

FCC Test Report

(PART 27)

Report No.: RF190417C27-7

FCC ID: POTWA02

Test Model: WA02

Received Date: Apr. 17, 2019

Test Date: Jun. 03 ~ Aug. 07, 2019

Issued Date: Sep. 19, 2019

Applicant: Inventec Appliances Corp.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	7
2.2 Test Site and Instruments	8
3 General Information	9
3.1 General Description of EUT	9
3.2 Configuration of System under Test	11
3.2.1 Description of Support Units	11
3.3 Test Mode Applicability and Tested Channel Detail	12
3.4 EUT Operating Conditions	16
3.5 General Description of Applied Standards	16
4 Test Types and Results	17
4.1 Output Power Measurement	17
4.1.1 Limits of Output Power Measurement	17
4.1.2 Test Procedures	17
4.1.3 Test Setup	18
4.1.4 Test Results	19
4.2 Modulation Characteristics Measurement	33
4.2.1 Limits of Modulation Characteristics	33
4.2.2 Test Setup	33
4.2.3 Test Procedure	33
4.2.4 Test Results	34
4.3 Frequency Stability Measurement	36
4.3.1 Limits of Frequency Stability Measurement	36
4.3.2 Test Procedure	36
4.3.3 Test Setup	36
4.3.4 Test Results	37
4.4 Occupied Bandwidth Measurement	49
4.4.1 Limits of Occupied Bandwidth Measurement	49
4.4.2 Test Procedure	49
4.4.3 Test Setup	49
4.4.4 Test Result	50
4.5 Band Edge Measurement	56
4.5.1 Limits of Band Edge Measurement	56
4.5.2 Test Setup	56
4.5.3 Test Procedures	56
4.5.4 Test Results	57
4.6 Peak to Average Ratio	69
4.6.1 Limits of Peak to Average Ratio Measurement	69
4.6.2 Test Setup	69
4.6.3 Test Procedures	69
4.6.4 Test Results	70
4.7 Conducted Spurious Emissions	76
4.7.1 Limits of Conducted Spurious Emissions Measurement	76
4.7.2 Test Setup	76
4.7.3 Test Procedure	76
4.7.4 Test Results	77
4.8 Radiated Emission Measurement	89
4.8.1 Limits of Radiated Emission Measurement	89
4.8.2 Test Procedure	89
4.8.3 Deviation from Test Standard	89
4.8.4 Test Setup	90

4.8.5 Test Results	91
5 Pictures of Test Arrangements.....	127
Appendix – Information of the Testing Laboratories	128

Release Control Record

Issue No.	Description	Date Issued
RF190417C27-7	Original Release	Sep. 19, 2019

1 Certificate of Conformity

Product: Notebook

Brand: Inventec Appliances Corp.

Test Model: WA02

Sample Status: Identical Prototype

Applicant: Inventec Appliances Corp.

Test Date: Jun. 03 ~ Aug. 07, 2019

Standards: FCC Part 27, Subpart C, L

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

Prepared by : Gina Liu, **Date:** Sep. 19, 2019
Gina Liu / Specialist

Approved by : Dylan Chiou, **Date:** Sep. 19, 2019
Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	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 -32.20 dB at 5160.00 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	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 -34.40 dB at 105.66 MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 18, 2019	Mar. 17, 2020
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 13, 2018	Dec. 12, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 15, 2019	Apr. 14, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSW26	102023	Oct. 11, 2018	Oct. 10, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Nov. 23, 2018	Nov. 22, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	148	Nov. 25, 2018	Nov. 24, 2019
Double Ridge Guide Horn Antenna EMCO	3115	5619	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 19, 2018	Nov. 18, 2019
Preamplifier EMCI	EMC 012645	980115	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 330H	980112	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-800 0&3000	140811+170717	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1 000(140807)	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 12, 2018	Oct. 11, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6201462755	Jan. 16, 2019	Jan. 15, 2020
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 16, 2017	Aug. 15, 2019
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 05, 2018	Sep. 04, 2019
AC Power Supply EEC	6905S	1991553	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.

3 General Information

3.1 General Description of EUT

Product	Notebook	
Brand	Inventec Appliances Corp.	
Test Model	WA02	
Status of EUT	Identical Prototype	
Power Supply Rating	5.0 Vdc / 12Vdc / 15Vdc / 20Vdc (adapter) 7.6 Vdc (Li-ion battery)	
Modulation Type	WCDMA	QPSK
	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 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)	1M09D7W
	LTE Band 4 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 4 (Channel Bandwidth: 5 MHz)	4M50D7W
	LTE Band 4 (Channel Bandwidth: 10 MHz)	8M98D7W
	LTE Band 4 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 4 (Channel Bandwidth: 20 MHz)	18M0D7W
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1M09D7W
	LTE Band 66 (Channel Bandwidth: 3 MHz)	2M71G7D
	LTE Band 66 (Channel Bandwidth: 5 MHz)	4M50D7W
	LTE Band 66 (Channel Bandwidth: 10 MHz)	8M98D7W
	LTE Band 66 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 66 (Channel Bandwidth: 20 MHz)	18M0D7W
Max. EIRP Power	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	134.90 mW
	LTE Band 4 (Channel Bandwidth: 3 MHz)	141.25 mW
	LTE Band 4 (Channel Bandwidth: 5 MHz)	151.71 mW
	LTE Band 4 (Channel Bandwidth: 10 MHz)	162.18 mW
	LTE Band 4 (Channel Bandwidth: 15 MHz)	172.98 mW
	LTE Band 4 (Channel Bandwidth: 20 MHz)	181.55 mW
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	146.55 mW
	LTE Band 66 (Channel Bandwidth: 3 MHz)	158.49 mW
	LTE Band 66 (Channel Bandwidth: 5 MHz)	170.22 mW
	LTE Band 66 (Channel Bandwidth: 10 MHz)	178.24 mW

	LTE Band 66 (Channel Bandwidth: 15 MHz)	187.07 mW
	LTE Band 66 (Channel Bandwidth: 20 MHz)	201.84 mW
Antenna Type	Monopole Antenna with 1 dBi gain (Main) / 0 dBi gain (Aux.)	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

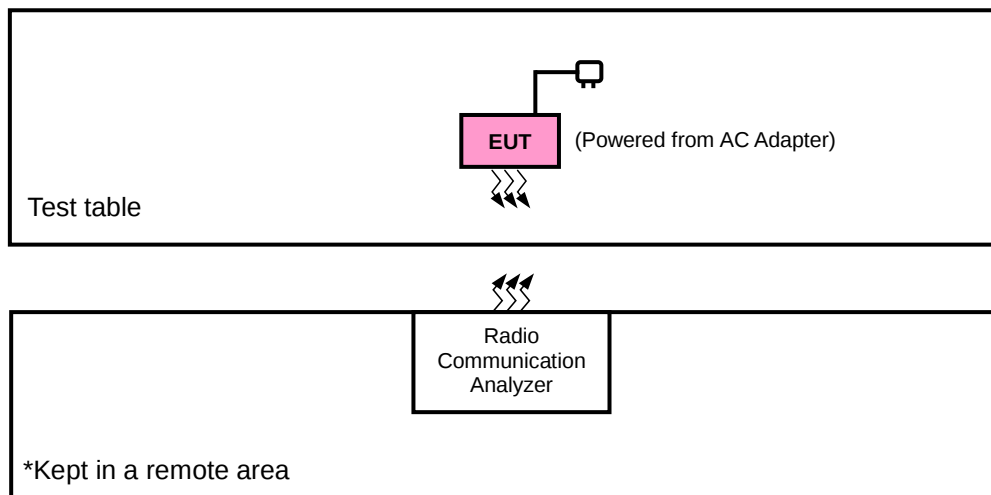
- The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	DARFON	B230-201	I/P: 100-240 Vac, 50/60 Hz, 0.7 A Max. O/P: 5 Vdc, 3 A / 9 Vdc, 3 A / 12 Vdc, 2.5 A / 15 Vdc, 2 A / 20 Vdc, 1.5 A
Battery	GY	NA125S PL2983122	7.6 Vdc, 4200 mAh

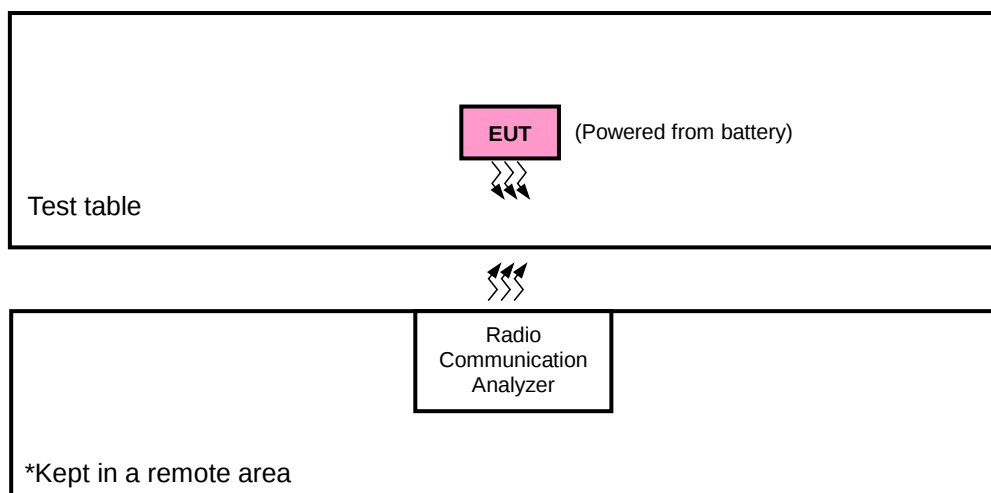
- The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test>



<E.I.R.P. Test>



3.2.1 Description of Support Units

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

3.3 Test Mode Applicability and Tested Channel Detail

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

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

Band	EIRP	Radiated Emission
LTE Band 4	NB Mode	NB Mode
LTE Band 66	NB Mode	NB Mode

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	20 MHz	QPSK, 16QAM, 64QAM	100 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:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.

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	20 MHz	QPSK, 16QAM, 64QAM	100 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
		131987 to 132657	132665	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		131997 to 132647	131987	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
		132022 to 132622	132657	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		132047 to 132597	131997	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		132072 to 132572	132647	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		132072 to 132572	132022	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
		132072 to 132572	132622	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		132072 to 132572	132047	15 MHz	QPSK	1 RB / 0 RB Offset
						75 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

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25 deg. C, 65 % RH	7.6 Vdc	Getaz Yang
Modulation Characteristics	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Frequency Stability	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Occupied Bandwidth	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Band Edge	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Peak to Average Ratio	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Conducted Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

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

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. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}$.

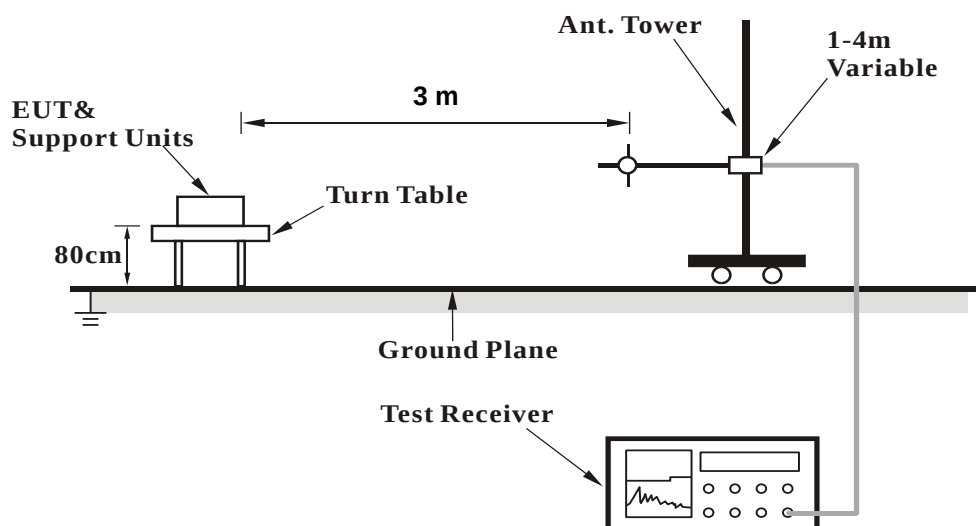
Conducted Power Measurement:

- 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.

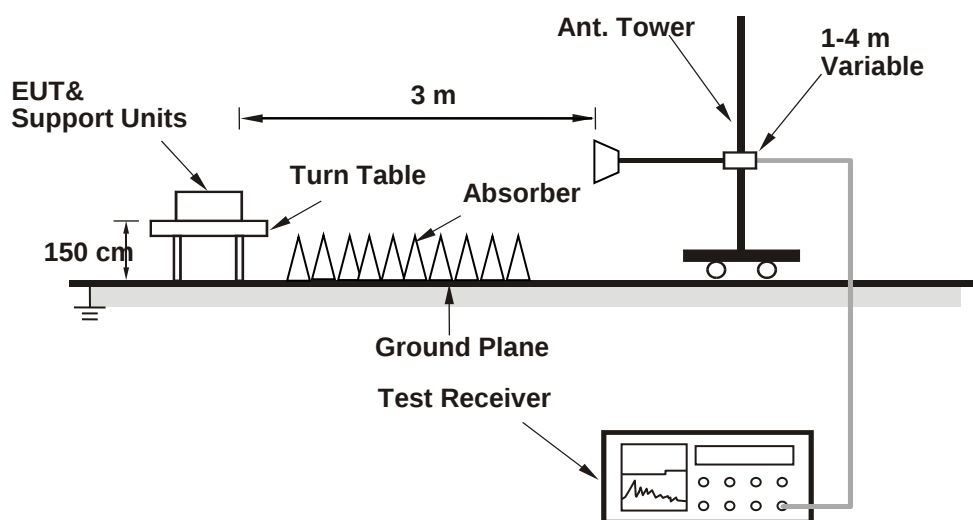
4.1.3 Test Setup

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>

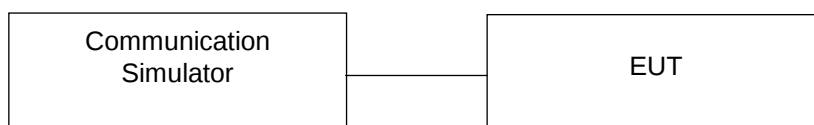


<Radiated Emission above 1 GHz>



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	21.98	22.23	22.39	0	15M	QPSK	1	0	21.95	22.13	22.36	0		
		1	50	21.80	22.05	22.21	0			1	37	21.78	22.01	22.13	0		
		1	99	21.65	21.90	22.06	0			1	74	21.63	21.86	22.05	0		
		50	0	20.85	21.10	21.26	1			36	0	20.85	21.02	21.23	1		
		50	25	20.66	20.91	21.07	1			36	19	20.59	20.85	21.03	1		
		50	50	21.02	21.27	21.43	1			36	39	21.01	21.24	21.33	1		
		100	0	20.74	20.99	21.15	1			75	0	20.64	20.94	21.08	1		
		16QAM	1	0	20.93	21.18	21.34			1	16QAM	1	0	20.91	21.11	21.30	1
	1		50	20.90	21.15	21.31	1		1	37		20.88	21.07	21.30	1		
	1		99	20.82	21.07	21.23	1		1	74		20.79	20.98	21.15	1		
	50		0	19.88	20.13	20.29	2		36	0		19.82	20.05	20.28	2		
	50		25	19.67	19.92	20.08	2		36	19		19.66	19.88	20.02	2		
	50		50	20.11	20.36	20.52	2		36	39		20.08	20.28	20.42	2		
	100		0	19.71	19.96	20.12	2		75	0		19.63	19.87	20.07	2		
	64QAM		1	0	20.01	20.26	20.42		2	64QAM		1	0	19.92	20.19	20.41	2
		1	50	19.87	20.12	20.28	2		1		37	19.80	20.07	20.23	2		
		1	99	19.84	20.09	20.25	2		1		74	19.80	20.09	20.17	2		
		50	0	18.91	19.16	19.32	3		36		0	18.85	19.06	19.29	3		
		50	25	18.72	18.97	19.13	3		36		19	18.69	18.89	19.10	3		
		50	50	19.07	19.32	19.48	3		36		39	19.03	19.28	19.45	3		
		100	0	18.82	19.07	19.23	3		75		0	18.73	18.98	19.17	3		
		BW	MCS Index	RB Size	RB Offset	Low	Mid		High		3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid
	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	21.87	22.05	22.28	0	5M	QPSK	1	0	21.86	22.15	22.23	0		
		1	24	21.66	21.91	22.08	0			1	12	21.74	21.97	21.96	0		
		1	49	21.45	21.76	21.96	0			1	24	21.56	21.78	21.93	0		
		25	0	20.69	20.88	21.16	1			12	0	20.64	21.03	20.96	1		
		25	12	20.49	20.83	20.82	1			12	6	20.45	20.82	20.83	1		
		25	25	20.87	21.17	21.22	1			12	13	20.93	21.26	21.27	1		
		50	0	20.53	20.85	20.98	1			25	0	20.69	20.90	20.86	1		
		16QAM	1	0	20.76	21.15	21.09			1	16QAM	1	0	20.78	21.12	21.20	1
	1		24	20.84	21.06	21.12	1		1	12		20.80	21.02	21.18	1		
	1		49	20.75	21.01	21.15	1		1	24		20.67	20.99	21.06	1		
	25		0	19.81	20.01	20.16	2		12	0		19.64	20.03	20.26	2		
	25		12	19.61	19.82	20.04	2		12	6		19.53	19.74	19.93	2		
	25		25	20.11	20.23	20.49	2		12	13		20.00	20.28	20.42	2		
	50		0	19.63	19.90	19.90	2		25	0		19.59	19.81	20.02	2		
	64QAM		1	0	19.91	20.16	20.32		2	64QAM		1	0	19.80	20.18	20.28	2
		1	24	19.71	20.02	20.21	2		1		12	19.75	20.01	20.26	2		
		1	49	19.68	19.94	20.16	2		1		24	19.70	19.92	20.13	2		
		25	0	18.75	19.02	19.17	3		12		0	18.75	18.95	19.16	3		
		25	12	18.59	18.79	18.94	3		12		6	18.58	18.86	19.06	3		
		25	25	18.95	19.13	19.38	3		12		13	18.91	19.16	19.42	3		
		50	0	18.66	18.92	19.15	3		25		0	18.63	18.90	19.06	3		
		BW	MCS Index	RB Size	RB Offset	Low	Mid		High		3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid
	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	21.80	22.12	22.23	0	1.4M	QPSK	1	0	21.90	22.10	22.28	0		
		1	7	21.67	21.84	22.13	0			1	2	21.72	21.92	22.08	0		
		1	14	21.54	21.86	21.97	0			1	5	21.51	21.71	21.90	0		
		8	0	20.76	20.94	21.13	1			3	0	21.78	21.93	22.16	0		
		8	3	20.57	20.82	20.90	1			3	1	21.52	21.76	21.94	0		
		8	7	20.91	21.05	21.34	1			3	3	21.85	22.11	22.33	0		
		15	0	20.67	20.91	20.94	1			6	0	20.61	20.89	20.93	1		
		16QAM	1	0	20.75	21.09	21.18			1	16QAM	1	0	20.71	20.98	21.25	1
			1	7	20.80	20.94	21.25			1		1	2	20.78	21.04	21.18	1
			1	14	20.66	21.00	21.14			1		1	5	20.63	20.99	21.09	1
			8	0	19.80	20.12	20.14			2		3	0	20.66	21.04	21.06	1
			8	3	19.61	19.80	19.91			2		3	1	20.59	20.74	20.89	1
	8		7	19.89	20.19	20.31	2		3	3		21.04	21.20	21.35	1		
	64QAM	15	0	19.68	19.87	20.06	2		6	0	19.60	19.82	19.93	2			
		64QAM	1	0	19.95	20.07	20.35		2	64QAM	1	0	19.90	20.10	20.31	2	
			1	7	19.73	20.08	20.03		2		1	2	19.64	20.08	20.07	2	
			1	14	19.70	19.95	20.05		2		1	5	19.77	19.92	20.09	2	
			8	0	18.77	19.00	19.11		3		3	0	19.73	19.92	20.19	2	
			8	3	18.59	18.78	18.99		3		3	1	19.71	19.86	20.00	2	
	8		7	18.98	19.14	19.26	3		3		3	20.01	20.15	20.36	2		
	15		0	18.65	18.96	19.02	3		6		0	18.64	18.89	19.15	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	22.48	22.67	22.54	0	15M	QPSK	1	0	22.40	22.62	22.48	0
		1	50	22.29	22.48	22.35	0			1	37	22.19	22.44	22.30	0
		1	99	22.24	22.43	22.30	0			1	74	22.15	22.43	22.29	0
		50	0	21.50	21.69	21.56	1			36	0	21.44	21.67	21.48	1
		50	25	21.43	21.62	21.49	1			36	19	21.37	21.55	21.44	1
		50	50	21.39	21.58	21.45	1			36	39	21.38	21.58	21.44	1
		100	0	21.42	21.61	21.48	1			75	0	21.32	21.53	21.43	1
		1	0	21.53	21.72	21.59	1		16QAM	1	0	21.43	21.68	21.50	1
	16QAM	1	50	21.65	21.84	21.71	1			1	37	21.56	21.79	21.63	1
		1	99	21.57	21.76	21.63	1			1	74	21.67	21.66	21.59	1
		50	0	20.62	20.81	20.68	2			36	0	20.60	20.71	20.64	2
		50	25	20.59	20.78	20.65	2			36	19	20.51	20.71	20.63	2
		50	50	20.58	20.77	20.64	2			36	39	20.57	20.68	20.61	2
		100	0	20.54	20.73	20.60	2			75	0	20.53	20.65	20.52	2
		1	0	20.59	20.78	20.65	2		64QAM	1	0	20.53	20.71	20.55	2
	64QAM	1	50	20.64	20.83	20.70	2			1	37	20.64	20.73	20.62	2
		1	99	20.57	20.76	20.63	2			1	74	20.56	20.66	20.56	2
		50	0	19.63	19.82	19.69	3			36	0	19.57	19.80	19.69	3
		50	25	19.59	19.78	19.65	3			36	19	19.57	19.71	19.56	3
		50	50	19.62	19.81	19.68	3			36	39	19.55	19.77	19.59	3
		100	0	19.56	19.75	19.62	3			75	0	19.51	19.68	19.57	3
10M	QPSK	1	0	22.34	22.53	22.43	0	5M	QPSK	1	0	22.29	22.53	22.30	0
		1	24	22.17	22.44	22.26	0			1	12	22.10	22.42	22.13	0
		1	49	22.07	22.33	22.17	0			1	24	22.20	22.35	22.02	0
		25	0	21.42	21.60	21.50	1			12	0	21.34	21.55	21.35	1
		25	12	21.27	21.55	21.45	1			12	6	21.38	21.45	21.21	1
		25	25	21.34	21.37	21.29	1			12	13	21.18	21.43	21.32	1
		50	0	21.27	21.57	21.36	1			25	0	21.25	21.51	21.17	1
		1	0	21.35	21.64	21.50	1		16QAM	1	0	21.35	21.55	21.41	1
	16QAM	1	24	21.58	21.80	21.58	1			1	12	21.46	21.71	21.53	1
		1	49	21.42	21.67	21.41	1			1	24	21.50	21.62	21.61	1
		25	0	20.42	20.71	20.56	2			12	0	20.46	20.70	20.54	2
		25	12	20.46	20.67	20.41	2			12	6	20.42	20.65	20.49	2
		25	25	20.40	20.68	20.40	2			12	13	20.43	20.69	20.47	2
		50	0	20.30	20.63	20.55	2			25	0	20.44	20.55	20.44	2
		1	0	20.51	20.59	20.55	2		64QAM	1	0	20.47	20.68	20.64	2
	64QAM	1	24	20.58	20.68	20.56	2			1	12	20.44	20.60	20.58	2
		1	49	20.46	20.62	20.48	2			1	24	20.52	20.62	20.44	2
		25	0	19.54	19.67	19.56	3			12	0	19.53	19.65	19.56	3
		25	12	19.36	19.69	19.54	3			12	6	19.51	19.73	19.40	3
		25	25	19.43	19.77	19.60	3			12	13	19.57	19.69	19.52	3
		50	0	19.48	19.69	19.48	3			25	0	19.47	19.62	19.56	3
3M	QPSK	1	0	22.33	22.63	22.32	0	1.4M	QPSK	1	0	22.28	22.60	22.47	0
		1	7	22.27	22.32	22.17	0			1	2	22.18	22.26	22.16	0
		1	14	22.03	22.35	22.23	0			1	5	22.13	22.38	22.29	0
		8	0	21.29	21.49	21.44	1			3	0	22.32	22.60	22.42	0
		8	3	21.27	21.53	21.45	1			3	1	22.29	22.53	22.42	0
		8	7	21.21	21.44	21.37	1			3	3	22.33	22.46	22.26	0
		15	0	21.27	21.52	21.36	1			6	0	21.36	21.53	21.33	1
		1	0	21.42	21.65	21.46	1		16QAM	1	0	21.39	21.62	21.49	1
	16QAM	1	7	21.48	21.76	21.51	1			1	2	21.52	21.75	21.57	1
		1	14	21.46	21.60	21.45	1			1	5	21.37	21.64	21.47	1
		8	0	20.41	20.62	20.58	2			3	0	21.41	21.57	21.61	1
		8	3	20.40	20.69	20.56	2			3	1	21.38	21.61	21.59	1
		8	7	20.47	20.70	20.48	2			3	3	21.48	21.65	21.61	1
		15	0	20.52	20.66	20.42	2			6	0	20.38	20.59	20.42	2
		1	0	20.49	20.65	20.55	2		64QAM	1	0	20.56	20.73	20.51	2
	64QAM	1	7	20.51	20.74	20.54	2			1	2	20.62	20.69	20.68	2
		1	14	20.51	20.57	20.56	2			1	5	20.45	20.64	20.52	2
		8	0	19.48	19.78	19.51	3			3	0	20.58	20.75	20.67	2
		8	3	19.54	19.71	19.59	3			3	1	20.44	20.69	20.48	2
		8	7	19.62	19.67	19.65	3			3	3	20.62	20.68	20.43	2
		15	0	19.41	19.69	19.49	3			6	0	19.40	19.64	19.49	3

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)
NB	19957	1710.7	-15.37	36.45	21.08	128.23	H
	20175	1732.5	-15.50	36.80	21.30	134.90	
	20393	1754.3	-15.94	36.94	21.00	125.89	
	19957	1710.7	-21.40	37.28	15.88	38.73	V
	20175	1732.5	-21.62	37.63	16.01	39.90	
	20393	1754.3	-21.91	37.64	15.73	37.41	
Channel Bandwidth: 1.4 MHz / 16QAM							
NB	19957	1710.7	-16.31	36.45	20.14	103.28	H
	20175	1732.5	-16.39	36.80	20.41	109.90	
	20393	1754.3	-17.06	36.94	19.88	97.27	
	19957	1710.7	-22.28	37.28	15.00	31.62	V
	20175	1732.5	-22.61	37.63	15.02	31.77	
	20393	1754.3	-22.98	37.64	14.66	29.24	
Channel Bandwidth: 1.4 MHz / 64QAM							
NB	19957	1710.7	-17.42	36.45	19.03	79.98	H
	20175	1732.5	-17.64	36.80	19.16	82.41	
	20393	1754.3	-18.15	36.94	18.79	75.68	
	19957	1710.7	-23.47	37.28	13.81	24.04	V
	20175	1732.5	-23.76	37.63	13.87	24.38	
	20393	1754.3	-24.05	37.64	13.59	22.86	

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)
NB	19965	1711.5	-15.09	36.45	21.36	136.77	H
	20175	1732.5	-15.30	36.80	21.50	141.25	
	20385	1753.5	-15.74	36.94	21.20	131.83	
	19965	1711.5	-21.14	37.28	16.14	41.11	V
	20175	1732.5	-21.37	37.63	16.26	42.27	
	20385	1753.5	-21.62	37.64	16.02	39.99	
Channel Bandwidth: 3 MHz / 16QAM							
NB	19965	1711.5	-16.11	36.45	20.34	108.14	H
	20175	1732.5	-16.19	36.80	20.61	115.08	
	20385	1753.5	-16.86	36.94	20.08	101.86	
	19965	1711.5	-21.98	37.28	15.30	33.88	V
	20175	1732.5	-22.36	37.63	15.27	33.65	
	20385	1753.5	-22.78	37.64	14.86	30.62	
Channel Bandwidth: 3 MHz / 64QAM							
NB	19965	1711.5	-17.17	36.45	19.28	84.72	H
	20175	1732.5	-17.35	36.80	19.45	88.10	
	20385	1753.5	-17.95	36.94	18.99	79.25	
	19965	1711.5	-23.19	37.28	14.09	25.64	V
	20175	1732.5	-23.47	37.63	14.16	26.06	
	20385	1753.5	-23.77	37.64	13.87	24.38	

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)
NB	19975	1712.5	-14.80	36.45	21.65	146.22	H
	20175	1732.5	-14.99	36.80	21.81	151.71	
	20375	1752.5	-15.46	36.94	21.48	140.60	
	19975	1712.5	-20.87	37.28	16.41	43.75	V
	20175	1732.5	-21.08	37.63	16.55	45.19	
	20375	1752.5	-21.38	37.64	16.26	42.27	
Channel Bandwidth: 5 MHz / 16QAM							
NB	19975	1712.5	-15.79	36.45	20.66	116.41	H
	20175	1732.5	-15.99	36.80	20.81	120.50	
	20375	1752.5	-16.62	36.94	20.32	107.65	
	19975	1712.5	-21.75	37.28	15.53	35.73	V
	20175	1732.5	-22.04	37.63	15.59	36.22	
	20375	1752.5	-22.55	37.64	15.09	32.28	
Channel Bandwidth: 5 MHz / 64QAM							
NB	19975	1712.5	-16.92	36.45	19.53	89.74	H
	20175	1732.5	-17.05	36.80	19.75	94.41	
	20375	1752.5	-17.64	36.94	19.30	85.11	
	19975	1712.5	-22.88	37.28	14.40	27.54	V
	20175	1732.5	-23.16	37.63	14.47	27.99	
	20375	1752.5	-23.53	37.64	14.11	25.76	

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)
NB	20000	1715.0	-14.74	36.64	21.90	154.88	H
	20175	1732.5	-14.70	36.80	22.10	162.18	
	20350	1750.0	-15.09	36.80	21.71	148.25	
	20000	1715.0	-20.77	37.44	16.67	46.45	V
	20175	1732.5	-20.87	37.63	16.76	47.42	
	20350	1750.0	-21.10	37.64	16.54	45.08	
Channel Bandwidth: 10 MHz / 16QAM							
NB	20000	1715.0	-15.75	36.64	20.89	122.74	H
	20175	1732.5	-15.67	36.80	21.13	129.72	
	20350	1750.0	-16.24	36.80	20.56	113.76	
	20000	1715.0	-21.67	37.44	15.77	37.76	V
	20175	1732.5	-21.75	37.63	15.88	38.73	
	20350	1750.0	-22.25	37.64	15.39	34.59	
Channel Bandwidth: 10 MHz / 64QAM							
NB	20000	1715.0	-16.80	36.64	19.84	96.38	H
	20175	1732.5	-16.84	36.80	19.96	99.08	
	20350	1750.0	-17.29	36.80	19.51	89.33	
	20000	1715.0	-22.78	37.44	14.66	29.24	V
	20175	1732.5	-22.90	37.63	14.73	29.72	
	20350	1750.0	-23.31	37.64	14.33	27.10	

