	5	23.81	24.06	23.94	22.68	22.87	22.71
	3	0	23.76	24.08	23.86	22.42	22.86	22.61
	3	1	23.78	24.05	24.02	22.39	22.87	22.69
	3	3	23.71	24.01	23.96	22.28	22.81	22.67
	6	0	22.87	23.27	23.06	22.26	22.54	22.43

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19965	20175	20385	19965	20175	20385
			1711.5	1732.5	1753.5	1711.5	1732.5	1753.5
			MHz	MHz	MHz	MHz	MHz	MHz
4 / 3M	1	0	23.96	24.17	24.02	22.98	23.26	23.01
	1	7	24.03	24.11	24.06	22.98	23.18	23.06
	1	14	24.06	24.14	24.09	22.97	23.12	22.87
	8	0	23.18	23.33	23.18	22.46	22.48	22.76
	8	3	23.15	23.18	23.26	22.41	22.57	22.77
	8	7	23.11	23.26	23.21	22.48	22.52	22.46
	15	0	23.19	23.45	23.39	22.17	22.41	22.29

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19975	20175	20375	19975	20175	20375
			1712.5	1732.5	1752.5	1712.5	1732.5	1752.5
			MHz	MHz	MHz	MHz	MHz	MHz
4 / 5M	1	0	23.87	24.29	24.11	23.11	23.36	23.25
	1	12	24.03	24.21	24.06	23.16	23.16	23.21
	1	24	24.01	24.26	23.99	23.09	23.18	23.06
	12	0	23.92	24.21	24.16	22.76	22.95	22.86
	12	6	23.91	24.18	24.07	22.71	22.91	22.95
	12	13	24.03	24.06	24.04	22.73	22.96	22.73
	25	0	23.09	23.38	23.16	22.58	22.77	22.61

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20000	20175	20350	20000	20175	20350
			1715	1732.5	1750	1715	1732.5	1750
			MHz	MHz	MHz	MHz	MHz	MHz
4 / 10M	1	0	24.07	24.55	24.29	23.21	23.76	23.69
	1	24	24.11	24.29	24.18	23.06	23.11	23.61
	1	49	24.18	24.36	24.11	23.01	23.68	23.62
	25	0	23.39	23.45	23.38	23.06	23.38	23.29
	25	12	23.21	23.27	23.16	23.11	23.31	23.25
	25	25	23.11	23.21	23.19	22.96	23.34	23.06
	50	0	23.16	23.49	23.26	22.69	23.01	22.87

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20025	20175	20325	20025	20175	20325
			1717.5	1732.5	1747.5	1717.5	1732.5	1747.5
			MHz	MHz	MHz	MHz	MHz	MHz
4 / 15M	1	0	24.02	24.35	24.11	23.18	23.67	23.25
	1	37	23.87	24.18	24.03	22.96	23.61	23.18
	1	74	23.87	24.12	24.09	22.96	23.62	23.16
	36	0	23.39	23.55	23.31	22.98	23.16	23.01
	36	19	23.26	23.41	23.18	22.96	23.25	23.06
	36	39	23.27	23.39	23.27	23.04	23.24	23.09
	75	0	23.76	23.94	23.88	23.14	23.36	23.18

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20050	20175	20300	20050	20175	20300
			1720	1732.5	1745	1720	1732.5	1745
			MHz	MHz	MHz	MHz	MHz	MHz
4 / 20M	1	0	23.98	24.23	24.06	22.76	23.06	22.85
	1	50	23.92	24.21	23.96	22.71	23.01	22.79
	1	99	23.91	24.18	23.92	22.74	23.04	22.81
	50	0	23.25	23.67	23.52	22.06	22.26	22.20
	50	25	23.18	23.65	23.54	22.01	22.18	22.19
	50	50	23.25	23.69	23.28	22.12	22.19	22.11
	100	0	23.11	23.65	23.17	22.01	22.14	22.18

Band / BW	RB Size	RB Offset	QPSK			16QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			23205 779.5 MHz	23230 782 MHz	23255 784.5 MHz	23205 779.5 MHz	23230 782 MHz	23255 784.5 MHz
13 / 5M	1	0	25.06	25.35	25.27	24.18	24.56	24.39
	1	12	24.99	25.28	25.20	24.07	24.48	24.28
	1	24	25.01	25.21	25.16	24.09	24.39	24.21
	12	0	24.98	25.10	25.02	23.87	24.45	24.29
	12	6	24.96	25.06	24.96	23.90	24.38	24.11
	12	13	24.99	25.08	24.98	23.94	24.36	24.16
	25	0	23.29	23.52	23.47	22.71	22.96	22.79

Band / BW	RB Size	RB Offset	QPSK	16QAM
			Low CH	Mid CH
			23230 782 MHz	23230 782 MHz
13 / 10M	1	0	25.23	24.18
	1	24	25.18	24.09
	1	49	25.10	24.07
	25	0	24.10	23.25
	25	12	24.06	23.28
	25	25	24.12	23.16
	50	0	23.30	22.29

EIRP Power (dBm)

LTE Band 4							
Channel Bandwidth: 1.4MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19957	1710.7	-13.90	36.45	22.55	179.89	H
	20175	1732.5	-14.37	36.80	22.43	174.98	
	20393	1754.3	-14.62	36.94	22.32	170.61	
	19957	1710.7	-19.80	37.28	17.48	55.98	V
	20175	1732.5	-20.41	37.63	17.22	52.72	
	20393	1754.3	-20.56	37.64	17.08	51.05	
Channel Bandwidth: 3MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19965	1711.5	-13.64	36.45	22.81	190.99	H
	20175	1732.5	-14.11	36.80	22.69	185.78	
	20385	1753.5	-14.36	36.94	22.58	181.13	
	19965	1711.5	-19.54	37.28	17.74	59.43	V
	20175	1732.5	-20.15	37.63	17.48	55.98	
	20385	1753.5	-20.30	37.64	17.34	54.20	
Channel Bandwidth: 5MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19975	1712.5	-13.40	36.45	23.05	201.84	H
	20175	1732.5	-13.87	36.80	22.93	196.34	
	20375	1752.5	-14.12	36.94	22.82	191.43	
	19975	1712.5	-19.30	37.28	17.98	62.81	V
	20175	1732.5	-19.91	37.63	17.72	59.16	
	20375	1752.5	-20.06	37.64	17.58	57.28	
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20000	1715.0	-13.38	36.64	23.26	211.84	H
	20175	1732.5	-13.66	36.80	23.14	206.06	
	20350	1750.0	-13.77	36.80	23.03	200.91	
	20000	1715.0	-19.25	37.44	18.19	65.92	V
	20175	1732.5	-19.70	37.63	17.93	62.09	
	20350	1750.0	-19.85	37.64	17.79	60.12	

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

Channel Bandwidth: 15MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20025	1717.5	-12.93	36.45	23.52	224.91	H
	20175	1732.5	-13.40	36.80	23.40	218.78	
	20325	1747.5	-13.65	36.94	23.29	213.30	
	20025	1717.5	-18.83	37.28	18.45	69.98	V
	20175	1732.5	-19.44	37.63	18.19	65.92	
	20325	1747.5	-19.59	37.64	18.05	63.83	
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20050	1720.0	-12.70	36.45	23.75	237.14	H
	20175	1732.5	-13.17	36.80	23.63	230.67	
	20300	1745.0	-13.42	36.94	23.52	224.91	
	20050	1720.0	-18.60	37.28	18.68	73.79	V
	20175	1732.5	-19.21	37.63	18.42	69.50	
	20300	1745.0	-19.36	37.64	18.28	67.30	

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

LTE Band 4							
Channel Bandwidth: 1.4MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19957	1710.7	-14.89	36.45	21.56	143.22	H
	20175	1732.5	-15.36	36.80	21.44	139.32	
	20393	1754.3	-15.61	36.94	21.33	135.83	
	19957	1710.7	-20.79	37.28	16.49	44.57	V
	20175	1732.5	-21.40	37.63	16.23	41.98	
	20393	1754.3	-21.55	37.64	16.09	40.64	
Channel Bandwidth: 3MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19965	1711.5	-14.67	36.45	21.78	150.66	H
	20175	1732.5	-15.14	36.80	21.66	146.55	
	20385	1753.5	-15.39	36.94	21.55	142.89	
	19965	1711.5	-20.57	37.28	16.71	46.88	V
	20175	1732.5	-21.18	37.63	16.45	44.16	
	20385	1753.5	-21.33	37.64	16.31	42.76	
Channel Bandwidth: 5MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19975	1712.5	-14.42	36.45	22.03	159.59	H
	20175	1732.5	-14.89	36.80	21.91	155.24	
	20375	1752.5	-15.14	36.94	21.80	151.36	
	19975	1712.5	-20.32	37.28	16.96	49.66	V
	20175	1732.5	-20.93	37.63	16.70	46.77	
	20375	1752.5	-21.08	37.64	16.56	45.29	
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20000	1715.0	-14.37	36.64	22.27	168.66	H
	20175	1732.5	-14.65	36.80	22.15	164.06	
	20350	1750.0	-14.76	36.80	22.04	159.96	
	20000	1715.0	-20.24	37.44	17.20	52.48	V
	20175	1732.5	-20.69	37.63	16.94	49.43	
	20350	1750.0	-20.84	37.64	16.80	47.86	
Channel Bandwidth: 15MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20025	1717.5	-13.94	36.45	22.51	178.24	H
	20175	1732.5	-14.41	36.80	22.39	173.38	
	20325	1747.5	-14.66	36.94	22.28	169.04	
	20025	1717.5	-19.84	37.28	17.44	55.46	V
	20175	1732.5	-20.45	37.63	17.18	52.24	
	20325	1747.5	-20.60	37.64	17.04	50.58	

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

Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20050	1720.0	-13.72	36.45	22.73	187.50	H
	20175	1732.5	-14.19	36.80	22.61	182.39	
	20300	1745.0	-14.44	36.94	22.50	177.83	
	20050	1720.0	-19.62	37.28	17.66	58.34	V
	20175	1732.5	-20.23	37.63	17.40	54.95	
	20300	1745.0	-20.38	37.64	17.26	53.21	

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

LTE Band 13							
Channel Bandwidth: 5MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
X	23205	779.5	-5.24	32.24	24.85	305.49	H
	23230	782.0	-5.63	32.17	24.39	274.79	
	23255	784.5	-5.47	32.11	24.49	281.19	
	23205	779.5	-10.46	32.43	19.82	95.94	V
	23230	782.0	-11.13	32.42	19.14	82.04	
	23255	784.5	-11.29	32.46	19.02	79.80	
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
X	23230	782.0	-5.51	32.17	24.51	282.49	H
	23230	782.0	-11.02	32.42	19.25	84.14	V

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

LTE Band 13							
Channel Bandwidth: 5MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
X	23205	779.5	-6.23	32.24	23.86	243.22	H
	23230	782.0	-6.62	32.17	23.40	218.78	
	23255	784.5	-6.46	32.11	23.50	223.87	
	23205	779.5	-11.45	32.43	18.83	76.38	V
	23230	782.0	-12.12	32.42	18.15	65.31	
	23255	784.5	-12.28	32.46	18.03	63.53	
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
X	23230	782.0	-6.52	32.17	23.50	223.87	H
	23230	782.0	-12.03	32.42	18.24	66.68	V

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

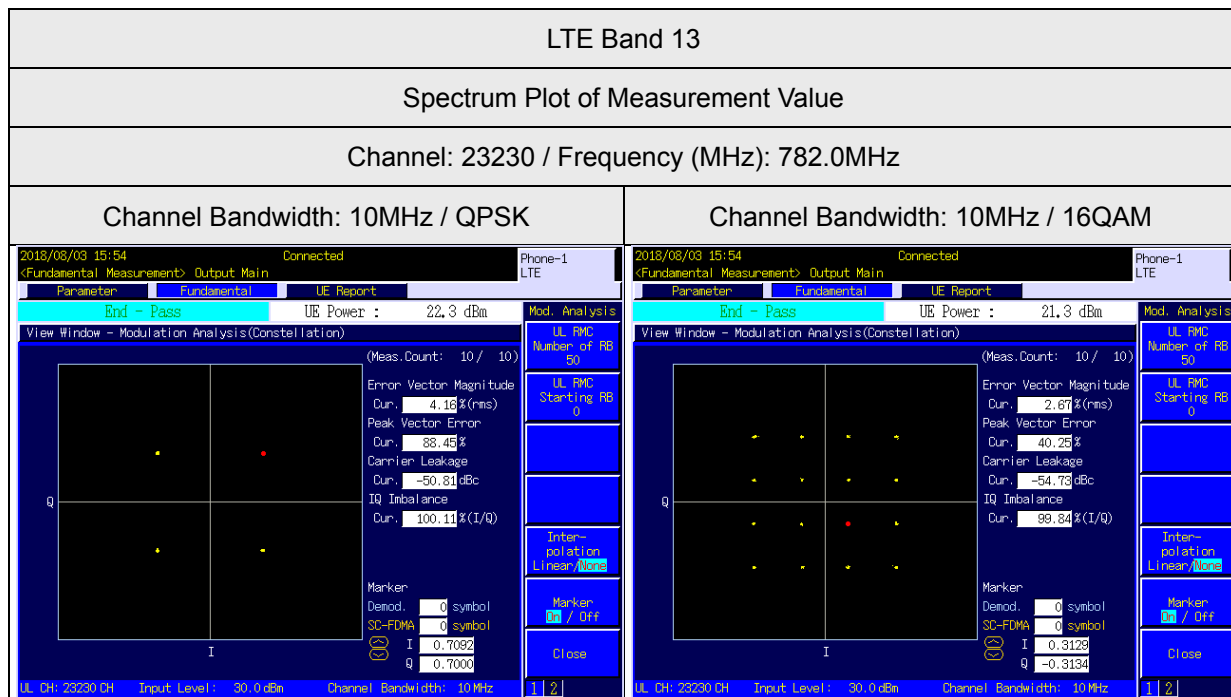
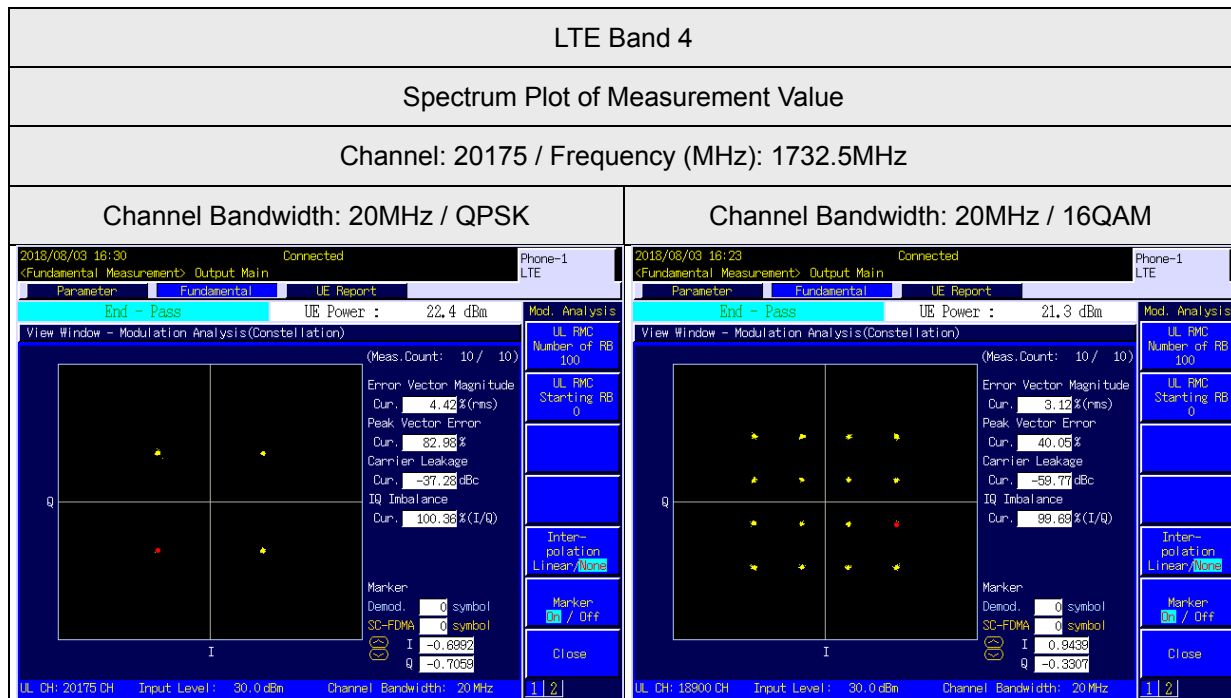
4.2.2 Test Procedure

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

4.2.3 Test Setup



4.2.4 Test Results



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

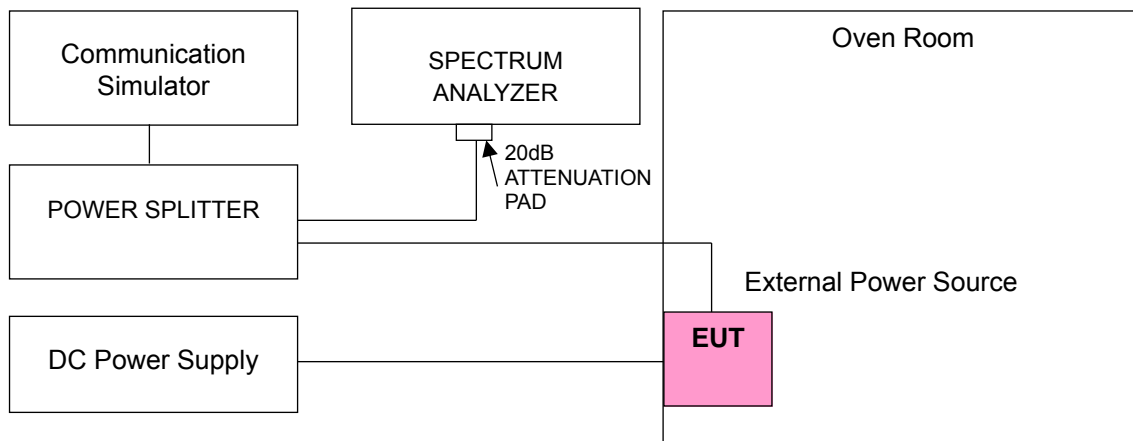
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary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

4.3.2 Test Procedure

- 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.
- 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.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	Frequency Error (ppm)		Limit (ppm)
	LTE Band 4	LTE Band 13	
4.4	0.08303	0.05351	2.5
3.8	0.09237	0.02875	2.5
3.2	0.06467	0.06273	2.5

Note: The applicant defined the normal working voltage is from 3.2Vdc to 4.4Vdc.

Frequency Error vs. Temperature

Voltage (Volts)	Frequency Error (ppm)		Limit (ppm)
	LTE Band 4	LTE Band 13	
50	0.05258	0.07663	2.5
40	0.02761	0.06283	2.5
30	0.06038	0.02589	2.5
20	0.09237	0.02875	2.5
10	0.09215	0.04135	2.5
0	0.08496	0.06013	2.5
-10	0.00585	0.01656	2.5
-20	0.06145	0.02940	2.5
-30	0.08320	0.06933	2.5

4.4 Emission Bandwidth Measurement

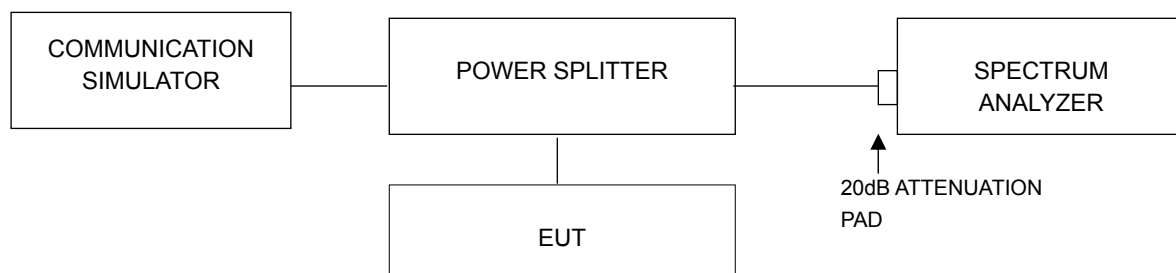
4.4.1 Limits of Emission Bandwidth Measurement

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

4.4.2 Test Procedure

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

4.4.3 Test Setup



4.4.4 Test Result

Occupied Bandwidth

LTE Band 4, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
19957	1710.7	1.12	1.11
20175	1732.5	1.12	1.11
20393	1754.3	1.11	1.12

LTE Band 4, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
19965	1711.5	2.70	2.71
20175	1732.5	2.72	2.70
20385	1753.5	2.71	2.70

LTE Band 4, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
19975	1712.5	4.48	4.46
20175	1732.5	4.46	4.48
20375	1752.5	4.46	4.48

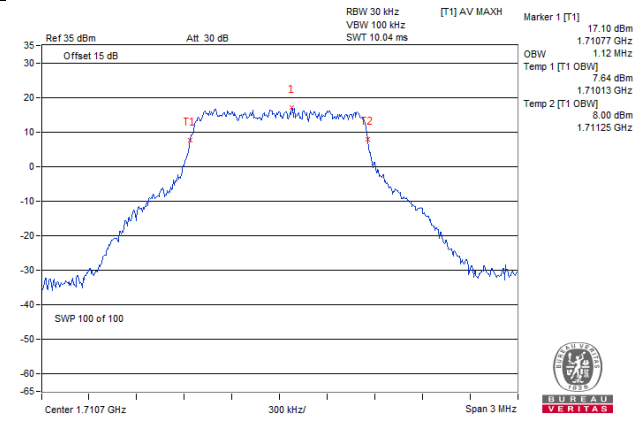
LTE Band 4, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
20000	1715.0	8.93	8.93
20175	1732.5	8.93	8.93
20350	1750.0	8.93	8.96

LTE Band 4, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
20025	1717.5	13.36	13.36
20175	1732.5	13.36	13.36
20325	1747.5	13.40	13.36

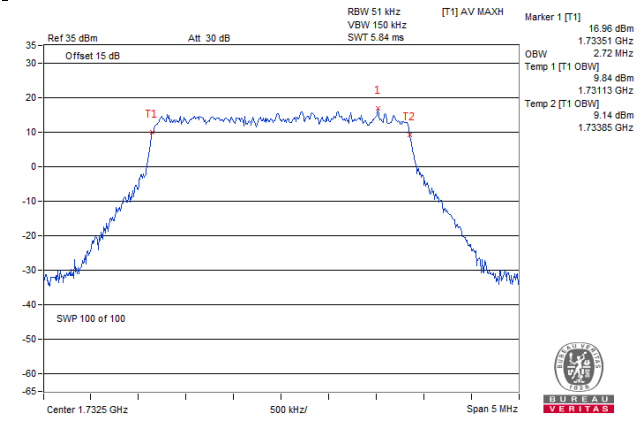
LTE Band 4, Channel Bandwidth 20MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
20050	1720.0	17.86	17.86
20175	1732.5	17.86	17.93
20300	1745.0	17.93	17.86

Occupied Bandwidth Spectrum Plot of Worst Value

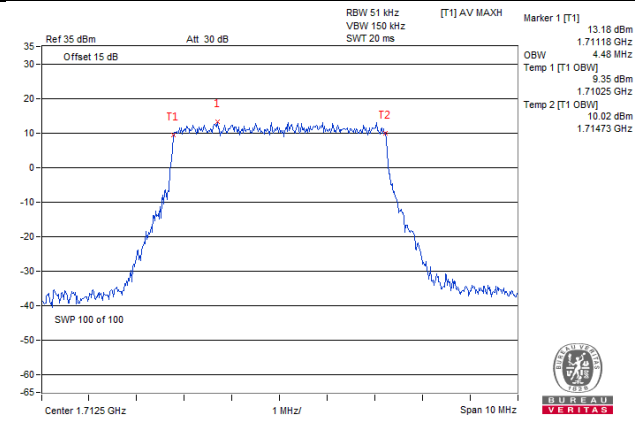
1.4MHz / QPSK



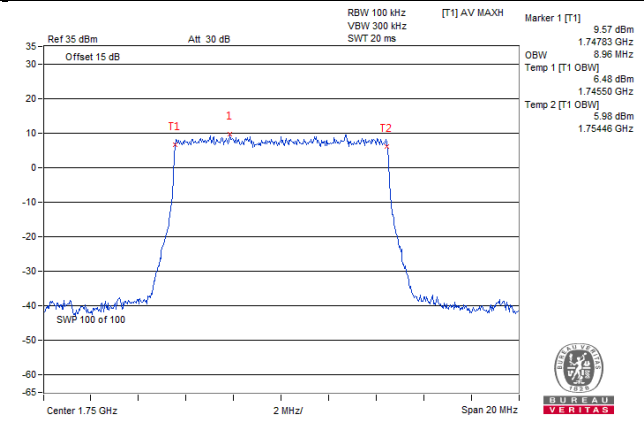
3MHz / QPSK



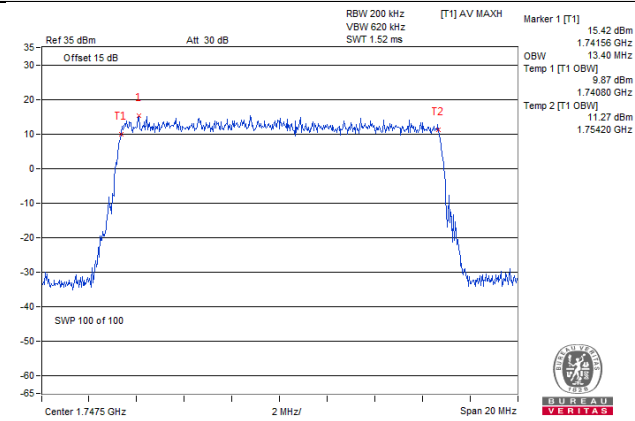
5MHz / QPSK



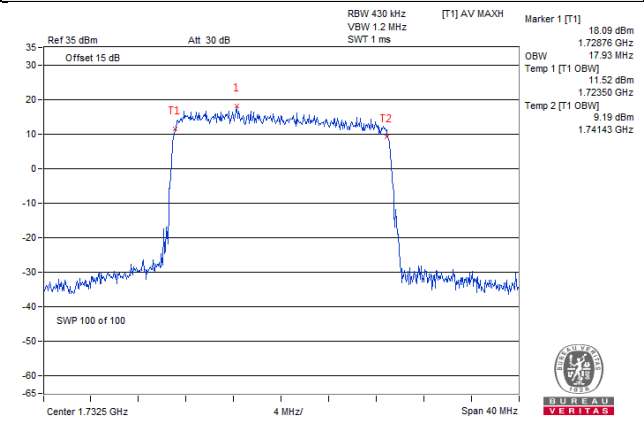
10MHz / 16QAM



15MHz / QPSK



20MHz / 16QAM



LTE Band 4, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
19957	1710.7	1.520	1.610
20175	1732.5	1.664	1.436
20393	1754.3	1.551	1.560

LTE Band 4, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
19965	1711.5	3.245	3.183
20175	1732.5	3.313	3.323
20385	1753.5	3.216	3.277

LTE Band 4, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
19975	1712.5	5.034	5.142
20175	1732.5	5.149	5.099
20375	1752.5	5.154	5.186

LTE Band 4, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
20000	1715.0	9.745	9.793
20175	1732.5	9.617	9.710
20350	1750.0	9.726	9.766

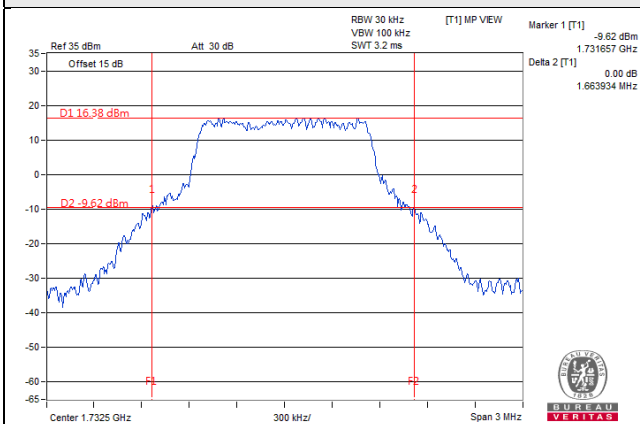
LTE Band 4, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
20025	1717.5	14.414	14.445
20175	1732.5	14.421	14.422
20325	1747.5	14.527	14.419

LTE Band 4, Channel Bandwidth 20MHz			
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
20050	1720.0	19.248	19.405
20175	1732.5	19.300	19.306
20300	1745.0	19.370	19.316

