

## FCC Test Report

### (PART 24)

**Report No.:** RF180920C22-8

**FCC ID:** A4RG020C

**Model Name:** G020C

**Received Date:** Sep. 21, 2018

**Test Date:** Oct. 06, 2018 ~ Nov. 14, 2018

**Issued Date:** Dec. 27, 2018

**Applicant:** Google LLC

**Address:** 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA

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

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( 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)

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record


Issue No.	Description	Date Issued
RF180920C22-8	Original Release	Dec. 27, 2018

## 1 Certificate of Conformity

**Product:** Smartphone  
**Model Name:** G020C  
**Sample Status:** Identical Prototype  
**Applicant:** Google LLC  
**Test Date:** Oct. 06, 2018 ~ Nov. 14, 2018  
**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:** Dec. 27, 2018  
Ivonne Wu / Supervisor

**Approved by :** , **Date:** Dec. 27, 2018  
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 24.238(b)	Occupied Bandwidth	Pass	Meet the requirement of limit.
24.238(a)	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 -28.23 dB at 5640.00 MHz.

### 2.1 Measurement Uncertainty

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

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

## 2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer Keysight	N9010A	MY56070348	Sep. 06, 2018	Sep. 05, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSW26	102023	Oct. 12, 2017	Oct. 11, 2018
			Oct. 11, 2018	Oct. 10, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Dec. 12, 2017	Dec. 11, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	148	Dec. 13, 2017	Dec. 12, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Dec. 06, 2017	Dec. 05, 2018
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
MXG Vector signal generator Agilent	N5182B	MY53052658	May 24, 2018	May 23, 2019
Preamplifier EMCI	EMC 184045	980116	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 012645	980115	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 330H	980112	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-800 0&3000	140811+170717	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1 000(140807)	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 12, 2018	Oct. 11, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Universal Radio Communication Tester R&S	CMU200	123112	Dec. 28, 2017	Dec. 27, 2018
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 HwaYa Chamber 10.
  3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
  4. The IC Site Registration No. is 7450F-10.



### 3 General Information

#### 3.1 General Description of EUT

<b>Product</b>	Smartphone	
<b>Model Name</b>	G020C	
<b>Status of EUT</b>	Identical Prototype	
<b>Power Supply Rating</b>	3.85 Vdc (Li-ion battery) 5.0 Vdc or 9 Vdc (adapter) 5.0 Vdc (host equipment)	
<b>Modulation Type</b>	GSM/GPRS	GMSK
	EDGE	GMSK, 8PSK
	WCDMA	QPSK
	CDMA	QPSK, OQPSK, HPSK
	LTE	QPSK, 16QAM, 64QAM
<b>Frequency Range</b>	GSM/GPRS/EDGE	1850.2 ~ 1909.8 MHz
	WCDMA	1852.4 ~ 1907.6 MHz
	CDMA	1851.25 ~ 1908.75 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

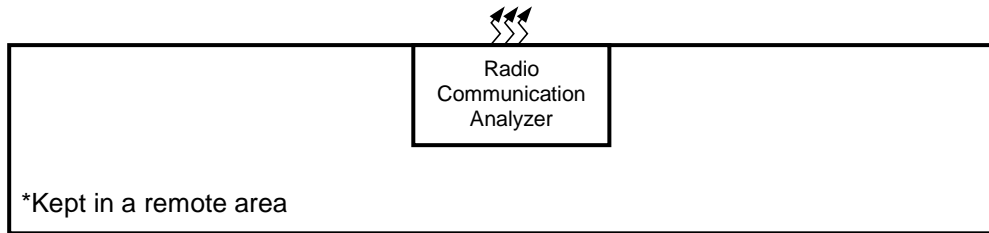
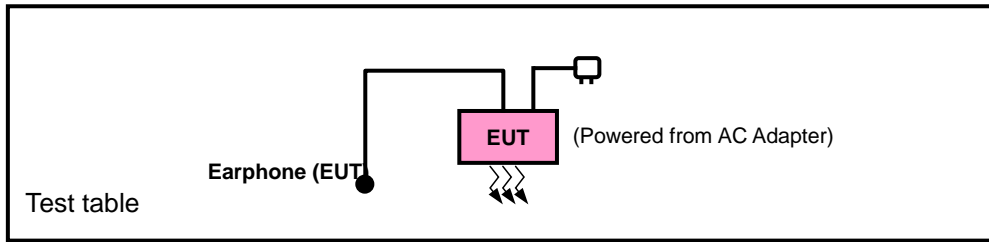
<b>Max. EIRP Power</b>	GSM/GPRS	662.22 mW
	EDGE	205.12 mW
	WCDMA	155.24 mW
	CDMA	137.72 mW
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	107.15 mW
	LTE Band 2 (Channel Bandwidth: 3 MHz)	113.50 mW
	LTE Band 2 (Channel Bandwidth: 5 MHz)	120.78 mW
	LTE Band 2 (Channel Bandwidth: 10 MHz)	129.72 mW
	LTE Band 2 (Channel Bandwidth: 15 MHz)	137.72 mW
	LTE Band 2 (Channel Bandwidth: 20 MHz)	145.55 mW
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	108.39 mW
	LTE Band 25 (Channel Bandwidth: 3 MHz)	115.08 mW
	LTE Band 25 (Channel Bandwidth: 5 MHz)	121.90 mW
	LTE Band 25 (Channel Bandwidth: 10 MHz)	129.72 mW
	LTE Band 25 (Channel Bandwidth: 15 MHz)	136.77 mW
LTE Band 25 (Channel Bandwidth: 20 MHz)	144.88 mW	
<b>Emission Designator</b>	GSM/GPRS	246KGXW
	EDGE	247KG7W
	WCDMA	4M15F9W
	CDMA	1M28F9W
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	1M09W7D
	LTE Band 2 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 2 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE Band 2 (Channel Bandwidth: 10 MHz)	8M98W7D
	LTE Band 2 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 2 (Channel Bandwidth: 20 MHz)	18M0W7D
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	1M09W7D
	LTE Band 25 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 25 (Channel Bandwidth: 5 MHz)	4M51W7D
	LTE Band 25 (Channel Bandwidth: 10 MHz)	8M98W7D
	LTE Band 25 (Channel Bandwidth: 15 MHz)	13M5G7D
LTE Band 25 (Channel Bandwidth: 20 MHz)	18M0W7D	
<b>Antenna Type</b>	PIFA Antenna with -1 dBi gain	
<b>Accessory Device</b>	Refer to Note as below	
<b>Data Cable Supplied</b>	Refer to Note as below	

Note:

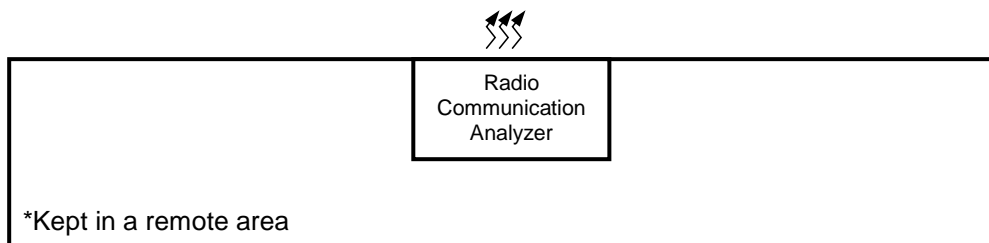
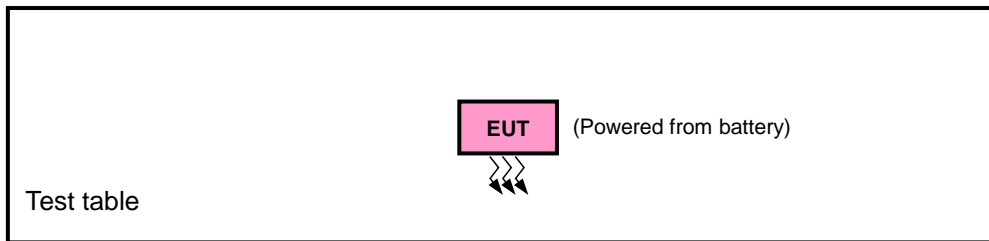
- There're 2 configurations for the EUT listed as below.  
 Main Sample: EUT + Battery 1  
 2<sup>nd</sup> Sample: EUT + Battery 2  
 ✧ After pre-tested with the EUT, only the worst configuration (main sample) was chosen for the final test.
- The EUT's accessories list refers to Ext. Pho.
- The above 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
GSM	X-plane	Z-axis
EDGE	X-plane	Z-axis
WCDMA	X-plane	Z-axis
CDMA	X-plane	Z-axis
LTE Band 2	Y-plane	Z-axis
LTE Band 25	Y-plane	Z-axis

#### GSM

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

### CDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	25 to 1175	25, 600, 1175	1xRTT
-	Modulation Characteristics	25 to 1175	600	1xRTT
-	Frequency Stability	25 to 1175	25, 1175	1xRTT
-	Occupied Bandwidth	25 to 1175	25, 600, 1175	1xRTT
-	Band Edge	25 to 1175	25, 600, 1175	1xRTT
-	Peak to Average Ratio	25 to 1175	25, 1175	1xRTT
-	Conducted Emission	25 to 1175	25, 600, 1175	1xRTT
-	Radiated Emission	25 to 1175	25, 600, 1175	1xRTT

## 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, 64QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	18650 to 19150	18900	10 MHz	QPSK, 16QAM, 64QAM	50 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, 64QAM	6 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode		
-	Band Edge	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 / 0 RB Offset
				18615 to 19185	18615, 18900, 19185	3 MHz	QPSK	1 RB / 0 RB Offset
				18625 to 19175	18625, 18900, 19175	5 MHz	QPSK	1 RB / 0 RB Offset
				18650 to 19150	18650, 18900, 19150	10 MHz	QPSK	1 RB / 0 RB Offset
18675 to 19125	18675, 18900, 19125			15 MHz	QPSK	1 RB / 0 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 / 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:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

### 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, 64QAM	1 RB / 2 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 7 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 12 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 37 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 50 RB Offset
-	Modulation Characteristics	26090 to 26640	26365	10 MHz	QPSK, 16QAM, 64QAM	50 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, 64QAM	6 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 7 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 12 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset



EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode		
-	Band Edge	26047 to 26683	26047	1.4 MHz	QPSK	1 RB / 0 RB Offset		
			26683	1.4 MHz		6 RB / 0 RB Offset		
		26055 to 26675	26055	3 MHz	QPSK	1 RB / 5 RB Offset		
			26675	3 MHz		6 RB / 0 RB Offset		
		26065 to 26665	26065	5 MHz	QPSK	1 RB / 0 RB Offset		
			26665	5 MHz		1 RB / 24 RB Offset		
		26090 to 26640	26090	10 MHz	QPSK	25 RB / 0 RB Offset		
			26640	10 MHz		1 RB / 49 RB Offset		
		26115 to 26615	26115	15 MHz	QPSK	50 RB / 0 RB Offset		
			26615	15 MHz		1 RB / 74 RB Offset		
		26140 to 26590	26140	20 MHz	QPSK	75 RB / 0 RB Offset		
			26590	20 MHz		1 RB / 99 RB Offset		
		-	Conducted Emission	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK	100 RB / 0 RB Offset
				26055 to 26675	26055, 26365, 26675	3 MHz		1 RB / 2 RB Offset
				26065 to 26665	26065, 26365, 26665	5 MHz		1 RB / 7 RB Offset
				26090 to 26640	26090, 26365, 26640	10 MHz		1 RB / 12 RB Offset
				26115 to 26615	26115, 26365, 26615	15 MHz		1 RB / 24 RB Offset
				26140 to 26590	26140, 26365, 26590	20 MHz		1 RB / 37 RB Offset
-	Radiated Emission	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK	1 RB / 50 RB Offset		
		18625 to 19175	18625, 18900, 19175	5 MHz		1 RB / 2 RB Offset		
		18700 to 19100	18700, 18900, 19100	20 MHz		1 RB / 12 RB Offset		

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

**Test Condition:**

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	26 deg. C, 58 % RH	3.85 Vdc	Thomas Wei
Modulation Characteristics	26 deg. C, 58 % RH	3.85 Vdc	Wayne Lin
Frequency Stability	26 deg. C, 58 % RH	3.85 Vdc	Wayne Lin
Occupied Bandwidth	26 deg. C, 58 % RH	3.85 Vdc	Wayne Lin
Band Edge	26 deg. C, 58 % RH	3.85 Vdc	Wayne Lin
Peak to Average Ratio	26 deg. C, 58 % RH	3.85 Vdc	Wayne Lin
Conducted Emission	26 deg. C, 58 % RH	3.85 Vdc	Wayne Lin
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei

**3.4 EUT Operating Conditions**

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

**3.5 General Description of Applied Standards**

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

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 24**

**KDB 971168 D01 Power Meas License Digital Systems v03r01**

**ANSI/TIA/EIA-603-E 2016**

**ANSI 63.26-2015**

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

## 4 Test Types and Results

### 4.1 Output Power Measurement

#### 4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 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 GSM, GPRS & EDGE, 5 MHz for WCDMA and CDMA, 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.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ . E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}$ .

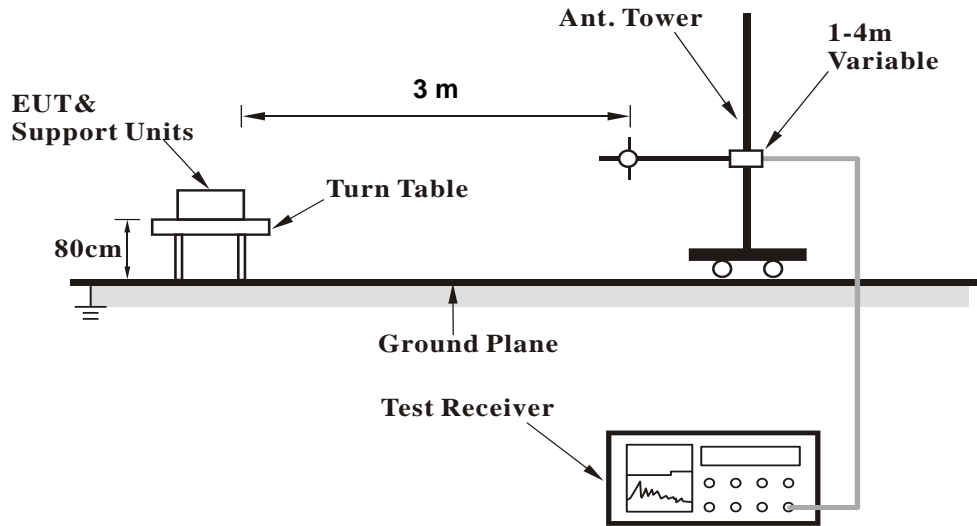
##### **Conducted Power Measurement:**

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

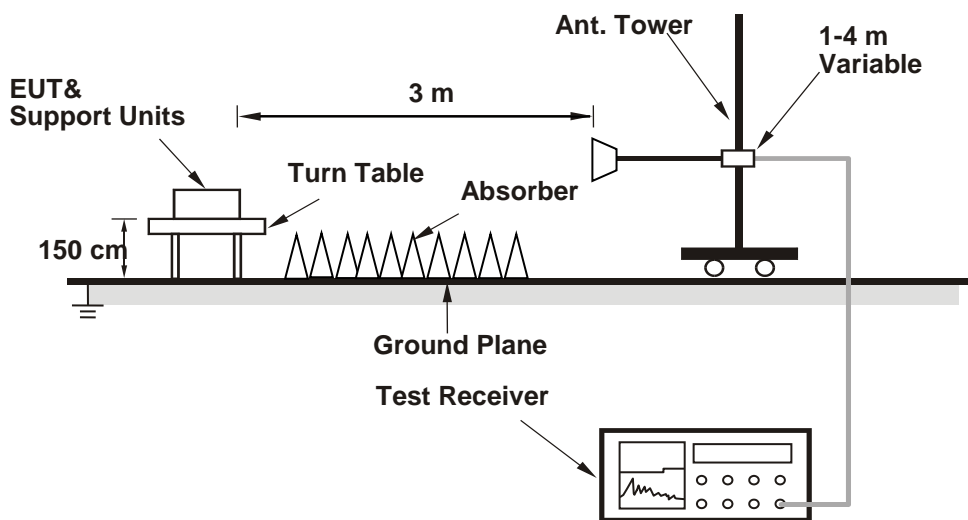
4.1.3 Test Setup

**EIRP / ERP Measurement:**

**<Radiated Emission below or equal 1 GHz>**

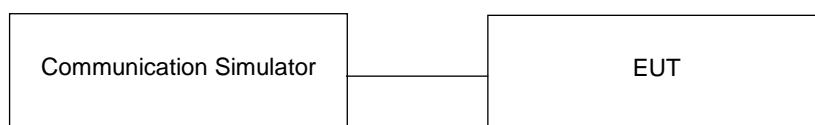


**<Radiated Emission above 1 GHz>**



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

**Conducted Power Measurement:**



#### 4.1.4 Test Results

The worst configuration mode is presented in the report as below. Please refer to SAR test report for more detail test mode.

Band		TX Antenna	WLAN Function	Body-Worn/Hotspot
GSM	1900	Ant 0	WLAN-Off	Body-Worn/Hotspot
WCDMA	B2	Ant 0	WLAN-Off	Body-Worn/Hotspot
CDMA	BC1	Ant 0	WLAN-Off	Body-Worn/Hotspot
LTE	B2	Ant 0	WLAN-Off	Body-Worn/Hotspot
	B25	Ant 0	WLAN-Off	Body-Worn/Hotspot

#### Conducted Output Power (dBm)

Band	GSM1900		
	Body-Worn / Hotspot		
Mode	Ant-0		
Tx Antenna	Ant-0		
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
<b>GSM (GMSK, 1Tx-slot)</b>	30.11	30.16	30.09
<b>GPRS (GMSK, 1Tx-slot)</b>	30.08	30.13	30.06
<b>GPRS (GMSK, 2Tx-slot)</b>	28.11	28.16	28.09
<b>GPRS (GMSK, 3Tx-slot)</b>	26.12	26.17	26.10
<b>GPRS (GMSK, 4Tx-slot)</b>	24.98	25.03	24.96
<b>DTM (GMSK, 2Tx-slot)</b>	28.09	28.14	28.07
<b>DTM (GMSK, 3Tx-slot)</b>	26.08	26.13	26.06
<b>EDGE (8PSK, 1Tx-slot)</b>	25.50	25.55	25.48
<b>EDGE (8PSK, 2Tx-slot)</b>	24.42	24.47	24.40
<b>EDGE (8PSK, 3Tx-slot)</b>	23.27	23.32	23.25
<b>EDGE (8PSK, 4Tx-slot)</b>	22.68	22.73	22.66
<b>DTM (8PSK, 2Tx-slot)</b>	24.36	24.41	24.34
<b>DTM (8PSK, 3Tx-slot)</b>	23.24	23.29	23.22

Band	WCDMA II		
Mode	Body-Worn / Hotspot		
Tx Antenna	Ant-0		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2K	24.81	24.88	24.83
HSDPA Subtest-1	23.79	23.86	23.83
HSDPA Subtest-2	23.76	23.84	23.82
HSDPA Subtest-3	23.32	23.39	23.34
HSDPA Subtest-4	23.30	23.37	23.31
DC-HSDPA Subtest-1	23.74	23.81	23.78
DC-HSDPA Subtest-2	23.71	23.79	23.75
DC-HSDPA Subtest-3	23.27	23.34	23.29
DC-HSDPA Subtest-4	23.25	23.32	23.26
HSUPA Subtest-1	23.74	23.81	23.76
HSUPA Subtest-2	21.76	21.83	21.78
HSUPA Subtest-3	22.76	22.83	22.78
HSUPA Subtest-4	21.73	21.80	21.75
HSUPA Subtest-5	23.73	23.80	23.75

Band	CDMA BC1		
Mode	Body-Worn / Hotspot		
Tx Antenna	Ant-0		
Channel	25	600	1175
Frequency (MHz)	1851.25	1880	1908.75
RC1+SO55	23.95	23.93	23.98
RC3+SO55	23.96	23.94	23.99
RC3+SO32 (+F-SCH)	23.93	23.91	23.96
RC3+SO32 (+SCH)	23.92	23.90	23.95
RTAP 153.6	23.93	23.91	23.96
RETAP 4096	23.91	23.89	23.94

LTE Band 2

Body-Worn / Hotspot

Ant-0

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)
				18700	18900	19100						18675	18900	19125	
				Channel Frequency (MHz)	1860.0	1880.0						1900.0	Channel Frequency (MHz)	1857.5	
20M	QPSK	1	0	24.62	24.65	24.63	0	15M	QPSK	1	0	24.49	24.52	24.50	0
		1	50	24.60	24.63	24.61	0			1	37	24.47	24.50	24.48	0
		1	99	24.49	24.52	24.50	0			1	74	24.36	24.39	24.37	0
		50	0	23.65	23.68	23.66	1			36	0	23.52	23.55	23.53	1
		50	25	23.64	23.67	23.65	1			36	19	23.51	23.54	23.52	1
		50	50	23.60	23.63	23.61	1			36	39	23.47	23.50	23.48	1
	16QAM	100	0	23.62	23.65	23.63	1		75	0	23.49	23.52	23.50	1	
		1	0	23.60	23.63	23.61	1		16QAM	1	0	23.47	23.50	23.48	1
		1	50	23.58	23.61	23.59	1			1	37	23.45	23.48	23.46	1
		1	99	23.47	23.50	23.48	1			1	74	23.34	23.37	23.35	1
		50	0	22.63	22.66	22.64	2			36	0	22.50	22.53	22.51	2
		50	25	22.62	22.65	22.63	2			36	19	22.49	22.52	22.50	2
	50	50	22.58	22.61	22.59	2	36			39	22.45	22.48	22.46	2	
	64QAM	100	0	22.60	22.63	22.61	2		75	0	22.47	22.50	22.48	2	
		1	0	22.62	22.65	22.63	2		64QAM	1	0	22.49	22.52	22.50	2
		1	50	22.60	22.63	22.61	2			1	37	22.47	22.50	22.48	2
		1	99	22.49	22.52	22.50	2			1	74	22.36	22.39	22.37	2
		50	0	21.65	21.68	21.66	3			36	0	21.52	21.55	21.53	3
50		25	21.64	21.67	21.65	3	36	19		21.51	21.54	21.52	3		
50	50	21.60	21.63	21.61	3	36	39	21.47		21.50	21.48	3			
100	0	21.62	21.65	21.63	3	75	0	21.49	21.52	21.50	3				
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
				18650	18900	19150						18625	18900	19175	
				Channel Frequency (MHz)	1855.0	1880.0						1905.0	Channel Frequency (MHz)	1852.5	
10M	QPSK	1	0	24.42	24.45	24.43	0	5M	QPSK	1	0	24.33	24.36	24.34	0
		1	24	24.40	24.43	24.41	0			1	12	24.31	24.34	24.32	0
		1	49	24.29	24.32	24.30	0			1	24	24.20	24.23	24.21	0
		25	0	23.45	23.48	23.46	1			12	0	23.36	23.39	23.37	1
		25	12	23.44	23.47	23.45	1			12	6	23.35	23.38	23.36	1
		25	25	23.40	23.43	23.41	1			12	13	23.31	23.34	23.32	1
	16QAM	50	0	23.42	23.45	23.43	1		25	0	23.33	23.36	23.34	1	
		1	0	23.40	23.43	23.41	1		16QAM	1	0	23.31	23.34	23.32	1
		1	24	23.38	23.41	23.39	1			1	12	23.29	23.32	23.30	1
		1	49	23.27	23.30	23.28	1			1	24	23.18	23.21	23.19	1
		25	0	22.43	22.46	22.44	2			12	0	22.34	22.37	22.35	2
		25	12	22.42	22.45	22.43	2			12	6	22.33	22.36	22.34	2
	25	25	22.38	22.41	22.39	2	12			13	22.29	22.32	22.30	2	
	64QAM	50	0	22.40	22.43	22.41	2		25	0	22.31	22.34	22.32	2	
		1	0	22.42	22.45	22.43	2		64QAM	1	0	22.33	22.36	22.34	2
		1	24	22.40	22.43	22.41	2			1	12	22.31	22.34	22.32	2
		1	49	22.29	22.32	22.30	2			1	24	22.20	22.23	22.21	2
		25	0	21.45	21.48	21.46	3			12	0	21.36	21.39	21.37	3
25		12	21.44	21.47	21.45	3	12	6		21.35	21.38	21.36	3		
25	25	21.40	21.43	21.41	3	12	13	21.31		21.34	21.32	3			
50	0	21.42	21.45	21.43	3	25	0	21.33	21.36	21.34	3				
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
				18615	18900	19185						18607	18900	19193	
				Channel Frequency (MHz)	1851.5	1880.0						1908.5	Channel Frequency (MHz)	1850.7	
3M	QPSK	1	0	24.25	24.28	24.26	0	1.4M	QPSK	1	0	24.37	24.40	24.38	0
		1	7	24.23	24.26	24.24	0			1	2	24.35	24.38	24.36	0
		1	14	24.12	24.15	24.13	0			1	5	24.24	24.27	24.25	0
		8	0	23.28	23.31	23.29	1			3	0	24.28	24.31	24.29	0
		8	3	23.27	23.30	23.28	1			3	1	24.27	24.30	24.28	0
		8	7	23.23	23.26	23.24	1			3	3	24.23	24.26	24.24	0
	16QAM	15	0	23.25	23.28	23.26	1		6	0	23.37	23.40	23.38	1	
		1	0	23.23	23.26	23.24	1		16QAM	1	0	23.35	23.38	23.36	1
		1	7	23.21	23.24	23.22	1			1	2	23.33	23.36	23.34	1
		1	14	23.10	23.13	23.11	1			1	5	23.22	23.25	23.23	1
		8	0	22.26	22.29	22.27	2			3	0	23.26	23.29	23.27	1
		8	3	22.25	22.28	22.26	2			3	1	23.25	23.28	23.26	1
	8	7	22.21	22.24	22.22	2	3			3	23.21	23.24	23.22	1	
	64QAM	15	0	22.23	22.26	22.24	2		6	0	22.35	22.38	22.36	2	
		1	0	22.25	22.28	22.26	2		64QAM	1	0	22.37	22.40	22.38	2
		1	7	22.23	22.26	22.24	2			1	2	22.35	22.38	22.36	2
		1	14	22.12	22.15	22.13	2			1	5	22.24	22.27	22.25	2
		8	0	21.28	21.31	21.29	3			3	0	22.28	22.31	22.29	2
8		3	21.27	21.30	21.28	3	3	1		22.27	22.30	22.28	2		
8	7	21.23	21.26	21.24	3	3	3	22.23		22.26	22.24	2			
15	0	21.25	21.28	21.26	3	6	0	21.37	21.40	21.38	3				

**LTE Band 25**  
**Body-Worn / Hotspot**  
**Ant-0**

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	24.58	24.31	24.61	0	15M	QPSK	1	0	24.46	24.19	24.49	0		
		1	50	24.66	24.62	24.69	0			1	37	24.54	24.50	24.57	0		
		1	99	24.55	24.51	24.62	0			1	74	24.43	24.39	24.50	0		
		50	0	23.65	23.62	23.67	1			36	0	23.53	23.50	23.55	1		
		50	25	23.67	23.66	23.69	1			36	19	23.55	23.54	23.57	1		
		50	50	23.63	23.61	23.64	1			36	39	23.51	23.49	23.52	1		
	100	0	23.66	23.63	23.68	1	75		0	23.54	23.51	23.56	1				
	16QAM	1	0	23.56	23.29	23.59	1		16QAM	1	0	23.44	23.17	23.47	1		
		1	50	23.64	23.60	23.67	1			1	37	23.52	23.48	23.55	1		
		1	99	23.53	23.49	23.60	1			1	74	23.41	23.37	23.48	1		
		50	0	22.63	22.60	22.65	2			36	0	22.51	22.48	22.53	2		
		50	25	22.65	22.64	22.67	2			36	19	22.53	22.52	22.55	2		
		50	50	22.61	22.59	22.62	2			36	39	22.49	22.47	22.50	2		
	100	0	22.64	22.61	22.66	2	75		0	22.52	22.49	22.54	2				
	64QAM	1	0	22.58	22.31	22.61	2		64QAM	1	0	22.46	22.19	22.49	2		
		1	50	22.66	22.62	22.69	2			1	37	22.54	22.50	22.57	2		
		1	99	22.55	22.51	22.62	2			1	74	22.43	22.39	22.50	2		
		50	0	21.65	21.62	21.67	3			36	0	21.53	21.50	21.55	3		
50		25	21.67	21.66	21.69	3	36	19		21.55	21.54	21.57	3				
50		50	21.63	21.61	21.64	3	36	39		21.51	21.49	21.52	3				
100	0	21.66	21.63	21.68	3	75	0	21.54	21.51	21.56	3						
10M	QPSK	1	0	24.37	24.10	24.40	0	5M	QPSK	1	0	24.25	23.98	24.28	0		
		1	24	24.45	24.41	24.48	0			1	12	24.33	24.29	24.36	0		
		1	49	24.34	24.30	24.41	0			1	24	24.22	24.18	24.29	0		
		25	0	23.44	23.41	23.46	1			12	0	23.32	23.29	23.34	1		
		25	12	23.46	23.45	23.48	1			12	6	23.34	23.33	23.36	1		
		25	25	23.42	23.40	23.43	1			12	13	23.30	23.28	23.31	1		
	50	0	23.45	23.42	23.47	1	25		0	23.33	23.30	23.35	1				
	16QAM	1	0	23.35	23.08	23.38	1		16QAM	1	0	23.23	22.96	23.26	1		
		1	24	23.43	23.39	23.46	1			1	12	23.31	23.27	23.34	1		
		1	49	23.32	23.28	23.39	1			1	24	23.20	23.16	23.27	1		
		25	0	22.42	22.39	22.44	2			12	0	22.30	22.27	22.32	2		
		25	12	22.44	22.43	22.46	2			12	6	22.32	22.31	22.34	2		
		25	25	22.40	22.38	22.41	2			12	13	22.28	22.26	22.29	2		
	50	0	22.43	22.40	22.45	2	25		0	22.31	22.28	22.33	2				
	64QAM	1	0	22.37	22.10	22.40	2		64QAM	1	0	22.25	21.98	22.28	2		
		1	24	22.45	22.41	22.48	2			1	12	22.33	22.29	22.36	2		
		1	49	22.34	22.30	22.41	2			1	24	22.22	22.18	22.29	2		
		25	0	21.44	21.41	21.46	3			12	0	21.32	21.29	21.34	3		
25		12	21.46	21.45	21.48	3	12	6		21.34	21.33	21.36	3				
25		25	21.42	21.40	21.43	3	12	13		21.30	21.28	21.31	3				
50	0	21.45	21.42	21.47	3	25	0	21.33	21.30	21.35	3						
3M	QPSK	1	0	24.26	23.99	24.29	0	1.4M	QPSK	1	0	24.15	23.88	24.18	0		
		1	7	24.34	24.30	24.37	0			1	2	24.23	24.19	24.26	0		
		1	14	24.23	24.19	24.30	0			1	5	24.12	24.08	24.19	0		
		8	0	23.33	23.30	23.35	1			3	0	24.11	24.08	24.13	0		
		8	3	23.35	23.34	23.37	1			3	1	24.13	24.12	24.15	0		
		8	7	23.31	23.29	23.32	1			3	3	24.09	24.07	24.10	0		
	15	0	23.34	23.31	23.36	1	6		0	23.23	23.20	23.25	1				
	16QAM	1	0	23.24	22.97	23.27	1		16QAM	1	0	23.13	22.86	23.16	1		
		1	7	23.32	23.28	23.35	1			1	2	23.21	23.17	23.24	1		
		1	14	23.21	23.17	23.28	1			1	5	23.10	23.06	23.17	1		
		8	0	22.31	22.28	22.33	2			3	0	23.09	23.06	23.11	1		
		8	3	22.33	22.32	22.35	2			3	1	23.11	23.10	23.13	1		
		8	7	22.29	22.27	22.30	2			3	3	23.07	23.05	23.08	1		
	15	0	22.32	22.29	22.34	2	6		0	22.21	22.18	22.23	2				
	64QAM	1	0	22.26	21.99	22.29	2		64QAM	1	0	22.15	21.88	22.18	2		
		1	7	22.34	22.30	22.37	2			1	2	22.23	22.19	22.26	2		
		1	14	22.23	22.19	22.30	2			1	5	22.12	22.08	22.19	2		
		8	0	21.33	21.30	21.35	3			3	0	22.11	22.08	22.13	2		
8		3	21.35	21.34	21.37	3	3	1		22.13	22.12	22.15	2				
8		7	21.31	21.29	21.32	3	3	3		22.09	22.07	22.10	2				
15	0	21.34	21.31	21.36	3	6	0	21.23	21.20	21.25	3						



**EIRP Power (dBm)**

GSM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	512	1850.2	-8.47	36.57	28.10	645.65	H
	661	1880.0	-9.01	37.22	28.21	662.22	
	810	1909.8	-9.03	37.18	28.15	653.13	
	512	1850.2	-17.60	37.65	20.05	101.16	V
	661	1880.0	-17.39	37.58	20.19	104.47	
	810	1909.8	-17.37	37.48	20.11	102.57	

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)
X	512	1850.2	-13.56	36.57	23.01	199.99	H
	661	1880.0	-14.10	37.22	23.12	205.12	
	810	1909.8	-14.11	37.18	23.07	202.77	
	512	1850.2	-24.45	37.65	13.20	20.89	V
	661	1880.0	-24.07	37.58	13.51	22.44	
	810	1909.8	-24.13	37.48	13.35	21.63	

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)
X	9262	1852.4	-14.66	36.57	21.91	155.24	H
	9400	1880.0	-15.33	37.22	21.89	154.53	
	9538	1907.6	-15.46	37.18	21.72	148.59	
	9262	1852.4	-21.86	37.65	15.79	37.93	V
	9400	1880.0	-21.81	37.58	15.77	37.76	
	9538	1907.6	-21.88	37.48	15.60	36.31	

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

CDMA							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	25	1851.25	-15.18	36.57	21.39	137.72	H
	600	1880.00	-15.85	37.22	21.37	137.09	
	1175	1908.75	-15.98	37.18	21.20	131.83	
	25	1851.25	-22.75	37.65	14.90	30.90	V
	600	1880.00	-22.70	37.58	14.88	30.76	
	1175	1908.75	-22.77	37.48	14.71	29.58	

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	-19.38	36.57	17.19	52.36	H
	18900	1880.0	-20.16	37.22	17.06	50.82	
	19193	1909.3	-20.32	37.18	16.86	48.53	
	18607	1850.7	-17.35	37.65	20.30	107.15	V
	18900	1880.0	-17.33	37.58	20.25	105.93	
	19193	1909.3	-17.30	37.48	20.18	104.23	
Channel Bandwidth: 1.4 MHz / 16QAM							
Y	18607	1850.7	-20.42	36.57	16.15	41.21	H
	18900	1880.0	-21.20	37.22	16.02	39.99	
	19193	1909.3	-21.36	37.18	15.82	38.19	
	18607	1850.7	-18.39	37.65	19.26	84.33	V
	18900	1880.0	-18.37	37.58	19.21	83.37	
	19193	1909.3	-18.34	37.48	19.14	82.04	
Channel Bandwidth: 1.4 MHz / 64QAM							
Y	18607	1850.7	-21.45	36.57	15.12	32.51	H
	18900	1880.0	-22.23	37.22	14.99	31.55	
	19193	1909.3	-22.39	37.18	14.79	30.13	
	18607	1850.7	-19.42	37.65	18.23	66.53	V
	18900	1880.0	-19.40	37.58	18.18	65.77	
	19193	1909.3	-19.37	37.48	18.11	64.71	

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	-19.13	36.57	17.44	55.46	H
	18900	1880.0	-19.91	37.22	17.31	53.83	
	19185	1908.5	-20.07	37.18	17.11	51.40	
	18615	1851.5	-17.10	37.65	20.55	113.50	V
	18900	1880.0	-17.08	37.58	20.50	112.20	
	19185	1908.5	-17.05	37.48	20.43	110.41	
Channel Bandwidth: 3 MHz / 16QAM							
Y	18615	1851.5	-20.13	36.57	16.44	44.06	H
	18900	1880.0	-20.91	37.22	16.31	42.76	
	19185	1908.5	-21.07	37.18	16.11	40.83	
	18615	1851.5	-18.10	37.65	19.55	90.16	V
	18900	1880.0	-18.08	37.58	19.50	89.13	
	19185	1908.5	-18.05	37.48	19.43	87.70	
Channel Bandwidth: 3 MHz / 64QAM							
Y	18615	1851.5	-21.18	36.57	15.39	34.59	H
	18900	1880.0	-21.96	37.22	15.26	33.57	
	19185	1908.5	-22.12	37.18	15.06	32.06	
	18615	1851.5	-19.15	37.65	18.50	70.79	V
	18900	1880.0	-19.13	37.58	18.45	69.98	
	19185	1908.5	-19.10	37.48	18.38	68.87	

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	-18.86	36.57	17.71	59.02	H
	18900	1880.0	-19.64	37.22	17.58	57.28	
	19175	1907.5	-19.80	37.18	17.38	54.70	
	18625	1852.5	-16.83	37.65	20.82	120.78	V
	18900	1880.0	-16.81	37.58	20.77	119.40	
	19175	1907.5	-16.78	37.48	20.70	117.49	
Channel Bandwidth: 5 MHz / 16QAM							
Y	18625	1852.5	-19.84	36.57	16.73	47.10	H
	18900	1880.0	-20.62	37.22	16.60	45.71	
	19175	1907.5	-20.78	37.18	16.40	43.65	
	18625	1852.5	-17.81	37.65	19.84	96.38	V
	18900	1880.0	-17.79	37.58	19.79	95.28	
	19175	1907.5	-17.76	37.48	19.72	93.76	
Channel Bandwidth: 5 MHz / 64QAM							
Y	18625	1852.5	-20.87	36.57	15.70	37.15	H
	18900	1880.0	-21.65	37.22	15.57	36.06	
	19175	1907.5	-21.81	37.18	15.37	34.43	
	18625	1852.5	-18.84	37.65	18.81	76.03	V
	18900	1880.0	-18.82	37.58	18.76	75.16	
	19175	1907.5	-18.79	37.48	18.69	73.96	

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	-18.55	36.57	18.02	63.39	H
	18900	1880.0	-19.33	37.22	17.89	61.52	
	19150	1905.0	-19.49	37.18	17.69	58.75	
	18650	1855.0	-16.52	37.65	21.13	129.72	V
	18900	1880.0	-16.50	37.58	21.08	128.23	
	19150	1905.0	-16.47	37.48	21.01	126.18	
Channel Bandwidth: 10 MHz / 16QAM							
Y	18650	1855.0	-19.55	36.57	17.02	50.35	H
	18900	1880.0	-20.33	37.22	16.89	48.87	
	19150	1905.0	-20.49	37.18	16.69	46.67	
	18650	1855.0	-17.52	37.65	20.13	103.04	V
	18900	1880.0	-17.50	37.58	20.08	101.86	
	19150	1905.0	-17.47	37.48	20.01	100.23	
Channel Bandwidth: 10 MHz / 64QAM							
Y	18650	1855.0	-20.61	36.57	15.96	39.45	H
	18900	1880.0	-21.39	37.22	15.83	38.28	
	19150	1905.0	-21.55	37.18	15.63	36.56	
	18650	1855.0	-18.58	37.65	19.07	80.72	V
	18900	1880.0	-18.56	37.58	19.02	79.80	
	19150	1905.0	-18.53	37.48	18.95	78.52	

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	-18.29	36.57	18.28	67.30	H
	18900	1880.0	-19.07	37.22	18.15	65.31	
	19125	1902.5	-19.23	37.18	17.95	62.37	
	18675	1857.5	-16.26	37.65	21.39	137.72	V
	18900	1880.0	-16.24	37.58	21.34	136.14	
	19125	1902.5	-16.21	37.48	21.27	133.97	
Channel Bandwidth: 15 MHz / 16QAM							
Y	18675	1857.5	-19.32	36.57	17.25	53.09	H
	18900	1880.0	-20.10	37.22	17.12	51.52	
	19125	1902.5	-20.26	37.18	16.92	49.20	
	18675	1857.5	-17.29	37.65	20.36	108.64	V
	18900	1880.0	-17.27	37.58	20.31	107.40	
	19125	1902.5	-17.24	37.48	20.24	105.68	
Channel Bandwidth: 15 MHz / 64QAM							
Y	18675	1857.5	-20.34	36.57	16.23	41.98	H
	18900	1880.0	-21.12	37.22	16.10	40.74	
	19125	1902.5	-21.28	37.18	15.90	38.90	
	18675	1857.5	-18.31	37.65	19.34	85.90	V
	18900	1880.0	-18.29	37.58	19.29	84.92	
	19125	1902.5	-18.26	37.48	19.22	83.56	

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	-18.05	36.57	18.52	71.12	H
	18900	1880.0	-18.83	37.22	18.39	69.02	
	19100	1900.0	-18.99	37.18	18.19	65.92	
	18700	1860.0	-16.02	37.65	21.63	145.55	V
	18900	1880.0	-16.00	37.58	21.58	143.88	
	19100	1900.0	-15.97	37.48	21.51	141.58	
Channel Bandwidth: 20 MHz / 16QAM							
Y	18700	1860.0	-19.07	36.57	17.50	56.23	H
	18900	1880.0	-19.85	37.22	17.37	54.58	
	19100	1900.0	-20.01	37.18	17.17	52.12	
	18700	1860.0	-17.04	37.65	20.61	115.08	V
	18900	1880.0	-17.02	37.58	20.56	113.76	
	19100	1900.0	-16.99	37.48	20.49	111.94	
Channel Bandwidth: 20 MHz / 64QAM							
Y	18700	1860.0	-20.08	36.57	16.49	44.57	H
	18900	1880.0	-20.86	37.22	16.36	43.25	
	19100	1900.0	-21.02	37.18	16.16	41.30	
	18700	1860.0	-18.05	37.65	19.60	91.20	V
	18900	1880.0	-18.03	37.58	19.55	90.16	
	19100	1900.0	-18.00	37.48	19.48	88.72	

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	-19.31	36.57	17.26	53.21	H
	26365	1882.5	-20.09	37.22	17.13	51.64	
	26683	1914.3	-22.11	39.09	16.98	49.89	
	26047	1850.7	-17.30	37.65	20.35	108.39	V
	26365	1882.5	-17.31	37.58	20.27	106.41	
	26683	1914.3	-17.73	37.92	20.19	104.47	
Channel Bandwidth: 1.4 MHz / 16QAM							
Y	26047	1850.7	-20.29	36.57	16.28	42.46	H
	26365	1882.5	-21.07	37.22	16.15	41.21	
	26683	1914.3	-23.09	39.09	16.00	39.81	
	26047	1850.7	-18.28	37.65	19.37	86.50	V
	26365	1882.5	-18.29	37.58	19.29	84.92	
	26683	1914.3	-18.71	37.92	19.21	83.37	
Channel Bandwidth: 1.4 MHz / 64QAM							
Y	26047	1850.7	-21.35	36.57	15.22	33.27	H
	26365	1882.5	-22.13	37.22	15.09	32.28	
	26683	1914.3	-24.15	39.09	14.94	31.19	
	26047	1850.7	-19.34	37.65	18.31	67.76	V
	26365	1882.5	-19.35	37.58	18.23	66.53	
	26683	1914.3	-19.77	37.92	18.15	65.31	

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	-19.05	36.57	17.52	56.49	H
	26365	1882.5	-19.83	37.22	17.39	54.83	
	26675	1913.5	-21.87	39.11	17.24	52.97	
	26055	1851.5	-17.04	37.65	20.61	115.08	V
	26365	1882.5	-17.05	37.58	20.53	112.98	
	26675	1913.5	-17.48	37.93	20.45	110.92	
Channel Bandwidth: 3 MHz / 16QAM							
Y	26055	1851.5	-20.06	36.57	16.51	44.77	H
	26365	1882.5	-20.84	37.22	16.38	43.45	
	26675	1913.5	-22.88	39.11	16.23	41.98	
	26055	1851.5	-18.05	37.65	19.60	91.20	V
	26365	1882.5	-18.06	37.58	19.52	89.54	
	26675	1913.5	-18.49	37.93	19.44	87.90	
Channel Bandwidth: 3 MHz / 64QAM							
Y	26055	1851.5	-21.10	36.57	15.47	35.24	H
	26365	1882.5	-21.88	37.22	15.34	34.20	
	26675	1913.5	-23.92	39.11	15.19	33.04	
	26055	1851.5	-19.09	37.65	18.56	71.78	V
	26365	1882.5	-19.10	37.58	18.48	70.47	
	26675	1913.5	-19.53	37.93	18.40	69.18	

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	-18.80	36.57	17.77	59.84	H
	26365	1882.5	-19.58	37.22	17.64	58.08	
	26665	1912.5	-20.62	38.11	17.49	56.10	
	26065	1852.5	-16.79	37.65	20.86	121.90	V
	26365	1882.5	-16.80	37.58	20.78	119.67	
	26665	1912.5	-17.26	37.96	20.70	117.49	
Channel Bandwidth: 5 MHz / 16QAM							
Y	26065	1852.5	-19.81	36.57	16.76	47.42	H
	26365	1882.5	-20.59	37.22	16.63	46.03	
	26665	1912.5	-21.63	38.11	16.48	44.46	
	26065	1852.5	-17.80	37.65	19.85	96.61	V
	26365	1882.5	-17.81	37.58	19.77	94.84	
	26665	1912.5	-18.27	37.96	19.69	93.11	
Channel Bandwidth: 5 MHz / 64QAM							
Y	26065	1852.5	-20.79	36.57	15.78	37.84	H
	26365	1882.5	-21.57	37.22	15.65	36.73	
	26665	1912.5	-22.61	38.11	15.50	35.48	
	26065	1852.5	-18.78	37.65	18.87	77.09	V
	26365	1882.5	-18.79	37.58	18.79	75.68	
	26665	1912.5	-19.25	37.96	18.71	74.30	

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	-18.53	36.57	18.04	63.68	H
	26365	1882.5	-19.31	37.22	17.91	61.80	
	26640	1910.0	-20.43	38.19	17.76	59.70	
	26090	1855.0	-16.52	37.65	21.13	129.72	V
	26365	1882.5	-16.53	37.58	21.05	127.35	
	26640	1910.0	-17.18	38.15	20.97	125.03	
Channel Bandwidth: 10 MHz / 16QAM							
Y	26090	1855.0	-19.58	36.57	16.99	50.00	H
	26365	1882.5	-20.36	37.22	16.86	48.53	
	26640	1910.0	-21.48	38.19	16.71	46.88	
	26090	1855.0	-17.57	37.65	20.08	101.86	V
	26365	1882.5	-17.58	37.58	20.00	100.00	
	26640	1910.0	-18.23	38.15	19.92	98.17	
Channel Bandwidth: 10 MHz / 64QAM							
Y	26090	1855.0	-20.53	36.57	16.04	40.18	H
	26365	1882.5	-21.31	37.22	15.91	38.99	
	26640	1910.0	-22.43	38.19	15.76	37.67	
	26090	1855.0	-18.52	37.65	19.13	81.85	V
	26365	1882.5	-18.53	37.58	19.05	80.35	
	26640	1910.0	-19.18	38.15	18.97	78.89	

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	36.57	18.27	67.14	H
	26365	1882.5	-19.08	37.22	18.14	65.16	
	26615	1907.5	-20.24	38.23	17.99	62.95	
	26115	1857.5	-16.29	37.65	21.36	136.77	V
	26365	1882.5	-16.30	37.58	21.28	134.28	
	26615	1907.5	-17.02	38.22	21.20	131.83	
Channel Bandwidth: 15 MHz / 16QAM							
Y	26115	1857.5	-19.31	36.57	17.26	53.21	H
	26365	1882.5	-20.09	37.22	17.13	51.64	
	26615	1907.5	-21.25	38.23	16.98	49.89	
	26115	1857.5	-17.30	37.65	20.35	108.39	V
	26365	1882.5	-17.31	37.58	20.27	106.41	
	26615	1907.5	-18.03	38.22	20.19	104.47	
Channel Bandwidth: 15 MHz / 64QAM							
Y	26115	1857.5	-20.30	36.57	16.27	42.36	H
	26365	1882.5	-21.08	37.22	16.14	41.11	
	26615	1907.5	-22.24	38.23	15.99	39.72	
	26115	1857.5	-18.29	37.65	19.36	86.30	V
	26365	1882.5	-18.30	37.58	19.28	84.72	
	26615	1907.5	-19.02	38.22	19.20	83.18	

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	-18.05	36.57	18.52	71.12	H
	26365	1882.5	-18.83	37.22	18.39	69.02	
	26590	1905.0	-20.48	38.72	18.24	66.68	
	26140	1860.0	-16.04	37.65	21.61	144.88	V
	26365	1882.5	-16.05	37.58	21.53	142.23	
	26590	1905.0	-16.11	37.56	21.45	139.64	
Channel Bandwidth: 20 MHz / 16QAM							
Y	26140	1860.0	-19.06	36.57	17.51	56.36	H
	26365	1882.5	-19.84	37.22	17.38	54.70	
	26590	1905.0	-21.49	38.72	17.23	52.84	
	26140	1860.0	-17.05	37.65	20.60	114.82	V
	26365	1882.5	-17.06	37.58	20.52	112.72	
	26590	1905.0	-17.12	37.56	20.44	110.66	
Channel Bandwidth: 20 MHz / 64QAM							
Y	26140	1860.0	-20.05	36.57	16.52	44.87	H
	26365	1882.5	-20.83	37.22	16.39	43.55	
	26590	1905.0	-22.48	38.72	16.24	42.07	
	26140	1860.0	-18.04	37.65	19.61	91.41	V
	26365	1882.5	-18.05	37.58	19.53	89.74	
	26590	1905.0	-18.11	37.56	19.45	88.10	

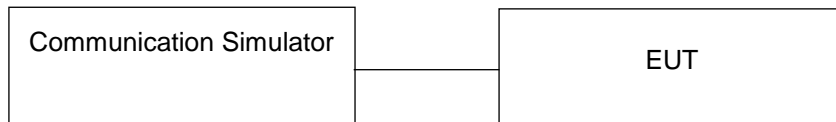
Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

## 4.2 Modulation Characteristics Measurement

### 4.2.1 Limits of Modulation Characteristics

N/A

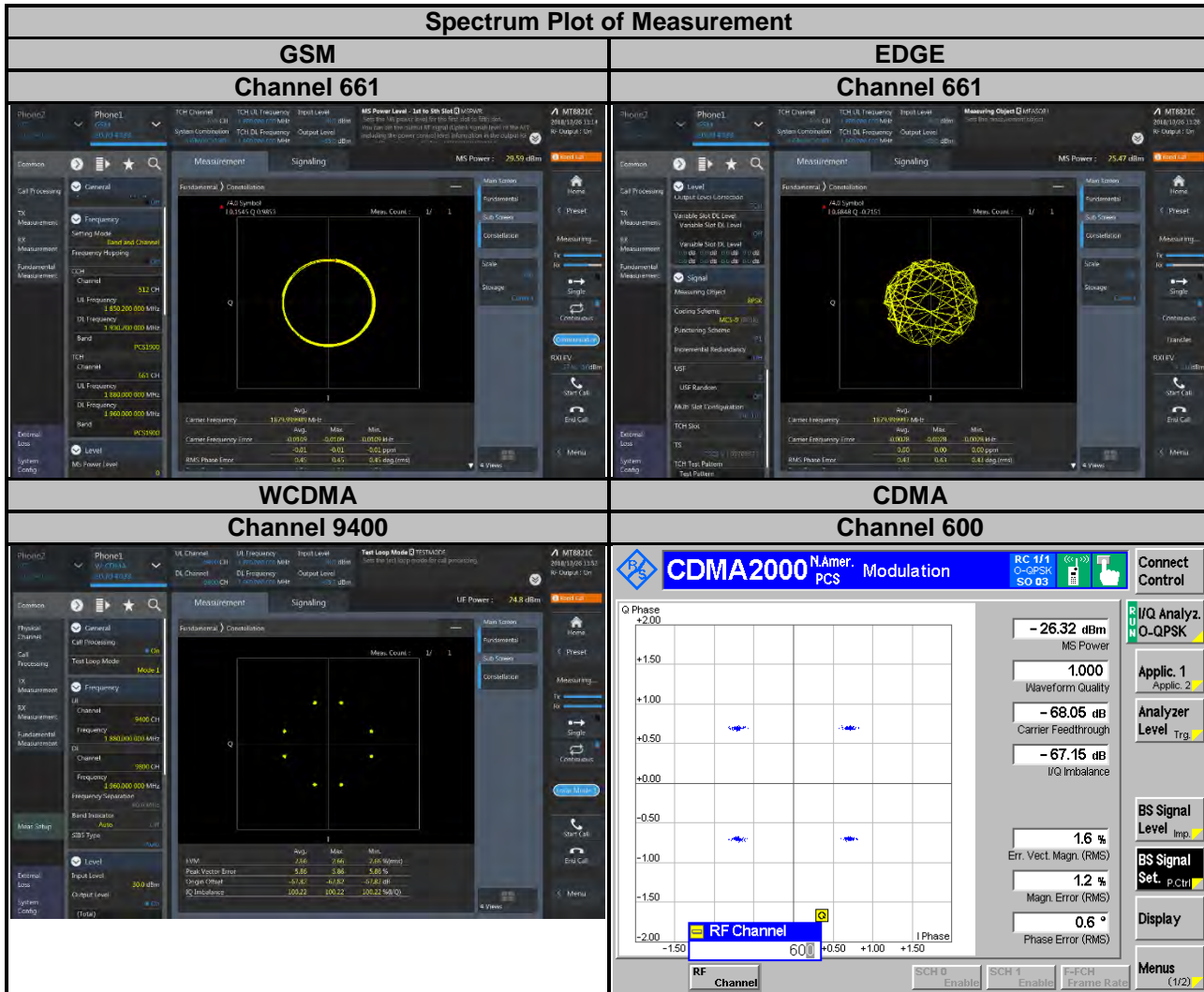
### 4.2.2 Test Setup



### 4.2.3 Test Procedure

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

### 4.2.4 Test Results

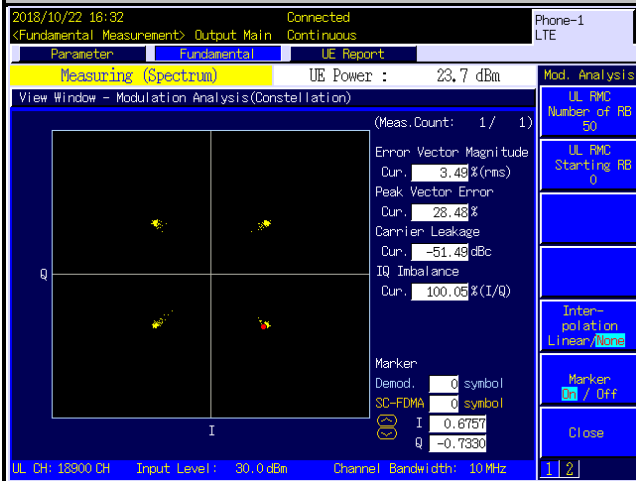


### Spectrum Plot of Measurement

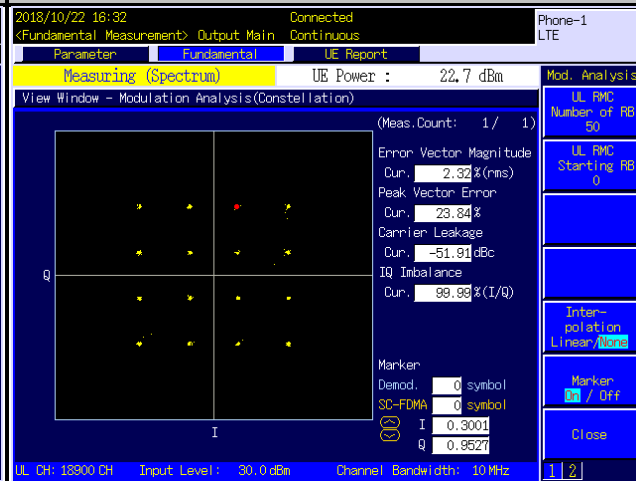
#### LTE Band 2

#### Channel 18900

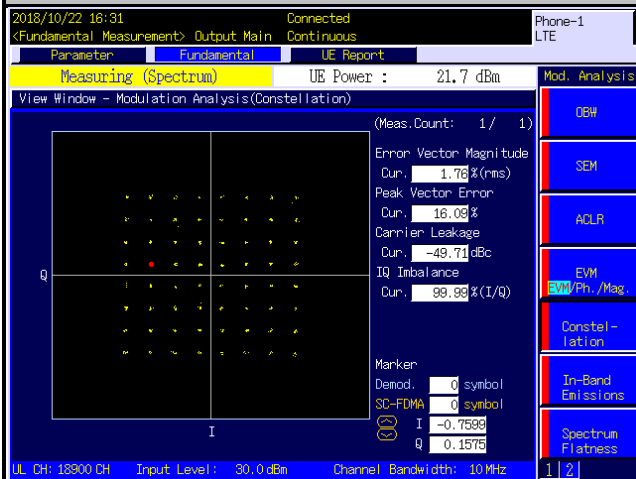
#### QPSK



#### 16QAM



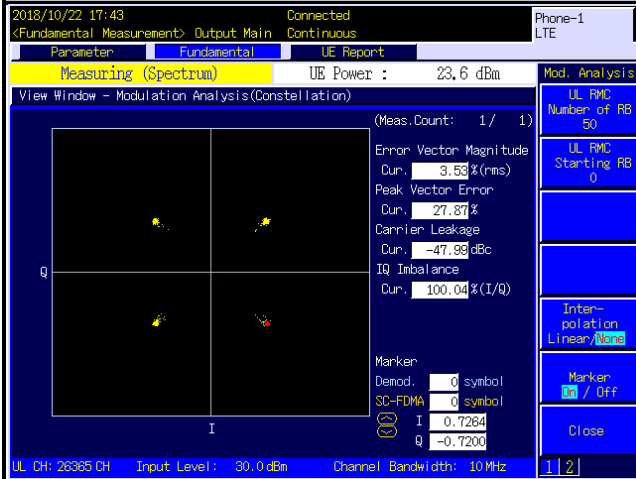
#### 64QAM



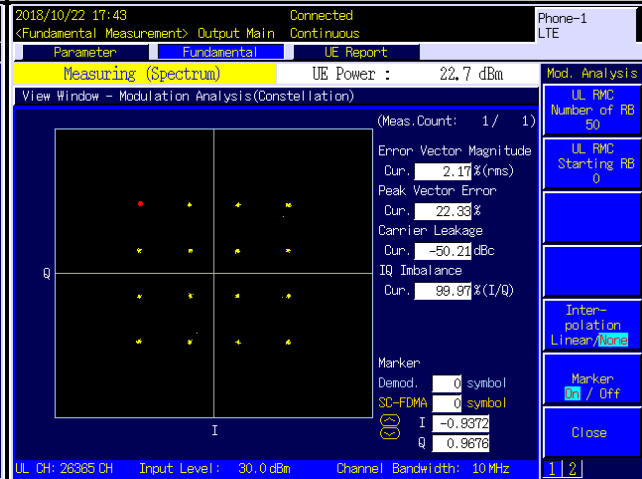


**Spectrum Plot of Measurement**  
**LTE Band 25**  
**Channel 26365**

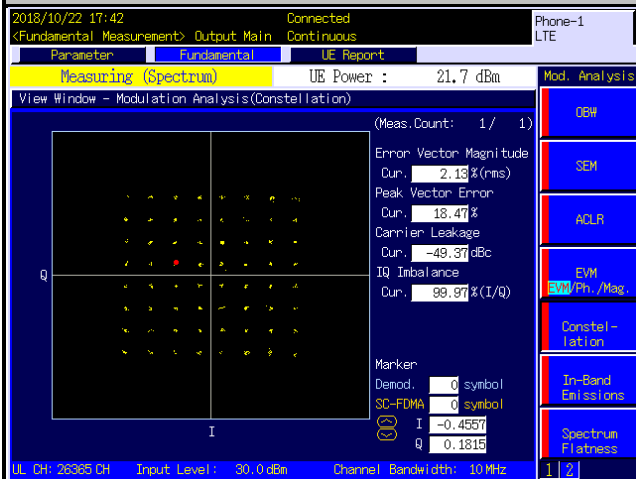
**QPSK**



**16QAM**



**64QAM**



### 4.3 Frequency Stability Measurement

#### 4.3.1 Limits of Frequency Stability Measurement

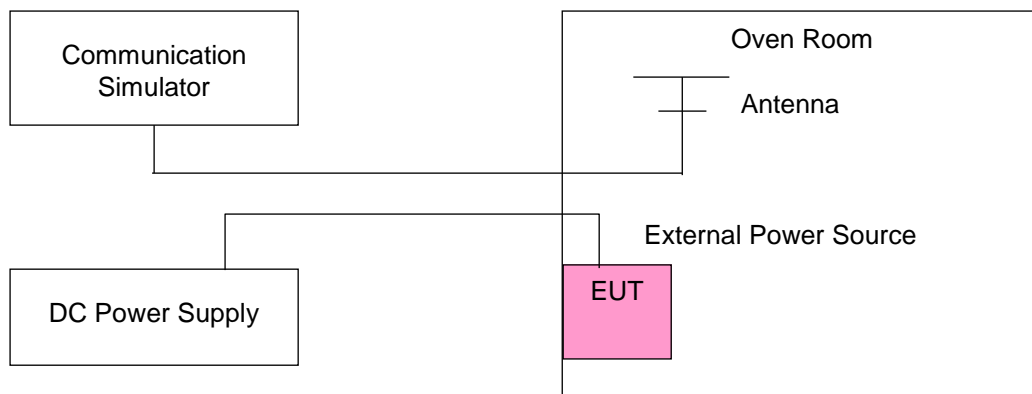
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### 4.3.2 Test Procedure

