## Test Result

| Bandwidth | Test status | LTE Band 4 Channel 20175 Test Results (ppm) | |
|---|---|---|---|
| | | QPSK | 16QAM |
| 1.4MHz | -40°C/Normal Voltage | -0.00444 | -0.01766 |
| | -30°C/Normal Voltage | -0.00386 | -0.01513 |
| | -20°C/Normal Voltage | -0.00514 | -0.02027 |
| | -10°C/Normal Voltage | -0.00174 | -0.01773 |
| | 0°C/Normal Voltage | -0.00164 | -0.01986 |
| | 10°C/Normal Voltage | -0.00239 | -0.00601 |
| | 20°C/Normal Voltage | 0.00020 | -0.00454 |
| | 30°C/Normal Voltage | -0.00166 | -0.00570 |
| | 40°C/Normal Voltage | -0.00035 | -0.00673 |
| | 50°C/Normal Voltage | 0.00115 | -0.01853 |
| | 60°C/Normal Voltage | -0.00061 | -0.00405 |
| | 70°C/Normal Voltage | -0.00411 | -0.01242 |
| | 80°C/Normal Voltage | -0.00212 | -0.02252 |
| | 85°C/Normal Voltage | -0.00124 | -0.00496 |
| | 20°C/Min Voltage | -0.00300 | -0.00576 |
| | 20°C/Max Voltage | -0.00315 | -0.00454 |
| 3MHz | -40°C/Normal Voltage | -0.00127 | -0.00275 |
| | -30°C/Normal Voltage | -0.00184 | -0.00448 |
| | -20°C/Normal Voltage | 0.00117 | 0.01527 |
| | -10°C/Normal Voltage | 0.00008 | 0.01465 |
| | 0°C/Normal Voltage | -0.00119 | -0.00583 |
| | 10°C/Normal Voltage | -0.00255 | -0.01694 |
| | 20°C/Normal Voltage | -0.00071 | -0.00506 |
| | 30°C/Normal Voltage | -0.00063 | -0.00412 |
| | 40°C/Normal Voltage | -0.00178 | -0.00533 |
| | 50°C/Normal Voltage | -0.00078 | -0.00294 |
| | 60°C/Normal Voltage | -0.00163 | -0.01732 |
| | 70°C/Normal Voltage | -0.00091 | 0.01451 |
| | 80°C/Normal Voltage | -0.00111 | -0.00443 |
| | 85°C/Normal Voltage | 0.00137 | -0.00253 |
| | 20°C/Min Voltage | 0.00068 | -0.00301 |
| | 20°C/Max Voltage | -0.00234 | -0.00293 |
| 5MHz | -40°C/Normal Voltage | 0.00119 | -0.00739 |
| | -30°C/Normal Voltage | 0.00248 | -0.00478 |
| | -20°C/Normal Voltage | 0.00018 | -0.00477 |
| | -10°C/Normal Voltage | -0.00357 | 0.00540 |


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| | | | |
|---|---|---|---|
| | 0°C/Normal Voltage | 0.00002 | -0.00554 |
| | 10°C/Normal Voltage | 0.00259 | -0.00377 |
| | 20°C/Normal Voltage | -0.00129 | -0.00622 |
| | 30°C/Normal Voltage | -0.00012 | -0.00676 |
| | 40°C/Normal Voltage | 0.00036 | 0.00380 |
| | 50°C/Normal Voltage | -0.00119 | -0.00579 |
| | 60°C/Normal Voltage | -0.00008 | -0.00890 |
| | 70°C/Normal Voltage | -0.00115 | -0.00618 |
| | 80°C/Normal Voltage | -0.00023 | -0.00478 |
| | 85°C/Normal Voltage | -0.00179 | -0.00302 |
| | 20°C/Min Voltage | -0.00188 | 0.00584 |
| | 20°C/Max Voltage | -0.00266 | 0.00141 |
| 10MHz | -40°C/Normal Voltage | 0.00069 | 0.00372 |
| | -30°C/Normal Voltage | 0.00066 | 0.00297 |
| | -20°C/Normal Voltage | -0.00119 | 0.01093 |
| | -10°C/Normal Voltage | -0.00178 | 0.00982 |
| | 0°C/Normal Voltage | 0.00127 | 0.00394 |
| | 10°C/Normal Voltage | 0.00330 | 0.00301 |
| | 20°C/Normal Voltage | 0.00152 | 0.01114 |
| | 30°C/Normal Voltage | 0.00156 | 0.00070 |
| | 40°C/Normal Voltage | 0.00224 | 0.01124 |
| | 50°C/Normal Voltage | 0.00122 | 0.00386 |
| | 60°C/Normal Voltage | -0.00124 | 0.00870 |
| | 70°C/Normal Voltage | -0.00087 | 0.01063 |
| | 80°C/Normal Voltage | -0.00141 | 0.00606 |
| | 85°C/Normal Voltage | -0.00106 | 0.00305 |
| | 20°C/Min Voltage | -0.00190 | 0.00424 |
| | 20°C/Max Voltage | -0.00160 | 0.01408 |
| 15MHz | -40°C/Normal Voltage | 0.00057 | -0.00057 |
| | -30°C/Normal Voltage | -0.00003 | 0.00023 |
| | -20°C/Normal Voltage | 0.00023 | 0.00077 |
| | -10°C/Normal Voltage | -0.00110 | -0.00147 |
| | 0°C/Normal Voltage | 0.00182 | -0.00067 |
| | 10°C/Normal Voltage | -0.00091 | 0.00086 |
| | 20°C/Normal Voltage | 0.00169 | -0.00042 |
| | 30°C/Normal Voltage | 0.00042 | -0.00301 |
| | 40°C/Normal Voltage | -0.00143 | -0.00330 |
| | 50°C/Normal Voltage | 0.00126 | -0.00059 |
| | 60°C/Normal Voltage | 0.00121 | -0.00017 |
| | 70°C/Normal Voltage | -0.00056 | -0.00046 |


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| | | | |
|---|---|---|---|
| | 80°C/Normal Voltage | 0.00105 | 0.00106 |
| | 85°C/Normal Voltage | 0.00025 | -0.00055 |
| | 20°C/Min Voltage | -0.00002 | -0.00061 |
| | 20°C/Max Voltage | 0.00123 | -0.00216 |
| 20MHz | -40°C/Normal Voltage | -0.00081 | -0.02835 |
| | -30°C/Normal Voltage | -0.00053 | -0.02789 |
| | -20°C/Normal Voltage | -0.00130 | -0.02891 |
| | -10°C/Normal Voltage | 0.00002 | -0.02948 |
| | 0°C/Normal Voltage | -0.00100 | -0.02863 |
| | 10°C/Normal Voltage | 0.00290 | -0.02879 |
| | 20°C/Normal Voltage | -0.00079 | -0.02917 |
| | 30°C/Normal Voltage | -0.00088 | -0.03142 |
| | 40°C/Normal Voltage | -0.00241 | -0.03015 |
| | 50°C/Normal Voltage | 0.00066 | -0.02809 |
| | 60°C/Normal Voltage | 0.00032 | -0.02992 |
| | 70°C/Normal Voltage | -0.00111 | -0.02986 |
| | 80°C/Normal Voltage | 0.00077 | -0.02887 |
| | 85°C/Normal Voltage | -0.00151 | -0.03063 |
| | 20°C/Min Voltage | -0.00136 | -0.02918 |
| | 20°C/Max Voltage | 0.00297 | -0.02678 |


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| Bandwidth | Test status | LTE Band 12 Channel 23095 Test Results (ppm) | |
|---|---|---|---|
| | | QPSK | 16QAM |
| 1.4M | -40°C/Normal Voltage | -0.00582 | -0.00338 |
| | -30°C/Normal Voltage | -0.00315 | -0.01134 |
| | -20°C/Normal Voltage | -0.00743 | -0.00290 |
| | -10°C/Normal Voltage | -0.01025 | -0.00325 |
| | 0°C/Normal Voltage | -0.00144 | -0.00519 |
| | 10°C/Normal Voltage | -0.00079 | -0.00345 |
| | 20°C/Normal Voltage | -0.00287 | -0.00647 |
| | 30°C/Normal Voltage | -0.00308 | -0.00445 |
| | 40°C/Normal Voltage | -0.00445 | -0.00366 |
| | 50°C/Normal Voltage | -0.00411 | 0.00037 |
| | 60°C/Normal Voltage | -0.00223 | 0.00114 |
| | 70°C/Normal Voltage | -0.00192 | 0.00225 |
| | 80°C/Normal Voltage | -0.00257 | -0.00076 |
| | 85°C/Normal Voltage | -0.00143 | -0.00016 |
| | 20°C/Min Voltage | 0.00037 | 0.00018 |
| | 20°C/Max Voltage | -0.00075 | -0.00814 |
| 3M | -40°C/Normal Voltage | -0.00160 | -0.02580 |
| | -30°C/Normal Voltage | -0.00225 | -0.02440 |
| | -20°C/Normal Voltage | -0.00334 | -0.02595 |
| | -10°C/Normal Voltage | -0.00411 | -0.02786 |
| | 0°C/Normal Voltage | -0.00343 | -0.02806 |
| | 10°C/Normal Voltage | -0.00035 | -0.02717 |
| | 20°C/Normal Voltage | -0.00117 | -0.03013 |
| | 30°C/Normal Voltage | -0.00107 | -0.02297 |
| | 40°C/Normal Voltage | -0.00177 | -0.02185 |
| | 50°C/Normal Voltage | 0.00148 | -0.03153 |
| | 60°C/Normal Voltage | -0.00040 | -0.02669 |
| | 70°C/Normal Voltage | 0.00119 | -0.02451 |
| | 80°C/Normal Voltage | -0.00037 | -0.02336 |
| | 85°C/Normal Voltage | -0.00083 | -0.02500 |
| | 20°C/Min Voltage | -0.00392 | -0.02601 |
| | 20°C/Max Voltage | -0.00034 | -0.02301 |
| 5MHz | -40°C/Normal Voltage | -0.00300 | -0.03608 |
| | -30°C/Normal Voltage | -0.00358 | -0.03801 |
| | -20°C/Normal Voltage | -0.00165 | -0.04188 |
| | -10°C/Normal Voltage | -0.00182 | -0.03238 |
| | 0°C/Normal Voltage | -0.00225 | -0.02841 |


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| | | | |
|---|---|---|---|
| | 10°C/Normal Voltage | -0.00376 | -0.04006 |
| | 20°C/Normal Voltage | -0.00023 | -0.02157 |
| | 30°C/Normal Voltage | -0.00059 | -0.01495 |
| | 40°C/Normal Voltage | -0.00177 | -0.01673 |
| | 50°C/Normal Voltage | -0.00110 | -0.02314 |
| | 60°C/Normal Voltage | -0.00414 | -0.02293 |
| | 70°C/Normal Voltage | 0.00170 | -0.02475 |
| | 80°C/Normal Voltage | 0.00024 | -0.01739 |
| | 85°C/Normal Voltage | -0.00040 | -0.02205 |
| | 20°C/Min Voltage | 0.00365 | -0.03228 |
| | 20°C/Max Voltage | -0.00274 | -0.03902 |
| 10MHz | -40°C/Normal Voltage | -0.00411 | 0.00379 |
| | -30°C/Normal Voltage | -0.00327 | 0.00582 |
| | -20°C/Normal Voltage | -0.00362 | -0.00310 |
| | -10°C/Normal Voltage | -0.00174 | -0.00280 |
| | 0°C/Normal Voltage | -0.00083 | -0.00351 |
| | 10°C/Normal Voltage | -0.00202 | 0.00114 |
| | 20°C/Normal Voltage | -0.00194 | 0.00220 |
| | 30°C/Normal Voltage | -0.00016 | -0.00488 |
| | 40°C/Normal Voltage | -0.00100 | -0.00423 |
| | 50°C/Normal Voltage | -0.00232 | 0.00377 |
| | 60°C/Normal Voltage | -0.00271 | -0.00411 |
| | 70°C/Normal Voltage | -0.00400 | -0.00150 |
| | 80°C/Normal Voltage | 0.00120 | 0.00522 |
| | 85°C/Normal Voltage | -0.00137 | 0.00083 |
| | 20°C/Min Voltage | 0.00259 | -0.00408 |
| | 20°C/Max Voltage | -0.00250 | 0.00533 |


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| Bandwidth | Test status | LTE Band 13 Channel 23230 Test Results (ppm) | |
|---|---|---|---|
| | | QPSK | 16QAM |
| 5MHz | -40°C/Normal Voltage | 0.00022 | -0.02604 |
| | -30°C/Normal Voltage | -0.00203 | -0.02249 |
| | -20°C/Normal Voltage | -0.00272 | -0.00797 |
| | -10°C/Normal Voltage | -0.00165 | 0.03445 |
| | 0°C/Normal Voltage | -0.00018 | 0.03297 |
| | 10°C/Normal Voltage | -0.00093 | -0.02716 |
| | 20°C/Normal Voltage | -0.00330 | -0.03679 |
| | 30°C/Normal Voltage | -0.00271 | -0.00685 |
| | 40°C/Normal Voltage | -0.00263 | -0.00830 |
| | 50°C/Normal Voltage | -0.00049 | -0.01060 |
| | 60°C/Normal Voltage | -0.00203 | -0.01101 |
| | 70°C/Normal Voltage | 0.00084 | -0.01442 |
| | 80°C/Normal Voltage | 0.00040 | -0.02146 |
| | 85°C/Normal Voltage | -0.00301 | -0.02216 |
| | 20°C/Min Voltage | -0.00225 | -0.02006 |
| | 20°C/Max Voltage | -0.00334 | -0.02955 |
| 10MHz | -40°C/Normal Voltage | -0.00396 | -0.01558 |
| | -30°C/Normal Voltage | -0.00301 | -0.01306 |
| | -20°C/Normal Voltage | -0.00224 | -0.01606 |
| | -10°C/Normal Voltage | -0.00465 | -0.01453 |
| | 0°C/Normal Voltage | -0.00260 | -0.01353 |
| | 10°C/Normal Voltage | -0.00377 | -0.01633 |
| | 20°C/Normal Voltage | 0.00173 | -0.01482 |
| | 30°C/Normal Voltage | 0.00276 | -0.01651 |
| | 40°C/Normal Voltage | -0.00032 | -0.01604 |
| | 50°C/Normal Voltage | -0.00161 | -0.01311 |
| | 60°C/Normal Voltage | -0.00087 | -0.01611 |
| | 70°C/Normal Voltage | -0.00093 | -0.01573 |
| | 80°C/Normal Voltage | 0.00185 | -0.01488 |
| | 85°C/Normal Voltage | 0.00023 | -0.01517 |
| | 20°C/Min Voltage | -0.00132 | -0.01306 |
| | 20°C/Max Voltage | -0.00390 | -0.01573 |


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## 4.7 Spurious Emissions at Antenna Terminals

**Ambient condition**

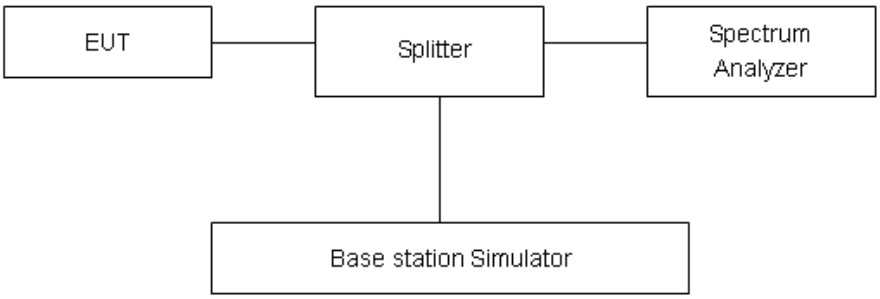
| Temperature | Relative humidity | Pressure |
|---|---|---|
| 23°C ~25°C | 45%~50% | 101.5kPa |

**Method of Measurement**

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW 1MHz and VBW3MHz， Sweep is set to ATUO.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

**Test setup**




**Limits**

LTE -4 Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

LTE -12 Rule Part 27.53 (g) 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. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. 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.

