

FCC Test Report

(PART 27)

Report No.: RF200701D04-1

FCC ID: P27-TPM541

Test Model: TPM541M

Series Model: TPM541, TPM541S, TPM541MS (See section 3.1 for more detail)

Received Date: Jul. 01, 2020

Test Date: Aug. 24 ~ Sep. 08, 2020

Issued Date: Sep. 15, 2020

Applicant: Sercomm Corp.

Address: 8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C. (NanKang Software Park)

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

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



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Release Control Record

Issue No.	Description	Date Issued
RF200701D04-1	Original Release	Sep. 15, 2020

1 Certificate of Conformity

Product: Cat.M1 module

Brand: Sercomm

Test Model: TPM541M

Series Model: TPM541, TPM541S, TPM541MS (See section 3.1 for more detail)

Sample Status: Engineering Sample

Applicant: Sercomm Corp.

Test Date: Aug. 24 ~ Sep. 08, 2020

Standards: FCC Part 27, Subpart C, H, L

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

Prepared by :



Date: Sep. 15, 2020

Gina Liu / Specialist

Approved by :



Date: Sep. 15, 2020

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(h)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -0.82 dB at 3440.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 12)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(c)(10)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
---	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(g)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -1.49 dB at 1422.00 MHz.

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

2.1 Measurement Uncertainty

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

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

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 18, 2020	Mar. 17, 2021
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 12, 2019	Dec. 11, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 16, 2020	Apr. 15, 2021
HORN Antenna SCHWARZBECK	9120D	9120D-1169	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	148	Nov. 24, 2019	Nov. 23, 2020
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Nov. 08, 2019	Nov. 07, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 14, 2020	Apr. 13, 2021
MXG Vector signal generator Agilent	N5182B	MY53050430	Oct. 25, 2019	Oct. 24, 2020
Preamplifier EMCI	EMC 184045	980116	Oct. 08, 2019	Oct. 07, 2020
Preamplifier EMCI	EMC 012645	980115	Oct. 08, 2019	Oct. 07, 2020
Preamplifier EMCI	EMC 330H	980112	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-800 0&3000	140811+170717	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1 000(140807)	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 08, 2019	Oct. 07, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 18, 2020	Jan. 17, 2021
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 10, 2019	Sep. 09, 2020
DC Power Supply Topward	33010D	807748	N/A	N/A

- Note:
1. The calibration interval of the above test instruments is 12 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.

3 General Information

3.1 General Description of EUT

Product	Cat.M1 module	
Brand	Sercomm	
Test Model	TPM541M	
Series Model	TPM541, TPM541S, TPM541MS	
Model Difference	Refer to Note as below	
Status of EUT	Engineering Sample	
Power Supply Rating	5.0 Vdc (adapter)	
Modulation Type	LTE	QPSK, 16QAM
Frequency Range	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1754.3 MHz
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1753.5 MHz
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1752.5 MHz
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1750.0 MHz
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1747.5 MHz
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1745.0 MHz
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	699.7 ~ 715.3 MHz
	LTE Band 12 (Channel Bandwidth: 3 MHz)	700.5 ~ 714.5 MHz
	LTE Band 12 (Channel Bandwidth: 5 MHz)	701.5 ~ 713.5 MHz
	LTE Band 12 (Channel Bandwidth: 10 MHz)	704.0 ~ 711.0 MHz
Emission Designator	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1M08D7W
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1M08D7W
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1M08G7D
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1M09D7W
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1M08D7W
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1M08D7W
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	1M08D7W
	LTE Band 12 (Channel Bandwidth: 3 MHz)	1M07D7W
	LTE Band 12 (Channel Bandwidth: 5 MHz)	1M08D7W
	LTE Band 12 (Channel Bandwidth: 10 MHz)	1M08D7W
Max. ERP Power	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	253.51 mW
	LTE Band 12 (Channel Bandwidth: 3 MHz)	257.04 mW
	LTE Band 12 (Channel Bandwidth: 5 MHz)	260.02 mW
	LTE Band 12 (Channel Bandwidth: 10 MHz)	261.82 mW
Max. EIRP Power	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	342.77 mW
	LTE Band 4 (Channel Bandwidth: 3 MHz)	349.95 mW
	LTE Band 4 (Channel Bandwidth: 5 MHz)	353.18 mW
	LTE Band 4 (Channel Bandwidth: 10 MHz)	357.27 mW
	LTE Band 4 (Channel Bandwidth: 15 MHz)	364.75 mW
	LTE Band 4 (Channel Bandwidth: 20 MHz)	367.28 mW
Antenna Type	Dipole Antenna	
Antenna Gain	LTE Band 4	1.7 dBi
	LTE Band 12	1.2 dBi
Accessory Device	N/A	
Data Cable Supplied	N/A	

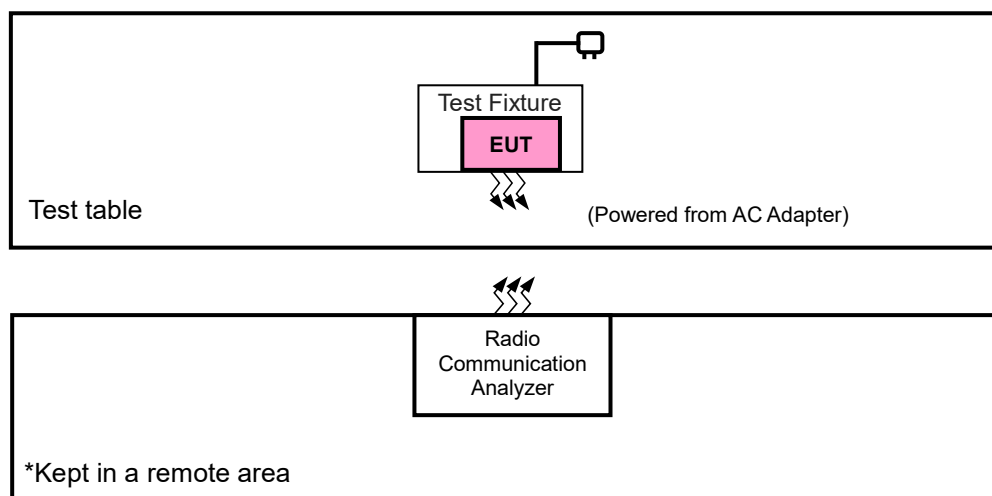
Note:

1. All models are listed as below.

Brand	Model	Modem	Embedded GNSS	Embedded MCU
Sercomm	TPM541M	V	V	V
	TPM541	V	V	
	TPM541S	V		
	TPM541MS	V		V

2. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

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

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Adapter	N/A	OB-5LF	N/A	N/A
2.	Test Fixture	N/A	N/A	N/A	N/A
3.	Radio Communication Analyzer	Anritsu	MT8821C	6201502978	N/A

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

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item B were provided by client.

3.3 Test Mode Applicability and Tested Channel Detail

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

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

Band	ERP / EIRP	Radiated Emission
LTE Band 4	Z-plane	Z-plane
LTE Band 12	Z-plane	Z-plane

LTE Band 4

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

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

Note:

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

LTE Band 12

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23060 to 23130	23095	10 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
-	Frequency Stability	23017 to 23173	23017, 23173	1.4 MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025, 23165	3 MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035, 23155	5 MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23130	10 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
-	Peak to Average Ratio	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Band Edge	23017 to 23173	23017	1.4 MHz	QPSK	1 RB / 0 RB Offset
			23173	1.4 MHz	QPSK	6 RB / 0 RB Offset
		23025 to 23165	23025	3 MHz	QPSK	1 RB / 5 RB Offset
			23165	3 MHz	QPSK	6 RB / 0 RB Offset
		23035 to 23155	23035	5 MHz	QPSK	1 RB / 0 RB Offset
			23155	5 MHz	QPSK	6 RB / 0 RB Offset
		23060 to 23130	23060	10 MHz	QPSK	1 RB / 5 RB Offset
			23130	10 MHz	QPSK	6 RB / 0 RB Offset
		23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK	1 RB / 0 RB Offset
			23025, 23095, 23165	3 MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK	1 RB / 0 RB Offset

Note:

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

Test Condition:

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

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards and references

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

ANSI 63.26-2015

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

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

Note: All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

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

Portable stations (hand-held device) operating in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

4.1.2 Test Procedures

EIRP / ERP Measurement:

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

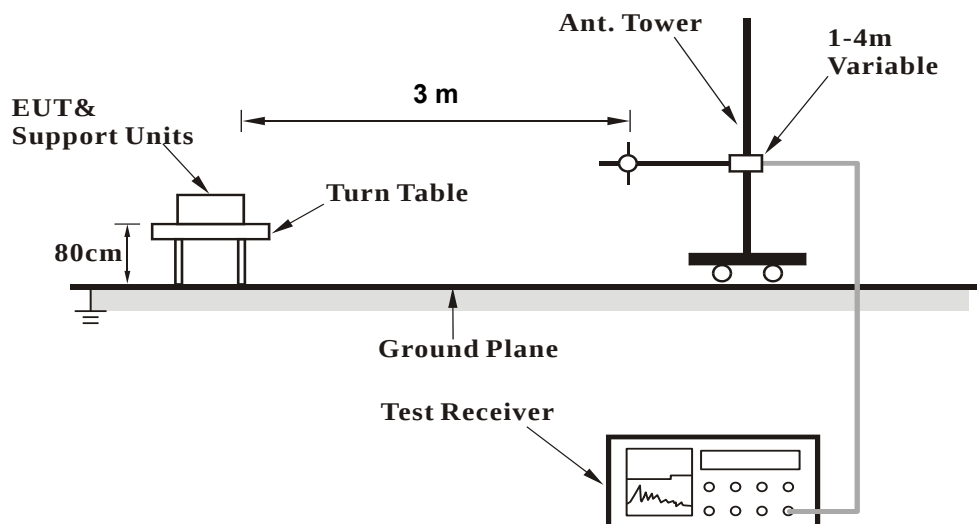
Conducted Power Measurement:

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

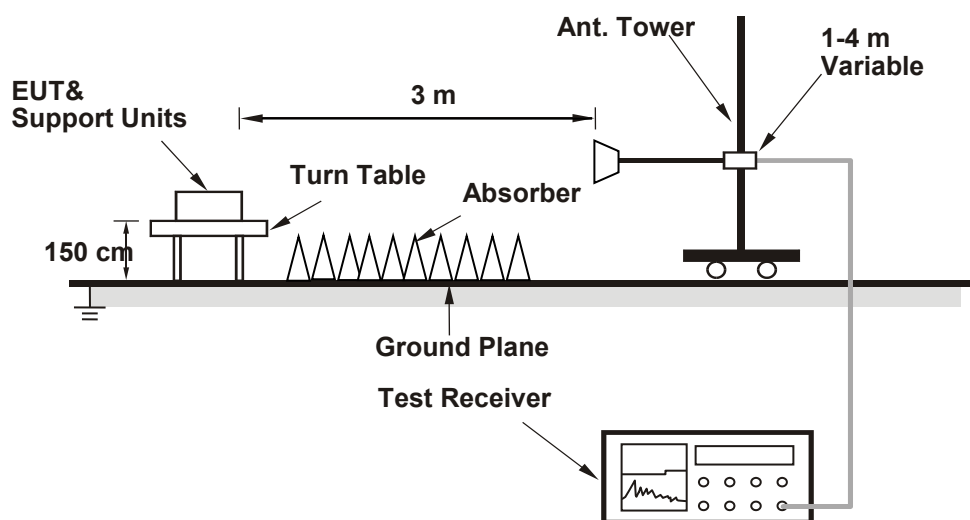
4.1.3 Test Setup

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>

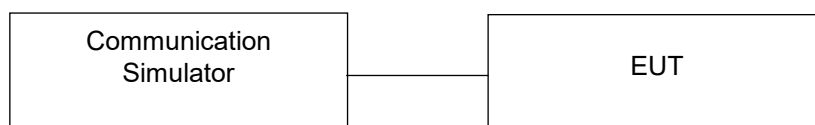


<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

BW(MHz): 1.4

Test Frequency ID	N _{UL}	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	19957	1710.7	QPSK	1	0	0	-85	24.63
			QPSK	1	5	0	-85	24.56
			QPSK	3	3	0	-85	23.06
			QPSK	6	0	0	-85	21.58
			16QAM	1	0	0	-85	22.69
			16QAM	1	5	0	-85	22.6
			16QAM	3	0	0	-85	21.32
			16QAM	5	0	0	-85	21.81
Mid Range	20175	1732.5	QPSK	1	0	0	-85	24.17
			QPSK	1	5	0	-85	24.08
			QPSK	3	3	0	-85	23.14
			QPSK	6	0	0	-85	21.36
			16QAM	1	0	0	-85	22.48
			16QAM	1	5	0	-85	22.48
			16QAM	3	0	0	-85	21.32
			16QAM	5	0	0	-85	21.62
High Range	20393	1754.3						
			QPSK	1	0	0	-85	23.81
			QPSK	1	5	0	-85	23.85
			QPSK	3	3	0	-85	22.92
			QPSK	6	0	0	-85	21
			16QAM	1	0	0	-85	22.1
			16QAM	1	5	0	-85	22.13
			16QAM	3	0	0	-85	20.84
			16QAM	5	0	0	-85	21.27

BW(MHz):		3						
Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	19965	1711.5	QPSK	1	0	0	-85	24.54
			QPSK	1	5	0	-85	24.49
			QPSK	1	0	1	-85	24.53
			QPSK	1	5	1	-85	24.48
			QPSK	3	3	0	-85	22.95
			QPSK	3	3	1	-85	23.07
			QPSK	6	0	0	-85	21.73
			QPSK	6	0	1	-85	21.8
			16QAM	1	0	0	-85	22.59
			16QAM	1	5	0	-85	22.59
			16QAM	1	0	1	-85	22.6
			16QAM	1	5	1	-85	22.64
			16QAM	3	0	0	-85	21.6
			16QAM	3	3	1	-85	21.57
			16QAM	5	0	0	-85	21.94
			16QAM	5	0	1	-85	21.92
Mid Range	20175	1732.5	QPSK	1	0	0	-85	24.06
			QPSK	1	5	0	-85	23.95
			QPSK	1	0	1	-85	24.05
			QPSK	1	5	1	-85	23.95
			QPSK	3	3	0	-85	22.72
			QPSK	3	3	1	-85	22.69
			QPSK	6	0	0	-85	21.54
			QPSK	6	0	1	-85	21.56
			16QAM	1	0	0	-85	22.38
			16QAM	1	5	0	-85	22.43
			16QAM	1	0	1	-85	22.36
			16QAM	1	5	1	-85	22.41
			16QAM	3	0	0	-85	21.57
			16QAM	3	3	1	-85	21.37
			16QAM	5	0	0	-85	21.67
			16QAM	5	0	1	-85	21.66

Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	20385	1753.5	QPSK	1	0	0	-85	23.68
			QPSK	1	5	0	-85	23.64
			QPSK	1	0	1	-85	23.73
			QPSK	1	5	1	-85	23.64
			QPSK	3	3	0	-85	22.36
			QPSK	3	3	1	-85	22.37
			QPSK	6	0	0	-85	21.24
			QPSK	6	0	1	-85	21.23
			16QAM	1	0	0	-85	22.09
			16QAM	1	5	0	-85	22.16
			16QAM	1	0	1	-85	22.06
			16QAM	1	5	1	-85	22.14
			16QAM	3	0	0	-85	21.08
			16QAM	3	3	1	-85	21.04
			16QAM	5	0	0	-85	21.36
			16QAM	5	0	1	-85	21.34

BW(MHz):	5							
Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	19975	1712.5	QPSK	1	0	0	-85	24.51
			QPSK	1	5	0	-85	24.52
			QPSK	1	0	1	-85	24.49
			QPSK	1	5	1	-85	24.55
			QPSK	1	0	3	-85	24.48
			QPSK	1	5	3	-85	24.58
			QPSK	3	0	0	-85	23.27
			QPSK	3	3	3	-85	23.22
			QPSK	6	0	0	-85	23.05
			QPSK	6	0	1	-85	23.08
			QPSK	6	0	3	-85	23.01
			16QAM	1	0	0	-85	23.84
			16QAM	1	5	0	-85	23.82
			16QAM	1	0	1	-85	23.88
			16QAM	1	5	1	-85	23.81
			16QAM	1	0	3	-85	23.72
			16QAM	1	5	3	-85	23.68
			16QAM	3	0	0	-85	23.62
			16QAM	3	3	3	-85	22.85
			16QAM	5	0	0	-85	21.73
			16QAM	5	0	1	-85	21.81
			16QAM	5	0	3	-85	21.74

Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Mid Range	20175	1732.5	QPSK	1	0	0	-85	24.03
			QPSK	1	5	0	-85	24.13
			QPSK	1	0	1	-85	24.04
			QPSK	1	5	1	-85	24.15
			QPSK	1	0	3	-85	24.01
			QPSK	1	5	3	-85	24.12
			QPSK	3	0	0	-85	22.89
			QPSK	3	3	3	-85	22.75
			QPSK	6	0	0	-85	22.84
			QPSK	6	0	1	-85	22.82
			QPSK	6	0	3	-85	22.87
			16QAM	1	0	0	-85	23.89
			16QAM	1	5	0	-85	23.77
			16QAM	1	0	1	-85	23.78
			16QAM	1	5	1	-85	23.81
			16QAM	1	0	3	-85	23.65
			16QAM	1	5	3	-85	23.67
			16QAM	3	0	0	-85	22.72
			16QAM	3	3	3	-85	22.81
			16QAM	5	0	0	-85	21.62
			16QAM	5	0	1	-85	21.62
			16QAM	5	0	3	-85	21.58

Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	20375	1752.5	QPSK	1	0	0	-85	23.8
			QPSK	1	5	0	-85	23.9
			QPSK	1	0	1	-85	23.81
			QPSK	1	5	1	-85	23.92
			QPSK	1	0	3	-85	23.76
			QPSK	1	5	3	-85	23.86
			QPSK	3	0	0	-85	22.74
			QPSK	3	3	3	-85	22.42
			QPSK	6	0	0	-85	22.35
			QPSK	6	0	1	-85	22.43
			QPSK	6	0	3	-85	22.42
			16QAM	1	0	0	-85	23.65
			16QAM	1	5	0	-85	23.67
			16QAM	1	0	1	-85	23.66
			16QAM	1	5	1	-85	23.59
			16QAM	1	0	3	-85	23.47
			16QAM	1	5	3	-85	23.42
			16QAM	3	0	0	-85	22.43
			16QAM	3	3	3	-85	22.46
			16QAM	5	0	0	-85	21.28
			16QAM	5	0	1	-85	21.25
			16QAM	5	0	3	-85	21.24

BW(MHz):		10						
Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	20000	1715	QPSK	1	0	0	-85	24.6
			QPSK	1	5	0	-85	24.55
			QPSK	1	0	3	-85	24.67
			QPSK	1	5	3	-85	24.65
			QPSK	1	0	7	-85	24.2
			QPSK	1	5	7	-85	24.22
			QPSK	4	0	0	-85	24.43
			QPSK	4	2	7	-85	23.61
			QPSK	6	0	0	-85	23.01
			QPSK	6	0	7	-85	22.89
			16QAM	1	0	0	-85	23.92
			16QAM	1	5	0	-85	23.85
			16QAM	1	0	3	-85	23.88
			16QAM	1	5	3	-85	23.91
			16QAM	1	0	7	-85	23.87
			16QAM	1	5	7	-85	23.86
			16QAM	4	2	0	-85	22.51
			16QAM	4	2	7	-85	22.36
			16QAM	5	0	0	-85	22.81
			16QAM	5	0	7	-85	22.74

Test Frequency ID	N _{UL}	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Mid Range	20175	1732.5	QPSK	1	0	0	-85	24.07
			QPSK	1	5	0	-85	24.18
			QPSK	1	0	3	-85	24.08
			QPSK	1	5	3	-85	24.19
			QPSK	1	0	7	-85	24.05
			QPSK	1	5	7	-85	24.16
			QPSK	4	0	0	-85	23.88
			QPSK	4	2	7	-85	23.52
			QPSK	6	0	0	-85	22.8
			QPSK	6	0	7	-85	22.77
			16QAM	1	0	0	-85	23.78
			16QAM	1	5	0	-85	23.75
			16QAM	1	0	3	-85	23.8
			16QAM	1	5	3	-85	23.76
			16QAM	1	0	7	-85	23.71
			16QAM	1	5	7	-85	23.69
			16QAM	4	2	0	-85	22.3
			16QAM	4	2	7	-85	22.21
			16QAM	5	0	0	-85	22.61
			16QAM	5	0	7	-85	22.58
High Range	20350	1750	QPSK	1	0	0	-85	23.9
			QPSK	1	5	0	-85	23.96
			QPSK	1	5	7	-85	23.88
			QPSK	1	0	3	-85	23.82
			QPSK	1	5	3	-85	23.92
			QPSK	1	0	7	-85	23.75
			QPSK	4	0	0	-85	23.72
			QPSK	4	2	7	-85	23.31
			QPSK	6	0	0	-85	22.34
			QPSK	6	0	7	-85	22.42
			16QAM	1	0	0	-85	23.82
			16QAM	1	5	0	-85	23.81
			16QAM	1	0	3	-85	23.65
			16QAM	1	5	3	-85	23.61
			16QAM	1	0	7	-85	23.66
			16QAM	1	5	7	-85	23.58
			16QAM	4	2	0	-85	21.92
			16QAM	4	2	7	-85	21.91
			16QAM	5	0	0	-85	22.37
			16QAM	5	0	7	-85	22.36

BW(MHz):		15						
Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	20025	1717.5	QPSK	1	0	0	-85	24.48
			QPSK	1	5	0	-85	24.57
			QPSK	1	0	5	-85	24.66
			QPSK	1	5	5	-85	24.23
			QPSK	1	0	11	-85	24.21
			QPSK	1	5	11	-85	24.23
			QPSK	3	0	0	-85	24.46
			QPSK	3	3	11	-85	24.08
			QPSK	6	0	0	-85	23.97
			QPSK	6	0	11	-85	24.09
			16QAM	1	0	0	-85	23.92
			16QAM	1	5	0	-85	23.84
			16QAM	1	0	5	-85	23.81
			16QAM	1	5	5	-85	23.84
			16QAM	1	0	11	-85	23.76
			16QAM	1	5	11	-85	23.77
			16QAM	3	0	0	-85	23.72
			16QAM	3	3	11	-85	23.68
			16QAM	5	0	0	-85	23.66
			16QAM	5	0	11	-85	23.62
Mid Range	20175	1732.5	QPSK	1	0	0	-85	24.12
			QPSK	1	5	0	-85	24.14
			QPSK	1	0	5	-85	24.07
			QPSK	1	5	5	-85	24.13
			QPSK	1	0	11	-85	24.05
			QPSK	1	5	11	-85	24.03
			QPSK	3	0	0	-85	24.15
			QPSK	3	3	11	-85	24
			QPSK	6	0	0	-85	24.12
			QPSK	6	0	11	-85	24.06
			16QAM	1	0	0	-85	23.88
			16QAM	1	5	0	-85	23.73
			16QAM	1	0	5	-85	23.8
			16QAM	1	5	5	-85	23.71
			16QAM	1	0	11	-85	23.66
			16QAM	1	5	11	-85	23.67
			16QAM	3	0	0	-85	23.65
			16QAM	3	3	11	-85	23.68
			16QAM	5	0	0	-85	23.61
			16QAM	5	0	11	-85	23.62

Test Frequency ID	NUL	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	20325	1747.5	QPSK	1	0	0	-85	23.98
			QPSK	1	5	11	-85	23.87
			QPSK	1	0	5	-85	23.9
			QPSK	1	5	5	-85	23.96
			QPSK	1	0	11	-85	23.75
			QPSK	1	5	11	-85	23.82
			QPSK	3	0	0	-85	24.16
			QPSK	3	3	11	-85	23.97
			QPSK	6	0	0	-85	23.93
			QPSK	6	0	11	-85	23.85
			16QAM	1	0	0	-85	23.75
			16QAM	1	5	0	-85	23.71
			16QAM	1	0	5	-85	23.78
			16QAM	1	5	5	-85	23.69
			16QAM	1	0	11	-85	23.66
			16QAM	1	5	11	-85	23.62
			16QAM	3	0	0	-85	23.64
			16QAM	3	3	11	-85	23.6
			16QAM	5	0	0	-85	23.61
			16QAM	5	0	11	-85	23.55

BW(MHz):	20							
Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	20050	1720	QPSK	1	0	0	-85	24.63
			QPSK	1	5	0	-85	24.58
			QPSK	1	0	7	-85	24.19
			QPSK	1	5	7	-85	24.21
			QPSK	1	0	15	-85	24.24
			QPSK	1	5	15	-85	24.2
			QPSK	3	0	0	-85	24.47
			QPSK	3	3	15	-85	24.09
			QPSK	6	0	0	-85	23.99
			QPSK	6	0	15	-85	24.1
			16QAM	1	0	0	-85	23.88
			16QAM	1	5	0	-85	23.89
			16QAM	1	0	7	-85	23.81
			16QAM	1	5	7	-85	23.9
			16QAM	1	0	15	-85	23.81
			16QAM	1	5	15	-85	23.88
			16QAM	3	0	0	-85	23.81
			16QAM	3	3	15	-85	23.82
			16QAM	5	0	0	-85	23.87
			16QAM	5	0	15	-85	23.79
Mid Range	20175	1732.5	QPSK	1	0	0	-85	24.11
			QPSK	1	5	0	-85	24.24
			QPSK	1	0	7	-85	24.13
			QPSK	1	5	7	-85	24.22
			QPSK	1	0	15	-85	24.03
			QPSK	1	5	15	-85	24.05
			QPSK	3	0	0	-85	24.22
			QPSK	3	3	15	-85	24.08
			QPSK	6	0	0	-85	24.12
			QPSK	6	0	15	-85	23.93
			16QAM	1	0	0	-85	23.76
			16QAM	1	5	0	-85	23.7
			16QAM	1	0	7	-85	23.68
			16QAM	1	5	7	-85	23.7
			16QAM	1	0	15	-85	23.72
			16QAM	1	5	15	-85	23.77
			16QAM	3	0	0	-85	23.65
			16QAM	3	3	15	-85	23.68
			16QAM	5	0	0	-85	23.66
			16QAM	5	0	15	-85	23.58

Test Frequency ID	N _{UL}	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	20300	1745	QPSK	1	0	0	-85	24.08
			QPSK	1	5	0	-85	24.11
			QPSK	1	0	7	-85	23.93
			QPSK	1	5	7	-85	23.92
			QPSK	1	0	15	-85	23.7
			QPSK	1	5	15	-85	23.84
			QPSK	3	0	0	-85	24.14
			QPSK	3	3	15	-85	23.86
			QPSK	6	0	0	-85	24.01
			QPSK	6	0	15	-85	23.81
			16QAM	1	0	0	-85	23.76
			16QAM	1	5	0	-85	23.72
			16QAM	1	0	7	-85	23.71
			16QAM	1	5	7	-85	23.72
			16QAM	1	0	15	-85	23.65
			16QAM	1	5	15	-85	23.66
			16QAM	3	0	0	-85	23.68
			16QAM	3	3	15	-85	23.65
			16QAM	5	0	0	-85	23.57
			16QAM	5	0	15	-85	23.55

LTE Band 12

BW(MHz): 1.4

Test Frequency ID	Nul	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23017	699.7	QPSK	1	0	0	-85	23.92
			QPSK	1	5	0	-85	23.82
			QPSK	3	3	0	-85	23.3
			QPSK	6	0	0	-85	21.75
			16QAM	1	0	0	-85	22.62
			16QAM	1	5	0	-85	22.61
			16QAM	3	0	0	-85	21.58
			16QAM	5	0	0	-85	21.93
Mid Range	23095	707.5	QPSK	1	0	0	-85	23.71
			QPSK	1	5	0	-85	23.57
			QPSK	3	3	0	-85	23.2
			QPSK	6	0	0	-85	21.68
			16QAM	1	0	0	-85	22.6
			16QAM	1	5	0	-85	22.62
			16QAM	3	0	0	-85	21.5
			16QAM	5	0	0	-85	21.62
High Range	23173	715.3	QPSK	1	0	0	-85	23.64
			QPSK	1	5	0	-85	23.54
			QPSK	3	3	0	-85	23.17
			QPSK	6	0	0	-85	21.58
			16QAM	1	0	0	-85	22.56
			16QAM	1	5	0	-85	22.63
			16QAM	3	0	0	-85	21.57
			16QAM	5	0	0	-85	21.87

BW(MHz):		3							
Test Frequency ID	N _{UL}	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT		
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)	
Low Range	23025	700.5	QPSK	1	0	0	-85	23.81	
			QPSK	1	5	0	-85	23.73	
			QPSK	1	0	1	-85	23.74	
			QPSK	1	5	1	-85	23.65	
			QPSK	3	3	0	-85	23.06	
			QPSK	3	3	1	-85	23.03	
			QPSK	6	0	0	-85	21.8	
			QPSK	6	0	1	-85	21.82	
			16QAM	1	0	0	-85	22.63	
			16QAM	1	5	0	-85	22.54	
			16QAM	1	0	1	-85	22.58	
			16QAM	1	5	1	-85	22.57	
			16QAM	3	0	0	-85	21.76	
			16QAM	3	3	1	-85	21.61	
			16QAM	5	0	0	-85	22.03	
			16QAM	5	0	1	-85	21.48	
Mid Range	23095	701.5	QPSK	1	0	0	-85	23.7	
			QPSK	1	5	0	-85	23.47	
			QPSK	1	0	1	-85	23.65	
			QPSK	1	5	1	-85	23.43	
			QPSK	3	3	0	-85	22.83	
			QPSK	3	3	1	-85	22.82	
			QPSK	6	0	0	-85	21.83	
			QPSK	6	0	1	-85	21.8	
			16QAM	1	0	0	-85	22.45	
			16QAM	1	5	0	-85	22.53	
			16QAM	1	0	1	-85	22.44	
			16QAM	1	5	1	-85	22.53	
			16QAM	3	0	0	-85	21.73	
			16QAM	3	3	1	-85	21.55	
			16QAM	5	0	0	-85	21.93	
			16QAM	5	0	1	-85	21.9	

Test Frequency ID	NUL	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	23165	714.5	QPSK	1	0	0	-85	23.54
			QPSK	1	5	0	-85	23.38
			QPSK	1	0	1	-85	23.57
			QPSK	1	5	1	-85	23.34
			QPSK	3	3	0	-85	22.65
			QPSK	3	3	1	-85	22.61
			QPSK	6	0	0	-85	21.77
			QPSK	6	0	1	-85	21.8
			16QAM	1	0	0	-85	22.44
			16QAM	1	5	0	-85	22.55
			16QAM	1	0	1	-85	22.48
			16QAM	1	5	1	-85	22.57
			16QAM	3	0	0	-85	21.74
			16QAM	3	3	1	-85	21.61
			16QAM	5	0	0	-85	21.77
			16QAM	5	0	1	-85	21.8

BW(MHz):		5						
Test Frequency ID	N _{UL}	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23035	701.5	QPSK	1	0	0	-85	23.81
			QPSK	1	5	0	-85	23.88
			QPSK	1	0	1	-85	23.88
			QPSK	1	5	1	-85	23.92
			QPSK	1	0	3	-85	23.9
			QPSK	1	5	3	-85	23.87
			QPSK	3	0	0	-85	23.13
			QPSK	3	3	3	-85	22.92
			QPSK	6	0	0	-85	23.02
			QPSK	6	0	1	-85	22.97
			QPSK	6	0	3	-85	22.98
			16QAM	1	0	0	-85	23.75
			16QAM	1	5	0	-85	23.85
			16QAM	1	0	1	-85	23.75
			16QAM	1	5	1	-85	23.77
			16QAM	1	0	3	-85	23.73
			16QAM	1	5	3	-85	23.81
			16QAM	3	0	0	-85	23.03
			16QAM	3	3	3	-85	22.9
			16QAM	5	0	0	-85	21.87
			16QAM	5	0	1	-85	21.88
			16QAM	5	0	3	-85	21.73

Test Frequency ID	NUL	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Mid Range	23095	707.5	QPSK	1	0	0	-85	23.67
			QPSK	1	5	0	-85	23.77
			QPSK	1	0	1	-85	23.71
			QPSK	1	5	1	-85	23.8
			QPSK	1	0	3	-85	23.78
			QPSK	1	5	3	-85	23.82
			QPSK	3	0	0	-85	23.09
			QPSK	3	3	3	-85	22.97
			QPSK	6	0	0	-85	23.05
			QPSK	6	0	1	-85	23.02
			QPSK	6	0	3	-85	22.99
			16QAM	1	0	0	-85	23.76
			16QAM	1	5	0	-85	23.62
			16QAM	1	0	1	-85	23.67
			16QAM	1	5	1	-85	23.68
			16QAM	1	0	3	-85	23.66
			16QAM	1	5	3	-85	23.69
			16QAM	3	0	0	-85	22.95
			16QAM	3	3	3	-85	22.91
			16QAM	5	0	0	-85	21.86
			16QAM	5	0	1	-85	21.85
			16QAM	5	0	3	-85	21.9

Test Frequency ID	NUL	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	23155	713.5	QPSK	1	0	0	-85	23.57
			QPSK	1	5	0	-85	23.67
			QPSK	1	0	1	-85	23.61
			QPSK	1	5	1	-85	23.68
			QPSK	1	0	3	-85	23.65
			QPSK	1	5	3	-85	23.74
			QPSK	3	0	0	-85	23.05
			QPSK	3	3	3	-85	22.93
			QPSK	6	0	0	-85	22.98
			QPSK	6	0	1	-85	23
			QPSK	6	0	3	-85	22.91
			16QAM	1	0	0	-85	23.47
			16QAM	1	5	0	-85	23.34
			16QAM	1	0	1	-85	23.49
			16QAM	1	5	1	-85	23.46
			16QAM	1	0	3	-85	23.36
			16QAM	1	5	3	-85	23.38
			16QAM	3	0	0	-85	22.94
			16QAM	3	3	3	-85	22.96
			16QAM	5	0	0	-85	21.64
			16QAM	5	0	1	-85	21.74
			16QAM	5	0	3	-85	21.78

BW(MHz):		10						
Test Frequency ID	N _{UL}	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
Low Range	23060	704	QPSK	1	0	0	-85	23.94
			QPSK	1	5	0	-85	23.95
			QPSK	1	0	3	-85	24.04
			QPSK	1	5	3	-85	23.87
			QPSK	1	0	7	-85	23.87
			QPSK	1	5	7	-85	23.8
			QPSK	4	0	0	-85	23.48
			QPSK	4	2	7	-85	23.1
			QPSK	6	0	0	-85	23.09
			QPSK	6	0	7	-85	22.95
			16QAM	1	0	0	-85	23.68
			16QAM	1	5	0	-85	23.67
			16QAM	1	0	3	-85	23.7
			16QAM	1	5	3	-85	23.69
			16QAM	1	0	7	-85	23.71
			16QAM	1	5	7	-85	23.73
			16QAM	4	2	0	-85	22.51
			16QAM	4	2	7	-85	22.39
			16QAM	5	0	0	-85	22.92
			16QAM	5	0	7	-85	22.88
Mid Range	23095	707.5	QPSK	1	0	0	-85	23.67
			QPSK	1	5	0	-85	23.77
			QPSK	1	0	3	-85	23.76
			QPSK	1	5	3	-85	23.85
			QPSK	1	0	7	-85	23.77
			QPSK	1	5	7	-85	23.76
			QPSK	4	0	0	-85	23.52
			QPSK	4	2	7	-85	23.25
			QPSK	6	0	0	-85	23.04
			QPSK	6	0	7	-85	22.94
			16QAM	1	0	0	-85	23.56
			16QAM	1	5	0	-85	23.41
			16QAM	1	0	3	-85	23.47
			16QAM	1	5	3	-85	23.38
			16QAM	1	0	7	-85	23.35
			16QAM	1	5	7	-85	23.45
			16QAM	4	2	0	-85	22.4
			16QAM	4	2	7	-85	22.46
			16QAM	5	0	0	-85	22.89
			16QAM	5	0	7	-85	22.8

Test Frequency ID	NUL	Frequency of Uplink [MHz]	Test ConfigurationInitial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell power (dBm/15kHz)	power (dBm)
High Range	23130	711	QPSK	1	0	0	-85	23.72
			QPSK	1	5	0	-85	23.72
			QPSK	1	5	7	-85	23.78
			QPSK	1	0	3	-85	23.66
			QPSK	1	5	3	-85	23.63
			QPSK	1	0	7	-85	23.72
			QPSK	4	0	0	-85	23.48
			QPSK	4	2	7	-85	23.21
			QPSK	6	0	0	-85	23.05
			QPSK	6	0	7	-85	23.02
			16QAM	1	0	0	-85	23.55
			16QAM	1	5	0	-85	23.48
			16QAM	1	0	3	-85	23.41
			16QAM	1	5	3	-85	23.38
			16QAM	1	0	7	-85	23.44
			16QAM	1	5	7	-85	23.41
			16QAM	4	2	0	-85	22.51
			16QAM	4	2	7	-85	22.46
			16QAM	5	0	0	-85	22.79
			16QAM	5	0	7	-85	22.82

ERP Power (dBm)

LTE Band 12							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23017	699.7	-12.84	30.36	17.52	56.49	H
	23095	707.5	-12.28	30.17	17.89	61.52	
	23173	715.3	-12.08	30.17	18.09	64.42	
	23017	699.7	-8.50	32.03	23.53	225.42	V
	23095	707.5	-8.19	31.98	23.79	239.33	
	23173	715.3	-8.02	32.06	24.04	253.51	
Channel Bandwidth: 1.4 MHz / 16QAM							
Z	23017	699.7	-14.18	30.36	16.18	41.50	H
	23095	707.5	-13.53	30.17	16.64	46.13	
	23173	715.3	-13.30	30.17	16.87	48.64	
	23017	699.7	-9.84	32.03	22.19	165.58	V
	23095	707.5	-9.51	31.98	22.47	176.60	
	23173	715.3	-9.38	32.06	22.68	185.35	

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

LTE Band 12							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23025	700.5	-12.64	30.17	17.53	56.62	H
	23095	707.5	-12.24	30.17	17.93	62.09	
	23165	714.5	-12.10	30.18	18.08	64.27	
	23025	700.5	-8.35	31.96	23.61	229.61	V
	23095	707.5	-8.16	31.98	23.82	240.99	
	23165	714.5	-7.93	32.03	24.10	257.04	
Channel Bandwidth: 3 MHz / 16QAM							
Z	23025	700.5	-13.82	30.17	16.35	43.15	H
	23095	707.5	-13.42	30.17	16.75	47.32	
	23165	714.5	-13.22	30.18	16.96	49.66	
	23025	700.5	-9.57	31.96	22.39	173.38	V
	23095	707.5	-9.30	31.98	22.68	185.35	
	23165	714.5	-9.17	32.03	22.86	193.20	

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

LTE Band 12							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23035	701.5	-12.56	30.17	17.61	57.68	H
	23095	707.5	-12.23	30.17	17.94	62.23	
	23155	713.5	-12.01	30.18	18.17	65.61	
	23035	701.5	-8.36	31.96	23.60	229.09	V
	23095	707.5	-8.10	31.98	23.88	244.34	
	23155	713.5	-7.88	32.03	24.15	260.02	
Channel Bandwidth: 5 MHz / 16QAM							
Z	23035	701.5	-13.74	30.17	16.43	43.95	H
	23095	707.5	-13.27	30.17	16.90	48.98	
	23155	713.5	-13.08	30.18	17.10	51.29	
	23035	701.5	-9.44	31.96	22.52	178.65	V
	23095	707.5	-9.16	31.98	22.82	191.43	
	23155	713.5	-8.98	32.03	23.05	201.84	

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

LTE Band 12							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23060	704.0	-12.53	30.17	17.64	58.08	H
	23095	707.5	-12.15	30.17	18.02	63.39	
	23130	711.0	-11.96	30.18	18.22	66.37	
	23060	704.0	-8.28	31.96	23.68	233.35	V
	23095	707.5	-8.04	31.98	23.94	247.74	
	23130	711.0	-7.85	32.03	24.18	261.82	
Channel Bandwidth: 10 MHz / 16QAM							
Z	23060	704.0	-30.17	30.17	16.57	45.39	H
	23095	707.5	-13.17	30.17	17.00	50.12	
	23130	711.0	-12.99	30.18	17.19	52.36	
	23060	704.0	-9.31	31.96	22.65	184.08	V
	23095	707.5	-9.12	31.98	22.86	193.20	
	23130	711.0	-8.91	32.03	23.12	205.12	