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

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

#### 4.3.3 Test Setup



#### 4.3.4 Test Results

##### Frequency Error vs. Voltage

Voltage (Volts)	GSM			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1850.200002	0.001	1909.800003	0.001
3.6	1850.200004	0.002	1909.800002	0.001
4.4	1850.200003	0.002	1909.800002	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

##### Frequency Error vs. Temperature

Temp. (°C)	GSM			
	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	1909.800003	0.001
-10	1850.200003	0.002	1909.800002	0.001
0	1850.200003	0.002	1909.800003	0.001
10	1850.200003	0.002	1909.800002	0.001
20	1850.199997	-0.002	1909.799996	-0.002
30	1850.199999	-0.001	1909.799997	-0.002
40	1850.199997	-0.002	1909.799997	-0.002
50	1850.199997	-0.002	1909.799997	-0.002
55	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)
3.85	1850.200004	0.002	1909.800002	0.001
3.6	1850.200001	0.001	1909.800002	0.001
4.4	1850.200003	0.002	1909.800002	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	EDGE			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.200003	0.002	1909.800004	0.002
-20	1850.200003	0.002	1909.800003	0.002
-10	1850.200001	0.001	1909.800002	0.001
0	1850.200004	0.002	1909.800003	0.002
10	1850.200002	0.001	1909.800004	0.002
20	1850.199997	-0.001	1909.799997	-0.001
30	1850.199997	-0.002	1909.799997	-0.002
40	1850.199998	-0.001	1909.799999	-0.001
50	1850.199997	-0.001	1909.799998	-0.001
55	1850.199997	-0.002	1909.799996	-0.002

## Frequency Error vs. Voltage

Voltage (Volts)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1852.400002	0.001	1907.600002	0.001
3.6	1852.400002	0.001	1907.600001	0.001
4.4	1852.400001	0.001	1907.600001	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

## Frequency Error vs. Temperature

Temp. (°C)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1852.400001	0.001	1907.600002	0.001
-20	1852.400002	0.001	1907.600002	0.001
-10	1852.400002	0.001	1907.600002	0.001
0	1852.400002	0.001	1907.600003	0.002
10	1852.400003	0.001	1907.600004	0.002
20	1852.399999	-0.001	1907.599996	-0.002
30	1852.399998	-0.001	1907.599999	-0.001
40	1852.399996	-0.002	1907.599998	-0.001
50	1852.399998	-0.001	1907.599998	-0.001
55	1852.399998	-0.001	1907.599997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	CDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1851.250002	0.001	1908.750002	0.001
3.6	1851.250003	0.002	1908.750004	0.002
4.4	1851.250004	0.002	1908.750003	0.002

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	CDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1851.250002	0.001	1908.750004	0.002
-20	1851.250002	0.001	1908.750002	0.001
-10	1851.250003	0.001	1908.750002	0.001
0	1851.250004	0.002	1908.750002	0.001
10	1851.250002	0.001	1908.750001	0.001
20	1851.249997	-0.002	1908.749998	-0.001
30	1851.249999	-0.001	1908.749998	-0.001
40	1851.249998	-0.001	1908.749996	-0.002
50	1851.249997	-0.002	1908.749999	-0.001
55	1851.249997	-0.002	1908.749998	-0.001

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)
3.85	1850.700001	0.001	1909.300000	0.002
3.6	1850.700002	0.001	1909.300003	0.002
4.4	1850.700002	0.001	1909.300002	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	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	1909.300001	0.001
-20	1850.700001	0.001	1909.300003	0.002
-10	1850.700002	0.001	1909.300003	0.001
0	1850.700004	0.002	1909.300004	0.002
10	1850.700001	0.001	1909.300003	0.001
20	1850.699997	-0.002	1909.299998	-0.001
30	1850.699997	-0.002	1909.299998	-0.001
40	1850.699998	-0.001	1909.299998	-0.001
50	1850.699997	-0.002	1909.299998	-0.001
55	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)
3.85	1851.500004	0.002	1907.500002	0.001
3.6	1851.500003	0.002	1907.500001	0.001
4.4	1851.500002	0.001	1907.500004	0.002

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

## Frequency Error vs. Temperature

Temp. (°C)	LTE Band 2			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1851.500002	0.001	1907.500001	0.001
-20	1851.500003	0.002	1907.500002	0.001
-10	1851.500003	0.002	1907.500001	0.001
0	1851.500003	0.001	1907.500004	0.002
10	1851.500002	0.001	1907.500003	0.001
20	1851.499996	-0.002	1907.499996	-0.002
30	1851.499998	-0.001	1907.499998	-0.001
40	1851.499999	-0.001	1907.499999	-0.001
50	1851.499998	-0.001	1907.499998	-0.001
55	1851.499996	-0.002	1907.499998	-0.001



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)
3.85	1852.500003	0.002	1907.500004	0.002
3.6	1852.500004	0.002	1907.500003	0.001
4.4	1852.500002	0.001	1907.500002	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1852.500004	0.002	1907.500004	0.002
-20	1852.500002	0.001	1907.500002	0.001
-10	1852.500003	0.002	1907.500002	0.001
0	1852.500001	0.001	1907.500002	0.001
10	1852.500001	0.001	1907.500003	0.002
20	1852.499997	-0.001	1907.499998	-0.001
30	1852.499998	-0.001	1907.499998	-0.001
40	1852.499998	-0.001	1907.499998	-0.001
50	1852.499998	-0.001	1907.499998	-0.001
55	1852.499998	-0.001	1907.499998	-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)
3.85	1855.000001	0.001	1905.000002	0.001
3.6	1855.000002	0.001	1905.000002	0.001
4.4	1855.000003	0.001	1905.000002	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1855.000002	0.001	1905.000004	0.002
-20	1855.000004	0.002	1905.000003	0.002
-10	1855.000002	0.001	1905.000001	0.001
0	1855.000001	0.001	1905.000003	0.002
10	1855.000003	0.002	1905.000004	0.002
20	1854.999998	-0.001	1904.999997	-0.001
30	1854.999996	-0.002	1904.999999	-0.001
40	1854.999999	-0.001	1904.999999	-0.001
50	1854.999997	-0.002	1904.999999	-0.001
55	1854.999998	-0.001	1904.999998	-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)
3.85	1857.500003	0.002	1902.500003	0.002
3.6	1857.500002	0.001	1902.500003	0.002
4.4	1857.500003	0.001	1902.500004	0.002

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 2			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1857.500003	0.001	1902.500002	0.001
-20	1857.500004	0.002	1902.500003	0.001
-10	1857.500003	0.002	1902.500004	0.002
0	1857.500002	0.001	1902.500003	0.002
10	1857.500004	0.002	1902.500002	0.001
20	1857.499998	-0.001	1902.499998	-0.001
30	1857.499997	-0.001	1902.499998	-0.001
40	1857.499998	-0.001	1902.499998	-0.001
50	1857.499998	-0.001	1902.499997	-0.002
55	1857.499996	-0.002	1902.499999	-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)
3.85	1860.000002	0.001	1900.000002	0.001
3.6	1860.000002	0.001	1900.000003	0.001
4.4	1860.000001	0.001	1900.000003	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 2			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1860.000003	0.001	1900.000001	0.001
-20	1860.000001	0.001	1900.000004	0.002
-10	1860.000001	0.001	1900.000001	0.001
0	1860.000004	0.002	1900.000003	0.002
10	1860.000002	0.001	1900.000004	0.002
20	1859.999997	-0.002	1899.999997	-0.002
30	1859.999999	-0.001	1899.999998	-0.001
40	1859.999997	-0.001	1899.999998	-0.001
50	1859.999999	-0.001	1899.999997	-0.002
55	1859.999998	-0.001	1899.999998	-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)
3.85	1850.700002	0.001	1914.300002	0.001
3.6	1850.700003	0.001	1914.300002	0.001
4.4	1850.700001	0.001	1914.300001	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	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	1914.300003	0.002
-20	1850.700001	0.001	1914.300002	0.001
-10	1850.700002	0.001	1914.300001	0.001
0	1850.700002	0.001	1914.300003	0.002
10	1850.700004	0.002	1914.300003	0.002
20	1850.699998	-0.001	1914.299996	-0.002
30	1850.699998	-0.001	1914.299998	-0.001
40	1850.699997	-0.001	1914.299998	-0.001
50	1850.699997	-0.002	1914.299996	-0.002
55	1850.699997	-0.001	1914.299999	-0.001

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)
3.85	1851.500004	0.002	1913.500004	0.002
3.6	1851.500001	0.001	1913.500003	0.001
4.4	1851.500004	0.002	1913.500003	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 25			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1851.500004	0.002	1913.500003	0.002
-20	1851.500003	0.001	1913.500004	0.002
-10	1851.500003	0.002	1913.500002	0.001
0	1851.500002	0.001	1913.500004	0.002
10	1851.500002	0.001	1913.500004	0.002
20	1851.499999	-0.001	1913.499996	-0.002
30	1851.499997	-0.001	1913.499999	-0.001
40	1851.499999	-0.001	1913.499996	-0.002
50	1851.499996	-0.002	1913.499999	-0.001
55	1851.499998	-0.001	1913.499998	-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)
3.85	1852.500002	0.001	1912.500003	0.002
3.6	1852.500003	0.002	1912.500002	0.001
4.4	1852.500004	0.002	1912.500001	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 25			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1852.500004	0.002	1912.500001	0.001
-20	1852.500003	0.002	1912.500001	0.001
-10	1852.500001	0.001	1912.500003	0.001
0	1852.500002	0.001	1912.500002	0.001
10	1852.500004	0.002	1912.500002	0.001
20	1852.499996	-0.002	1912.499998	-0.001
30	1852.499999	-0.001	1912.499998	-0.001
40	1852.499997	-0.002	1912.499998	-0.001
50	1852.499998	-0.001	1912.499997	-0.002
55	1852.499997	-0.002	1912.499998	-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)
3.85	1855.000002	0.001	1910.000003	0.002
3.6	1855.000001	0.001	1910.000003	0.002
4.4	1855.000004	0.002	1910.000001	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 25			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1855.000004	0.002	1910.000002	0.001
-20	1855.000002	0.001	1910.000003	0.002
-10	1855.000002	0.001	1910.000003	0.002
0	1855.000002	0.001	1910.000002	0.001
10	1855.000004	0.002	1910.000003	0.002
20	1854.999997	-0.001	1909.999999	-0.001
30	1854.999998	-0.001	1909.999998	-0.001
40	1854.999998	-0.001	1909.999996	-0.002
50	1854.999999	-0.001	1909.999999	-0.001
55	1854.999999	-0.001	1909.999998	-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)
3.85	1857.500003	0.002	1907.500001	0.001
3.6	1857.500004	0.002	1907.500002	0.001
4.4	1857.500002	0.001	1907.500003	0.001

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 25			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1857.500002	0.001	1907.500003	0.001
-20	1857.500003	0.002	1907.500004	0.002
-10	1857.500002	0.001	1907.500002	0.001
0	1857.500003	0.002	1907.500002	0.001
10	1857.500002	0.001	1907.500001	0.001
20	1857.499997	-0.002	1907.499999	-0.001
30	1857.499997	-0.002	1907.499997	-0.002
40	1857.499997	-0.002	1907.499999	-0.001
50	1857.499996	-0.002	1907.499998	-0.001
55	1857.499997	-0.001	1907.499998	-0.001

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)
3.85	1860.000004	0.002	1905.000003	0.002
3.6	1860.000002	0.001	1905.000001	0.001
4.4	1860.000003	0.002	1905.000004	0.002

**Note:** The applicant defined the normal working voltage of the battery is from 3.6 Vdc to 4.4 Vdc.

Frequency Error vs. Temperature

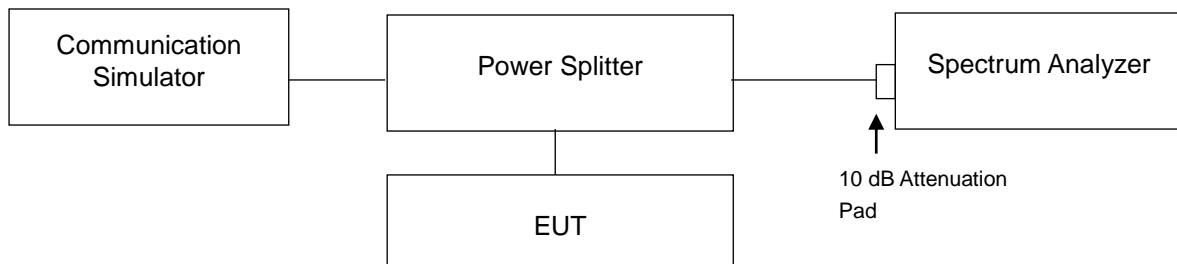
Temp. (°C)	LTE Band 25			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1860.000004	0.002	1905.000002	0.001
-20	1860.000002	0.001	1905.000003	0.001
-10	1860.000003	0.002	1905.000003	0.001
0	1860.000004	0.002	1905.000004	0.002
10	1860.000004	0.002	1905.000001	0.001
20	1859.999999	-0.001	1904.999999	-0.001
30	1859.999997	-0.001	1904.999999	-0.001
40	1859.999998	-0.001	1904.999997	-0.002
50	1859.999999	-0.001	1904.999998	-0.001
55	1859.999997	-0.002	1904.999998	-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



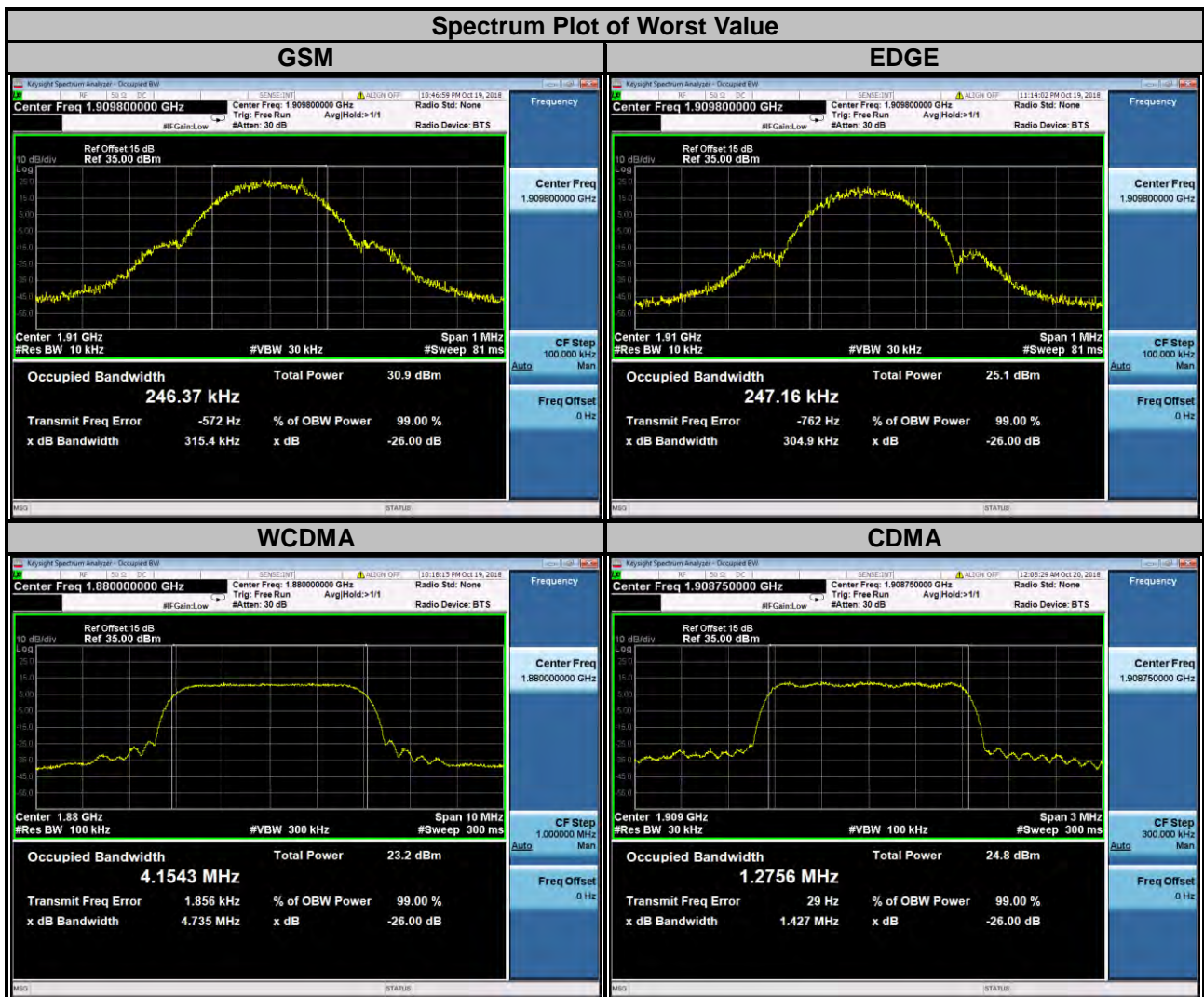
### 4.4.3 Test Result

#### <99 % Occupied Bandwidth>

Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)
		GSM	EDGE			WCDMA
512	1850.2	244.87	245.39	9262	1852.4	4.1501
661	1880.0	244.51	244.70	9400	1880.0	4.1543
810	1909.8	246.37	247.16	9538	1907.6	4.1527

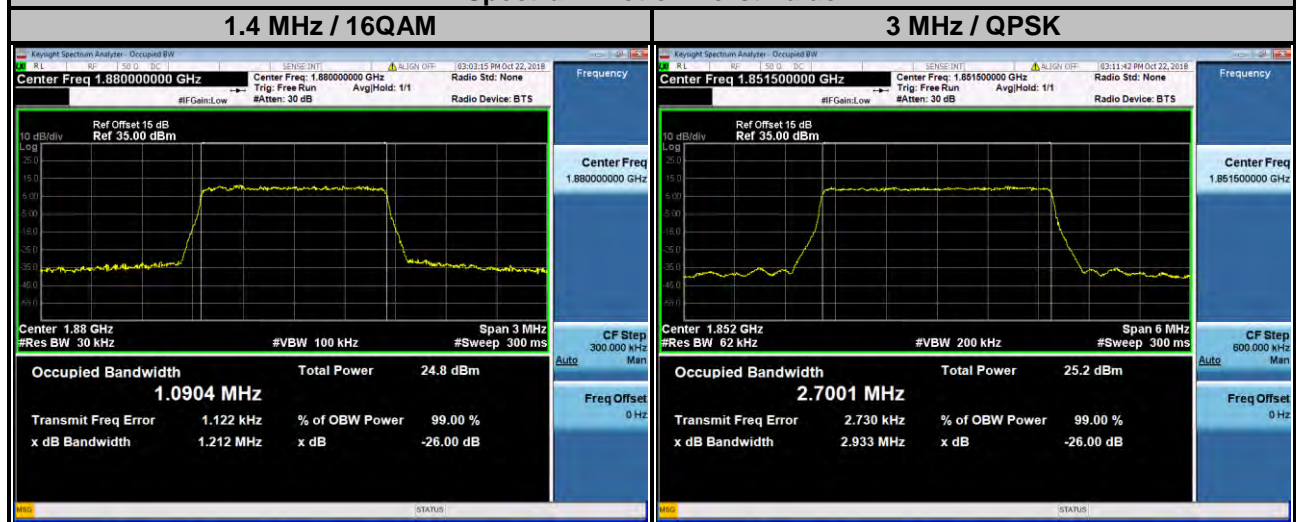
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		CDMA	
25	1851.25	1.2753	
600	1880.00	1.2750	
1175	1908.75	1.2756	



### LTE Band 2

Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
18607	1850.7	1.0874	1.0898	1.0880	18615	1851.5	2.7001	2.6977	2.6982
18900	1880.0	1.0867	1.0904	1.0877	18900	1880.0	2.6999	2.6981	2.6956
19193	1909.3	1.0841	1.0894	1.0875	19185	1908.5	2.6997	2.6974	2.6969

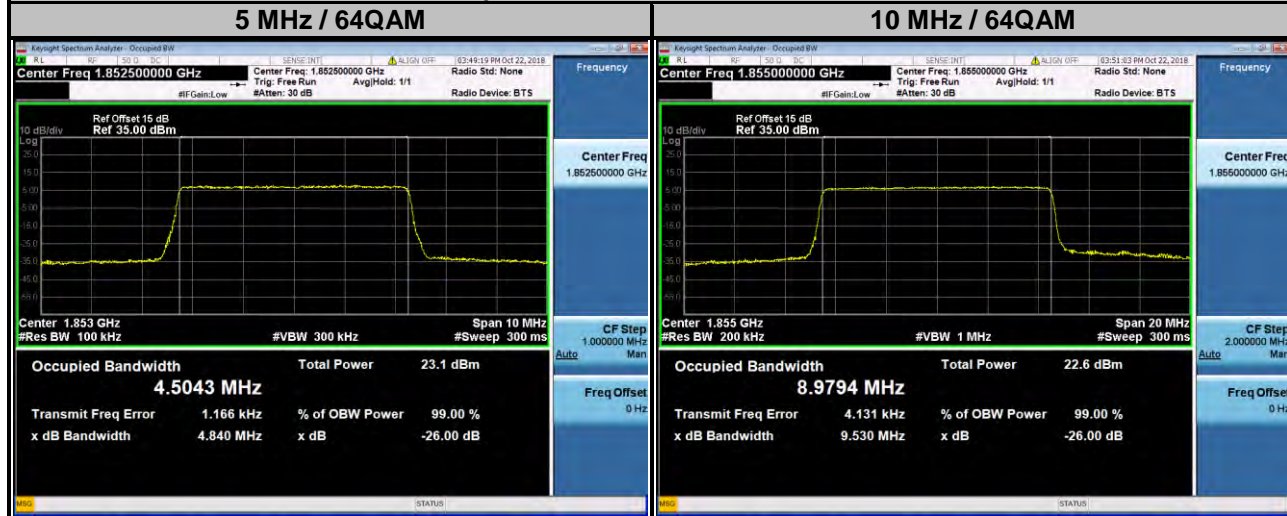
### Spectrum Plot of Worst Value



### LTE Band 2

Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
18625	1852.5	4.4895	4.4921	4.5043	18650	1855.0	8.9656	8.9715	8.9794
18900	1880.0	4.4898	4.4910	4.5016	18900	1880.0	8.9707	8.9733	8.9751
19175	1907.5	4.4925	4.4939	4.5033	19150	1905.0	8.9666	8.9690	8.9771

### Spectrum Plot of Worst Value

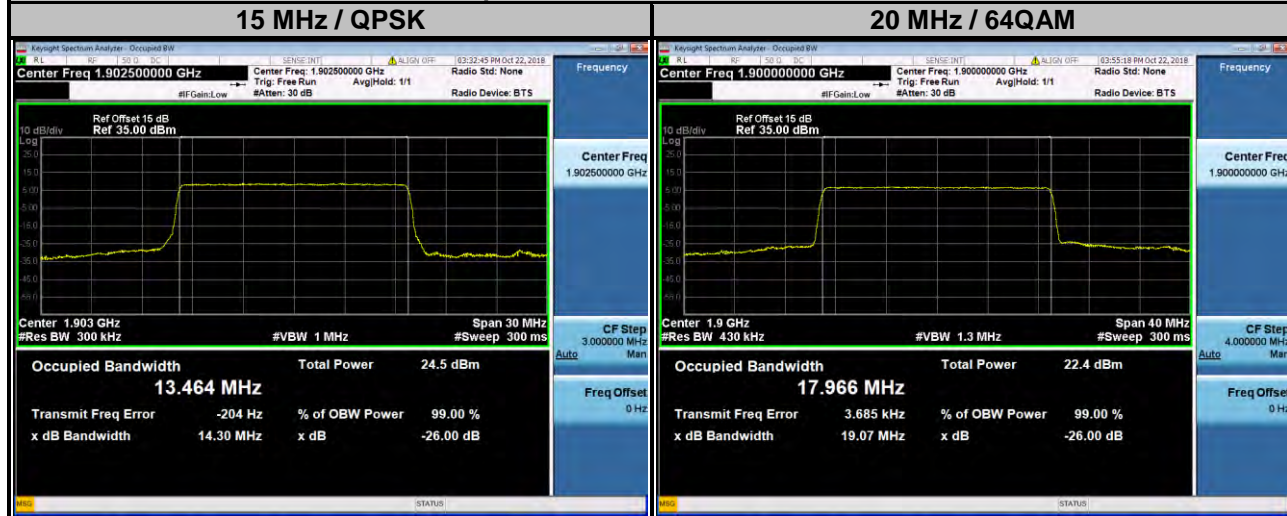




### LTE Band 2

Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
18675	1857.5	13.449	13.438	13.434	18700	1860.0	17.909	17.925	17.923
18900	1880.0	13.460	13.449	13.450	18900	1880.0	17.937	17.959	17.956
19125	1902.5	13.464	13.448	13.449	19100	1900.0	17.946	17.964	17.966

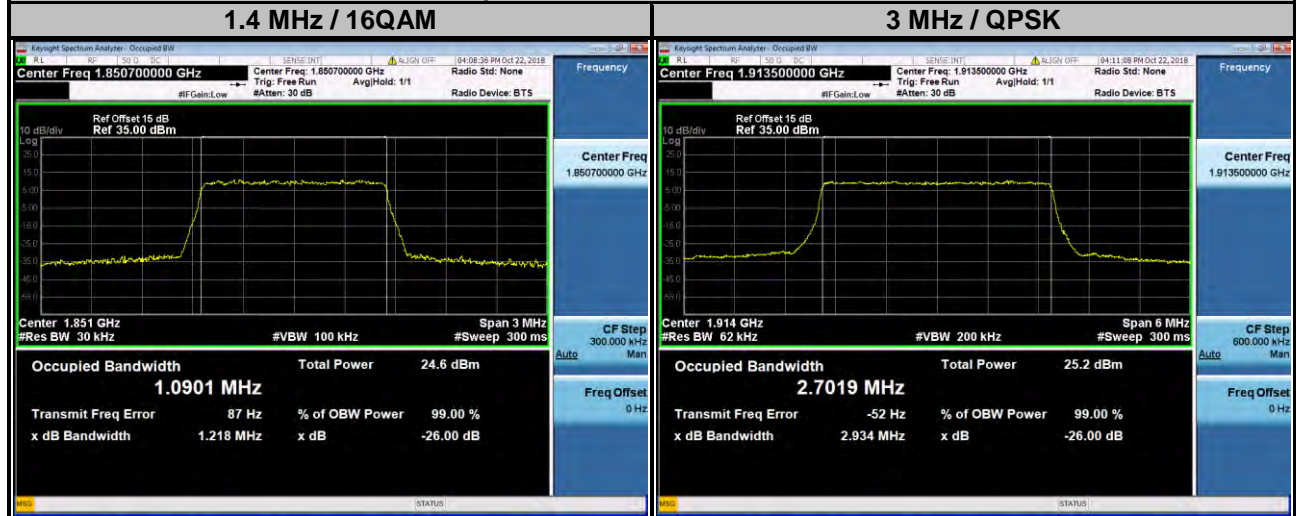
### Spectrum Plot of Worst Value



### LTE Band 25

Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
26047	1850.7	1.0875	1.0901	1.0878	26055	1851.5	2.7014	2.6975	2.6994
26365	1882.5	1.0874	1.0889	1.0875	26365	1882.5	2.7006	2.6959	2.6974
26683	1914.3	1.0866	1.0901	1.0888	26675	1913.5	2.7019	2.6975	2.6971

### Spectrum Plot of Worst Value

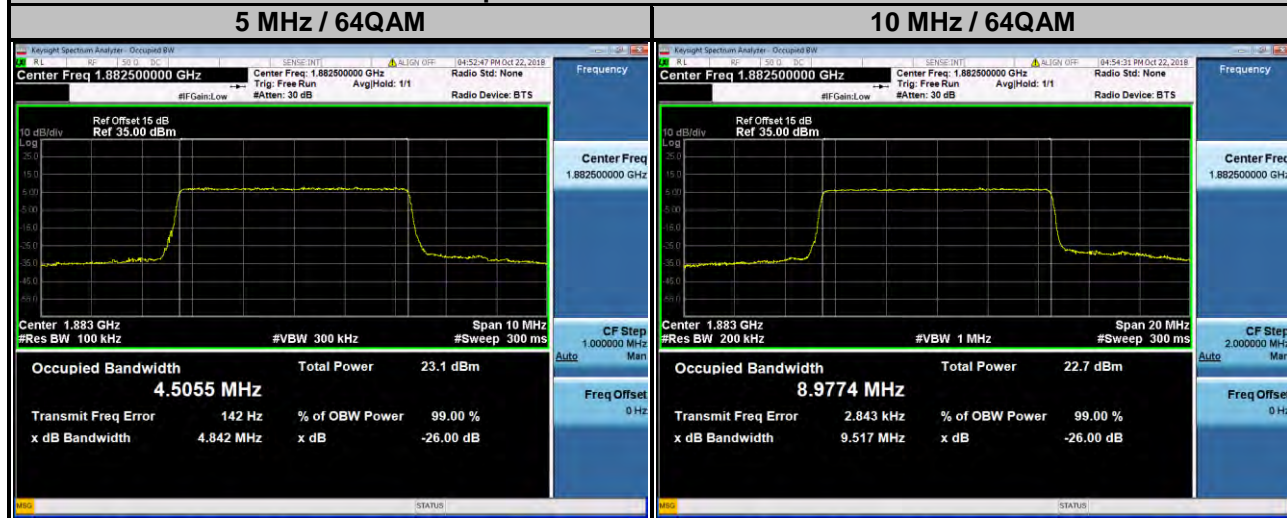




### LTE Band 25

Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
26065	1852.5	4.4903	4.4899	4.4990	26090	1855.0	8.9693	8.9710	8.9757
26365	1882.5	4.4921	4.4918	4.5055	26365	1882.5	8.9695	8.9757	8.9774
26665	1912.5	4.4921	4.4915	4.5025	26640	1910.0	8.9637	8.9672	8.9718

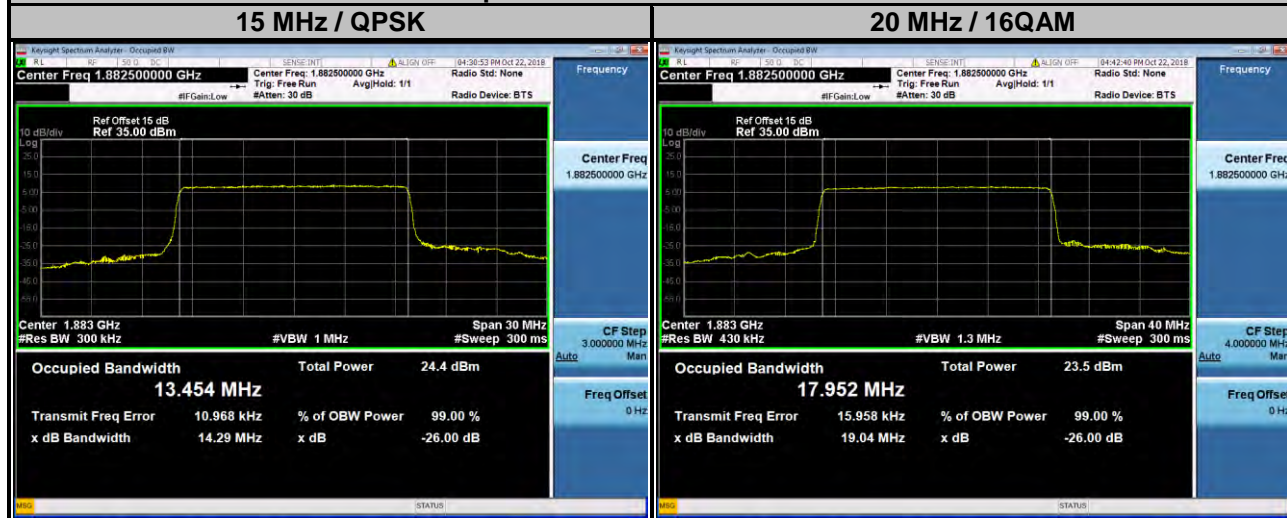
### Spectrum Plot of Worst Value



### LTE Band 25

Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
26115	1857.5	13.447	13.441	13.438	26140	1860.0	17.905	17.936	17.930
26365	1882.5	13.454	13.447	13.444	26365	1882.5	17.920	17.952	17.948
26615	1907.5	13.440	13.431	13.433	26590	1905.0	17.930	17.936	17.935

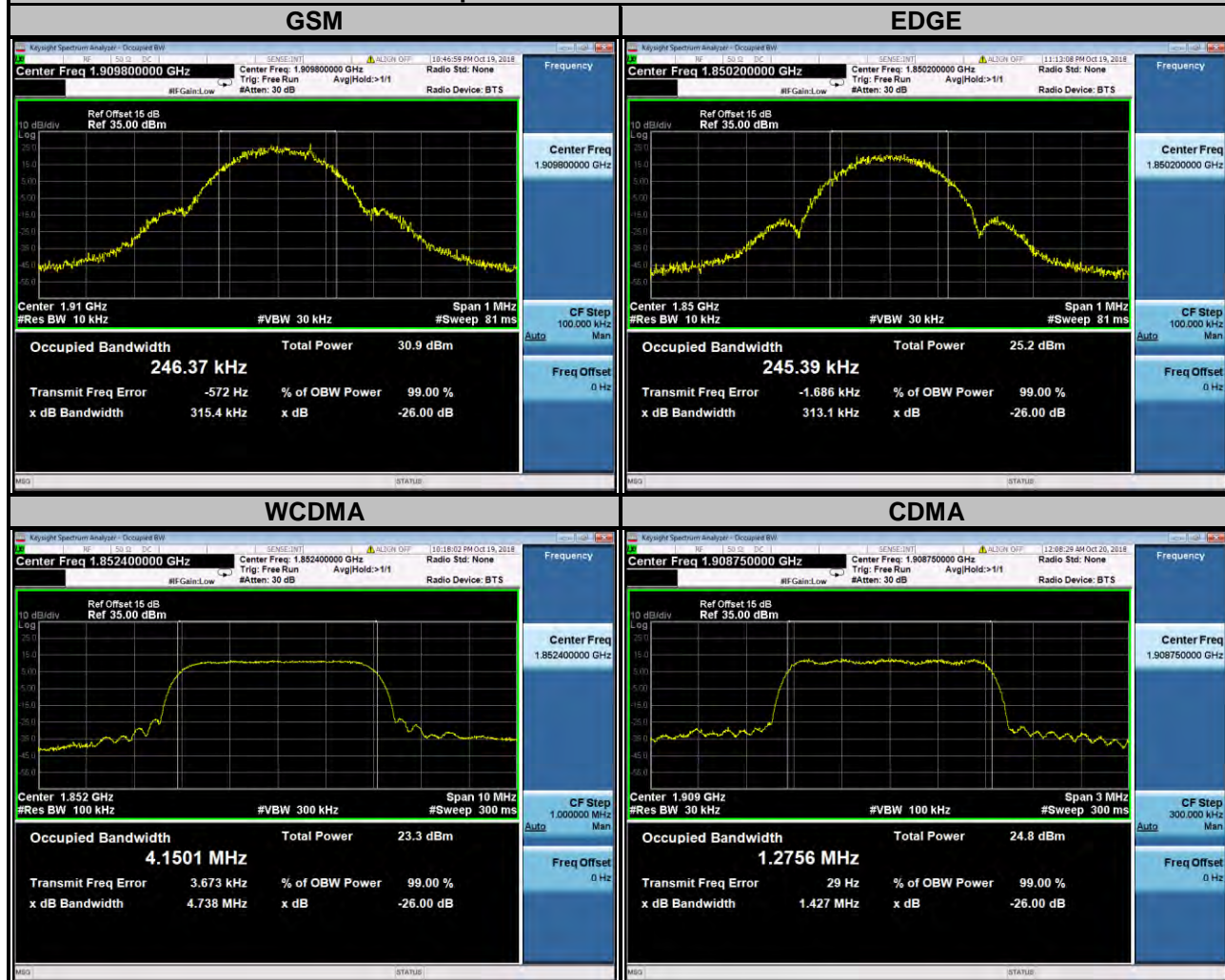
### Spectrum Plot of Worst Value



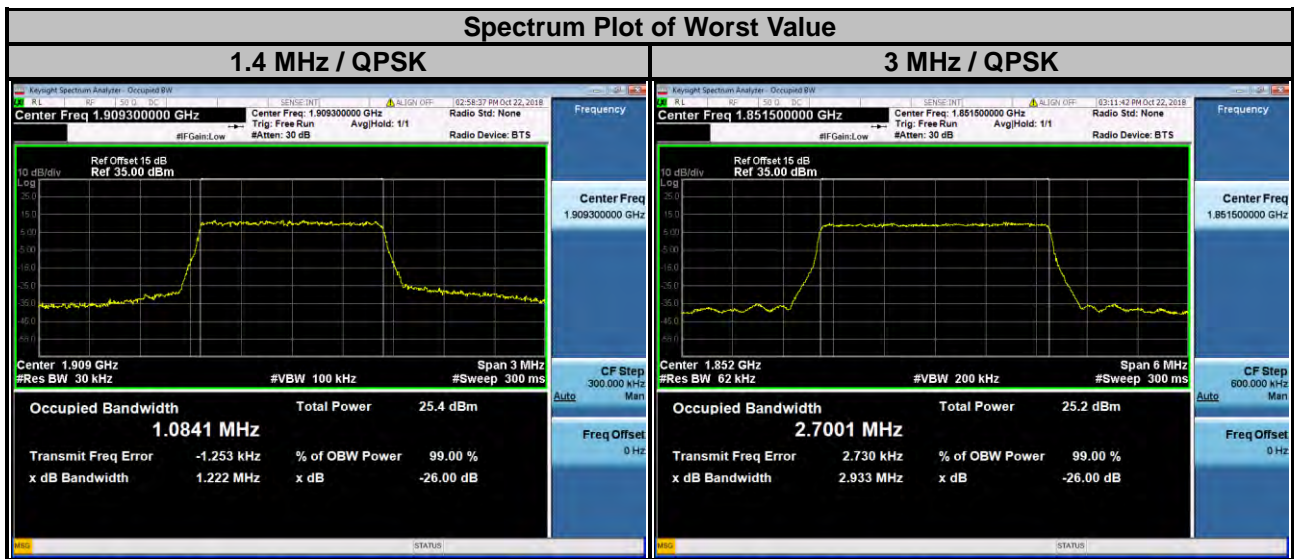
<26 dB Bandwidth>

Channel	Frequency (MHz)	26 dB Bandwidth (kHz)		Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
		GSM	EDGE			WCDMA
512	1850.2	314.8	313.1	9262	1852.4	4.738
661	1880.0	314.8	309.2	9400	1880.0	4.735
810	1909.8	315.4	304.9	9538	1907.6	4.733
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)				
		CDMA				
25	1851.25	1.425				
600	1880.00	1.426				
1175	1908.75	1.427				

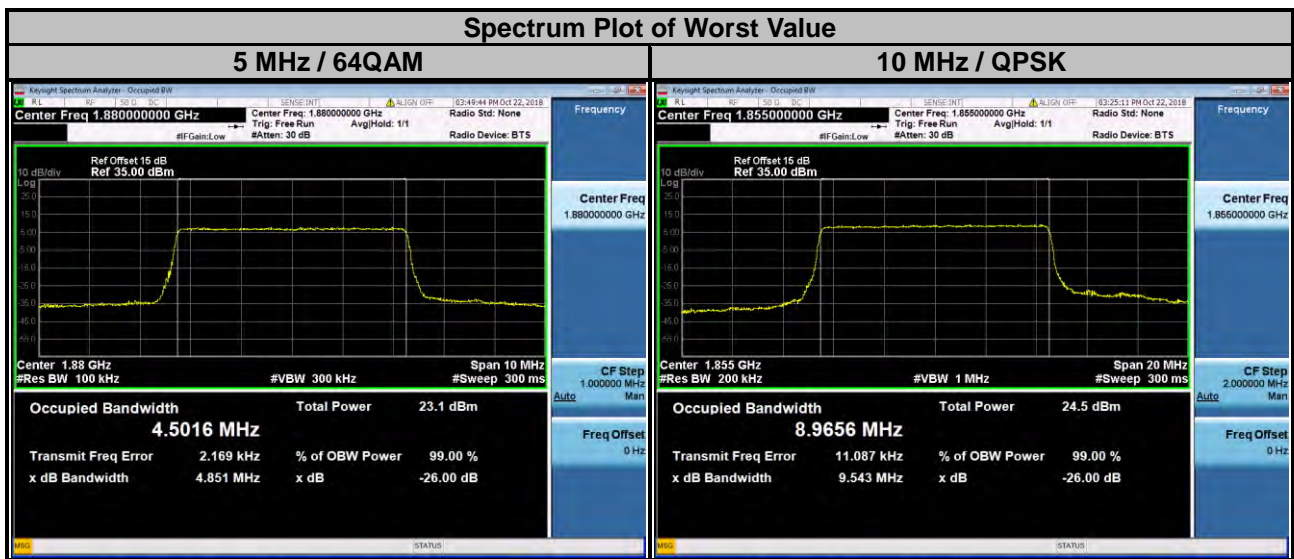
Spectrum Plot of Worst Value



LTE Band 2									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
18607	1850.7	1.217	1.208	1.217	18615	1851.5	2.933	2.933	2.901
18900	1880.0	1.212	1.212	1.213	18900	1880.0	2.922	2.929	2.901
19193	1909.3	1.222	1.215	1.216	19185	1908.5	2.928	2.927	2.910



LTE Band 2									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
18625	1852.5	4.819	4.798	4.840	18650	1855.0	9.543	9.523	9.530
18900	1880.0	4.837	4.800	4.851	18900	1880.0	9.542	9.505	9.511
19175	1907.5	4.828	4.812	4.832	19150	1905.0	9.543	9.521	9.524

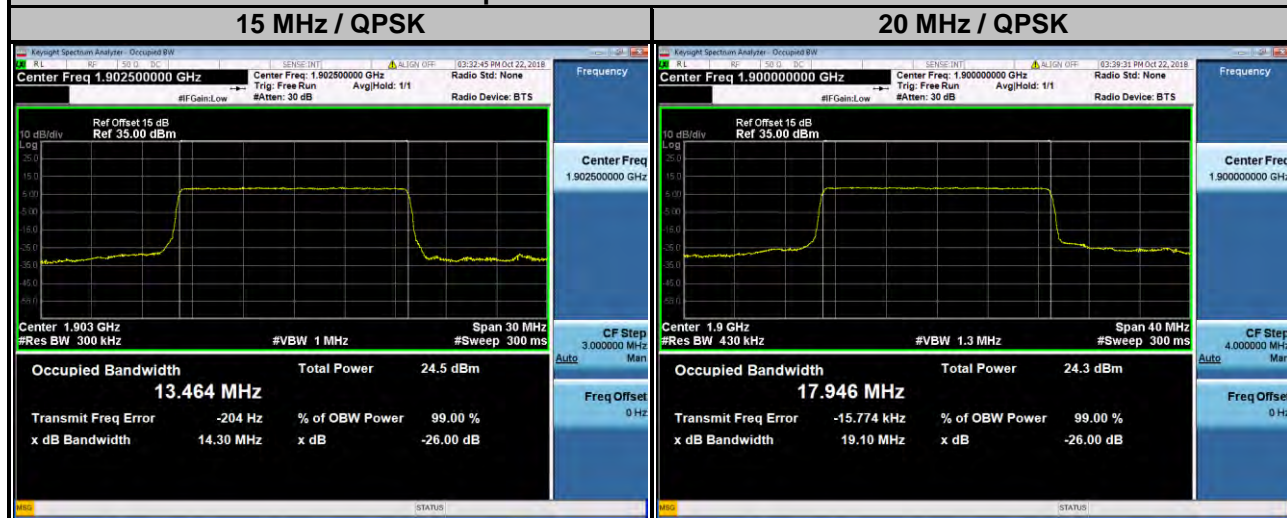




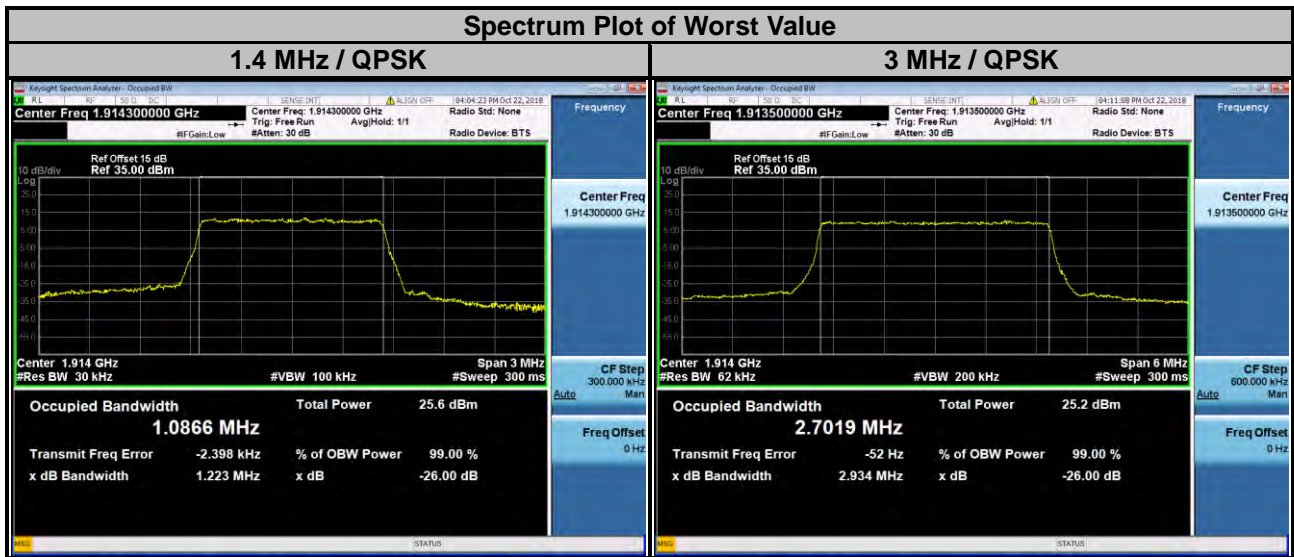
### LTE Band 2

Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
18675	1857.5	14.26	14.24	14.24	18700	1860.0	19.04	19.03	19.03
18900	1880.0	14.27	14.24	14.24	18900	1880.0	19.08	19.03	19.06
19125	1902.5	14.30	14.25	14.25	19100	1900.0	19.10	19.07	19.07

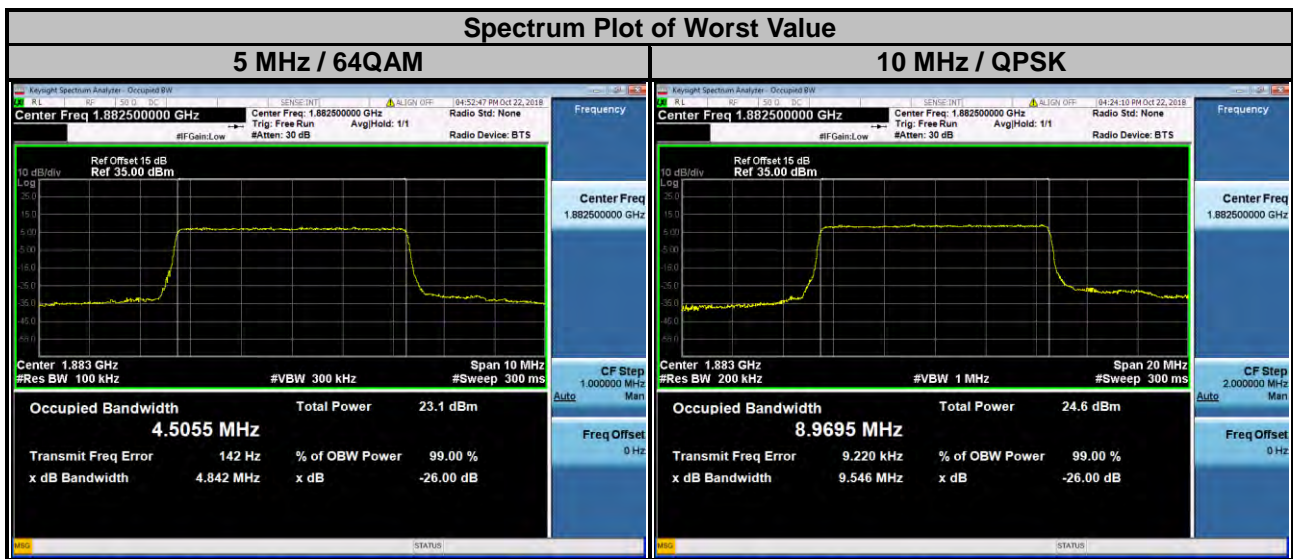
### Spectrum Plot of Worst Value



LTE Band 25									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
26047	1850.7	1.214	1.218	1.208	26055	1851.5	2.933	2.929	2.907
26365	1882.5	1.222	1.216	1.216	26365	1882.5	2.930	2.929	2.906
26683	1914.3	1.223	1.214	1.214	26675	1913.5	2.934	2.928	2.910

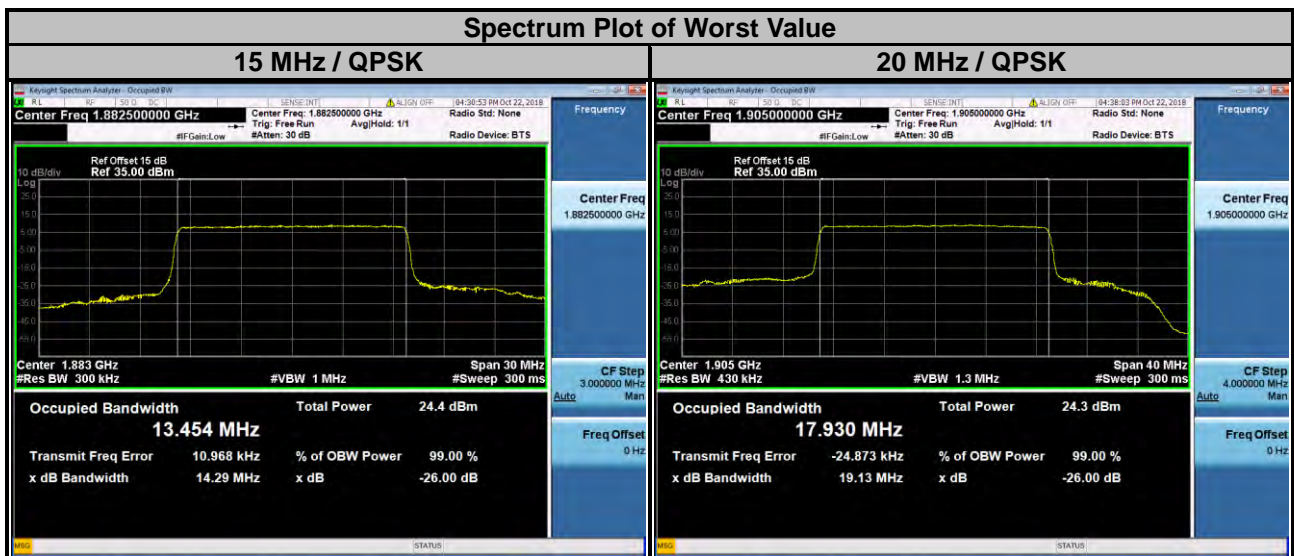


LTE Band 25									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
26065	1852.5	4.833	4.798	4.825	26090	1855.0	9.537	9.511	9.535
26365	1882.5	4.820	4.805	4.842	26365	1882.5	9.546	9.507	9.517
26665	1912.5	4.812	4.809	4.826	26640	1910.0	9.518	9.523	9.529





LTE Band 25									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			Channel	Frequency (MHz)	26 dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
26115	1857.5	14.27	14.26	14.25	26140	1860.0	19.05	19.05	19.04
26365	1882.5	14.29	14.26	14.25	26365	1882.5	19.08	19.04	19.04
26615	1907.5	14.26	14.23	14.24	26590	1905.0	19.13	19.03	19.03

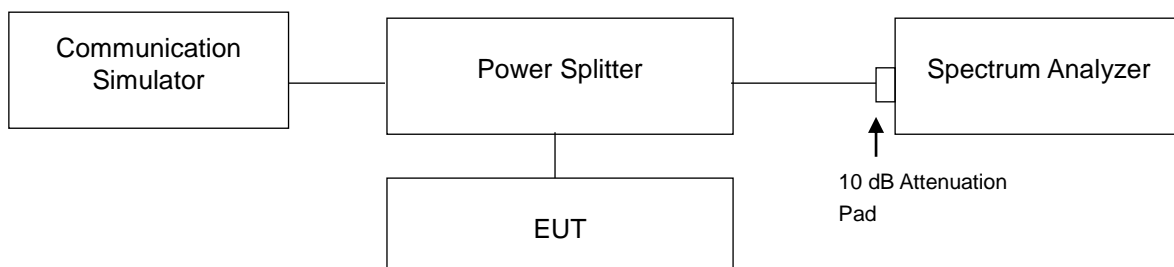


## 4.5 Band Edge Measurement

### 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.

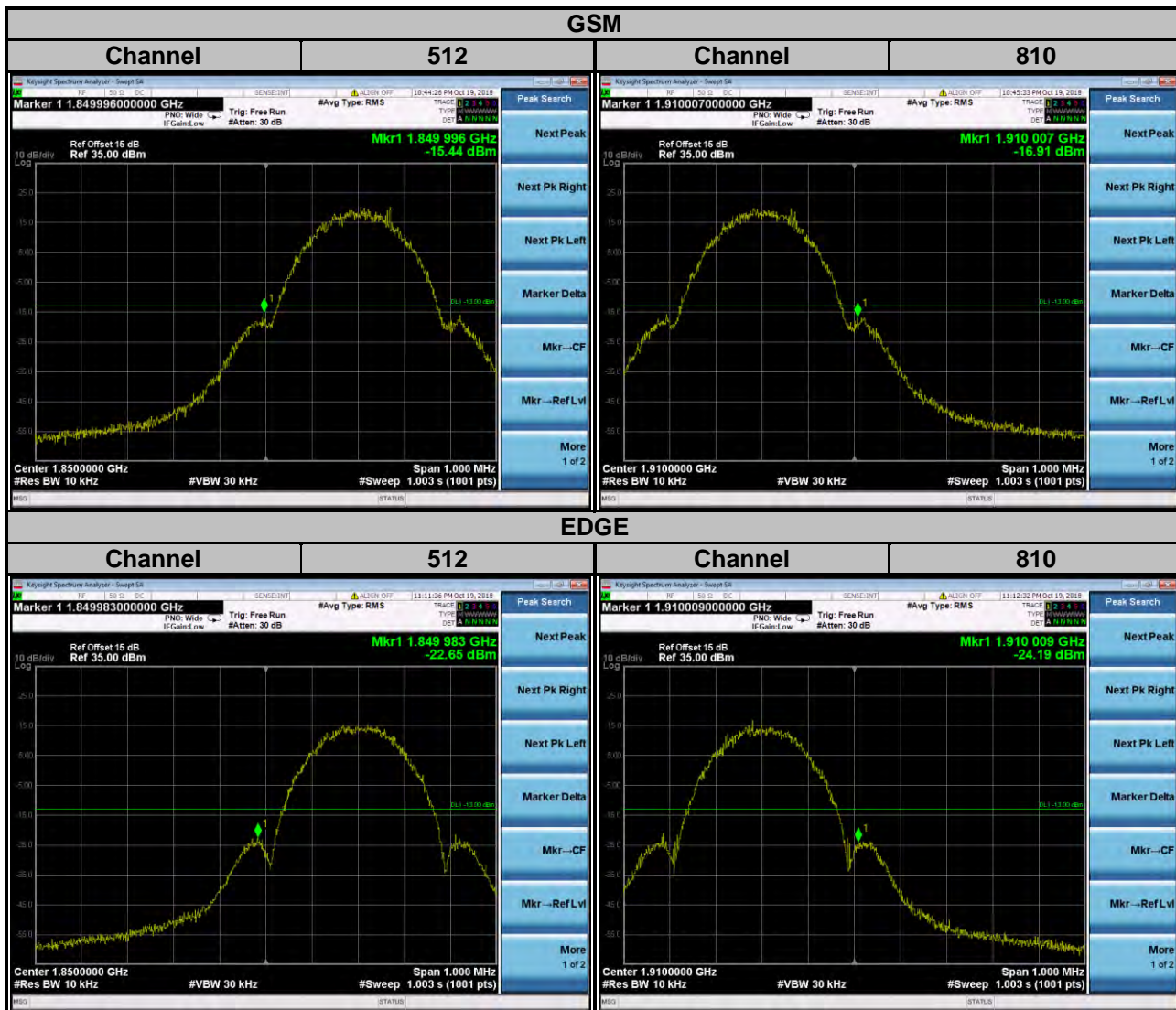
### 4.5.2 Test Setup

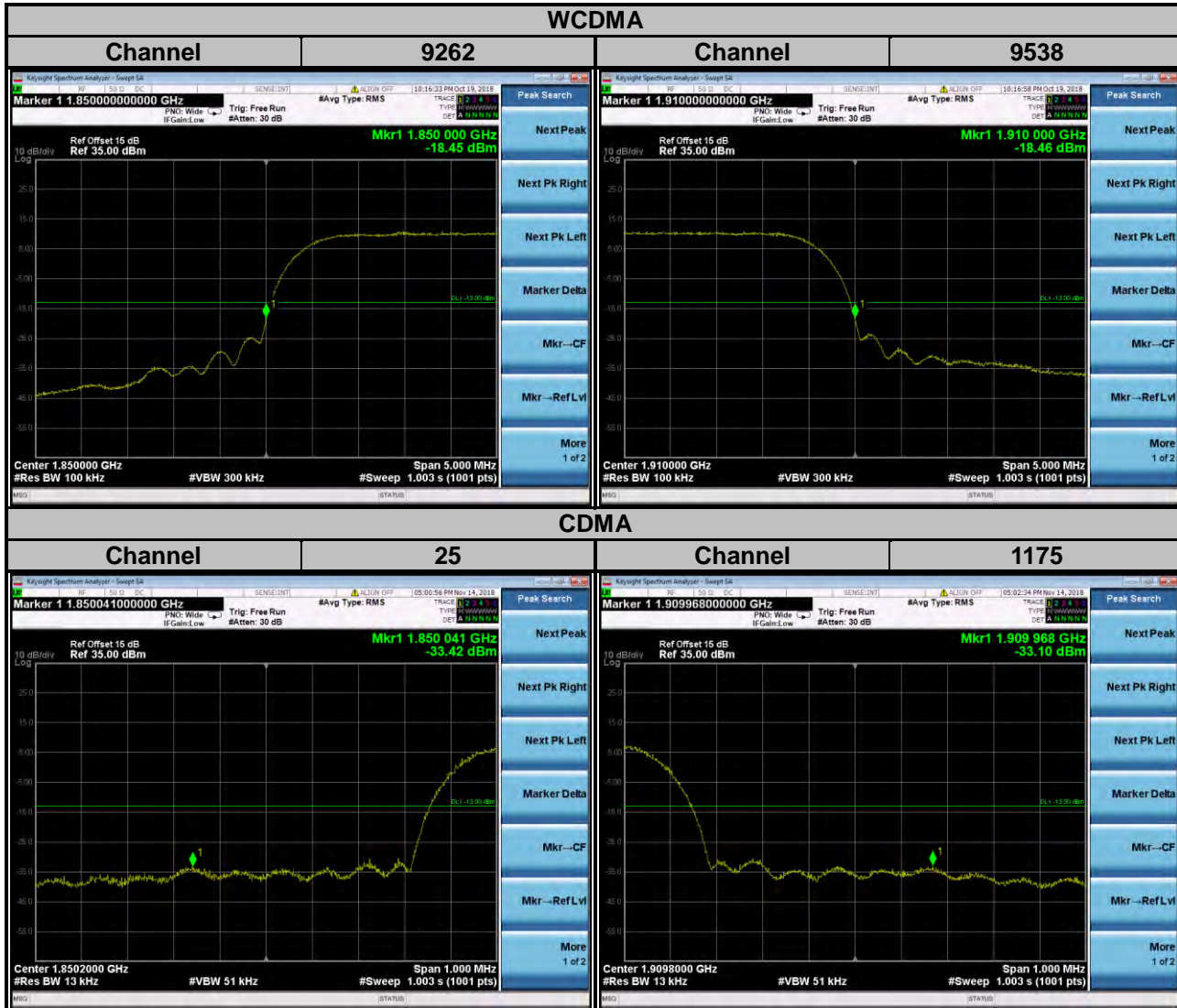


### 4.5.3 Test Procedures

- 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 10 kHz and VB of the spectrum is 30 kHz (GSM/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 13 kHz and VB of the spectrum is 51 kHz (CDMA).
- e. 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).
- f. 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).
- g. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 62 kHz and VB of the spectrum is 200 kHz (LTE Bandwidth 5 MHz).
- h. 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).
- i. 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).
- j. 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).
- k. Record the max trace plot into the test report.