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)
NB	20025	1717.5	-14.20	36.45	22.25	167.88	H
	20175	1732.5	-14.42	36.80	22.38	172.98	
	20325	1747.5	-14.88	36.94	22.06	160.69	
	20025	1717.5	-20.33	37.28	16.95	49.55	V
	20175	1732.5	-20.59	37.63	17.04	50.58	
	20325	1747.5	-20.84	37.64	16.80	47.86	
Channel Bandwidth: 15 MHz / 16QAM							
NB	20025	1717.5	-15.26	36.45	21.19	131.52	H
	20175	1732.5	-15.42	36.80	21.38	137.40	
	20325	1747.5	-16.10	36.94	20.84	121.34	
	20025	1717.5	-21.18	37.28	16.10	40.74	V
	20175	1732.5	-21.44	37.63	16.19	41.59	
	20325	1747.5	-22.00	37.64	15.64	36.64	
Channel Bandwidth: 15 MHz / 64QAM							
NB	20025	1717.5	-16.31	36.45	20.14	103.28	H
	20175	1732.5	-16.56	36.80	20.24	105.68	
	20325	1747.5	-17.16	36.94	19.78	95.06	
	20025	1717.5	-22.32	37.28	14.96	31.33	V
	20175	1732.5	-22.66	37.63	14.97	31.41	
	20325	1747.5	-23.08	37.64	14.56	28.58	

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)
NB	20050	1720.0	-14.00	36.45	22.45	175.79	H
	20175	1732.5	-14.21	36.80	22.59	181.55	
	20300	1745.0	-14.56	36.94	22.38	172.98	
	20050	1720.0	-20.04	37.28	17.24	52.97	V
	20175	1732.5	-20.31	37.63	17.32	53.95	
	20300	1745.0	-20.53	37.64	17.11	51.40	
Channel Bandwidth: 20 MHz / 16QAM							
NB	20050	1720.0	-14.96	36.45	21.49	140.93	H
	20175	1732.5	-15.19	36.80	21.61	144.88	
	20300	1745.0	-15.82	36.94	21.12	129.42	
	20050	1720.0	-20.97	37.28	16.31	42.76	V
	20175	1732.5	-21.23	37.63	16.40	43.65	
	20300	1745.0	-21.69	37.64	15.95	39.36	
Channel Bandwidth: 20 MHz / 64QAM							
NB	20050	1720.0	-16.08	36.45	20.37	108.89	H
	20175	1732.5	-16.25	36.80	20.55	113.50	
	20300	1745.0	-16.94	36.94	20.00	100.00	
	20050	1720.0	-22.05	37.28	15.23	33.34	V
	20175	1732.5	-22.39	37.63	15.24	33.42	
	20300	1745.0	-22.81	37.64	14.83	30.41	

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)
NB	131979	1710.7	-15.06	36.45	21.39	137.72	H
	132322	1745.0	-15.14	36.80	21.66	146.55	
	132665	1779.3	-15.37	36.94	21.57	143.55	
	131979	1710.7	-21.09	37.28	16.19	41.59	V
	132322	1745.0	-21.25	37.63	16.38	43.45	
	132665	1779.3	-21.31	37.64	16.33	42.95	
Channel Bandwidth: 1.4 MHz / 16QAM							
NB	131979	1710.7	-16.19	36.45	20.26	106.17	H
	132322	1745.0	-16.01	36.80	20.79	119.95	
	132665	1779.3	-16.62	36.94	20.32	107.65	
	131979	1710.7	-22.33	37.28	14.95	31.26	V
	132322	1745.0	-22.06	37.63	15.57	36.06	
	132665	1779.3	-22.57	37.64	15.07	32.14	
Channel Bandwidth: 1.4 MHz / 64QAM							
NB	131979	1710.7	-17.33	36.45	19.12	81.66	H
	132322	1745.0	-17.14	36.80	19.66	92.47	
	132665	1779.3	-17.79	36.94	19.15	82.22	
	131979	1710.7	-23.39	37.28	13.89	24.49	V
	132322	1745.0	-23.20	37.63	14.43	27.73	
	132665	1779.3	-23.56	37.64	14.08	25.59	

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)
NB	131987	1711.5	-14.86	36.45	21.59	144.21	H
	132322	1745.0	-14.80	36.80	22.00	158.49	
	132657	1778.5	-15.14	36.94	21.80	151.36	
	131987	1711.5	-20.85	37.28	16.43	43.95	V
	132322	1745.0	-21.01	37.63	16.62	45.92	
	132657	1778.5	-21.08	37.64	16.56	45.29	
Channel Bandwidth: 3 MHz / 16QAM							
NB	131987	1711.5	-15.92	36.45	20.53	112.98	H
	132322	1745.0	-15.69	36.80	21.11	129.12	
	132657	1778.5	-16.38	36.94	20.56	113.76	
	131987	1711.5	-22.05	37.28	15.23	33.34	V
	132322	1745.0	-21.84	37.63	15.79	37.93	
	132657	1778.5	-22.26	37.64	15.38	34.51	
Channel Bandwidth: 3 MHz / 64QAM							
NB	131987	1711.5	-17.04	36.45	19.41	87.30	H
	132322	1745.0	-16.89	36.80	19.91	97.95	
	132657	1778.5	-17.48	36.94	19.46	88.31	
	131987	1711.5	-23.16	37.28	14.12	25.82	V
	132322	1745.0	-22.95	37.63	14.68	29.38	
	132657	1778.5	-23.34	37.64	14.30	26.92	

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)
NB	131997	1712.5	-14.61	36.45	21.84	152.76	H
	132322	1745.0	-14.49	36.80	22.31	170.22	
	132647	1777.5	-14.88	36.94	22.06	160.69	
	131997	1712.5	-20.57	37.28	16.71	46.88	V
	132322	1745.0	-20.76	37.63	16.87	48.64	
	132647	1777.5	-20.87	37.64	16.77	47.53	
Channel Bandwidth: 5 MHz / 16QAM							
NB	131997	1712.5	-15.66	36.45	20.79	119.95	H
	132322	1745.0	-15.49	36.80	21.31	135.21	
	132647	1777.5	-16.06	36.94	20.88	122.46	
	131997	1712.5	-21.84	37.28	15.44	34.99	V
	132322	1745.0	-21.63	37.63	16.00	39.81	
	132647	1777.5	-22.01	37.64	15.63	36.56	
Channel Bandwidth: 5 MHz / 64QAM							
NB	131997	1712.5	-16.73	36.45	19.72	93.76	H
	132322	1745.0	-16.69	36.80	20.11	102.57	
	132647	1777.5	-17.17	36.94	19.77	94.84	
	131997	1712.5	-22.84	37.28	14.44	27.80	V
	132322	1745.0	-22.73	37.63	14.90	30.90	
	132647	1777.5	-23.02	37.64	14.62	28.97	

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)
NB	132022	1715.0	-14.46	36.64	22.18	165.20	H
	132322	1745.0	-14.29	36.80	22.51	178.24	
	132622	1775.0	-14.48	36.80	22.32	170.61	
	132022	1715.0	-20.45	37.44	16.99	50.00	V
	132322	1745.0	-20.54	37.63	17.09	51.17	
	132622	1775.0	-20.60	37.64	17.04	50.58	
Channel Bandwidth: 10 MHz / 16QAM							
NB	132022	1715.0	-15.61	36.64	21.03	126.77	H
	132322	1745.0	-15.21	36.80	21.59	144.21	
	132622	1775.0	-15.62	36.80	21.18	131.22	
	132022	1715.0	-21.80	37.44	15.64	36.64	V
	132322	1745.0	-21.34	37.63	16.29	42.56	
	132622	1775.0	-21.74	37.64	15.90	38.90	
Channel Bandwidth: 10 MHz / 64QAM							
NB	132022	1715.0	-16.63	36.64	20.01	100.23	H
	132322	1745.0	-16.38	36.80	20.42	110.15	
	132622	1775.0	-16.74	36.80	20.06	101.39	
	132022	1715.0	-22.77	37.44	14.67	29.31	V
	132322	1745.0	-22.47	37.63	15.16	32.81	
	132622	1775.0	-22.80	37.64	14.84	30.48	

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)
NB	132047	1717.5	-13.92	36.45	22.53	179.06	H
	132322	1745.0	-14.08	36.80	22.72	187.07	
	132597	1772.5	-14.27	36.94	22.67	184.93	
	132047	1717.5	-20.06	37.28	17.22	52.72	V
	132322	1745.0	-20.25	37.63	17.38	54.70	
	132597	1772.5	-20.33	37.64	17.31	53.83	
Channel Bandwidth: 15 MHz / 16QAM							
NB	132047	1717.5	-15.15	36.45	21.30	134.90	H
	132322	1745.0	-14.98	36.80	21.82	152.05	
	132597	1772.5	-15.48	36.94	21.46	139.96	
	132047	1717.5	-21.32	37.28	15.96	39.45	V
	132322	1745.0	-21.08	37.63	16.55	45.19	
	132597	1772.5	-21.48	37.64	16.16	41.30	
Channel Bandwidth: 15 MHz / 64QAM							
NB	132047	1717.5	-16.13	36.45	20.32	107.65	H
	132322	1745.0	-16.12	36.80	20.68	116.95	
	132597	1772.5	-16.59	36.94	20.35	108.39	
	132047	1717.5	-22.33	37.28	14.95	31.26	V
	132322	1745.0	-22.23	37.63	15.40	34.67	
	132597	1772.5	-22.55	37.64	15.09	32.28	

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)
NB	132072	1720.0	-13.66	36.45	22.79	190.11	H
	132322	1745.0	-13.75	36.80	23.05	201.84	
	132572	1770.0	-14.03	36.94	22.91	195.43	
	132072	1720.0	-19.74	37.28	17.54	56.75	V
	132322	1745.0	-19.90	37.63	17.73	59.29	
	132572	1770.0	-20.03	37.64	17.61	57.68	
Channel Bandwidth: 20 MHz / 16QAM							
NB	132072	1720.0	-14.87	36.45	21.58	143.88	H
	132322	1745.0	-14.78	36.80	22.02	159.22	
	132572	1770.0	-15.25	36.94	21.69	147.57	
	132072	1720.0	-21.01	37.28	16.27	42.36	V
	132322	1745.0	-20.82	37.63	16.81	47.97	
	132572	1770.0	-21.17	37.64	16.47	44.36	
Channel Bandwidth: 20 MHz / 64QAM							
NB	132072	1720.0	-15.88	36.45	20.57	114.02	H
	132322	1745.0	-15.92	36.80	20.88	122.46	
	132572	1770.0	-16.29	36.94	20.65	116.14	
	132072	1720.0	-22.12	37.28	15.16	32.81	V
	132322	1745.0	-21.96	37.63	15.67	36.90	
	132572	1770.0	-22.29	37.64	15.35	34.28	

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

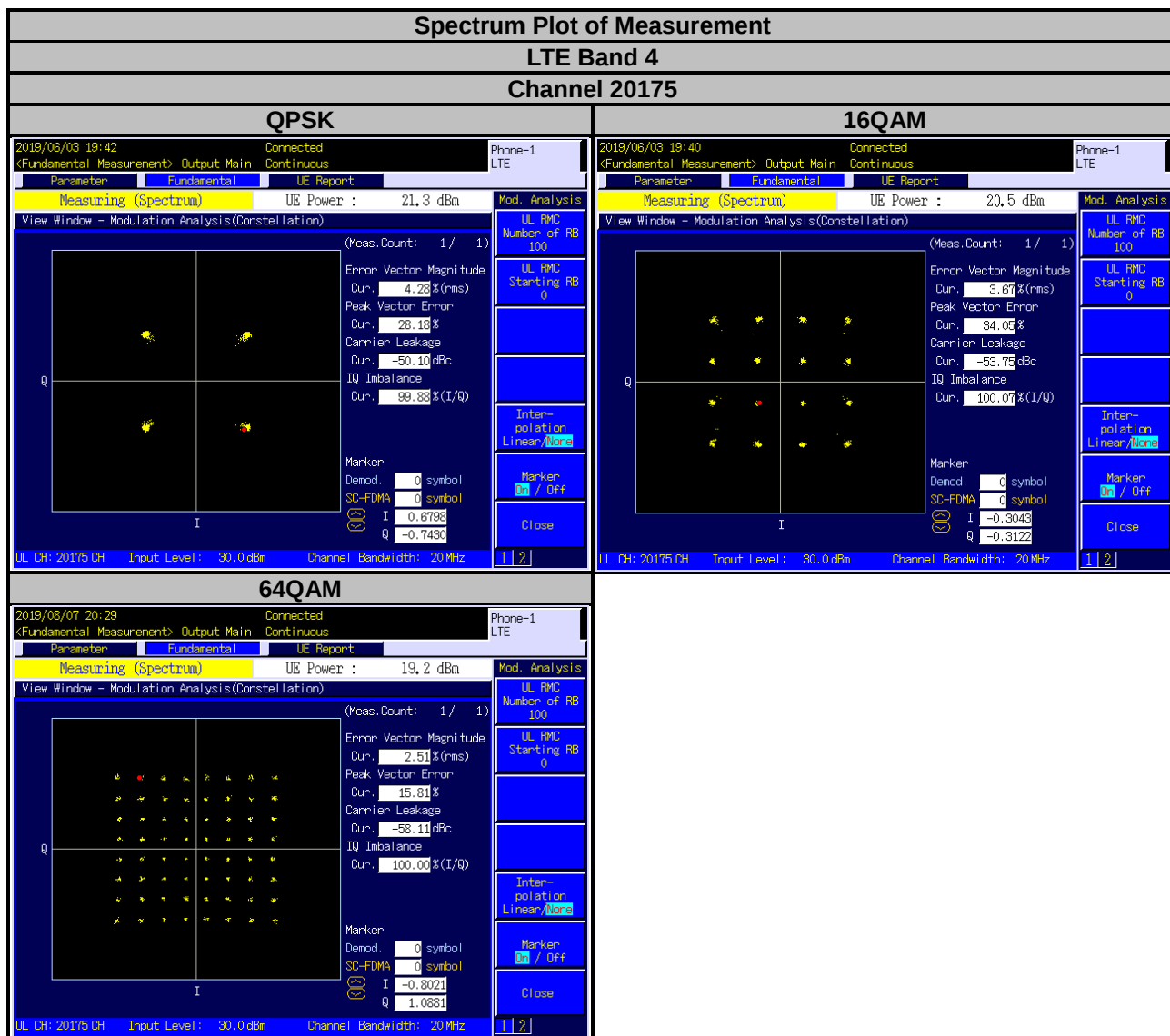
4.2.2 Test Setup



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

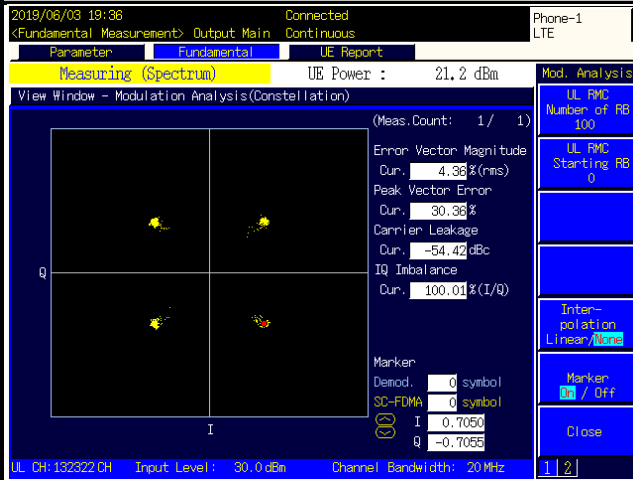


Spectrum Plot of Measurement

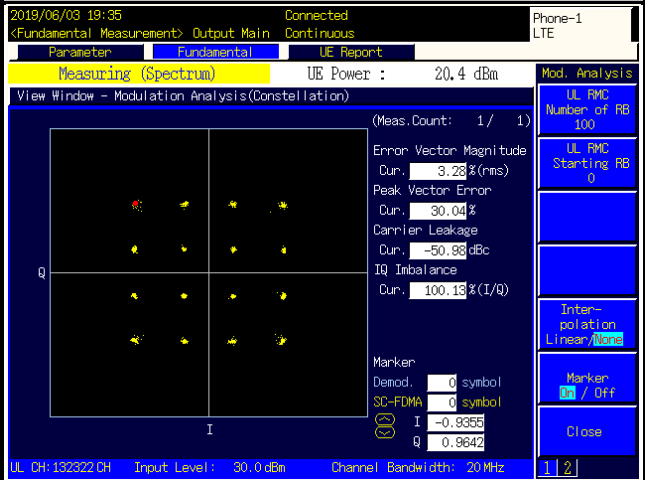
LTE Band 66

Channel 132322

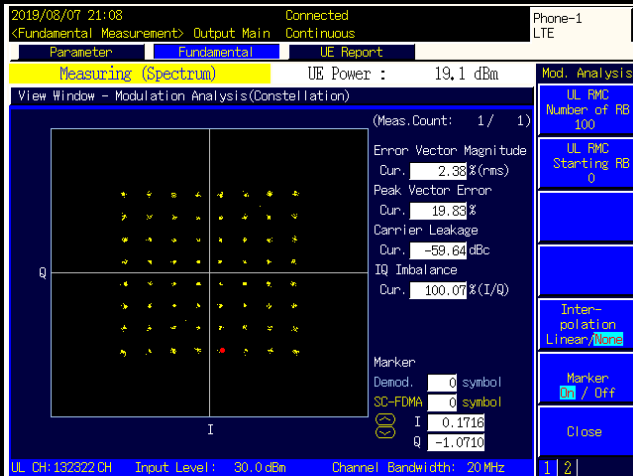
QPSK



16QAM



64QAM



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

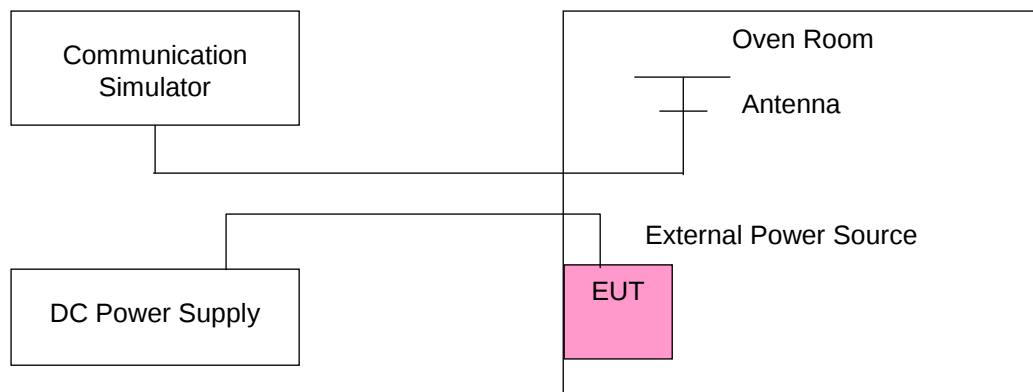
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Procedure

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

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700001	0.001	1754.300003	0.001
102	1710.700001	0.001	1754.300003	0.001
138	1710.700001	0.001	1754.300004	0.002

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700002	0.001	1754.300001	0.001
10	1710.700002	0.001	1754.300001	0.001
20	1710.699998	-0.001	1754.300003	0.002
30	1710.699998	-0.001	1754.299996	-0.002
40	1710.699998	-0.001	1754.299996	-0.002
50	1710.699997	-0.002	1754.299997	-0.002

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700003	0.002	1754.300003	0.002
102	1710.700002	0.001	1754.300002	0.001
138	1710.700003	0.002	1754.300002	0.001

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700001	0.001	1754.300003	0.002
10	1710.700003	0.002	1754.300003	0.002
20	1710.699999	-0.001	1754.300001	0.001
30	1710.699996	-0.002	1754.299998	-0.001
40	1710.699999	-0.001	1754.299998	-0.001
50	1710.699998	-0.001	1754.299997	-0.002

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700002	0.001	1754.300004	0.002
102	1710.700003	0.002	1754.300001	0.001
138	1710.700003	0.002	1754.300001	0.001

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700003	0.002	1754.300002	0.001
10	1710.700002	0.001	1754.300002	0.001
20	1710.699999	-0.001	1754.300001	0.001
30	1710.699998	-0.001	1754.299999	-0.001
40	1710.699999	-0.001	1754.299997	-0.002
50	1710.699998	-0.001	1754.299998	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700003	0.002	1754.300001	0.001
102	1710.700003	0.002	1754.300003	0.002
138	1710.700001	0.001	1754.300002	0.001

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700002	0.001	1754.300003	0.002
10	1710.700002	0.001	1754.300004	0.002
20	1710.699996	-0.002	1754.300001	0.001
30	1710.699998	-0.001	1754.299997	-0.002
40	1710.699998	-0.001	1754.299998	-0.001
50	1710.699997	-0.002	1754.299996	-0.002

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700003	0.002	1754.300001	0.001
102	1710.700004	0.002	1754.300002	0.001
138	1710.700004	0.002	1754.300003	0.002

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700003	0.002	1754.300004	0.002
10	1710.700003	0.002	1754.300003	0.002
20	1710.699997	-0.002	1754.300001	0.001
30	1710.699999	-0.001	1754.299999	-0.001
40	1710.699997	-0.002	1754.299999	-0.001
50	1710.699999	-0.001	1754.299999	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700002	0.001	1754.300003	0.002
102	1710.700002	0.001	1754.300001	0.001
138	1710.700003	0.002	1754.300002	0.001

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700002	0.001	1754.300003	0.002
10	1710.700002	0.001	1754.300003	0.001
20	1710.699997	-0.002	1754.300004	0.002
30	1710.699997	-0.002	1754.299998	-0.001
40	1710.699998	-0.001	1754.299999	-0.001
50	1710.699997	-0.002	1754.299998	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700004	0.002	1779.300001	0.001
102	1710.700002	0.001	1779.300004	0.002
138	1710.700003	0.002	1779.300001	0.001

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700002	0.001	1779.300003	0.002
10	1710.700002	0.001	1779.300002	0.001
20	1710.699998	-0.001	1779.300002	0.001
30	1710.699998	-0.001	1779.299996	-0.002
40	1710.699999	-0.001	1779.299998	-0.001
50	1710.699998	-0.001	1779.299999	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700002	0.001	1779.300003	0.002
102	1710.700003	0.002	1779.300002	0.001
138	1710.700003	0.002	1779.300002	0.001

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700001	0.001	1779.300003	0.002
10	1710.700003	0.002	1779.300002	0.001
20	1710.699997	-0.002	1779.300003	0.002
30	1710.699997	-0.002	1779.299998	-0.001
40	1710.699996	-0.002	1779.299998	-0.001
50	1710.699999	-0.001	1779.299999	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700001	0.001	1779.300004	0.002
102	1710.700002	0.001	1779.300003	0.002
138	1710.700004	0.002	1779.300003	0.002

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700001	0.001	1779.300002	0.001
10	1710.700004	0.002	1779.300004	0.002
20	1710.699999	-0.001	1779.300002	0.001
30	1710.699998	-0.001	1779.299996	-0.002
40	1710.699998	-0.001	1779.299999	-0.001
50	1710.699999	-0.001	1779.299996	-0.002

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700003	0.002	1779.300002	0.001
102	1710.700001	0.001	1779.300002	0.001
138	1710.700003	0.002	1779.300004	0.002

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700004	0.002	1779.300001	0.001
10	1710.700003	0.002	1779.300002	0.001
20	1710.699997	-0.002	1779.300003	0.002
30	1710.699997	-0.002	1779.299997	-0.002
40	1710.699998	-0.001	1779.299998	-0.001
50	1710.699997	-0.002	1779.299999	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700002	0.001	1779.300004	0.002
102	1710.700001	0.001	1779.300002	0.001
138	1710.700004	0.002	1779.300003	0.002

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700002	0.001	1779.300004	0.002
10	1710.700001	0.001	1779.300002	0.001
20	1710.699999	-0.001	1779.300001	0.001
30	1710.699997	-0.002	1779.299998	-0.001
40	1710.699996	-0.002	1779.299997	-0.002
50	1710.699997	-0.002	1779.299998	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1710.700001	0.001	1779.300004	0.002
102	1710.700002	0.001	1779.300002	0.001
138	1710.700002	0.001	1779.300002	0.001

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

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
0	1710.700002	0.001	1779.300003	0.001
10	1710.700003	0.002	1779.300003	0.001
20	1710.699997	-0.002	1779.300002	0.001
30	1710.699998	-0.001	1779.299998	-0.001
40	1710.699997	-0.002	1779.299997	-0.002
50	1710.699996	-0.002	1779.299998	-0.001

Note: The applicant declared that the normal operating temperature of the EUT is from 0°C to 50°C.

4.4 Occupied Bandwidth Measurement

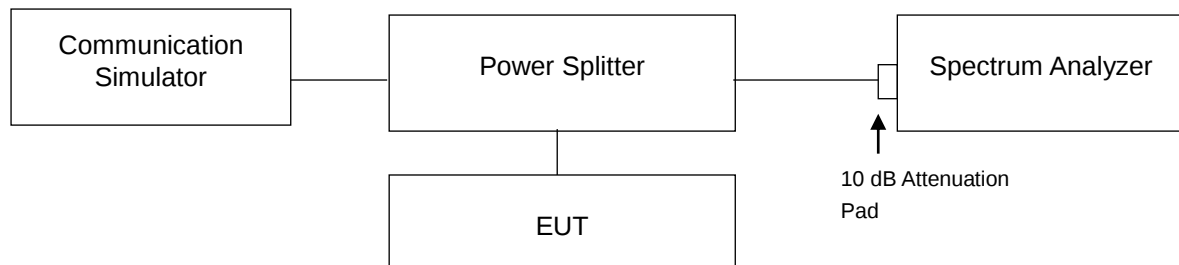
4.4.1 Limits of Occupied Bandwidth Measurement

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

- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- 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	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
19957	1710.7	1.0880	1.0897	1.0882	1.2430	1.2300	1.2190
20175	1732.5	1.0892	1.0895	1.0871	1.2430	1.2250	1.2120
20393	1754.3	1.0880	1.0910	1.0894	1.2260	1.2180	1.2250
Channel Bandwidth: 3 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
19965	1711.5	2.7044	2.7008	2.6987	2.9920	2.9530	2.9020
20175	1732.5	2.7037	2.6995	2.6995	3.0050	2.9740	2.9120
20385	1753.5	2.6996	2.6963	2.6993	2.9380	2.9440	2.9180



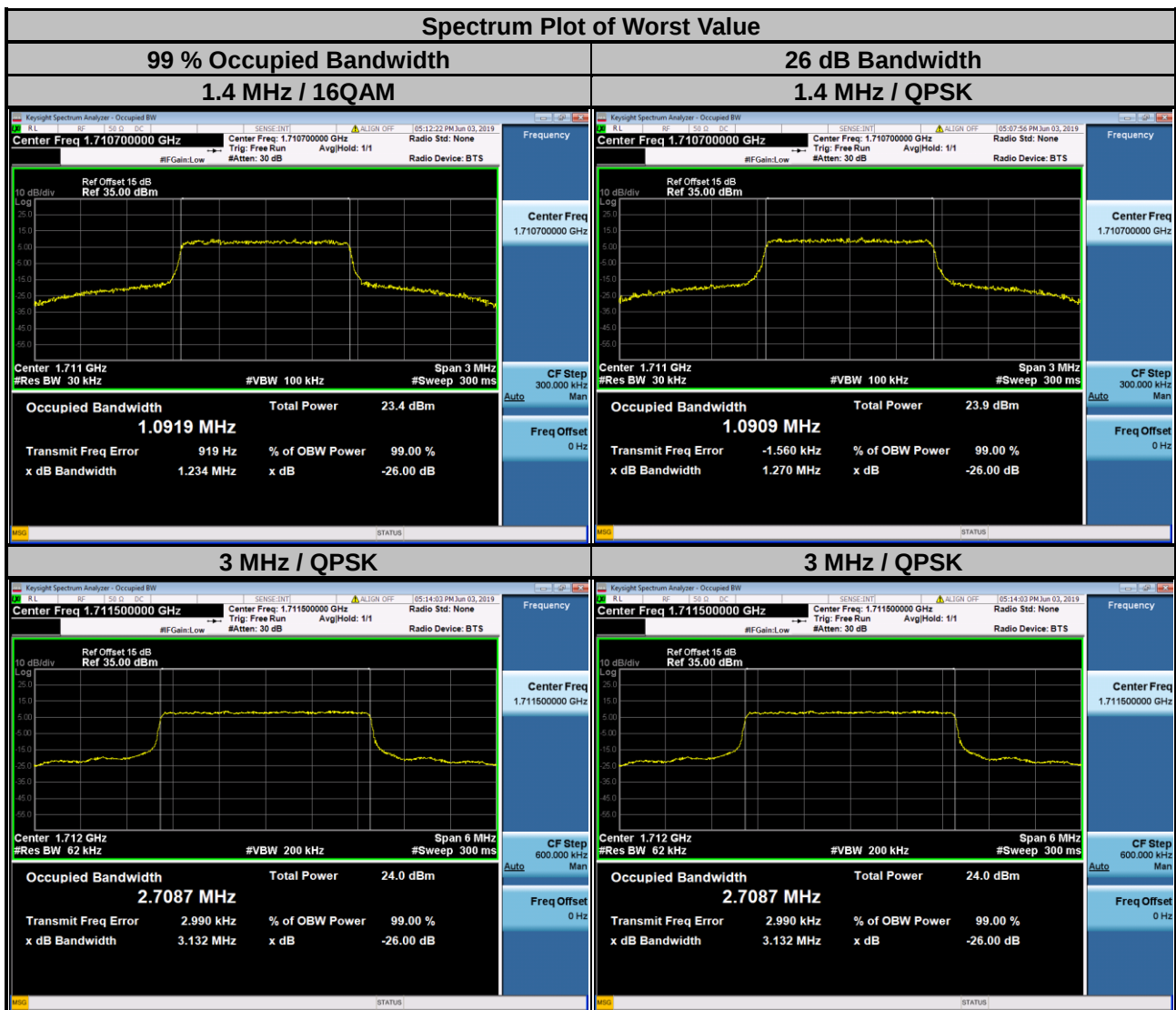
LTE Band 4							
Channel Bandwidth: 5 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
19975	1712.5	4.4906	4.4903	4.5000	4.8550	4.8350	4.8520
20175	1732.5	4.4917	4.4903	4.4999	4.8640	4.8640	4.8530
20375	1752.5	4.4893	4.4875	4.5011	4.8420	4.8020	4.8550
Channel Bandwidth: 10 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20000	1715.0	8.9691	8.9709	8.9736	9.5890	9.5320	9.5380
20175	1732.5	8.9686	8.9736	8.9727	9.6470	9.5350	9.5340
20350	1750.0	8.9641	8.9731	8.9799	9.5340	9.5120	9.5330



LTE Band 4							
Channel Bandwidth: 15 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20025	1717.5	13.460	13.445	13.445	14.309	14.265	14.265
20175	1732.5	13.450	13.441	13.444	14.344	14.258	14.268
20325	1747.5	13.460	13.452	13.451	14.297	14.250	14.269
Channel Bandwidth: 20 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20050	1720.0	17.916	17.939	17.940	19.101	19.030	19.041
20175	1732.5	17.898	17.927	17.934	19.080	19.036	19.035
20300	1745.0	17.939	17.959	17.948	19.098	19.038	19.041



LTE Band 66							
Channel Bandwidth: 1.4 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
131979	1710.7	1.0909	1.0919	1.0890	1.2700	1.2340	1.2230
132322	1745.0	1.0884	1.0873	1.0891	1.2220	1.2190	1.2150
132665	1779.3	1.0873	1.0884	1.0894	1.2300	1.2210	1.2270
Channel Bandwidth: 3 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
131987	1711.5	2.7087	2.7031	2.6971	3.1320	3.0270	2.9170
132322	1745.0	2.6999	2.6987	2.6981	2.9580	2.9450	2.9110
132657	1778.5	2.7025	2.6959	2.6976	2.9560	2.9350	2.9240



LTE Band 66							
Channel Bandwidth: 5 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
131997	1712.5	4.4960	4.4964	4.5000	4.9670	4.8930	4.8300
132322	1745.0	4.4873	4.4915	4.4951	4.8310	4.8300	4.8480
132647	1777.5	4.4891	4.4909	4.5021	4.8460	4.8110	4.8550
Channel Bandwidth: 10 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
132022	1715.0	8.9729	8.9739	8.9758	9.6440	9.5500	9.5470
132322	1745.0	8.9696	8.9692	8.9768	9.6070	9.5310	9.5410
132622	1775.0	8.9644	8.9757	8.9698	9.5760	9.5430	9.5370



LTE Band 66							
Channel Bandwidth: 15 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
132047	1717.5	13.460	13.449	13.444	14.365	14.269	14.269
132322	1745.0	13.455	13.453	13.446	14.344	14.280	14.257
132597	1772.5	13.465	13.453	13.434	14.370	14.279	14.242
Channel Bandwidth: 20 MHz							
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
132072	1720.0	17.923	17.943	17.938	19.149	19.033	19.054
132322	1745.0	17.944	17.967	17.954	19.159	19.052	19.042
132572	1770.0	17.960	17.978	17.943	19.768	19.143	19.028

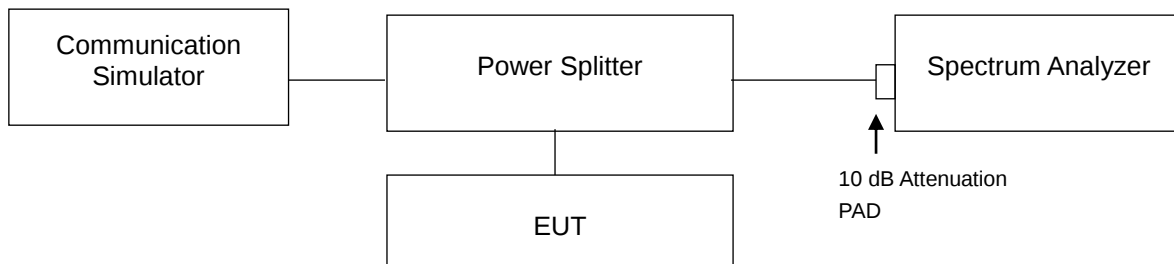


4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

For operations in the 1710–1755 MHz and 1755–1780 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.

