

FCC Test Report

(PART 90S)

Report No.: RF200615C06-10

FCC ID: H8NTN502A1

Test Model: TN502A1

Series Model: TN502A1(WOS), access, access(WOS) (refer to item 3.1 for more details)

Received Date: Mar. 13, 2020

Test Date: Mar. 28 ~ Oct. 23, 2020

Issued Date: Oct. 28, 2020

Applicant: ASKEY COMPUTER CORP.

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

FCC Registration / 788550 / TW0003

Designation Number: 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RF200615C06-10	Original Release	Oct. 28, 2020

1 Certificate of Conformity

Product: TurboFon E4 / Handheld Device (refer to item 3.1 for more details)

Brand: TURBONET / Coppernic (refer to item 3.1 for more details)

Test Model: TN502A1

Series Model: TN502A1(WOS), access, access(WOS) (refer to item 3.1 for more details)

Sample Status: Engineering Sample


Applicant: ASKEY COMPUTER CORP.

Test Date: Mar. 28 ~ Oct. 23, 2020

Standards: FCC Part 90, Subpart I, S
FCC Part 2

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:** Oct. 28, 2020
Lena Wang / Specialist

Approved by : , **Date:** Oct. 28, 2020
Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 90 & Part 2 (LTE 26)			
FCC Clause	Test Item	Result	Remarks
2.1046 90.635 (b)	Effective Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 90.213	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 90.209	Occupied Bandwidth	Pass	Meet the requirement of limit.
2.1051 90.691	Emission Masks	Pass	Meet the requirement of limit.
2.1051 90.691	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 90.691	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -22.97 dB at 2457.00 MHz.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.0400 dB
	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Test Site and Instruments

For other test

Test Date: Mar. 28 ~ Jul. 17, 2020

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Aug. 26, 2019	Aug. 25, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jul. 17, 2019	Jul. 16, 2020
			Apr. 16, 2020	Apr. 15, 2021
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 24, 2019	Nov. 23, 2020
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 12, 2019	Nov. 11, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 17, 2019	Apr. 16, 2020
			Apr. 14, 2020	Apr. 13, 2021
Loop Antenna	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 25, 2019	Nov. 24, 2020
Preamplifier Agilent	310N	187226	Jun. 18, 2019	Jun. 19, 2020
			Jun. 17, 2020	Jun. 16, 2021
Preamplifier Agilent	83017A	MY39501357	Jun. 18, 2019	Jun. 19, 2020
			Jun. 17, 2020	Jun. 16, 2021
Preamplifier EMCI	EMC 184045	980116	Oct. 08, 2019	Oct. 07, 2020
Power Meter Anritsu	ML2495A	1012010	Sep. 04, 2019	Sep. 03, 2020
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2019	Sep. 03, 2020
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 18, 2019	Jun. 19, 2020
			Jun. 17, 2020	Jun. 16, 2021
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 18, 2019	Jun. 19, 2020
			Jun. 17, 2020	Jun. 17, 2021
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA

Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 19, 2019	Aug. 18, 2020
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 10, 2019	Sep. 09, 2020
DC Power Supply Topward	33010D	807748	NA	NA

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

For Docking Mode
 Test Date: Oct. 23, 2020

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	9120D	209	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 23, 2020	Mar. 22, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2020	May 31, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun 06, 2020	Jun 05, 2021
Communications Tester- Wireless Agilent	8960 Series 10	MY53201073	Jul. 01, 2019	Jun. 30, 2021
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 09, 2020	Sep. 08, 2021
DC Power Supply Topward	33010D	807748	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.

3 General Information

3.1 General Description of EUT

Product	TurboFon E4 / Handheld Device	
Brand	TURBONET / Coppernic	
Test Model	TN502A1	
Series Model	TN502A1(WOS), access, access(WOS)	
Model Difference	Refer to Note	
Status of EUT	Engineering Sample	
Power Supply Rating	3.85Vdc (from battery) 5.0Vdc / 9.0Vdc / 12.0Vdc (from adapter)	
Modulation Type	LTE	QPSK, 16QAM
Frequency Range	LTE Band 26 (Channel Bandwidth: 1.4 MHz)	814.7 ~ 823.3 MHz
	LTE Band 26 (Channel Bandwidth: 3 MHz)	815.5 ~ 822.5 MHz
	LTE Band 26 (Channel Bandwidth: 5 MHz)	816.5 ~ 821.5 MHz
	LTE Band 26 (Channel Bandwidth: 10 MHz)	819 MHz
Emission Designator	LTE Band 26 (Channel Bandwidth: 1.4 MHz)	1M09D7W
	LTE Band 26 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 26 (Channel Bandwidth: 5 MHz)	4M50D7W
	LTE Band 26 (Channel Bandwidth: 10 MHz)	8M97D7W
Max. ERP Power	LTE Band 26 (Channel Bandwidth: 1.4 MHz)	144.48 mW
	LTE Band 26 (Channel Bandwidth: 3 MHz)	145.81 mW
	LTE Band 26 (Channel Bandwidth: 5 MHz)	147.16 mW
	LTE Band 26 (Channel Bandwidth: 10 MHz)	146.22 mW
Antenna Type	PIFA Antenna with -0.76 dBi gain	
Accessory Device	Refer to Note as below	
Data Cable Supplied	0.95m shielded USB cable without core	

Note:

1. All models are listed as below. Model TN502A1 is the representative for final test.

Brand	Product name	Model	Difference	
TURBONET	TurboFon E4	TN502A1	With scanner	-
		TN502A1(WOS)	Without scanner	-
Coppernic	Handheld Device	access	With scanner	Model: access is electrically identical to TN502A1, different brands and model names are for marketing purpose.
		access(WOS)	Without scanner	Model: access (WOS) is electrically identical to TN502A1(WOS), different brands and model names are for marketing purpose.

2. The EUT contains following accessory devices.

3. Battery	
Brand	ETI
Model	BP19-002710
Rating	3.85Vdc, 4000mAh. 15.4Wh

Adapter	
Brand	CHANNEL WELL TECHNOLOGY
Model	2ACP0183C
Input Power	100-240Vac~0.5A , 50/60Hz
Output Power	5.0Vdc, 3.0A, 15.0W / 9.0Vdc, 2.0A, 18.0W / 12.0Vdc, 1.5A, 18.0W

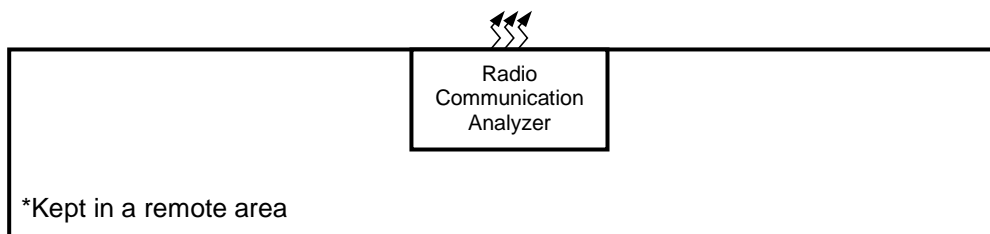
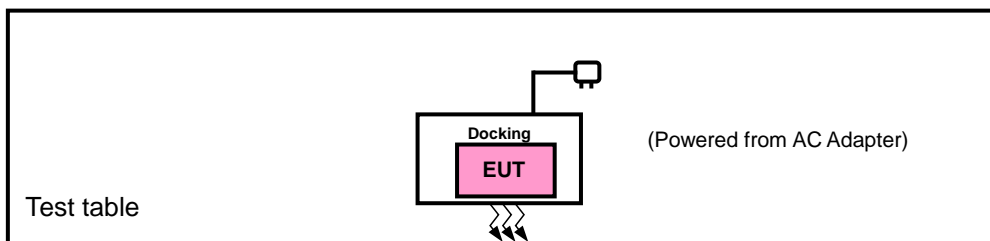
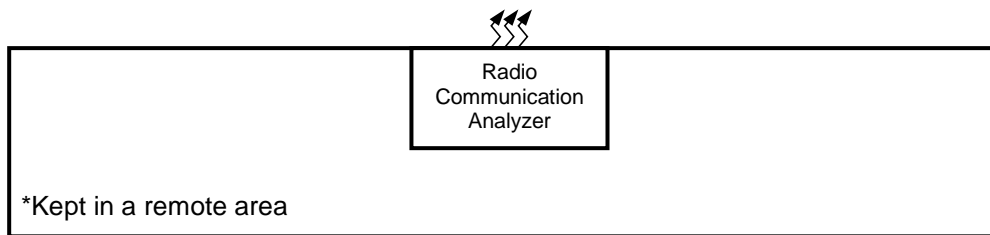
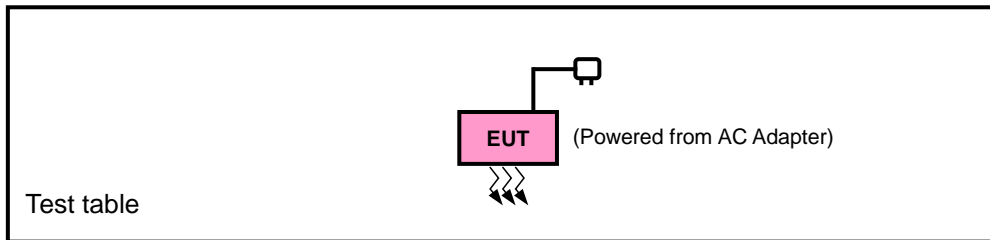
Item	Brand	Model	Description
Docking Station 1 (optional)	TURBONET	DS12310	The models and brand names of docking station are electrically identical, different models and brand names are for marketing purpose. The docking station 1 was chosen for final test.
Docking Station 2 (optional)	COPPERNIC	DS-ACCESS	
Data Cable Supplied	0.95m shielding USB cable without core		
Adapter (For docking use)			
Brand	Sunny ELECTRONICS CORP.		
Model	SYS1541-2412		
Input Power	100-240Vac, 1.0A, 50/60Hz		
Output Power	+12Vdc, 2A		
Power line	1.5m power cable without core		

4. 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.

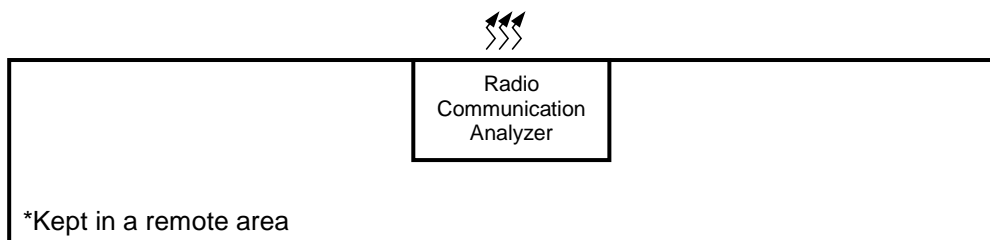
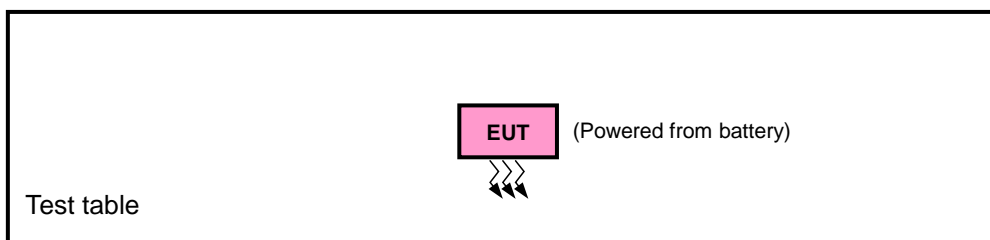
5. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2 Configuration of System under Test

<Radiated Emission Test>



<E.R.P. Test>



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. 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
A	Adapter	CHANNEL WELL TECHNOLOGY	2ACP0183C	N/A	N/A
B	Dock	TURBONET	DS12310	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	0.95m shielded USB cable without core provided by client

Note:

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

3.3 Test Mode Applicability and Tested Channel Detail

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

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

Band	ERP	Radiated Emission
LTE Band 26	X-plane	Y-axis

LTE Band 26

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	26697 to 26783	26697, 26740, 26783	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26705 to 26775	26705, 26740, 26775	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26715 to 26765	26715, 26740, 26765	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26740	26740	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	26740	26740	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Frequency Stability	26697 to 26783	26697, 26783	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26705 to 26775	26705, 26775	3 MHz	QPSK	1 RB / 0 RB Offset
		26715 to 26765	26715, 26765	5 MHz	QPSK	1 RB / 0 RB Offset
		26740	26740	10 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	26697 to 26783	26697, 26740, 26783	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		26705 to 26775	26705, 26740, 26775	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		26715 to 26765	26715, 26740, 26765	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		26740	26740	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	Emission Mask	26697 to 26783	26697, 26740, 26783	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		26705 to 26775	26705, 26740, 26775	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		26715 to 26765	26715, 26740, 26765	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		26740	26740	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	Conducted Emission	26697 to 26783	26697, 26740, 26783	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26705 to 26775	26705, 26740, 26775	3 MHz	QPSK	1 RB / 0 RB Offset
		26715 to 26765	26715, 26740, 26765	5 MHz	QPSK	1 RB / 0 RB Offset
		26740	26740	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	26697 to 26783	26697, 26740, 26783	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26715 to 26765	26715, 26740, 26765	5 MHz	QPSK	1 RB / 0 RB Offset
		26740	26740	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. Therefore, only ERP, modulation characteristics, occupied bandwidth and peak to average ratio items had been tested under QPSK, 16QAM mode, the other items were performed under QPSK mode only.
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	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu
Frequency Stability	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu
Occupied Bandwidth	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu
Peak to Average Ratio	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu
Emission Mask	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu
Band Edge	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu
Conducted Emission	25 deg. C, 65 % RH	3.85 Vdc	Gavin Wu
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee

3.4 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 90

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

KDB 971168 D02 Misc Rev Approv License Devices v02r01

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

The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw) ERP.

4.1.2 Test Procedures

EIRP / ERP Measurement:

- a. All measurements were done at low, middle and high operational frequency range. RBW is 5MHz, 10MHz and VBW $\geq 3 \times$ RBW.
- 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, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15 \text{ dB}$.

