



**BUREAU  
VERITAS**

Test Report No.: W7L-P23030025RF06

**CHANNEL BANDWIDTH: 20MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	23.07	4.8	27.87	612.35	2
21100	2535.0	23.07	4.8	27.87	612.35	2
21350	2560.0	23.06	4.8	27.86	610.94	2

**CHANNEL BANDWIDTH: 20MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21.9	4.8	26.7	467.74	2
21100	2535.0	21.97	4.8	26.77	475.34	2
21350	2560.0	21.91	4.8	26.71	468.81	2

**CHANNEL BANDWIDTH: 20MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	21.72	4.8	26.52	448.75	2
21100	2535	21.7	4.8	26.5	446.68	2
21350	2560	21.67	4.8	26.47	443.61	2

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



**BUREAU  
VERITAS**

Test Report No.: W7L-P23030025RF06

**LTE BAND 12**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	23.19	2.5	23.54	225.94	3
23095	707.5	23.24	2.5	23.59	228.56	3
23173	715.3	23.39	2.5	23.74	236.59	3

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	21.54	2.5	21.89	154.53	3
23095	707.5	21.69	2.5	22.04	159.96	3
23173	715.3	21.76	2.5	22.11	162.55	3

**CHANNEL BANDWIDTH: 1.4MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	21.5	2.5	21.85	153.11	3
23095	707.5	21.76	2.5	22.11	162.55	3
23173	715.3	21.74	2.5	22.09	161.81	3

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	23.15	2.5	23.5	223.87	3
23095	707.5	23.25	2.5	23.6	229.09	3
23165	714.5	23.39	2.5	23.74	236.59	3

**CHANNEL BANDWIDTH: 3MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	21.51	2.5	21.86	153.46	3
23095	707.5	21.71	2.5	22.06	160.69	3
23165	714.5	21.74	2.5	22.09	161.81	3

**CHANNEL BANDWIDTH: 3MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	21.53	2.5	21.88	154.17	3
23095	707.5	21.7	2.5	22.05	160.32	3
23165	714.5	21.73	2.5	22.08	161.44	3

**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	23.2	2.5	23.55	226.46	3
23095	707.5	23.22	2.5	23.57	227.51	3
23155	713.5	23.39	2.5	23.74	236.59	3

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	21.48	2.5	21.83	152.41	3
23095	707.5	21.74	2.5	22.09	161.81	3
23155	713.5	21.73	2.5	22.08	161.44	3

**CHANNEL BANDWIDTH: 5MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	21.5	2.5	21.85	153.11	3
23095	707.5	21.76	2.5	22.11	162.55	3
23155	713.5	21.73	2.5	22.08	161.44	3



**BUREAU  
VERITAS**

Test Report No.: W7L-P23030025RF06

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	23.22	2.5	23.57	227.51	3
23095	707.5	23.3	2.5	23.65	231.74	3
23130	711	23.41	2.5	23.76	237.68	3

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	21.56	2.5	21.91	155.24	3
23095	707.5	21.76	2.5	22.11	162.55	3
23130	711	21.78	2.5	22.13	163.31	3

**CHANNEL BANDWIDTH: 10MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	21.58	2.5	21.93	155.96	3
23095	707.5	21.78	2.5	22.13	163.31	3
23130	711	21.79	2.5	22.14	163.68	3

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



**BUREAU  
VERITAS**

Test Report No.: W7L-P23030025RF06

**LTE BAND 13**

**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	23.31	2.5	23.66	232.27	3
23230	782	23.35	2.5	23.7	234.42	3
23255	784.5	23.34	2.5	23.69	233.88	3

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	21.9	2.5	22.25	167.88	3
23230	782	21.89	2.5	22.24	167.49	3
23255	784.5	21.91	2.5	22.26	168.27	3

**CHANNEL BANDWIDTH: 5MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	21.51	2.5	21.86	153.46	3
23230	782	21.48	2.5	21.83	152.41	3
23255	784.5	21.52	2.5	21.87	153.82	3

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	23.39	2.5	23.74	236.59	3
-	-	-	-	-	-	-

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	21.97	2.5	22.32	170.61	3
-	-	-	-	-	-	-

**CHANNEL BANDWIDTH: 10MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	21.54	2.5	21.89	154.53	3
-	-	-	-	-	-	-

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



Test Report No.: W7L-P23030025RF06

**LTE BAND 17**

**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	23.38	2.5	23.73	236.05	3
23790	710	23.44	2.5	23.79	239.33	3
23825	713.5	23.24	2.5	23.59	228.56	3

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	21.63	2.5	21.98	157.76	3
23790	710	21.65	2.5	22	158.49	3
23825	713.5	21.57	2.5	21.92	155.6	3

**CHANNEL BANDWIDTH: 5MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	21.69	2.5	22.04	159.96	3
23790	710	21.75	2.5	22.1	162.18	3
23825	713.5	21.59	2.5	21.94	156.31	3

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	23.44	2.5	23.79	239.33	3
23790	710	23.46	2.5	23.81	240.44	3
23800	711	23.29	2.5	23.64	231.21	3

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	21.7	2.5	22.05	160.32	3
23790	710	21.7	2.5	22.05	160.32	3
23800	711	21.59	2.5	21.94	156.31	3

**CHANNEL BANDWIDTH: 10MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	21.75	2.5	22.1	162.18	3
23790	710	21.77	2.5	22.12	162.93	3
23800	711	21.62	2.5	21.97	157.4	3

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).





**BUREAU  
VERITAS**

Test Report No.: W7L-P23030025RF06

**LTE BAND 71**

**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	22.99	2.5	23.34	215.77	3
133247	675.5	23.09	2.5	23.44	220.8	3
133447	695.5	22.99	2.5	23.34	215.77	3

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	22.2	2.5	22.55	179.89	3
133247	675.5	22.47	2.5	22.82	191.43	3
133447	695.5	22.3	2.5	22.65	184.08	3

**CHANNEL BANDWIDTH: 5MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	21.03	2.5	21.38	137.4	3
133247	675.5	21.25	2.5	21.6	144.54	3
133447	695.5	21.1	2.5	21.45	139.64	3



Test Report No.: W7L-P23030025RF06

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	22.99	2.5	23.34	215.77	3
133272	678	23.09	2.5	23.44	220.8	3
133422	693	23	2.5	23.35	216.27	3

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	22.25	2.5	22.6	181.97	3
133272	678	22.43	2.5	22.78	189.67	3
133422	693	22.33	2.5	22.68	185.35	3

**CHANNEL BANDWIDTH: 10MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	21.08	2.5	21.43	139	3
133272	678	21.21	2.5	21.56	143.22	3
133422	693	21.14	2.5	21.49	140.93	3