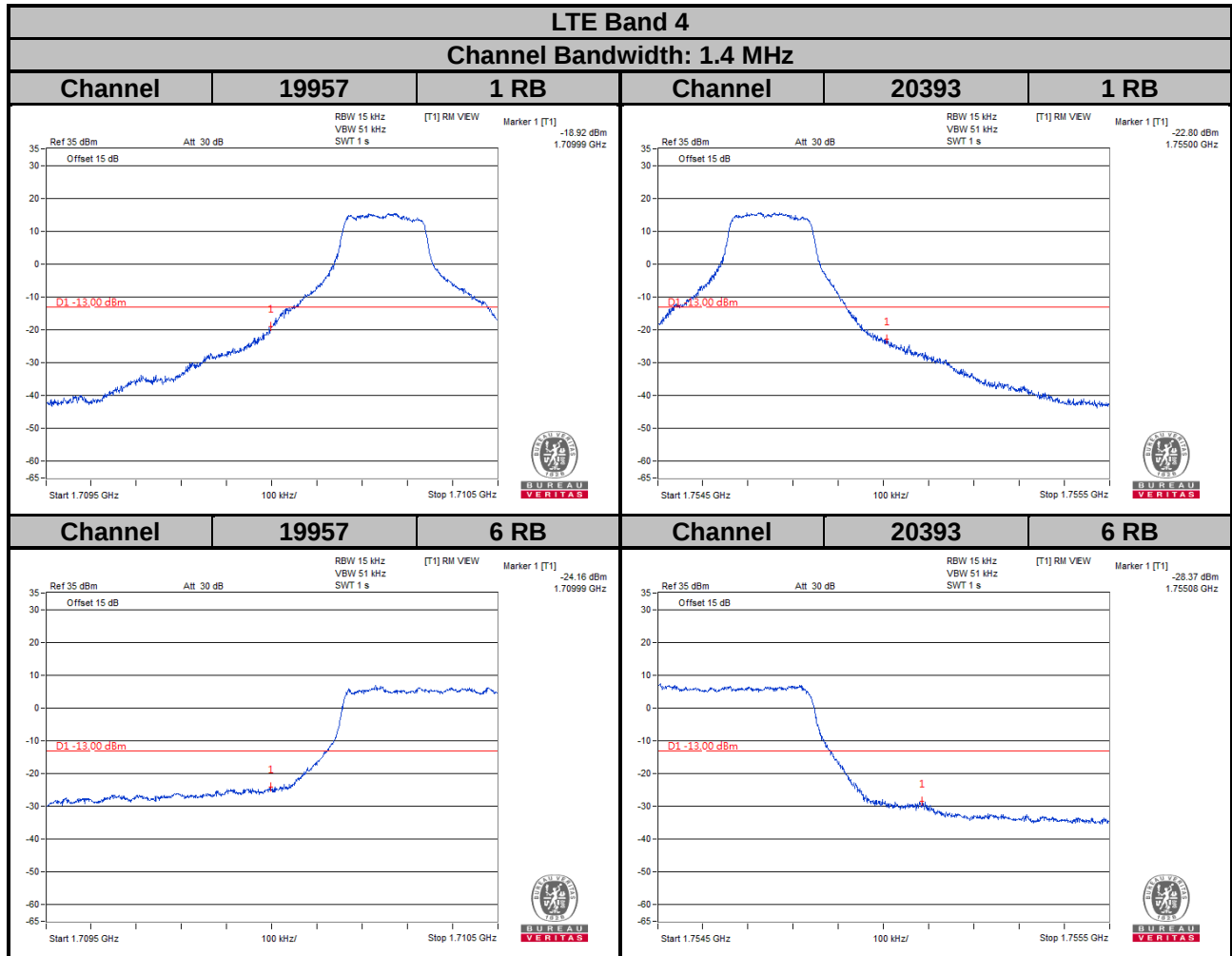
4.5.2 Test Setup



4.5.3 Test Procedures

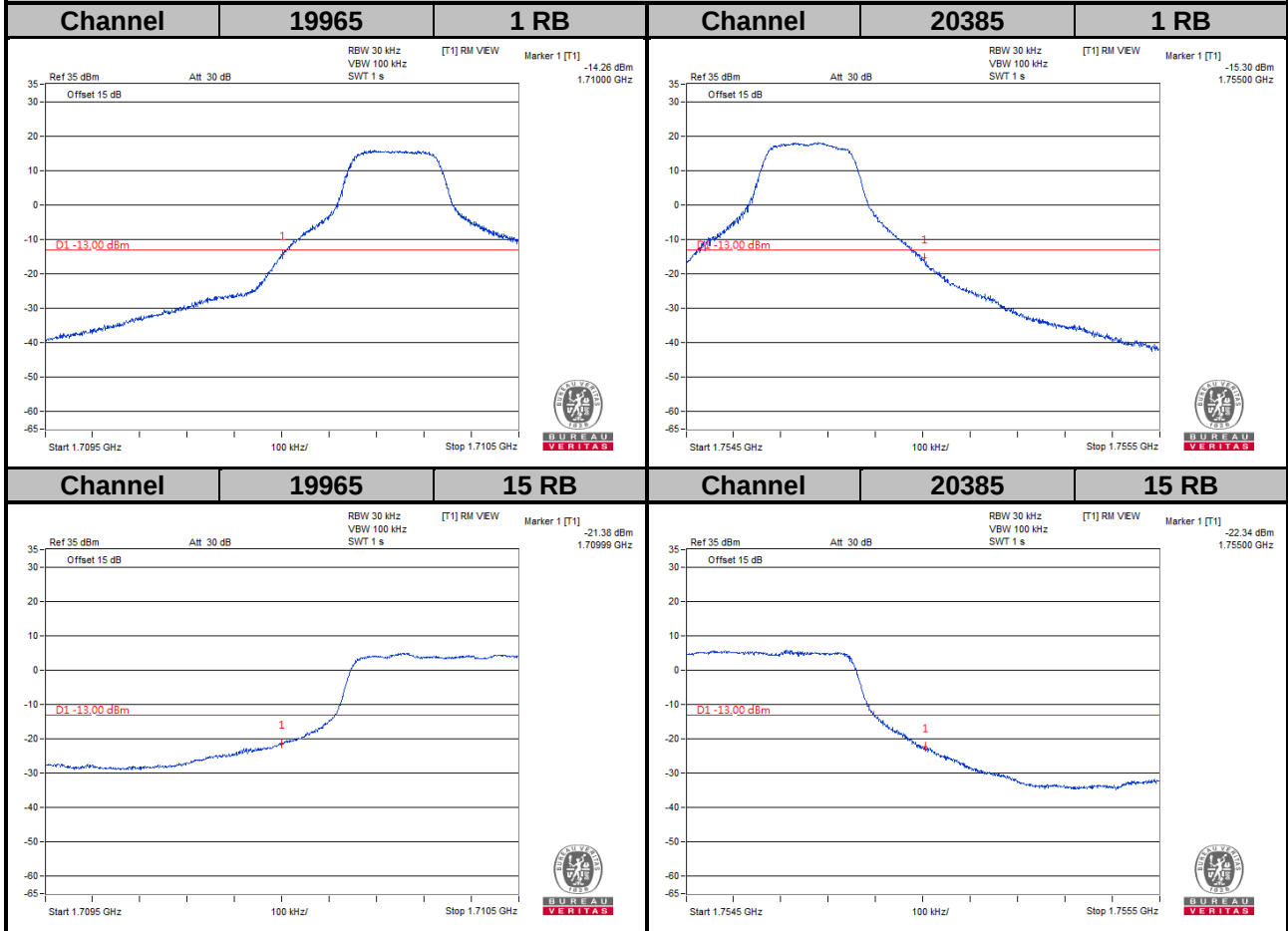
- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 15 kHz and VB of the spectrum is 51 kHz (LTE Bandwidth 1.4 MHz).
- The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 30 kHz and VB of the spectrum is 100 kHz (LTE Bandwidth 3 MHz).
- 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).
- 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).
- 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).
- 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).
- Record the max. trace plot into the test report.

