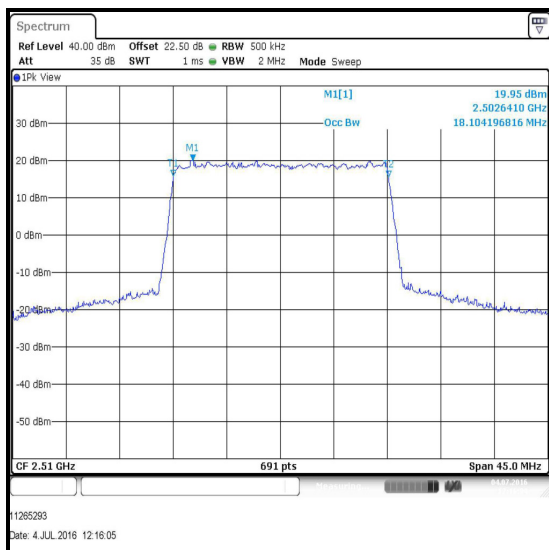
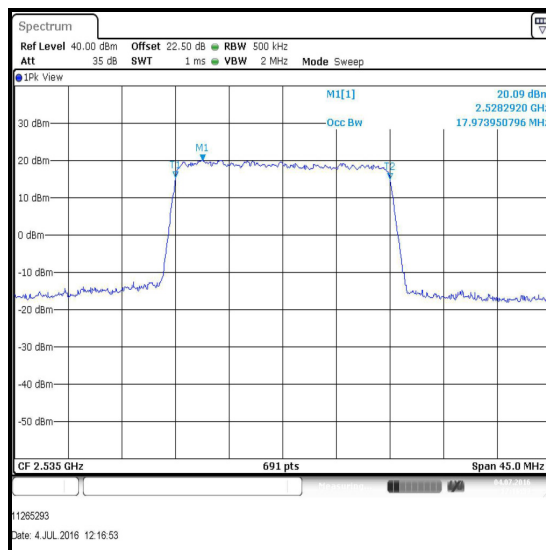
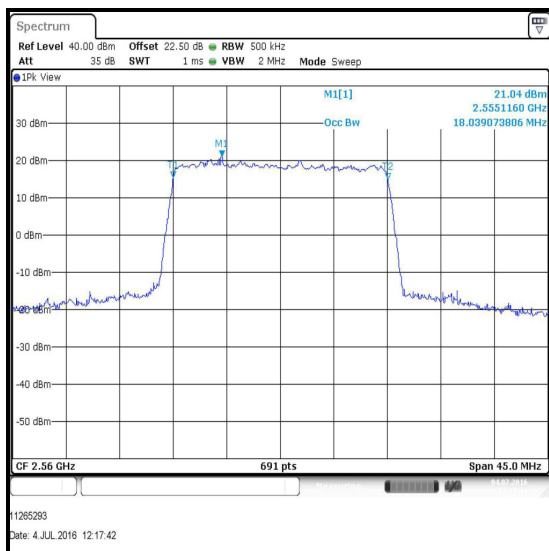


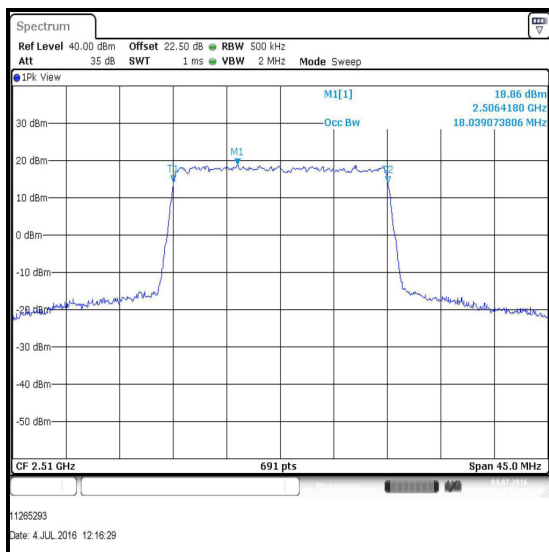
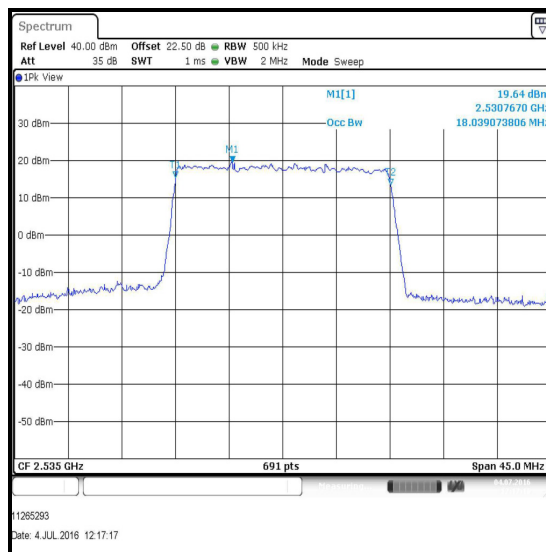
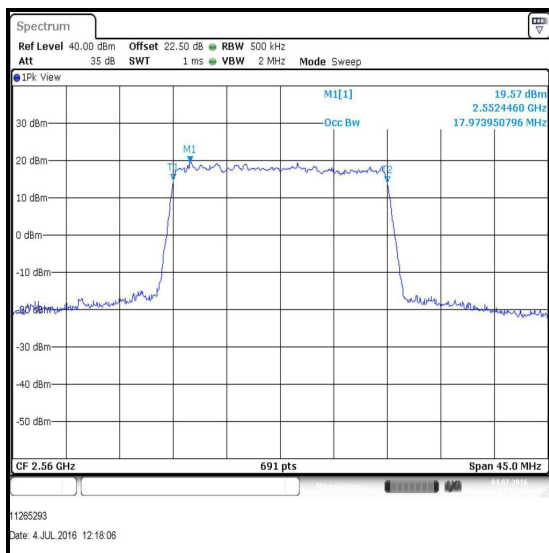
**Transmitter Occupied Bandwidth (continued)****Results: 20 MHz Channel Bandwidth / QPSK**

| Channel | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|---------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| Bottom  | 100               | 0                     | 500                        | 2000                  | 18.104                   |
| Middle  | 100               | 0                     | 500                        | 2000                  | 17.974                   |
| Top     | 100               | 0                     | 500                        | 2000                  | 18.039                   |

**Bottom Channel / QPSK****Middle Channel / QPSK****Top Channel / QPSK**

**Transmitter Occupied Bandwidth (continued)****Results: 20 MHz Channel Bandwidth / 16QAM**

| Channel | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|---------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| Bottom  | 100               | 0                     | 500                        | 2000                  | 18.039                   |
| Middle  | 100               | 0                     | 500                        | 2000                  | 18.039                   |
| Top     | 100               | 0                     | 500                        | 2000                  | 17.974                   |

**Bottom Channel / 16QAM****Middle Channel / 16QAM****Top Channel / 16QAM**

**Transmitter Occupied Bandwidth (continued)****Test Equipment Used:**

| Asset No. | Instrument                  | Manufacturer    | Type No.      | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|-----------------------------|-----------------|---------------|-------------|-----------------------|------------------------|
| M2002     | Thermohygrometer            | Testo           | 608-H1        | 45041825    | 02 Apr 2017           | 12                     |
| M1869     | Wideband Radio Comms Tester | Rohde & Schwarz | CMW500        | 145923      | 05 Apr 2017           | 12                     |
| M1873     | Signal Analyser             | Rohde & Schwarz | FSV30         | 103074      | 27 Jun 2017           | 12                     |
| A2845     | Attenuator                  | Radiall         | R411.806.121  | 24325927    | Calibrated before use | -                      |
| A2844     | Attenuator                  | Radiall         | R411.803.121  | 23404066    | Calibrated before use | -                      |
| A2504     | Directional Coupler         | AtlanTecRF      | CDC-003060-10 | 13122501839 | Calibrated before use | -                      |
| S0562     | Power Supply                | Thurlby Thandar | PL330QMD      | 054895      | Calibrated before use | -                      |
| M1269     | Multimeter                  | Fluke           | 179           | 90250210    | 13 May 2017           | 12                     |
| G0628     | Signal Generator            | Rohde & Schwarz | SMBV100A      | 261847      | 25 Jan 2017           | 12                     |
| M1835     | Signal Analyser             | Rohde & Schwarz | FSV30         | 103050      | 26 Feb 2017           | 12                     |

**5.2.5. Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz – LAT****Test Summary:**

|                          |                 |                    |                                  |
|--------------------------|-----------------|--------------------|----------------------------------|
| <b>Test Engineer:</b>    | Ben Mercer      | <b>Test Dates:</b> | 13 July 2016 and<br>15 July 2016 |
| <b>Test Sample IMEI:</b> | 358640070309241 |                    |                                  |

|                          |                                                                |
|--------------------------|----------------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1051 & 27.53(m)(4)                                     |
| <b>Test Method Used:</b> | KDB 971168 Section 6 referencing FCC Part 27.53 & note 3 below |

**Environmental Conditions:**

|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 23 to 25 |
| <b>Relative Humidity (%):</b> | 43 to 52 |

