

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.3.2 Test Procedure

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ± 0.5 °C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

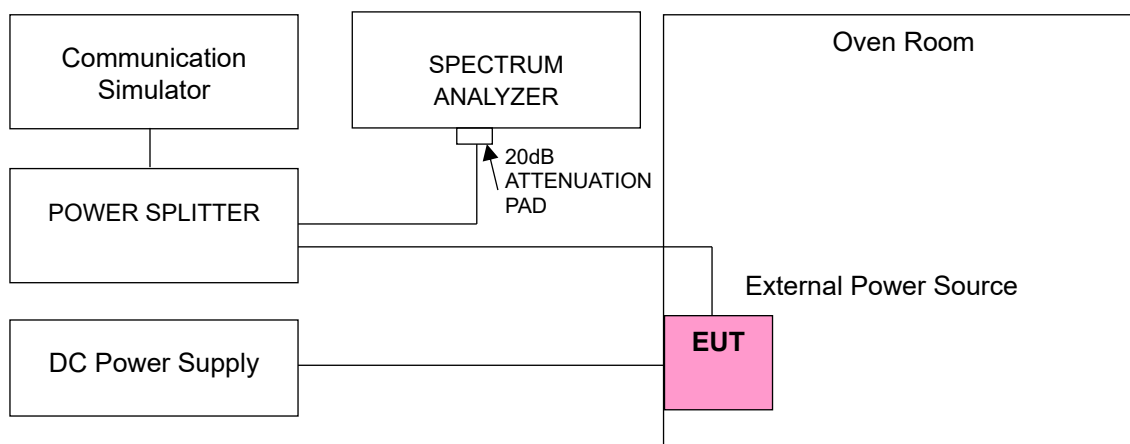
Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Instruments

| Description & Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due |
|------------------------------------------|-----------|------------|---------------|---------------|
| Radio Communication Analyzer Anritsu | MT8821C | 6261806803 | Jan. 22, 2021 | Jan. 21, 2022 |
| Temperature & Humidity Chamber TERCHY | HRM-120RF | 931022 | Dec. 24, 2020 | Dec. 23, 2021 |
| Digital Multimeter Fluke | 87-III | 70360742 | Jun. 23, 2020 | Jun. 22, 2021 |
| DC Power Supply Topward | 6306A | 727263 | NA | NA |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.4 Conducted Setup



4.3.5 Test Results

Frequency Error vs. Voltage

| Voltage (Vdc) | WCDMA Band 2 | | | |
|---------------|-----------------|-----------------------|-----------------|-----------------------|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1852.400003 | 0.002 | 1907.600003 | 0.001 |
| 3.85 | 1852.400003 | 0.002 | 1907.600003 | 0.002 |
| 3.28 | 1852.400003 | 0.002 | 1907.600002 | 0.001 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | WCDMA Band 2 | | | |
|------------|-----------------|-----------------------|-----------------|-----------------------|
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1852.400002 | 0.001 | 1907.600004 | 0.002 |
| -20 | 1852.400004 | 0.002 | 1907.600002 | 0.001 |
| -10 | 1852.400004 | 0.002 | 1907.600003 | 0.002 |
| 0 | 1852.400001 | 0.001 | 1907.600002 | 0.001 |
| 10 | 1852.399997 | -0.002 | 1907.599997 | -0.002 |
| 20 | 1852.399998 | -0.001 | 1907.599997 | -0.001 |
| 30 | 1852.399997 | -0.001 | 1907.599997 | -0.001 |
| 40 | 1852.399999 | -0.001 | 1907.599999 | -0.001 |
| 50 | 1852.399997 | -0.002 | 1907.599997 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 2 | | | |
|---------------|---------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1850.700003 | 0.001 | 1909.300000 | 0.002 |
| 3.85 | 1850.700002 | 0.001 | 1909.300002 | 0.001 |
| 3.28 | 1850.700003 | 0.002 | 1909.300002 | 0.001 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2 | | | |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1850.700003 | 0.001 | 1909.300004 | 0.002 |
| -20 | 1850.700003 | 0.001 | 1909.300002 | 0.001 |
| -10 | 1850.700002 | 0.001 | 1909.300003 | 0.002 |
| 0 | 1850.700003 | 0.002 | 1909.300003 | 0.002 |
| 10 | 1850.699999 | -0.001 | 1909.299997 | -0.002 |
| 20 | 1850.699997 | -0.001 | 1909.299998 | -0.001 |
| 30 | 1850.699996 | -0.002 | 1909.299999 | -0.001 |
| 40 | 1850.699999 | -0.001 | 1909.299997 | -0.002 |
| 50 | 1850.699997 | -0.002 | 1909.299998 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 2 | | | |
|---------------|------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 3MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1851.500004 | 0.002 | 1908.500003 | 0.002 |
| 3.85 | 1851.500003 | 0.002 | 1908.500002 | 0.001 |
| 3.28 | 1851.500002 | 0.001 | 1908.500002 | 0.001 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2 | | | |
|------------|------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 3MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1851.500002 | 0.001 | 1908.500003 | 0.002 |
| -20 | 1851.500004 | 0.002 | 1908.500002 | 0.001 |
| -10 | 1851.500002 | 0.001 | 1908.500001 | 0.001 |
| 0 | 1851.500003 | 0.001 | 1908.500003 | 0.002 |
| 10 | 1851.499998 | -0.001 | 1908.499997 | -0.002 |
| 20 | 1851.499996 | -0.002 | 1908.499998 | -0.001 |
| 30 | 1851.499999 | -0.001 | 1908.499999 | -0.001 |
| 40 | 1851.499998 | -0.001 | 1908.499997 | -0.002 |
| 50 | 1851.499996 | -0.002 | 1908.499997 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 2 | | | |
|---------------|-------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1852.500004 | 0.002 | 1907.500004 | 0.002 |
| 3.85 | 1852.500003 | 0.001 | 1907.500003 | 0.001 |
| 3.28 | 1852.500001 | 0.001 | 1907.500002 | 0.001 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2 | | | |
|------------|-------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1852.500004 | 0.002 | 1907.500004 | 0.002 |
| -20 | 1852.500002 | 0.001 | 1907.500004 | 0.002 |
| -10 | 1852.500001 | 0.001 | 1907.500003 | 0.002 |
| 0 | 1852.500001 | 0.001 | 1907.500003 | 0.002 |
| 10 | 1852.499998 | -0.001 | 1907.499997 | -0.002 |
| 20 | 1852.499996 | -0.002 | 1907.499997 | -0.001 |
| 30 | 1852.499997 | -0.002 | 1907.499997 | -0.001 |
| 40 | 1852.499997 | -0.001 | 1907.499996 | -0.002 |
| 50 | 1852.499997 | -0.002 | 1907.499997 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 2 | | | |
|---------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1855.000002 | 0.001 | 1905.000004 | 0.002 |
| 3.85 | 1855.000003 | 0.001 | 1905.000003 | 0.002 |
| 3.28 | 1855.000002 | 0.001 | 1905.000004 | 0.002 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2 | | | |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1855.000001 | 0.001 | 1905.000002 | 0.001 |
| -20 | 1855.000001 | 0.001 | 1905.000002 | 0.001 |
| -10 | 1855.000003 | 0.002 | 1905.000002 | 0.001 |
| 0 | 1855.000003 | 0.001 | 1905.000003 | 0.001 |
| 10 | 1854.999997 | -0.002 | 1904.999997 | -0.002 |
| 20 | 1854.999998 | -0.001 | 1904.999997 | -0.002 |
| 30 | 1854.999997 | -0.001 | 1904.999997 | -0.002 |
| 40 | 1854.999997 | -0.002 | 1904.999998 | -0.001 |
| 50 | 1854.999997 | -0.002 | 1904.999997 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 2 | | | |
|---------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1857.500004 | 0.002 | 1902.500004 | 0.002 |
| 3.85 | 1857.500004 | 0.002 | 1902.500003 | 0.002 |
| 3.28 | 1857.500001 | 0.001 | 1902.500003 | 0.002 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2 | | | |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1857.500002 | 0.001 | 1902.500004 | 0.002 |
| -20 | 1857.500001 | 0.001 | 1902.500002 | 0.001 |
| -10 | 1857.500004 | 0.002 | 1902.500003 | 0.002 |
| 0 | 1857.500003 | 0.002 | 1902.500002 | 0.001 |
| 10 | 1857.499996 | -0.002 | 1902.499997 | -0.002 |
| 20 | 1857.499998 | -0.001 | 1902.499998 | -0.001 |
| 30 | 1857.499999 | -0.001 | 1902.499998 | -0.001 |
| 40 | 1857.499997 | -0.002 | 1902.499998 | -0.001 |
| 50 | 1857.499998 | -0.001 | 1902.499997 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 2 | | | |
|---------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1860.000003 | 0.002 | 1900.000002 | 0.001 |
| 3.85 | 1860.000002 | 0.001 | 1900.000001 | 0.001 |
| 3.28 | 1860.000003 | 0.002 | 1900.000003 | 0.001 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 2 | | | |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1860.000004 | 0.002 | 1900.000001 | 0.001 |
| -20 | 1860.000003 | 0.002 | 1900.000004 | 0.002 |
| -10 | 1860.000003 | 0.001 | 1900.000003 | 0.001 |
| 0 | 1860.000001 | 0.001 | 1900.000001 | 0.001 |
| 10 | 1859.999997 | -0.002 | 1899.999997 | -0.001 |
| 20 | 1859.999996 | -0.002 | 1899.999999 | -0.001 |
| 30 | 1859.999997 | -0.002 | 1899.999998 | -0.001 |
| 40 | 1859.999996 | -0.002 | 1899.999996 | -0.002 |
| 50 | 1859.999996 | -0.002 | 1899.999996 | -0.002 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 25 | | | |
|---------------|---------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1850.700002 | 0.001 | 1914.300002 | 0.001 |
| 3.85 | 1850.700002 | 0.001 | 1914.300002 | 0.001 |
| 3.28 | 1850.700004 | 0.002 | 1914.300003 | 0.002 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 25 | | | |
|------------|---------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 1.4 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1850.700001 | 0.001 | 1914.300001 | 0.001 |
| -20 | 1850.700003 | 0.002 | 1914.300001 | 0.001 |
| -10 | 1850.700002 | 0.001 | 1914.300001 | 0.001 |
| 0 | 1850.700004 | 0.002 | 1914.300001 | 0.001 |
| 10 | 1850.699996 | -0.002 | 1914.299997 | -0.002 |
| 20 | 1850.699996 | -0.002 | 1914.299998 | -0.001 |
| 30 | 1850.699997 | -0.002 | 1914.299997 | -0.001 |
| 40 | 1850.699999 | -0.001 | 1914.299999 | -0.001 |
| 50 | 1850.699997 | -0.002 | 1914.299997 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 25 | | | |
|---------------|------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 3MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1851.500003 | 0.002 | 1913.500001 | 0.001 |
| 3.85 | 1851.500004 | 0.002 | 1913.500002 | 0.001 |
| 3.28 | 1851.500002 | 0.001 | 1913.500004 | 0.002 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 25 | | | |
|------------|------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 3MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1851.500003 | 0.002 | 1913.500001 | 0.001 |
| -20 | 1851.500003 | 0.002 | 1913.500002 | 0.001 |
| -10 | 1851.500001 | 0.001 | 1913.500001 | 0.001 |
| 0 | 1851.500003 | 0.002 | 1913.500004 | 0.002 |
| 10 | 1851.499997 | -0.002 | 1913.499999 | -0.001 |
| 20 | 1851.499999 | -0.001 | 1913.499999 | -0.001 |
| 30 | 1851.499998 | -0.001 | 1913.499998 | -0.001 |
| 40 | 1851.499996 | -0.002 | 1913.499997 | -0.001 |
| 50 | 1851.499997 | -0.001 | 1913.499999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 25 | | | |
|---------------|-------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1852.500003 | 0.001 | 1912.500004 | 0.002 |
| 3.85 | 1852.500004 | 0.002 | 1912.500002 | 0.001 |
| 3.28 | 1852.500001 | 0.001 | 1912.500002 | 0.001 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 25 | | | |
|------------|-------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 5 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1852.500001 | 0.001 | 1912.500003 | 0.002 |
| -20 | 1852.500002 | 0.001 | 1912.500004 | 0.002 |
| -10 | 1852.500001 | 0.001 | 1912.500002 | 0.001 |
| 0 | 1852.500002 | 0.001 | 1912.500002 | 0.001 |
| 10 | 1852.499998 | -0.001 | 1912.499996 | -0.002 |
| 20 | 1852.499998 | -0.001 | 1912.499998 | -0.001 |
| 30 | 1852.499997 | -0.002 | 1912.499997 | -0.002 |
| 40 | 1852.499999 | -0.001 | 1912.499996 | -0.002 |
| 50 | 1852.499999 | -0.001 | 1912.499998 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 25 | | | |
|---------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1855.000002 | 0.001 | 1910.000001 | 0.001 |
| 3.85 | 1855.000003 | 0.001 | 1910.000002 | 0.001 |
| 3.28 | 1855.000002 | 0.001 | 1910.000002 | 0.001 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 25 | | | |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 10 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1855.000002 | 0.001 | 1910.000002 | 0.001 |
| -20 | 1855.000003 | 0.002 | 1910.000003 | 0.002 |
| -10 | 1855.000001 | 0.001 | 1910.000002 | 0.001 |
| 0 | 1855.000001 | 0.001 | 1910.000003 | 0.002 |
| 10 | 1854.999997 | -0.002 | 1909.999997 | -0.002 |
| 20 | 1854.999998 | -0.001 | 1909.999997 | -0.002 |
| 30 | 1854.999998 | -0.001 | 1909.999999 | -0.001 |
| 40 | 1854.999996 | -0.002 | 1909.999997 | -0.002 |
| 50 | 1854.999996 | -0.002 | 1909.999998 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 25 | | | |
|---------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1857.500004 | 0.002 | 1907.500002 | 0.001 |
| 3.85 | 1857.500003 | 0.002 | 1907.500001 | 0.001 |
| 3.28 | 1857.500003 | 0.002 | 1907.500003 | 0.002 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 25 | | | |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 15 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1857.500002 | 0.001 | 1907.500003 | 0.002 |
| -20 | 1857.500002 | 0.001 | 1907.500002 | 0.001 |
| -10 | 1857.500003 | 0.001 | 1907.500003 | 0.002 |
| 0 | 1857.500001 | 0.001 | 1907.500003 | 0.001 |
| 10 | 1857.499997 | -0.001 | 1907.499997 | -0.002 |
| 20 | 1857.499999 | -0.001 | 1907.499997 | -0.002 |
| 30 | 1857.499998 | -0.001 | 1907.499997 | -0.002 |
| 40 | 1857.499998 | -0.001 | 1907.499998 | -0.001 |
| 50 | 1857.499997 | -0.002 | 1907.499999 | -0.001 |

Frequency Error vs. Voltage

| Voltage (Vdc) | LTE Band 25 | | | |
|---------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| 4.43 | 1860.000003 | 0.002 | 1905.000002 | 0.001 |
| 3.85 | 1860.000002 | 0.001 | 1905.000002 | 0.001 |
| 3.28 | 1860.000001 | 0.001 | 1905.000003 | 0.002 |

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

| Temp. (°C) | LTE Band 25 | | | |
|------------|--------------------------|-----------------------|-----------------|-----------------------|
| | Channel Bandwidth 20 MHz | | | |
| | Low Channel | | High Channel | |
| | Frequency (MHz) | Frequency Error (ppm) | Frequency (MHz) | Frequency Error (ppm) |
| -30 | 1860.000001 | 0.001 | 1905.000004 | 0.002 |
| -20 | 1860.000002 | 0.001 | 1905.000004 | 0.002 |
| -10 | 1860.000001 | 0.001 | 1905.000002 | 0.001 |
| 0 | 1860.000001 | 0.001 | 1905.000002 | 0.001 |
| 10 | 1859.999997 | -0.002 | 1904.999998 | -0.001 |
| 20 | 1859.999998 | -0.001 | 1904.999999 | -0.001 |
| 30 | 1859.999997 | -0.002 | 1904.999997 | -0.002 |
| 40 | 1859.999998 | -0.001 | 1904.999998 | -0.001 |
| 50 | 1859.999998 | -0.001 | 1904.999999 | -0.001 |

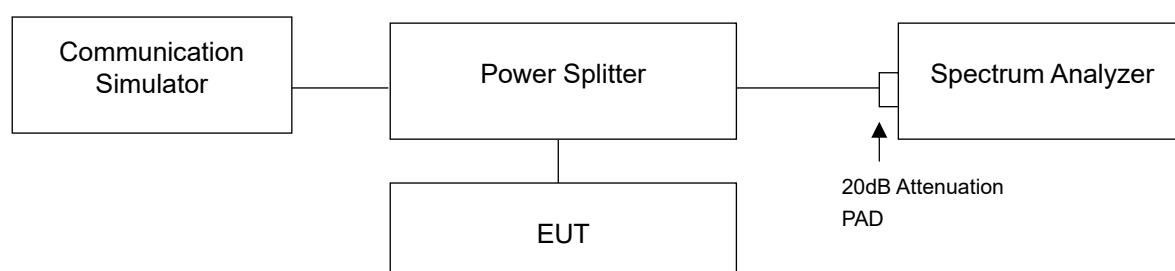
4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Measurement method, please refer to section 5.4.4 of ANSI C63.26. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

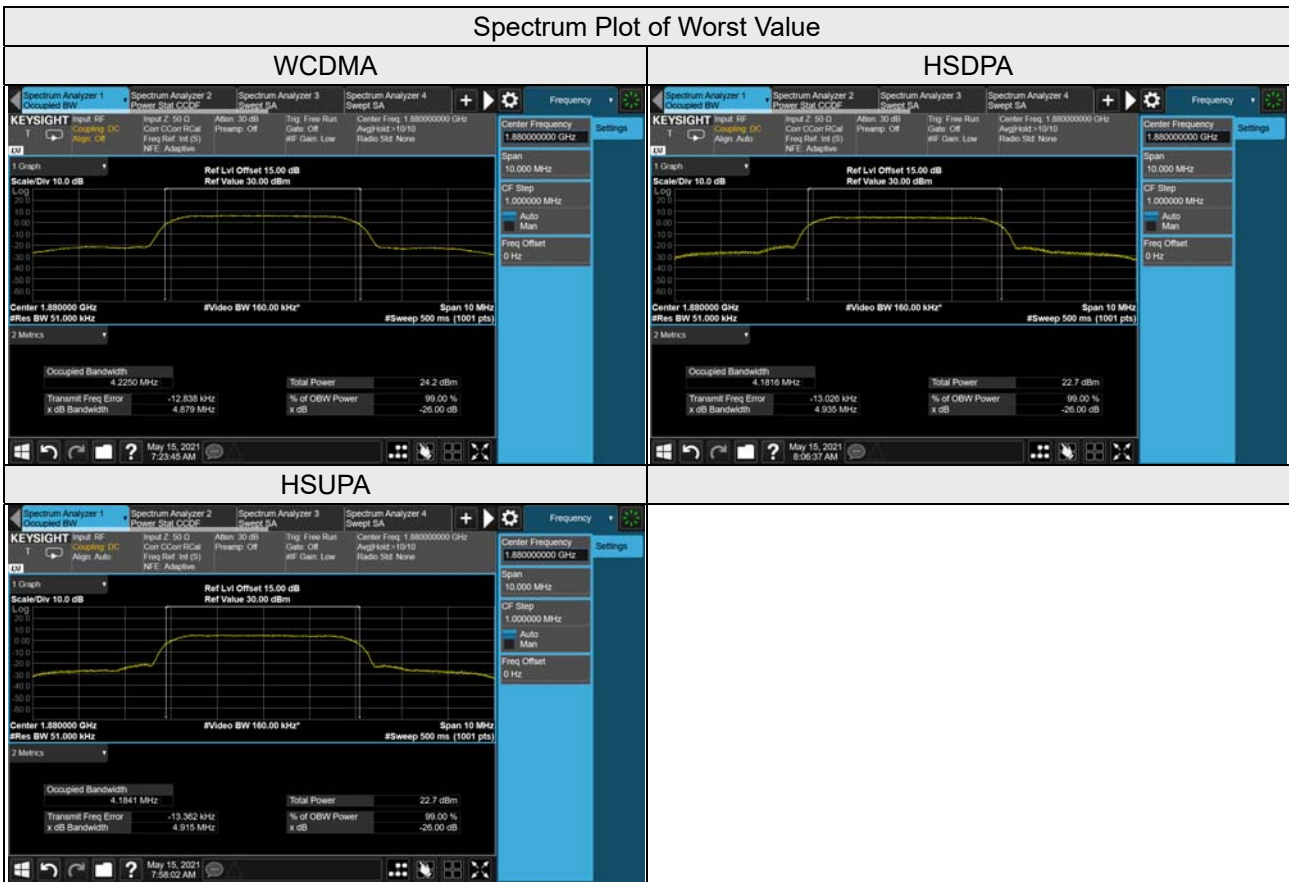
For the 26dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

4.4.2 Test Setup



4.4.3 Test Result

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | |
|---------|-----------------|------------------------------|-------|-------|
| | | WCDMA | HSDPA | HSUPA |
| 9262 | 1852.4 | 4.19 | 4.17 | 4.17 |
| 9400 | 1880.0 | 4.23 | 4.18 | 4.18 |
| 9538 | 1907.6 | 4.17 | 4.16 | 4.16 |



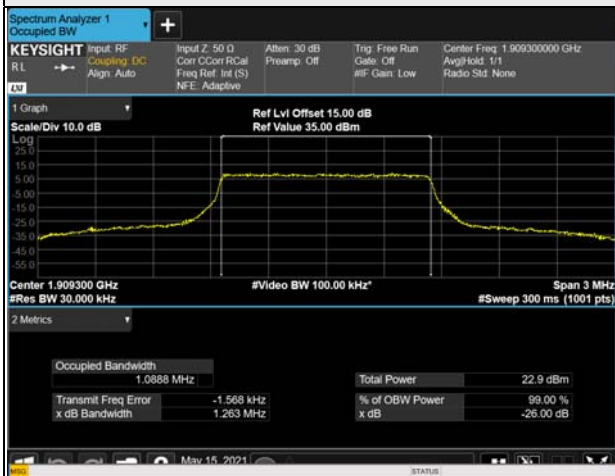
| LTE Band 2, Channel Bandwidth 1.4MHz | | | | | |
|--------------------------------------|-----------------|------------------------------|-------|-------|--------|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18607 | 1850.7 | 1.09 | 1.09 | 1.09 | 1.08 |
| 18900 | 1880.0 | 1.09 | 1.09 | 1.09 | 1.09 |
| 19193 | 1909.3 | 1.09 | 1.09 | 1.09 | 1.09 |
| LTE Band 2, Channel Bandwidth 3MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18615 | 1851.5 | 2.70 | 2.70 | 2.70 | 2.70 |
| 18900 | 1880.0 | 2.70 | 2.70 | 2.70 | 2.70 |
| 19185 | 1908.5 | 2.70 | 2.70 | 2.70 | 2.69 |
| LTE Band 2, Channel Bandwidth 5MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18625 | 1852.5 | 4.49 | 4.49 | 4.48 | 4.48 |
| 18900 | 1880.0 | 4.49 | 4.49 | 4.49 | 4.49 |
| 19175 | 1907.5 | 4.49 | 4.49 | 4.49 | 4.48 |
| LTE Band 2, Channel Bandwidth 10MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18650 | 1855.0 | 8.97 | 8.96 | 8.97 | 8.95 |
| 18900 | 1880.0 | 8.97 | 8.96 | 8.96 | 8.96 |
| 19150 | 1905.0 | 8.98 | 8.96 | 8.95 | 8.95 |
| LTE Band 2, Channel Bandwidth 15MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18675 | 1857.5 | 13.46 | 13.45 | 13.45 | 13.44 |
| 18900 | 1880.0 | 13.44 | 13.43 | 13.43 | 13.42 |
| 19125 | 1902.5 | 13.41 | 13.41 | 13.41 | 13.41 |

LTE Band 2, Channel Bandwidth 20MHz

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
|---------|-----------------|------------------------------|-------|-------|--------|
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18700 | 1860.0 | 17.96 | 17.97 | 17.96 | 17.95 |
| 18900 | 1880.0 | 17.88 | 17.89 | 17.89 | 17.87 |
| 19100 | 1900.0 | 17.88 | 17.89 | 17.89 | 17.90 |

Spectrum Plot of Worst Value

1.4MHz / 64QAM



3MHz / QPSK



5MHz / 64QAM



10MHz / QPSK



15MHz / QPSK



20MHz / 16QAM

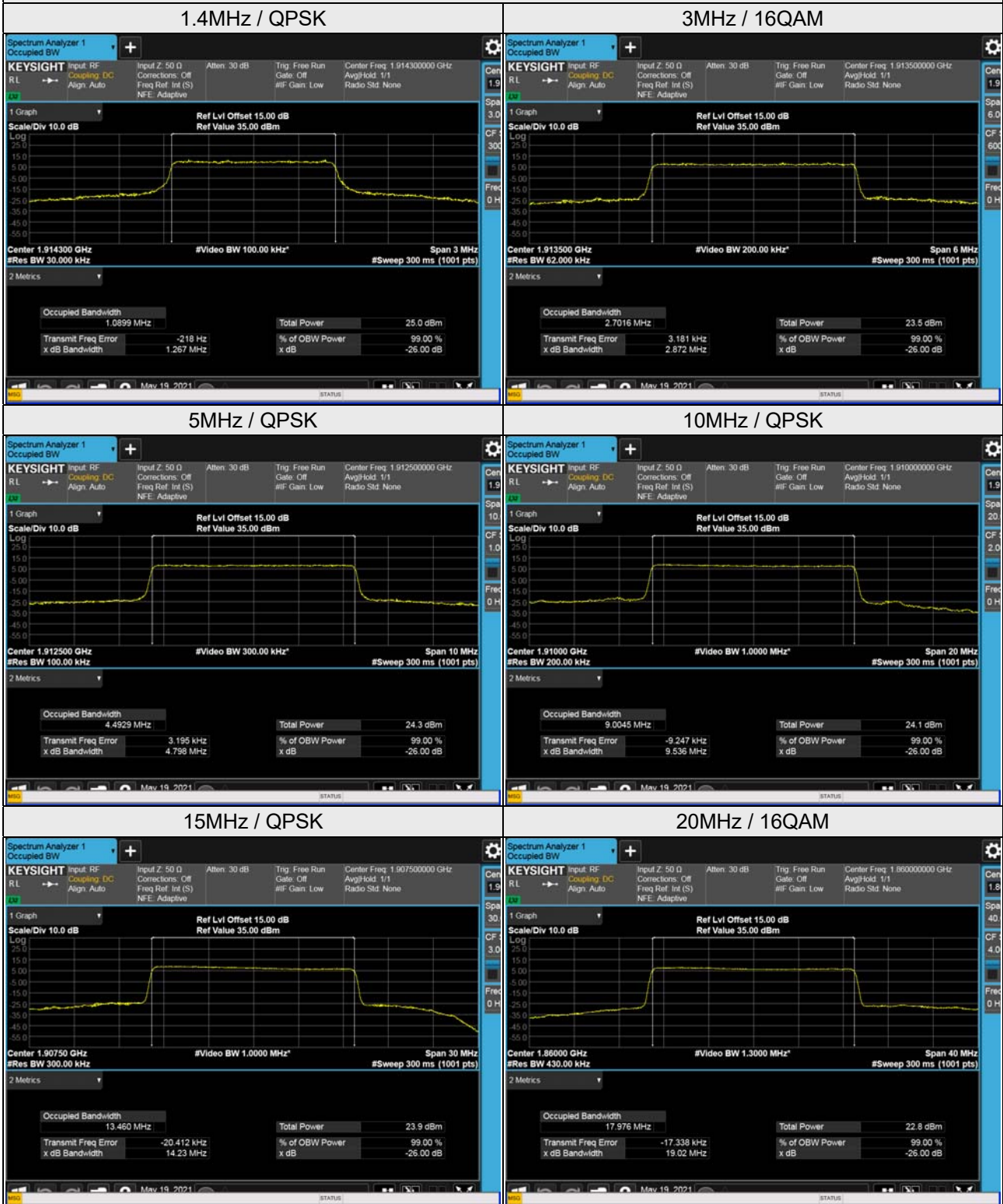


| LTE Band 25, Channel Bandwidth 1.4MHz | | | | | |
|---------------------------------------|-----------------|------------------------------|-------|-------|--------|
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26047 | 1850.7 | 1.09 | 1.09 | 1.09 | 1.09 |
| 26365 | 1882.5 | 1.09 | 1.09 | 1.09 | 1.09 |
| 26683 | 1914.3 | 1.09 | 1.09 | 1.09 | 1.09 |
| LTE Band 25, Channel Bandwidth 3MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26055 | 1851.5 | 2.70 | 2.70 | 2.70 | 2.69 |
| 26365 | 1882.5 | 2.70 | 2.70 | 2.70 | 2.69 |
| 26675 | 1913.5 | 2.70 | 2.70 | 2.70 | 2.70 |
| LTE Band 25, Channel Bandwidth 5MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26065 | 1852.5 | 4.49 | 4.49 | 4.49 | 4.48 |
| 26365 | 1882.5 | 4.49 | 4.49 | 4.48 | 4.49 |
| 26665 | 1912.5 | 4.49 | 4.49 | 4.49 | 4.49 |
| LTE Band 25, Channel Bandwidth 10MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26090 | 1855.0 | 8.98 | 8.96 | 8.96 | 8.95 |
| 26365 | 1882.5 | 8.99 | 8.97 | 8.96 | 8.96 |
| 26640 | 1910.0 | 9.00 | 8.99 | 8.99 | 8.98 |
| LTE Band 25, Channel Bandwidth 15MHz | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26115 | 1857.5 | 13.46 | 13.45 | 13.45 | 13.44 |
| 26365 | 1882.5 | 13.45 | 13.43 | 13.43 | 13.43 |
| 26615 | 1907.5 | 13.46 | 13.45 | 13.45 | 13.44 |