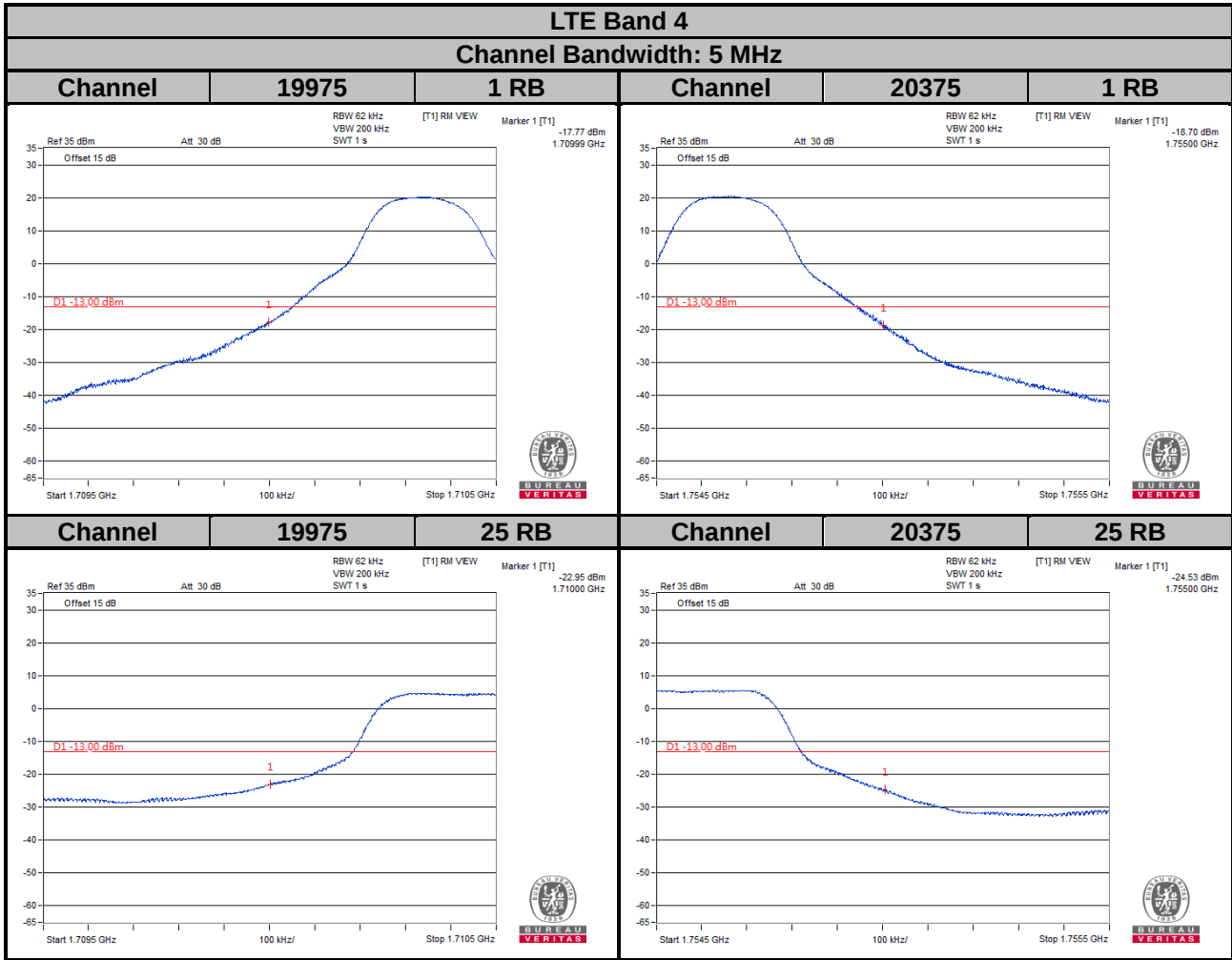
4.5.4 Test Results



LTE Band 4

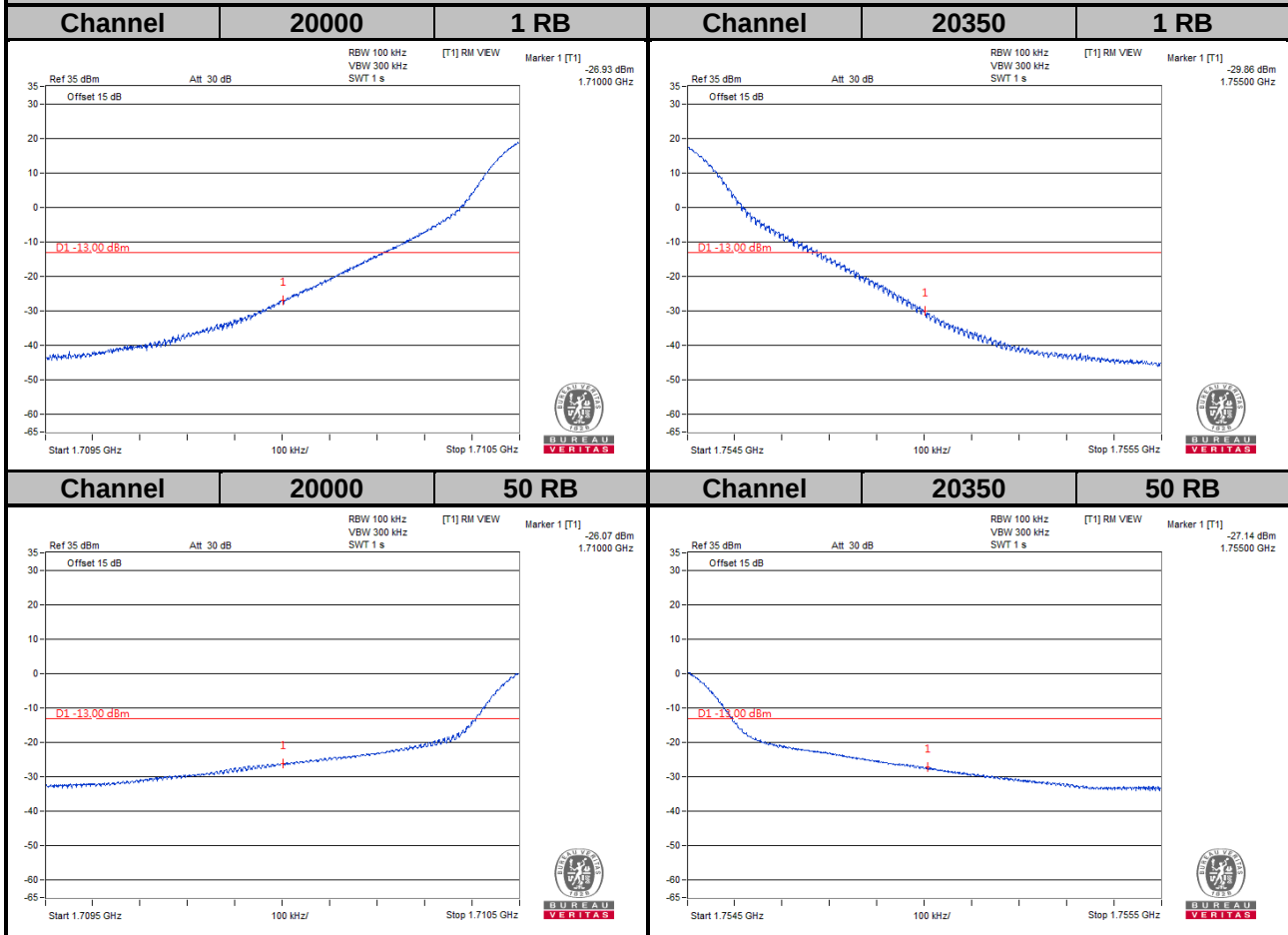
Channel Bandwidth: 3 MHz

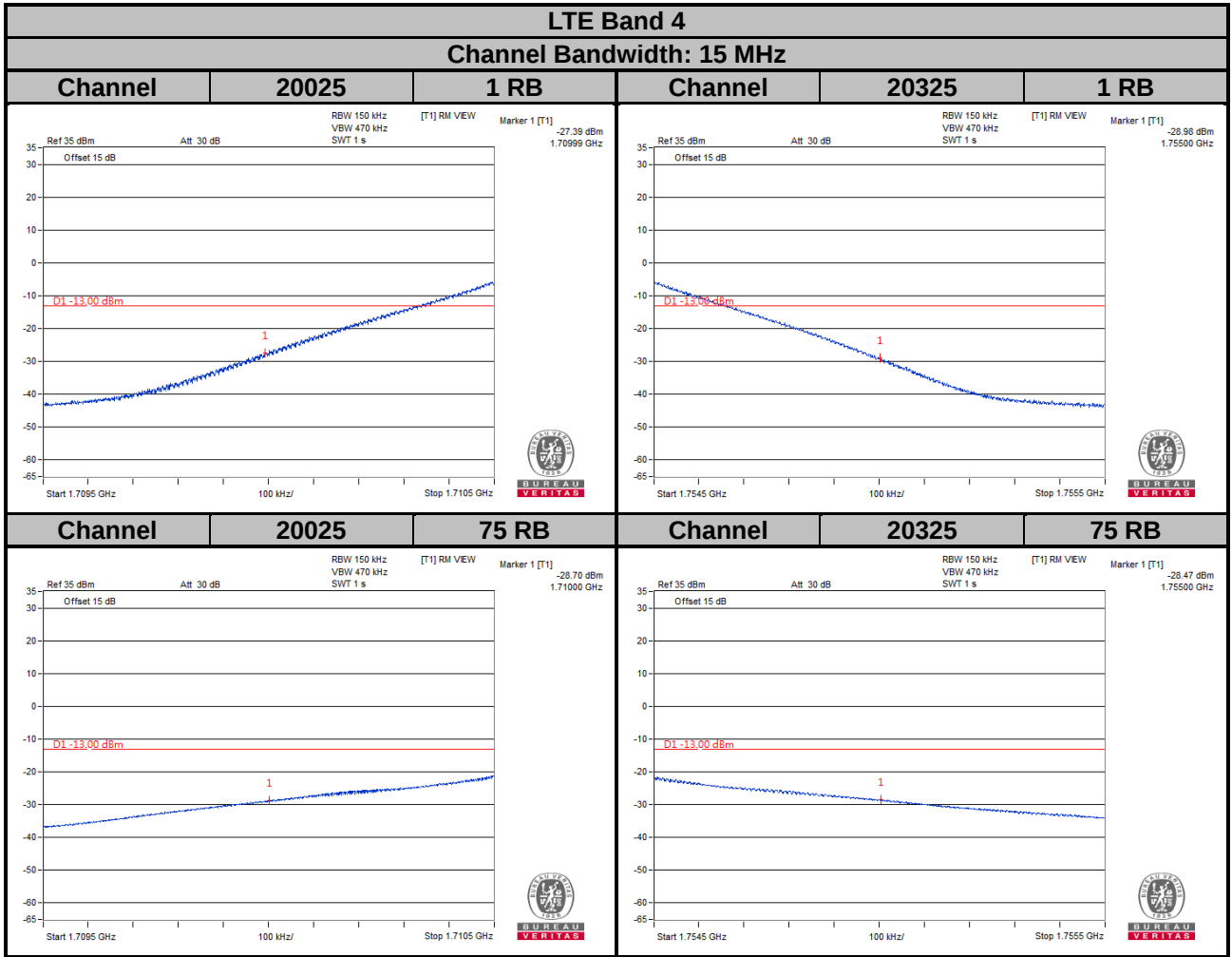




LTE Band 4

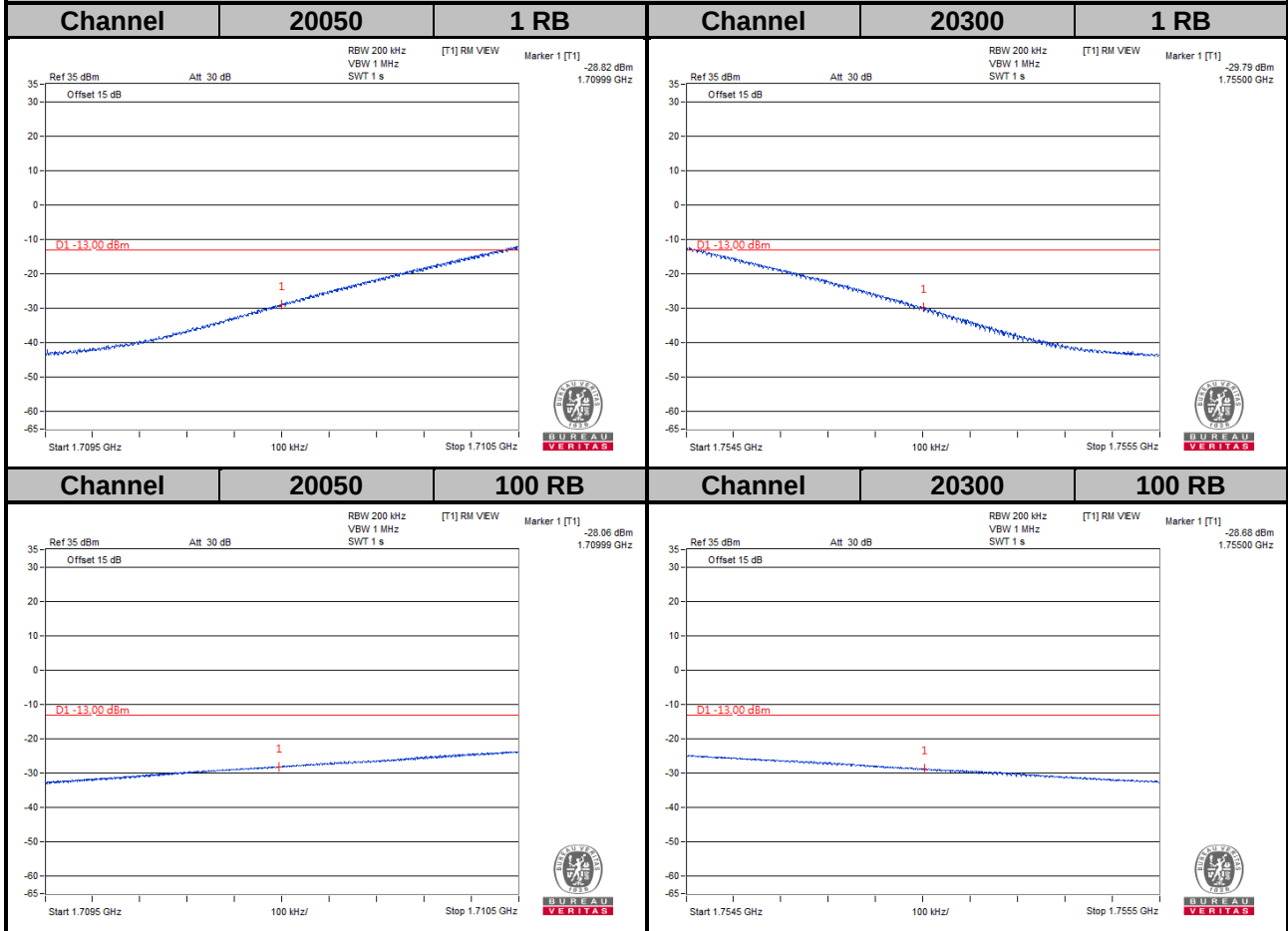
Channel Bandwidth: 10 MHz





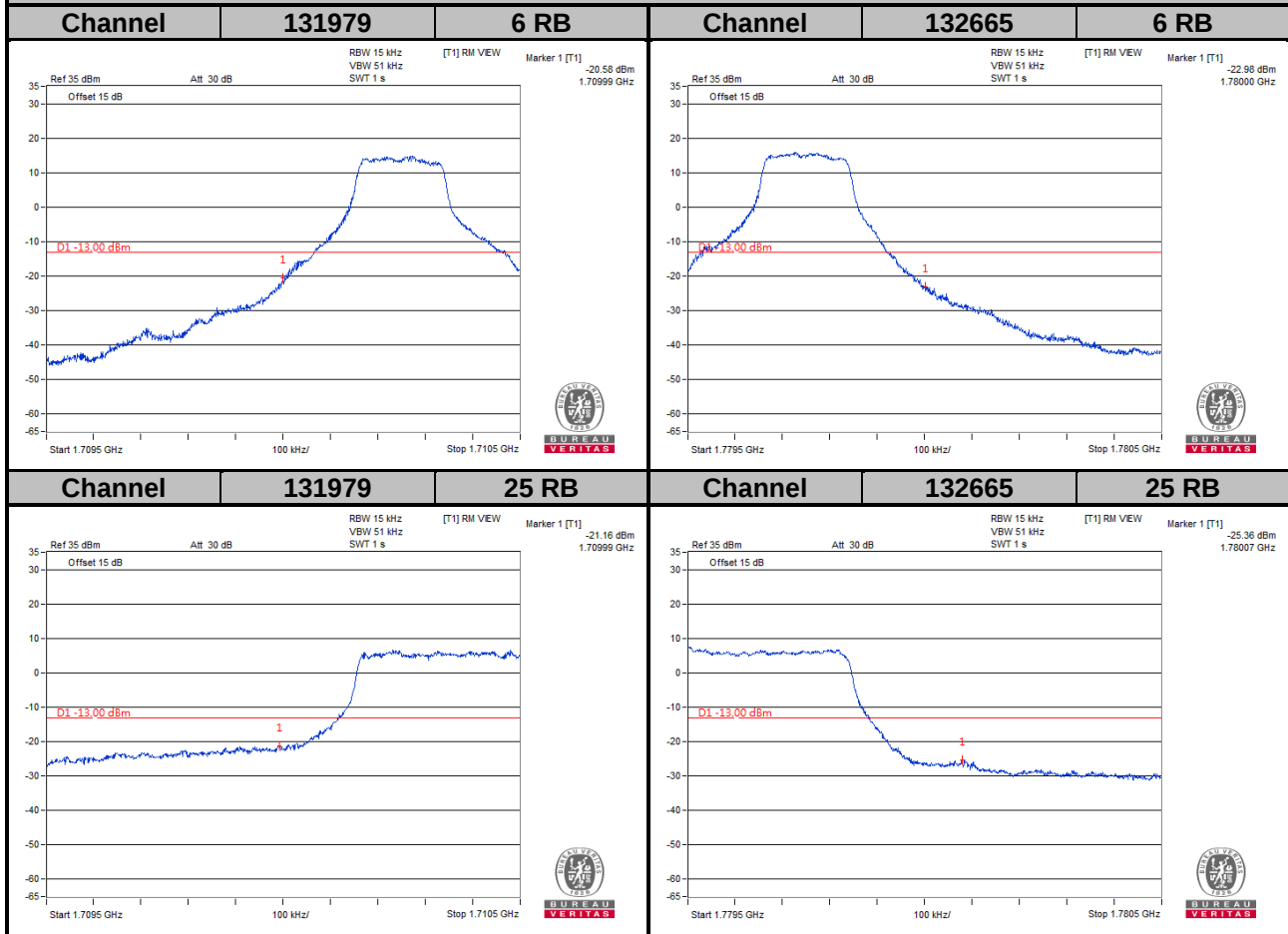
LTE Band 4

Channel Bandwidth: 20 MHz



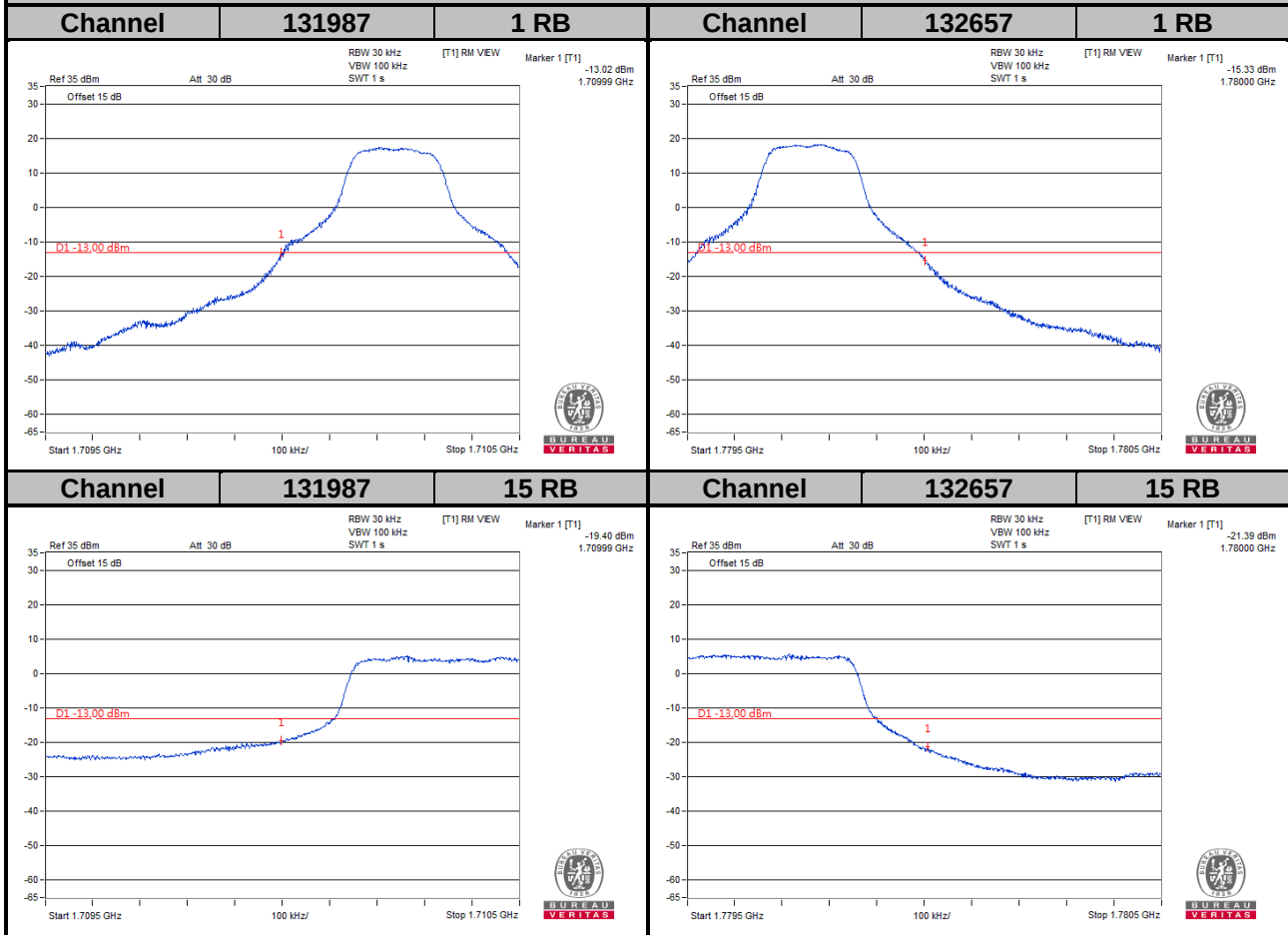
LTE Band 66

Channel Bandwidth: 1.4 MHz



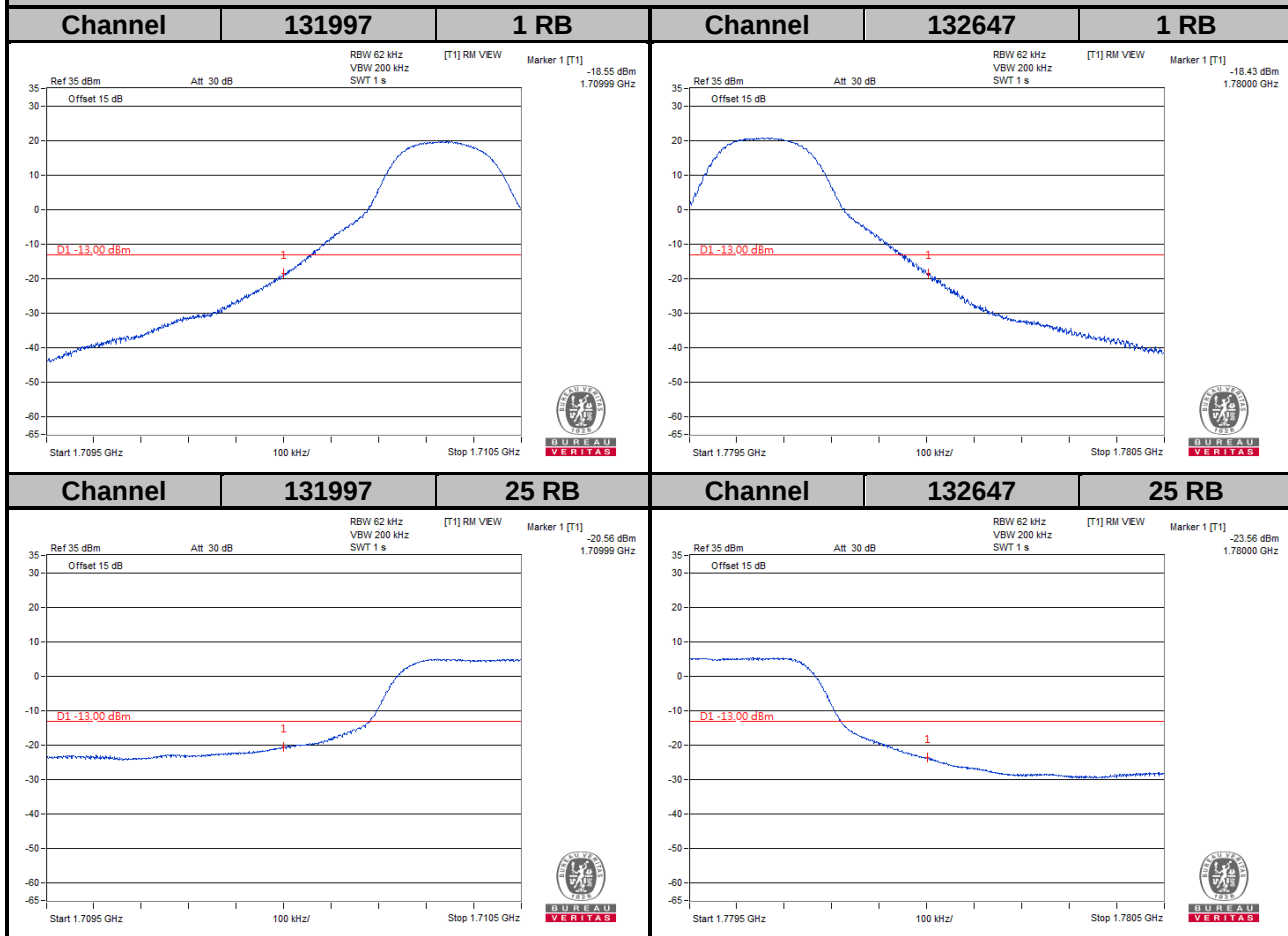
LTE Band 66

Channel Bandwidth: 3 MHz



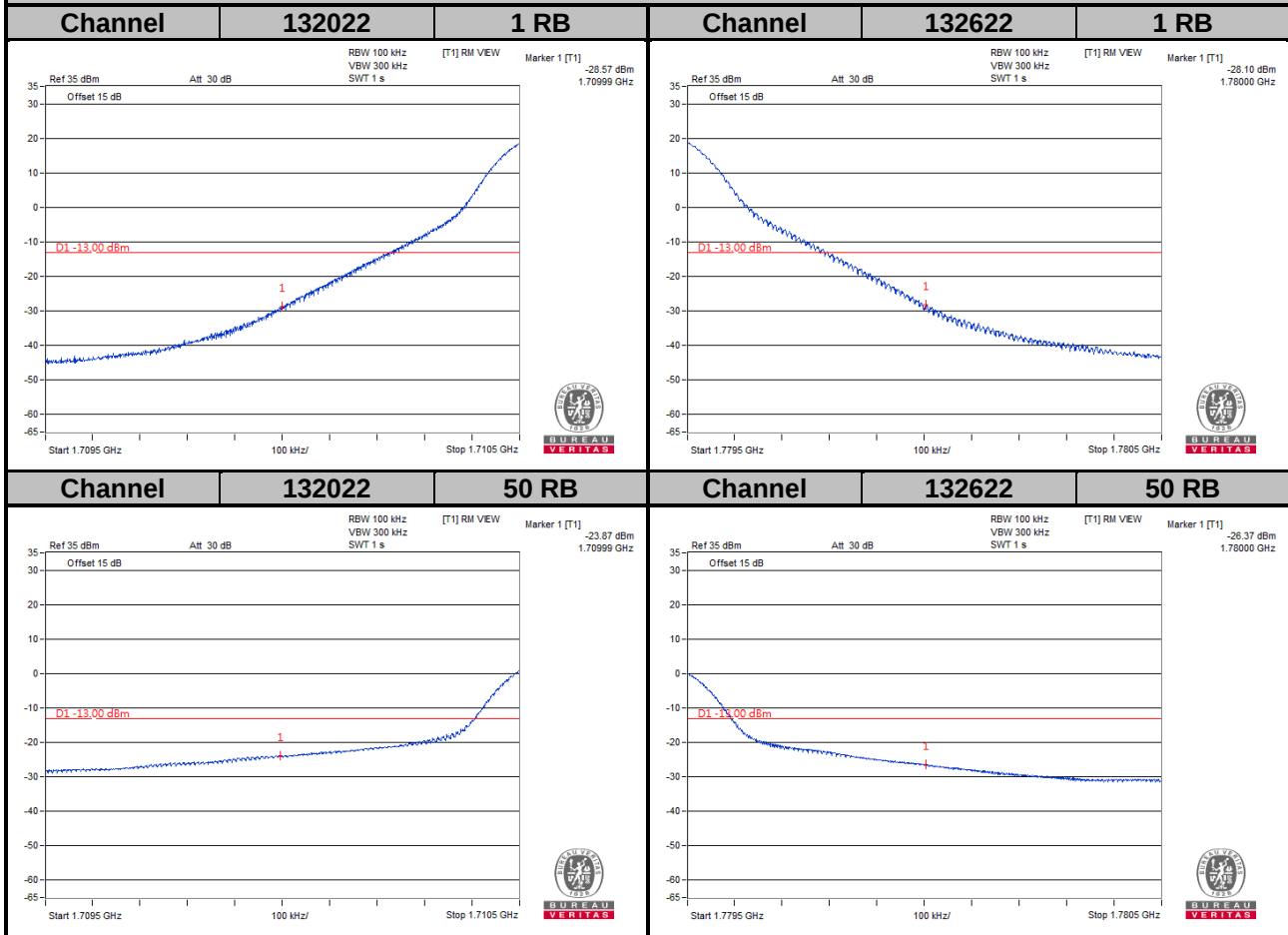
LTE Band 66

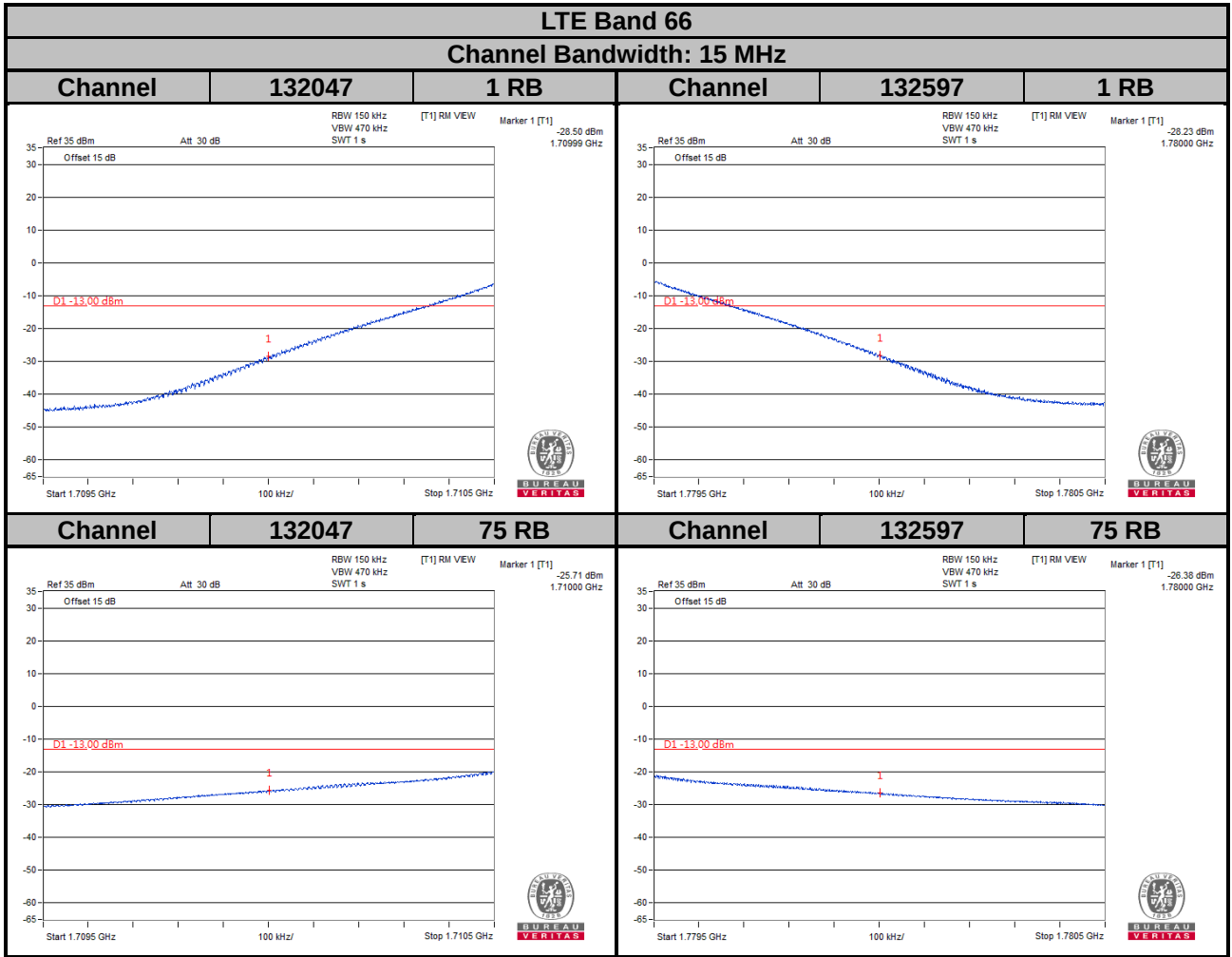
Channel Bandwidth: 5 MHz



LTE Band 66

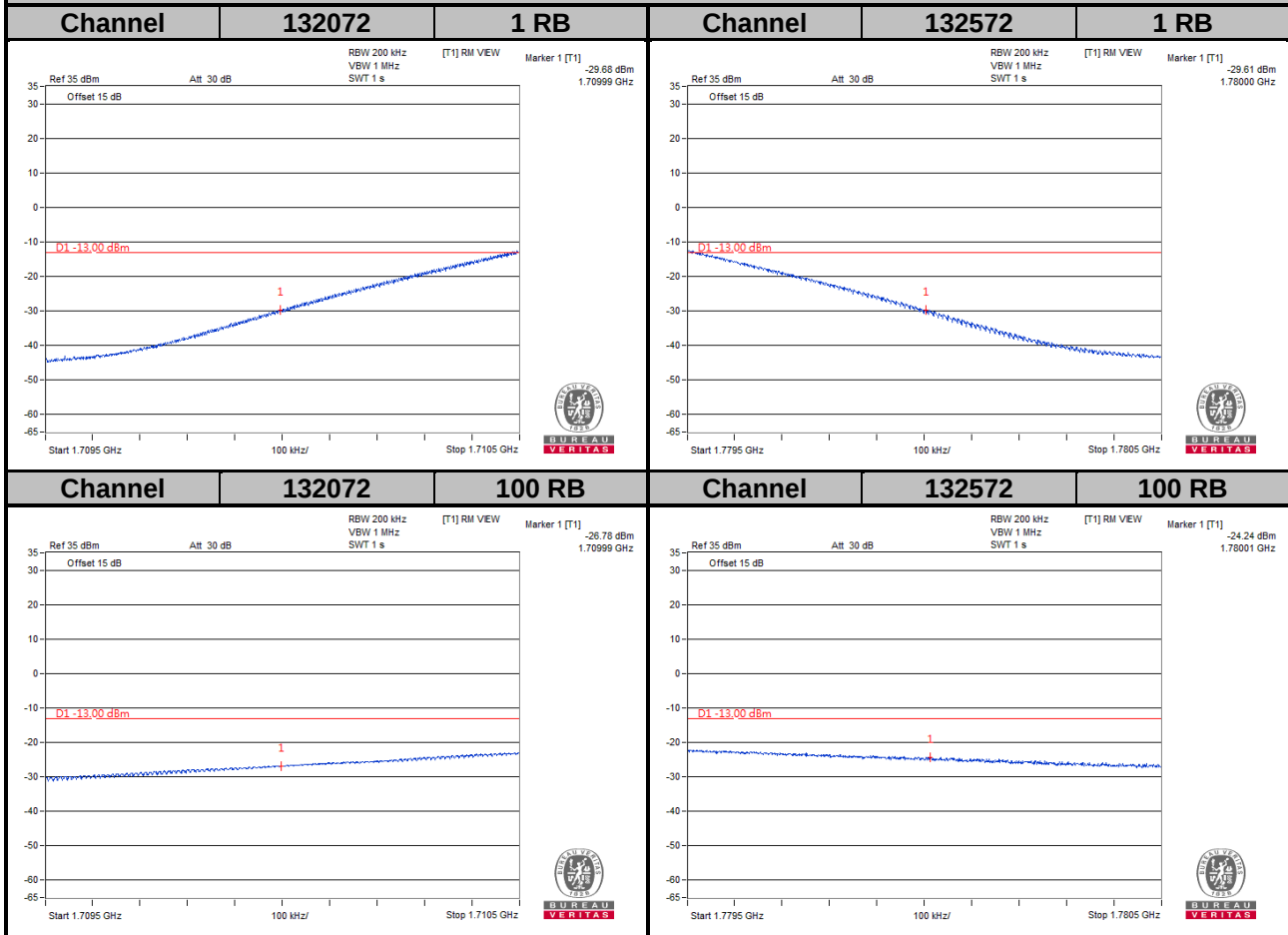
Channel Bandwidth: 10 MHz





LTE Band 66

Channel Bandwidth: 20 MHz

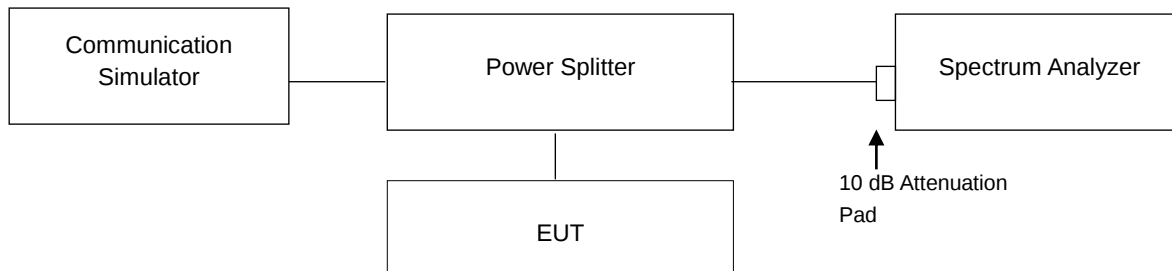


4.6 Peak to Average Ratio

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

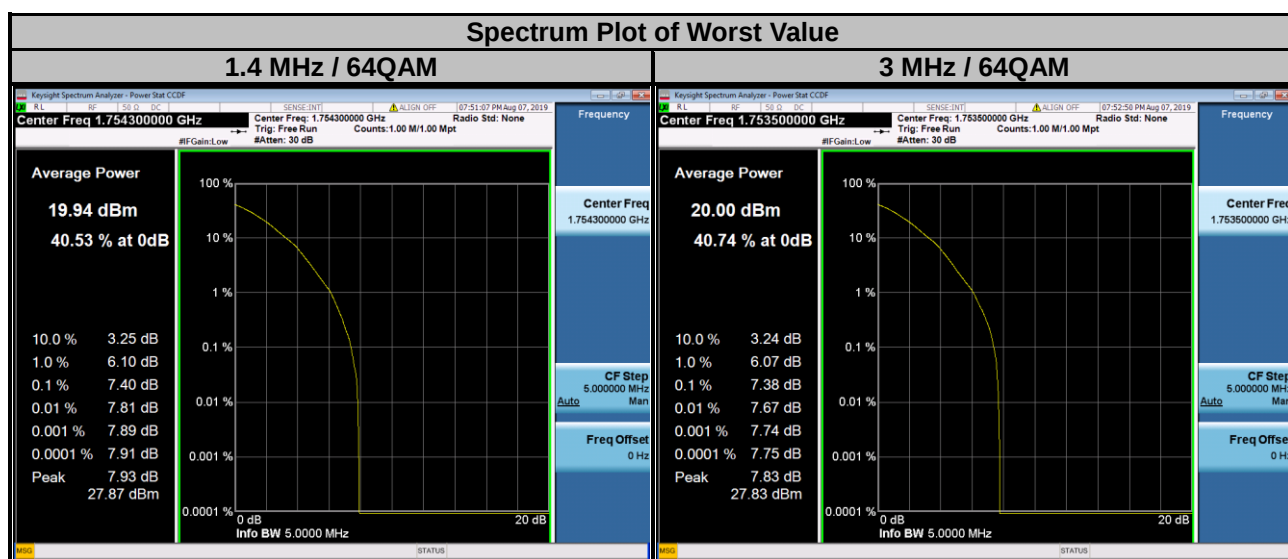


4.6.3 Test Procedures

1. Set resolution/measurement bandwidth $\geq$ 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

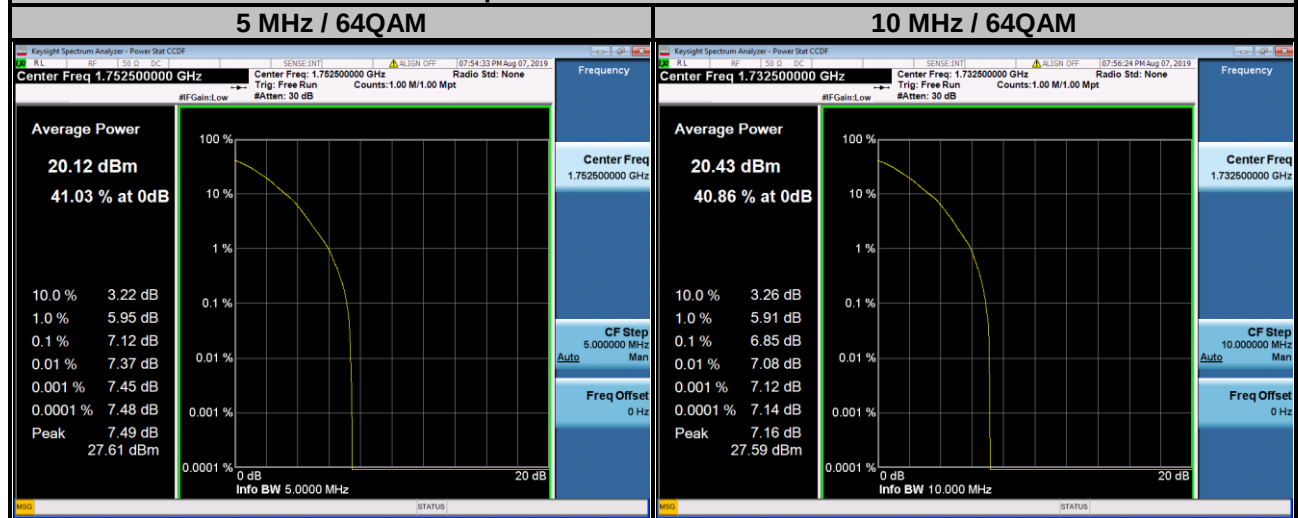
LTE Band 4									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
19957	1710.7	2.06	2.95	5.79	19965	1711.5	2.03	2.92	5.75
20175	1732.5	2.79	3.84	6.17	20175	1732.5	3.01	4.18	6.35
20393	1754.3	3.40	4.73	7.40	20385	1753.5	3.19	4.54	7.38



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	2.11	3.02	5.71	20000	1715.0	4.51	5.53	5.72
20175	1732.5	2.90	4.03	6.49	20175	1732.5	4.33	5.30	6.85
20375	1752.5	3.13	4.42	7.12	20350	1750.0	2.79	4.02	6.26

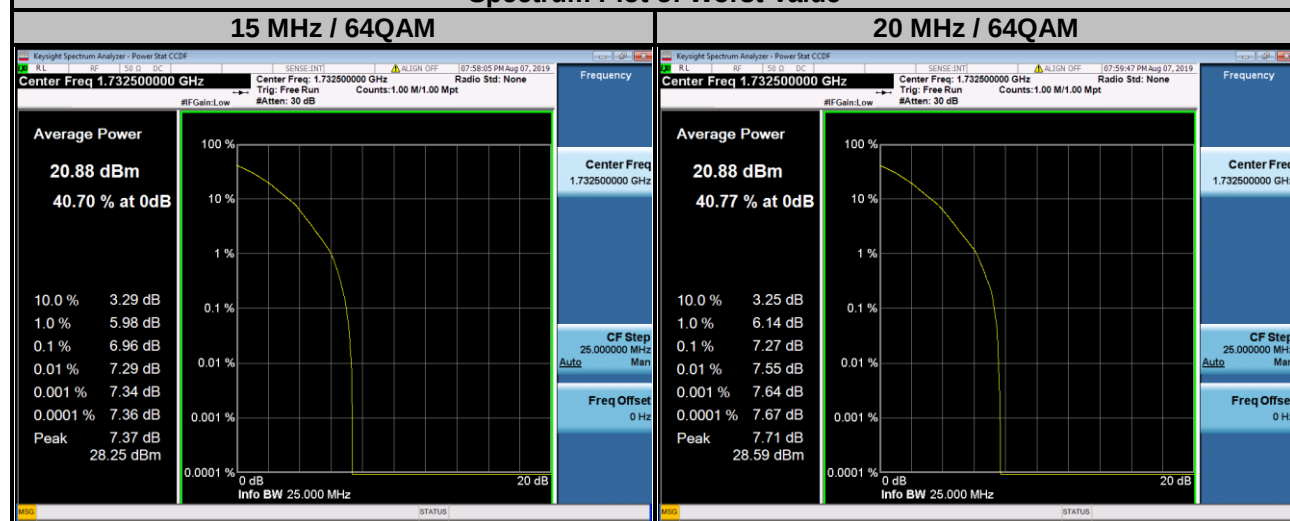
Spectrum Plot of Worst Value



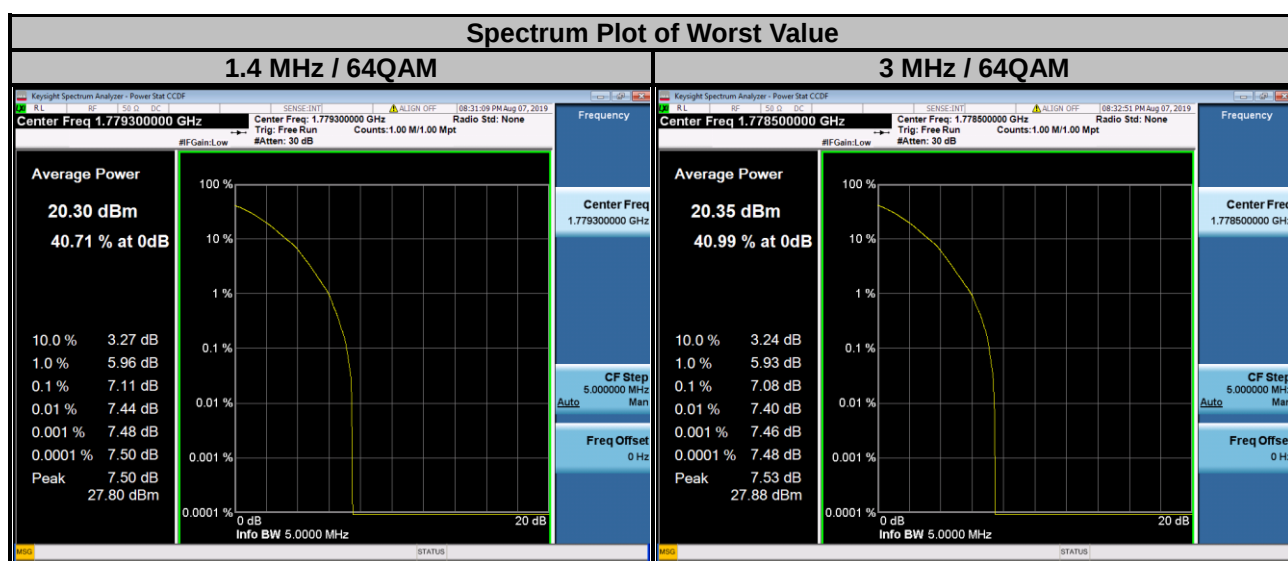
LTE Band 4

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	2.19	3.13	5.62	20050	1720.0	2.32	3.29	5.63
20175	1732.5	3.05	4.37	6.96	20175	1732.5	3.20	4.62	7.27
20325	1747.5	2.95	4.15	5.74	20300	1745.0	2.97	4.17	5.74

Spectrum Plot of Worst Value



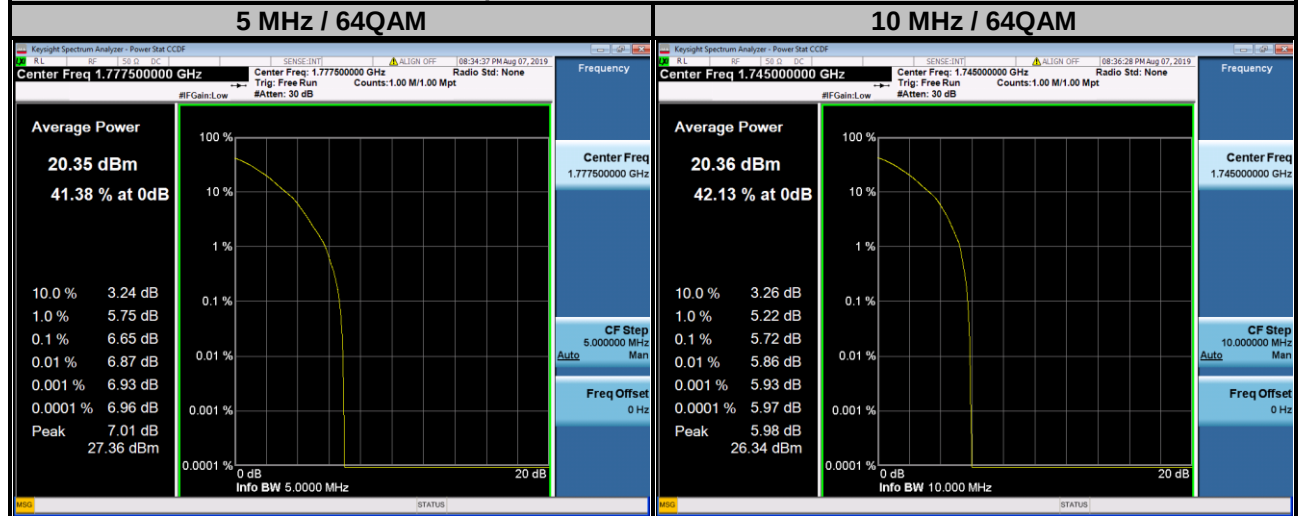
LTE Band 66									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
131979	1710.7	2.33	3.29	5.77	131987	1711.5	2.29	3.26	5.73
132322	1745.0	3.01	4.14	6.07	132322	1745.0	2.91	4.06	5.85
132665	1779.3	3.17	4.43	7.11	132657	1778.5	3.13	4.46	7.08



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	2.38	3.35	5.69	132022	1715.0	2.39	3.38	5.67
132322	1745.0	2.92	4.07	5.94	132322	1745.0	2.74	3.82	5.72
132647	1777.5	3.21	4.51	6.65	132622	1775.0	2.45	3.42	5.33

Spectrum Plot of Worst Value

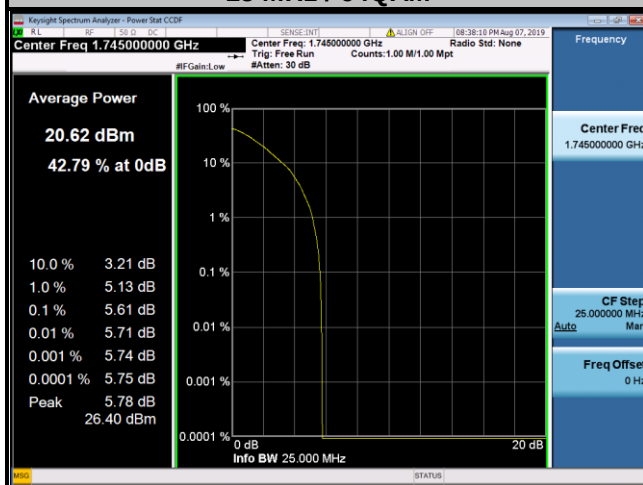


LTE Band 66

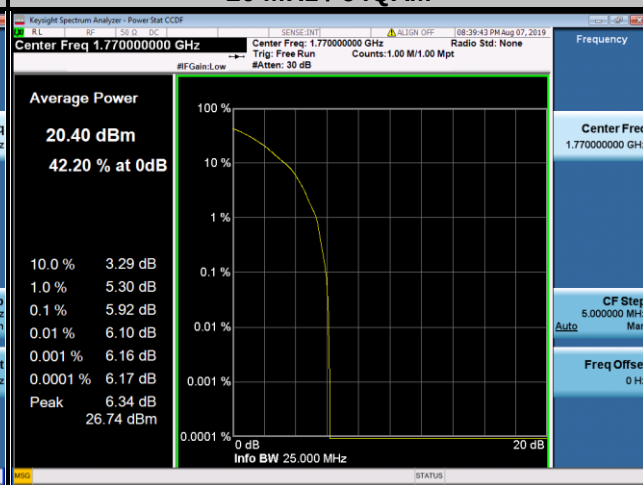
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
132047	1717.5	2.43	3.49	5.54	132072	1720.0	2.50	3.57	5.63
132322	1745.0	2.66	3.74	5.61	132322	1745.0	2.67	3.82	5.69
132597	1772.5	2.22	3.17	5.25	132572	1770.0	2.62	3.75	5.92

Spectrum Plot of Worst Value

15 MHz / 64QAM



20 MHz / 64QAM

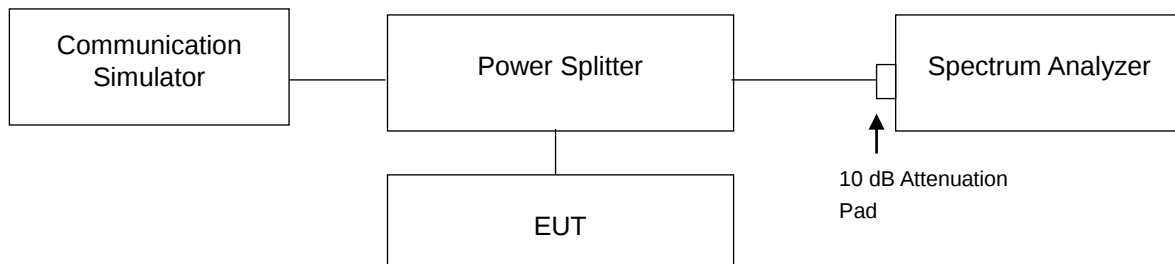


4.7 Conducted Spurious Emissions

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.

