FCC Test Report

(PART 24)

Report No.:	RF190614C23-7
FCC ID:	B32CM5PA
Test Model:	CM5P
Received Date:	Jun. 14, 2019
Test Date:	Jul. 02 ~ Jul. 13, 2019
Issued Date:	Jul. 17, 2019
Applicant:	Verifone, Inc.
Address:	1400 West Stanford Ranch Road Suite 200 Rocklin CA 95765 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)
Test Location (2):	B2F., No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C
FCC Registration / Designation Number:	427177 / TW0011

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Release Control Record

Issue No.	Description	Date Issued
RF190614C23-7	Original Release	Jul. 17, 2019

1 Certificate of Conformity

Product:	Point of Sale Terminal
Brand:	Verifone
Test Model:	CM5P
Sample Status:	Identical Prototype
Applicant:	Verifone, Inc.
Test Date:	Jul. 02 ~ Jul. 13, 2019
Standards:	FCC Part 24, Subpart E

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

Prepared by : _____ , **Date:** Jul. 17, 2019

Ivonne Wu / Supervisor

Approved by : _____ , **Date:** Jul. 17, 2019

Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 24.232	Effective Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1046 24.232(d)	Peak to Average Ratio	Pass	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
24.238	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -21.12 dB at 5640.00 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) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.0400 dB
	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Aug. 20, 2018	Aug. 19, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 15, 2019	Apr. 14, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSW26	102023	Oct. 11, 2018	Oct. 10, 2019
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 27, 2018	Nov. 26, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator Mini-Circuits	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 Agilent	310N	187226	Jun. 18, 2019	Jun. 17, 2020
Preamplifier Agilent	83017A	MY39501357	Jun. 18, 2019	Jun. 17, 2020
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 18, 2019	Jun. 17, 2020
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 18, 2019	Jun. 17, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	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
DC Power Supply Topward	33010D	807748	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 HsinTien Chamber 1.

3 General Information

3.1 General Description of EUT

Product	Point of Sale Terminal	
Brand	Verifone	
Test Model	CM5P	
Status of EUT	Identical Prototype	
Power Supply Rating	5.0 Vdc (adapter or host equipment) 3.7 Vdc (Li-ion battery)	
Modulation Type	GPRS	GMSK
	EDGE	GMSK, 8PSK
	WCDMA	QPSK
	LTE	QPSK, 16QAM
Frequency Range	GPRS/EDGE	1850.2 ~ 1909.8 MHz
	WCDMA	1852.4 ~ 1907.6 MHz
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	1850.7 ~ 1909.3 MHz
	LTE Band 2 (Channel Bandwidth: 3 MHz)	1851.5 ~ 1908.5 MHz
	LTE Band 2 (Channel Bandwidth: 5 MHz)	1852.5 ~ 1907.5 MHz
	LTE Band 2 (Channel Bandwidth: 10 MHz)	1855.0 ~ 1905.0 MHz
	LTE Band 2 (Channel Bandwidth: 15 MHz)	1857.5 ~ 1902.5 MHz
	LTE Band 2 (Channel Bandwidth: 20 MHz)	1860.0 ~ 1900.0 MHz
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	1850.7 ~ 1914.3 MHz
	LTE Band 25 (Channel Bandwidth: 3 MHz)	1851.5 ~ 1913.5 MHz
	LTE Band 25 (Channel Bandwidth: 5 MHz)	1852.5 ~ 1912.5 MHz
	LTE Band 25 (Channel Bandwidth: 10 MHz)	1855.0 ~ 1910.0 MHz
	LTE Band 25 (Channel Bandwidth: 15 MHz)	1857.5 ~ 1907.5 MHz
	LTE Band 25 (Channel Bandwidth: 20 MHz)	1860.0 ~ 1905.0 MHz
Max. EIRP Power	GPRS	1741.81 mW
	EDGE	769.13 mW
	WCDMA	488.65 mW
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	440.86 mW
	LTE Band 2 (Channel Bandwidth: 3 MHz)	444.94 mW
	LTE Band 2 (Channel Bandwidth: 5 MHz)	449.06 mW
	LTE Band 2 (Channel Bandwidth: 10 MHz)	453.21 mW
	LTE Band 2 (Channel Bandwidth: 15 MHz)	456.35 mW
	LTE Band 2 (Channel Bandwidth: 20 MHz)	460.57 mW
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	443.61 mW
	LTE Band 25 (Channel Bandwidth: 3 MHz)	446.68 mW
	LTE Band 25 (Channel Bandwidth: 5 MHz)	450.82 mW
	LTE Band 25 (Channel Bandwidth: 10 MHz)	454.99 mW
	LTE Band 25 (Channel Bandwidth: 15 MHz)	459.20 mW
	LTE Band 25 (Channel Bandwidth: 20 MHz)	463.45 mW

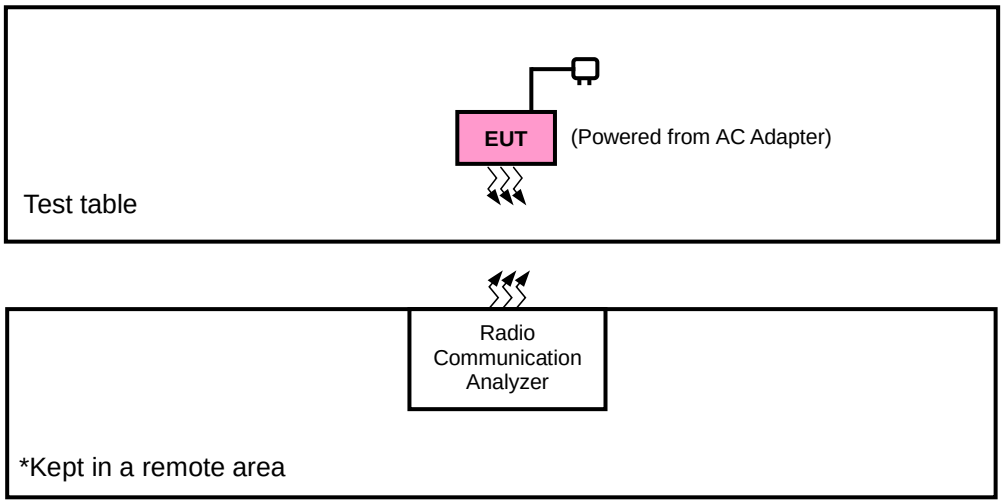
Emission Designator	GPRS	249KGXW
	EDGE	245KG7W
	WCDMA	4M17F9W
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	1M09D7W
	LTE Band 2 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 2 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 2 (Channel Bandwidth: 10 MHz)	8M97D7W
	LTE Band 2 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 2 (Channel Bandwidth: 20 MHz)	18M0D7W
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	1M09D7W
	LTE Band 25 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 25 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 25 (Channel Bandwidth: 10 MHz)	8M97D7W
	LTE Band 25 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 25 (Channel Bandwidth: 20 MHz)	17M9D7W
Antenna Type	Fixed Internal Antenna with 3.7 dBi gain	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

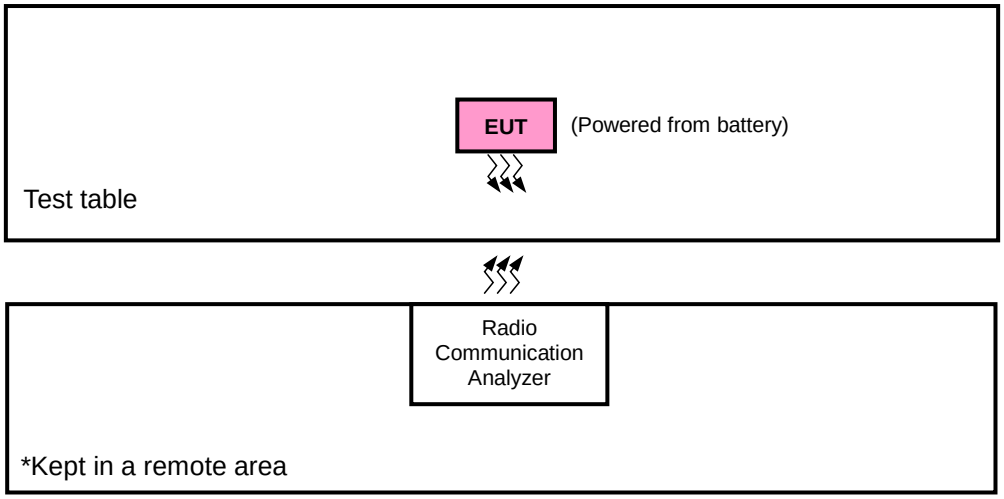
1. The EUT's accessories list refers to Ext. Pho.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test>



<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
GPRS	Y-plane	X-axis
EDGE	Y-plane	X-axis
WCDMA	Y-plane	X-axis
LTE Band 2	Y-plane	Z-axis
LTE Band 25	Y-plane	Y-axis

GPRS

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	512 to 810	512, 661, 810	GPRS, EDGE
-	Modulation Characteristics	512 to 810	661	GPRS, EDGE
-	Frequency Stability	512 to 810	512, 810	GPRS, EDGE
-	Occupied Bandwidth	512 to 810	512, 661, 810	GPRS, EDGE
-	Band Edge	512 to 810	512, 810	GPRS, EDGE
-	Peak to Average Ratio	512 to 810	512, 661, 810	GPRS, EDGE
-	Conducted Emission	512 to 810	512, 661, 810	GPRS, EDGE
-	Radiated Emission	512 to 810	512, 661, 810	GPRS, EDGE

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
-	Modulation Characteristics	9262 to 9538	9400	WCDMA
-	Frequency Stability	9262 to 9538	9262, 9538	WCDMA
-	Occupied Bandwidth	9262 to 9538	9262, 9400, 9538	WCDMA
-	Band Edge	9262 to 9538	9262, 9538	WCDMA
-	Peak to Average Ratio	9262 to 9538	9262, 9400, 9538	WCDMA
-	Conducted Emission	9262 to 9538	9262, 9400, 9538	WCDMA
-	Radiated Emission	9262 to 9538	9262, 9400, 9538	WCDMA

LTE Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	1 RB / 5 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM	1 RB / 14 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK, 16QAM	1 RB / 49 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK, 16QAM	1 RB / 74 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	18700 to 19100	18900	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Frequency Stability	18607 to 19193	18607, 19193	1.4 MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 19185	3 MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 19175	5 MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 19150	10 MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18675, 19125	15 MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 19100	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	1 RB / 5 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM	1 RB / 14 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK, 16QAM	1 RB / 49 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK, 16QAM	1 RB / 74 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Band Edge	18607 to 19193	18607	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			19193	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		18615 to 19185	18615	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			19185	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		18625 to 19175	18625	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			19175	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		18650 to 19150	18650	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			19150	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		18675 to 19125	18675	15 MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			19125	15 MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		18700 to 19100	18700	20 MHz	QPSK	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			19100	20 MHz	QPSK	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
-	Conducted Emission	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK	1 RB / 5 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK	1 RB / 14 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK	1 RB / 24 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK	1 RB / 49 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK	1 RB / 74 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK	1 RB / 5 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK	1 RB / 24 RB Offset
		18700 to 19100	18700, 18900, 19100	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 25

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	26140 to 26590	26365	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Frequency Stability	26047 to 26683	26047, 26683	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26055 to 26675	26055, 26675	3 MHz	QPSK	1 RB / 0 RB Offset
		26065 to 26665	26065, 26665	5 MHz	QPSK	1 RB / 0 RB Offset
		26090 to 26640	26090, 26640	10 MHz	QPSK	1 RB / 0 RB Offset
		26115 to 26615	26115, 26615	15 MHz	QPSK	1 RB / 0 RB Offset
		26140 to 26590	26140, 26590	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Band Edge	26047 to 26683	26047	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			26683	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		26055 to 26675	26055	3 MHz	QPSK	1 RB / 0 RB Offset
						1 RB / 0 RB Offset
			26675	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		26065 to 26665	26065	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			26665	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		26090 to 26640	26090	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			26640	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		26115 to 26615	26115	15 MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			26615	15 MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		26140 to 26590	26140	20 MHz	QPSK	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			26590	20 MHz	QPSK	1 RB / 99 RB Offset
						100 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK	1 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK	1 RB / 0 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK	1 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK	1 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	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	26 deg. C, 58 % RH	3.7 Vdc	Charles Hsiao
Modulation Characteristics	26 deg. C, 58 % RH	3.7 Vdc	Gavin Wu
Frequency Stability	26 deg. C, 58 % RH	3.7 Vdc	Gavin Wu
Occupied Bandwidth	26 deg. C, 58 % RH	3.7 Vdc	Gavin Wu
Band Edge	26 deg. C, 58 % RH	3.7 Vdc	Gavin Wu
Peak to Average Ratio	26 deg. C, 58 % RH	3.7 Vdc	Gavin Wu
Conducted Emission	26 deg. C, 58 % RH	3.7 Vdc	Gavin Wu
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao & Karl Lee

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2
FCC 47 CFR Part 24
KDB 971168 D01 Power Meas License Digital Systems v03r01
ANSI/TIA/EIA-603-E 2016
ANSI 63.26-2015
ANSI 63.2 -1996

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.i.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

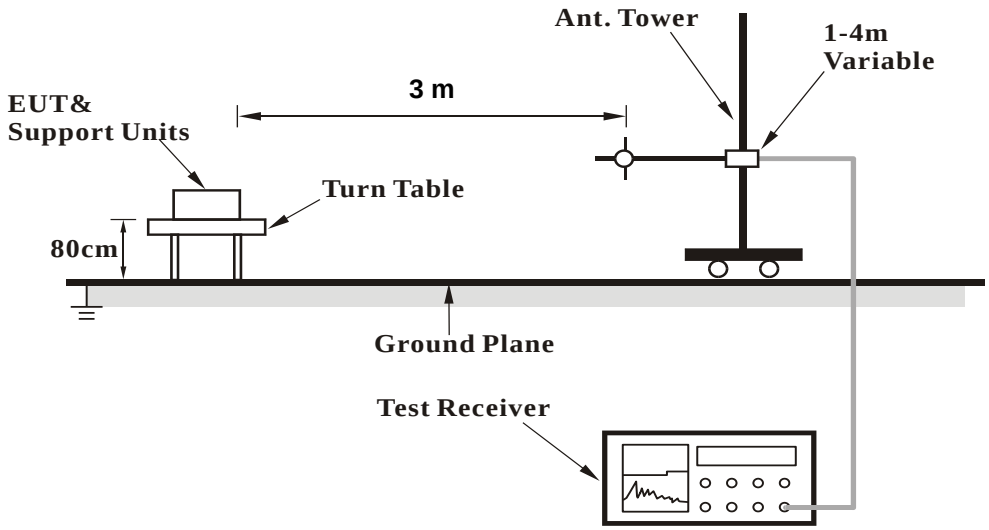
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1 MHz for GPRS & EDGE, 5 MHz for WCDMA, and 10 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G.
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

Conducted Power Measurement:

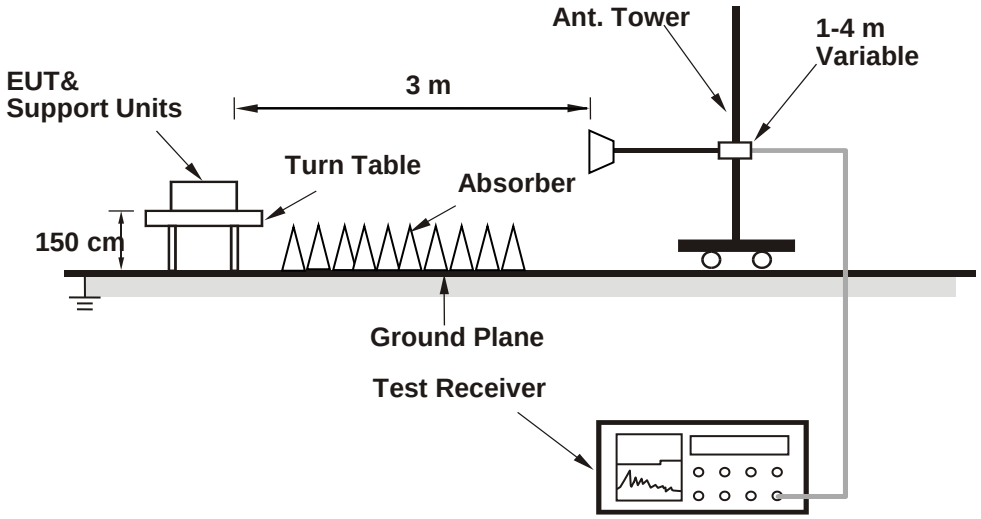
The EUT was set up for the maximum power with GPRS, EDGE, WCDMA, and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

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



<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

Band	GPRS1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
GPRS (GMSK, 1Tx-slot)	28.99	29.10	29.05
GPRS (GMSK, 2Tx-slot)	28.22	28.29	28.33
GPRS (GMSK, 3Tx-slot)	25.91	26.19	26.47
GPRS (GMSK, 4Tx-slot)	24.84	24.92	25.12
EDGE (8PSK, 1Tx-slot)	24.77	24.82	25.11
EDGE (8PSK, 2Tx-slot)	24.74	24.78	24.96
EDGE (8PSK, 3Tx-slot)	24.77	24.77	24.93
EDGE (8PSK, 4Tx-slot)	24.71	24.72	24.92

Band	WCDMA II		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2K	23.20	23.10	23.15
HSDPA Subtest-1	22.89	22.79	22.84
HSDPA Subtest-2	22.95	22.85	22.90
HSDPA Subtest-3	22.47	22.37	22.42
HSDPA Subtest-4	22.46	22.36	22.41
DC-HSDPA Subtest-1	22.86	22.76	22.81
DC-HSDPA Subtest-2	22.92	22.82	22.87
DC-HSDPA Subtest-3	22.44	22.34	22.39
DC-HSDPA Subtest-4	22.43	22.33	22.38
HSUPA Subtest-1	22.37	22.27	22.32
HSUPA Subtest-2	20.29	20.19	20.24
HSUPA Subtest-3	21.73	21.63	21.68
HSUPA Subtest-4	21.20	21.10	21.15
HSUPA Subtest-5	22.80	22.70	22.75

LTE Band 2

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		18700	18900	19100				Channel		18675	18900	19125	
		Frequency (MHz)		1860.0	1880.0	1900.0				Frequency (MHz)		1857.5	1880.0	1902.5	
20M	QPSK	1	0	22.69	22.51	22.78	0	15M	QPSK	1	0	22.54	22.38	22.62	0
		1	50	22.42	22.24	22.51	0			1	37	22.32	22.14	22.42	0
		1	99	22.56	22.38	22.65	0			1	74	22.65	22.46	22.76	0
		50	0	21.68	21.50	21.77	1			36	0	21.59	21.43	21.73	1
		50	25	21.67	21.49	21.76	1			36	19	21.61	21.45	21.70	1
		50	50	21.66	21.48	21.75	1			36	39	21.64	21.44	21.76	1
		100	0	21.66	21.48	21.75	1			75	0	21.60	21.43	21.69	1
	16QAM	1	0	21.85	21.67	21.94	1		16QAM	1	0	21.83	21.61	21.84	1
		1	50	21.61	21.43	21.70	1			1	37	21.52	21.38	21.60	1
		1	99	21.67	21.49	21.76	1			1	74	21.65	21.47	21.76	1
		50	0	20.63	20.45	20.72	2			36	0	20.54	20.39	20.67	2
		50	25	20.62	20.44	20.71	2			36	19	20.55	20.36	20.70	2
		50	50	20.66	20.48	20.75	2			36	39	20.65	20.38	20.67	2
		100	0	20.53	20.35	20.62	2			75	0	20.51	20.32	20.61	2

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		18650	18900	19150				Channel		18625	18900	19175	
		Frequency (MHz)		1855.0	1880.0	1905.0				Frequency (MHz)		1852.5	1880.0	1907.5	
10M	QPSK	1	0	22.53	22.24	22.51	0	5M	QPSK	1	0	22.46	22.31	22.49	0
		1	24	22.29	22.06	22.31	0			1	12	22.21	22.10	22.29	0
		1	49	22.55	22.40	22.74	0			1	24	22.60	22.29	22.52	0
		25	0	21.61	21.29	21.65	1			12	0	21.50	21.42	21.47	1
		25	12	21.57	21.42	21.71	1			12	6	21.63	21.35	21.67	1
		25	25	21.51	21.41	21.63	1			12	13	21.64	21.37	21.63	1
		50	0	21.50	21.39	21.59	1			25	0	21.64	21.25	21.49	1
	16QAM	1	0	21.72	21.59	21.84	1		16QAM	1	0	21.65	21.55	21.75	1
		1	24	21.50	21.33	21.59	1			1	12	21.50	21.21	21.52	1
		1	49	21.65	21.47	21.71	1			1	24	21.50	21.39	21.63	1
		25	0	20.42	20.26	20.64	2			12	0	20.50	20.28	20.56	2
		25	12	20.45	20.26	20.53	2			12	6	20.51	20.27	20.57	2
		25	25	20.51	20.34	20.53	2			12	13	20.53	20.41	20.65	2
		50	0	20.45	20.19	20.48	2			25	0	20.41	20.27	20.38	2

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		18615	18900	19185				Channel		18607	18900	19193	
		Frequency (MHz)		1851.5	1880.0	1908.5				Frequency (MHz)		1850.7	1880.0	1909.3	
3M	QPSK	1	0	22.43	22.16	22.60	0	1.4M	QPSK	1	0	22.46	22.20	22.46	0
		1	7	22.22	22.10	22.40	0			1	2	22.32	22.10	22.39	0
		1	14	22.59	22.37	22.67	0			1	5	22.63	22.41	22.72	0
		8	0	21.57	21.34	21.59	1			3	0	22.43	22.36	22.65	0
		8	3	21.63	21.36	21.68	1			3	1	22.61	22.27	22.72	0
		8	7	21.51	21.32	21.75	1			3	3	22.50	22.43	22.63	0
		15	0	21.53	21.39	21.65	1			6	0	21.49	21.39	21.69	1
	16QAM	1	0	21.68	21.55	21.71	1		16QAM	1	0	21.83	21.62	21.78	1
		1	7	21.56	21.27	21.59	1			1	2	21.44	21.30	21.58	1
		1	14	21.52	21.41	21.56	1			1	5	21.60	21.39	21.53	1
		8	0	20.49	20.27	20.57	2			3	0	21.48	21.36	21.55	1
		8	3	20.46	20.29	20.59	2			3	1	21.48	21.29	21.60	1
		8	7	20.51	20.36	20.64	2			3	3	21.60	21.41	21.57	1
		15	0	20.49	20.24	20.45	2			6	0	20.38	20.19	20.37	2

LTE Band 25

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		26140	26365	26590				Channel		26115	26365	26615	
		Frequency (MHz)		1860.0	1882.5	1905.0				Frequency (MHz)		1857.5	1882.5	1907.5	
20M	QPSK	1	0	22.75	22.99	22.85	0	15M	QPSK	1	0	22.72	22.98	22.82	0
		1	50	22.68	22.92	22.78	0			1	37	22.66	22.92	22.78	0
		1	99	22.33	22.57	22.43	0			1	74	22.32	22.47	22.43	0
		50	0	21.77	21.98	21.87	1			36	0	21.72	21.96	21.83	1
		50	25	21.73	21.97	21.83	1			36	19	21.70	21.87	21.81	1
		50	50	21.58	21.82	21.68	1			36	39	21.56	21.78	21.68	1
		100	0	21.74	21.98	21.84	1			75	0	21.69	21.94	21.75	1
	16QAM	1	0	21.65	21.99	21.83	1		16QAM	1	0	21.61	21.94	21.71	1
		1	50	21.64	21.86	21.77	1			1	37	21.55	21.78	21.70	1
		1	99	21.30	21.50	21.42	1			1	74	21.24	21.53	21.26	1
		50	0	20.71	20.98	20.77	2			36	0	20.62	20.89	20.73	2
		50	25	20.63	20.91	20.78	2			36	19	20.66	20.88	20.72	2
		50	50	20.56	20.77	20.61	2			36	39	20.48	20.75	20.57	2
		100	0	20.69	20.94	20.84	2			75	0	20.66	20.87	20.76	2

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		26090	20000	20175				Channel		26065	26365	26665	
		Frequency (MHz)		2855.0	1715.0	1732.5				Frequency (MHz)		1852.5	1882.5	1912.5	
10M	QPSK	1	0	22.65	22.88	22.77	0	5M	QPSK	1	0	22.57	22.84	22.65	0
		1	24	22.60	22.75	22.66	0			1	12	22.60	22.78	22.59	0
		1	49	22.22	22.53	22.25	0			1	24	22.19	22.41	22.12	0
		25	0	21.54	21.79	21.83	1			12	0	21.65	21.87	21.66	1
		25	12	21.68	21.95	21.70	1			12	6	21.70	21.92	21.68	1
		25	25	21.39	21.70	21.62	1			12	13	21.54	21.68	21.41	1
		50	0	21.60	21.94	21.71	1			25	0	21.53	21.79	21.62	1
	16QAM	1	0	21.59	21.71	21.69	1		16QAM	1	0	21.55	21.86	21.68	1
		1	24	21.54	21.81	21.61	1			1	12	21.46	21.63	21.60	1
		1	49	21.15	21.44	21.34	1			1	24	21.19	21.49	21.23	1
		25	0	20.52	20.85	20.70	2			12	0	20.57	20.82	20.66	2
		25	12	20.49	20.81	20.64	2			12	6	20.46	20.87	20.77	2
		25	25	20.28	20.59	20.49	2			12	13	20.36	20.55	20.53	2
		50	0	20.50	20.83	20.60	2			25	0	20.55	20.77	20.69	2

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		26055	19965	20175				Channel		26047	26365	26683	
		Frequency (MHz)		1851.5	1711.5	1732.5				Frequency (MHz)		1850.7	1882.5	1914.3	
3M	QPSK	1	0	22.59	22.91	22.71	0	1.4M	QPSK	1	0	22.66	22.96	22.83	0
		1	7	22.59	22.74	22.75	0			1	2	22.54	22.88	22.56	0
		1	14	22.30	22.46	22.21	0			1	5	22.21	22.39	22.29	0
		8	0	21.73	21.82	21.66	1			3	0	22.62	22.80	22.85	0
		8	3	21.61	21.77	21.64	1			3	1	22.71	22.79	22.73	0
		8	7	21.39	21.66	21.53	1			3	3	22.40	22.74	22.55	0
		15	0	21.55	21.98	21.75	1			6	0	21.54	21.76	21.67	1
	16QAM	1	0	21.64	21.83	21.64	1		16QAM	1	0	21.55	21.84	21.67	1
		1	7	21.44	21.81	21.57	1			1	2	21.54	21.63	21.69	1
		1	14	21.24	21.34	21.34	1			1	5	21.13	21.38	21.19	1
		8	0	20.59	20.80	20.70	2			3	0	21.55	21.96	21.73	1
		8	3	20.48	20.79	20.58	2			3	1	21.64	21.93	21.57	1
		8	7	20.37	20.64	20.54	2			3	3	21.36	21.65	21.50	1
		15	0	20.64	20.85	20.78	2			6	0	20.48	20.88	20.63	2

EIRP Power (dBm)

GPRS							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
Y	512	1850.2	-5.89	38.19	32.30	1698.24	H
	661	1880.0	-6.29	38.70	32.41	1741.81	
	810	1909.8	-7.00	39.35	32.35	1717.91	
	512	1850.2	-9.20	38.48	29.28	847.23	V
	661	1880.0	-9.20	38.59	29.39	868.96	
	810	1909.8	-9.53	38.87	29.34	859.01	

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

EDGE							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
Y	512	1850.2	-9.44	38.19	28.75	749.89	H
	661	1880.0	-9.84	38.70	28.86	769.13	
	810	1909.8	-10.54	39.35	28.81	760.33	
	512	1850.2	-12.79	38.48	25.69	370.68	V
	661	1880.0	-12.74	38.59	25.85	384.59	
	810	1909.8	-13.10	38.87	25.77	377.57	

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

WCDMA							
Plane	**Channel**	**Frequency (MHz)**	**Reading (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
Y	9262	1852.4	-11.30	38.19	26.89	488.65	H
	9400	1880.0	-11.94	38.70	26.76	474.24	
	9538	1907.6	-12.53	39.35	26.82	480.84	
	9262	1852.4	-14.63	38.48	23.85	242.66	V
	9400	1880.0	-14.87	38.59	23.72	235.50	
	9538	1907.6	-15.08	38.87	23.79	239.33	

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

LTE Band 2							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	18607	1850.7	-18.33	44.70	26.37	433.51	H
	18900	1880.0	-18.45	44.70	26.25	421.70	
	19193	1909.3	-18.13	44.57	26.44	440.86	
	18607	1850.7	-20.94	44.27	23.33	215.28	V
	18900	1880.0	-21.65	44.87	23.22	209.89	
	19193	1909.3	-21.19	44.61	23.42	219.94	
Channel Bandwidth: 1.4 MHz / 16QAM							
Y	18607	1850.7	-19.34	44.70	25.36	343.56	H
	18900	1880.0	-19.45	44.70	25.25	334.97	
	19193	1909.3	-19.13	44.57	25.44	350.19	
	18607	1850.7	-21.95	44.27	22.32	170.61	V
	18900	1880.0	-22.65	44.87	22.22	166.72	
	19193	1909.3	-22.20	44.61	22.41	174.30	

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

LTE Band 2							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	18615	1851.5	-18.30	44.70	26.40	436.52	H
	18900	1880.0	-18.41	44.70	26.29	425.60	
	19185	1908.5	-18.09	44.57	26.48	444.94	
	18615	1851.5	-20.90	44.27	23.37	217.27	V
	18900	1880.0	-20.61	44.87	24.26	266.69	
	19185	1908.5	-20.16	44.61	24.45	278.80	
Channel Bandwidth: 3 MHz / 16QAM							
Y	18615	1851.5	-19.31	44.70	25.39	345.94	H
	18900	1880.0	-19.42	44.70	25.28	337.29	
	19185	1908.5	-19.10	44.57	25.47	352.61	
	18615	1851.5	-21.90	44.27	22.37	172.58	V
	18900	1880.0	-22.62	44.87	22.25	167.88	
	19185	1908.5	-22.17	44.61	22.44	175.51	

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

LTE Band 2							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	18625	1852.5	-18.26	44.70	26.44	440.55	H
	18900	1880.0	-18.37	44.70	26.33	429.54	
	19175	1907.5	-18.05	44.57	26.52	449.06	
	18625	1852.5	-20.86	44.27	23.41	219.28	V
	18900	1880.0	-21.57	44.87	23.30	213.80	
	19175	1907.5	-21.12	44.61	23.49	223.51	
Channel Bandwidth: 5 MHz / 16QAM							
Y	18625	1852.5	-19.26	44.70	25.44	349.95	H
	18900	1880.0	-19.37	44.70	25.33	341.19	
	19175	1907.5	-19.05	44.57	25.52	356.70	
	18625	1852.5	-21.87	44.27	22.40	173.78	V
	18900	1880.0	-22.57	44.87	22.30	169.82	
	19175	1907.5	-22.12	44.61	22.49	177.54	

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

LTE Band 2							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	18650	1855.0	-18.22	44.70	26.48	444.63	H
	18900	1880.0	-18.34	44.70	26.36	432.51	
	19150	1905.0	-18.01	44.57	26.56	453.21	
	18650	1855.0	-20.82	44.27	23.45	221.31	V
	18900	1880.0	-21.54	44.87	23.33	215.28	
	19150	1905.0	-21.08	44.61	23.53	225.58	
Channel Bandwidth: 10 MHz / 16QAM							
Y	18650	1855.0	-19.23	44.70	25.47	352.37	H
	18900	1880.0	-19.35	44.70	25.35	342.77	
	19150	1905.0	-19.01	44.57	25.56	360.00	
	18650	1855.0	-21.82	44.27	22.45	175.79	V
	18900	1880.0	-22.55	44.87	22.32	170.61	
	19150	1905.0	-22.09	44.61	22.52	178.77	

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

LTE Band 2							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	18675	1857.5	-18.18	44.70	26.52	448.75	H
	18900	1880.0	-18.30	44.70	26.40	436.52	
	19125	1902.5	-17.98	44.57	26.59	456.35	
	18675	1857.5	-20.78	44.27	23.49	223.36	V
	18900	1880.0	-21.50	44.87	23.37	217.27	
	19125	1902.5	-21.04	44.61	23.57	227.67	
Channel Bandwidth: 15 MHz / 16QAM							
Y	18675	1857.5	-19.19	44.70	25.51	355.63	H
	18900	1880.0	-19.31	44.70	25.39	345.94	
	19125	1902.5	-18.99	44.57	25.58	361.66	
	18675	1857.5	-21.78	44.27	22.49	177.42	V
	18900	1880.0	-22.51	44.87	22.36	172.19	
	19125	1902.5	-22.05	44.61	22.56	180.43	

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

LTE Band 2							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	18700	1860.0	-18.14	44.70	26.56	452.90	H
	18900	1880.0	-18.26	44.70	26.44	440.55	
	19100	1900.0	-17.94	44.57	26.63	460.57	
	18700	1860.0	-20.74	44.27	23.53	225.42	V
	18900	1880.0	-21.47	44.87	23.40	218.78	
	19100	1900.0	-21.00	44.61	23.61	229.77	
Channel Bandwidth: 20 MHz / 16QAM							
Y	18700	1860.0	-19.15	44.70	25.55	358.92	H
	18900	1880.0	-19.26	44.70	25.44	349.95	
	19100	1900.0	-18.95	44.57	25.62	365.01	
	18700	1860.0	-21.75	44.27	22.52	178.65	V
	18900	1880.0	-22.48	44.87	22.39	173.38	
	19100	1900.0	-22.00	44.61	22.61	182.52	

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

LTE Band 25							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	26047	1850.7	-18.46	44.70	26.24	420.73	H
	26365	1882.5	-18.23	44.70	26.47	443.61	
	26683	1914.3	-18.25	44.57	26.32	428.84	
	26047	1850.7	-21.08	44.27	23.19	208.45	V
	26365	1882.5	-21.46	44.87	23.41	219.28	
	26683	1914.3	-21.29	44.61	23.32	214.93	
Channel Bandwidth: 1.4 MHz / 16QAM							
Y	26047	1850.7	-19.47	44.70	25.23	333.43	H
	26365	1882.5	-19.24	44.70	25.46	351.56	
	26683	1914.3	-19.24	44.57	25.33	341.43	
	26047	1850.7	-22.09	44.27	22.18	165.20	V
	26365	1882.5	-22.47	44.87	22.40	173.78	
	26683	1914.3	-22.29	44.61	22.32	170.73	

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

LTE Band 25							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	26055	1851.5	-18.42	44.70	26.28	424.62	H
	26365	1882.5	-18.20	44.70	26.50	446.68	
	26675	1913.5	-18.20	44.57	26.37	433.81	
	26055	1851.5	-21.03	44.27	23.24	210.86	V
	26365	1882.5	-21.42	44.87	23.45	221.31	
	26675	1913.5	-21.26	44.61	23.35	216.42	
Channel Bandwidth: 3 MHz / 16QAM							
Y	26055	1851.5	-19.42	44.70	25.28	337.29	H
	26365	1882.5	-19.21	44.70	25.49	354.00	
	26675	1913.5	-19.20	44.57	25.37	344.59	
	26055	1851.5	-22.04	44.27	22.23	167.11	V
	26365	1882.5	-22.42	44.87	22.45	175.79	
	26675	1913.5	-22.27	44.61	22.34	171.51	

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

LTE Band 25							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	26065	1852.5	-18.38	44.70	26.32	428.55	H
	26365	1882.5	-18.16	44.70	26.54	450.82	
	26665	1912.5	-18.16	44.57	26.41	437.82	
	26065	1852.5	-21.00	44.27	23.27	212.32	V
	26365	1882.5	-21.38	44.87	23.49	223.36	
	26665	1912.5	-21.22	44.61	23.39	218.42	
Channel Bandwidth: 5 MHz / 16QAM							
Y	26065	1852.5	-19.39	44.70	25.31	339.63	H
	26365	1882.5	-19.17	44.70	25.53	357.27	
	26665	1912.5	-19.16	44.57	25.41	347.78	
	26065	1852.5	-22.01	44.27	22.26	168.27	V
	26365	1882.5	-22.38	44.87	22.49	177.42	
	26665	1912.5	-22.22	44.61	22.39	173.50	

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

LTE Band 25							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	26090	1855.0	-18.34	44.70	26.36	432.51	H
	26365	1882.5	-18.12	44.70	26.58	454.99	
	26640	1910.0	-18.11	44.57	26.46	442.89	
	26090	1855.0	-20.97	44.27	23.30	213.80	V
	26365	1882.5	-21.34	44.87	23.53	225.42	
	26640	1910.0	-21.18	44.61	23.43	220.44	
Channel Bandwidth: 10 MHz / 16QAM							
Y	26090	1855.0	-19.35	44.70	25.35	342.77	H
	26365	1882.5	-19.12	44.70	25.58	361.41	
	26640	1910.0	-19.11	44.57	25.46	351.80	
	26090	1855.0	-21.98	44.27	22.29	169.43	V
	26365	1882.5	-22.34	44.87	22.53	179.06	
	26640	1910.0	-22.18	44.61	22.43	175.11	

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

LTE Band 25							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	26115	1857.5	-18.30	44.70	26.40	436.52	H
	26365	1882.5	-18.08	44.70	26.62	459.20	
	26615	1907.5	-18.08	44.57	26.49	445.96	
	26115	1857.5	-20.92	44.27	23.35	216.27	V
	26365	1882.5	-21.30	44.87	23.57	227.51	
	26615	1907.5	-21.14	44.61	23.47	222.48	
Channel Bandwidth: 15 MHz / 16QAM							
Y	26115	1857.5	-19.31	44.70	25.39	345.94	H
	26365	1882.5	-19.09	44.70	25.61	363.92	
	26615	1907.5	-19.08	44.57	25.49	354.24	
	26115	1857.5	-21.93	44.27	22.34	171.40	V
	26365	1882.5	-22.31	44.87	22.56	180.30	
	26615	1907.5	-22.15	44.61	22.46	176.32	

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

LTE Band 25							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Y	26140	1860.0	-18.26	44.70	26.44	440.55	H
	26365	1882.5	-18.04	44.70	26.66	463.45	
	26590	1905.0	-18.04	44.57	26.53	450.09	
	26140	1860.0	-20.88	44.27	23.39	218.27	V
	26365	1882.5	-21.27	44.87	23.60	229.09	
	26590	1905.0	-21.10	44.61	23.51	224.54	
Channel Bandwidth: 20 MHz / 16QAM							
Y	26140	1860.0	-19.27	44.70	25.43	349.14	H
	26365	1882.5	-19.04	44.70	25.66	368.13	
	26590	1905.0	-19.04	44.57	25.53	357.52	
	26140	1860.0	-21.88	44.27	22.39	173.38	V
	26365	1882.5	-22.28	44.87	22.59	181.55	
	26590	1905.0	-22.10	44.61	22.51	178.36	

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

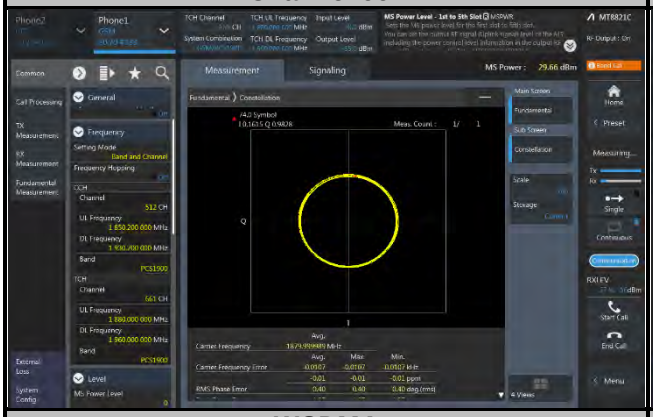
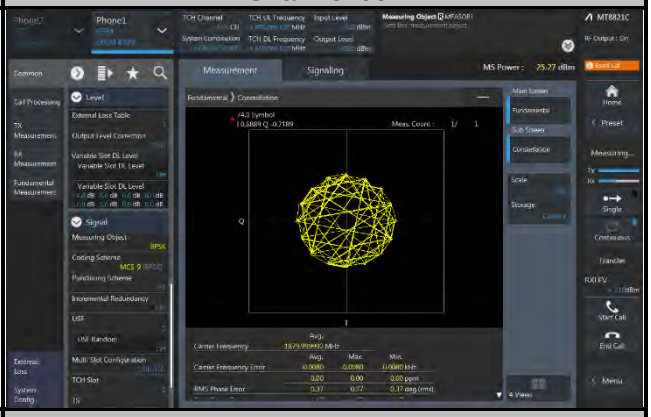
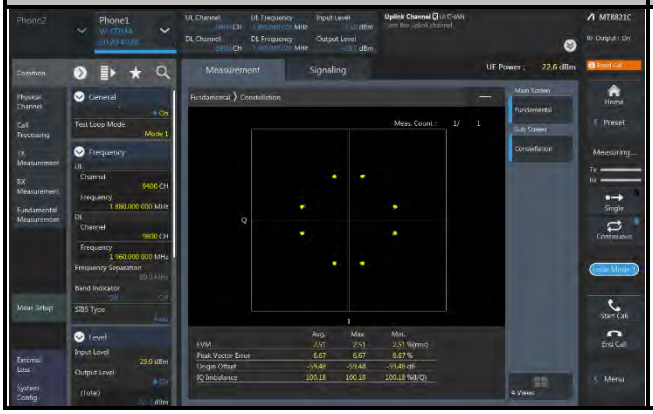
N/A

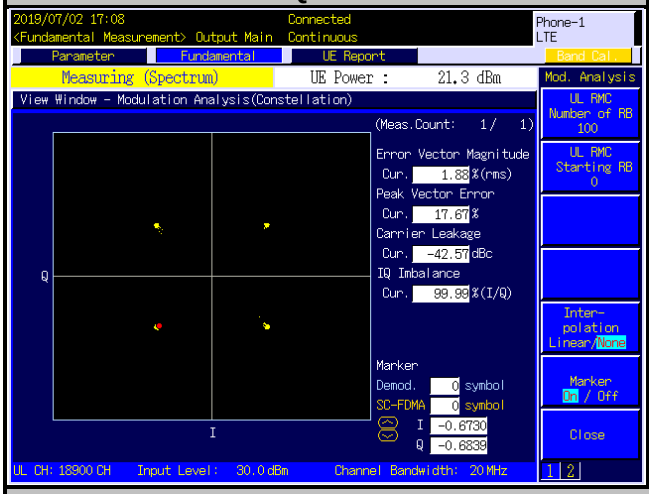
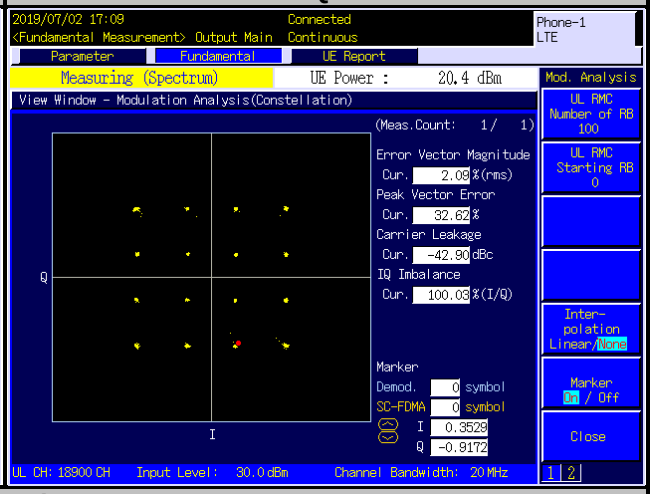
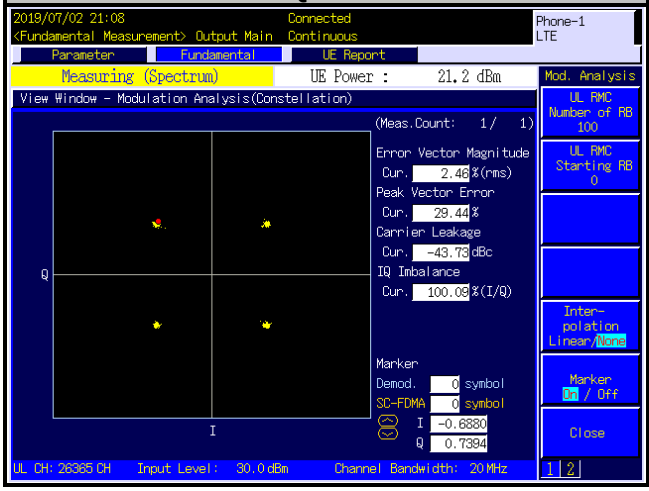
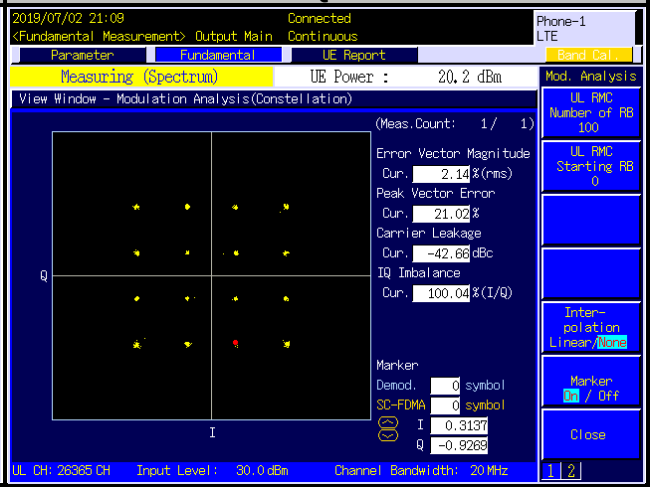
4.2.2 Test Setup

