4.7 Radiated Emission Measurement

4.7.1 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 log10(P) dB. The limit of emission is equal to -25 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 = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15 dBi.

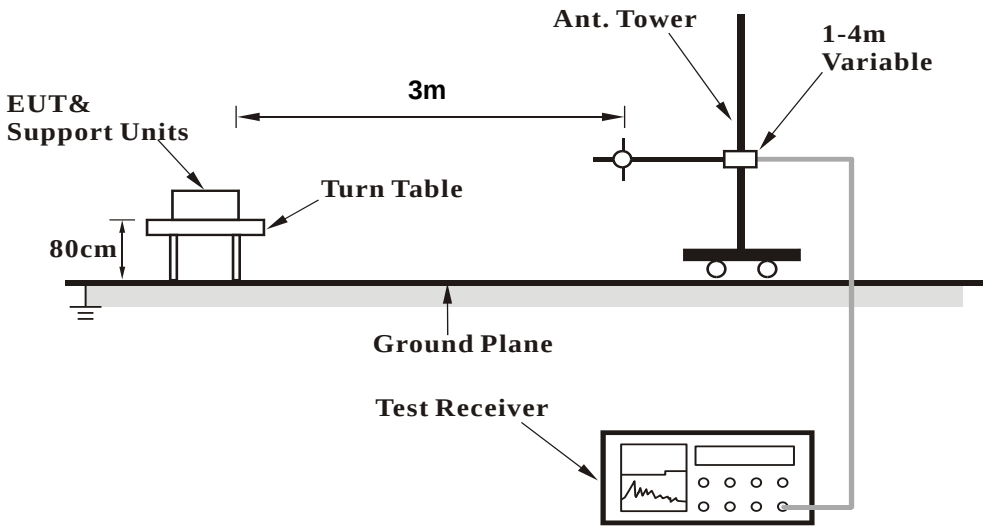
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.7.3 Deviation from Test Standard

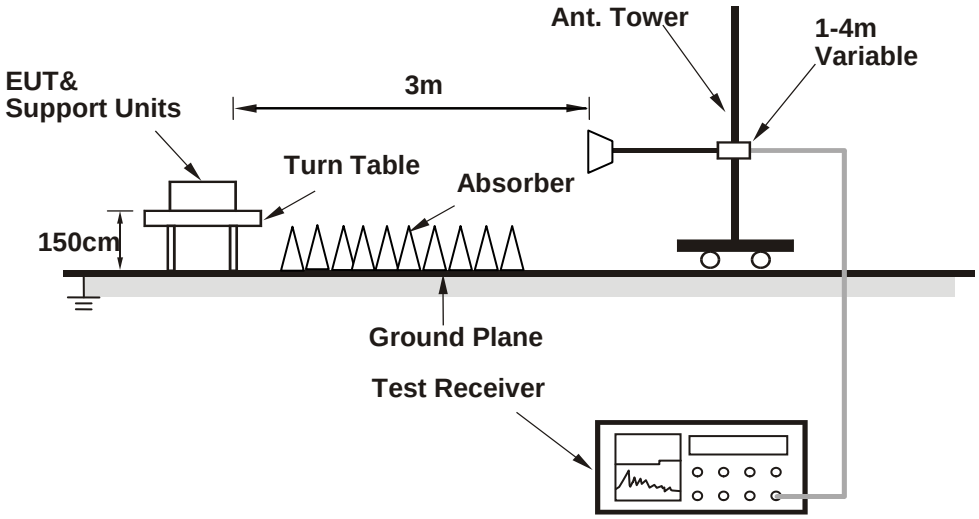
No deviation.

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).