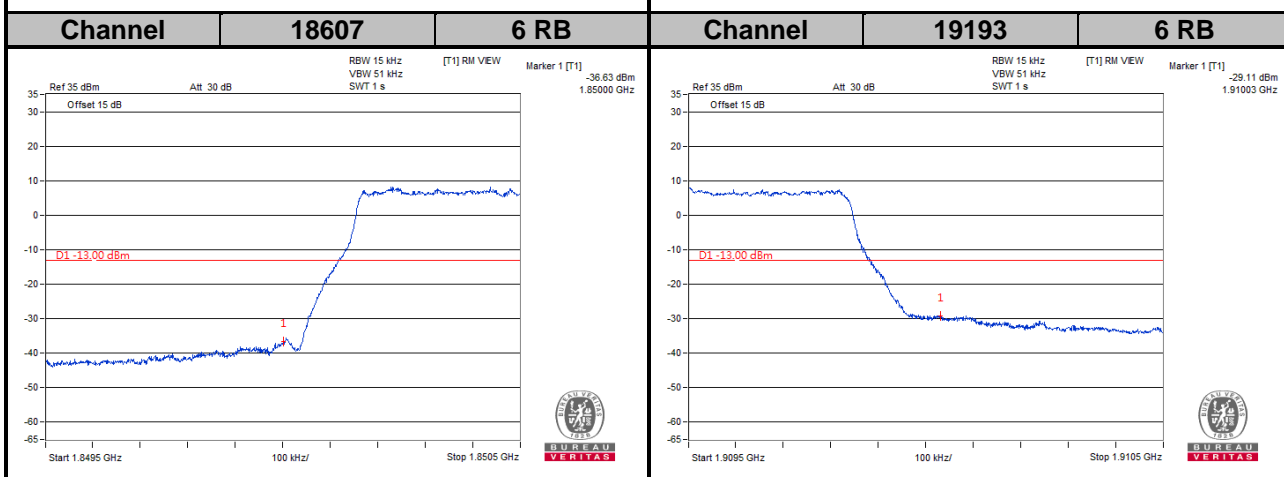
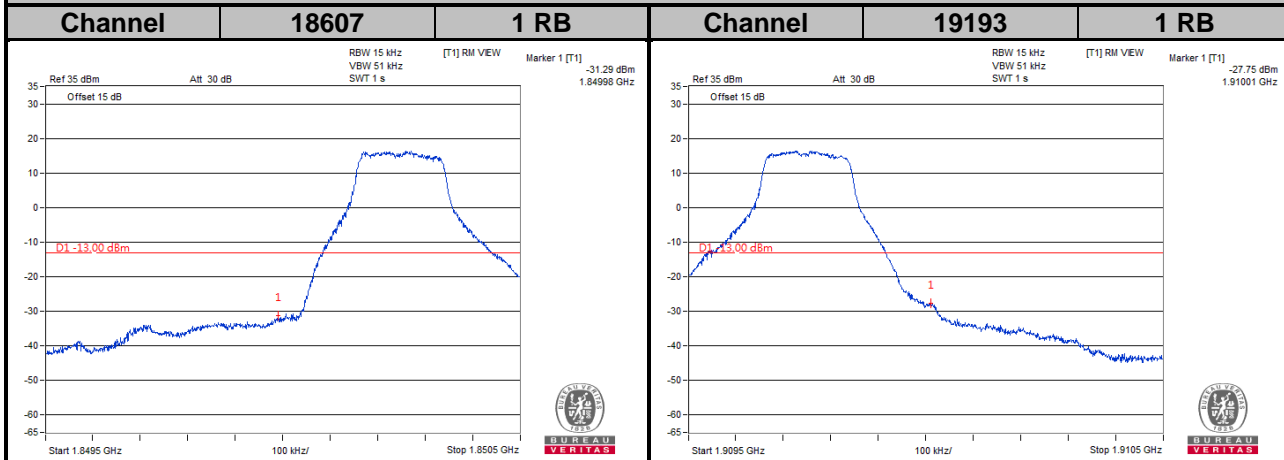
### 4.5.4 Test Results





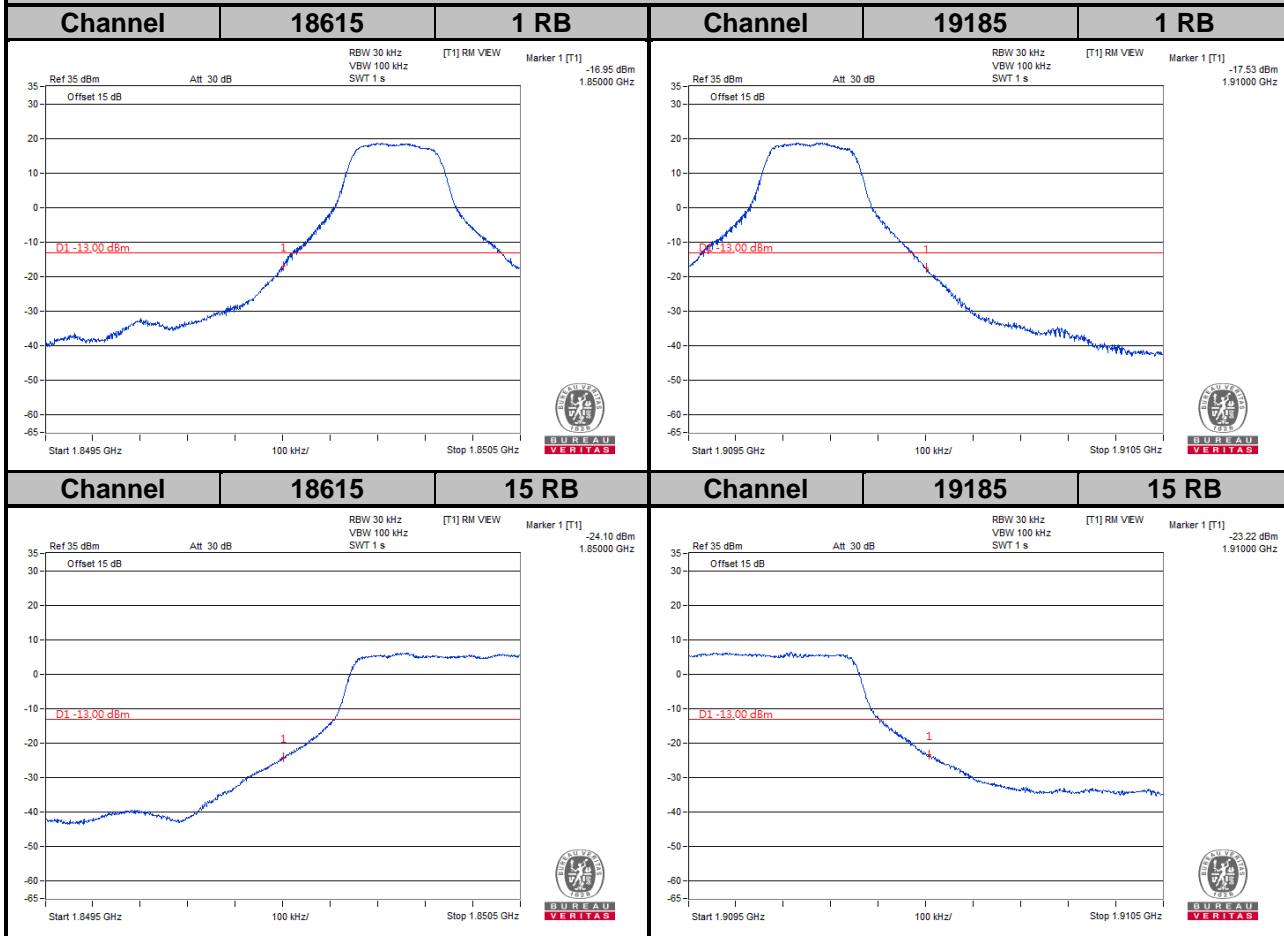
LTE Band 2

Channel Bandwidth: 1.4 MHz

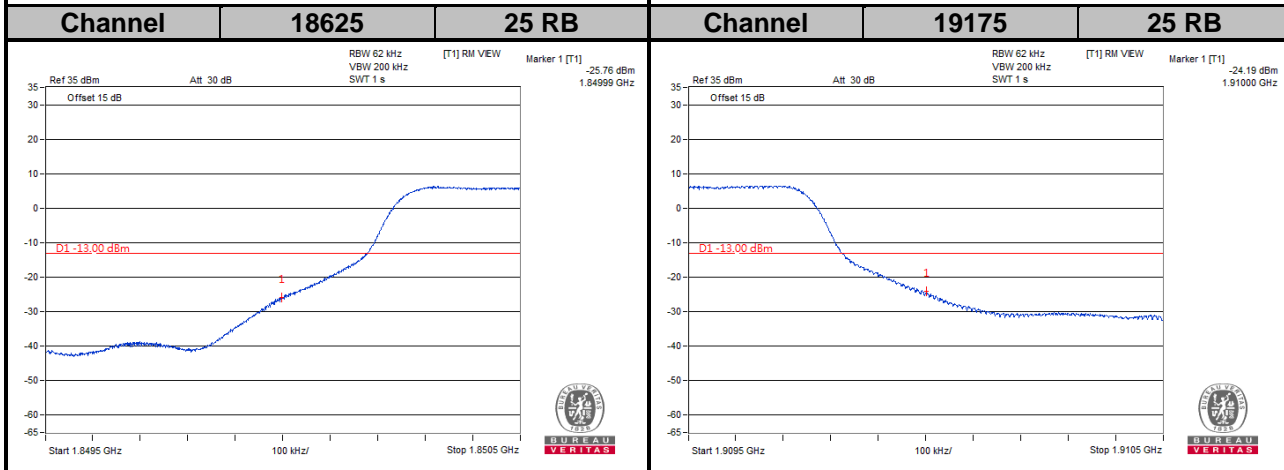
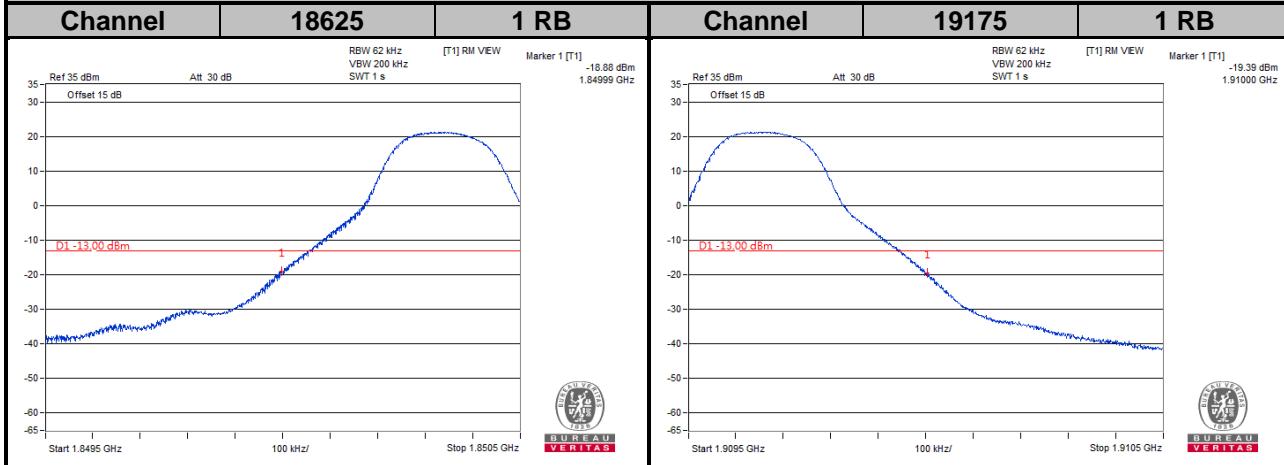


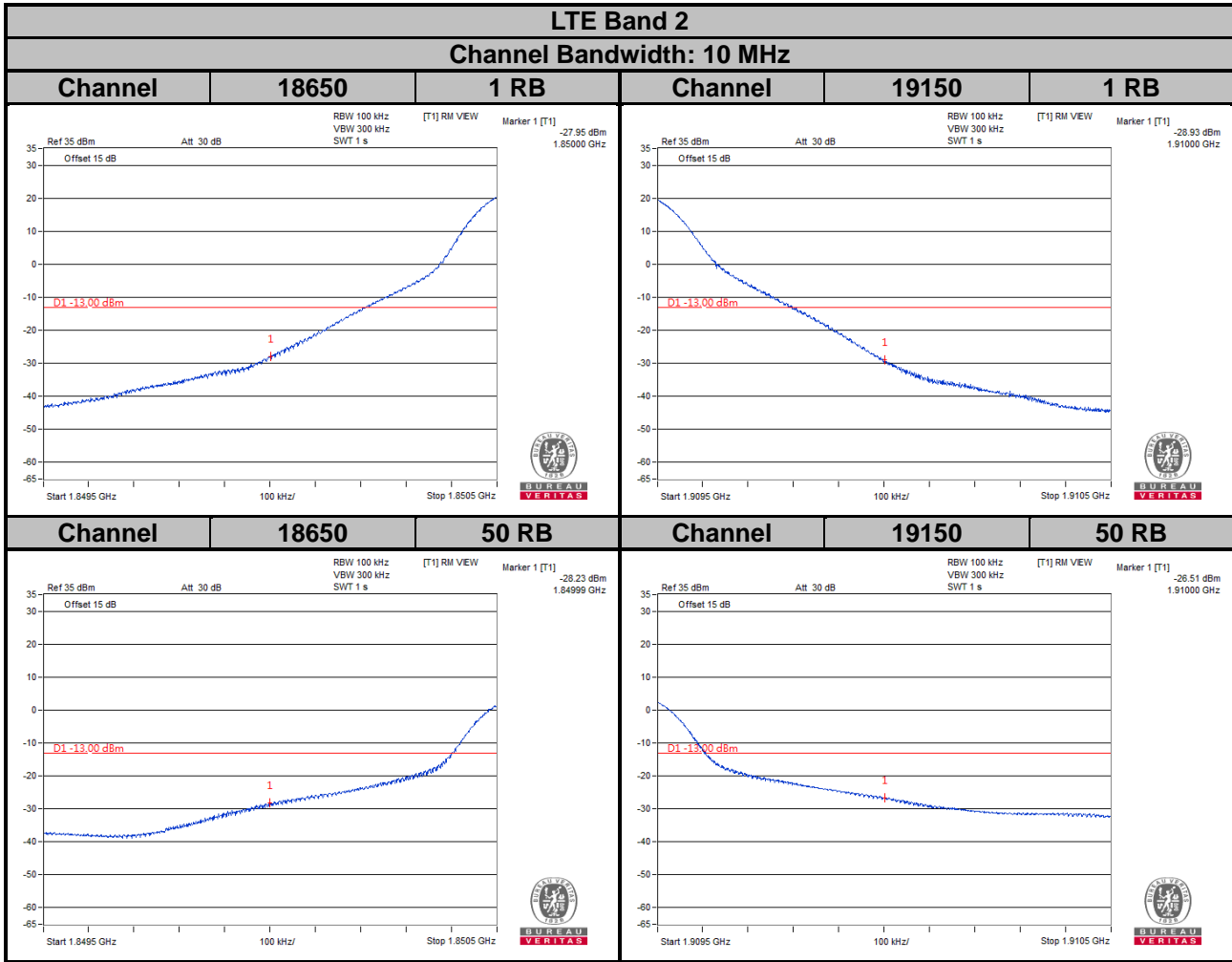
LTE Band 2

Channel Bandwidth: 3 MHz

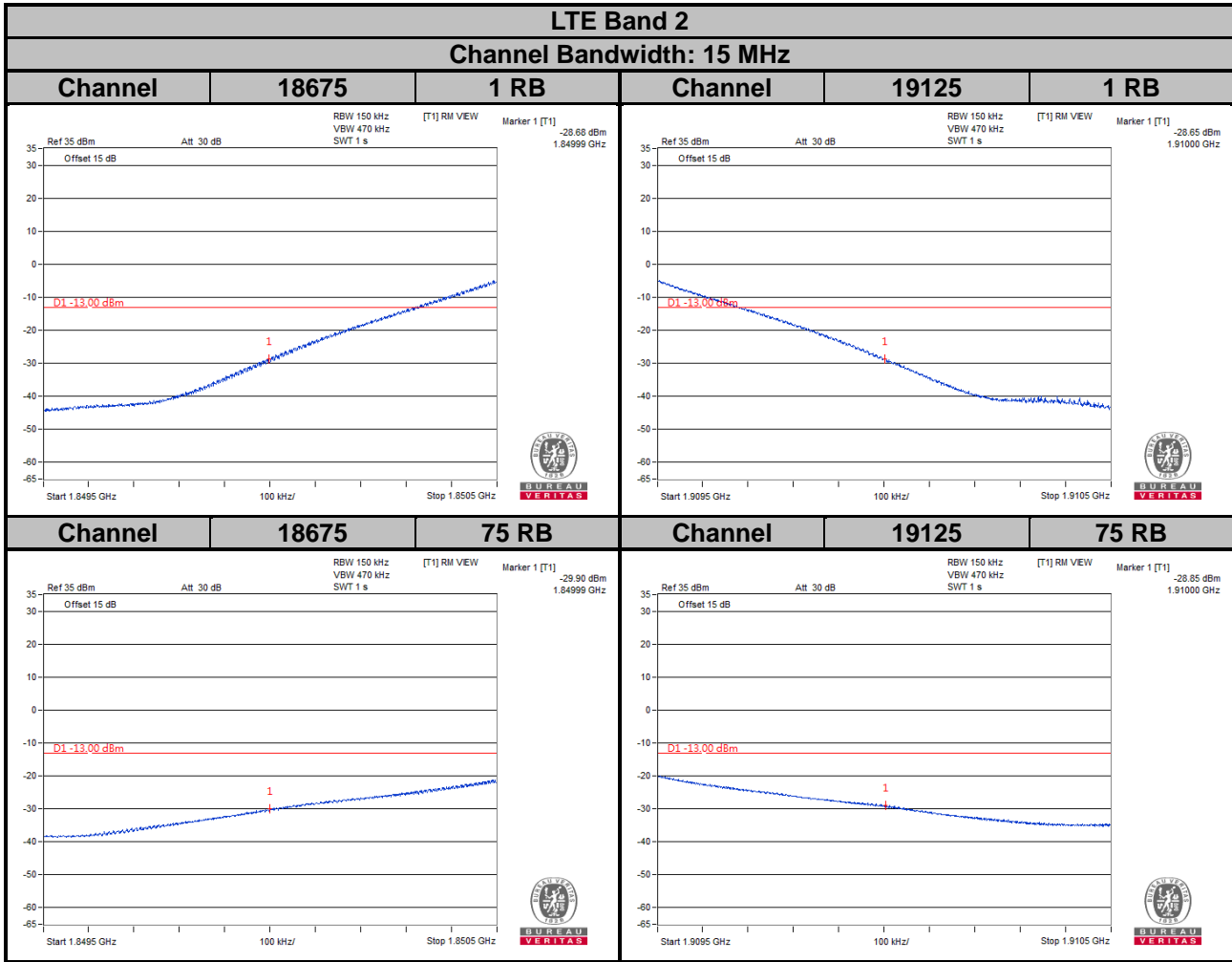


**LTE Band 2**  
**Channel Bandwidth: 5 MHz**



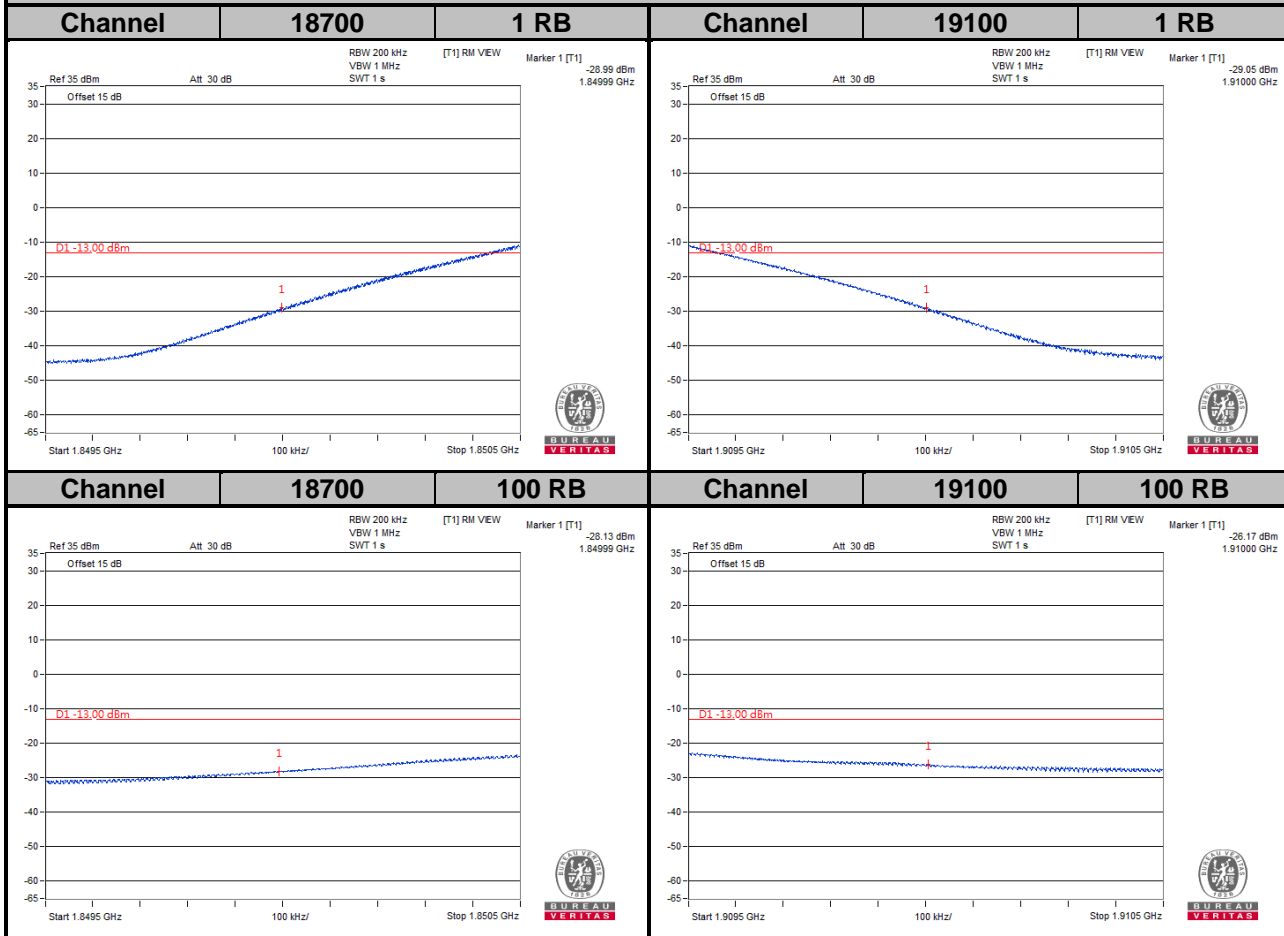




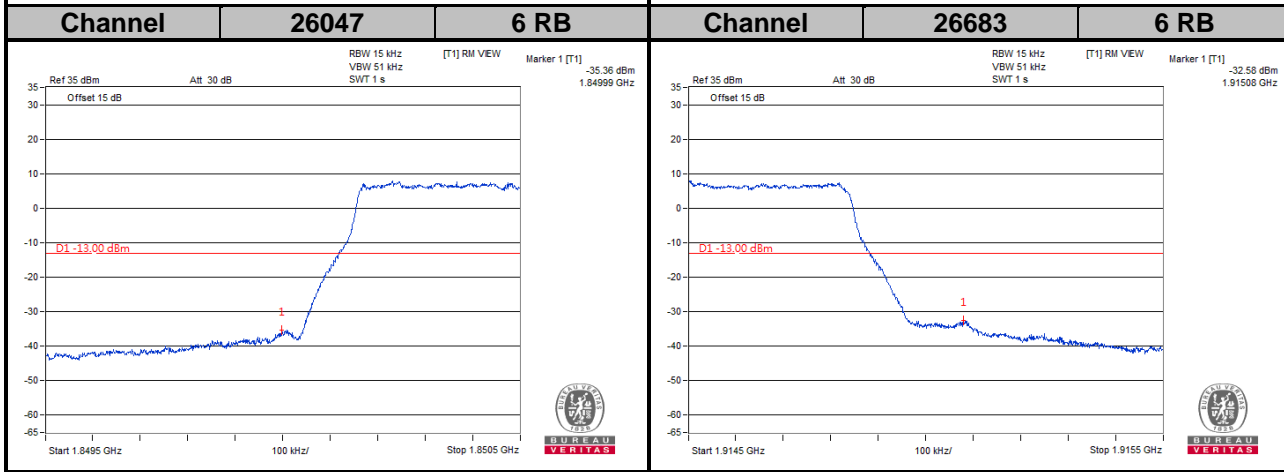
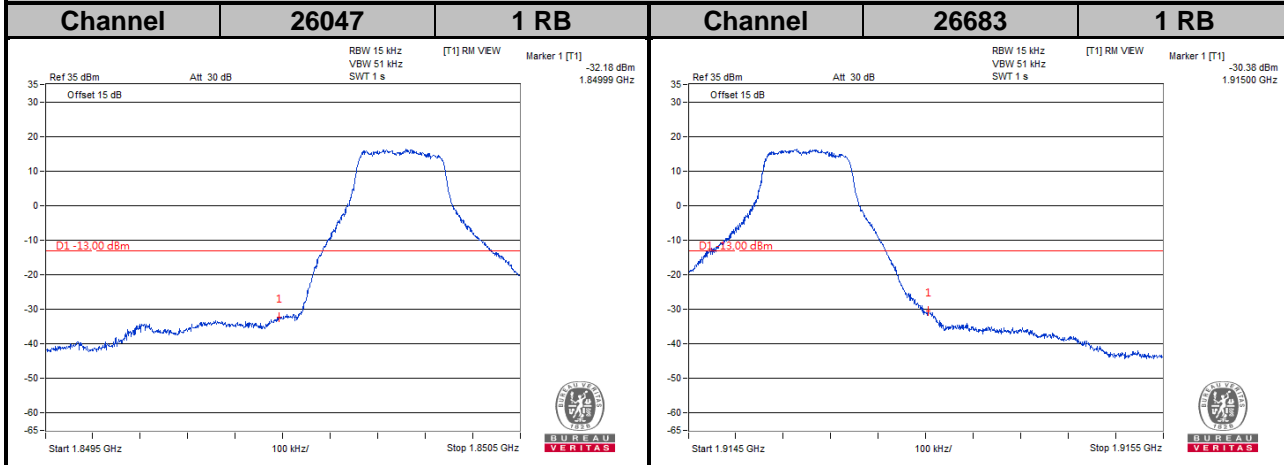


LTE Band 2

Channel Bandwidth: 20 MHz

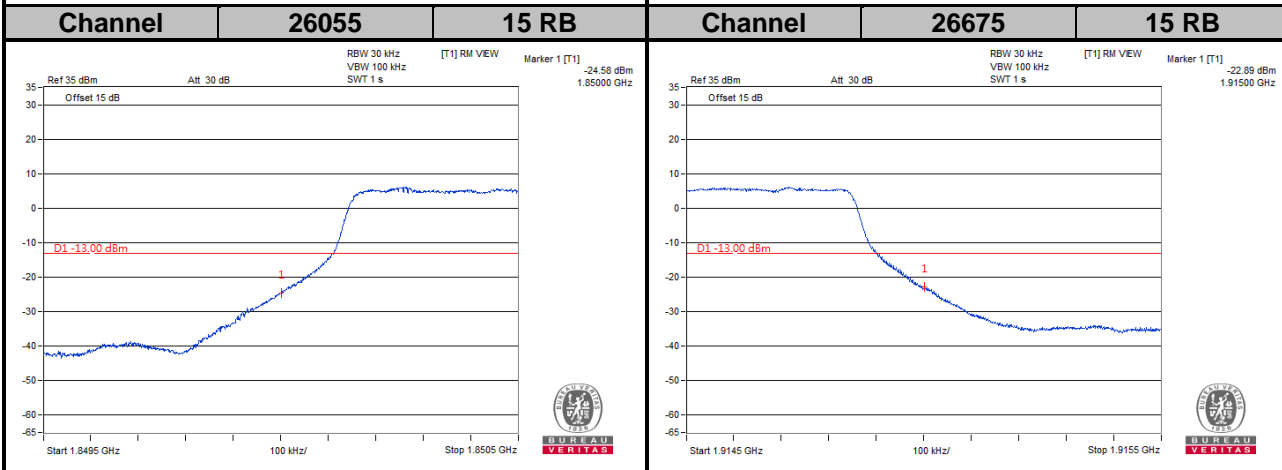
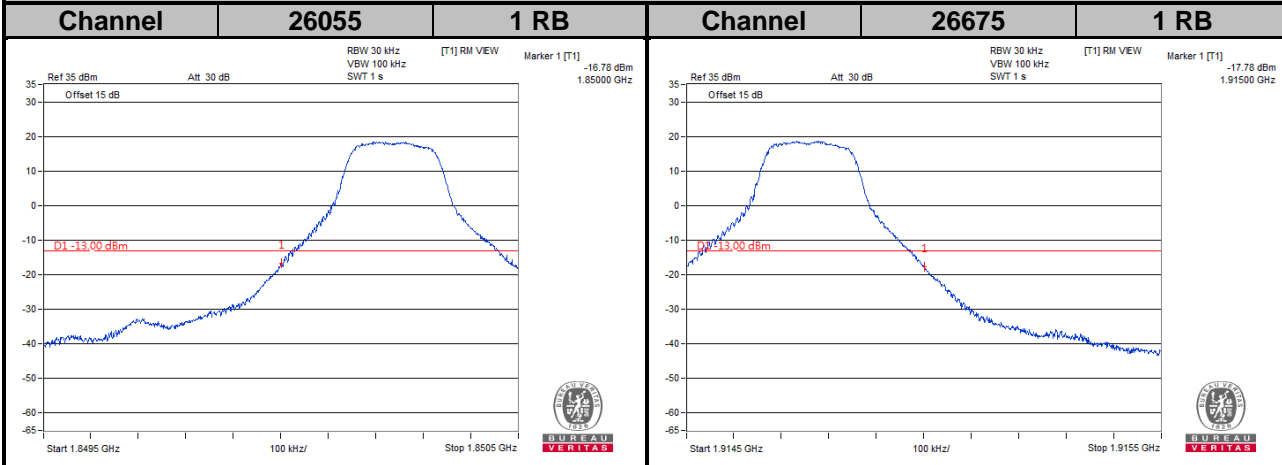


**LTE Band 25**  
**Channel Bandwidth: 1.4 MHz**

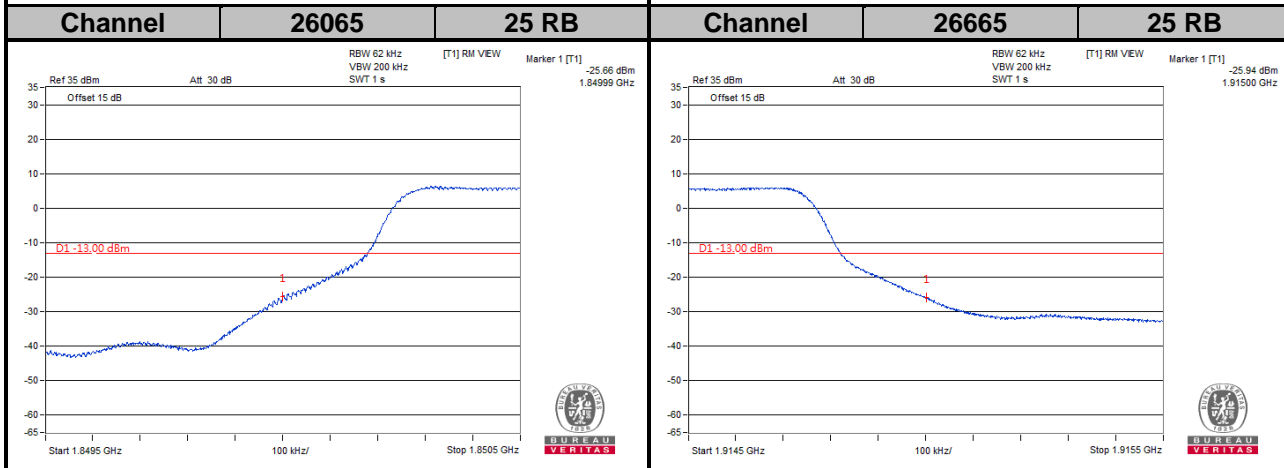
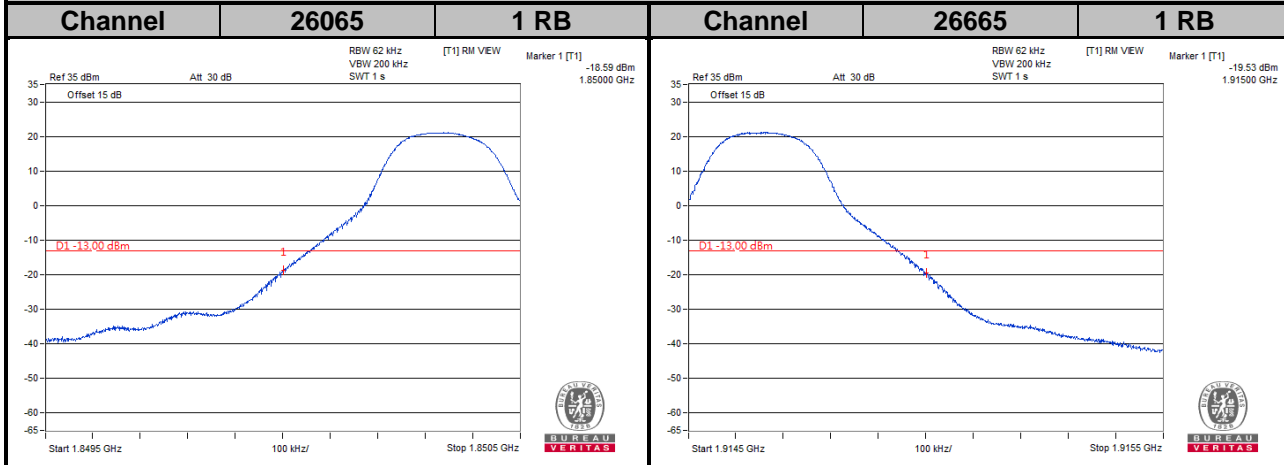


LTE Band 25

Channel Bandwidth: 3 MHz

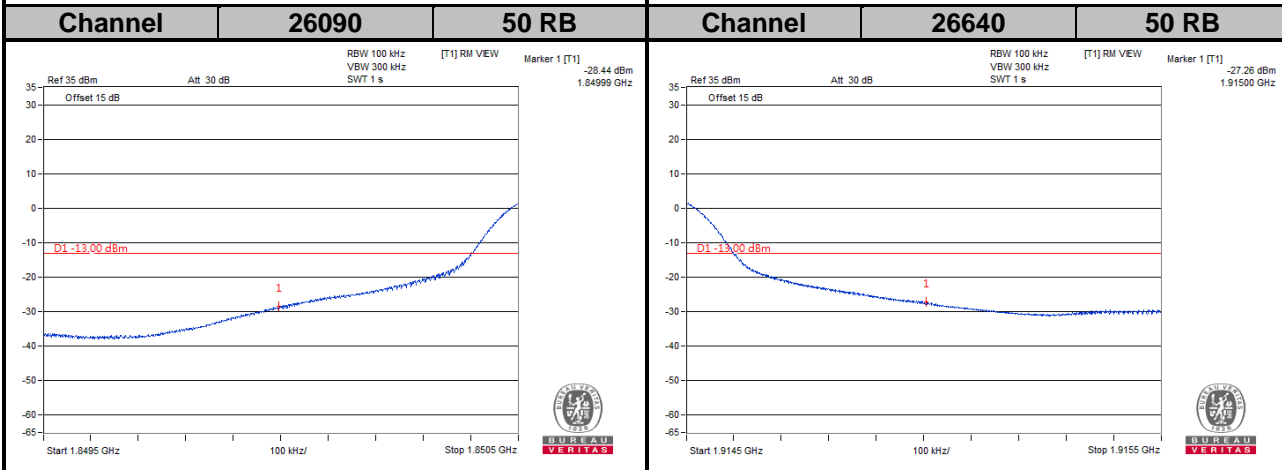
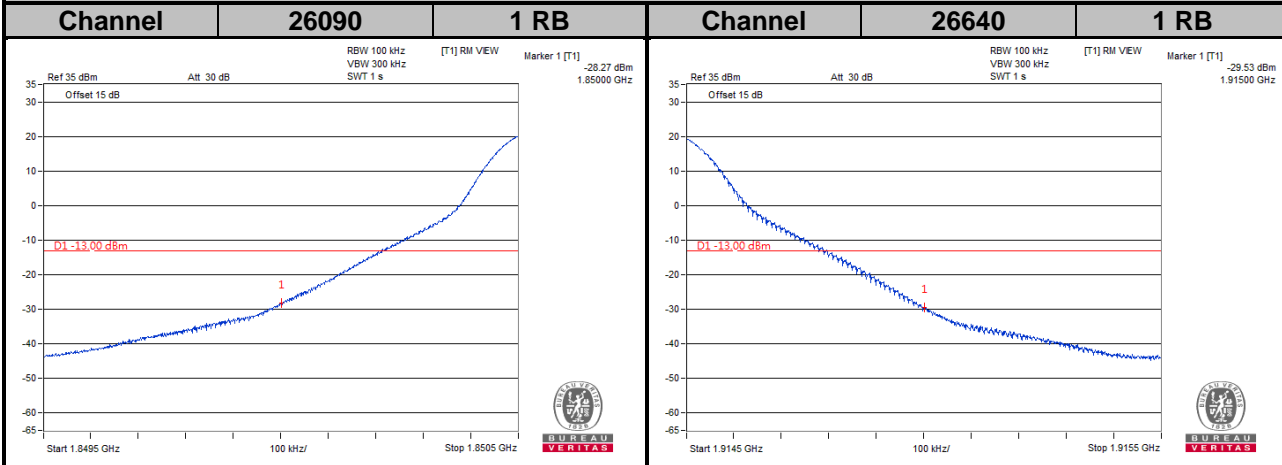


**LTE Band 25**  
**Channel Bandwidth: 5 MHz**



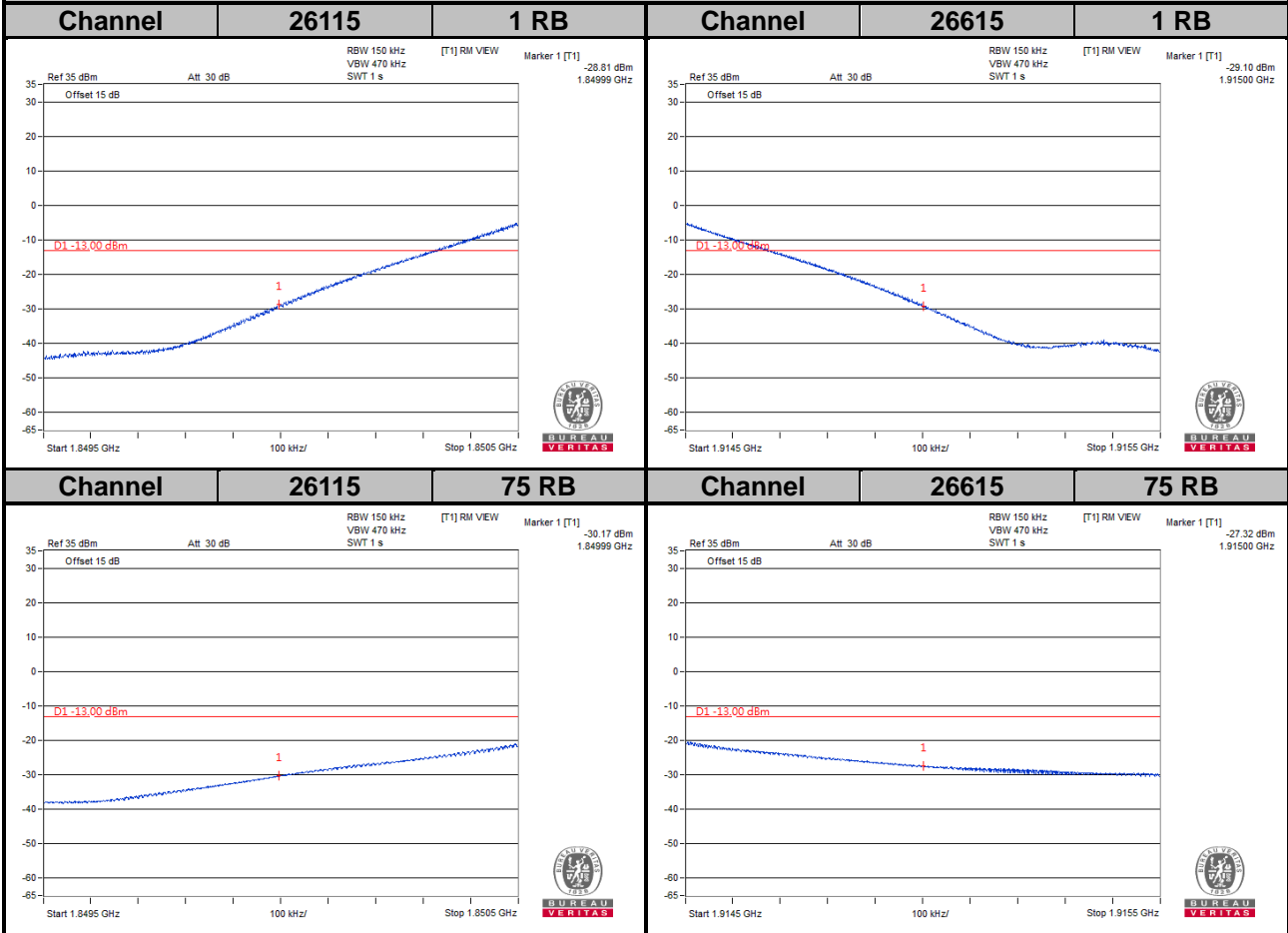
LTE Band 25

Channel Bandwidth: 10 MHz



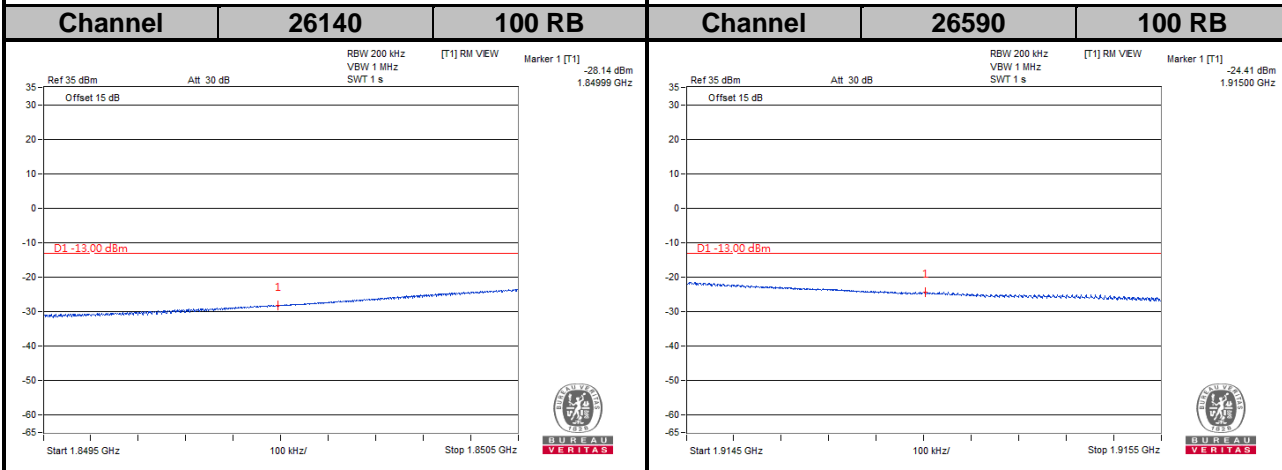
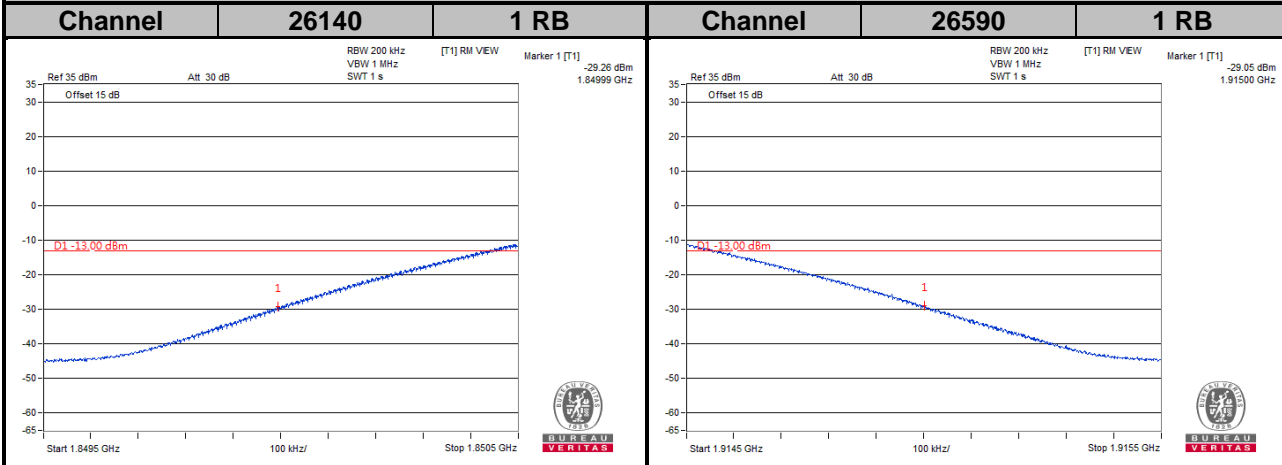
LTE Band 25

Channel Bandwidth: 15 MHz



LTE Band 25

Channel Bandwidth: 20 MHz



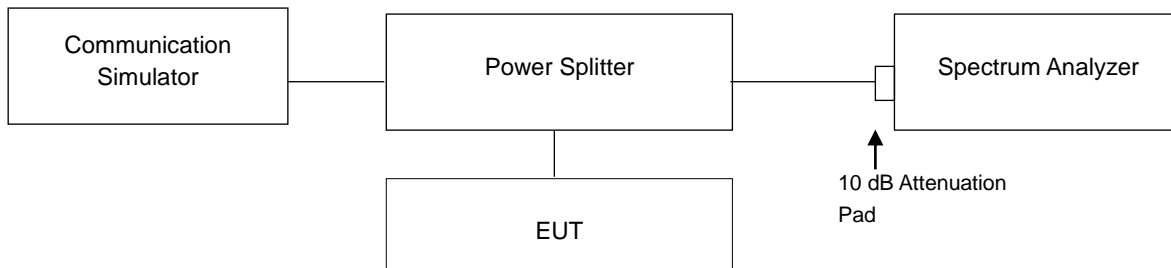


## 4.6 Peak to Average Ratio

### 4.6.1 Limits of Peak to Average Ratio Measurement

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

### 4.6.2 Test Setup

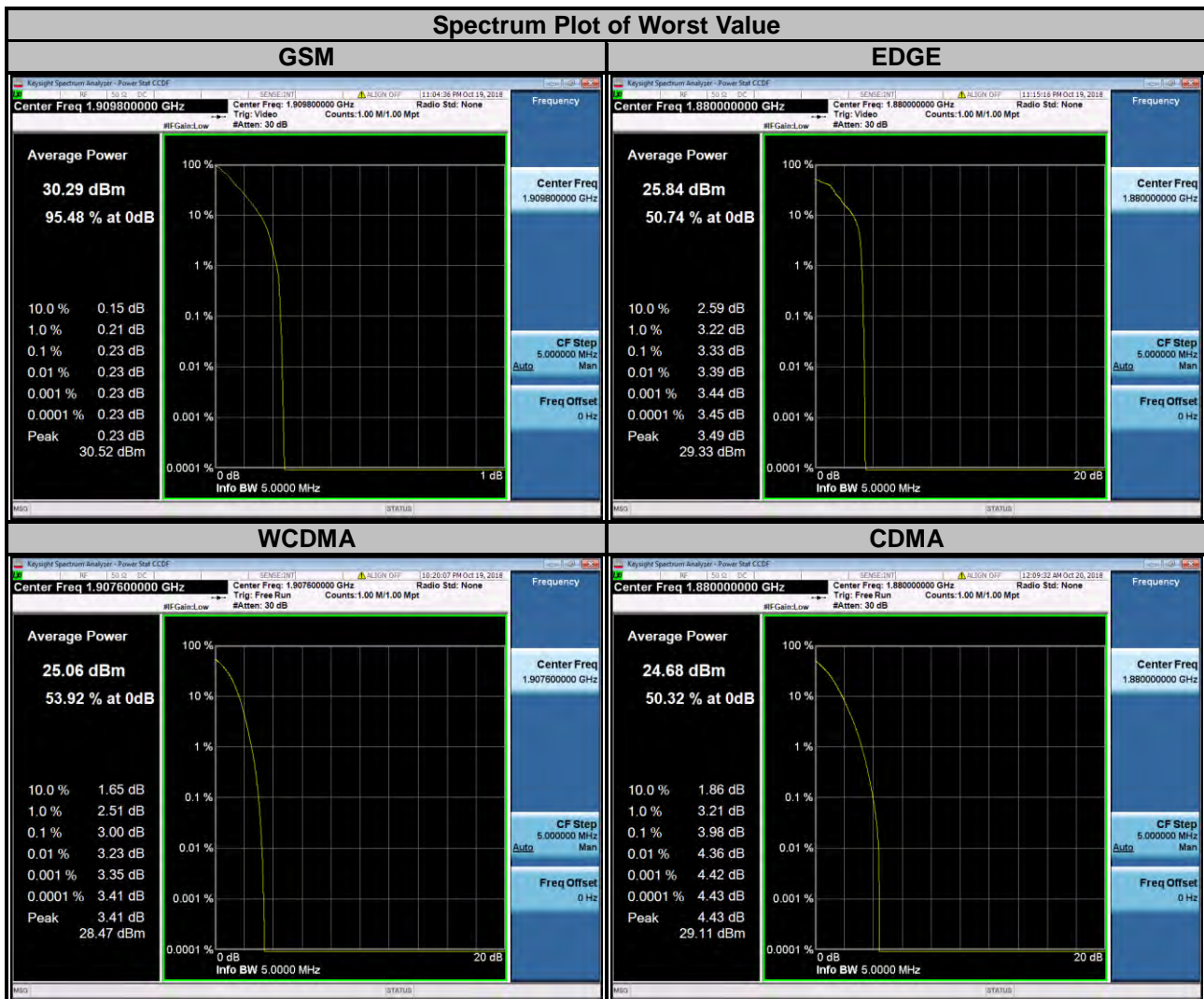


### 4.6.3 Test Procedures

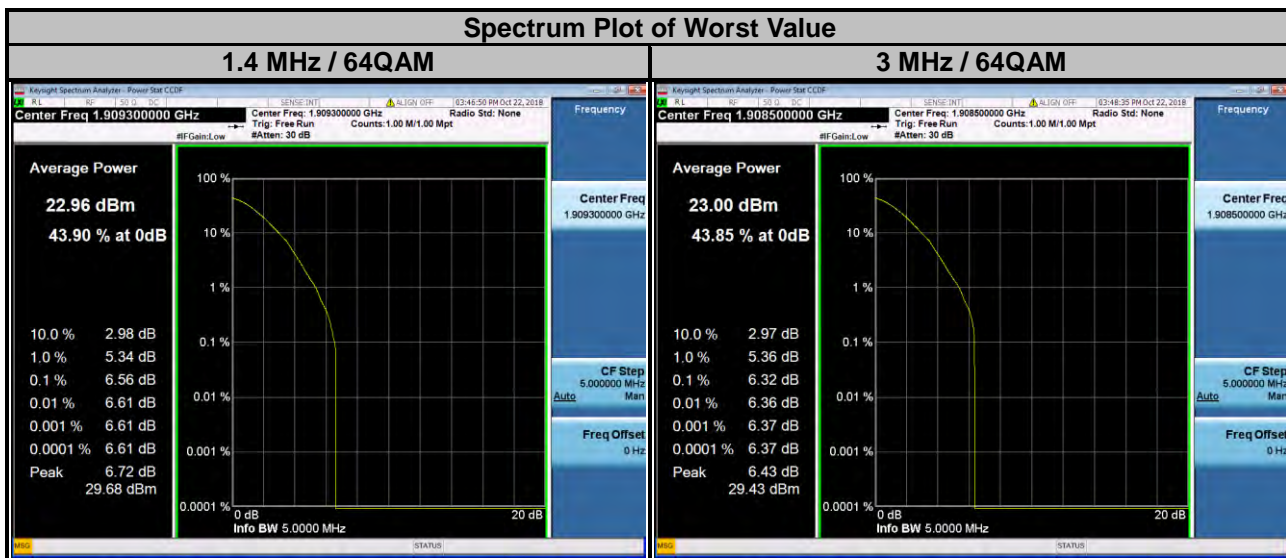
1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

#### 4.6.4 Test Results

Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)
		GSM	EDGE			
512	1850.2	0.20	3.25	9262	1852.4	2.98
661	1880.0	0.21	3.33	9400	1880.0	2.99
810	1909.8	0.23	3.27	9538	1907.6	3.00
Channel	Frequency (MHz)	Peak to Average Ratio (dB)				
		CDMA				
25	1851.25	3.92				
600	1880.00	3.98				
1175	1908.75	3.92				



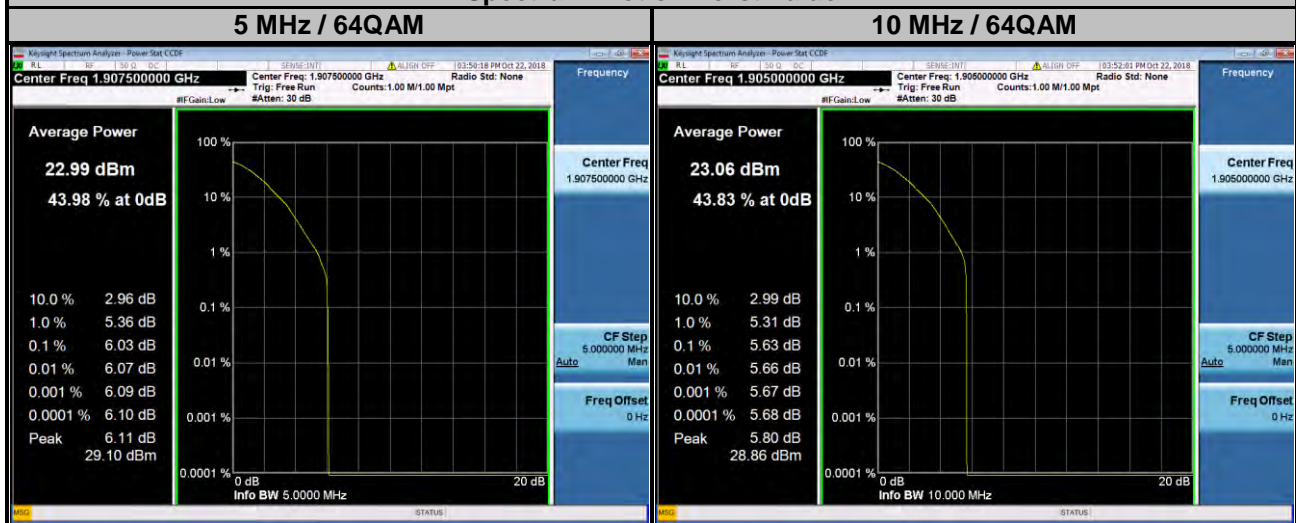
LTE Band 2									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
18607	1850.7	3.75	4.65	5.74	18615	1851.5	3.54	4.61	5.71
18900	1880.0	3.80	4.93	5.98	18900	1880.0	3.57	4.81	5.86
19193	1909.3	3.80	5.42	6.56	19185	1908.5	3.56	5.21	6.32



### 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	64QAM			QPSK	16QAM	64QAM
18625	1852.5	3.55	4.61	5.67	18650	1855.0	3.50	4.54	5.58
18900	1880.0	3.59	4.68	5.74	18900	1880.0	3.52	4.46	5.49
19175	1907.5	3.57	4.94	6.03	19150	1905.0	3.51	4.53	5.63

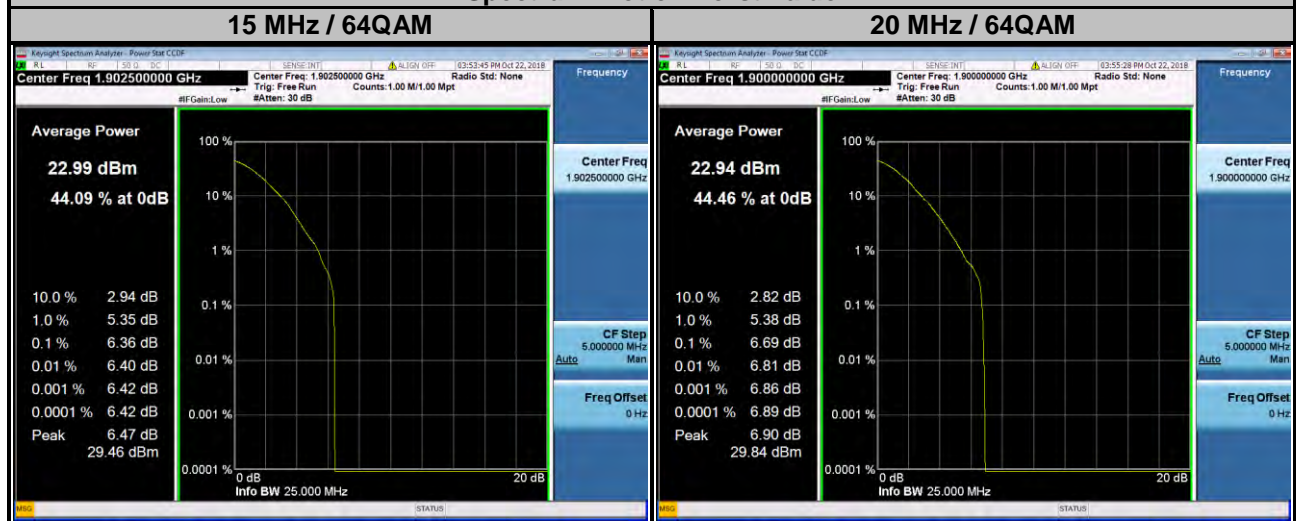
### Spectrum Plot of Worst Value



### 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	64QAM			QPSK	16QAM	64QAM
18675	1857.5	3.46	4.68	5.66	18700	1860.0	3.45	4.64	5.71
18900	1880.0	3.48	4.54	5.61	18900	1880.0	3.46	4.60	5.76
19125	1902.5	3.47	5.11	6.36	19100	1900.0	3.41	5.11	6.69