LTE -13 Rule Part 27.53(f)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 (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be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tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

**LTE B4/12 Limit**

| | |
|---|---|
| Limit | -13 dBm |

**LTE B13 Limit**

| | |
|---|---|
| Limit out of the band 1559-1610 MHz | -13 dBm |
| Limit in the band 1559-1610 MHz | -40 dBm |

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor *k* = 1.96.

| Frequency | Uncertainty |
|---|---|
| 100kHz-2GHz | 0.684 dB |
| 2GHz-12.75GHz | 1.407 dB |


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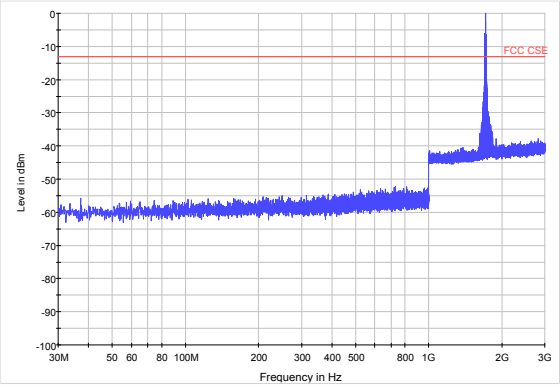
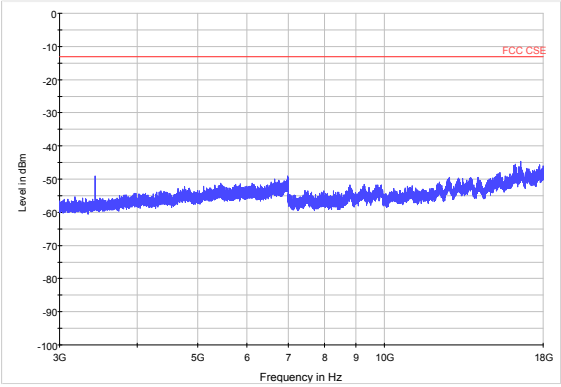
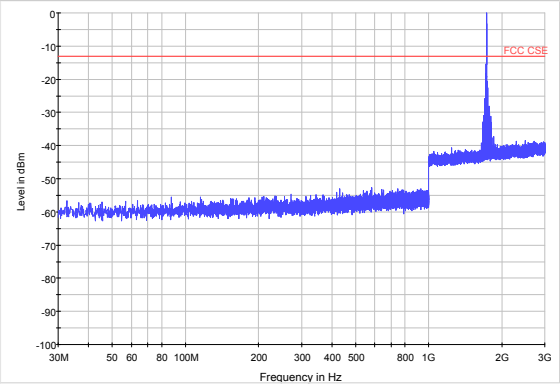
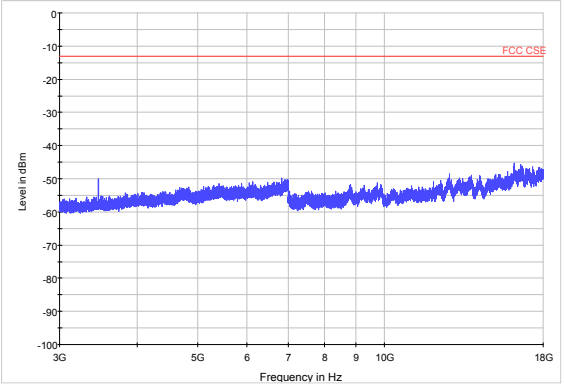
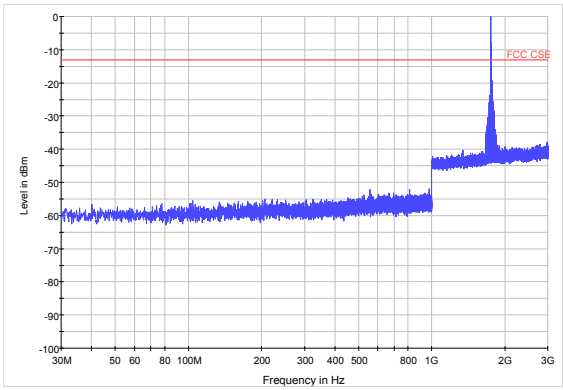
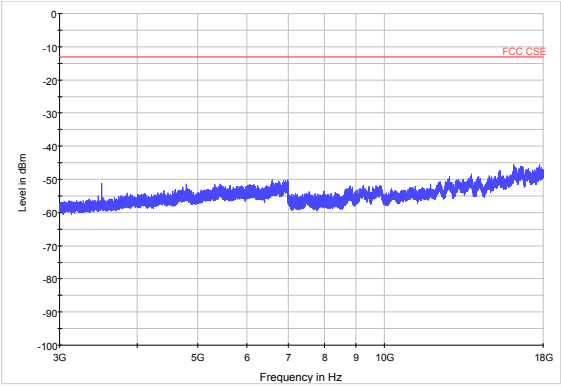
**Test Result: PASS**

| | |
|---|---|
| LTE Band 4 1.4MHz CH-Low 30MHz~3GHz<br>  <br> | LTE Band 4 1.4MHz CH-Low 3GHz~18GHz<br>  <br> |
| LTE Band 4 1.4MHz CH-Middle 30MHz~3GHz<br>  <br> | LTE Band 4 1.4MHz CH-Middle 3GHz~18GHz<br>  <br> |
| LTE Band 4 1.4MHz CH-High 30MHz~3GHz<br>  <br> | LTE Band 4 1.4MHz CH-High 3GHz~18GHz<br>  <br> |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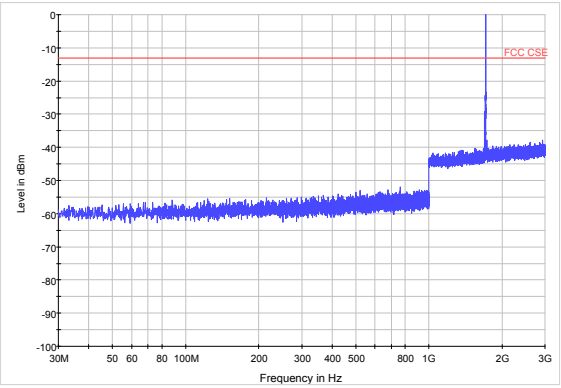
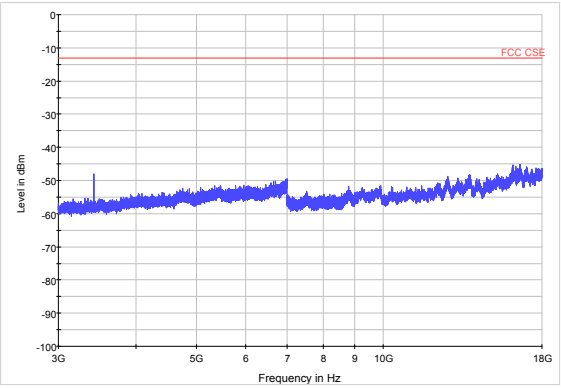
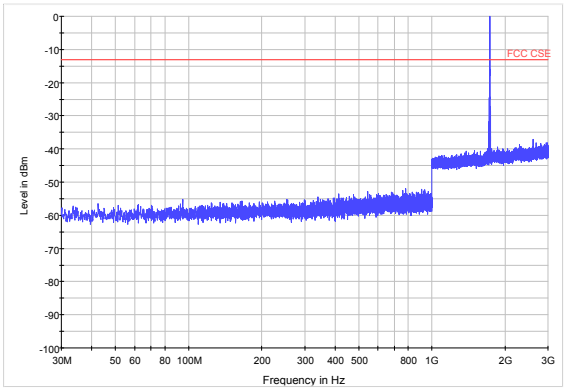
LTE Band 4 3MHz CH-Low 30MHz~3GHz



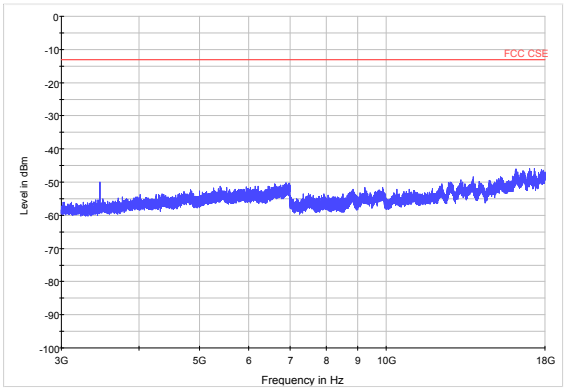

LTE Band 4 3MHz CH-Low 3GHz~18GHz



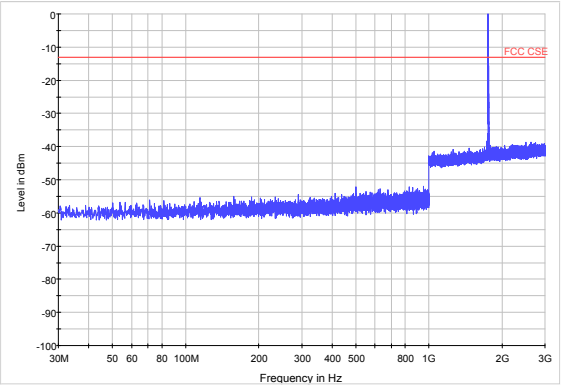

LTE Band 4 3MHz CH-Middle 30MHz~3GHz



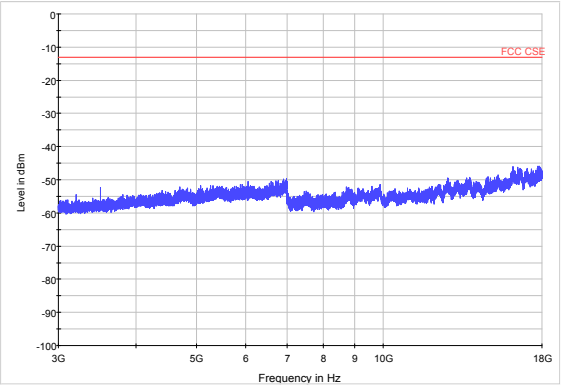

LTE Band 4 3MHz CH-Middle 3GHz~18GHz




LTE Band 4 3MHz CH-High 30MHz~3GHz




LTE Band 4 3MHz CH-High 3GHz~18GHz





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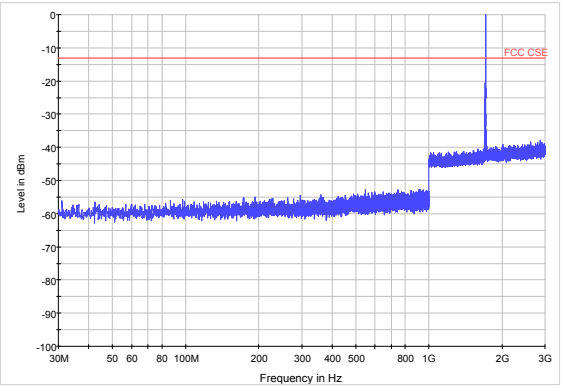
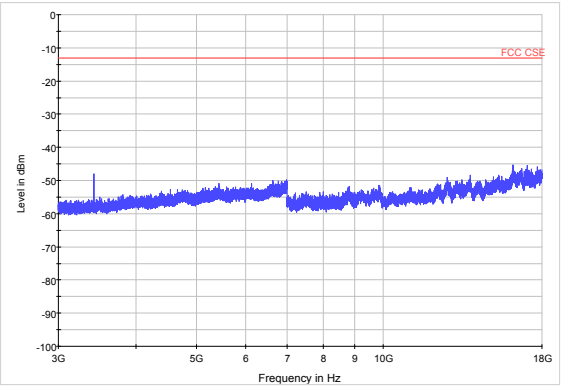
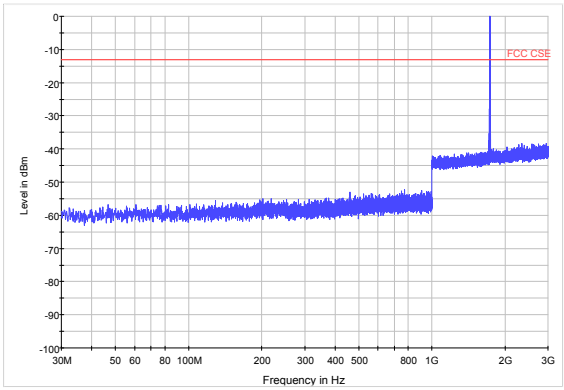
LTE Band 4 5MHz CH-Low 30MHz~3GHz



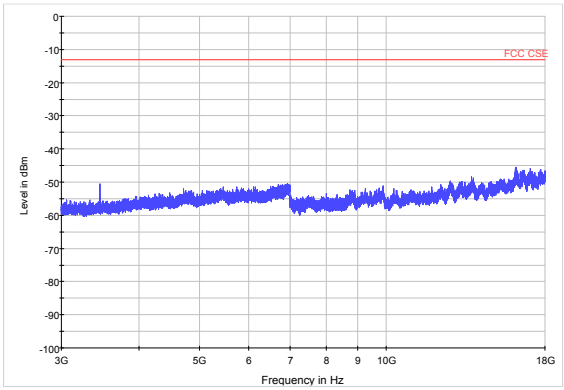

LTE Band 4 5MHz CH-Low 3GHz~18GHz



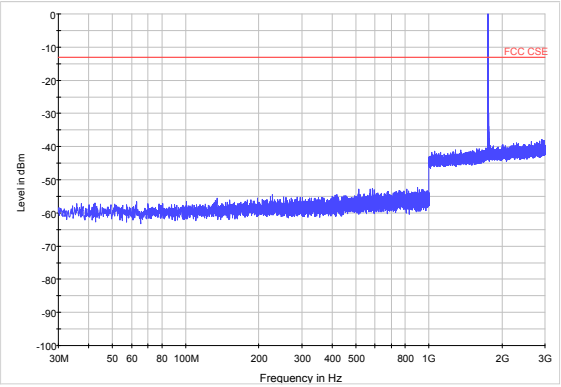

LTE Band 4 5MHz CH-Middle 30MHz~3GHz



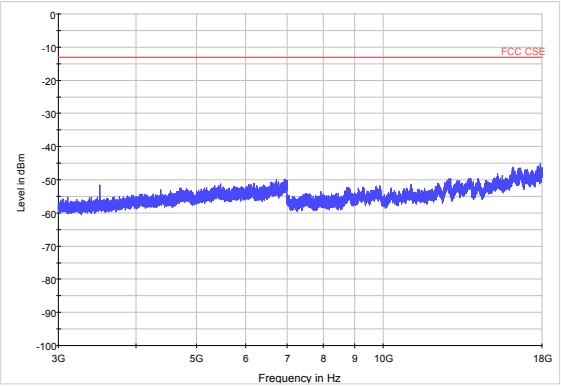

LTE Band 4 5MHz CH-Middle 3GHz~18GHz




LTE Band 4 5MHz CH-High 30MHz~3GHz




LTE Band 4 5MHz CH-High 3GHz~18GHz





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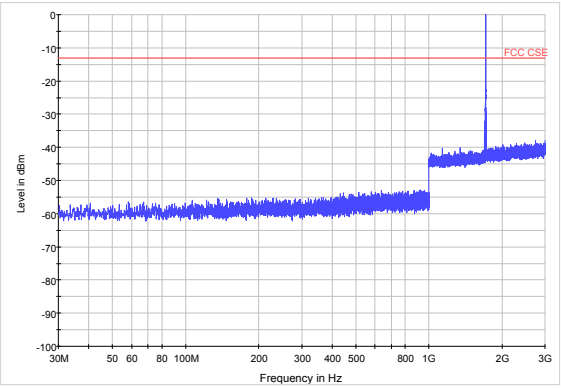
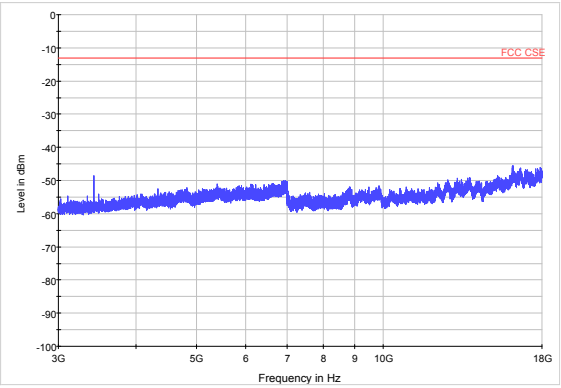
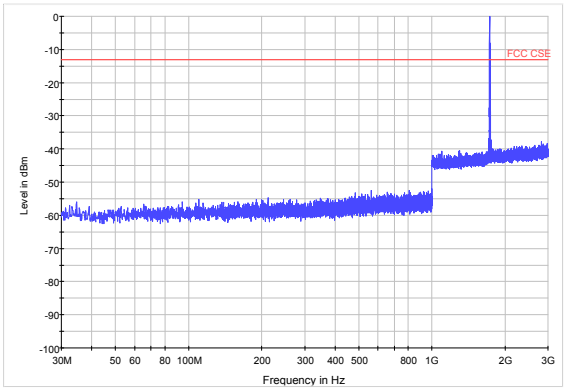
LTE Band 4 10MHz CH-Low 30MHz~3GHz



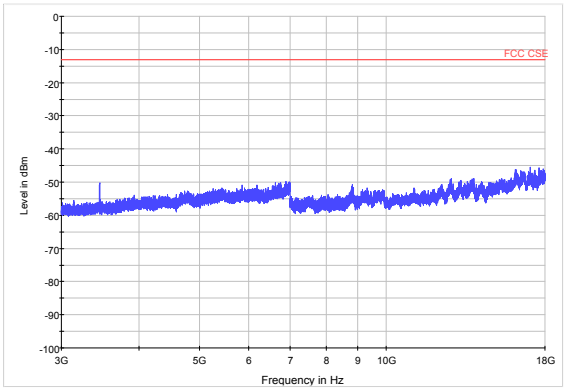

LTE Band 4 10MHz CH-Low 3GHz~18GHz



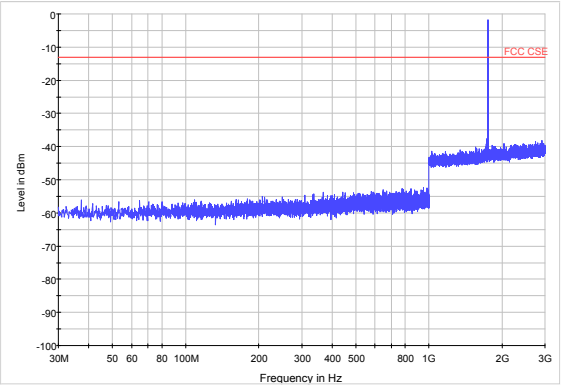

LTE Band 4 10MHz CH-Middle 30MHz~3GHz



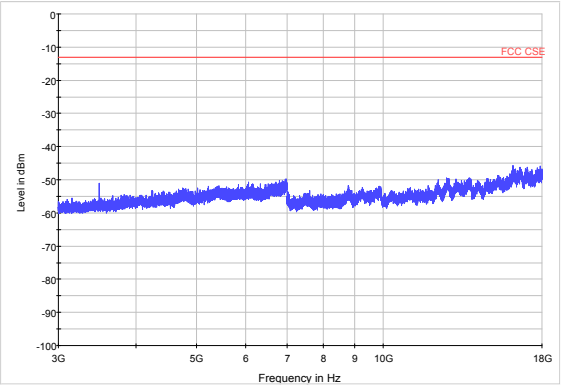

LTE Band 4 10MHz CH-Middle 3GHz~18GHz




LTE Band 4 10MHz CH-High 30MHz~3GHz




LTE Band 4 10MHz CH-High 3GHz~18GHz





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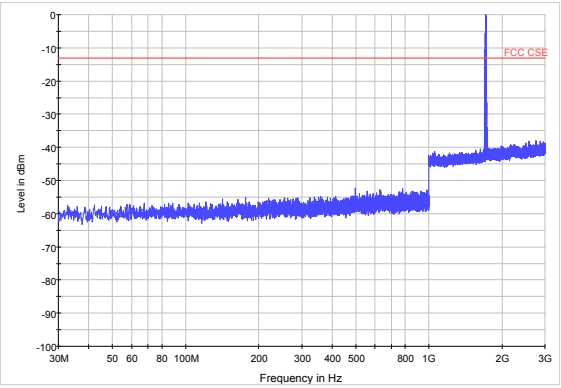
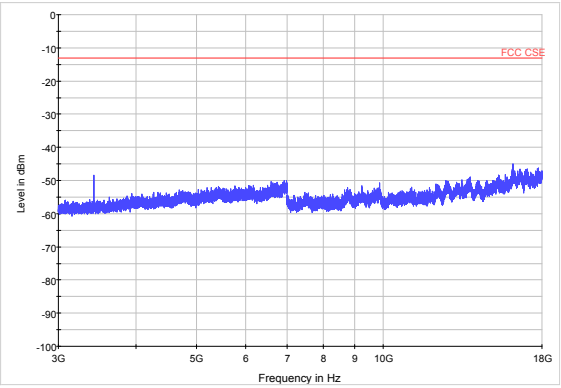
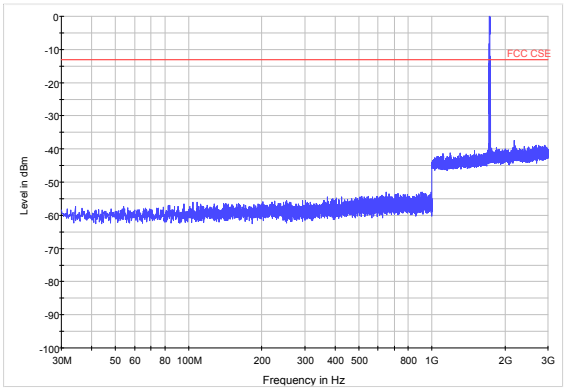
LTE Band 4 15MHz CH-Low 30MHz~3GHz



