FCC Test Report

(PART 27)

Report No.: RF180704C01-2

FCC ID: ZMOL850GLD

Test Model: L850-GL

Received Date: Jul. 04, 2018

Test Date: Jul. 10, 2018 ~ Jul. 16, 2018

Issued Date: Jul. 19, 2018

Applicant: Fibocom Wireless Inc.

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

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FCC Registration / Designation Number: 788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF180704C01-2	Original Release	Jul. 19, 2018

1 Certificate of Conformity

Product: LTE module

Brand: Fibocom

Test Model: L850-GL

Sample Status: Identical Prototype

Applicant: Fibocom Wireless Inc.

Test Date: Jul. 10, 2018 ~ Jul. 16, 2018

Standards: FCC Part 27, Subpart C, M

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

Prepared by : Rona Chen , **Date:** Jul. 19, 2018

Rona Chen / Specialist

Approved by : , **Date:** Jul. 19, 2018

Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(h)	Equivalent Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
--	Peak to Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(l)	Out-of-Band Emissions Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(m)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(m)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -3.45 dB at 7830.00 MHz.

2.1 Measurement Uncertainty

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

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

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer Agilent	N9010A	MY52220314	Nov. 24, 2017	Nov. 23, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
Double Ridge Guide Horn Antenna EMCO	3115	5619	Nov. 30, 2017	Nov. 29, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Dec. 06, 2017	Dec. 05, 2018
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
Preamplifier EMCI	EMC 012645	980115	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 184045	980116	Oct. 20, 2017	Oct. 19, 2018
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-800 0&3000	140811+170717	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 20, 2017	Oct. 19, 2018
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer	MT8820C	6201300640	Aug. 16, 2017	Aug. 15, 2019
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 08, 2017	Sep. 07, 2018
DC Power Supply Topward	33010D	807748	Oct. 25, 2016	Oct. 24, 2018
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019

Note:
1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450F-10.

3 General Information

3.1 General Description of EUT

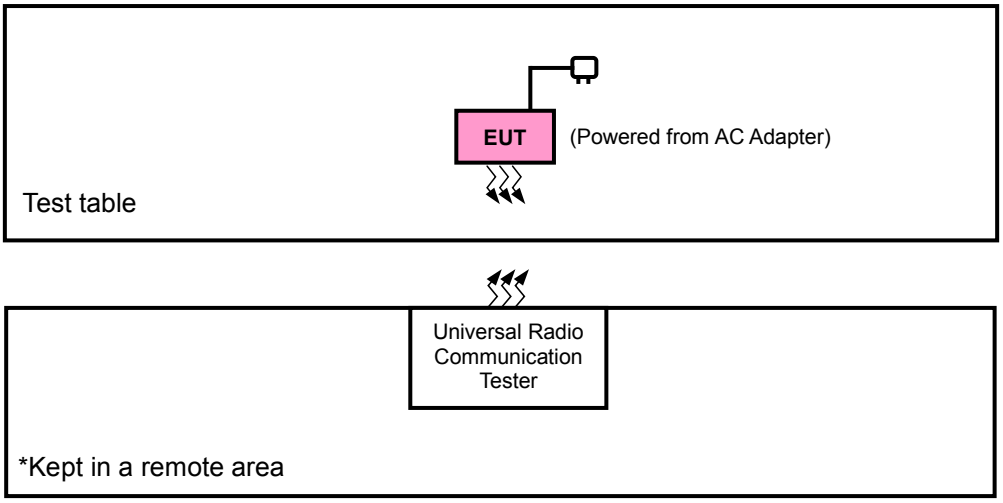
Product	LTE module	
Brand	Fibocom	
Test Model	L850-GL	
Status of EUT	Identical Prototype	
Power Supply Rating	3.3 Vdc (Host equipment)	
Modulation Type	QPSK, 16QAM	
Frequency Range	LTE Band 7 (Channel Bandwidth: 5 MHz)	2502.5 ~ 2567.5 MHz
	LTE Band 7 (Channel Bandwidth: 10 MHz)	2505 ~ 2565 MHz
	LTE Band 7 (Channel Bandwidth: 15 MHz)	2507.5 ~ 2562.5 MHz
	LTE Band 7 (Channel Bandwidth: 20 MHz)	2510 ~ 2560 MHz
	LTE Band 38 (Channel Bandwidth: 5 MHz)	2572.5 ~ 2617.5 MHz
	LTE Band 38 (Channel Bandwidth: 10 MHz)	2575.0 ~ 2615.0 MHz
	LTE Band 38 (Channel Bandwidth: 15 MHz)	2577.5 ~ 2612.5 MHz
	LTE Band 38 (Channel Bandwidth: 20 MHz)	2580.0 ~ 2610.0 MHz
	LTE Band 41 (Channel Bandwidth: 5 MHz)	2498.5 ~ 2687.5 MHz
	LTE Band 41 (Channel Bandwidth: 10 MHz)	2501.0 ~ 2685.0 MHz
	LTE Band 41 (Channel Bandwidth: 15 MHz)	2503.5 ~ 2682.5 MHz
	LTE Band 41 (Channel Bandwidth: 20 MHz)	2506.0 ~ 2680.0 MHz
Max. EIRP Power	LTE Band 7 (Channel Bandwidth: 5 MHz)	755.09 mW
	LTE Band 7 (Channel Bandwidth: 10 MHz)	770.90 mW
	LTE Band 7 (Channel Bandwidth: 15 MHz)	785.24 mW
	LTE Band 7 (Channel Bandwidth: 20 MHz)	619.44 mW
	LTE Band 38 (Channel Bandwidth: 5 MHz)	584.79 mW
	LTE Band 38 (Channel Bandwidth: 10 MHz)	584.79 mW
	LTE Band 38 (Channel Bandwidth: 15 MHz)	597.04 mW
	LTE Band 38 (Channel Bandwidth: 20 MHz)	601.17 mW
	LTE Band 41 (Channel Bandwidth: 5 MHz)	610.94 mW
	LTE Band 41 (Channel Bandwidth: 10 MHz)	616.60 mW
	LTE Band 41 (Channel Bandwidth: 15 MHz)	626.61 mW
	LTE Band 41 (Channel Bandwidth: 20 MHz)	635.33 mW
Emission Designator	LTE Band 7 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 7 (Channel Bandwidth: 10 MHz)	8M99G7D
	LTE Band 7 (Channel Bandwidth: 15 MHz)	13M48G7D
	LTE Band 7 (Channel Bandwidth: 20 MHz)	18M00G7D
	LTE Band 38 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE Band 38 (Channel Bandwidth: 10 MHz)	8M99G7D
	LTE Band 38 (Channel Bandwidth: 15 MHz)	13M47G7D
	LTE Band 38 (Channel Bandwidth: 20 MHz)	17M97G7D
	LTE Band 41 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE Band 41 (Channel Bandwidth: 10 MHz)	8M99G7D
	LTE Band 41 (Channel Bandwidth: 15 MHz)	13M48G7D
	LTE Band 41 (Channel Bandwidth: 20 MHz)	17M98G7D

Antenna Type	External Antenna with 5.0 dBi gain
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

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

3.2 Configuration of System under Test



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3 Test Mode Applicability and Tested Channel Detail

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

Band	Radiated Emission
LTE Band 7	Z-axis
LTE Band 38	Z-axis
LTE Band 41	Z-axis

LTE Band 7

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	20850 to 21350	21100	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
-	Frequency Stability	20775 to 21425	20775, 21425	5 MHz	QPSK	1 RB / 12 RB Offset
		20800 to 21400	20800, 21400	10 MHz	QPSK	1 RB / 24 RB Offset
		20825 to 21375	20825, 21375	15 MHz	QPSK	1 RB / 37 RB Offset
		20850 to 21350	20850, 21350	20 MHz	QPSK	1 RB / 50 RB Offset
-	Occupied Bandwidth	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM	1 RB / 12 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM	1 RB / 37 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK, 16QAM	1 RB / 50 RB Offset
-	Out-of-Band Emissions	20775 to 21425	20775, 21425	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21400	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21375	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21350	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Conducted Emission	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK	1 RB / 12 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK	1 RB / 24 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK	1 RB / 37 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK	1 RB / 50 RB Offset
-	Radiated Emission	20850 to 21350	20850, 21100 21350	20 MHz	QPSK	1 RB / 50 RB Offset

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

LTE Band 38

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	37850 to 38150	38000	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Frequency Stability	37775 to 38225	37775, 38225	5 MHz	QPSK	1 RB / 0 RB Offset
		37800 to 38200	37800, 38200	10 MHz	QPSK	1 RB / 0 RB Offset
		37825 to 38175	37825, 38175	15 MHz	QPSK	1 RB / 0 RB Offset
		37850 to 38150	37850, 38150	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Out-of-Band Emissions	37775 to 38225	37775, 38225	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		37800 to 38200	37800, 38200	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		37825 to 38175	37825, 38175	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		37850 to 38150	37850, 38150	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Conducted Emission	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	37850 to 38150	37850, 38000, 38150	20 MHz	QPSK	1 RB / 0 RB Offset

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

LTE Band 41

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	39750 to 41490	40620	20 MHz	QPSK, 16QAM	1 RB / 50 RB Offset
-	Frequency Stability	39675 to 41565	39675, 41565	5 MHz	QPSK	1 RB / 12 RB Offset
		39700 to 41540	39700, 41540	10 MHz	QPSK	1 RB / 24 RB Offset
		39725 to 41515	39725, 41515	15 MHz	QPSK	1 RB / 37 RB Offset
		39750 to 41490	39750, 41490	20 MHz	QPSK	1 RB / 50 RB Offset
-	Occupied Bandwidth	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Out-of-Band Emissions	39675 to 41565	39675, 41565	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 41540	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		39725 to 41515	39725, 41515	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		39750 to 41490	39750, 41490	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Conducted Emission	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK	1 RB / 12 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK	1 RB / 24 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK	1 RB / 37 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK	1 RB / 50 RB Offset
-	Radiated Emission	39750 to 41490	39750, 40620, 41490	20 MHz	QPSK	1 RB / 50 RB Offset

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

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25 deg. C, 65 % RH	3.3 Vdc	Getaz Yang
Modulation Characteristics	25 deg. C, 65 % RH	3.3 Vdc	Getaz Yang
Frequency Stability	25 deg. C, 65 % RH	3.3 Vdc	Getaz Yang
Occupied Bandwidth	25 deg. C, 65 % RH	3.3 Vdc	Getaz Yang
Out-of-Band Emissions	25 deg. C, 65 % RH	3.3 Vdc	Getaz Yang
Peak to Average Ratio	25 deg. C, 65 % RH	3.3 Vdc	Getaz Yang
Conducted Emission	25 deg. C, 65 % RH	3.3 Vdc	Getaz Yang
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2
FCC 47 CFR Part 27
KDB 971168 D01 Power Meas License Digital Systems v03r01
ANSI/TIA/EIA-603-E 2016
ANSI 63.26-2015

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

4.1.2 Test Procedures

Conducted Power Measurement:

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

EIRP / ERP Measurement:

a. EIRP = Conducted Output power level + Antenna gain.
b. ERP power can be calculated form EIRP power by subtracting the gain of dipole, ERP power = EIPR power - 2.15dBi.
c. ERP = Conducted Output power level + Antenna gain (dBi) - Isotropically Factor (2.15dB)

4.1.3 Test Setup

4.1.4 Test Results

Conducted Output Power (dBm)

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20775	Mid Ch 21100	High Ch 21425		Low Ch 20775	Mid Ch 21100	High Ch 21425	
			2502.5 MHz	2535.0 MHz	2567.5 MHz		2502.5 MHz	2535.0 MHz	2567.5 MHz	
7 / 5M	1	0	23.62	23.78	23.46	0	22.64	22.71	22.47	1
	1	12	23.56	23.67	23.36	0	22.52	22.64	22.37	1
	1	24	23.40	23.45	23.21	0	22.40	22.50	22.26	1
	12	0	22.61	22.67	22.42	1	21.54	21.56	21.29	2
	12	6	22.30	22.50	22.20	1	21.25	21.49	21.13	2
	12	13	22.32	22.43	22.08	1	21.16	21.43	21.08	2
	25	0	22.43	22.63	22.37	1	21.51	21.59	21.41	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20800	Mid Ch 21100	High Ch 21400		Low Ch 20800	Mid Ch 21100	High Ch 21400	
			2505.0 MHz	2535.0 MHz	2565.0 MHz		2505.0 MHz	2535.0 MHz	2565.0 MHz	
7 / 10M	1	0	23.73	23.87	23.53	0	22.74	22.84	22.47	1
	1	24	23.59	23.69	23.43	0	22.50	22.69	22.43	1
	1	49	23.38	23.56	23.24	0	22.27	22.43	22.23	1
	25	0	22.62	22.77	22.45	1	21.54	21.73	21.35	2
	25	12	22.42	22.60	22.22	1	21.37	21.55	21.22	2
	25	25	22.34	22.49	22.16	1	21.33	21.42	21.07	2
	50	0	22.61	22.64	22.46	1	21.43	21.66	21.42	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20825	Mid Ch 21100	High Ch 21375		Low Ch 20825	Mid Ch 21100	High Ch 21375	
			2507.5 MHz	2535.0 MHz	2562.5 MHz		2507.5 MHz	2535.0 MHz	2562.5 MHz	
7 / 15M	1	0	23.76	23.95	23.66	0	22.67	22.83	22.63	1
	1	37	23.65	23.78	23.48	0	22.57	22.75	22.48	1
	1	74	23.53	23.59	23.33	0	22.41	22.62	22.28	1
	36	0	22.67	22.82	22.57	1	21.45	21.74	21.29	2
	36	19	22.42	22.67	22.35	1	21.38	21.63	21.24	2
	36	39	22.37	22.60	22.31	1	21.31	21.52	21.13	2
	75	0	22.62	22.73	22.42	1	21.56	21.72	21.43	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20850	Mid Ch 21100	High Ch 21350		Low Ch 20850	Mid Ch 21100	High Ch 21350	
			2510.0 MHz	2535.0 MHz	2560.0 MHz		2510.0 MHz	2535.0 MHz	2560.0 MHz	
7 / 20M	1	0	22.78	22.92	22.59	0	22.73	22.97	22.64	1
	1	50	23.68	23.84	23.59	0	22.62	22.85	22.54	1
	1	99	23.58	23.62	23.32	0	22.45	22.63	22.37	1
	50	0	22.67	22.82	22.60	1	21.67	21.79	21.47	2
	50	25	22.47	22.65	22.42	1	21.43	21.58	21.32	2
	50	50	22.41	22.55	22.37	1	21.32	21.51	21.24	2
	100	0	22.70	22.82	22.50	1	21.52	21.78	21.43	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 37775	Mid Ch 38000	High Ch 38225		Low Ch 37775	Mid Ch 38000	High Ch 38225	
			2572.5 MHz	2595.0 MHz	2617.5 MHz		2572.5 MHz	2595.0 MHz	2617.5 MHz	
38 / 5M	1	0	22.53	22.56	22.67	0	21.29	21.33	21.43	1
	1	12	22.36	22.38	22.52	0	21.35	21.39	21.34	1
	1	24	22.31	22.20	22.38	0	21.27	21.22	21.30	1
	12	0	21.41	21.47	21.54	1	20.40	20.20	20.25	2
	12	6	21.27	21.32	21.33	1	20.23	20.19	20.27	2
	12	13	21.16	21.12	21.24	1	20.10	20.06	20.16	2
	25	0	21.28	21.50	21.50	1	20.36	20.38	20.47	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 37800	Mid Ch 38000	High Ch 38200		Low Ch 37800	Mid Ch 38000	High Ch 38200	
			2575.0 MHz	2595.0 MHz	2615.0 MHz		2575.0 MHz	2595.0 MHz	2615.0 MHz	
38 / 10M	1	0	22.56	22.65	22.67	0	21.31	21.51	21.47	1
	1	24	22.51	22.44	22.56	0	21.41	21.50	21.50	1
	1	49	22.26	22.33	22.43	0	21.23	21.29	21.38	1
	25	0	21.41	21.51	21.50	1	20.47	20.33	20.40	2
	25	12	21.25	21.32	21.26	1	20.21	20.25	20.32	2
	25	25	21.09	21.24	21.27	1	20.21	20.16	20.25	2
	50	0	21.36	21.54	21.54	1	20.28	20.44	20.46	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 37825	Mid Ch 38000	High Ch 38175		Low Ch 37825	Mid Ch 38000	High Ch 38175	
			2577.5 MHz	2595.0 MHz	2612.5 MHz		2577.5 MHz	2595.0 MHz	2612.5 MHz	
38 / 15M	1	0	22.61	22.68	22.76	0	21.46	21.55	21.62	1
	1	37	22.54	22.56	22.65	0	21.46	21.50	21.54	1
	1	74	22.23	22.28	22.50	0	21.37	21.41	21.43	1
	36	0	21.53	21.52	21.60	1	20.32	20.32	20.51	2
	36	19	21.32	21.36	21.46	1	20.21	20.33	20.35	2
	36	39	21.31	21.25	21.37	1	20.07	20.15	20.20	2
	75	0	21.39	21.53	21.57	1	20.38	20.49	20.50	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 37850	Mid Ch 38000	High Ch 38150		Low Ch 37850	Mid Ch 38000	High Ch 38150	
			2580.0 MHz	2595.0 MHz	2610.0 MHz		2580.0 MHz	2595.0 MHz	2610.0 MHz	
38 / 20M	1	0	22.68	22.73	22.79	0	21.67	21.64	21.70	1
	1	50	22.57	22.61	22.68	0	21.49	21.58	21.61	1
	1	99	22.38	22.40	22.50	0	21.31	21.38	21.38	1
	50	0	21.52	21.62	21.64	1	20.53	20.44	20.57	2
	50	25	21.32	21.44	21.44	1	20.33	20.34	20.44	2
	50	50	21.22	21.38	21.36	1	20.25	20.30	20.29	2
	100	0	21.55	21.57	21.63	1	20.55	20.51	20.57	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 39715	Mid Ch 40620	High Ch 41565		Low Ch 39715	Mid Ch 40620	High Ch 41565	
			2502.5 MHz	2593.0 MHz	2687.5 MHz		2502.5 MHz	2593.0 MHz	2687.5 MHz	
41 / 5M	1	0	22.51	22.86	22.70	0	21.32	21.67	21.40	1
	1	12	22.39	22.73	22.58	0	21.43	21.63	21.49	1
	1	24	22.15	22.53	22.50	0	21.24	21.48	21.37	1
	12	0	21.42	21.72	21.59	1	20.39	20.62	20.61	2
	12	6	21.18	21.51	21.42	1	20.34	20.51	20.45	2
	12	13	21.12	21.40	21.31	1	20.13	20.44	20.18	2
	25	0	21.36	21.67	21.55	1	20.34	20.70	20.49	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 39740	Mid Ch 40620	High Ch 41540		Low Ch 39740	Mid Ch 40620	High Ch 41540	
			2505.0 MHz	2593.0 MHz	2685.0 MHz		2505.0 MHz	2593.0 MHz	2685.0 MHz	
41 / 10M	1	0	21.59	22.90	22.73	0	21.45	21.76	21.56	1
	1	24	21.47	22.80	22.63	0	21.44	21.72	21.69	1
	1	49	21.23	22.64	22.50	0	21.40	21.68	21.37	1
	25	0	21.44	21.77	21.62	1	20.33	20.62	20.66	2
	25	12	21.26	21.58	21.46	1	20.24	20.60	20.34	2
	25	25	21.13	21.48	21.40	1	20.12	20.43	20.40	2
	50	0	21.42	21.82	21.54	1	20.51	20.67	20.57	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 39765	Mid Ch 40620	High Ch 41515		Low Ch 39765	Mid Ch 40620	High Ch 41515	
			2507.5 MHz	2593.0 MHz	2682.5 MHz		2507.5 MHz	2593.0 MHz	2682.5 MHz	
41 / 15M	1	0	21.68	22.97	22.80	0	21.58	21.82	21.69	1
	1	37	21.53	22.84	22.72	0	21.56	21.71	21.72	1
	1	74	21.42	22.66	22.55	0	21.29	21.53	21.48	1
	36	0	21.44	21.86	21.72	1	20.57	20.85	20.62	2
	36	19	21.36	21.73	21.51	1	20.33	20.64	20.44	2
	36	39	21.24	21.63	21.43	1	20.35	20.47	20.36	2
	75	0	21.45	21.77	21.68	1	20.57	20.83	20.59	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 39790	Mid Ch 40620	High Ch 41490		Low Ch 39790	Mid Ch 40620	High Ch 41490	
			2510.0 MHz	2593.0 MHz	2680.0 MHz		2510.0 MHz	2593.0 MHz	2680.0 MHz	
41 / 20M	1	0	21.71	23.03	22.88	0	21.70	22.02	21.86	1
	1	50	21.55	22.93	22.76	0	21.63	21.81	21.73	1
	1	99	21.42	22.79	22.50	0	21.41	21.63	21.57	1
	50	0	21.61	21.89	21.75	1	20.47	20.79	20.68	2
	50	25	21.39	21.72	21.58	1	20.40	20.62	20.46	2
	50	50	21.36	21.66	21.51	1	20.29	20.49	20.44	2
	100	0	21.55	21.87	21.73	1	20.64	20.81	20.70	2

EIRP Power (dBm)

Note: EIRP (dBm) = Max. Conducted Power (dBm) + Gain (dBi)

Band 7 / 5M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 20775	Mid Ch 21100	High Ch 21425	Low Ch 20775	Mid Ch 21100	High Ch 21425
	2502.5 MHz	2535.0 MHz	2567.5 MHz	2502.5 MHz	2535.0 MHz	2567.5 MHz
Max. Cond. Power (dBm)	23.62	23.78	23.46	22.64	22.71	22.47
Max. EIRP Power (dBm)	28.62	28.78	28.46	27.64	27.71	27.47
Max. EIRP Power (mW)	727.78	755.09	701.46	580.76	590.20	558.47

Band 7 / 10M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 20800	Mid Ch 21100	High Ch 21400	Low Ch 20800	Mid Ch 21100	High Ch 21400
	2505.0 MHz	2535.0 MHz	2565.0 MHz	2505.0 MHz	2535.0 MHz	2565.0 MHz
Max. Cond. Power (dBm)	23.73	23.87	23.53	22.74	22.84	22.47
Max. EIRP Power (dBm)	28.73	28.87	28.53	27.74	27.84	27.47
Max. EIRP Power (mW)	746.45	770.90	712.85	594.29	608.14	558.47

Band 7 / 15M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 20825	Mid Ch 21100	High Ch 21375	Low Ch 20825	Mid Ch 21100	High Ch 21375
	2507.5 MHz	2535.0 MHz	2562.5 MHz	2507.5 MHz	2535.0 MHz	2562.5 MHz
Max. Cond. Power (dBm)	23.76	23.95	23.66	22.67	22.83	22.63
Max. EIRP Power (dBm)	28.76	28.95	28.66	27.67	27.83	27.63
Max. EIRP Power (mW)	751.62	785.24	734.51	584.79	606.74	579.43

Band 7 / 20M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 20850	Mid Ch 21100	High Ch 21350	Low Ch 20850	Mid Ch 21100	High Ch 21350
	2510.0 MHz	2535.0 MHz	2560.0 MHz	2510.0 MHz	2535.0 MHz	2560.0 MHz
Max. Cond. Power (dBm)	22.78	22.92	22.59	22.73	22.97	22.64
Max. EIRP Power (dBm)	27.78	27.92	27.59	27.73	27.97	27.64
Max. EIRP Power (mW)	599.79	619.44	574.12	592.93	626.61	580.76

Band 38 / 5M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 37775	Mid Ch 38000	High Ch 38225	Low Ch 37775	Mid Ch 38000	High Ch 38225
	2572.5 MHz	2595.0 MHz	2617.5 MHz	2572.5 MHz	2595.0 MHz	2617.5 MHz
Max. Cond. Power (dBm)	22.53	22.56	22.67	21.29	21.33	21.43
Max. EIRP Power (dBm)	27.53	27.56	27.67	26.29	26.33	26.43
Max. EIRP Power (mW)	566.24	570.16	584.79	425.60	429.54	439.54

Band 38 / 10M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 37800	Mid Ch 38000	High Ch 38200	Low Ch 37800	Mid Ch 38000	High Ch 38200
	2575.0 MHz	2595.0 MHz	2615.0 MHz	2575.0 MHz	2595.0 MHz	2615.0 MHz
Max. Cond. Power (dBm)	22.56	22.65	22.67	21.31	21.51	21.47
Max. EIRP Power (dBm)	27.56	27.65	27.67	26.31	26.51	26.47
Max. EIRP Power (mW)	570.16	582.10	584.79	427.56	447.71	443.61

Band 38 / 15M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 37825	Mid Ch 38000	High Ch 38175	Low Ch 37825	Mid Ch 38000	High Ch 38175
	2577.5 MHz	2595.0 MHz	2612.5 MHz	2577.5 MHz	2595.0 MHz	2612.5 MHz
Max. Cond. Power (dBm)	22.61	22.68	22.76	21.46	21.55	21.62
Max. EIRP Power (dBm)	27.61	27.68	27.76	26.46	26.55	26.62
Max. EIRP Power (mW)	576.77	586.14	597.04	442.59	451.86	459.20

Band 38 / 20M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 37850	Mid Ch 38000	High Ch 38150	Low Ch 37850	Mid Ch 38000	High Ch 38150
	2580.0 MHz	2595.0 MHz	2610.0 MHz	2580.0 MHz	2595.0 MHz	2610.0 MHz
Max. Cond. Power (dBm)	22.68	22.73	22.79	21.67	21.64	21.70
Max. EIRP Power (dBm)	27.68	27.73	27.79	26.67	26.64	26.70
Max. EIRP Power (mW)	586.14	592.93	601.17	464.52	461.32	467.74

Band 41 / 5M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 39675	Mid Ch 40620	High Ch 41565	Low Ch 39675	Mid Ch 40620	High Ch 41565
	2498.5 MHz	2593.0 MHz	2687.5 MHz	2498.5 MHz	2593.0 MHz	2687.5 MHz
Max. Cond. Power (dBm)	22.55	22.86	22.70	21.32	21.67	21.40
Max. EIRP Power (dBm)	27.55	27.86	27.70	26.32	26.67	26.40
Max. EIRP Power (mW)	568.85	610.94	588.84	428.55	464.52	436.52

Band 41 / 10M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 39700	Mid Ch 40620	High Ch 41540	Low Ch 39700	Mid Ch 40620	High Ch 41540
	2501.0 MHz	2593.0 MHz	2685.0 MHz	2501.0 MHz	2593.0 MHz	2685.0 MHz
Max. Cond. Power (dBm)	22.64	22.90	22.73	21.45	21.76	21.56
Max. EIRP Power (dBm)	27.64	27.90	27.73	26.45	26.76	26.56
Max. EIRP Power (mW)	580.76	616.60	592.93	441.57	474.24	452.90

Band 41 / 15M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 39725	Mid Ch 40620	High Ch 41515	Low Ch 39725	Mid Ch 40620	High Ch 41515
	2503.5 MHz	2593.0 MHz	2682.5 MHz	2503.5 MHz	2593.0 MHz	2682.5 MHz
Max. Cond. Power (dBm)	22.72	22.97	22.80	21.58	21.82	21.69
Max. EIRP Power (dBm)	27.72	27.97	27.80	26.58	26.82	26.69
Max. EIRP Power (mW)	591.56	626.61	602.56	454.99	480.84	466.66

Band 41 / 20M, 1RB#0						
Test Mode	QPSK			16QAM		
	Low Ch 39750	Mid Ch 40620	High Ch 41490	Low Ch 39750	Mid Ch 40620	High Ch 41490
	2506.0 MHz	2593.0 MHz	2680.0 MHz	2506.0 MHz	2593.0 MHz	2680.0 MHz
Max. Cond. Power (dBm)	22.76	23.03	22.88	21.70	22.02	21.86
Max. EIRP Power (dBm)	27.76	28.03	27.88	26.70	27.02	26.86
Max. EIRP Power (mW)	597.04	635.33	613.76	467.74	503.50	485.29

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

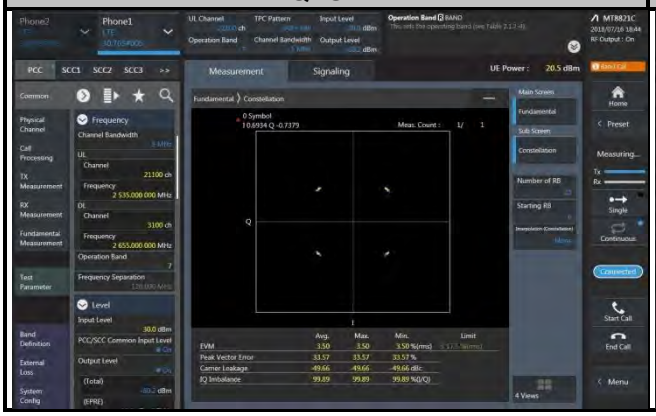
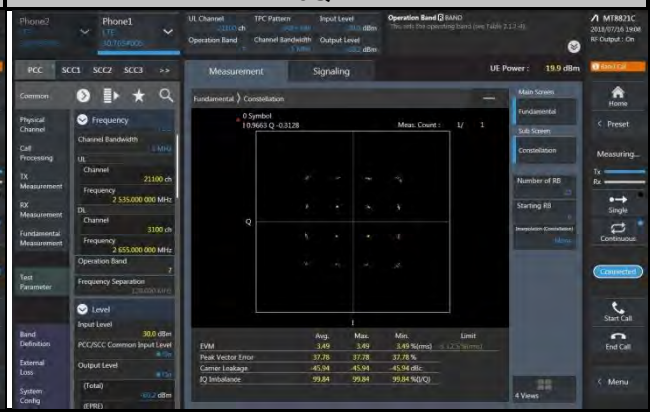
N/A

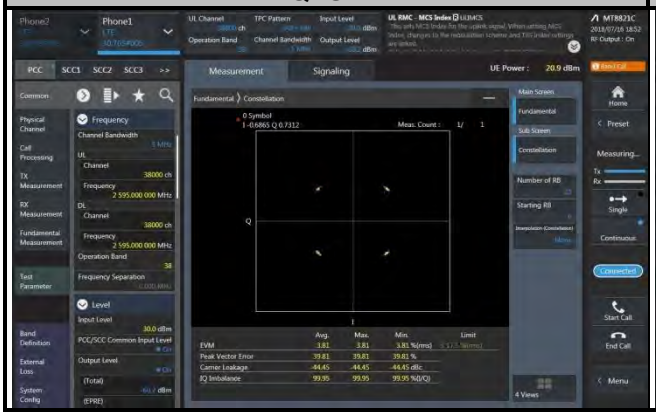
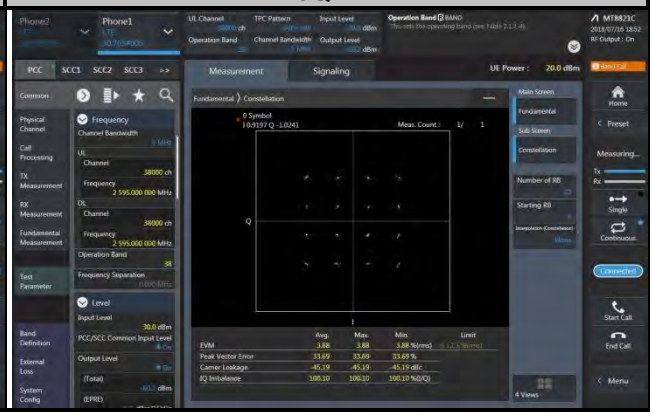
4.2.2 Test Setup

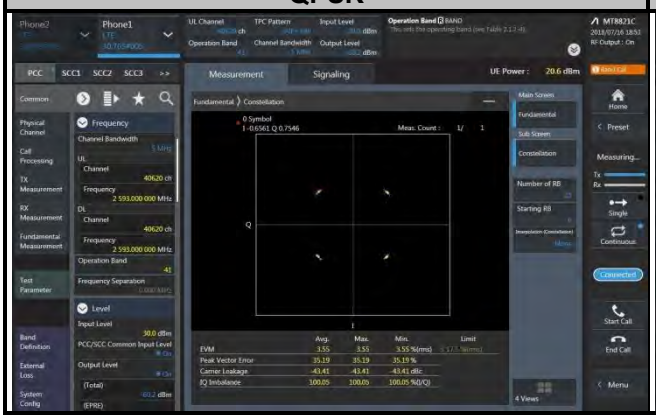
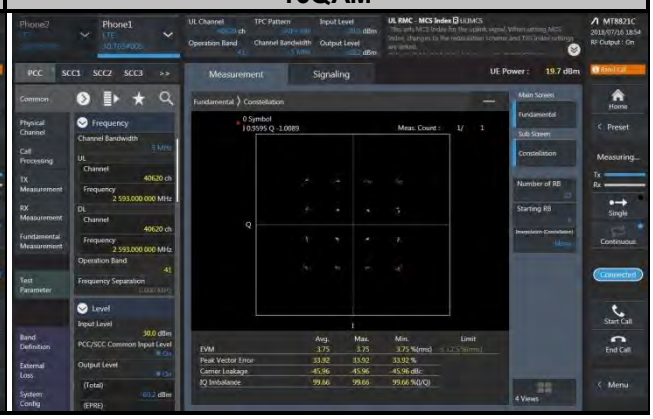
4.2.3 Test Procedure

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

4.2.4 Test Results

Spectrum Plot of Measurement	
LTE Band 7	
Channel 21100	
QPSK	16QAM
	

Spectrum Plot of Measurement	
LTE Band 38	
Channel 38000	
QPSK	16QAM
	

Spectrum Plot of Measurement	
LTE Band 41	
Channel 40620	
QPSK	16QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

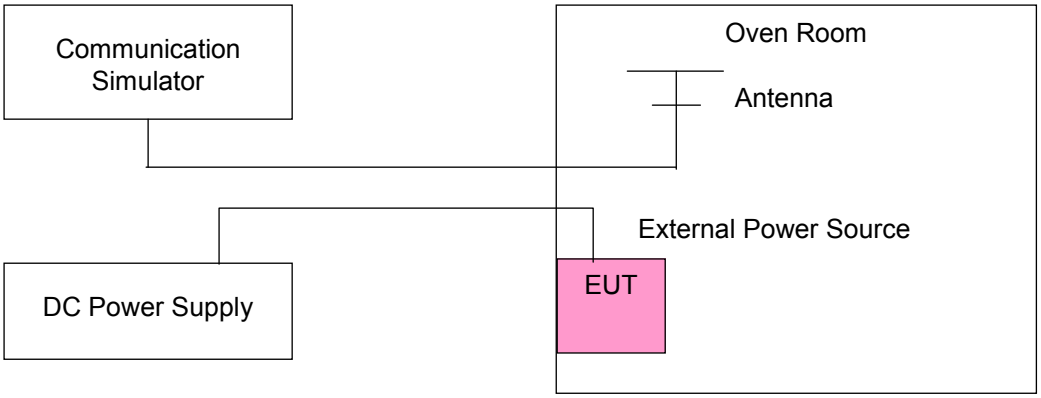
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary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