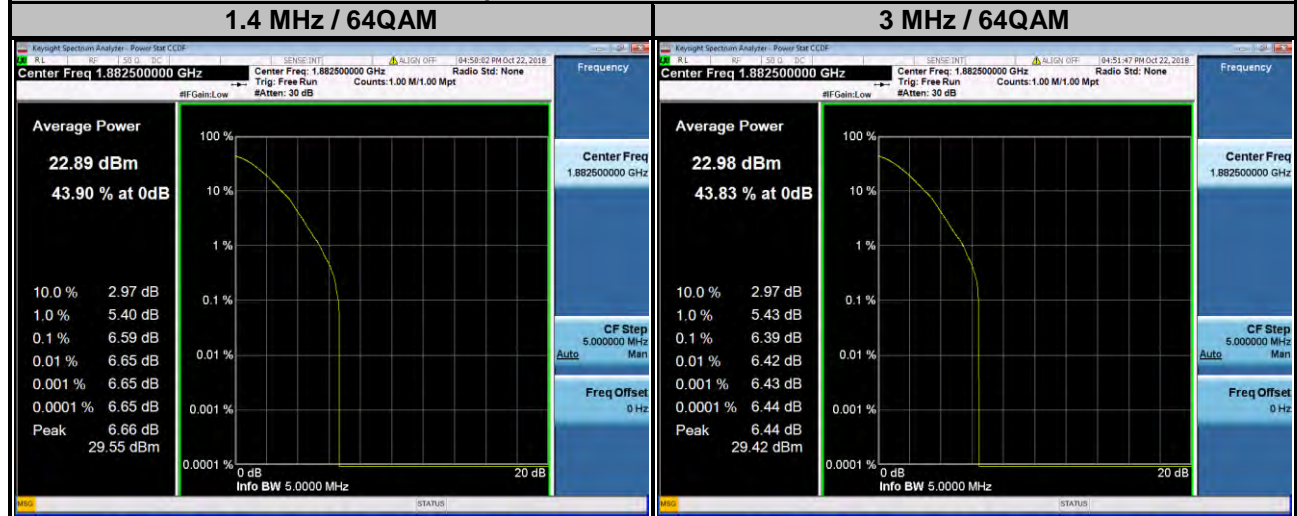
### Spectrum Plot of Worst Value



### 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	64QAM			QPSK	16QAM	64QAM
26047	1850.7	3.80	4.79	5.86	26055	1851.5	3.57	4.76	5.84
26365	1882.5	3.83	5.40	6.59	26365	1882.5	3.57	5.28	6.39
26683	1914.3	3.74	4.61	5.77	26675	1913.5	3.55	4.95	6.22

### Spectrum Plot of Worst Value

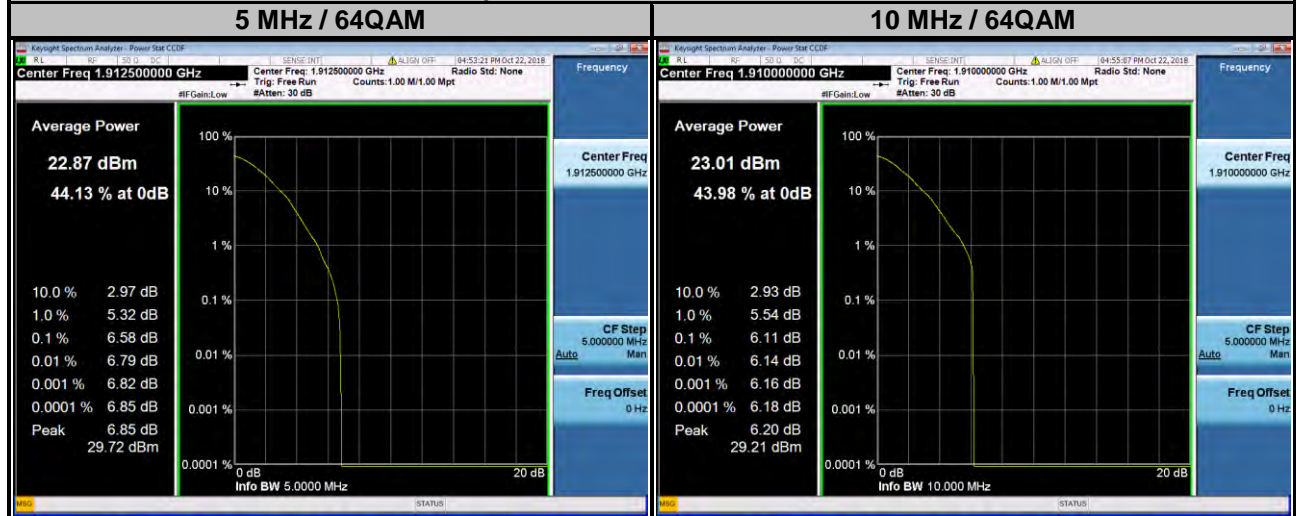




### LTE Band 25

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	64QAM			QPSK	16QAM	64QAM
26065	1852.5	3.58	4.68	5.88	26090	1855.0	3.51	4.71	5.74
26365	1882.5	3.58	5.13	6.18	26365	1882.5	3.52	4.73	5.79
26665	1912.5	3.54	5.23	6.58	26640	1910.0	3.51	4.97	6.11

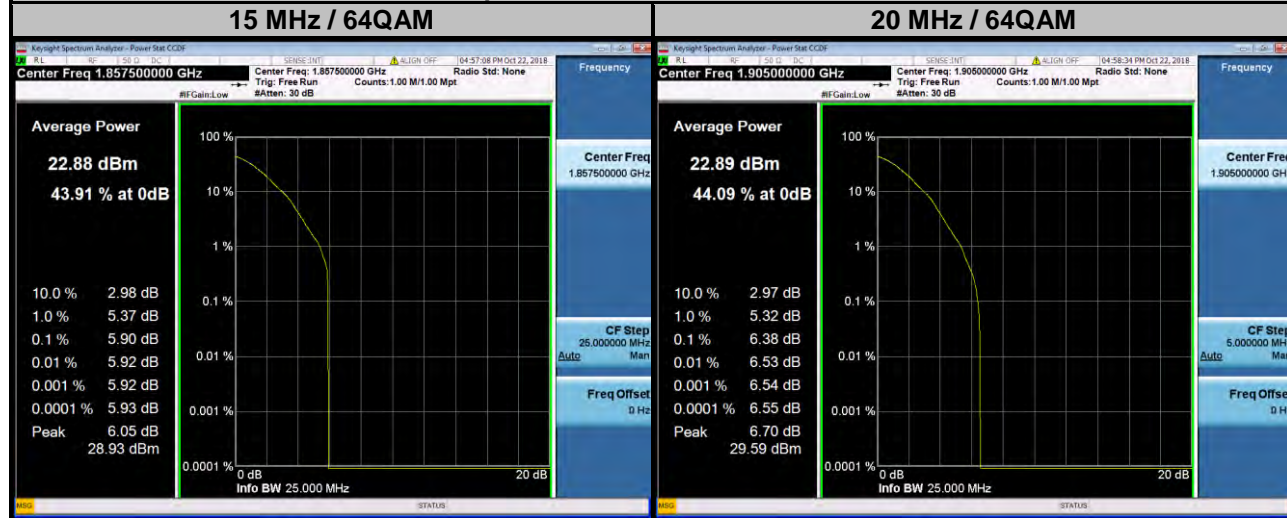
### Spectrum Plot of Worst Value



### 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	64QAM			QPSK	16QAM	64QAM
26115	1857.5	3.46	4.86	5.90	26140	1860.0	3.47	4.87	5.95
26365	1882.5	3.48	4.78	5.86	26365	1882.5	3.46	4.66	5.79
26615	1907.5	3.47	4.66	5.70	26590	1905.0	3.45	5.12	6.38

### Spectrum Plot of Worst Value



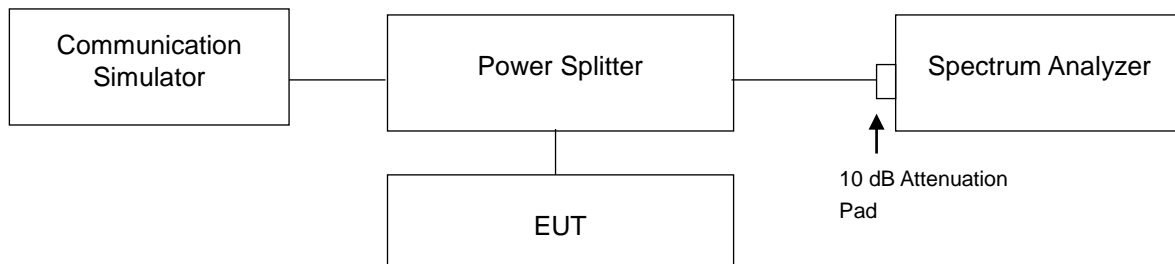


## 4.7 Conducted Spurious Emissions

### 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.

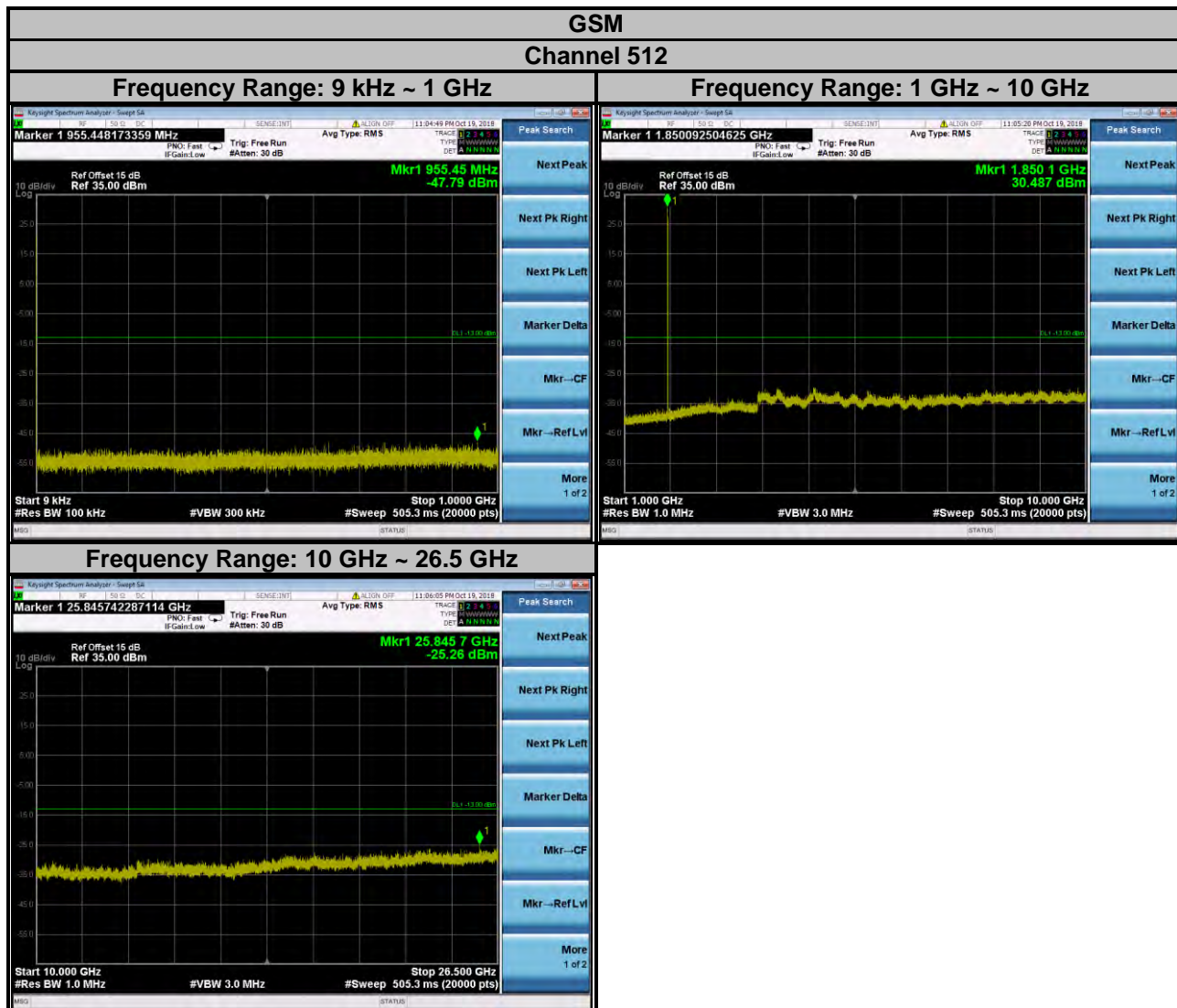
### 4.7.2 Test Setup



### 4.7.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz is used for conducted emission measurement.
- Measuring frequency range is from 1 GHz to 26.5 GHz / 27 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

#### 4.7.4 Test Results

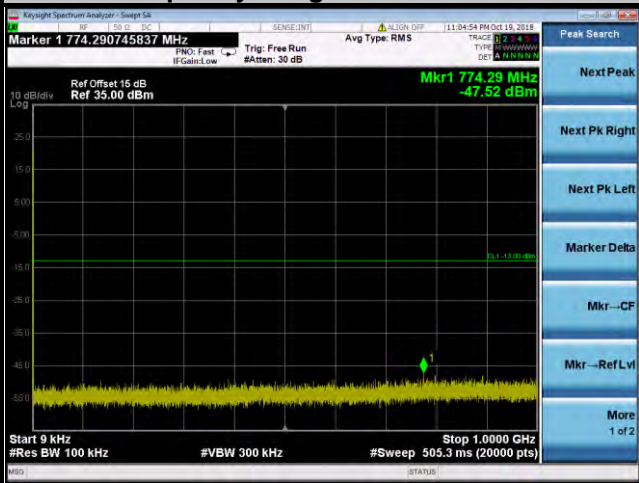


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

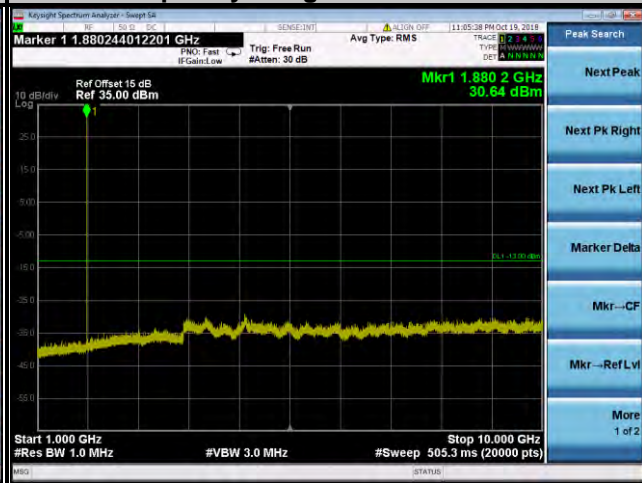
GSM

Channel 661

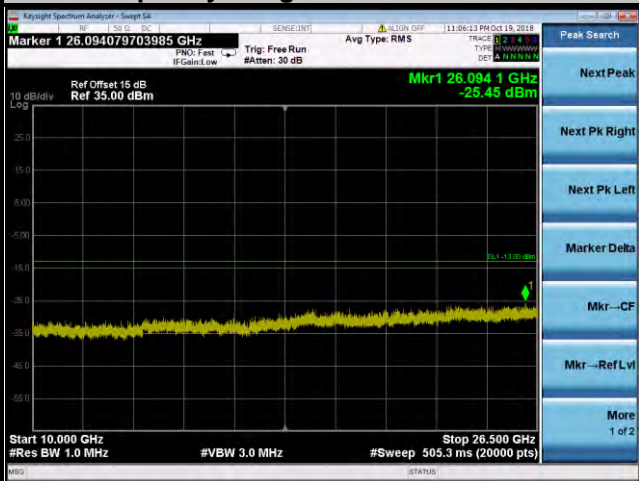
Frequency Range: 9 kHz ~ 1 GHz



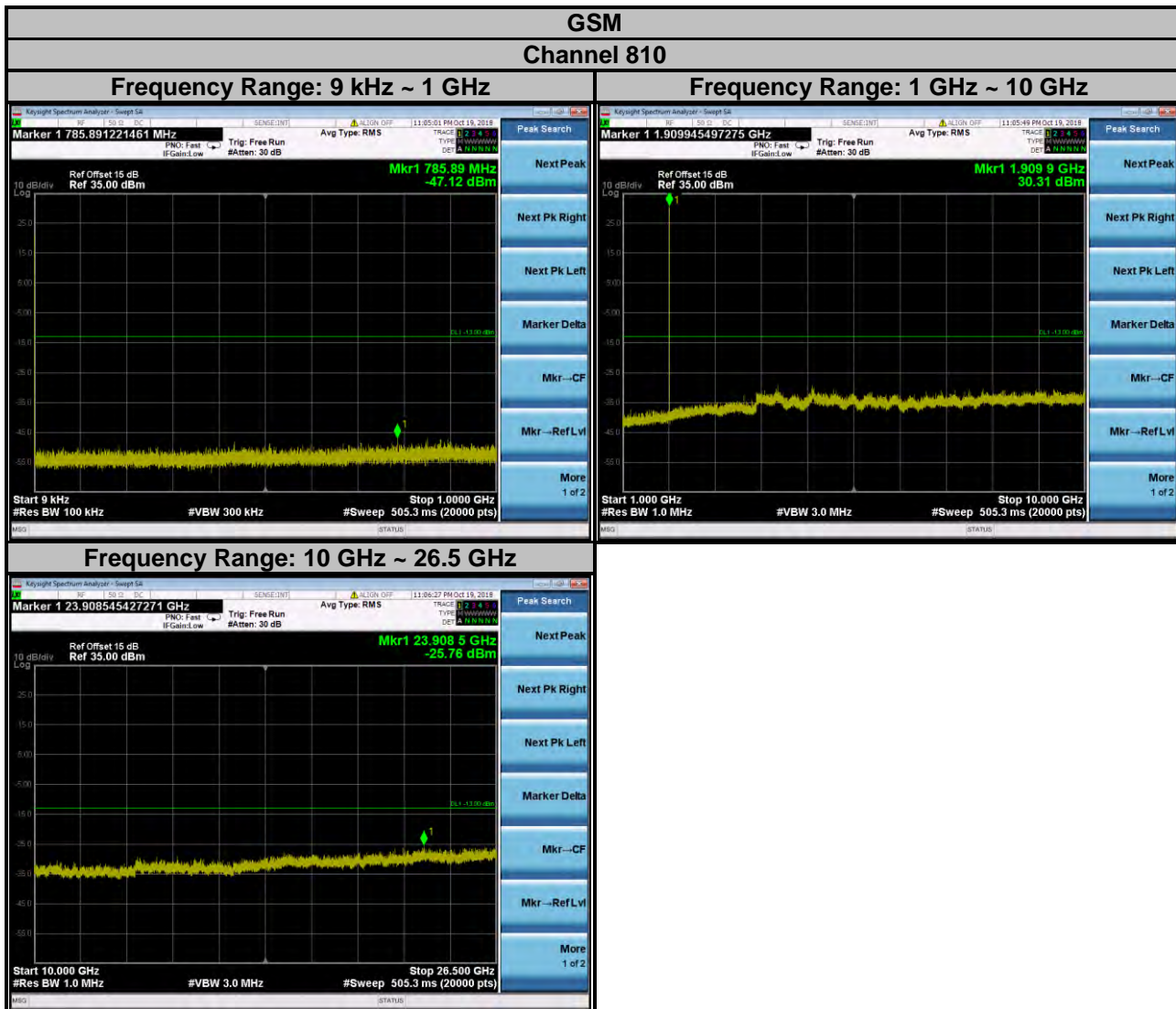
Frequency Range: 1 GHz ~ 10 GHz



Frequency Range: 10 GHz ~ 26.5 GHz



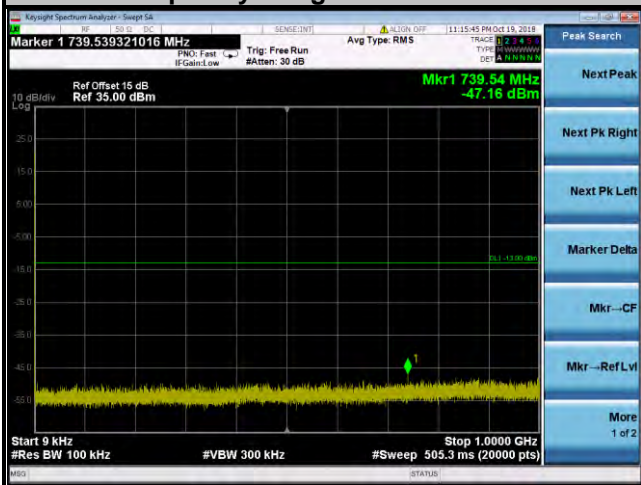
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



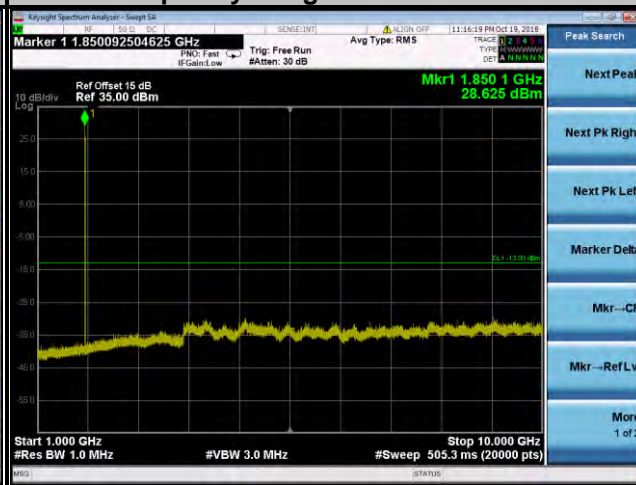
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

## EDGE Channel 512

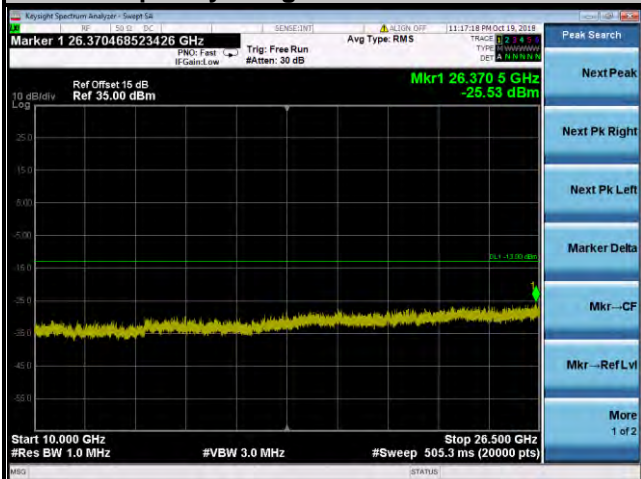
**Frequency Range: 9 kHz ~ 1 GHz**



**Frequency Range: 1 GHz ~ 10 GHz**



**Frequency Range: 10 GHz ~ 26.5 GHz**



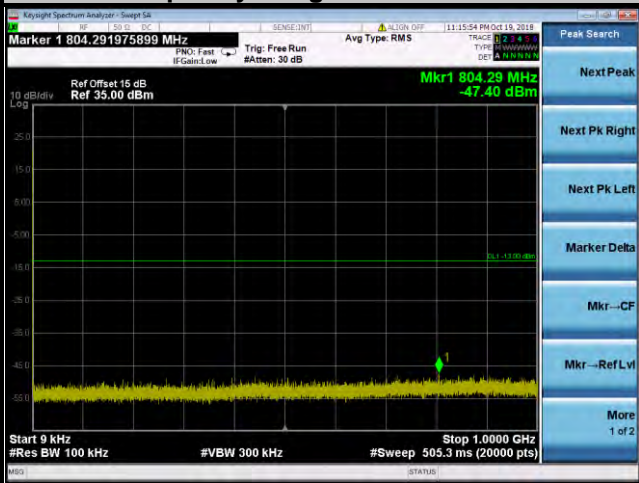
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



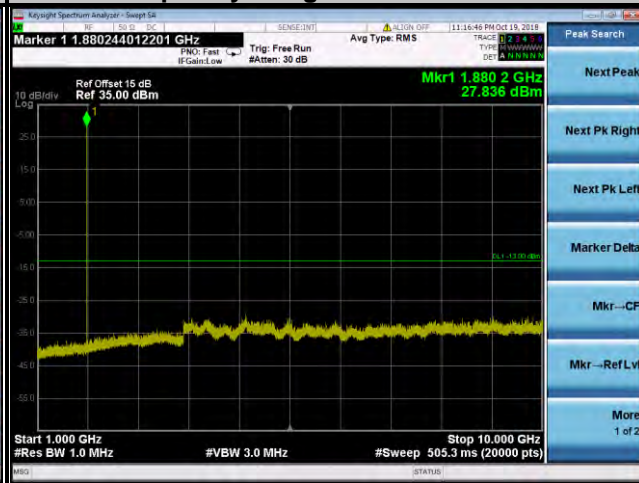
### EDGE

#### Channel 661

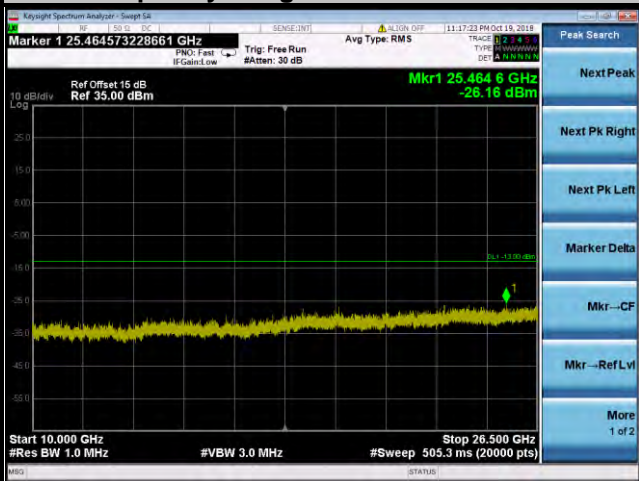
#### Frequency Range: 9 kHz ~ 1 GHz



#### Frequency Range: 1 GHz ~ 10 GHz



#### Frequency Range: 10 GHz ~ 26.5 GHz

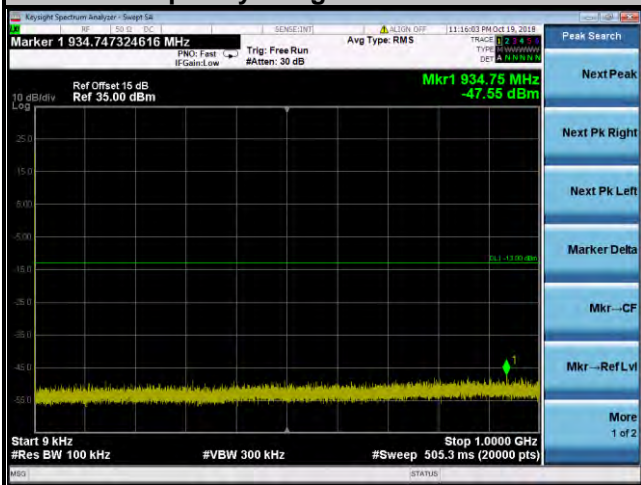


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

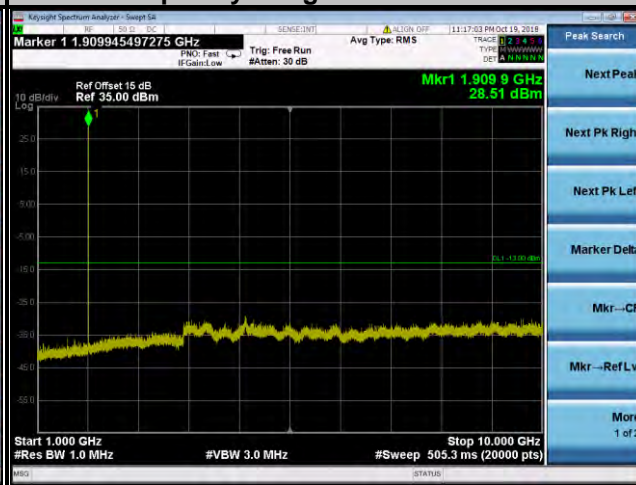
### EDGE

#### Channel 810

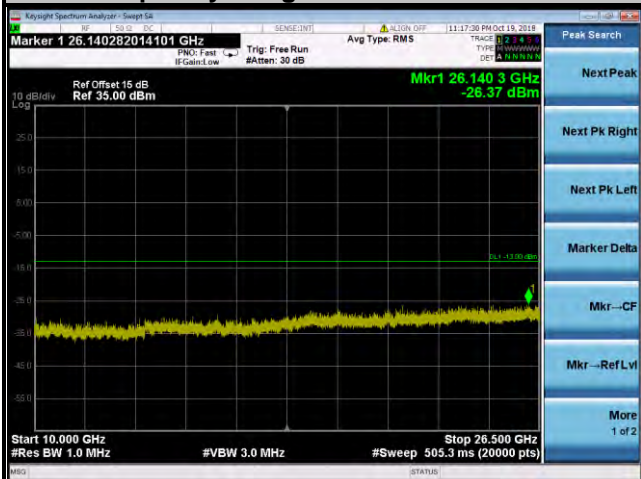
#### Frequency Range: 9 kHz ~ 1 GHz



#### Frequency Range: 1 GHz ~ 10 GHz



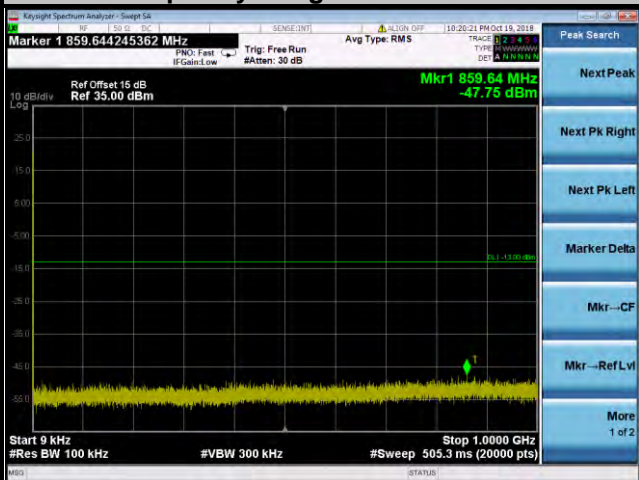
#### Frequency Range: 10 GHz ~ 26.5 GHz



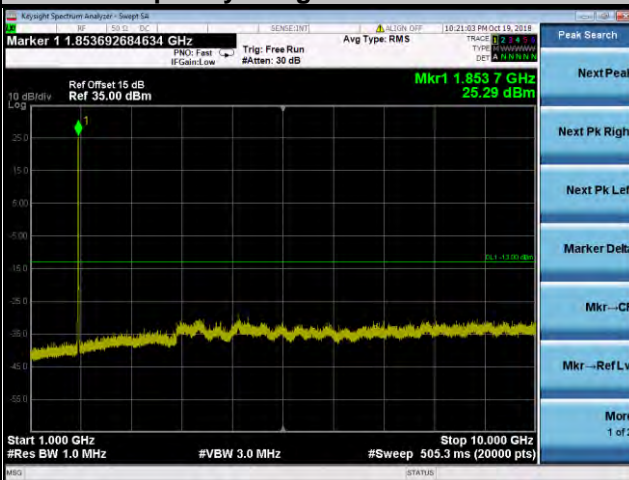
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

## WCDMA Channel 9262

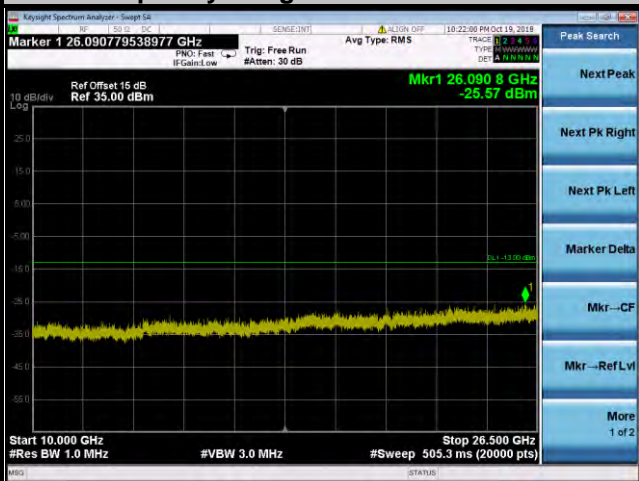
**Frequency Range: 9 kHz ~ 1 GHz**



**Frequency Range: 1 GHz ~ 10 GHz**



**Frequency Range: 10 GHz ~ 26.5 GHz**

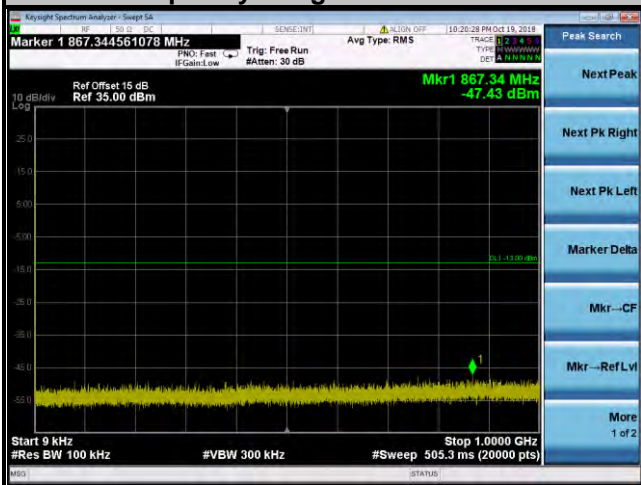


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

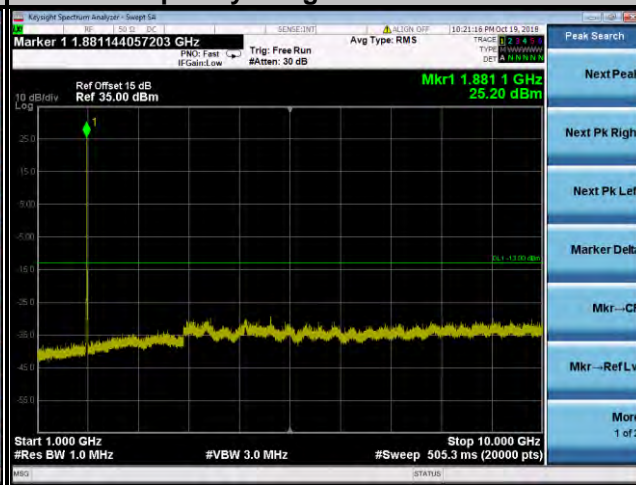


### WCDMA Channel 9400

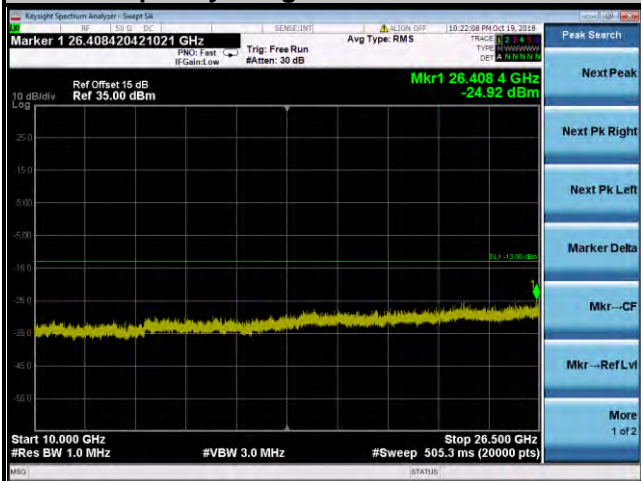
**Frequency Range: 9 kHz ~ 1 GHz**



**Frequency Range: 1 GHz ~ 10 GHz**



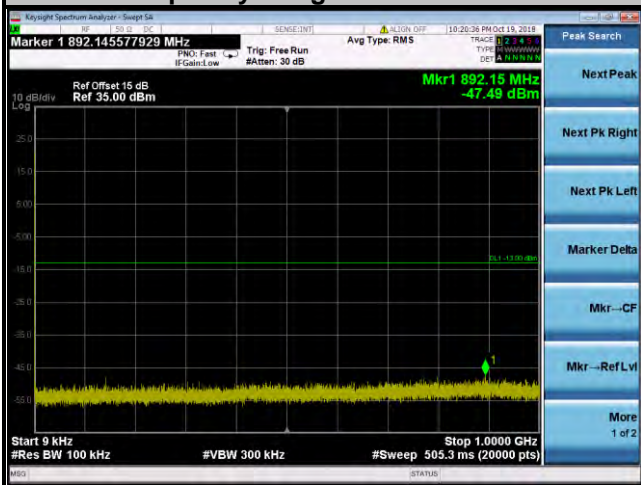
**Frequency Range: 10 GHz ~ 26.5 GHz**



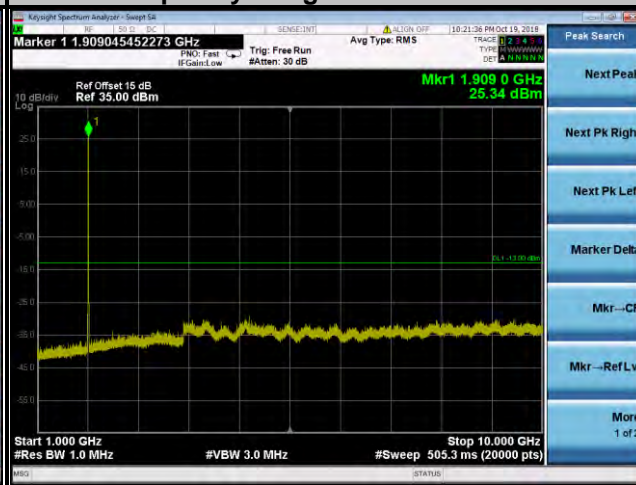
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

### WCDMA Channel 9538

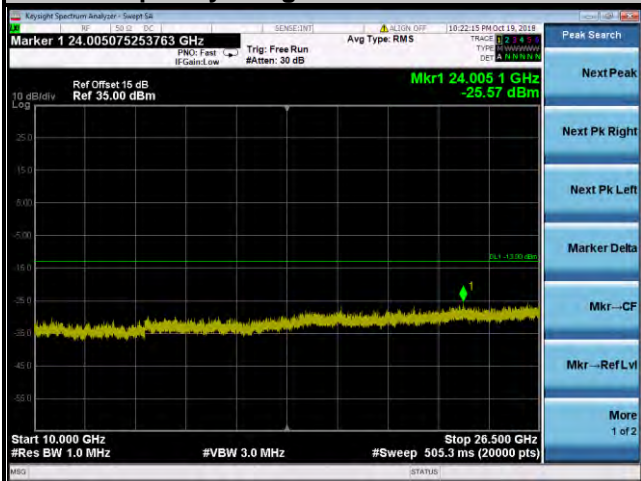
**Frequency Range: 9 kHz ~ 1 GHz**



**Frequency Range: 1 GHz ~ 10 GHz**

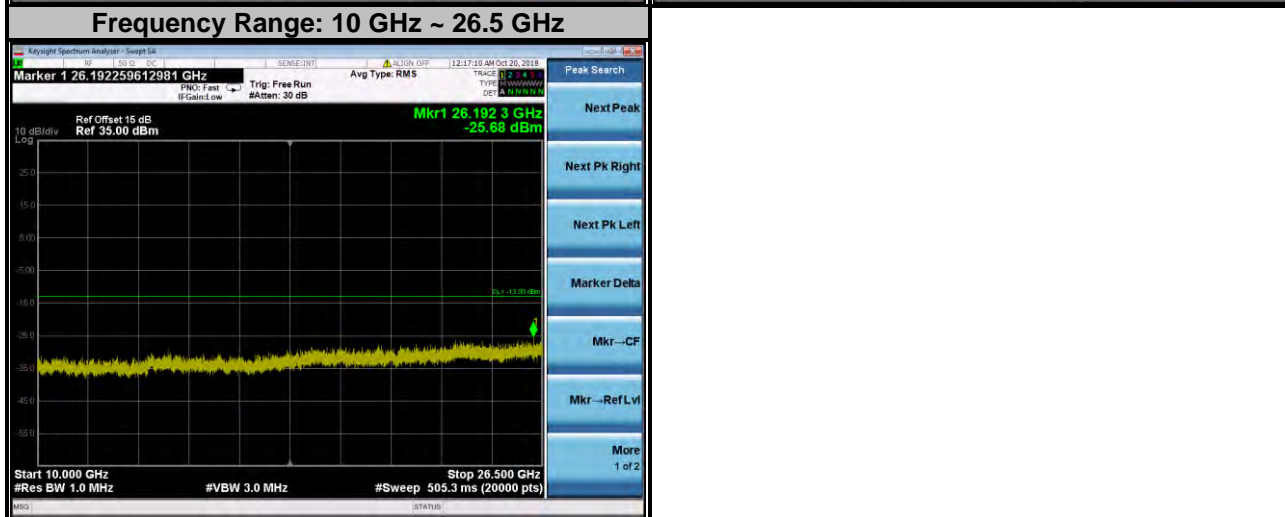
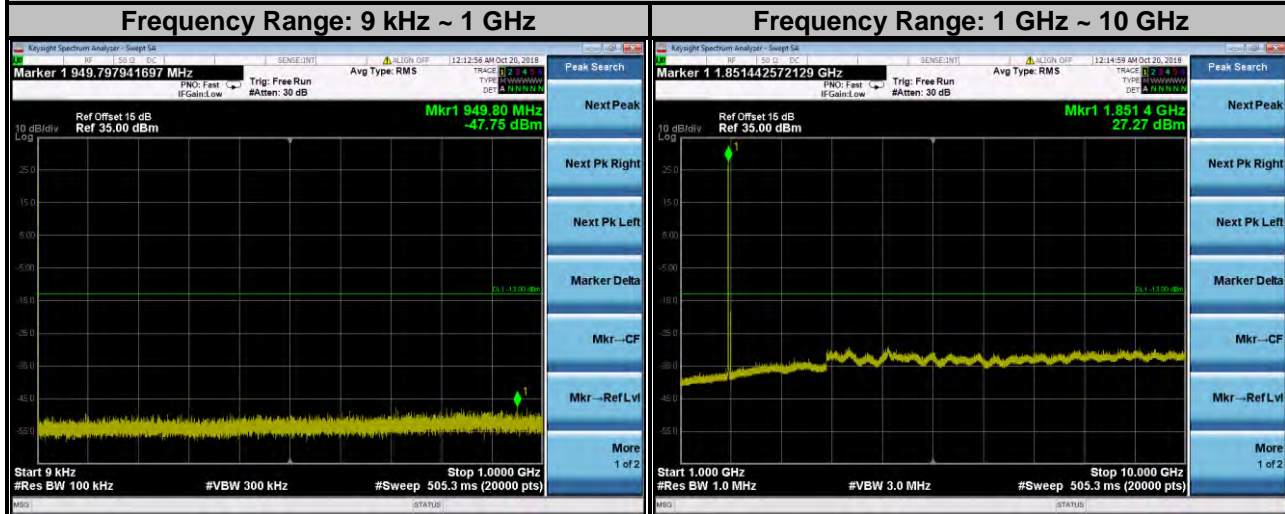


**Frequency Range: 10 GHz ~ 26.5 GHz**



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

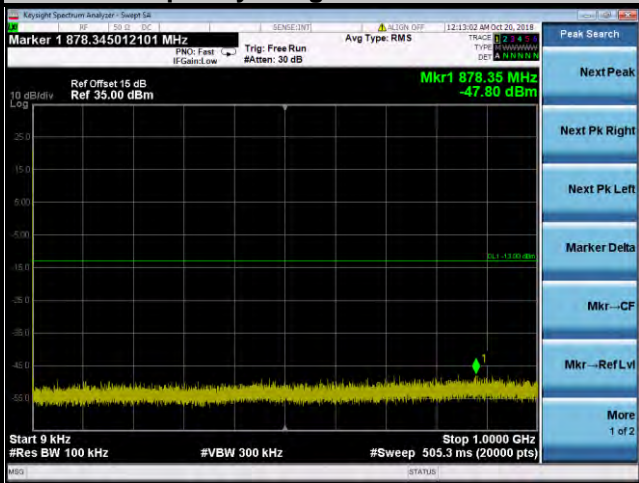
**CDMA  
Channel 25**



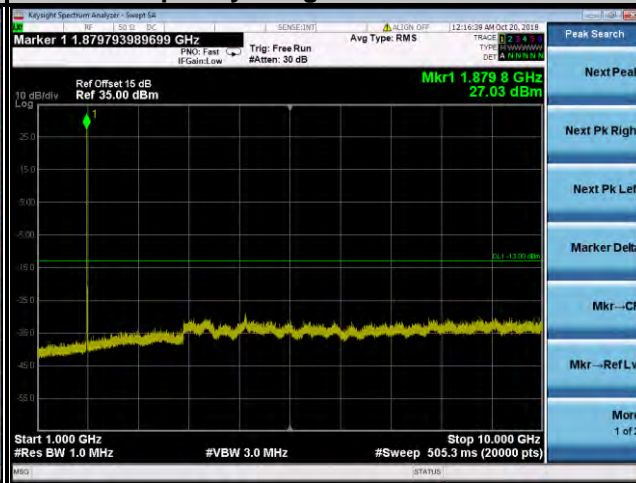
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

**CDMA  
Channel 600**

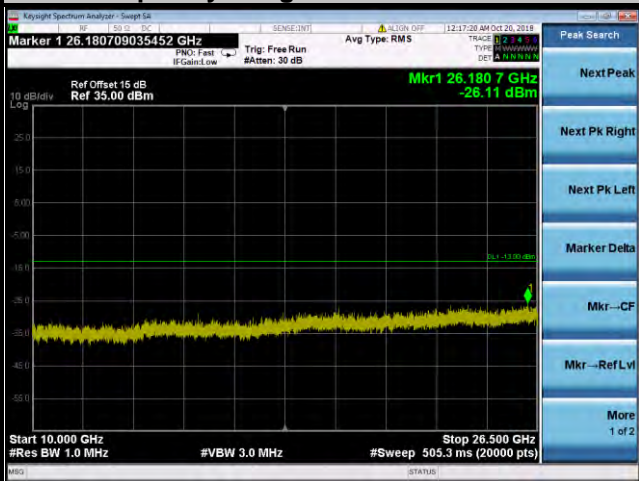
**Frequency Range: 9 kHz ~ 1 GHz**



**Frequency Range: 1 GHz ~ 10 GHz**



**Frequency Range: 10 GHz ~ 26.5 GHz**

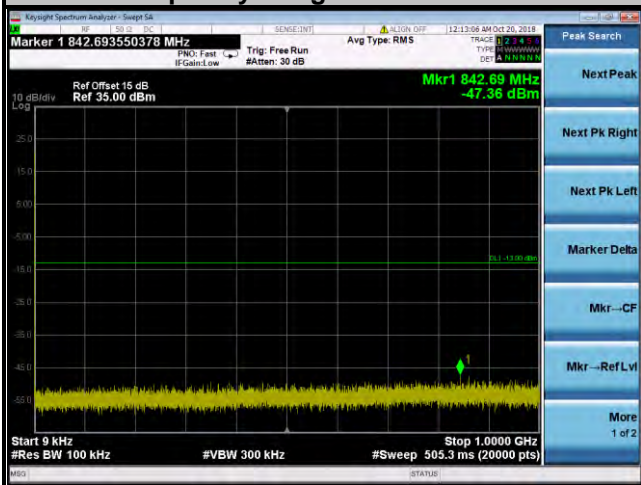


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

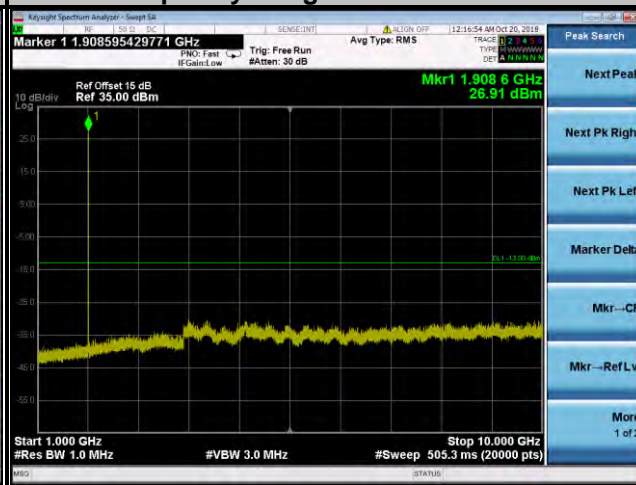


**CDMA  
Channel 1175**

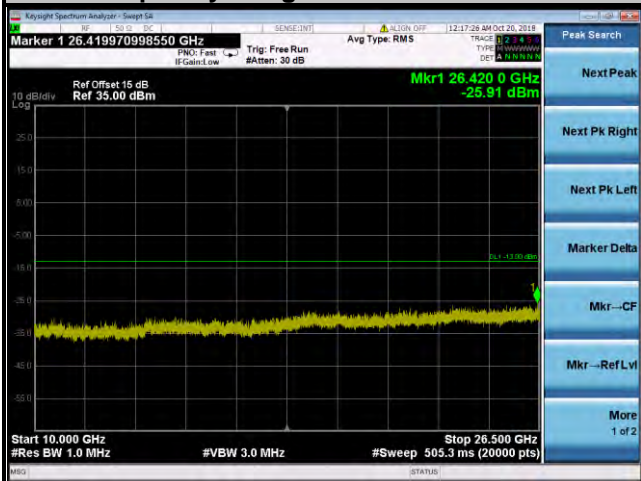
**Frequency Range: 9 kHz ~ 1 GHz**



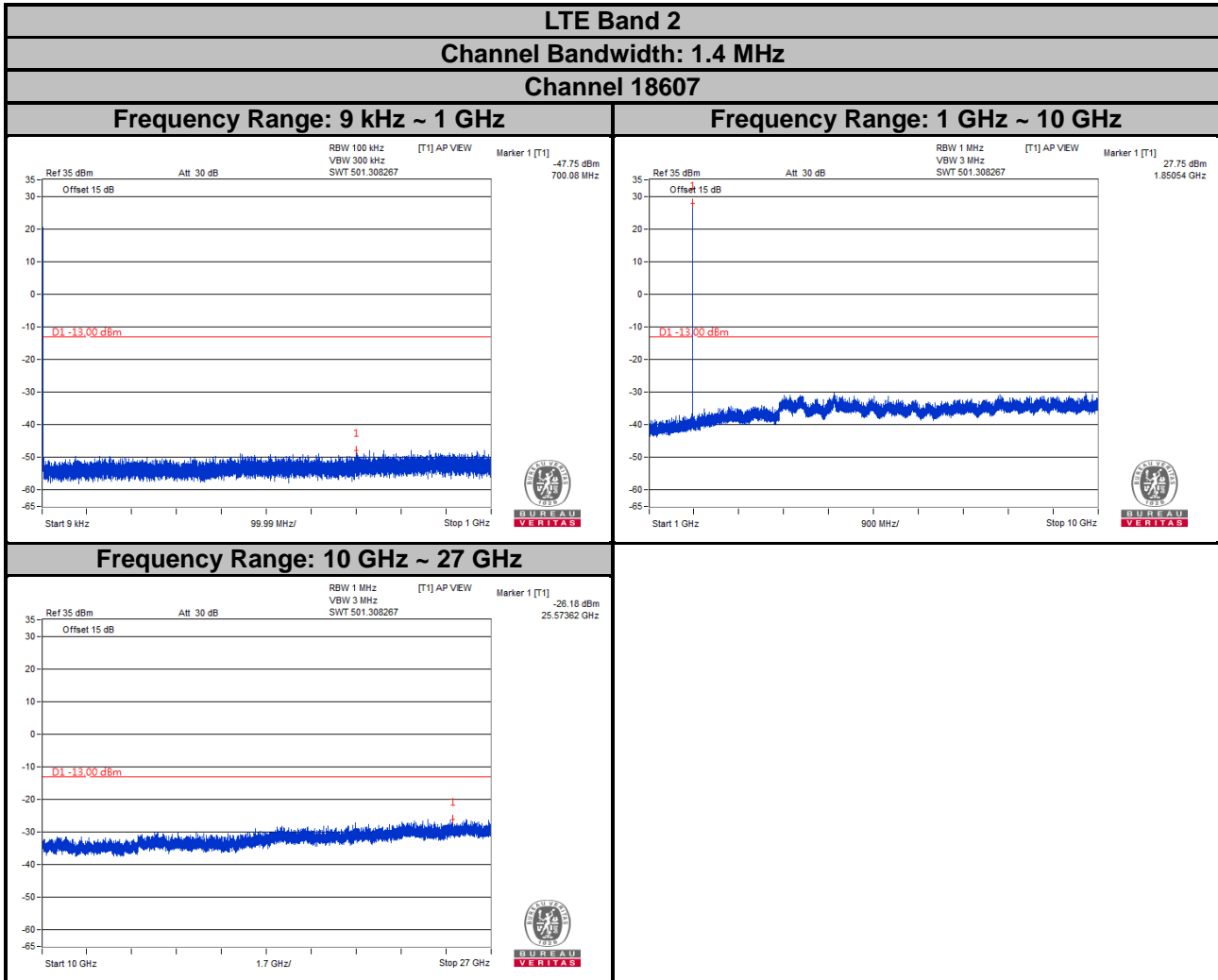
**Frequency Range: 1 GHz ~ 10 GHz**



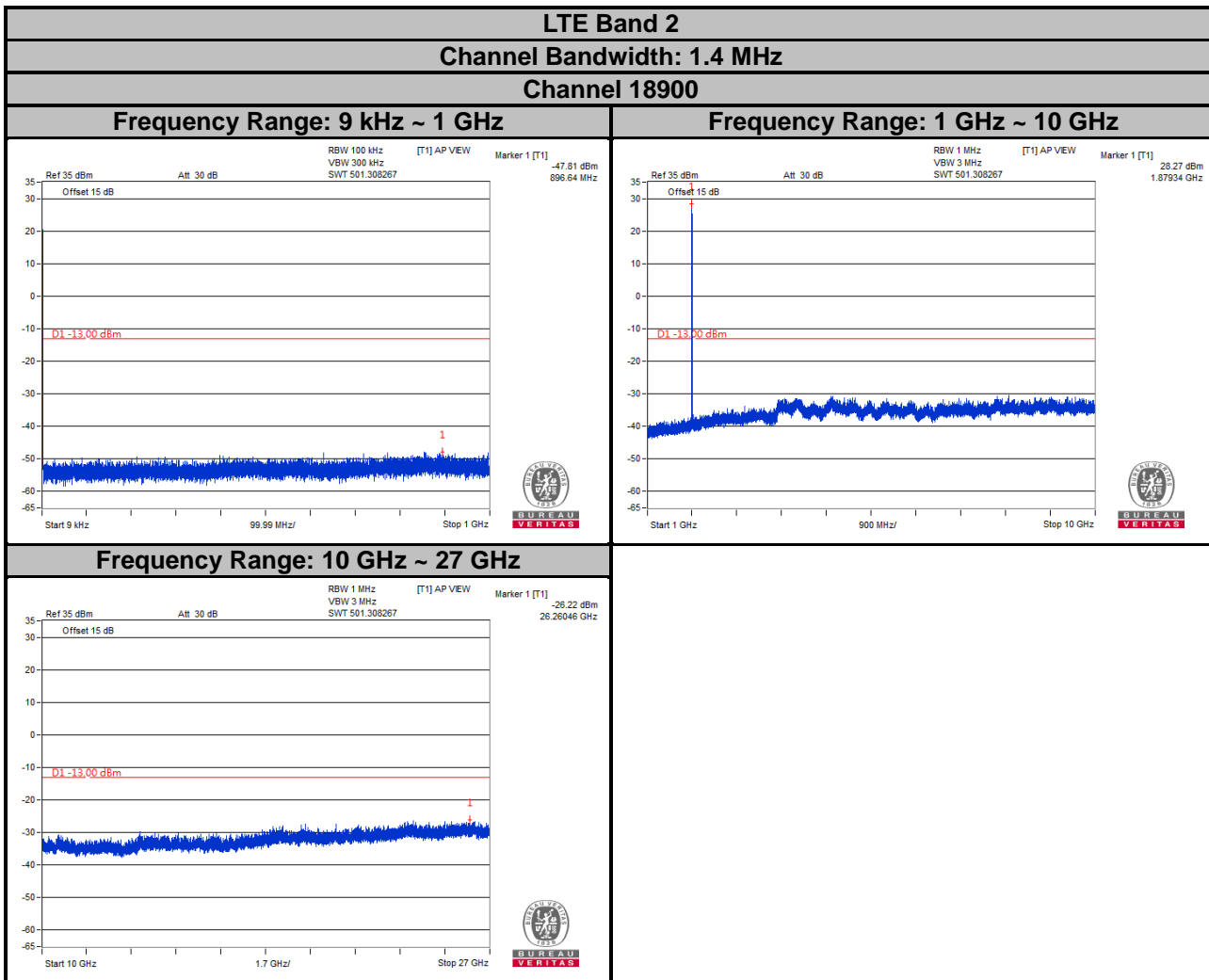
**Frequency Range: 10 GHz ~ 26.5 GHz**



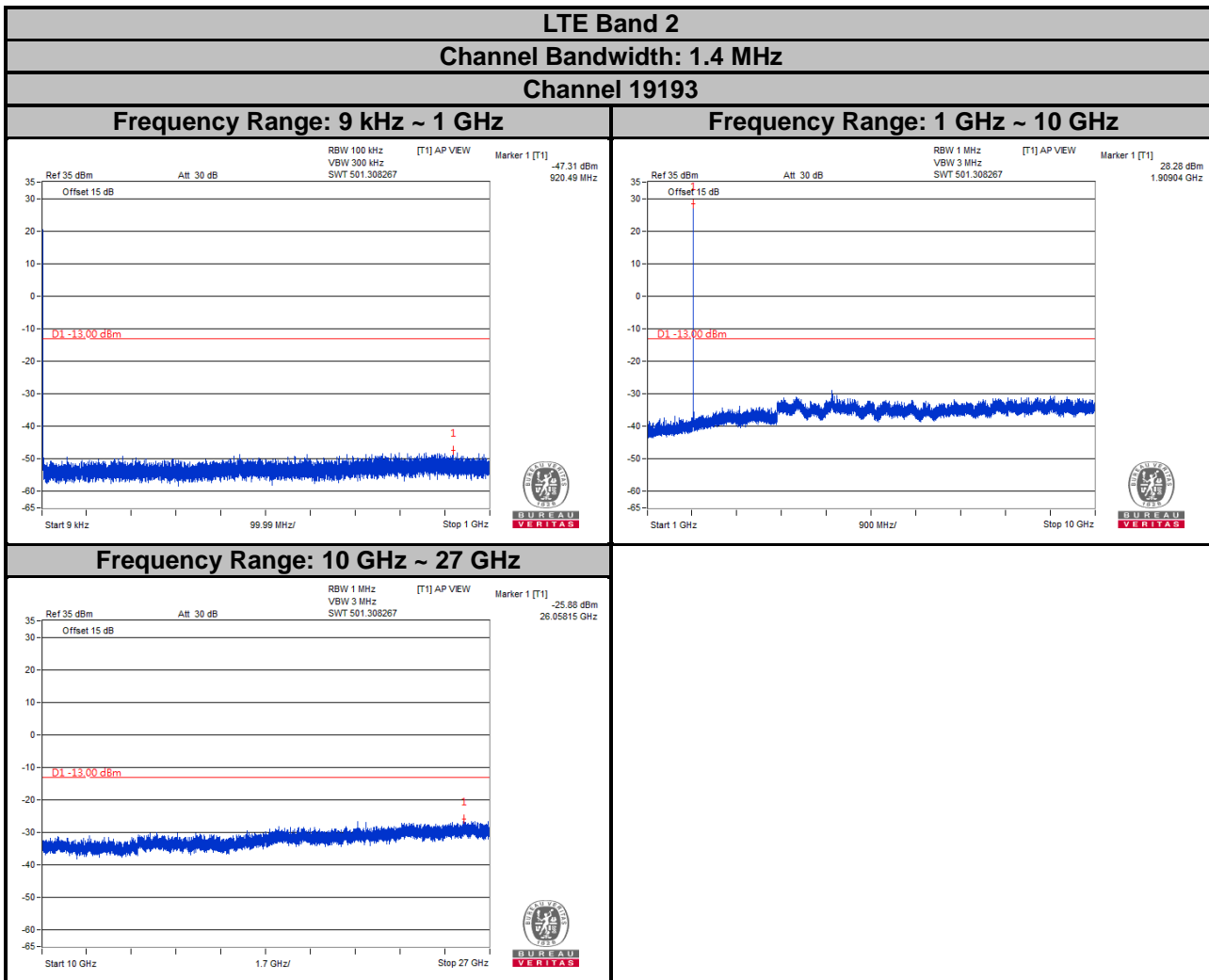
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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



