



Band5 / 10MHz / Low CH / QPSK / 1 RB



Band5 / 10MHz / Low CH / QPSK / FULL RB



Band5 / 10MHz / High CH / QPSK / 1 RB



Band5 / 10MHz / High CH / QPSK / FULL RB





Band12 / 1.4MHz / Low CH / QPSK / 1 RB



Band12 / 1.4MHz / Low CH / QPSK / FULL RB



Band12 / 1.4MHz / High CH / QPSK / 1 RB



Band12 / 1.4MHz / High CH / QPSK / FULL RB





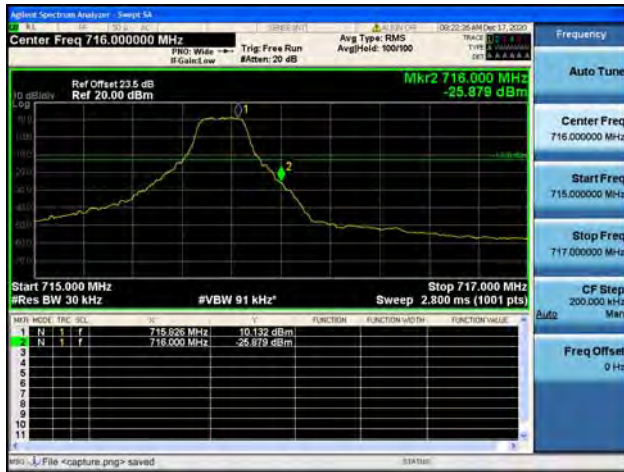
Band12 / 3MHz / Low CH / QPSK / 1 RB



Band12 / 3MHz / Low CH / QPSK / FULL RB



Band12 / 3MHz / High CH / QPSK / 1 RB



Band12 / 3MHz / High CH / QPSK / FULL RB





Band12 / 5MHz / Low CH / QPSK / 1 RB



Band12 / 5MHz / Low CH / QPSK / FULL RB



Band12 / 5MHz / High CH / QPSK / 1 RB



Band12 / 5MHz / High CH / QPSK / FULL RB





Band12 / 10MHz / Low CH / QPSK / 1 RB



Band12 / 10MHz / Low CH / QPSK / FULL RB

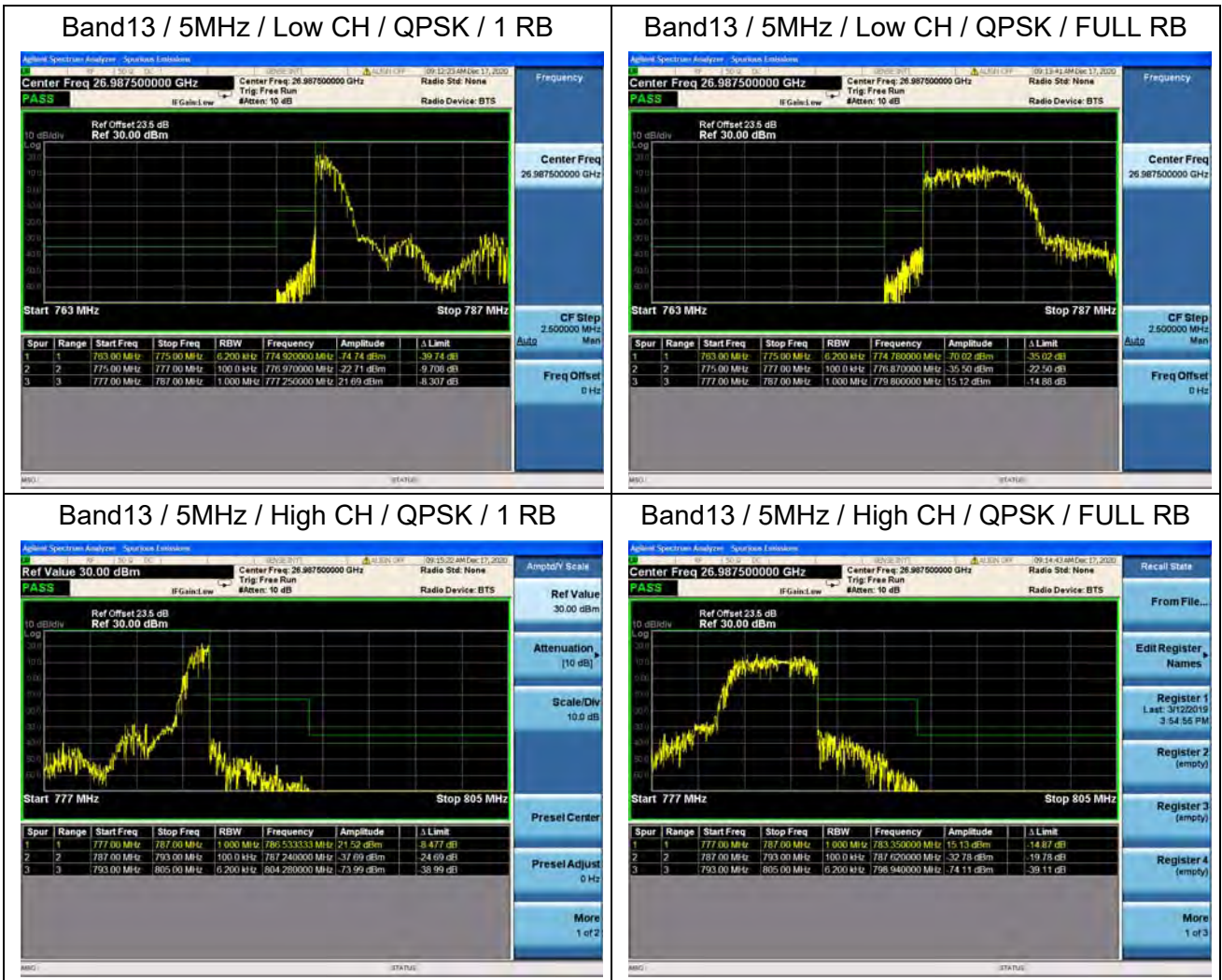


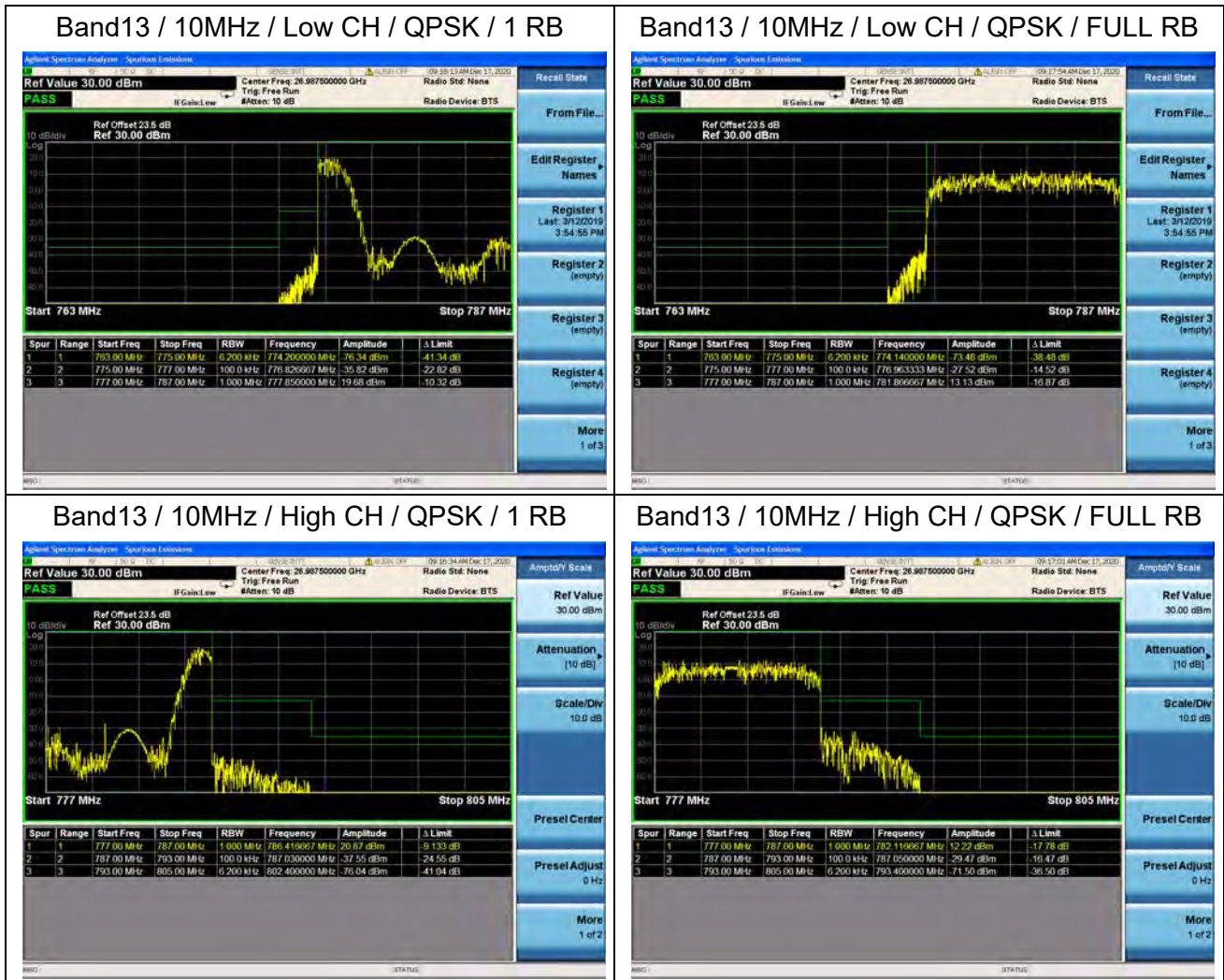
Band12 / 10MHz / High CH / QPSK / 1 RB



Band12 / 10MHz / High CH / QPSK / FULL RB









Band66 / 1.4MHz / Low CH / QPSK / 1 RB



Band66 / 1.4MHz / Low CH / QPSK / FULL RB



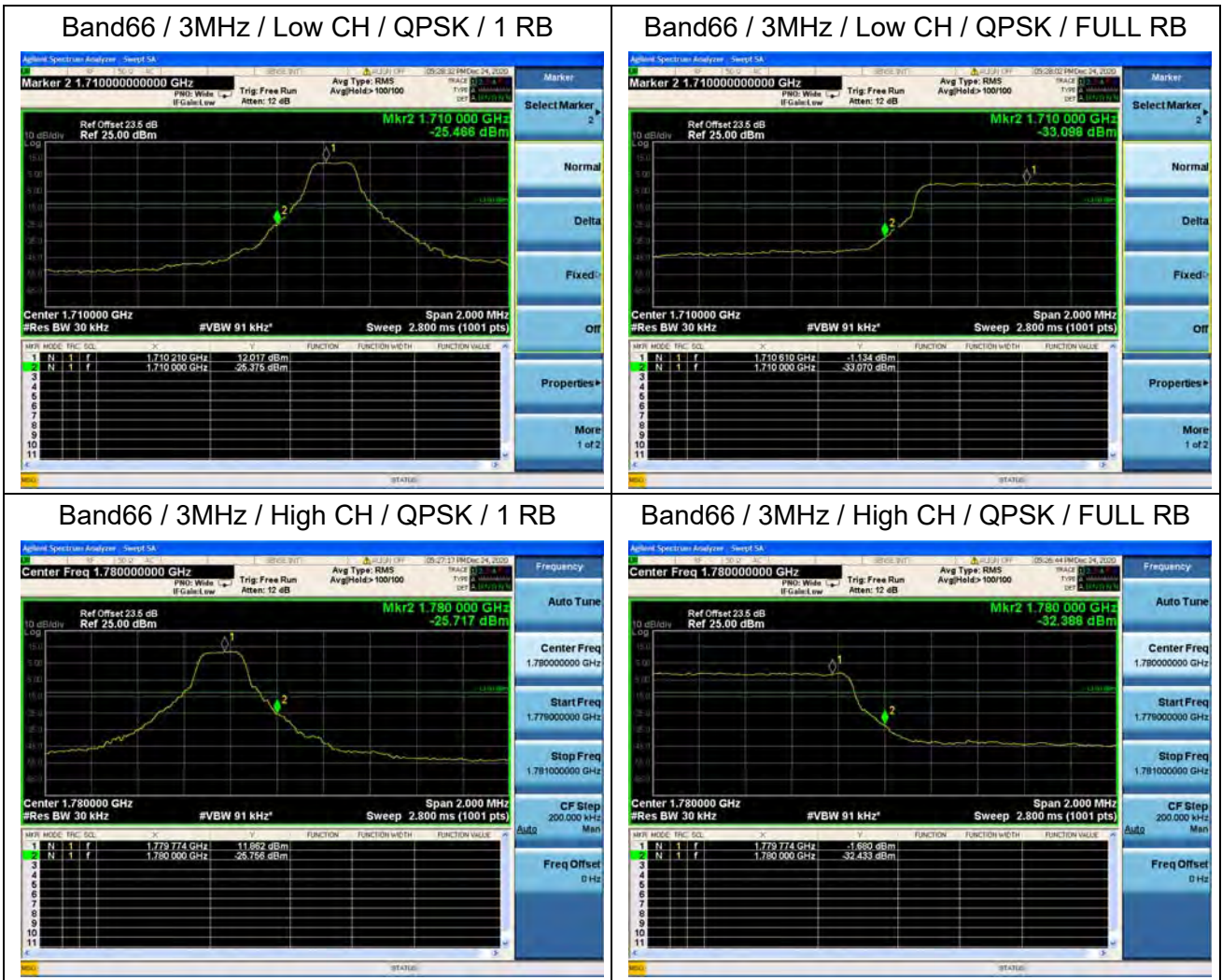
Band66 / 1.4MHz / High CH / QPSK / 1 RB

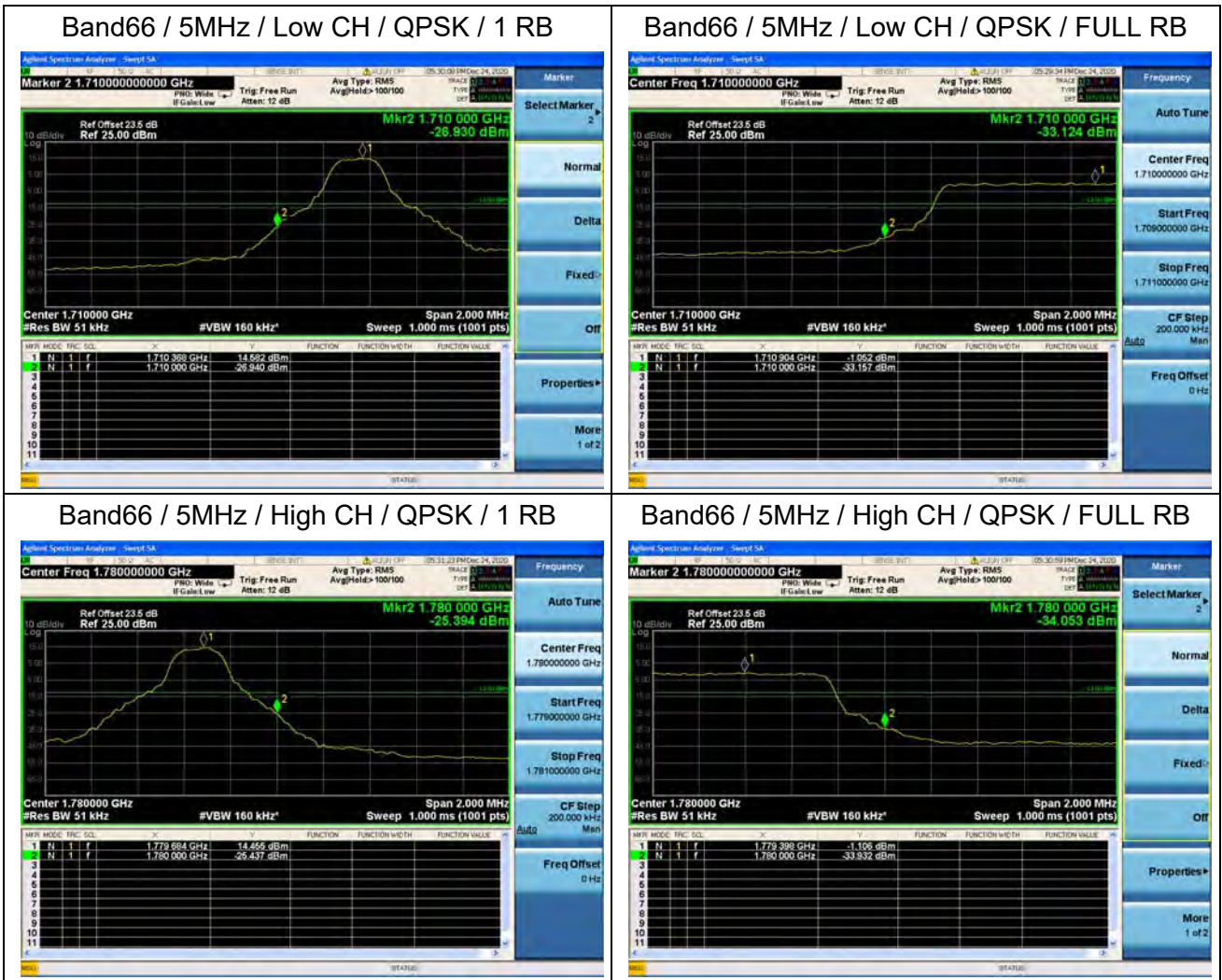


Band66 / 1.4MHz / High CH / QPSK / FULL RB











Band66 / 10MHz / Low CH / QPSK / 1 RB



Band66 / 10MHz / Low CH / QPSK / FULL RB



Band66 / 10MHz / High CH / QPSK / 1 RB



Band66 / 10MHz / High CH / QPSK / FULL RB





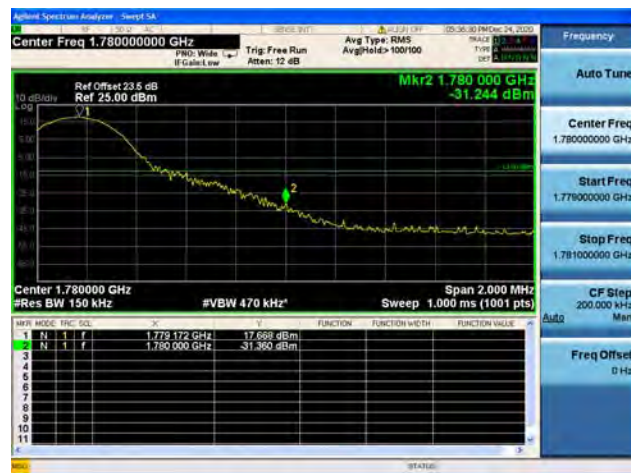
Band66 / 15MHz / Low CH / QPSK / 1 RB



Band66 / 15MHz / Low CH / QPSK / FULL RB



Band66 / 15MHz / High CH / QPSK / 1 RB



Band66 / 15MHz / High CH / QPSK / FULL RB





Band66 / 20MHz / Low CH / QPSK / 1 RB



Band66 / 20MHz / Low CH / QPSK / FULL RB



Band66 / 20MHz / High CH / QPSK / 1 RB



Band66 / 20MHz / High CH / QPSK / FULL RB







Band71 / 10MHz / Low CH / QPSK / 1 RB



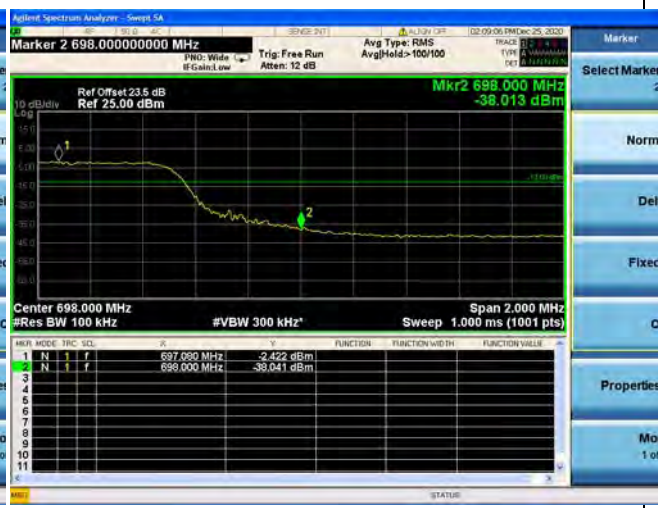
Band71 / 10MHz / Low CH / QPSK / FULL RB



Band71 / 10MHz / High CH / QPSK / 1 RB



Band71 / 10MHz / High CH / QPSK / FULL RB





Band71 / 15MHz / Low CH / QPSK / 1 RB



Band71 / 15MHz / Low CH / QPSK / FULL RB