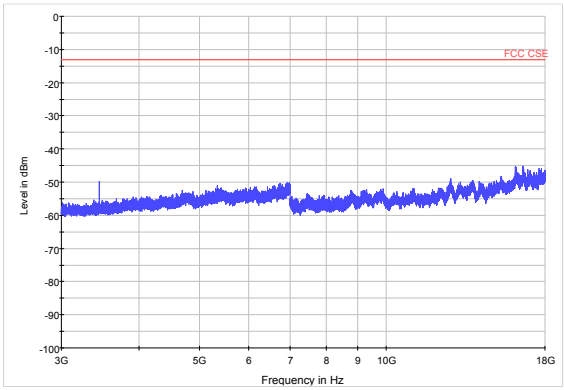

LTE Band 4 15MHz CH-Low 3GHz~18GHz



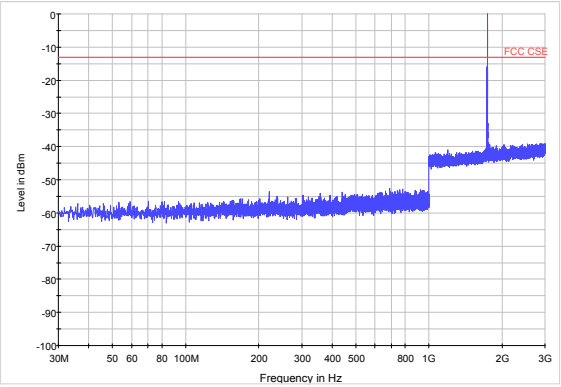

LTE Band 4 15MHz CH-Middle 30MHz~3GHz



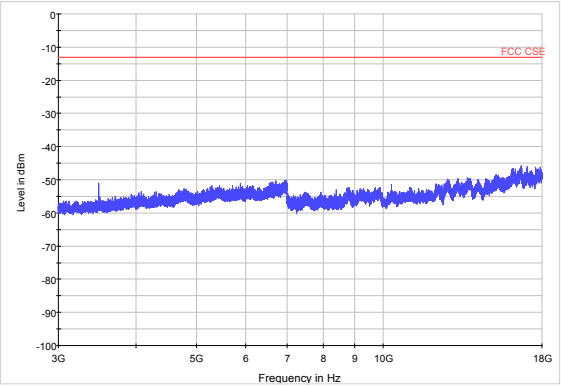

LTE Band 4 15MHz CH-Middle 3GHz~18GHz




LTE Band 4 15MHz CH-High 30MHz~3GHz




LTE Band 4 15MHz CH-High 3GHz~18GHz





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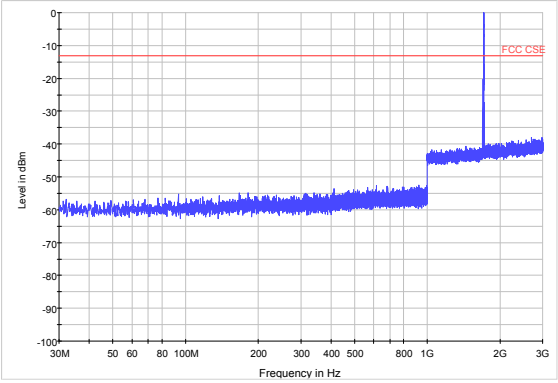
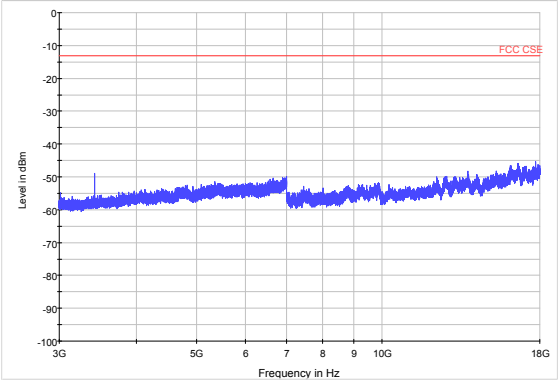
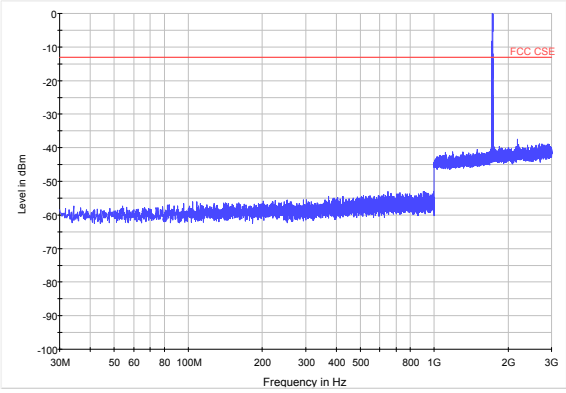
LTE Band 4 20MHz CH-Low 30MHz~3GHz



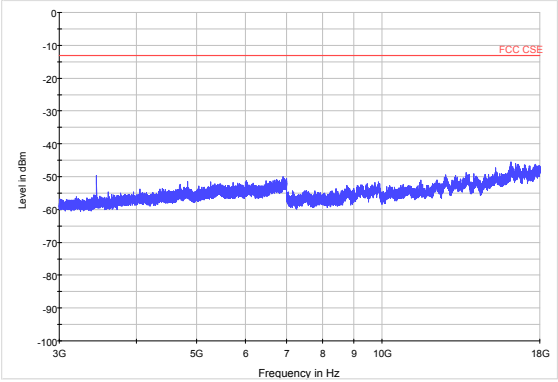

LTE Band 4 20MHz CH-Low 3GHz~18GHz



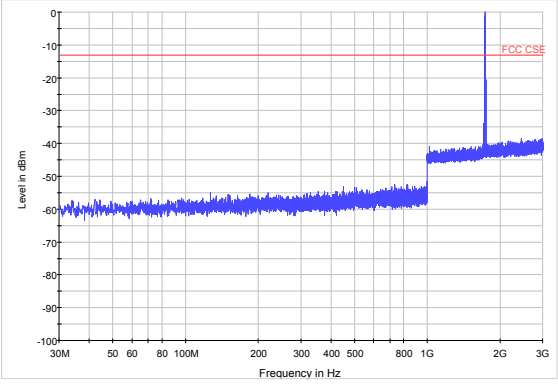

LTE Band 4 20MHz CH-Middle 30MHz~3GHz



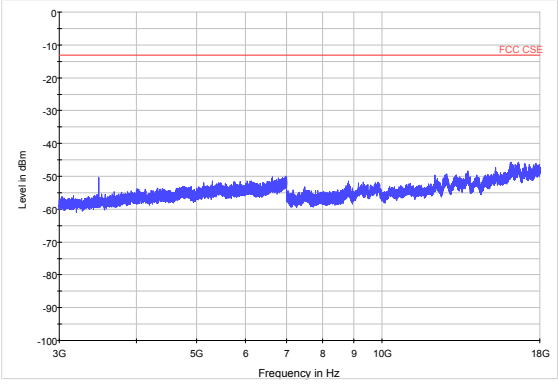

LTE Band 4 20MHz CH-Middle 3GHz~18GHz




LTE Band 4 20MHz CH-High 30MHz~3GHz




LTE Band 4 20MHz CH-High 3GHz~18GHz





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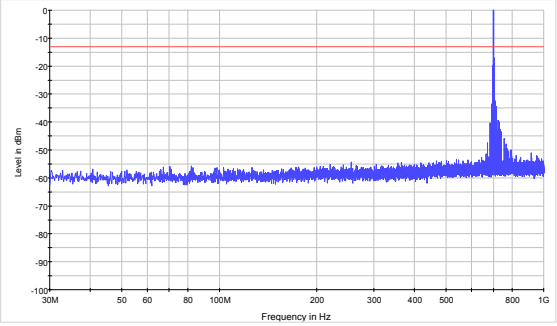
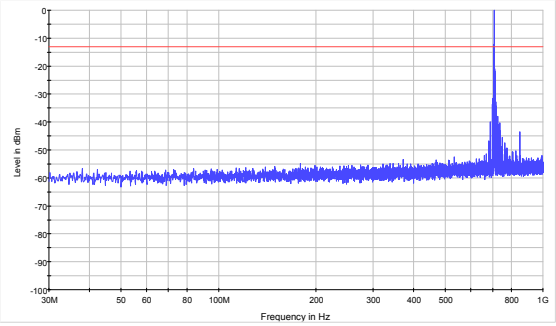
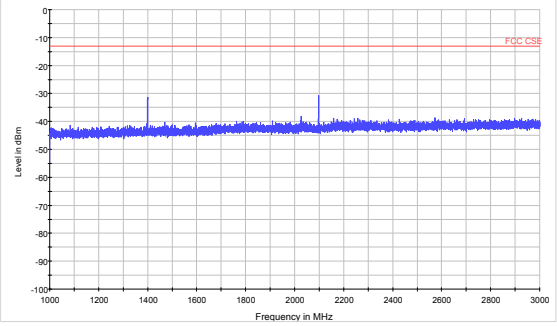
LTE Band 12 1.4MHz CH-Low 30MHz~1GHz



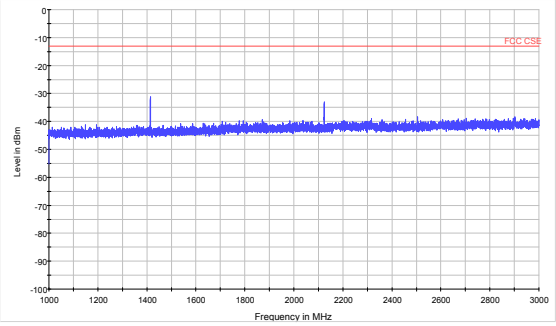

LTE Band 12 1.4MHz CH-Middle 30MHz~1GHz



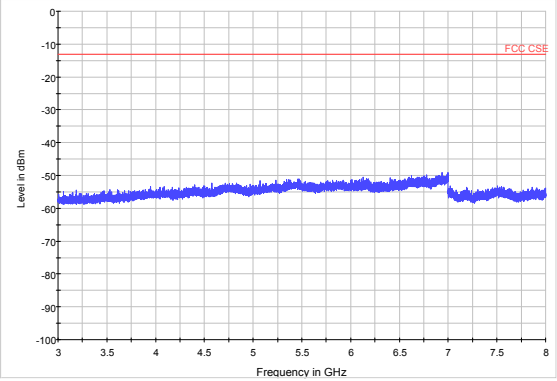

LTE Band 12 1.4MHz CH-Low 1GHz~3GHz



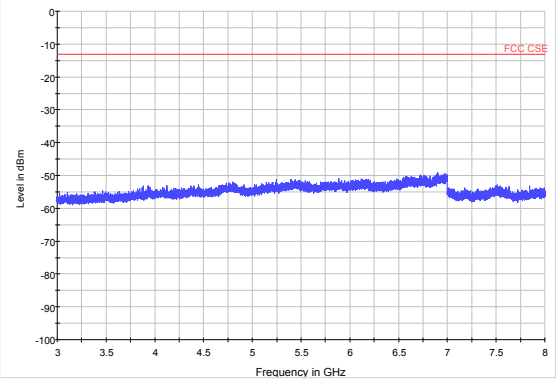

LTE Band 12 1.4MHz CH-Middle 1GHz~3GHz




LTE Band 12 1.4MHz CH-Low 3GHz~8GHz




LTE Band 12 1.4MHz CH-Middle 3GHz~8GHz





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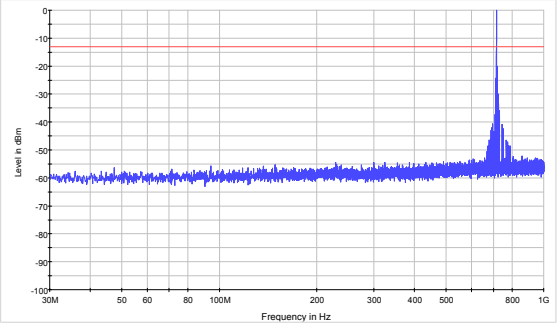
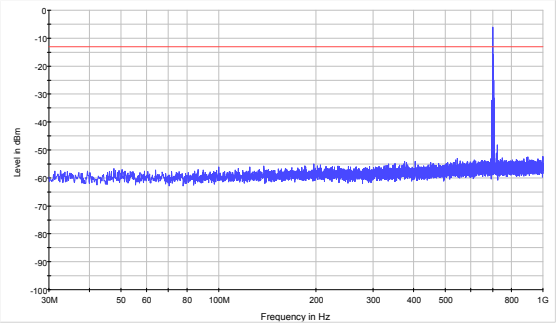
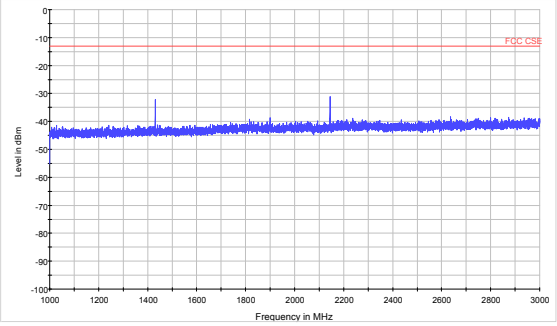
LTE Band 12 1.4MHz CH-High 30MHz~1GHz



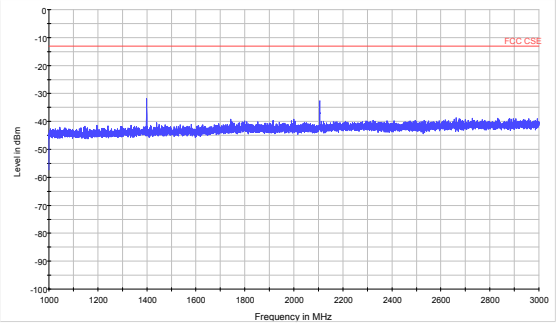

LTE Band 12 3MHz CH-Low 30MHz~1GHz



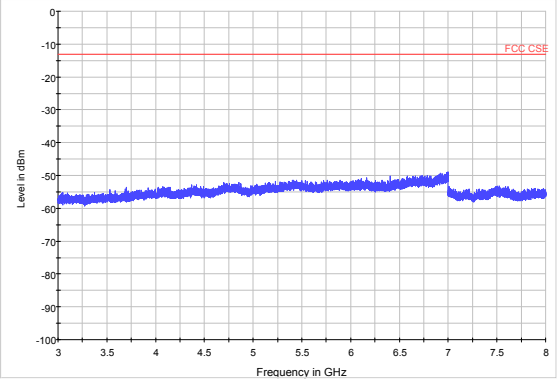

LTE Band 12 1.4MHz CH-High 1GHz~3GHz



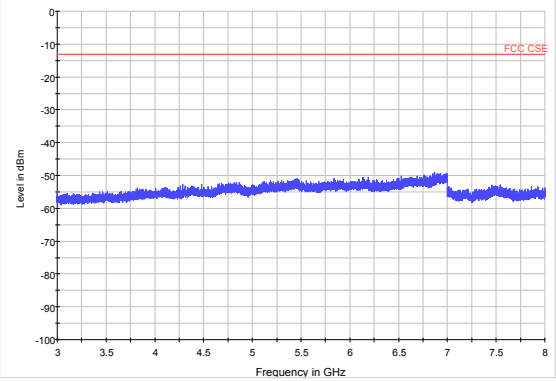

LTE Band 12 3MHz CH-Low 1GHz~3GHz




LTE Band 12 1.4MHz CH-High 3GHz~8GHz




LTE Band 12 3MHz CH-Low 3GHz~8GHz





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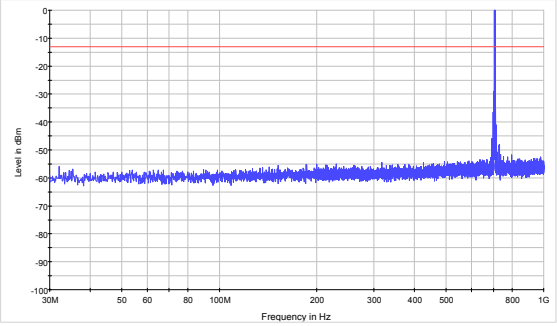
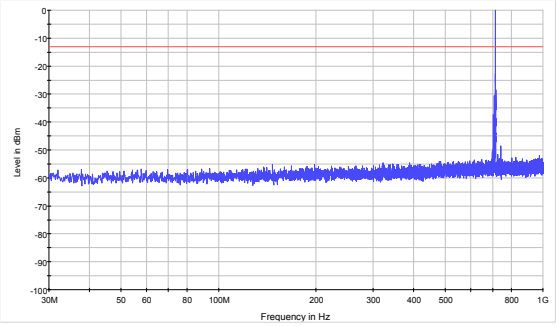
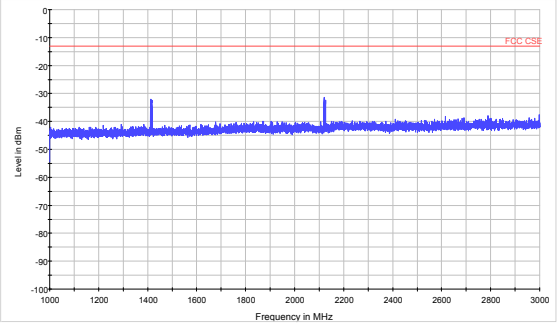
LTE Band 12 3MHz CH-Middle 30MHz~1GHz