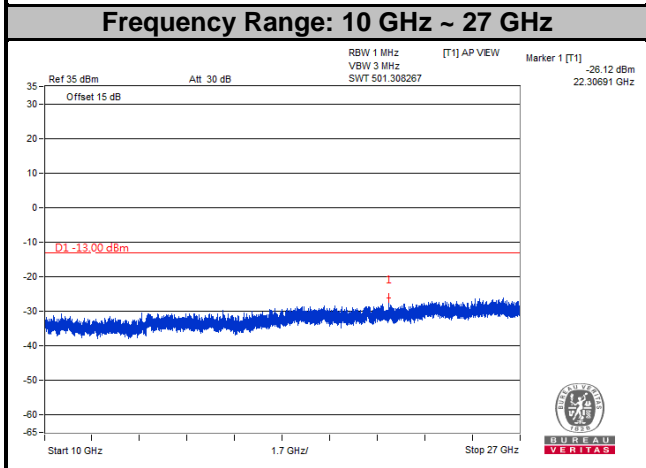
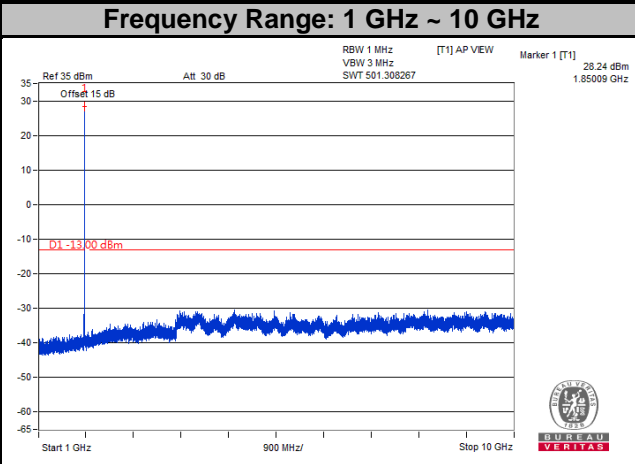
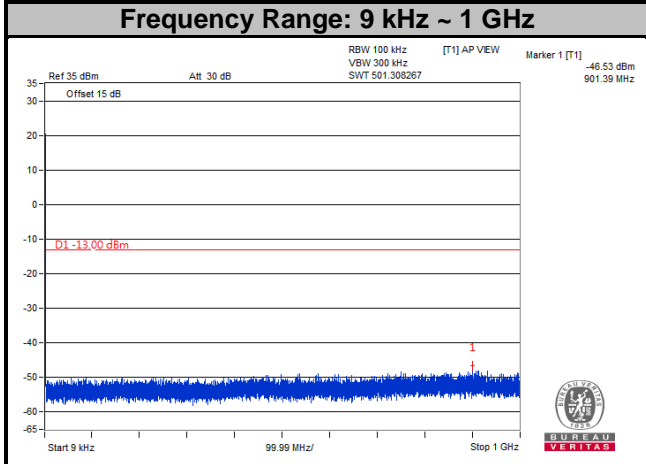
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



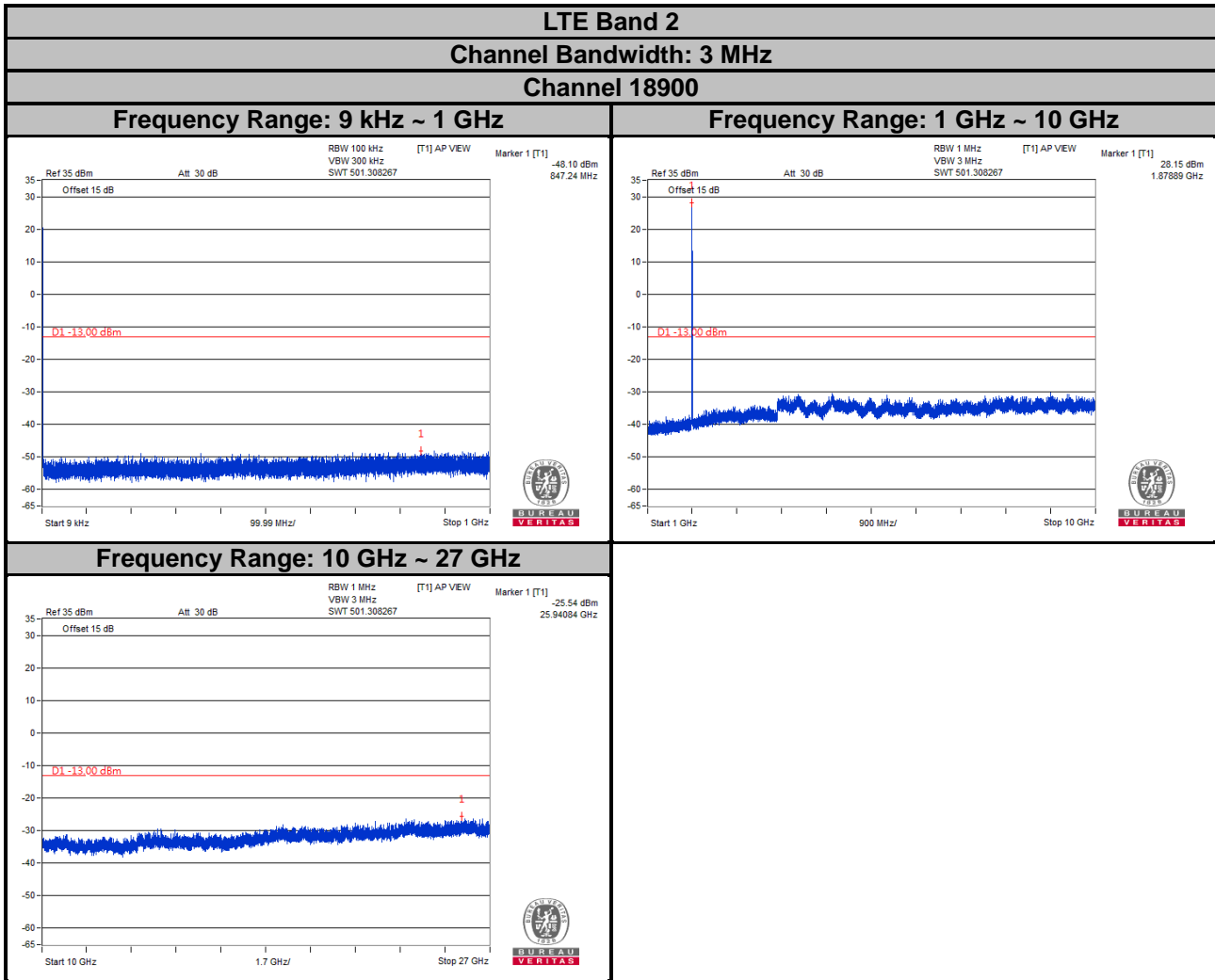
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



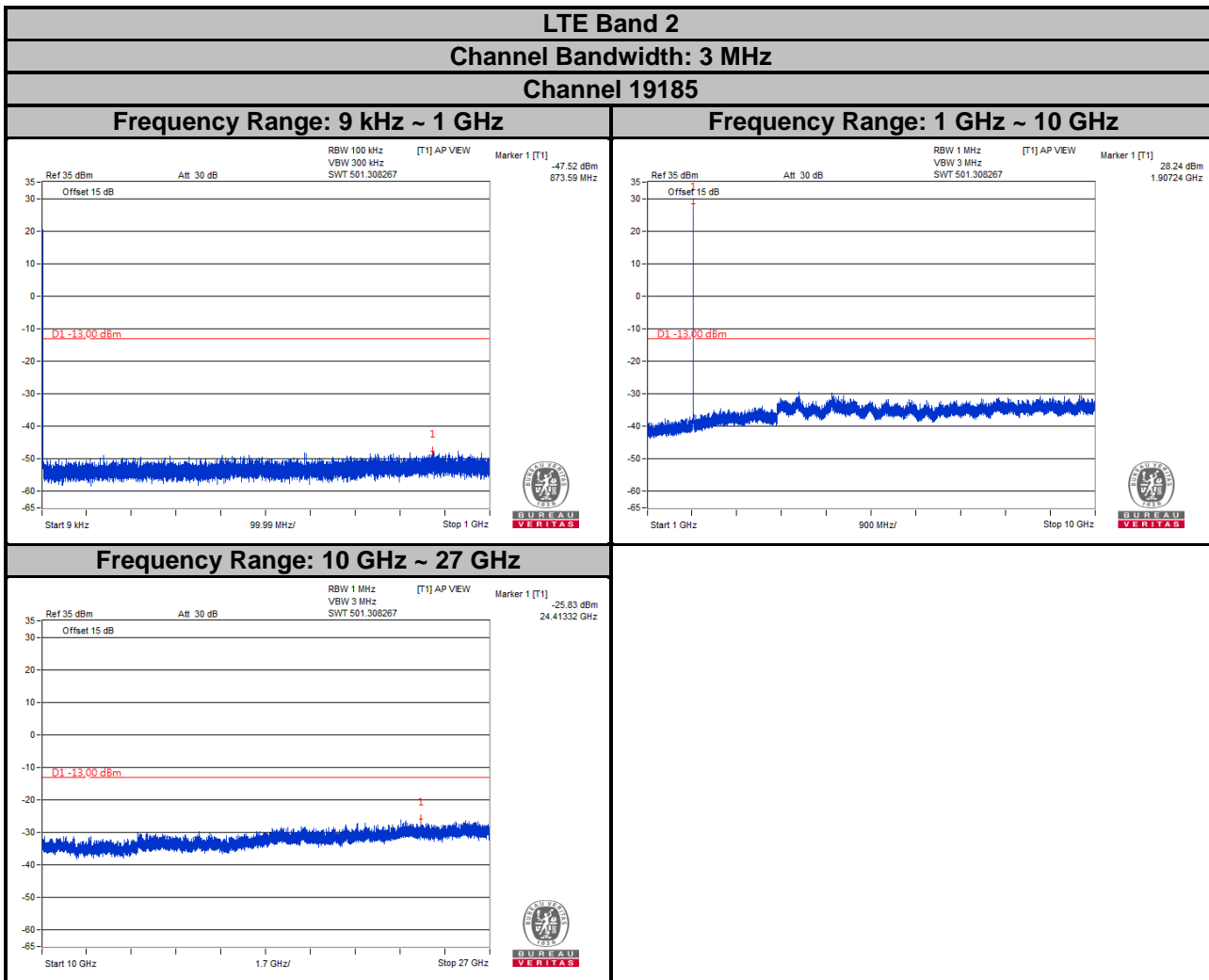
**LTE Band 2**  
**Channel Bandwidth: 3 MHz**  
**Channel 18615**



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



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



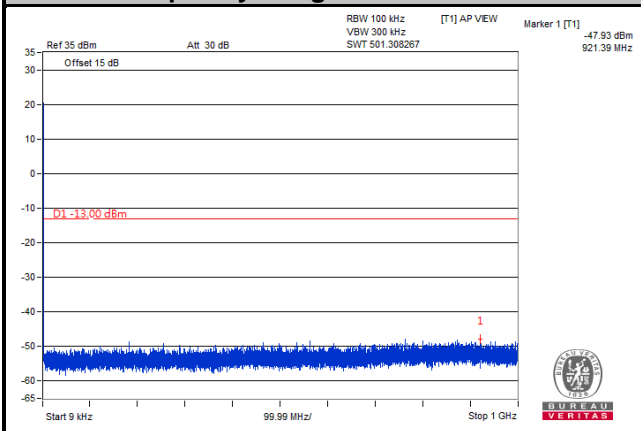
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

**LTE Band 2**

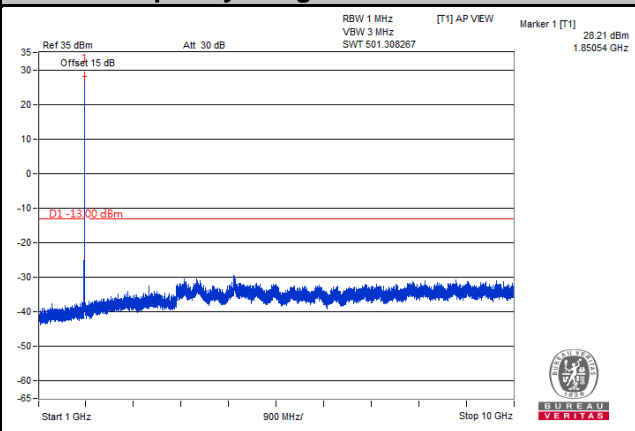
**Channel Bandwidth: 5 MHz**

**Channel 18625**

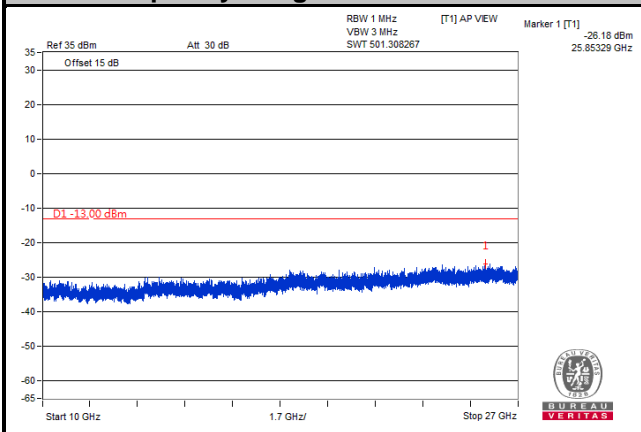
**Frequency Range: 9 kHz ~ 1 GHz**



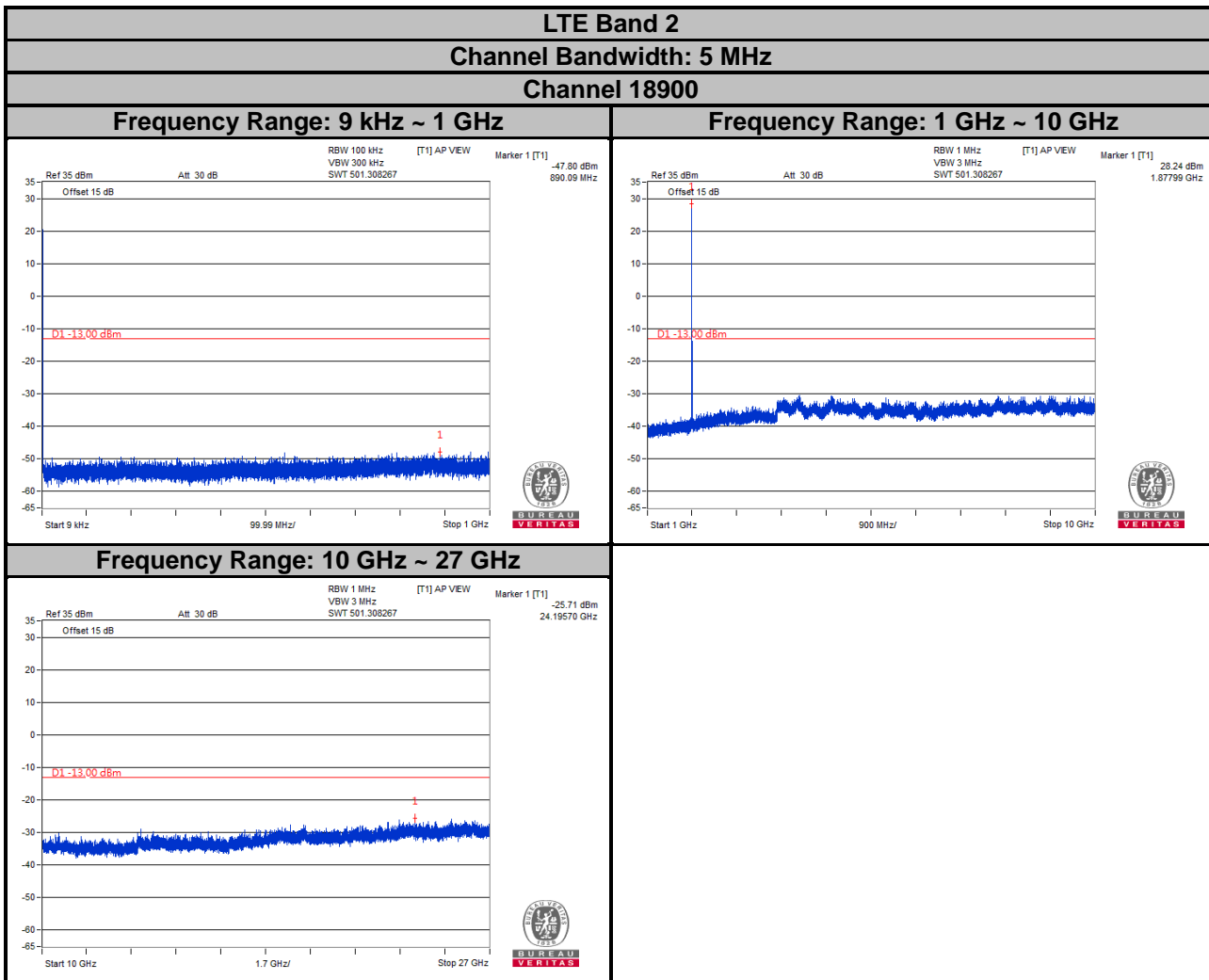
**Frequency Range: 1 GHz ~ 10 GHz**



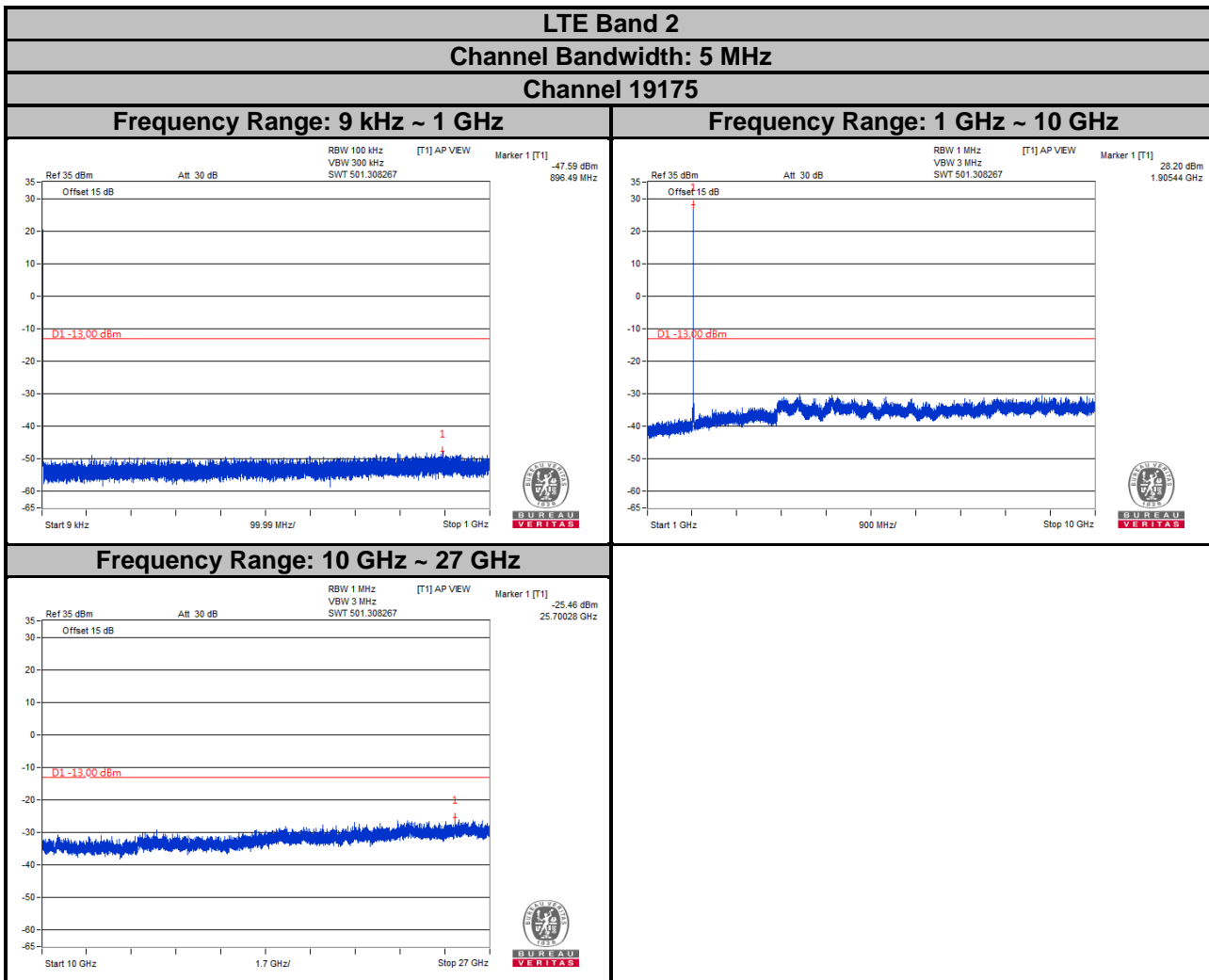
**Frequency Range: 10 GHz ~ 27 GHz**



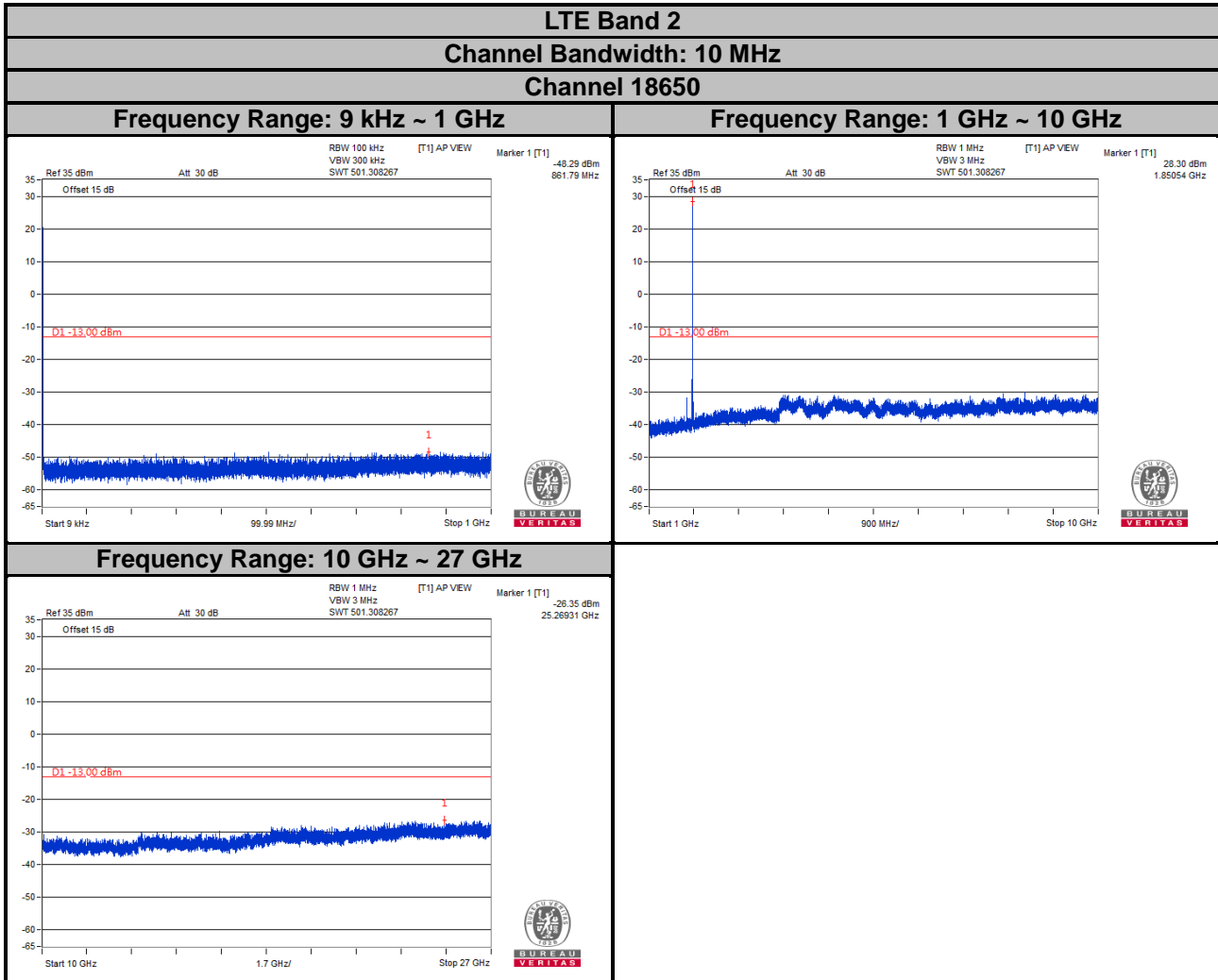
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



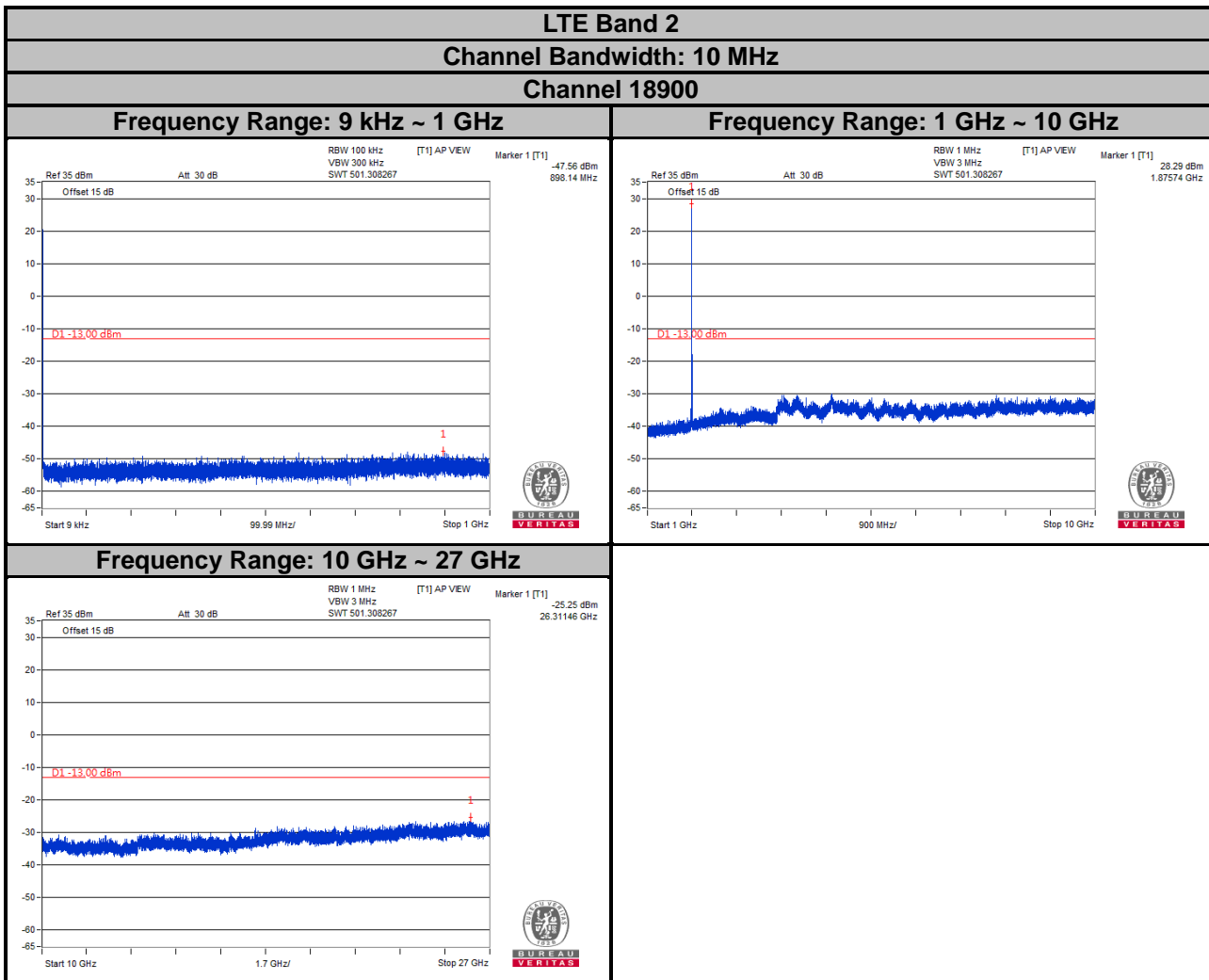
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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

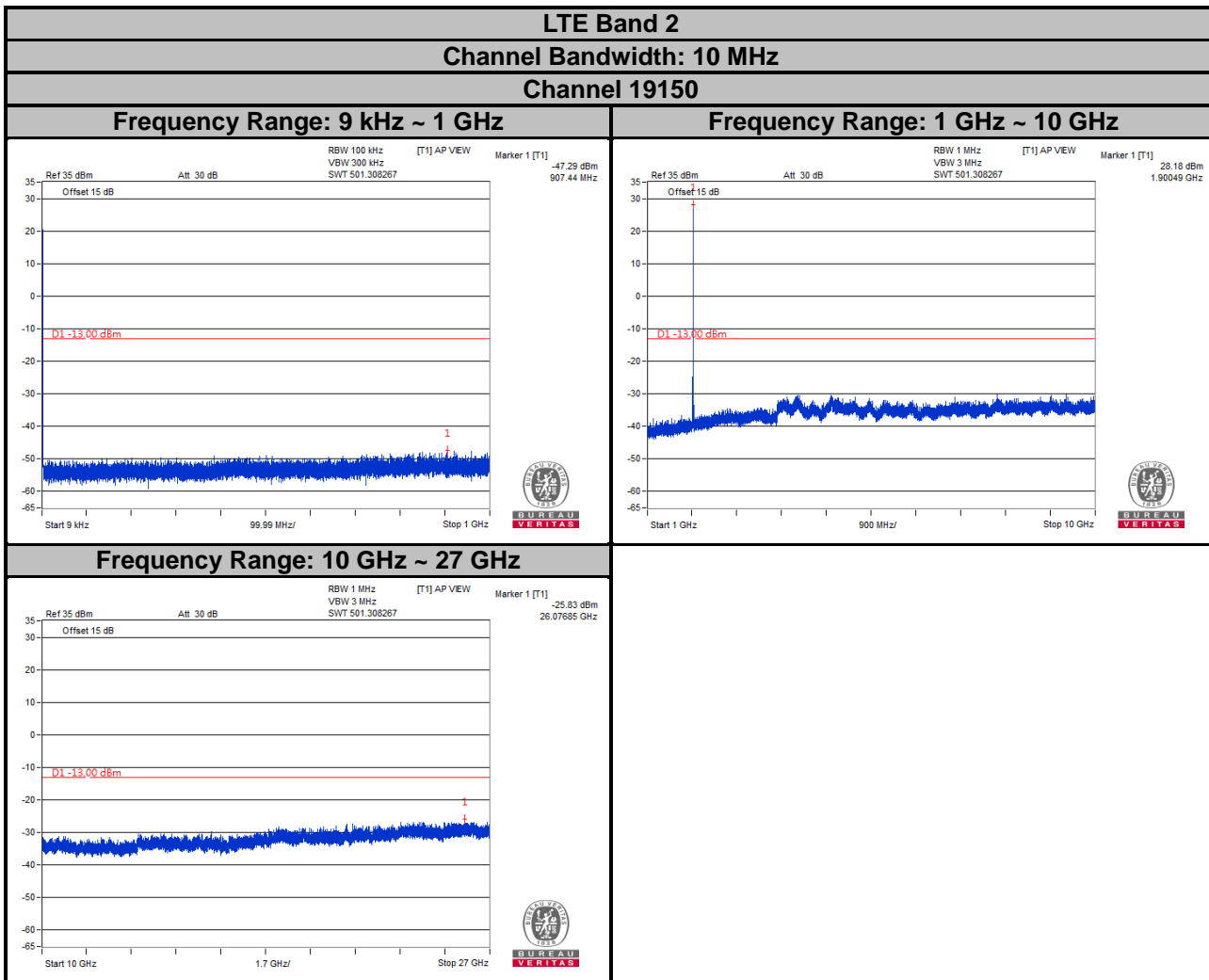


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

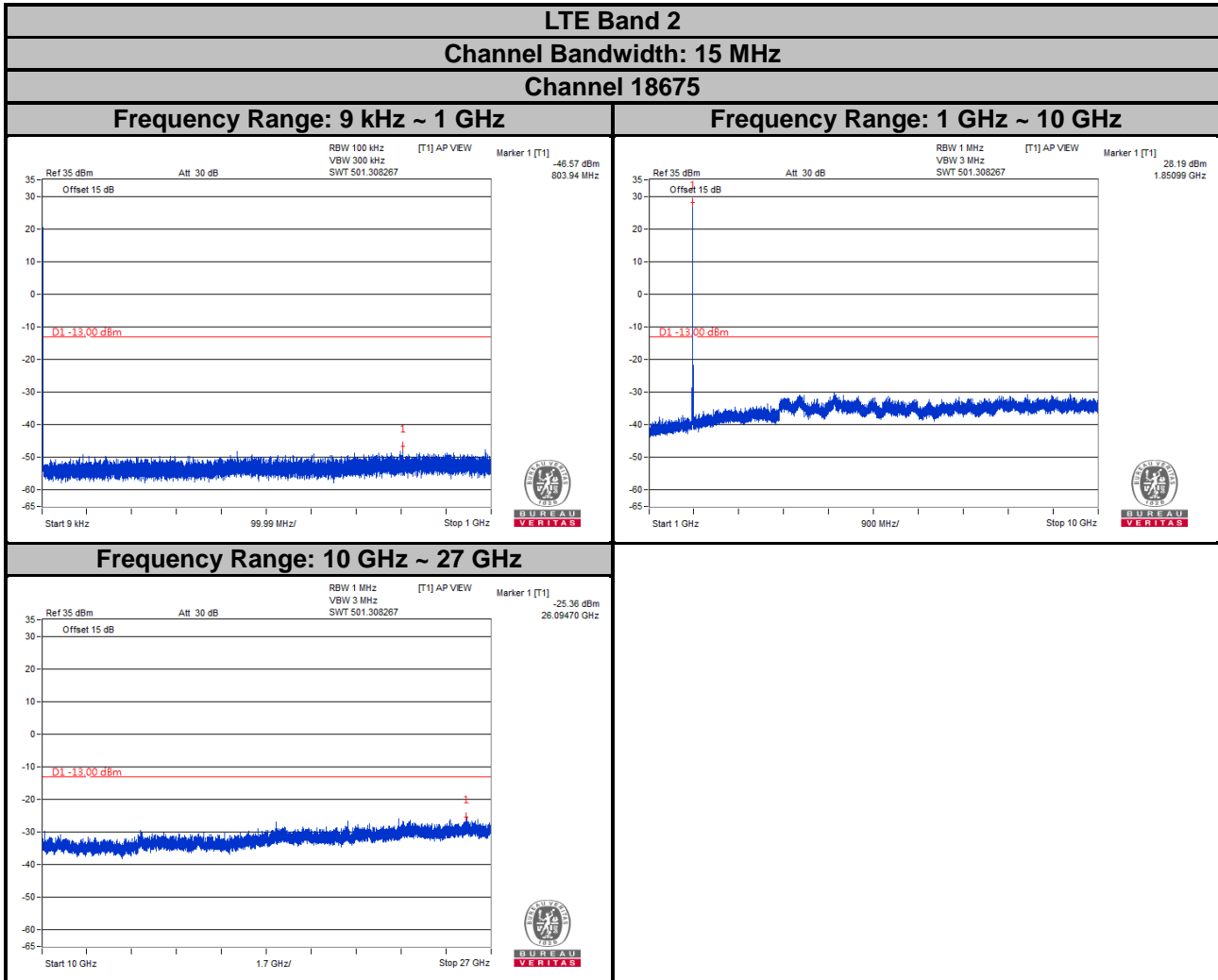


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

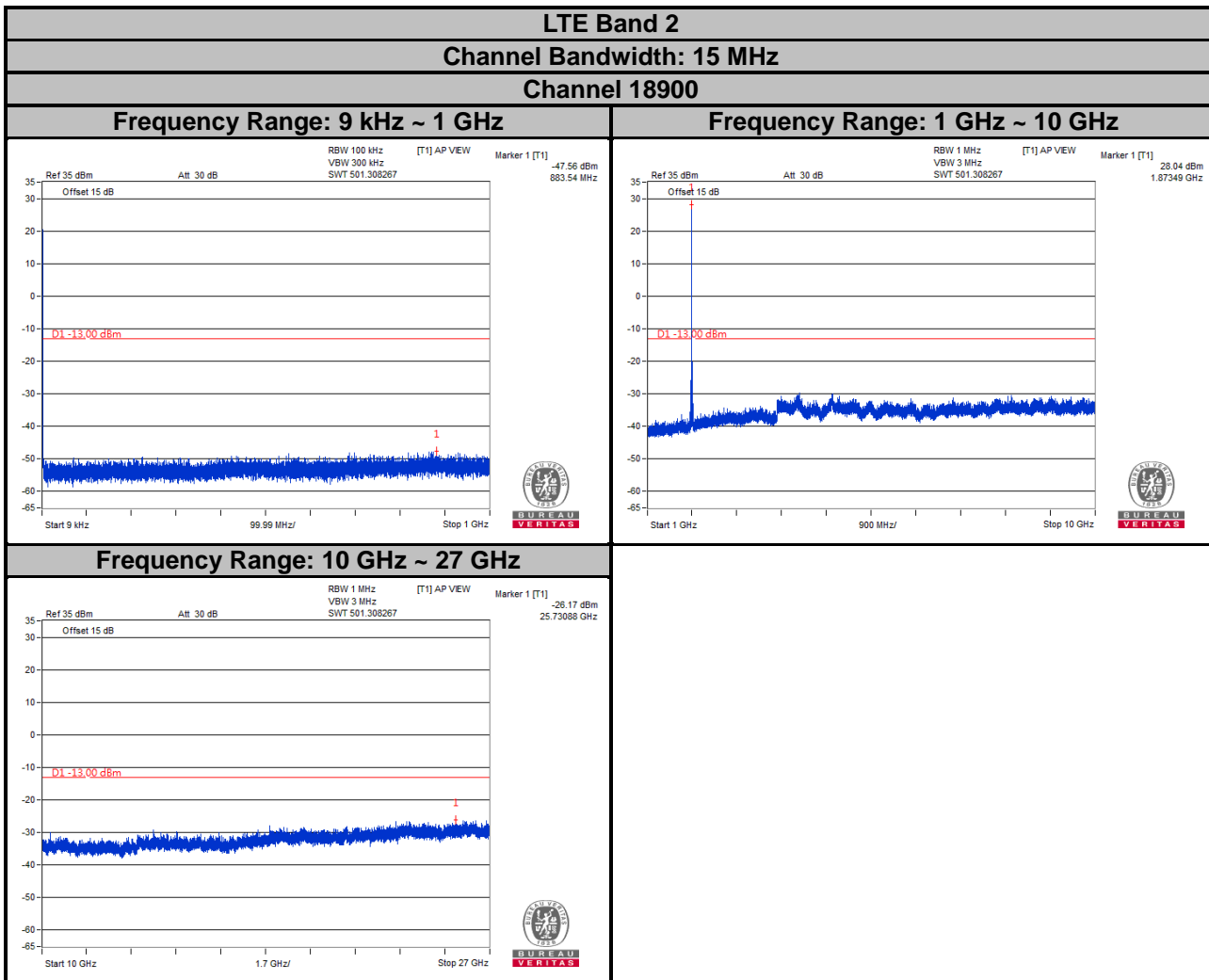




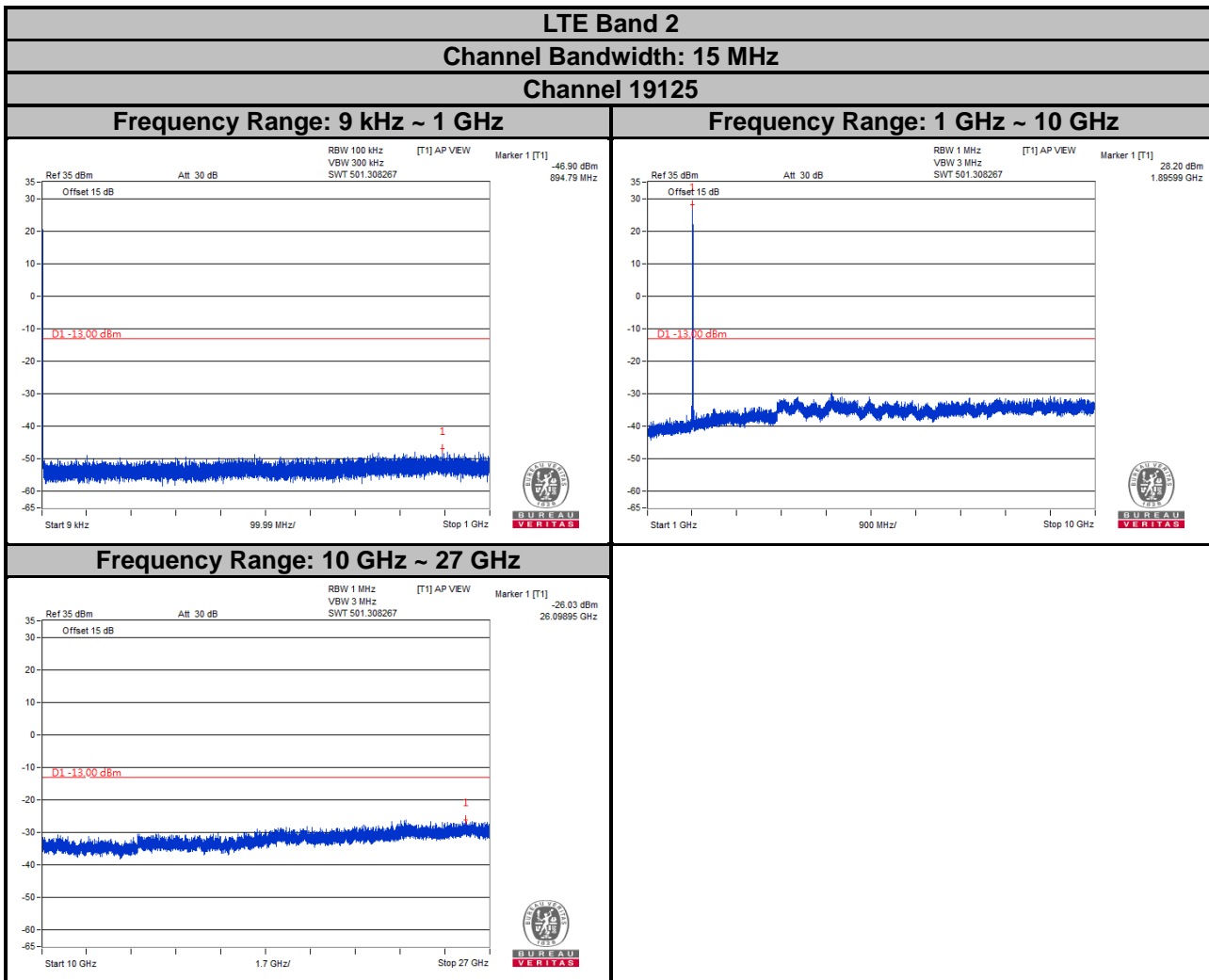
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



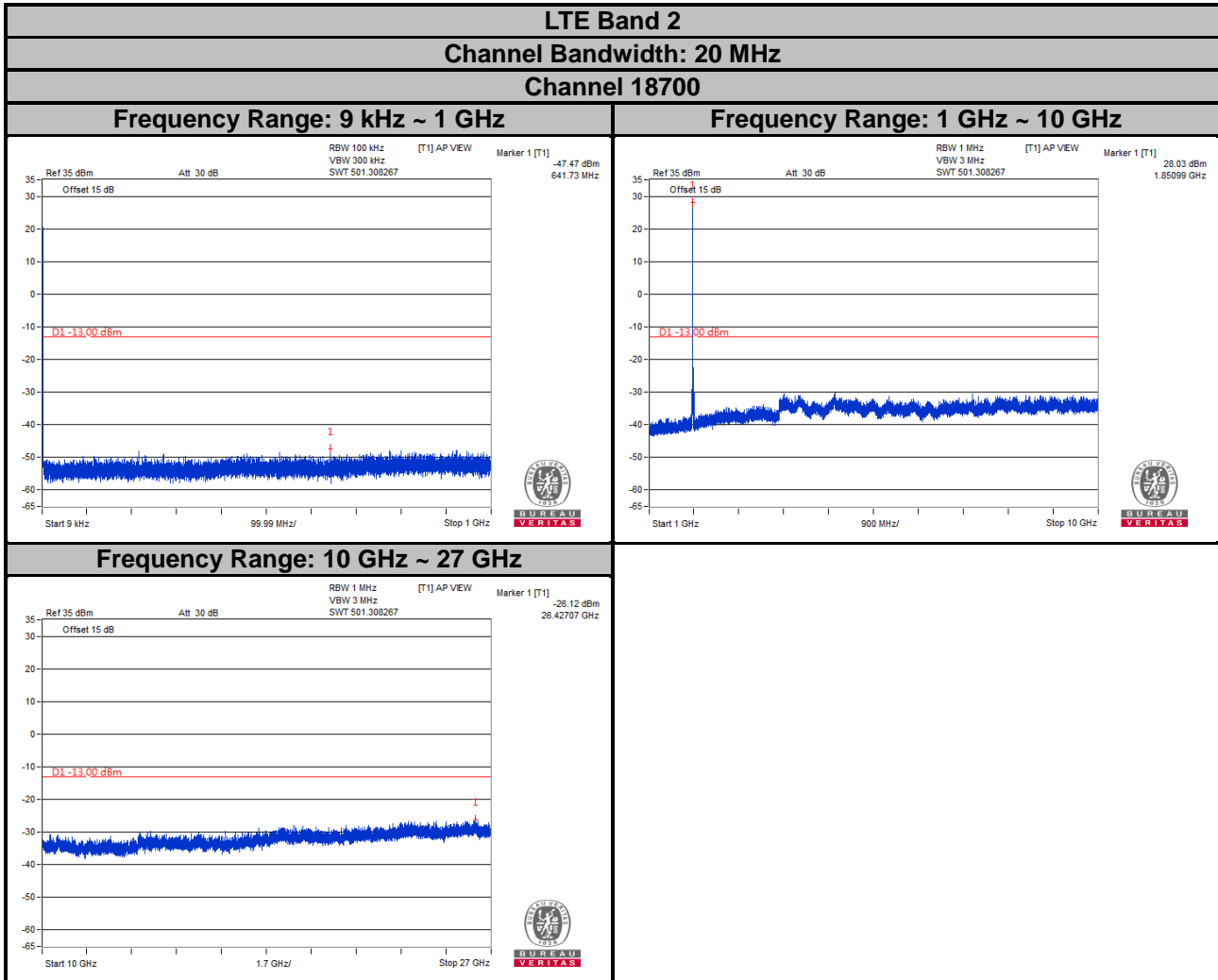
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



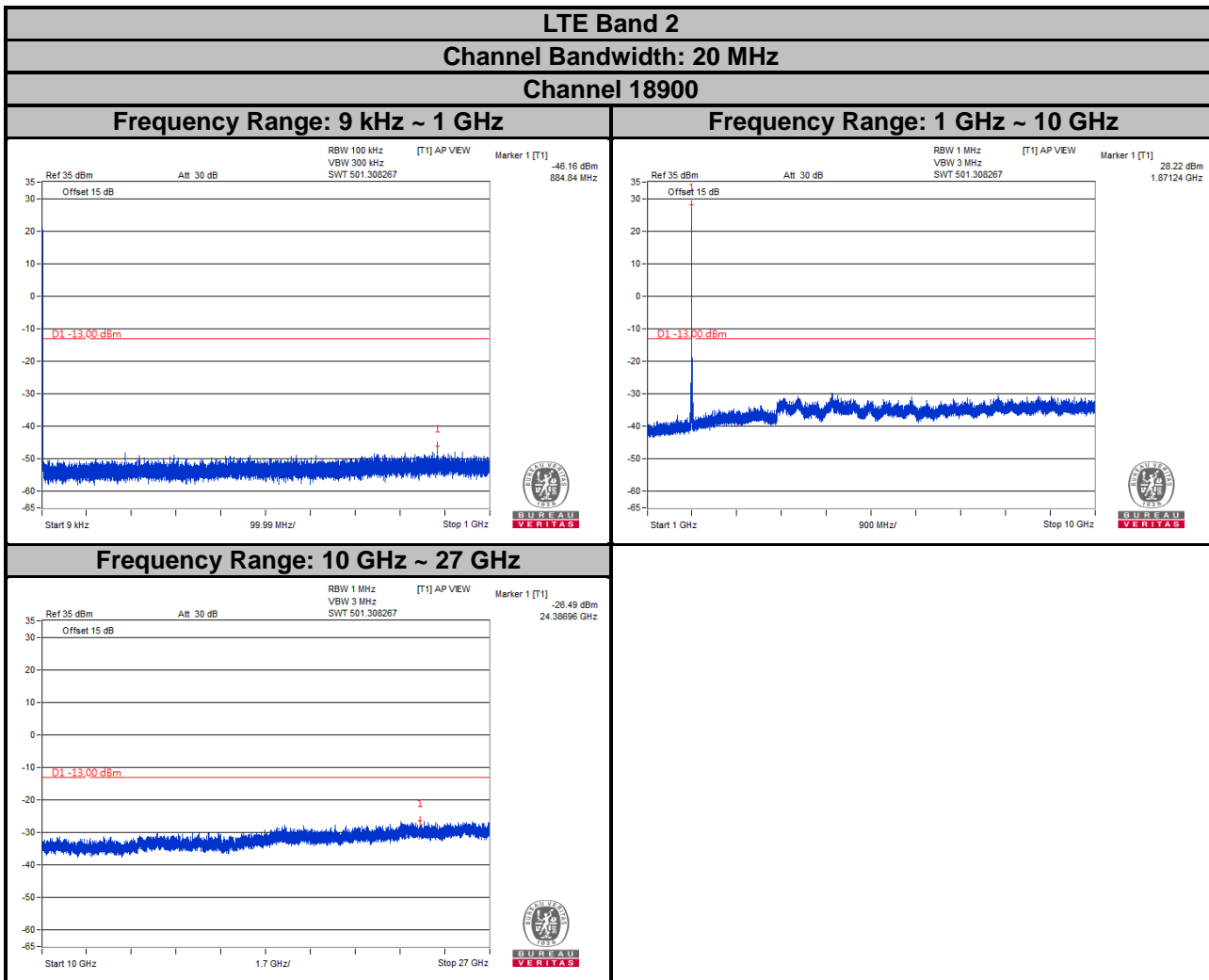
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



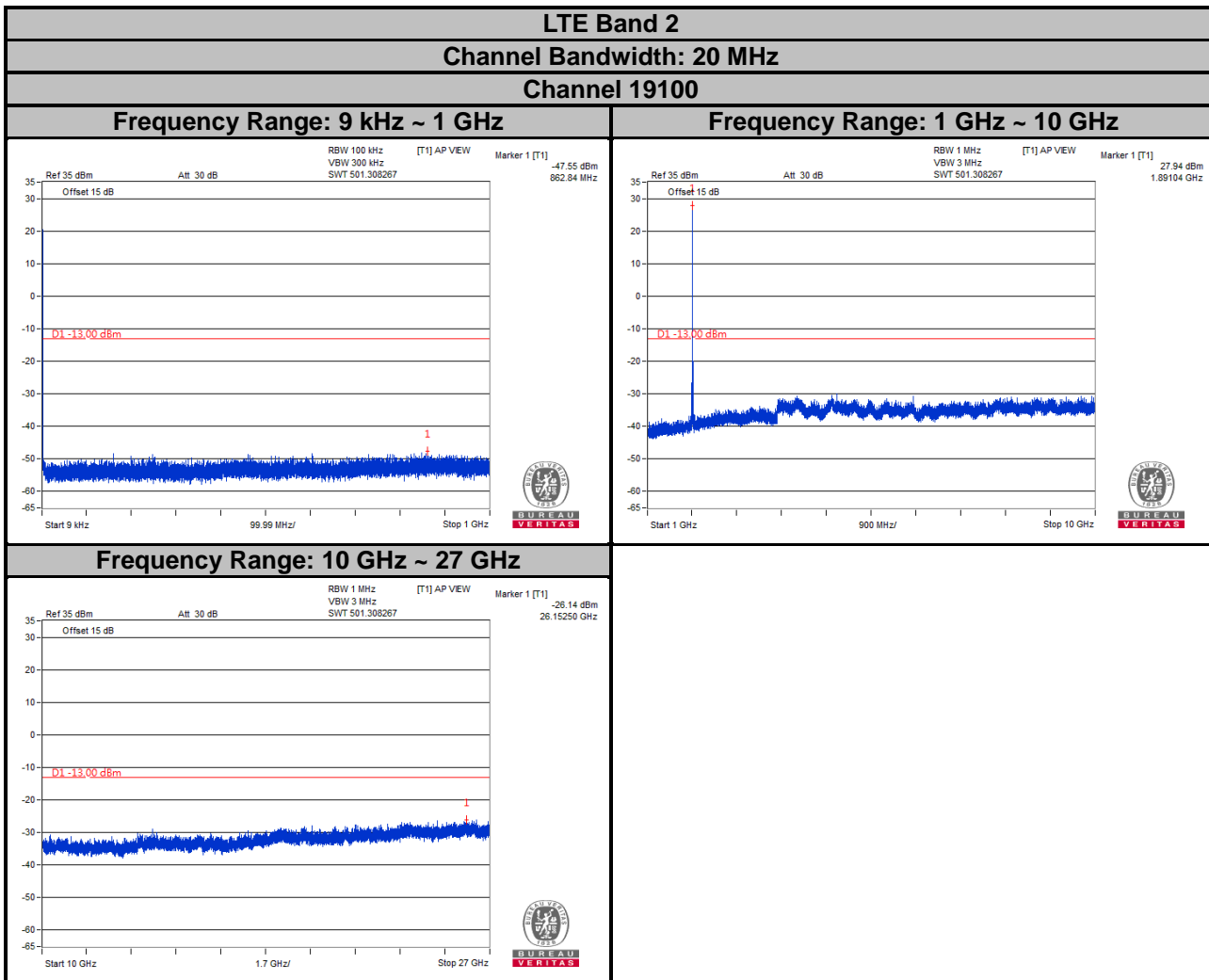
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



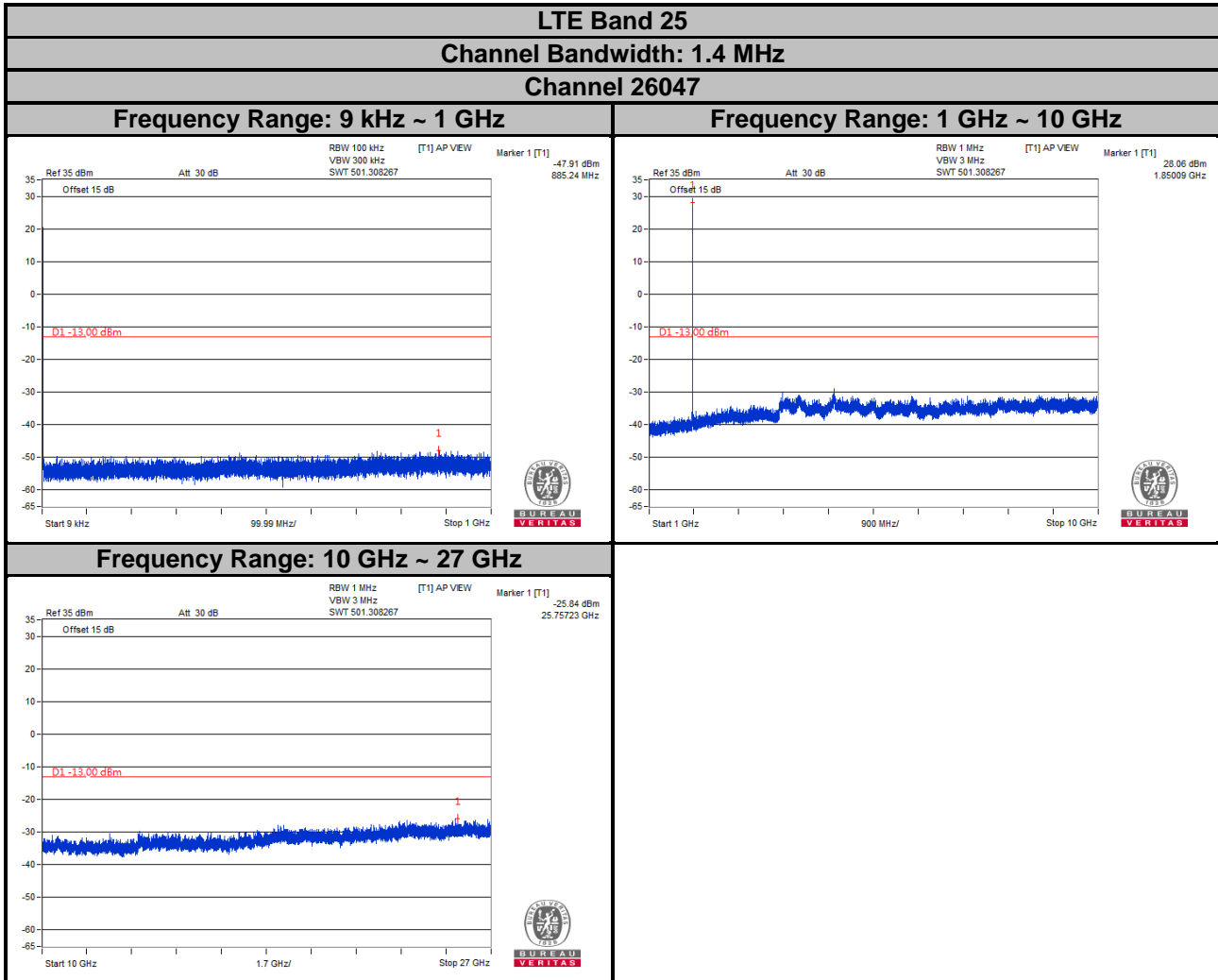
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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