4.3.2 Test Procedure

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

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2502.500003	0.001	2567.500001	0.000	2.5
3.135	2502.500003	0.001	2567.500002	0.001	2.5
4.4	2502.500004	0.002	2567.500003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2502.500003	0.001	2567.500002	0.001	2.5
-20	2502.500001	0.000	2567.500003	0.001	2.5
-10	2502.500001	0.001	2567.500004	0.002	2.5
0	2502.500004	0.001	2567.500002	0.001	2.5
10	2502.500003	0.001	2567.500002	0.001	2.5
20	2502.499998	-0.001	2567.499999	0.000	2.5
30	2502.499997	-0.001	2567.499996	-0.001	2.5
40	2502.499999	0.000	2567.499996	-0.001	2.5
50	2502.499998	-0.001	2567.499997	-0.001	2.5
55	2502.499997	-0.001	2567.499998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2505.000002	0.001	2565.000003	0.001	2.5
3.135	2505.000002	0.001	2565.000003	0.001	2.5
4.4	2505.000004	0.001	2565.000003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2505.000003	0.001	2565.000003	0.001	2.5
-20	2505.000003	0.001	2565.000003	0.001	2.5
-10	2505.000004	0.002	2565.000002	0.001	2.5
0	2505.000003	0.001	2565.000003	0.001	2.5
10	2505.000002	0.001	2565.000001	0.001	2.5
20	2504.999996	-0.001	2564.999998	-0.001	2.5
30	2504.999997	-0.001	2564.999996	-0.002	2.5
40	2504.999997	-0.001	2564.999997	-0.001	2.5
50	2504.999997	-0.001	2564.999997	-0.001	2.5
55	2504.999997	-0.001	2564.999997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2507.500004	0.001	2562.500002	0.001	2.5
3.135	2507.500002	0.001	2562.500002	0.001	2.5
4.4	2507.500002	0.001	2562.500003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2507.500004	0.002	2562.500003	0.001	2.5
-20	2507.500004	0.001	2562.500001	0.001	2.5
-10	2507.500002	0.001	2562.500003	0.001	2.5
0	2507.500001	0.000	2562.500004	0.001	2.5
10	2507.500002	0.001	2562.500003	0.001	2.5
20	2507.499997	-0.001	2562.499999	-0.001	2.5
30	2507.499999	0.000	2562.499998	-0.001	2.5
40	2507.499996	-0.001	2562.499998	-0.001	2.5
50	2507.499997	-0.001	2562.499998	-0.001	2.5
55	2507.499998	-0.001	2562.499997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2510.000004	0.002	2560.000002	0.001	2.5
3.135	2510.000004	0.001	2560.000002	0.001	2.5
4.4	2510.000002	0.001	2560.000002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2510.000004	0.001	2560.000004	0.001	2.5
-20	2510.000003	0.001	2560.000004	0.001	2.5
-10	2510.000004	0.002	2560.000004	0.001	2.5
0	2510.000003	0.001	2560.000002	0.001	2.5
10	2510.000003	0.001	2560.000002	0.001	2.5
20	2509.999999	0.000	2559.999997	-0.001	2.5
30	2509.999998	-0.001	2559.999997	-0.001	2.5
40	2509.999996	-0.002	2559.999998	-0.001	2.5
50	2509.999997	-0.001	2559.999998	-0.001	2.5
55	2509.999999	-0.001	2559.999997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2572.500003	0.001	2617.500003	0.001	2.5
3.135	2572.500002	0.001	2617.500001	0.000	2.5
4.4	2572.500002	0.001	2617.500003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2572.500004	0.002	2617.500002	0.001	2.5
-20	2572.500002	0.001	2617.500002	0.001	2.5
-10	2572.500004	0.001	2617.500003	0.001	2.5
0	2572.500003	0.001	2617.500003	0.001	2.5
10	2572.500002	0.001	2617.500003	0.001	2.5
20	2572.499997	-0.001	2617.499999	0.000	2.5
30	2572.499998	-0.001	2617.499999	0.000	2.5
40	2572.499998	-0.001	2617.499997	-0.001	2.5
50	2572.499997	-0.001	2617.499997	-0.001	2.5
55	2572.499997	-0.001	2617.499997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2575.000001	0.001	2615.000002	0.001	2.5
3.135	2575.000001	0.001	2615.000003	0.001	2.5
4.4	2575.000002	0.001	2615.000002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2575.000002	0.001	2615.000001	0.000	2.5
-20	2575.000003	0.001	2615.000003	0.001	2.5
-10	2575.000002	0.001	2615.000001	0.000	2.5
0	2575.000003	0.001	2615.000002	0.001	2.5
10	2575.000002	0.001	2615.000003	0.001	2.5
20	2574.999999	0.000	2614.999999	-0.001	2.5
30	2574.999998	-0.001	2614.999998	-0.001	2.5
40	2574.999998	-0.001	2614.999997	-0.001	2.5
50	2574.999996	-0.002	2614.999997	-0.001	2.5
55	2574.999998	-0.001	2614.999998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2577.500002	0.001	2612.500001	0.000	2.5
3.135	2577.500003	0.001	2612.500003	0.001	2.5
4.4	2577.500002	0.001	2612.500001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2577.500003	0.001	2612.500002	0.001	2.5
-20	2577.500003	0.001	2612.500004	0.001	2.5
-10	2577.500004	0.001	2612.500001	0.001	2.5
0	2577.500002	0.001	2612.500003	0.001	2.5
10	2577.500001	0.000	2612.500003	0.001	2.5
20	2577.499997	-0.001	2612.499996	-0.001	2.5
30	2577.499996	-0.001	2612.499998	-0.001	2.5
40	2577.499999	-0.001	2612.499997	-0.001	2.5
50	2577.499999	0.000	2612.499997	-0.001	2.5
55	2577.499997	-0.001	2612.499998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2580.000004	0.002	2610.000004	0.001	2.5
3.135	2580.000003	0.001	2610.000002	0.001	2.5
4.4	2580.000002	0.001	2610.000001	0.000	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2580.000004	0.002	2610.000004	0.001	2.5
-20	2580.000003	0.001	2610.000001	0.000	2.5
-10	2580.000003	0.001	2610.000001	0.000	2.5
0	2580.000002	0.001	2610.000002	0.001	2.5
10	2580.000003	0.001	2610.000001	0.000	2.5
20	2579.999997	-0.001	2609.999997	-0.001	2.5
30	2579.999998	-0.001	2609.999998	-0.001	2.5
40	2579.999999	0.000	2609.999998	-0.001	2.5
50	2579.999996	-0.001	2609.999997	-0.001	2.5
55	2579.999997	-0.001	2609.999996	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2498.500002	0.001	2687.500003	0.001	2.5
3.135	2498.500003	0.001	2687.500002	0.001	2.5
4.4	2498.500003	0.001	2687.500003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2498.500003	0.001	2687.500003	0.001	2.5
-20	2498.500002	0.001	2687.500002	0.001	2.5
-10	2498.500002	0.001	2687.500003	0.001	2.5
0	2498.500004	0.002	2687.500001	0.000	2.5
10	2498.500002	0.001	2687.500002	0.001	2.5
20	2498.499998	-0.001	2687.499997	-0.001	2.5
30	2498.499999	0.000	2687.499999	0.000	2.5
40	2498.499998	-0.001	2687.499997	-0.001	2.5
50	2498.499999	-0.001	2687.499998	-0.001	2.5
55	2498.499998	-0.001	2687.499997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2501.000002	0.001	2685.000004	0.001	2.5
3.135	2501.000003	0.001	2685.000001	0.000	2.5
4.4	2501.000002	0.001	2685.000002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2501.000003	0.001	2685.000002	0.001	2.5
-20	2501.000004	0.002	2685.000004	0.001	2.5
-10	2501.000001	0.001	2685.000001	0.000	2.5
0	2501.000002	0.001	2685.000002	0.001	2.5
10	2501.000002	0.001	2685.000001	0.000	2.5
20	2500.999997	-0.001	2684.999999	0.000	2.5
30	2500.999999	0.000	2684.999997	-0.001	2.5
40	2500.999998	-0.001	2684.999998	-0.001	2.5
50	2500.999996	-0.002	2684.999996	-0.001	2.5
55	2500.999999	0.000	2684.999997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2503.500002	0.001	2682.500001	0.001	2.5
3.135	2503.500001	0.001	2682.500001	0.000	2.5
4.4	2503.500003	0.001	2682.500001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2503.500002	0.001	2682.500002	0.001	2.5
-20	2503.500001	0.001	2682.500001	0.000	2.5
-10	2503.500003	0.001	2682.500001	0.001	2.5
0	2503.500004	0.002	2682.500003	0.001	2.5
10	2503.500002	0.001	2682.500002	0.001	2.5
20	2503.499997	-0.001	2682.499999	0.000	2.5
30	2503.499998	-0.001	2682.499998	-0.001	2.5
40	2503.499996	-0.002	2682.499997	-0.001	2.5
50	2503.499999	-0.001	2682.499998	-0.001	2.5
55	2503.499998	-0.001	2682.499997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.3	2506.000002	0.001	2680.000001	0.000	2.5
3.135	2506.000002	0.001	2680.000003	0.001	2.5
4.4	2506.000003	0.001	2680.000002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.135 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2506.000003	0.001	2680.000004	0.001	2.5
-20	2506.000003	0.001	2680.000001	0.000	2.5
-10	2506.000002	0.001	2680.000002	0.001	2.5
0	2506.000002	0.001	2680.000002	0.001	2.5
10	2506.000003	0.001	2680.000003	0.001	2.5
20	2505.999997	-0.001	2679.999997	-0.001	2.5
30	2505.999997	-0.001	2679.999997	-0.001	2.5
40	2505.999997	-0.001	2679.999998	-0.001	2.5
50	2505.999997	-0.001	2679.999998	-0.001	2.5
55	2505.999999	0.000	2679.999997	-0.001	2.5

4.4 Occupied Bandwidth Measurement

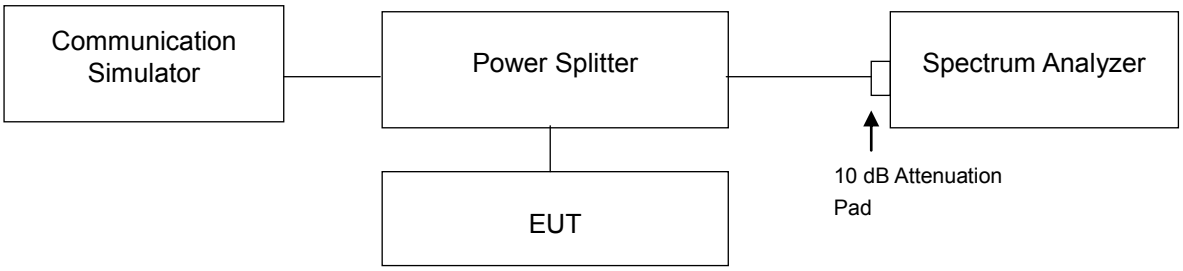
4.4.1 Limits of Occupied Bandwidth Measurement

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

4.4.2 Test Procedure

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

4.4.3 Test Setup



4.4.4 Test Results

LTE Band 7							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	4.50	4.50	20800	2505.0	8.99	8.99
21100	2535.0	4.50	4.50	21100	2535.0	8.99	8.99
21425	2567.5	4.50	4.50	21400	2565.0	8.99	8.98

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

LTE Band 7							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	13.46	13.46	20850	2510.0	17.94	17.95
21100	2535.0	13.48	13.48	21100	2535.0	18.00	18.00
21375	2562.5	13.45	13.45	21350	2560.0	17.92	17.92

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

LTE Band 38							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
37775	2572.5	4.50	4.50	37800	2575.0	8.99	8.98
38000	2595.0	4.49	4.50	38000	2595.0	8.99	8.98
38225	2617.5	4.49	4.50	38200	2615.0	8.98	8.98

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

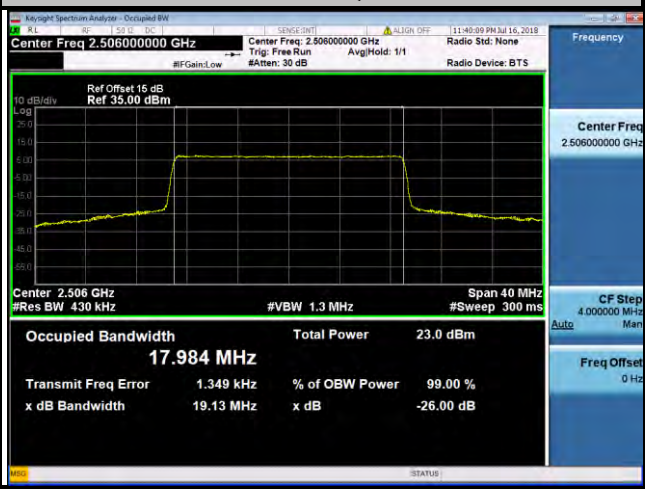
LTE Band 38							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
37825	2577.5	13.47	13.46	37850	2580.0	17.96	17.94
38000	2595.0	13.47	13.47	38000	2595.0	17.96	17.94
38175	2612.5	13.47	13.47	38150	2610.0	17.97	17.95

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

LTE Band 41							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
39675	2498.5	4.50	4.50	39700	2501.0	8.99	8.98
40620	2593.0	4.49	4.50	40620	2593.0	8.99	8.97
41565	2687.5	4.50	4.50	41540	2685.0	8.99	8.99

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

LTE Band 41							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
39725	2503.5	13.48	13.47	39750	2506.0	17.98	17.96
40620	2593.0	13.47	13.47	40620	2593.0	17.97	17.95
41515	2682.5	13.45	13.48	41490	2680.0	17.93	17.94

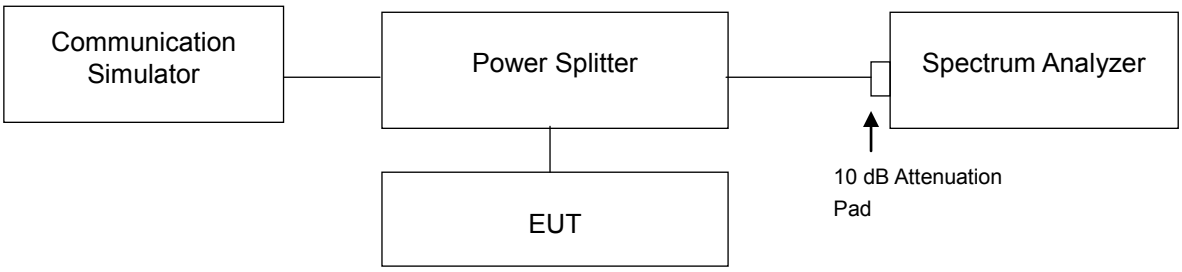
Spectrum Plot of Worst Value	
15 MHz / QPSK	20 MHz / QPSK
	

4.5 Out-of-Band Emissions Measurement

4.5.1 Limits of Out-of-Band Emissions Measurement

According to FCC 27.53(l)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed.

4.5.2 Test Setup

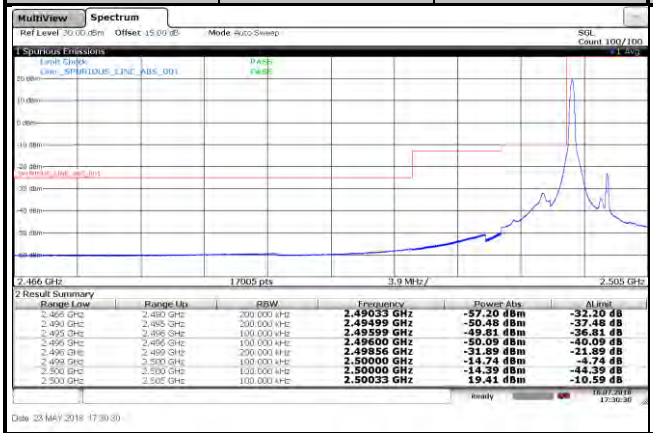


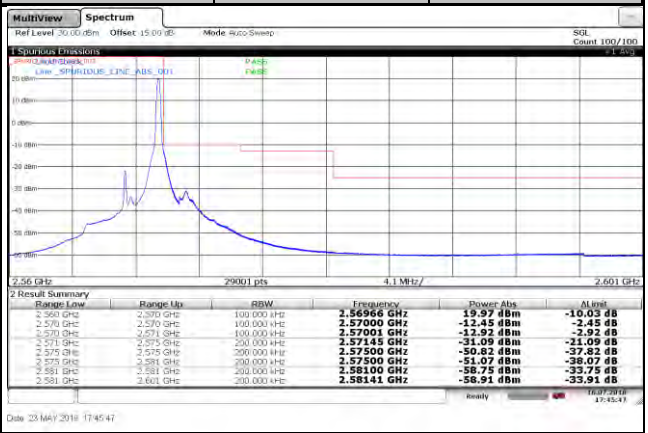
4.5.3 Test Procedures

a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
b. The out-of-band emissions measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
c. Record the max. trace plot into the test report.

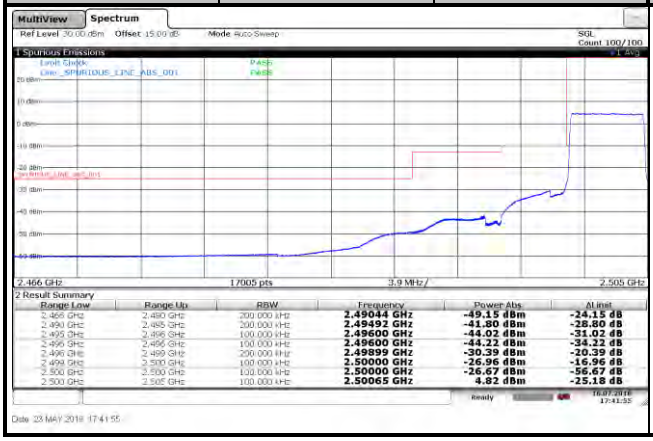
4.5.4 Test Results

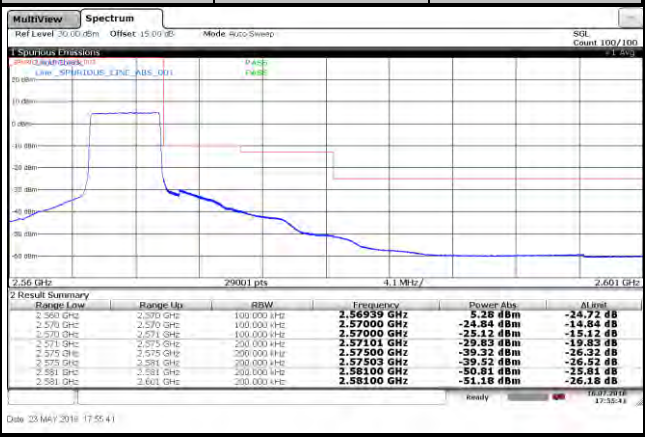
LTE Band 7					
Channel Bandwidth: 5 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20775	1 RB	Channel	21425	1 RB



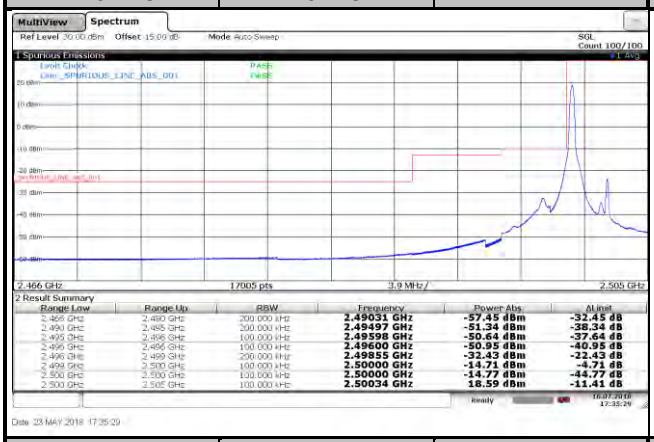


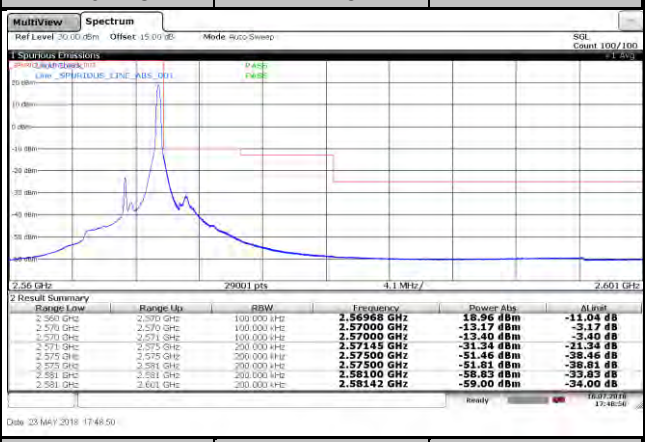
Channel	20775	25 RB	Channel	21425	25 RB



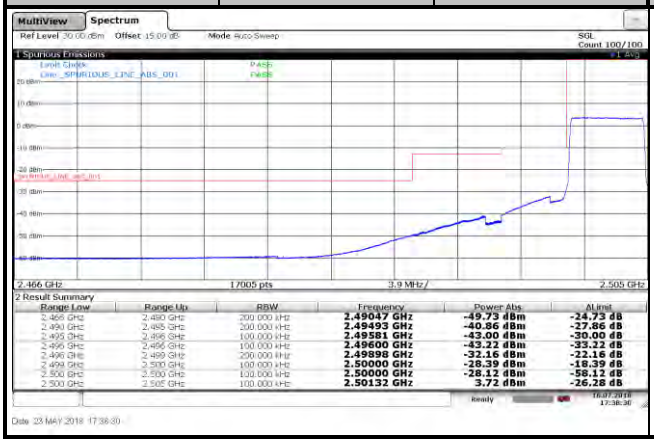


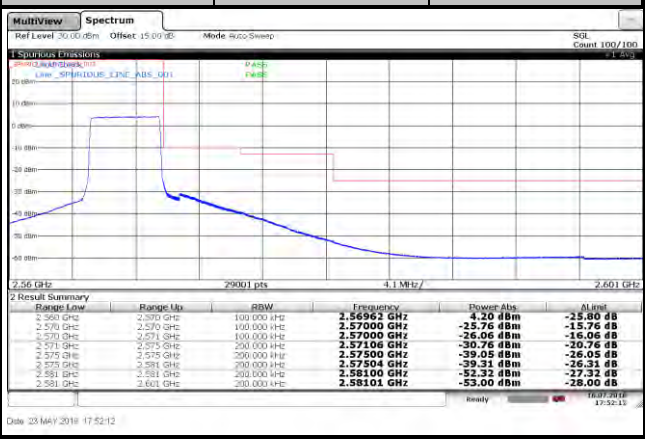
LTE Band 7					
Channel Bandwidth: 5 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20775	1 RB	Channel	21425	1 RB

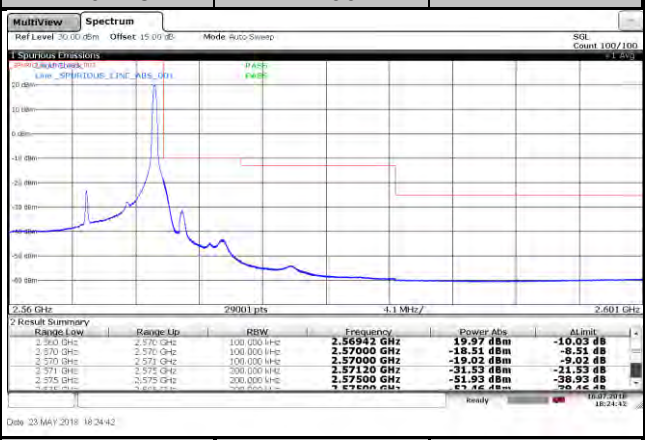
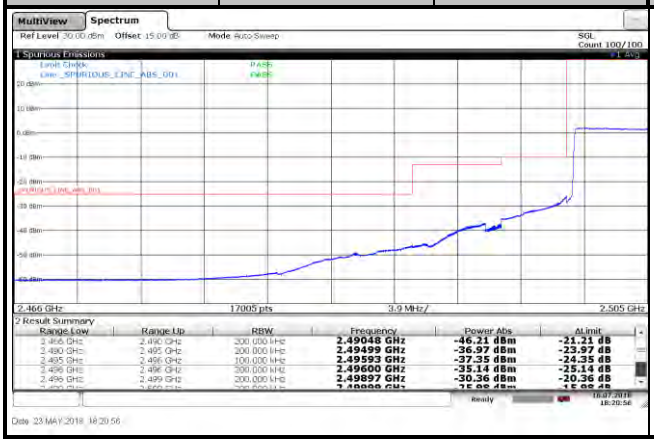
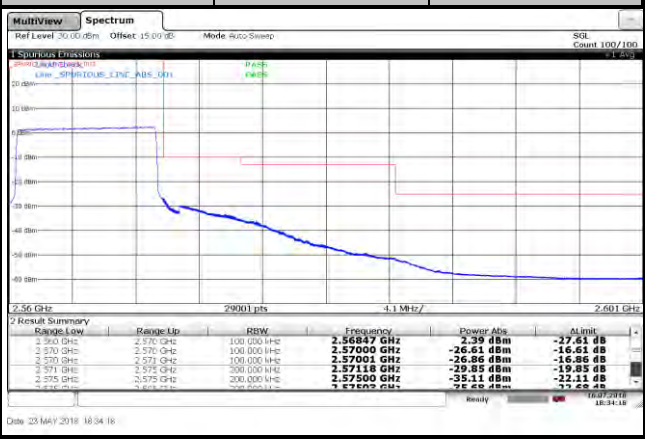




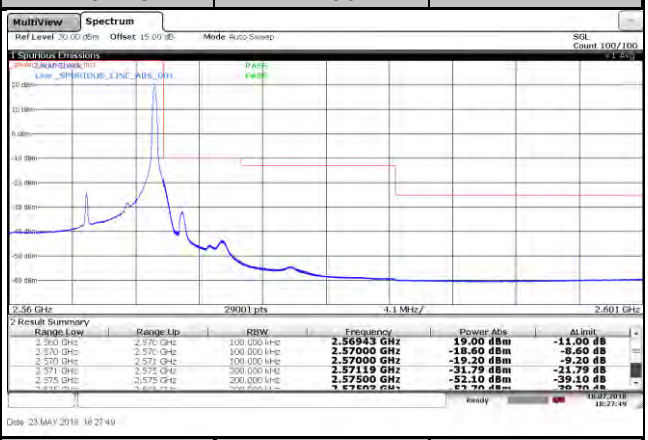
Channel	20775	25 RB	Channel	21425	25 RB



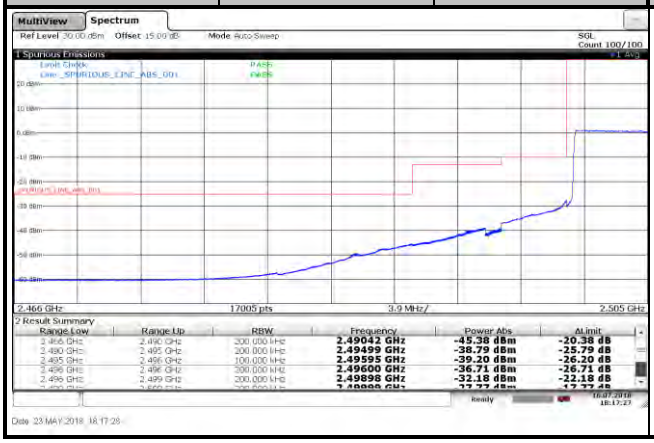


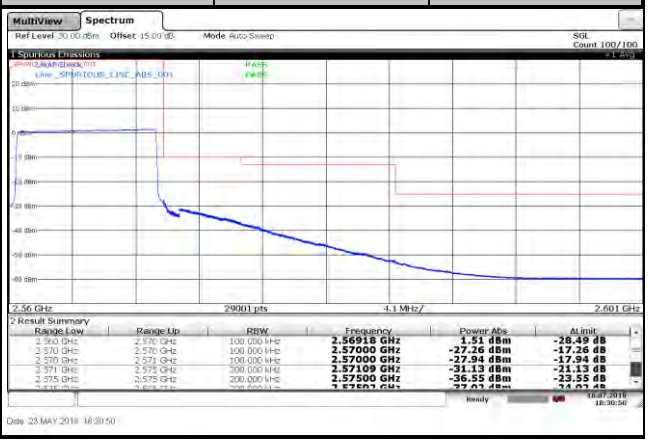
LTE Band 7					
Channel Bandwidth: 10 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20800	1 RB	Channel	21400	1 RB
					
Channel	20800	50 RB	Channel	21400	50 RB
					

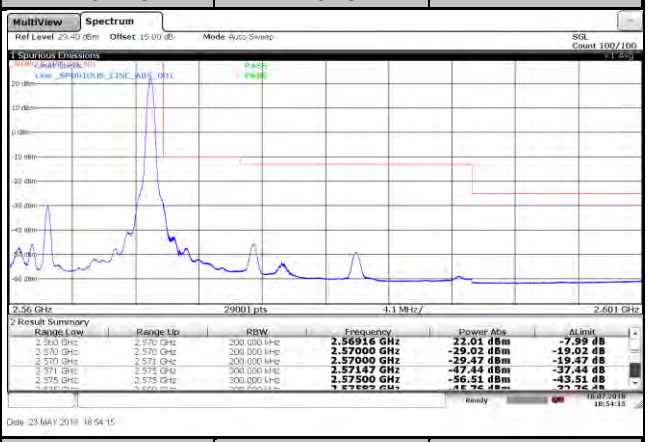
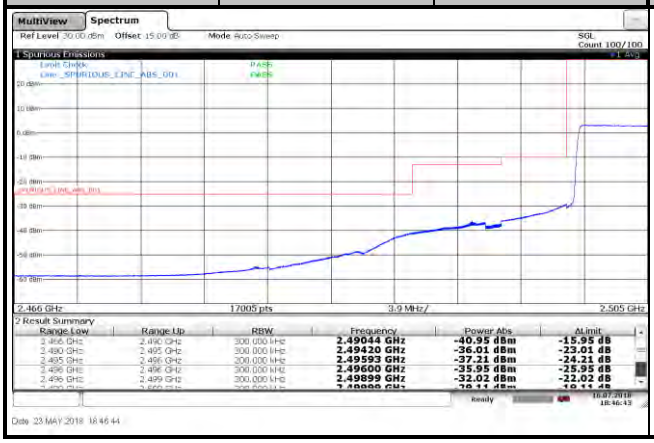
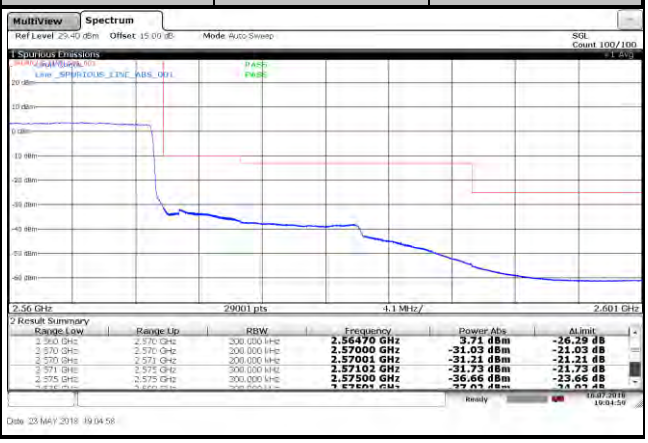
LTE Band 7					
Channel Bandwidth: 10 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20800	1 RB	Channel	21400	1 RB

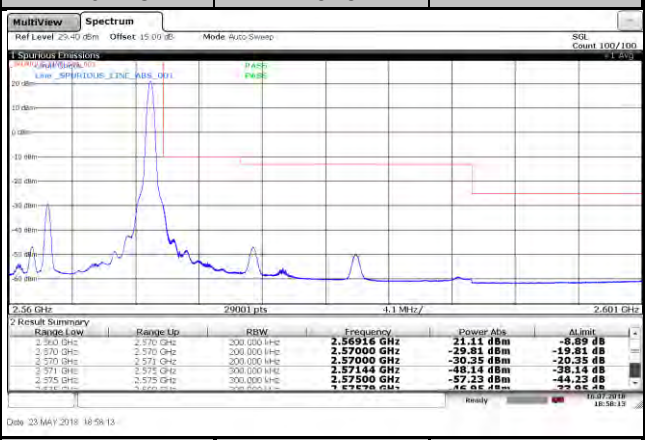


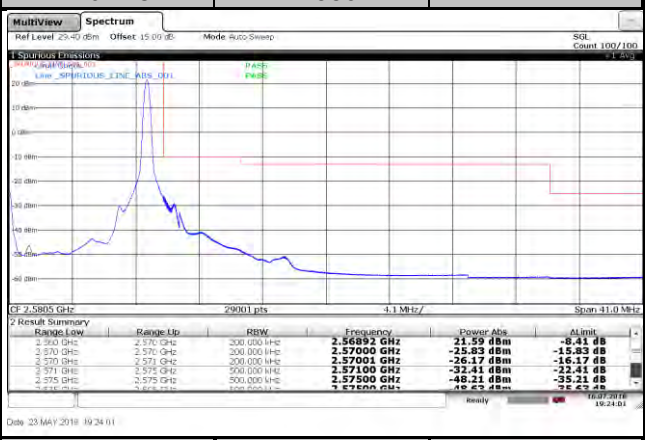
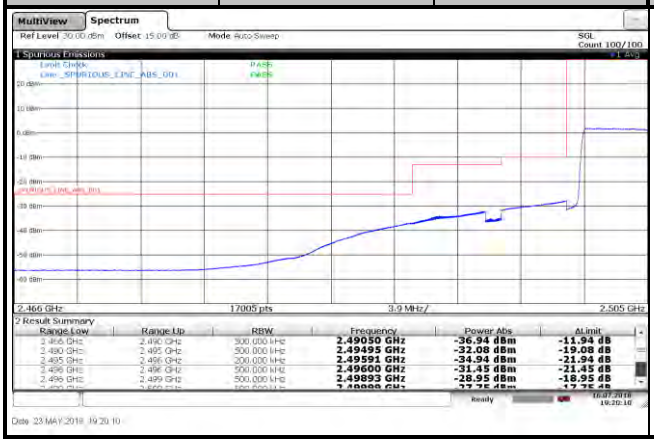
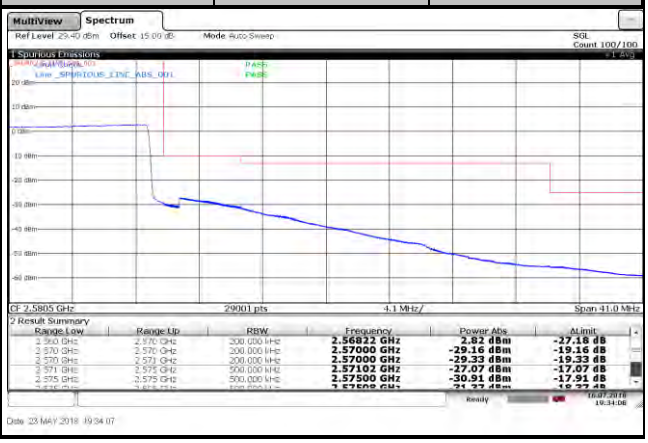
Channel	20800	50 RB	Channel	21400	50 RB

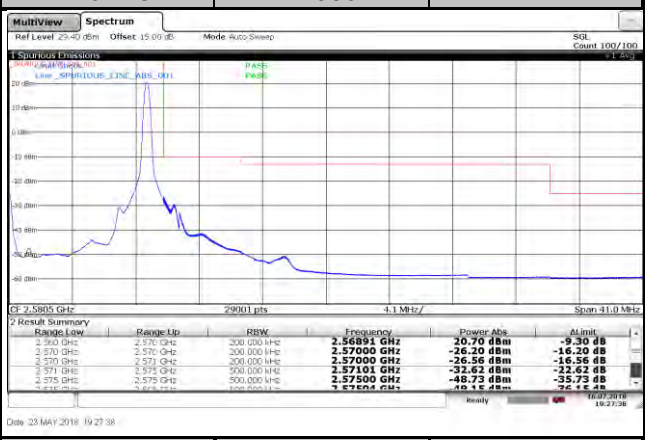
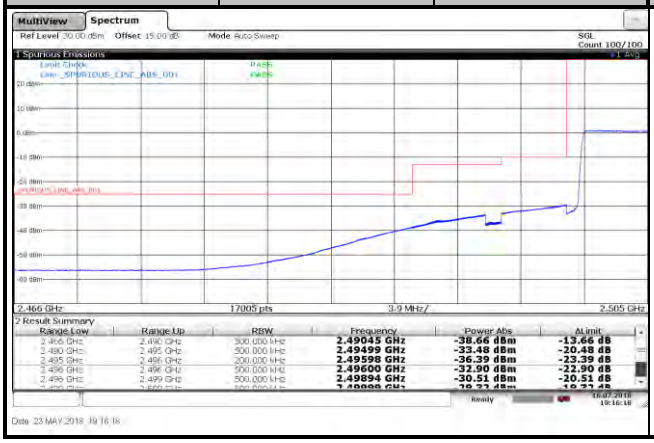
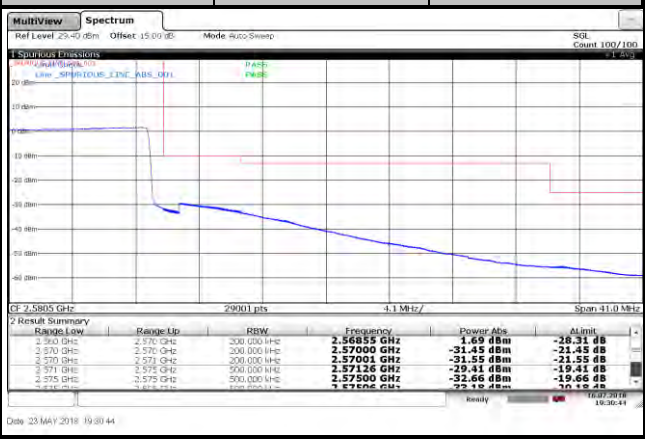




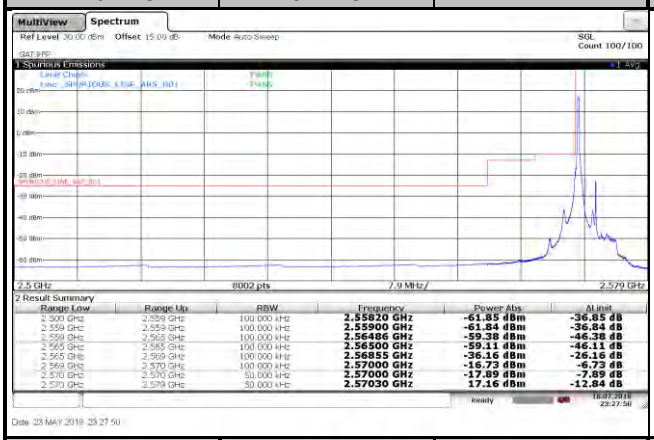
LTE Band 7					
Channel Bandwidth: 15 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20825	1 RB	Channel	21375	1 RB
					
Channel	20825	75 RB	Channel	21375	75 RB
					

LTE Band 7					
Channel Bandwidth: 15 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20825	1 RB	Channel	21375	1 RB
					
Channel	20825	75 RB	Channel	21375	75 RB

LTE Band 7					
Channel Bandwidth: 20 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20850	1 RB	Channel	21350	1 RB
					
Channel	20850	100 RB	Channel	21350	100 RB
					

LTE Band 7					
Channel Bandwidth: 20 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20850	1 RB	Channel	21350	1 RB
					
Channel	20850	100 RB	Channel	21350	100 RB
					

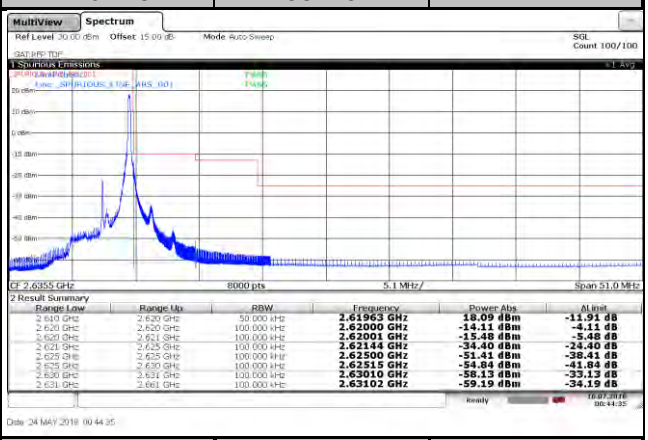
LTE Band 38					
Channel Bandwidth: 5 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	37775	1 RB	Channel	38225	1 RB



2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.559 GHz	100.000 kHz	**2.55820 GHz**	**-61.85 dBm**	**-36.85 dB**
2.559 GHz	2.559 GHz	100.000 kHz	**2.55900 GHz**	**-61.84 dBm**	**-36.84 dB**
2.559 GHz	2.565 GHz	100.000 kHz	**2.56486 GHz**	**-59.38 dBm**	**-46.38 dB**
2.565 GHz	2.565 GHz	100.000 kHz	**2.56500 GHz**	**-59.11 dBm**	**-46.11 dB**
2.565 GHz	2.569 GHz	100.000 kHz	**2.56855 GHz**	**-36.16 dBm**	**-26.16 dB**
2.569 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-16.73 dBm**	**-6.73 dB**
2.570 GHz	2.570 GHz	50.000 kHz	**2.57000 GHz**	**-17.89 dBm**	**-7.89 dB**
2.570 GHz	2.579 GHz	50.000 kHz	**2.57030 GHz**	**17.16 dBm**	**-12.84 dB**

Date: 23.MAY.2018 23:27:50

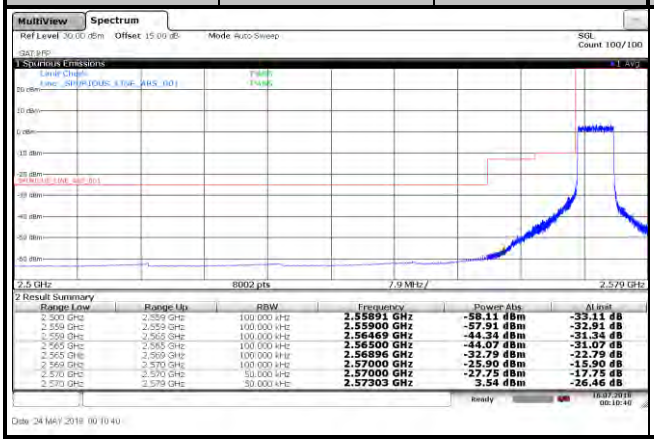


2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61963 GHz**	**18.09 dBm**	**-11.91 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-14.11 dBm**	**-4.11 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62001 GHz**	**-15.48 dBm**	**-5.48 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62144 GHz**	**-34.40 dBm**	**-24.40 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-51.41 dBm**	**-38.41 dB**
2.625 GHz	2.630 GHz	100.000 kHz	**2.62515 GHz**	**-54.84 dBm**	**-41.84 dB**
2.630 GHz	2.631 GHz	100.000 kHz	**2.63010 GHz**	**-58.13 dBm**	**-33.13 dB**
2.631 GHz	2.661 GHz	100.000 kHz	**2.63102 GHz**	**-59.19 dBm**	**-34.19 dB**