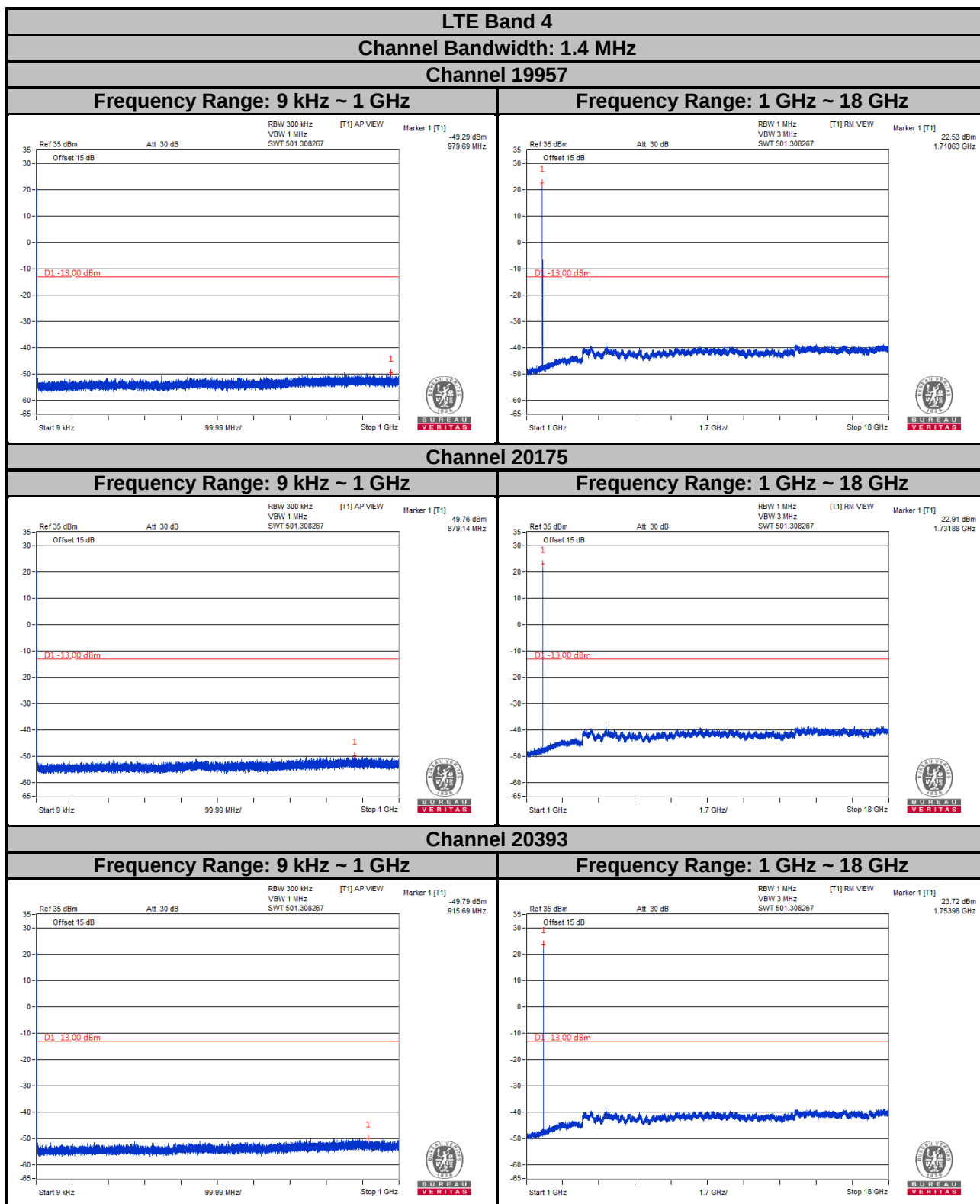
4.7.2 Test Setup



4.7.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 300 kHz and VBW = 1 MHz is used for conducted emission measurement.
- Measuring frequency range is from 1 GHz to 18 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.
- Spectrum RBW settings are referenced to ANSI C63.26 section 5.7.2.

4.7.4 Test Results



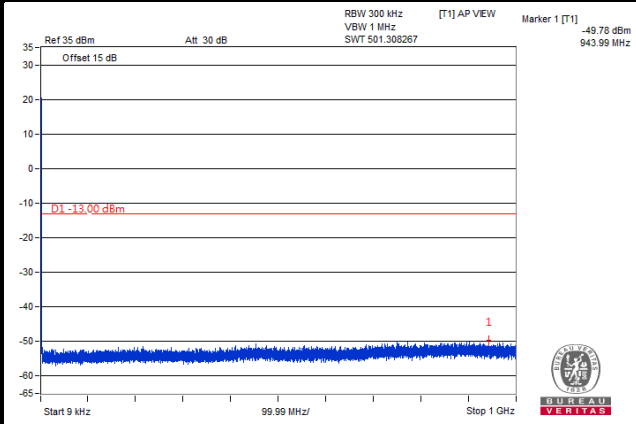
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 4

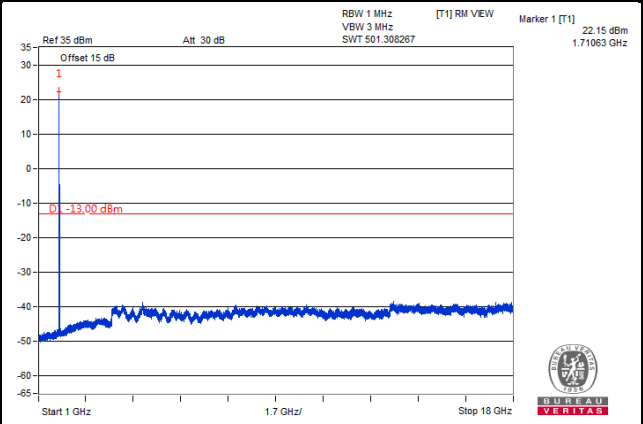
Channel Bandwidth: 3 MHz

Channel 19965

Frequency Range: 9 kHz ~ 1 GHz

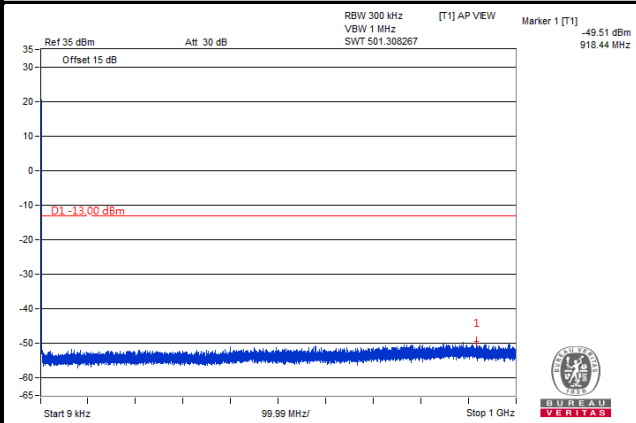


Frequency Range: 1 GHz ~ 18 GHz

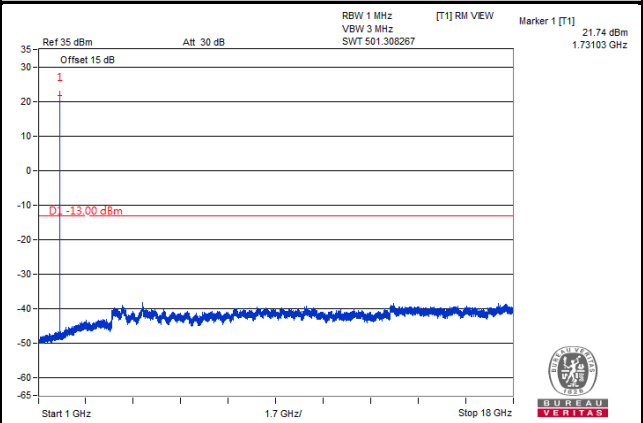


Channel 19175

Frequency Range: 9 kHz ~ 1 GHz

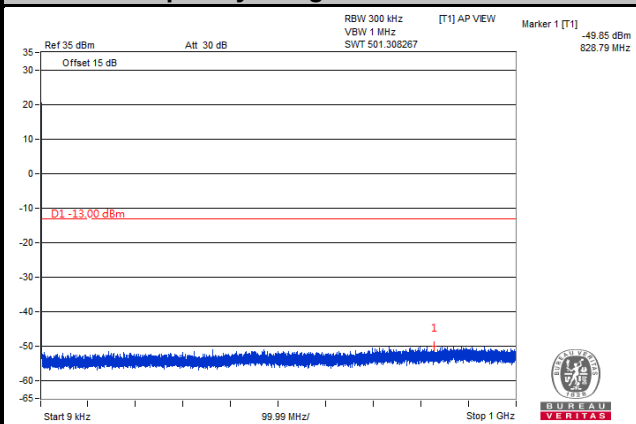


Frequency Range: 1 GHz ~ 18 GHz

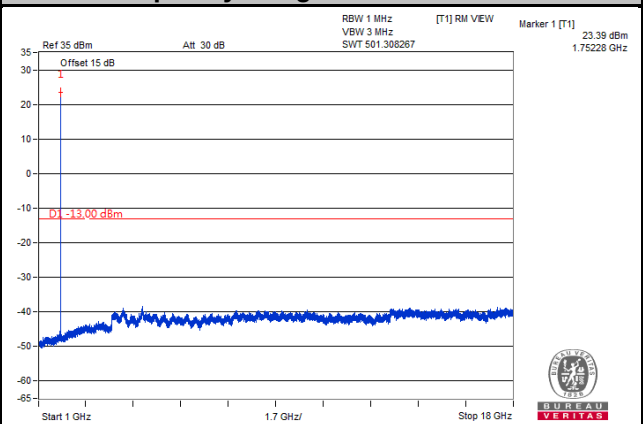


Channel 20385

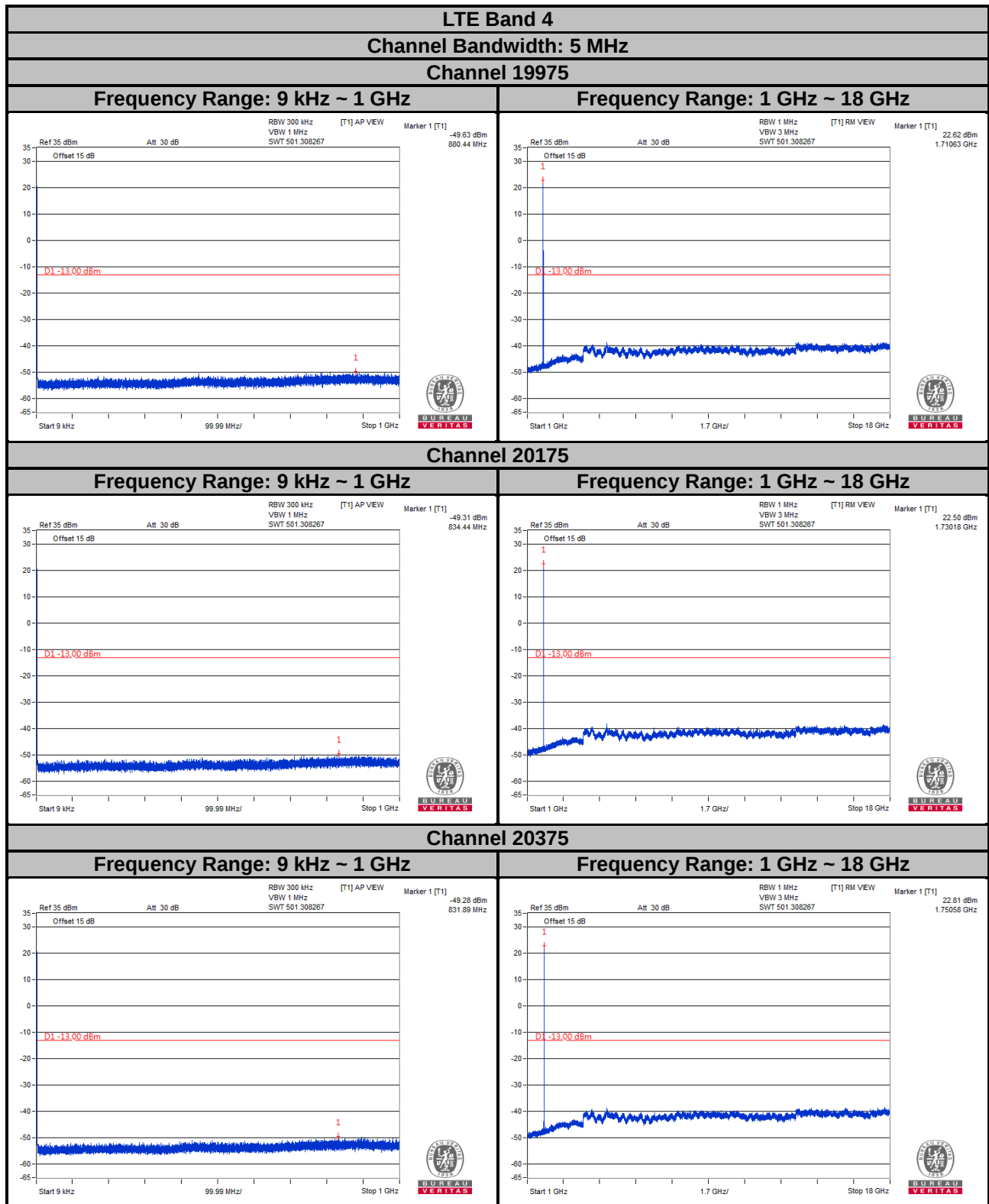
Frequency Range: 9 kHz ~ 1 GHz



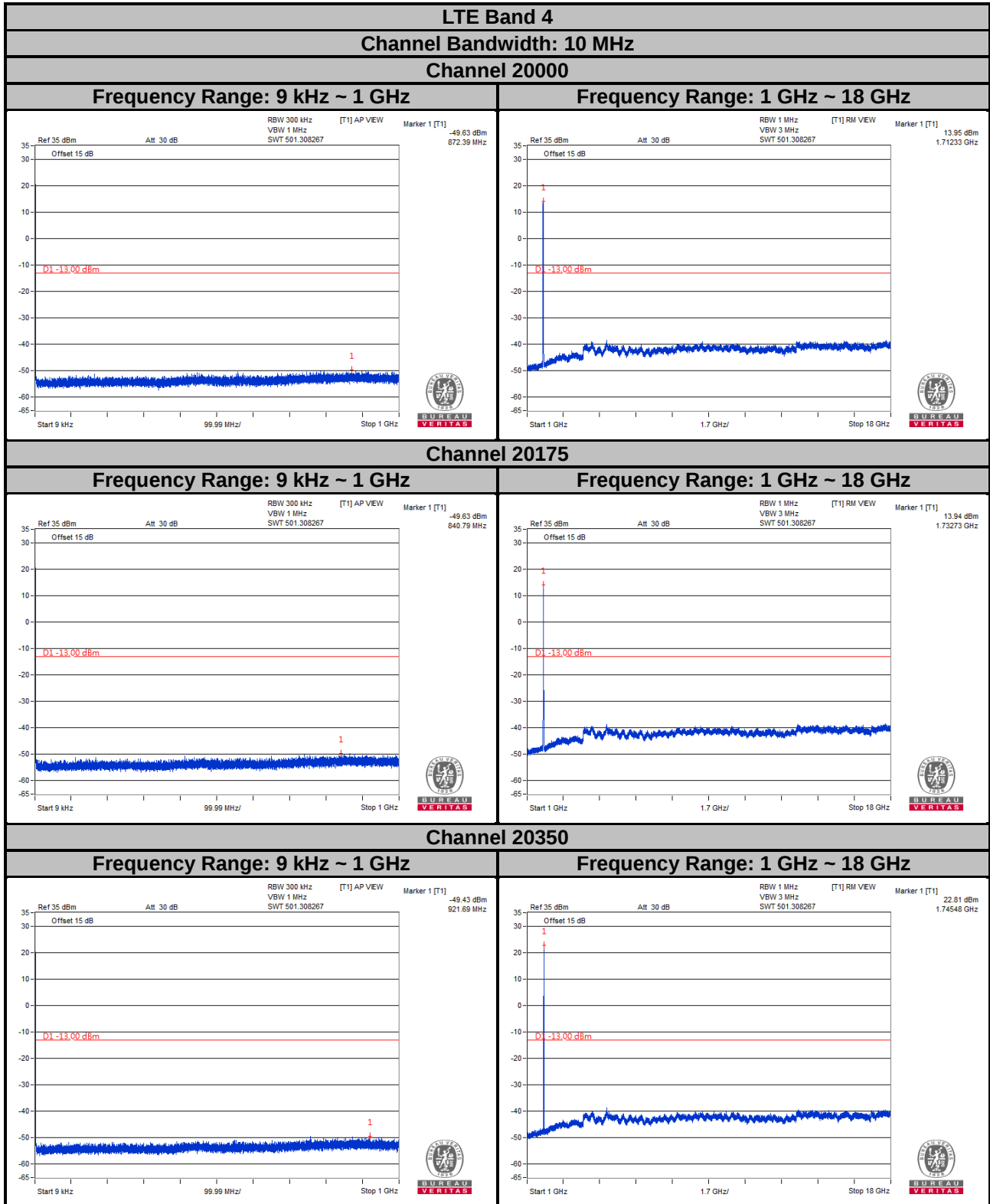
Frequency Range: 1 GHz ~ 18 GHz



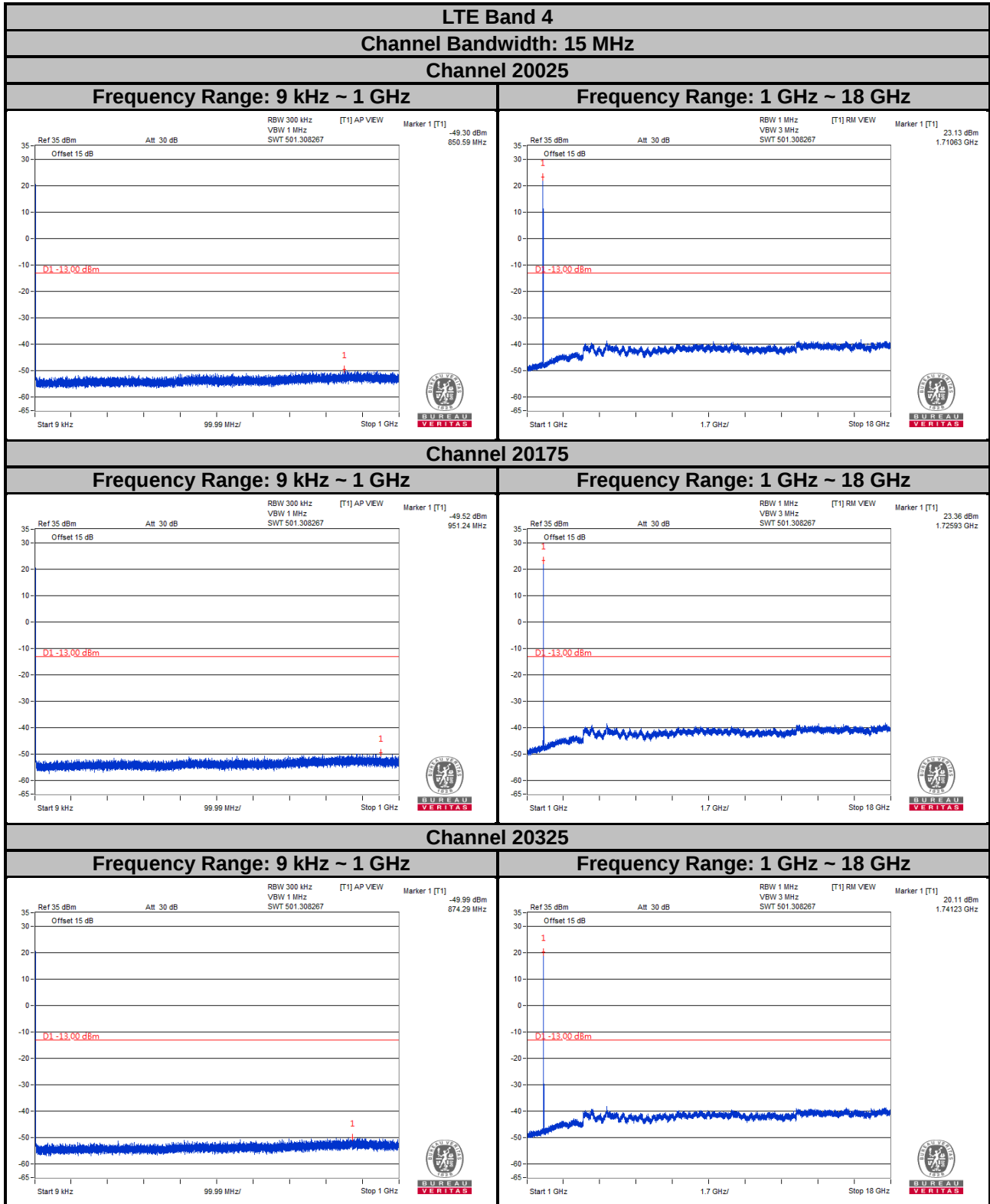
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



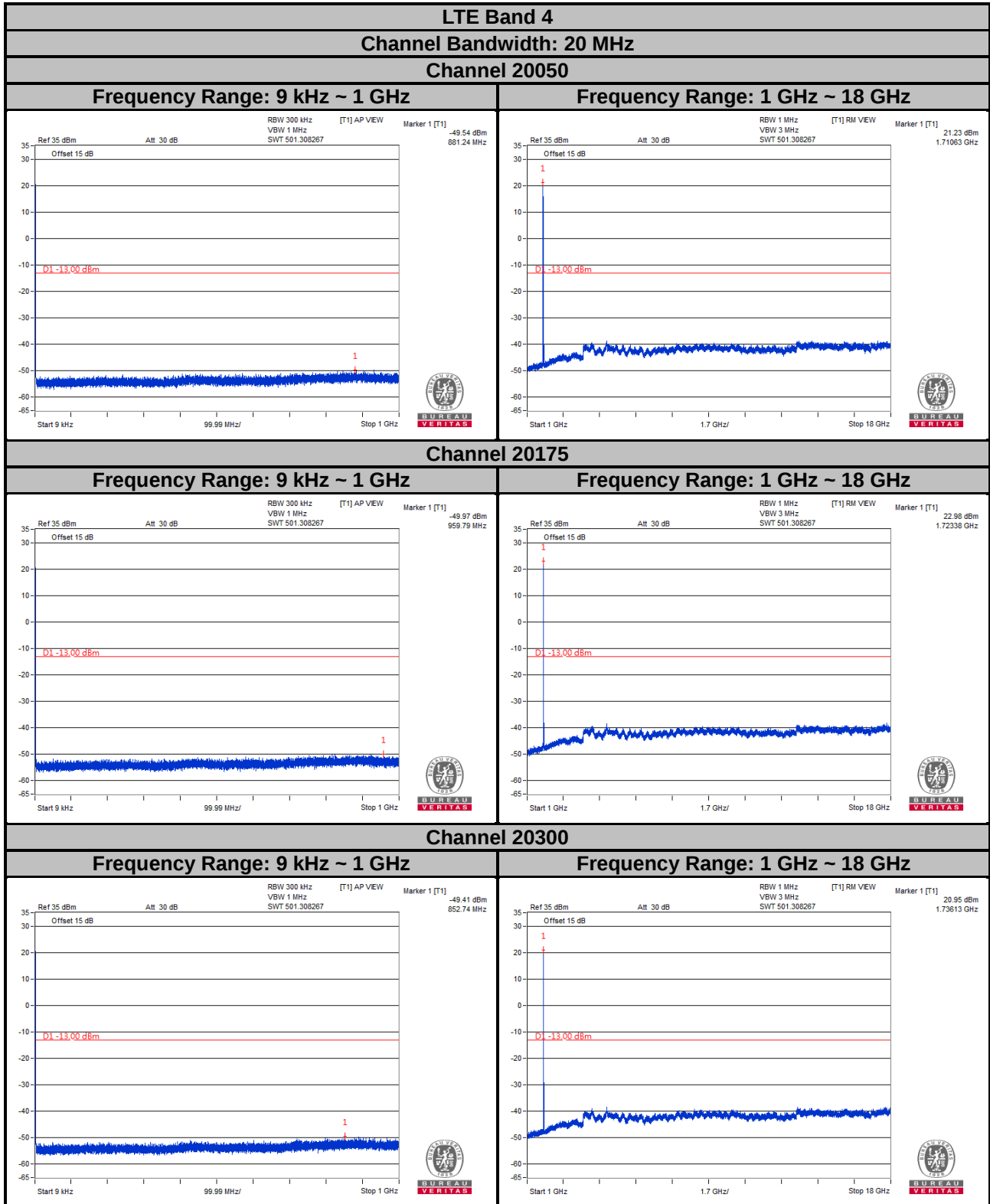
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



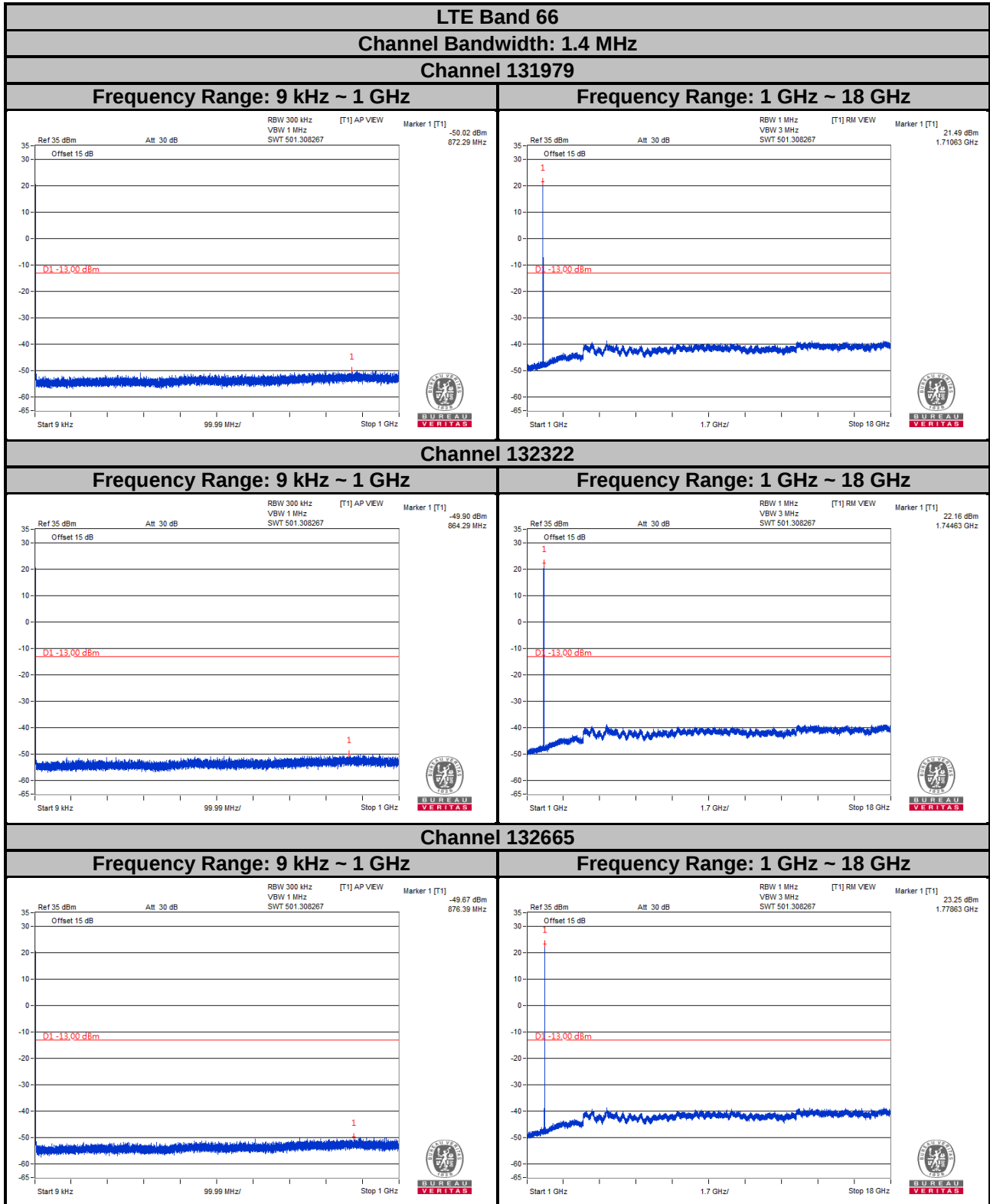
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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