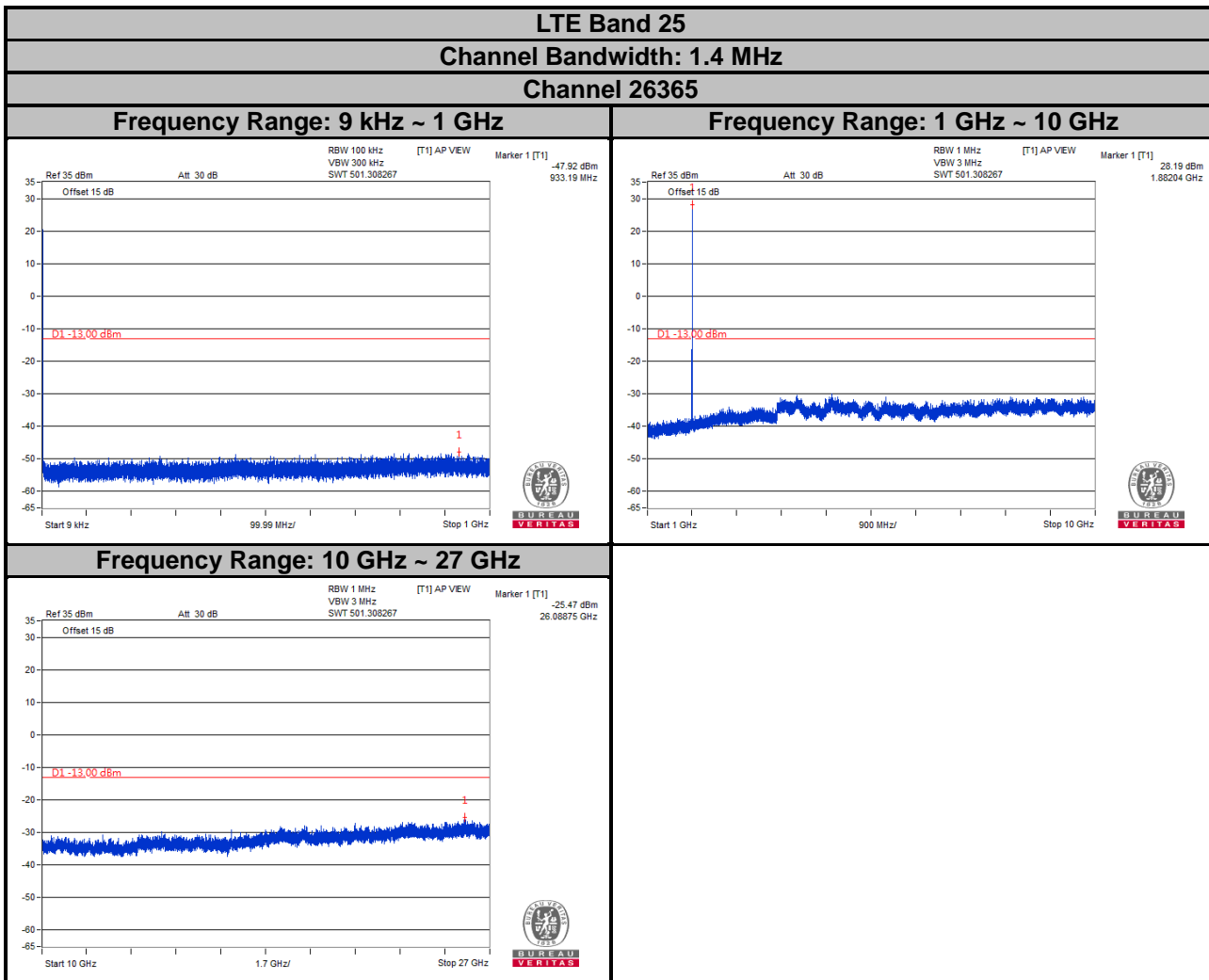


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

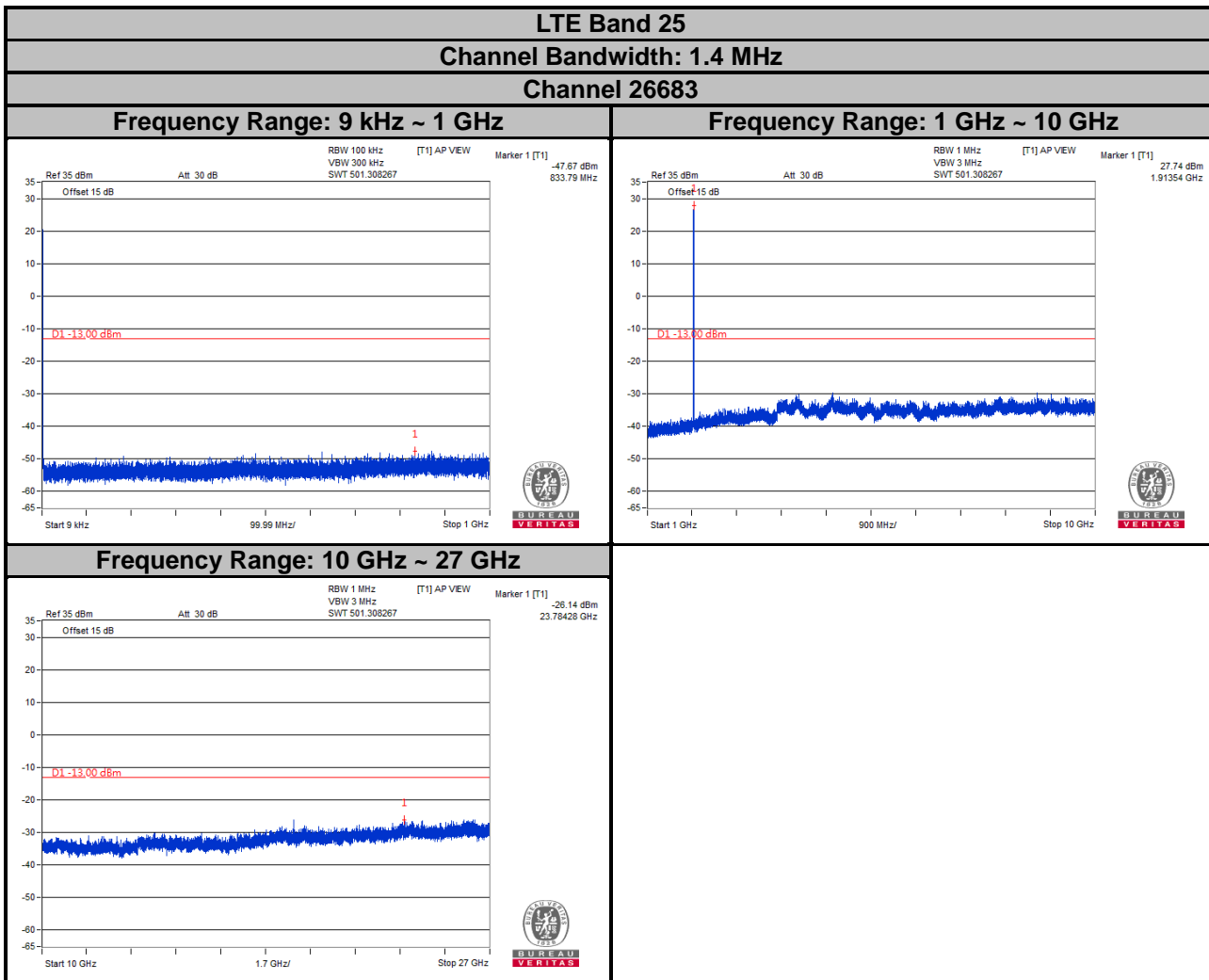


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

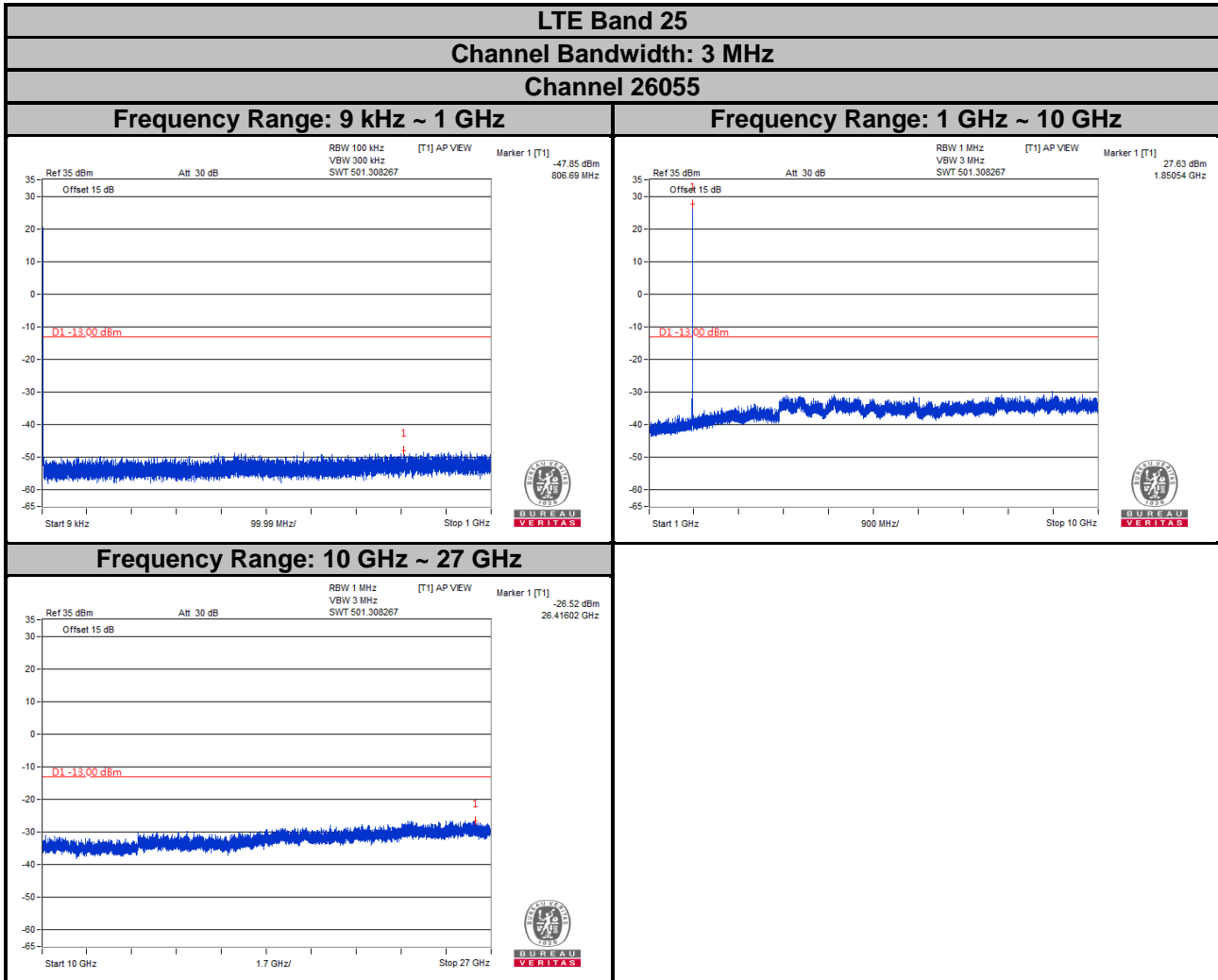




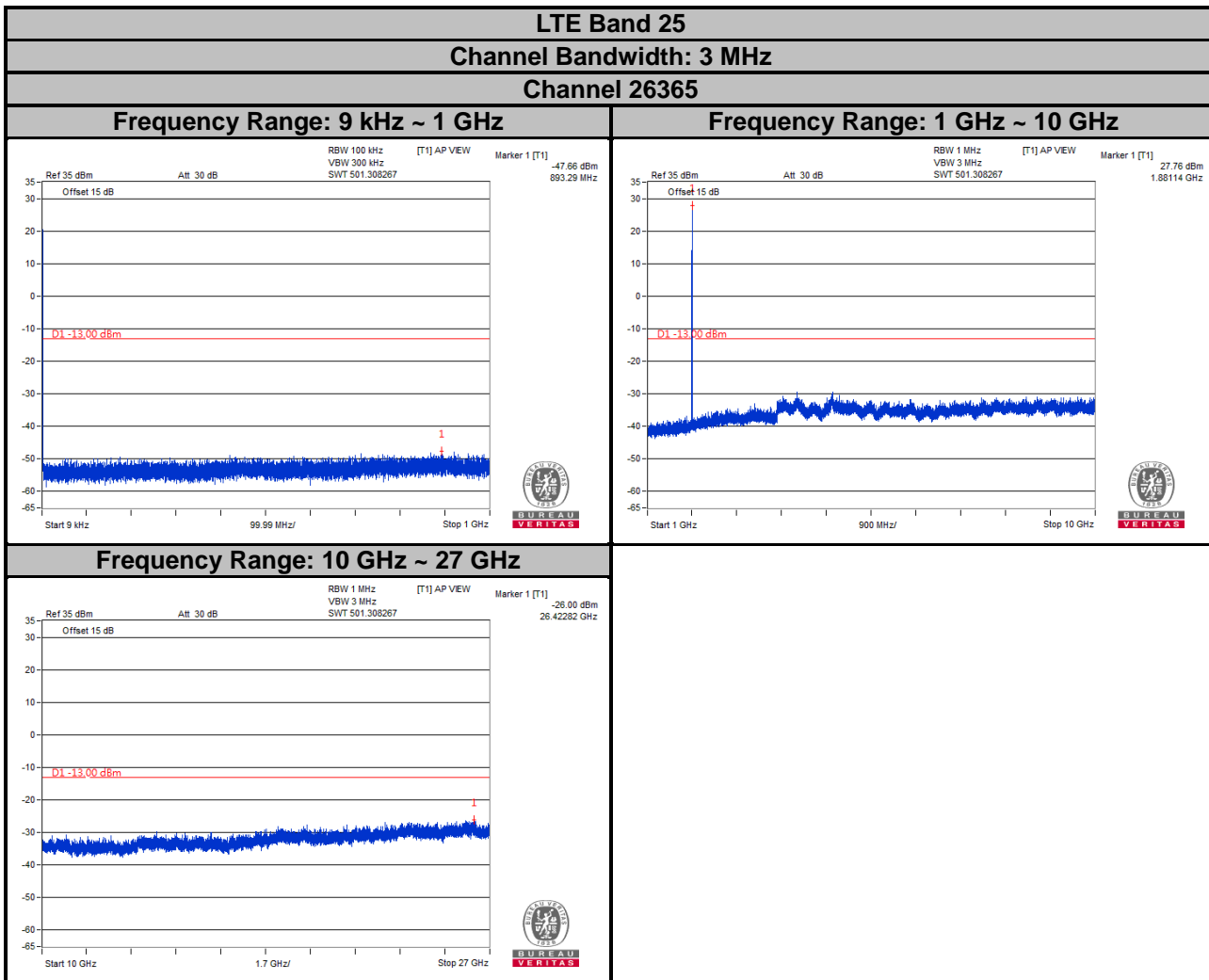
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



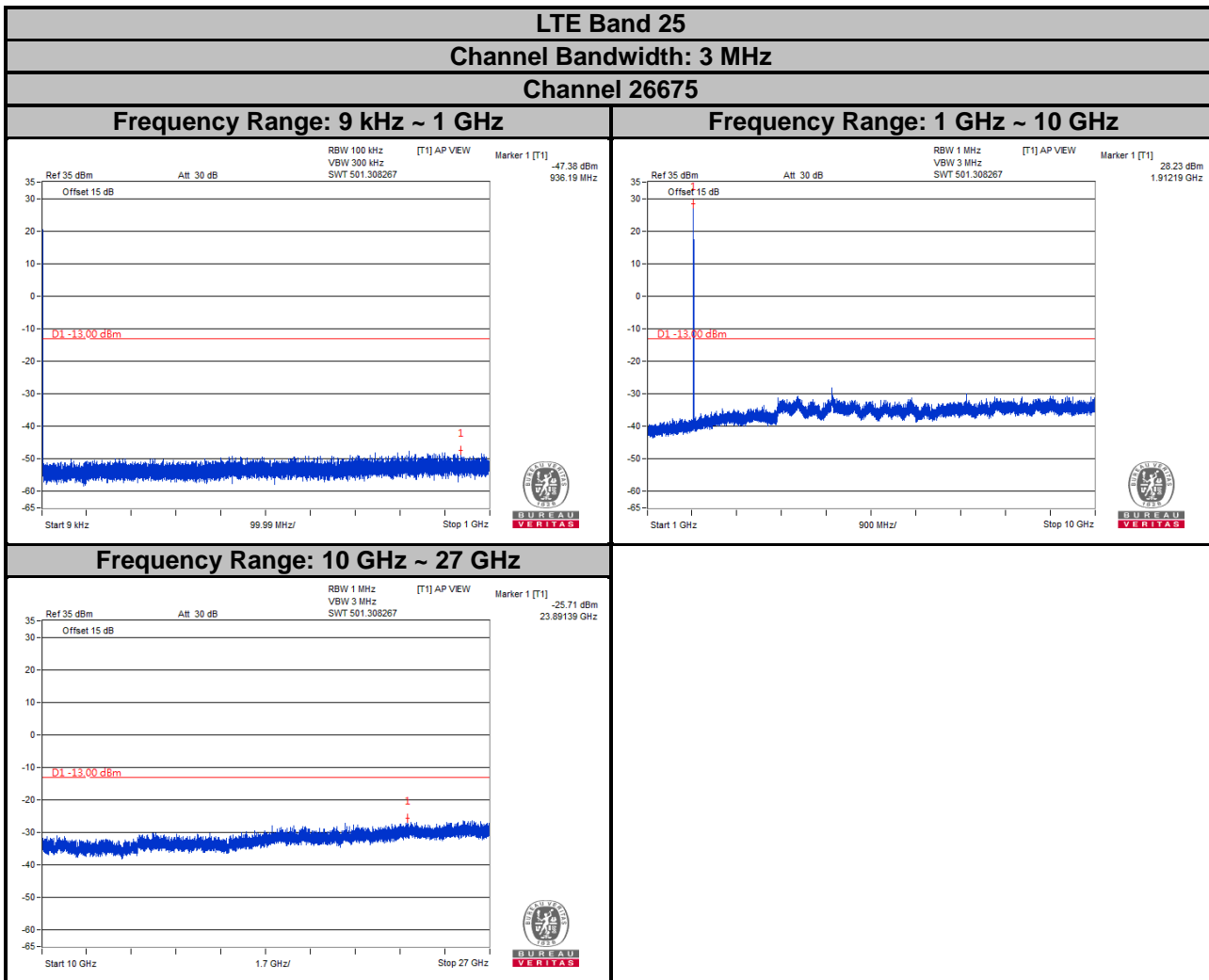
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



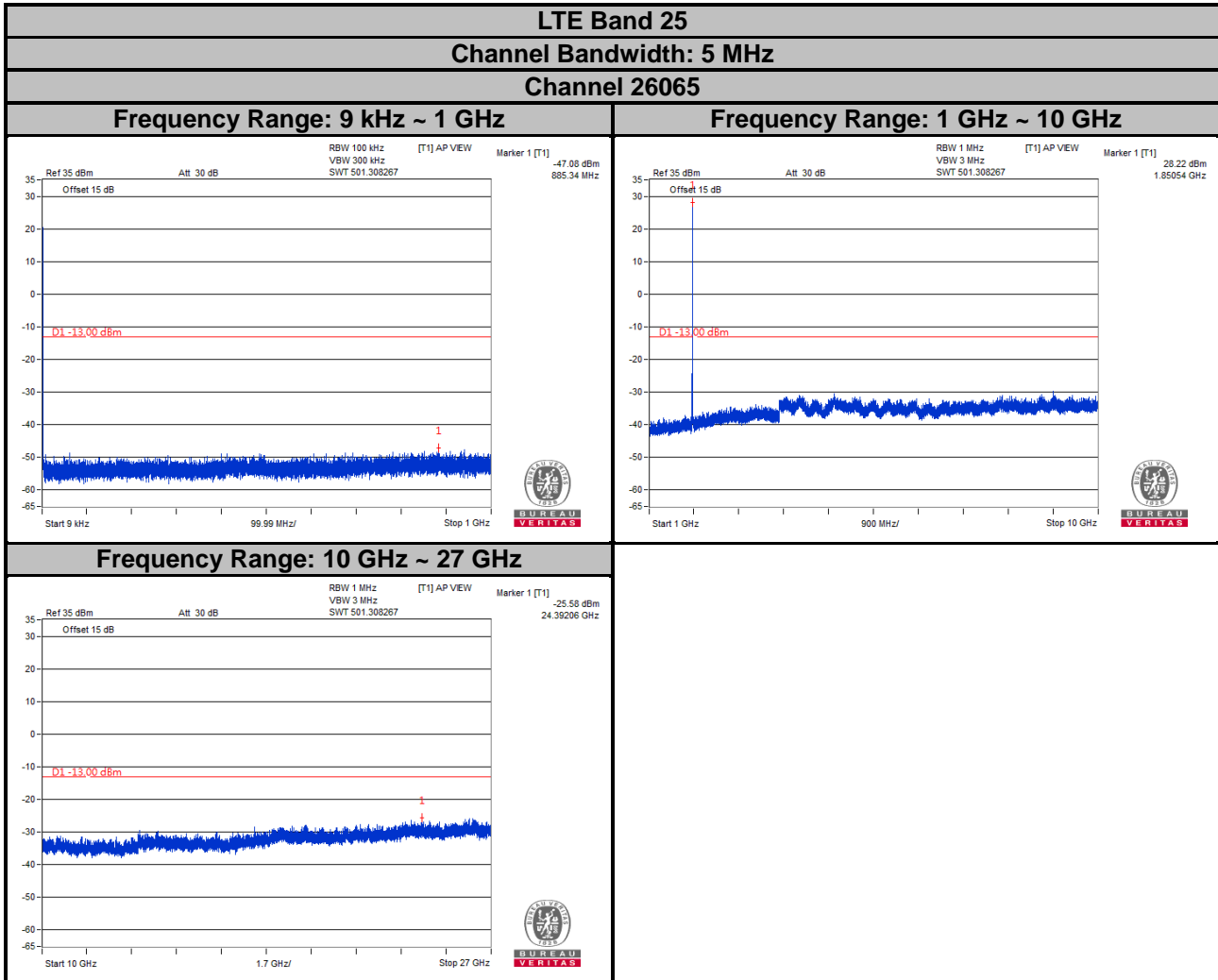
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



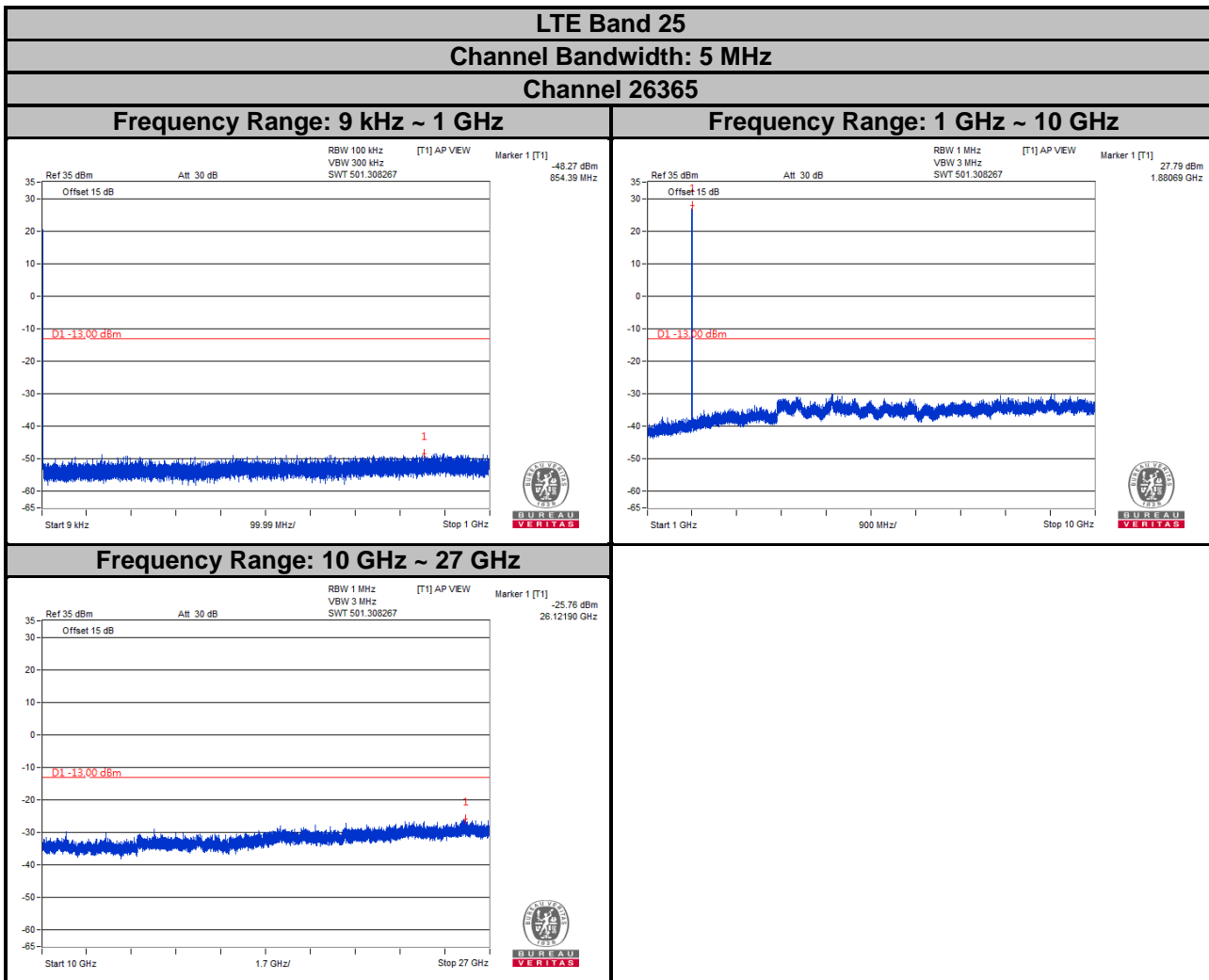
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



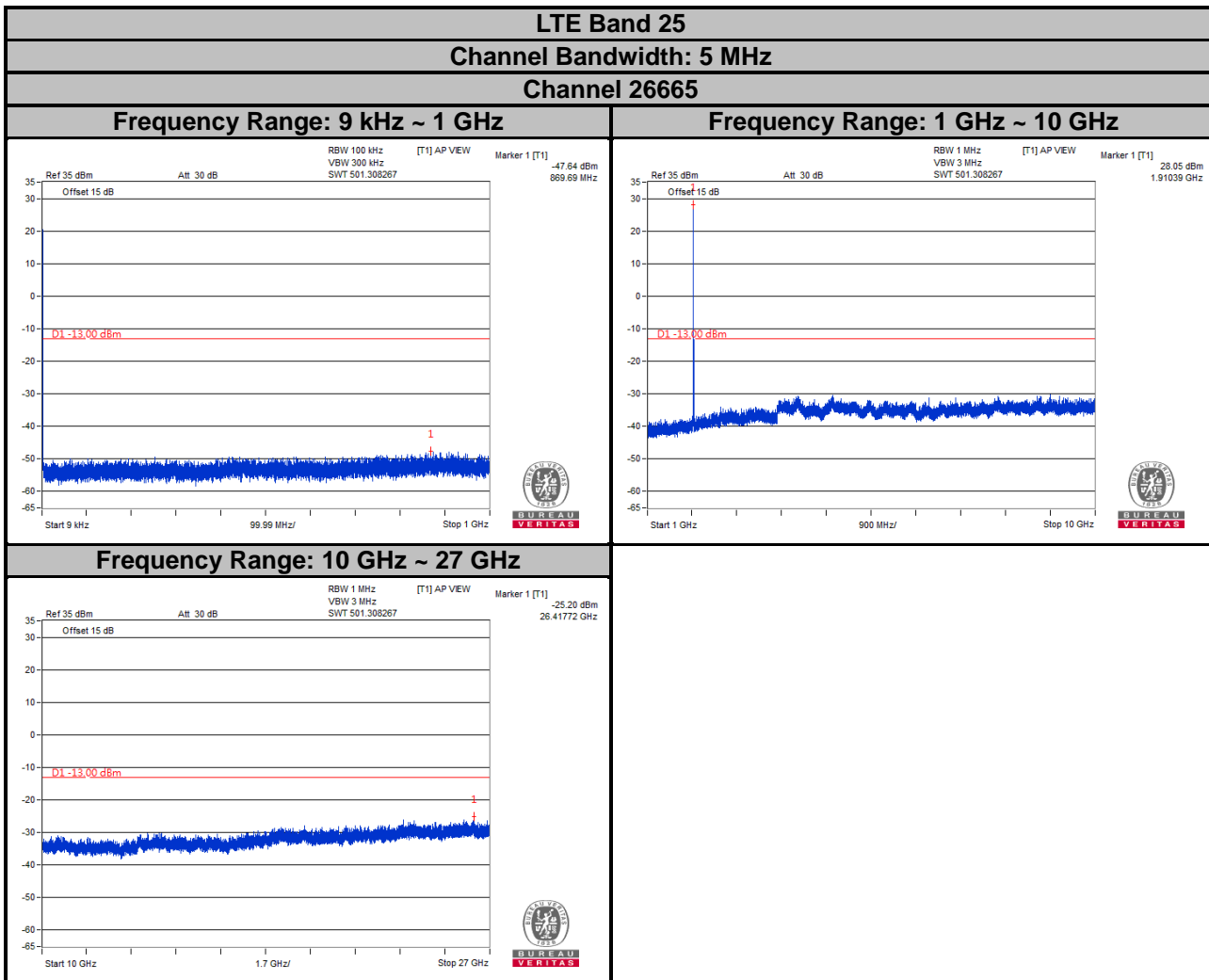
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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



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



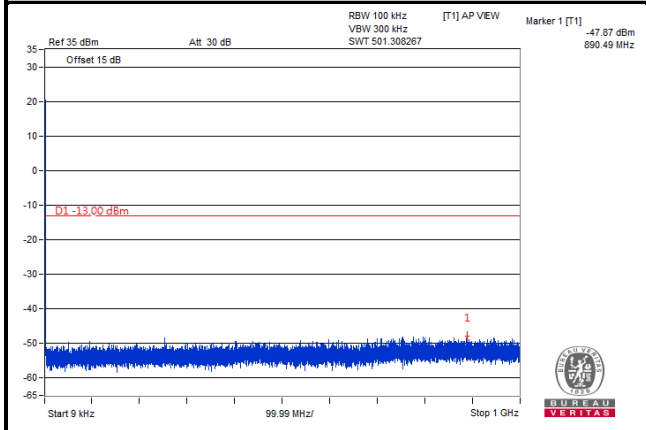
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



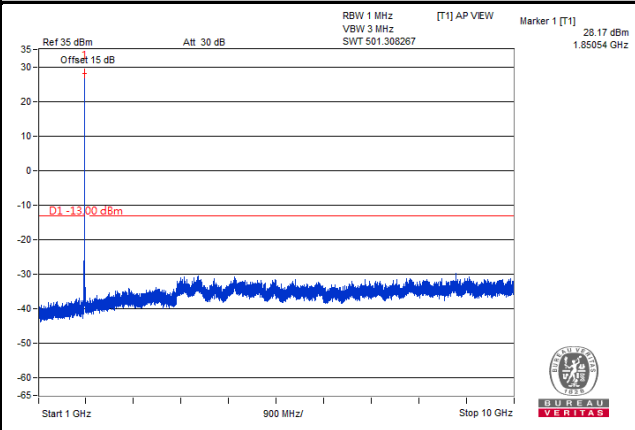
**LTE Band 25**  
**Channel Bandwidth: 10 MHz**

**Channel 26090**

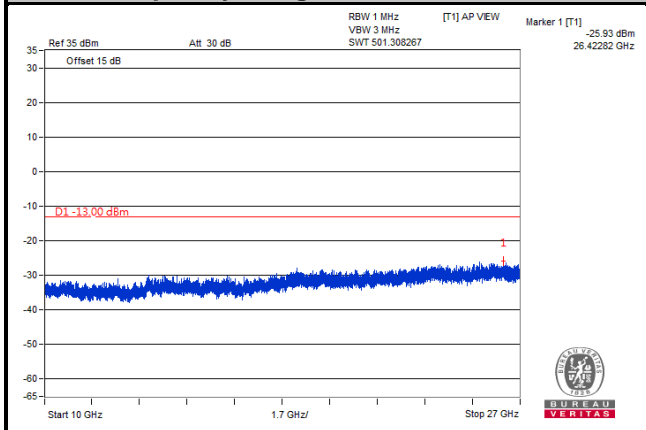
**Frequency Range: 9 kHz ~ 1 GHz**



**Frequency Range: 1 GHz ~ 10 GHz**

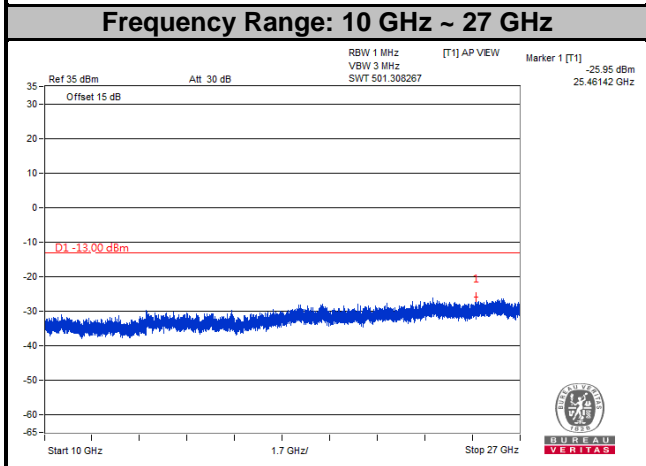
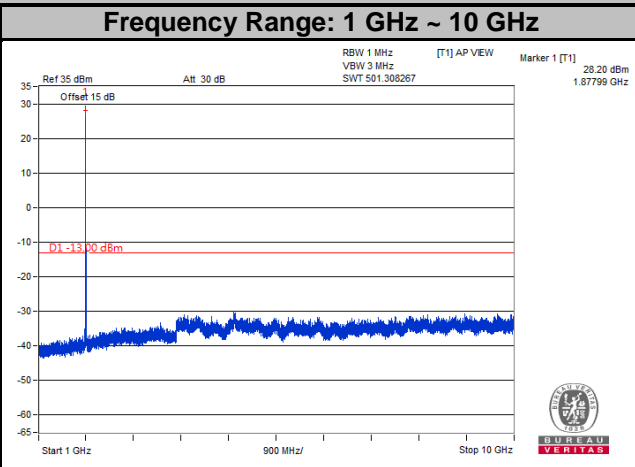
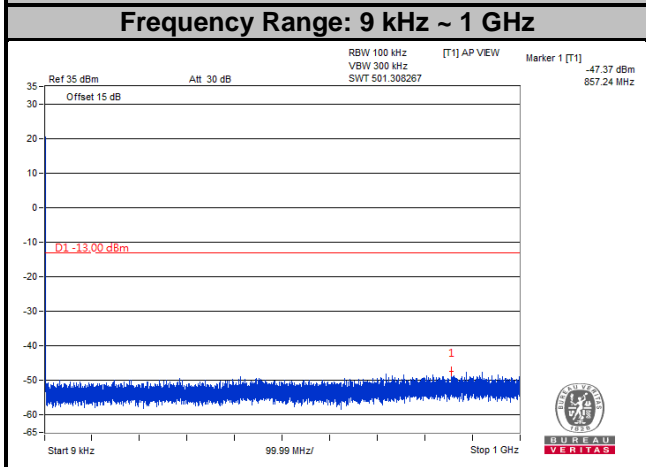


**Frequency Range: 10 GHz ~ 27 GHz**

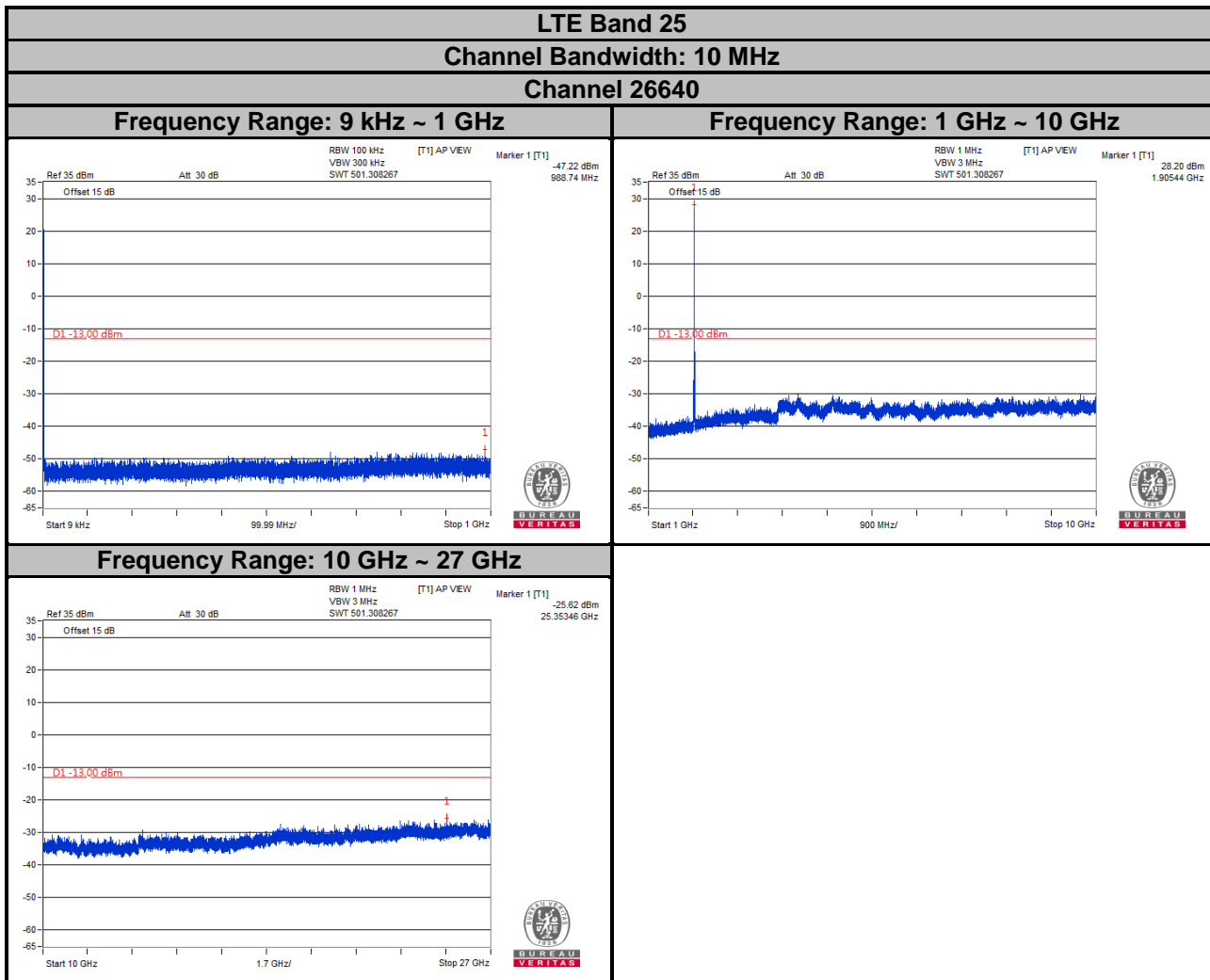


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

**LTE Band 25**  
**Channel Bandwidth: 10 MHz**  
**Channel 26365**



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

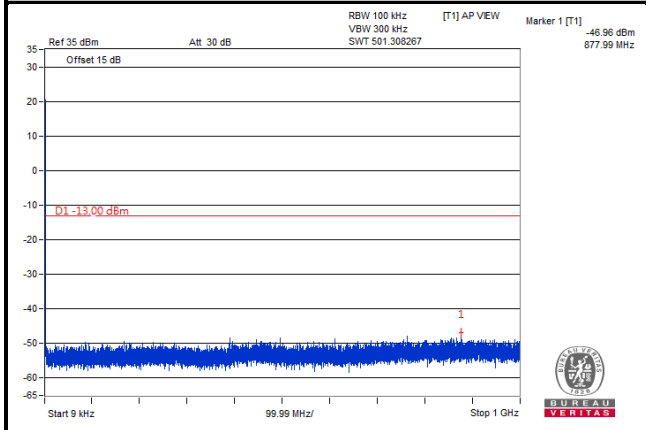


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

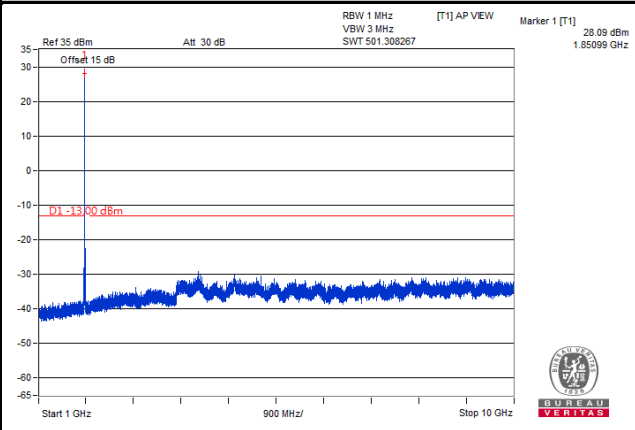
**LTE Band 25**  
**Channel Bandwidth: 15 MHz**

**Channel 26115**

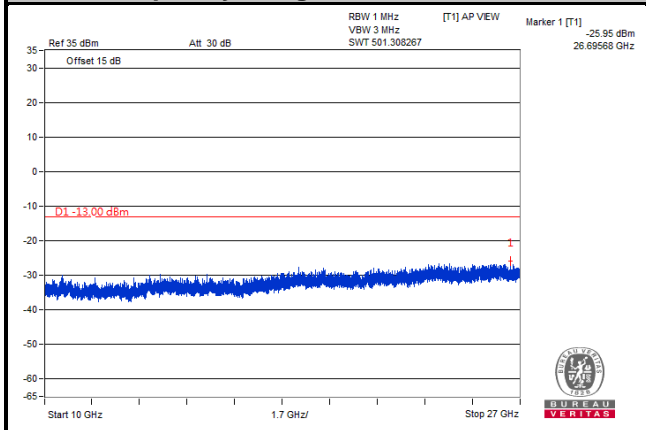
**Frequency Range: 9 kHz ~ 1 GHz**



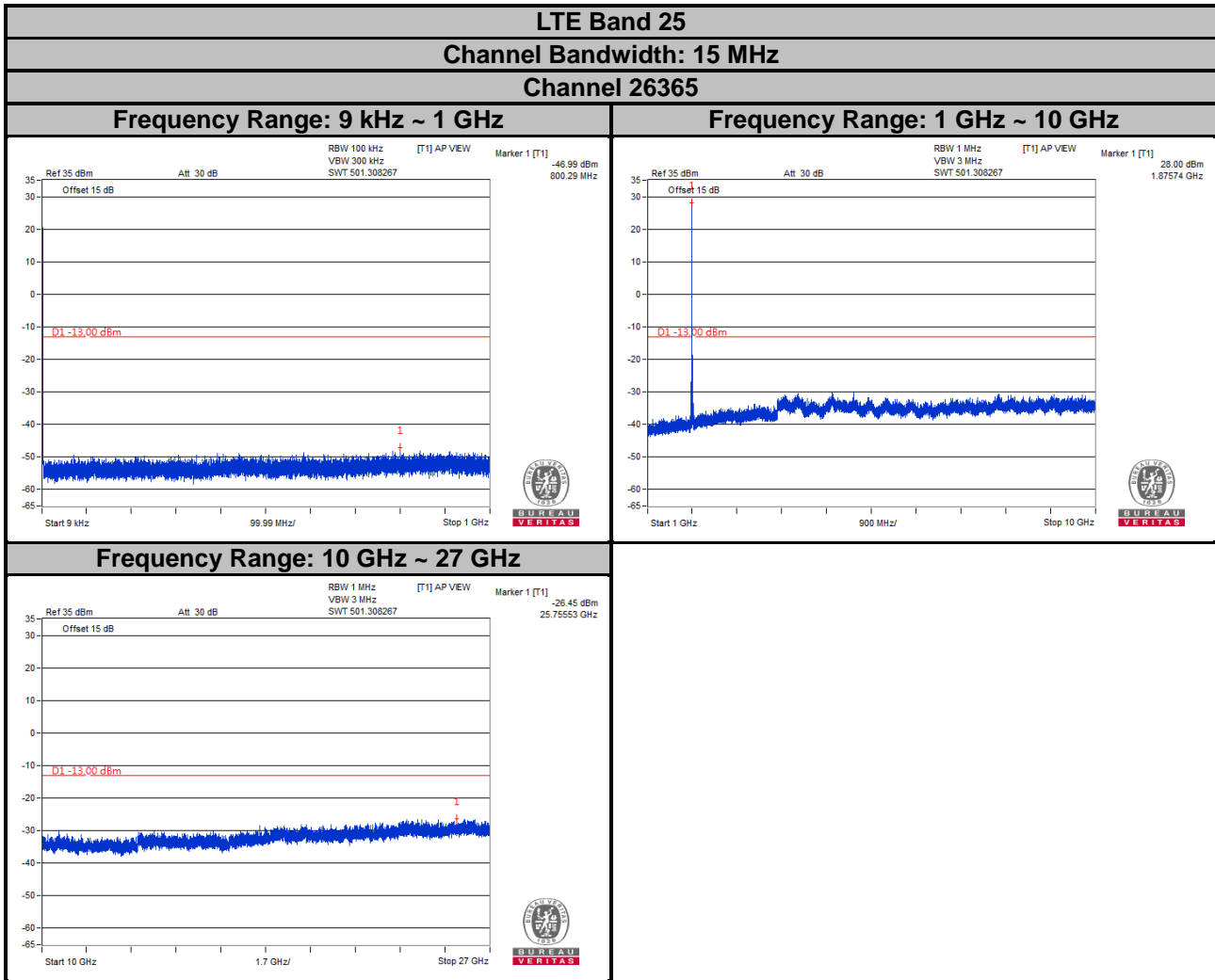
**Frequency Range: 1 GHz ~ 10 GHz**



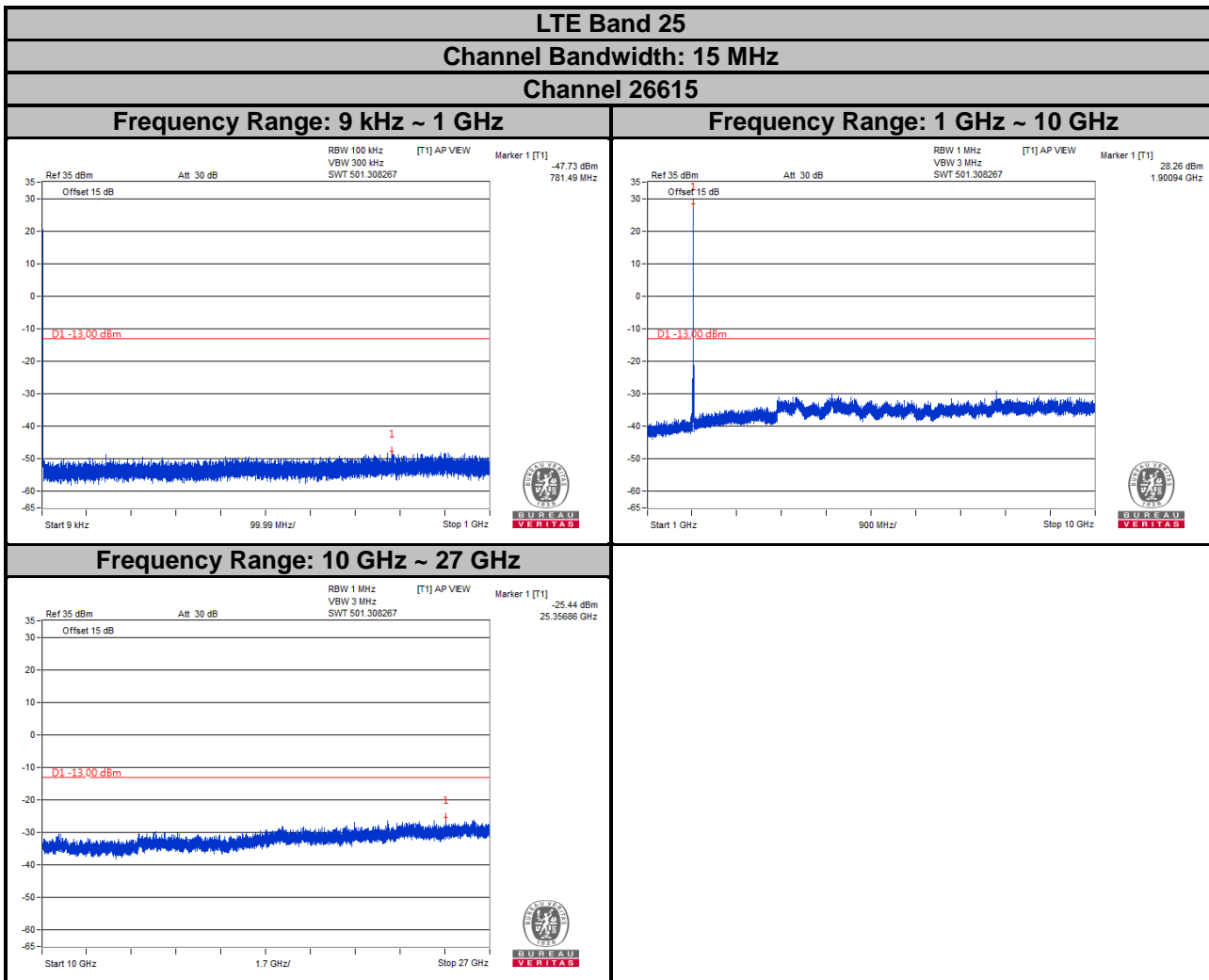
**Frequency Range: 10 GHz ~ 27 GHz**



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



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



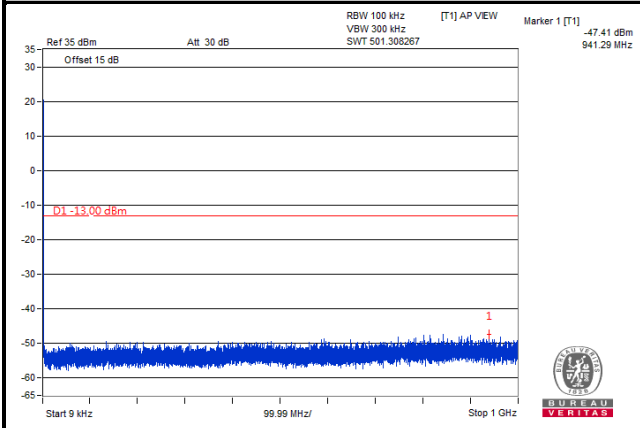
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

**LTE Band 25**

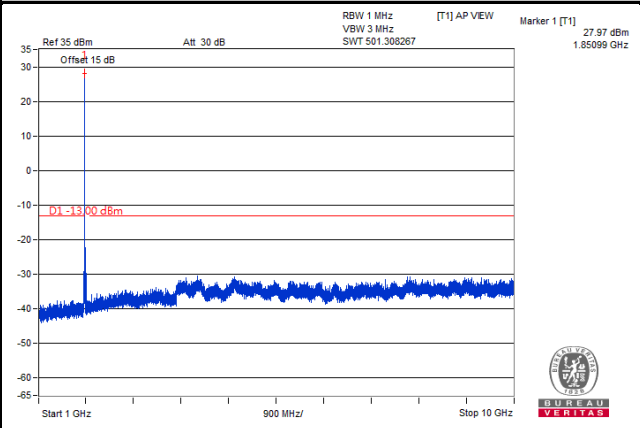
**Channel Bandwidth: 20 MHz**

**Channel 26140**

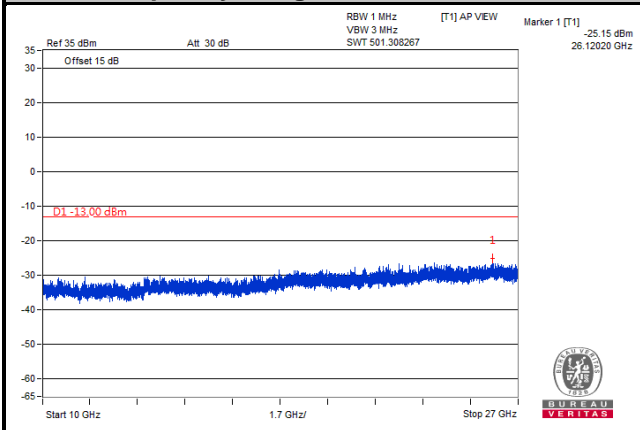
**Frequency Range: 9 kHz ~ 1 GHz**



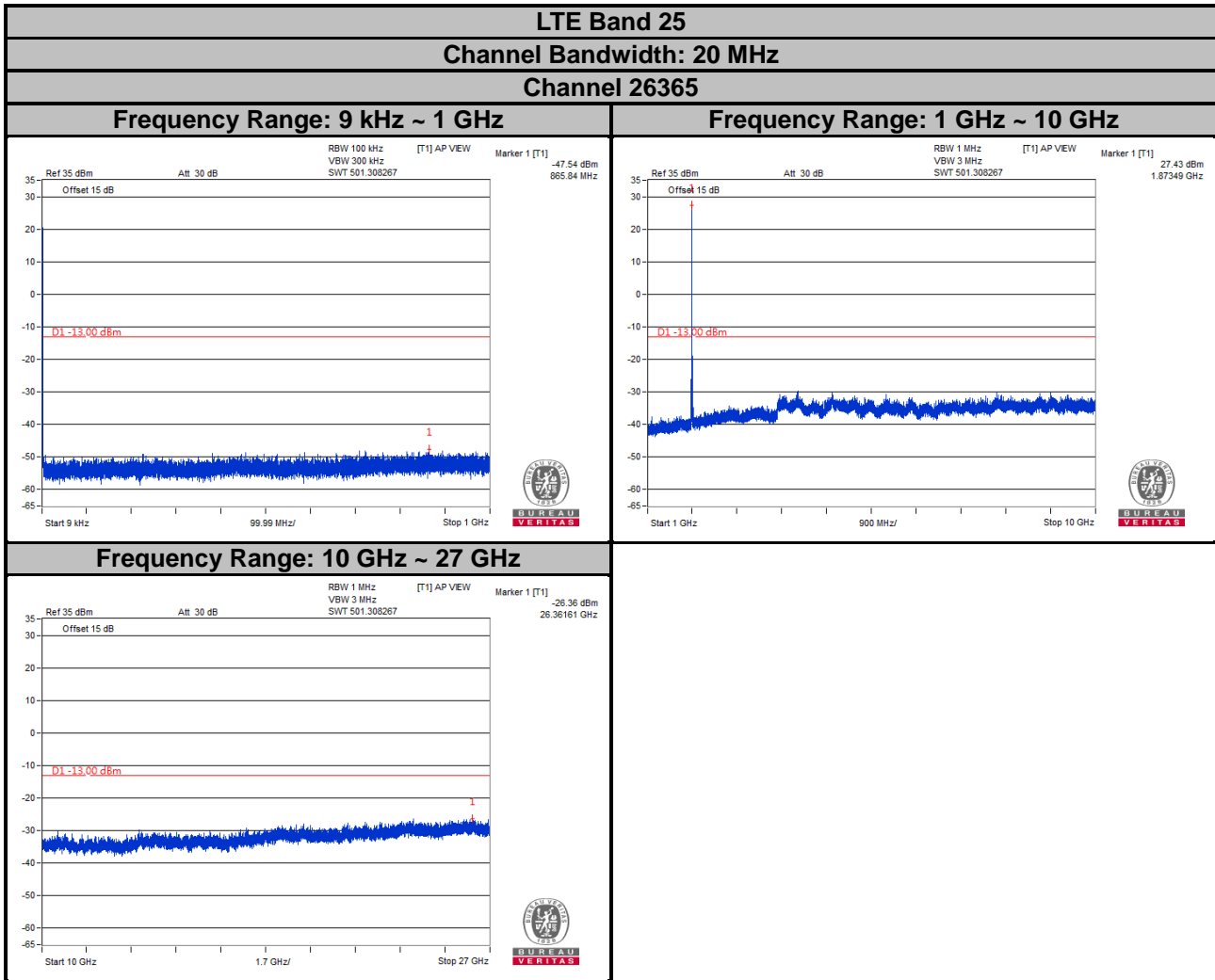
**Frequency Range: 1 GHz ~ 10 GHz**



**Frequency Range: 10 GHz ~ 27 GHz**



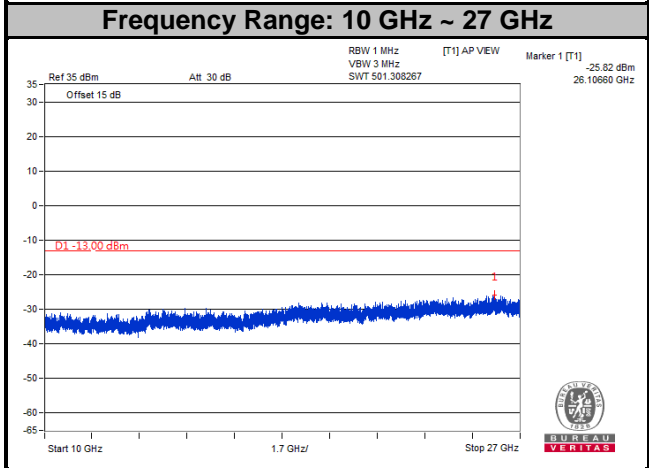
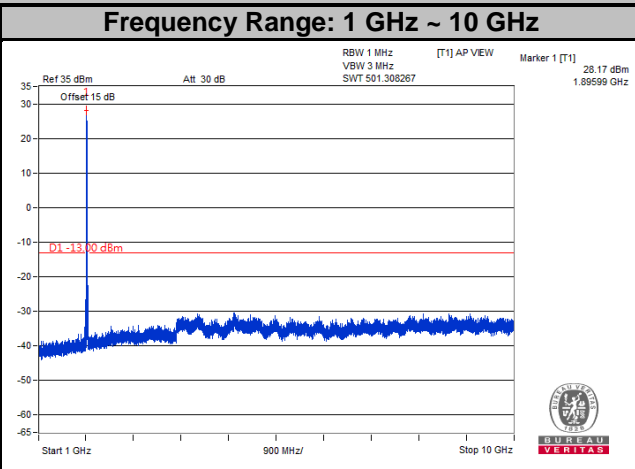
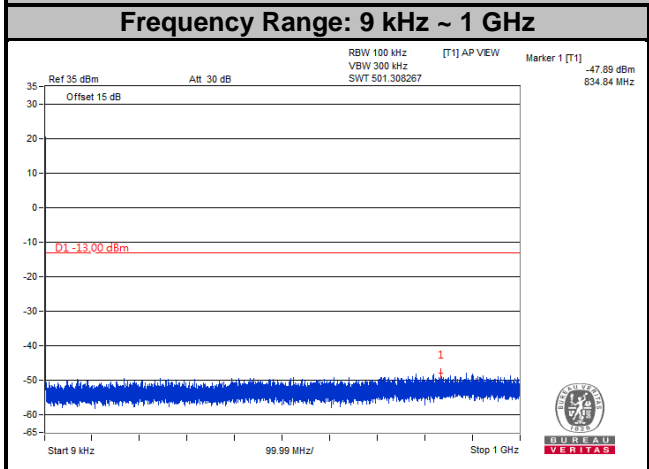
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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



**LTE Band 25**  
**Channel Bandwidth: 20 MHz**  
**Channel 26590**



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.

