

FCC Test Report

(PART 27)

Report No.: RF190326C28-2

FCC ID: B94HNC04PD

Test Model: HSN-C04C

Received Date: Mar. 26, 2019

Test Date: Apr. 21, 2019 ~ Apr. 26, 2019

Issued Date: May 07, 2019

Applicant: HP Inc.

Address: 3390 East Harmony Road, Fort Collins Colorado, 80528 United States

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

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(R.O.C)

Test Location: No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City
33383, Taiwan (R.O.C)

FCC Registration /
Designation Number: 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RF190326C28-2	Original Release	May 07, 2019

1 Certificate of Conformity

Product: Tablet

Brand: HP

Test Model: HSN-C04C

Sample Status: Engineering Sample

Applicant: HP Inc.

Test Date: Apr. 21, 2019 ~ Apr. 26, 2019

Standards: FCC Part 27, Subpart C, M

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 : Rona Chen, **Date:** May 07, 2019
Rona Chen / Specialist

Approved by : Dylan Chiou, **Date:** May 07, 2019
Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(h)(2)	Equivalent Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049 27.53(m)(6)	Occupied Bandwidth	N/A	Refer to Note
--	Peak to Average Ratio	N/A	Refer to Note
2.1051 27.53(m)(4)(6)	Out-of-Band Emissions Measurements	N/A	Refer to Note
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -13.00 dB at 30.00 MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RF170106C02-2 for module (Brand: Fibocom, Model: L850-GL)
2. 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	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 18, 2019	Mar. 17, 2020
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 13, 2018	Dec. 12, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	100115	Jan. 21, 2019	Jan. 20, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSW26	102023	Oct. 11, 2018	Oct. 10, 2019
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Nov. 23, 2018	Nov. 22, 2019
Double Ridge Guide Horn Antenna EMCO	3115	5619	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Nov. 23, 2018	Nov. 22, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 19, 2018	Nov. 18, 2019
Preamplifier EMCI	EMC 012645	980115	Oct. 12, 2018	Oct. 11, 2019
Preamplifier EMCI	EMC 330H	980112	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-800 0&3000	140811+170717	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1 000(140807)	Oct. 12, 2018	Oct. 11, 2019
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 12, 2018	Oct. 11, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Communications Tester-Wireless Agilent	8960 Series 10	MY53201073	Jun. 28, 2017	Jun. 27, 2019
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 16, 2017	Aug. 15, 2019
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 05, 2018	Sep. 04, 2019
DC Power Supply Topward	33010D	807748	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The IC Site Registration No. is 7450F-10.

3 General Information

3.1 General Description of EUT

Product	Tablet	
Brand	HP	
Test Model	HSN-C04C	
Status of EUT	Engineering Sample	
Power Supply Rating	7.7 Vdc (Li-ion battery) 20 Vdc (Adapter)	
Modulation Type	QPSK, 16QAM	
Frequency Range	LTE Band 7 (Channel Bandwidth: 5 MHz)	2502.5 ~ 2567.5 MHz
	LTE Band 7 (Channel Bandwidth: 10 MHz)	2505 ~ 2565 MHz
	LTE Band 7 (Channel Bandwidth: 15 MHz)	2507.5 ~ 2562.5 MHz
	LTE Band 7 (Channel Bandwidth: 20 MHz)	2510 ~ 2560 MHz
	LTE Band 38 (Channel Bandwidth: 5 MHz)	2572.5 ~ 2617.5 MHz
	LTE Band 38 (Channel Bandwidth: 10 MHz)	2575.0 ~ 2615.0 MHz
	LTE Band 38 (Channel Bandwidth: 15 MHz)	2577.5 ~ 2612.5 MHz
	LTE Band 38 (Channel Bandwidth: 20 MHz)	2580.0 ~ 2610.0 MHz
	LTE Band 41 (Channel Bandwidth: 5 MHz)	2498.5 ~ 2687.5 MHz
	LTE Band 41 (Channel Bandwidth: 10 MHz)	2501.0 ~ 2685.0 MHz
	LTE Band 41 (Channel Bandwidth: 15 MHz)	2503.5 ~ 2682.5 MHz
	LTE Band 41 (Channel Bandwidth: 20 MHz)	2506.0 ~ 2680.0 MHz
Max. EIRP Power	LTE Band 7 (Channel Bandwidth: 5 MHz)	64.86 mW
	LTE Band 7 (Channel Bandwidth: 10 MHz)	68.55 mW
	LTE Band 7 (Channel Bandwidth: 15 MHz)	72.78 mW
	LTE Band 7 (Channel Bandwidth: 20 MHz)	76.91 mW
	LTE Band 38 (Channel Bandwidth: 5 MHz)	100.93 mW
	LTE Band 38 (Channel Bandwidth: 10 MHz)	106.41 mW
	LTE Band 38 (Channel Bandwidth: 15 MHz)	112.98 mW
	LTE Band 38 (Channel Bandwidth: 20 MHz)	119.67 mW
	LTE Band 41 (Channel Bandwidth: 5 MHz)	75.68 mW
	LTE Band 41 (Channel Bandwidth: 10 MHz)	80.35 mW
	LTE Band 41 (Channel Bandwidth: 15 MHz)	84.92 mW
	LTE Band 41 (Channel Bandwidth: 20 MHz)	89.54 mW
Antenna Type	PIFA Antenna	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

1. The WWAN module (Brand: Fibocom, Model: L850-GL) was installed in EUT.

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	AcBel	TPN-AA03	I/P: 100-240 Vac, 50-60 Hz, 1500 mA O/P: 20 Vdc, 3.25 A
Battery	Dynapack	HSTNN-DB9E	7.7 Vdc, 5950 mAh
Keyboard 1	Primax	HSN-P01K	--
Keyboard 2	Cosmo	HSN-C01K	--
BT/WLAN Module	Intel® Wi-Fi 6 AX200	AX200D2WL	--
LTE Module	Fibocom	L850-GL	--

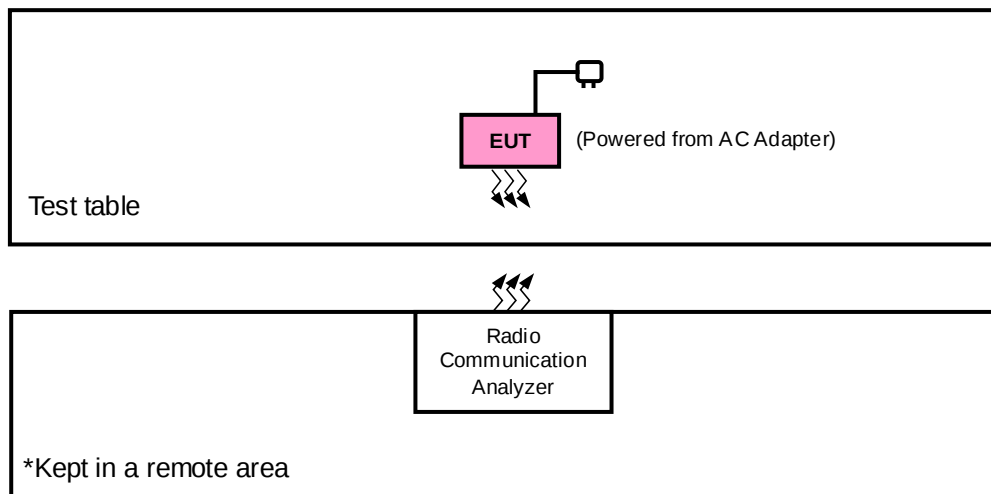
3. The antenna information of EUT is listed as below.

Ant. Type	Manufacturer	Parts Number	WWAN Antenna Gain (dBi)		
			LTE 7	LTE 38	LTE 41
PIFA	INPAQ	Main Antenna: WA-P-LTE15-02-001 (DC330029D20) Aux. Antenna: WA-P-LTE15-02-002 (DC330029D30)	0.33	-1.01	0.33

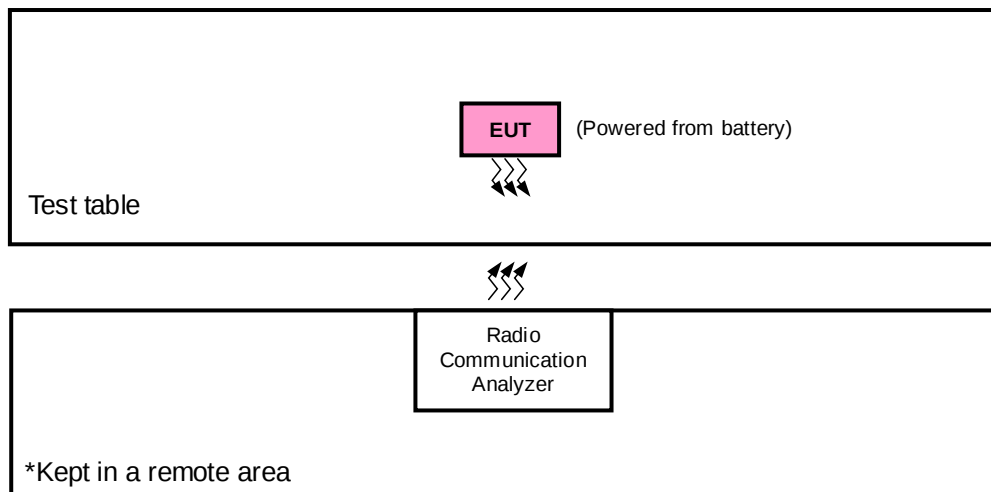
4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test>



<E.I.R.P. Test>



3.2.1 Description of Support Units

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

3.3 Test Mode Applicability and Tested Channel Detail

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

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

Band	EIRP	Radiated Emission
LTE Band 7	X-plane	NB Mode
LTE Band 38	X-plane	NB Mode
LTE Band 41	X-plane	NB Mode

LTE Band 7

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Radiated Emission	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	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 38

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Radiated Emission	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	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 41

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Radiated Emission	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK	1 RB / 0 RB Offset

Note:

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

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25 deg. C, 65 % RH	3.3 Vdc	Jisyong Wang
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz (System)	Jisyong Wang

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2 watts transmitter output power” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

4.1.2 Test Procedures

EIRP 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. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

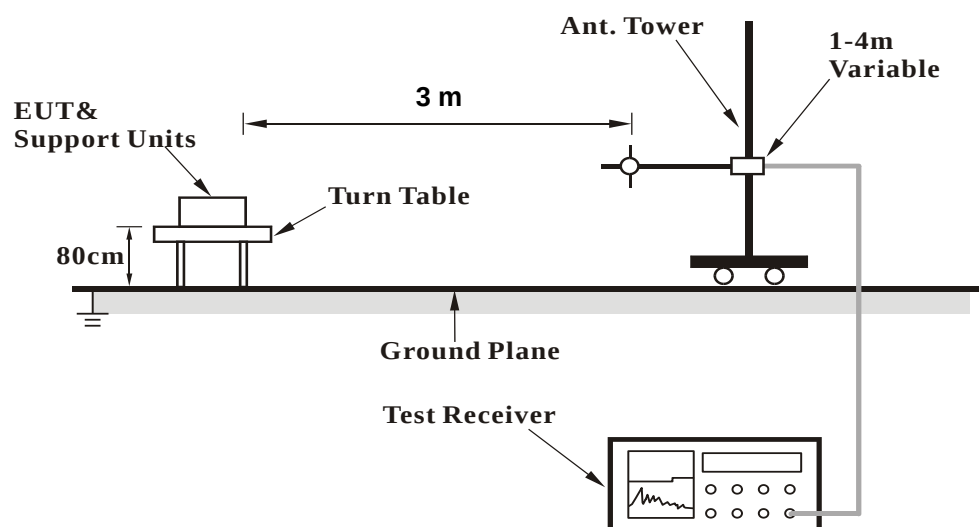
Conducted Power Measurement:

- 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.