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



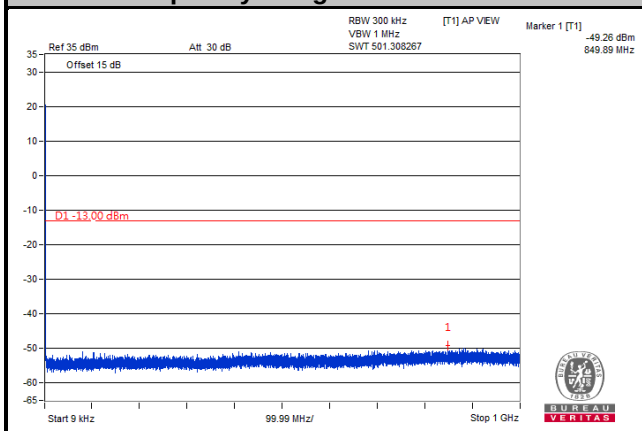
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 66

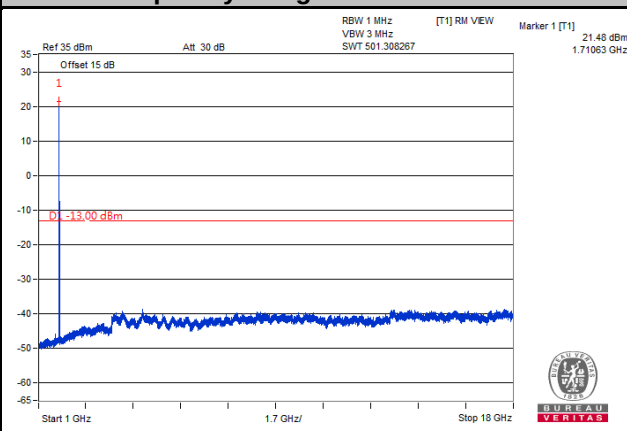
Channel Bandwidth: 3 MHz

Channel 131987

Frequency Range: 9 kHz ~ 1 GHz

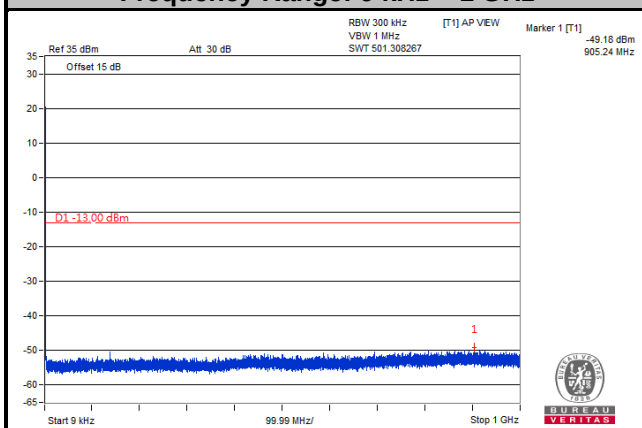


Frequency Range: 1 GHz ~ 18 GHz

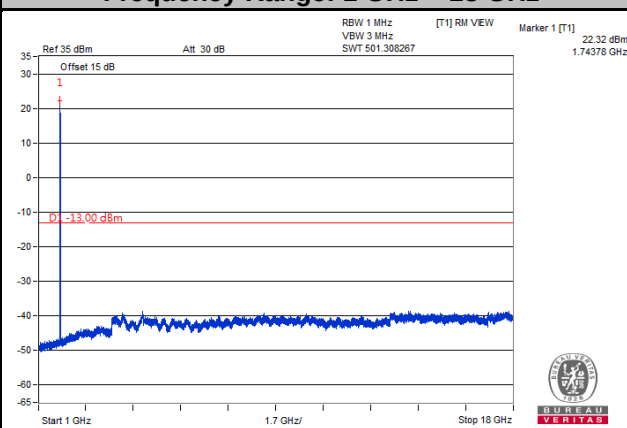


Channel 132322

Frequency Range: 9 kHz ~ 1 GHz

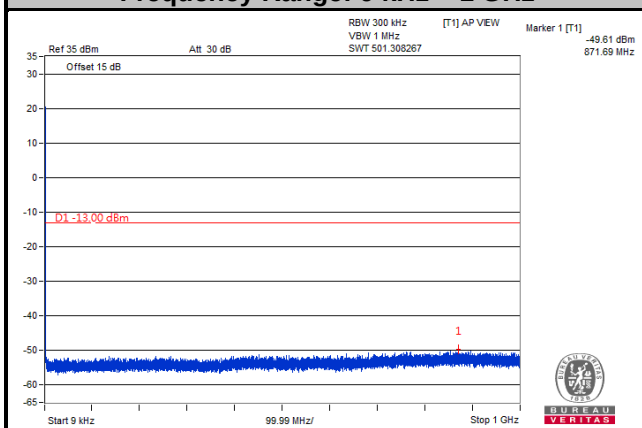


Frequency Range: 1 GHz ~ 18 GHz

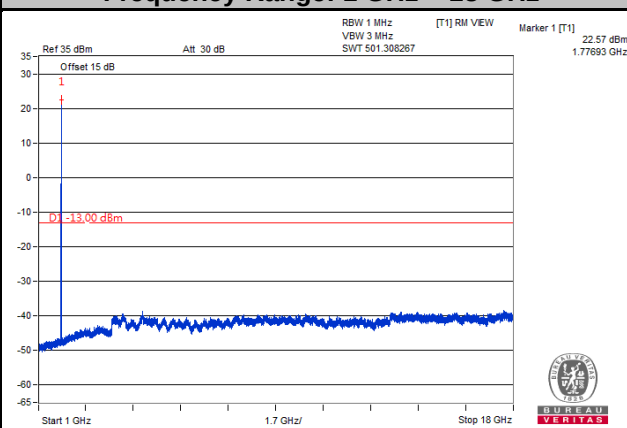


Channel 132657

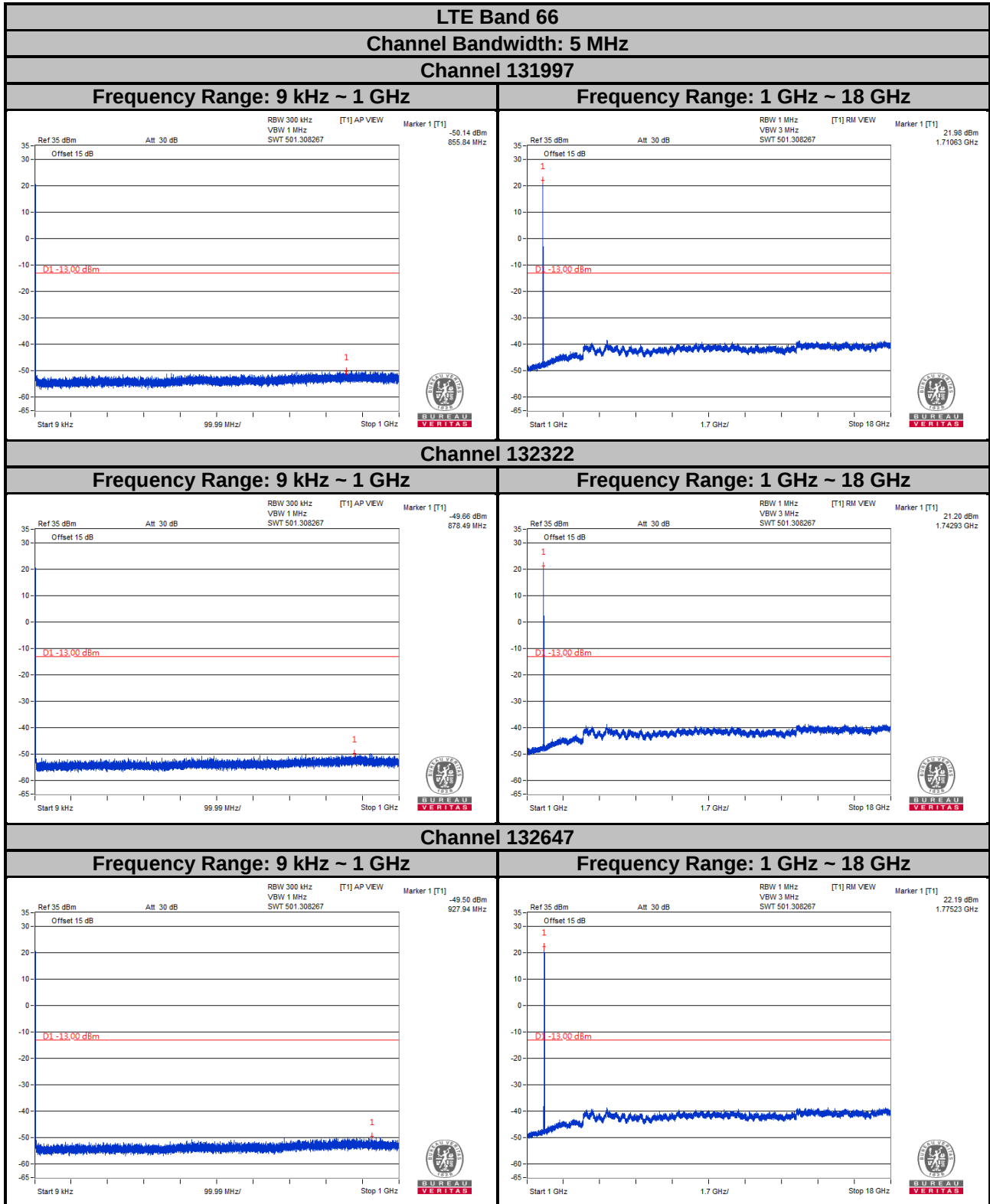
Frequency Range: 9 kHz ~ 1 GHz



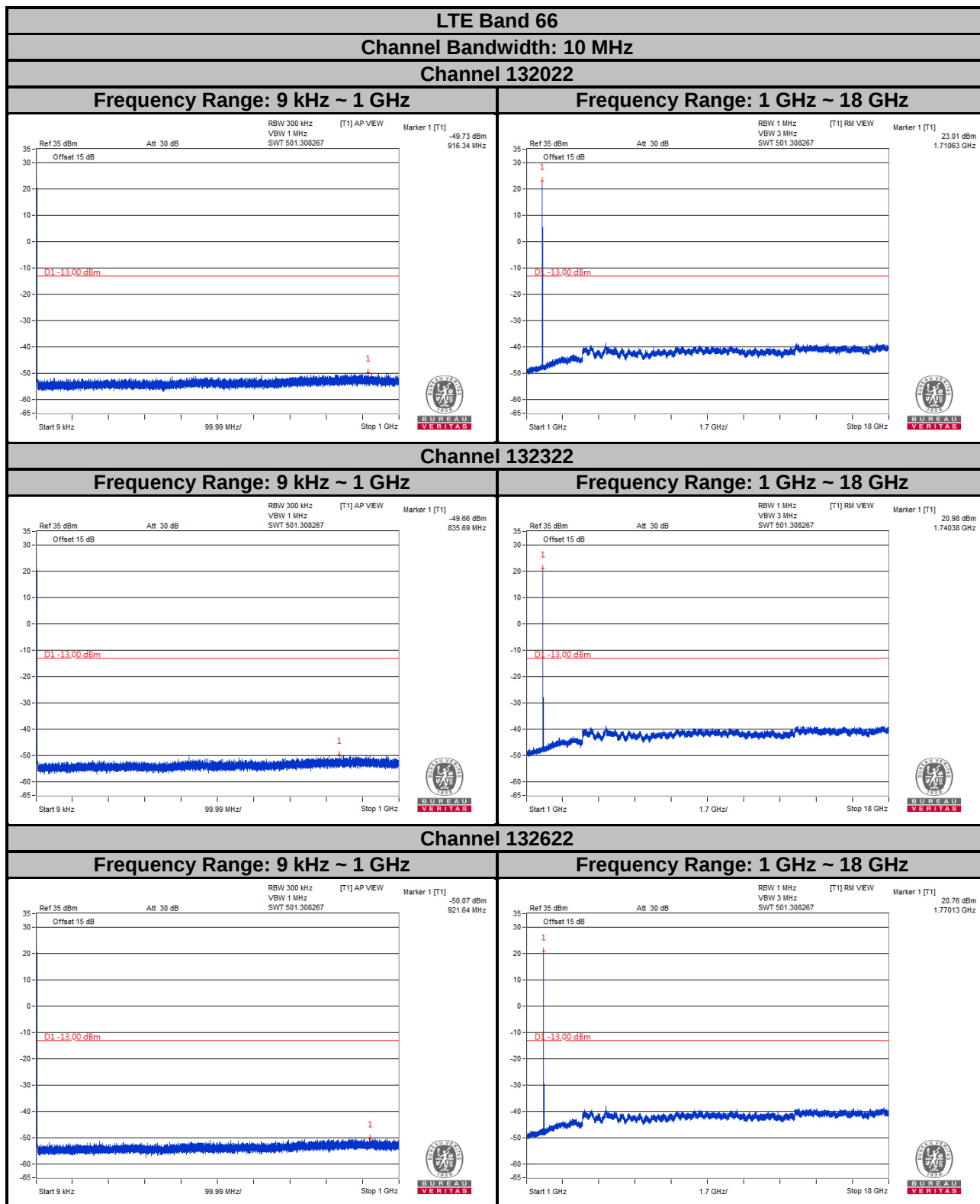
Frequency Range: 1 GHz ~ 18 GHz



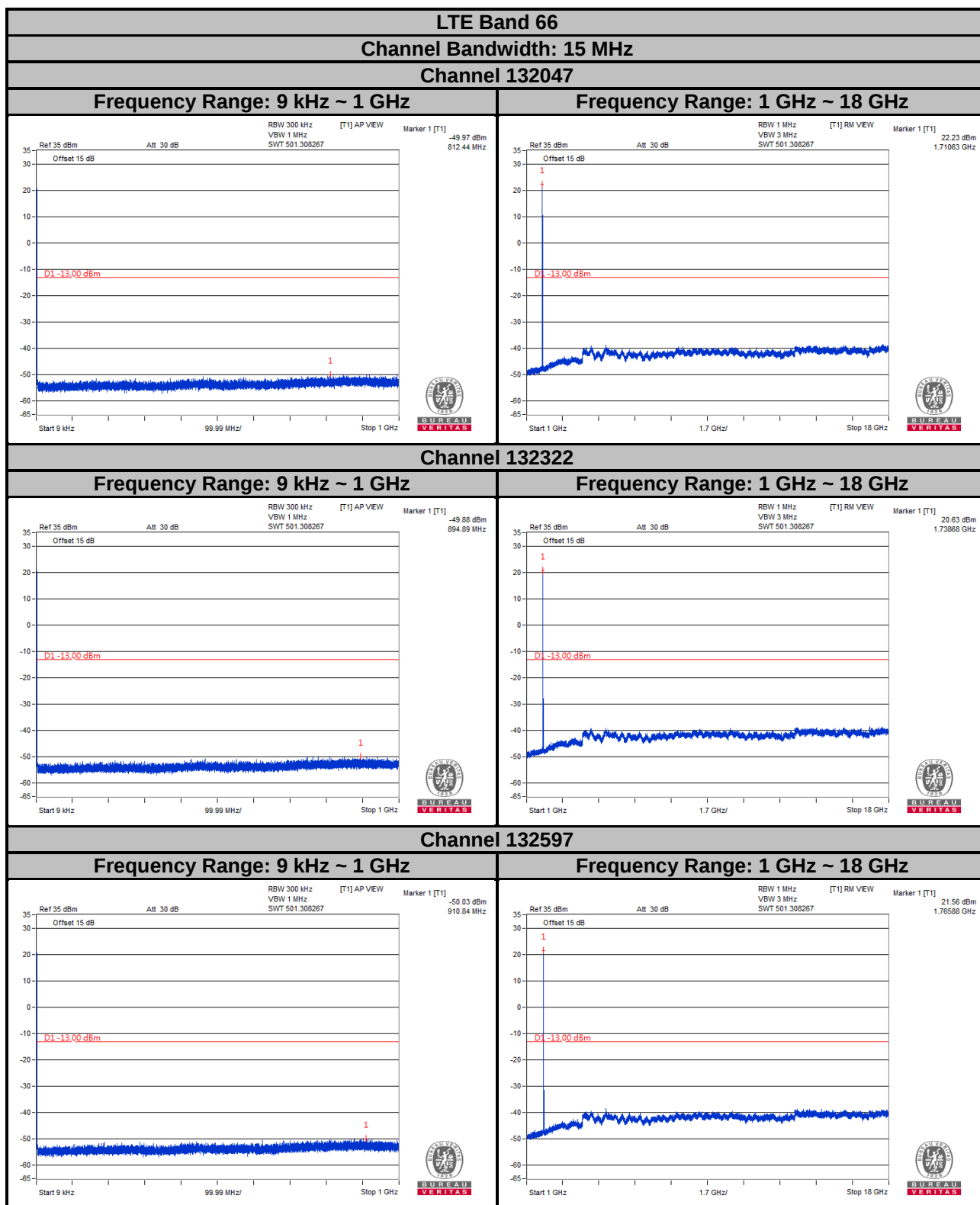
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



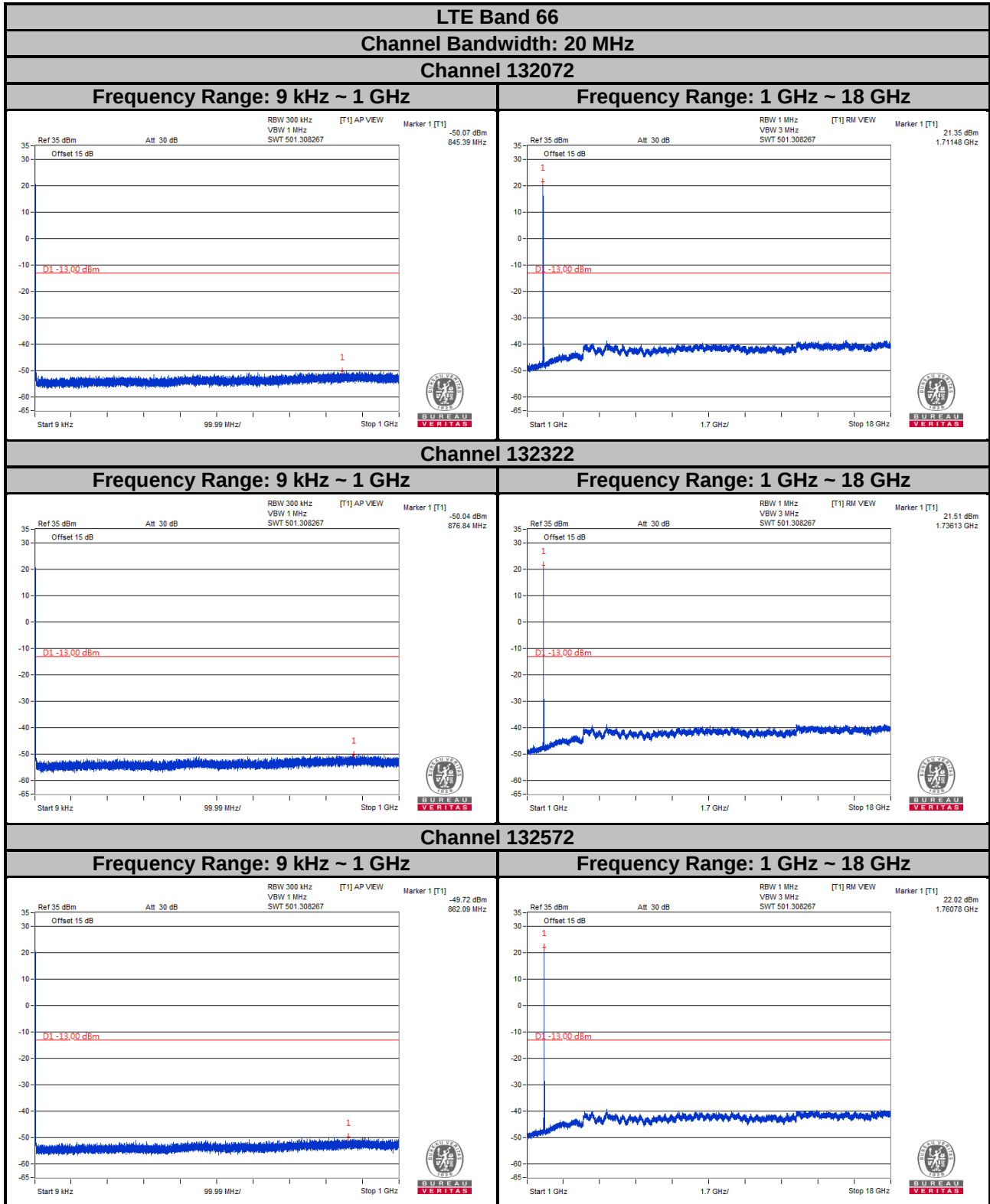
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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



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



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

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

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

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

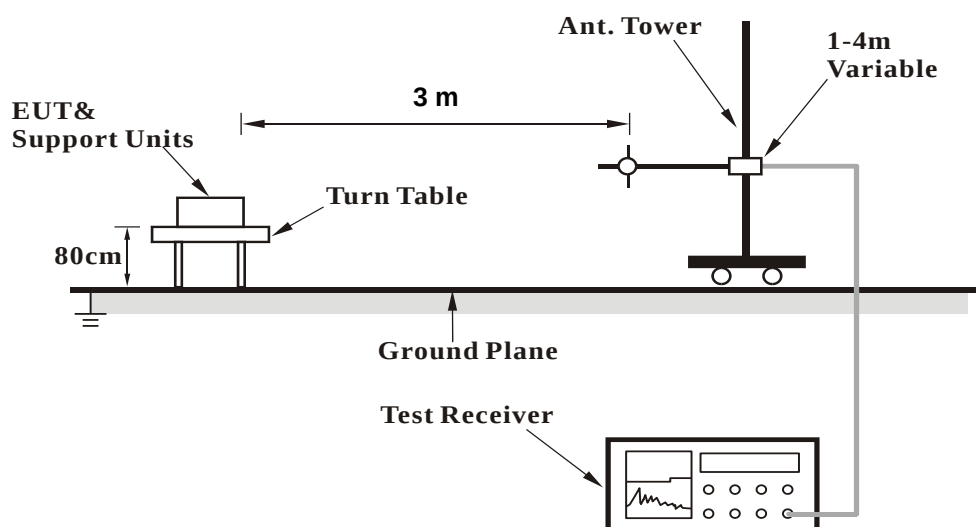
Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.8.3 Deviation from Test Standard

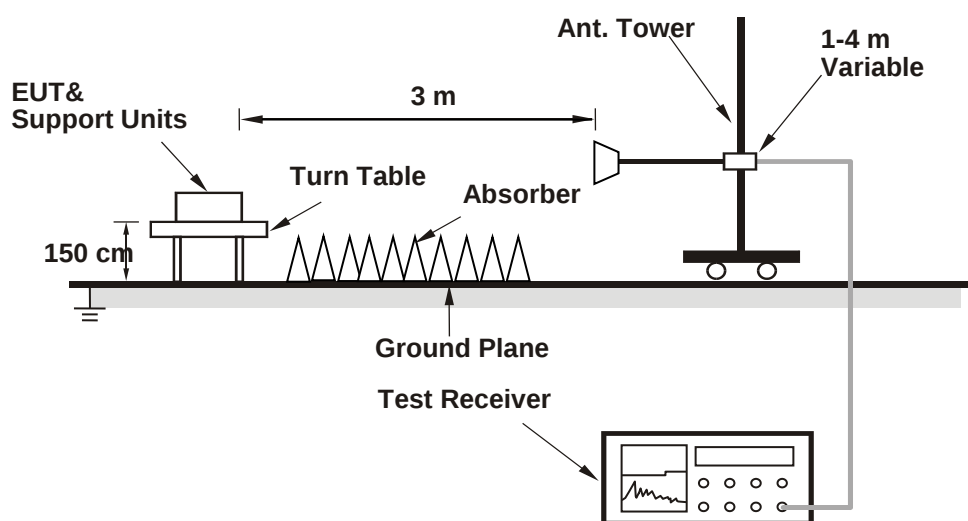
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.8.5 Test Results

LTE Band 4

Channel Bandwidth: 1.4 MHz / QPSK

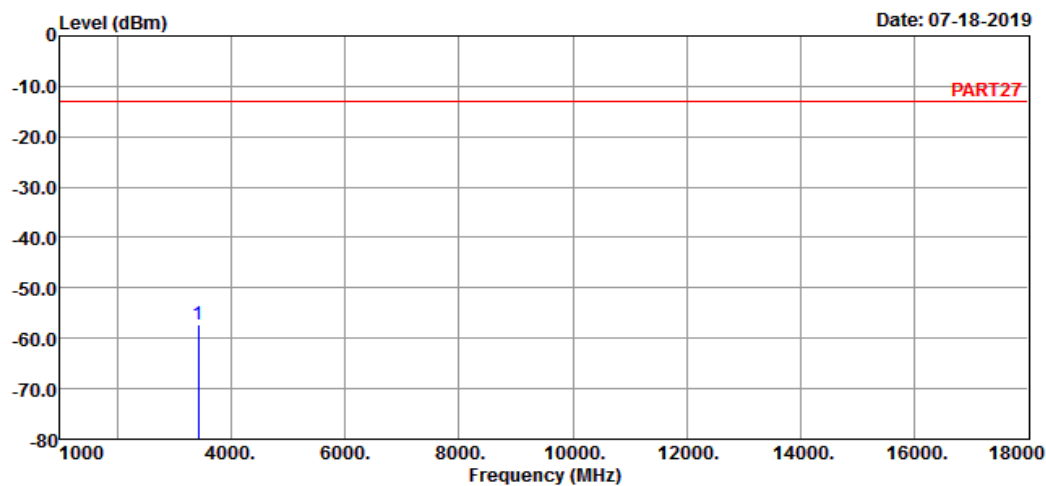
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 4 QPSK_1.4M Link_L-CH

Tested by: Getaz Yang

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

1 pp 3421.40 -57.14 -48.80 -13.00 -8.34 -44.14 Peak

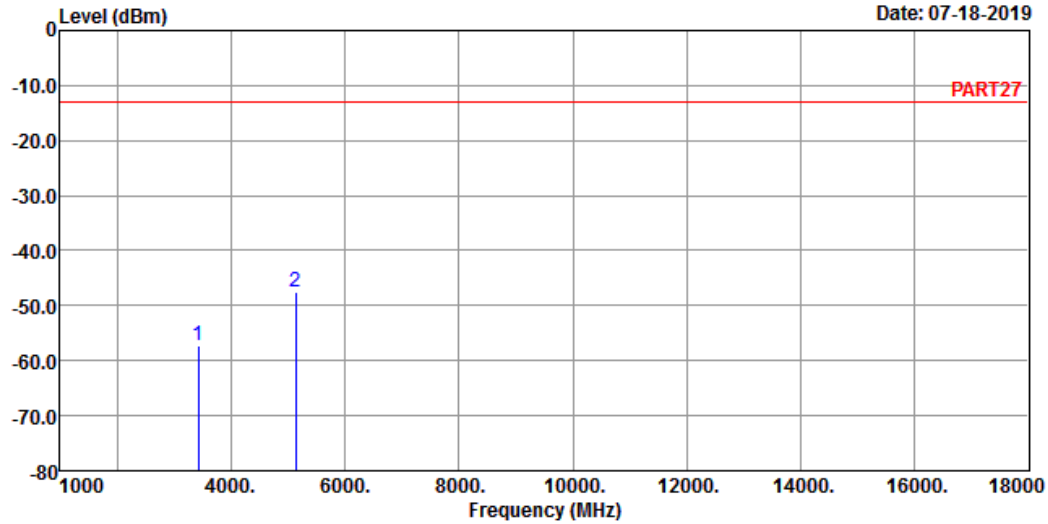


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A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_1.4M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1	3421.40	-57.26	-48.92	-13.00	-8.34	-44.26 Peak
2 pp	5132.10	-47.65	-45.91	-13.00	-1.74	-34.65 Peak

Middle Channel

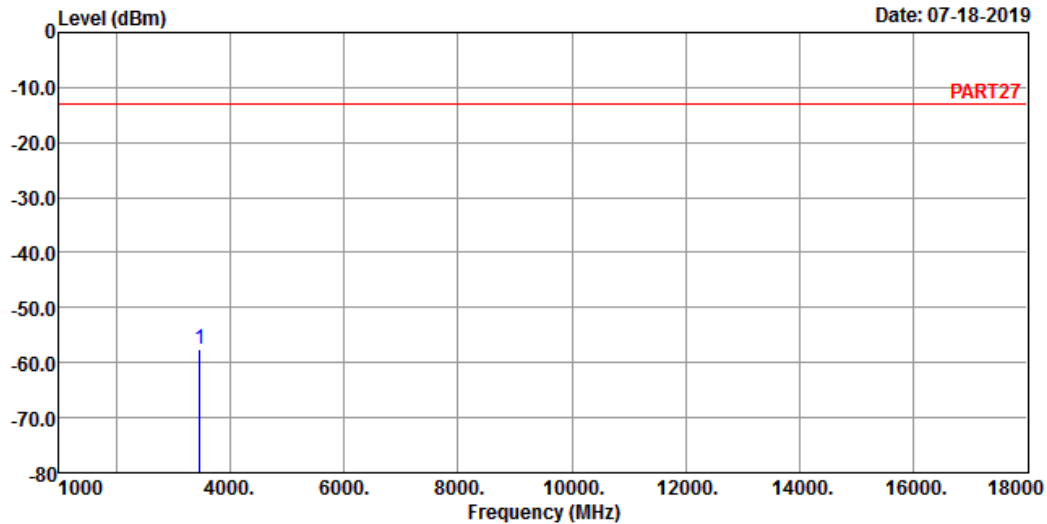


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Data: 3

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 4 QPSK_1.4M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3465.00 -57.66 -49.78 -13.00 -7.88 -44.66 Peak

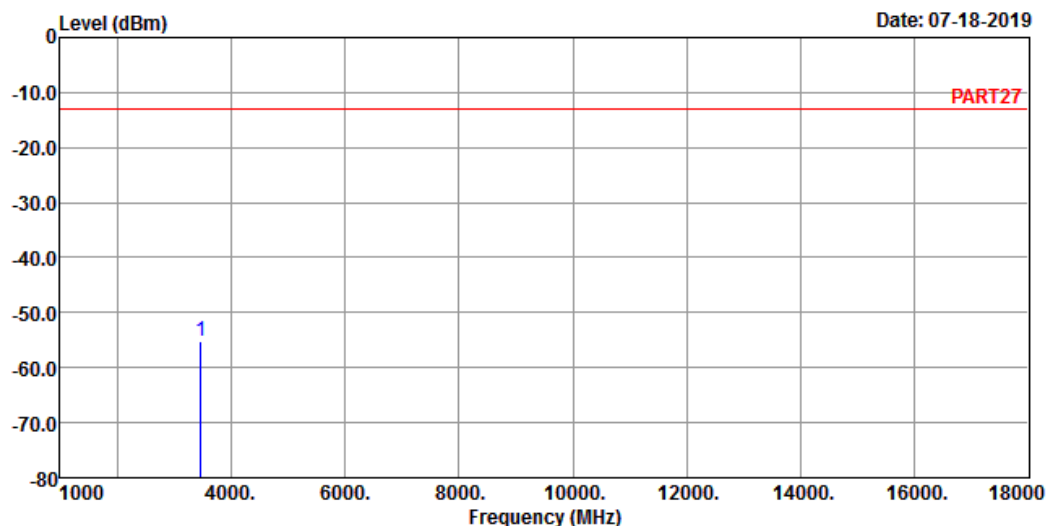


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Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_1.4M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3465.00 -55.21 -47.33 -13.00 -7.88 -42.21 Peak

