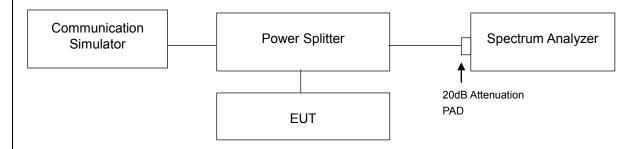


### 4.6 Conducted Spurious Emissions

### 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 55 +10 log10(P) dB. The limit of emission is equal to -25 dBm.

### 4.6.2 Test Setup

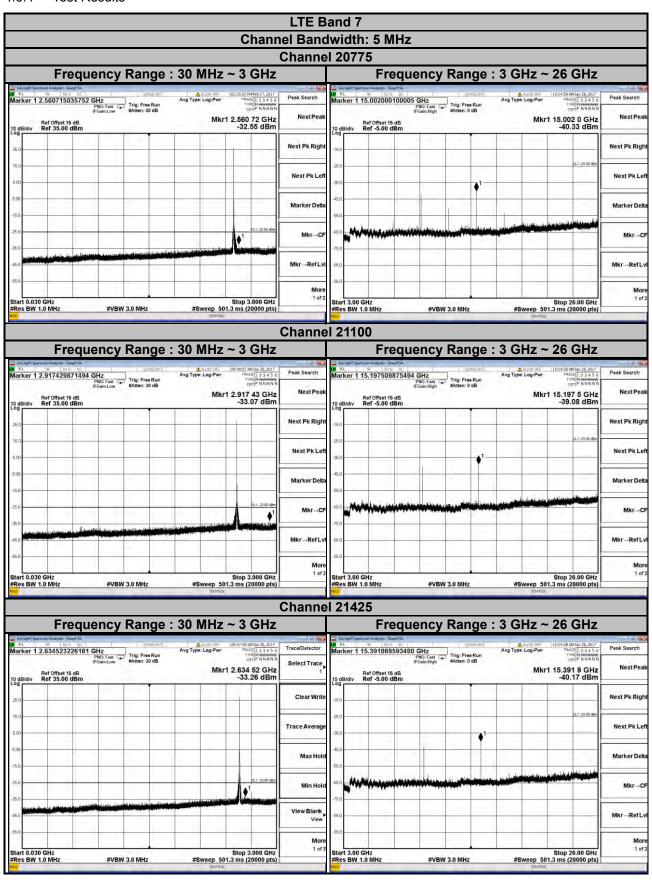


### 4.6.3 Test Procedure

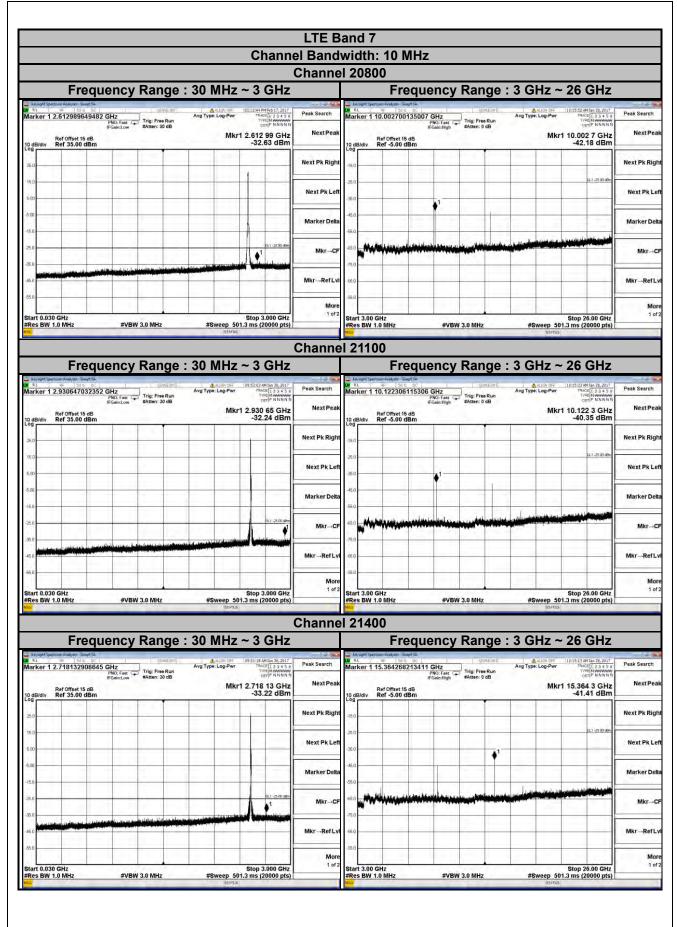
- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 30 MHz to 26 GHz for LTE Band 7 and from 30 MHz to 27 GHz for LTE Band 41. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.