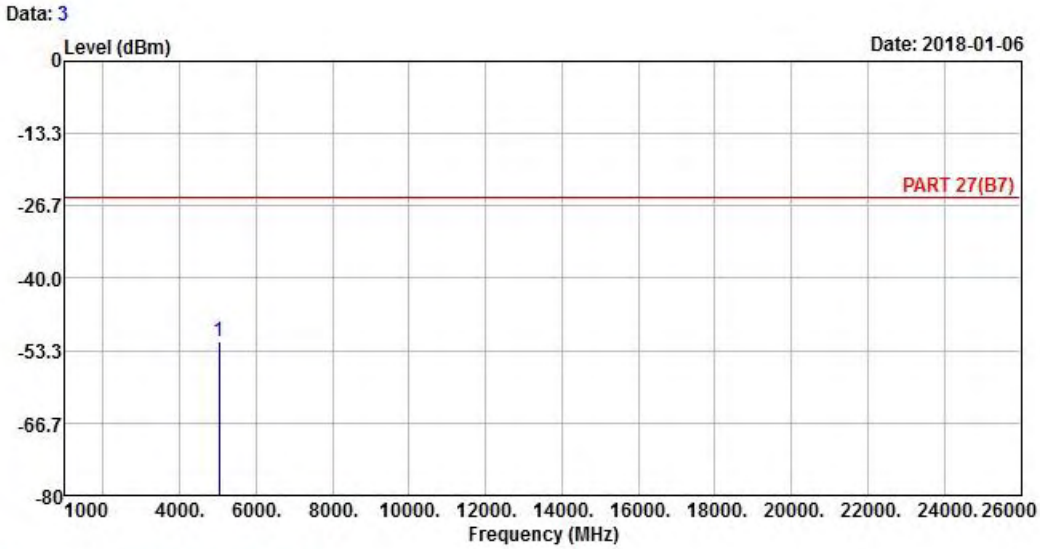
4.7.5 Test Results

LTE Band 7

Channel Bandwidth: 20 MHz / QPSK

Low Channel

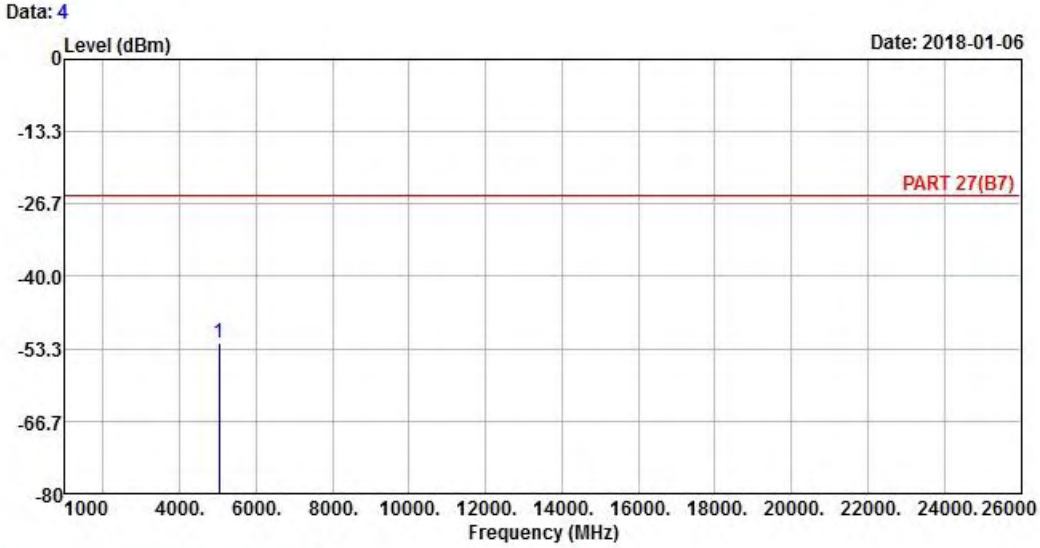
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5020.00	-51.56	-48.33	-25.00	-26.56	-3.23	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

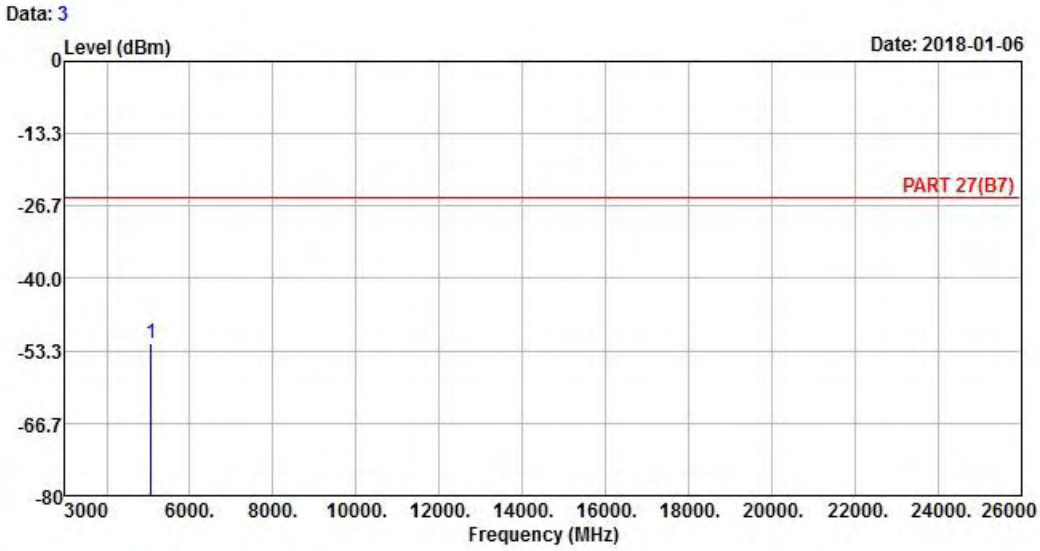


Site : 966 Chamber 5
Condition: PART 27(B7) VERTICAL
Remak : LTE Band 7 QPSK_20M Link_L-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5020.00	-52.15	-48.92	-25.00	-27.15	-3.23	Peak

Middle Channel

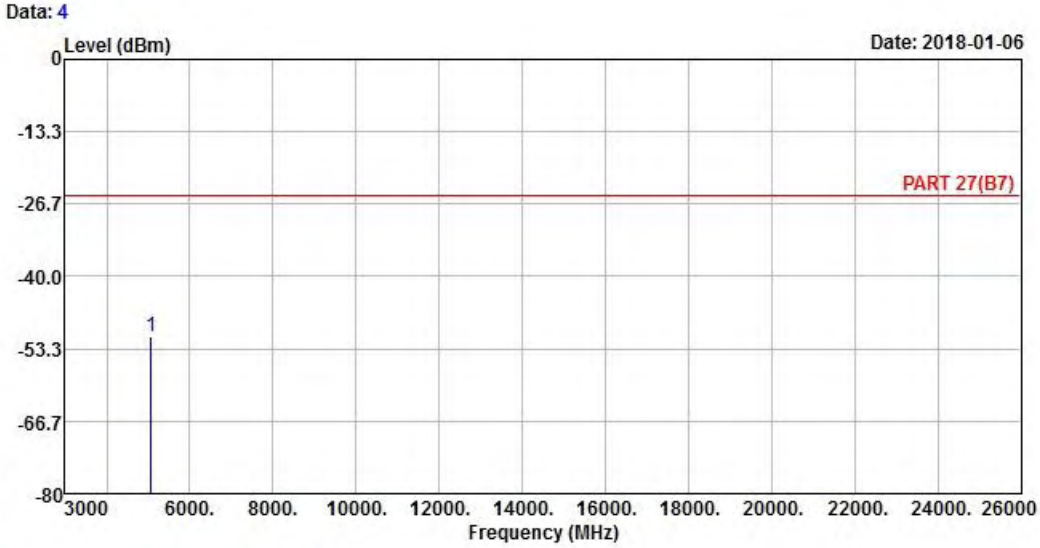
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5070.00	-52.03	-48.91	-25.00	-27.03	-3.12	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