Band71 / 15MHz / High CH / QPSK / 1 RB



Band71 / 15MHz / High CH / QPSK / FULL RB







Band71 / 20MHz / Low CH / QPSK / 1 RB



Band71 / 20MHz / Low CH / QPSK / FULL RB



Band71 / 20MHz / High CH / QPSK / 1 RB



Band71 / 20MHz / High CH / QPSK / FULL RB



## 2.7. Radiated Spurious Emissions

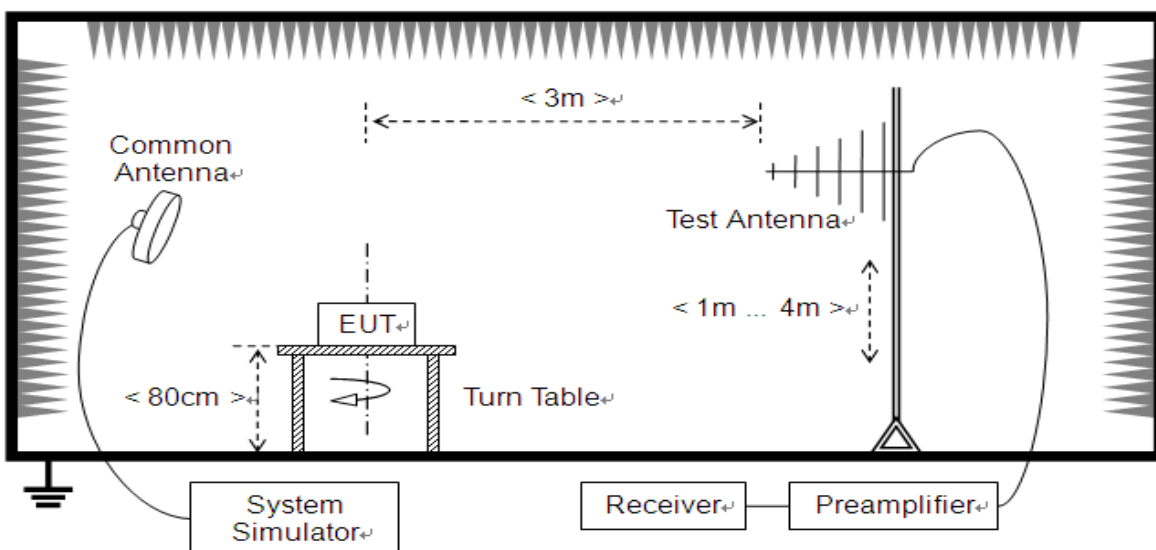
### 2.7.1. Requirement

According to FCC section 2.1051, 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. This calculated to be -13dBm.

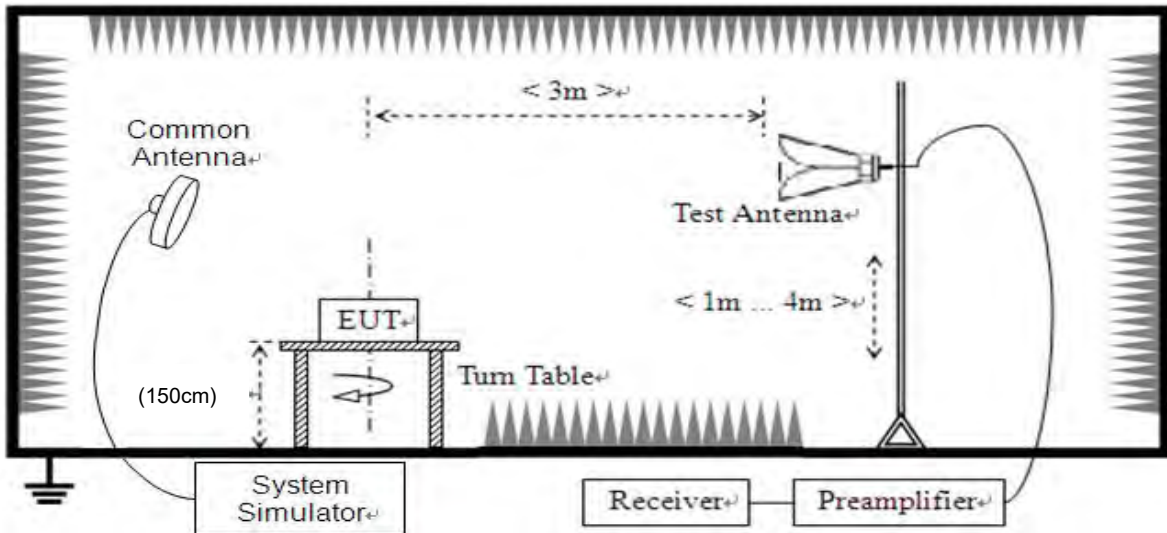
Additional requirement for Band 13

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (E.I.R.P.) for wideband signals, and -80 dBW E.I.R.P. for discrete emissions of less than 700 Hz bandwidth.

### 2.7.2. Test Description



(For the test frequency from 30MHz to1GHz)



(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading. A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

**Note:** When doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

### 2.7.3. Test Procedure

KDB 971168 D01v03 Section 5.8 and ANSI/TIA-603-E-2016.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements.

For measurements above 1GHz (exclude 1559-1610 MHz) the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements.



#### 2.7.4. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions.

The substitution corrections are obtained as described below:

$$A_{\text{SUBST}} = P_{\text{SUBST\_TX}} - P_{\text{SUBST\_RX}} - L_{\text{SUBST\_CABLES}} + G_{\text{SUBST\_TX\_ANT}}$$

$$A_{\text{TOT}} = L_{\text{CABLES}} + A_{\text{SUBST}}$$

Where  $A_{\text{SUBST}}$  is the final substitution correction including receive antenna gain.

$P_{\text{SUBST\_TX}}$  is signal generator level,

$P_{\text{SUBST\_RX}}$  is receiver level,

$L_{\text{SUBST\_CABLES}}$  is cable losses including TX cable,

$G_{\text{SUBST\_TX\_ANT}}$  is substitution antenna gain.

$A_{\text{TOT}}$  is total correction factor including cable loss and substitution correction

During the test, the data of  $A_{\text{TOT}}$  was added in the test spectrum analyze, so spectrum analyze reading is the final values which contain the data of  $A_{\text{TOT}}$ .