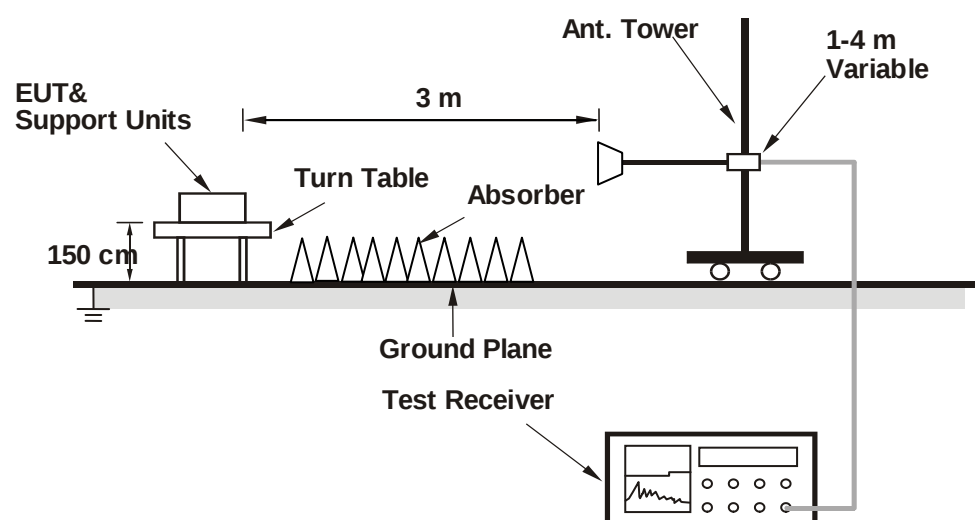
4.1.3 Test Setup

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>

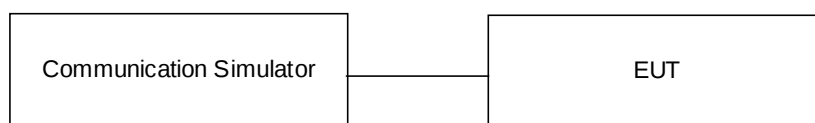


<Radiated Emission above 1 GHz>



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 7															
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		20850	21100	21350				Channel		20825	21100	21375	
		Frequency (MHz)		2510.0	2535.0	2560.0				Frequency (MHz)		2507.5	2535.0	2562.5	
20M	QPSK	1	0	22.86	22.83	22.74	0	15M	QPSK	1	0	22.82	22.75	22.70	0
		1	50	23.11	23.08	22.99	0			1	37	23.03	23.05	22.98	0
		1	99	23.36	23.33	23.24	0			1	74	23.35	23.23	23.17	0
		50	0	21.98	21.95	21.86	1			36	0	21.94	21.85	21.86	1
		50	25	22.17	22.14	22.05	1			36	19	22.09	22.14	22.02	1
		50	50	22.34	22.31	22.22	1			36	39	22.26	22.24	22.22	1
	100	0	22.20	22.17	22.08	1	75		0	22.14	22.12	22.06	1		
	16QAM	1	0	21.84	21.81	21.72	1		16QAM	1	0	21.78	21.73	21.63	1
		1	50	22.09	22.06	21.97	1			1	37	22.08	21.98	21.87	1
		1	99	22.34	22.31	22.22	1			1	74	22.32	22.22	22.18	1
		50	0	20.96	20.93	20.84	2			36	0	20.93	20.87	20.76	2
		50	25	21.15	21.12	21.03	2			36	19	21.06	21.02	20.97	2
50		50	21.32	21.29	21.20	2	36	39		21.24	21.20	21.19	2		
100	0	21.18	21.15	21.06	2	75	0	21.16	21.13	21.06	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		20800	21100	21400				Channel		20775	21100	21425	
		Frequency (MHz)		2505.0	2535.0	2565.0				Frequency (MHz)		2502.5	2535.0	2567.5	
10M	QPSK	1	0	22.70	22.60	22.67	0	5M	QPSK	1	0	22.68	22.73	22.52	0
		1	24	23.06	22.94	22.86	0			1	12	23.07	22.88	22.71	0
		1	49	23.25	23.17	23.11	0			1	24	23.23	23.27	23.16	0
		25	0	21.95	21.86	21.75	1			12	0	21.80	21.77	21.60	1
		25	12	21.97	21.92	21.86	1			12	6	22.03	22.03	21.79	1
		25	25	22.22	22.24	22.19	1			12	13	22.24	22.26	22.04	1
	50	0	22.08	22.01	22.03	1	25		0	22.04	22.10	21.85	1		
	16QAM	1	0	21.63	21.70	21.58	1		16QAM	1	0	21.63	21.66	21.53	1
		1	24	21.96	21.82	21.90	1			1	12	22.00	21.93	21.72	1
		1	49	22.28	22.27	22.05	1			1	24	22.24	22.22	22.14	1
		25	0	20.78	20.72	20.80	2			12	0	20.79	20.81	20.82	2
		25	12	20.94	21.01	20.79	2			12	6	20.94	21.04	20.86	2
25		25	21.12	21.14	21.09	2	12	13		21.16	21.13	21.03	2		
50	0	21.13	21.05	20.92	2	25	0	21.07	21.07	20.88	2				

LTE Band 38																
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		37850	38000	38150				Channel		37825	38000	38175		
		Frequency (MHz)		2580.0	2595.0	2610.0				Frequency (MHz)		2577.5	2595.0	2612.5		
20M	QPSK	1	0	22.95	22.82	22.81	0	15M	QPSK	1	0	22.85	22.80	22.74	0	
		1	50	22.90	22.77	22.76	0			1	37	22.89	22.70	22.73	0	
		1	99	22.88	22.75	22.74	0			1	74	22.79	22.65	22.66	0	
		50	0	21.88	21.75	21.74	1			36	0	21.85	21.69	21.71	1	
		50	25	21.86	21.73	21.72	1			36	19	21.80	21.67	21.62	1	
		50	50	21.85	21.72	21.71	1			36	39	21.81	21.66	21.62	1	
	16QAM	100	0	21.80	21.67	21.66	1		75	0	21.70	21.60	21.64	1		
		1	0	21.92	21.79	21.78	1		16QAM	1	0	21.82	21.69	21.71	1	
		1	50	21.87	21.74	21.73	1			1	37	21.87	21.74	21.68	1	
		1	99	21.85	21.72	21.71	1			1	74	21.76	21.63	21.61	1	
		50	0	20.85	20.72	20.71	2			36	0	20.77	20.62	20.61	2	
		50	25	20.83	20.70	20.69	2			36	19	20.83	20.62	20.64	2	
10M	QPSK	50	50	20.82	20.69	20.68	2	36		39	20.74	20.61	20.68	2		
		100	0	20.77	20.64	20.63	2	75	0	20.72	20.64	20.53	2			
		16QAM	1	0	22.84	22.67	22.65	0	5M	QPSK	1	0	22.72	22.67	22.53	0
			1	24	22.80	22.61	22.70	0			1	12	22.76	22.64	22.66	0
			1	49	22.73	22.71	22.68	0			1	24	22.76	22.62	22.55	0
			25	0	21.75	21.57	21.56	1			12	0	21.68	21.60	21.47	1
	25		12	21.72	21.59	21.51	1	12			6	21.74	21.67	21.58	1	
	25		25	21.80	21.61	21.61	1	12			13	21.62	21.64	21.39	1	
	16QAM	50	0	21.70	21.47	21.58	1	25		0	21.73	21.58	21.32	1		
		1	0	21.74	21.70	21.70	1	16QAM		1	0	21.83	21.61	21.68	1	
		1	24	21.84	21.50	21.63	1			1	12	21.79	21.61	21.66	1	
		1	49	21.73	21.64	21.56	1			1	24	21.69	21.60	21.61	1	
25		0	20.79	20.54	20.60	2	12			0	20.80	20.58	20.60	2		
25		12	20.74	20.67	20.60	2	12			6	20.72	20.68	20.52	2		
25	25	20.63	20.56	20.53	2	12	13		20.69	20.65	20.51	2				
50	0	20.68	20.61	20.60	2	25	0	20.61	20.46	20.45	2					

LTE Band 41																			
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)
		Channel		39750	40185	40620	41055	41490				Channel		39725	40173	40620	41068	41515	
		Frequency (MHz)		2506.0	2549.5	2593.0	2636.5	2680.0				Frequency (MHz)		2503.5	2548.3	2593.0	2637.8	2682.5	
20M	QPSK	1	0	22.78	22.85	22.89	22.86	22.71	0	15M	QPSK	1	0	22.73	22.80	22.79	22.78	22.62	0
		1	50	22.70	22.77	22.81	22.78	22.63	0			1	37	22.63	22.68	22.76	22.78	22.60	0
		1	99	22.68	22.75	22.79	22.76	22.61	0			1	74	22.61	22.74	22.70	22.68	22.54	0
		50	0	21.74	21.81	21.85	21.82	21.67	1			36	0	21.69	21.74	21.80	21.73	21.57	1
		50	25	21.72	21.79	21.83	21.80	21.65	1			36	19	21.64	21.72	21.82	21.73	21.56	1
		50	50	21.70	21.77	21.81	21.78	21.63	1			36	39	21.60	21.76	21.77	21.71	21.56	1
		100	0	21.71	21.78	21.82	21.79	21.64	1			75	0	21.64	21.78	21.76	21.78	21.58	1
	16QAM	1	0	21.76	21.83	21.87	21.84	21.69	1		16QAM	1	0	21.69	21.82	21.85	21.81	21.63	1
		1	50	21.68	21.75	21.79	21.76	21.61	1			1	37	21.70	21.69	21.81	21.76	21.57	1
		1	99	21.66	21.73	21.77	21.74	21.59	1			1	74	21.66	21.68	21.75	21.67	21.54	1
		50	0	20.72	20.79	20.83	20.80	20.65	2			36	0	20.71	20.73	20.82	20.78	20.63	2
		50	25	20.70	20.77	20.81	20.78	20.63	2			36	19	20.69	20.69	20.76	20.74	20.65	2
		50	50	20.68	20.75	20.79	20.76	20.61	2			36	39	20.62	20.67	20.71	20.78	20.56	2
		100	0	20.69	20.76	20.80	20.77	20.62	2			75	0	20.70	20.71	20.72	20.72	20.60	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)
		Channel		39700	40160	40620	41080	41540				Channel		39675	40148	40620	41093	41565	
		Frequency (MHz)		25010.0	2547.0	25930.0	2639.0	26850.0				Frequency (MHz)		24985.5	25458.3	25930.0	26403.8	2687.5	
10M	QPSK	1	0	22.67	22.69	22.81	22.84	22.59	0	5M	QPSK	1	0	22.77	22.72	22.77	22.78	22.65	0
		1	24	22.62	22.63	22.70	22.61	22.49	0			1	12	22.57	22.66	22.80	22.70	22.60	0
		1	49	22.62	22.65	22.71	22.64	22.52	0			1	24	22.52	22.65	22.71	22.60	22.48	0
		25	0	21.57	21.69	21.78	21.74	21.58	1			12	0	21.59	21.78	21.70	21.64	21.54	1
		25	12	21.65	21.70	21.64	21.72	21.53	1			12	6	21.53	21.70	21.75	21.74	21.59	1
		25	25	21.59	21.72	21.70	21.70	21.50	1			12	13	21.68	21.66	21.75	21.73	21.56	1
		50	0	21.62	21.72	21.65	21.73	21.50	1			25	0	21.58	21.59	21.79	21.63	21.54	1
	16QAM	1	0	21.63	21.74	21.85	21.80	21.58	1		16QAM	1	0	21.76	21.67	21.78	21.80	21.60	1
		1	24	21.61	21.63	21.69	21.71	21.49	1			1	12	21.58	21.61	21.74	21.70	21.57	1
		1	49	21.64	21.61	21.65	21.63	21.53	1			1	24	21.52	21.63	21.66	21.66	21.56	1
		25	0	20.62	20.70	20.85	20.71	20.61	2			12	0	20.60	20.73	20.78	20.67	20.55	2
		25	12	20.65	20.68	20.70	20.65	20.58	2			12	6	20.58	20.61	20.75	20.80	20.54	2
		25	25	20.56	20.70	20.66	20.68	20.50	2			12	13	20.61	20.72	20.75	20.74	20.57	2
		50	0	20.60	20.75	20.71	20.73	20.58	2			25	0	20.59	20.67	20.75	20.67	20.60	2

EIRP Power (dBm)

LTE Band 7							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	20775	2502.5	-20.40	38.52	18.12	64.86	H
	21100	2535.0	-20.48	38.36	17.88	61.38	
	21425	2567.5	-20.78	38.58	17.80	60.26	
	20775	2502.5	-26.04	38.92	12.88	19.41	V
	21100	2535.0	-26.52	39.26	12.74	18.79	
	21425	2567.5	-26.62	39.22	12.60	18.20	
Channel Bandwidth: 5 MHz / 16QAM							
X	20775	2502.5	-21.37	38.52	17.15	51.88	H
	21100	2535.0	-21.45	38.36	16.91	49.09	
	21425	2567.5	-21.75	38.58	16.83	48.19	
	20775	2502.5	-27.01	38.92	11.91	15.52	V
	21100	2535.0	-27.49	39.26	11.77	15.03	
	21425	2567.5	-27.59	39.22	11.63	14.55	

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

LTE Band 7							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	20800	2505.0	-20.29	38.65	18.36	68.55	H
	21100	2535.0	-20.24	38.36	18.12	64.86	
	21400	2565.0	-20.45	38.49	18.04	63.68	
	20800	2505.0	-25.72	38.84	13.12	20.51	V
	21100	2535.0	-26.28	39.26	12.98	19.86	
	21400	2565.0	-26.26	39.10	12.84	19.23	
Channel Bandwidth: 10 MHz / 16QAM							
X	20800	2505.0	-21.25	38.65	17.40	54.95	H
	21100	2535.0	-21.20	38.36	17.16	52.00	
	21400	2565.0	-21.41	38.49	17.08	51.05	
	20800	2505.0	-26.68	38.84	12.16	16.44	V
	21100	2535.0	-27.24	39.26	12.02	15.92	
	21400	2565.0	-27.22	39.10	11.88	15.42	

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

LTE Band 7							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	20825	2507.5	-19.90	38.52	18.62	72.78	H
	21100	2535.0	-19.98	38.36	18.38	68.87	
	21375	2562.5	-20.28	38.58	18.30	67.61	
	20825	2507.5	-25.54	38.92	13.38	21.78	V
	21100	2535.0	-26.02	39.26	13.24	21.09	
	21375	2562.5	-26.12	39.22	13.10	20.42	
Channel Bandwidth: 15 MHz / 16QAM							
X	20825	2507.5	-20.89	38.52	17.63	57.94	H
	21100	2535.0	-20.97	38.36	17.39	54.83	
	21375	2562.5	-21.27	38.58	17.31	53.83	
	20825	2507.5	-26.53	38.92	12.39	17.34	V
	21100	2535.0	-27.01	39.26	12.25	16.79	
	21375	2562.5	-27.11	39.22	12.11	16.26	

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

LTE Band 7							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	20850	2510.0	-19.66	38.52	18.86	76.91	H
	21100	2535.0	-19.74	38.36	18.62	72.78	
	21350	2560.0	-20.04	38.58	18.54	71.45	
	20850	2510.0	-25.30	38.92	13.62	23.01	V
	21100	2535.0	-25.78	39.26	13.48	22.28	
	21350	2560.0	-25.88	39.22	13.34	21.58	
Channel Bandwidth: 20 MHz / 16QAM							
X	20850	2510.0	-20.68	38.52	17.84	60.81	H
	21100	2535.0	-20.76	38.36	17.60	57.54	
	21350	2560.0	-21.06	38.58	17.52	56.49	
	20850	2510.0	-26.32	38.92	12.60	18.20	V
	21100	2535.0	-26.80	39.26	12.46	17.62	
	21350	2560.0	-26.90	39.22	12.32	17.06	

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

LTE Band 38							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	37775	2572.5	-18.95	38.99	20.04	100.93	H
	38000	2595.0	-18.66	38.17	19.51	89.33	
	38225	2617.5	-19.28	38.55	19.27	84.53	
	37775	2572.5	-24.39	39.27	14.88	30.76	V
	38000	2595.0	-24.18	38.68	14.50	28.18	
	38225	2617.5	-24.18	38.55	14.37	27.35	
Channel Bandwidth: 5 MHz / 16QAM							
X	37775	2572.5	-19.93	38.99	19.06	80.54	H
	38000	2595.0	-19.64	38.17	18.53	71.29	
	38225	2617.5	-20.26	38.55	18.29	67.45	
	37775	2572.5	-25.37	39.27	13.90	24.55	V
	38000	2595.0	-25.16	38.68	13.52	22.49	
	38225	2617.5	-25.16	38.55	13.39	21.83	