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

EIRP Power (dBm)

LTE Band 4							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19957	1710.7	-16.76	36.45	19.69	93.11	H
	20175	1732.5	-17.31	36.80	19.49	88.92	
	20393	1754.3	-17.57	36.94	19.37	86.50	
	19957	1710.7	-11.93	37.28	25.35	342.77	V
	20175	1732.5	-12.33	37.63	25.30	338.84	
	20393	1754.3	-12.40	37.64	25.24	334.20	
Channel Bandwidth: 1.4 MHz / 16QAM							
Z	19957	1710.7	-19.12	36.45	17.33	54.08	H
	20175	1732.5	-19.60	36.80	17.20	52.48	
	20393	1754.3	-19.84	36.94	17.10	51.29	
	19957	1710.7	-14.23	37.28	23.05	201.84	V
	20175	1732.5	-14.68	37.63	22.95	197.24	
	20393	1754.3	-14.73	37.64	22.91	195.43	

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

LTE Band 4							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19965	1711.5	-16.68	36.45	19.77	94.84	H
	20175	1732.5	-17.30	36.80	19.50	89.13	
	20385	1753.5	-17.53	36.94	19.41	87.30	
	19965	1711.5	-11.84	37.28	25.44	349.95	V
	20175	1732.5	-12.26	37.63	25.37	344.35	
	20385	1753.5	-12.30	37.64	25.34	341.98	
Channel Bandwidth: 3 MHz / 16QAM							
Z	19965	1711.5	-18.06	36.45	18.39	69.02	H
	20175	1732.5	-18.64	36.80	18.16	65.46	
	20385	1753.5	-18.86	36.94	18.08	64.27	
	19965	1711.5	-13.20	37.28	24.08	255.86	V
	20175	1732.5	-13.65	37.63	23.98	250.03	
	20385	1753.5	-13.62	37.64	24.02	252.35	

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

LTE Band 4							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19975	1712.5	-16.64	36.45	19.81	95.72	H
	20175	1732.5	-17.20	36.80	19.60	91.20	
	20375	1752.5	-17.44	36.94	19.50	89.13	
	19975	1712.5	-11.80	37.28	25.48	353.18	V
	20175	1732.5	-12.23	37.63	25.40	346.74	
	20375	1752.5	-12.27	37.64	25.37	344.35	
Channel Bandwidth: 5 MHz / 16QAM							
Z	19975	1712.5	-17.95	36.45	18.50	70.79	H
	20175	1732.5	-18.54	36.80	18.26	66.99	
	20375	1752.5	-18.66	36.94	18.28	67.30	
	19975	1712.5	-13.09	37.28	24.19	262.42	V
	20175	1732.5	-13.46	37.63	24.17	261.22	
	20375	1752.5	-13.53	37.64	24.11	257.63	

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

LTE Band 4							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20000	1715.0	-16.81	36.64	19.83	96.16	H
	20175	1732.5	-17.12	36.80	19.68	92.90	
	20350	1750.0	-17.25	36.80	19.55	90.16	
	20000	1715.0	-11.91	37.44	25.53	357.27	V
	20175	1732.5	-12.16	37.63	25.47	352.37	
	20350	1750.0	-12.20	37.64	25.44	349.95	
Channel Bandwidth: 10 MHz / 16QAM							
Z	20000	1715.0	-17.89	36.64	18.75	74.99	H
	20175	1732.5	-18.36	36.80	18.44	69.82	
	20350	1750.0	-18.47	36.80	18.33	68.08	
	20000	1715.0	-13.12	37.44	24.32	270.40	V
	20175	1732.5	-13.34	37.63	24.29	268.53	
	20350	1750.0	-13.44	37.64	24.20	263.03	

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

LTE Band 4							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20025	1717.5	-16.49	36.45	19.96	99.08	H
	20175	1732.5	-17.12	36.80	19.68	92.90	
	20325	1747.5	-17.35	36.94	19.59	90.99	
	20025	1717.5	-11.66	37.28	25.62	364.75	V
	20175	1732.5	-12.13	37.63	25.50	354.81	
	20325	1747.5	-12.17	37.64	25.47	352.37	
Channel Bandwidth: 15 MHz / 16QAM							
Z	20025	1717.5	-17.64	36.45	18.81	76.03	H
	20175	1732.5	-18.19	36.80	18.61	72.61	
	20325	1747.5	-18.45	36.94	18.49	70.63	
	20025	1717.5	-12.75	37.28	24.53	283.79	V
	20175	1732.5	-13.22	37.63	24.41	276.06	
	20325	1747.5	-13.28	37.64	24.36	272.90	

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

LTE Band 4							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20050	1720.0	-16.46	36.45	19.99	99.77	H
	20175	1732.5	-17.05	36.80	19.75	94.41	
	20300	1745.0	-17.30	36.94	19.64	92.04	
	20050	1720.0	-11.63	37.28	25.65	367.28	V
	20175	1732.5	-12.05	37.63	25.58	361.41	
	20300	1745.0	-12.12	37.64	25.52	356.45	
Channel Bandwidth: 20 MHz / 16QAM							
Z	20050	1720.0	-17.51	36.45	18.94	78.34	H
	20175	1732.5	-18.07	36.80	18.73	74.64	
	20300	1745.0	-18.34	36.94	18.60	72.44	
	20050	1720.0	-12.70	37.28	24.58	287.08	V
	20175	1732.5	-13.09	37.63	24.54	284.45	
	20300	1745.0	-13.20	37.64	24.44	277.97	

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

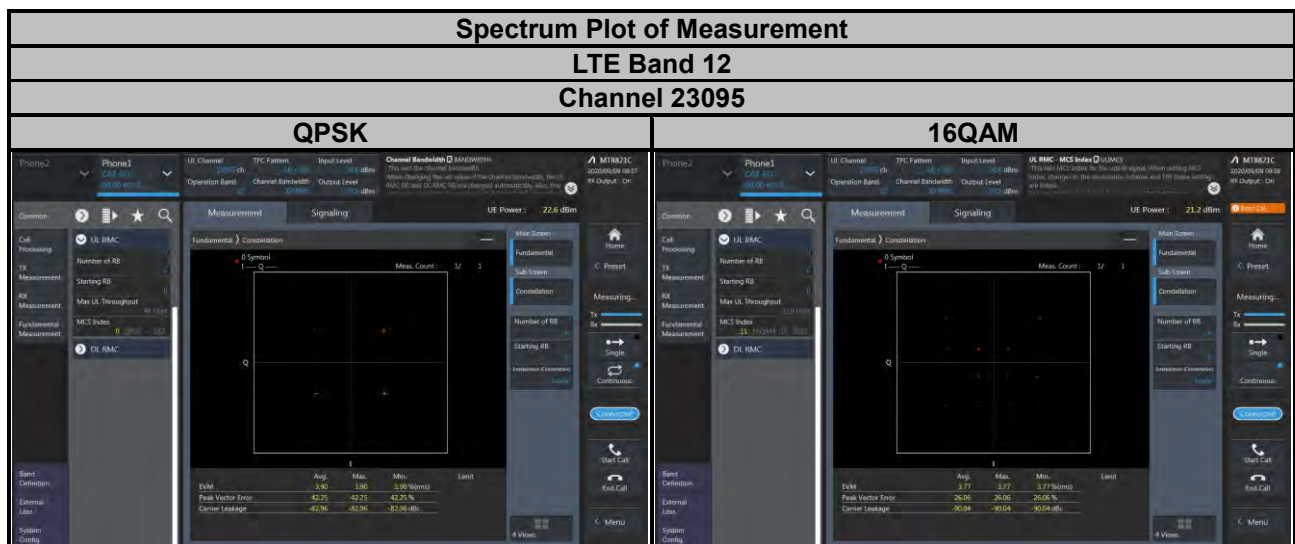
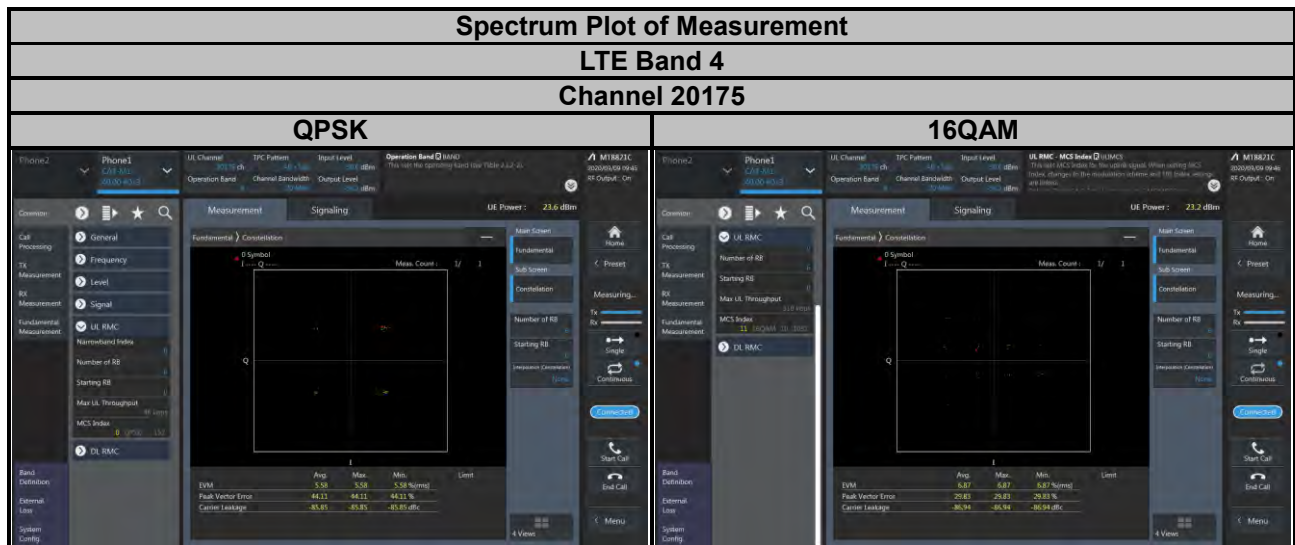
4.2.2 Test Setup



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



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

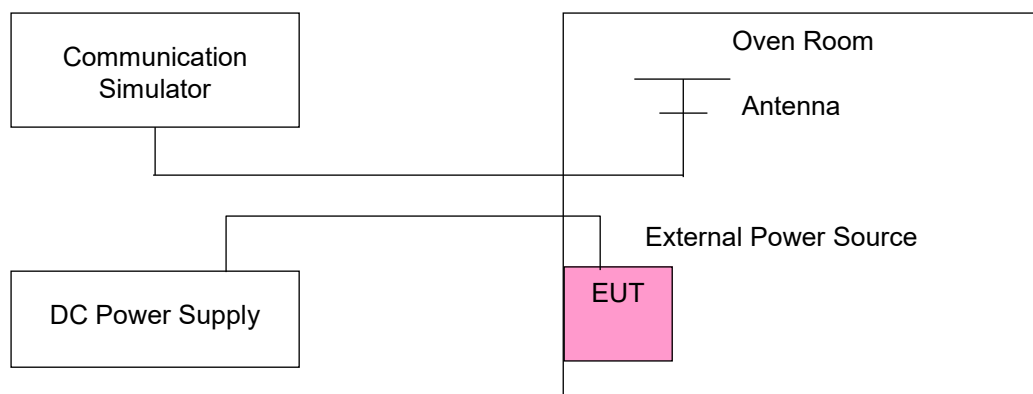
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Procedure

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

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1710.700003	0.002	1754.300002	0.001
4.25	1710.700002	0.001	1754.300002	0.001
5.75	1710.700002	0.001	1754.300004	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700003	0.002	1754.300003	0.002
-20	1710.700002	0.001	1754.300003	0.001
-10	1710.700004	0.002	1754.300004	0.002
0	1710.700002	0.001	1754.300004	0.002
10	1710.700003	0.002	1754.300004	0.002
20	1710.699997	-0.002	1754.299996	-0.002
30	1710.699999	-0.001	1754.299998	-0.001
40	1710.699999	-0.001	1754.299996	-0.002
50	1710.699997	-0.002	1754.299999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1711.500001	0.001	1753.500002	0.001
4.25	1711.500003	0.001	1753.500002	0.001
5.75	1711.500003	0.001	1753.500004	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.500002	0.001	1753.500003	0.002
-20	1711.500003	0.002	1753.500003	0.002
-10	1711.500003	0.002	1753.500003	0.002
0	1711.500003	0.002	1753.500004	0.002
10	1711.500002	0.001	1753.500001	0.001
20	1711.499998	-0.001	1753.499996	-0.002
30	1711.499997	-0.002	1753.499997	-0.002
40	1711.499998	-0.001	1753.499996	-0.002
50	1711.499999	-0.001	1753.499997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1712.500002	0.001	1752.500003	0.002
4.25	1712.500003	0.002	1752.500004	0.002
5.75	1712.500003	0.002	1752.500001	0.001

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500004	0.002	1752.500002	0.001
-20	1712.500002	0.001	1752.500003	0.002
-10	1712.500003	0.002	1752.500003	0.002
0	1712.500004	0.002	1752.500003	0.001
10	1712.500002	0.001	1752.500004	0.002
20	1712.499999	-0.001	1752.499999	-0.001
30	1712.499997	-0.002	1752.499998	-0.001
40	1712.499997	-0.002	1752.499997	-0.002
50	1712.499996	-0.002	1752.499998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1715.000001	0.001	1750.000004	0.002
4.25	1715.000003	0.002	1750.000004	0.002
5.75	1715.000002	0.001	1750.000002	0.001

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.000002	0.001	1750.000003	0.002
-20	1715.000004	0.002	1750.000004	0.002
-10	1715.000003	0.002	1750.000002	0.001
0	1715.000001	0.001	1750.000003	0.002
10	1715.000002	0.001	1750.000004	0.002
20	1714.999998	-0.001	1749.999996	-0.002
30	1714.999999	-0.001	1749.999996	-0.002
40	1714.999999	-0.001	1749.999998	-0.001
50	1714.999998	-0.001	1749.999997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1717.500004	0.002	1747.500002	0.001
4.25	1717.500001	0.001	1747.500004	0.002
5.75	1717.500004	0.002	1747.500004	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500002	0.001	1747.500003	0.001
-20	1717.500002	0.001	1747.500001	0.001
-10	1717.500004	0.002	1747.500003	0.002
0	1717.500004	0.002	1747.500003	0.001
10	1717.500003	0.002	1747.500001	0.001
20	1717.499999	-0.001	1747.499998	-0.001
30	1717.499998	-0.001	1747.499999	-0.001
40	1717.499998	-0.001	1747.499999	-0.001
50	1717.499998	-0.001	1747.499997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	1720.000004	0.002	1745.000002	0.001
4.25	1720.000003	0.002	1745.000001	0.001
5.75	1720.000003	0.002	1745.000004	0.002

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.000004	0.002	1745.000003	0.002
-20	1720.000002	0.001	1745.000003	0.002
-10	1720.000004	0.002	1745.000002	0.001
0	1720.000004	0.002	1745.000002	0.001
10	1720.000003	0.002	1745.000002	0.001
20	1719.999997	-0.002	1744.999999	-0.001
30	1719.999998	-0.001	1744.999997	-0.002
40	1719.999999	-0.001	1744.999997	-0.001
50	1719.999998	-0.001	1744.999996	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	699.700002	0.002	715.300002	0.003
4.25	699.700004	0.005	715.300002	0.002
5.75	699.700001	0.002	715.300002	0.003

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700003	0.004	715.300002	0.003
-20	699.700003	0.004	715.300002	0.003
-10	699.700004	0.006	715.300004	0.005
0	699.700004	0.005	715.300002	0.003
10	699.700004	0.005	715.300004	0.005
20	699.699997	-0.005	715.299997	-0.004
30	699.699997	-0.005	715.299996	-0.005
40	699.699998	-0.004	715.299997	-0.004
50	699.699996	-0.005	715.299997	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	700.500003	0.004	714.500001	0.001
4.25	700.500002	0.003	714.500002	0.003
5.75	700.500002	0.003	714.500004	0.005

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	700.500002	0.003	714.500003	0.004
-20	700.500002	0.002	714.500004	0.006
-10	700.500002	0.003	714.500001	0.002
0	700.500003	0.004	714.500003	0.004
10	700.500003	0.005	714.500003	0.004
20	700.499997	-0.004	714.499999	-0.002
30	700.499998	-0.003	714.499998	-0.002
40	700.499998	-0.003	714.499997	-0.004
50	700.499998	-0.003	714.499997	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	701.500003	0.005	713.500002	0.003
4.25	701.500002	0.003	713.500002	0.002
5.75	701.500003	0.004	713.500003	0.004

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	701.500002	0.002	713.500002	0.002
-20	701.500002	0.002	713.500002	0.003
-10	701.500003	0.004	713.500001	0.002
0	701.500001	0.002	713.500001	0.002
10	701.500002	0.003	713.500003	0.004
20	701.499997	-0.004	713.499999	-0.002
30	701.499998	-0.002	713.499997	-0.004
40	701.499997	-0.004	713.499996	-0.005
50	701.499999	-0.002	713.499998	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
5.00	704.000003	0.004	711.000002	0.002
4.25	704.000002	0.003	711.000002	0.003
5.75	704.000004	0.005	711.000004	0.005

Note: The applicant defined the normal working voltage of the adapter is from 4.25 Vdc to 5.75 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	704.000003	0.004	711.000002	0.003
-20	704.000001	0.002	711.000003	0.005
-10	704.000003	0.004	711.000002	0.002
0	704.000001	0.002	711.000002	0.003
10	704.000003	0.004	711.000004	0.005
20	703.999998	-0.003	710.999997	-0.004
30	703.999998	-0.002	710.999997	-0.005
40	703.999997	-0.004	710.999999	-0.002
50	703.999999	-0.002	710.999997	-0.005

4.4 Occupied Bandwidth Measurement

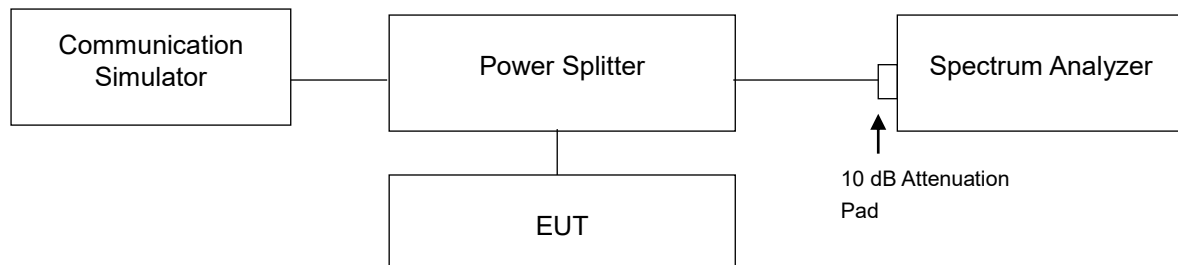
4.4.1 Limits of Occupied Bandwidth Measurement

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

4.4.2 Test Procedure

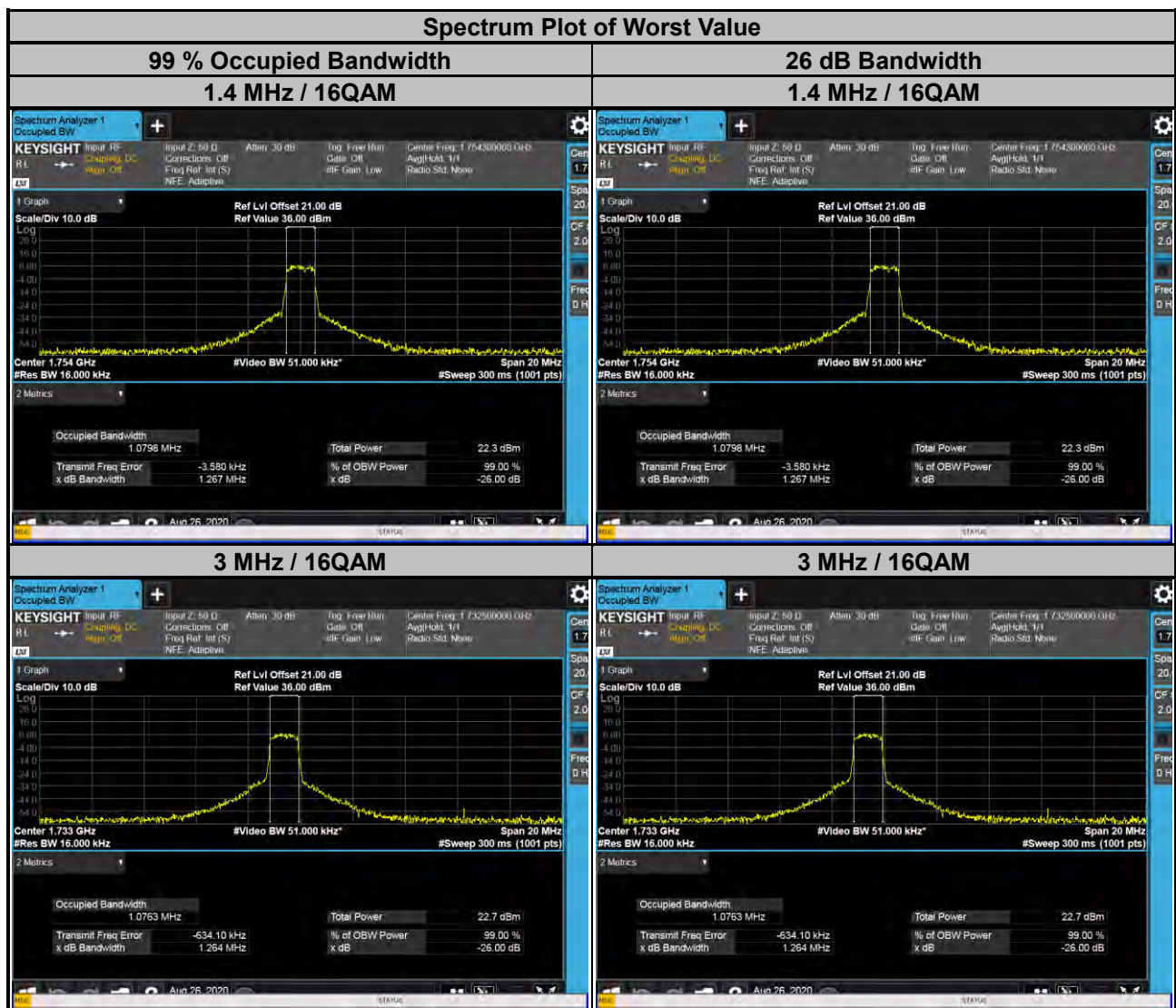
- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.4.3 Test Setup

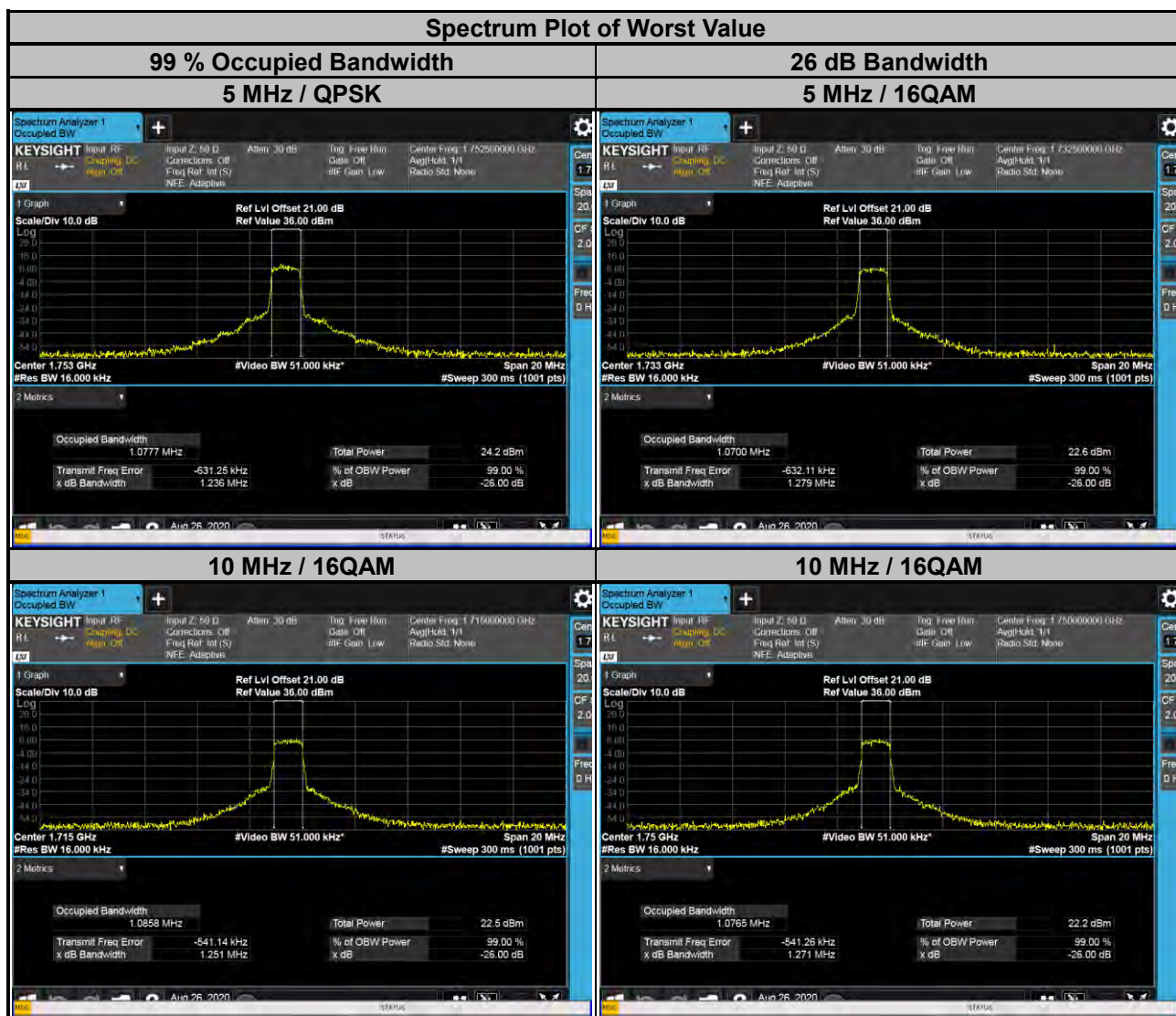


4.4.4 Test Result

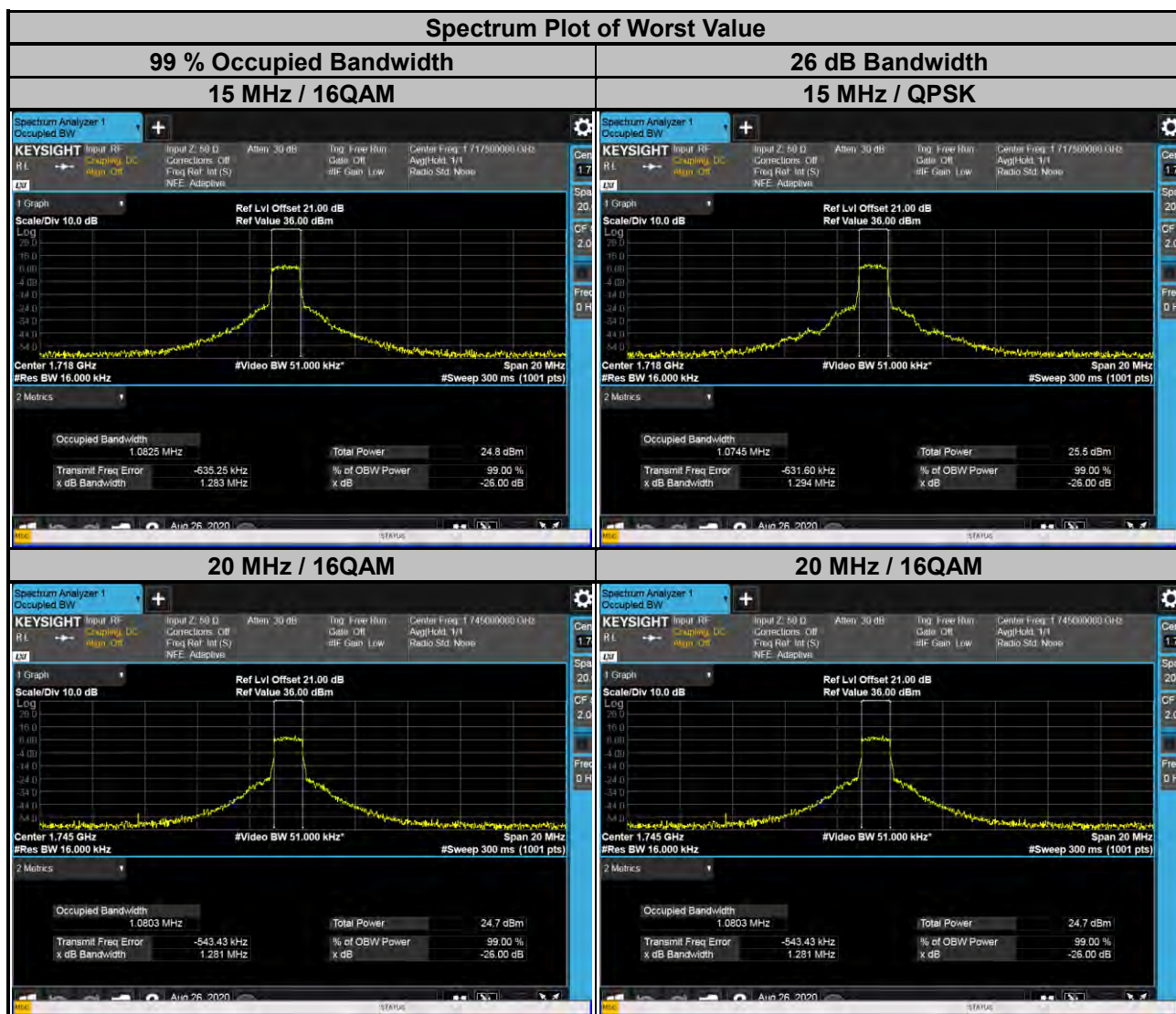
LTE Band 4					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19957	1710.7	1.0739	1.0734	1.258	1.253
20175	1732.5	1.0751	1.0788	1.231	1.253
20393	1754.3	1.0690	1.0798	1.251	1.267
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19965	1711.5	1.0696	1.0736	1.255	1.245
20175	1732.5	1.0729	1.0763	1.234	1.264
20385	1753.5	1.0706	1.0744	1.256	1.258



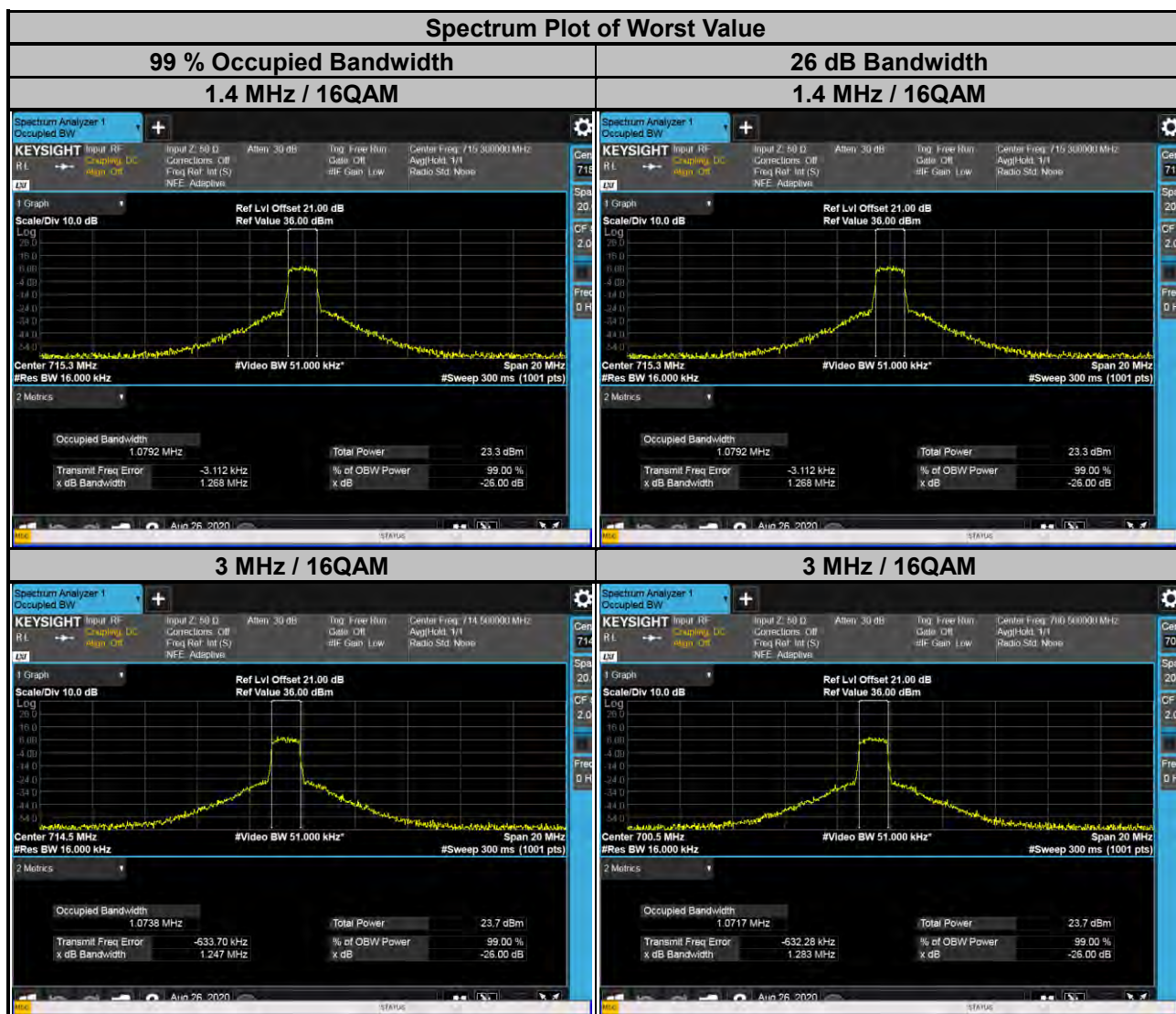
LTE Band 4					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
19975	1712.5	1.0718	1.0776	1.261	1.255
20175	1732.5	1.0716	1.0700	1.252	1.279
20375	1752.5	1.0777	1.0769	1.236	1.263
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20000	1715.0	1.0805	1.0858	1.265	1.251
20175	1732.5	1.0784	1.0840	1.263	1.266
20350	1750.0	1.0661	1.0765	1.251	1.271



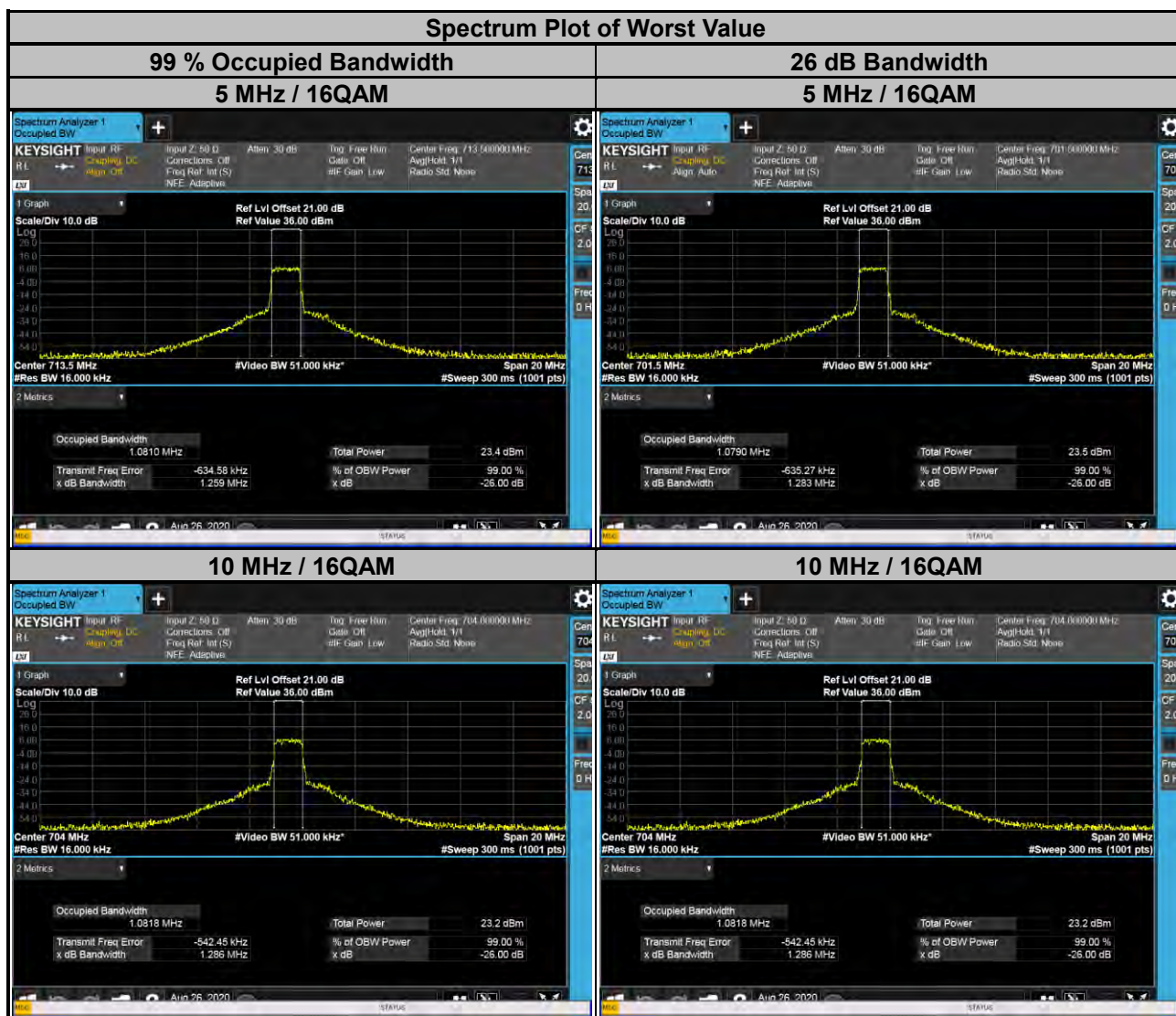
LTE Band 4					
Channel Bandwidth: 15 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20025	1717.5	1.0745	1.0825	1.294	1.283
20175	1732.5	1.0755	1.0795	1.255	1.254
20325	1747.5	1.0664	1.0779	1.239	1.259
Channel Bandwidth: 20 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20050	1720.0	1.0773	1.0733	1.269	1.277
20175	1732.5	1.0758	1.0802	1.269	1.257
20300	1745.0	1.0754	1.0803	1.262	1.281



LTE Band 12					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23017	699.7	1.0791	1.0787	1.263	1.257
23095	707.5	1.0674	1.0732	1.239	1.267
23173	715.3	1.0769	1.0792	1.251	1.268
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23025	700.5	1.0682	1.0717	1.245	1.283
23095	707.5	1.0725	1.0730	1.261	1.252
23165	714.5	1.0682	1.0738	1.263	1.247



LTE Band 12					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23035	701.5	1.0742	1.0790	1.272	1.283
23095	707.5	1.0699	1.0798	1.250	1.277
23155	713.5	1.0807	1.0810	1.245	1.259
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23060	704.0	1.0739	1.0818	1.252	1.286
23095	707.5	1.0775	1.0799	1.235	1.279
23130	711.0	1.0739	1.0813	1.258	1.279