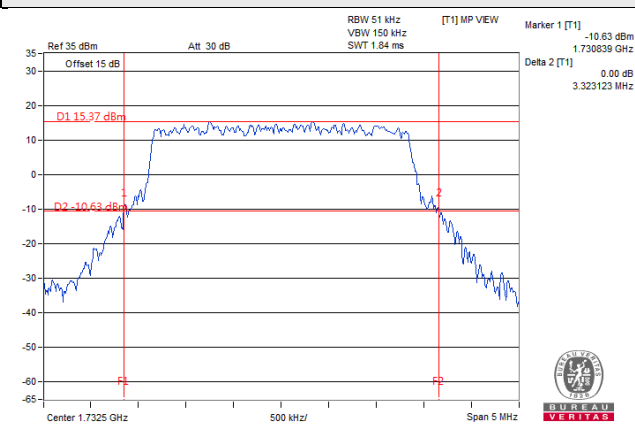
26dBc Bandwidth

Spectrum Plot of Worst Value

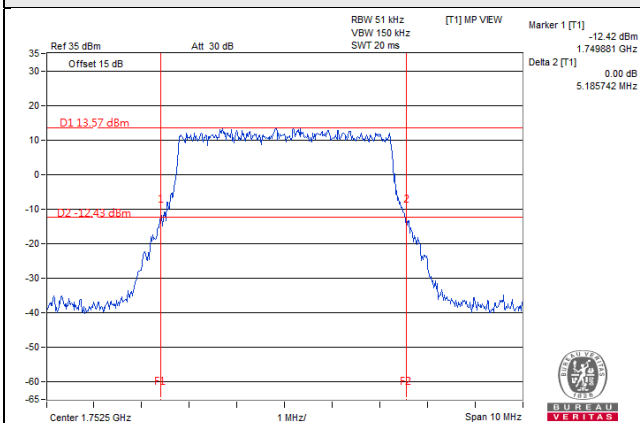
1.4MHz / QPSK



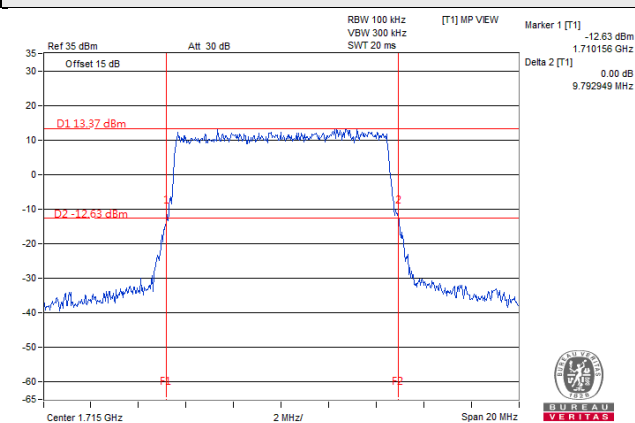
3MHz / 16QAM



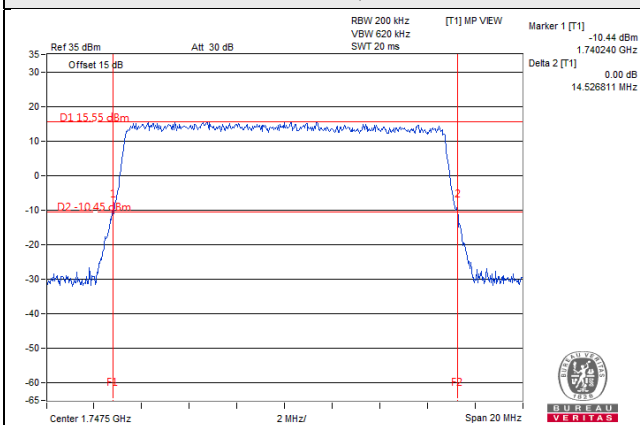
5MHz / 16QAM



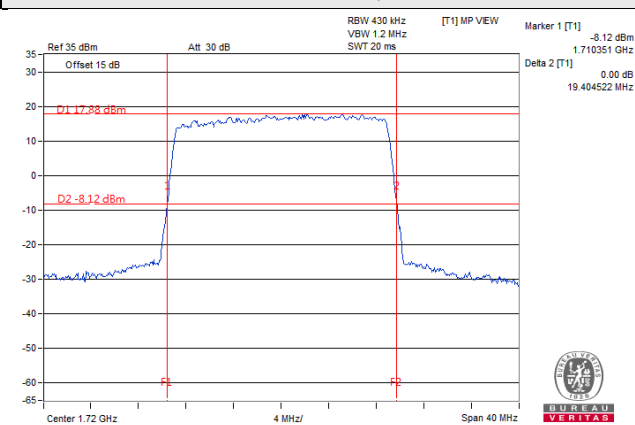
10MHz / 16QAM



15MHz / QPSK



20MHz / 16QAM



LTE Band 13, Channel Bandwidth 5MHz

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
23205	779.5	4.50	4.48
23230	782.0	4.46	4.46
23255	784.5	4.46	4.46

LTE Band 13, Channel Bandwidth 10MHz

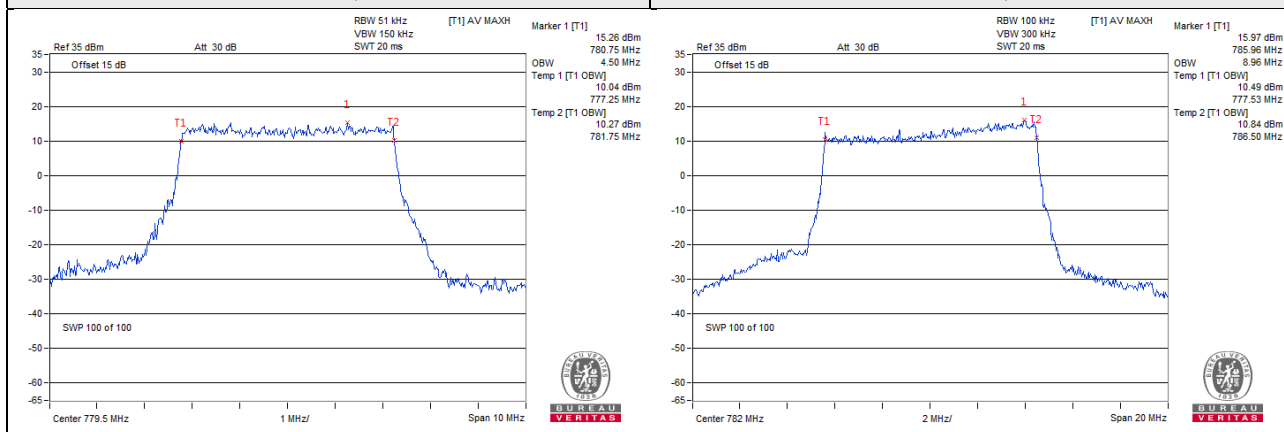
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
23230	782.0	8.96	8.96

Occupied Bandwidth

Spectrum Plot of Worst Value

5MHz / QPSK

10MHz / QPSK



LTE Band 13, Channel Bandwidth 5MHz

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
23205	779.5	5.142	5.210
23230	782.0	5.060	5.106
23255	784.5	5.016	5.055

LTE Band 13, Channel Bandwidth 10MHz

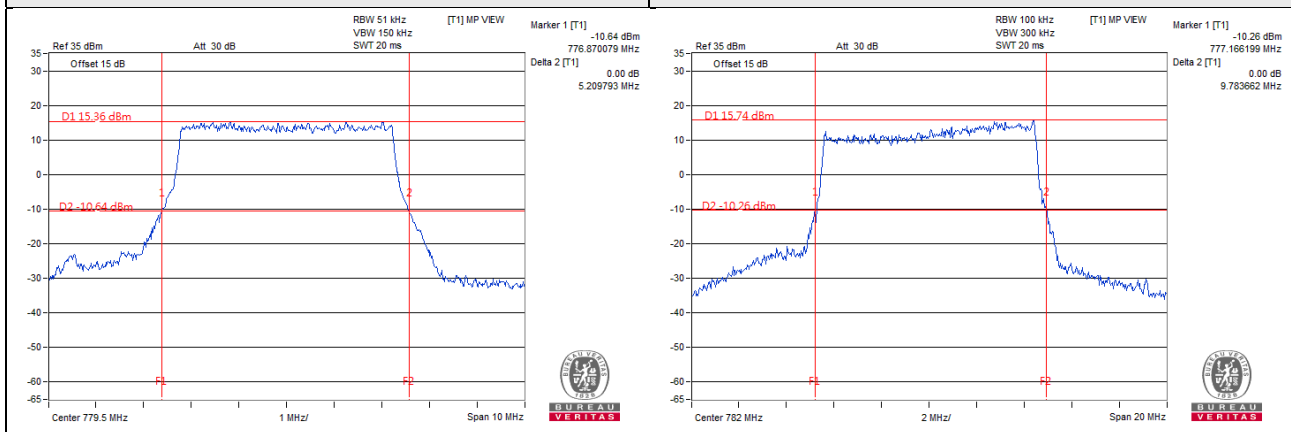
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		QPSK	16QAM
23230	782.0	9.784	9.750

26dBc Bandwidth

Spectrum Plot of Worst Value

5MHz / 16QAM

10MHz / QPSK



4.5 Channel Edge Measurement

4.5.1 Limits of Band Edge Measurement

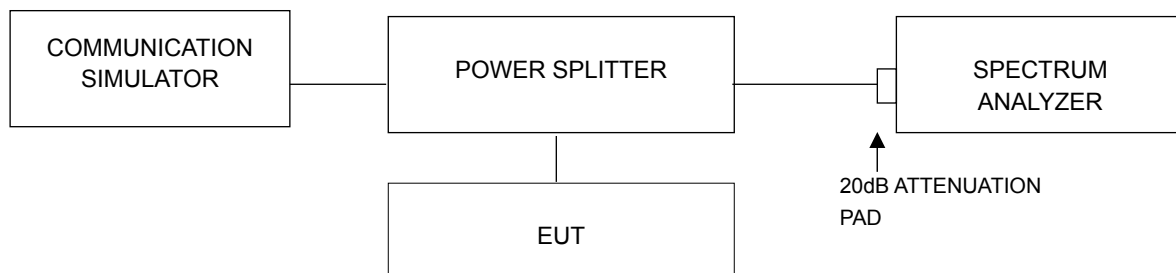
For LTE Band 4

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

For LTE Band 13

According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB.

4.5.2 Test Setup

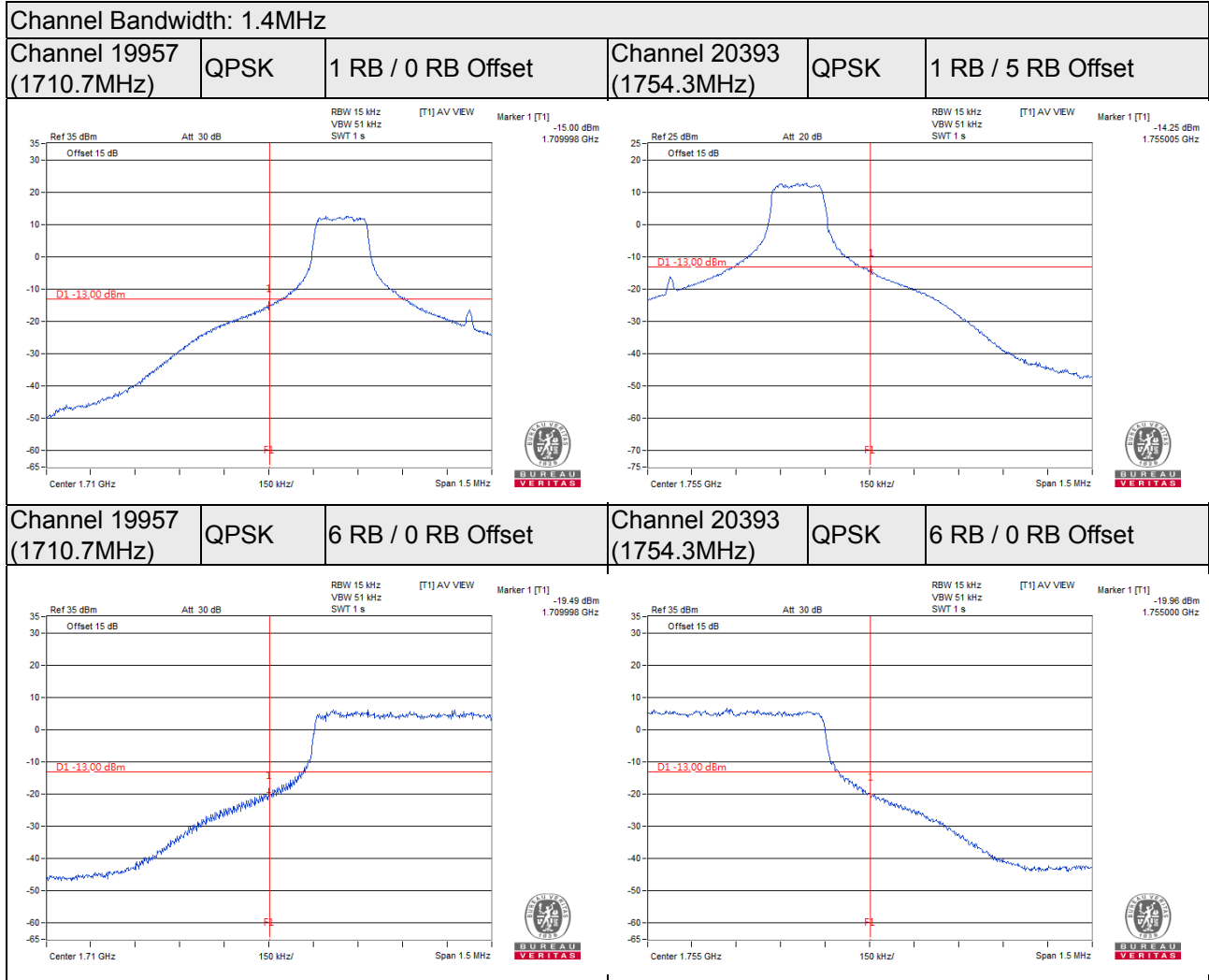


4.5.3 Test Procedures

- The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RBW = 15kHz and VBW = 51kHz (Channel Bandwidth: 1.4MHz), RBW = 30kHz and VBW = 100kHz (Channel Bandwidth: 3MHz/1RB), RBW = 51kHz and VBW = 150kHz (Channel Bandwidth: 3MHz/Full RB), RBW = 51kHz and VBW = 150kHz (Channel Bandwidth: 5MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 10MHz), RBW = 200kHz and VBW = 620kHz (Channel Bandwidth: 15MHz), RBW = 180kHz and VBW = 560kHz (Channel Bandwidth: 20MHz/1 RB) and RBW = 430kHz and VBW = 1.2MHz (Channel Bandwidth: 20MHz/Full RB).
- Record the max trace plot into the test report.

4.5.4 Test Results

LTE Band 4



Channel Bandwidth: 3MHz

**Channel 19965
(1711.5MHz)**

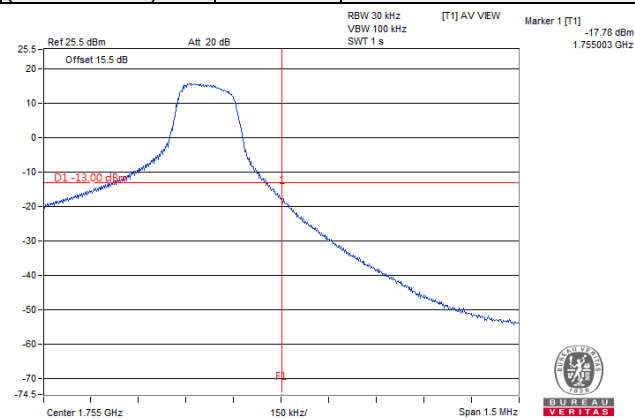
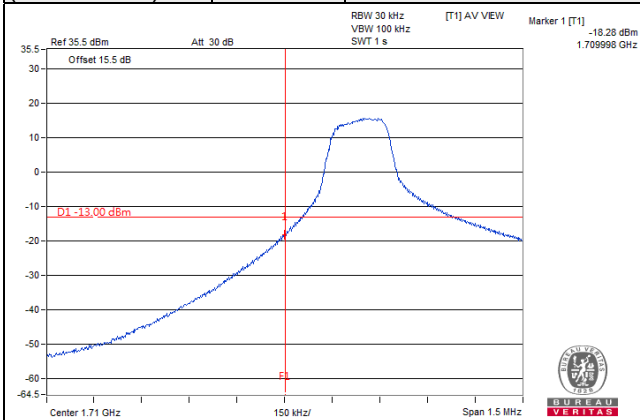
QPSK

1 RB / 0 RB Offset

**Channel 20385
(1753.5MHz)**

QPSK

1 RB / 14 RB Offset



**Channel 19965
(1711.5MHz)**

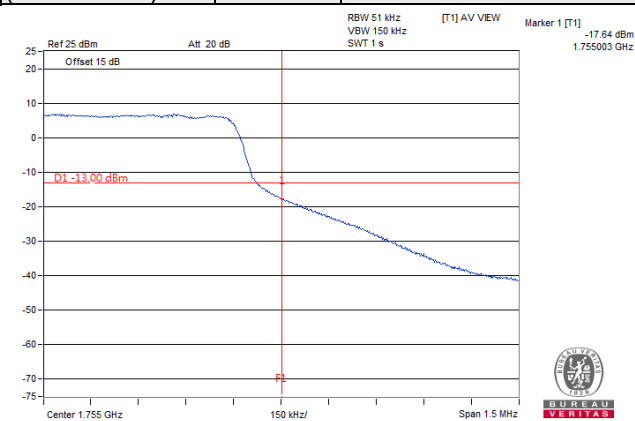
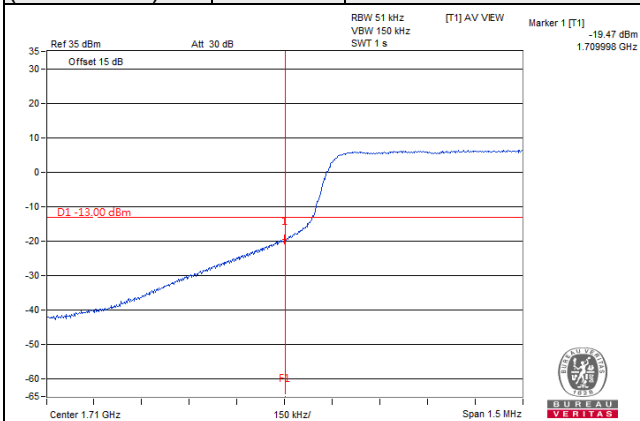
QPSK

15 RB / 0 RB Offset

**Channel 20385
(1753.5MHz)**

QPSK

15 RB / 0 RB Offset



Channel Bandwidth: 5MHz

**Channel 19975
(1712.5MHz)**

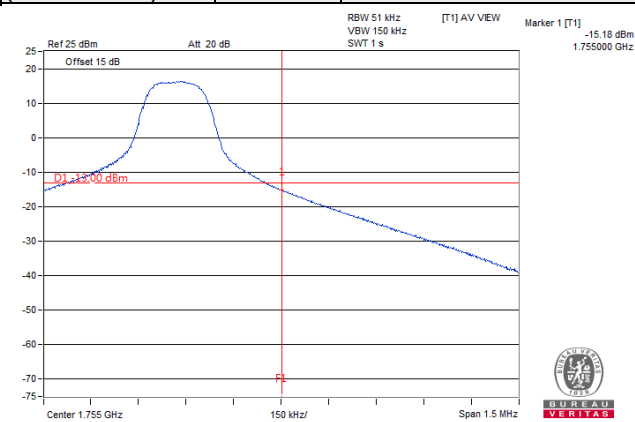
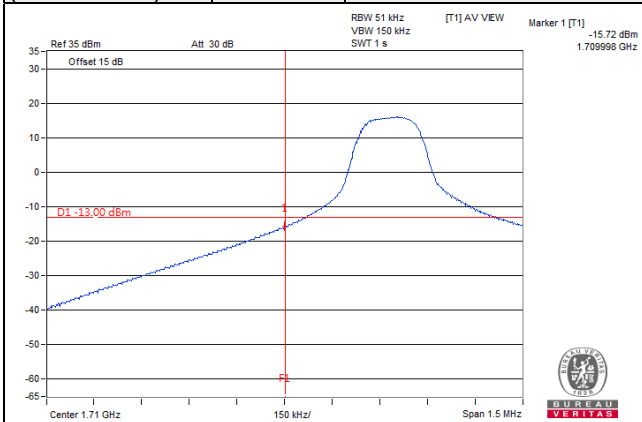
QPSK

1 RB / 0 RB Offset

**Channel 20375
(1752.5MHz)**

QPSK

1 RB / 24 RB Offset



**Channel 19975
(1712.5MHz)**

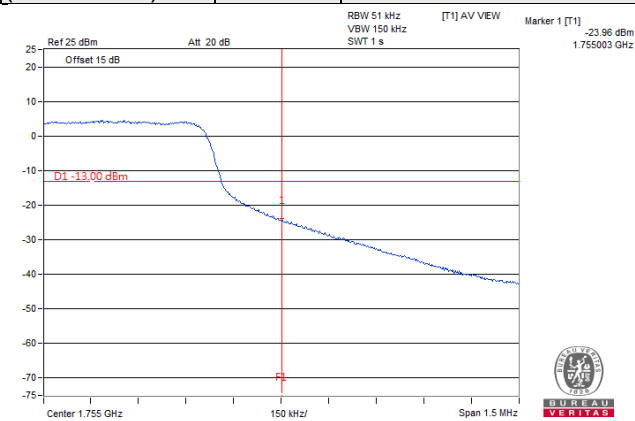
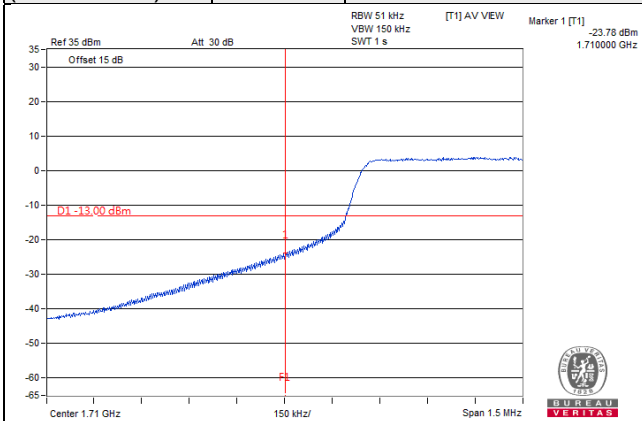
QPSK

25 RB / 0 RB Offset

**Channel 20375
(1752.5MHz)**

QPSK

25 RB / 0 RB Offset



Channel Bandwidth: 10MHz

Channel 20000
(1715.0MHz)

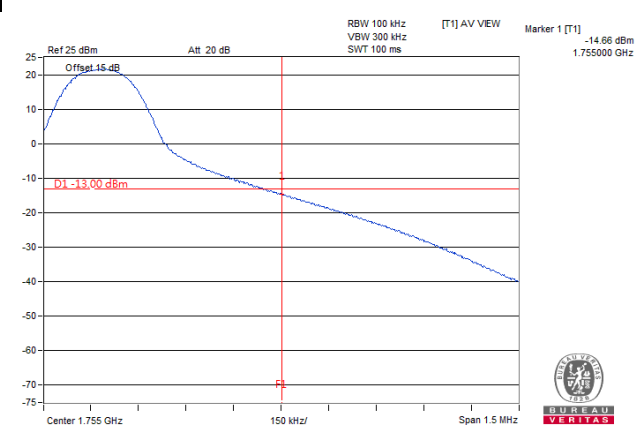
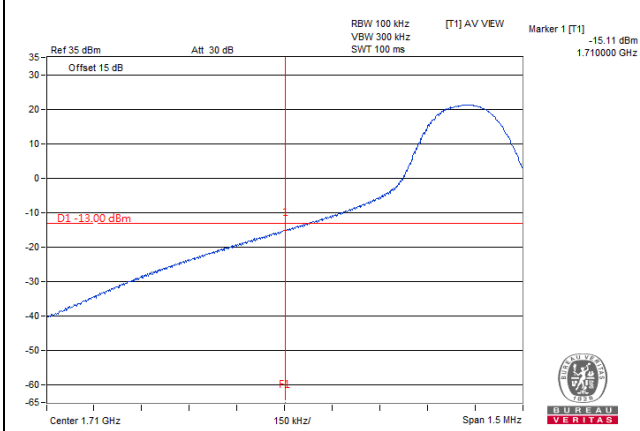
QPSK

1 RB / 0 RB Offset

Channel 20350
(1750.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 20000
(1715.0MHz)

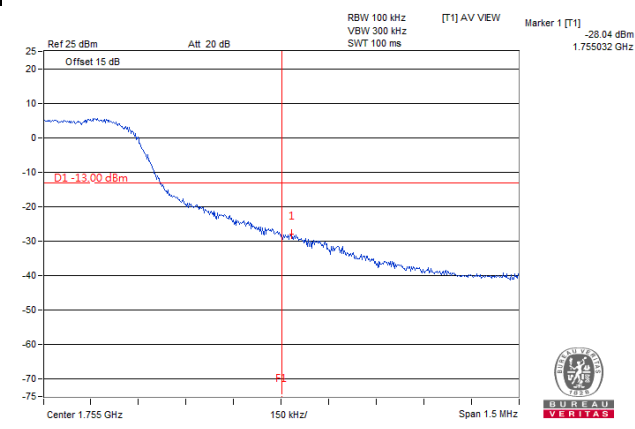
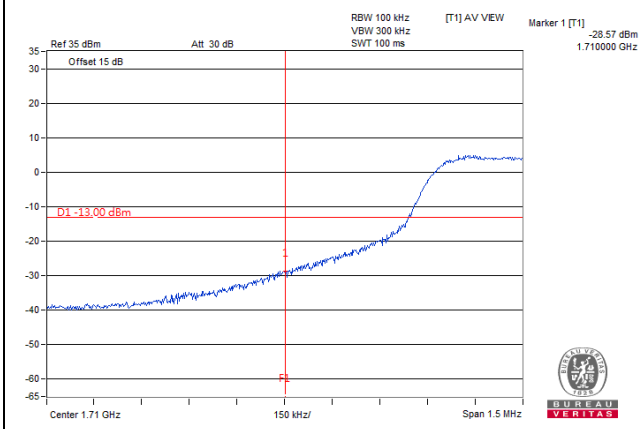
QPSK

50 RB / 0 RB Offset

Channel 20350
(1750.0MHz)

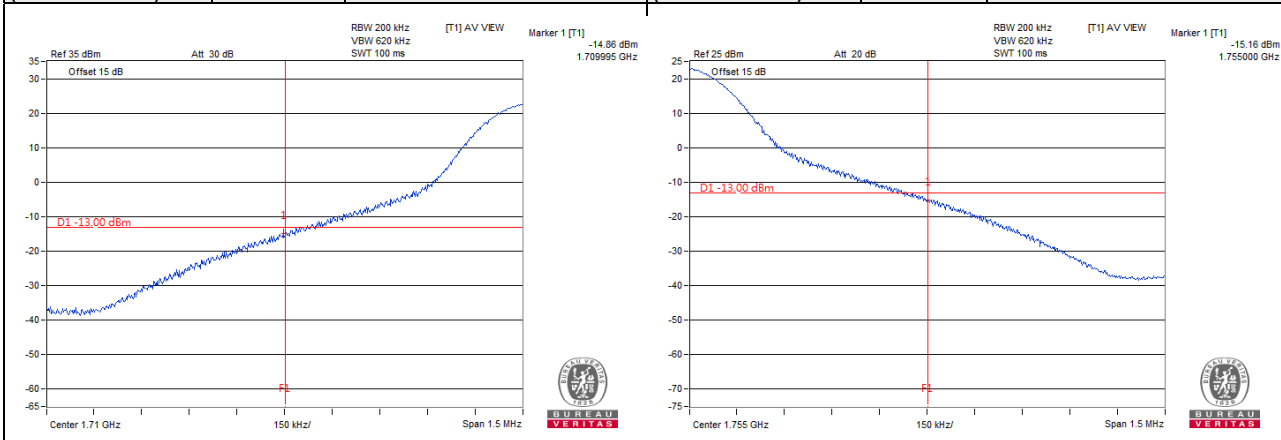
QPSK

50 RB / 0 RB Offset

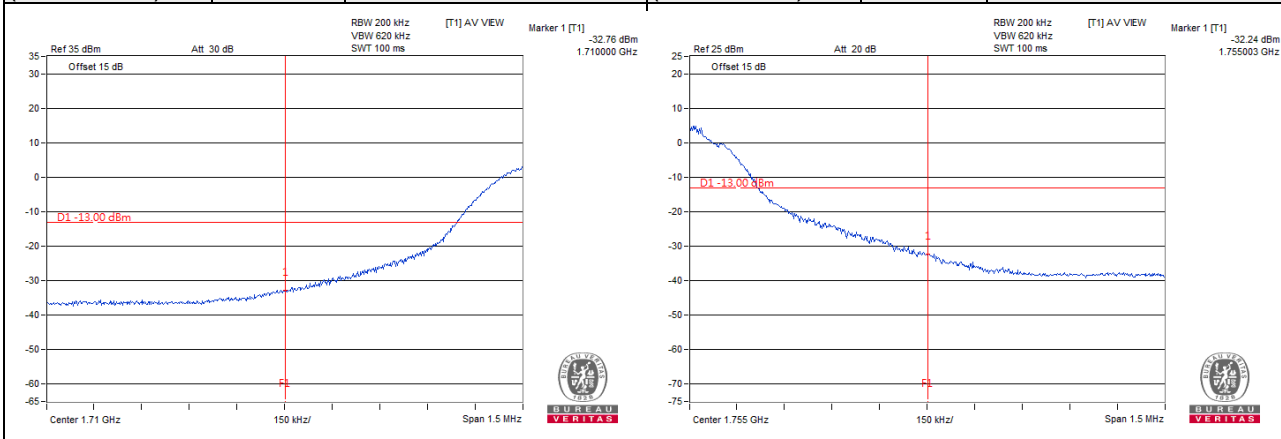


Channel Bandwidth: 15MHz

Channel 20025 (1717.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	QPSK	1 RB / 74 RB Offset
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Channel 20025 (1717.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	QPSK	75 RB / 0 RB Offset
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Channel Bandwidth: 20MHz