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	
GPRS	**EDGE**
Channel 661	**Channel 661**
	
WCDMA	
Channel 9400	
	

Spectrum Plot of Measurement	
LTE Band 2	
Channel 18900	
QPSK	16QAM
	
LTE Band 25	
Channel 26365	
QPSK	16QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

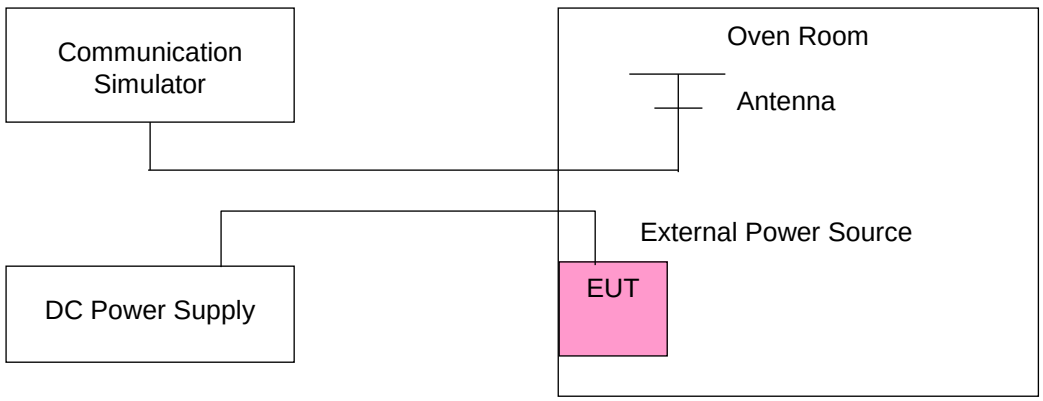
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.3.2 Test Procedure

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

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	GPRS			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.200003	0.002	1909.800003	0.001
3.145	1850.200004	0.002	1909.800003	0.001
4.255	1850.200004	0.002	1909.800001	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	GPRS			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.200001	0.001	1909.800002	0.001
-20	1850.200002	0.001	1909.800001	0.001
-10	1850.200003	0.002	1909.800003	0.002
0	1850.200003	0.002	1909.800002	0.001
10	1850.200001	0.001	1909.800003	0.002
20	1850.199997	-0.002	1909.799999	-0.001
30	1850.199998	-0.001	1909.799996	-0.002
40	1850.199999	-0.001	1909.799997	-0.002
50	1850.199998	-0.001	1909.799999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	EDGE			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.200002	0.001	1909.800002	0.001
3.145	1850.200003	0.002	1909.800003	0.001
4.255	1850.200003	0.002	1909.800001	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	EDGE			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.200004	0.002	1909.800004	0.002
-20	1850.200002	0.001	1909.800004	0.002
-10	1850.200003	0.002	1909.800003	0.001
0	1850.200001	0.001	1909.800003	0.002
10	1850.200001	0.001	1909.800001	0.001
20	1850.199997	-0.002	1909.799997	-0.001
30	1850.199999	-0.001	1909.799997	-0.001
40	1850.199999	-0.001	1909.799998	-0.001
50	1850.199996	-0.002	1909.799997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1852.400002	0.001	1907.600002	0.001
3.145	1852.400003	0.002	1907.600003	0.002
4.255	1852.400003	0.002	1907.600002	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1852.400003	0.002	1907.600002	0.001
-20	1852.400002	0.001	1907.600002	0.001
-10	1852.400002	0.001	1907.600003	0.001
0	1852.400002	0.001	1907.600004	0.002
10	1852.400002	0.001	1907.600003	0.002
20	1852.399997	-0.002	1907.599996	-0.002
30	1852.399998	-0.001	1907.599999	-0.001
40	1852.399996	-0.002	1907.599996	-0.002
50	1852.399997	-0.002	1907.599997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700004	0.002	1909.300000	0.001
3.145	1850.700003	0.001	1909.300001	0.001
4.255	1850.700002	0.001	1909.300002	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700001	0.001	1909.300003	0.002
-20	1850.700002	0.001	1909.300003	0.002
-10	1850.700002	0.001	1909.300001	0.001
0	1850.700004	0.002	1909.300001	0.001
10	1850.700004	0.002	1909.300001	0.001
20	1850.699998	-0.001	1909.300002	0.001
30	1850.699998	-0.001	1909.299998	-0.001
40	1850.699997	-0.002	1909.299999	-0.001
50	1850.699998	-0.001	1909.299998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700003	0.001	1909.300000	0.001
3.145	1850.700002	0.001	1909.300004	0.002
4.255	1850.700002	0.001	1909.300001	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700003	0.002	1909.300001	0.001
-20	1850.700002	0.001	1909.300003	0.002
-10	1850.700004	0.002	1909.300003	0.001
0	1850.700003	0.002	1909.300001	0.001
10	1850.700002	0.001	1909.300001	0.001
20	1850.699999	-0.001	1909.300004	0.002
30	1850.699997	-0.002	1909.299997	-0.002
40	1850.699998	-0.001	1909.299997	-0.002
50	1850.699999	-0.001	1909.299997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700004	0.002	1909.300000	0.002
3.145	1850.700004	0.002	1909.300003	0.001
4.255	1850.700003	0.002	1909.300003	0.002

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700002	0.001	1909.300001	0.001
-20	1850.700002	0.001	1909.300003	0.001
-10	1850.700004	0.002	1909.300003	0.002
0	1850.700004	0.002	1909.300004	0.002
10	1850.700002	0.001	1909.300003	0.002
20	1850.699996	-0.002	1909.300003	0.001
30	1850.699998	-0.001	1909.299998	-0.001
40	1850.699999	-0.001	1909.299997	-0.002
50	1850.699997	-0.001	1909.299998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700001	0.001	1909.300000	0.001
3.145	1850.700003	0.002	1909.300003	0.001
4.255	1850.700002	0.001	1909.300003	0.002

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700004	0.002	1909.300002	0.001
-20	1850.700004	0.002	1909.300004	0.002
-10	1850.700001	0.001	1909.300001	0.001
0	1850.700004	0.002	1909.300002	0.001
10	1850.700004	0.002	1909.300002	0.001
20	1850.699997	-0.002	1909.300004	0.002
30	1850.699997	-0.002	1909.299996	-0.002
40	1850.699997	-0.002	1909.299996	-0.002
50	1850.699998	-0.001	1909.299998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700004	0.002	1909.300000	0.001
3.145	1850.700002	0.001	1909.300004	0.002
4.255	1850.700001	0.001	1909.300001	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700003	0.002	1909.300004	0.002
-20	1850.700003	0.002	1909.300003	0.002
-10	1850.700002	0.001	1909.300001	0.001
0	1850.700002	0.001	1909.300003	0.002
10	1850.700002	0.001	1909.300003	0.001
20	1850.699998	-0.001	1909.300004	0.002
30	1850.699997	-0.002	1909.299999	-0.001
40	1850.699997	-0.001	1909.299998	-0.001
50	1850.699998	-0.001	1909.299998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700002	0.001	1909.300000	0.001
3.145	1850.700001	0.001	1909.300002	0.001
4.255	1850.700002	0.001	1909.300002	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700002	0.001	1909.300004	0.002
-20	1850.700004	0.002	1909.300004	0.002
-10	1850.700004	0.002	1909.300004	0.002
0	1850.700003	0.001	1909.300002	0.001
10	1850.700002	0.001	1909.300003	0.002
20	1850.699999	-0.001	1909.300003	0.002
30	1850.699998	-0.001	1909.299998	-0.001
40	1850.699998	-0.001	1909.299998	-0.001
50	1850.699999	-0.001	1909.299999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 25			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700001	0.001	1914.300003	0.001
3.145	1850.700002	0.001	1914.300002	0.001
4.255	1850.700003	0.002	1914.300001	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 25			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700001	0.001	1914.300002	0.001
-20	1850.700003	0.002	1914.300002	0.001
-10	1850.700003	0.002	1914.300002	0.001
0	1850.700004	0.002	1914.300002	0.001
10	1850.700003	0.002	1914.300002	0.001
20	1850.699997	-0.002	1914.300002	0.001
30	1850.699997	-0.002	1914.299996	-0.002
40	1850.699997	-0.002	1914.299996	-0.002
50	1850.699998	-0.001	1914.299996	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 25			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700003	0.002	1914.300003	0.002
3.145	1850.700002	0.001	1914.300004	0.002
4.255	1850.700002	0.001	1914.300003	0.002

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 25			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700002	0.001	1914.300002	0.001
-20	1850.700001	0.001	1914.300001	0.001
-10	1850.700003	0.001	1914.300002	0.001
0	1850.700001	0.001	1914.300001	0.001
10	1850.700001	0.001	1914.300004	0.002
20	1850.699999	-0.001	1914.300001	0.001
30	1850.699997	-0.002	1914.299997	-0.001
40	1850.699997	-0.001	1914.299998	-0.001
50	1850.699996	-0.002	1914.299997	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 25			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700004	0.002	1914.300002	0.001
3.145	1850.700001	0.001	1914.300001	0.001
4.255	1850.700004	0.002	1914.300003	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 25			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700003	0.002	1914.300003	0.001
-20	1850.700001	0.001	1914.300003	0.002
-10	1850.700003	0.002	1914.300002	0.001
0	1850.700004	0.002	1914.300002	0.001
10	1850.700002	0.001	1914.300002	0.001
20	1850.699998	-0.001	1914.300004	0.002
30	1850.699999	-0.001	1914.299997	-0.002
40	1850.699998	-0.001	1914.299996	-0.002
50	1850.699997	-0.001	1914.299998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 25			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700002	0.001	1914.300001	0.001
3.145	1850.700002	0.001	1914.300001	0.001
4.255	1850.700002	0.001	1914.300002	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 25			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700002	0.001	1914.300001	0.001
-20	1850.700001	0.001	1914.300004	0.002
-10	1850.700004	0.002	1914.300004	0.002
0	1850.700003	0.002	1914.300002	0.001
10	1850.700004	0.002	1914.300003	0.001
20	1850.699997	-0.002	1914.300003	0.002
30	1850.699996	-0.002	1914.299997	-0.001
40	1850.699997	-0.002	1914.299997	-0.001
50	1850.699997	-0.002	1914.299999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 25			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700002	0.001	1914.300003	0.002
3.145	1850.700003	0.002	1914.300003	0.002
4.255	1850.700002	0.001	1914.300003	0.002

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 25			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700004	0.002	1914.300004	0.002
-20	1850.700004	0.002	1914.300002	0.001
-10	1850.700004	0.002	1914.300002	0.001
0	1850.700003	0.002	1914.300003	0.002
10	1850.700003	0.002	1914.300002	0.001
20	1850.699996	-0.002	1914.300003	0.002
30	1850.699998	-0.001	1914.299999	-0.001
40	1850.699997	-0.002	1914.299996	-0.002
50	1850.699997	-0.001	1914.299997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 25			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.7	1850.700003	0.002	1914.300001	0.001
3.145	1850.700003	0.001	1914.300003	0.001
4.255	1850.700003	0.002	1914.300001	0.001

Note: The applicant defined the normal working voltage of the battery is from 3.145 Vdc to 4.255 Vdc.

Frequency Error vs. Temperature

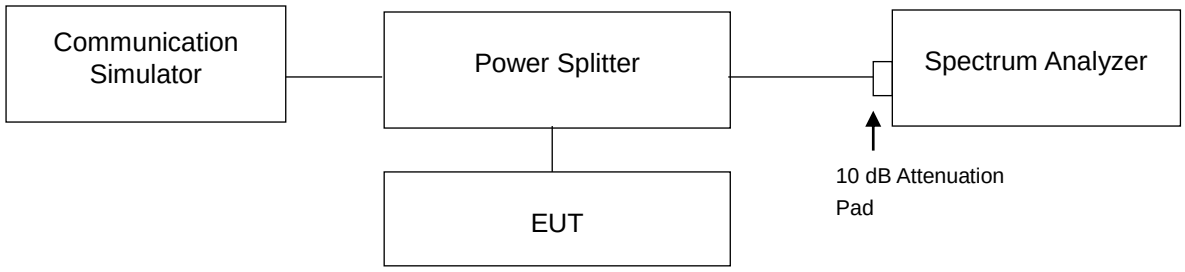
Temp. (℃)	LTE Band 25			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700002	0.001	1914.300004	0.002
-20	1850.700003	0.002	1914.300002	0.001
-10	1850.700003	0.002	1914.300004	0.002
0	1850.700003	0.002	1914.300002	0.001
10	1850.700002	0.001	1914.300002	0.001
20	1850.699998	-0.001	1914.300003	0.001
30	1850.699996	-0.002	1914.299996	-0.002
40	1850.699996	-0.002	1914.299999	-0.001
50	1850.699996	-0.002	1914.299998	-0.001

4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

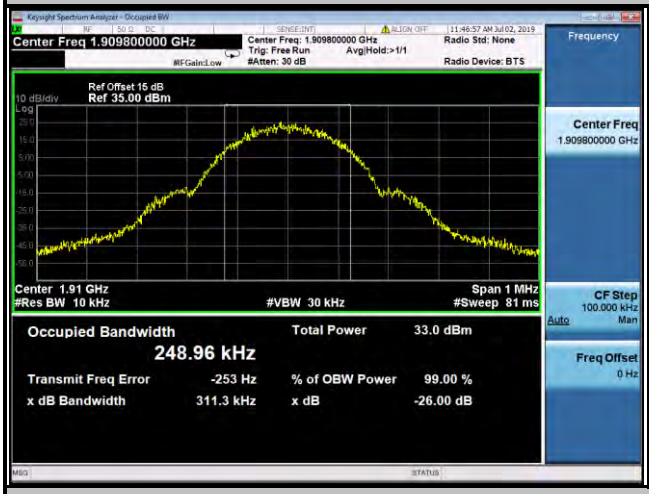
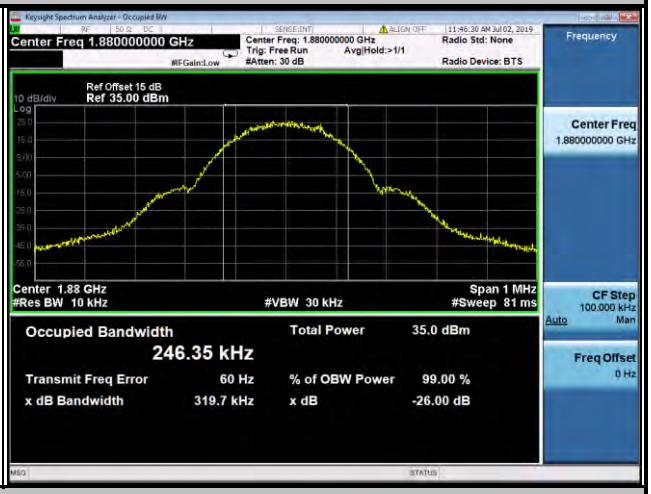
The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.4.2 Test Setup



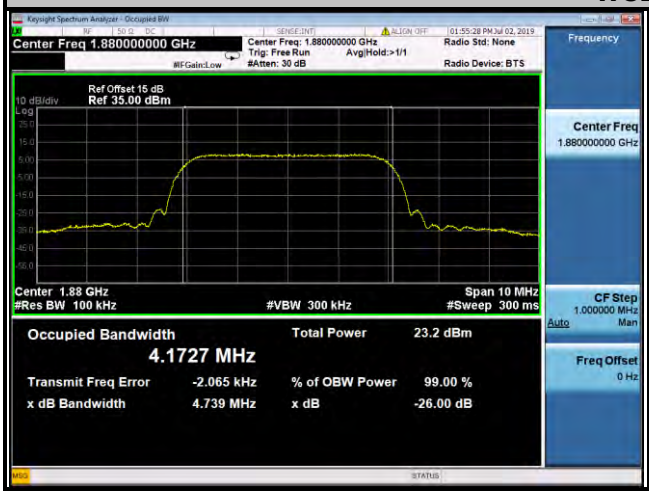
4.4.3 Test Result

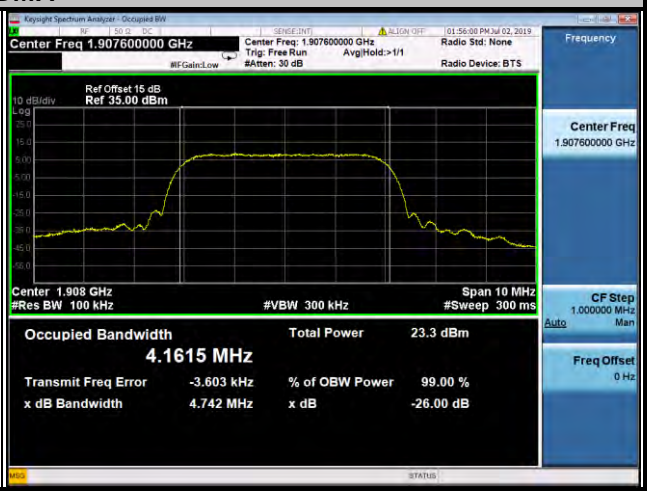
GPRS				EDGE			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)	Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	246.51	311.00	512	1850.2	240.30	301.70
661	1880.0	246.53	319.70	661	1880.0	240.17	307.40
810	1909.8	248.96	311.30	810	1909.8	244.82	310.70

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
GPRS	
	
EDGE	
	

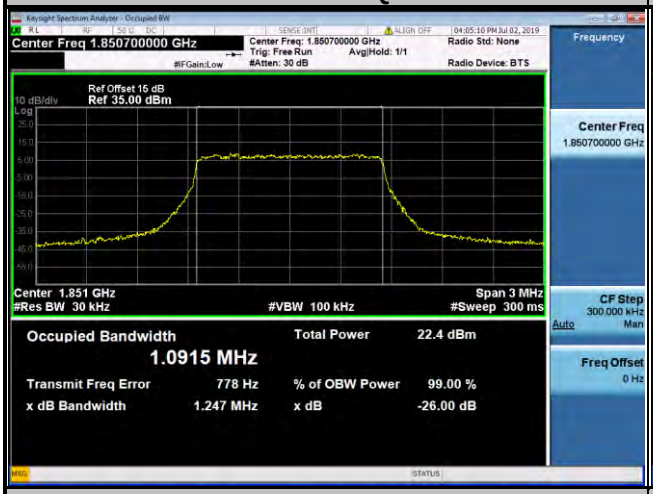
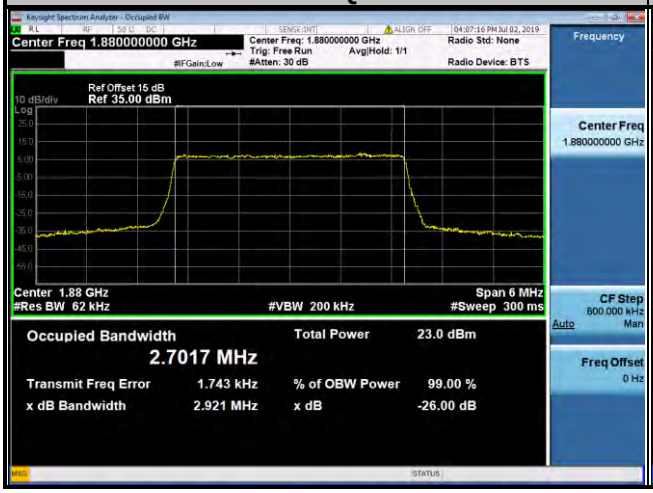
WCDMA			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1646	4.738
9400	1880.0	4.1727	4.739
9538	1907.6	4.1615	4.742

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
WCDMA	

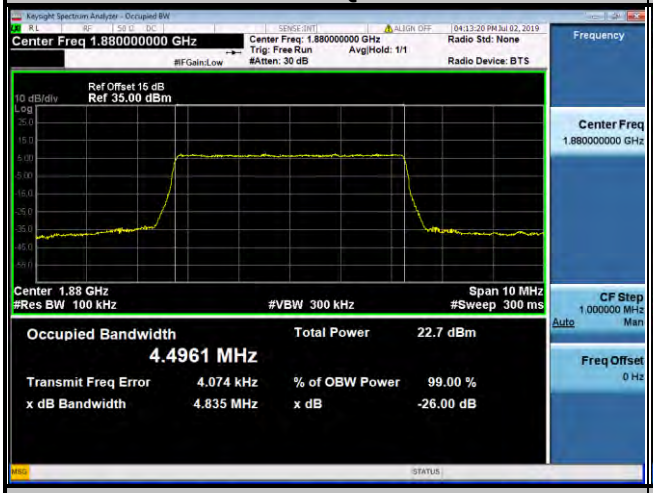
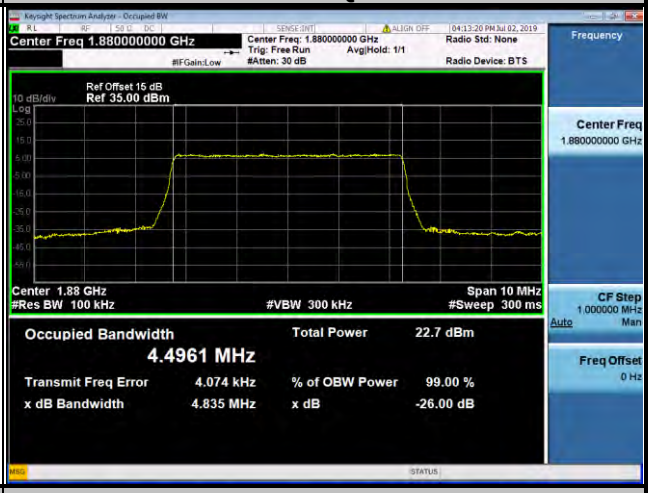
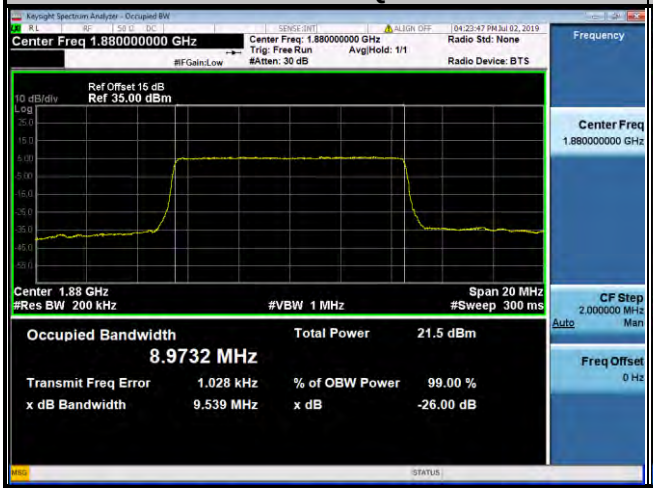
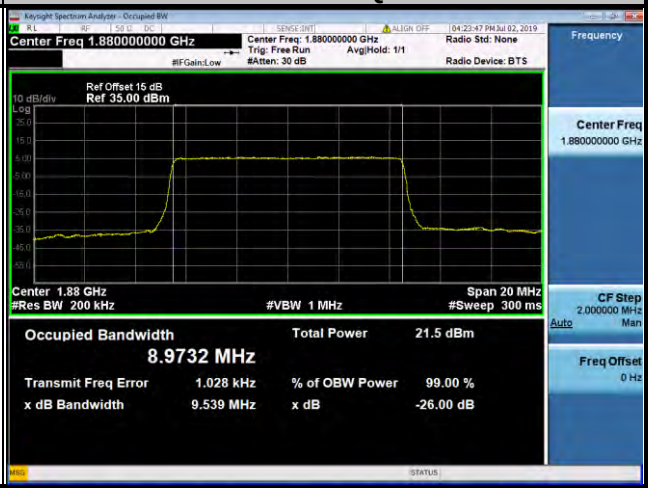




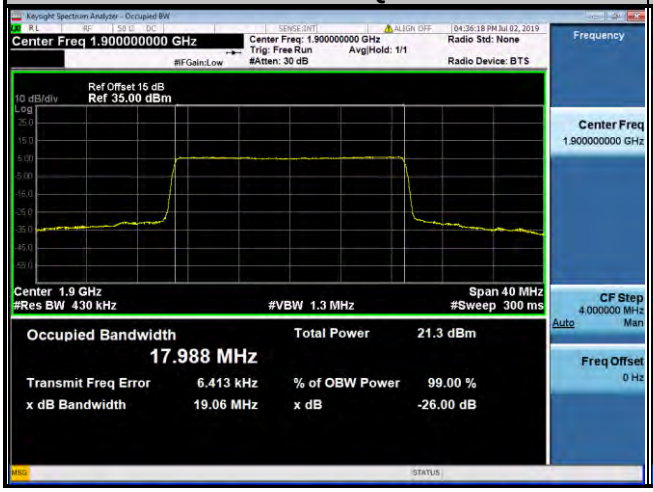
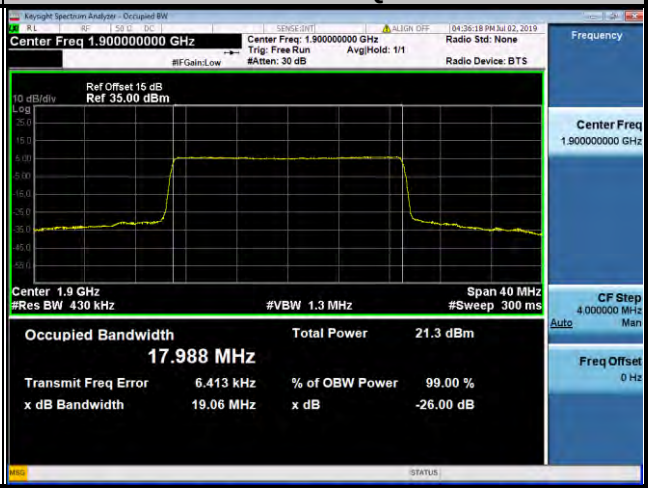
LTE Band 2					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18607	1850.7	1.0893	1.0915	1.246	1.247
18900	1880.0	1.0879	1.0897	1.250	1.246
19193	1909.3	1.0878	1.0895	1.252	1.260
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18615	1851.5	2.7011	2.6975	2.919	2.924
18900	1880.0	2.7017	2.6988	2.921	2.926
19185	1908.5	2.7010	2.6960	2.924	2.928

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
1.4 MHz / 16QAM	1.4 MHz / 16QAM
	
3 MHz / QPSK	3 MHz / 16QAM
	

LTE Band 2					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18625	1852.5	4.4923	4.4930	4.828	4.818
18900	1880.0	4.4961	4.4952	4.835	4.829
19175	1907.5	4.4890	4.4905	4.822	4.821
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18650	1855.0	8.9577	8.9588	9.506	9.530
18900	1880.0	8.9668	8.9732	9.508	9.539
19150	1905.0	8.9589	8.9683	9.516	9.516

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
5 MHz / QPSK	5 MHz / QPSK
	
10 MHz / 16QAM	10 MHz / 16QAM
	

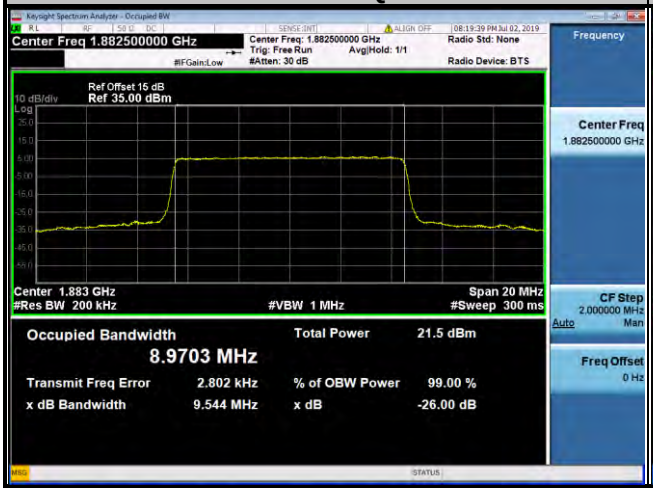
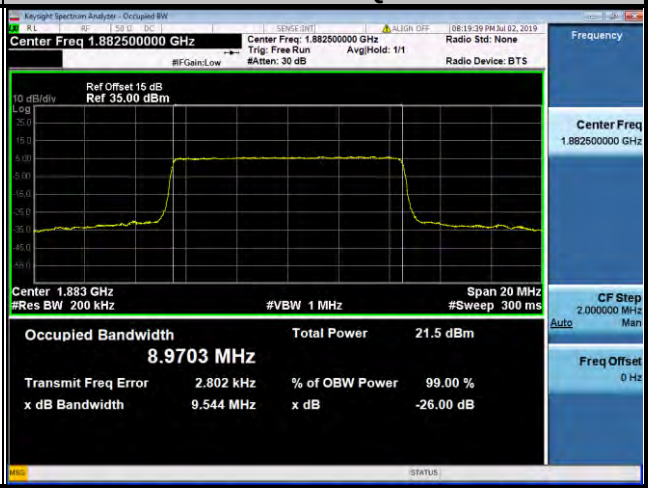
LTE Band 2					
Channel Bandwidth: 15 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18675	1857.5	13.454	13.438	14.25	14.25
18900	1880.0	13.473	13.461	14.26	14.26
19125	1902.5	13.482	13.474	14.27	14.27
Channel Bandwidth: 20 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18700	1860.0	17.909	17.922	19.03	19.02
18900	1880.0	17.935	17.957	19.03	19.03
19100	1900.0	17.965	17.988	19.06	19.06

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
15 MHz / QPSK	15 MHz / QPSK
	
20 MHz / 16QAM	20 MHz / 16QAM
	

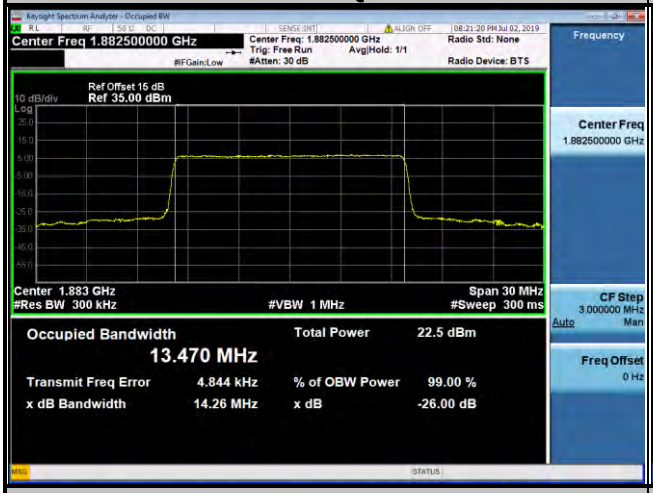
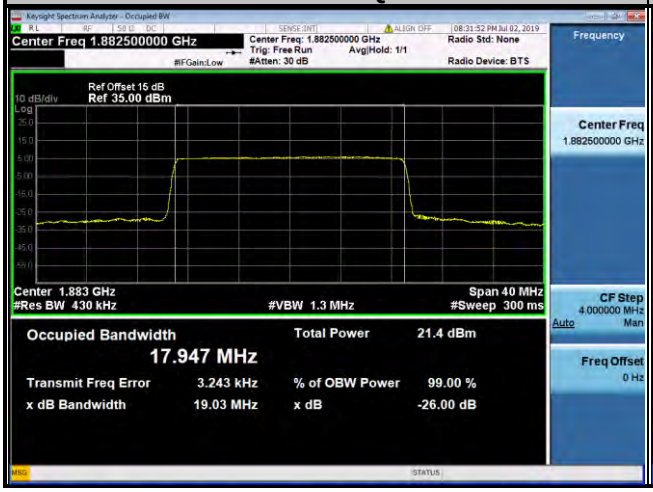
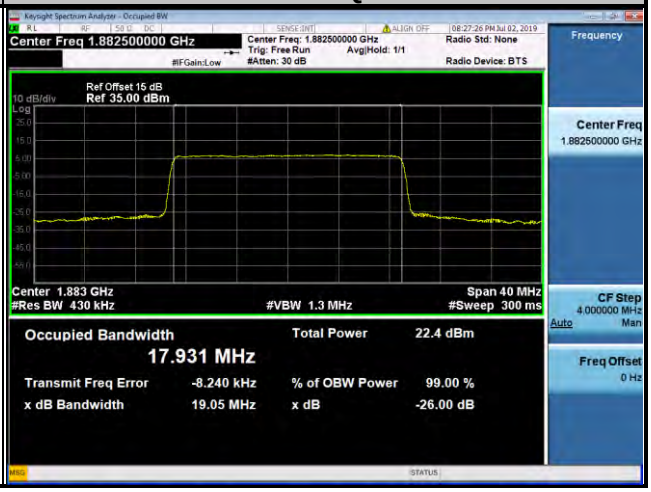
LTE Band 25					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26047	1850.7	1.0886	1.0895	1.253	1.242
26365	1882.5	1.0878	1.0887	1.260	1.248
26683	1914.3	1.0876	1.0873	1.242	1.258
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26055	1851.5	2.7021	2.6980	2.925	2.924
26365	1882.5	2.7012	2.6978	2.916	2.931
26675	1913.5	2.7048	2.6981	2.917	2.924

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
1.4 MHz / 16QAM	1.4 MHz / QPSK
	
3 MHz / QPSK	3 MHz / 16QAM
	

LTE Band 25					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26065	1852.5	4.4941	4.4927	4.819	4.824
26365	1882.5	4.4955	4.4936	4.840	4.823
26665	1912.5	4.4921	4.4930	4.809	4.822
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26090	1855.0	8.9566	8.9613	9.509	9.536
26365	1882.5	8.9638	8.9703	9.522	9.544
26640	1910.0	8.9389	8.9444	9.503	9.488

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
5 MHz / QPSK	5 MHz / QPSK
	
10 MHz / 16QAM	10 MHz / 16QAM
	

LTE Band 25					
Channel Bandwidth: 15 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26115	1857.5	13.454	13.444	14.25	14.25
26365	1882.5	13.470	13.453	14.26	14.25
26615	1907.5	13.429	13.411	14.23	14.24
Channel Bandwidth: 20 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26140	1860.0	17.915	17.943	19.02	19.03
26365	1882.5	17.931	17.947	19.05	19.03
26590	1905.0	17.889	17.913	19.01	19.02

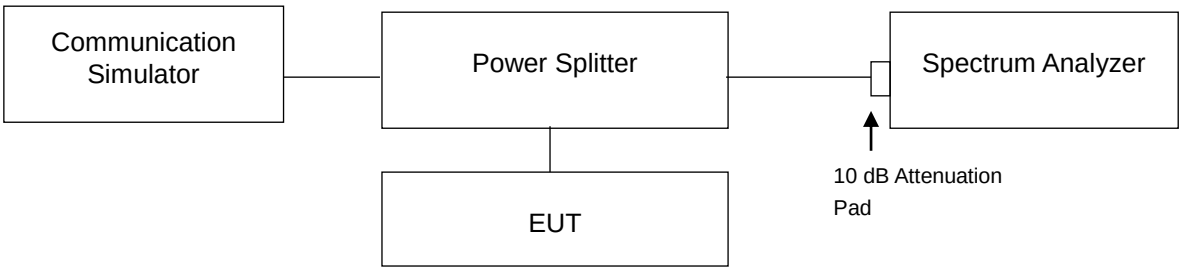
Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
15 MHz / QPSK	15 MHz / QPSK
	
20 MHz / 16QAM	20 MHz / QPSK
	

4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4.5.2 Test Setup

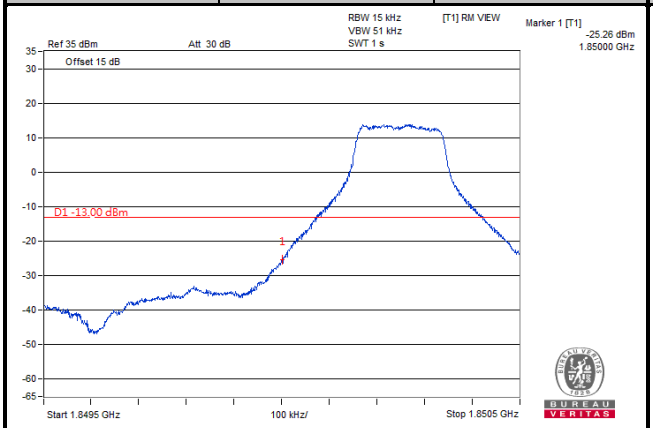
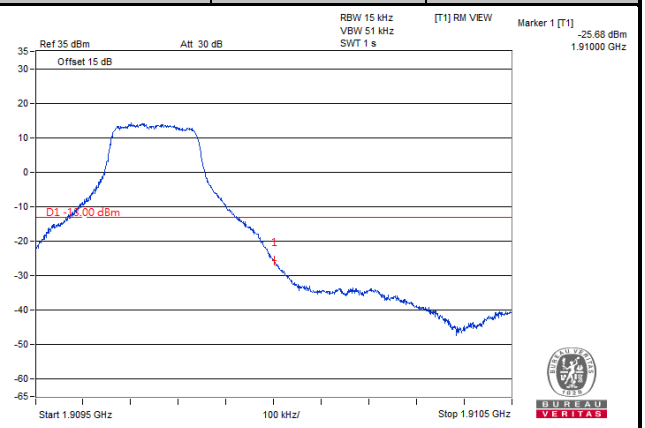
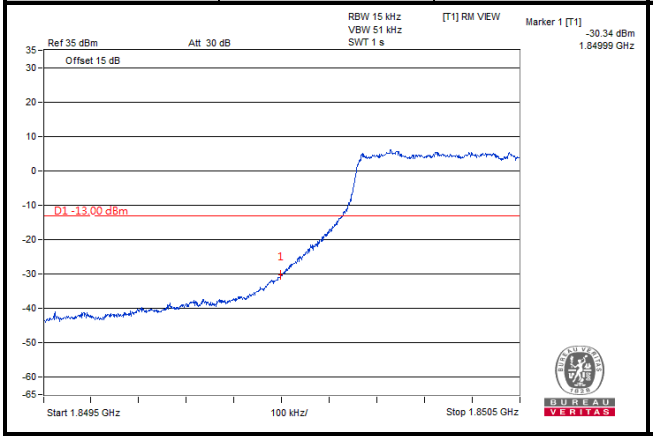
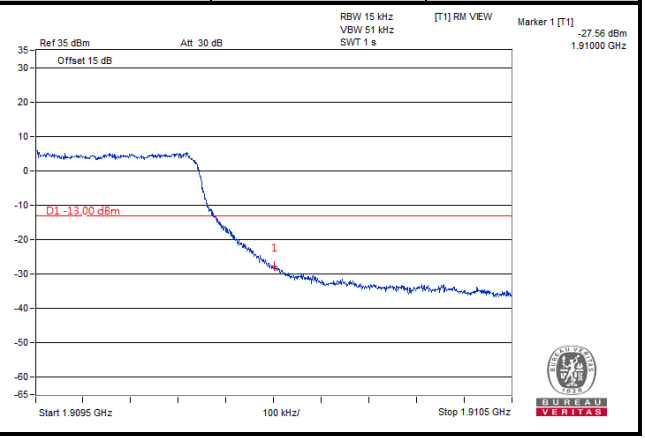


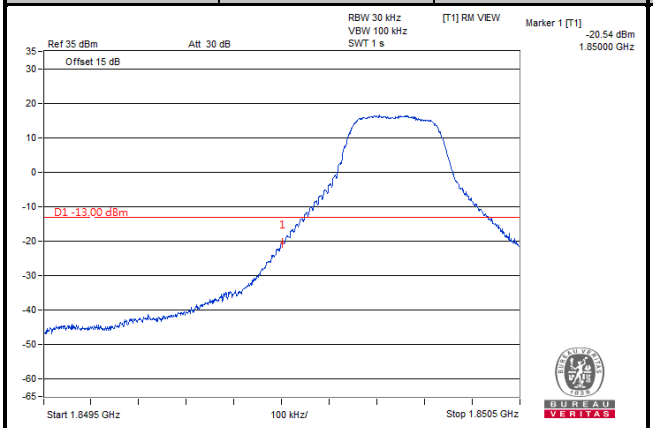
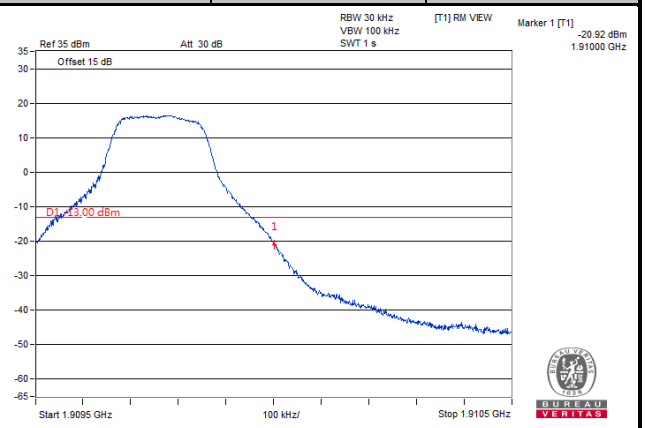
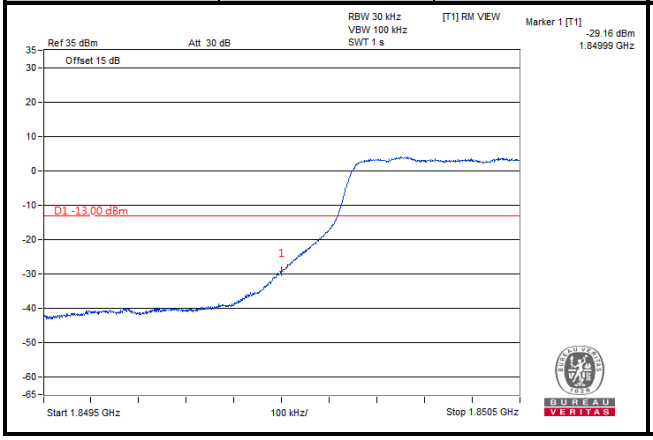
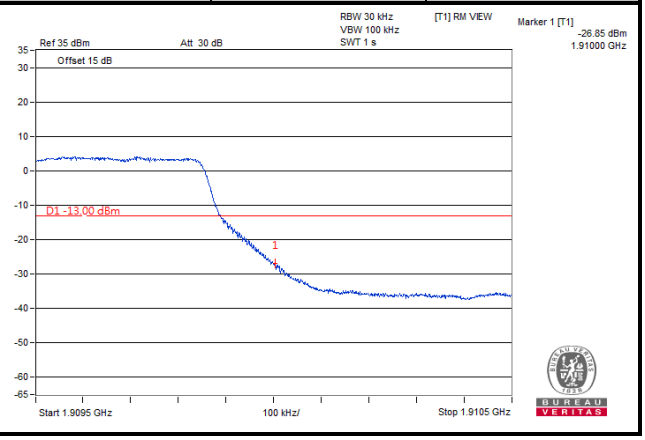
4.5.3 Test Procedures

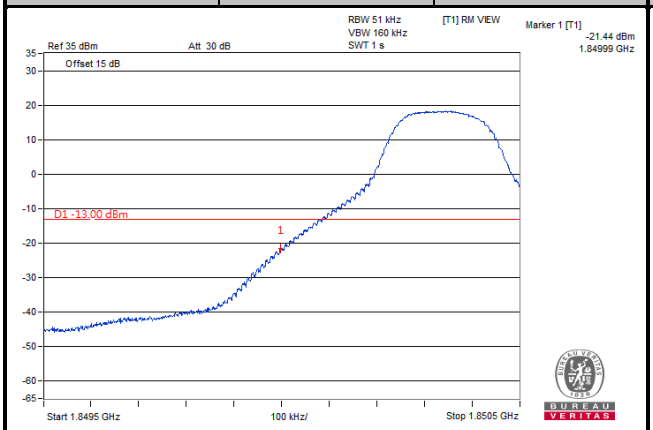
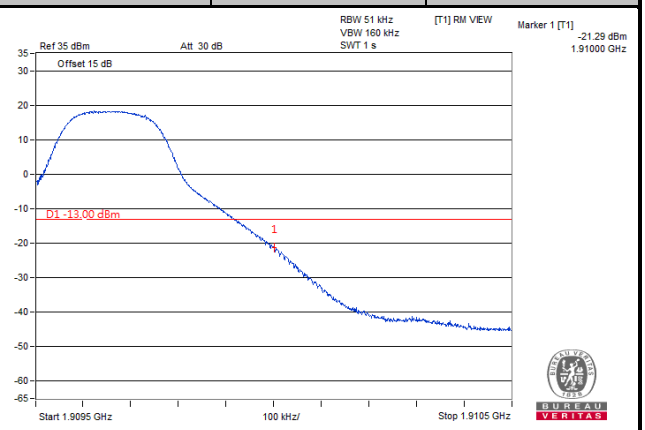
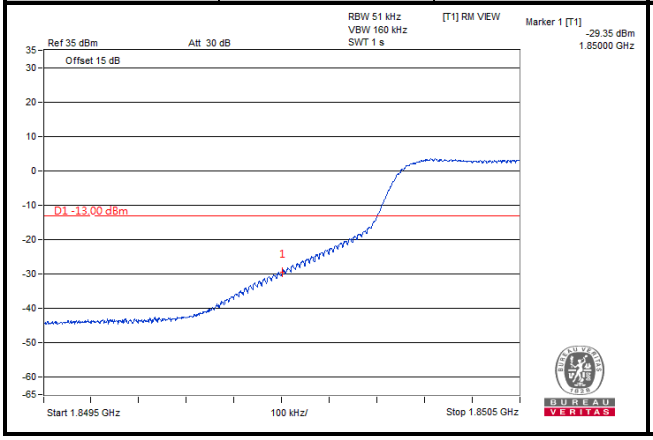
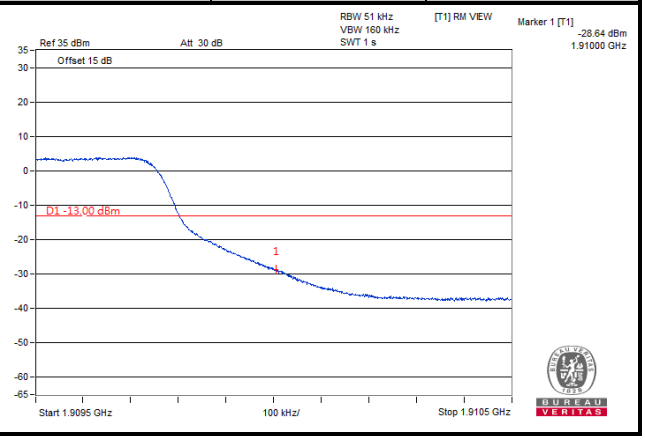
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 3.6 kHz and VB of the spectrum is 11 kHz (GPRS/EDGE).
c. The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (WCDMA).
d. 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).
e. 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).
f. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 51 kHz and VB of the spectrum is 160 kHz (LTE Bandwidth 5 MHz).
g. 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).
h. 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).
i. 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).
j. Record the max trace plot into the test report.