4.5 Band Edge Measurement

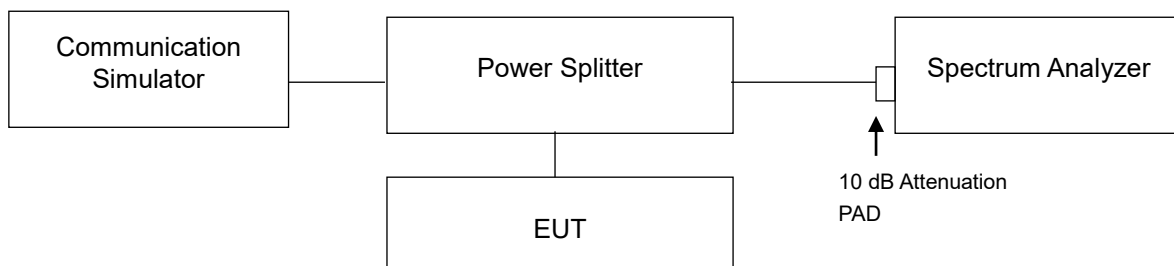
4.5.1 Limits of Band Edge Measurement

For operations in the 698-787 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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

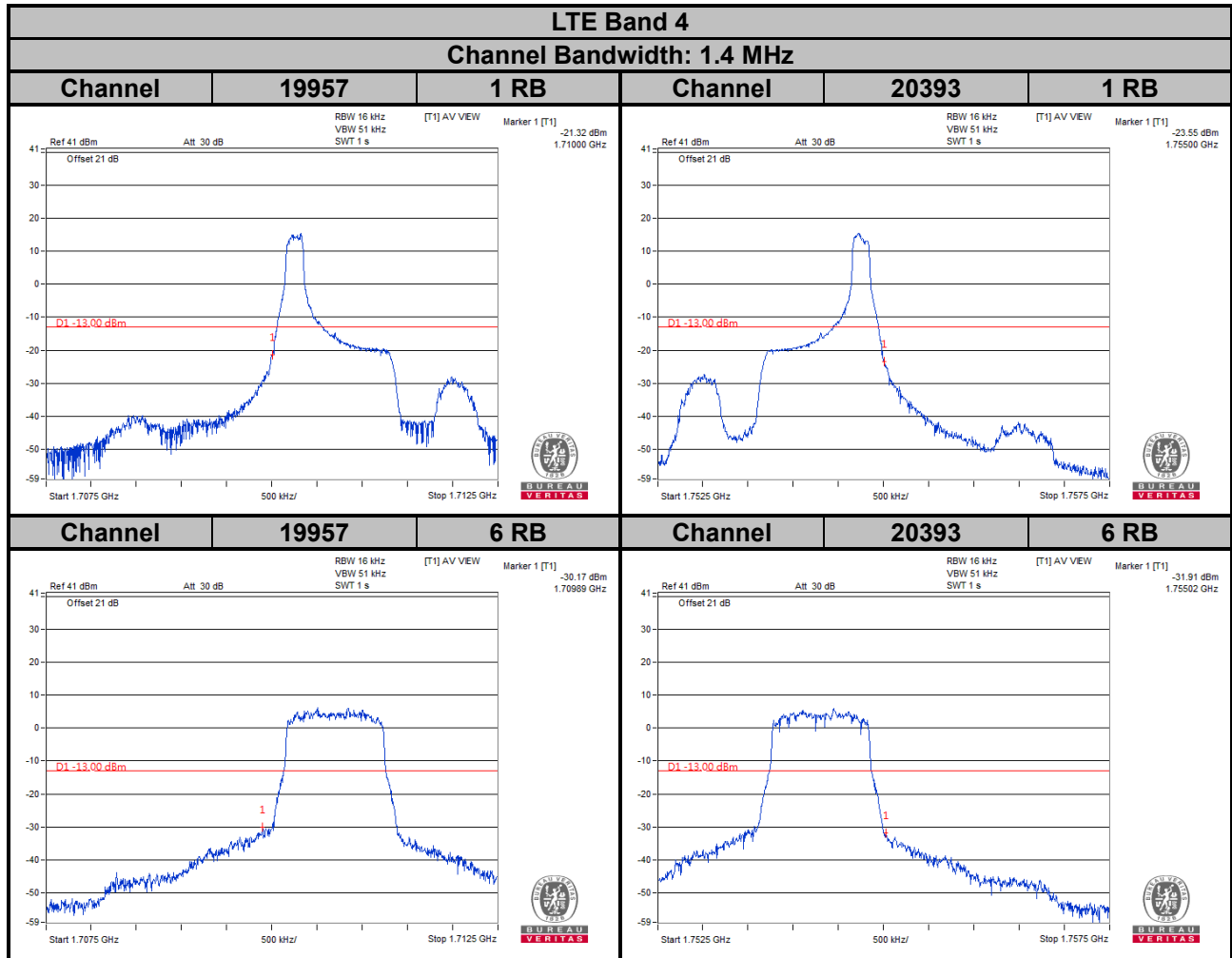
4.5.2 Test Setup

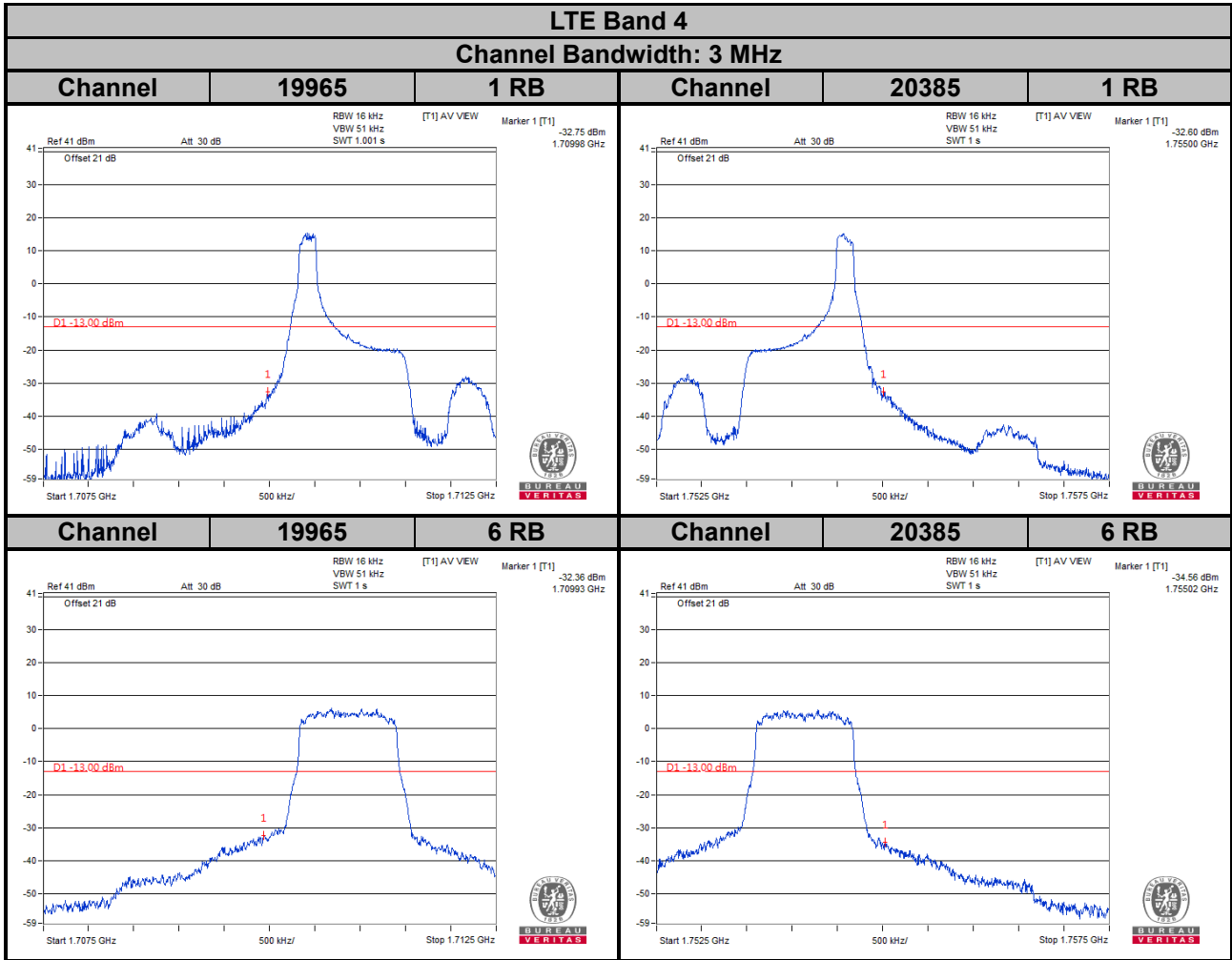


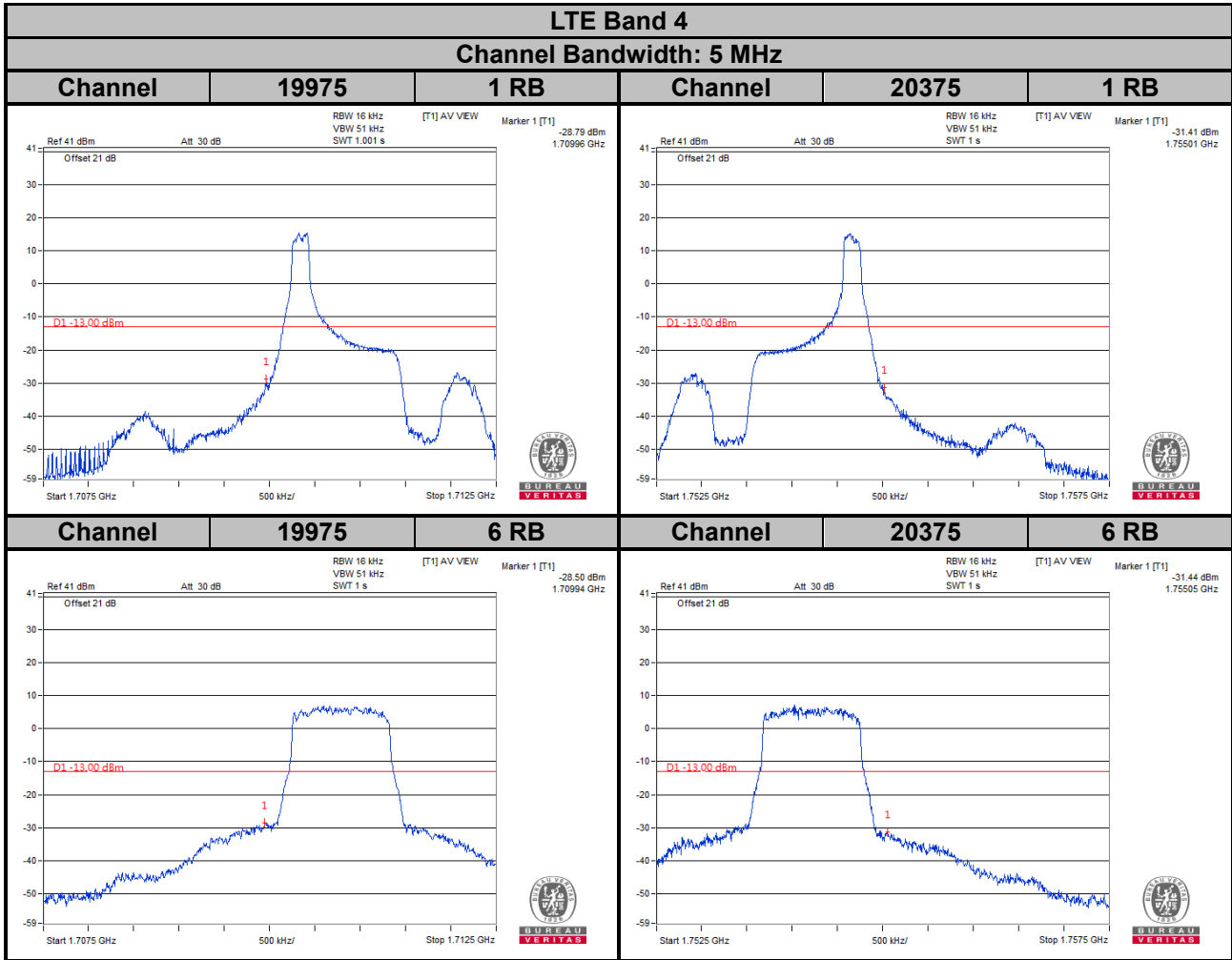
4.5.3 Test Procedures

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 16 kHz and VB of the spectrum is 51 kHz
- Record the max. trace plot into the test report.

4.5.4 Test Results

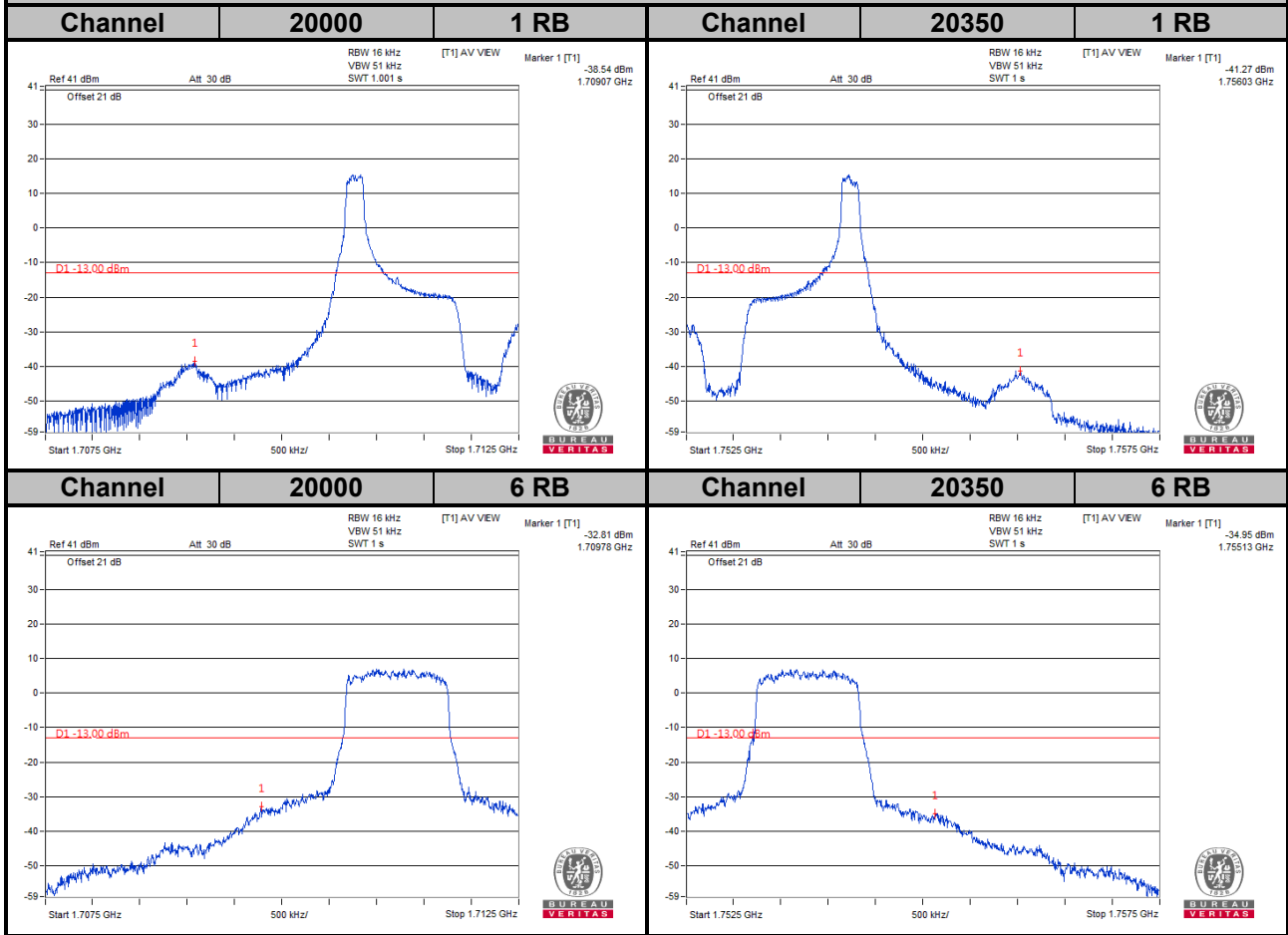






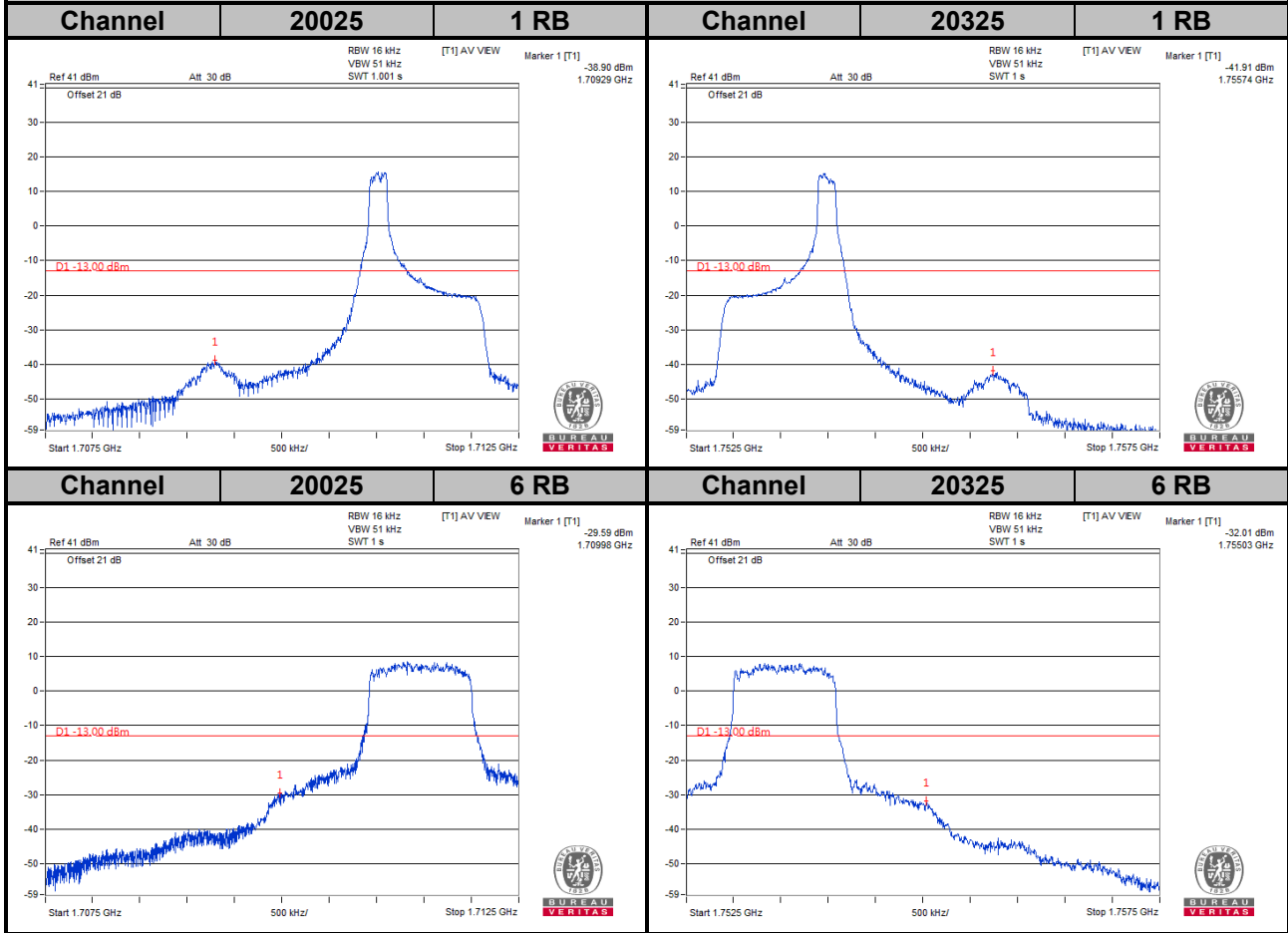
LTE Band 4

Channel Bandwidth: 10 MHz



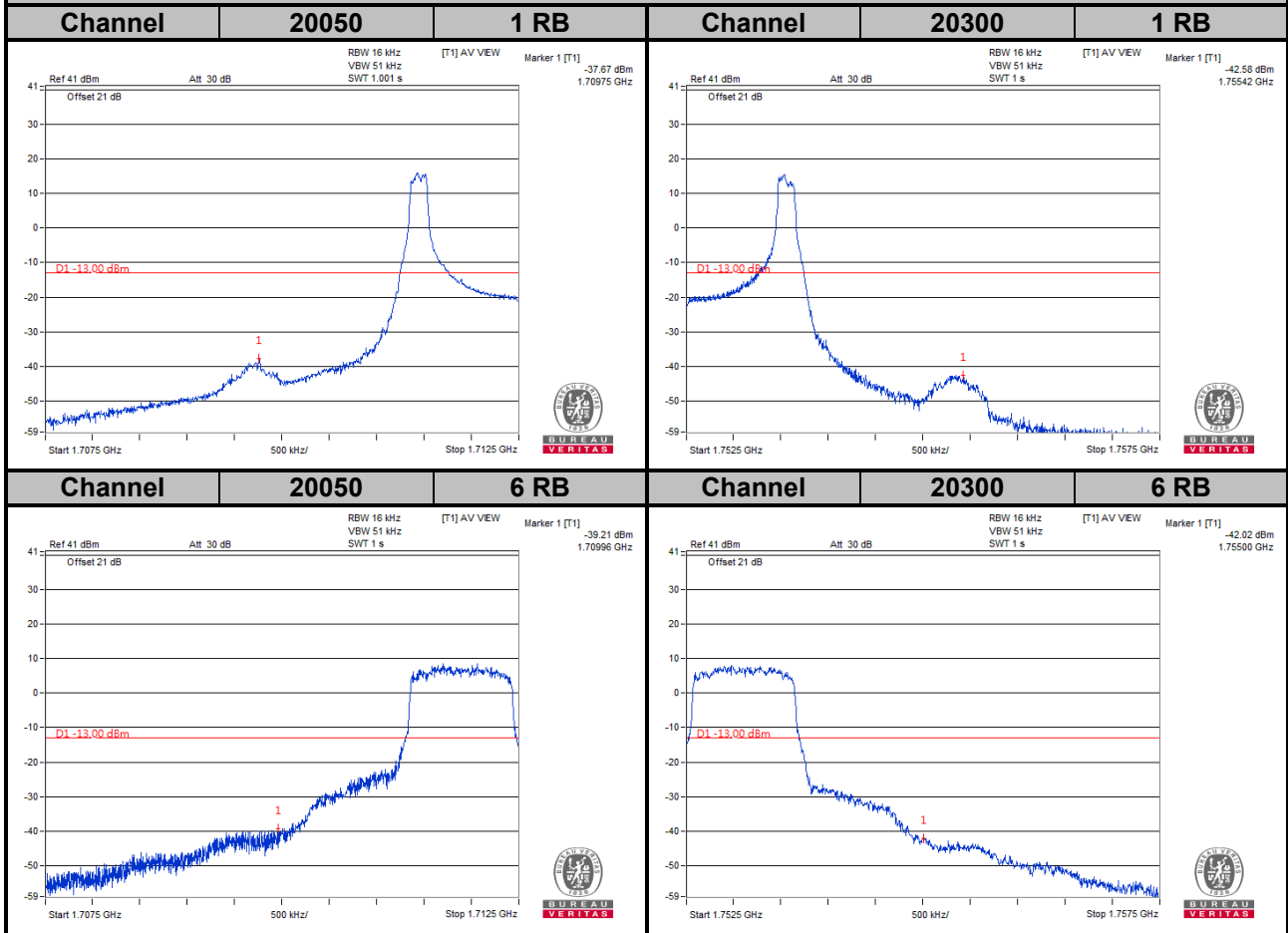
LTE Band 4

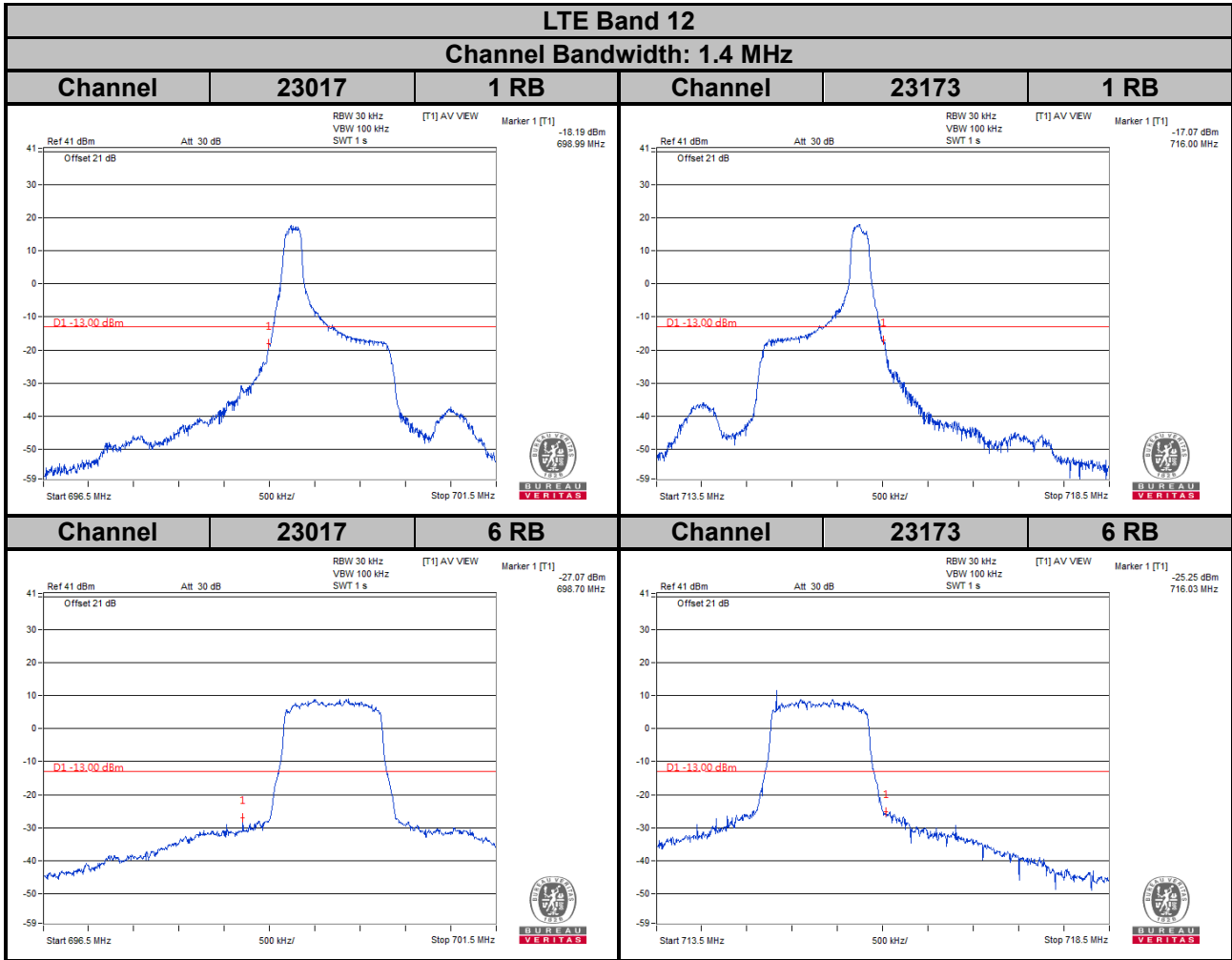
Channel Bandwidth: 15 MHz



LTE Band 4

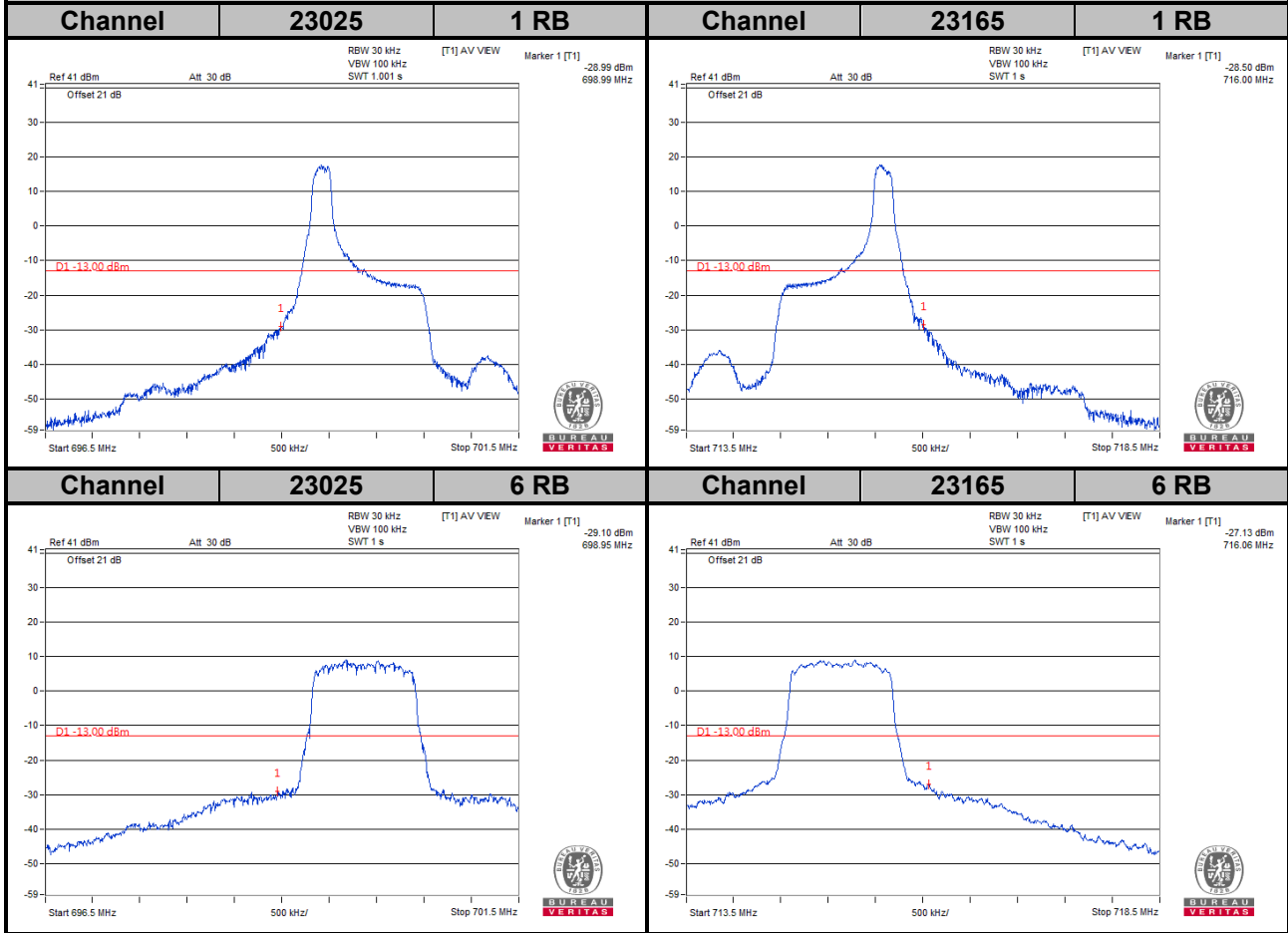
Channel Bandwidth: 20 MHz

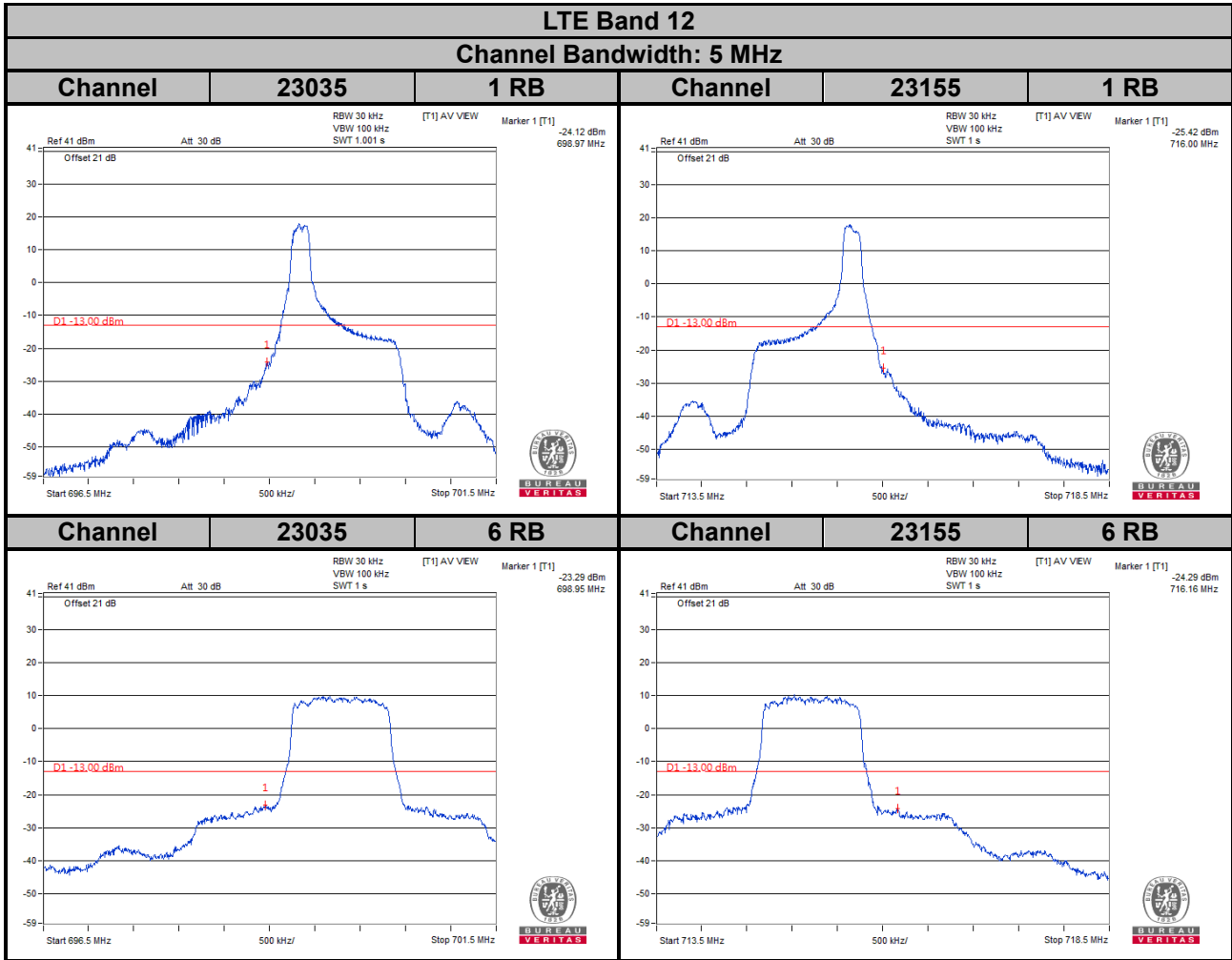




LTE Band 12

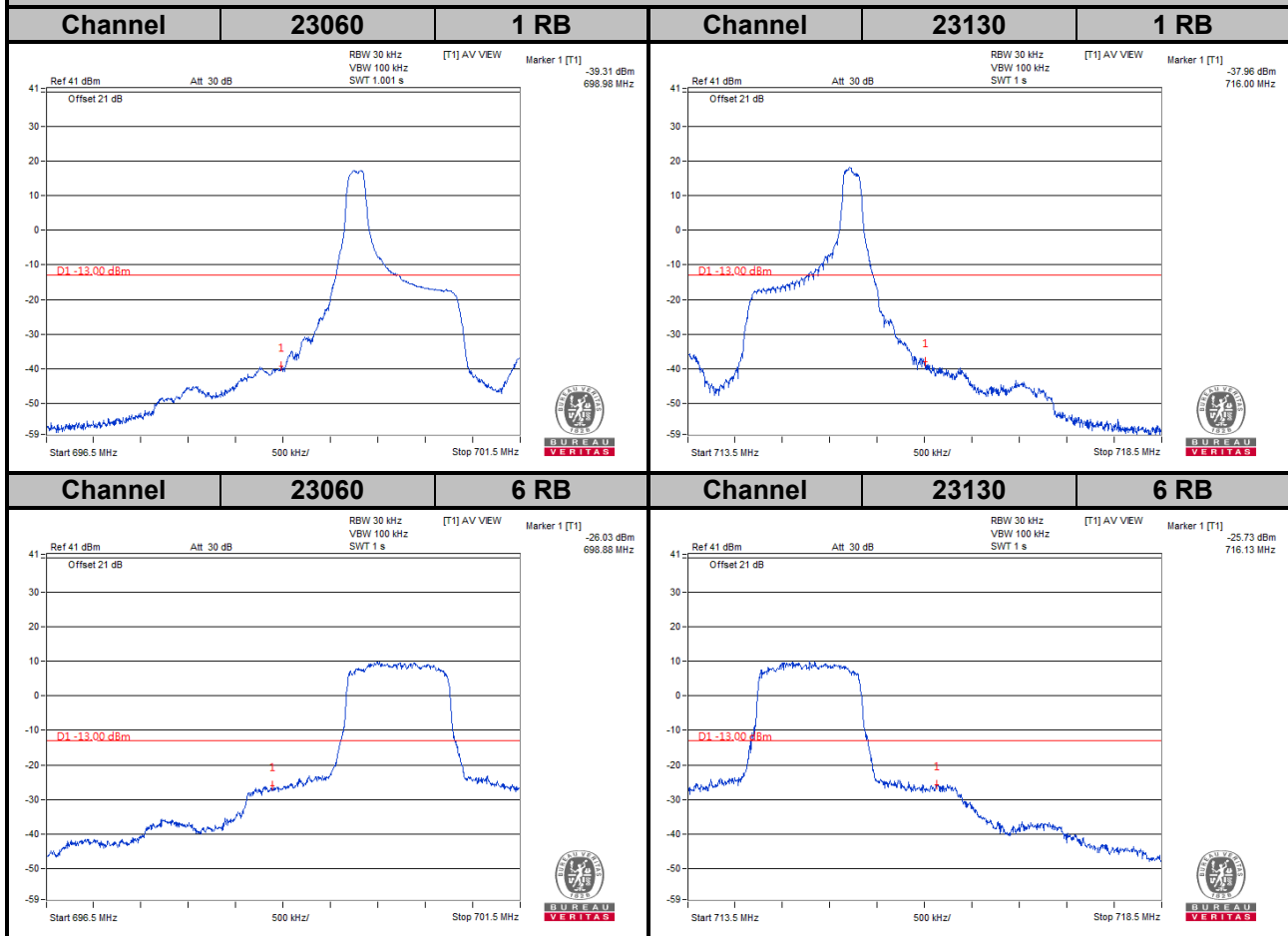
Channel Bandwidth: 3 MHz





LTE Band 12

Channel Bandwidth: 10 MHz

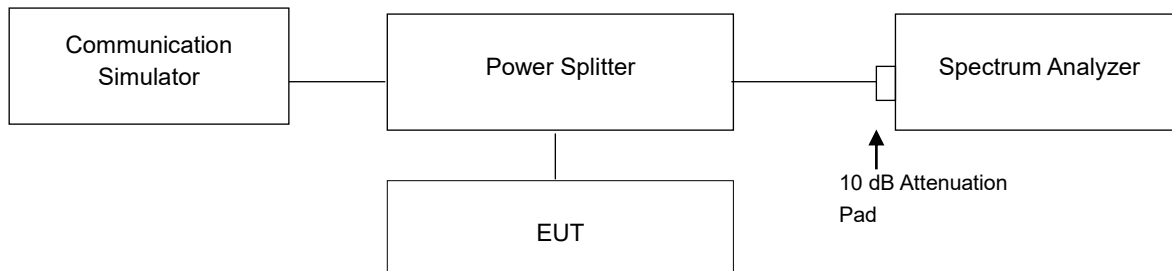


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup

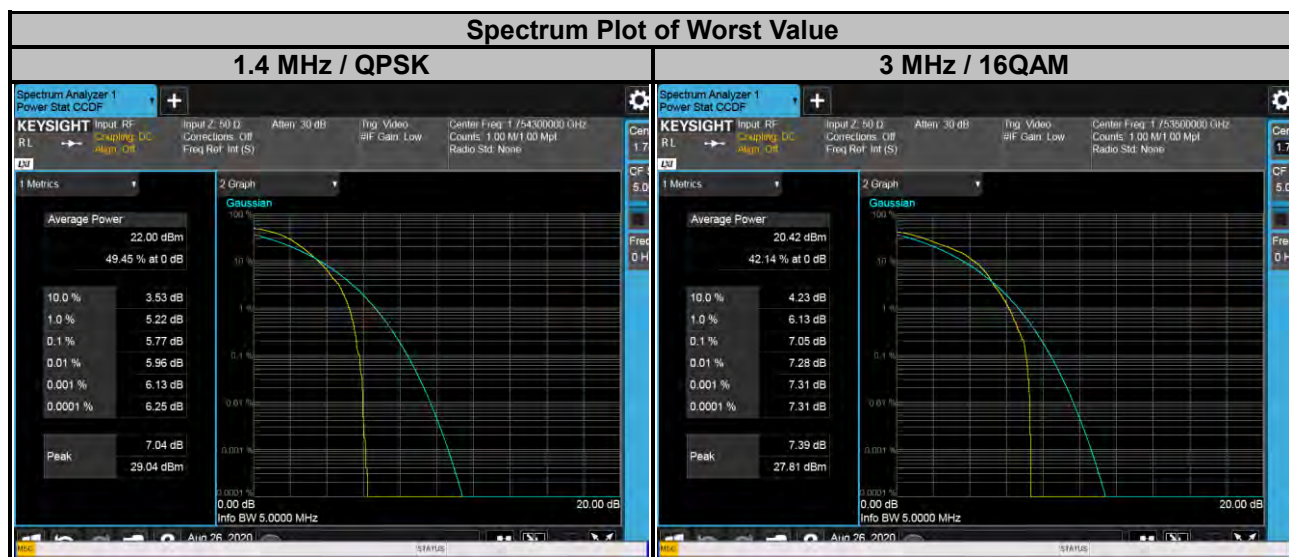


4.6.3 Test Procedures

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

4.6.4 Test Results

LTE Band 4							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	4.60	6.45	19965	1711.5	4.20	6.59
20175	1732.5	5.59	6.52	20175	1732.5	5.51	6.89
20393	1754.3	5.77	6.78	20385	1753.5	5.87	7.05