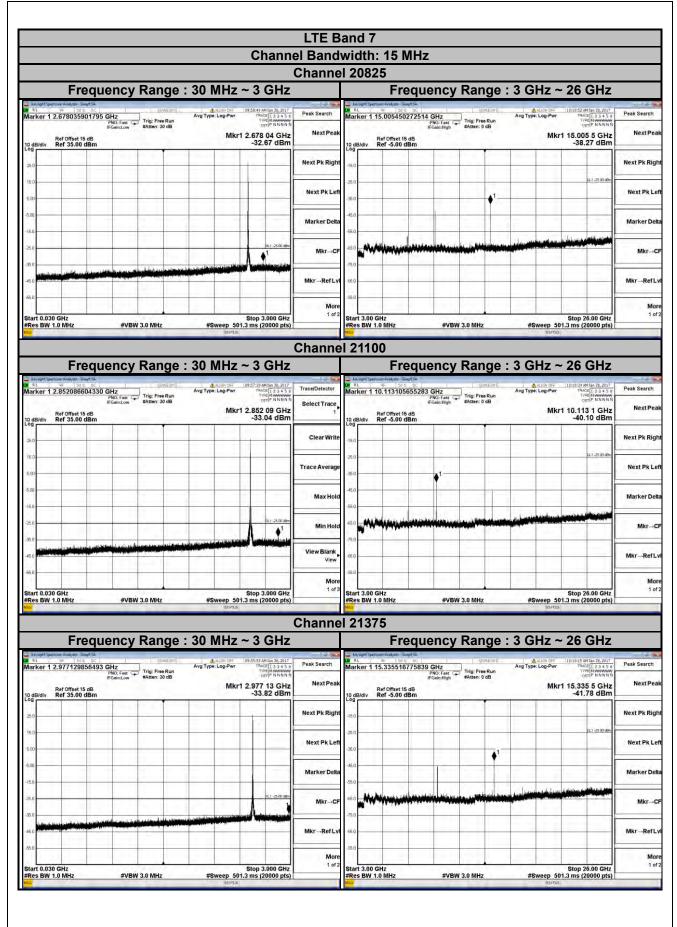
#### 4.6.4 Test Results



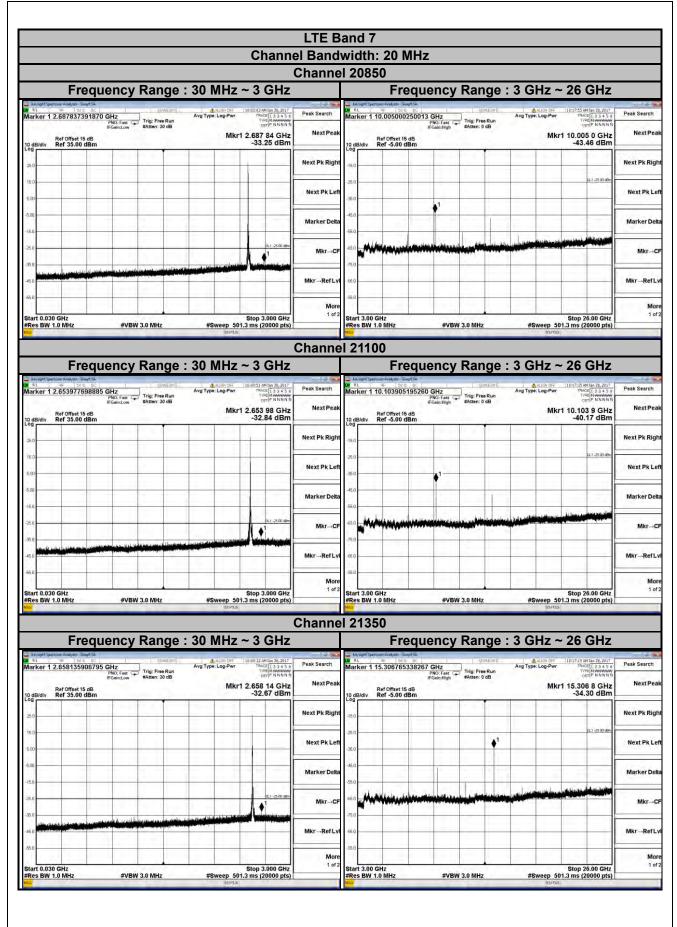




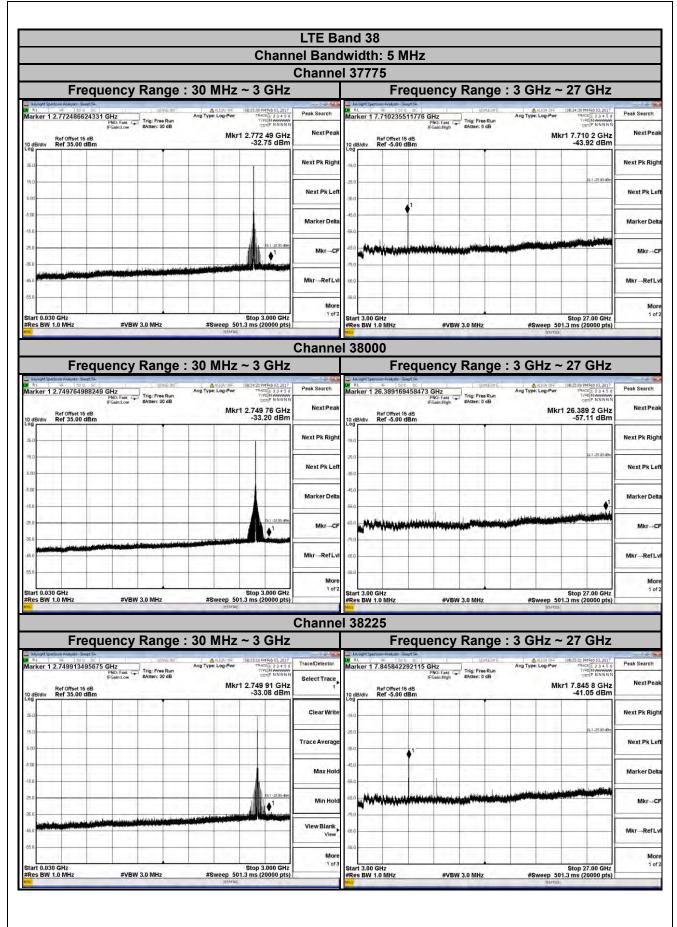




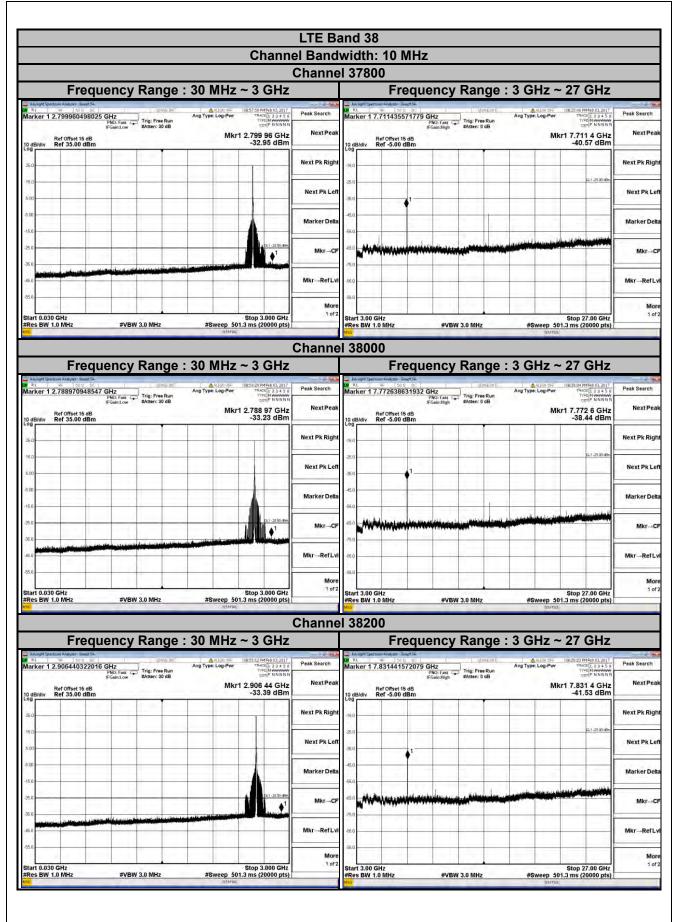




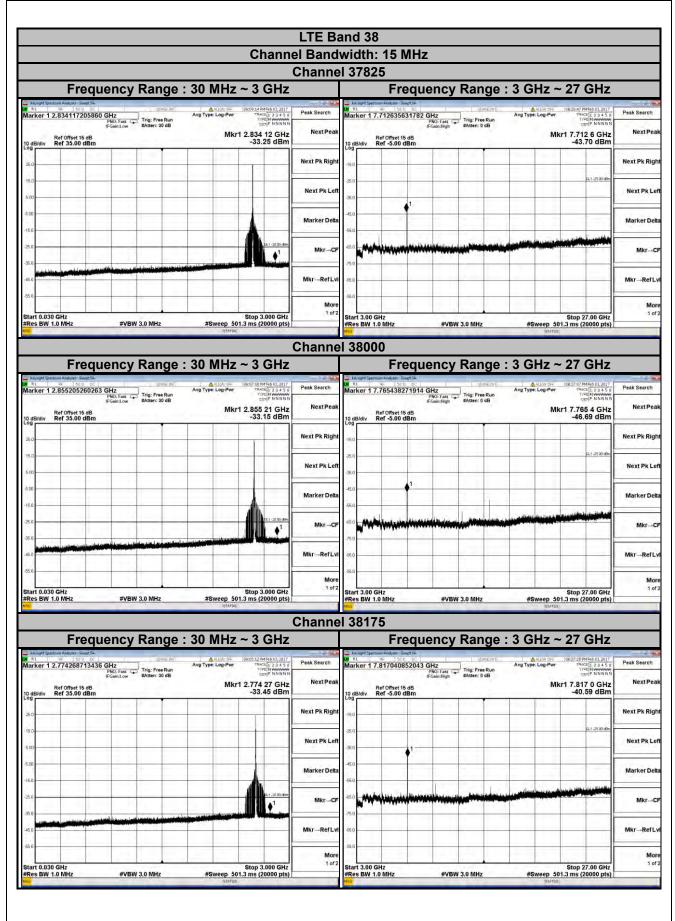




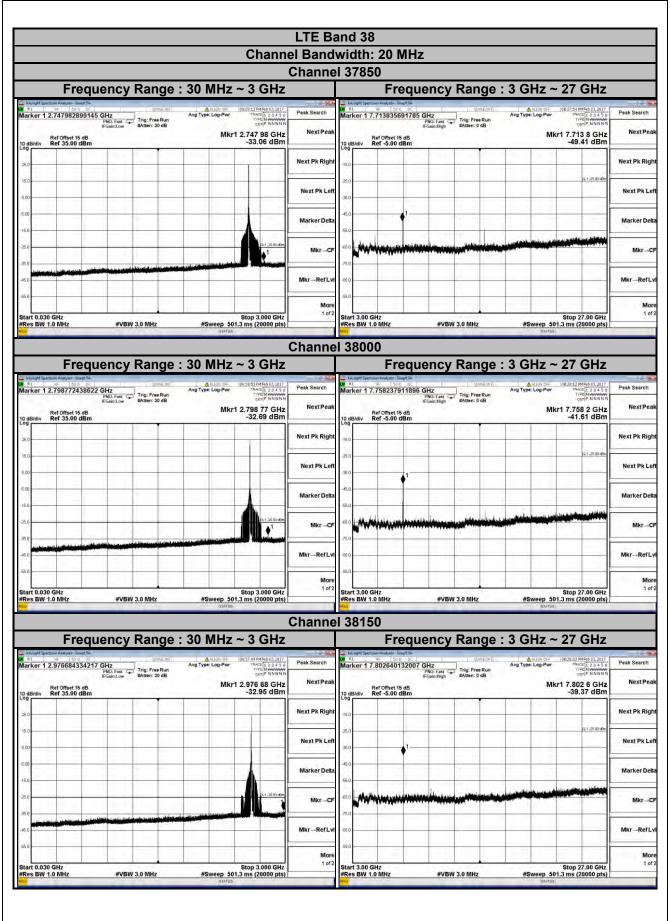




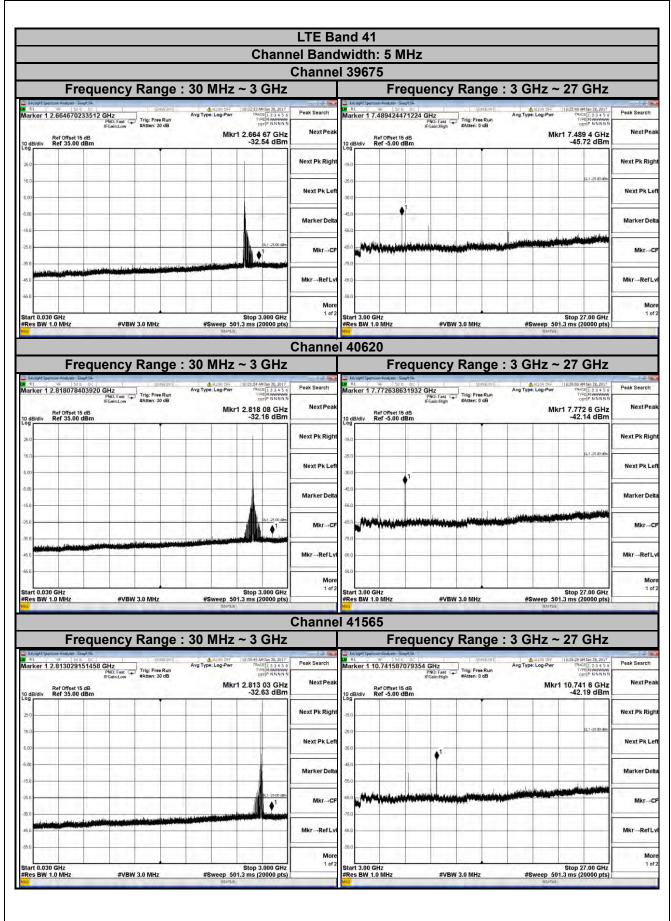




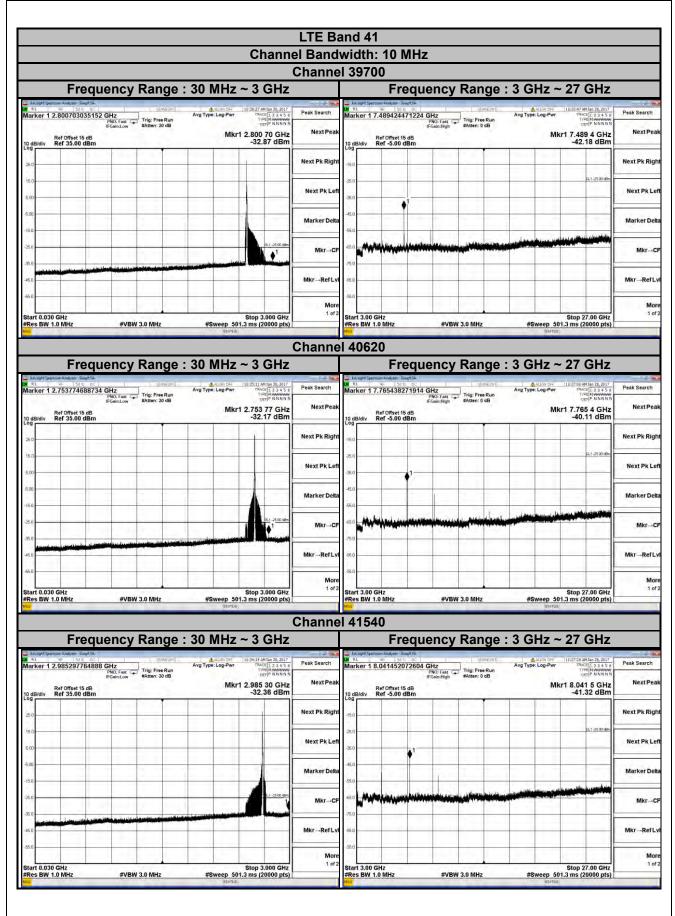




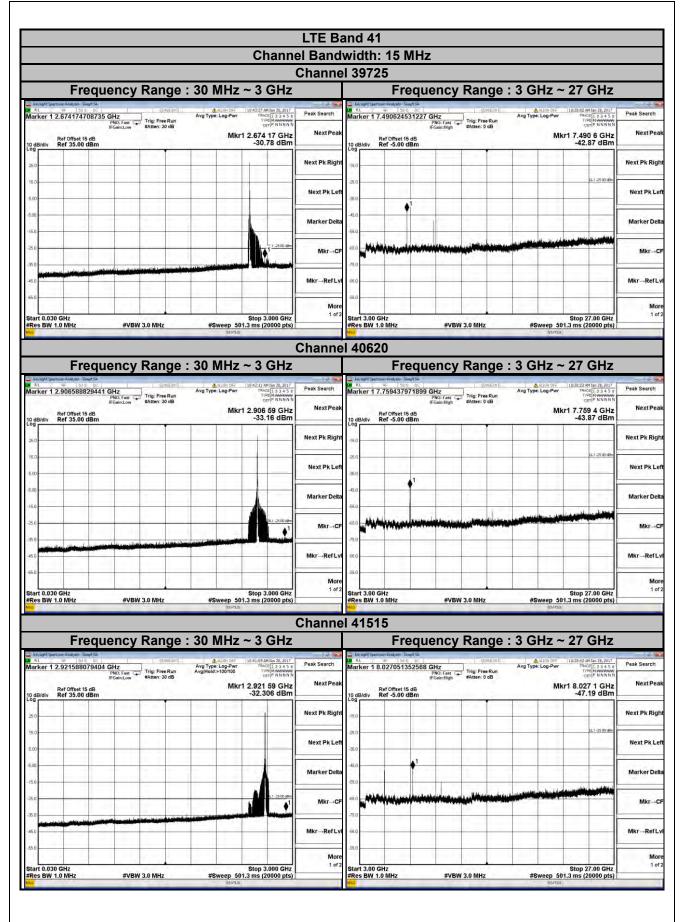




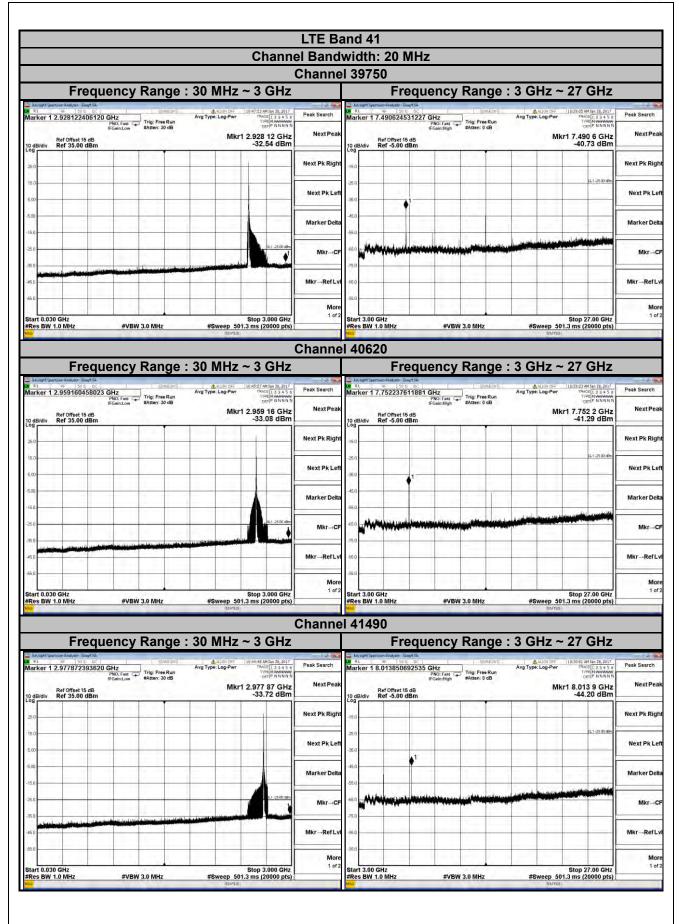














