FCC Test Report

(PART 27)

Report No.:	RF180821C20-9
FCC ID:	V65E6910
Test Model:	E6910
Received Date:	Aug. 21, 2018
Test Date:	Sep. 12, 2018 ~ Sep. 14, 2018
Issued Date:	Sep. 28, 2018
Applicant:	Kyocera Corporation c/o Kyocera International, Inc.
Address:	8611 Balboa Avenue, San Diego, CA 92123
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)
Test Location (2):	No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C
FCC Registration / Designation Number:	427177 / TW0011

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF180821C20-9	Original Release	Sep. 28, 2018

1 Certificate of Conformity

Product:	Smart Phone
Brand:	Kyocera
Test Model:	E6910
Sample Status:	Identical Prototype
Applicant:	Kyocera Corporation c/o Kyocera International, Inc.
Test Date:	Sep. 12, 2018 ~ Sep. 14, 2018
Standards:	FCC Part 27, Subpart C, F, L

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

Prepared by : _____ , **Date:** Sep. 28, 2018

Ivonne Wu / Supervisor

Approved by : _____ , **Date:** Sep. 28, 2018

Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 27.53(h)	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(h)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -30.30 dB at 91.56 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 13)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(b)(10)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 27.53(g)	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(g)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(g)(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -17.06 dB at 1564.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 66)			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 27.53(h)	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(h)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.79 dB at 3440.00 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	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Aug. 20, 2018	Aug. 19, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
HORN Antenna ETS-Lindgren	3117	00143293	Dec. 13, 2017	Dec. 12, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Dec. 14, 2017	Dec. 13, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 01, 2017	Nov. 30, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Dec. 12, 2017	Dec. 11, 2018
Fixed Attenuator Woken	00801A1GGAM02Y	NA	May 17, 2018	May 16, 2019
MXG Vector signal generator Agilent	N5182B	MY53050430	Oct. 24, 2017	Oct. 23, 2018
Preamplifier Agilent	310N	187226	Jun. 19, 2018	Jun. 18, 2019
Preamplifier Agilent	83017A	MY39501357	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 19, 2018	Jun. 18, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	MT8820C	6201010284	Dec. 28, 2017	Dec. 27, 2018

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 HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450I-1.

3 General Information

3.1 General Description of EUT

Product	Smart Phone	
Brand	Kyocera	
Test Model	E6910	
Status of EUT	Identical Prototype	
Power Supply Rating	3.8 Vdc (Battery) 5 Vdc or 9 Vdc or 12 Vdc (Adapter) 5 Vdc (Host equipment)	
Modulation Type	LTE	QPSK, 16QAM, 64QAM
Frequency Range	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1754.3 MHz
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1753.5 MHz
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1752.5 MHz
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1750.0 MHz
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1747.5 MHz
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1745.0 MHz
	LTE Band 13 (Channel Bandwidth: 5 MHz)	779.5 ~ 784.5 MHz
	LTE Band 13 (Channel Bandwidth: 10 MHz)	782.0 MHz
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1779.3 MHz
	LTE Band 66 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1778.5 MHz
	LTE Band 66 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1777.5 MHz
	LTE Band 66 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1775.0 MHz
	LTE Band 66 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1772.5 MHz
	LTE Band 66 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1770.0 MHz
Emission Designator	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1M09W7D
	LTE Band 4 (Channel Bandwidth: 3 MHz)	2M71W7D
	LTE Band 4 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE Band 4 (Channel Bandwidth: 10 MHz)	8M98W7D
	LTE Band 4 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 4 (Channel Bandwidth: 20 MHz)	18M0W7D
	LTE Band 13 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 13 (Channel Bandwidth: 10 MHz)	8M97W7D
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1M09W7D
	LTE Band 66 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 66 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE Band 66 (Channel Bandwidth: 10 MHz)	8M98W7D
	LTE Band 66 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 66 (Channel Bandwidth: 20 MHz)	18M0W7D

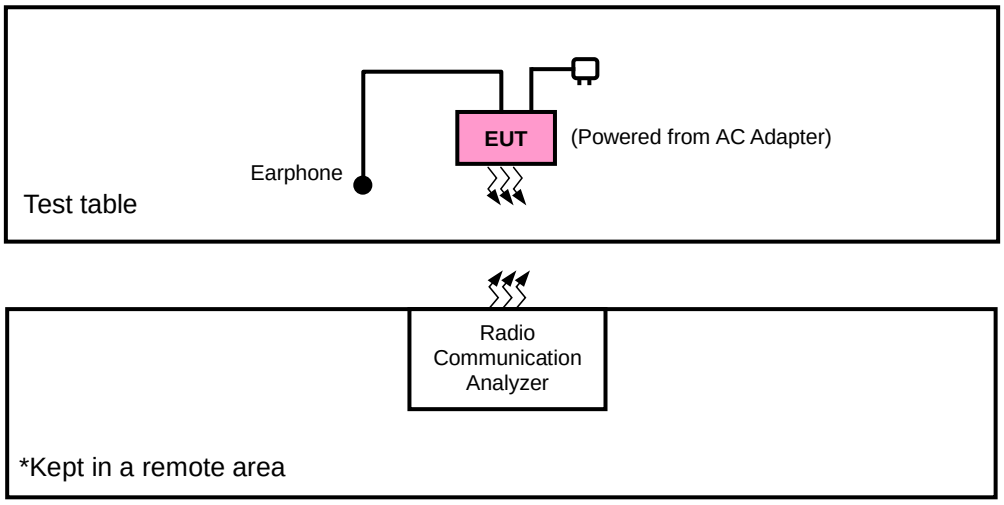
Max. ERP Power	LTE Band 13 (Channel Bandwidth: 5 MHz)	111.71 mW
	LTE Band 13 (Channel Bandwidth: 10 MHz)	113.68 mW
Max. EIRP Power	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	318.20 mW
	LTE Band 4 (Channel Bandwidth: 3 MHz)	320.41 mW
	LTE Band 4 (Channel Bandwidth: 5 MHz)	323.37 mW
	LTE Band 4 (Channel Bandwidth: 10 MHz)	326.36 mW
	LTE Band 4 (Channel Bandwidth: 15 MHz)	328.62 mW
	LTE Band 4 (Channel Bandwidth: 20 MHz)	331.67 mW
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	490.79 mW
	LTE Band 66 (Channel Bandwidth: 3 MHz)	493.06 mW
	LTE Band 66 (Channel Bandwidth: 5 MHz)	492.61 mW
	LTE Band 66 (Channel Bandwidth: 10 MHz)	473.15 mW
	LTE Band 66 (Channel Bandwidth: 15 MHz)	445.96 mW
	LTE Band 66 (Channel Bandwidth: 20 MHz)	500.03 mW
Antenna Type	Fixed Internal Antenna	
Antenna Gain	LTE Band 4	1.2 dBi
	LTE Band 13	-0.6 dBi
	LTE Band 66	1.2 dBi
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

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

3.2 Configuration of System under Test

<Radiated Emission Test>



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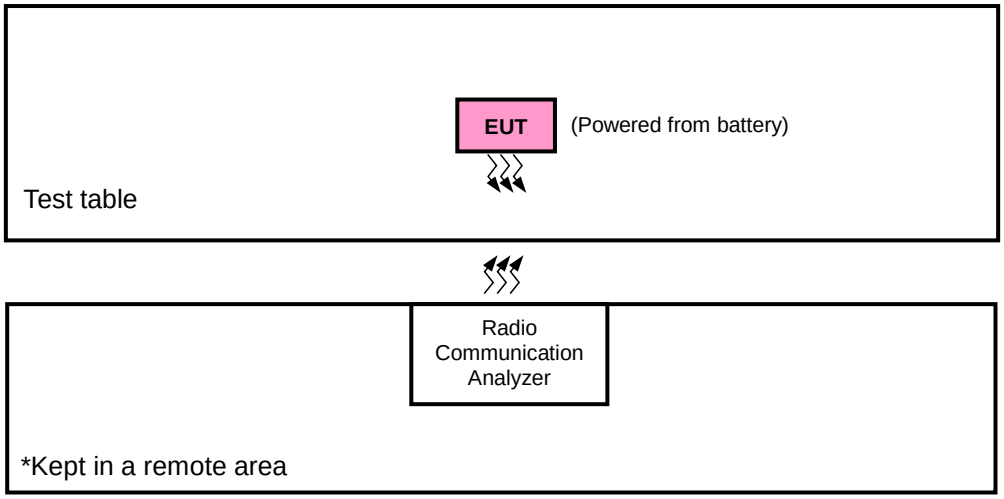


3.2.1 Description of Support Units

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

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Earphone	Funkey	FK130102	N/A	N/A

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

Note:

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

3.3 Test Mode Applicability and Tested Channel Detail

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

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

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

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	20050 to 20300	20175	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Frequency Stability	19957 to 20393	19957, 20393	1.4 MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965, 20385	3 MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975, 20375	5 MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000, 20350	10 MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20025, 20325	15 MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20300	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset

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

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

LTE Band 13

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23230	23230	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Frequency Stability	23205 to 23255	23205, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
-	Peak to Average Ratio	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Band Edge	23205 to 23255	23205	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			23255	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			23230	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
-	Conducted Emission	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset

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

LTE Band 66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	132072 to 132572	132322	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Frequency Stability	131979 to 132665	131979, 132665	1.4 MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	131987, 132657	3 MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997, 132647	5 MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132022, 132622	10 MHz	QPSK	1 RB / 0 RB Offset
		132047 to 132597	132047, 132597	15 MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072, 132572	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Band Edge	131979 to 132665	131979	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			132665	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		131987 to 132657	131987	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			132657	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		131997 to 132647	131997	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			132647	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		132022 to 132622	132022	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			132622	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		132047 to 132597	132047	15 MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			132597	15 MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		132072 to 132572	132072	20 MHz	QPSK	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			132572	20 MHz	QPSK	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
-	Conducted Emission	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK	1 RB / 0 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK	1 RB / 0 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP / EIRP	25 deg. C, 65 % RH	3.8 Vdc	Karl Lee
Modulation Characteristics	25 deg. C, 65 % RH	3.8 Vdc	Wayne Lin
Frequency Stability	25 deg. C, 65 % RH	3.8 Vdc	Wayne Lin
Occupied Bandwidth	25 deg. C, 65 % RH	3.8 Vdc	Wayne Lin
Band Edge	25 deg. C, 65 % RH	3.8 Vdc	Wayne Lin
Peak to Average Ratio	25 deg. C, 65 % RH	3.8 Vdc	Wayne Lin
Conducted Emission	25 deg. C, 65 % RH	3.8 Vdc	Wayne Lin
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

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

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

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

Portable stations (hand-held devices) operating in the 776-787 MHz band are limited to 3 watts ERP

4.1.2 Test Procedures

EIRP / ERP Measurement:

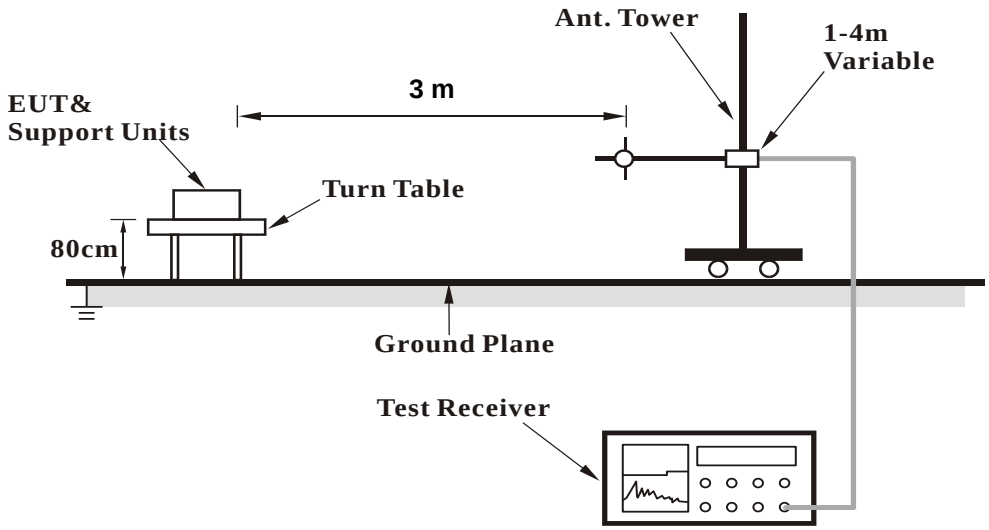
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G.
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

Conducted Power Measurement:

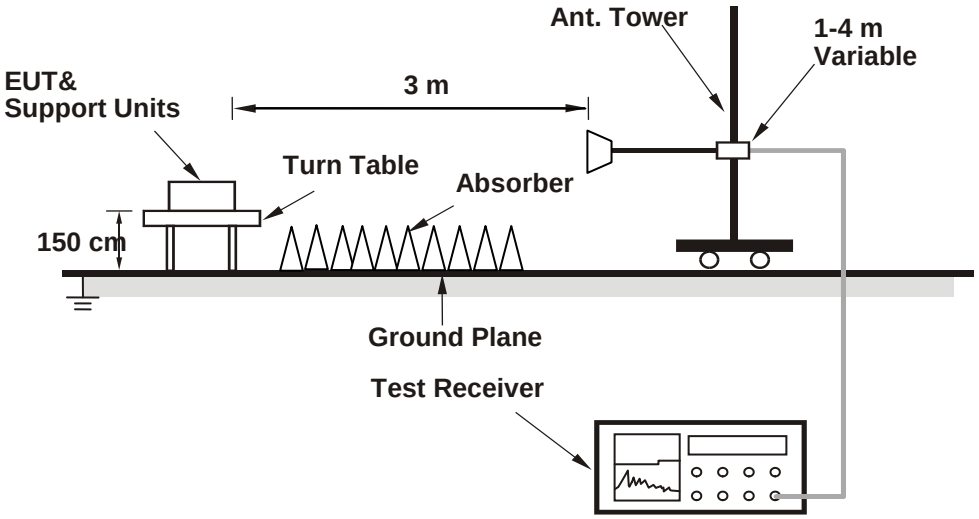
a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

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



<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 4															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	24.69	24.77	24.76	0	15M	QPSK	1	0	24.66	24.74	24.73	0
		1	50	24.67	24.75	24.76	0			1	37	24.64	24.72	24.73	0
		1	99	24.61	24.69	24.70	0			1	74	24.58	24.66	24.67	0
		50	0	23.80	23.89	23.88	1			36	0	23.78	23.86	23.85	1
		50	25	23.72	23.80	23.81	1			36	19	23.69	23.77	23.78	1
		50	50	23.68	23.76	23.77	1			36	39	23.66	23.74	23.73	1
		100	0	23.64	23.73	23.72	1			75	0	23.61	23.69	23.70	1
	16QAM	1	0	23.66	23.74	23.73	1		16QAM	1	0	23.63	23.71	23.70	1
		1	50	23.64	23.72	23.73	1			1	37	23.61	23.69	23.70	1
		1	99	23.58	23.66	23.67	1			1	74	23.55	23.63	23.64	1
		50	0	22.77	22.85	22.86	2			36	0	22.75	22.83	22.82	2
		50	25	22.69	22.77	22.78	2			36	19	22.66	22.74	22.75	2
		50	50	22.65	22.73	22.74	2			36	39	22.63	22.71	22.70	2
		100	0	22.61	22.69	22.70	2			75	0	22.58	22.66	22.67	2
	64QAM	1	0	22.62	22.70	22.69	2		64QAM	1	0	22.59	22.67	22.66	2
		1	50	22.60	22.68	22.69	2			1	37	22.57	22.65	22.66	2
		1	99	22.54	22.62	22.63	2			1	74	22.51	22.59	22.60	2
		50	0	21.73	21.81	21.82	3			36	0	21.71	21.79	21.78	3
		50	25	21.65	21.73	21.74	3			36	19	21.62	21.70	21.71	3
		50	50	21.61	21.69	21.70	3			36	39	21.59	21.67	21.66	3
		100	0	21.57	21.65	21.66	3			75	0	21.54	21.62	21.63	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20000	20175	20350				Channel		19975	20175	20375	
		Frequency (MHz)		1715.0	1732.5	1750.0				Frequency (MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	24.64	24.72	24.71	0	5M	QPSK	1	0	24.61	24.69	24.68	0
		1	24	24.62	24.70	24.71	0			1	12	24.59	24.67	24.68	0
		1	49	24.56	24.64	24.65	0			1	24	24.53	24.61	24.62	0
		25	0	23.76	23.84	23.83	1			12	0	23.73	23.81	23.80	1
		25	12	23.67	23.75	23.76	1			12	6	23.64	23.72	23.73	1
		25	25	23.64	23.72	23.71	1			12	13	23.61	23.69	23.68	1
		50	0	23.59	23.67	23.68	1			25	0	23.56	23.64	23.65	1
	16QAM	1	0	23.61	23.69	23.68	1		16QAM	1	0	23.58	23.66	23.65	1
		1	24	23.59	23.67	23.68	1			1	12	23.56	23.64	23.65	1
		1	49	23.53	23.61	23.62	1			1	24	23.50	23.58	23.59	1
		25	0	22.73	22.81	22.80	2			12	0	22.70	22.78	22.77	2
		25	12	22.64	22.72	22.73	2			12	6	22.61	22.69	22.70	2
		25	25	22.61	22.69	22.68	2			12	13	22.58	22.66	22.65	2
		50	0	22.56	22.64	22.65	2			25	0	22.53	22.61	22.62	2
	64QAM	1	0	22.57	22.65	22.64	2		64QAM	1	0	22.54	22.62	22.61	2
		1	24	22.55	22.63	22.64	2			1	12	22.52	22.60	22.61	2
		1	49	22.49	22.57	22.58	2			1	24	22.46	22.54	22.55	2
		25	0	21.69	21.77	21.76	3			12	0	21.66	21.74	21.73	3
		25	12	21.60	21.68	21.69	3			12	6	21.57	21.65	21.66	3
		25	25	21.57	21.65	21.64	3			12	13	21.54	21.62	21.61	3
		50	0	21.52	21.60	21.61	3			25	0	21.49	21.57	21.58	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		19965	20175	20385				Channel		19957	20175	20393	
		Frequency (MHz)		1711.5	1732.5	1753.5				Frequency (MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	24.59	24.67	24.66	0	1.4M	QPSK	1	0	24.56	24.64	24.63	0
		1	7	24.57	24.65	24.66	0			1	2	24.54	24.62	24.63	0
		1	14	24.51	24.59	24.60	0			1	5	24.48	24.56	24.57	0
		8	0	23.71	23.79	23.78	1			3	0	24.53	24.61	24.60	0
		8	3	23.62	23.70	23.71	1			3	1	24.51	24.59	24.60	0
		8	7	23.59	23.67	23.66	1			3	3	24.45	24.53	24.54	0
		15	0	23.54	23.62	23.63	1			6	0	23.51	23.59	23.60	1
	16QAM	1	0	23.56	23.64	23.63	1		16QAM	1	0	23.55	23.63	23.62	1
		1	7	23.54	23.62	23.63	1			1	2	23.53	23.61	23.62	1
		1	14	23.48	23.56	23.57	1			1	5	23.47	23.55	23.56	1
		8	0	22.68	22.76	22.75	2			3	0	23.52	23.60	23.59	1
		8	3	22.59	22.67	22.68	2			3	1	23.50	23.58	23.59	1
		8	7	22.56	22.64	22.63	2			3	3	23.44	23.52	23.53	1
		15	0	22.51	22.59	22.60	2			6	0	22.50	22.58	22.59	2
	64QAM	1	0	22.52	22.60	22.59	2		64QAM	1	0	22.52	22.60	22.59	2
		1	7	22.50	22.58	22.59	2			1	2	22.50	22.58	22.59	2
		1	14	22.44	22.52	22.53	2			1	5	22.44	22.52	22.53	2
		8	0	21.64	21.72	21.71	3			3	0	22.49	22.57	22.56	2
		8	3	21.55	21.63	21.64	3			3	1	22.47	22.55	22.56	2
		8	7	21.52	21.60	21.59	3			3	3	22.41	22.49	22.50	2
		15	0	21.47	21.55	21.56	3			6	0	21.47	21.55	21.56	3

LTE Band 13																
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel			23230					Channel		23205	23230	23225	
		Frequency (MHz)			782.0					Frequency (MHz)		779.5	782.0	784.5	
10M	QPSK	1	0		23.46		0	5M	QPSK	1	0	23.45	23.33	23.31	0
		1	24		23.41		0			1	12	23.41	23.41	23.41	0
		1	49		23.39		0			1	24	23.37	23.37	23.37	0
		25	0		22.49		1			12	0	22.50	22.50	22.50	1
		25	12		22.49		1			12	6	22.49	22.49	22.49	1
		25	25		22.43		1			12	13	22.46	22.46	22.46	1
		50	0		22.45		1			25	0	22.44	22.44	22.44	1
	16QAM	1	0		22.46		1		16QAM	1	0	22.40	22.31	22.23	1
		1	24		22.34		1			1	12	22.32	22.38	22.37	1
		1	49		22.31		1			1	24	22.30	22.31	22.33	1
		25	0		21.46		2			12	0	21.50	21.45	21.43	2
		25	12		21.47		2			12	6	21.48	21.42	21.41	2
		25	25		21.40		2			12	13	21.46	21.38	21.41	2
		50	0		21.41		2			25	0	21.41	21.40	21.43	2
	64QAM	1	0		21.43		2		64QAM	1	0	21.45	21.27	21.30	2
		1	24		21.33		2			1	12	21.40	21.38	21.38	2
		1	49		21.31		2			1	24	21.37	21.33	21.32	2
		25	0		20.45		3			12	0	20.42	20.43	20.47	3
		25	12		20.45		3			12	6	20.47	20.45	20.44	3
		25	25		20.42		3			12	13	20.43	20.46	20.36	3
		50	0		20.41		3			25	0	20.40	20.43	20.39	3

LTE Band 66

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572				Channel		132047	132322	132597	
		Frequency (MHz)		1720.0	1745.0	1770.0				Frequency (MHz)		1717.5	1745.0	1772.5	
20M	QPSK	1	0	24.89	24.92	24.83	0	15M	QPSK	1	0	24.87	24.90	24.79	0
		1	50	24.80	24.85	24.77	0			1	37	24.76	24.78	24.70	0
		1	99	24.69	24.72	24.61	0			1	74	24.61	24.66	24.54	0
		50	0	23.83	23.89	23.80	1			36	0	23.81	23.87	23.75	1
		50	25	23.81	23.85	23.76	1			36	19	23.73	23.75	23.72	1
		50	50	23.77	23.80	23.69	1			36	39	23.76	23.72	23.64	1
		100	0	23.81	23.83	23.72	1			75	0	23.76	23.80	23.66	1
	16QAM	1	0	23.86	23.90	23.75	1		16QAM	1	0	23.76	23.88	23.64	1
		1	50	23.79	23.83	23.67	1			1	37	23.74	23.80	23.74	1
		1	99	23.60	23.66	23.54	1			1	74	23.58	23.70	23.54	1
		50	0	22.75	22.79	22.74	2			36	0	22.76	22.78	22.68	2
		50	25	22.73	22.85	22.74	2			36	19	22.71	22.76	22.68	2
		50	50	22.72	22.73	22.64	2			36	39	22.76	22.69	22.58	2
		100	0	22.71	22.82	22.68	2			75	0	22.68	22.80	22.58	2
	64QAM	1	0	22.84	22.85	22.83	2		64QAM	1	0	22.82	22.83	22.67	2
		1	50	22.77	22.83	22.69	2			1	37	22.64	22.70	22.67	2
		1	99	22.68	22.66	22.57	2			1	74	22.58	22.64	22.56	2
		50	0	21.81	21.89	21.72	3			36	0	21.69	21.83	21.71	3
		50	25	21.78	21.85	21.68	3			36	19	21.66	21.66	21.63	3
		50	50	21.68	21.72	21.68	3			36	39	21.75	21.66	21.53	3
		100	0	21.79	21.83	21.68	3			75	0	21.65	21.75	21.60	3

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132022	132322	132622				Channel		131997	132322	132647	
		Frequency (MHz)		1715.0	1745.0	1775.0				Frequency (MHz)		1712.5	1745.0	1777.5	
10M	QPSK	1	0	24.85	24.82	24.73	0	5M	QPSK	1	0	24.83	24.86	24.73	0
		1	24	24.67	24.62	24.69	0			1	12	24.77	24.79	24.72	0
		1	49	24.56	24.58	24.47	0			1	24	24.64	24.70	24.54	0
		25	0	23.75	23.84	23.68	1			12	0	23.76	23.89	23.70	1
		25	12	23.69	23.68	23.57	1			12	6	23.73	23.79	23.73	1
		25	25	23.65	23.62	23.61	1			12	13	23.75	23.74	23.69	1
		50	0	23.75	23.67	23.60	1			25	0	23.75	23.81	23.68	1
	16QAM	1	0	23.67	23.68	23.77	1		16QAM	1	0	23.70	23.80	23.80	1
		1	24	23.58	23.66	23.61	1			1	12	23.62	23.79	23.68	1
		1	49	23.43	23.54	23.42	1			1	24	23.56	23.62	23.50	1
		25	0	22.70	22.77	22.57	2			12	0	22.68	22.75	22.75	2
		25	12	22.69	22.74	22.55	2			12	6	22.65	22.75	22.57	2
		25	25	22.64	22.59	22.58	2			12	13	22.67	22.66	22.61	2
		50	0	22.68	22.76	22.64	2			25	0	22.72	22.71	22.64	2
	64QAM	1	0	22.73	22.72	22.52	2		64QAM	1	0	22.71	22.78	22.63	2
		1	24	22.64	22.73	22.57	2			1	12	22.72	22.74	22.60	2
		1	49	22.63	22.57	22.48	2			1	24	22.55	22.60	22.51	2
		25	0	21.65	21.71	21.58	3			12	0	21.73	21.79	21.70	3
		25	12	21.68	21.64	21.57	3			12	6	21.72	21.75	21.66	3
		25	25	21.64	21.64	21.64	3			12	13	21.65	21.64	21.59	3
		50	0	21.68	21.66	21.52	3			25	0	21.62	21.78	21.66	3

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131987	132322	132657				Channel		131979	132322	132665	
		Frequency (MHz)		1711.5	1745.5	1778.5				Frequency (MHz)		1710.7	1745.0	1779.3	
3M	QPSK	1	0	24.84	24.83	24.69	0	1.4M	QPSK	1	0	24.70	24.83	24.75	0
		1	7	24.70	24.79	24.66	0			1	2	24.70	24.75	24.63	0
		1	14	24.53	24.47	24.44	0			1	5	24.50	24.61	24.50	0
		8	0	23.65	23.84	23.75	1			3	0	24.68	24.70	24.73	0
		8	3	23.62	23.71	23.69	1			3	1	24.66	24.70	24.63	0
		8	7	23.70	23.57	23.69	1			3	3	24.70	24.75	24.52	0
		15	0	23.74	23.60	23.55	1			6	0	23.71	23.71	23.58	1
	16QAM	1	0	23.73	23.61	23.67	1		16QAM	1	0	23.65	23.83	23.66	1
		1	7	23.63	23.56	23.56	1			1	2	23.61	23.65	23.50	1
		1	14	23.45	23.55	23.43	1			1	5	23.40	23.38	23.41	1
		8	0	22.65	22.67	22.66	2			3	0	23.65	23.75	23.55	1
		8	3	22.60	22.72	22.61	2			3	1	23.64	23.60	23.48	1
		8	7	22.66	22.71	22.54	2			3	3	23.62	23.50	23.52	1
		15	0	22.75	22.74	22.60	2			6	0	22.79	22.67	22.58	2
	64QAM	1	0	22.68	22.69	22.72	2		64QAM	1	0	22.77	22.79	22.66	2
		1	7	22.69	22.65	22.57	2			1	2	22.56	22.61	22.56	2
		1	14	22.48	22.52	22.41	2			1	5	22.50	22.63	22.40	2
		8	0	21.66	21.79	21.67	3			3	0	22.60	22.64	22.63	2
		8	3	21.71	21.63	21.53	3			3	1	22.57	22.71	22.62	2
		8	7	21.57	21.67	21.56	3			3	3	22.62	22.60	22.58	2
		15	0	21.52	21.64	21.56	3			6	0	21.60	21.66	21.56	3

ERP Power (dBm)

LTE Band 13							
Channel Bandwidth: 5 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
X	23205	779.5	-10.14	32.771	20.48	111.71	H
	23230	782.0	-10.54	32.741	20.05	101.18	
	23255	784.5	-10.47	32.854	20.23	105.54	
	23205	779.5	-12.36	32.5	17.99	62.95	V
	23230	782.0	-12.54	32.52	17.83	60.67	
	23255	784.5	-12.78	32.62	17.69	58.75	
Channel Bandwidth: 5 MHz / 16QAM							
X	23205	779.5	-11.12	32.771	19.50	89.15	H
	23230	782.0	-11.58	32.741	19.01	79.63	
	23255	784.5	-11.68	32.854	19.02	79.87	
	23205	779.5	-13.56	32.5	16.79	47.75	V
	23230	782.0	-13.45	32.52	16.92	49.20	
	23255	784.5	-13.85	32.62	16.62	45.92	
Channel Bandwidth: 5 MHz / 64QAM							
X	23205	779.5	-12.10	32.771	18.52	71.14	H
	23230	782.0	-11.90	32.741	18.70	74.05	
	23255	784.5	-12.11	32.854	18.59	72.34	
	23205	779.5	-14.52	32.5	15.83	38.28	V
	23230	782.0	-14.75	32.52	15.62	36.48	
	23255	784.5	-14.69	32.62	15.78	37.84	

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

LTE Band 13							
Channel Bandwidth: 10 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
X	23230	782.0	-10.03	32.737	20.56	113.68	H
	23230	782.0	-12.56	32.52	17.81	60.39	V
Channel Bandwidth: 10 MHz / 16QAM							
X	23230	782.0	-10.87	32.737	19.72	93.69	H
	23230	782.0	-13.56	32.52	16.81	47.97	V
Channel Bandwidth: 10 MHz / 64QAM							
X	23230	782.0	-11.85	32.737	18.74	74.77	H
	23230	782.0	-14.56	32.52	15.81	38.11	V

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

EIRP Power (dBm)

LTE Band 4							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	19957	1710.7	-17.51	42.49	24.98	314.41	H
	20175	1732.5	-17.30	42.33	25.03	318.20	
	20393	1754.3	-17.18	42.10	24.92	310.46	
	19957	1710.7	-20.03	42.99	22.96	197.70	V
	20175	1732.5	-19.72	42.74	23.02	200.45	
	20393	1754.3	-19.31	42.21	22.90	194.98	
Channel Bandwidth: 1.4 MHz / 16QAM							
X	19957	1710.7	-18.51	42.49	23.98	249.75	H
	20175	1732.5	-18.31	42.33	24.02	252.17	
	20393	1754.3	-18.18	42.10	23.92	246.60	
	19957	1710.7	-21.04	42.99	21.95	156.68	V
	20175	1732.5	-20.72	42.74	22.02	159.22	
	20393	1754.3	-20.32	42.21	21.89	154.53	
Channel Bandwidth: 1.4 MHz / 64QAM							
X	19957	1710.7	-19.52	42.49	22.97	197.92	H
	20175	1732.5	-19.32	42.33	23.01	199.85	
	20393	1754.3	-19.18	42.10	22.92	195.88	
	19957	1710.7	-22.05	42.99	20.94	124.17	V
	20175	1732.5	-21.72	42.74	21.02	126.47	
	20393	1754.3	-21.33	42.21	20.88	122.46	

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

LTE Band 4							
Channel Bandwidth: 3 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	19965	1711.5	-17.47	42.49	25.02	317.32	H
	20175	1732.5	-17.27	42.33	25.06	320.41	
	20385	1753.5	-17.14	42.10	24.96	313.33	
	19965	1711.5	-19.99	42.99	23.00	199.53	V
	20175	1732.5	-19.68	42.74	23.06	202.30	
	20385	1753.5	-19.28	42.21	22.93	196.34	
Channel Bandwidth: 3 MHz / 16QAM							
X	19965	1711.5	-18.48	42.49	24.01	251.48	H
	20175	1732.5	-18.27	42.33	24.06	254.51	
	20385	1753.5	-18.15	42.10	23.95	248.31	
	19965	1711.5	-21.00	42.99	21.99	158.12	V
	20175	1732.5	-20.69	42.74	22.05	160.32	
	20385	1753.5	-20.29	42.21	21.92	155.60	
Channel Bandwidth: 3 MHz / 64QAM							
X	19965	1711.5	-19.48	42.49	23.01	199.76	H
	20175	1732.5	-19.28	42.33	23.05	201.70	
	20385	1753.5	-19.15	42.10	22.95	197.11	
	19965	1711.5	-22.01	42.99	20.98	125.31	V
	20175	1732.5	-21.70	42.74	21.04	127.06	
	20385	1753.5	-21.30	42.21	20.91	123.31	

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

LTE Band 4							
Channel Bandwidth: 5 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	19975	1712.5	-17.44	42.49	25.05	319.52	H
	20175	1732.5	-17.23	42.33	25.10	323.37	
	20375	1752.5	-17.10	42.10	25.00	316.23	
	19975	1712.5	-19.96	42.99	23.03	200.91	V
	20175	1732.5	-19.65	42.74	23.09	203.70	
	20375	1752.5	-19.24	42.21	22.97	198.15	
Channel Bandwidth: 5 MHz / 16QAM							
X	19975	1712.5	-18.45	42.49	24.04	253.22	H
	20175	1732.5	-18.23	42.33	24.10	256.86	
	20375	1752.5	-18.11	42.10	23.99	250.61	
	19975	1712.5	-20.96	42.99	22.03	159.59	V
	20175	1732.5	-20.65	42.74	22.09	161.81	
	20375	1752.5	-20.25	42.21	21.96	157.04	
Channel Bandwidth: 5 MHz / 64QAM							
X	19975	1712.5	-19.45	42.49	23.04	201.14	H
	20175	1732.5	-19.23	42.33	23.10	204.03	
	20375	1752.5	-19.12	42.10	22.98	198.61	
	19975	1712.5	-21.96	42.99	21.03	126.77	V
	20175	1732.5	-21.65	42.74	21.09	128.53	
	20375	1752.5	-21.26	42.21	20.95	124.45	

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

LTE Band 4							
Channel Bandwidth: 10 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	20000	1715.0	-17.41	42.49	25.08	321.74	H
	20175	1732.5	-17.19	42.33	25.14	326.36	
	20350	1750.0	-17.07	42.10	25.03	318.42	
	20000	1715.0	-19.92	42.99	23.07	202.77	V
	20175	1732.5	-19.62	42.74	23.12	205.12	
	20350	1750.0	-19.20	42.21	23.01	199.99	
Channel Bandwidth: 10 MHz / 16QAM							
X	20000	1715.0	-18.42	42.49	24.07	254.98	H
	20175	1732.5	-18.20	42.33	24.13	258.64	
	20350	1750.0	-18.07	42.10	24.03	252.93	
	20000	1715.0	-20.92	42.99	22.07	161.06	V
	20175	1732.5	-20.63	42.74	22.11	162.55	
	20350	1750.0	-20.21	42.21	22.00	158.49	
Channel Bandwidth: 10 MHz / 64QAM							
X	20000	1715.0	-19.43	42.49	23.06	202.07	H
	20175	1732.5	-19.21	42.33	23.12	204.97	
	20350	1750.0	-19.08	42.10	23.02	200.45	
	20000	1715.0	-21.92	42.99	21.07	127.94	V
	20175	1732.5	-21.64	42.74	21.10	128.82	
	20350	1750.0	-21.22	42.21	20.99	125.60	

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

LTE Band 4							
Channel Bandwidth: 15 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	20025	1717.5	-17.38	42.49	25.11	323.97	H
	20175	1732.5	-17.16	42.33	25.17	328.62	
	20325	1747.5	-17.04	42.10	25.06	320.63	
	20025	1717.5	-19.88	42.99	23.11	204.64	V
	20175	1732.5	-19.59	42.74	23.15	206.54	
	20325	1747.5	-19.16	42.21	23.05	201.84	
Channel Bandwidth: 15 MHz / 16QAM							
X	20025	1717.5	-18.38	42.49	24.11	257.34	H
	20175	1732.5	-18.17	42.33	24.16	260.44	
	20325	1747.5	-18.05	42.10	24.05	254.10	
	20025	1717.5	-20.89	42.99	22.10	162.18	V
	20175	1732.5	-20.59	42.74	22.15	164.06	
	20325	1747.5	-20.16	42.21	22.05	160.32	
Channel Bandwidth: 15 MHz / 64QAM							
X	20025	1717.5	-19.39	42.49	23.10	203.94	H
	20175	1732.5	-19.17	42.33	23.16	206.87	
	20325	1747.5	-19.05	42.10	23.05	201.84	
	20025	1717.5	-21.90	42.99	21.09	128.53	V
	20175	1732.5	-21.60	42.74	21.14	130.02	
	20325	1747.5	-21.16	42.21	21.05	127.35	

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

LTE Band 4							
Channel Bandwidth: 20 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	20050	1720.0	-17.34	42.49	25.15	326.96	H
	20175	1732.5	-17.12	42.33	25.21	331.67	
	20300	1745.0	-17.00	42.10	25.10	323.59	
	20050	1720.0	-19.85	42.99	23.14	206.06	V
	20175	1732.5	-19.55	42.74	23.19	208.45	
	20300	1745.0	-19.12	42.21	23.09	203.70	
Channel Bandwidth: 20 MHz / 16QAM							
X	20050	1720.0	-18.35	42.49	24.14	259.12	H
	20175	1732.5	-18.13	42.33	24.20	262.85	
	20300	1745.0	-18.01	42.10	24.09	256.45	
	20050	1720.0	-20.86	42.99	22.13	163.31	V
	20175	1732.5	-20.56	42.74	22.18	165.20	
	20300	1745.0	-20.13	42.21	22.08	161.44	
Channel Bandwidth: 20 MHz / 64QAM							
X	20050	1720.0	-19.35	42.49	23.14	205.83	H
	20175	1732.5	-19.14	42.33	23.19	208.31	
	20300	1745.0	-19.02	42.10	23.08	203.24	
	20050	1720.0	-21.86	42.99	21.13	129.72	V
	20175	1732.5	-21.57	42.74	21.17	130.92	
	20300	1745.0	-21.14	42.21	21.07	127.94	

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

LTE Band 66							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	131979	1710.7	-9.56	36.45	26.89	488.65	H
	132322	1745.0	-9.89	36.80	26.91	490.79	
	132665	1779.3	-10.23	36.94	26.71	469.14	
	131979	1710.7	-15.56	37.28	21.72	148.49	V
	132322	1745.0	-15.89	37.63	21.74	149.28	
	132665	1779.3	-15.78	37.64	21.86	153.46	
Channel Bandwidth: 1.4 MHz / 16QAM							
X	131979	1710.7	-10.66	36.45	25.79	379.31	H
	132322	1745.0	-11.56	36.80	25.24	334.12	
	132665	1779.3	-11.85	36.94	25.09	323.07	
	131979	1710.7	-16.95	37.28	20.33	107.82	V
	132322	1745.0	-16.85	37.63	20.78	119.67	
	132665	1779.3	-16.72	37.64	20.92	123.59	
Channel Bandwidth: 1.4 MHz / 64QAM							
X	131979	1710.7	-12.10	36.45	24.35	272.27	H
	132322	1745.0	-11.89	36.80	24.91	309.67	
	132665	1779.3	-12.36	36.94	24.58	287.28	
	131979	1710.7	-17.58	37.28	19.70	93.26	V
	132322	1745.0	-17.95	37.63	19.68	92.90	
	132665	1779.3	-17.66	37.64	19.98	99.54	

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

LTE Band 66							
Channel Bandwidth: 3 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	131987	1711.5	-9.56	36.45	26.89	488.65	H
	132322	1745.0	-9.87	36.80	26.93	493.06	
	132657	1778.5	-10.25	36.94	26.69	466.98	
	131987	1711.5	-15.78	37.28	21.50	141.16	V
	132322	1745.0	-15.69	37.63	21.94	156.31	
	132657	1778.5	-15.88	37.64	21.76	149.97	
Channel Bandwidth: 3 MHz / 16QAM							
X	131987	1711.5	-10.58	36.45	25.87	386.37	H
	132322	1745.0	-10.99	36.80	25.81	380.98	
	132657	1778.5	-11.56	36.94	25.38	345.38	
	131987	1711.5	-16.85	37.28	20.43	110.33	V
	132322	1745.0	-16.89	37.63	20.74	118.58	
	132657	1778.5	-17.23	37.64	20.41	109.90	
Channel Bandwidth: 3 MHz / 64QAM							
X	131987	1711.5	-11.65	36.45	24.80	302.00	H
	132322	1745.0	-11.84	36.80	24.96	313.26	
	132657	1778.5	-11.99	36.94	24.95	312.82	
	131987	1711.5	-17.62	37.28	19.66	92.41	V
	132322	1745.0	-17.81	37.63	19.82	95.94	
	132657	1778.5	-17.84	37.64	19.80	95.50	

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

LTE Band 66							
Channel Bandwidth: 5 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	131997	1712.5	-9.58	36.45	26.87	486.41	H
	132322	1745.0	-9.87	36.80	26.93	492.61	
	132647	1777.5	-10.36	36.94	26.58	455.30	
	131997	1712.5	-15.89	37.28	21.39	137.63	V
	132322	1745.0	-15.78	37.63	21.85	153.11	
	132647	1777.5	-15.66	37.64	21.98	157.76	
Channel Bandwidth: 5 MHz / 16QAM							
X	131997	1712.5	-10.55	36.45	25.90	389.05	H
	132322	1745.0	-10.85	36.80	25.95	393.46	
	132647	1777.5	-11.23	36.94	25.71	372.65	
	131997	1712.5	-16.89	37.28	20.39	109.32	V
	132322	1745.0	-17.56	37.63	20.07	101.62	
	132647	1777.5	-16.99	37.64	20.65	116.14	
Channel Bandwidth: 5 MHz / 64QAM							
X	131997	1712.5	-11.65	36.45	24.80	302.00	H
	132322	1745.0	-11.94	36.80	24.86	306.13	
	132647	1777.5	-12.36	36.94	24.58	287.28	
	131997	1712.5	-17.56	37.28	19.72	93.69	V
	132322	1745.0	-18.23	37.63	19.40	87.10	
	132647	1777.5	-17.85	37.64	19.79	95.19	

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

LTE Band 66							
Channel Bandwidth: 10 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	132022	1715.0	-9.89	36.64	26.75	473.15	H
	132322	1745.0	-10.56	36.80	26.24	420.24	
	132622	1775.0	-10.33	36.80	26.47	443.61	
	132022	1715.0	-16.12	37.44	21.32	135.49	V
	132322	1745.0	-15.78	37.63	21.85	153.07	
	132622	1775.0	-16.20	37.64	21.44	139.16	
Channel Bandwidth: 10 MHz / 16QAM							
X	132022	1715.0	-10.85	36.64	25.79	379.31	H
	132322	1745.0	-11.25	36.80	25.55	358.51	
	132622	1775.0	-11.46	36.80	25.34	341.98	
	132022	1715.0	-16.97	37.44	20.47	111.40	V
	132322	1745.0	-17.52	37.63	20.11	102.54	
	132622	1775.0	-17.43	37.64	20.21	104.83	
Channel Bandwidth: 10 MHz / 64QAM							
X	132022	1715.0	-11.99	36.64	24.65	291.74	H
	132322	1745.0	-12.56	36.80	24.24	265.16	
	132622	1775.0	-12.51	36.80	24.29	268.53	
	132022	1715.0	-17.85	37.44	19.59	90.97	V
	132322	1745.0	-18.23	37.63	19.40	87.08	
	132622	1775.0	-18.61	37.64	19.03	79.89	

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

LTE Band 66							
Channel Bandwidth: 15 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	132047	1717.5	-9.99	36.45	26.46	442.59	H
	132322	1745.0	-10.36	36.80	26.44	440.45	
	132597	1772.5	-10.45	36.94	26.49	445.96	
	132047	1717.5	-15.94	37.28	21.34	136.05	V
	132322	1745.0	-16.53	37.63	21.10	128.82	
	132597	1772.5	-16.20	37.64	21.44	139.32	
Channel Bandwidth: 15 MHz / 16QAM							
X	132047	1717.5	-11.23	36.45	25.22	332.66	H
	132322	1745.0	-11.56	36.80	25.24	334.12	
	132597	1772.5	-11.94	36.94	25.00	316.45	
	132047	1717.5	-16.75	37.28	20.53	112.90	V
	132322	1745.0	-17.42	37.63	20.21	104.95	
	132597	1772.5	-17.20	37.64	20.44	110.66	
Channel Bandwidth: 15 MHz / 64QAM							
X	132047	1717.5	-12.10	36.45	24.35	272.27	H
	132322	1745.0	-11.87	36.80	24.93	311.10	
	132597	1772.5	-12.62	36.94	24.32	270.58	
	132047	1717.5	-17.60	37.28	19.68	92.83	V
	132322	1745.0	-17.91	37.63	19.72	93.76	
	132597	1772.5	-18.23	37.64	19.41	87.30	

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

LTE Band 66							
Channel Bandwidth: 20 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	132072	1720.0	-9.46	36.45	26.99	500.03	H
	132322	1745.0	-10.56	36.80	26.24	420.63	
	132572	1770.0	-10.74	36.94	26.20	417.16	
	132072	1720.0	-15.62	37.28	21.66	146.45	V
	132322	1745.0	-15.78	37.63	21.85	153.11	
	132572	1770.0	-16.33	37.64	21.31	135.21	
Channel Bandwidth: 20 MHz / 16QAM							
X	132072	1720.0	-10.68	36.45	25.77	377.57	H
	132322	1745.0	-10.81	36.80	25.99	397.10	
	132572	1770.0	-11.56	36.94	25.38	345.38	
	132072	1720.0	-16.56	37.28	20.72	117.95	V
	132322	1745.0	-16.75	37.63	20.88	122.46	
	132572	1770.0	-16.99	37.64	20.65	116.14	
Channel Bandwidth: 20 MHz / 64QAM							
X	132072	1720.0	-11.65	36.45	24.80	302.00	H
	132322	1745.0	-11.81	36.80	24.99	315.43	
	132572	1770.0	-12.62	36.94	24.32	270.58	
	132072	1720.0	-17.85	37.28	19.43	87.64	V
	132322	1745.0	-17.91	37.63	19.72	93.76	
	132572	1770.0	-17.68	37.64	19.96	99.08	

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

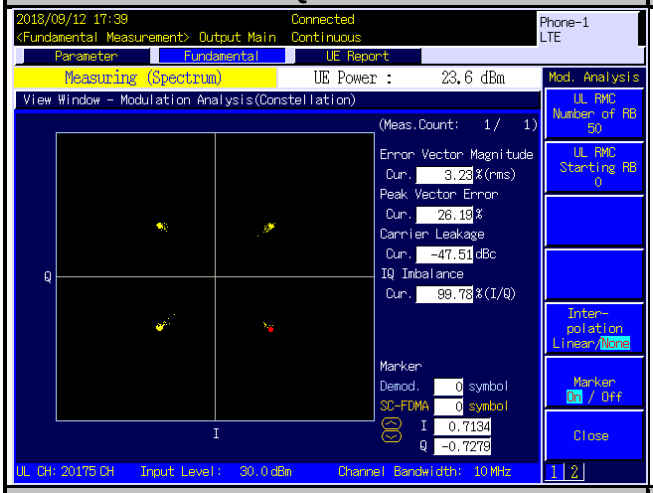
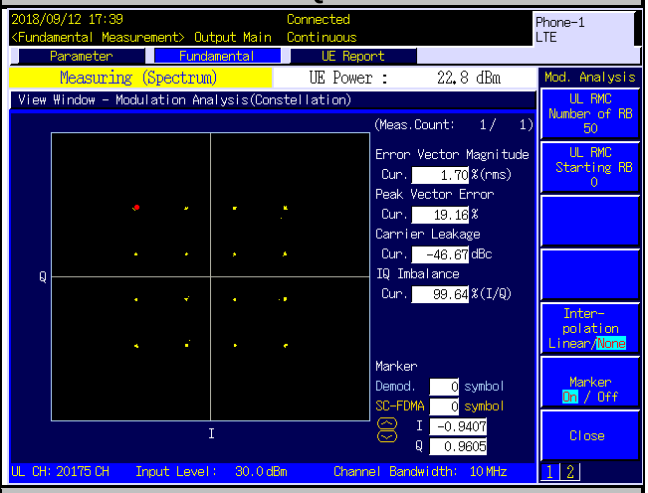
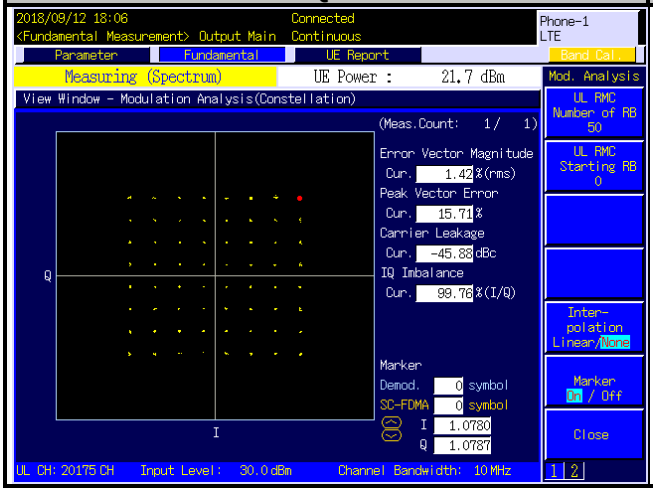
N/A