LTE Band 4

Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.92	4.24	20000	1715.0	4.22	4.15
20175	1732.5	6.23	5.08	20175	1732.5	4.47	4.53
20375	1752.5	6.20	5.92	20350	1750.0	4.58	4.68

Spectrum Plot of Worst Value



LTE Band 4

Channel Bandwidth: 15 MHz				Channel Bandwidth: 20 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	4.18	4.30	20050	1720.0	4.29	4.37
20175	1732.5	4.41	4.53	20175	1732.5	4.40	4.52
20325	1747.5	4.56	4.69	20300	1745.0	4.48	4.65

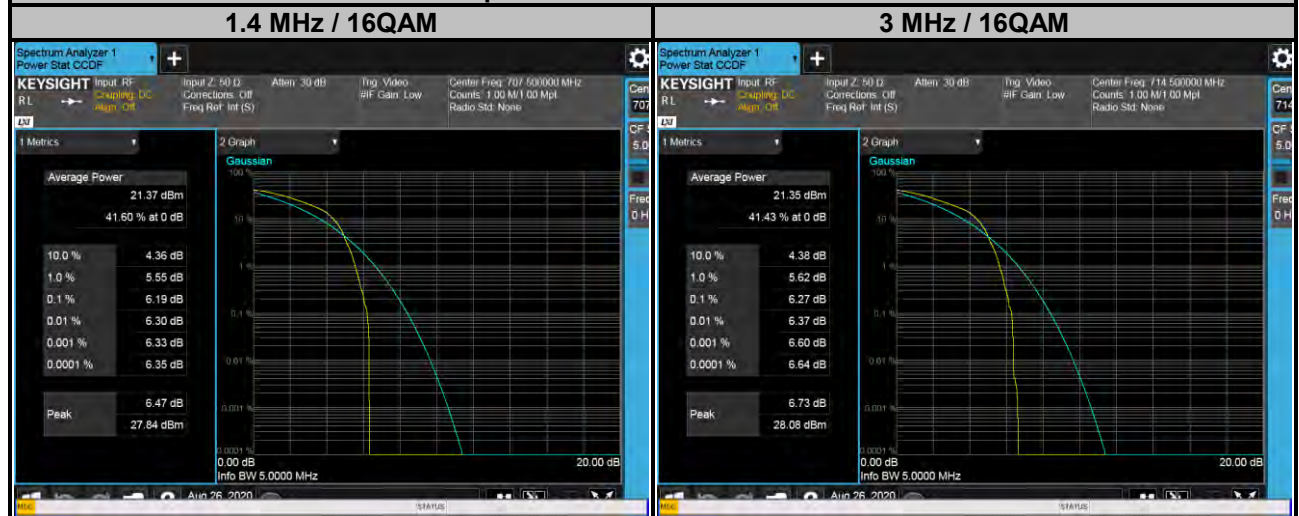
Spectrum Plot of Worst Value



LTE Band 12

Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23017	699.7	4.42	5.97	23025	700.5	5.67	6.11
23095	707.5	5.10	6.19	23095	707.5	5.90	6.21
23173	715.3	5.37	6.12	23165	714.5	5.89	6.27

Spectrum Plot of Worst Value



LTE Band 12							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
23035	701.5	5.59	3.63	23060	704.0	3.56	3.58
23095	707.5	5.84	3.72	23095	707.5	3.50	3.66
23155	713.5	6.11	3.77	23130	711.0	3.55	3.67

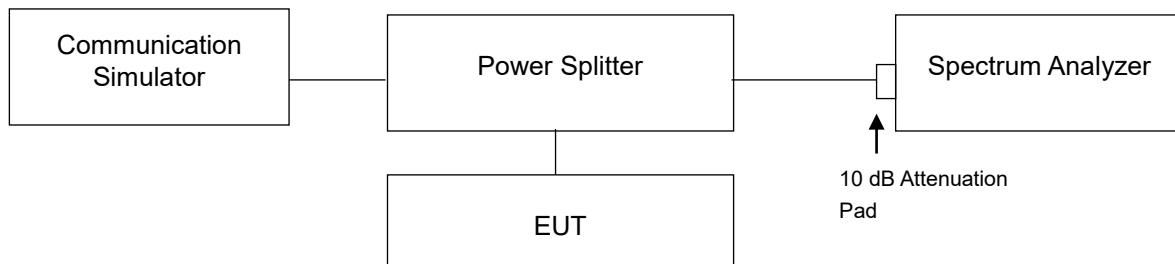


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

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

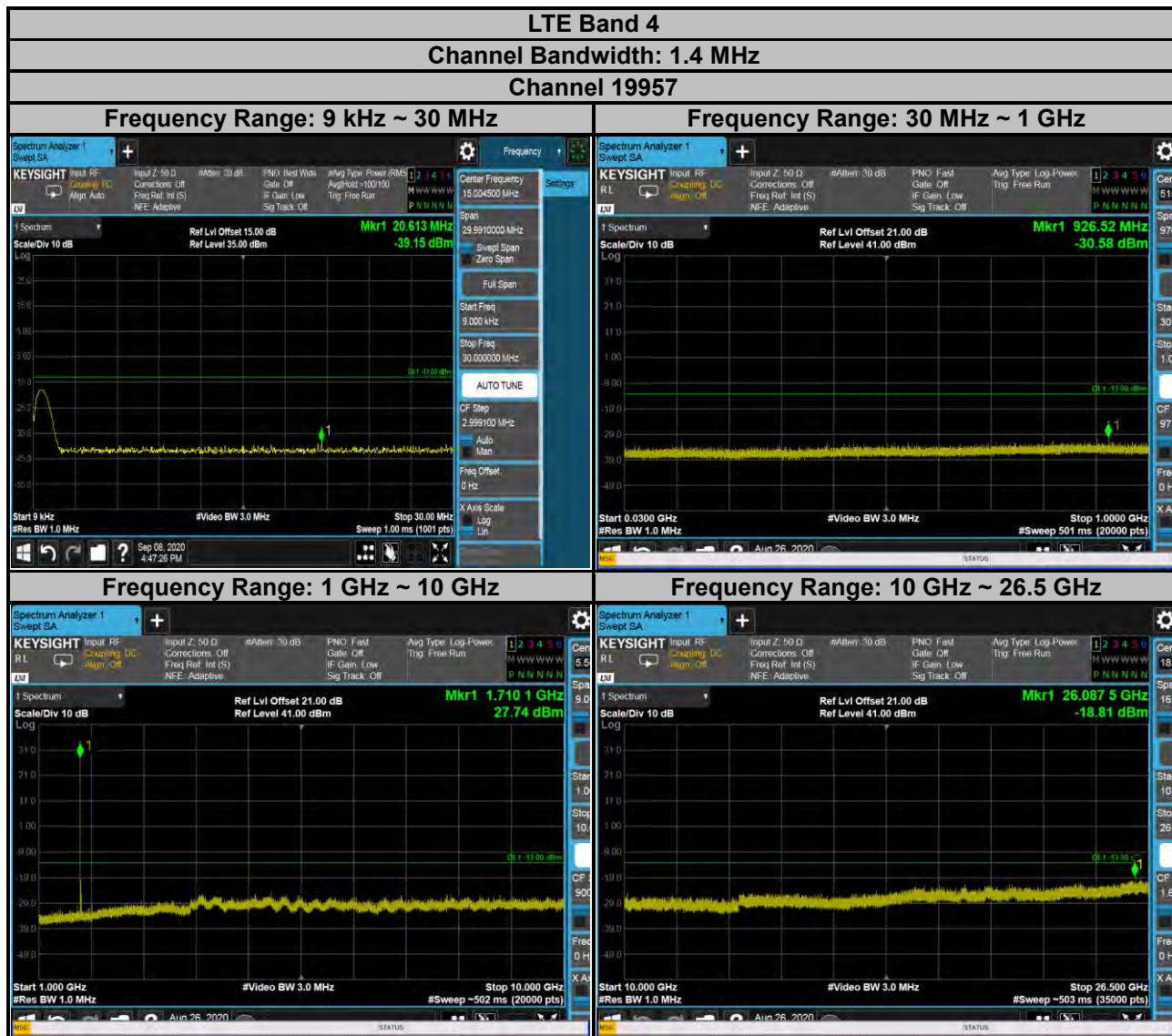
4.7.2 Test Setup



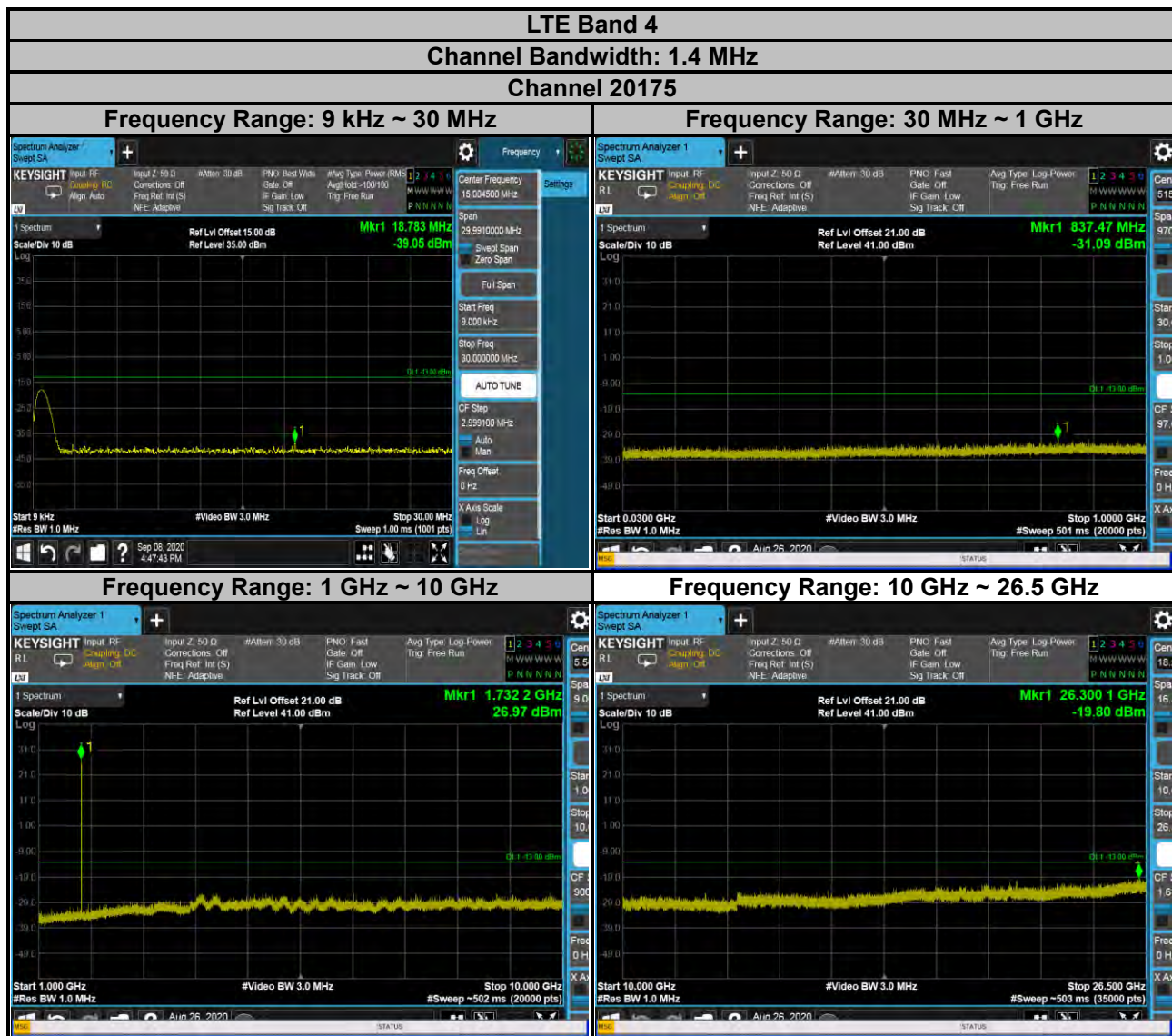
4.7.3 Test Procedure

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

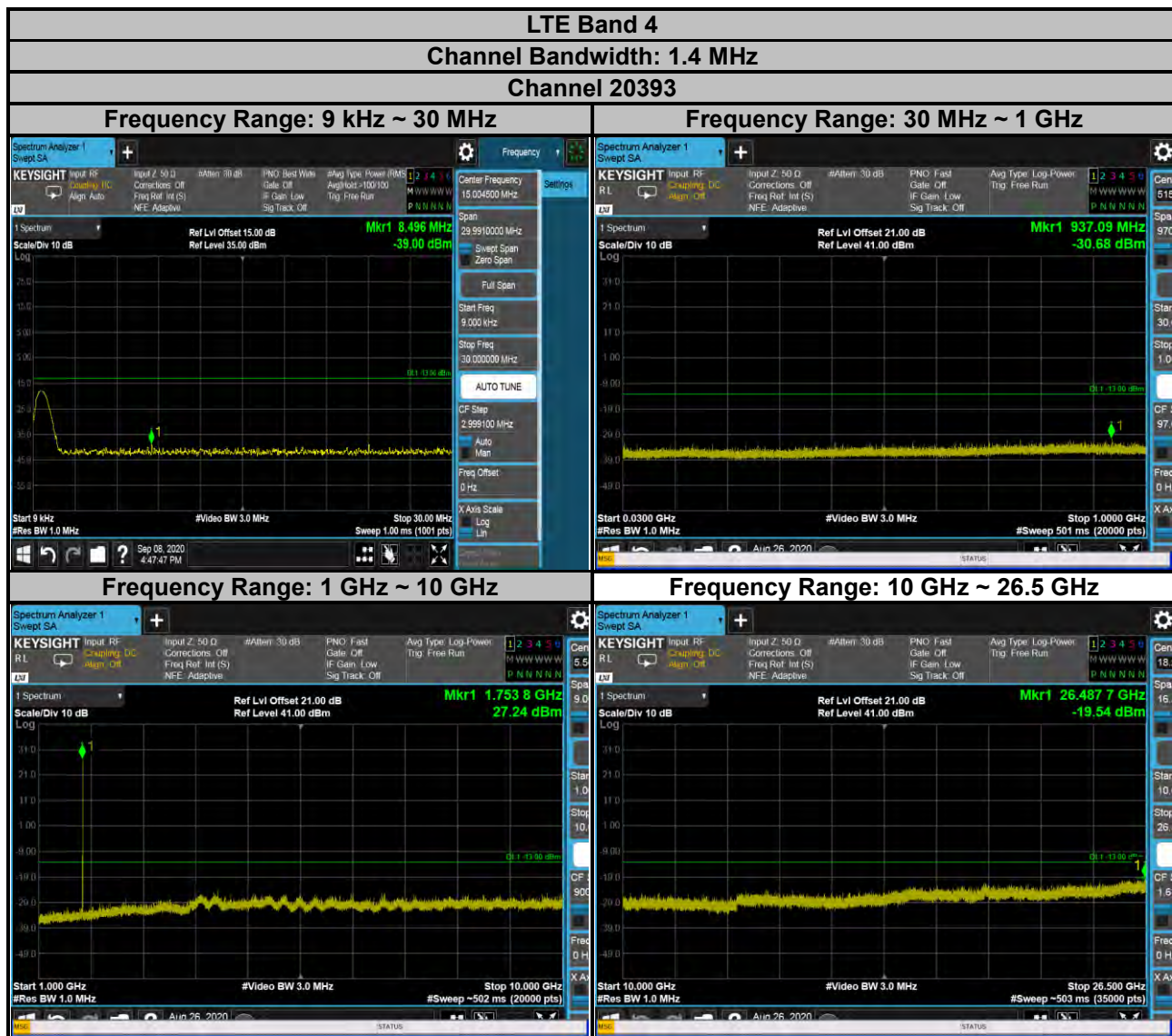
4.7.4 Test Results



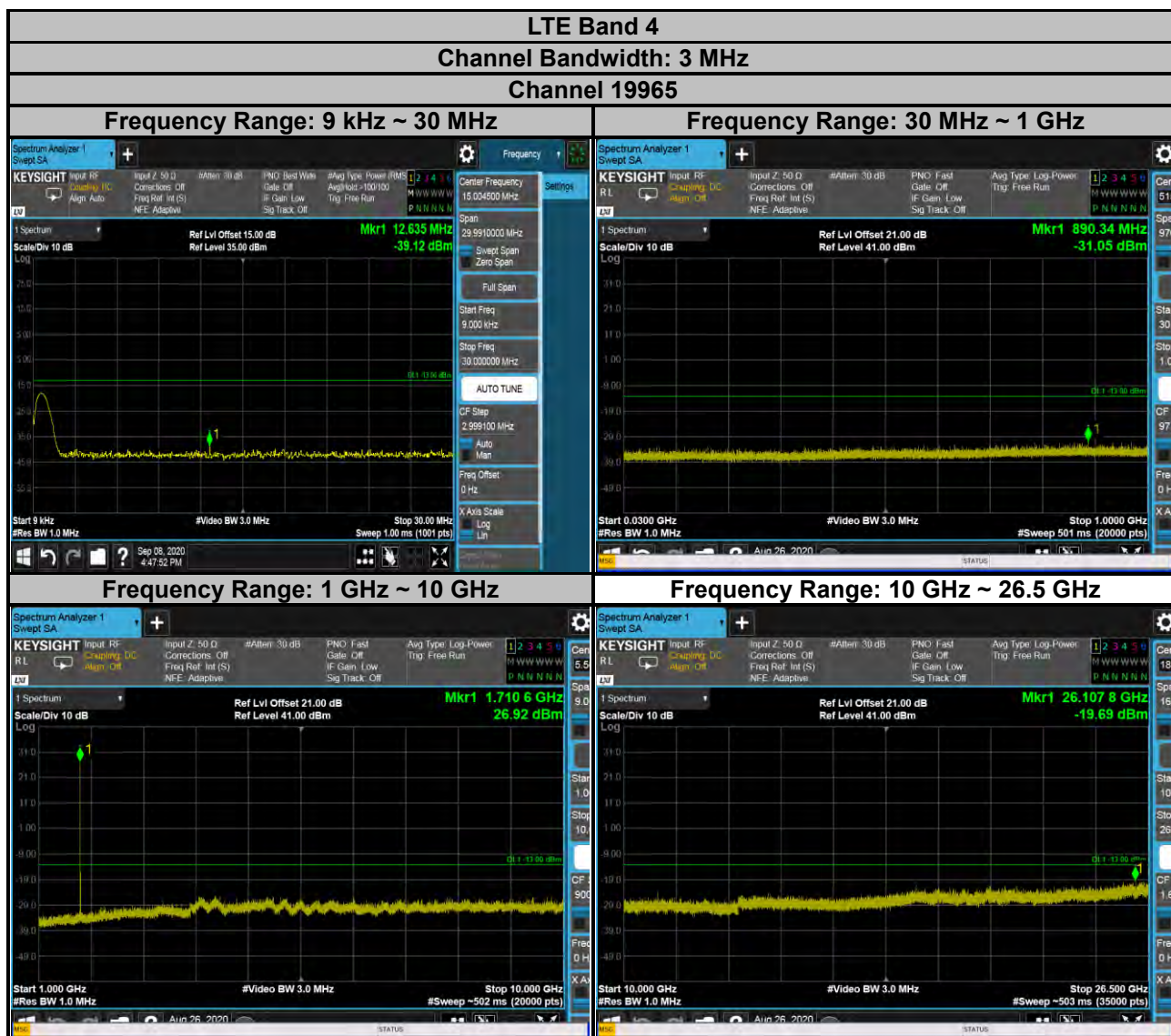
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



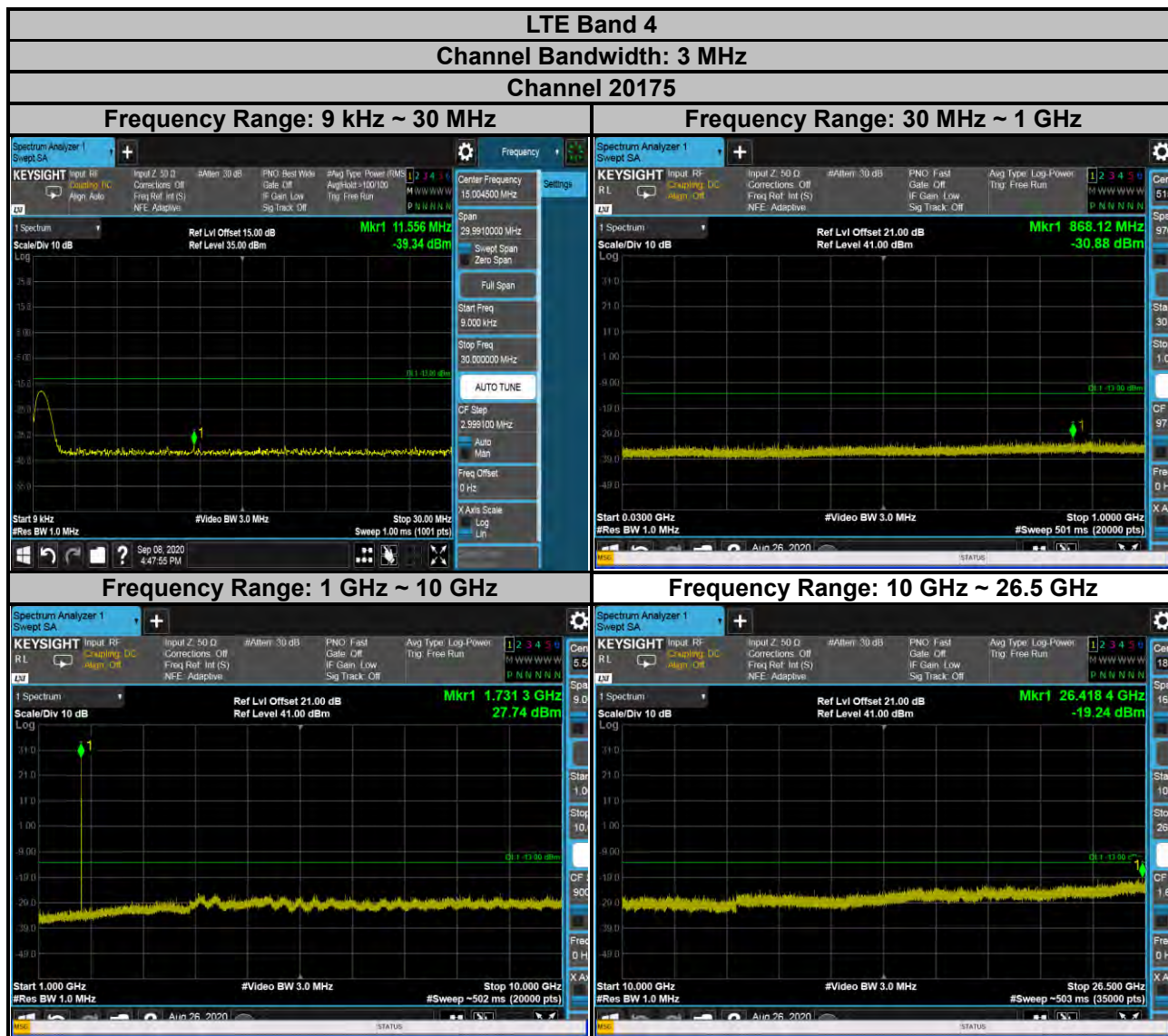
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



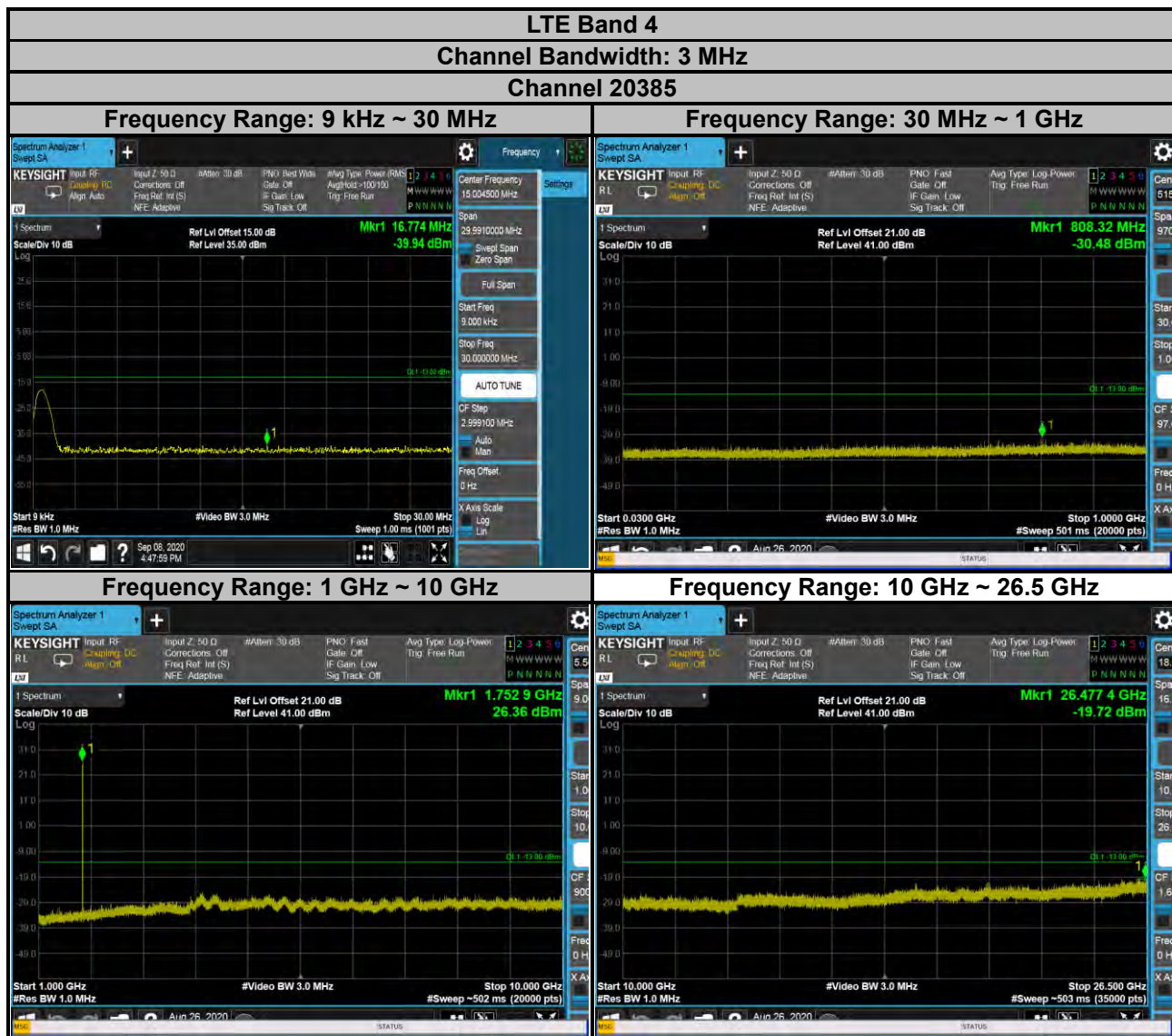
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



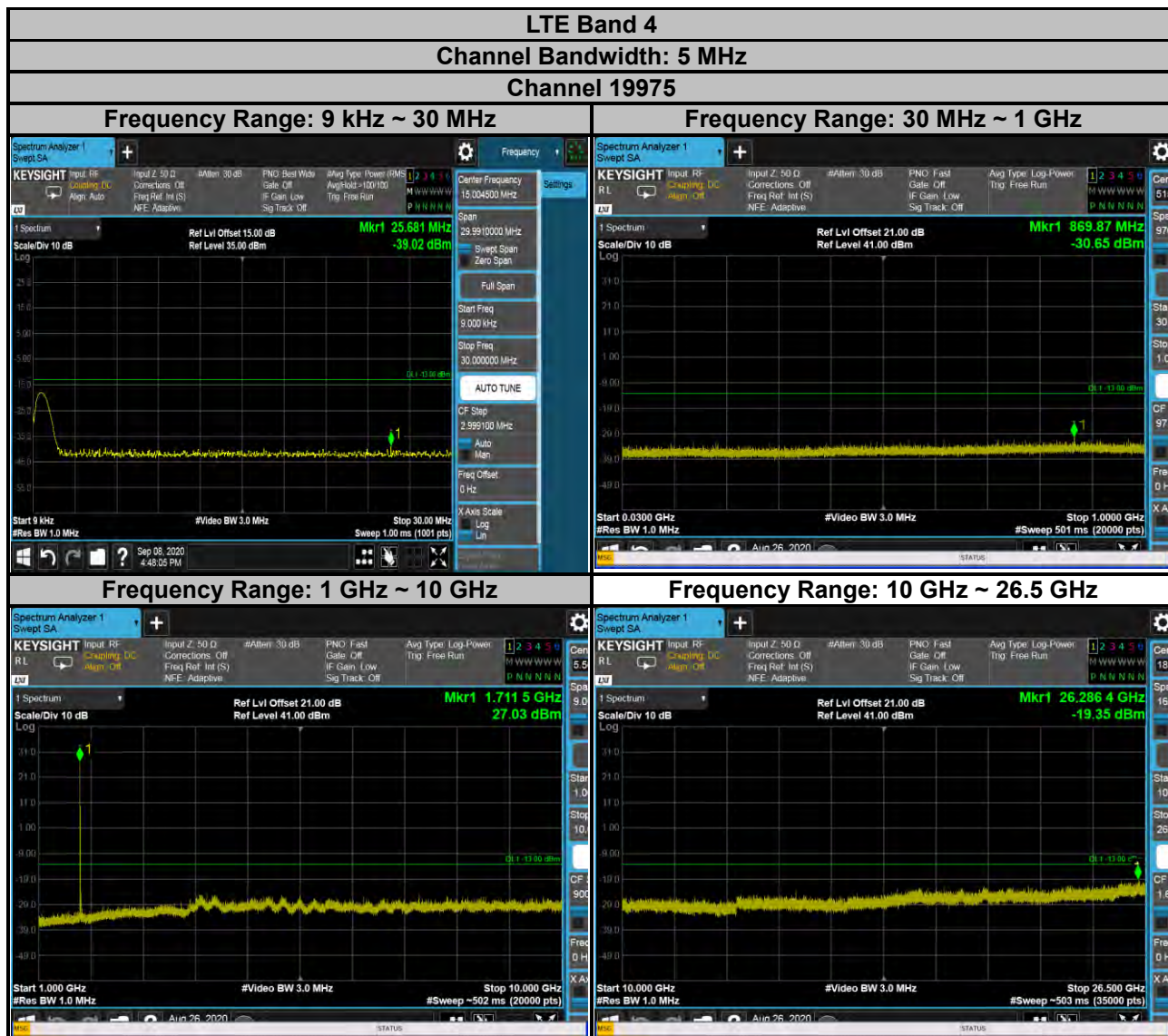
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



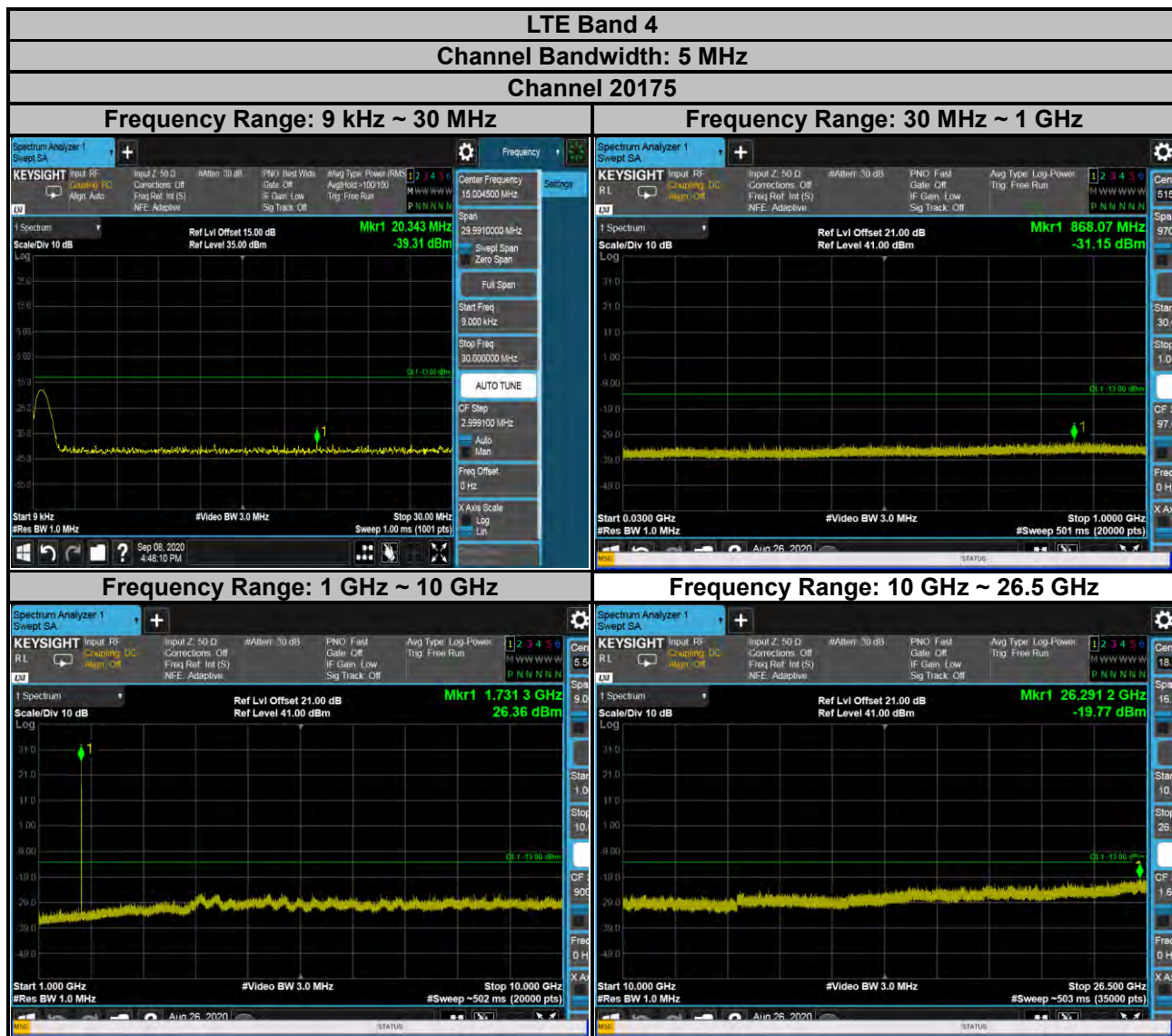
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



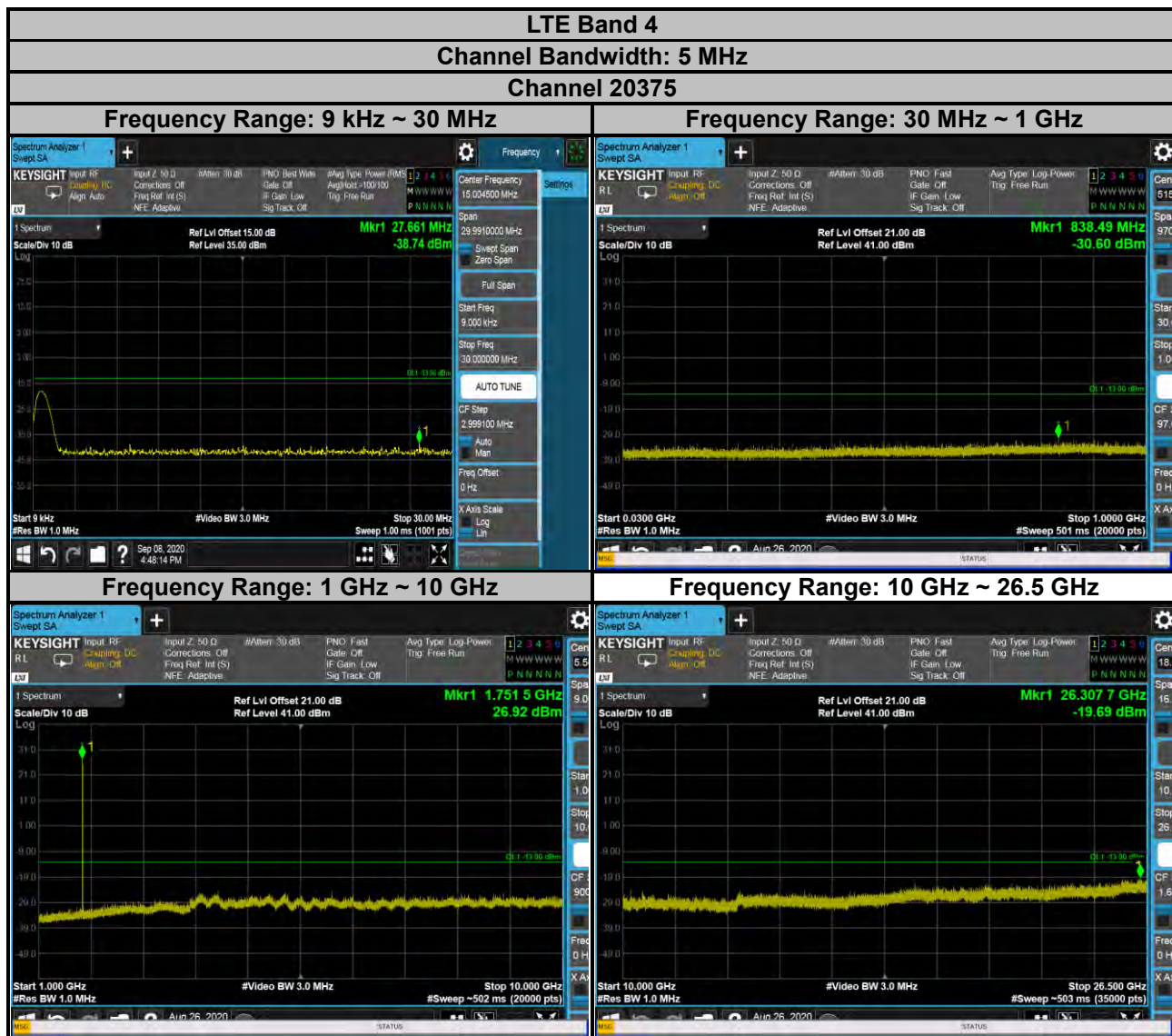
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