**Channel 20050
(1720.0MHz)**

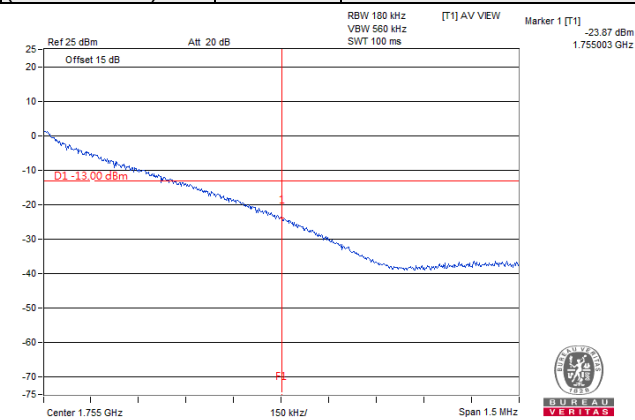
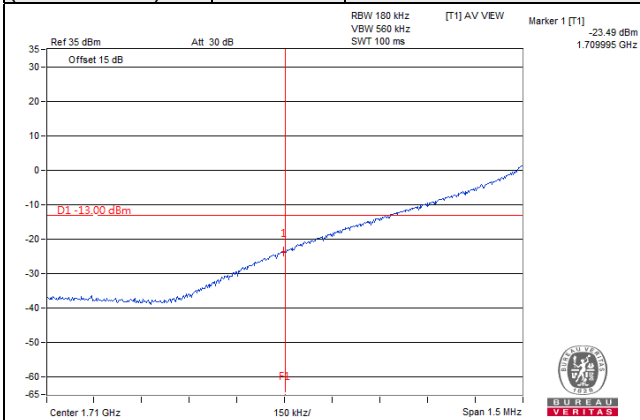
QPSK

1 RB / 0 RB Offset

**Channel 20300
(1745.0MHz)**

QPSK

1 RB / 99 RB Offset



**Channel 20050
(1720.0MHz)**

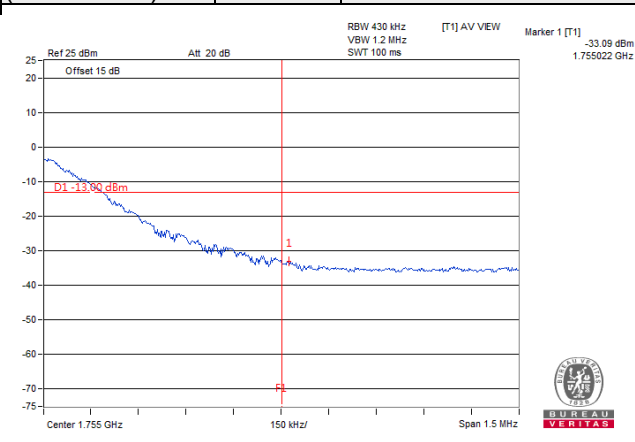
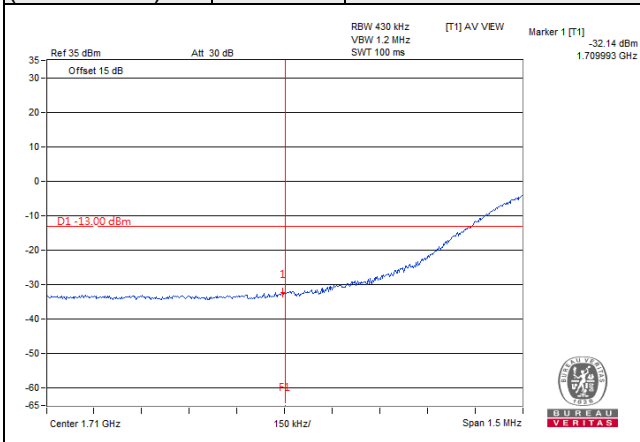
QPSK

100 RB / 0 RB Offset

**Channel 20300
(1745.0MHz)**

QPSK

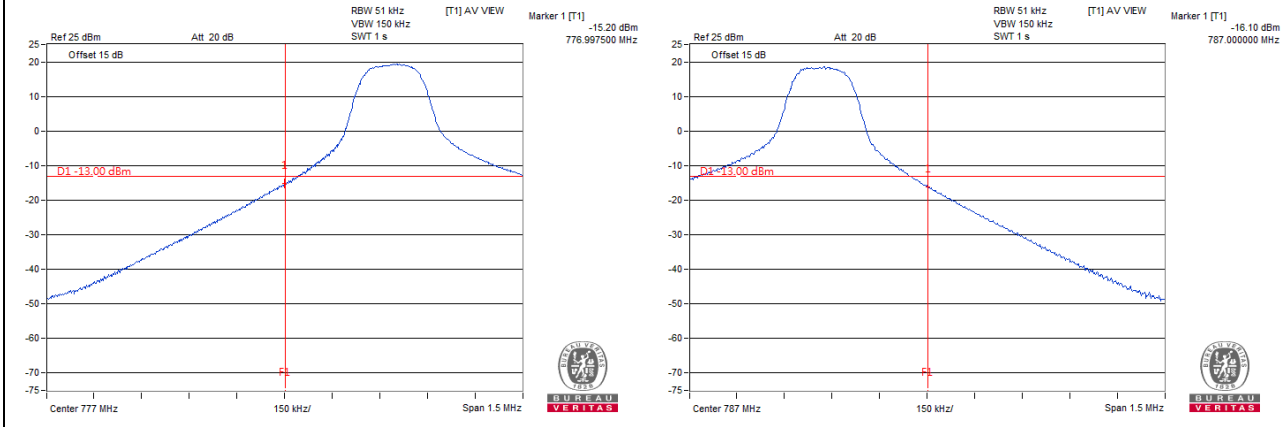
100 RB / 0 RB Offset



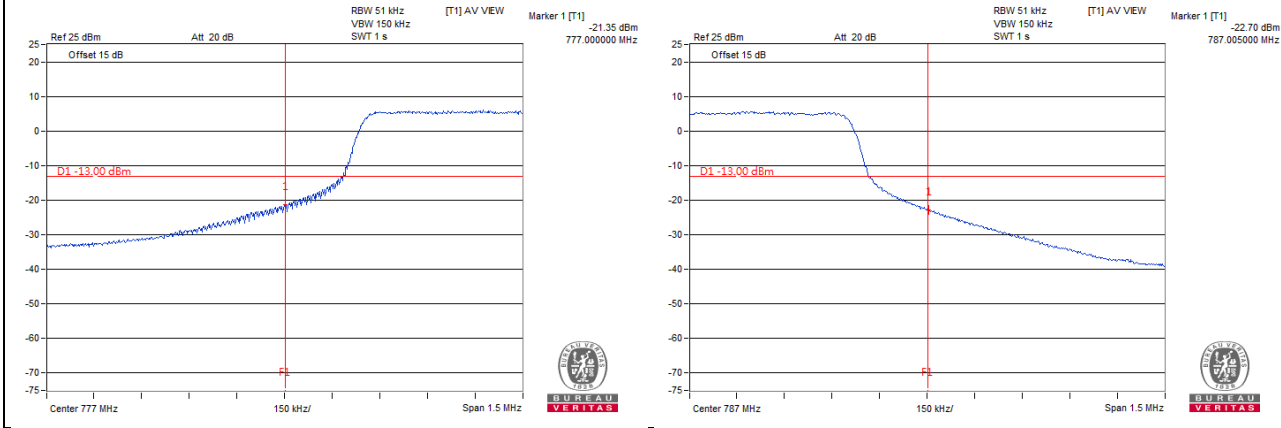
LTE Band 13

Channel Bandwidth: 5MHz

Channel 23205 (779.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23255 (784.5MHz)	QPSK	1 RB / 24 RB Offset
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Channel 23205 (779.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 23255 (784.5MHz)	QPSK	25 RB / 0 RB Offset
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Channel Bandwidth: 10MHz

Channel 23230
(782.0MHz)

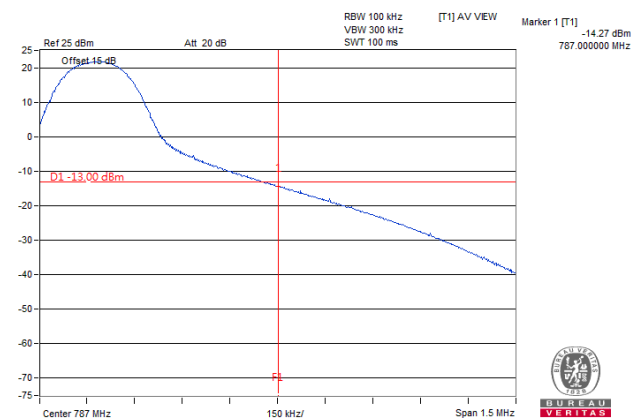
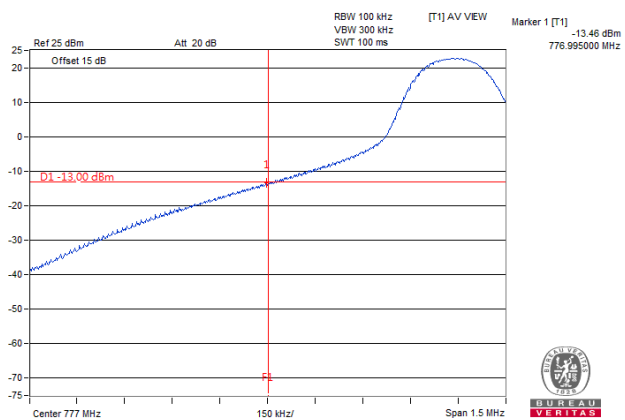
QPSK

1 RB / 0 RB Offset

Channel 23230
(782.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 23230
(782.0MHz)

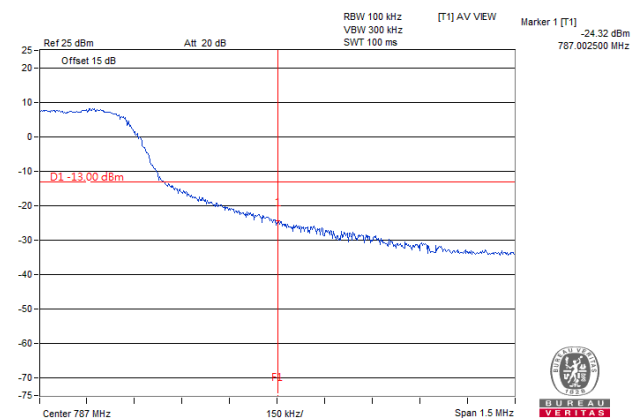
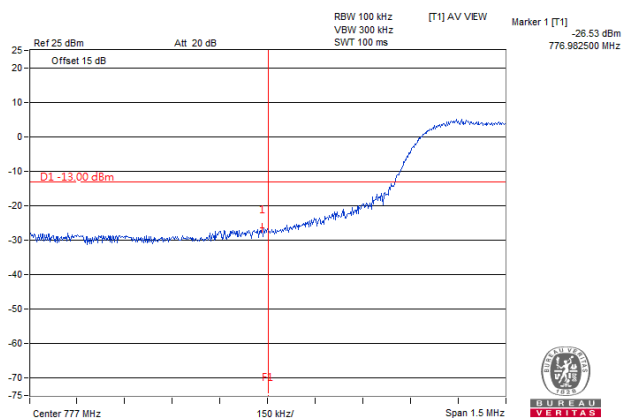
QPSK

50 RB / 0 RB Offset

Channel 23230
(782.0MHz)

QPSK

50 RB / 0 RB Offset

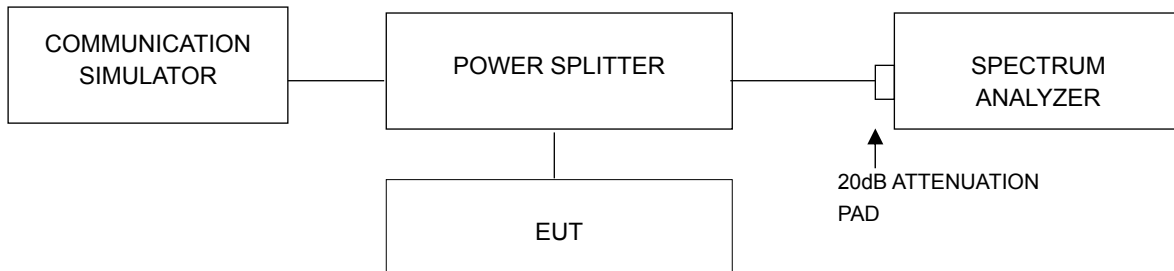


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup



4.6.3 Test Procedures

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

4.6.4 Test Results

LTE Band 4

LTE Band 4, Channel Bandwidth: 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19957	1710.7	5.17	5.13
20175	1732.5	4.93	4.83
20393	1754.3	4.81	4.74

LTE Band 4, Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19965	1711.5	5.25	5.26
20175	1732.5	4.99	5.00
20385	1753.5	4.93	4.97

LTE Band 4, Channel Bandwidth: 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19975	1712.5	5.20	5.21
20175	1732.5	5.02	5.00
20375	1752.5	4.97	4.98

LTE Band 4, Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20000	1715.0	5.18	5.19
20175	1732.5	5.00	5.02
20350	1750.0	5.06	5.09

LTE Band 4, Channel Bandwidth: 15MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20025	1717.5	5.06	5.04
20175	1732.5	4.87	4.99
20325	1747.5	5.08	5.08

LTE Band 4, Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20050	1720.0	4.92	4.92
20175	1732.5	5.12	4.95
20300	1745.0	5.06	5.07

Spectrum Plot Of Worst Value

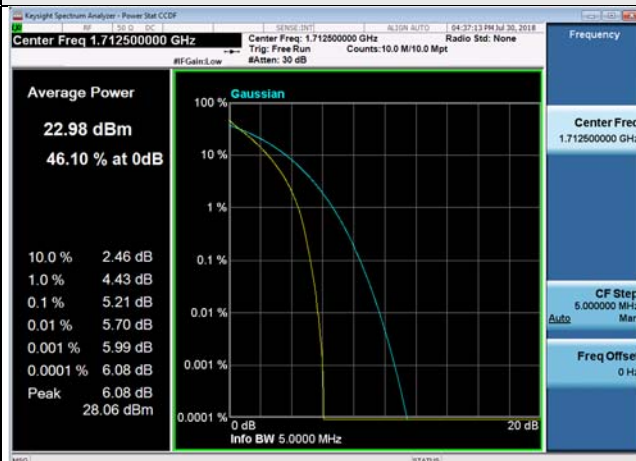
1.4MHz / QPSK



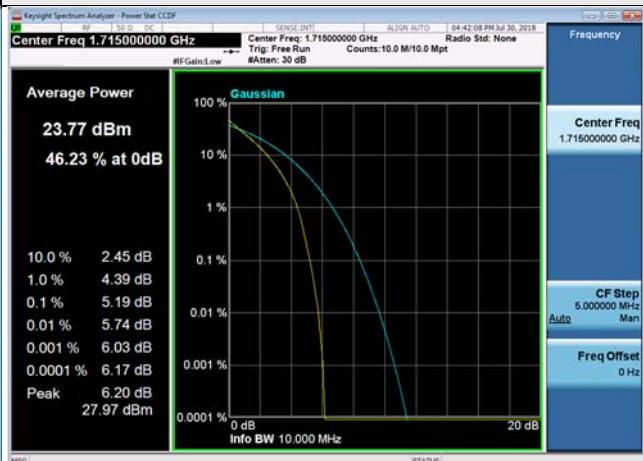
3MHz / 16QAM



5MHz / 16QAM



10MHz / 16QAM



15MHz / 16QAM

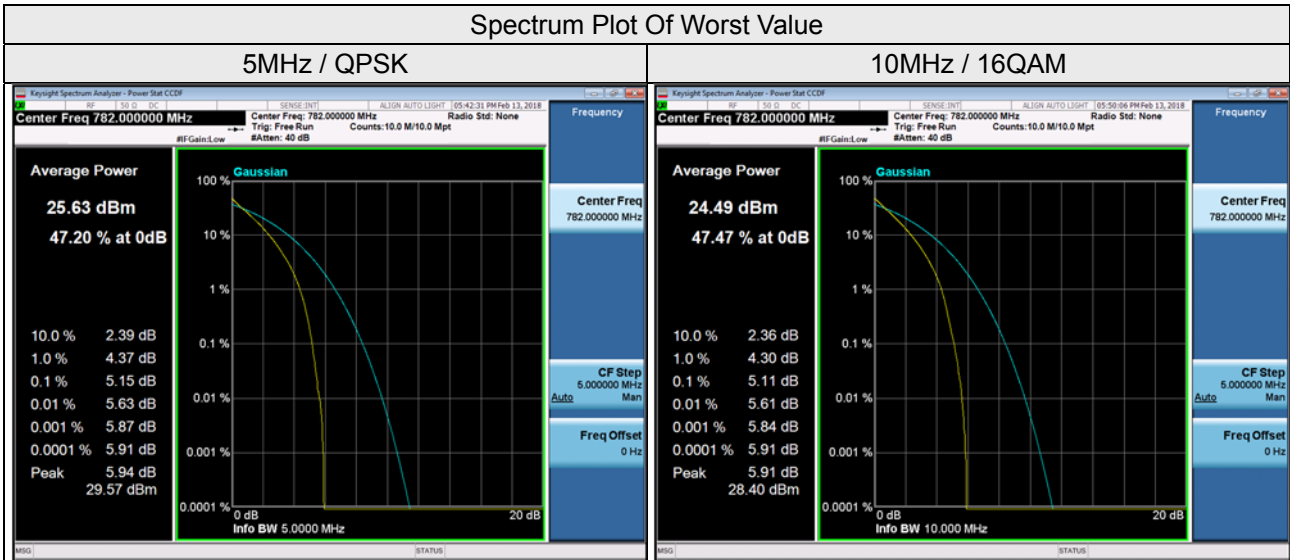


20MHz / QPSK



LTE Band 13, Channel Bandwidth: 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23205	779.5	5.14	5.13
23230	782.0	5.15	5.15
23255	784.5	5.12	5.12

LTE Band 13, Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23230	782.0	5.07	5.11



4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

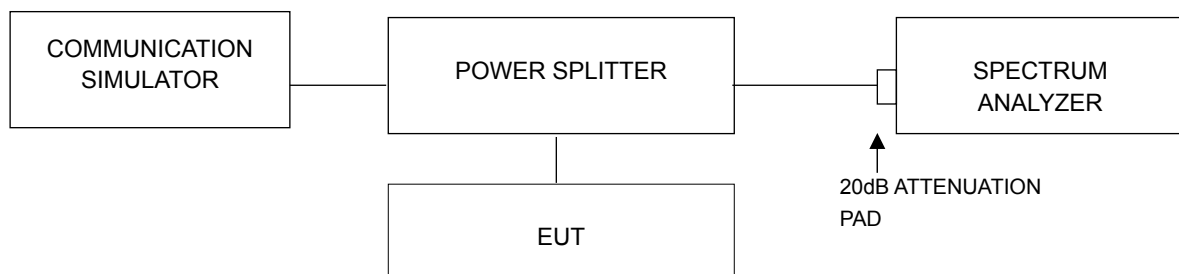
For LTE Band 4

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

For LTE Band 13

According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

4.7.2 Test Setup



4.7.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 26.5GHz, it shall be connected to the attenuator with the carried frequency.

4.7.4 Test Results

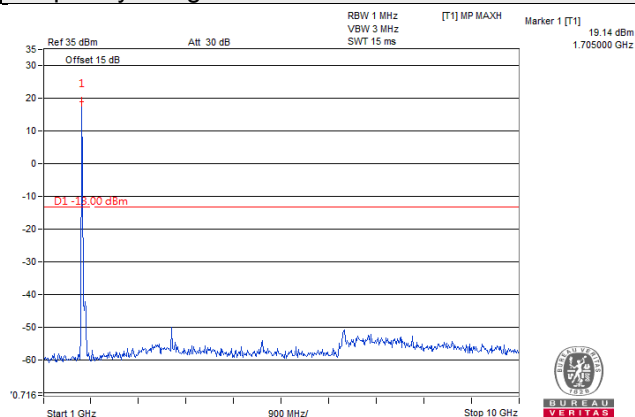
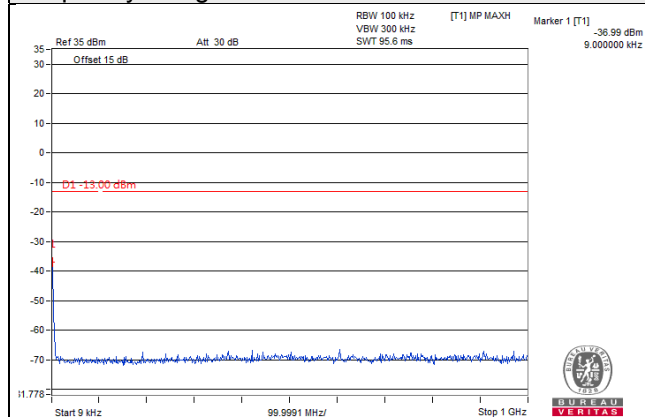
LTE Band 4

Channel Bandwidth: 1.4MHz

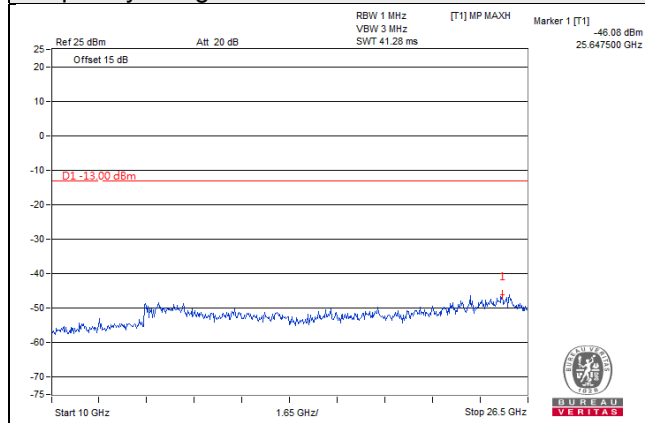
Channel 19957 (1710.7MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

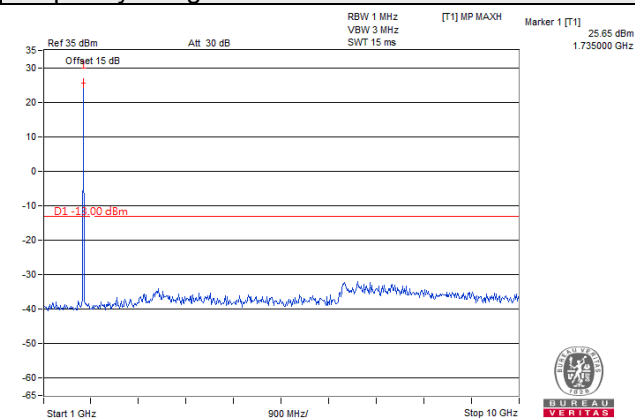
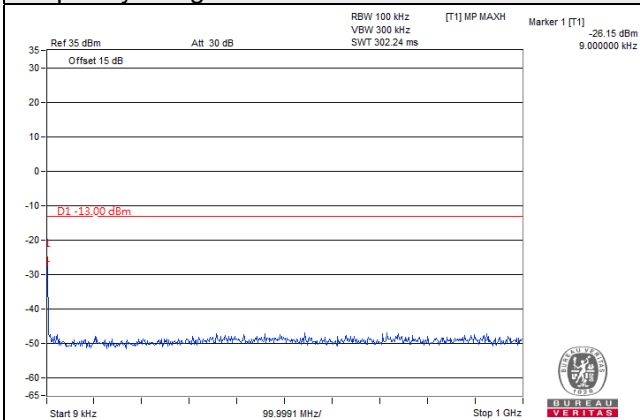


Channel Bandwidth: 1.4MHz

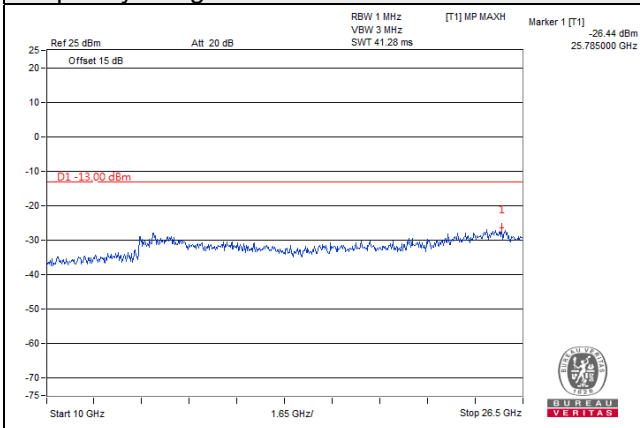
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

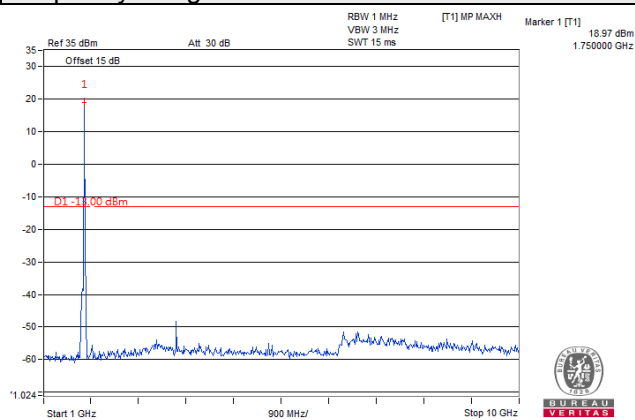
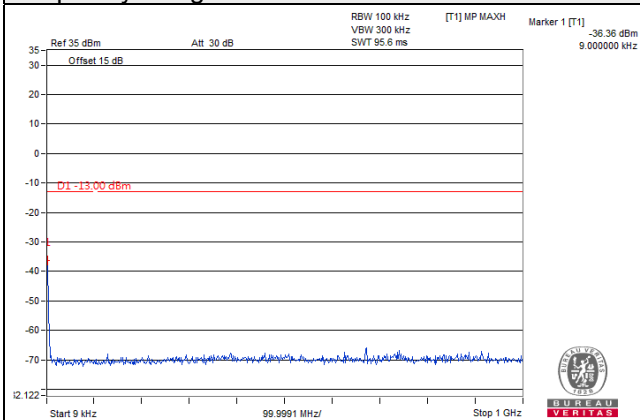


Channel Bandwidth: 1.4MHz

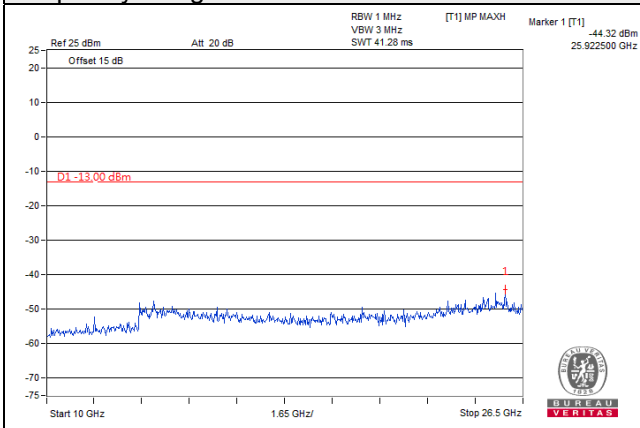
Channel 20393 (1754.3MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



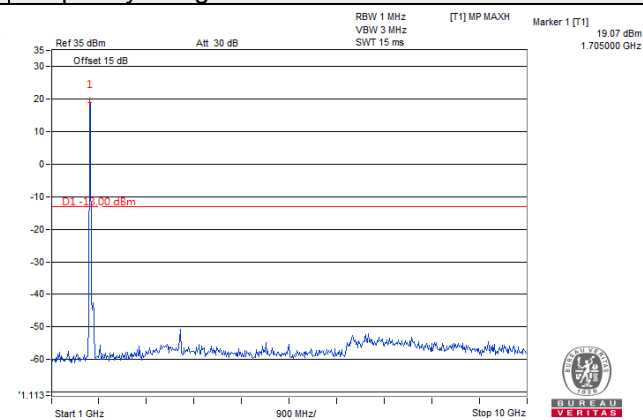
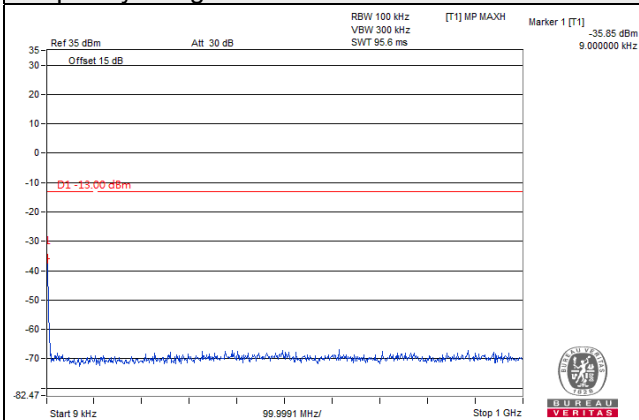
Frequency Range : 10GHz~26.5GHz



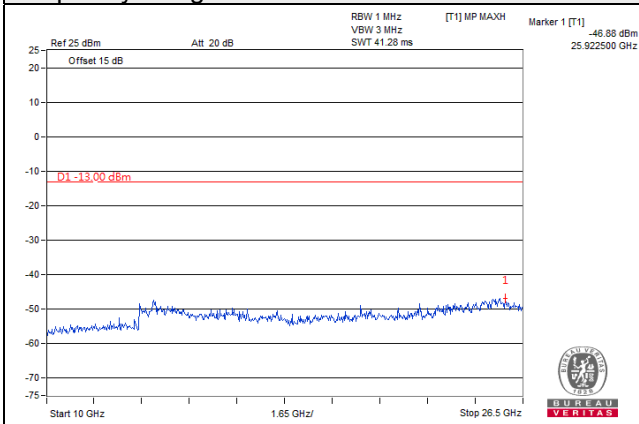
Channel Bandwidth: 3MHz
 Channel 19965 (1711.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