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

LTE Band 38							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	37800	2575.0	-18.71	38.98	20.27	106.41	H
	38000	2595.0	-18.43	38.17	19.74	94.19	
	38200	2615.0	-18.95	38.45	19.50	89.13	
	37800	2575.0	-23.93	39.04	15.11	32.43	V
	38000	2595.0	-23.95	38.68	14.73	29.72	
	38200	2615.0	-24.00	38.60	14.60	28.84	
Channel Bandwidth: 10 MHz / 16QAM							
X	37800	2575.0	-19.69	38.98	19.29	84.92	H
	38000	2595.0	-19.41	38.17	18.76	75.16	
	38200	2615.0	-19.93	38.45	18.52	71.12	
	37800	2575.0	-24.91	39.04	14.13	25.88	V
	38000	2595.0	-24.93	38.68	13.75	23.71	
	38200	2615.0	-24.98	38.60	13.62	23.01	

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

LTE Band 38							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	37825	2577.5	-18.56	39.09	20.53	112.98	H
	38000	2595.0	-18.17	38.17	20.00	100.00	
	38175	2612.5	-18.76	38.52	19.76	94.62	
	37825	2577.5	-23.67	39.04	15.37	34.43	V
	38000	2595.0	-23.69	38.68	14.99	31.55	
	38175	2612.5	-23.80	38.66	14.86	30.62	
Channel Bandwidth: 15 MHz / 16QAM							
X	37825	2577.5	-19.57	39.09	19.52	89.54	H
	38000	2595.0	-19.18	38.17	18.99	79.25	
	38175	2612.5	-19.77	38.52	18.75	74.99	
	37825	2577.5	-24.68	39.04	14.36	27.29	V
	38000	2595.0	-24.70	38.68	13.98	25.00	
	38175	2612.5	-24.81	38.66	13.85	24.27	

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

LTE Band 38							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	37850	2580.0	-18.48	39.26	20.78	119.67	H
	38000	2595.0	-17.92	38.17	20.25	105.93	
	38150	2610.0	-18.70	38.71	20.01	100.23	
	37850	2580.0	-23.71	39.33	15.62	36.48	V
	38000	2595.0	-23.44	38.68	15.24	33.42	
	38150	2610.0	-23.65	38.76	15.11	32.43	
Channel Bandwidth: 20 MHz / 16QAM							
X	37850	2580.0	-19.50	39.26	19.76	94.62	H
	38000	2595.0	-18.94	38.17	19.23	83.75	
	38150	2610.0	-19.72	38.71	18.99	79.25	
	37850	2580.0	-24.73	39.33	14.60	28.84	V
	38000	2595.0	-24.46	38.68	14.22	26.42	
	38150	2610.0	-24.67	38.76	14.09	25.64	

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

LTE Band 41							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	39675	2498.5	-20.20	38.99	18.79	75.68	H
	40620	2593.0	-19.75	38.17	18.42	69.50	
	41565	2687.5	-20.43	38.55	18.12	64.86	
	39675	2498.5	-25.48	39.27	13.79	23.93	V
	40620	2593.0	-25.15	38.68	13.53	22.54	
	41565	2687.5	-25.26	38.55	13.29	21.33	
Channel Bandwidth: 5 MHz / 16QAM							
X	39675	2498.5	-21.19	38.99	17.80	60.26	H
	40620	2593.0	-20.74	38.17	17.43	55.34	
	41565	2687.5	-21.42	38.55	17.13	51.64	
	39675	2498.5	-26.47	39.27	12.80	19.05	V
	40620	2593.0	-26.14	38.68	12.54	17.95	
	41565	2687.5	-26.25	38.55	12.30	16.98	

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

LTE Band 41							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	39700	2501.0	-19.93	38.98	19.05	80.35	H
	40620	2593.0	-19.49	38.17	18.68	73.79	
	41540	2685.0	-20.07	38.45	18.38	68.87	
	39700	2501.0	-24.99	39.04	14.05	25.41	V
	40620	2593.0	-24.89	38.68	13.79	23.93	
	41540	2685.0	-25.05	38.60	13.55	22.65	
Channel Bandwidth: 10 MHz / 16QAM							
X	39700	2501.0	-20.95	38.98	18.03	63.53	H
	40620	2593.0	-20.51	38.17	17.66	58.34	
	41540	2685.0	-21.09	38.45	17.36	54.45	
	39700	2501.0	-26.01	39.04	13.03	20.09	V
	40620	2593.0	-25.91	38.68	12.77	18.92	
	41540	2685.0	-26.07	38.60	12.53	17.91	

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

LTE Band 41							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	39725	2503.5	-19.80	39.09	19.29	84.92	H
	40620	2593.0	-19.25	38.17	18.92	77.98	
	41515	2682.5	-19.90	38.52	18.62	72.78	
	39725	2503.5	-24.75	39.04	14.29	26.85	V
	40620	2593.0	-24.65	38.68	14.03	25.29	
	41515	2682.5	-24.87	38.66	13.79	23.93	
Channel Bandwidth: 15 MHz / 16QAM							
X	39725	2503.5	-20.82	39.09	18.27	67.14	H
	40620	2593.0	-20.27	38.17	17.90	61.66	
	41515	2682.5	-20.92	38.52	17.60	57.54	
	39725	2503.5	-25.77	39.04	13.27	21.23	V
	40620	2593.0	-25.67	38.68	13.01	20.00	
	41515	2682.5	-25.89	38.66	12.77	18.92	

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

LTE Band 41							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
X	39750	2506.0	-19.74	39.26	19.52	89.54	H
	40620	2593.0	-19.02	38.17	19.15	82.22	
	41490	2680.0	-19.86	38.71	18.85	76.74	
	39750	2506.0	-24.81	39.33	14.52	28.31	V
	40620	2593.0	-24.42	38.68	14.26	26.67	
	41490	2680.0	-24.74	38.76	14.02	25.23	
Channel Bandwidth: 20 MHz / 16QAM							
X	39750	2506.0	-20.76	39.26	18.50	70.79	H
	40620	2593.0	-20.04	38.17	18.13	65.01	
	41490	2680.0	-20.88	38.71	17.83	60.67	
	39750	2506.0	-25.83	39.33	13.50	22.39	V
	40620	2593.0	-25.44	38.68	13.24	21.09	
	41490	2680.0	-25.76	38.76	13.00	19.95	

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

4.2 Radiated Emission Measurement

4.2.1 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 $55 + 10 \log (P)$ dB. The limit of emission is equal to -25 dBm.

4.2.2 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, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}$.

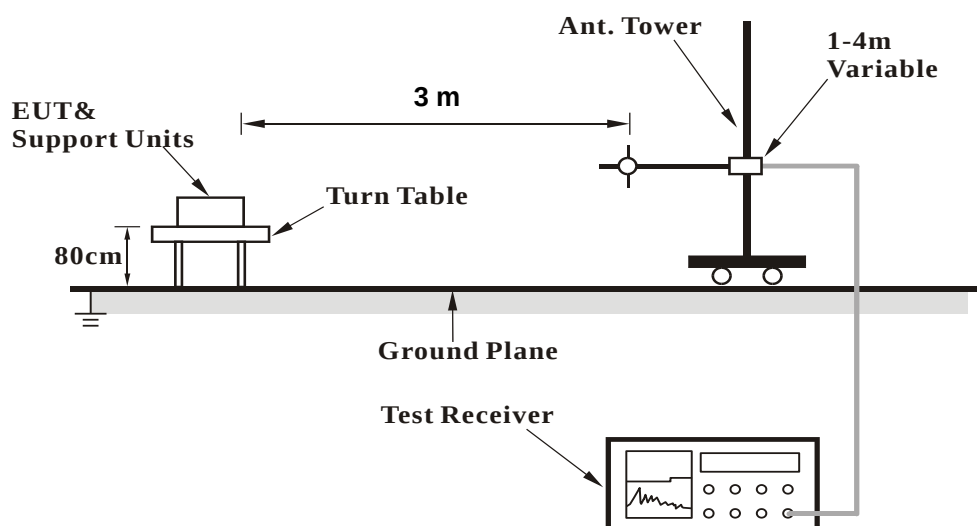
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.2.3 Deviation from Test Standard

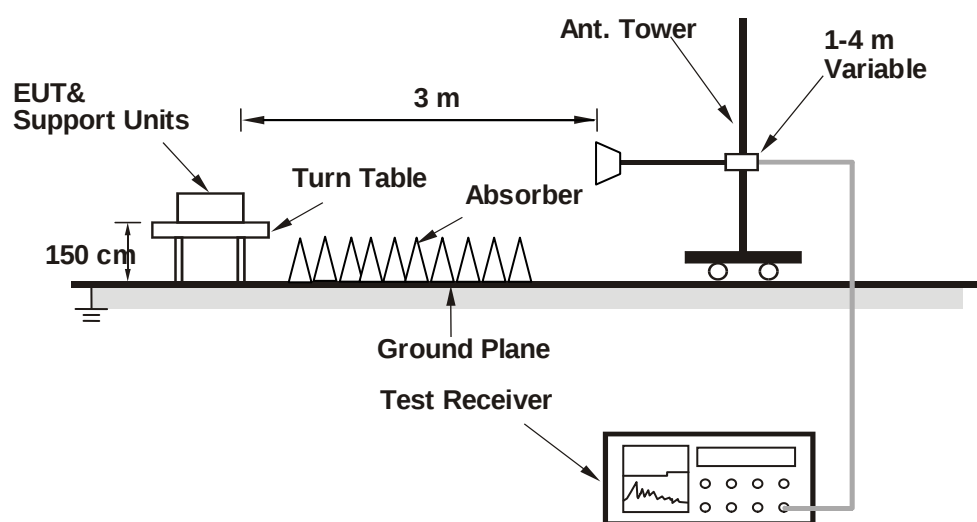
No deviation.

4.2.4 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).

4.2.5 Test Results

LTE Band 7

Channel Bandwidth: 5 MHz / QPSK

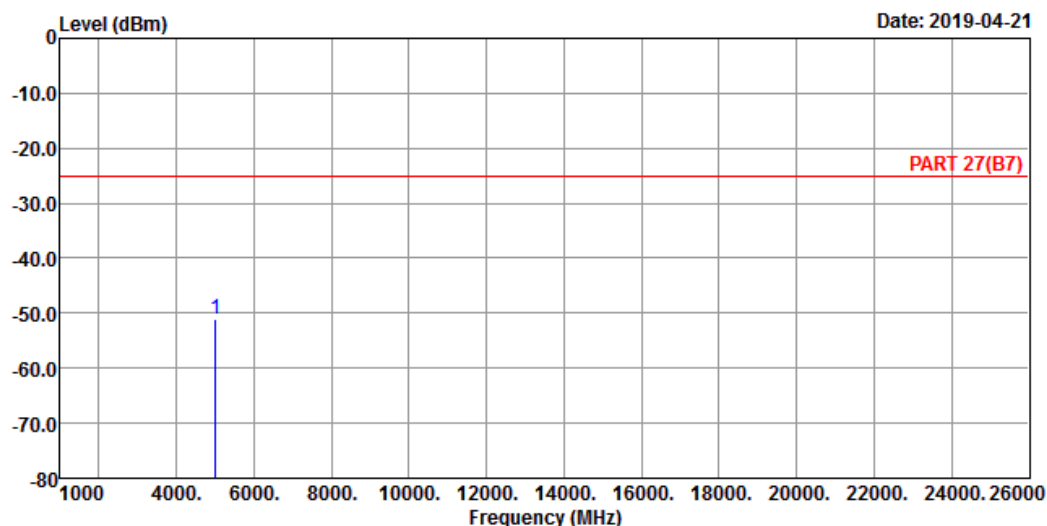
Low Channel

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A D T

Data: 3



Site : 966 Chamber 5

Condition: PART 27(B7) HORIZONTAL

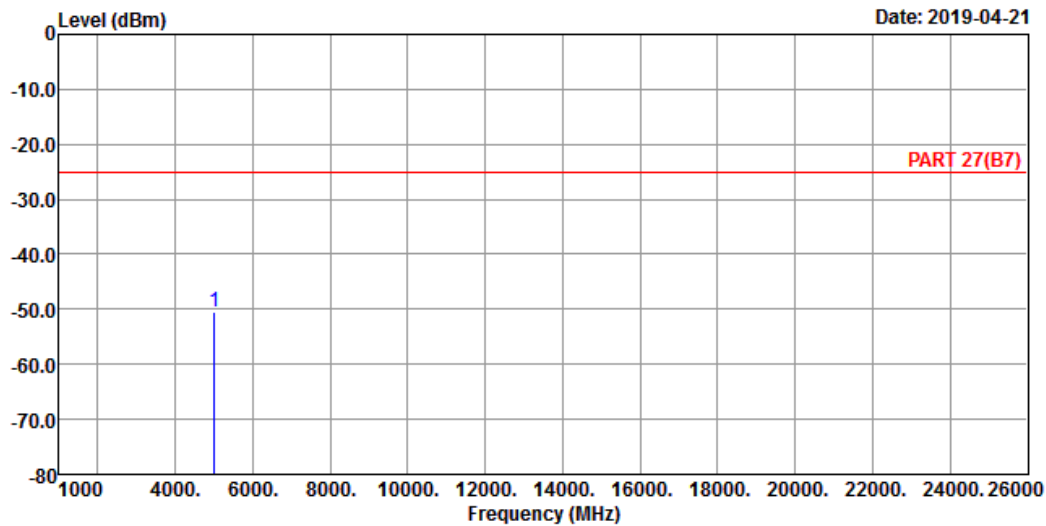
Remak : LTE Band 7 QPSK_5M Link_L-CH

Tested by: Jisyoung Wang

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

1 pp 5005.00 -50.98 -48.52 -25.00 -2.46 -25.98 Peak

Data: 4



Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK_5M Link_L-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5005.00	-50.36	-47.90	-25.00	-2.46	-25.36	Peak