Test Report No.: W7L-P23030025RF06

**CHANNEL BANDWIDTH: 15MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	23	2.5	23.35	216.27	3
133297	680.5	23.15	2.5	23.5	223.87	3
133397	690.5	22.96	2.5	23.31	214.29	3

**CHANNEL BANDWIDTH: 15MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	22.2	2.5	22.55	179.89	3
133297	680.5	22.45	2.5	22.8	190.55	3
133397	690.5	22.3	2.5	22.65	184.08	3

**CHANNEL BANDWIDTH: 15MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	21.04	2.5	21.39	137.72	3
133297	680.5	21.19	2.5	21.54	142.56	3
133397	690.5	21.1	2.5	21.45	139.64	3



Test Report No.: W7L-P23030025RF06

**CHANNEL BANDWIDTH: 20MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	23.01	2.5	23.36	216.77	3
133322	683	23.17	2.5	23.52	224.91	3
133372	688	23.01	2.5	23.36	216.77	3

**CHANNEL BANDWIDTH: 20MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	22.28	2.5	22.63	183.23	3
133322	683	22.49	2.5	22.84	192.31	3
133372	688	22.35	2.5	22.7	186.21	3

**CHANNEL BANDWIDTH: 20MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	21.11	2.5	21.46	139.96	3
133322	683	21.27	2.5	21.62	145.21	3
133372	688	21.16	2.5	21.51	141.58	3

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

## 3.2 FREQUENCY STABILITY MEASUREMENT

### 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

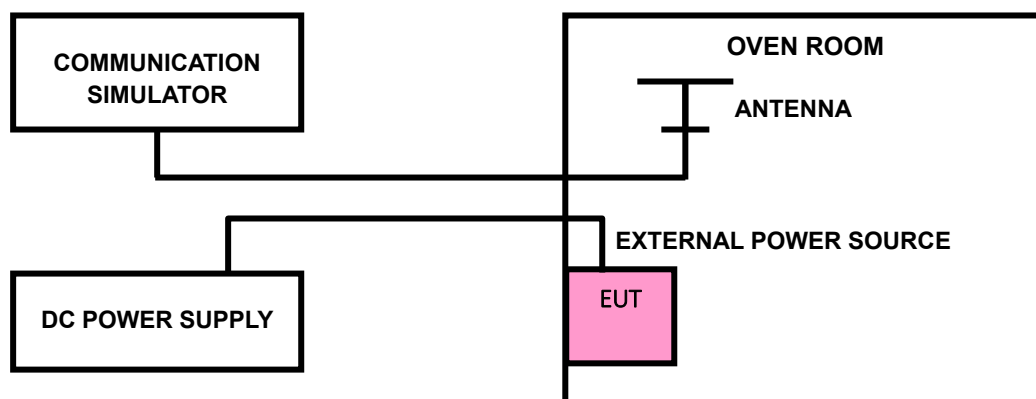
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 3.2.2 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.

### 3.2.3 TEST SETUP





Test Report No.: W7L-P23030025RF06

### 3.2.4 TEST RESULTS

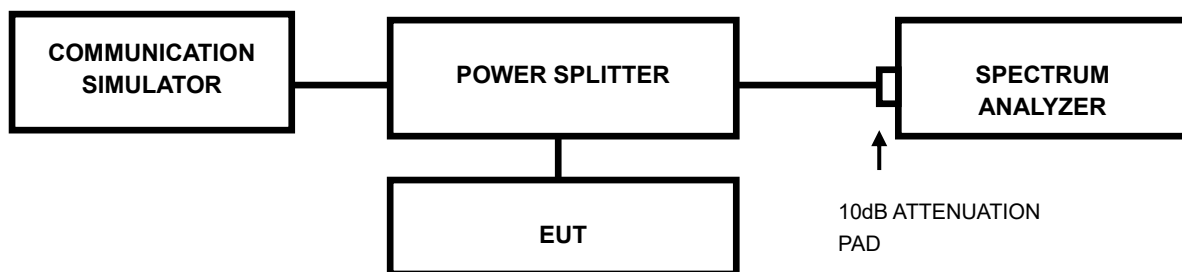
Please Refer to Appendix Of this test report.

### 3.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 3.3.1 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.

#### 3.3.2 TEST SETUP



#### 3.3.3 TEST PROCEDURES

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



Test Report No.: W7L-P23030025RF06

### 3.3.4 TEST RESULTS

Please Refer to Appendix Of this test report.





### 3.4 BAND EDGE MEASUREMENT

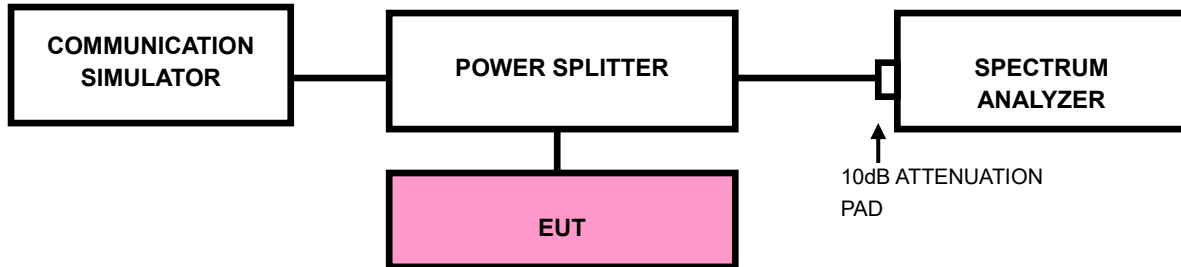
#### 3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(c) specified that For operations in the 746-758 MHz band and the 776-788 MHz band , the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed. In addition, the power of any unwanted emission in an 6.25kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power,  $P(\text{dBW})$ , by at least  $65 + 10 \log_{10} P(\text{dB})$ , for mobile and portable equipment.

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. For mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

### 3.4.2 TEST SETUP





### 3.4.3 TEST PROCEDURES

- a) All measurements were done at low and high operational frequency range
- b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- c) Tune the analyzer to the nominal center frequency of the emission bandwidth  
(EBW)
- d) .Set the resolution bandwidth (RBW)  $\geq 1\%$  EBW in the 1MHz band immediately outside and adjacent to the band edge.
- e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.
- f) Set the video bandwidth (VBW) to  $\geq 3 \times$  RBW.
- g) Select the average power (RMS) display detector.
- h) Set the number of measurement points to  $\geq 1001$ .
- i) Use auto-coupled sweep time.
- j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
- k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 30/100KHz.
- l) Record the max trace plot into the test report.



Test Report No.: W7L-P23030025RF06

### 3.4.4 TEST RESULTS

Please Refer to Appendix Of this test report.