#### 4.7 Radiated Emission Measurement

#### 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

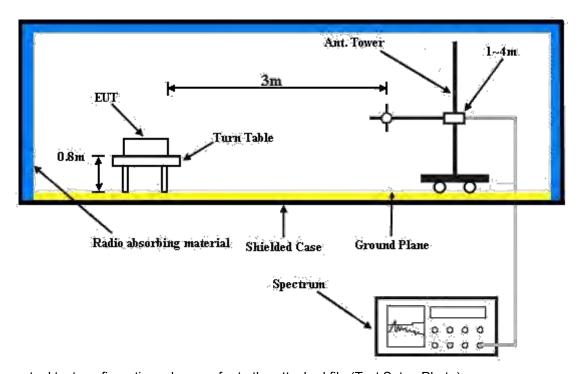
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height 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



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



### 4.7.5 Test Results

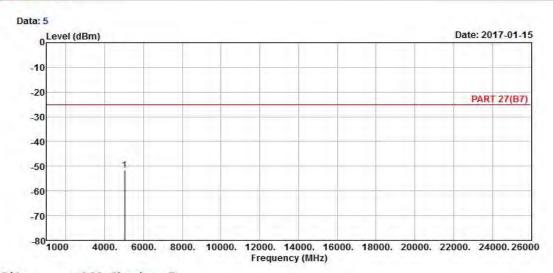
LTE Band 7

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\_L-CH Link

Tested by: Gavin Wu

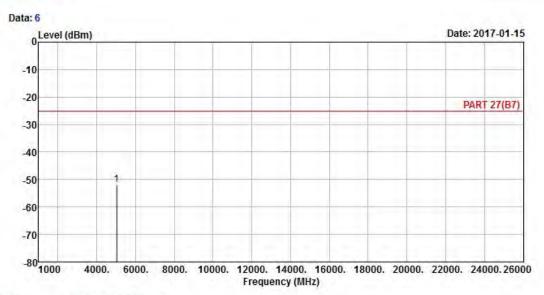