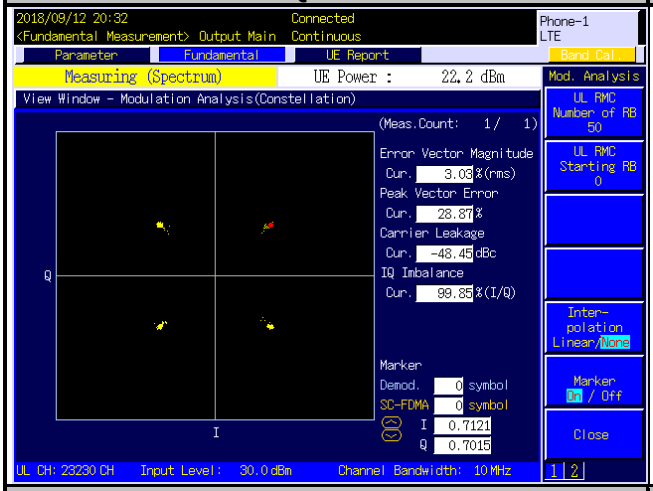
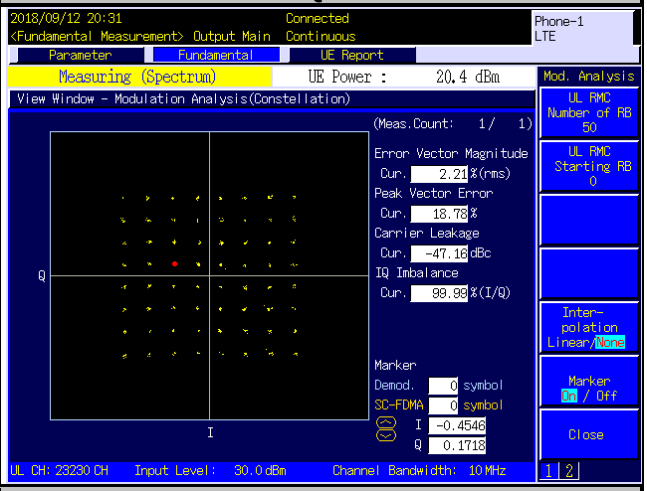
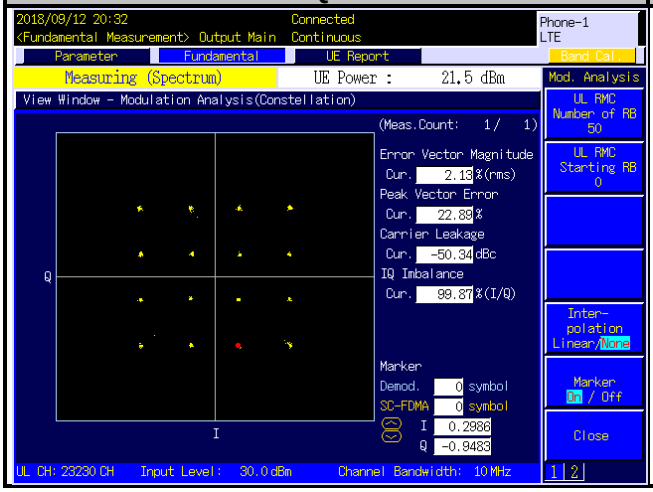
4.2.2 Test Setup

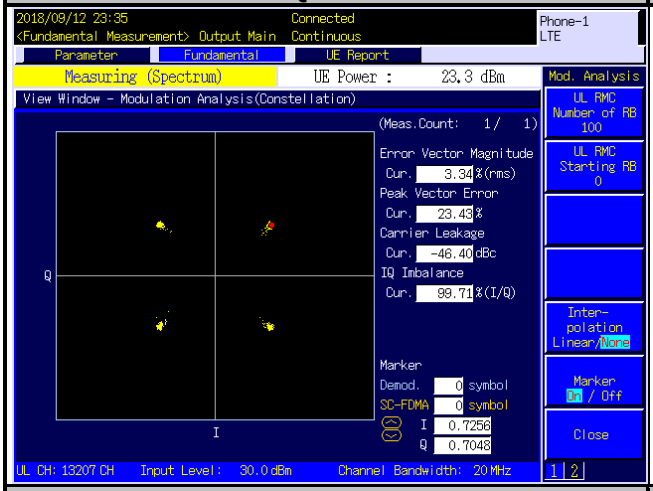
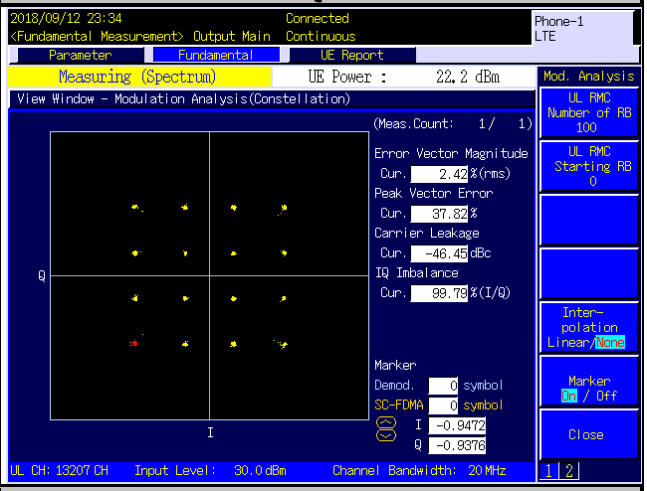
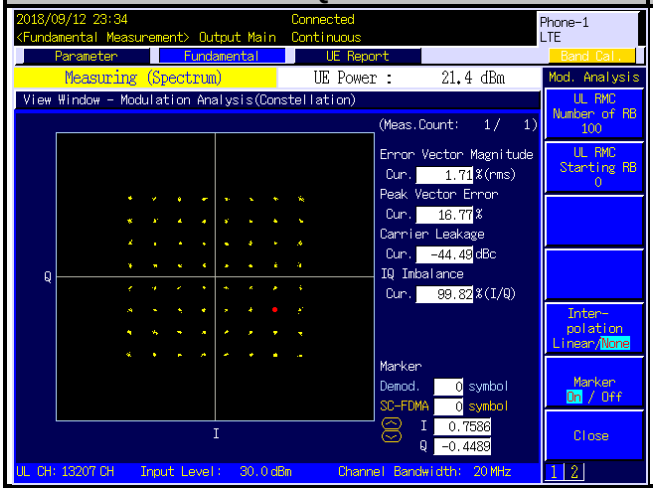
4.2.3 Test Procedure

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

4.2.4 Test Results

Spectrum Plot of Measurement	
LTE Band 4	
Channel 20175	
QPSK	16QAM
	
64QAM	
	

Spectrum Plot of Measurement	
LTE Band 13	
Channel 23230	
QPSK	16QAM
	
64QAM	
	

Spectrum Plot of Measurement	
LTE Band 66	
Channel 132322	
QPSK	16QAM
	
64QAM	
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

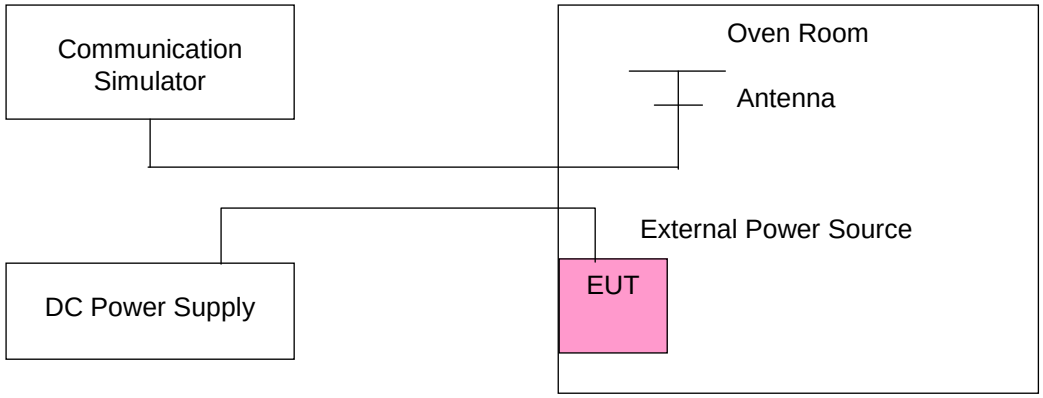
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Procedure

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

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1710.700003	0.002	1754.300002	0.001	2.5
3.23	1710.700002	0.001	1754.300002	0.001	2.5
4.37	1710.700003	0.002	1754.300003	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1710.700002	0.001	1754.300002	0.001	2.5
-20	1710.700002	0.001	1754.300002	0.001	2.5
-10	1710.700003	0.002	1754.300003	0.002	2.5
0	1710.700001	0.001	1754.300003	0.002	2.5
10	1710.700002	0.001	1754.300002	0.001	2.5
20	1710.699999	-0.001	1754.299997	-0.002	2.5
30	1710.699996	-0.002	1754.299998	-0.001	2.5
40	1710.699997	-0.002	1754.299997	-0.002	2.5
50	1710.699998	-0.001	1754.299997	-0.002	2.5
60	1710.699998	-0.001	1754.299997	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1711.500001	0.001	1753.500004	0.002	2.5
3.23	1711.500001	0.001	1753.500003	0.002	2.5
4.37	1711.500003	0.002	1753.500001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1711.500004	0.002	1753.500004	0.002	2.5
-20	1711.500003	0.002	1753.500003	0.002	2.5
-10	1711.500003	0.002	1753.500002	0.001	2.5
0	1711.500003	0.002	1753.500003	0.001	2.5
10	1711.500001	0.001	1753.500001	0.001	2.5
20	1711.499998	-0.001	1753.499997	-0.001	2.5
30	1711.499999	-0.001	1753.499997	-0.002	2.5
40	1711.499999	-0.001	1753.499998	-0.001	2.5
50	1711.499996	-0.002	1753.499997	-0.002	2.5
60	1711.499998	-0.001	1753.499998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1712.500001	0.001	1752.500003	0.002	2.5
3.23	1712.500001	0.001	1752.500002	0.001	2.5
4.37	1712.500003	0.002	1752.500003	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1712.500001	0.001	1752.500003	0.002	2.5
-20	1712.500003	0.002	1752.500002	0.001	2.5
-10	1712.500003	0.002	1752.500003	0.002	2.5
0	1712.500003	0.002	1752.500002	0.001	2.5
10	1712.500003	0.002	1752.500001	0.001	2.5
20	1712.499996	-0.002	1752.499998	-0.001	2.5
30	1712.499999	-0.001	1752.499999	-0.001	2.5
40	1712.499998	-0.001	1752.499996	-0.002	2.5
50	1712.499998	-0.001	1752.499997	-0.002	2.5
60	1712.499998	-0.001	1752.499998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1715.000004	0.002	1750.000004	0.002	2.5
3.23	1715.000004	0.002	1750.000002	0.001	2.5
4.37	1715.000001	0.001	1750.000001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1715.000003	0.002	1750.000003	0.002	2.5
-20	1715.000003	0.002	1750.000001	0.001	2.5
-10	1715.000003	0.001	1750.000003	0.002	2.5
0	1715.000004	0.002	1750.000002	0.001	2.5
10	1715.000004	0.002	1750.000002	0.001	2.5
20	1714.999997	-0.002	1749.999998	-0.001	2.5
30	1714.999996	-0.002	1749.999998	-0.001	2.5
40	1714.999998	-0.001	1749.999998	-0.001	2.5
50	1714.999998	-0.001	1749.999997	-0.002	2.5
60	1714.999998	-0.001	1749.999997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1717.500003	0.002	1747.500001	0.001	2.5
3.23	1717.500003	0.001	1747.500002	0.001	2.5
4.37	1717.500001	0.001	1747.500002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1717.500002	0.001	1747.500001	0.001	2.5
-20	1717.500004	0.002	1747.500002	0.001	2.5
-10	1717.500003	0.002	1747.500002	0.001	2.5
0	1717.500002	0.001	1747.500001	0.001	2.5
10	1717.500001	0.001	1747.500001	0.001	2.5
20	1717.499999	-0.001	1747.499997	-0.002	2.5
30	1717.499999	-0.001	1747.499997	-0.002	2.5
40	1717.499999	-0.001	1747.499996	-0.002	2.5
50	1717.499996	-0.002	1747.499998	-0.001	2.5
60	1717.499998	-0.001	1747.499997	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1720.000003	0.002	1745.000001	0.001	2.5
3.23	1720.000001	0.001	1745.000004	0.002	2.5
4.37	1720.000004	0.002	1745.000003	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1720.000003	0.002	1745.000003	0.002	2.5
-20	1720.000004	0.002	1745.000002	0.001	2.5
-10	1720.000003	0.002	1745.000002	0.001	2.5
0	1720.000003	0.002	1745.000003	0.002	2.5
10	1720.000003	0.002	1745.000002	0.001	2.5
20	1719.999997	-0.002	1744.999998	-0.001	2.5
30	1719.999997	-0.002	1744.999999	-0.001	2.5
40	1719.999999	-0.001	1744.999998	-0.001	2.5
50	1719.999997	-0.002	1744.999998	-0.001	2.5
60	1719.999997	-0.002	1744.999997	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	779.500002	0.002	784.500004	0.005	2.5
3.23	779.500002	0.002	784.500004	0.005	2.5
4.37	779.500003	0.003	784.500003	0.004	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 13				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	779.500003	0.003	784.500002	0.003	2.5
-20	779.500002	0.002	784.500003	0.004	2.5
-10	779.500003	0.003	784.500004	0.005	2.5
0	779.500001	0.001	784.500002	0.002	2.5
10	779.500001	0.001	784.500002	0.002	2.5
20	779.499998	-0.003	784.499998	-0.002	2.5
30	779.499997	-0.004	784.499997	-0.004	2.5
40	779.499999	-0.002	784.499998	-0.003	2.5
50	779.499998	-0.002	784.499997	-0.004	2.5
60	779.499998	-0.003	784.499998	-0.003	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13		Limit (ppm)
	Channel Bandwidth: 10 MHz		
	Frequency (MHz)	Frequency Error (ppm)	
3.8	782.000002	0.002	2.5
3.23	782.000003	0.004	2.5
4.37	782.000001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 13		Limit (ppm)
	Channel Bandwidth: 10 MHz		
	Frequency (MHz)	Frequency Error (ppm)	
-30	782.000002	0.002	2.5
-20	782.000001	0.002	2.5
-10	782.000001	0.002	2.5
0	782.000003	0.004	2.5
10	782.000002	0.002	2.5
20	781.999998	-0.002	2.5
30	781.999999	-0.002	2.5
40	781.999997	-0.004	2.5
50	781.999997	-0.004	2.5
60	781.999997	-0.004	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1710.700002	0.001	1779.300002	0.001	2.5
3.23	1710.700003	0.002	1779.300003	0.002	2.5
4.37	1710.700002	0.001	1779.300001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1710.700004	0.002	1779.300002	0.001	2.5
-20	1710.700003	0.002	1779.300003	0.002	2.5
-10	1710.700002	0.001	1779.300003	0.001	2.5
0	1710.700003	0.002	1779.300002	0.001	2.5
10	1710.700001	0.001	1779.300003	0.002	2.5
20	1710.699998	-0.001	1779.299999	-0.001	2.5
30	1710.699998	-0.001	1779.299997	-0.002	2.5
40	1710.699999	-0.001	1779.299999	-0.001	2.5
50	1710.699998	-0.001	1779.299999	-0.001	2.5
60	1710.699998	-0.001	1779.299998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1711.500002	0.001	1778.500003	0.002	2.5
3.23	1711.500002	0.001	1778.500001	0.001	2.5
4.37	1711.500003	0.002	1778.500004	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1711.500003	0.002	1778.500002	0.001	2.5
-20	1711.500004	0.002	1778.500004	0.002	2.5
-10	1711.500003	0.002	1778.500002	0.001	2.5
0	1711.500003	0.002	1778.500003	0.002	2.5
10	1711.500002	0.001	1778.500001	0.001	2.5
20	1711.499999	-0.001	1778.499997	-0.002	2.5
30	1711.499999	-0.001	1778.499997	-0.002	2.5
40	1711.499997	-0.002	1778.499998	-0.001	2.5
50	1711.499998	-0.001	1778.499998	-0.001	2.5
60	1711.499998	-0.001	1778.499998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1712.500003	0.002	1777.500002	0.001	2.5
3.23	1712.500001	0.001	1777.500003	0.002	2.5
4.37	1712.500004	0.002	1777.500002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1712.500004	0.002	1777.500002	0.001	2.5
-20	1712.500001	0.001	1777.500003	0.002	2.5
-10	1712.500003	0.002	1777.500001	0.001	2.5
0	1712.500003	0.002	1777.500002	0.001	2.5
10	1712.500003	0.002	1777.500004	0.002	2.5
20	1712.499997	-0.002	1777.499998	-0.001	2.5
30	1712.499999	-0.001	1777.499998	-0.001	2.5
40	1712.499997	-0.002	1777.499999	-0.001	2.5
50	1712.499998	-0.001	1777.499998	-0.001	2.5
60	1712.499998	-0.001	1777.499998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1715.000001	0.001	1775.000003	0.002	2.5
3.23	1715.000003	0.002	1775.000004	0.002	2.5
4.37	1715.000002	0.001	1775.000003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1715.000001	0.001	1775.000004	0.002	2.5
-20	1715.000002	0.001	1775.000002	0.001	2.5
-10	1715.000002	0.001	1775.000003	0.002	2.5
0	1715.000004	0.002	1775.000002	0.001	2.5
10	1715.000004	0.002	1775.000002	0.001	2.5
20	1714.999996	-0.002	1774.999998	-0.001	2.5
30	1714.999996	-0.002	1774.999997	-0.002	2.5
40	1714.999998	-0.001	1774.999996	-0.002	2.5
50	1714.999998	-0.001	1774.999997	-0.001	2.5
60	1714.999998	-0.001	1774.999997	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1717.500004	0.002	1772.500002	0.001	2.5
3.23	1717.500003	0.002	1772.500003	0.001	2.5
4.37	1717.500002	0.001	1772.500001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1717.500002	0.001	1772.500003	0.002	2.5
-20	1717.500004	0.002	1772.500004	0.002	2.5
-10	1717.500002	0.001	1772.500002	0.001	2.5
0	1717.500004	0.002	1772.500002	0.001	2.5
10	1717.500001	0.001	1772.500001	0.001	2.5
20	1717.499996	-0.002	1772.499999	-0.001	2.5
30	1717.499999	-0.001	1772.499999	-0.001	2.5
40	1717.499996	-0.002	1772.499998	-0.001	2.5
50	1717.499997	-0.002	1772.499999	-0.001	2.5
60	1717.499998	-0.001	1772.499998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	1720.000003	0.001	1770.000002	0.001	2.5
3.23	1720.000002	0.001	1770.000002	0.001	2.5
4.37	1720.000004	0.002	1770.000002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.23 Vdc to 4.37 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	1720.000004	0.002	1770.000001	0.001	2.5
-20	1720.000004	0.002	1770.000003	0.002	2.5
-10	1720.000002	0.001	1770.000003	0.002	2.5
0	1720.000003	0.002	1770.000003	0.002	2.5
10	1720.000004	0.002	1770.000003	0.002	2.5
20	1719.999996	-0.002	1769.999998	-0.001	2.5
30	1719.999996	-0.002	1769.999998	-0.001	2.5
40	1719.999998	-0.001	1769.999997	-0.002	2.5
50	1719.999997	-0.002	1769.999997	-0.002	2.5
60	1719.999998	-0.001	1769.999998	-0.001	2.5

4.4 Occupied Bandwidth Measurement

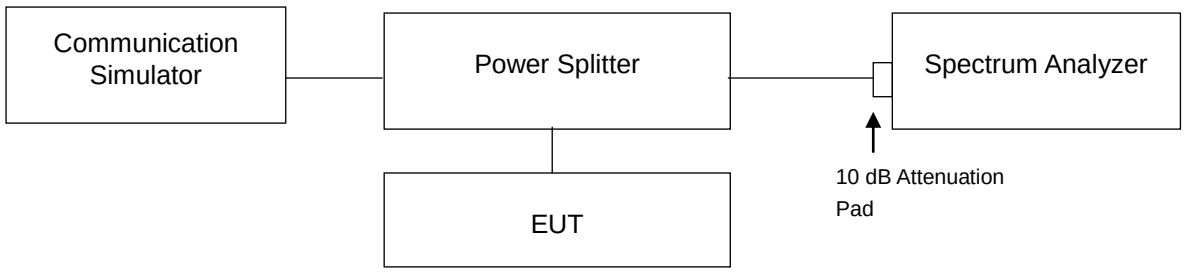
4.4.1 Limits of Occupied Bandwidth Measurement

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.

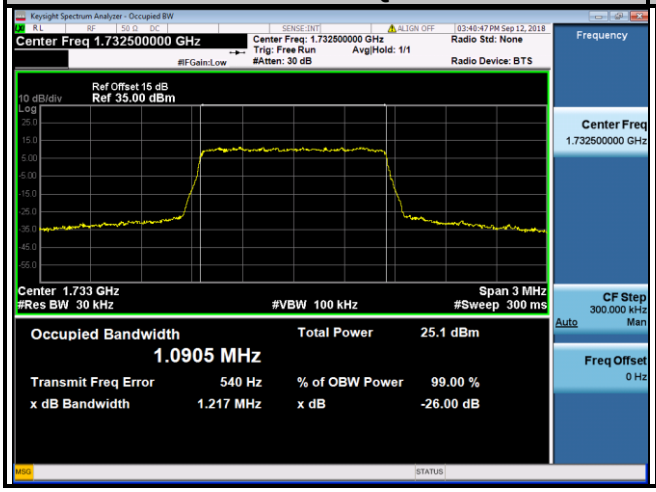
4.4.3 Test Setup

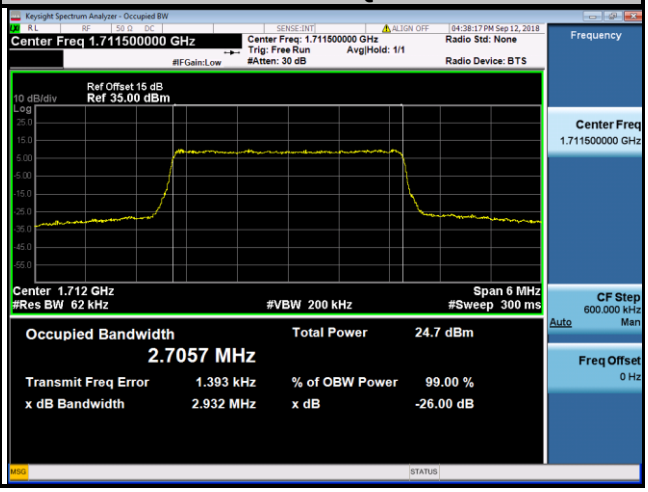


4.4.4 Test Result

LTE Band 4									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19957	1710.7	1.0878	1.0872	1.0857	19965	1711.5	2.7010	2.6984	2.7057
20175	1732.5	1.0861	1.0905	1.0860	20175	1732.5	2.7016	2.6972	2.7036
20393	1754.3	1.0871	1.0903	1.0872	20385	1753.5	2.7024	2.6997	2.7026

Spectrum Plot of Worst Value	
1.4 MHz / 16QAM	3 MHz / 64QAM





LTE Band 4									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19975	1712.5	4.4934	4.4947	4.4978	20000	1715.0	8.9658	8.9709	8.9635
20175	1732.5	4.4932	4.4931	4.4964	20175	1732.5	8.9734	8.9769	8.9682
20375	1752.5	4.4921	4.4949	4.4916	20350	1750.0	8.9677	8.9686	8.9659

Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 16QAM
	

LTE Band 4									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20025	1717.5	13.436	13.431	13.423	20050	1720.0	17.881	17.904	17.901
20175	1732.5	13.459	13.448	13.443	20175	1732.5	17.934	17.957	17.954
20325	1747.5	13.448	13.442	13.438	20300	1745.0	17.918	17.934	17.938

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

LTE Band 13									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23205	779.5	4.4895	4.4950	4.5018	23230	782.0	8.9645	8.9662	8.9671
23230	782.0	4.4927	4.4938	4.4965					
23255	784.5	4.4940	4.4974	4.5048					

Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 64QAM
	

LTE Band 66									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
131979	1710.7	1.0884	1.0908	1.0886	131987	1711.5	2.7007	2.6981	2.6972
132322	1745.0	1.0872	1.0869	1.0887	132322	1745.0	2.6987	2.6970	2.6985
132665	1779.3	1.0878	1.0878	1.0887	132657	1778.5	2.7008	2.6972	2.6978

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

LTE Band 66									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
131997	1712.5	4.4927	4.4959	4.5060	132022	1715.0	8.9652	8.9732	8.9724
132322	1745.0	4.4923	4.4947	4.5030	132322	1745.0	8.9657	8.9722	8.9808
132647	1777.5	4.4917	4.4945	4.4984	132622	1775.0	8.9632	8.9695	8.9699

Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 64QAM
	

LTE Band 66									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
132047	1717.5	13.434	13.426	13.422	132072	1720.0	17.879	17.906	17.895
132322	1745.0	13.453	13.442	13.438	132322	1745.0	17.916	17.937	17.934
132597	1772.5	13.447	13.440	13.437	132572	1770.0	17.921	17.951	17.945

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

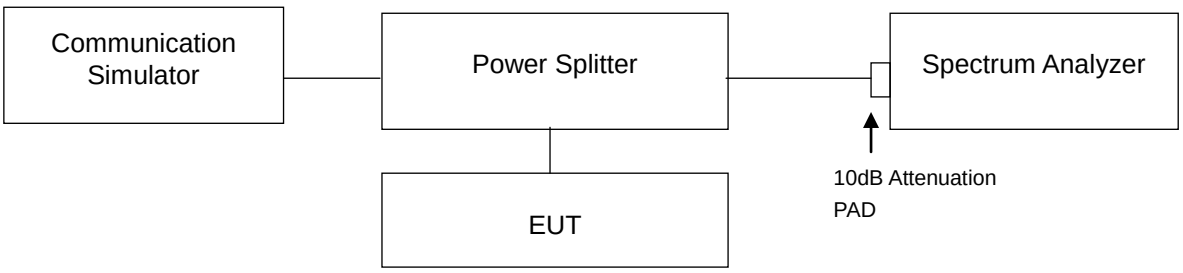
4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

For operations in the 776-787 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.
However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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

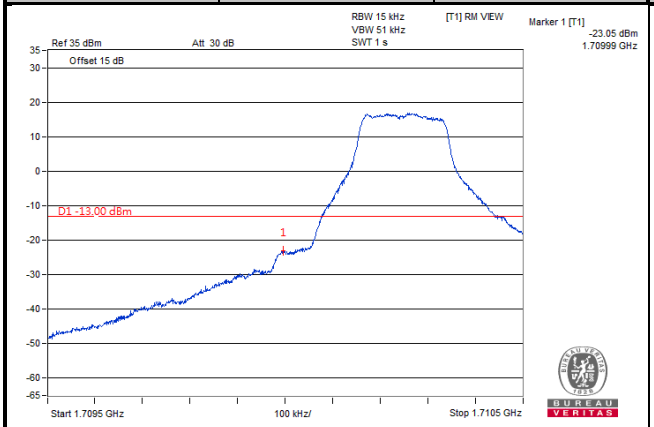
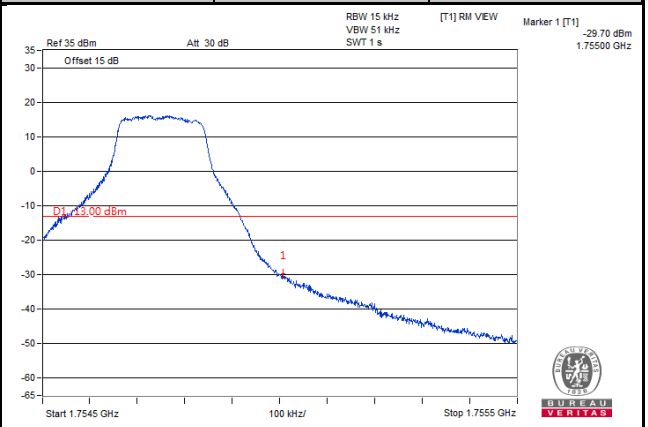
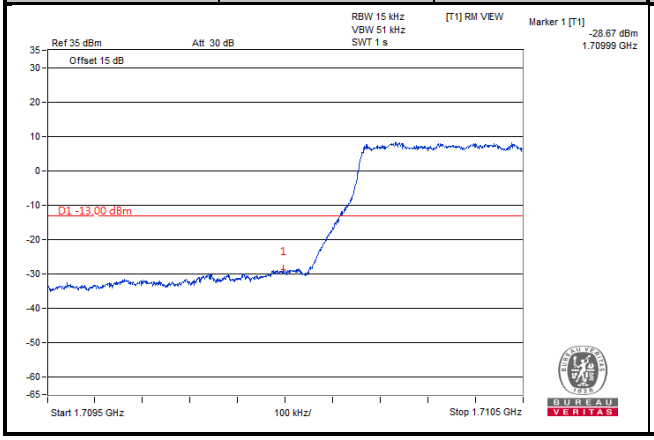
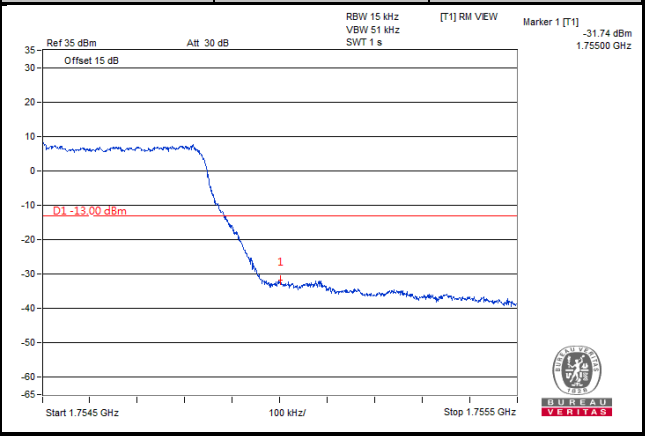
4.5.2 Test Setup

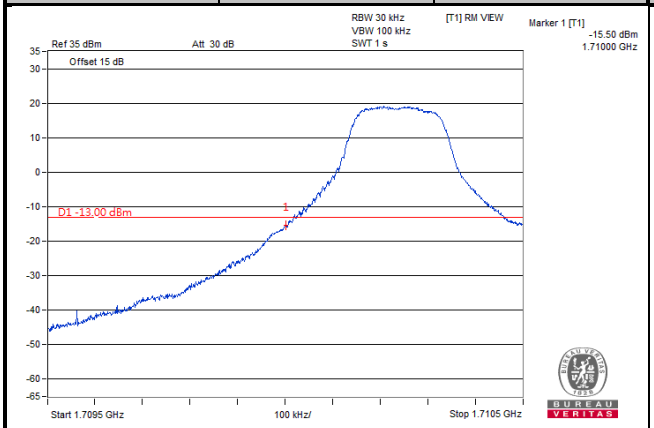
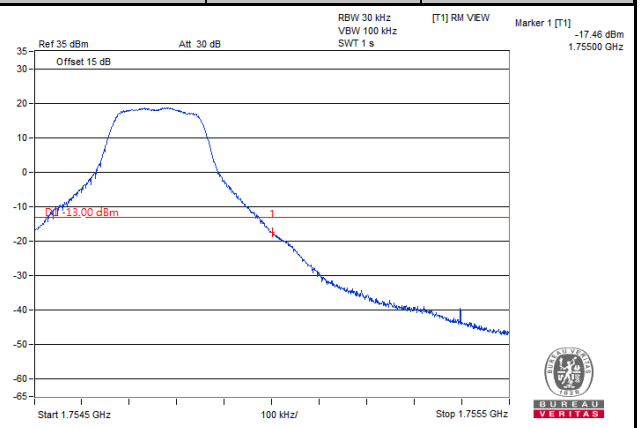
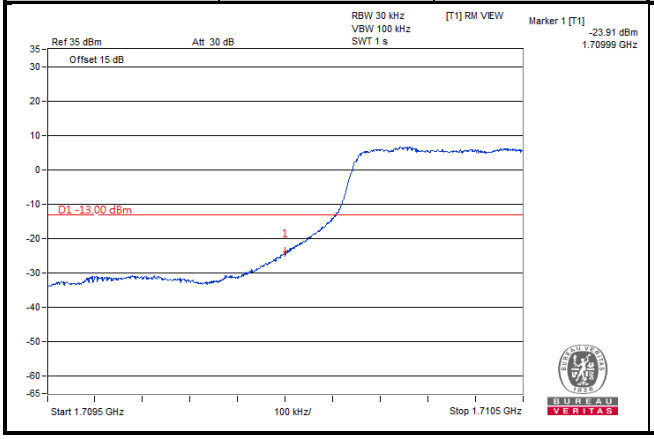
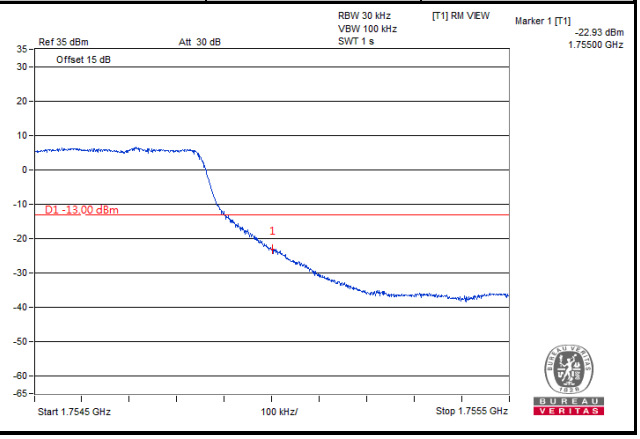


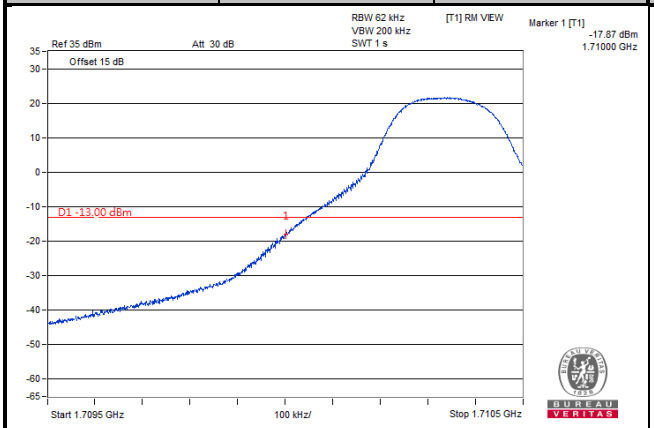
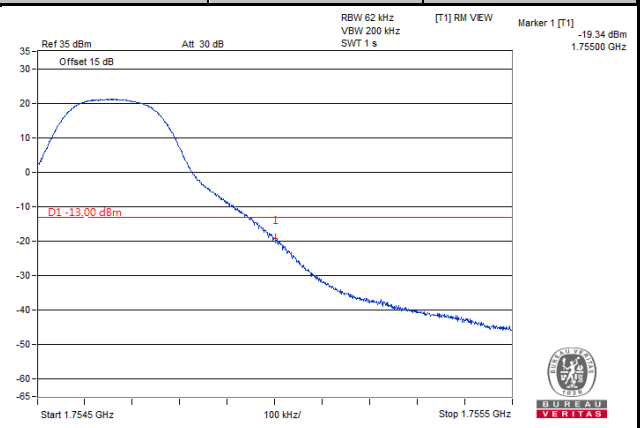
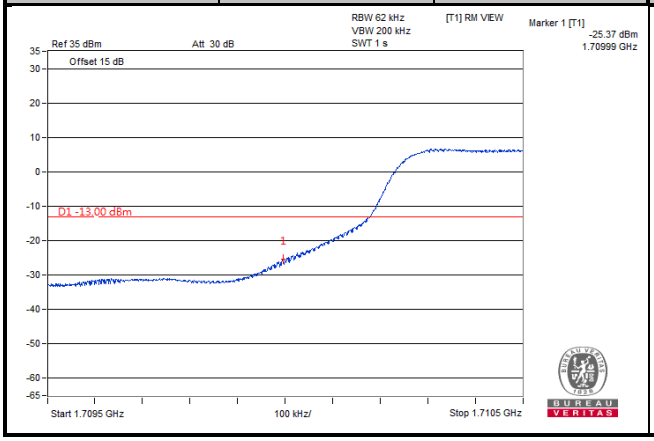
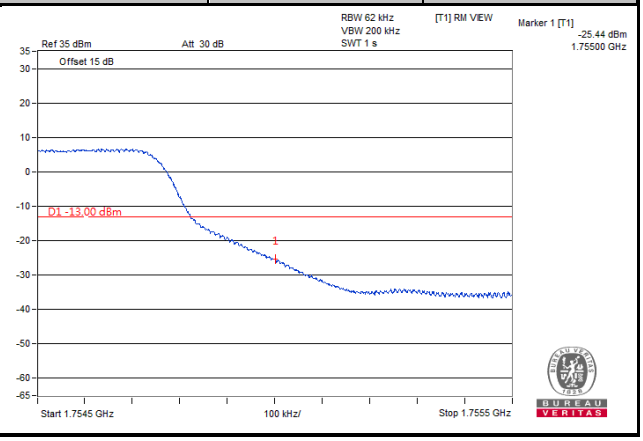
4.5.3 Test Procedures

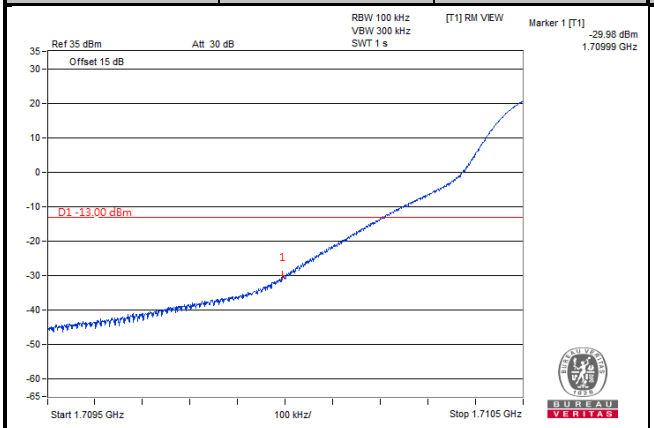
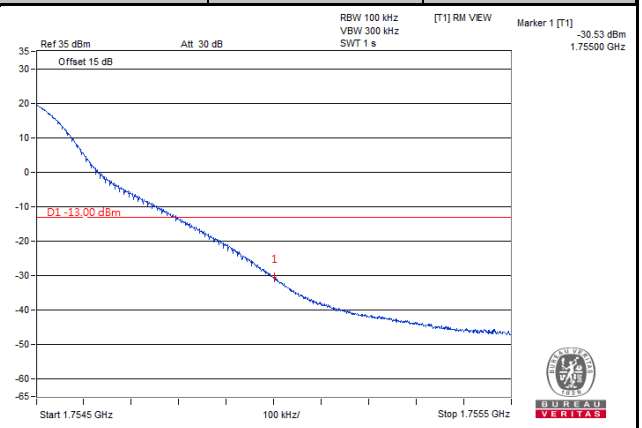
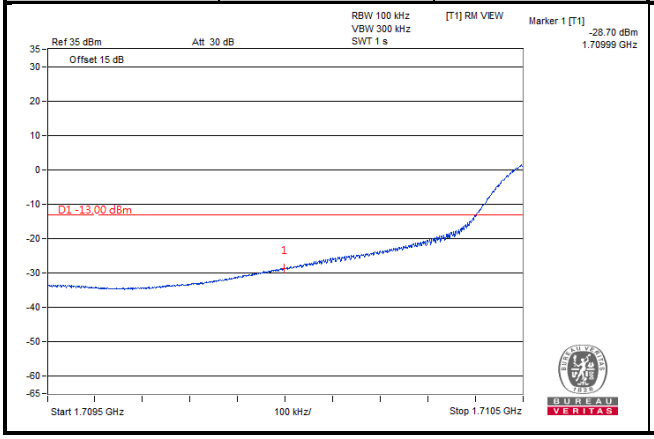
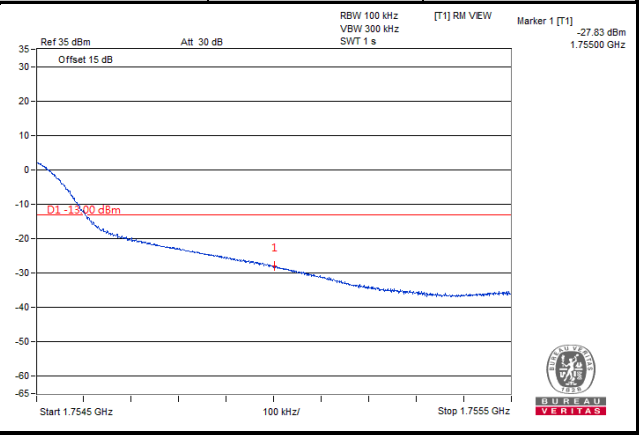
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 15 kHz and VB of the spectrum is 51 kHz (LTE Bandwidth 1.4 MHz).
c. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 30 kHz and VB of the spectrum is 100 kHz (LTE Bandwidth 3 MHz).
d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 62 kHz and VB of the spectrum is 200 kHz (LTE Bandwidth 5 MHz).
e. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (LTE Bandwidth 10 MHz).
f. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 150 kHz and VB of the spectrum is 470 kHz (LTE Bandwidth 15 MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 200 kHz and VB of the spectrum is 1 MHz (LTE Bandwidth 20 MHz).
h. Record the max. trace plot into the test report.