### 3.5 CONDUCTED SPURIOUS EMISSIONS

#### 3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

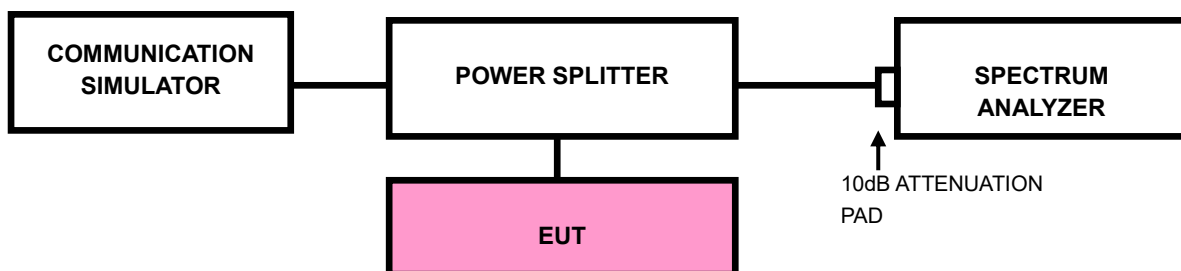
For: LTE Band7

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to  $-25\text{dBm}$ .

#### 3.5.2 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 9kHz up to a frequency including its 10<sup>th</sup> harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

#### 3.5.3 TEST SETUP





Test Report No.: W7L-P23030025RF06

### 3.5.4 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Please Refer to Appendix Of this test report.



### 3.6 RADIATED EMISSION MEASUREMENT

#### 3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

For: LTE Band7

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to  $-25\text{dBm}$ .

#### 3.6.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m 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 1m to 4m 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.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$ .

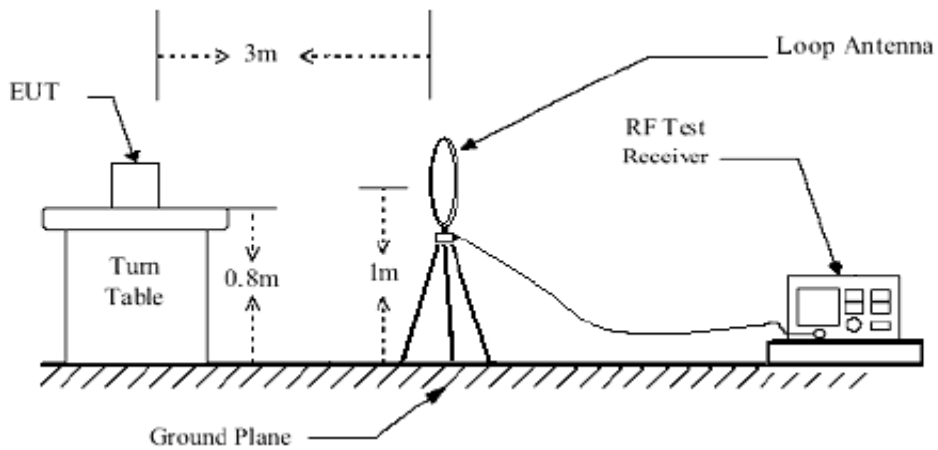
**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