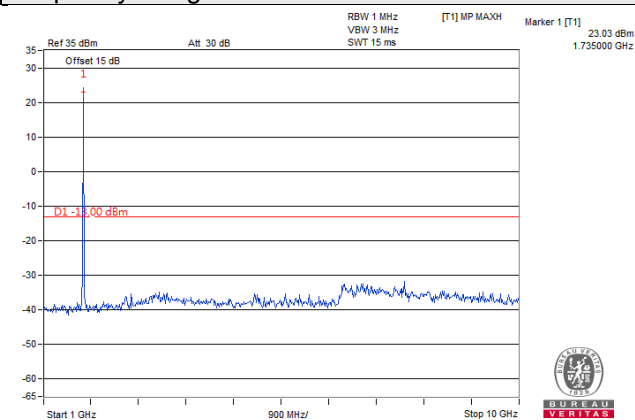
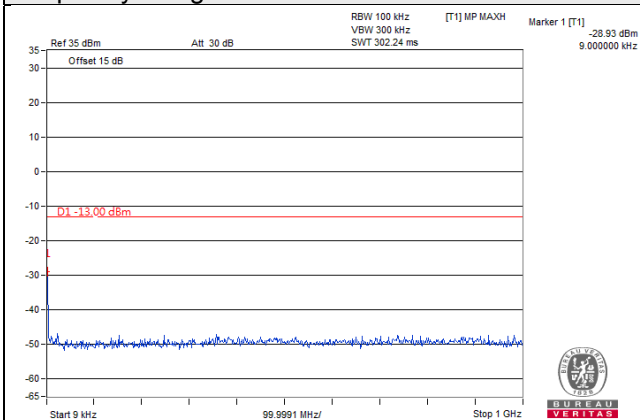


Channel Bandwidth: 3MHz

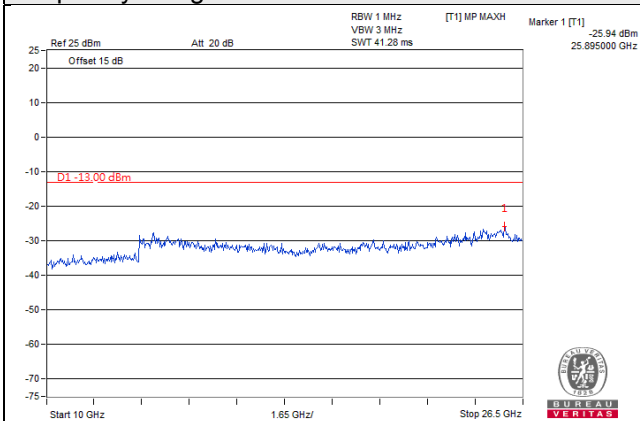
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



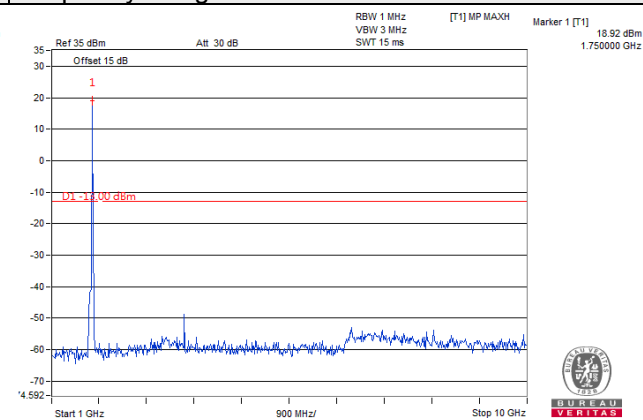
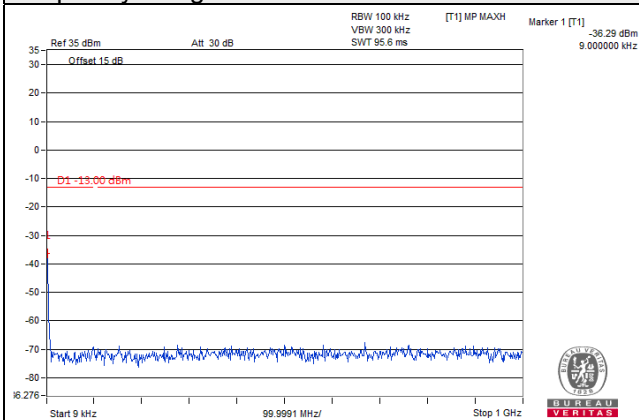
Frequency Range : 10GHz~26.5GHz



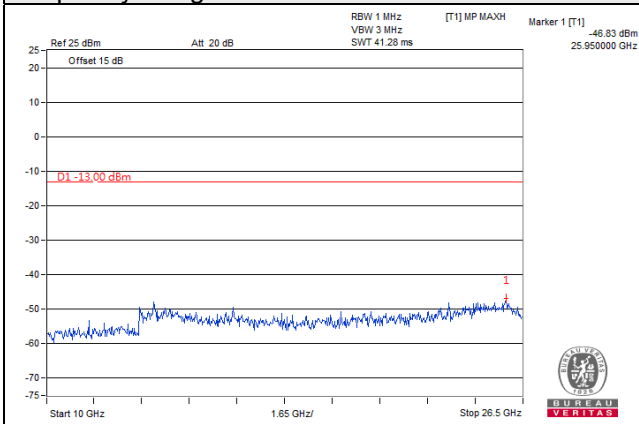
Channel Bandwidth: 3MHz
 Channel 20385 (1753.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



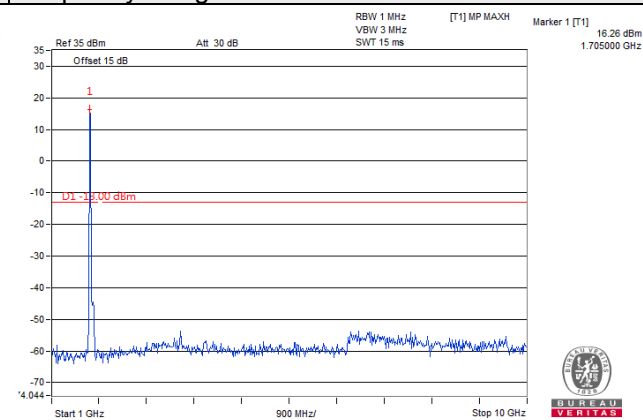
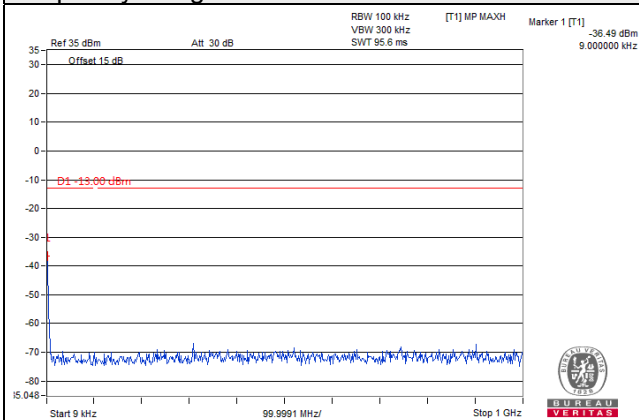
Frequency Range : 10GHz~26.5GHz



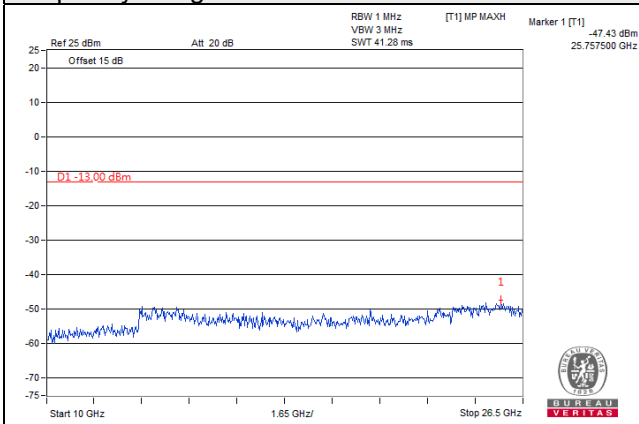
Channel Bandwidth: 5MHz
 Channel 19975 (1712.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

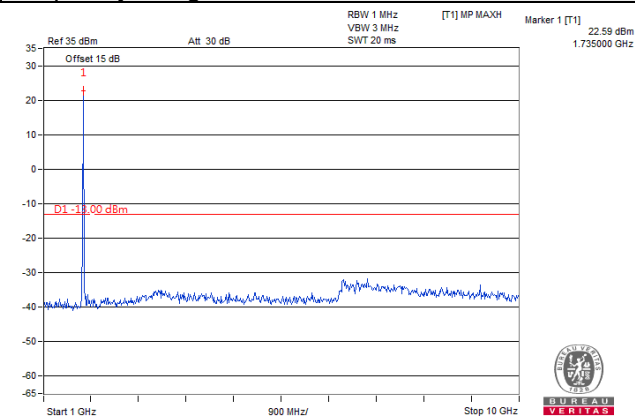
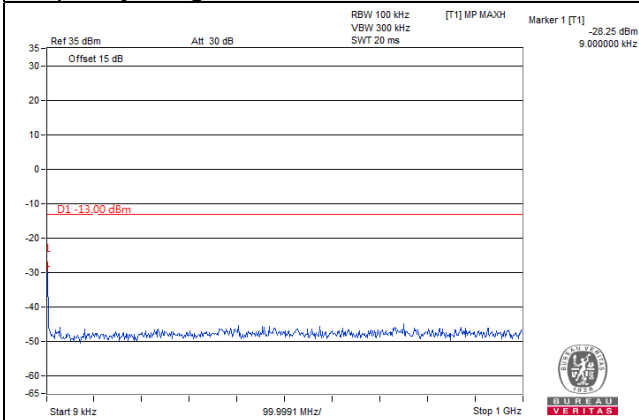


Channel Bandwidth: 5MHz

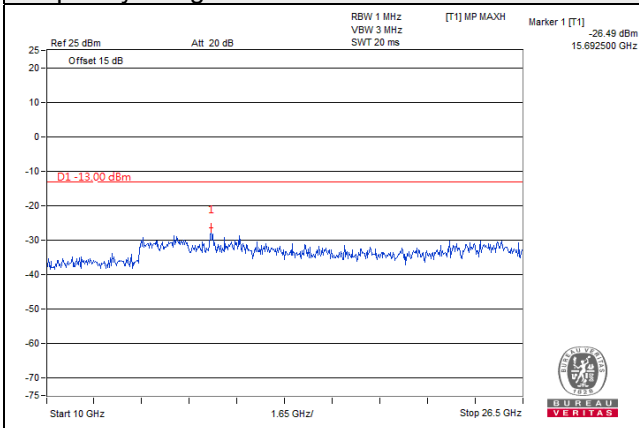
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



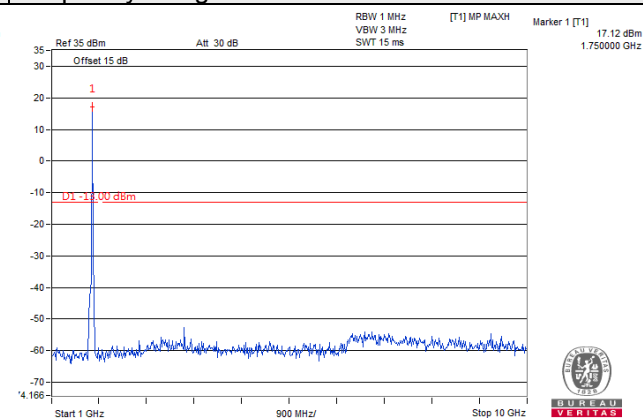
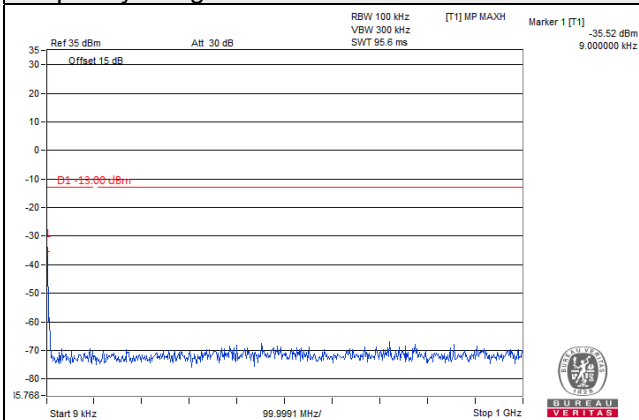
Frequency Range : 10GHz~26.5GHz



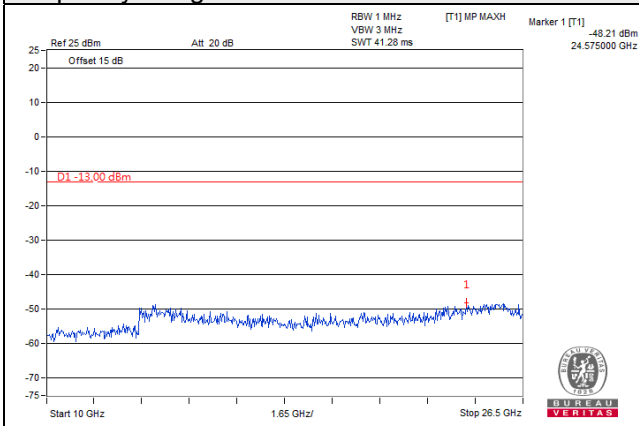
Channel Bandwidth: 5MHz
 Channel 20375 (1752.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

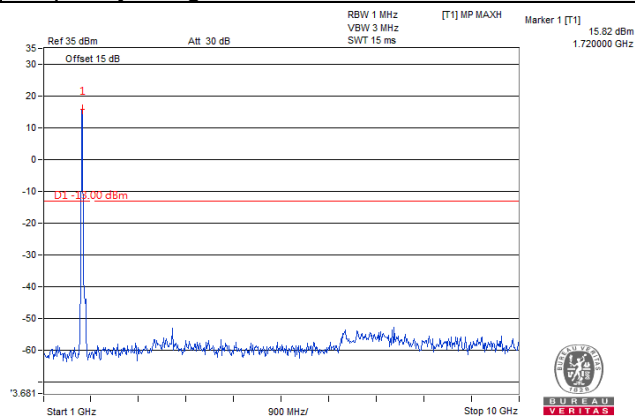
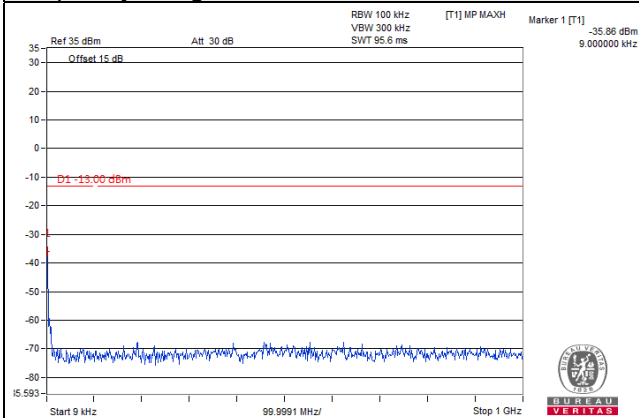


Channel Bandwidth: 10MHz

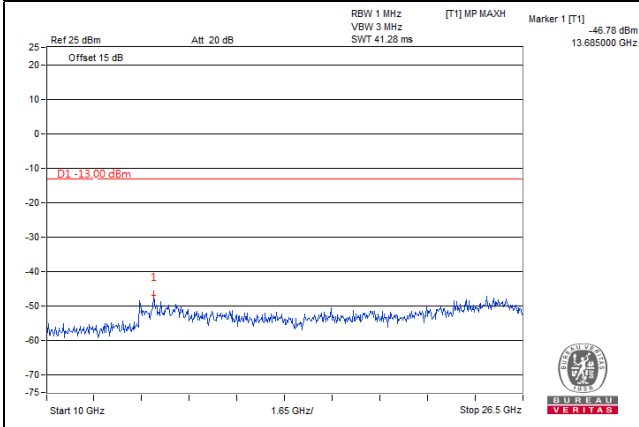
Channel 20000 (1715.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

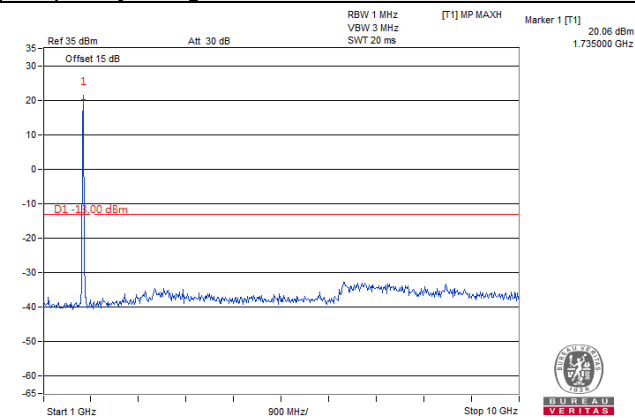
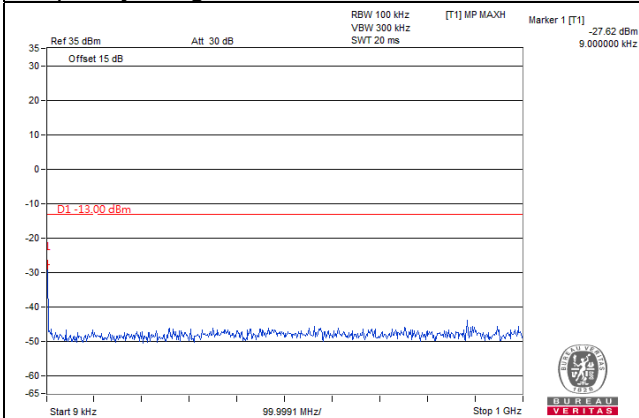


Channel Bandwidth: 10MHz

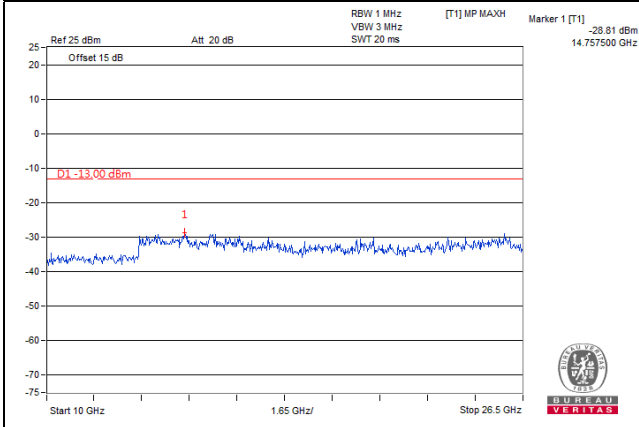
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

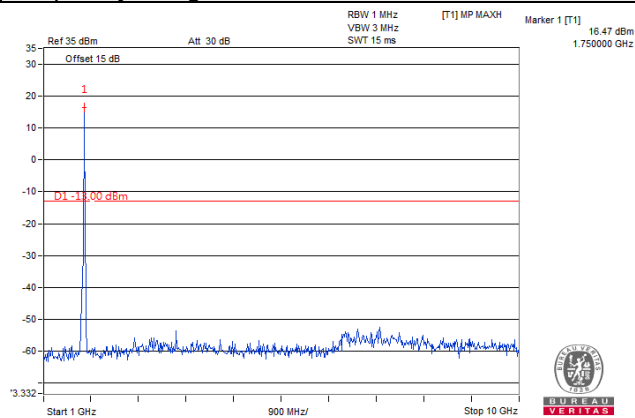
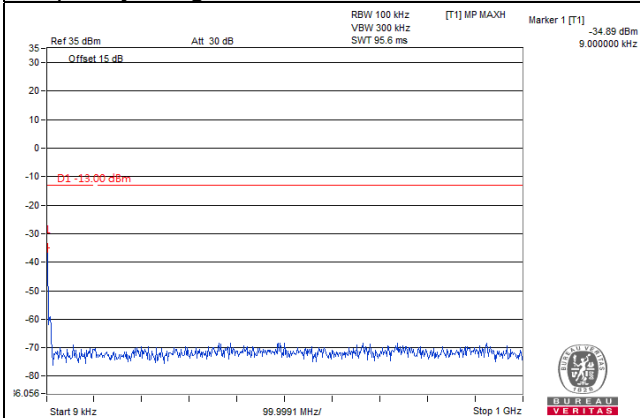


Channel Bandwidth: 10MHz

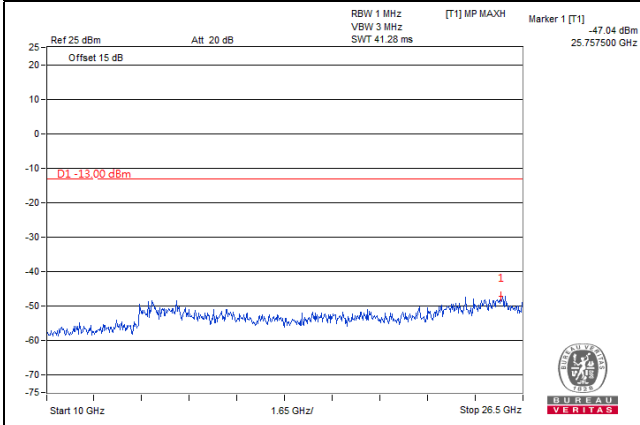
Channel 20350 (1750.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

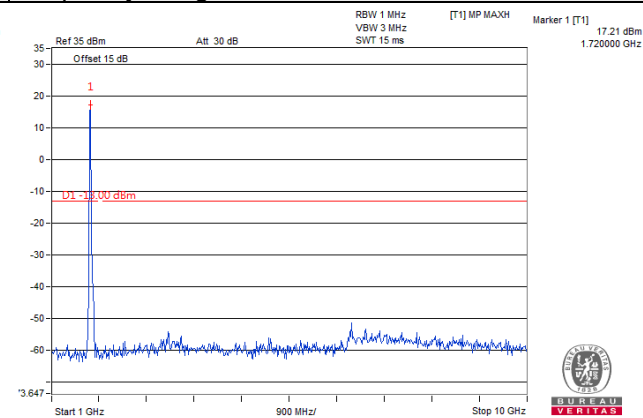
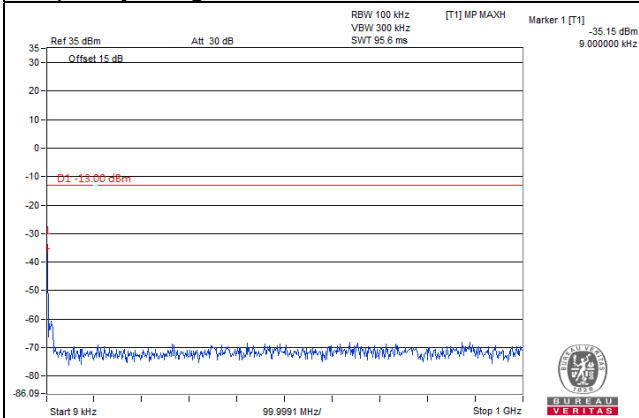


Channel Bandwidth: 15MHz

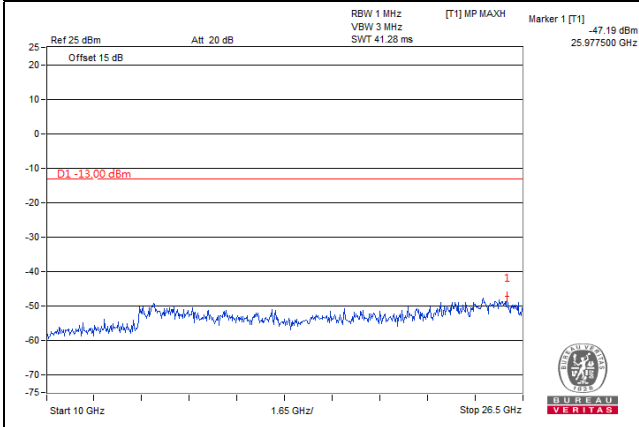
Channel 20025 (1717.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

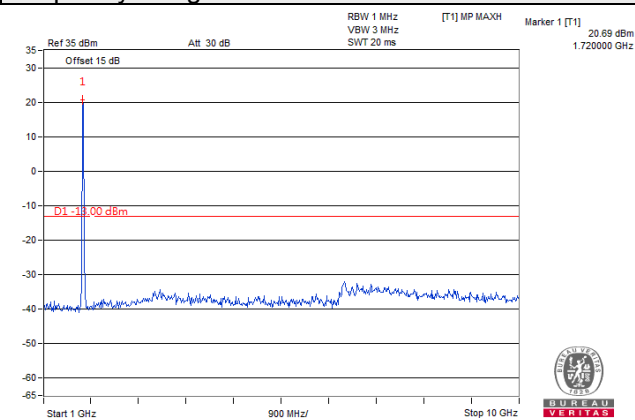
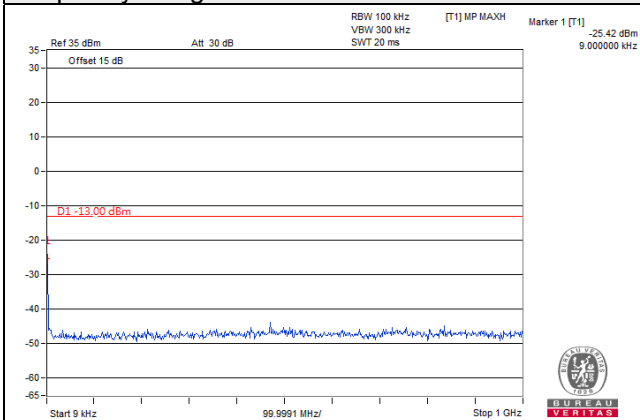


Channel Bandwidth: 15MHz

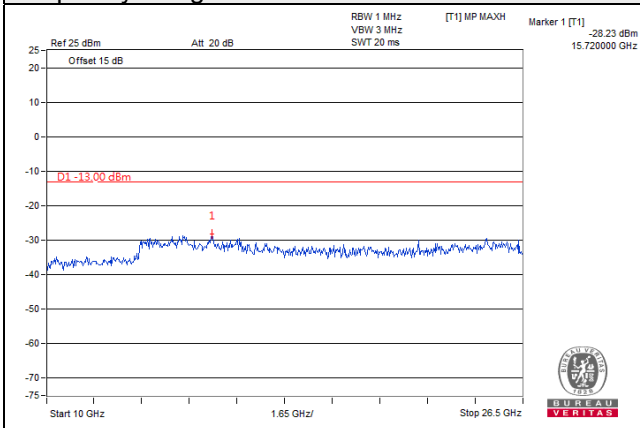
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

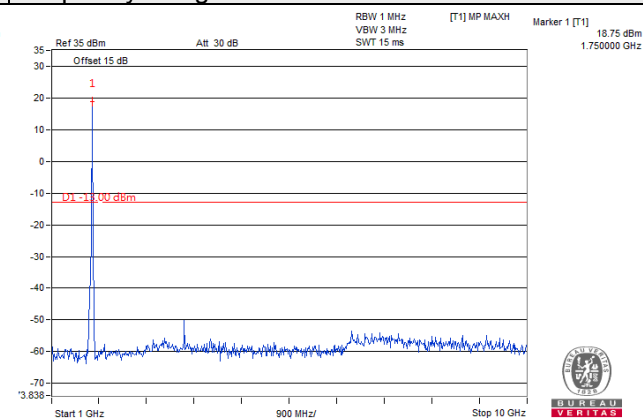
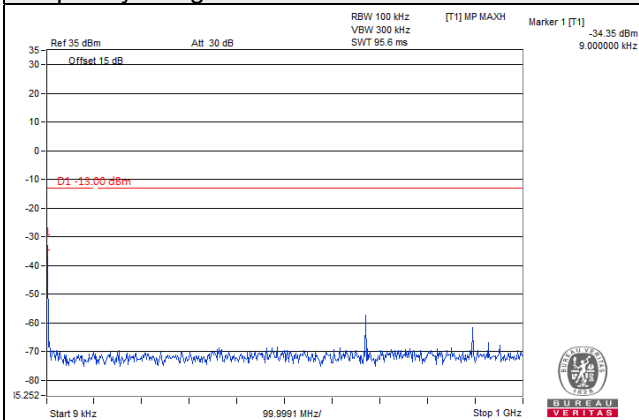


Channel Bandwidth: 15MHz

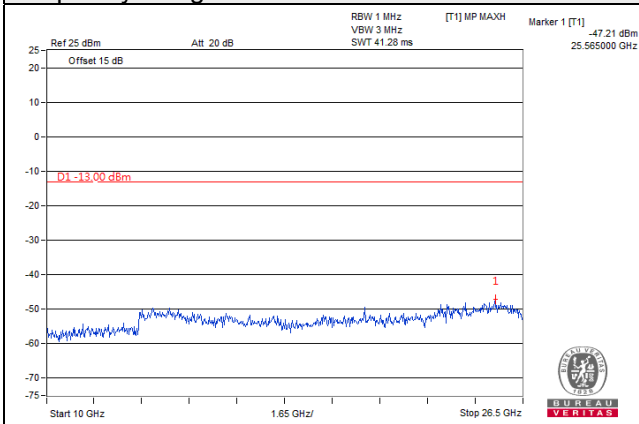
Channel 20325 (1747.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