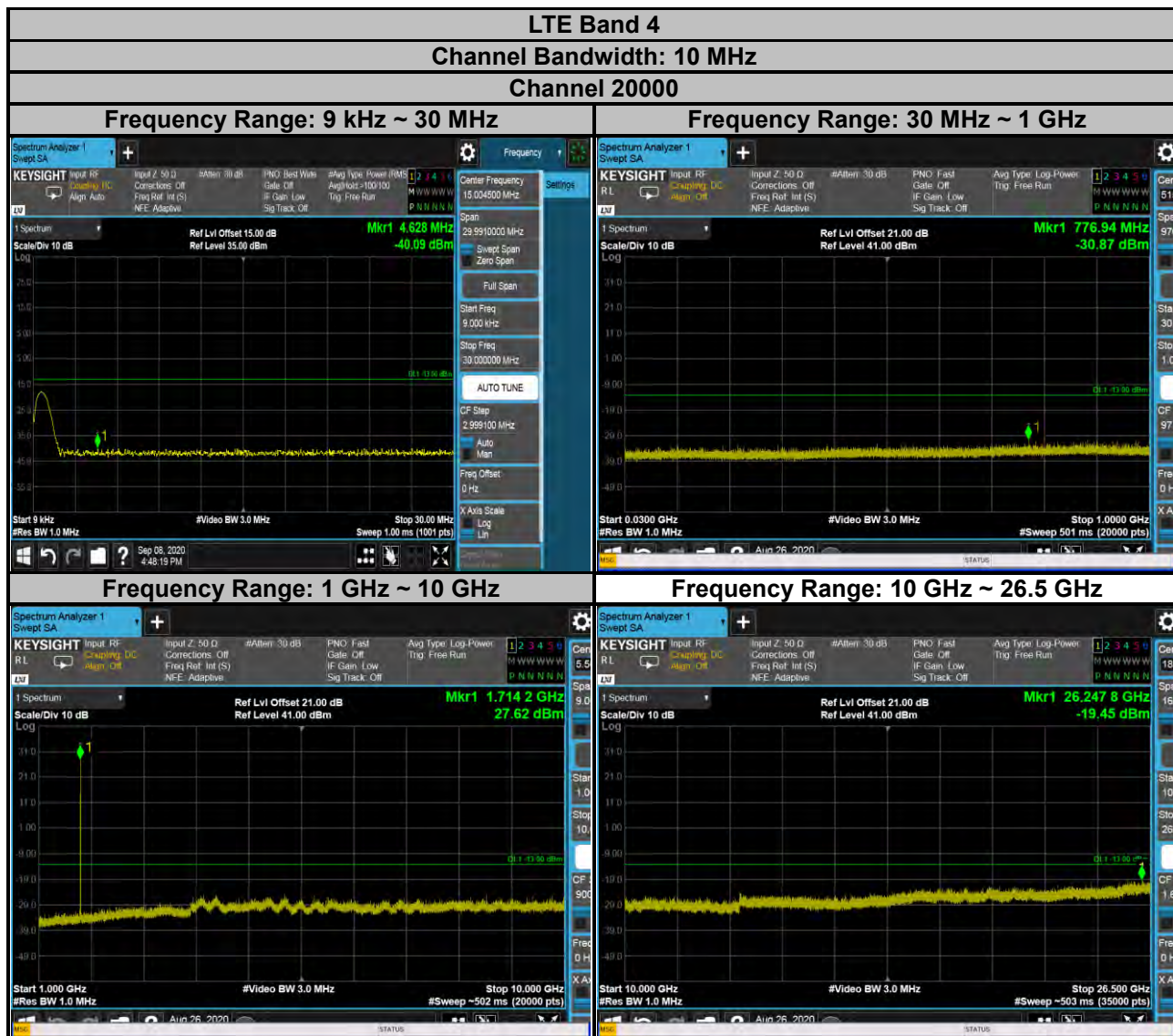
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



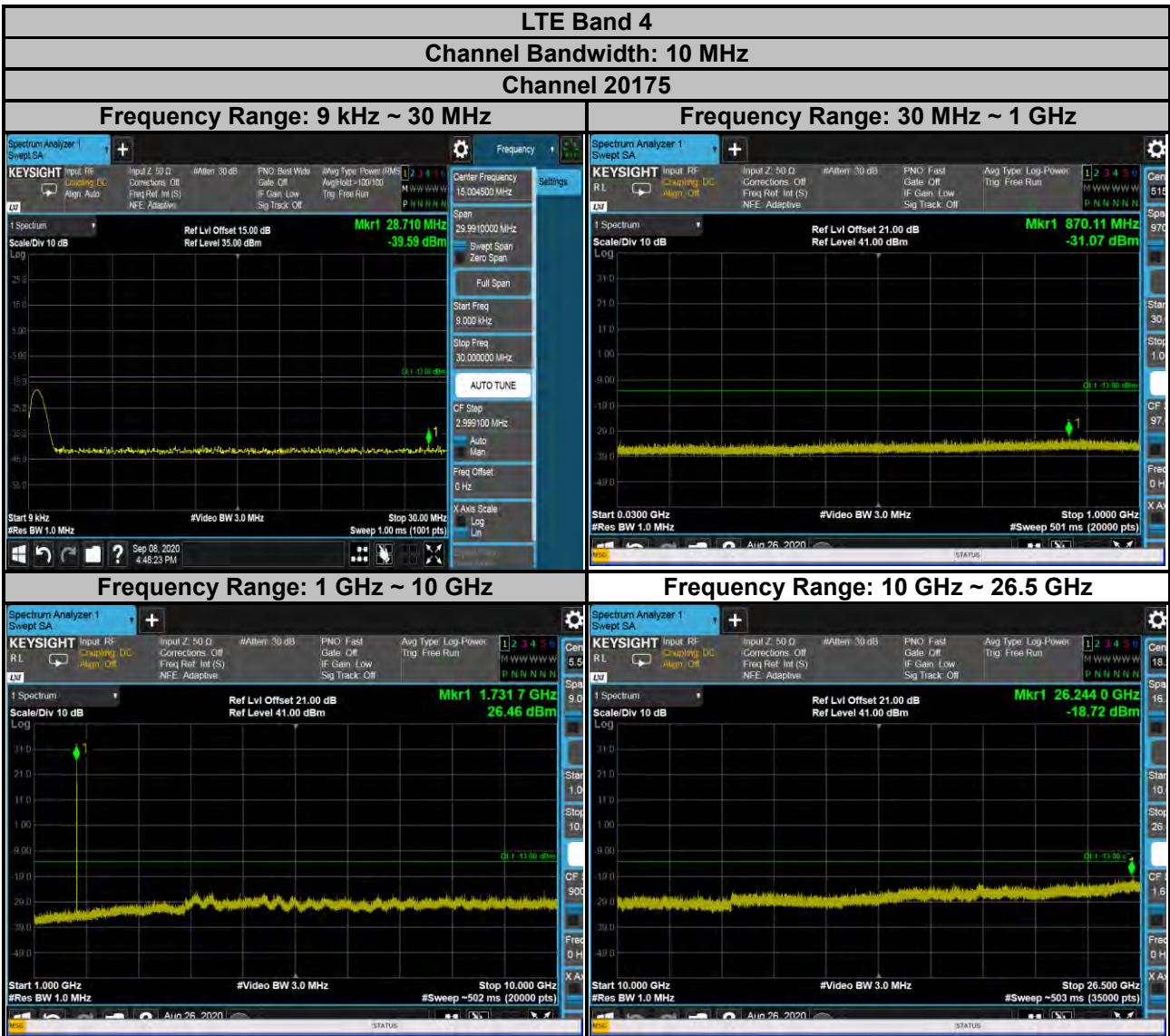
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



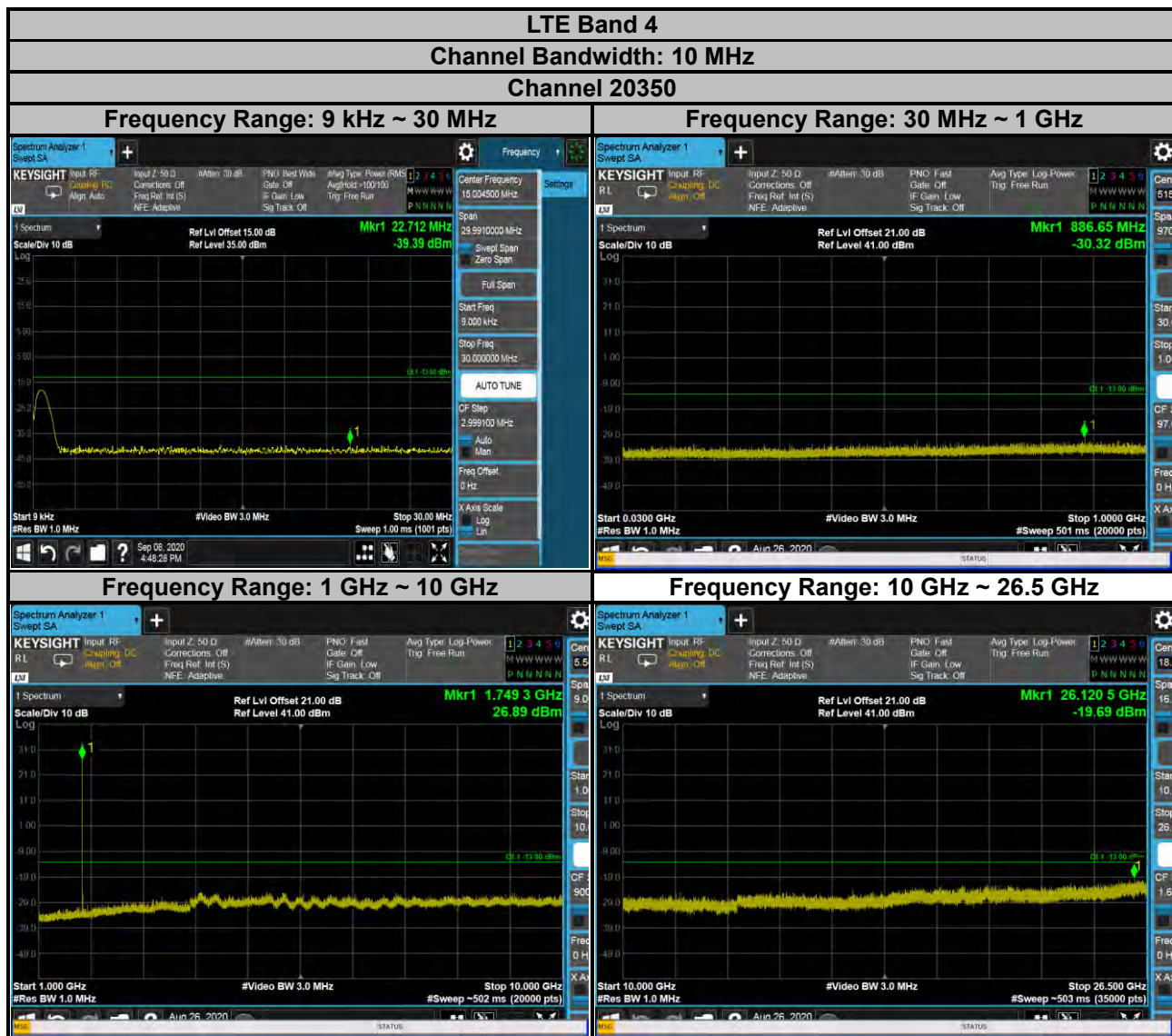
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



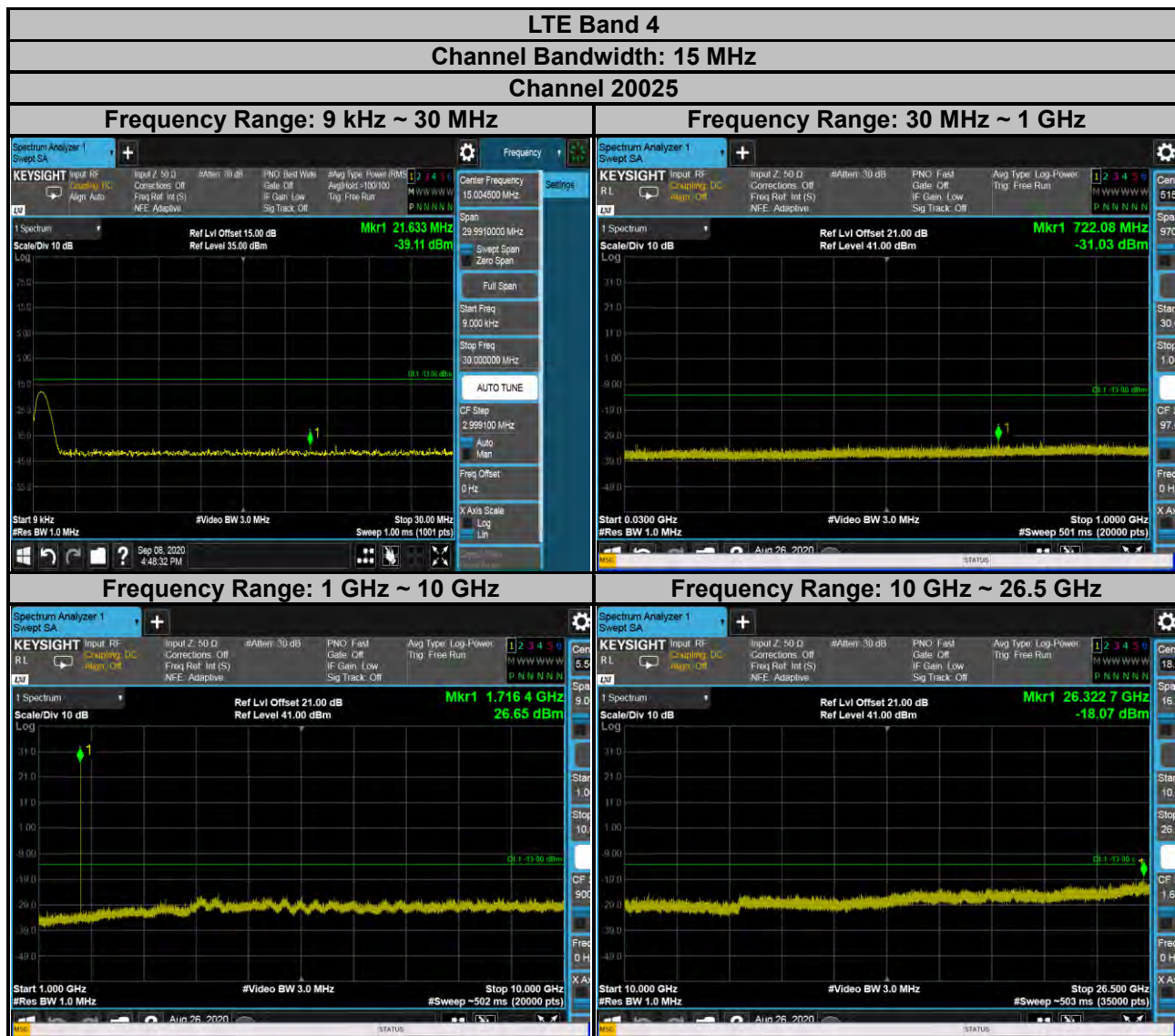
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



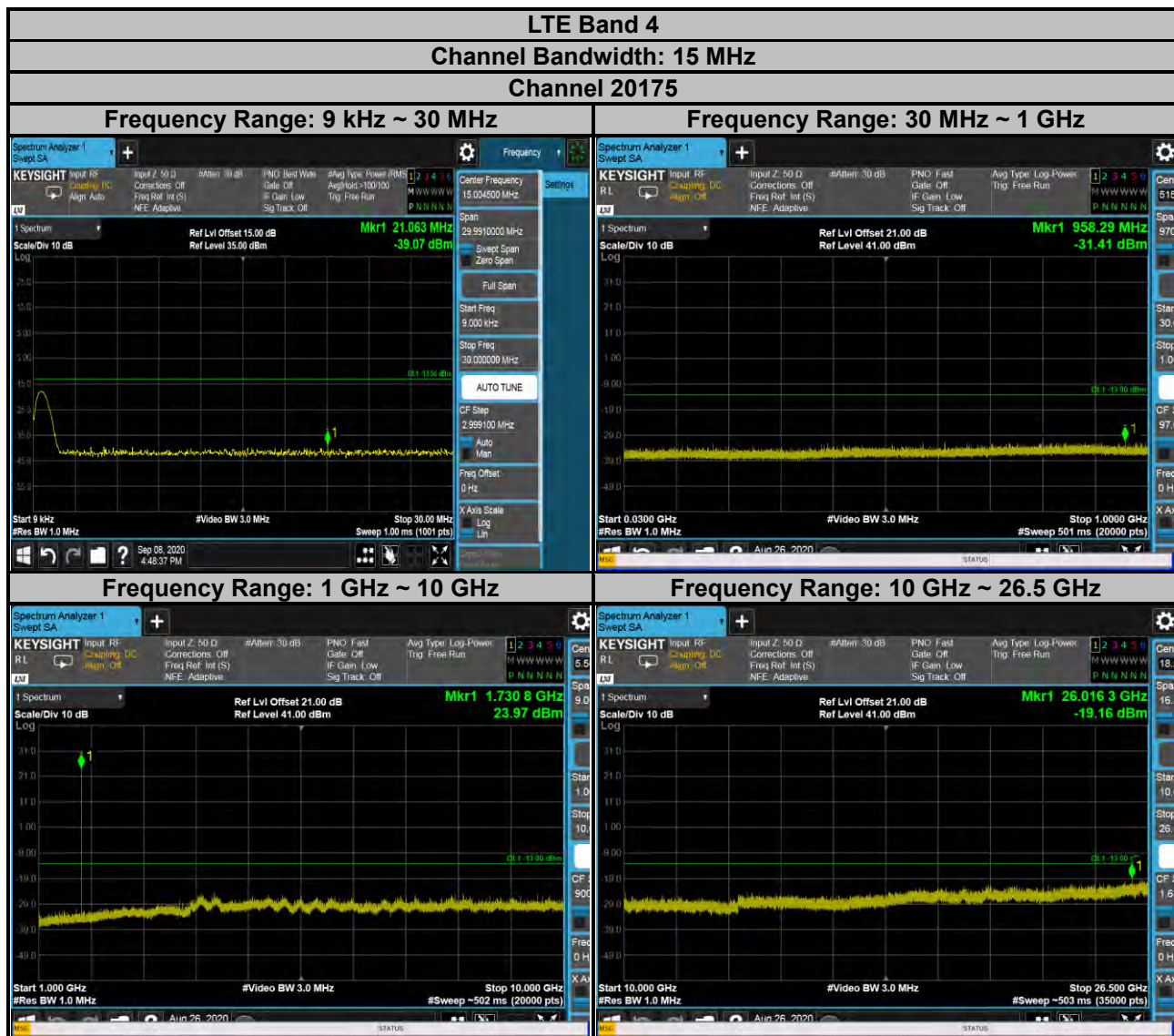
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



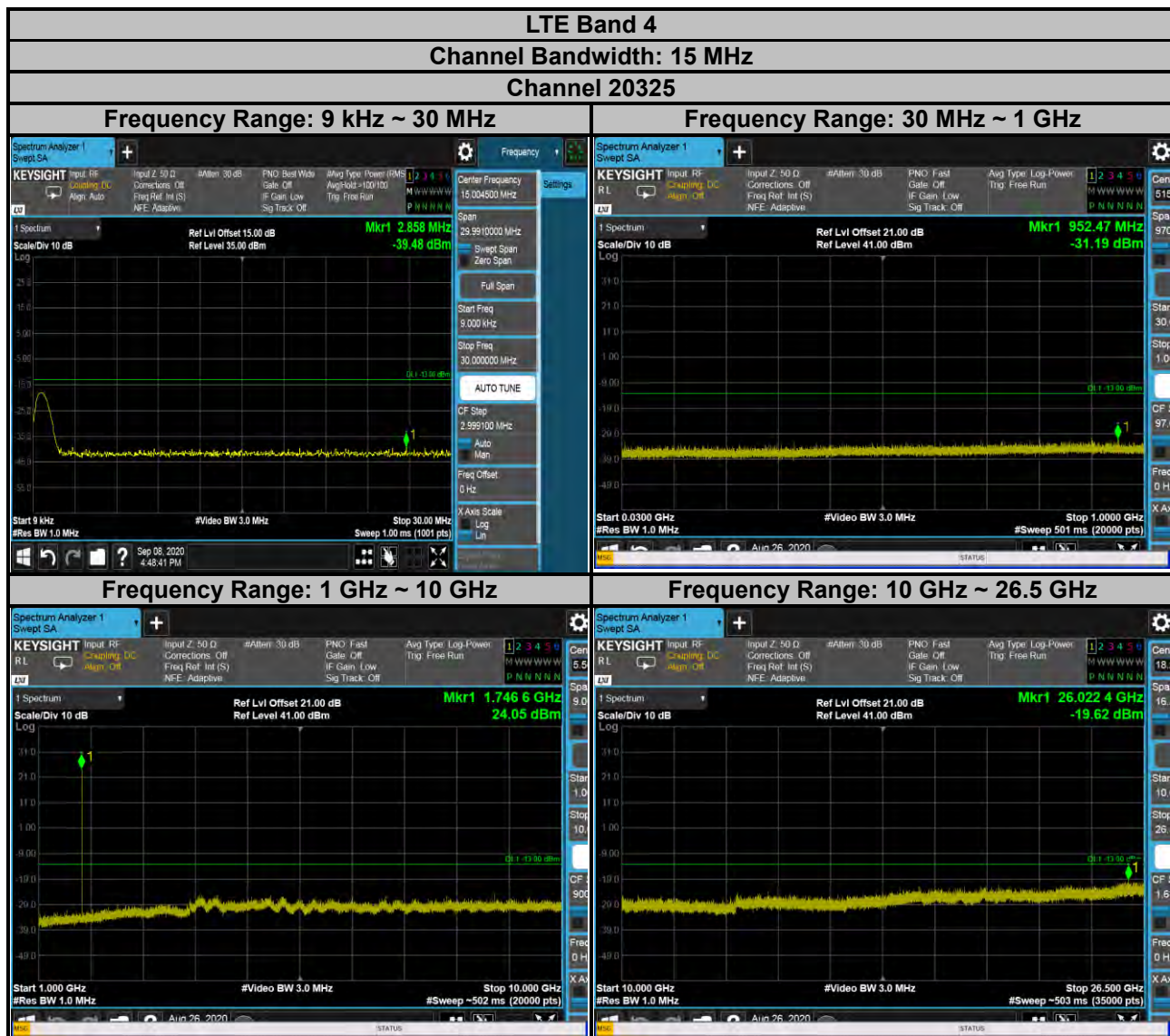
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



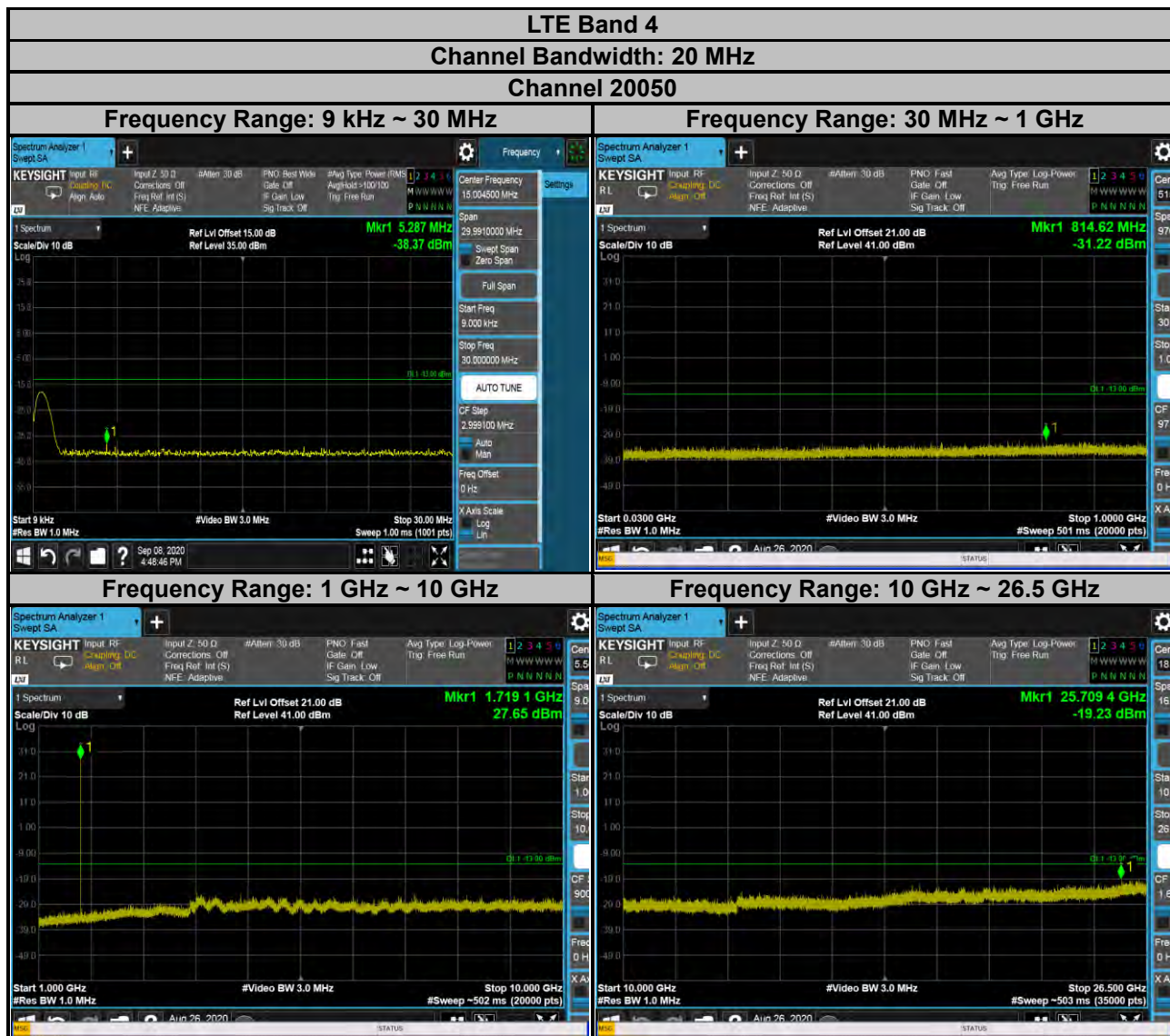
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



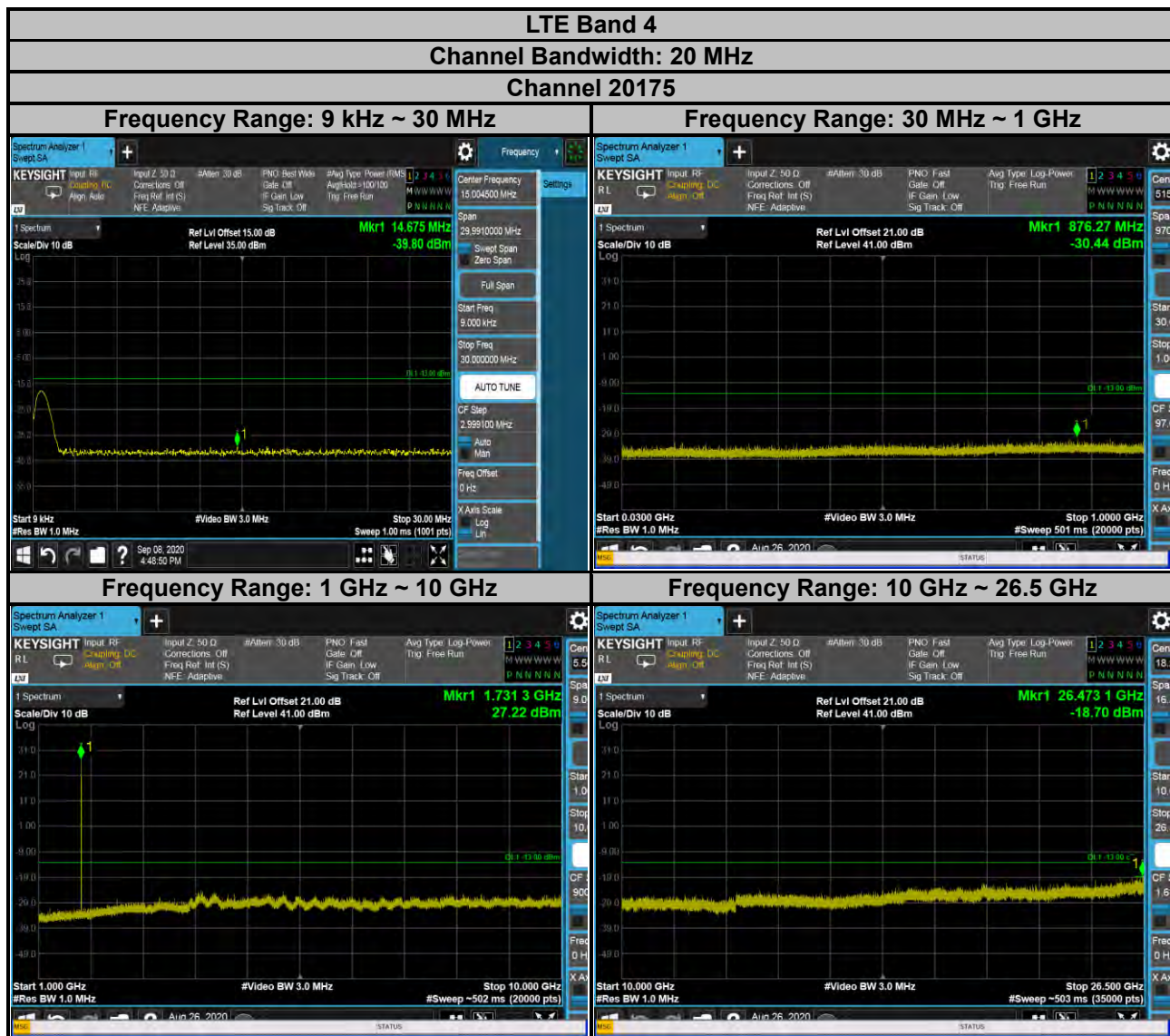
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



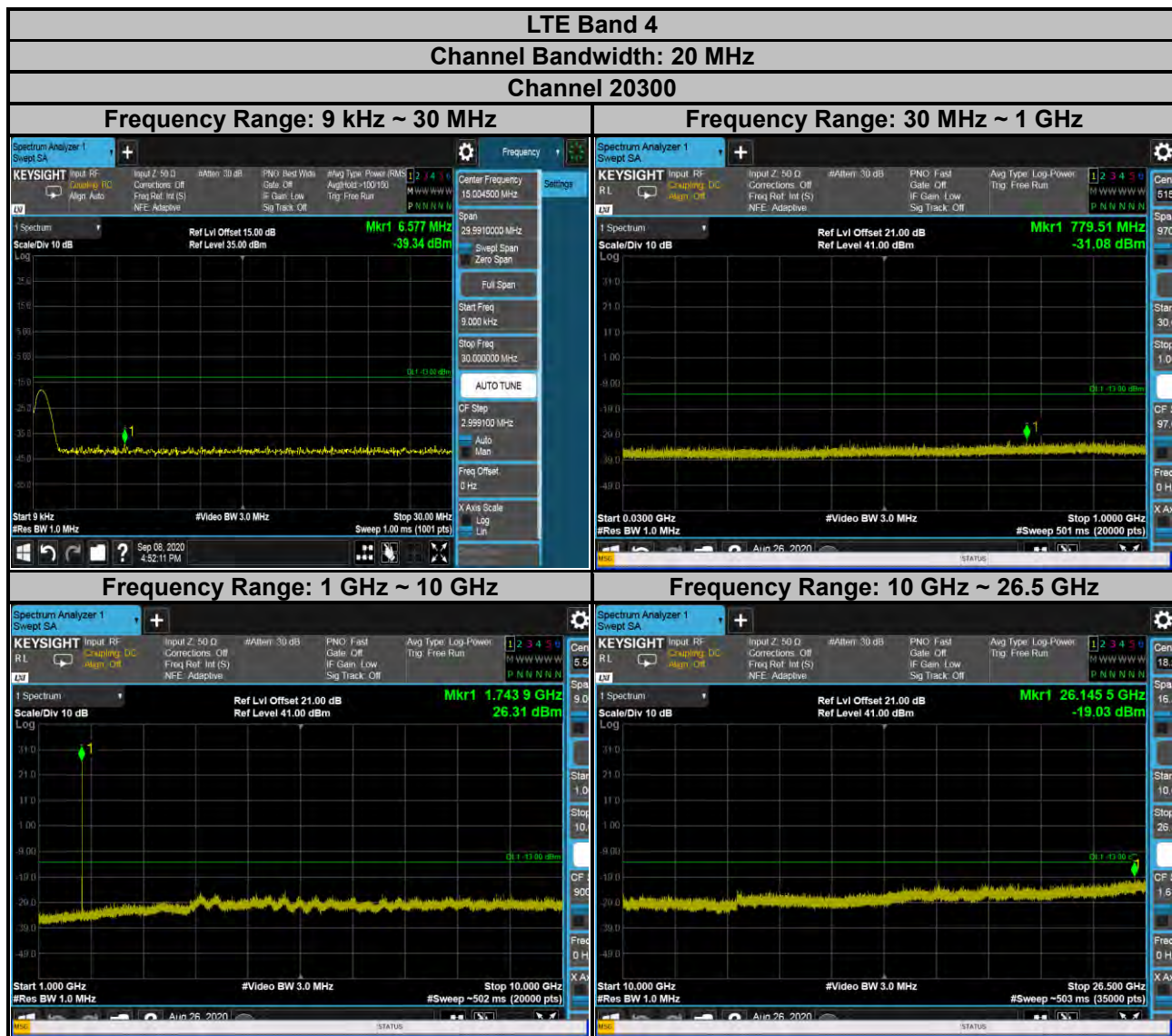
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



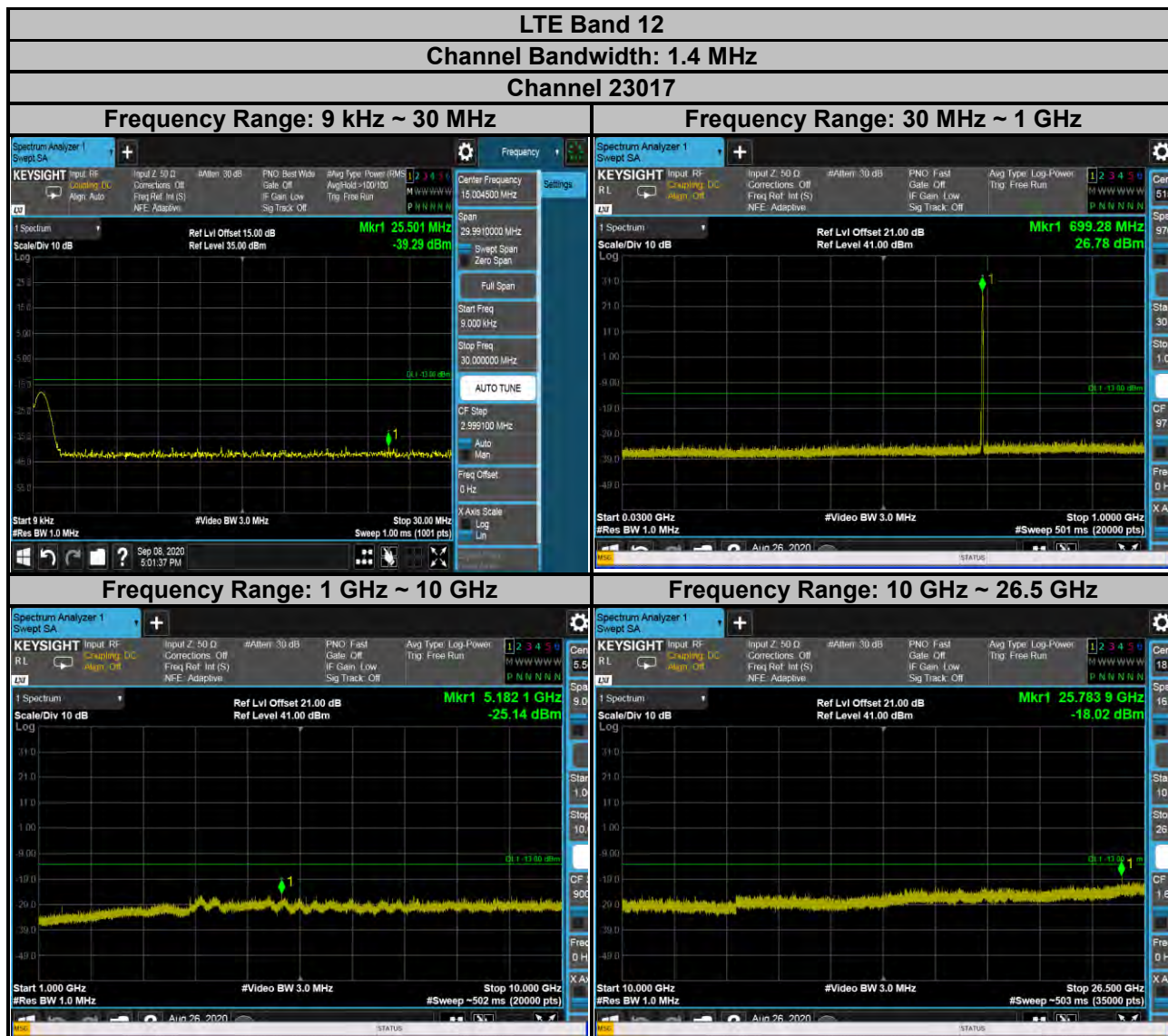
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



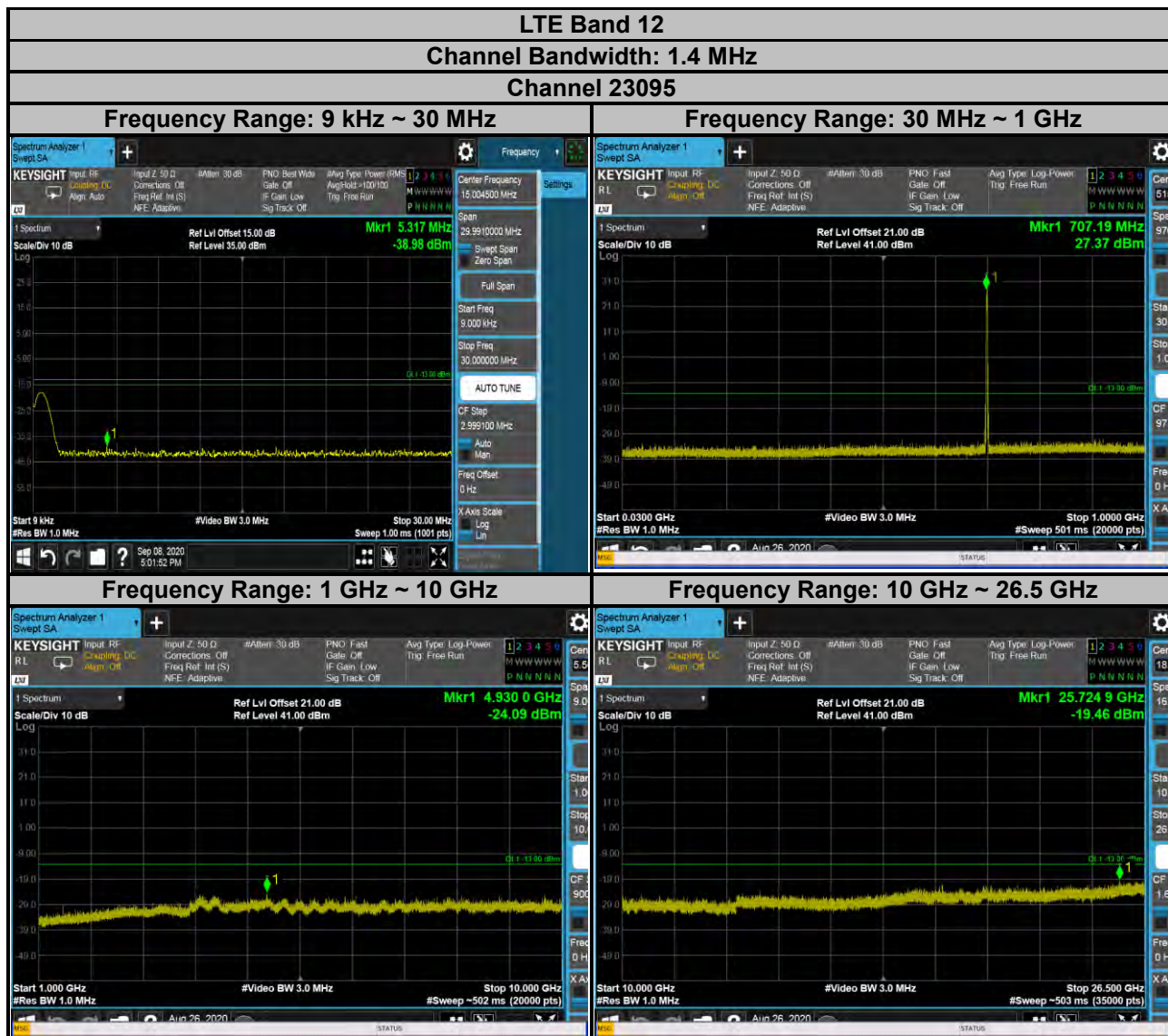
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