#### 3.6.3 DEVIATION FROM TEST STANDARD

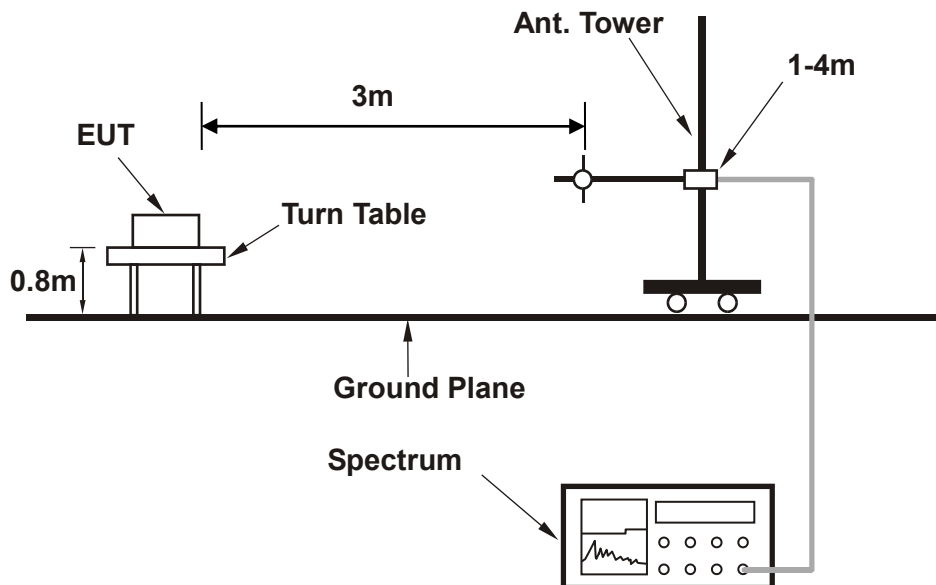
No deviation

### 3.6.4 TEST SETUP

#### < Frequency Range below 30MHz >

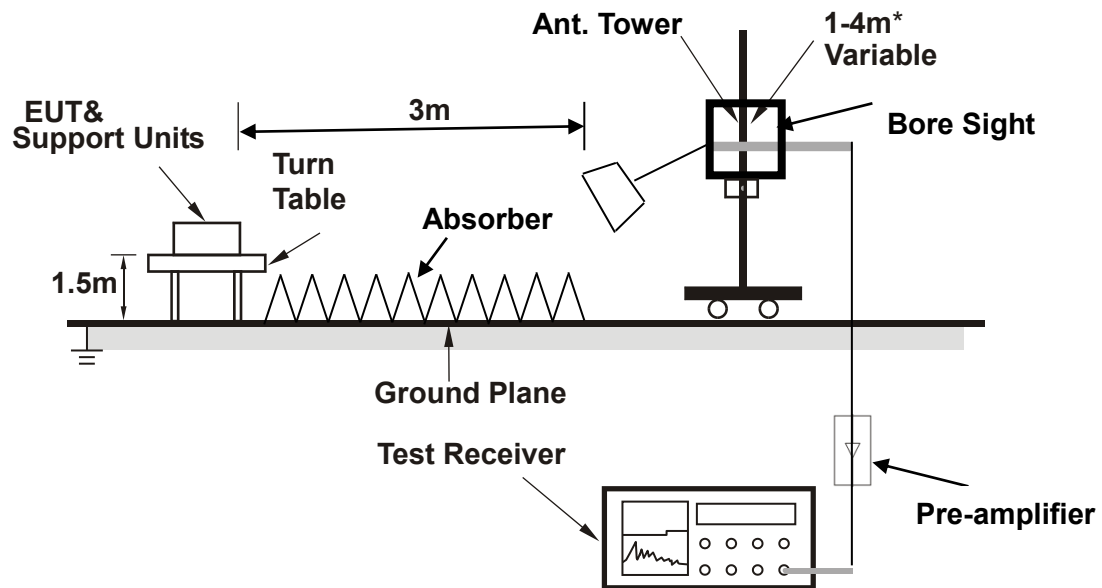


#### < Frequency Range 30MHz~1GHz >





<Frequency Range above 1GHz>



**Note:** Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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



Test Report No.: W7L-P23030025RF06

### 3.6.5 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

#### BELOW 1GHz WORST-CASE DATA

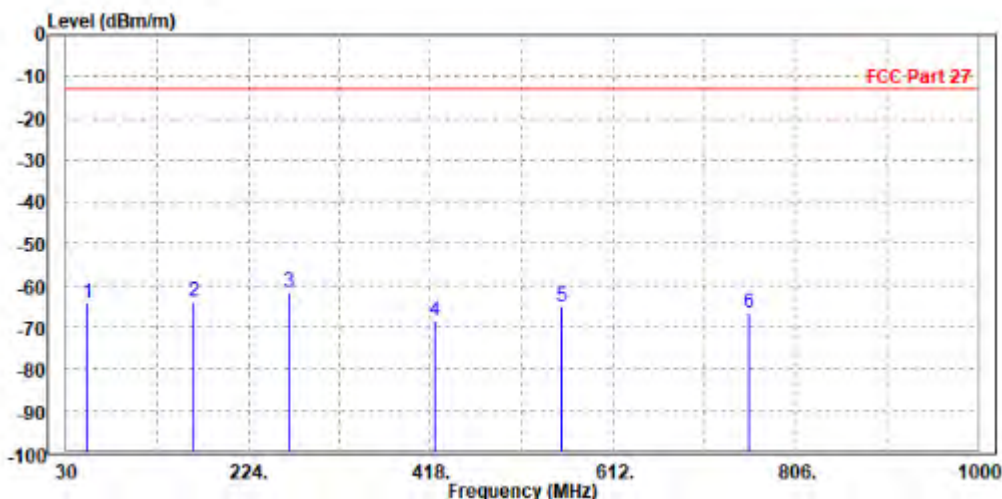
30 MHz – 1GHz data:

LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK

<b>MODE</b>	TX channel 20175	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	53.280	-64.12	-46.58	-13.00	-51.12	-17.54	Peak	Horizontal
2	165.800	-63.82	-47.64	-13.00	-50.82	-16.18	Peak	Horizontal
3 PP	267.650	-61.76	-49.95	-13.00	-48.76	-11.81	Peak	Horizontal
4	422.850	-68.47	-58.85	-13.00	-55.47	-9.62	Peak	Horizontal
5	557.680	-65.19	-59.37	-13.00	-52.19	-5.82	Peak	Horizontal
6	756.530	-66.72	-63.03	-13.00	-53.72	-3.69	Peak	Horizontal

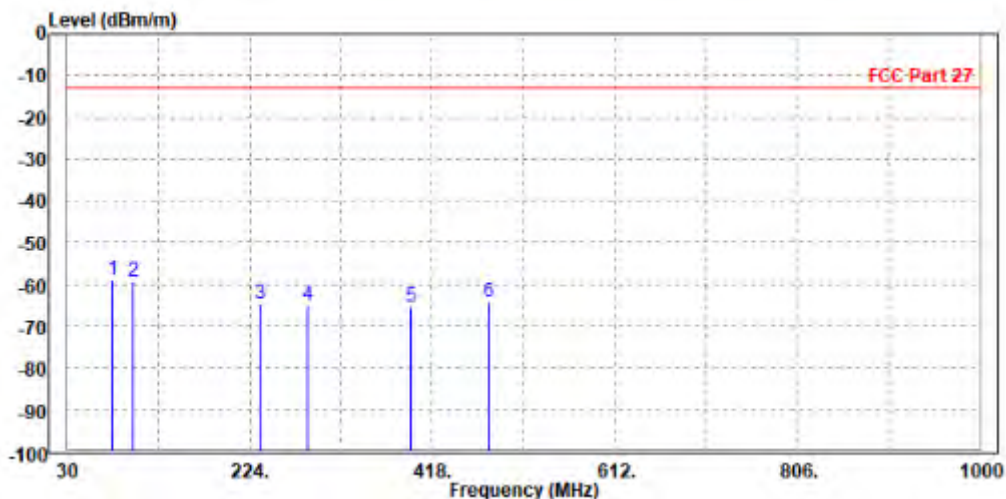




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 20175	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	77.530	-58.99	-38.97	-13.00	-45.99	-20.02	Peak	Vertical
2	99.840	-59.14	-52.63	-13.00	-46.14	-6.51	Peak	Vertical
3	235.640	-64.74	-49.87	-13.00	-51.74	-14.87	Peak	Vertical
4	286.080	-64.84	-53.25	-13.00	-51.84	-11.59	Peak	Vertical
5	394.720	-65.47	-56.37	-13.00	-52.47	-9.10	Peak	Vertical
6	477.170	-64.21	-55.92	-13.00	-51.21	-8.29	Peak	Vertical





**BUREAU  
VERITAS**

**Test Report No.: W7L-P23030025RF06**

**ABOVE 1GHz**

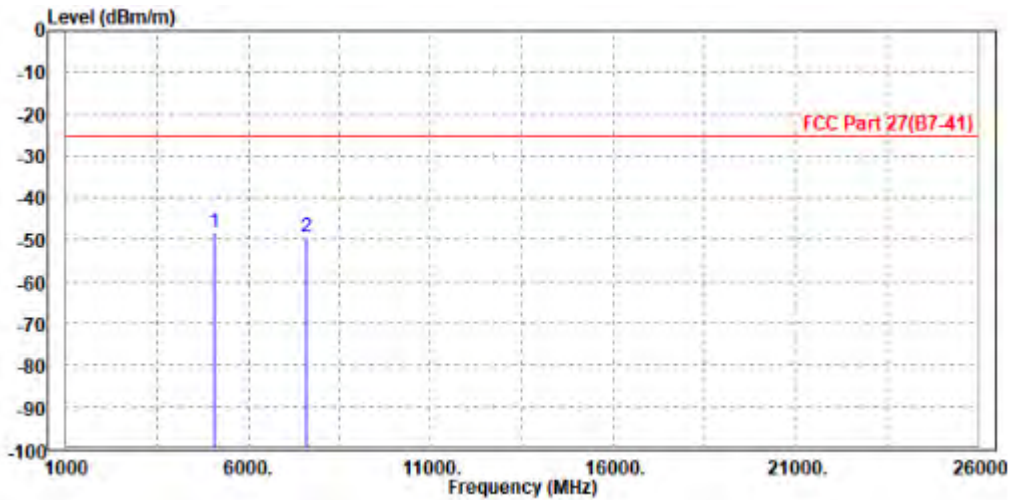
**Note:** For higher frequency, the emission is too low to be detected.