Read Limit Over Freq Level Level Line Limit Factor Remark

MHz dBm dBm dB dB

1 pp 5020.00 -51.76 -48.53 -25.00 -26.76 -3.23 Peak







Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK\_20M\_L-CH Link

Tested by: Gavin Wu

Read Limit Over

Freq Level Level Line Limit Factor Remark

MHz dBm dBm dB dB

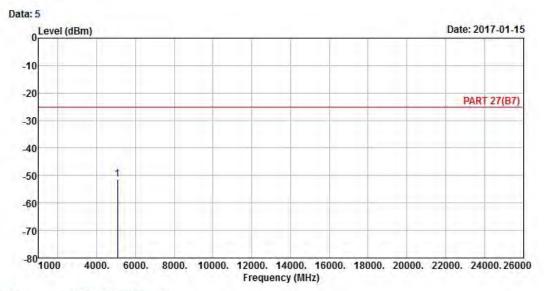
1 pp 5020.00 -51.96 -48.73 -25.00 -26.96 -3.23 Peak



### **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\_M-CH Link

Tested by: Gavin Wu

Read Limit Over

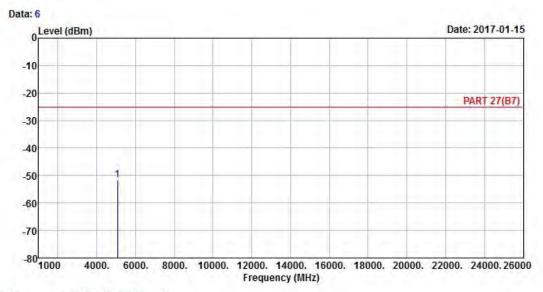
Freq Level Line Limit Factor Remark

MHz dBm dBm dB dB

1 pp 5070.00 -51.28 -48.16 -25.00 -26.28 -3.12 Peak







Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK\_20M\_M-CH Link

Tested by: Gavin Wu

Read Limit Over

Freq Level Level Line Limit Factor Remark

MHz dBm dBm dB dB

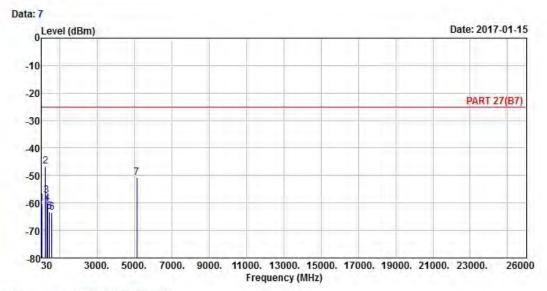
1 pp 5070.00 -51.61 -48.49 -25.00 -26.61 -3.12 Peak



# **High Channel**



## Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition: PART 27(B7) HORIZONTAL