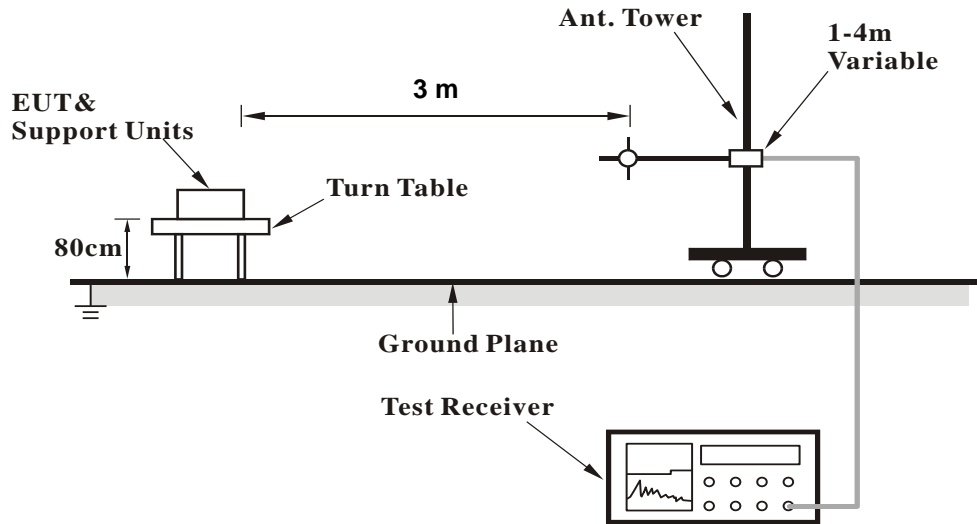
Conducted Power Measurement:

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

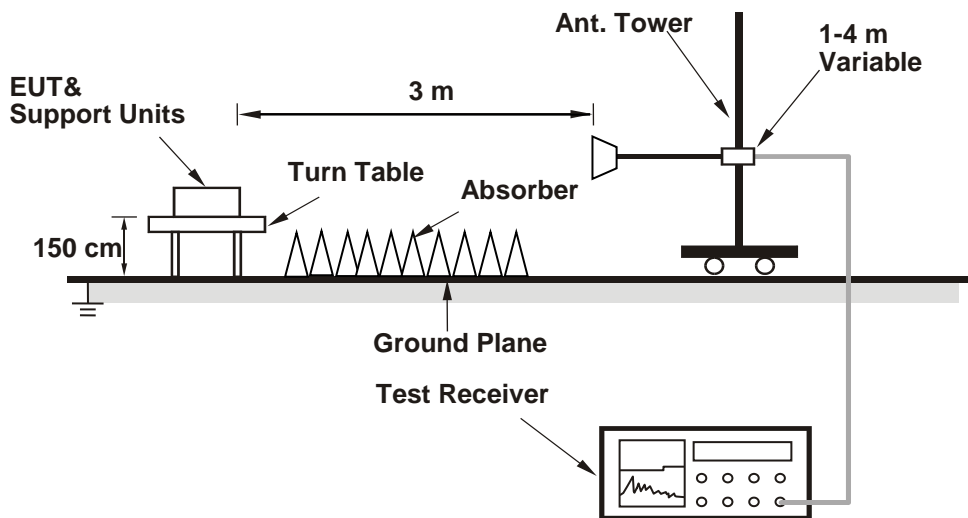
4.1.3 Test Setup

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 26															
BW	MCS Index	RB Size	RB Offset	Mid			3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
				Channel	26740	26740						26740	26715	26740	
		Frequency (MHz)	819.0	819.0	819.0	816.5				819.0	821.5				
10M	QPSK	1	0	22.92		0	5M	QPSK	1	0	22.96	22.92	23.02	0	
		1	24	22.79		0			1	12	22.62	22.79	22.85	0	
		1	49	22.65		0			1	24	22.61	22.65	22.75	0	
		25	0	21.85		1			12	0	21.87	21.85	21.95	1	
		25	12	21.82		1			12	6	21.82	21.82	21.90	1	
		25	25	21.72		1			12	13	21.60	21.72	21.82	1	
	50	0	21.89		1	25		0	21.76	21.89	21.90	1			
	16QAM	1	0	22.29		1		16QAM	1	0	22.11	22.29	22.32	1	
		1	24	22.20		1			1	12	22.15	22.20	22.21	1	
		1	49	21.94		1			1	24	21.89	21.94	21.97	1	
		25	0	21.06		2			12	0	20.89	21.06	21.08	2	
		25	12	21.05		2			12	6	21.00	21.05	21.05	2	
		25	25	20.90		2			12	13	20.72	20.90	20.92	2	
	50	0	20.89		2	25		0	20.90	20.89	20.98	2			
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
				Channel	26705	26740						26775	26697	26740	
		Frequency (MHz)	815.5	819.0	822.5	814.7				819.0	823.3				
3M	QPSK	1	0	22.82	22.77	22.90	0	1.4M	QPSK	1	0	22.93	22.77	22.95	0
		1	7	22.72	22.65	22.71	0			1	2	22.68	22.65	22.81	0
		1	14	22.55	22.64	22.67	0			1	5	22.53	22.65	22.70	0
		8	0	21.92	21.80	21.87	1			3	0	22.75	22.74	22.81	0
		8	3	21.79	21.77	21.82	1			3	1	22.70	22.69	22.76	0
		8	7	21.76	21.58	21.74	1			3	3	22.74	22.57	22.81	0
	15	0	21.72	21.86	21.78	1	6		0	21.84	21.88	21.77	1		
	16QAM	1	0	22.22	22.16	22.21	1		16QAM	1	0	22.20	22.20	22.21	1
		1	7	22.08	22.15	22.15	1			1	2	22.02	22.18	22.06	1
		1	14	21.77	21.82	21.92	1			1	5	21.80	21.89	21.93	1
		8	0	21.02	21.05	21.01	2			3	0	21.88	22.05	22.03	1
		8	3	20.89	20.96	20.91	2			3	1	21.95	21.91	21.94	1
		8	7	20.84	20.76	20.84	2			3	3	21.75	21.81	21.86	1
		15	0	20.81	20.77	20.98	2			6	0	20.88	20.88	20.83	2

ERP Power (dBm)

LTE Band 26							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26697	814.7	-7.46	31.208	21.60	144.48	H
	26740	819.0	-7.61	31.3	21.54	142.56	
	26783	823.3	-7.57	31.222	21.50	141.32	
	26697	814.7	-13.77	31.504	15.58	36.17	V
	26740	819.0	-13.48	31.117	15.49	35.38	
	26783	823.3	-14.35	31.922	15.42	34.85	
Channel Bandwidth: 1.4 MHz / 16QAM							
X	26697	814.7	-8.46	31.208	20.60	114.76	H
	26740	819.0	-8.62	31.3	20.53	112.98	
	26783	823.3	-8.58	31.222	20.49	112.00	
	26697	814.7	-14.78	31.504	14.57	28.67	V
	26740	819.0	-14.48	31.117	14.49	28.10	
	26783	823.3	-15.36	31.922	14.41	27.62	

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

LTE Band 26							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26705	815.5	-7.42	31.208	21.64	145.81	H
	26740	819.0	-7.58	31.3	21.57	143.55	
	26775	822.5	-7.54	31.222	21.53	142.27	
	26705	815.5	-13.74	31.504	15.61	36.43	V
	26740	819.0	-13.44	31.117	15.53	35.70	
	26775	822.5	-14.31	31.922	15.46	35.17	
Channel Bandwidth: 3 MHz / 16QAM							
X	26705	815.5	-8.42	31.208	20.64	115.82	H
	26740	819.0	-8.59	31.3	20.56	113.76	
	26775	822.5	-8.54	31.222	20.53	113.03	
	26705	815.5	-14.74	31.504	14.61	28.93	V
	26740	819.0	-14.45	31.117	14.52	28.29	
	26775	822.5	-15.31	31.922	14.46	27.94	

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

LTE Band 26							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26715	816.5	-7.38	31.208	21.68	147.16	H
	26740	819.0	-7.54	31.3	21.61	144.88	
	26765	821.5	-7.50	31.222	21.57	143.62	
	26715	816.5	-13.70	31.504	15.65	36.76	V
	26740	819.0	-13.40	31.117	15.57	36.03	
	26765	821.5	-14.28	31.922	15.49	35.42	
Channel Bandwidth: 5 MHz / 16QAM							
X	26715	816.5	-8.39	31.208	20.67	116.63	H
	26740	819.0	-8.55	31.3	20.60	114.82	
	26765	821.5	-8.51	31.222	20.56	113.82	
	26715	816.5	-14.71	31.504	14.64	29.13	V
	26740	819.0	-14.40	31.117	14.57	28.62	
	26765	821.5	-15.29	31.922	14.48	28.07	

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

LTE Band 26							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26740	819.0	-7.50	31.3	21.65	146.22	H
	26740	819.0	-13.40	31.117	15.57	36.03	V
Channel Bandwidth: 10 MHz / 16QAM							
X	26740	819.0	-8.50	31.3	20.65	116.14	H
	26740	819.0	-14.40	31.117	14.57	28.62	V

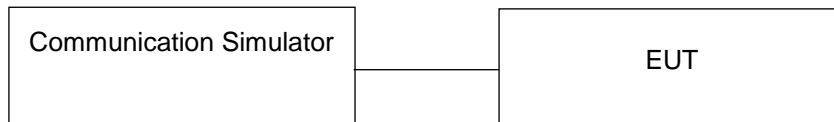
Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

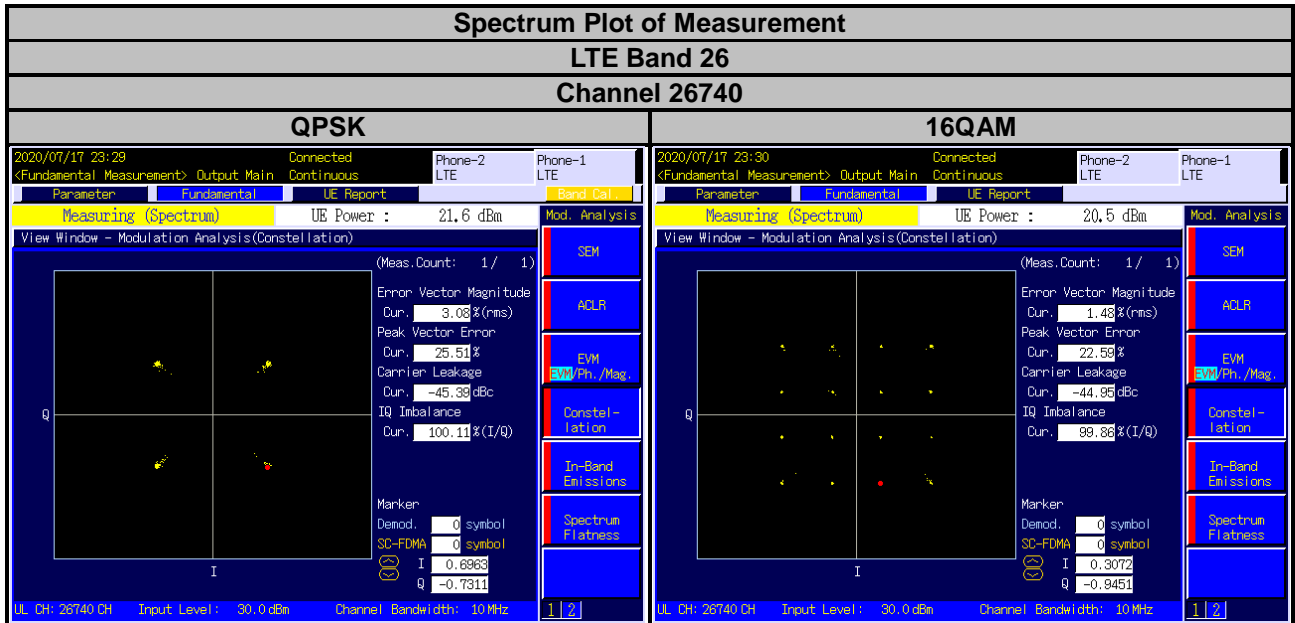
4.2.2 Test Setup



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

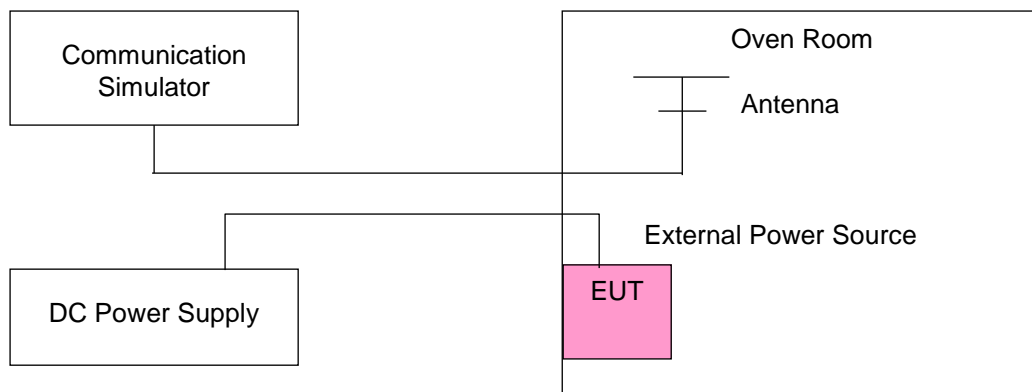
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

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 26				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	814.700003	0.004	823.300000	0.002	2.5
3.65	814.700004	0.005	823.300000	0.003	2.5
4.23	814.700003	0.004	823.300000	0.003	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.65 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	814.700003	0.004	823.300000	0.004	2.5
-20	814.700001	0.001	823.300000	0.004	2.5
-10	814.700004	0.005	823.300000	0.004	2.5
0	814.700004	0.005	823.300000	0.003	2.5
10	814.700003	0.003	823.300000	0.003	2.5
20	814.699998	-0.002	823.300000	-0.001	2.5
30	814.699996	-0.005	823.300000	-0.001	2.5
40	814.699999	-0.002	823.300000	-0.004	2.5
50	814.699997	-0.004	823.300000	-0.005	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	815.500004	0.005	822.500000	0.004	2.5
3.65	815.500002	0.002	822.500000	0.004	2.5
4.23	815.500004	0.005	822.500000	0.004	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.65 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	815.500002	0.002	822.500000	0.001	2.5
-20	815.500003	0.004	822.500000	0.002	2.5
-10	815.500002	0.003	822.500000	0.004	2.5
0	815.500003	0.004	822.500000	0.003	2.5
10	815.500002	0.003	822.500000	0.003	2.5
20	815.499997	-0.003	822.500000	-0.003	2.5
30	815.499996	-0.005	822.500000	-0.002	2.5
40	815.499997	-0.003	822.500000	-0.003	2.5
50	815.499998	-0.002	822.500000	-0.003	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	816.500004	0.004	821.500000	0.004	2.5
3.65	816.500003	0.003	821.500000	0.005	2.5
4.23	816.500004	0.005	821.500000	0.003	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.65 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	816.500003	0.003	821.500000	0.002	2.5
-20	816.500002	0.002	821.500000	0.002	2.5
-10	816.500004	0.005	821.500000	0.004	2.5
0	816.500001	0.001	821.500000	0.002	2.5
10	816.500003	0.003	821.500000	0.002	2.5
20	816.499996	-0.005	821.500000	-0.004	2.5
30	816.499997	-0.004	821.500000	-0.001	2.5
40	816.499997	-0.003	821.500000	-0.002	2.5
50	816.499999	-0.002	821.500000	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26		Limit (ppm)
	Channel Bandwidth: 10 MHz		
	Frequency (MHz)	Frequency Error (ppm)	
3.85	819.000004	0.005	2.5
3.65	819.000001	0.002	2.5
4.23	819.000003	0.004	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.65 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 26		Limit (ppm)
	Channel Bandwidth: 10 MHz		
	Frequency (MHz)	Frequency Error (ppm)	
-30	819.000002	0.002	2.5
-20	819.000002	0.003	2.5
-10	819.000002	0.003	2.5
0	819.000002	0.003	2.5
10	819.000002	0.002	2.5
20	818.999999	-0.002	2.5
30	818.999998	-0.003	2.5
40	818.999998	-0.002	2.5
50	818.999997	-0.003	2.5

4.4 Occupied Bandwidth Measurement

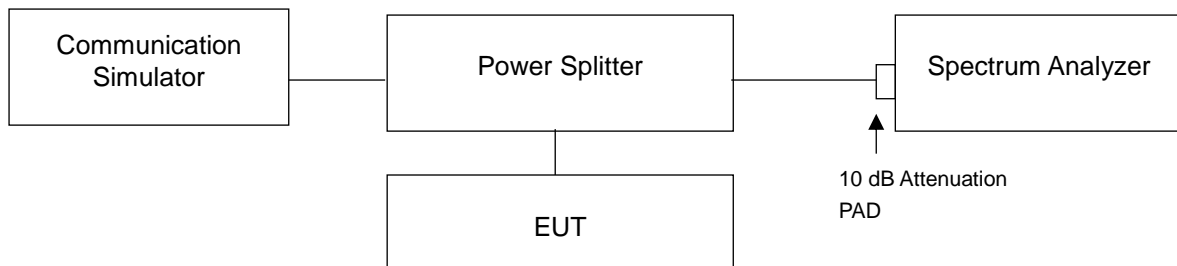
4.4.1 Limits of Occupied Bandwidth Measurement