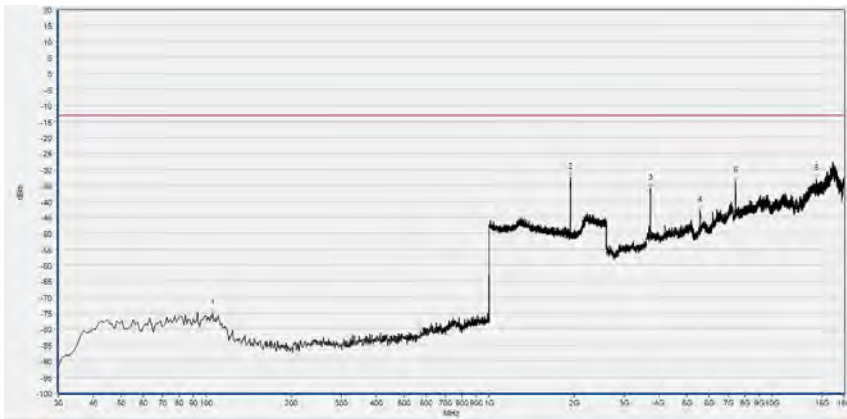
**Note1:** The power of the EUT transmitting frequency should be ignored.

**Note2:** All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

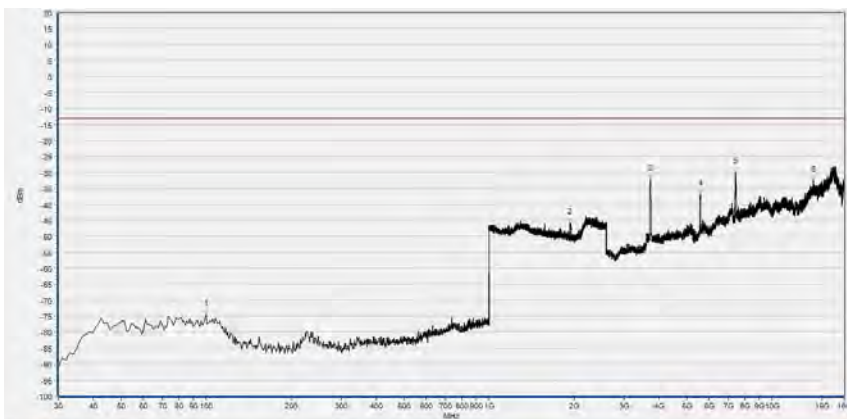
**Note3:** All bandwidth and modulation were considered and evaluated respectively by performing full test for each band, only the worst cases (Max Bandwidth and QPSK mode) were recorded in this test report.

**Note 4:** N/A means the frequency is the basic frequency or the base station frequency, they are no need to verdict.

LTE Band 2, 20MHz BW, Low Channel, QPSK

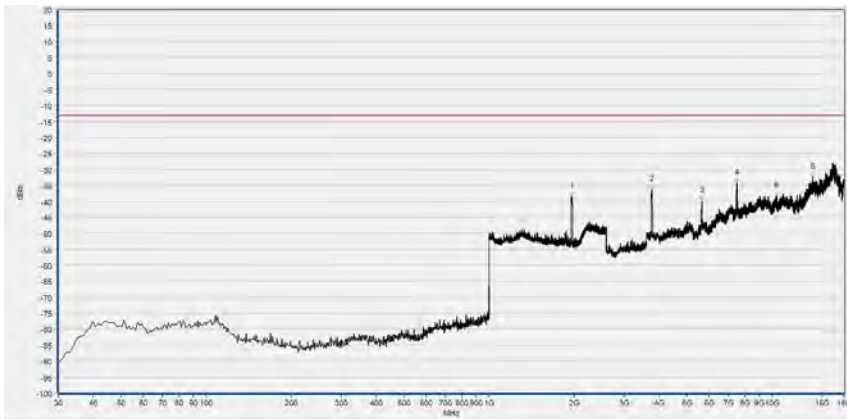


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 105.660   | -75.04   | -13.00      | Horizontal | PASS    |
| 2   | 1941.176  | -32.51   | -13.00      | Horizontal | N/A     |
| 3   | 3714.603  | -35.79   | -13.00      | Horizontal | PASS    |
| 4   | 5574.141  | -42.69   | -13.00      | Horizontal | PASS    |
| 5   | 7439.280  | -33.65   | -13.00      | Horizontal | PASS    |
| 6   | 14370.540 | -33.00   | -13.00      | Horizontal | PASS    |

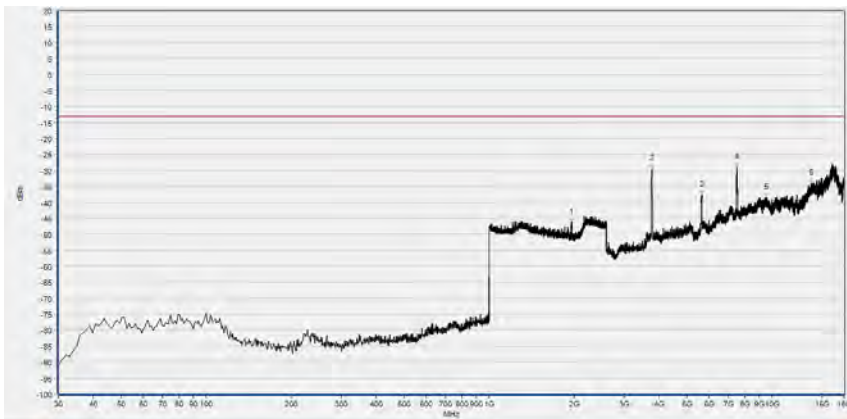


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 99.840    | -74.62   | -13.00      | Vertical | PASS    |
| 2   | 1934.774  | -45.65   | -13.00      | Vertical | N/A     |
| 3   | 3720.204  | -32.15   | -13.00      | Vertical | PASS    |
| 4   | 5579.742  | -36.81   | -13.00      | Vertical | PASS    |
| 5   | 7439.280  | -29.74   | -13.00      | Vertical | PASS    |
| 6   | 14037.280 | -32.60   | -13.00      | Vertical | PASS    |

LTE Band 2, 20MHz BW, Mid Channel, QPSK

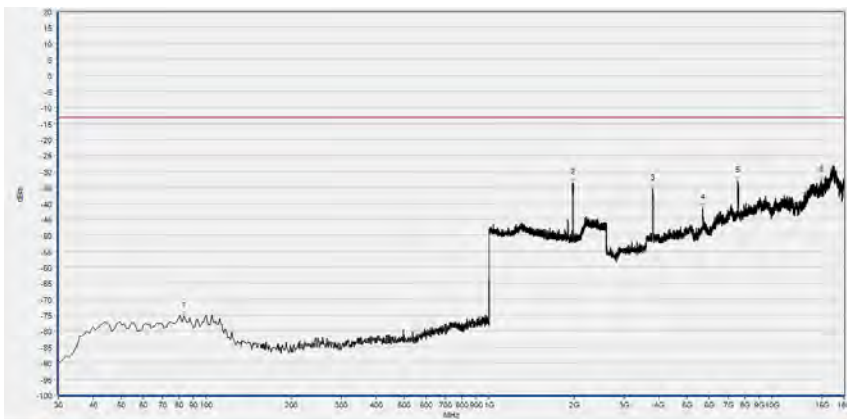


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 1962.945  | -38.66   | 1962.945    | Horizontal | PASS    |
| 2   | 3770.613  | -36.40   | 3770.613    | Horizontal | PASS    |
| 3   | 5652.555  | -39.99   | 5652.555    | Horizontal | PASS    |
| 4   | 7520.495  | -34.38   | 7520.495    | Horizontal | PASS    |
| 5   | 10368.612 | -38.32   | 10368.612   | Horizontal | PASS    |
| 6   | 13925.259 | -32.55   | 13925.259   | Horizontal | PASS    |

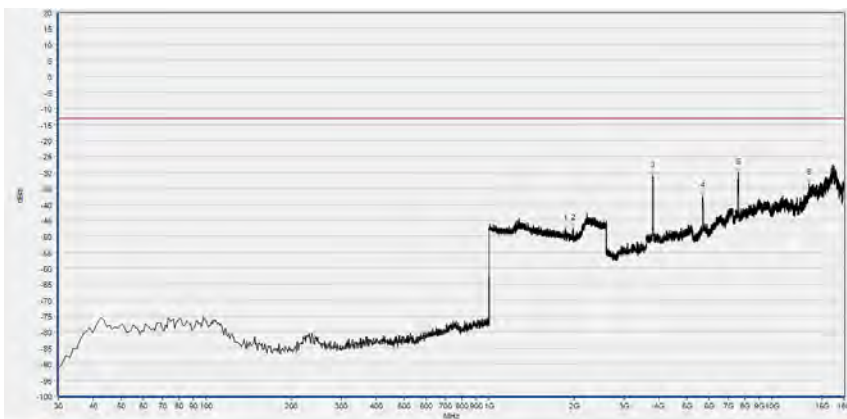


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 1952.701  | -46.37   | -13.00      | Vertical | N/A     |
| 2   | 3759.411  | -29.60   | -13.00      | Vertical | PASS    |
| 3   | 5646.954  | -37.59   | -13.00      | Vertical | PASS    |
| 4   | 7520.495  | -29.20   | -13.00      | Vertical | PASS    |
| 5   | 9550.864  | -38.66   | -13.00      | Vertical | PASS    |
| 6   | 13762.830 | -34.18   | -13.00      | Vertical | PASS    |

LTE Band 2, 20MHz BW, High Channel, QPSK

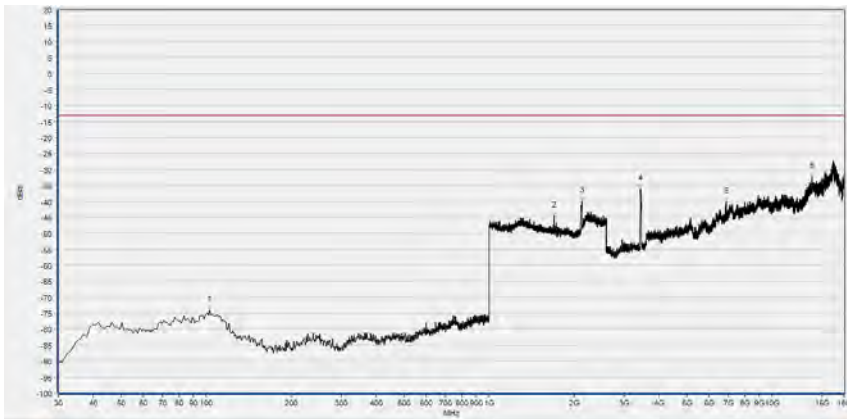


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 83.350    | -75.24   | -13.00      | Horizontal | PASS    |
| 2   | 1978.311  | -33.70   | -13.00      | Horizontal | N/A     |
| 3   | 3795.817  | -35.53   | -13.00      | Horizontal | PASS    |
| 4   | 5691.762  | -41.47   | -13.00      | Horizontal | PASS    |
| 5   | 7582.106  | -33.01   | -13.00      | Horizontal | PASS    |
| 6   | 14936.243 | -32.65   | -13.00      | Horizontal | PASS    |

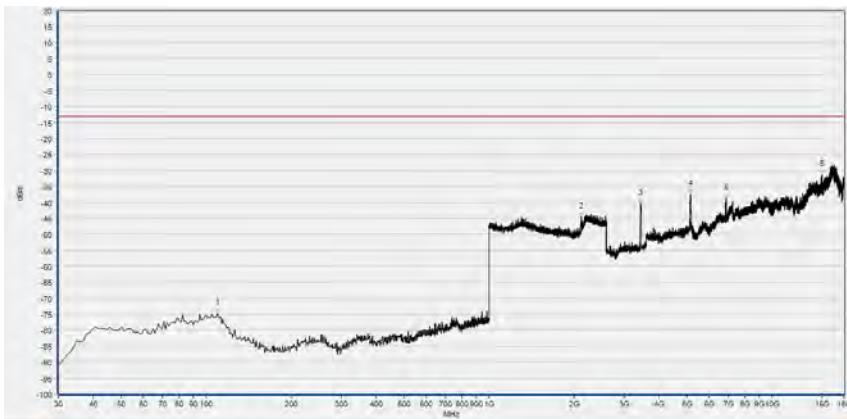


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 1864.346  | -47.72   | -13.00      | Vertical | PASS    |
| 2   | 1982.793  | -47.42   | -13.00      | Vertical | PASS    |
| 3   | 3793.017  | -31.25   | -13.00      | Vertical | PASS    |
| 4   | 5686.161  | -37.48   | -13.00      | Vertical | PASS    |
| 5   | 7598.909  | -30.17   | -13.00      | Vertical | PASS    |
| 6   | 13558.392 | -33.38   | -13.00      | Vertical | PASS    |

