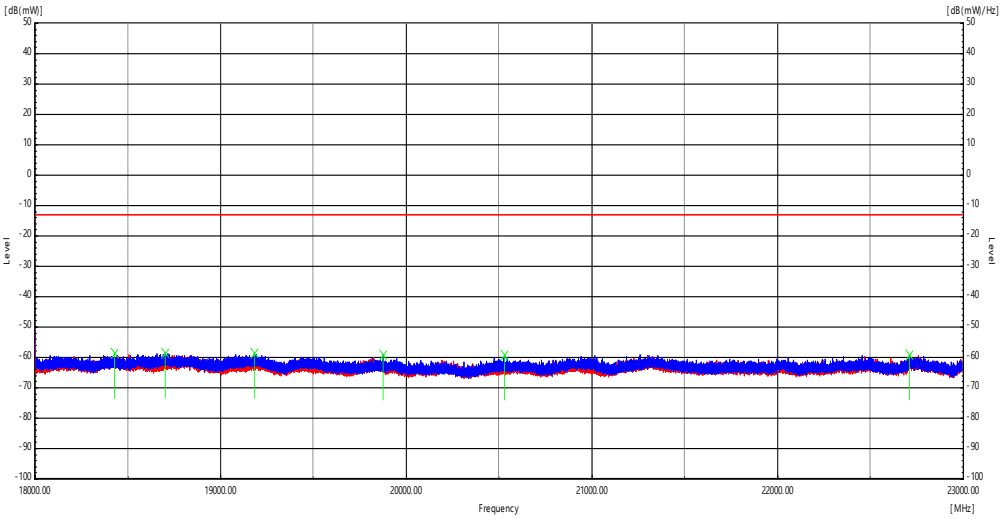
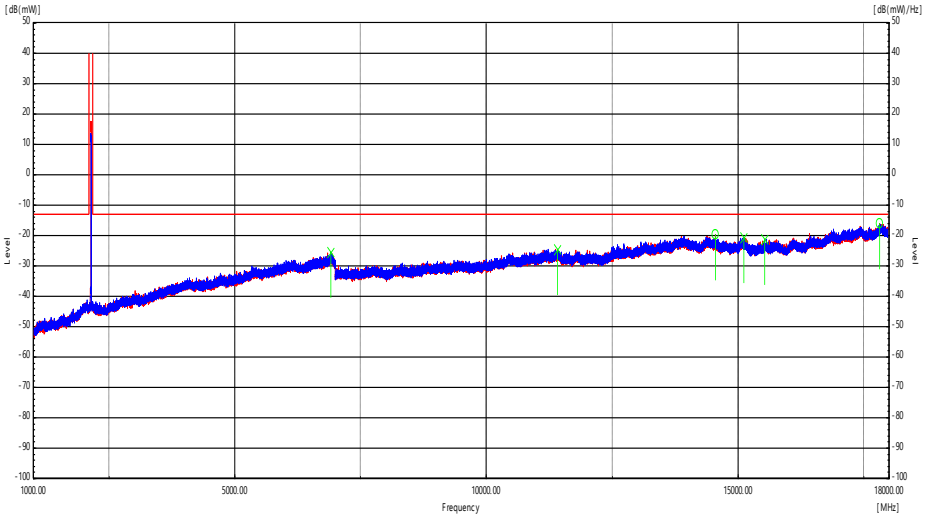
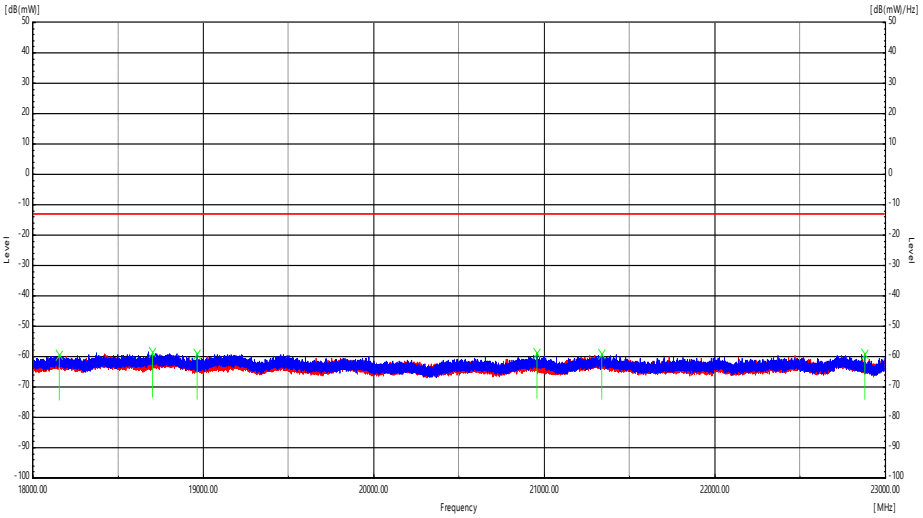