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

4.4.2 Test Procedure

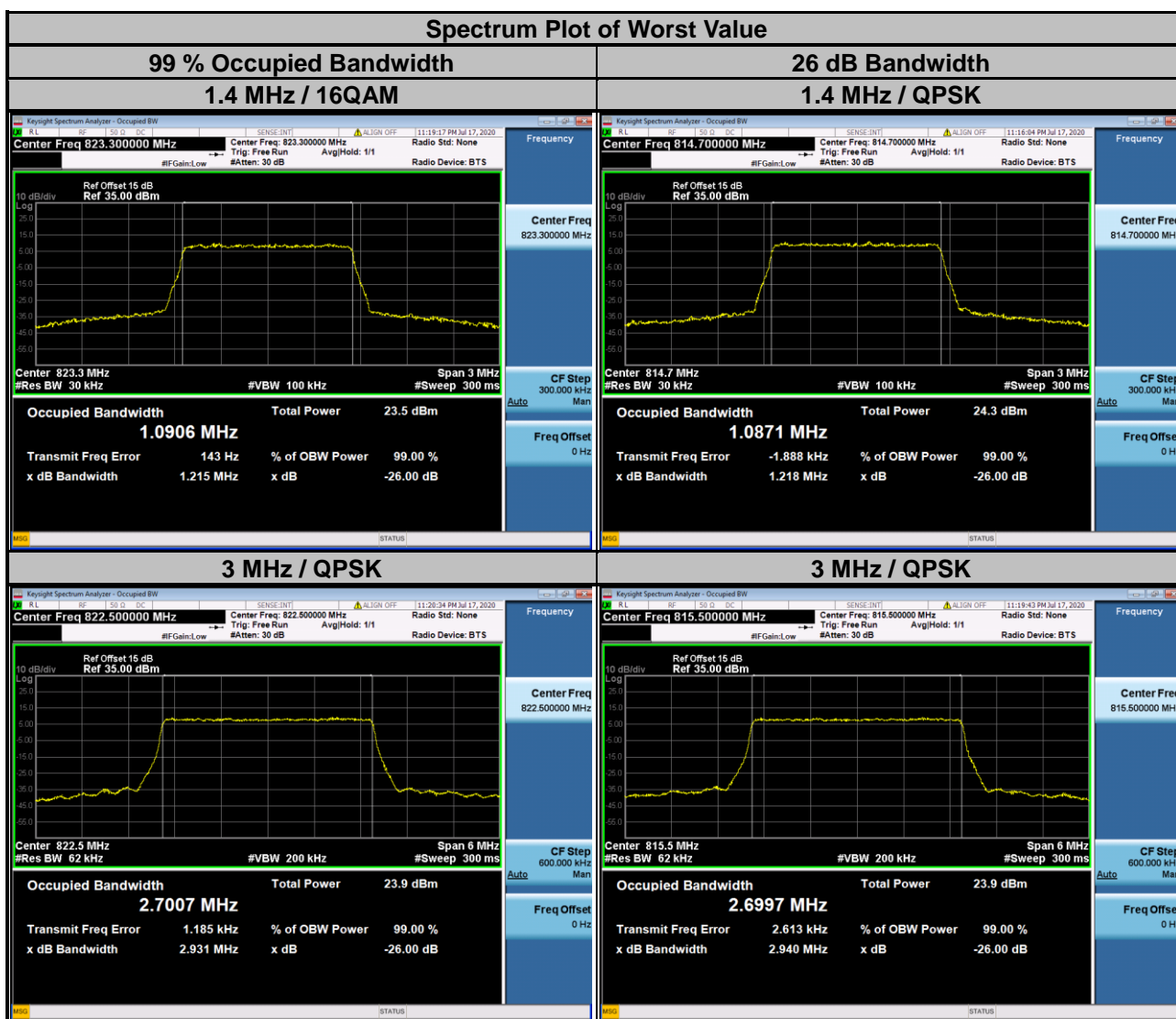
The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function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

4.4.3 Test Setup



4.4.4 Test Results

LTE Band 26					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26697	814.7	1.0871	1.0898	1.218	1.216
26740	819.0	1.0865	1.0884	1.214	1.216
26783	823.3	1.0864	1.0906	1.2180	1.2150
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26705	815.5	2.6997	2.6965	2.940	2.923
26740	819.0	2.6999	2.6975	2.938	2.927
26775	822.5	2.7007	2.6968	2.931	2.922



LTE Band 26					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26715	816.5	4.4889	4.4916	4.829	4.805
26740	819.0	4.4922	4.4924	4.831	4.812
26765	821.5	4.4937	4.4950	4.810	4.820

Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26740	819.0	8.9645	8.9673	9.518	9.513



4.5 Emission Mask Measurement

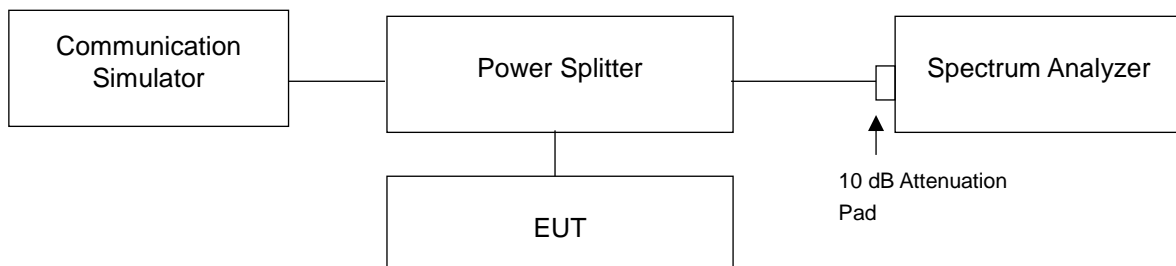
4.5.1 Limits of Emission Mask Measurement

According to FCC part 90.691 shall be tested the emission mask. For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \text{ Log}_{10}(f/6.1)$ decibels or $50 + 10\text{Log}_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10\text{Log}_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

For §90.691(a), RBW=300 Hz for offset less than 37.5 kHz from channel edge and RBW=100 kHz for offsets greater than 37.5 kHz is allowed.

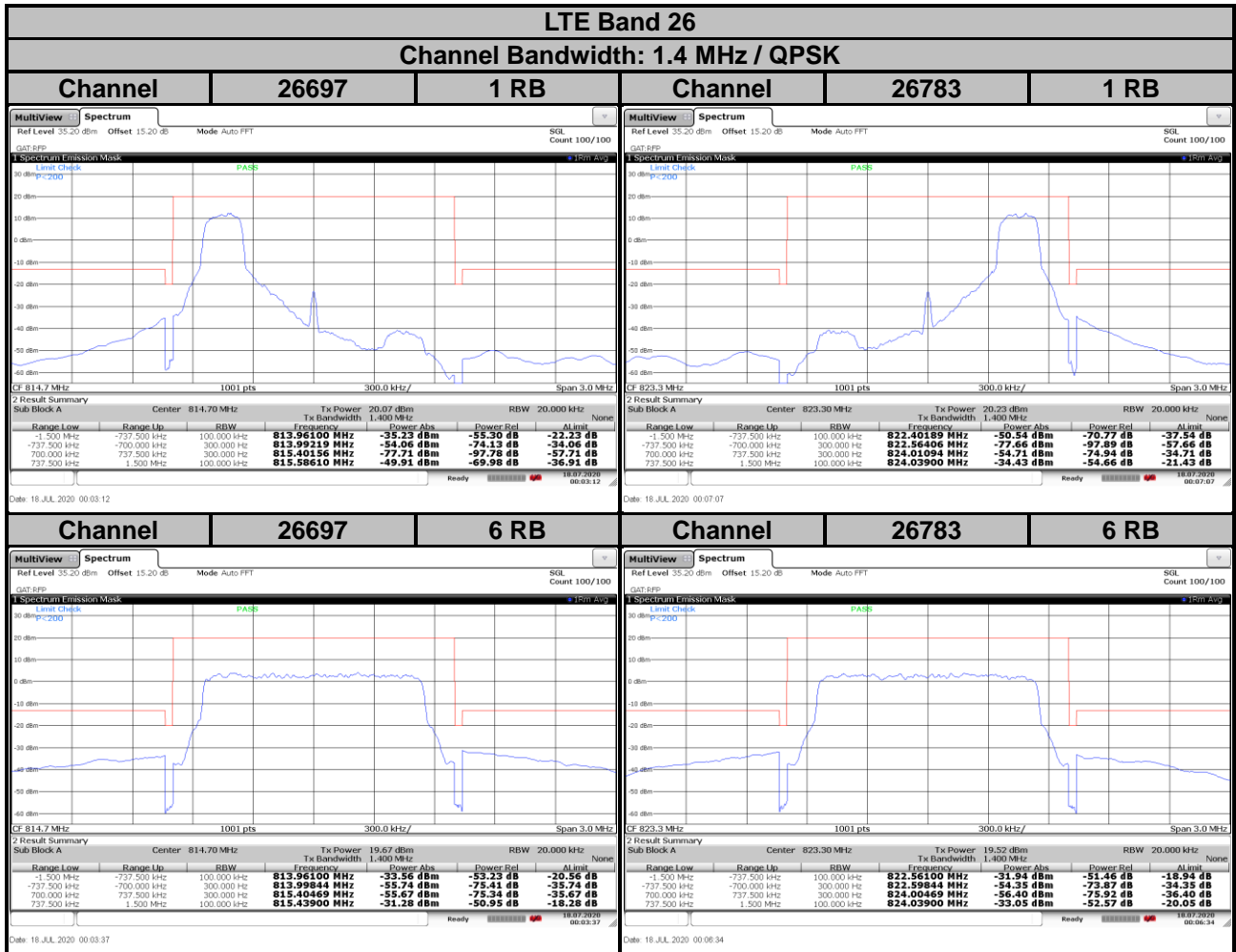
4.5.2 Test Setup



4.5.3 Test Procedures

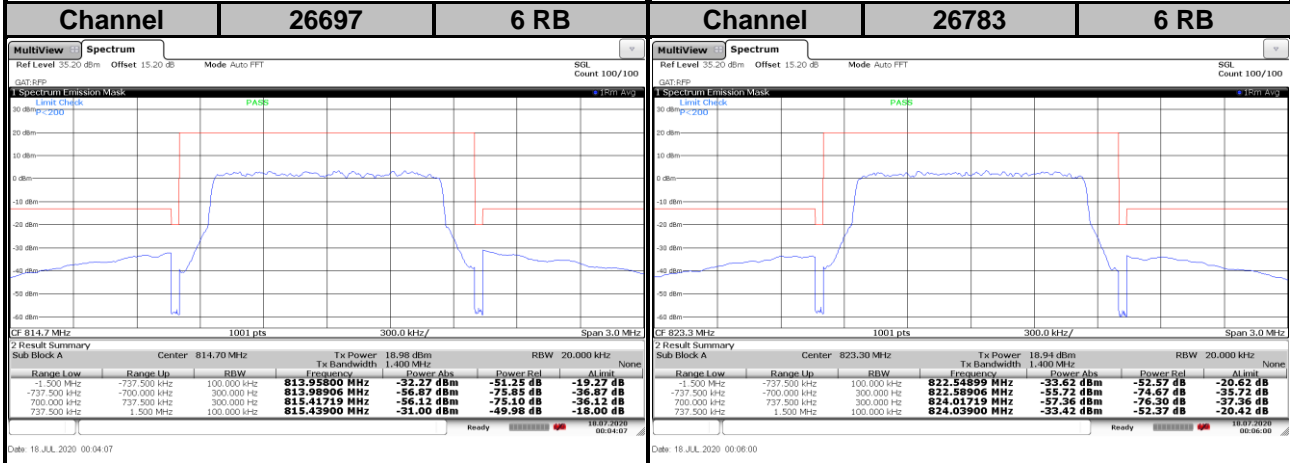
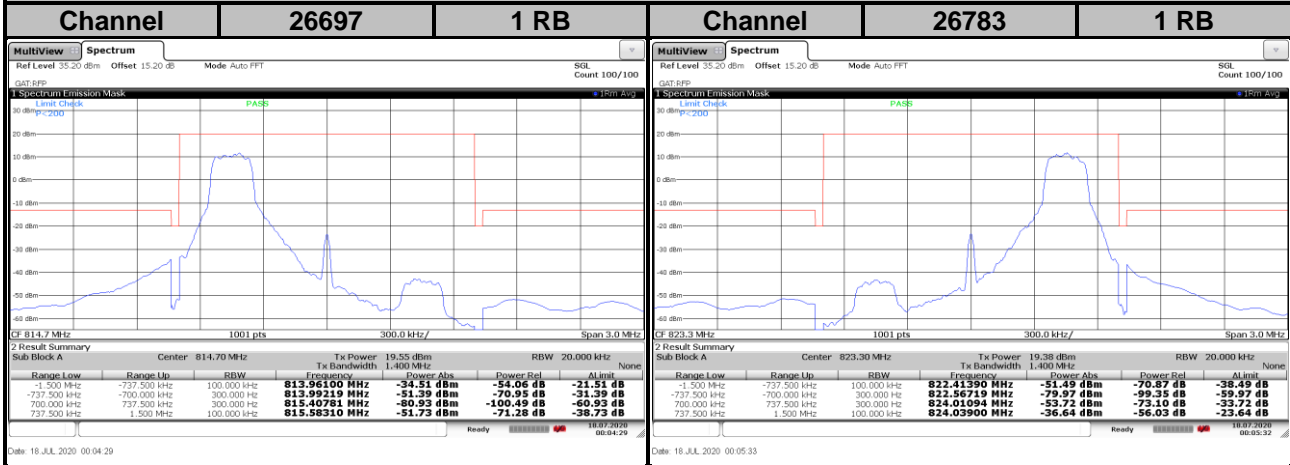
- The measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Record the test plot.