LTE Band 25, Channel Bandwidth 20MHz

| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | | |
|---------|-----------------|------------------------------|-------|-------|--------|
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26140 | 1860.0 | 17.97 | 17.98 | 17.97 | 17.96 |
| 26365 | 1882.5 | 17.90 | 17.91 | 17.91 | 17.89 |
| 26590 | 1905.0 | 17.89 | 17.90 | 17.90 | 17.88 |

Spectrum Plot of Worst Value



26dB Bandwidth

| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | |
|---------|-----------------|----------------------|-------|-------|
| | | WCDMA | HSDPA | HSUPA |
| 9262 | 1852.4 | 4.81 | 4.73 | 4.71 |
| 9400 | 1880.0 | 4.88 | 4.94 | 4.92 |
| 9538 | 1907.6 | 4.73 | 4.70 | 4.70 |

Spectrum Plot of Worst Value



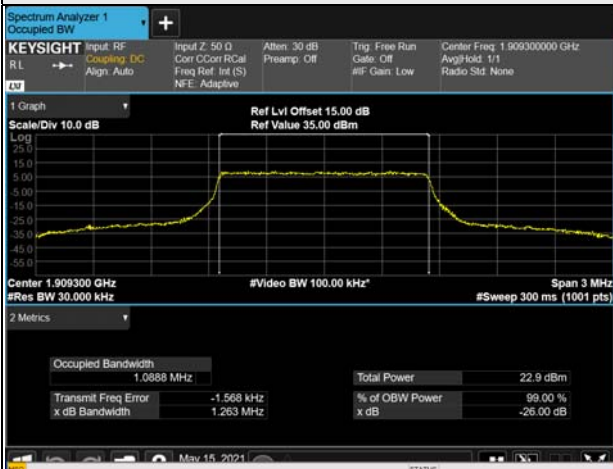
| LTE Band 2, Channel Bandwidth 1.4MHz | | | | | |
|--------------------------------------|-----------------|----------------------|-------|-------|--------|
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18607 | 1850.7 | 1.25 | 1.25 | 1.25 | 1.25 |
| 18900 | 1880.0 | 1.25 | 1.25 | 1.26 | 1.23 |
| 19193 | 1909.3 | 1.24 | 1.24 | 1.26 | 1.24 |
| LTE Band 2, Channel Bandwidth 3MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18615 | 1851.5 | 2.88 | 2.88 | 2.87 | 2.88 |
| 18900 | 1880.0 | 2.90 | 2.87 | 2.87 | 2.87 |
| 19185 | 1908.5 | 2.89 | 2.87 | 2.88 | 2.87 |
| LTE Band 2, Channel Bandwidth 5MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18625 | 1852.5 | 4.79 | 4.78 | 4.79 | 4.77 |
| 18900 | 1880.0 | 4.80 | 4.78 | 4.79 | 4.77 |
| 19175 | 1907.5 | 4.78 | 4.79 | 4.78 | 4.77 |
| LTE Band 2, Channel Bandwidth 10MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18650 | 1855.0 | 9.52 | 9.50 | 9.50 | 9.48 |
| 18900 | 1880.0 | 9.51 | 9.51 | 9.50 | 9.50 |
| 19150 | 1905.0 | 9.50 | 9.50 | 9.49 | 9.49 |
| LTE Band 2, Channel Bandwidth 15MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18675 | 1857.5 | 14.23 | 14.23 | 14.23 | 14.23 |
| 18900 | 1880.0 | 14.23 | 14.21 | 14.22 | 14.22 |
| 19125 | 1902.5 | 14.22 | 14.21 | 14.22 | 14.21 |

LTE Band 2, Channel Bandwidth 20MHz

| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
|---------|-----------------|----------------------|-------|-------|--------|
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18700 | 1860.0 | 19.02 | 19.02 | 19.03 | 19.00 |
| 18900 | 1880.0 | 18.99 | 18.99 | 18.99 | 18.99 |
| 19100 | 1900.0 | 19.00 | 19.00 | 19.00 | 19.00 |

Spectrum Plot of Worst Value

1.4MHz / 64QAM



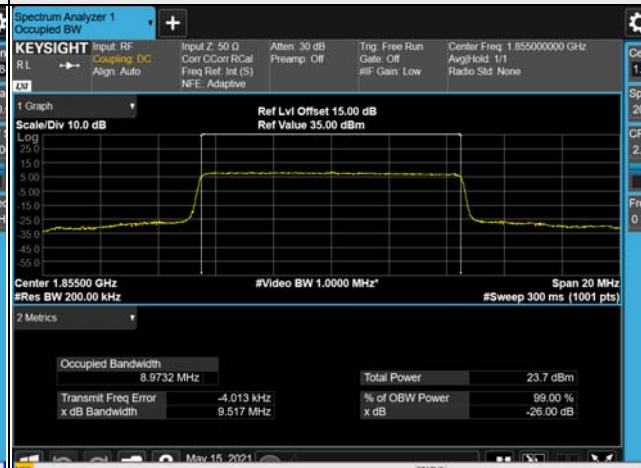
3MHz / QPSK



5MHz / QPSK



10MHz / QPSK



15MHz / 256QAM



20MHz / 64QAM

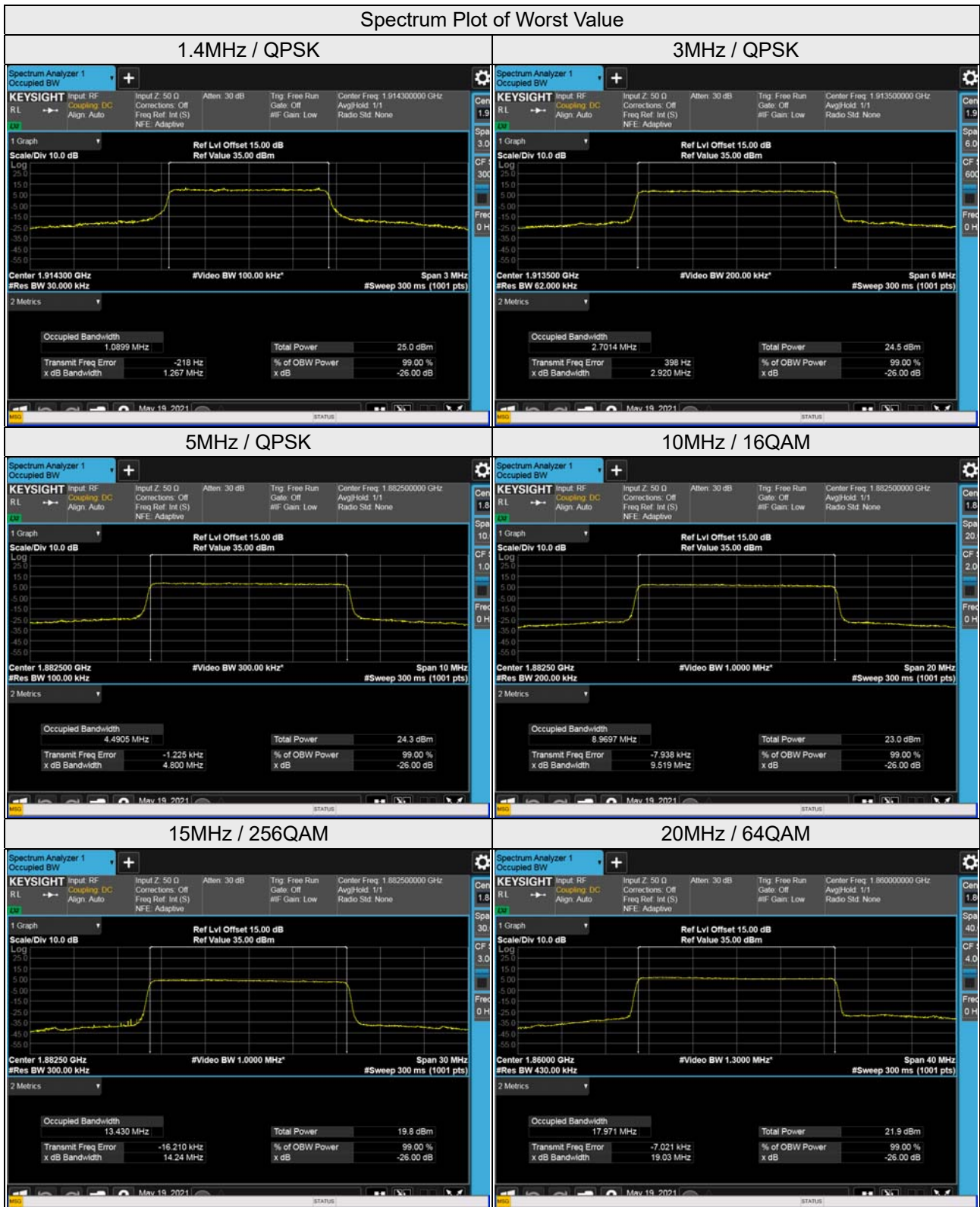


| LTE Band 25, Channel Bandwidth 1.4MHz | | | | | |
|---------------------------------------|-----------------|----------------------|-------|-------|--------|
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26047 | 1850.7 | 1.25 | 1.25 | 1.25 | 1.23 |
| 26365 | 1882.5 | 1.25 | 1.25 | 1.25 | 1.24 |
| 26683 | 1914.3 | 1.27 | 1.26 | 1.26 | 1.24 |
| LTE Band 25, Channel Bandwidth 3MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26055 | 1851.5 | 2.90 | 2.87 | 2.87 | 2.87 |
| 26365 | 1882.5 | 2.89 | 2.87 | 2.87 | 2.88 |
| 26675 | 1913.5 | 2.92 | 2.87 | 2.88 | 2.88 |
| LTE Band 25, Channel Bandwidth 5MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26065 | 1852.5 | 4.79 | 4.79 | 4.78 | 4.79 |
| 26365 | 1882.5 | 4.80 | 4.80 | 4.78 | 4.78 |
| 26665 | 1912.5 | 4.80 | 4.79 | 4.80 | 4.79 |
| LTE Band 25, Channel Bandwidth 10MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26090 | 1855.0 | 9.51 | 9.50 | 9.51 | 9.48 |
| 26365 | 1882.5 | 9.51 | 9.52 | 9.50 | 9.49 |
| 26640 | 1910.0 | 9.54 | 9.51 | 9.50 | 9.50 |
| LTE Band 25, Channel Bandwidth 15MHz | | | | | |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26115 | 1857.5 | 14.23 | 14.21 | 14.23 | 14.21 |
| 26365 | 1882.5 | 14.22 | 14.20 | 14.23 | 14.24 |
| 26615 | 1907.5 | 14.23 | 14.22 | 14.23 | 14.23 |

LTE Band 25, Channel Bandwidth 20MHz

| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | | | |
|---------|-----------------|----------------------|-------|-------|--------|
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26140 | 1860.0 | 19.02 | 19.02 | 19.03 | 19.02 |
| 26365 | 1882.5 | 18.99 | 18.99 | 19.00 | 19.00 |
| 26590 | 1905.0 | 18.97 | 18.98 | 18.98 | 18.98 |

Spectrum Plot of Worst Value

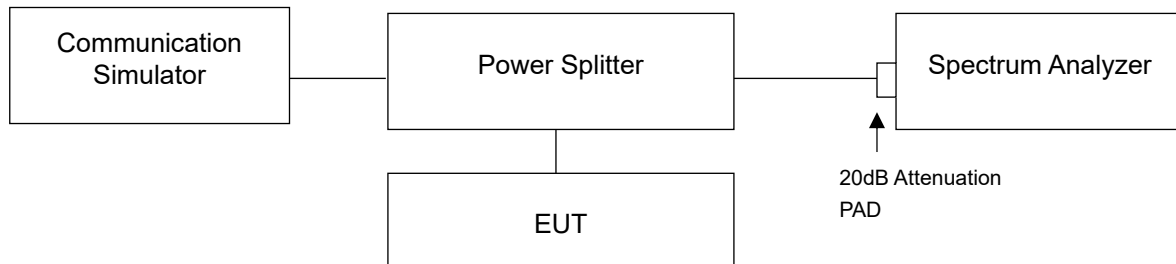


4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

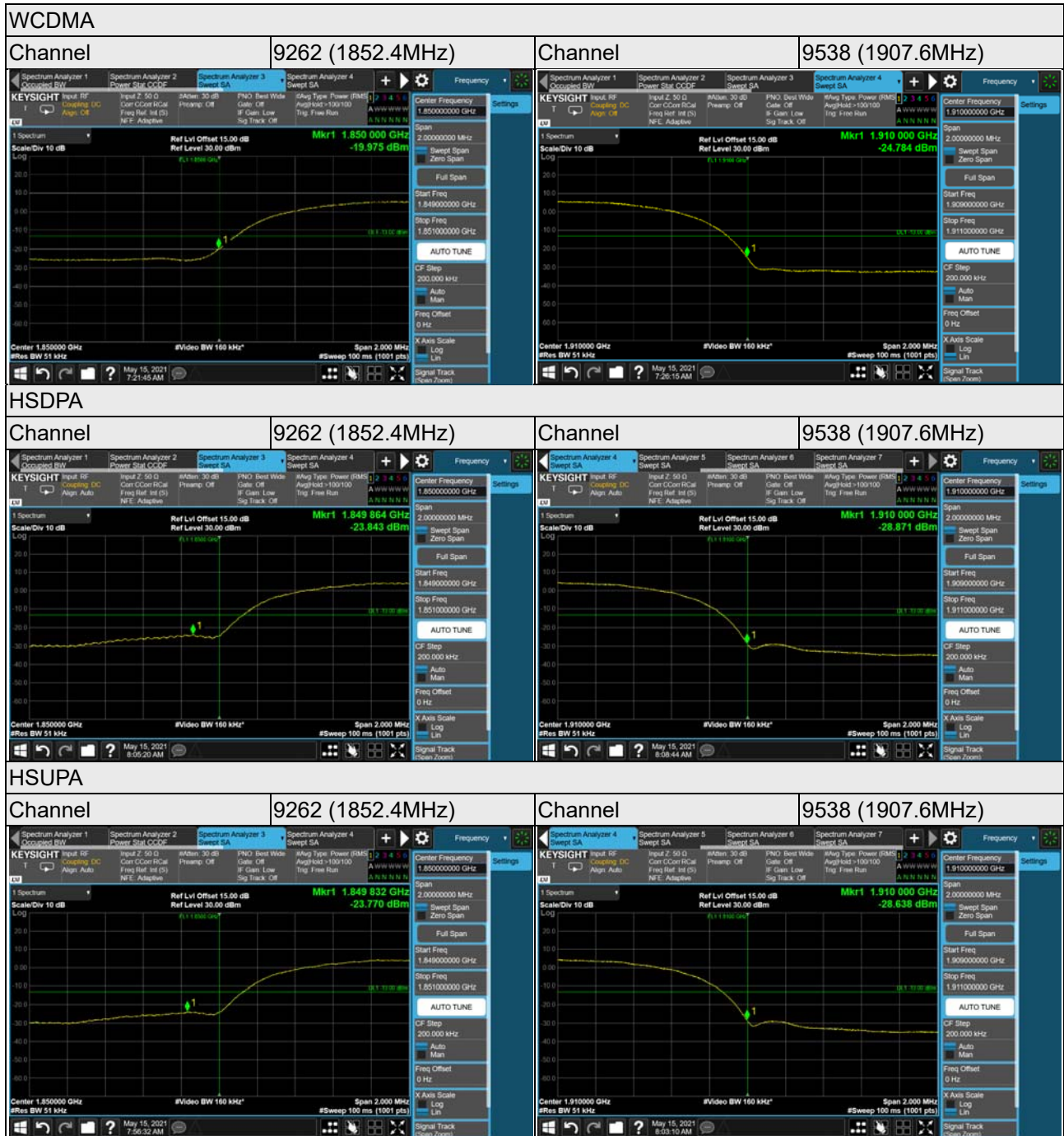
4.5.2 Test Setup



4.5.3 Test Procedures

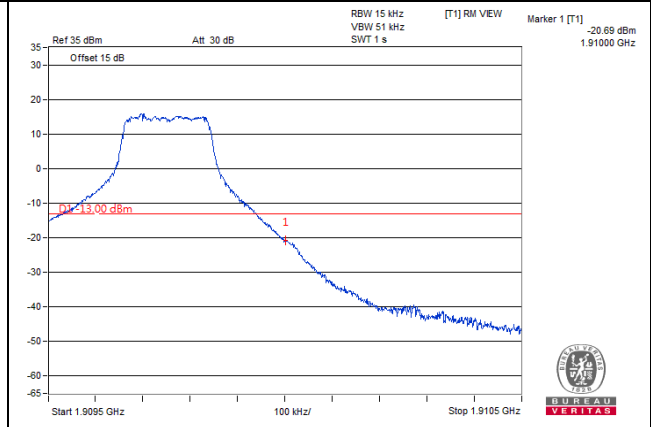
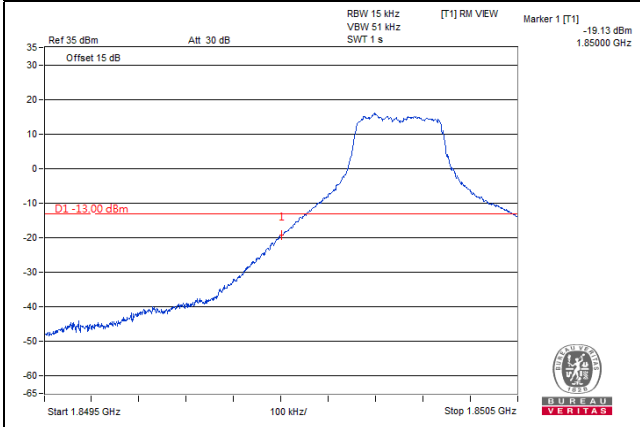
- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 51kHz and VB of the spectrum is 160kHz (WCDMA / HSDPA / HSUPA).
- c. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 15kHz and VB of the spectrum is 51kHz (LTE Channel Bandwidth 1.4MHz).
- d. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Channel Bandwidth 3MHz).
- e. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 51kHz and VB of the spectrum is 160kHz (LTE Channel Bandwidth 5MHz).
- f. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
- g. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Channel Bandwidth 15MHz).
- h. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz (LTE Channel Bandwidth 20MHz).
- i. Record the max trace plot into the test report.

4.5.4 Test Results

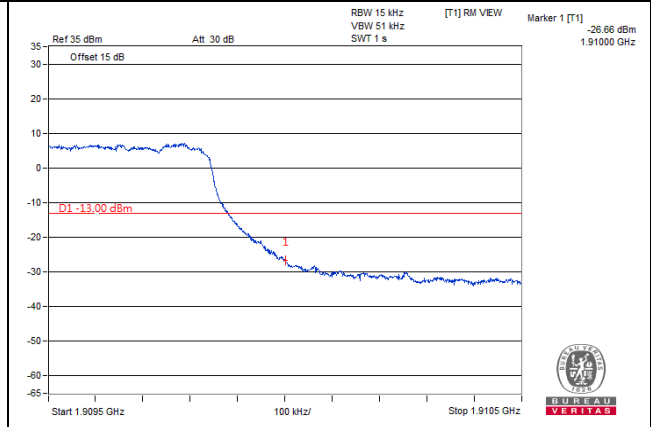
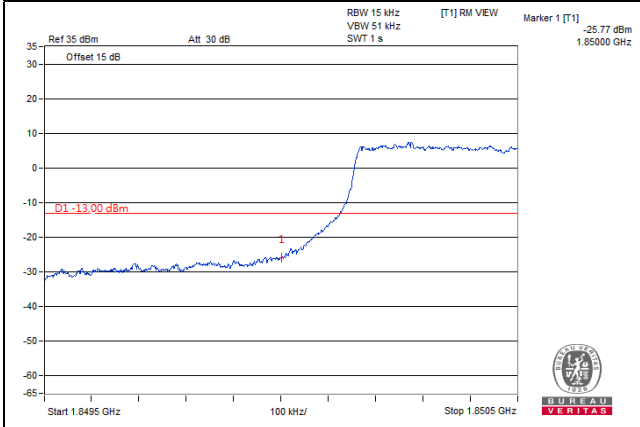


LTE Band 2, Channel Bandwidth 1.4MHz

| | | | | | |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|---------------------------|
| Channel 18607 (1850.7MHz) | QPSK | 1 RB / 0 RB Offset | Channel 19193 (1909.3MHz) | QPSK | 1 RB / 5 RB Offset |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|---------------------------|

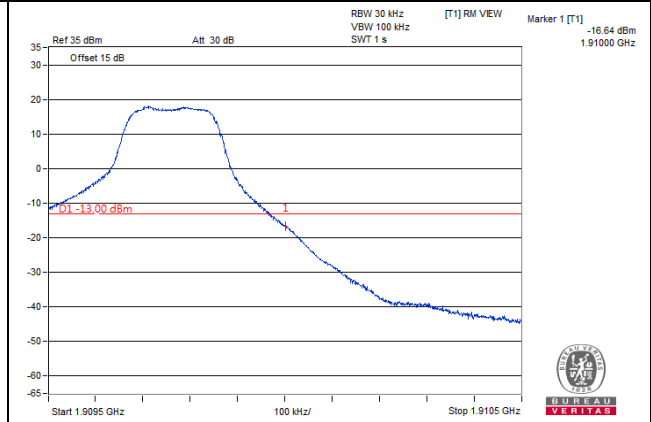
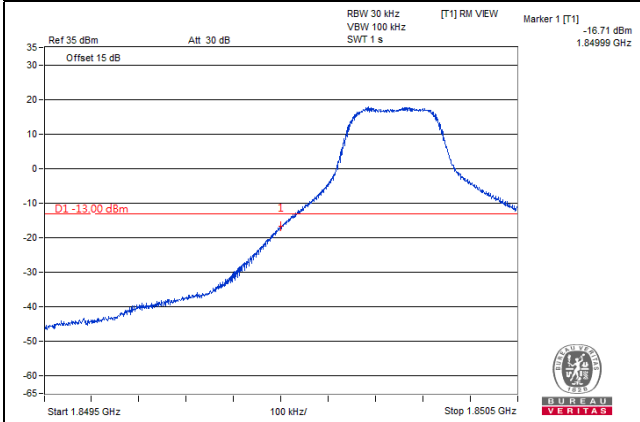


| | | | | | |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|---------------------------|
| Channel 18607 (1850.7MHz) | QPSK | 6 RB / 0 RB Offset | Channel 19193 (1909.3MHz) | QPSK | 6 RB / 0 RB Offset |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|---------------------------|

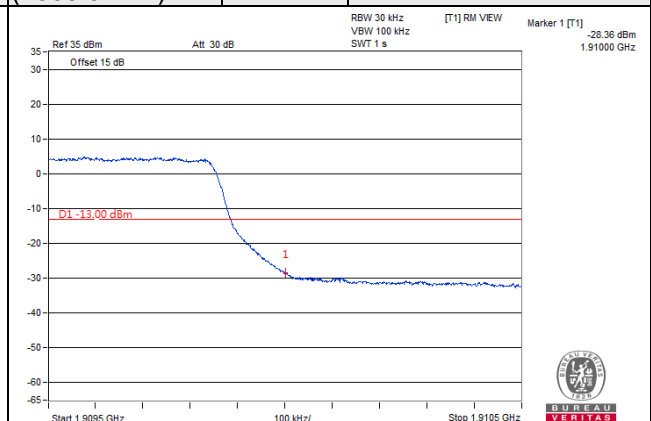
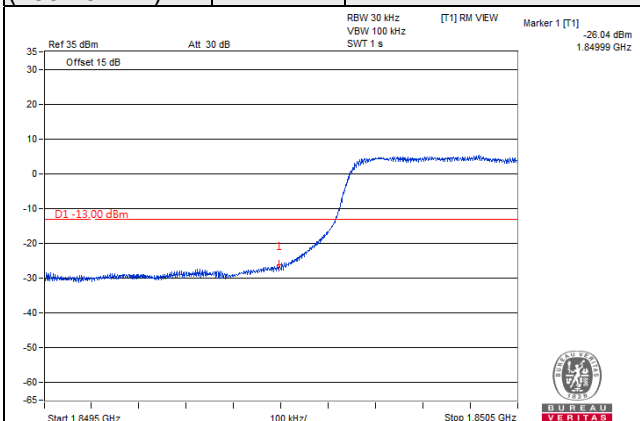


LTE Band 2, Channel Bandwidth 3MHz

| | | | | | |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|
| Channel 18615 (1851.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 19185 (1908.5MHz) | QPSK | 1 RB / 14 RB Offset |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|

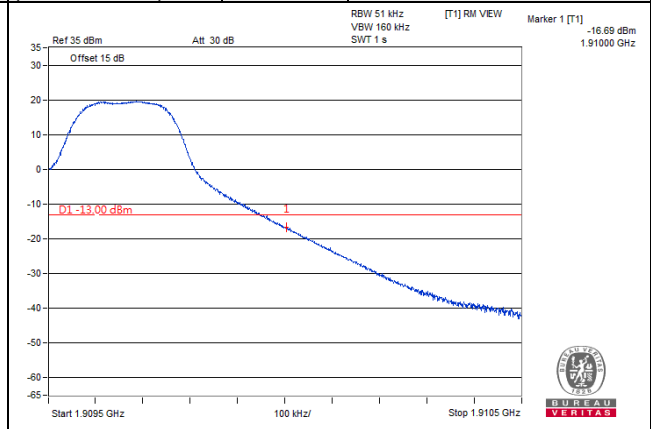
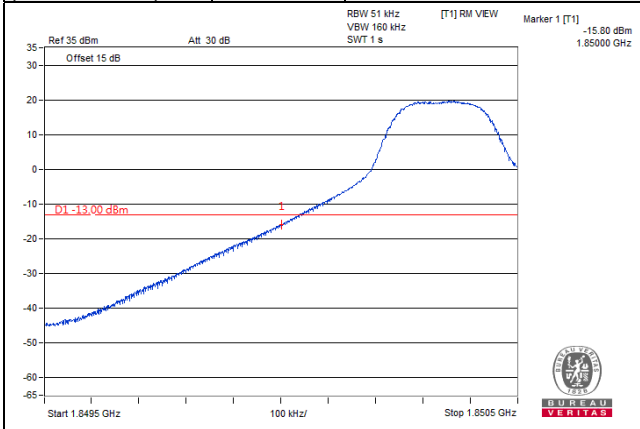


| | | | | | |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|
| Channel 18615 (1851.5MHz) | QPSK | 15 RB / 0 RB Offset | Channel 19185 (1908.5MHz) | QPSK | 15 RB / 0 RB Offset |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|