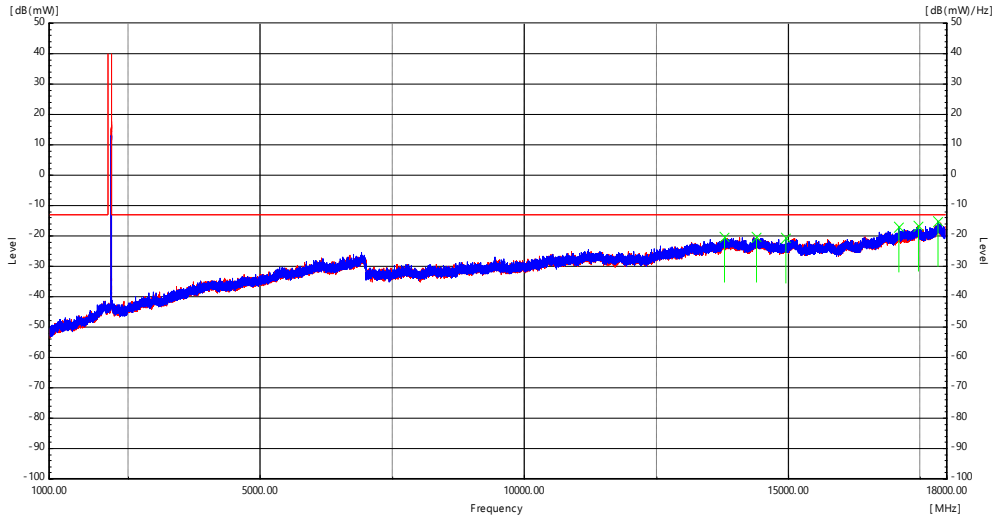

**Plot 8-162. Radiated spurious emission Plot_18 GHz to 23 GHz (NR_n66_1C_10M_Low Channel)**



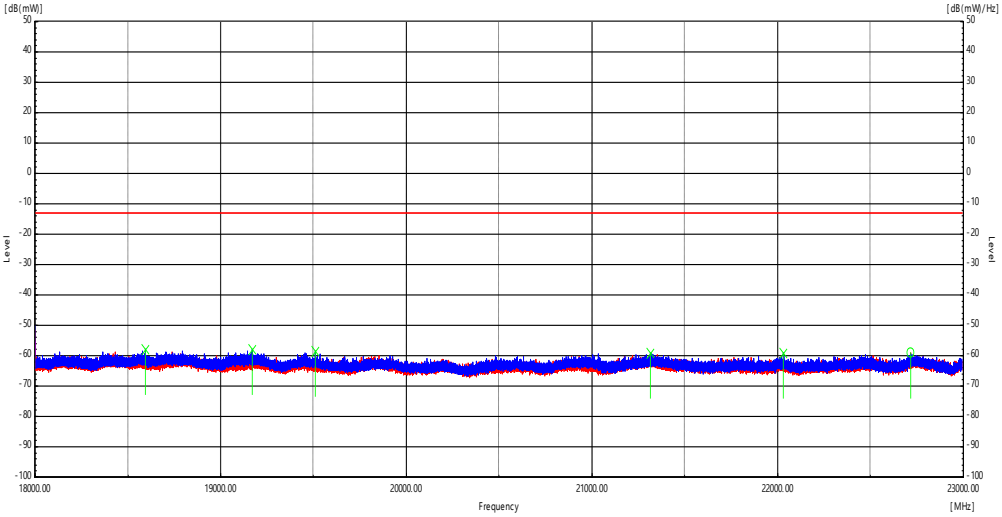

**Plot 8-163. Radiated spurious emission Plot_1 GHz to 18 GHz (NR_n66_1C_10M_Mid Channel)**



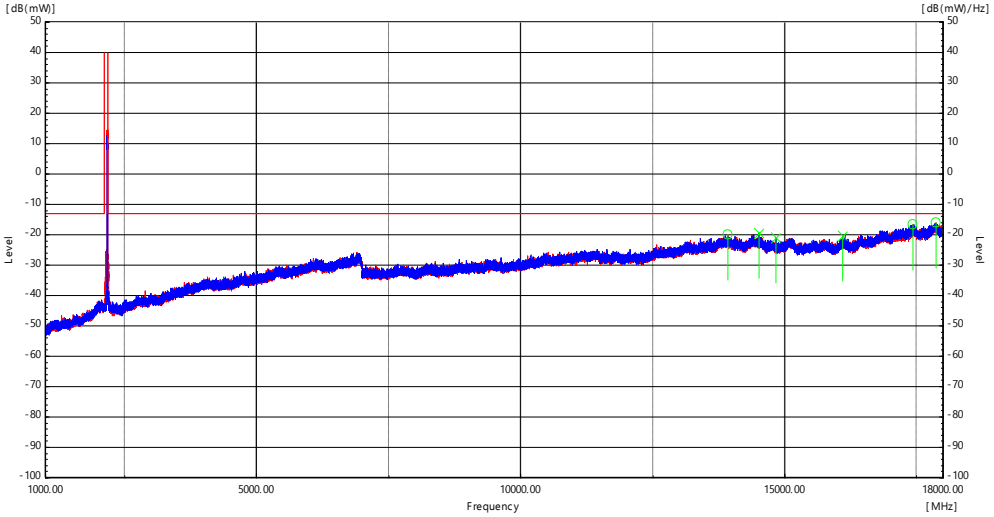

**Plot 8-164. Radiated spurious emission Plot_18 GHz to 23 GHz (NR_n66_1C_10M_Mid Channel)**



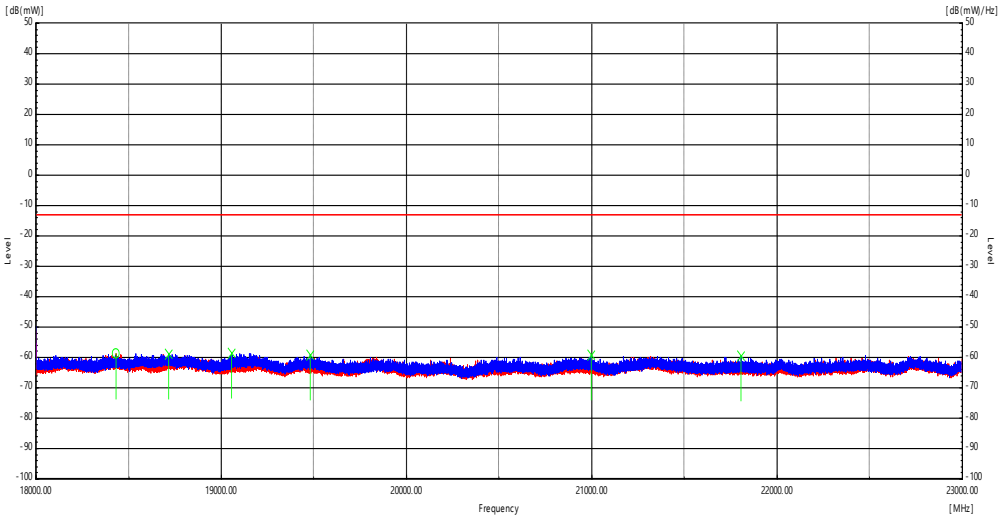

**Plot 8-165. Radiated spurious emission Plot_1 GHz to 18 GHz (NR_n66_1C_10M_High Channel)**



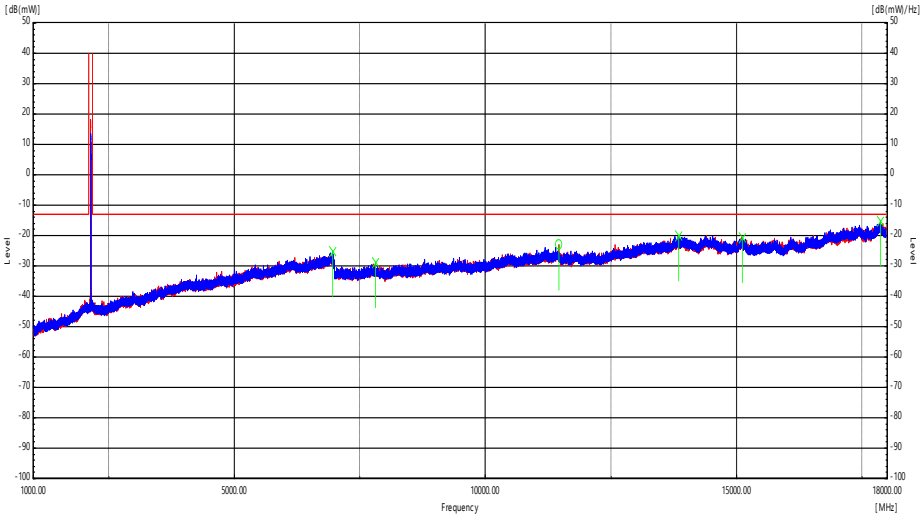

**Plot 8-166. Radiated spurious emission Plot_18 GHz to 23 GHz (NR_n66_1C_10M_High Channel)**



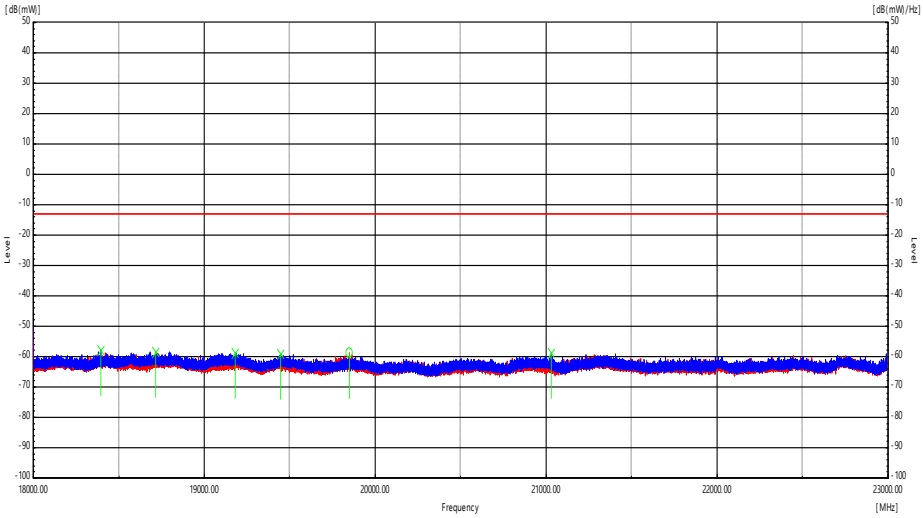

**Plot 8-167. Radiated spurious emission Plot_1 GHz to 18 GHz (NR_n66_1C_20M_Mid Channel)**



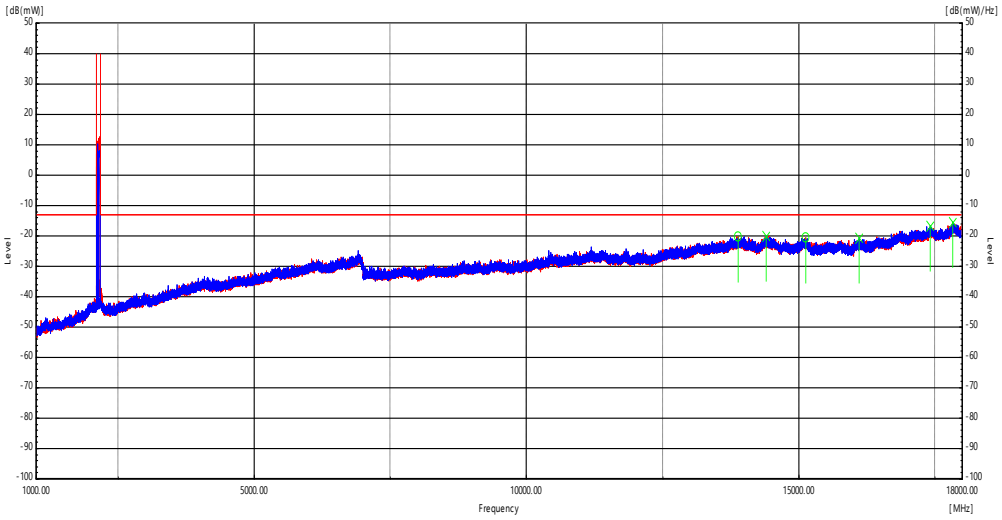

**Plot 8-168. Radiated spurious emission Plot_18 GHz to 23 GHz (NR_n66_1C_20M_Mid Channel)**



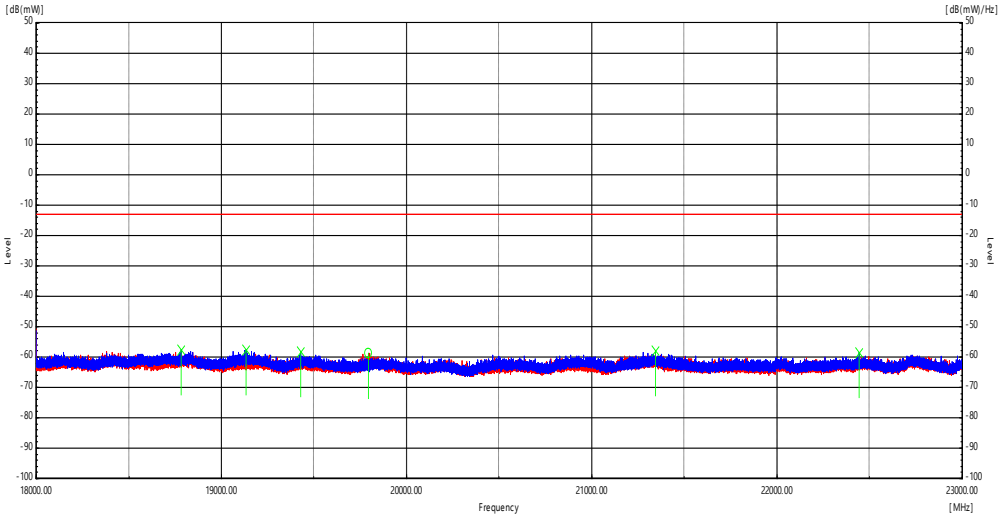

**Plot 8-169. Radiated spurious emission Plot_1 GHz to 18 GHz (LTE_B66_2C_5M+5M_Mid Channel)**



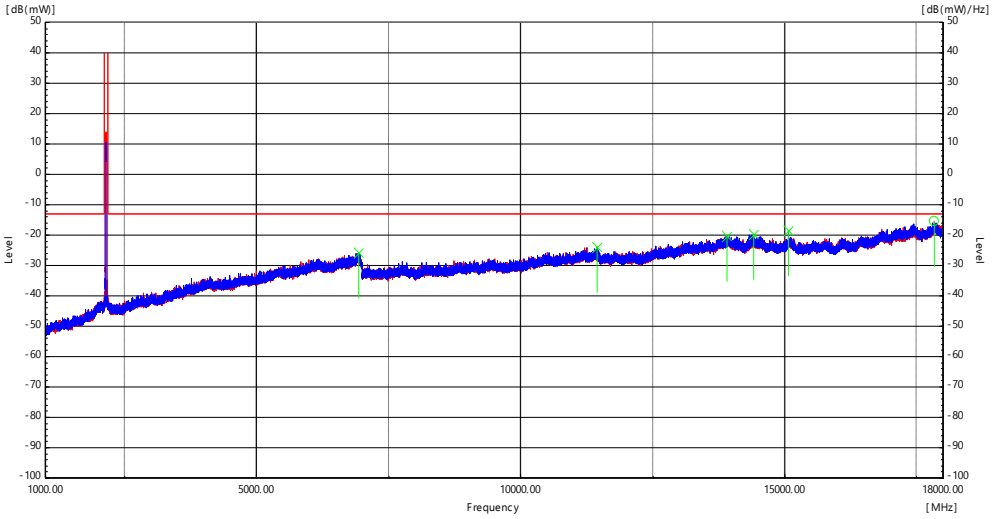

**Plot 8-170. Radiated spurious emission Plot_18 GHz to 23 GHz (LTE_B66_2C_5M+5M_Mid Channel)**



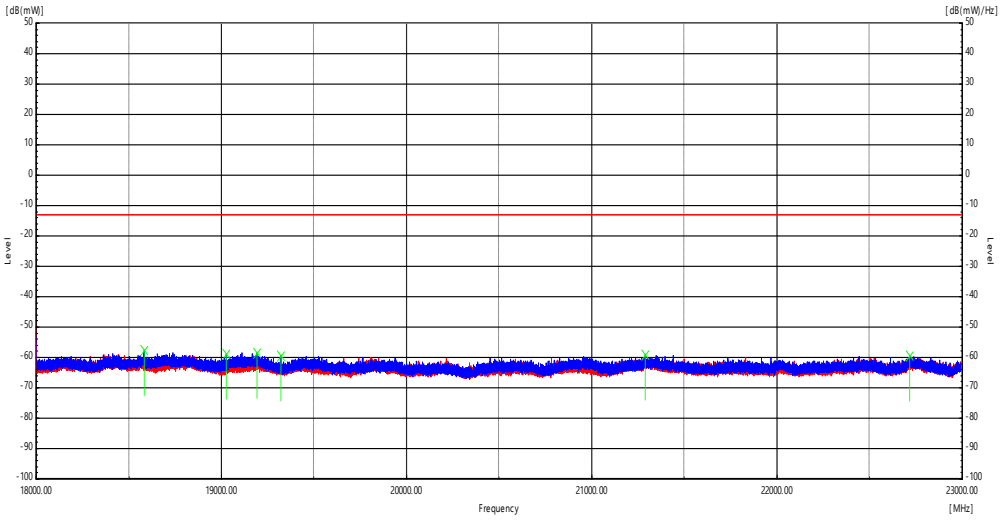