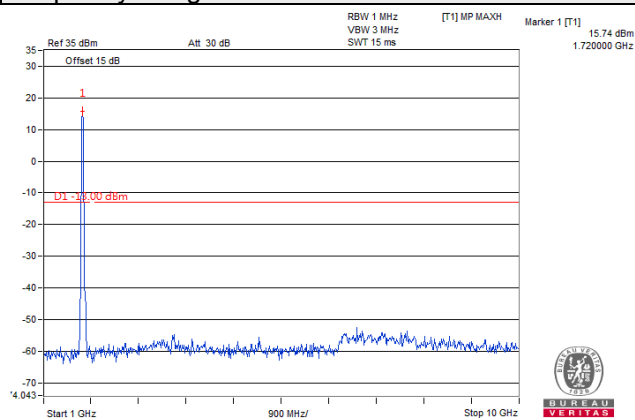
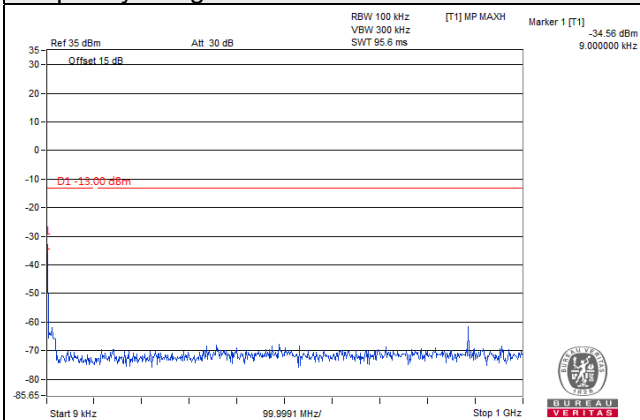


Channel Bandwidth: 20MHz

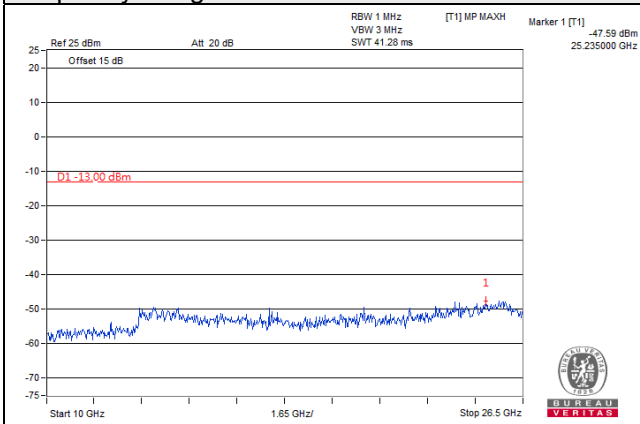
Channel 20050 (1720.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

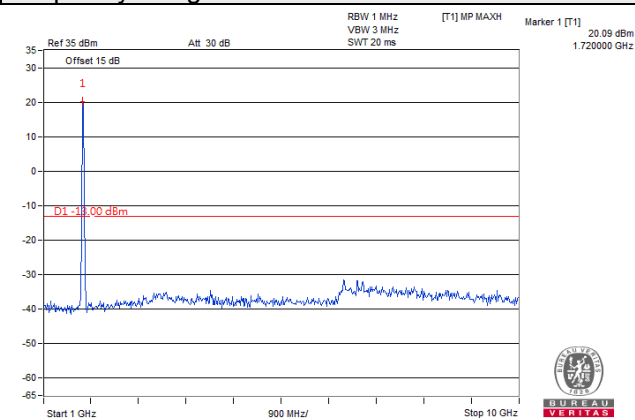
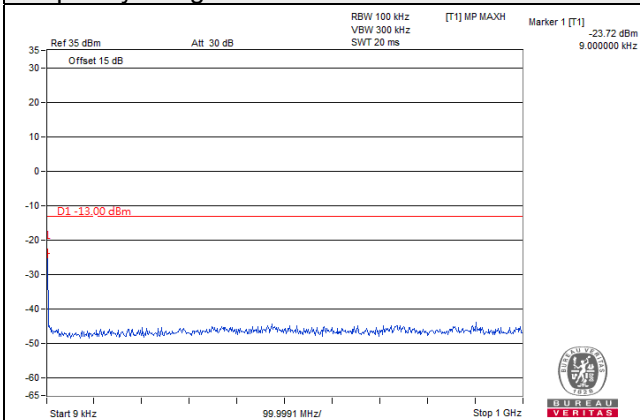


Channel Bandwidth: 20MHz

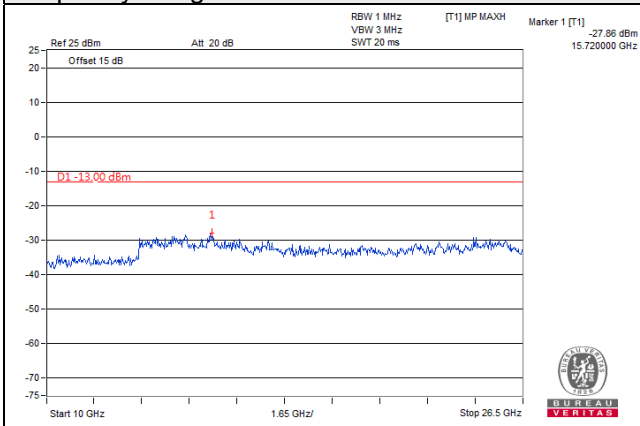
Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

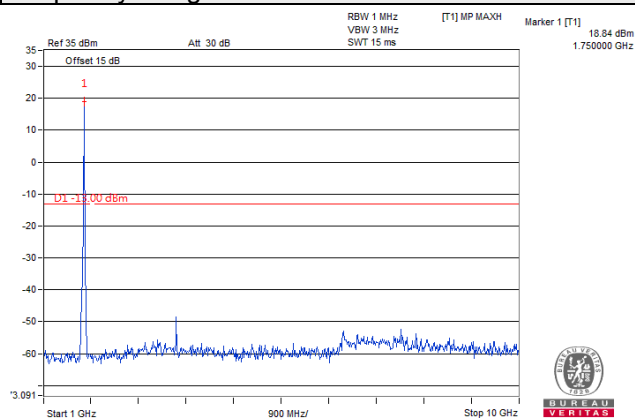
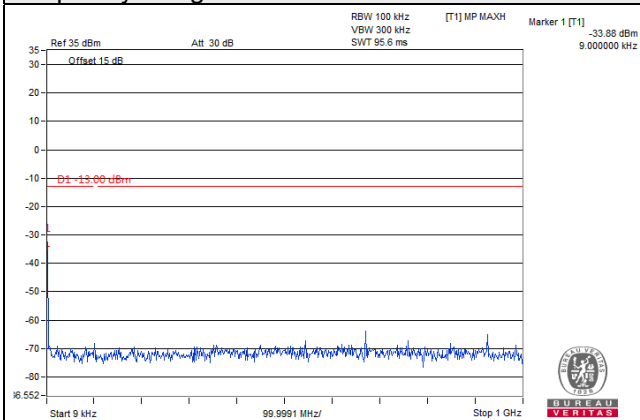


Channel Bandwidth: 20MHz

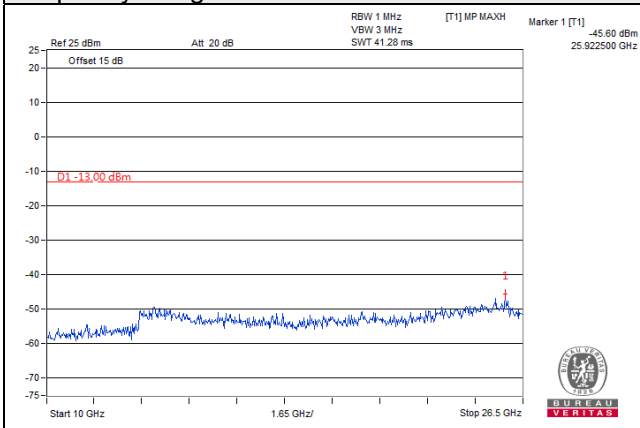
Channel 20300 (1745.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz



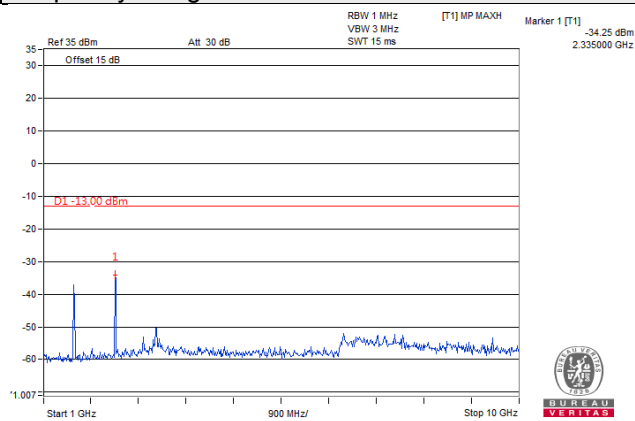
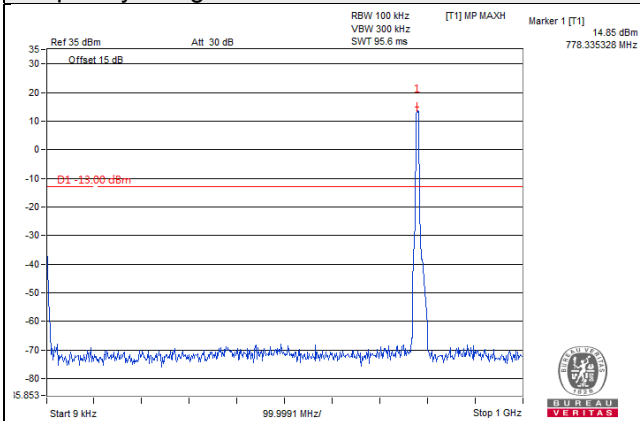
LTE Band 13

Channel Bandwidth: 5MHz

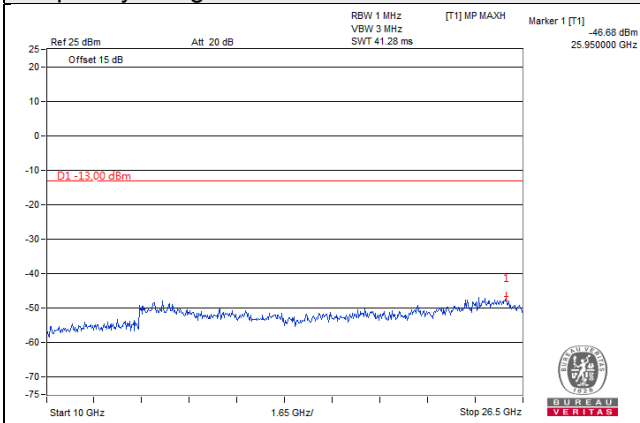
Channel 23205 (779.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



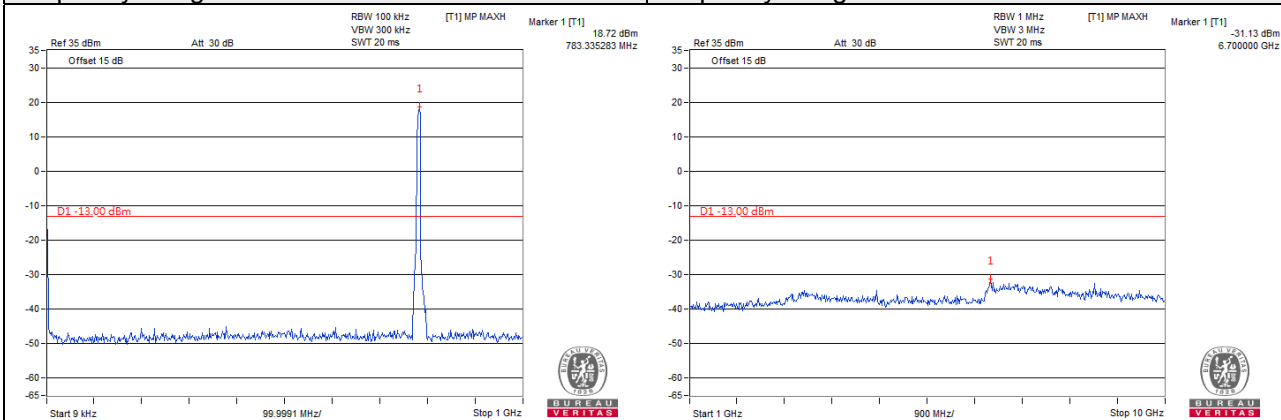
Frequency Range : 10GHz~26.5GHz



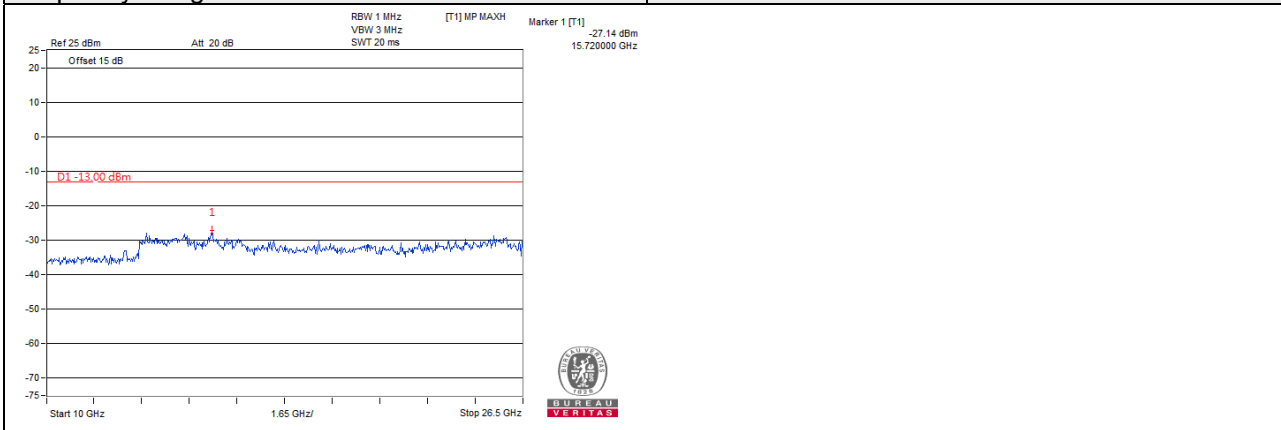
Channel Bandwidth: 5MHz

Channel 23230 (782.0MHz)

Frequency Range : 9kHz~1GHz Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

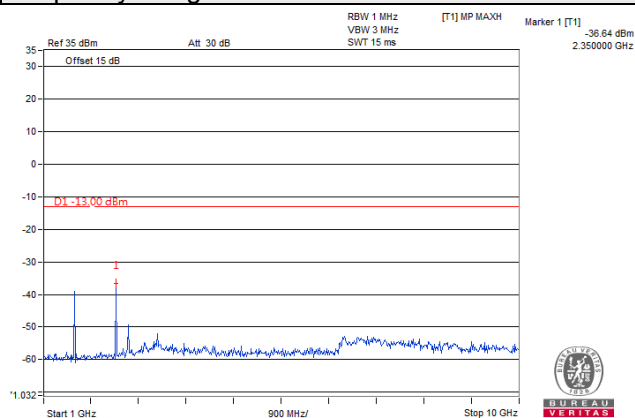
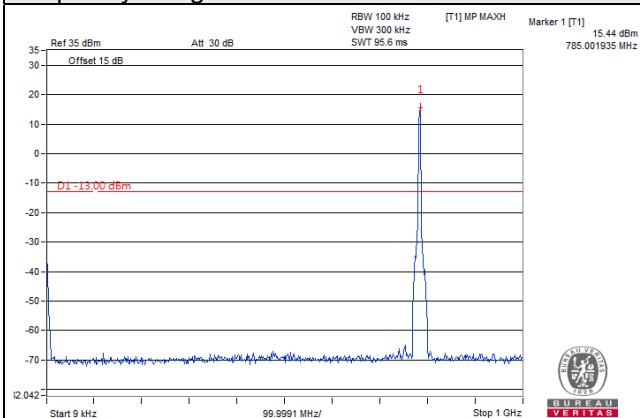


Channel Bandwidth: 5MHz

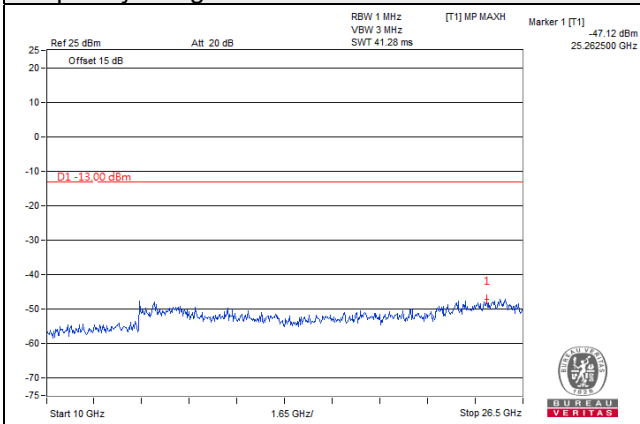
Channel 23255 (784.5MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

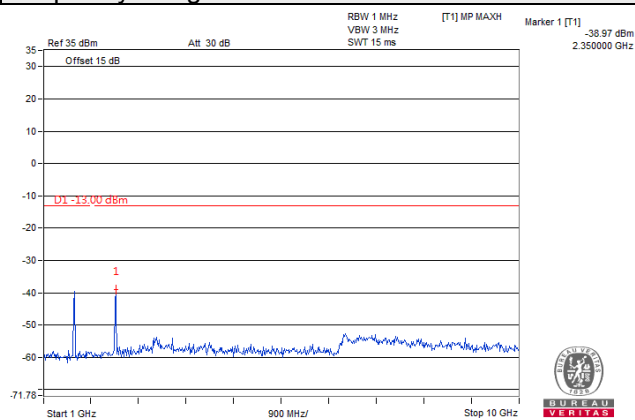
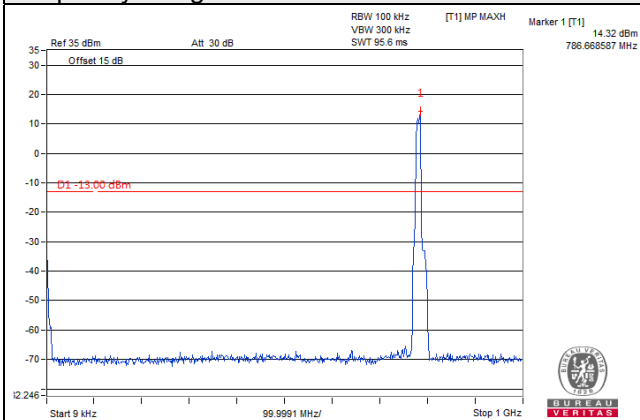


Channel Bandwidth: 10MHz

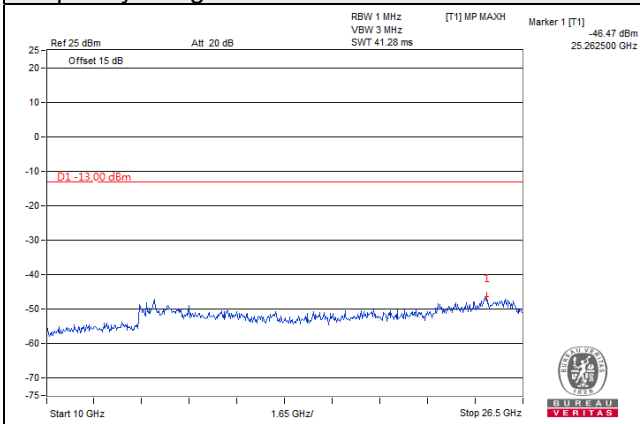
Channel 23230 (782.0MHz)

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz



4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

For LTE Band 4

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

For LTE Band 13

According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB.

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.

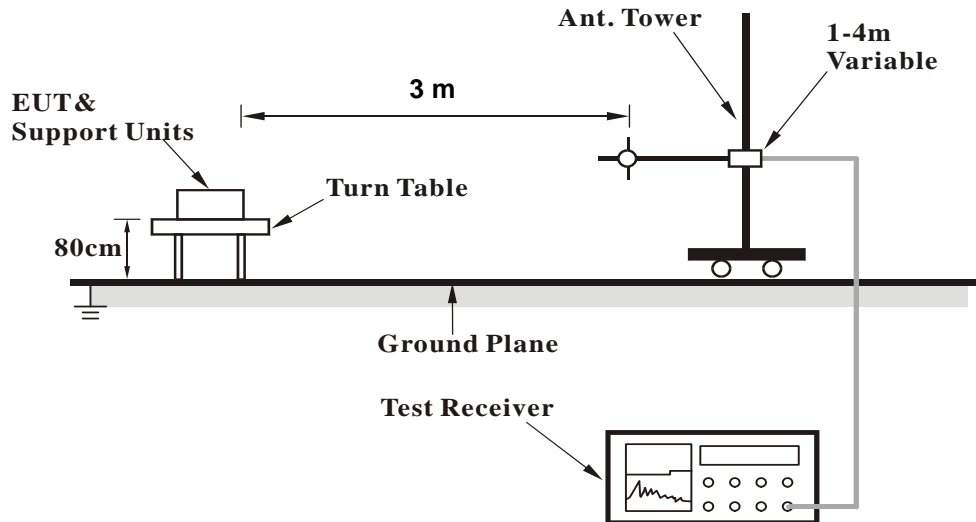
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

4.8.3 Deviation from Test Standard

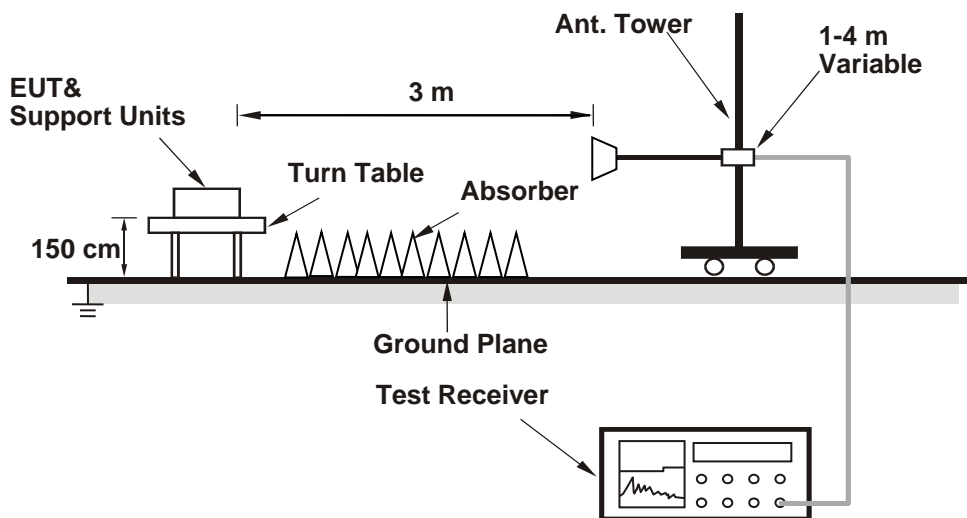
No deviation.

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

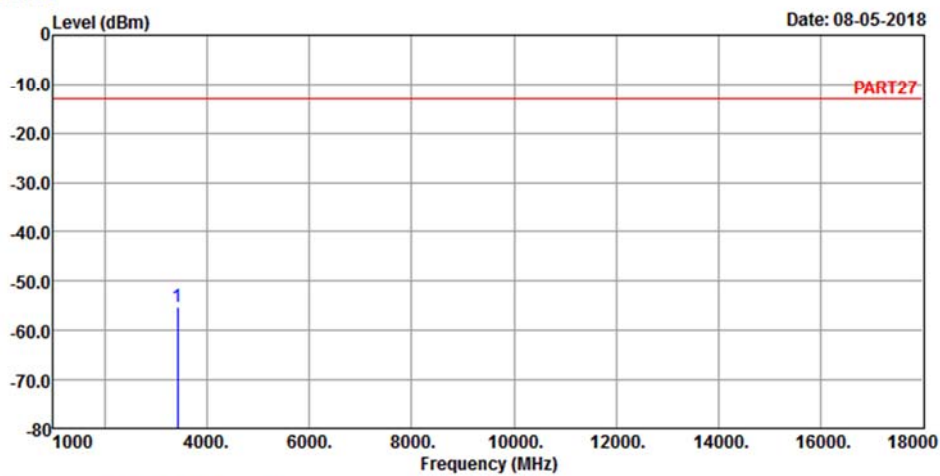
Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	TX channel 19957 (1710.7MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



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

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB

1 pp 3421.40 -55.07 -46.73 -13.00 -42.07 -8.34 Peak

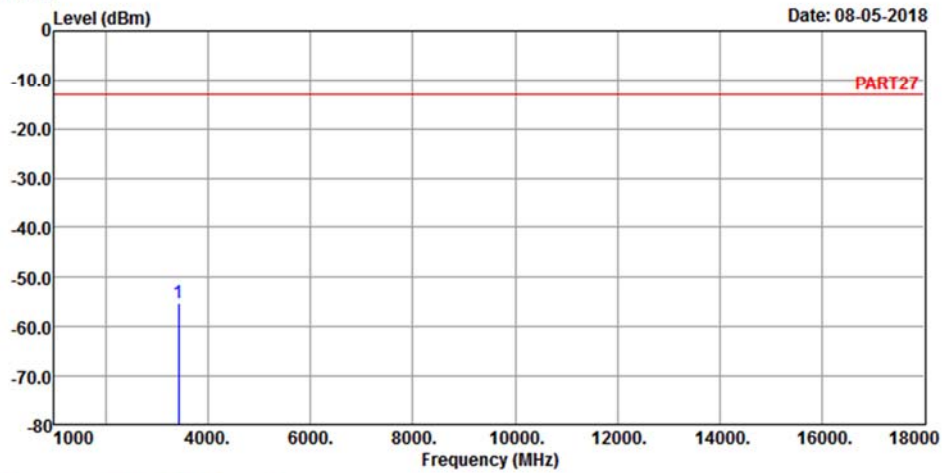
Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	TX channel 19957 (1710.7MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



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

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3421.40	-55.22	-46.88	-13.00	-42.22	-8.34	Peak

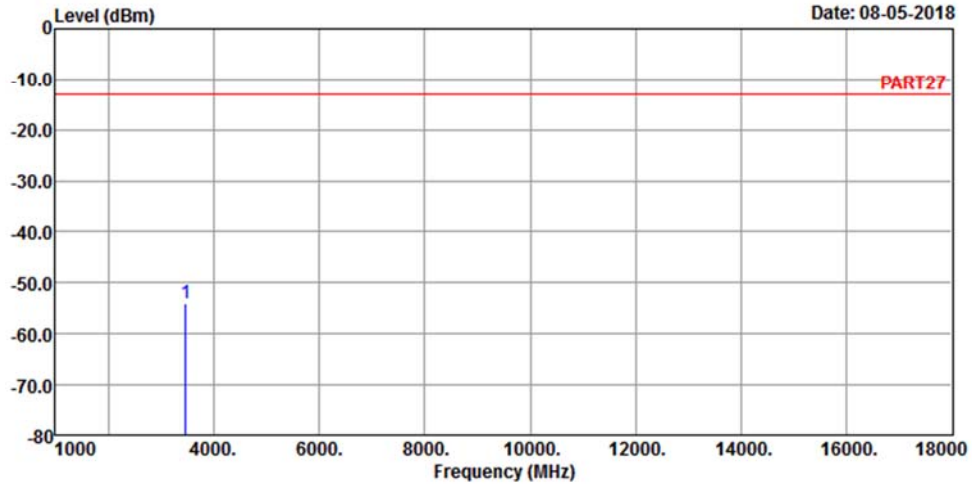
Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	TX channel 20175 (1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



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

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-54.00	-46.12	-13.00	-41.00	-7.88	Peak

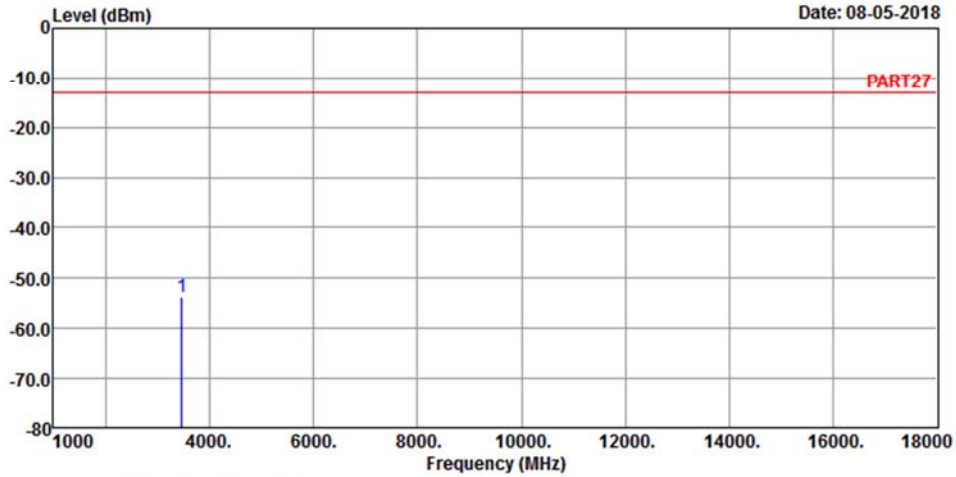
Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	TX channel 20175 (1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