Date: 24.MAY.2018 00:44:35

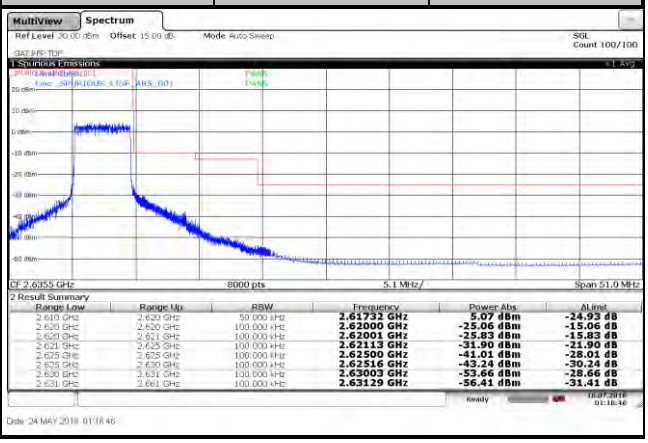
Channel	37775	25 RB	Channel	38225	25 RB



2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.559 GHz	100.000 kHz	**2.55891 GHz**	**-58.11 dBm**	**-33.11 dB**
2.559 GHz	2.559 GHz	100.000 kHz	**2.55900 GHz**	**-57.91 dBm**	**-32.91 dB**
2.559 GHz	2.565 GHz	100.000 kHz	**2.56469 GHz**	**-44.34 dBm**	**-31.34 dB**
2.565 GHz	2.565 GHz	100.000 kHz	**2.56500 GHz**	**-44.07 dBm**	**-31.07 dB**
2.565 GHz	2.569 GHz	100.000 kHz	**2.56896 GHz**	**-32.79 dBm**	**-22.79 dB**
2.569 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-25.90 dBm**	**-15.90 dB**
2.570 GHz	2.570 GHz	50.000 kHz	**2.57000 GHz**	**-27.75 dBm**	**-17.75 dB**
2.570 GHz	2.579 GHz	50.000 kHz	**2.57303 GHz**	**3.54 dBm**	**-26.46 dB**

Date: 24.MAY.2018 00:10:40

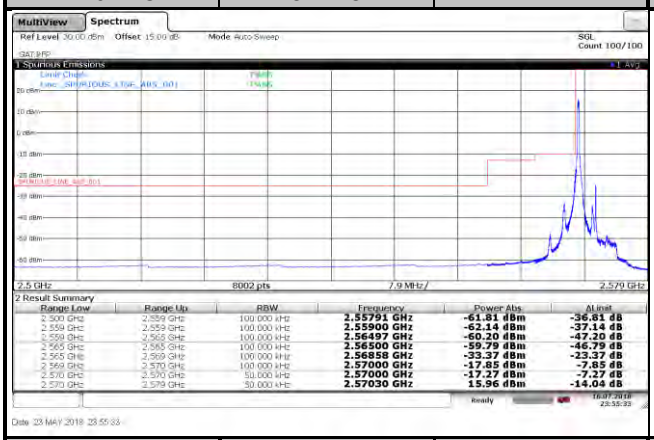


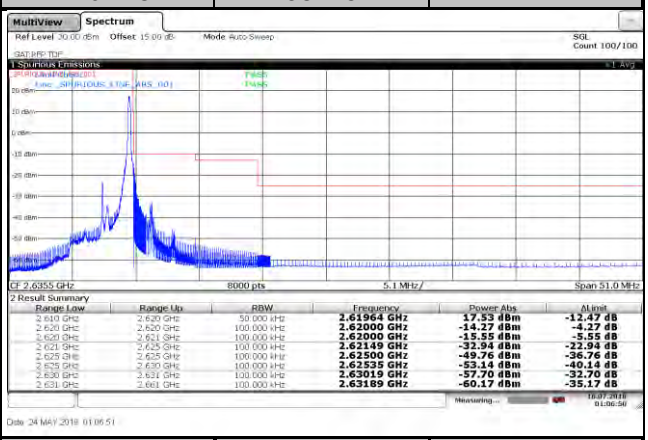
2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61732 GHz**	**5.07 dBm**	**-24.93 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-25.06 dBm**	**-15.06 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62001 GHz**	**-25.83 dBm**	**-15.83 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62113 GHz**	**-31.90 dBm**	**-21.90 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-41.01 dBm**	**-28.01 dB**
2.625 GHz	2.630 GHz	100.000 kHz	**2.62516 GHz**	**-43.24 dBm**	**-30.24 dB**
2.630 GHz	2.631 GHz	100.000 kHz	**2.63003 GHz**	**-53.66 dBm**	**-28.66 dB**
2.631 GHz	2.661 GHz	100.000 kHz	**2.63129 GHz**	**-56.41 dBm**	**-31.41 dB**

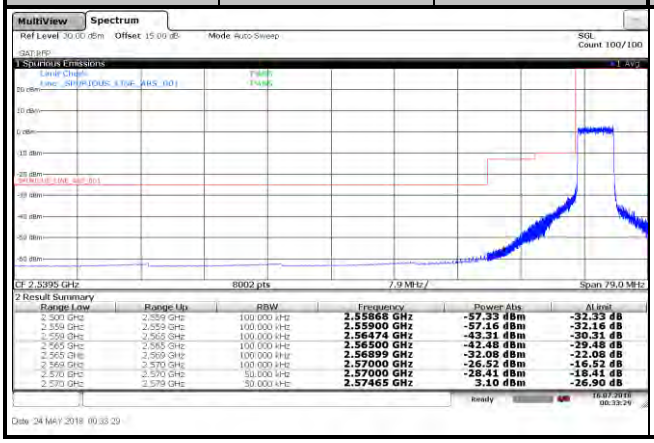
Date: 24.MAY.2018 01:18:46

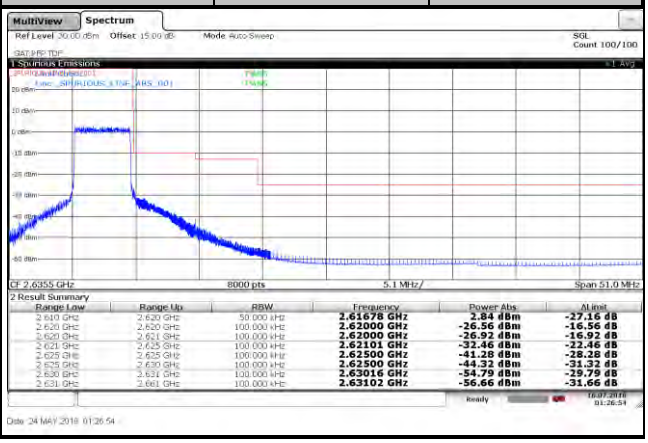
LTE Band 38					
Channel Bandwidth: 5 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	37775	1 RB	Channel	38225	1 RB



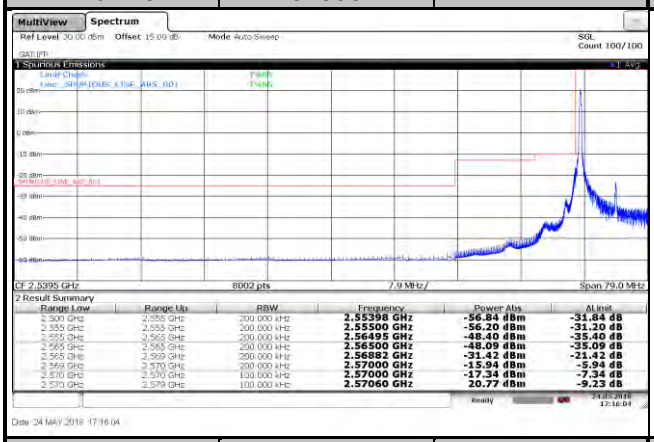


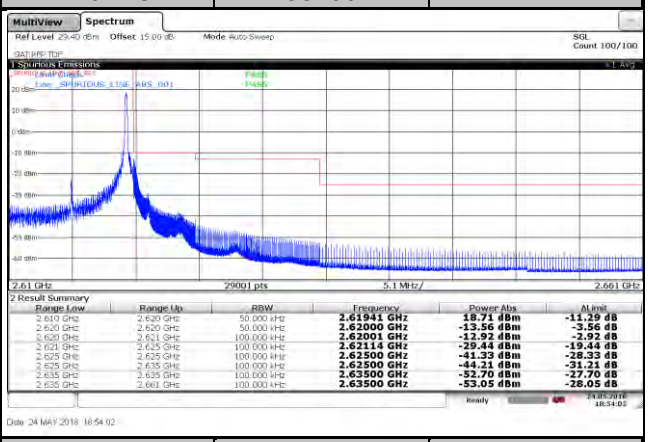
Channel	37775	25 RB	Channel	38225	25 RB



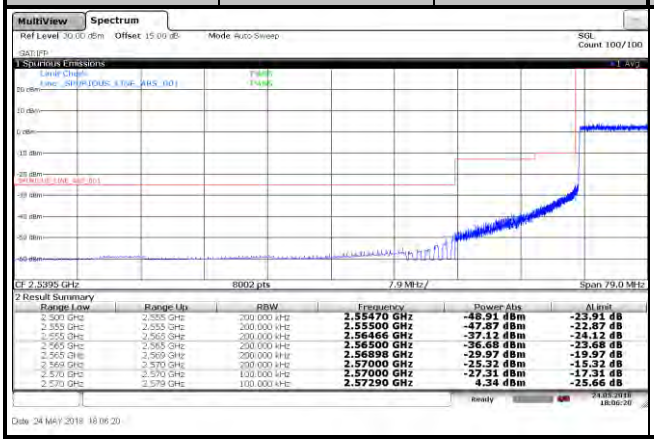


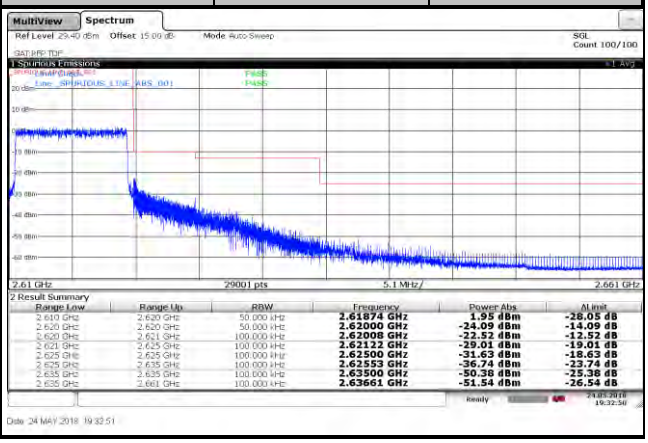
LTE Band 38					
Channel Bandwidth: 10 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	37800	1 RB	Channel	38200	1 RB



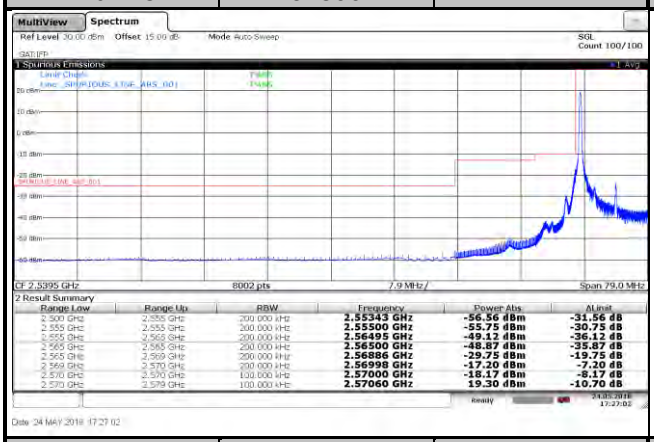


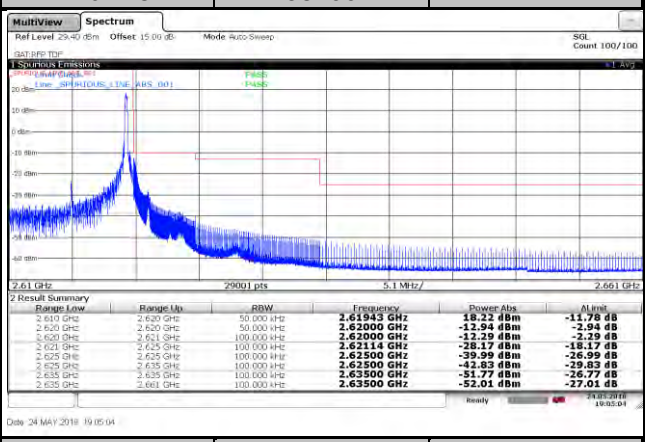
Channel	37800	50 RB	Channel	38200	50 RB



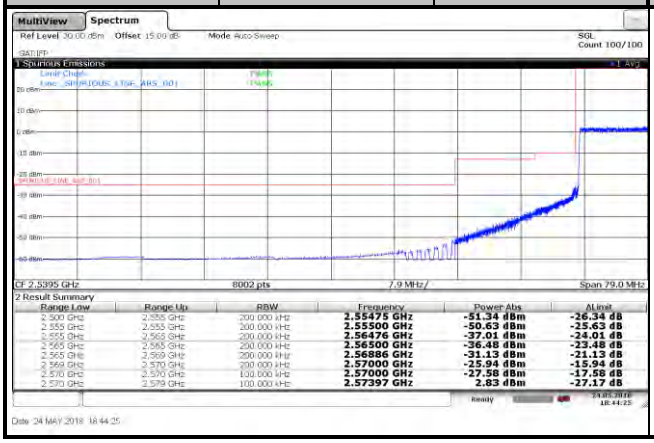


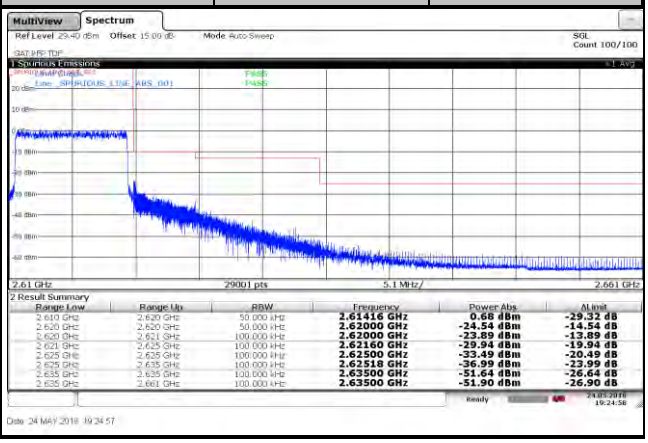
LTE Band 38					
Channel Bandwidth: 10 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	37800	1 RB	Channel	38200	1 RB



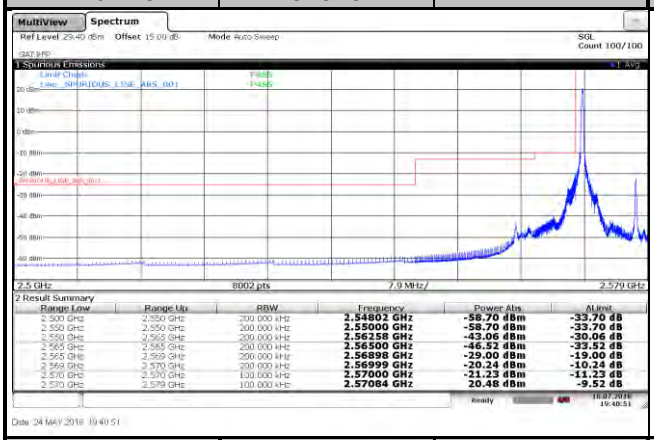


Channel	37800	50 RB	Channel	38200	50 RB



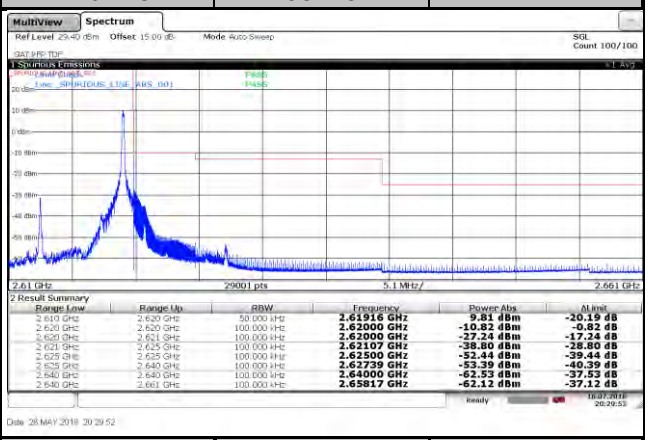


LTE Band 38					
Channel Bandwidth: 15 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	37825	1 RB	Channel	38175	1 RB



Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.550 GHz	200.000 kHz	**2.54802 GHz**	**-58.70 dBm**	**-33.70 dB**
2.550 GHz	2.550 GHz	200.000 kHz	**2.55000 GHz**	**-58.70 dBm**	**-33.70 dB**
2.550 GHz	2.565 GHz	200.000 kHz	**2.56258 GHz**	**-43.06 dBm**	**-30.06 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-46.52 dBm**	**-33.52 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56898 GHz**	**-29.00 dBm**	**-19.00 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.56999 GHz**	**-20.24 dBm**	**-10.24 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-21.23 dBm**	**-11.23 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57084 GHz**	**20.48 dBm**	**-9.52 dB**

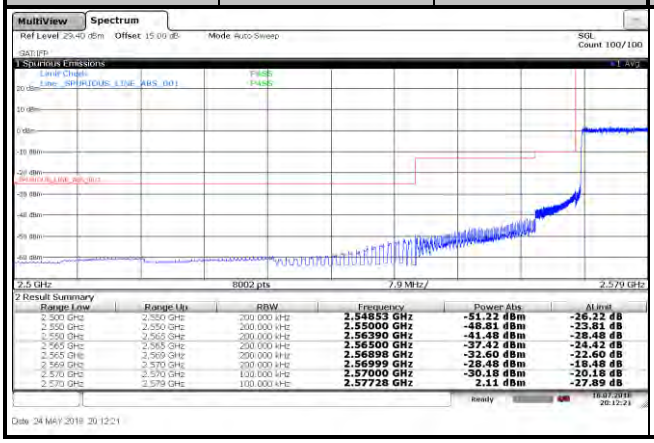
Date: 24.MAY.2018 19:40:51



Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61916 GHz**	**9.81 dBm**	**-20.19 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-10.82 dBm**	**-0.82 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62000 GHz**	**-27.24 dBm**	**-17.24 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62107 GHz**	**-38.80 dBm**	**-28.80 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-52.44 dBm**	**-39.44 dB**
2.625 GHz	2.640 GHz	100.000 kHz	**2.62739 GHz**	**-53.39 dBm**	**-40.39 dB**
2.640 GHz	2.640 GHz	100.000 kHz	**2.64000 GHz**	**-62.53 dBm**	**-37.53 dB**
2.640 GHz	2.661 GHz	100.000 kHz	**2.65817 GHz**	**-62.12 dBm**	**-37.12 dB**

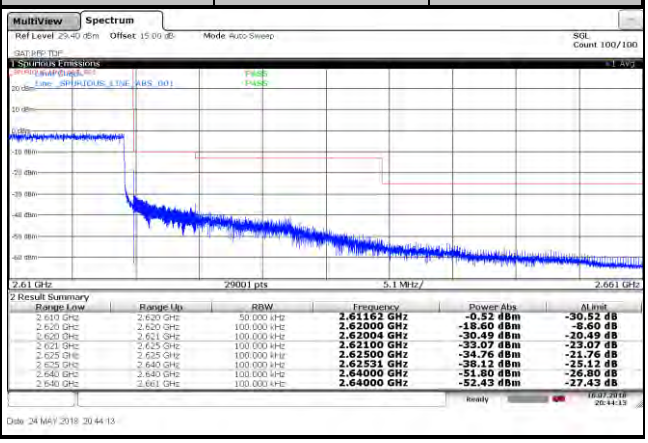
Date: 24.MAY.2018 20:29:52

Channel	37825	75 RB	Channel	38175	75 RB



Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.550 GHz	200.000 kHz	**2.54853 GHz**	**-51.22 dBm**	**-26.22 dB**
2.550 GHz	2.550 GHz	200.000 kHz	**2.55000 GHz**	**-48.81 dBm**	**-23.81 dB**
2.550 GHz	2.565 GHz	200.000 kHz	**2.56390 GHz**	**-41.48 dBm**	**-28.48 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-37.42 dBm**	**-24.42 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56898 GHz**	**-32.60 dBm**	**-22.60 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.56999 GHz**	**-28.48 dBm**	**-18.48 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-30.18 dBm**	**-20.18 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57728 GHz**	**2.11 dBm**	**-27.89 dB**

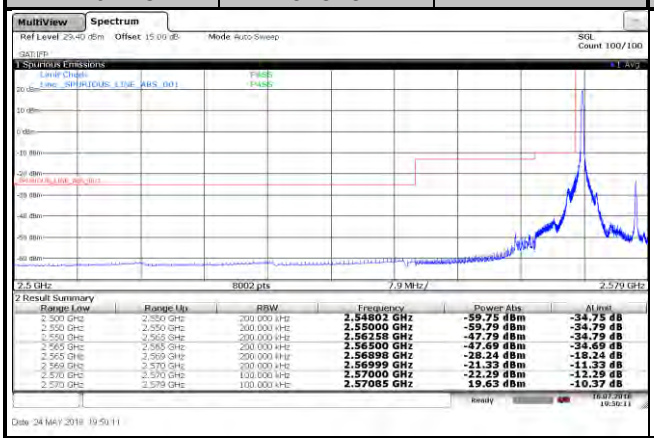
Date: 24.MAY.2018 20:12:21



Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61162 GHz**	**-0.52 dBm**	**-30.52 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-18.60 dBm**	**-8.60 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62004 GHz**	**-30.49 dBm**	**-20.49 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62100 GHz**	**-33.07 dBm**	**-23.07 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-34.76 dBm**	**-21.76 dB**
2.625 GHz	2.640 GHz	100.000 kHz	**2.62531 GHz**	**-38.12 dBm**	**-25.12 dB**
2.640 GHz	2.640 GHz	100.000 kHz	**2.64000 GHz**	**-51.80 dBm**	**-26.80 dB**
2.640 GHz	2.661 GHz	100.000 kHz	**2.64000 GHz**	**-52.43 dBm**	**-27.43 dB**

Date: 24.MAY.2018 20:44:13

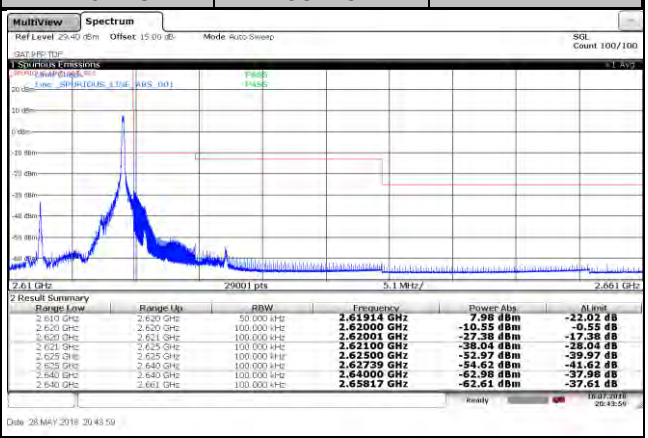
LTE Band 38					
Channel Bandwidth: 15 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	37825	1 RB	Channel	38175	1 RB



2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.550 GHz	200.000 kHz	**2.54802 GHz**	**-59.75 dBm**	**-34.75 dB**
2.550 GHz	2.550 GHz	200.000 kHz	**2.55000 GHz**	**-59.79 dBm**	**-34.79 dB**
2.550 GHz	2.565 GHz	200.000 kHz	**2.56258 GHz**	**-47.79 dBm**	**-34.79 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-47.69 dBm**	**-34.69 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56898 GHz**	**-28.24 dBm**	**-18.24 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.56999 GHz**	**-21.33 dBm**	**-11.33 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-22.29 dBm**	**-12.29 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57085 GHz**	**19.63 dBm**	**-10.37 dB**

Date: 24.MAY.2018 19:50:11

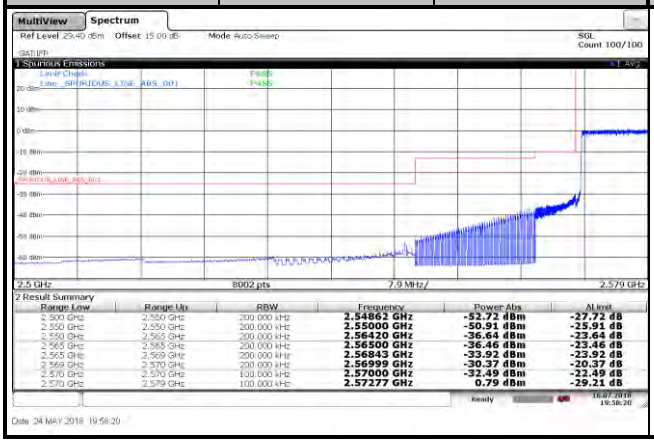


2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61914 GHz**	**7.98 dBm**	**-22.02 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-10.55 dBm**	**-0.55 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62001 GHz**	**-27.38 dBm**	**-17.38 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62100 GHz**	**-38.04 dBm**	**-28.04 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-52.97 dBm**	**-39.97 dB**
2.625 GHz	2.640 GHz	100.000 kHz	**2.62739 GHz**	**-54.62 dBm**	**-41.62 dB**
2.640 GHz	2.640 GHz	100.000 kHz	**2.64000 GHz**	**-62.98 dBm**	**-37.98 dB**
2.640 GHz	2.661 GHz	100.000 kHz	**2.65817 GHz**	**-62.61 dBm**	**-37.61 dB**

Date: 24.MAY.2018 20:43:59

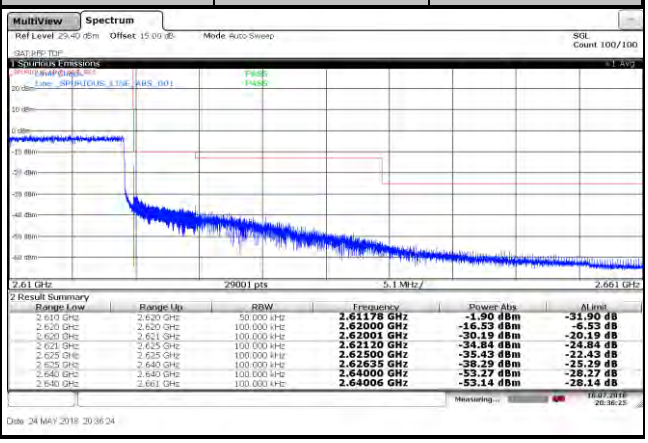
Channel	37825	75 RB	Channel	38175	75 RB



2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.550 GHz	200.000 kHz	**2.54862 GHz**	**-52.72 dBm**	**-27.72 dB**
2.550 GHz	2.550 GHz	200.000 kHz	**2.55000 GHz**	**-50.91 dBm**	**-25.91 dB**
2.550 GHz	2.565 GHz	200.000 kHz	**2.56420 GHz**	**-36.64 dBm**	**-23.64 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-36.46 dBm**	**-23.46 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56843 GHz**	**-33.92 dBm**	**-23.92 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.56999 GHz**	**-30.37 dBm**	**-20.37 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-32.49 dBm**	**-22.49 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57277 GHz**	**0.79 dBm**	**-29.21 dB**

Date: 24.MAY.2018 19:58:20

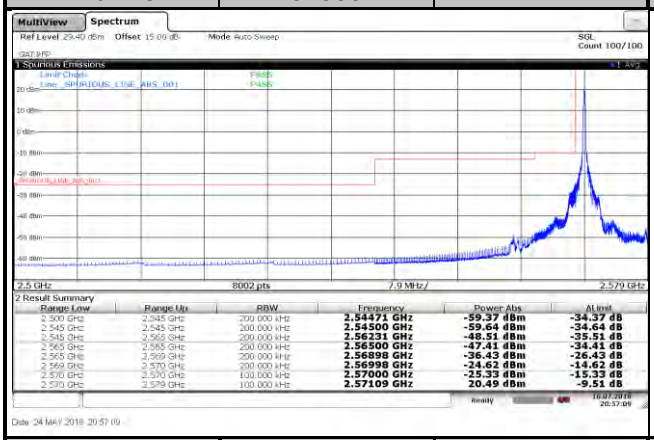


2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61178 GHz**	**-1.90 dBm**	**-31.90 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-16.53 dBm**	**-6.53 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62001 GHz**	**-30.19 dBm**	**-20.19 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62120 GHz**	**-34.84 dBm**	**-24.84 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-35.43 dBm**	**-22.43 dB**
2.625 GHz	2.640 GHz	100.000 kHz	**2.62635 GHz**	**-38.29 dBm**	**-25.29 dB**
2.640 GHz	2.640 GHz	100.000 kHz	**2.64000 GHz**	**-53.27 dBm**	**-28.27 dB**
2.640 GHz	2.661 GHz	100.000 kHz	**2.64006 GHz**	**-53.14 dBm**	**-28.14 dB**

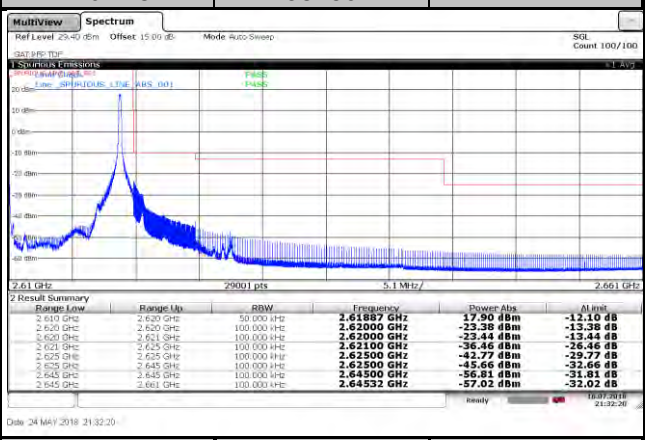
Date: 24.MAY.2018 20:36:24

LTE Band 38					
Channel Bandwidth: 20 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	37850	1 RB	Channel	38150	1 RB



2 Result Summary

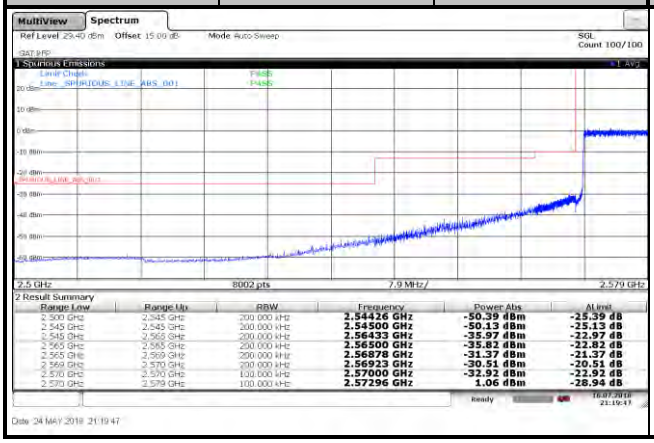
Range Low	Range Up	RBW	Frequency	Power Abs	ALimit
2.500 GHz	2.545 GHz	200.000 kHz	**2.54471 GHz**	**-59.37 dBm**	**-34.37 dB**
2.545 GHz	2.545 GHz	200.000 kHz	**2.54500 GHz**	**-59.64 dBm**	**-34.64 dB**
2.545 GHz	2.565 GHz	200.000 kHz	**2.56231 GHz**	**-48.51 dBm**	**-35.51 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-47.41 dBm**	**-34.41 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56898 GHz**	**-36.43 dBm**	**-26.43 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.56998 GHz**	**-24.62 dBm**	**-14.62 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-25.33 dBm**	**-15.33 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57109 GHz**	**20.49 dBm**	**-9.51 dB**



2 Result Summary

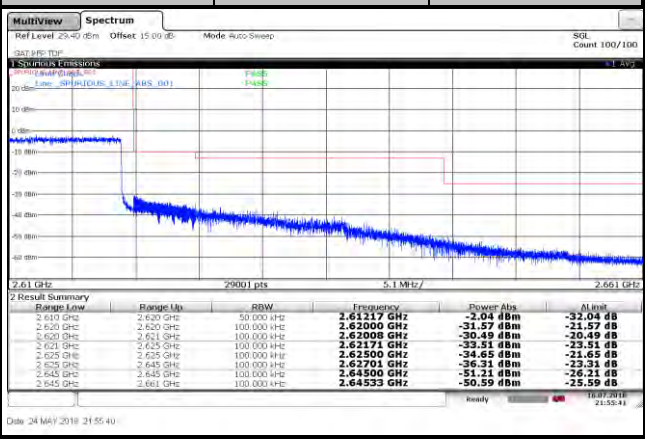
Range Low	Range Up	RBW	Frequency	Power Abs	ALimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61887 GHz**	**17.90 dBm**	**-12.10 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-23.38 dBm**	**-13.38 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62000 GHz**	**-23.44 dBm**	**-13.44 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62100 GHz**	**-36.46 dBm**	**-26.46 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-42.77 dBm**	**-29.77 dB**
2.625 GHz	2.645 GHz	100.000 kHz	**2.62500 GHz**	**-45.66 dBm**	**-32.66 dB**
2.645 GHz	2.645 GHz	100.000 kHz	**2.64500 GHz**	**-56.81 dBm**	**-31.81 dB**
2.645 GHz	2.661 GHz	100.000 kHz	**2.64532 GHz**	**-57.02 dBm**	**-32.02 dB**

Channel	37850	100 RB	Channel	38150	100 RB



2 Result Summary

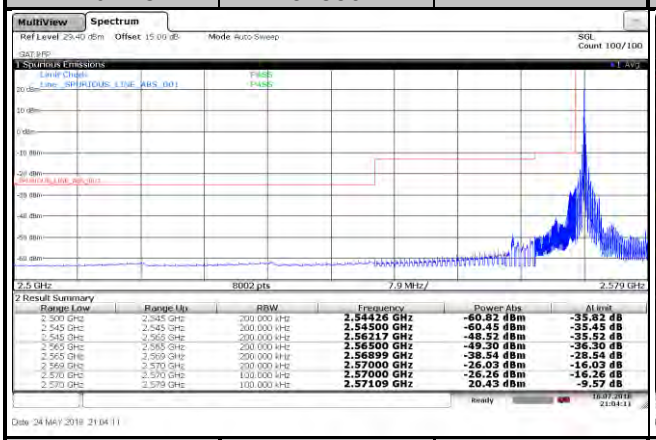
Range Low	Range Up	RBW	Frequency	Power Abs	ALimit
2.500 GHz	2.545 GHz	200.000 kHz	**2.54426 GHz**	**-50.39 dBm**	**-25.39 dB**
2.545 GHz	2.545 GHz	200.000 kHz	**2.54500 GHz**	**-50.13 dBm**	**-25.13 dB**
2.545 GHz	2.565 GHz	200.000 kHz	**2.56433 GHz**	**-35.97 dBm**	**-22.97 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-35.82 dBm**	**-22.82 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56878 GHz**	**-31.37 dBm**	**-21.37 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.56923 GHz**	**-30.51 dBm**	**-20.51 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-32.92 dBm**	**-22.92 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57296 GHz**	**1.06 dBm**	**-28.94 dB**



2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ALimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61217 GHz**	**-2.04 dBm**	**-32.04 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-31.57 dBm**	**-21.57 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62008 GHz**	**-30.49 dBm**	**-20.49 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62171 GHz**	**-33.51 dBm**	**-23.51 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-34.65 dBm**	**-21.65 dB**
2.625 GHz	2.645 GHz	100.000 kHz	**2.62701 GHz**	**-36.31 dBm**	**-23.31 dB**
2.645 GHz	2.645 GHz	100.000 kHz	**2.64500 GHz**	**-51.21 dBm**	**-26.21 dB**
2.645 GHz	2.661 GHz	100.000 kHz	**2.64533 GHz**	**-50.59 dBm**	**-25.59 dB**

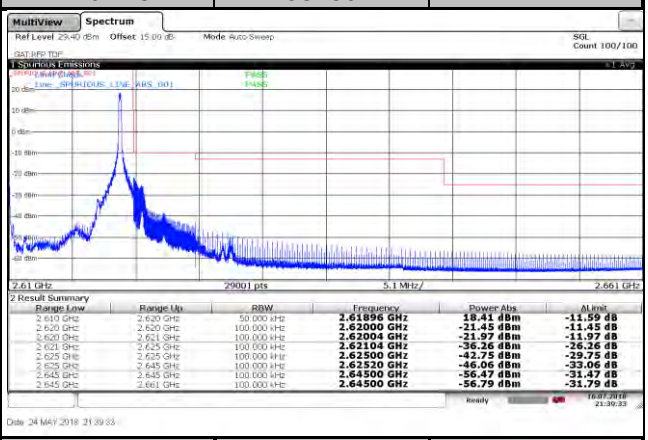
LTE Band 38					
Channel Bandwidth: 20 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	37850	1 RB	Channel	38150	1 RB



2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.545 GHz	200.000 kHz	**2.54426 GHz**	**-60.82 dBm**	**-35.82 dB**
2.545 GHz	2.545 GHz	200.000 kHz	**2.54500 GHz**	**-60.45 dBm**	**-35.45 dB**
2.545 GHz	2.565 GHz	200.000 kHz	**2.56217 GHz**	**-48.52 dBm**	**-35.52 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-49.30 dBm**	**-36.30 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56899 GHz**	**-38.54 dBm**	**-28.54 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.57000 GHz**	**-26.03 dBm**	**-16.03 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-26.26 dBm**	**-16.26 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57109 GHz**	**20.43 dBm**	**-9.57 dB**

Date: 24.MAY.2018 21:04:11

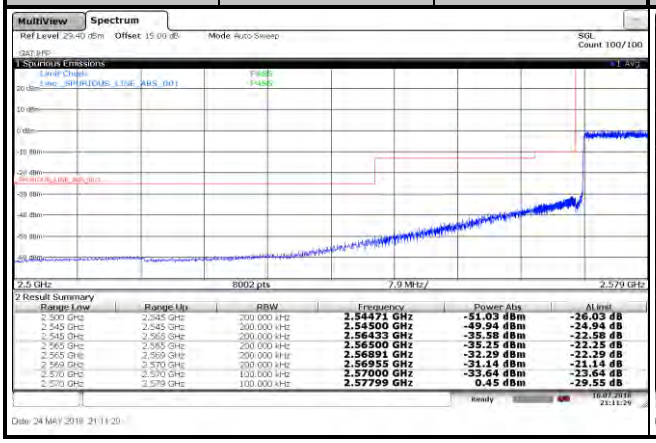


2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61896 GHz**	**18.41 dBm**	**-11.59 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-21.45 dBm**	**-11.45 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62004 GHz**	**-21.97 dBm**	**-11.97 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62104 GHz**	**-36.26 dBm**	**-26.26 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-42.75 dBm**	**-29.75 dB**
2.625 GHz	2.645 GHz	100.000 kHz	**2.62520 GHz**	**-46.06 dBm**	**-33.06 dB**
2.645 GHz	2.645 GHz	100.000 kHz	**2.64500 GHz**	**-56.47 dBm**	**-31.47 dB**
2.645 GHz	2.661 GHz	100.000 kHz	**2.64500 GHz**	**-56.79 dBm**	**-31.79 dB**