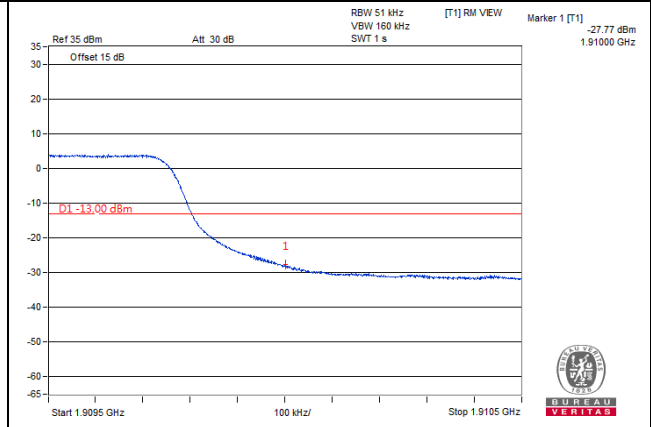
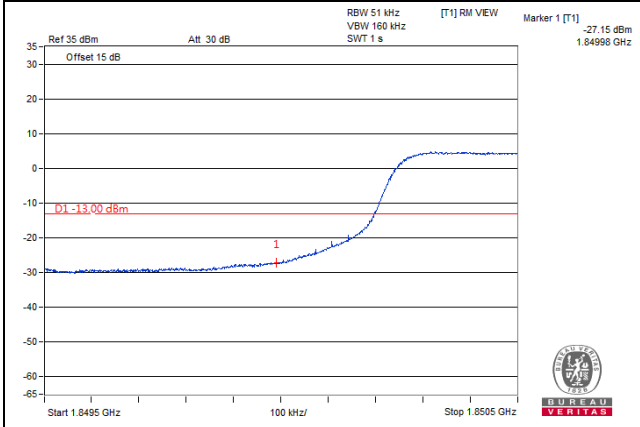


LTE Band 2, Channel Bandwidth 5MHz

| | | | | | |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|
| Channel 18625 (1852.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 19175 (1907.5MHz) | QPSK | 1 RB / 24 RB Offset |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|

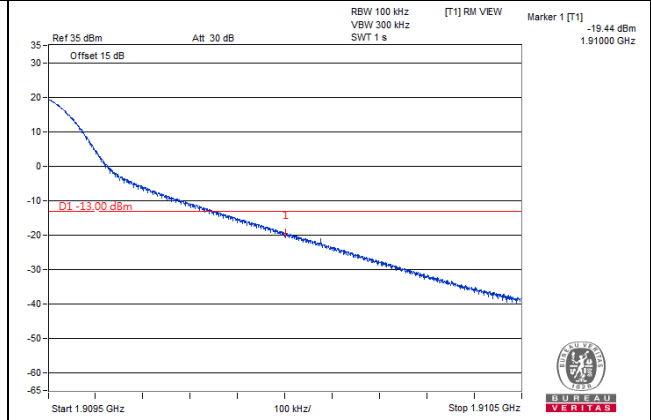
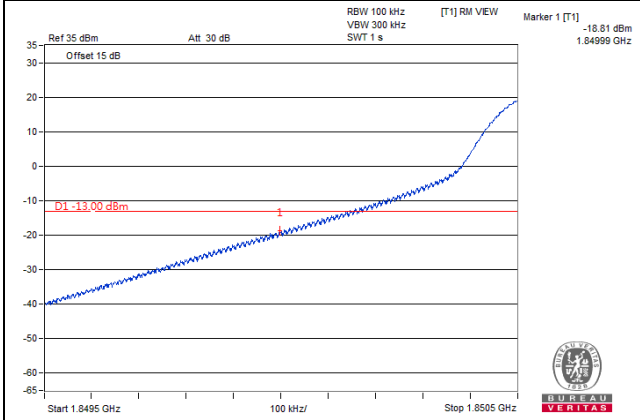


| | | | | | |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|
| Channel 18625 (1852.5MHz) | QPSK | 25 RB / 0 RB Offset | Channel 19175 (1907.5MHz) | QPSK | 25 RB / 0 RB Offset |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|

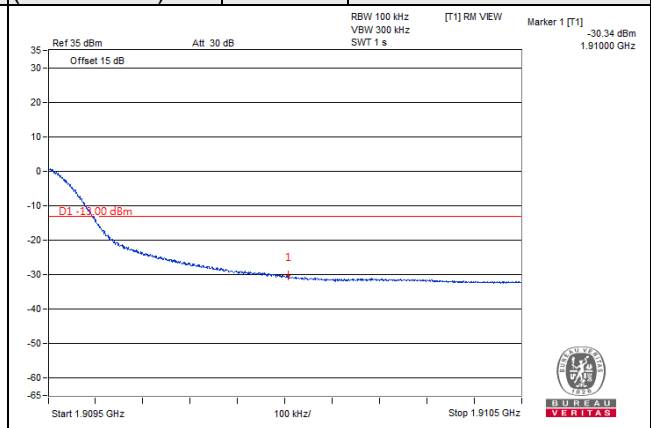
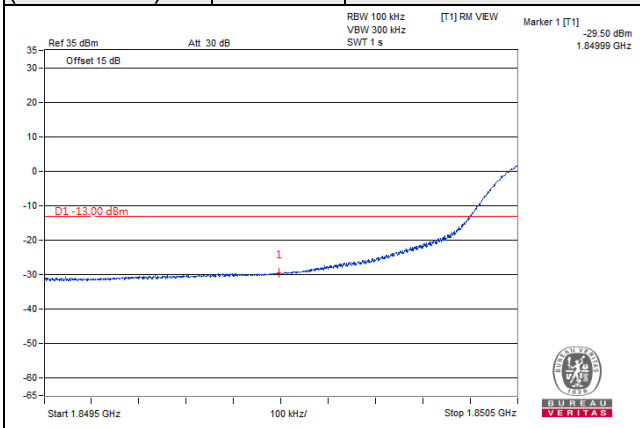


LTE Band 2, Channel Bandwidth 10MHz

| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 18650 (1855.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 19150 (1905.0MHz) | QPSK | 1 RB / 49 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

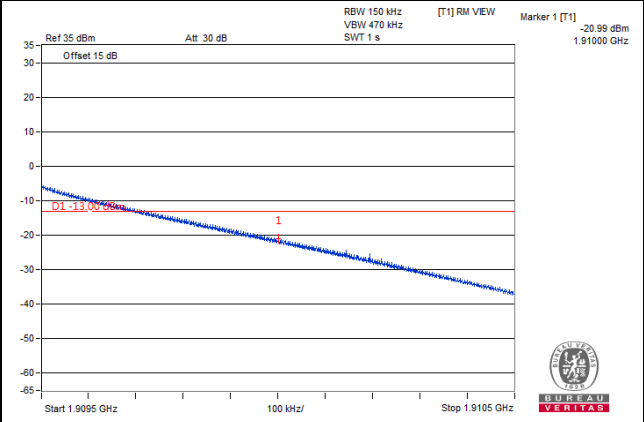
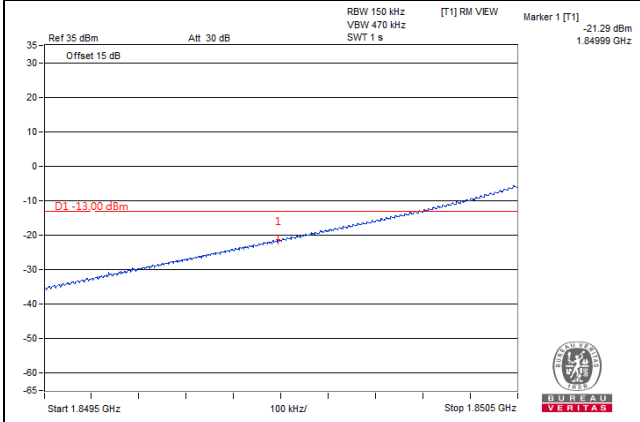


| | | | | | |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 18650 (1855.0MHz) | QPSK | 50 RB / 0 RB Offset | Channel 19150 (1905.0MHz) | QPSK | 50 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

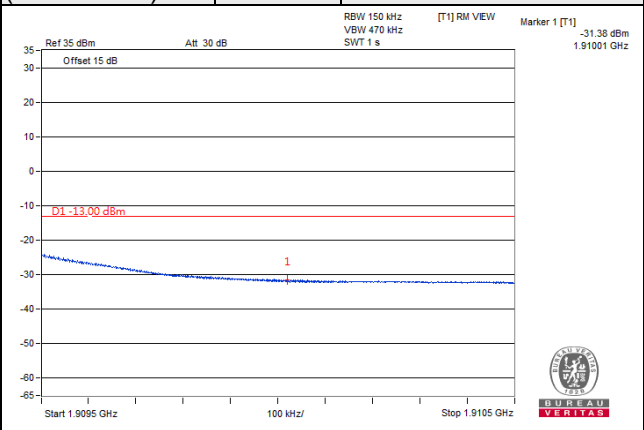
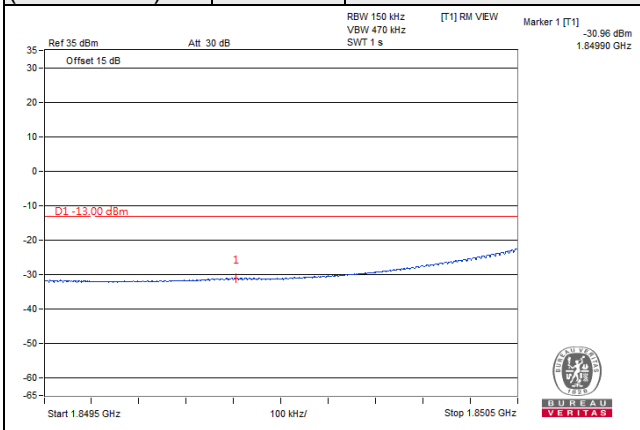


LTE Band 2, Channel Bandwidth 15MHz

| | | | | | |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|
| Channel 18675 (1857.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 19125 (1902.5MHz) | QPSK | 1 RB / 74 RB Offset |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|

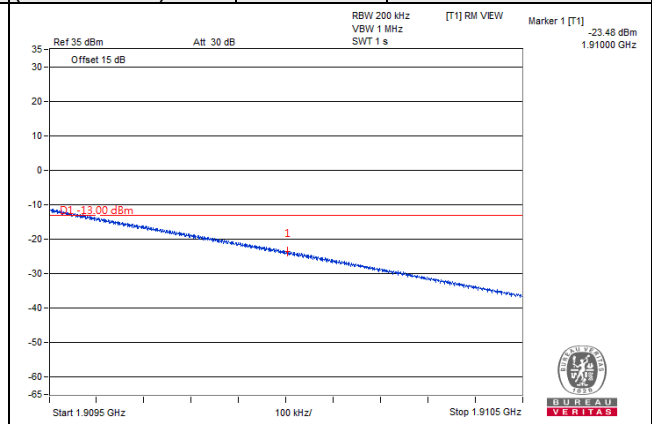
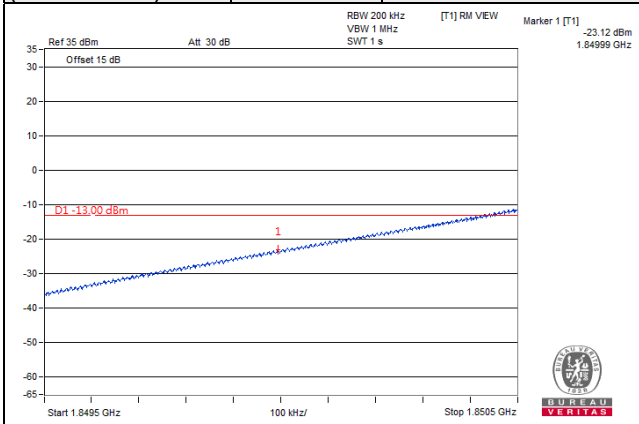


| | | | | | |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|
| Channel 18675 (1857.5MHz) | QPSK | 75 RB / 0 RB Offset | Channel 19125 (1902.5MHz) | QPSK | 75 RB / 0 RB Offset |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|

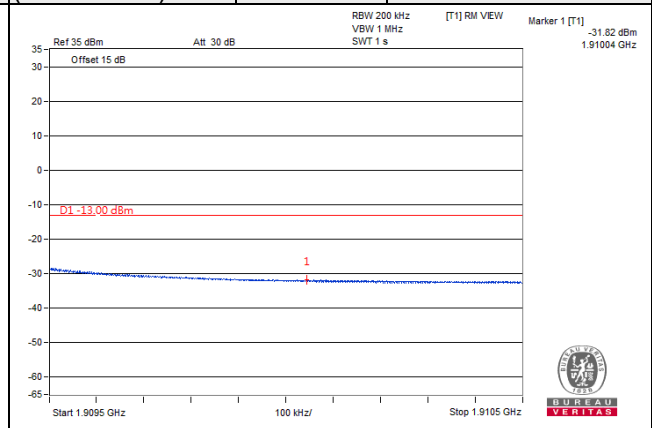
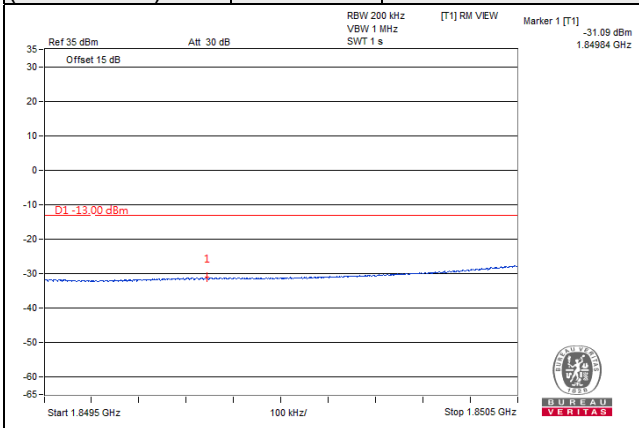


LTE Band 2, Channel Bandwidth 20MHz

| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 18700 (1860.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 19100 (1900.0MHz) | QPSK | 1 RB / 99 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

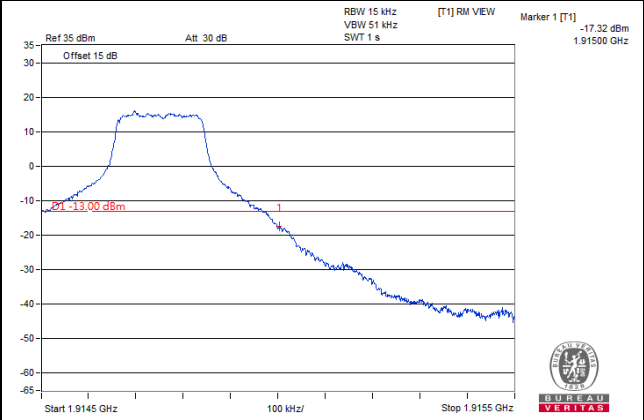
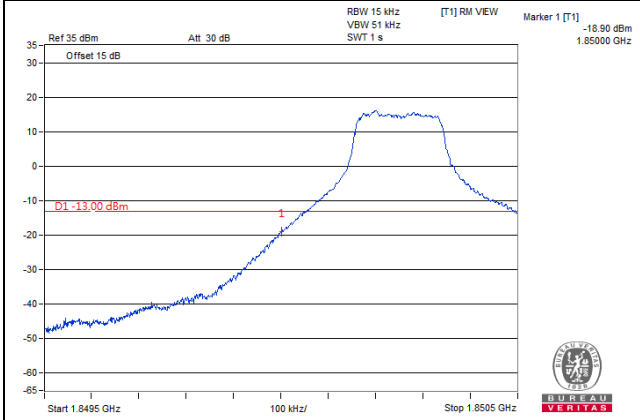


| | | | | | |
|------------------------------|------|----------------------|------------------------------|------|----------------------|
| Channel 18700 (1860.0MHz) | QPSK | 100 RB / 0 RB Offset | Channel 19100 (1900.0MHz) | QPSK | 100 RB / 0 RB Offset |
|------------------------------|------|----------------------|------------------------------|------|----------------------|

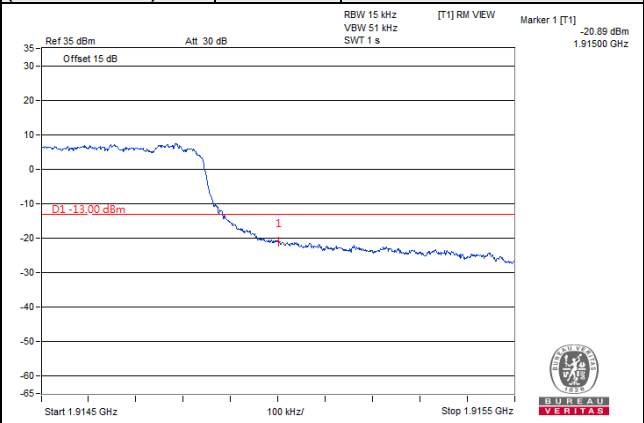
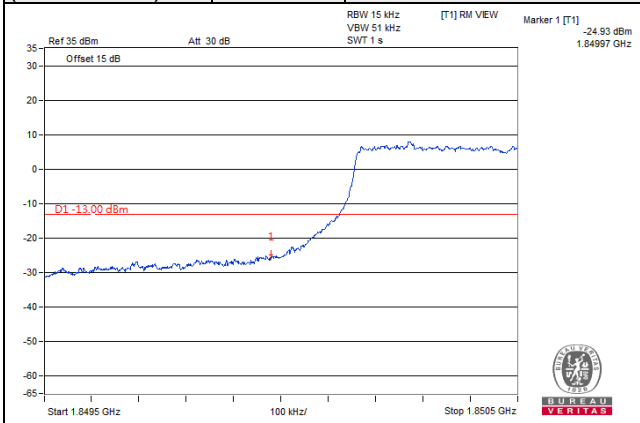


LTE Band 25, Channel Bandwidth 1.4MHz

| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|--------------------|
| Channel 26047 (1850.7MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26683 (1914.3MHz) | QPSK | 1 RB / 5 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|--------------------|

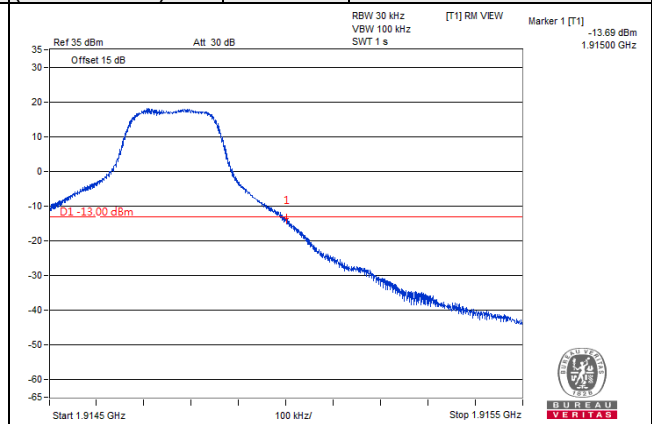
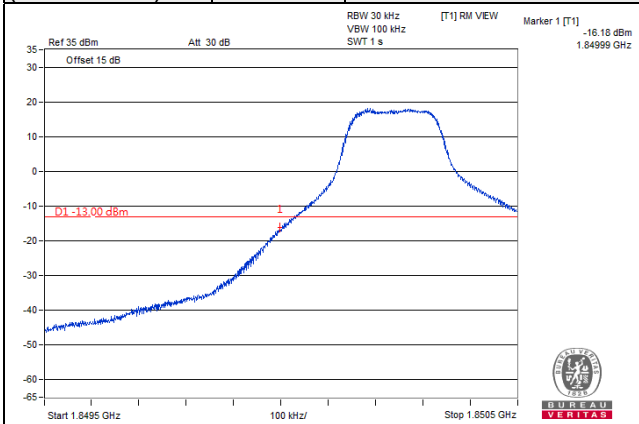


| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|--------------------|
| Channel 26047 (1850.7MHz) | QPSK | 6 RB / 0 RB Offset | Channel 26683 (1914.3MHz) | QPSK | 6 RB / 0 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|--------------------|

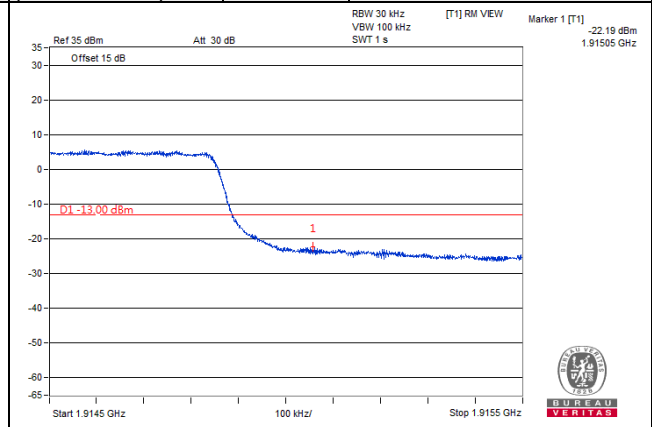
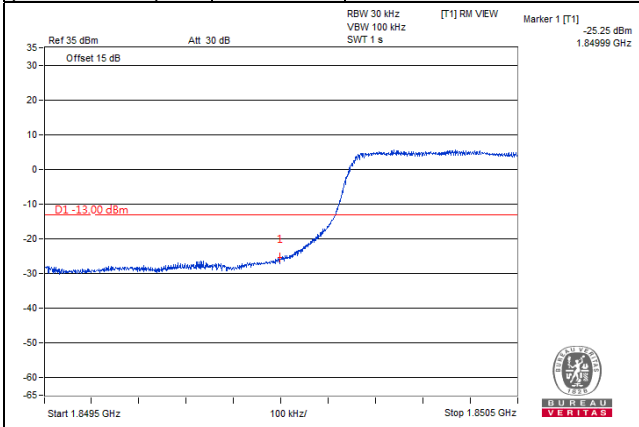


LTE Band 25, Channel Bandwidth 3MHz

| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 26055 (1851.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26675 (1913.5MHz) | QPSK | 1 RB / 14 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

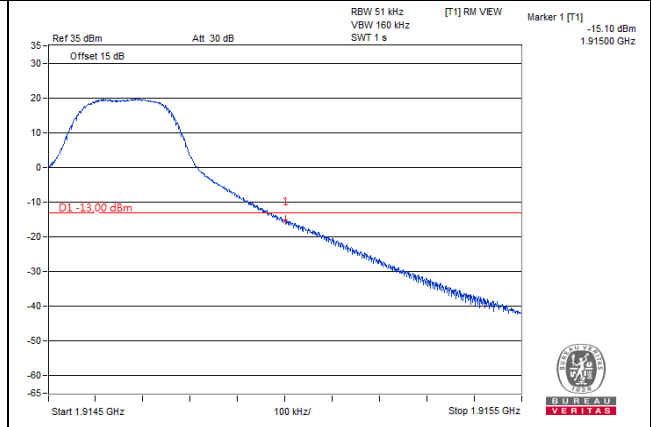
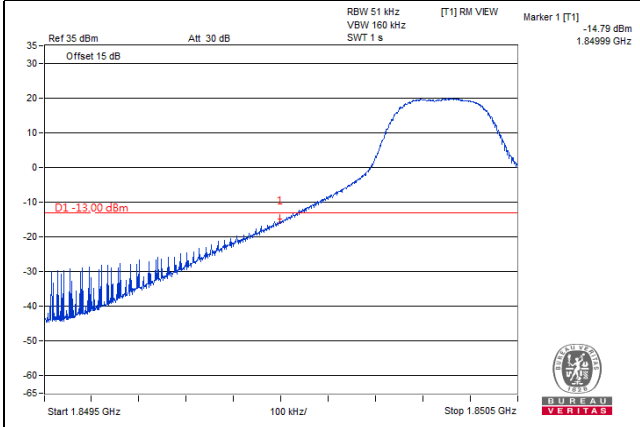


| | | | | | |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 26055 (1851.5MHz) | QPSK | 15 RB / 0 RB Offset | Channel 26675 (1913.5MHz) | QPSK | 15 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

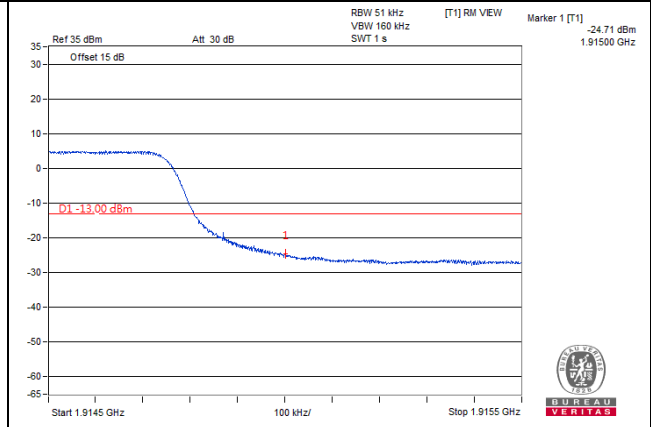
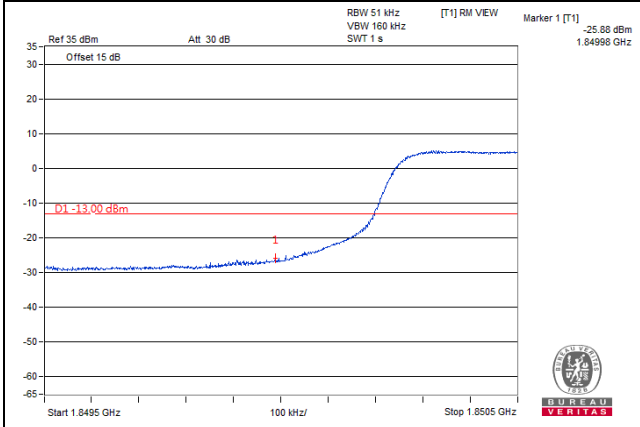


LTE Band 25, Channel Bandwidth 5MHz

| | | | | | |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|
| Channel 26065 (1852.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26665 (1912.5MHz) | QPSK | 1 RB / 24 RB Offset |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|

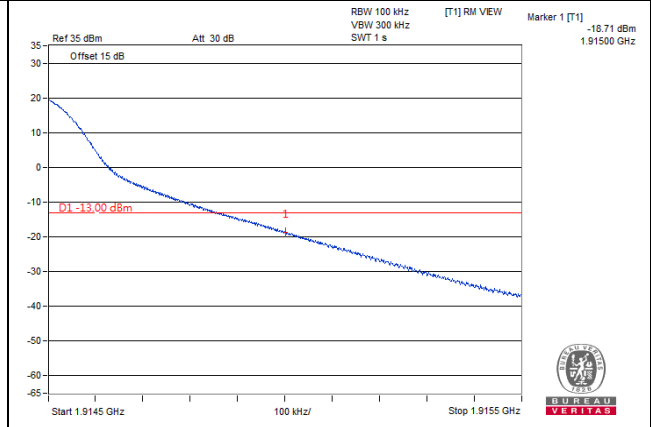
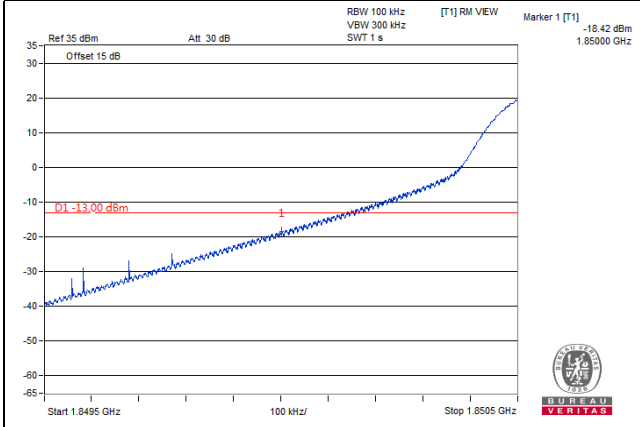


| | | | | | |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|
| Channel 26065 (1852.5MHz) | QPSK | 25 RB / 0 RB Offset | Channel 26665 (1912.5MHz) | QPSK | 25 RB / 0 RB Offset |
|--------------------------------------|-------------|----------------------------|--------------------------------------|-------------|----------------------------|