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

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3465.00 -53.61 -45.73 -13.00 -40.61 -7.88 Peak

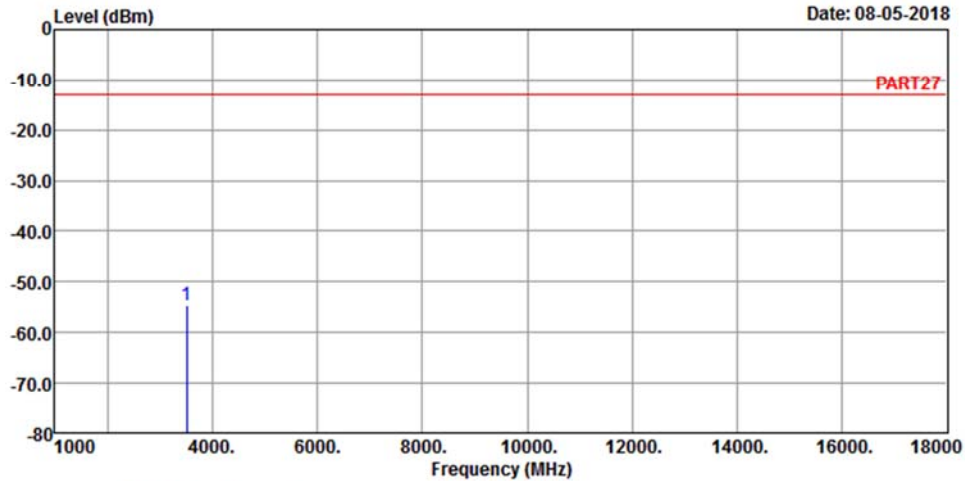
Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	TX channel 20393 (1754.3MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_1.4M Link_H-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3508.60 -54.64 -47.19 -13.00 -41.64 -7.45 Peak

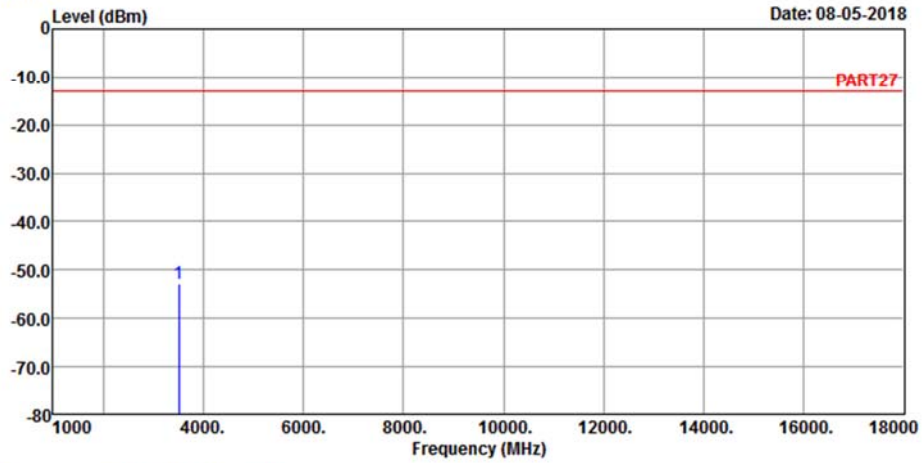
Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	TX channel 20393 (1754.3MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_1.4M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 3508.60	-52.92	-45.47	-13.00	-39.92	-7.45 Peak

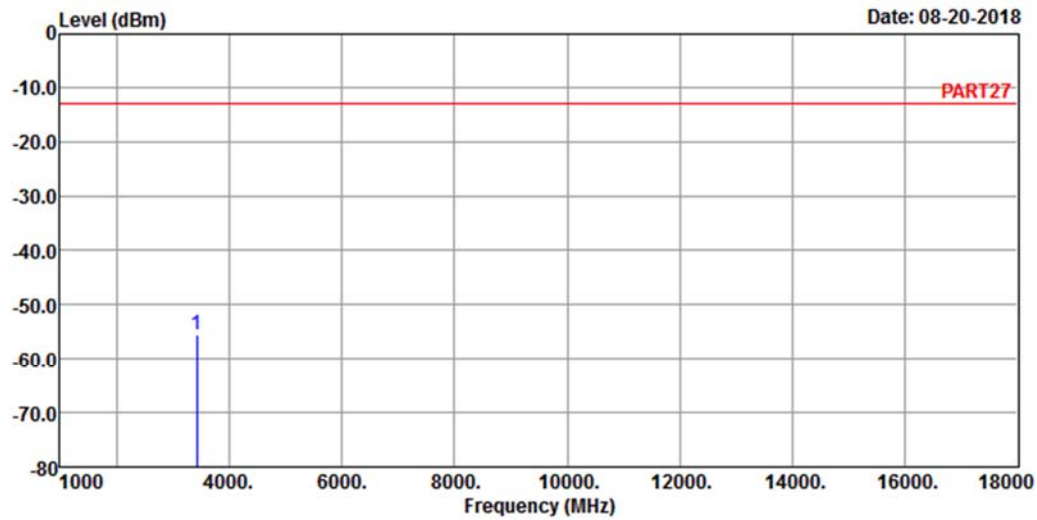
Mode	LTE Band 4 Channel Bandwidth: 3MHz	Channel	TX channel 19965(1711.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_3M Link_L-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3423.00 -55.58 -47.24 -13.00 -42.58 -8.34 Peak

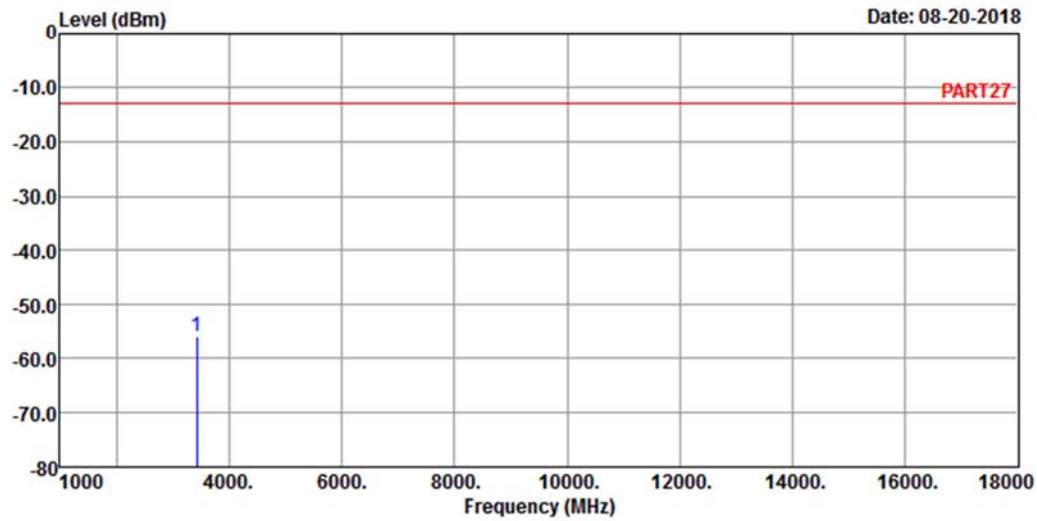
Mode	LTE Band 4 Channel Bandwidth: 3MHz	Channel	TX channel 19965(1711.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_3M Link_L-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3423.00 -55.85 -47.51 -13.00 -42.85 -8.34 Peak

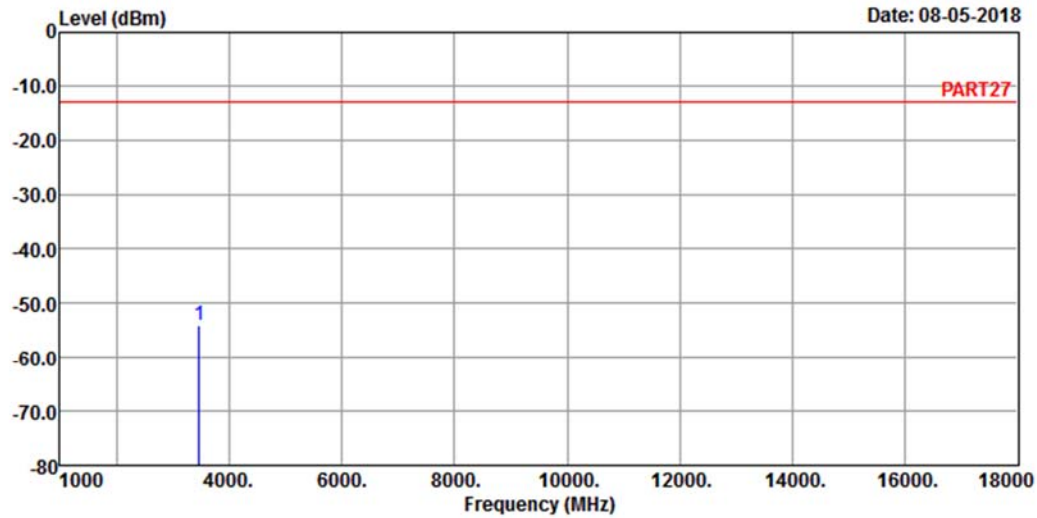
Mode	LTE Band 4 Channel Bandwidth: 3MHz	Channel	TX channel 20175(1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_3M Link_M-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit	Over	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3465.00 -54.00 -46.12 -13.00 -41.00 -7.88 Peak

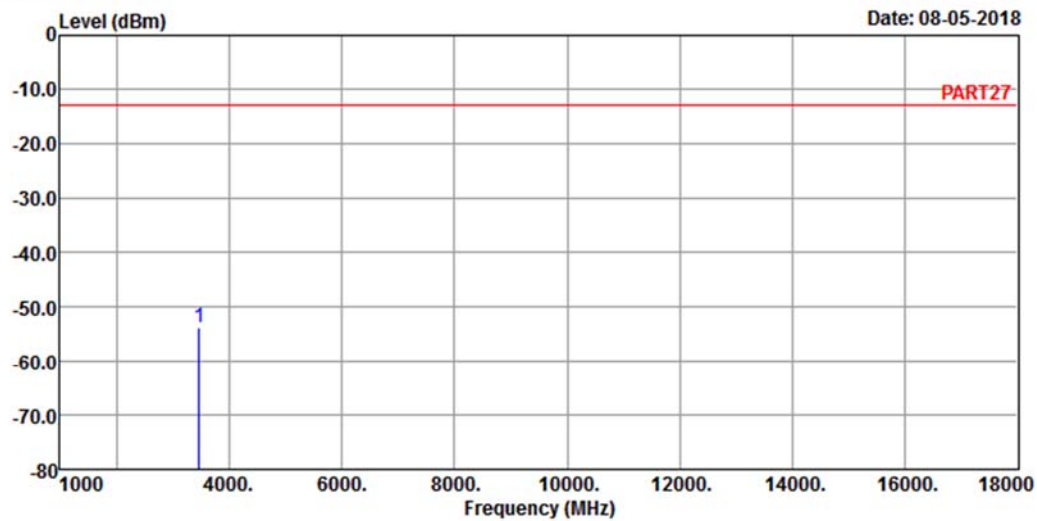
Mode	LTE Band 4 Channel Bandwidth: 3MHz	Channel	TX channel 20175(1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_3M Link_M-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3465.00 -53.61 -45.73 -13.00 -40.61 -7.88 Peak

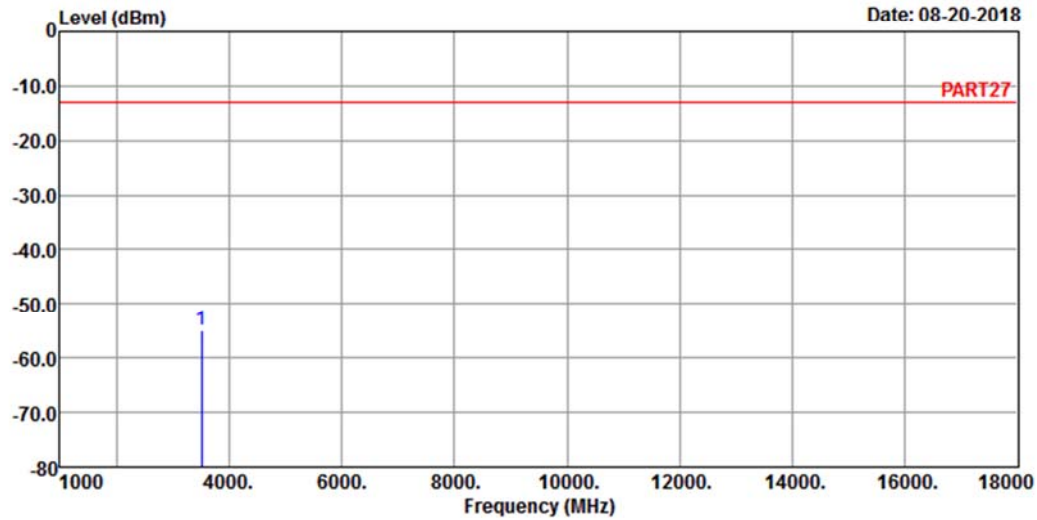
Mode	LTE Band 4 Channel Bandwidth: 3MHz	Channel	TX channel 20385(1753.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_3M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm	dBm	dBm	dB	dB

1 pp 3507.00 -55.01 -47.56 -13.00 -42.01 -7.45 Peak

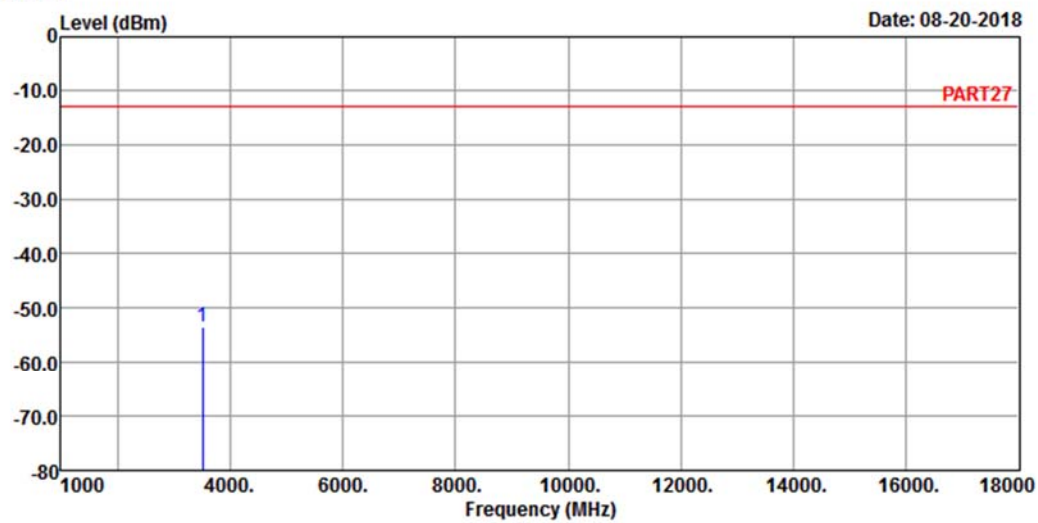
Mode	LTE Band 4 Channel Bandwidth: 3MHz	Channel	TX channel 20385(1753.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_3M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm	dBm	dBm	dB	dB

1 pp 3507.00 -53.52 -46.07 -13.00 -40.52 -7.45 Peak

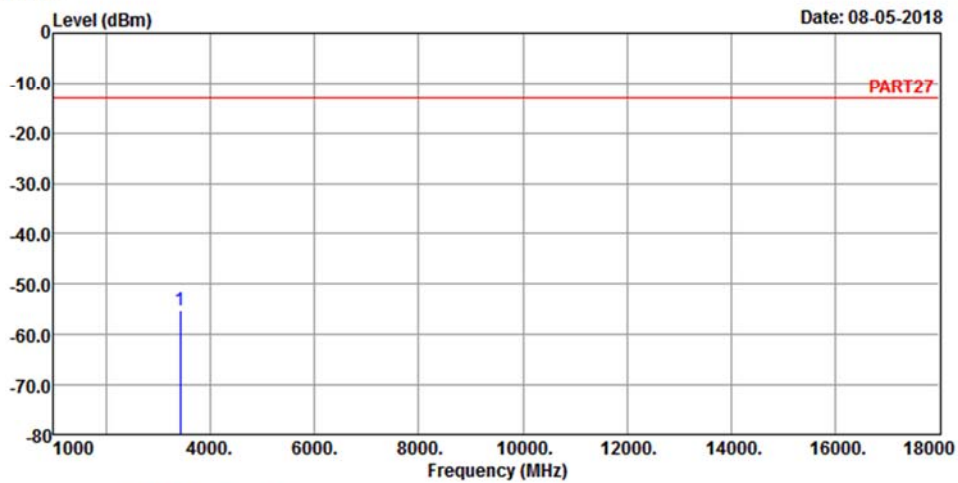
Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	TX channel 19975 (1712.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_5M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3425.00	-55.07	-46.73	-13.00	-42.07	-8.34	Peak

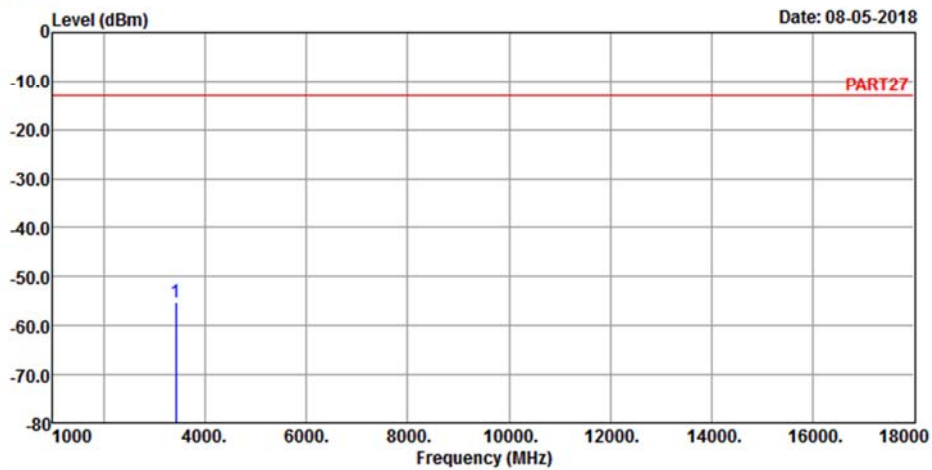
Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	TX channel 19975 (1712.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_5M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 3425.00	-55.22	-46.88	-13.00	-42.22	-8.34 Peak

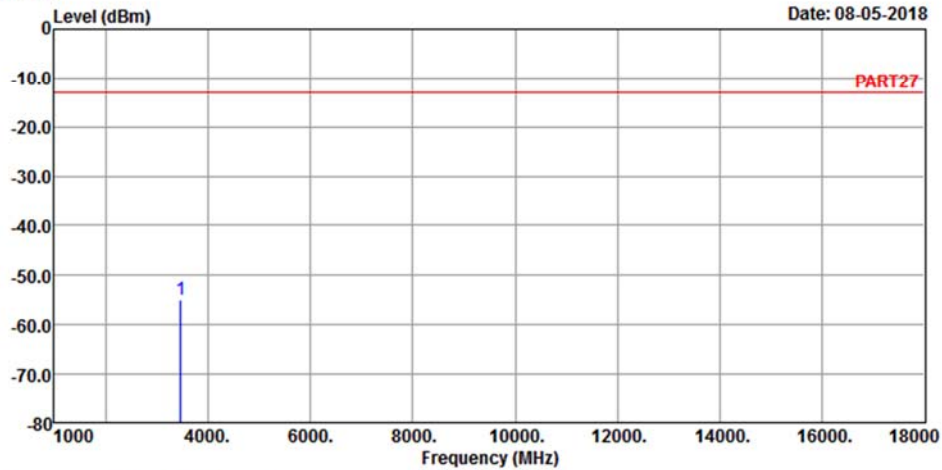
Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	TX channel 20175 (1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_5M Link_M-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-54.91	-47.03	-13.00	-41.91	-7.88	Peak

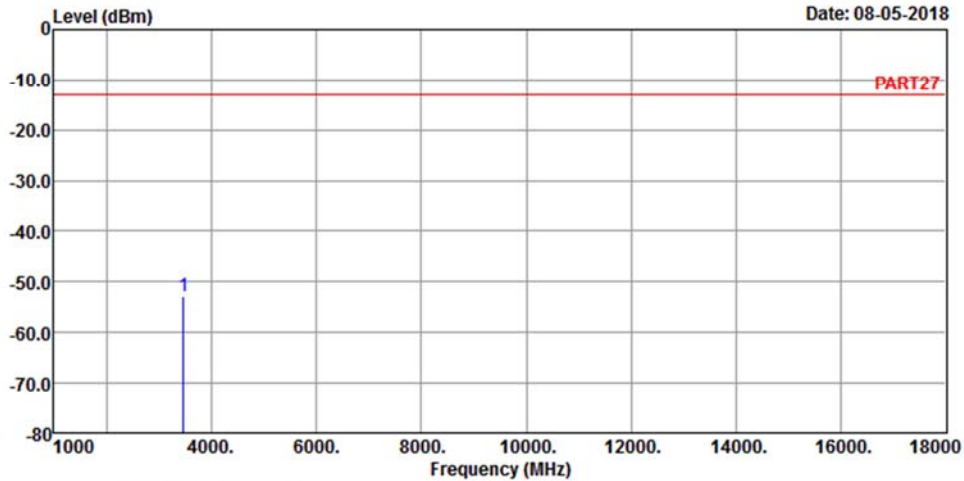
Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	TX channel 20175 (1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_5M Link_M-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 3465.00	-52.93	-45.05	-13.00	-39.93	-7.88 Peak

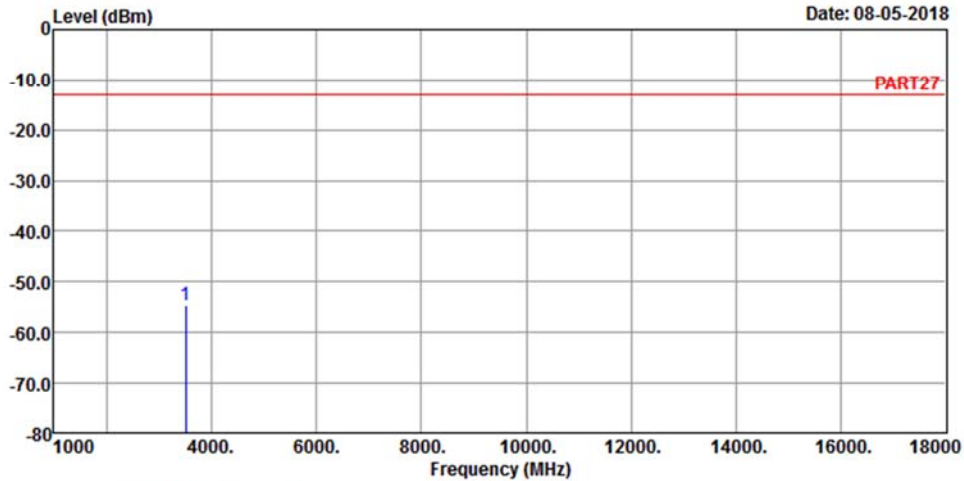
Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	TX channel 20375 (1752.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_5M Link_H-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit	Over	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3505.00 -54.64 -47.19 -13.00 -41.64 -7.45 Peak

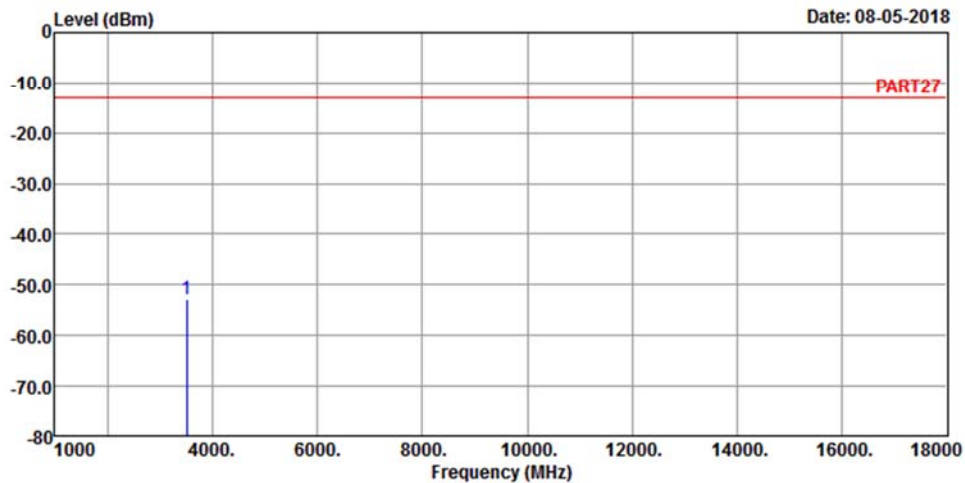
Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	TX channel 20375 (1752.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_5M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 3505.00	-52.92	-45.47	-13.00	-39.92	-7.45 Peak

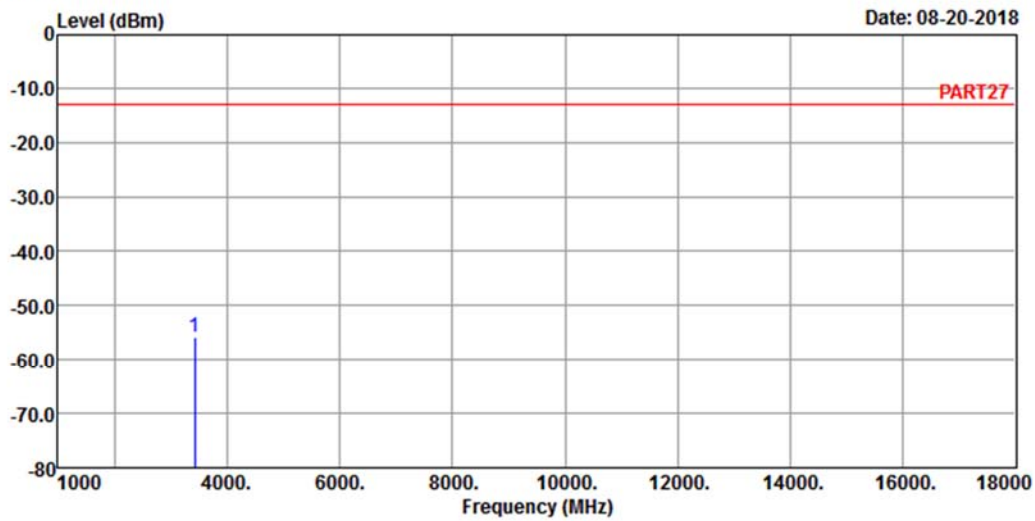
Mode	LTE Band 4 Channel Bandwidth: 10MHz	Channel	TX channel 20000(1715.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_10M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3430.00	-55.85	-47.51	-13.00	-42.85	-8.34	Peak

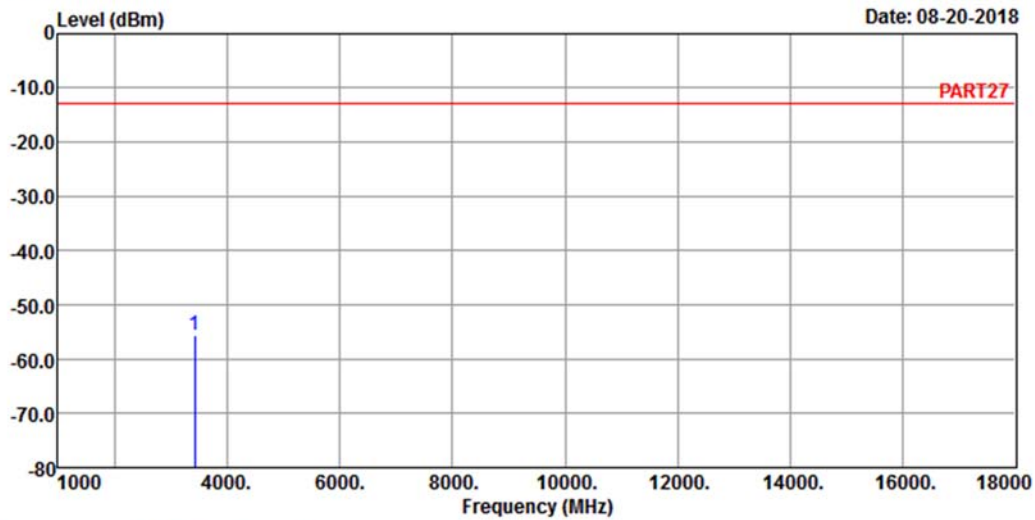
Mode	LTE Band 4 Channel Bandwidth: 10MHz	Channel	TX channel 20000(1715.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_10M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3430.00	-55.63	-47.29	-13.00	-42.63	-8.34	Peak