High Channel

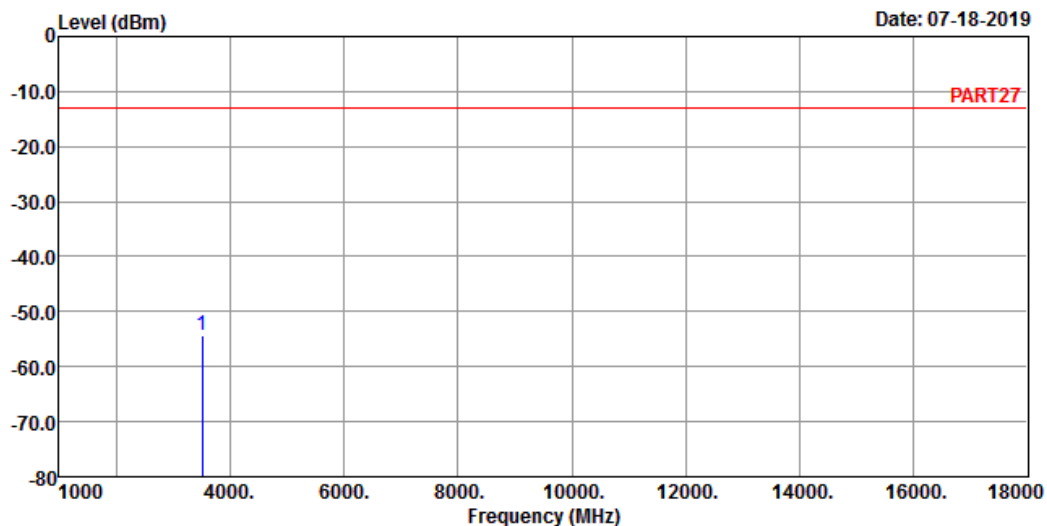


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Data: 3

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 4 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

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

1 pp 3508.60 -54.33 -46.88 -13.00 -7.45 -41.33 Peak

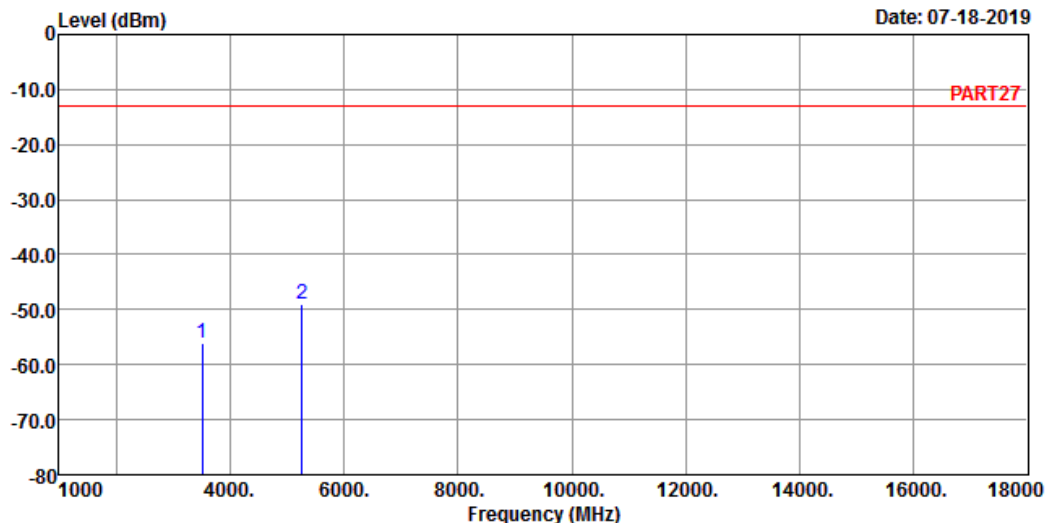


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Line Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3508.60	-56.22	-48.77	-13.00	-7.45	-43.22	Peak
2 pp	5262.90	-49.11	-46.59	-13.00	-2.52	-36.11	Peak

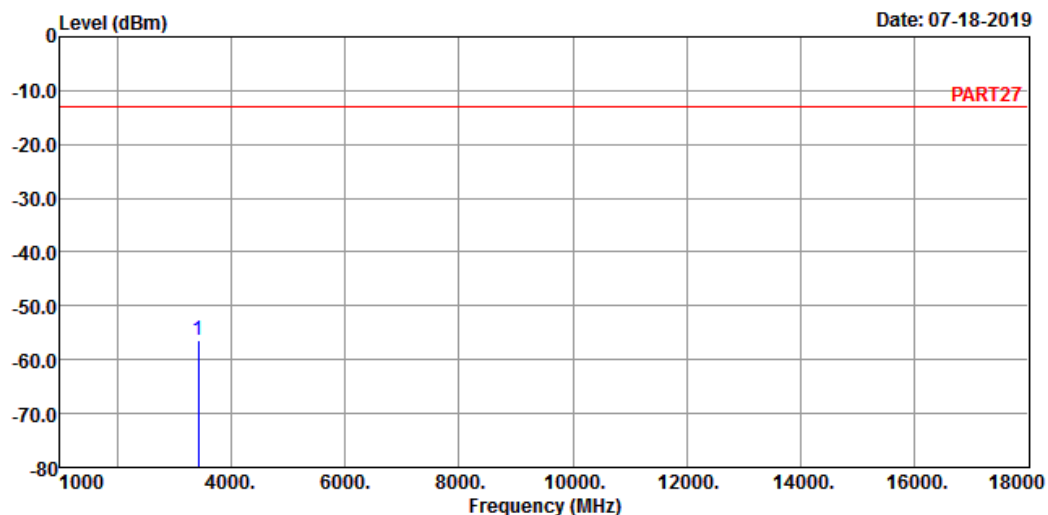
Channel Bandwidth: 5 MHz / QPSK
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



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

Freq	Level	Read Level	Limit	Over	Remark
MHz	dBm	dBm	dBm	dB	
1 pp 3425.00	-56.27	-47.93	-13.00	-8.34 -43.27	Peak

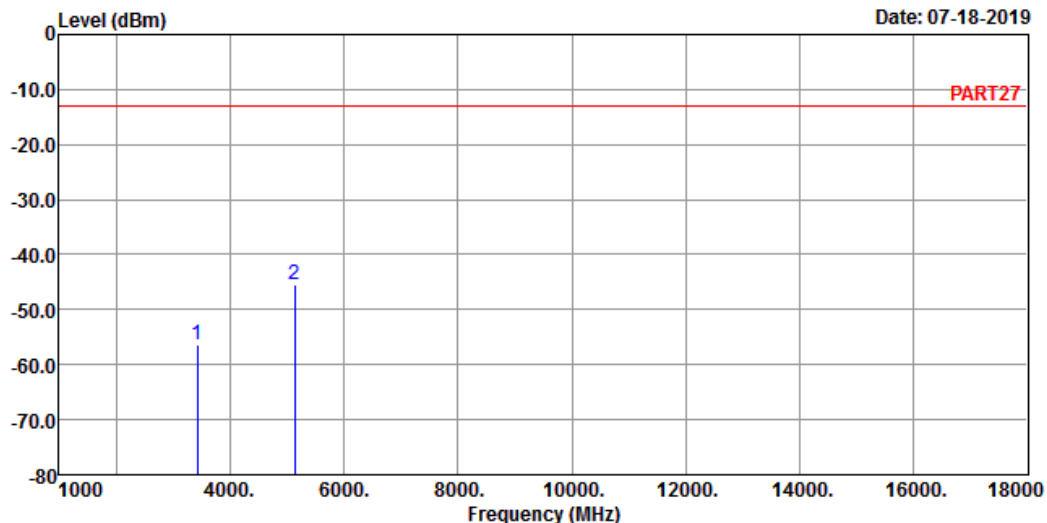


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A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_5M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Line Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3425.00	-56.43	-48.09	-13.00	-8.34	-43.43	Peak
2 pp	5137.50	-45.51	-43.77	-13.00	-1.74	-32.51	Peak

Middle Channel

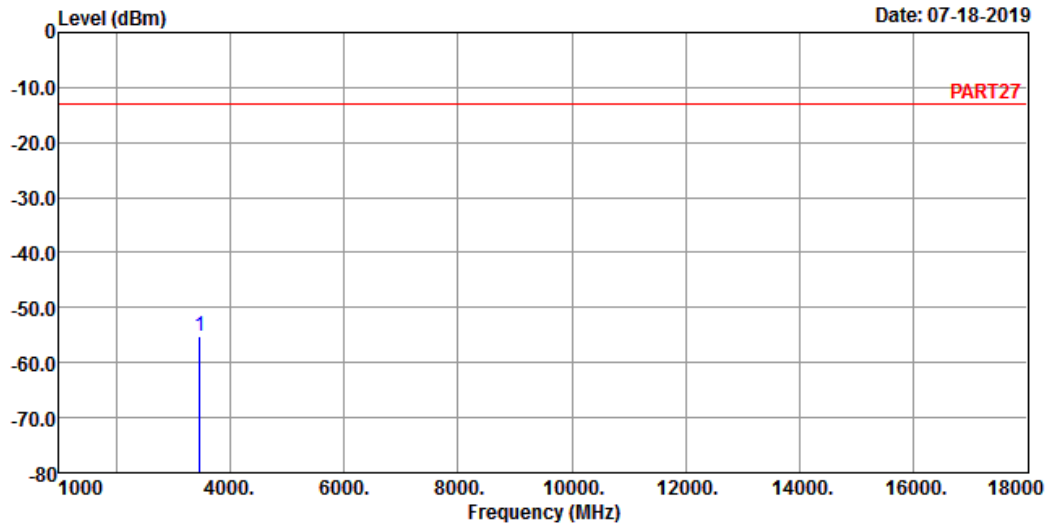


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 3

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 4 QPSK_5M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3465.00 -55.19 -47.31 -13.00 -7.88 -42.19 Peak

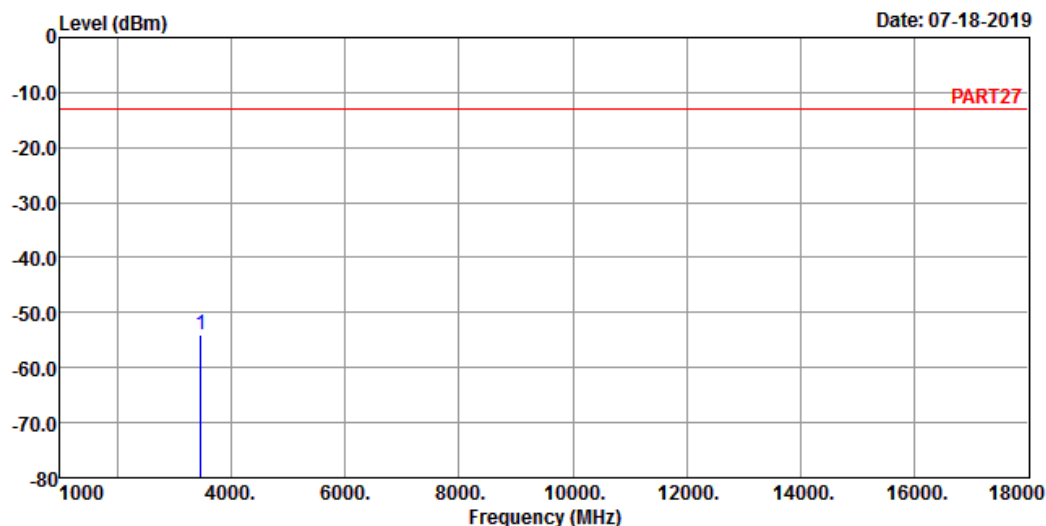


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A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_5M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3465.00 -53.92 -46.04 -13.00 -7.88 -40.92 Peak

High Channel

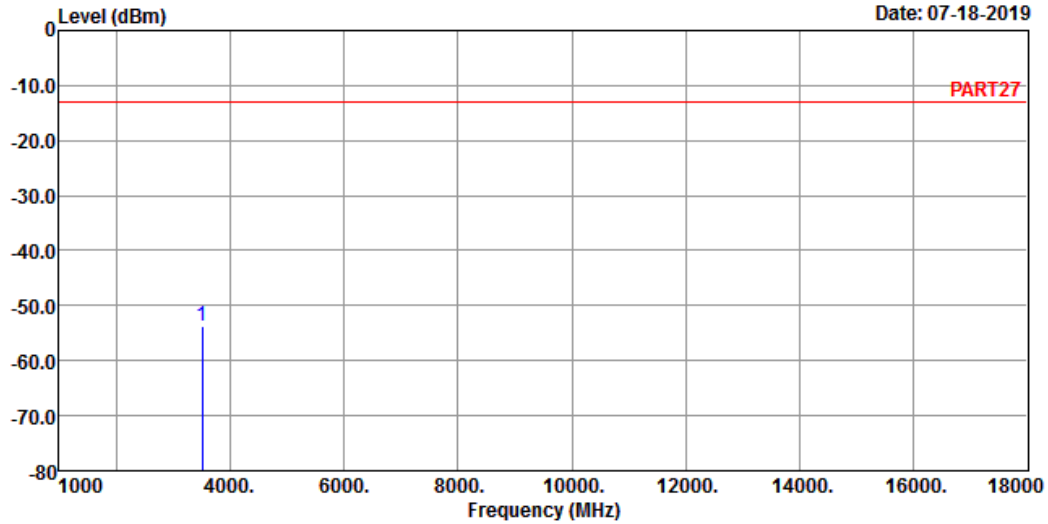


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 4 QPSK_5M Link_H-CH

Tested by: Getaz Yang

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

1 pp 3505.00 -53.73 -46.28 -13.00 -7.45 -40.73 Peak

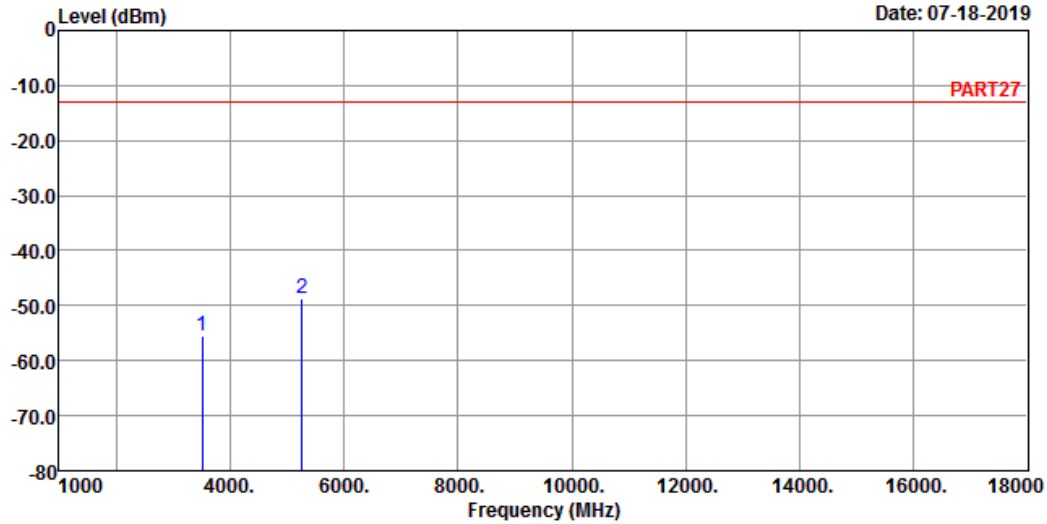


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_5M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Line Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3505.00	-55.42	-47.97	-13.00	-7.45	-42.42	Peak
2 pp	5257.50	-48.71	-46.19	-13.00	-2.52	-35.71	Peak

Channel Bandwidth: 20 MHz / QPSK
Low Channel

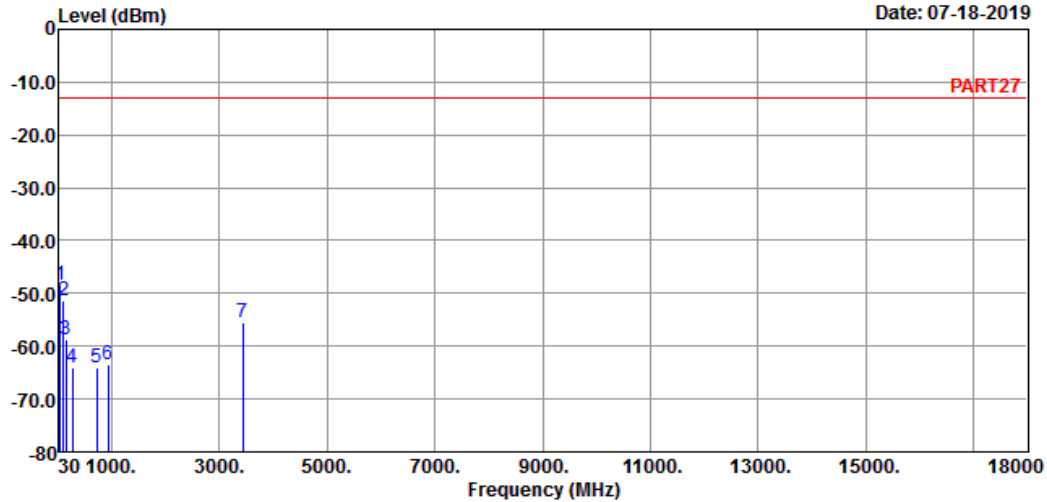


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 07-18-2019



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

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Remark
			dBm	dBm	dB	
1 pp	43.58	-48.32	-46.85	-13.00	-1.47	-35.32 Peak
2	104.69	-51.22	-40.78	-13.00	-10.44	-38.22 Peak
3	161.92	-58.87	-53.89	-13.00	-4.98	-45.87 Peak
4	276.38	-63.99	-57.46	-13.00	-6.53	-50.99 Peak
5	721.61	-64.11	-64.43	-13.00	0.32	-51.11 Peak
6	938.89	-63.52	-65.05	-13.00	1.53	-50.52 Peak
7	3440.00	-55.41	-47.19	-13.00	-8.22	-42.41 Peak

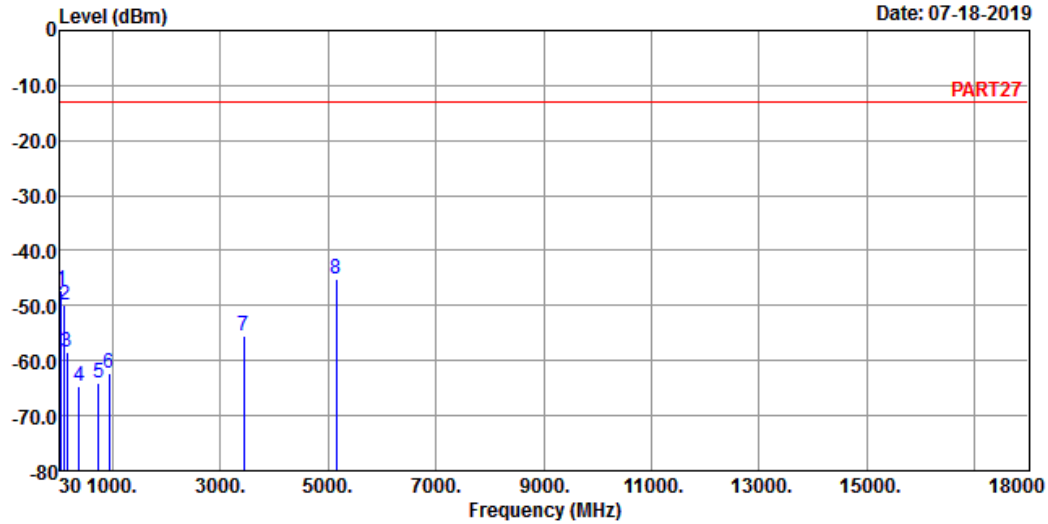


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_20M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.58	-47.13	-45.66	-13.00	-1.47	-34.13	Peak
2	105.66	-49.85	-39.43	-13.00	-10.42	-36.85	Peak
3	156.10	-58.42	-52.48	-13.00	-5.94	-45.42	Peak
4	385.99	-64.56	-58.53	-13.00	-6.03	-51.56	Peak
5	741.01	-64.17	-64.88	-13.00	0.71	-51.17	Peak
6	943.74	-62.32	-63.97	-13.00	1.65	-49.32	Peak
7	3440.00	-55.47	-47.25	-13.00	-8.22	-42.47	Peak
8 pp	5160.00	-45.20	-43.29	-13.00	-1.91	-32.20	Peak

Middle Channel

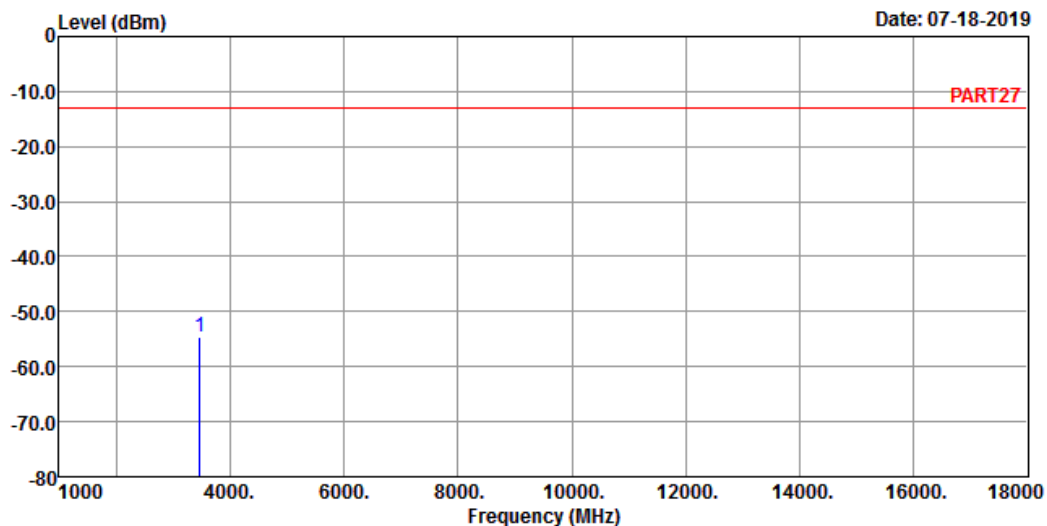


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 4 QPSK_20M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3465.00 -54.58 -46.70 -13.00 -7.88 -41.58 Peak

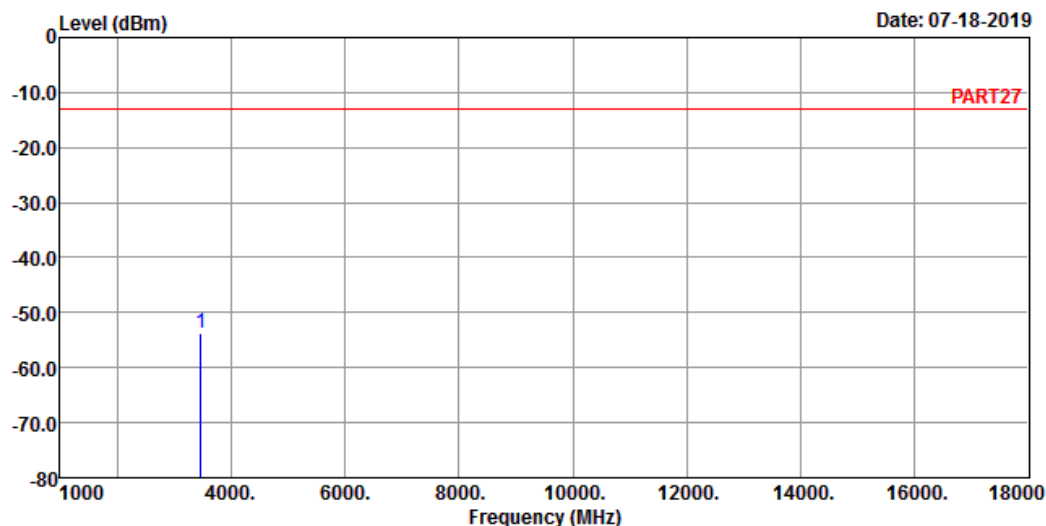


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_20M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3465.00 -53.77 -45.89 -13.00 -7.88 -40.77 Peak

High Channel

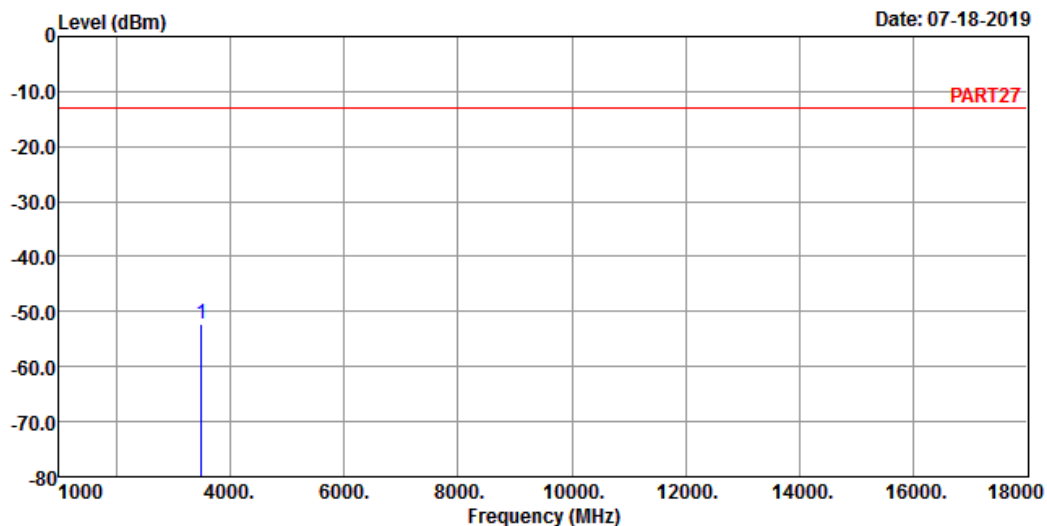


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 3

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 4 QPSK_20M Link_H-CH

Tested by: Getaz Yang

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

1 pp 3490.00 -52.37 -44.72 -13.00 -7.65 -39.37 Peak

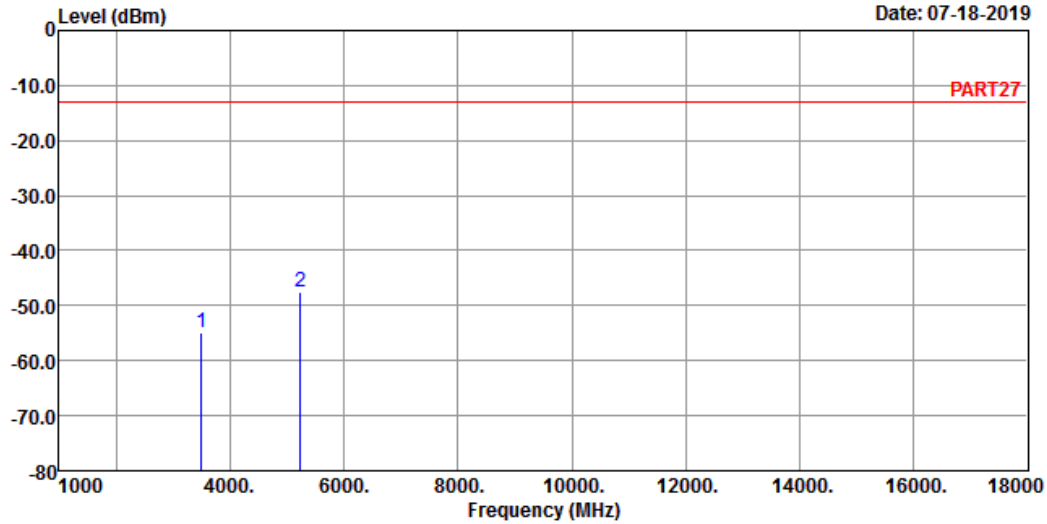


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 4 QPSK_20M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1	3490.00	-54.92	-47.27	-13.00	-7.65	-41.92 Peak
2 pp	5235.00	-47.42	-45.01	-13.00	-2.41	-34.42 Peak

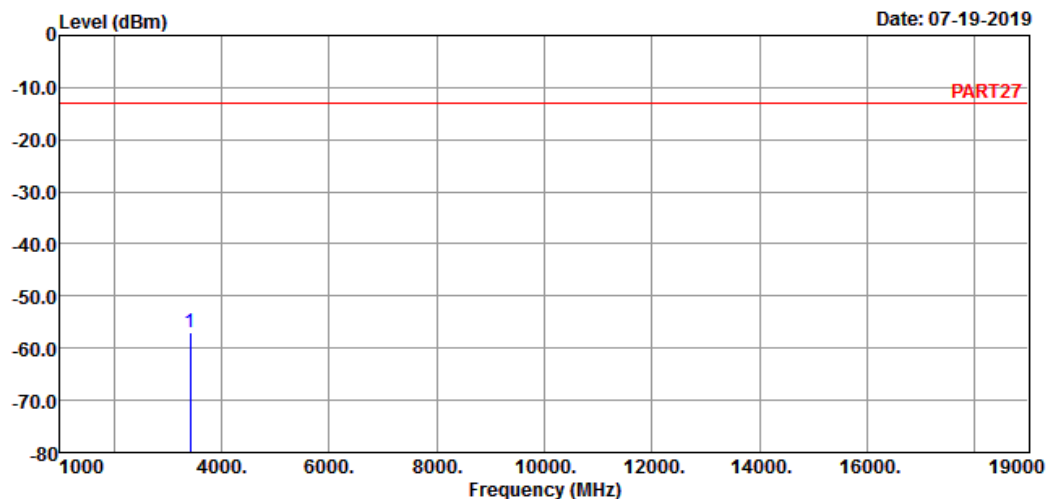
LTE Band 66:
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_1.4M Link_L-CH
Tested by: Getaz Yang

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Factor	Limit Remark
		dBm	dBm	dB	dB
1 pp	3421.40	-56.91	-48.57	-13.00	-8.34 -43.91 Peak