LTE Band 4, 20MHz BW, Low Channel, QPSK



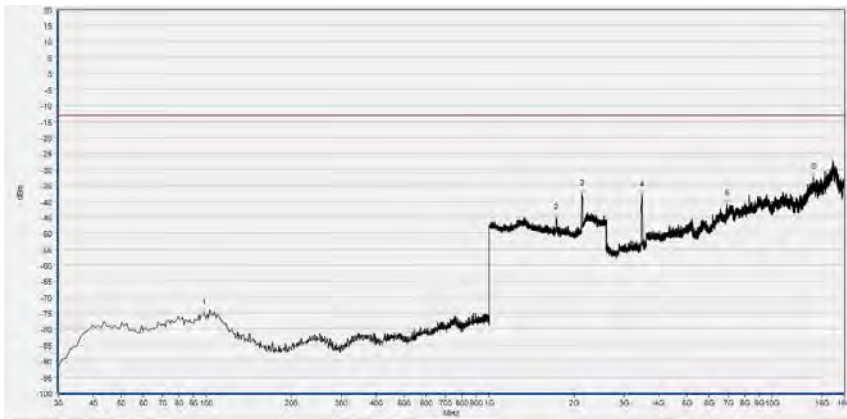
| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 102.823   | -73.97   | -13.00      | Horizontal | PASS    |
| 2   | 1694.747  | -44.52   | -13.00      | Horizontal | N/A     |
| 3   | 2128.564  | -39.97   | -13.00      | Horizontal | N/A     |
| 4   | 3429.172  | -36.16   | -13.00      | Horizontal | PASS    |
| 5   | 6881.914  | -40.19   | -13.00      | Horizontal | PASS    |
| 6   | 13828.471 | -32.23   | -13.00      | Horizontal | PASS    |



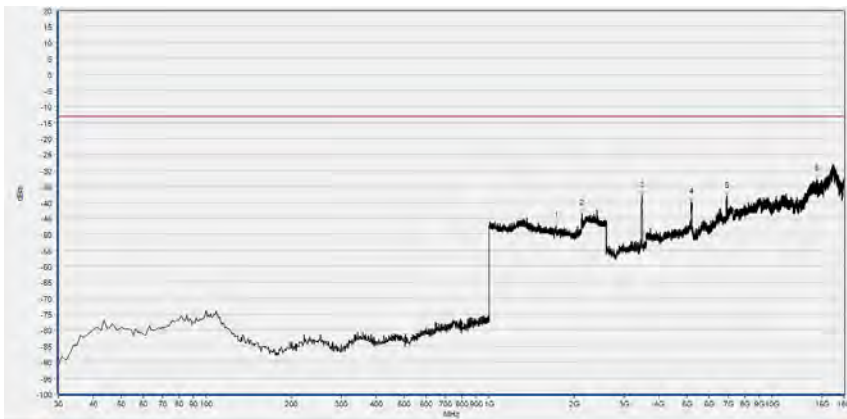
| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 109.620   | -74.65   | -13.00      | Vertical | PASS    |
| 2   | 2115.758  | -44.60   | -13.00      | Vertical | N/A     |
| 3   | 3436.873  | -40.39   | -13.00      | Vertical | PASS    |
| 4   | 5149.125  | -37.50   | -13.00      | Vertical | PASS    |
| 5   | 6879.347  | -38.72   | -13.00      | Vertical | PASS    |
| 6   | 15017.036 | -31.48   | -13.00      | Vertical | PASS    |



LTE Band 4, 20MHz BW, Mid Channel, QPSK

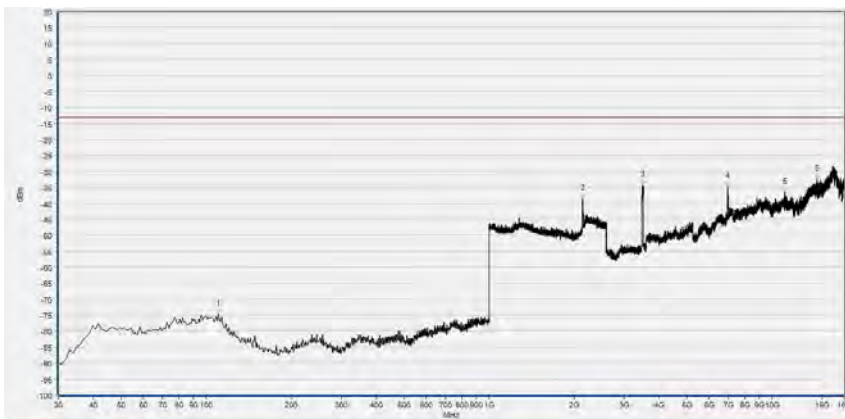


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 97.968    | -74.91   | -13.00      | Horizontal | PASS    |
| 2   | 1729.165  | -45.31   | -13.00      | Horizontal | N/A     |
| 3   | 2133.367  | -37.71   | -13.00      | Horizontal | N/A     |
| 4   | 3465.111  | -38.06   | -13.00      | Horizontal | PASS    |
| 5   | 6930.688  | -40.69   | -13.00      | Horizontal | PASS    |
| 6   | 14026.138 | -32.52   | -13.00      | Horizontal | PASS    |

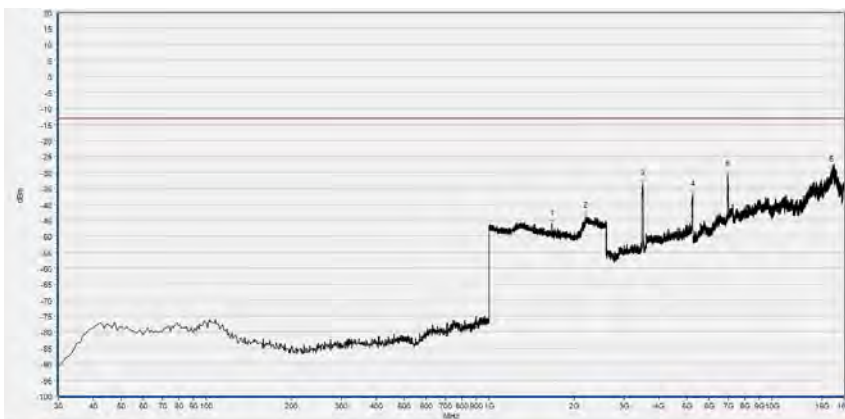


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 1722.761  | -47.30   | -13.00      | Vertical | N/A     |
| 2   | 2127.764  | -43.46   | -13.00      | Vertical | N/A     |
| 3   | 3472.812  | -37.95   | -13.00      | Vertical | PASS    |
| 4   | 5197.900  | -39.91   | -13.00      | Vertical | PASS    |
| 5   | 6930.688  | -38.08   | -13.00      | Vertical | PASS    |
| 6   | 14403.501 | -32.64   | -13.00      | Vertical | PASS    |

LTE Band 4, 20MHz BW, High Channel, QPSK

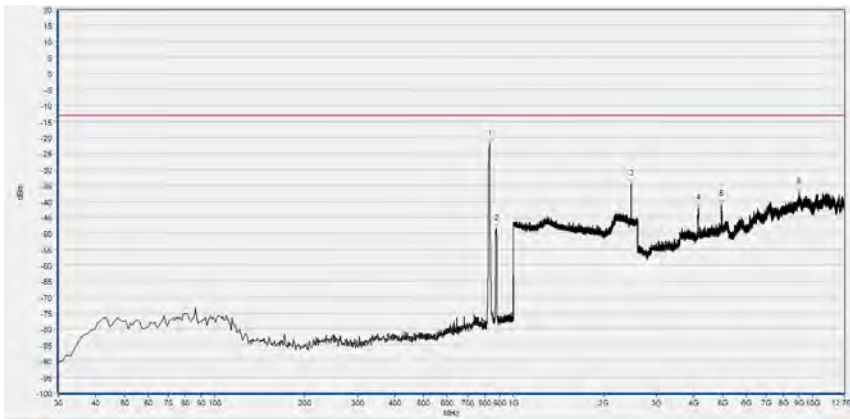


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 110.591   | -74.80   | -13.00      | Horizontal | PASS    |
| 2   | 2139.770  | -38.51   | -13.00      | Horizontal | N/A     |
| 3   | 3490.782  | -34.40   | -13.00      | Horizontal | PASS    |
| 4   | 6979.463  | -34.84   | -13.00      | Horizontal | PASS    |
| 5   | 11081.680 | -36.46   | -13.00      | Horizontal | PASS    |
| 6   | 14395.799 | -32.45   | -13.00      | Horizontal | PASS    |

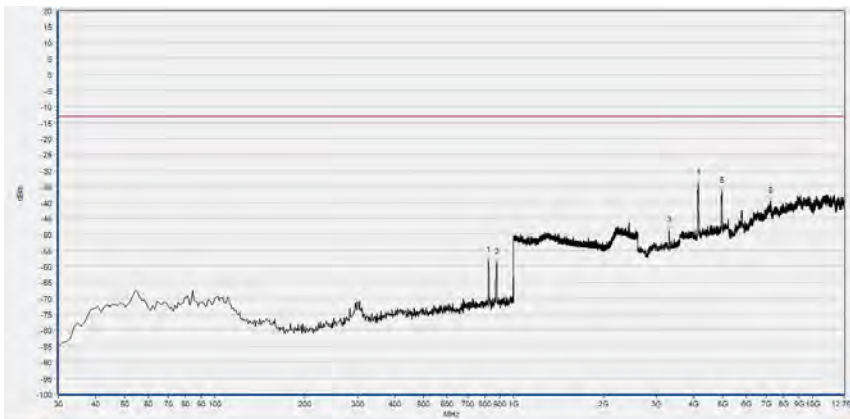


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 1667.534  | -46.17   | -13.00      | Vertical | PASS    |
| 2   | 2198.199  | -43.80   | -13.00      | Vertical | N/A     |
| 3   | 3501.050  | -33.68   | -13.00      | Vertical | PASS    |
| 4   | 5233.839  | -36.96   | -13.00      | Vertical | PASS    |
| 5   | 6979.463  | -30.82   | -13.00      | Vertical | PASS    |
| 6   | 16197.900 | -29.38   | -13.00      | Vertical | PASS    |

LTE Band 5, 10MHz BW, Low Channel, QPSK

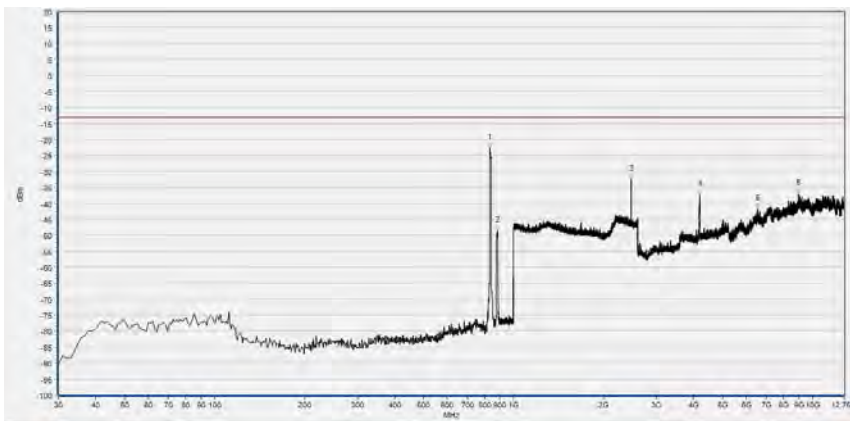


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 830.250   | -22.00   | -13.00      | Horizontal | N/A     |
| 2   | 873.900   | -48.70   | -13.00      | Horizontal | N/A     |
| 3   | 2479.632  | -34.55   | -13.00      | Horizontal | PASS    |
| 4   | 4144.926  | -42.14   | -13.00      | Horizontal | PASS    |
| 5   | 4958.920  | -40.95   | -13.00      | Horizontal | PASS    |
| 6   | 9023.350  | -37.21   | -13.00      | Horizontal | PASS    |

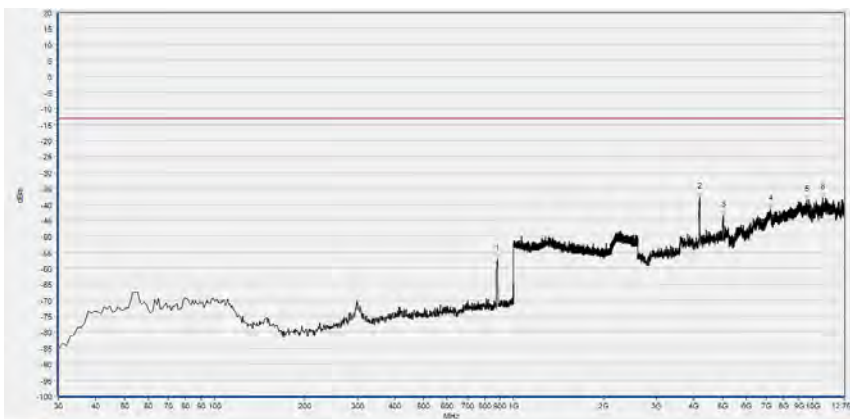


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 825.400   | -58.32   | -13.00      | Vertical | N/A     |
| 2   | 877.780   | -58.81   | -13.00      | Vertical | N/A     |
| 3   | 3317.267  | -48.72   | -13.00      | Vertical | PASS    |
| 4   | 4146.183  | -34.19   | -13.00      | Vertical | PASS    |
| 5   | 4975.100  | -36.63   | -13.00      | Vertical | PASS    |
| 6   | 7252.083  | -39.65   | -13.00      | Vertical | PASS    |