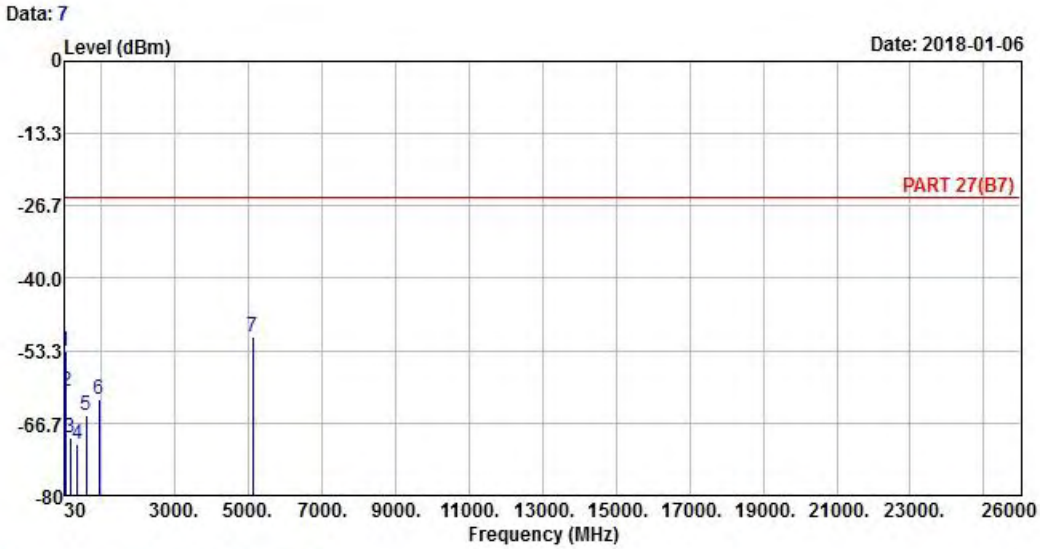


Site : 966 Chamber 5
Condition: PART 27(B7) VERTICAL
Remak : LTE Band 7 QPSK_20M Link_M-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5070.00	-51.19	-48.07	-25.00	-26.19	-3.12	Peak

High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

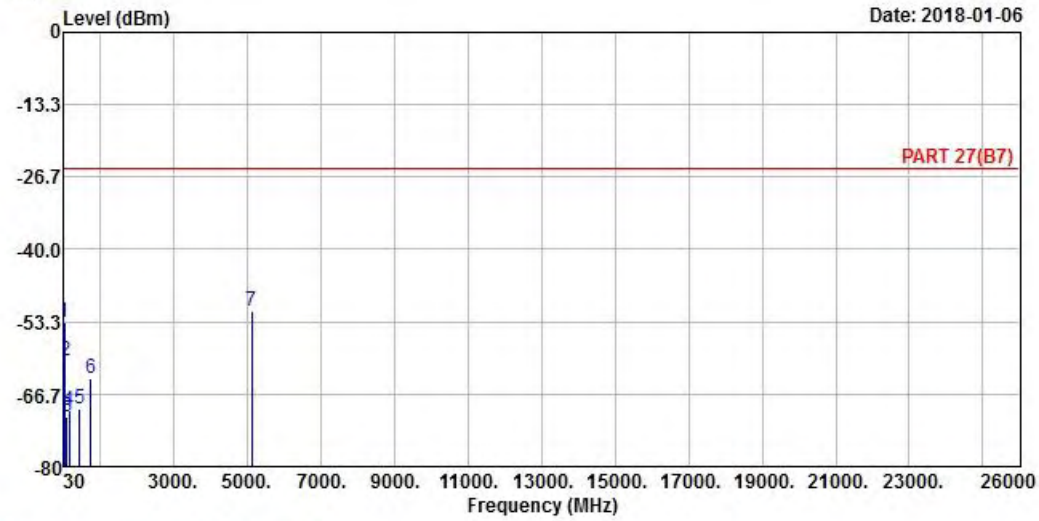


Site : 966 Chamber 5
Condition: PART 27(B7) HORIZONTAL
Remak : LTE Band 7 QPSK_20M Link_H-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.23	-53.36	-51.89	-25.00	-28.36	-1.47	Peak
2	53.22	-60.74	-54.93	-25.00	-35.74	-5.81	Peak
3	164.46	-69.37	-64.18	-25.00	-44.37	-5.19	Peak
4	356.70	-70.62	-64.42	-25.00	-45.62	-6.20	Peak
5	612.90	-65.23	-64.44	-25.00	-40.23	-0.79	Peak
6	947.50	-62.31	-64.06	-25.00	-37.31	1.75	Peak
7 pp	5120.00	-50.90	-47.89	-25.00	-25.90	-3.01	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