**LTE Band 7**

**CHANNEL BANDWIDTH: 5MHz / QPSK**

<b>MODE</b>	TX channel 21100	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	PoI/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5075.000	-48.43	-58.24	-25.00	-23.43	9.81	Peak	Horizontal
2	7605.000	-49.37	-61.55	-25.00	-24.37	12.18	Peak	Horizontal

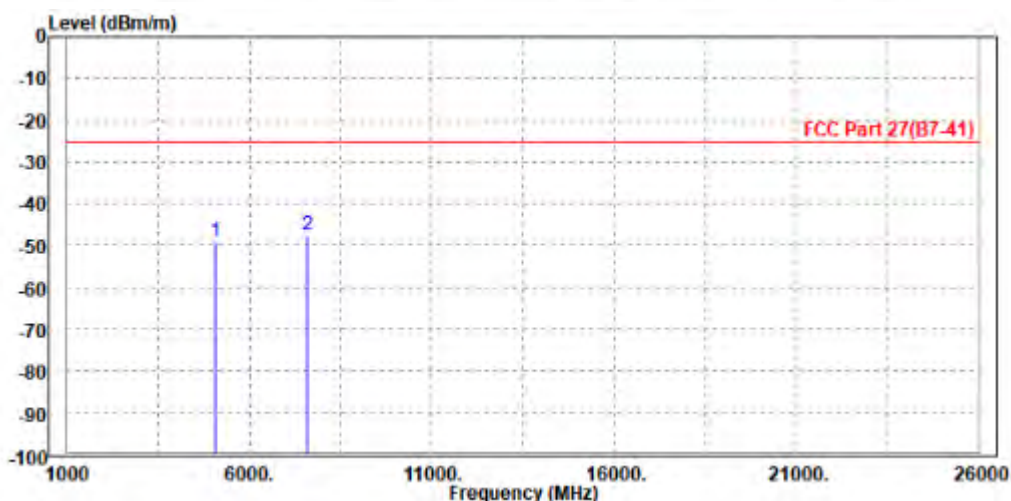




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 21100	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	5070.000	-48.92	-59.25	-25.00	-23.92	10.33	Peak	Vertical
2 PP	7600.000	-47.57	-62.42	-25.00	-22.57	14.85	Peak	Vertical



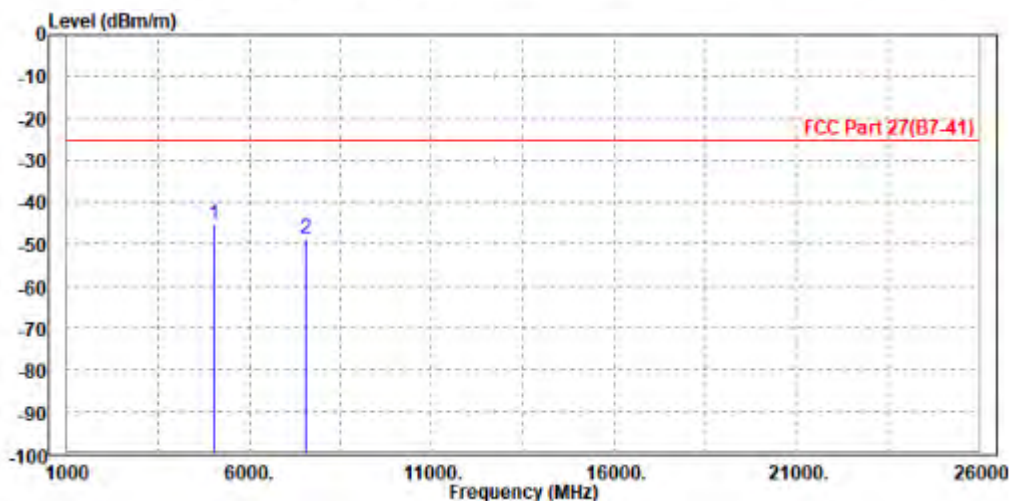


Test Report No.: W7L-P23030025RF06

CHANNEL BANDWIDTH: 10MHz / QPSK  
CH 20800

MODE	TX channel 20800	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 4.0V
TESTED BY	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	5010.000	-45.14	-54.84	-25.00	-20.14	9.70	Peak	Horizontal
2	7525.000	-48.85	-60.45	-25.00	-23.85	11.60	Peak	Horizontal



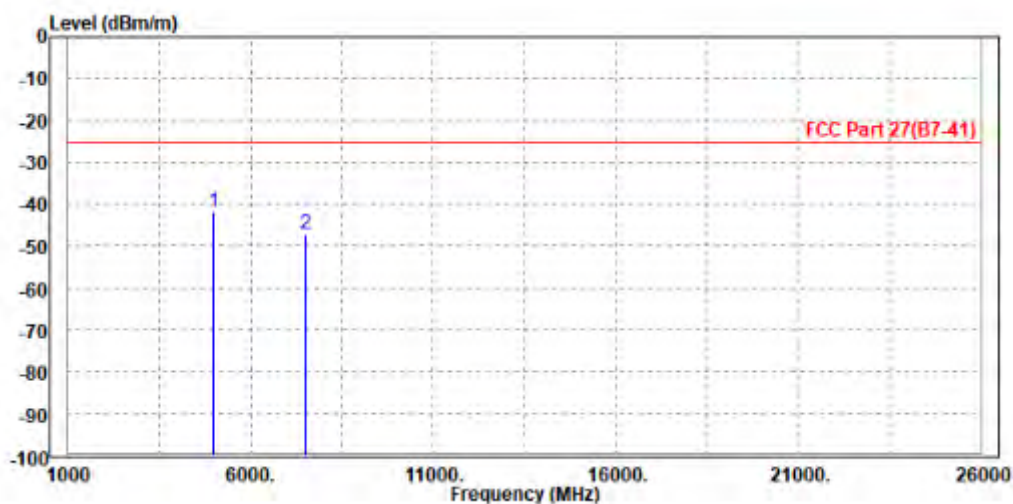




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 20800	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5000.000	-41.76	-52.03	-25.00	-16.76	10.27	Peak	Vertical
2	7515.000	-47.01	-61.73	-25.00	-22.01	14.72	Peak	Vertical