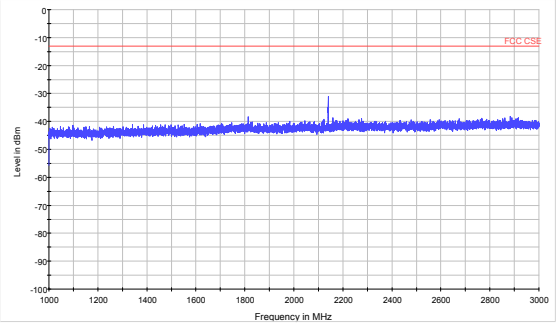

LTE Band 12 3MHz CH-High 30MHz~1GHz



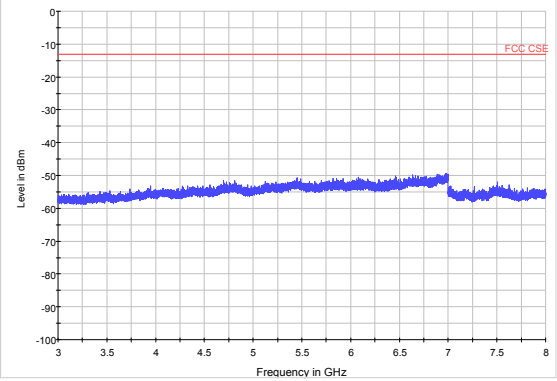

LTE Band 12 3MHz CH-Middle 1GHz~3GHz



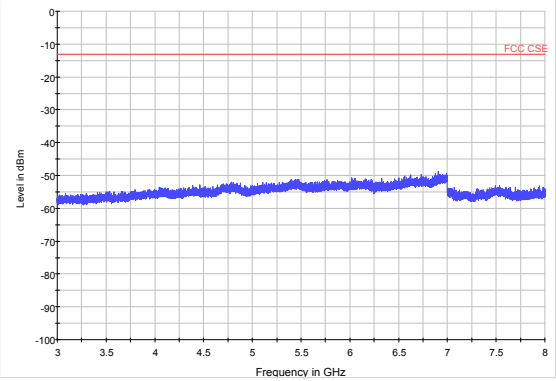

LTE Band 12 3MHz CH-High 1GHz~3GHz




LTE Band 12 3MHz CH-Middle 3GHz~8GHz




LTE Band 12 3MHz CH-High 3GHz~8GHz





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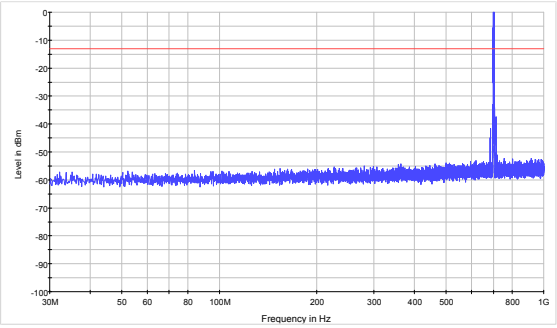
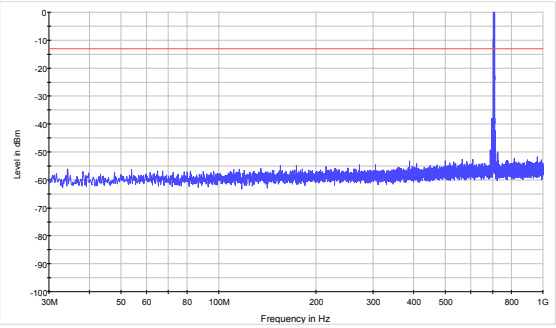
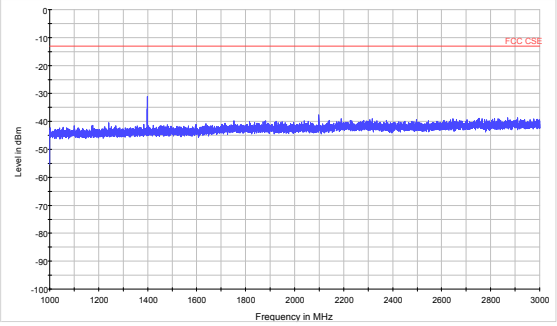
LTE Band 12 5MHz CH-Low 30MHz~1GHz



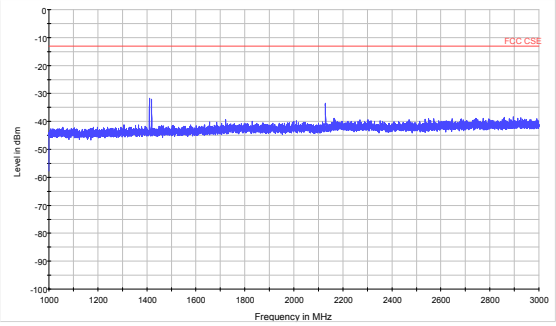

LTE Band 12 5MHz CH-Middle 30MHz~1GHz



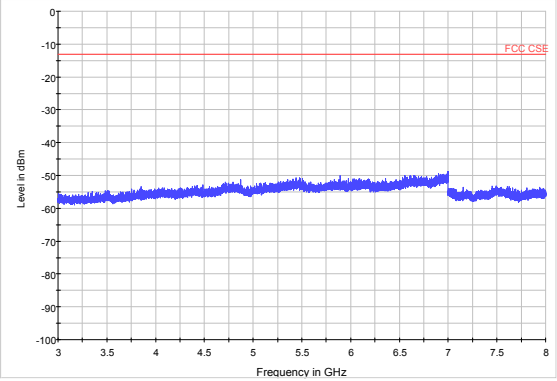

LTE Band 12 5MHz CH-Low 1GHz~3GHz



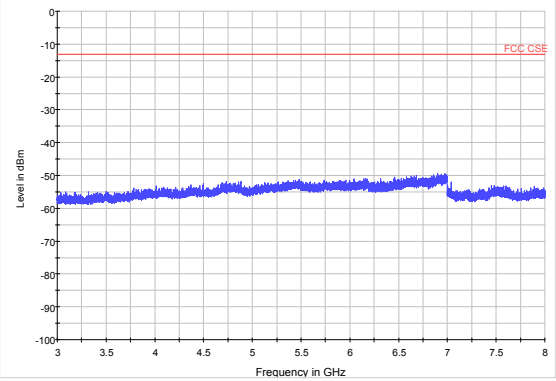

LTE Band 12 5MHz CH-Middle 1GHz~3GHz




LTE Band 12 5MHz CH-Low 3GHz~8GHz




LTE Band 12 5MHz CH-Middle 3GHz~8GHz





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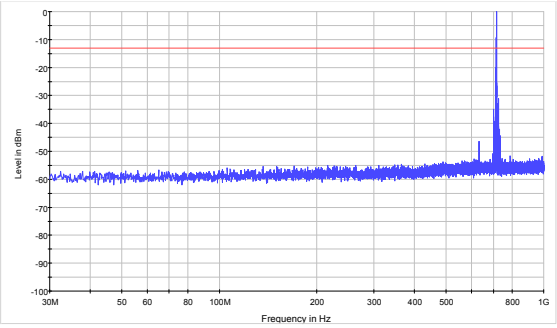
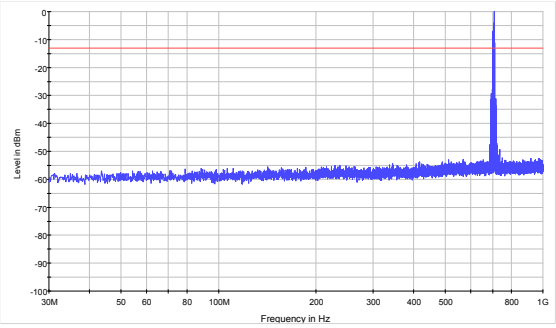
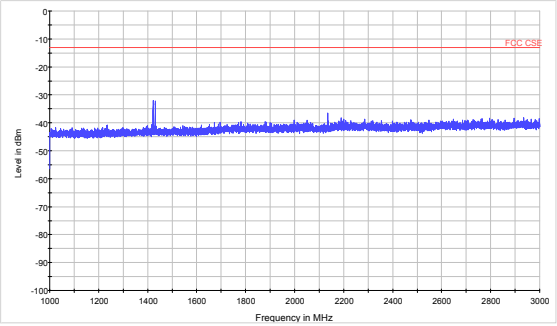
LTE Band 12 5MHz CH-High 30MHz~1GHz



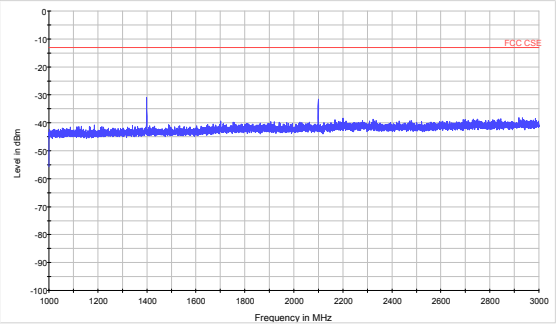

LTE Band 12 10MHz CH-Low 30MHz~1GHz



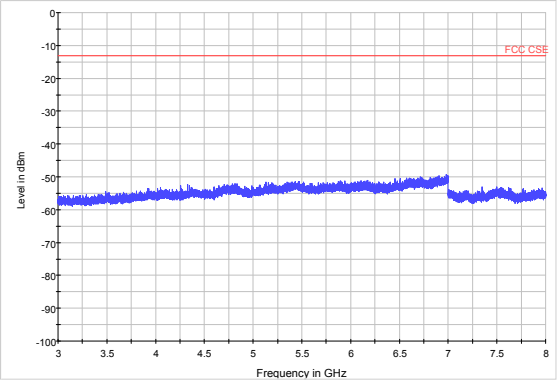

LTE Band 12 5MHz CH-High 1GHz~3GHz



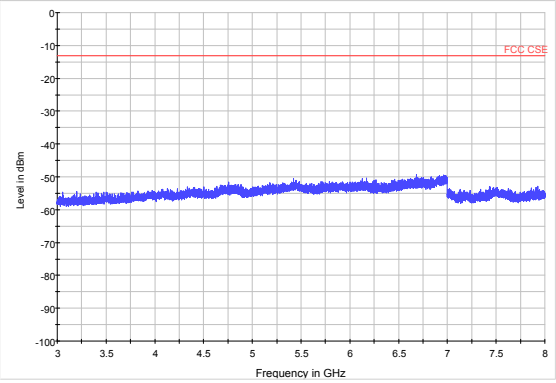

LTE Band 12 10MHz CH-Low 1GHz~3GHz




LTE Band 12 5MHz CH-High 3GHz~8GHz




LTE Band 12 10MHz CH-Low 3GHz~8GHz





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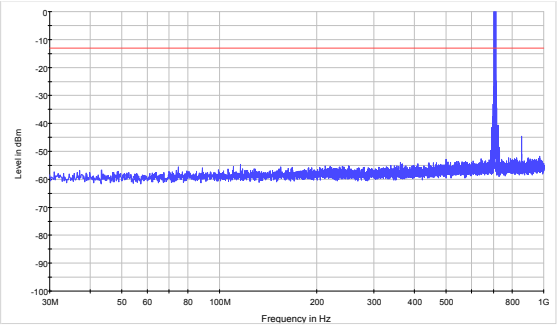
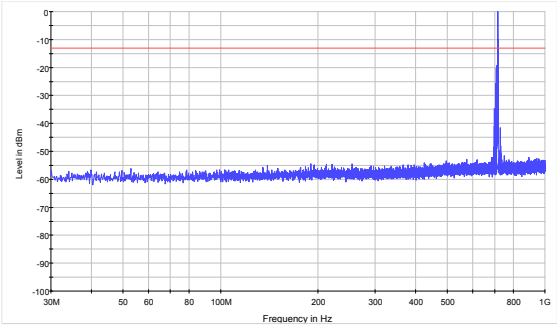
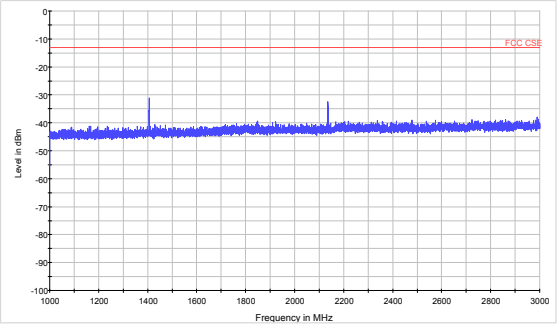
LTE Band 12 10MHz CH-Middle 30MHz~1GHz



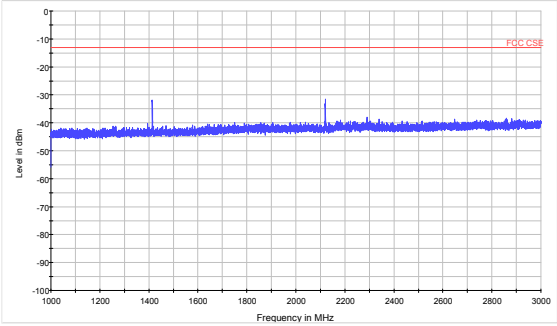

LTE Band 12 10MHz CH-High 30MHz~1GHz



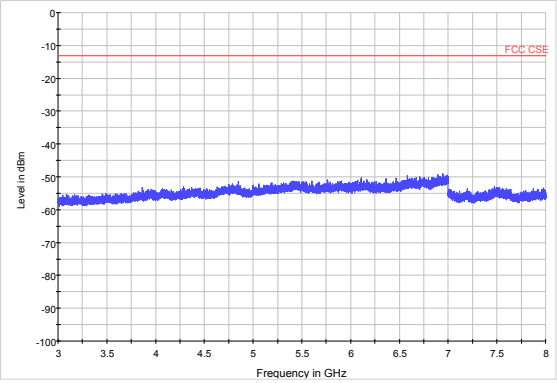

LTE Band 12 10MHz CH-Middle 1GHz~3GHz



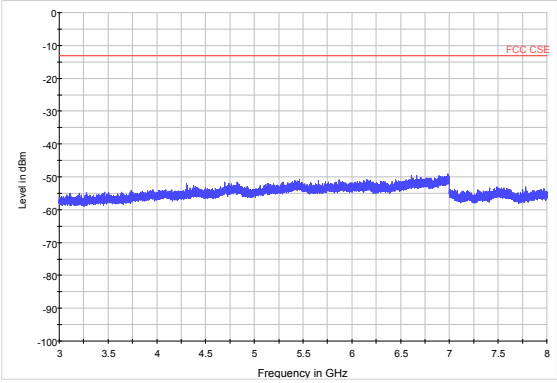

LTE Band 12 10MHz CH-High 1GHz~3GHz




LTE Band 12 10MHz CH-Middle 3GHz~8GHz




LTE Band 12 10MHz CH-High 3GHz~8GHz





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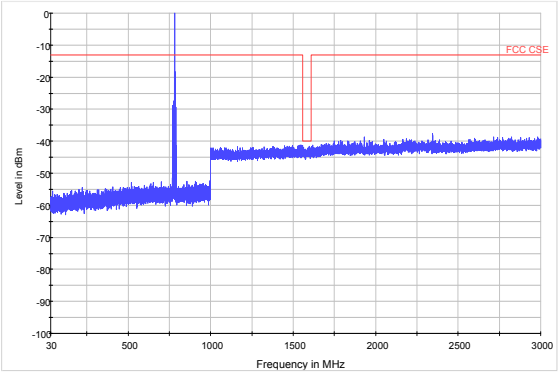
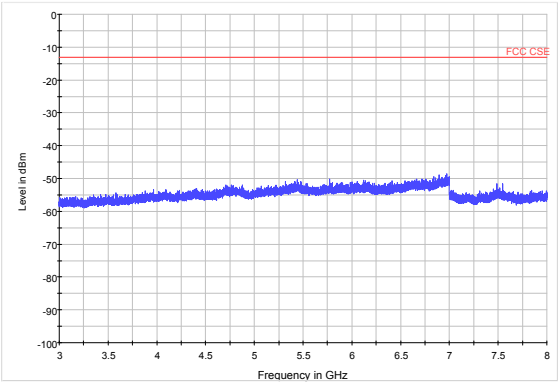
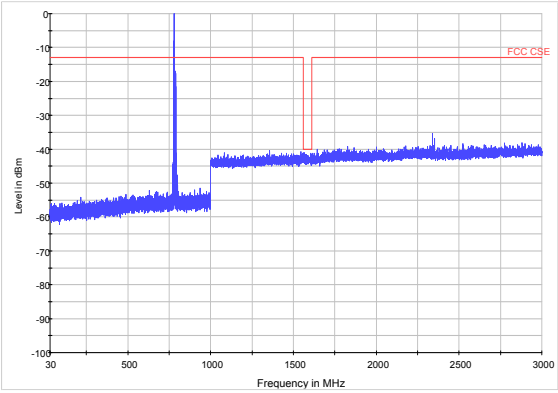
LTE Band 13 5MHz CH-Low 30MHz~3GHz