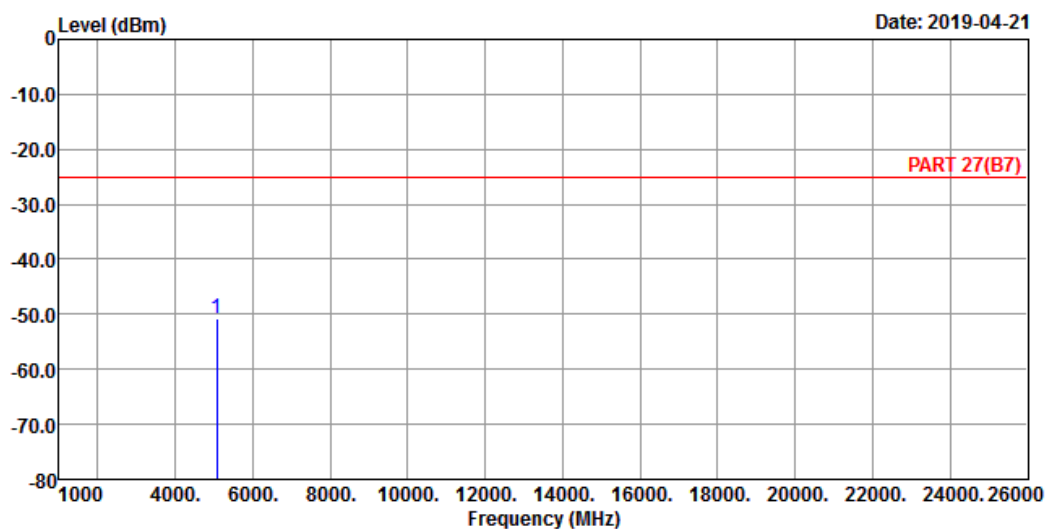
Middle Channel

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A D T

Data: 3

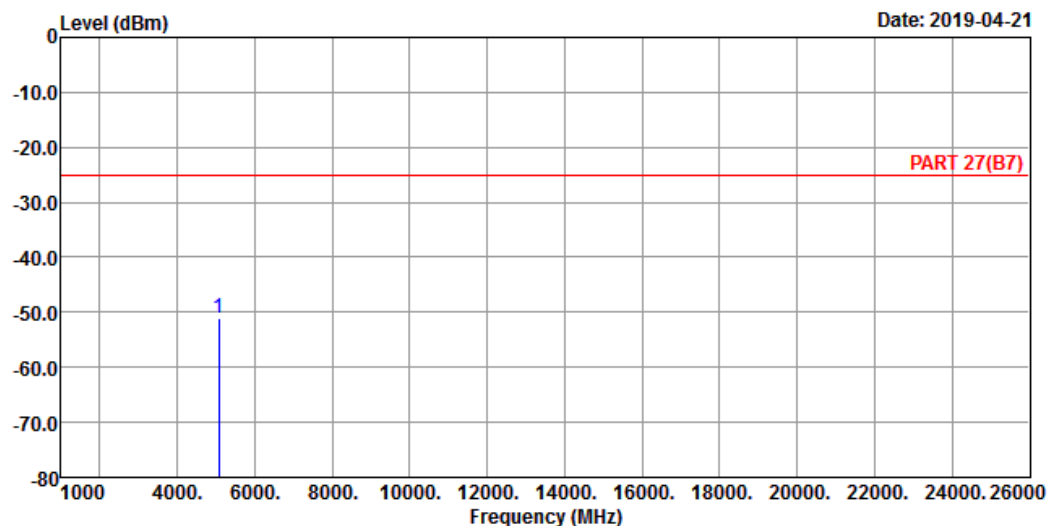


Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_5M Link_M-CH
Tested by: Jisyong Wang

		Read	Limit		Over	
Freq	Level	Level	Line	Factor	Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5070.00	-50.85	-48.98	-25.00	-1.87	-25.85	Peak



Data: 4



Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK_5M Link_M-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5070.00	-50.99	-49.12	-25.00	-1.87	-25.99	Peak

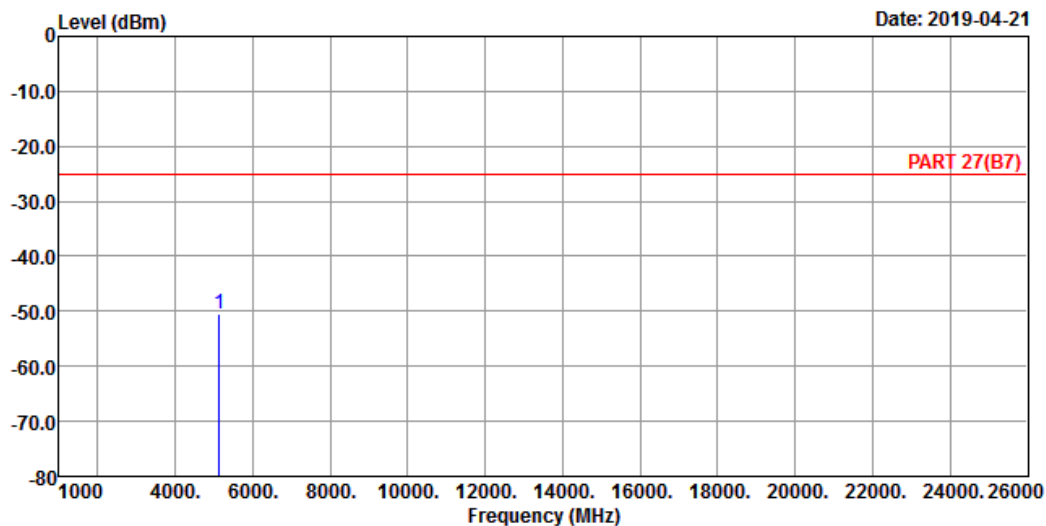
High Channel

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A D T

Data: 3



Site : 966 Chamber 5

Condition: PART 27(B7) HORIZONTAL

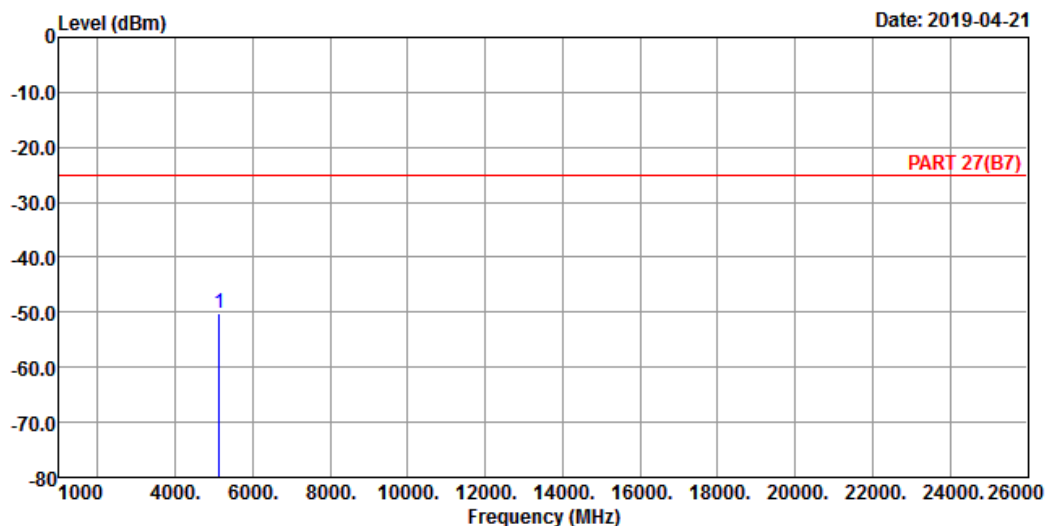
Remak : LTE Band 7 QPSK_5M Link_H-CH

Tested by: Jisyong Wang

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

1 pp 5135.00 -50.52 -48.78 -25.00 -1.74 -25.52 Peak

Data: 4



Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK_5M Link_H-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5135.00	-50.32	-48.58	-25.00	-1.74	-25.32	Peak

Channel Bandwidth: 20 MHz / QPSK
Low Channel

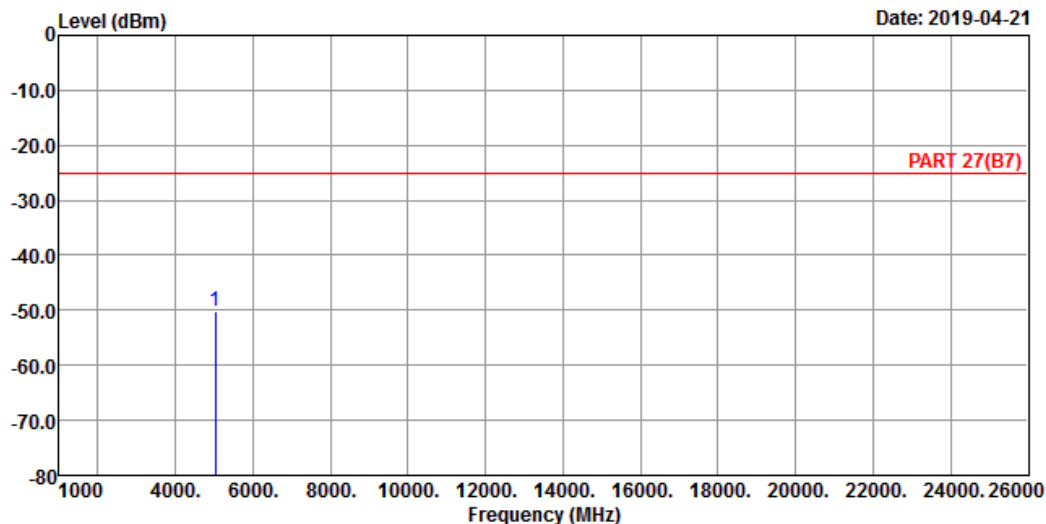
Bureau Veritas Consumer Products Services Ltd., Taoyuan 31063



A D T

Data: 3

Date: 2019-04-21



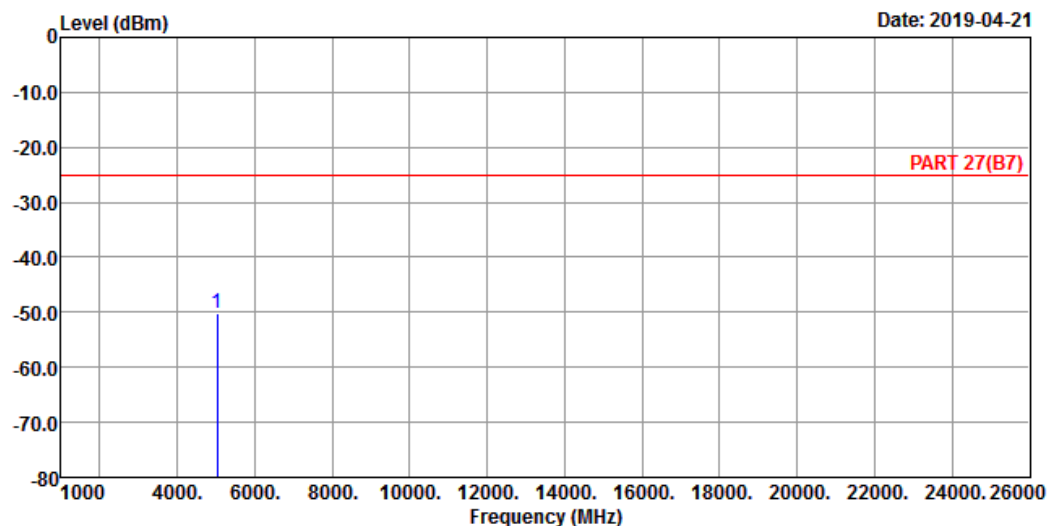
Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_20M Link_L-CH
Tested by: Jisyong Wang

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

1 pp 5020.00 -50.24 -47.92 -25.00 -2.32 -25.24 Peak



Data: 4



Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK_20M Link_L-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5020.00	-50.18	-47.86	-25.00	-2.32	-25.18	Peak

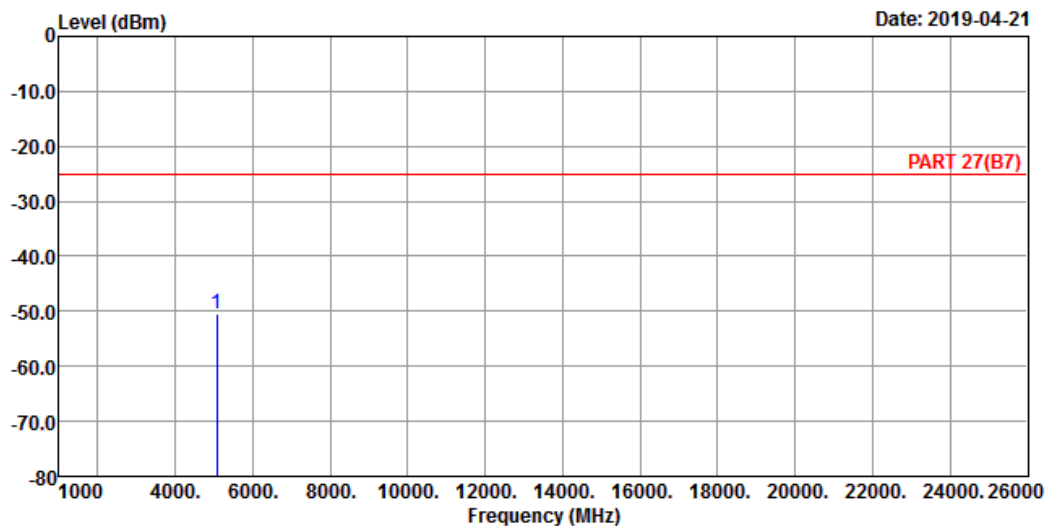
Middle Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan 32453



A D T

Data: 3



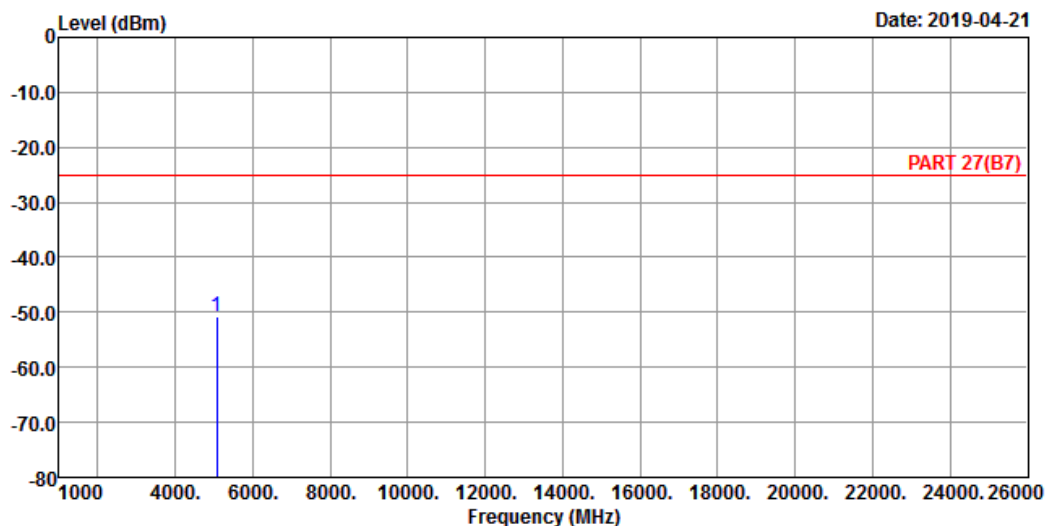
Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_20M Link_M-CH
Tested by: Jisyong Wang