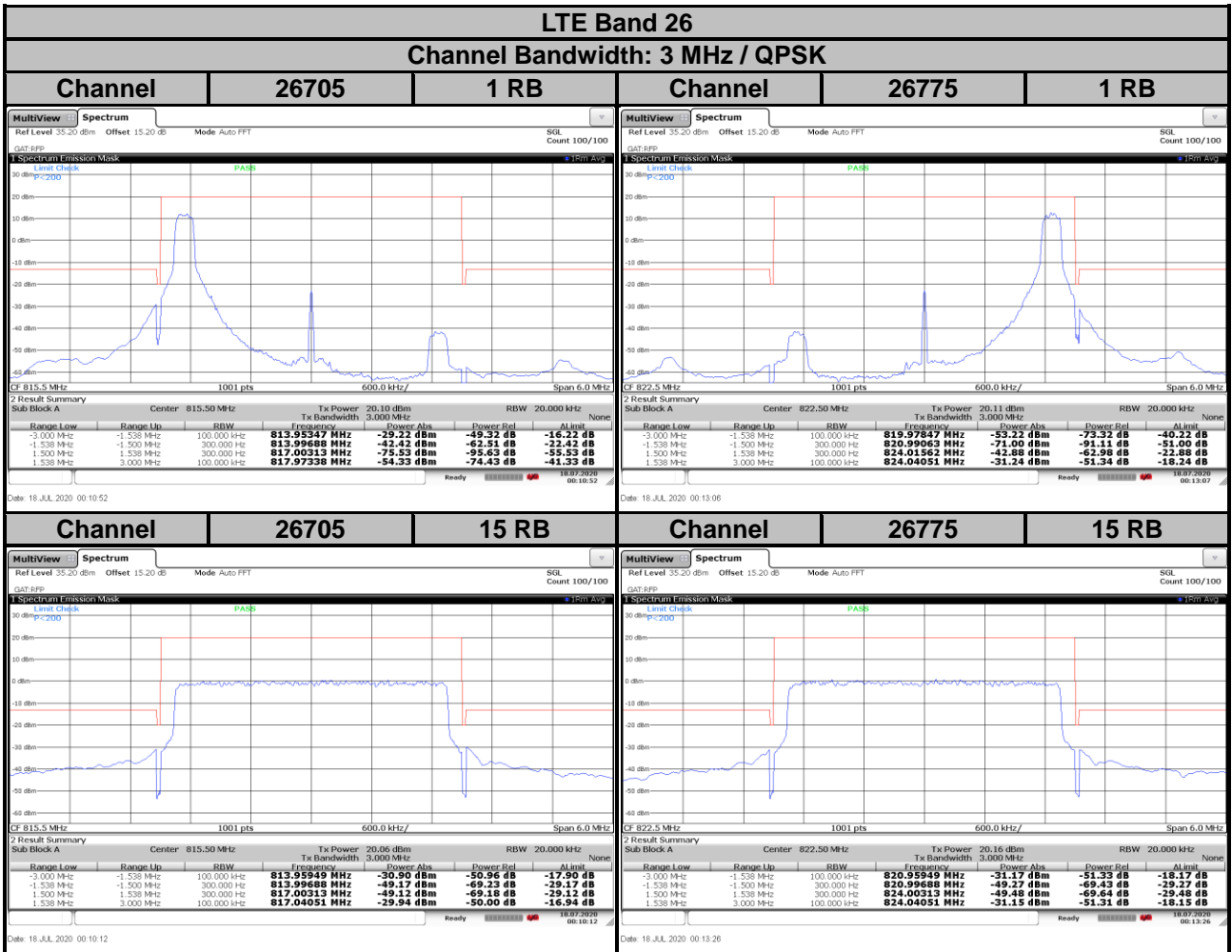
4.5.4 Test Results



LTE Band 26

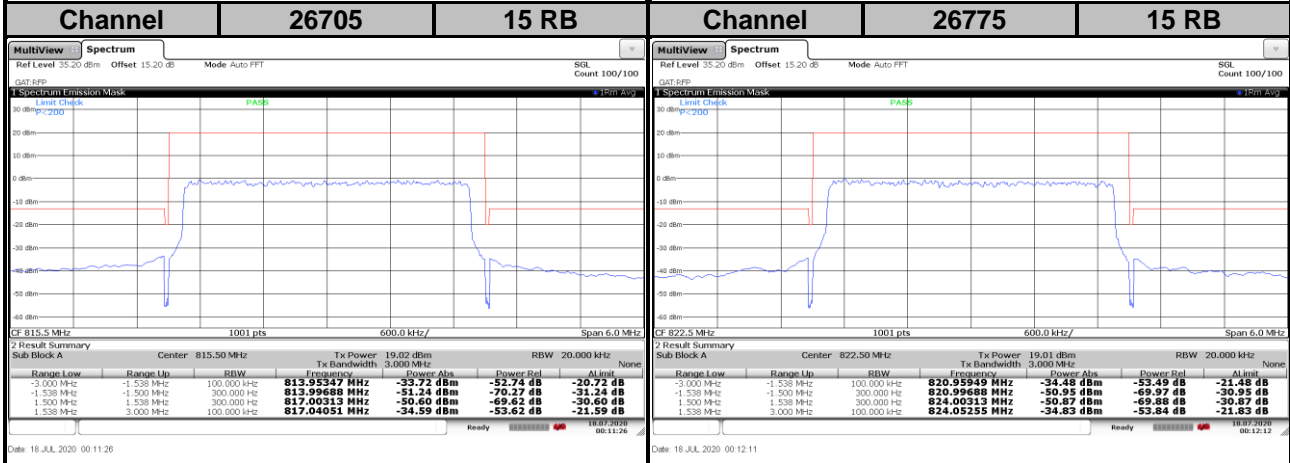
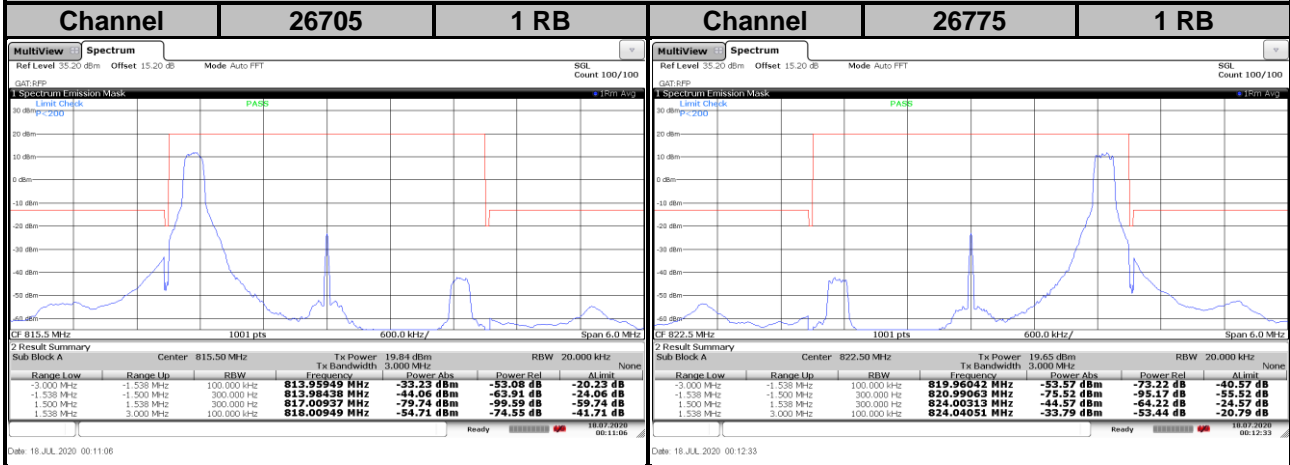
Channel Bandwidth: 1.4 MHz / 16QAM

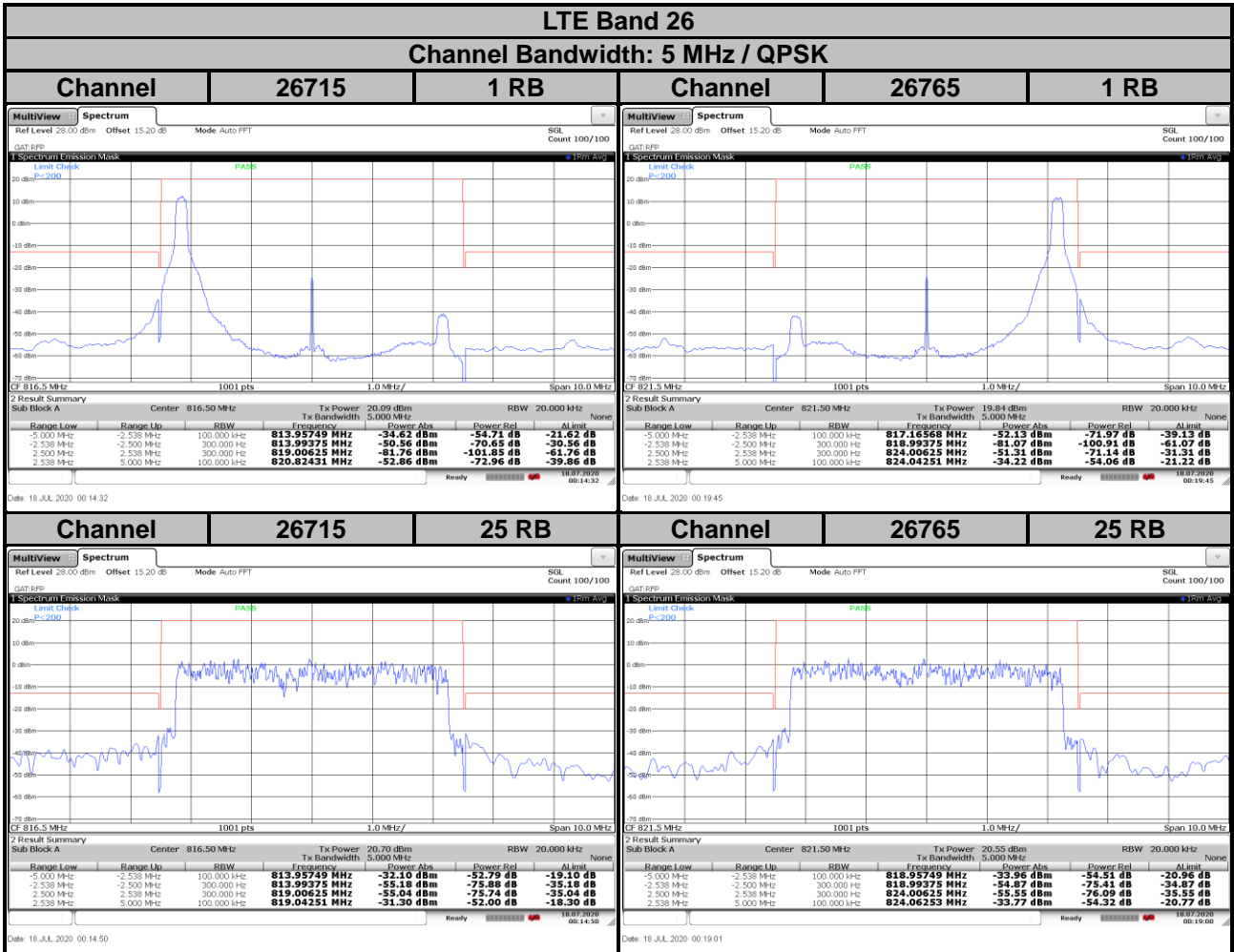


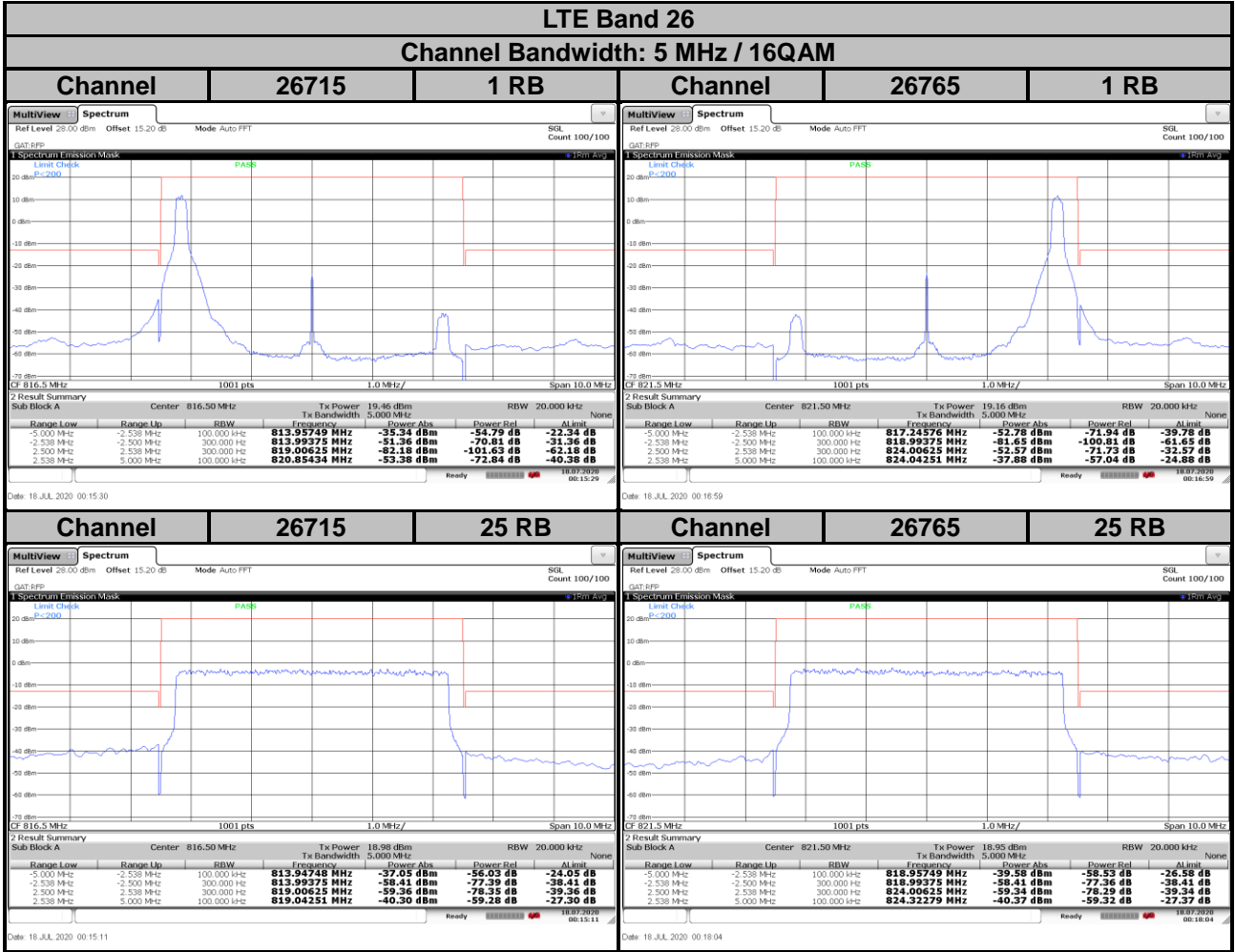


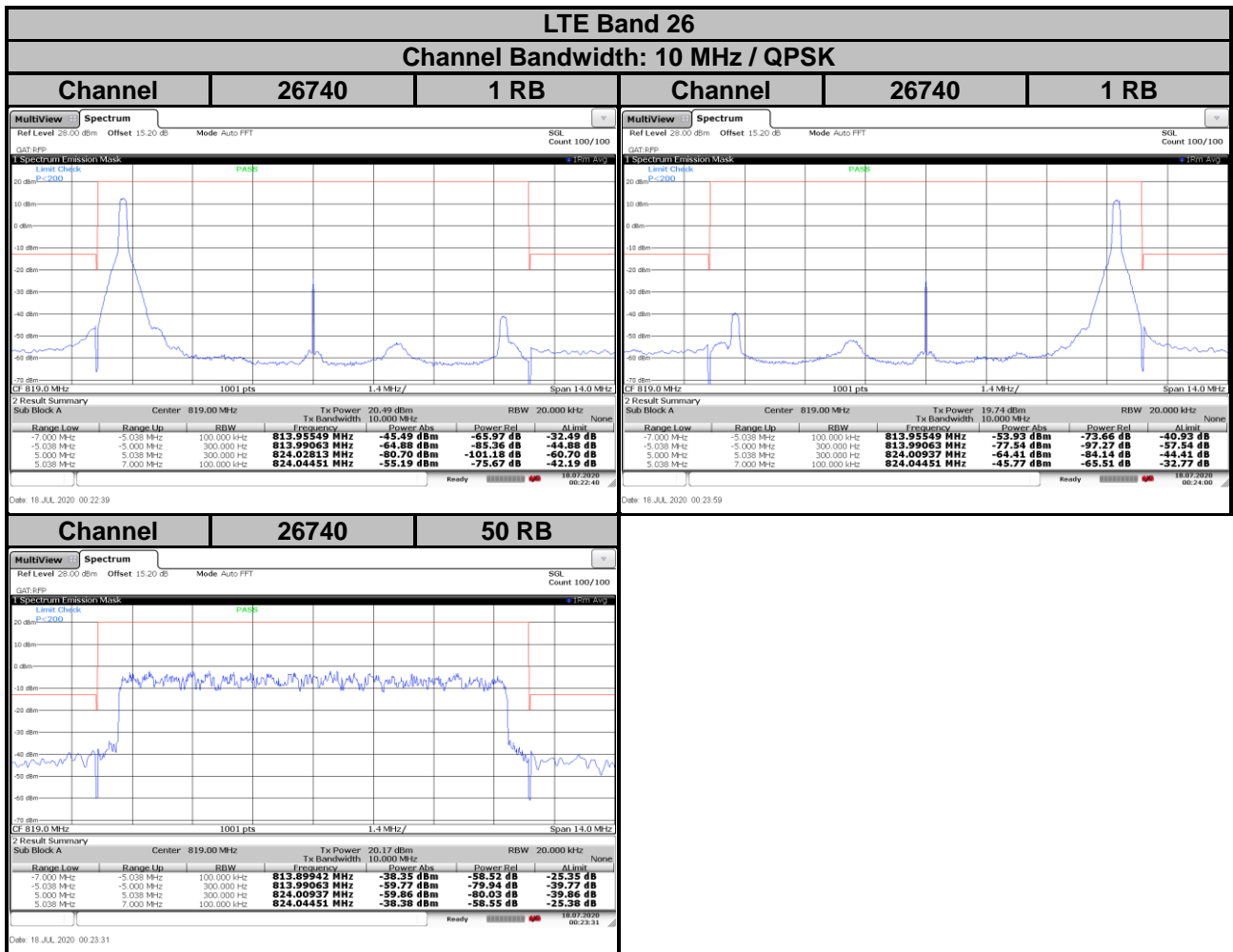
LTE Band 26

Channel Bandwidth: 3 MHz / 16QAM



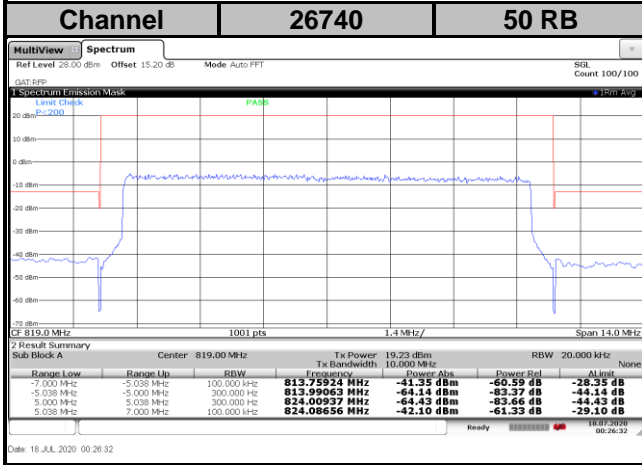






LTE Band 26

Channel Bandwidth: 10 MHz / 16QAM

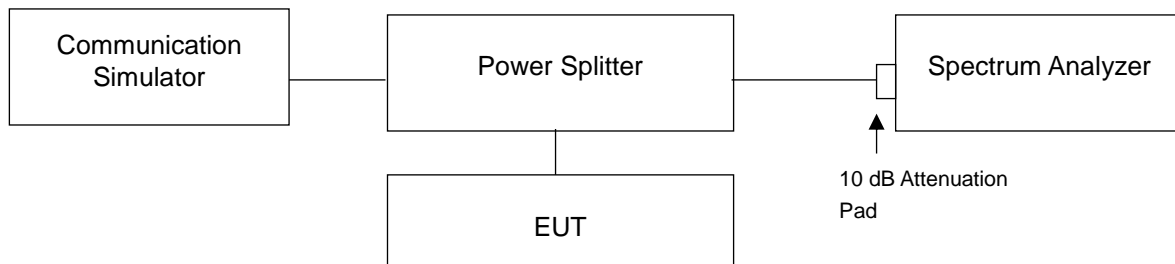


4.6 Conducted Spurious Emissions

4.6.1 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 $43 + 10 \log_{10}(P)$ dB. The limit of emission is equal to -13 dBm.