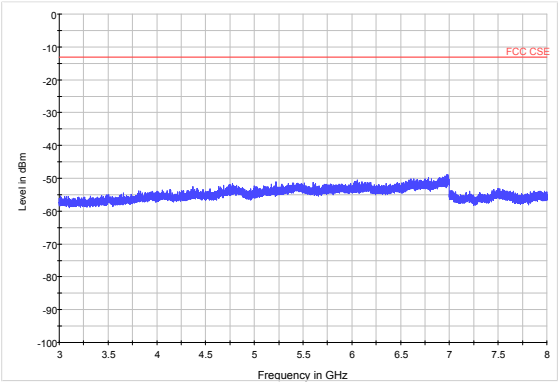

LTE Band 13 5MHz CH-Low 3GHz~8GHz



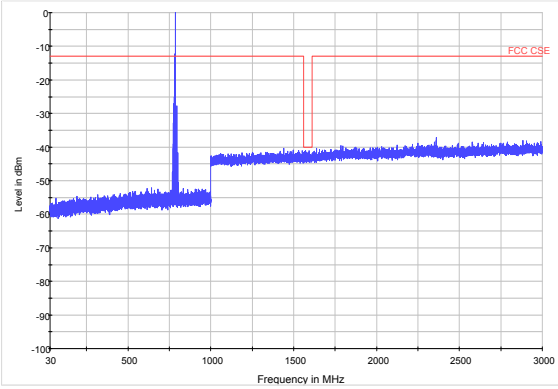

LTE Band 13 5MHz CH-Middle 30MHz~3GHz



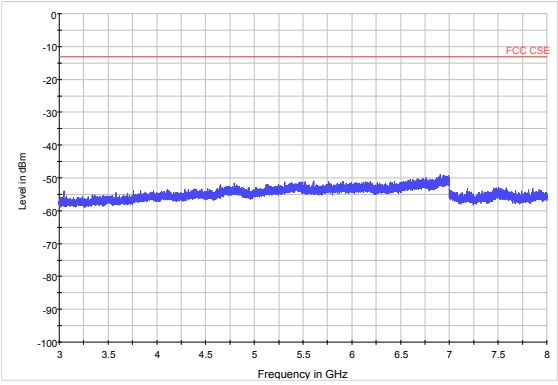

LTE Band 13 5MHz CH-Middle 3GHz~8GHz




LTE Band 13 5MHz CH-High 30MHz~3GHz




LTE Band 13 5MHz CH-High 3GHz~8GHz





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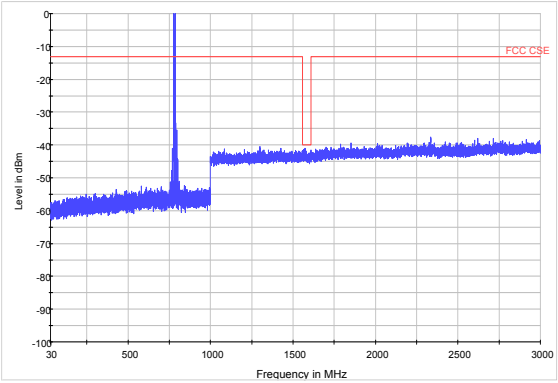
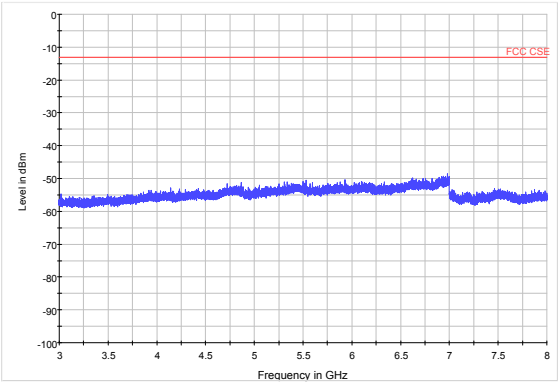
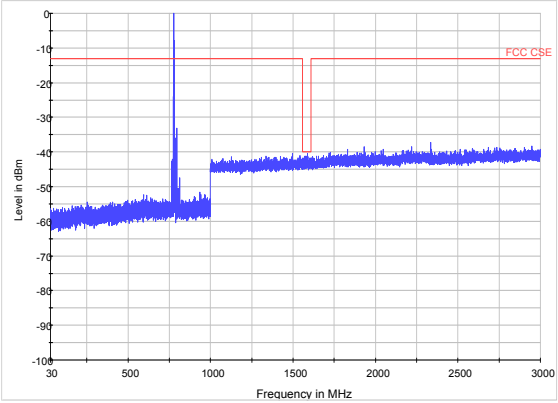
LTE Band 13 10MHz CH-Low 30MHz~3GHz



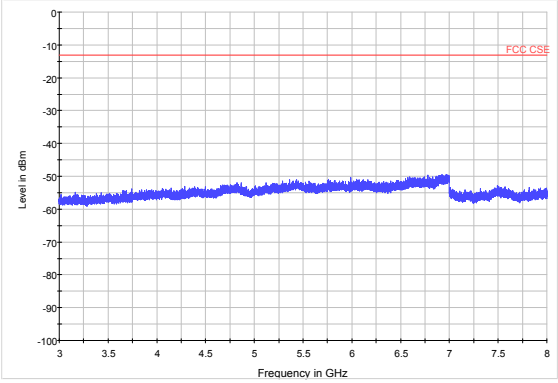

LTE Band 13 10MHz CH-Low 3GHz~8GHz



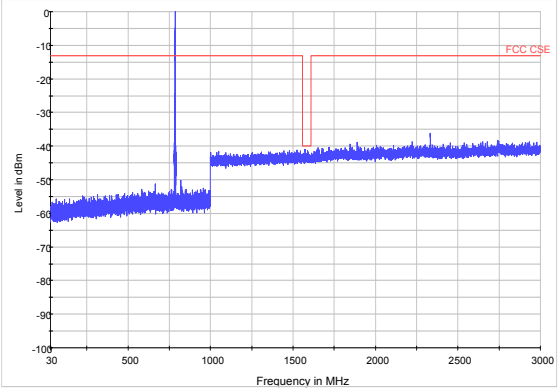

LTE Band 13 10MHz CH-Middle 30MHz~3GHz



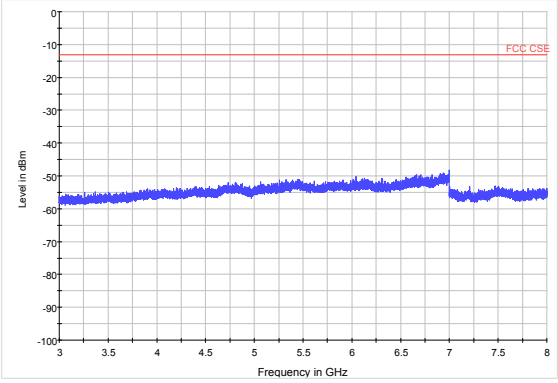

LTE Band 13 10MHz CH-Middle 3GHz~8GHz




LTE Band 13 10MHz CH-High 30MHz~3GHz




LTE Band 13 10MHz CH-High 3GHz~8GHz





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## 4.8 Radiates Spurious Emission

**Ambient condition**

| Temperature | Relative humidity | Pressure |
|---|---|---|
| 23°C ~25°C | 45%~50% | 101.5kPa |

**Method of Measurement**

1. The testing follows ANSI C63.26 (2015) Section 5.5.2.3.
2. Above 30MHz：The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.


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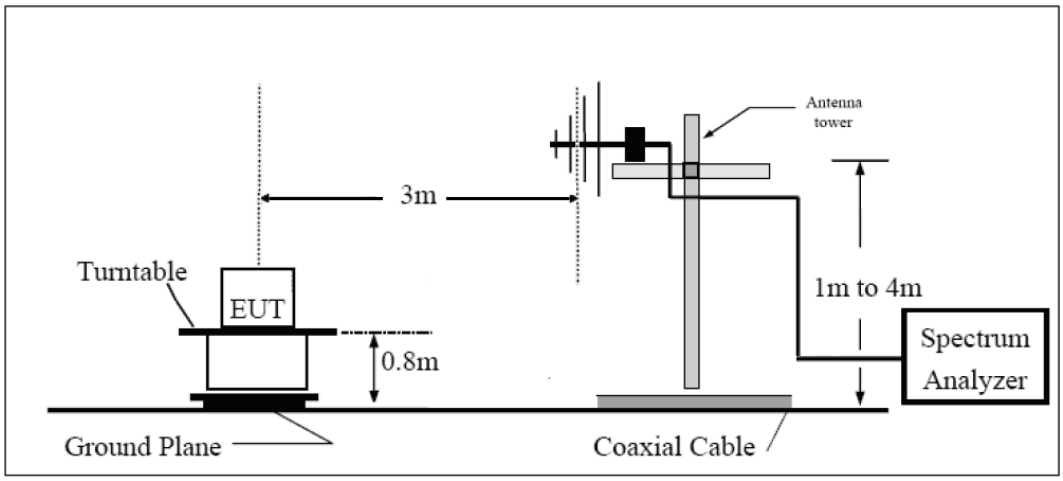
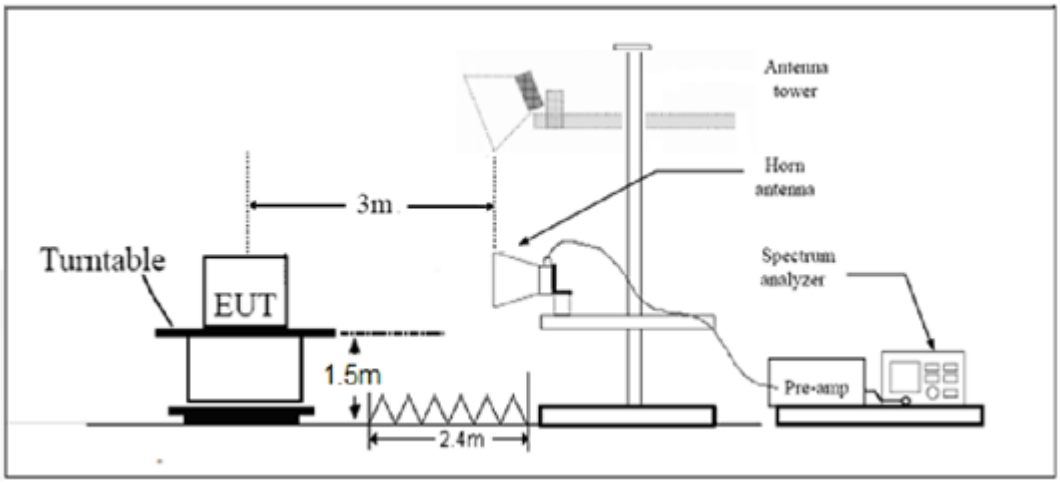
**Test setup**

**30MHz~~~ 1GHz**




**Above 1GHz**




Note: Area side:2.4mX3.6m

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT lie-down stand-up position (X, Y axis)，lie-down position (Z axis),. Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

.

**Limits**

LTE -4 Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

LTE -12 Rule Part 27.53 (g) 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 +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10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. 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.

LTE -13 Rule Part 27.53(f)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 (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

**LTE B4/12 Limit**

| | |
|---|---|
| Limit | -13 dBm |

**LTE B13 Limit**

| | |
|---|---|
| Limit out of the band 1559-1610 MHz | -13 dBm |
| Limit in the band 1559-1610 MHz | -40 dBm |

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor $k$ = ±1.96, $U$= ±3.55 dB.