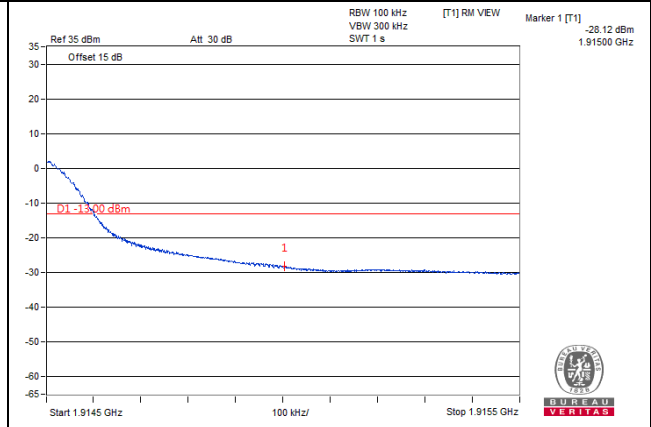
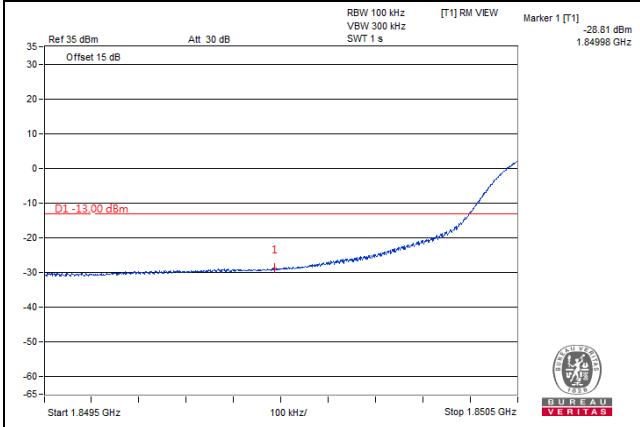


LTE Band 25, Channel Bandwidth 10MHz

| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 26090 (1855.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26640 (1910.0MHz) | QPSK | 1 RB / 49 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

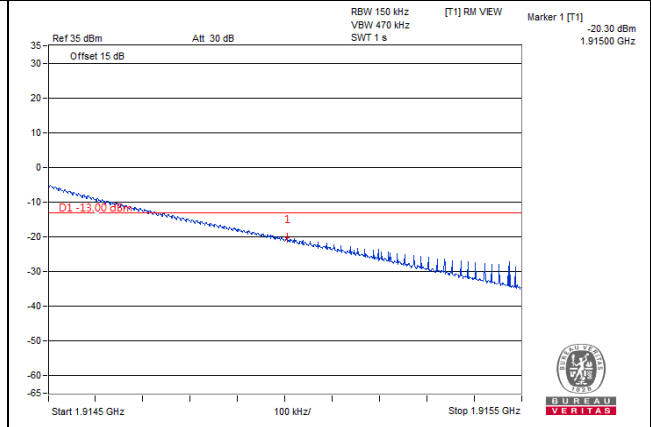
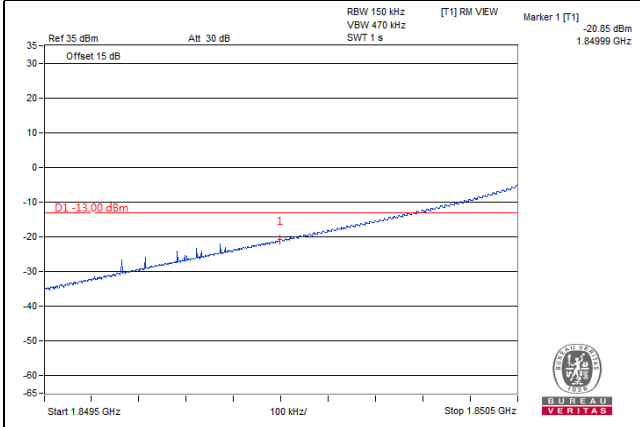


| | | | | | |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 26090 (1855.0MHz) | QPSK | 50 RB / 0 RB Offset | Channel 26640 (1910.0MHz) | QPSK | 50 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

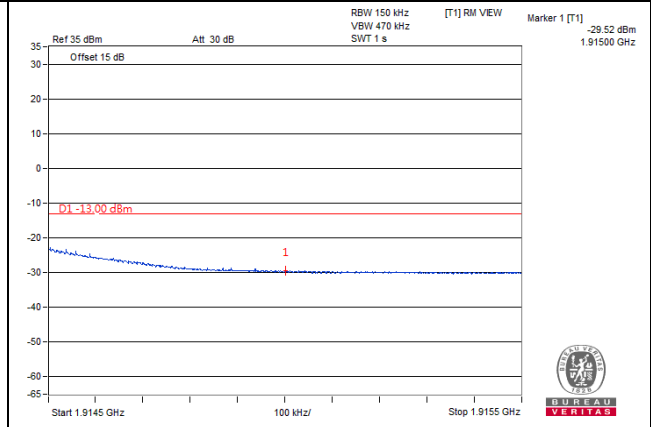
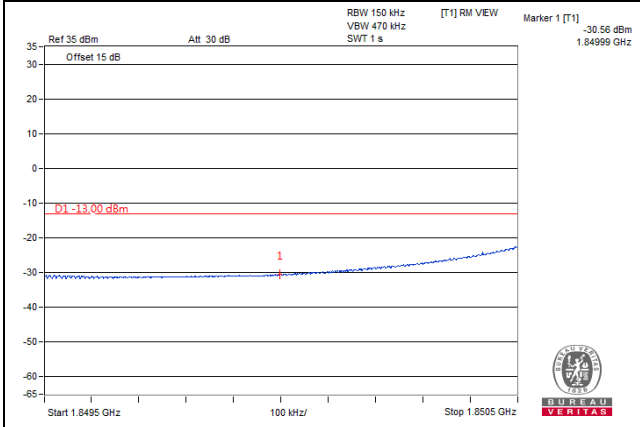


LTE Band 25, Channel Bandwidth 15MHz

| | | | | | |
|------------------------------|------|--------------------|------------------------------|------|---------------------|
| Channel 26115 (1857.5MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26615 (1907.5MHz) | QPSK | 1 RB / 74 RB Offset |
|------------------------------|------|--------------------|------------------------------|------|---------------------|

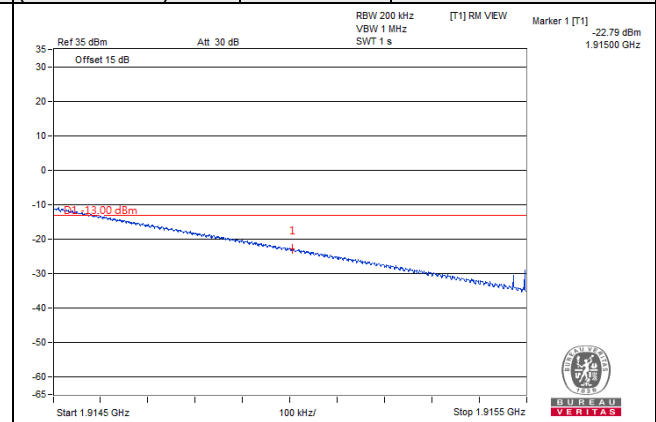
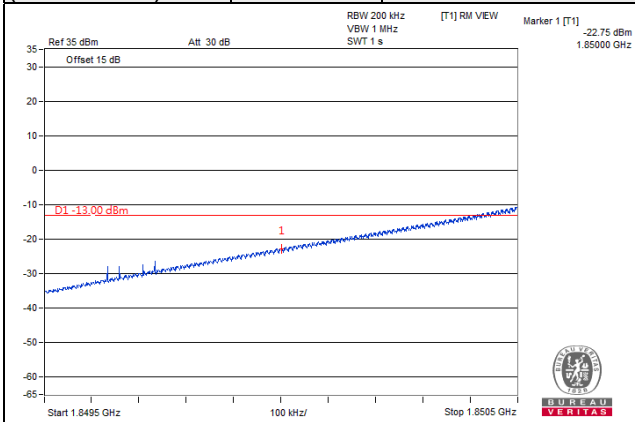


| | | | | | |
|------------------------------|------|---------------------|------------------------------|------|---------------------|
| Channel 26115 (1857.5MHz) | QPSK | 75 RB / 0 RB Offset | Channel 26615 (1907.5MHz) | QPSK | 75 RB / 0 RB Offset |
|------------------------------|------|---------------------|------------------------------|------|---------------------|

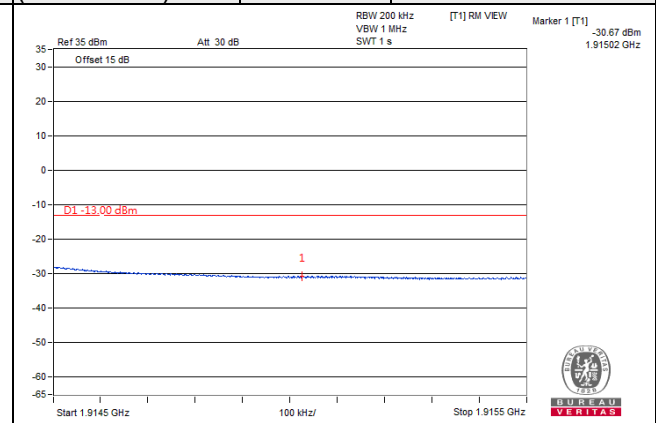
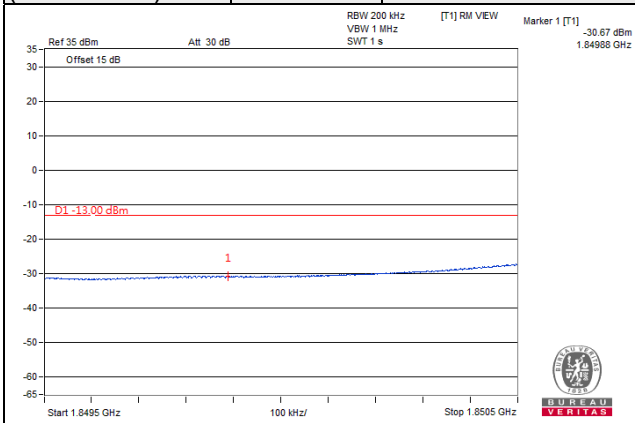


LTE Band 25, Channel Bandwidth 20MHz

| | | | | | |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|
| Channel 26140 (1860.0MHz) | QPSK | 1 RB / 0 RB Offset | Channel 26590 (1905.0MHz) | QPSK | 1 RB / 99 RB Offset |
|--------------------------------------|-------------|---------------------------|--------------------------------------|-------------|----------------------------|



| | | | | | |
|--------------------------------------|-------------|-----------------------------|--------------------------------------|-------------|-----------------------------|
| Channel 26140 (1860.0MHz) | QPSK | 100 RB / 0 RB Offset | Channel 26590 (1905.0MHz) | QPSK | 100 RB / 0 RB Offset |
|--------------------------------------|-------------|-----------------------------|--------------------------------------|-------------|-----------------------------|

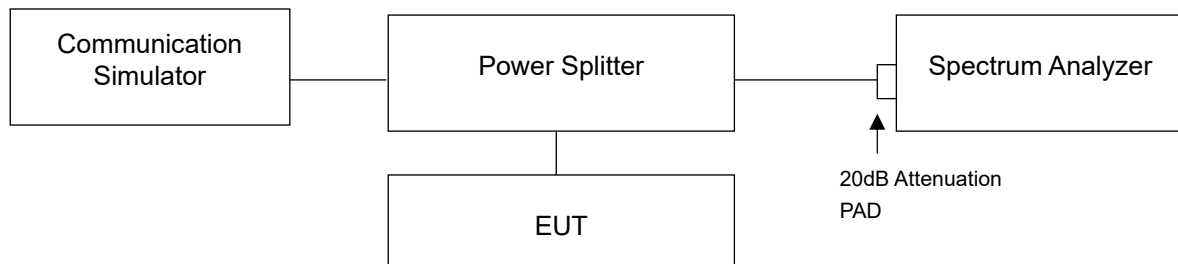


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.6.2 Test Setup



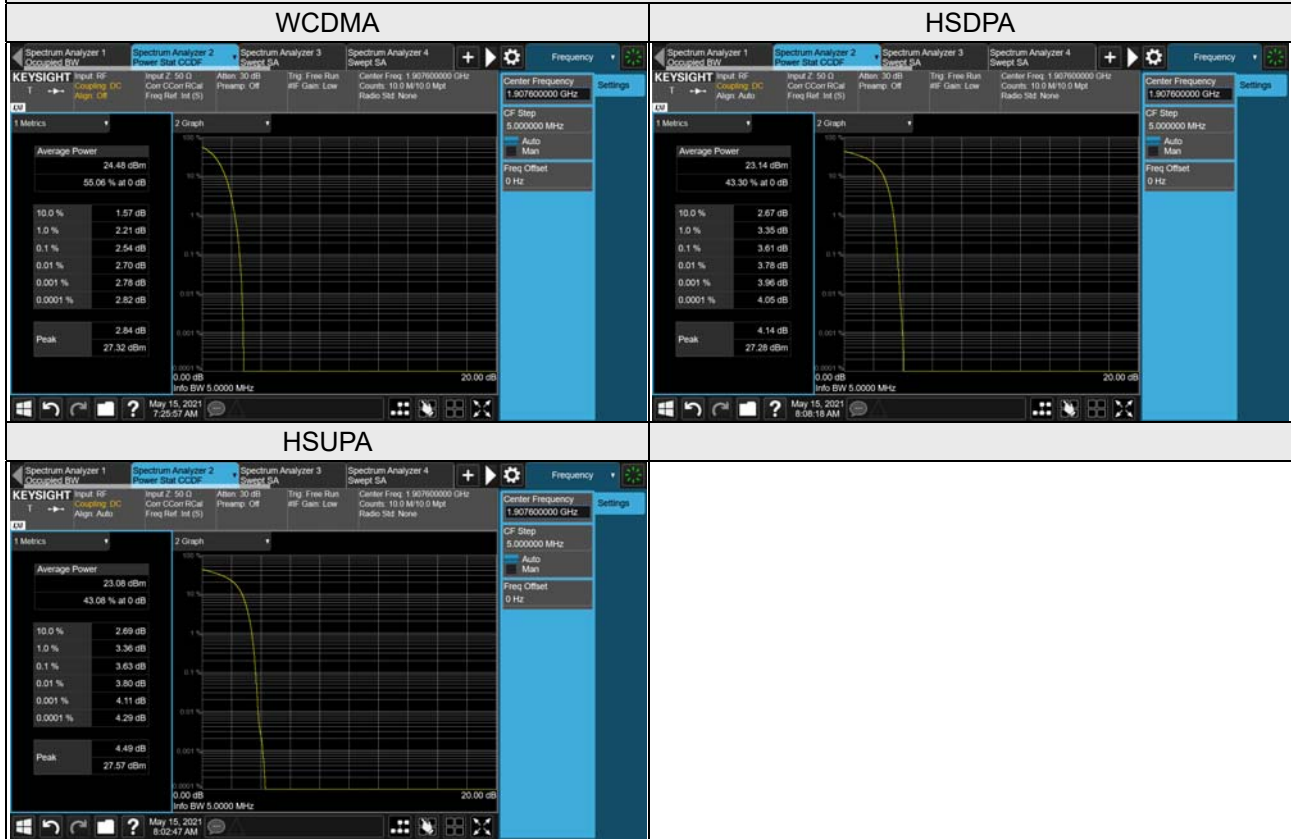
4.6.3 Test Procedures

- Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

4.6.4 Test Results

| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | |
|---------|-----------------|----------------------------|-------|-------|
| | | WCDMA | HSDPA | HSUPA |
| 9262 | 1852.4 | 2.01 | 3.23 | 3.18 |
| 9400 | 1880.0 | 1.82 | 3.13 | 3.11 |
| 9538 | 1907.6 | 2.54 | 3.61 | 3.63 |

Spectrum Plot of Worst Value



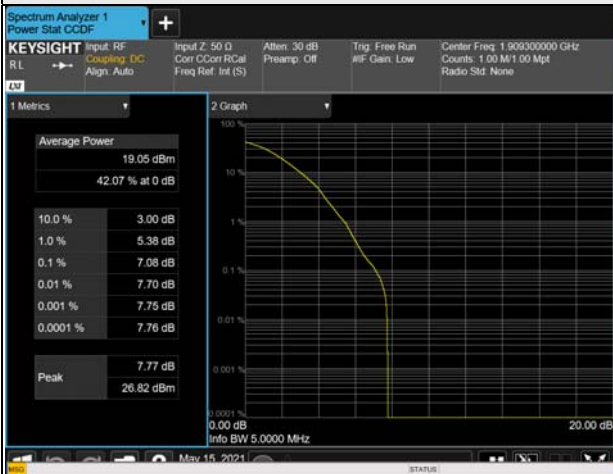
| LTE Band 2, Channel Bandwidth 1.4MHz | | | | | |
|--------------------------------------|-----------------|----------------------------|-------|-------|--------|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18607 | 1850.7 | 3.73 | 4.56 | 5.37 | 6.74 |
| 18900 | 1880.0 | 3.72 | 4.52 | 5.35 | 6.74 |
| 19193 | 1909.3 | 4.81 | 5.65 | 6.32 | 7.08 |
| LTE Band 2, Channel Bandwidth 3MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18615 | 1851.5 | 3.72 | 4.54 | 5.39 | 6.69 |
| 18900 | 1880.0 | 3.69 | 4.52 | 5.34 | 6.65 |
| 19185 | 1908.5 | 4.81 | 5.65 | 6.19 | 7.00 |
| LTE Band 2, Channel Bandwidth 5MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18625 | 1852.5 | 3.69 | 4.53 | 5.34 | 6.76 |
| 18900 | 1880.0 | 3.69 | 4.55 | 5.33 | 6.74 |
| 19175 | 1907.5 | 4.54 | 5.40 | 6.00 | 6.92 |
| LTE Band 2, Channel Bandwidth 10MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18650 | 1855.0 | 3.70 | 4.57 | 5.21 | 6.77 |
| 18900 | 1880.0 | 3.89 | 4.72 | 5.58 | 7.96 |
| 19150 | 1905.0 | 4.48 | 5.38 | 6.08 | 7.08 |
| LTE Band 2, Channel Bandwidth 15MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18675 | 1857.5 | 3.77 | 4.58 | 5.35 | 6.75 |
| 18900 | 1880.0 | 4.25 | 5.10 | 5.88 | 6.84 |
| 19125 | 1902.5 | 5.00 | 5.91 | 6.48 | 7.26 |

LTE Band 2, Channel Bandwidth 20MHz

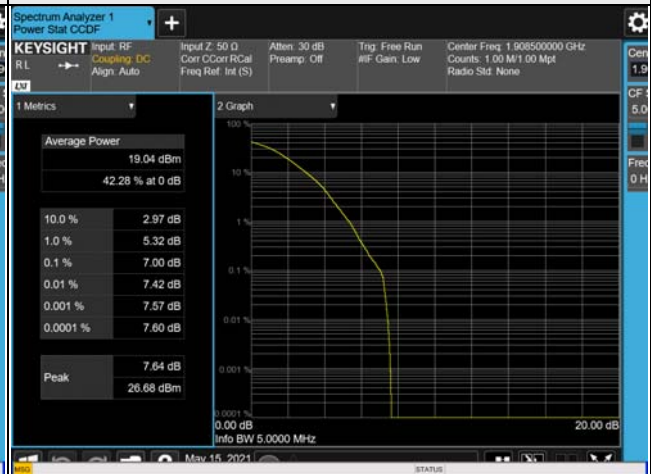
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
|---------|-----------------|----------------------------|-------|-------|--------|
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 18700 | 1860.0 | 3.76 | 4.59 | 5.43 | 6.88 |
| 18900 | 1880.0 | 4.61 | 5.56 | 6.17 | 6.94 |
| 19100 | 1900.0 | 5.02 | 5.91 | 6.21 | 7.03 |

Spectrum Plot of Worst Value

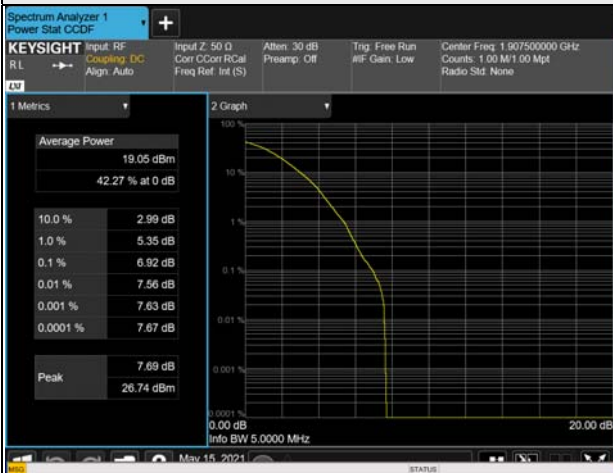
1.4MHz / 256QAM



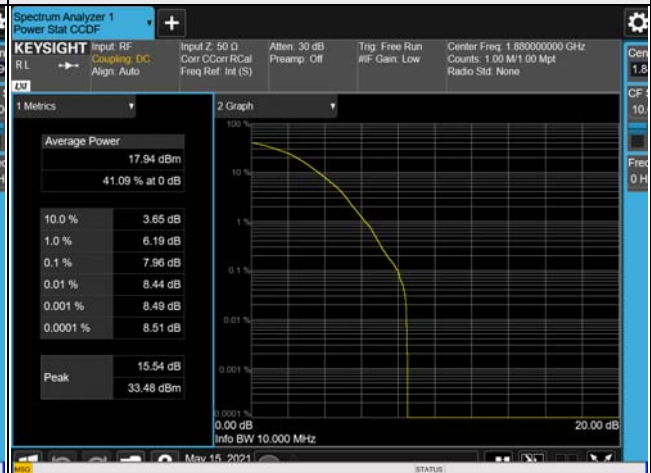
3MHz / 256QAM



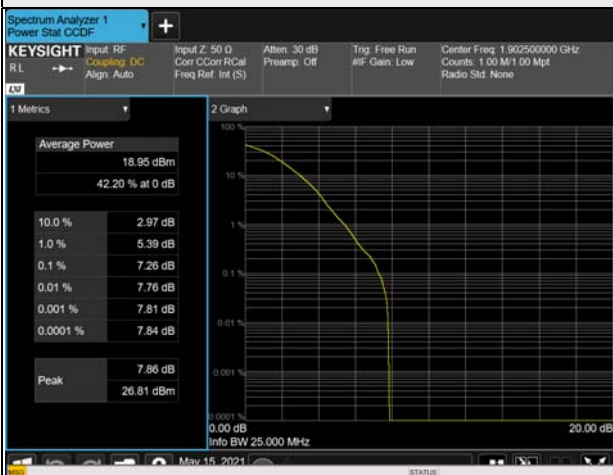
5MHz / 256QAM



10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM



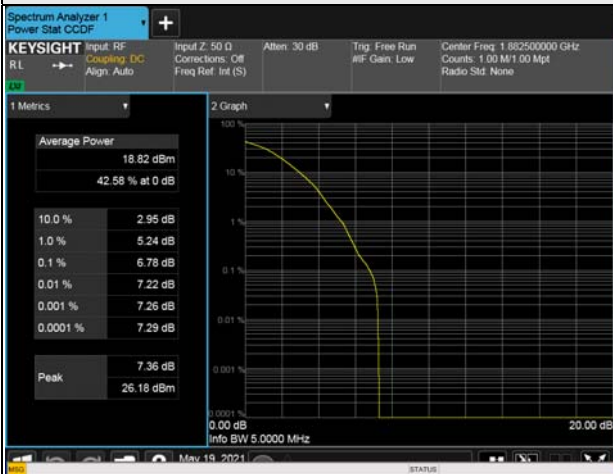
| LTE Band 25, Channel Bandwidth 1.4MHz | | | | | |
|---------------------------------------|-----------------|----------------------------|-------|-------|--------|
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26047 | 1850.7 | 3.65 | 4.47 | 5.33 | 6.56 |
| 26365 | 1882.5 | 3.83 | 4.62 | 5.40 | 6.78 |
| 26683 | 1914.3 | 2.87 | 3.73 | 5.02 | 6.74 |
| LTE Band 25, Channel Bandwidth 3MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26055 | 1851.5 | 3.63 | 4.46 | 5.32 | 6.69 |
| 26365 | 1882.5 | 3.73 | 4.51 | 5.31 | 6.68 |
| 26675 | 1913.5 | 3.42 | 4.37 | 5.56 | 7.00 |
| LTE Band 25, Channel Bandwidth 5MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26065 | 1852.5 | 3.60 | 4.45 | 5.30 | 6.78 |
| 26365 | 1882.5 | 3.62 | 4.44 | 5.22 | 6.68 |
| 26665 | 1912.5 | 4.16 | 5.11 | 6.18 | 6.98 |
| LTE Band 25, Channel Bandwidth 10MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26090 | 1855.0 | 3.63 | 4.46 | 5.24 | 6.85 |
| 26365 | 1882.5 | 3.59 | 4.42 | 5.21 | 6.84 |
| 26640 | 1910.0 | 4.55 | 5.37 | 6.07 | 7.02 |
| LTE Band 25, Channel Bandwidth 15MHz | | | | | |
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26115 | 1857.5 | 3.70 | 4.50 | 5.32 | 6.57 |
| 26365 | 1882.5 | 3.84 | 4.64 | 5.44 | 7.54 |
| 26615 | 1907.5 | 4.44 | 5.26 | 6.07 | 7.12 |

LTE Band 25, Channel Bandwidth 20MHz

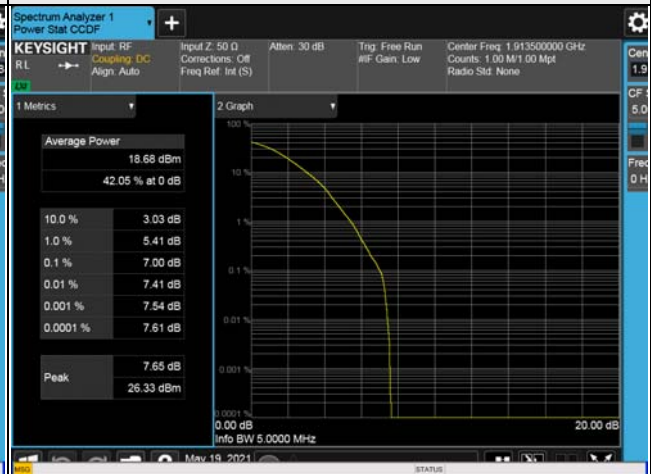
| Channel | Frequency (MHz) | Peak To Average Ratio (dB) | | | |
|---------|-----------------|----------------------------|-------|-------|--------|
| | | QPSK | 16QAM | 64QAM | 256QAM |
| 26140 | 1860.0 | 3.70 | 4.49 | 5.30 | 6.59 |
| 26365 | 1882.5 | 4.20 | 5.01 | 5.78 | 7.15 |
| 26590 | 1905.0 | 5.00 | 5.86 | 6.38 | 7.02 |