Date: 24.MAY.2018 21:39:33

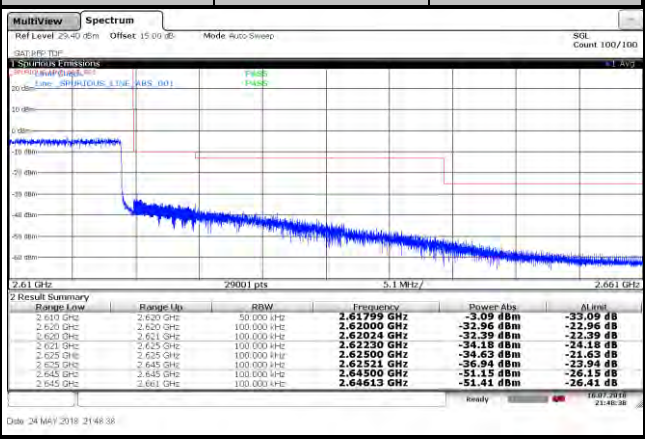
Channel	37850	100 RB	Channel	38150	100 RB



2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.500 GHz	2.545 GHz	200.000 kHz	**2.54471 GHz**	**-51.03 dBm**	**-26.03 dB**
2.545 GHz	2.545 GHz	200.000 kHz	**2.54500 GHz**	**-49.94 dBm**	**-24.94 dB**
2.545 GHz	2.565 GHz	200.000 kHz	**2.56433 GHz**	**-35.58 dBm**	**-22.58 dB**
2.565 GHz	2.565 GHz	200.000 kHz	**2.56500 GHz**	**-35.25 dBm**	**-22.25 dB**
2.565 GHz	2.569 GHz	200.000 kHz	**2.56891 GHz**	**-32.29 dBm**	**-22.29 dB**
2.569 GHz	2.570 GHz	200.000 kHz	**2.56955 GHz**	**-31.14 dBm**	**-21.14 dB**
2.570 GHz	2.570 GHz	100.000 kHz	**2.57000 GHz**	**-33.64 dBm**	**-23.64 dB**
2.570 GHz	2.579 GHz	100.000 kHz	**2.57799 GHz**	**0.45 dBm**	**-29.55 dB**

Date: 24.MAY.2018 21:11:20

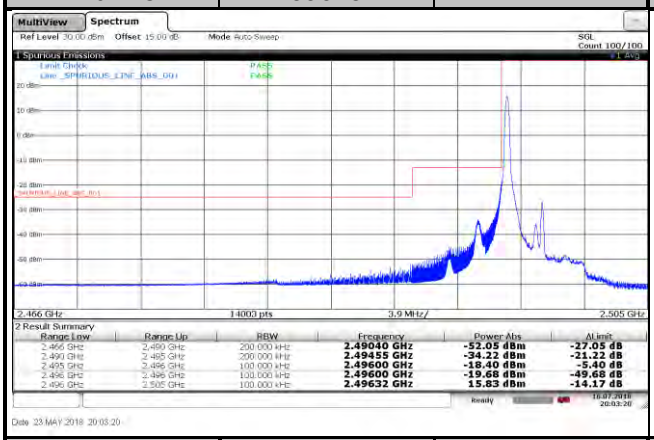


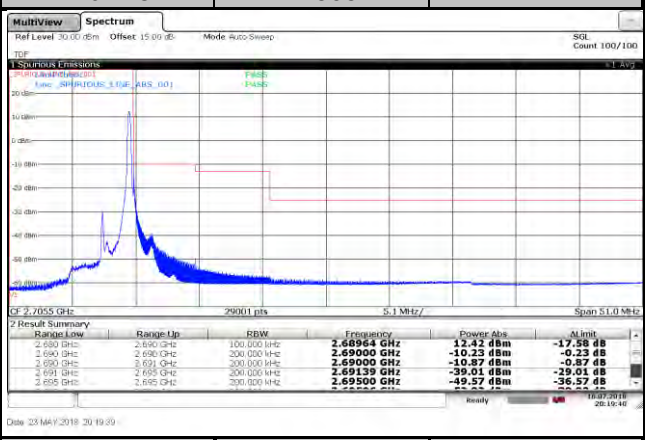
2 Result Summary

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.610 GHz	2.620 GHz	50.000 kHz	**2.61799 GHz**	**-3.09 dBm**	**-33.09 dB**
2.620 GHz	2.620 GHz	100.000 kHz	**2.62000 GHz**	**-32.96 dBm**	**-22.96 dB**
2.620 GHz	2.621 GHz	100.000 kHz	**2.62024 GHz**	**-32.39 dBm**	**-22.39 dB**
2.621 GHz	2.625 GHz	100.000 kHz	**2.62230 GHz**	**-34.18 dBm**	**-24.18 dB**
2.625 GHz	2.625 GHz	100.000 kHz	**2.62500 GHz**	**-34.63 dBm**	**-21.63 dB**
2.625 GHz	2.645 GHz	100.000 kHz	**2.62521 GHz**	**-36.94 dBm**	**-23.94 dB**
2.645 GHz	2.645 GHz	100.000 kHz	**2.64500 GHz**	**-51.15 dBm**	**-26.15 dB**
2.645 GHz	2.661 GHz	100.000 kHz	**2.64613 GHz**	**-51.41 dBm**	**-26.41 dB**

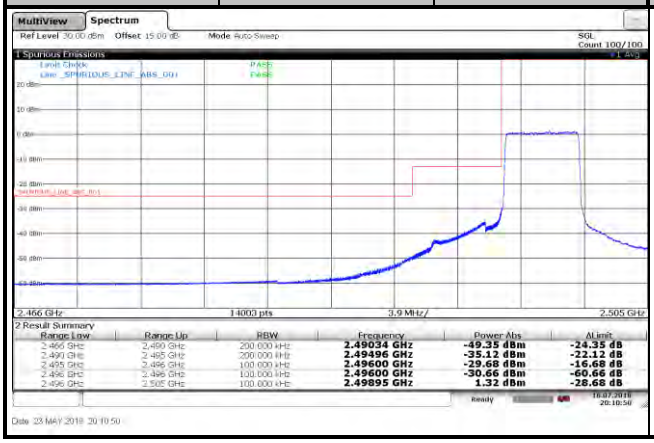
Date: 24.MAY.2018 21:48:38

LTE Band 41					
Channel Bandwidth: 5 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	39675	1 RB	Channel	41565	1 RB

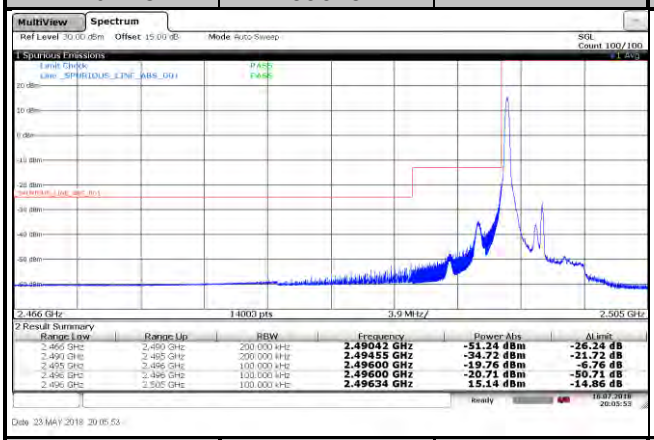


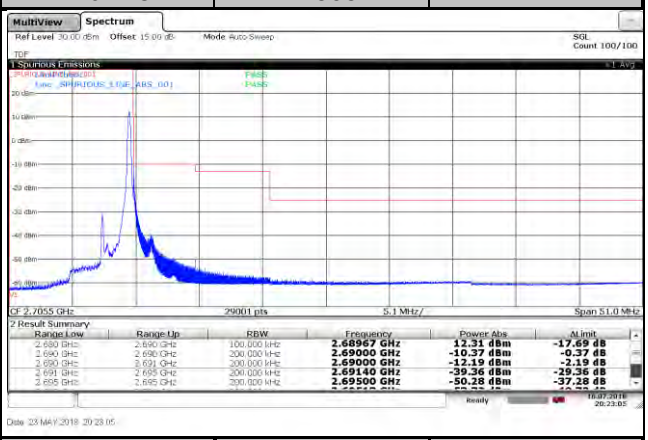


Channel	39675	25 RB	Channel	41565	25 RB

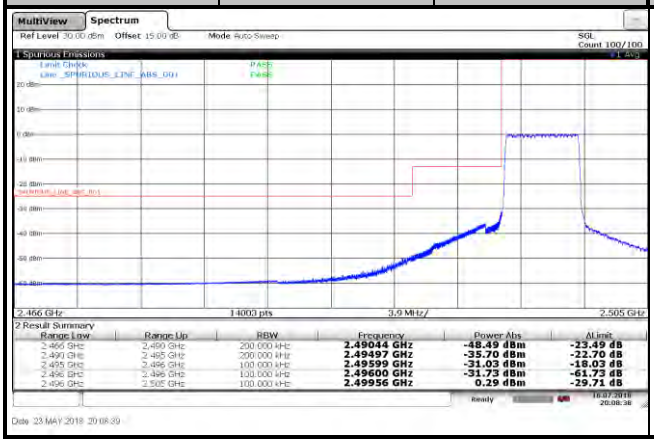


LTE Band 41					
Channel Bandwidth: 5 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	39675	1 RB	Channel	41565	1 RB

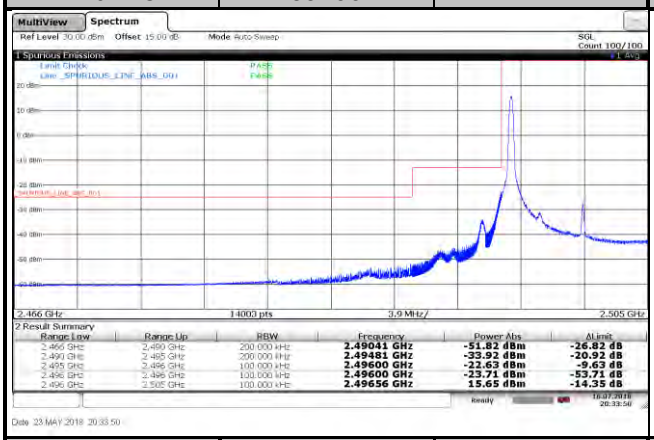


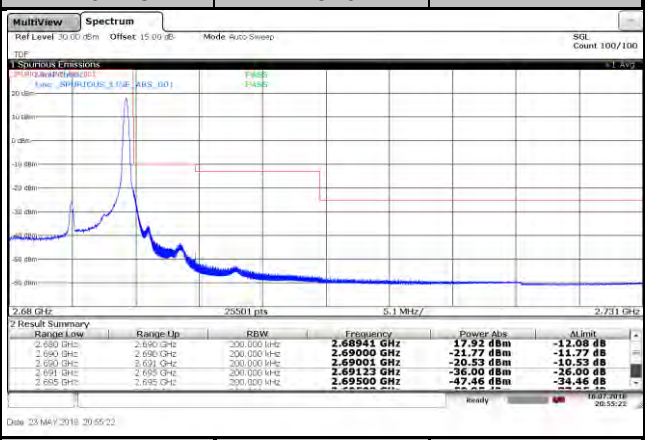


Channel	39675	25 RB	Channel	41565	25 RB

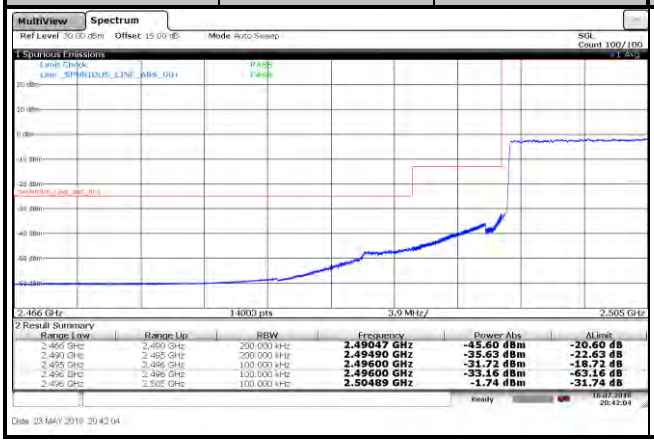


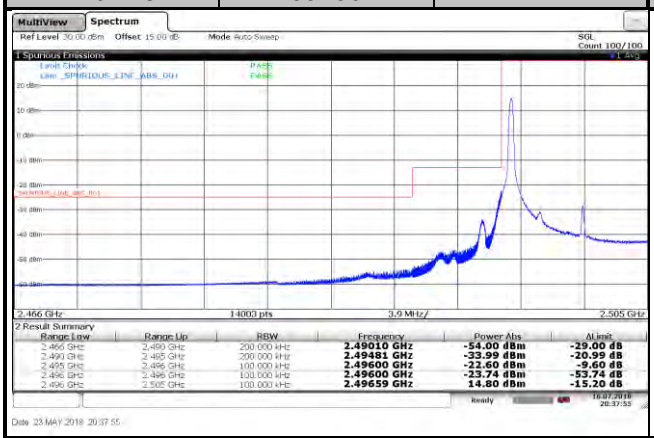
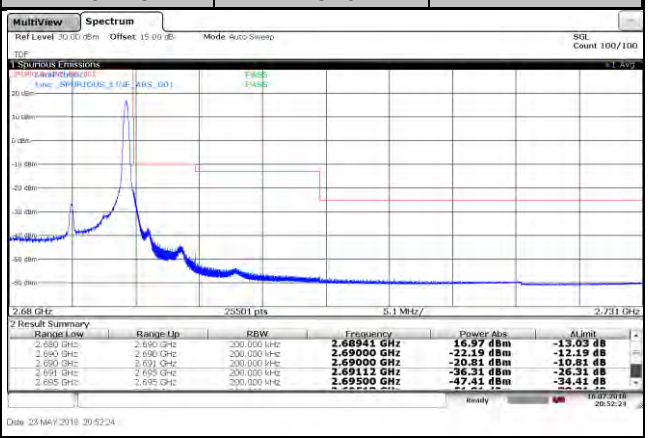
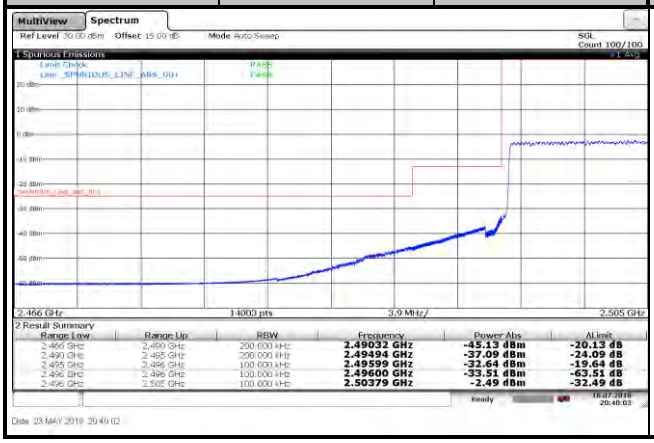
LTE Band 41					
Channel Bandwidth: 10 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	39700	1 RB	Channel	41540	1 RB



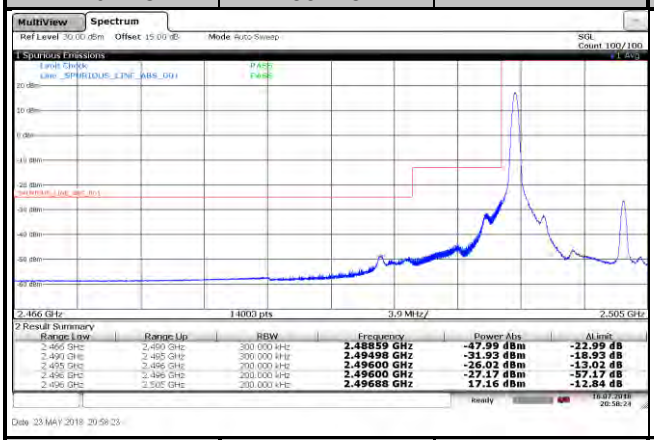


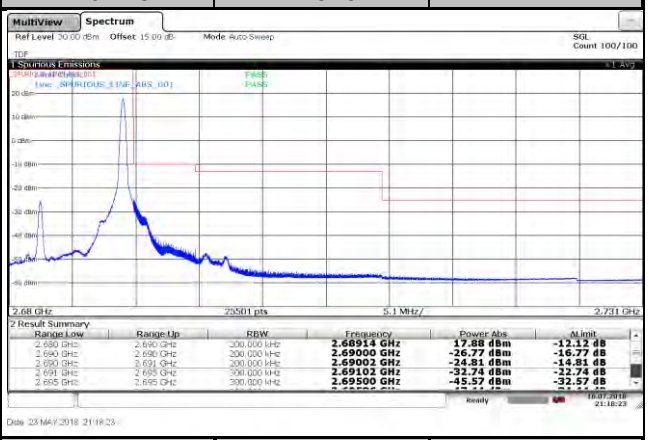
Channel	39700	50 RB	Channel	41540	50 RB



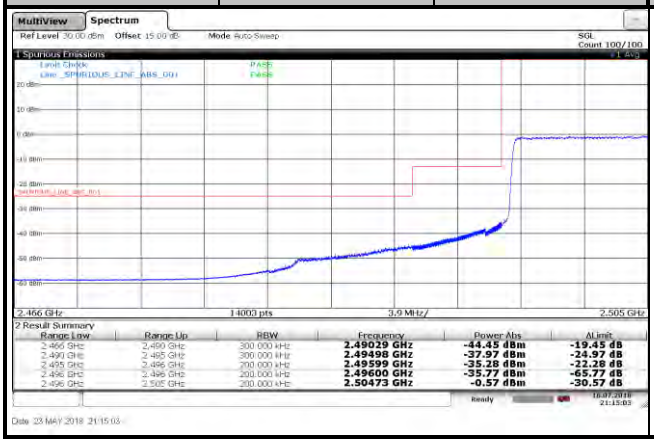
LTE Band 41					
Channel Bandwidth: 10 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	39700	1 RB	Channel	41540	1 RB
					
Channel	39700	50 RB	Channel	41540	50 RB
					

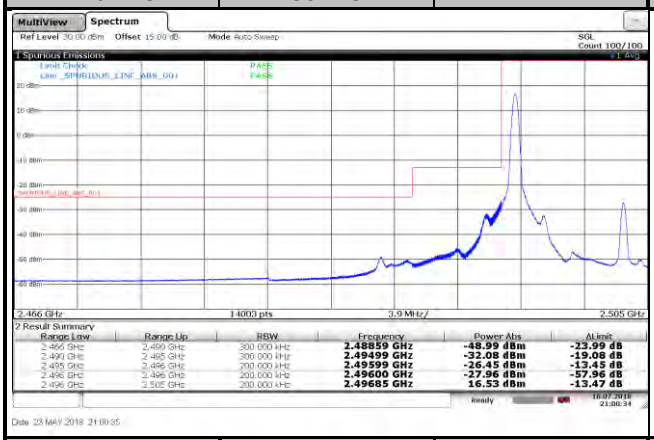
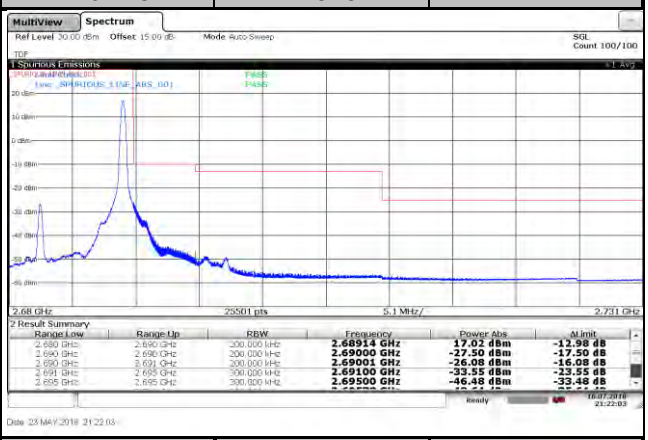
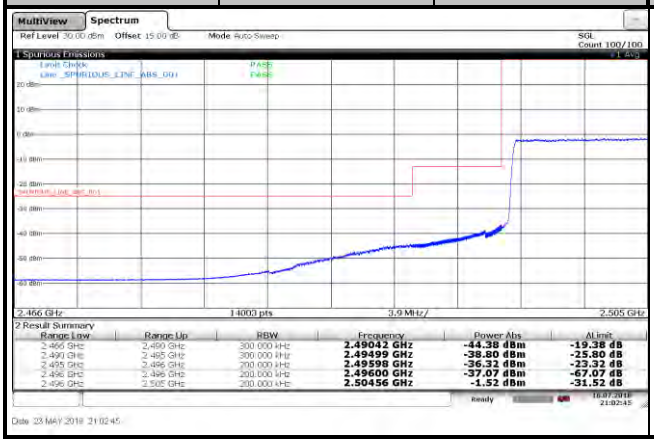
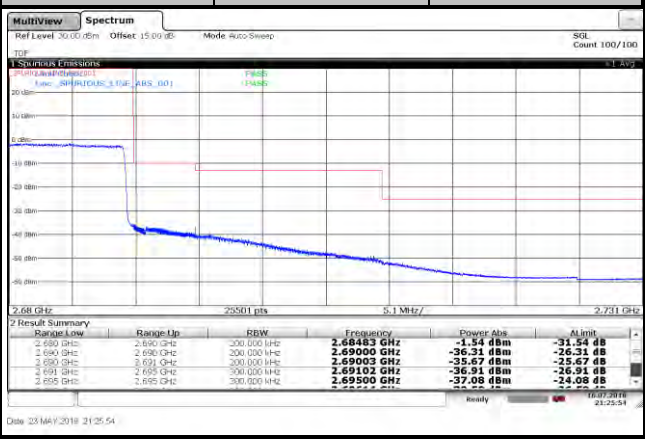
LTE Band 41					
Channel Bandwidth: 15 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	39725	1 RB	Channel	41515	1 RB



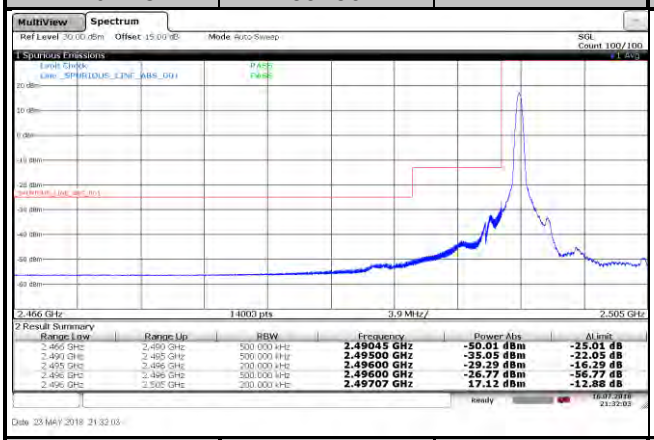


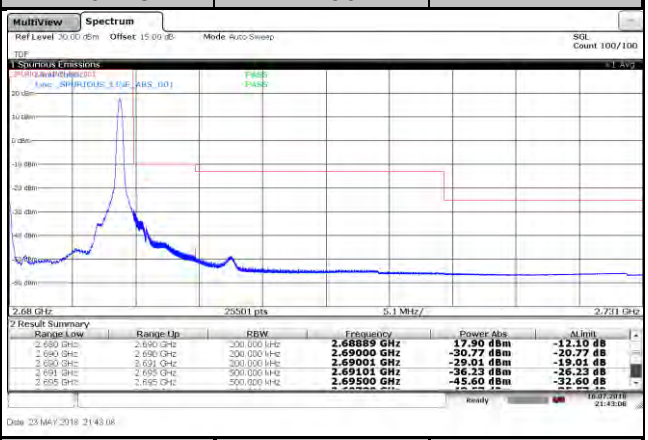
Channel	39725	75 RB	Channel	41515	75 RB



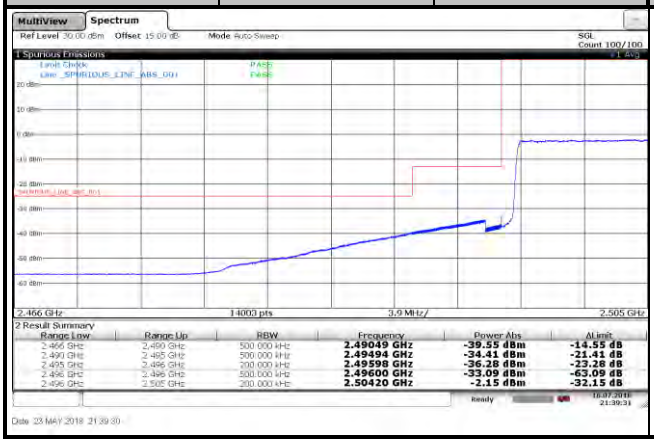
LTE Band 41					
Channel Bandwidth: 15 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	39725	1 RB	Channel	41515	1 RB
					
Channel	39725	75 RB	Channel	41515	75 RB
					

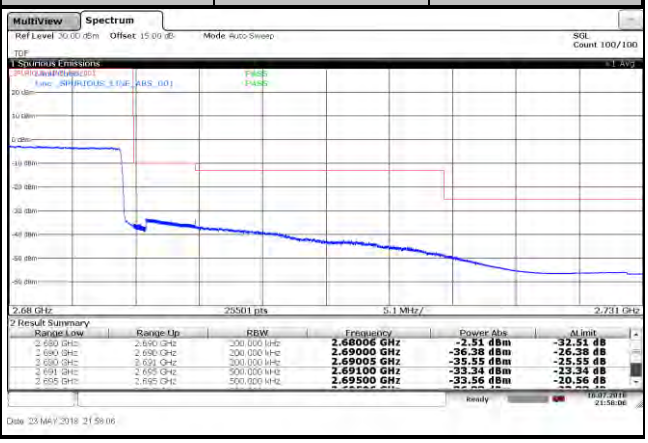
LTE Band 41					
Channel Bandwidth: 20 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	39750	1 RB	Channel	41490	1 RB



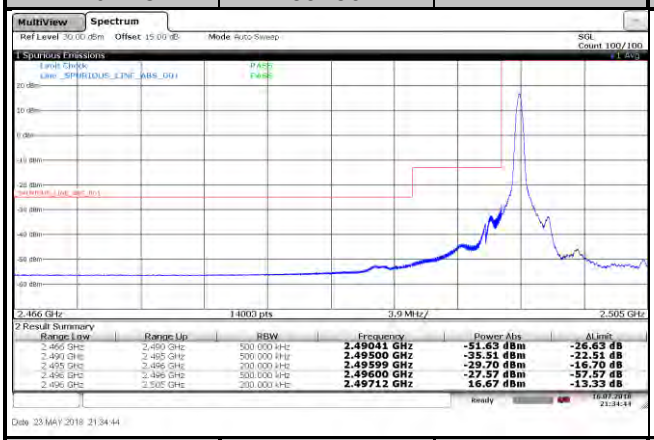


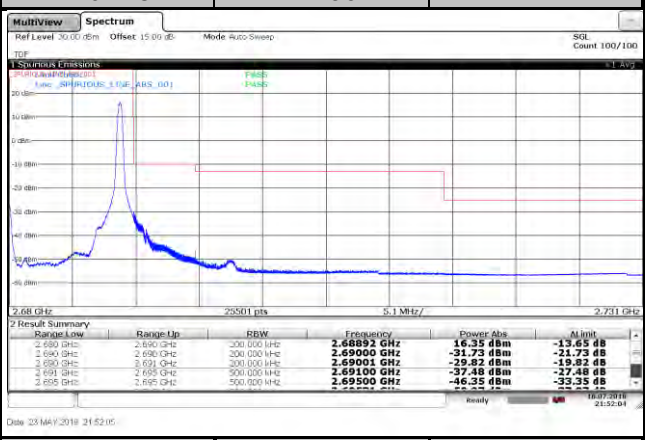
Channel	39750	100 RB	Channel	41490	100 RB



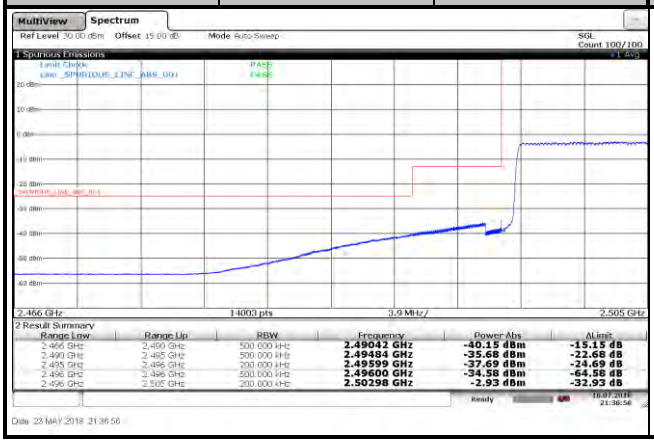


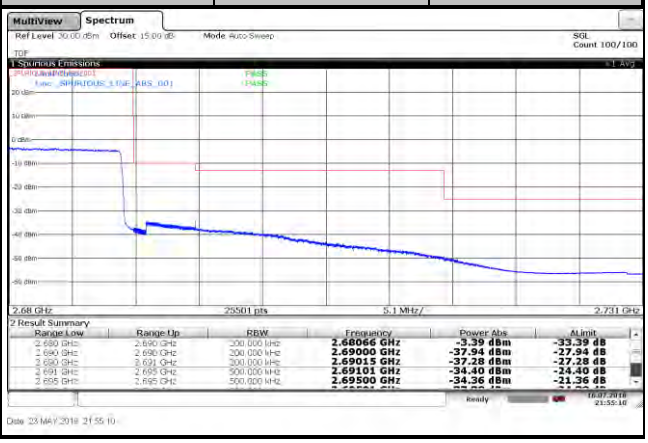
LTE Band 41					
Channel Bandwidth: 20 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	39750	1 RB	Channel	41490	1 RB





Channel	39750	100 RB	Channel	41490	100 RB



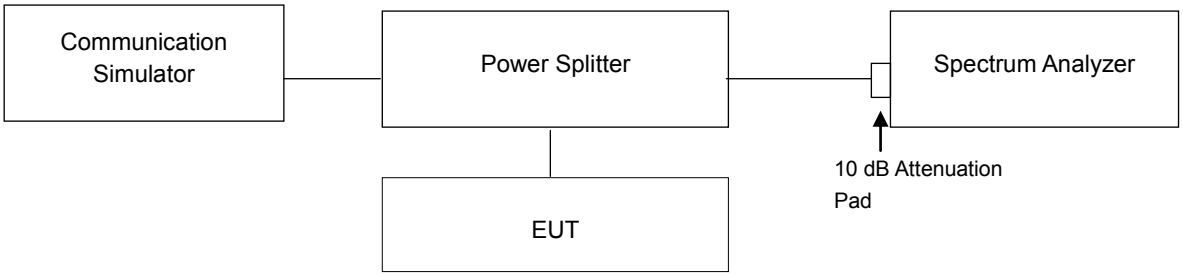


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup

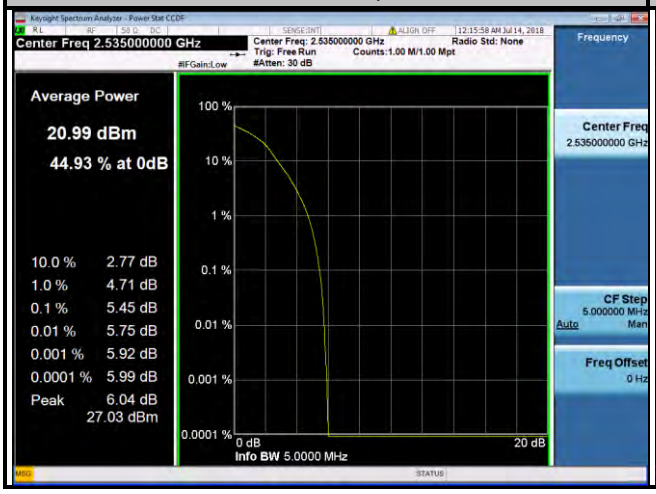
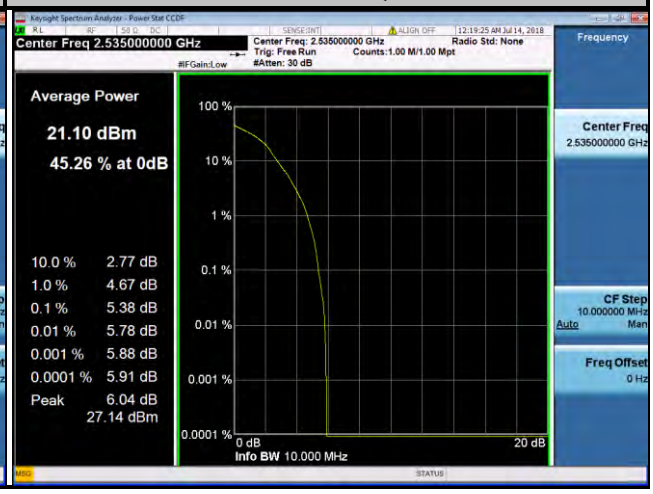


4.6.3 Test Procedures

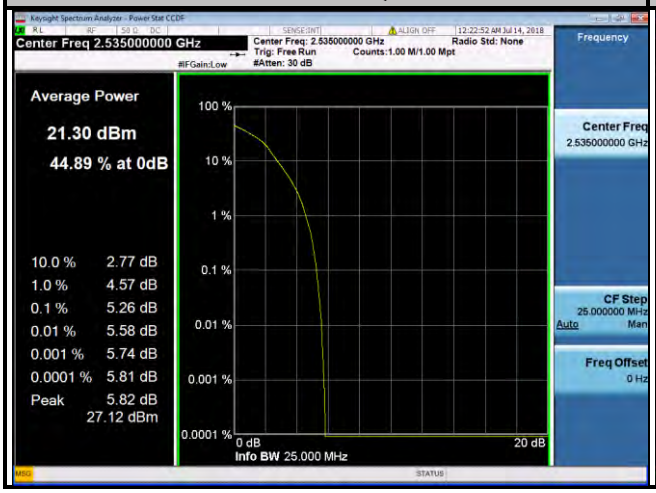
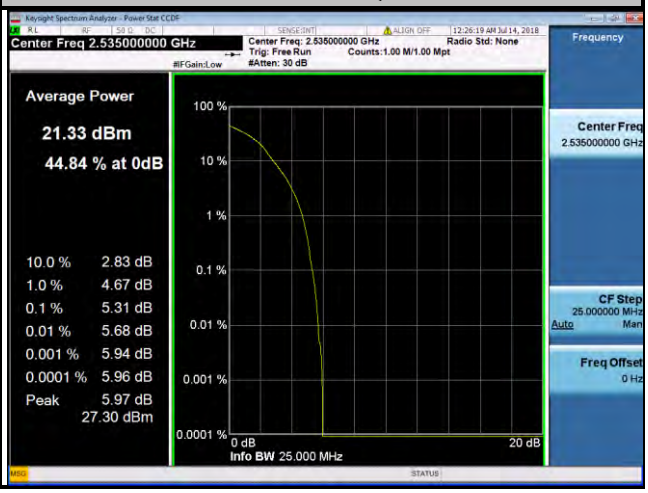
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

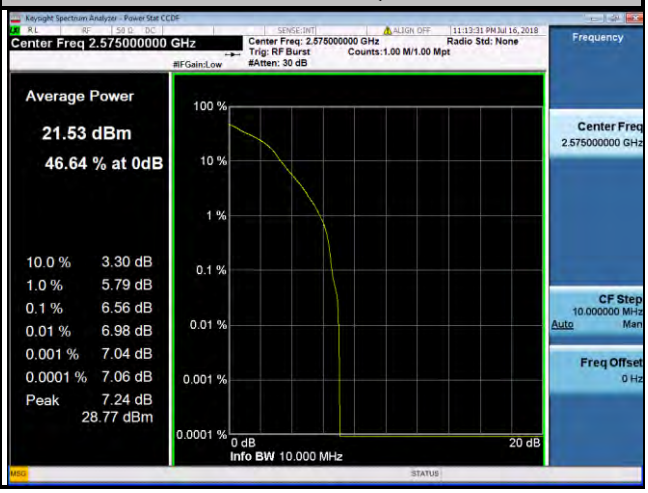
LTE Band 7							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	4.40	5.23	20800	2505.0	4.38	5.26
21100	2535.0	4.70	5.45	21100	2535.0	4.69	5.38
21425	2567.5	4.52	5.35	21400	2565.0	4.35	5.15

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

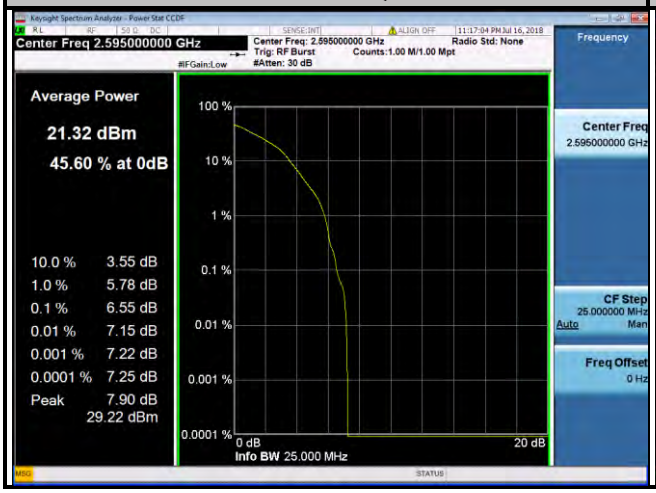
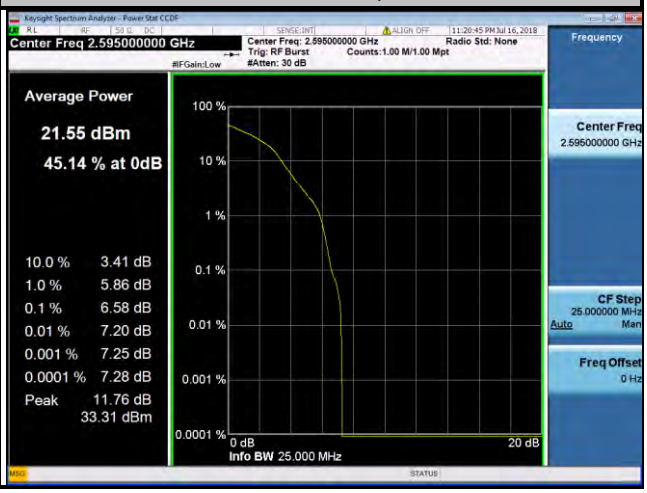
LTE Band 7							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	4.46	5.21	20850	2510.0	4.44	5.23
21100	2535.0	4.51	5.26	21100	2535.0	4.66	5.31
21375	2562.5	4.39	5.02	21350	2560.0	4.31	5.11

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

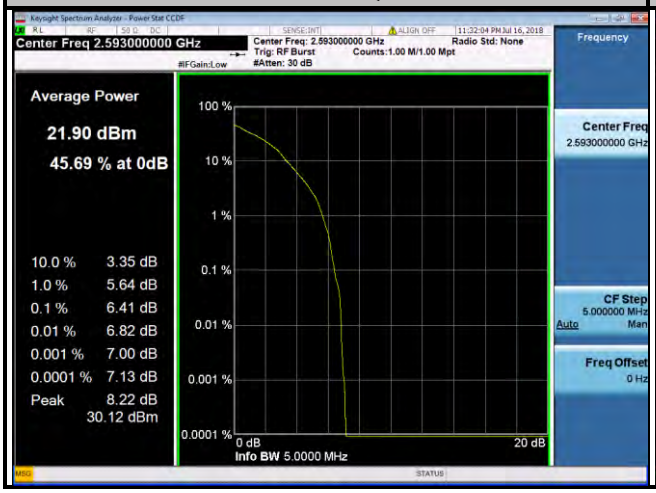
LTE Band 38							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
37775	2572.5	5.14	6.77	37800	2575.0	5.14	6.56
38000	2595.0	5.27	5.90	38000	2595.0	5.46	6.17
38225	2617.5	5.10	5.67	38200	2615.0	5.00	5.67

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

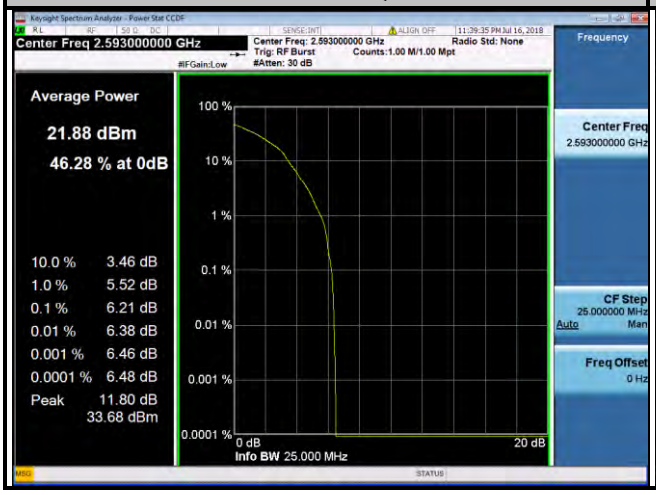
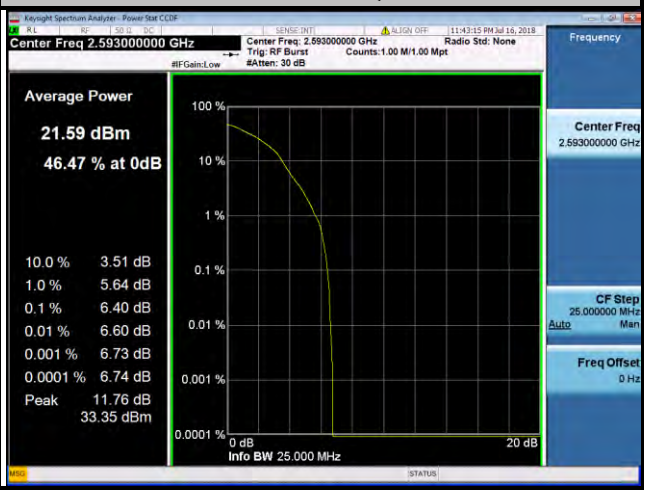
LTE Band 38							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
37825	2577.5	5.59	6.42	37850	2580.0	5.70	6.44
38000	2595.0	6.01	6.55	38000	2595.0	6.19	6.58
38175	2612.5	4.89	6.01	38150	2610.0	4.89	5.60

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

LTE Band 41							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
39675	2498.5	4.34	4.94	39700	2501.0	4.29	5.81
40620	2593.0	4.98	6.41	40620	2593.0	4.83	6.25
41565	2687.5	3.78	4.58	41540	2685.0	3.78	4.39

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

LTE Band 41							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
39725	2503.5	4.33	5.95	39750	2506.0	4.56	6.45
40620	2593.0	5.51	6.21	40620	2593.0	5.12	6.40
41515	2682.5	4.00	5.02	41490	2680.0	4.15	5.22

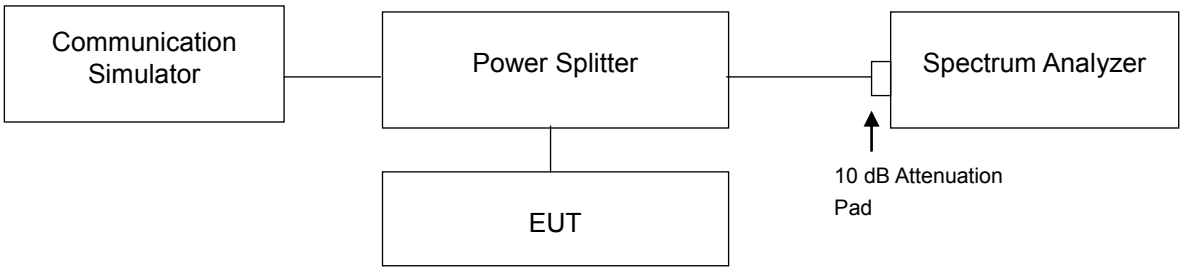
Spectrum Plot of Worst Value	
15 MHz / 16QAM	20 MHz / 16QAM
	

4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25 dBm.