**Note(s):**

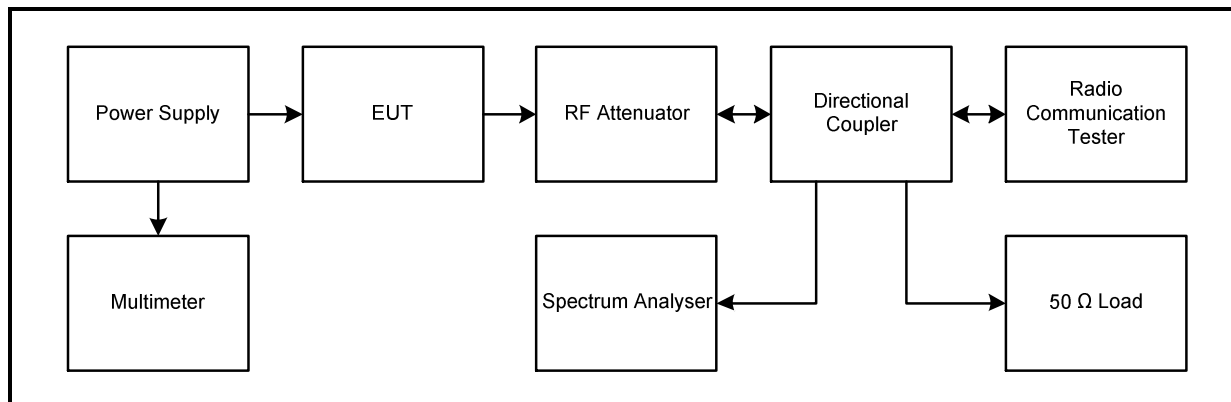
1. Measurements were performed conducted with the antenna gain included in the analyser reference level offset. The customer stated that the antenna gain is -2.6 dBi.
2. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with resource blocks settings as detailed in section 4.3 of this report.
3. Sweep time was set to auto and an RMS detector with trace averaging of 300 sweeps was used.
4. In accordance with 27.53(m)(4), the following limits were calculated:

| 5 MHz Channel Bandwidth |             | 10 MHz Channel Bandwidth |             |
|-------------------------|-------------|--------------------------|-------------|
| Frequency Range (MHz)   | Limit (dBm) | Frequency Range (MHz)    | Limit (dBm) |
| 30 – 2494               | -25         | 30 – 2491.013            | -25         |
| 2494 – 2496             | -13         | 2491.013 – 2496          | -13         |
| 2496 – 2500             | -10         | 2496 – 2500              | -10         |
| 2570 – 2575             | -10         | 2570 – 2575              | -10         |
| 2575 – 2576             | -13         | 2575 – 2578.987          | -13         |
| 2576 – 26000            | -25         | 2578.987 – 26000         | -25         |

**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Note(s):**

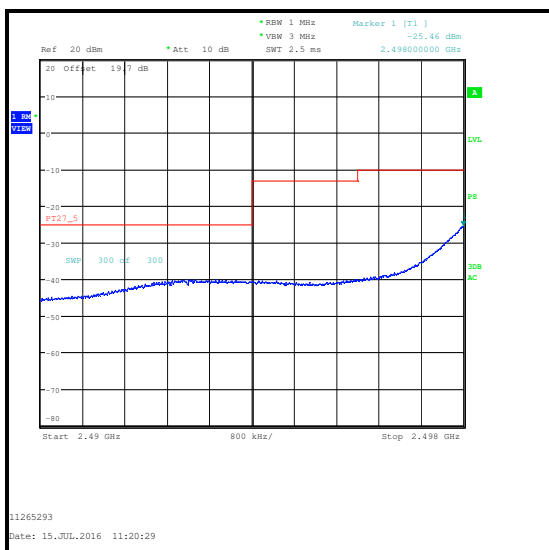
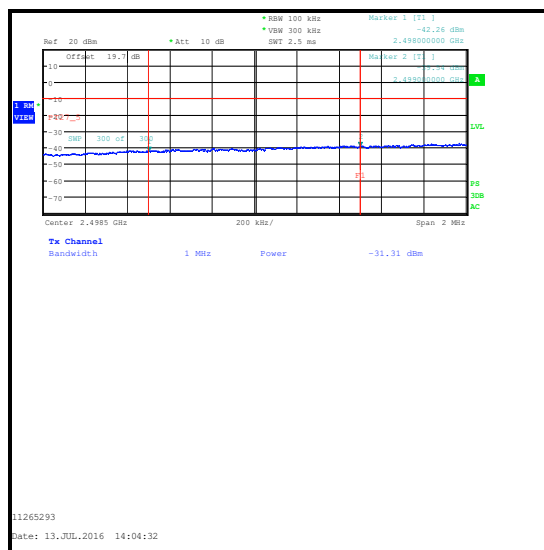
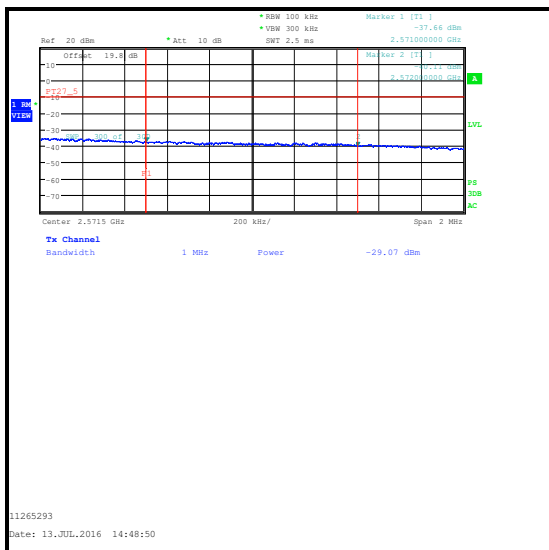
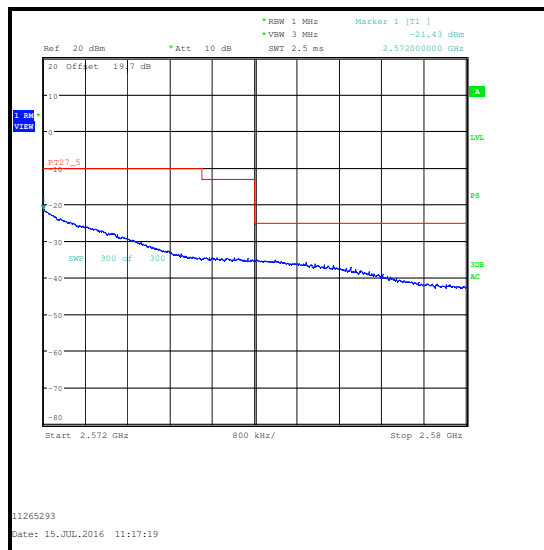
| 15 MHz Channel Bandwidth |             | 20 MHz Channel Bandwidth |             |
|--------------------------|-------------|--------------------------|-------------|
| Frequency Range (MHz)    | Limit (dBm) | Frequency Range (MHz)    | Limit (dBm) |
| 30 – 2490.5              | -25         | 30 – 2490.5              | -25         |
| 2490.5 – 2496            | -13         | 2490.5 – 2496            | -13         |
| 2496 – 2500              | -10         | 2496 – 2500              | -10         |
| 2570 – 2575              | -10         | 2570 – 2575              | -10         |
| 2575 – 2583.480          | -13         | 2575 – 2587.974          | -13         |
| 2583.480 – 26000         | -25         | 2587.974 – 26000         | -25         |

- For given channel bandwidth, the minimum value of the 99% occupied bandwidth was used to calculate the above limits. The choice of the minimum occupied bandwidth, regardless of modulation schemes, gives a worst case scenario for the applicable limit lines.
- The plots of this section illustrate the conducted emissions at band edges, at frequencies below 2499 MHz and above 2571 MHz. Compliance in the frequency ranges 2499 – 2500 MHz and 2570 – 2571 MHz are shown in section 5.2.9 of this report.
- In accordance with Part 27.53(m)(6), a narrower resolution bandwidth may be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz. The channel power function of the spectrum analyser was used where necessary.
- \* Integrated level (dBm)

**Test setup:**

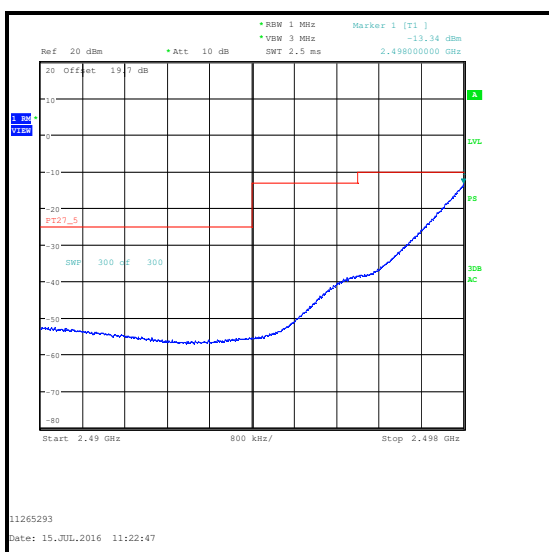
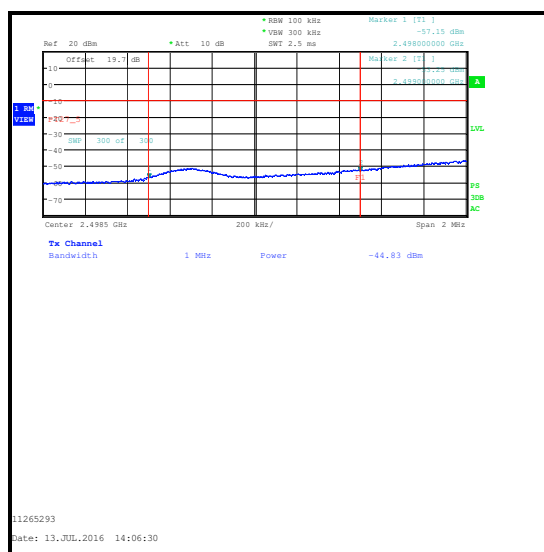
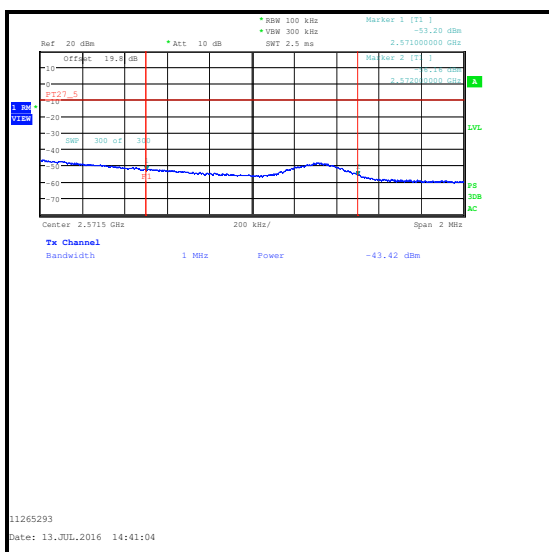
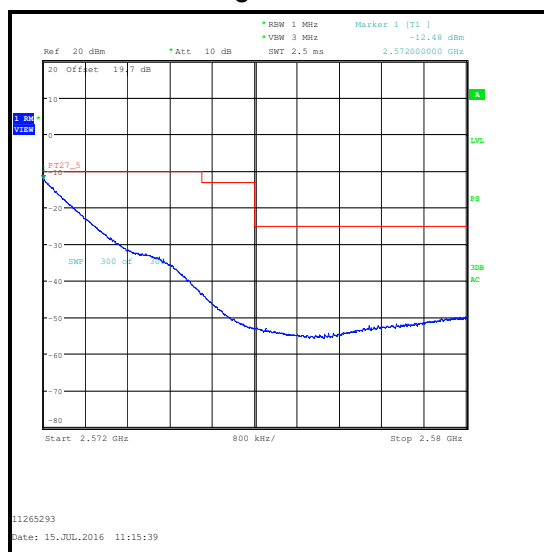
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 25                | 0                     | -25.5                | -10.0       | 15.5        | Complied |
| 2498 to 2499    | 25                | 0                     | -31.3*               | -10.0       | 21.3        | Complied |
| 2571 to 2572    | 25                | 0                     | -29.1*               | -10.0       | 19.1        | Complied |
| 2572            | 25                | 0                     | -21.4                | -10.0       | 11.4        | Complied |