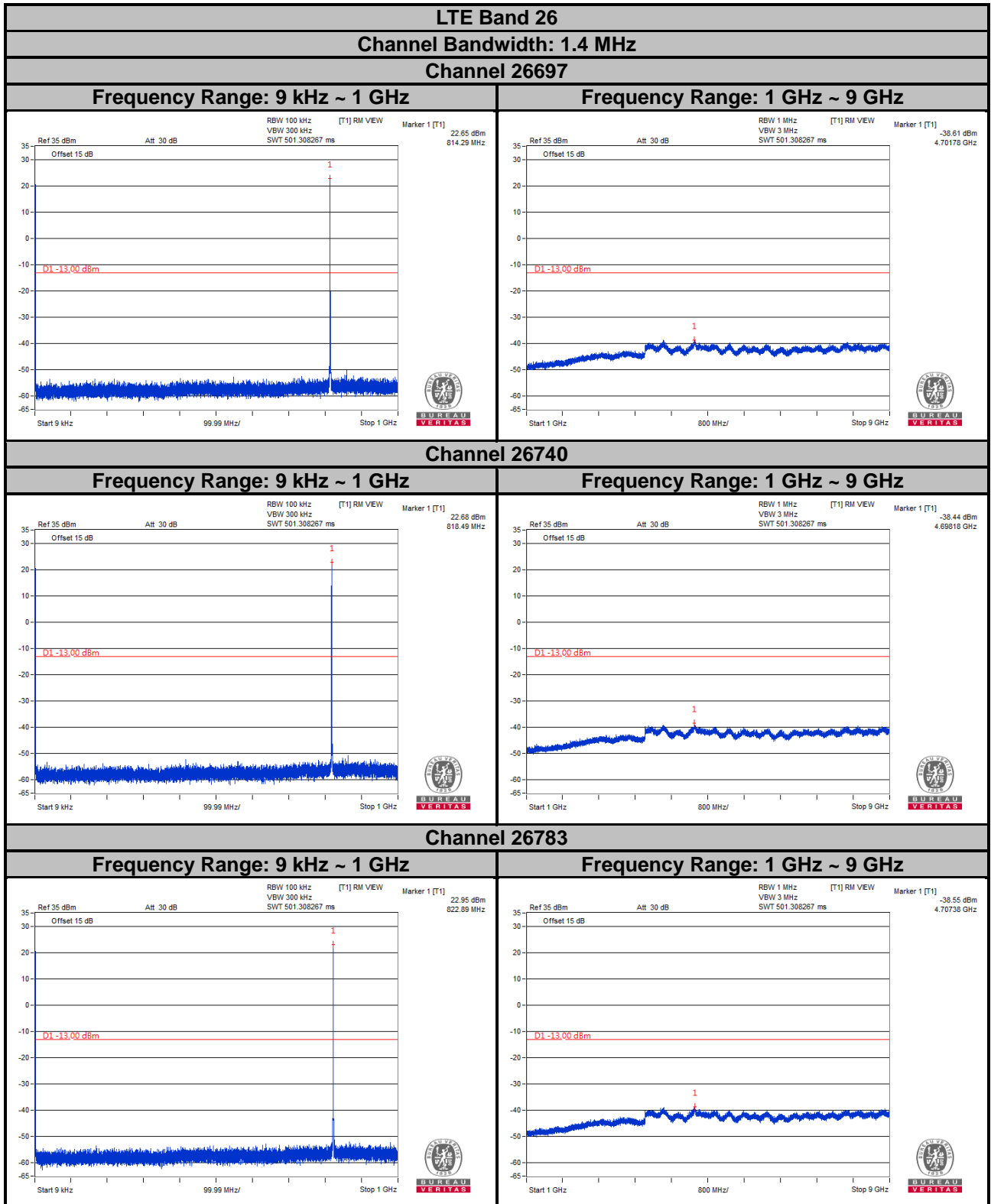
4.6.2 Test Setup



4.6.3 Test Procedure

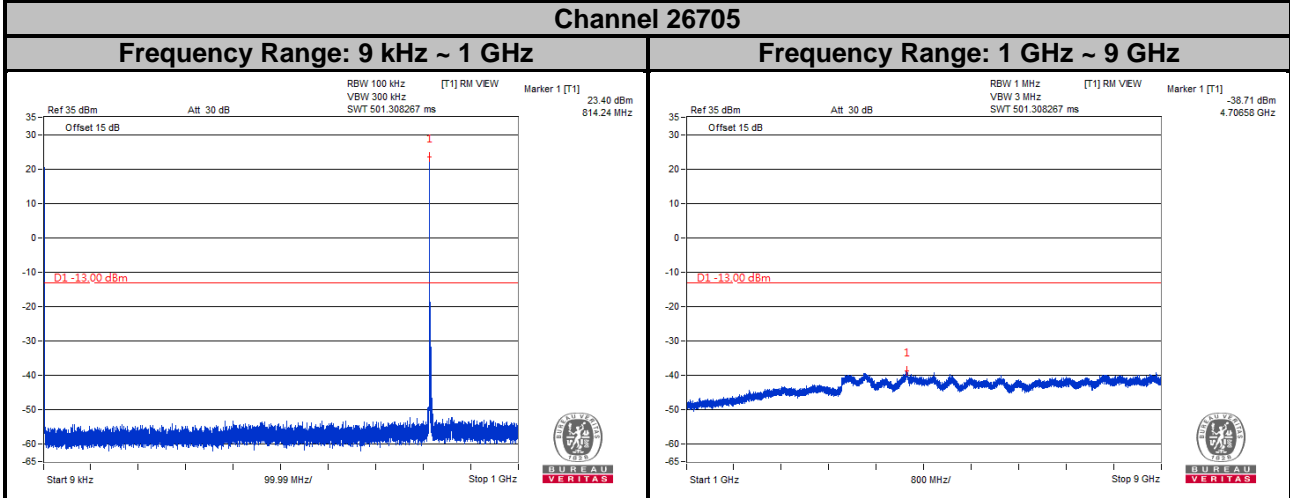
- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 100 kHz and VBW = 300 kHz are used for conducted emission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

4.6.4 Test Results

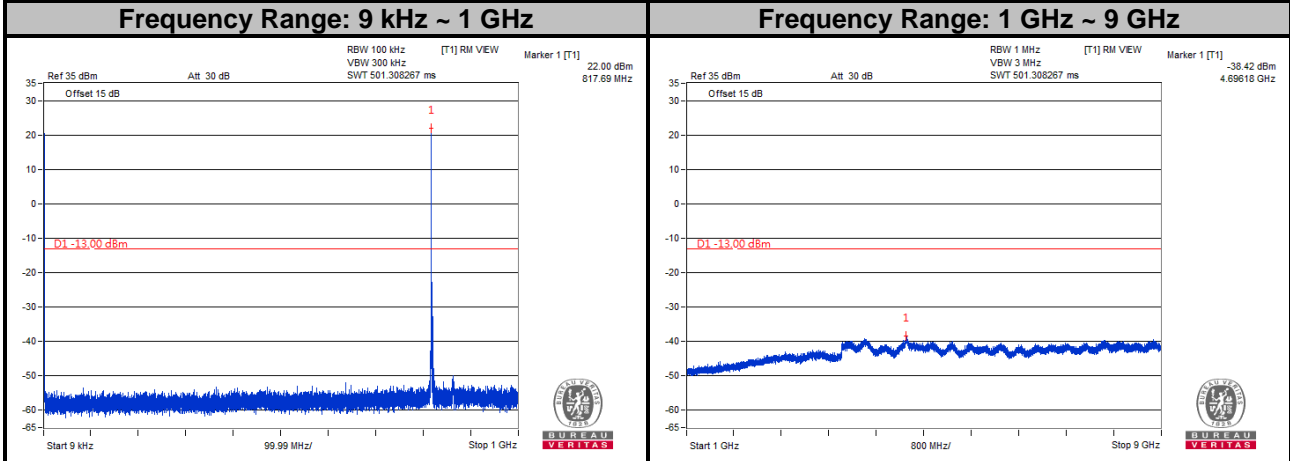


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

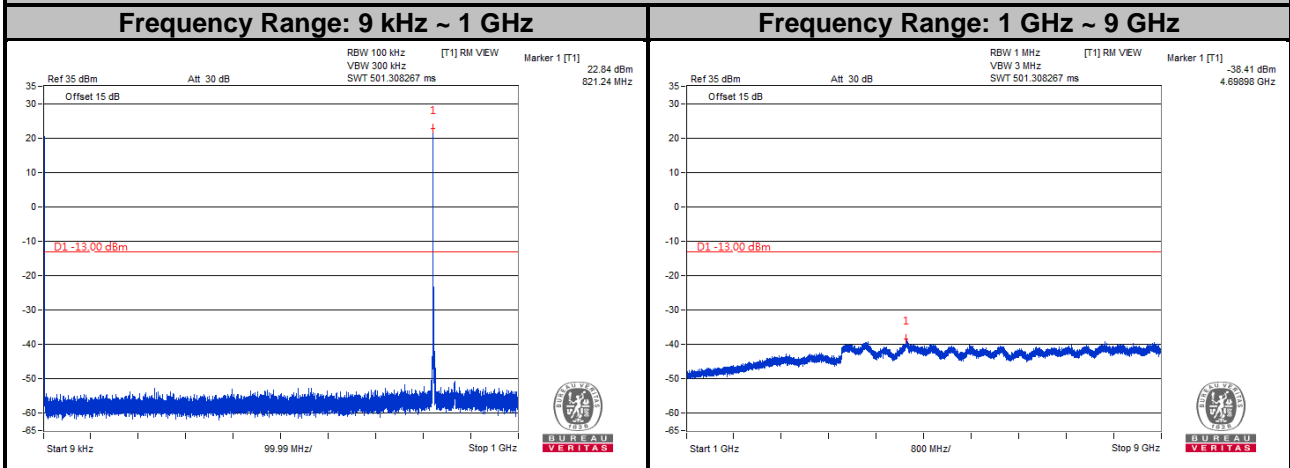
LTE Band 26
Channel Bandwidth: 3 MHz
Channel 26705



Channel 26740



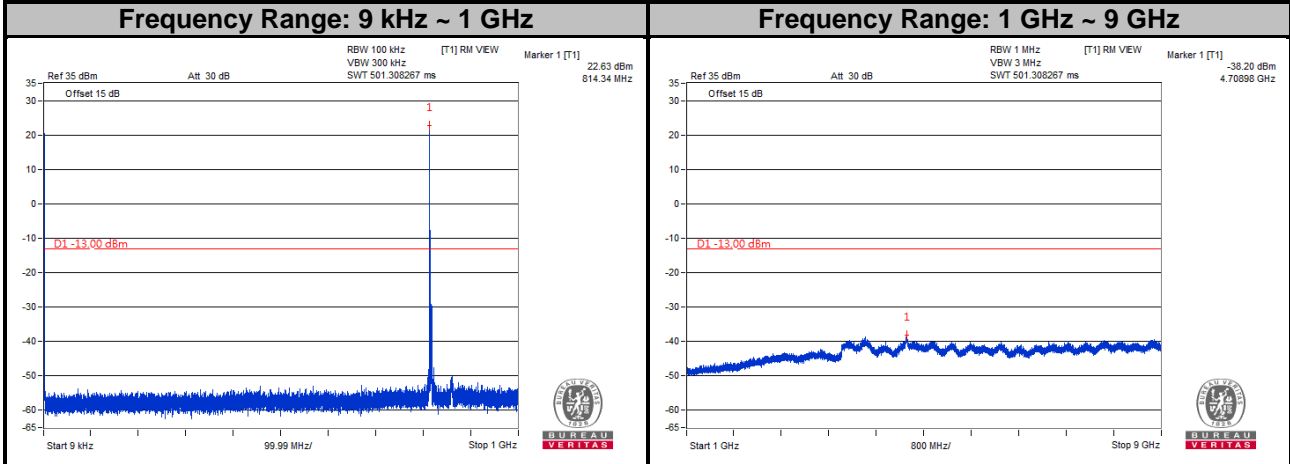
Channel 26775



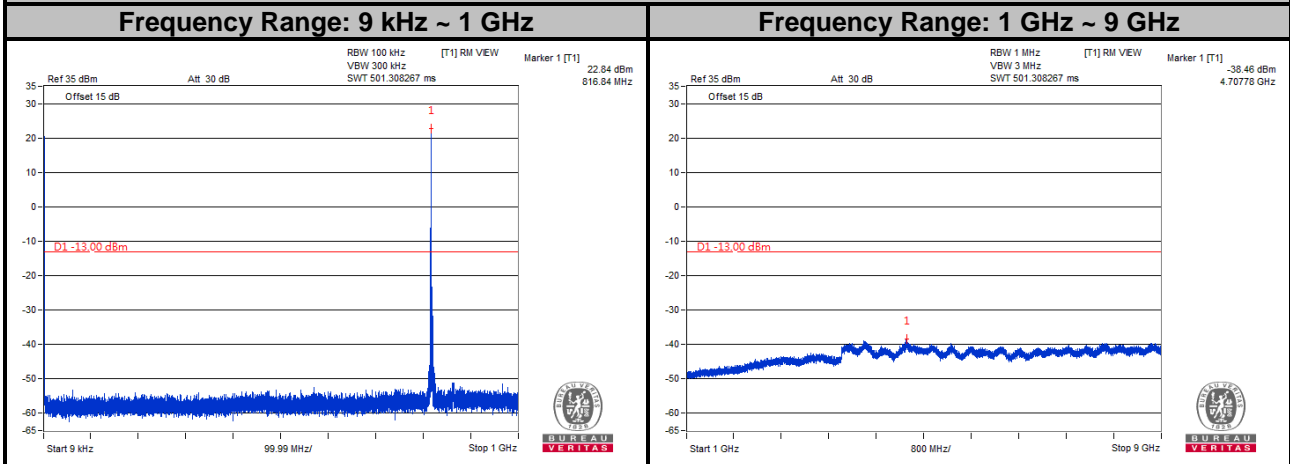
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 26
Channel Bandwidth: 5 MHz