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**Test Result**

LTE Band 4 QPSK 1.4MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3421.4 | -56.35 | 2.6 | 10.15 | Vertical | -48.8 | -13 | 35.8 | 45 |
| 3 | 5132.1 | -51.85 | 2.4 | 11.35 | Vertical | -42.9 | -13 | 29.9 | 0 |
| 4 | 6842.8 | -49.65 | 4.5 | 10.85 | Vertical | -43.3 | -13 | 30.3 | 135 |
| 5 | 8553.5 | -47.15 | 5.1 | 11.35 | Vertical | -40.9 | -13 | 27.9 | 225 |
| 6 | 10264.2 | -45.55 | 5.3 | 11.95 | Vertical | -38.9 | -13 | 25.9 | 135 |
| 7 | 11974.9 | -45.85 | 5.5 | 13.55 | Vertical | -37.8 | -13 | 24.8 | 45 |
| 8 | 13685.6 | -42.85 | 6.3 | 13.75 | Vertical | -35.4 | -13 | 22.4 | 90 |
| 9 | 15396.3 | -43.35 | 6.7 | 13.85 | Vertical | -36.2 | -13 | 23.2 | 225 |
| 10 | 17107.0 | -43.05 | 6.8 | 14.25 | Vertical | -35.6 | -13 | 22.6 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 1.4MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3465.0 | -54.85 | 2.6 | 10.75 | Vertical | -46.7 | -13 | 33.7 | 135 |
| 3 | 5197.5 | -49.65 | 2.4 | 11.05 | Vertical | -41.0 | -13 | 28.0 | 45 |
| 4 | 6930.0 | -49.45 | 4.5 | 11.15 | Vertical | -42.8 | -13 | 29.8 | 90 |
| 5 | 8662.5 | -48.55 | 5.1 | 11.35 | Vertical | -42.3 | -13 | 29.3 | 225 |
| 6 | 10395.0 | -44.35 | 5.3 | 11.95 | Vertical | -37.7 | -13 | 24.7 | 45 |
| 7 | 12127.5 | -45.95 | 5.5 | 13.55 | Vertical | -37.9 | -13 | 24.9 | 90 |
| 8 | 13860.0 | -41.75 | 6.3 | 13.75 | Vertical | -34.3 | -13 | 21.3 | 135 |
| 9 | 15592.5 | -45.65 | 6.7 | 13.85 | Vertical | -38.5 | -13 | 25.5 | 135 |
| 10 | 17325.0 | -41.95 | 6.8 | 14.25 | Vertical | -34.5 | -13 | 21.5 | 90 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 1.4MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3508.6 | -53.15 | 2.6 | 10.15 | Vertical | -45.6 | -13 | 32.6 | 45 |
| 3 | 5262.9 | -56.65 | 2.4 | 11.05 | Vertical | -48.0 | -13 | 35.0 | 45 |
| 4 | 7017.2 | -49.75 | 4.5 | 11.15 | Vertical | -43.1 | -13 | 30.1 | 135 |
| 5 | 8771.5 | -47.05 | 5.1 | 11.35 | Vertical | -40.8 | -13 | 27.8 | 45 |
| 6 | 10525.8 | -45.05 | 5.3 | 11.95 | Vertical | -38.4 | -13 | 25.4 | 90 |
| 7 | 12280.1 | -45.25 | 5.5 | 13.55 | Vertical | -37.2 | -13 | 24.2 | 135 |
| 8 | 14034.4 | -42.15 | 6.3 | 13.75 | Vertical | -34.7 | -13 | 21.7 | 45 |
| 9 | 15788.7 | -44.55 | 6.7 | 13.85 | Vertical | -37.4 | -13 | 24.4 | 90 |
| 10 | 17543.0 | -42.45 | 6.8 | 14.25 | Vertical | -35.0 | -13 | 22.0 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 3MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3423.0 | -59.35 | 2.6 | 10.15 | Vertical | -51.8 | -13 | 38.8 | 180 |
| 3 | 5134.5 | -47.45 | 2.4 | 11.35 | Vertical | -38.5 | -13 | 25.5 | 225 |
| 4 | 6846.0 | -50.65 | 4.5 | 10.85 | Vertical | -44.3 | -13 | 31.3 | 135 |
| 5 | 8557.5 | -48.45 | 5.1 | 11.35 | Vertical | -42.2 | -13 | 29.2 | 225 |
| 6 | 10269.0 | -45.35 | 5.3 | 11.95 | Vertical | -38.7 | -13 | 25.7 | 90 |
| 7 | 11980.5 | -46.15 | 5.5 | 13.55 | Vertical | -38.1 | -13 | 25.1 | 90 |
| 8 | 13692.0 | -42.65 | 6.3 | 13.75 | Vertical | -35.2 | -13 | 22.2 | 45 |
| 9 | 15403.5 | -45.35 | 6.7 | 13.85 | Vertical | -38.2 | -13 | 25.2 | 180 |
| 10 | 17115.0 | -43.05 | 6.8 | 14.25 | Vertical | -35.6 | -13 | 22.6 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 3MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3465.0 | -54.25 | 2.6 | 10.75 | Vertical | -46.1 | -13 | 33.1 | 0 |
| 3 | 5197.5 | -48.95 | 2.4 | 11.05 | Vertical | -40.3 | -13 | 27.3 | 135 |
| 4 | 6930.0 | -48.75 | 4.5 | 11.15 | Vertical | -42.1 | -13 | 29.1 | 225 |
| 5 | 8662.5 | -46.55 | 5.1 | 11.35 | Vertical | -40.3 | -13 | 27.3 | 315 |
| 6 | 10395.0 | -45.25 | 5.3 | 11.95 | Vertical | -38.6 | -13 | 25.6 | 270 |
| 7 | 12127.5 | -44.75 | 5.5 | 13.55 | Vertical | -36.7 | -13 | 23.7 | 225 |
| 8 | 13860.0 | -41.95 | 6.3 | 13.75 | Vertical | -34.5 | -13 | 21.5 | 135 |
| 9 | 15592.5 | -44.95 | 6.7 | 13.85 | Vertical | -37.8 | -13 | 24.8 | 225 |
| 10 | 17325.0 | -41.65 | 6.8 | 14.25 | Vertical | -34.2 | -13 | 21.2 | 0 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 3MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3507.0 | -54.85 | 2.6 | 10.15 | Vertical | -47.3 | -13 | 34.3 | 135 |
| 3 | 5260.5 | -47.15 | 2.4 | 11.05 | Vertical | -38.5 | -13 | 25.5 | 225 |
| 4 | 7014.0 | -50.25 | 4.5 | 11.15 | Vertical | -43.6 | -13 | 30.6 | 315 |
| 5 | 8767.5 | -45.95 | 5.1 | 11.35 | Vertical | -39.7 | -13 | 26.7 | 270 |
| 6 | 10521.0 | -44.35 | 5.3 | 11.95 | Vertical | -37.7 | -13 | 24.7 | 225 |
| 7 | 12274.5 | -46.55 | 5.5 | 13.55 | Vertical | -38.5 | -13 | 25.5 | 135 |
| 8 | 14028.0 | -42.35 | 6.3 | 13.75 | Vertical | -34.9 | -13 | 21.9 | 225 |
| 9 | 15781.5 | -44.75 | 6.7 | 13.85 | Vertical | -37.6 | -13 | 24.6 | 90 |
| 10 | 17535.0 | -42.15 | 6.8 | 14.25 | Vertical | -34.7 | -13 | 21.7 | 90 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 5MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3425.0 | -57.85 | 2.6 | 10.15 | Vertical | -50.3 | -13 | 37.3 | 45 |
| 3 | 5137.5 | -57.75 | 2.4 | 11.35 | Vertical | -48.8 | -13 | 35.8 | 180 |
| 4 | 6850.0 | -47.95 | 4.5 | 10.85 | Vertical | -41.6 | -13 | 28.6 | 225 |
| 5 | 8562.5 | -47.05 | 5.1 | 11.35 | Vertical | -40.8 | -13 | 27.8 | 135 |
| 6 | 10275.0 | -45.15 | 5.3 | 11.95 | Vertical | -38.5 | -13 | 25.5 | 225 |
| 7 | 11987.5 | -45.65 | 5.5 | 13.55 | Vertical | -37.6 | -13 | 24.6 | 90 |
| 8 | 13700.0 | -44.75 | 6.3 | 13.75 | Vertical | -37.3 | -13 | 24.3 | 90 |
| 9 | 15412.5 | -45.25 | 6.7 | 13.85 | Vertical | -38.1 | -13 | 25.1 | 45 |
| 10 | 17125.0 | -42.75 | 6.8 | 14.25 | Vertical | -35.3 | -13 | 22.3 | 180 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3465.0 | -55.05 | 2.6 | 10.75 | Vertical | -46.9 | -13 | 33.9 | 45 |
| 3 | 5197.5 | -57.45 | 2.4 | 11.05 | Vertical | -48.8 | -13 | 35.8 | 0 |
| 4 | 6930.0 | -49.45 | 4.5 | 11.15 | Vertical | -42.8 | -13 | 29.8 | 135 |
| 5 | 8662.5 | -48.65 | 5.1 | 11.35 | Vertical | -42.4 | -13 | 29.4 | 225 |
| 6 | 10395.0 | -44.75 | 5.3 | 11.95 | Vertical | -38.1 | -13 | 25.1 | 315 |
| 7 | 12127.5 | -47.25 | 5.5 | 13.55 | Vertical | -39.2 | -13 | 26.2 | 270 |
| 8 | 13860.0 | -41.65 | 6.3 | 13.75 | Vertical | -34.2 | -13 | 21.2 | 225 |
| 9 | 15592.5 | -44.35 | 6.7 | 13.85 | Vertical | -37.2 | -13 | 24.2 | 135 |
| 10 | 17325.0 | -41.35 | 6.8 | 14.25 | Vertical | -33.9 | -13 | 20.9 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 5MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3505.0 | -53.65 | 2.6 | 10.15 | Vertical | -46.1 | -13 | 33.1 | 0 |
| 3 | 5257.5 | -56.95 | 2.4 | 11.05 | Vertical | -48.3 | -13 | 35.3 | 135 |
| 4 | 7010.0 | -49.75 | 4.5 | 11.15 | Vertical | -43.1 | -13 | 30.1 | 225 |
| 5 | 8762.5 | -46.85 | 5.1 | 11.35 | Vertical | -40.6 | -13 | 27.6 | 315 |
| 6 | 10515.0 | -44.75 | 5.3 | 11.95 | Vertical | -38.1 | -13 | 25.1 | 270 |
| 7 | 12267.5 | -46.55 | 5.5 | 13.55 | Vertical | -38.5 | -13 | 25.5 | 225 |
| 8 | 14020.0 | -41.35 | 6.3 | 13.75 | Vertical | -33.9 | -13 | 20.9 | 135 |
| 9 | 15772.5 | -44.15 | 6.7 | 13.85 | Vertical | -37.0 | -13 | 24.0 | 225 |
| 10 | 17525.0 | -43.85 | 6.8 | 14.25 | Vertical | -36.4 | -13 | 23.4 | 90 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 10MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3430.0 | -56.15 | 2.6 | 10.15 | Vertical | -48.6 | -13 | 35.6 | 90 |
| 3 | 5145.0 | -51.65 | 2.4 | 11.35 | Vertical | -42.7 | -13 | 29.7 | 45 |
| 4 | 6860.0 | -49.25 | 4.5 | 10.85 | Vertical | -42.9 | -13 | 29.9 | 180 |
| 5 | 8575.0 | -46.95 | 5.1 | 11.35 | Vertical | -40.7 | -13 | 27.7 | 225 |
| 6 | 10290.0 | -44.55 | 5.3 | 11.95 | Vertical | -37.9 | -13 | 24.9 | 135 |
| 7 | 12005.0 | -44.45 | 5.5 | 13.55 | Vertical | -36.4 | -13 | 23.4 | 225 |
| 8 | 13720.0 | -43.15 | 6.3 | 13.75 | Vertical | -35.7 | -13 | 22.7 | 90 |
| 9 | 15435.0 | -44.65 | 6.7 | 13.85 | Vertical | -37.5 | -13 | 24.5 | 90 |
| 10 | 17150.0 | -42.65 | 6.8 | 14.25 | Vertical | -35.2 | -13 | 22.2 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 10MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3465.0 | -54.95 | 2.6 | 10.75 | Vertical | -46.8 | -13 | 33.8 | 180 |
| 3 | 5197.5 | -57.25 | 2.4 | 11.05 | Vertical | -48.6 | -13 | 35.6 | 45 |
| 4 | 6930.0 | -50.05 | 4.5 | 11.15 | Vertical | -43.4 | -13 | 30.4 | 0 |
| 5 | 8662.5 | -46.35 | 5.1 | 11.35 | Vertical | -40.1 | -13 | 27.1 | 135 |
| 6 | 10395.0 | -44.85 | 5.3 | 11.95 | Vertical | -38.2 | -13 | 25.2 | 225 |
| 7 | 12127.5 | -45.55 | 5.5 | 13.55 | Vertical | -37.5 | -13 | 24.5 | 315 |
| 8 | 13860.0 | -42.45 | 6.3 | 13.75 | Vertical | -35.0 | -13 | 22.0 | 270 |
| 9 | 15592.5 | -43.85 | 6.7 | 13.85 | Vertical | -36.7 | -13 | 23.7 | 225 |
| 10 | 17325.0 | -41.45 | 6.8 | 14.25 | Vertical | -34.0 | -13 | 21.0 | 135 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 10MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3500.0 | -53.65 | 2.6 | 10.15 | Vertical | -46.1 | -13 | 33.1 | 225 |
| 3 | 5250.0 | -57.35 | 2.4 | 11.05 | Vertical | -48.7 | -13 | 35.7 | 315 |
| 4 | 7000.0 | -49.95 | 4.5 | 11.15 | Vertical | -43.3 | -13 | 30.3 | 270 |
| 5 | 8750.0 | -47.15 | 5.1 | 11.35 | Vertical | -40.9 | -13 | 27.9 | 225 |
| 6 | 10500.0 | -44.35 | 5.3 | 11.95 | Vertical | -37.7 | -13 | 24.7 | 135 |
| 7 | 12250.0 | -45.65 | 5.5 | 13.55 | Vertical | -37.6 | -13 | 24.6 | 225 |
| 8 | 14000.0 | -42.15 | 6.3 | 13.75 | Vertical | -34.7 | -13 | 21.7 | 315 |
| 9 | 15750.0 | -44.75 | 6.7 | 13.85 | Vertical | -37.6 | -13 | 24.6 | 270 |
| 10 | 17500.0 | -42.45 | 6.8 | 14.25 | Vertical | -35.0 | -13 | 22.0 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 15MHz CH Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3435.0 | -58.45 | 2.6 | 10.15 | Vertical | -50.9 | -13 | 37.9 | 135 |
| 3 | 5152.5 | -51.15 | 2.4 | 11.35 | Vertical | -42.2 | -13 | 29.2 | 225 |
| 4 | 6870.0 | -49.45 | 4.5 | 10.85 | Vertical | -43.1 | -13 | 30.1 | 90 |
| 5 | 8587.5 | -46.45 | 5.1 | 11.35 | Vertical | -40.2 | -13 | 27.2 | 90 |
| 6 | 10305.0 | -46.95 | 5.3 | 11.95 | Vertical | -40.3 | -13 | 27.3 | 45 |
| 7 | 12022.5 | -45.65 | 5.5 | 13.55 | Vertical | -37.6 | -13 | 24.6 | 180 |
| 8 | 13740.0 | -43.75 | 6.3 | 13.75 | Vertical | -36.3 | -13 | 23.3 | 225 |
| 9 | 15457.5 | -44.65 | 6.7 | 13.85 | Vertical | -37.5 | -13 | 24.5 | 135 |
| 10 | 17175.0 | -41.65 | 6.8 | 14.25 | Vertical | -34.2 | -13 | 21.2 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 15MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3465.0 | -55.85 | 2.6 | 10.75 | Vertical | -47.7 | -13 | 34.7 | 90 |
| 3 | 5197.5 | -57.45 | 2.4 | 11.05 | Vertical | -48.8 | -13 | 35.8 | 90 |
| 4 | 6930.0 | -50.45 | 4.5 | 11.15 | Vertical | -43.8 | -13 | 30.8 | 45 |
| 5 | 8662.5 | -47.85 | 5.1 | 11.35 | Vertical | -41.6 | -13 | 28.6 | 180 |
| 6 | 10395.0 | -43.95 | 5.3 | 11.95 | Vertical | -37.3 | -13 | 24.3 | 270 |
| 7 | 12127.5 | -45.75 | 5.5 | 13.55 | Vertical | -37.7 | -13 | 24.7 | 225 |
| 8 | 13860.0 | -41.75 | 6.3 | 13.75 | Vertical | -34.3 | -13 | 21.3 | 135 |
| 9 | 15592.5 | -45.65 | 6.7 | 13.85 | Vertical | -38.5 | -13 | 25.5 | 225 |
| 10 | 17325.0 | -42.05 | 6.8 | 14.25 | Vertical | -34.6 | -13 | 21.6 | 315 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 15MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3495.0 | -53.55 | 2.6 | 10.15 | Vertical | -46.0 | -13 | 33.0 | 270 |
| 3 | 5242.5 | -57.65 | 2.4 | 11.05 | Vertical | -49.0 | -13 | 36.0 | 225 |
| 4 | 6990.0 | -49.85 | 4.5 | 11.15 | Vertical | -43.2 | -13 | 30.2 | 135 |
| 5 | 8737.5 | -47.05 | 5.1 | 11.35 | Vertical | -40.8 | -13 | 27.8 | 225 |
| 6 | 10485.0 | -44.25 | 5.3 | 11.95 | Vertical | -37.6 | -13 | 24.6 | 90 |
| 7 | 12232.5 | -45.25 | 5.5 | 13.55 | Vertical | -37.2 | -13 | 24.2 | 45 |
| 8 | 13980.0 | -41.05 | 6.3 | 13.75 | Vertical | -33.6 | -13 | 20.6 | 180 |
| 9 | 15727.5 | -46.15 | 6.7 | 13.85 | Vertical | -39.0 | -13 | 26.0 | 45 |
| 10 | 17475.0 | -42.65 | 6.8 | 14.25 | Vertical | -35.2 | -13 | 22.2 | 0 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 20MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3440.0 | -59.05 | 2.6 | 10.15 | Vertical | -51.5 | -13 | 38.5 | 135 |
| 3 | 5160.0 | -58.15 | 2.4 | 11.35 | Vertical | -49.2 | -13 | 36.2 | 225 |
| 4 | 6880.0 | -51.25 | 4.5 | 10.85 | Vertical | -44.9 | -13 | 31.9 | 315 |
| 5 | 8600.0 | -47.05 | 5.1 | 11.35 | Vertical | -40.8 | -13 | 27.8 | 270 |
| 6 | 10320.0 | -45.95 | 5.3 | 11.95 | Vertical | -39.3 | -13 | 26.3 | 225 |
| 7 | 12040.0 | -47.75 | 5.5 | 13.55 | Vertical | -39.7 | -13 | 26.7 | 135 |
| 8 | 13760.0 | -41.95 | 6.3 | 13.75 | Vertical | -34.5 | -13 | 21.5 | 225 |
| 9 | 15480.0 | -47.05 | 6.7 | 13.85 | Vertical | -39.9 | -13 | 26.9 | 135 |
| 10 | 17200.0 | -44.75 | 6.8 | 14.25 | Vertical | -37.3 | -13 | 24.3 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 4 QPSK 20MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3465.0 | -58.95 | 2.6 | 10.75 | Vertical | -50.8 | -13 | 37.8 | 315 |
| 3 | 5197.5 | -52.75 | 2.4 | 11.05 | Vertical | -44.1 | -13 | 31.1 | 270 |
| 4 | 6930.0 | -50.15 | 4.5 | 11.15 | Vertical | -43.5 | -13 | 30.5 | 225 |
| 5 | 8662.5 | -46.55 | 5.1 | 11.35 | Vertical | -40.3 | -13 | 27.3 | 135 |
| 6 | 10395.0 | -45.25 | 5.3 | 11.95 | Vertical | -38.6 | -13 | 25.6 | 225 |
| 7 | 12127.5 | -44.95 | 5.5 | 13.55 | Vertical | -36.9 | -13 | 23.9 | 90 |
| 8 | 13860.0 | -42.45 | 6.3 | 13.75 | Vertical | -35.0 | -13 | 22.0 | 90 |
| 9 | 15592.5 | -44.95 | 6.7 | 13.85 | Vertical | -37.8 | -13 | 24.8 | 45 |
| 10 | 17325.0 | -42.85 | 6.8 | 14.25 | Vertical | -35.4 | -13 | 22.4 | 180 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 20MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3490.0 | -54.35 | 2.6 | 10.15 | Vertical | -46.8 | -13 | 33.8 | 225 |
| 3 | 5235.0 | -48.85 | 2.4 | 11.05 | Vertical | -40.2 | -13 | 27.2 | 135 |
| 4 | 6980.0 | -49.55 | 4.5 | 11.15 | Vertical | -42.9 | -13 | 29.9 | 225 |
| 5 | 8725.0 | -47.05 | 5.1 | 11.35 | Vertical | -40.8 | -13 | 27.8 | 90 |
| 6 | 10470.0 | -45.35 | 5.3 | 11.95 | Vertical | -38.7 | -13 | 25.7 | 90 |
| 7 | 12215.0 | -45.65 | 5.5 | 13.55 | Vertical | -37.6 | -13 | 24.6 | 45 |
| 8 | 13960.0 | -44.45 | 6.3 | 13.75 | Vertical | -37.0 | -13 | 24.0 | 180 |
| 9 | 15705.0 | -45.25 | 6.7 | 13.85 | Vertical | -38.1 | -13 | 25.1 | 45 |
| 10 | 17450.0 | -43.65 | 6.8 | 14.25 | Vertical | -36.2 | -13 | 23.2 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 12 QPSK 1.4MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1399.40 | -52.45 | 2.00 | 10.15 | Vertical | -44.3 | -13 | 31.3 | 225 |
| 3 | 2099.10 | -58.65 | 2.50 | 11.35 | Vertical | -49.8 | -13 | 36.8 | 315 |
| 4 | 2798.80 | -56.15 | 4.20 | 10.85 | Vertical | -49.5 | -13 | 36.5 | 135 |
| 5 | 3498.50 | -56.05 | 5.20 | 11.35 | Vertical | -49.9 | -13 | 36.9 | 225 |
| 6 | 4198.20 | -54.55 | 5.50 | 11.95 | Vertical | -48.1 | -13 | 35.1 | 90 |
| 7 | 4897.90 | -52.95 | 5.70 | 13.55 | Vertical | -45.1 | -13 | 32.1 | 135 |
| 8 | 5597.60 | -52.05 | 6.30 | 13.75 | Vertical | -44.6 | -13 | 31.6 | 45 |
| 9 | 6297.30 | -50.55 | 6.80 | 13.85 | Vertical | -43.5 | -13 | 30.5 | 225 |
| 10 | 6997.00 | -49.05 | 6.90 | 14.25 | Vertical | -41.7 | -13 | 28.7 | 135 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK 1.4MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1415.00 | -57.75 | 2.00 | 10.75 | Vertical | -49.0 | -13 | 36.0 | 45 |
| 3 | 2122.50 | -59.04 | 2.51 | 11.05 | Vertical | -50.5 | -13 | 37.5 | 90 |
| 4 | 2830.00 | -56.45 | 4.20 | 11.15 | Vertical | -49.5 | -13 | 36.5 | 225 |
| 5 | 3537.50 | -56.45 | 5.20 | 11.15 | Vertical | -50.5 | -13 | 37.5 | 45 |
| 6 | 4245.00 | -54.55 | 5.50 | 11.95 | Vertical | -48.1 | -13 | 35.1 | 135 |
| 7 | 4952.50 | -52.15 | 5.70 | 13.55 | Vertical | -44.3 | -13 | 31.3 | 135 |
| 8 | 5660.00 | -52.65 | 6.30 | 13.75 | Vertical | -45.2 | -13 | 32.2 | 225 |
| 9 | 6367.50 | -50.25 | 6.80 | 13.85 | Vertical | -43.2 | -13 | 30.2 | 90 |
| 10 | 7075.00 | -49.35 | 6.90 | 14.25 | Vertical | -42.0 | -13 | 29.0 | 90 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.