**QPSK / 25 RB 0 Offset / 2490 to 2498 MHz****QPSK / 25 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2572 to 2580 MHz**

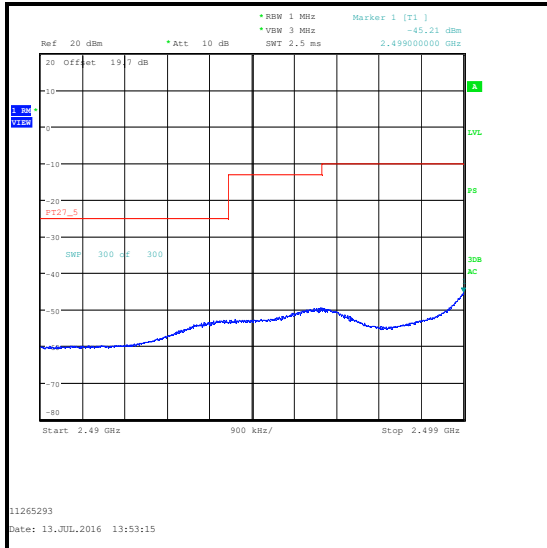
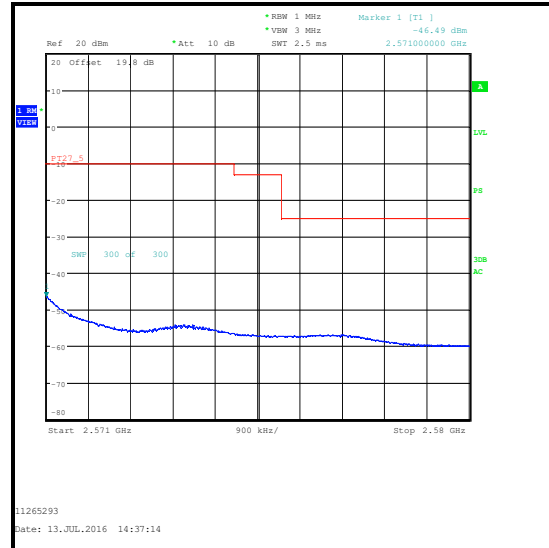
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -13.3                | -10.0       | 3.3         | Complied |
| 2498 to 2499    | 1                 | 0                     | -44.8*               | -10.0       | 34.8        | Complied |
| 2571 to 2572    | 1                 | 24                    | -43.4*               | -10.0       | 33.4        | Complied |
| 2572            | 1                 | 24                    | -12.5                | -10.0       | 2.5         | Complied |

**QPSK / 1 RB 0 Offset / 2490 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2572 to 2580 MHz**

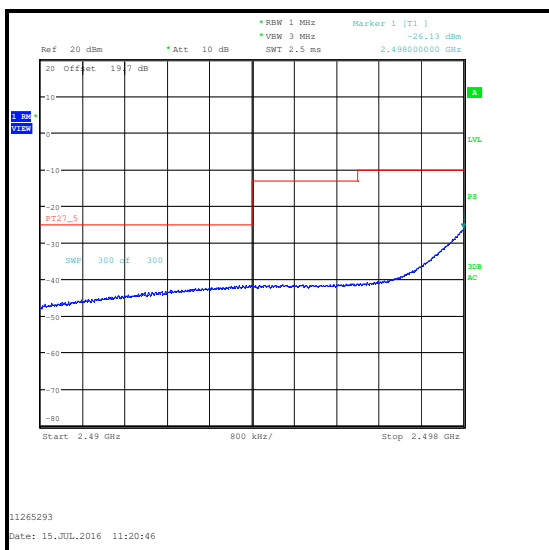
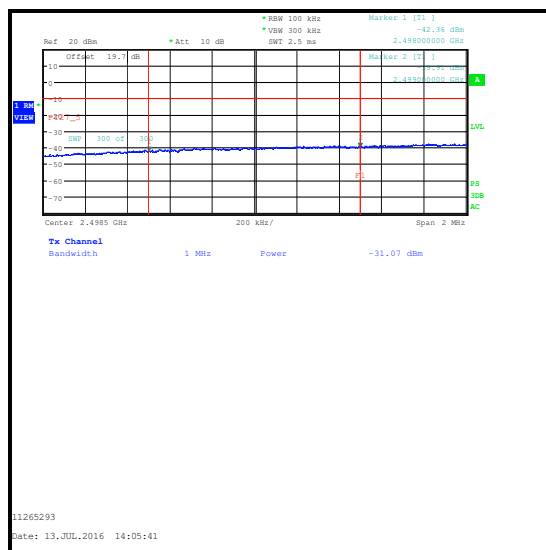
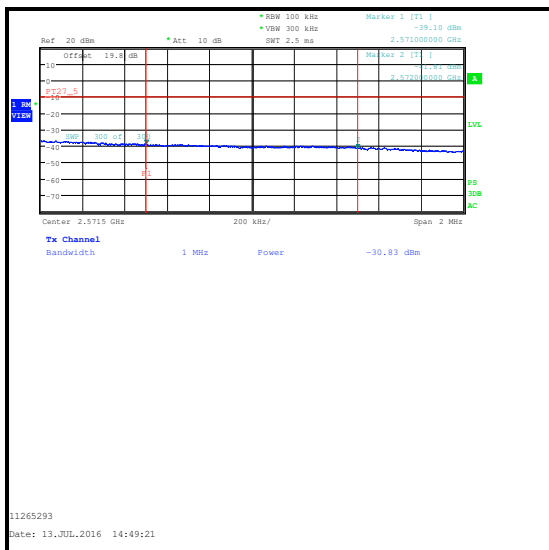
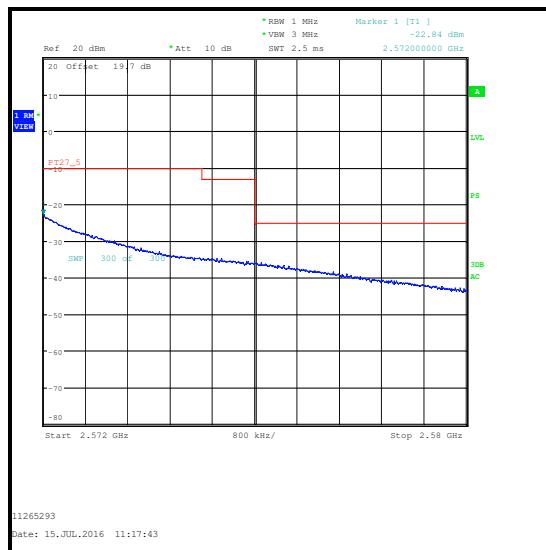
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 24                    | -45.2                | -10.0       | 35.2        | Complied |
| 2571            | 1                 | 0                     | -46.5                | -10.0       | 36.5        | Complied |