Spectrum Plot of Worst Value

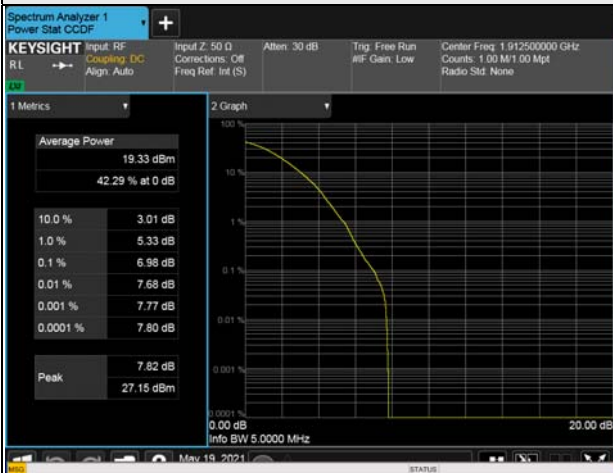
1.4MHz / 256QAM



3MHz / 256QAM



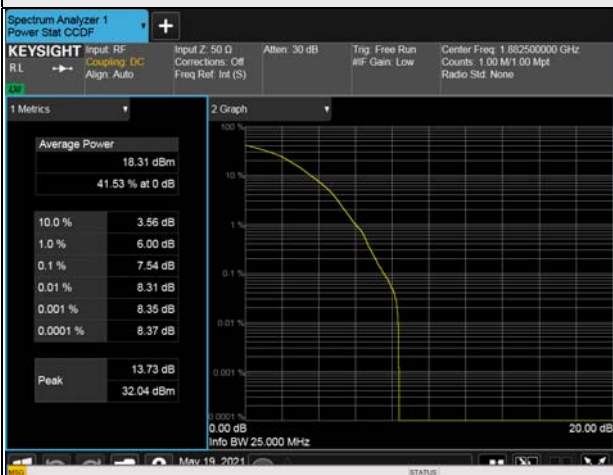
5MHz / 256QAM



10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM

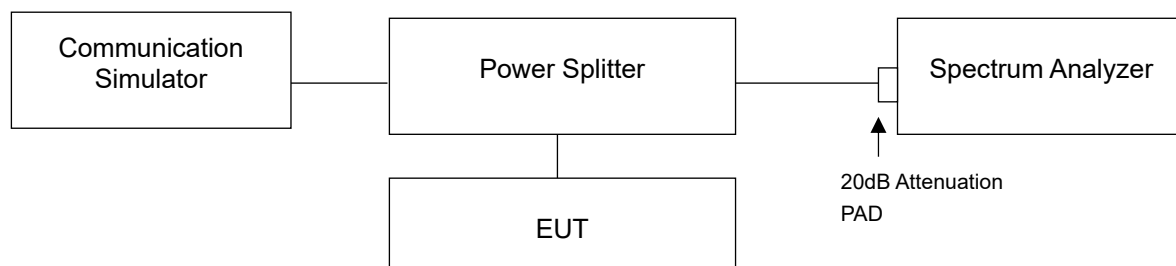


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

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

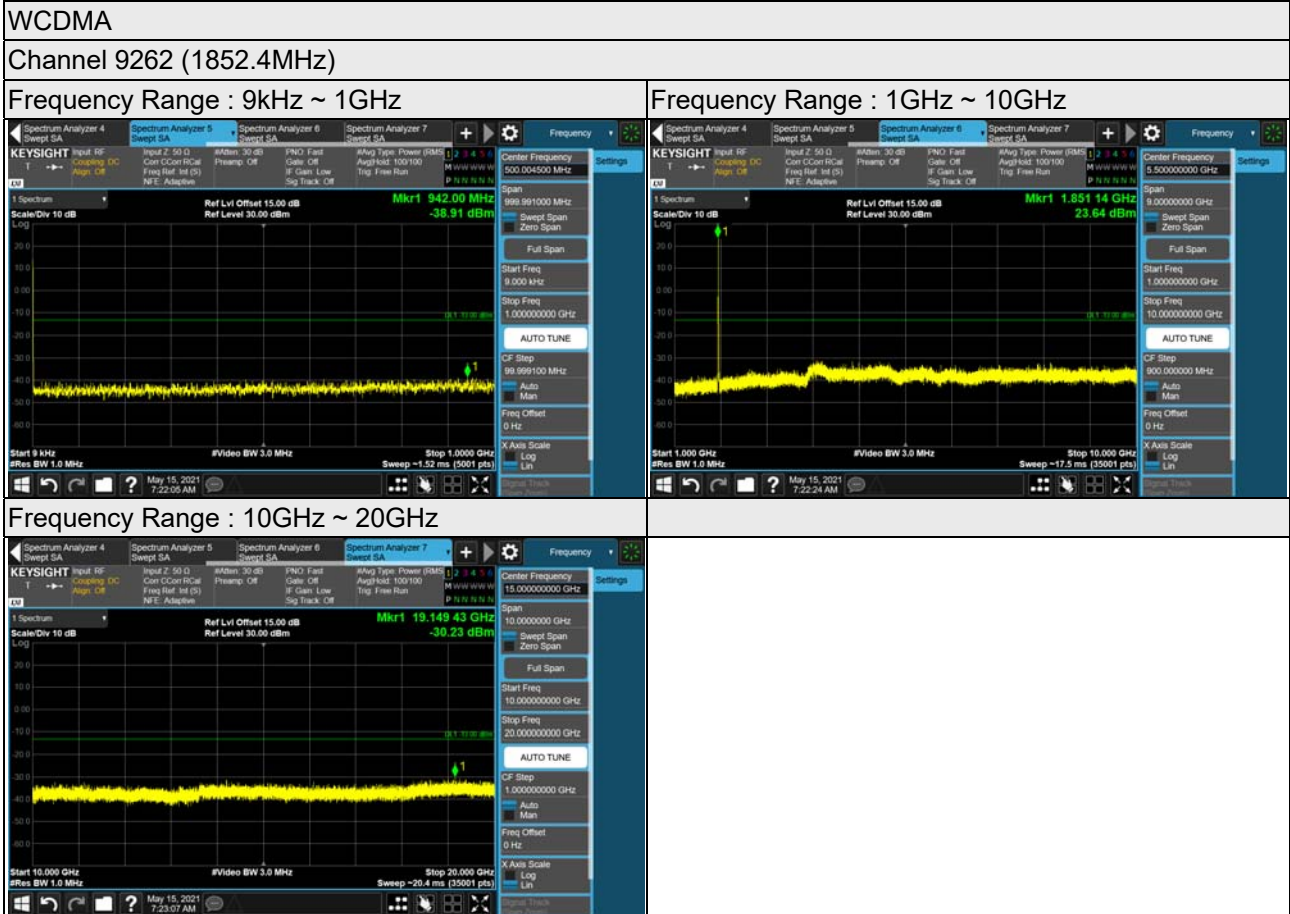
4.7.2 Test Setup



4.7.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9kHz to 20GHz / 26.5GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

4.7.4 Test Results

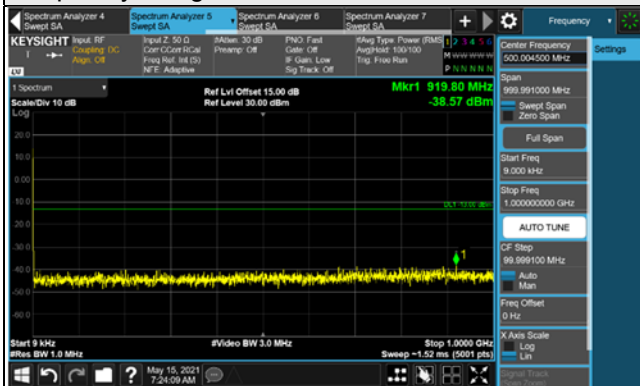


*The 9kHz signal over the limit is from Spectrum.

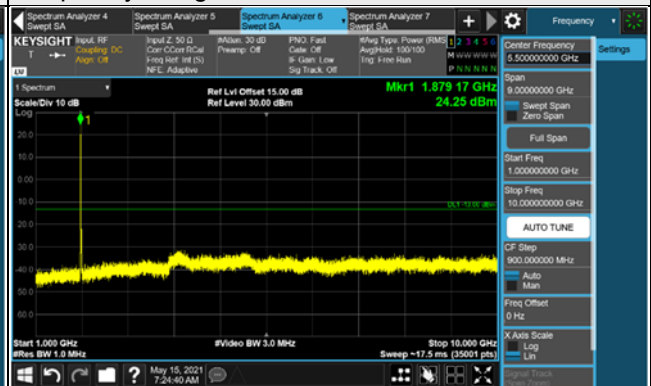
WCDMA

Channel 9400 (1880.0MHz)

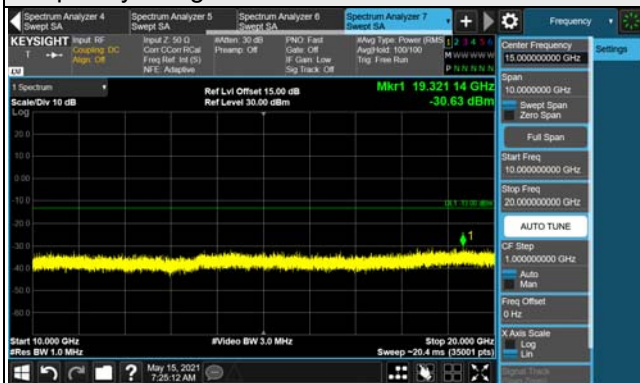
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

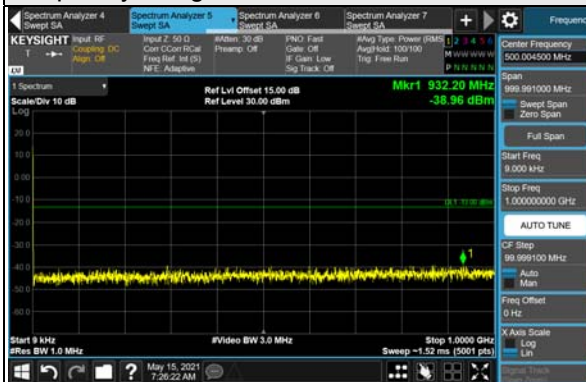


*The 9kHz signal over the limit is from Spectrum.

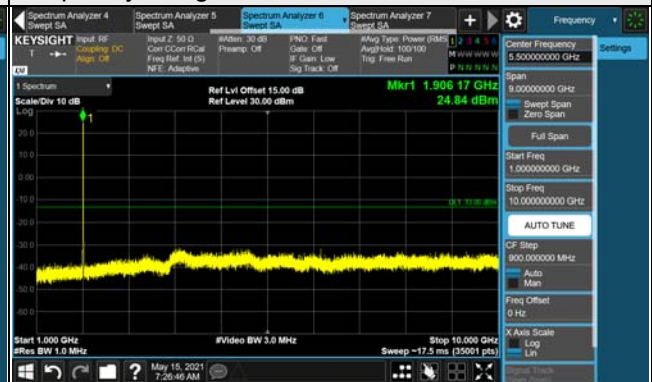
WCDMA

Channel 9538 (1907.6MHz)

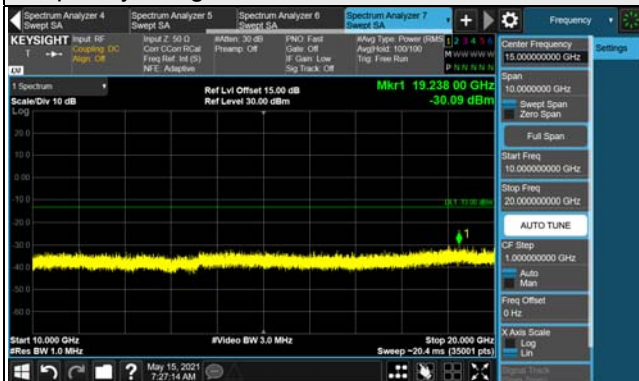
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

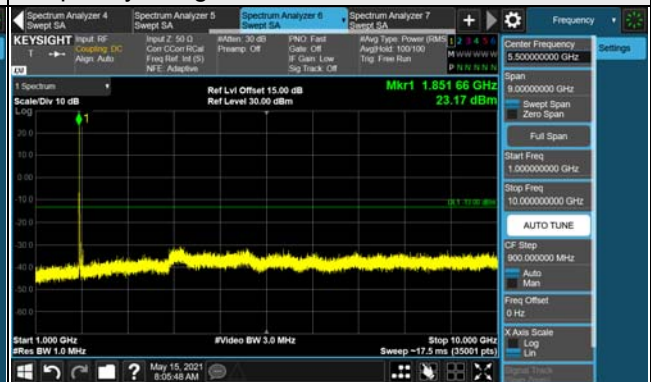
HSDPA

Channel 9262 (1852.4MHz)

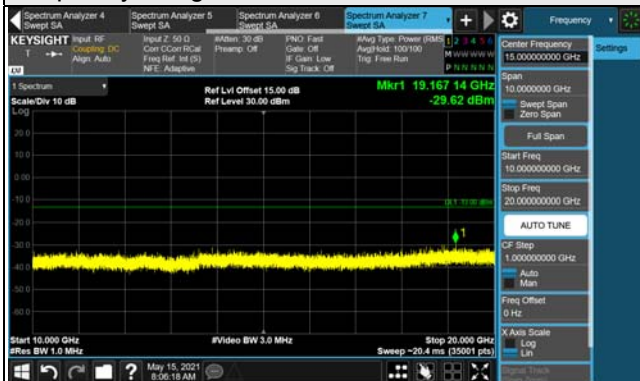
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

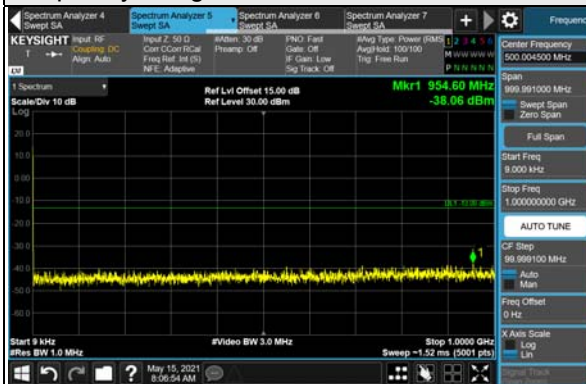


*The 9kHz signal over the limit is from Spectrum.

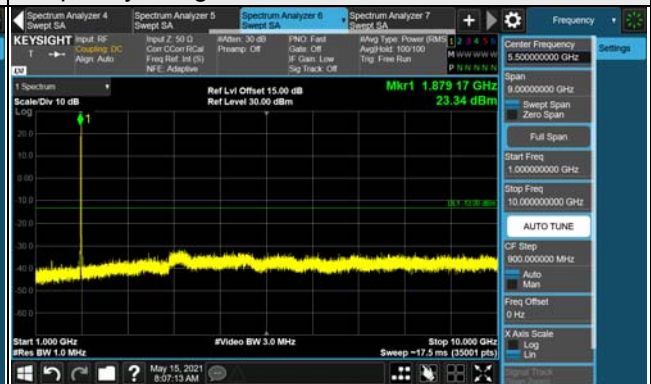
HSDPA

Channel 9400 (1880.0MHz)

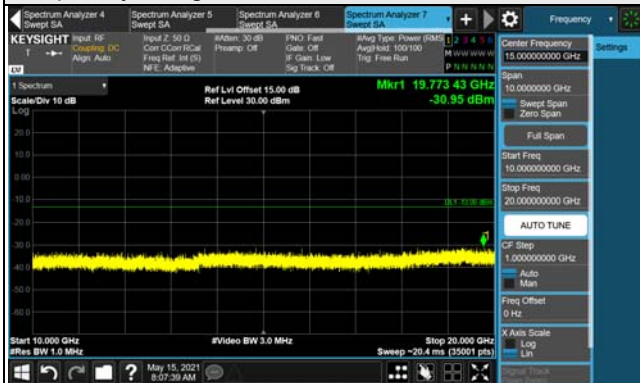
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

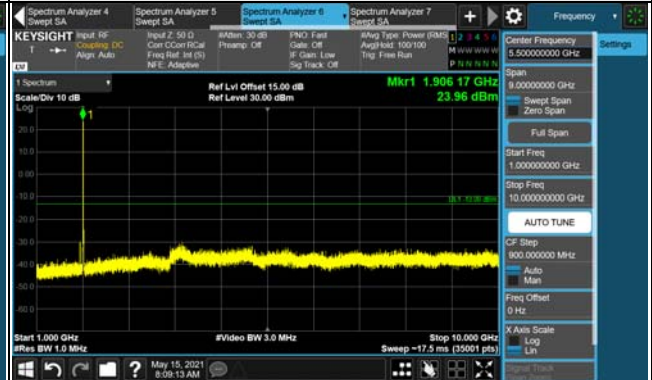
HSDPA

Channel 9538 (1907.6MHz)

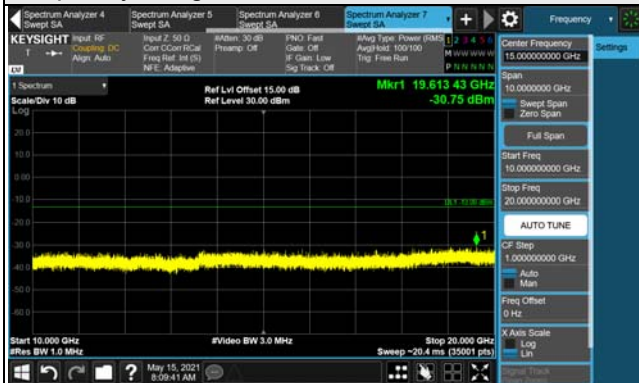
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

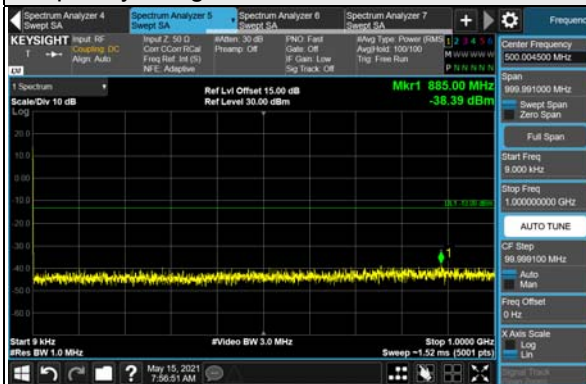


*The 9kHz signal over the limit is from Spectrum.

HSUPA

Channel 9262 (1852.4MHz)

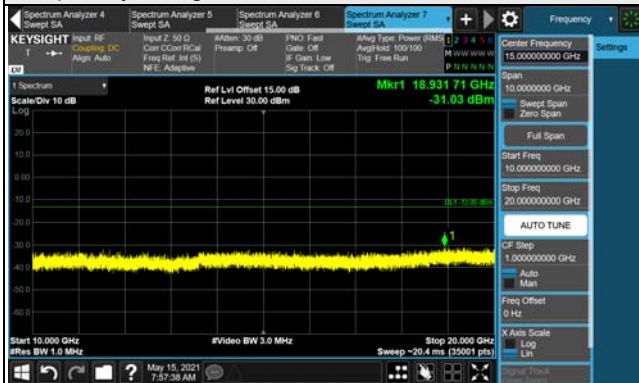
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

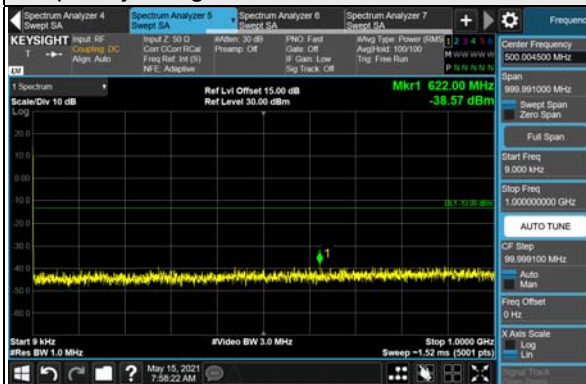


*The 9kHz signal over the limit is from Spectrum.

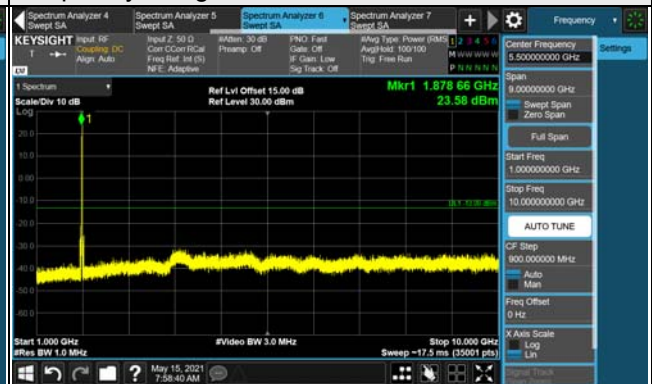
HSUPA

Channel 9400 (1880.0MHz)

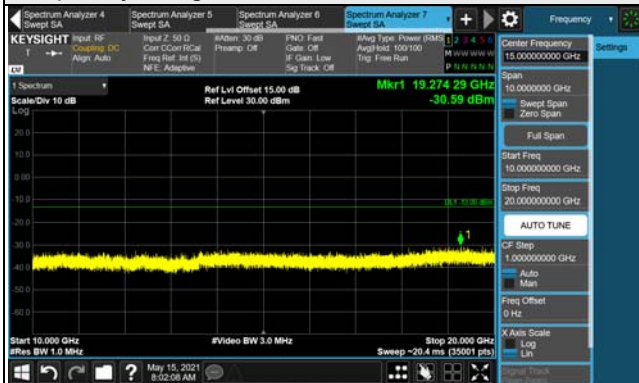
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

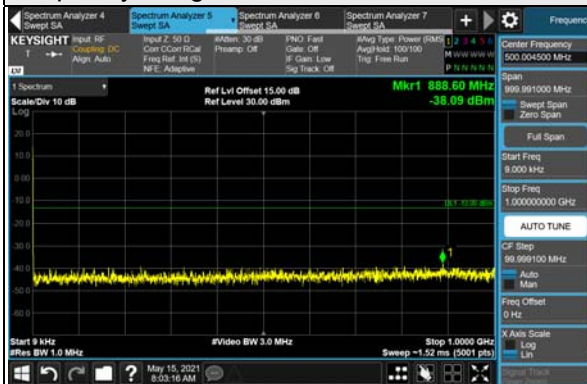


*The 9kHz signal over the limit is from Spectrum.

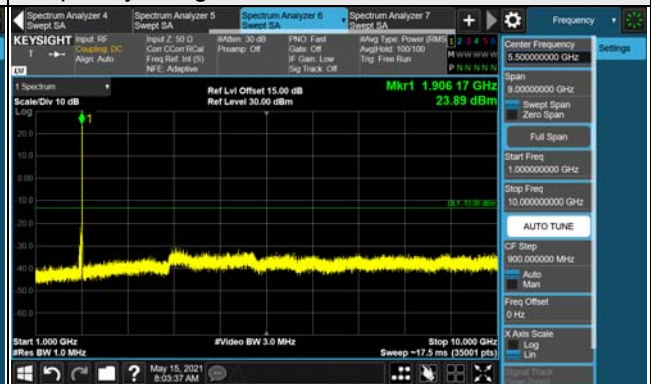
HSUPA

Channel 9538 (1907.6MHz)

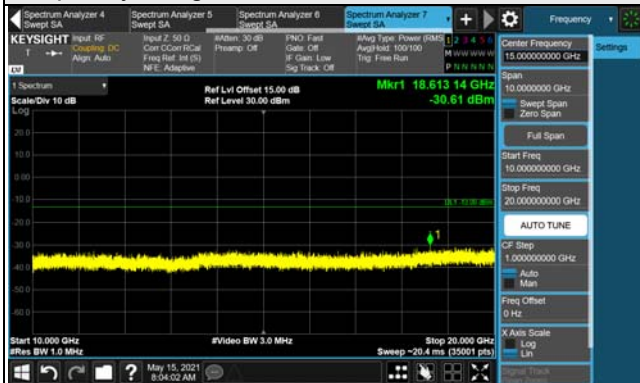
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

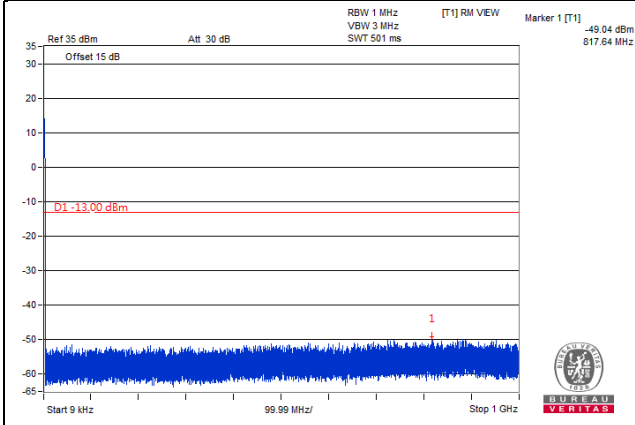


*The 9kHz signal over the limit is from Spectrum.

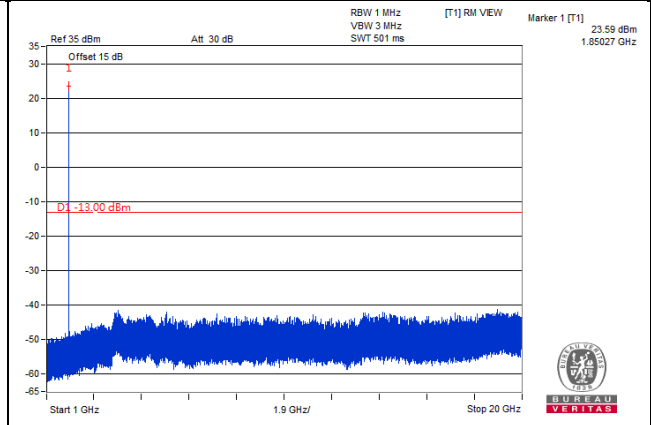
LTE Band 2, Channel Bandwidth 1.4MHz

Channel 18607 (1850.7MHz)

Frequency Range : 9kHz ~ 1GHz

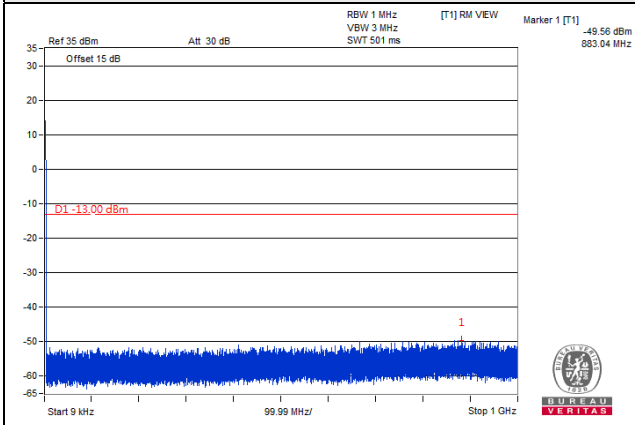


Frequency Range : 1GHz ~ 20GHz

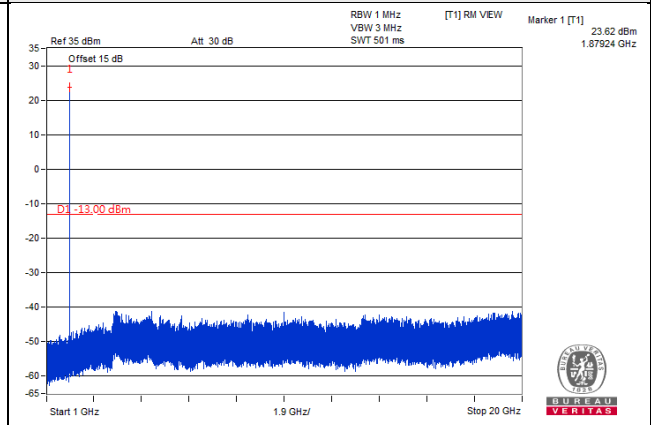


Channel 18900 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

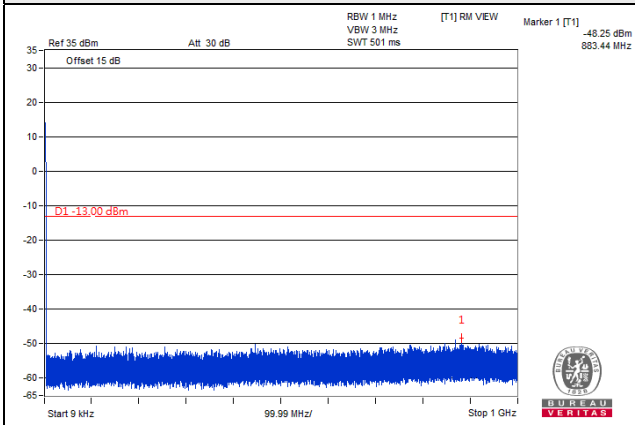


Frequency Range : 1GHz ~ 20GHz

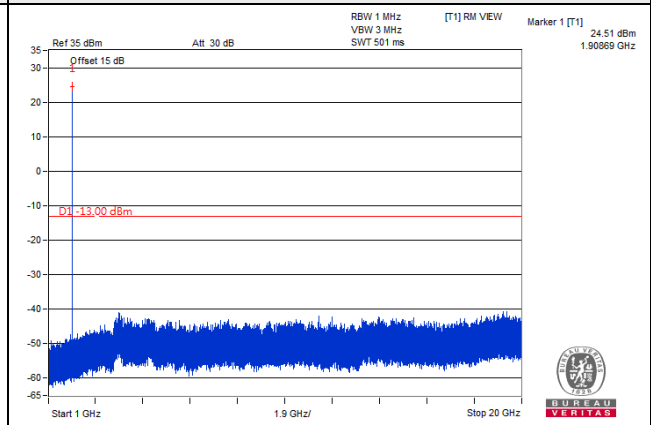


Channel 19193 (1909.3MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

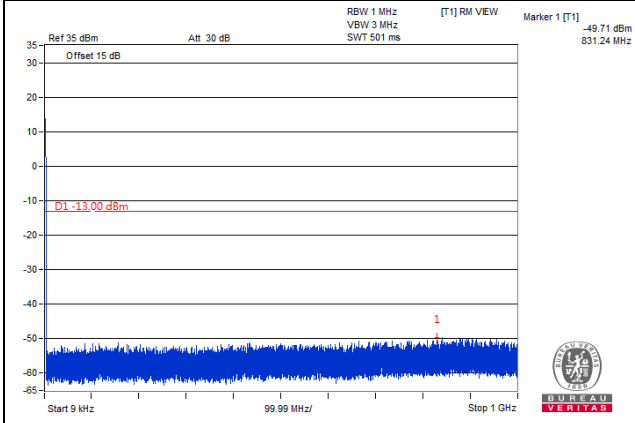


*The 9kHz signal over the limit is from Spectrum.