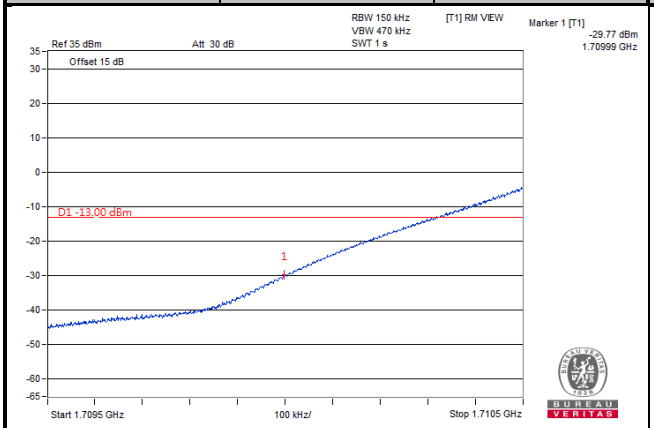
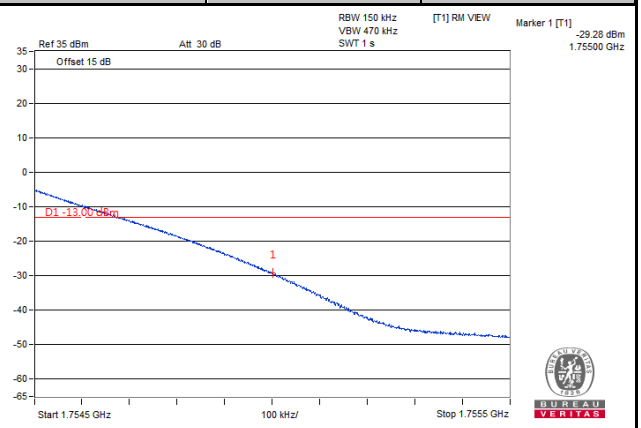
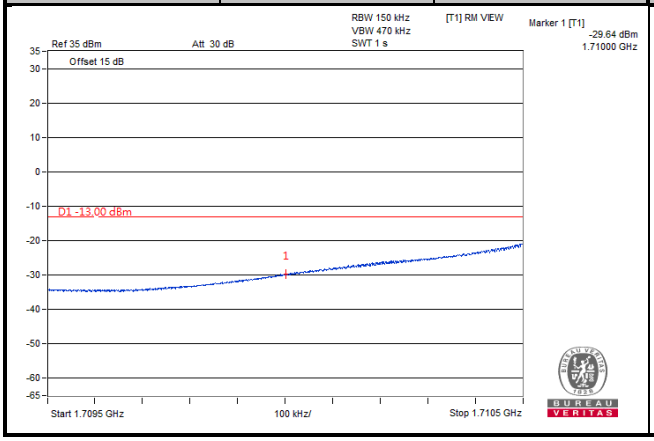
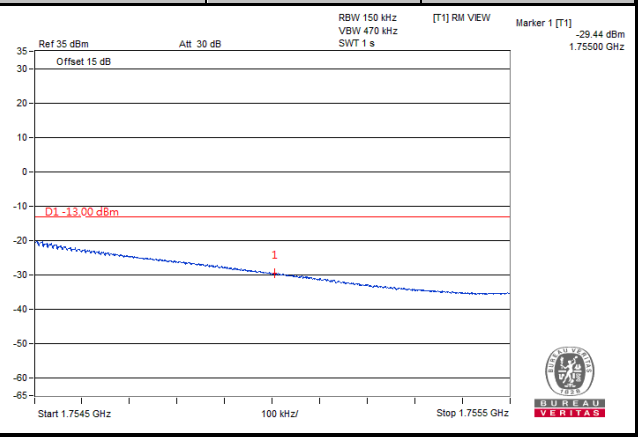
4.5.4 Test Results

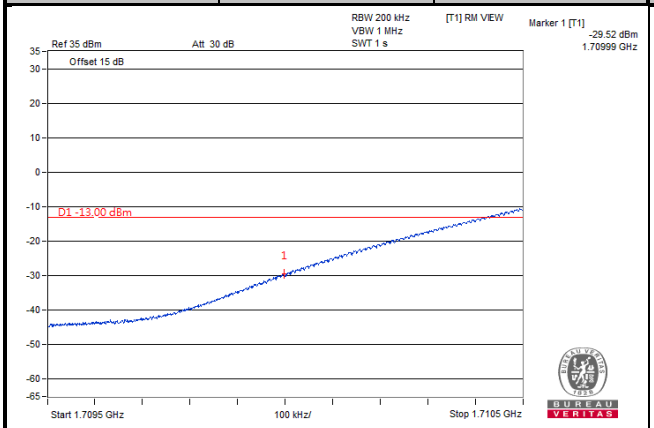
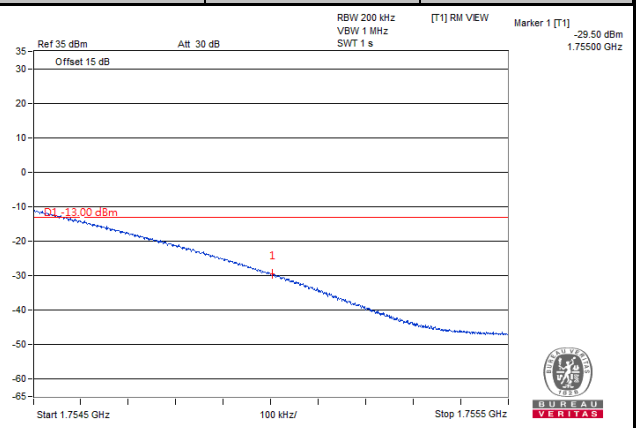
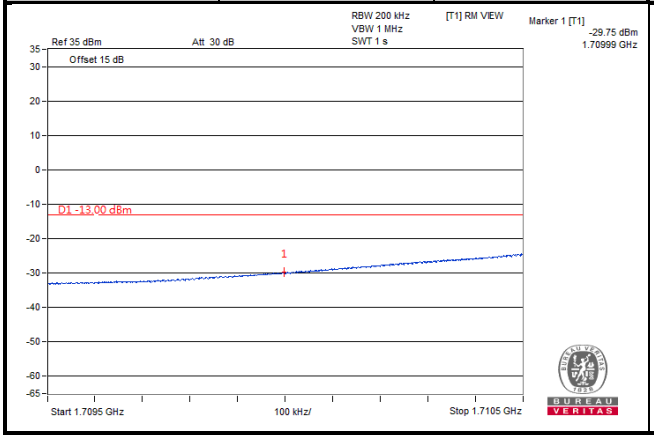
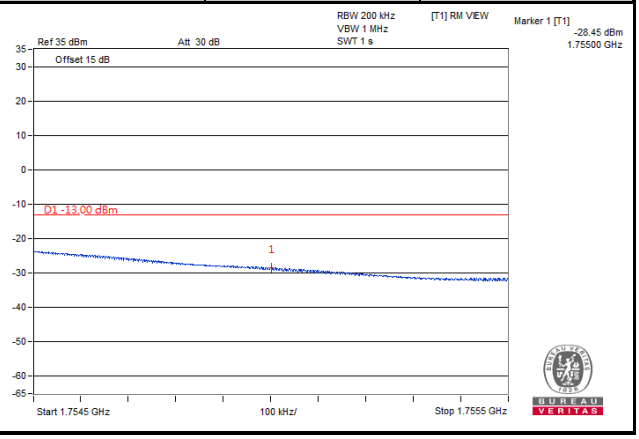
LTE Band 4					
Channel Bandwidth: 1.4 MHz					
Channel	19957	1 RB	Channel	20393	1 RB
					
Channel	19957	6 RB	Channel	20393	6 RB
					

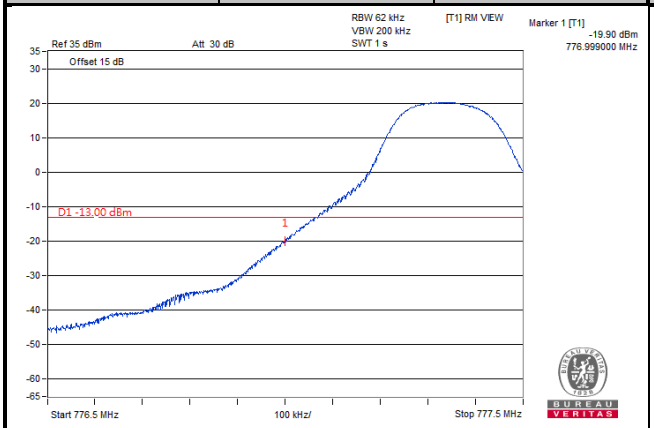
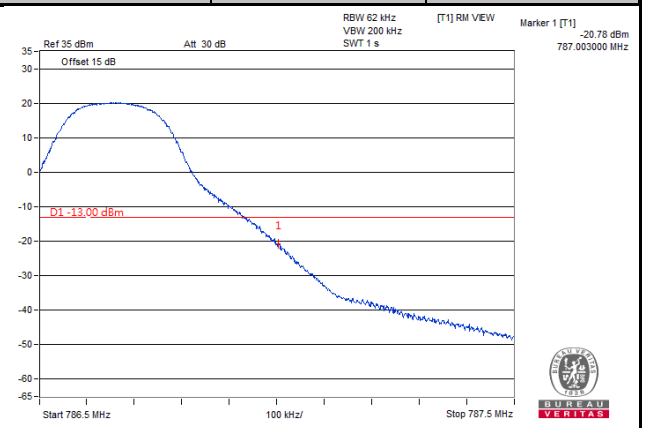
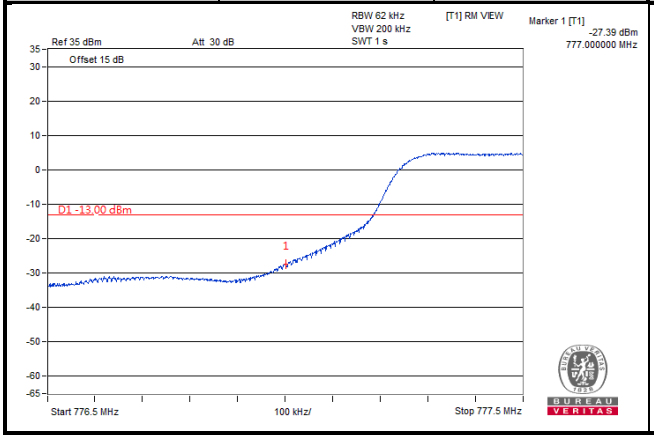
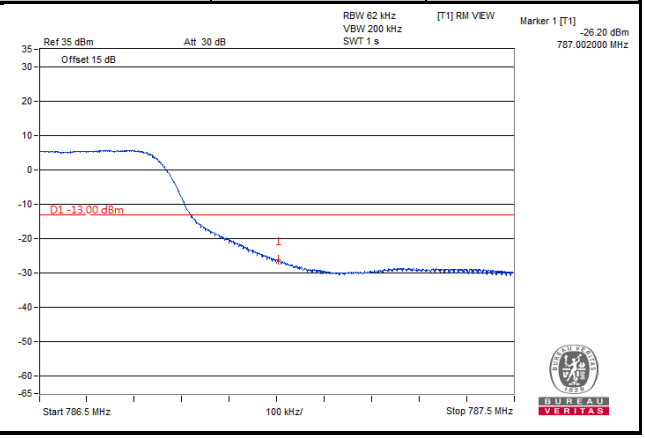
LTE Band 4					
Channel Bandwidth: 3 MHz					
Channel	19965	1 RB	Channel	20385	1 RB
					
Channel	19965	15 RB	Channel	20385	15 RB
					

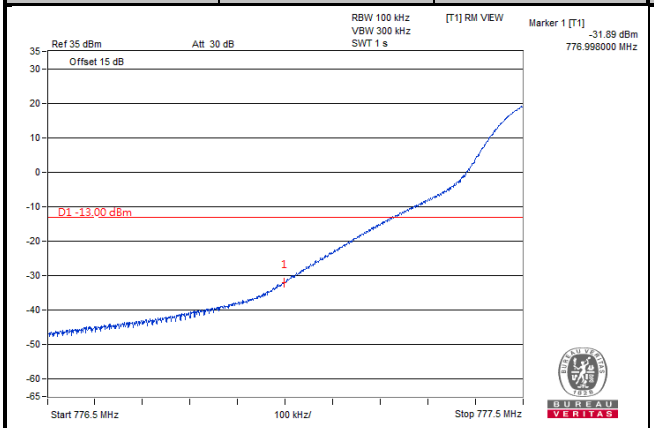
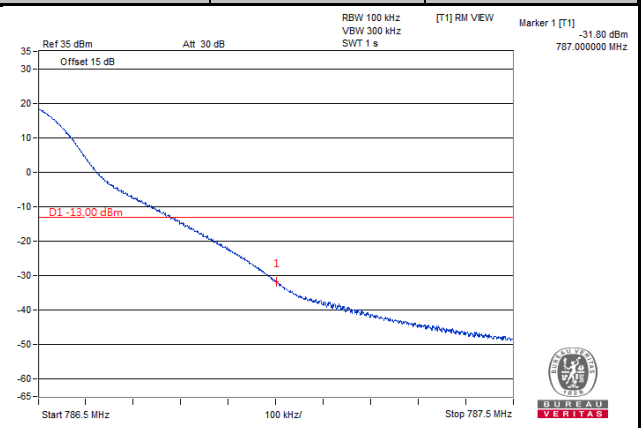
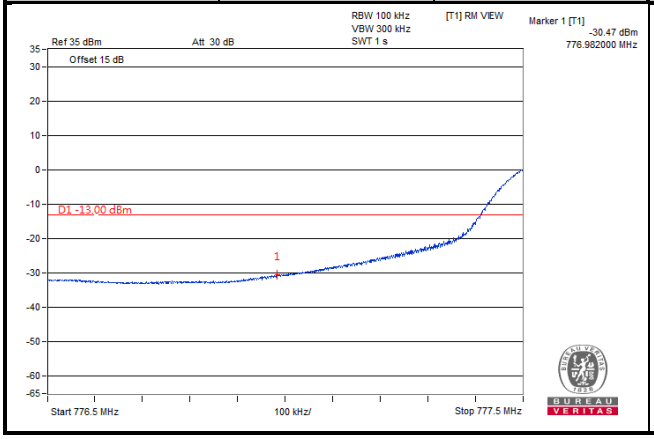
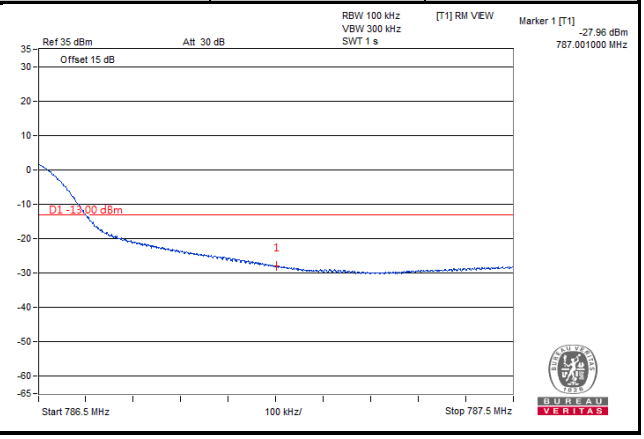
LTE Band 4					
Channel Bandwidth: 5 MHz					
Channel	19975	1 RB	Channel	20375	1 RB
					
Channel	19975	25 RB	Channel	20375	25 RB
					

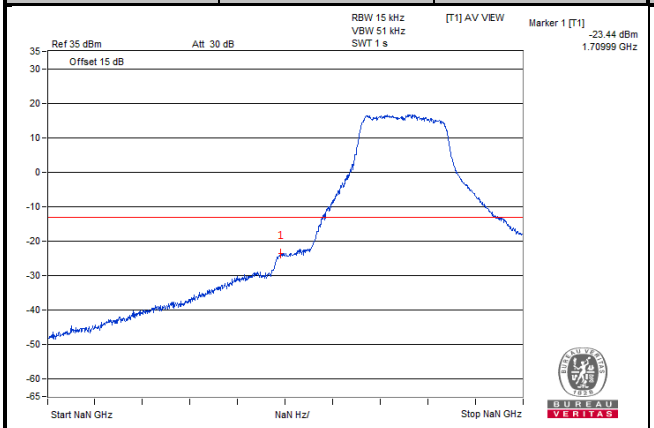
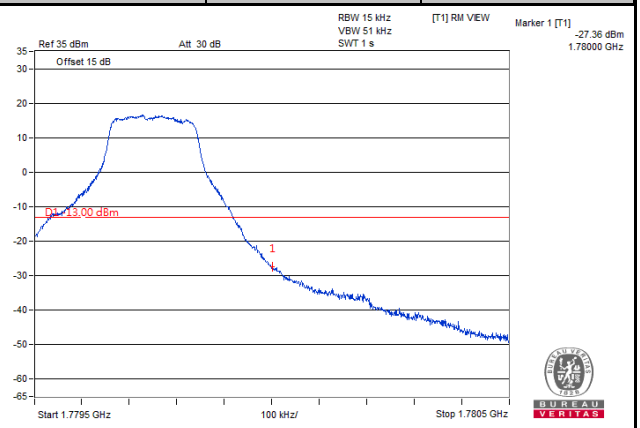
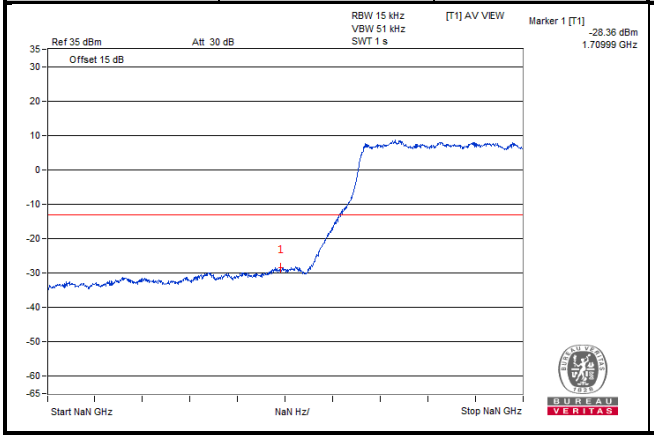
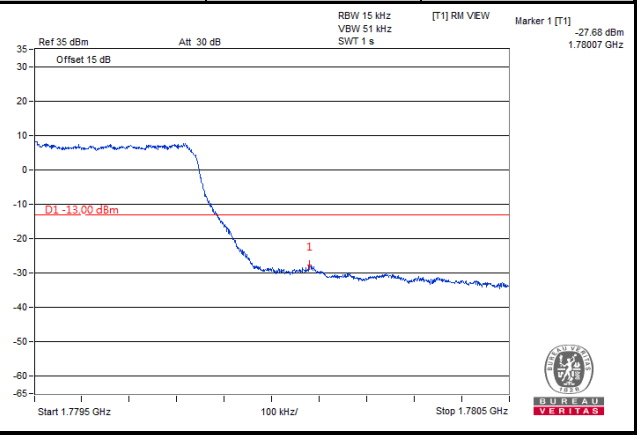
LTE Band 4					
Channel Bandwidth: 10 MHz					
Channel	20000	1 RB	Channel	20350	1 RB
					
Channel	20000	50 RB	Channel	20350	50 RB
					

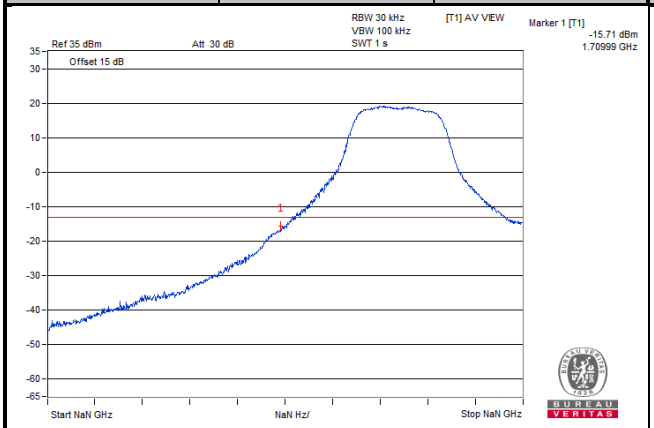
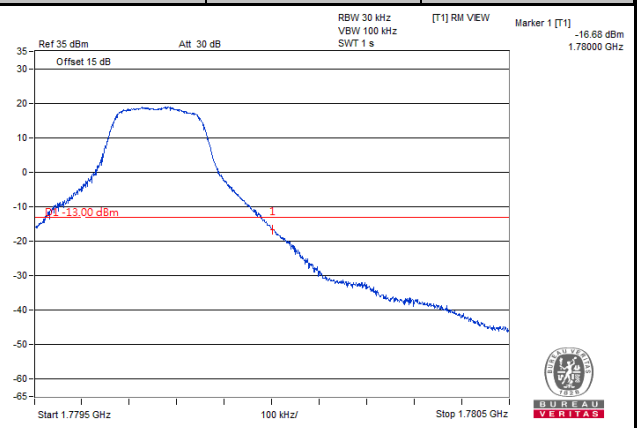
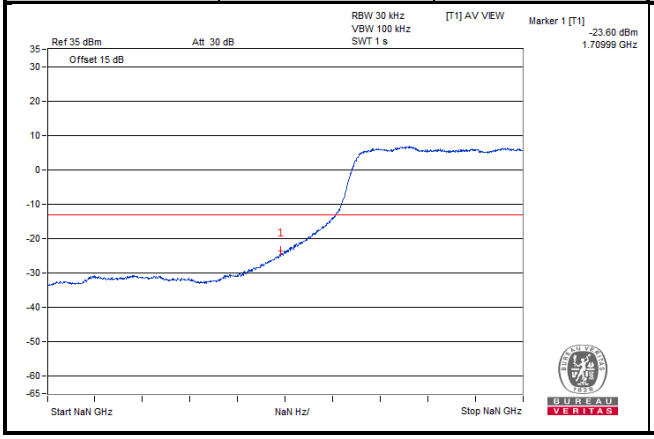
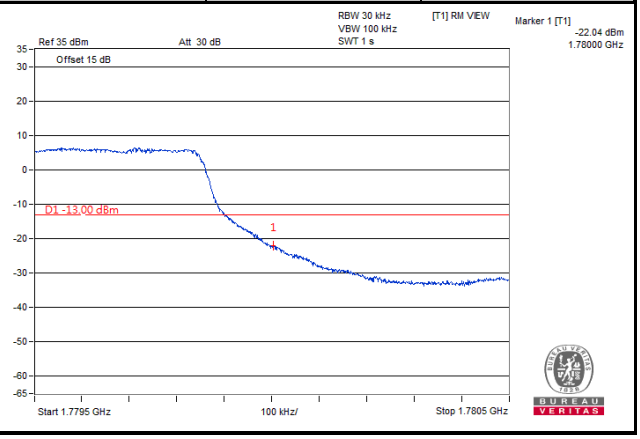
LTE Band 4					
Channel Bandwidth: 15 MHz					
Channel	20025	1 RB	Channel	20325	1 RB
					
Channel	20025	75 RB	Channel	20325	75 RB
					

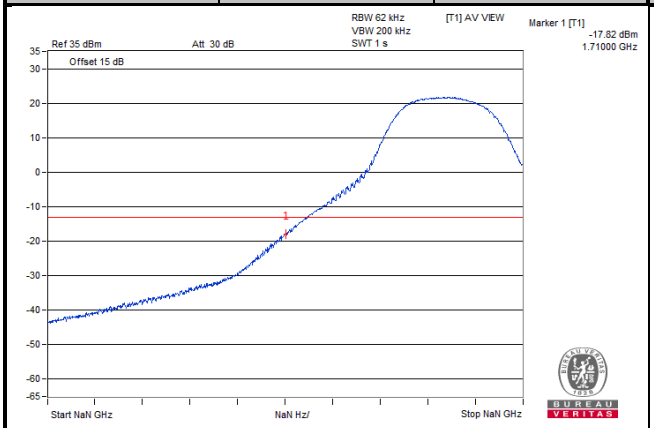
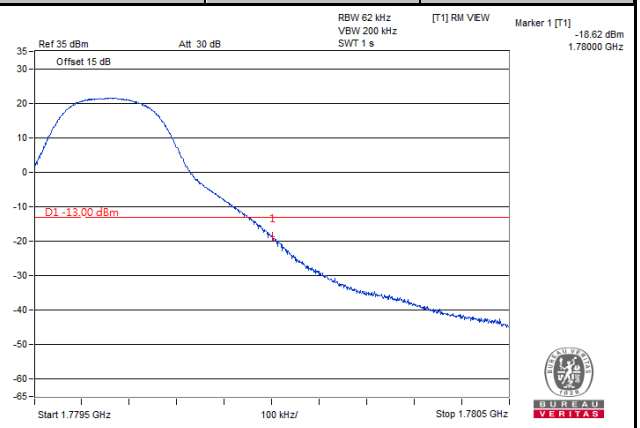
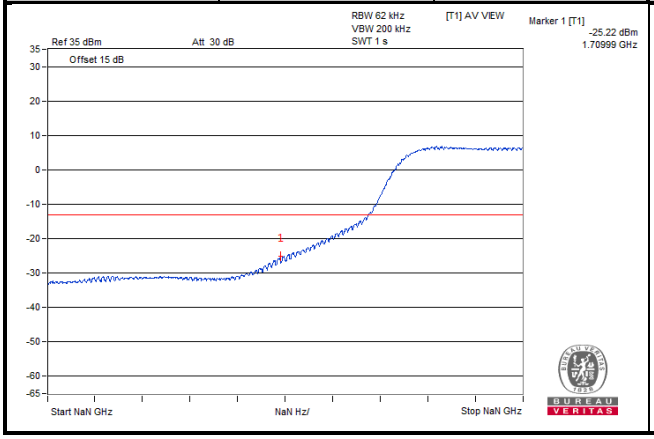
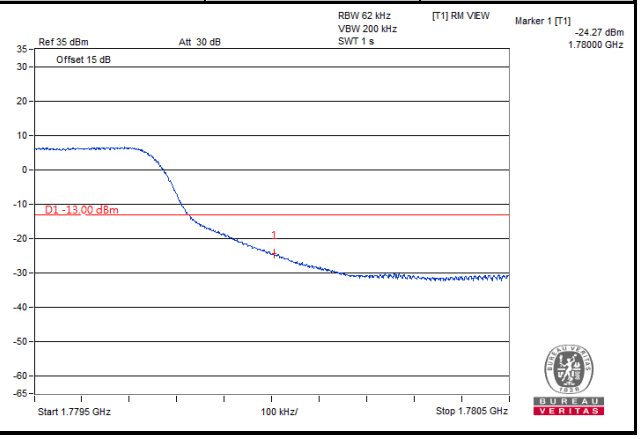
LTE Band 4					
Channel Bandwidth: 20 MHz					
Channel	20050	1 RB	Channel	20300	1 RB
					
Channel	20050	100 RB	Channel	20300	100 RB
					

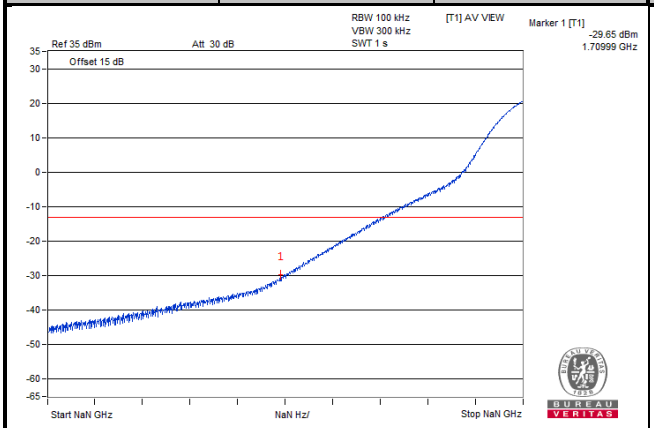
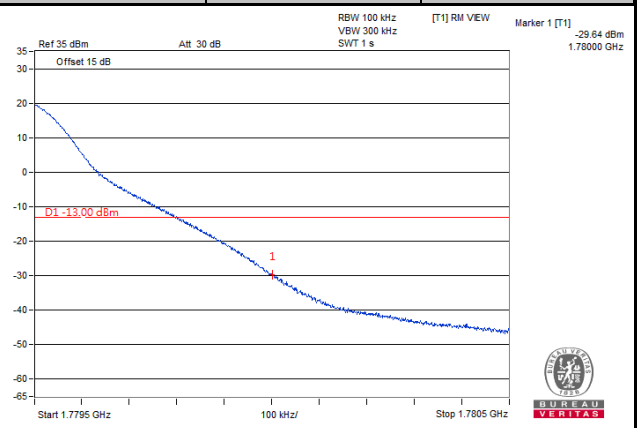
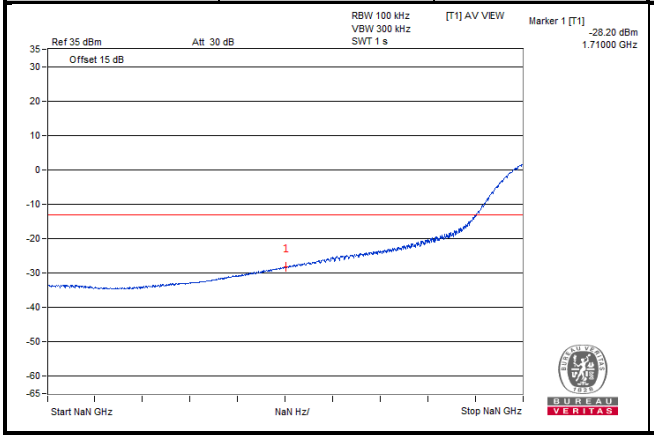
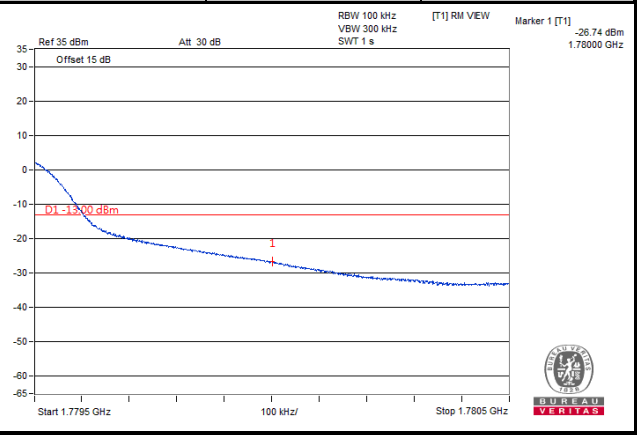
LTE Band 13					
Channel Bandwidth: 5 MHz					
Channel	23205	1 RB	Channel	23255	1 RB
					
Channel	23205	25 RB	Channel	23255	25 RB
					

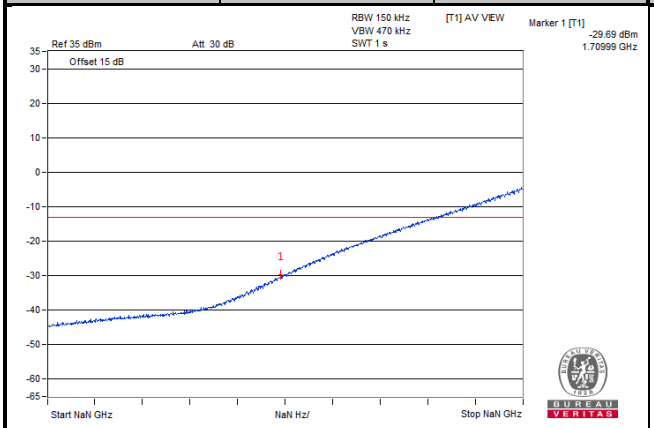
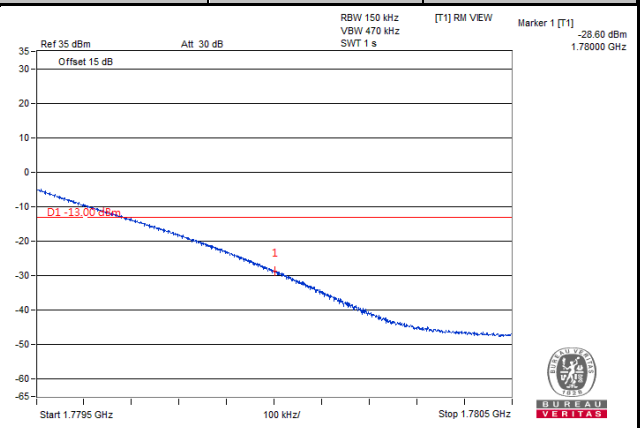
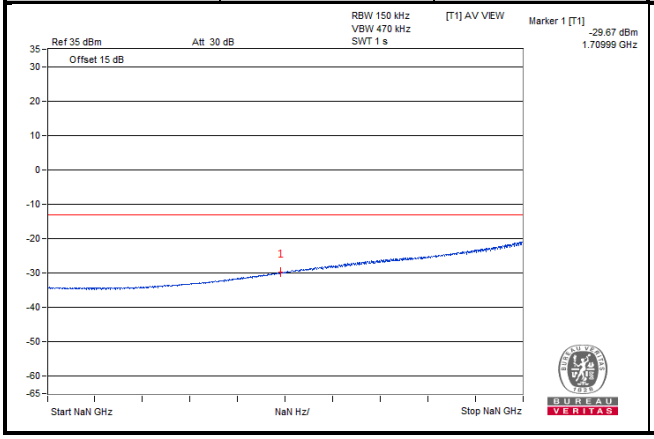
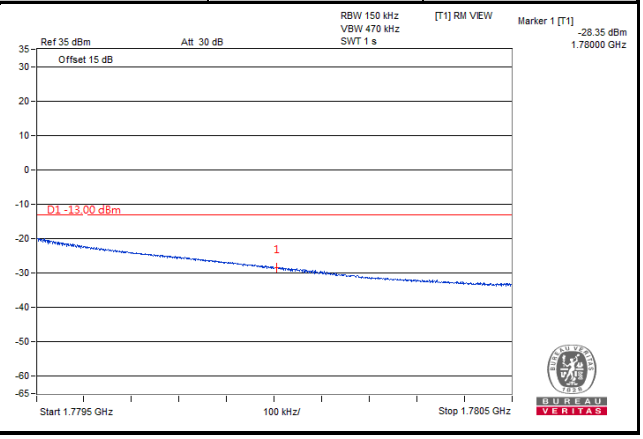
LTE Band 13					
Channel Bandwidth: 10 MHz					
Channel	23230	1 RB	Channel	23230	1 RB
					
Channel	23230	50 RB	Channel	23230	50 RB
					

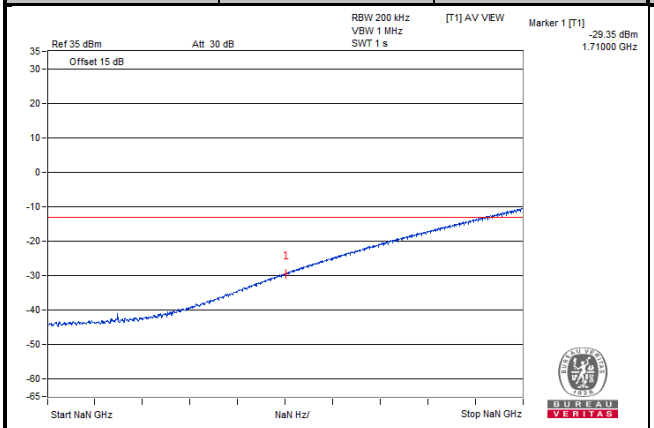
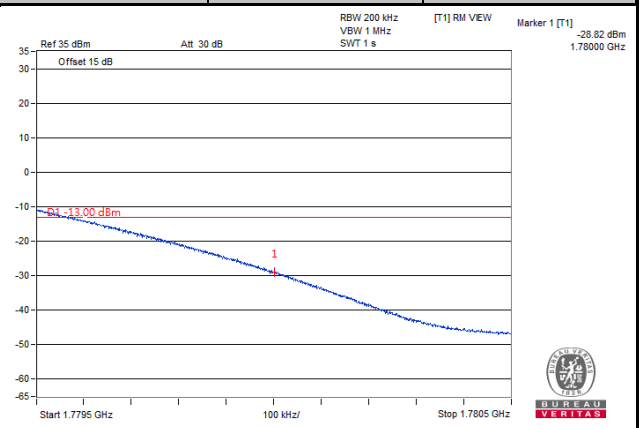
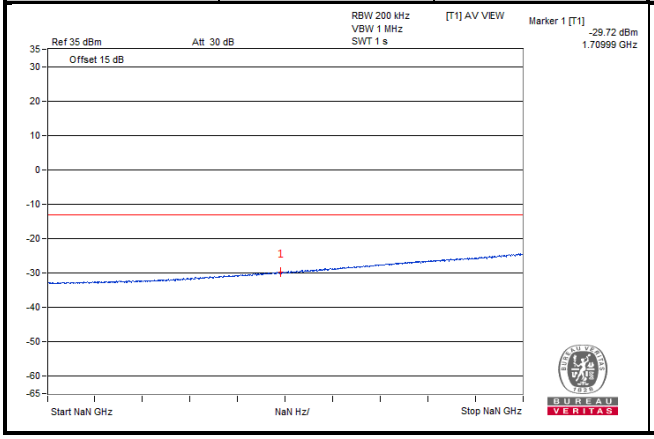
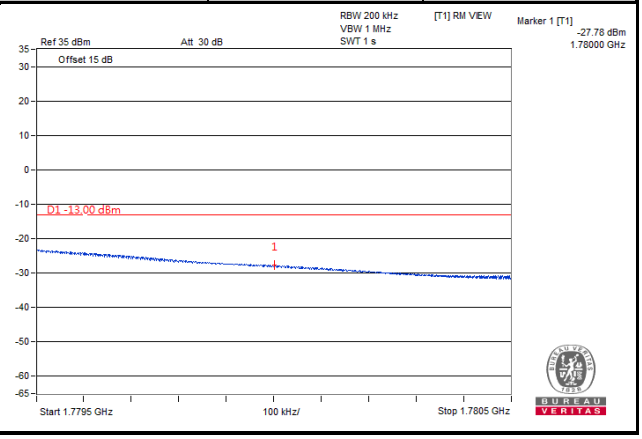
LTE Band 66					
Channel Bandwidth: 1.4 MHz					
Channel	131979	6 RB	Channel	131979	6 RB
					
Channel	131979	25 RB	Channel	131979	25 RB
					

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

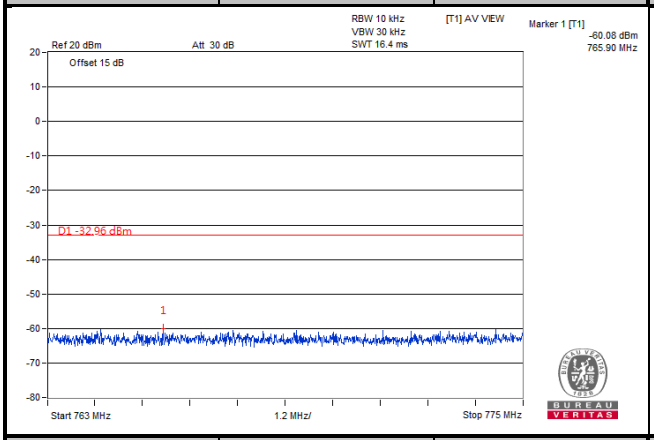
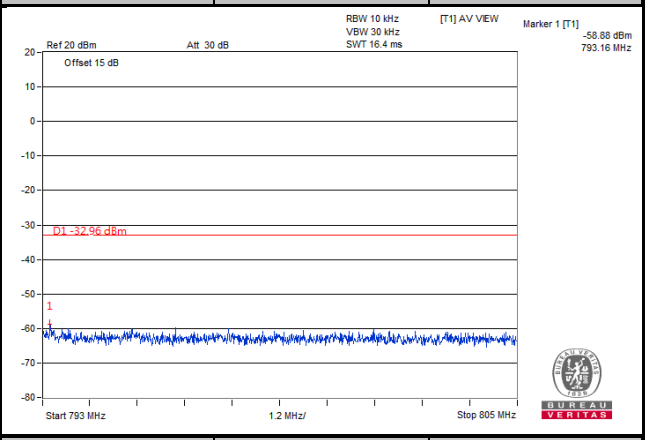
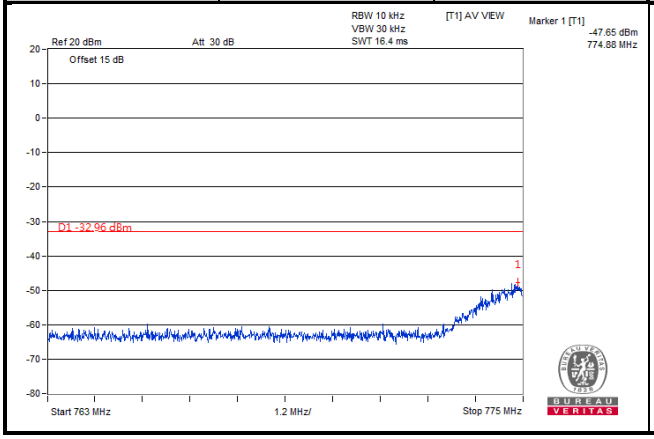
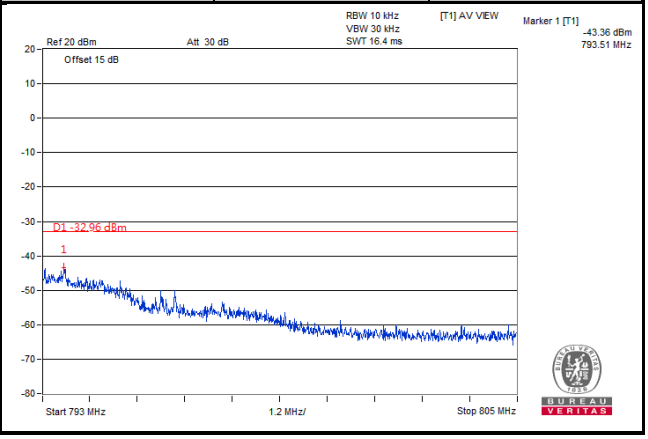
LTE Band 66					
Channel Bandwidth: 5 MHz					
Channel	131997	1 RB	Channel	132647	1 RB
					
Channel	131997	25 RB	Channel	132647	25 RB
					

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

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

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

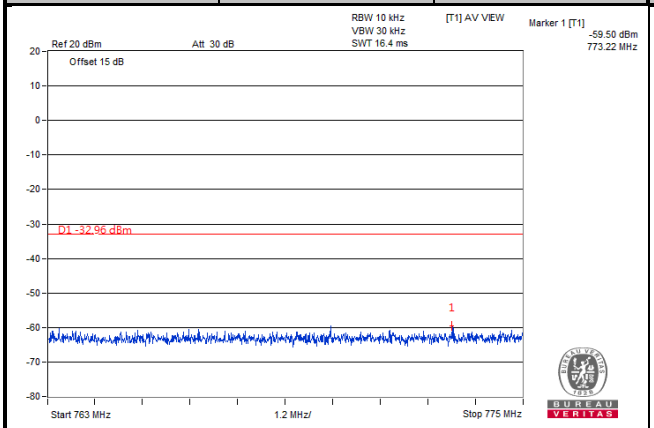
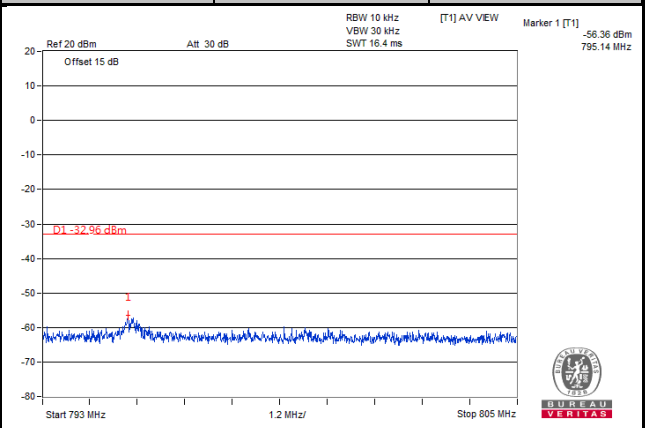
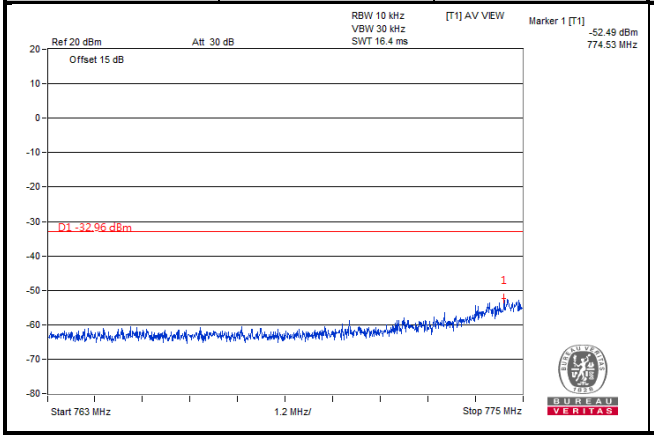
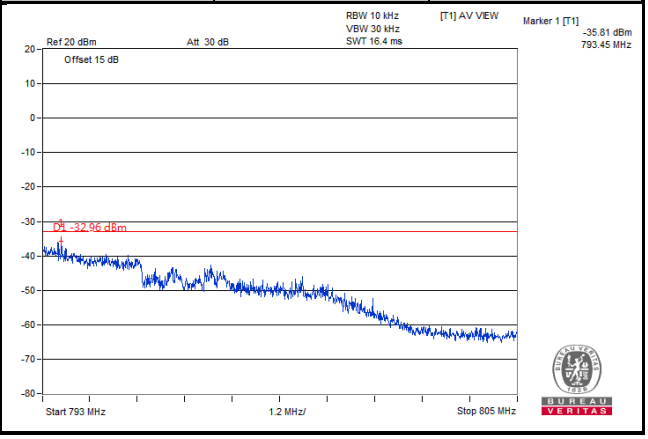
Emission Mask

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

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

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

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

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

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

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

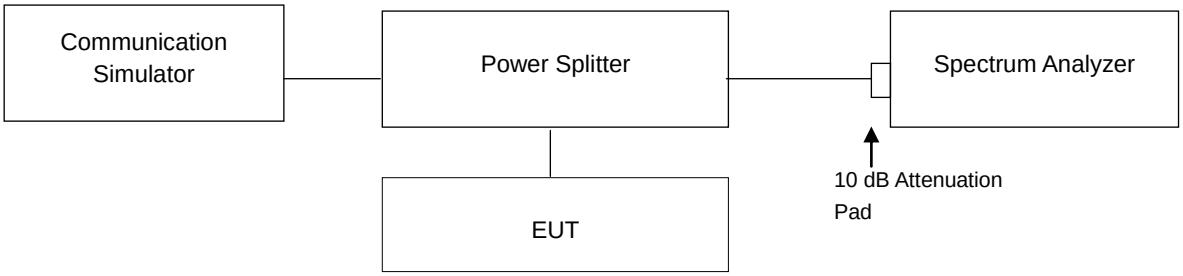
Limit line = -35 dBm + 2.04 dB =-32.96 dBm

4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup



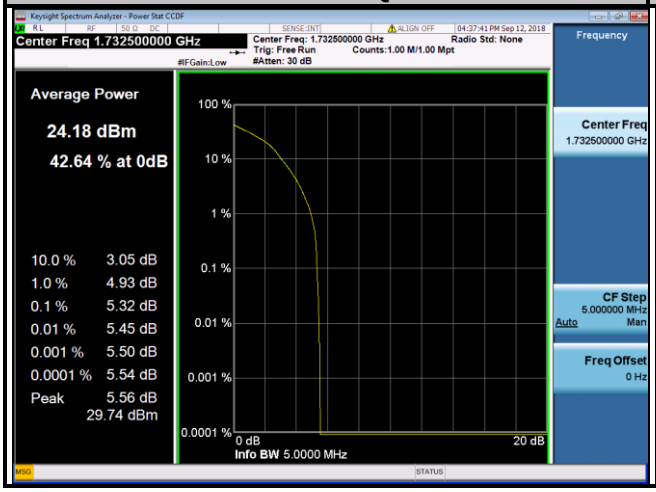
4.6.3 Test Procedures

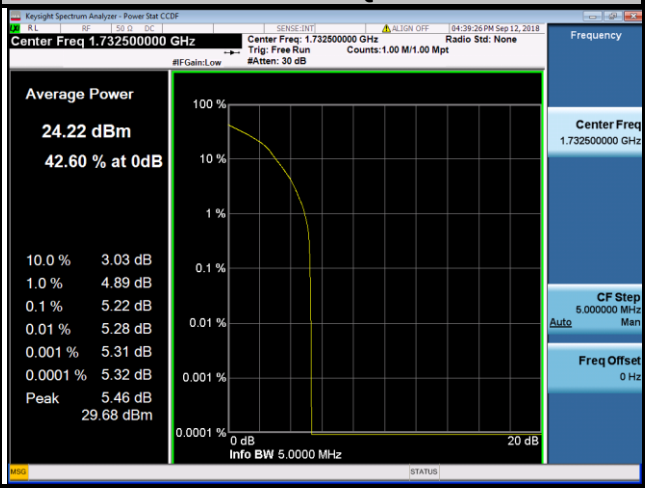
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

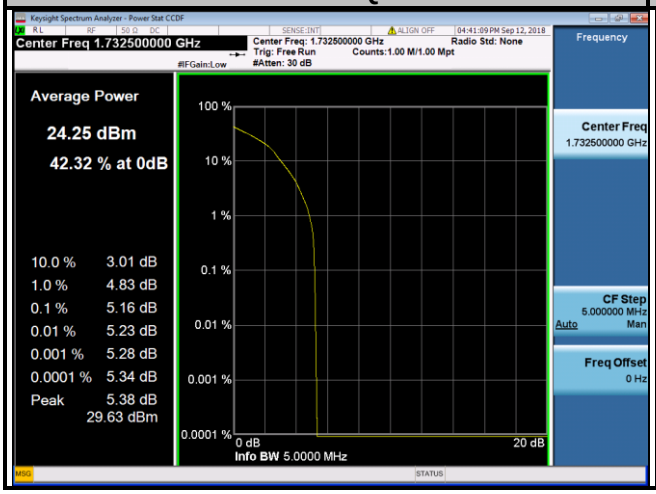
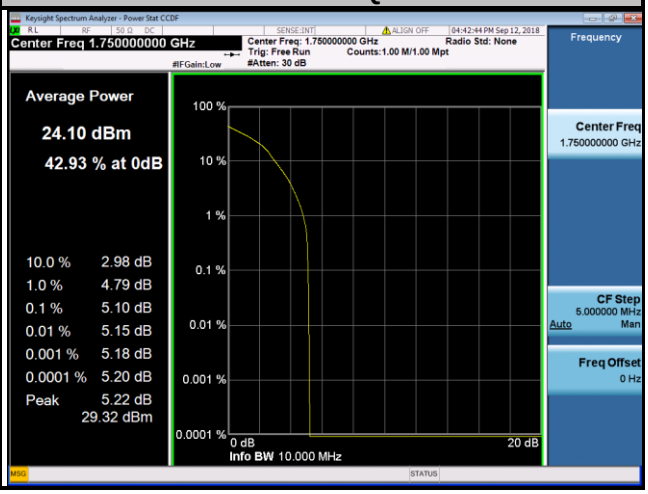
LTE Band 4									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19957	1710.7	3.73	5.13	5.20	19965	1711.5	3.59	5.04	5.13
20175	1732.5	3.82	5.30	5.32	20175	1732.5	3.62	5.12	5.22
20393	1754.3	3.58	4.92	5.03	20385	1753.5	3.43	4.88	4.99

Spectrum Plot of Worst Value	
1.4 MHz / 64QAM	3 MHz / 64QAM

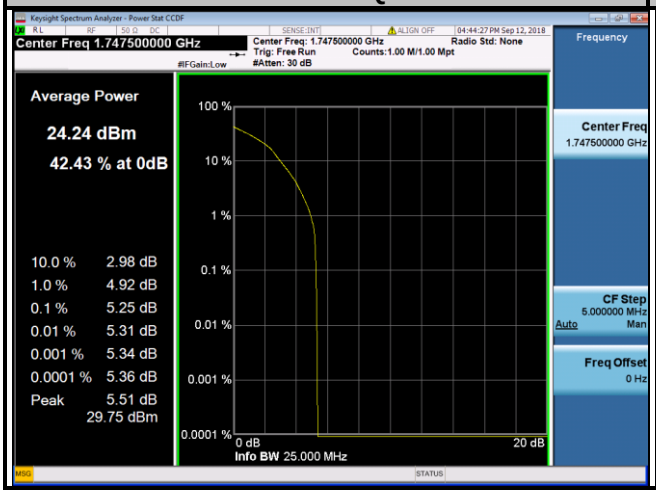
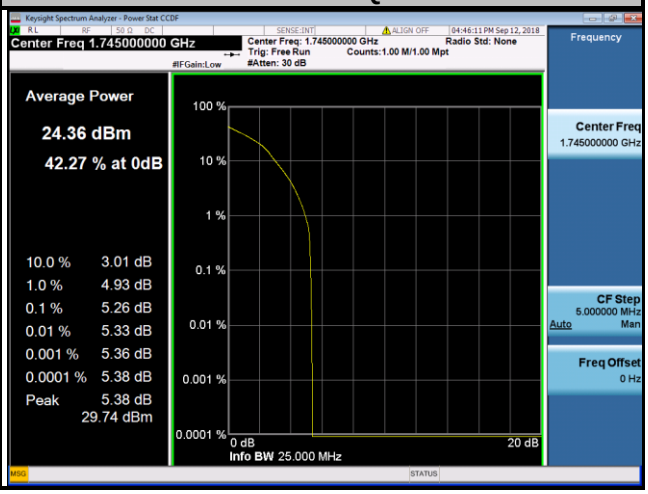