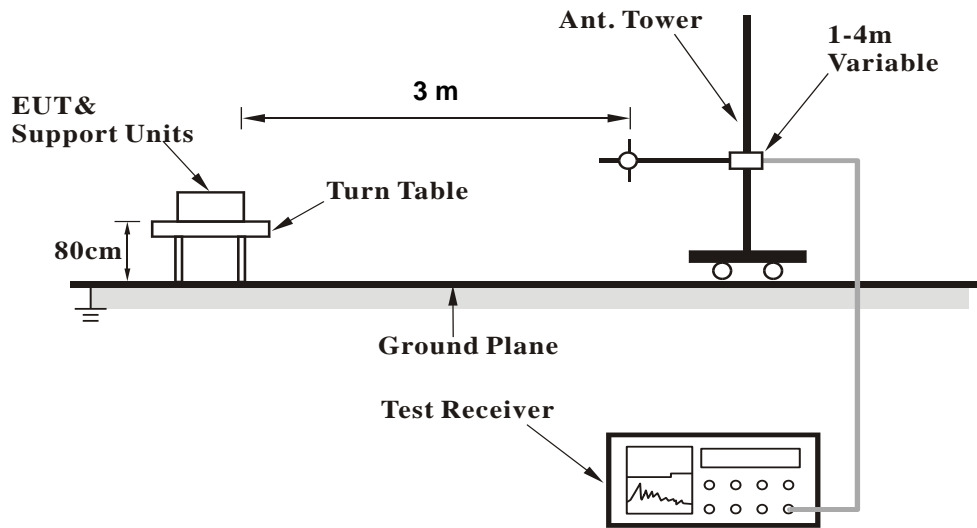
**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

### 4.8.3 Deviation from Test Standard

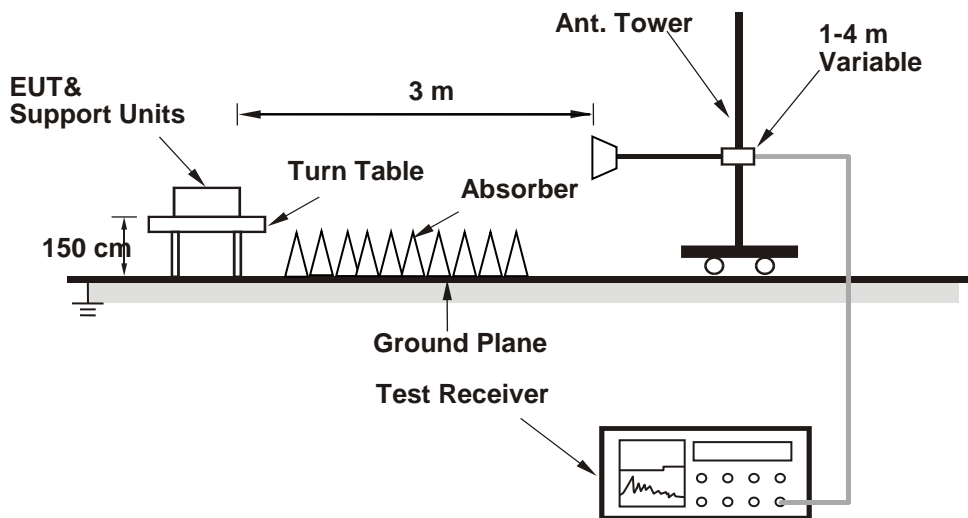
No deviation.

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

GSM:

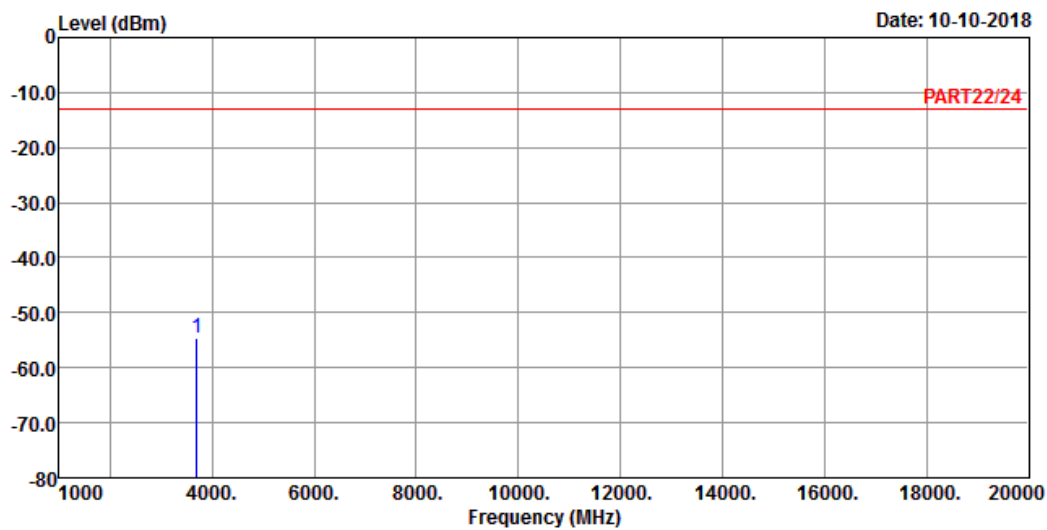
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : PCS 1900 Link\_L-CH  
 Tested by: Thomas Wei

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

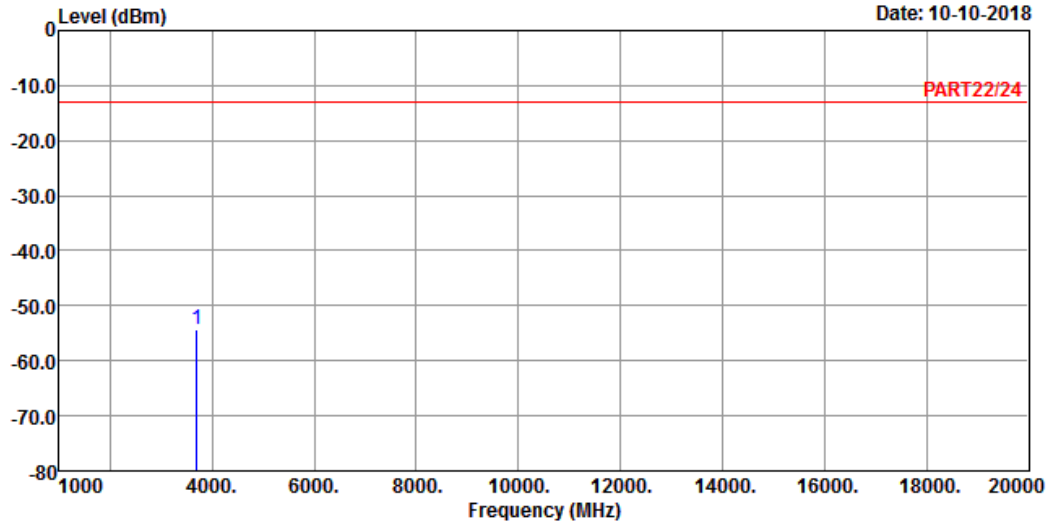
1 pp 3700.40 -54.74 -47.81 -13.00 -41.74 -6.93 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : PCS 1900 Link\_L-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3700.40	-54.19	-47.26	-13.00	-41.19	-6.93	Peak

Middle Channel

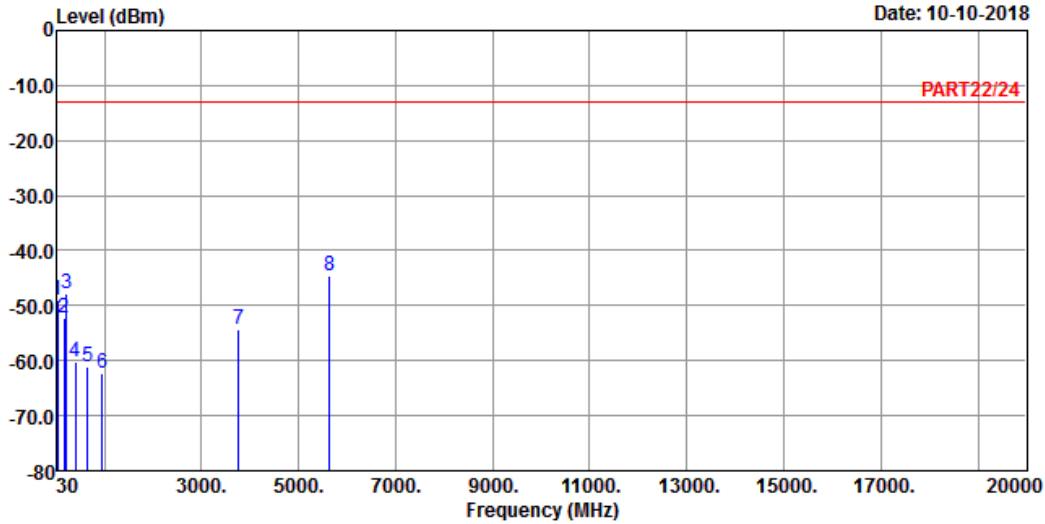


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 10-10-2018



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : PCS 1900 Link\_M-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	30.00	-48.89	-49.27	-13.00	-35.89	0.38	Peak
2	175.50	-52.29	-45.74	-13.00	-39.29	-6.55	Peak
3	225.94	-47.84	-40.87	-13.00	-34.84	-6.97	Peak
4	401.51	-60.37	-54.44	-13.00	-47.37	-5.93	Peak
5	652.74	-61.02	-60.18	-13.00	-48.02	-0.84	Peak
6	955.38	-62.27	-64.27	-13.00	-49.27	2.00	Peak
7	3760.00	-54.22	-47.57	-13.00	-41.22	-6.65	Peak
8 pp	5640.00	-44.63	-42.77	-13.00	-31.63	-1.86	Peak

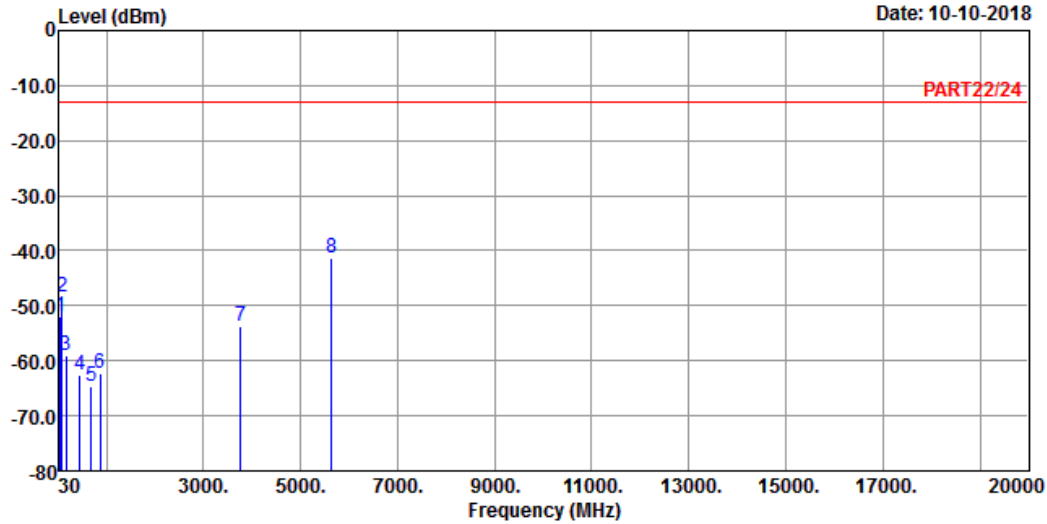


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 10-10-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : PCS 1900 Link\_M-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	54.25	-51.82	-45.75	-13.00	-38.82	-6.07	Peak
2	87.23	-48.33	-37.29	-13.00	-35.33	-11.04	Peak
3	175.50	-58.90	-52.35	-13.00	-45.90	-6.55	Peak
4	448.07	-62.47	-56.90	-13.00	-49.47	-5.57	Peak
5	687.66	-64.53	-64.23	-13.00	-51.53	-0.30	Peak
6	870.99	-62.20	-62.61	-13.00	-49.20	0.41	Peak
7	3760.00	-53.74	-47.09	-13.00	-40.74	-6.65	Peak
8 pp	5640.00	-41.23	-39.37	-13.00	-28.23	-1.86	Peak

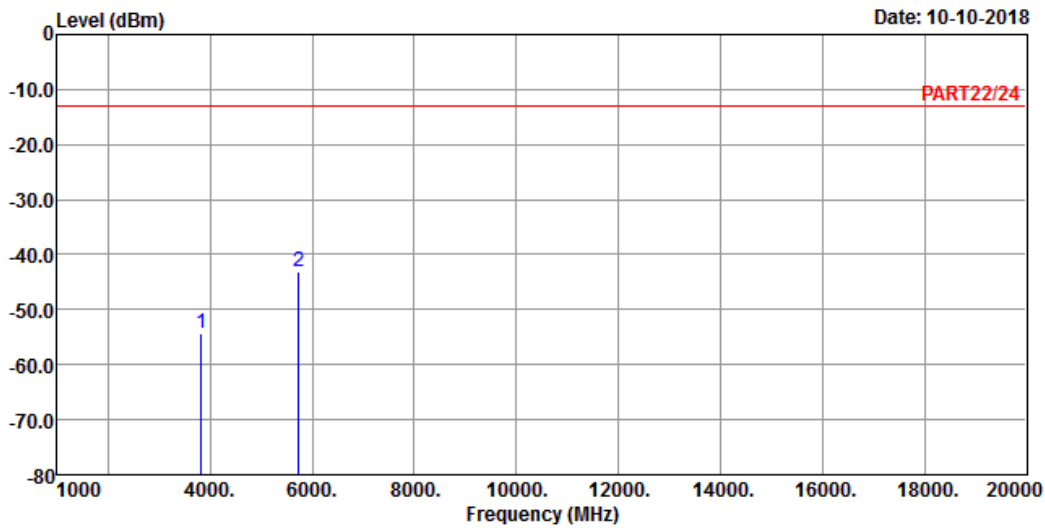
# High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : PCS 1900 Link\_H-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3819.60	-54.26	-47.86	-13.00	-41.26	-6.40	Peak
2 pp	5729.40	-43.01	-41.36	-13.00	-30.01	-1.65	Peak

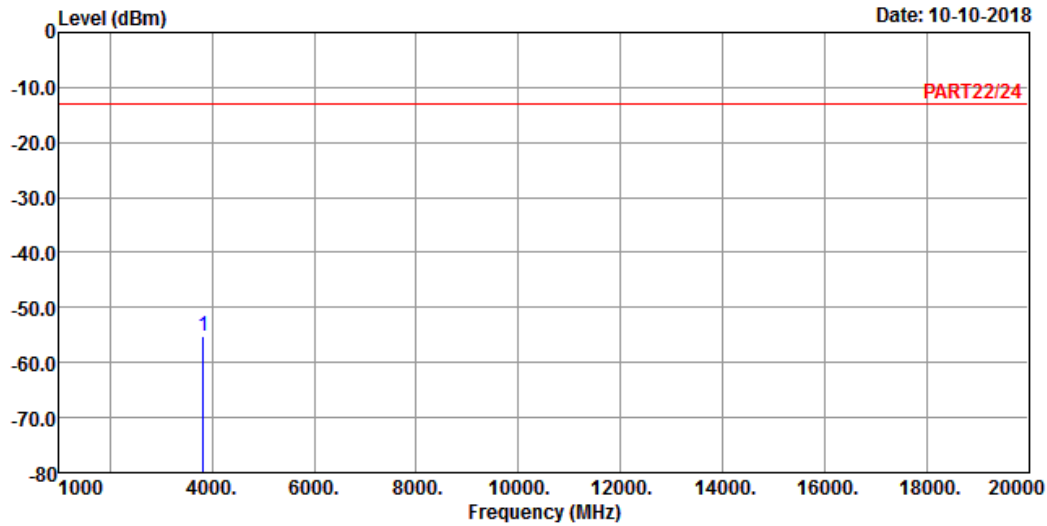




Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : PCS 1900 Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3819.60	-55.12	-48.72	-13.00	-42.12	-6.40	Peak

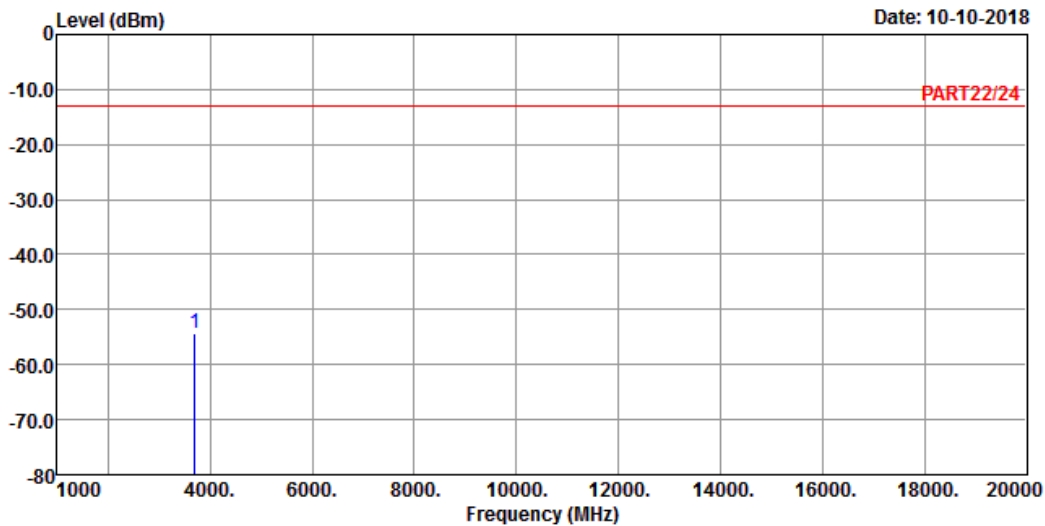
EDGE:  
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : EDGE 1900 Link\_L-CH  
 Tested by: Thomas Wei

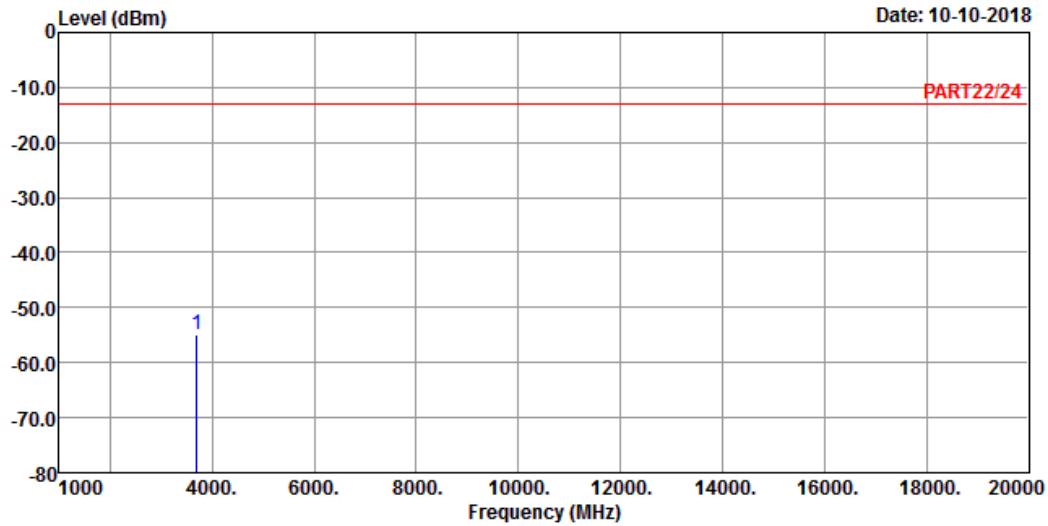
Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3700.40	-54.20	-47.27	-13.00	-41.20	-6.93	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : EDGE 1900 Link\_L-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3700.40	-54.92	-47.99	-13.00	-41.92	-6.93	Peak

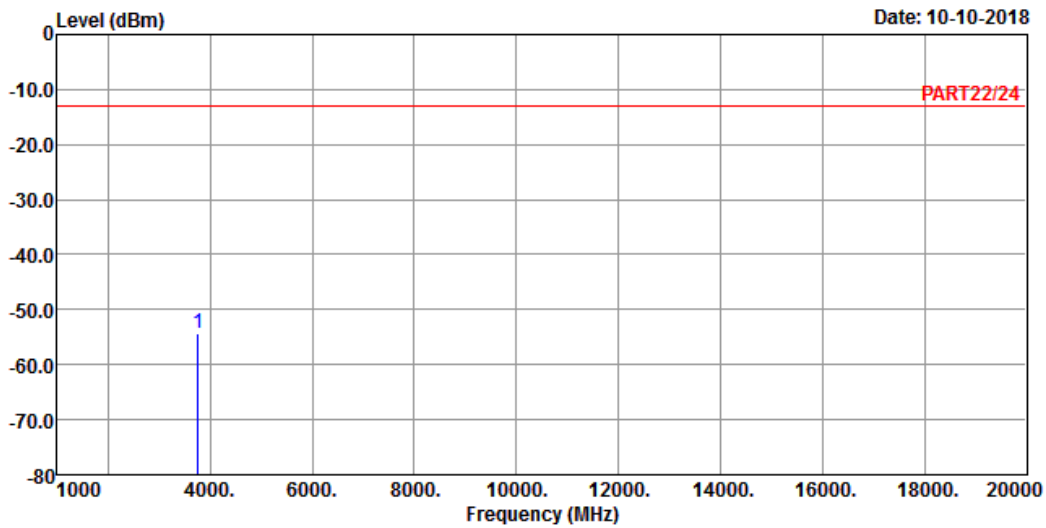
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : EDGE 1900 Link\_M-CH  
 Tested by: Thomas Wei

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

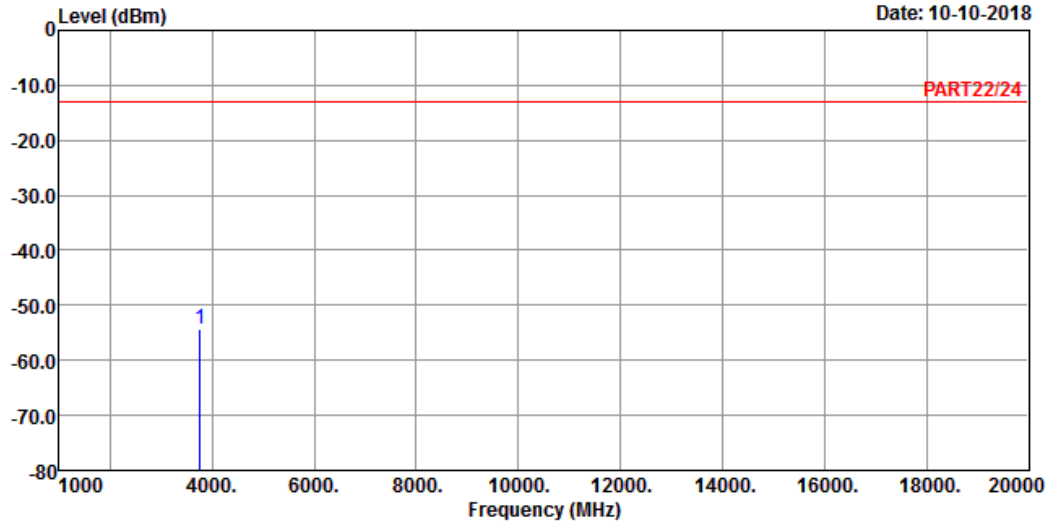
1 pp 3760.00 -54.18 -47.53 -13.00 -41.18 -6.65 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : EDGE 1900 Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3760.00	-54.33	-47.68	-13.00	-41.33	-6.65	Peak

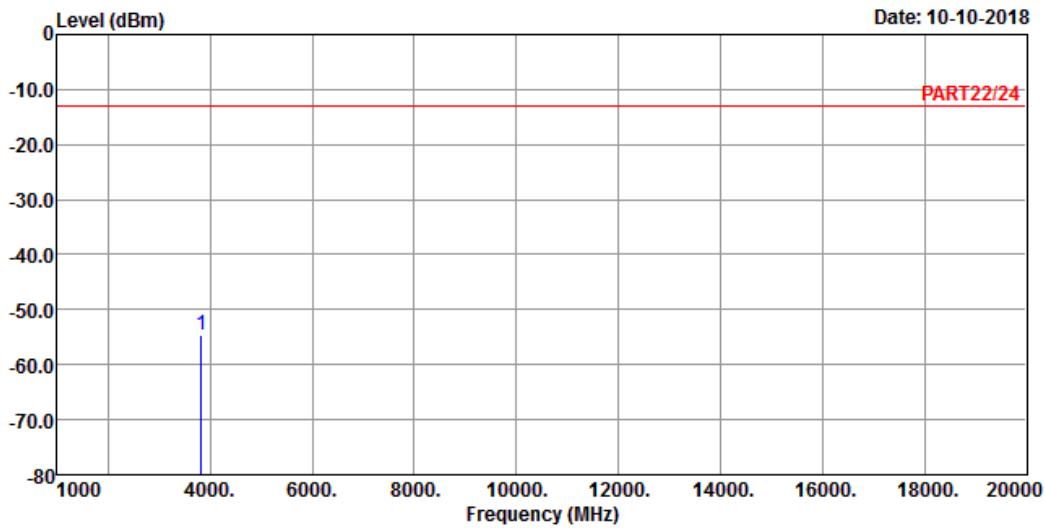
# High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : EDGE 1900 Link\_H-CH  
 Tested by: Thomas Wei

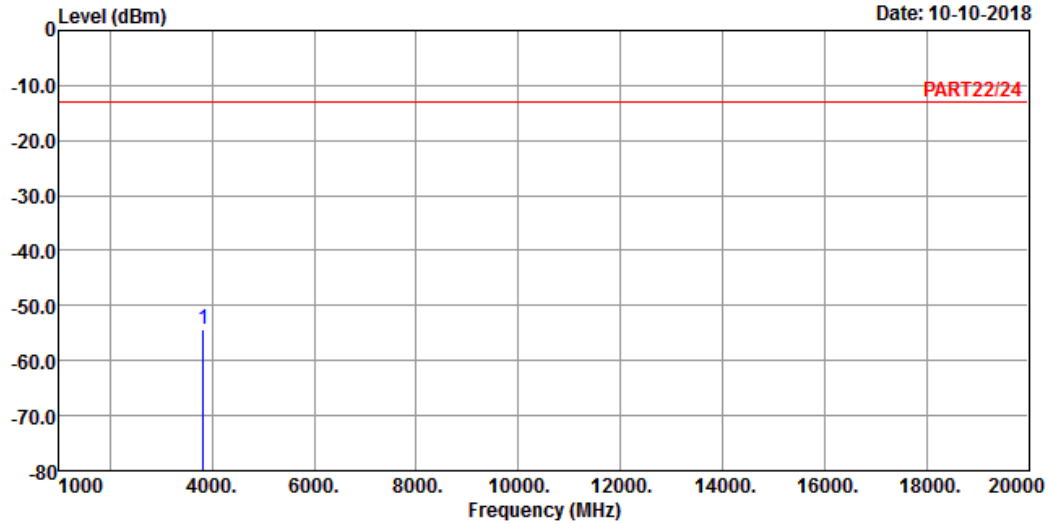
Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3819.60	-54.61	-48.21	-13.00	-41.61	-6.40	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : EDGE 1900 Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3819.60	-54.41	-48.01	-13.00	-41.41	-6.40	Peak

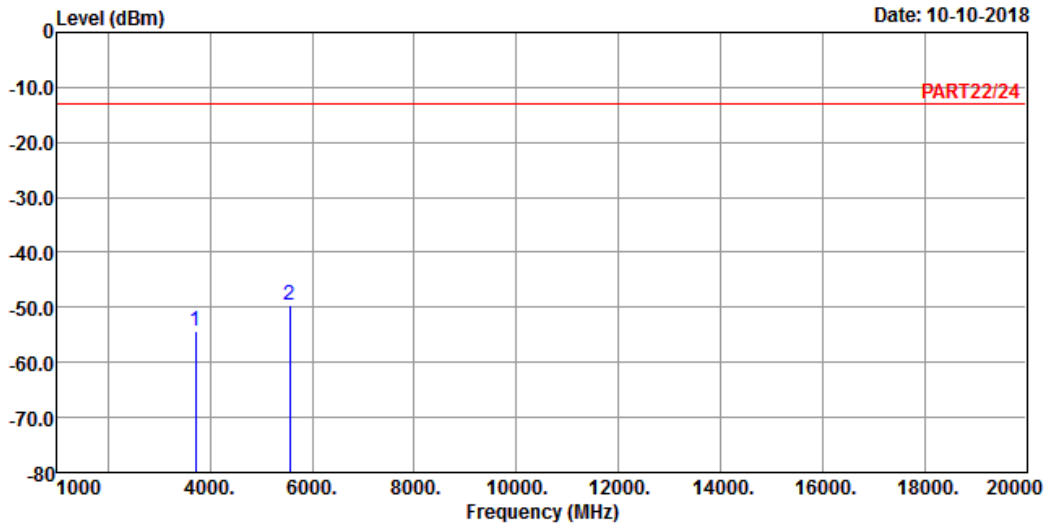
WCDMA:  
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
Condition: PART22/24 HORIZONTAL  
Remark : WCDMA Band 2 Link\_L-CH  
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3704.80	-54.42	-47.49	-13.00	-41.42	-6.93	Peak
2 pp	5557.20	-49.47	-47.56	-13.00	-36.47	-1.91	Peak



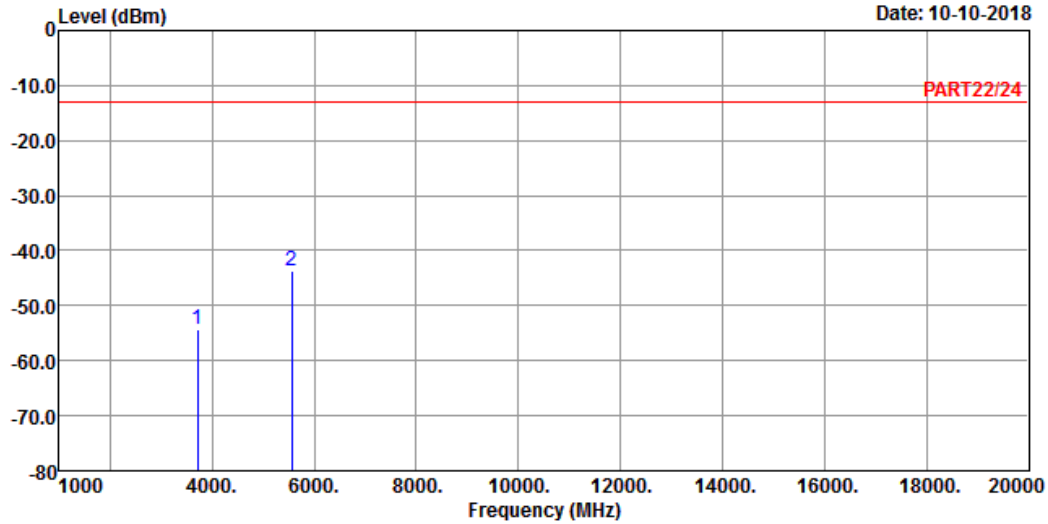


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2

Date: 10-10-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : WCDMA Band 2 Link\_L-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3704.80	-54.46	-47.53	-13.00	-41.46	-6.93	Peak
2 pp	5557.20	-43.64	-41.73	-13.00	-30.64	-1.91	Peak

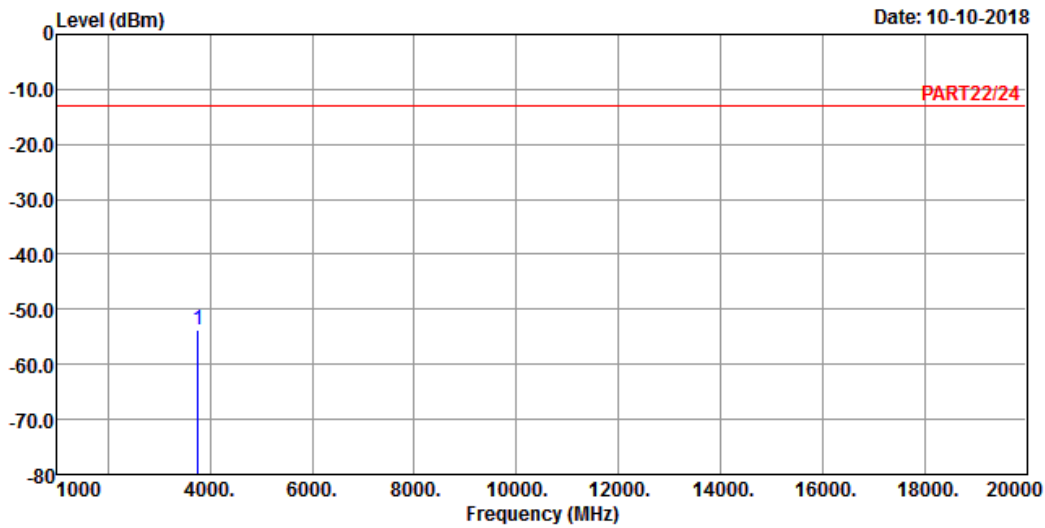
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : WCDMA Band 2 Link\_M-CH  
 Tested by: Thomas Wei

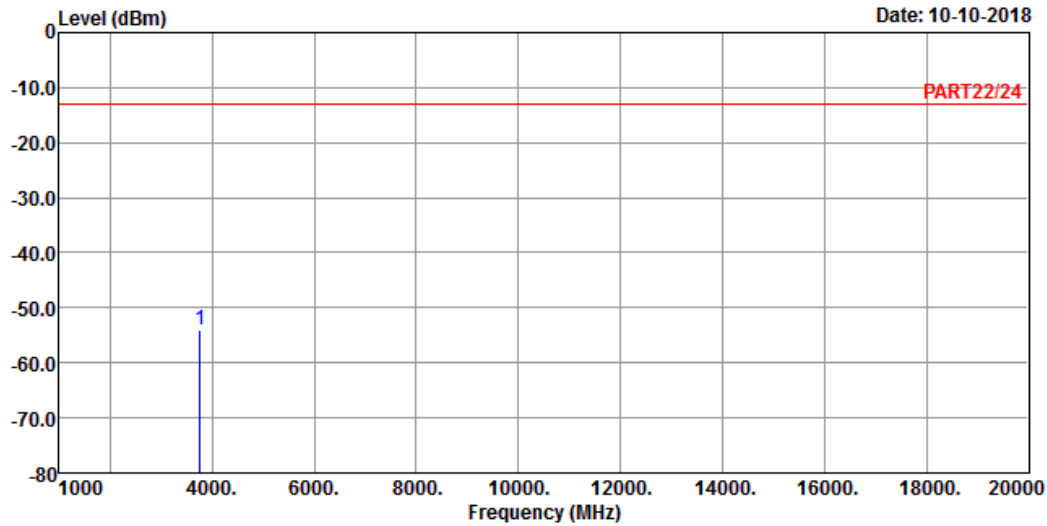
Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3760.00	-53.77	-47.12	-13.00	-40.77	-6.65	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : WCDMA Band 2 Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3760.00	-54.05	-47.40	-13.00	-41.05	-6.65	Peak

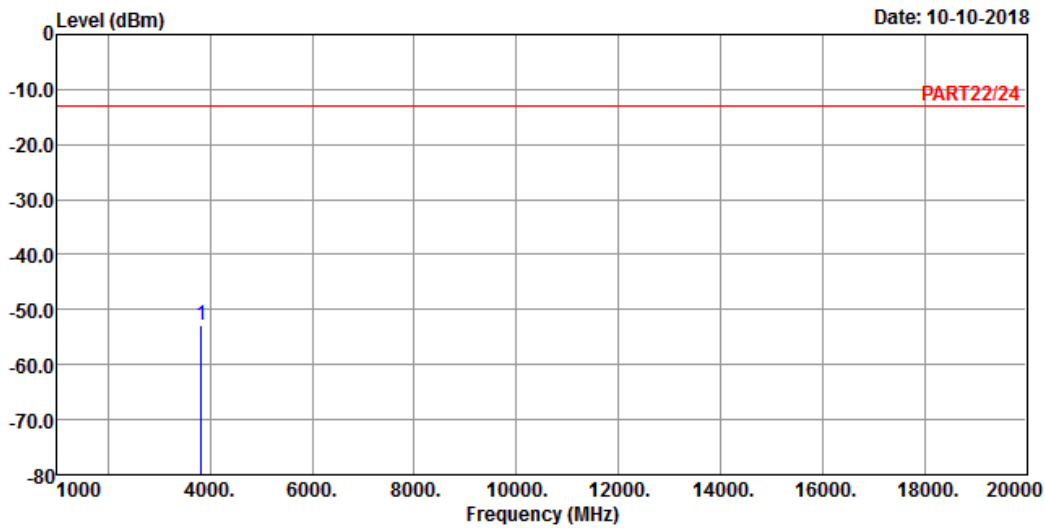
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : WCDMA Band 2 Link\_H-CH  
 Tested by: Thomas Wei

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

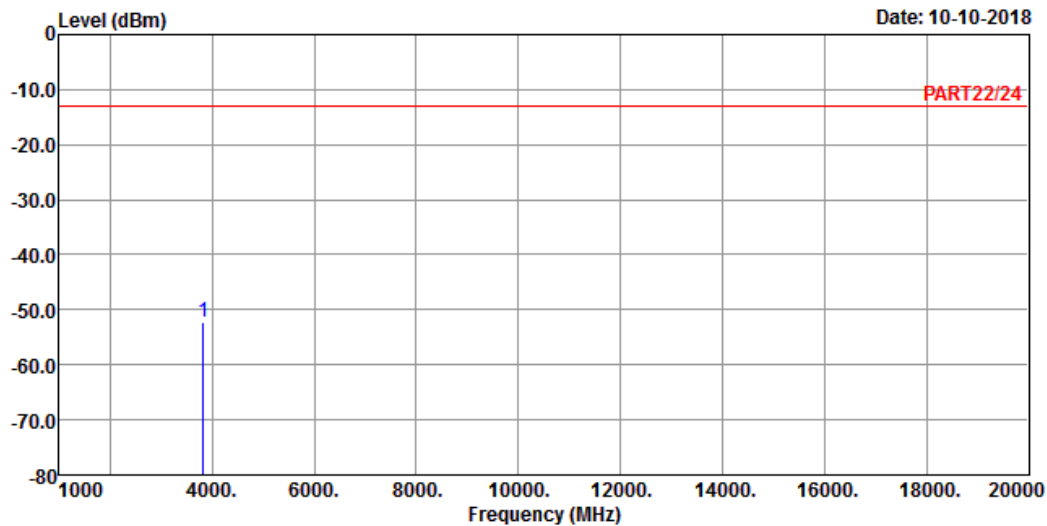
1 pp 3815.20 -52.92 -46.52 -13.00 -39.92 -6.40 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : WCDMA Band 2 Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3815.20	-52.11	-45.71	-13.00	-39.11	-6.40	Peak

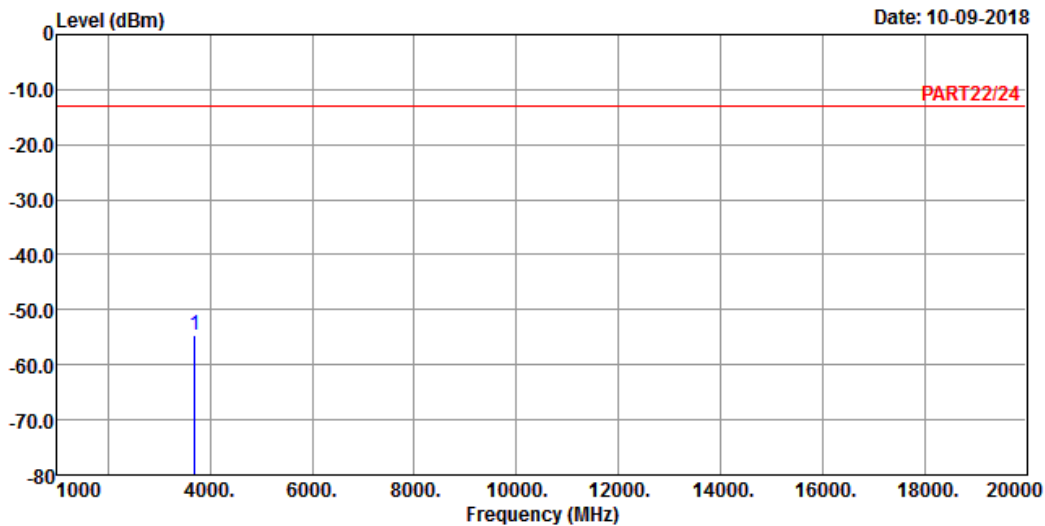
CDMA:  
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
Condition: PART22/24 HORIZONTAL  
Remark : CDMA BC1 Link\_L-CH  
Tested by: Thomas Wei

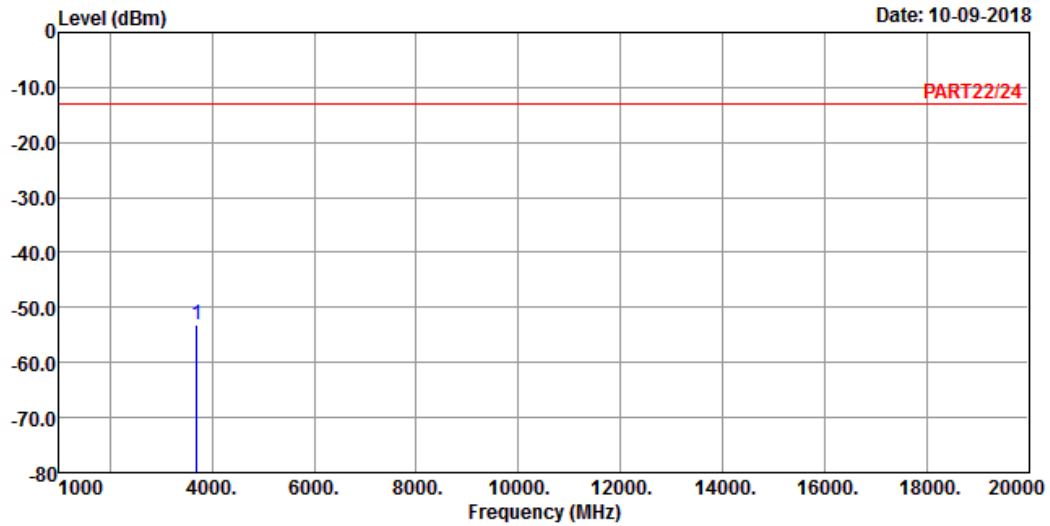
Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3702.50	-54.49	-47.56	-13.00	-41.49	-6.93	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : CDMA BC1 Link\_L-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3702.50	-53.16	-46.23	-13.00	-40.16	-6.93	Peak

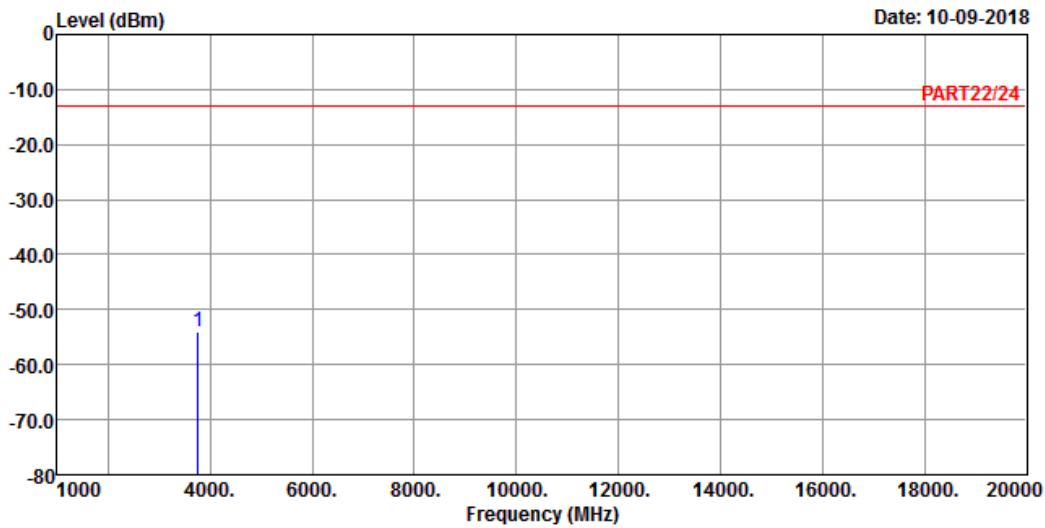
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : CDMA BC1 Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3760.00	-53.99	-47.34	-13.00	-40.99	-6.65	Peak



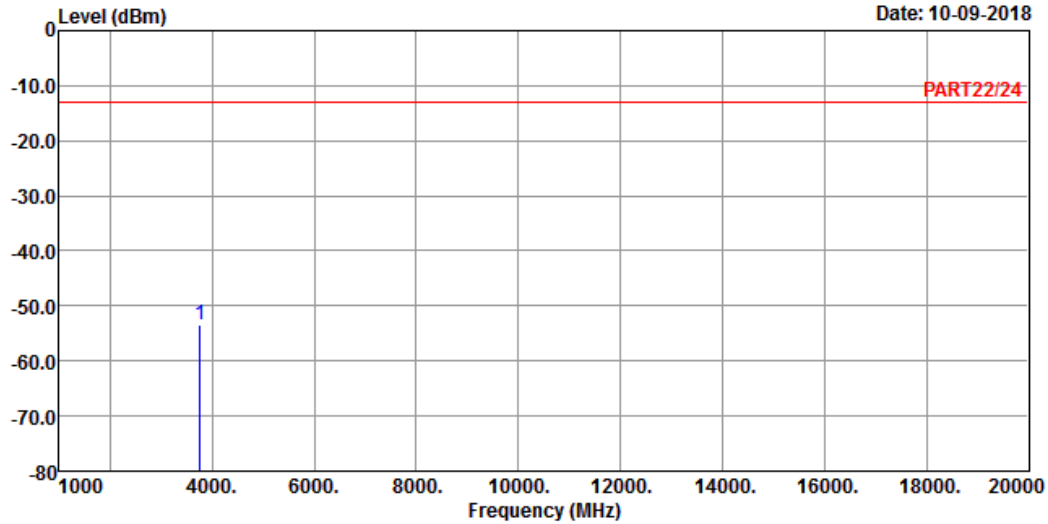


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2

Date: 10-09-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : CDMA BC1 Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3760.00	-53.57	-46.92	-13.00	-40.57	-6.65	Peak

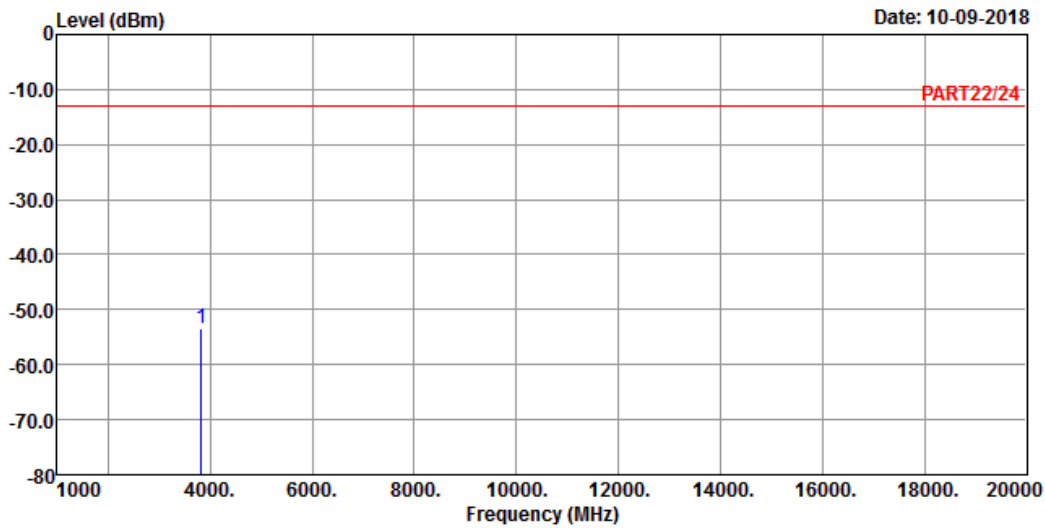
# High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : CDMA BC1 Link\_H-CH  
 Tested by: Thomas Wei

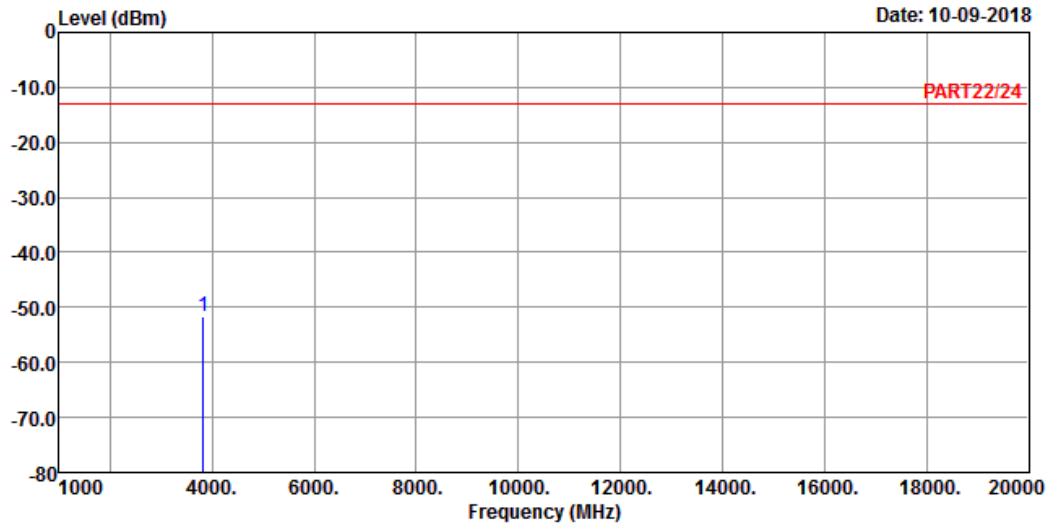
	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm	dBm	dBm	dB	dB
1 pp 3817.50	-53.34	-46.94	-13.00	-40.34	-6.40 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : CDMA BC1 Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3817.50	-51.79	-45.39	-13.00	-38.79	-6.40	Peak

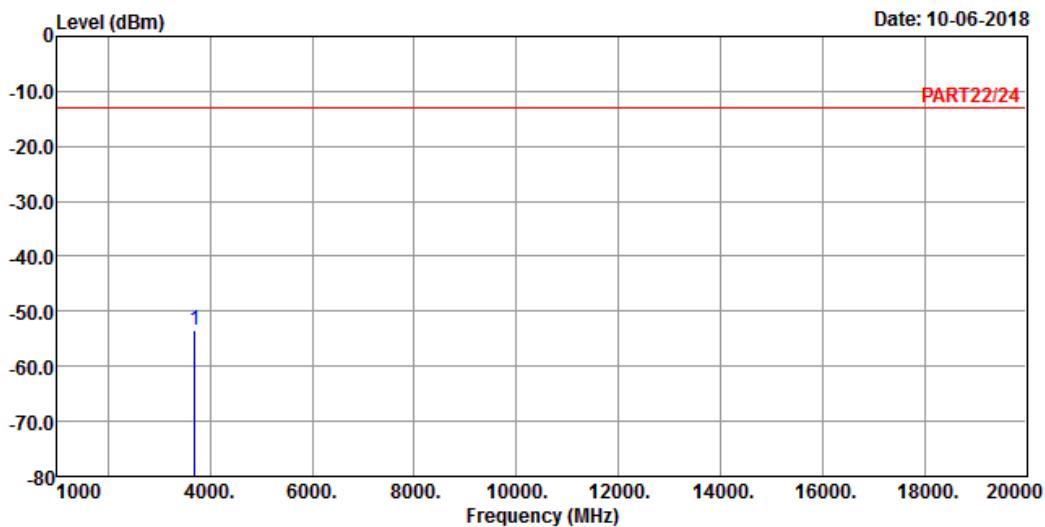
LTE Band 2  
 Channel Bandwidth: 1.4 MHz / QPSK  
 Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 2 QPSK\_1.4M Link\_L-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3701.40	-53.52	-46.59	-13.00	-40.52	-6.93	Peak

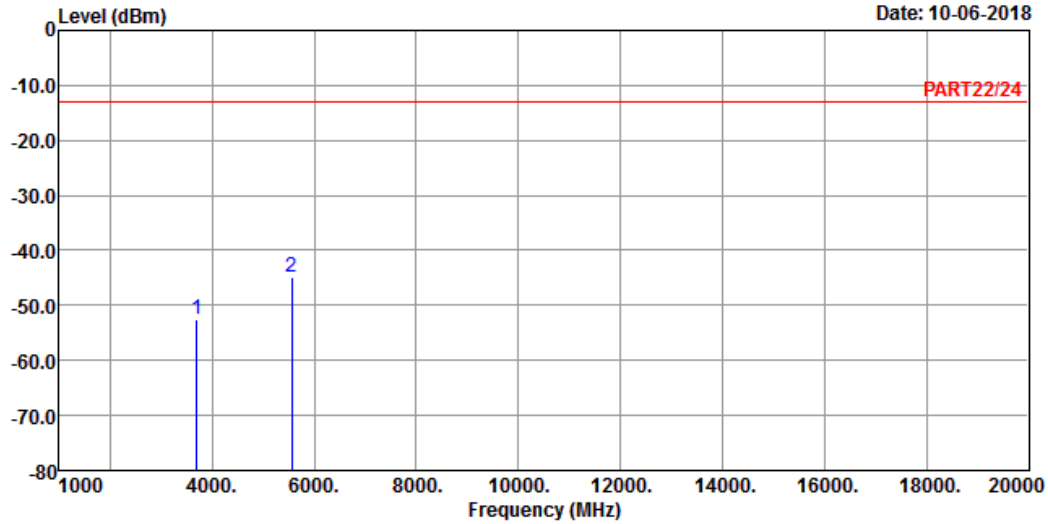


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2

Date: 10-06-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_1.4M Link\_L-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3701.40	-52.53	-45.60	-13.00	-39.53	-6.93	Peak
2	5552.10	-44.90	-43.00	-13.00	-31.90	-1.90	Peak

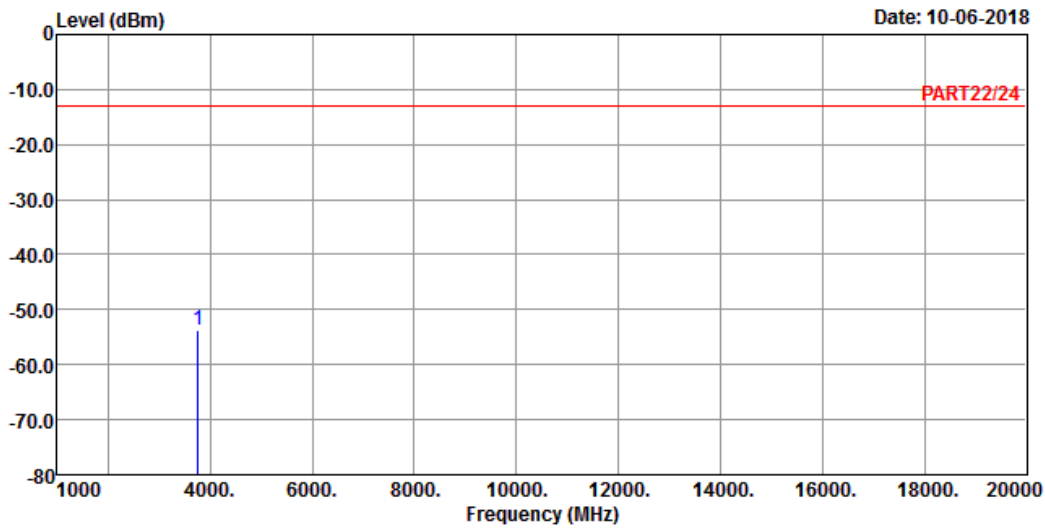
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 2 QPSK\_1.4M Link\_M-CH  
 Tested by: Thomas Wei

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

1 pp 3760.00 -53.87 -47.27 -13.00 -40.87 -6.60 Peak

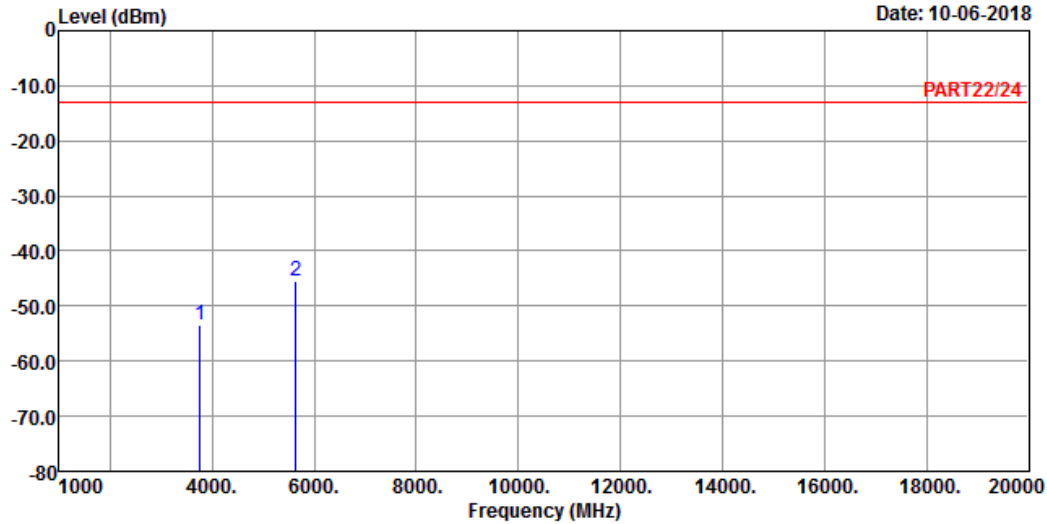


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2

Date: 10-06-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_1.4M Link\_M-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3760.00	-53.36	-46.71	-13.00	-40.36	-6.65	Peak
2 pp	5640.00	-45.46	-43.60	-13.00	-32.46	-1.86	Peak

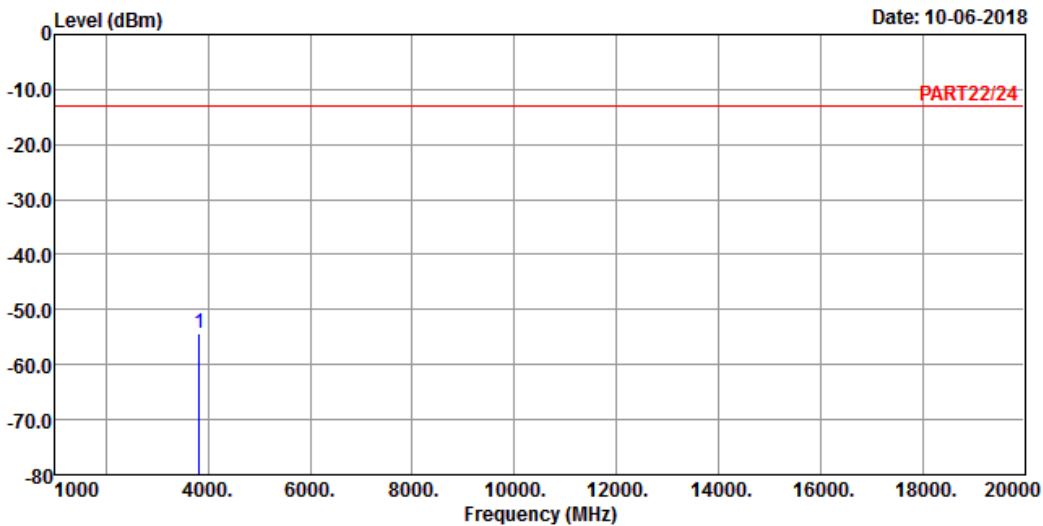
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Date: 10-06-2018

Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 2 QPSK\_1.4M Link\_H-CH  
 Tested by: Thomas Wei

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

1 pp 3818.60 -54.31 -47.91 -13.00 -41.31 -6.40 Peak

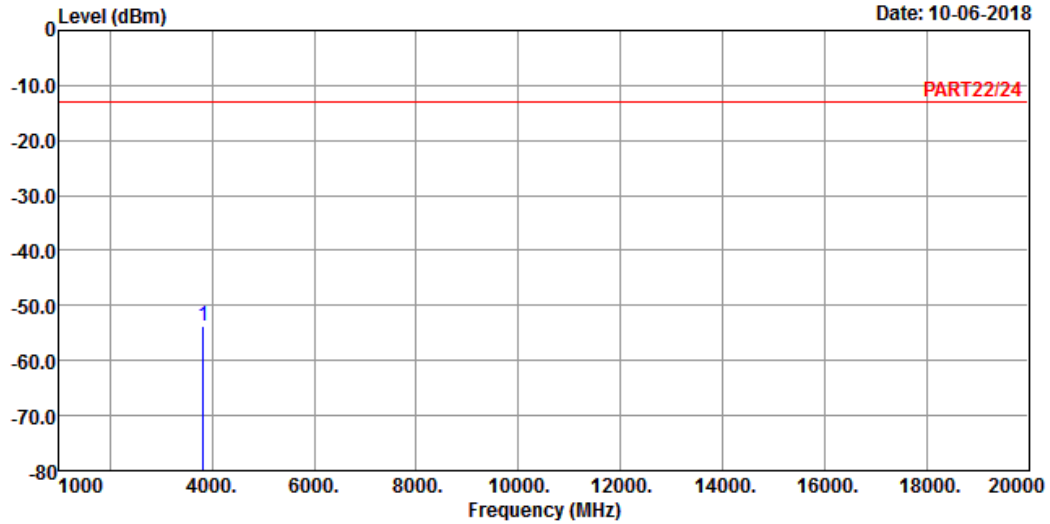




Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_1.4M Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3818.60	-53.70	-47.30	-13.00	-40.70	-6.40	Peak