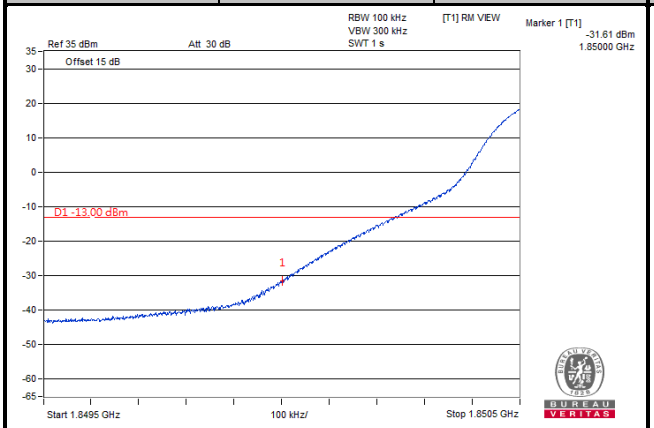
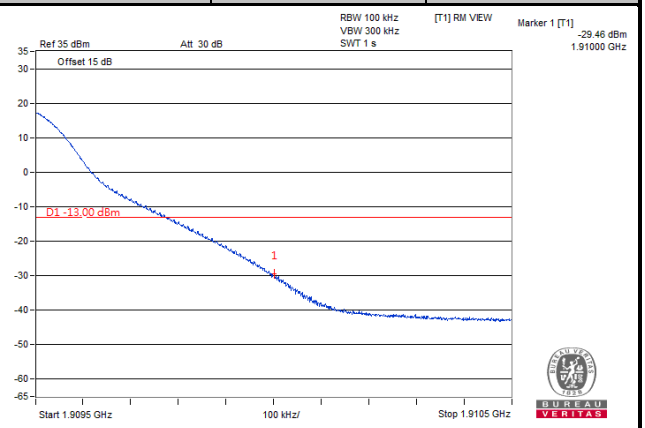
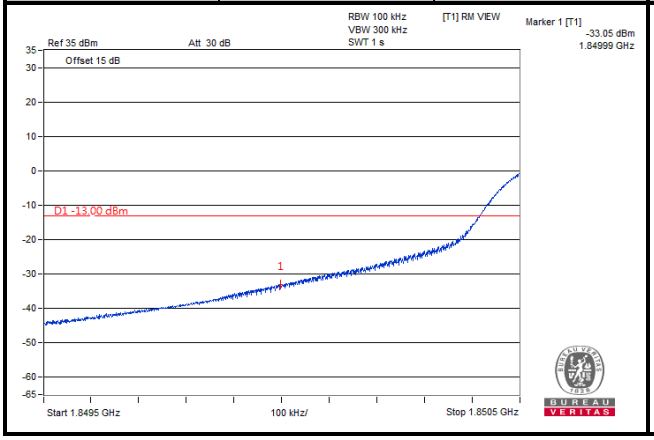
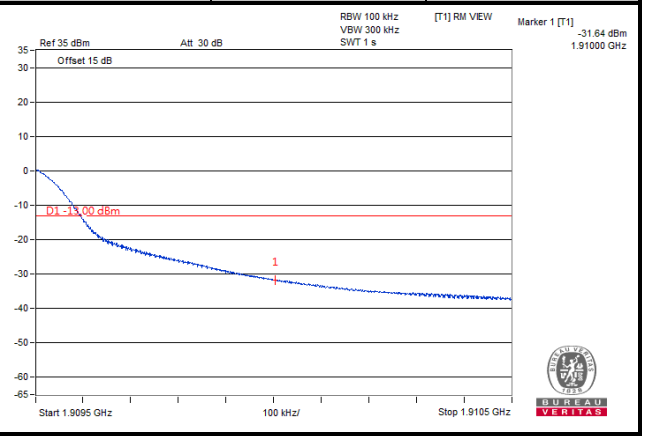
4.5.4 Test Results

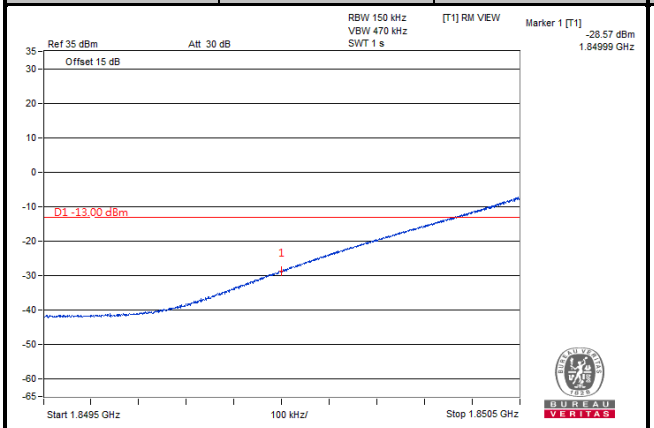
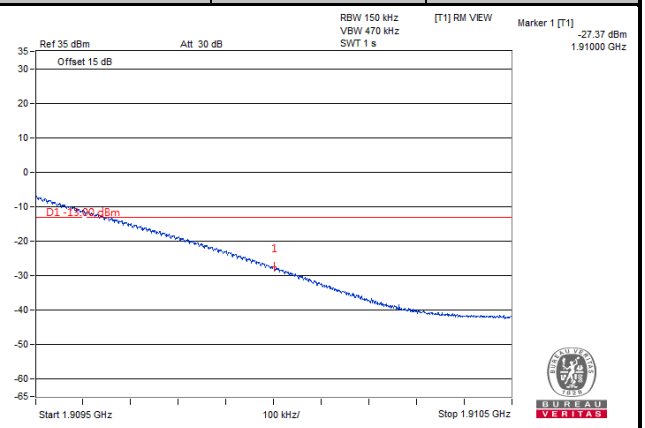
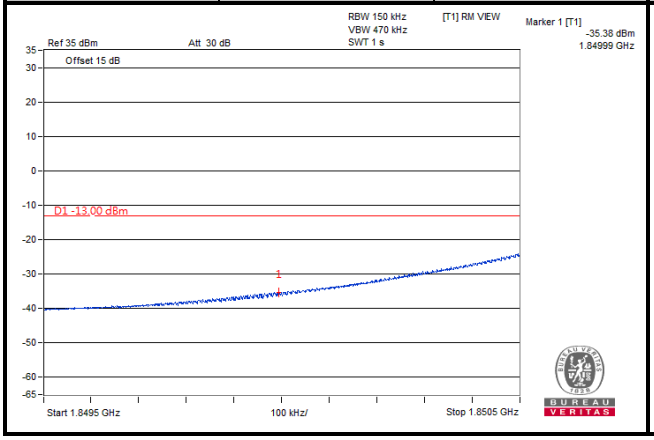
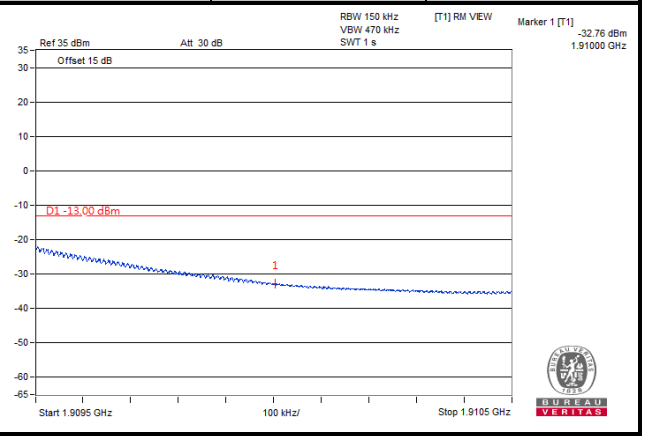
GPRS			
Channel	512	Channel	810
			
EDGE			
Channel	512	Channel	810
			
WCDMA			
Channel	9262	Channel	9538
			

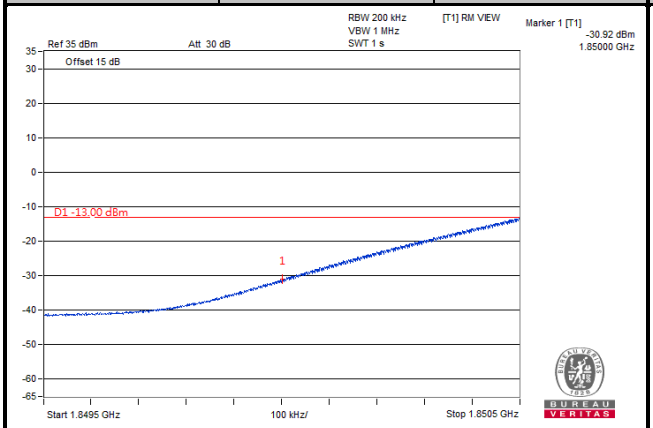
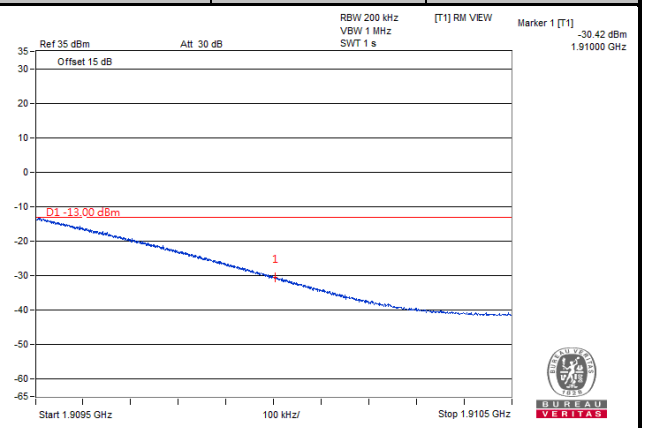
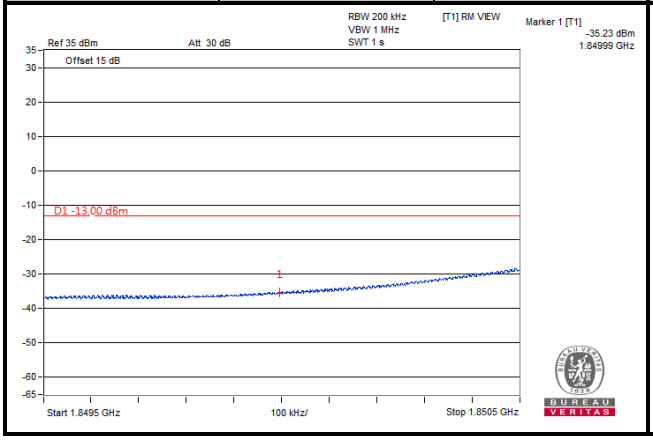
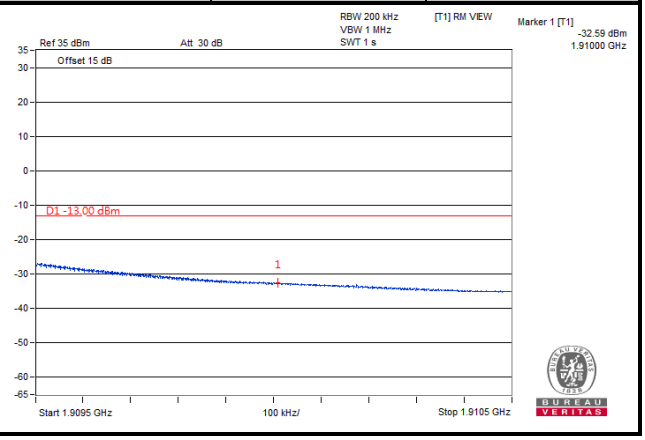
LTE Band 2					
Channel Bandwidth: 1.4 MHz					
Channel	18607	1 RB	Channel	19193	1 RB
					
Channel	18607	6 RB	Channel	19193	6 RB
					

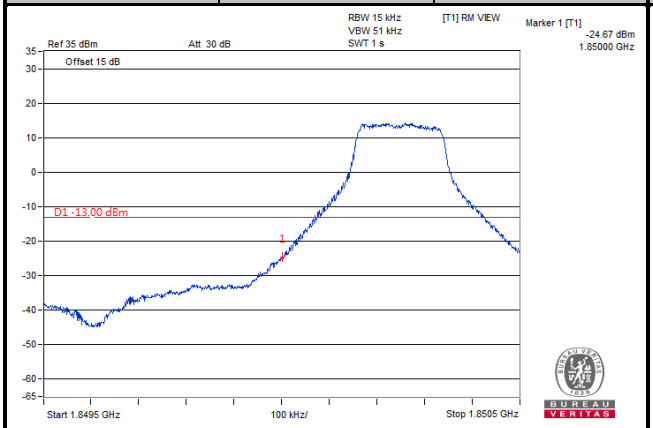
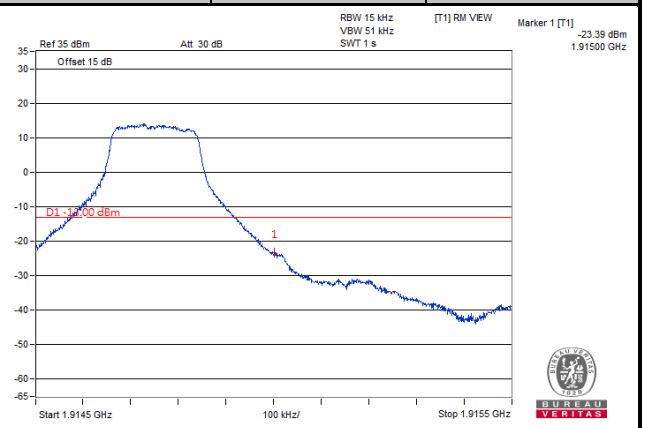
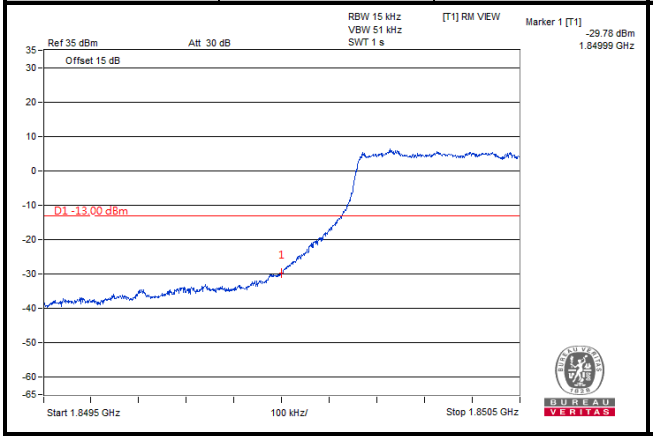
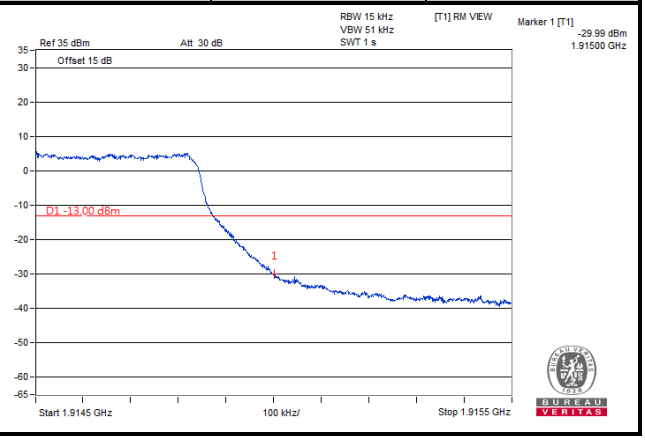
LTE Band 2					
Channel Bandwidth: 3 MHz					
Channel	18615	1 RB	Channel	19185	1 RB
					
Channel	18615	15 RB	Channel	19185	15 RB
					

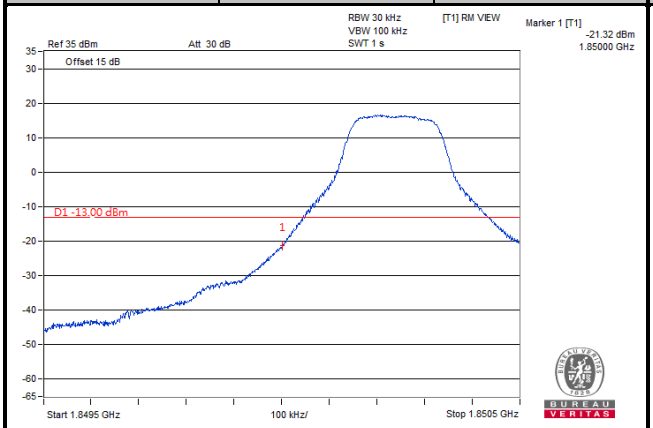
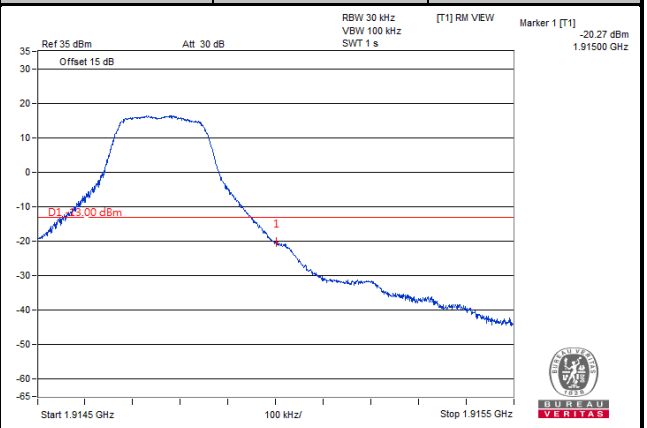
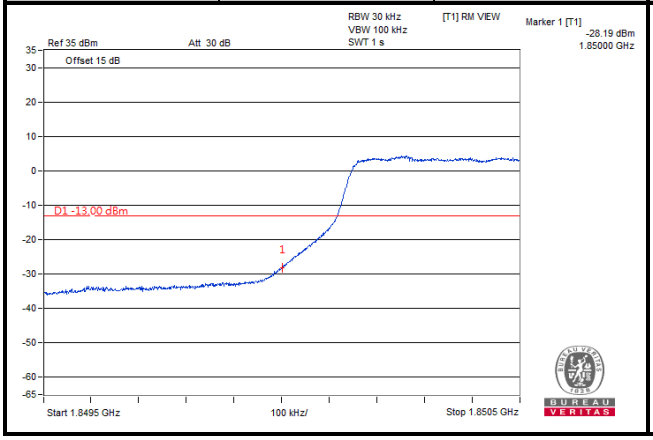
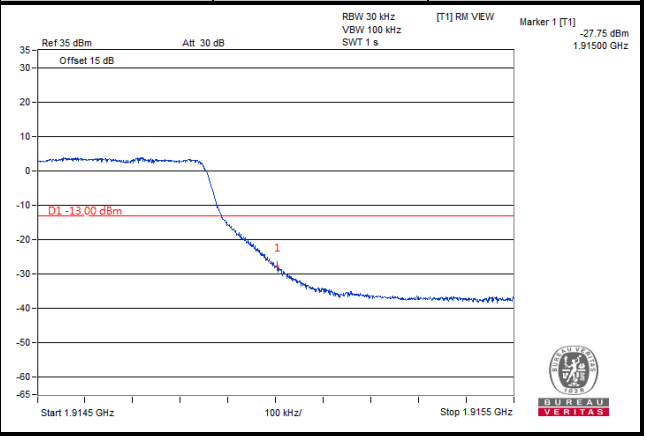
LTE Band 2					
Channel Bandwidth: 5 MHz					
Channel	18625	1 RB	Channel	19175	1 RB
					
Channel	18625	25 RB	Channel	19175	25 RB
					

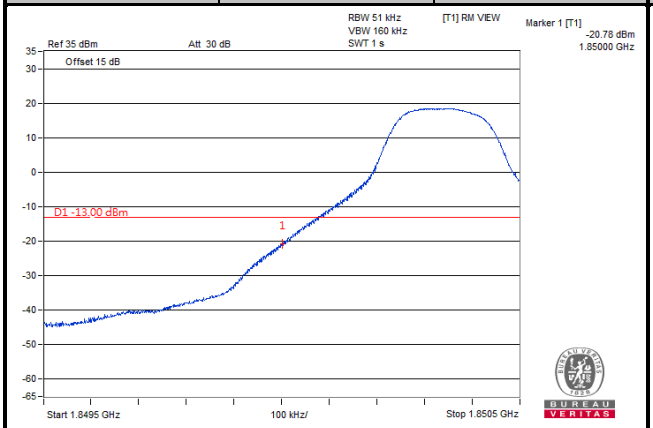
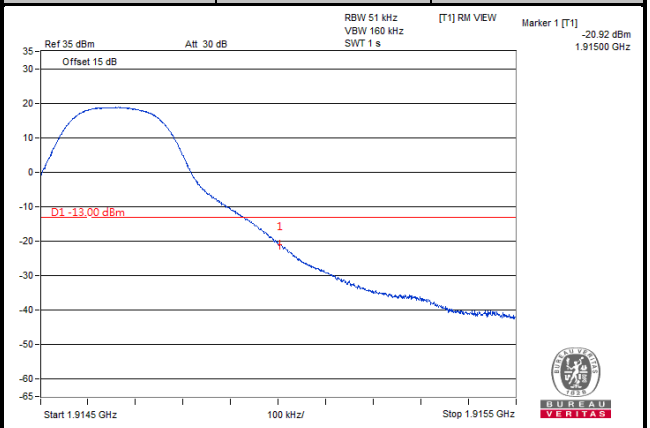
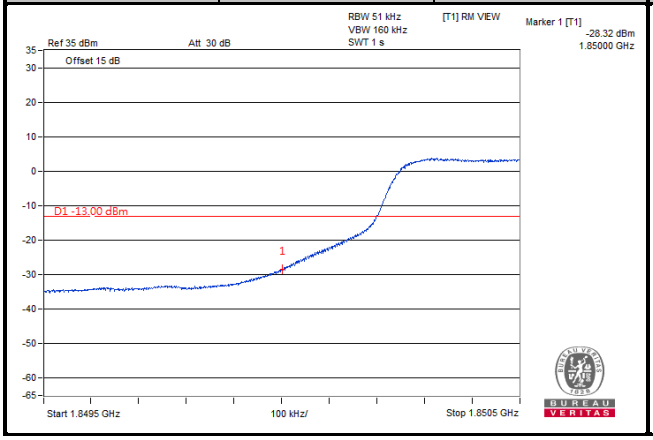
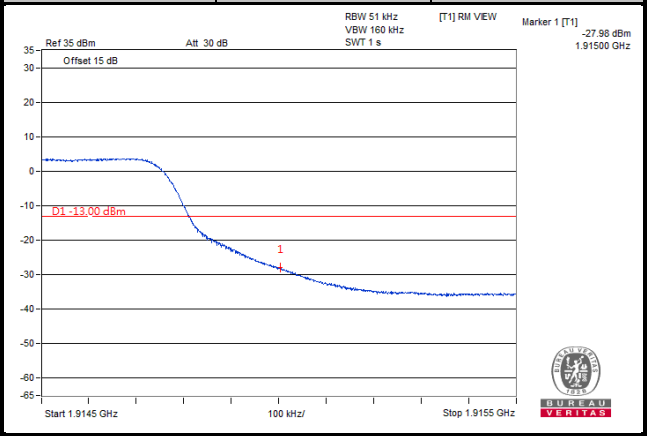
LTE Band 2					
Channel Bandwidth: 10 MHz					
Channel	18650	1 RB	Channel	19150	1 RB
					
Channel	18650	50 RB	Channel	19150	50 RB
					

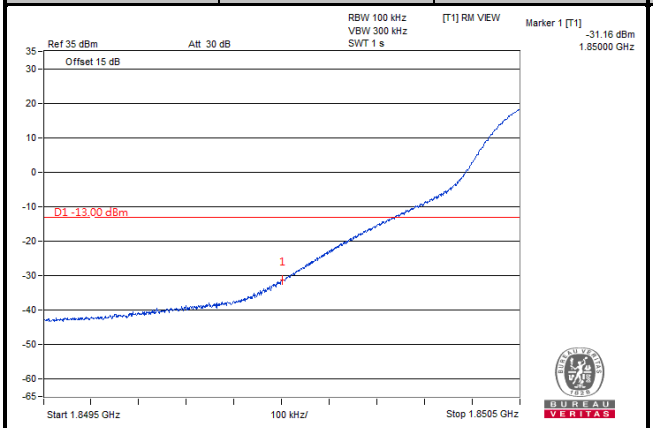
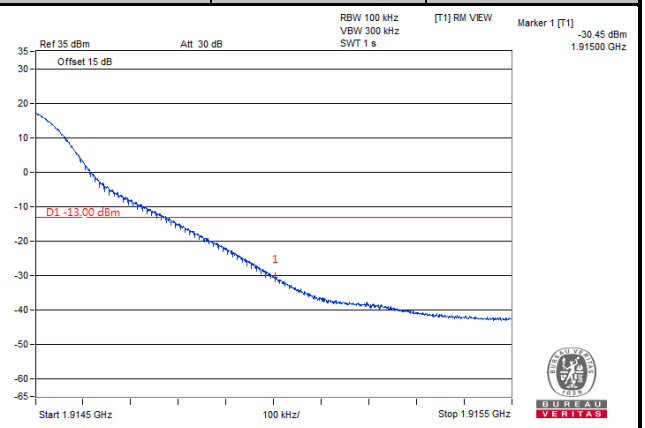
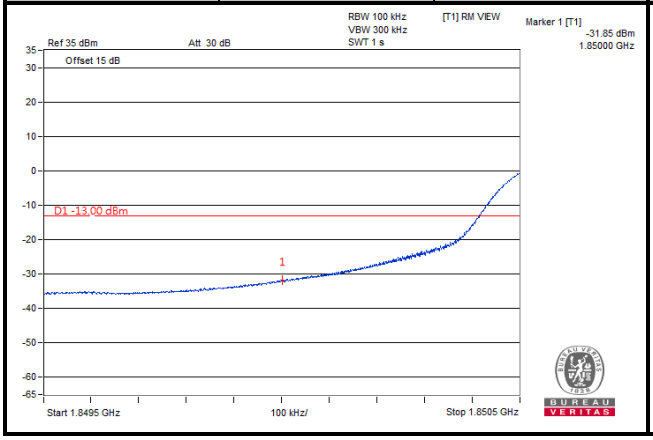
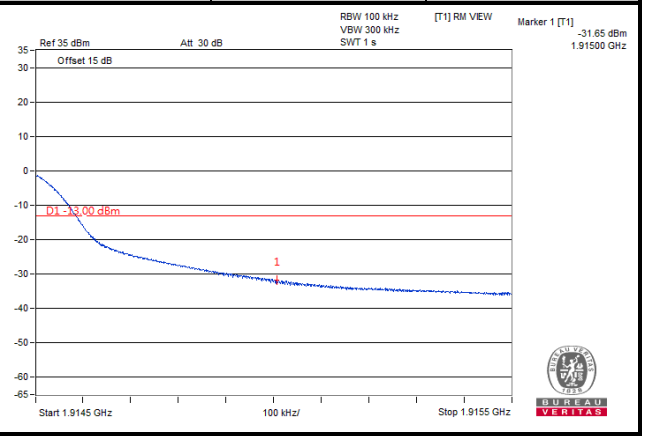
LTE Band 2					
Channel Bandwidth: 15 MHz					
Channel	18675	1 RB	Channel	19125	1 RB
					
Channel	18675	75 RB	Channel	19125	75 RB
					

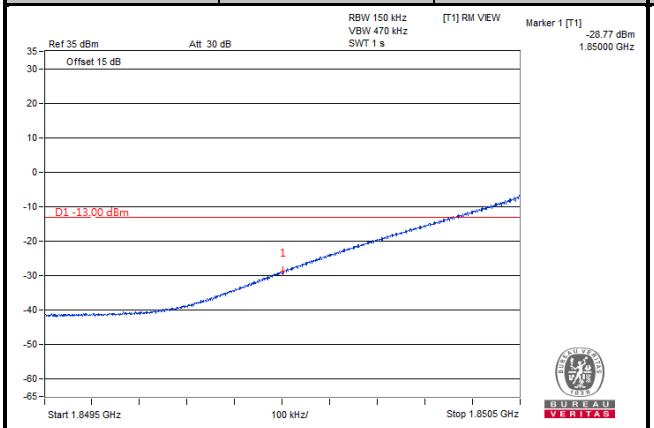
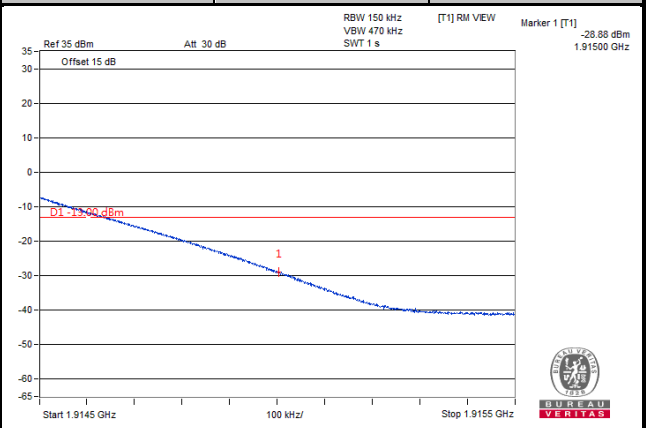
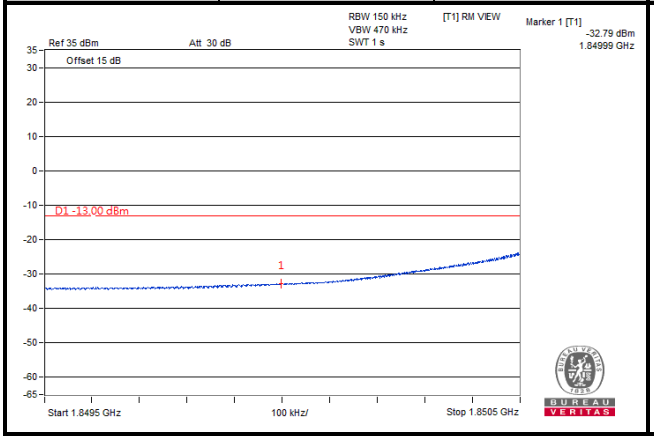
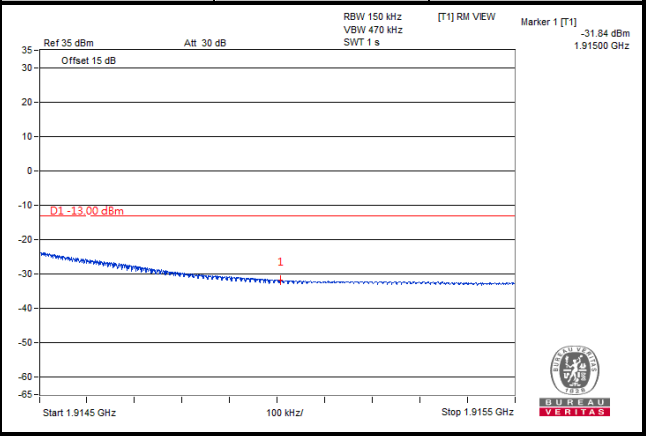
LTE Band 2					
Channel Bandwidth: 20 MHz					
Channel	18700	1 RB	Channel	19100	1 RB
					
Channel	18700	100 RB	Channel	19100	100 RB
					

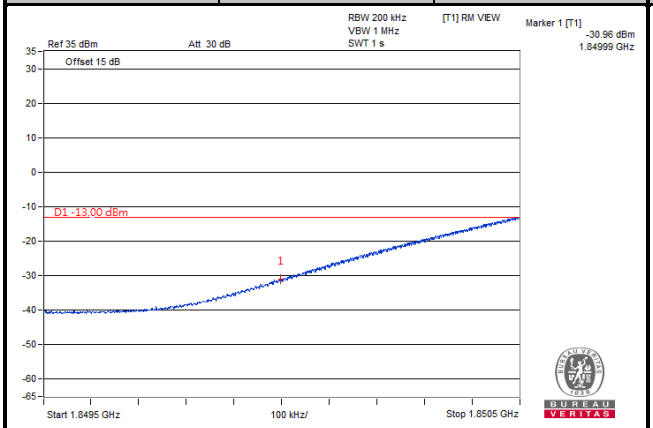
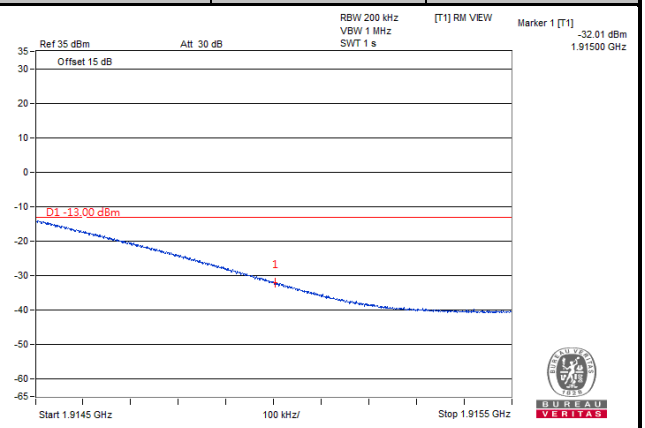
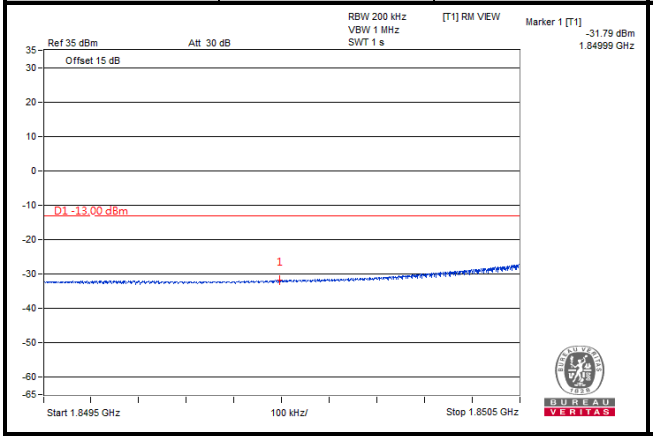
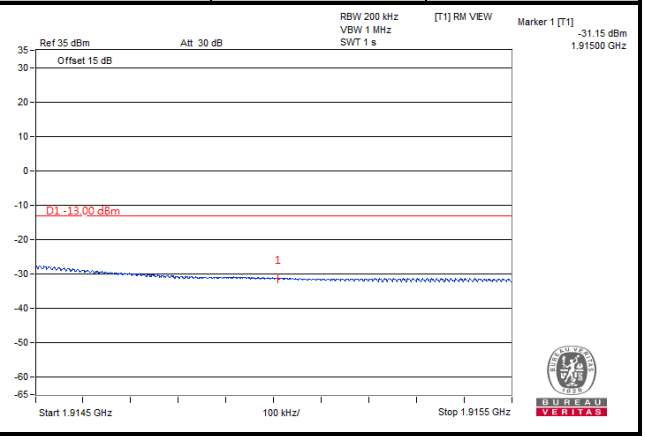
LTE Band 25					
Channel Bandwidth: 1.4 MHz					
Channel	26047	1 RB	Channel	26683	1 RB
					
Channel	26047	6 RB	Channel	26683	6 RB
					

LTE Band 25					
Channel Bandwidth: 3 MHz					
Channel	26055	1 RB	Channel	26675	1 RB
					
Channel	26055	15 RB	Channel	26675	15 RB
					

LTE Band 25					
Channel Bandwidth: 5 MHz					
Channel	26065	1 RB	Channel	26665	1 RB
					
Channel	26065	25 RB	Channel	26665	25 RB
					

LTE Band 25					
Channel Bandwidth: 10 MHz					
Channel	26090	1 RB	Channel	26640	1 RB
					
Channel	26090	50 RB	Channel	26640	50 RB
					

LTE Band 25					
Channel Bandwidth: 15 MHz					
Channel	26115	1 RB	Channel	26615	1 RB
					
Channel	26115	75 RB	Channel	26615	75 RB
					

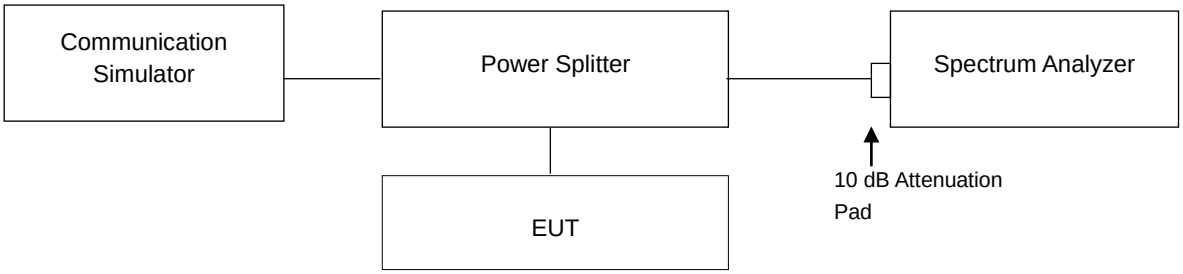
LTE Band 25					
Channel Bandwidth: 20 MHz					
Channel	26140	1 RB	Channel	26590	1 RB
					
Channel	26140	100 RB	Channel	26590	100 RB
					

4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup



4.6.3 Test Procedures

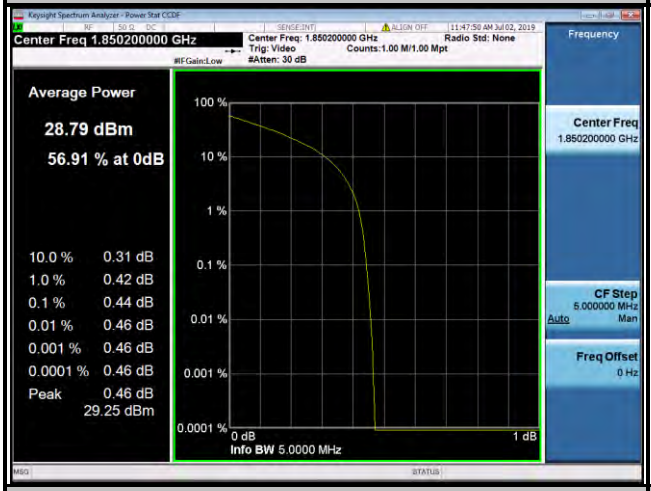
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

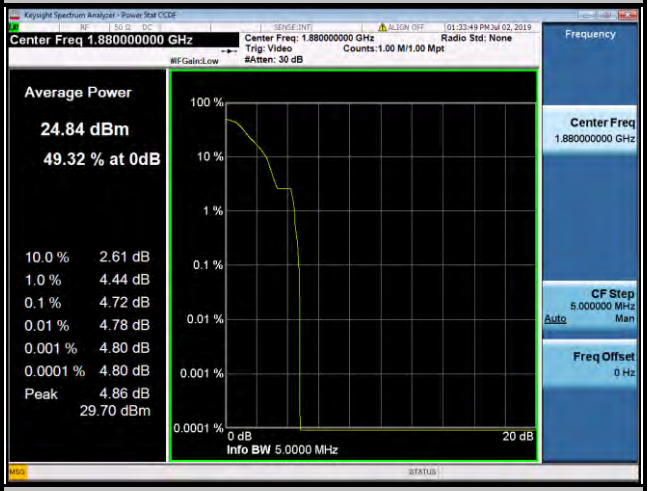
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)
		GPRS	EDGE			WCDMA
512	1850.2	0.44	3.52	9262	1852.4	3.15
661	1880.0	0.43	4.72	9400	1880.0	3.20
810	1909.8	0.43	3.55	9538	1907.6	3.10

Spectrum Plot of Worst Value

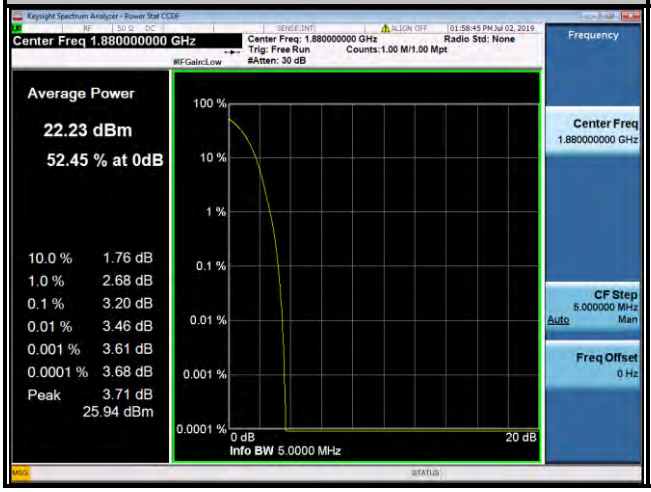
GPRS



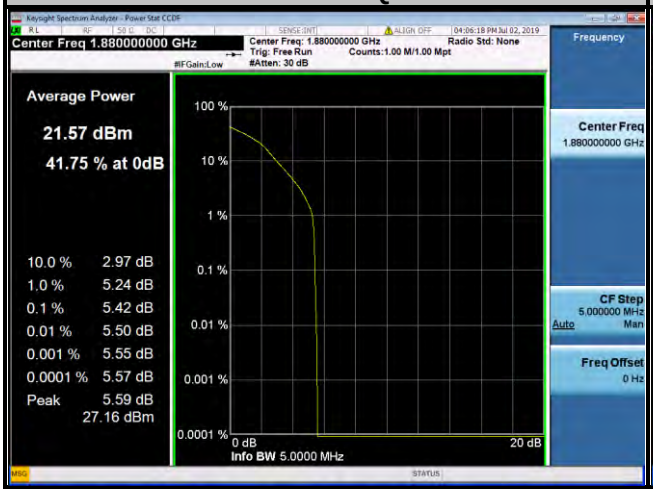
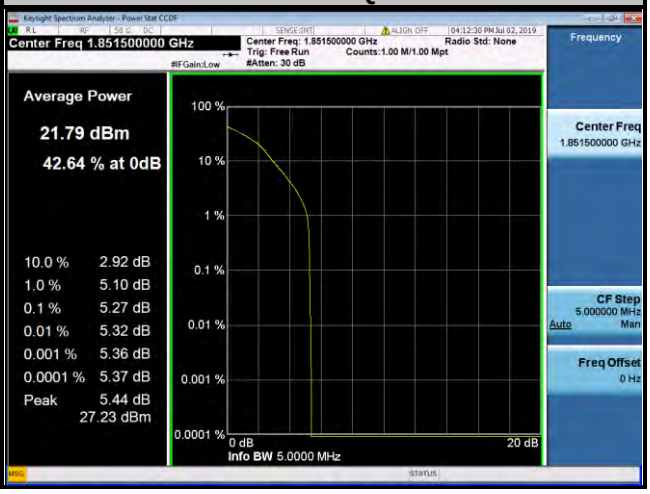
EDGE



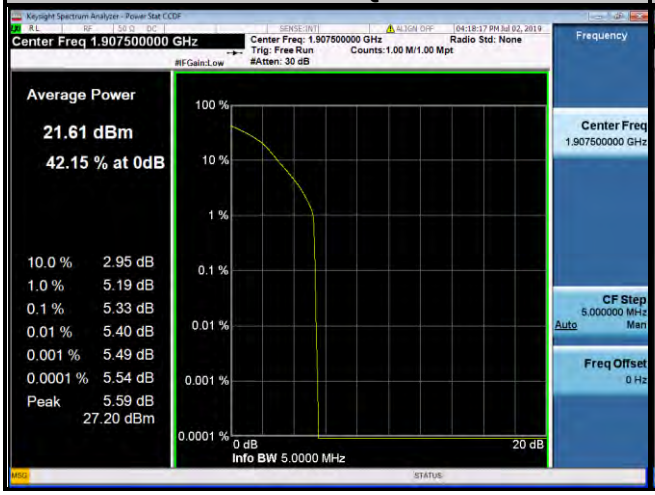
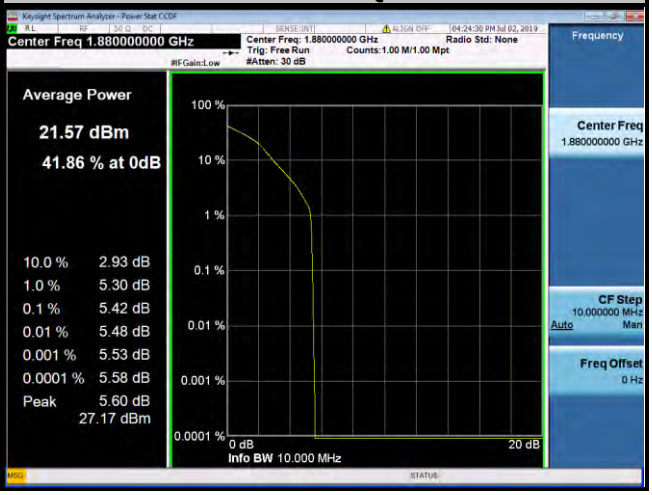
WCDMA