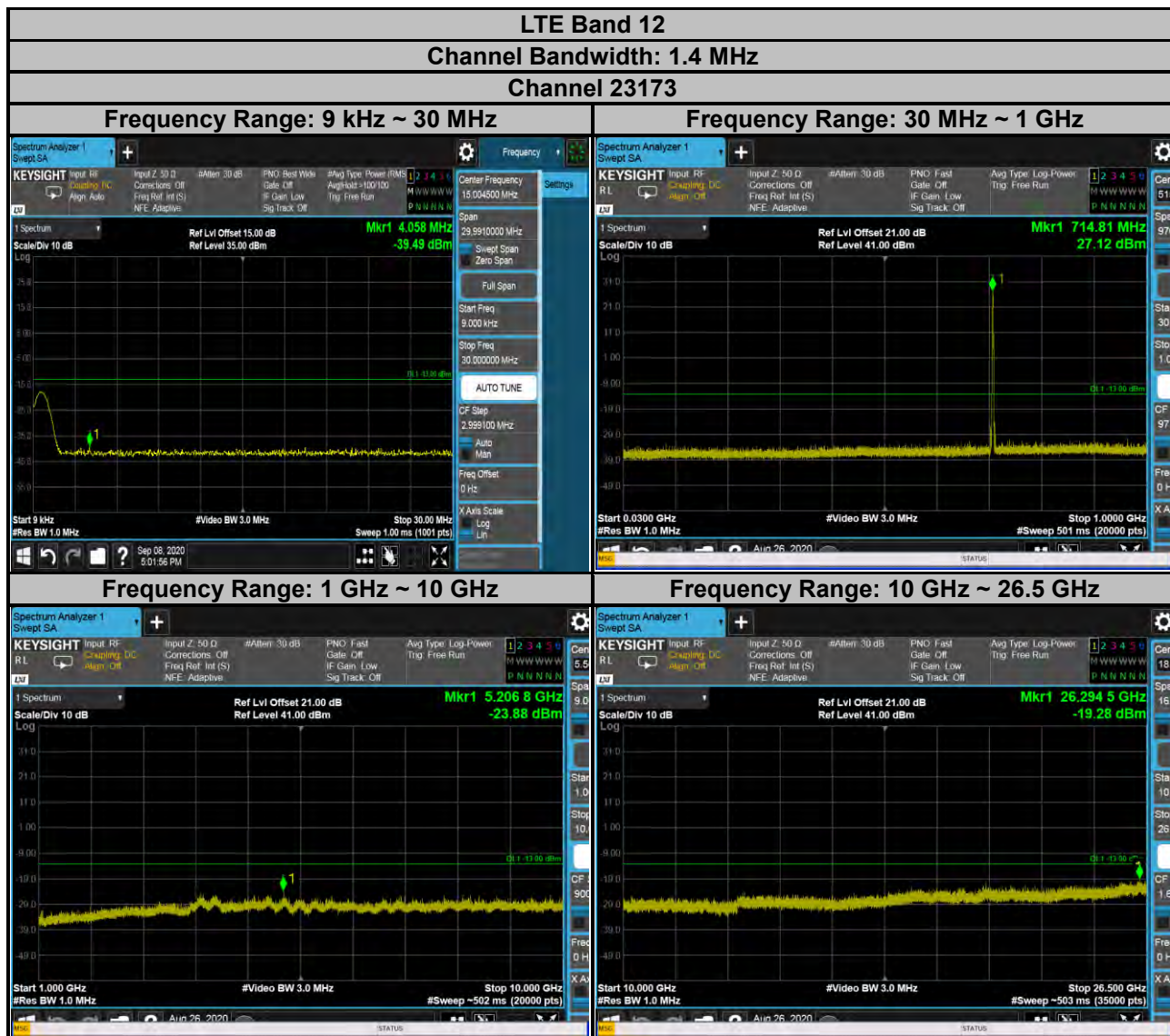
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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 12

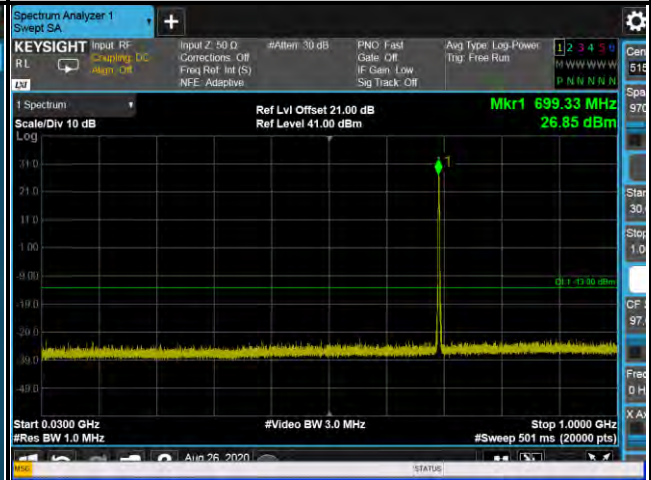
Channel Bandwidth: 3 MHz

Channel 23025

Frequency Range: 9 kHz ~ 30 MHz



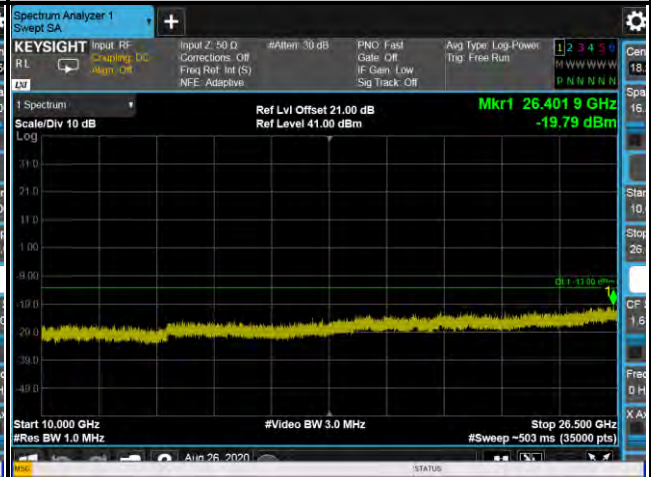
Frequency Range: 30 MHz ~ 1 GHz

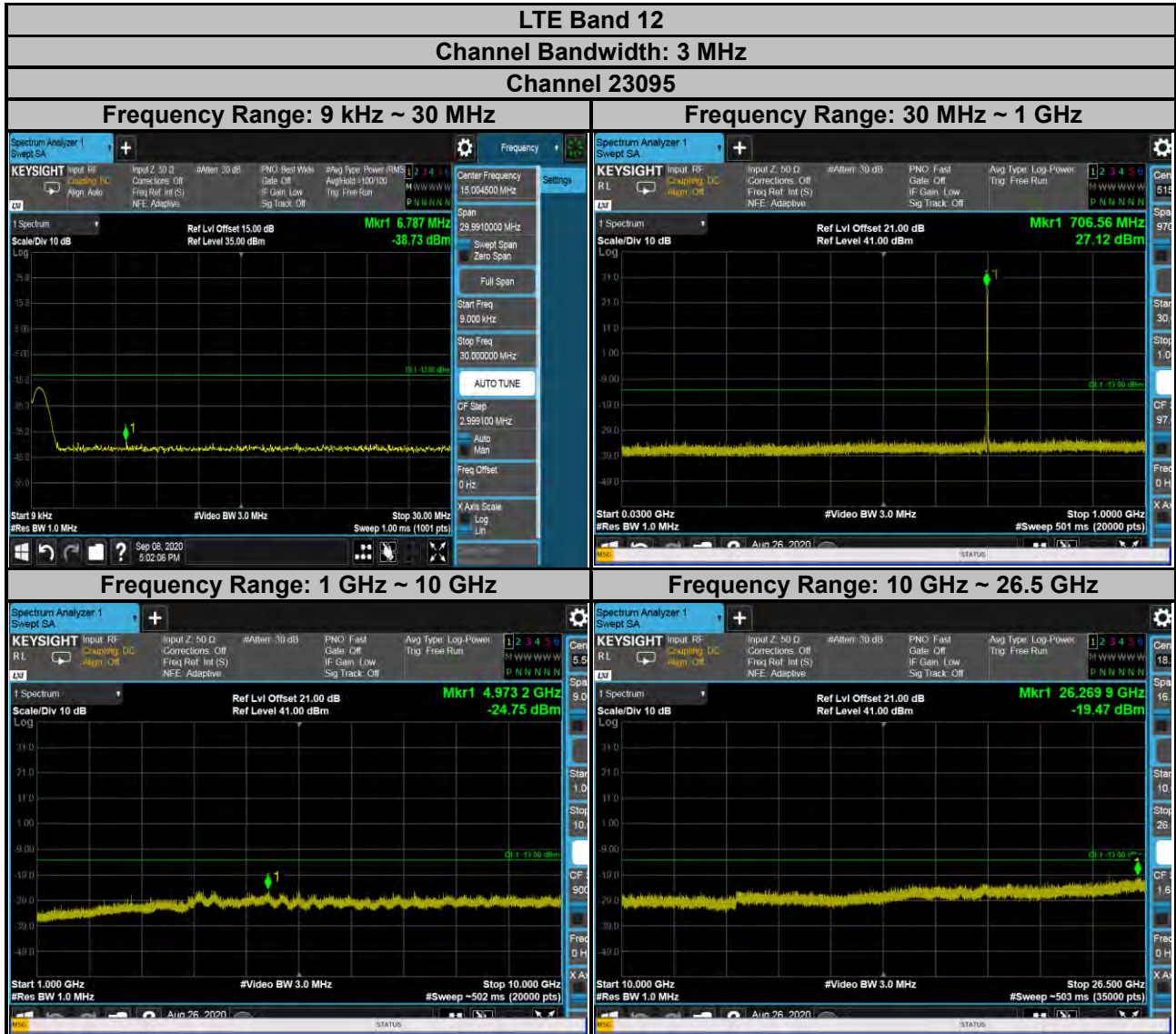


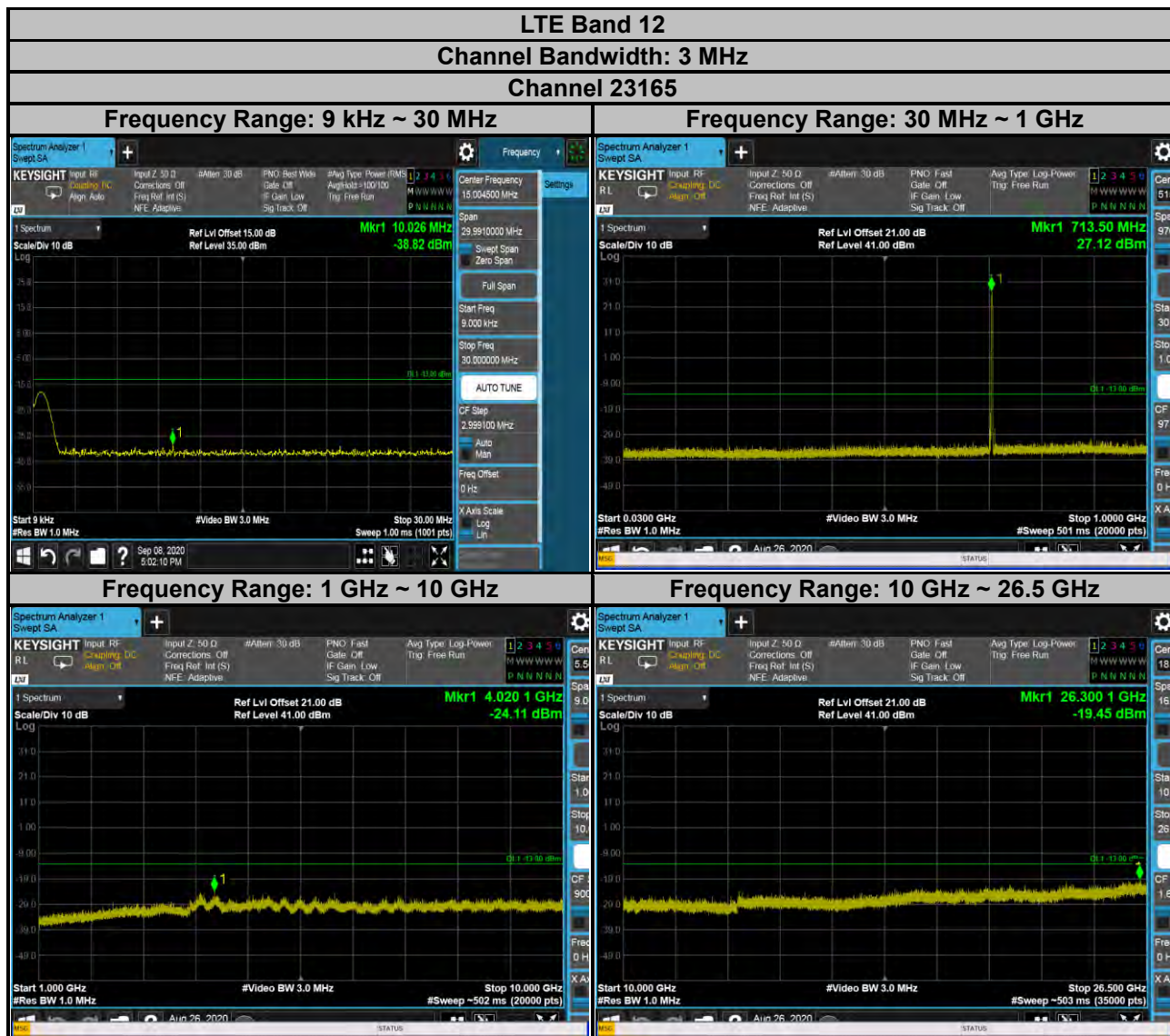
Frequency Range: 1 GHz ~ 10 GHz



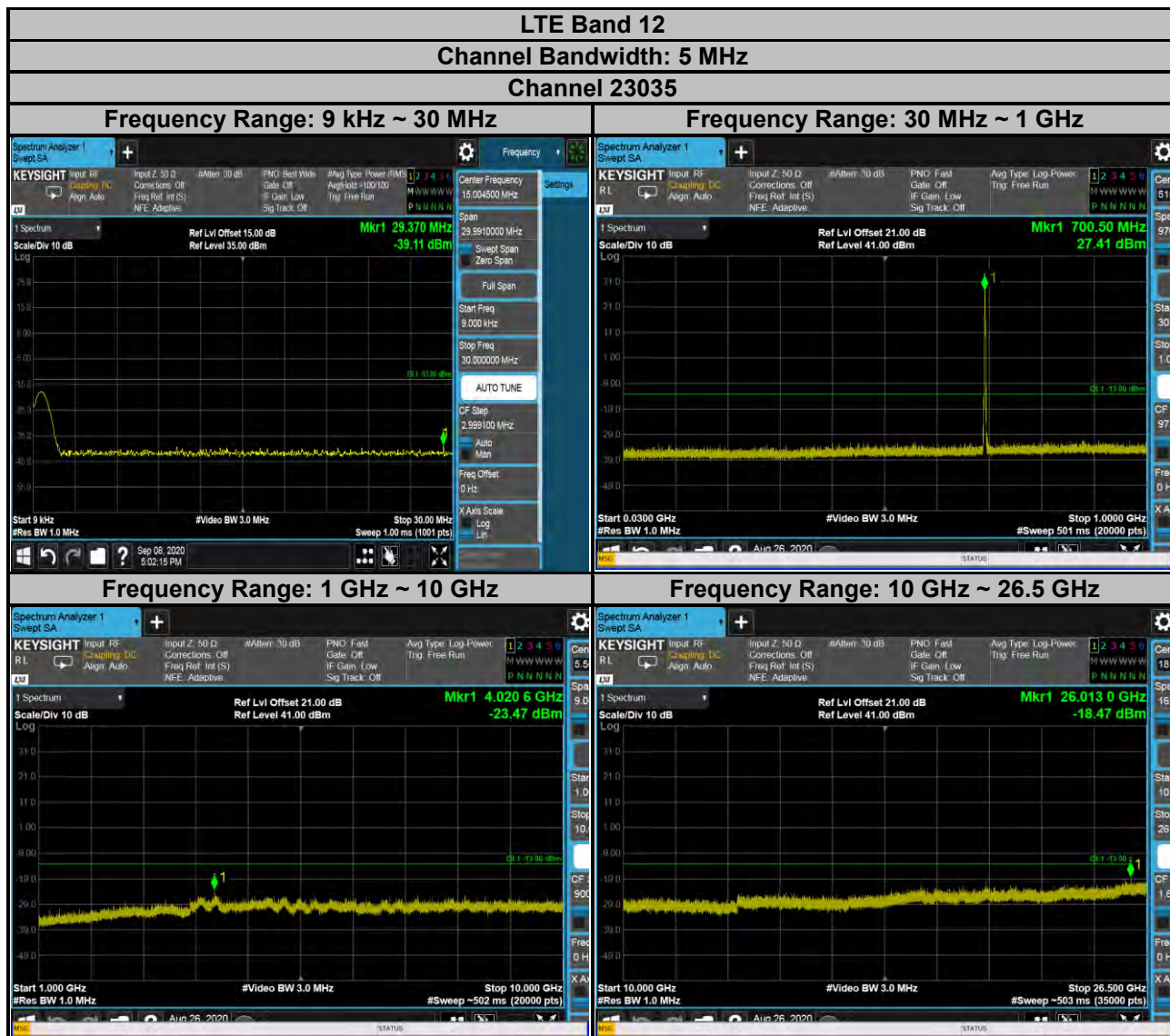
Frequency Range: 10 GHz ~ 26.5 GHz



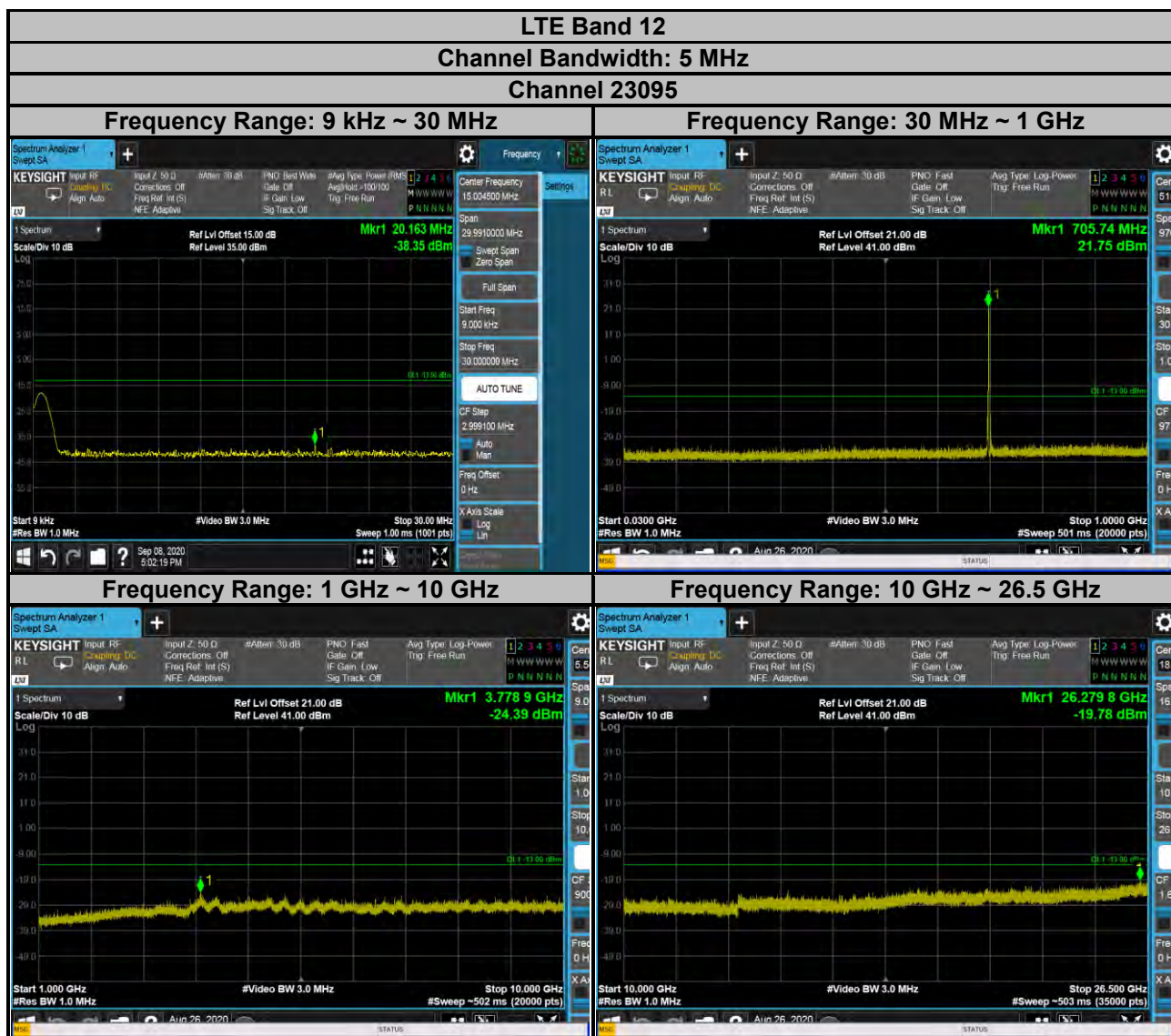




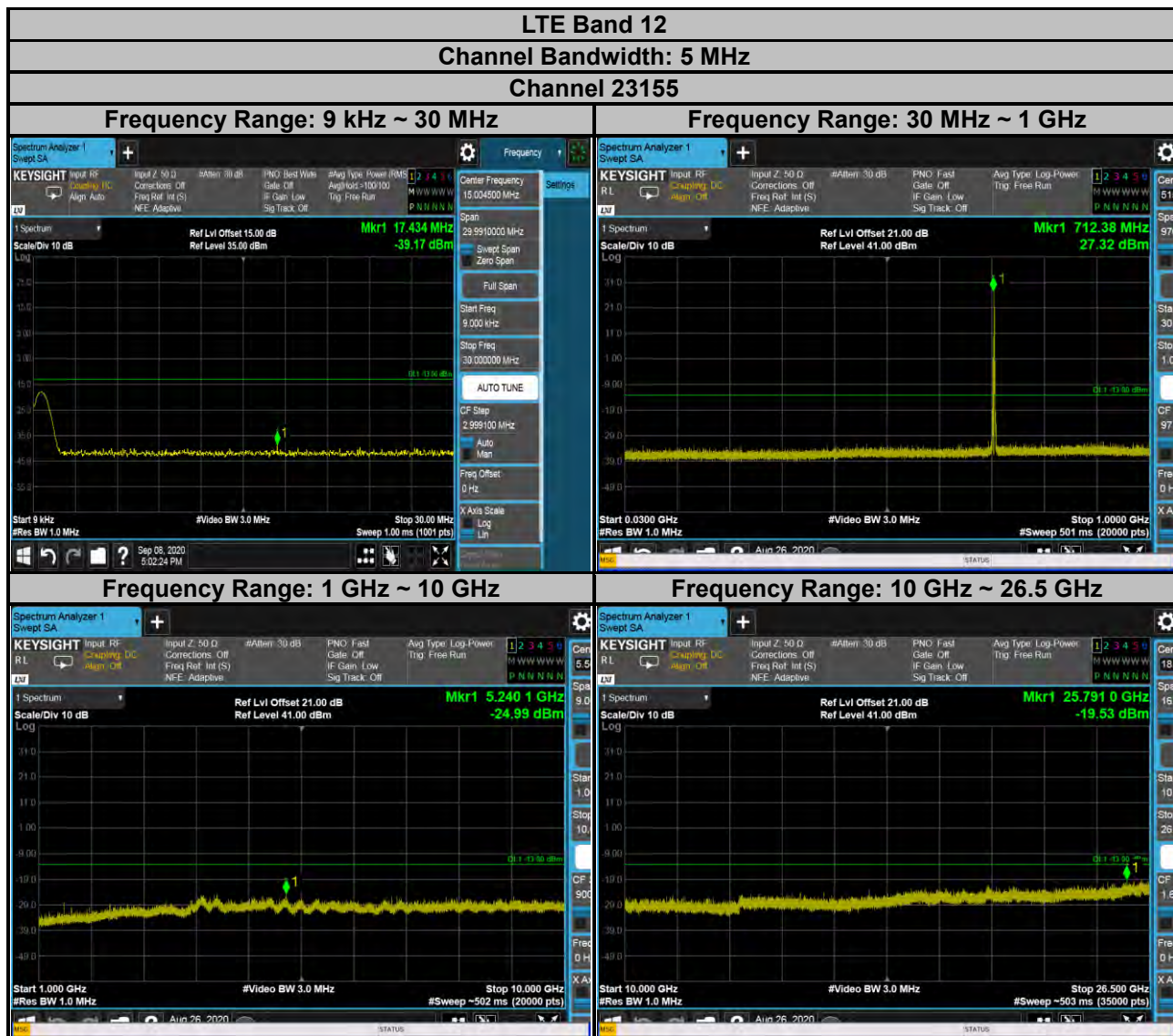
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



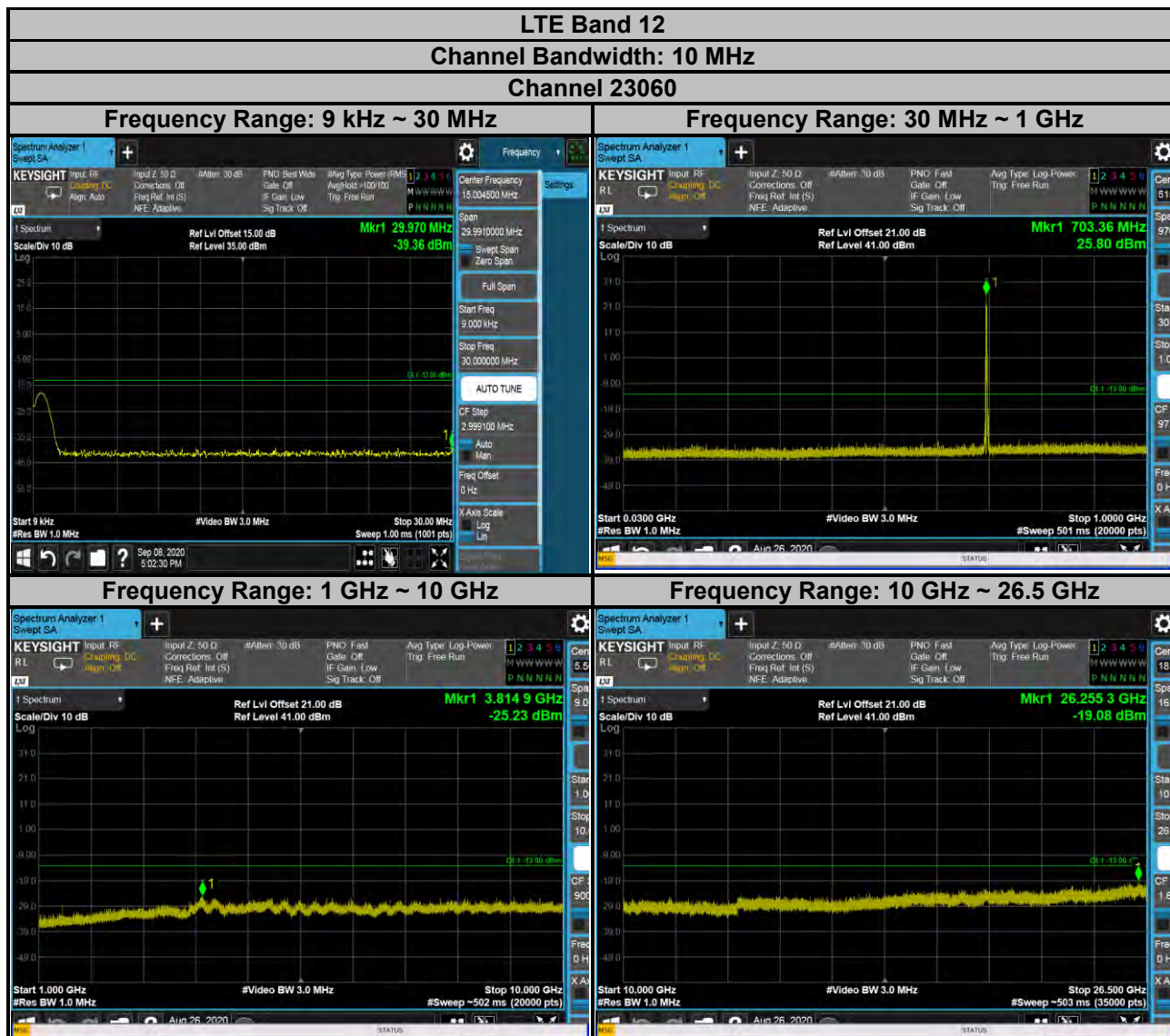
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



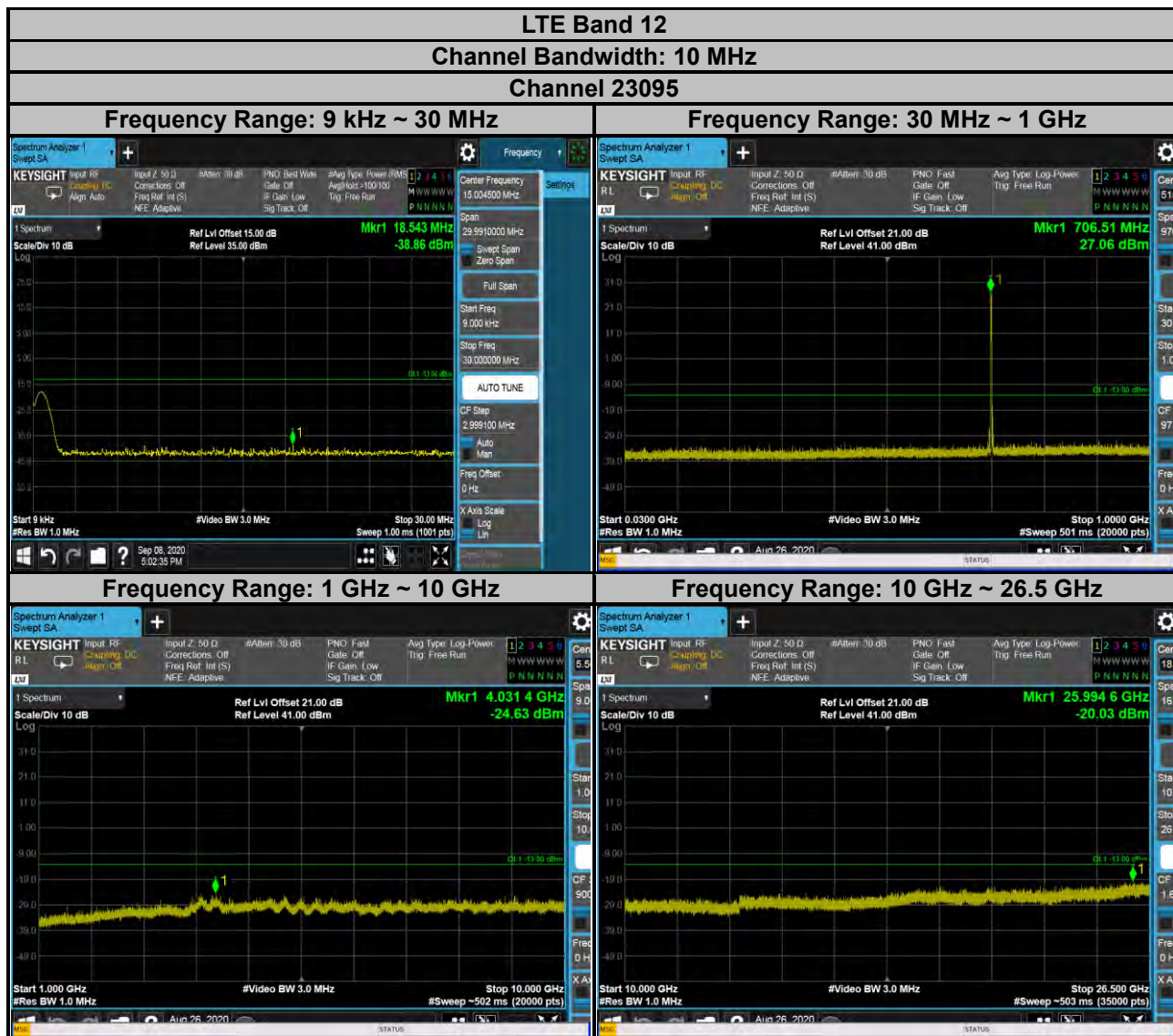
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



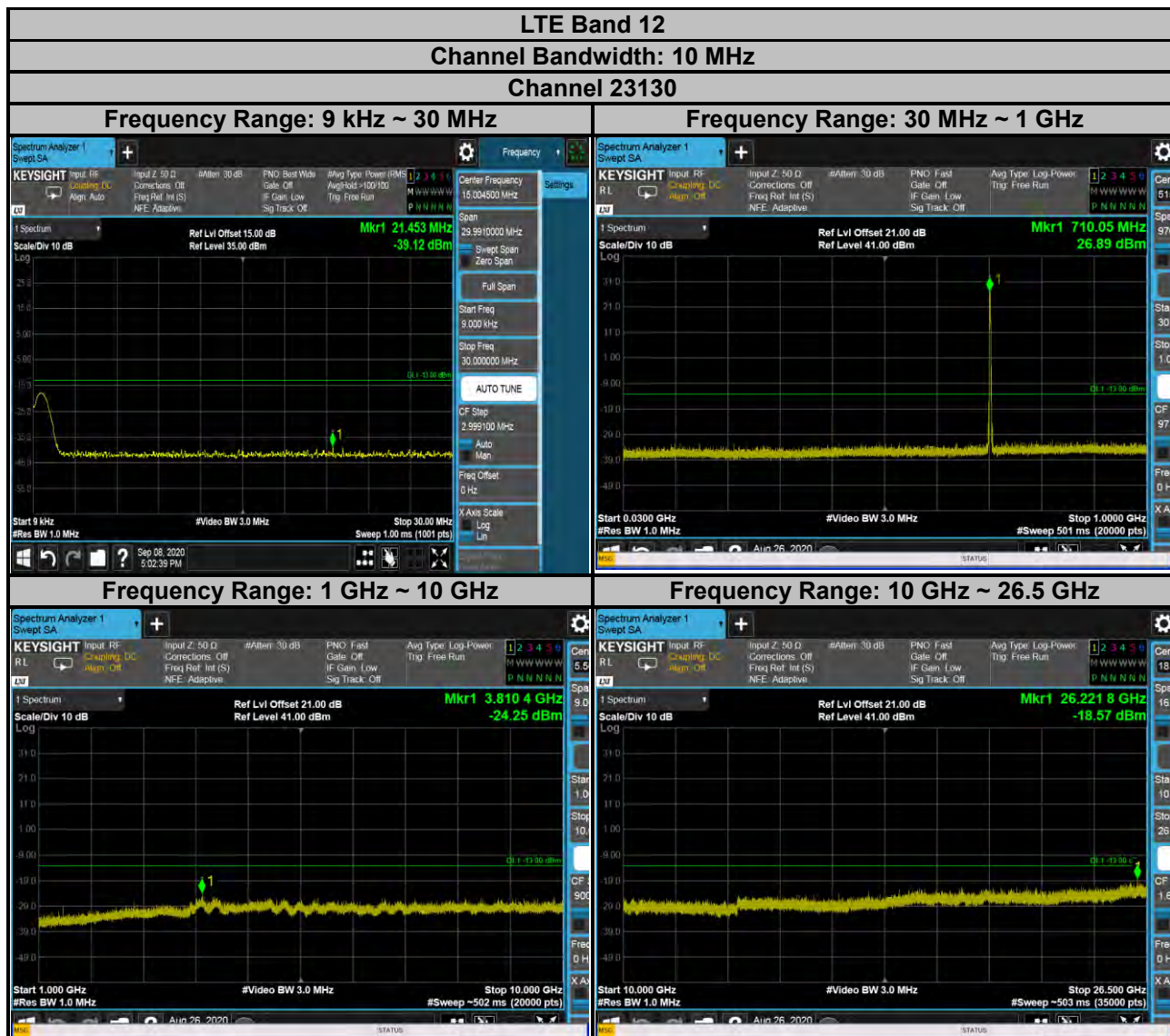
Note: The signal over the limit in 9 kHz is from spectrum analyzer.