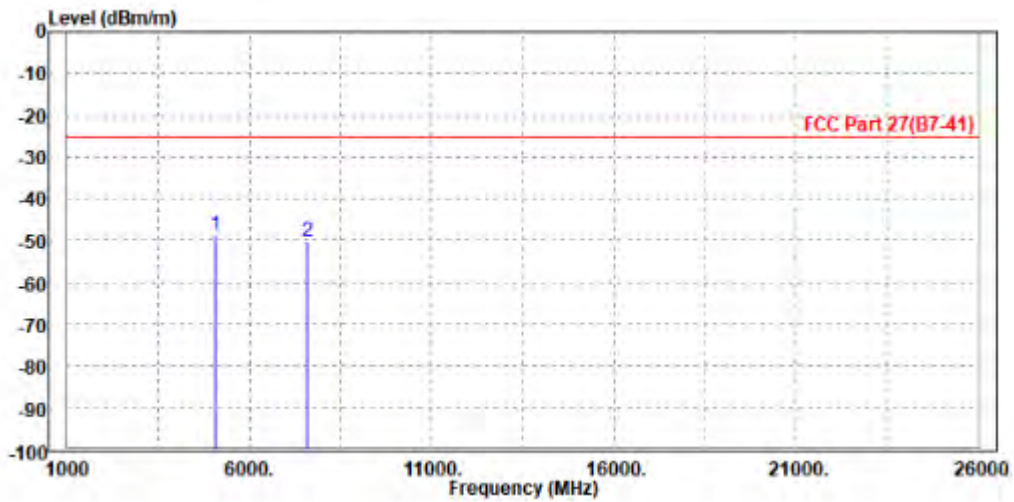
BUREAU VERITAS

Test Report No.: W7L-P23030025RF06

CH 21100

MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 4.0V
TESTED BY	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5070.000	-48.80	-58.60	-25.00	-23.80	9.80	Peak	Horizontal
2	7600.000	-50.05	-62.19	-25.00	-25.05	12.14	Peak	Horizontal



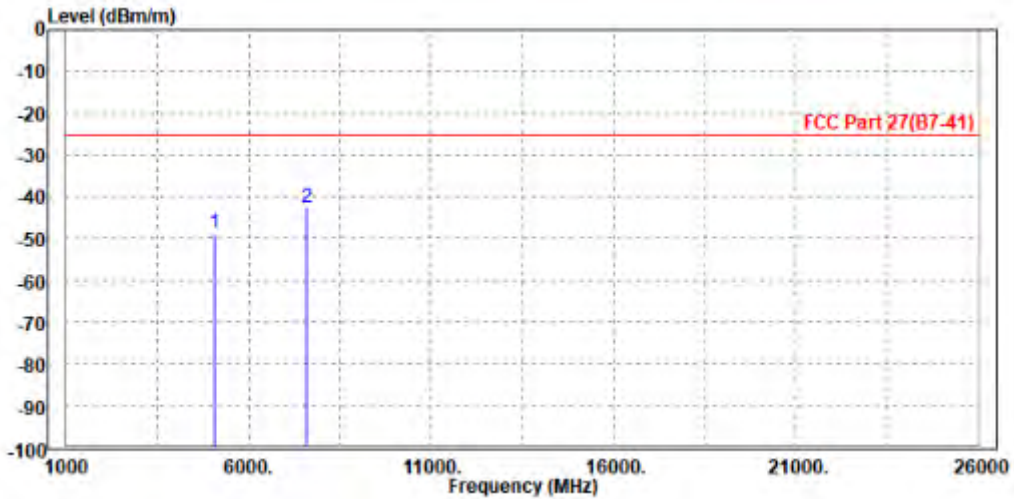




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 21100	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	5075.000	-48.77	-59.11	-25.00	-23.77	10.34	Peak	Vertical
2 PP	7605.000	-42.73	-57.58	-25.00	-17.73	14.85	Peak	Vertical





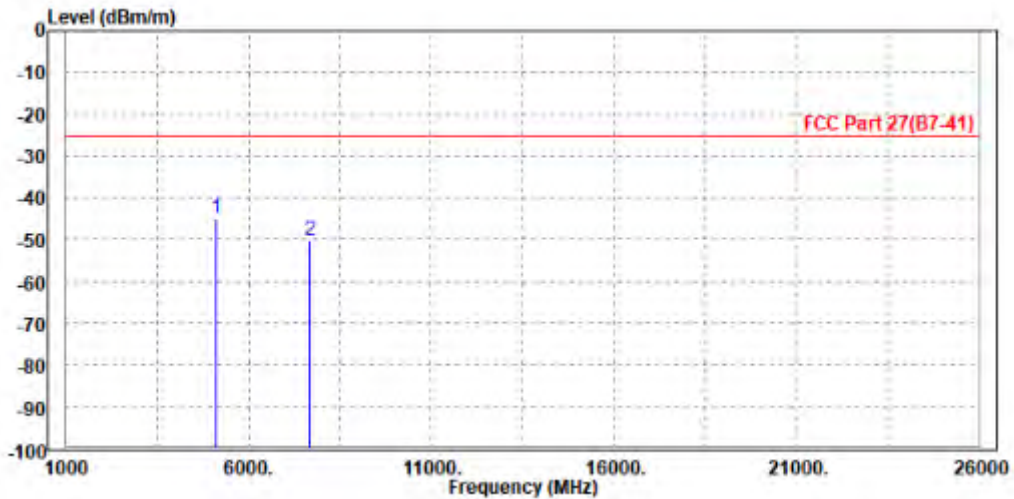
BUREAU VERITAS

Test Report No.: W7L-P23030025RF06

CH 21400

MODE	TX channel 21400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 4.0V
TESTED BY	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5125.000	-44.85	-54.74	-25.00	-19.85	9.89	Peak	Horizontal
2	7695.000	-50.23	-63.06	-25.00	-25.23	12.83	Peak	Horizontal