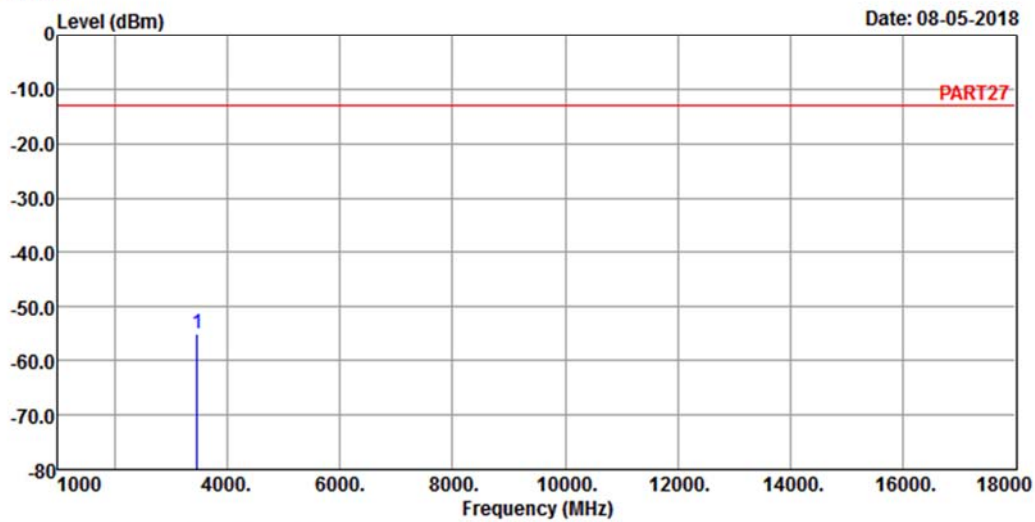
Mode	LTE Band 4 Channel Bandwidth: 10MHz	Channel	TX channel 20175(1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_10M Link_M-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-54.91	-47.03	-13.00	-41.91	-7.88	Peak

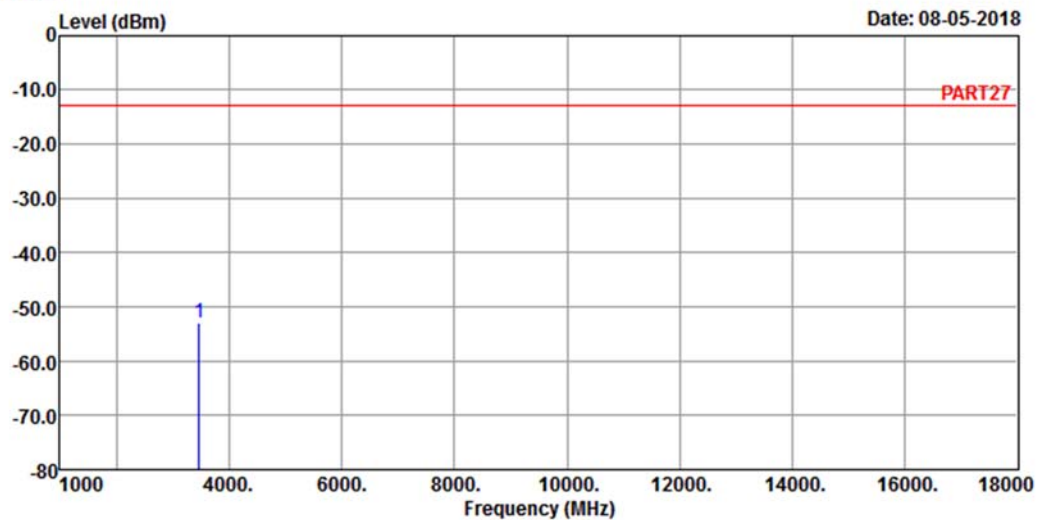
Mode	LTE Band 4 Channel Bandwidth: 10MHz	Channel	TX channel 20175(1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_10M Link_M-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3465.00 -52.93 -45.05 -13.00 -39.93 -7.88 Peak

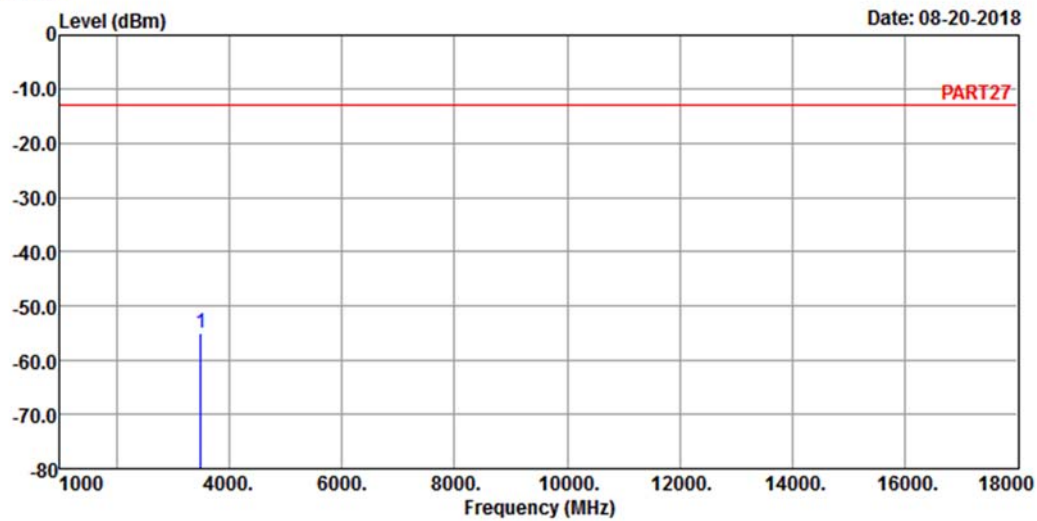
Mode	LTE Band 4 Channel Bandwidth: 10MHz	Channel	TX channel 20350(1750.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_10M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3500.00 -54.85 -47.32 -13.00 -41.85 -7.53 Peak

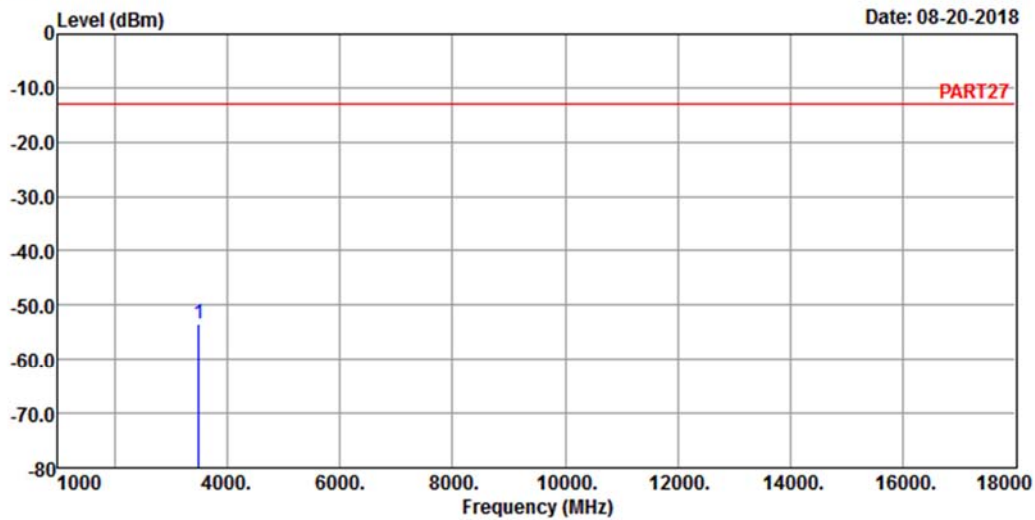
Mode	LTE Band 4 Channel Bandwidth: 10MHz	Channel	TX channel 20350(1750.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_10M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm	dBm	dBm	dB	dB

1 pp 3500.00 -53.52 -45.99 -13.00 -40.52 -7.53 Peak

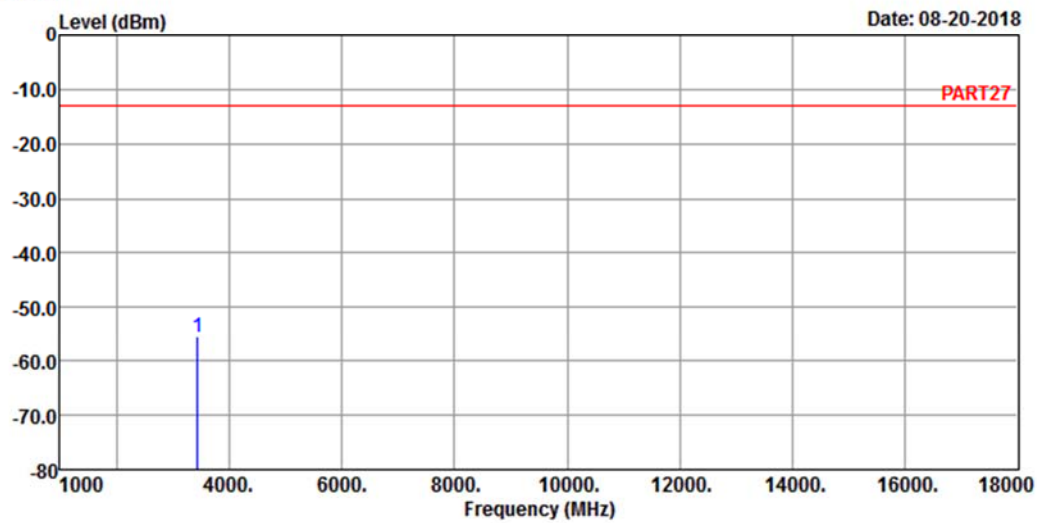
Mode	LTE Band 4 Channel Bandwidth: 15MHz	Channel	TX channel 20025(1717.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_15M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3435.00	-55.52	-47.30	-13.00	-42.52	-8.22	Peak

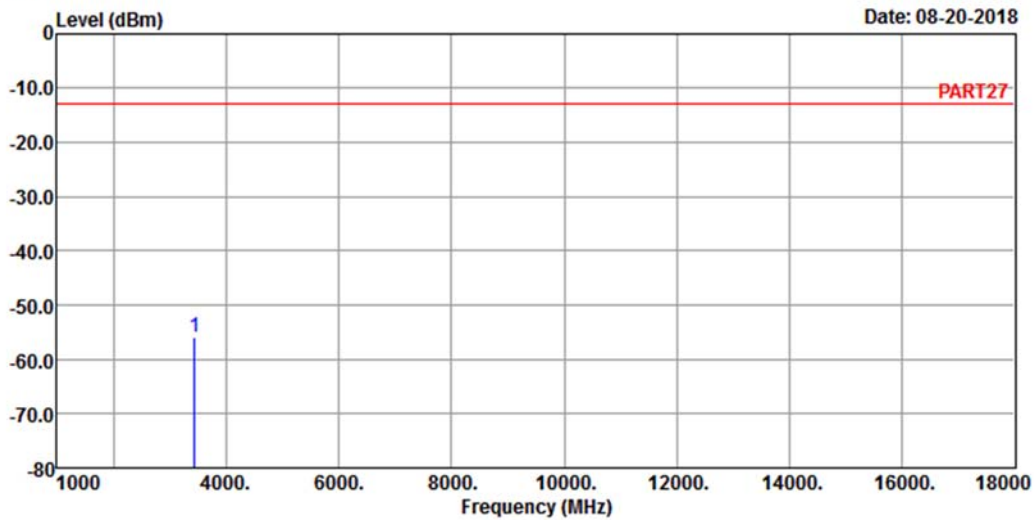
Mode	LTE Band 4 Channel Bandwidth: 15MHz	Channel	TX channel 20025(1717.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_15M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB

1 pp 3435.00 -55.69 -47.47 -13.00 -42.69 -8.22 Peak

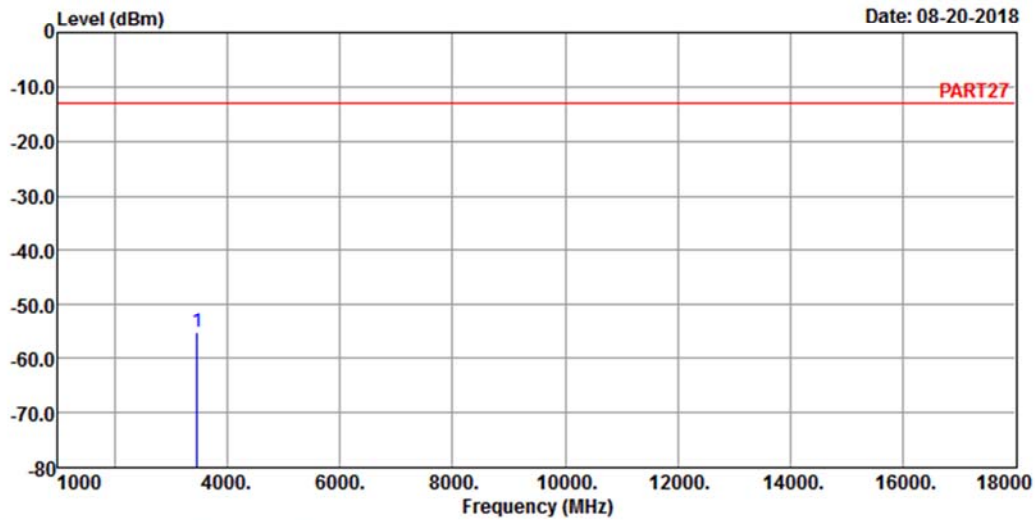
Mode	LTE Band 4 Channel Bandwidth: 15MHz	Channel	TX channel 20175(1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_15M Link_M-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 3465.00 -55.25 -47.37 -13.00 -42.25 -7.88 Peak

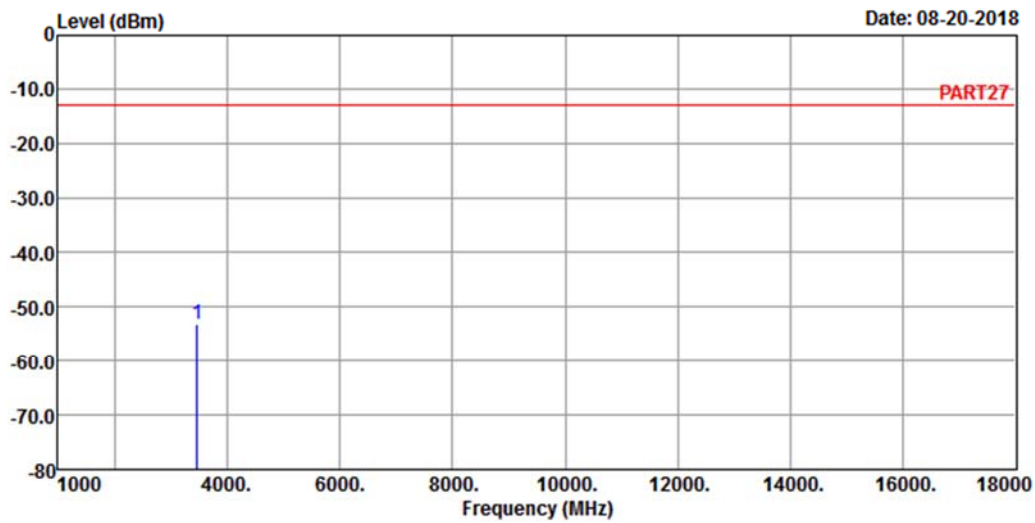
Mode	LTE Band 4 Channel Bandwidth: 15MHz	Channel	TX channel 20175(1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_15M Link_M-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-53.11	-45.23	-13.00	-40.11	-7.88	Peak

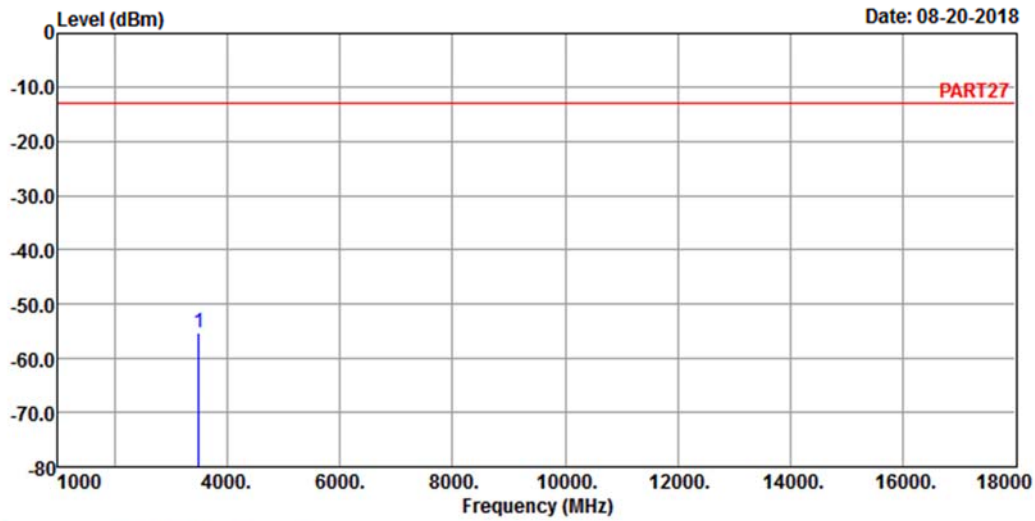
Mode	LTE Band 4 Channel Bandwidth: 15MHz	Channel	TX channel 20325(1747.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_15M Link_H-CH
Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3495.00	-55.25	-47.72	-13.00	-42.25	-7.53	Peak

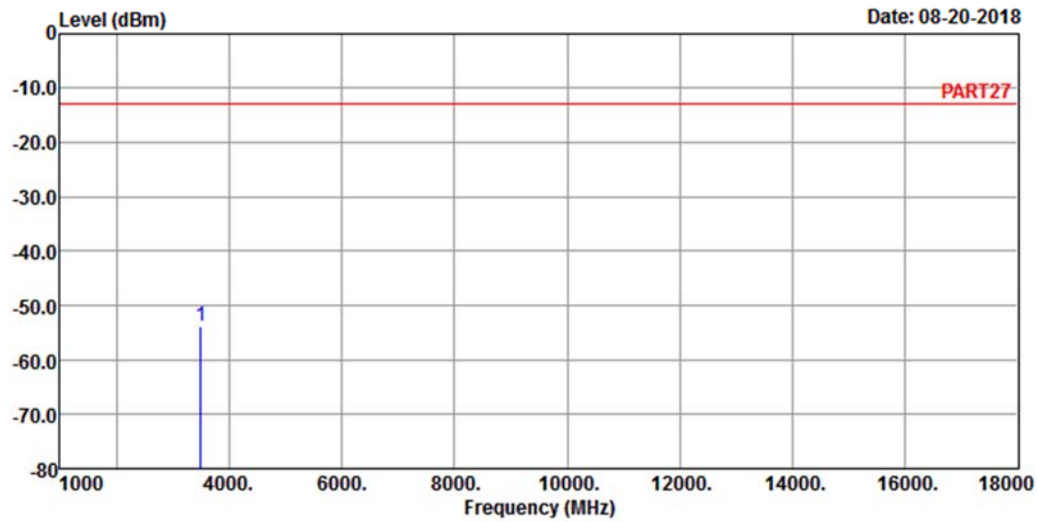
Mode	LTE Band 4 Channel Bandwidth: 15MHz	Channel	TX channel 20325(1747.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_15M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3495.00	-53.74	-46.21	-13.00	-40.74	-7.53	Peak

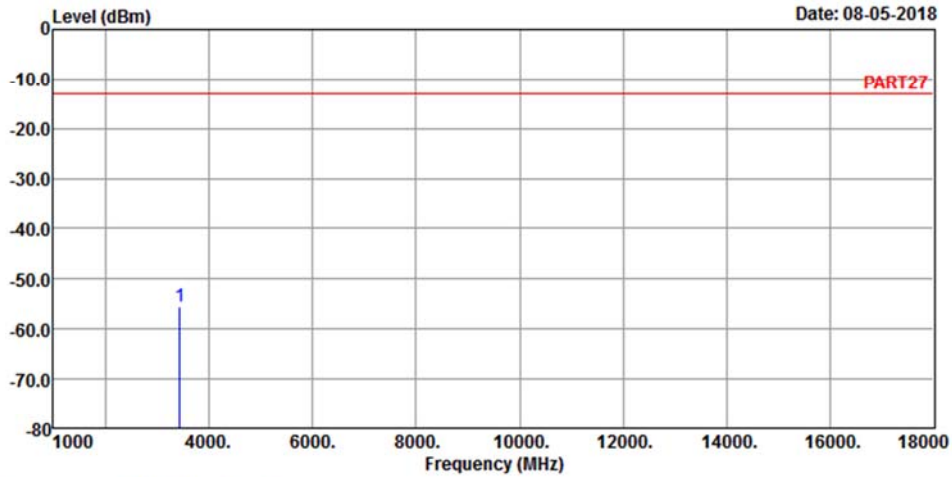
Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	TX channel 20050 (1720.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_20M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 3440.00	-55.46	-47.24	-13.00	-42.46	-8.22 Peak

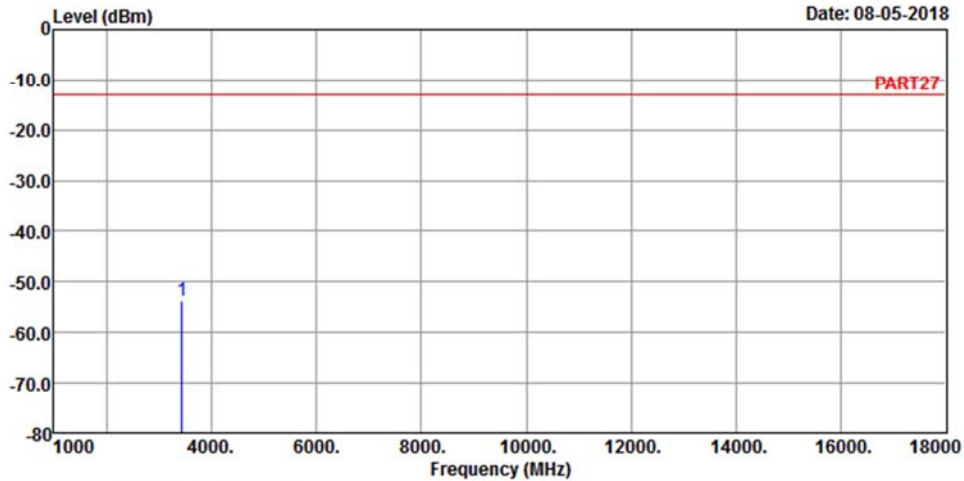
Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	TX channel 20050 (1720.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_20M Link_L-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3440.00	-53.81	-45.59	-13.00	-40.81	-8.22	Peak

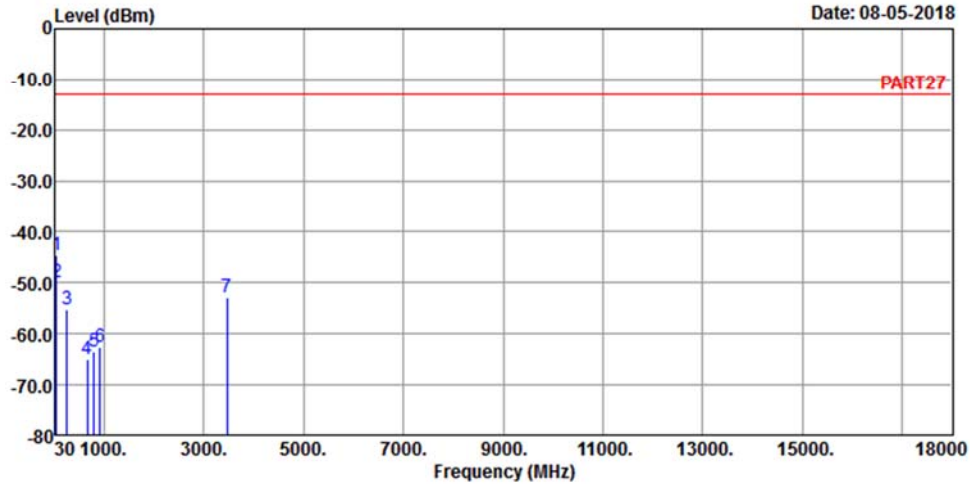
Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	TX channel 20175 (1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 4 QPSK_20M Link_M-CH
Tested by: Jisyong Wang

	Freq	Level	Read	Limit	Over		
	MHz	dBm	Level	Line	Limit	Factor	Remark
			dBm	dBm	dB	dB	
1	pp	44.55	-44.52	-42.53	-13.00	-31.52	-1.99 Peak
2		53.28	-49.98	-44.17	-13.00	-36.98	-5.81 Peak
3		267.65	-55.15	-48.80	-13.00	-42.15	-6.35 Peak
4		661.47	-64.97	-64.27	-13.00	-51.97	-0.70 Peak
5		796.30	-63.40	-64.15	-13.00	-50.40	0.75 Peak
6		922.40	-62.56	-63.68	-13.00	-49.56	1.12 Peak
7		3465.00	-52.89	-45.01	-13.00	-39.89	-7.88 Peak

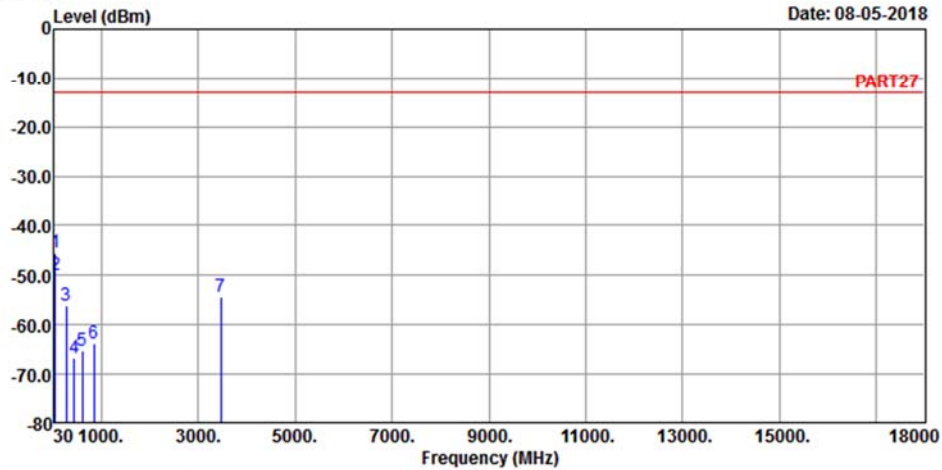
Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	TX channel 20175 (1732.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_20M Link_M-CH
 Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	45.52	-45.48	-42.98	-13.00	-32.48	-2.50	Peak
2	53.28	-50.03	-44.22	-13.00	-37.03	-5.81	Peak
3	272.50	-56.21	-49.76	-13.00	-43.21	-6.45	Peak
4	440.31	-66.80	-61.17	-13.00	-53.80	-5.63	Peak
5	610.06	-65.32	-64.54	-13.00	-52.32	-0.78	Peak
6	841.89	-63.72	-64.08	-13.00	-50.72	0.36	Peak
7	3465.00	-54.38	-46.50	-13.00	-41.38	-7.88	Peak

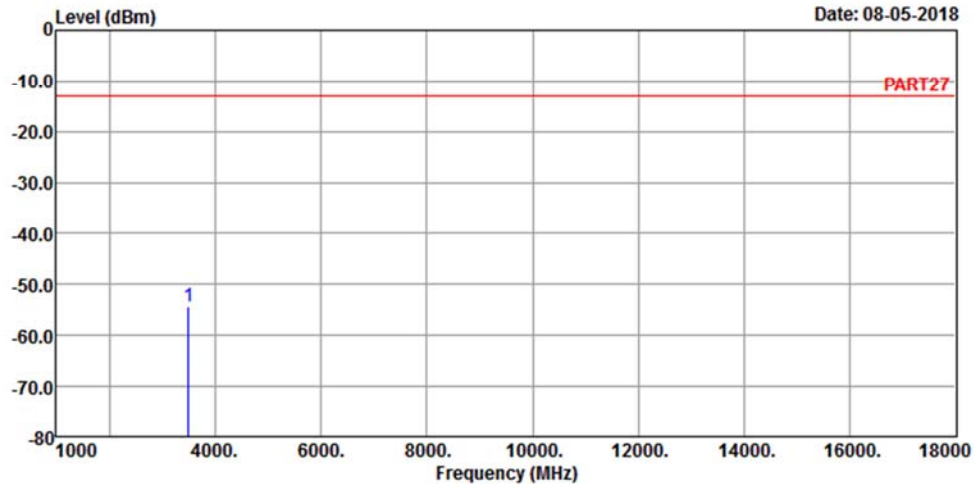
Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	TX channel 20300 (1745.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : LTE Band 4 QPSK_20M Link_H-CH
 Tested by: Jisyong Wang

Freq	Level	Read	Limit	Over	Remark
		Level	Line	Limit	
MHz	dBm	dBm	dBm	dB	dB
1 pp 3490.00	-54.18	-46.53	-13.00	-41.18	-7.65 Peak

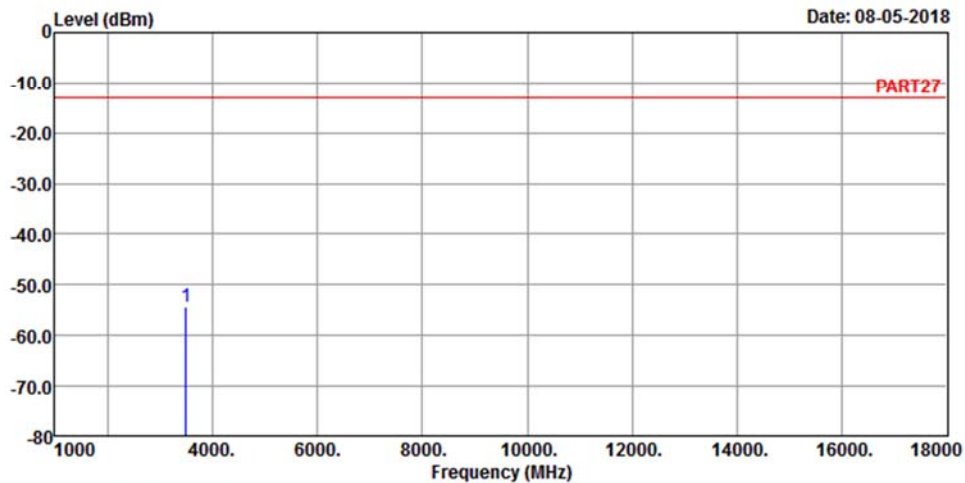
Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	TX channel 20300 (1745.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27 VERTICAL
 Remak : LTE Band 4 QPSK_20M Link_H-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm	dBm	dBm	dB	dB
1 pp 3490.00	-54.45	-46.80	-13.00	-41.45	-7.65 Peak