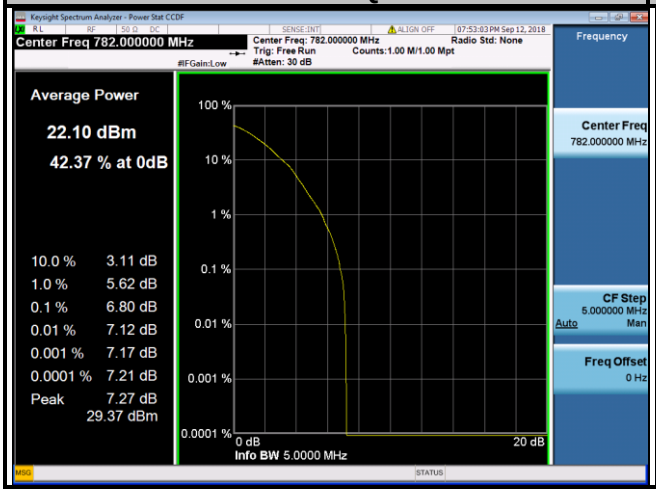
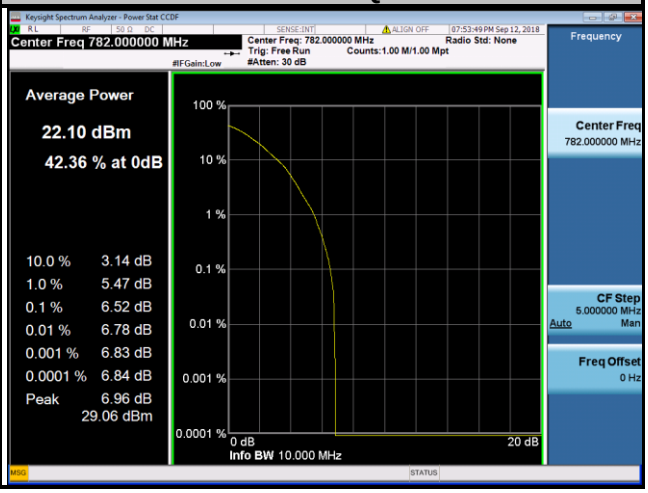
LTE Band 4									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19975	1712.5	3.61	5.08	5.10	20000	1715.0	3.56	5.02	5.09
20175	1732.5	3.61	5.12	5.16	20175	1732.5	3.46	4.96	5.06
20375	1752.5	3.48	4.94	5.01	20350	1750.0	3.53	5.04	5.10

Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 64QAM
	

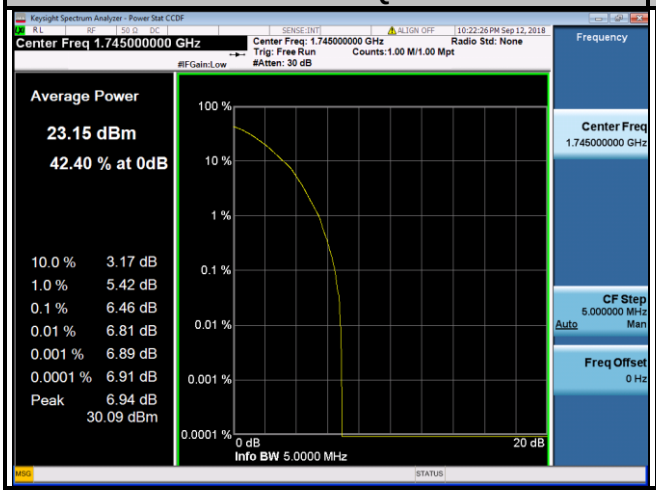
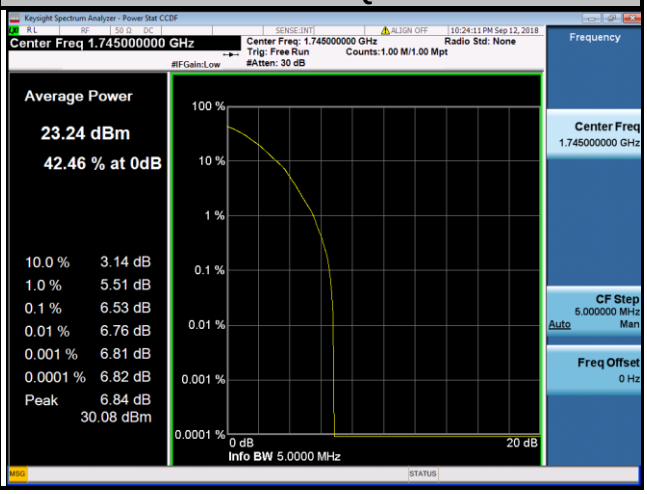
LTE Band 4									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20025	1717.5	3.53	5.04	5.08	20050	1720.0	3.54	4.97	5.10
20175	1732.5	3.38	4.80	4.96	20175	1732.5	3.38	4.82	4.92
20325	1747.5	3.57	5.17	5.25	20300	1745.0	3.58	5.16	5.26

Spectrum Plot of Worst Value	
15 MHz / 64QAM	20 MHz / 64QAM
	

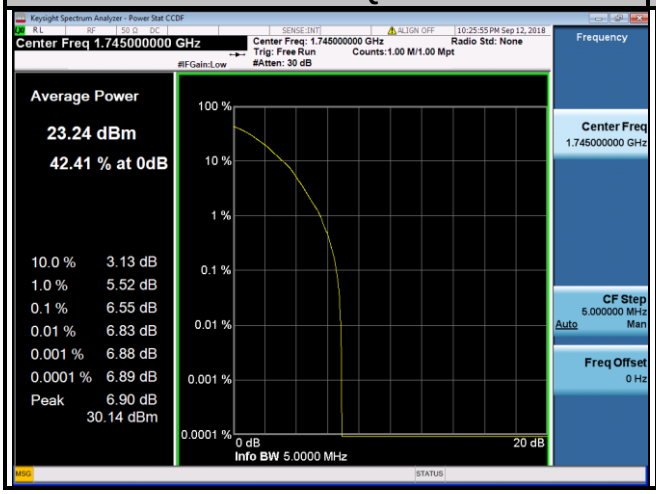
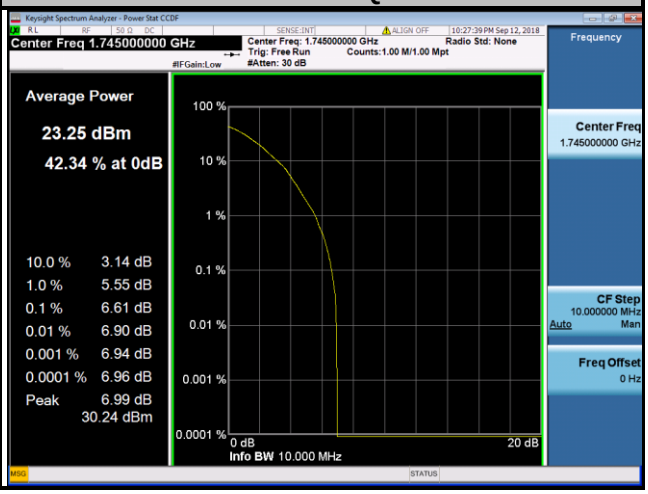
LTE Band 13									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
23205	779.5	3.58	5.05	6.40	23230	782.0	3.58	5.11	6.52
23230	782.0	3.73	5.35	6.80					
23255	784.5	3.71	5.32	6.73					

Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 64QAM
	

LTE Band 66									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
131979	1710.7	3.78	5.14	6.40	131987	1711.5	3.59	5.02	6.39
132322	1745.0	3.77	5.21	6.46	132322	1745.0	3.61	5.10	6.53
132665	1779.3	3.38	4.70	5.87	132657	1778.5	3.28	4.65	6.01

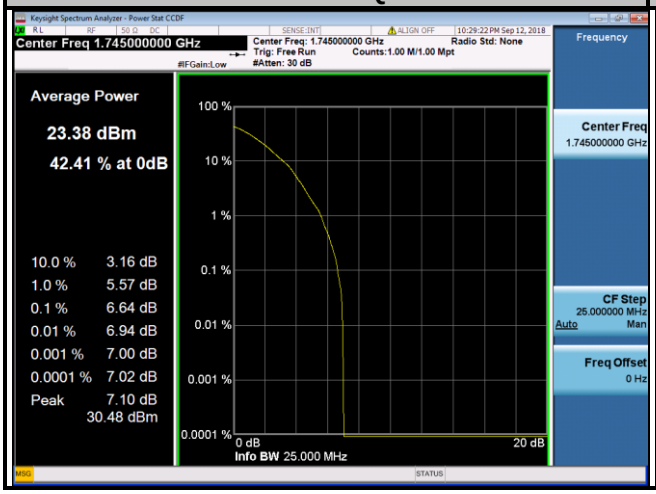
Spectrum Plot of Worst Value	
1.4 MHz / 64QAM	3 MHz / 64QAM
	

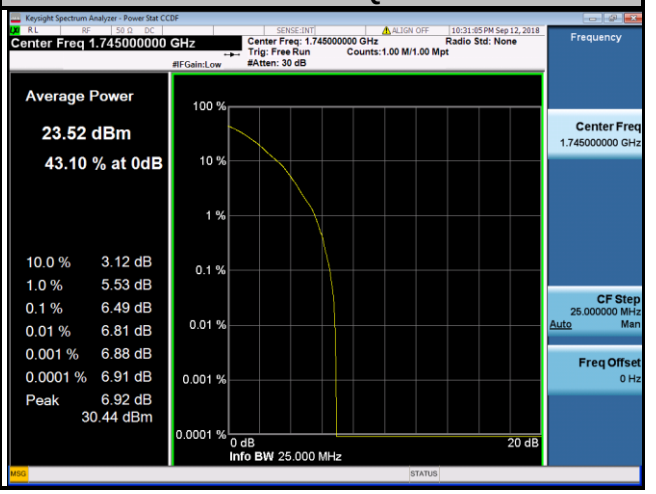
LTE Band 66									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
131997	1712.5	3.58	5.02	6.45	132022	1715.0	3.52	4.96	6.14
132322	1745.0	3.61	5.14	6.55	132322	1745.0	3.60	5.14	6.61
132647	1777.5	3.36	4.74	6.09	132622	1775.0	3.50	4.98	6.40

Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 64QAM
	

LTE Band 66									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
132047	1717.5	3.49	5.03	6.38	132072	1720.0	3.54	5.04	6.42
132322	1745.0	3.58	5.16	6.64	132322	1745.0	3.57	5.16	6.49
132597	1772.5	3.48	4.99	6.49	132572	1770.0	3.44	5.04	6.44

Spectrum Plot of Worst Value	
15 MHz / 64QAM	20 MHz / 64QAM



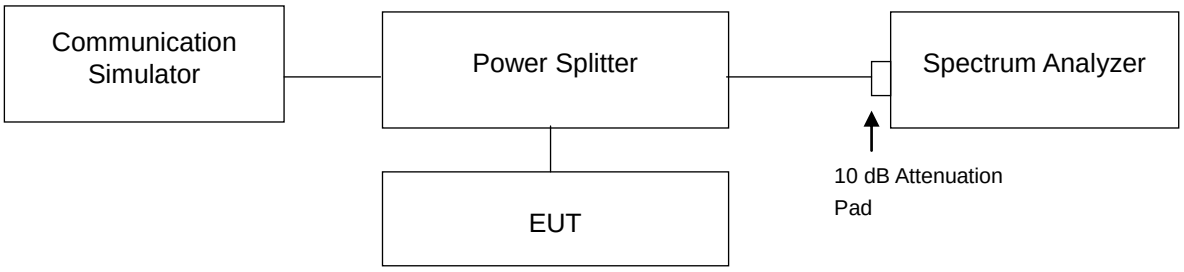


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

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

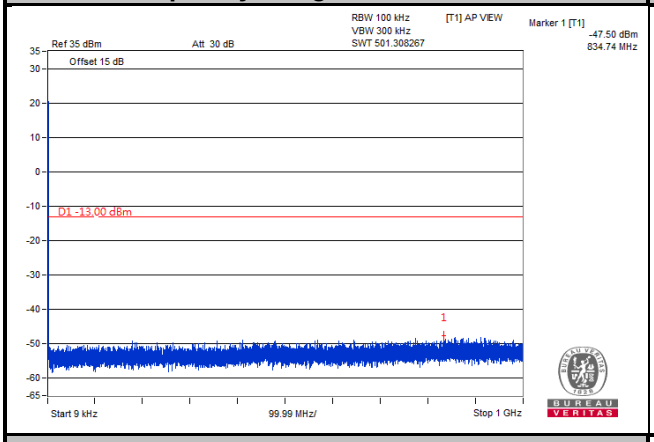
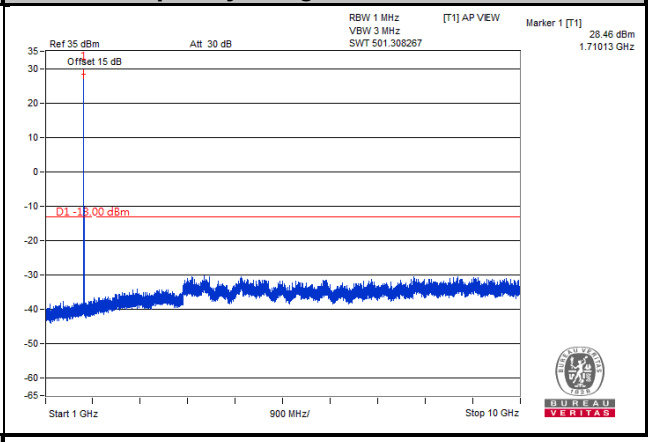
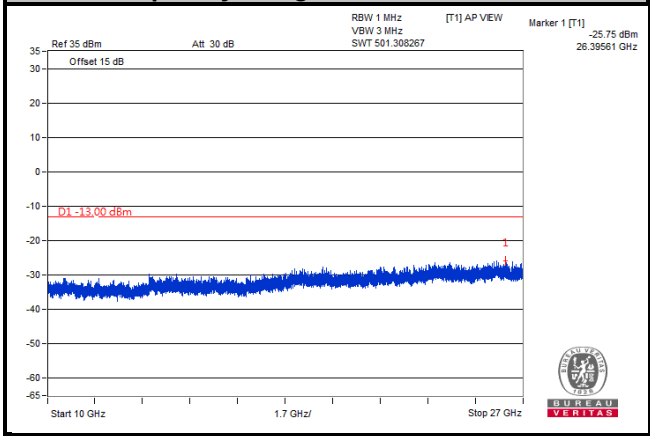
4.7.2 Test Setup

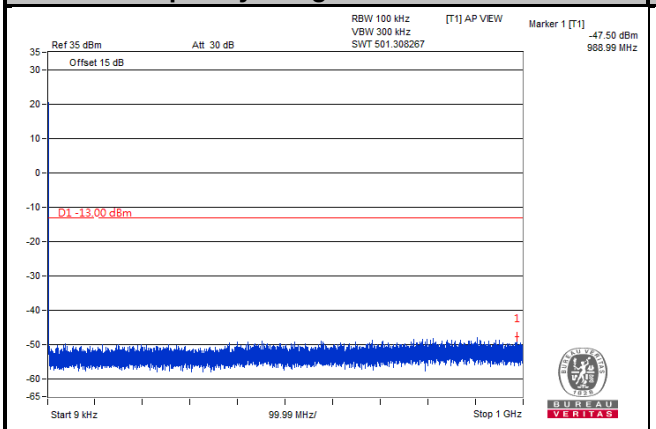
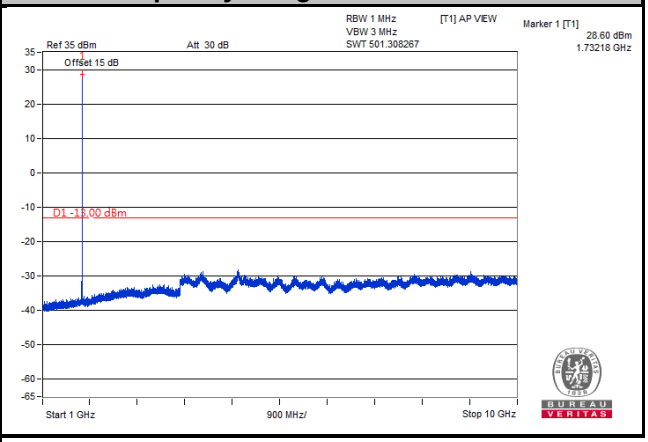
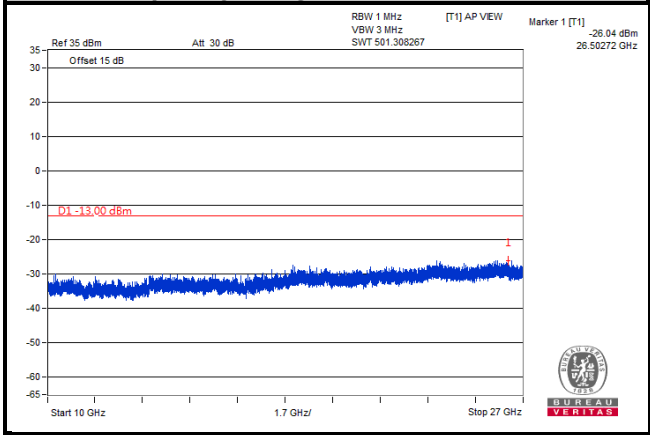


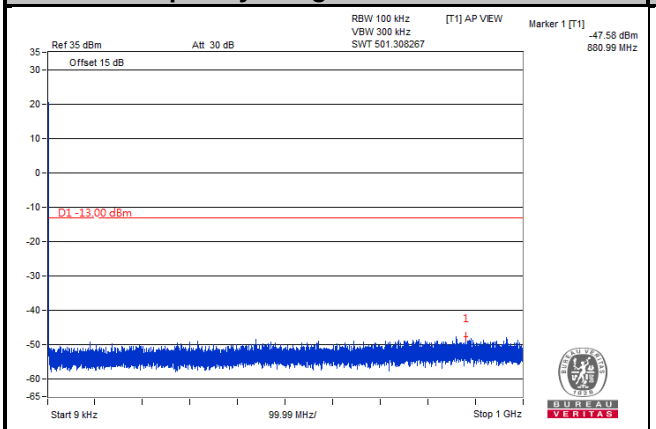
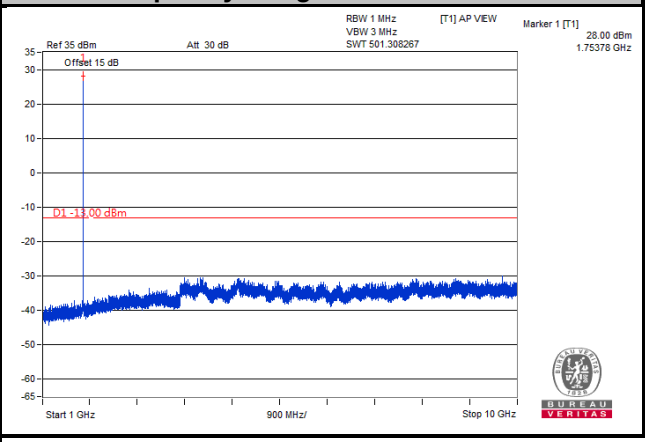
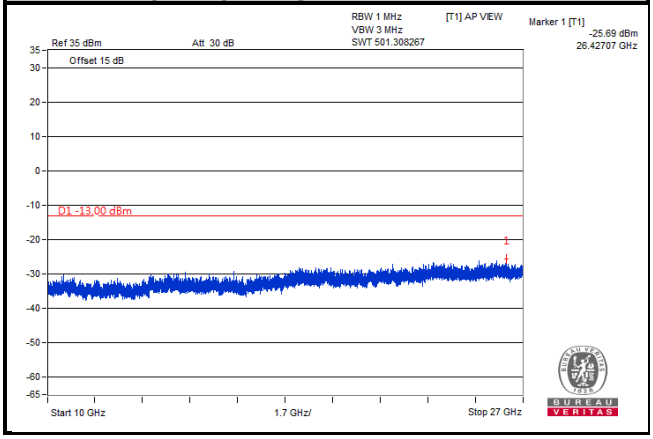
4.7.3 Test Procedure

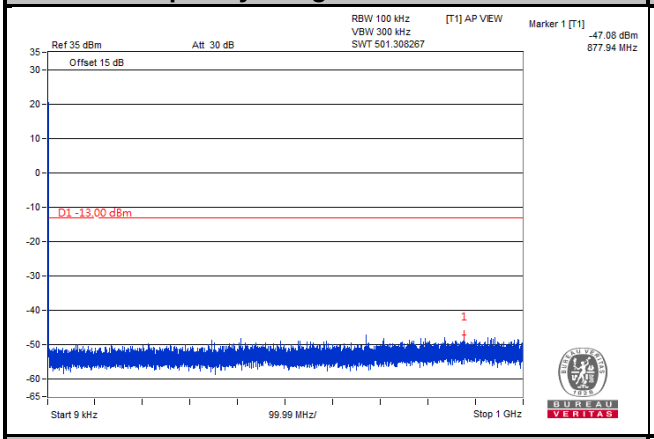
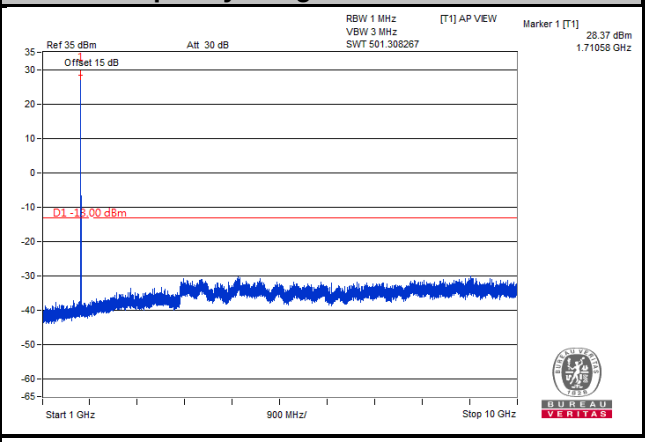
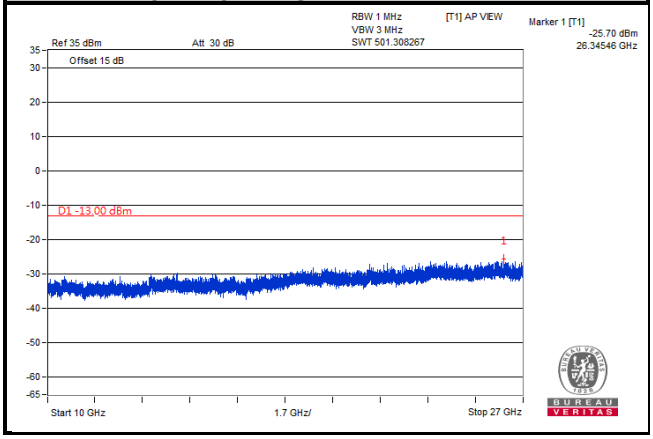
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range from 9 kHz to 10 GHz, 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz is used for conducted emission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

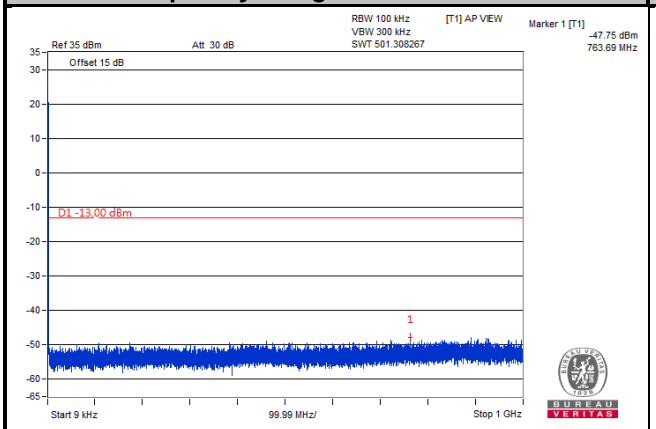
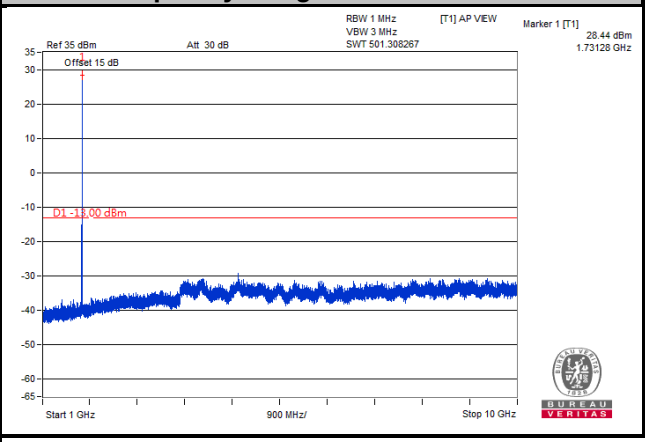
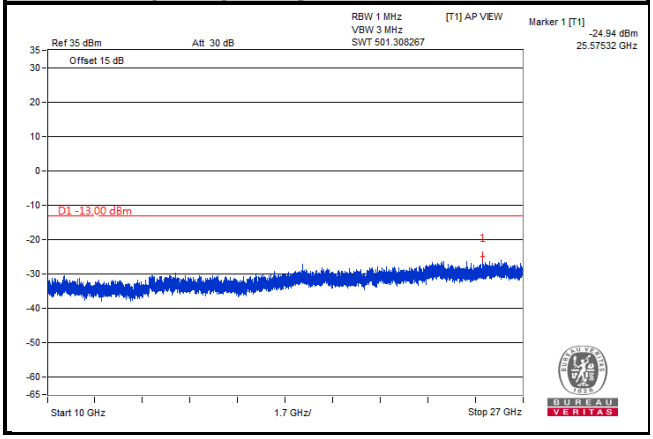
4.7.4 Test Results

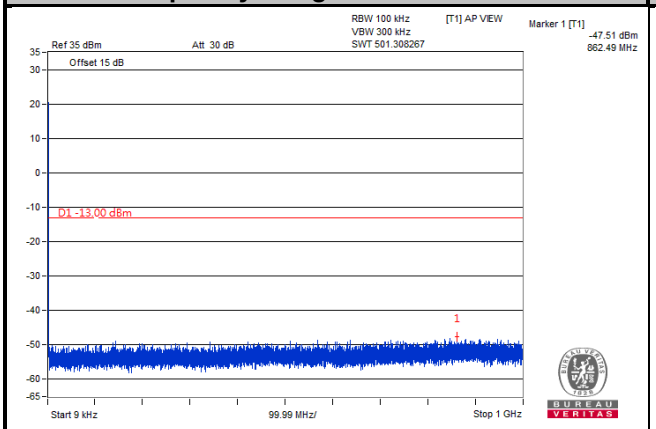
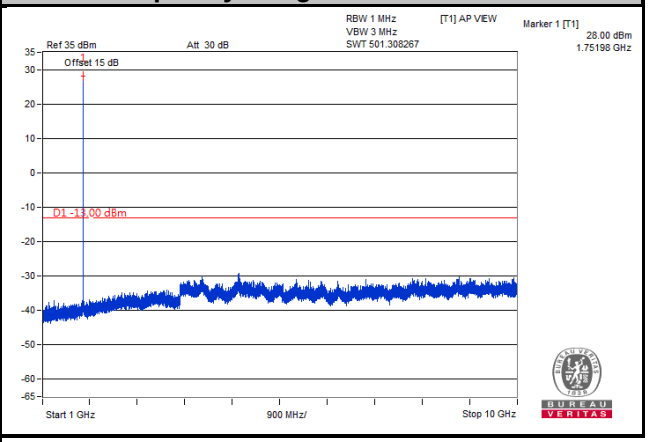
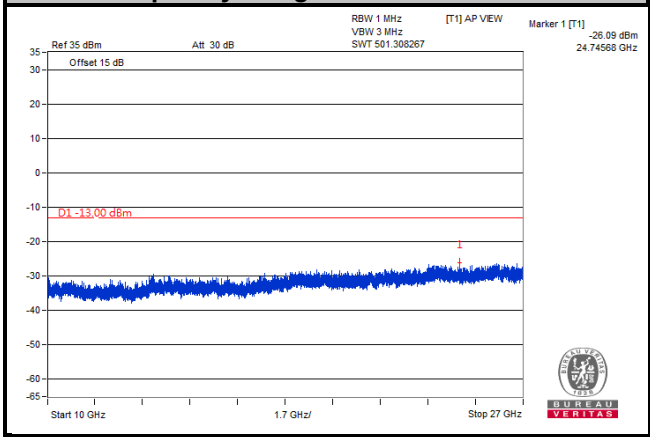
LTE Band 4	
Channel Bandwidth: 1.4 MHz	
Channel 19957	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

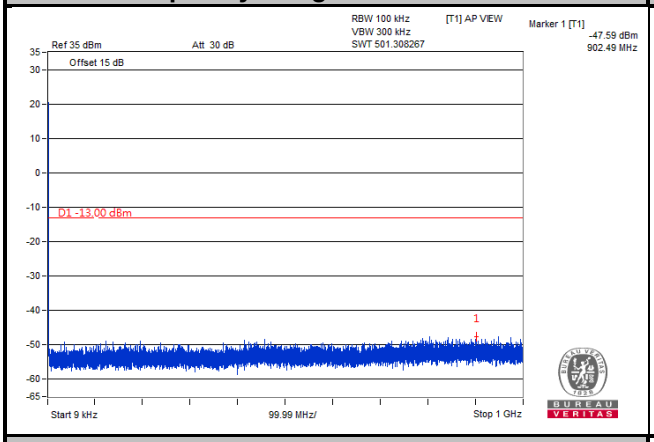
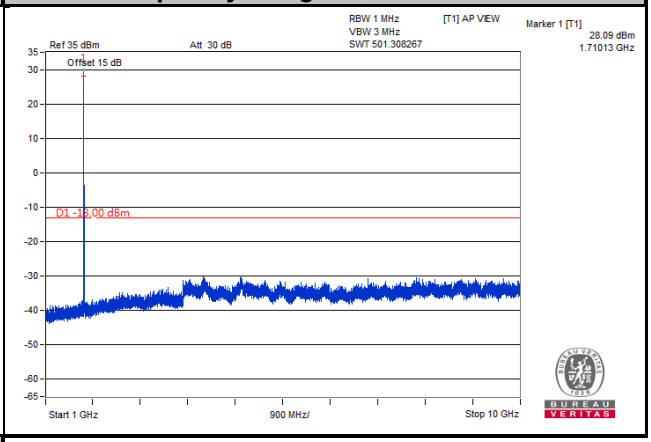
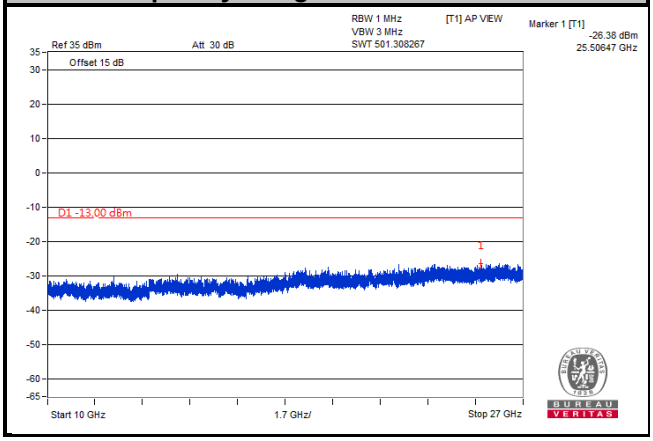
LTE Band 4	
Channel Bandwidth: 1.4 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

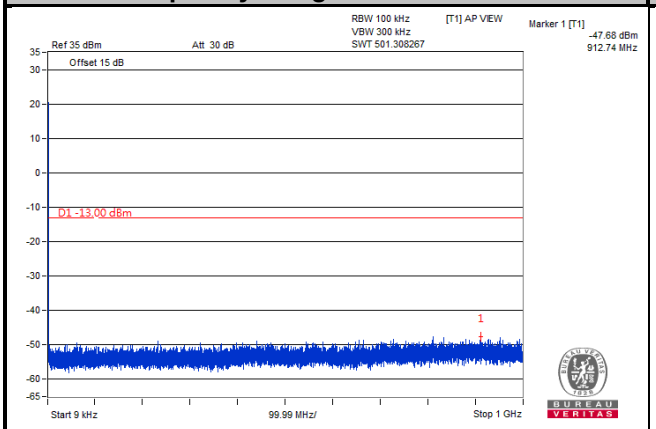
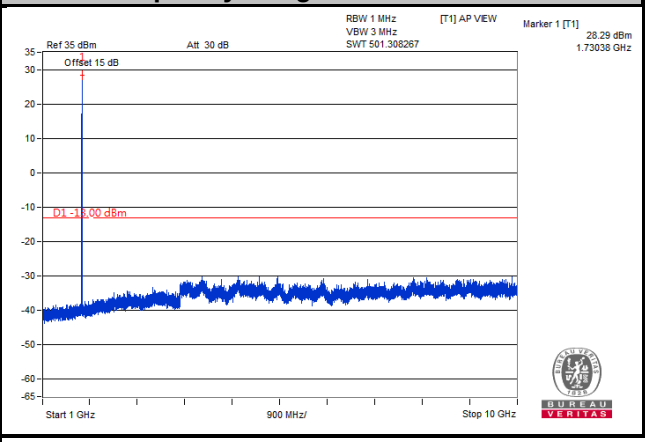
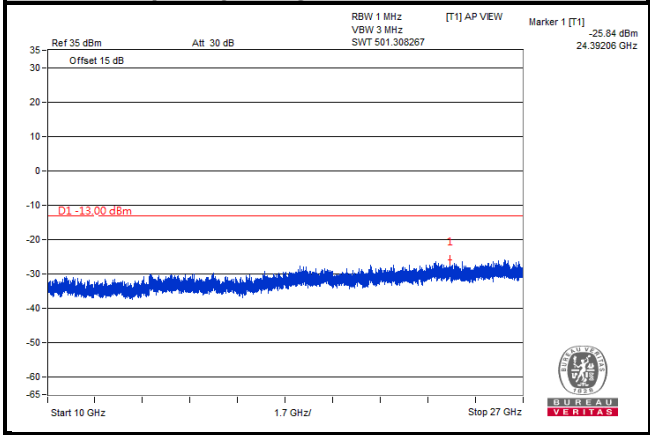
LTE Band 4	
Channel Bandwidth: 1.4 MHz	
Channel 20393	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

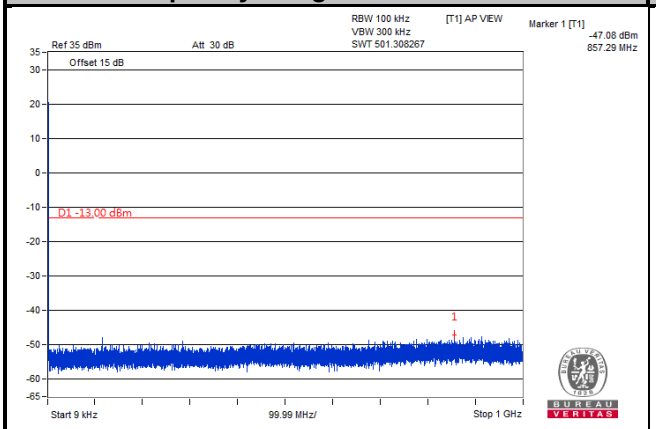
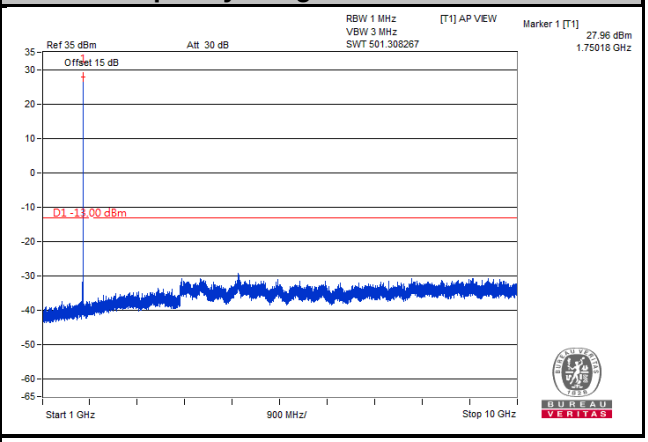
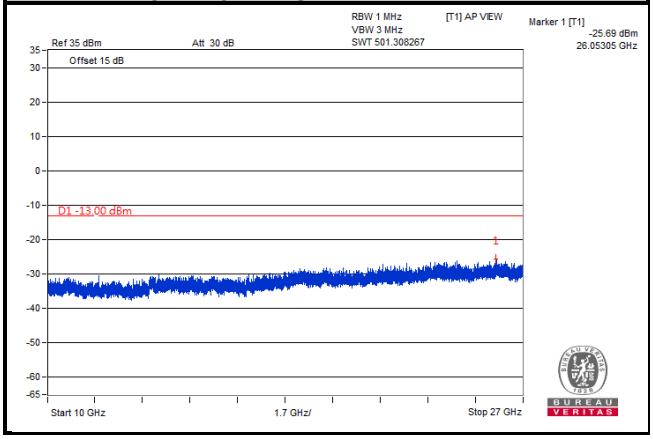
LTE Band 4	
Channel Bandwidth: 3 MHz	
Channel 19965	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

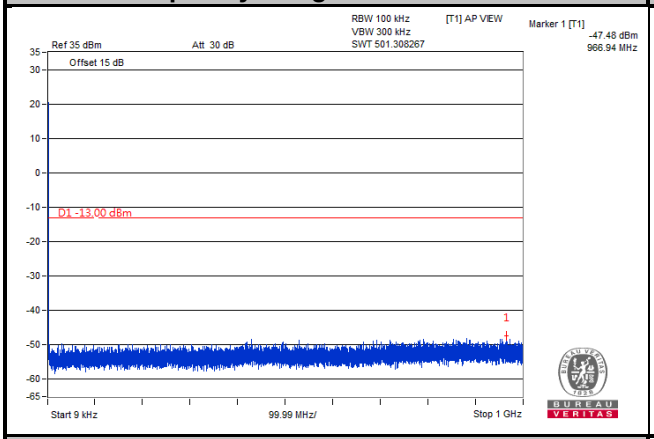
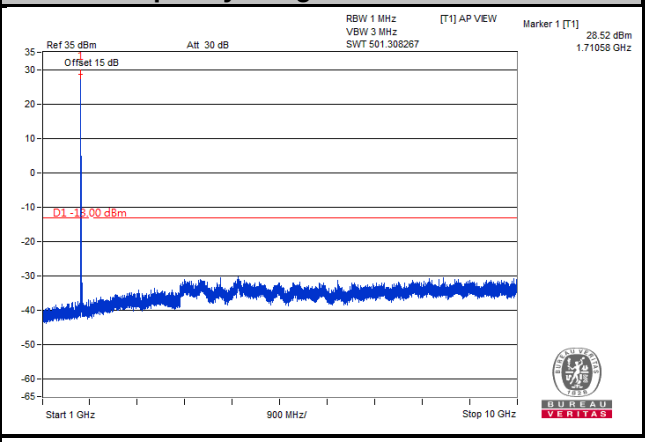
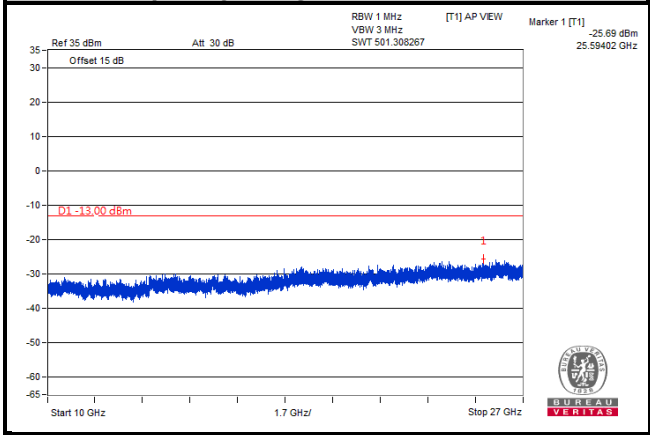
LTE Band 4	
Channel Bandwidth: 3 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

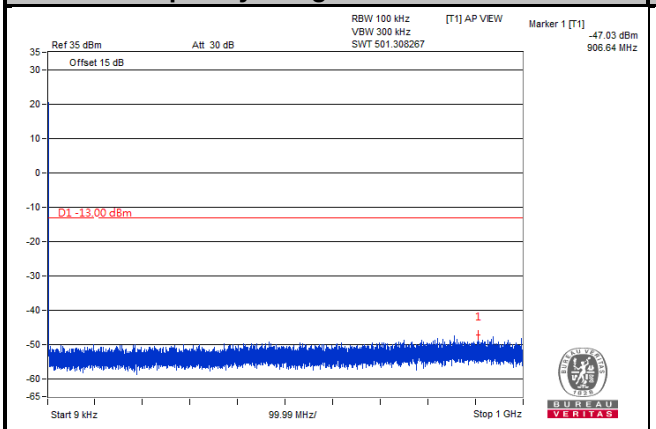
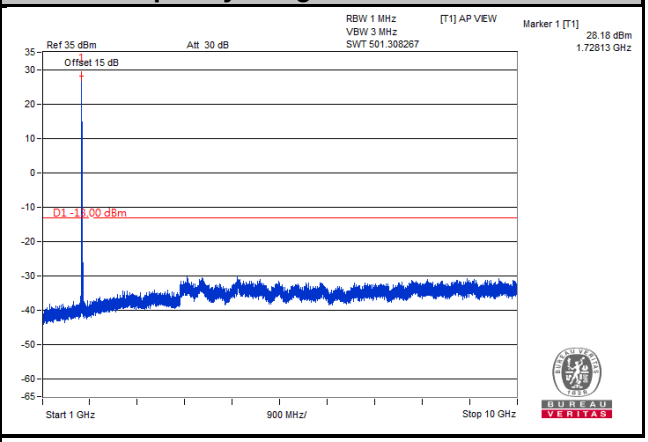
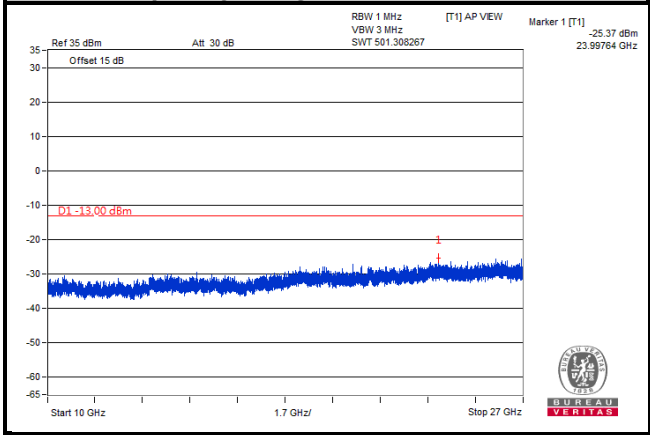
LTE Band 4	
Channel Bandwidth: 3 MHz	
Channel 20385	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

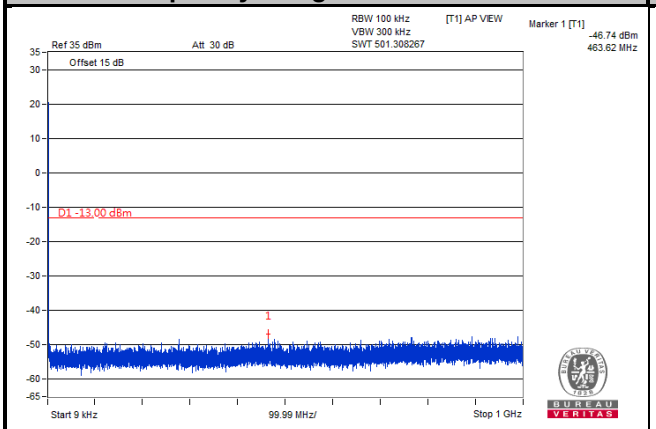
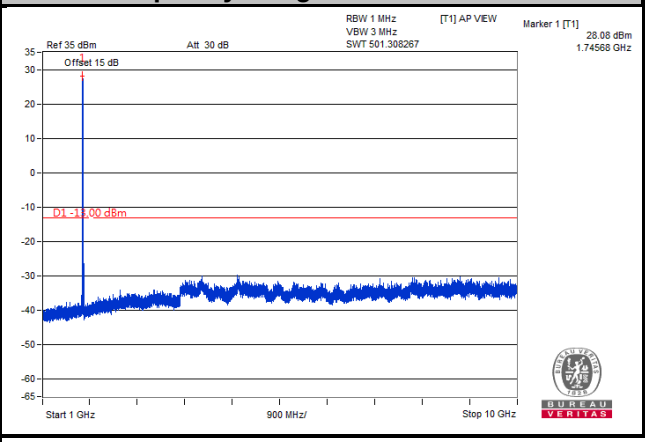
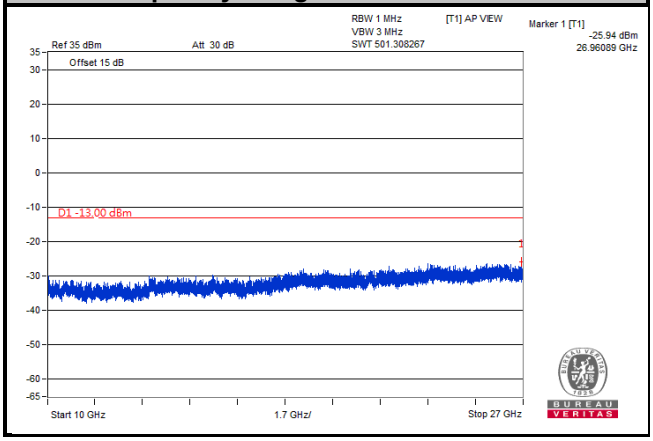
LTE Band 4	
Channel Bandwidth: 5 MHz	
Channel 19975	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

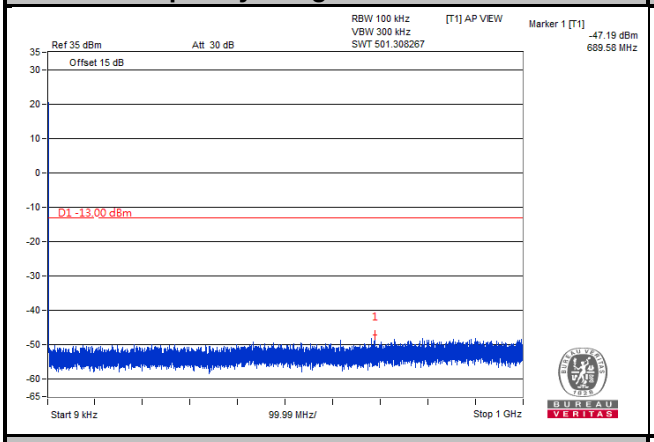
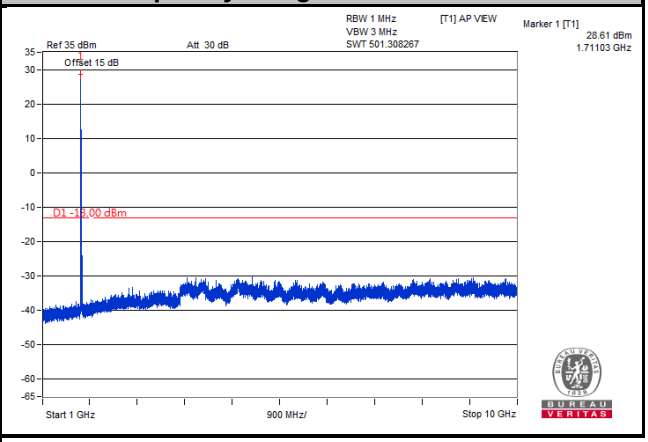
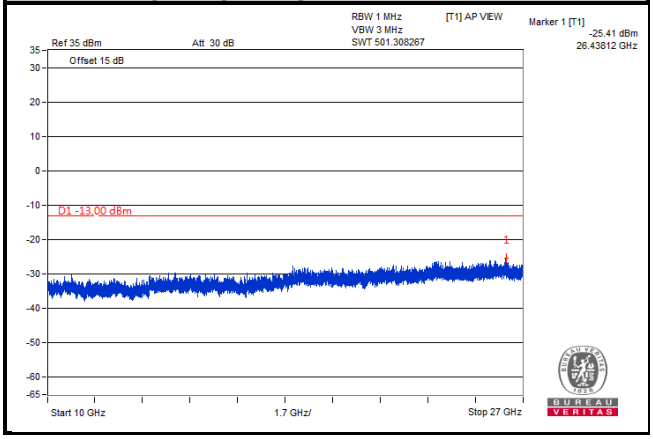
LTE Band 4	
Channel Bandwidth: 5 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