**Plot 8-171. Radiated spurious emission Plot_1 GHz to 18 GHz (LTE_B66_4NC_5M+5M+5M+20M_Mid Channel)**



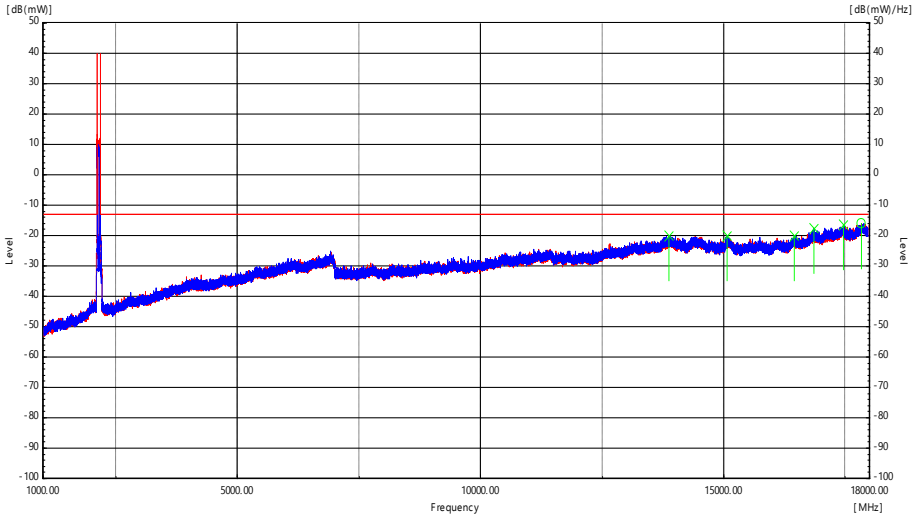

**Plot 8-172. Radiated spurious emission Plot_18 GHz to 23 GHz (LTE_B66_4NC_5M+5M+5M+20M_Mid Channel)**



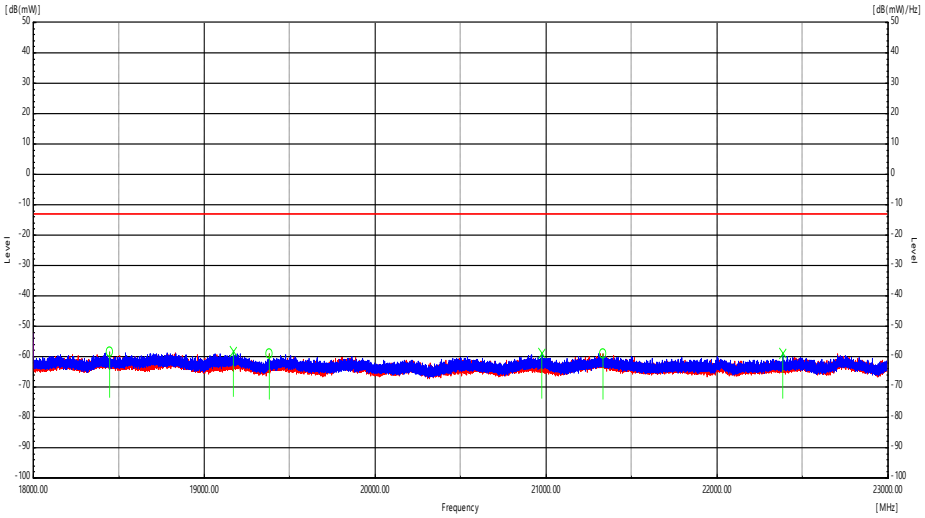

**Plot 8-173. Radiated spurious emission Plot_1 GHz to 18 GHz (B(n)66_2C_LTE_10M+NR_10M_Mid Channel)**




**Plot 8-174. Radiated spurious emission Plot_18 GHz to 23 GHz (B(n)66_2C_LTE_10M+NR_10M_Mid Channel)**




**Plot 8-175. Radiated spurious emission Plot_1 GHz to 18 GHz (B(n)66_3NC_LTE_5M+15M+NR_15M_Mid Channel)**




**Plot 8-176. Radiated spurious emission Plot_18 GHz to 23 GHz B(n)66_3NC_LTE_5M+15M+NR_15M_Mid Channel)**

| Channel | Frequency [MHz] | Ant. Pol. [H/V] | Analyzer Level [dBm] | Path loss [dB] | RSE EIRP [dBm] | Limit [dBm/MHz] | Margin [dB] | Turntable azimuth [degree] |
|---|---|---|---|---|---|---|---|---|
| LTE_B66_1C_ 5M_Low | 16079.57 | V | -74.4 | 54.3 | -20.1 | -13.0 | 7.1 | 298.3 |
| | 17851.53 | H | -75.6 | 59.8 | -15.8 | -13.0 | 2.8 | 317.9 |
| NR_n66_1C_ 5M_High | 17454.3 | V | -76.3 | 59.6 | -16.7 | -13.0 | 3.7 | 193.1 |