**QPSK / 1 RB 24 Offset / 2490 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2580 MHz**

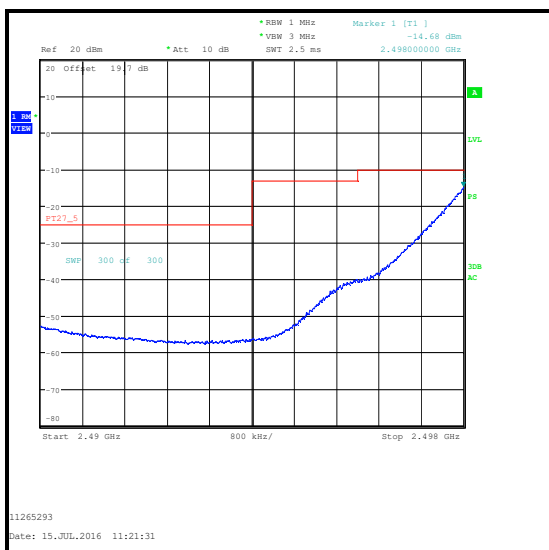
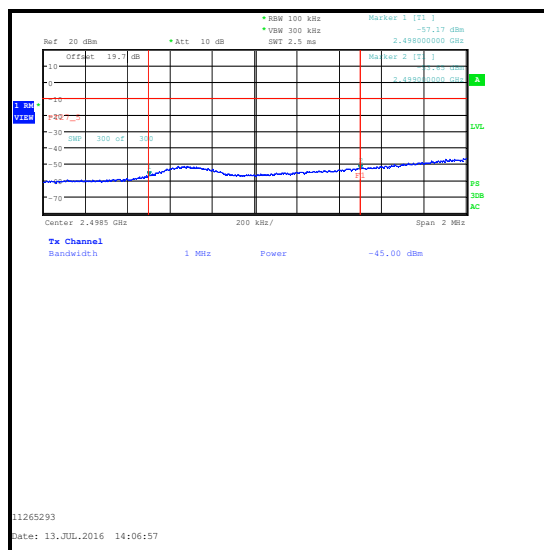
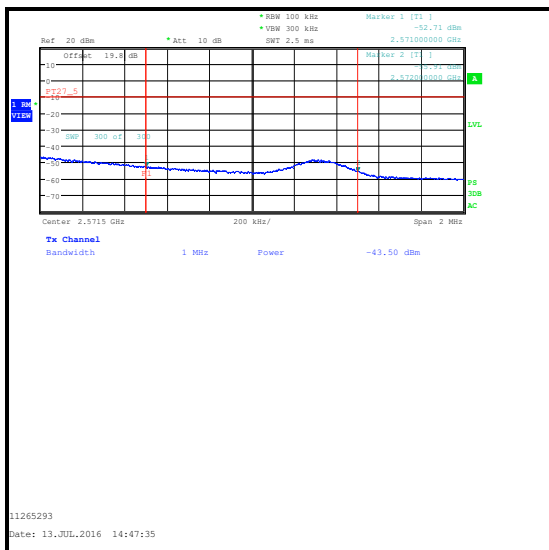
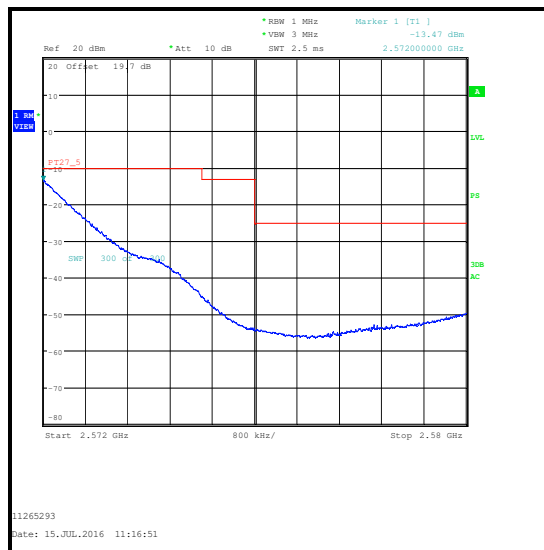
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 25                | 0                     | -26.1                | -10.0       | 16.1        | Complied |
| 2498 to 2499    | 25                | 0                     | -31.1*               | -10.0       | 21.1        | Complied |
| 2571 to 2572    | 25                | 0                     | -30.8*               | -10.0       | 20.8        | Complied |
| 2572            | 25                | 0                     | -22.8                | -10.0       | 12.8        | Complied |

**16QAM / 25 RB 0 Offset / 2490 to 2498 MHz****16QAM / 25 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2572 to 2580 MHz**

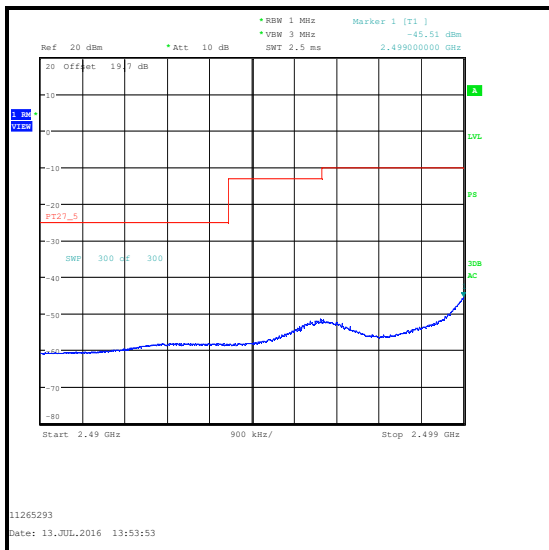
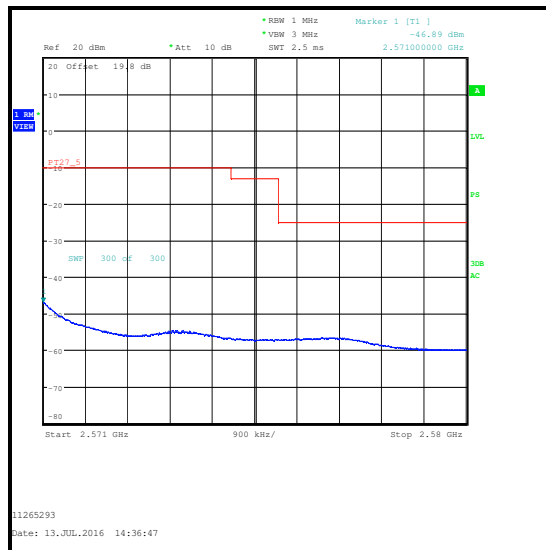
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -14.7                | -10.0       | 4.7         | Complied |
| 2498 to 2499    | 1                 | 0                     | -45.0*               | -10.0       | 35.0        | Complied |
| 2571 to 2572    | 1                 | 24                    | -43.5*               | -10.0       | 33.5        | Complied |
| 2572            | 1                 | 24                    | -13.5                | -10.0       | 3.5         | Complied |

**16QAM / 1 RB 0 Offset / 2490 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2572 to 2580 MHz**

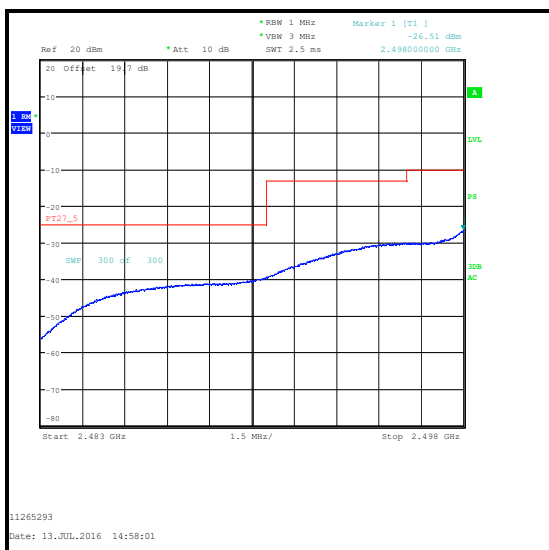
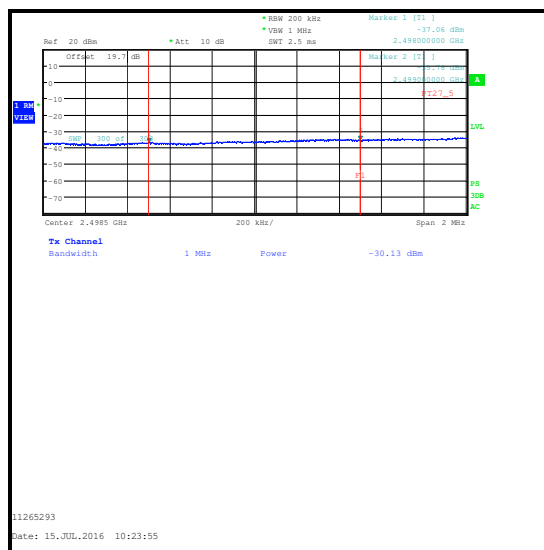
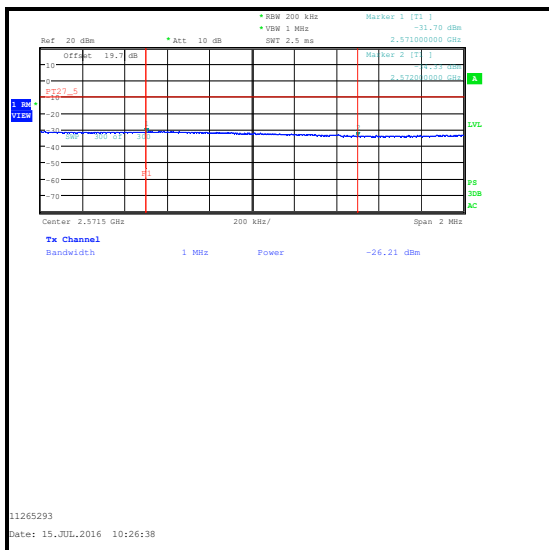
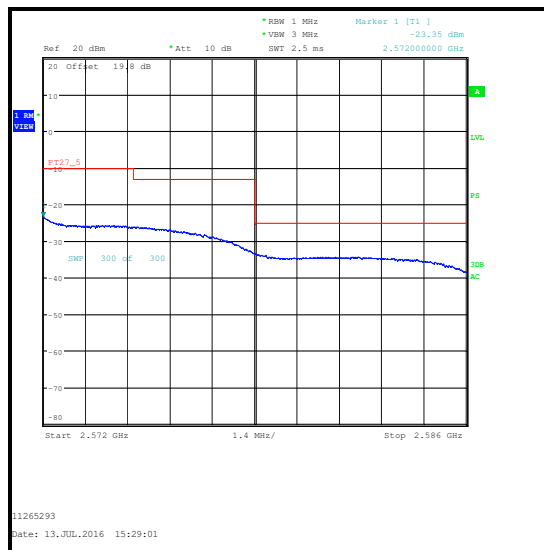
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 24                    | -45.5                | -10.0       | 35.5        | Complied |
| 2571            | 1                 | 0                     | -46.9                | -10.0       | 36.9        | Complied |