LTE Band 5, 10MHz BW, Mid Channel, QPSK

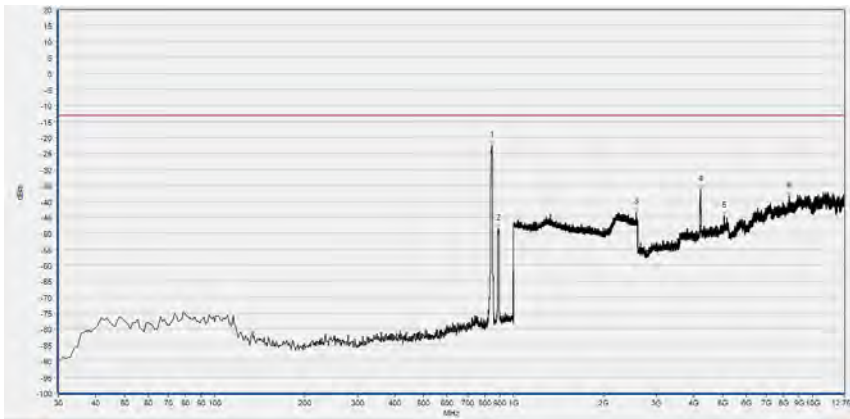


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 834.130   | -22.79   | -13.00      | Horizontal | N/A     |
| 2   | 884.570   | -48.69   | -13.00      | Horizontal | N/A     |
| 3   | 2479.632  | -32.60   | -13.00      | Horizontal | PASS    |
| 4   | 4194.763  | -37.21   | -13.00      | Horizontal | PASS    |
| 5   | 6553.682  | -41.73   | -13.00      | Horizontal | PASS    |
| 6   | 8958.747  | -37.07   | -13.00      | Horizontal | PASS    |

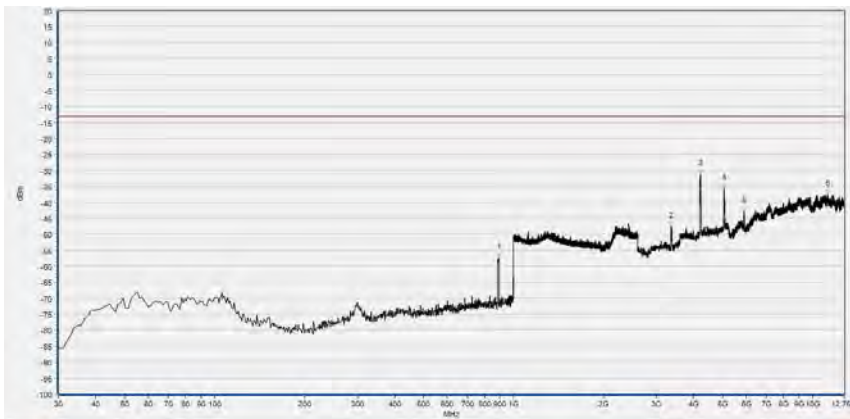


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 883.600   | -57.00   | -13.00      | Vertical | N/A     |
| 2   | 4196.933  | -37.70   | -13.00      | Vertical | PASS    |
| 3   | 5022.467  | -43.37   | -13.00      | Vertical | PASS    |
| 4   | 7241.933  | -41.38   | -13.00      | Vertical | PASS    |
| 5   | 9552.750  | -38.57   | -13.00      | Vertical | PASS    |
| 6   | 10831.650 | -37.82   | -13.00      | Vertical | PASS    |

LTE Band 5, 10MHz BW, High Channel, QPSK

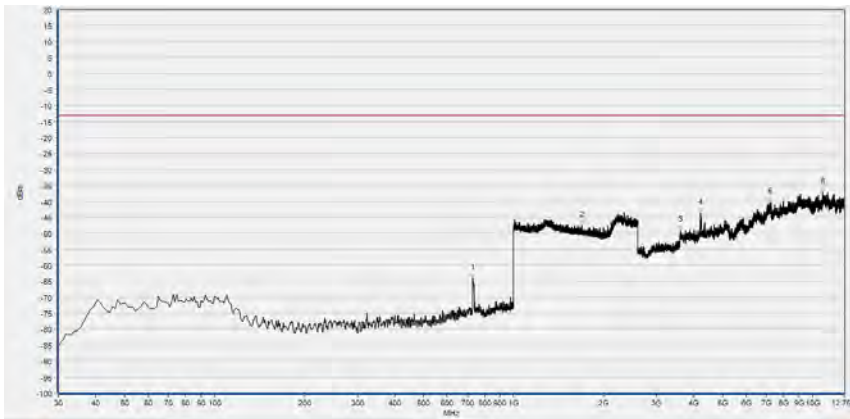


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 845.770   | -22.47   | -13.00      | Horizontal | N/A     |
| 2   | 887.480   | -48.58   | -13.00      | Horizontal | N/A     |
| 3   | 2573.749  | -43.54   | -13.00      | Horizontal | PASS    |
| 4   | 4220.604  | -36.21   | -13.00      | Horizontal | PASS    |
| 5   | 5049.364  | -44.57   | -13.00      | Horizontal | PASS    |
| 6   | 8357.019  | -38.36   | -13.00      | Horizontal | PASS    |

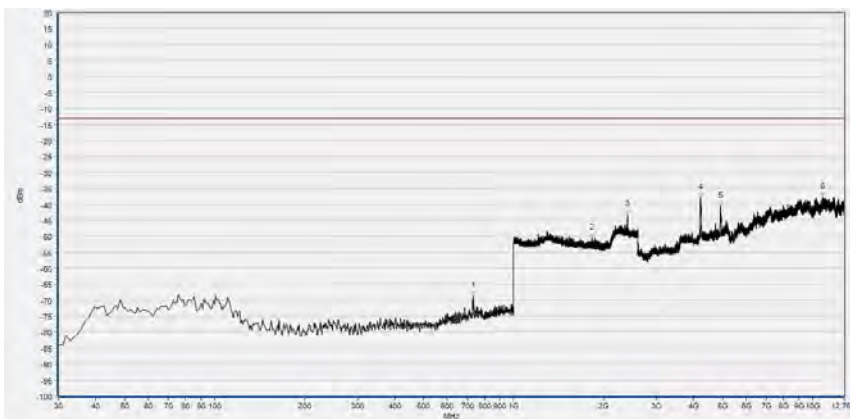


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 892.330   | -57.33   | -13.00      | Vertical | N/A     |
| 2   | 3361.250  | -47.58   | -13.00      | Vertical | PASS    |
| 3   | 4220.617  | -31.28   | -13.00      | Vertical | PASS    |
| 4   | 5063.067  | -35.63   | -13.00      | Vertical | PASS    |
| 5   | 5905.517  | -42.87   | -13.00      | Vertical | PASS    |
| 6   | 11254.567 | -37.53   | -13.00      | Vertical | PASS    |

LTE Band 12, 10MHz BW, Low Channel, QPSK

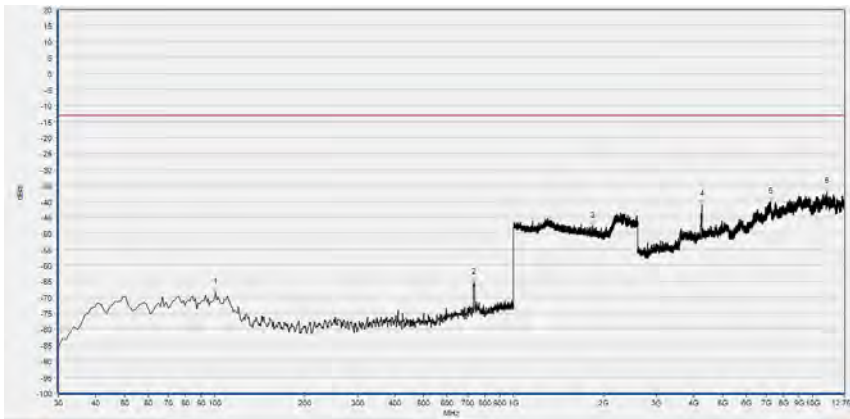


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 731.041   | -64.03   | -13.00      | Horizontal | N/A     |
| 2   | 1689.296  | -47.55   | -13.00      | Horizontal | PASS    |
| 3   | 3625.355  | -49.03   | -13.00      | Horizontal | PASS    |
| 4   | 4222.294  | -43.76   | -13.00      | Horizontal | PASS    |
| 5   | 7204.961  | -40.29   | -13.00      | Horizontal | PASS    |
| 6   | 10815.023 | -37.19   | -13.00      | Horizontal | PASS    |

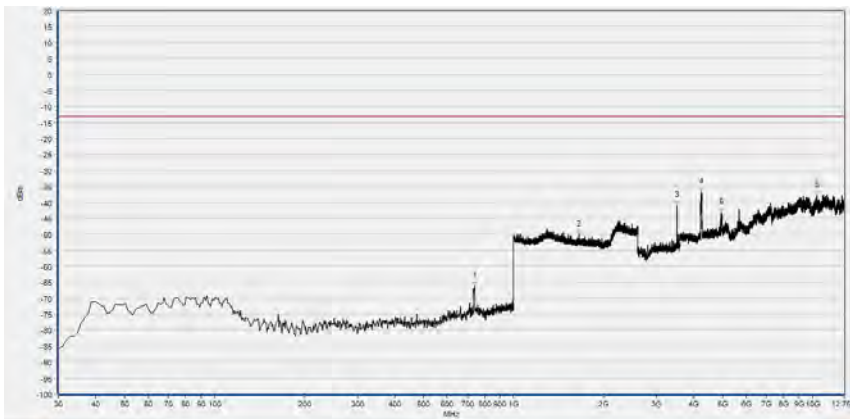


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 733.954   | -68.82   | -13.00      | Vertical | N/A     |
| 2   | 1830.677  | -50.51   | -13.00      | Vertical | PASS    |
| 3   | 2401.534  | -43.16   | -13.00      | Vertical | PASS    |
| 4   | 4222.294  | -37.93   | -13.00      | Vertical | PASS    |
| 5   | 4926.845  | -40.49   | -13.00      | Vertical | PASS    |
| 6   | 10815.023 | -37.75   | -13.00      | Vertical | PASS    |

LTE Band 12, 10MHz BW, Mid Channel, QPSK

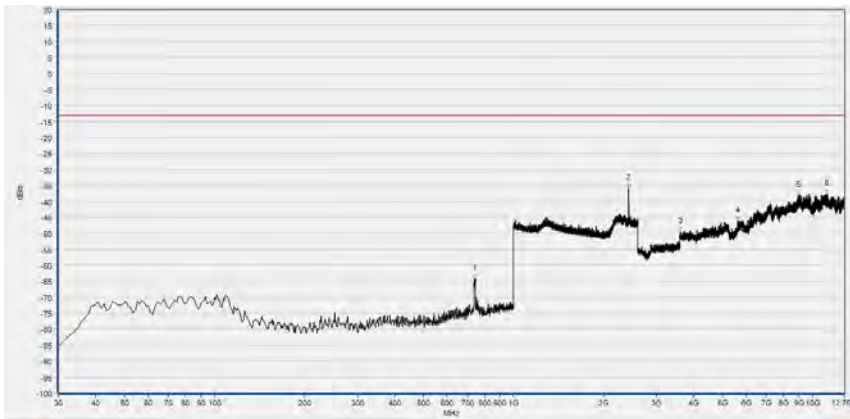


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 100.881   | -68.44   | -13.00      | Horizontal | PASS    |
| 2   | 736.867   | -65.39   | -13.00      | Horizontal | N/A     |
| 3   | 1840.280  | -47.69   | -13.00      | Horizontal | PASS    |
| 4   | 4260.872  | -41.10   | -13.00      | Horizontal | PASS    |
| 5   | 7229.326  | -40.04   | -13.00      | Horizontal | PASS    |
| 6   | 11200.800 | -37.08   | -13.00      | Horizontal | PASS    |

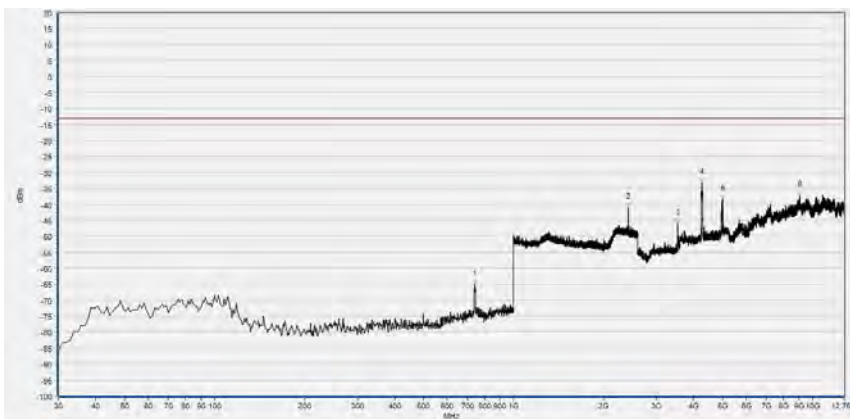


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 739.780   | -66.29   | -13.00      | Vertical | N/A     |
| 2   | 1651.417  | -50.27   | -13.00      | Vertical | PASS    |
| 3   | 3517.744  | -40.96   | -13.00      | Vertical | PASS    |
| 4   | 4246.659  | -36.65   | -13.00      | Vertical | PASS    |
| 5   | 4951.210  | -43.32   | -13.00      | Vertical | PASS    |
| 6   | 10368.334 | -37.97   | -13.00      | Vertical | PASS    |