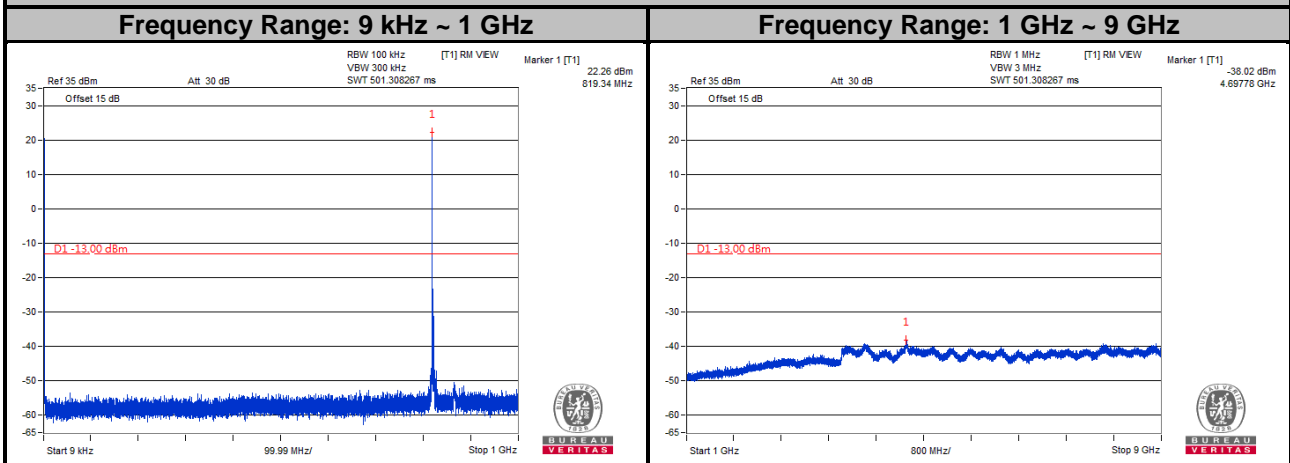
Channel 26715



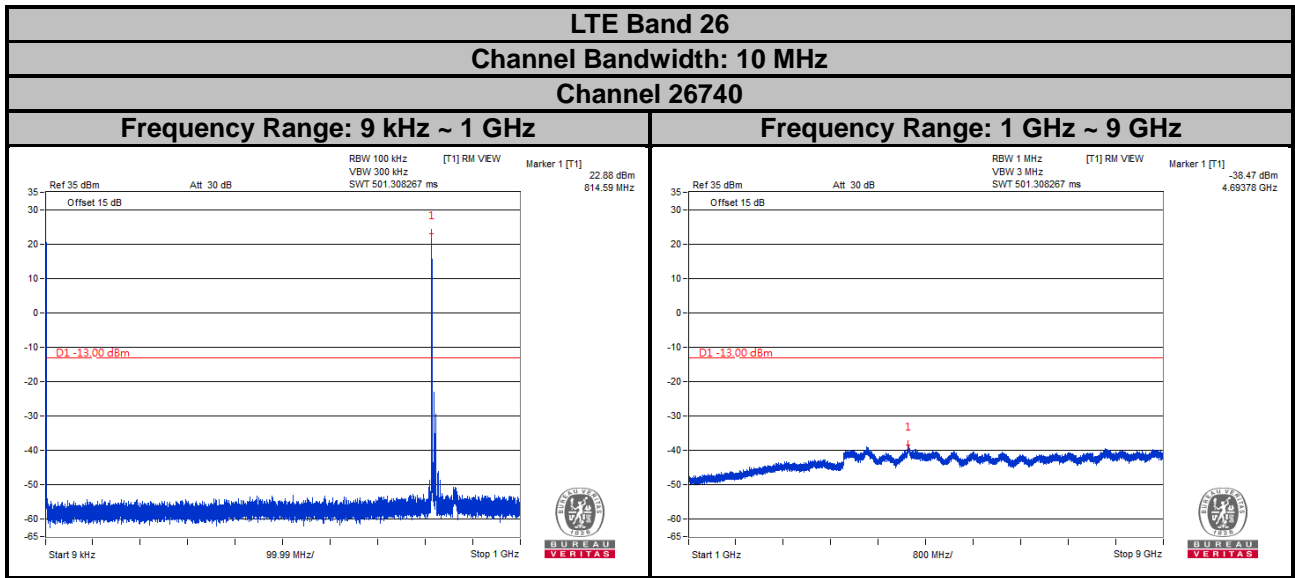
Channel 26740



Channel 26765



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.

4.7 Radiated Emission Measurement

4.7.1 Limits of Radiated Emission Measurement

(1) 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 Procedure

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

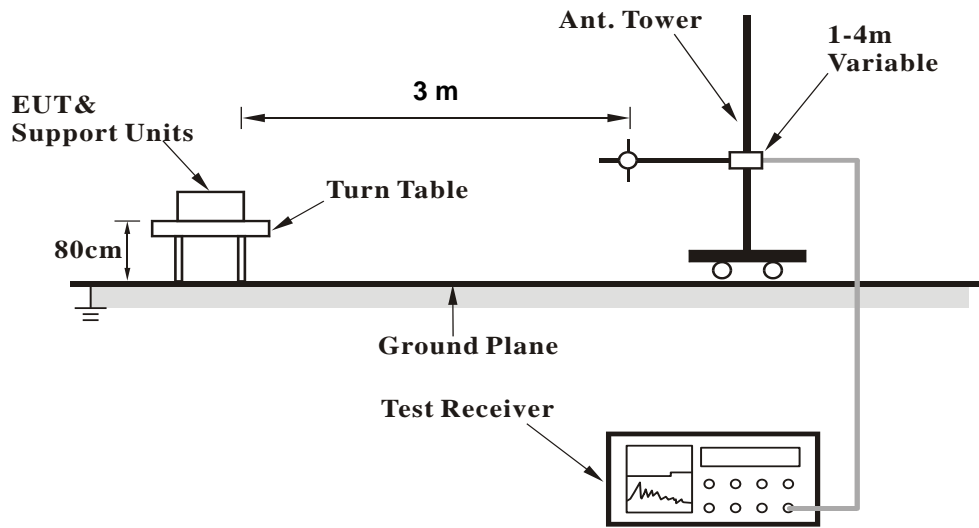
Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.7.3 Deviation from Test Standard

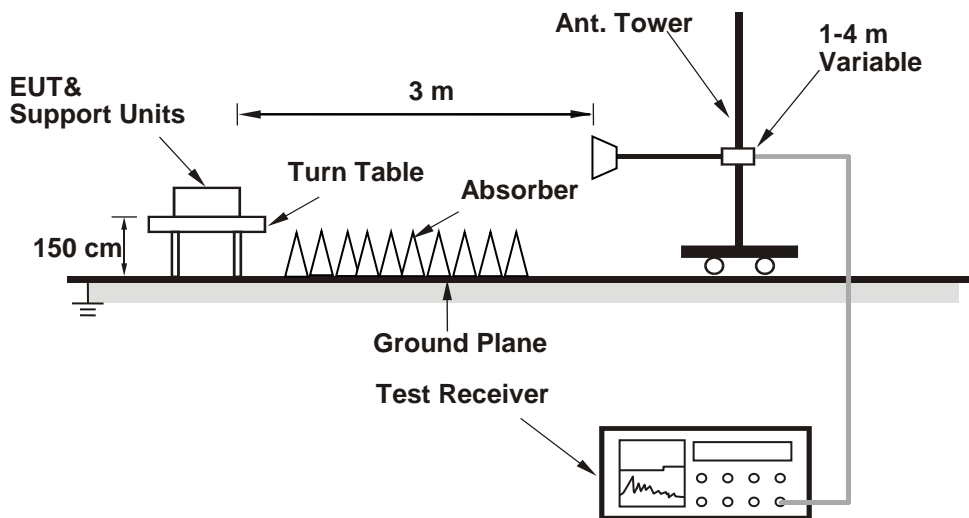
No deviation.

4.7.4 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).

4.7.5 Test Results

LTE Band 26
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

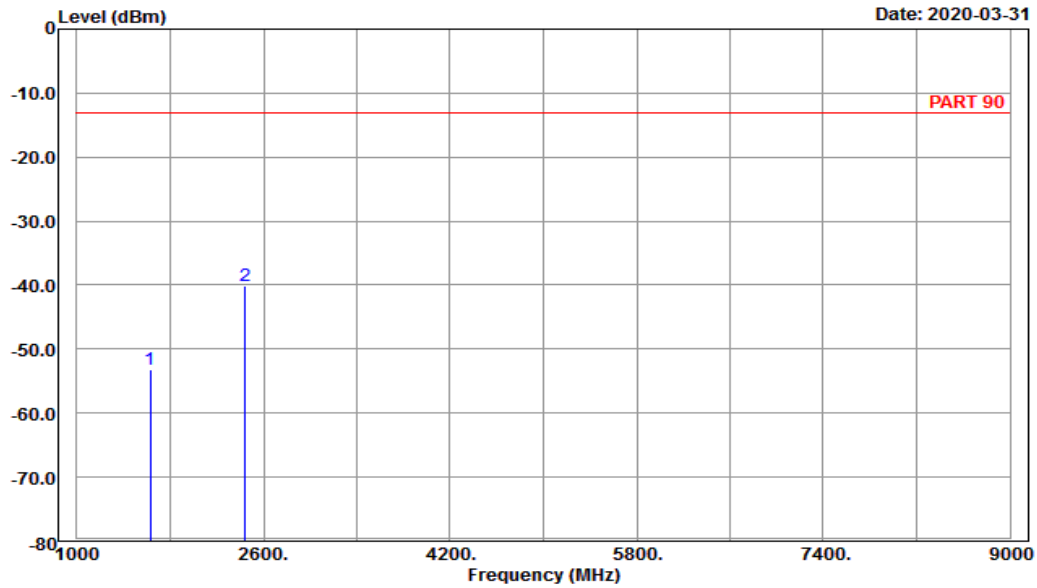


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 2020-03-31



Site : 966 chamber 1
Condition: PART 90 Horizontal
Remark : LTE_Band 26_Link_L-Ch
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1629.40	-53.22	-60.78	7.56	-13.00	-40.22	Peak
2 pp	2444.10	-40.12	-51.12	11.00	-13.00	-27.12	Peak

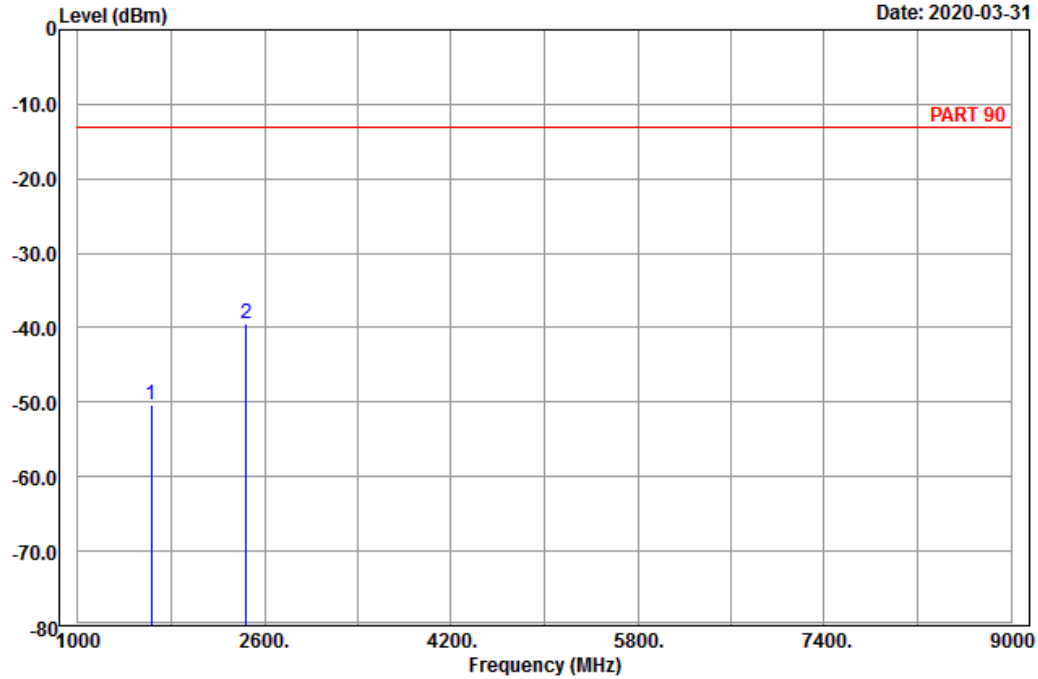


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A D T

Data: 4

Date: 2020-03-31



Site : 966 chamber 1
 Condition: PART 90 Vertical
 Remark : LTE_Band 26_Link_L-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1629.40	-50.39	-57.95	7.56	-13.00	-37.39	Peak
2 pp	2444.10	-39.53	-50.53	11.00	-13.00	-26.53	Peak

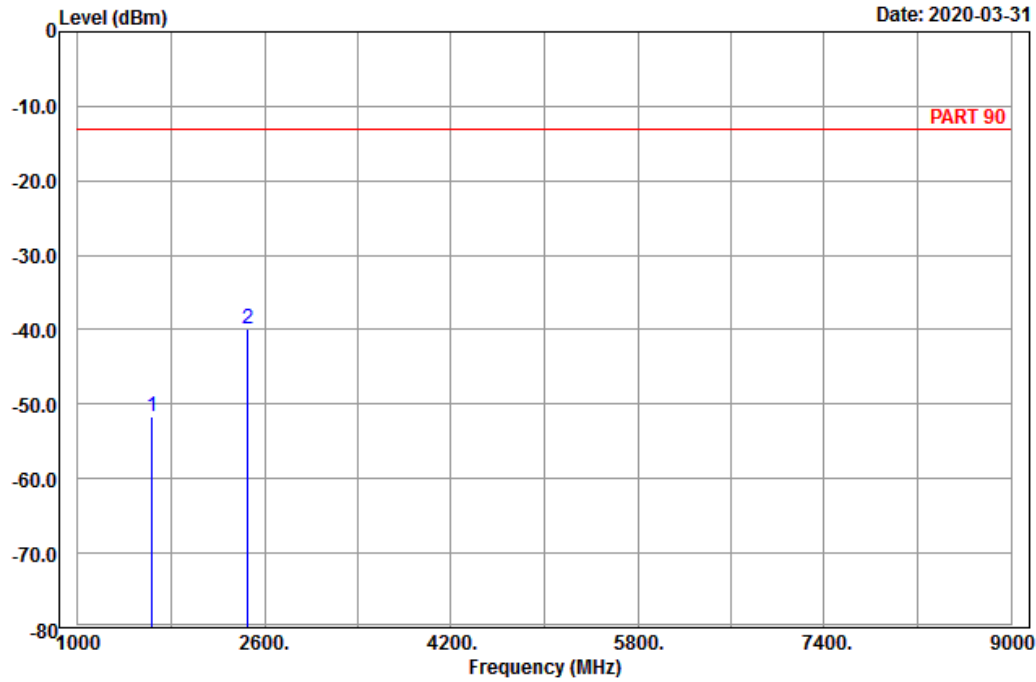
Middle Channel



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A D T

Data: 3



Site : 966 chamber 1
 Condition: PART 90 Horizontal
 Remark : LTE_Band 26_Link_M-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1638.00	-51.69	-59.25	7.56	-13.00	-38.69	Peak
2	2457.00	-39.79	-50.81	11.02	-13.00	-26.79	Peak