**16QAM / 1 RB 24 Offset / 2490 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2580 MHz**

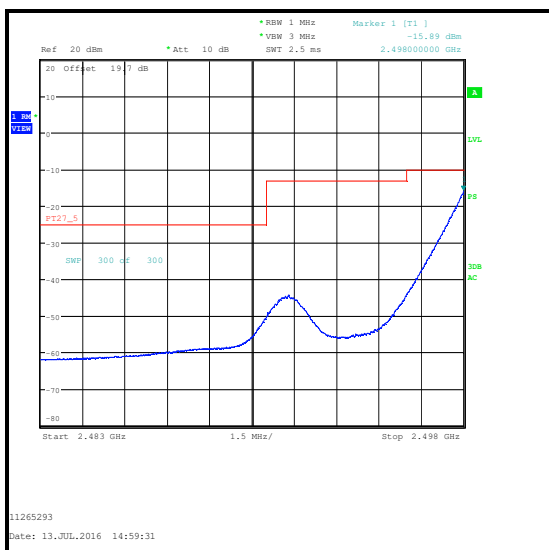
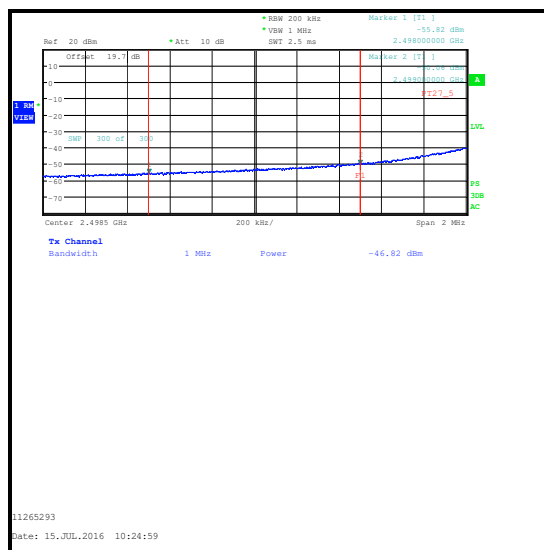
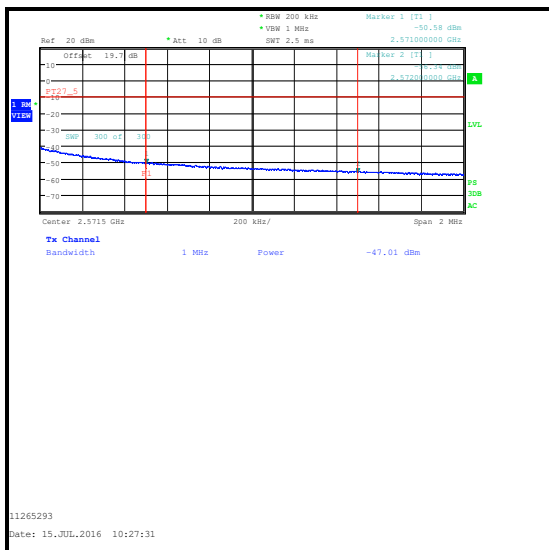
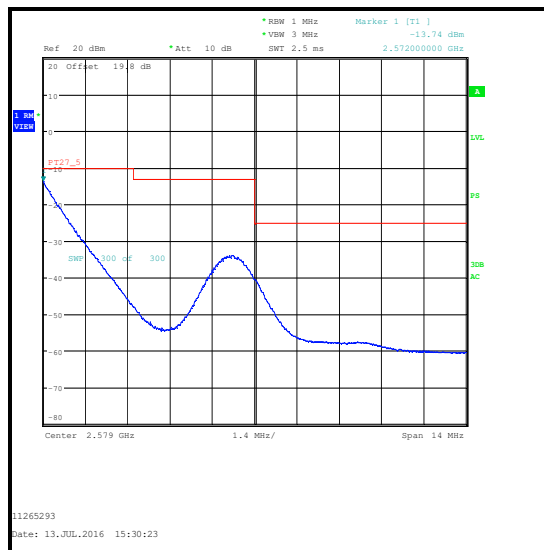
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 50                | 0                     | -26.5                | -10.0       | 16.5        | Complied |
| 2498 to 2499    | 50                | 0                     | -30.1*               | -10.0       | 20.1        | Complied |
| 2571 to 2572    | 50                | 0                     | -26.2*               | -10.0       | 16.2        | Complied |
| 2572            | 50                | 0                     | -23.3                | -10.0       | 13.3        | Complied |

**QPSK / 50 RB 0 Offset / 2483 to 2498 MHz****QPSK / 50 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2572 to 2586 MHz**

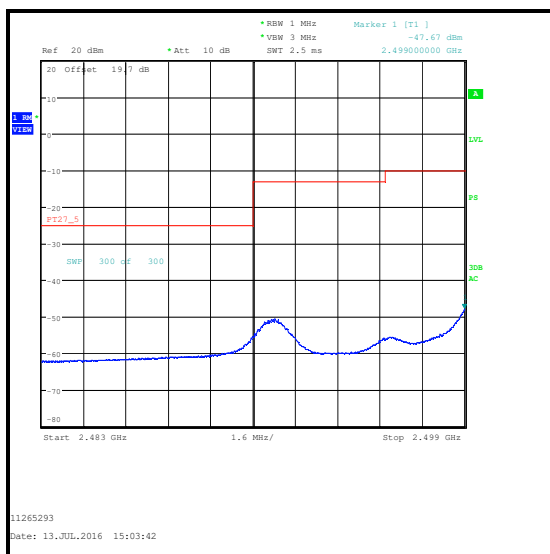
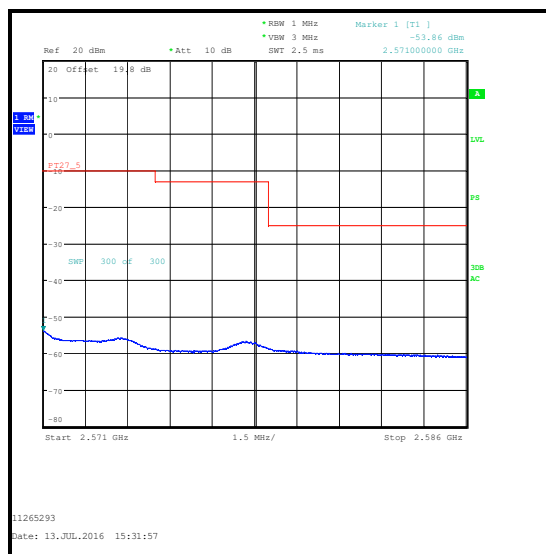
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -15.9                | -10.0       | 5.9         | Complied |
| 2498 to 2499    | 1                 | 0                     | -46.8*               | -10.0       | 36.8        | Complied |
| 2571 to 2572    | 1                 | 49                    | -47.0*               | -10.0       | 37.0        | Complied |
| 2572            | 1                 | 49                    | -13.7                | -10.0       | 3.7         | Complied |

**QPSK / 1 RB 0 Offset / 2483 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2572 to 2586 MHz**

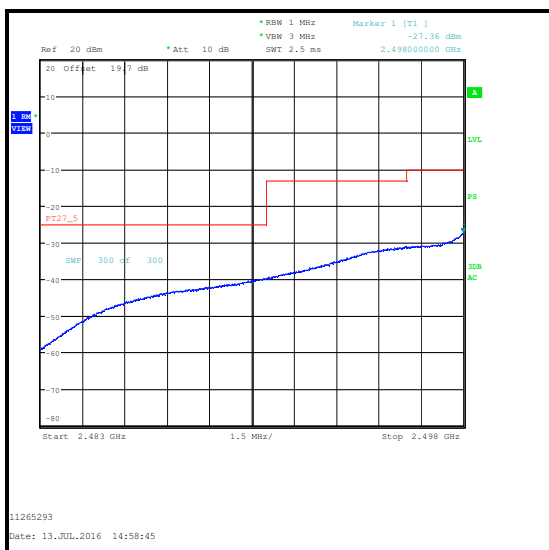
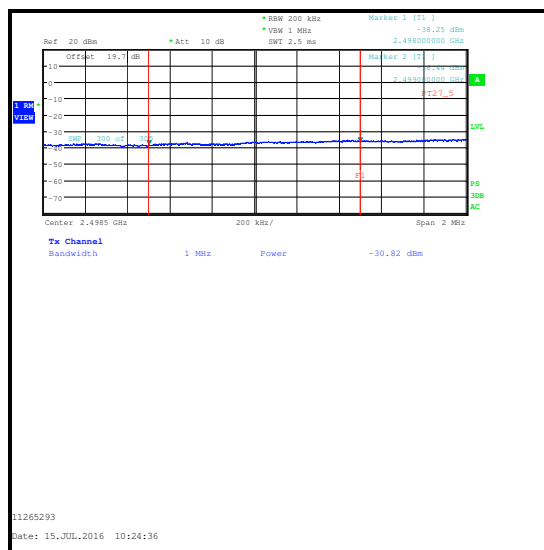
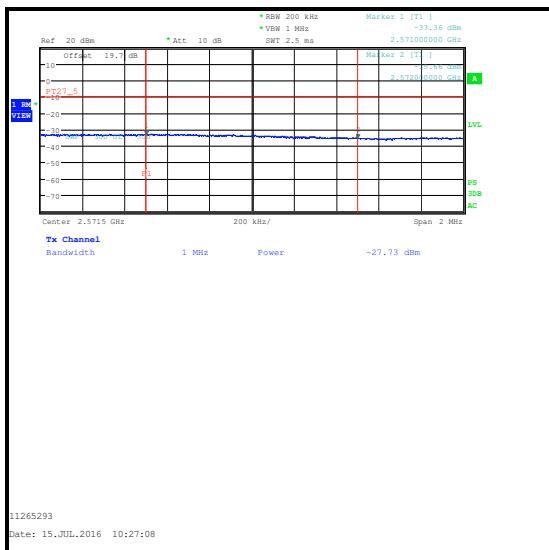
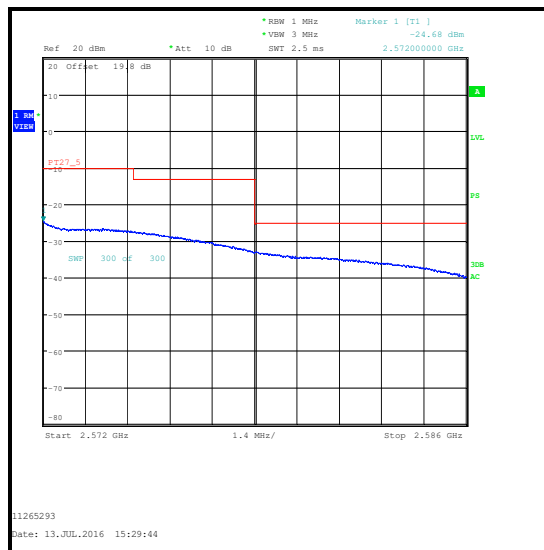
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 49                    | -47.7                | -10.0       | 37.7        | Complied |
| 2571            | 1                 | 0                     | -53.9                | -10.0       | 43.9        | Complied |