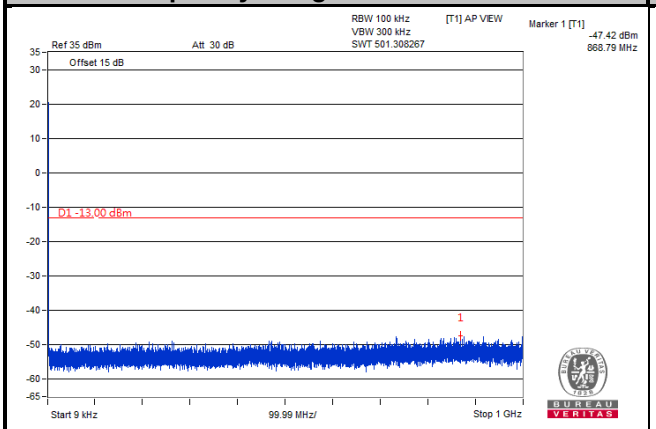
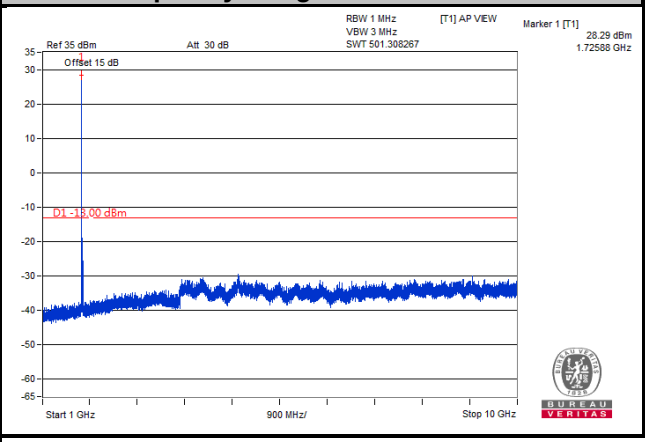
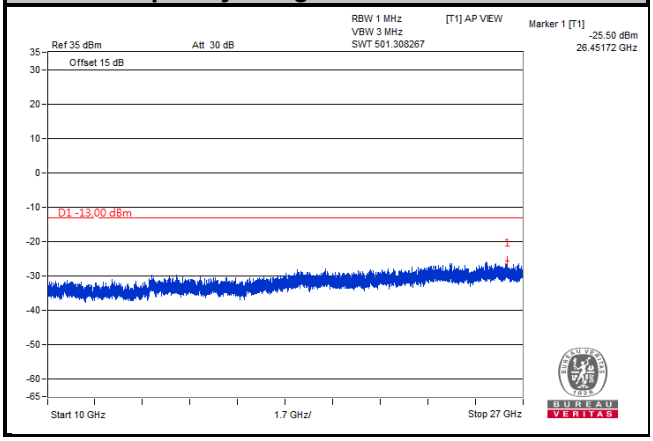
LTE Band 4	
Channel Bandwidth: 5 MHz	
Channel 20375	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

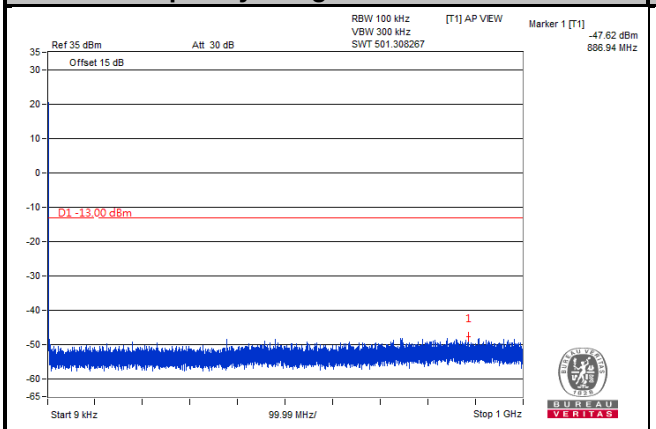
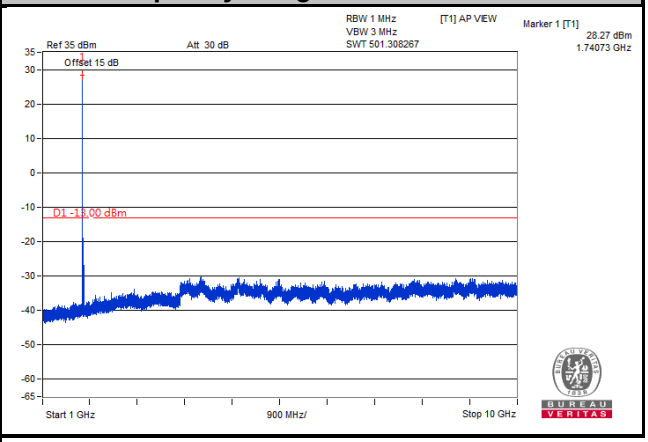
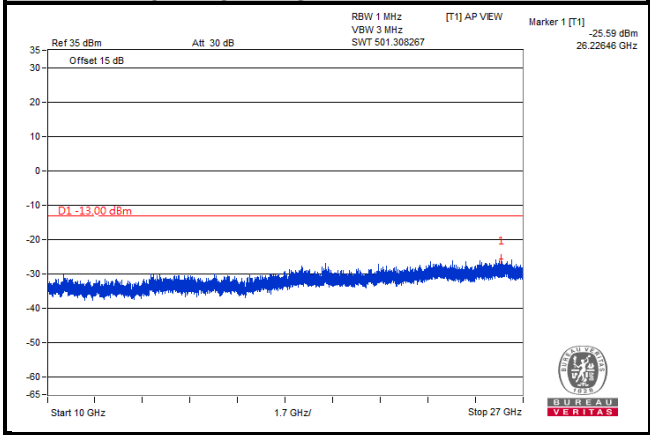
LTE Band 4	
Channel Bandwidth: 10 MHz	
Channel 20000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

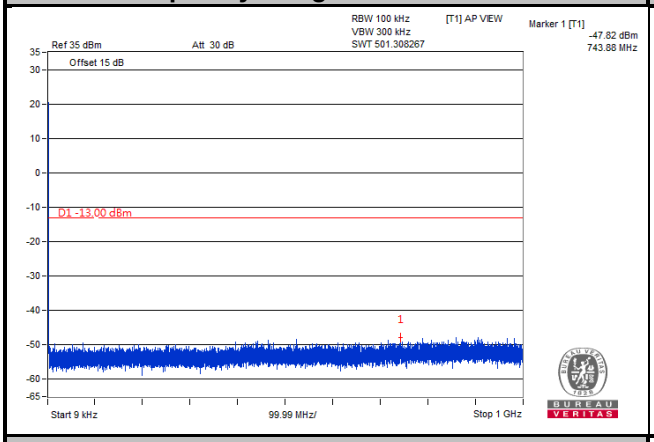
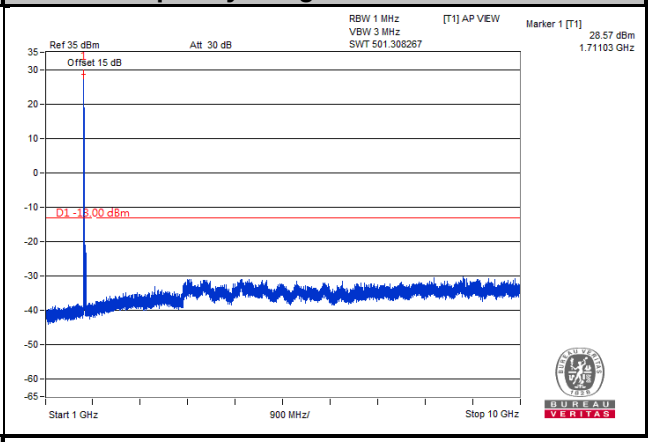
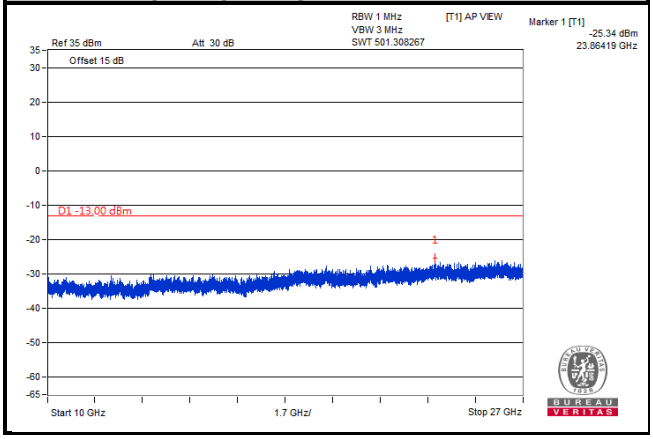
LTE Band 4	
Channel Bandwidth: 10 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

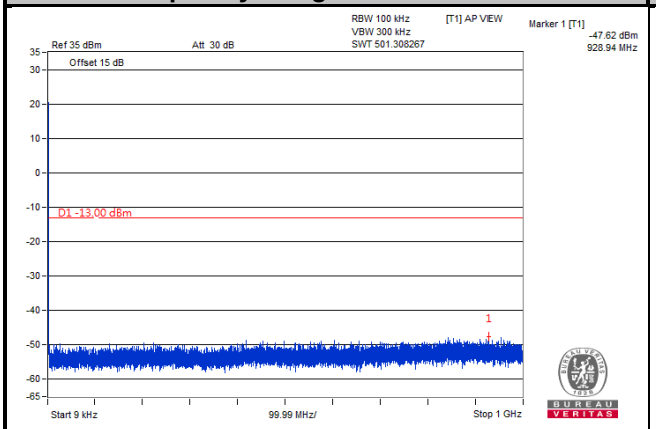
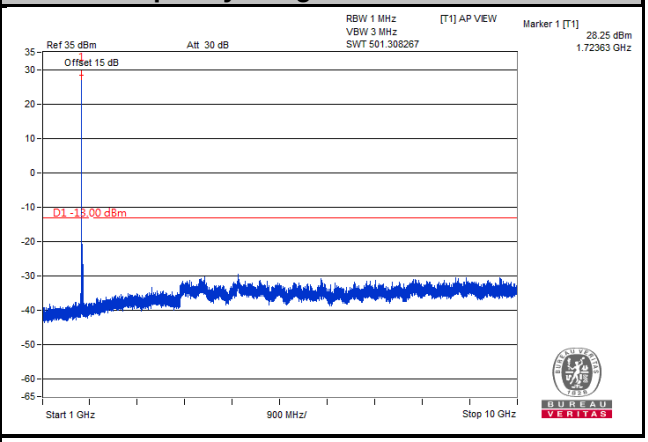
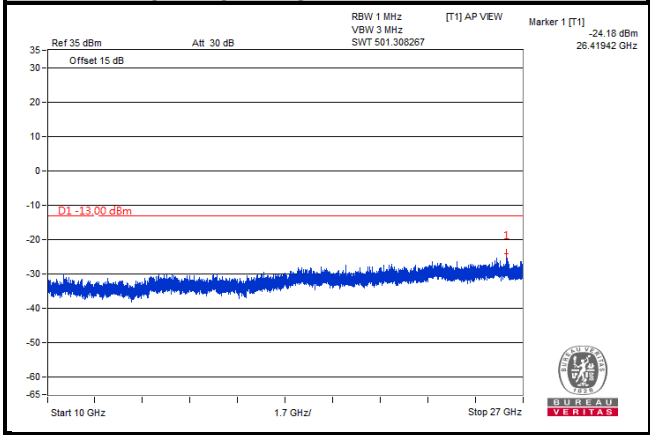
LTE Band 4	
Channel Bandwidth: 10 MHz	
Channel 20350	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

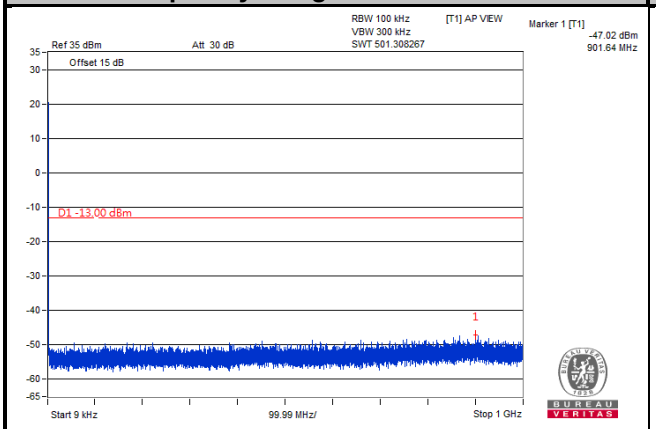
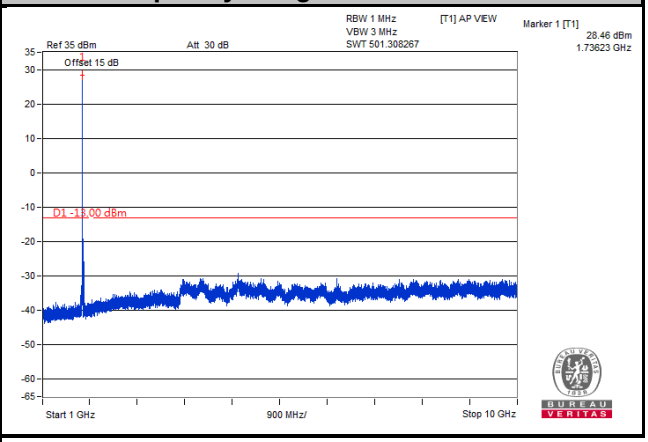
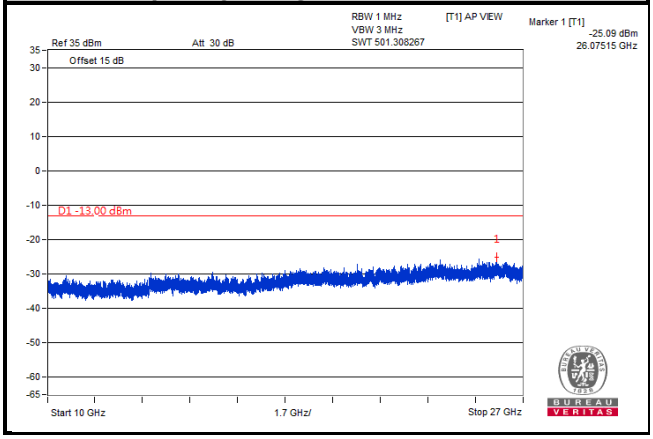
LTE Band 4	
Channel Bandwidth: 15 MHz	
Channel 20025	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

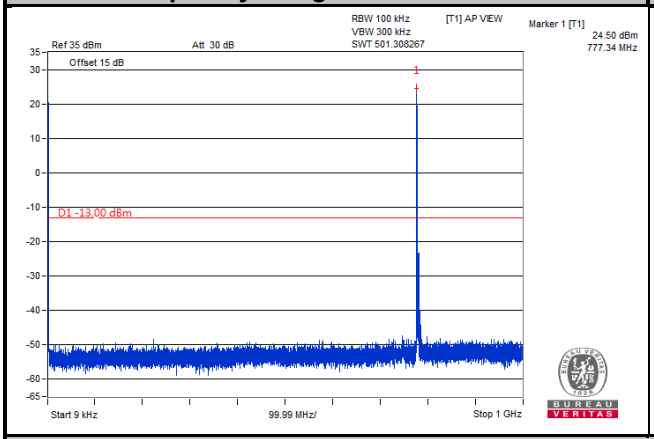
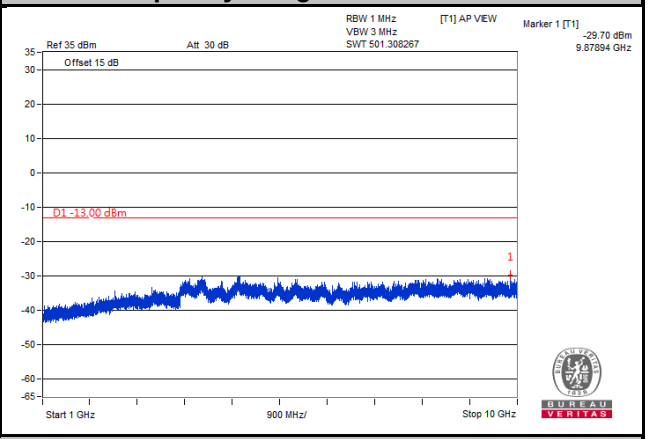
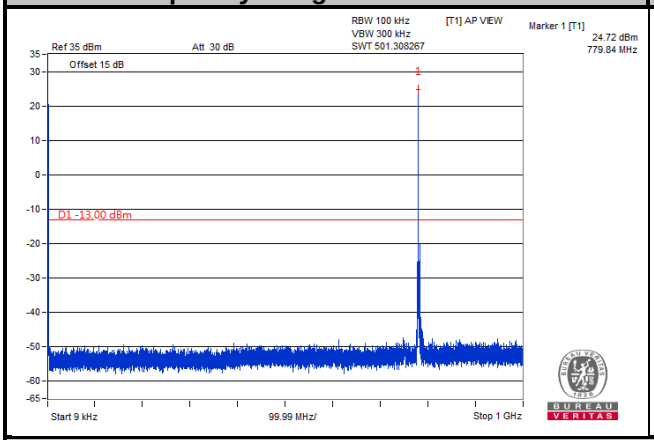
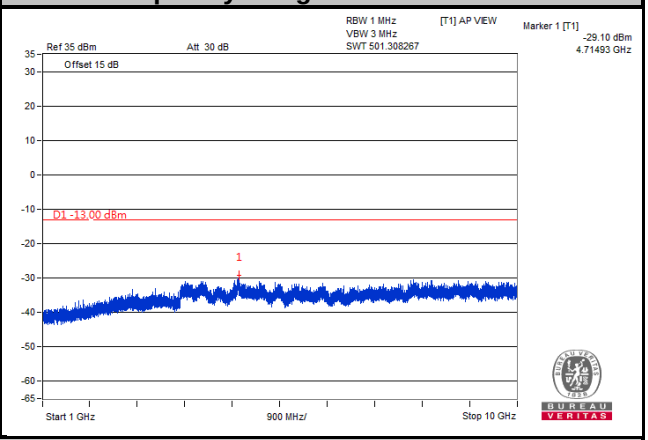
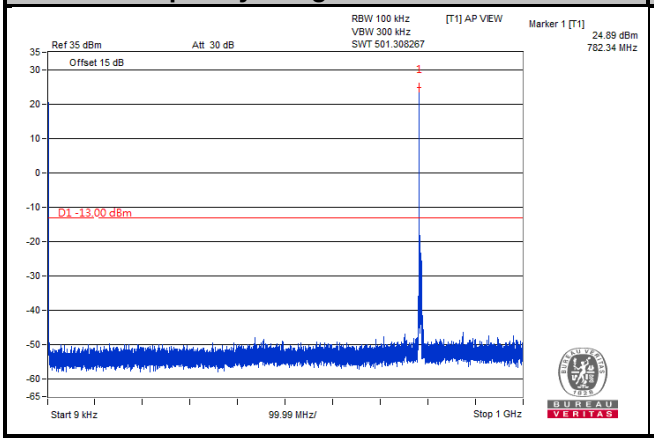
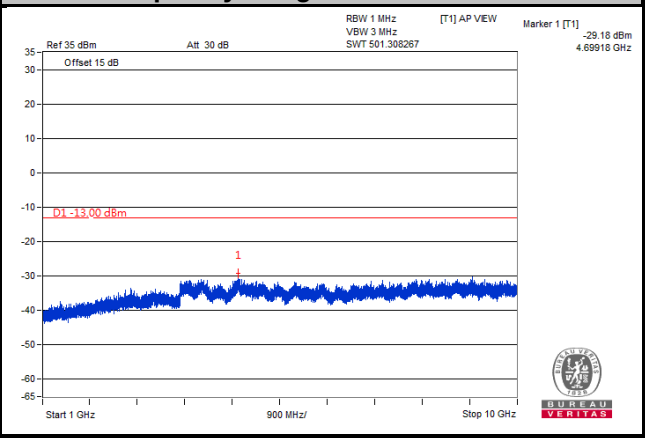
LTE Band 4	
Channel Bandwidth: 15 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

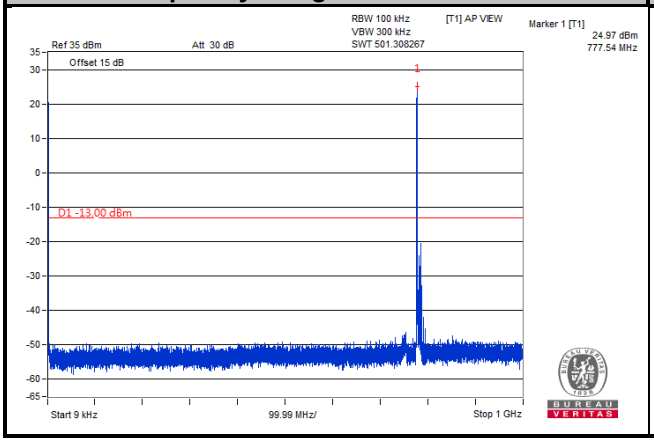
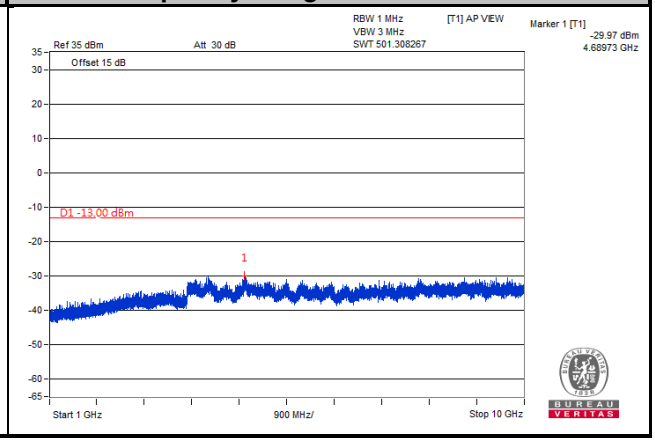
LTE Band 4	
Channel Bandwidth: 15 MHz	
Channel 20325	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

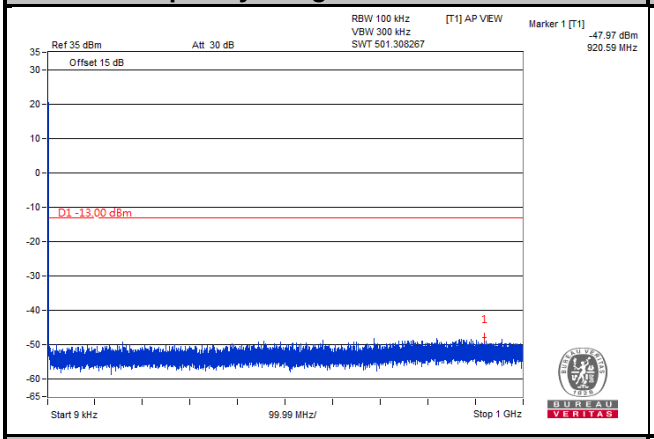
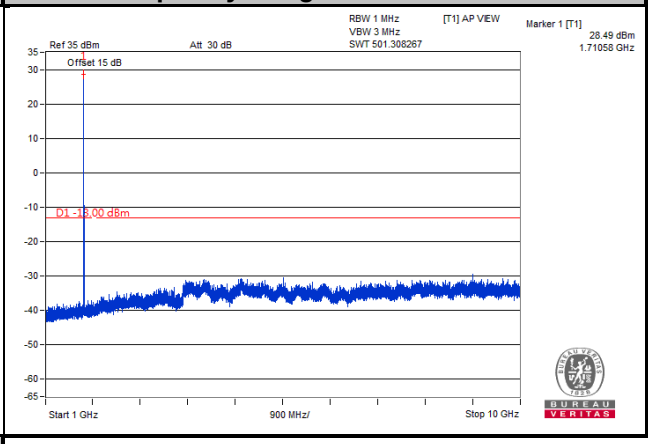
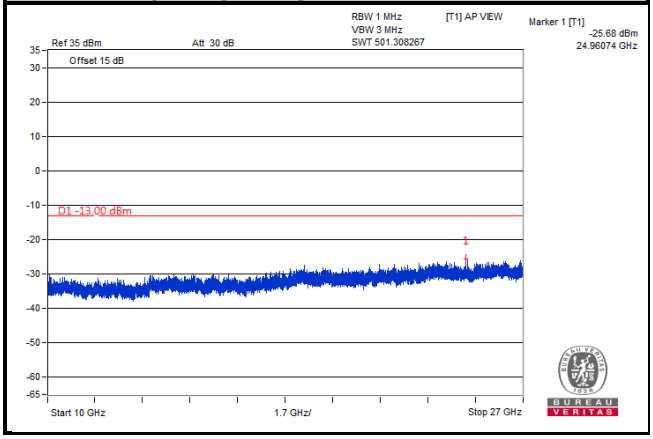
LTE Band 4	
Channel Bandwidth: 20 MHz	
Channel 20050	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

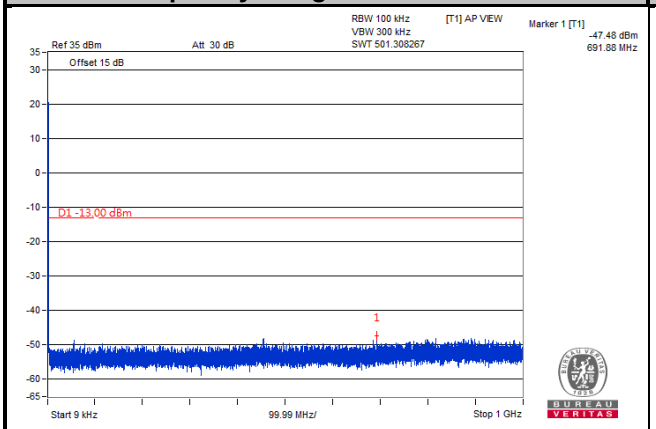
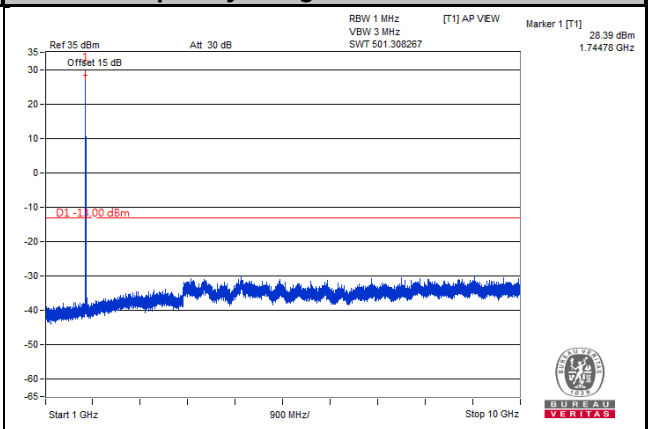
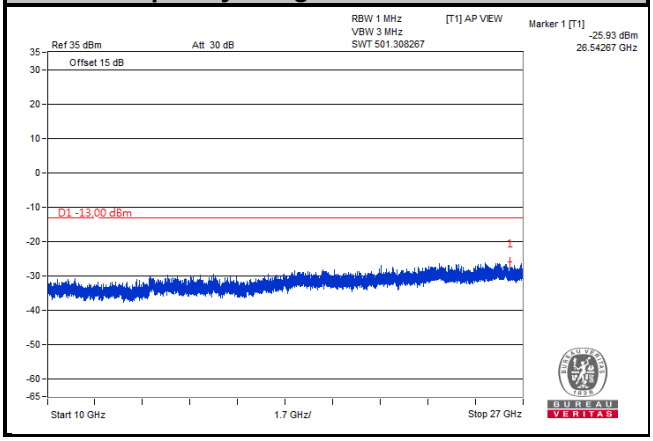
LTE Band 4	
Channel Bandwidth: 20 MHz	
Channel 20175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

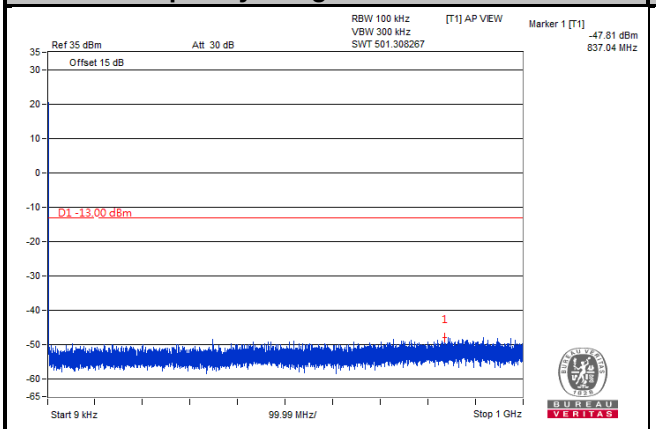
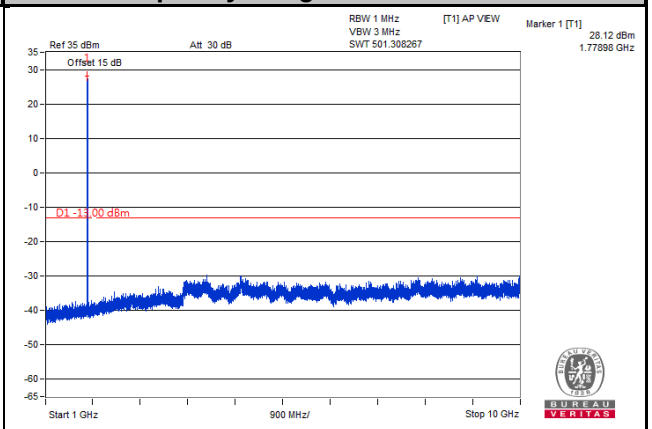
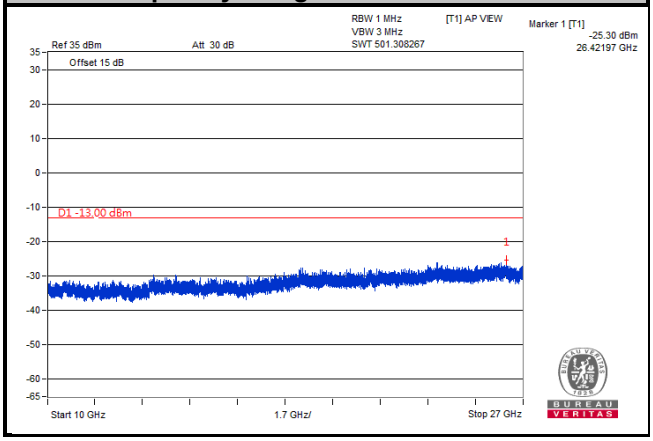
LTE Band 4	
Channel Bandwidth: 20 MHz	
Channel 20300	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

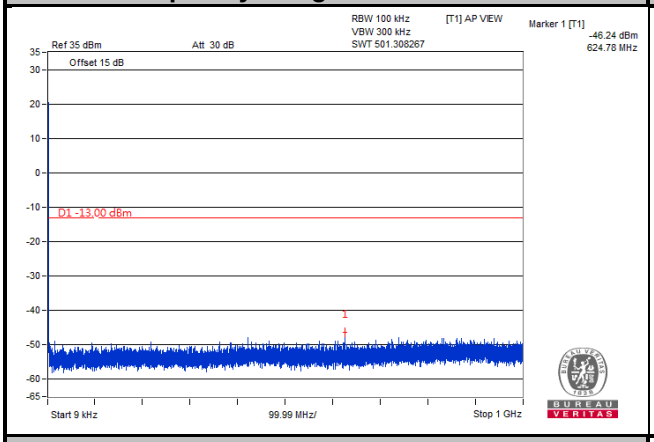
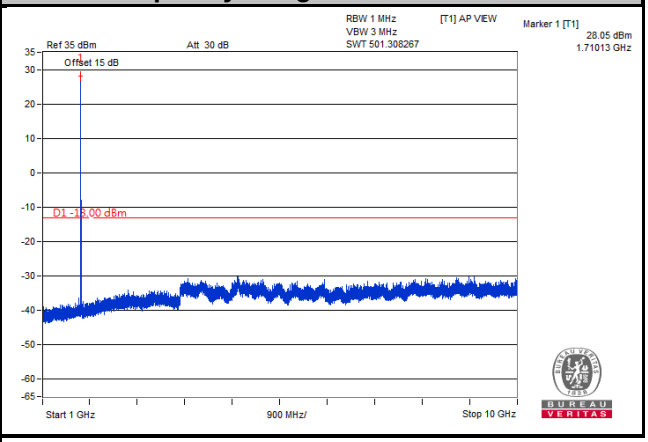
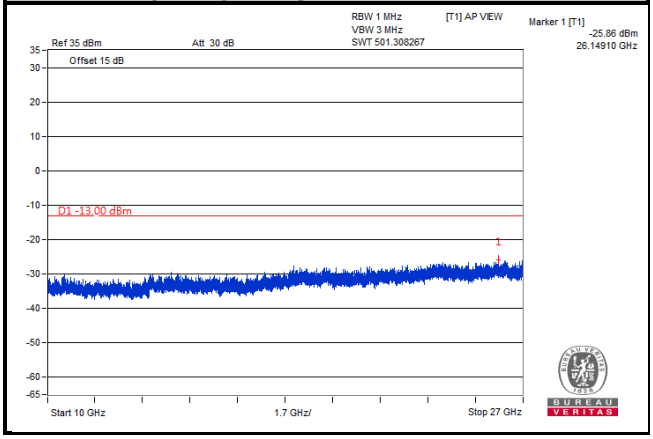
LTE Band 13	
Channel Bandwidth: 5 MHz	
Channel 23205	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23230	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Channel 23255	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	

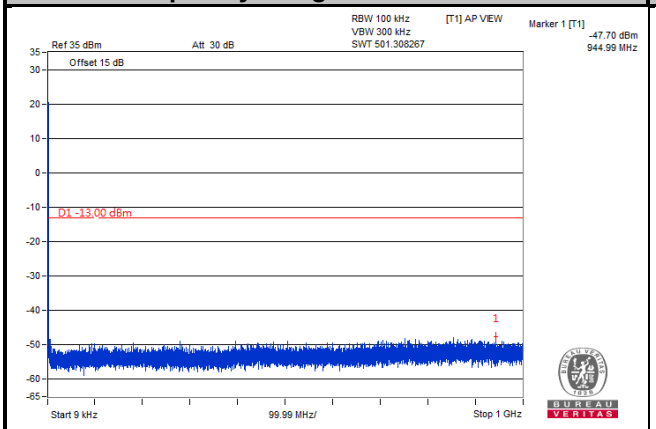
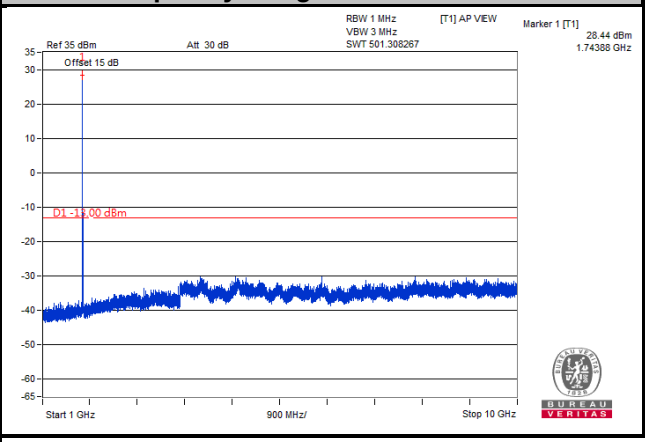
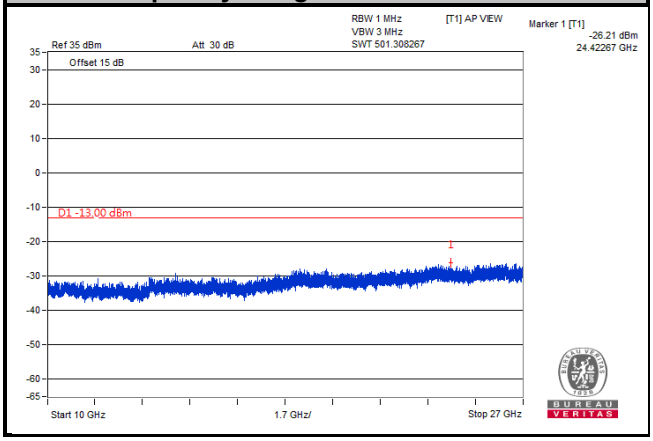
LTE Band 13	
Channel Bandwidth: 10 MHz	
Channel 23230	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	

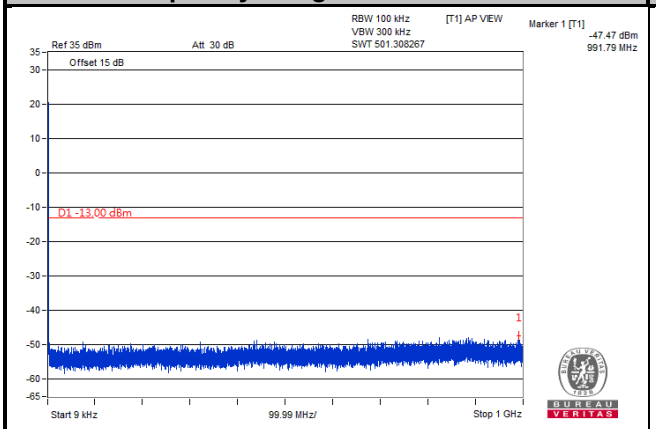
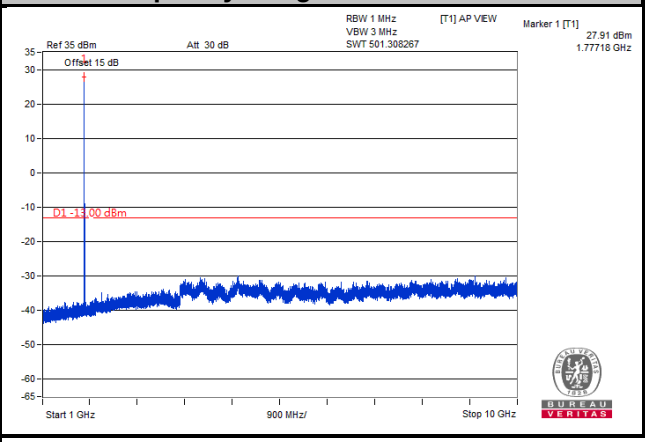
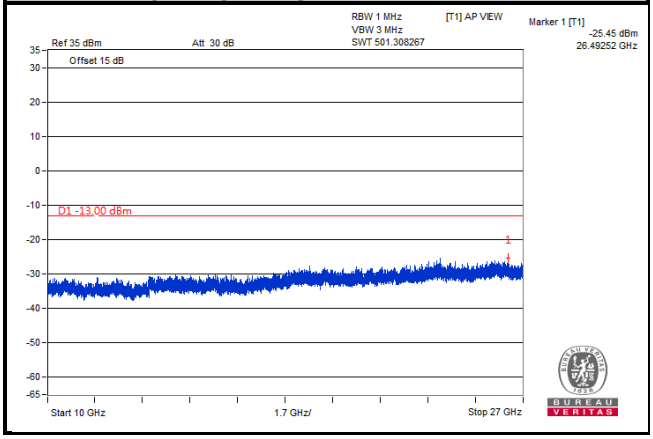
LTE Band 66	
Channel Bandwidth: 1.4 MHz	
Channel 131979	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

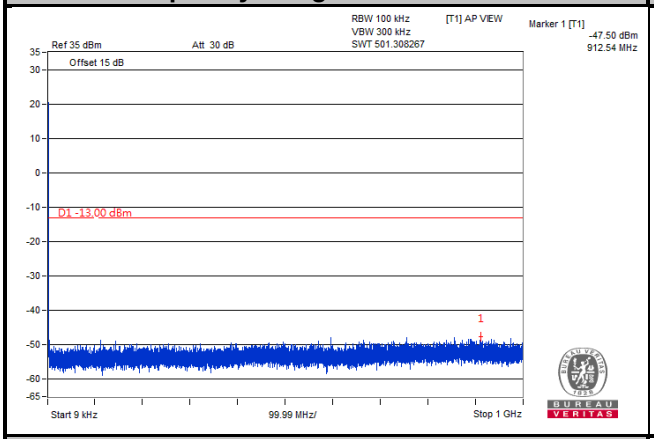
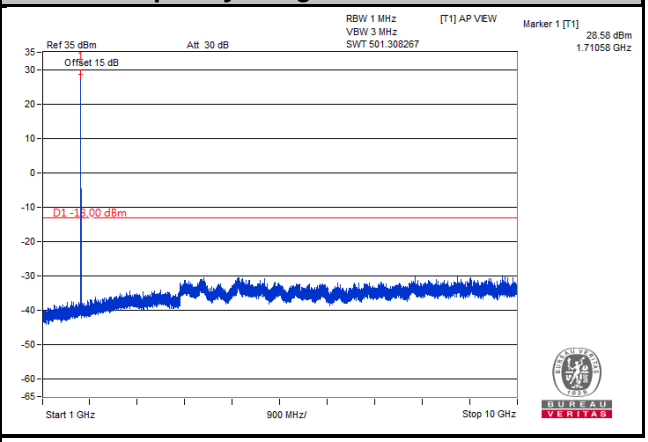
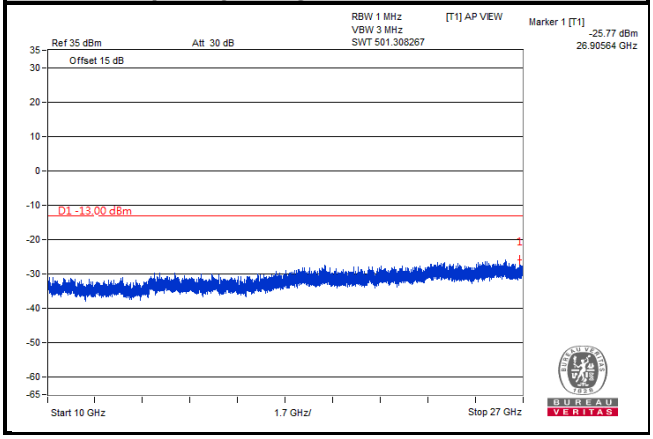
LTE Band 66	
Channel Bandwidth: 1.4 MHz	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

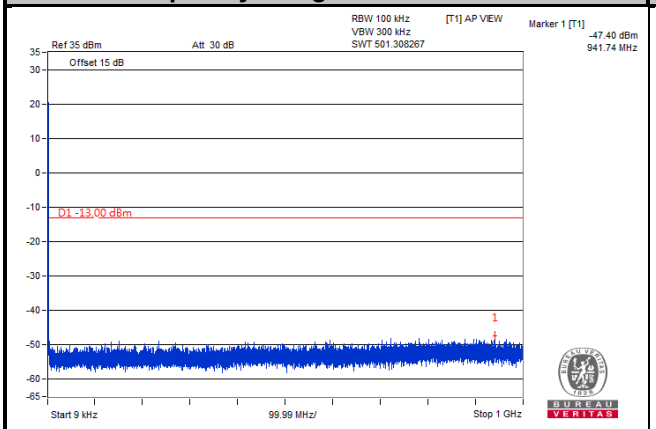
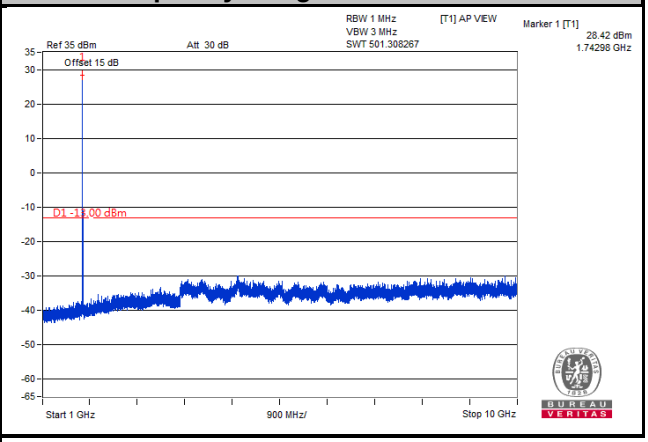
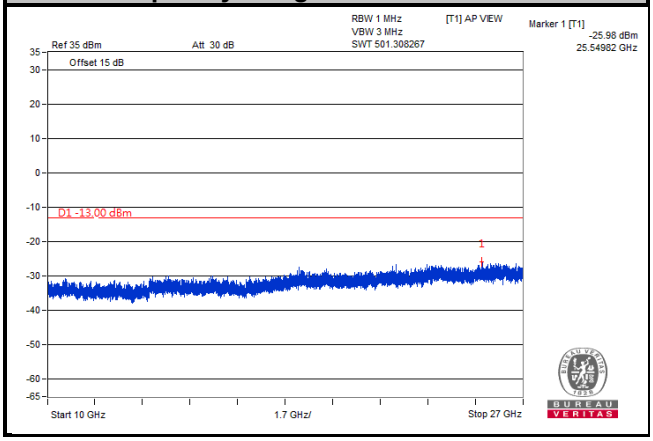
LTE Band 66	
Channel Bandwidth: 1.4 MHz	
Channel 132655	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

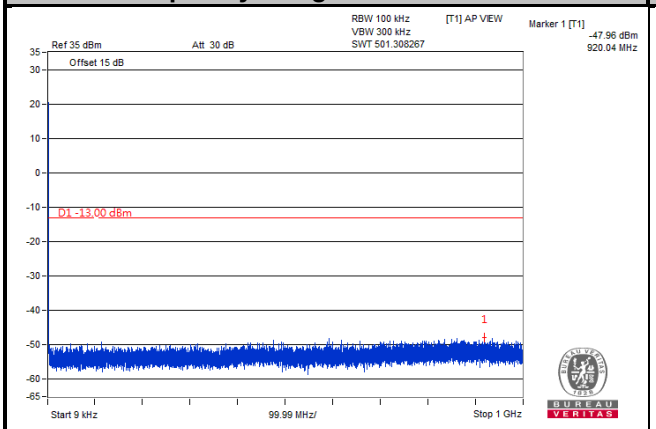
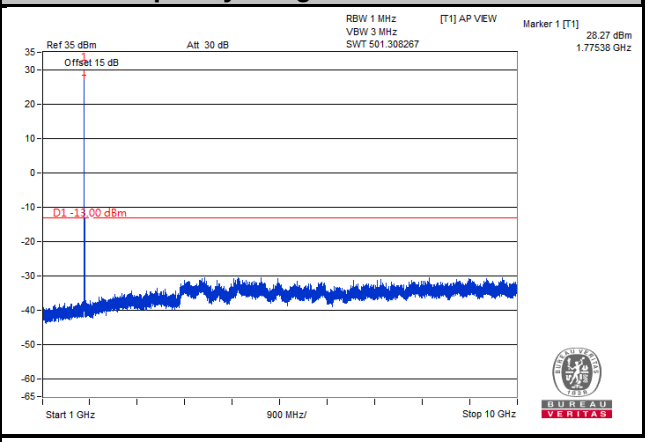
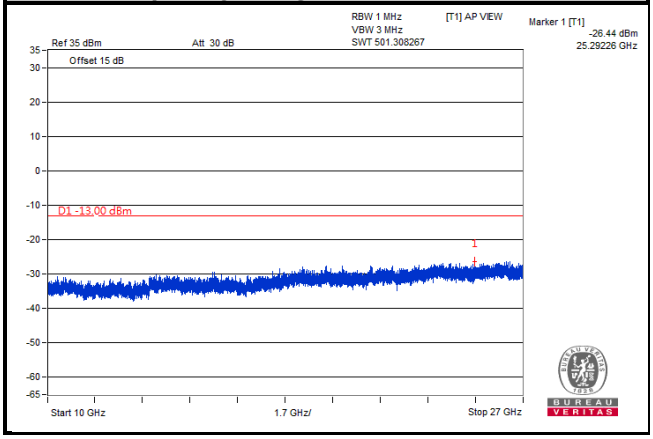
LTE Band 66	
Channel Bandwidth: 3 MHz	
Channel 131987	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