LTE Band 2							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18607	1850.7	4.55	5.32	18615	1851.5	4.50	5.27
18900	1880.0	4.62	5.42	18900	1880.0	4.62	5.22
19193	1909.3	4.09	4.87	19185	1908.5	4.30	4.92

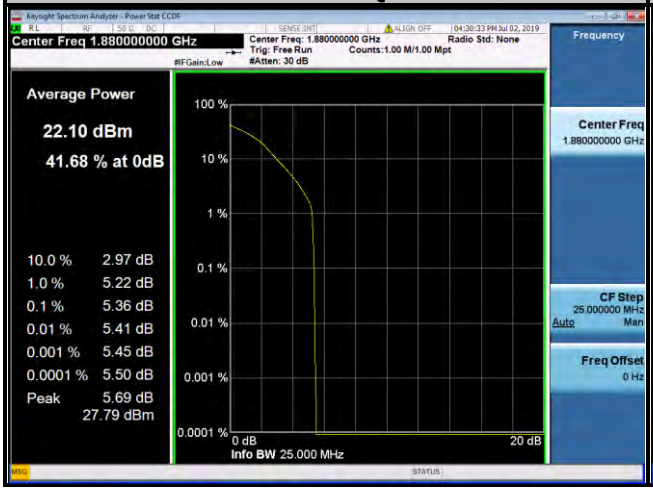
Spectrum Plot of Worst Value	
1.4 MHz / 16QAM	3 MHz / 16QAM
	

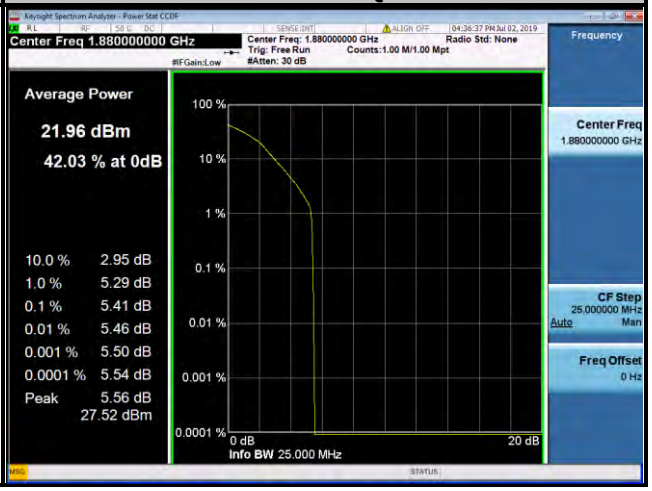
LTE Band 2							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18625	1852.5	4.47	5.32	18650	1855.0	4.42	5.22
18900	1880.0	4.66	5.26	18900	1880.0	4.67	5.42
19175	1907.5	4.55	5.33	19150	1905.0	4.59	5.38

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

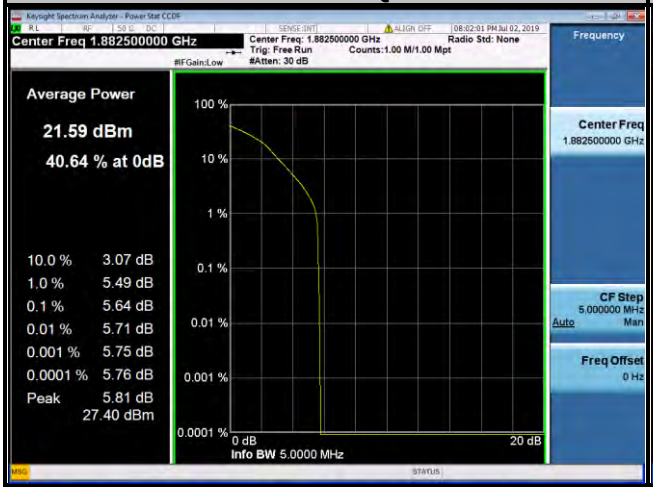
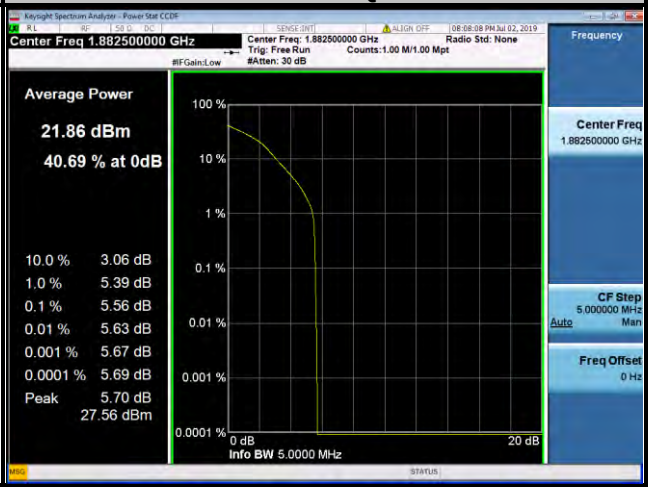
LTE Band 2							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
18675	1857.5	4.40	5.11	18700	1860.0	4.37	5.16
18900	1880.0	4.63	5.36	18900	1880.0	4.65	5.41
19125	1902.5	4.42	5.23	19100	1900.0	4.17	4.91

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





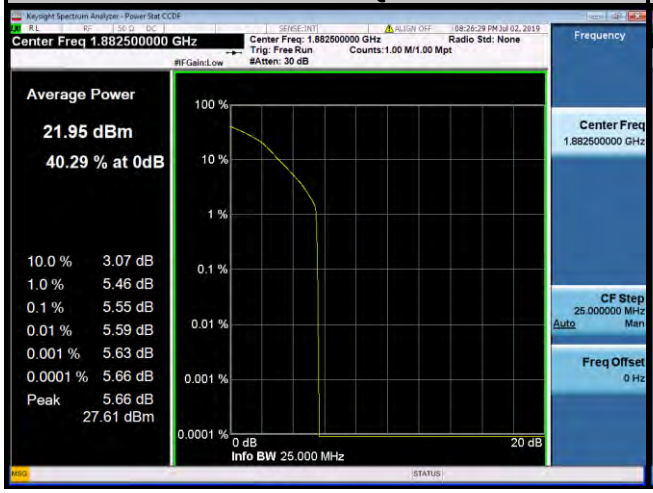
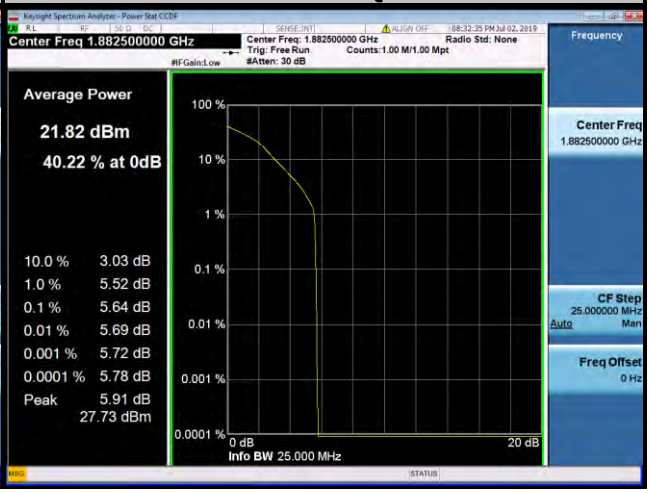
LTE Band 25							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26047	1850.7	4.73	5.58	26055	1851.5	4.70	5.41
26365	1882.5	4.74	5.64	26365	1882.5	4.81	5.56
26683	1914.3	4.11	5.11	26675	1913.5	4.03	4.85

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

LTE Band 25							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26065	1852.5	4.67	5.47	26090	1855.0	4.61	5.32
26365	1882.5	4.83	5.56	26365	1882.5	4.79	5.47
26665	1912.5	3.99	4.80	26640	1910.0	4.61	5.28

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

LTE Band 25							
Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26115	1857.5	4.60	5.37	26140	1860.0	4.52	5.47
26365	1882.5	4.77	5.55	26365	1882.5	4.82	5.64
26615	1907.5	4.74	5.46	26590	1905.0	4.58	5.29

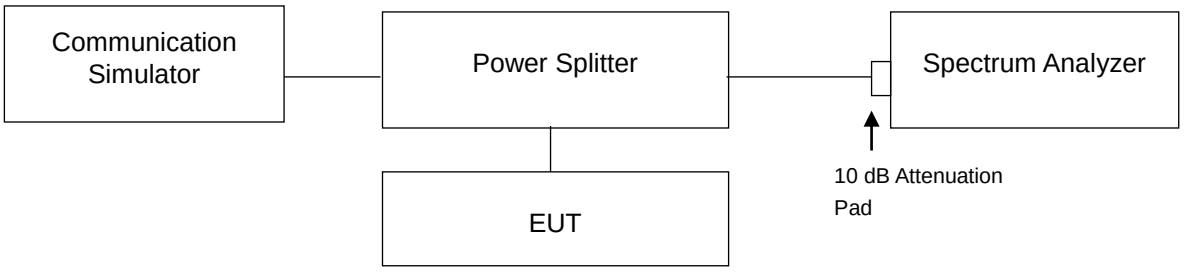
Spectrum Plot of Worst Value	
15 MHz / 16QAM	20 MHz / 16QAM
	

4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13 dBm.

4.7.2 Test Setup



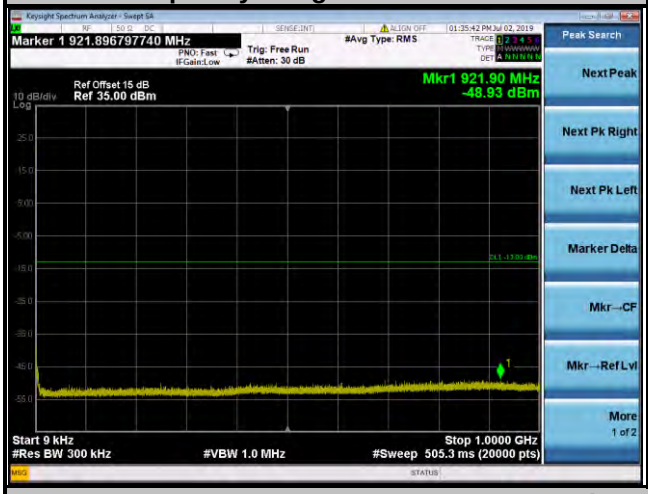
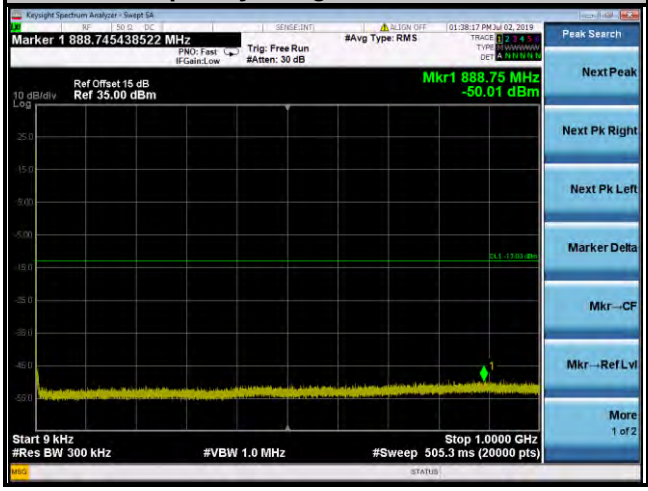
4.7.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 300 kHz and VBW = 1 MHz is used for conducted emission measurement.
c. Measuring frequency range is from 1 GHz to 20 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.
d. Spectrum RBW settings are referenced to ANSI 63.2-1996 section 8.2.2 and ANSI 63.26 section 5.7.2.

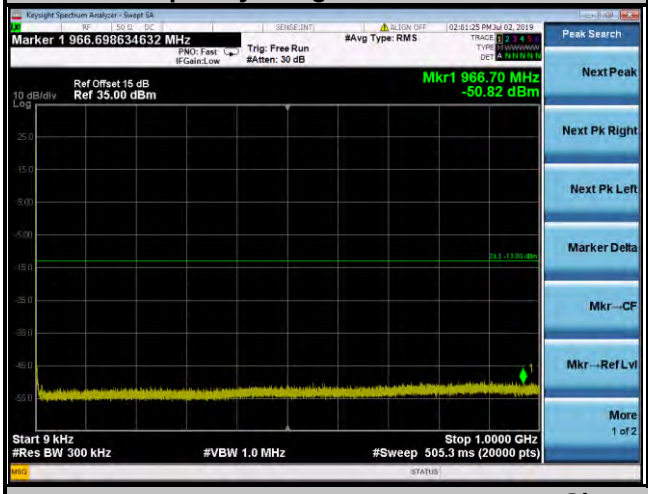
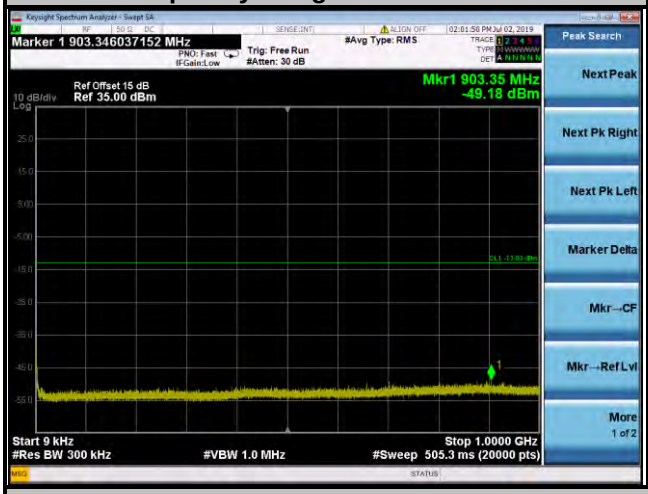
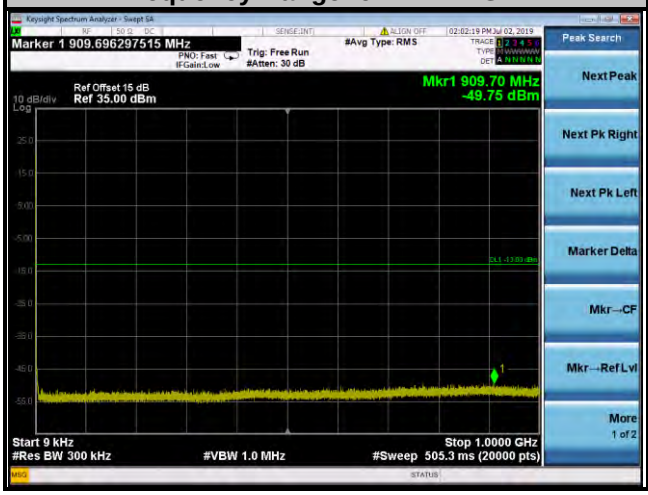
4.7.4 Test Results

GPRS	
Channel 512	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 661	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 810	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

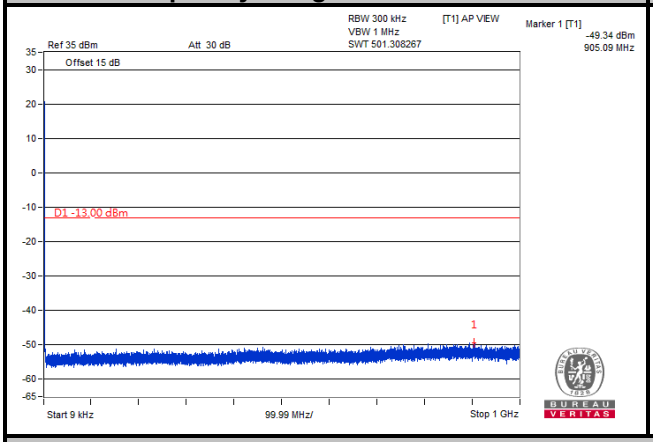
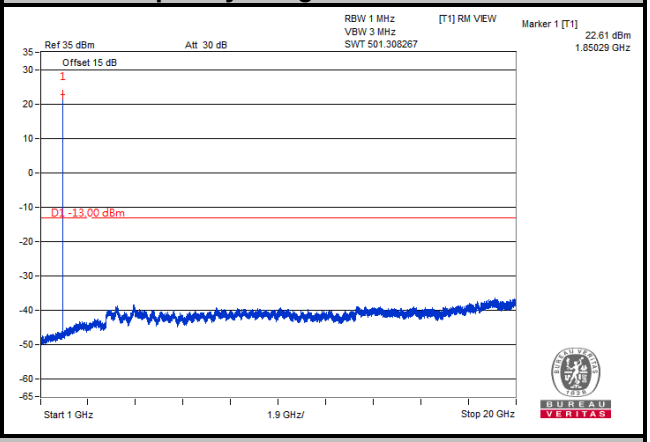
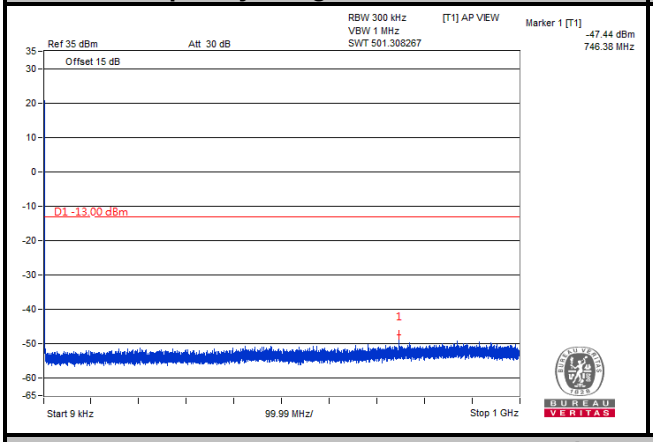
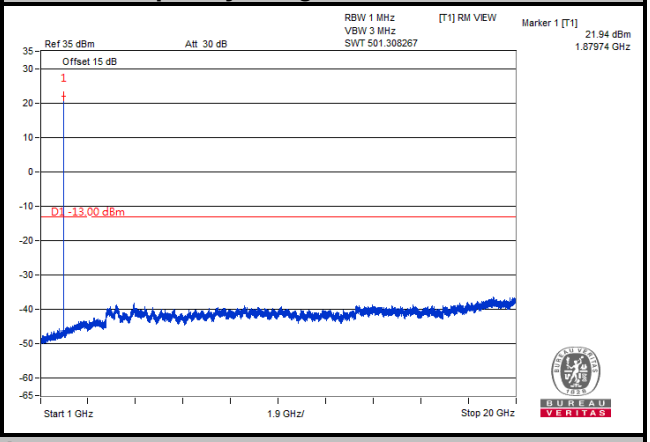
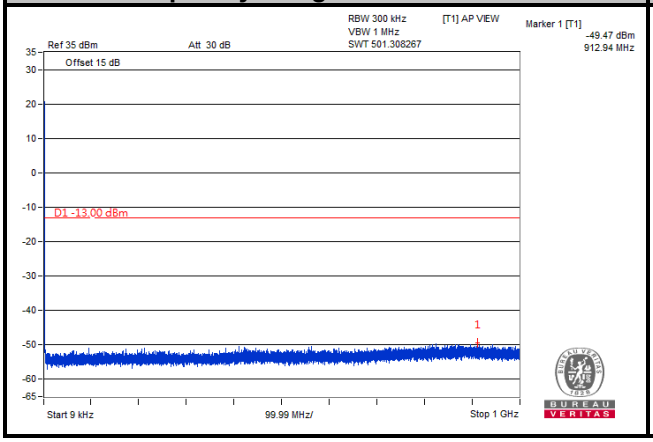
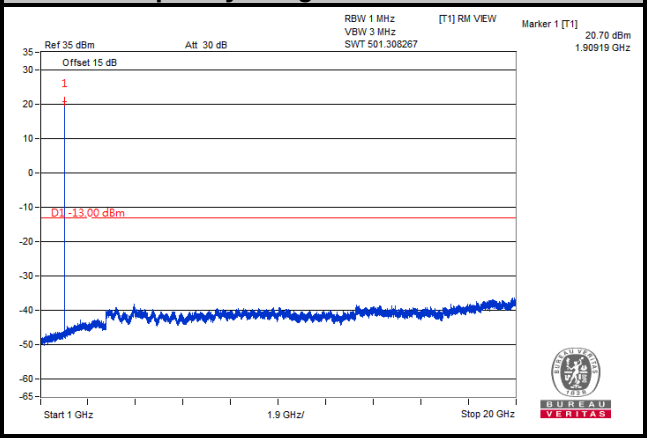
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

EDGE	
Channel 512	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 661	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 810	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

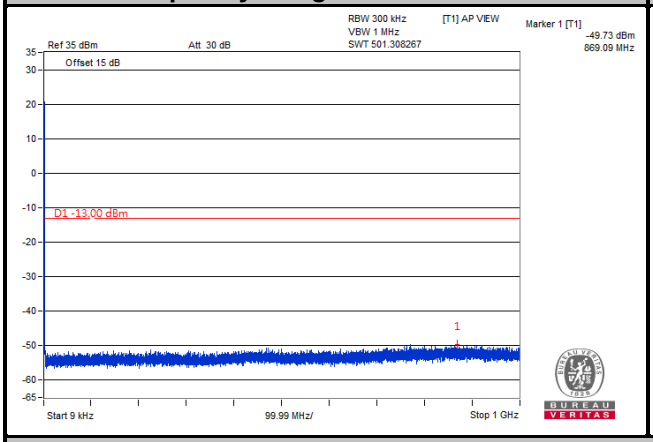
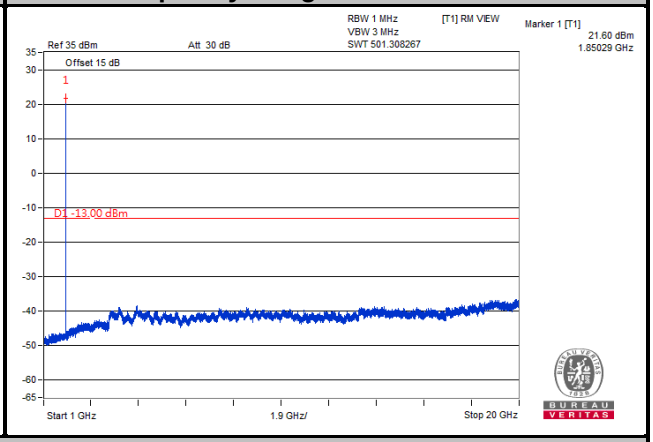
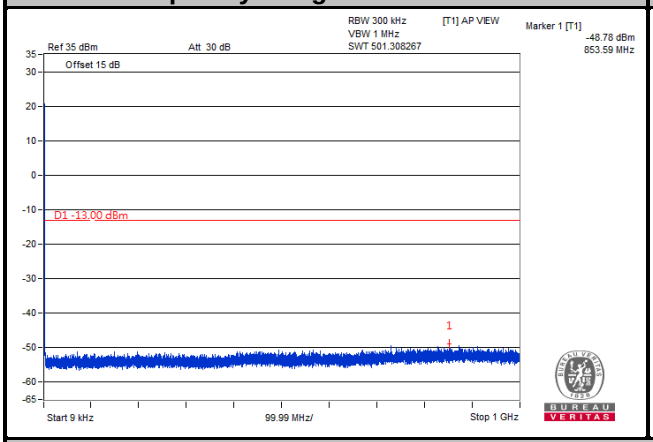
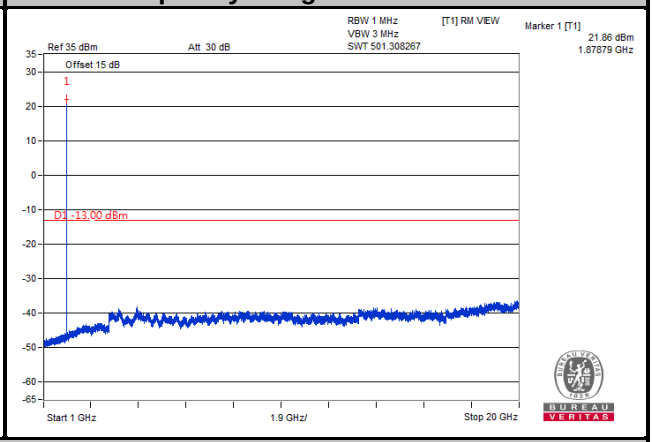
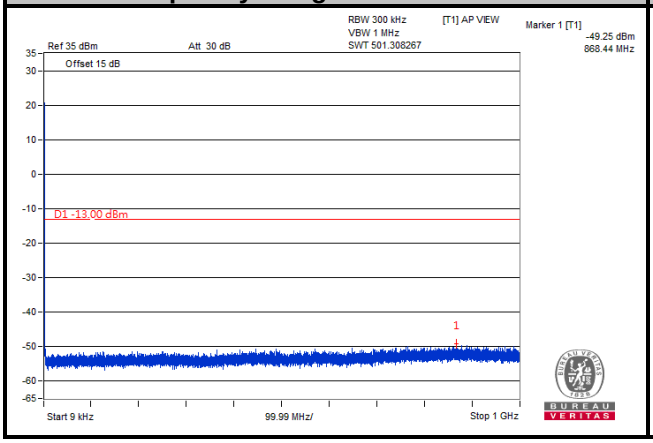
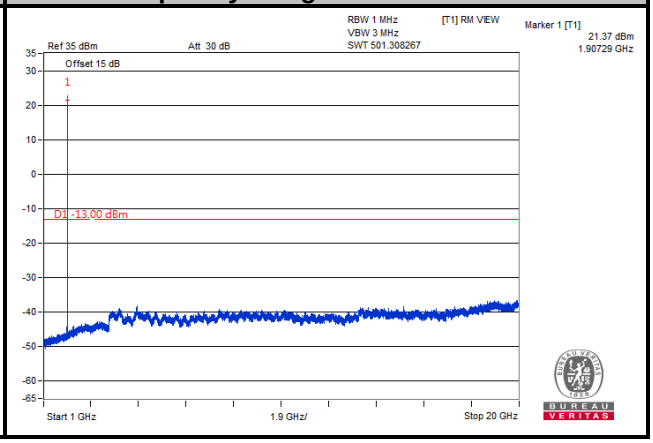
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

WCDMA	
Channel 9262	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 9400	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 9538	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

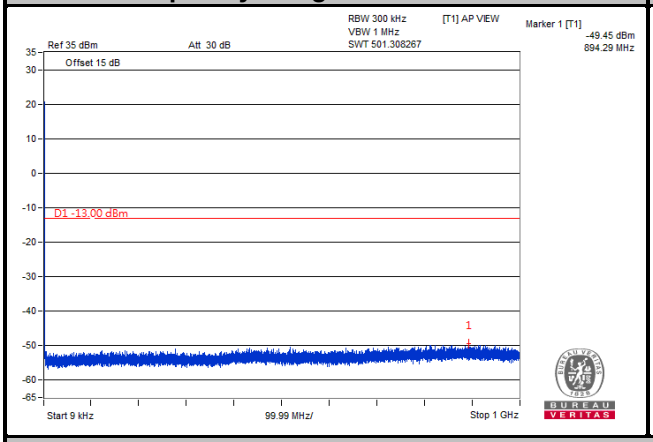
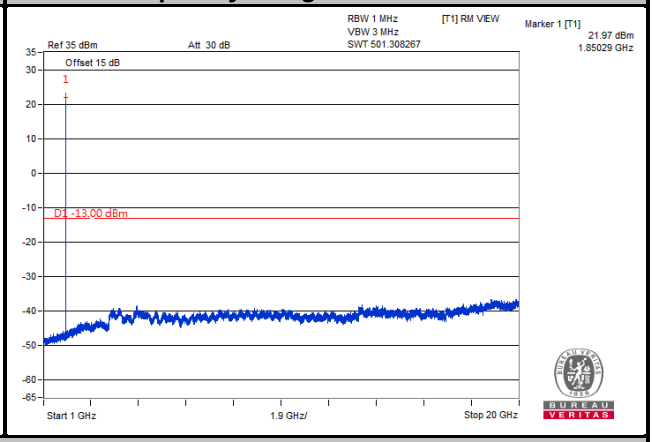
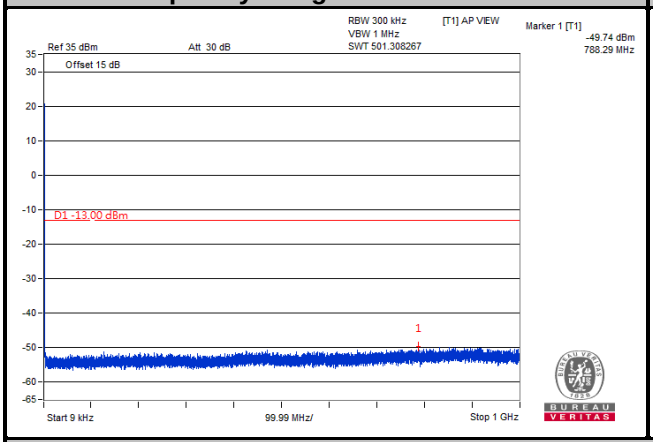
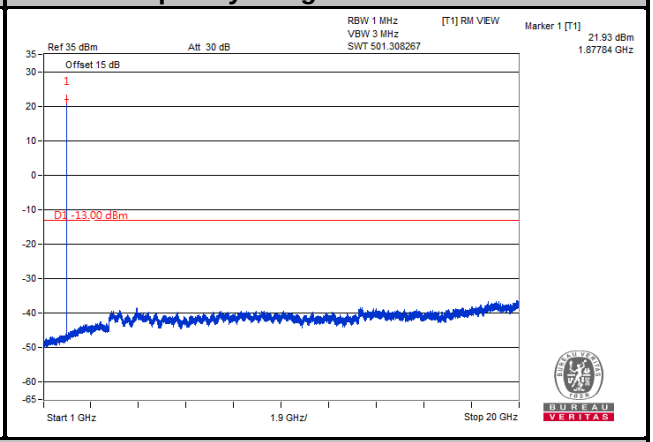
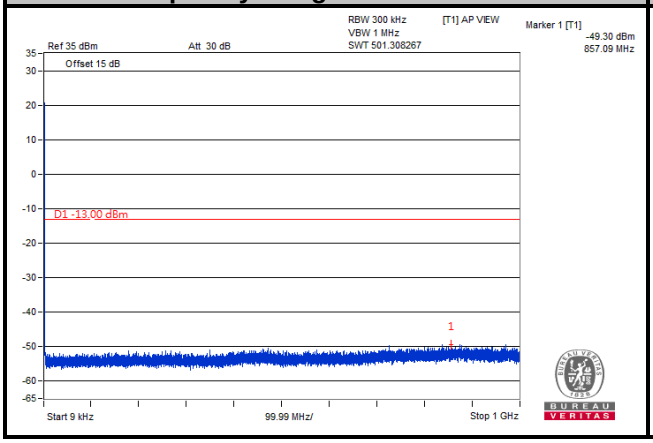
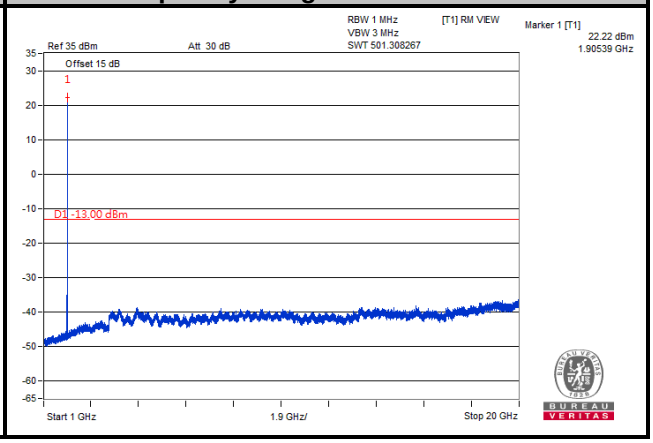
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 1.4 MHz	
Channel 18607	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 19193	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

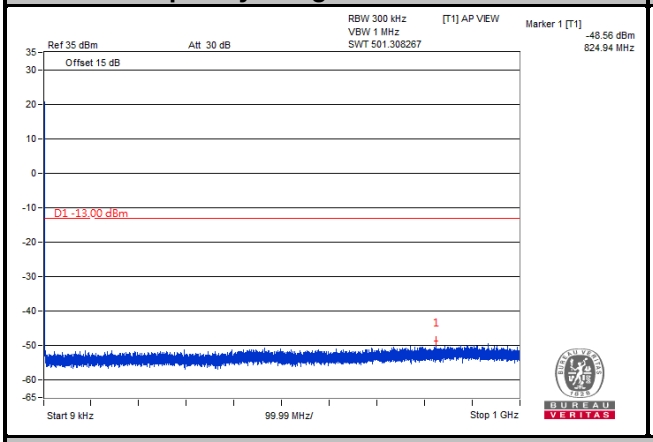
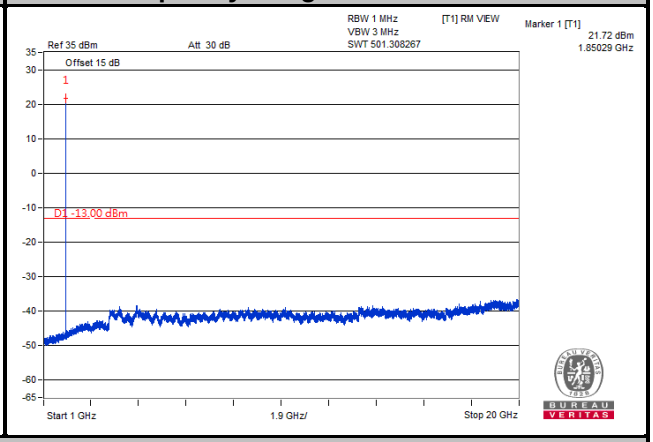
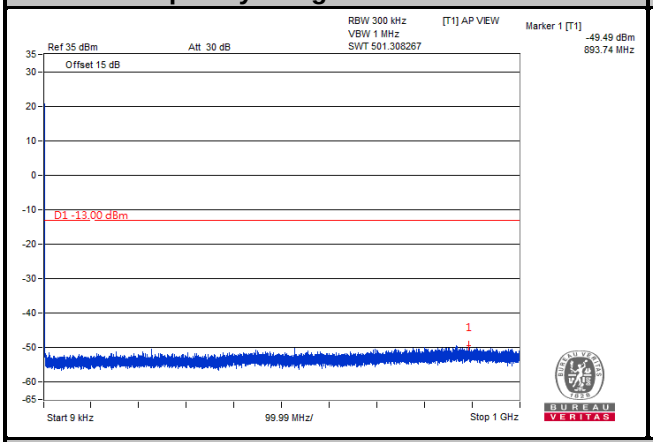
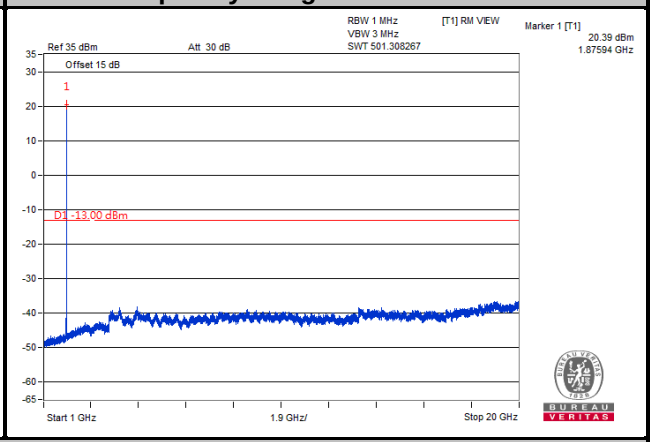
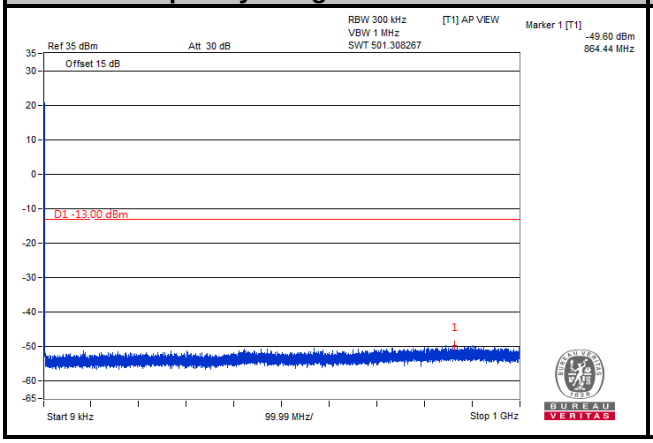
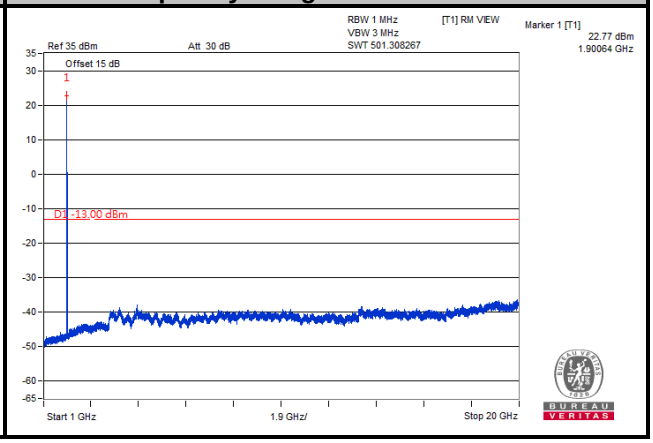
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 3 MHz	
Channel 18615	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 19185	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

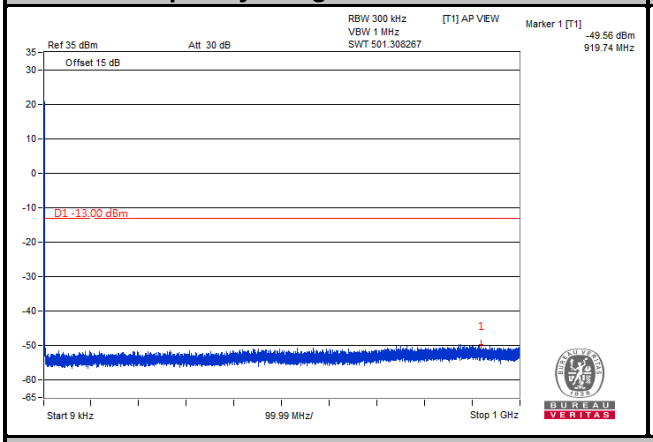
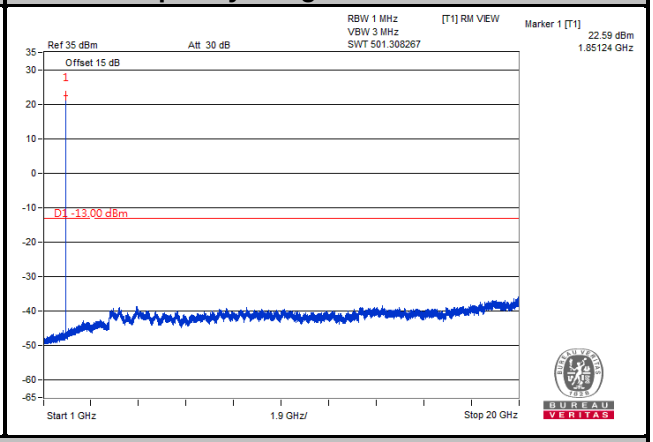
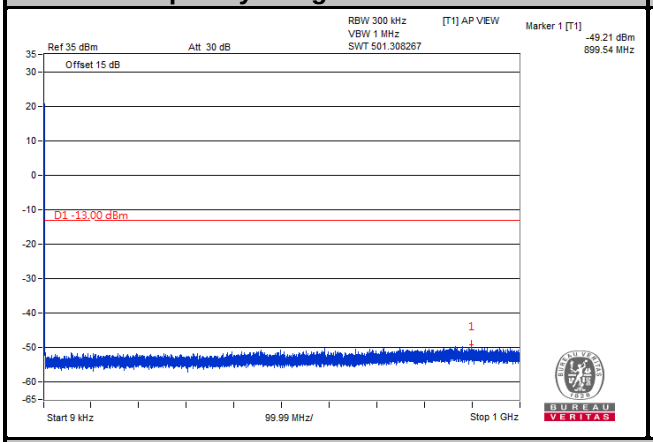
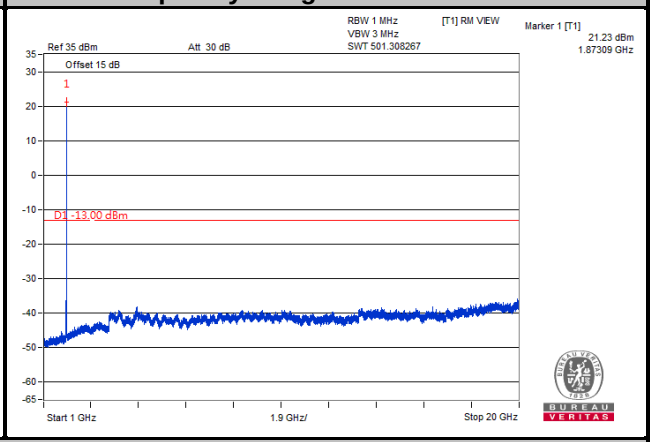
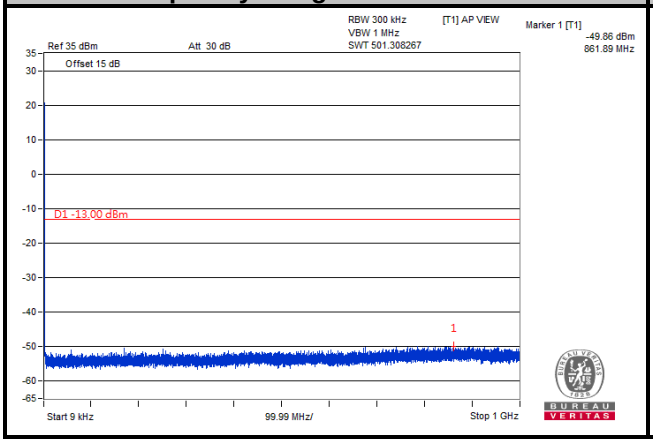
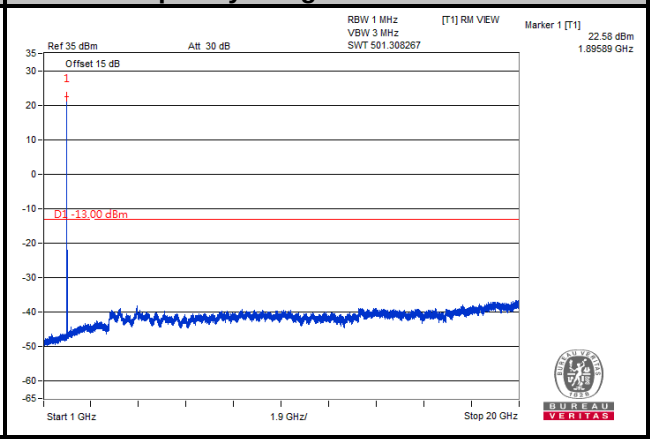
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 5 MHz	
Channel 18625	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 19175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