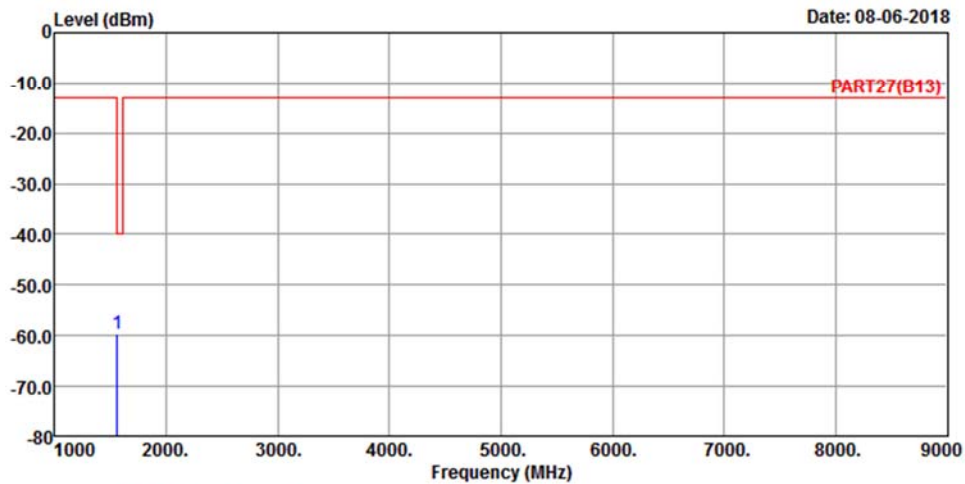
Mode	LTE Band 13 Channel Bandwidth: 5MHz (1 RB / 0 RB Offset)	Channel	TX channel 23205 (779.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : LTE Band 13 QPSK_5M Link_L-CH
Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm	dBm	dBm	dB	dB
1 pp 1559.00	-59.56	-46.24	-40.00	-19.56	-13.32 Peak

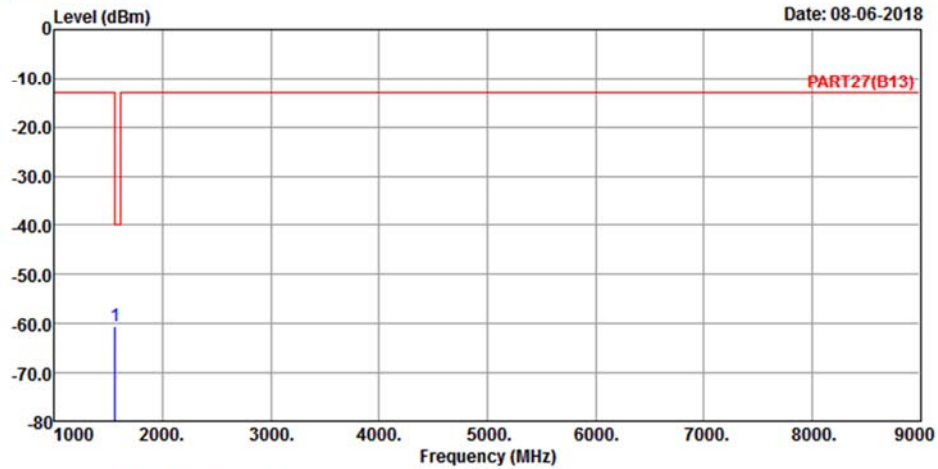
Mode	LTE Band 13 Channel Bandwidth: 5MHz (1 RB / 0 RB Offset)	Channel	TX channel 23205 (779.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27(B13) VERTICAL
 Remak : LTE Band 13 QPSK_5M Link_L-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 1559.00 -60.37 -47.05 -40.00 -20.37 -13.32 Peak

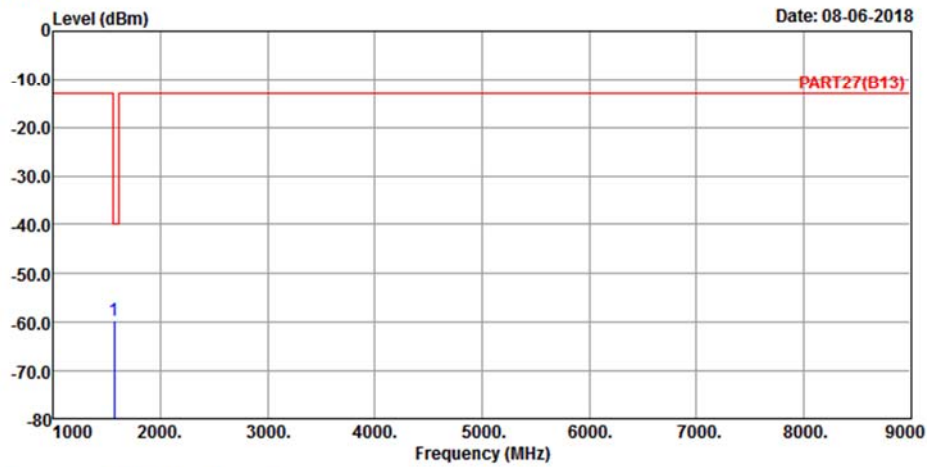
Mode	LTE Band 13 Channel Bandwidth: 5MHz (1 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : LTE Band 13 QPSK_5M Link_M-CH
Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1564.00	-59.67	-46.33	-40.00	-19.67	-13.34	Peak

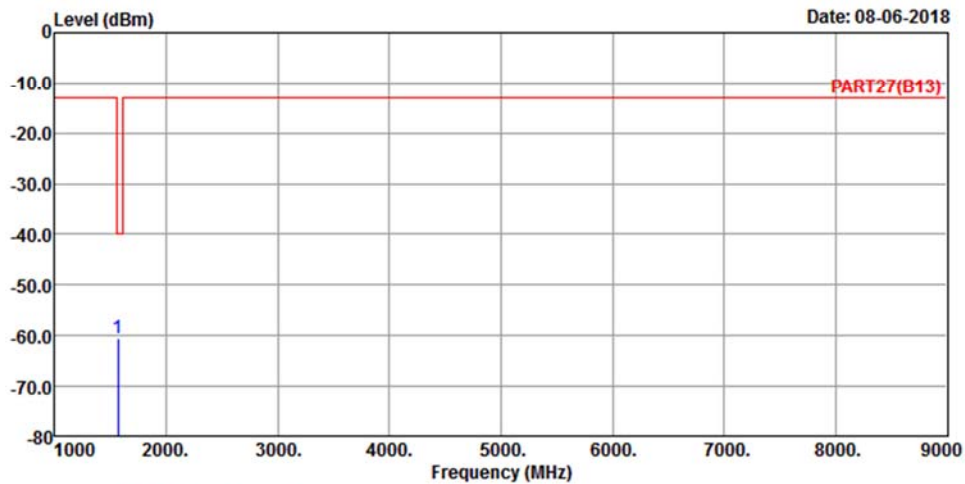
Mode	LTE Band 13 Channel Bandwidth: 5MHz (1 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : LTE Band 13 QPSK_5M Link_M-CH
Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB

1 pp 1564.00 -60.53 -47.19 -40.00 -20.53 -13.34 Peak

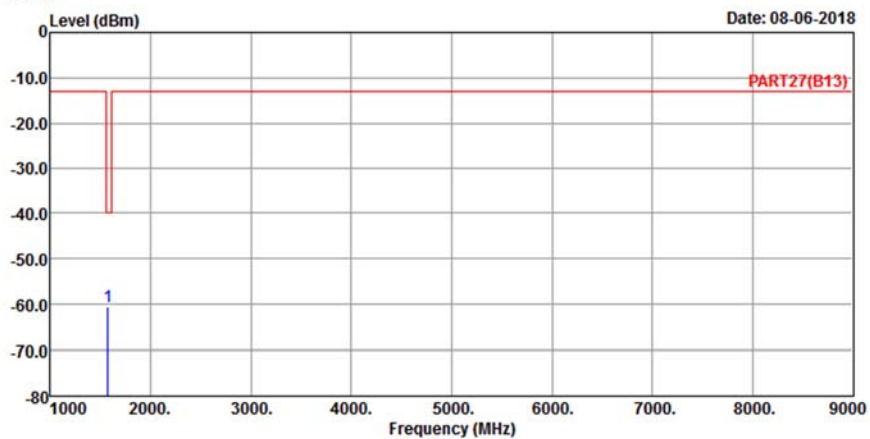
Mode	LTE Band 13 Channel Bandwidth: 5MHz (1 RB / 0 RB Offset)	Channel	TX channel 23255 (784.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : LTE Band 13 QPSK_5M Link_H-CH
Tested by: Jisyong Wang

Freq	Level	Read Limit Over			Remark
		Level	Line	Limit	
MHz	dBm	dBm	dBm	dB	dB
1 pp 1569.00	-60.55	-47.20	-40.00	-20.55	-13.35 Peak

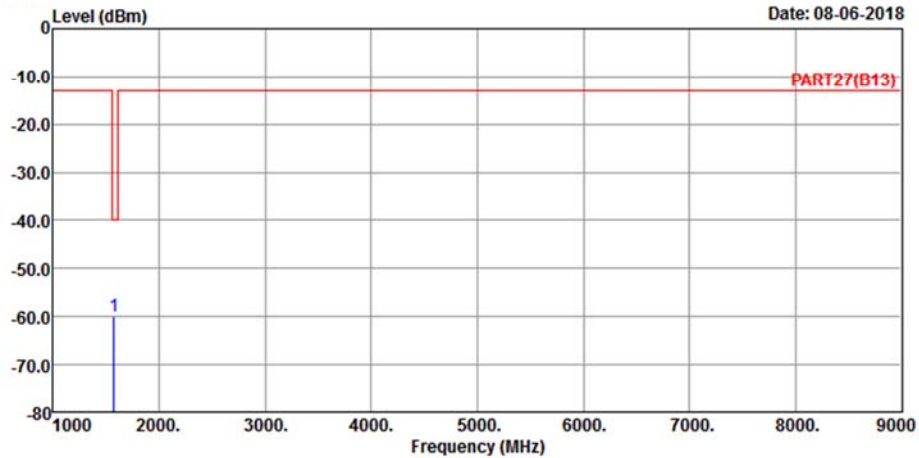
Mode	LTE Band 13 Channel Bandwidth: 5MHz (1 RB / 0 RB Offset)	Channel	TX channel 23255 (784.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : LTE Band 13 QPSK_5M Link_H-CH
Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB

1 pp 1569.00 -60.07 -46.72 -40.00 -20.07 -13.35 Peak

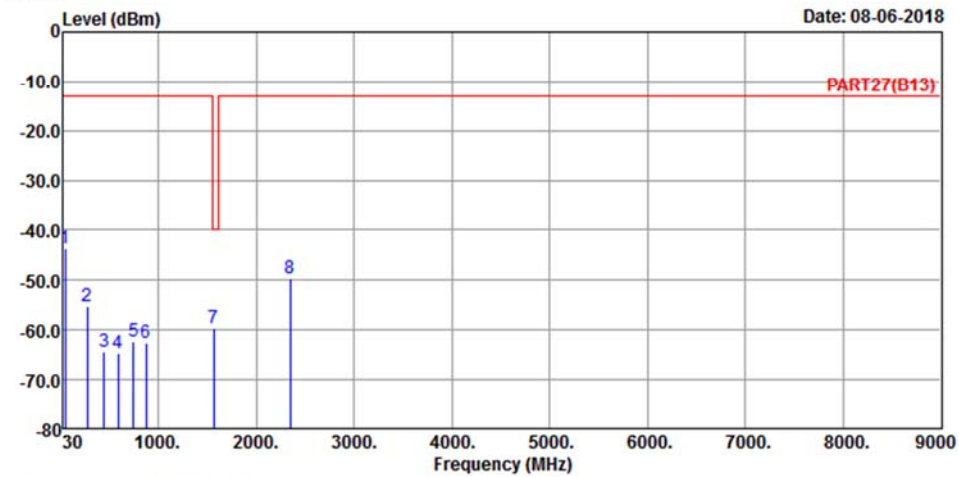
Mode	LTE Band 13 Channel Bandwidth: 10MHz (1 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 Chamber 5
 Condition: PART27(B13) HORIZONTAL
 Remak : LTE Band 13 QPSK_10M Link_M-CH
 Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-43.82	-41.83	-13.00	-30.82	-1.99 Peak
2	269.59	-55.35	-48.96	-13.00	-42.35	-6.39 Peak
3	449.04	-64.40	-58.84	-13.00	-51.40	-5.56 Peak
4	588.72	-64.58	-63.34	-13.00	-51.58	-1.24 Peak
5	747.80	-62.28	-63.12	-13.00	-49.28	0.84 Peak
6	872.93	-62.58	-63.00	-13.00	-49.58	0.42 Peak
7 pp	1564.00	-59.56	-46.22	-40.00	-19.56	-13.34 Peak
8	2346.00	-49.45	-40.01	-13.00	-36.45	-9.44 Peak

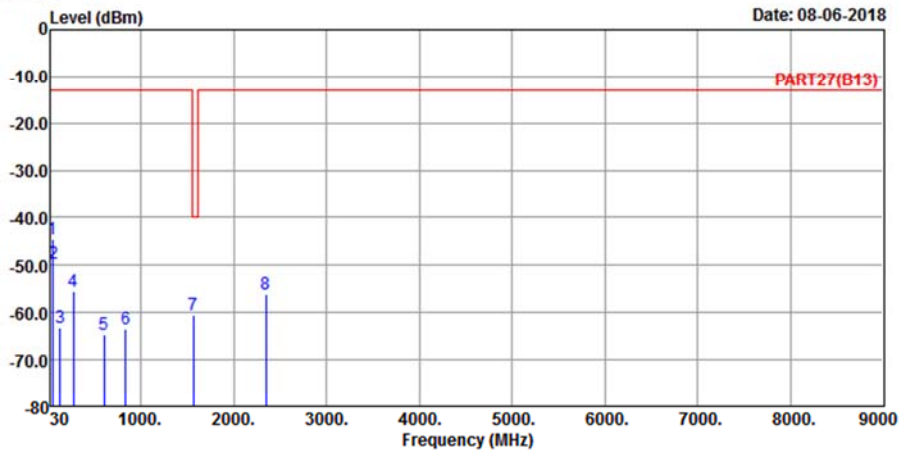
Mode	LTE Band 13 Channel Bandwidth: 10MHz (1 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : LTE Band 13 QPSK_10M Link_M-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-44.68	-42.69	-13.00	-31.68	-1.99	Peak
2	53.28	-49.68	-43.87	-13.00	-36.68	-5.81	Peak
3	129.91	-63.07	-54.38	-13.00	-50.07	-8.69	Peak
4	272.50	-55.52	-49.07	-13.00	-42.52	-6.45	Peak
5	600.36	-64.73	-63.98	-13.00	-51.73	-0.75	Peak
6	835.10	-63.55	-63.97	-13.00	-50.55	0.42	Peak
7 pp	1564.00	-60.37	-47.03	-40.00	-20.37	-13.34	Peak
8	2346.00	-56.21	-46.77	-13.00	-43.21	-9.44	Peak

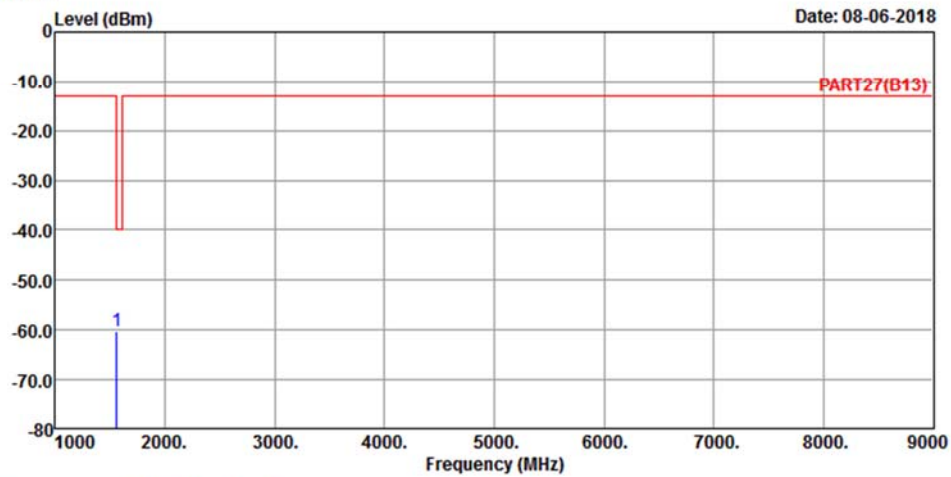
Mode	LTE Band 13 Channel Bandwidth: 5MHz (25 RB / 0 RB Offset)	Channel	TX channel 23205 (779.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27(B13) HORIZONTAL
 Remak : LTE Band 13 QPSK_5M Link_L-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1559.00	-60.36	-47.04	-40.00	-20.36	-13.32	Peak

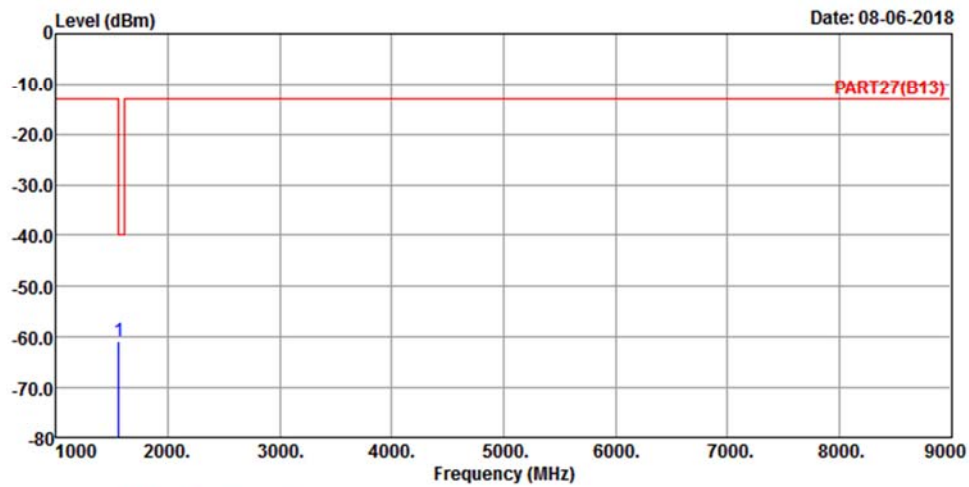
Mode	LTE Band 13 Channel Bandwidth: 5MHz (25 RB / 0 RB Offset)	Channel	TX channel 23205 (779.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : LTE Band 13 QPSK_5M Link_L-CH
Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 1559.00 -60.85 -47.53 -40.00 -20.85 -13.32 Peak

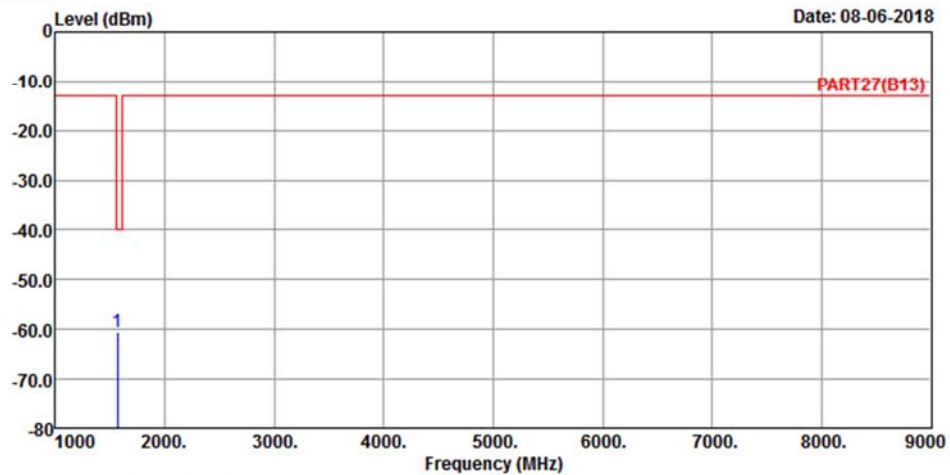
Mode	LTE Band 13 Channel Bandwidth: 5MHz (25 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27(B13) HORIZONTAL
 Remark : LTE Band 13 QPSK_5M Link_M-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 1564.00 -60.52 -47.18 -40.00 -20.52 -13.34 Peak

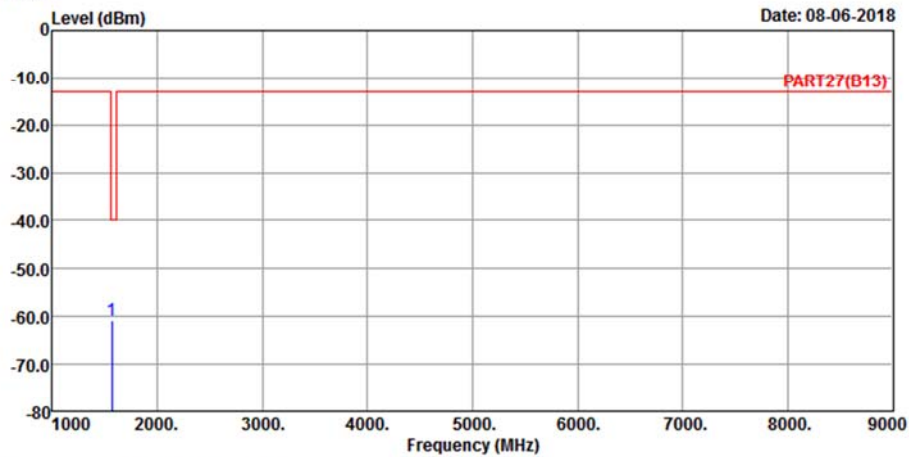
Mode	LTE Band 13 Channel Bandwidth: 5MHz (25 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
Condition: PART27(B13) VERTICAL
Remak : LTE Band 13 QPSK_5M Link_M-CH
Tested by: Jisyong Wang

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 1564.00 -60.71 -47.37 -40.00 -20.71 -13.34 Peak

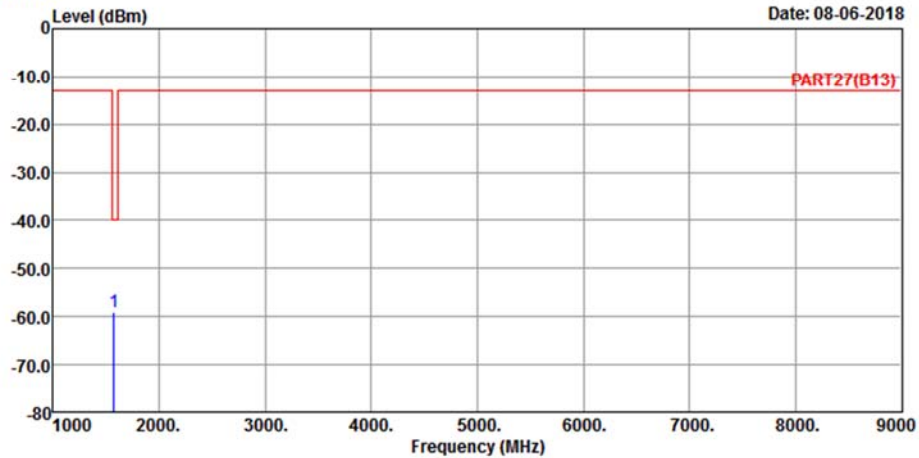
Mode	LTE Band 13 Channel Bandwidth: 5MHz (25 RB / 0 RB Offset)	Channel	TX channel 23255 (784.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : LTE Band 13 QPSK_5M Link_H-CH
Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 1569.00	-58.99	-45.64	-40.00	-18.99	-13.35 Peak

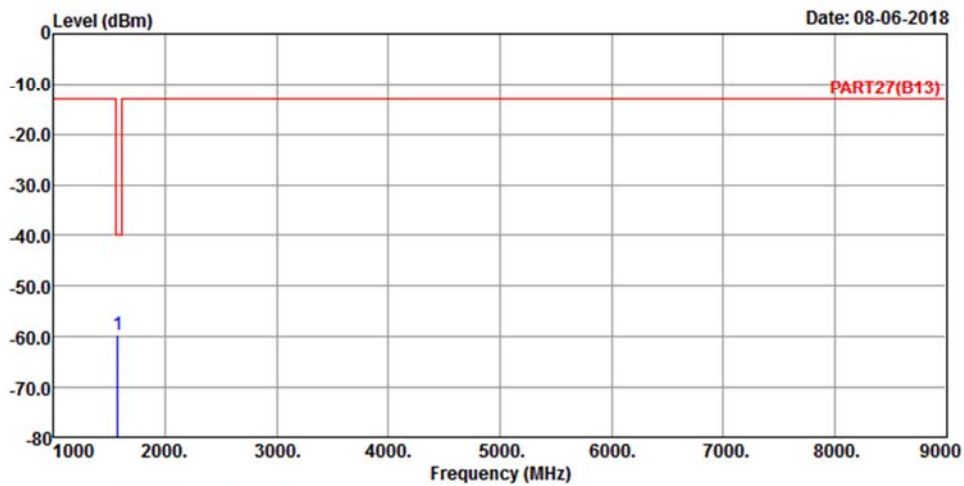
Mode	LTE Band 13 Channel Bandwidth: 5MHz (25 RB / 0 RB Offset)	Channel	TX channel 23255 (784.5MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27(B13) VERTICAL
 Remak : LTE Band 13 QPSK_5M Link_H-CH
 Tested by: Jisyong Wang

Freq	Level	Read Level	Limit	Over	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	

1 pp 1569.00 -59.52 -46.17 -40.00 -19.52 -13.35 Peak

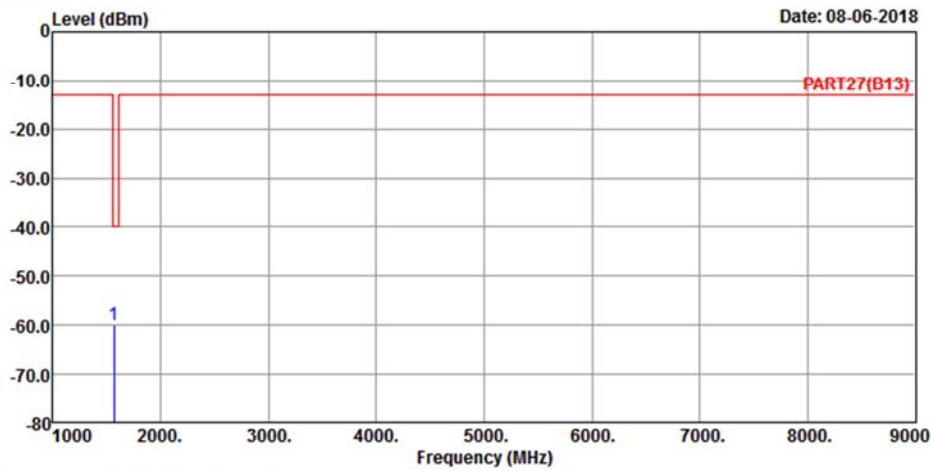
Mode	LTE Band 13 Channel Bandwidth: 10MHz (50 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27(B13) HORIZONTAL
Remak : LTE Band 13 QPSK_10M Link_M-CH
Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 1564.00	-59.99	-46.65	-40.00	-19.99	-13.34 Peak

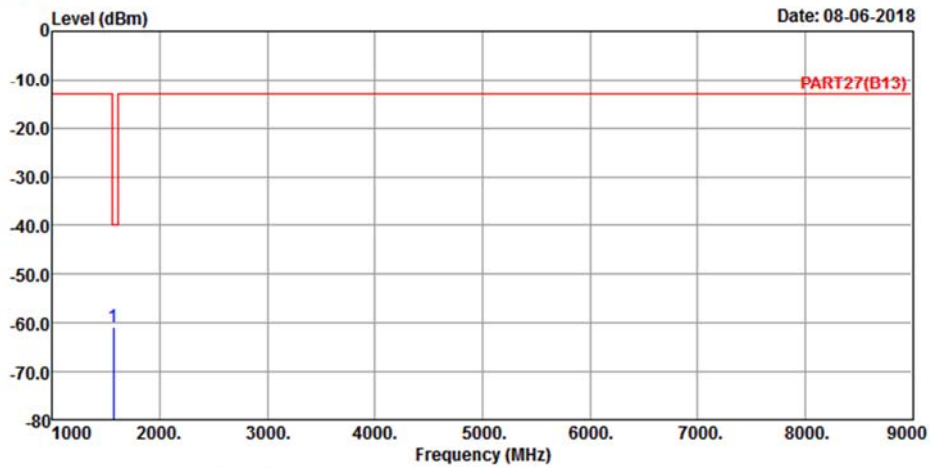
Mode	LTE Band 13 Channel Bandwidth: 10MHz (50 RB / 0 RB Offset)	Channel	TX channel 23230 (782.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5
 Condition: PART27(B13) VERTICAL
 Remak : LTE Band 13 QPSK_10M Link_M-CH
 Tested by: Jisyong Wang

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor
MHz	dBm	dBm	dBm	dB	dB
1 pp 1564.00	-60.89	-47.55	-40.00	-20.89	-13.34 Peak

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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 Lab

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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