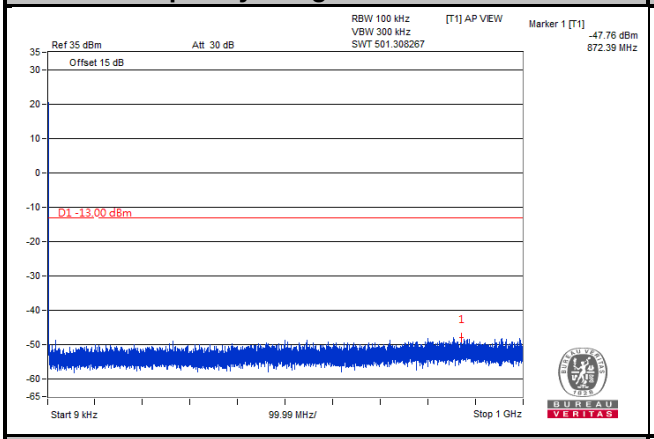
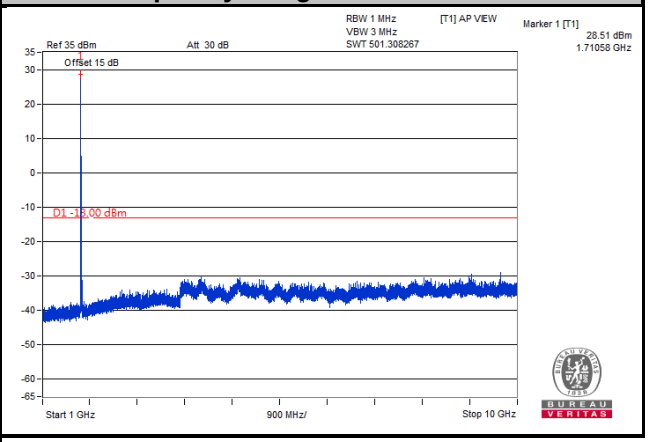
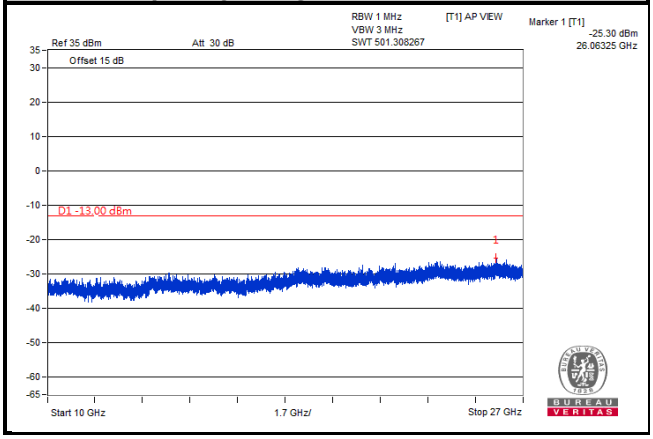
LTE Band 66	
Channel Bandwidth: 3 MHz	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

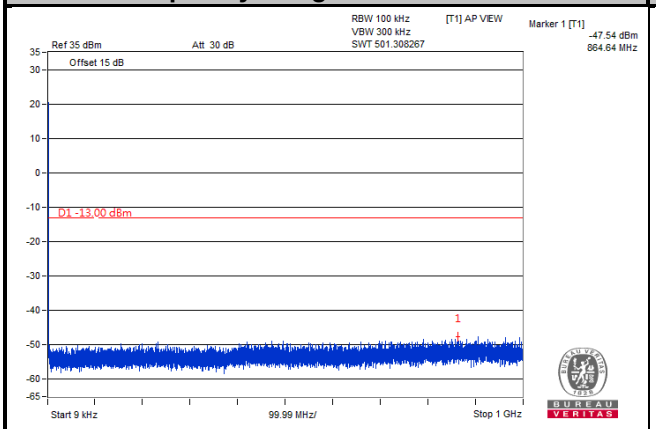
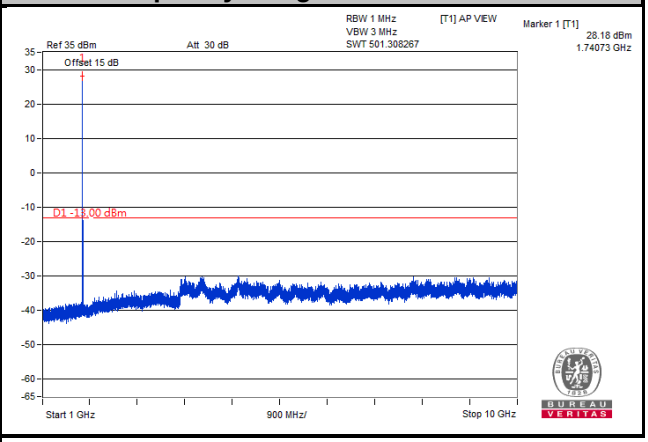
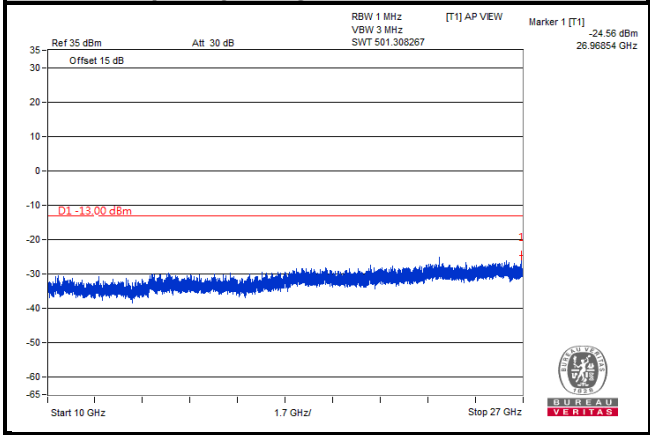
LTE Band 66	
Channel Bandwidth: 3 MHz	
Channel 132657	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

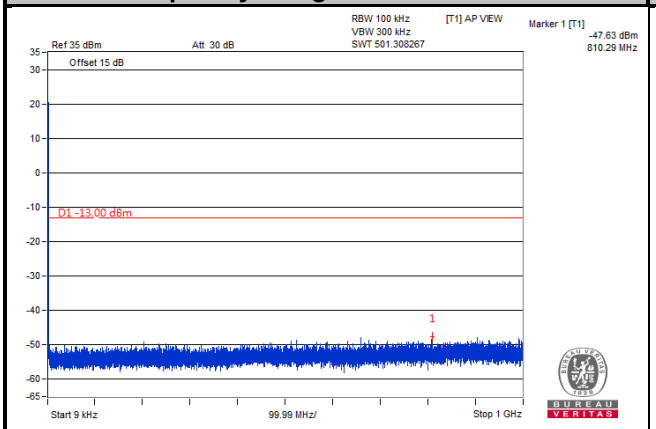
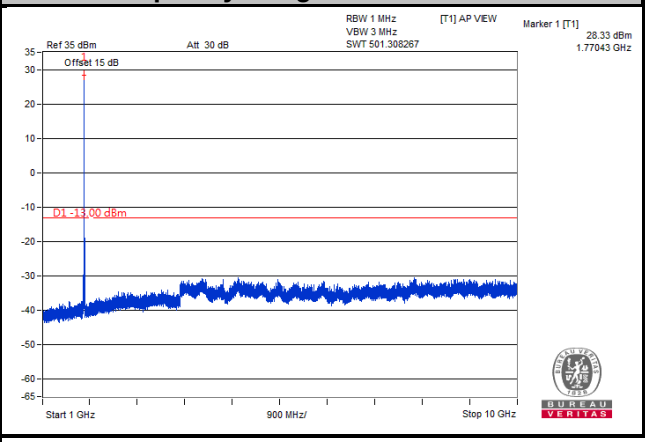
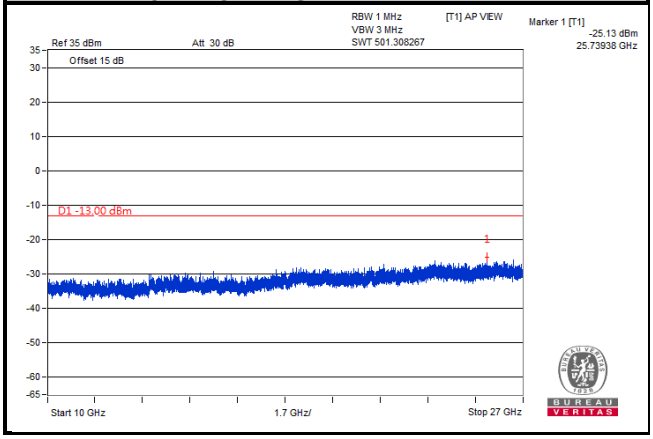
LTE Band 66	
Channel Bandwidth: 5 MHz	
Channel 131997	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

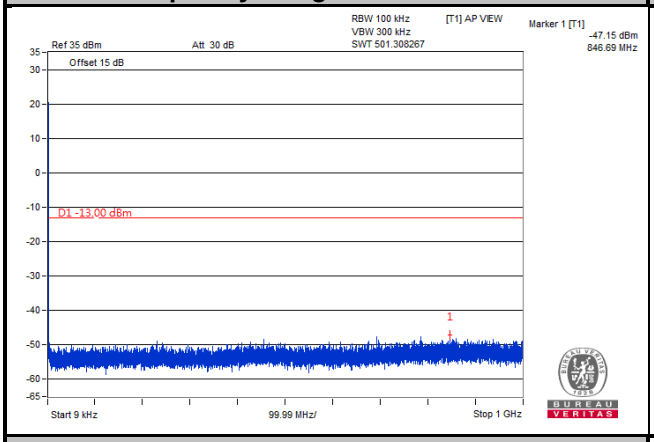
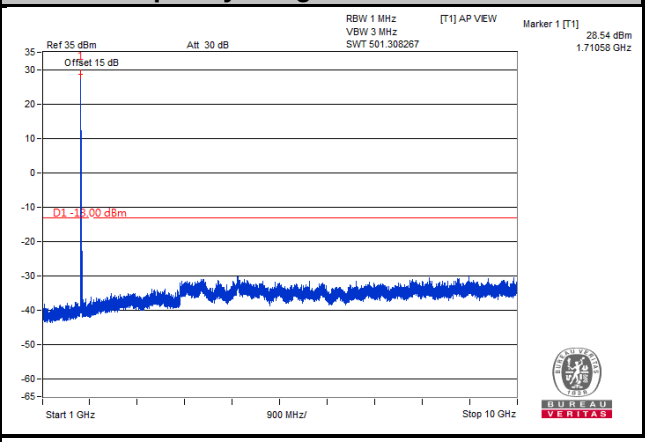
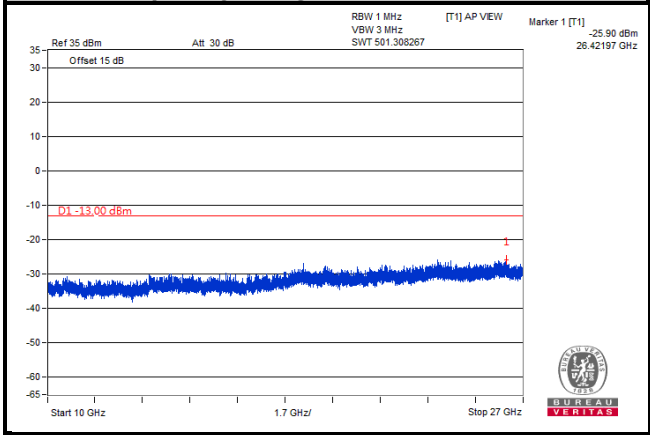
LTE Band 66	
Channel Bandwidth: 5 MHz	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

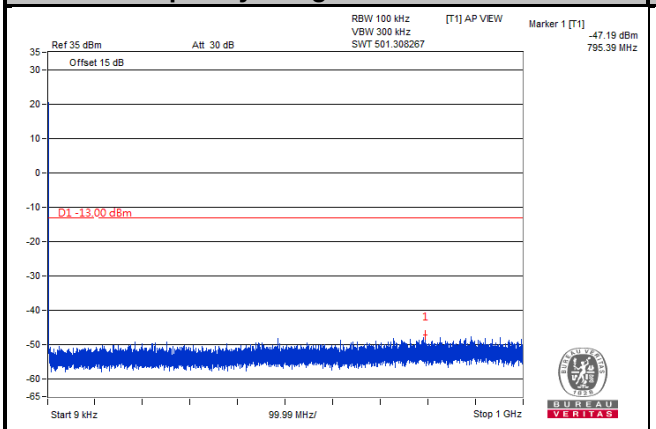
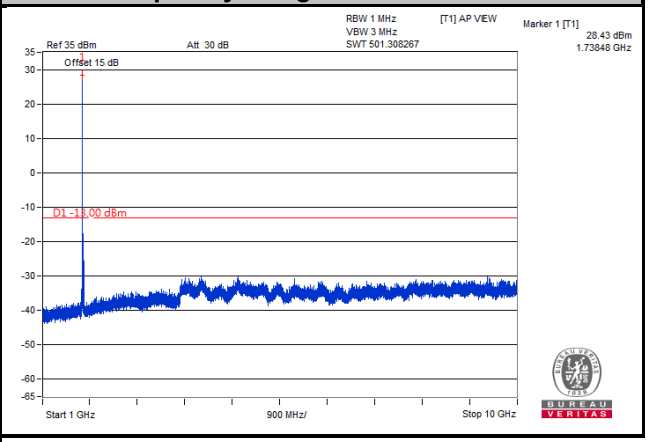
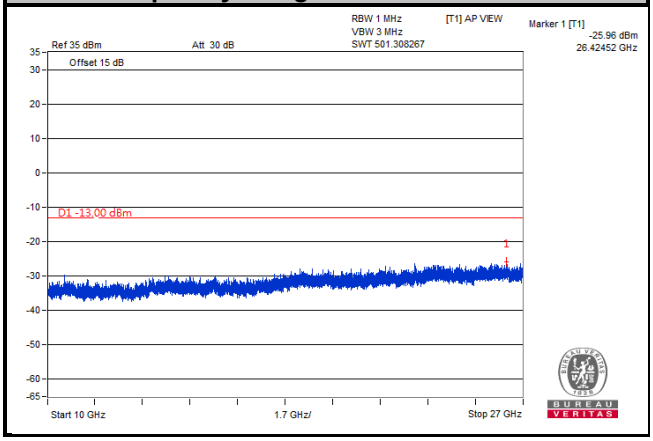
LTE Band 66	
Channel Bandwidth: 5 MHz	
Channel 132647	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

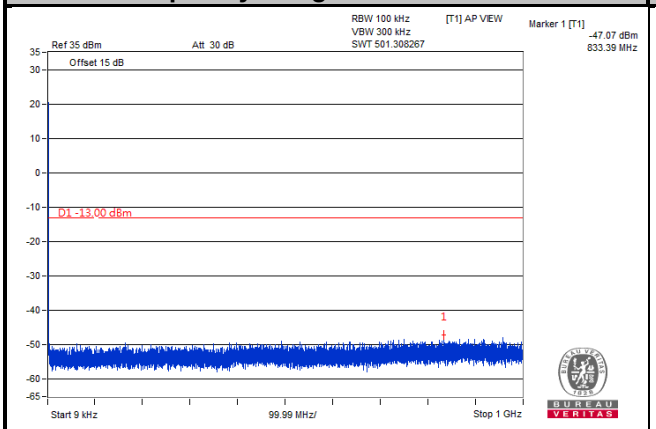
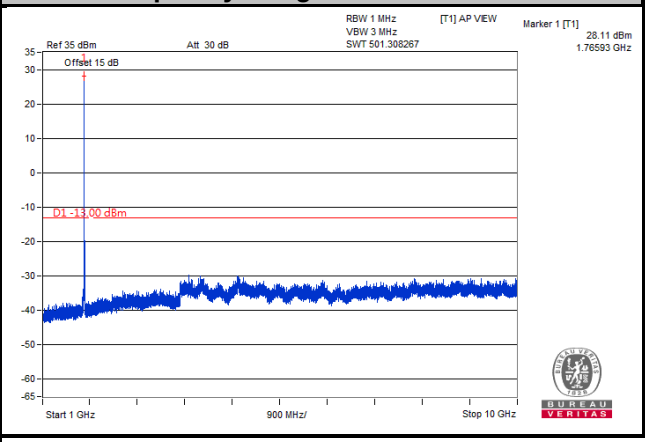
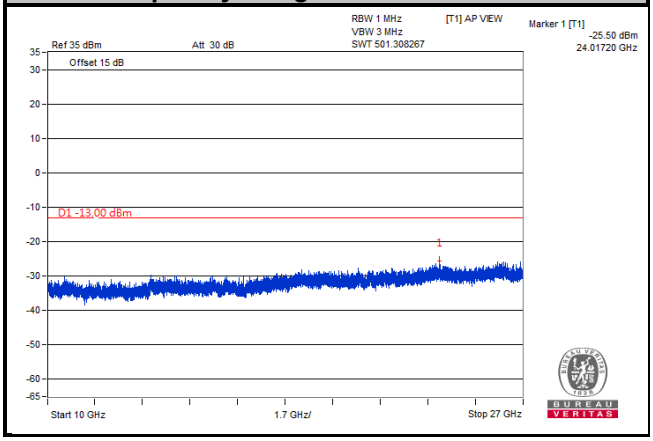
LTE Band 66	
Channel Bandwidth: 10 MHz	
Channel 132022	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

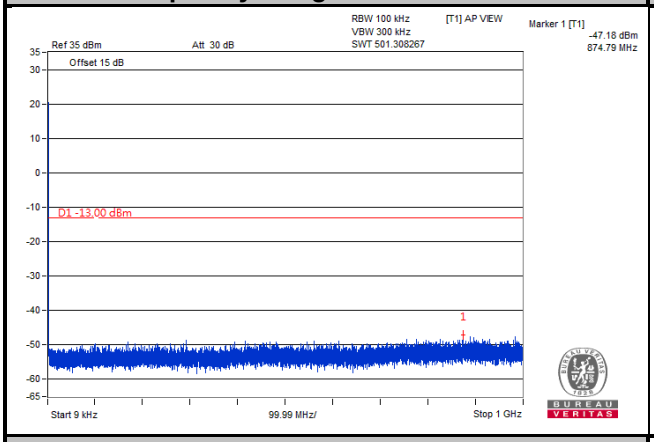
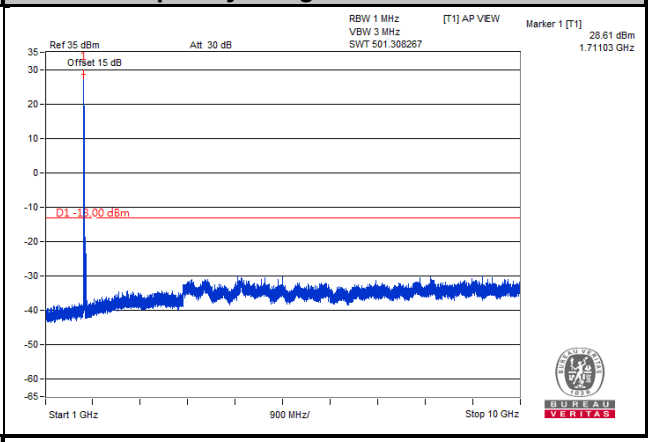
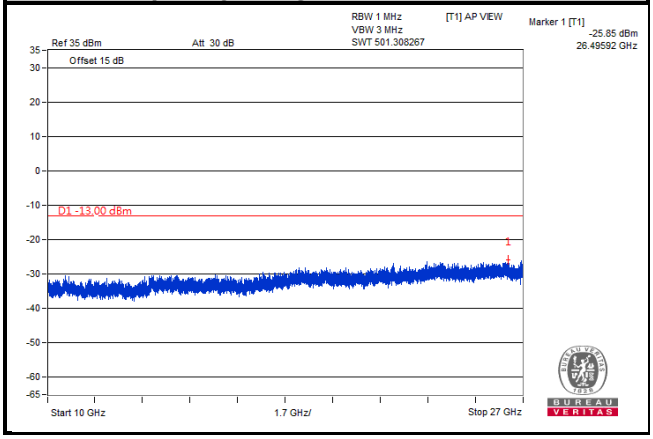
LTE Band 66	
Channel Bandwidth: 10 MHz	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

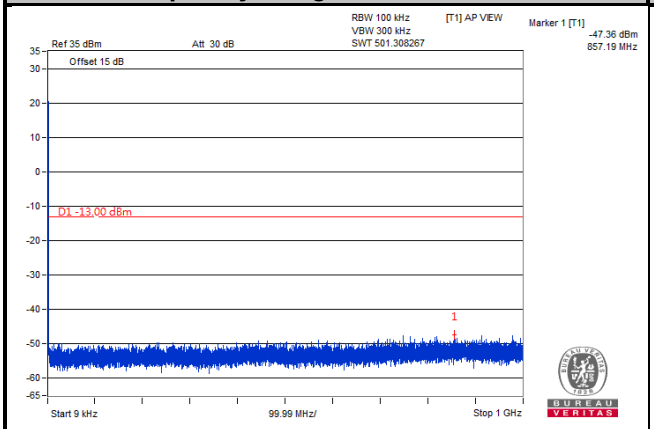
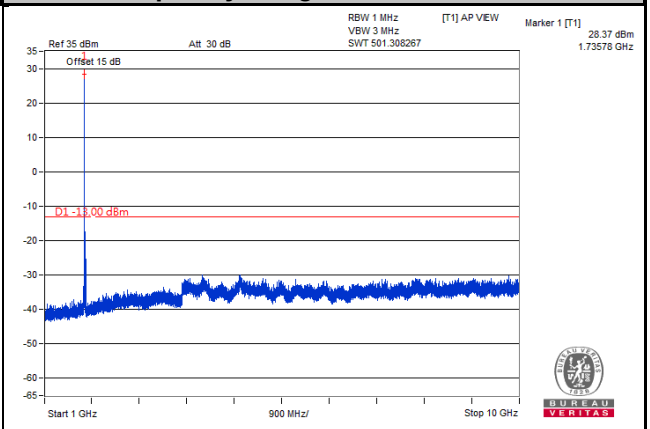
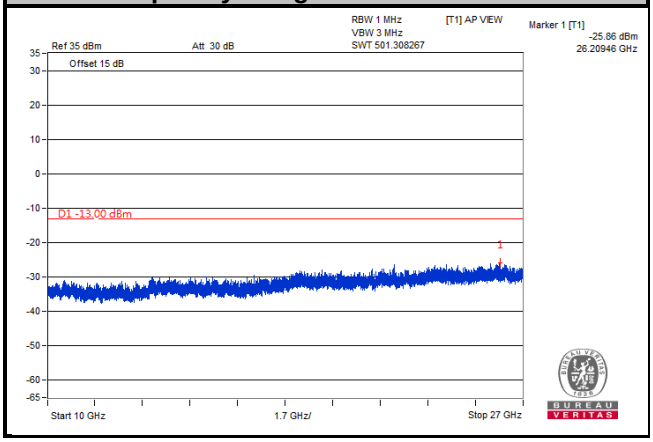
LTE Band 66	
Channel Bandwidth: 10 MHz	
Channel 132622	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

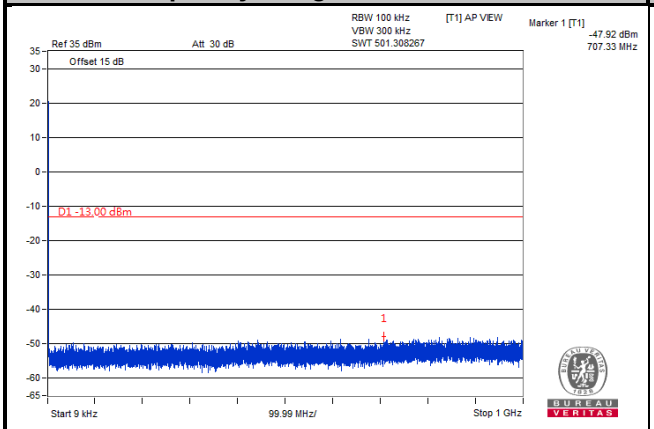
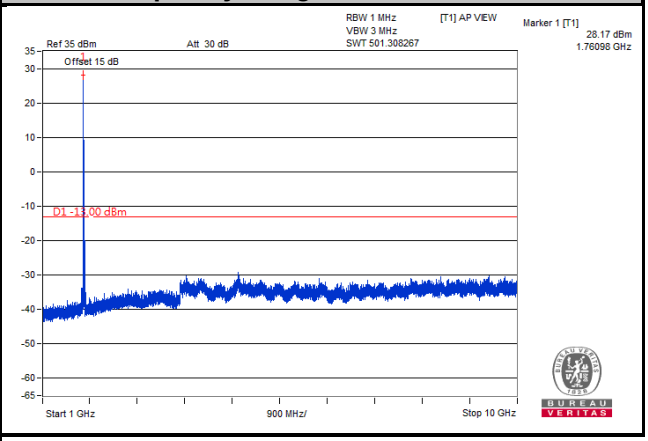
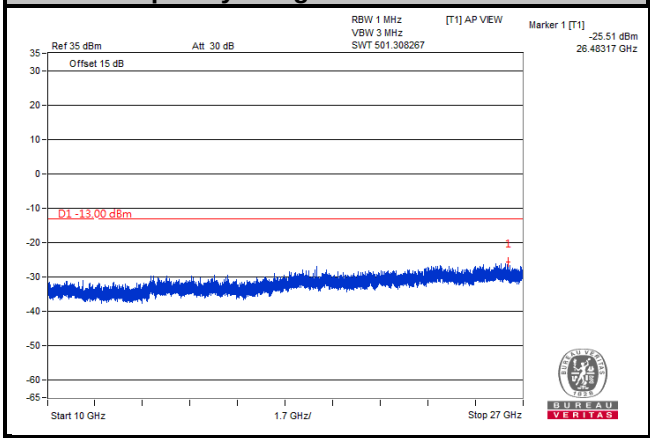
LTE Band 66	
Channel Bandwidth: 15 MHz	
Channel 132047	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

LTE Band 66	
Channel Bandwidth: 15 MHz	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

LTE Band 66	
Channel Bandwidth: 15 MHz	
Channel 132597	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

LTE Band 66	
Channel Bandwidth: 20 MHz	
Channel 132072	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

LTE Band 66	
Channel Bandwidth: 20 MHz	
Channel 132322	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

LTE Band 66	
Channel Bandwidth: 20 MHz	
Channel 132572	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 10 GHz
	
Frequency Range: 10 GHz ~ 27 GHz	
	

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

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

4.8.2 Test Procedure

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

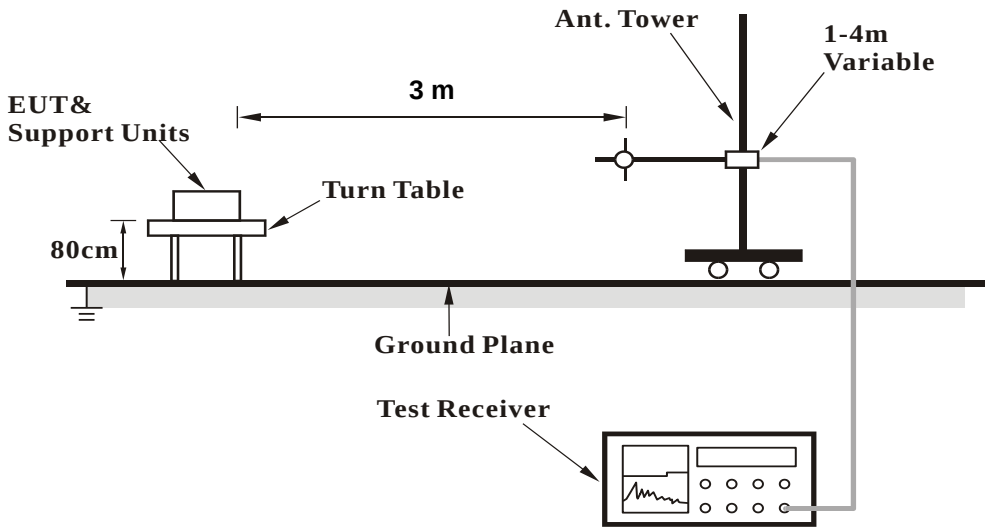
Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.8.3 Deviation from Test Standard

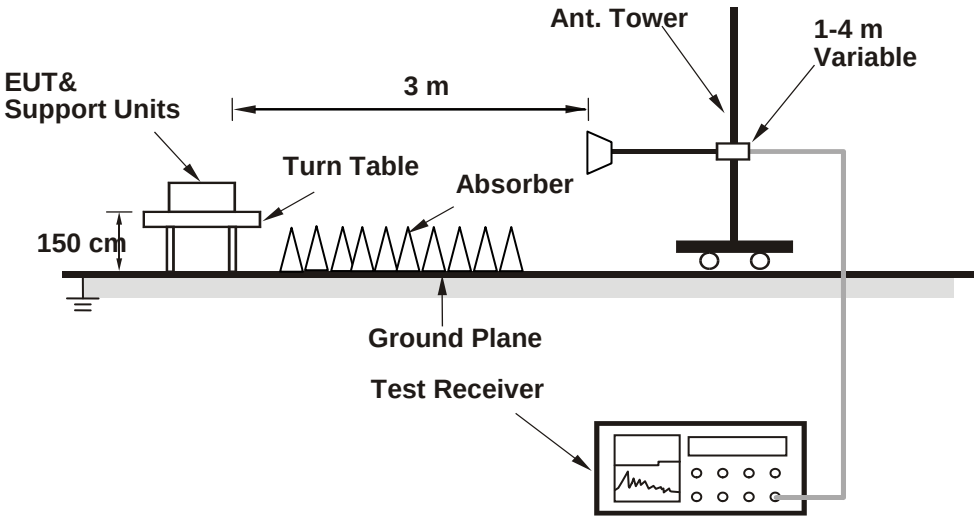
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.8.5 Test Results

LTE Band 4

Channel Bandwidth: 1.4 MHz / QPSK

Low Channel

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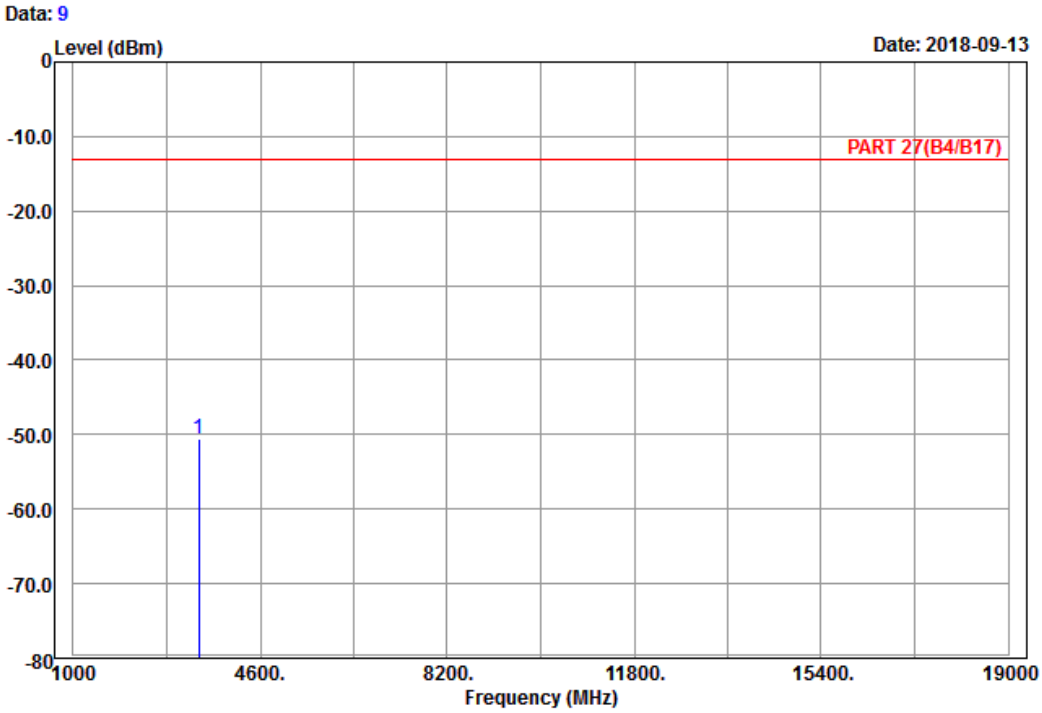
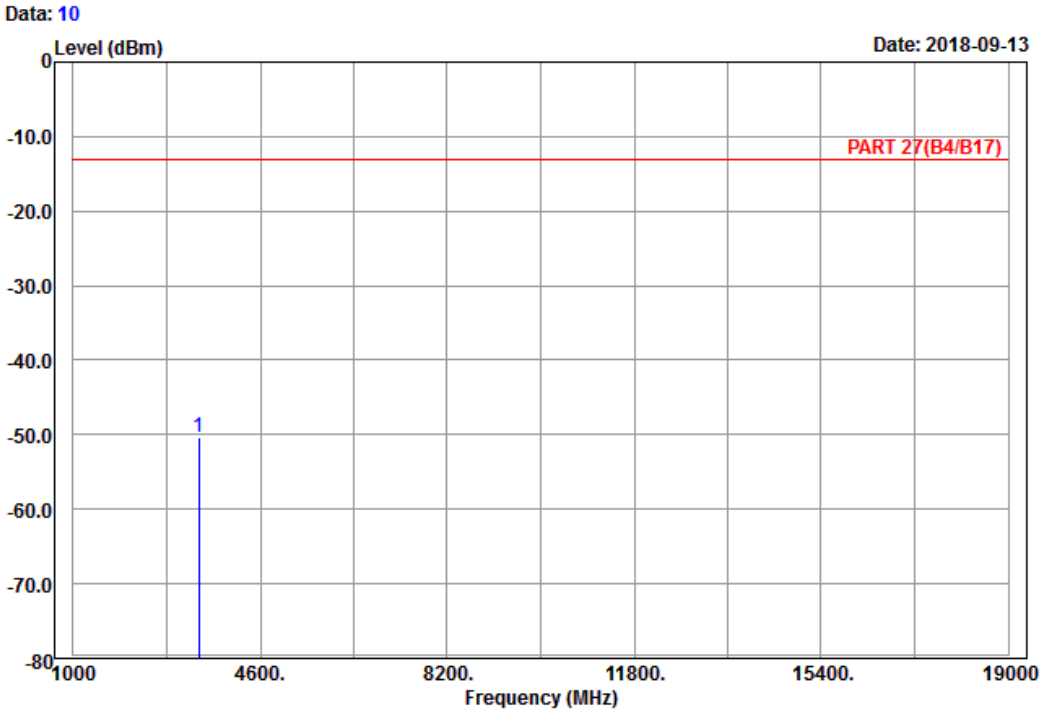



```
Site     : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark   : LTE_Band 4_Link_CH19957
Tested by: Karl Lee
```

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3421.40	-50.49	-64.86	-13.00	-37.49	14.37	Peak

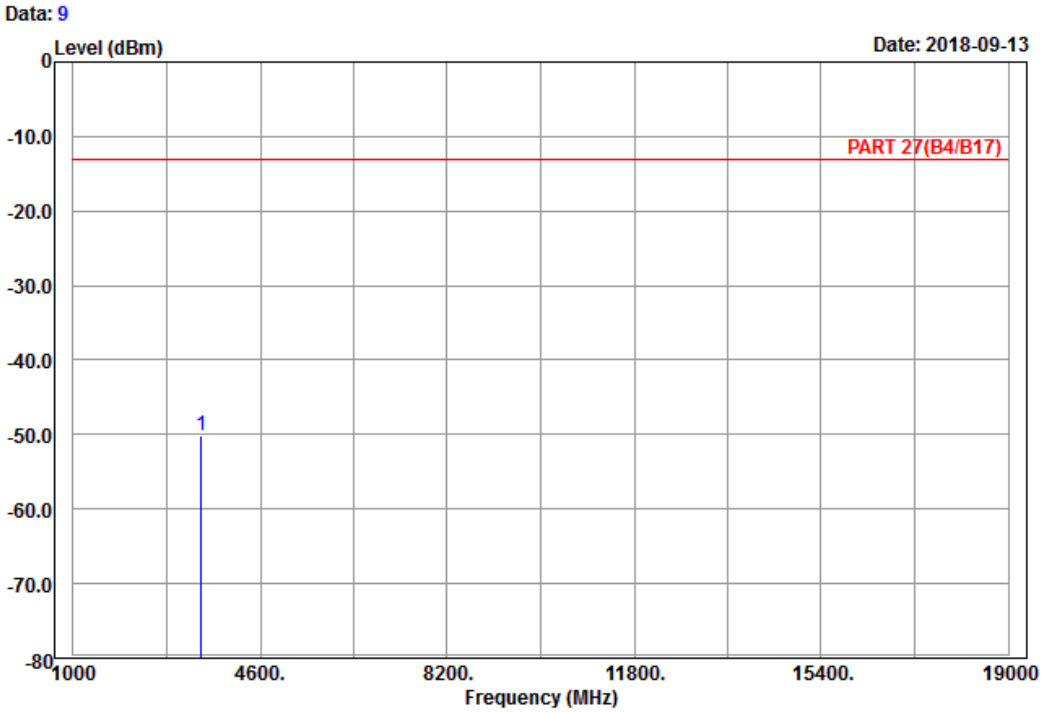


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH19957
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3421.40	-50.32	-64.69	-13.00	-37.32	14.37	Peak

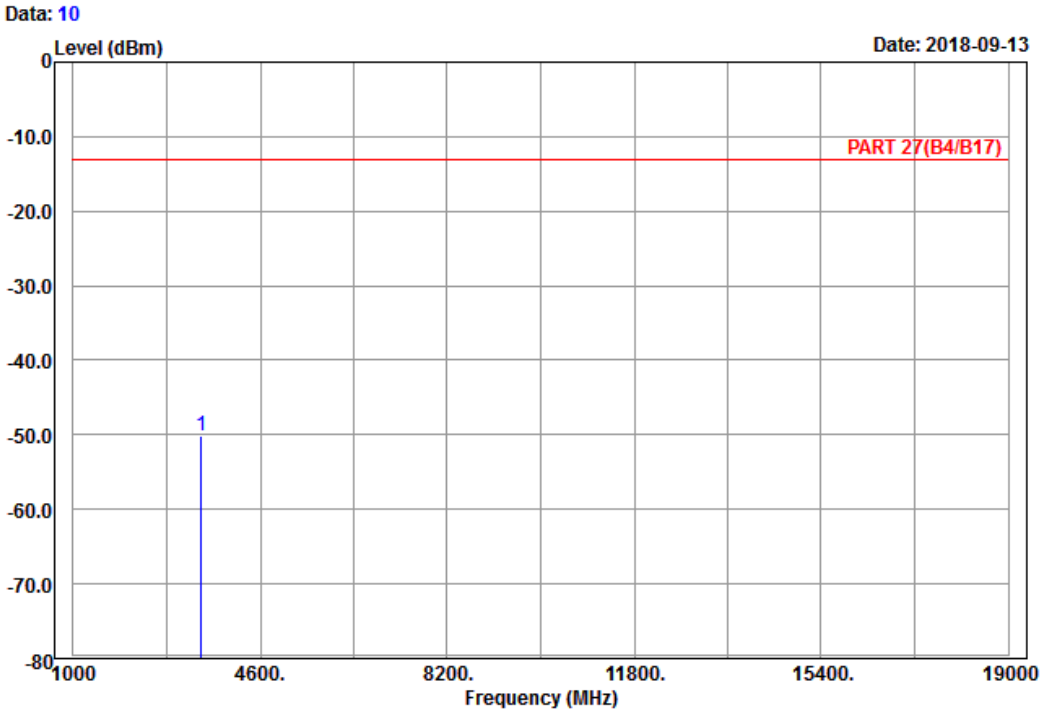
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3465.00	-50.22	-64.56	-13.00	-37.22	14.34	Peak

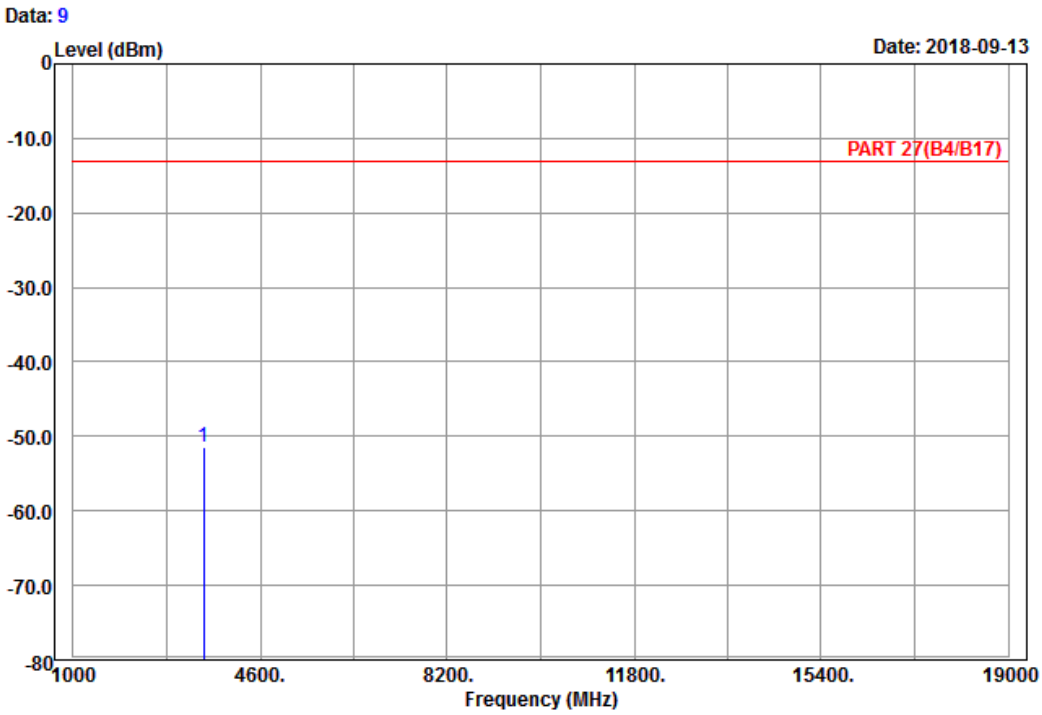


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3465.00	-50.06	-64.40	-13.00	-37.06	14.34	Peak

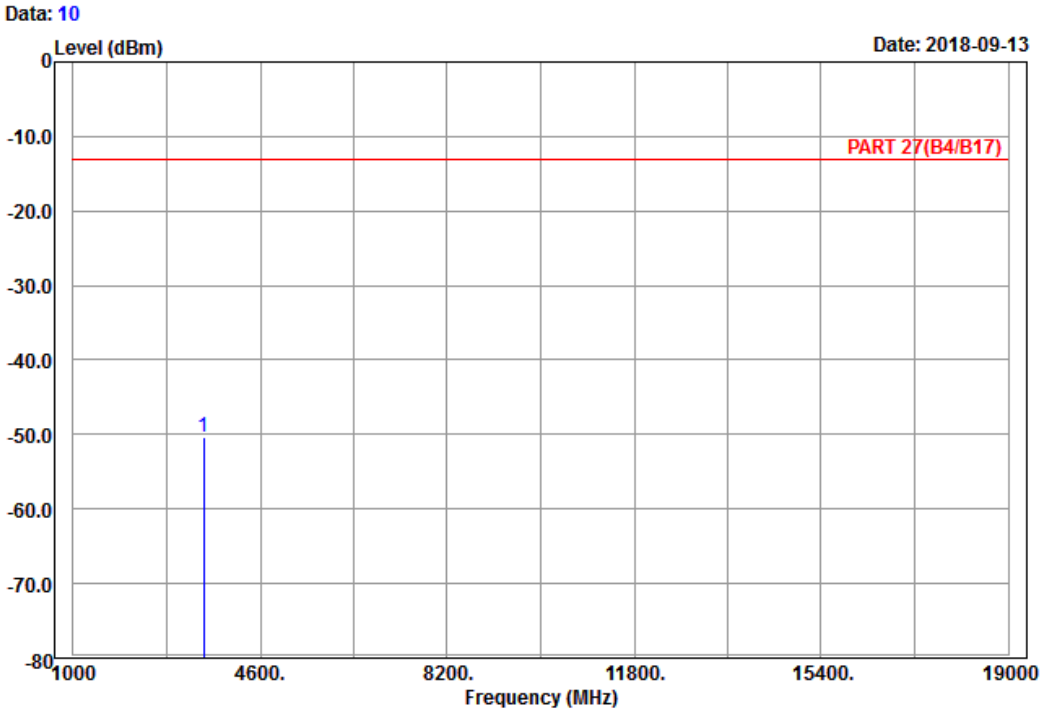
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20393
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3508.60	-51.50	-65.78	-13.00	-38.50	14.28	Peak

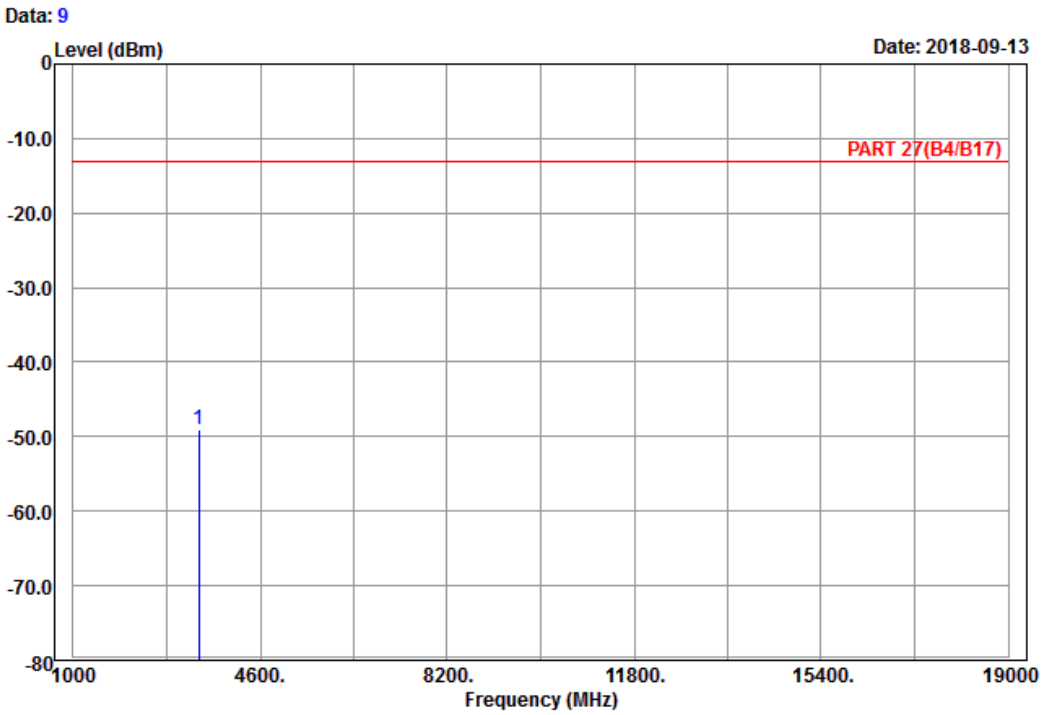


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20393
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3508.60	-50.40	-64.68	-13.00	-37.40	14.28	Peak