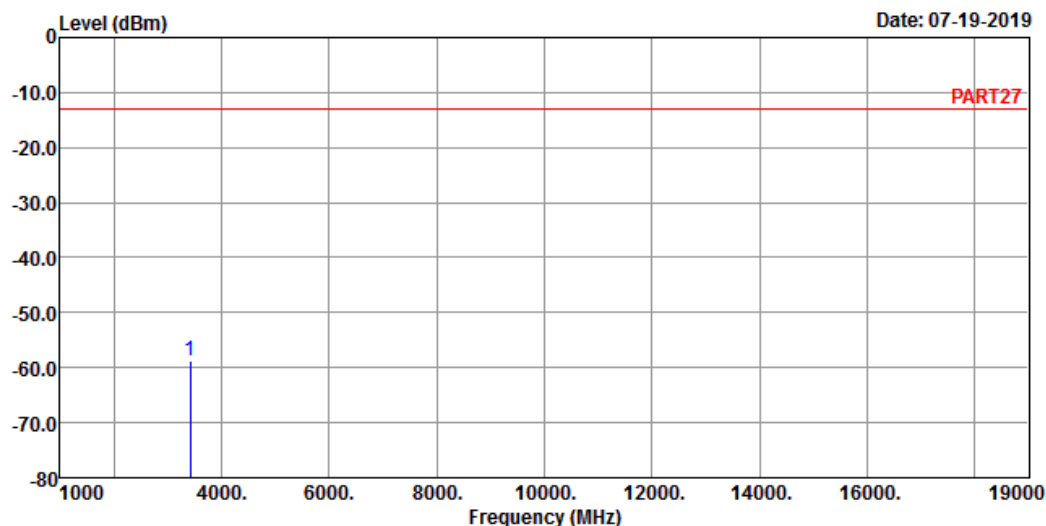


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_1.4M Link_L-CH

Tested by: Getaz Yang

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

1 pp 3421.40 -58.77 -50.43 -13.00 -8.34 -45.77 Peak

Middle Channel

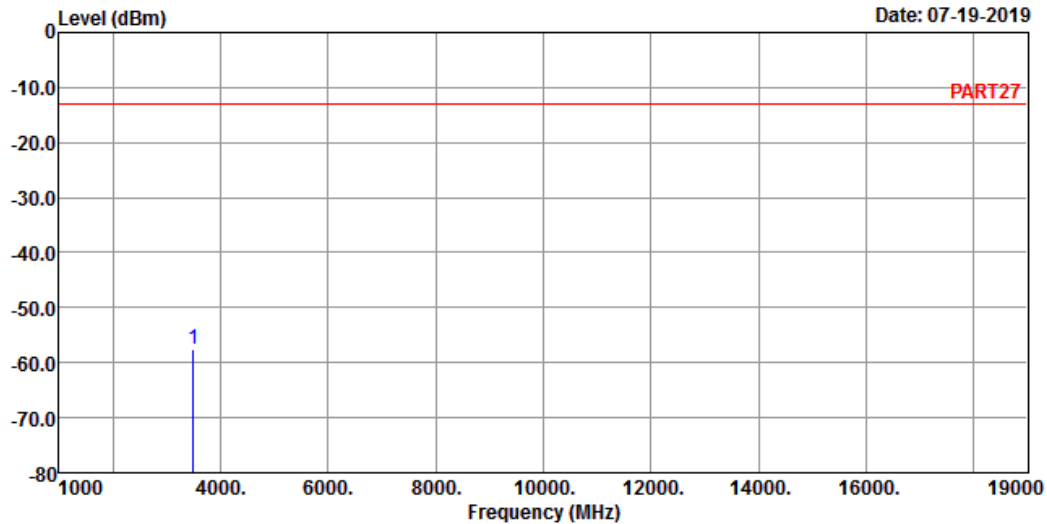


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 3

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 66 QPSK_1.4M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3490.00 -57.65 -50.00 -13.00 -7.65 -44.65 Peak

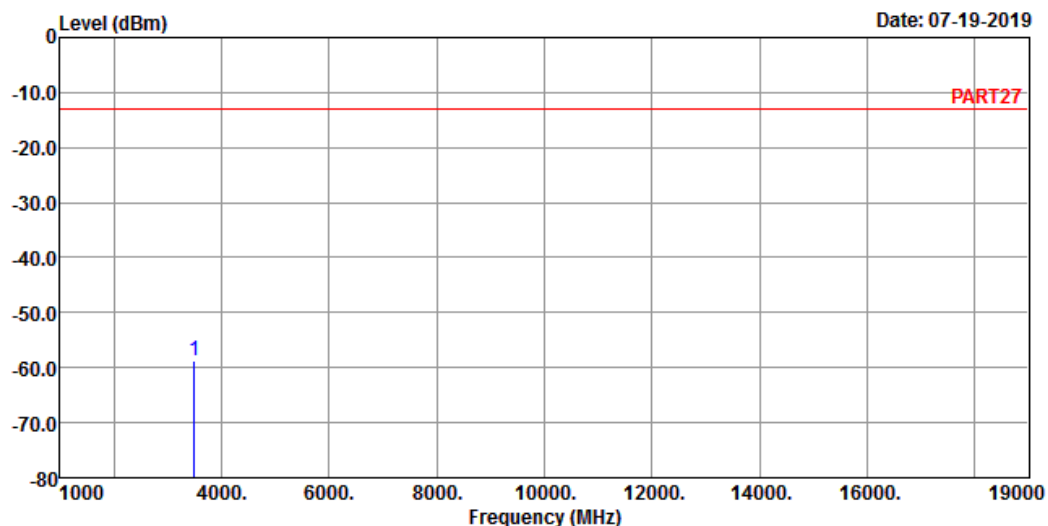


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_1.4M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3490.00 -58.71 -51.06 -13.00 -7.65 -45.71 Peak

High Channel

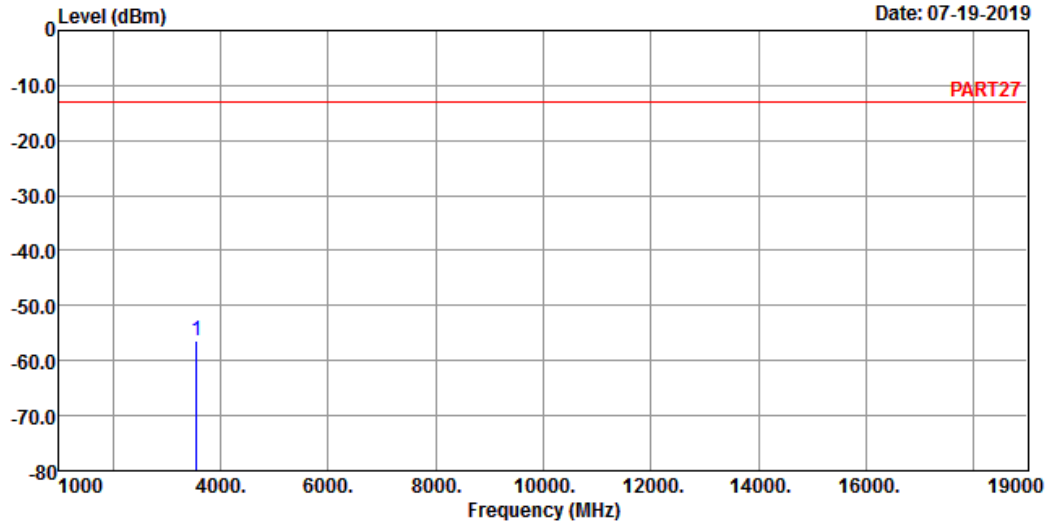


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 3

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 66 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

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

1 pp 3558.60 -56.38 -49.31 -13.00 -7.07 -43.38 Peak

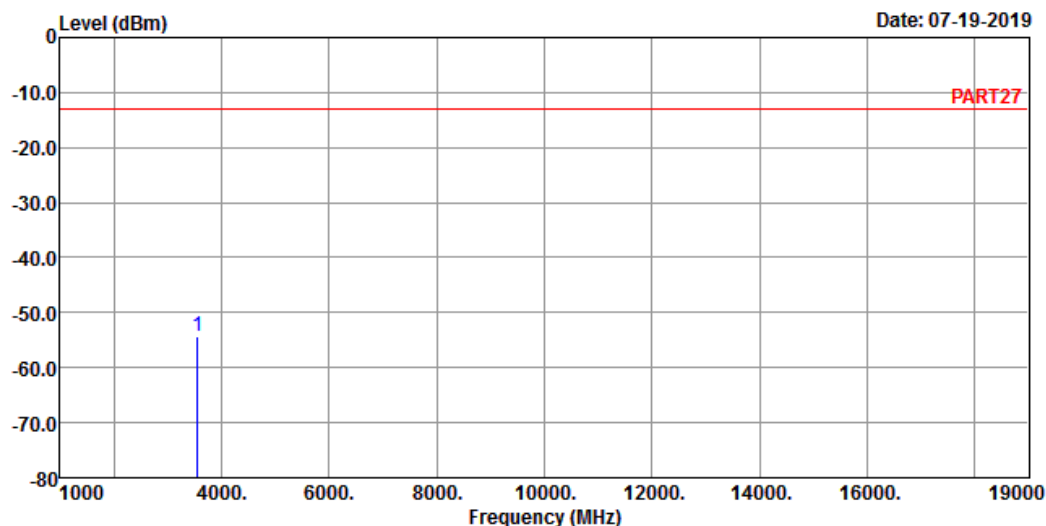


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

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

1 pp 3558.60 -54.21 -47.14 -13.00 -7.07 -41.21 Peak

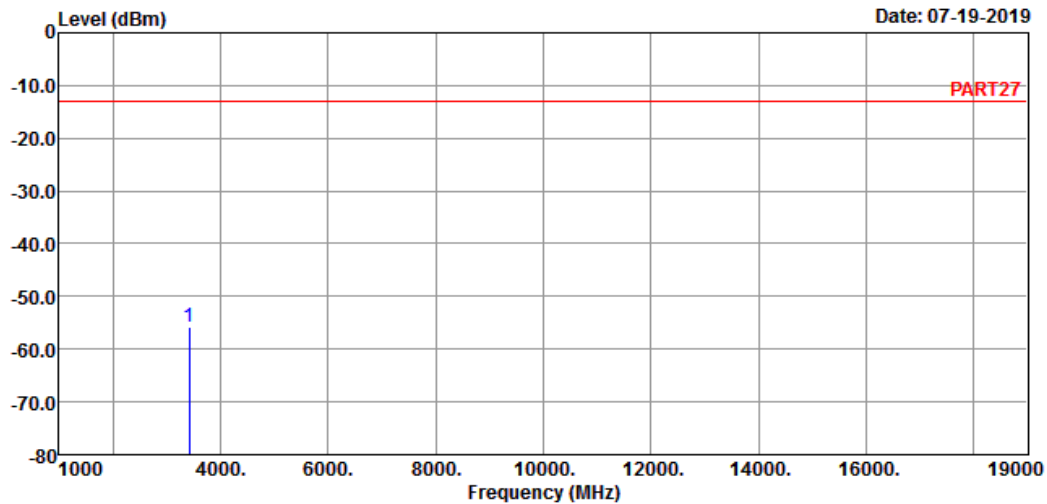
Channel Bandwidth: 5 MHz / QPSK
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_5M Link_L-CH
Tested by: Getaz Yang

		Read	Limit		Over	
Freq	Level	Level	Line	Factor	Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3425.00	-55.82	-47.48	-13.00	-8.34	-42.82	Peak

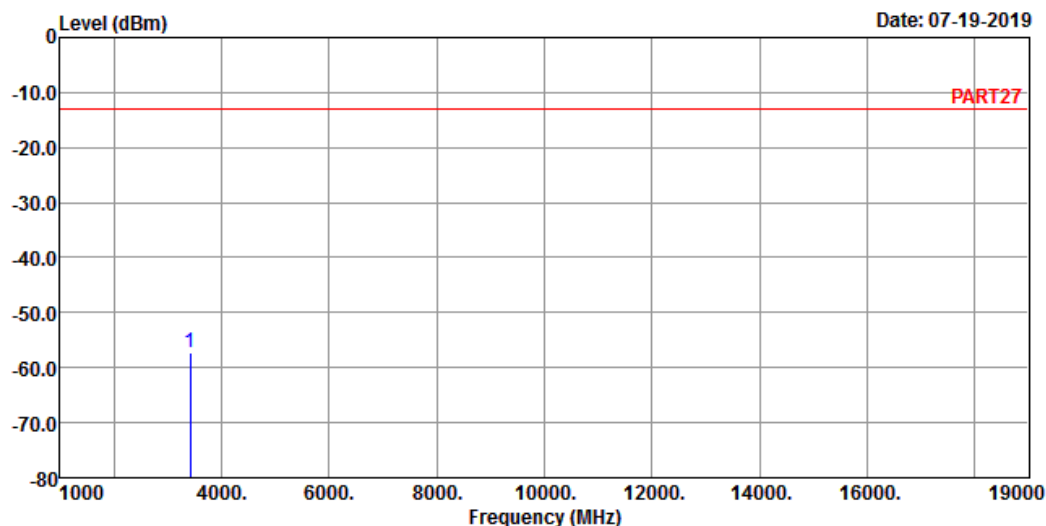


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_5M Link_L-CH

Tested by: Getaz Yang

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

1 pp 3425.00 -57.27 -48.93 -13.00 -8.34 -44.27 Peak

Middle Channel

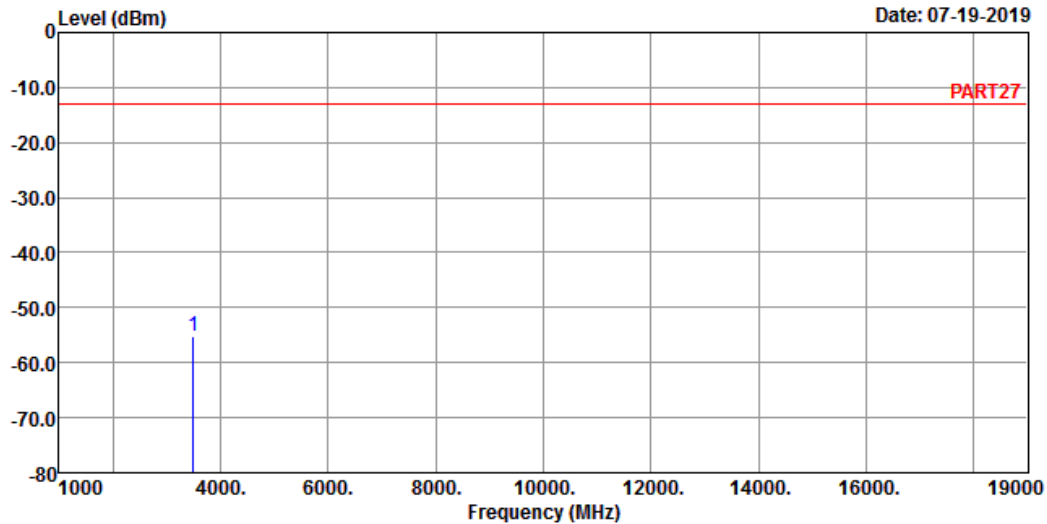


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 66 QPSK_5M Link_M-CH

Tested by: Getaz Yang

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

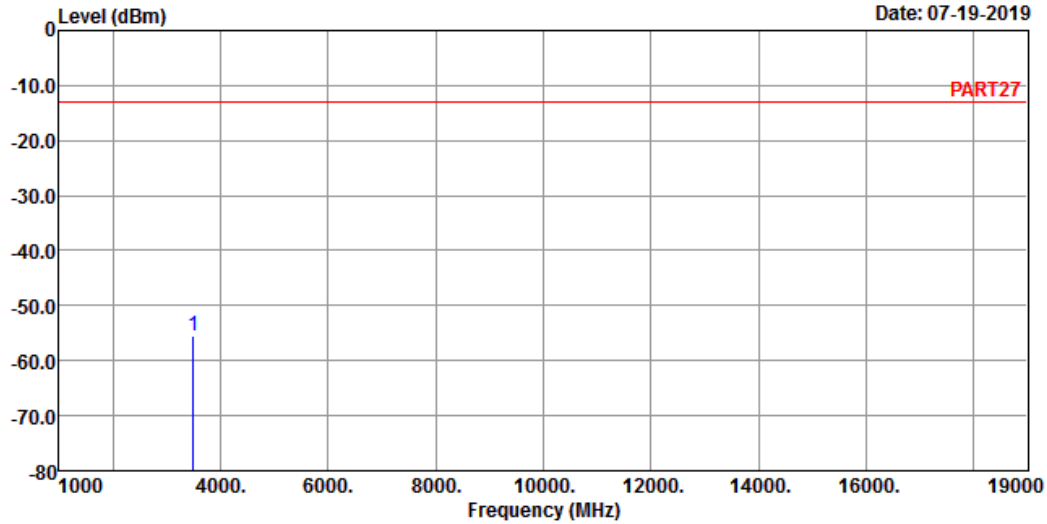
1 pp 3490.00 -55.08 -47.43 -13.00 -7.65 -42.08 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_5M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3490.00 -55.38 -47.73 -13.00 -7.65 -42.38 Peak

High Channel

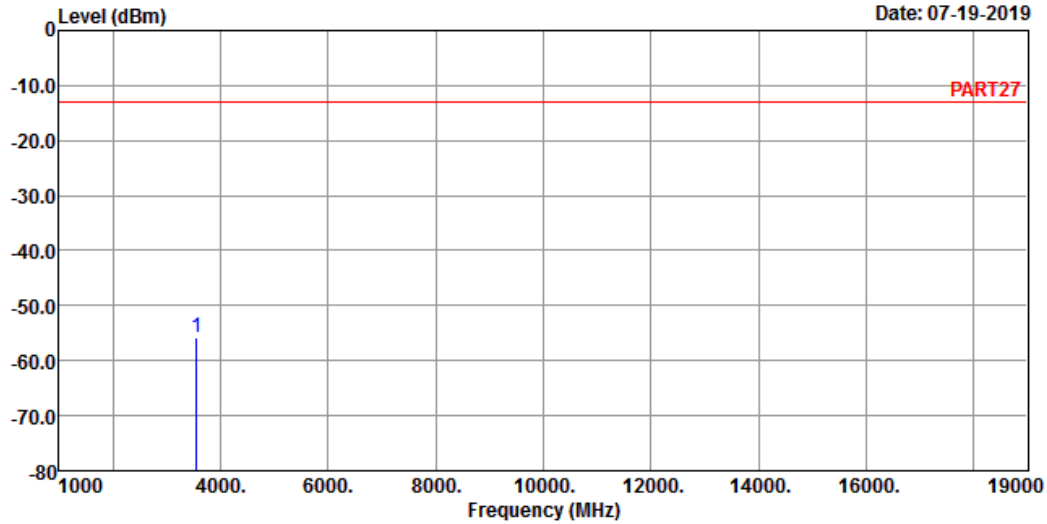


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 3

Date: 07-19-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 66 QPSK_5M Link_H-CH

Tested by: Getaz Yang

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

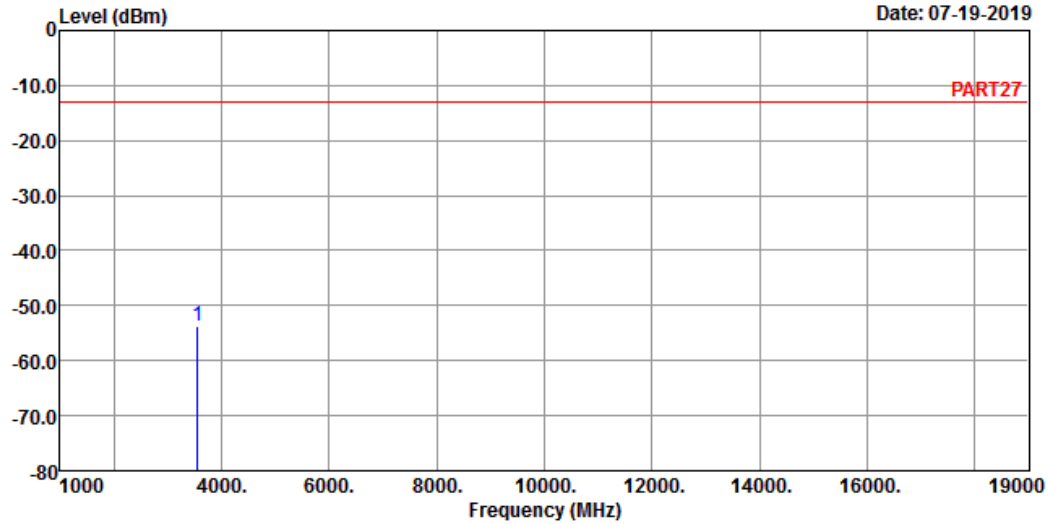
1 pp 3555.00 -55.83 -48.68 -13.00 -7.15 -42.83 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_5M Link_H-CH

Tested by: Getaz Yang

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

1 pp 3555.00 -53.73 -46.58 -13.00 -7.15 -40.73 Peak

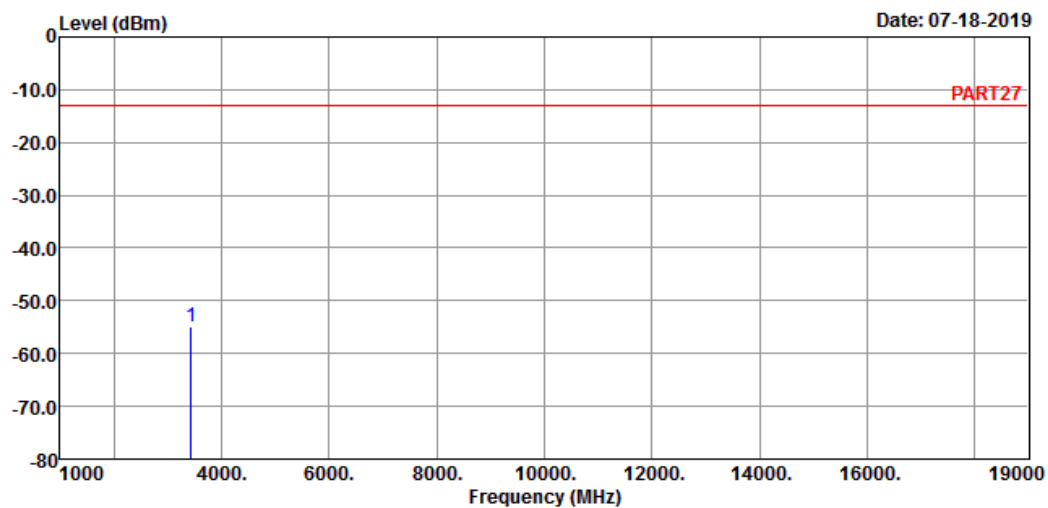
Channel Bandwidth: 20 MHz / QPSK
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : LTE Band 66 QPSK_20M Link_L-CH
Tested by: Getaz Yang

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

1 pp 3440.00 -54.92 -46.70 -13.00 -8.22 -41.92 Peak

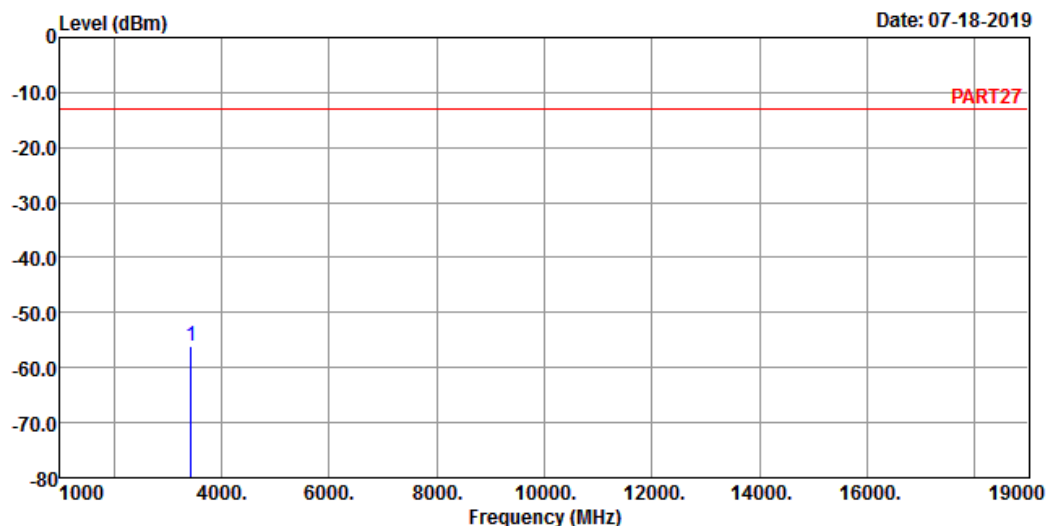


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_20M Link_L-CH

Tested by: Getaz Yang

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

1 pp 3440.00 -56.07 -47.85 -13.00 -8.22 -43.07 Peak

Middle Channel

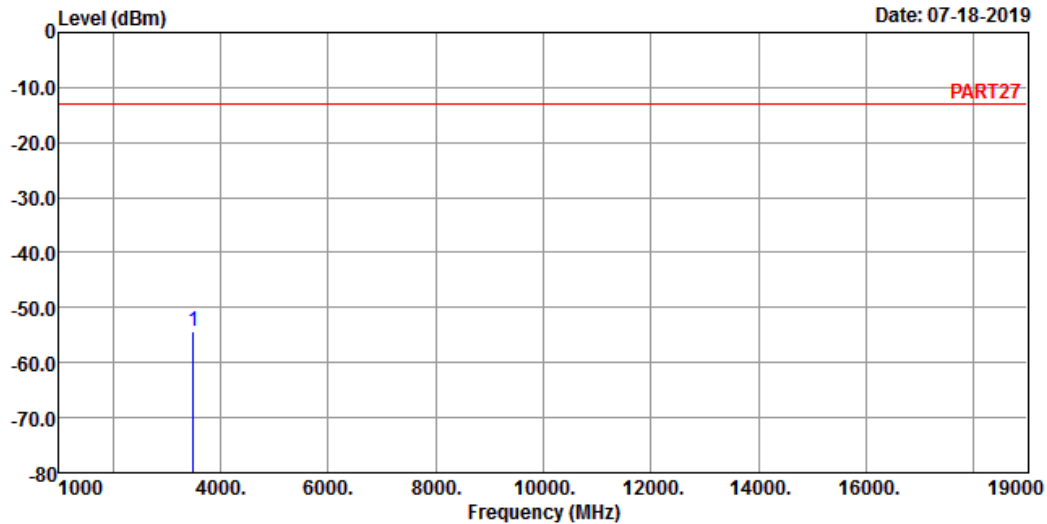


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 66 QPSK_20M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3490.00 -54.24 -46.59 -13.00 -7.65 -41.24 Peak

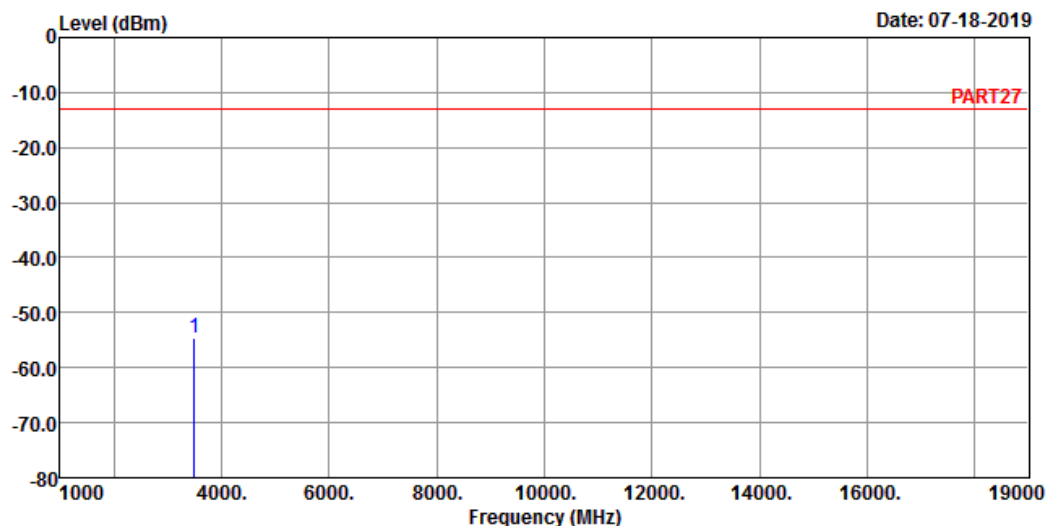


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_20M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3490.00 -54.50 -46.85 -13.00 -7.65 -41.50 Peak

High Channel

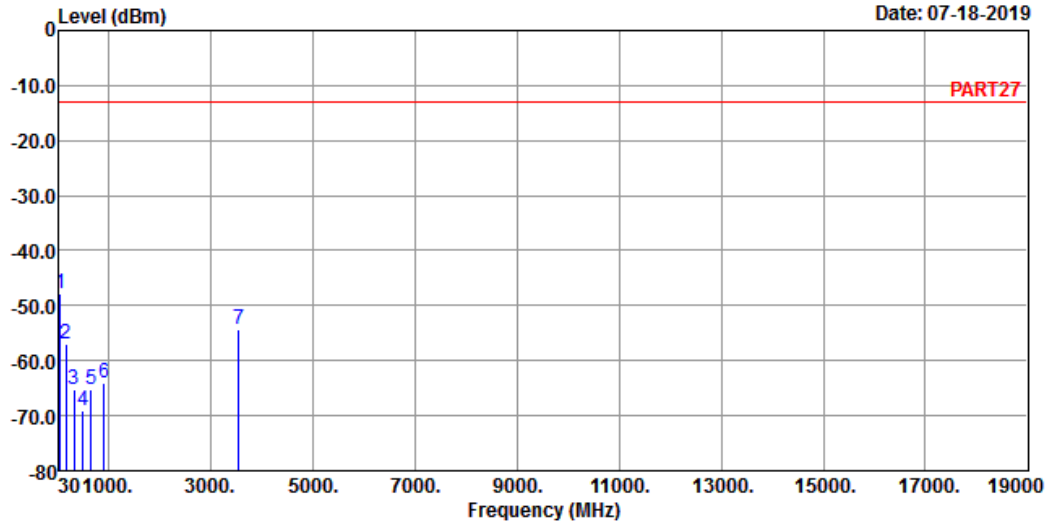


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : LTE Band 66 QPSK_20M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Factor	Limit Remark
	MHz	dBm	dBm	dBm	dB	dB
1 pp	43.58	-47.96	-46.49	-13.00	-1.47	-34.96 Peak
2	159.98	-56.85	-52.01	-13.00	-4.84	-43.85 Peak
3	324.88	-65.15	-58.52	-13.00	-6.63	-52.15 Peak
4	499.48	-69.01	-64.38	-13.00	-4.63	-56.01 Peak
5	648.86	-65.19	-64.31	-13.00	-0.88	-52.19 Peak
6	903.97	-63.97	-64.64	-13.00	0.67	-50.97 Peak
7	3540.00	-54.27	-47.05	-13.00	-7.22	-41.27 Peak

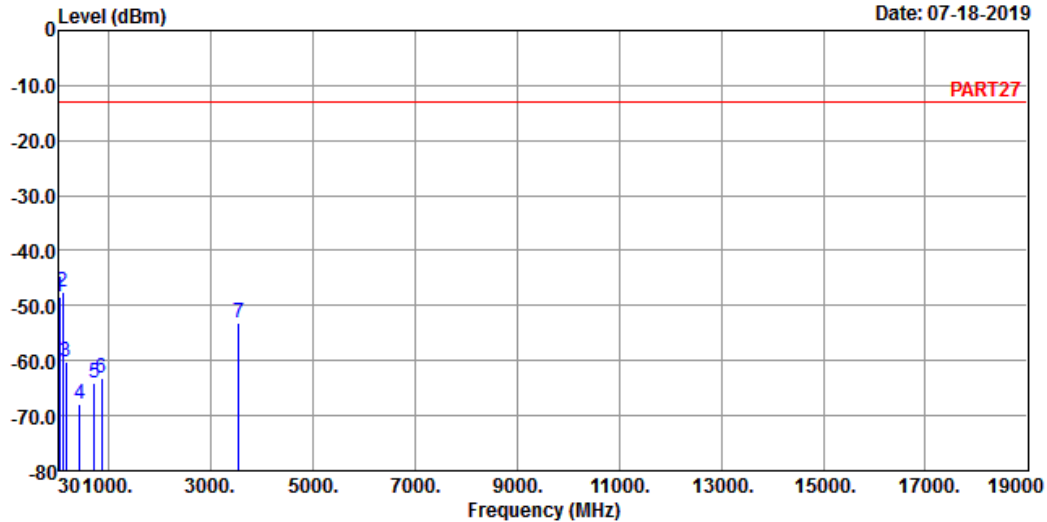


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 07-18-2019



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : LTE Band 66 QPSK_20M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	38.73	-48.54	-48.64	-13.00	0.10	-35.54	Peak
2 pp	105.66	-47.40	-36.98	-13.00	-10.42	-34.40	Peak
3	155.13	-60.09	-53.88	-13.00	-6.21	-47.09	Peak
4	431.58	-67.84	-62.14	-13.00	-5.70	-54.84	Peak
5	711.91	-64.04	-64.17	-13.00	0.13	-51.04	Peak
6	864.20	-63.20	-63.57	-13.00	0.37	-50.20	Peak
7	3540.00	-53.18	-45.96	-13.00	-7.22	-40.18	Peak

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---