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LTE Band 12 QPSK 1.4MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1430.60 | -60.65 | 2.00 | 10.15 | Vertical | -52.5 | -13 | 39.5 | 225 |
| 3 | 2145.90 | -56.14 | 2.51 | 11.05 | Vertical | -47.6 | -13 | 34.6 | 45 |
| 4 | 2861.20 | -57.25 | 4.20 | 11.15 | Vertical | -50.3 | -13 | 37.3 | 90 |
| 5 | 3576.50 | -56.05 | 5.20 | 11.15 | Vertical | -50.1 | -13 | 37.1 | 135 |
| 6 | 4291.80 | -54.85 | 5.50 | 11.95 | Vertical | -48.4 | -13 | 35.4 | 135 |
| 7 | 5007.10 | -52.15 | 5.70 | 13.55 | Vertical | -44.3 | -13 | 31.3 | 90 |
| 8 | 5722.40 | -52.35 | 6.30 | 13.75 | Vertical | -44.9 | -13 | 31.9 | 135 |
| 9 | 6437.70 | -50.55 | 6.80 | 13.85 | Vertical | -43.5 | -13 | 30.5 | 90 |
| 10 | 7153.00 | -49.45 | 6.90 | 14.25 | Vertical | -42.1 | -13 | 29.1 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK 3MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1401.00 | -55.95 | 2.00 | 10.15 | Vertical | -47.8 | -13 | 34.8 | 135 |
| 3 | 2101.50 | -58.34 | 2.51 | 11.35 | Vertical | -49.5 | -13 | 36.5 | 225 |
| 4 | 2802.00 | -56.25 | 4.20 | 10.85 | Vertical | -49.6 | -13 | 36.6 | 90 |
| 5 | 3502.50 | -56.55 | 5.20 | 11.35 | Vertical | -50.4 | -13 | 37.4 | 90 |
| 6 | 4203.00 | -54.85 | 5.50 | 11.95 | Vertical | -48.4 | -13 | 35.4 | 45 |
| 7 | 4903.50 | -52.95 | 5.70 | 13.55 | Vertical | -45.1 | -13 | 32.1 | 180 |
| 8 | 5604.00 | -52.85 | 6.30 | 13.75 | Vertical | -45.4 | -13 | 32.4 | 225 |
| 9 | 6304.50 | -50.35 | 6.80 | 13.85 | Vertical | -43.3 | -13 | 30.3 | 135 |
| 10 | 7005.00 | -49.15 | 6.90 | 14.25 | Vertical | -41.8 | -13 | 28.8 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 12 QPSK 3MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1415.00 | -57.85 | 2.00 | 10.75 | Vertical | -49.1 | -13 | 36.1 | 90 |
| 3 | 2122.50 | -58.64 | 2.51 | 11.05 | Vertical | -50.1 | -13 | 37.1 | 90 |
| 4 | 2830.00 | -57.35 | 4.20 | 11.15 | Vertical | -50.4 | -13 | 37.4 | 45 |
| 5 | 3537.50 | -56.35 | 5.20 | 11.15 | Vertical | -50.4 | -13 | 37.4 | 180 |
| 6 | 4245.00 | -55.15 | 5.50 | 11.95 | Vertical | -48.7 | -13 | 35.7 | 45 |
| 7 | 4952.50 | -52.35 | 5.70 | 13.55 | Vertical | -44.5 | -13 | 31.5 | 0 |
| 8 | 5660.00 | -52.55 | 6.30 | 13.75 | Vertical | -45.1 | -13 | 32.1 | 135 |
| 9 | 6367.50 | -50.95 | 6.80 | 13.85 | Vertical | -43.9 | -13 | 30.9 | 225 |
| 10 | 7075.00 | -48.75 | 6.90 | 14.25 | Vertical | -41.4 | -13 | 28.4 | 90 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK 3MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1429.00 | -59.25 | 2.00 | 10.15 | Vertical | -51.1 | -13 | 38.1 | 45 |
| 3 | 2143.50 | -57.24 | 2.51 | 11.05 | Vertical | -48.7 | -13 | 35.7 | 180 |
| 4 | 2858.00 | -57.05 | 4.20 | 11.15 | Vertical | -50.1 | -13 | 37.1 | 225 |
| 5 | 3572.50 | -55.85 | 5.20 | 11.15 | Vertical | -49.9 | -13 | 36.9 | 135 |
| 6 | 4287.00 | -54.75 | 5.50 | 11.95 | Vertical | -48.3 | -13 | 35.3 | 225 |
| 7 | 5001.50 | -52.55 | 5.70 | 13.55 | Vertical | -44.7 | -13 | 31.7 | 90 |
| 8 | 5716.00 | -51.95 | 6.30 | 13.75 | Vertical | -44.5 | -13 | 31.5 | 90 |
| 9 | 6430.50 | -50.45 | 6.80 | 13.85 | Vertical | -43.4 | -13 | 30.4 | 45 |
| 10 | 7145.00 | -49.05 | 6.90 | 14.25 | Vertical | -41.7 | -13 | 28.7 | 180 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 12 QPSK 5MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1403.00 | -51.85 | 2.00 | 10.15 | Vertical | -43.7 | -13 | 30.7 | 45 |
| 3 | 2104.50 | -59.15 | 2.50 | 11.35 | Vertical | -50.3 | -13 | 37.3 | 0 |
| 4 | 2806.00 | -56.85 | 4.20 | 10.85 | Vertical | -50.2 | -13 | 37.2 | 135 |
| 5 | 3507.50 | -56.45 | 5.20 | 11.35 | Vertical | -50.3 | -13 | 37.3 | 45 |
| 6 | 4209.00 | -55.35 | 5.50 | 11.95 | Vertical | -48.9 | -13 | 35.9 | 90 |
| 7 | 4910.50 | -52.15 | 5.70 | 13.55 | Vertical | -44.3 | -13 | 31.3 | 45 |
| 8 | 5612.00 | -52.55 | 6.30 | 13.75 | Vertical | -45.1 | -13 | 32.1 | 180 |
| 9 | 6313.50 | -50.65 | 6.80 | 13.85 | Vertical | -43.6 | -13 | 30.6 | 315 |
| 10 | 7015.00 | -49.05 | 6.90 | 14.25 | Vertical | -41.7 | -13 | 28.7 | 135 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1415.00 | -57.15 | 2.00 | 10.75 | Vertical | -48.4 | -13 | 35.4 | 225 |
| 3 | 2122.50 | -58.24 | 2.51 | 11.05 | Vertical | -49.7 | -13 | 36.7 | 90 |
| 4 | 2830.00 | -56.25 | 4.20 | 11.15 | Vertical | -49.3 | -13 | 36.3 | 180 |
| 5 | 3537.50 | -55.75 | 5.20 | 11.15 | Vertical | -49.8 | -13 | 36.8 | 45 |
| 6 | 4245.00 | -55.35 | 5.50 | 11.95 | Vertical | -48.9 | -13 | 35.9 | 180 |
| 7 | 4952.50 | -52.25 | 5.70 | 13.55 | Vertical | -44.4 | -13 | 31.4 | 45 |
| 8 | 5660.00 | -52.65 | 6.30 | 13.75 | Vertical | -45.2 | -13 | 32.2 | 0 |
| 9 | 6367.50 | -50.25 | 6.80 | 13.85 | Vertical | -43.2 | -13 | 30.2 | 135 |
| 10 | 7075.00 | -49.05 | 6.90 | 14.25 | Vertical | -41.7 | -13 | 28.7 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 12 QPSK 5MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1427.00 | -57.85 | 2.00 | 10.15 | Vertical | -49.7 | -13 | 36.7 | 90 |
| 3 | 2140.50 | -57.34 | 2.51 | 11.05 | Vertical | -48.8 | -13 | 35.8 | 225 |
| 4 | 2854.00 | -55.65 | 4.20 | 11.15 | Vertical | -48.7 | -13 | 35.7 | 180 |
| 5 | 3567.50 | -56.15 | 5.20 | 11.15 | Vertical | -50.2 | -13 | 37.2 | 270 |
| 6 | 4281.00 | -54.55 | 5.50 | 11.95 | Vertical | -48.1 | -13 | 35.1 | 135 |
| 7 | 4994.50 | -52.95 | 5.70 | 13.55 | Vertical | -45.1 | -13 | 32.1 | 225 |
| 8 | 5708.00 | -52.35 | 6.30 | 13.75 | Vertical | -44.9 | -13 | 31.9 | 135 |
| 9 | 6421.50 | -50.65 | 6.80 | 13.85 | Vertical | -43.6 | -13 | 30.6 | 90 |
| 10 | 7135.00 | -49.15 | 6.90 | 14.25 | Vertical | -41.8 | -13 | 28.8 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK 10MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1408.00 | -52.25 | 2.00 | 10.15 | Vertical | -44.1 | -13 | 31.1 | 180 |
| 3 | 2112.00 | -58.94 | 2.51 | 11.35 | Vertical | -50.1 | -13 | 37.1 | 45 |
| 4 | 2816.00 | -57.05 | 4.20 | 10.85 | Vertical | -50.4 | -13 | 37.4 | 0 |
| 5 | 3520.00 | -55.75 | 5.20 | 11.35 | Vertical | -49.6 | -13 | 36.6 | 135 |
| 6 | 4224.00 | -54.35 | 5.50 | 11.95 | Vertical | -47.9 | -13 | 34.9 | 225 |
| 7 | 4928.00 | -53.95 | 5.70 | 13.55 | Vertical | -46.1 | -13 | 33.1 | 90 |
| 8 | 5632.00 | -52.55 | 6.30 | 13.75 | Vertical | -45.1 | -13 | 32.1 | 45 |
| 9 | 6336.00 | -51.55 | 6.80 | 13.85 | Vertical | -44.5 | -13 | 31.5 | 180 |
| 10 | 7040.00 | -48.55 | 6.90 | 14.25 | Vertical | -41.2 | -13 | 28.2 | 225 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 12 QPSK 10MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1415.00 | -56.35 | 2.00 | 10.75 | Vertical | -47.6 | -13 | 34.6 | 135 |
| 3 | 2122.50 | -57.84 | 2.51 | 11.05 | Vertical | -49.3 | -13 | 36.3 | 225 |
| 4 | 2830.00 | -57.65 | 4.20 | 11.15 | Vertical | -50.7 | -13 | 37.7 | 90 |
| 5 | 3537.50 | -55.25 | 5.20 | 11.15 | Vertical | -49.3 | -13 | 36.3 | 90 |
| 6 | 4245.00 | -53.35 | 5.50 | 11.95 | Vertical | -46.9 | -13 | 33.9 | 45 |
| 7 | 4952.50 | -54.25 | 5.70 | 13.55 | Vertical | -46.4 | -13 | 33.4 | 180 |
| 8 | 5660.00 | -52.95 | 6.30 | 13.75 | Vertical | -45.5 | -13 | 32.5 | 45 |
| 9 | 6367.50 | -50.55 | 6.80 | 13.85 | Vertical | -43.5 | -13 | 30.5 | 0 |
| 10 | 7075.00 | -49.15 | 6.90 | 14.25 | Vertical | -41.8 | -13 | 28.8 | 135 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK 10MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1422.00 | -57.15 | 2.00 | 10.15 | Vertical | -49.0 | -13 | 36.0 | 225 |
| 3 | 2133.00 | -58.04 | 2.51 | 11.05 | Vertical | -49.5 | -13 | 36.5 | 90 |
| 4 | 2844.00 | -58.55 | 4.20 | 11.15 | Vertical | -51.6 | -13 | 38.6 | 45 |
| 5 | 3555.00 | -55.05 | 5.20 | 11.15 | Vertical | -49.1 | -13 | 36.1 | 180 |
| 6 | 4266.00 | -53.05 | 5.50 | 11.95 | Vertical | -46.6 | -13 | 33.6 | 225 |
| 7 | 4977.00 | -53.95 | 5.70 | 13.55 | Vertical | -46.1 | -13 | 33.1 | 135 |
| 8 | 5688.00 | -52.55 | 6.30 | 13.75 | Vertical | -45.1 | -13 | 32.1 | 225 |
| 9 | 6399.00 | -50.35 | 6.80 | 13.85 | Vertical | -43.3 | -13 | 30.3 | 90 |
| 10 | 7110.00 | -48.85 | 6.90 | 14.25 | Vertical | -41.5 | -13 | 28.5 | 90 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 13 QPSK 5MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1559.0 | -61.25 | 2.00 | 10.15 | Vertical | -53.1 | -40 | 13.1 | 180 |
| 3 | 2338.5 | -52.75 | 2.50 | 11.35 | Vertical | -43.9 | -13 | 30.9 | 270 |
| 4 | 3118.0 | -57.45 | 4.20 | 10.85 | Vertical | -50.8 | -13 | 37.8 | 135 |
| 5 | 3897.5 | -55.05 | 5.20 | 11.35 | Vertical | -48.9 | -13 | 35.9 | 225 |
| 6 | 4677.0 | -53.35 | 5.50 | 11.95 | Vertical | -46.9 | -13 | 33.9 | 135 |
| 7 | 5456.5 | -52.85 | 5.70 | 13.55 | Vertical | -45.0 | -13 | 32.0 | 90 |
| 8 | 6236.0 | -52.35 | 6.30 | 13.75 | Vertical | -44.9 | -13 | 31.9 | 45 |
| 9 | 7015.5 | -50.75 | 6.80 | 13.85 | Vertical | -43.7 | -13 | 30.7 | 180 |
| 10 | 7795.0 | -48.25 | 6.90 | 14.25 | Vertical | -40.9 | -13 | 27.9 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 13 QPSK 5MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1564.0 | -61.45 | 2.00 | 10.75 | Vertical | -52.7 | -40 | 12.7 | 0 |
| 3 | 2346.0 | -52.14 | 2.51 | 11.05 | Vertical | -43.6 | -13 | 30.6 | 135 |
| 4 | 3128.0 | -56.75 | 4.20 | 11.15 | Vertical | -49.8 | -13 | 36.8 | 225 |
| 5 | 3910.0 | -54.35 | 5.20 | 11.15 | Vertical | -48.4 | -13 | 35.4 | 90 |
| 6 | 4692.0 | -53.45 | 5.50 | 11.95 | Vertical | -47.0 | -13 | 34.0 | 45 |
| 7 | 5474.0 | -52.75 | 5.70 | 13.55 | Vertical | -44.9 | -13 | 31.9 | 180 |
| 8 | 6256.0 | -52.15 | 6.30 | 13.75 | Vertical | -44.7 | -13 | 31.7 | 45 |
| 9 | 7038.0 | -50.45 | 6.80 | 13.85 | Vertical | -43.4 | -13 | 30.4 | 0 |
| 10 | 7820.0 | -47.25 | 6.90 | 14.25 | Vertical | -39.9 | -13 | 26.9 | 135 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 13 QPSK 5MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1569.0 | -62.45 | 2.00 | 10.15 | Vertical | -54.3 | -40 | 14.3 | 225 |
| 3 | 2353.5 | -52.14 | 2.51 | 11.05 | Vertical | -43.6 | -13 | 30.6 | 315 |
| 4 | 3138.0 | -56.15 | 4.20 | 11.15 | Vertical | -49.2 | -13 | 36.2 | 270 |
| 5 | 3922.5 | -53.95 | 5.20 | 11.15 | Vertical | -48.0 | -13 | 35.0 | 225 |
| 6 | 4707.0 | -53.35 | 5.50 | 11.95 | Vertical | -46.9 | -13 | 33.9 | 135 |
| 7 | 5491.5 | -52.75 | 5.70 | 13.55 | Vertical | -44.9 | -13 | 31.9 | 225 |
| 8 | 6276.0 | -51.85 | 6.30 | 13.75 | Vertical | -44.4 | -13 | 31.4 | 90 |
| 9 | 7060.5 | -50.15 | 6.80 | 13.85 | Vertical | -43.1 | -13 | 30.1 | 90 |
| 10 | 7845.0 | -47.05 | 6.90 | 14.25 | Vertical | -39.7 | -13 | 26.7 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 13 QPSK 10MHz CH-Low, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1564.0 | -62.25 | 2.00 | 10.15 | Vertical | -54.1 | -40 | 14.1 | 180 |
| 3 | 2346.0 | -52.94 | 2.51 | 11.35 | Vertical | -44.1 | -13 | 31.1 | 225 |
| 4 | 3128.0 | -56.15 | 4.20 | 10.85 | Vertical | -49.5 | -13 | 36.5 | 135 |
| 5 | 3910.0 | -54.65 | 5.20 | 11.35 | Vertical | -48.5 | -13 | 35.5 | 225 |
| 6 | 4692.0 | -54.25 | 5.50 | 11.95 | Vertical | -47.8 | -13 | 34.8 | 90 |
| 7 | 5474.0 | -53.55 | 5.70 | 13.55 | Vertical | -45.7 | -13 | 32.7 | 90 |
| 8 | 6256.0 | -52.25 | 6.30 | 13.75 | Vertical | -44.8 | -13 | 31.8 | 45 |
| 9 | 7038.0 | -49.45 | 6.80 | 13.85 | Vertical | -42.4 | -13 | 29.4 | 180 |
| 10 | 7820.0 | -48.05 | 6.90 | 14.25 | Vertical | -40.7 | -13 | 27.7 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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LTE Band 13 QPSK 10MHz CH-Middle, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1564.0 | -63.05 | 2.00 | 10.75 | Vertical | -54.3 | -40 | 14.3 | 0 |
| 3 | 2346.0 | -52.64 | 2.51 | 11.05 | Vertical | -44.1 | -13 | 31.1 | 135 |
| 4 | 3128.0 | -56.25 | 4.20 | 11.15 | Vertical | -49.3 | -13 | 36.3 | 225 |
| 5 | 3910.0 | -54.75 | 5.20 | 11.15 | Vertical | -48.8 | -13 | 35.8 | 315 |
| 6 | 4692.0 | -54.05 | 5.50 | 11.95 | Vertical | -47.6 | -13 | 34.6 | 270 |
| 7 | 5474.0 | -53.25 | 5.70 | 13.55 | Vertical | -45.4 | -13 | 32.4 | 90 |
| 8 | 6256.0 | -52.25 | 6.30 | 13.75 | Vertical | -44.8 | -13 | 31.8 | 45 |
| 9 | 7038.0 | -49.75 | 6.80 | 13.85 | Vertical | -42.7 | -13 | 29.7 | 180 |
| 10 | 7820.0 | -47.75 | 6.90 | 14.25 | Vertical | -40.4 | -13 | 27.4 | 45 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