**QPSK / 1 RB 49 Offset / 2483 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2586 MHz**

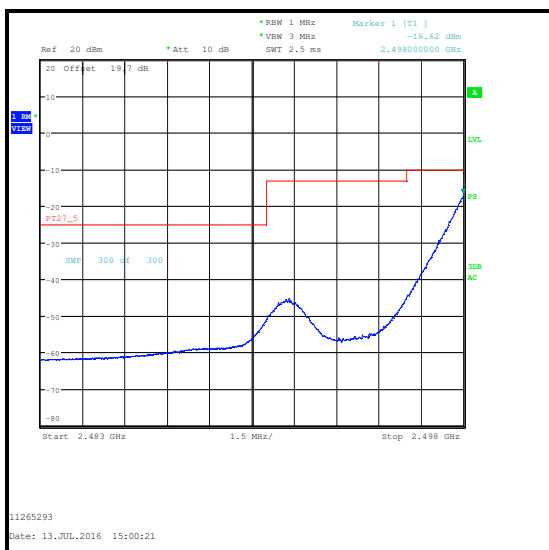
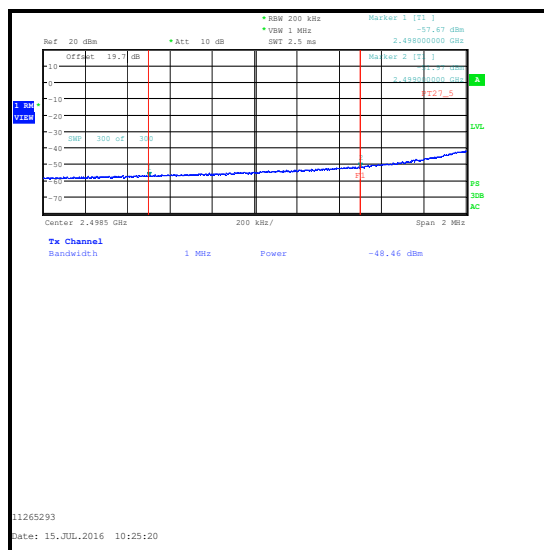
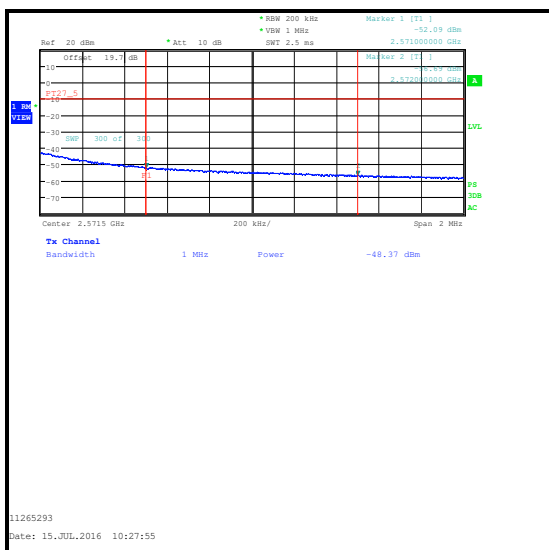
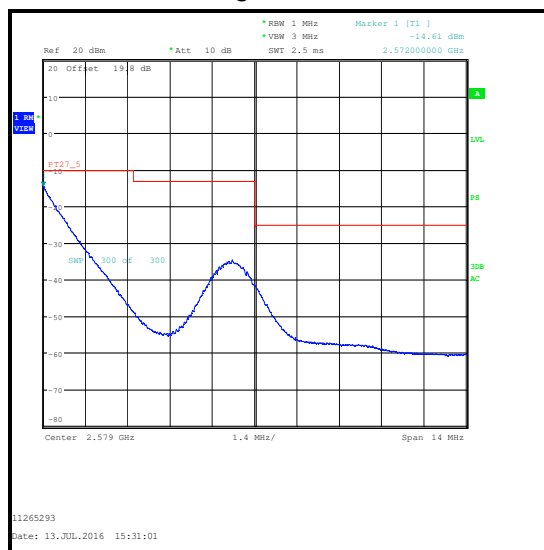
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 50                | 0                     | -27.4                | -10.0       | 17.4        | Complied |
| 2498 to 2499    | 50                | 0                     | -30.8*               | -10.0       | 20.8        | Complied |
| 2571 to 2572    | 50                | 0                     | -27.7*               | -10.0       | 17.7        | Complied |
| 2572            | 50                | 0                     | -24.7                | -10.0       | 14.7        | Complied |

**16QAM / 50 RB 0 Offset / 2483 to 2498 MHz****16QAM / 50 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 50 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 50 RB 0 Offset / 2572 to 2586 MHz**

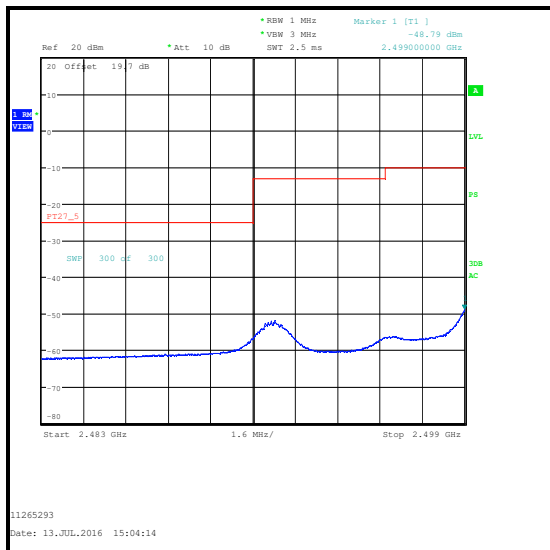
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -16.6                | -10.0       | 6.6         | Complied |
| 2498 to 2499    | 1                 | 0                     | -48.5*               | -10.0       | 38.5        | Complied |
| 2571 to 2572    | 1                 | 49                    | -52.1*               | -10.0       | 42.1        | Complied |
| 2572            | 1                 | 49                    | -14.6                | -10.0       | 4.6         | Complied |

**16QAM / 1 RB 0 Offset / 2483 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2572 to 2586 MHz**

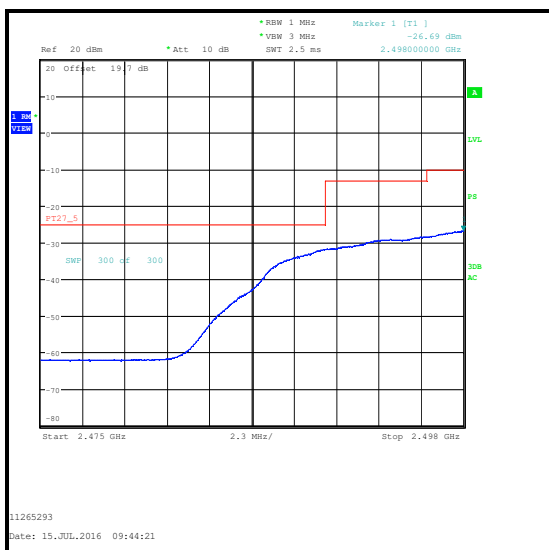
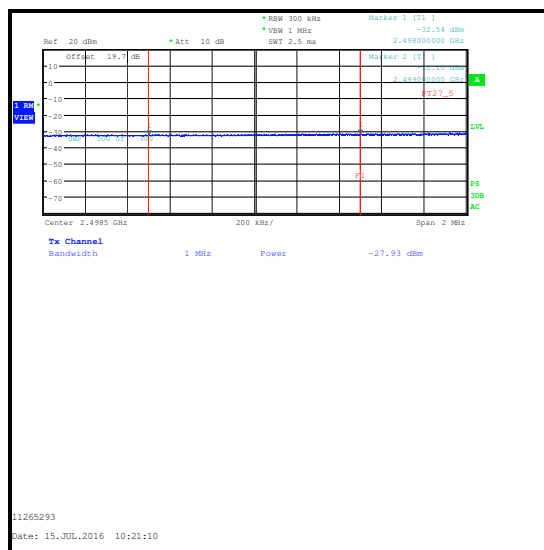
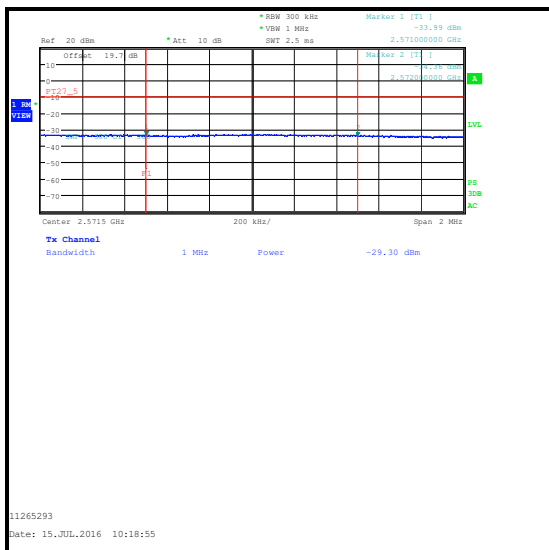
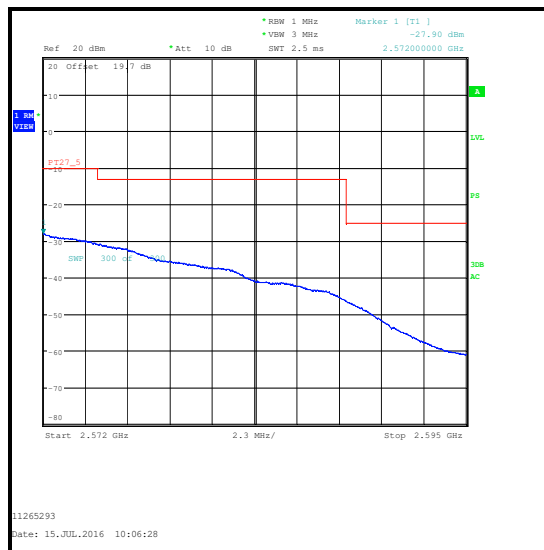
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 49                    | -48.8                | -10.0       | 38.8        | Complied |
| 2571            | 1                 | 0                     | -54.0                | -10.0       | 44.0        | Complied |