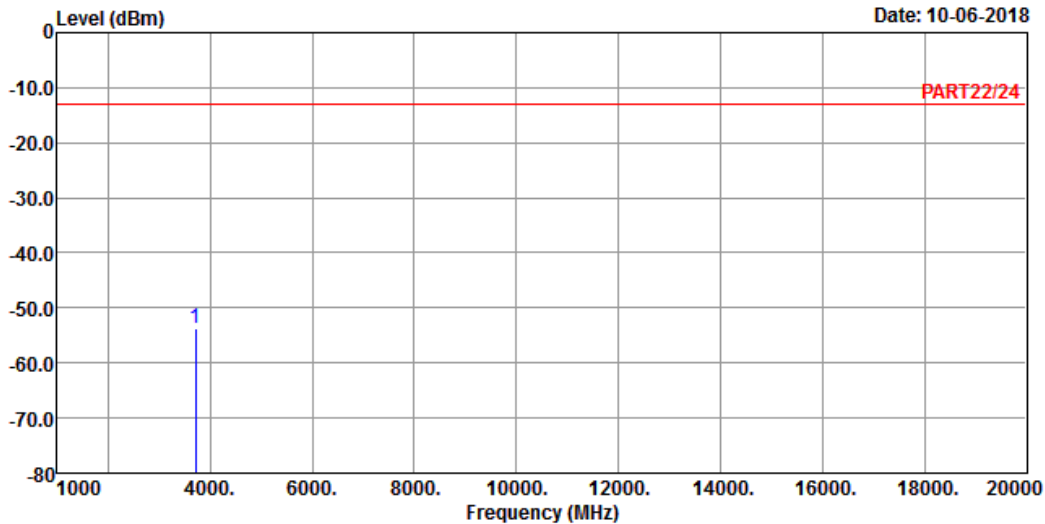
Channel Bandwidth: 5 MHz / QPSK  
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
Condition: PART22/24 HORIZONTAL  
Remak : LTE Band 2 QPSK\_5M Link\_L-CH  
Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3705.00	-53.61	-46.68	-13.00	-40.61	-6.93	Peak

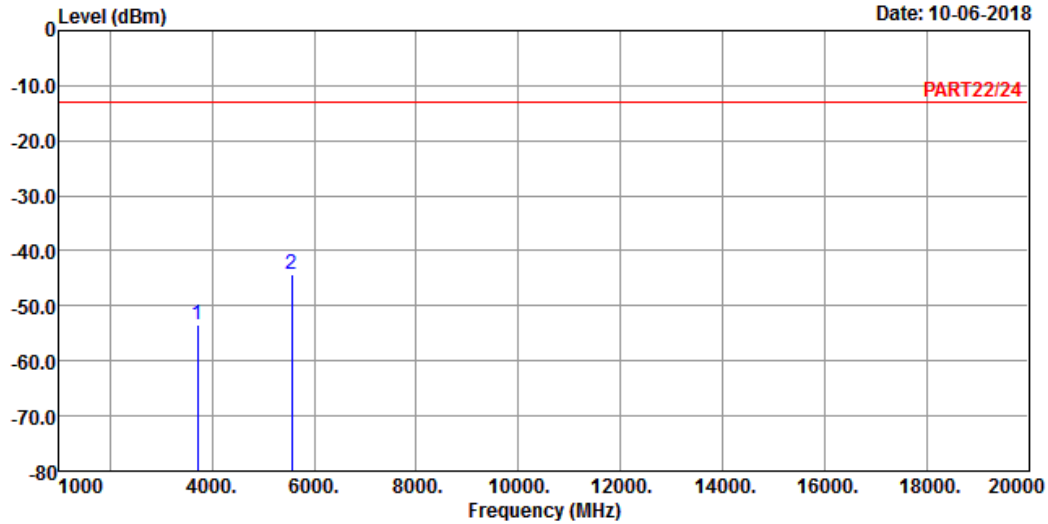


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2

Date: 10-06-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_5M Link\_L-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3705.00	-53.53	-46.60	-13.00	-40.53	-6.93	Peak
2 pp	5557.50	-44.24	-42.33	-13.00	-31.24	-1.91	Peak

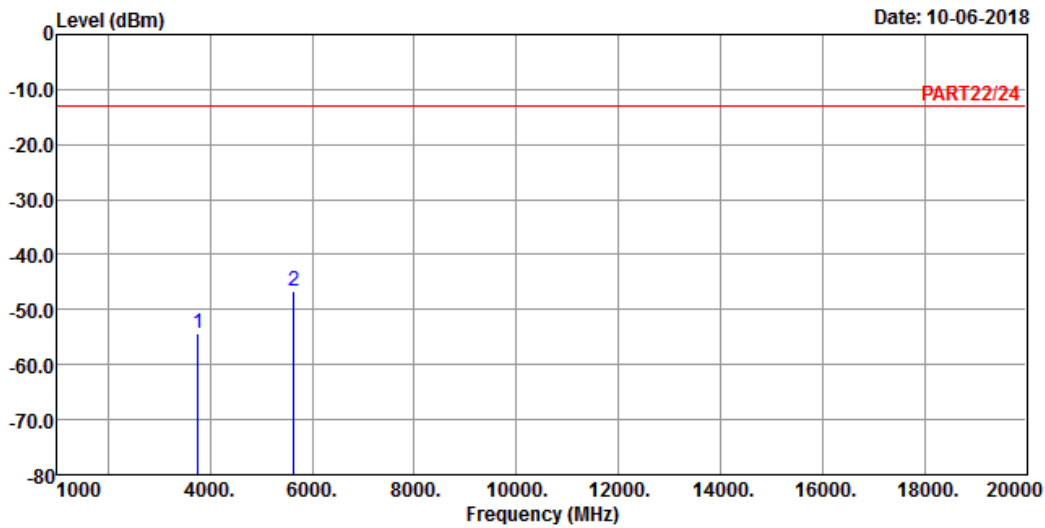
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 2 QPSK\_5M Link\_M-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3760.00	-54.25	-47.60	-13.00	-41.25	-6.65	Peak
2 pp	5640.00	-46.61	-44.75	-13.00	-33.61	-1.86	Peak

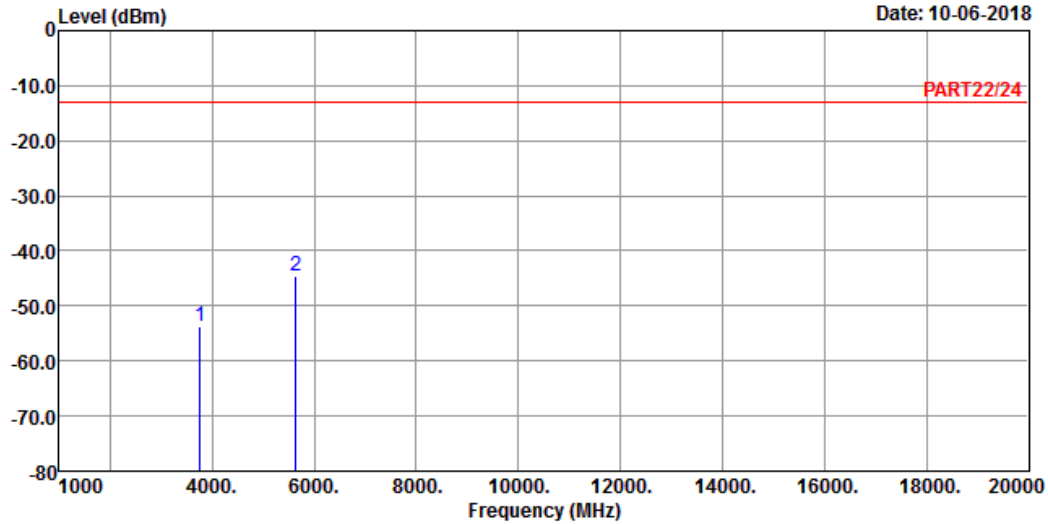


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2

Date: 10-06-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_5M Link\_M-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	3760.00	-53.86	-47.21	-13.00	-40.86	-6.65	Peak
2 pp	5640.00	-44.61	-42.75	-13.00	-31.61	-1.86	Peak

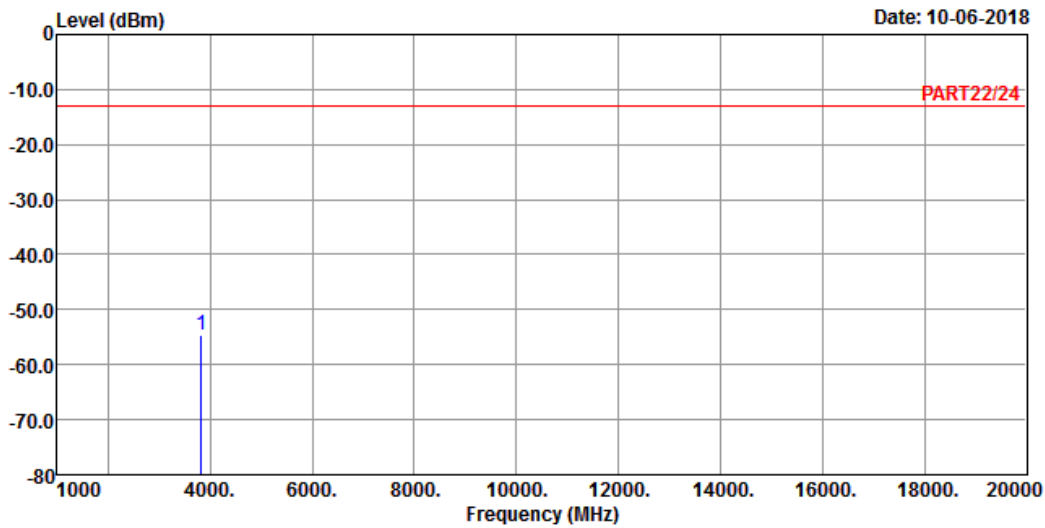
# High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 2 QPSK\_5M Link\_H-CH  
 Tested by: Thomas Wei

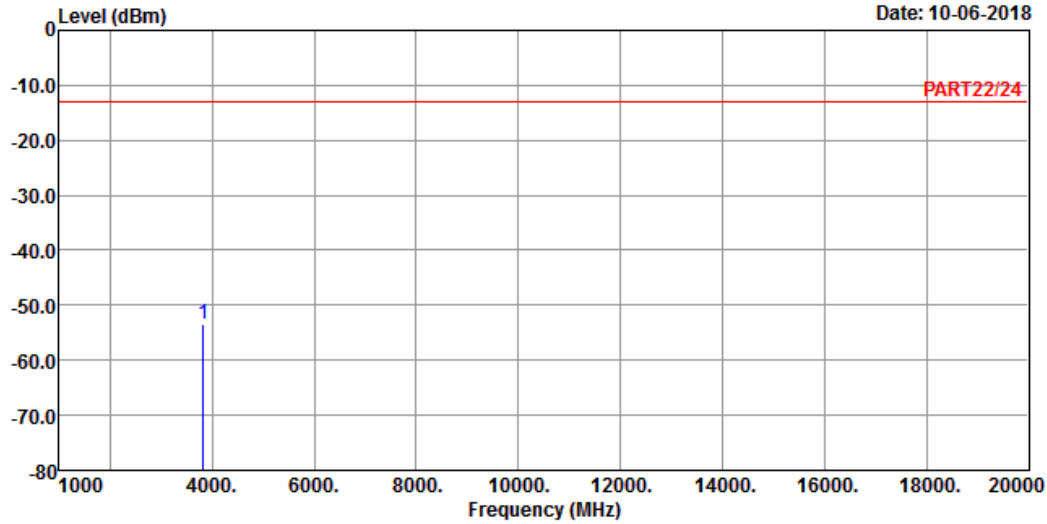
	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm	dBm	dBm	dB	dB
1 pp 3815.00	-54.60	-48.20	-13.00	-41.60	-6.40 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : LTE Band 2 QPSK\_5M Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3815.00	-53.44	-47.04	-13.00	-40.44	-6.40	Peak

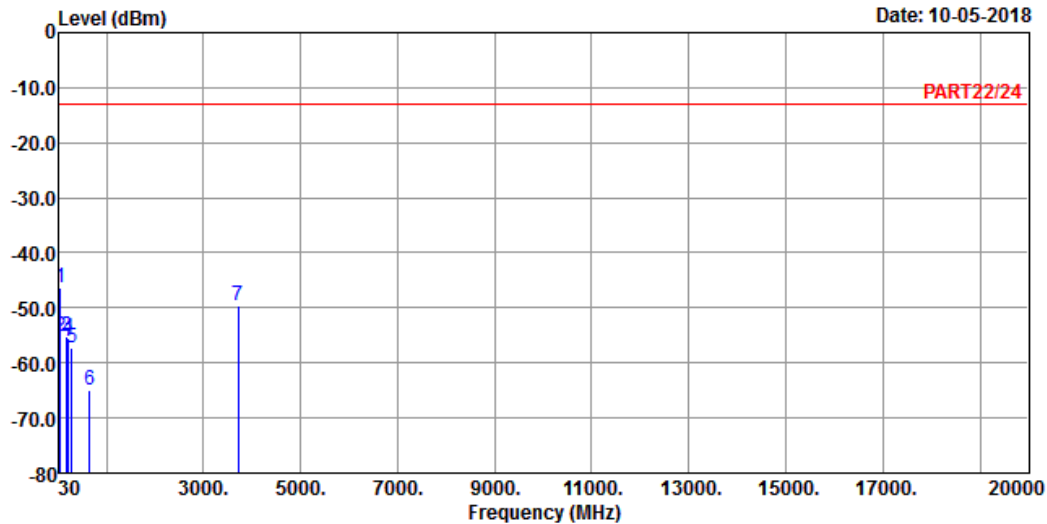
Channel Bandwidth: 20 MHz / QPSK  
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 Chamber 5  
Condition: PART22/24 HORIZONTAL  
Remak : LTE Band 2 QPSK\_20M Link\_L-CH  
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	44.55	-46.42	-44.43	-13.00	-33.42	-1.99	Peak
2	53.28	-55.18	-49.37	-13.00	-42.18	-5.81	Peak
3	178.41	-55.24	-48.18	-13.00	-42.24	-7.06	Peak
4	218.18	-55.47	-48.19	-13.00	-42.47	-7.28	Peak
5	286.08	-57.34	-50.61	-13.00	-44.34	-6.73	Peak
6	646.92	-64.93	-64.05	-13.00	-51.93	-0.88	Peak
7	3720.00	-49.45	-42.63	-13.00	-36.45	-6.82	Peak



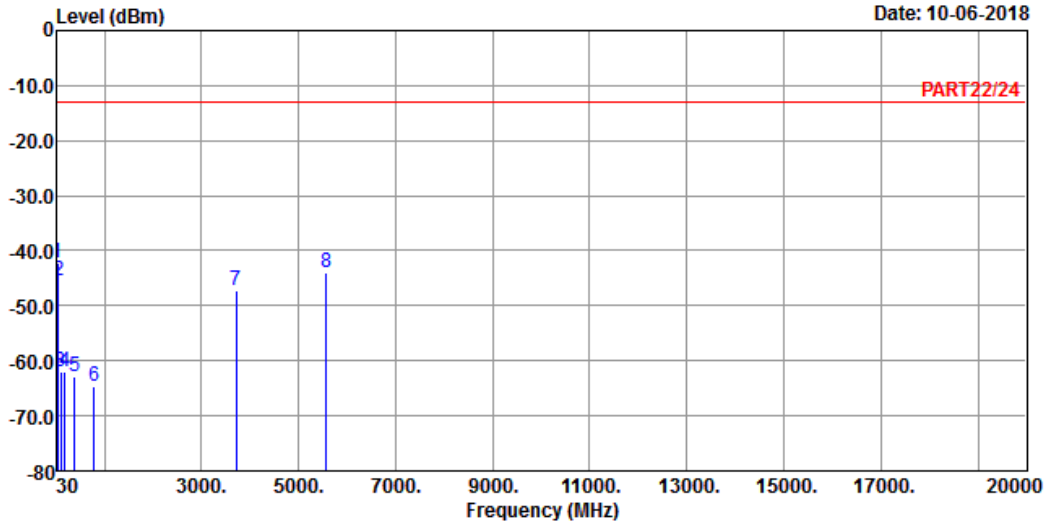


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 10-06-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_20M Link\_L-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	30.00	-42.23	-42.61	-13.00	-29.23	0.38	Peak
2	44.55	-45.35	-43.36	-13.00	-32.35	-1.99	Peak
3	95.96	-62.10	-51.32	-13.00	-49.10	-10.78	Peak
4	178.41	-61.87	-54.81	-13.00	-48.87	-7.06	Peak
5	387.93	-63.02	-57.00	-13.00	-50.02	-6.02	Peak
6	791.45	-64.52	-65.28	-13.00	-51.52	0.76	Peak
7	3720.00	-47.29	-40.47	-13.00	-34.29	-6.82	Peak
8	5580.00	-44.07	-42.15	-13.00	-31.07	-1.92	Peak

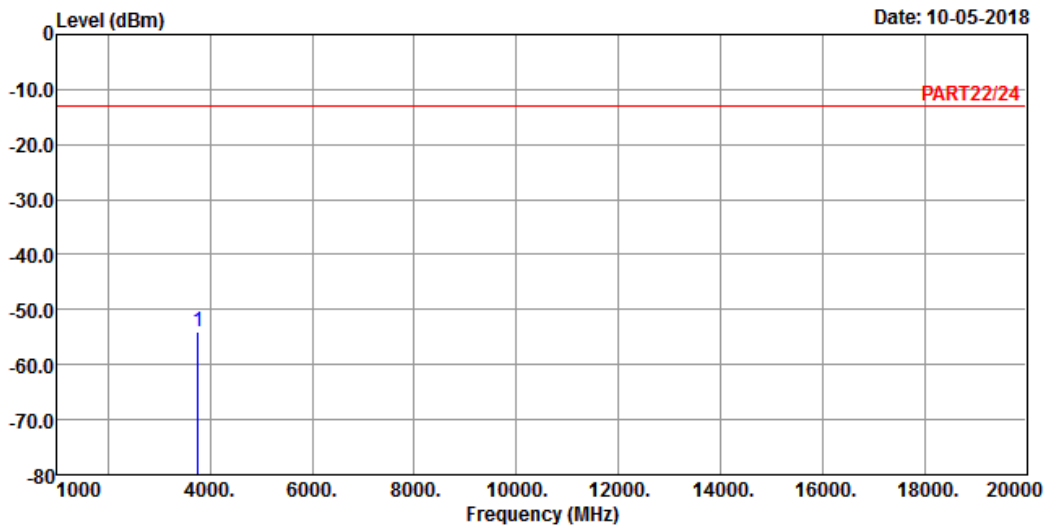
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 2 QPSK\_20M Link\_M-CH  
 Tested by: Thomas Wei

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

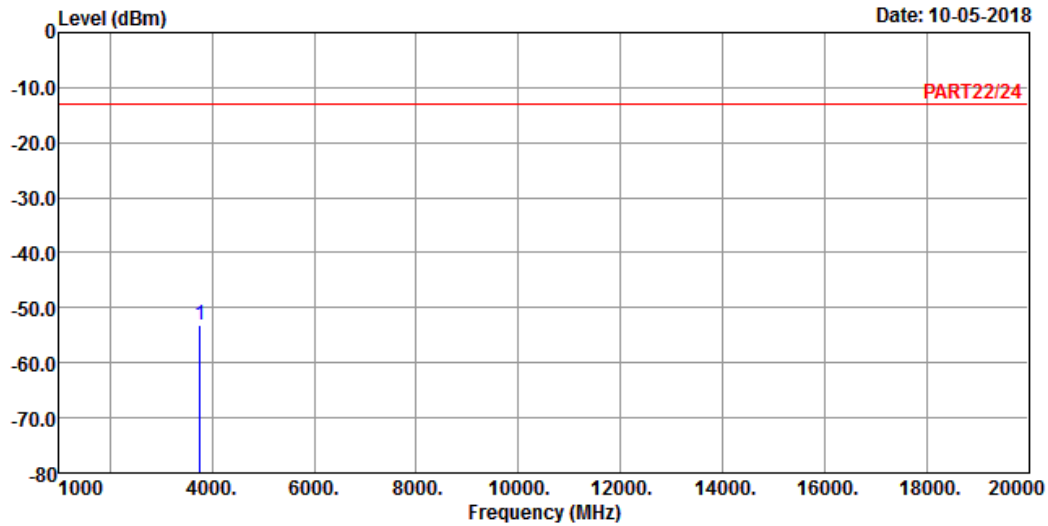
1 pp 3760.00 -54.12 -47.47 -13.00 -41.12 -6.65 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_20M Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3760.00	-53.27	-46.62	-13.00	-40.27	-6.65	Peak

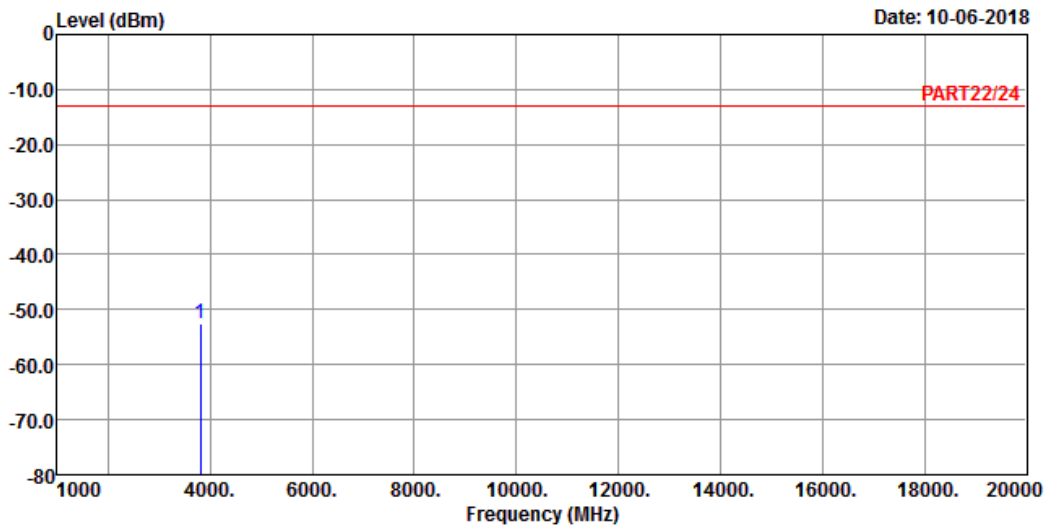
# High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 2 QPSK\_20M Link\_H-CH  
 Tested by: Thomas Wei

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

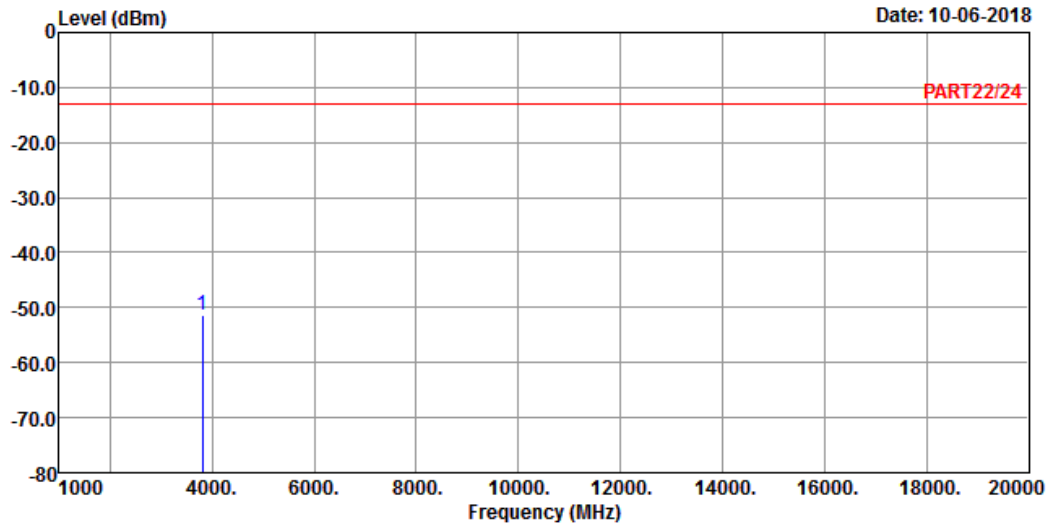
1 pp 3800.00 -52.62 -46.19 -13.00 -39.62 -6.43 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 2 QPSK\_20M Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3800.00	-51.38	-44.95	-13.00	-38.38	-6.43	Peak

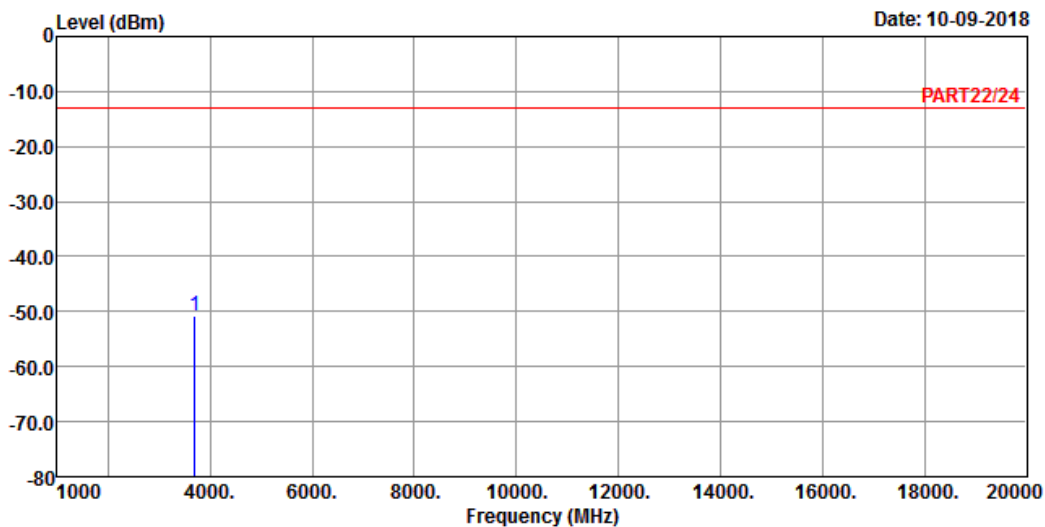
LTE Band 25  
 Channel Bandwidth: 1.4 MHz / QPSK  
 Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remark : LTE Band 25 QPSK\_1.4M Link\_L-CH  
 Tested by: Thomas Wei

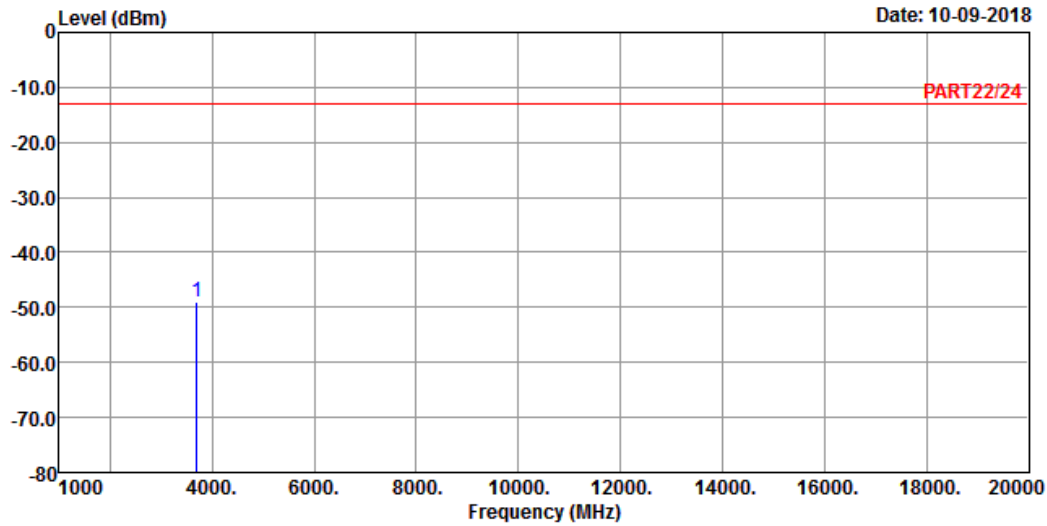
Read	Limit	Over				
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3701.40	-50.76	-43.83	-13.00	-37.76	-6.93	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : LTE Band 25 QPSK\_1.4M Link\_L-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3701.40	-48.93	-42.00	-13.00	-35.93	-6.93	Peak

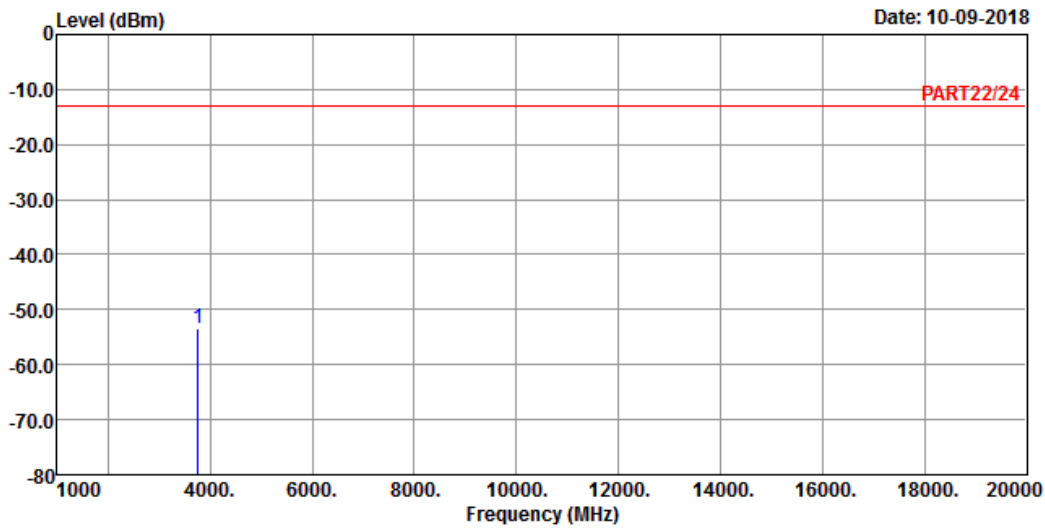
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 25 QPSK\_1.4M Link\_M-CH  
 Tested by: Thomas Wei

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

1 pp 3765.00 -53.29 -46.69 -13.00 -40.29 -6.60 Peak

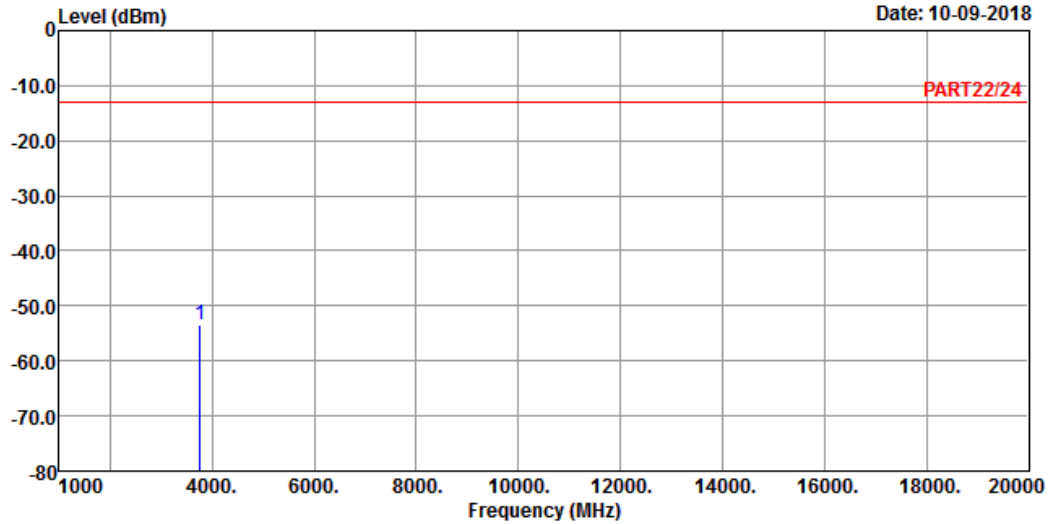




Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 25 QPSK\_1.4M Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3765.00	-53.57	-46.97	-13.00	-40.57	-6.60	Peak

High Channel

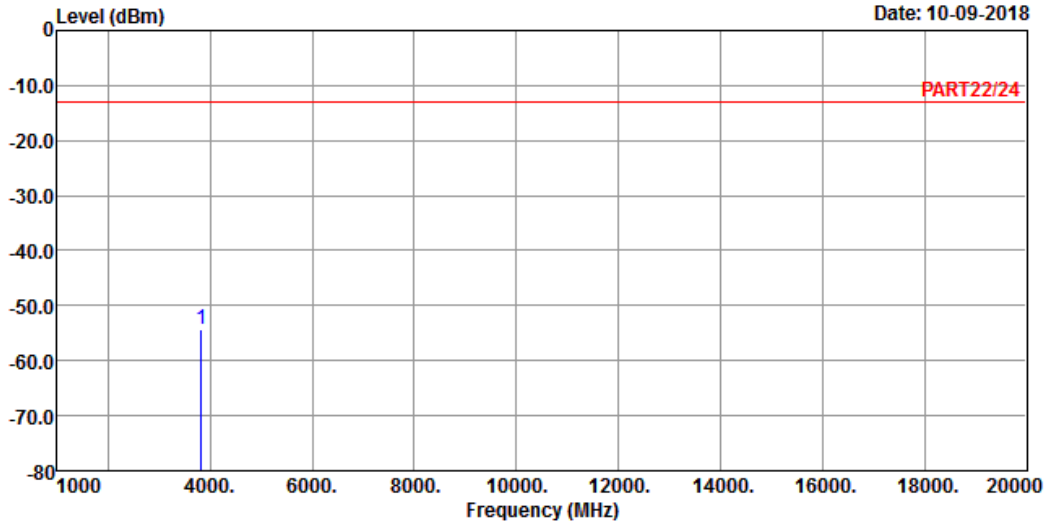


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 10-09-2018



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 25 QPSK\_1.4M Link\_H-CH  
 Tested by: Thomas Wei

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

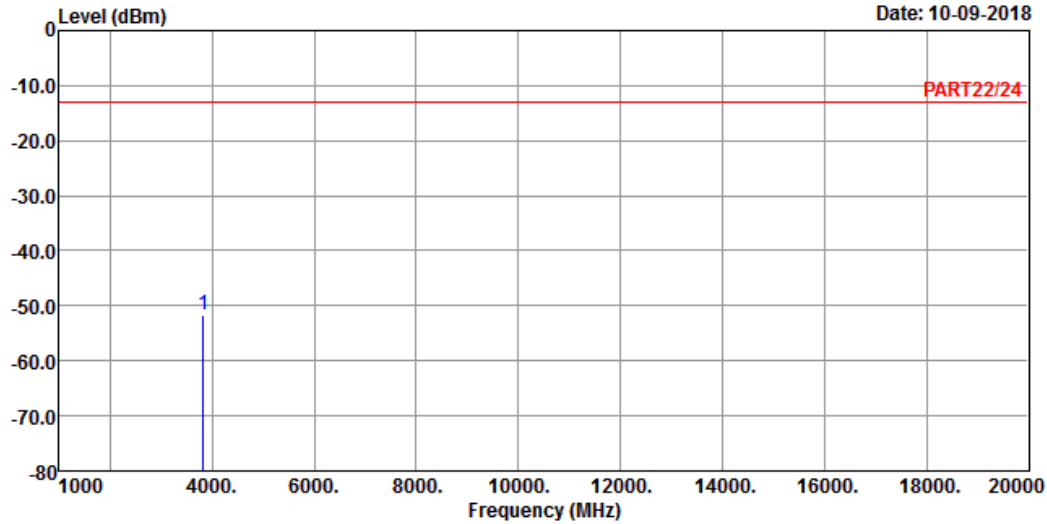
1 pp 3828.60 -54.40 -48.03 -13.00 -41.40 -6.37 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remark : LTE Band 25 QPSK\_1.4M Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3828.60	-51.74	-45.37	-13.00	-38.74	-6.37	Peak

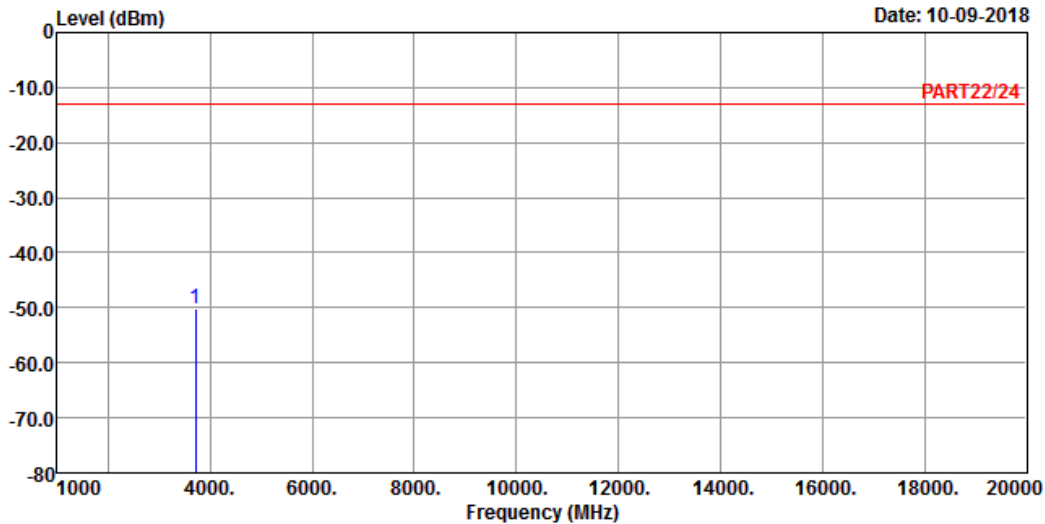
Channel Bandwidth: 5 MHz / QPSK  
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
Condition: PART22/24 HORIZONTAL  
Remak : LTE Band 25 QPSK\_5M Link\_L-CH  
Tested by: Thomas Wei

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

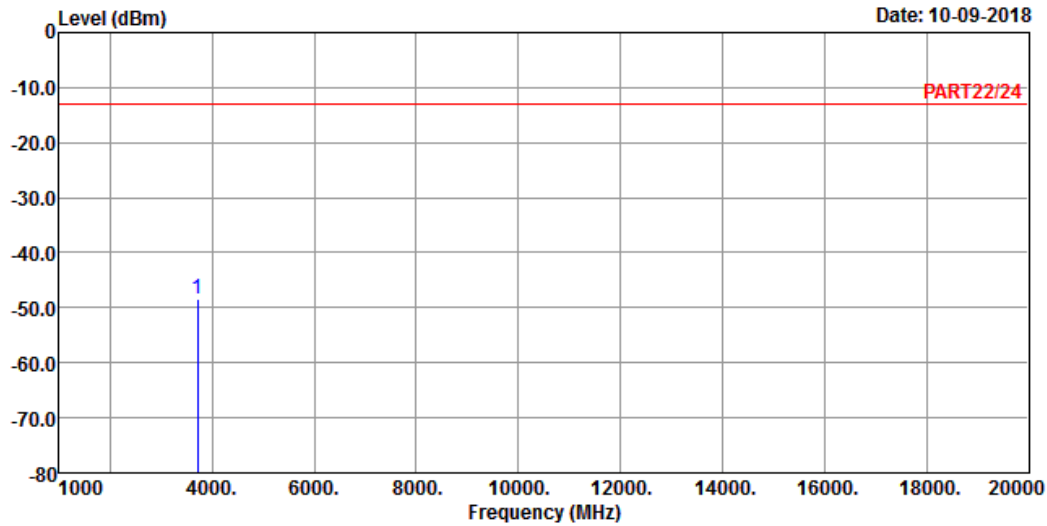
1 pp 3705.00 -50.12 -43.19 -13.00 -37.12 -6.93 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 25 QPSK\_5M Link\_L-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3705.00	-48.52	-41.59	-13.00	-35.52	-6.93	Peak

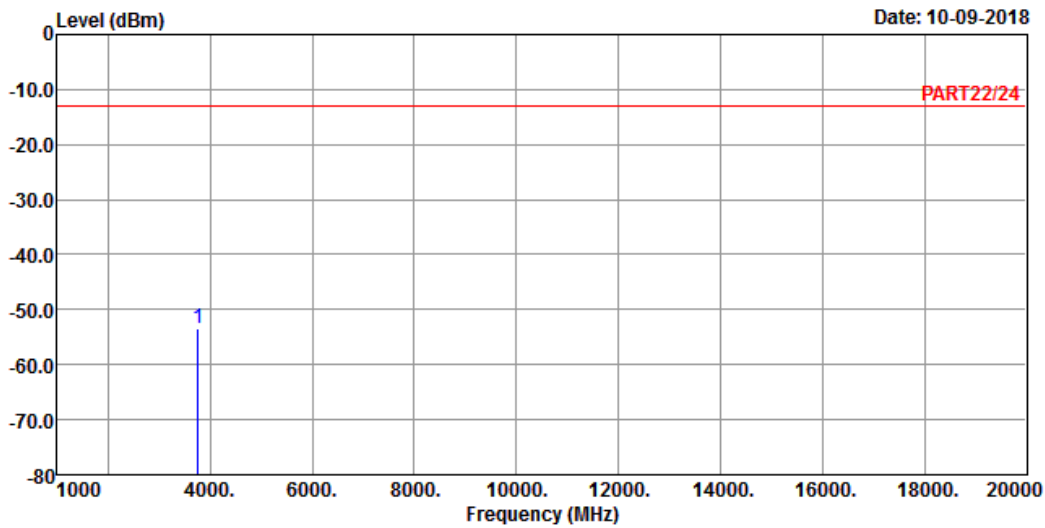
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 25 QPSK\_5M Link\_M-CH  
 Tested by: Thomas Wei

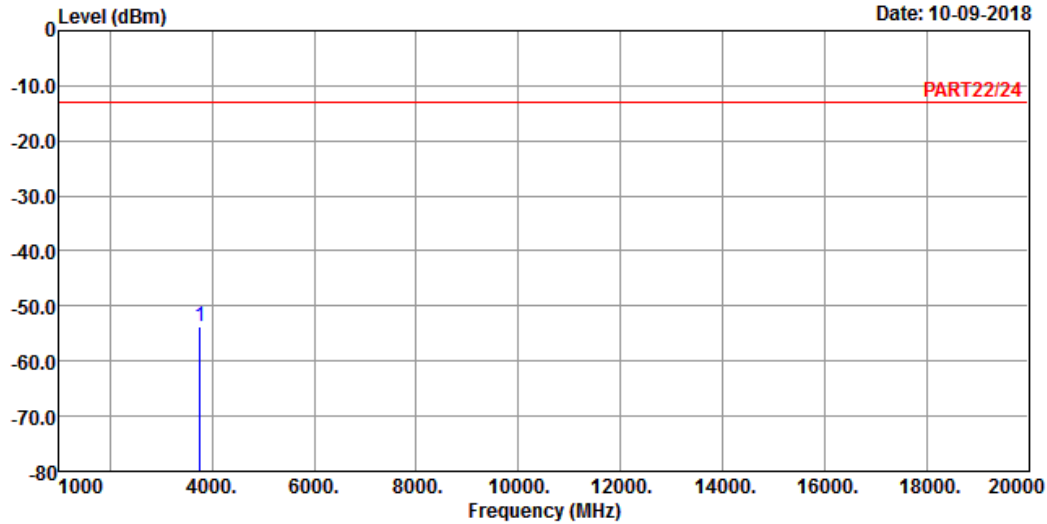
Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3765.00	-53.45	-46.85	-13.00	-40.45	-6.60	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 25 QPSK\_5M Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3765.00	-53.61	-47.01	-13.00	-40.61	-6.60	Peak

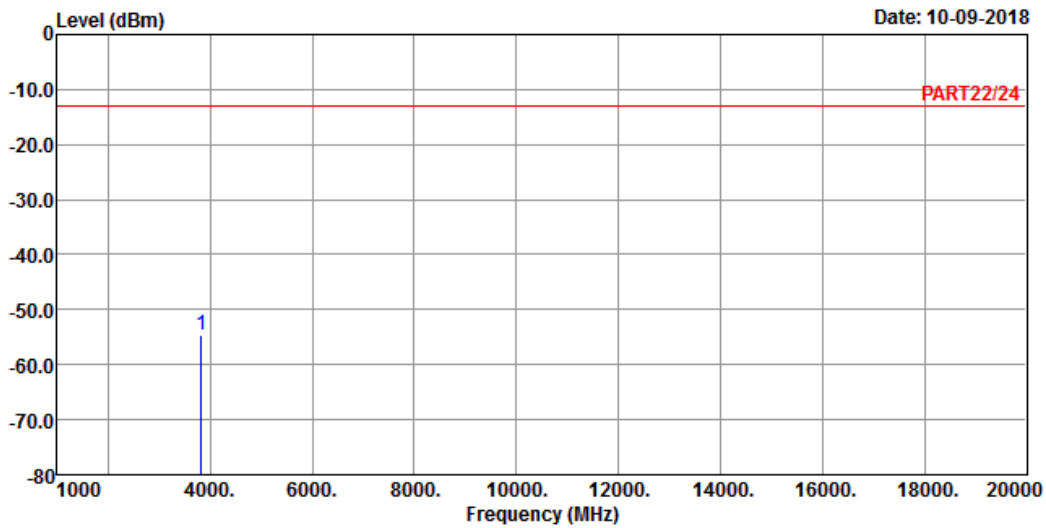
# High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 25 QPSK\_5M Link\_H-CH  
 Tested by: Thomas Wei

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3825.00	-54.62	-48.22	-13.00	-41.62	-6.40	Peak

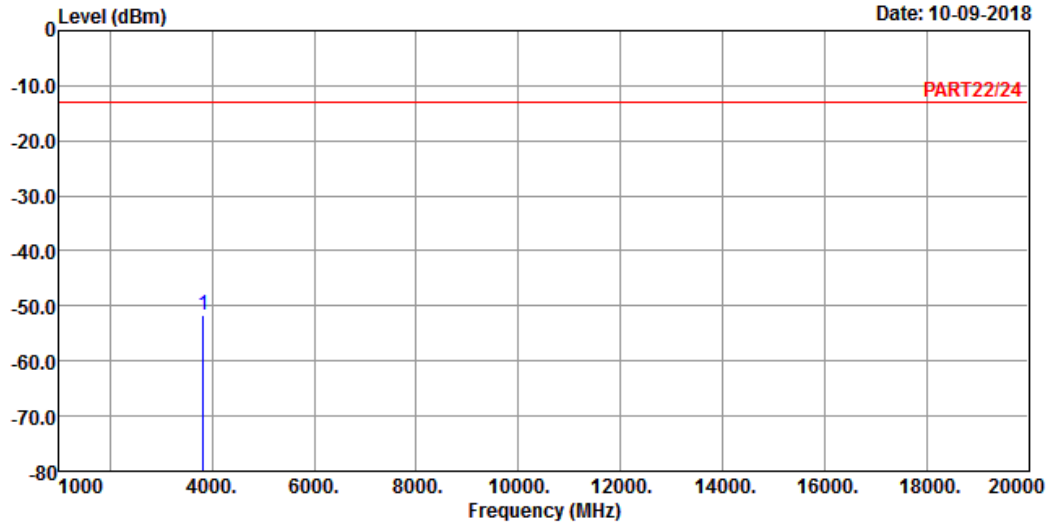




Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 25 QPSK\_5M Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3825.00	-51.62	-45.25	-13.00	-38.62	-6.37	Peak

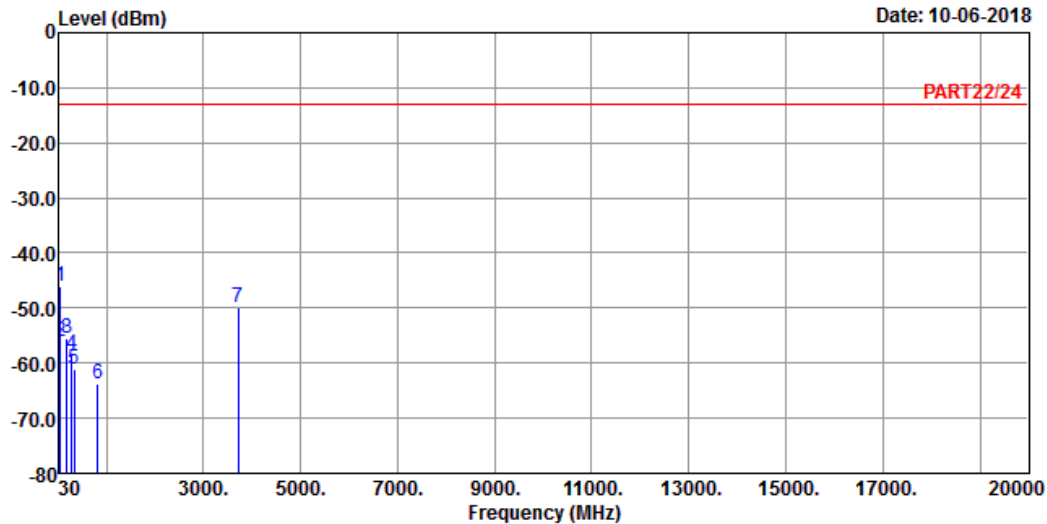
Channel Bandwidth: 20 MHz / QPSK  
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 Chamber 5  
Condition: PART22/24 HORIZONTAL  
Remak : LTE Band 25 QPSK\_20M Link\_L-CH  
Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	44.55	-46.01	-44.02	-13.00	-33.01	-1.99	Peak
2	52.31	-56.02	-50.48	-13.00	-43.02	-5.54	Peak
3	178.41	-55.40	-48.34	-13.00	-42.40	-7.06	Peak
4	285.11	-58.41	-51.70	-13.00	-45.41	-6.71	Peak
5	343.31	-61.08	-54.74	-13.00	-48.08	-6.34	Peak
6	814.73	-63.86	-64.46	-13.00	-50.86	0.60	Peak
7	3720.00	-49.93	-43.11	-13.00	-36.93	-6.82	Peak

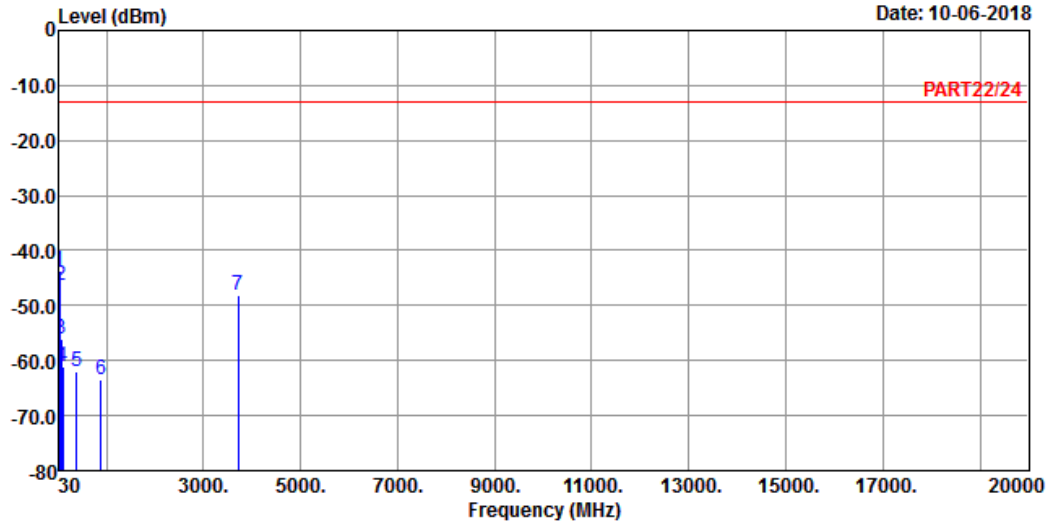


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 10-06-2018



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 25 QPSK\_20M Link\_L-CH  
 Tested by: Thomas Wei

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	30.00	-43.62	-44.00	-13.00	-30.62	0.38	Peak
2	44.55	-46.38	-44.39	-13.00	-33.38	-1.99	Peak
3	69.77	-56.02	-47.62	-13.00	-43.02	-8.40	Peak
4	96.93	-61.11	-50.38	-13.00	-48.11	-10.73	Peak
5	389.87	-61.96	-55.96	-13.00	-48.96	-6.00	Peak
6	888.45	-63.51	-64.02	-13.00	-50.51	0.51	Peak
7	3720.00	-48.09	-41.27	-13.00	-35.09	-6.82	Peak

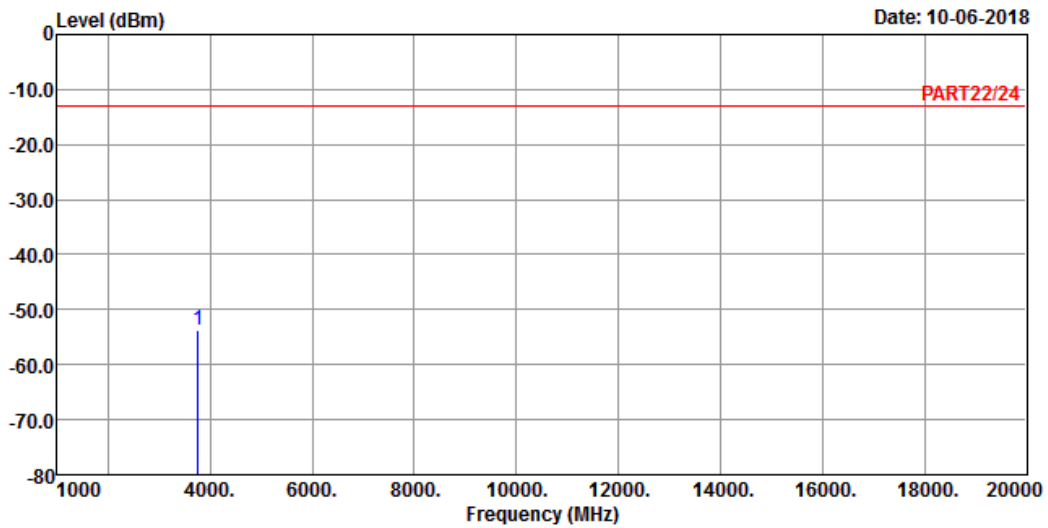
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 25 QPSK\_20M Link\_M-CH  
 Tested by: Thomas Wei

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

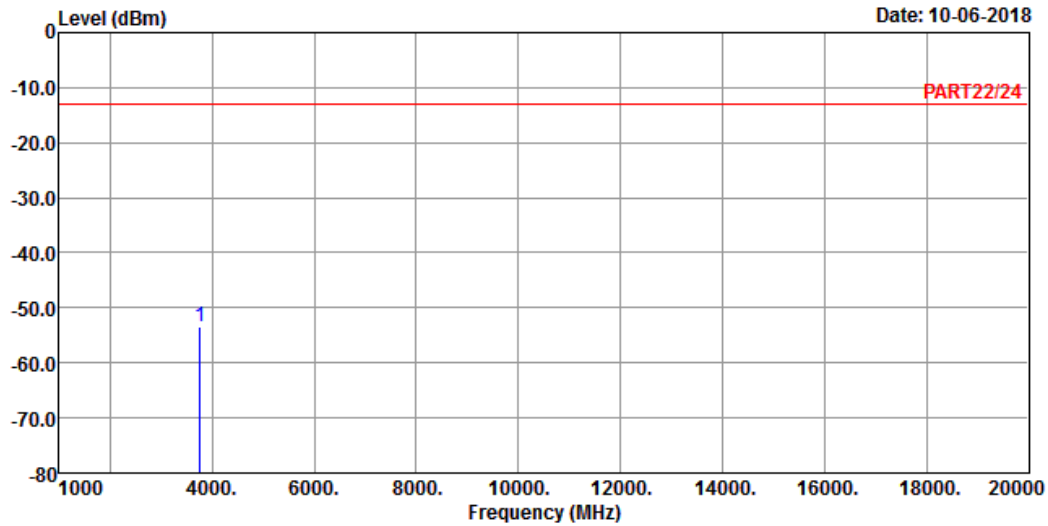
1 pp 3765.00 -53.65 -47.05 -13.00 -40.65 -6.60 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 25 QPSK\_20M Link\_M-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3765.00	-53.52	-46.92	-13.00	-40.52	-6.60	Peak

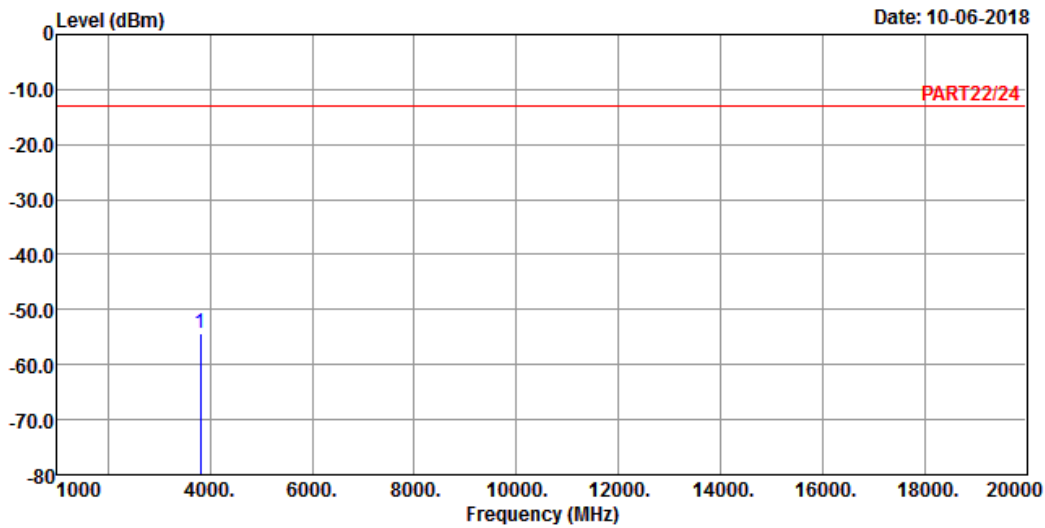
# High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 1



Site : 966 Chamber 5  
 Condition: PART22/24 HORIZONTAL  
 Remak : LTE Band 25 QPSK\_20M Link\_H-CH  
 Tested by: Thomas Wei

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

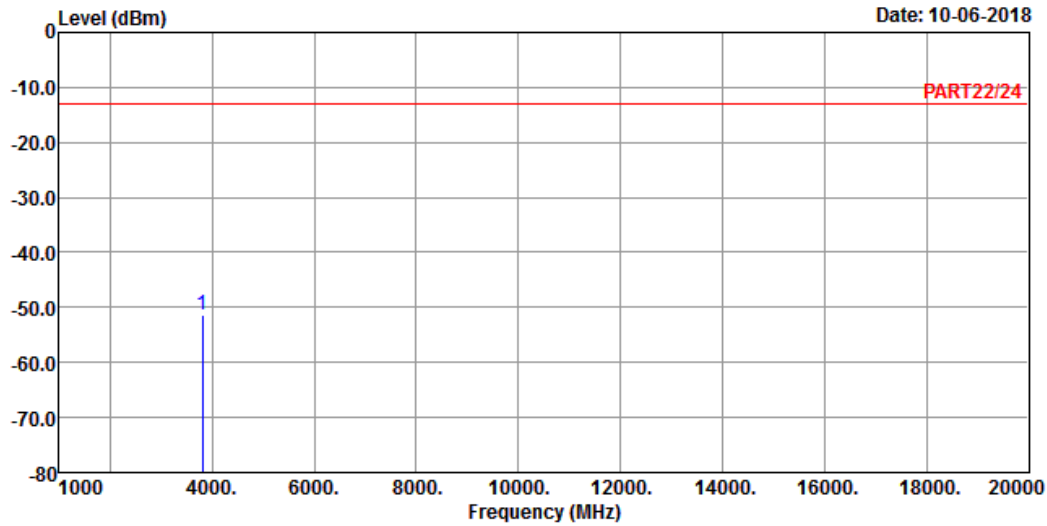
1 pp 3810.00 -54.46 -48.06 -13.00 -41.46 -6.40 Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 2



Site : 966 Chamber 5  
 Condition: PART22/24 VERTICAL  
 Remak : LTE Band 25 QPSK\_20M Link\_H-CH  
 Tested by: Thomas Wei

Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3810.00	-51.44	-45.04	-13.00	-38.44	-6.40	Peak

## 5 Pictures of Test Arrangements

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



## Appendix – Information on the Testing Laboratories

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

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

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**Web Site:** [www.bureauveritas-adt.com](http://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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