| | 17824.9 | V | -75.0 | 59.8 | -15.2 | -13.0 | 2.2 | 215.6 |
| LTE_B66_2C_ 5M+5M_Mid | 15114.53 | V | -75.8 | 55.2 | -20.6 | -13.0 | 7.6 | 247.1 |
| | 17867.4 | V | -75.1 | 59.8 | -15.3 | -13.0 | 2.3 | 3.8 |
| B(n)66_2C_ LTE_10M+NR _10M_Mid | 15071.47 | V | -73.7 | 55.1 | -18.6 | -13.0 | 5.6 | 61.4 |
| | 17831.7 | H | -75.3 | 59.8 | -15.5 | -13.0 | 2.5 | 32.6 |

**Table 8-51. Radiated spurious emission above 1GHz Worst mode Summary Data**

# 9.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung RRU(RF4494) FCC ID: A3LRF4494-66A** complies with all of the requirements of Part 27 of the FCC Rules.

# 10.0 APPENDIX. A

## 10.1 Conducted Average Output Power

**Test Overview**

A transmitter port of EUT is connected to the input of a signal analyzer. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

**Test Description**

KDB 971168 D01 v03r01 – Section 5
KDB 662911 D01 v02r01 – Section E)1) In-Band Power Measurements
ANSI C63.26-2015 – Section 5.2.4.4.1

The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The spectrum analyzer settings were as follows:

1. Conducted power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 ~ 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Span = 2 ~ 3 x OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger Settings is set to "RF Power" for signals with non-continuous operation with the sweep times set to "auto". Refer test note 3 for details.
8. Trace mode = Trace-Averaging (RMS) set to average over 100 sweeps
9. The trace was allowed to stabilize

**Test Setup**

The EUT and measurement equipment were set up as shown in the diagram below.

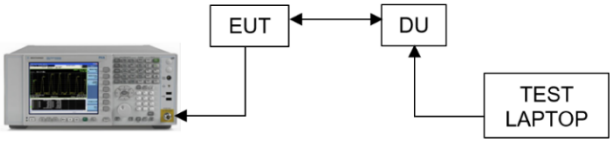



**Figure 10-1. Test Instrument & Measurement Setup**

**Limit**

N/A

**Note**

1. Result for reference maximum output power of Grant of Authorization is under section 10.1.

2. MIMO Calculations are done considering output channel power for all ports and respective margins are calculated according to procedures in section 6.4 of ANSI C63.26 and section D of KDB 971168 D01 v03r01.

3. Consider the following factors for MIMO Power:
   Conducted power for each port is measured in dBm.
   Powers are summed up in linear using the measure-and-sum technique defined in KDB 971168 D01 v03r01- Section D.
   Conducted power per port (dBm) is converted to a linear value (mW). A summation of linear powers for all ports gives us the total MIMO conducted power in milliWatts (mW).