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



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



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

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

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

4.8.2 Test Procedure

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

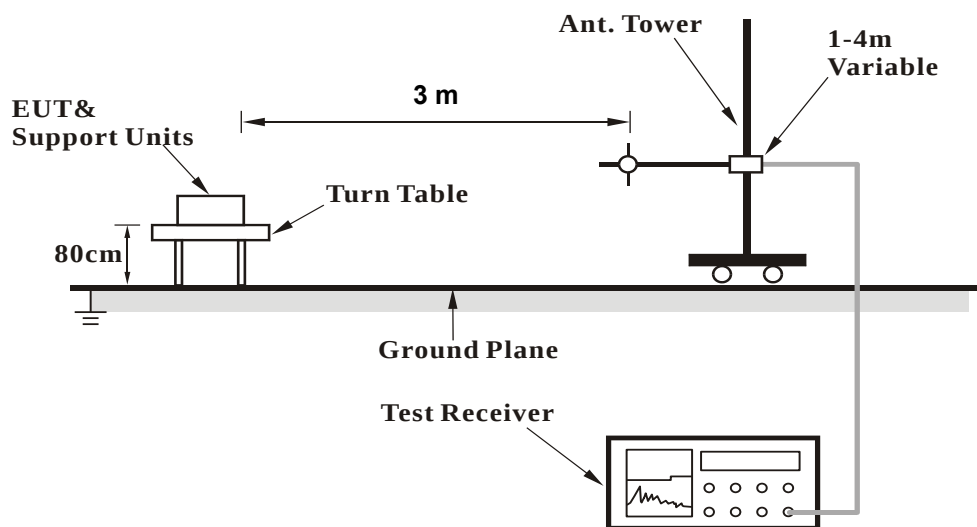
Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.8.3 Deviation from Test Standard

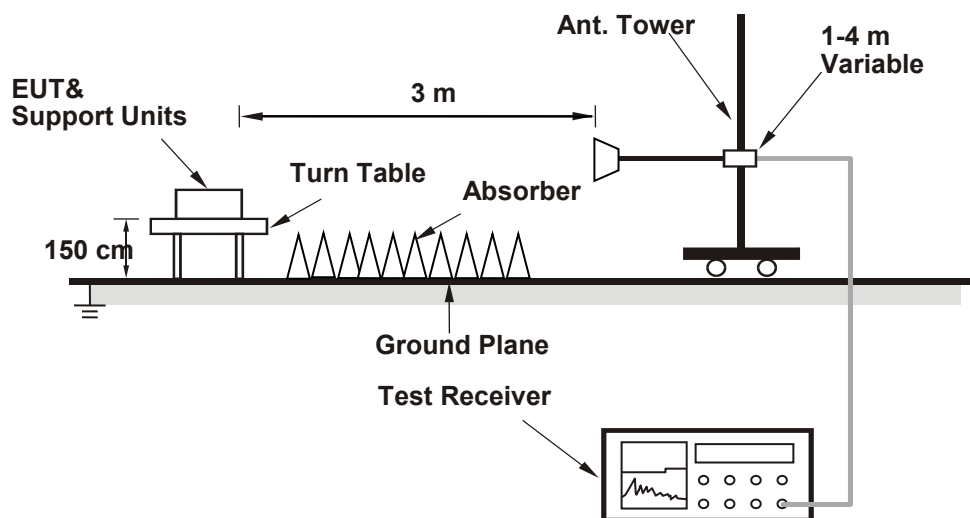
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.8.5 Test Results

LTE Band 4

Channel Bandwidth: 1.4 MHz / QPSK

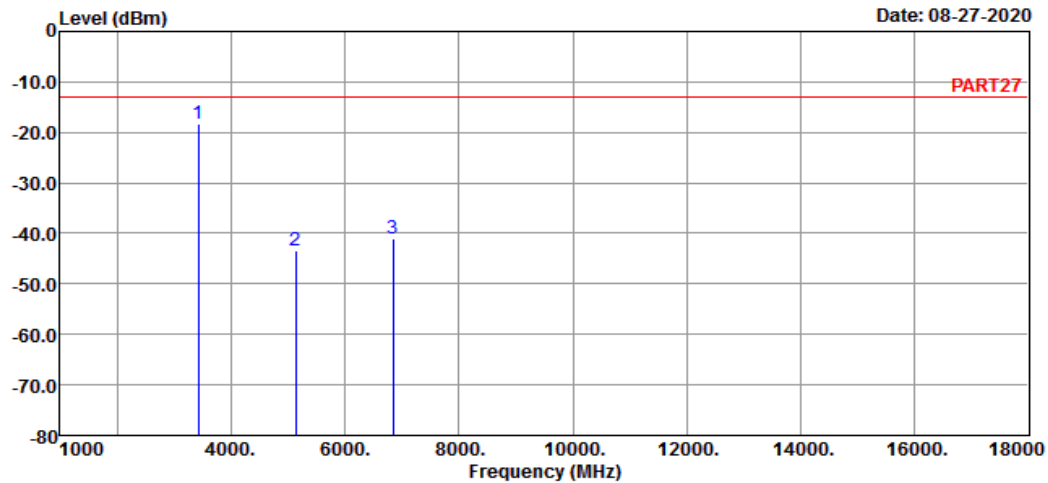
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 4 QPSK_1.4M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1 pp	3421.40	-18.18	-9.84	-13.00	-8.34	-5.18 Peak
2	5132.10	-43.48	-41.74	-13.00	-1.74	-30.48 Peak
3	6842.80	-40.89	-43.20	-13.00	2.31	-27.89 Peak

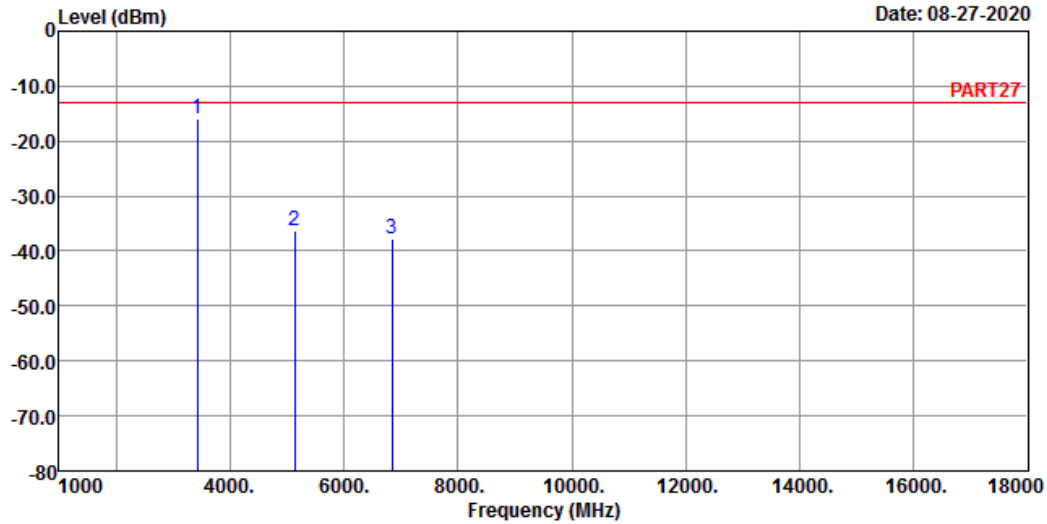


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_1.4M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Line Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	3421.40	-15.89	-7.55	-13.00	-8.34	-2.89	Peak
2	5132.10	-36.41	-34.67	-13.00	-1.74	-23.41	Peak
3	6842.80	-37.82	-40.13	-13.00	2.31	-24.82	Peak

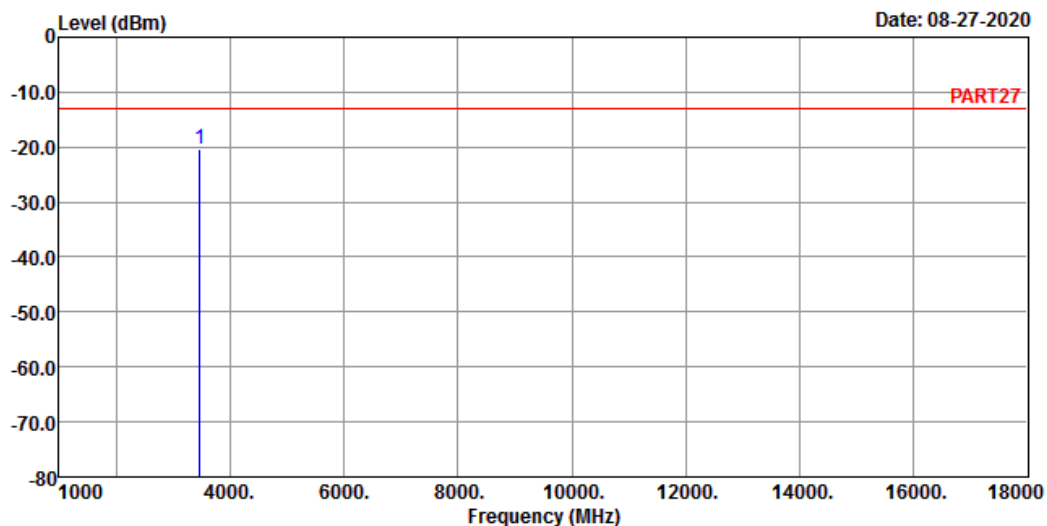
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
 Condition: PART27 HORIZONTAL
 Remak : Cat-M1 Band 4 QPSK_1.4M Link_M-CH
 Tested by: Getaz Yang

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

1 pp 3465.00 -20.44 -12.56 -13.00 -7.88 -7.44 Peak

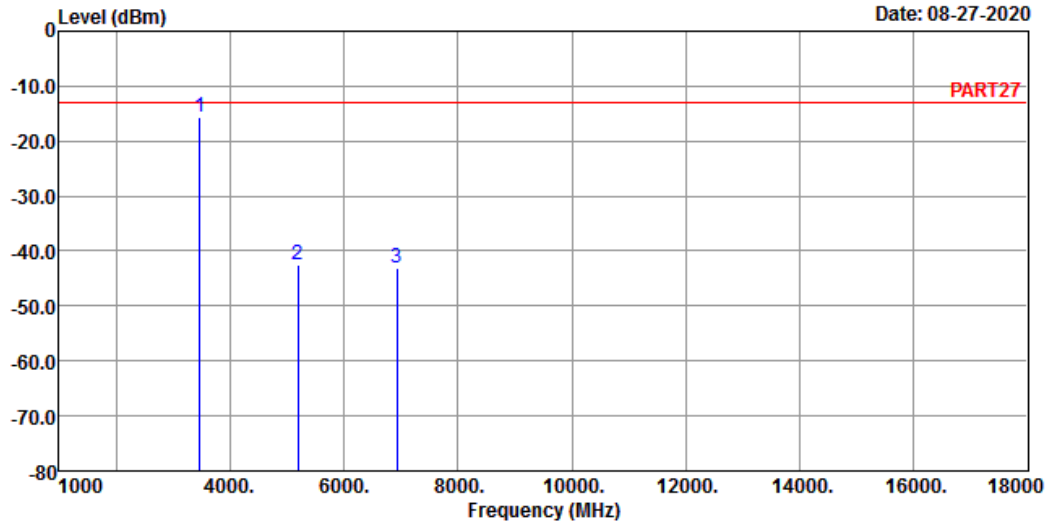


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_1.4M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1 pp	3465.00	-15.61	-7.73	-13.00	-7.88	-2.61 Peak
2	5197.50	-42.56	-40.49	-13.00	-2.07	-29.56 Peak
3	6930.00	-43.21	-45.90	-13.00	2.69	-30.21 Peak

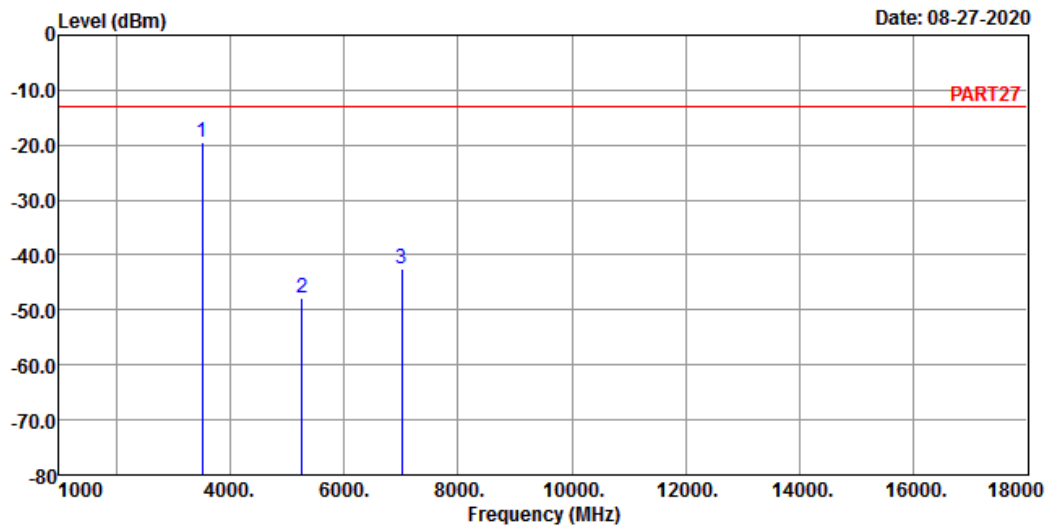
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 4 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Factor	Limit Remark
			dBm	dBm	dB	dB
1 pp	3508.60	-19.54	-12.09	-13.00	-7.45	-6.54 Peak
2	5262.90	-47.69	-45.17	-13.00	-2.52	-34.69 Peak
3	7017.20	-42.42	-45.61	-13.00	3.19	-29.42 Peak

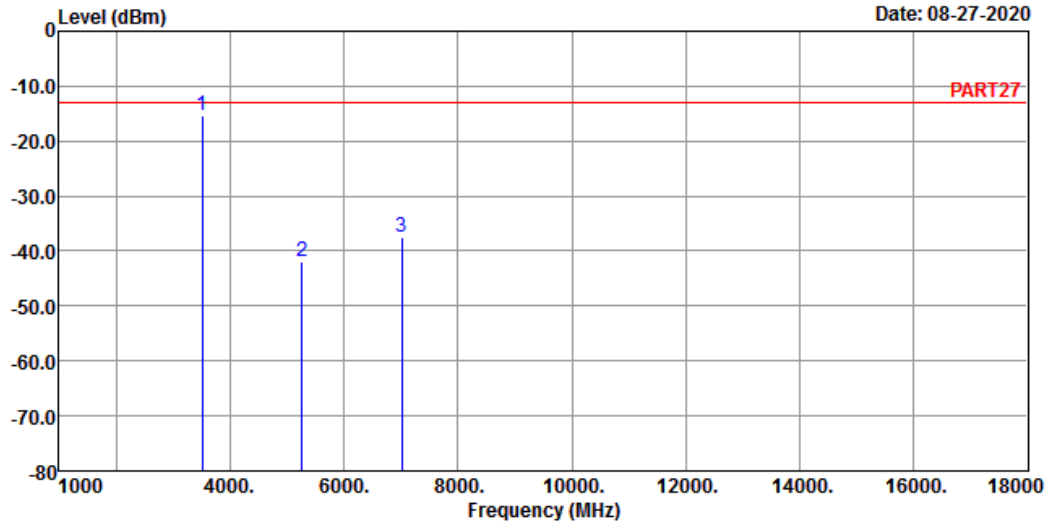


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	dB
1 pp	3508.60	-15.35	-7.90	-13.00	-7.45	-2.35 Peak
2	5262.90	-41.82	-39.30	-13.00	-2.52	-28.82 Peak
3	7017.20	-37.46	-40.65	-13.00	3.19	-24.46 Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

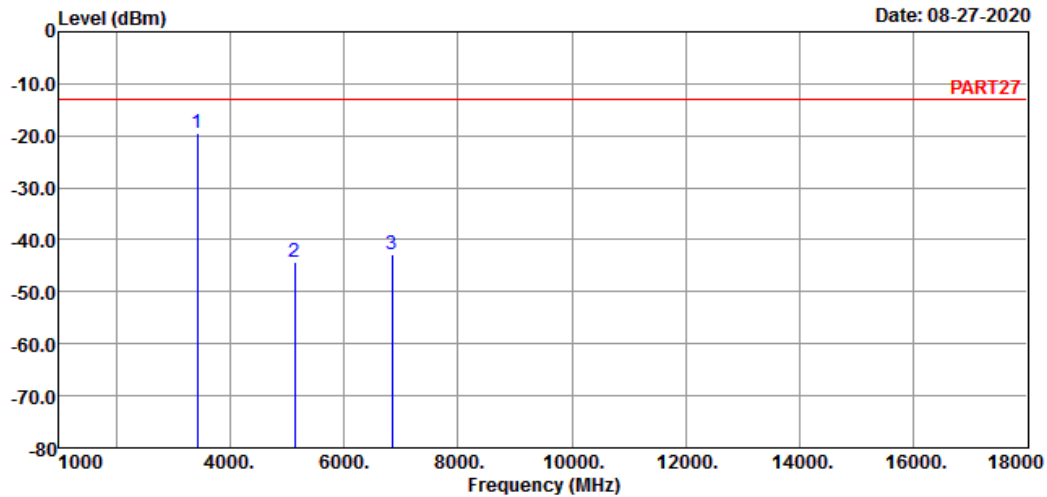


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 4 QPSK_5M Link_L-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	3425.00	-19.56	-11.22	-13.00	-8.34	-6.56 Peak
2	5137.50	-44.37	-42.63	-13.00	-1.74	-31.37 Peak
3	6850.00	-42.74	-45.05	-13.00	2.31	-29.74 Peak

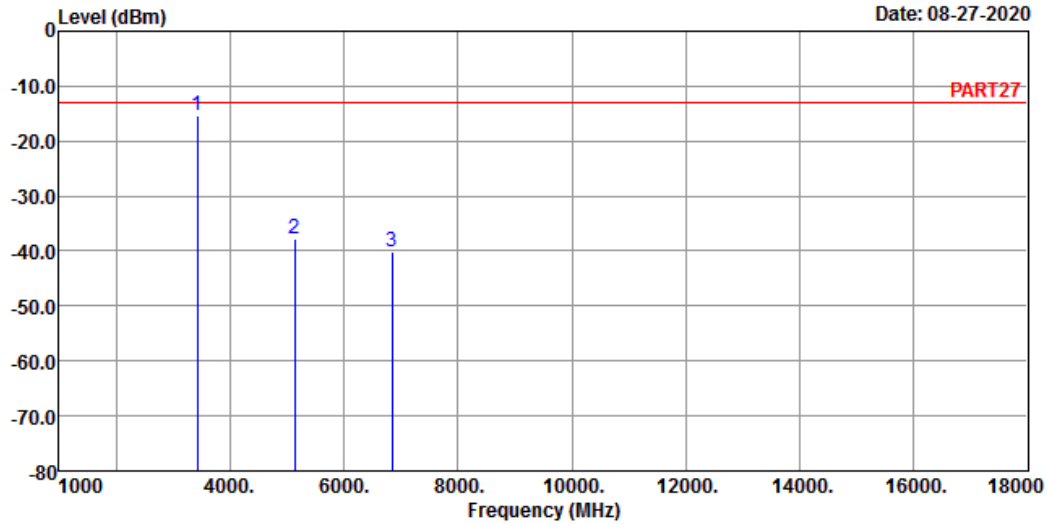


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_5M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	3425.00	-15.39	-7.05	-13.00	-8.34	-2.39 Peak
2	5137.50	-37.82	-36.08	-13.00	-1.74	-24.82 Peak
3	6850.00	-40.11	-42.42	-13.00	2.31	-27.11 Peak

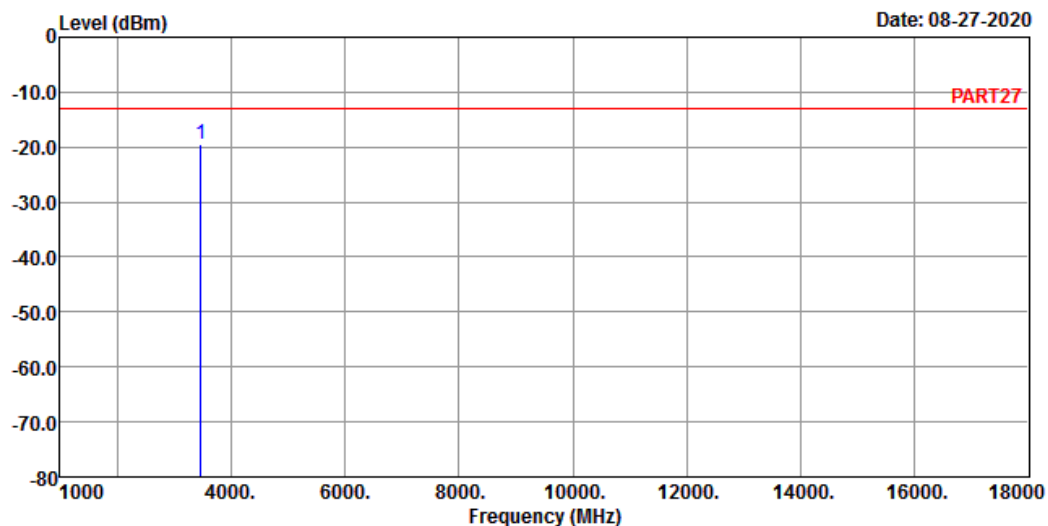
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 4 QPSK_5M Link_M-CH

Tested by: Getaz Yang

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

1 pp 3465.00 -19.58 -11.70 -13.00 -7.88 -6.58 Peak

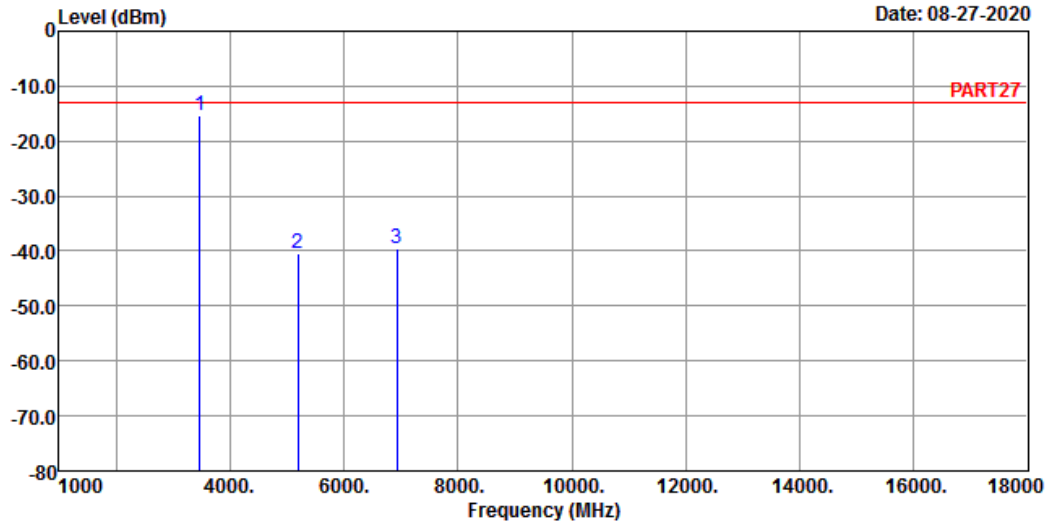


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_5M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1 pp	3465.00	-15.39	-7.51	-13.00	-7.88	-2.39 Peak
2	5197.50	-40.38	-38.31	-13.00	-2.07	-27.38 Peak
3	6930.00	-39.41	-42.10	-13.00	2.69	-26.41 Peak

High Channel

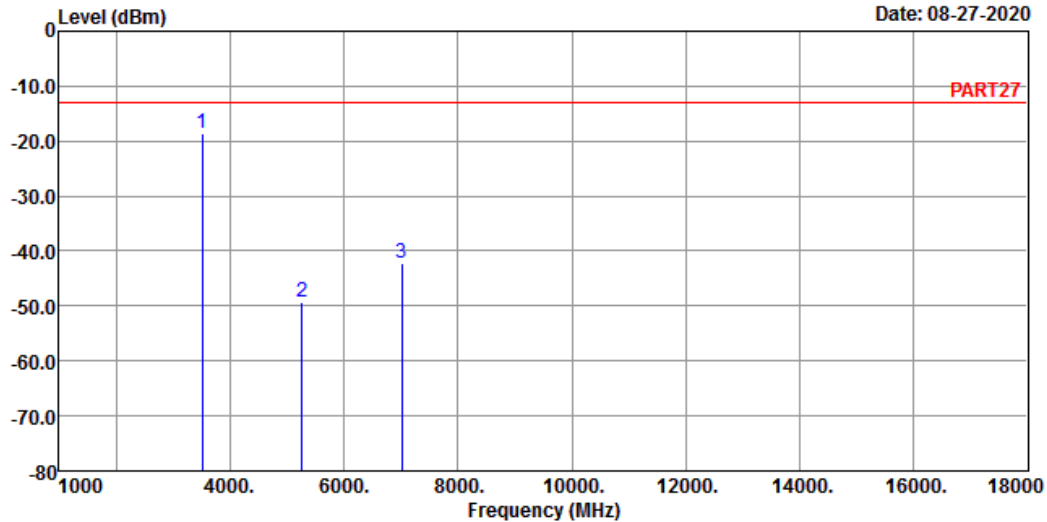


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 4 QPSK_5M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	3505.00	-18.58	-11.13	-13.00	-7.45	-5.58 Peak
2	5257.50	-49.36	-46.84	-13.00	-2.52	-36.36 Peak
3	7010.00	-42.16	-45.35	-13.00	3.19	-29.16 Peak

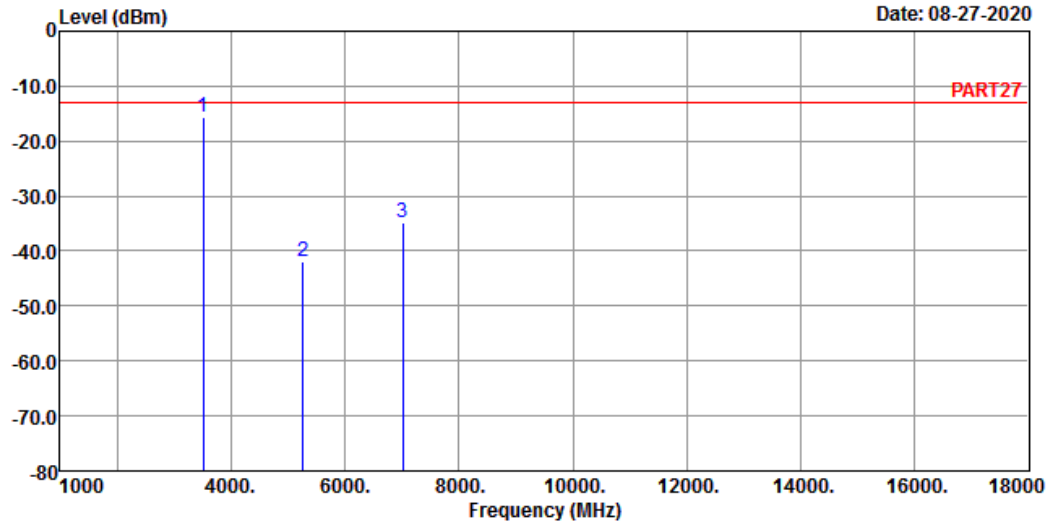


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_5M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1 pp	3505.00	-15.76	-8.31	-13.00	-7.45	-2.76 Peak
2	5257.50	-41.79	-39.27	-13.00	-2.52	-28.79 Peak
3	7010.00	-34.82	-38.01	-13.00	3.19	-21.82 Peak

Channel Bandwidth: 20 MHz / QPSK
Low Channel

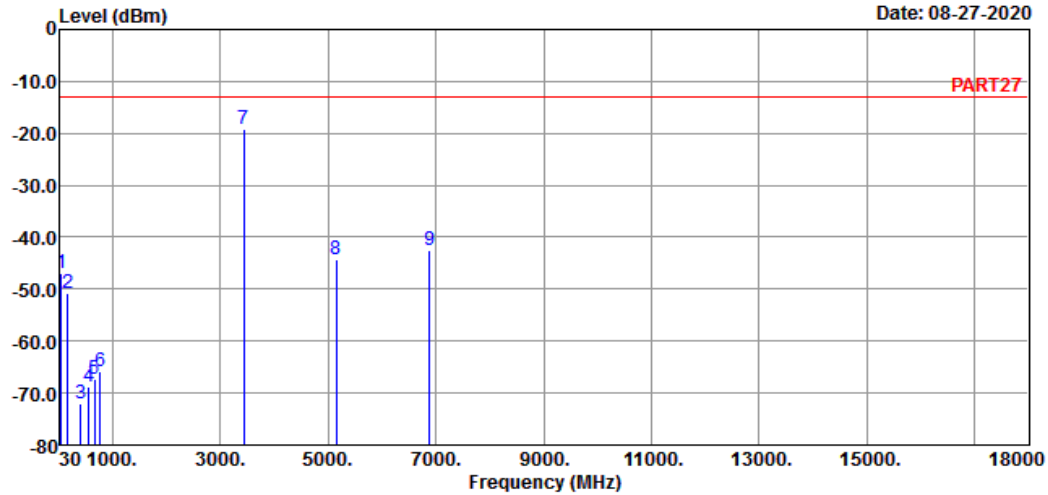


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 4 QPSK_20M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.58	-46.81	-45.34	-13.00	-1.47	-33.81	Peak
2	162.89	-50.88	-45.83	-13.00	-5.05	-37.88	Peak
3	408.30	-72.13	-66.25	-13.00	-5.88	-59.13	Peak
4	554.77	-68.70	-66.05	-13.00	-2.65	-55.70	Peak
5	667.29	-67.20	-66.59	-13.00	-0.61	-54.20	Peak
6	776.90	-65.69	-66.49	-13.00	0.80	-52.69	Peak
7 pp	3440.00	-19.14	-10.92	-13.00	-8.22	-6.14	Peak
8	5160.00	-44.36	-42.45	-13.00	-1.91	-31.36	Peak
9	6880.00	-42.48	-44.96	-13.00	2.48	-29.48	Peak

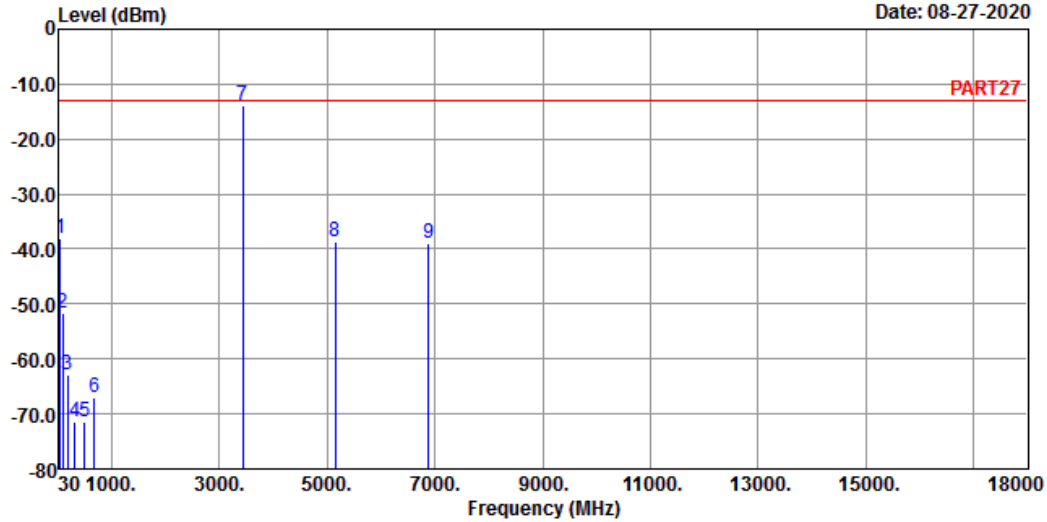


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_20M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.58	-38.22	-36.75	-13.00	-1.47	-25.22	Peak
2	96.93	-51.62	-40.89	-13.00	-10.73	-38.62	Peak
3	190.05	-62.77	-55.68	-13.00	-7.09	-49.77	Peak
4	321.00	-71.53	-64.84	-13.00	-6.69	-58.53	Peak
5	503.36	-71.57	-67.06	-13.00	-4.51	-58.57	Peak
6	685.72	-67.13	-66.80	-13.00	-0.33	-54.13	Peak
7 pp	3440.00	-13.82	-5.60	-13.00	-8.22	-0.82	Peak
8	5160.00	-38.61	-36.70	-13.00	-1.91	-25.61	Peak
9	6880.00	-39.11	-41.59	-13.00	2.48	-26.11	Peak

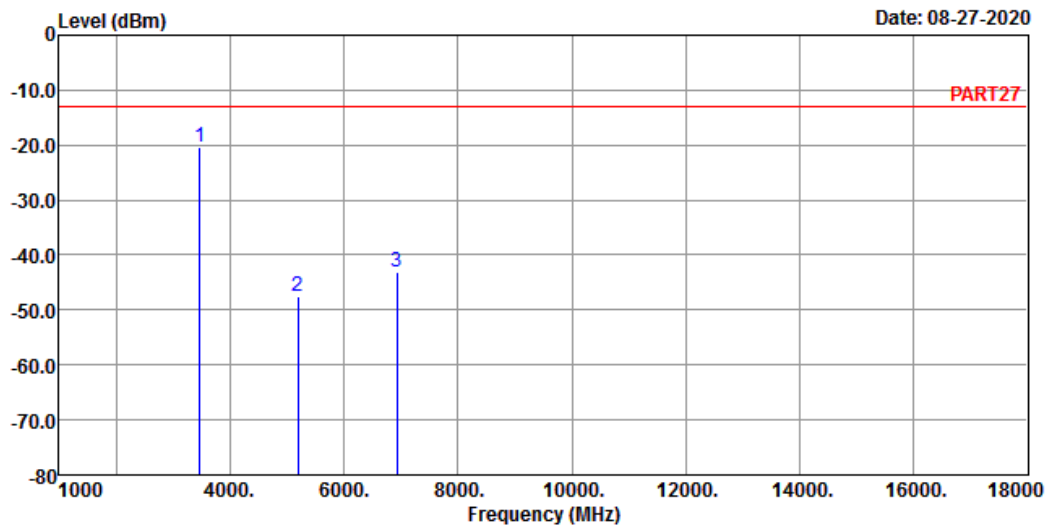
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 4 QPSK_20M Link_M-CH

Tested by: Getaz Yang

		Read	Limit		Over	
Freq	Level	Level	Line	Factor	Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-20.28	-12.40	-13.00	-7.88	-7.28	Peak
2 5197.50	-47.41	-45.34	-13.00	-2.07	-34.41	Peak
3 6930.00	-42.99	-45.68	-13.00	2.69	-29.99	Peak

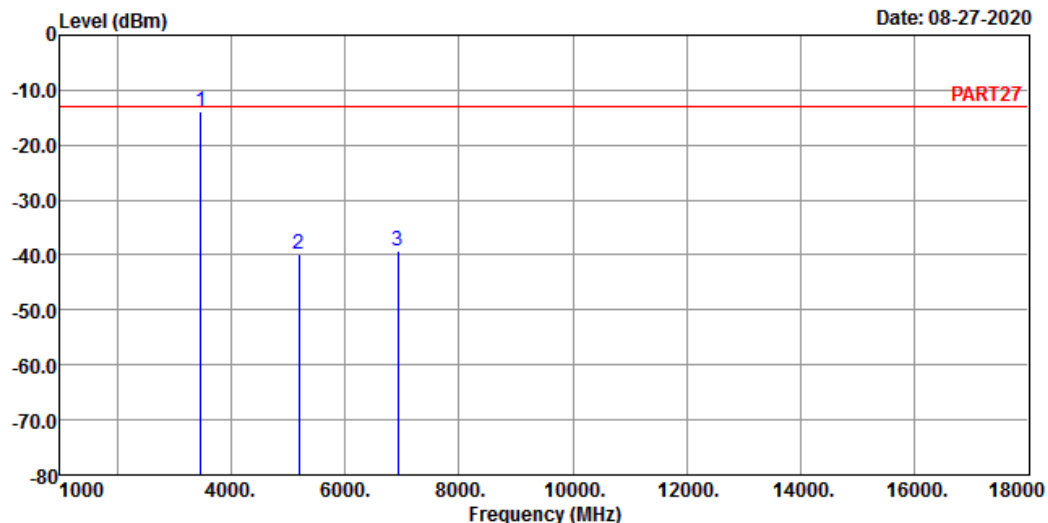


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_20M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1 pp	3465.00	-13.86	-5.98	-13.00	-7.88	-0.86 Peak
2	5197.50	-39.81	-37.74	-13.00	-2.07	-26.81 Peak
3	6930.00	-39.13	-41.82	-13.00	2.69	-26.13 Peak

High Channel

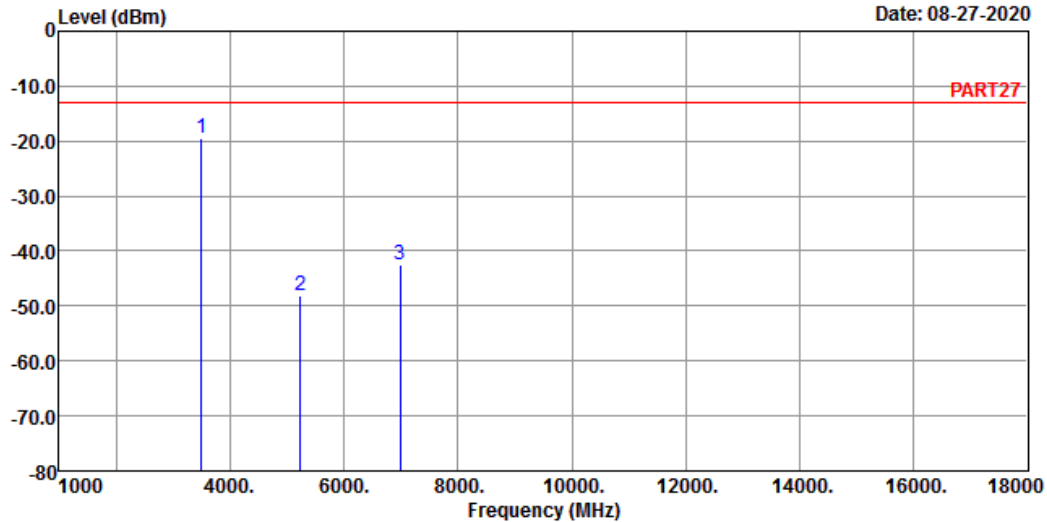


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 4 QPSK_20M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	3490.00	-19.34	-11.69	-13.00	-7.65	-6.34 Peak
2	5235.00	-48.10	-45.69	-13.00	-2.41	-35.10 Peak
3	6980.00	-42.50	-45.56	-13.00	3.06	-29.50 Peak

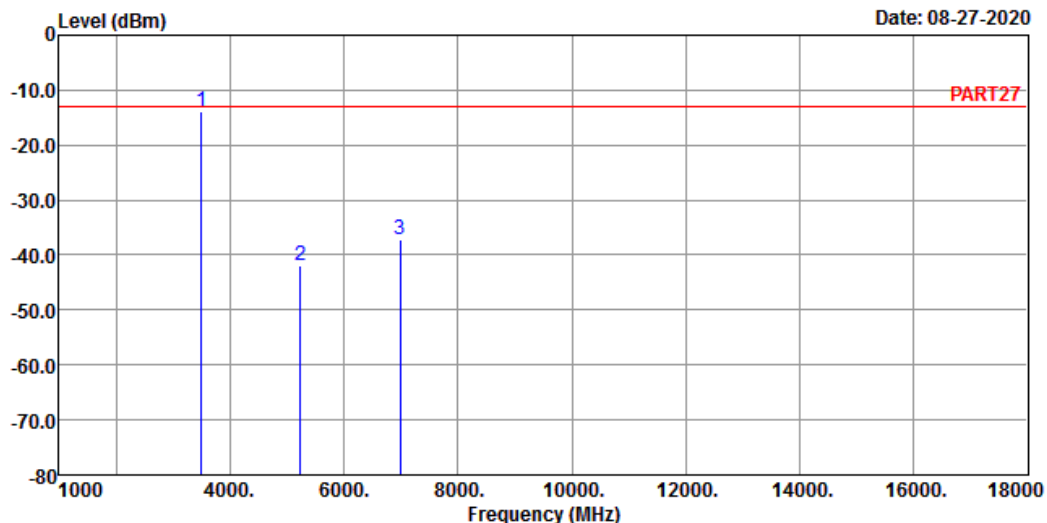


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 4 QPSK_20M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	dB
1 pp	3490.00	-13.83	-6.18	-13.00	-7.65	-0.83 Peak
2	5235.00	-41.88	-39.47	-13.00	-2.41	-28.88 Peak
3	6980.00	-37.32	-40.38	-13.00	3.06	-24.32 Peak

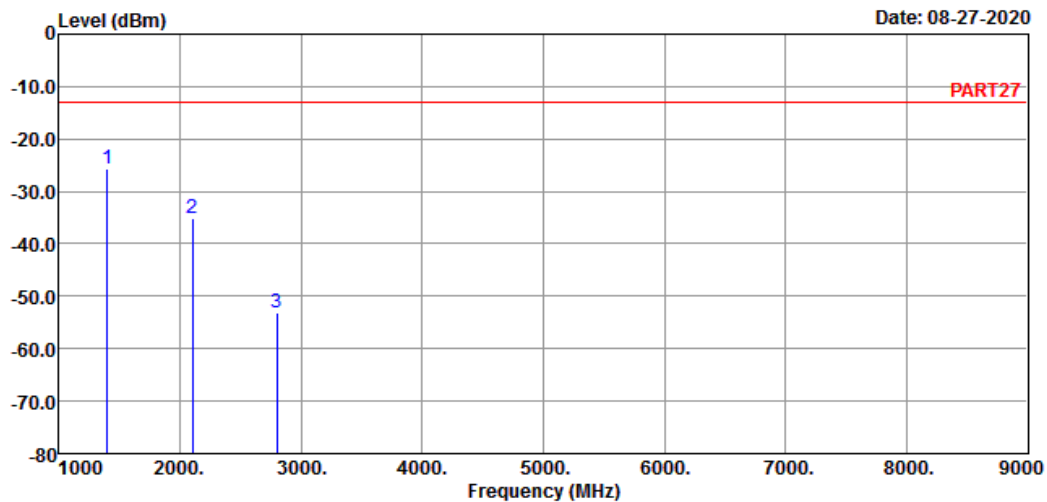
LTE Band 12
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_1.4M Link_L-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1399.40	-25.76	-13.91	-13.00	-11.85	-12.76	Peak
2	2099.10	-35.23	-25.07	-13.00	-10.16	-22.23	Peak
3	2798.80	-53.09	-44.57	-13.00	-8.52	-40.09	Peak