Data: 8



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

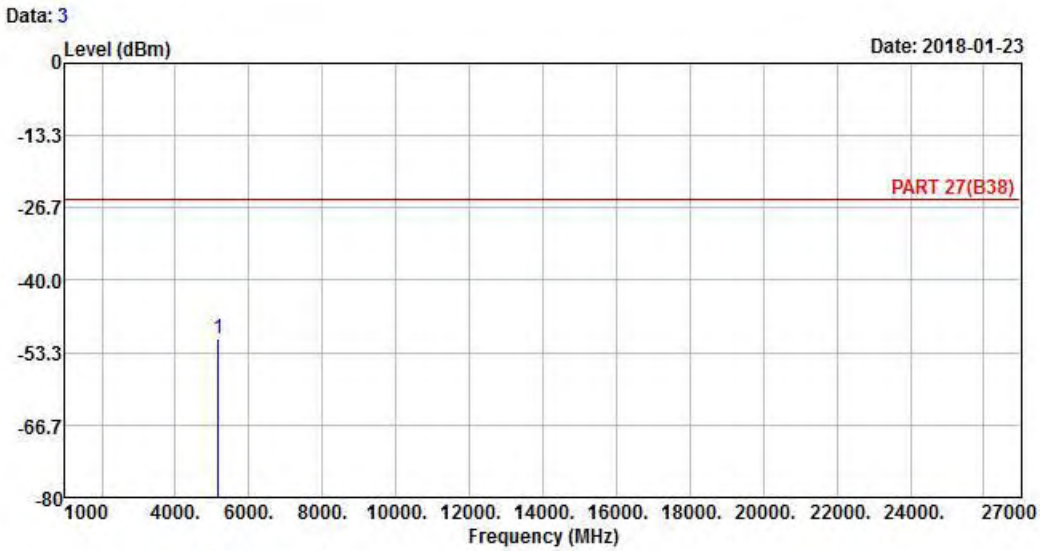
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.23	-53.40	-51.93	-25.00	-28.40	-1.47	Peak
2	52.41	-60.51	-54.97	-25.00	-35.51	-5.54	Peak
3	101.01	-70.76	-60.22	-25.00	-45.76	-10.54	Peak
4	166.62	-69.67	-64.35	-25.00	-44.67	-5.32	Peak
5	450.50	-69.41	-63.88	-25.00	-44.41	-5.53	Peak
6	751.50	-63.83	-64.70	-25.00	-38.83	0.87	Peak
7 pp	5120.00	-51.34	-48.33	-25.00	-26.34	-3.01	Peak

LTE Band 38

Channel Bandwidth: 20 MHz / QPSK

Low Channel

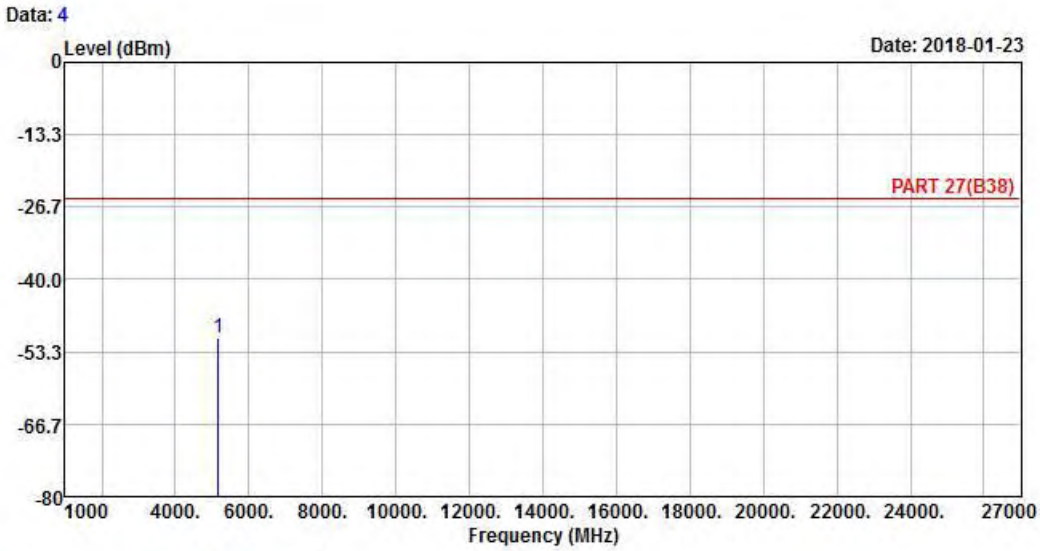
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5160.00	-50.85	-47.92	-25.00	-25.85	-2.93	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