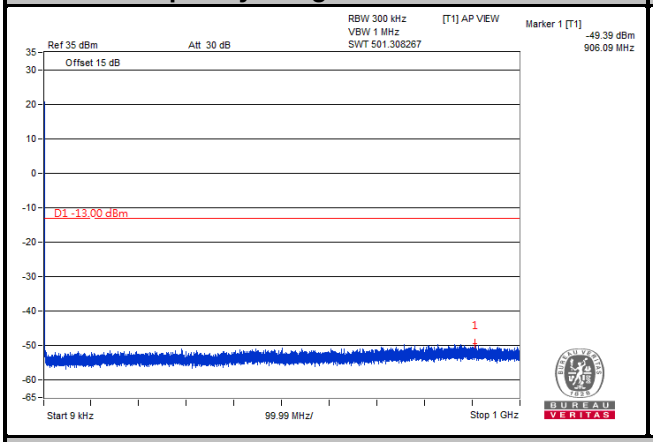
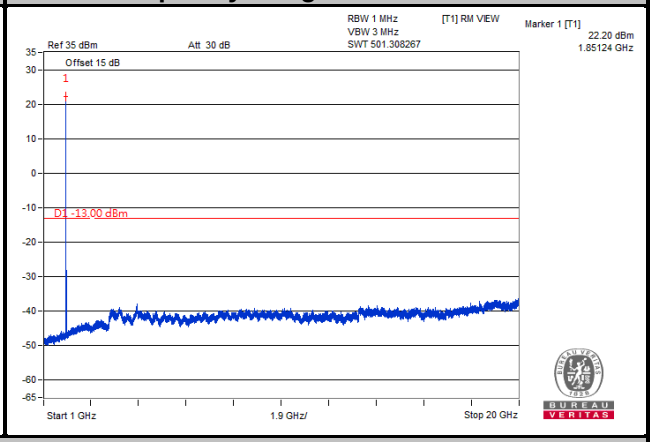
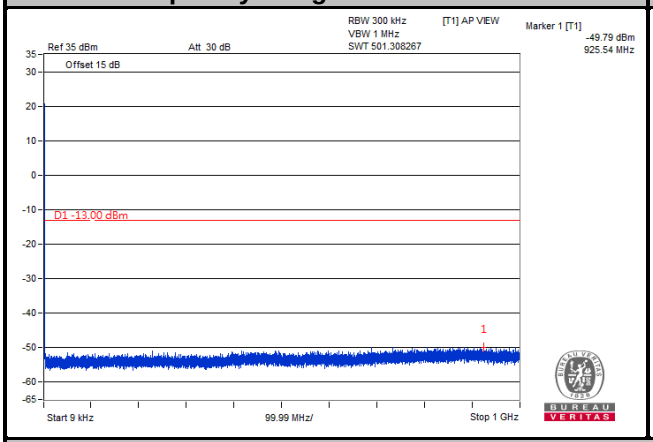
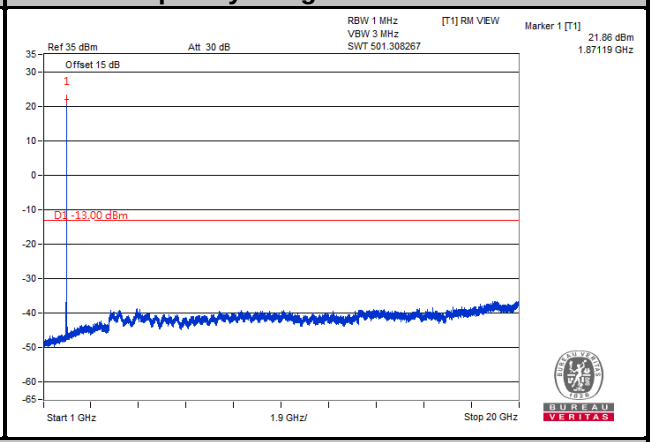
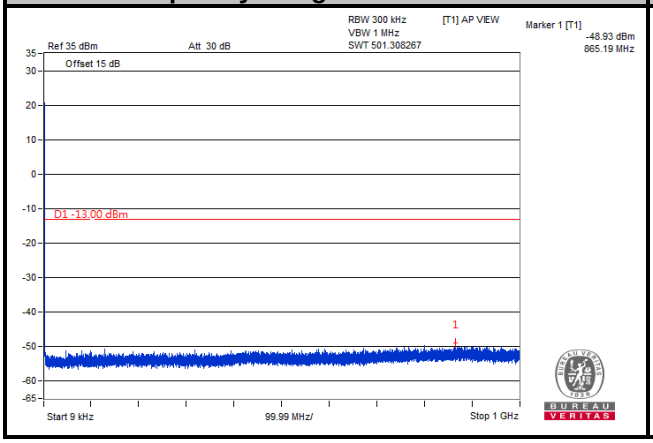
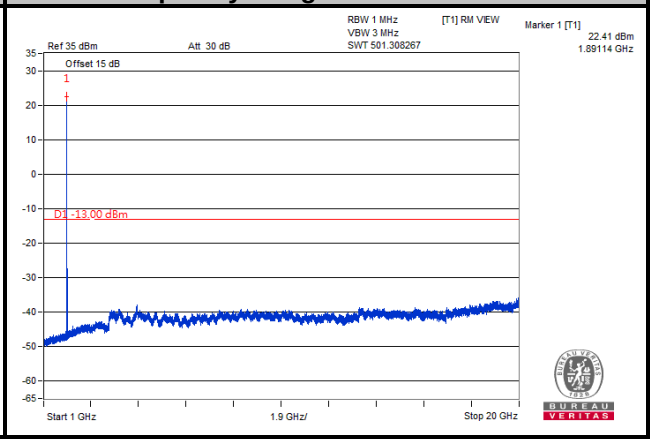
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 10 MHz	
Channel 18650	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 19150	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

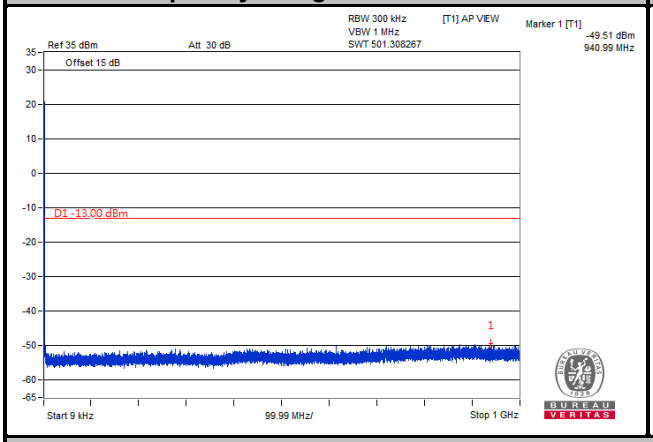
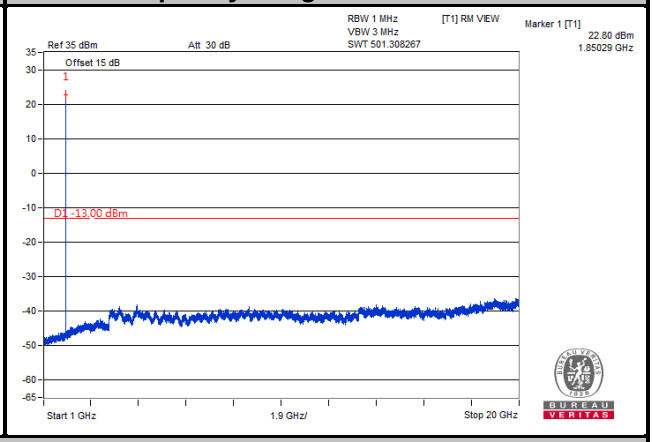
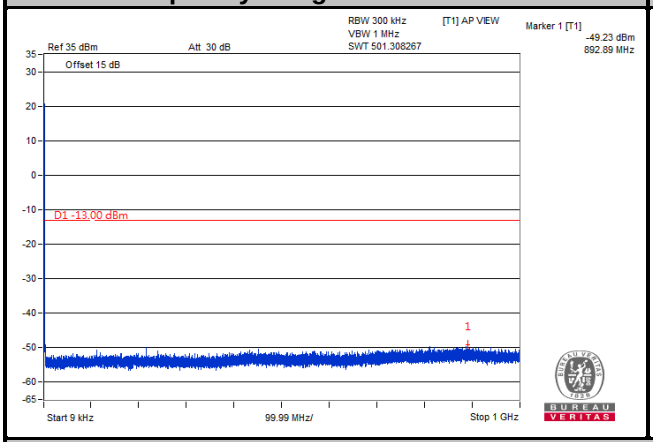
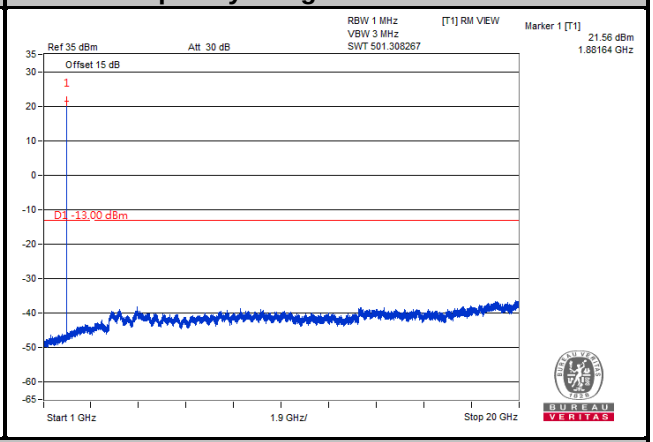
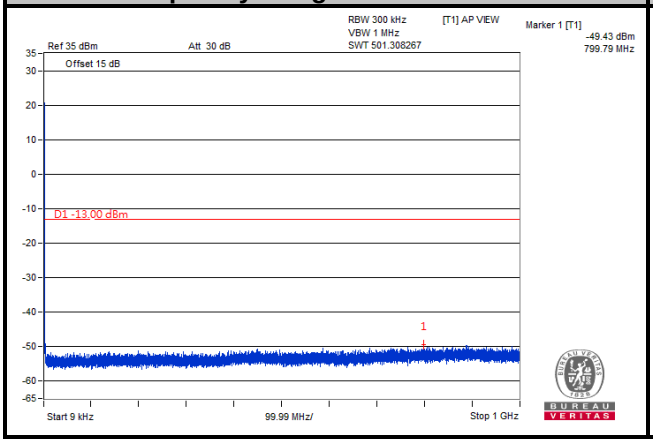
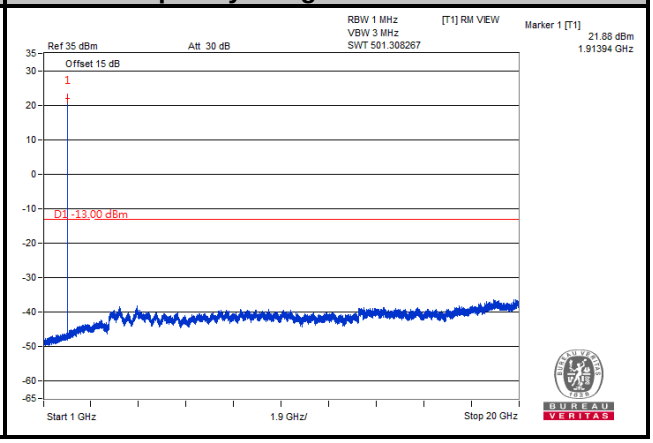
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 15 MHz	
Channel 18675	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 19125	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

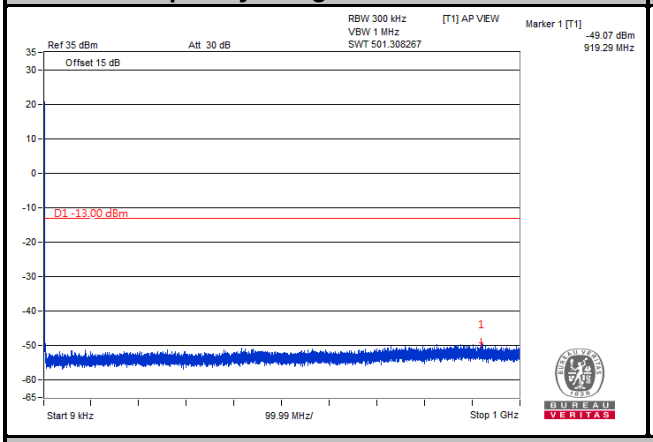
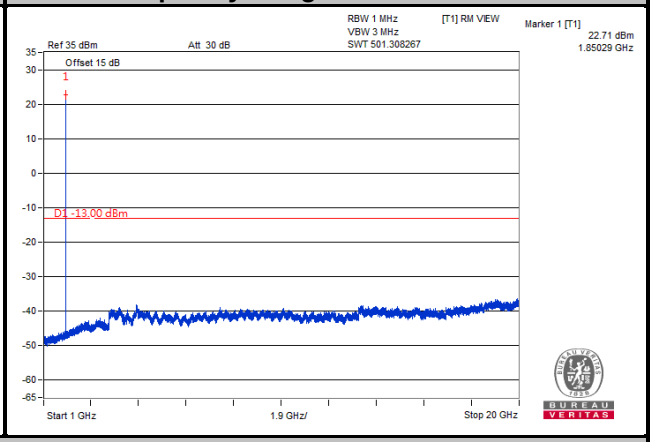
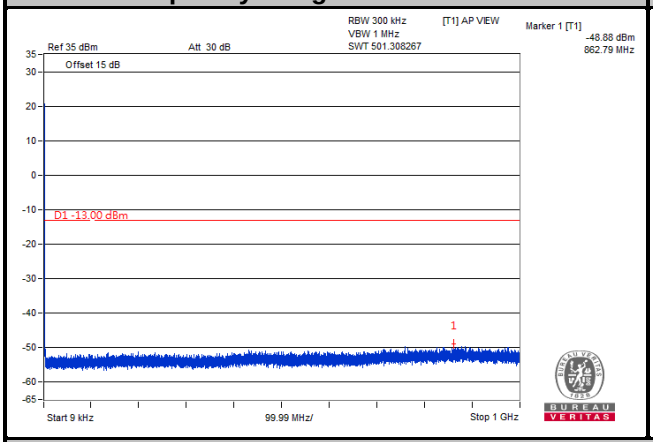
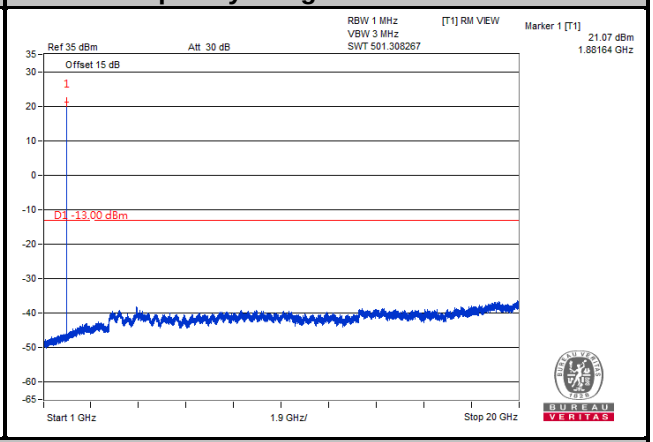
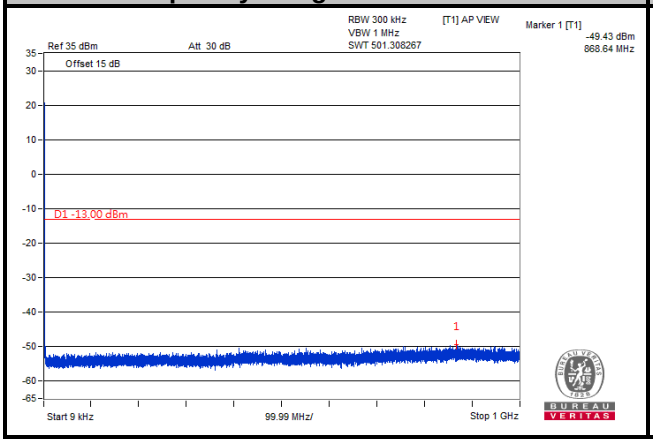
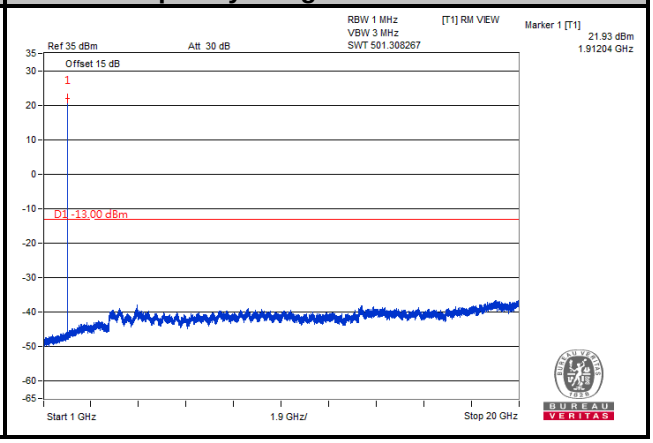
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 20 MHz	
Channel 18700	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 19100	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

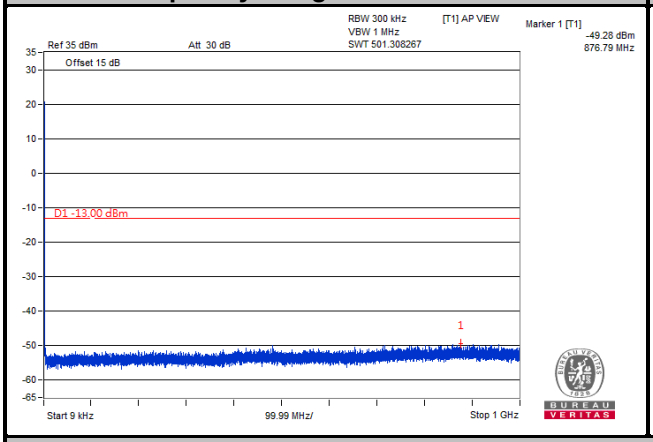
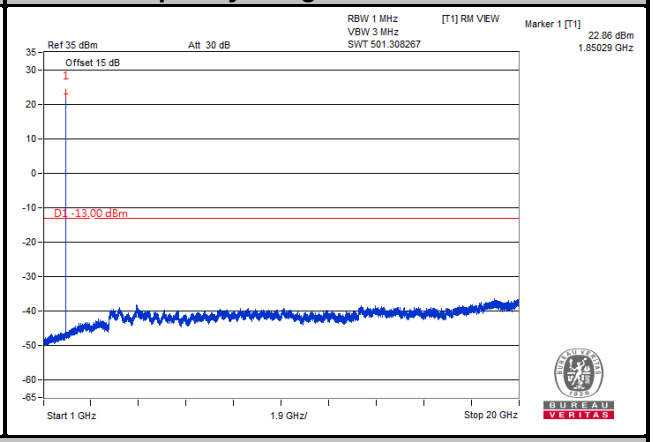
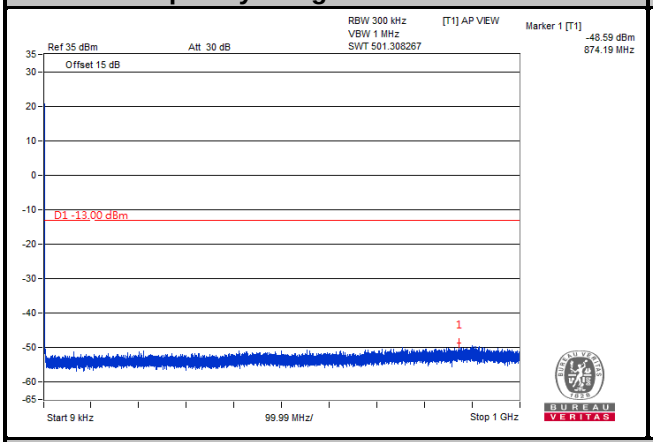
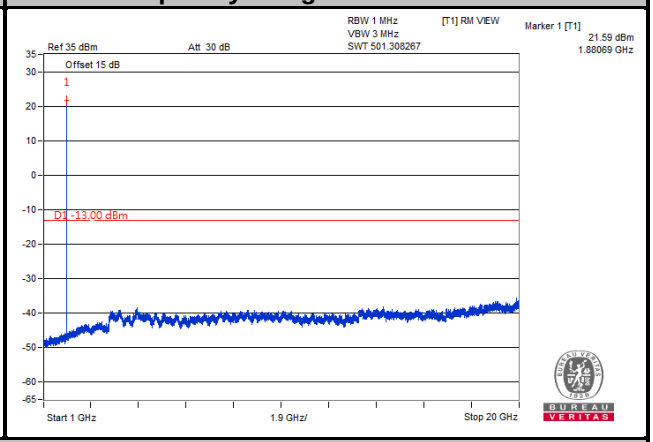
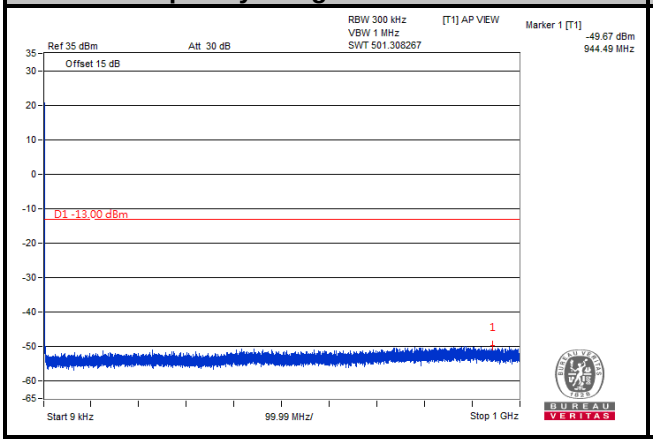
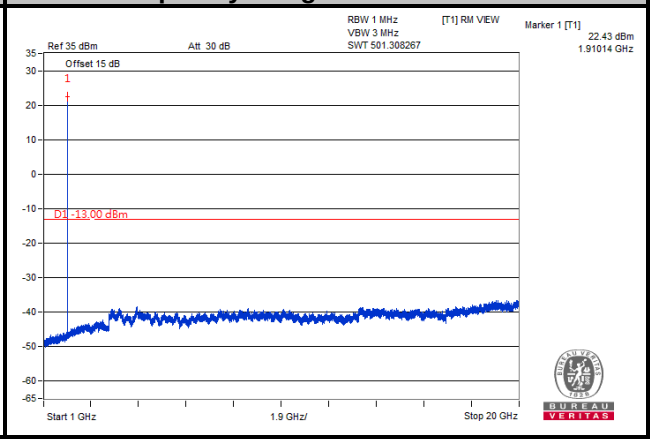
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 25	
Channel Bandwidth: 1.4 MHz	
Channel 26047	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26365	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26683	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

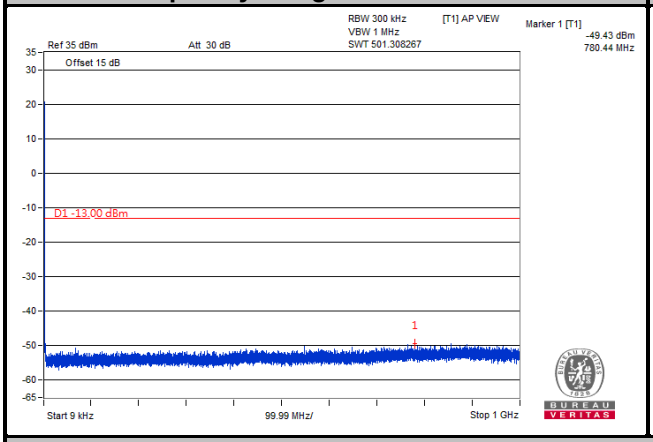
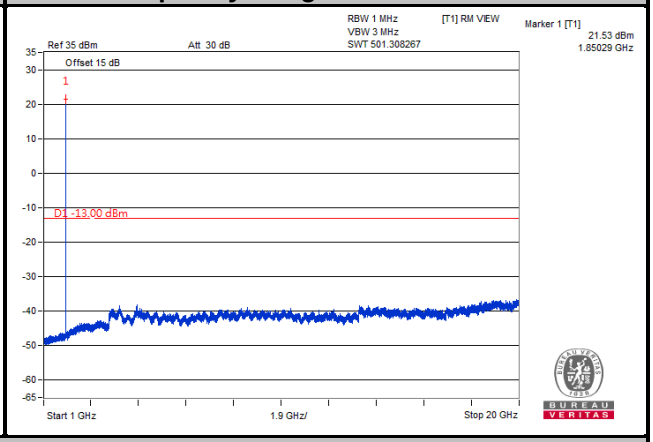
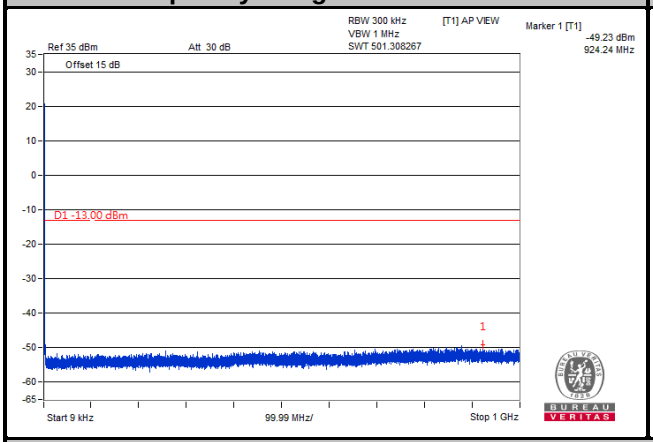
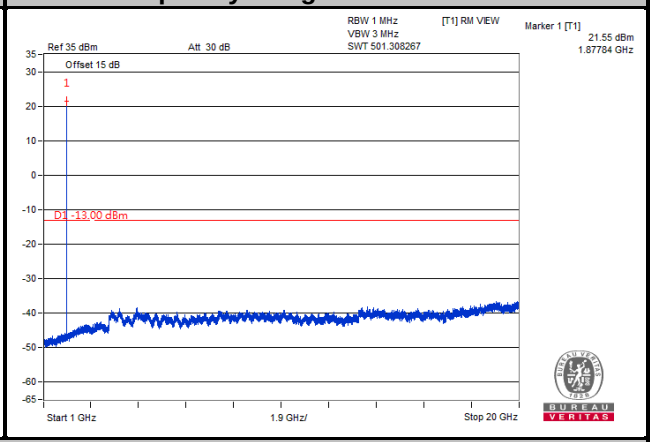
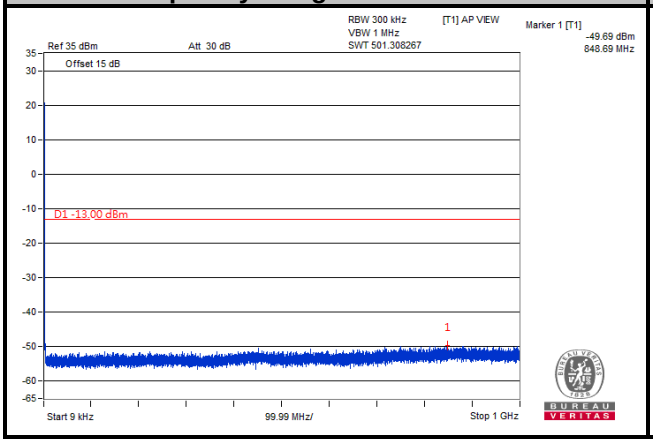
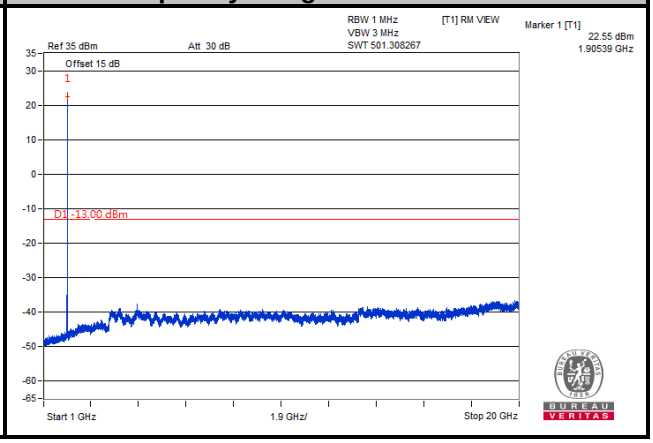
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 25	
Channel Bandwidth: 3 MHz	
Channel 26055	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26365	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26675	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

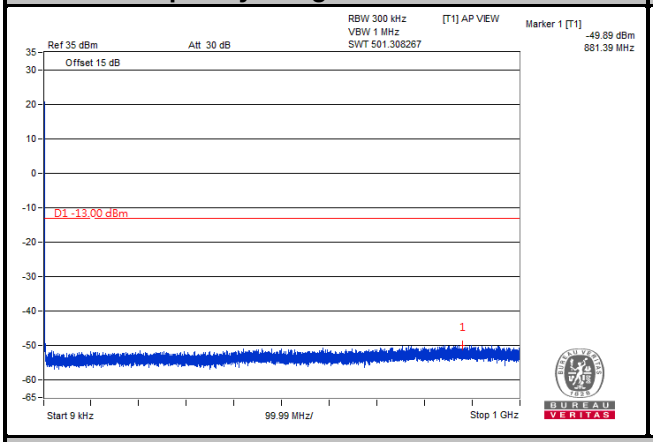
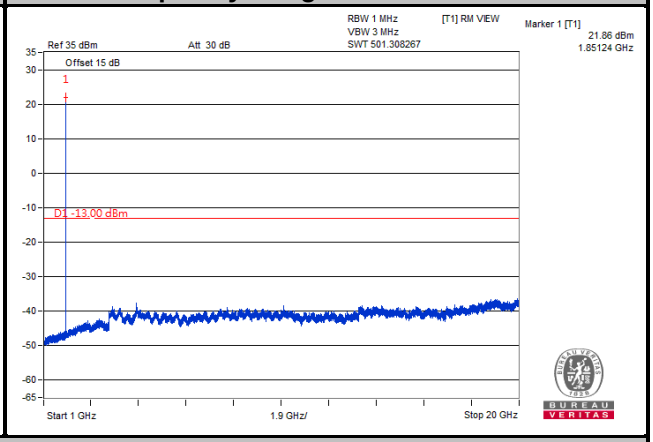
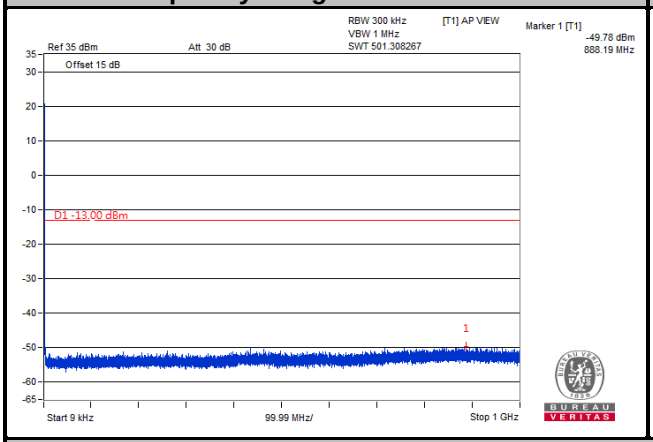
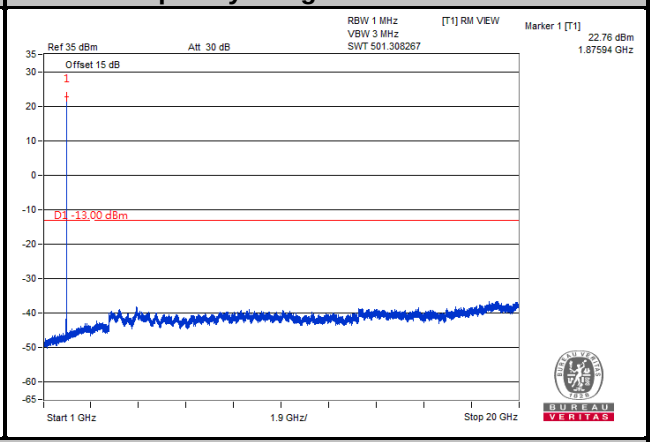
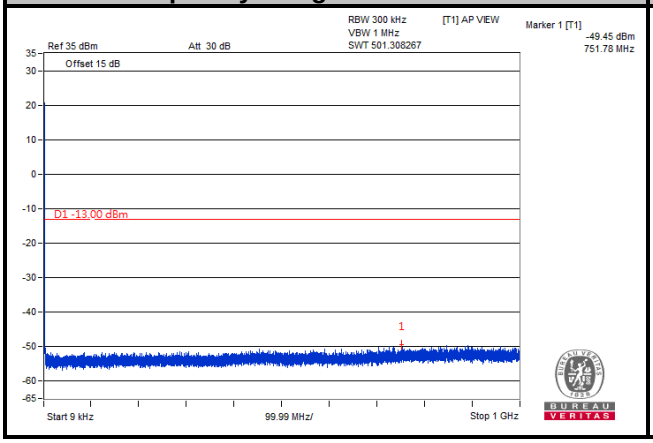
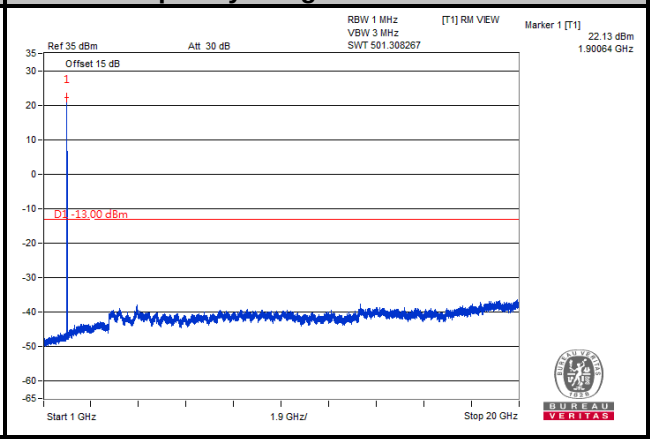
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 25	
Channel Bandwidth: 5 MHz	
Channel 26065	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26365	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26665	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

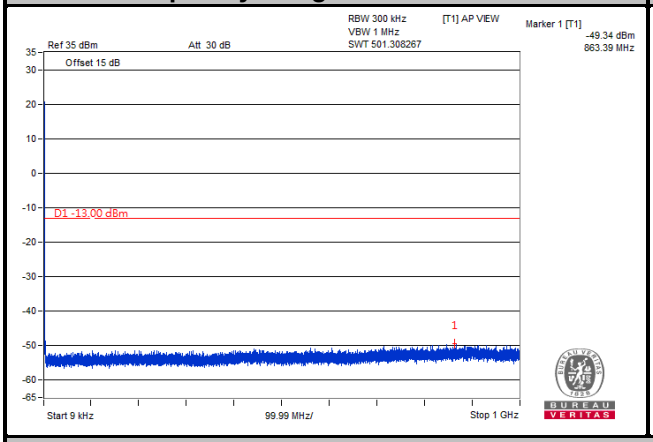
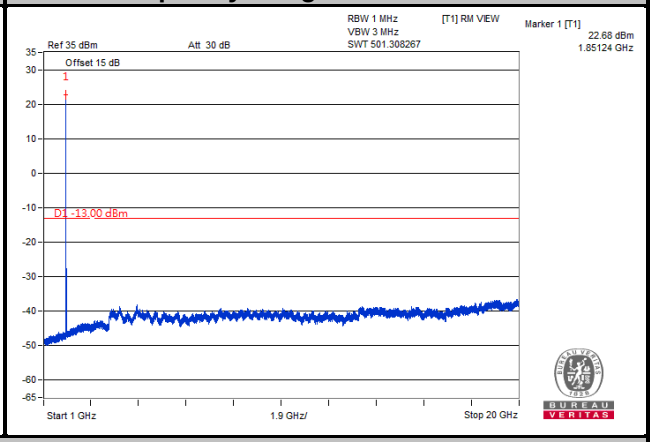
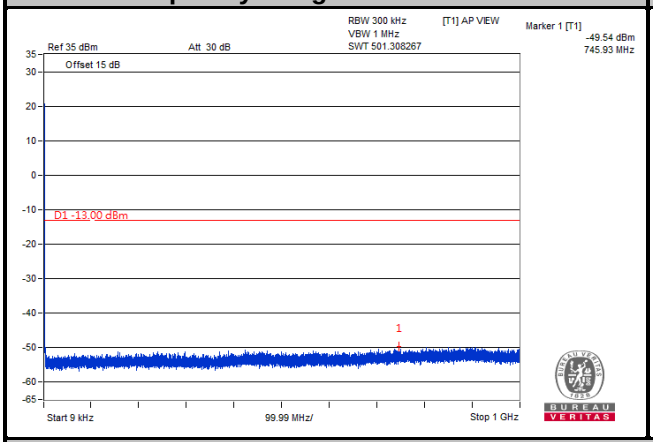
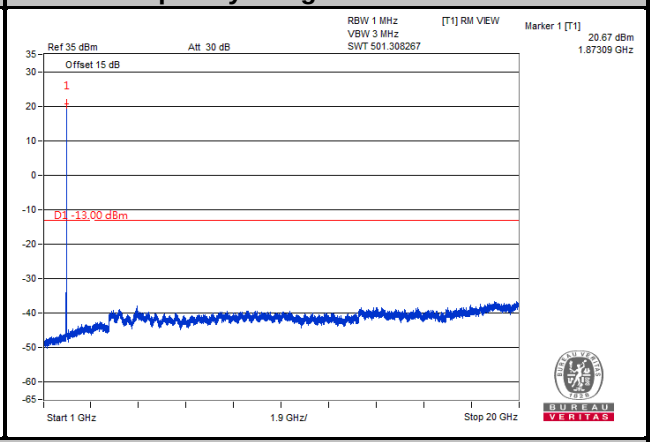
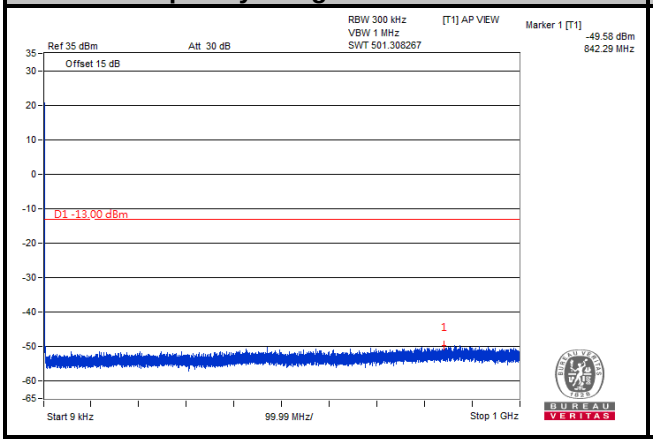
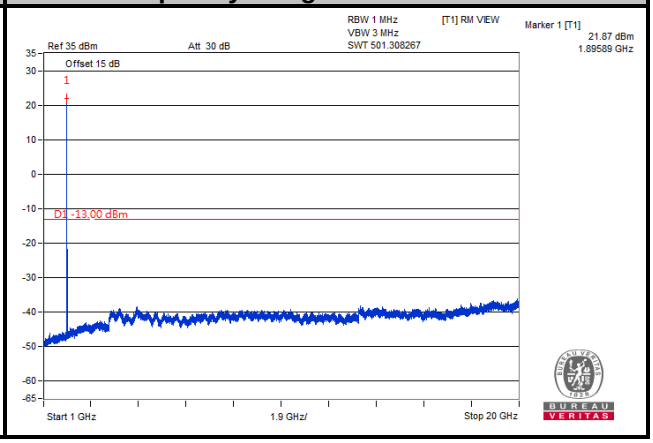
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 25	
Channel Bandwidth: 10 MHz	
Channel 26090	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26365	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26640	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

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

LTE Band 25	
Channel Bandwidth: 15 MHz	
Channel 26115	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26365	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26615	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

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

LTE Band 25	
Channel Bandwidth: 20 MHz	
Channel 26140	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26365	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 26590	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

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

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit 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 = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

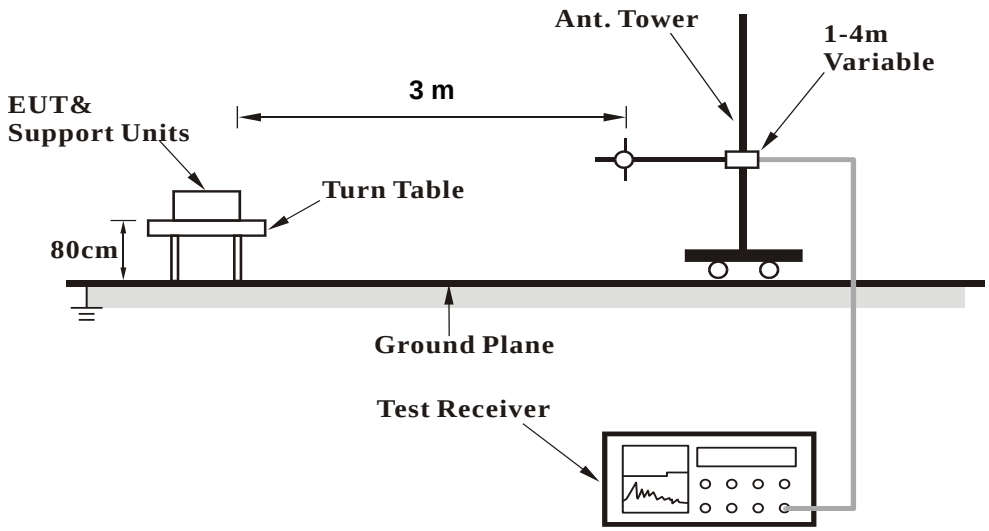
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

4.8.3 Deviation from Test Standard

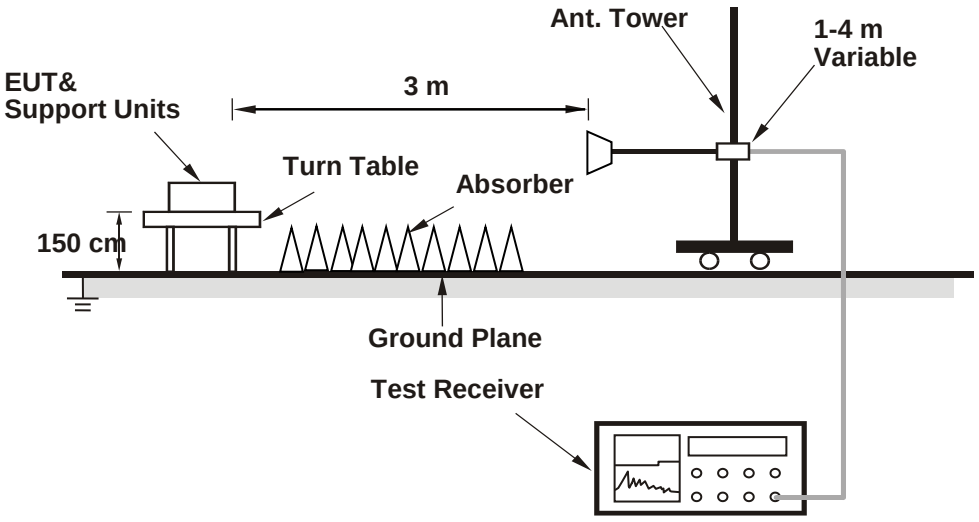
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



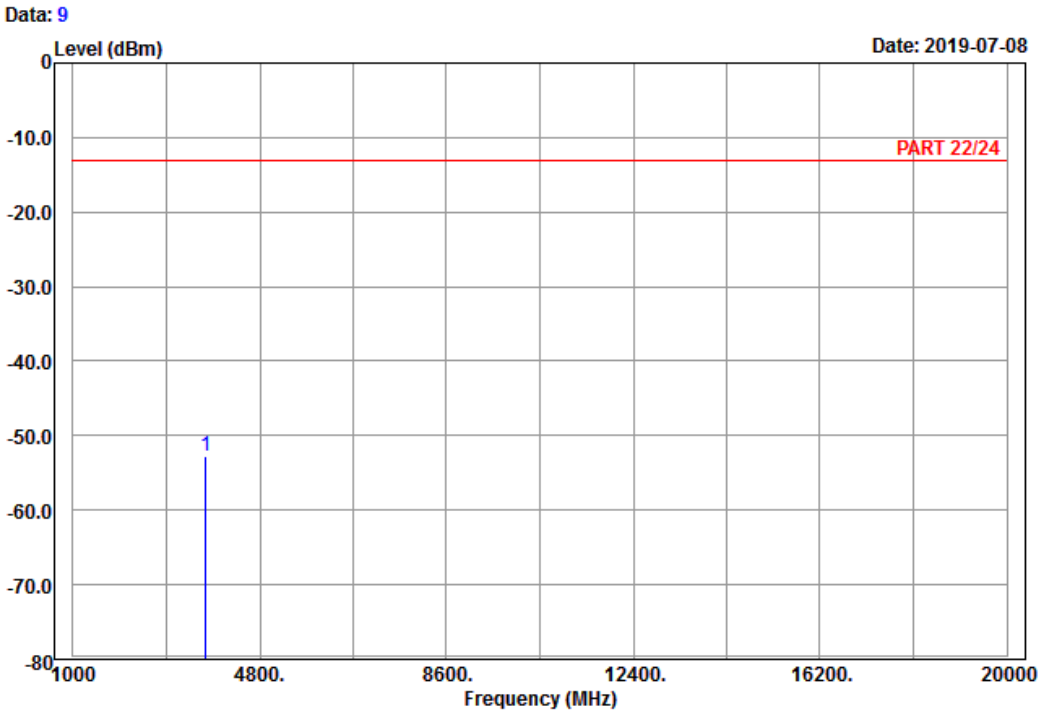
For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.8.5 Test Results

GPRS:

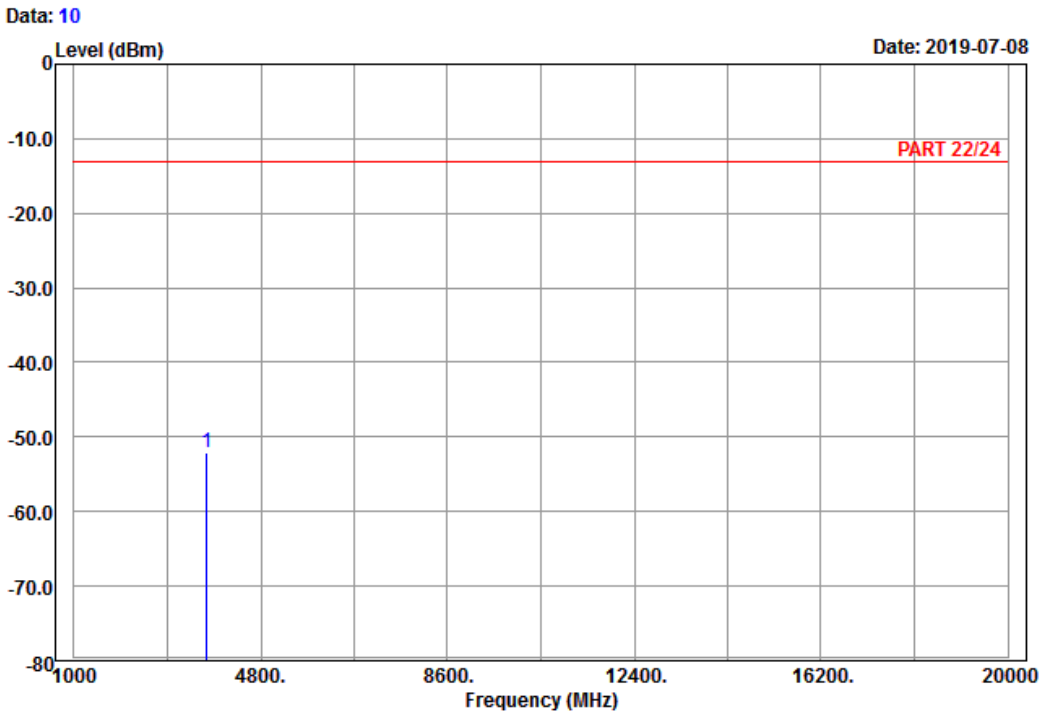
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site      : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark    : GPRS 1900_Link_CH512
Tested by: Karl Lee
                          Read          Limit   Over
           Freq  Level  Level Factor   Line  Limit Remark
          ------ ------ ------ ------ ------ ------ ------
            MHz    dBm    dBm     dB    dBm     dB