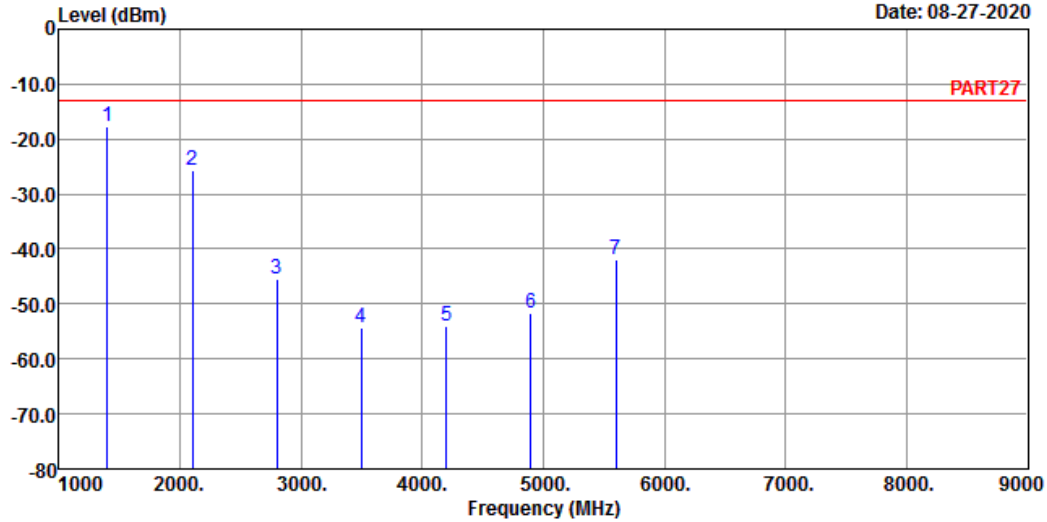


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_1.4M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1399.40	-17.68	-5.83	-13.00	-11.85	-4.68	Peak
2	2099.10	-25.61	-15.45	-13.00	-10.16	-12.61	Peak
3	2798.80	-45.55	-37.03	-13.00	-8.52	-32.55	Peak
4	3498.50	-54.32	-46.79	-13.00	-7.53	-41.32	Peak
5	4198.20	-54.03	-48.43	-13.00	-5.60	-41.03	Peak
6	4897.90	-51.56	-48.16	-13.00	-3.40	-38.56	Peak
7	5597.60	-41.78	-39.85	-13.00	-1.93	-28.78	Peak

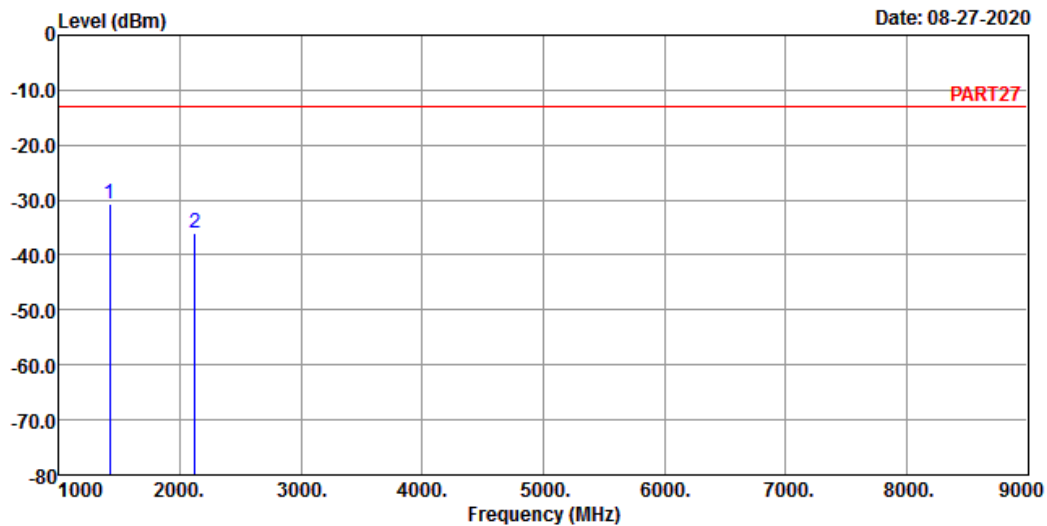
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_1.4M Link_M-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	1415.00	-30.71	-18.63	-13.00	-12.08	-17.71 Peak
2	2122.50	-35.88	-26.01	-13.00	-9.87	-22.88 Peak

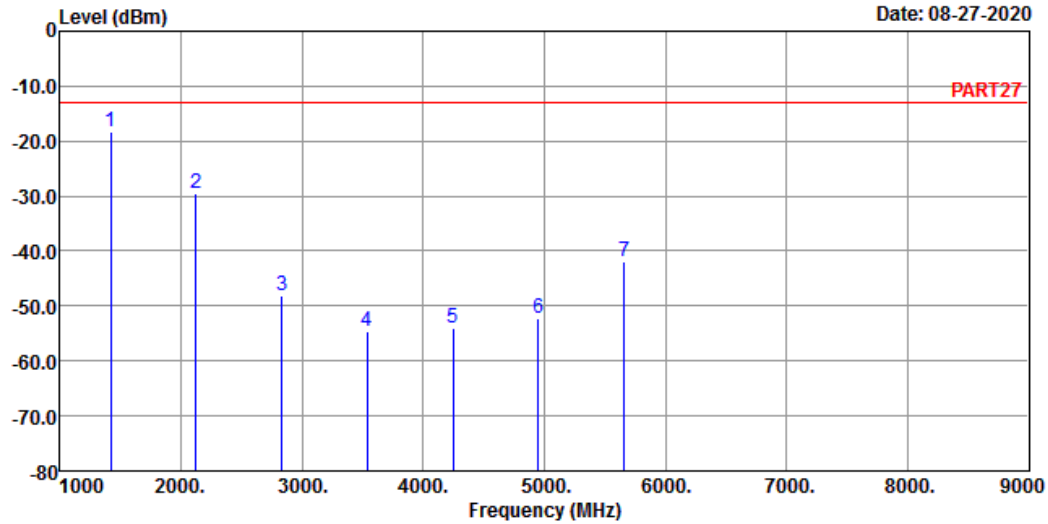


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_1.4M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-18.38	-6.30	-13.00	-12.08	-5.38	Peak
2	2122.50	-29.57	-19.70	-13.00	-9.87	-16.57	Peak
3	2830.00	-48.17	-39.69	-13.00	-8.48	-35.17	Peak
4	3537.50	-54.57	-47.35	-13.00	-7.22	-41.57	Peak
5	4245.00	-54.07	-48.54	-13.00	-5.53	-41.07	Peak
6	4952.50	-52.33	-49.38	-13.00	-2.95	-39.33	Peak
7	5660.00	-41.85	-40.05	-13.00	-1.80	-28.85	Peak

High Channel

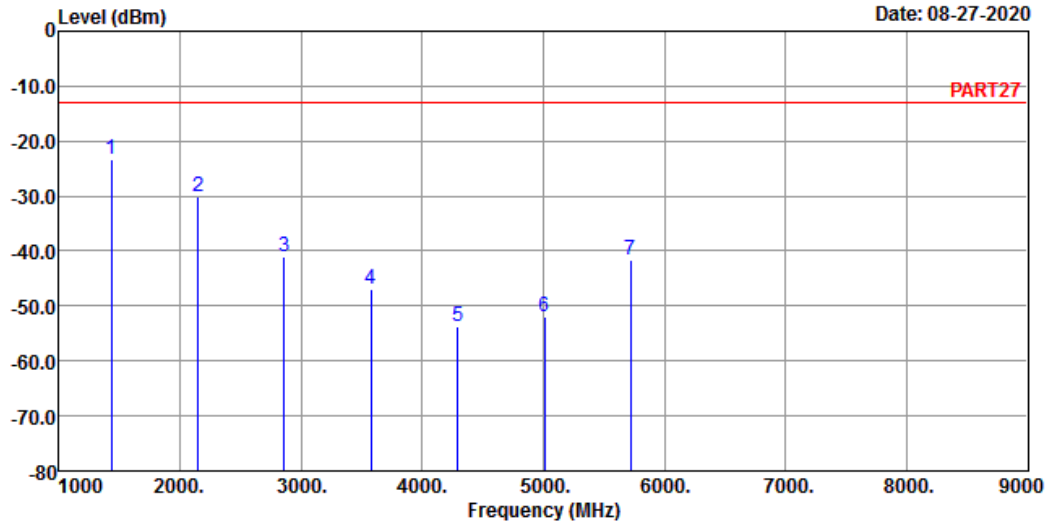


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 12 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1430.60	-23.19	-10.88	-13.00	-12.31	-10.19	Peak
2	2145.90	-30.25	-20.78	-13.00	-9.47	-17.25	Peak
3	2861.20	-41.01	-32.58	-13.00	-8.43	-28.01	Peak
4	3576.50	-47.07	-40.08	-13.00	-6.99	-34.07	Peak
5	4291.80	-53.61	-48.12	-13.00	-5.49	-40.61	Peak
6	5007.10	-51.83	-49.37	-13.00	-2.46	-38.83	Peak
7	5722.40	-41.73	-40.04	-13.00	-1.69	-28.73	Peak

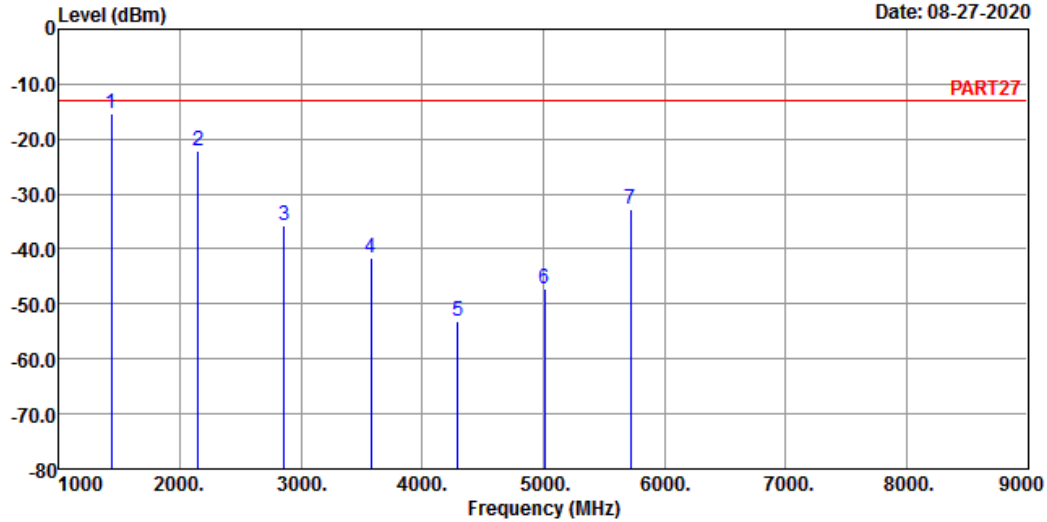


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_1.4M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1430.60	-15.24	-2.93	-13.00	-12.31	-2.24	Peak
2	2145.90	-22.17	-12.70	-13.00	-9.47	-9.17	Peak
3	2861.20	-35.73	-27.30	-13.00	-8.43	-22.73	Peak
4	3576.50	-41.75	-34.76	-13.00	-6.99	-28.75	Peak
5	4291.80	-53.07	-47.58	-13.00	-5.49	-40.07	Peak
6	5007.10	-47.21	-44.75	-13.00	-2.46	-34.21	Peak
7	5722.40	-32.81	-31.12	-13.00	-1.69	-19.81	Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

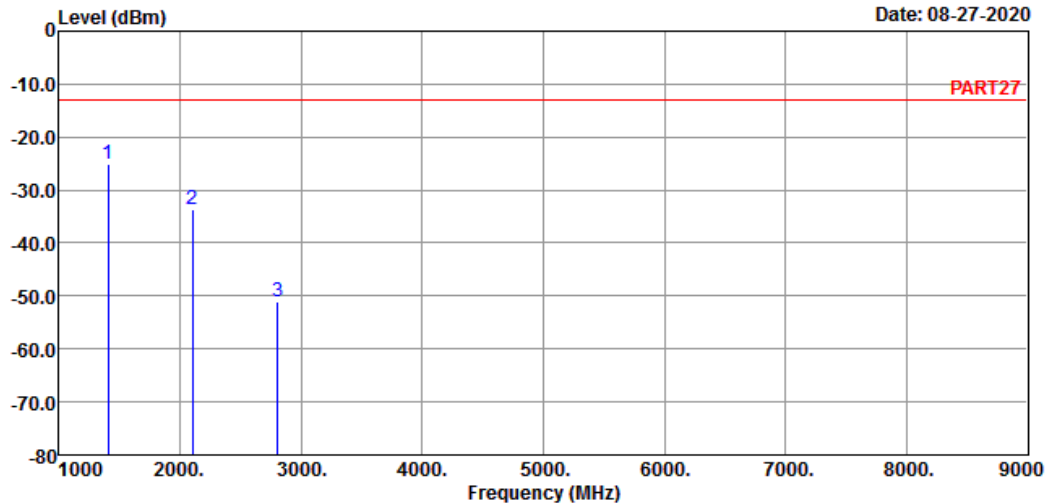


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_5M Link_L-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Line Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1403.00	-25.02	-13.11	-13.00	-11.91	-12.02	Peak
2	2104.50	-33.70	-23.54	-13.00	-10.16	-20.70	Peak
3	2806.00	-50.97	-42.45	-13.00	-8.52	-37.97	Peak

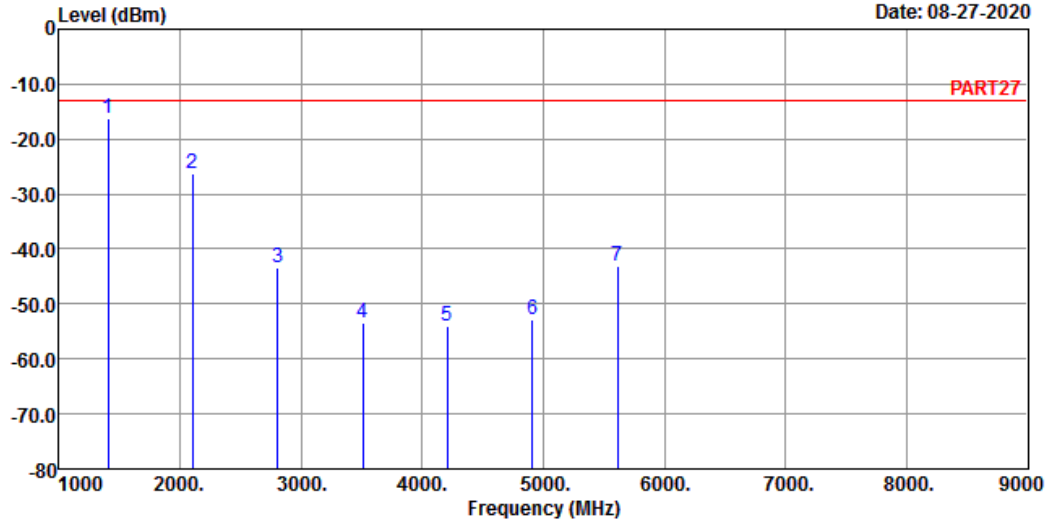


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_5M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	1403.00	-16.26	-4.35	-13.00	-11.91	-3.26 Peak
2	2104.50	-26.19	-16.03	-13.00	-10.16	-13.19 Peak
3	2806.00	-43.30	-34.78	-13.00	-8.52	-30.30 Peak
4	3507.50	-53.35	-45.90	-13.00	-7.45	-40.35 Peak
5	4209.00	-53.98	-48.40	-13.00	-5.58	-40.98 Peak
6	4910.50	-52.86	-49.57	-13.00	-3.29	-39.86 Peak
7	5612.00	-42.99	-41.09	-13.00	-1.90	-29.99 Peak

Middle Channel

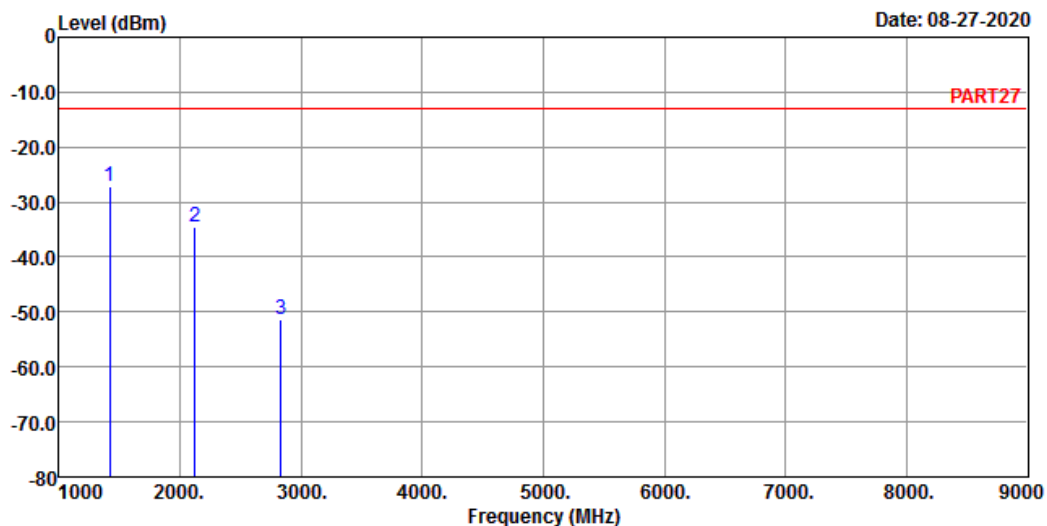


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 12 QPSK_5M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	dB	Limit Remark
1 pp	1415.00	-27.06	-14.98	-13.00	-12.08	-14.06 Peak
2	2122.50	-34.61	-24.74	-13.00	-9.87	-21.61 Peak
3	2830.00	-51.33	-42.85	-13.00	-8.48	-38.33 Peak

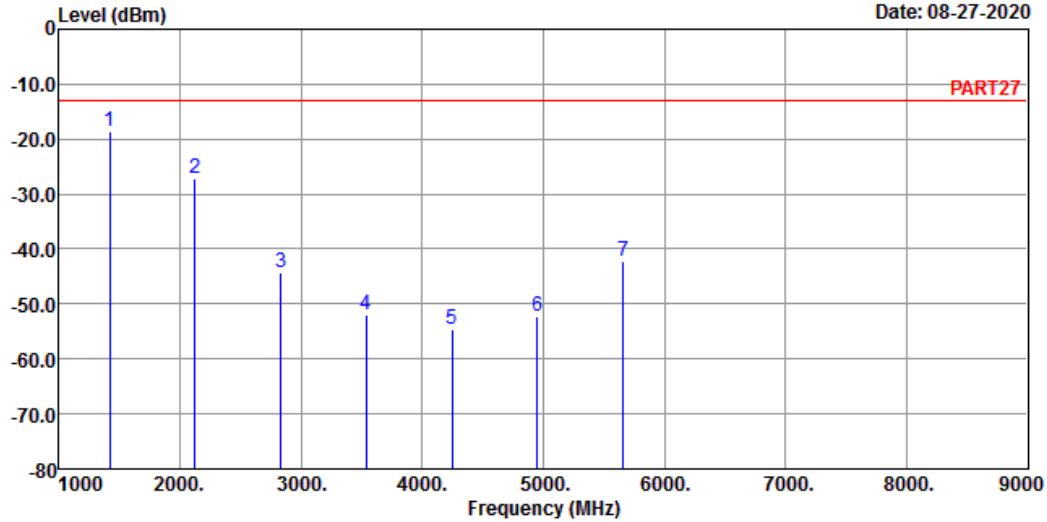


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_5M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	1415.00	-18.63	-6.55	-13.00	-12.08	-5.63 Peak
2	2122.50	-27.29	-17.42	-13.00	-9.87	-14.29 Peak
3	2830.00	-44.28	-35.80	-13.00	-8.48	-31.28 Peak
4	3537.50	-51.88	-44.66	-13.00	-7.22	-38.88 Peak
5	4245.00	-54.62	-49.09	-13.00	-5.53	-41.62 Peak
6	4952.50	-52.16	-49.21	-13.00	-2.95	-39.16 Peak
7	5660.00	-42.29	-40.49	-13.00	-1.80	-29.29 Peak

High Channel

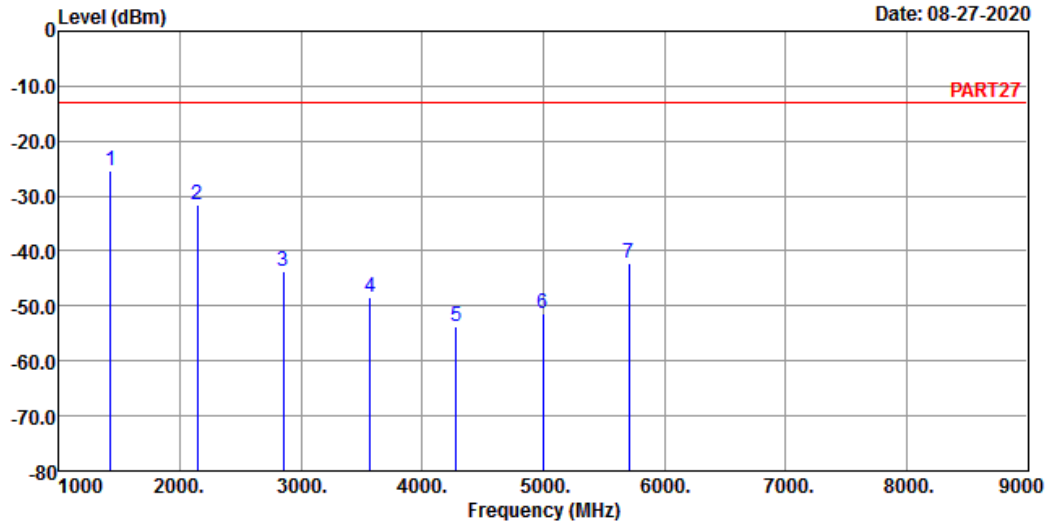


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 12 QPSK_5M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1427.00	-25.36	-13.11	-13.00	-12.25	-12.36	Peak
2	2140.50	-31.65	-22.08	-13.00	-9.57	-18.65	Peak
3	2854.00	-43.72	-35.28	-13.00	-8.44	-30.72	Peak
4	3567.50	-48.53	-41.54	-13.00	-6.99	-35.53	Peak
5	4281.00	-53.68	-48.18	-13.00	-5.50	-40.68	Peak
6	4994.50	-51.35	-48.74	-13.00	-2.61	-38.35	Peak
7	5708.00	-42.09	-40.36	-13.00	-1.73	-29.09	Peak

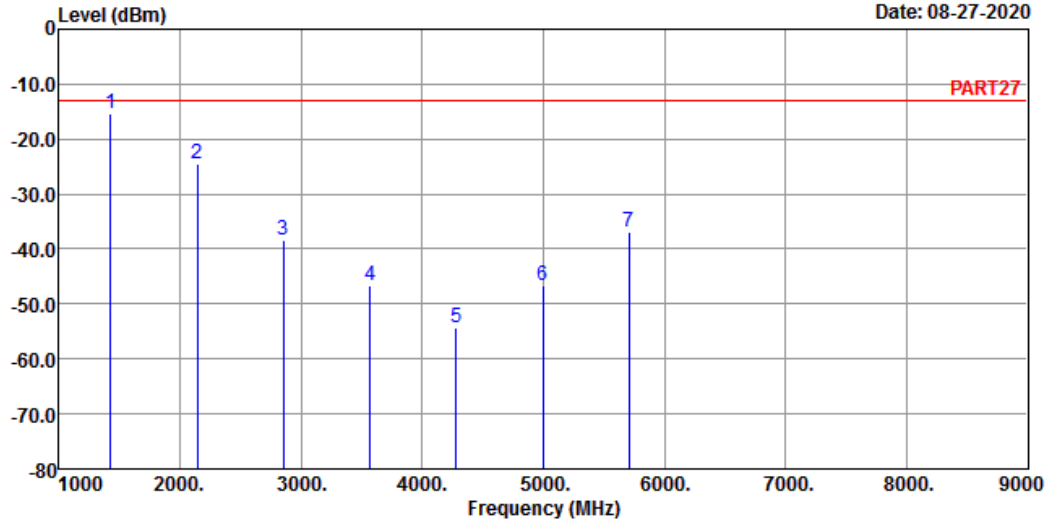


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_5M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1427.00	-15.27	-3.02	-13.00	-12.25	-2.27	Peak
2	2140.50	-24.36	-14.79	-13.00	-9.57	-11.36	Peak
3	2854.00	-38.29	-29.85	-13.00	-8.44	-25.29	Peak
4	3567.50	-46.55	-39.56	-13.00	-6.99	-33.55	Peak
5	4281.00	-54.22	-48.72	-13.00	-5.50	-41.22	Peak
6	4994.50	-46.74	-44.13	-13.00	-2.61	-33.74	Peak
7	5708.00	-36.98	-35.25	-13.00	-1.73	-23.98	Peak

Channel Bandwidth: 10 MHz / QPSK
Low Channel

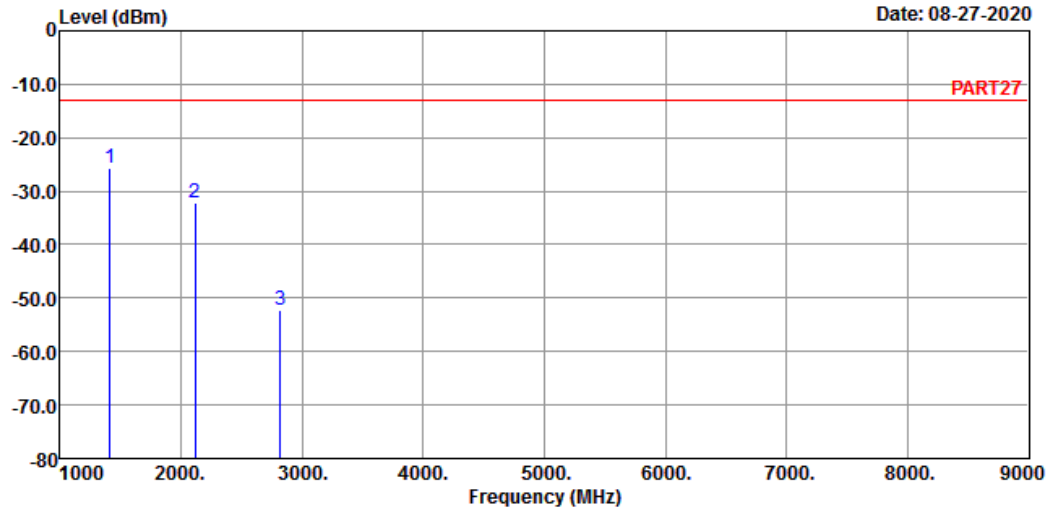


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 08-27-2020



Site : 966 Chamber 5
Condition: PART27 HORIZONTAL
Remak : Cat-M1 Band 12 QPSK_10M Link_L-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	Line	Factor	Limit Remark
				dB	dB	
1 pp	1408.00	-25.75	-13.79	-13.00	-11.96	-12.75 Peak
2	2112.00	-32.12	-22.16	-13.00	-9.96	-19.12 Peak
3	2816.00	-52.28	-43.79	-13.00	-8.49	-39.28 Peak

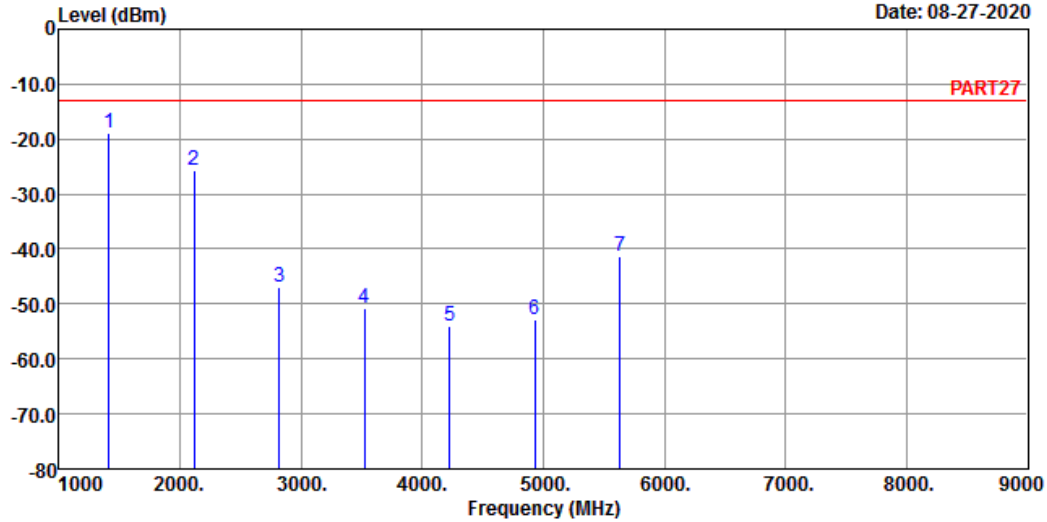


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_10M Link_L-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	1408.00	-19.01	-7.05	-13.00	-11.96	-6.01 Peak
2	2112.00	-25.56	-15.60	-13.00	-9.96	-12.56 Peak
3	2816.00	-46.93	-38.44	-13.00	-8.49	-33.93 Peak
4	3520.00	-50.64	-43.26	-13.00	-7.38	-37.64 Peak
5	4224.00	-54.09	-48.52	-13.00	-5.57	-41.09 Peak
6	4928.00	-52.72	-49.55	-13.00	-3.17	-39.72 Peak
7	5632.00	-41.31	-39.45	-13.00	-1.86	-28.31 Peak

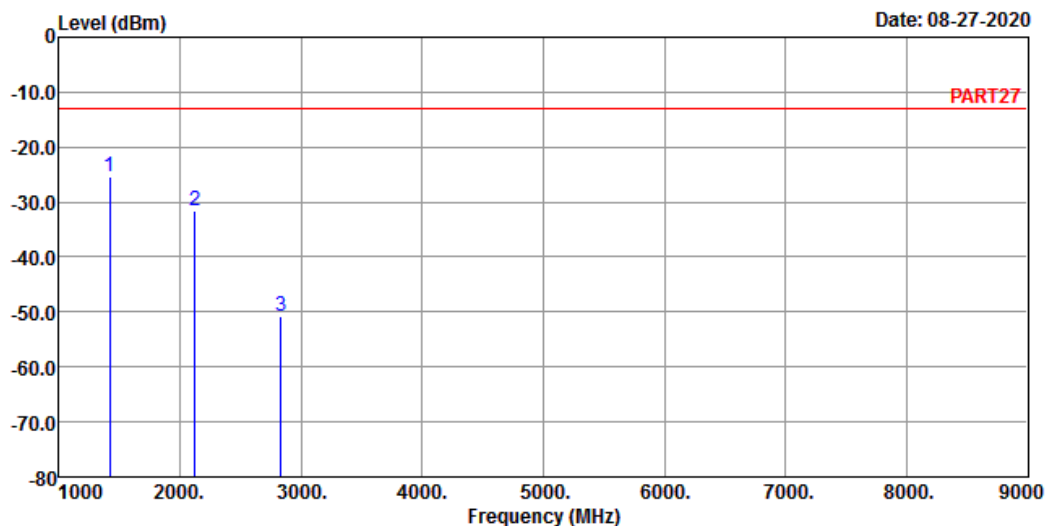
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 12 QPSK_10M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1415.00	-25.26	-13.18	-13.00	-12.08	-12.26	Peak
2	2122.50	-31.70	-21.83	-13.00	-9.87	-18.70	Peak
3	2830.00	-50.90	-42.42	-13.00	-8.48	-37.90	Peak

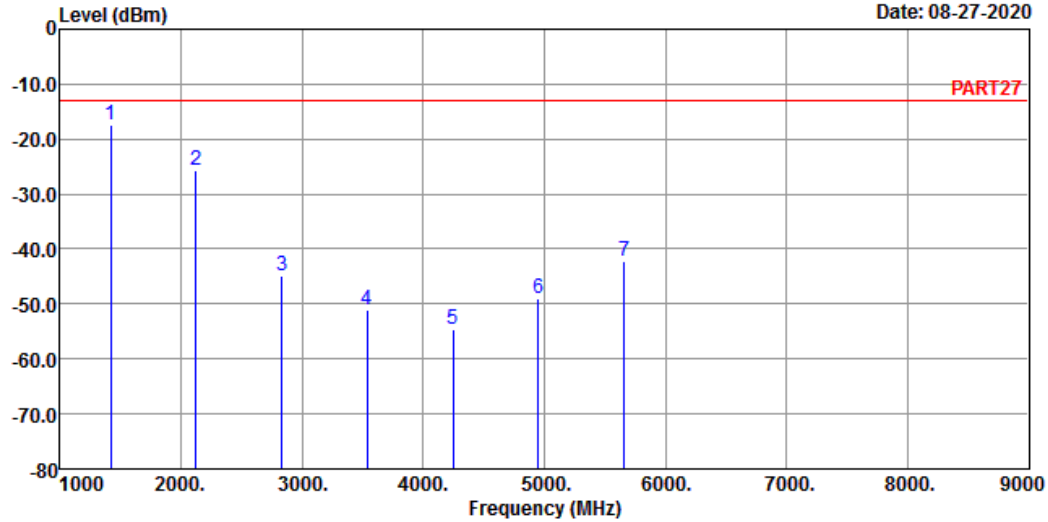


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_10M Link_M-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1 pp	1415.00	-17.35	-5.27	-13.00	-12.08	-4.35 Peak
2	2122.50	-25.58	-15.71	-13.00	-9.87	-12.58 Peak
3	2830.00	-44.77	-36.29	-13.00	-8.48	-31.77 Peak
4	3537.50	-51.20	-43.98	-13.00	-7.22	-38.20 Peak
5	4245.00	-54.72	-49.19	-13.00	-5.53	-41.72 Peak
6	4952.50	-49.07	-46.12	-13.00	-2.95	-36.07 Peak
7	5660.00	-42.29	-40.49	-13.00	-1.80	-29.29 Peak

High Channel

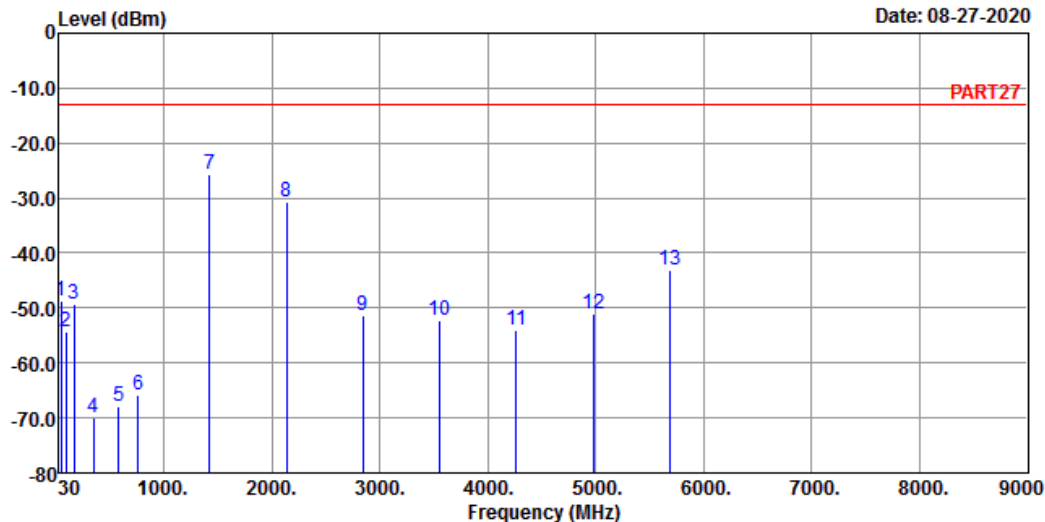


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 HORIZONTAL

Remak : Cat-M1 Band 12 QPSK_10M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.58	-48.70	-47.23	-13.00	-1.47	-35.70	Peak
2	95.96	-54.39	-43.61	-13.00	-10.78	-41.39	Peak
3	169.68	-49.25	-43.72	-13.00	-5.53	-36.25	Peak
4	348.16	-69.95	-63.68	-13.00	-6.27	-56.95	Peak
5	580.96	-67.82	-66.26	-13.00	-1.56	-54.82	Peak
6	761.38	-65.72	-66.57	-13.00	0.85	-52.72	Peak
7 pp	1422.00	-25.67	-13.48	-13.00	-12.19	-12.67	Peak
8	2133.00	-30.57	-20.90	-13.00	-9.67	-17.57	Peak
9	2844.00	-51.38	-42.92	-13.00	-8.46	-38.38	Peak
10	3555.00	-52.29	-45.14	-13.00	-7.15	-39.29	Peak
11	4266.00	-53.94	-48.42	-13.00	-5.52	-40.94	Peak
12	4977.00	-50.95	-48.23	-13.00	-2.72	-37.95	Peak
13	5688.00	-42.95	-41.19	-13.00	-1.76	-29.95	Peak

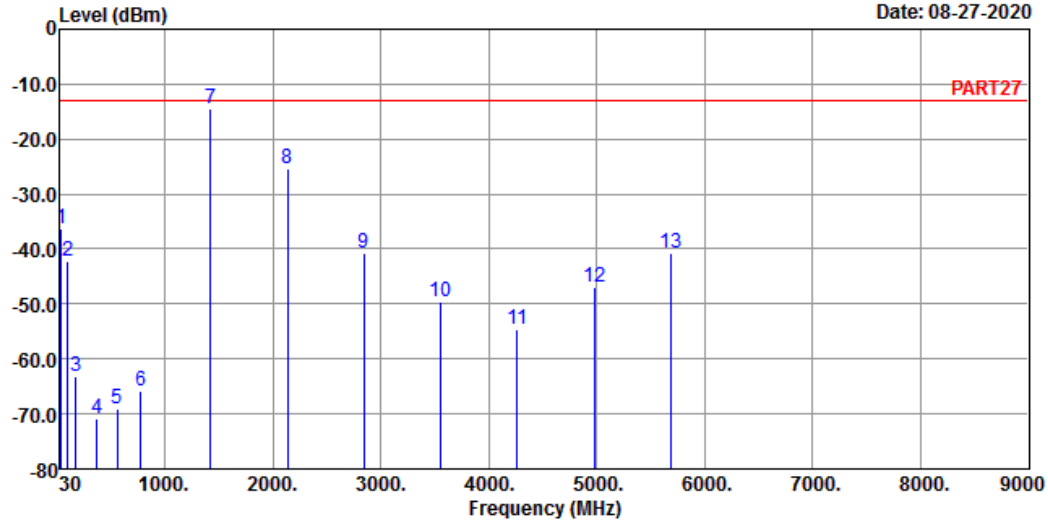


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 08-27-2020



Site : 966 Chamber 5

Condition: PART27 VERTICAL

Remak : Cat-M1 Band 12 QPSK_10M Link_H-CH

Tested by: Getaz Yang

	Freq	Level	Read Level	Limit	Over	
	MHz	dBm	dBm	dBm	Factor	Limit Remark
1	40.67	-36.22	-36.34	-13.00	0.12	-23.22 Peak
2	101.78	-42.24	-31.72	-13.00	-10.52	-29.24 Peak
3	175.50	-63.13	-56.58	-13.00	-6.55	-50.13 Peak
4	367.56	-70.84	-64.70	-13.00	-6.14	-57.84 Peak
5	556.71	-68.97	-66.40	-13.00	-2.57	-55.97 Peak
6	773.02	-65.69	-66.50	-13.00	0.81	-52.69 Peak
7 pp	1422.00	-14.49	-2.30	-13.00	-12.19	-1.49 Peak
8	2133.00	-25.36	-15.69	-13.00	-9.67	-12.36 Peak
9	2844.00	-40.87	-32.41	-13.00	-8.46	-27.87 Peak
10	3555.00	-49.58	-42.43	-13.00	-7.15	-36.58 Peak
11	4266.00	-54.50	-48.98	-13.00	-5.52	-41.50 Peak
12	4977.00	-46.92	-44.20	-13.00	-2.72	-33.92 Peak
13	5688.00	-40.69	-38.93	-13.00	-1.76	-27.69 Peak

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

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Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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