4. Sample Calculation:
   Let us assume the following numbers:
   a) Total MIMO Conducted Power as 144115.74 mW

| Factors | | Value | Unit |
|---|---|---|---|
| Summed MIMO Conducted Power (linear sum) | | 144115.74 | mW |
| Summed MIMO Conducted Power (dBm) | = 10 * log (144115.74) | 51.59 | dBm |

| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
|---|---|---|---|---|---|
| Low | 0 | 46.17 | 46.13 | 46.21 | 46.14 |
| | 1 | 45.24 | 45.88 | 45.95 | 45.87 |
| | 2 | 45.27 | 45.48 | 45.54 | 45.50 |
| | 3 | 45.52 | 45.85 | 45.93 | 45.93 |
| Total Conducted Power (mW) | | 144115.74 | 153523.67 | 156121.88 | 154407.20 |
| Total Conducted Power (dBm) | | 51.59 | 51.86 | 51.93 | 51.89 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| Mid | 0 | 46.01 | 45.95 | 46.16 | 46.12 |
| | 1 | 45.93 | 45.87 | 46.07 | 46.03 |
| | 2 | 45.46 | 45.44 | 45.61 | 45.55 |
| | 3 | 45.88 | 45.87 | 45.98 | 45.98 |
| Total Conducted Power (mW) | | 152958.49 | 151622.92 | 157781.65 | 156532.73 |
| Total Conducted Power (dBm) | | 51.85 | 51.81 | 51.98 | 51.95 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| High | 0 | 46.27 | 45.76 | 45.89 | 46.24 |
| | 1 | 46.01 | 45.67 | 45.79 | 46.00 |
| | 2 | 45.61 | 45.17 | 45.31 | 45.59 |
| | 3 | 46.07 | 45.68 | 45.84 | 46.10 |
| Total Conducted Power (mW) | | 159115.88 | 144436.12 | 149079.79 | 158845.71 |
| Total Conducted Power (dBm) | | 52.02 | 51.60 | 51.73 | 52.01 |

**Table 10-1. Conducted Average Output Power Table (LTE_B66_1C_5M)**

| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
|---|---|---|---|---|---|
| Low | 0 | 49.46 | 49.40 | 49.45 | 49.46 |
| | 1 | 49.20 | 49.12 | 49.17 | 49.23 |
| | 2 | 48.75 | 48.64 | 48.78 | 48.83 |
| | 3 | 49.16 | 49.12 | 49.22 | 49.21 |
| Total Conducted Power (mW) | | 328887.60 | 323526.74 | 329778.21 | 331812.62 |
| Total Conducted Power (dBm) | | 55.17 | 55.10 | 55.18 | 55.21 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| Mid | 0 | 49.35 | 49.36 | 49.44 | 49.41 |
| | 1 | 49.23 | 49.23 | 49.27 | 49.32 |
| | 2 | 48.81 | 48.80 | 48.86 | 48.84 |
| | 3 | 49.25 | 49.21 | 49.25 | 49.28 |
| Total Conducted Power (mW) | | 330024.45 | 329276.66 | 333482.69 | 334086.21 |
| Total Conducted Power (dBm) | | 55.19 | 55.18 | 55.23 | 55.24 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| High | 0 | 49.43 | 49.56 | 49.45 | 49.43 |
| | 1 | 49.19 | 49.17 | 49.15 | 49.17 |
| | 2 | 48.83 | 48.83 | 48.85 | 48.84 |
| | 3 | 49.28 | 49.26 | 49.26 | 49.30 |
| Total Conducted Power (mW) | | 331791.48 | 333685.80 | 331398.78 | 331977.34 |
| Total Conducted Power (dBm) | | 55.21 | 55.23 | 55.20 | 55.21 |

**Table 10-2. Conducted Average Output Power Table (LTE_B66_1C_10M)**

| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
|---|---|---|---|---|---|
| Low | 0 | 49.76 | 49.71 | 49.81 | 49.76 |
| | 1 | 49.50 | 49.44 | 49.44 | 49.47 |
| | 2 | 49.03 | 49.01 | 49.04 | 49.05 |
| | 3 | 49.43 | 49.43 | 49.45 | 49.45 |
| Total Conducted Power (mW) | | 351432.32 | 348758.84 | 351894.35 | 351592.78 |
| Total Conducted Power (dBm) | | 55.46 | 55.43 | 55.46 | 55.46 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| Mid | 0 | 49.64 | 49.65 | 49.65 | 49.69 |
| | 1 | 49.46 | 49.45 | 49.49 | 49.48 |
| | 2 | 49.00 | 49.01 | 49.02 | 49.02 |
| | 3 | 49.47 | 49.47 | 49.50 | 49.48 |
| Total Conducted Power (mW) | | 348297.33 | 348489.53 | 350101.82 | 350341.46 |
| Total Conducted Power (dBm) | | 55.42 | 55.42 | 55.44 | 55.44 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| High | 0 | 49.70 | 49.78 | 49.70 | 49.74 |
| | 1 | 49.39 | 49.36 | 49.38 | 49.42 |
| | 2 | 49.04 | 49.06 | 49.00 | 49.09 |
| | 3 | 49.51 | 49.48 | 49.44 | 49.50 |
| Total Conducted Power (mW) | | 349719.83 | 350611.78 | 347356.69 | 351908.54 |
| Total Conducted Power (dBm) | | 55.44 | 55.45 | 55.41 | 55.46 |

**Table 10-3. Conducted Average Output Power Table (LTE_B66_1C_15M)**

| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
|---|---|---|---|---|---|
| Low | 0 | 49.59 | 49.54 | 49.54 | 49.52 |
| | 1 | 49.30 | 49.31 | 49.31 | 49.32 |
| | 2 | 48.89 | 48.90 | 48.89 | 48.88 |
| | 3 | 49.21 | 49.26 | 49.24 | 49.25 |
| Total Conducted Power (mW) | | 336919.43 | 337217.96 | 336651.95 | 336450.72 |
| Total Conducted Power (dBm) | | 55.28 | 55.28 | 55.27 | 55.27 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| Mid | 0 | 49.43 | 49.40 | 49.51 | 49.47 |
| | 1 | 49.24 | 49.24 | 49.28 | 49.29 |
| | 2 | 48.79 | 48.81 | 48.88 | 48.84 |
| | 3 | 49.22 | 49.22 | 49.30 | 49.27 |
| Total Conducted Power (mW) | | 330889.67 | 330635.29 | 336435.15 | 334517.15 |
| Total Conducted Power (dBm) | | 55.20 | 55.19 | 55.27 | 55.24 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| High | 0 | 49.47 | 49.42 | 49.45 | 49.49 |
| | 1 | 49.19 | 49.17 | 49.23 | 49.28 |
| | 2 | 48.88 | 48.85 | 48.87 | 48.94 |
| | 3 | 49.29 | 49.23 | 49.28 | 49.33 |
| Total Conducted Power (mW) | | 333682.74 | 330591.25 | 333670.90 | 337689.60 |
| Total Conducted Power (dBm) | | 55.23 | 55.19 | 55.23 | 55.29 |