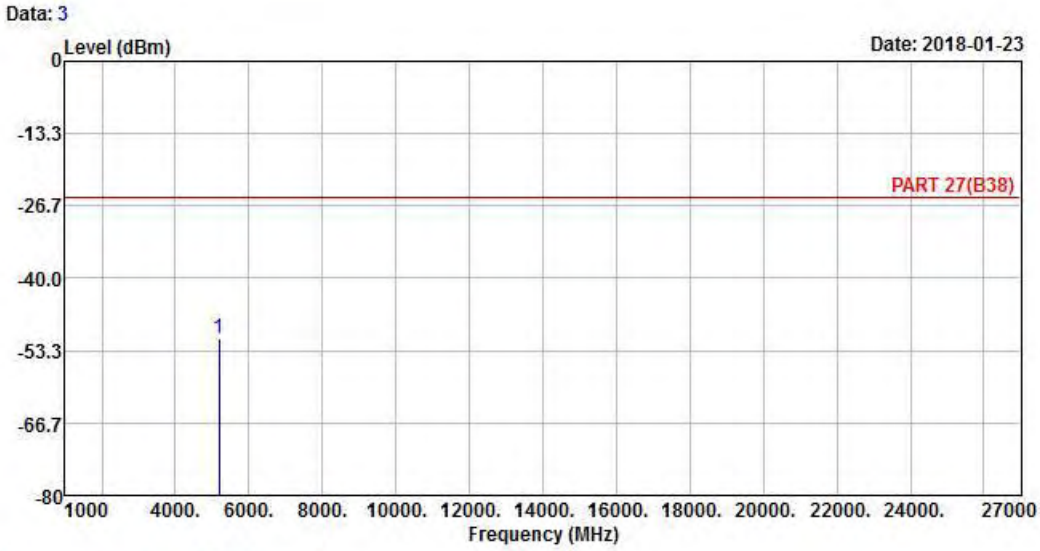


Site : 966 Chamber 5
Condition: PART 27(B38) VERTICAL
Remak : LTE Band 38 QPSK_20M Link_L-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5160.00	-50.87	-47.94	-25.00	-25.87	-2.93	Peak

Middle Channel

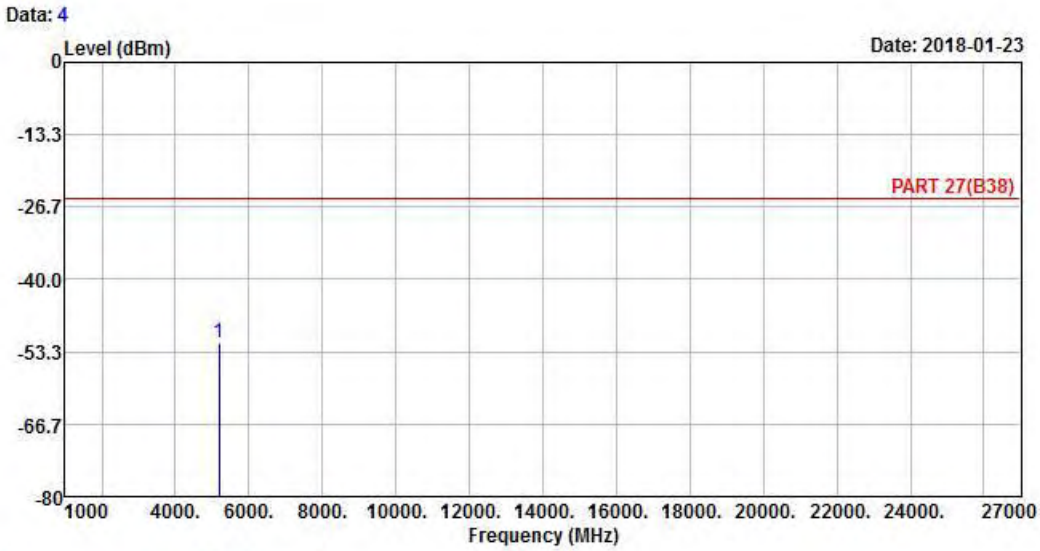
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5190.00	-50.97	-48.11	-25.00	-25.97	-2.86	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



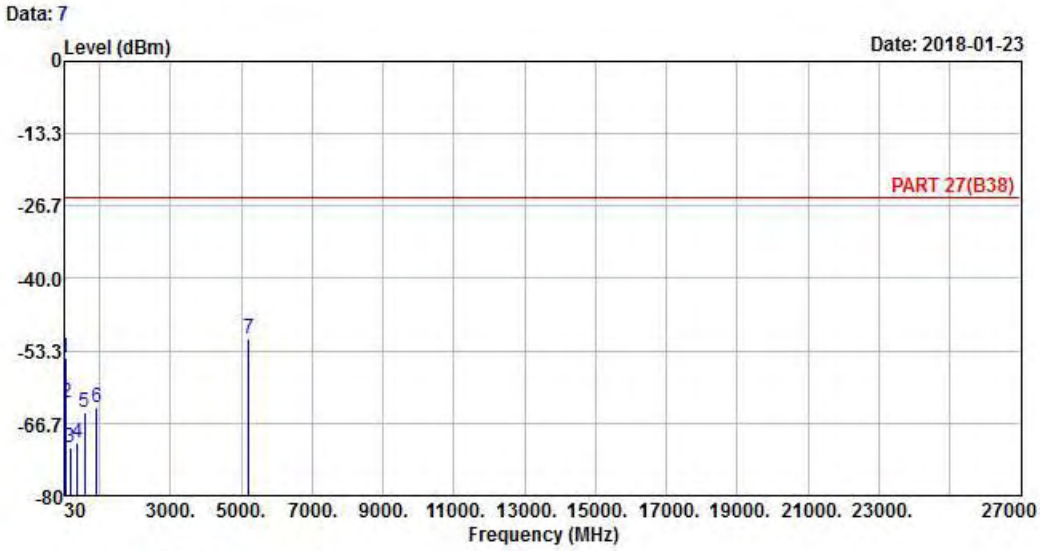
Site : 966 Chamber 5
Condition: PART 27(B38) VERTICAL
Remak : LTE Band 38 QPSK_20M Link_M-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5190.00	-51.61	-48.75	-25.00	-26.61	-2.86	Peak