4.7.2 Test Setup

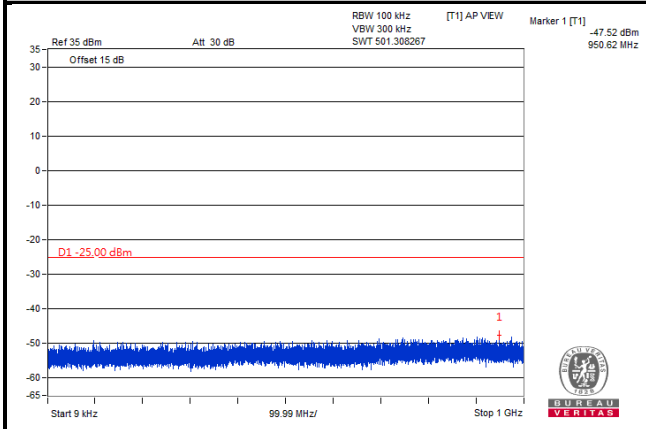
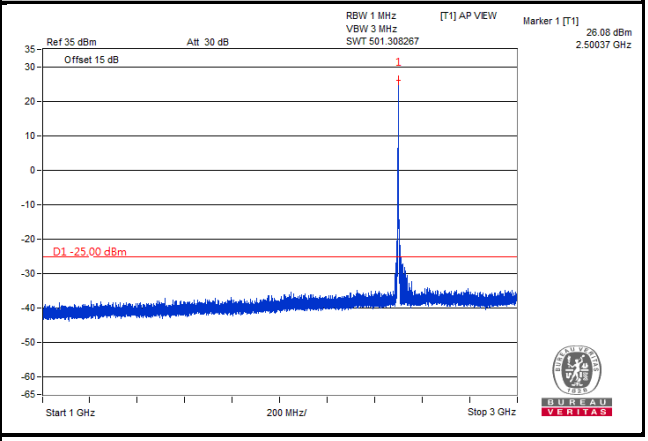
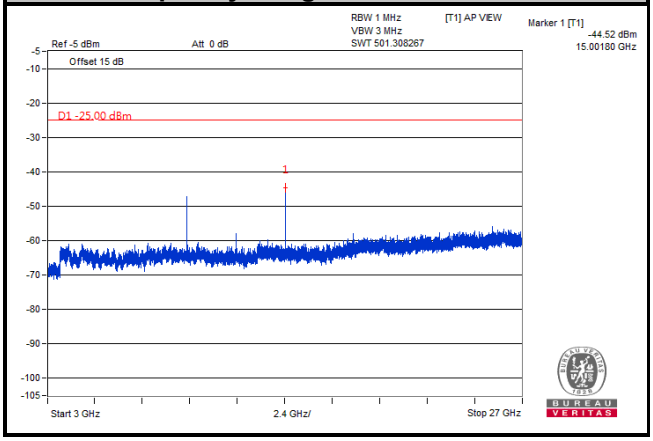


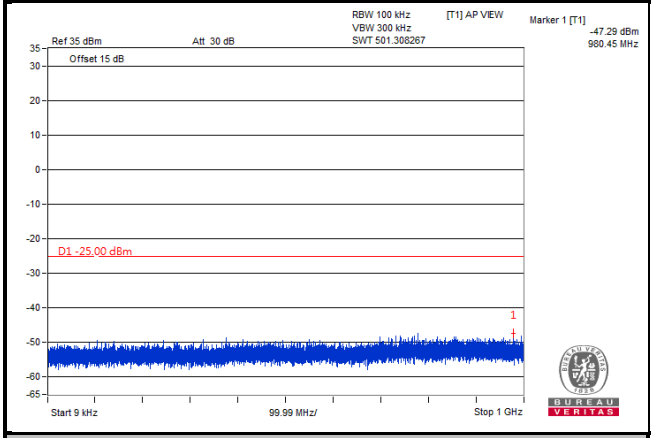
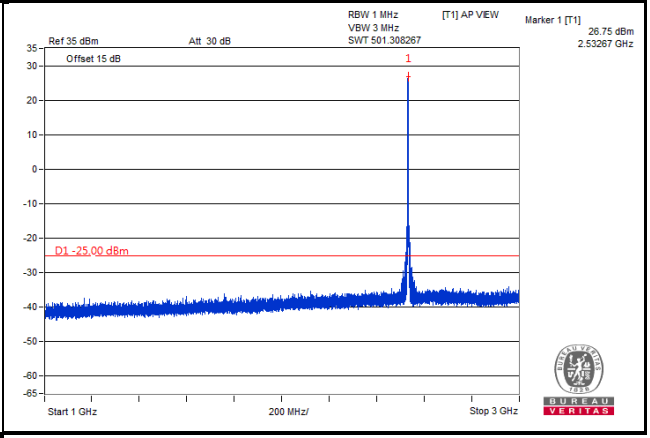
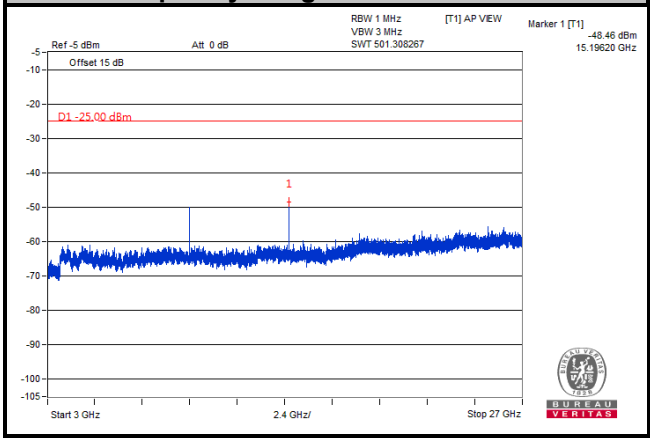
4.7.3 Test Procedure

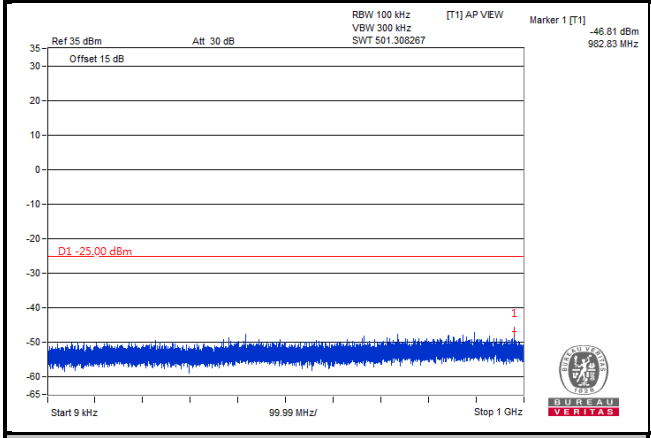
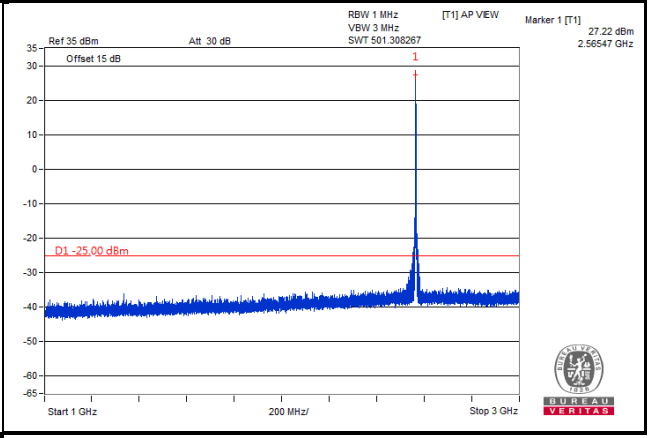
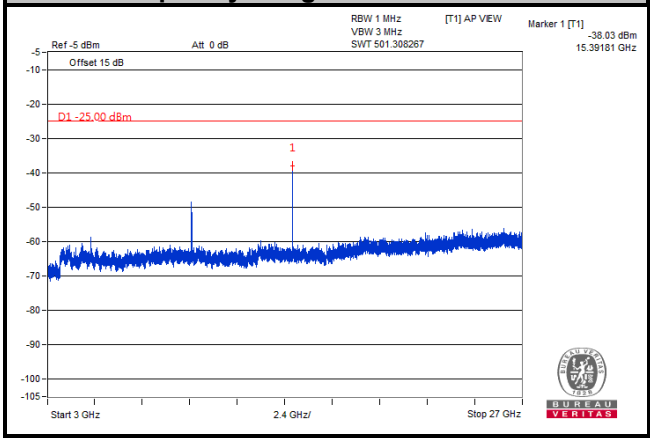
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

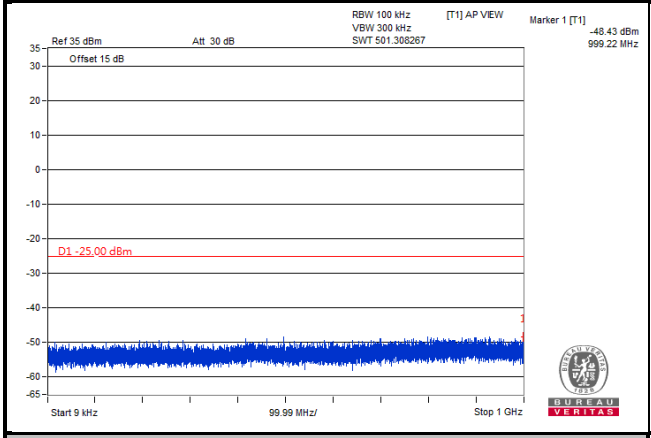
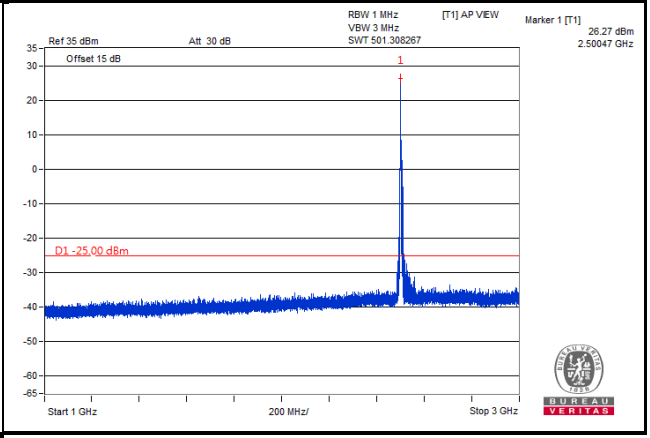
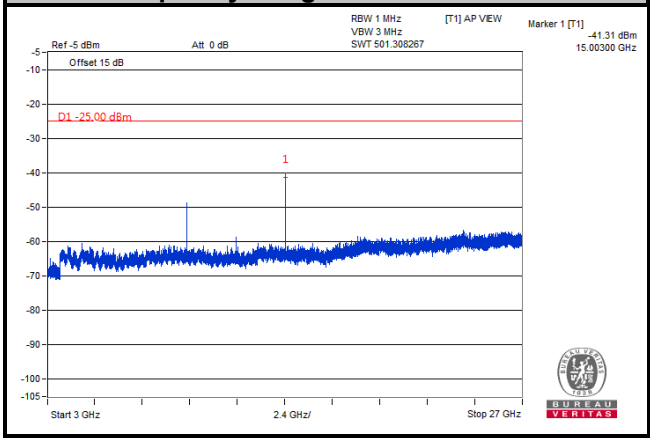
b. Measuring frequency range is from 9 kHz to 27 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz for 9 kHz to 1 GHz and RBW = 1 MHz and VBW = 3 MHz for 1 GHz to 27 GHz is used for conducted emission measurement.

4.7.4 Test Results

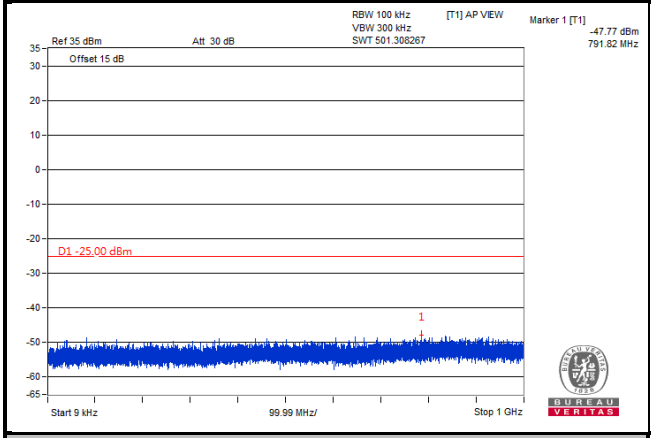
LTE Band 7	
Channel Bandwidth: 5 MHz	
Channel 20775	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

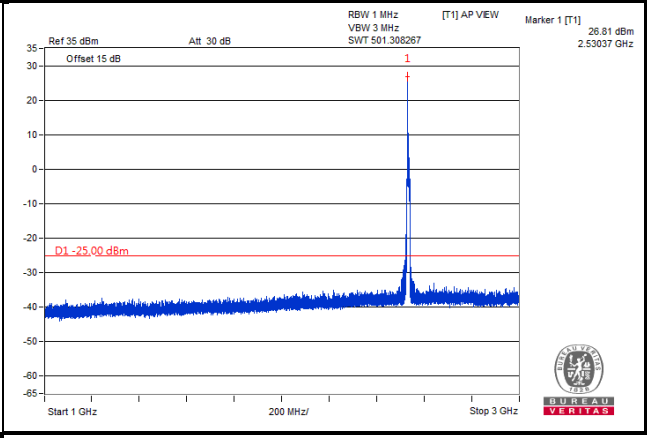
LTE Band 7	
Channel Bandwidth: 5 MHz	
Channel 21100	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

LTE Band 7	
Channel Bandwidth: 5 MHz	
Channel 21425	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

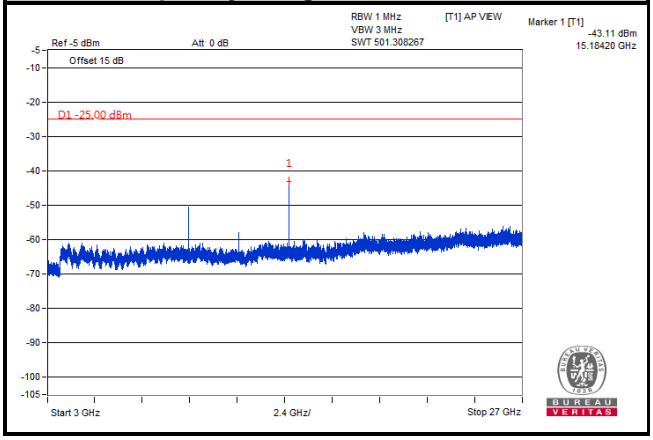
LTE Band 7	
Channel Bandwidth: 10 MHz	
Channel 20800	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

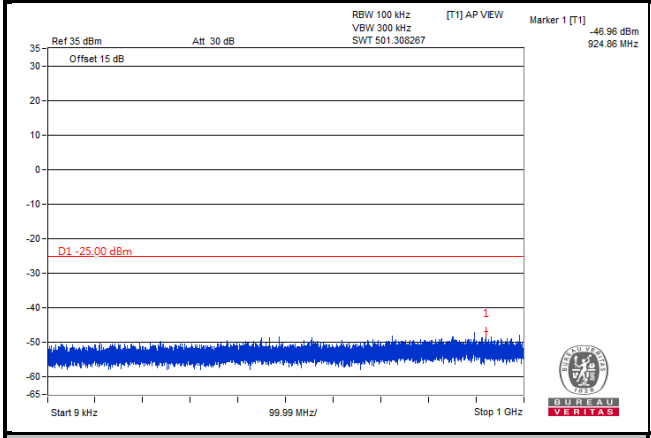
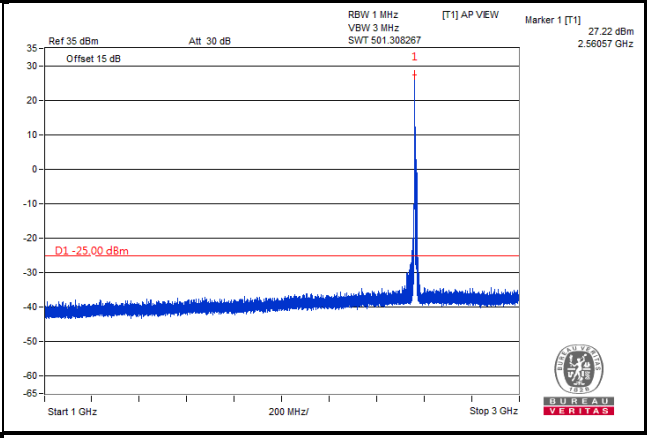
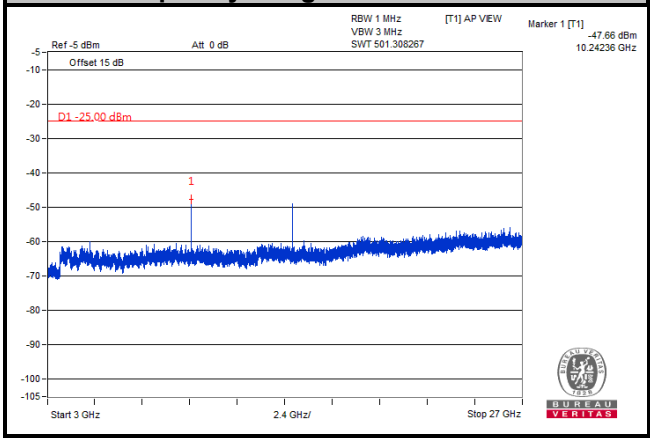
LTE Band 7	
Channel Bandwidth: 10 MHz	
Channel 21100	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

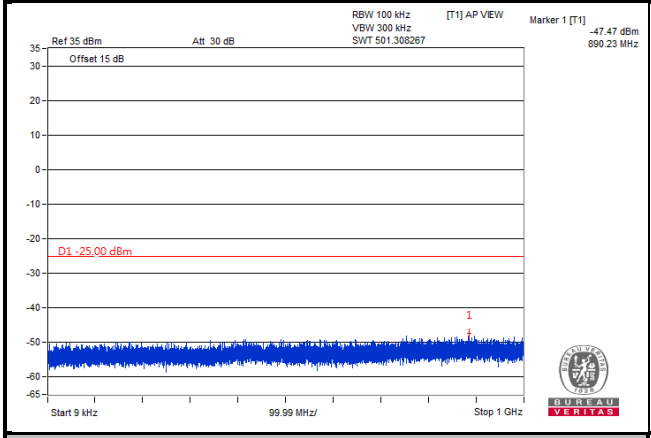
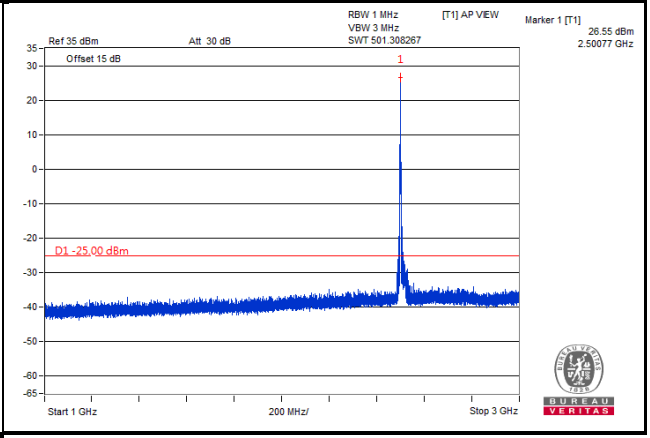
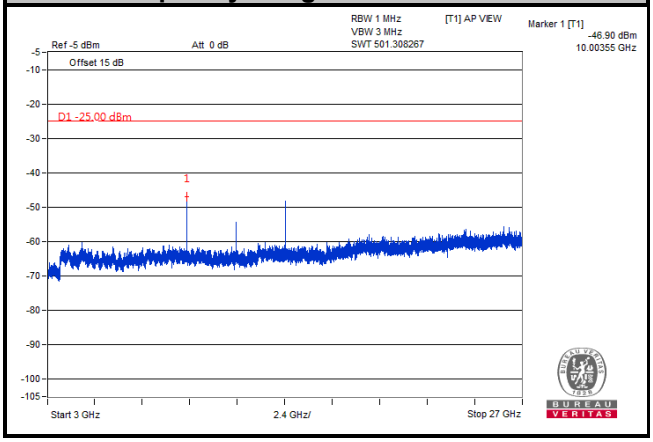


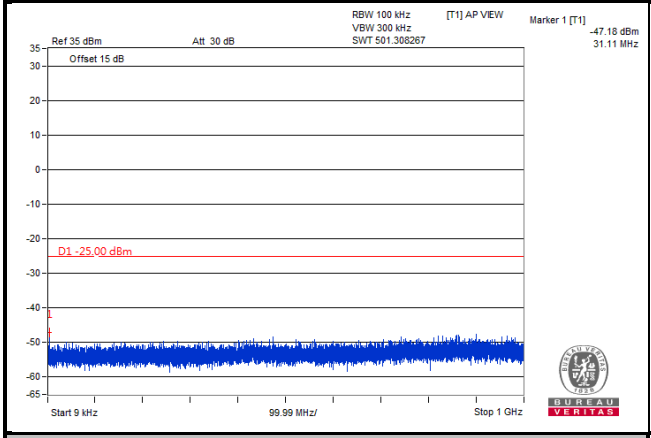
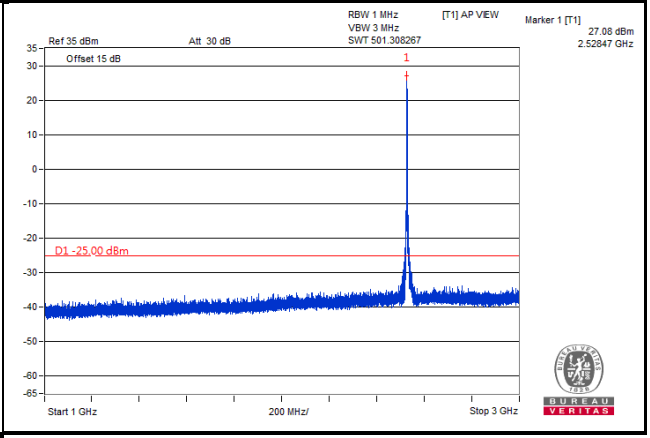
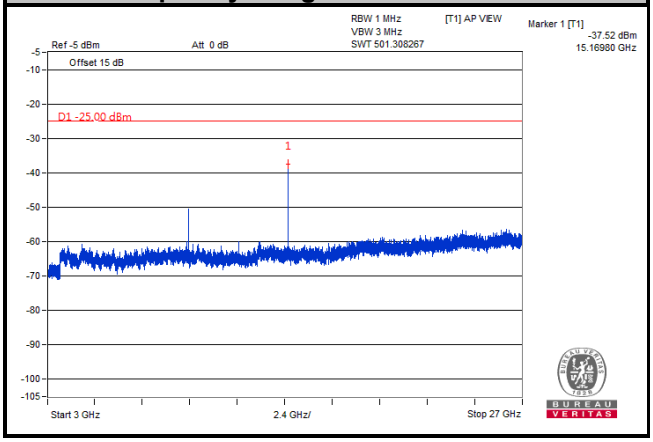


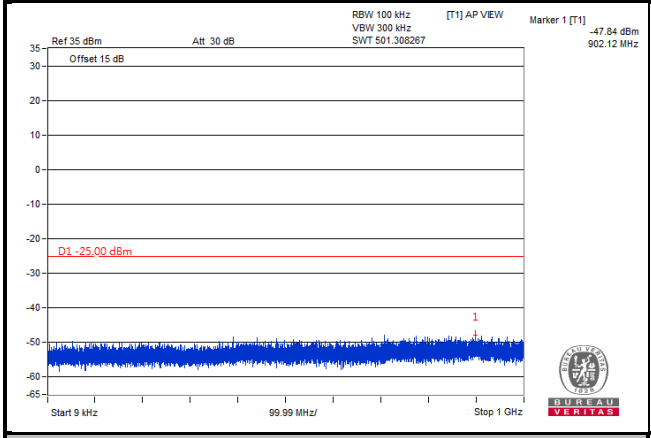
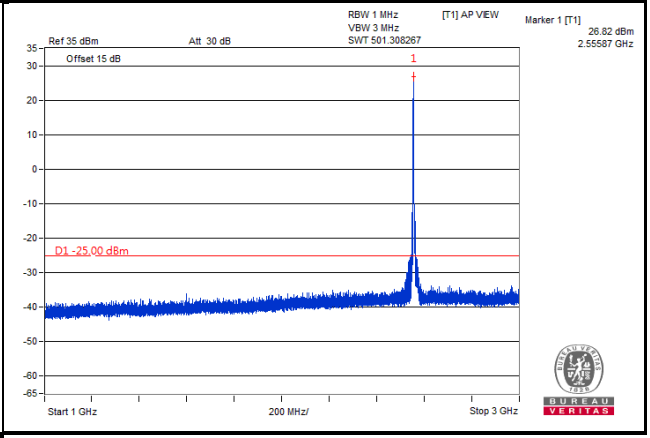
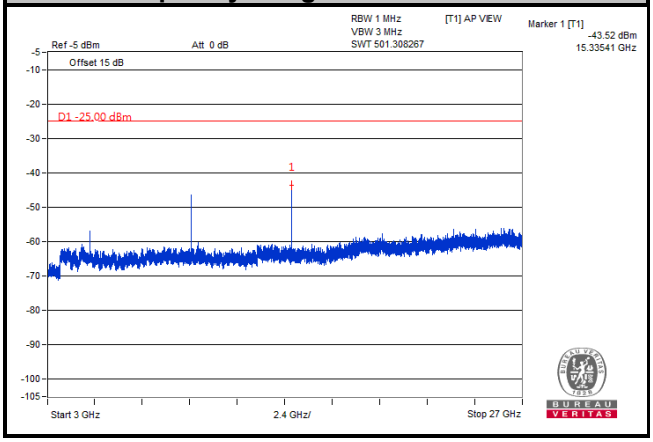
Frequency Range: 3 GHz ~ 27 GHz

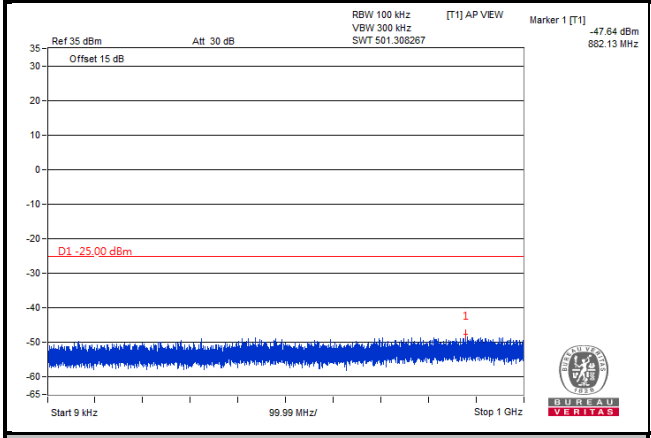
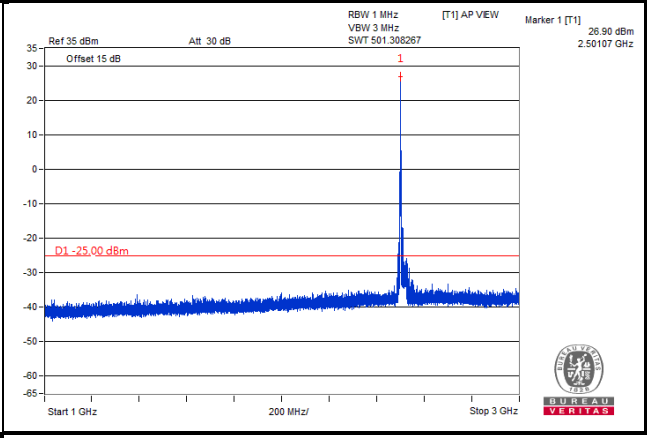
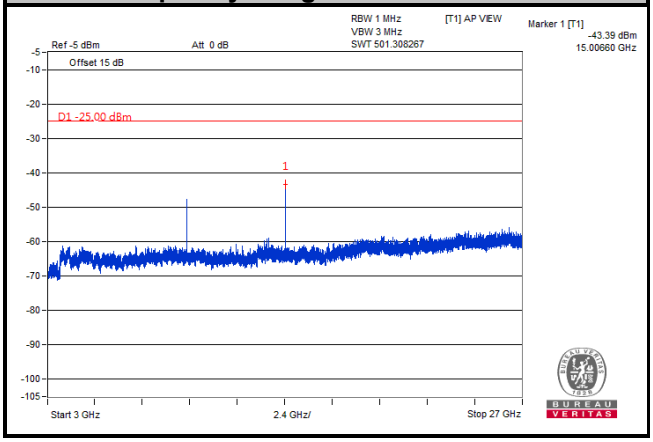


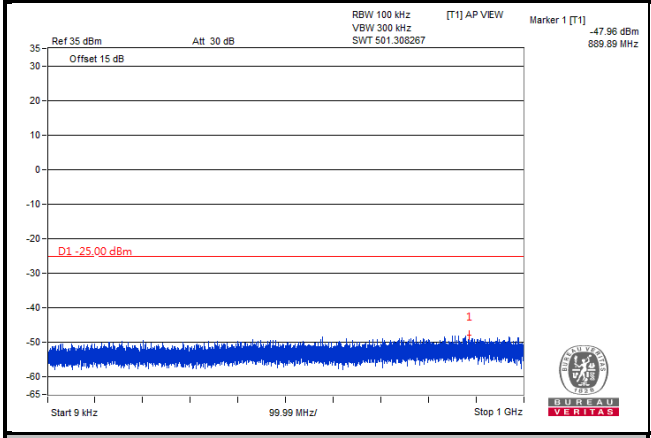
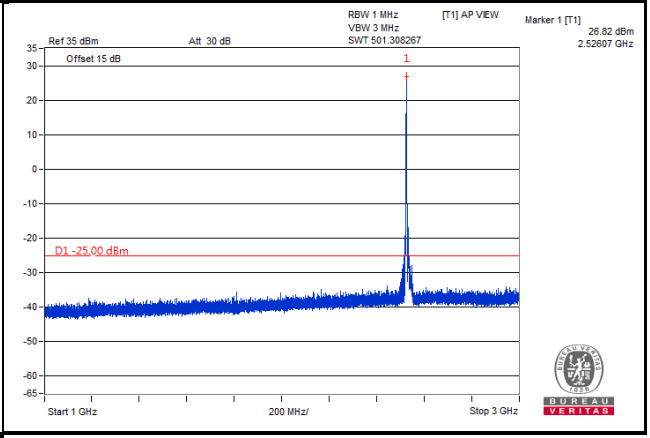
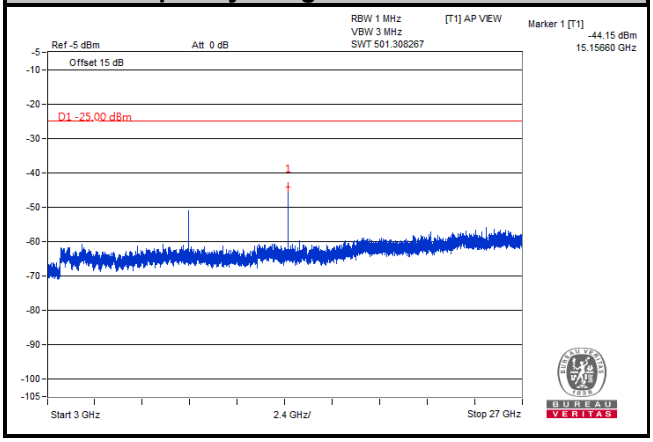
LTE Band 7	
Channel Bandwidth: 10 MHz	
Channel 21400	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

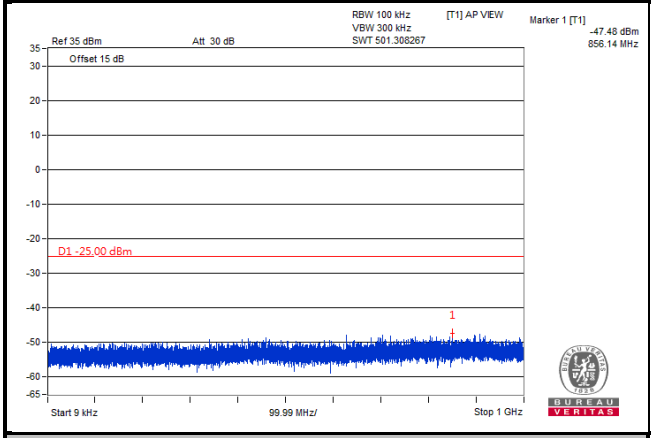
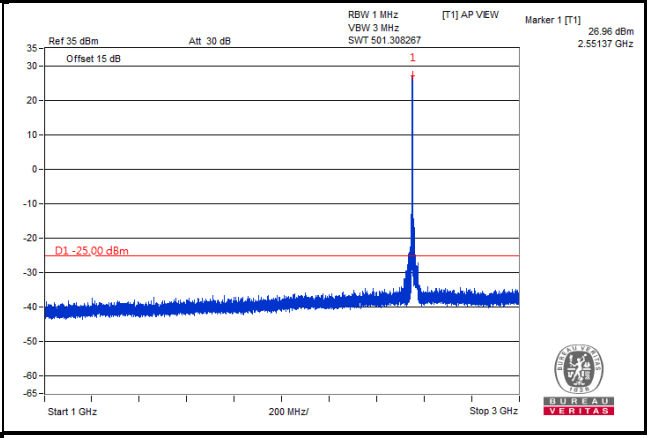
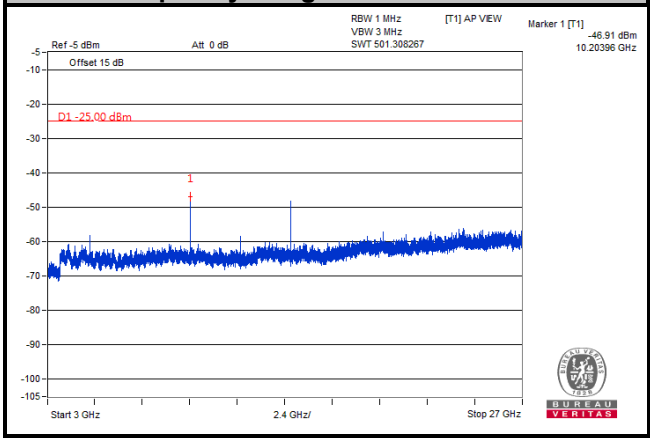
LTE Band 7	
Channel Bandwidth: 15 MHz	
Channel 20825	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