**Table 10-4. Conducted Average Output Power Table (LTE_B66_1C_20M)**

| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
|---|---|---|---|---|---|
| Low | 0 | 49.34 | 49.30 | 49.29 | 49.25 |
| | 1 | 49.05 | 49.05 | 49.04 | 49.05 |
| | 2 | 48.71 | 48.64 | 48.63 | 48.60 |
| | 3 | 49.06 | 49.02 | 49.05 | 48.99 |
| Total Conducted Power (mW) | | 321093.72 | 318379.79 | 318384.22 | 316185.86 |
| Total Conducted Power (dBm) | | 55.07 | 55.03 | 55.03 | 55.00 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| Mid | 0 | 49.12 | 49.21 | 49.19 | 49.20 |
| | 1 | 49.14 | 49.09 | 49.15 | 49.12 |
| | 2 | 48.77 | 48.74 | 48.67 | 48.68 |
| | 3 | 49.18 | 49.15 | 49.08 | 49.12 |
| Total Conducted Power (mW) | | 321823.16 | 321505.44 | 319739.64 | 320283.27 |
| Total Conducted Power (dBm) | | 55.08 | 55.07 | 55.05 | 55.06 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| High | 0 | 49.32 | 49.29 | 49.31 | 49.30 |
| | 1 | 49.03 | 49.01 | 49.04 | 49.00 |
| | 2 | 48.68 | 48.68 | 48.66 | 48.68 |
| | 3 | 49.14 | 49.12 | 49.12 | 49.12 |
| Total Conducted Power (mW) | | 321315.67 | 319982.64 | 320587.44 | 319995.29 |
| Total Conducted Power (dBm) | | 55.07 | 55.05 | 55.06 | 55.05 |

**Table 10-5. Conducted Average Output Power Table (NR_n66_1C_10M)**

| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
|---|---|---|---|---|---|
| Low | 0 | 49.37 | 49.35 | 49.36 | 49.32 |
| | 1 | 49.09 | 49.15 | 49.13 | 49.09 |
| | 2 | 48.75 | 48.78 | 48.76 | 48.75 |
| | 3 | 49.10 | 49.14 | 49.09 | 49.09 |
| Total Conducted Power (mW) | | 323865.37 | 325868.02 | 324402.73 | 322688.30 |
| Total Conducted Power (dBm) | | 55.10 | 55.13 | 55.11 | 55.09 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| Mid | 0 | 49.21 | 49.23 | 49.21 | 49.21 |
| | 1 | 49.08 | 49.10 | 49.13 | 49.12 |
| | 2 | 48.68 | 48.72 | 48.74 | 48.70 |
| | 3 | 49.10 | 49.08 | 49.10 | 49.12 |
| Total Conducted Power (mW) | | 319351.18 | 320418.77 | 321314.60 | 320815.62 |
| Total Conducted Power (dBm) | | 55.04 | 55.06 | 55.07 | 55.06 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| High | 0 | 49.30 | 49.31 | 49.34 | 49.32 |
| | 1 | 49.00 | 49.05 | 49.09 | 49.08 |
| | 2 | 48.73 | 48.76 | 48.77 | 48.81 |
| | 3 | 49.11 | 49.11 | 49.17 | 49.19 |
| Total Conducted Power (mW) | | 320661.93 | 322295.34 | 324936.81 | 325433.97 |
| Total Conducted Power (dBm) | | 55.06 | 55.08 | 55.12 | 55.12 |

**Table 10-6. Conducted Average Output Power Table (NR_n66_1C_15M)**

| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
|---|---|---|---|---|---|
| Low | 0 | 49.39 | 49.34 | 49.35 | 49.35 |
| | 1 | 49.11 | 49.11 | 49.11 | 49.14 |
| | 2 | 48.77 | 48.74 | 48.76 | 48.77 |
| | 3 | 49.11 | 49.12 | 49.07 | 49.14 |
| Total Conducted Power (mW) | | 325172.46 | 323846.97 | 323455.60 | 325505.24 |
| Total Conducted Power (dBm) | | 55.12 | 55.10 | 55.10 | 55.13 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| Mid | 0 | 49.31 | 49.32 | 49.27 | 49.32 |
| | 1 | 49.07 | 49.12 | 49.10 | 49.10 |
| | 2 | 48.70 | 48.73 | 48.73 | 48.72 |
| | 3 | 49.15 | 49.17 | 49.17 | 49.14 |
| Total Conducted Power (mW) | | 322388.80 | 324413.58 | 323059.61 | 323298.07 |
| Total Conducted Power (dBm) | | 55.08 | 55.11 | 55.09 | 55.10 |
| Channel | Port | QPSK | 16QAM | 64QAM | 256QAM |
| High | 0 | 49.17 | 49.17 | 49.21 | 49.17 |
| | 1 | 48.95 | 48.99 | 48.96 | 48.97 |
| | 2 | 48.63 | 48.67 | 48.69 | 48.68 |
| | 3 | 49.04 | 49.11 | 49.05 | 49.09 |
| Total Conducted Power (mW) | | 314240.92 | 316945.07 | 316385.84 | 316376.34 |
| Total Conducted Power (dBm) | | 54.97 | 55.01 | 55.00 | 55.00 |