High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T



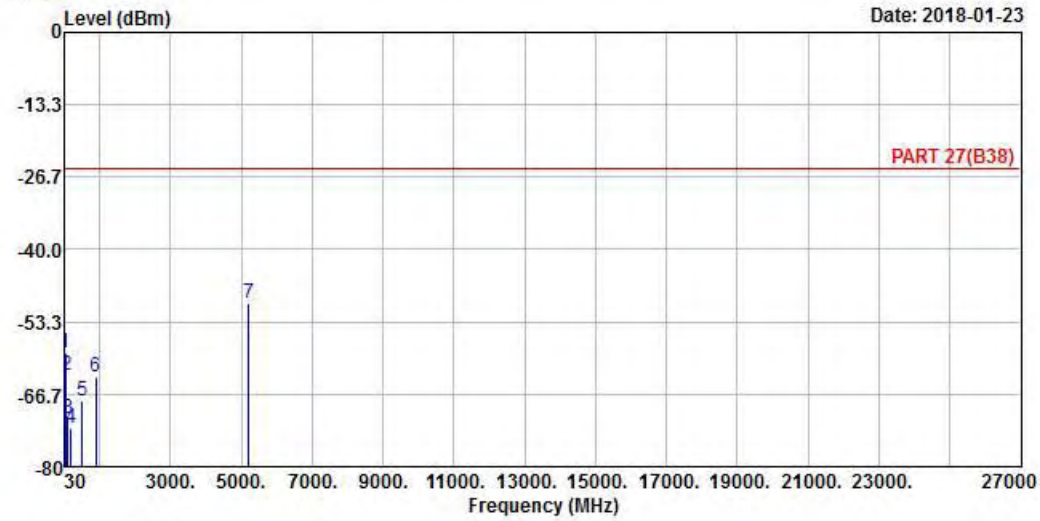
Site : 966 Chamber 5
Condition: PART 27(B38) HORIZONTAL
Remak : LTE Band 38 QPSK_20M Link_H-CH
Tested by: Getaz Yang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	41.88	-54.52	-54.11	-25.00	-29.52	-0.41	Peak
2	54.57	-62.90	-56.83	-25.00	-37.90	-6.07	Peak
3	164.46	-71.04	-65.85	-25.00	-46.04	-5.19	Peak
4	379.80	-70.32	-64.26	-25.00	-45.32	-6.06	Peak
5	581.40	-64.74	-63.18	-25.00	-39.74	-1.56	Peak
6	909.00	-63.71	-64.50	-25.00	-38.71	0.79	Peak
7 pp	5220.00	-51.17	-48.41	-25.00	-26.17	-2.76	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 8



Site : 966 Chamber 5
Condition: PART 27(B38) VERTICAL
Remak : LTE Band 38 QPSK_20M Link_H-CH
Tested by: Getaz Yang

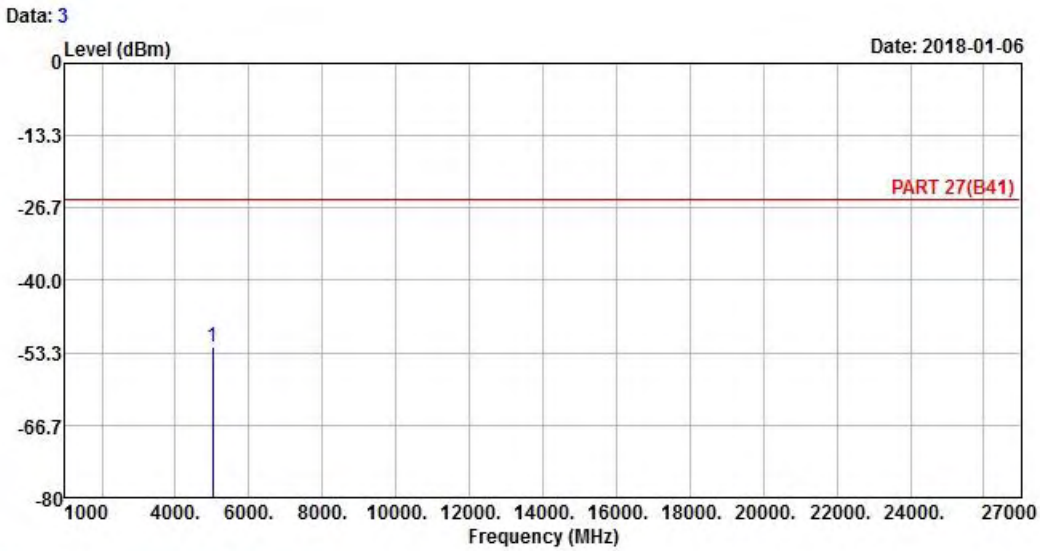
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.85	-59.02	-57.03	-25.00	-34.02	-1.99	Peak
2	54.84	-63.25	-56.91	-25.00	-38.25	-6.34	Peak
3	99.66	-71.26	-60.70	-25.00	-46.26	-10.56	Peak
4	193.89	-73.05	-65.59	-25.00	-48.05	-7.46	Peak
5	514.20	-68.02	-63.89	-25.00	-43.02	-4.13	Peak
6	884.50	-63.46	-63.95	-25.00	-38.46	0.49	Peak
7 pp	5220.00	-49.95	-47.19	-25.00	-24.95	-2.76	Peak