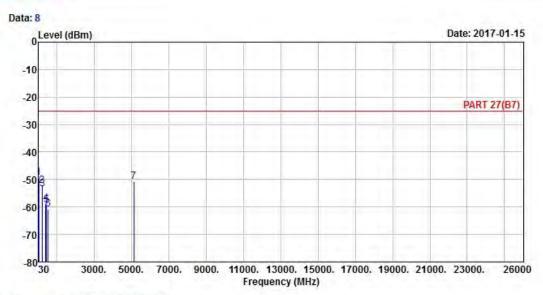
Remak : LTE Band 7 QPSK\_20M\_H-CH Link

Tested by: Gavin Wu

Read Limit Over Freq Level Level Line Limit Factor Remark MHz dBm dBm dBm dB dB 42.61 -60.13 -59.19 -25.00 -35.13 -0.94 Peak 2 pp 235.64 -46.61 -40.03 -25.00 -21.61 -6.58 Peak 300.63 -57.33 -50.33 -25.00 -32.33 -7.00 Peak 338.46 -60.20 -53.78 -25.00 -35.20 -6.42 Peak 5 448.07 -63.26 -57.69 -25.00 -38.26 -5.57 Peak 576.11 -63.32 -61.56 -25.00 -38.32 -1.76 Peak 5120.00 -50.68 -47.67 -25.00 -25.68 -3.01 Peak







Site : 966 Chamber 5

Condition: PART 27(B7) VERTICAL

Remak : LTE Band 7 QPSK\_20M\_H-CH Link

Tested by: Gavin Wu

Read Limit Over Freq Level Level Line Limit Factor Remark

	MHz	dBm	dBm	dBm	dB	dB		
1 pp	41.64	-49.29	-48.88	-25.00	-24.29	-0.41	Peak	
2	207.51	-52.18	-44.47	-25.00	-27.18	-7.71	Peak	
3	232.73	-53.43	-46.73	-25.00	-28.43	-6.70	Peak	
4	402.48	-58.65	-52.72	-25.00	-33.65	-5.93	Peak	
5	460.68	-59.43	-54.08	-25.00	-34.43	-5.35	Peak	
6	546.04	-60.76	-57.77	-25.00	-35.76	-2.99	Peak	
7	5120.00	-50.63	-47.62	-25.00	-25.63	-3.01	Peak	



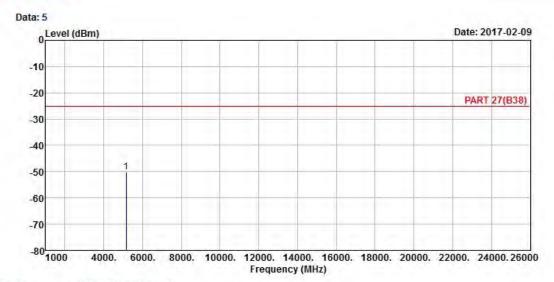
### LTE Band 38

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\_L-CH Link

Tested by: Getaz Yang

Read Limit Over

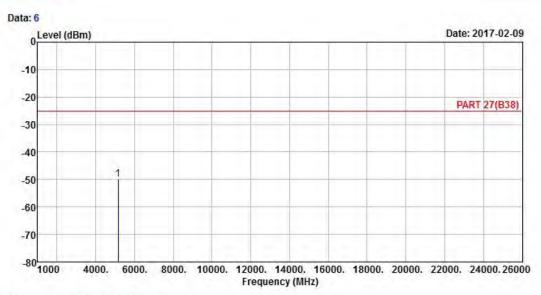
Freq Level Line Limit Factor Remark

MHz dBm dBm dB dB

1 pp 5160.00 -50.11 -47.18 -25.00 -25.11 -2.93 Peak







Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK\_20M\_L-CH Link

Tested by: Getaz Yang

Read Limit Over

Freq Level Line Limit Factor Remark

MHz dBm dBm dB dB

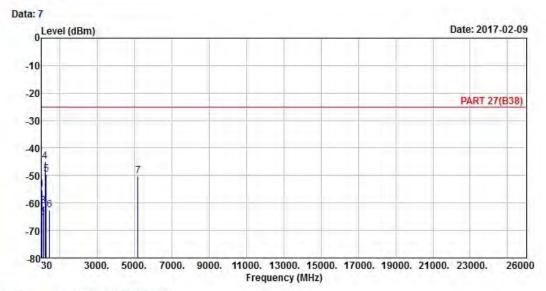
1 pp 5160.00 -49.87 -46.94 -25.00 -24.87 -2.93 Peak



### **Middle Channel**



# Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition: PART 27(B38) HORIZONTAL

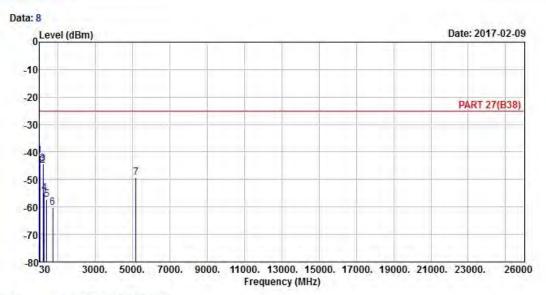
Remak : LTE Band 38 QPSK\_20M\_M-CH Link

Tested by: Getaz Yang

Read Limit Over Freq Level Level Line Limit Factor Remark MHz dBm dBm dBm dB dB 1 41.64 -55.33 -54.92 -13.00 -42.33 -0.41 Peak 46.49 -65.31 -62.31 -13.00 -52.31 -3.00 Peak 2 114.39 -61.02 -50.91 -13.00 -48.02 -10.11 Peak 3 221.09 -45.01 -37.85 -13.00 -32.01 -7.16 Peak 269.59 -49.60 -43.21 -13.00 -36.60 -6.39 Peak 444.19 -62.55 -56.95 -13.00 -49.55 -5.60 Peak 7 pp 5190.00 -50.22 -47.36 -25.00 -25.22 -2.86 Peak







Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK\_20M\_M-CH Link

Tested by: Getaz Yang

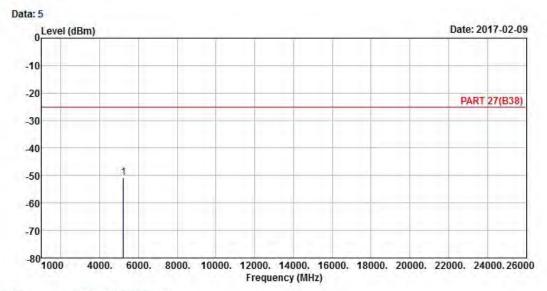
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
-	MHz	dBm	dBm	dBm	dB	dB	
1	46.49	-41.41	-38.41	-13.00	-28.41	-3.00	Peak
2	206.54	-44.74	-36.99	-13.00	-31.74	-7.75	Peak
3	215.27	-44.38	-36.98	-13.00	-31.38	-7.40	Peak
4	271.53	-54.99	-48.56	-13.00	-41.99	-6.43	Peak
5	402.48	-57.27	-51.34	-13.00	-44.27	-5.93	Peak
6	733.25	-60.36	-60.91	-13.00	-47.36	0.55	Peak
7 pp	5190.00	-49.43	-46.57	-25.00	-24.43	-2.86	Peak



## **High Channel**



## Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition: PART 27(B38) HORIZONTAL

Remak : LTE Band 38 QPSK\_20M\_H-CH Link

Tested by: Getaz Yang

Read Limit Over

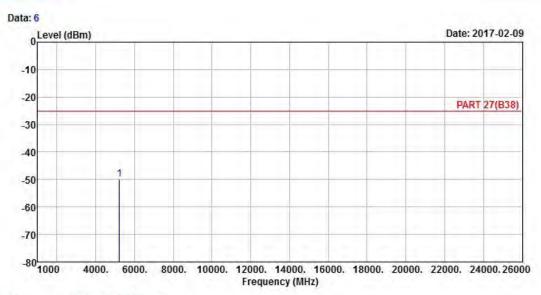
Freq Level Line Limit Factor Remark

MHz dBm dBm dB dB

1 pp 5220.00 -50.76 -48.00 -25.00 -25.76 -2.76 Peak







Site : 966 Chamber 5

Condition: PART 27(B38) VERTICAL

Remak : LTE Band 38 QPSK\_20M\_H-CH Link

Tested by: Getaz Yang

Read Limit Over

Freq Level Line Limit Factor Remark

MHz dBm dBm dB dB

1 pp 5220.00 -49.88 -47.12 -25.00 -24.88 -2.76 Peak



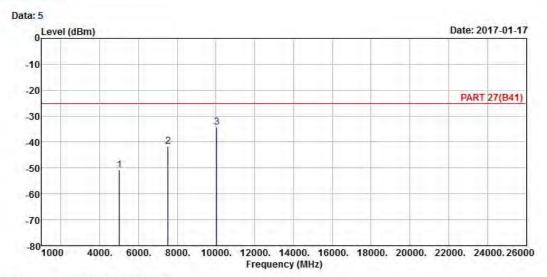
### LTE Band 41

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\_L-CH Link

Tested by: Getaz Yang

Read Limit Over

Freq Level Level Line Limit Factor Remark

MHz dBm dBm dBm dB dB dB

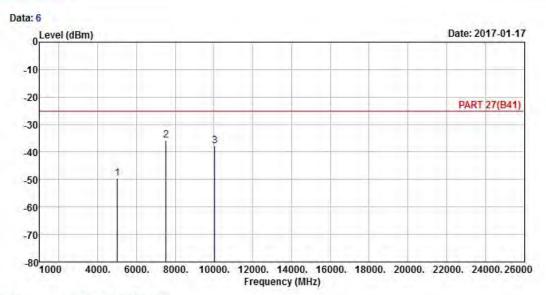
1 5012.00 -50.71 -47.48 -25.00 -25.71 -3.23 Peak 2 7518.00 -41.73 -47.32 -25.00 -16.73 5.59 Peak 3 pp 10024.00 -34.20 -43.13 -25.00 -9.20 8.93 Peak



Report Format Version: 6.1.1



## Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition: PART 27(B41) VERTICAL

Remak : LTE Band 41 QPSK\_20M\_L-CH Link

Tested by: Getaz Yang

Read Limit Over Freq Level Level Line Limit Factor Remark

MHz dBm dBm dB dB

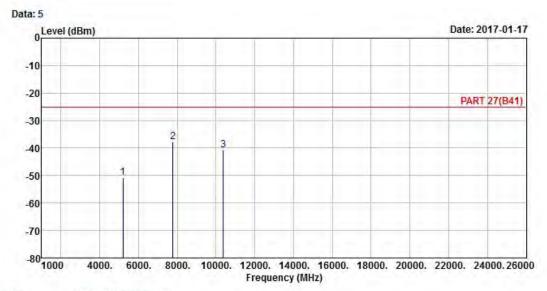
1 5012.00 -49.47 -46.24 -25.00 -24.47 -3.23 Peak 2 pp 7518.00 -35.84 -41.43 -25.00 -10.84 5.59 Peak 3 10024.00 -37.77 -46.70 -25.00 -12.77 8.93 Peak



### **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\_M-CH Link

Tested by: Getaz Yang

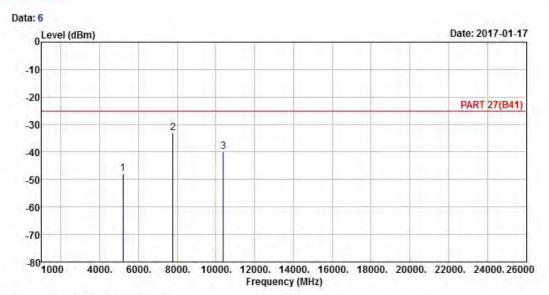
Read Limit Over Freq Level Level Line Limit Factor Remark

MHz dBm dBm dB dB

1 5186.00 -50.79 -47.93 -25.00 -25.79 -2.86 Peak 2 pp 7779.00 -37.82 -42.94 -25.00 -12.82 5.12 Peak 3 10372.00 -40.84 -49.17 -25.00 -15.84 8.33 Peak