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

1 pp 5070.00 -50.34 -48.47 -25.00 -1.87 -25.34 Peak



Data: 4



Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK_20M Link_M-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5070.00	-50.71	-48.84	-25.00	-1.87	-25.71	Peak

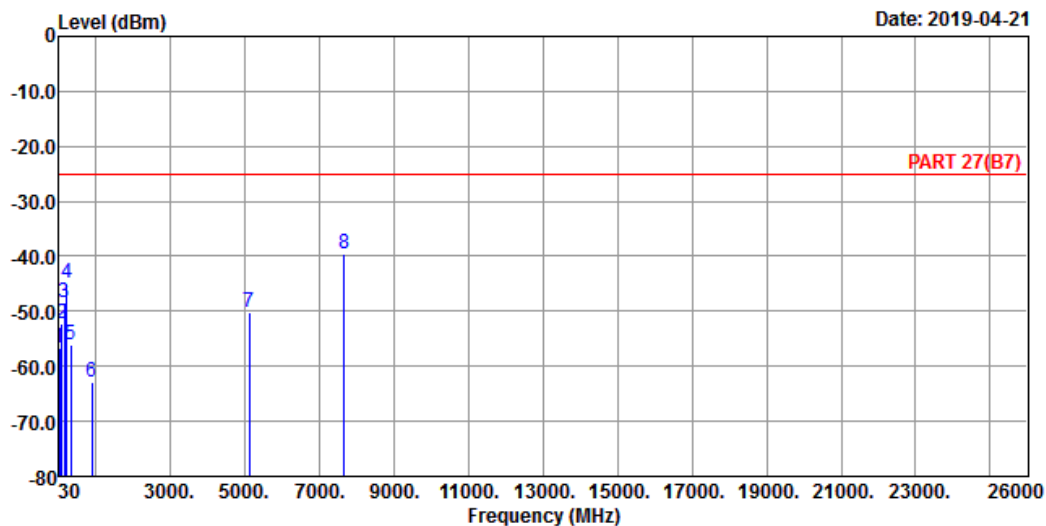
High Channel

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A D T

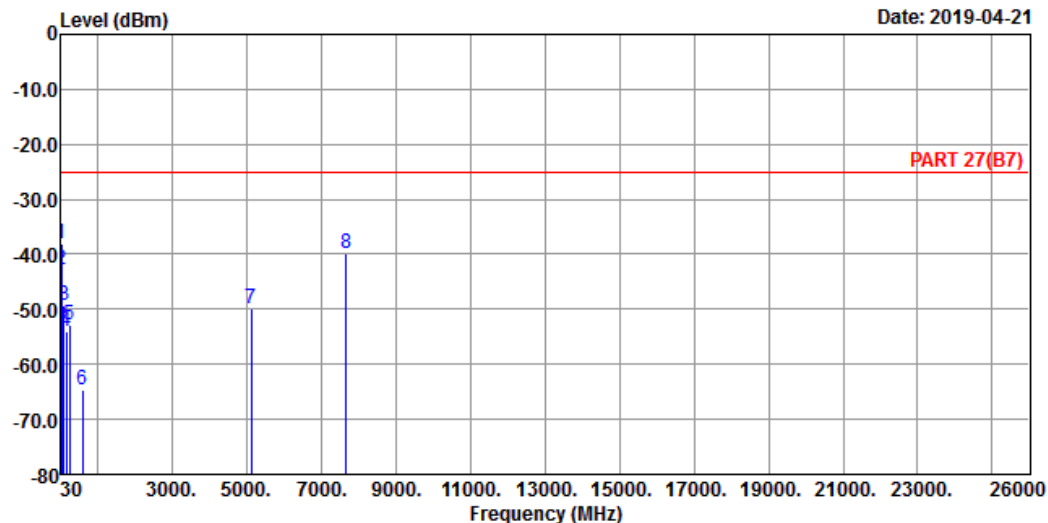
Data: 5



Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_20M Link_H-CH
Tested by: Jisyoung Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.58	-56.75	-55.28	-25.00	-1.47	-31.75	Peak
2	104.69	-52.37	-41.93	-25.00	-10.44	-27.37	Peak
3	163.86	-48.46	-43.34	-25.00	-5.12	-23.46	Peak
4	235.64	-44.96	-38.38	-25.00	-6.58	-19.96	Peak
5	349.13	-56.17	-49.92	-25.00	-6.25	-31.17	Peak
6	903.00	-62.99	-63.63	-25.00	0.64	-37.99	Peak
7	5120.00	-50.31	-48.65	-25.00	-1.66	-25.31	Peak
8 pp	7680.00	-39.67	-44.29	-25.00	4.62	-14.67	Peak

Data: 6



Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK_20M Link_H-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	30.00	-38.00	-38.38	-25.00	0.38	-13.00	Peak
2	42.61	-42.68	-41.74	-25.00	-0.94	-17.68	Peak
3	104.69	-49.21	-38.77	-25.00	-10.44	-24.21	Peak
4	161.92	-54.07	-49.09	-25.00	-4.98	-29.07	Peak
5	244.37	-52.97	-46.74	-25.00	-6.23	-27.97	Peak
6	612.00	-64.56	-63.78	-25.00	-0.78	-39.56	Peak
7	5120.00	-49.96	-48.30	-25.00	-1.66	-24.96	Peak
8	7680.00	-39.94	-44.56	-25.00	4.62	-14.94	Peak

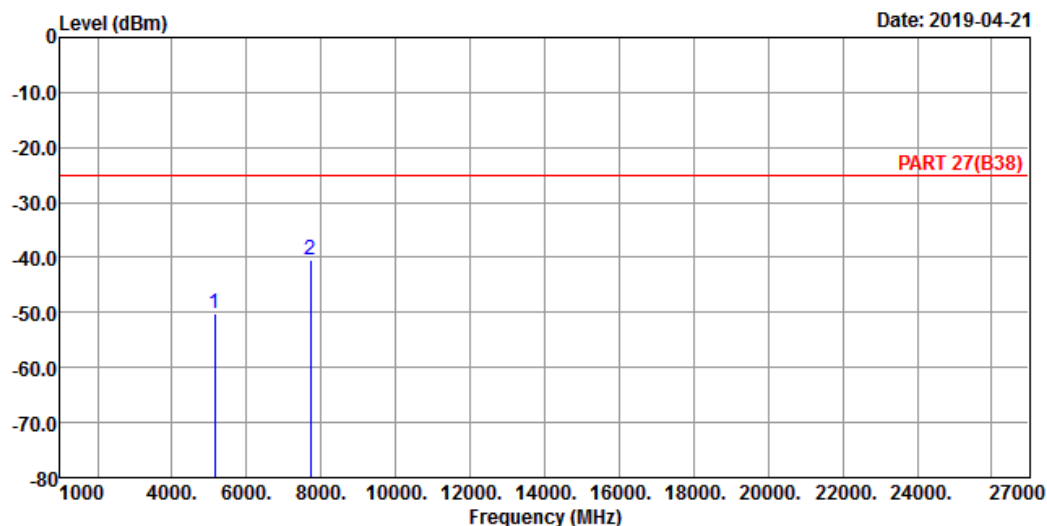
LTE Band 38
Channel Bandwidth: 5 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



A D T

Data: 3

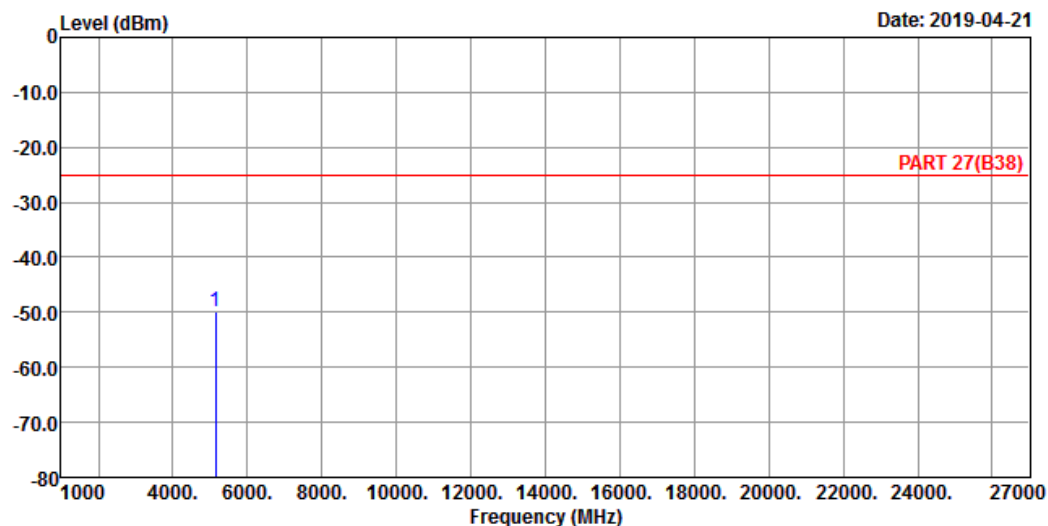


Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_5M Link_L-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5145.00	-50.28	-48.45	-25.00	-1.83	-25.28	Peak
2 pp	7717.50	-40.56	-45.21	-25.00	4.65	-15.56	Peak



Data: 4



Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK_5M Link_L-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit	Line Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5145.00	-50.00	-48.17	-25.00	-1.83	-25.00	Peak

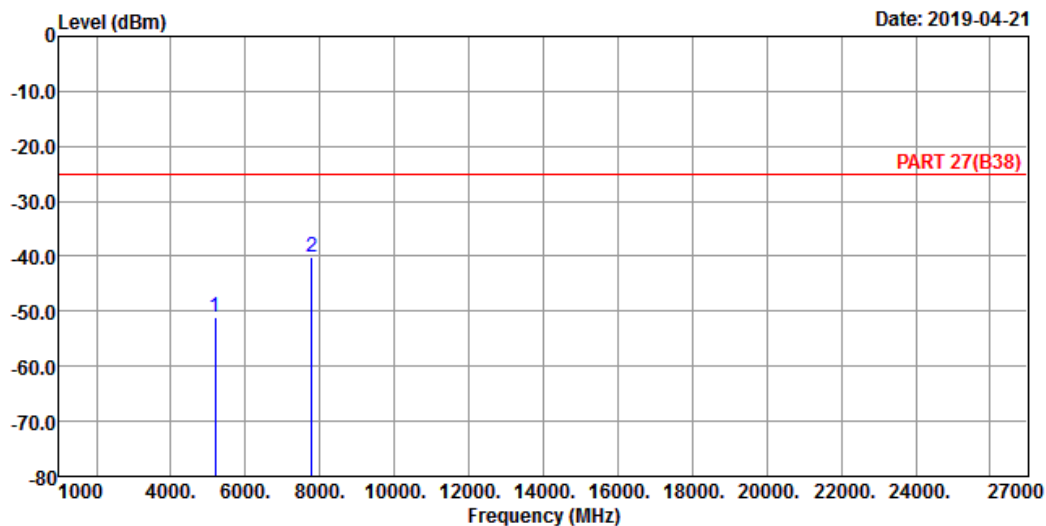
Middle Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan 32454



A D T

Data: 3

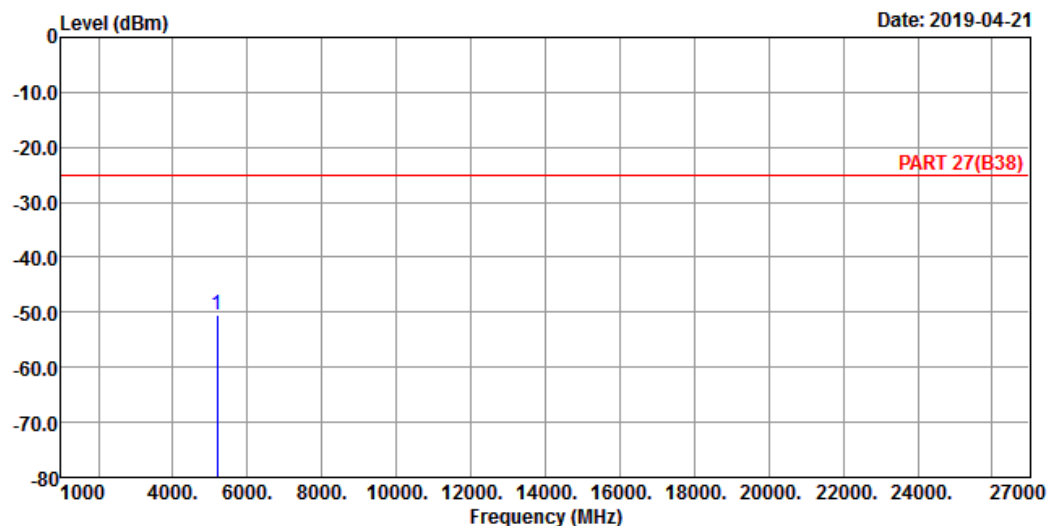


Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_5M Link_M-CH
Tested by: Jisyong Wang

			Read	Limit		Over	
	Freq	Level	Level	Line	Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5190.00	-51.07	-49.00	-25.00	-2.07	-26.07	Peak
2 pp	7785.00	-40.25	-44.99	-25.00	4.74	-15.25	Peak



Data: 4



Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK_5M Link_M-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5190.00	-50.34	-48.27	-25.00	-2.07	-25.34	Peak