LTE Band 41

Channel Bandwidth: 20 MHz / QPSK

Low Channel

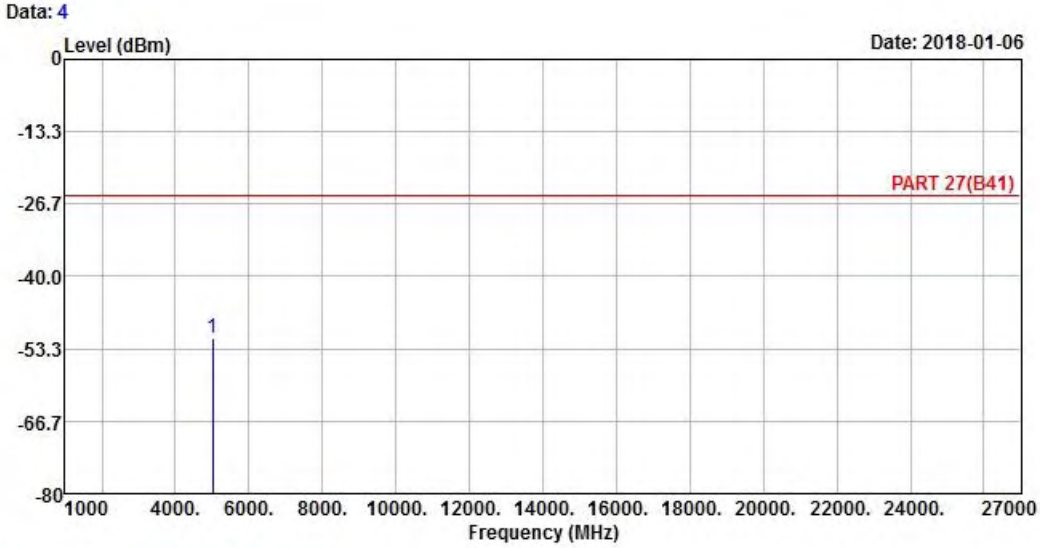
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5012.00	-52.12	-48.89	-25.00	-27.12	-3.23	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

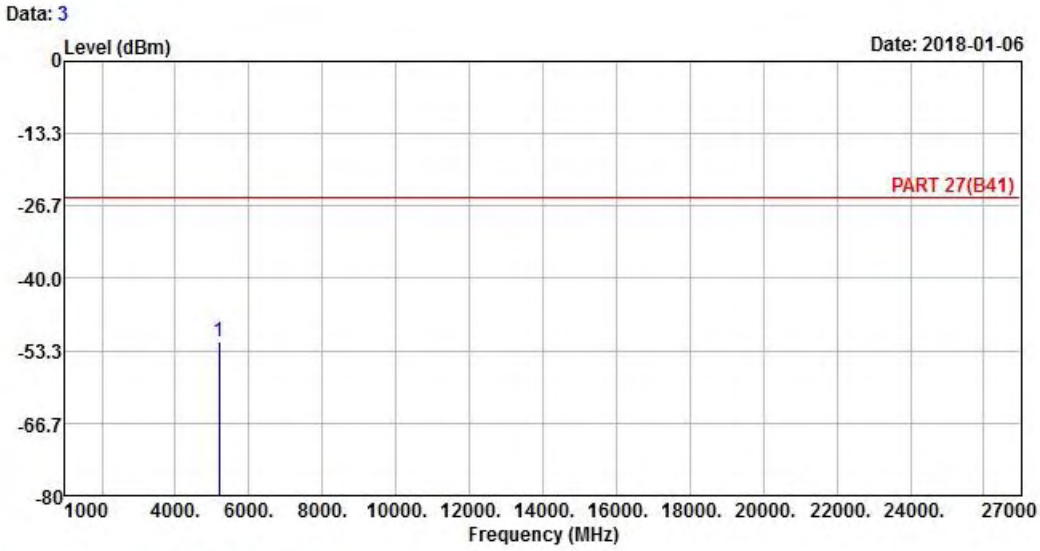


Site : 966 Chamber 5
Condition: PART 27(B41) VERTICAL
Remak : LTE Band 41 QPSK_20M Link _L-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5012.00	-51.45	-48.22	-25.00	-26.45	-3.23	Peak

Middle Channel

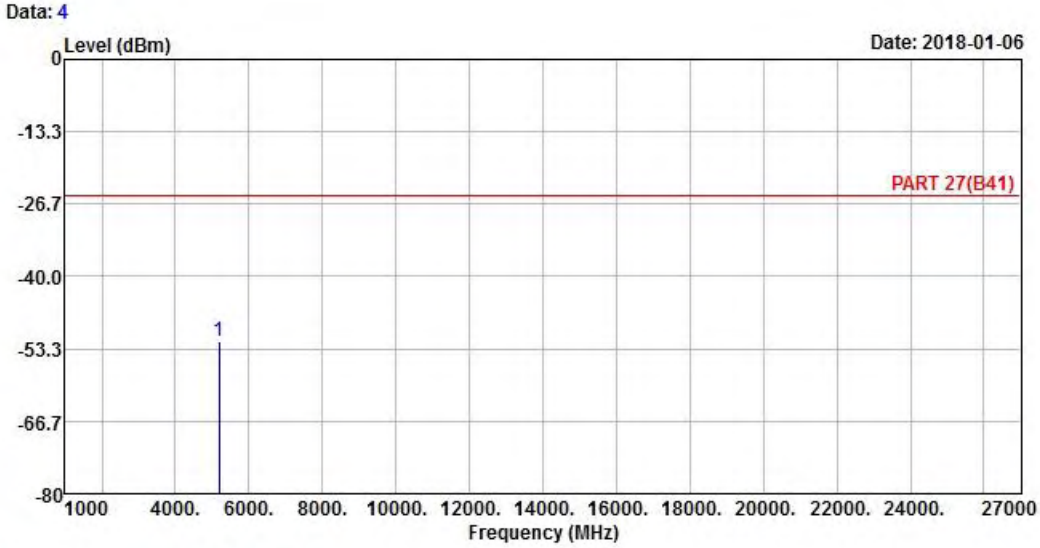
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5186.00	-51.78	-48.92	-25.00	-26.78	-2.86	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