Site : 966 Chamber 5

Condition: PART 27(B41) VERTICAL

Remak : LTE Band 41 QPSK\_20M\_M-CH Link

Tested by: Getaz Yang

Read Limit Over Freq Level Level Line Limit Factor Remark

MHz dBm dBm dB dB

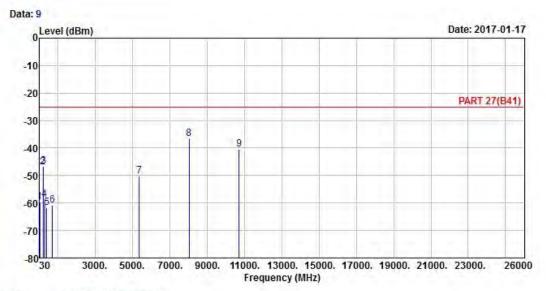
1 5186.00 -47.95 -45.09 -25.00 -22.95 -2.86 Peak 2 pp 7779.00 -33.08 -38.20 -25.00 -8.08 5.12 Peak 3 10372.00 -39.99 -48.32 -25.00 -14.99 8.33 Peak



## **High Channel**



# Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition: PART 27(B41) HORIZONTAL

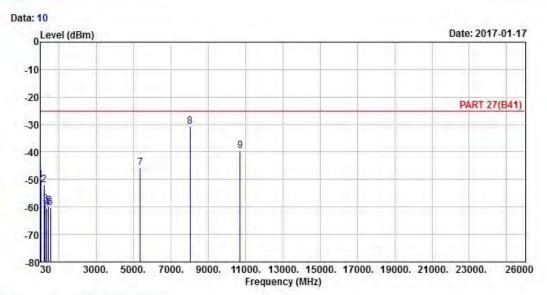
Remak : LTE Band 41 QPSK\_20M\_H-CH Link

Tested by: Getaz Yang

	127.00	A TOTAL	Read		0ver	200	Service .
	Freq	Level	Level	Line	Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	40.80	-59.65	-59.77	-25.00	-34.65	0.12	Peak
2	206.58	-46.97	-39.22	-25.00	-21.97	-7.75	Peak
3	234.12	-46.55	-39.89	-25.00	-21.55	-6.66	Peak
4	304.20	-58.73	-51.79	-25.00	-33.73	-6.94	Peak
5	400.10	-61.78	-55.84	-25.00	-36.78	-5.94	Peak
6	707.40	-60.96	-61.00	-25.00	-35.96	0.04	Peak
7	5360.00	-50.19	-48.19	-25.00	-25.19	-2.00	Peak
8 #	op 8040.00	-36.46	-42.36	-25.00	-11.46	5.90	Peak
9	10720.00	-40.46	-48.64	-25.00	-15.46	8.18	Peak







Site : 966 Chamber 5

Condition: PART 27(B41) VERTICAL

Remak : LTE Band 41 QPSK\_20M\_H-CH Link

Tested by: Getaz Yang

	Freq	Level	7.22		0.747.73		Remark
1	MHz	dBm	dBm	dBm	dB	dB	
	41.34	-50.10	-49.69	-25.00	-25.10	-0.41	Peak
	206.85	-51.92	-44.17	-25.00	-26.92	-7.75	Peak
	265.44	-59.07	-52.76	-25.00	-34.07	-6.31	Peak
	365.80	-60.40	-54.25	-25.00	-35.40	-6.15	Peak
	455.40	-59.63	-54.19	-25.00	-34.63	-5.44	Peak
	554.80	-60.30	-57.65	-25.00	-35.30	-2.65	Peak
	5360.00	-45.88	-43.88	-25.00	-20.88	-2.00	Peak
pp	8040.00	-30.68	-36.58	-25.00	-5.68	5.90	Peak
	10720.00	-39.56	-47.74	-25.00	-14.56	8.18	Peak
		MHz 41.34 206.85 265.44 365.80 455.40 554.80 5360.00 pp 8040.00	MHz dBm  41.34 -50.10 206.85 -51.92 265.44 -59.07 365.80 -60.40 455.40 -59.63 554.80 -60.30 5360.00 -45.88 pp 8040.00 -30.68	Freq Level Level  MHz dBm dBm  41.34 -50.10 -49.69 206.85 -51.92 -44.17 265.44 -59.07 -52.76 365.80 -60.40 -54.25 455.40 -59.63 -54.19 554.80 -60.30 -57.65 5360.00 -45.88 -43.88 pp 8040.00 -30.68 -36.58	Freq Level Level Line  MHz dBm dBm dBm  41.34 -50.10 -49.69 -25.00 206.85 -51.92 -44.17 -25.00 265.44 -59.07 -52.76 -25.00 365.80 -60.40 -54.25 -25.00 455.40 -59.63 -54.19 -25.00 554.80 -60.30 -57.65 -25.00 5360.00 -45.88 -43.88 -25.00  pp 8040.00 -30.68 -36.58 -25.00	Freq Level Level Line Limit    MHz   dBm   dBm   dBm   dB	MHz dBm dBm dBm dB dB dB  41.34 -50.10 -49.69 -25.00 -25.10 -0.41 206.85 -51.92 -44.17 -25.00 -26.92 -7.75 265.44 -59.07 -52.76 -25.00 -34.07 -6.31 365.80 -60.40 -54.25 -25.00 -35.40 -6.15 455.40 -59.63 -54.19 -25.00 -34.63 -5.44 554.80 -60.30 -57.65 -25.00 -35.30 -2.65 5360.00 -45.88 -43.88 -25.00 -20.88 -2.00



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 accredited and approved according to ISO/IEC 17025.

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

Linko EMC/RF Lab Hsin Chu EMC/RF/Telecom Lab

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Email: <a href="mailto:service.adt@tw.bureauveritas.com">service.adt@tw.bureauveritas.com</a>
Web Site: <a href="mailto:www.bureauveritas-adt.com">www.bureauveritas-adt.com</a>

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

--- END ---