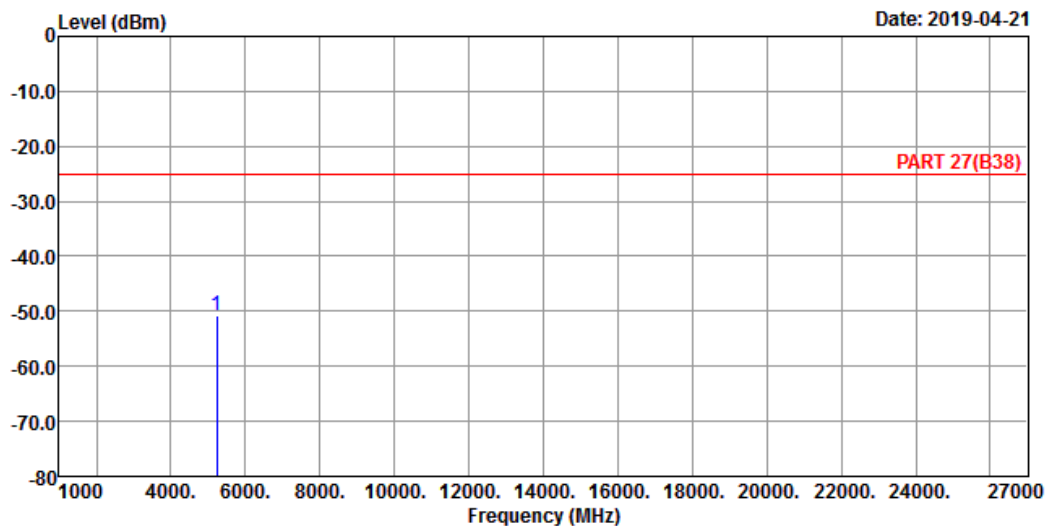
High Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan 32453



A D T

Data: 3

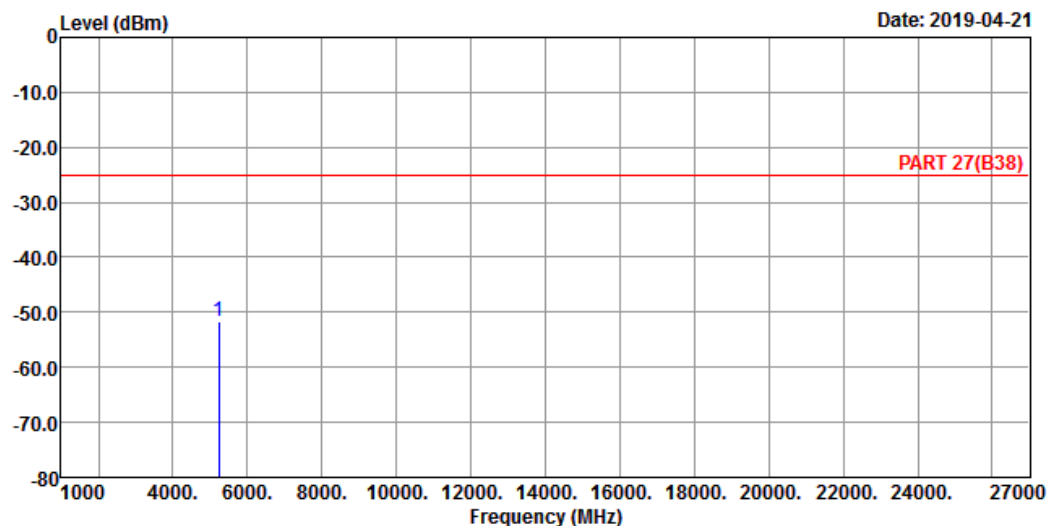


Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_5M Link_H-CH
Tested by: Jisyong Wang

		Read	Limit		Over	
Freq	Level	Level	Line	Factor	Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5235.00	-50.91	-48.50	-25.00	-2.41	-25.91	Peak



Data: 4



Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK_5M Link_H-CH

Tested by: Jisyong Wang

Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5235.00	-51.67	-49.26	-25.00	-2.41	-26.67	Peak

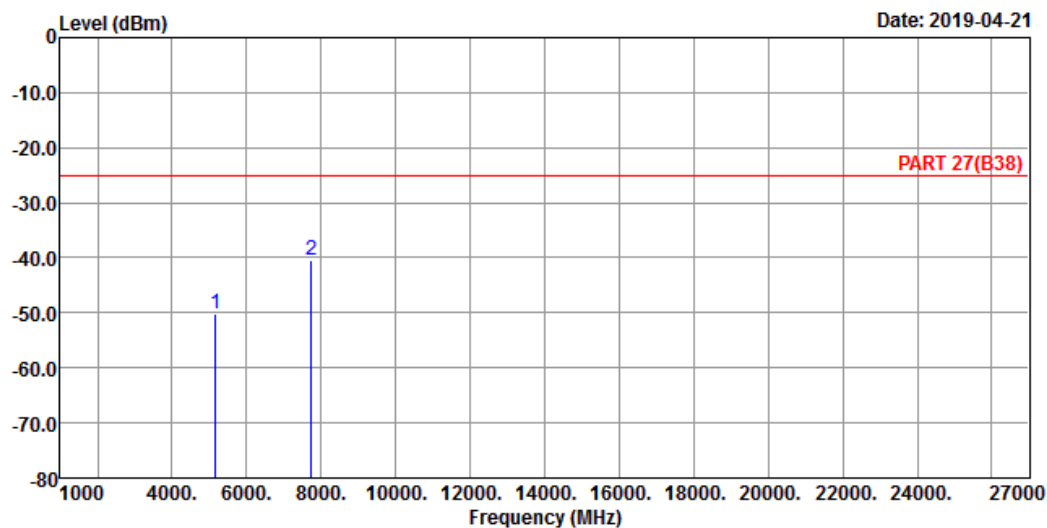
Channel Bandwidth: 20 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan 31063



A D T

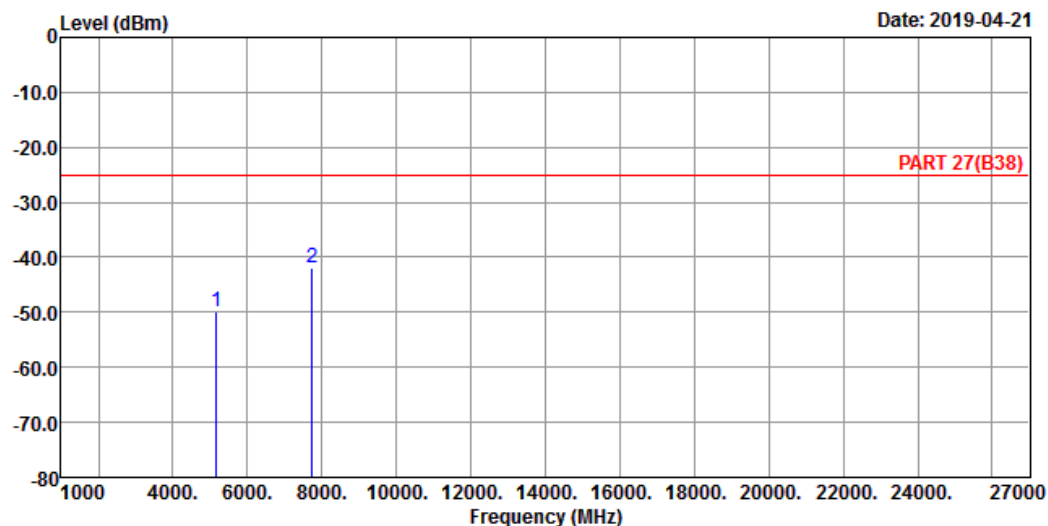
Data: 3



Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_20M Link_L-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5160.00	-50.11	-48.20	-25.00	-1.91	-25.11	Peak
2 pp	7740.00	-40.33	-45.01	-25.00	4.68	-15.33	Peak

Data: 4



Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK_20M Link_L-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5160.00	-49.86	-47.95	-25.00	-1.91	-24.86	Peak
2 pp	7740.00	-41.95	-46.63	-25.00	4.68	-16.95	Peak

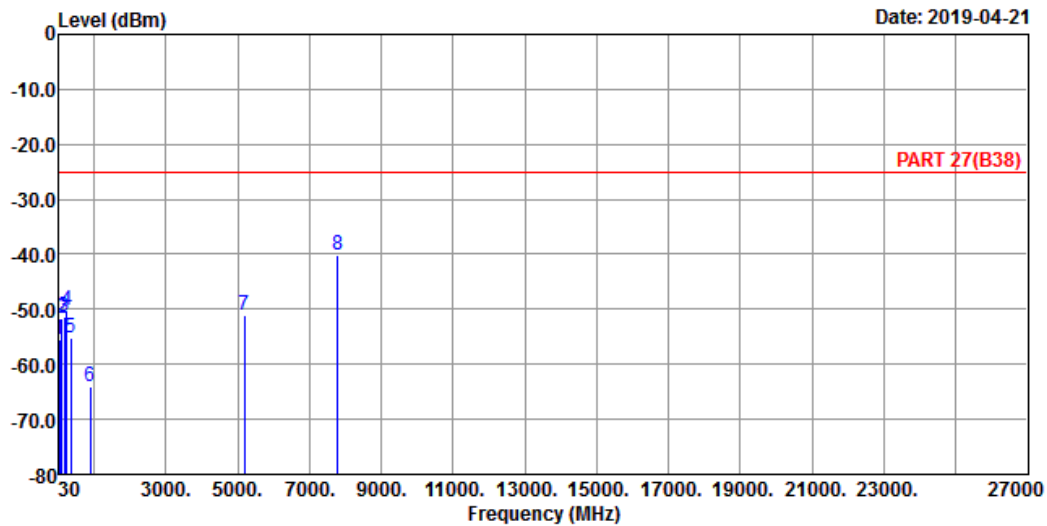
Middle Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan 324513



A D T

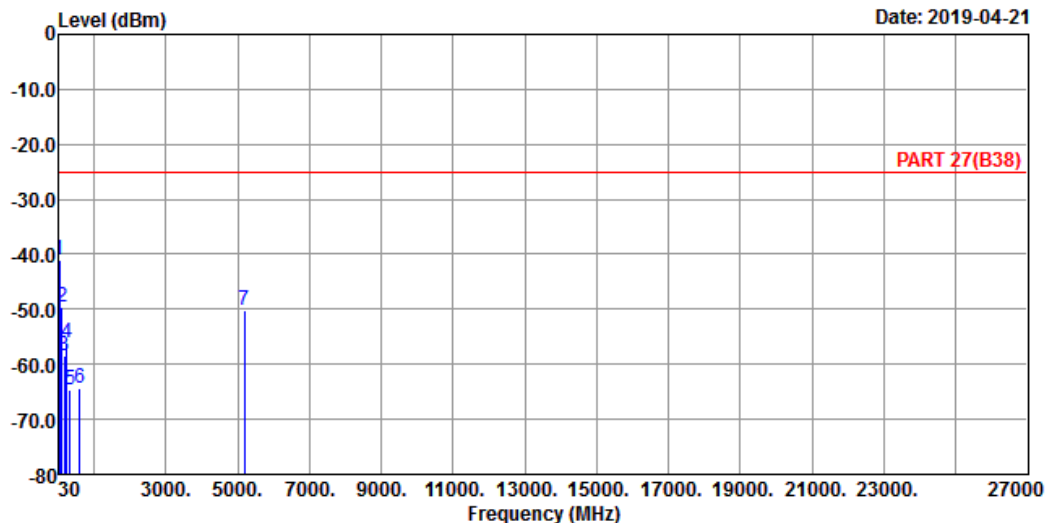
Data: 5



Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_20M Link_M-CH
Tested by: Jisyoung Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	31.94	-55.59	-54.99	-25.00	-0.60	-30.59	Peak
2	104.69	-51.74	-41.30	-25.00	-10.44	-26.74	Peak
3	163.86	-51.40	-46.28	-25.00	-5.12	-26.40	Peak
4	245.34	-50.12	-43.93	-25.00	-6.19	-25.12	Peak
5	347.19	-55.23	-48.95	-25.00	-6.28	-30.23	Peak
6	900.09	-64.05	-64.62	-25.00	0.57	-39.05	Peak
7	5190.00	-50.98	-48.91	-25.00	-2.07	-25.98	Peak
8 pp	7785.00	-40.09	-44.83	-25.00	4.74	-15.09	Peak

Data: 6



Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK_20M Link_M-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	31.94	-41.01	-40.41	-25.00	-0.60	-16.01	Peak
2	104.69	-49.55	-39.11	-25.00	-10.44	-24.55	Peak
3	162.89	-58.56	-53.51	-25.00	-5.05	-33.56	Peak
4	245.34	-56.03	-49.84	-25.00	-6.19	-31.03	Peak
5	340.40	-64.76	-58.37	-25.00	-6.39	-39.76	Peak
6	598.42	-64.27	-63.44	-25.00	-0.83	-39.27	Peak
7	5190.00	-50.18	-48.11	-25.00	-2.07	-25.18	Peak

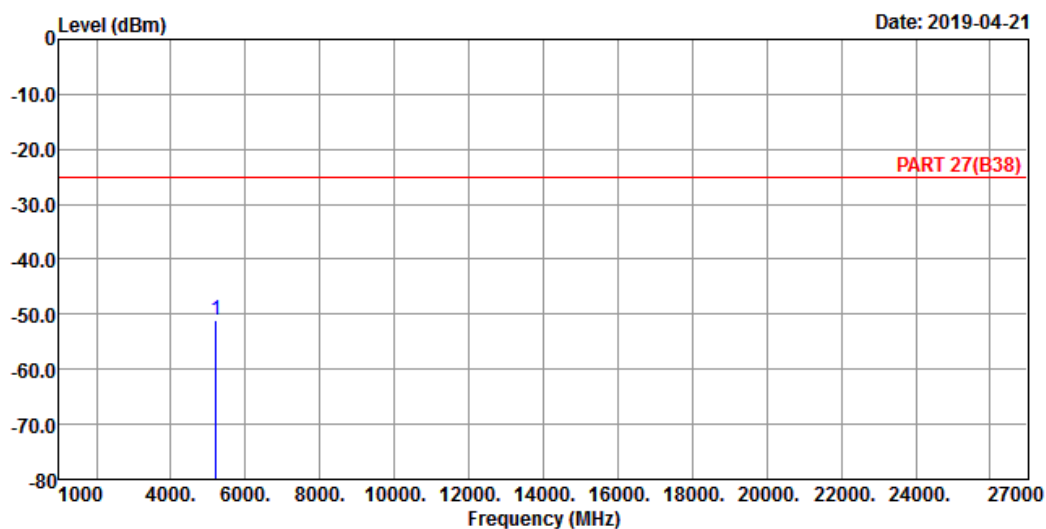
High Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan 32453