LTE Band 13 QPSK 10MHz CH-High, RB 1

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1564.0 | -62.45 | 2.00 | 10.15 | Vertical | -54.3 | -40 | 14.3 | 0 |
| 3 | 2346.0 | -52.44 | 2.51 | 11.05 | Vertical | -43.9 | -13 | 30.9 | 135 |
| 4 | 3128.0 | -56.65 | 4.20 | 11.15 | Vertical | -49.7 | -13 | 36.7 | 225 |
| 5 | 3910.0 | -54.25 | 5.20 | 11.15 | Vertical | -48.3 | -13 | 35.3 | 315 |
| 6 | 4692.0 | -53.95 | 5.50 | 11.95 | Vertical | -47.5 | -13 | 34.5 | 270 |
| 7 | 5474.0 | -53.55 | 5.70 | 13.55 | Vertical | -45.7 | -13 | 32.7 | 225 |
| 8 | 6256.0 | -52.05 | 6.30 | 13.75 | Vertical | -44.6 | -13 | 31.6 | 135 |
| 9 | 7038.0 | -49.25 | 6.80 | 13.85 | Vertical | -42.2 | -13 | 29.2 | 225 |
| 10 | 7820.0 | -48.15 | 6.90 | 14.25 | Vertical | -40.8 | -13 | 27.8 | 90 |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.


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# 5 Main Test Instruments

| Name | Manufacturer | Type | Serial Number | Calibration Date | Expiration Time |
|---|---|---|---|---|---|
| Base Station Simulator | R&S | CMW500 | 150415 | 2017-05-14 | 2018-05-13 |
| Power Splitter | Hua Xiang | SHX-GF2-2-13 | 10120101 | 2017-05-14 | 2018-05-13 |
| Universal Radio Communication Tester | Agilent | E5515C | MY48367192 | 2017-05-14 | 2018-05-13 |
| Spectrum Analyzer | Agilent | N9010A | MY47191109 | 2017-05-14 | 2018-05-13 |
| Signal Analyzer | R&S | FSV30 | 100815 | 2016-12-16 | 2017-12-15 |
| Signal generator | R&S | SMB 100A | 102594 | 2017-05-14 | 2018-05-13 |
| EMI Test Receiver | R&S | ESCI | 100948 | 2017-05-20 | 2018-05-19 |
| Trilog Antenna | SCHWARZBECK | VUBL 9163 | 9163-201 | 2014-12-06 | 2017-12-05 |
| Horn Antenna | R&S | HF907 | 100126 | 2014-12-06 | 2017-12-05 |
| Horn Antenna | ETS-Lindgren | 3160-09 | 00102643 | 2015-01-30 | 2018-01-29 |
| Climatic Chamber | Re Ce | PT-30B | 20101891 | 2015-07-18 | 2018-07-17 |
| RF Cable | Agilent | SMA 15cm | 0001 | 2017-02-06 | 2017-08-05 |
| Preampflier | R&S | SCU18 | 102327 | 2017-06-18 | 2018-06-17 |


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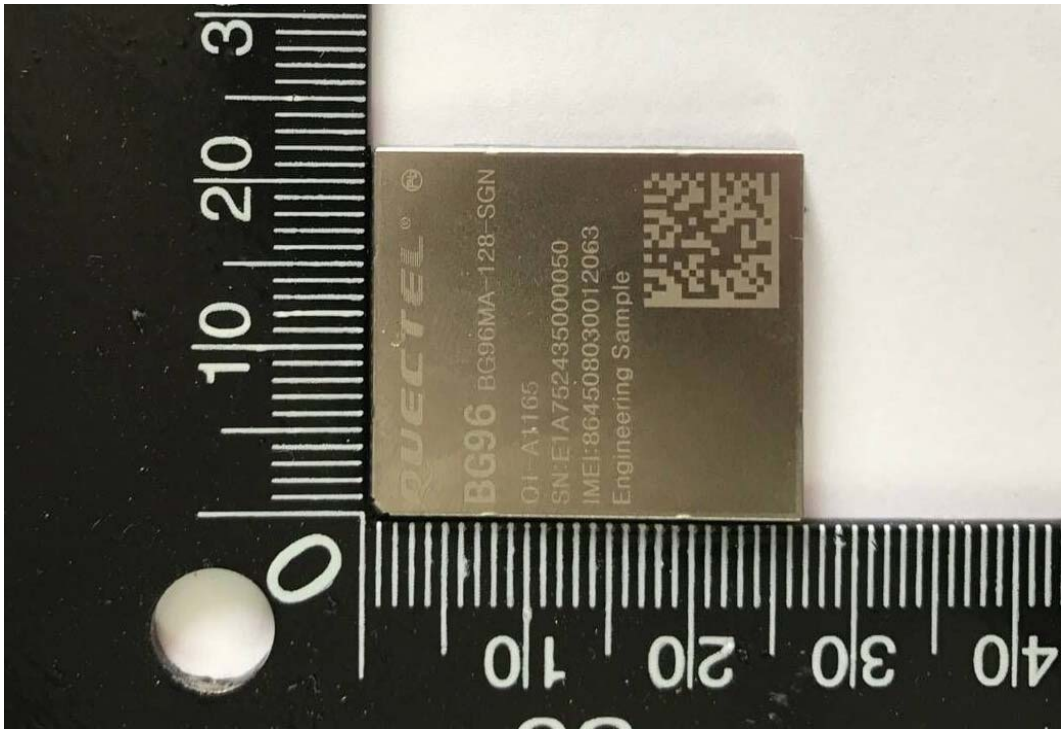
# ANNEX A: EUT Appearance and Test Setup

## A.1 EUT Appearance

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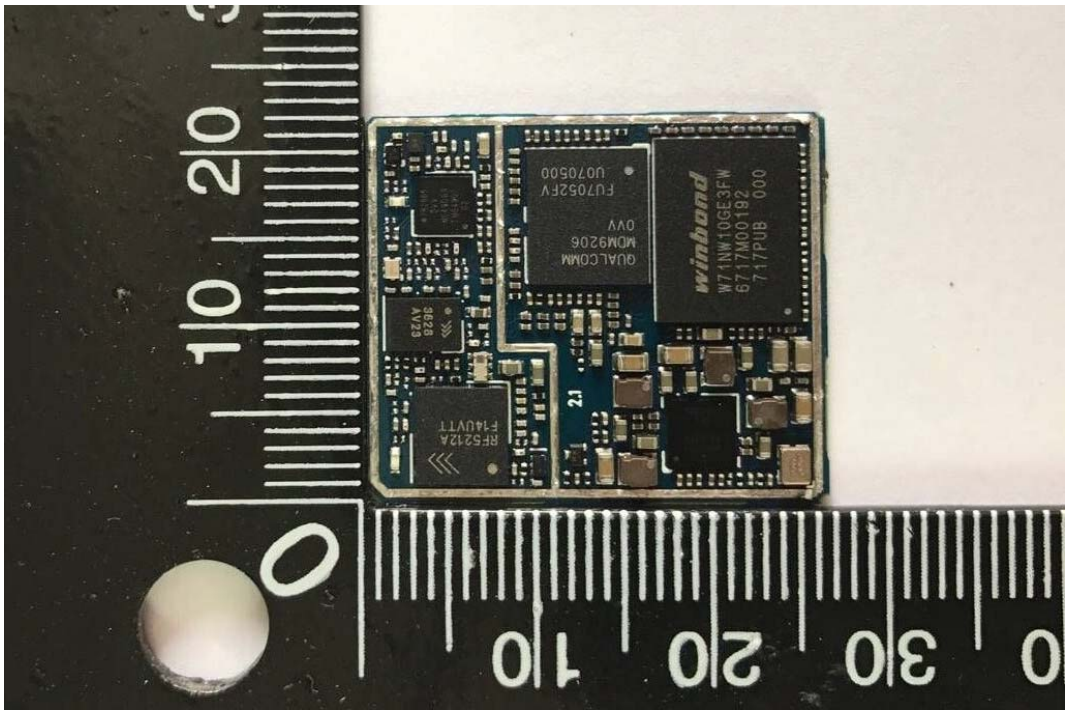


No sheilding

Front Side


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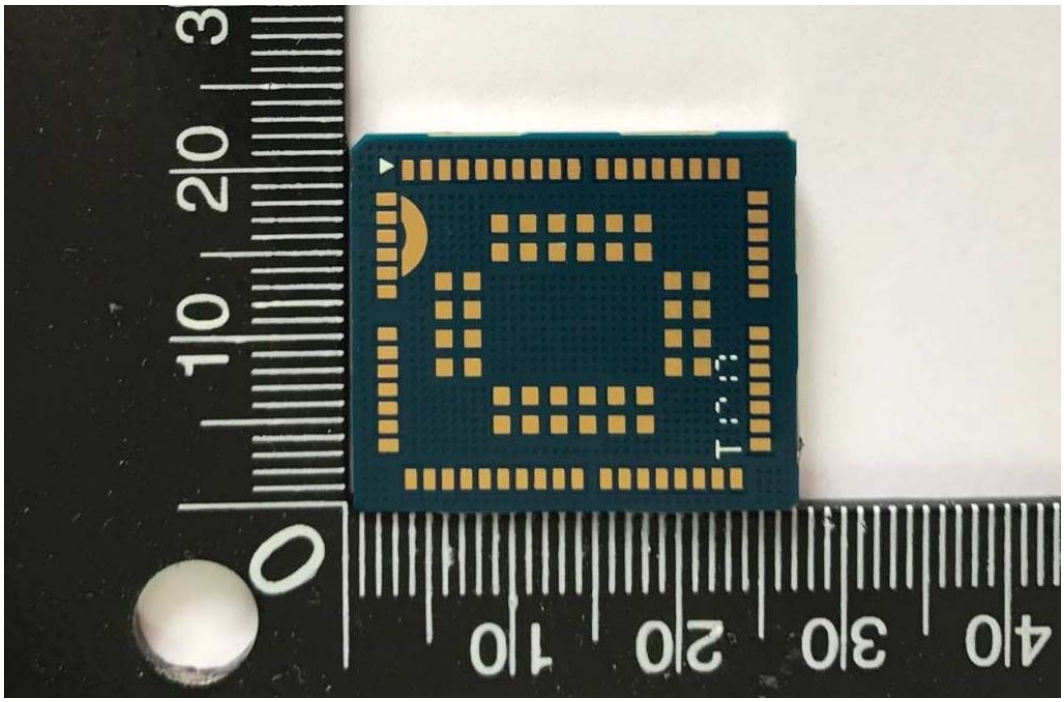

Back Side

a: EUT

**Picture 1 EUT and Accessory**


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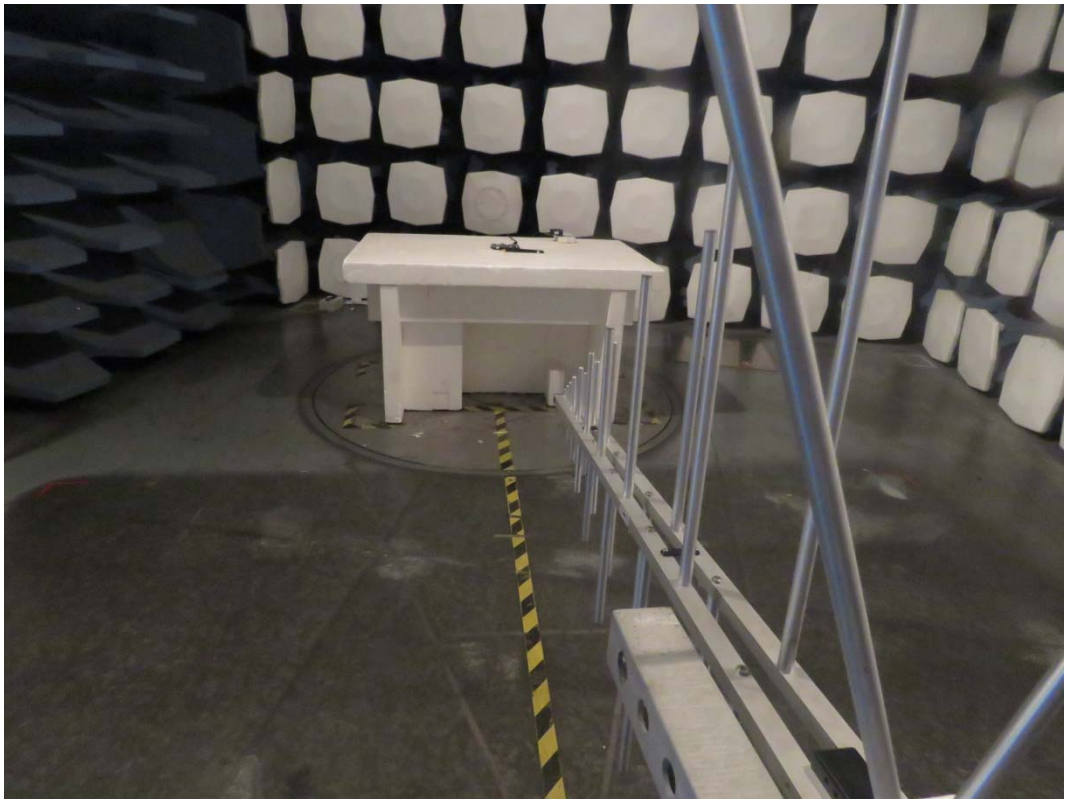
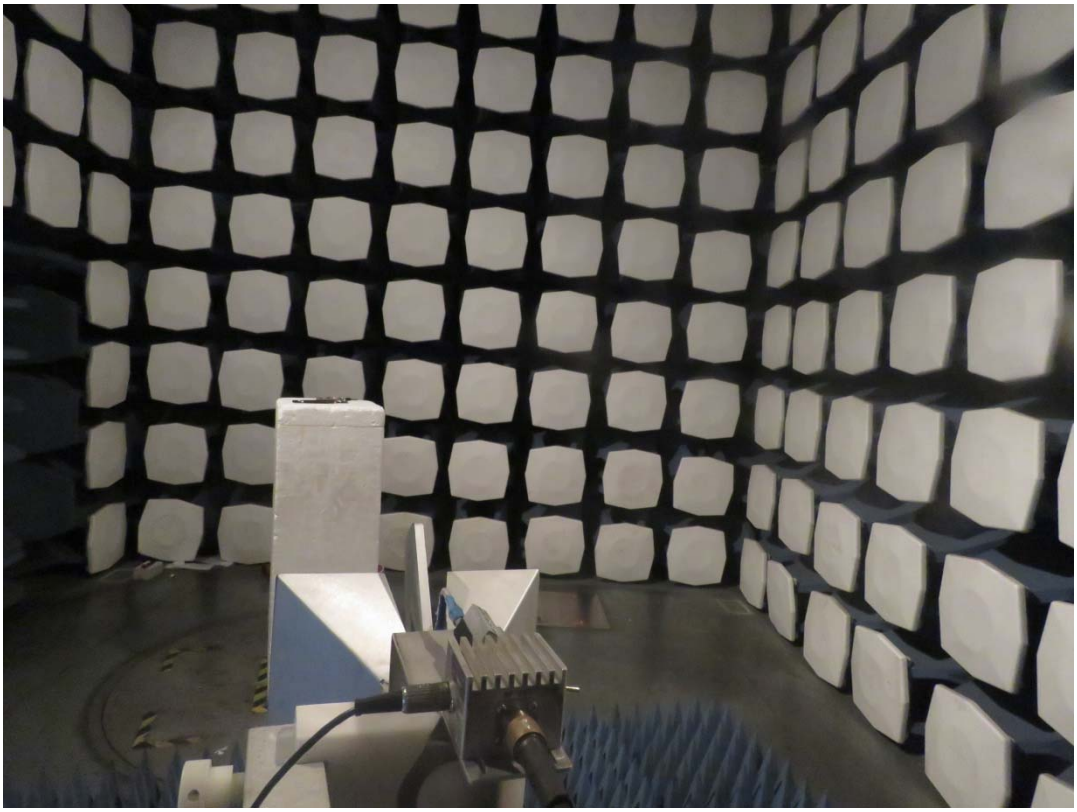
## A.2 Test Setup





**Picture 2: Radiated Spurious Emissions Test setup**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