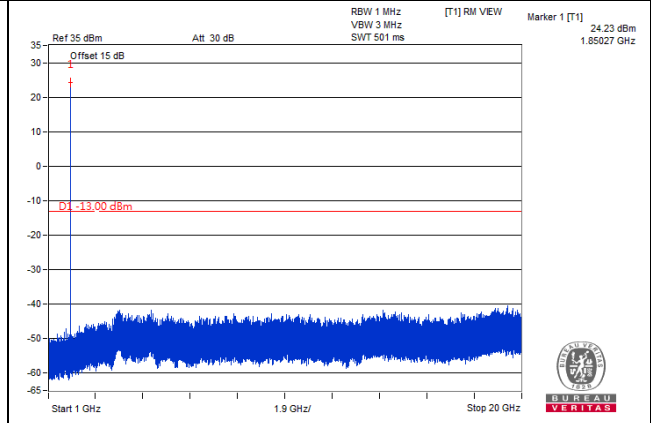
LTE Band 2, Channel Bandwidth 3MHz

Channel 18615 (1851.5MHz)

Frequency Range : 9kHz ~ 1GHz

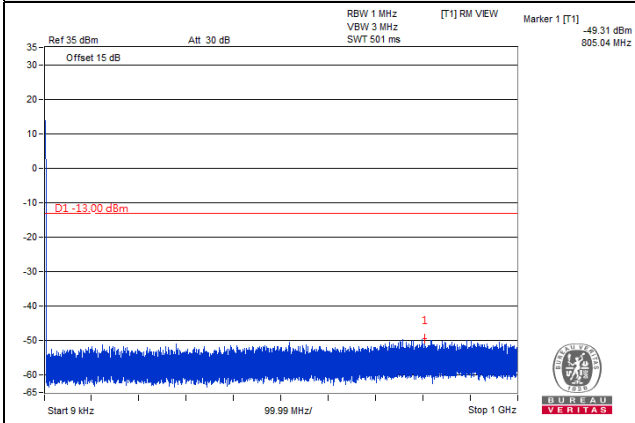


Frequency Range : 1GHz ~ 20GHz

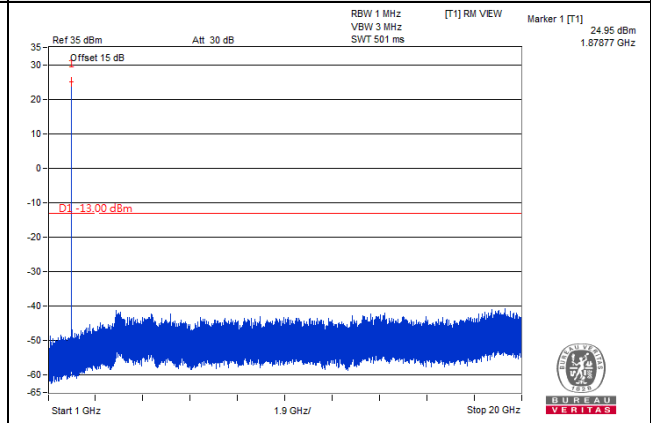


Channel 18900 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

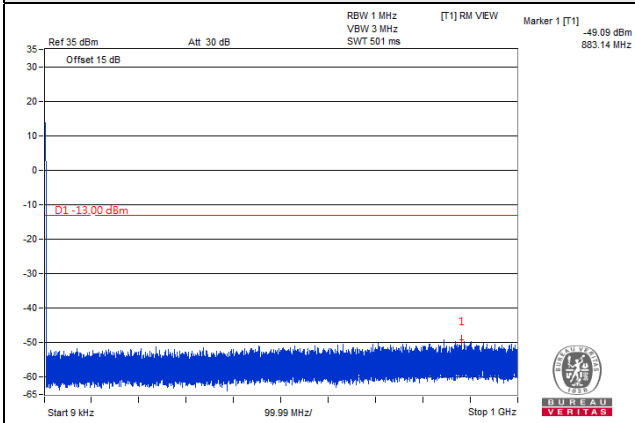


Frequency Range : 1GHz ~ 20GHz

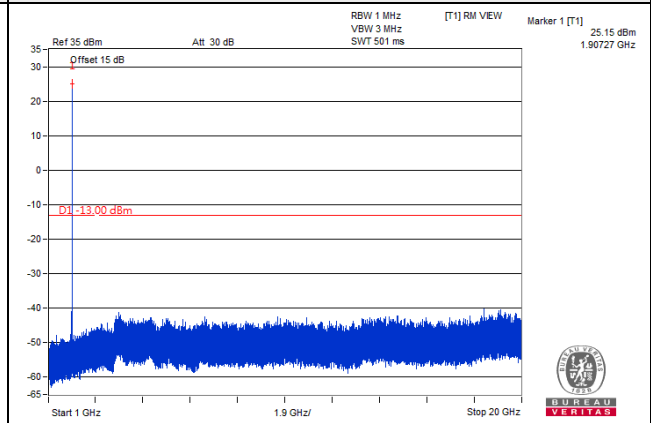


Channel 19185 (1908.5MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

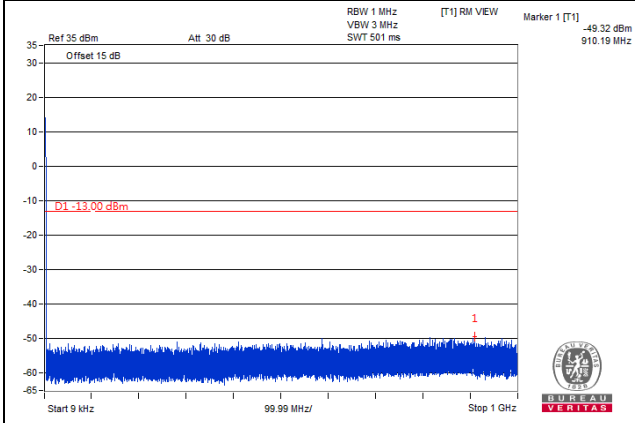


*The 9kHz signal over the limit is from Spectrum.

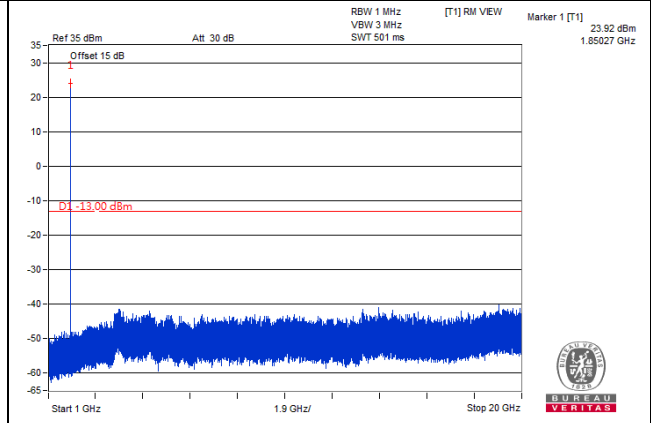
LTE Band 2, Channel Bandwidth 5MHz

Channel 18625 (1852.5MHz)

Frequency Range : 9kHz ~ 1GHz

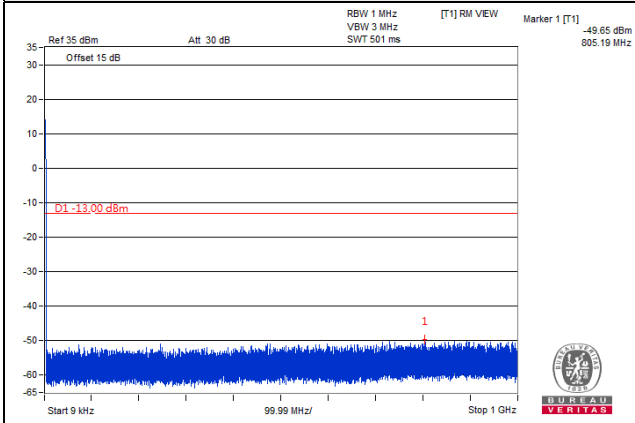


Frequency Range : 1GHz ~ 20GHz

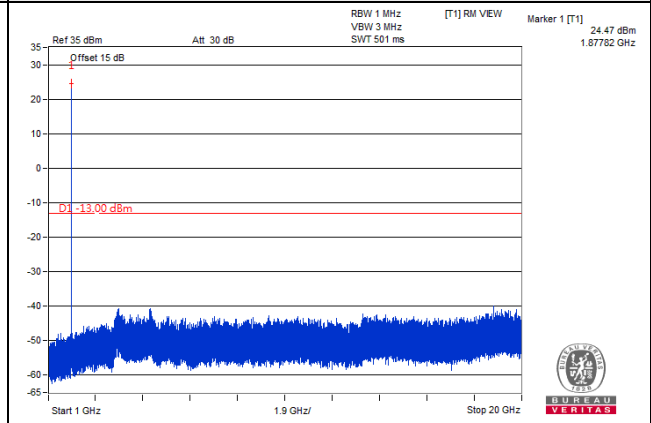


Channel 18900 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

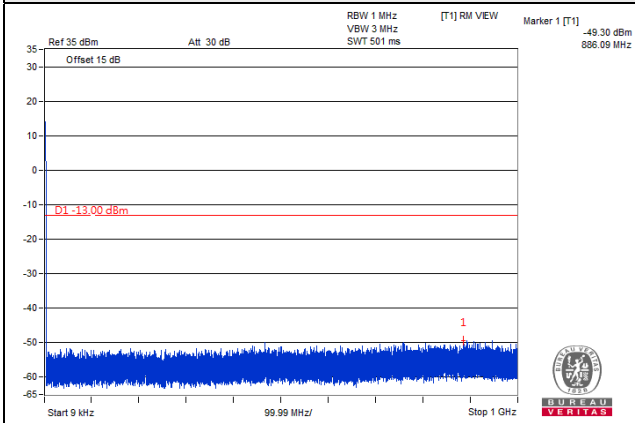


Frequency Range : 1GHz ~ 20GHz

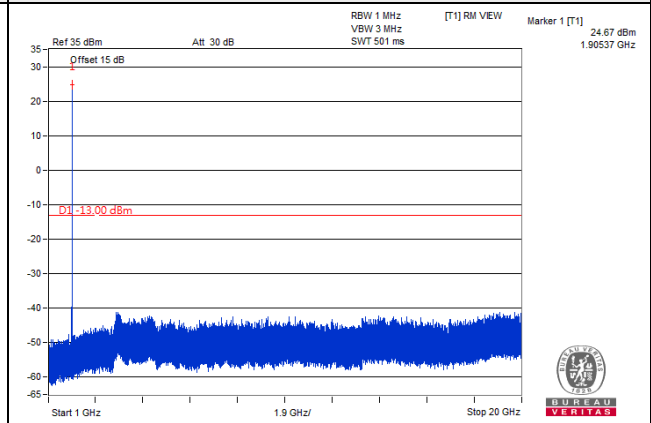


Channel 19175 (1907.5MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

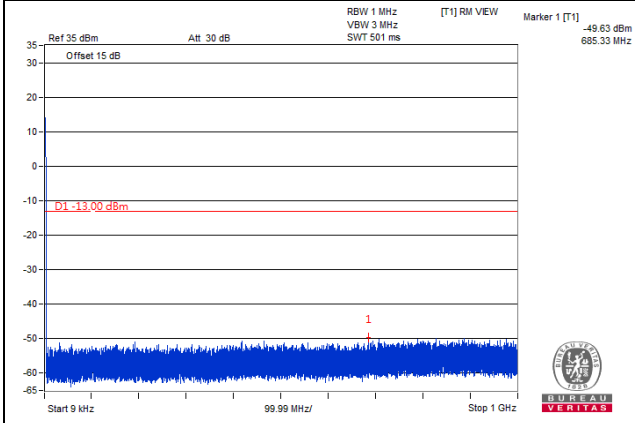


*The 9kHz signal over the limit is from Spectrum.

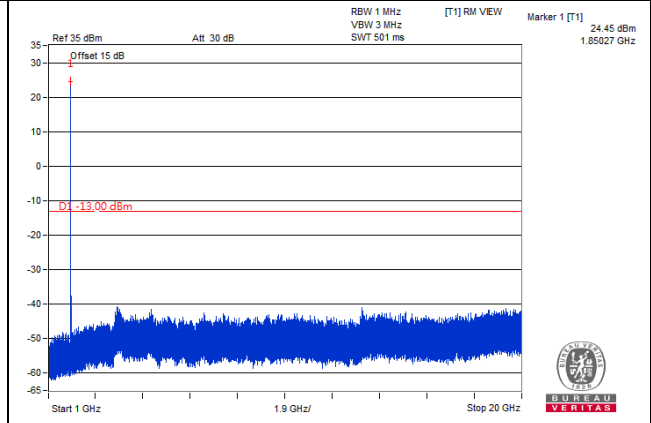
LTE Band 2, Channel Bandwidth 10MHz

Channel 18650 (1855.0MHz)

Frequency Range : 9kHz ~ 1GHz

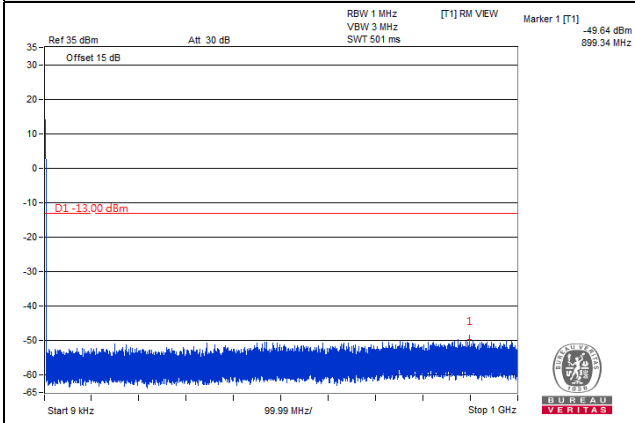


Frequency Range : 1GHz ~ 20GHz

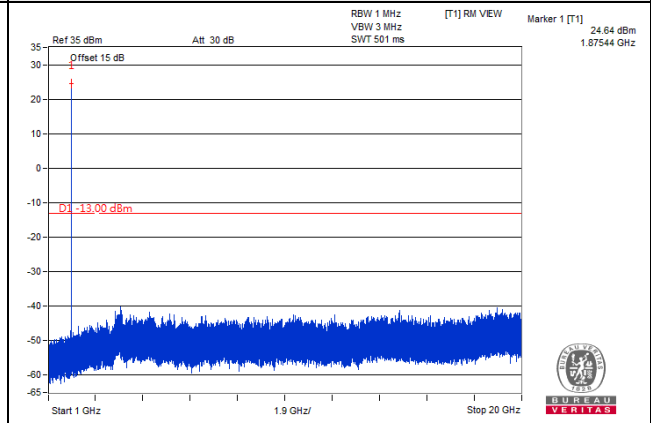


Channel 18900 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

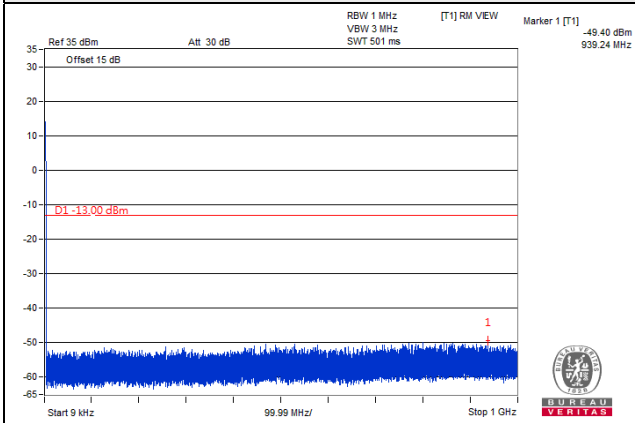


Frequency Range : 1GHz ~ 20GHz

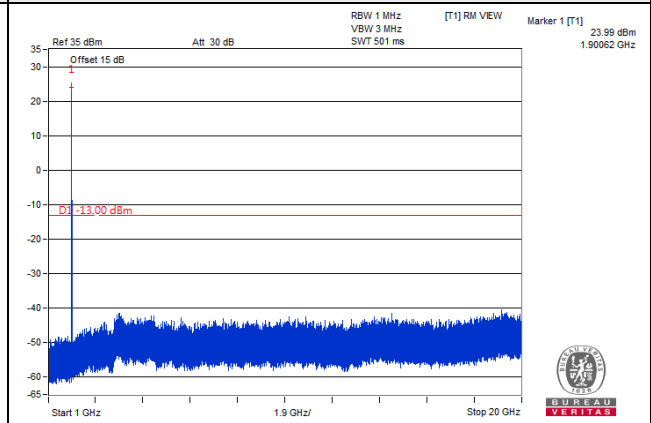


Channel 19150 (1905.0MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

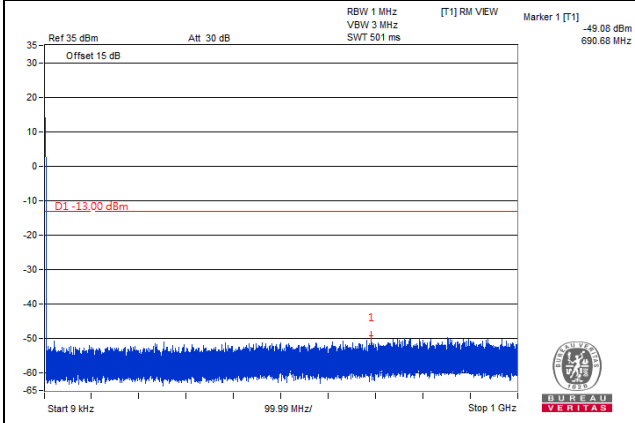


*The 9kHz signal over the limit is from Spectrum.

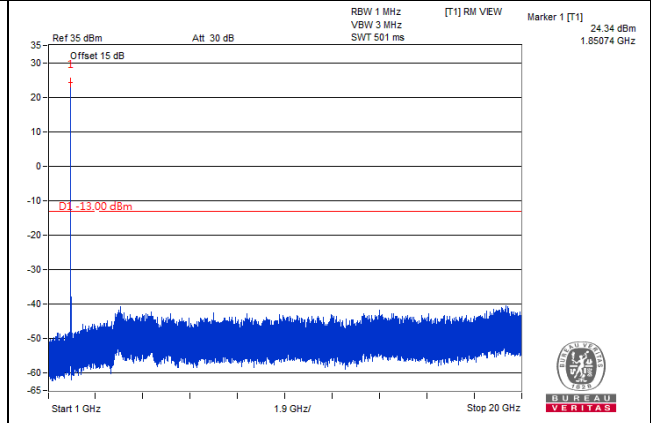
LTE Band 2, Channel Bandwidth 15MHz

Channel 18675 (1857.5MHz)

Frequency Range : 9kHz ~ 1GHz

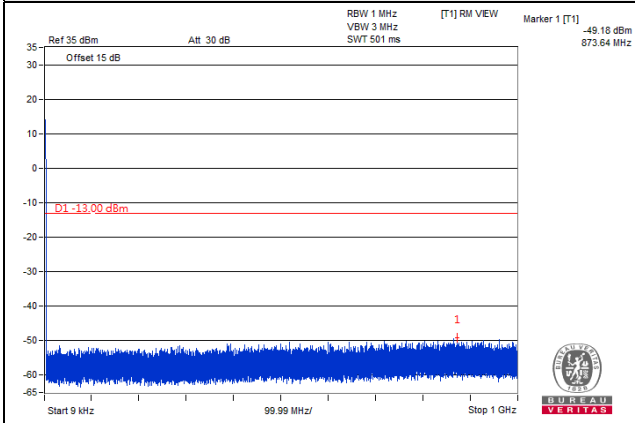


Frequency Range : 1GHz ~ 20GHz

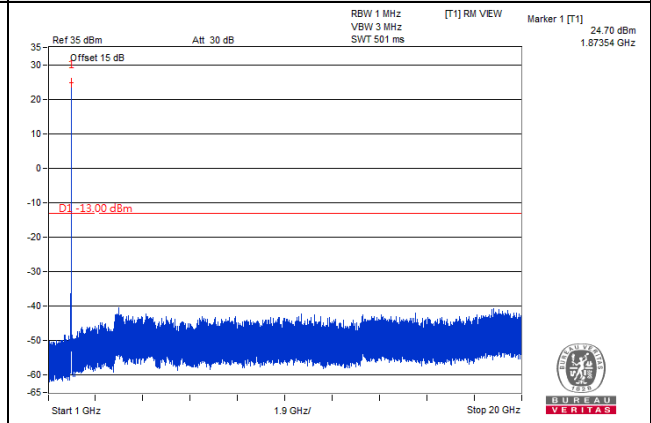


Channel 18900 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

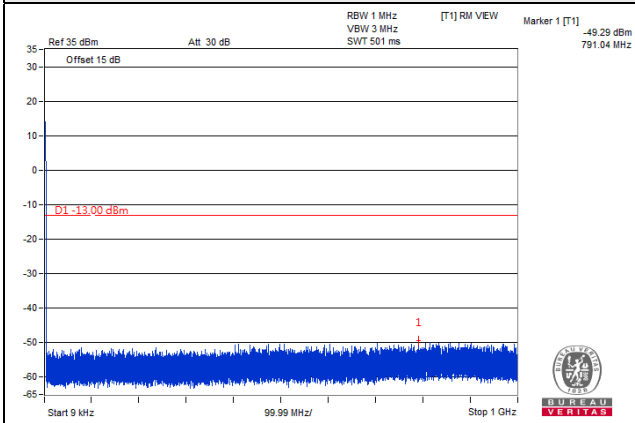


Frequency Range : 1GHz ~ 20GHz

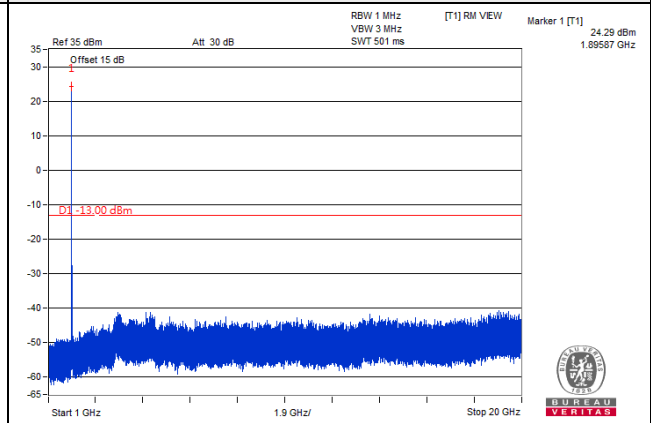


Channel 19125 (1902.5MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

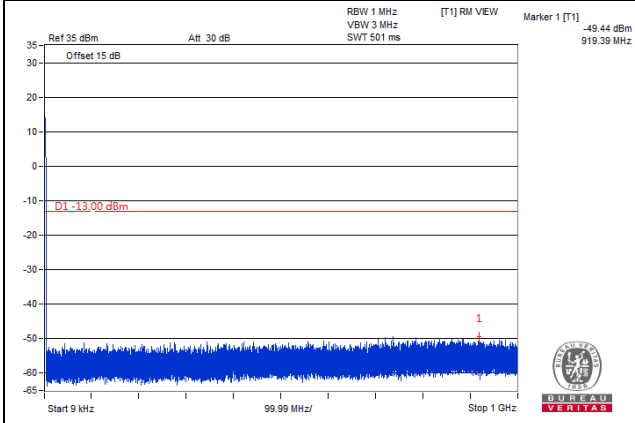


*The 9kHz signal over the limit is from Spectrum.

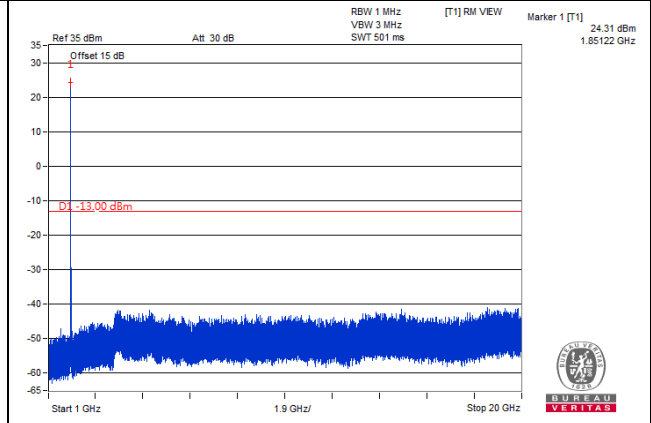
LTE Band 2, Channel Bandwidth 20MHz

Channel 18700 (1860.0MHz)

Frequency Range : 9kHz ~ 1GHz

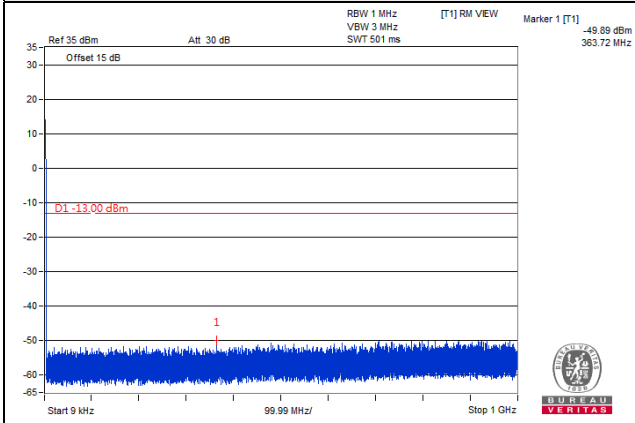


Frequency Range : 1GHz ~ 20GHz

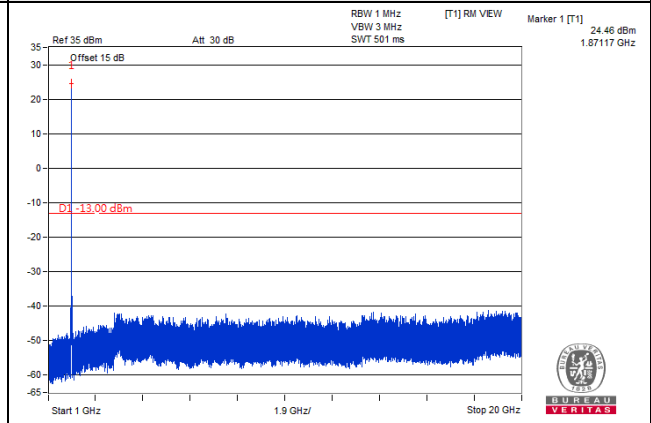


Channel 18900 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

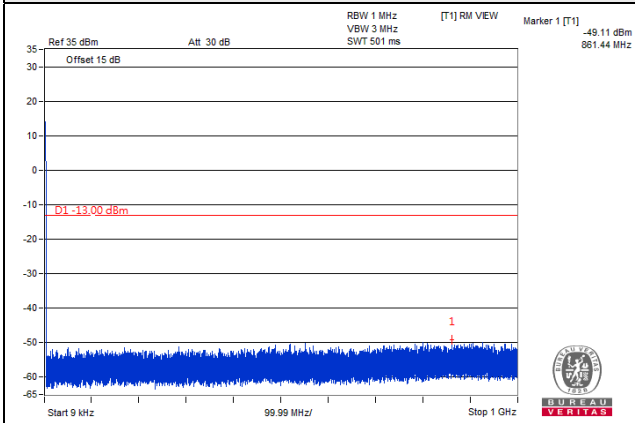


Frequency Range : 1GHz ~ 20GHz

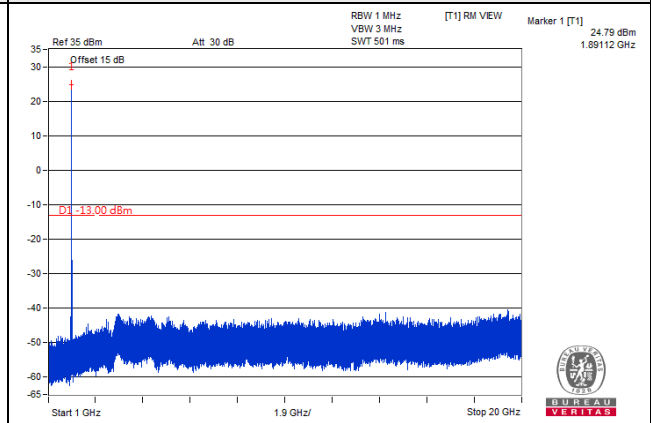


Channel 19100 (1900.0MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

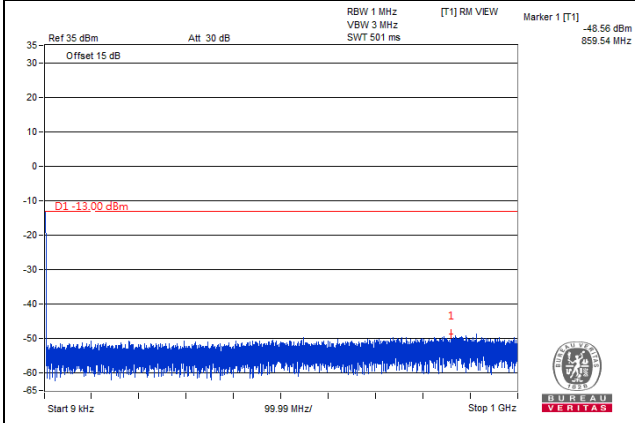


*The 9kHz signal over the limit is from Spectrum.