**16QAM / 1 RB 49 Offset / 2483 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2586 MHz**

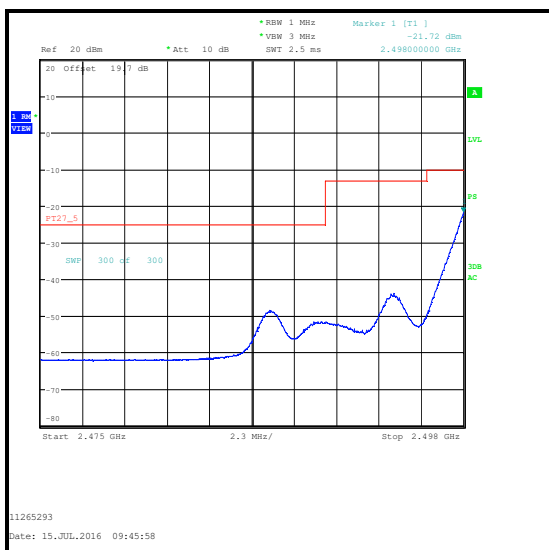
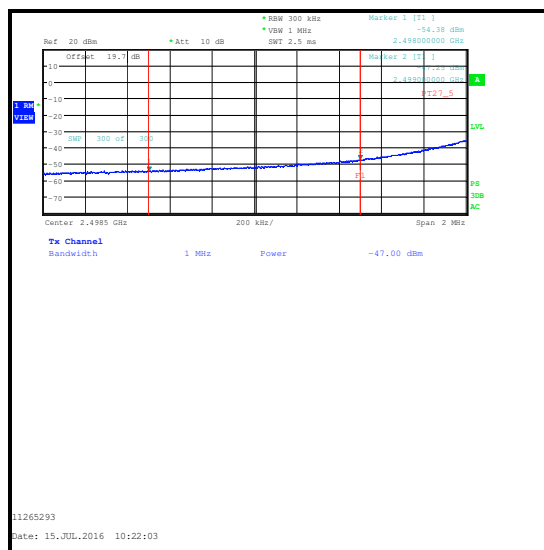
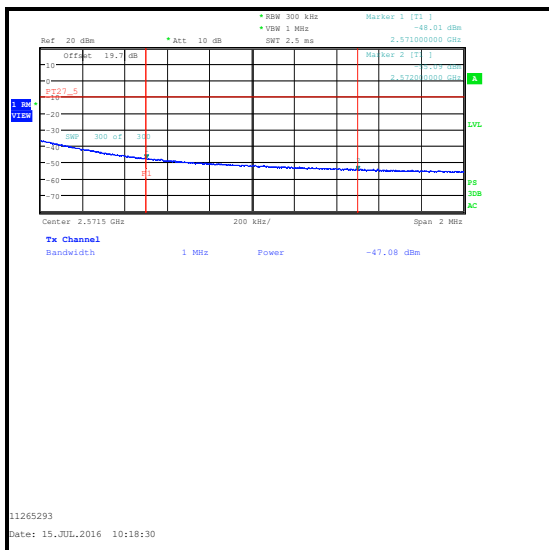
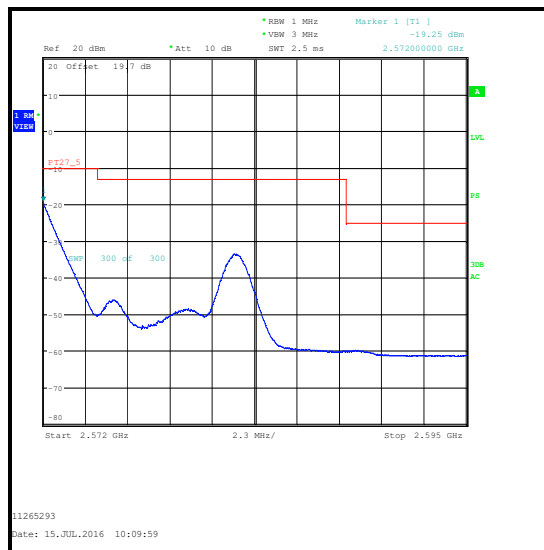
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 75                | 0                     | -26.7                | -10.0       | 16.7        | Complied |
| 2498 to 2499    | 75                | 0                     | -27.9*               | -10.0       | 17.9        | Complied |
| 2571 to 2572    | 75                | 0                     | -29.3*               | -10.0       | 19.3        | Complied |
| 2572            | 75                | 0                     | -27.9                | -10.0       | 17.9        | Complied |

**QPSK / 75 RB 0 Offset / 2475 to 2498 MHz****QPSK / 75 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 75 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 75 RB 0 Offset / 2572 to 2595 MHz**

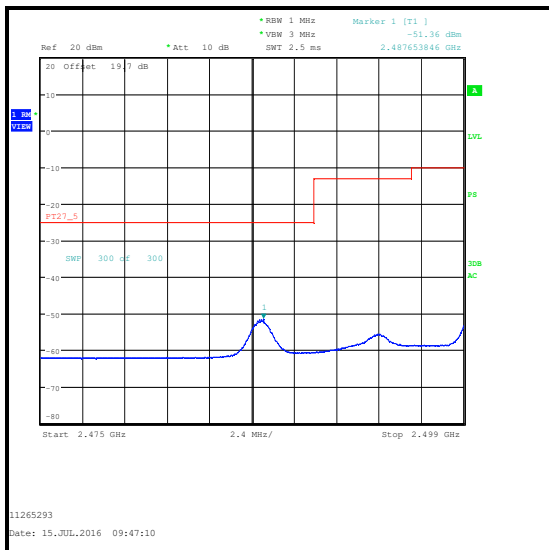
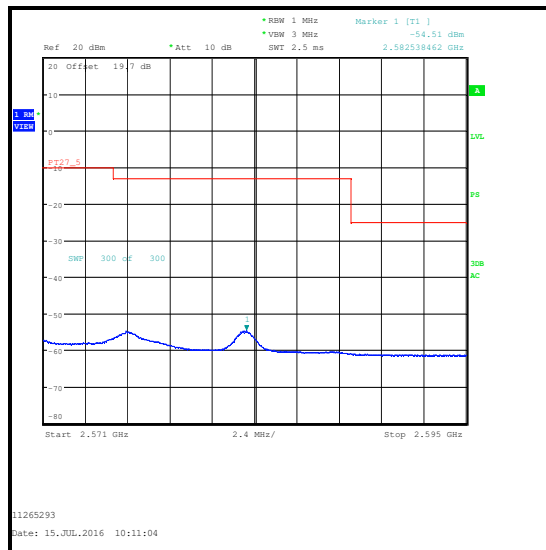
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -21.7                | -10.0       | 11.7        | Complied |
| 2498 to 2499    | 1                 | 0                     | -47.0*               | -10.0       | 37.0        | Complied |
| 2571 to 2572    | 1                 | 74                    | -47.1*               | -10.0       | 37.1        | Complied |
| 2572            | 1                 | 74                    | -19.2                | -10.0       | 9.2         | Complied |

**QPSK / 1 RB 0 Offset / 2475 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 74 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 74 Offset / 2572 to 2595 MHz**

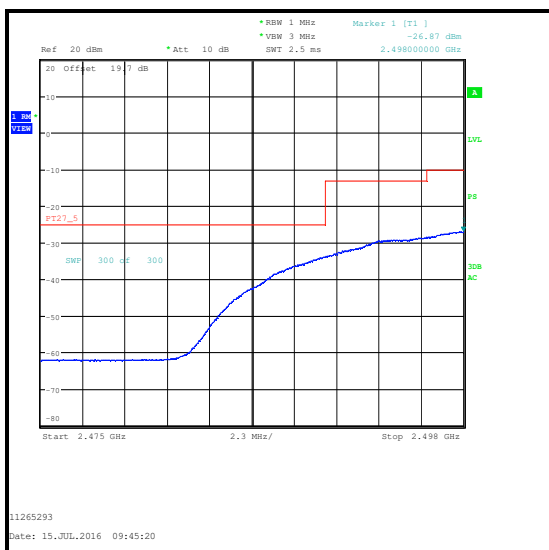
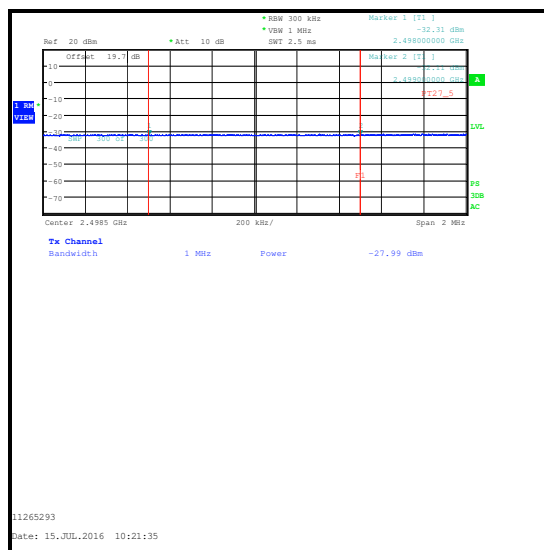
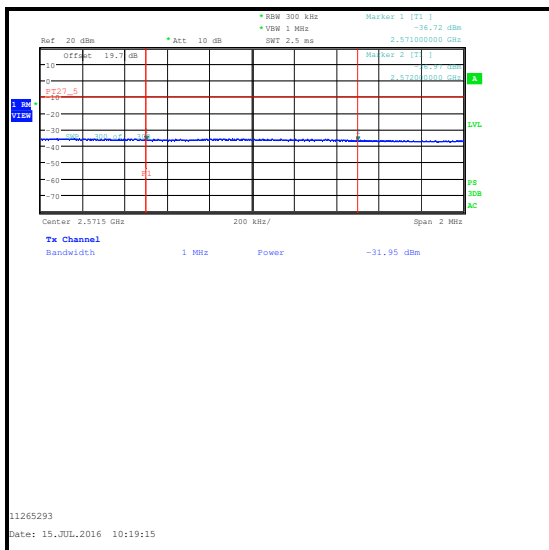
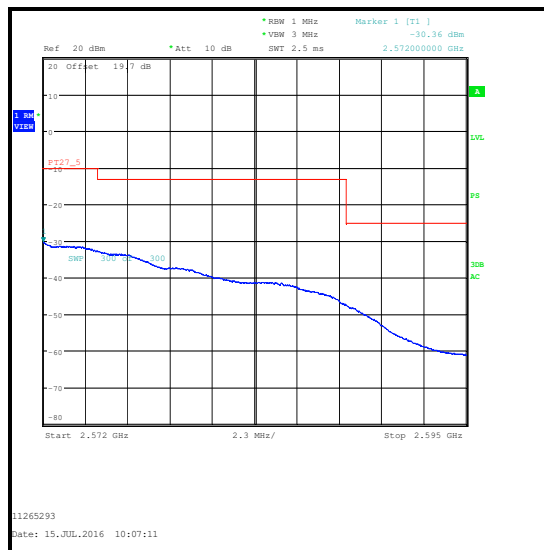
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2487.654        | 1                 | 74                    | -51.4                | -25.0       | 26.4        | Complied |
| 2582.538        | 1                 | 0                     | -54.5                | -13.0       | 41.5        | Complied |