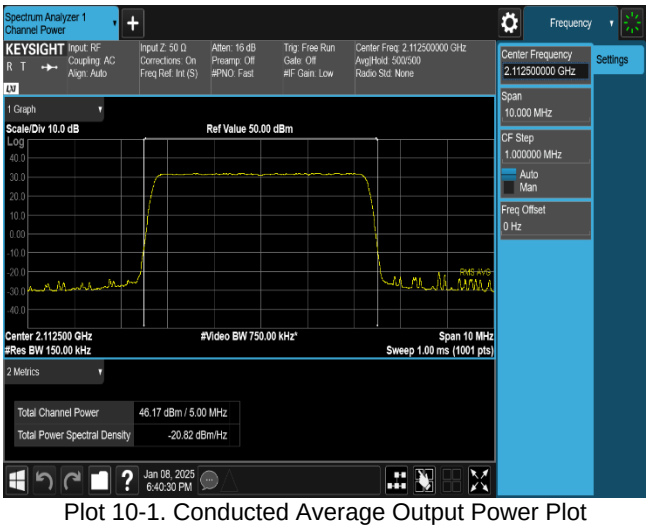
**Table 10-7. Conducted Average Output Power Table (NR_n66_1C_20M)**

| Channel | Port | LTE_B66_2C_5M+5M | | LTE_B66_4C_5M+5M+5M+20M | |
|---|---|---|---|---|---|
| | | QPSK | QAM | QPSK | QAM |
| Low | 0 | 49.60 | 49.49 | 49.29 | 49.24 |
| | 1 | 49.30 | 49.26 | 49.07 | 49.07 |
| | 2 | 48.87 | 48.85 | 48.63 | 48.62 |
| | 3 | 49.28 | 49.21 | 49.07 | 49.04 |
| Total Conducted Power (mW) | | 338127.98 | 333357.85 | 319310.80 | 317615.29 |
| Total Conducted Power (dBm) | | 55.29 | 55.23 | 55.04 | 55.02 |
| Channel | Port | QPSK | 16QAM | QPSK | QAM |
| Mid | 0 | 49.51 | 49.43 | 49.29 | 49.32 |
| | 1 | 49.38 | 49.32 | 49.03 | 49.02 |
| | 2 | 48.92 | 48.85 | 48.61 | 48.63 |
| | 3 | 49.36 | 49.28 | 49.05 | 49.07 |
| Total Conducted Power (mW) | | 340307.60 | 334665.64 | 317864.68 | 318975.39 |
| Total Conducted Power (dBm) | | 55.32 | 55.25 | 55.02 | 55.04 |
| Channel | Port | QPSK | 16QAM | QPSK | QAM |
| High | 0 | 49.50 | 49.47 | 49.33 | 49.26 |
| | 1 | 49.26 | 49.21 | 49.10 | 49.01 |
| | 2 | 48.92 | 48.82 | 48.77 | 48.68 |
| | 3 | 49.38 | 49.27 | 49.13 | 49.05 |
| Total Conducted Power (mW) | | 338137.77 | 332615.46 | 324168.87 | 318092.45 |
| Total Conducted Power (dBm) | | 55.29 | 55.22 | 55.11 | 55.03 |

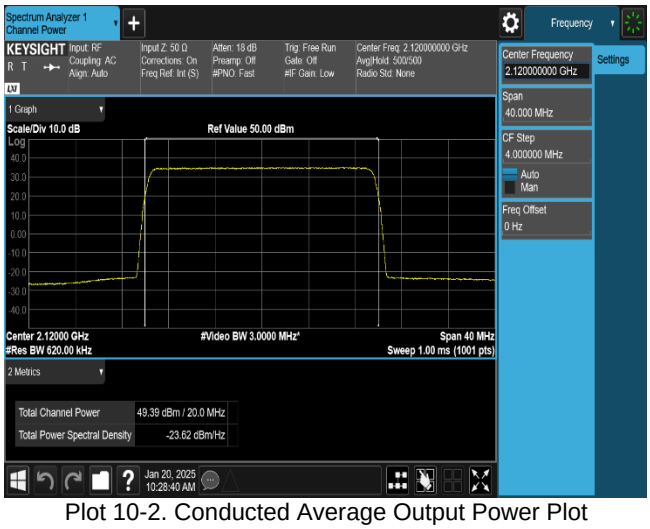
**Table 10-8. Conducted Average Output Power Table (LTE_B66_Multi carrier)**

| Channel | Port | B(n)66_2C_LTE_10M+NR_10M | | B(n)66_3C_LTE_5M+15M+NR_15M | |
|---|---|---|---|---|---|
| | | QPSK | QAM | QPSK | QAM |
| Low | 0 | 49.35 | 49.30 | 49.27 | 49.39 |
| | 1 | 49.11 | 49.05 | 48.95 | 49.10 |
| | 2 | 48.66 | 48.61 | 48.60 | 48.76 |
| | 3 | 49.15 | 49.11 | 48.97 | 49.24 |
| Total Conducted Power (mW) | | 323245.46 | 319547.44 | 314381.06 | 327287.38 |
| Total Conducted Power (dBm) | | 55.10 | 55.05 | 54.97 | 55.15 |
| Channel | Port | QPSK | 16QAM | QPSK | QAM |
| Mid | 0 | 49.29 | 49.25 | 49.46 | 49.39 |
| | 1 | 49.04 | 49.06 | 49.09 | 49.11 |
| | 2 | 48.78 | 48.83 | 48.83 | 48.63 |
| | 3 | 49.02 | 49.01 | 49.17 | 49.00 |
| Total Conducted Power (mW) | | 320394.55 | 320676.87 | 328391.47 | 320745.05 |
| Total Conducted Power (dBm) | | 55.06 | 55.06 | 55.16 | 55.06 |
| Channel | Port | QPSK | 16QAM | QPSK | QAM |
| High | 0 | 49.12 | 49.22 | 49.44 | 49.66 |
| | 1 | 49.02 | 48.99 | 49.13 | 49.11 |
| | 2 | 48.71 | 48.74 | 48.91 | 48.76 |
| | 3 | 48.93 | 48.94 | 49.15 | 49.12 |
| Total Conducted Power (mW) | | 313922.40 | 315970.35 | 329776.65 | 330760.77 |
| Total Conducted Power (dBm) | | 54.97 | 55.00 | 55.18 | 55.20 |

**Table 10-9. Conducted Average Output Power Table (B(n)66_Multi carrier)**




Plot 10-1. Conducted Average Output Power Plot (B66_1C_5M_QPSK - Low Channel, Port 0)




Plot 10-2. Conducted Average Output Power Plot (n66_1C_20M_QPSK - Low Channel, Port 0)

**-END-**