  1 pp  3700.40 -52.67 -68.55  15.88 -13.00 -39.67 Peak
```

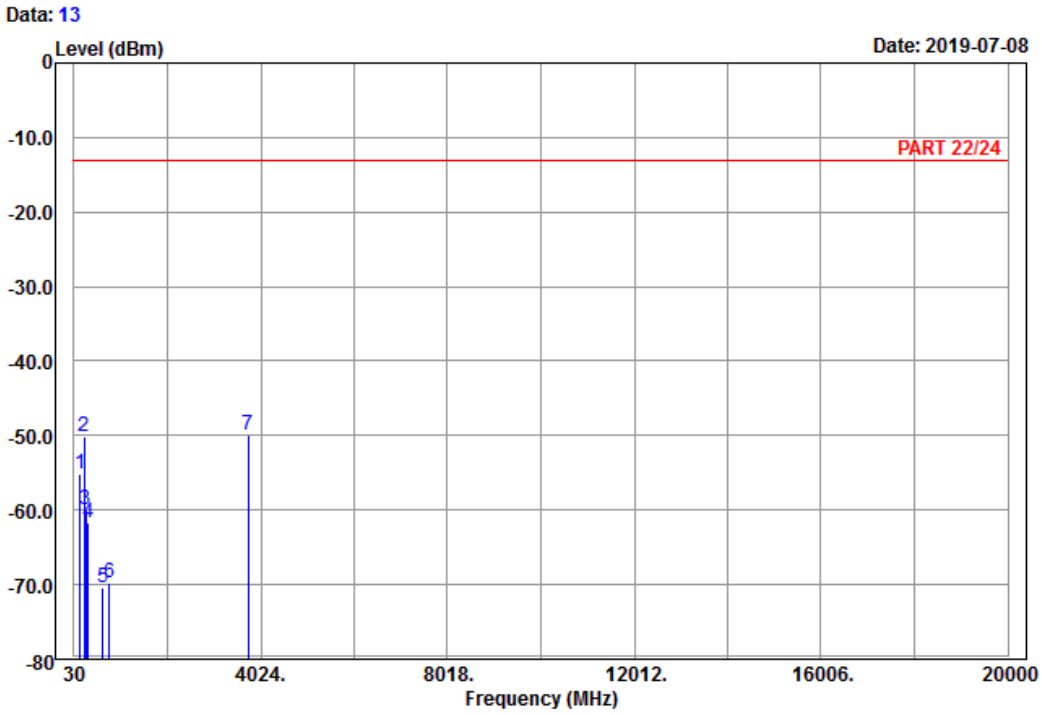


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : GPRS 1900_Link_CH512
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3700.40	-52.07	-67.95	15.88	-13.00	-39.07	Peak

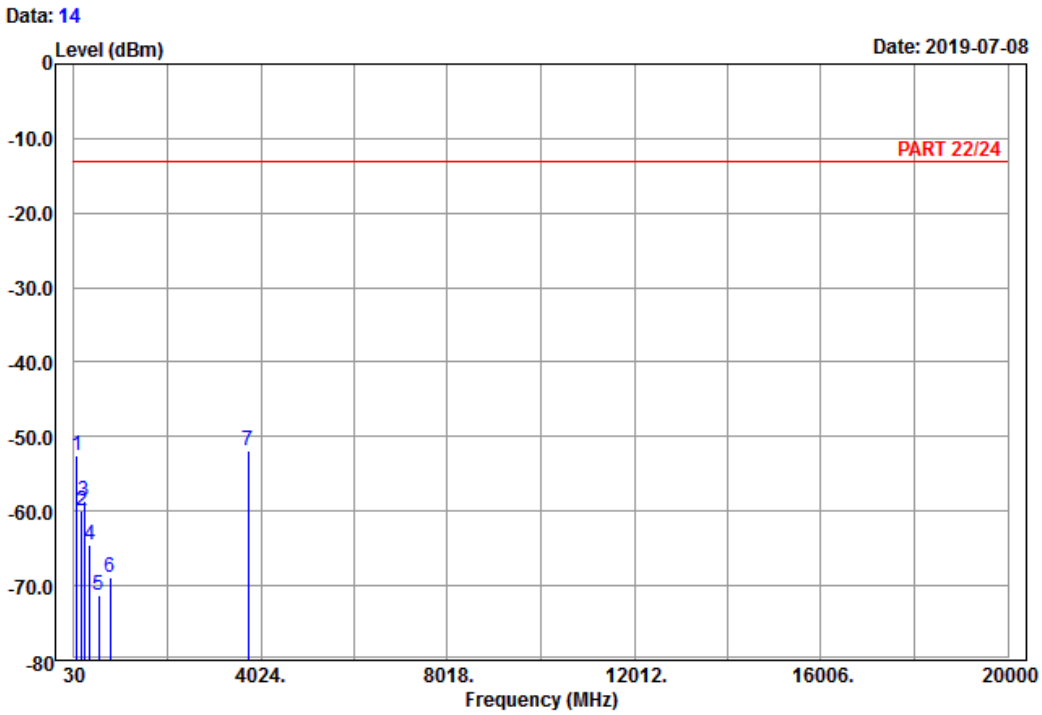
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : GPRS 1900_Link_CH661
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	165.81	-55.09	-48.00	-7.09	-13.00	-42.09	Peak
2	245.46	-50.20	-44.63	-5.57	-13.00	-37.20	Peak
3	286.23	-59.87	-54.04	-5.83	-13.00	-46.87	Peak
4	338.50	-61.69	-56.18	-5.51	-13.00	-48.69	Peak
5	653.50	-70.44	-70.29	-0.15	-13.00	-57.44	Peak
6	781.60	-69.86	-70.66	0.80	-13.00	-56.86	Peak
7 pp	3760.00	-50.02	-66.16	16.14	-13.00	-37.02	Peak

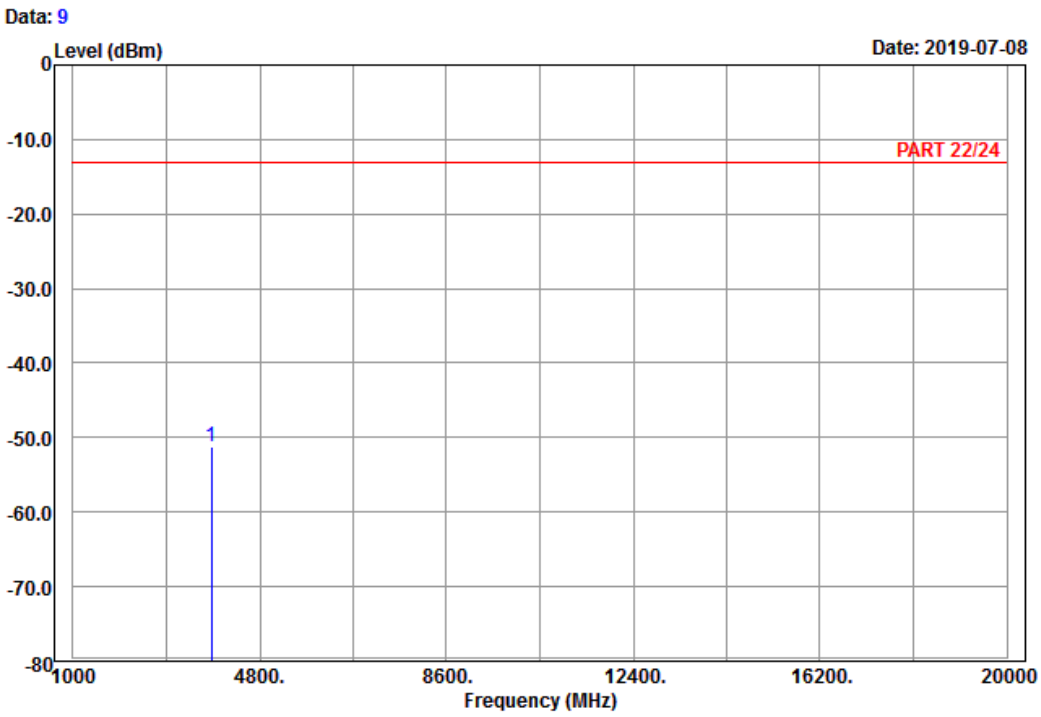


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : GPRS 1900_Link_CH661
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	82.92	-52.46	-41.02	-11.44	-13.00	-39.46	Peak
2	193.89	-60.00	-54.09	-5.91	-13.00	-47.00	Peak
3	252.75	-58.56	-53.03	-5.53	-13.00	-45.56	Peak
4	365.80	-64.50	-59.95	-4.55	-13.00	-51.50	Peak
5	561.10	-71.27	-70.09	-1.18	-13.00	-58.27	Peak
6	794.90	-68.94	-70.63	1.69	-13.00	-55.94	Peak
7 pp	3760.00	-51.92	-68.06	16.14	-13.00	-38.92	Peak

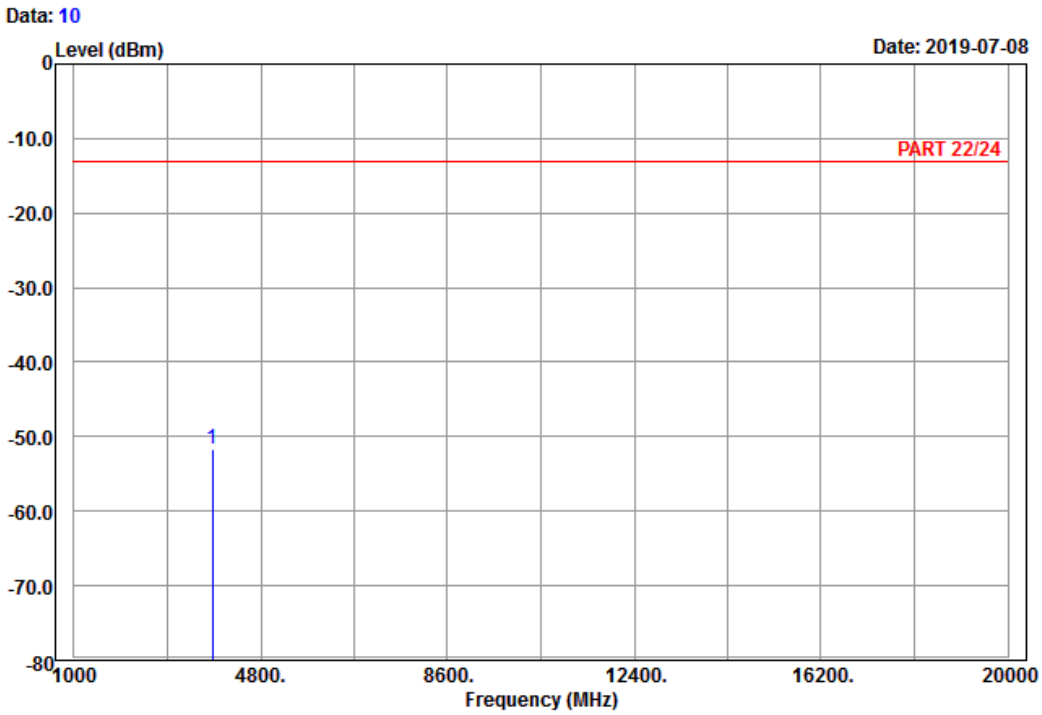
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : GPRS 1900_Link_CH810
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3819.60	-51.14	-67.64	16.50	-13.00	-38.14	Peak



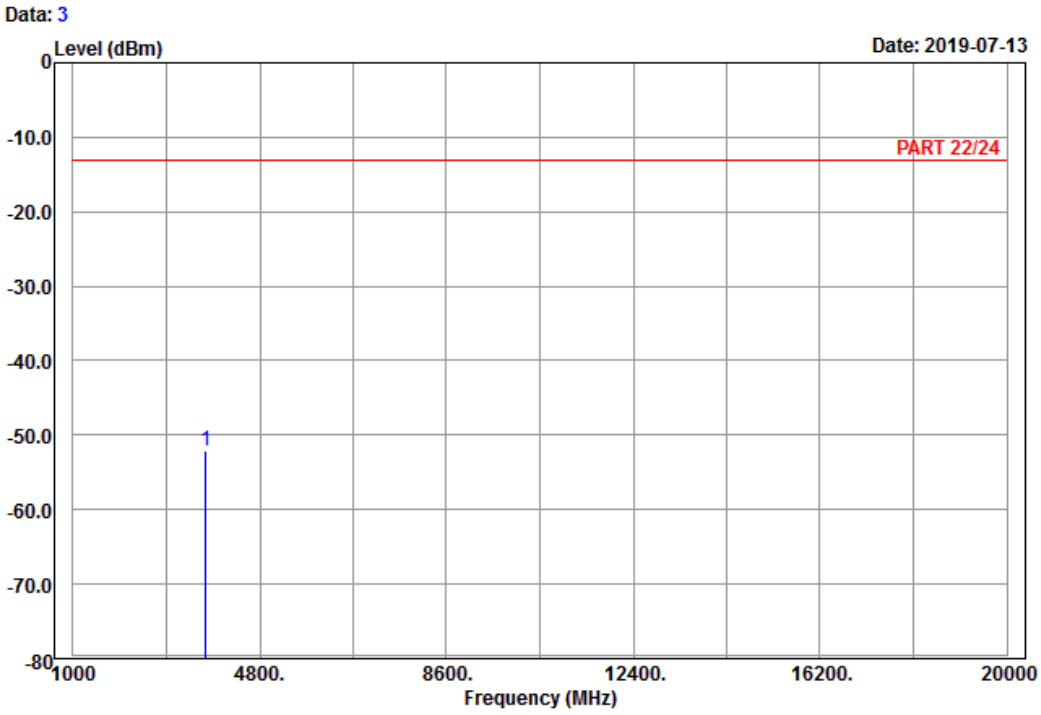
Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : GPRS 1900_Link_CH810
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3819.60	-51.55	-68.05	16.50	-13.00	-38.55	Peak

EDGE:

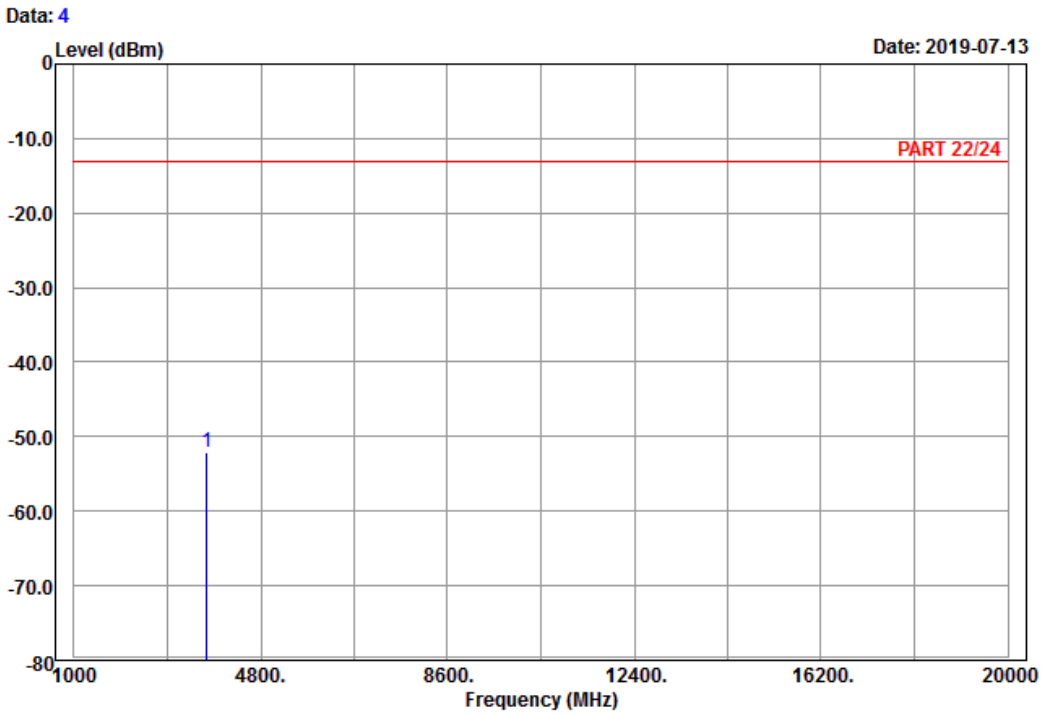
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site      : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark    : EDGE 1900_Link_CH512
Tested by: Charles Hsiao
                        Read          Limit   Over
           Freq  Level  Level Factor   Line  Limit Remark
          _____ _____ _____ _____ _____ _____ _____
            MHz   dBm   dBm    dB    dBm    dB

1 pp  3700.40 -52.17 -68.05  15.88 -13.00 -39.17 Peak
```

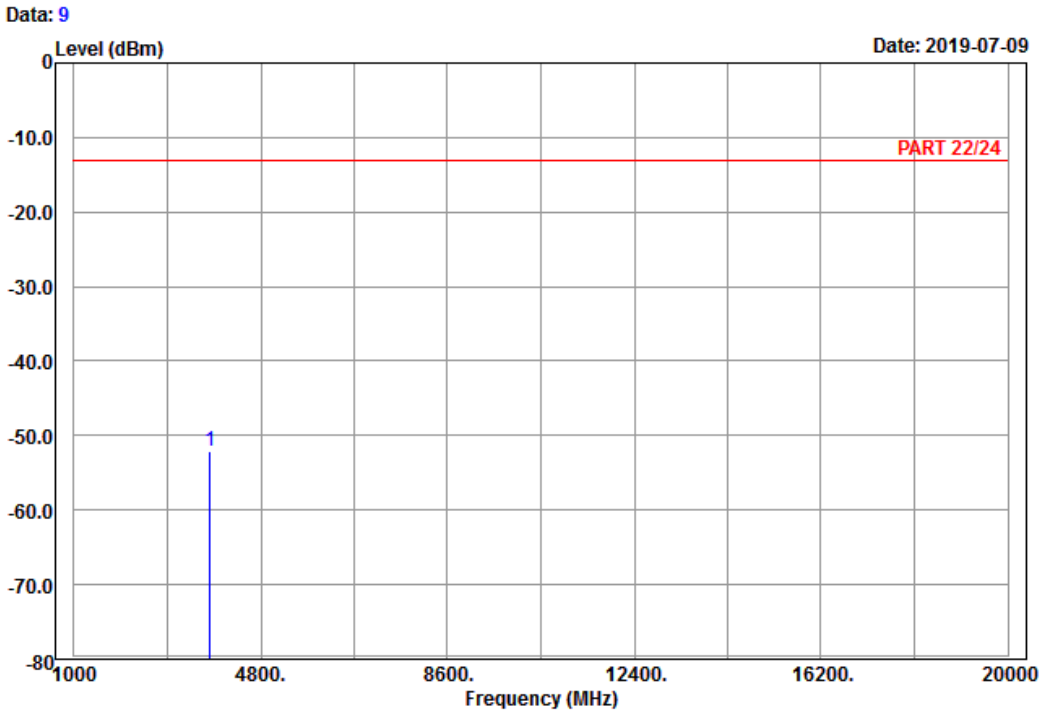


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 1900_Link_CH512
Tested by: Charles Hsiao

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3700.40	-52.15	-68.03	15.88	-13.00	-39.15	Peak

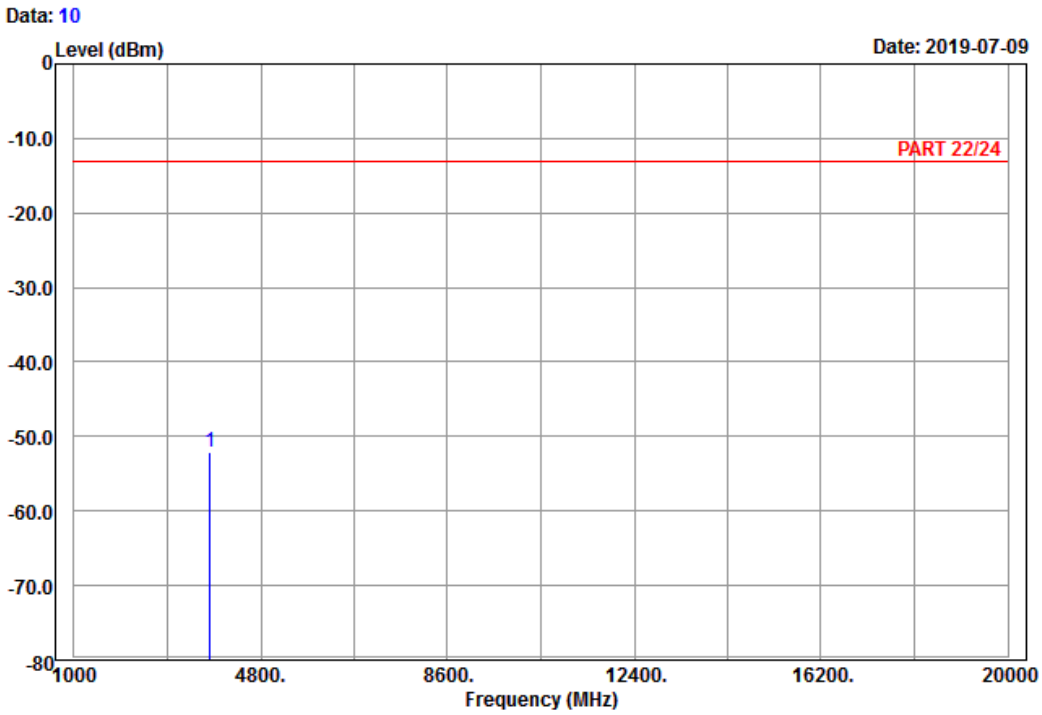
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : EDGE 1900_Link_CH661
Tested by: Charles Hsiao

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-52.05	-68.19	16.14	-13.00	-39.05	Peak

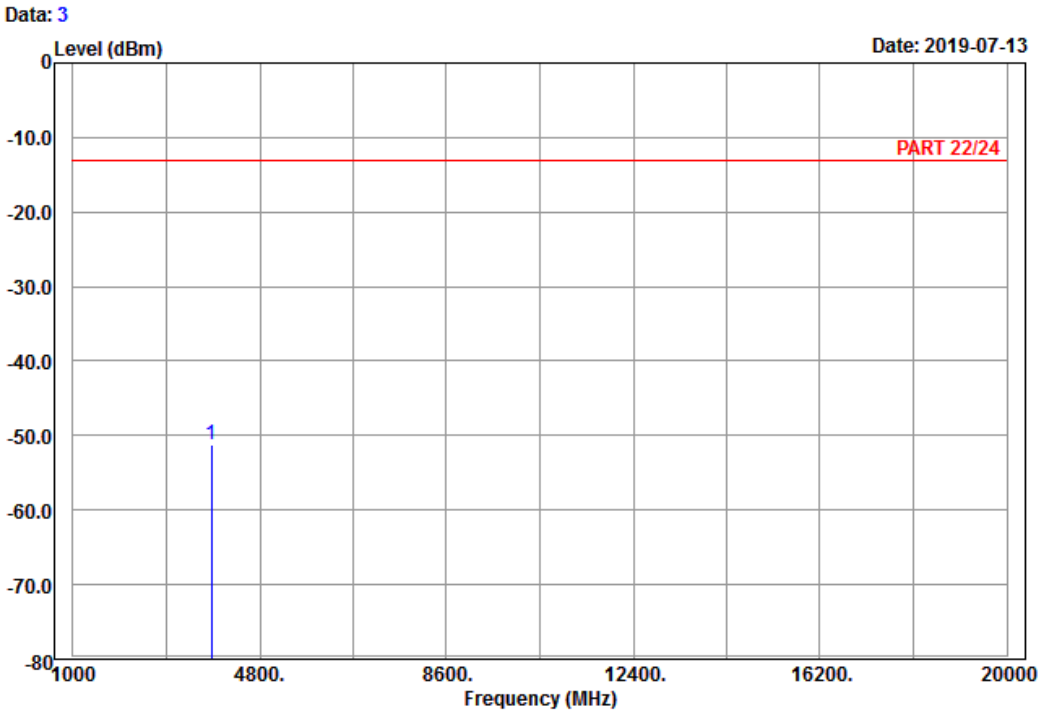


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 1900_Link_CH661
Tested by: Charles Hsiao

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-52.15	-68.29	16.14	-13.00	-39.15	Peak

High Channel

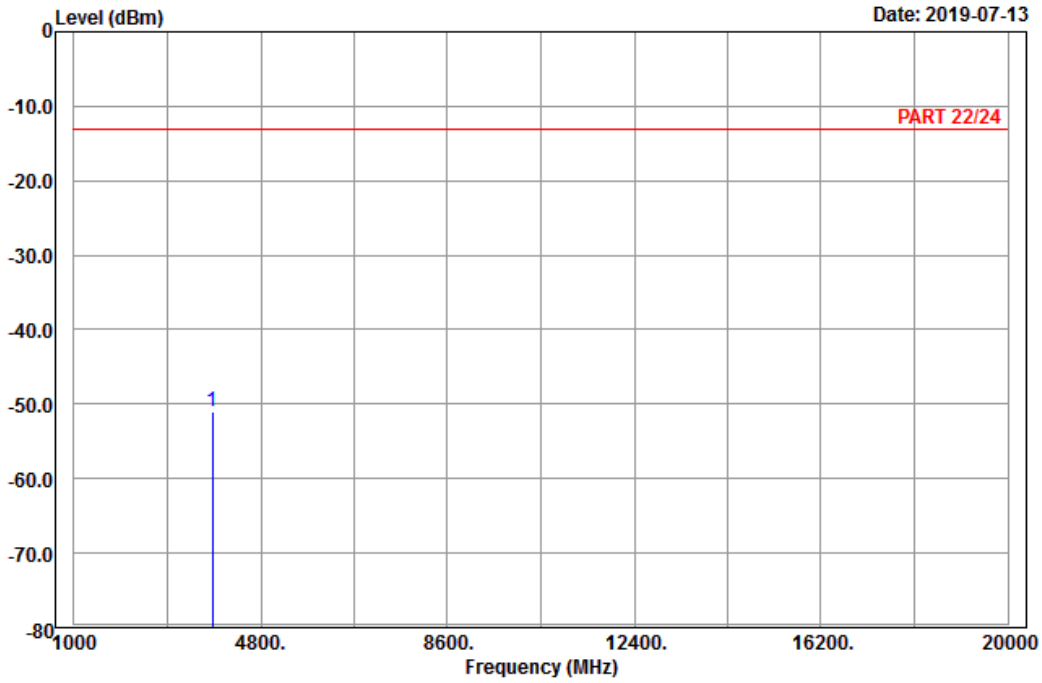
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : EDGE 1900_Link_CH810
Tested by: Charles Hsiao

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3819.60	-51.33	-67.83	16.50	-13.00	-38.33	Peak

Data: 4



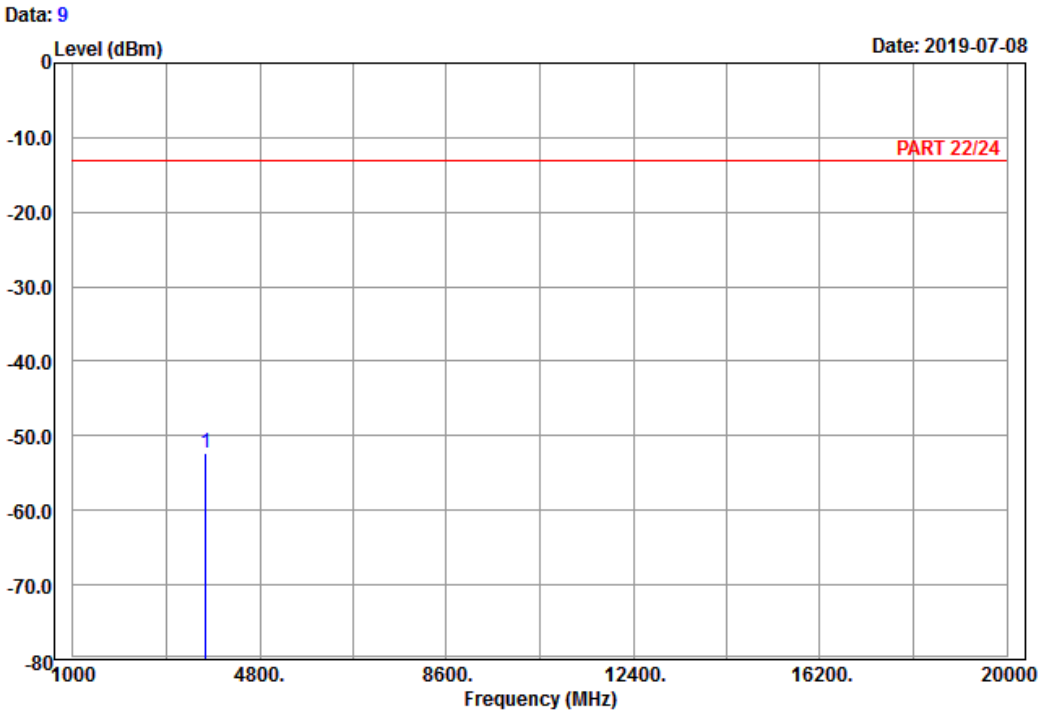
Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 1900_Link_CH810
Tested by: Charles Hsiao

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3819.60	-51.11	-67.61	16.50	-13.00	-38.11	Peak

WCDMA:

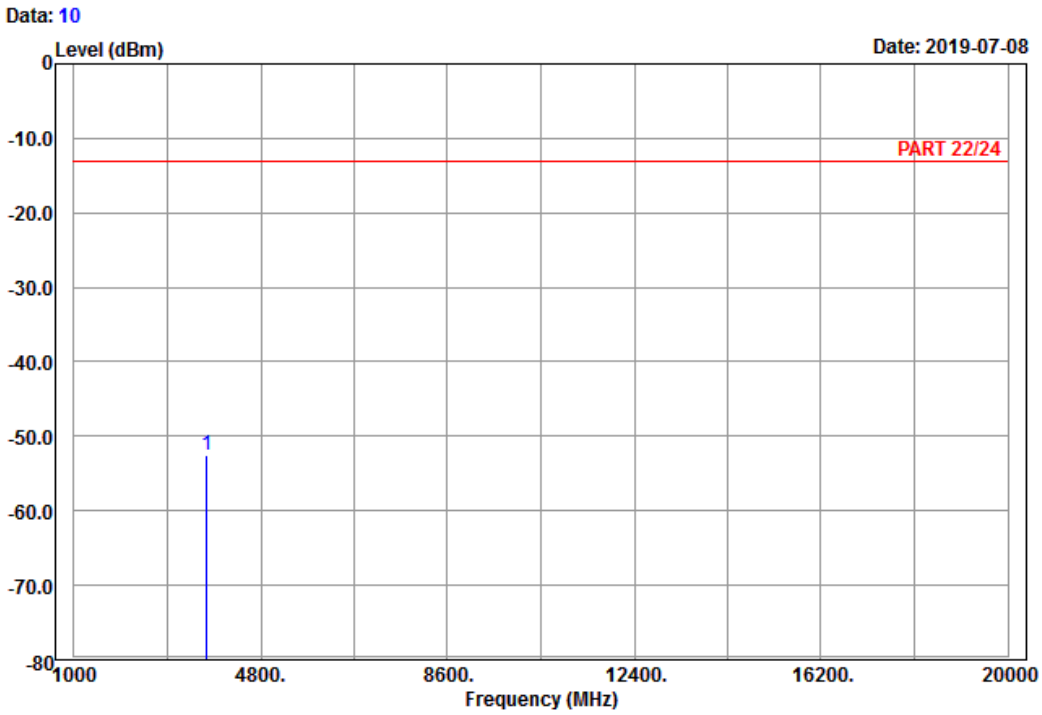
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : Band II_Link_CH9262
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3704.80	-52.26	-68.14	15.88	-13.00	-39.26	Peak

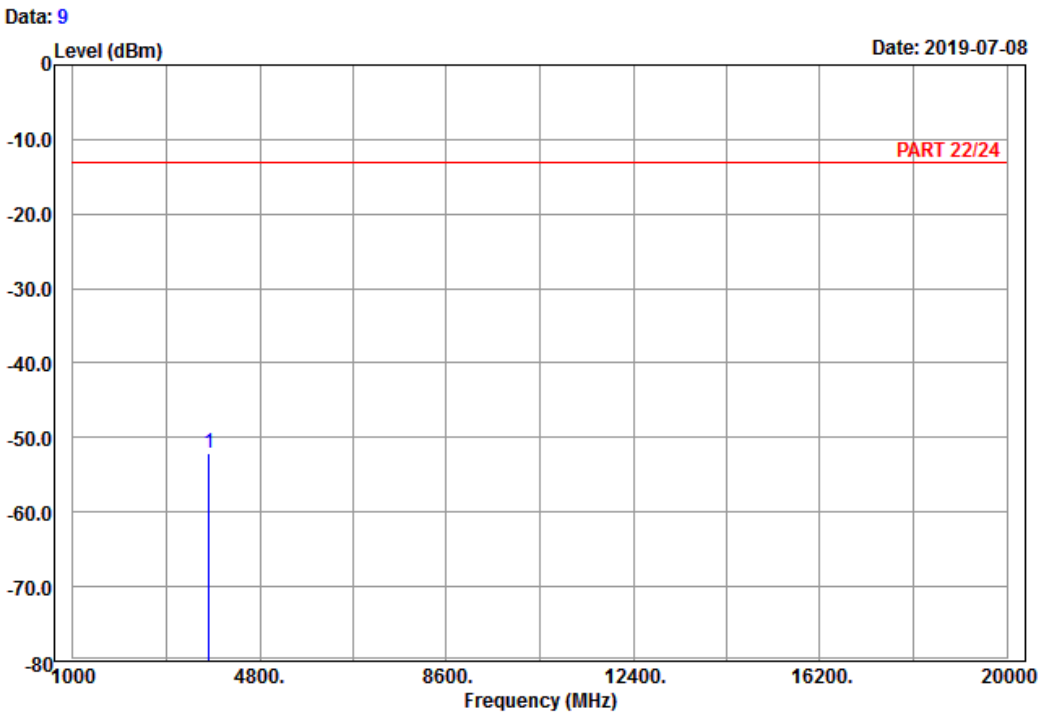


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band II_Link_CH9262
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3704.80	-52.56	-68.44	15.88	-13.00	-39.56	Peak

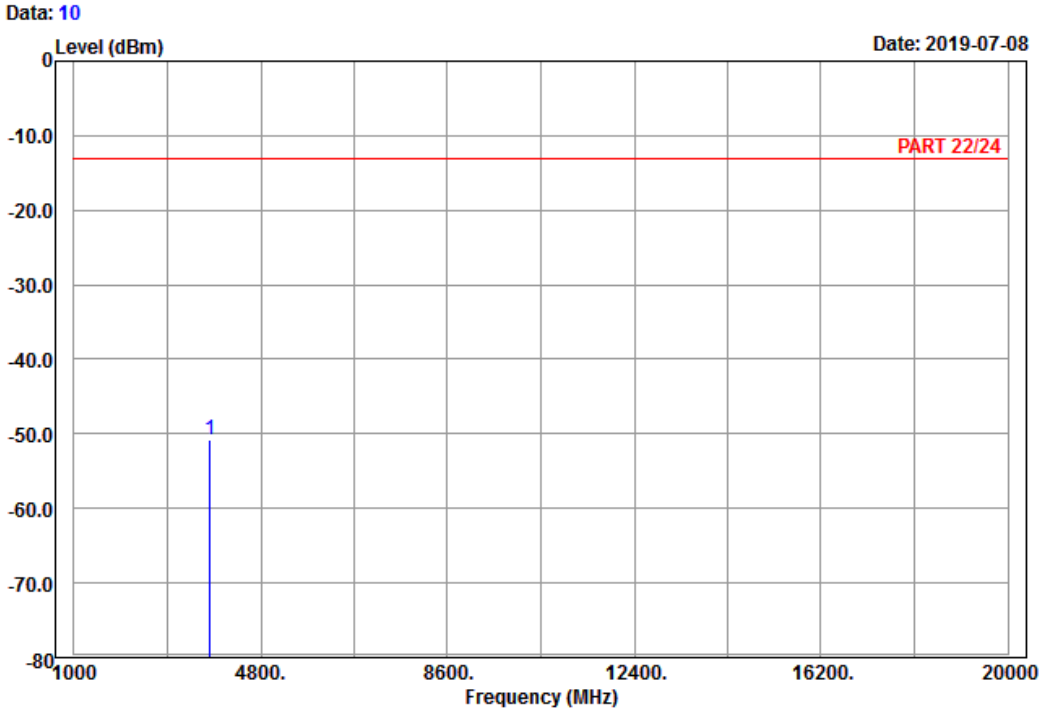
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : Band II_Link_CH9400
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-52.08	-68.22	16.14	-13.00	-39.08	Peak

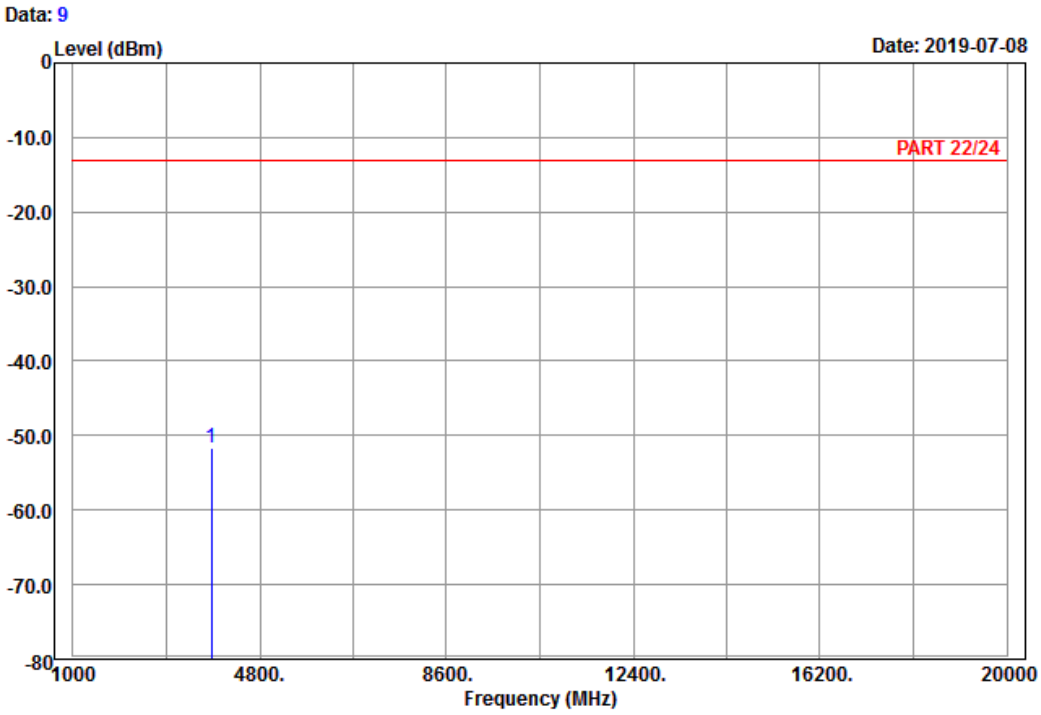


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band II_Link_CH9400
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-50.78	-66.92	16.14	-13.00	-37.78	Peak

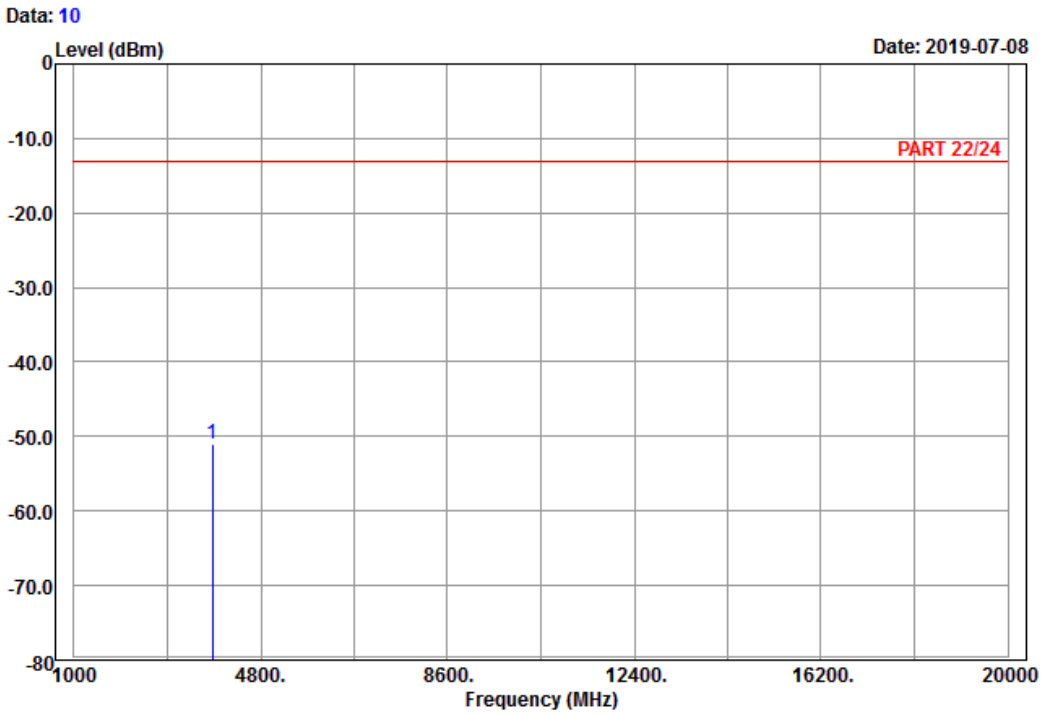
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : Band II_Link_CH9538
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3815.20	-51.75	-68.16	16.41	-13.00	-38.75	Peak

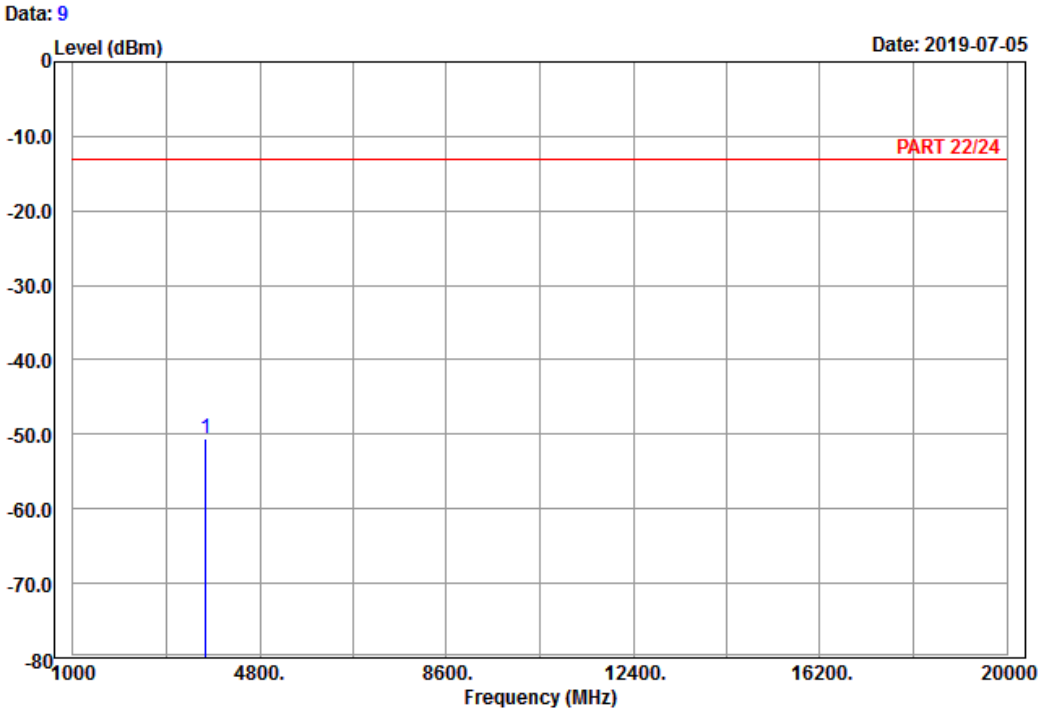


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band II_Link_CH9538
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3815.20	-50.97	-67.38	16.41	-13.00	-37.97	Peak