LTE Band 12, 10MHz BW, High Channel, QPSK



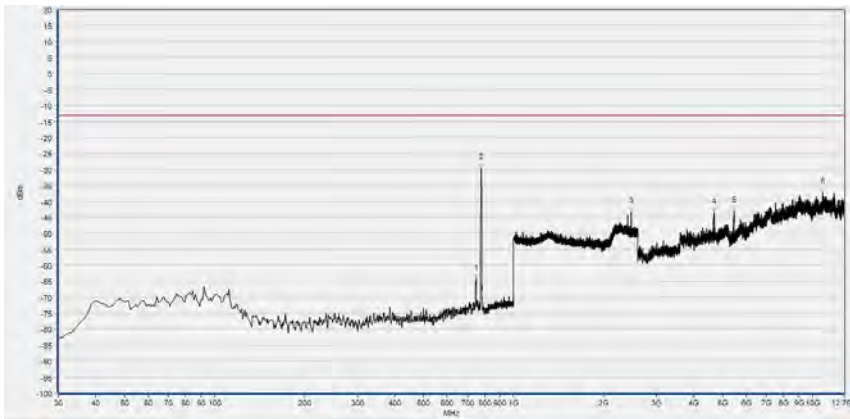
| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 739.780   | -64.33   | -13.00      | Horizontal | N/A     |
| 2   | 2426.609  | -35.76   | -13.00      | Horizontal | PASS    |
| 3   | 3611.142  | -49.55   | -13.00      | Horizontal | PASS    |
| 4   | 5615.153  | -46.23   | -13.00      | Horizontal | PASS    |
| 5   | 8961.262  | -38.19   | -13.00      | Horizontal | PASS    |
| 6   | 11202.831 | -37.65   | -13.00      | Horizontal | PASS    |



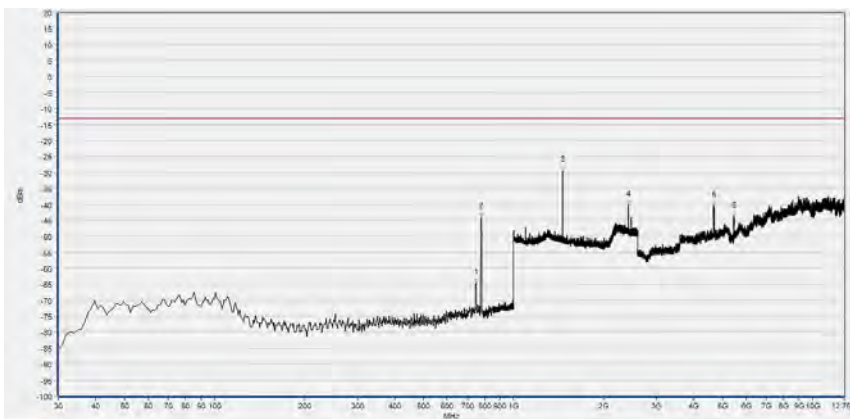
| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 740.751   | -64.99   | -13.00      | Vertical | N/A     |
| 2   | 2425.542  | -40.99   | -13.00      | Vertical | PASS    |
| 3   | 3533.987  | -45.95   | -13.00      | Vertical | PASS    |
| 4   | 4264.933  | -33.22   | -13.00      | Vertical | PASS    |
| 5   | 4991.818  | -38.39   | -13.00      | Vertical | PASS    |
| 6   | 9079.026  | -37.31   | -13.00      | Vertical | PASS    |



LTE Band 13, 5MHz BW, Low Channel, QPSK

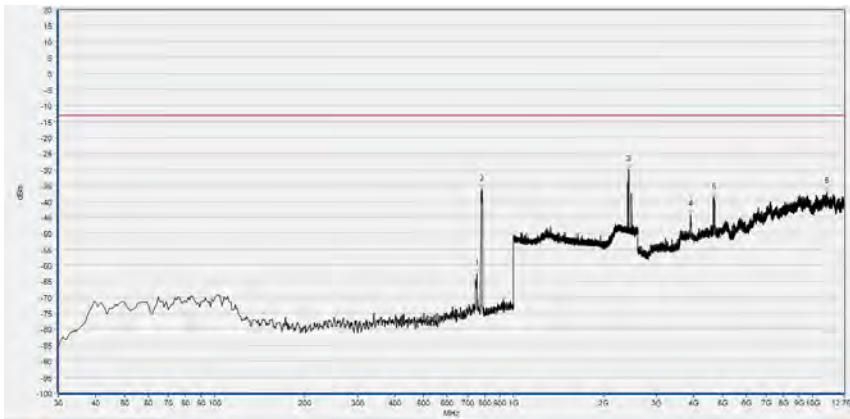


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 750.460   | -64.30   | -13.00      | Horizontal | N/A     |
| 2   | 778.619   | -29.55   | -13.00      | Horizontal | N/A     |
| 3   | 2479.960  | -43.18   | -13.00      | Horizontal | PASS    |
| 4   | 4685.227  | -43.56   | -13.00      | Horizontal | PASS    |
| 5   | 5456.781  | -43.04   | -13.00      | Horizontal | PASS    |
| 6   | 10823.145 | -37.27   | -13.00      | Horizontal | PASS    |

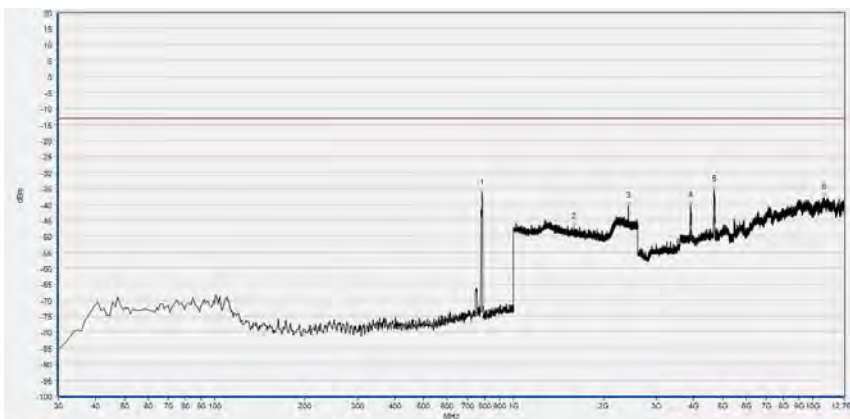


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 748.519   | -64.71   | -13.00      | Vertical | N/A     |
| 2   | 778.619   | -43.99   | -13.00      | Vertical | N/A     |
| 3   | 1455.619  | -29.40   | -13.00      | Vertical | PASS    |
| 4   | 2425.542  | -40.14   | -13.00      | Vertical | PASS    |
| 5   | 4677.105  | -40.23   | -13.00      | Vertical | PASS    |
| 6   | 5450.690  | -43.61   | -13.00      | Vertical | PASS    |

LTE Band 13, 5MHz BW, Mid Channel, QPSK

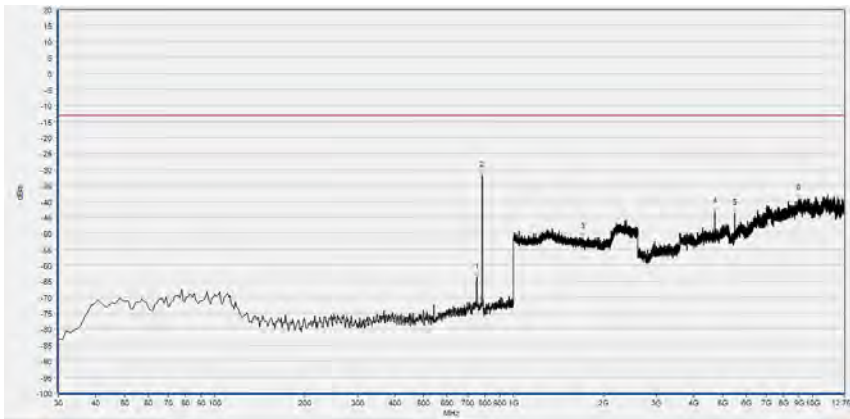


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 754.344   | -62.76   | -13.00      | Horizontal | N/A     |
| 2   | 785.415   | -36.27   | -13.00      | Horizontal | N/A     |
| 3   | 2426.609  | -30.09   | -13.00      | Horizontal | PASS    |
| 4   | 3911.642  | -44.16   | -13.00      | Horizontal | PASS    |
| 5   | 4689.288  | -38.79   | -13.00      | Horizontal | PASS    |
| 6   | 11182.527 | -37.06   | -13.00      | Horizontal | PASS    |

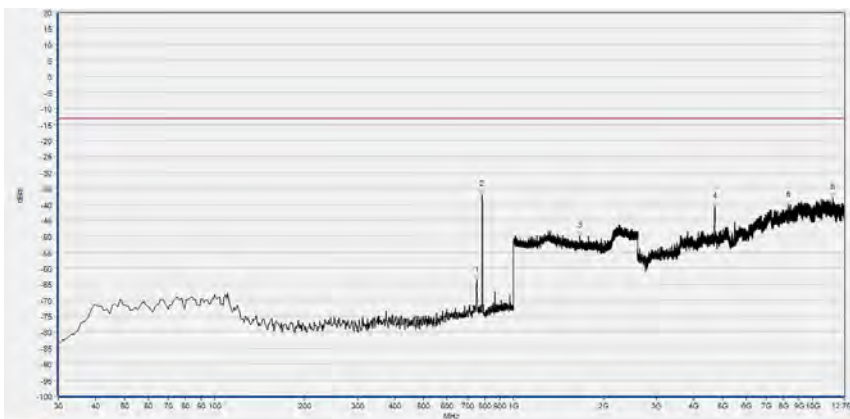


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 785.415   | -36.60   | -13.00      | Vertical | N/A     |
| 2   | 1591.130  | -47.21   | -13.00      | Vertical | PASS    |
| 3   | 2425.542  | -40.61   | -13.00      | Vertical | PASS    |
| 4   | 3909.612  | -40.34   | -13.00      | Vertical | PASS    |
| 5   | 4695.379  | -35.33   | -13.00      | Vertical | PASS    |
| 6   | 10908.422 | -37.94   | -13.00      | Vertical | PASS    |

LTE Band 13, 5MHz BW, High Channel, QPSK

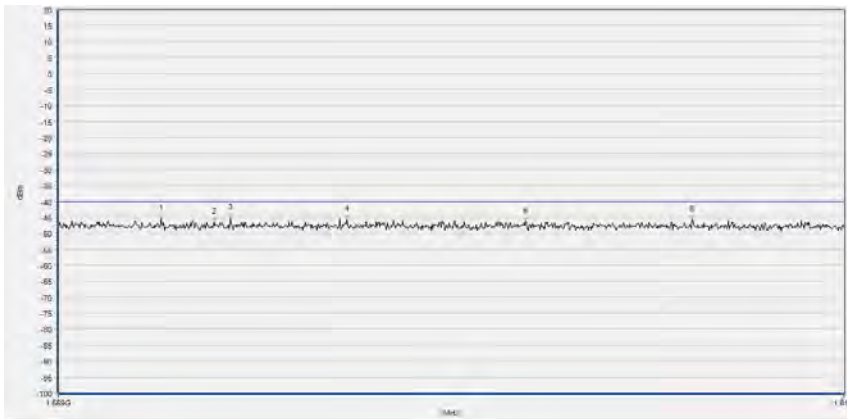


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 752.402   | -63.86   | -13.00      | Horizontal | N/A     |
| 2   | 784.444   | -31.84   | -13.00      | Horizontal | N/A     |
| 3   | 1702.101  | -51.26   | -13.00      | Horizontal | PASS    |
| 4   | 4699.440  | -43.28   | -13.00      | Horizontal | PASS    |
| 5   | 5489.268  | -43.72   | -13.00      | Horizontal | PASS    |
| 6   | 8949.080  | -39.22   | -13.00      | Horizontal | PASS    |

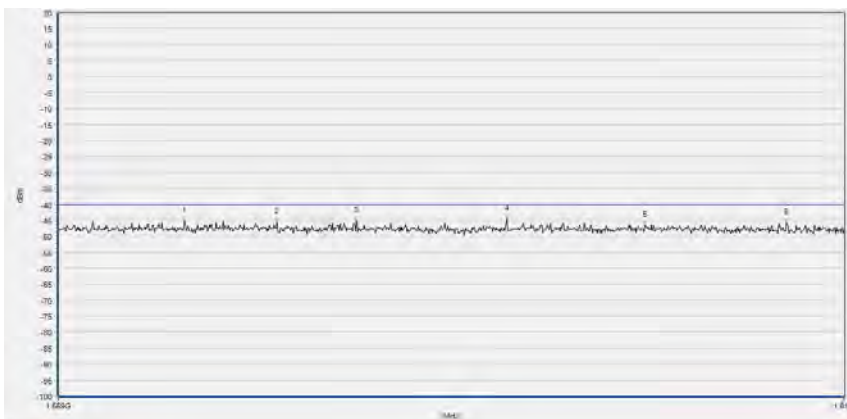


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 754.344   | -63.86   | -13.00      | Vertical | N/A     |
| 2   | 784.444   | -36.94   | -13.00      | Vertical | N/A     |
| 3   | 1662.087  | -49.89   | -13.00      | Vertical | PASS    |
| 4   | 4699.440  | -40.87   | -13.00      | Vertical | PASS    |
| 5   | 8289.198  | -40.30   | -13.00      | Vertical | PASS    |
| 6   | 11706.371 | -37.88   | -13.00      | Vertical | PASS    |