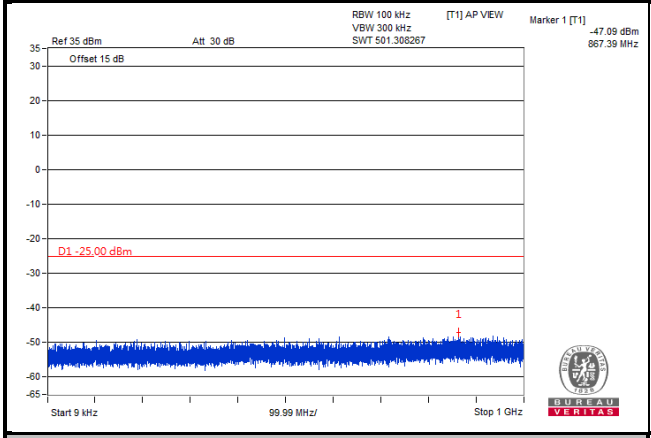
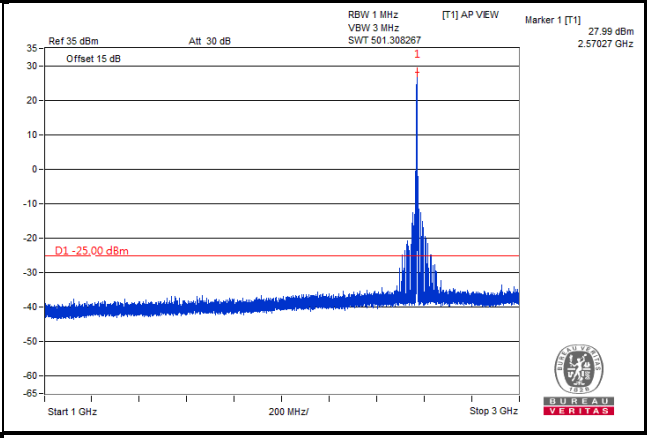
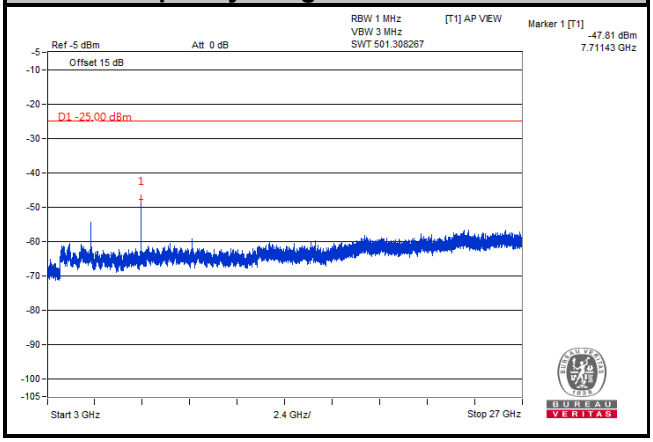
LTE Band 7	
Channel Bandwidth: 15 MHz	
Channel 21100	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

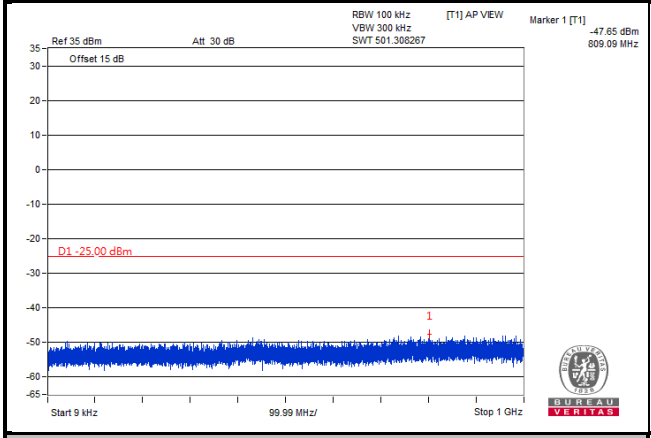
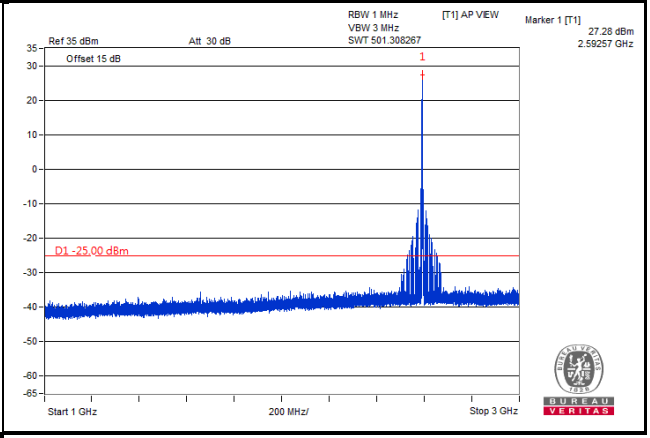
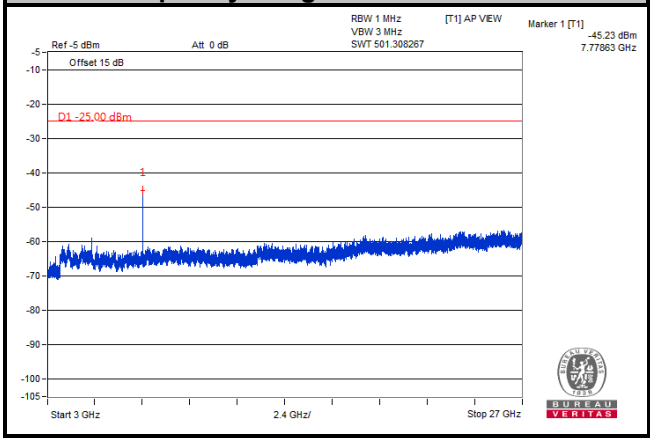
LTE Band 7	
Channel Bandwidth: 15 MHz	
Channel 21375	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

LTE Band 7	
Channel Bandwidth: 20 MHz	
Channel 20850	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

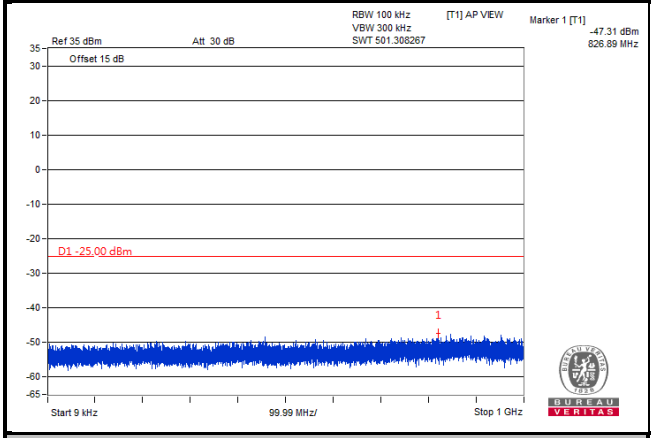
LTE Band 7	
Channel Bandwidth: 20 MHz	
Channel 21100	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

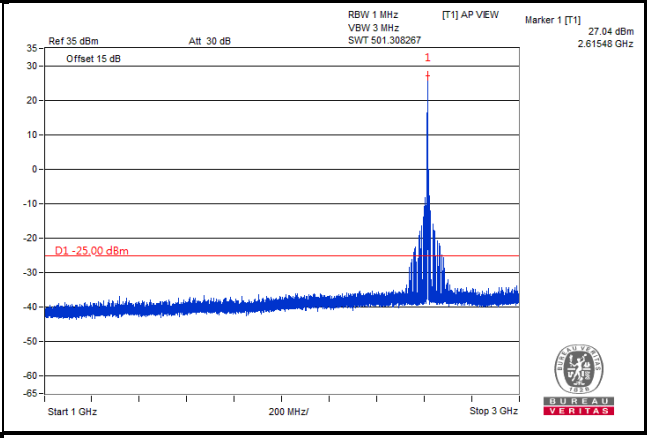
LTE Band 7	
Channel Bandwidth: 20 MHz	
Channel 21350	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

LTE Band 38	
Channel Bandwidth: 5 MHz	
Channel 37775	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

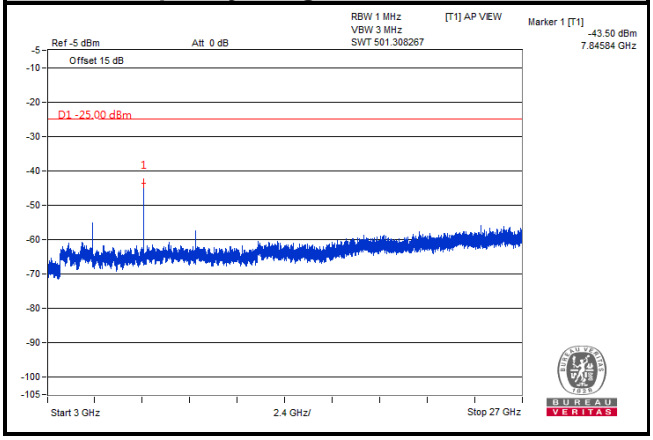
LTE Band 38	
Channel Bandwidth: 5 MHz	
Channel 38000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

LTE Band 38	
Channel Bandwidth: 5 MHz	
Channel 38225	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

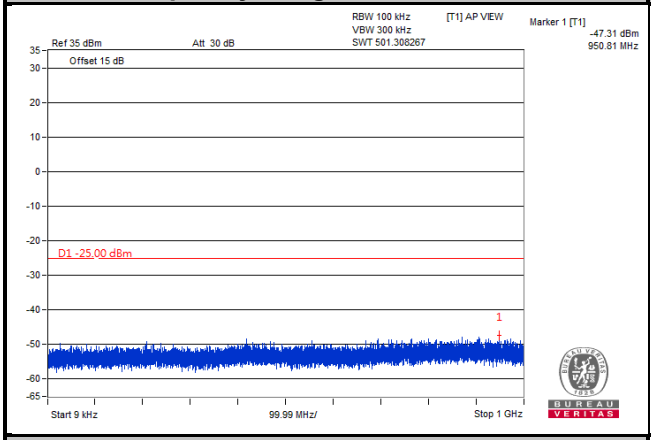


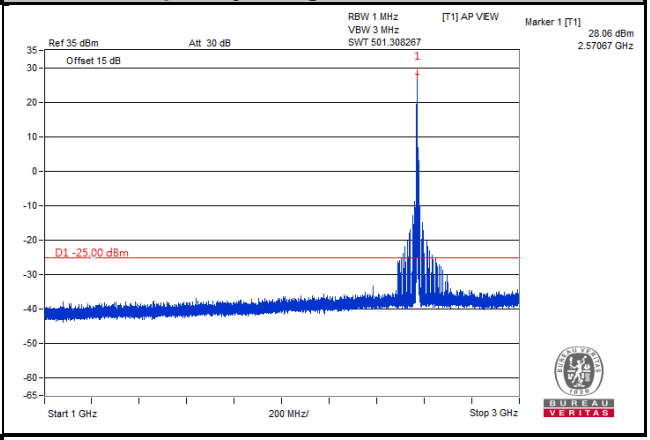


Frequency Range: 3 GHz ~ 27 GHz

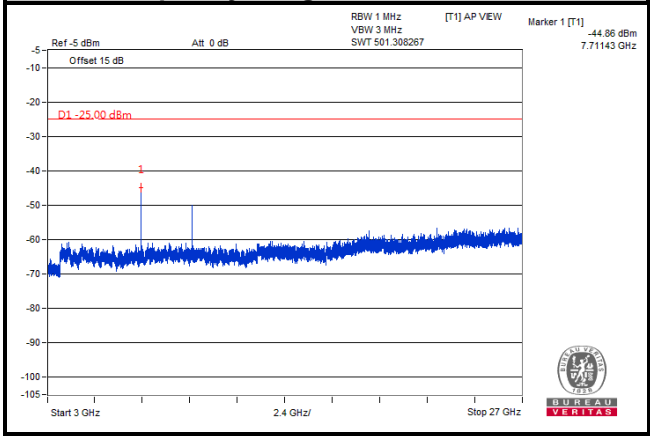


LTE Band 38	
Channel Bandwidth: 10 MHz	
Channel 37800	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

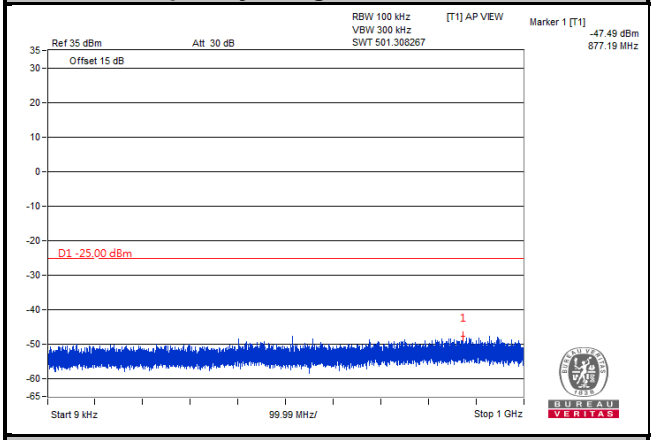


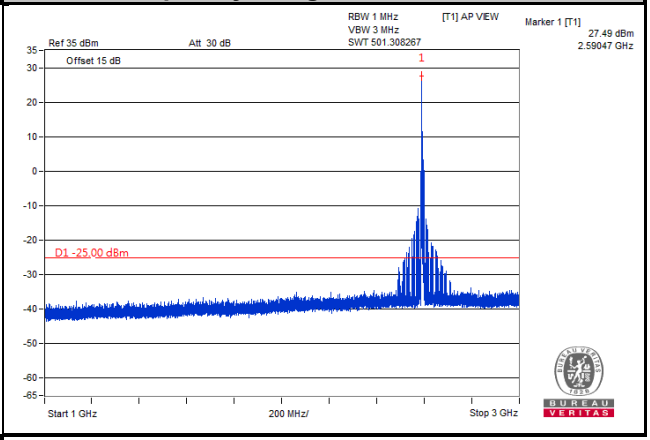


Frequency Range: 3 GHz ~ 27 GHz

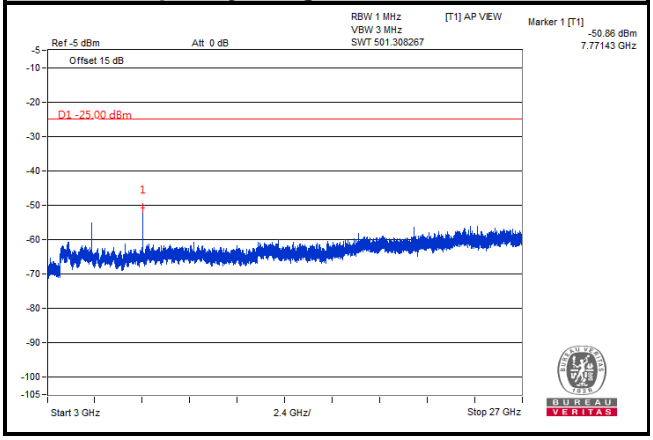


LTE Band 38	
Channel Bandwidth: 10 MHz	
Channel 38000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

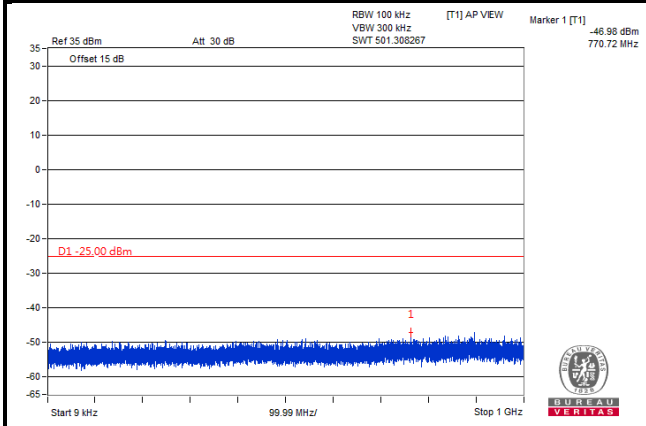


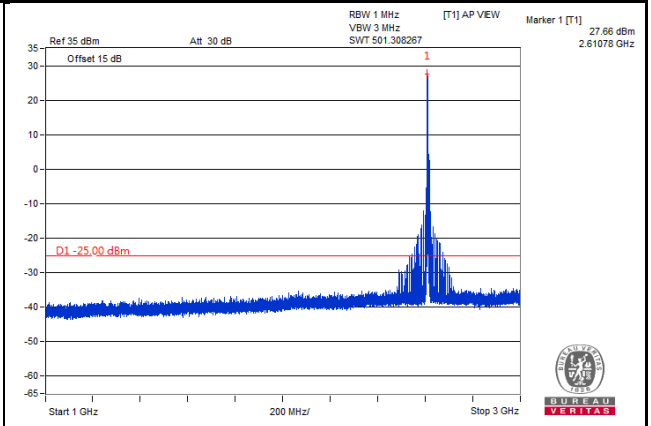


Frequency Range: 3 GHz ~ 27 GHz

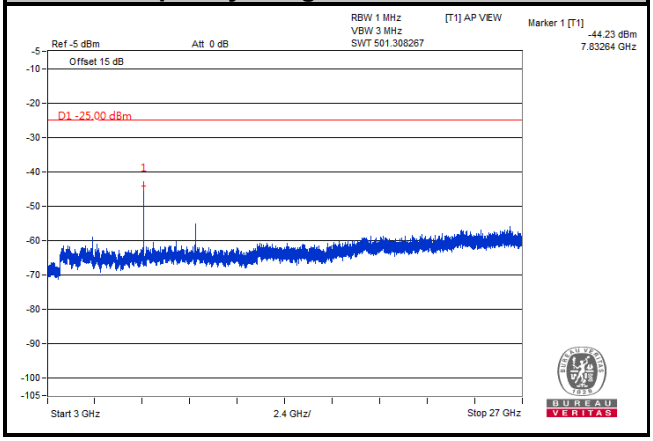


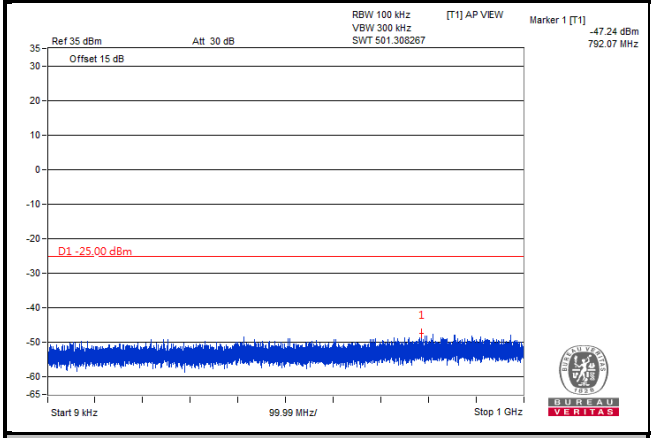
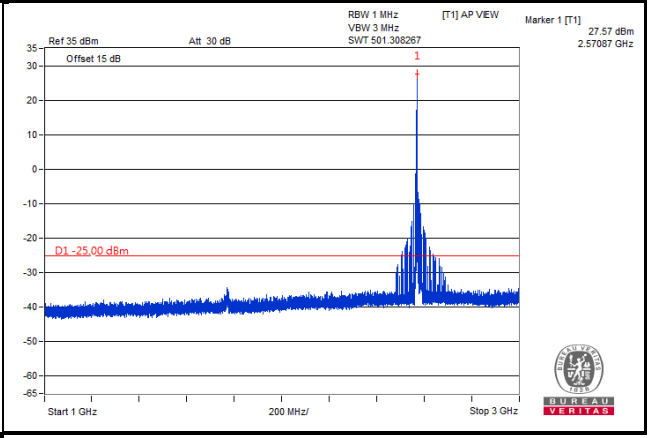
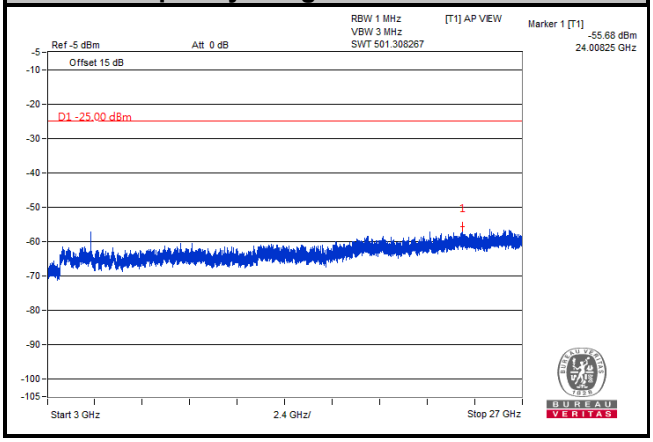
LTE Band 38	
Channel Bandwidth: 10 MHz	
Channel 38200	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

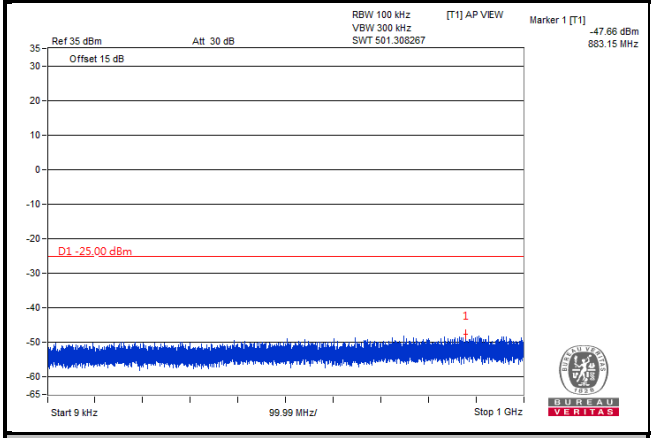
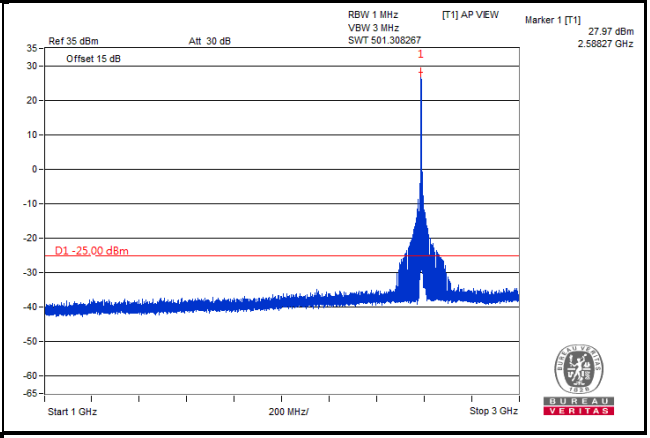
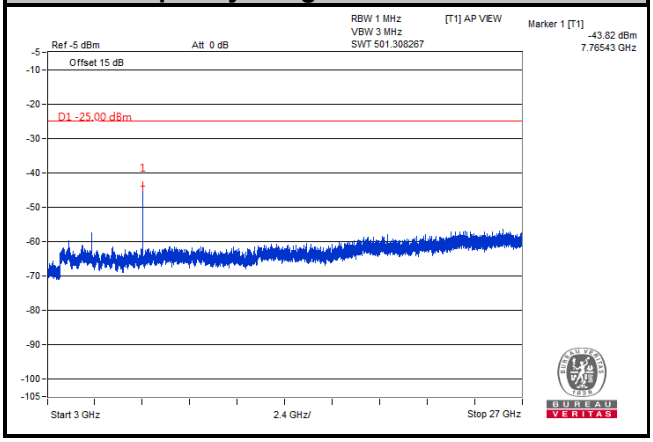


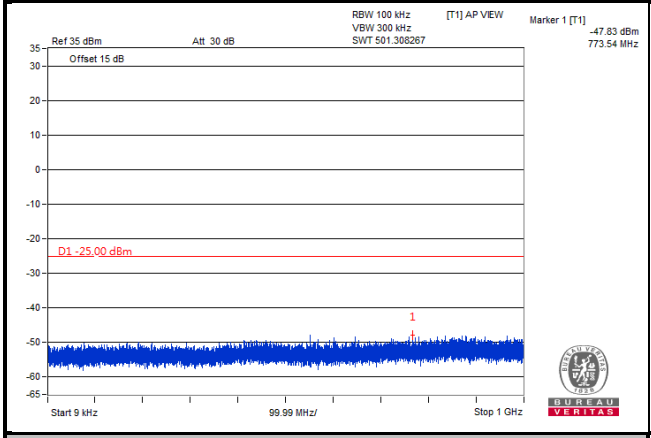
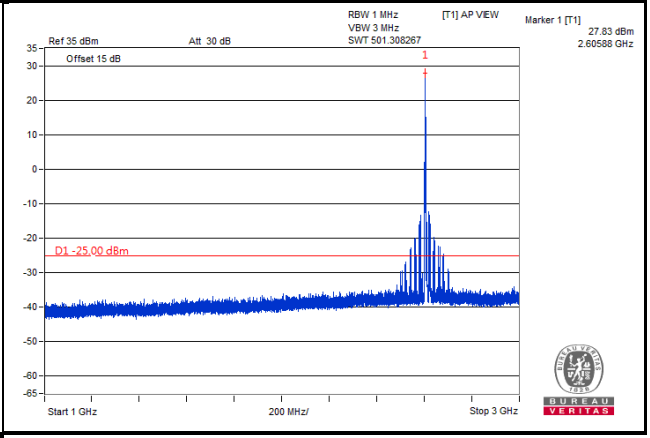
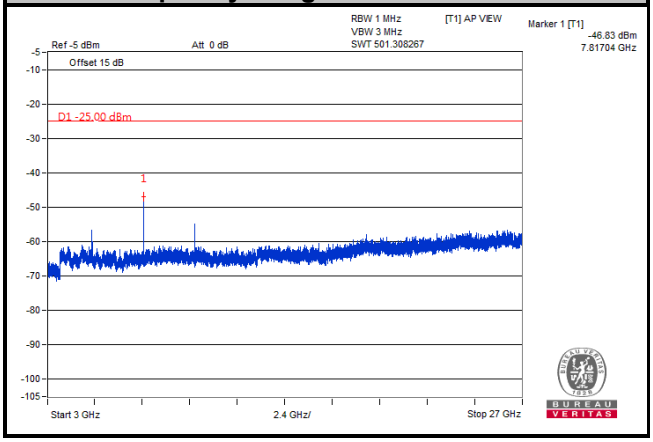


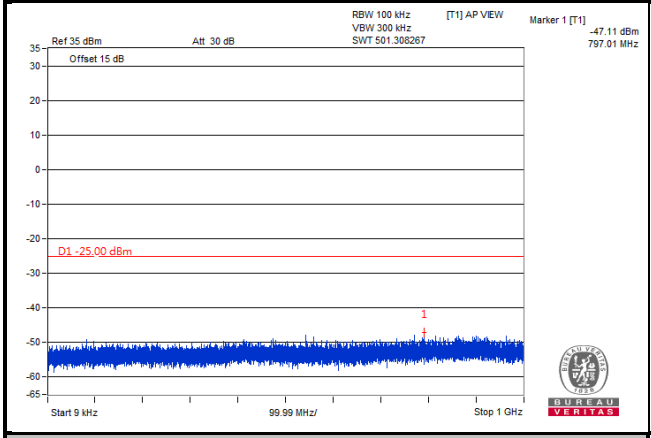
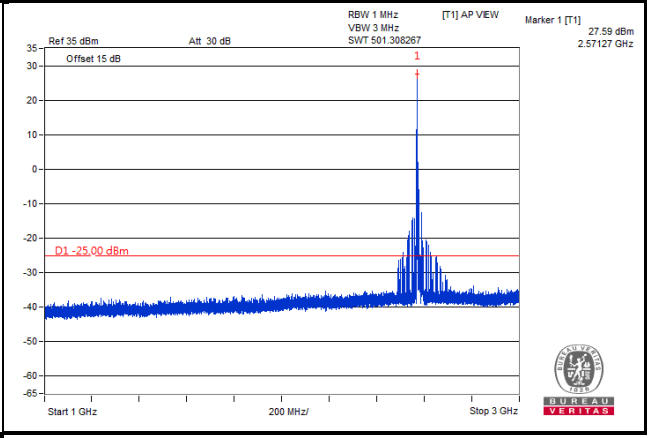
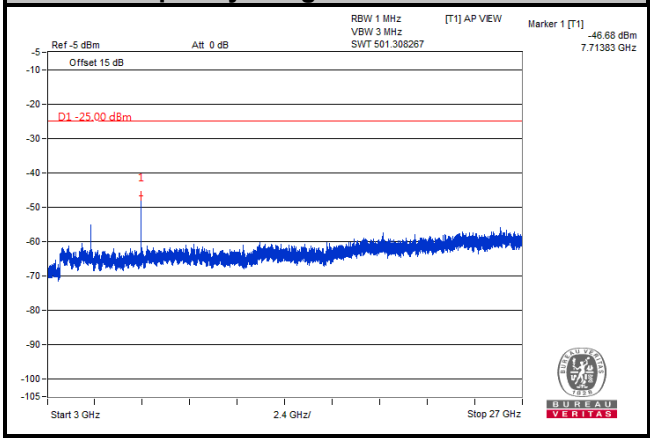
Frequency Range: 3 GHz ~ 27 GHz



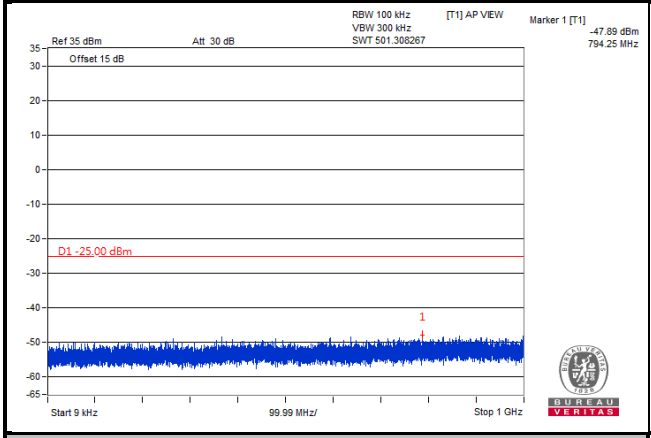
LTE Band 38	
Channel Bandwidth: 15 MHz	
Channel 37825	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

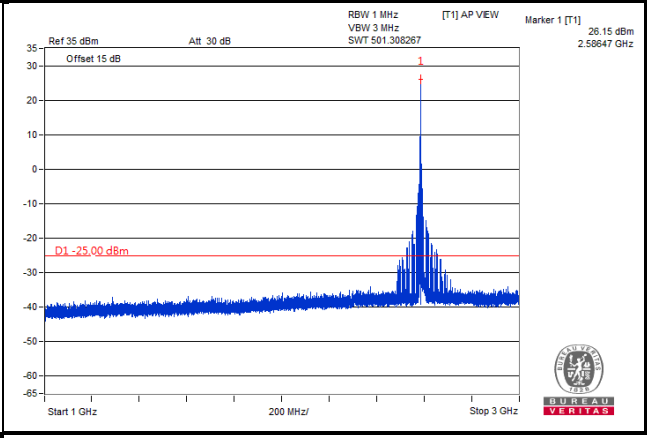
LTE Band 38	
Channel Bandwidth: 15 MHz	
Channel 38000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

LTE Band 38	
Channel Bandwidth: 15 MHz	
Channel 38175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

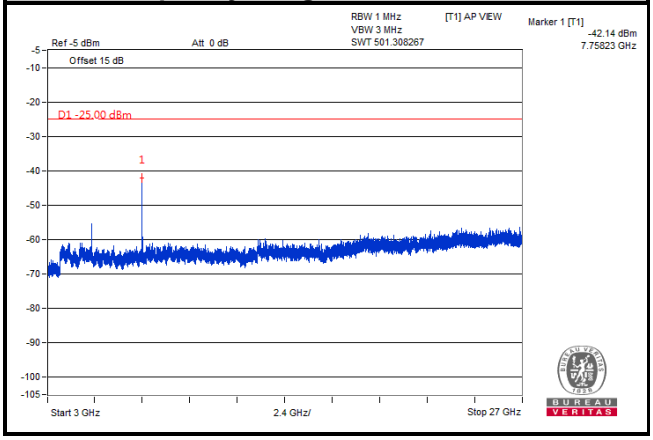
LTE Band 38	
Channel Bandwidth: 20 MHz	
Channel 37850	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

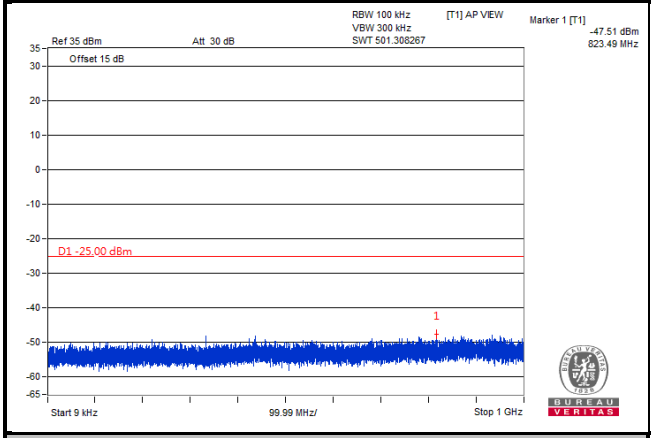
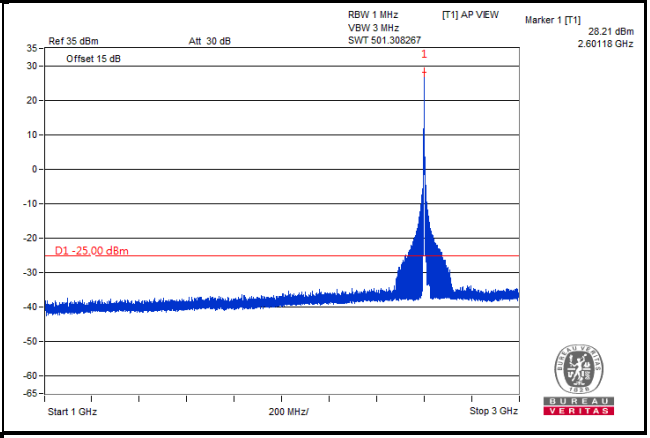
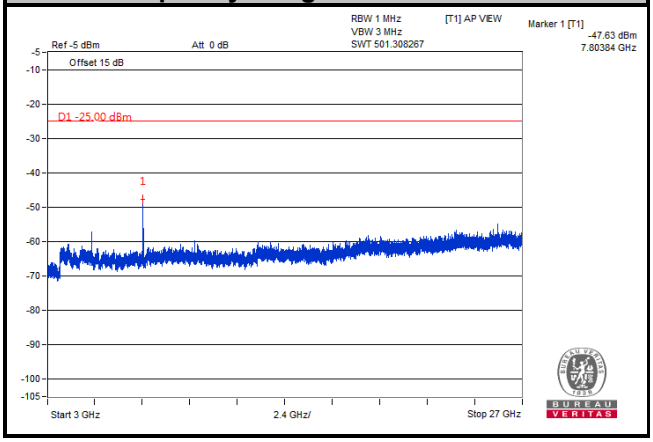
LTE Band 38	
Channel Bandwidth: 20 MHz	
Channel 38000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

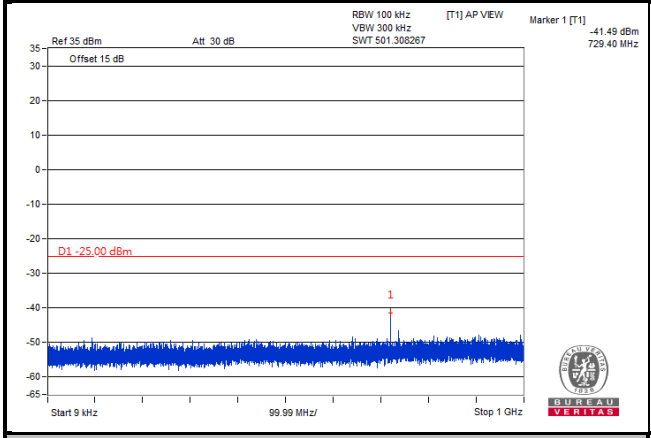
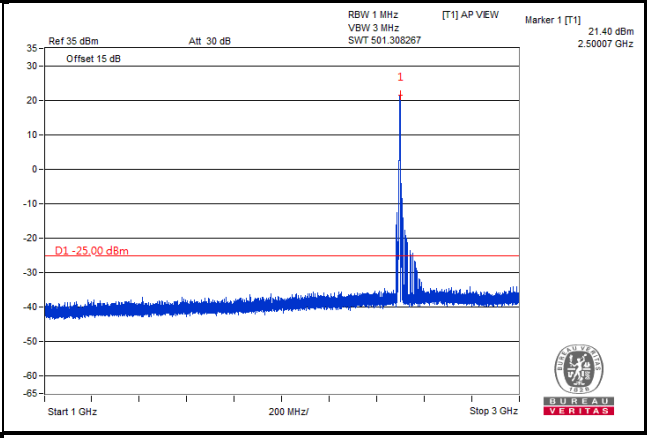
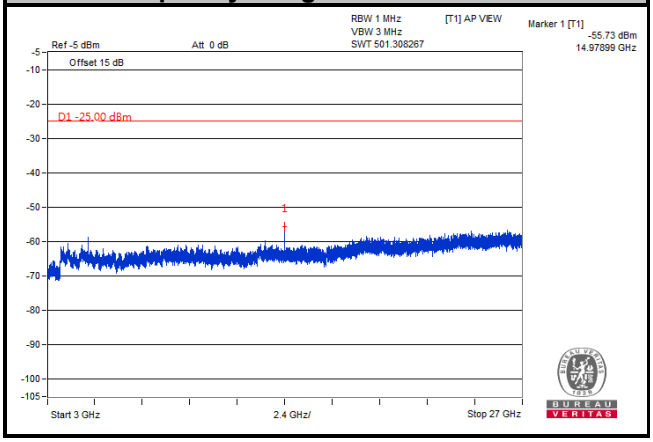