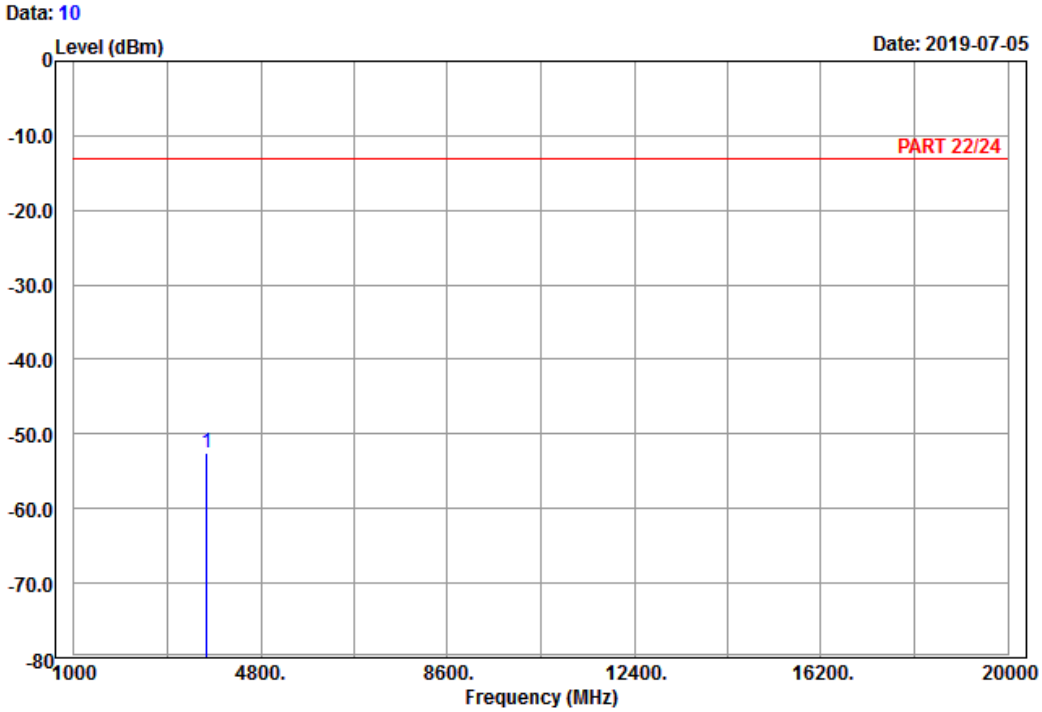
LTE Band 2
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site      : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark    : LTE_Band 2_Link_CH18607
Tested by: Karl Lee
                          Read          Limit   Over
           Freq  Level  Level Factor   Line  Limit Remark
          _____ _____ _____ _____ _____ _____ _________
            MHz   dBm   dBm    dB     dBm    dB

  1 pp  3701.40 -50.58 -66.46  15.88 -13.00 -37.58 Peak
```

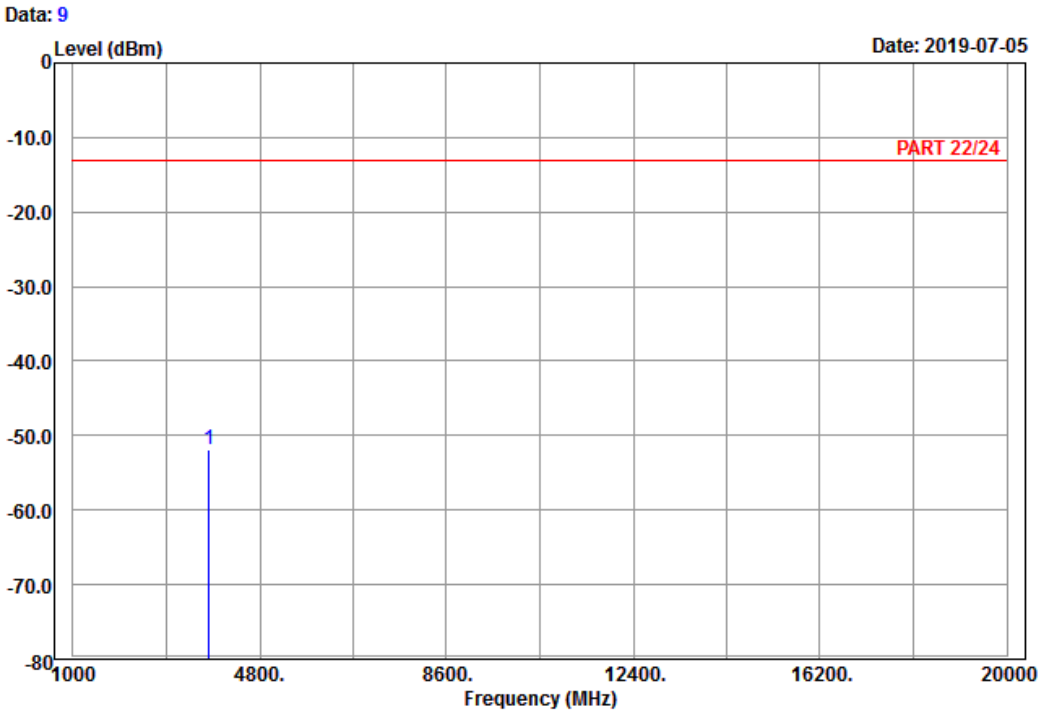


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH18607
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3701.40	-52.43	-68.31	15.88	-13.00	-39.43	Peak

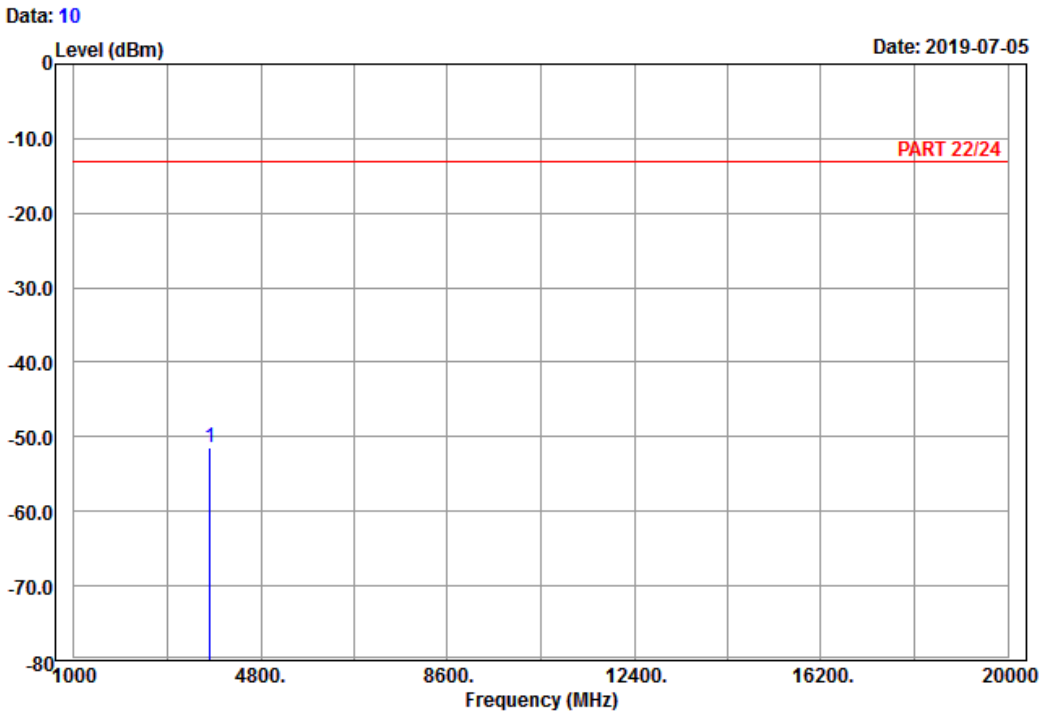
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_CH18900
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-51.90	-68.04	16.14	-13.00	-38.90	Peak

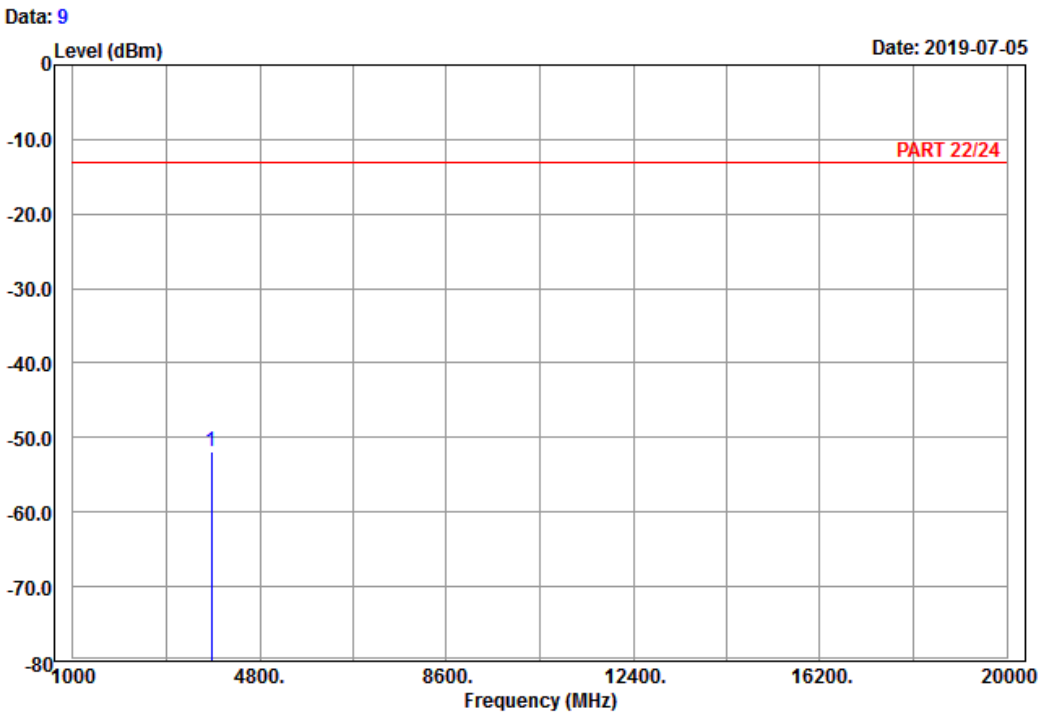


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH18900
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-51.53	-67.67	16.14	-13.00	-38.53	Peak

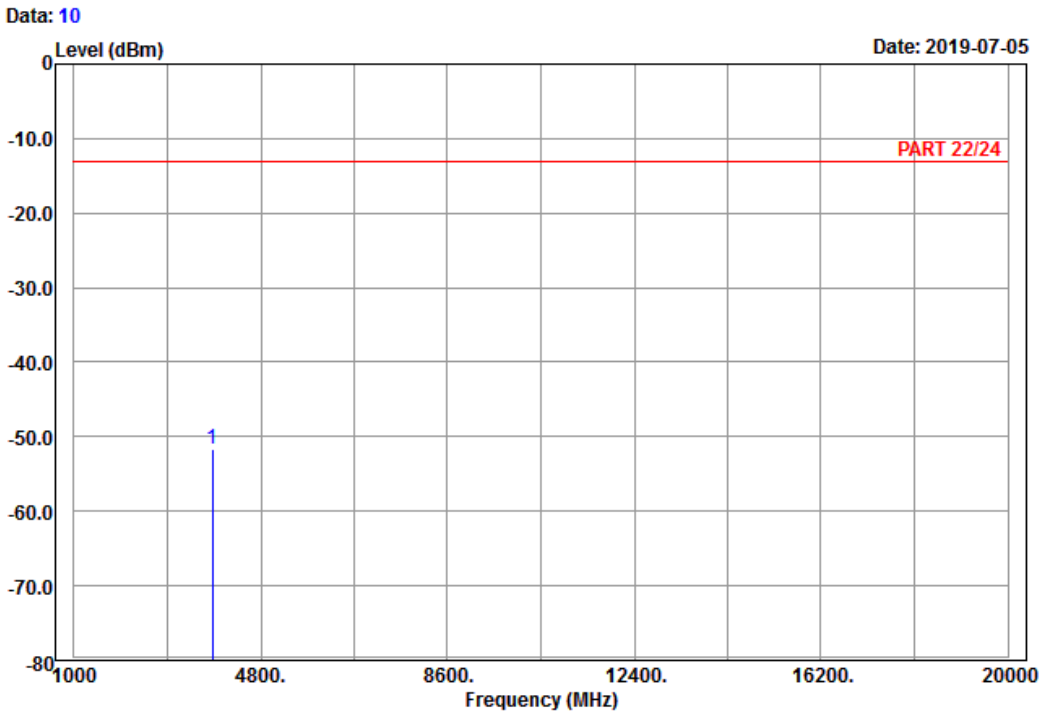
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_CH19193
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3818.60	-51.91	-68.41	16.50	-13.00	-38.91	Peak

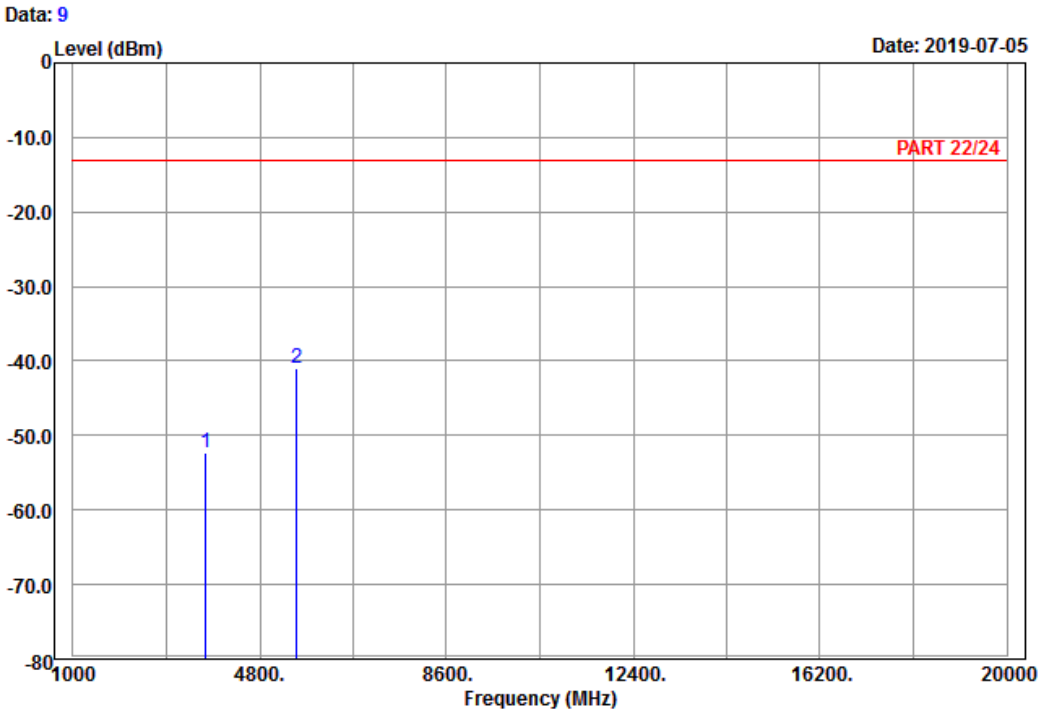


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH19193
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3818.60	-51.72	-68.22	16.50	-13.00	-38.72	Peak

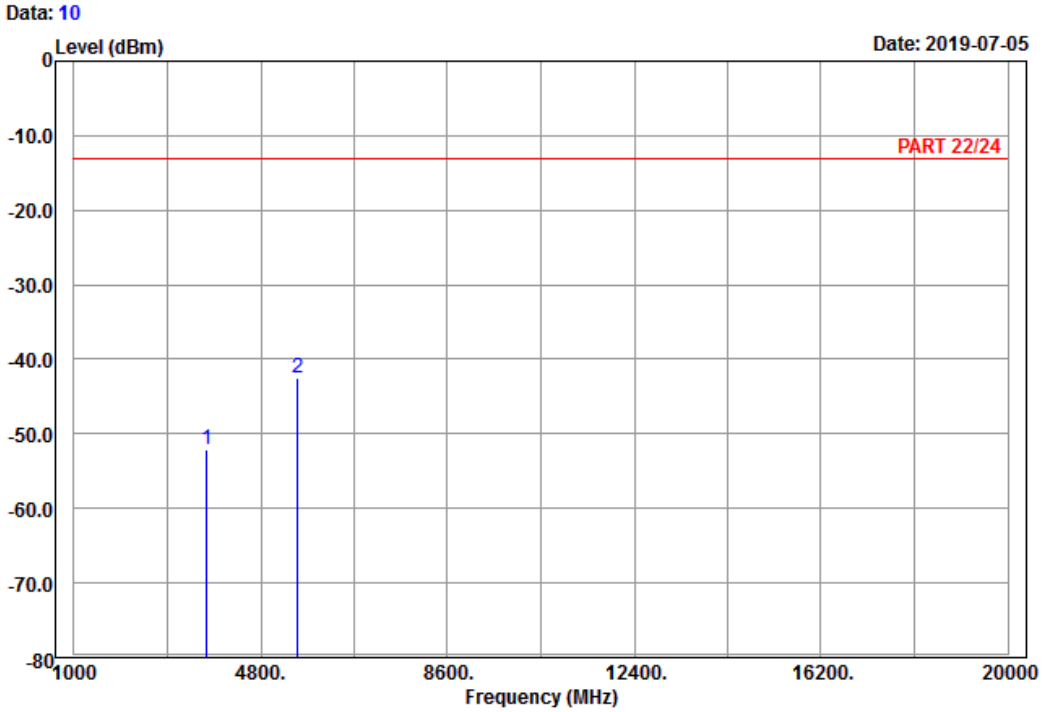
Channel Bandwidth: 5 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_CH18625
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3705.00	-52.26	-68.14	15.88	-13.00	-39.26	Peak
2 pp	5557.50	-40.98	-61.32	20.34	-13.00	-27.98	Peak

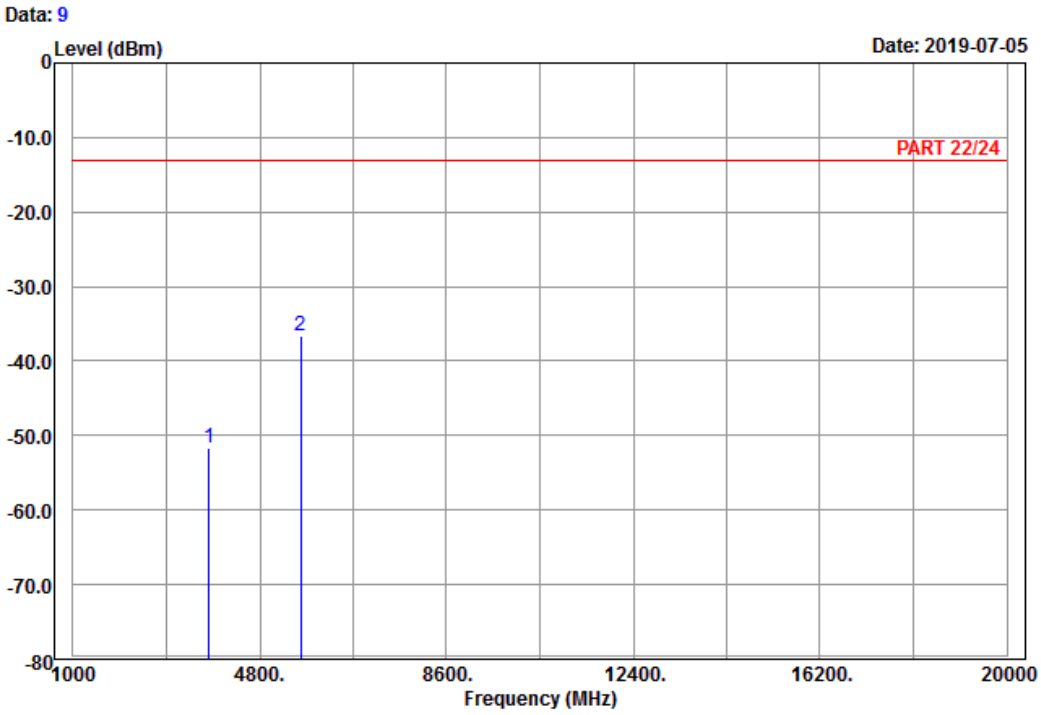


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH18625
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3705.00	-52.20	-68.08	15.88	-13.00	-39.20	Peak
2 pp	5557.50	-42.42	-62.76	20.34	-13.00	-29.42	Peak

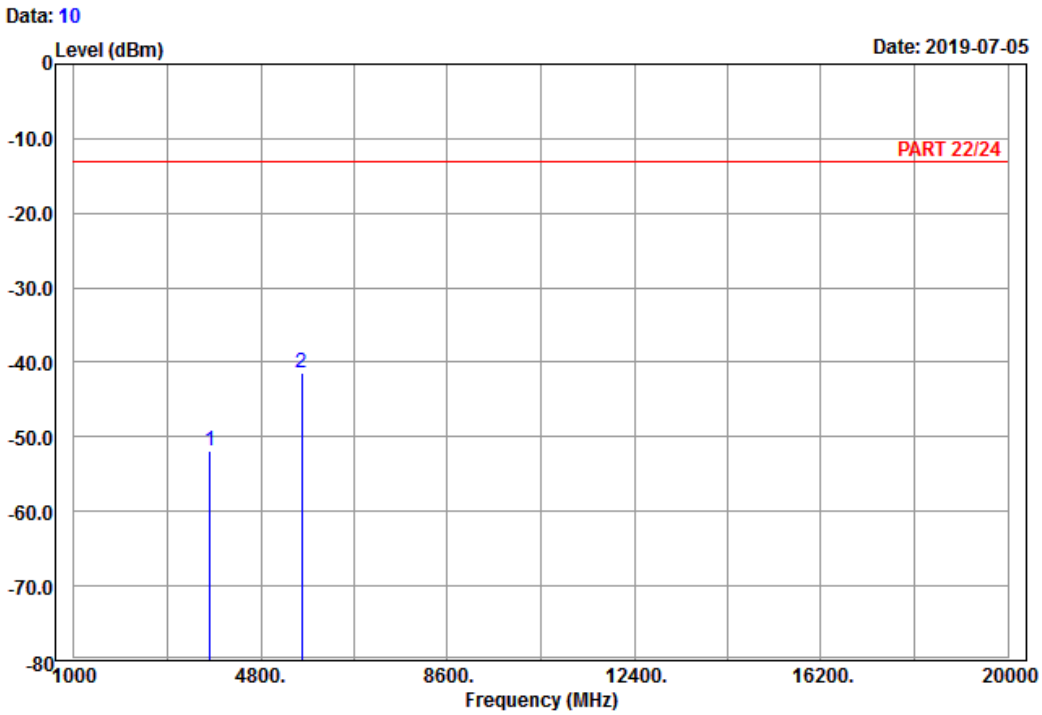
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_CH18900
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.00	-51.56	-67.70	16.14	-13.00	-38.56	Peak
2 pp	5640.00	-36.60	-57.07	20.47	-13.00	-23.60	Peak

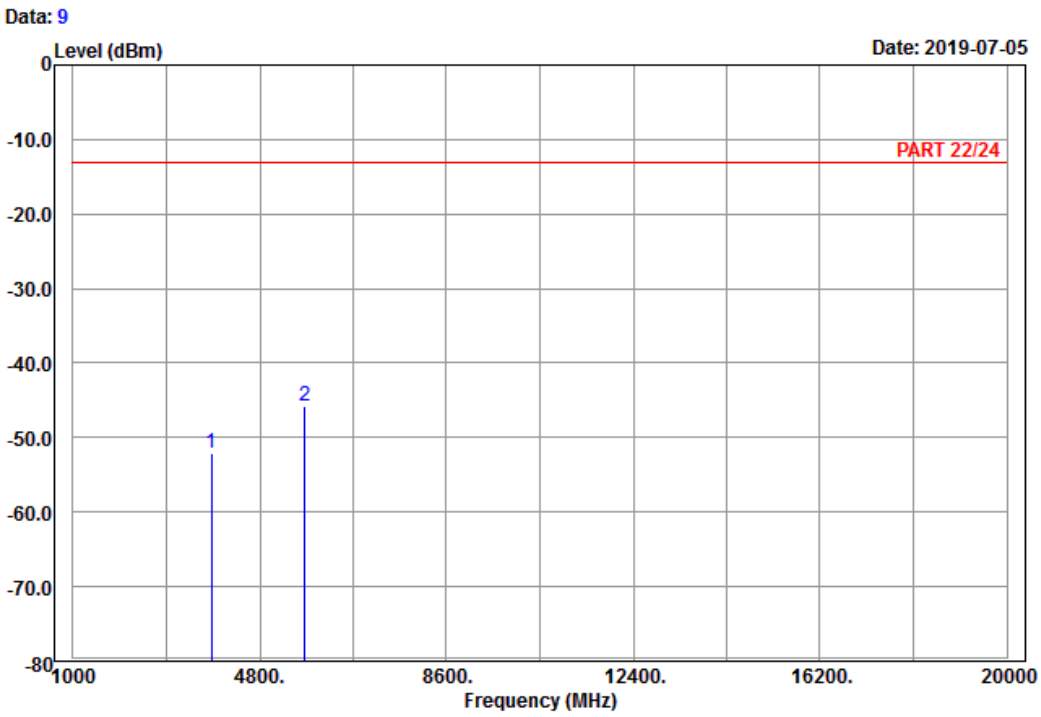


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH18900
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.00	-51.90	-68.04	16.14	-13.00	-38.90	Peak
2 pp	5640.00	-41.32	-61.79	20.47	-13.00	-28.32	Peak

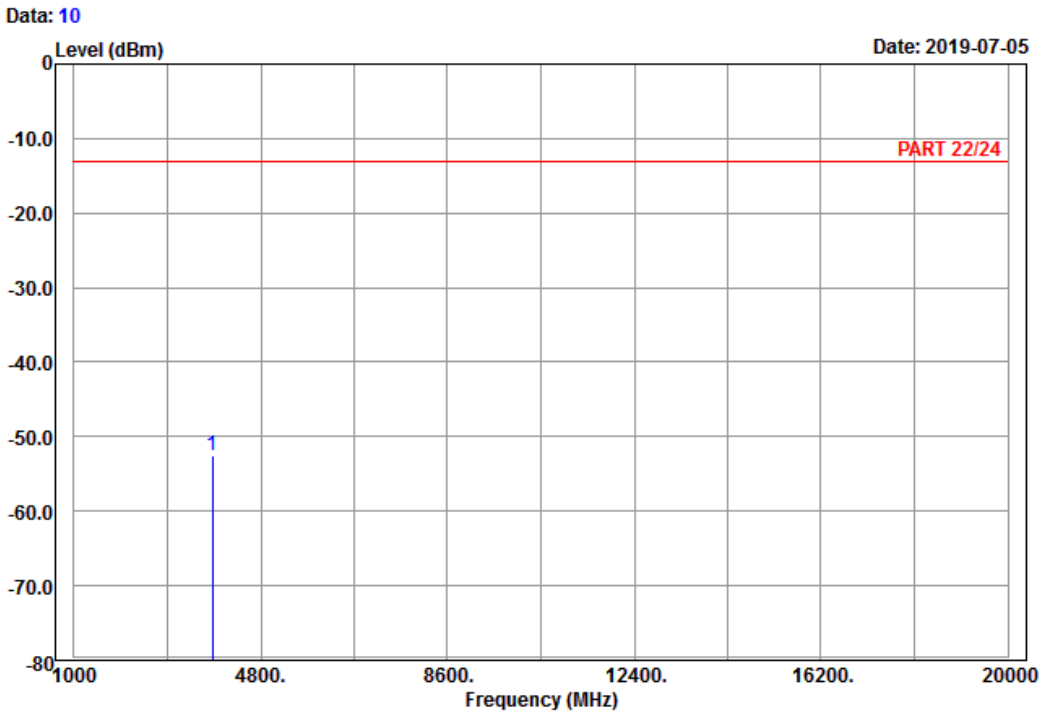
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_CH19175
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3815.00	-52.01	-68.42	16.41	-13.00	-39.01	Peak
2 pp	5722.50	-45.82	-66.09	20.27	-13.00	-32.82	Peak

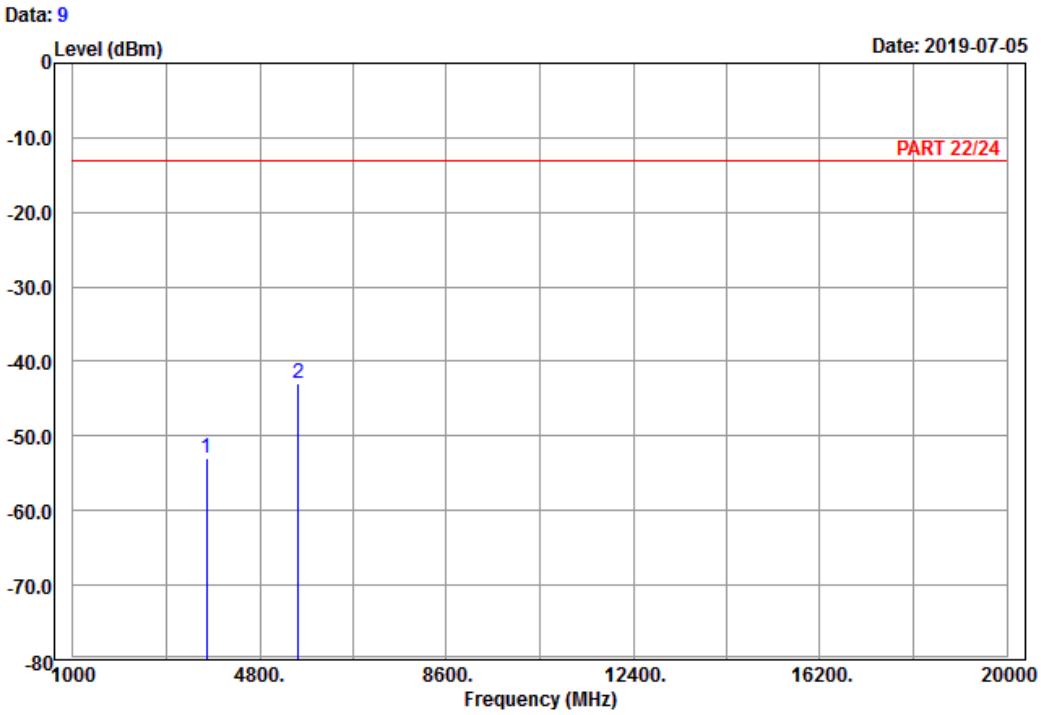


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH19175
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3815.00	-52.47	-68.88	16.41	-13.00	-39.47	Peak

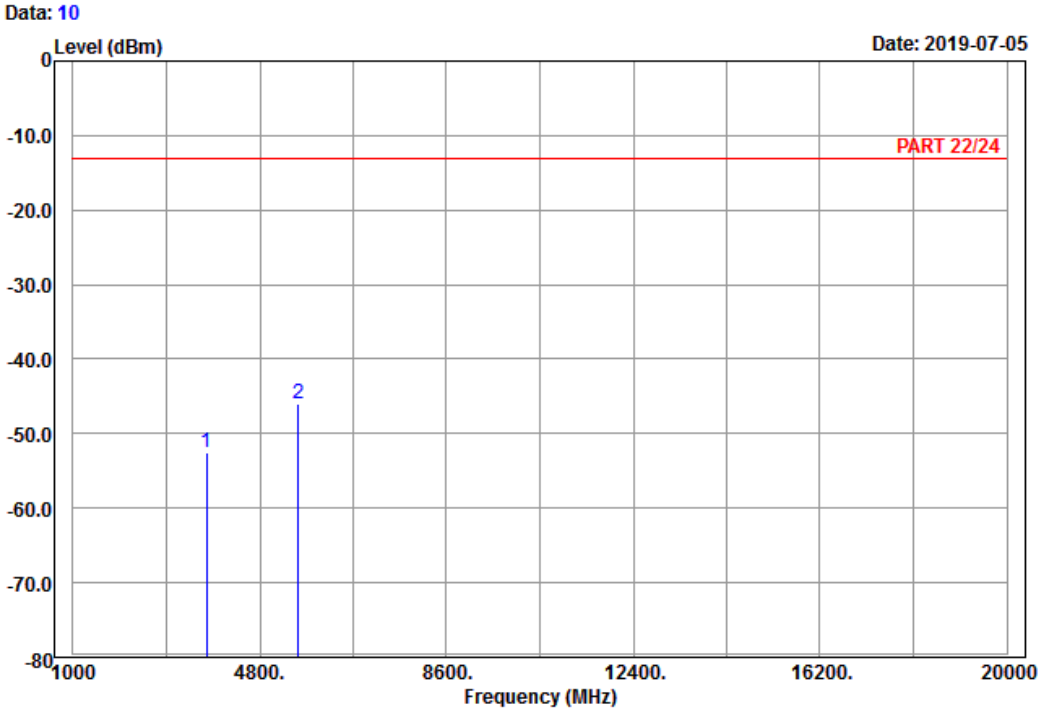
Channel Bandwidth: 20 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site     : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark   : LTE_Band 2_Link_CH18700
Tested by: Karl Lee
                        Read         Limit   Over
           Freq  Level  Level Factor   Line  Limit Remark
          ------ ------ ------ ------ ------ ------ ------
            MHz    dBm    dBm     dB    dBm     dB

  1     3720.00 -53.07 -69.04  15.97 -13.00 -40.07 Peak
  2 pp  5580.00 -43.00 -63.37  20.37 -13.00 -30.00 Peak
```

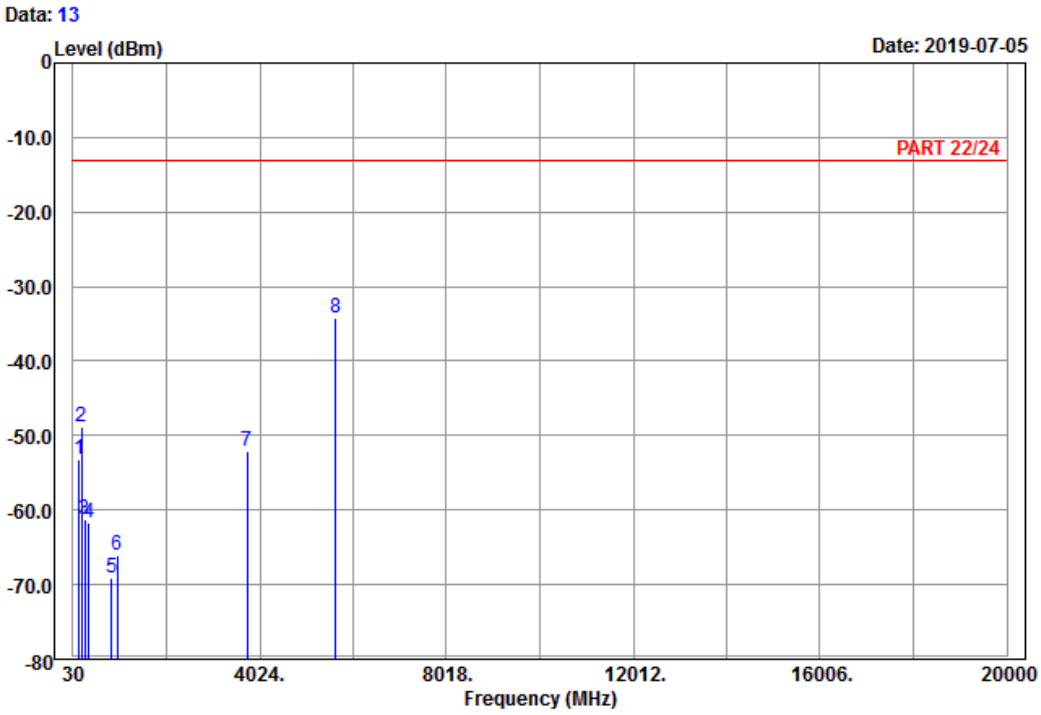


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH18700
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3720.00	-52.57	-68.54	15.97	-13.00	-39.57	Peak
2 pp	5580.00	-45.99	-66.36	20.37	-13.00	-32.99	Peak

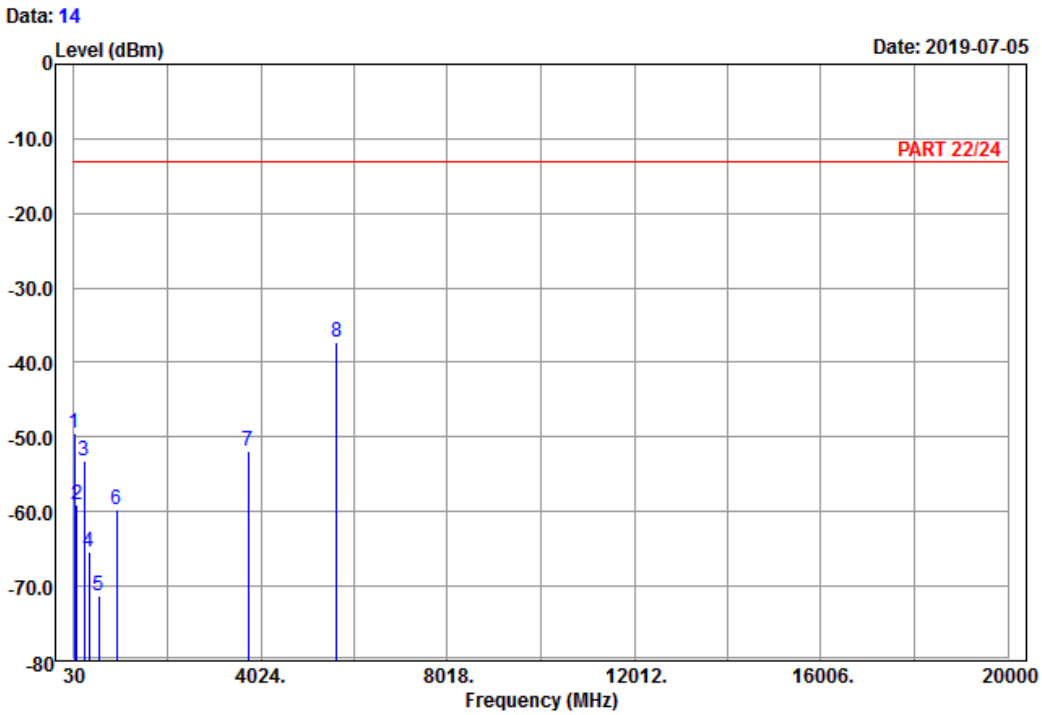
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_CH18900
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	167.97	-53.12	-46.22	-6.90	-13.00	-40.12	Peak
2	211.44	-48.75	-42.72	-6.03	-13.00	-35.75	Peak
3	274.08	-61.31	-55.58	-5.73	-13.00	-48.31	Peak
4	360.20	-61.63	-56.77	-4.86	-13.00	-48.63	Peak
5	858.60	-69.09	-70.79	1.70	-13.00	-56.09	Peak
6	974.10	-65.96	-71.14	5.18	-13.00	-52.96	Peak
7	3760.00	-52.06	-68.20	16.14	-13.00	-39.06	Peak
8 pp	5640.00	-34.12	-54.59	20.47	-13.00	-21.12	Peak

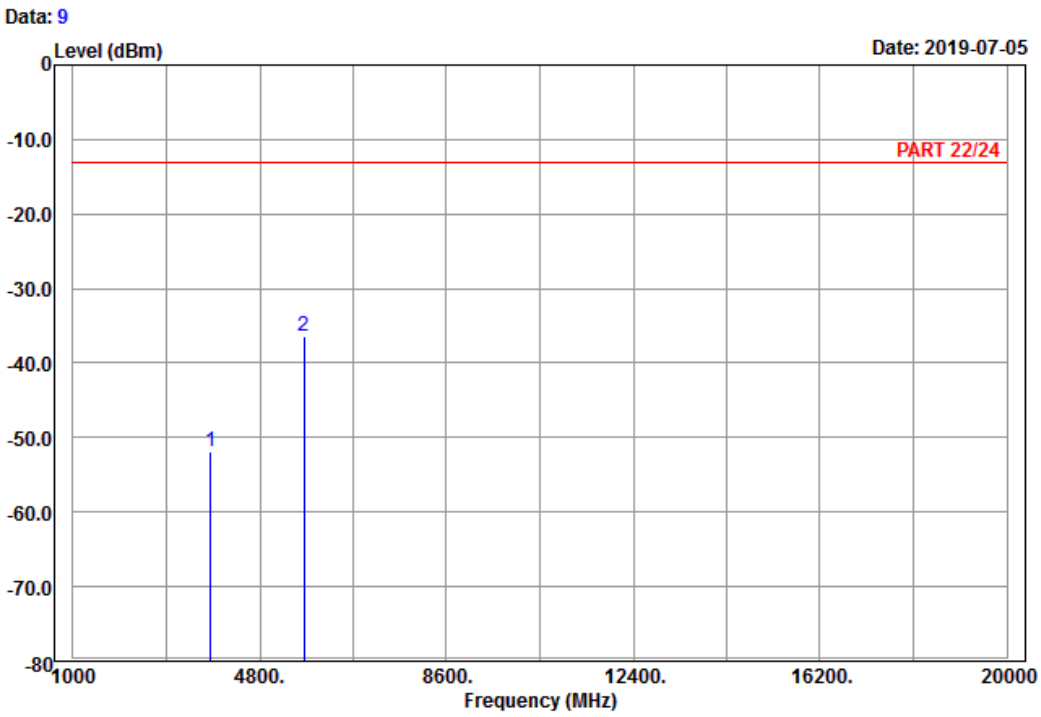


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH18900
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	31.62	-49.38	-38.62	-10.76	-13.00	-36.38	Peak
2	82.38	-59.14	-47.59	-11.55	-13.00	-46.14	Peak
3	240.06	-53.29	-47.65	-5.64	-13.00	-40.29	Peak
4	356.00	-65.39	-60.32	-5.07	-13.00	-52.39	Peak
5	551.30	-71.35	-69.73	-1.62	-13.00	-58.35	Peak
6	945.40	-59.74	-64.67	4.93	-13.00	-46.74	Peak
7	3760.00	-51.78	-67.92	16.14	-13.00	-38.78	Peak
8 pp	5640.00	-37.28	-57.75	20.47	-13.00	-24.28	Peak

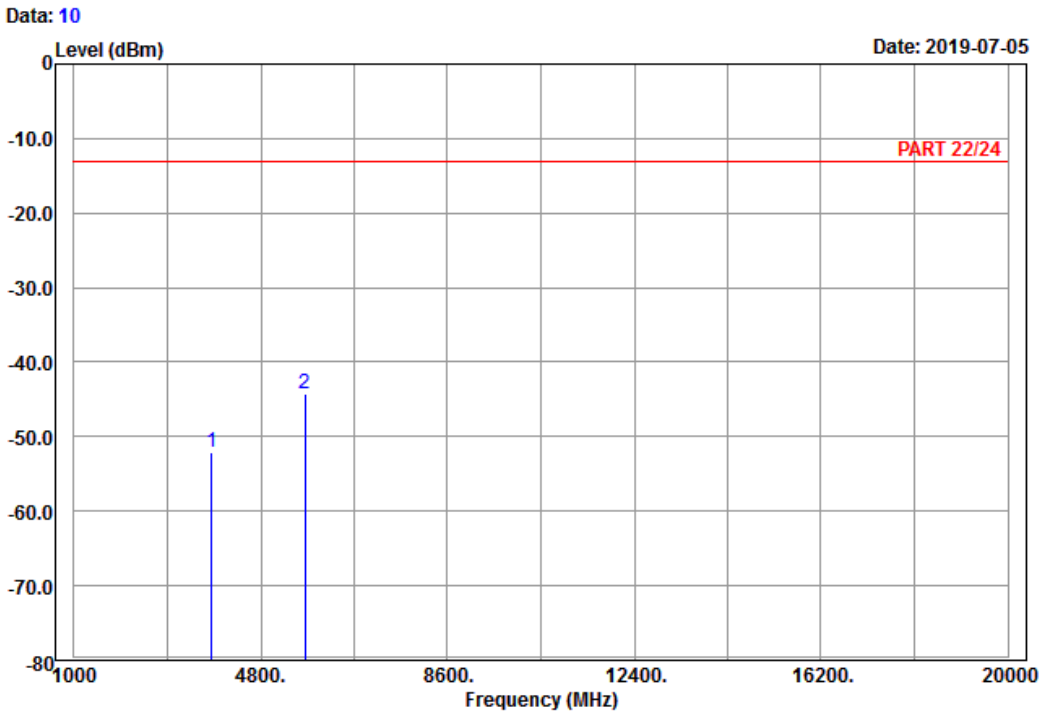
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_CH19100
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3800.00	-51.92	-68.33	16.41	-13.00	-38.92	Peak
2 pp	5700.00	-36.39	-56.60	20.21	-13.00	-23.39	Peak

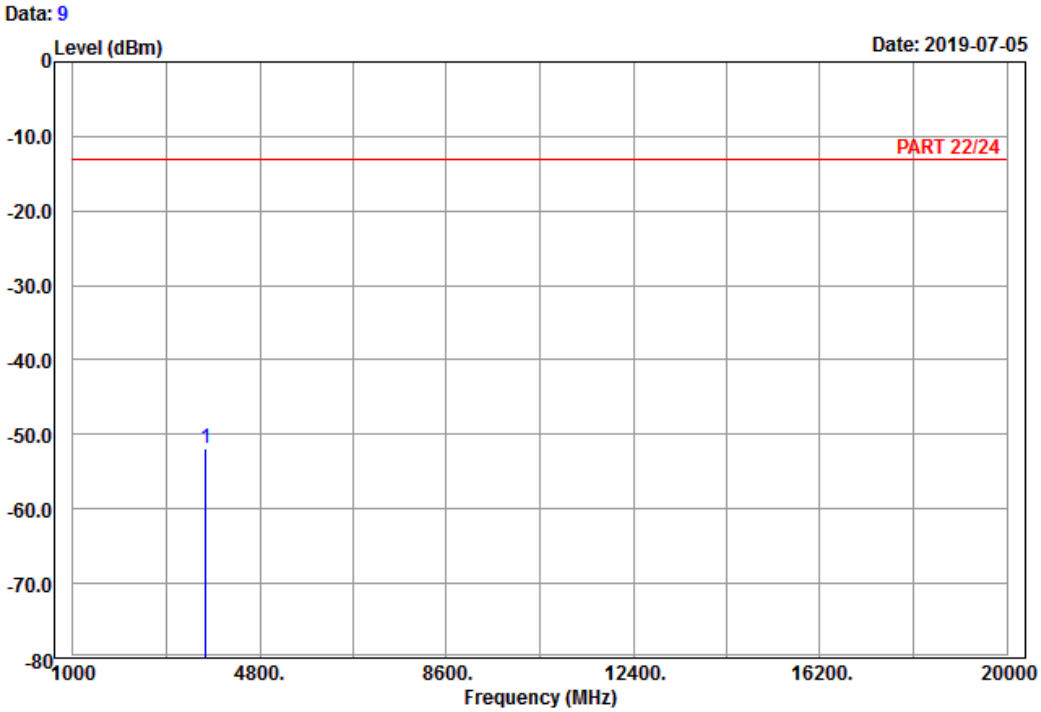


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH19100
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3800.00	-52.06	-68.47	16.41	-13.00	-39.06	Peak
2 pp	5700.00	-44.26	-64.47	20.21	-13.00	-31.26	Peak