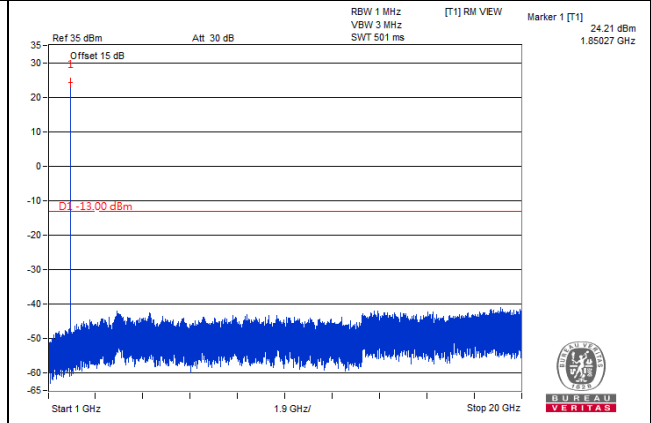
LTE Band 25, Channel Bandwidth 1.4MHz

Channel 26047 (1850.7MHz)

Frequency Range : 9kHz ~ 1GHz

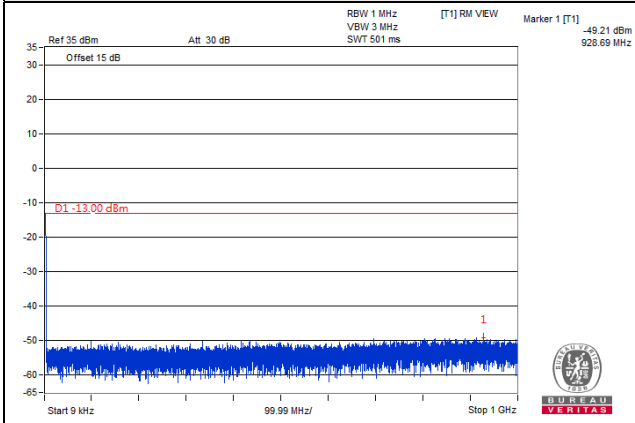


Frequency Range : 1GHz ~ 20GHz

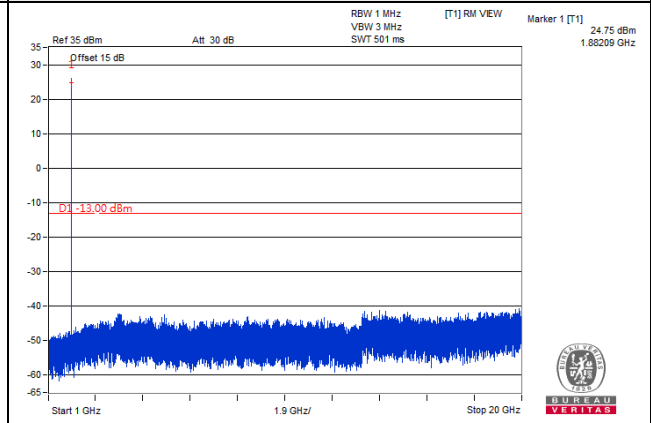


Channel 26365 (1882.5MHz)

Frequency Range : 9kHz ~ 1GHz

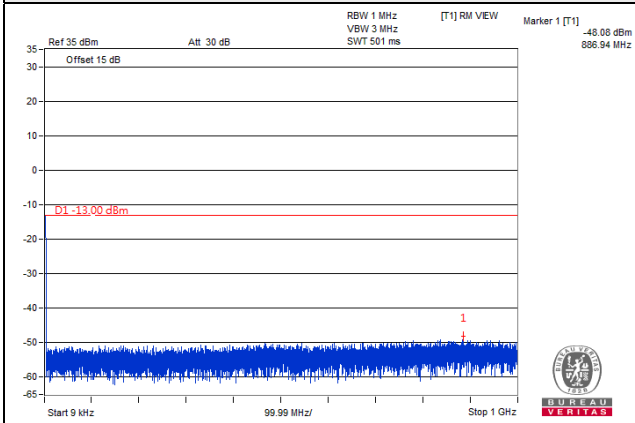


Frequency Range : 1GHz ~ 20GHz

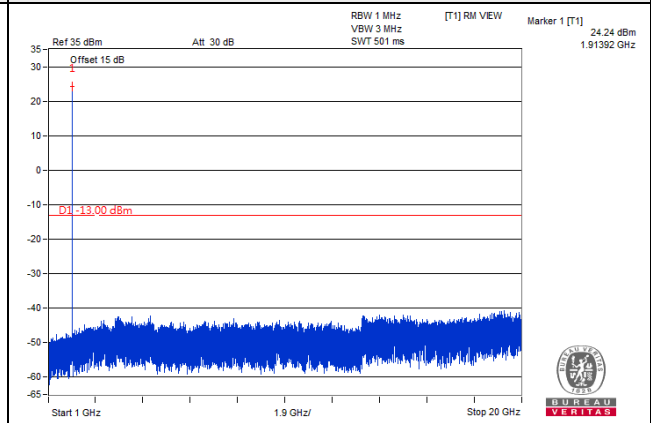


Channel 26683 (1914.3MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

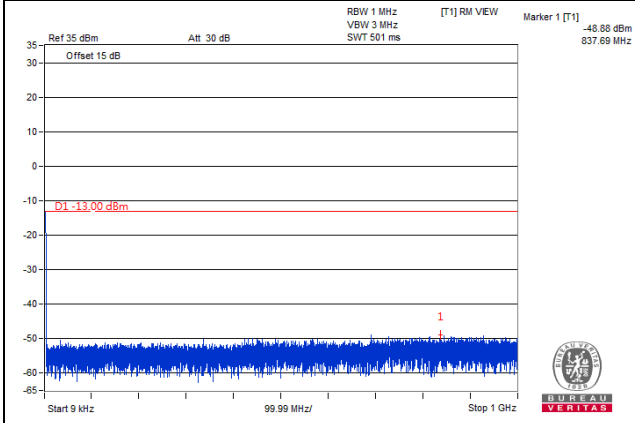


*The 9kHz signal over the limit is from Spectrum.

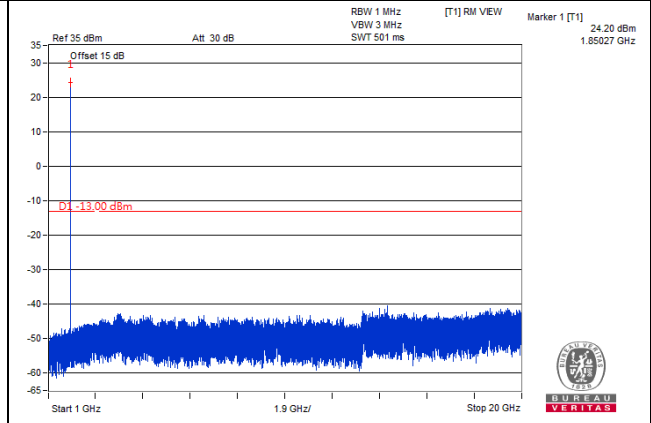
LTE Band 25, Channel Bandwidth 3MHz

Channel 26055 (1851.5MHz)

Frequency Range : 9kHz ~ 1GHz

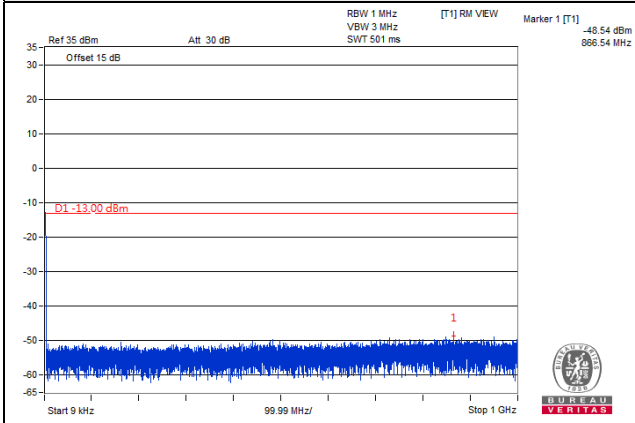


Frequency Range : 1GHz ~ 20GHz

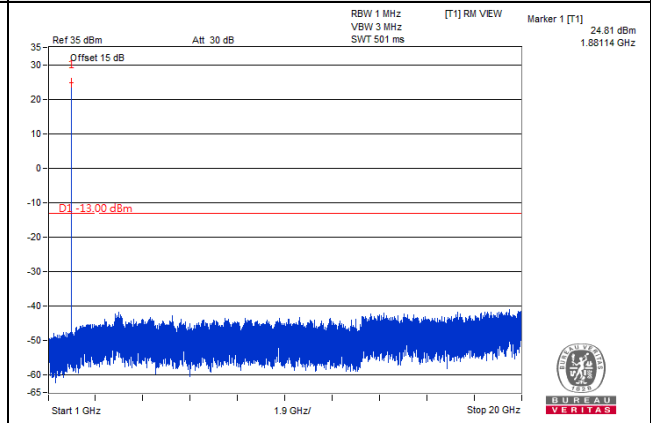


Channel 26365 (1882.5MHz)

Frequency Range : 9kHz ~ 1GHz

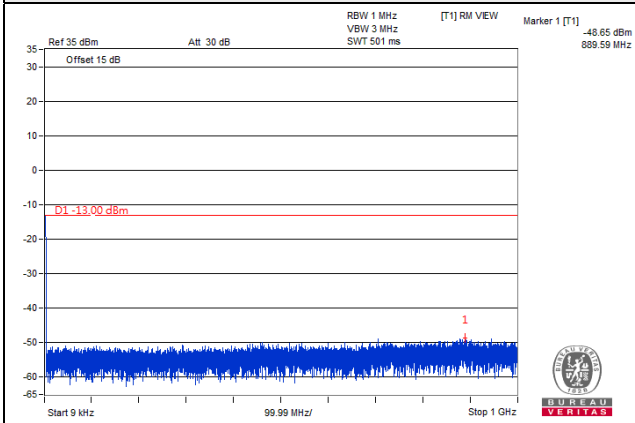


Frequency Range : 1GHz ~ 20GHz

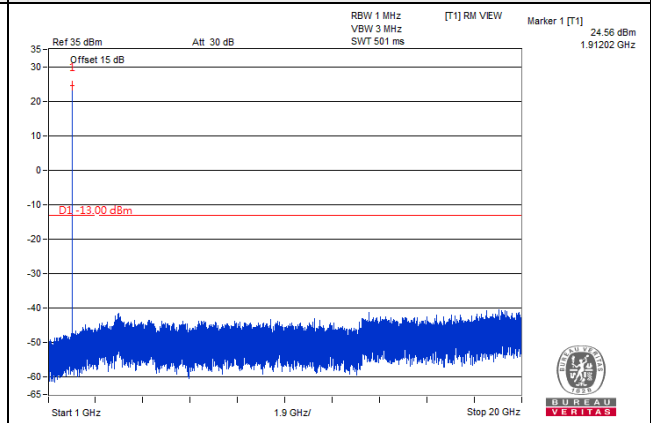


Channel 26675 (1913.5MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

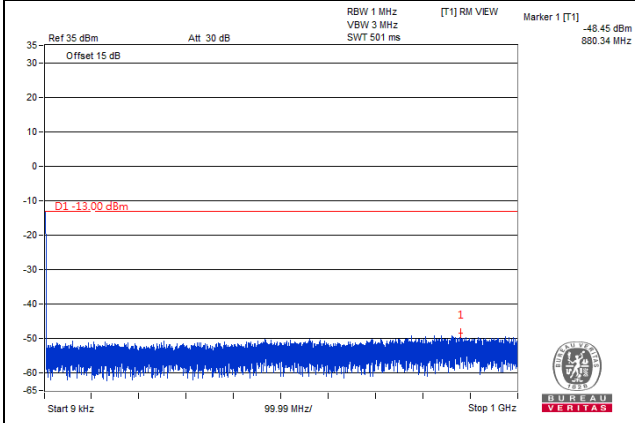


*The 9kHz signal over the limit is from Spectrum.

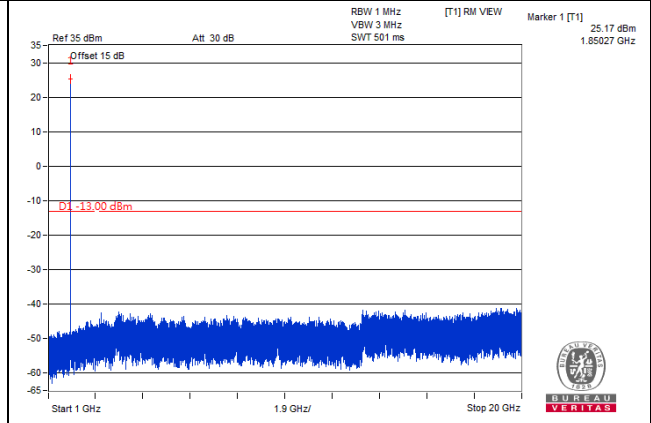
LTE Band 25, Channel Bandwidth 5MHz

Channel 26065 (1852.5MHz)

Frequency Range : 9kHz ~ 1GHz

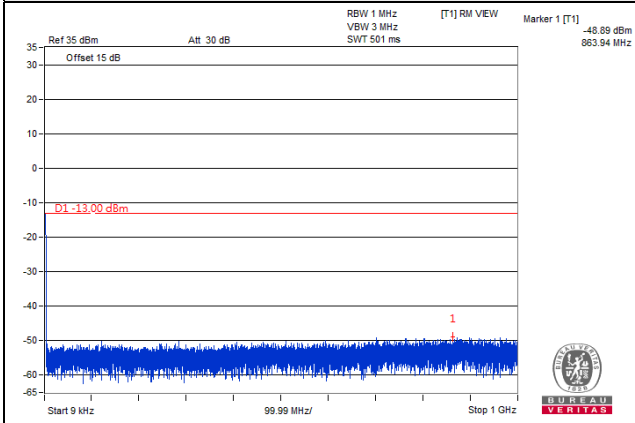


Frequency Range : 1GHz ~ 20GHz

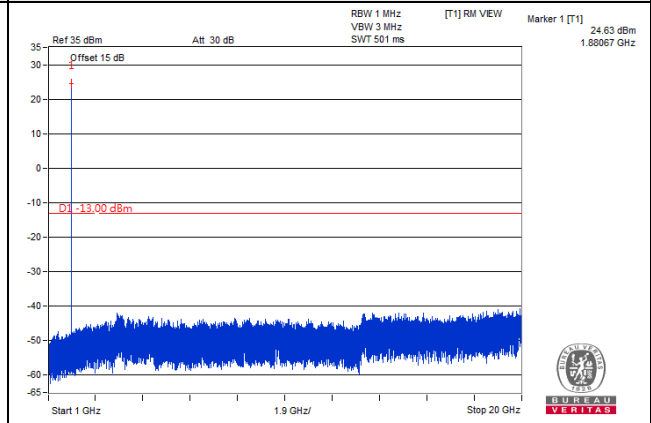


Channel 26365 (1882.5MHz)

Frequency Range : 9kHz ~ 1GHz

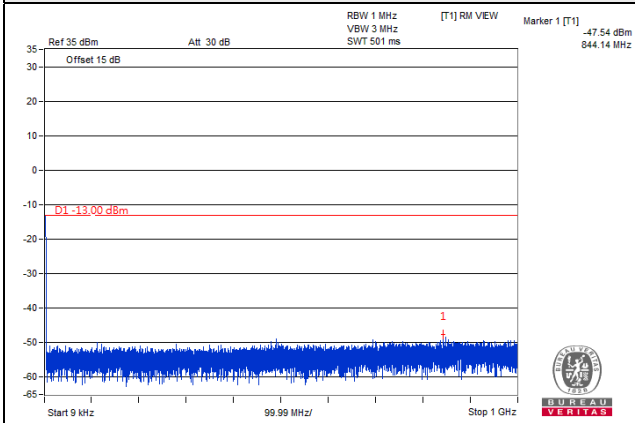


Frequency Range : 1GHz ~ 20GHz

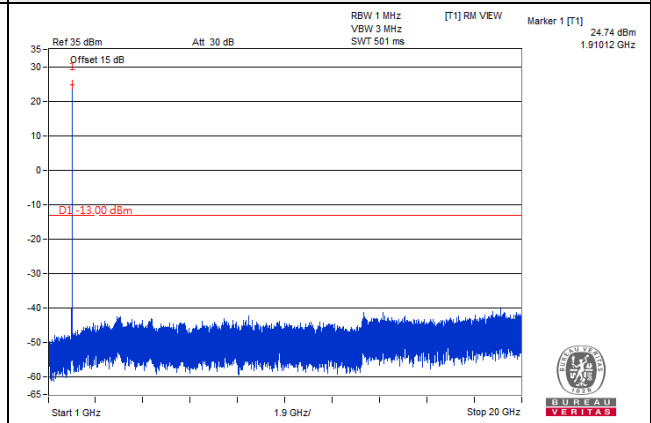


Channel 26665 (1912.5MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

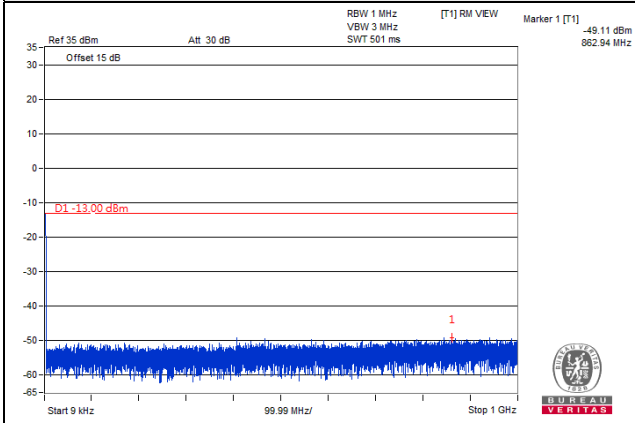


*The 9kHz signal over the limit is from Spectrum.

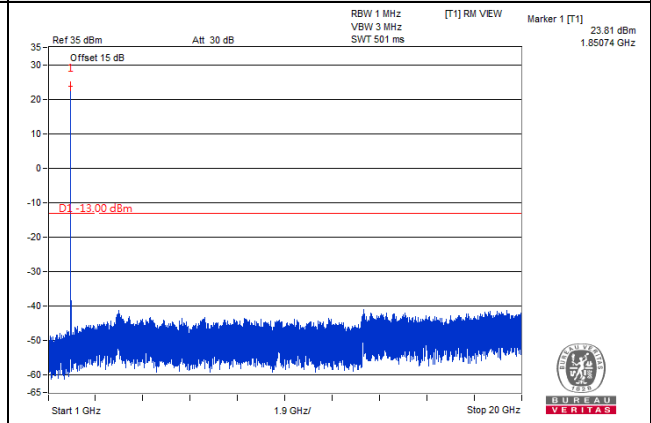
LTE Band 25, Channel Bandwidth 10MHz

Channel 26090 (1855.0MHz)

Frequency Range : 9kHz ~ 1GHz

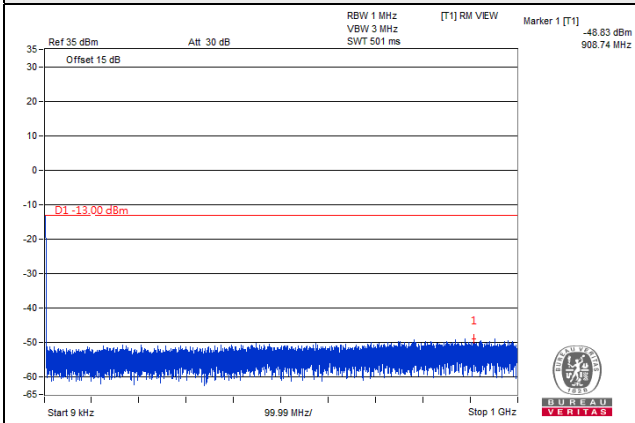


Frequency Range : 1GHz ~ 20GHz

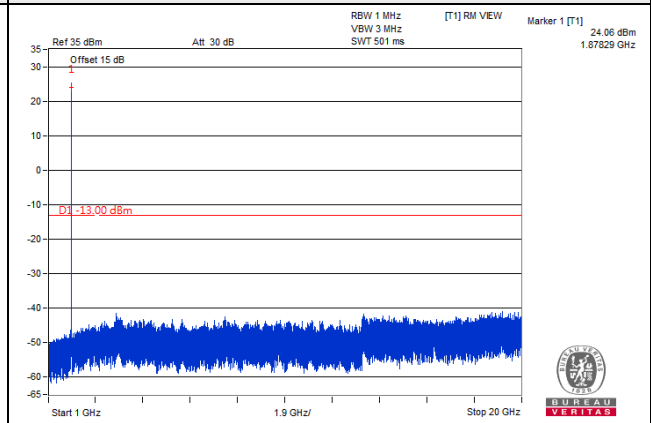


Channel 26365 (1882.5MHz)

Frequency Range : 9kHz ~ 1GHz

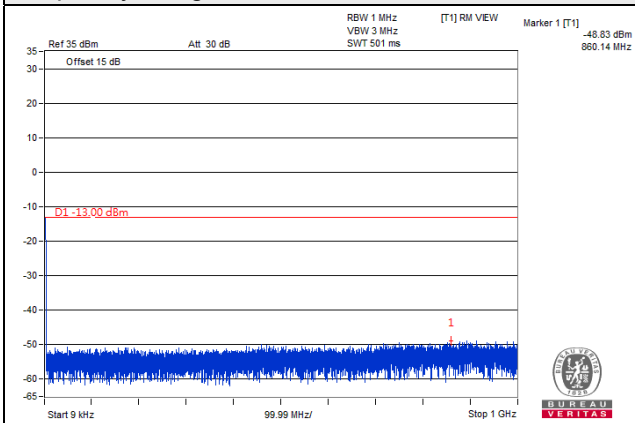


Frequency Range : 1GHz ~ 20GHz

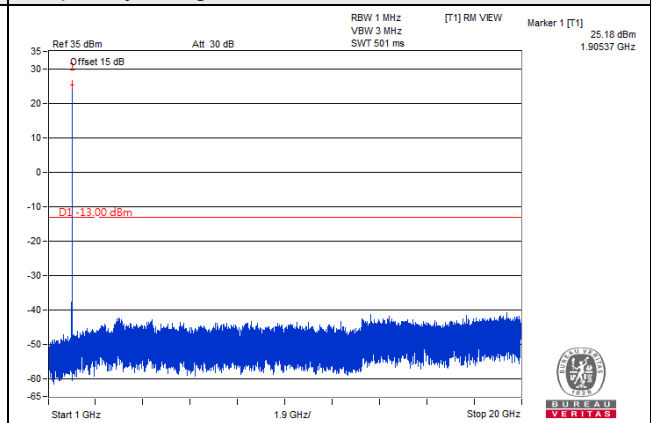


Channel 26640 (1910.0MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

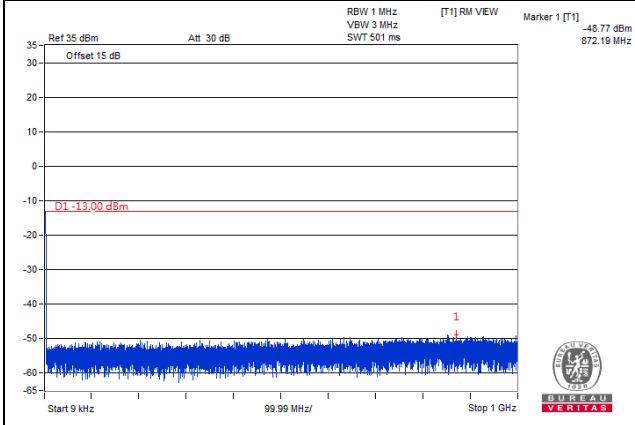


*The 9kHz signal over the limit is from Spectrum.

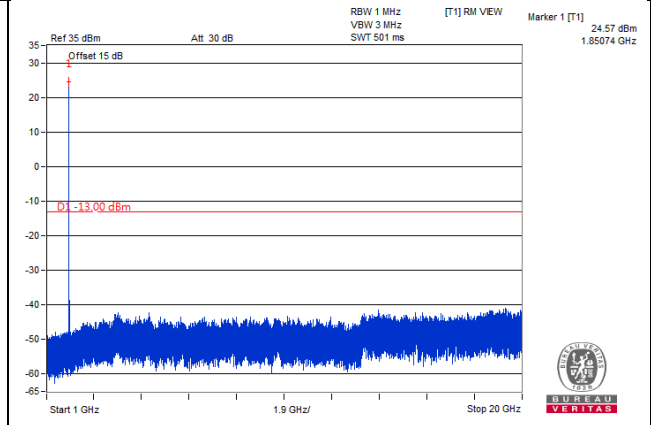
LTE Band 25, Channel Bandwidth 15MHz

Channel 26115 (1857.5MHz)

Frequency Range : 9kHz ~ 1GHz

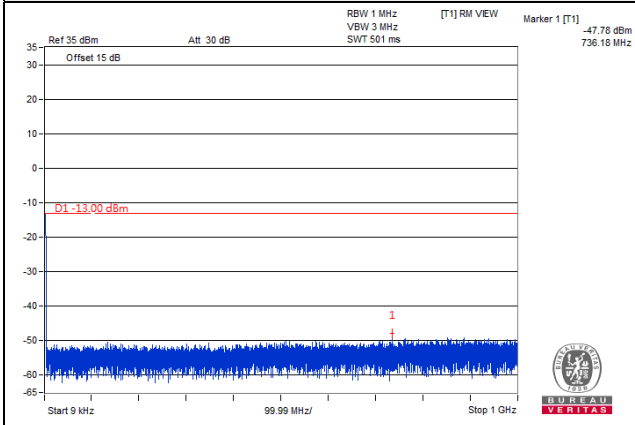


Frequency Range : 1GHz ~ 20GHz

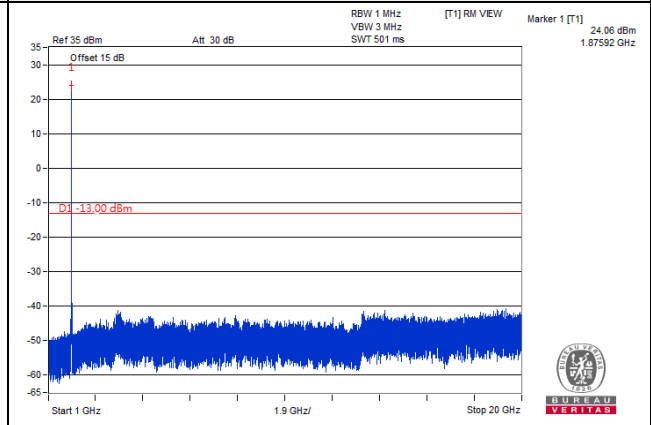


Channel 26365 (1882.5MHz)

Frequency Range : 9kHz ~ 1GHz

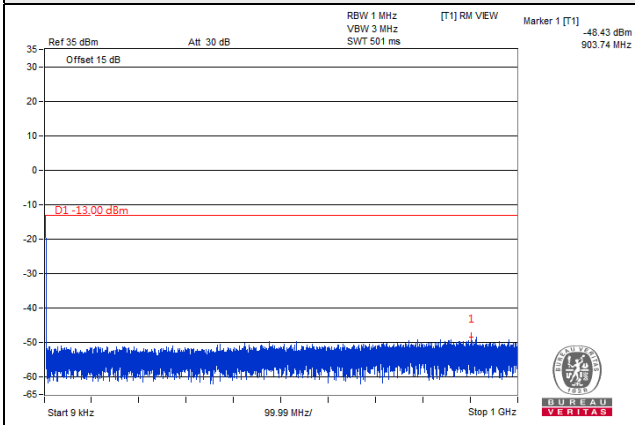


Frequency Range : 1GHz ~ 20GHz

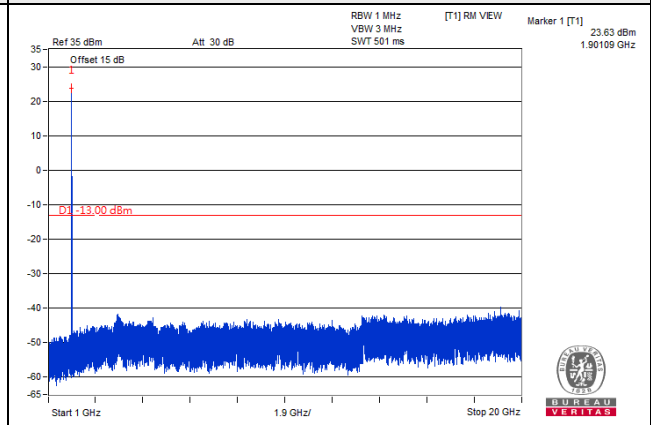


Channel 26615 (1907.5MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz

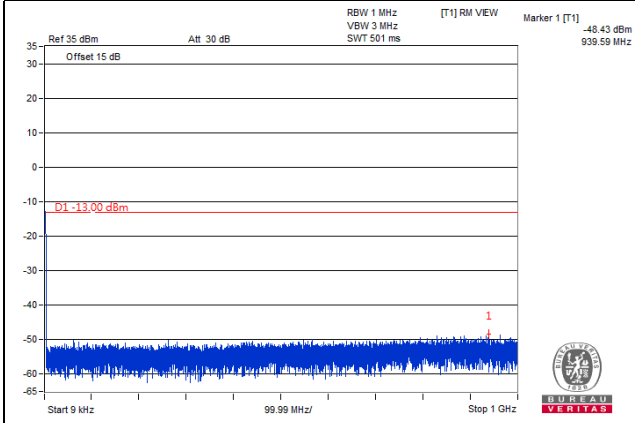


*The 9kHz signal over the limit is from Spectrum.