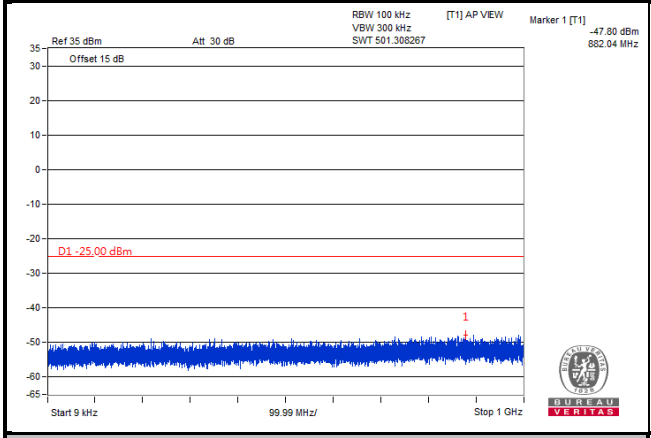
Frequency Range: 3 GHz ~ 27 GHz

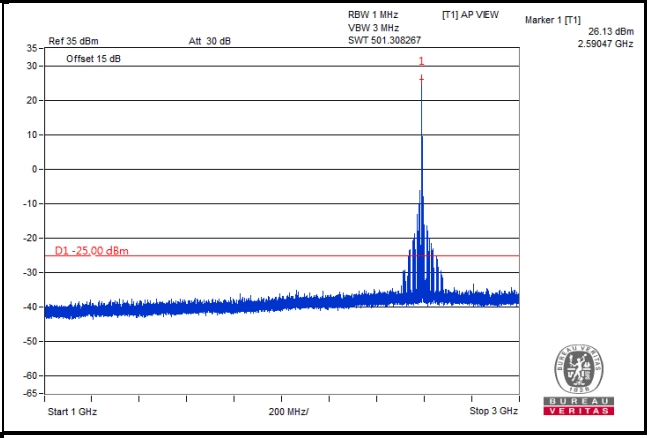


LTE Band 38	
Channel Bandwidth: 20 MHz	
Channel 38150	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

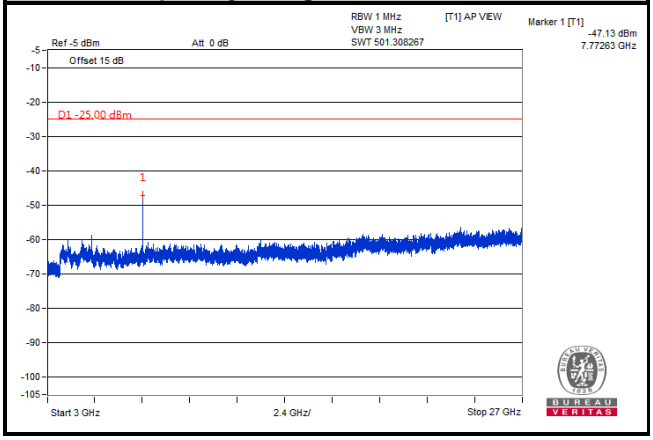
LTE Band 41	
Channel Bandwidth: 5 MHz	
Channel 39675	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

LTE Band 41	
Channel Bandwidth: 5 MHz	
Channel 40620	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

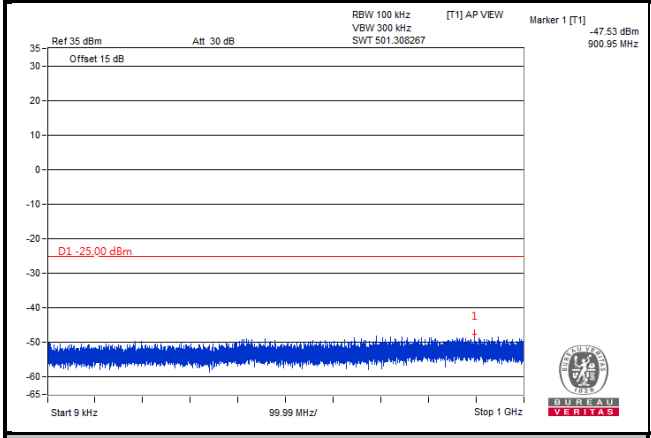


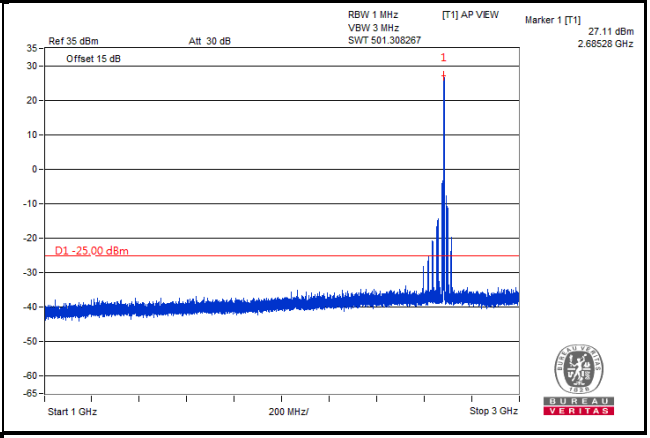


Frequency Range: 3 GHz ~ 27 GHz

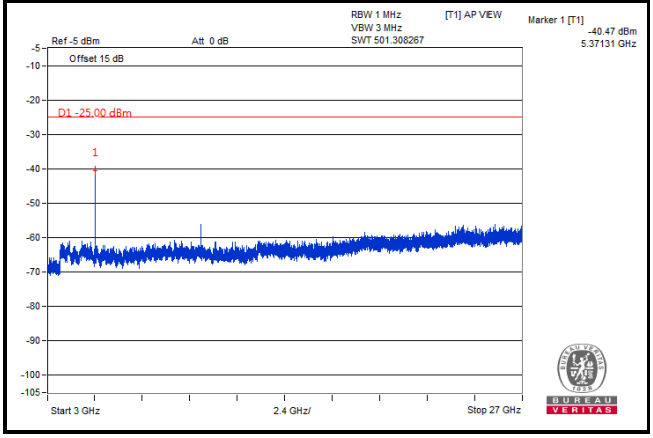


LTE Band 41	
Channel Bandwidth: 5 MHz	
Channel 41565	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

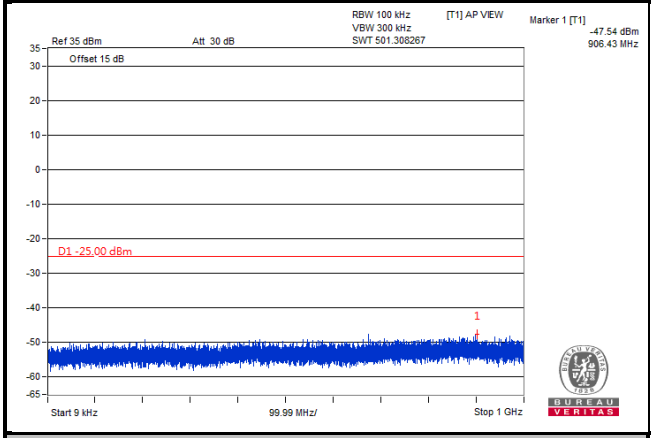


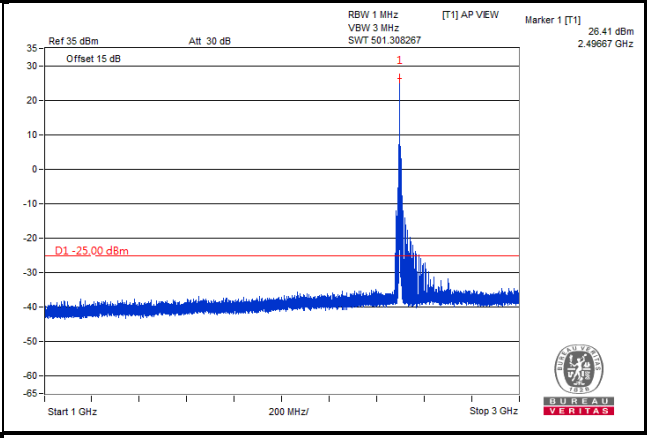


Frequency Range: 3 GHz ~ 27 GHz

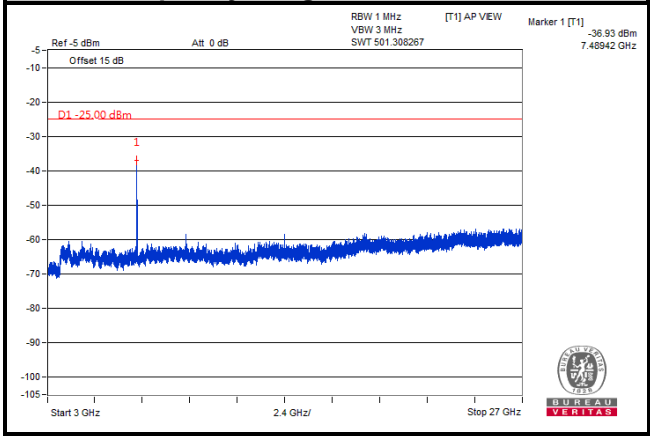


LTE Band 41	
Channel Bandwidth: 10 MHz	
Channel 39700	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

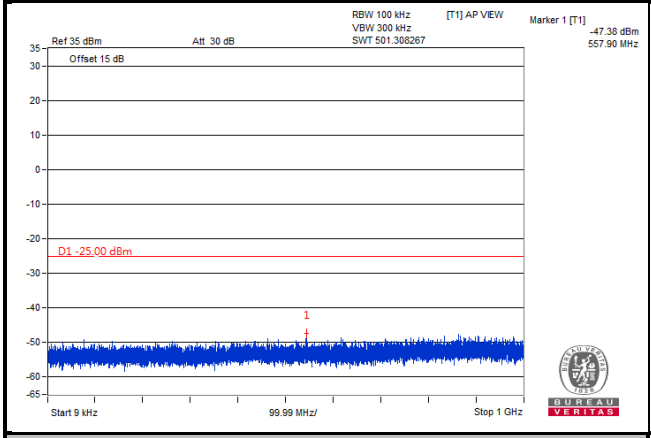


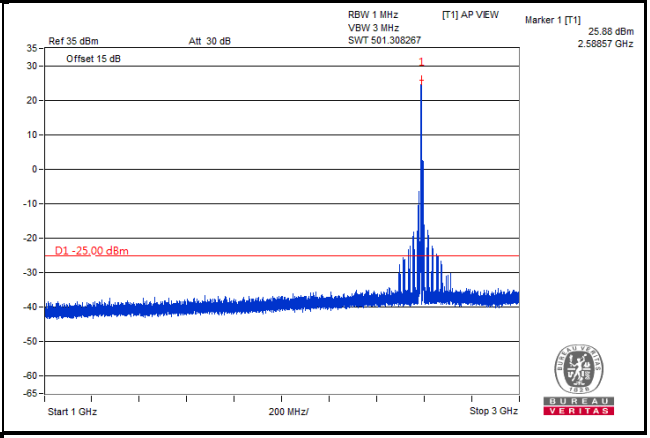


Frequency Range: 3 GHz ~ 27 GHz

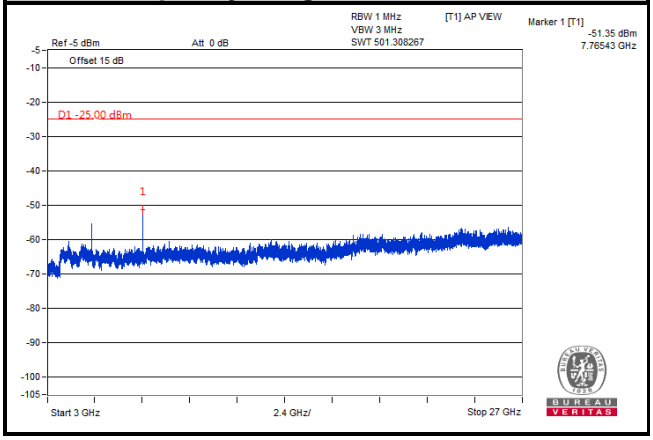


LTE Band 41	
Channel Bandwidth: 10 MHz	
Channel 40620	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

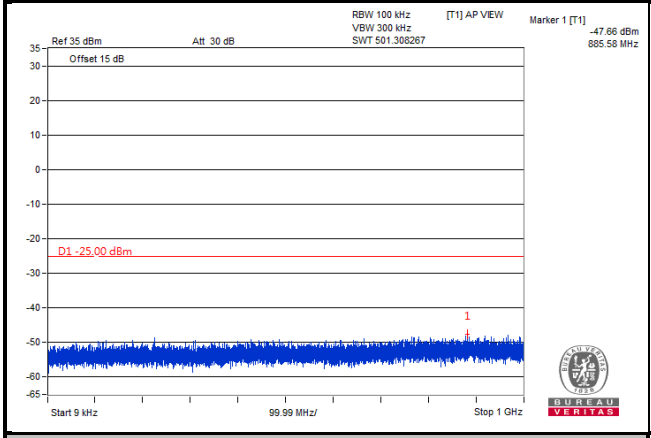


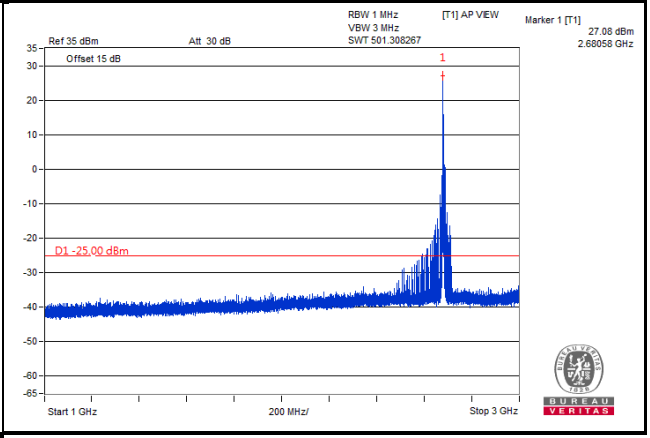


Frequency Range: 3 GHz ~ 27 GHz

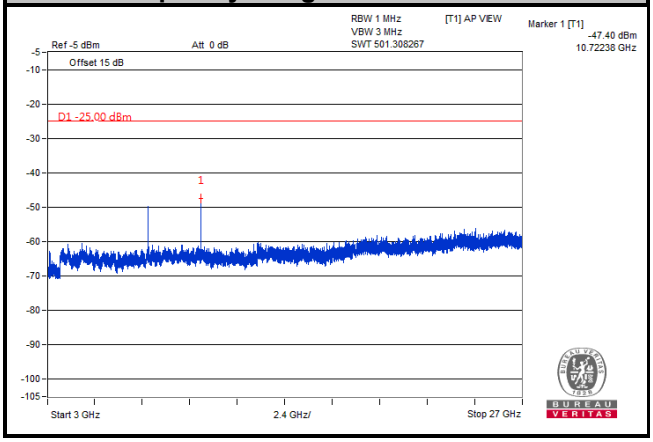


LTE Band 41	
Channel Bandwidth: 10 MHz	
Channel 41540	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

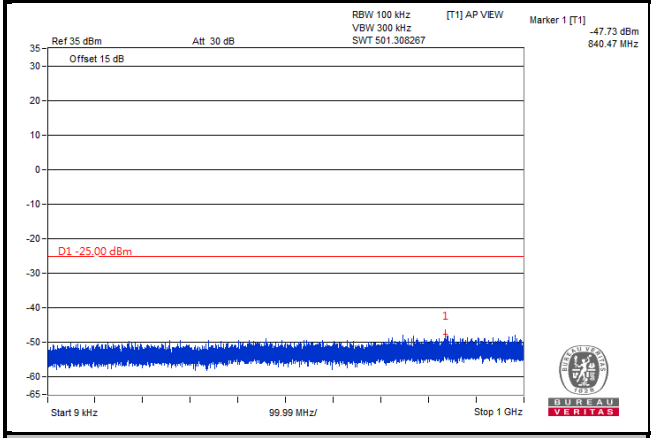


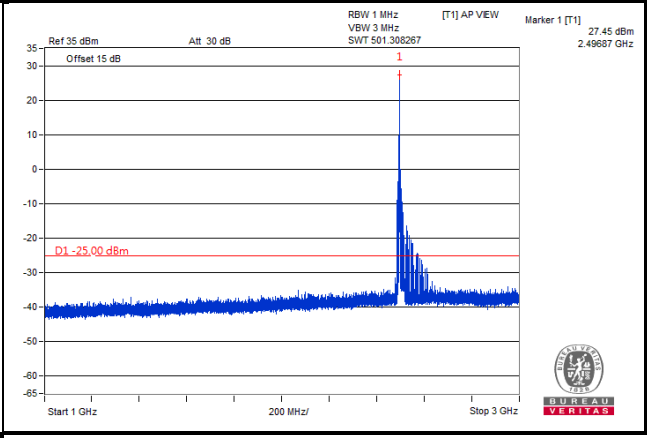


Frequency Range: 3 GHz ~ 27 GHz

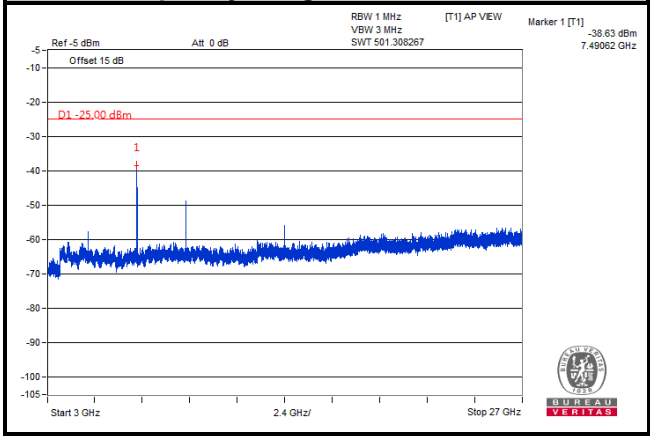


LTE Band 41	
Channel Bandwidth: 15 MHz	
Channel 39725	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

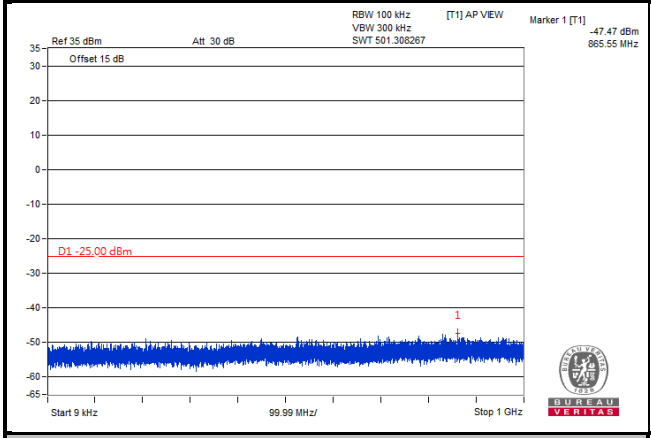


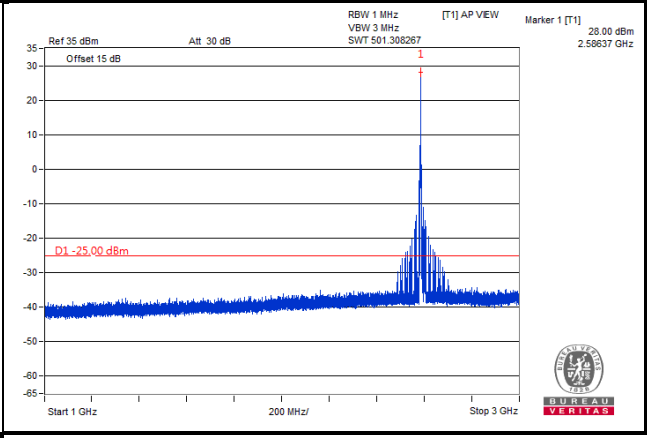


Frequency Range: 3 GHz ~ 27 GHz

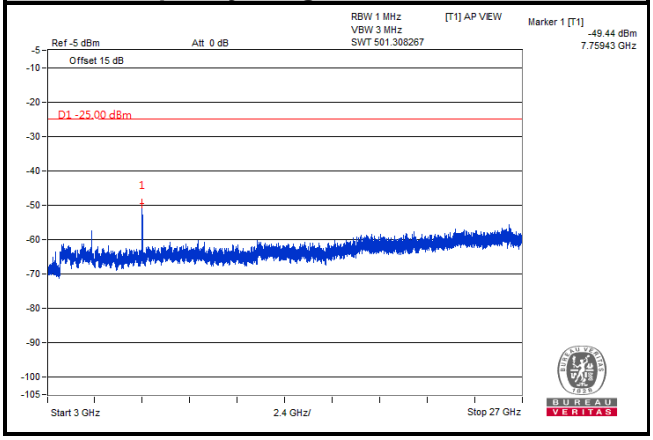


LTE Band 41	
Channel Bandwidth: 15 MHz	
Channel 40620	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

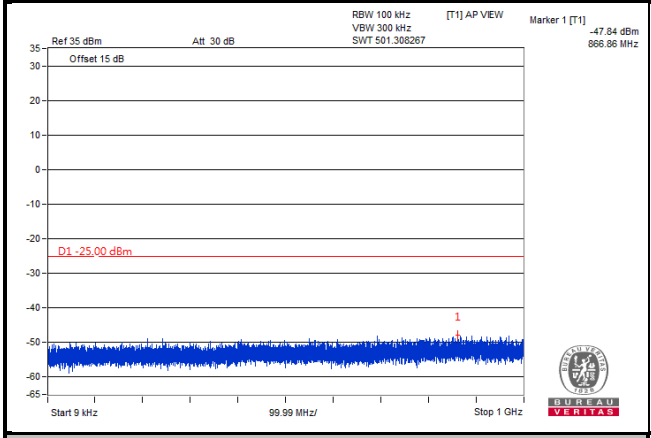


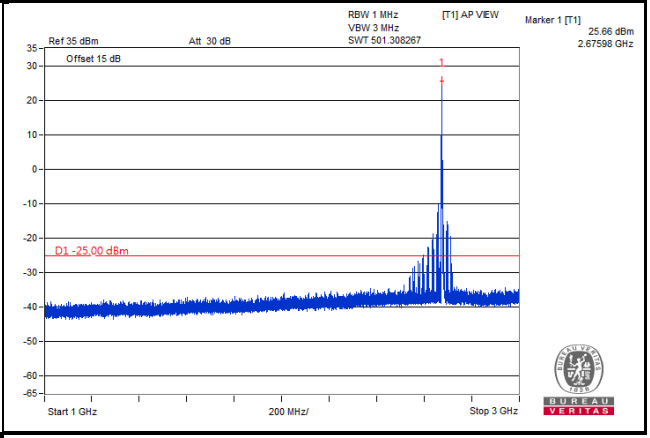


Frequency Range: 3 GHz ~ 27 GHz

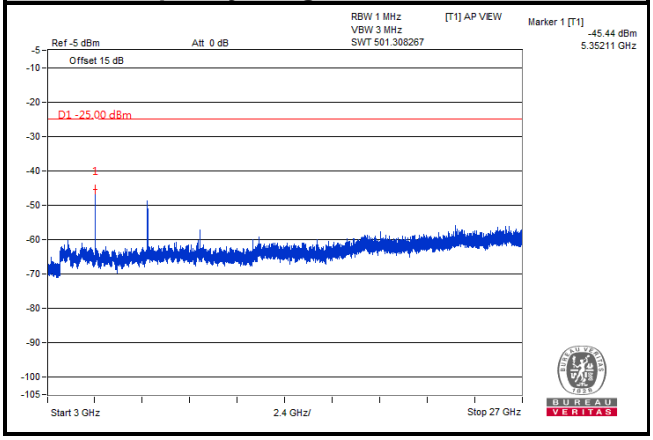


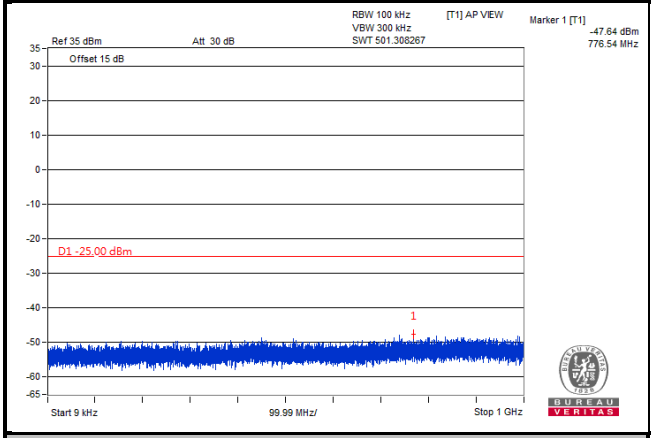
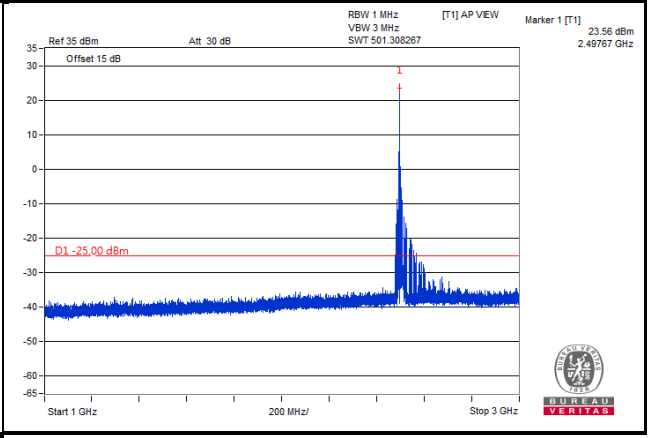
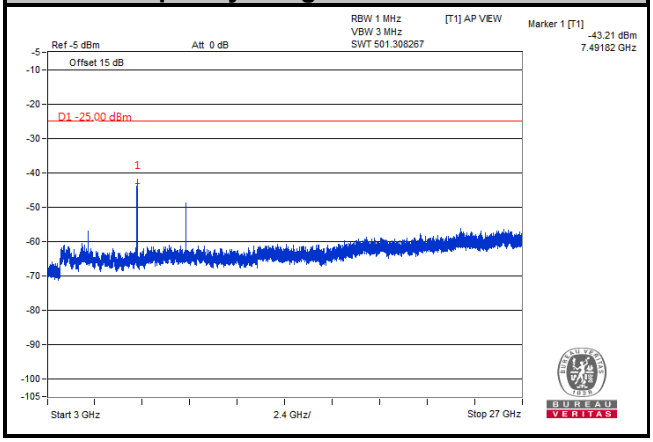
LTE Band 41	
Channel Bandwidth: 15 MHz	
Channel 41515	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz

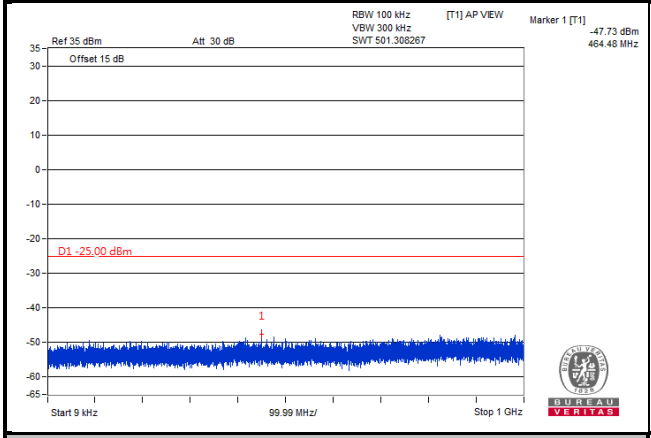
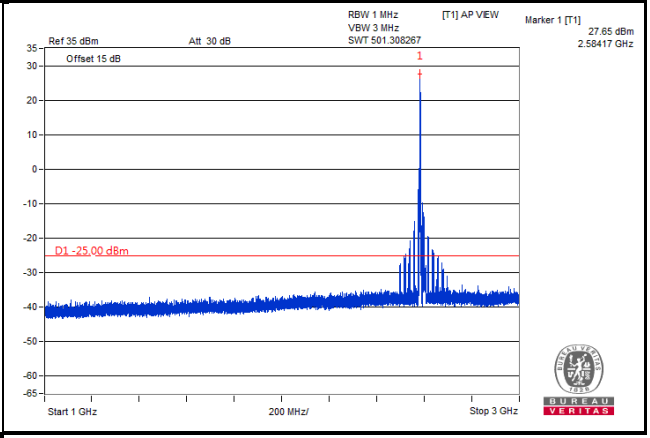
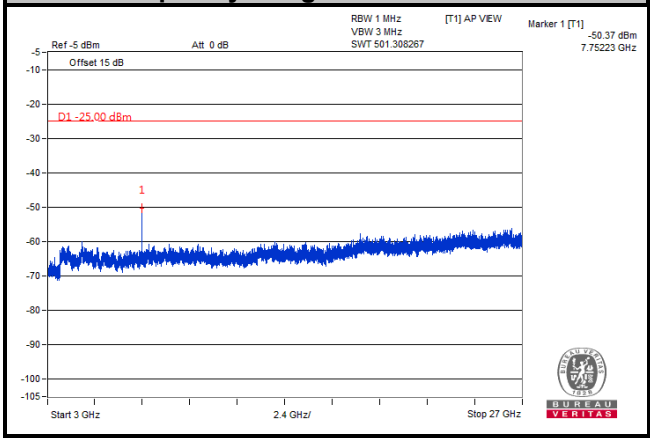




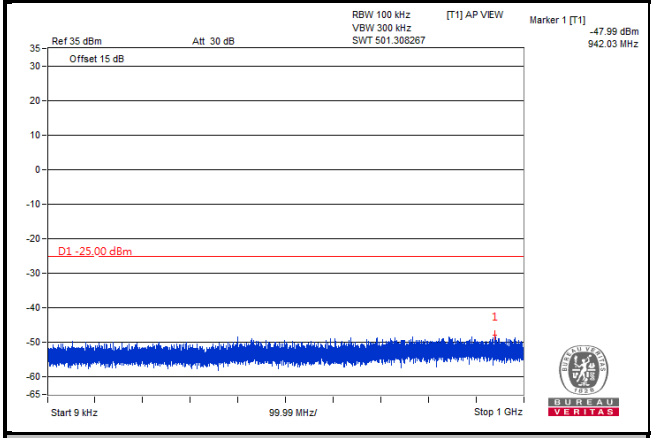
Frequency Range: 3 GHz ~ 27 GHz

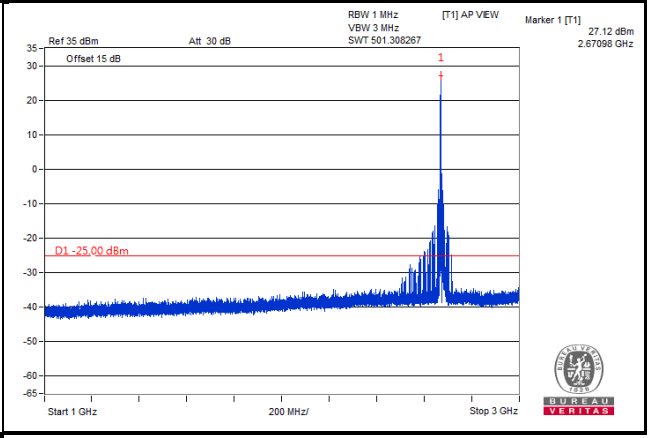


LTE Band 41	
Channel Bandwidth: 20 MHz	
Channel 39750	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

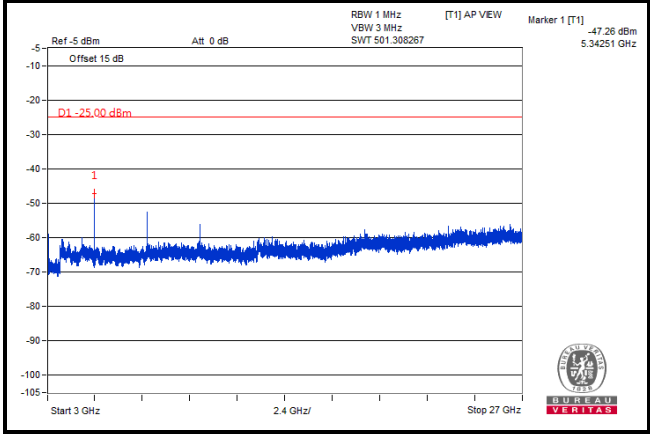
LTE Band 41	
Channel Bandwidth: 20 MHz	
Channel 40620	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
	
Frequency Range: 3 GHz ~ 27 GHz	
	

LTE Band 41	
Channel Bandwidth: 20 MHz	
Channel 41490	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz





Frequency Range: 3 GHz ~ 27 GHz



4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25 dBm.

4.8.2 Test Procedure

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

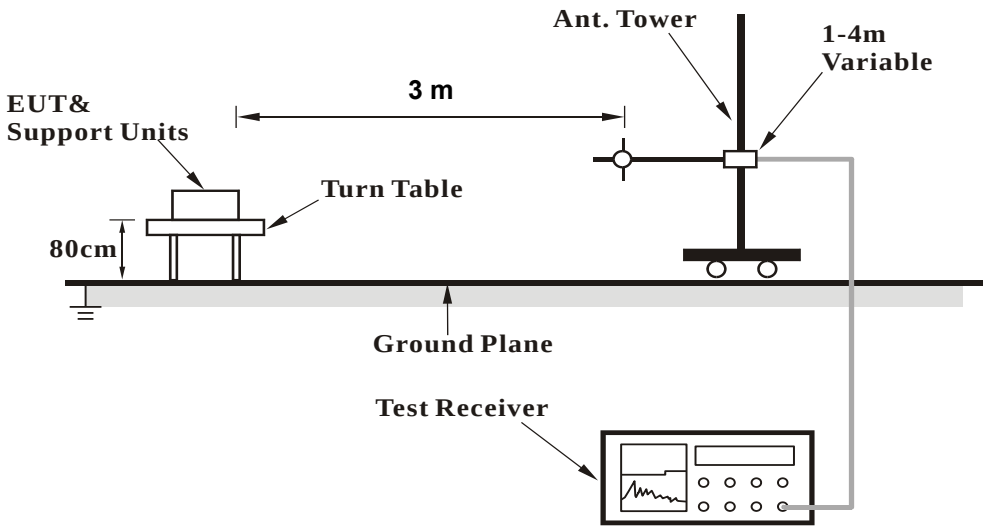
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.8.3 Deviation from Test Standard

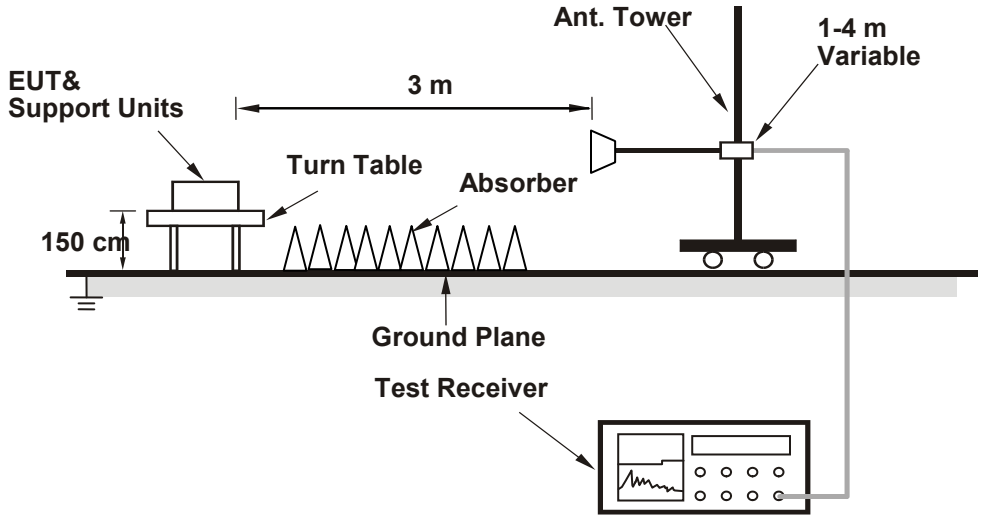
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.8.5 Test Results

LTE Band 7

Channel Bandwidth: 20 MHz / QPSK

Low Channel

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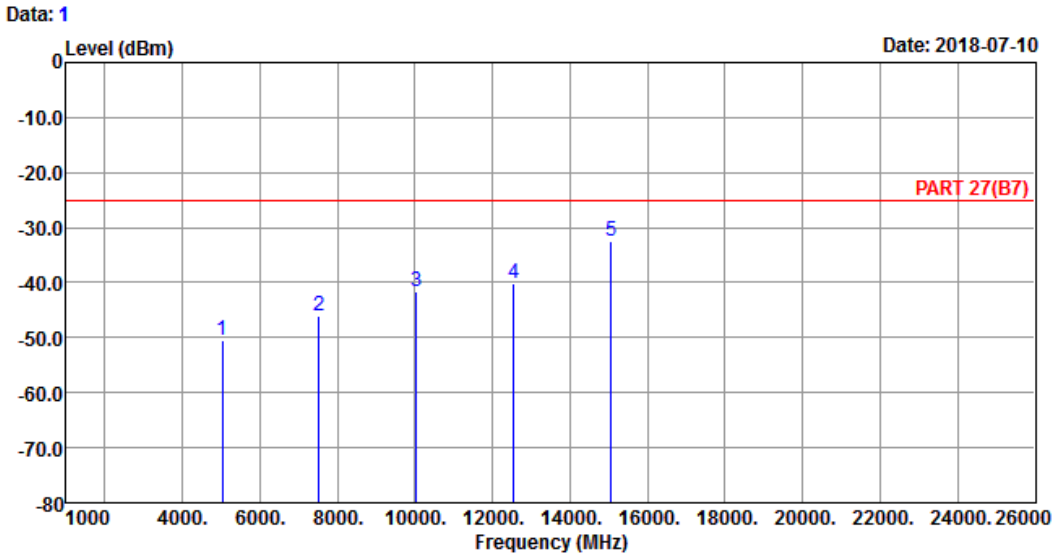
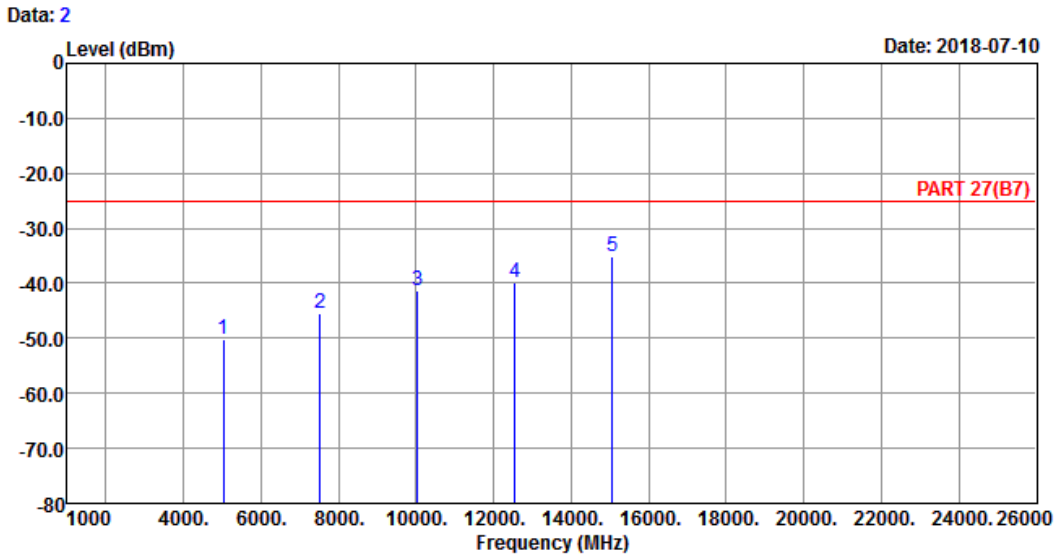


Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5020.00	-50.34	-48.02	-25.00	-25.34	-2.32	Peak
2	7530.00	-46.02	-50.30	-25.00	-21.02	4.28	Peak
3	10040.00	-41.56	-47.57	-25.00	-16.56	6.01	Peak
4	12550.00	-40.09	-48.36	-25.00	-15.09	8.27	Peak
5 pp	15060.00	-32.56	-43.60	-25.00	-7.56	11.04	Peak

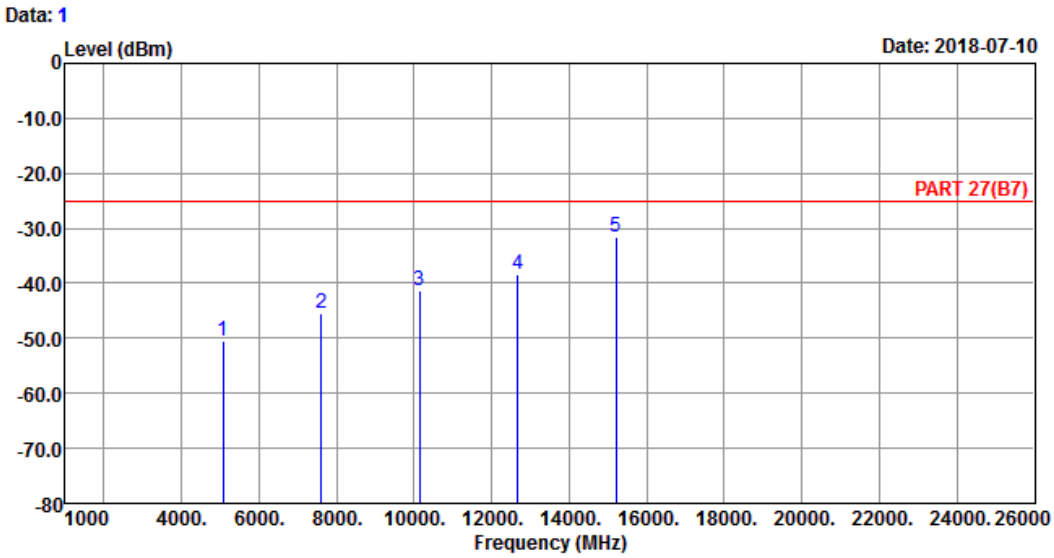


Site : 966 Chamber 5
Condition: PART 27(B7) VERTICAL
Remak : LTE Band 7 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5020.00	-50.13	-47.81	-25.00	-25.13	-2.32	Peak
2	7530.00	-45.35	-49.63	-25.00	-20.35	4.28	Peak
3	10040.00	-41.24	-47.25	-25.00	-16.24	6.01	Peak
4	12550.00	-39.79	-48.06	-25.00	-14.79	8.27	Peak
5 pp	15060.00	-35.26	-46.30	-25.00	-10.26	11.04	Peak

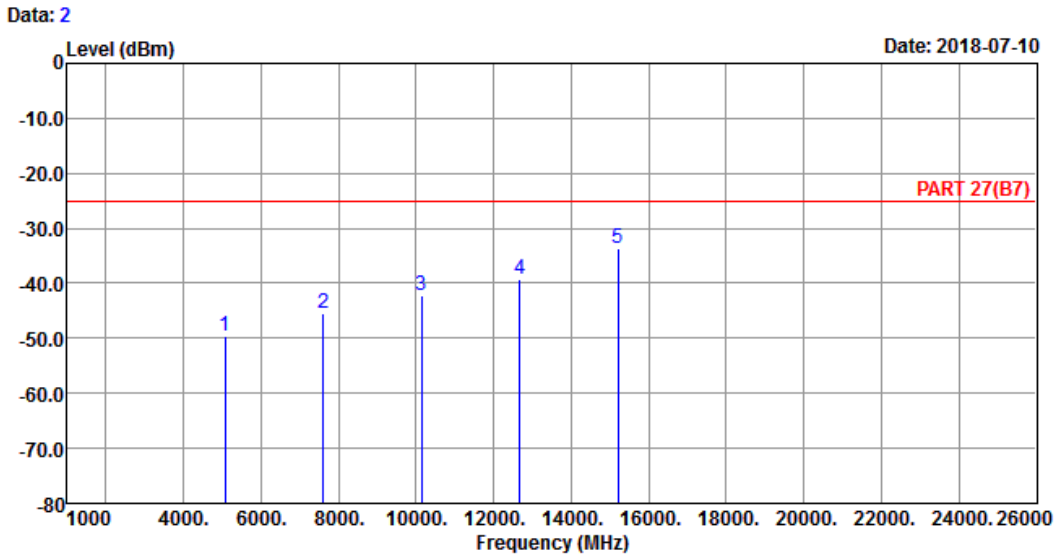
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_20M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5070.00	-50.34	-48.47	-25.00	-25.34	-1.87	Peak
2	7605.00	-45.48	-49.95	-25.00	-20.48	4.47	Peak
3	10140.00	-41.19	-47.17	-25.00	-16.19	5.98	Peak
4	12675.00	-38.26	-46.81	-25.00	-13.26	8.55	Peak
5 pp	15210.00	-31.52	-42.17	-25.00	-6.52	10.65	Peak



Site : 966 Chamber 5
Condition: PART 27(B7) VERTICAL
Remak : LTE Band 7 QPSK_20M Link_M-CH
Tested by: Thomas Wei

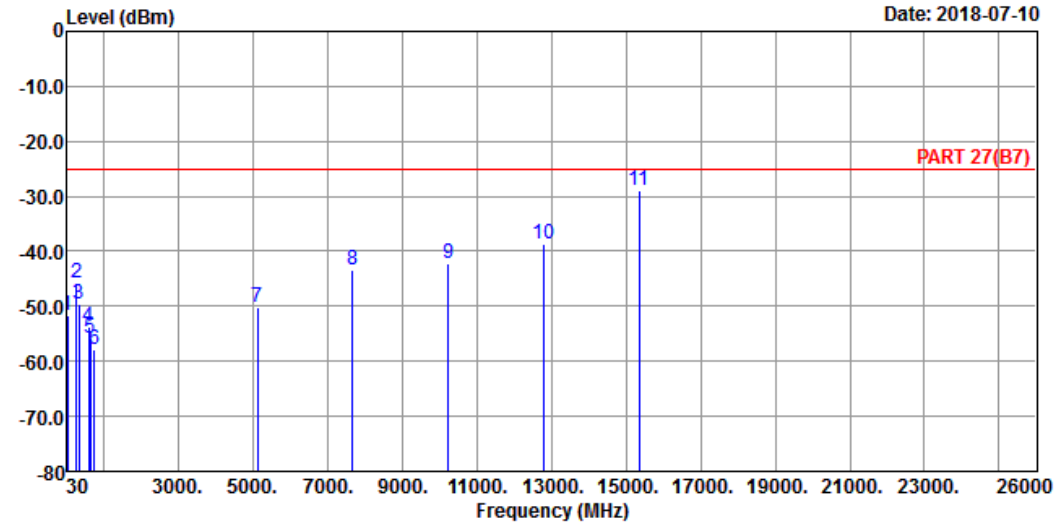
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5070.00	-49.63	-47.76	-25.00	-24.63	-1.87	Peak
2	7605.00	-45.43	-49.90	-25.00	-20.43	4.47	Peak
3	10140.00	-42.28	-48.26	-25.00	-17.28	5.98	Peak
4	12675.00	-39.18	-47.73	-25.00	-14.18	8.55	Peak
5 pp	15210.00	-33.67	-44.32	-25.00	-8.67	10.65	Peak

High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

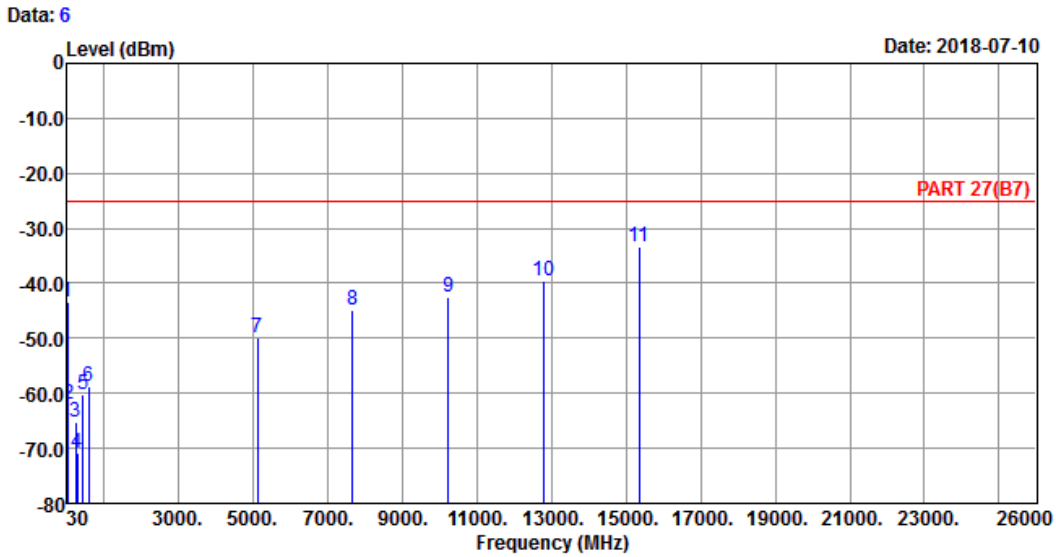
A D T

Data: 5



Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_20M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-51.67	-49.68	-25.00	-26.67	-1.99	Peak
2	286.08	-45.64	-38.91	-25.00	-20.64	-6.73	Peak
3	338.46	-49.60	-43.18	-25.00	-24.60	-6.42	Peak
4	598.42	-53.73	-52.90	-25.00	-28.73	-0.83	Peak
5	649.83	-55.87	-54.99	-25.00	-30.87	-0.88	Peak
6	754.59	-57.76	-58.63	-25.00	-32.76	0.87	Peak
7	5120.00	-50.33	-48.67	-25.00	-25.33	-1.66	Peak
8	7680.00	-43.47	-48.09	-25.00	-18.47	4.62	Peak
9	10240.00	-42.19	-48.13	-25.00	-17.19	5.94	Peak
10	12800.00	-38.77	-47.53	-25.00	-13.77	8.76	Peak
11 pp	15360.00	-28.88	-39.23	-25.00	-3.88	10.35	Peak



Site : 966 Chamber 5
Condition: PART 27(B7) VERTICAL
Remak : LTE Band 7 QPSK_20M Link_H-CH
Tested by: Thomas Wei

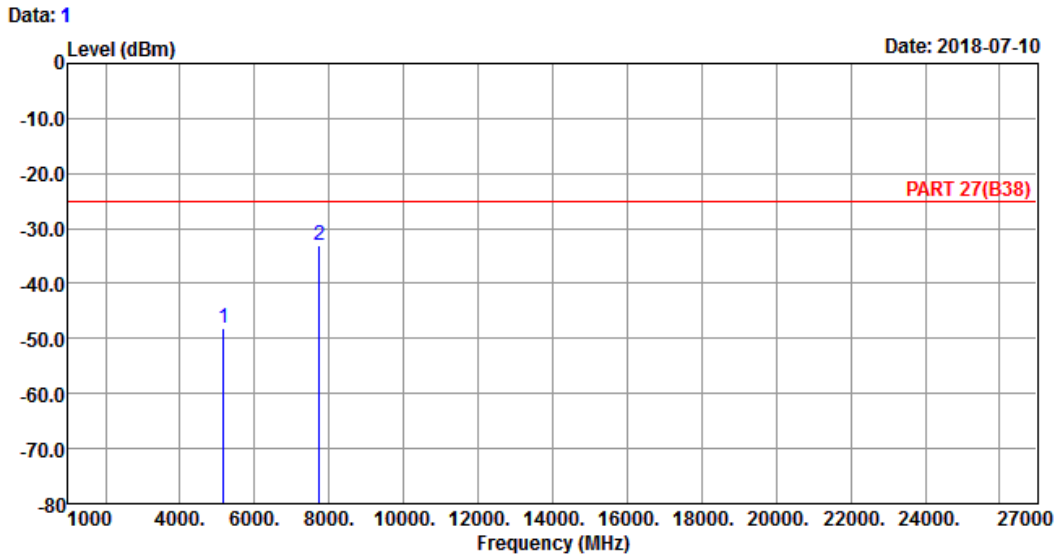
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	42.61	-43.54	-42.60	-25.00	-18.54	-0.94	Peak
2	64.92	-61.99	-53.96	-25.00	-36.99	-8.03	Peak
3	252.13	-65.21	-59.18	-25.00	-40.21	-6.03	Peak
4	301.60	-70.79	-63.81	-25.00	-45.79	-6.98	Peak
5	442.25	-60.21	-54.60	-25.00	-35.21	-5.61	Peak
6	598.42	-58.77	-57.94	-25.00	-33.77	-0.83	Peak
7	5120.00	-49.97	-48.31	-25.00	-24.97	-1.66	Peak
8	7680.00	-44.80	-49.42	-25.00	-19.80	4.62	Peak
9	10240.00	-42.37	-48.31	-25.00	-17.37	5.94	Peak
10	12800.00	-39.48	-48.24	-25.00	-14.48	8.76	Peak
11 pp	15360.00	-33.42	-43.77	-25.00	-8.42	10.35	Peak

LTE Band 38

Channel Bandwidth: 20 MHz / QPSK

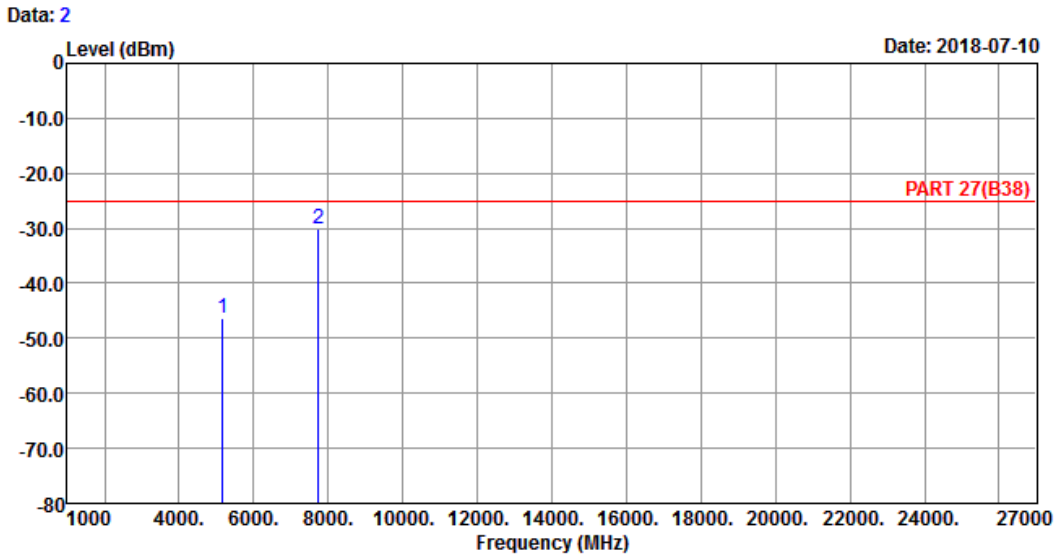
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5160.00	-48.15	-46.24	-25.00	-23.15	-1.91	Peak
2 pp	7740.00	-32.92	-37.60	-25.00	-7.92	4.68	Peak

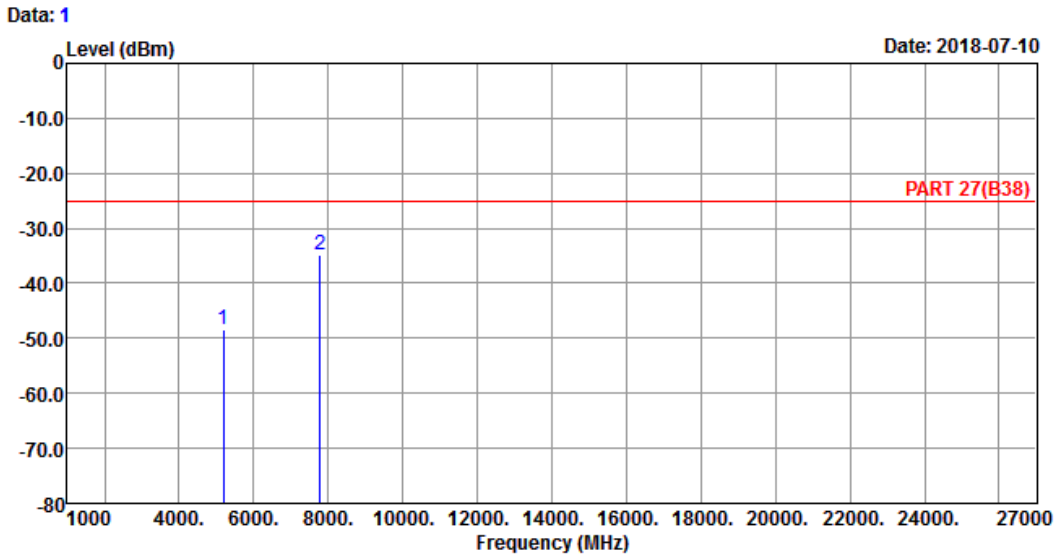


Site : 966 Chamber 5
Condition: PART 27(B38) VERTICAL
Remak : LTE Band 38 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5160.00	-46.34	-44.43	-25.00	-21.34	-1.91	Peak
2 pp	7740.00	-30.14	-34.82	-25.00	-5.14	4.68	Peak

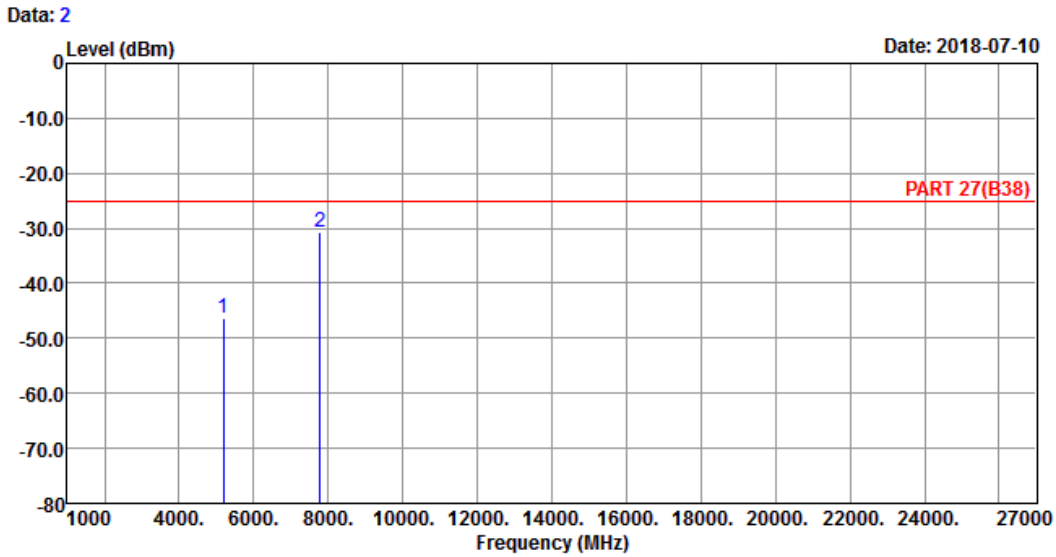
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_20M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5190.00	-48.37	-46.30	-25.00	-23.37	-2.07	Peak
2 pp	7785.00	-34.88	-39.62	-25.00	-9.88	4.74	Peak

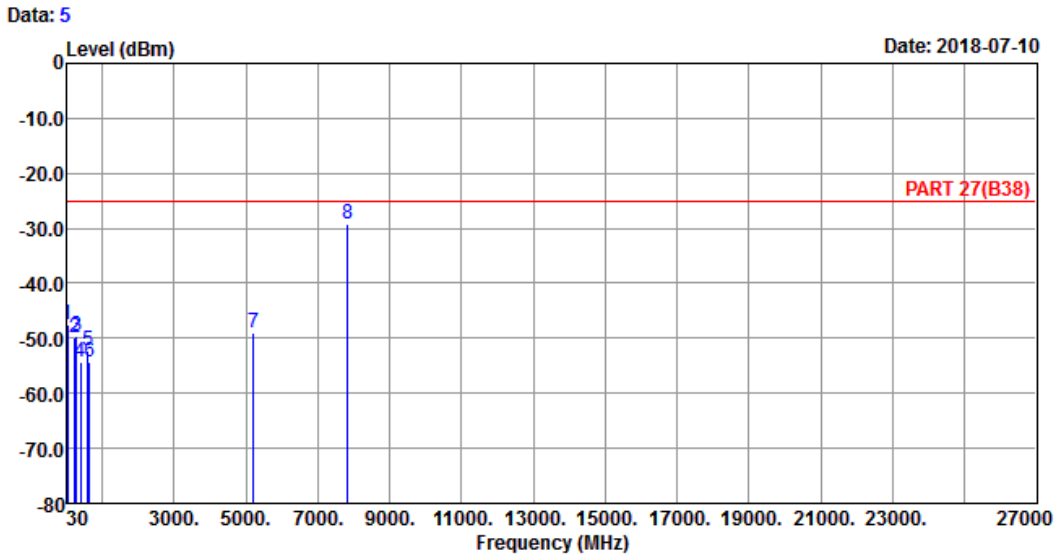


Site : 966 Chamber 5
Condition: PART 27(B38) VERTICAL
Remak : LTE Band 38 QPSK_20M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5190.00	-46.29	-44.22	-25.00	-21.29	-2.07	Peak
2 pp	7785.00	-30.77	-35.51	-25.00	-5.77	4.74	Peak

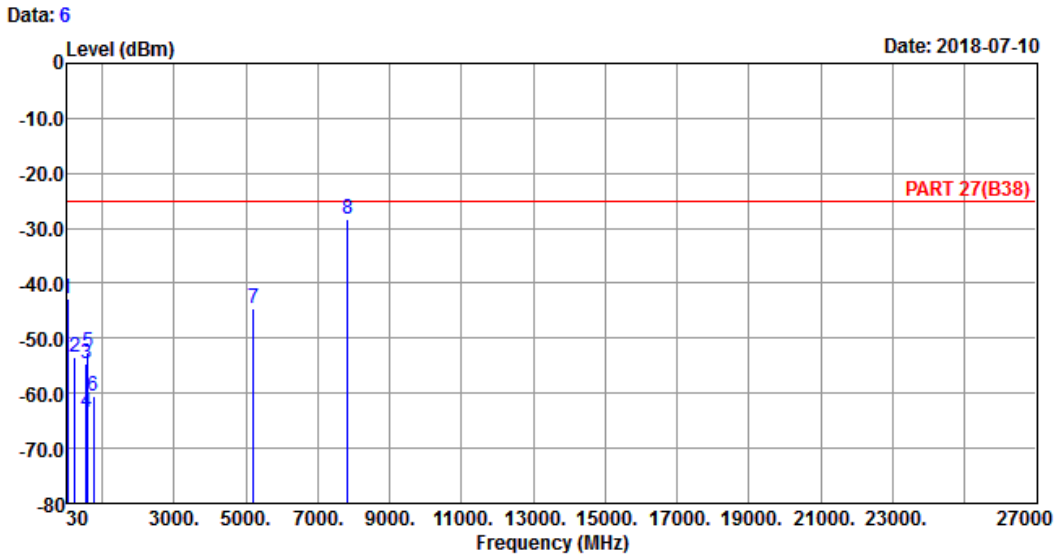
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_20M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-47.43	-45.44	-25.00	-22.43	-1.99	Peak
2	234.67	-49.78	-43.16	-25.00	-24.78	-6.62	Peak
3	286.08	-49.69	-42.96	-25.00	-24.69	-6.73	Peak
4	389.87	-54.35	-48.35	-25.00	-29.35	-6.00	Peak
5	598.42	-52.29	-51.46	-25.00	-27.29	-0.83	Peak
6	650.80	-54.26	-53.39	-25.00	-29.26	-0.87	Peak
7	5220.00	-49.12	-46.82	-25.00	-24.12	-2.30	Peak
8 pp	7830.00	-29.26	-34.13	-25.00	-4.26	4.87	Peak



Site : 966 Chamber 5
Condition: PART 27(B38) VERTICAL
Remak : LTE Band 38 QPSK_20M Link_H-CH
Tested by: Thomas Wei

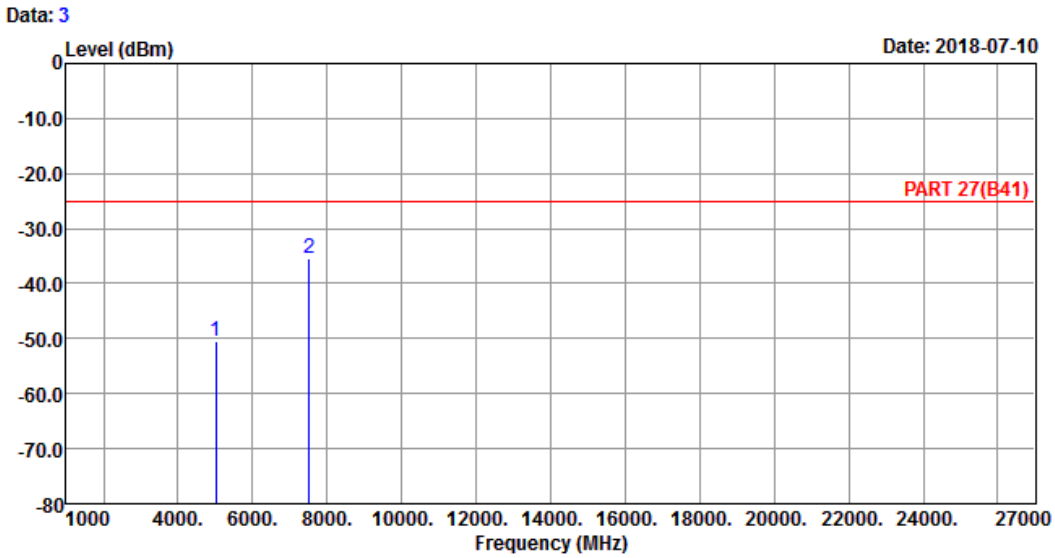
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	42.61	-42.74	-41.80	-25.00	-17.74	-0.94	Peak
2	234.67	-53.46	-46.84	-25.00	-28.46	-6.62	Peak
3	546.04	-54.71	-51.72	-25.00	-29.71	-2.99	Peak
4	587.75	-63.51	-62.23	-25.00	-38.51	-1.28	Peak
5	598.42	-52.46	-51.63	-25.00	-27.46	-0.83	Peak
6	754.59	-60.52	-61.39	-25.00	-35.52	0.87	Peak
7	5220.00	-44.53	-42.23	-25.00	-19.53	-2.30	Peak
8 pp	7830.00	-28.45	-33.32	-25.00	-3.45	4.87	Peak

LTE Band 41

Channel Bandwidth: 20 MHz / QPSK

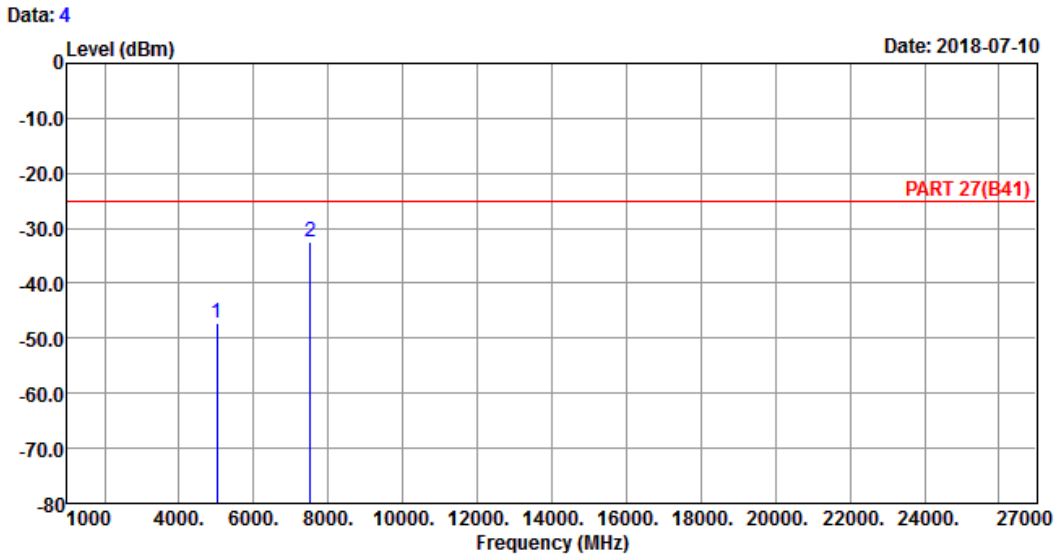
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART 27(B41) HORIZONTAL
Remak : LTE Band 41 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5012.00	-50.37	-47.91	-25.00	-25.37	-2.46	Peak
2 pp	7518.00	-35.40	-39.61	-25.00	-10.40	4.21	Peak

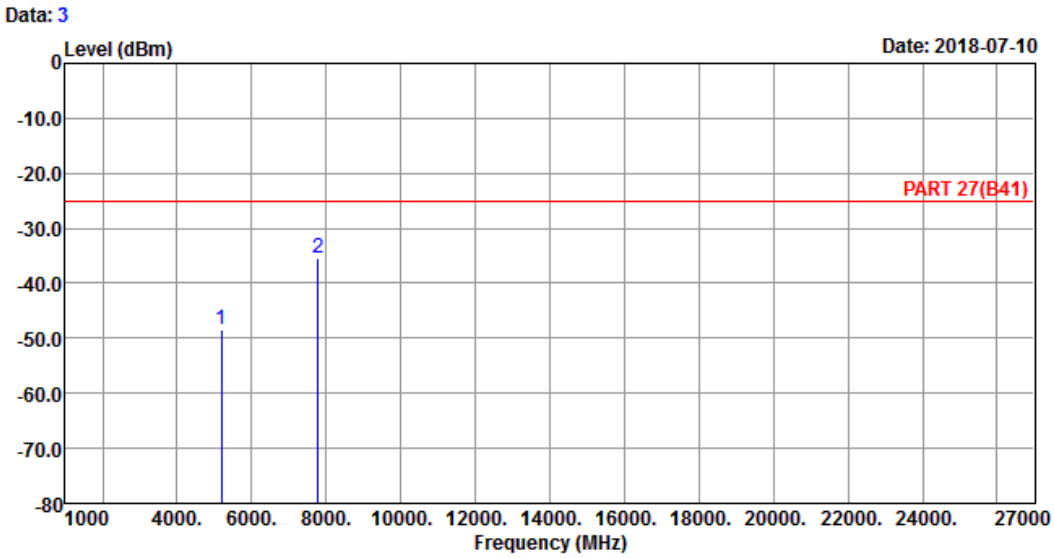


Site : 966 Chamber 5
Condition: PART 27(B41) VERTICAL
Remak : LTE Band 41 QPSK_20M Link_L-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5012.00	-47.20	-44.74	-25.00	-22.20	-2.46	Peak
2 pp	7518.00	-32.38	-36.59	-25.00	-7.38	4.21	Peak

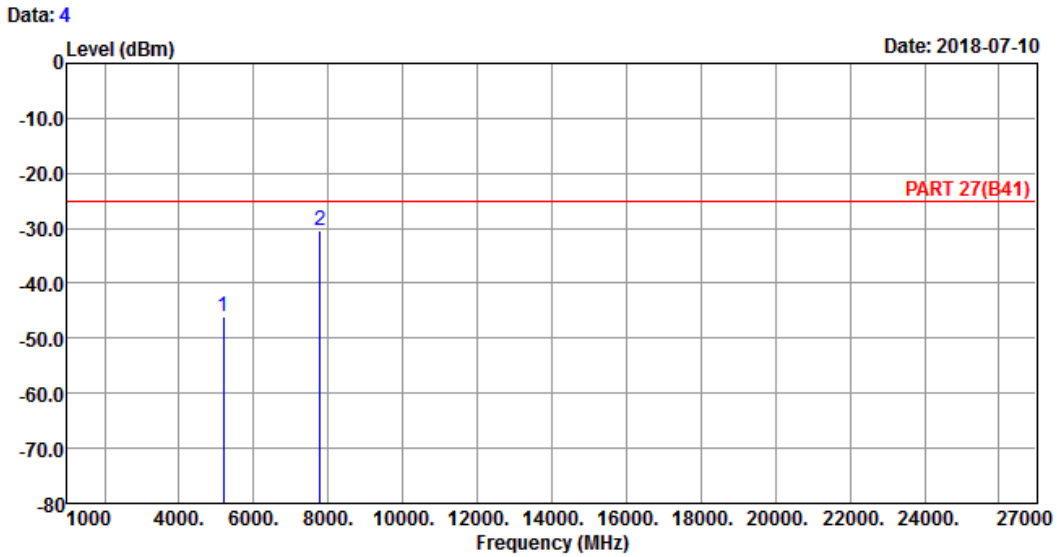
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition: PART 27(B41) HORIZONTAL
Remak : LTE Band 41 QPSK_20M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5186.00	-48.43	-46.44	-25.00	-23.43	-1.99	Peak
2 pp	7779.00	-35.32	-40.06	-25.00	-10.32	4.74	Peak



Site : 966 Chamber 5
Condition: PART 27(B41) VERTICAL
Remak : LTE Band 41 QPSK_20M Link_M-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5186.00	-45.95	-43.96	-25.00	-20.95	-1.99	Peak
2 pp	7779.00	-30.38	-35.12	-25.00	-5.38	4.74	Peak

High Channel

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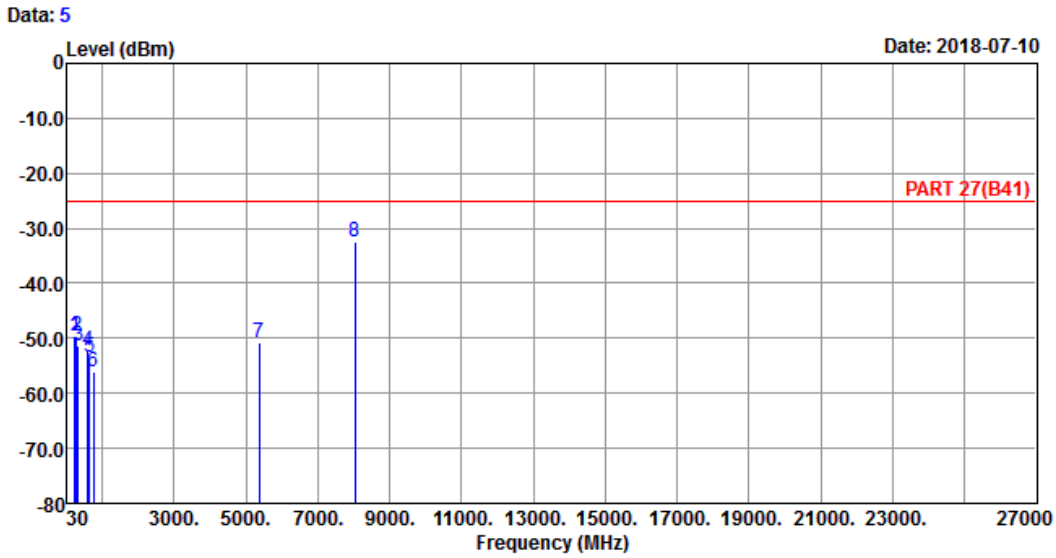
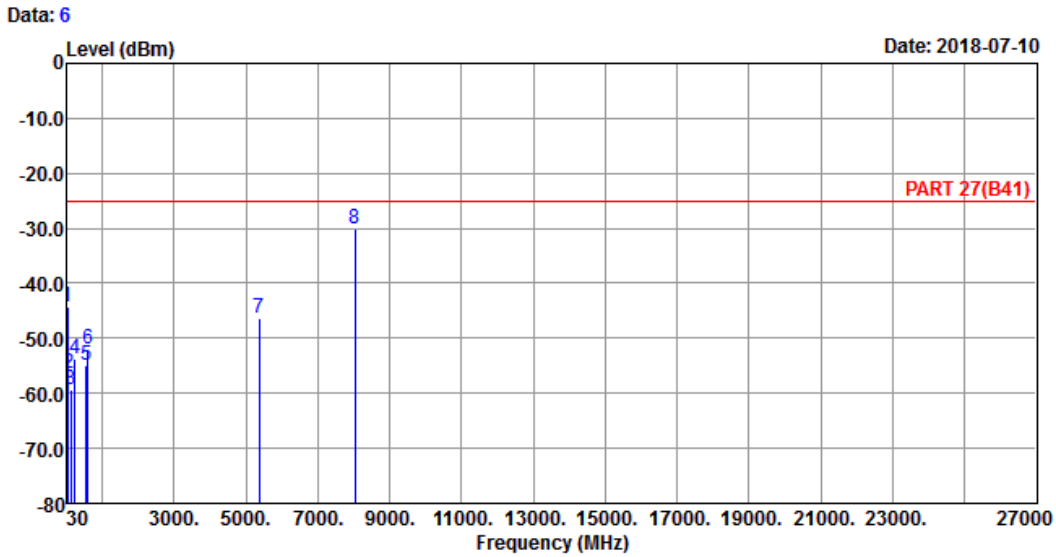


Site : 966 Chamber 5
Condition: PART 27(B41) HORIZONTAL
Remak : LTE Band 41 QPSK_20M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	234.67	-49.56	-42.94	-25.00	-24.56	-6.62	Peak
2	286.08	-49.56	-42.83	-25.00	-24.56	-6.73	Peak
3	338.46	-51.51	-45.09	-25.00	-26.51	-6.42	Peak
4	598.42	-52.36	-51.53	-25.00	-27.36	-0.83	Peak
5	650.80	-53.34	-52.47	-25.00	-28.34	-0.87	Peak
6	753.62	-55.96	-56.83	-25.00	-30.96	0.87	Peak
7	5360.00	-50.66	-48.15	-25.00	-25.66	-2.51	Peak
8 pp	8040.00	-32.37	-37.65	-25.00	-7.37	5.28	Peak



Site : 966 Chamber 5
Condition: PART 27(B41) VERTICAL
Remak : LTE Band 41 QPSK_20M Link_H-CH
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.58	-44.31	-42.84	-25.00	-19.31	-1.47	Peak
2	52.31	-56.43	-50.89	-25.00	-31.43	-5.54	Peak
3	121.18	-59.32	-49.59	-25.00	-34.32	-9.73	Peak
4	234.67	-53.64	-47.02	-25.00	-28.64	-6.62	Peak
5	546.04	-54.88	-51.89	-25.00	-29.88	-2.99	Peak
6	598.42	-52.03	-51.20	-25.00	-27.03	-0.83	Peak
7	5360.00	-46.23	-43.72	-25.00	-21.23	-2.51	Peak
8 pp	8040.00	-29.97	-35.25	-25.00	-4.97	5.28	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 according to ISO/IEC 17025.

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

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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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