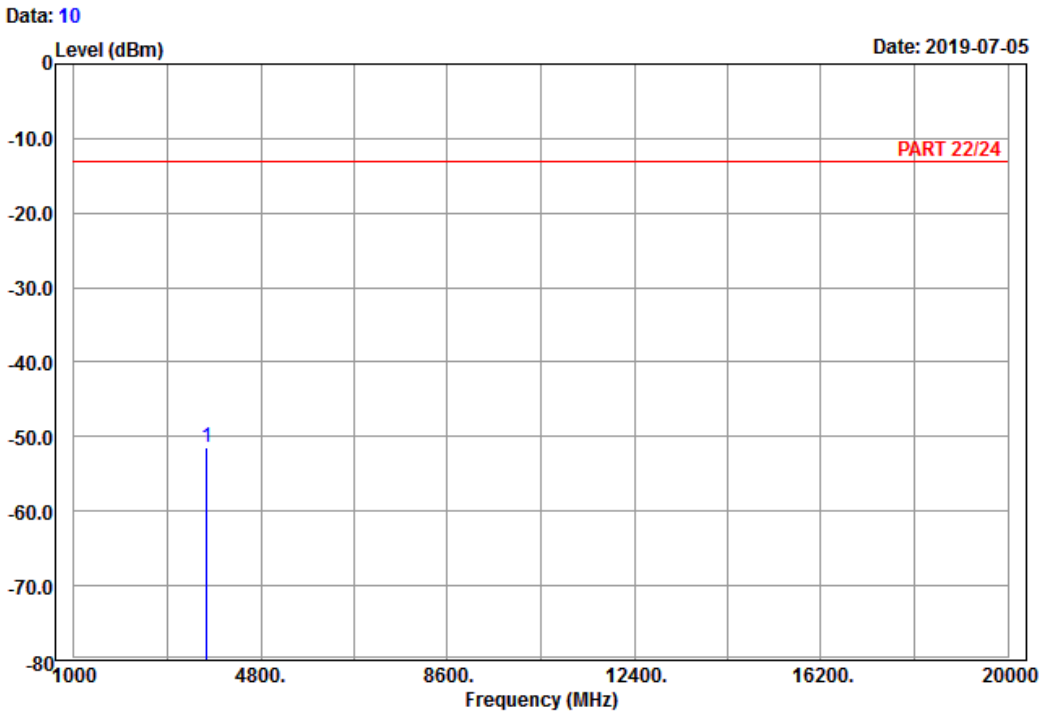
LTE Band 25
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site      : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark    : LTE_Band 25_Link_CH26047
Tested by: Karl Lee
                          Read          Limit   Over
           Freq  Level  Level Factor   Line  Limit Remark
          _____ _____ _____ _____ _____ _____ _________
                 MHz     dBm   dBm     dB     dBm    dB

  1 pp  3701.40 -51.89 -67.77  15.88 -13.00 -38.89 Peak
```

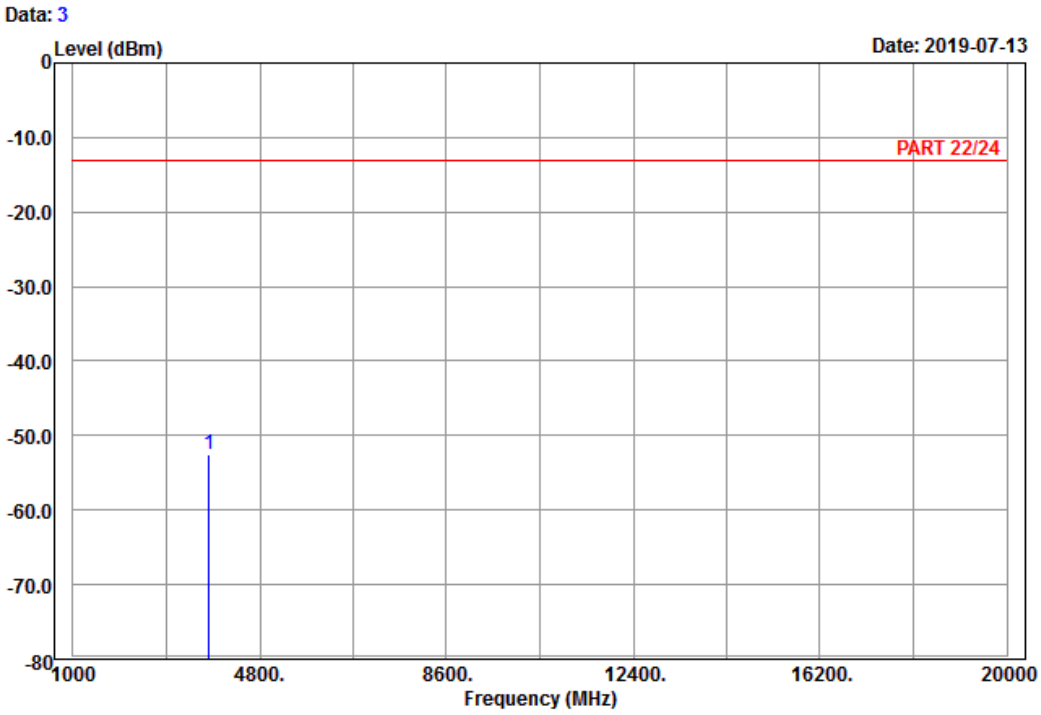


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26047
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3701.40	-51.40	-67.28	15.88	-13.00	-38.40	Peak

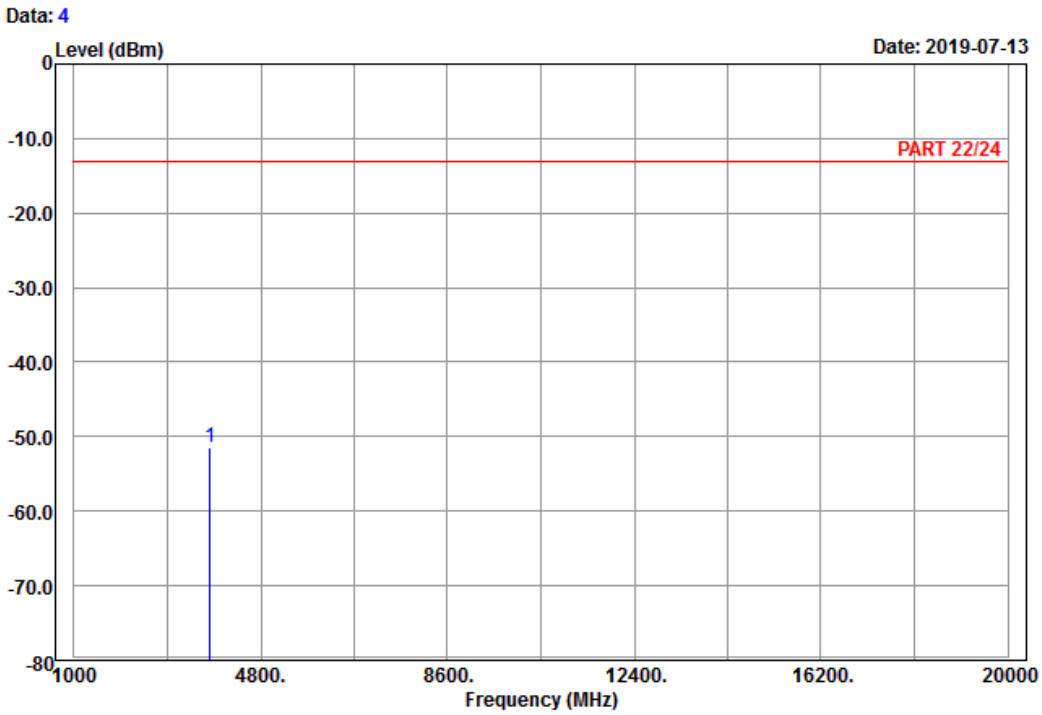
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_CH26365
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3765.00	-52.64	-68.87	16.23	-13.00	-39.64	Peak

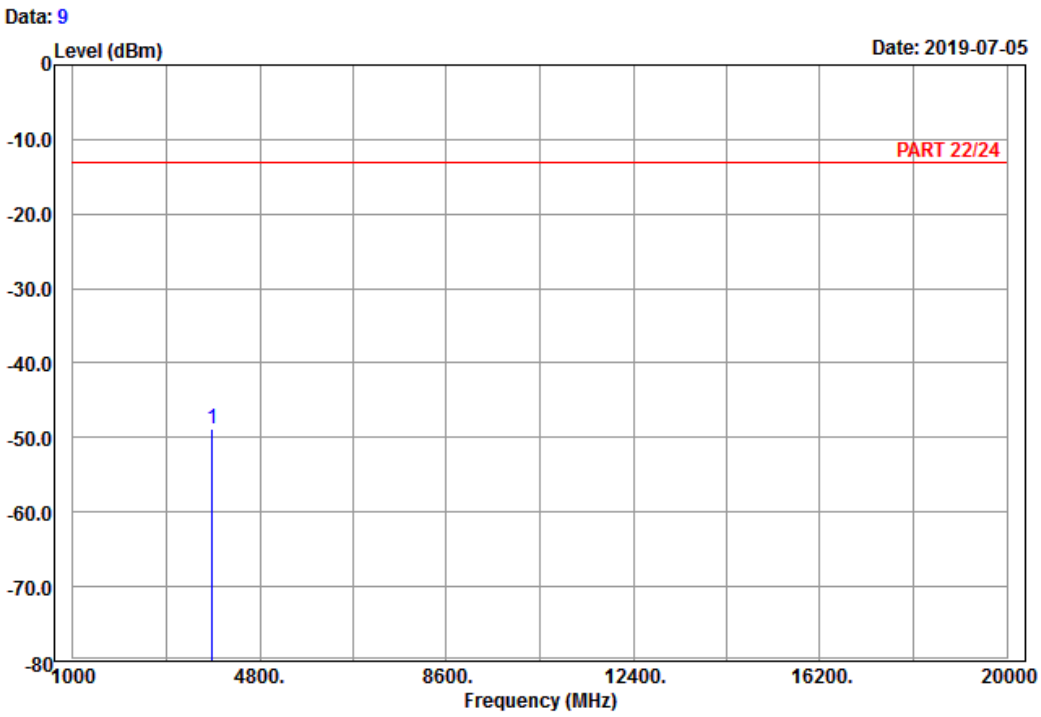


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26365
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3765.00	-51.42	-67.65	16.23	-13.00	-38.42	Peak

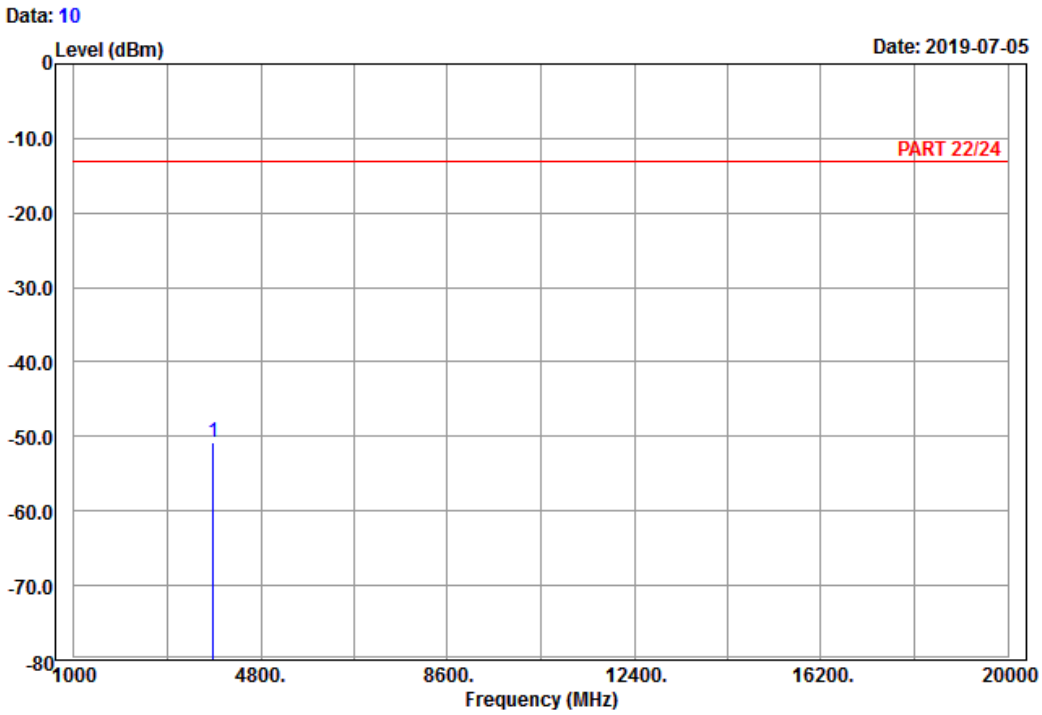
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_CH26683
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3828.60	-48.79	-65.29	16.50	-13.00	-35.79	Peak

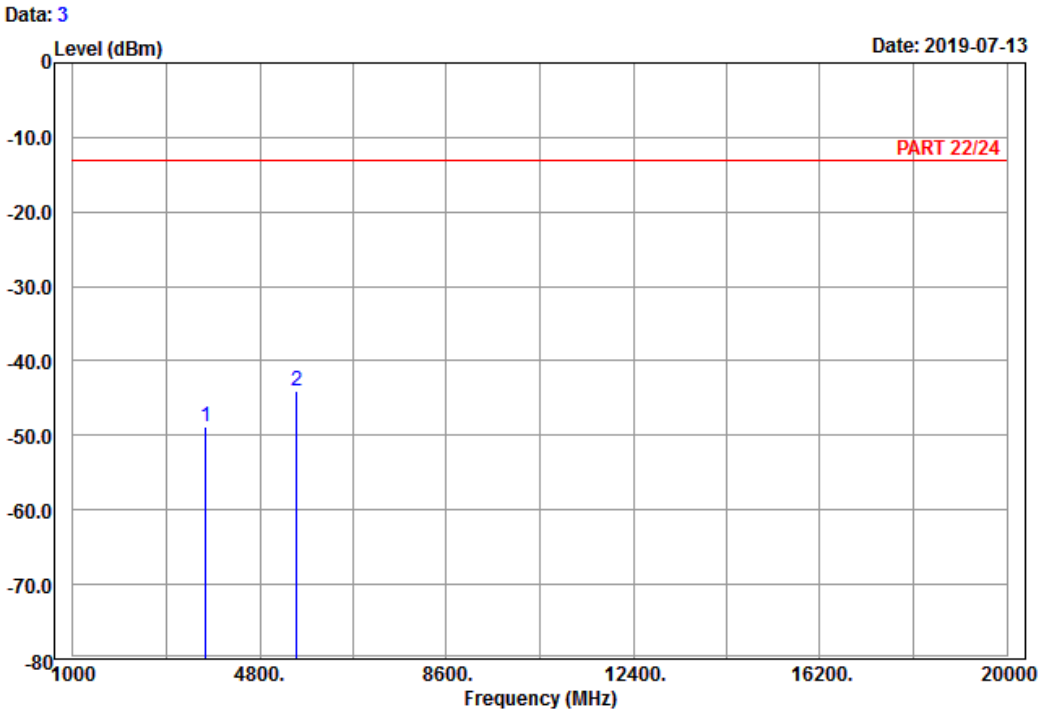


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26683
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3828.60	-50.72	-67.22	16.50	-13.00	-37.72	Peak

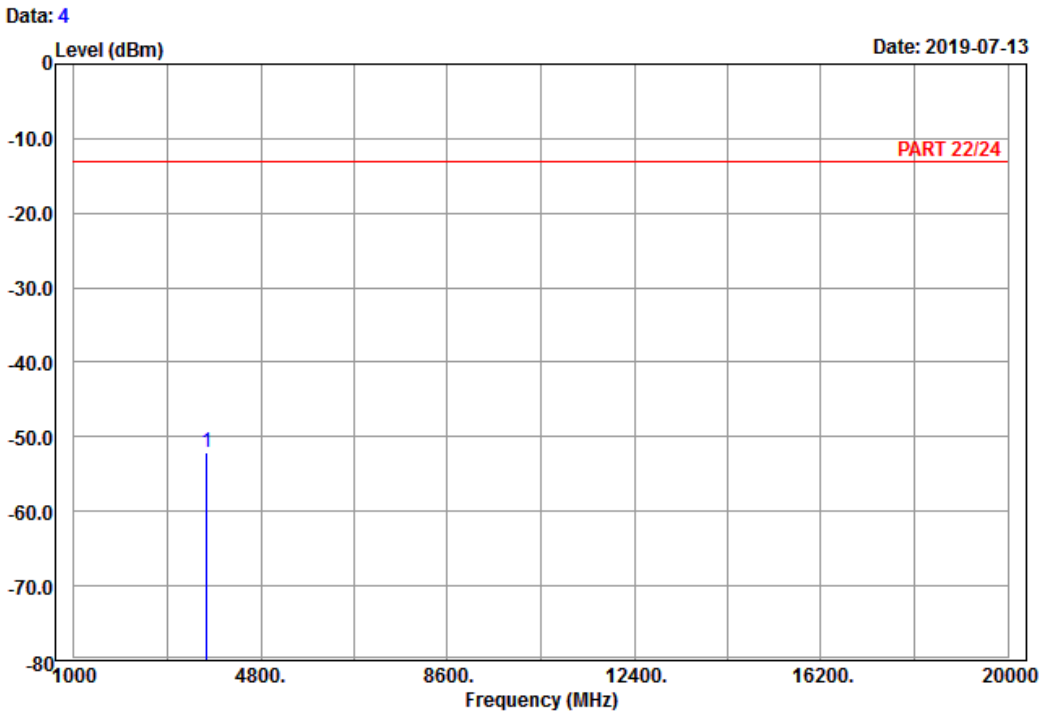
Channel Bandwidth: 5 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site      : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark    : LTE_Band 25_Link_CH26065
Tested by: Karl Lee
                          Read          Limit   Over
           Freq   Level   Level Factor   Line   Limit Remark
          ______ _______ _____ ______ _______ _____ __________
              MHz     dBm   dBm     dB     dBm     dB

  1     3705.00  -48.86 -64.74  15.88  -13.00 -35.86 Peak
  2 pp  5557.50  -43.94 -64.28  20.34  -13.00 -30.94 Peak
```

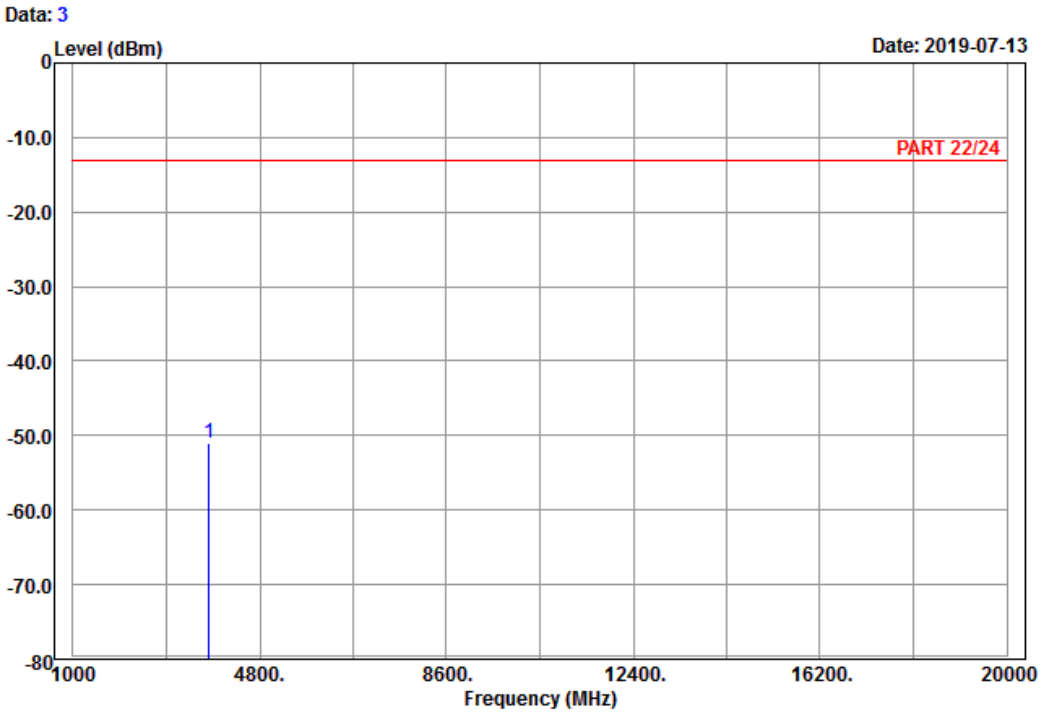


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26065
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3705.00	-52.17	-68.05	15.88	-13.00	-39.17	Peak

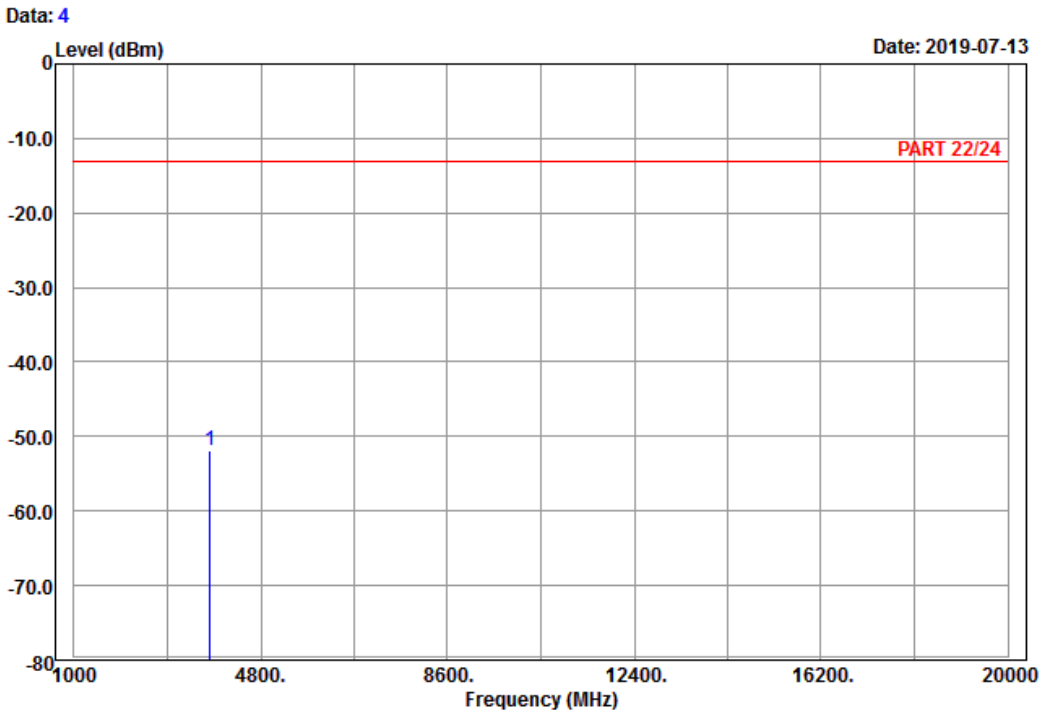
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_CH26365
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3765.00	-50.98	-67.21	16.23	-13.00	-37.98	Peak

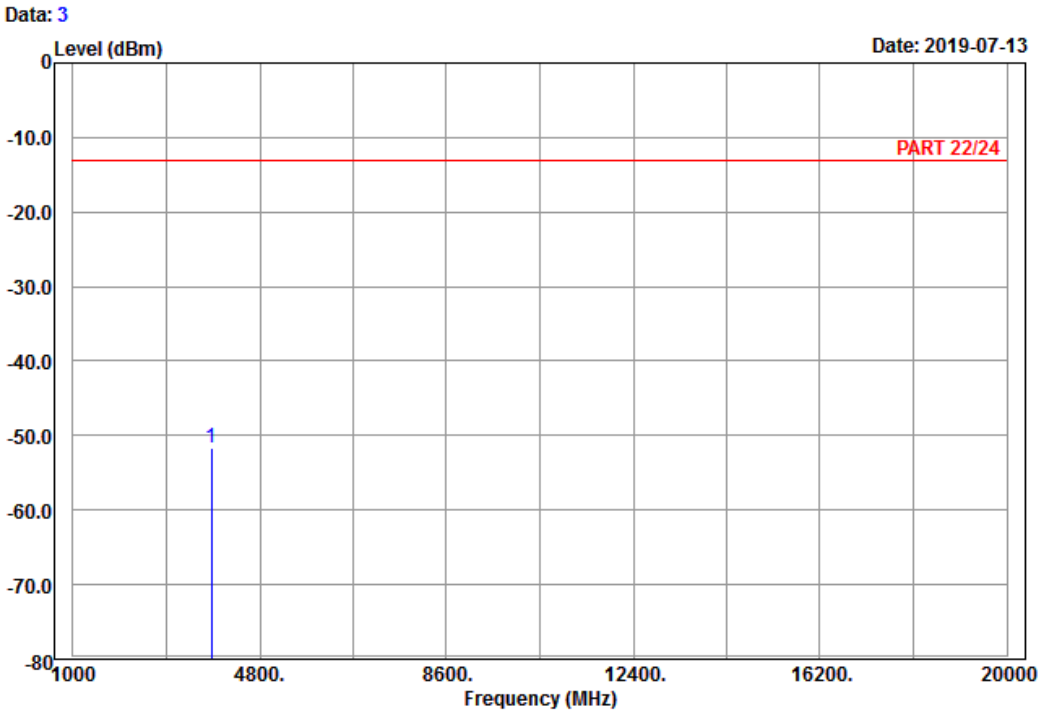


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26365
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3765.00	-51.82	-68.05	16.23	-13.00	-38.82	Peak

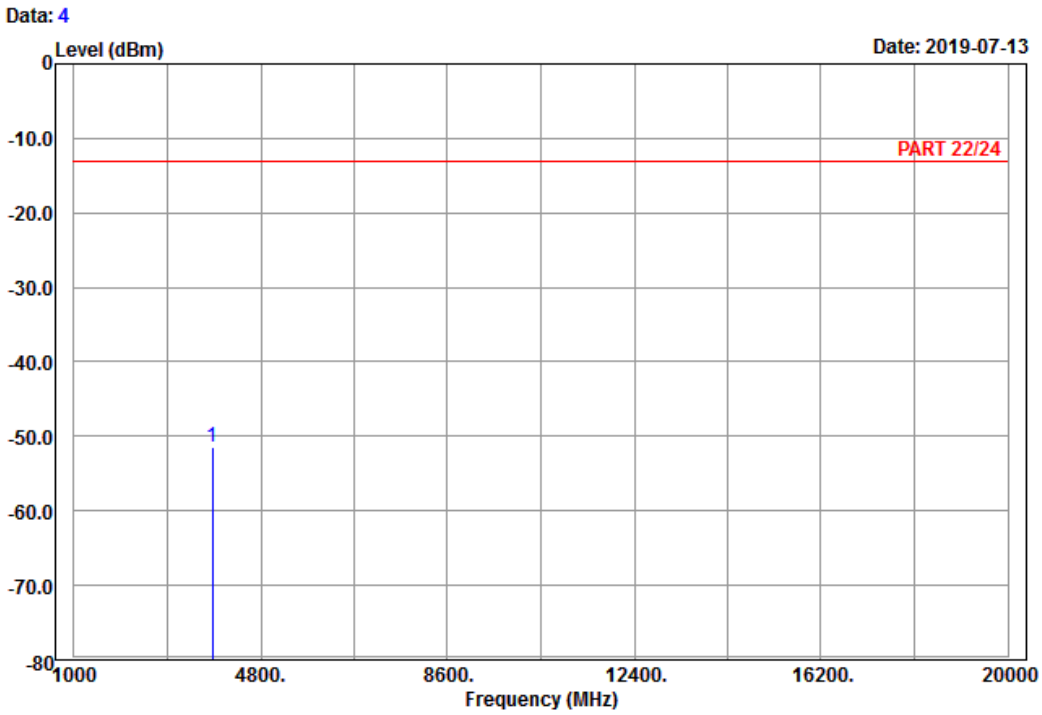
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_CH26665
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3825.00	-51.71	-68.21	16.50	-13.00	-38.71	Peak

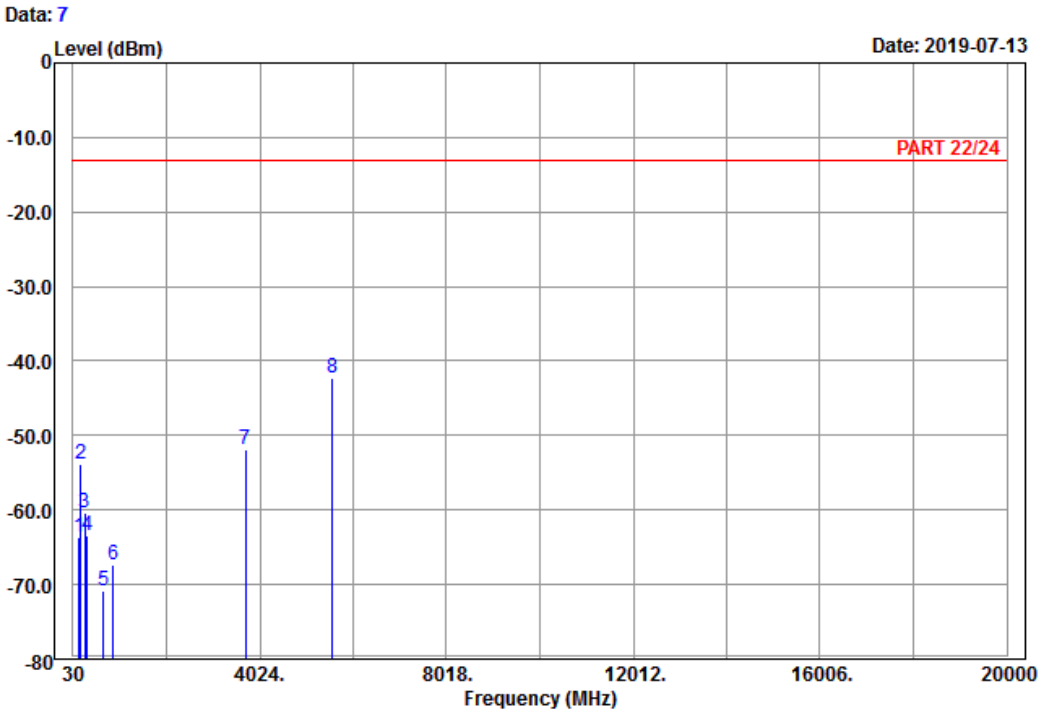


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26665
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3825.00	-51.53	-68.03	16.50	-13.00	-38.53	Peak

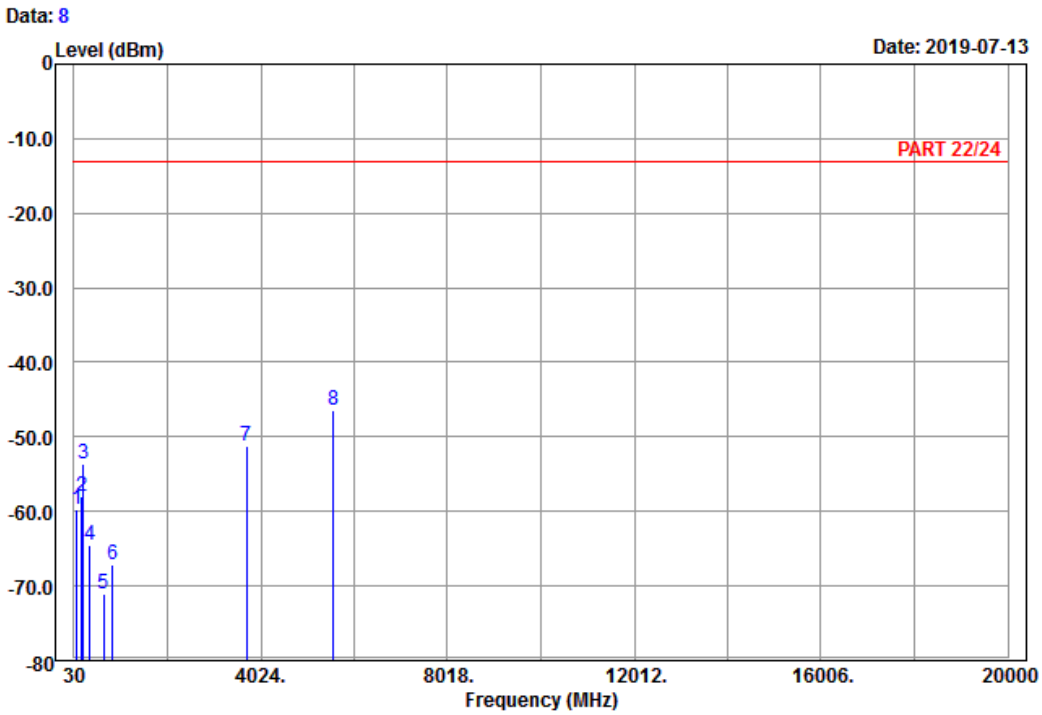
Channel Bandwidth: 20 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_CH26140
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	153.12	-63.56	-55.70	-7.86	-13.00	-50.56	Peak
2	199.29	-53.87	-47.69	-6.18	-13.00	-40.87	Peak
3	286.77	-60.41	-54.57	-5.84	-13.00	-47.41	Peak
4	330.10	-63.35	-57.74	-5.61	-13.00	-50.35	Peak
5	673.80	-70.87	-70.62	-0.25	-13.00	-57.87	Peak
6	884.50	-67.39	-69.83	2.44	-13.00	-54.39	Peak
7	3720.00	-51.93	-67.90	15.97	-13.00	-38.93	Peak
8 pp	5580.00	-42.28	-62.65	20.37	-13.00	-29.28	Peak

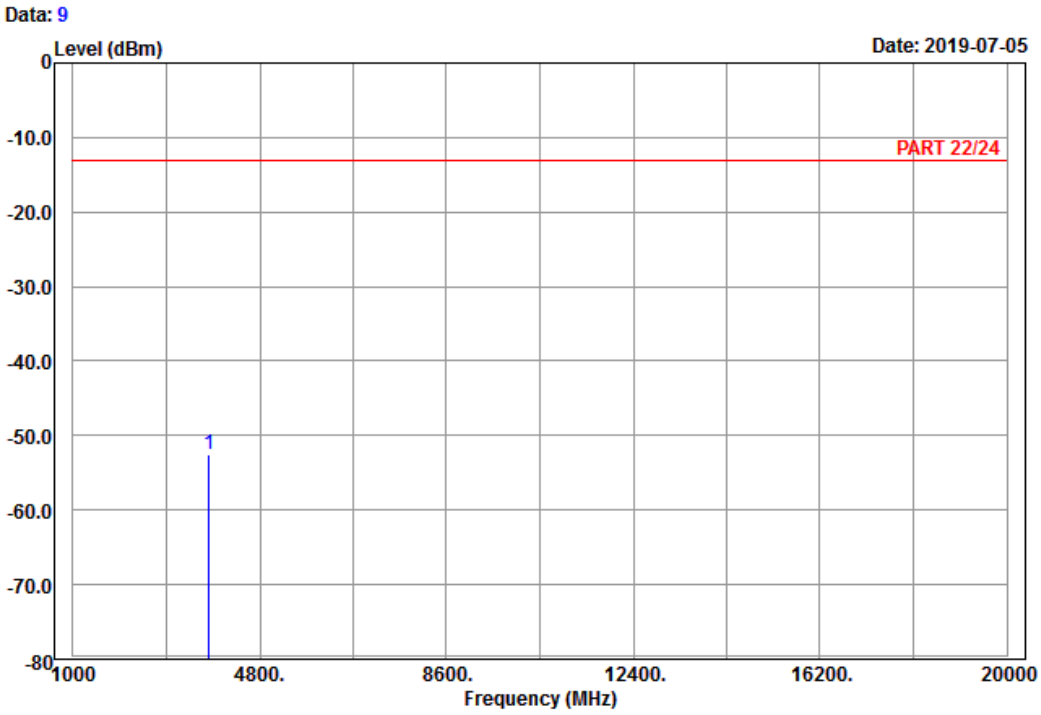


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26140
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	83.46	-59.79	-48.35	-11.44	-13.00	-46.79	Peak
2	186.60	-57.89	-52.22	-5.67	-13.00	-44.89	Peak
3	236.28	-53.60	-47.91	-5.69	-13.00	-40.60	Peak
4	365.80	-64.50	-59.95	-4.55	-13.00	-51.50	Peak
5	667.50	-71.09	-70.87	-0.22	-13.00	-58.09	Peak
6	854.40	-67.17	-68.76	1.59	-13.00	-54.17	Peak
7	3720.00	-51.12	-67.09	15.97	-13.00	-38.12	Peak
8 pp	5580.00	-46.40	-66.77	20.37	-13.00	-33.40	Peak

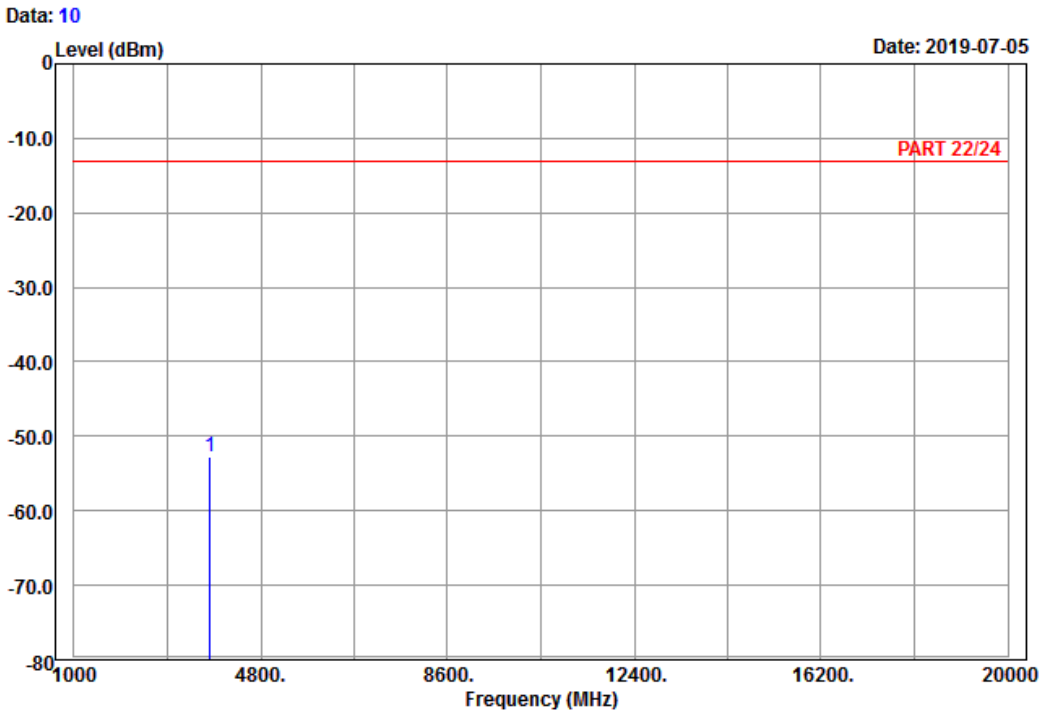
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_CH26365
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3765.00	-52.59	-68.82	16.23	-13.00	-39.59	Peak

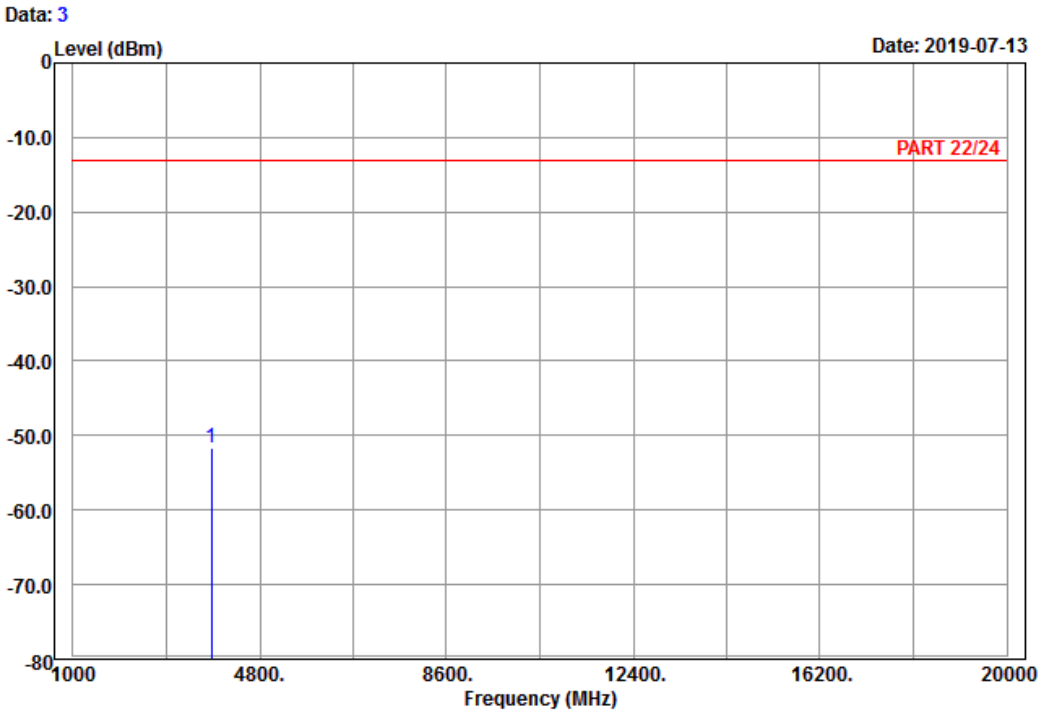


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26365
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3765.00	-52.76	-68.99	16.23	-13.00	-39.76	Peak

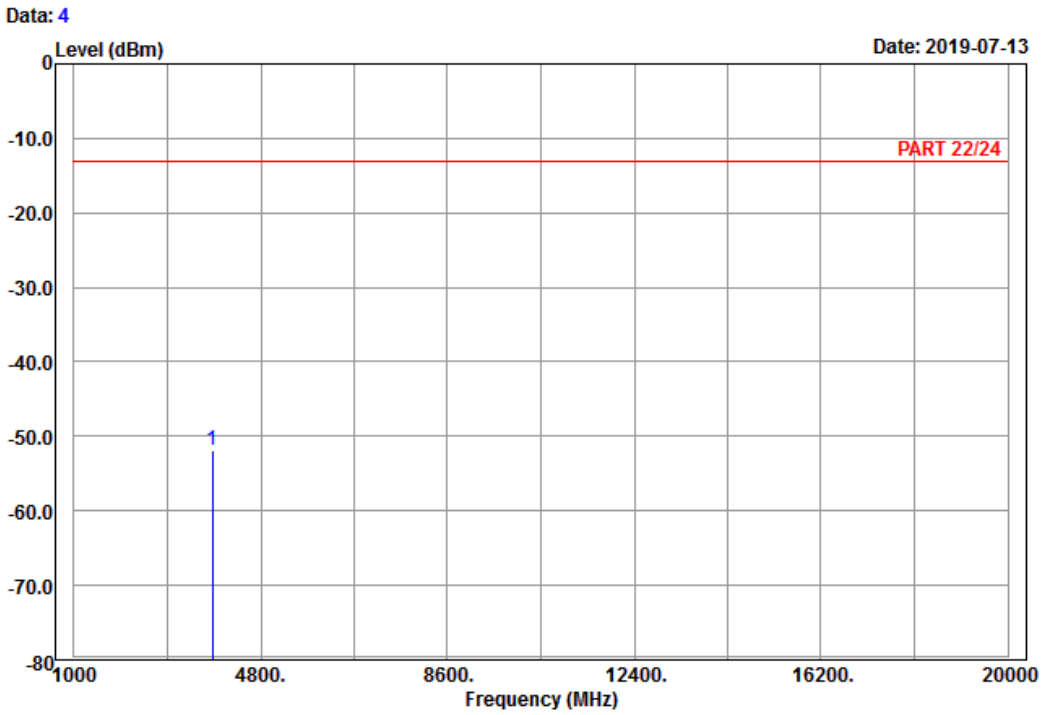
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_CH26590
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3810.00	-51.74	-68.15	16.41	-13.00	-38.74	Peak



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_CH26590
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3810.00	-51.90	-68.31	16.41	-13.00	-38.90	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
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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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