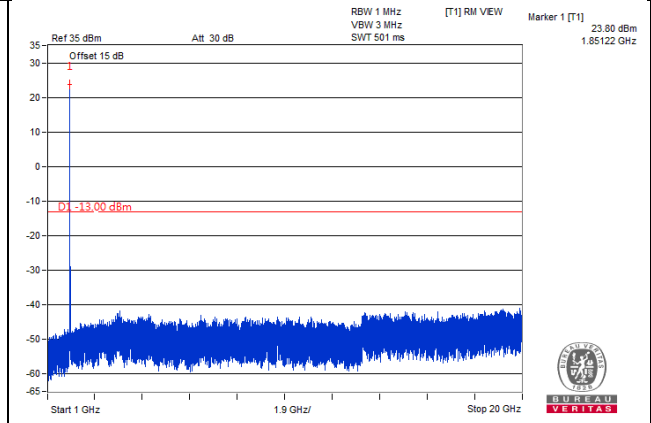
LTE Band 25, Channel Bandwidth 20MHz

Channel 26140 (1860.0MHz)

Frequency Range : 9kHz ~ 1GHz

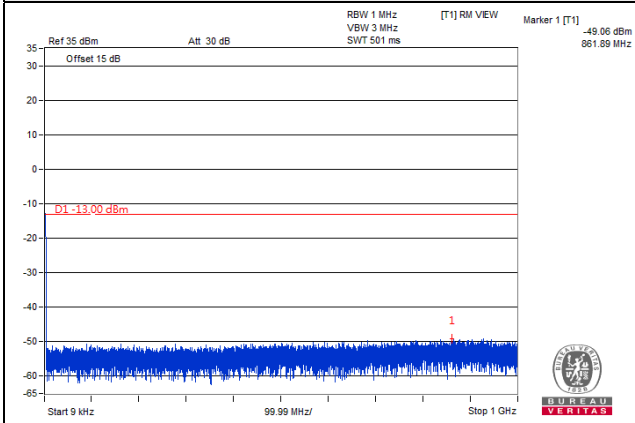


Frequency Range : 1GHz ~ 20GHz

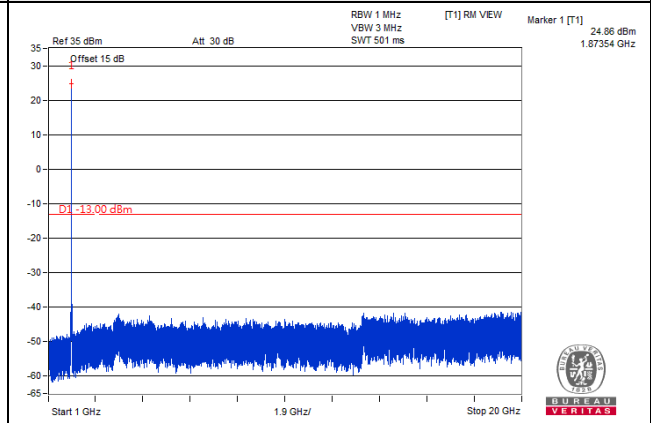


Channel 26365 (1882.5MHz)

Frequency Range : 9kHz ~ 1GHz

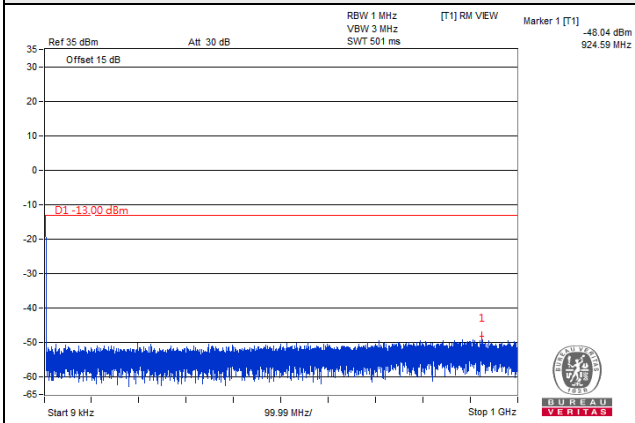


Frequency Range : 1GHz ~ 20GHz

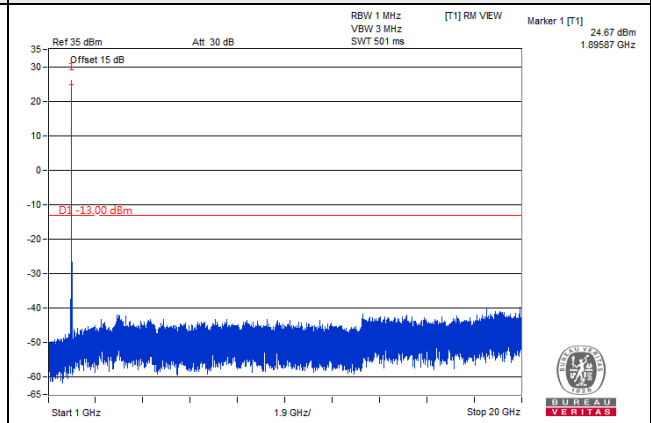


Channel 26590 (1905.0MHz)

Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 20GHz



*The 9kHz signal over the limit is from Spectrum.

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

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

4.8.2 Test Procedure

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following C63.26 section 5.5 and 5.2.7
 - $\text{EIRP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
 - $\text{ERP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note:

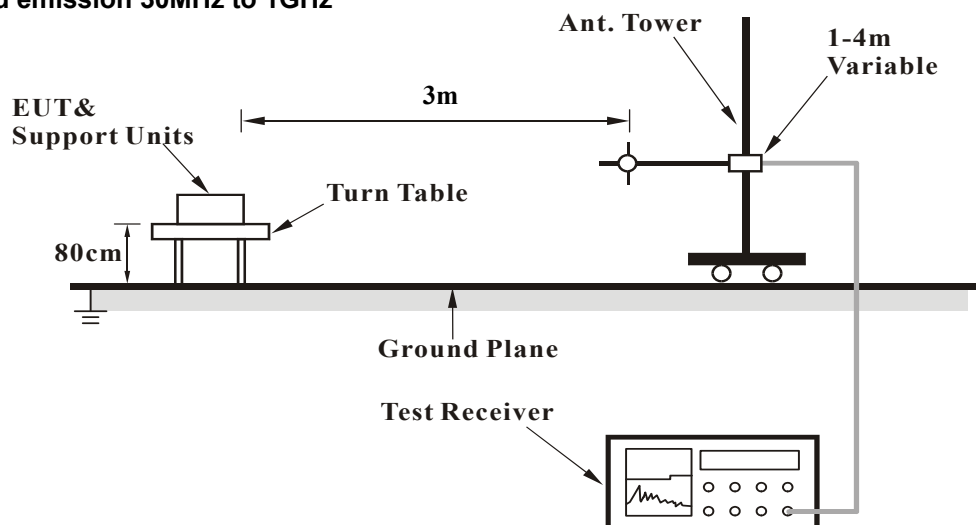
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.8.3 Deviation from Test Standard

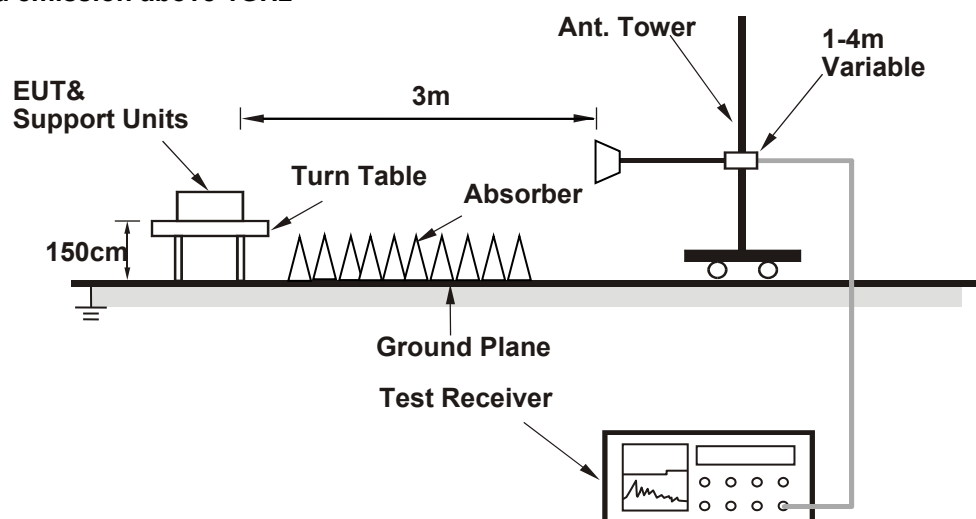
No deviation.

4.8.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

4.8.5 Test Results

Below 1GHz

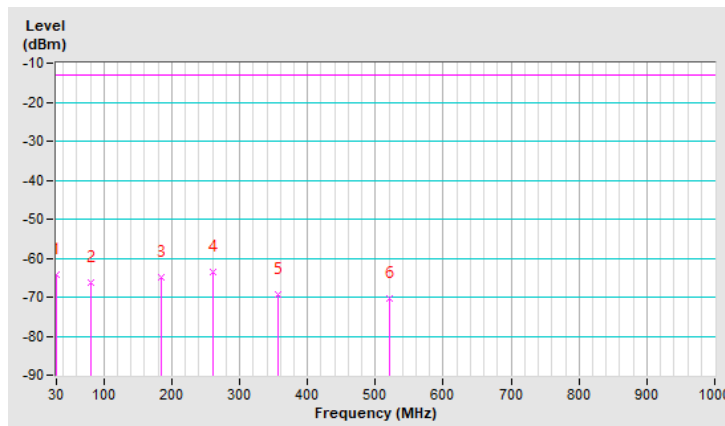
WCDMA Band 2

| | | | |
|--------------------------|--------------------------------|-----------------|----------------|
| Mode | TX channel 9400 (1880.0MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 30.00 | -64.30 | -13.00 | -51.30 | 2.00 H | 106 | 41.90 | -106.20 |
| 2 | 80.61 | -66.20 | -13.00 | -53.20 | 1.00 H | 278 | 42.60 | -108.80 |
| 3 | 184.64 | -65.00 | -13.00 | -52.00 | 1.00 H | 225 | 40.60 | -105.60 |
| 4 | 260.55 | -63.40 | -13.00 | -50.40 | 1.50 H | 33 | 39.90 | -103.30 |
| 5 | 356.14 | -69.40 | -13.00 | -56.40 | 1.00 H | 160 | 31.40 | -100.80 |
| 6 | 520.62 | -70.40 | -13.00 | -57.40 | 1.50 H | 201 | 26.80 | -97.20 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

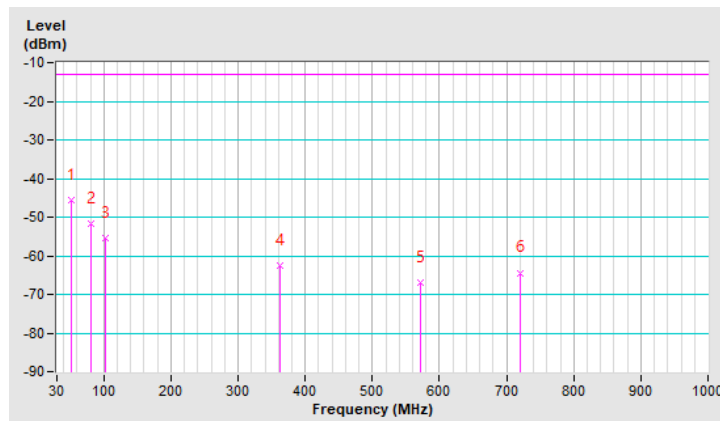


| | | | |
|--------------------------|--------------------------------|-----------------|----------------|
| Mode | TX channel 9400 (1880.0MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
|---------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 51.09 | -45.60 | -13.00 | -32.60 | 2.00 V | 354 | 58.80 | -104.40 |
| 2 | 80.61 | -51.60 | -13.00 | -38.60 | 1.00 V | 76 | 57.20 | -108.80 |
| 3 | 103.10 | -55.50 | -13.00 | -42.50 | 2.00 V | 45 | 52.50 | -108.00 |
| 4 | 363.17 | -62.70 | -13.00 | -49.70 | 1.50 V | 107 | 37.90 | -100.60 |
| 5 | 572.64 | -67.10 | -13.00 | -54.10 | 1.00 V | 119 | 28.90 | -96.00 |
| 6 | 720.25 | -64.40 | -13.00 | -51.40 | 1.00 V | 262 | 28.70 | -93.10 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



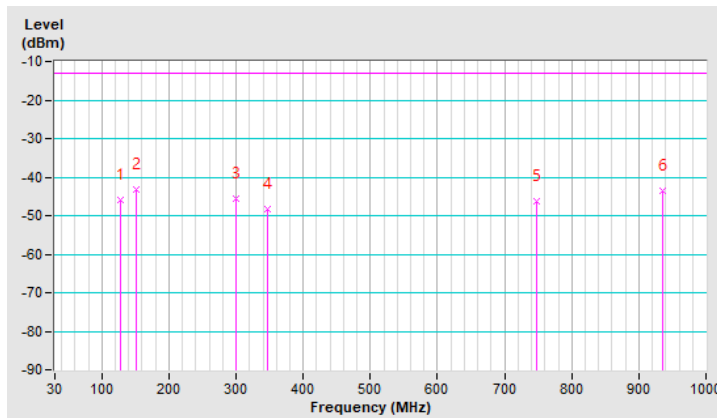
LTE Band 2, Channel Bandwidth 5MHz

| | | | |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode | TX channel 18625 (1852.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|---------------|---------------|---------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 127.00 | -46.09 | -13.00 | -33.09 | 1.50 H | 252 | 59.73 | -105.82 |
| 2 | 150.28 | -43.09 | -13.00 | -30.09 | 2.00 H | 214 | 60.96 | -104.05 |
| 3 | 299.66 | -45.49 | -13.00 | -32.49 | 1.00 H | 302 | 57.46 | -102.95 |
| 4 | 346.22 | -48.30 | -13.00 | -35.30 | 1.00 H | 302 | 53.86 | -102.16 |
| 5 | 747.80 | -46.25 | -13.00 | -33.25 | 1.00 H | 100 | 46.37 | -92.62 |
| 6 | 935.98 | -43.70 | -13.00 | -30.70 | 1.00 H | 274 | 44.65 | -88.35 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

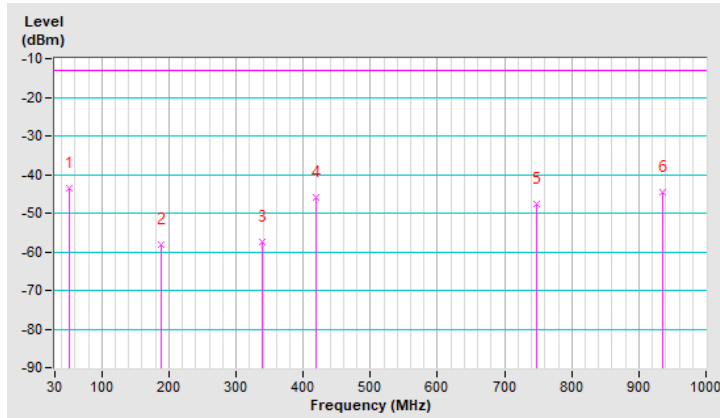


| | | | |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode | TX channel 18625 (1852.5MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Noah Chang | | |

| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
|---------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 51.34 | -43.66 | -13.00 | -30.66 | 1.50 V | 125 | 60.46 | -104.12 |
| 2 | 189.08 | -58.08 | -13.00 | -45.08 | 1.00 V | 320 | 48.53 | -106.61 |
| 3 | 338.46 | -57.33 | -13.00 | -44.33 | 1.00 V | 159 | 44.84 | -102.17 |
| 4 | 419.94 | -46.10 | -13.00 | -33.10 | 1.00 V | 298 | 54.59 | -100.69 |
| 5 | 747.80 | -47.64 | -13.00 | -34.64 | 2.00 V | 353 | 44.98 | -92.62 |
| 6 | 935.98 | -44.52 | -13.00 | -31.52 | 1.00 V | 201 | 43.83 | -88.35 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.



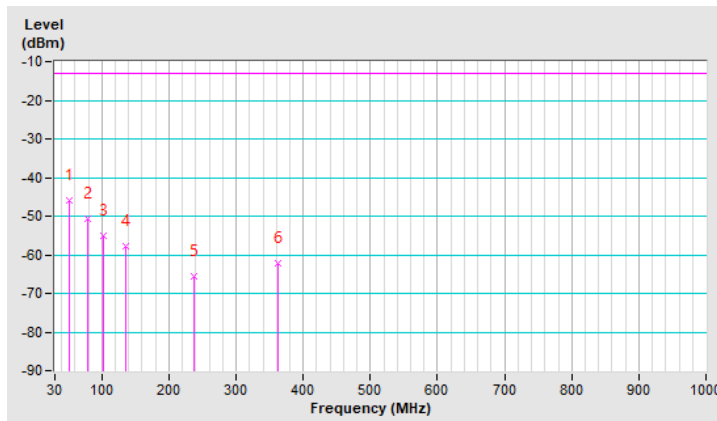
LTE Band 25, Channel Bandwidth 1.4MHz

| | | | |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode | TX channel 26683 (1914.3MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 51.09 | -45.80 | -13.00 | -32.80 | 1.50 H | 270 | 58.60 | -104.40 |
| 2 | 79.20 | -50.80 | -13.00 | -37.80 | 1.00 H | 117 | 57.60 | -108.40 |
| 3 | 103.10 | -55.10 | -13.00 | -42.10 | 1.00 H | 61 | 52.90 | -108.00 |
| 4 | 135.43 | -57.90 | -13.00 | -44.90 | 1.00 H | 186 | 46.80 | -104.70 |
| 5 | 238.06 | -65.70 | -13.00 | -52.70 | 2.00 H | 77 | 39.00 | -104.70 |
| 6 | 363.17 | -62.10 | -13.00 | -49.10 | 1.00 H | 233 | 38.50 | -100.60 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

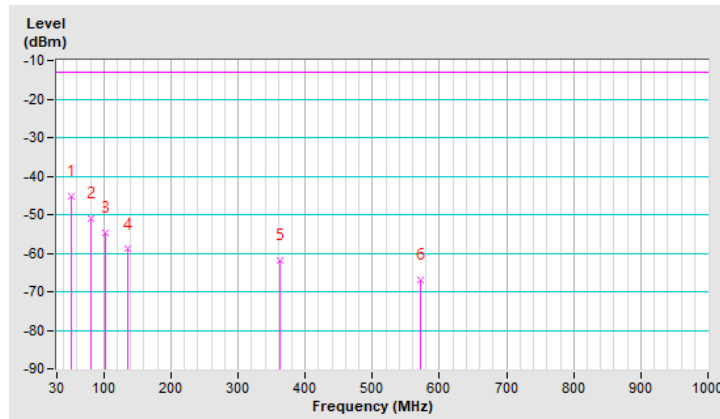


| | | | |
|--------------------------|---------------------------------|-----------------|----------------|
| Mode | TX channel 26683 (1914.3MHz) | Frequency Range | Below 1000 MHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
|---------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 51.09 | -45.30 | -13.00 | -32.30 | 1.50 V | 318 | 59.10 | -104.40 |
| 2 | 80.61 | -51.00 | -13.00 | -38.00 | 1.00 V | 116 | 57.80 | -108.80 |
| 3 | 103.10 | -54.90 | -13.00 | -41.90 | 1.50 V | 57 | 53.10 | -108.00 |
| 4 | 135.43 | -59.00 | -13.00 | -46.00 | 1.00 V | 188 | 45.70 | -104.70 |
| 5 | 363.17 | -61.70 | -13.00 | -48.70 | 1.00 V | 113 | 38.90 | -100.60 |
| 6 | 572.64 | -66.80 | -13.00 | -53.80 | 2.00 V | 125 | 29.20 | -96.00 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



Above 1GHz
WCDMA Band 2

| | | | |
|--------------------------|--------------------------------|-----------------|--------------|
| Mode | TX channel 9262 (1852.4MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3704.80 | -49.30 | -13.00 | -36.30 | 1.50 H | 294 | 43.90 | -93.20 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3704.80 | -49.10 | -13.00 | -36.10 | 3.16 V | 87 | 44.10 | -93.20 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|--------------------------------|-----------------|--------------|
| Mode | TX channel 9400 (1880.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -48.20 | -13.00 | -35.20 | 1.44 H | 302 | 44.70 | -92.90 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -47.90 | -13.00 | -34.90 | 3.12 V | 99 | 45.00 | -92.90 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|--------------------------------|-----------------|--------------|
| Mode | TX channel 9538 (1907.6MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3815.20 | -49.00 | -13.00 | -36.00 | 1.56 H | 299 | 43.60 | -92.60 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3815.20 | -48.80 | -13.00 | -35.80 | 3.26 V | 102 | 43.80 | -92.60 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 2, Channel Bandwidth 1.4MHz

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 18607 (1850.7MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3701.40 | -44.70 | -13.00 | -31.70 | 1.40 H | 52 | 44.80 | -89.50 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3701.40 | -48.90 | -13.00 | -35.90 | 1.02 V | 64 | 40.60 | -89.50 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 18900 (1880.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -50.90 | -13.00 | -37.90 | 1.50 H | 67 | 38.50 | -89.40 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -52.90 | -13.00 | -39.90 | 1.00 V | 332 | 36.50 | -89.40 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 19193 (1909.3MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3818.60 | -52.20 | -13.00 | -39.20 | 1.63 H | 75 | 36.80 | -89.00 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3818.60 | -51.00 | -13.00 | -38.00 | 1.76 V | 248 | 38.00 | -89.00 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 2, Channel Bandwidth 5MHz

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 18625 (1852.5MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3705.00 | -44.60 | -13.00 | -31.60 | 1.00 H | 43 | 44.90 | -89.50 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3705.00 | -44.20 | -13.00 | -31.20 | 1.00 V | 318 | 45.30 | -89.50 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 18900 (1880.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -50.30 | -13.00 | -37.30 | 1.25 H | 54 | 39.10 | -89.40 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -49.40 | -13.00 | -36.40 | 1.46 V | 319 | 40.00 | -89.40 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 19175 (1907.5MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3815.00 | -51.20 | -13.00 | -38.20 | 1.06 H | 17 | 37.80 | -89.00 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3815.00 | -50.50 | -13.00 | -37.50 | 1.76 V | 256 | 38.50 | -89.00 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 2, Channel Bandwidth 20MHz

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 18700 (1860.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3720.00 | -52.70 | -13.00 | -39.70 | 1.08 H | 27 | 36.80 | -89.50 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3720.00 | -53.30 | -13.00 | -40.30 | 1.53 V | 186 | 36.20 | -89.50 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 18900 (1880.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -52.60 | -13.00 | -39.60 | 1.00 H | 56 | 36.80 | -89.40 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3760.00 | -52.30 | -13.00 | -39.30 | 1.52 V | 173 | 37.10 | -89.40 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 19100 (1900.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Hans Wu | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3800.00 | -52.50 | -13.00 | -39.50 | 1.00 H | 21 | 36.70 | -89.20 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3800.00 | -51.40 | -13.00 | -38.40 | 1.50 V | 194 | 37.80 | -89.20 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

LTE Band 25, Channel Bandwidth 1.4MHz

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26047 (1850.7MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3701.40 | -49.30 | -13.00 | -36.30 | 2.88 H | 30 | 43.90 | -93.20 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3701.40 | -48.70 | -13.00 | -35.70 | 1.88 V | 326 | 44.50 | -93.20 |

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26365 (1882.5MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3765.00 | -49.10 | -13.00 | -36.10 | 2.78 H | 26 | 43.80 | -92.90 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3765.00 | -48.50 | -13.00 | -35.50 | 1.87 V | 325 | 44.40 | -92.90 |

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26683 (1914.3MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3828.60 | -49.40 | -13.00 | -36.40 | 2.69 H | 33 | 43.10 | -92.50 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3828.60 | -48.20 | -13.00 | -35.20 | 1.83 V | 333 | 44.30 | -92.50 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

LTE Band 25, Channel Bandwidth 5MHz

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26065 (1852.5MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3705.00 | -53.10 | -13.00 | -40.10 | 1.35 H | 219 | 42.86 | -95.96 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3705.00 | -53.29 | -13.00 | -40.29 | 1.07 V | 242 | 42.67 | -95.96 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26365 (1882.5MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3765.00 | -53.59 | -13.00 | -40.59 | 1.31 H | 216 | 42.18 | -95.77 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3765.00 | -53.43 | -13.00 | -40.43 | 1.09 V | 241 | 42.34 | -95.77 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26665 (1912.5MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3825.00 | -53.14 | -13.00 | -40.14 | 1.36 H | 220 | 42.38 | -95.52 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3825.00 | -52.51 | -13.00 | -39.51 | 1.06 V | 243 | 43.01 | -95.52 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 25, Channel Bandwidth 20MHz

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26140 (1860.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3720.00 | -52.98 | -13.00 | -39.98 | 1.32 H | 217 | 42.94 | -95.92 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3720.00 | -53.13 | -13.00 | -40.13 | 1.03 V | 242 | 42.79 | -95.92 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26365 (1882.5MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3765.00 | -53.60 | -13.00 | -40.60 | 1.29 H | 214 | 42.17 | -95.77 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3765.00 | -52.63 | -13.00 | -39.63 | 1.08 V | 245 | 43.14 | -95.77 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

| | | | |
|--------------------------|---------------------------------|-----------------|--------------|
| Mode | TX channel 26590 (1905.0MHz) | Frequency Range | 1GHz ~ 20GHz |
| Environmental Conditions | 25deg. C, 70%RH | Input Power | 120Vac, 60Hz |
| Tested By | Edsion Lee | | |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|------------------------------------------------------|-----------------|------------|-------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3810.00 | -53.11 | -13.00 | -40.11 | 1.36 H | 219 | 42.44 | -95.55 |
| Antenna Polarity & Test Distance : Vertical at 3m | | | | | | | | |
| No | Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 3810.00 | -52.30 | -13.00 | -39.30 | 1.05 V | 241 | 43.25 | -95.55 |

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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