A D T

Data: 3

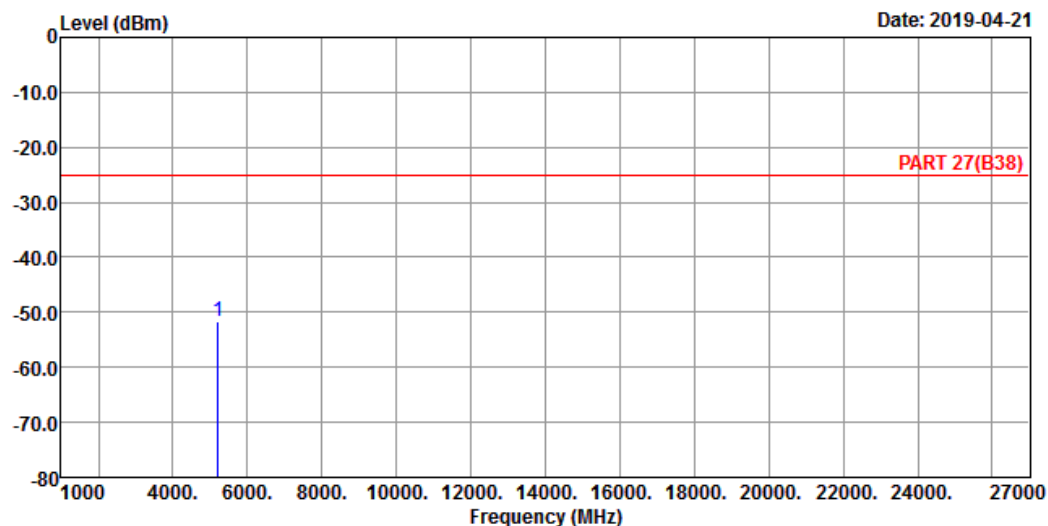


Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_20M Link_H-CH
Tested by: Jisyong Wang

		Read	Limit		Over	
Freq	Level	Level	Line	Factor	Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5220.00	-50.97	-48.67	-25.00	-2.30	-25.97	Peak



Data: 4



Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK_20M Link_H-CH

Tested by: Jisyong Wang

		Read	Limit		Over	
Freq	Level	Level	Line	Factor	Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 5220.00	-51.59	-49.29	-25.00	-2.30	-26.59	Peak

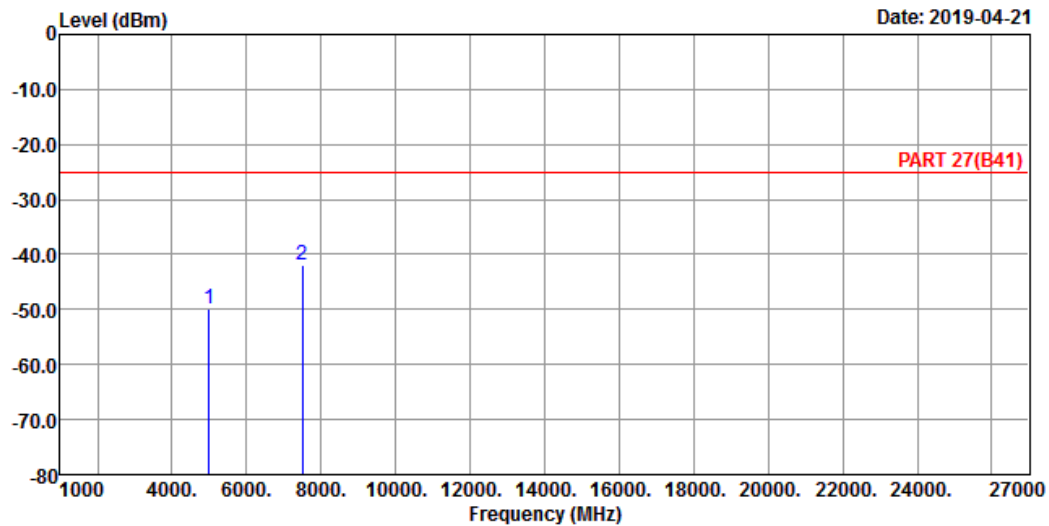
LTE Band 41
 Channel Bandwidth: 5 MHz / QPSK
 Low Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



A D T

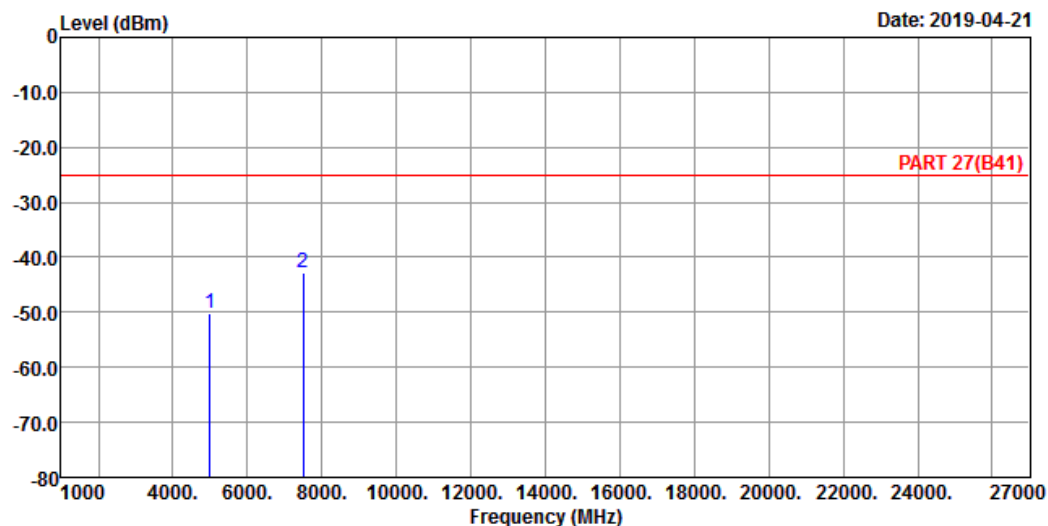
Data: 3



Site : 966 Chamber 5
 Condition: PART 27(B41) HORIZONTAL
 Remak : LTE Band 41 QPSK_5M Link_L-CH
 Tested by: Jisyong Wang

		Read	Limit		Over	
Freq	Level	Level	Line	Factor	Limit	Remark
MHz	dBm	dBm	dBm	dB	dB	
1	4997.00	-49.86	-47.25	-25.00	-2.61	-24.86 Peak
2 pp	7495.50	-42.03	-46.22	-25.00	4.19	-17.03 Peak

Data: 4



Site : 966 Chamber 5

Condition: PART 27(B41) VERTICAL

Remak : LTE Band 41 QPSK_5M Link_L-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	4997.00	-50.19	-47.58	-25.00	-2.61	-25.19	Peak
2 pp	7495.50	-42.95	-47.14	-25.00	4.19	-17.95	Peak

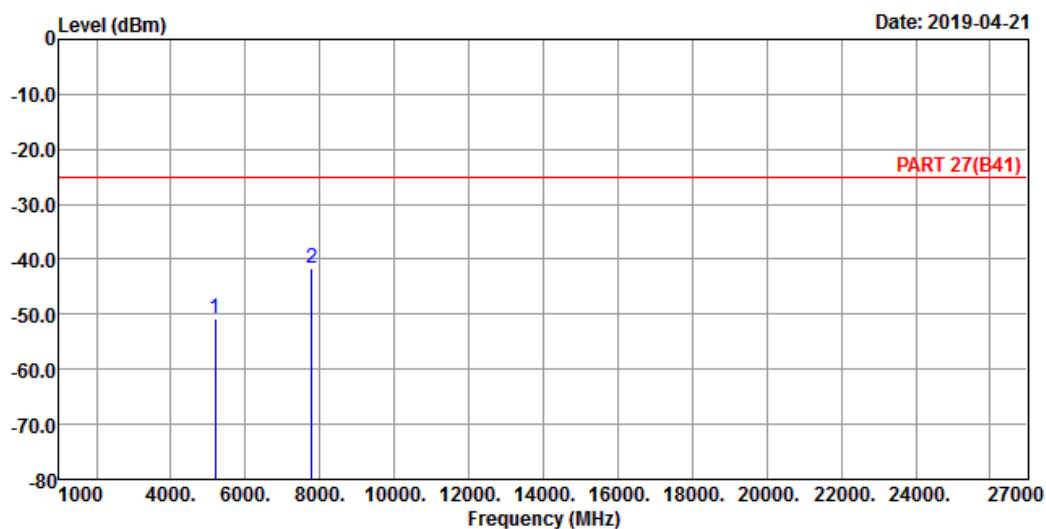
Middle Channel

Bureau Veritas Consumer Products Services Ltd., Taoyuan 32454



A D T

Data: 3



Site : 966 Chamber 5

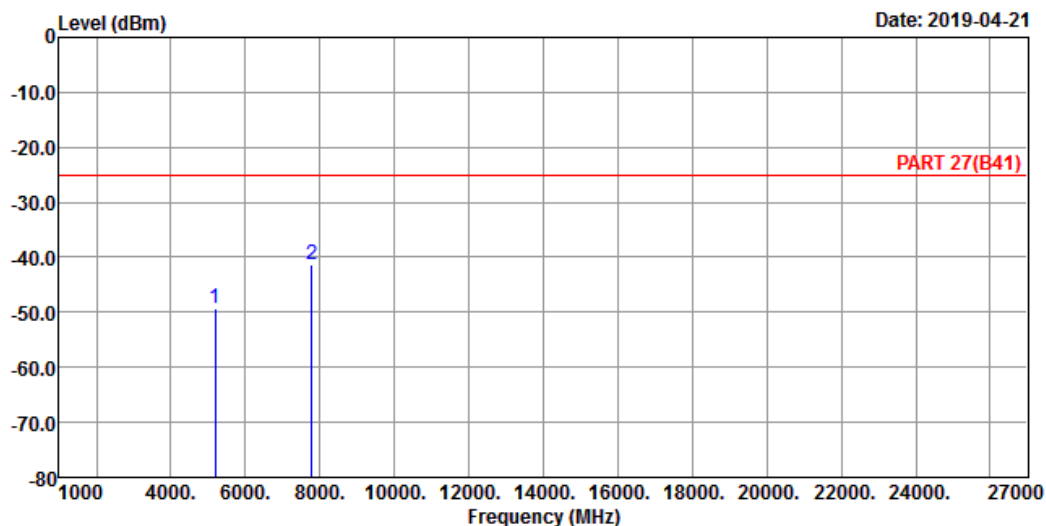
Condition: PART 27(B41) HORIZONTAL

Remak : LTE Band 41 QPSK_5M Link_M-CH

Tested by: Jisyong Wang

			Read	Limit		Over	
	Freq	Level	Level	Line	Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5186.00	-50.65	-48.66	-25.00	-1.99	-25.65	Peak
2 pp	7779.00	-41.64	-46.38	-25.00	4.74	-16.64	Peak

Data: 4



Site : 966 Chamber 5

Condition: PART 27(B41) VERTICAL

Remak : LTE Band 41 QPSK_5M Link_M-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5186.00	-49.33	-47.34	-25.00	-1.99	-24.33	Peak
2 pp	7779.00	-41.47	-46.21	-25.00	4.74	-16.47	Peak

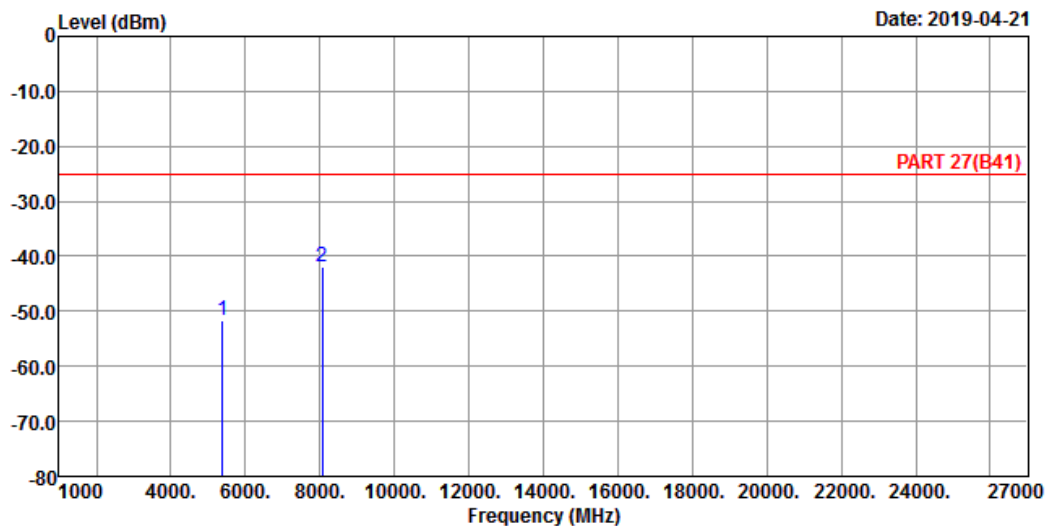
High Channel

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A D T

Data: 3



Site : 966 Chamber 5

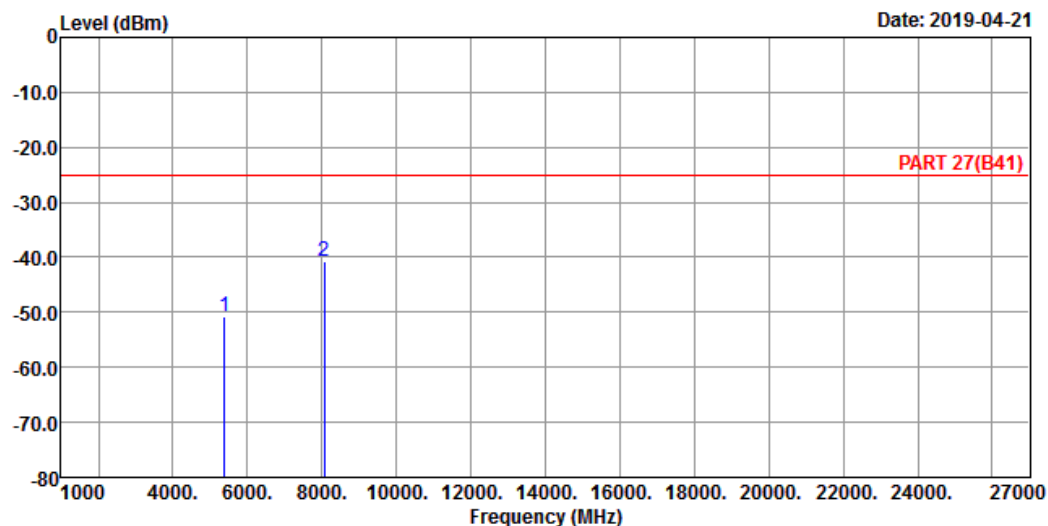
Condition: PART 27(B41) HORIZONTAL

Remak : LTE Band 41 QPSK_5M Link_H-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5375.00	-51.73	-49.33	-25.00	-2.40	-26.73	Peak
2 pp	8062.50	-41.81	-46.91	-25.00	5.10	-16.81	Peak