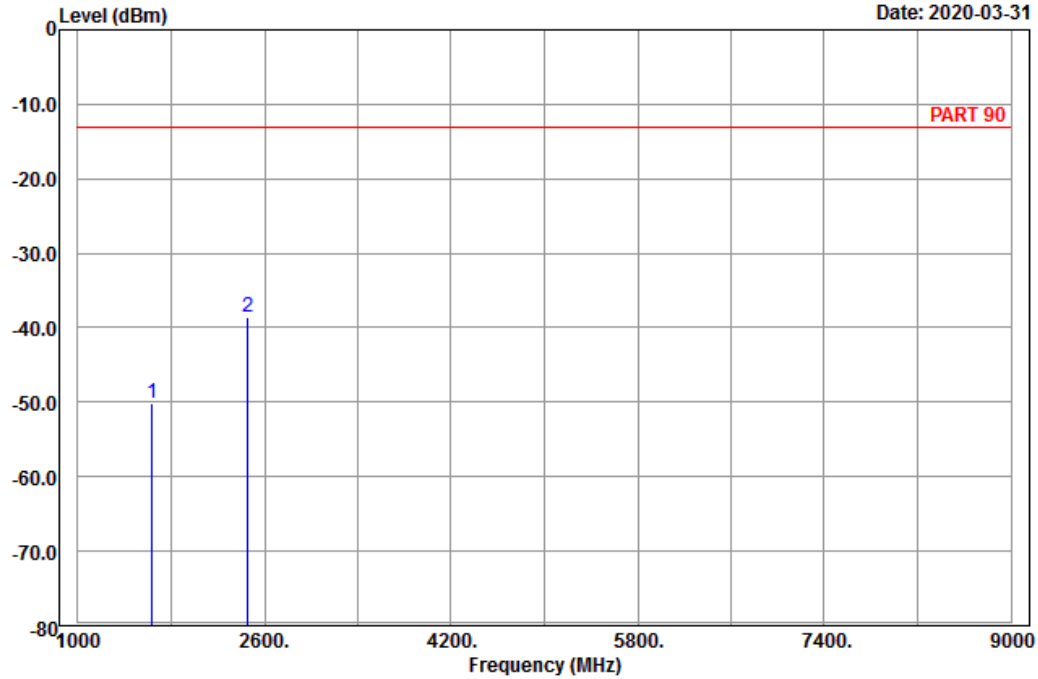


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 2020-03-31



Site : 966 chamber 1
 Condition: PART 90 Vertical
 Remark : LTE_Band 26_Link_M-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1638.00	-50.14	-57.70	7.56	-13.00	-37.14	Peak
2 pp	2457.00	-38.51	-49.53	11.02	-13.00	-25.51	Peak

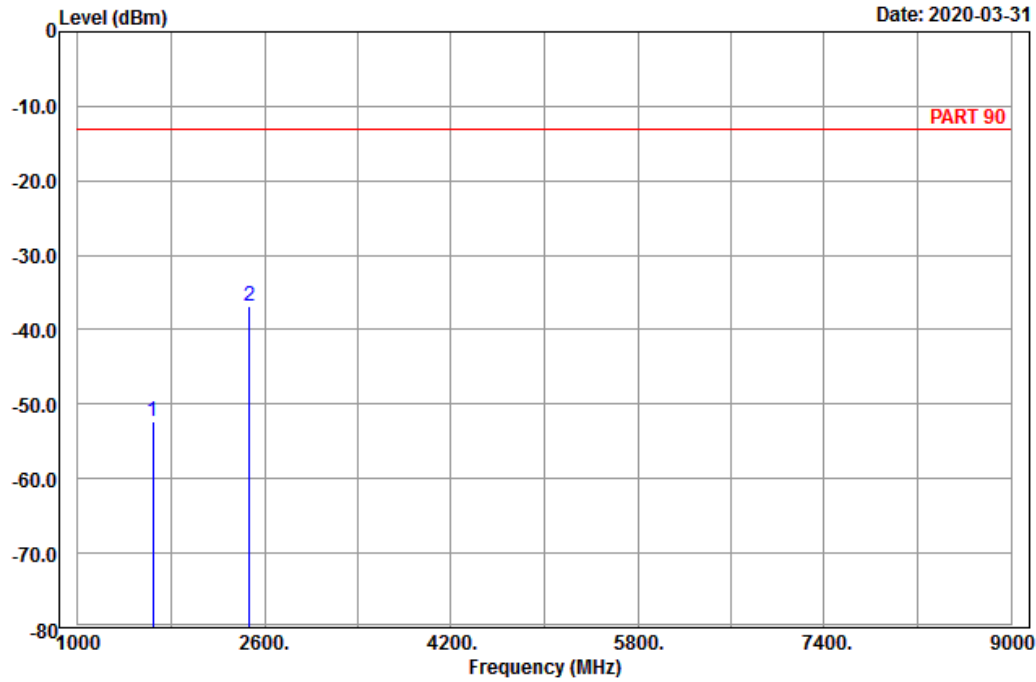
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 chamber 1
 Condition: PART 90 Horizontal
 Remark : LTE_Band 26_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1646.60	-52.33	-60.06	7.73	-13.00	-39.33	Peak
2 pp	2469.90	-36.85	-47.88	11.03	-13.00	-23.85	Peak

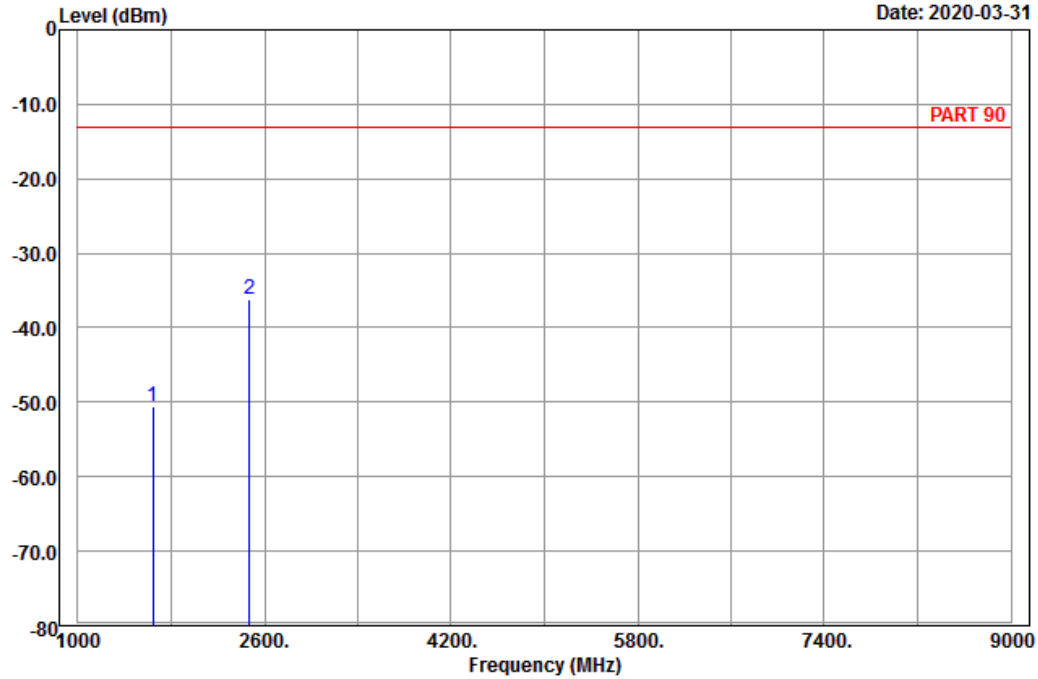


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 2020-03-31



Site : 966 chamber 1
 Condition: PART 90 Vertical
 Remark : LTE_Band 26_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1646.60	-50.62	-58.35	7.73	-13.00	-37.62	Peak
2 pp	2469.90	-36.18	-47.21	11.03	-13.00	-23.18	Peak

Channel Bandwidth: 5 MHz / QPSK
 Low Channel

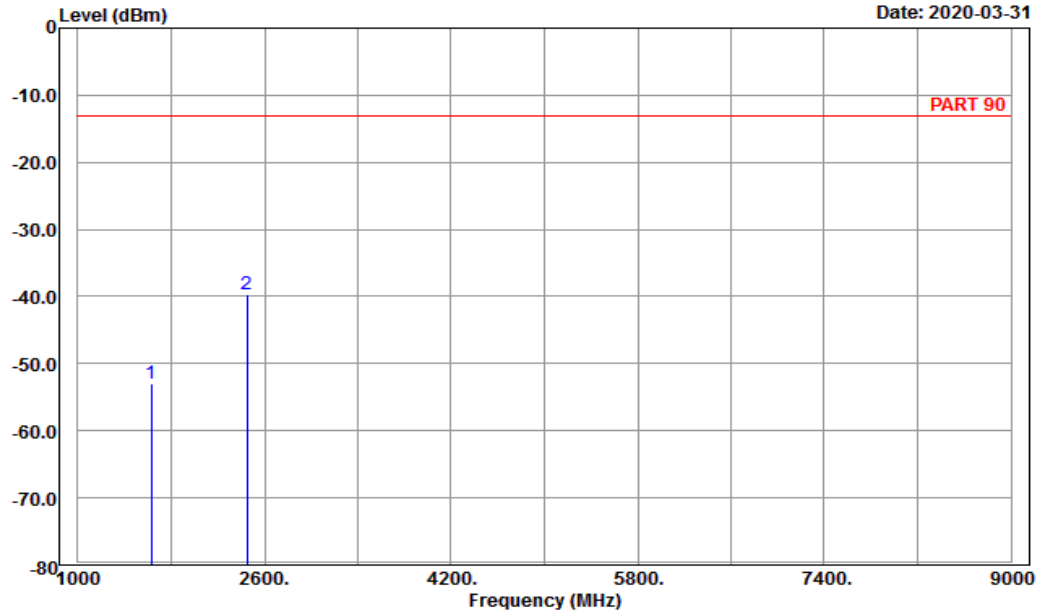


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3

Date: 2020-03-31



Site : 966 chamber 1
 Condition: PART 90 Horizontal
 Remark : LTE_Band 26_Link_L-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1633.00	-52.88	-60.44	7.56	-13.00	-39.88	Peak
2 pp	2449.50	-39.74	-50.76	11.02	-13.00	-26.74	Peak

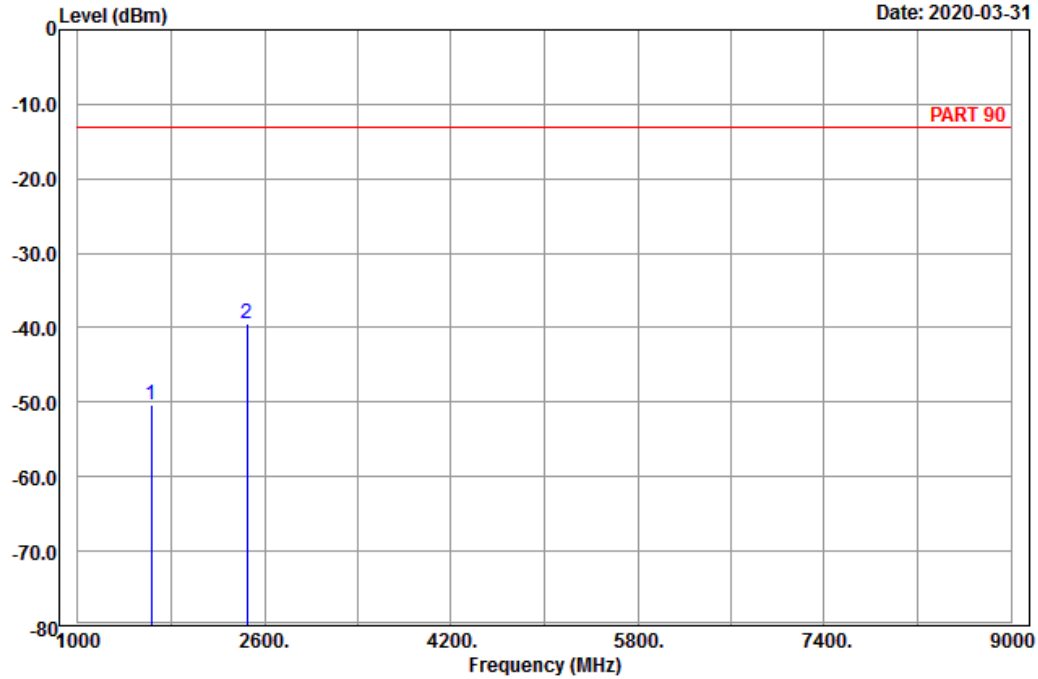


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 2020-03-31



Site : 966 chamber 1
 Condition: PART 90 Vertical
 Remark : LTE_Band 26_Link_L-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1633.00	-50.38	-57.94	7.56	-13.00	-37.38	Peak
2 pp	2449.50	-39.49	-50.51	11.02	-13.00	-26.49	Peak

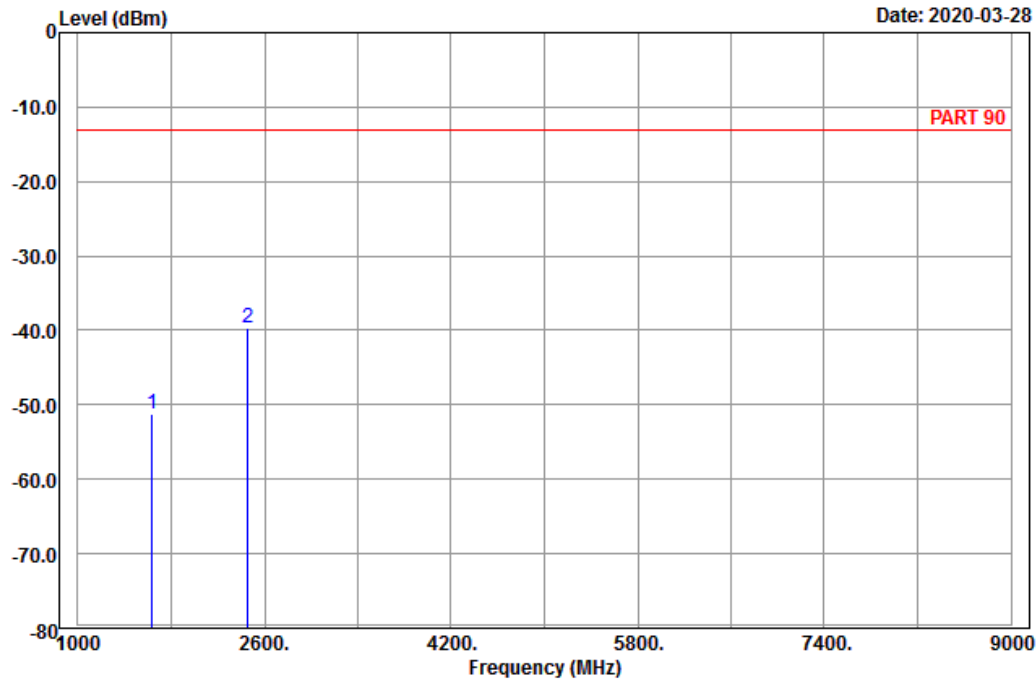
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 chamber 1
 Condition: PART 90 Horizontal
 Remark : LTE_Band 26_Link_M-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1638.00	-51.26	-58.82	7.56	-13.00	-38.26	Peak
2 pp	2457.00	-39.68	-50.70	11.02	-13.00	-26.68	Peak

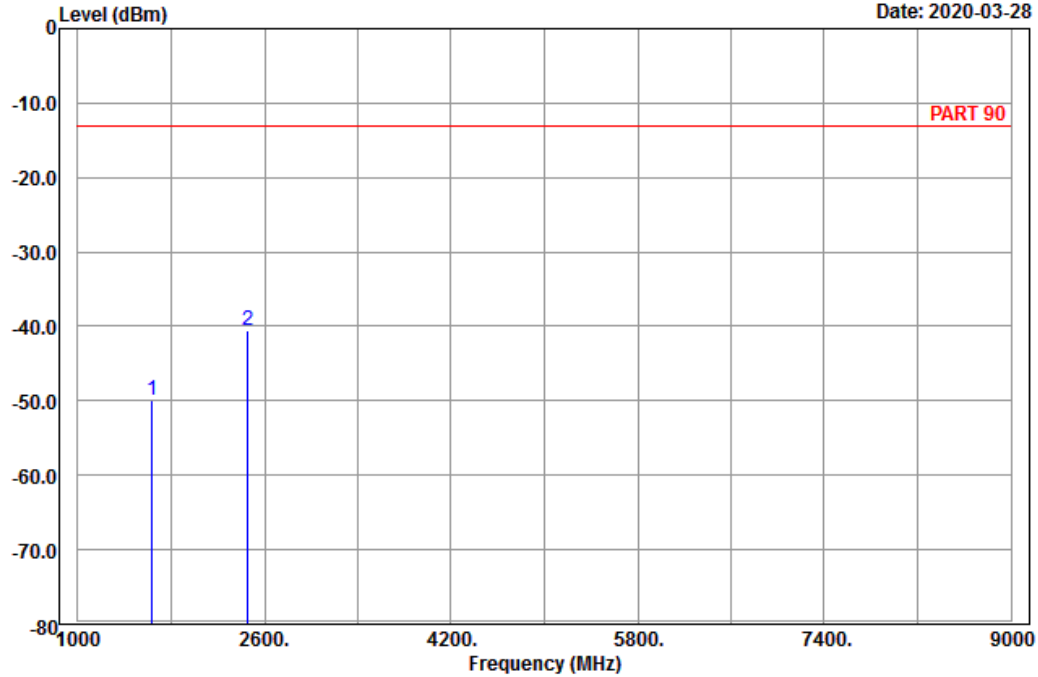


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 2020-03-28



Site : 966 chamber 1
 Condition: PART 90 Vertical
 Remark : LTE_Band 26_Link_M-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1638.00	-49.88	-57.44	7.56	-13.00	-36.88	Peak
2 pp	2457.00	-40.44	-51.46	11.02	-13.00	-27.44	Peak