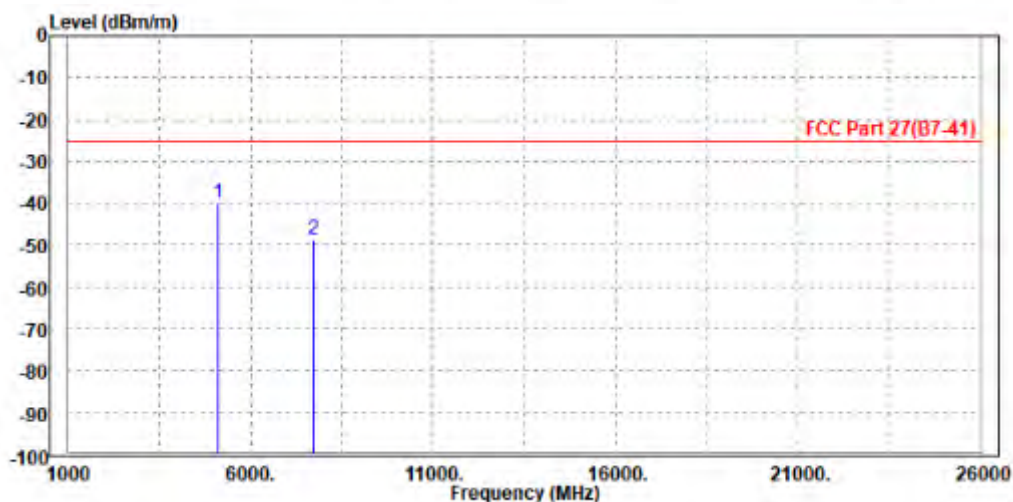




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 21400	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 5130.000	-40.03	-50.42	-25.00	-15.03	10.39	Peak	Vertical
2	7700.000	-48.59	-63.58	-25.00	-23.59	14.99	Peak	Vertical





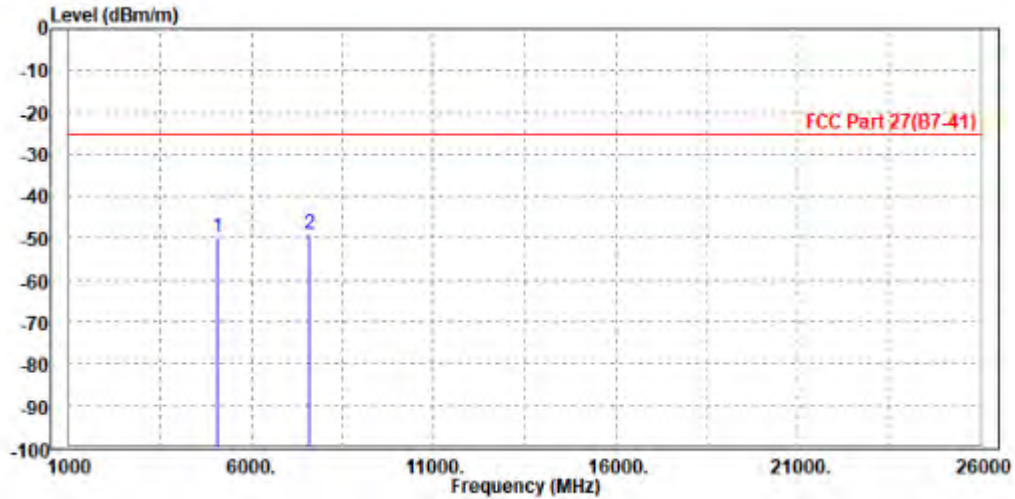
**BUREAU  
VERITAS**

Test Report No.: W7L-P23030025RF06

CHANNEL BANDWIDTH: 15MHz / QPSK

<b>MODE</b>	TX channel 21100	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	5070.000	-49.81	-59.61	-25.00	-24.81	9.80	Peak	Horizontal
2	PP 7600.000	-49.08	-61.22	-25.00	-24.08	12.14	Peak	Horizontal

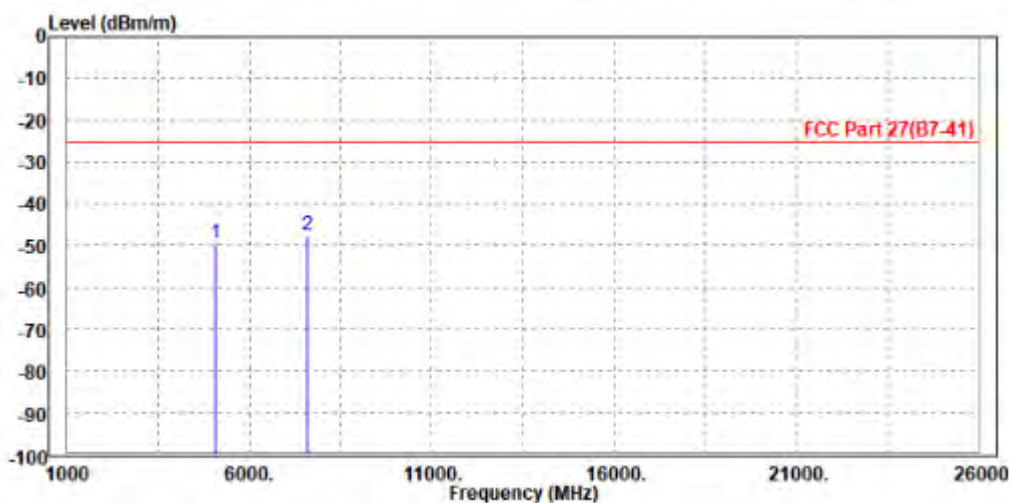




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 21100	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	5075.000	-49.24	-59.58	-25.00	-24.24	10.34	Peak	Vertical
2 PP	7605.000	-47.56	-62.41	-25.00	-22.56	14.85	Peak	Vertical





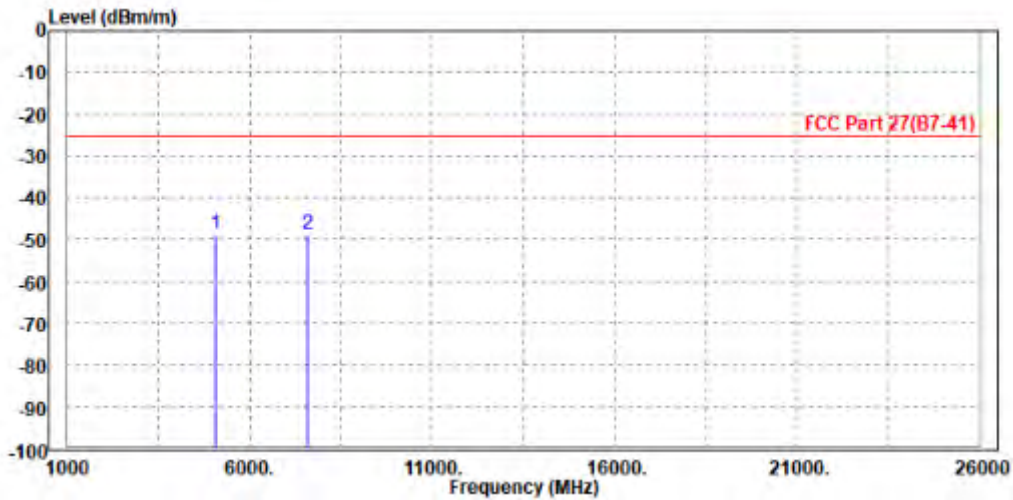
**BUREAU  
VERITAS**

Test Report No.: W7L-P23030025RF06

CHANNEL BANDWIDTH: 20MHz / QPSK

<b>MODE</b>	TX channel 21100	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	5075.000	-48.72	-58.53	-25.00	-23.72	9.81	Peak	Horizontal
2	PP 7605.000	-48.64	-60.82	-25.00	-23.64	12.18	Peak	Horizontal