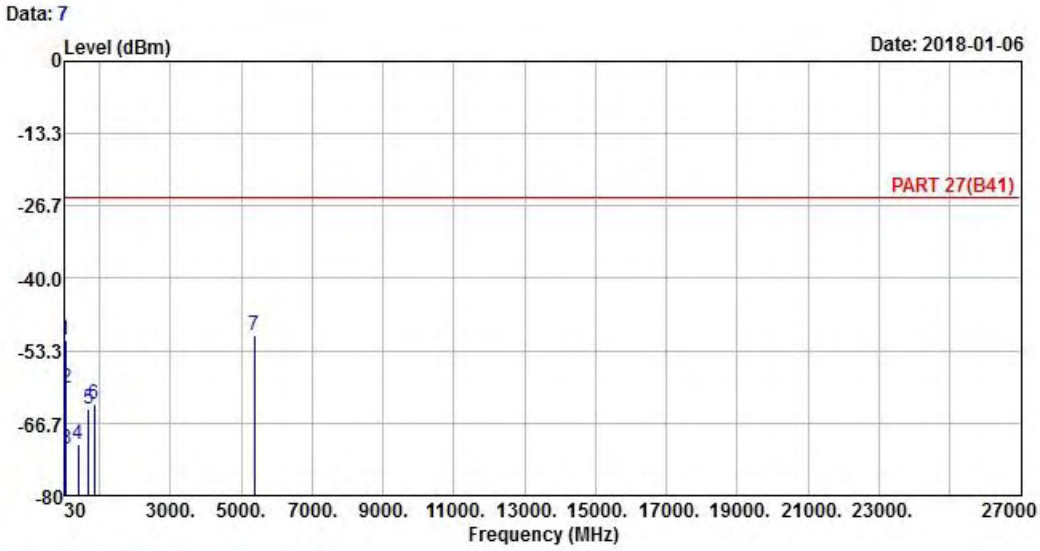


Site : 966 Chamber 5
Condition: PART 27(B41) VERTICAL
Remak : LTE Band 41 QPSK_20M Link _M-CH
Tested by: Jisyong Wang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	5186.00	-51.83	-48.97	-25.00	-26.83	-2.86	Peak

High Channel

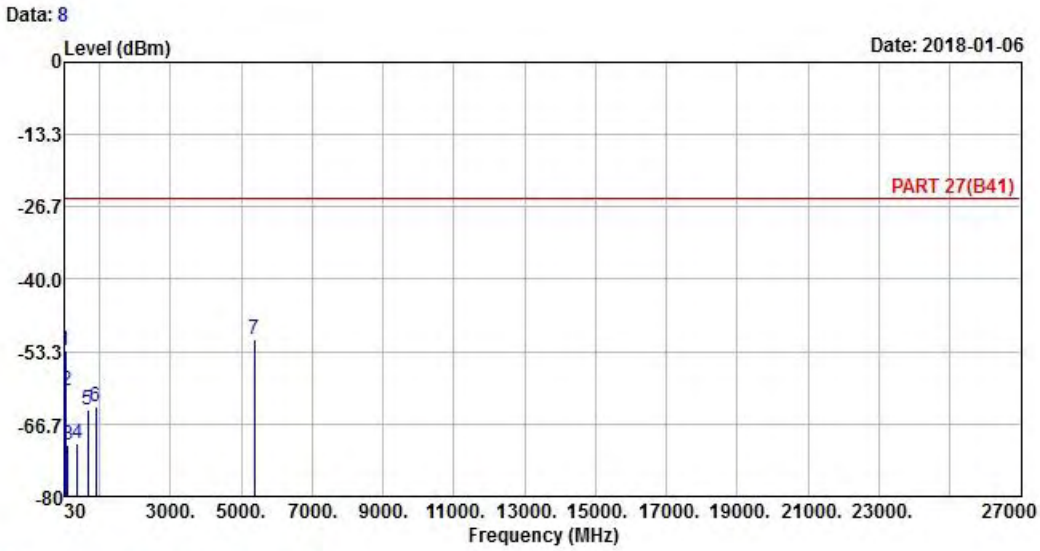
Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.50	-51.22	-49.75	-25.00	-26.22	-1.47	Peak
2	52.68	-60.32	-54.78	-25.00	-35.32	-5.54	Peak
3	66.99	-71.57	-63.39	-25.00	-46.57	-8.18	Peak
4	402.90	-70.60	-64.67	-25.00	-45.60	-5.93	Peak
5	689.90	-64.15	-63.88	-25.00	-39.15	-0.27	Peak
6	848.10	-63.23	-63.54	-25.00	-38.23	0.31	Peak
7 pp	5360.00	-50.53	-48.53	-25.00	-25.53	-2.00	Peak

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	43.23	-53.01	-51.54	-25.00	-28.01	-1.47	Peak
2	52.68	-60.41	-54.87	-25.00	-35.41	-5.54	Peak
3	100.47	-70.64	-60.10	-25.00	-45.64	-10.54	Peak
4	383.30	-70.36	-64.32	-25.00	-45.36	-6.04	Peak
5	680.10	-64.05	-63.63	-25.00	-39.05	-0.42	Peak
6	884.50	-63.46	-63.95	-25.00	-38.46	0.49	Peak
7 pp	5360.00	-51.00	-49.00	-25.00	-26.00	-2.00	Peak

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety
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 ---