Data: 4



Site : 966 Chamber 5

Condition: PART 27(B41) VERTICAL

Remak : LTE Band 41 QPSK_5M Link_H-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5375.00	-50.70	-48.30	-25.00	-2.40	-25.70	Peak
2 pp	8062.50	-40.64	-45.74	-25.00	5.10	-15.64	Peak

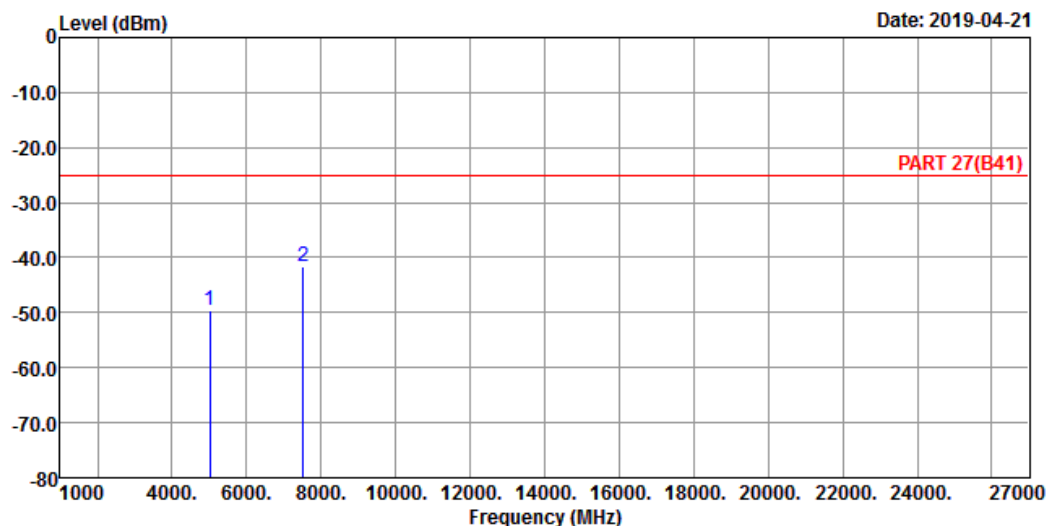
Channel Bandwidth: 20 MHz / QPSK
Low Channel

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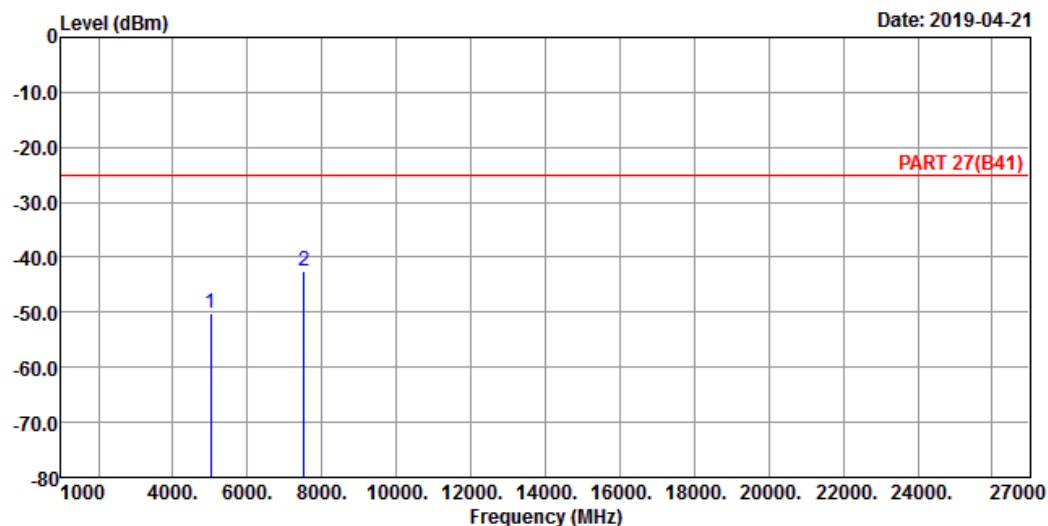
Data: 3



Site : 966 Chamber 5
Condition: PART 27(B41) HORIZONTAL
Remak : LTE Band 41 QPSK_20M Link_L-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5012.00	-49.70	-47.24	-25.00	-2.46	-24.70	Peak
2 pp	7518.00	-41.63	-45.84	-25.00	4.21	-16.63	Peak

Data: 4



Site : 966 Chamber 5
Condition: PART 27(B41) VERTICAL
Remak : LTE Band 41 QPSK_20M Link_L-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5012.00	-50.06	-47.60	-25.00	-2.46	-25.06	Peak
2 pp	7518.00	-42.54	-46.75	-25.00	4.21	-17.54	Peak

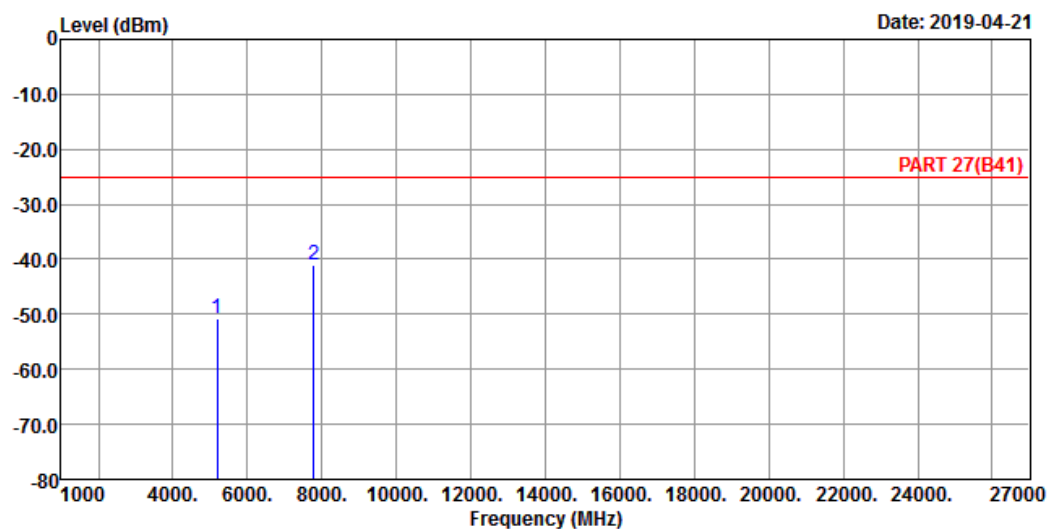
Middle Channel

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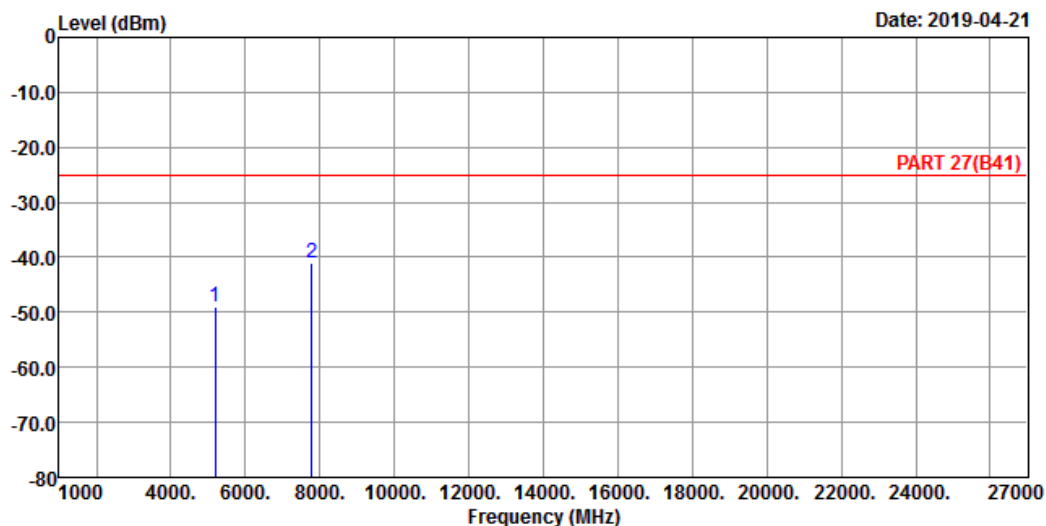
Data: 3



Site : 966 Chamber 5
Condition: PART 27(B41) HORIZONTAL
Remak : LTE Band 41 QPSK_20M Link_M-CH
Tested by: Jisyong Wang

			Read	Limit		Over	
	Freq	Level	Level	Line	Factor	Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5186.00	-50.80	-48.81	-25.00	-1.99	-25.80	Peak
2 pp	7779.00	-41.12	-45.86	-25.00	4.74	-16.12	Peak

Data: 4



Site : 966 Chamber 5

Condition: PART 27(B41) VERTICAL

Remak : LTE Band 41 QPSK_20M Link_M-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	5186.00	-49.04	-47.05	-25.00	-1.99	-24.04	Peak
2 pp	7779.00	-41.03	-45.77	-25.00	4.74	-16.03	Peak

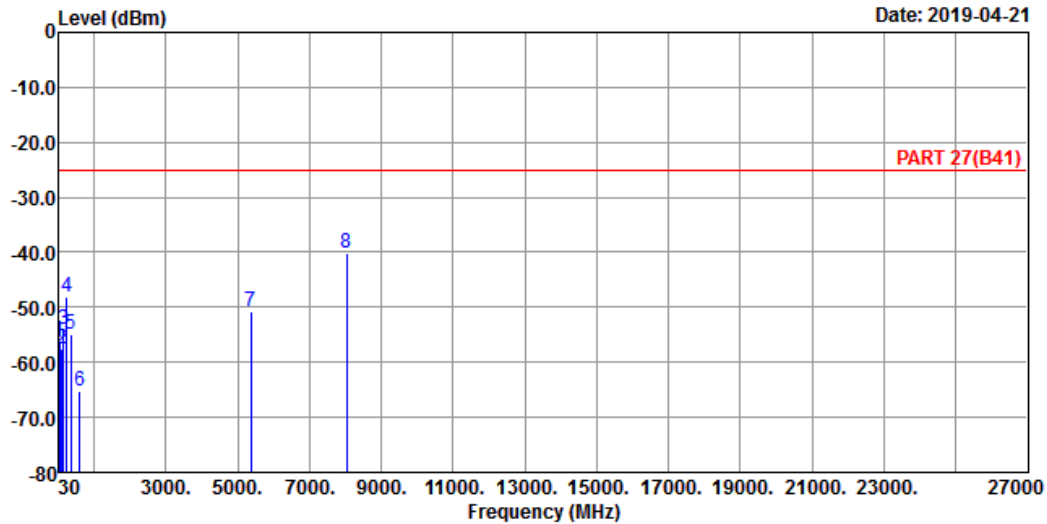
High Channel

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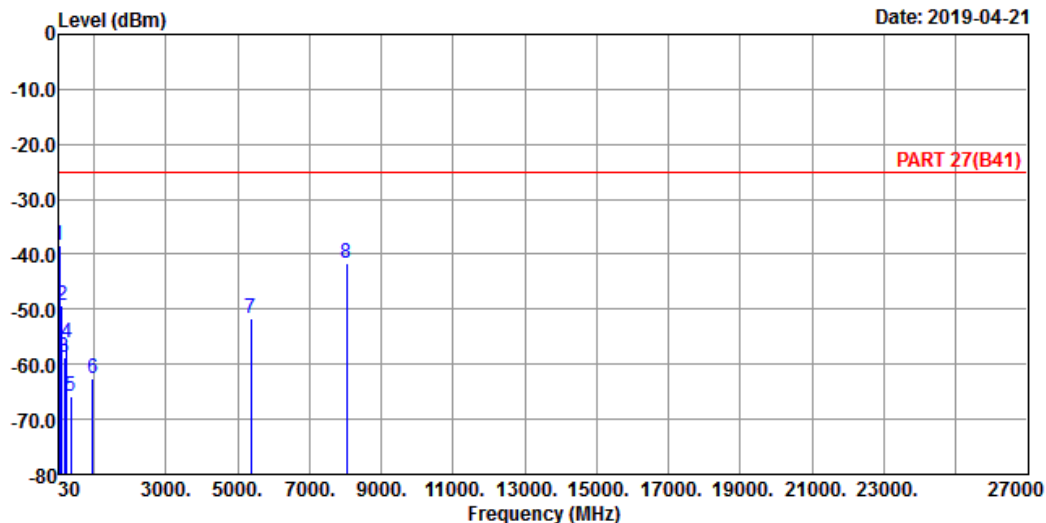
Data: 5



Site : 966 Chamber 5
Condition: PART 27(B41) VERTICAL
Remak : LTE Band 41 QPSK_20M Link_H-CH
Tested by: Jisyoung Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	41.64	-56.37	-55.96	-25.00	-0.41	-31.37	Peak
2	104.69	-57.51	-47.07	-25.00	-10.44	-32.51	Peak
3	159.98	-53.94	-49.10	-25.00	-4.84	-28.94	Peak
4	243.40	-48.02	-41.75	-25.00	-6.27	-23.02	Peak
5	348.16	-54.95	-48.68	-25.00	-6.27	-29.95	Peak
6	609.09	-65.14	-64.36	-25.00	-0.78	-40.14	Peak
7	5360.00	-50.87	-48.36	-25.00	-2.51	-25.87	Peak
8 pp	8040.00	-40.25	-45.53	-25.00	5.28	-15.25	Peak

Data: 6



Site : 966 Chamber 5

Condition: PART 27(B41) HORIZONTAL

Remak : LTE Band 41 QPSK_20M Link_H-CH

Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Factor	Over Limit	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	30.00	-38.51	-38.89	-25.00	0.38	-13.51	Peak
2	103.72	-49.41	-38.94	-25.00	-10.47	-24.41	Peak
3	163.86	-58.68	-53.56	-25.00	-5.12	-33.68	Peak
4	243.40	-56.18	-49.91	-25.00	-6.27	-31.18	Peak
5	350.10	-65.79	-59.55	-25.00	-6.24	-40.79	Peak
6	952.47	-62.69	-64.59	-25.00	1.90	-37.69	Peak
7	5360.00	-51.65	-49.14	-25.00	-2.51	-26.65	Peak
8	8040.00	-41.63	-46.91	-25.00	5.28	-16.63	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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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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