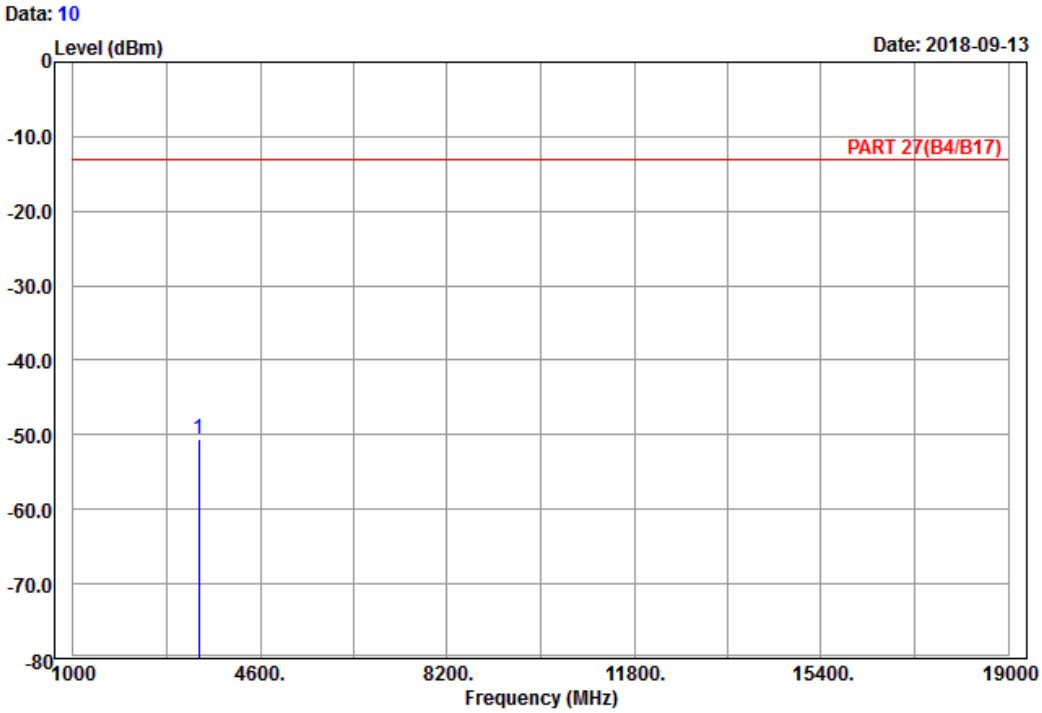
Channel Bandwidth: 5 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site      : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark    : LTE_Band 4_Link_CH19975
Tested by: Karl Lee
                        Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
          _____ _____ _____ _____ _____ _____ _________
            MHz   dBm   dBm   dBm    dB    dB

  1 pp  3425.00 -49.14 -63.51 -13.00 -36.14  14.37 Peak
```

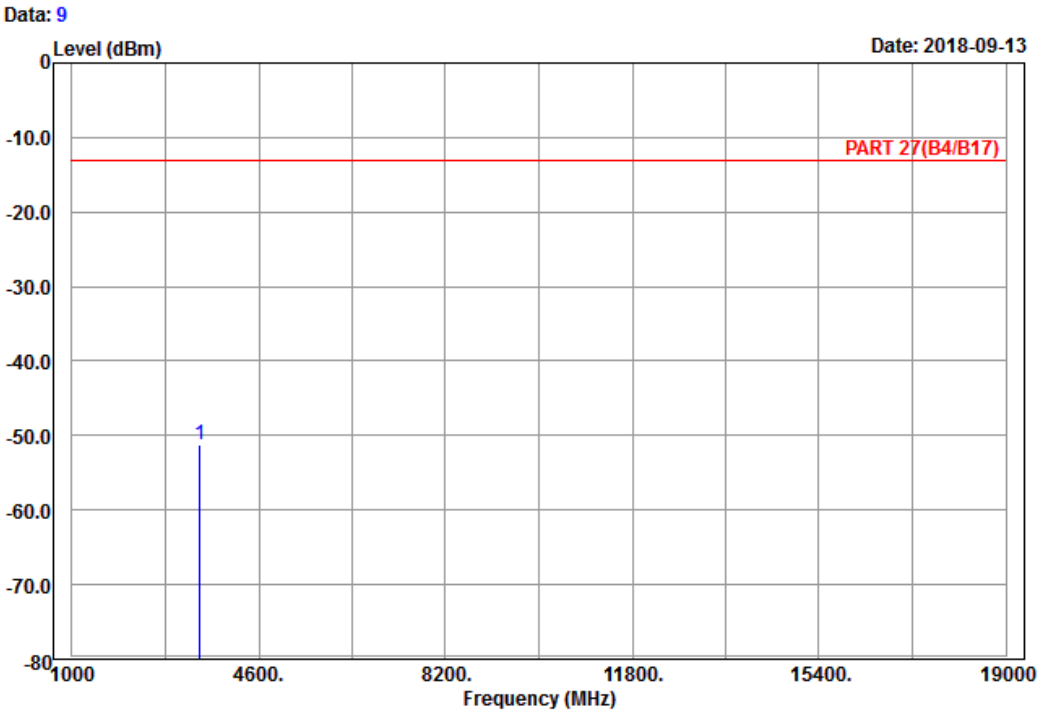


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH19975
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3425.00	-50.60	-64.97	-13.00	-37.60	14.37	Peak

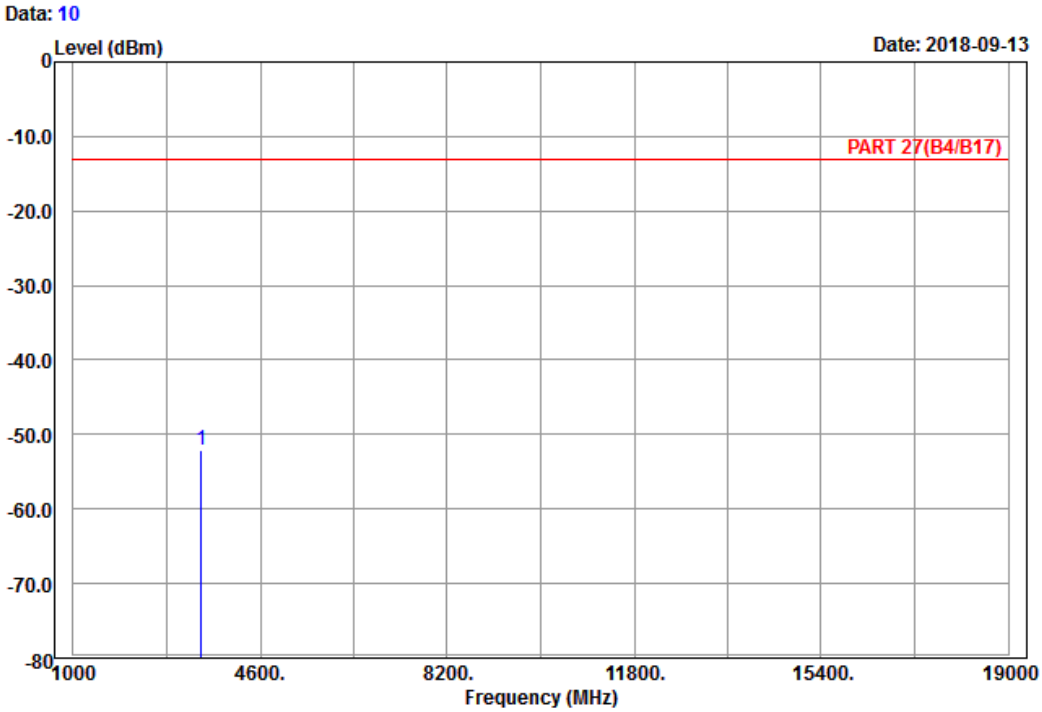
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3465.00	-51.15	-65.49	-13.00	-38.15	14.34	Peak

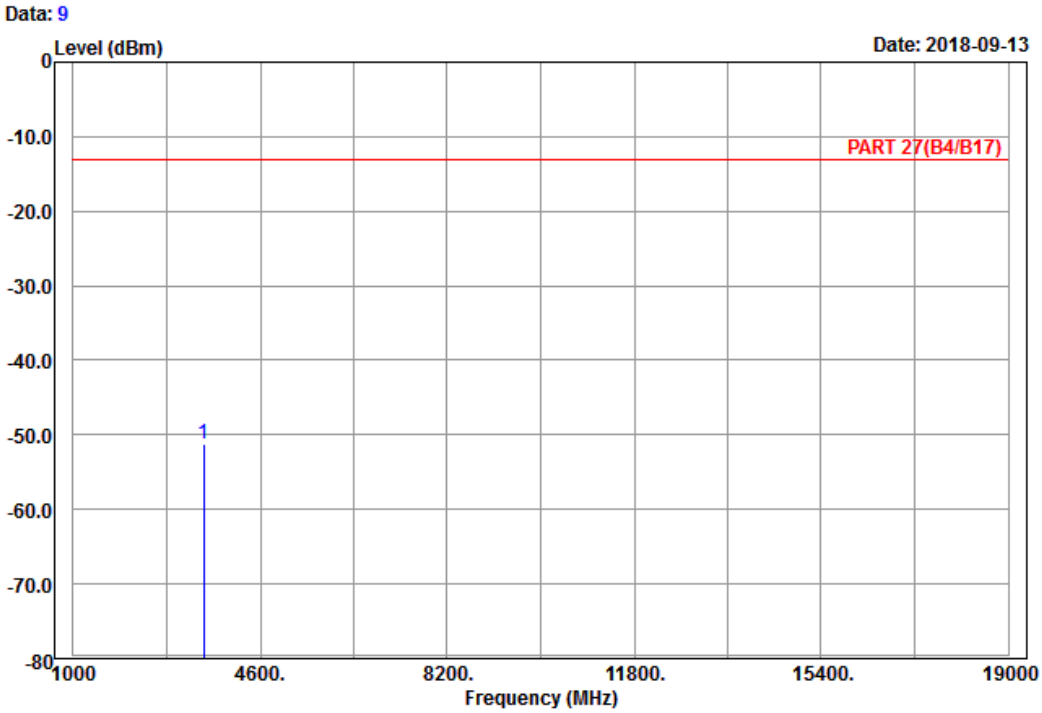


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3465.00	-52.06	-66.40	-13.00	-39.06	14.34	Peak

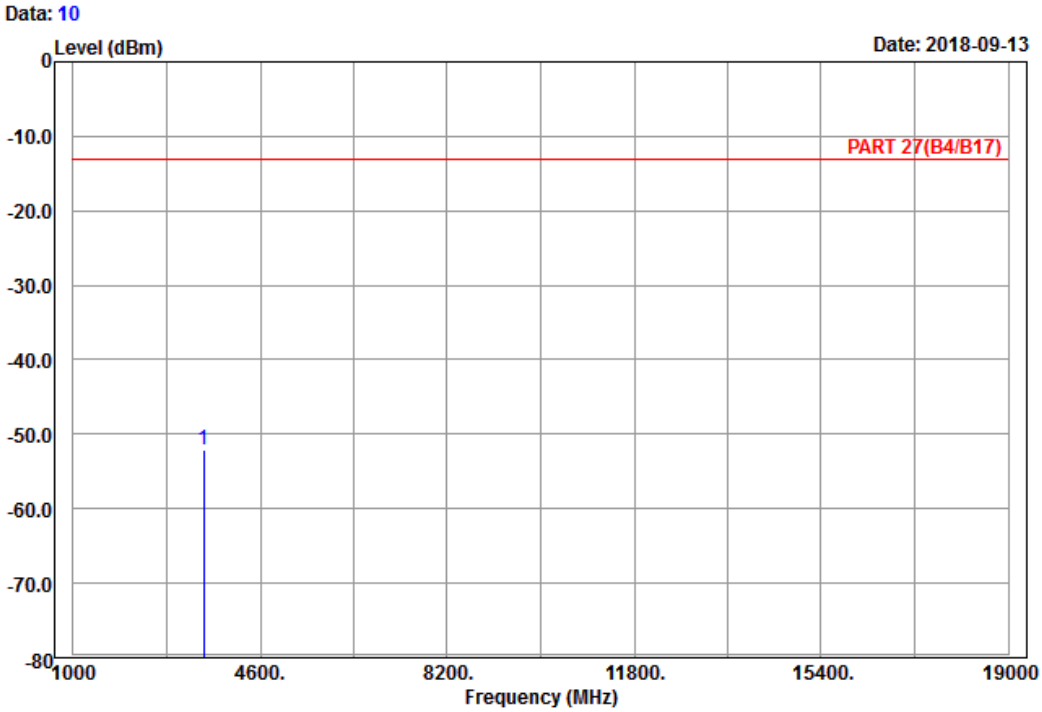
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20375
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3505.00	-51.16	-65.44	-13.00	-38.16	14.28	Peak

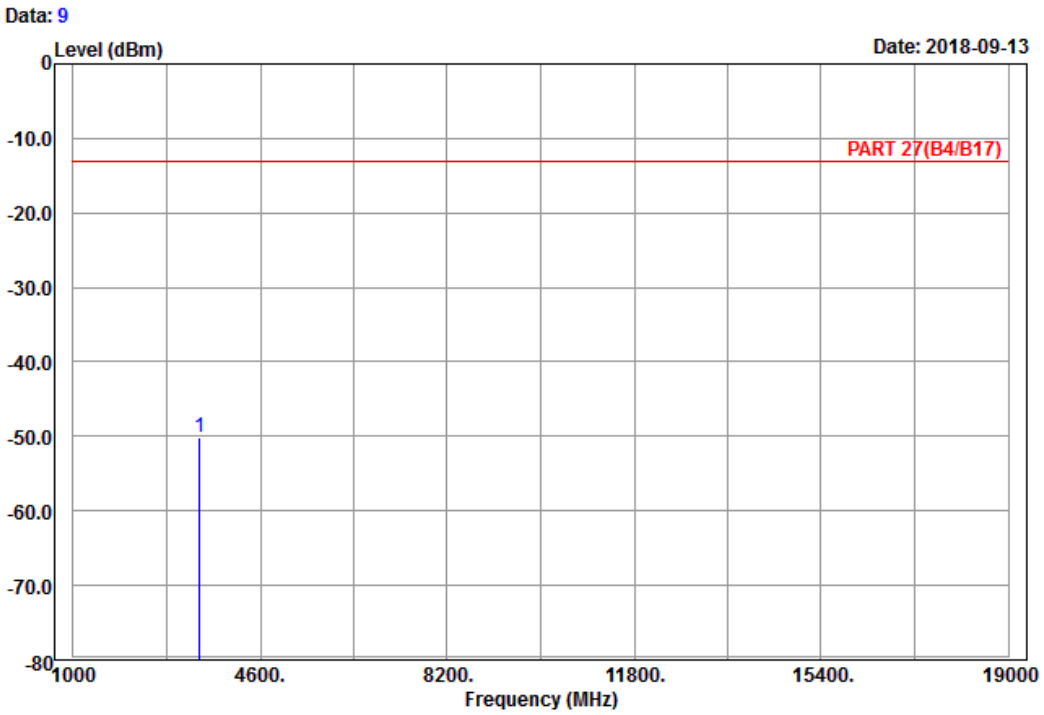


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20375
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3505.00	-52.12	-66.40	-13.00	-39.12	14.28	Peak

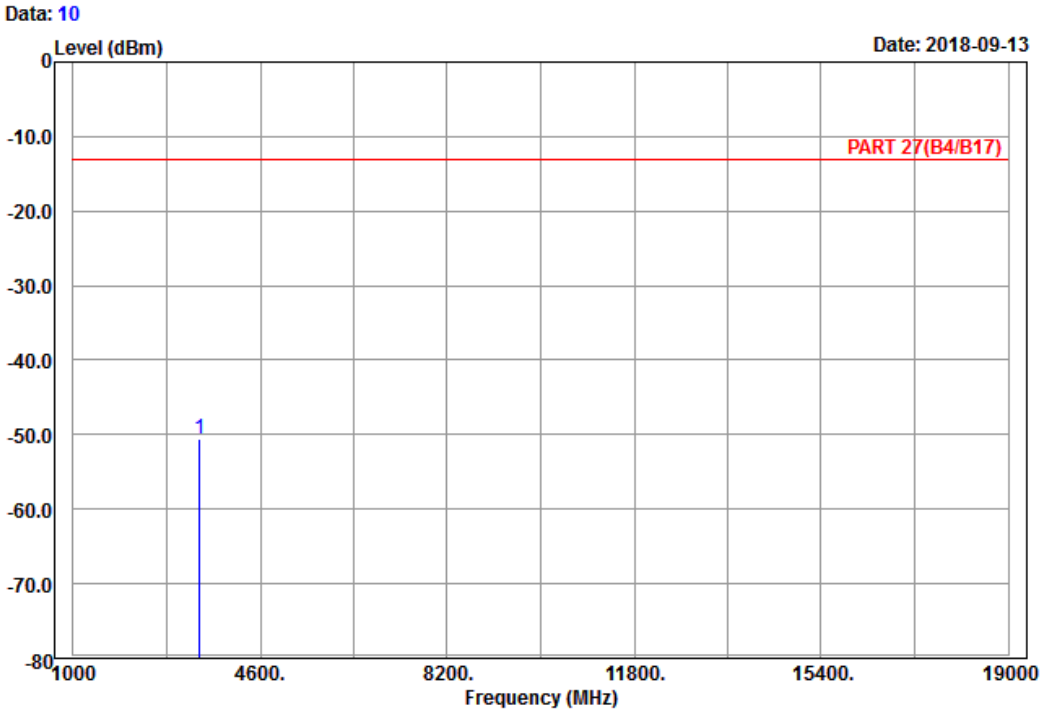
Channel Bandwidth: 20 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20050
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3440.00	-50.17	-64.52	-13.00	-37.17	14.35	Peak

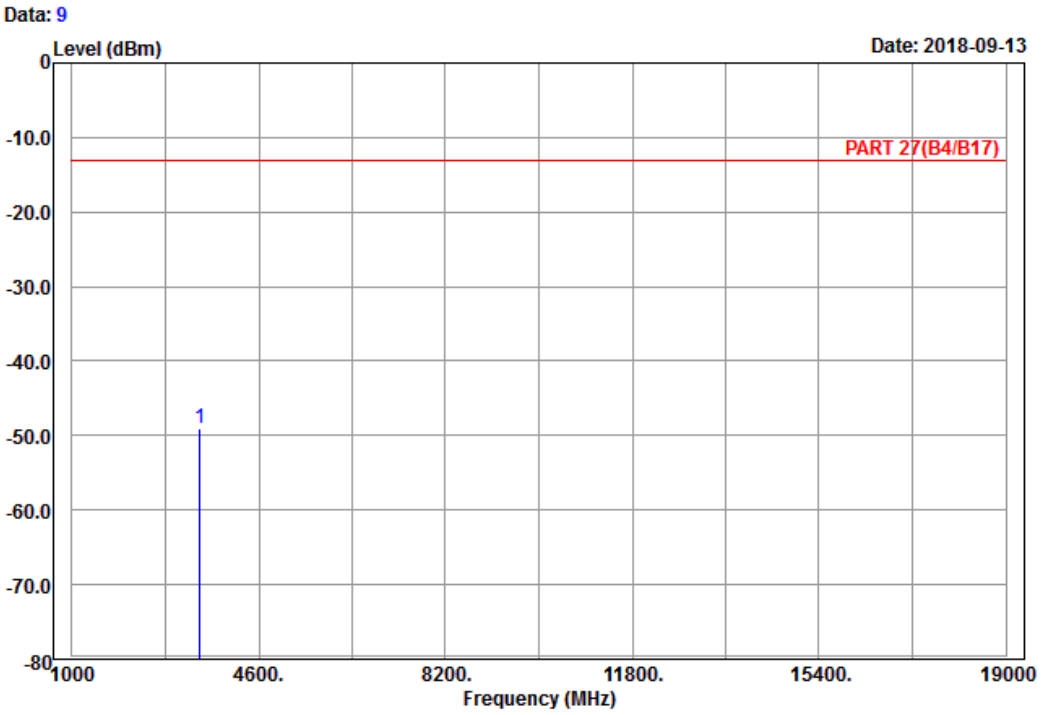


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20050
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3440.00	-50.47	-64.82	-13.00	-37.47	14.35	Peak

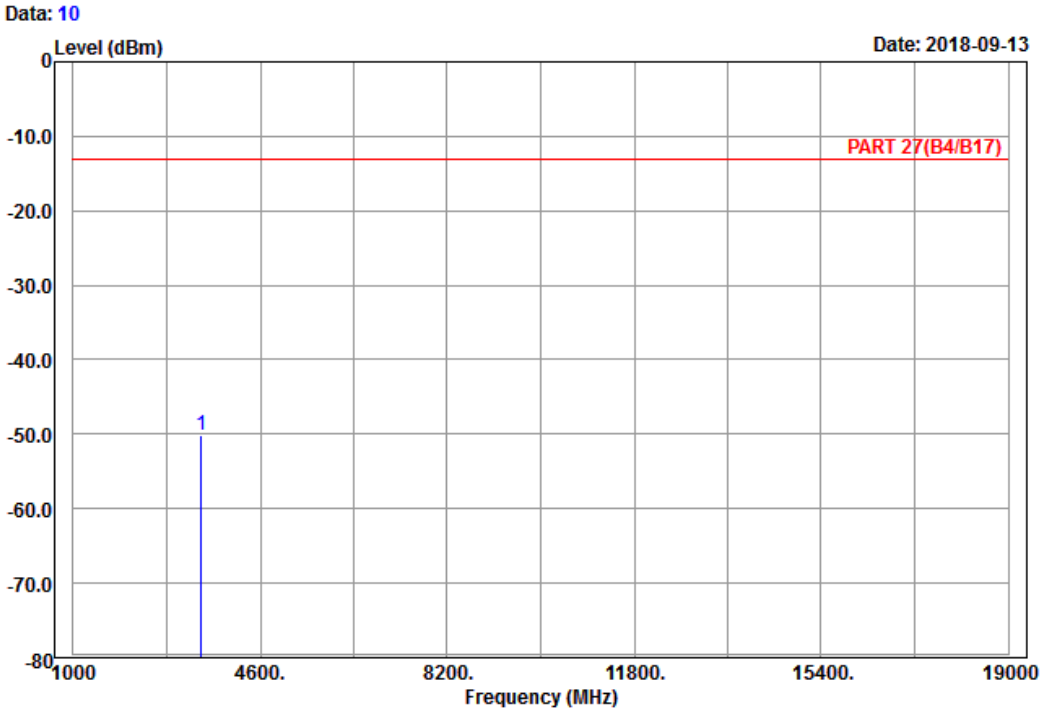
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3465.00	-49.04	-63.38	-13.00	-36.04	14.34	Peak

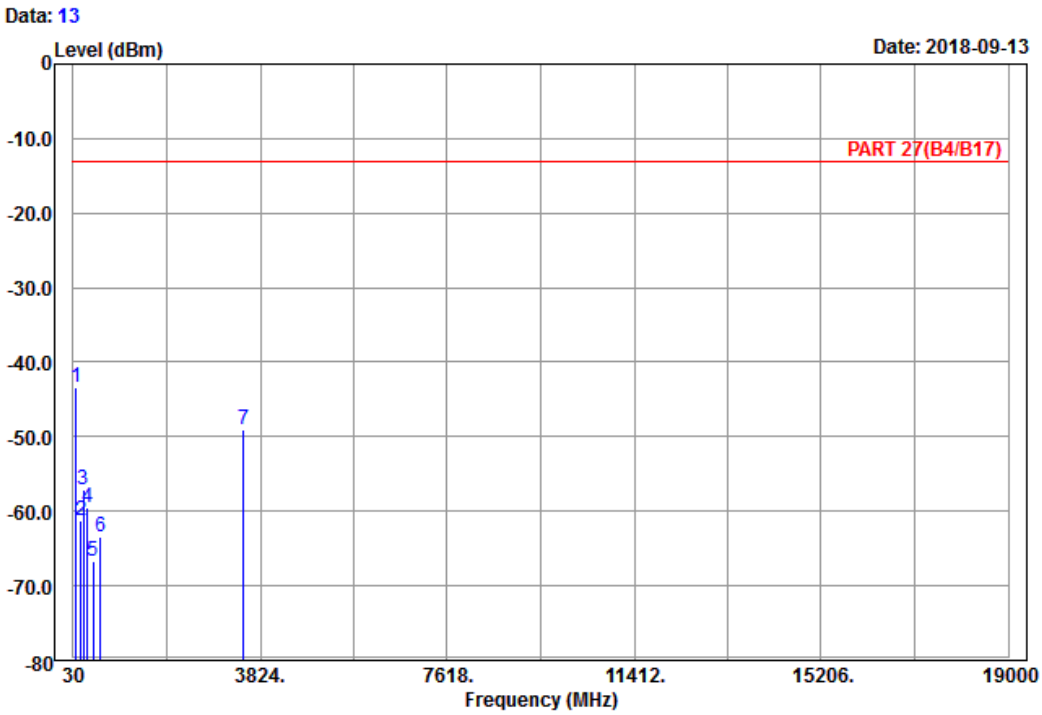


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3465.00	-50.17	-64.51	-13.00	-37.17	14.34	Peak

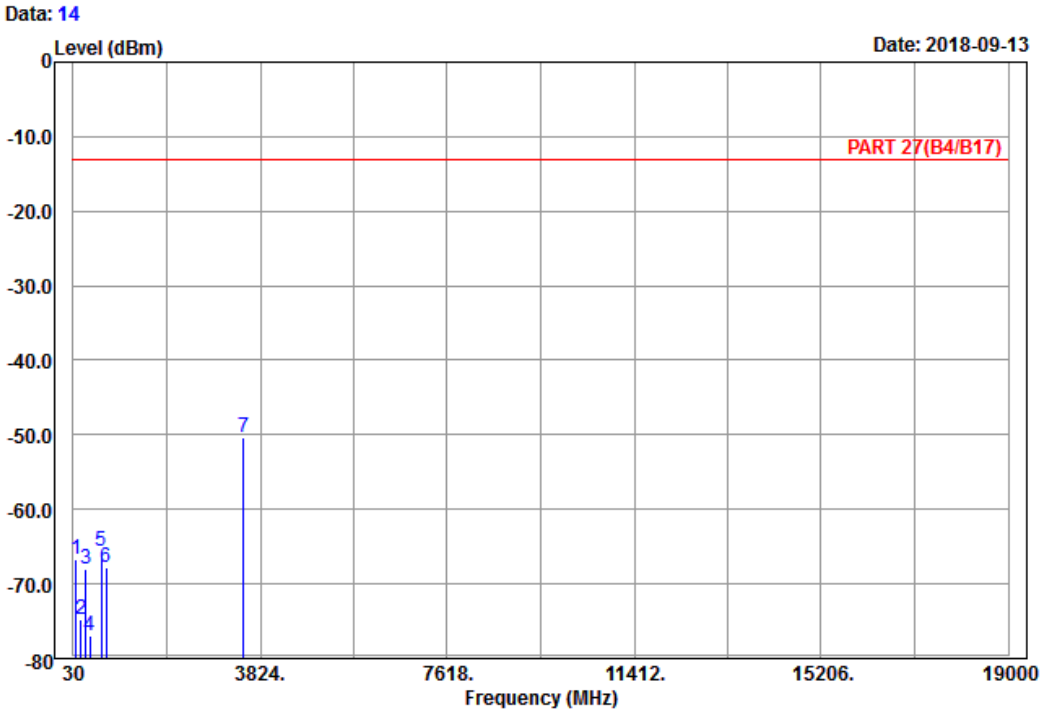
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20300
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	91.56	-43.30	-32.68	-13.00	-30.30	-10.62	Peak
2	180.12	-61.30	-55.72	-13.00	-48.30	-5.58	Peak
3	241.68	-57.06	-51.44	-13.00	-44.06	-5.62	Peak
4	321.70	-59.52	-53.82	-13.00	-46.52	-5.70	Peak
5	433.00	-66.63	-63.17	-13.00	-53.63	-3.46	Peak
6	582.80	-63.53	-63.23	-13.00	-50.53	-0.30	Peak
7	3490.00	-49.00	-63.31	-13.00	-36.00	14.31	Peak

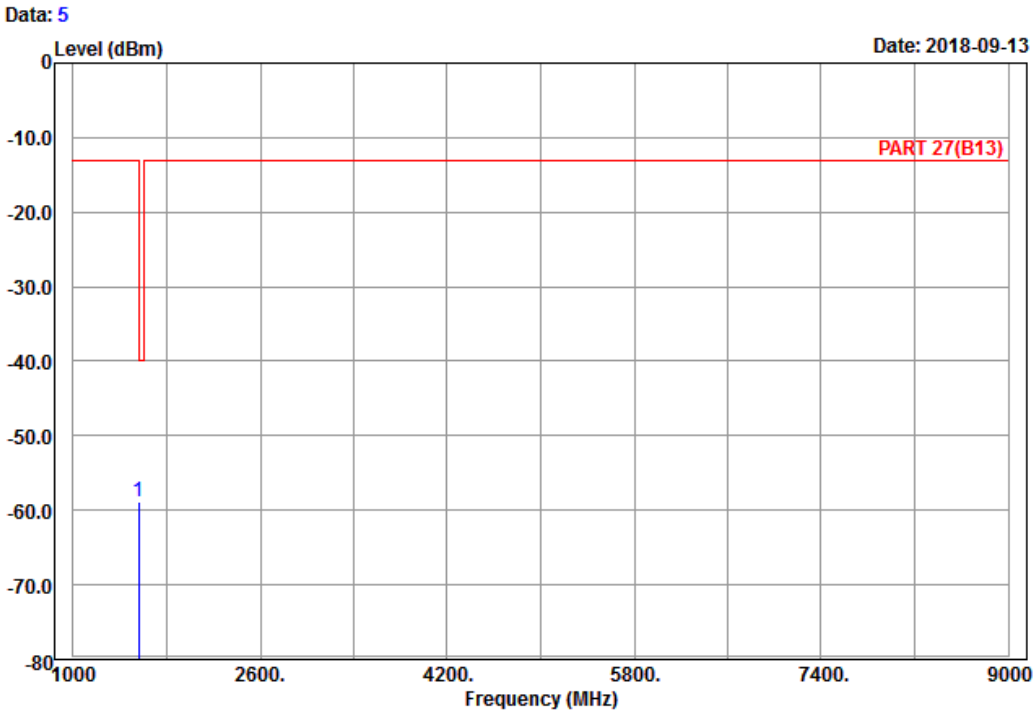


Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20300
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	91.29	-66.71	-56.09	-13.00	-53.71	-10.62	Peak
2	189.30	-74.67	-68.95	-13.00	-61.67	-5.72	Peak
3	283.53	-68.09	-62.28	-13.00	-55.09	-5.81	Peak
4	368.60	-77.00	-72.60	-13.00	-64.00	-4.40	Peak
5	596.10	-65.58	-65.85	-13.00	-52.58	0.27	Peak
6	701.10	-67.76	-67.36	-13.00	-54.76	-0.40	Peak
7 pp	3490.00	-50.39	-64.70	-13.00	-37.39	14.31	Peak

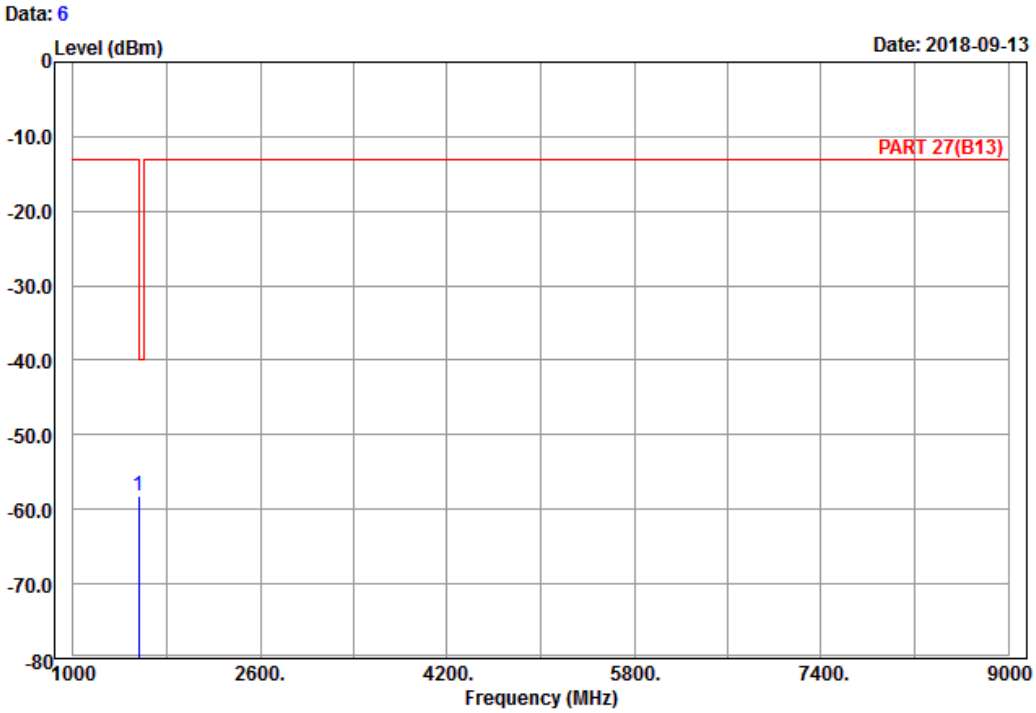
LTE Band 13
Channel Bandwidth: 5 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site     : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark   : LTE_Band 13_Link_CH23205
Tested by: Karl Lee
                        Read  Limit   Over
          Freq  Level  Level   Line  Limit Factor Remark
        ________ _____ _____ _____ _____ _____ __________
             MHz   dBm   dBm   dBm    dB    dB

1 pp  1559.00 -58.86 -65.72 -40.00 -18.86  6.86 Peak
```

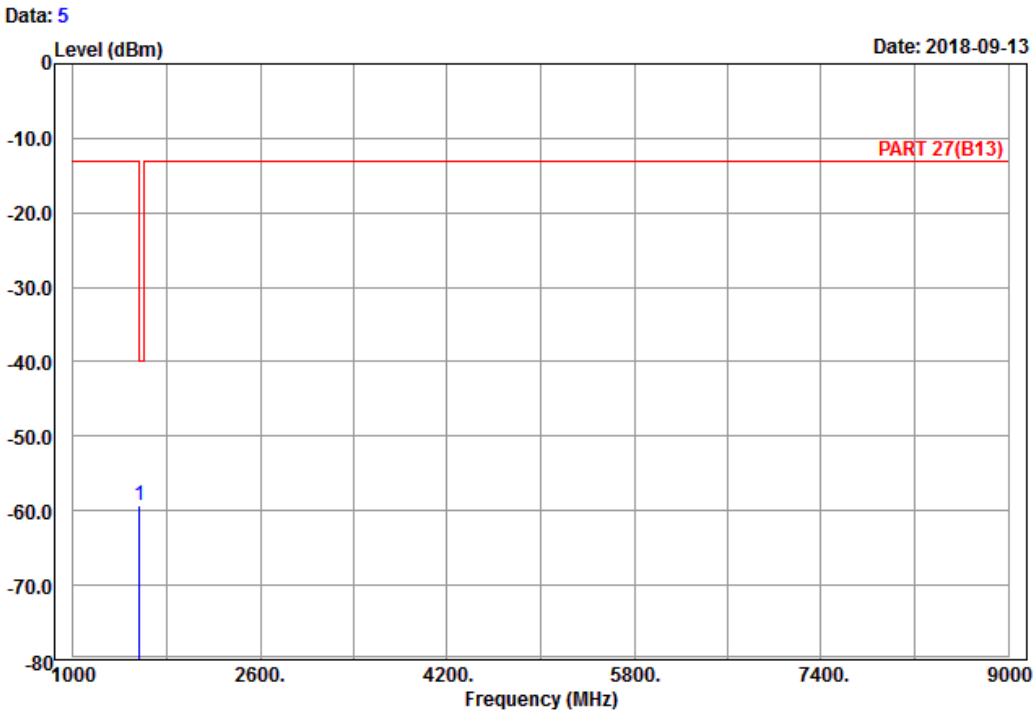


Site : 966 chamber 1
Condition: PART 27(B13) Vertical
Remark : LTE_Band 13_Link_CH23205
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1559.00	-58.11	-64.97	-40.00	-18.11	6.86	Peak

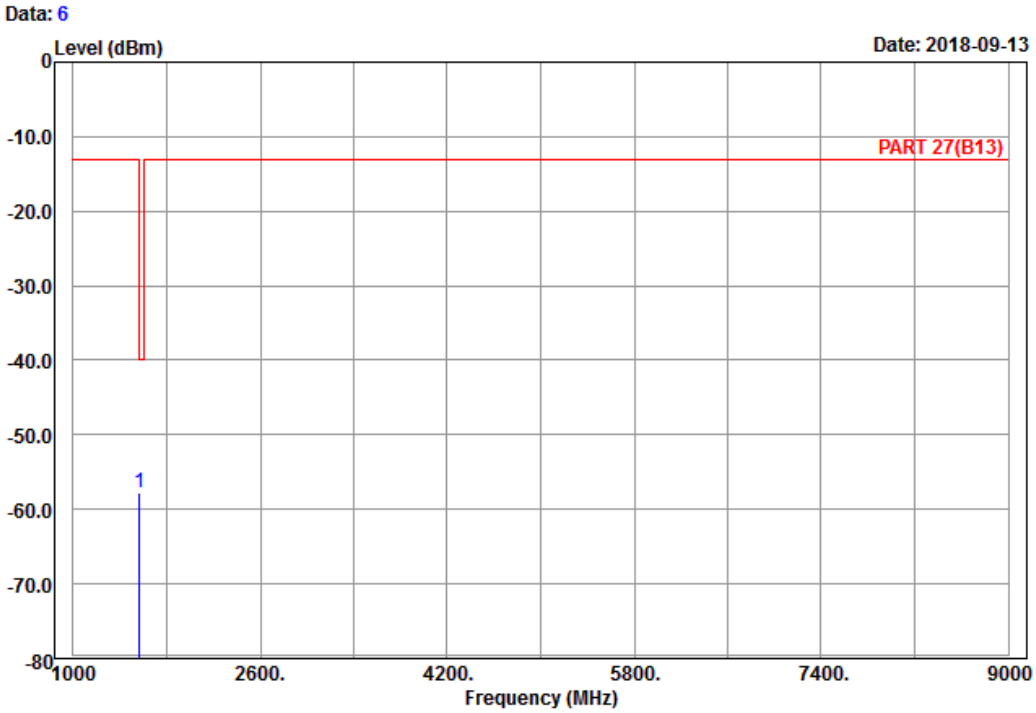
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark : LTE_Band 13_Link_CH23230
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1564.00	-59.24	-66.10	-40.00	-19.24	6.86	Peak

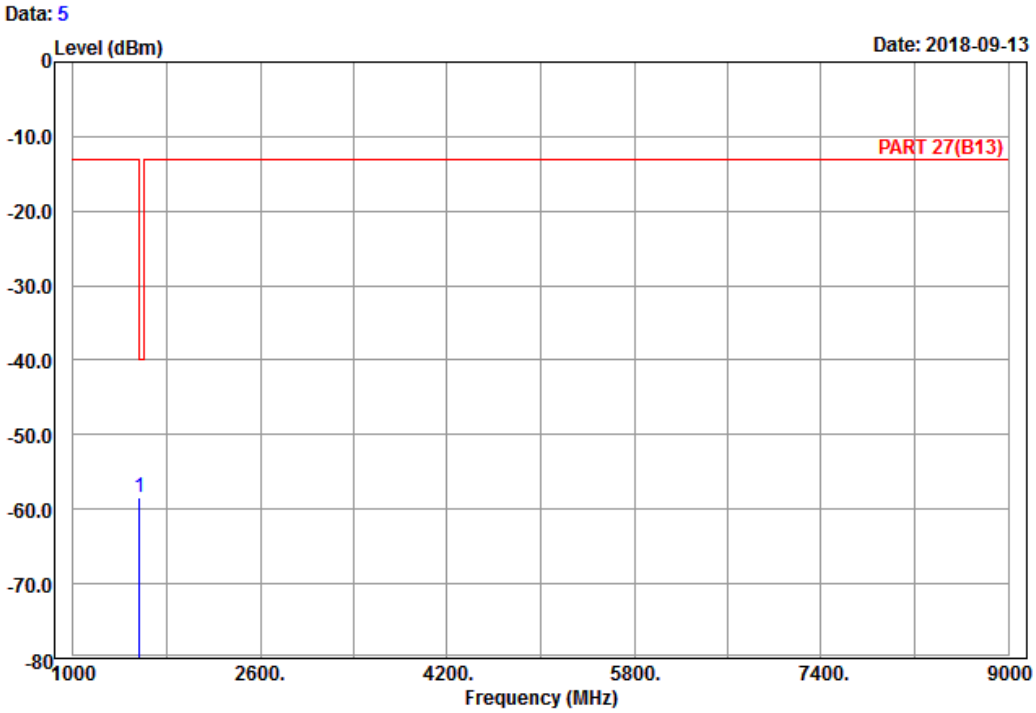


Site : 966 chamber 1
Condition: PART 27(B13) Vertical
Remark : LTE_Band 13_Link_CH23230
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1564.00	-57.86	-64.72	-40.00	-17.86	6.86	Peak

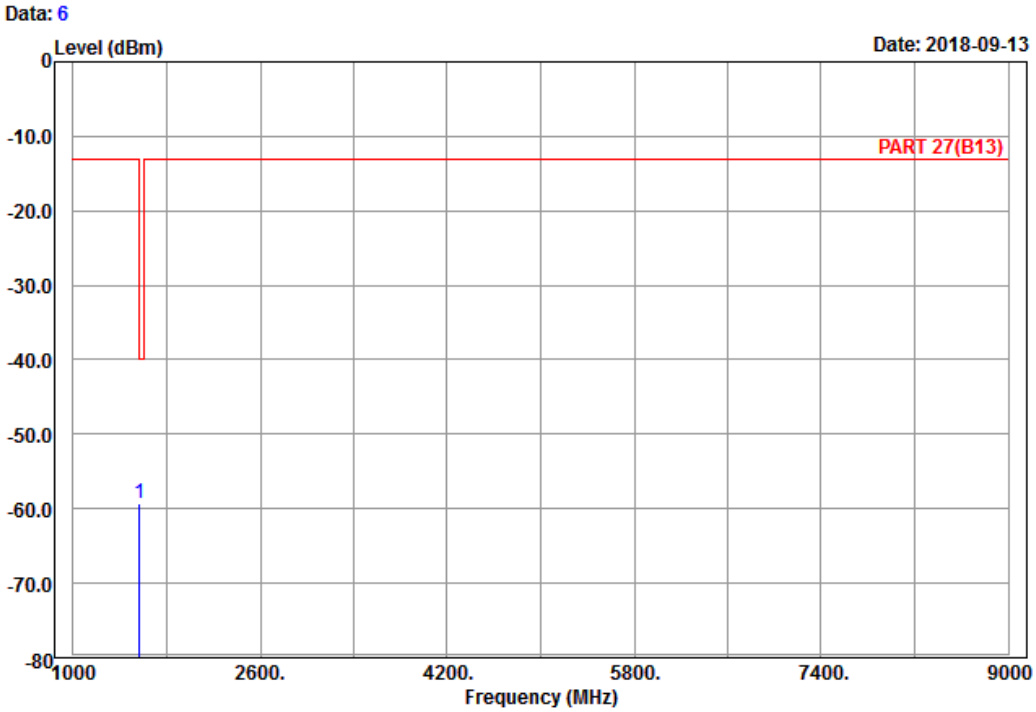
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark : LTE_Band 13_Link_CH23255
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1569.00	-58.40	-65.44	-40.00	-18.40	7.04	Peak

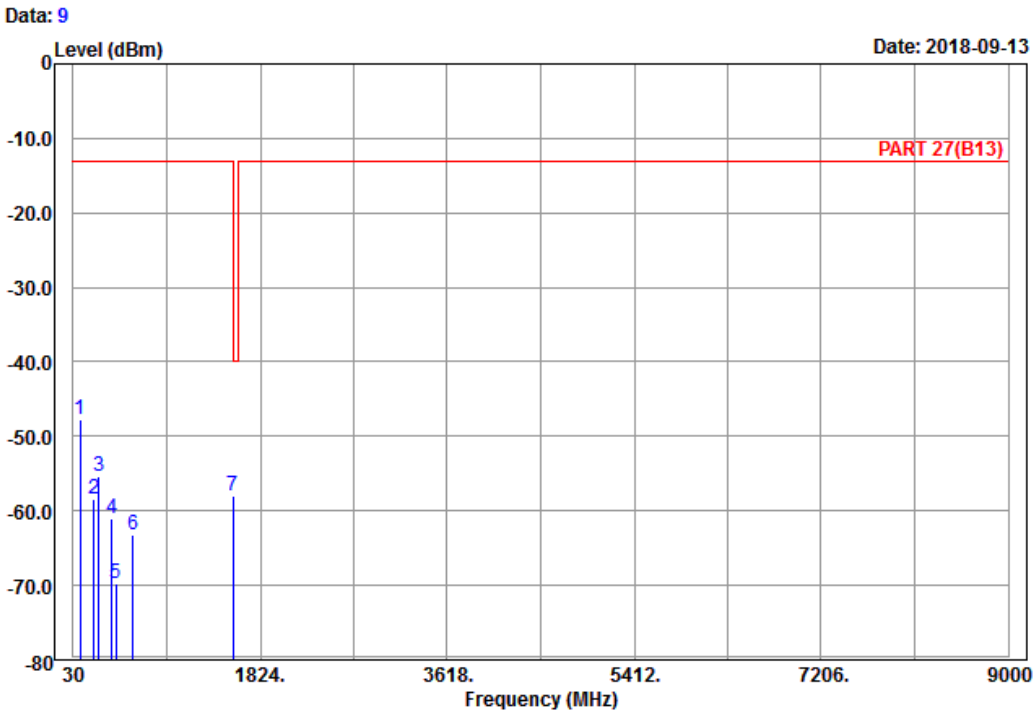


Site : 966 chamber 1
Condition: PART 27(B13) Vertical
Remark : LTE_Band 13_Link_CH23255
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1569.00	-59.37	-66.41	-40.00	-19.37	7.04	Peak

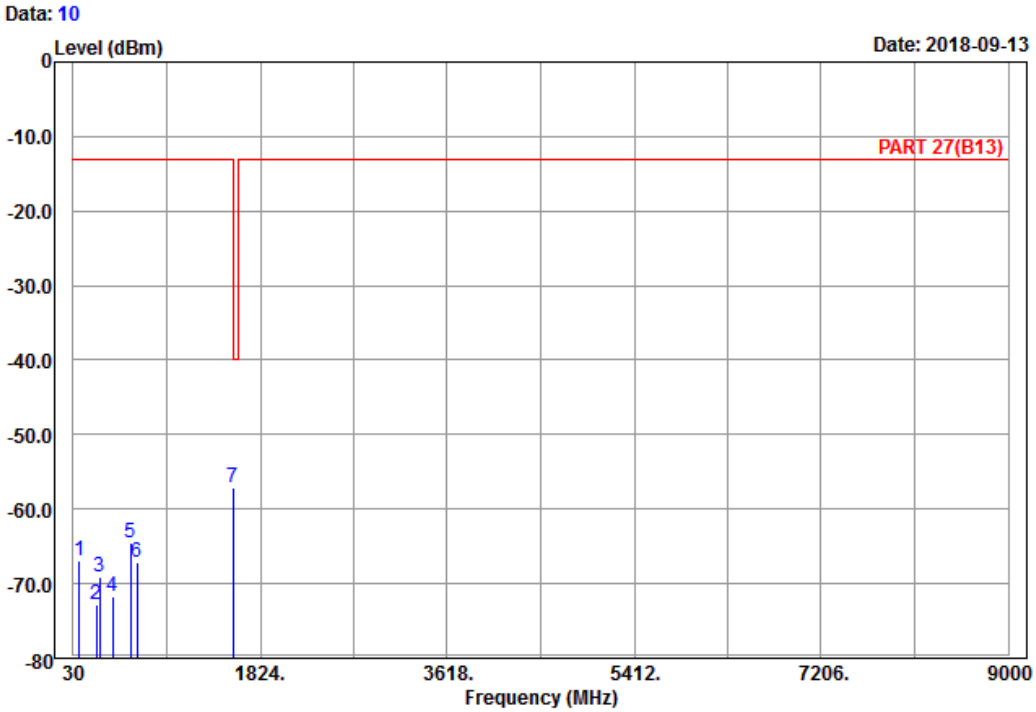
Channel Bandwidth: 10 MHz / QPSK
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark : LTE_Band 13_Link_CH23230
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	94.80	-47.67	-37.27	-13.00	-34.67	-10.40	Peak
2	231.69	-58.43	-52.68	-13.00	-45.43	-5.75	Peak
3	274.35	-55.39	-49.66	-13.00	-42.39	-5.73	Peak
4	403.60	-61.08	-58.25	-13.00	-48.08	-2.83	Peak
5	441.40	-69.67	-66.02	-13.00	-56.67	-3.65	Peak
6	600.30	-63.28	-63.71	-13.00	-50.28	0.43	Peak
7 pp	1564.00	-57.90	-64.76	-40.00	-17.90	6.86	Peak