LTE Band 13, 1559MHz-1610MHz, 5MHz BW, Mid Channel, QPSK

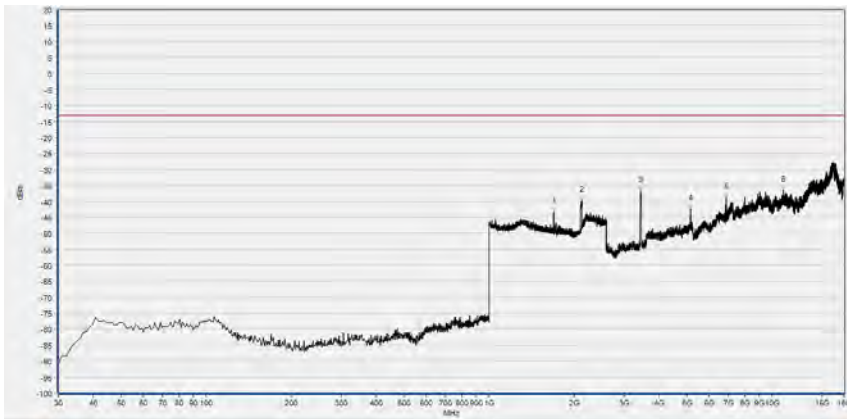


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 1565.586  | -45.38   | -40.00      | Horizontal | PASS    |
| 2   | 1568.955  | -46.63   | -40.00      | Horizontal | PASS    |
| 3   | 1570.027  | -45.24   | -40.00      | Horizontal | PASS    |
| 4   | 1577.532  | -45.72   | -40.00      | Horizontal | PASS    |
| 5   | 1589.120  | -46.27   | -40.00      | Horizontal | PASS    |
| 6   | 1599.994  | -45.77   | -40.00      | Horizontal | PASS    |

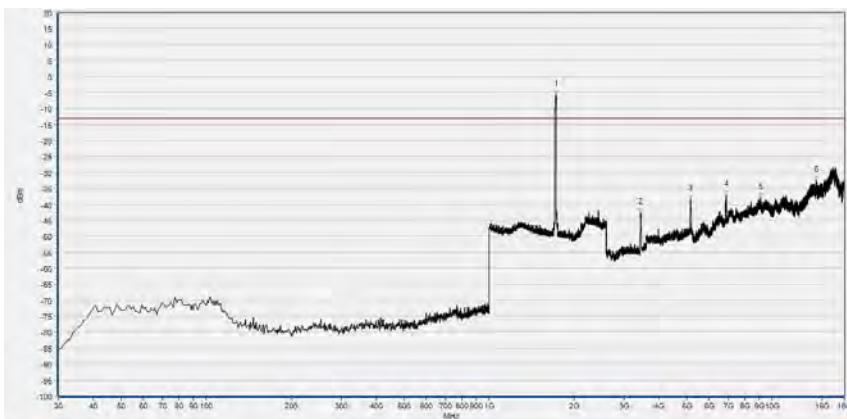


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 1567.066  | -45.30   | -40.00      | Vertical | PASS    |
| 2   | 1573.039  | -45.37   | -40.00      | Vertical | PASS    |
| 3   | 1578.144  | -45.35   | -40.00      | Vertical | PASS    |
| 4   | 1587.895  | -44.68   | -40.00      | Vertical | PASS    |
| 5   | 1596.931  | -46.51   | -40.00      | Vertical | PASS    |
| 6   | 1606.171  | -45.74   | -40.00      | Vertical | PASS    |

LTE Band 66, 20MHz BW, Low Channel, QPSK

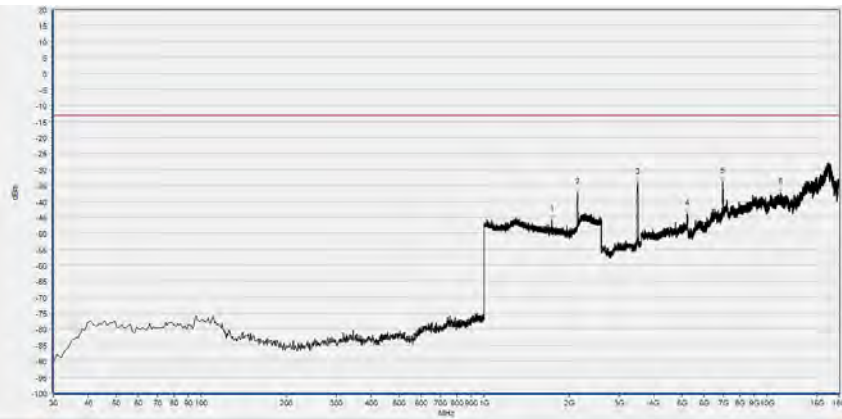


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 1693.947  | -43.20   | -13.00      | Horizontal | N/A     |
| 2   | 2126.963  | -39.75   | -13.00      | Horizontal | N/A     |
| 3   | 3436.873  | -36.75   | -13.00      | Horizontal | PASS    |
| 4   | 5156.826  | -42.27   | -13.00      | Horizontal | PASS    |
| 5   | 6879.347  | -38.73   | -13.00      | Horizontal | PASS    |
| 6   | 10978.996 | -36.46   | -13.00      | Horizontal | PASS    |

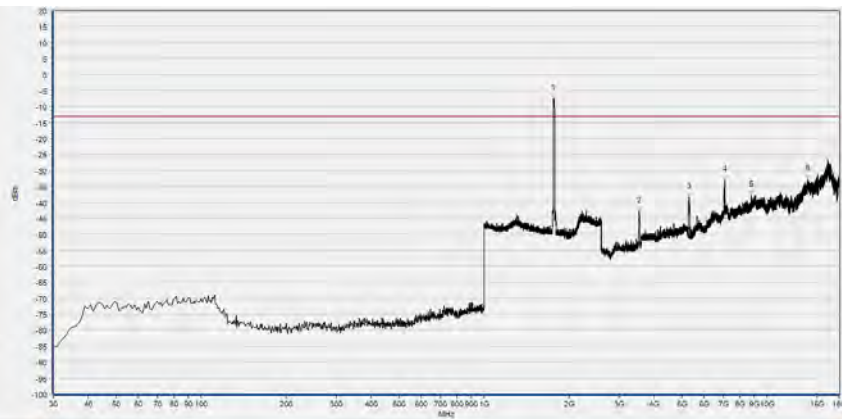


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 1722.761  | -5.79    | -13.00      | Vertical | N/A     |
| 2   | 3431.739  | -42.51   | -13.00      | Vertical | PASS    |
| 3   | 5156.826  | -38.40   | -13.00      | Vertical | PASS    |
| 4   | 6879.347  | -37.08   | -13.00      | Vertical | PASS    |
| 5   | 9102.450  | -37.83   | -13.00      | Vertical | PASS    |
| 6   | 14380.397 | -32.51   | -13.00      | Vertical | PASS    |

LTE Band 66, 20MHz BW, Mid Channel, QPSK

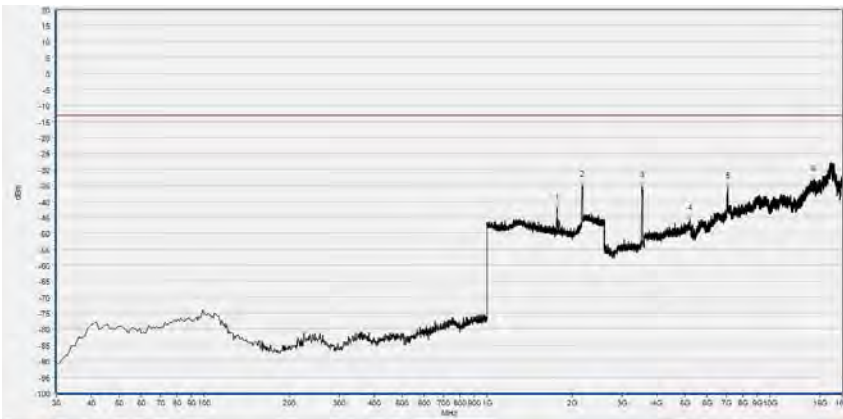


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 1737.169  | -45.67   | -13.00      | Horizontal | N/A     |
| 2   | 2139.770  | -37.24   | -13.00      | Horizontal | N/A     |
| 3   | 3495.916  | -34.12   | -13.00      | Horizontal | PASS    |
| 4   | 5218.436  | -43.83   | -13.00      | Horizontal | PASS    |
| 5   | 6979.463  | -33.81   | -13.00      | Horizontal | PASS    |
| 6   | 11197.200 | -37.21   | -13.00      | Horizontal | PASS    |

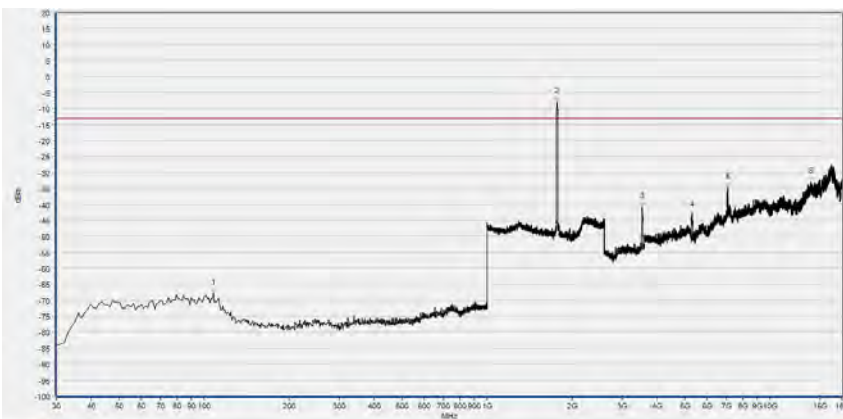


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 1761.981  | -7.52    | -13.00      | Vertical | N/A     |
| 2   | 3539.557  | -42.73   | -13.00      | Vertical | PASS    |
| 3   | 5298.016  | -38.42   | -13.00      | Vertical | PASS    |
| 4   | 7079.580  | -33.06   | -13.00      | Vertical | PASS    |
| 5   | 8825.204  | -37.67   | -13.00      | Vertical | PASS    |
| 6   | 13949.125 | -32.82   | -13.00      | Vertical | PASS    |

LTE Band 66, 20MHz BW, High Channel, QPSK

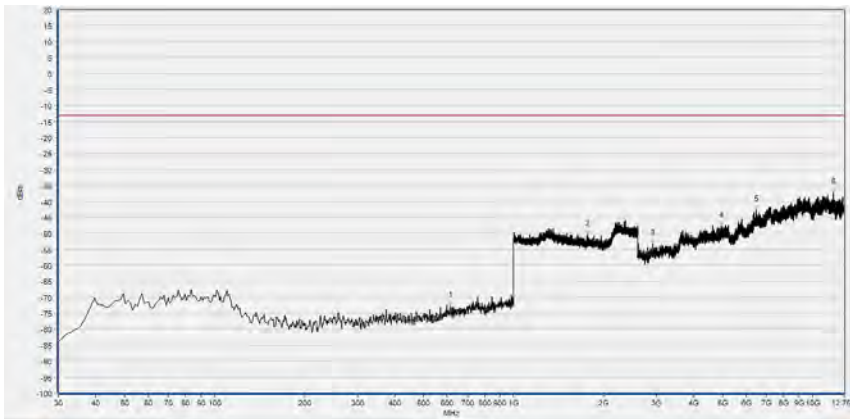


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 1765.983  | -42.10   | -13.00      | Horizontal | N/A     |
| 2   | 2170.185  | -34.92   | -13.00      | Horizontal | N/A     |
| 3   | 3539.557  | -35.16   | -13.00      | Horizontal | PASS    |
| 4   | 5213.302  | -45.49   | -13.00      | Horizontal | PASS    |
| 5   | 7079.580  | -35.50   | -13.00      | Horizontal | PASS    |
| 6   | 14254.609 | -33.28   | -13.00      | Horizontal | PASS    |

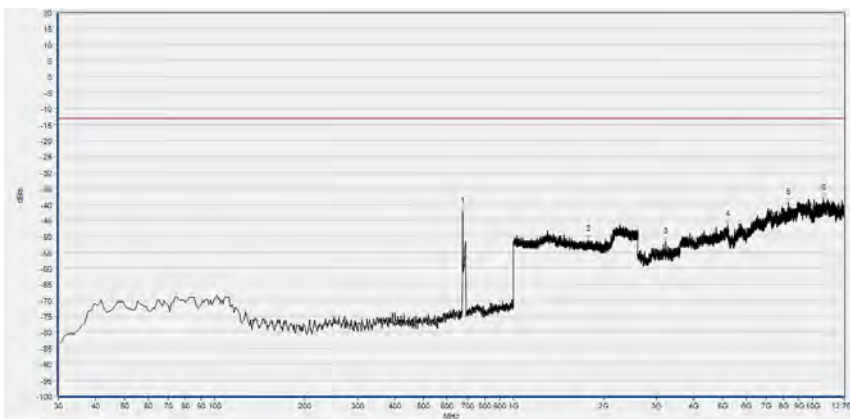


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 107.678   | -67.74   | -13.00      | Vertical | PASS    |
| 2   | 1770.785  | -7.86    | -13.00      | Vertical | N/A     |
| 3   | 3531.855  | -40.70   | -13.00      | Vertical | PASS    |
| 4   | 5295.449  | -43.50   | -13.00      | Vertical | PASS    |
| 5   | 7079.580  | -34.65   | -13.00      | Vertical | PASS    |
| 6   | 13946.558 | -33.03   | -13.00      | Vertical | PASS    |

LTE Band 71, 20MHz BW, Low Channel, QPSK



| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 613.554   | -72.76   | -13.00      | Horizontal | PASS    |
| 2   | 1767.723  | -50.44   | -13.00      | Horizontal | PASS    |
| 3   | 2924.865  | -53.25   | -13.00      | Horizontal | PASS    |
| 4   | 4953.241  | -47.71   | -13.00      | Horizontal | PASS    |
| 5   | 6467.924  | -42.49   | -13.00      | Horizontal | PASS    |
| 6   | 11720.584 | -37.18   | -13.00      | Horizontal | PASS    |