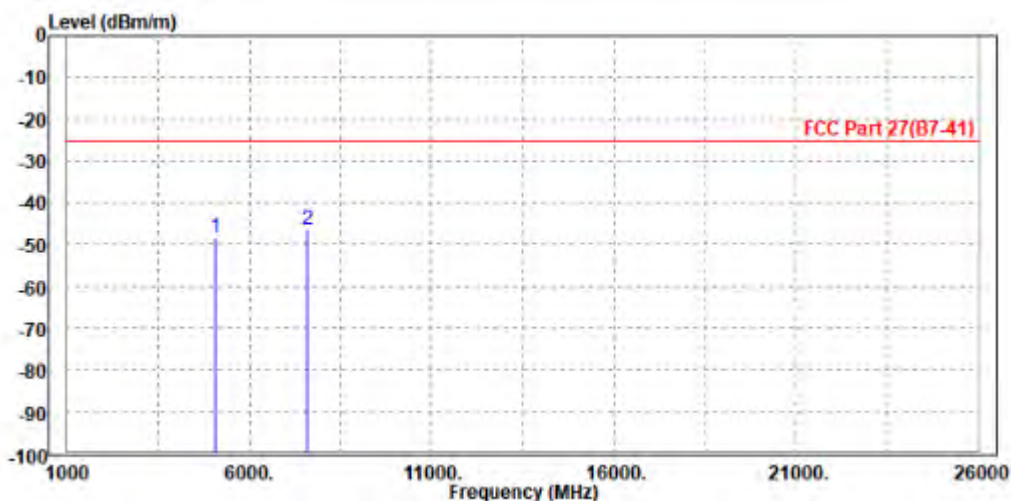




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 21100	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	5070.000	-48.25	-58.58	-25.00	-23.25	10.33	Peak	Vertical
2	PP 7600.000	-46.55	-61.40	-25.00	-21.55	14.85	Peak	Vertical





Test Report No.: W7L-P23030025RF06

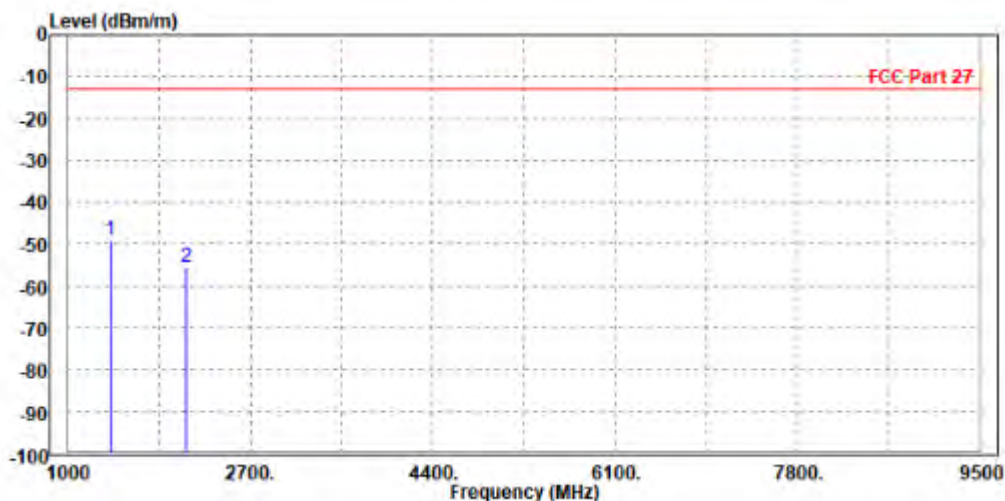
LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH23017

MODE	TX channel 23017	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 4.0V
TESTED BY	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	PoI/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1399.500	-48.97	-48.28	-13.00	-35.97	-0.69	Peak	Horizontal
2	2096.500	-55.39	-59.36	-13.00	-42.39	3.97	Peak	Horizontal



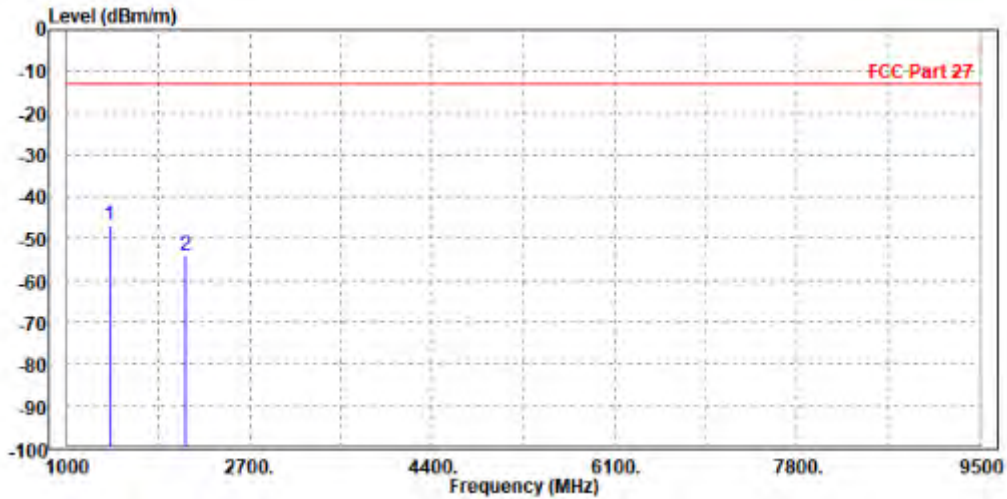




Test Report No.: W7L-P23030025RF06

<b>MODE</b>	TX channel 23017	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	EUT 4.0V
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1399.500	-46.83	-46.36	-13.00	-33.83	-0.47	Peak	Vertical
2	2099.100	-53.95	-57.80	-13.00	-40.95	3.85	Peak	Vertical





BUREAU VERITAS

Test Report No.: W7L-P23030025RF06

CH23095

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	EUT 4.0V
TESTED BY	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1416.500	-42.94	-42.30	-13.00	-29.94	-0.64	Peak	Horizontal
2	2122.500	-52.14	-56.20	-13.00	-39.14	4.06	Peak	Horizontal