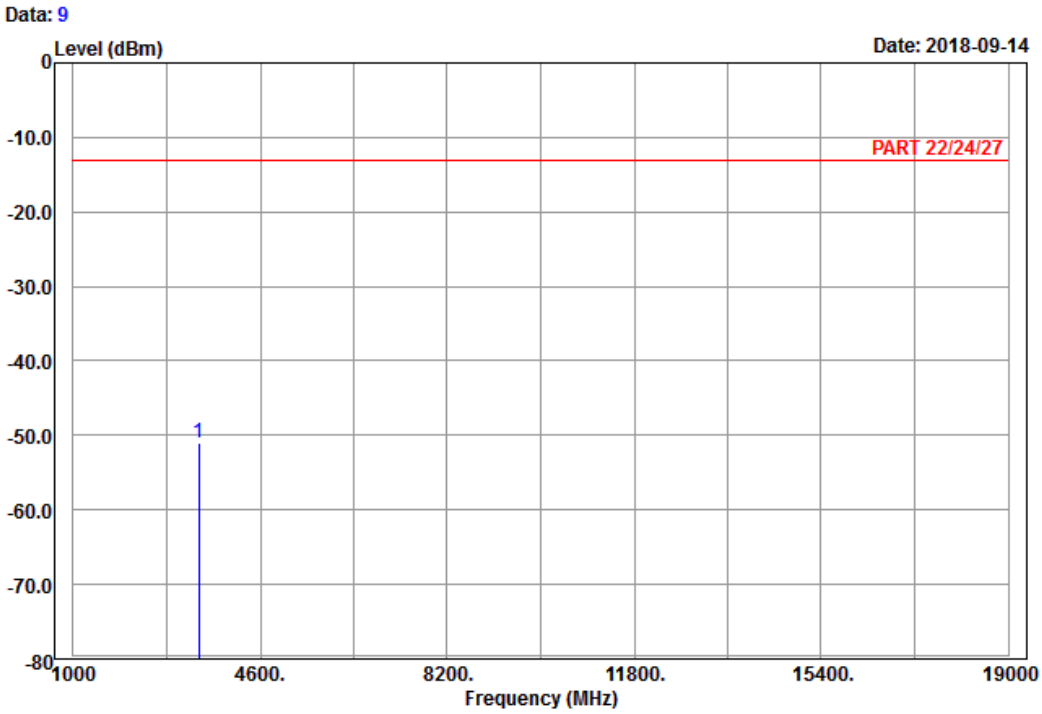


Site : 966 chamber 1
Condition: PART 27(B13) Vertical
Remark : LTE_Band 13_Link_CH23230
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	91.29	-66.83	-56.21	-13.00	-53.83	-10.62	Peak
2	250.59	-72.90	-67.39	-13.00	-59.90	-5.51	Peak
3	280.56	-69.03	-63.25	-13.00	-56.03	-5.78	Peak
4	410.60	-71.73	-68.76	-13.00	-58.73	-2.97	Peak
5	577.20	-64.63	-64.09	-13.00	-51.63	-0.54	Peak
6	638.80	-67.11	-67.10	-13.00	-54.11	-0.01	Peak
7 pp	1564.00	-57.06	-63.92	-40.00	-17.06	6.86	Peak

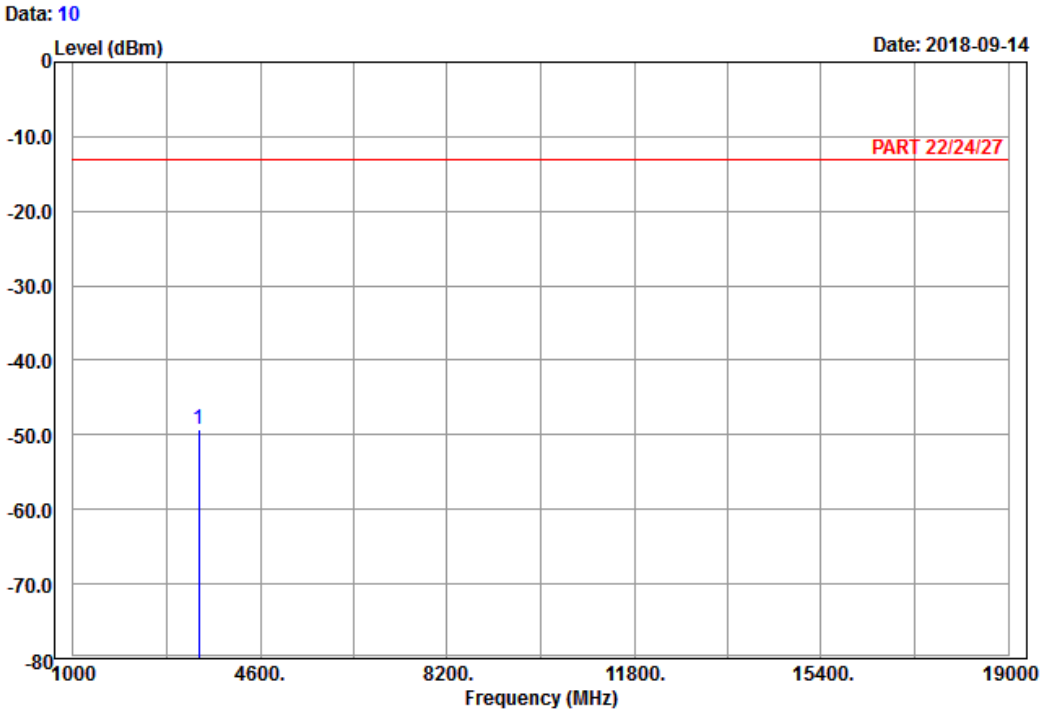
LTE Band 66:
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site      : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark    : LTE_Band 66_Link_CH131979
Tested by: Karl Lee
                          Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
         _______ _____ _______ _____ _____ ______ ________
             MHz   dBm    dBm   dBm    dB     dB

1 pp  3421.40 -50.92 -65.29 -13.00 -37.92  14.37 Peak
```

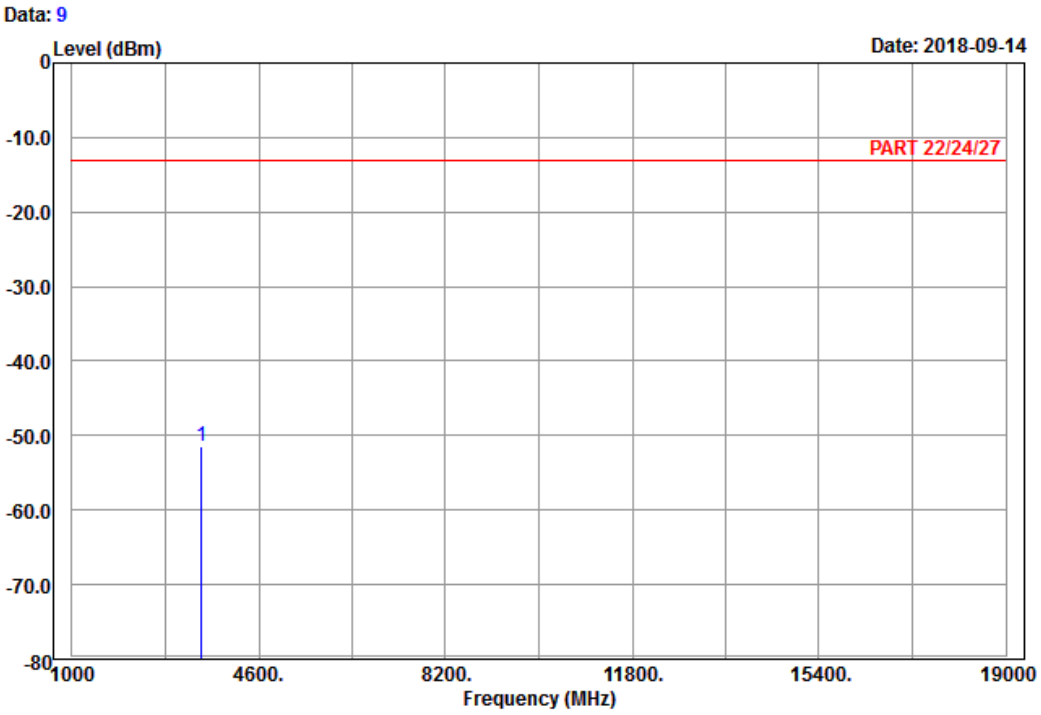


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH131979
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3421.40	-49.34	-63.71	-13.00	-36.34	14.37	Peak

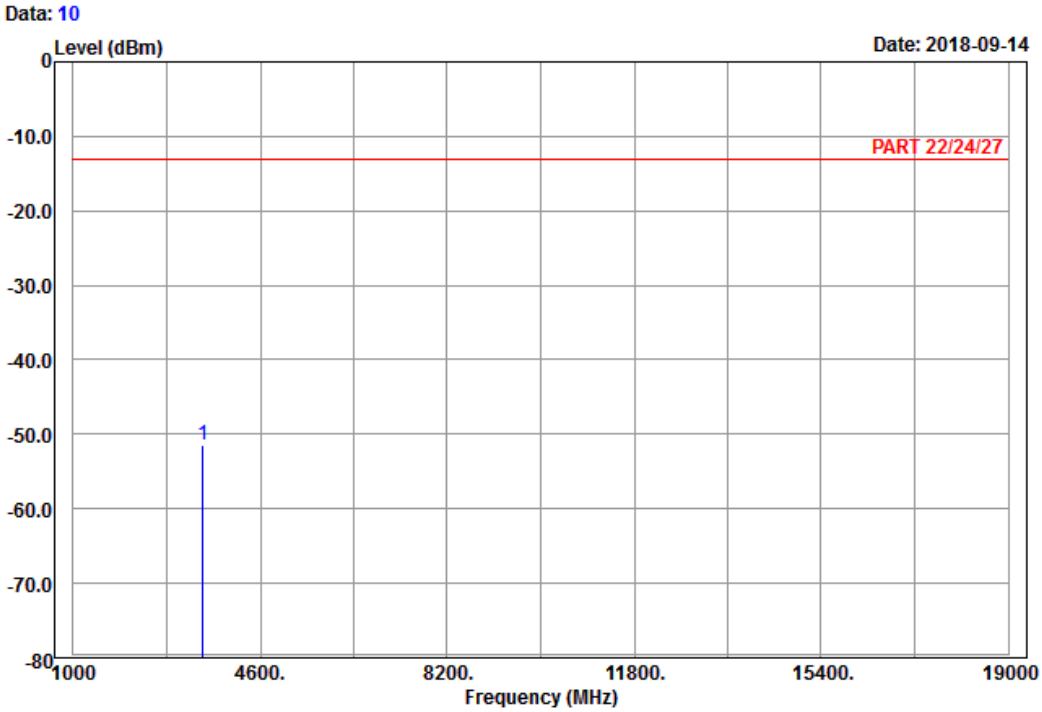
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3490.00	-51.54	-65.85	-13.00	-38.54	14.31	Peak

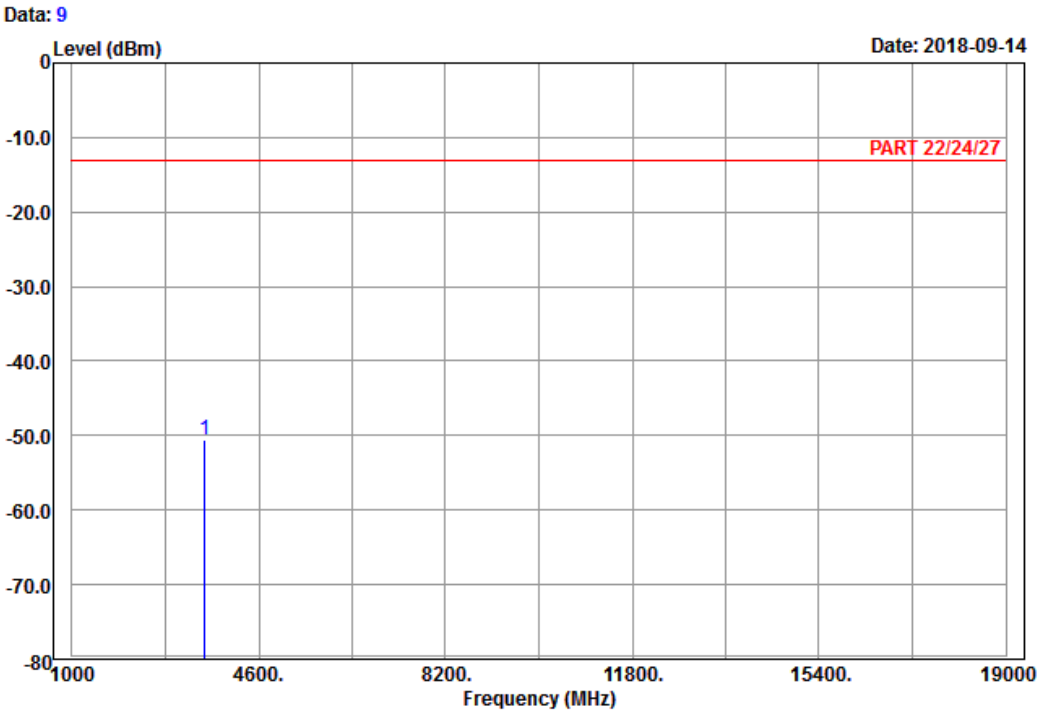


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3490.00	-51.55	-65.86	-13.00	-38.55	14.31	Peak

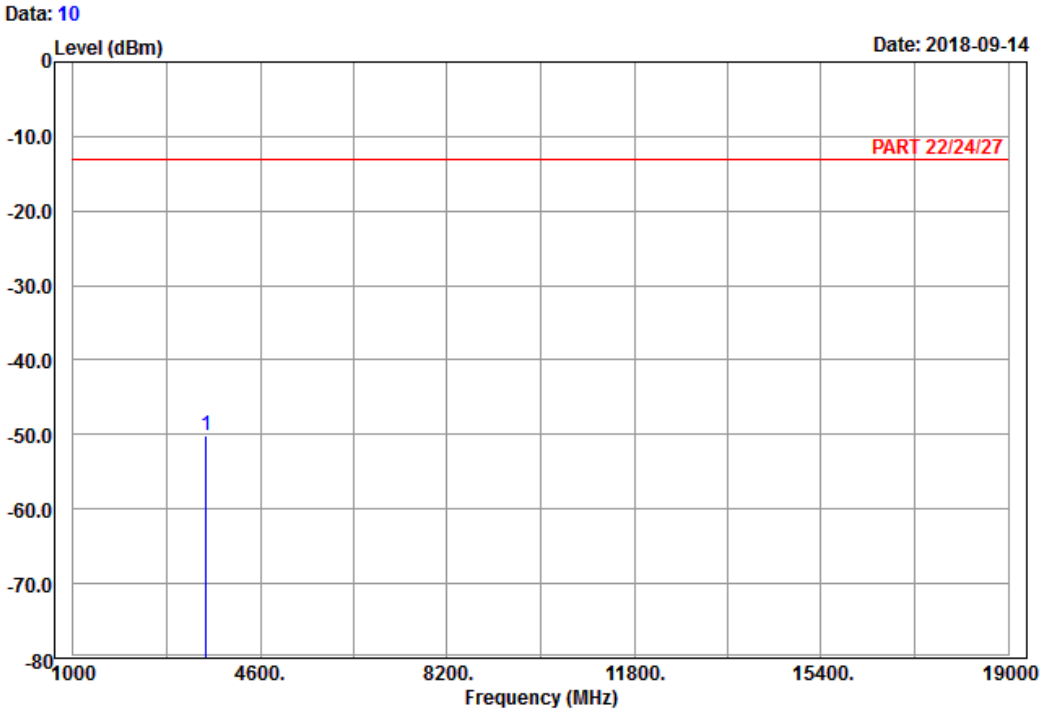
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132665
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3558.60	-50.62	-65.81	-13.00	-37.62	15.19	Peak

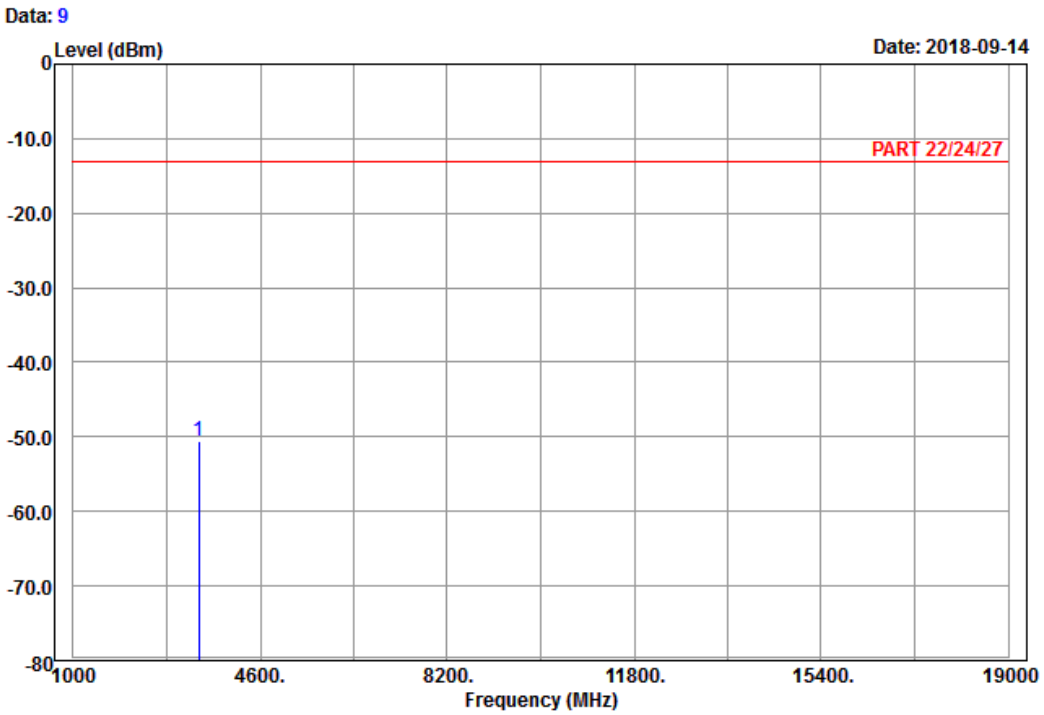


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132665
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3558.60	-50.20	-65.39	-13.00	-37.20	15.19	Peak

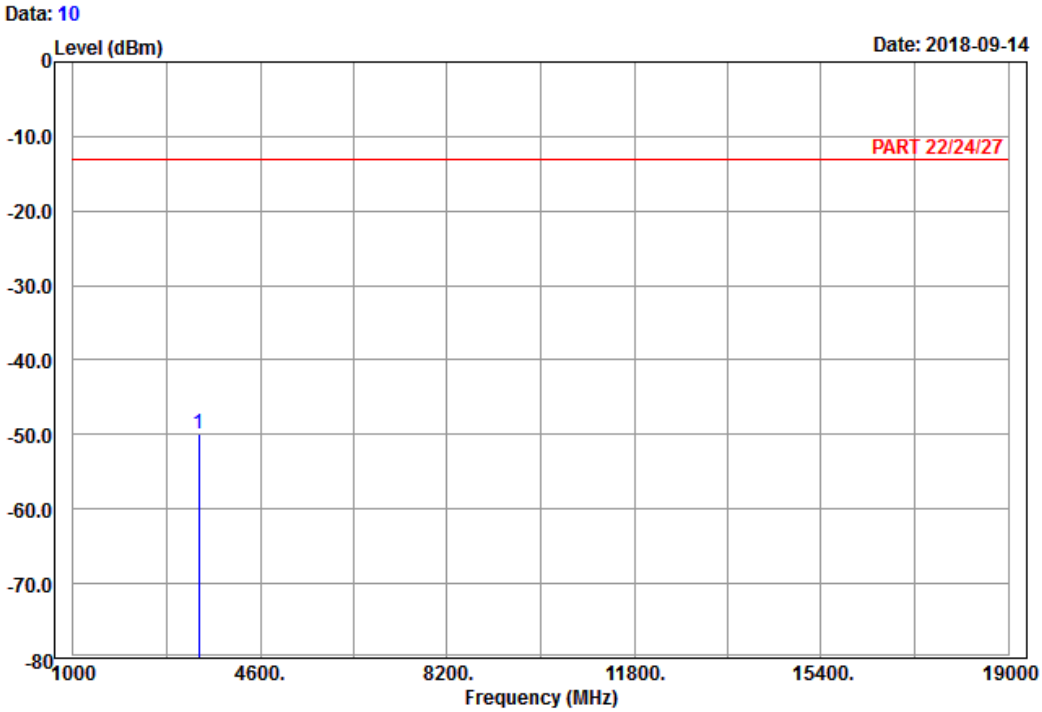
Channel Bandwidth: 5 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH131997
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3425.00	-50.57	-64.94	-13.00	-37.57	14.37	Peak

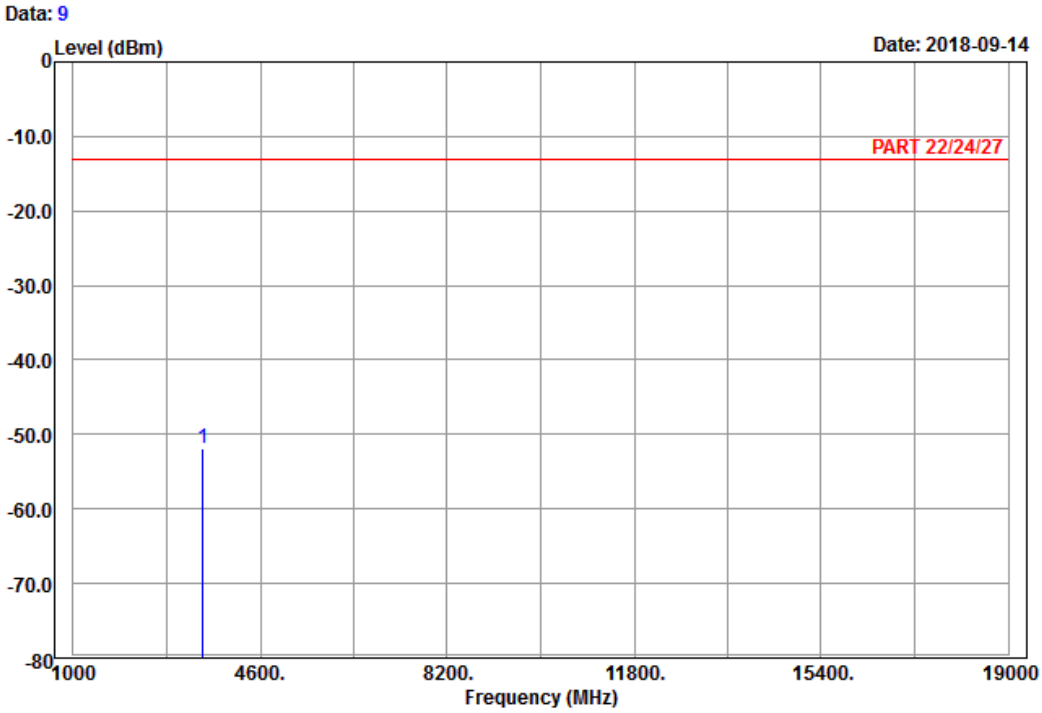


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH131997
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3425.00	-49.91	-64.28	-13.00	-36.91	14.37	Peak

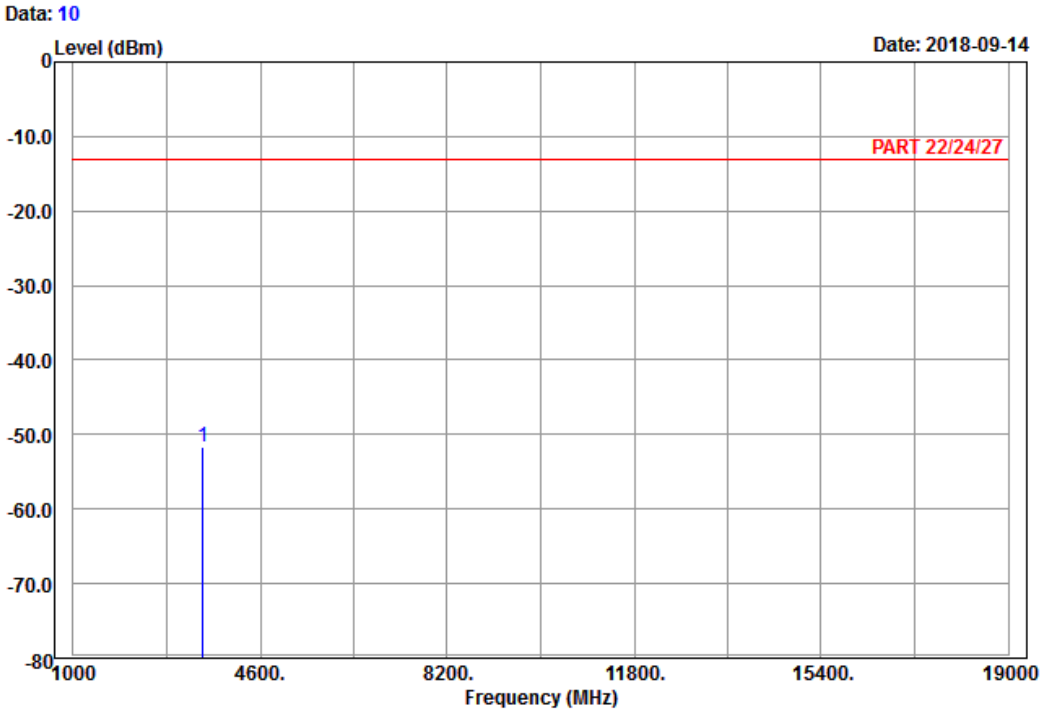
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3490.00	-51.88	-66.19	-13.00	-38.88	14.31	Peak

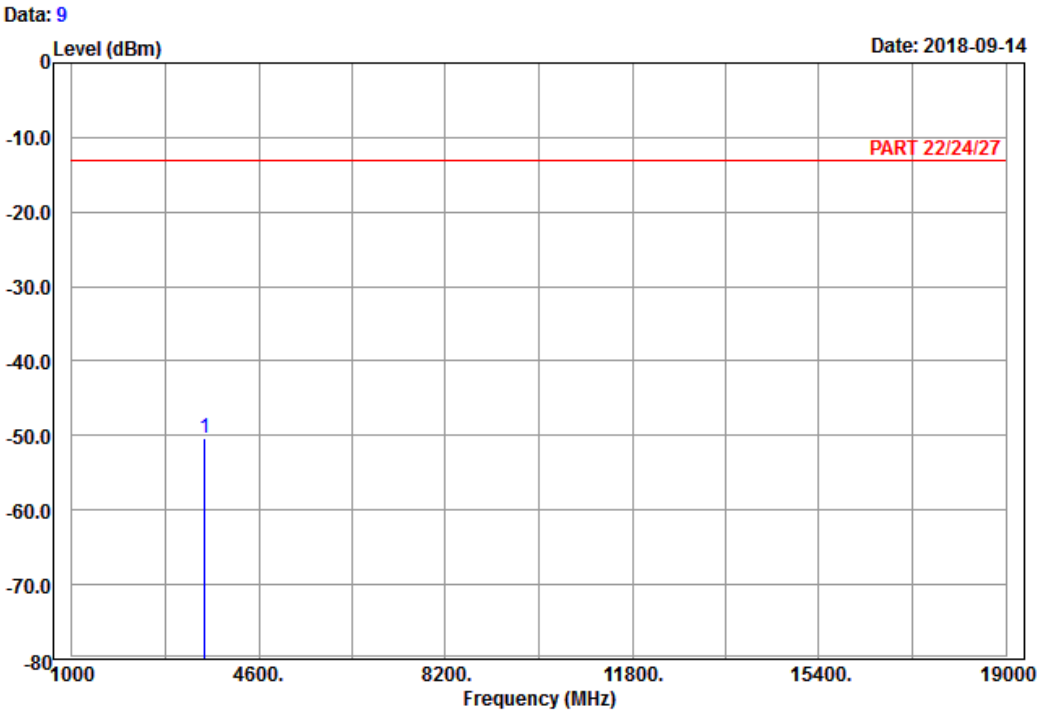


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3490.00	-51.66	-65.97	-13.00	-38.66	14.31	Peak

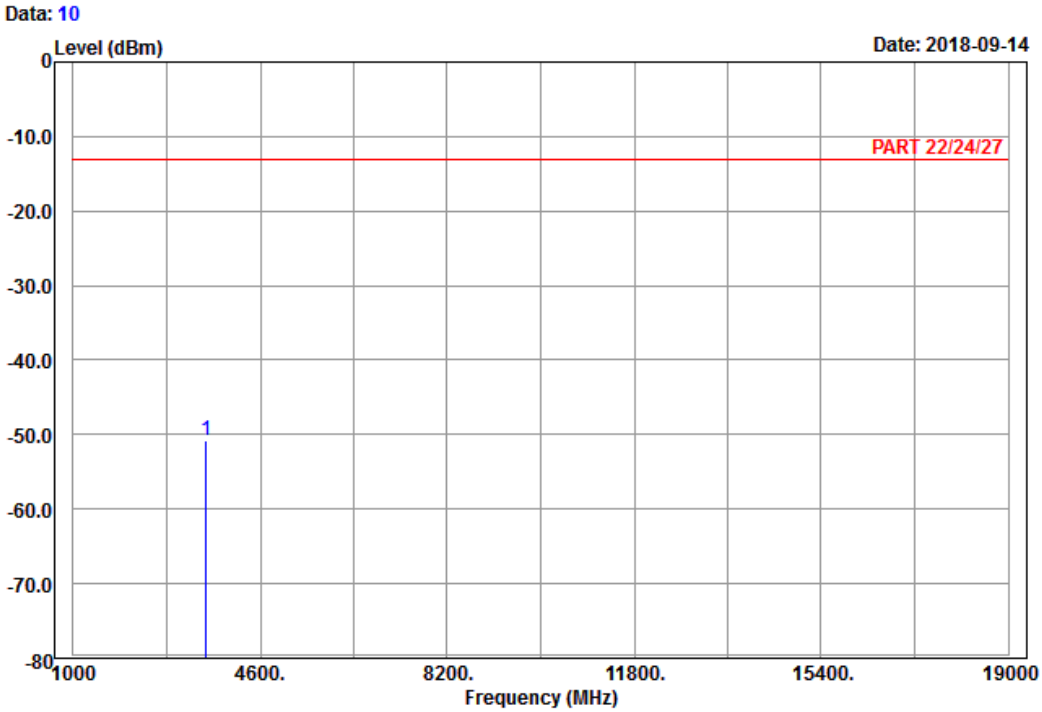
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132647
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3555.00	-50.37	-65.56	-13.00	-37.37	15.19	Peak

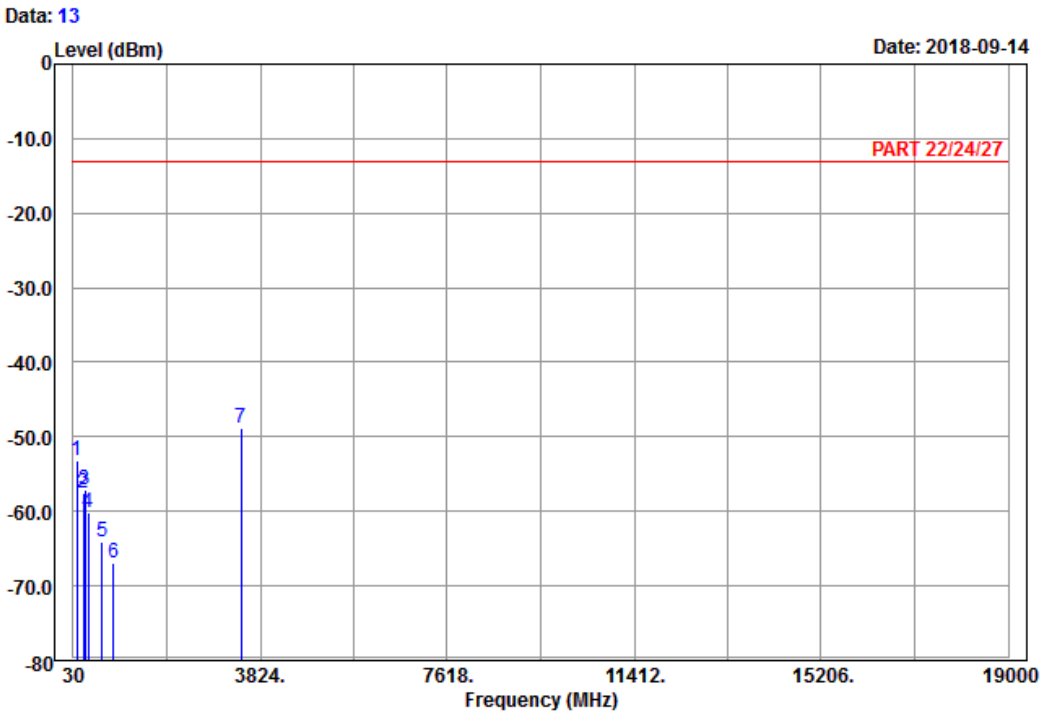


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132647
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3555.00	-50.84	-66.03	-13.00	-37.84	15.19	Peak

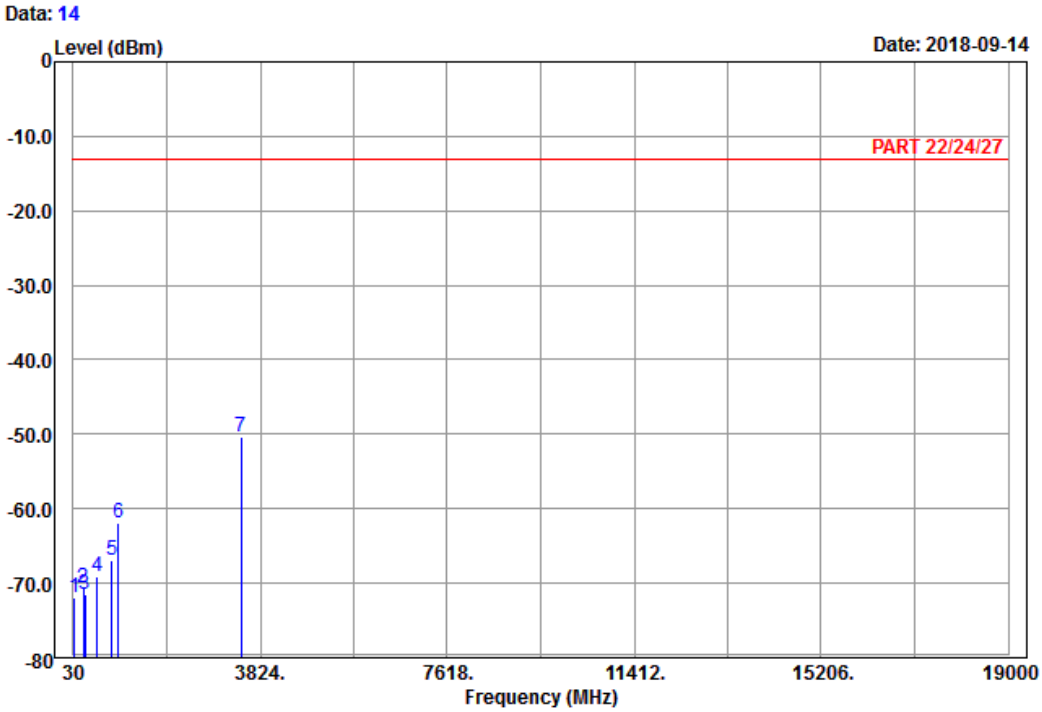
Channel Bandwidth: 20 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132072
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	98.58	-53.12	-42.94	-13.00	-40.12	-10.18	Peak
2	232.50	-57.61	-51.87	-13.00	-44.61	-5.74	Peak
3	265.17	-57.05	-51.41	-13.00	-44.05	-5.64	Peak
4	343.40	-60.06	-54.60	-13.00	-47.06	-5.46	Peak
5	608.70	-63.98	-64.31	-13.00	-50.98	0.33	Peak
6	842.50	-66.92	-68.45	-13.00	-53.92	1.53	Peak
7 pp	3440.00	-48.79	-63.14	-13.00	-35.79	14.35	Peak

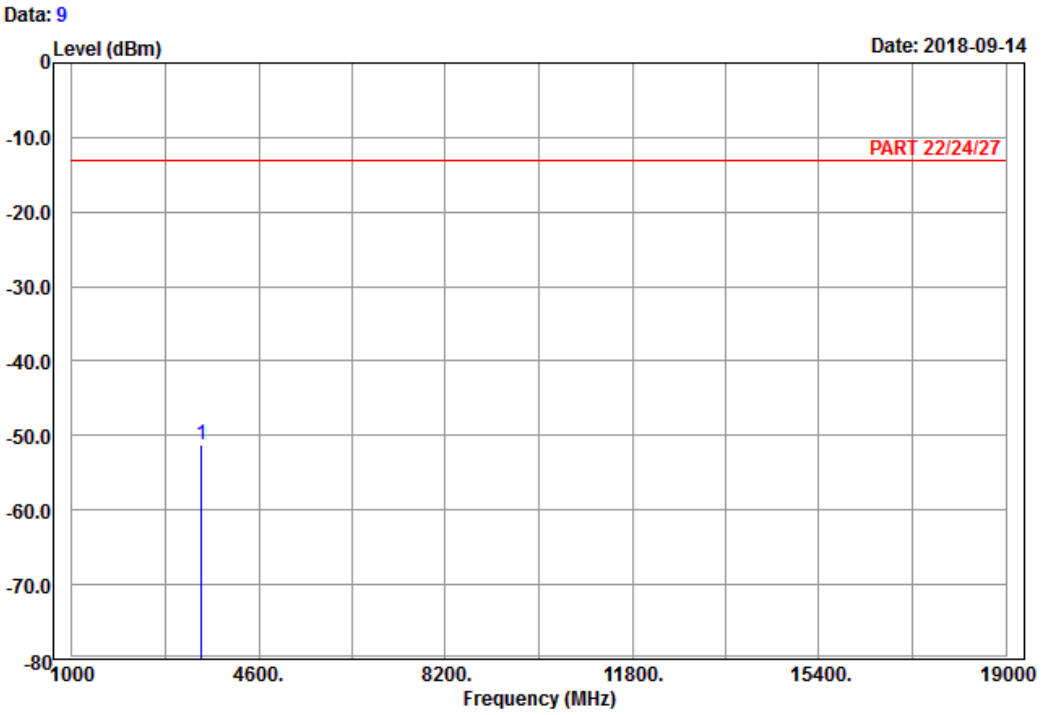


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132072
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	51.87	-71.84	-57.78	-13.00	-58.84	-14.06	Peak
2	240.60	-70.54	-64.90	-13.00	-57.54	-5.64	Peak
3	269.22	-71.50	-65.82	-13.00	-58.50	-5.68	Peak
4	521.90	-69.05	-65.33	-13.00	-56.05	-3.72	Peak
5	806.10	-66.87	-68.81	-13.00	-53.87	1.94	Peak
6	937.70	-61.96	-66.54	-13.00	-48.96	4.58	Peak
7 pp	3440.00	-50.37	-64.72	-13.00	-37.37	14.35	Peak

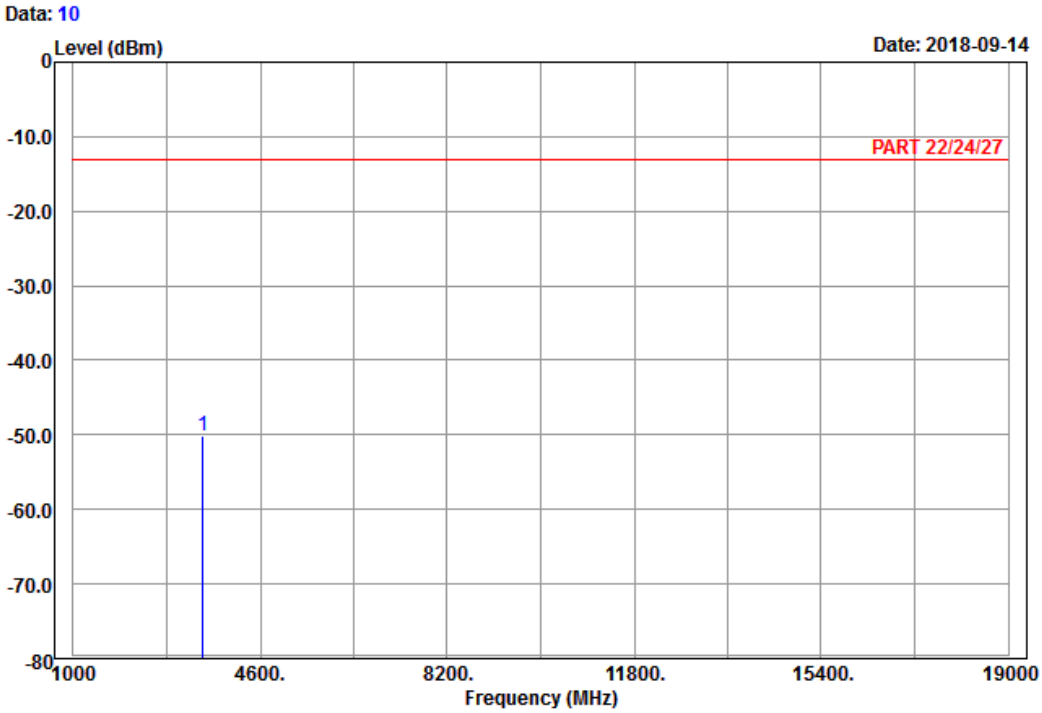
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3490.00	-51.20	-65.51	-13.00	-38.20	14.31	Peak

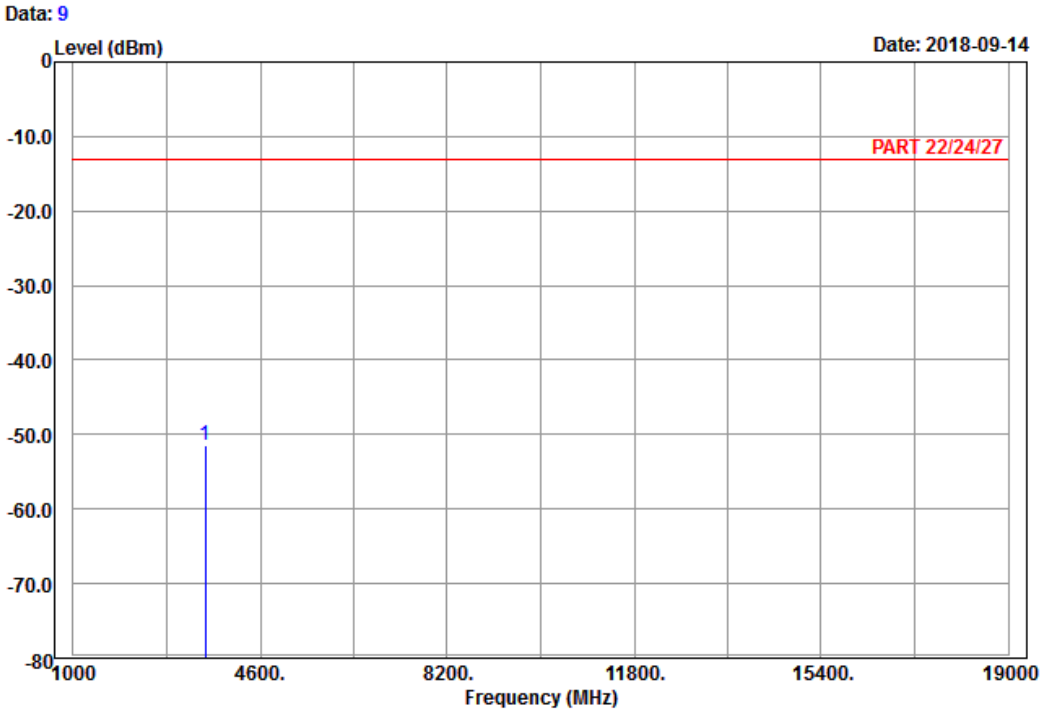


Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3490.00	-50.14	-64.45	-13.00	-37.14	14.31	Peak

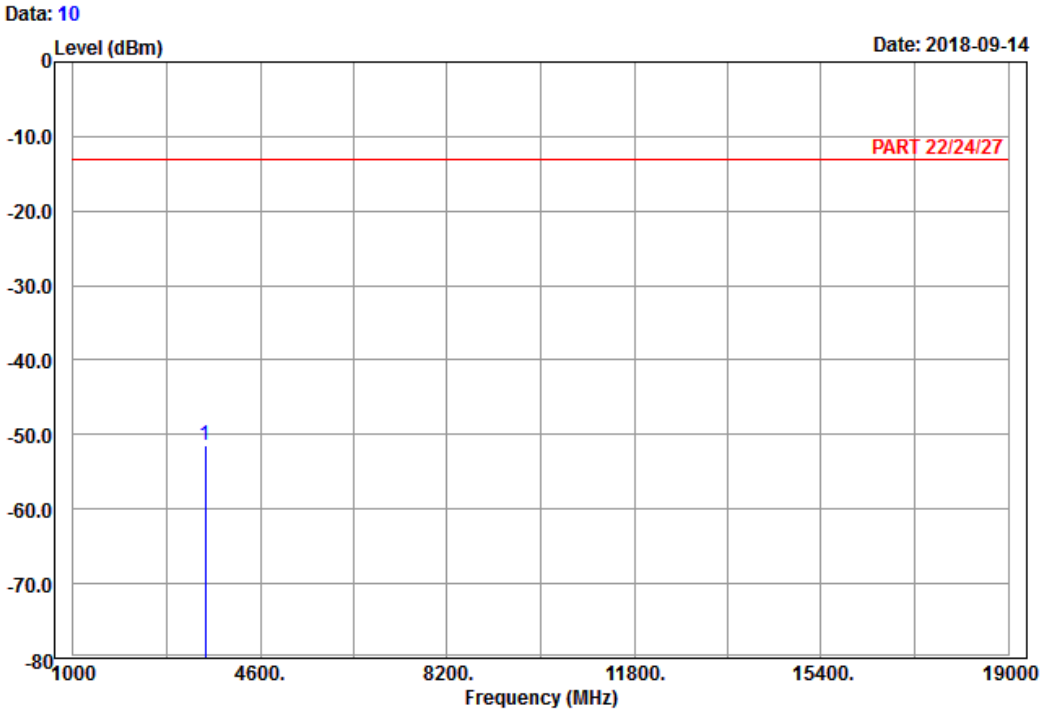
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132572
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3540.00	-51.48	-66.37	-13.00	-38.48	14.89	Peak



Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132572
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3540.00	-51.37	-66.26	-13.00	-38.37	14.89	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:

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

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

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

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

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

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