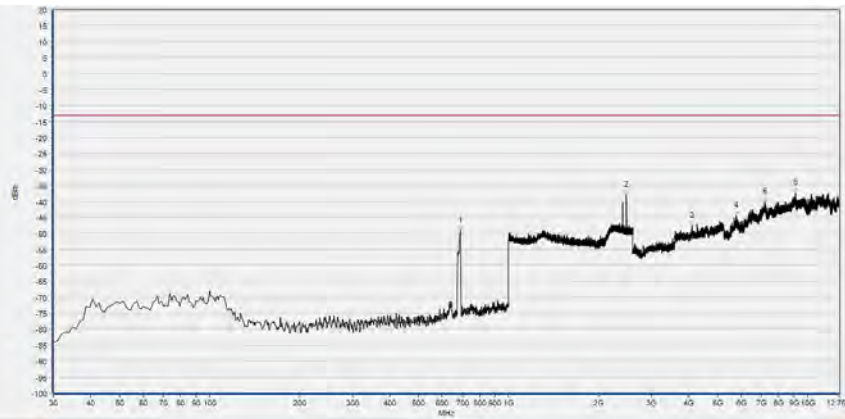


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 674.725   | -42.41   | -13.00      | Vertical | N/A     |
| 2   | 1774.125  | -51.15   | -13.00      | Vertical | PASS    |
| 3   | 3229.426  | -51.84   | -13.00      | Vertical | PASS    |
| 4   | 5194.859  | -46.28   | -13.00      | Vertical | PASS    |
| 5   | 8319.654  | -39.51   | -13.00      | Vertical | PASS    |
| 6   | 10863.753 | -38.04   | -13.00      | Vertical | PASS    |

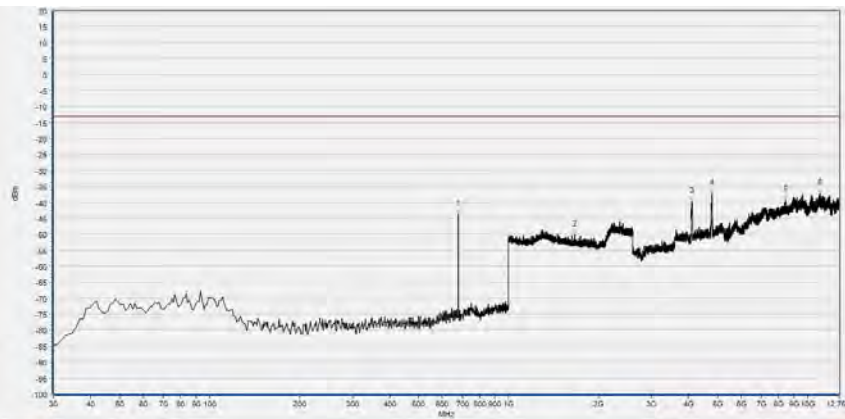




LTE Band 71, 20MHz BW, Mid Channel, QPSK

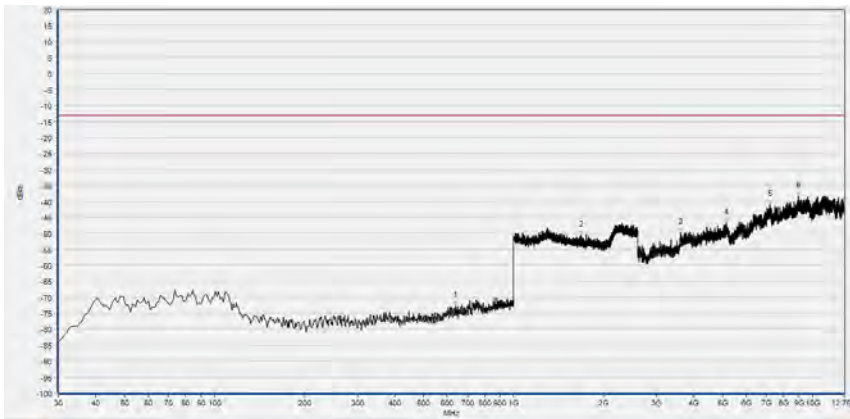


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 689.289   | -49.17   | -13.00      | Horizontal | N/A     |
| 2   | 2480.493  | -38.14   | -13.00      | Horizontal | PASS    |
| 3   | 4098.440  | -47.75   | -13.00      | Horizontal | PASS    |
| 4   | 5777.586  | -44.61   | -13.00      | Horizontal | PASS    |
| 5   | 7209.022  | -40.34   | -13.00      | Horizontal | PASS    |
| 6   | 9095.269  | -37.43   | -13.00      | Horizontal | PASS    |

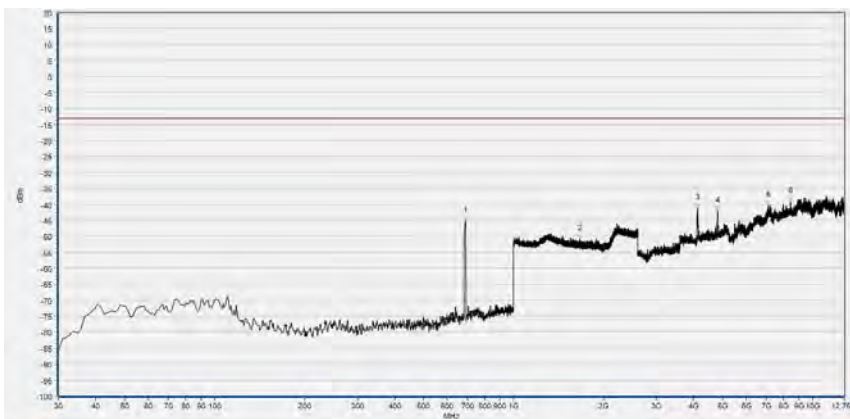


| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 678.609   | -43.62   | -13.00      | Vertical | N/A     |
| 2   | 1662.621  | -50.11   | -13.00      | Vertical | PASS    |
| 3   | 4112.653  | -39.57   | -13.00      | Vertical | PASS    |
| 4   | 4780.656  | -37.32   | -13.00      | Vertical | PASS    |
| 5   | 8453.661  | -39.26   | -13.00      | Vertical | PASS    |
| 6   | 10987.608 | -37.30   | -13.00      | Vertical | PASS    |

LTE Band 71, 20MHz BW, High Channel, QPSK



| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna    | Verdict |
|-----|-----------|----------|-------------|------------|---------|
| 1   | 640.741   | -72.63   | -13.00      | Horizontal | PASS    |
| 2   | 1681.294  | -50.71   | -13.00      | Horizontal | PASS    |
| 3   | 3617.233  | -49.72   | -13.00      | Horizontal | PASS    |
| 4   | 5154.251  | -46.73   | -13.00      | Horizontal | PASS    |
| 5   | 7204.961  | -40.94   | -13.00      | Horizontal | PASS    |
| 6   | 8961.262  | -38.31   | -13.00      | Horizontal | PASS    |



| No. | Fre.(MHz) | PK (dBm) | Limit (dBm) | Antenna  | Verdict |
|-----|-----------|----------|-------------|----------|---------|
| 1   | 691.231   | -45.36   | -13.00      | Vertical | N/A     |
| 2   | 1667.422  | -50.85   | -13.00      | Vertical | PASS    |
| 3   | 4126.865  | -41.29   | -13.00      | Vertical | PASS    |
| 4   | 4813.143  | -42.19   | -13.00      | Vertical | PASS    |
| 5   | 7101.410  | -40.39   | -13.00      | Vertical | PASS    |
| 6   | 8441.478  | -39.29   | -13.00      | Vertical | PASS    |



## Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

| Test items                          | Uncertainty   |
|-------------------------------------|---------------|
| Output Power                        | $\pm 2.22$ dB |
| Bandwidth                           | $\pm 5\%$     |
| Conducted Spurious Emission         | $\pm 2.77$ dB |
| Band Edge                           | $\pm 2.77$ dB |
| Equivalent Isotropic Radiated Power | $\pm 2.22$ dB |
| Radiated Spurious Emissions         | $\pm 6$ dB    |

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$



## Annex B Testing Laboratory Information

### 1. Identification of the Responsible Testing Laboratory

|                            |  |
|----------------------------|--|
| <b>Laboratory Name:</b>    | Shenzhen Morlab Communications Technology Co., Ltd.<br>Morlab Laboratory   |
| <b>Laboratory Address:</b> | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |
| <b>Telephone:</b>          | +86 755 36698555   |
| <b>Facsimile:</b>          | +86 755 36698525   |

### 2. Identification of the Responsible Testing Location

|                 |  |
|-----------------|--|
| <b>Name:</b>    | Shenzhen Morlab Communications Technology Co., Ltd.<br>Morlab Laboratory   |
| <b>Address:</b> | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |

### 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.



#### 4. Test Equipments Utilized

##### 4.1 Conducted Test Equipments

| Equipment Name         | Serial No. | Type      | Manufacturer                                   | Cal. Date  | Cal. Due   |
|------------------------|------------|-----------|--|------------|------------|
| Power Splitter         | NW521      | 1506A     | Weinschel                                      | 2020.04.15 | 2021.04.14 |
| Attenuator 1           | (N/A.)     | 10dB      | Resnet   | 2020.04.15 | 2021.04.14 |
| Attenuator 2           | (N/A.)     | 3dB       | Resnet   | 2020.04.15 | 2021.04.14 |
| EXA Signal Analyzer    | MY51511149 | N9020A    | Agilent  | 2020.07.27 | 2021.07.26 |
| USB Power Sensor       | MY54210011 | U2021XA   | Agilent  | 2020.10.23 | 2021.10.22 |
| System Simulator       | 6200995016 | MT8820C   | Anritsu  | 2020.10.28 | 2021.10.27 |
| System Simulator       | 6261830572 | MT8821C   | Anritsu  | 2020.02.25 | 2021.02.24 |
|                        |            |           |  | 2021.02.25 | 2022.02.24 |
| RF cable (30MHz-26GHz) | CB01       | RF01      | Morlab   | N/A        | N/A        |
| Coaxial cable          | CB02       | RF02      | Morlab   | N/A        | N/A        |
| SMA connector          | CN01       | RF03      | HUBER-SUHNER                                   | N/A        | N/A        |
| Temperature Chamber    | (N/A)      | HUT705P   | CHONGQING HANBA EXPERIMENTAL EQUIPMENT CO.,LTD | 2020.03.25 | 2021.03.24 |
| Computer               | T430i      | Think Pad | Lenovo   | N/A        | N/A        |

**4.2 Radiated Test Equipments**

| Equipment Name                       | Serial No.  | Type          | Manufacturer | Cal. Date  | Cal. Due   |
|--------------------------------------|-------------|---------------|--------------|------------|------------|
| System Simulator                     | 152038      | CMW500        | R&S          | 2020.11.19 | 2021.11.18 |
| System Simulator                     | 6200995016  | MT8820C       | Anritsu      | 2020.10.28 | 2021.10.27 |
| Receiver                             | MY54130016  | N9038A        | Agilent      | 2020.07.21 | 2021.07.20 |
| Test Antenna - Bi-Log                | 9163-519    | VULB 9163     | Schwarzbeck  | 2019.05.24 | 2022.05.23 |
| Test Antenna - Horn                  | 9170C-531   | BBHA9170      | Schwarzbeck  | 2019.07.26 | 2022.07.25 |
| Test Antenna - Horn                  | 01774       | BBHA 9120D    | Schwarzbeck  | 2019.07.26 | 2022.07.25 |
| Coaxial cable (N male) (9KHz-30MHz)  | CB04        | EMC04         | Morlab       | N/A        | N/A        |
| Coaxial cable (N male) (30MHz-26GHz) | CB02        | EMC02         | Morlab       | N/A        | N/A        |
| Coaxial cable (N male) (30MHz-26GHz) | CB03        | EMC03         | Morlab       | N/A        | N/A        |
| Coaxial cable (N male) (30MHz-40GHz) | CB05        | EMC05         | Morlab       | N/A        | N/A        |
| 1-18GHz pre-Amplifier                | 61171/61172 | S020180L3203  | Tonscend     | 2020.07.21 | 2021.07.20 |
| 18-26.5GHz pre-Amplifier             | 46732       | S10M100L3802  | Tonscend     | 2020.07.21 | 2021.07.20 |
| 26-40GHz pre-Amplifier               | 56774       | S40M400L4002  | Tonscend     | 2020.07.21 | 2021.07.20 |
| Notch Filter                         | N/A         | WRCGV -LTE B2 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter                         | N/A         | WRCGV -LTE B4 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter                         | N/A         | WRCGV -LTE B5 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter                         | N/A         | WRCGV -LTE B7 | Wainwright   | 2020.07.21 | 2021.07.20 |



| Equipment Name   | Serial No. | Type              | Manufacturer | Cal. Date  | Cal. Due   |
|------------------|------------|-------------------|--------------|------------|------------|
| Notch Filter     | N/A        | WRCGV<br>-LTE B12 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter     | N/A        | WRCGV<br>-LTE B13 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter     | N/A        | WRCGV<br>-LTE B17 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter     | N/A        | WRCGV<br>-LTE 38  | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter     | N/A        | WRCGV<br>-LTE B40 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Notch Filter     | N/A        | WRCGV<br>-LTE B41 | Wainwright   | 2020.07.21 | 2021.07.20 |
| Anechoic Chamber | N/A        | 9m*6m*6m          | CRT          | 2019.07.13 | 2022.07.12 |

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