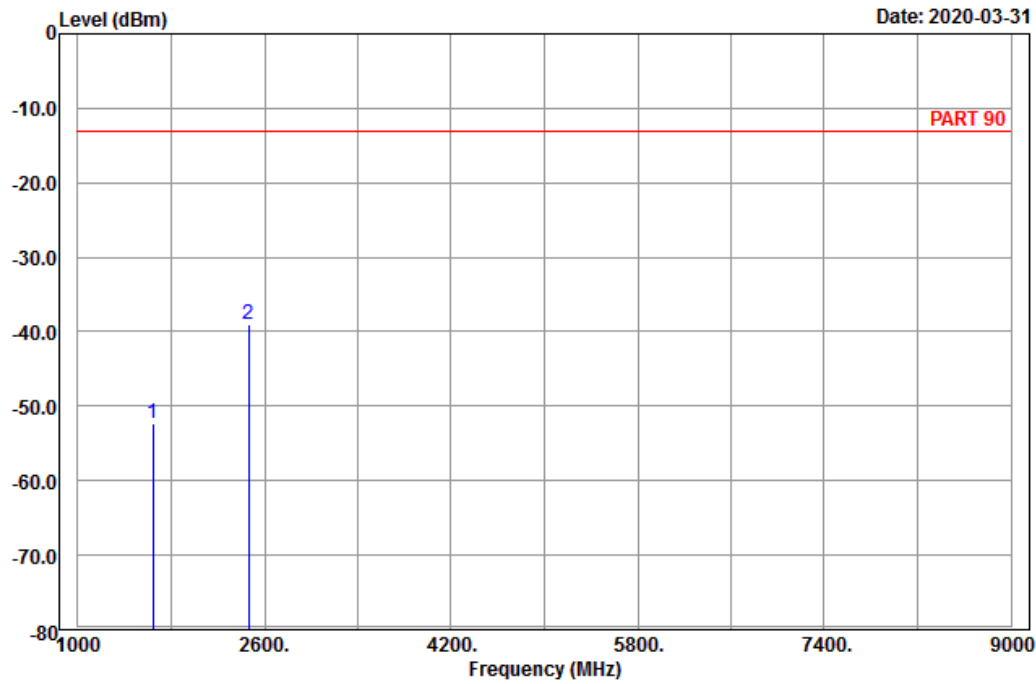
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 3



Site : 966 chamber 1
 Condition: PART 90 Horizontal
 Remark : LTE_Band 26_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1643.00	-52.23	-59.96	7.73	-13.00	-39.23	Peak
2	2464.50	-39.01	-50.03	11.02	-13.00	-26.01	Peak

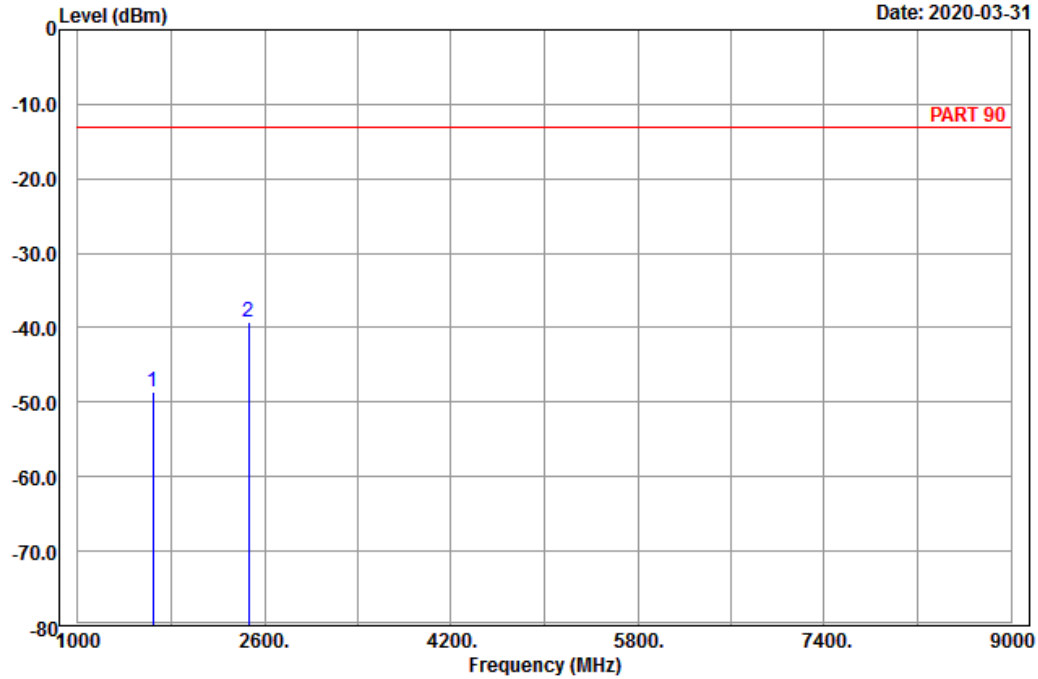


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 4

Date: 2020-03-31



Site : 966 chamber 1
 Condition: PART 90 Vertical
 Remark : LTE_Band 26_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1643.00	-48.62	-56.35	7.73	-13.00	-35.62	Peak
2 pp	2464.50	-39.23	-50.25	11.02	-13.00	-26.23	Peak

Channel Bandwidth: 10 MHz / QPSK
Middle Channel

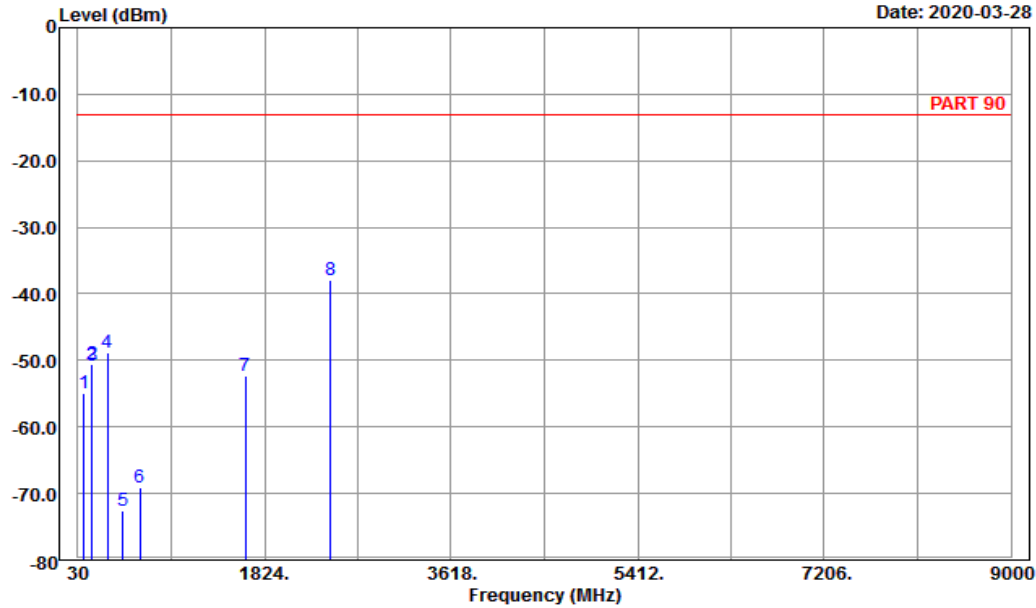


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2020-03-28



Site : 966 chamber 1
Condition: PART 90 Horizontal
Remark : LTE_Band 26_Link_M-Ch
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Remark
			dBm	dB	dBm	dB
1	92.37	-54.97	-44.41	-10.56	-13.00	-41.97 Peak
2	166.08	-50.67	-43.58	-7.09	-13.00	-37.67 Peak
3	170.13	-50.69	-43.98	-6.71	-13.00	-37.69 Peak
4	318.20	-48.85	-43.10	-5.75	-13.00	-35.85 Peak
5	464.50	-72.53	-68.27	-4.26	-13.00	-59.53 Peak
6	628.30	-69.03	-69.14	0.11	-13.00	-56.03 Peak
7	1638.00	-52.22	-59.78	7.56	-13.00	-39.22 Peak
8 pp	2457.00	-37.84	-48.86	11.02	-13.00	-24.84 Peak

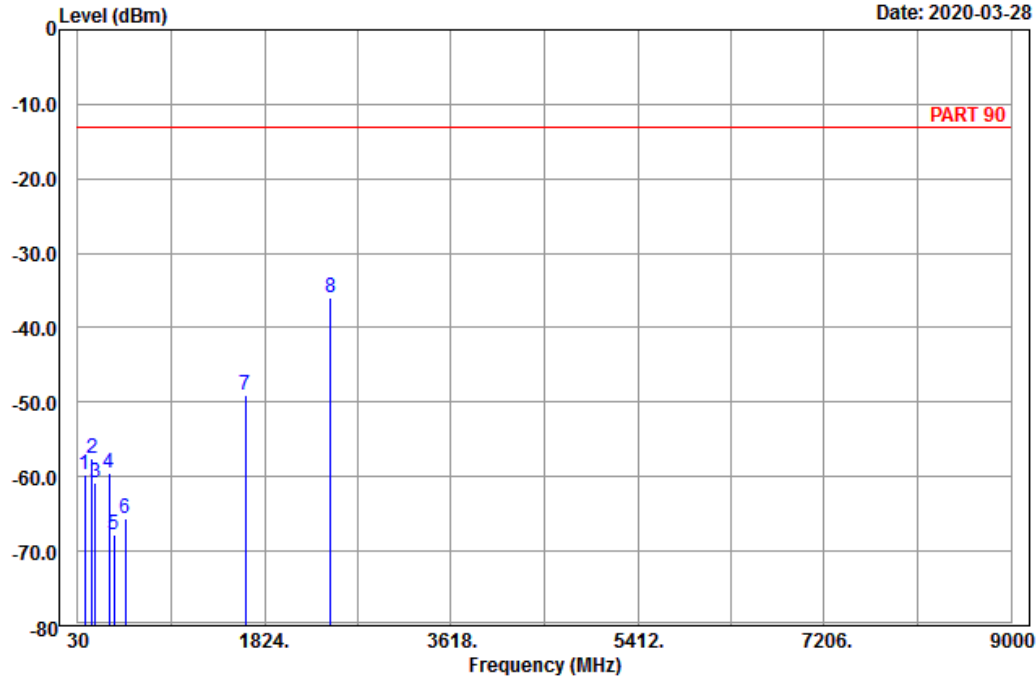


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2020-03-28



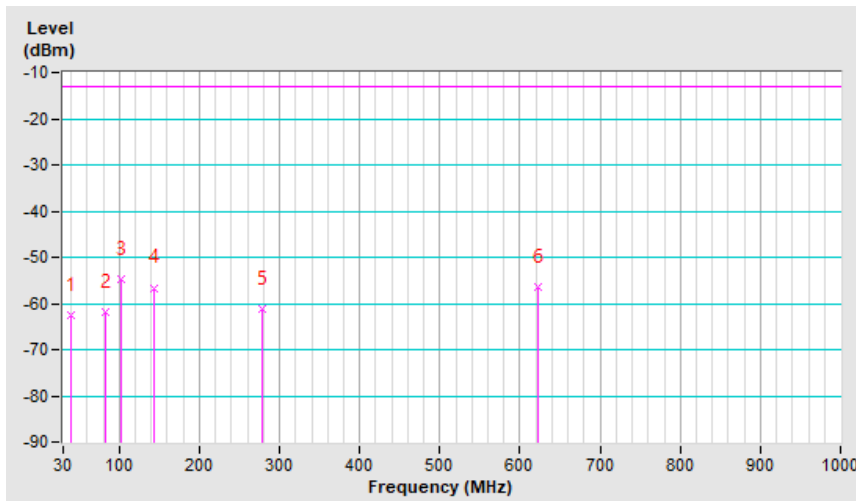
Site : 966 chamber 1
 Condition: PART 90 Vertical
 Remark : LTE_Band 26_Link_M-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	97.77	-59.82	-49.59	-10.23	-13.00	-46.82	Peak
2	170.13	-57.44	-50.73	-6.71	-13.00	-44.44	Peak
3	197.94	-60.79	-54.70	-6.09	-13.00	-47.79	Peak
4	328.70	-59.46	-53.84	-5.62	-13.00	-46.46	Peak
5	380.50	-67.85	-64.08	-3.77	-13.00	-54.85	Peak
6	484.10	-65.66	-60.85	-4.81	-13.00	-52.66	Peak
7	1638.00	-48.97	-56.53	7.56	-13.00	-35.97	Peak
8 pp	2457.00	-35.97	-46.99	11.02	-13.00	-22.97	Peak

For Docking Mode

Mode	TX channel 26740 (819.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

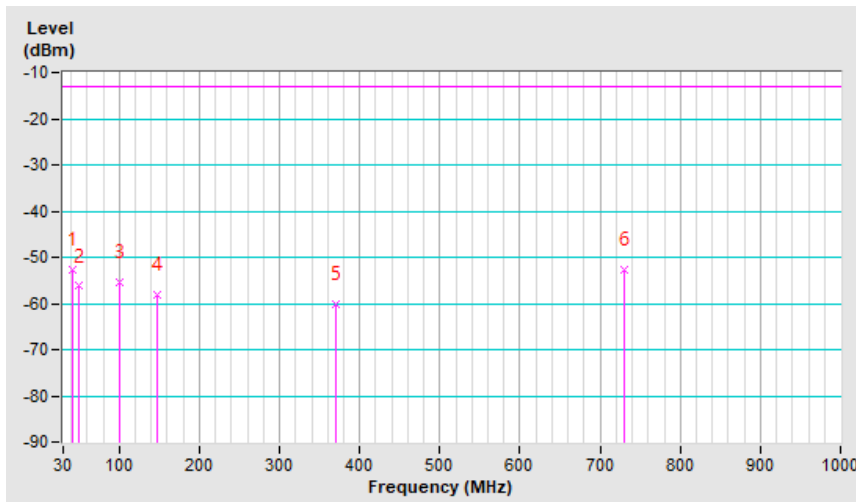
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	39.84	-62.40	-51.70	-10.90	-62.60	-13.00	-49.60
2	83.42	-53.50	-61.30	-0.70	-62.00	-13.00	-49.00
3	101.70	-43.80	-55.50	0.80	-54.70	-13.00	-41.70
4	143.87	-49.40	-56.30	-0.30	-56.60	-13.00	-43.60
5	277.42	-55.00	-66.50	5.30	-61.20	-13.00	-48.20
6	621.84	-56.60	-61.10	4.60	-56.50	-13.00	-43.50



Mode	TX channel 26740 (819.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	41.25	-41.50	-41.90	-10.70	-52.60	-13.00	-39.60
2	49.68	-46.90	-47.00	-9.30	-56.30	-13.00	-43.30
3	100.29	-46.00	-56.40	0.90	-55.50	-13.00	-42.50
4	146.68	-53.40	-57.90	-0.20	-58.10	-13.00	-45.10
5	370.20	-57.80	-65.50	5.20	-60.30	-13.00	-47.30
6	730.09	-57.20	-57.50	4.90	-52.60	-13.00	-39.60



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

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Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---