**QPSK / 1 RB 74 Offset / 2475 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2595 MHz**

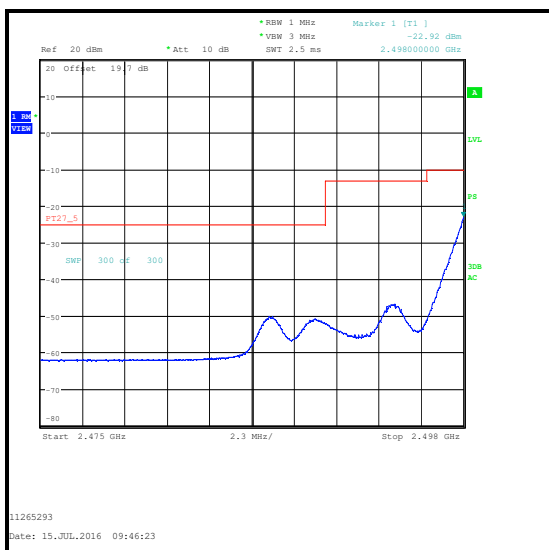
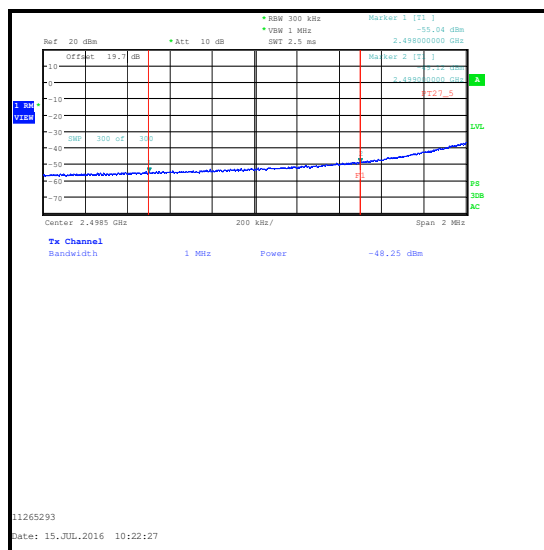
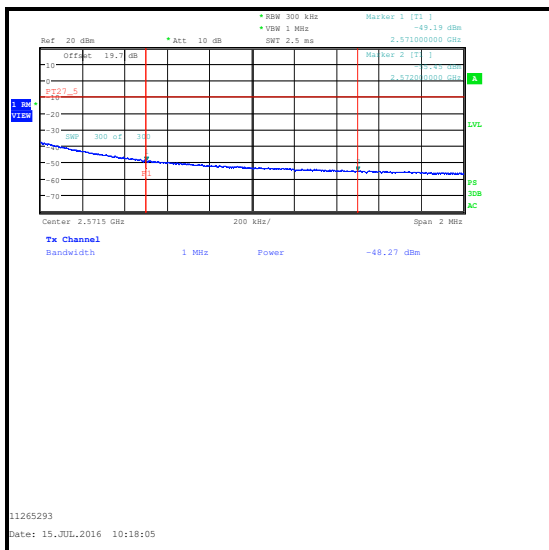
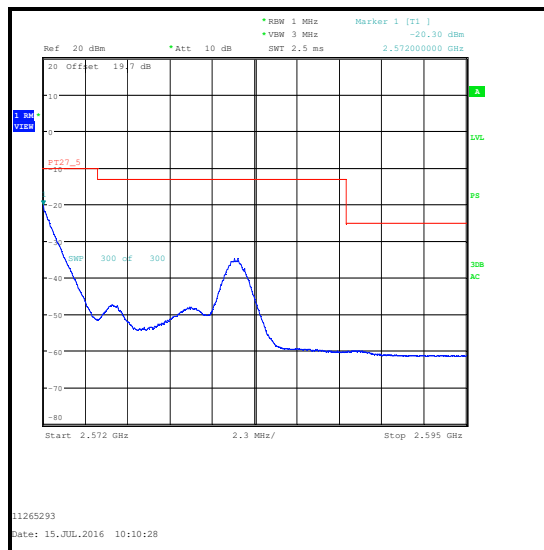
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 75                | 0                     | -26.9                | -10.0       | 16.9        | Complied |
| 2498 to 2499    | 75                | 0                     | -28.0*               | -10.0       | 18.0        | Complied |
| 2571 to 2572    | 75                | 0                     | -31.9*               | -10.0       | 21.9        | Complied |
| 2572            | 75                | 0                     | -30.4                | -10.0       | 20.4        | Complied |

**16QAM / 75 RB 0 Offset / 2475 to 2498 MHz****16QAM / 75 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 75 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 75 RB 0 Offset / 2572 to 2595 MHz**

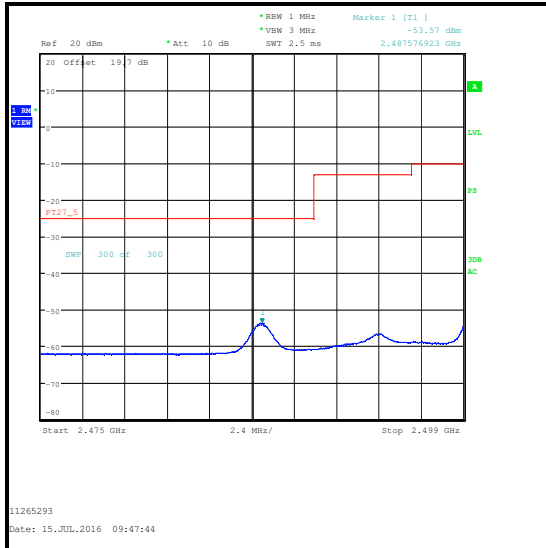
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -22.9                | -10.0       | 12.9        | Complied |
| 2498 to 2499    | 1                 | 0                     | -48.2*               | -10.0       | 38.2        | Complied |
| 2571 to 2572    | 1                 | 74                    | -48.3*               | -10.0       | 38.3        | Complied |
| 2572            | 1                 | 74                    | -20.3                | -10.0       | 10.3        | Complied |

**16QAM / 1 RB 0 Offset / 2475 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 74 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 74 Offset / 2572 to 2595 MHz**

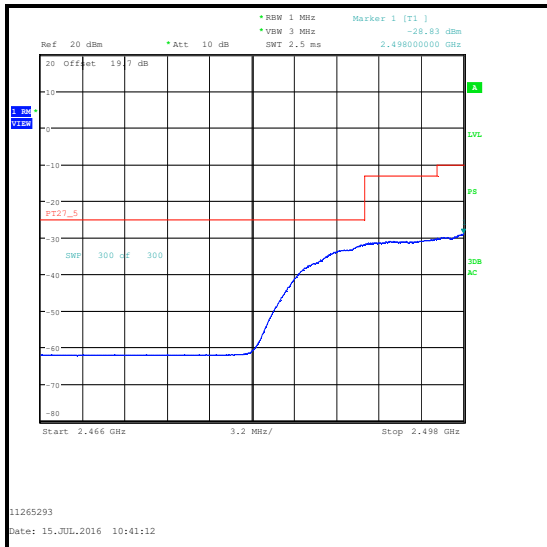
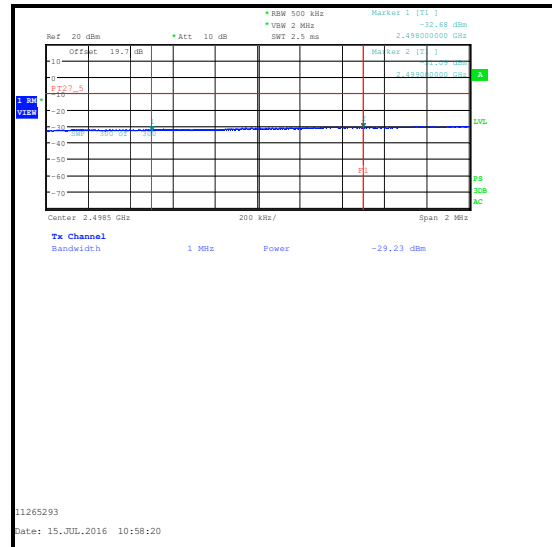
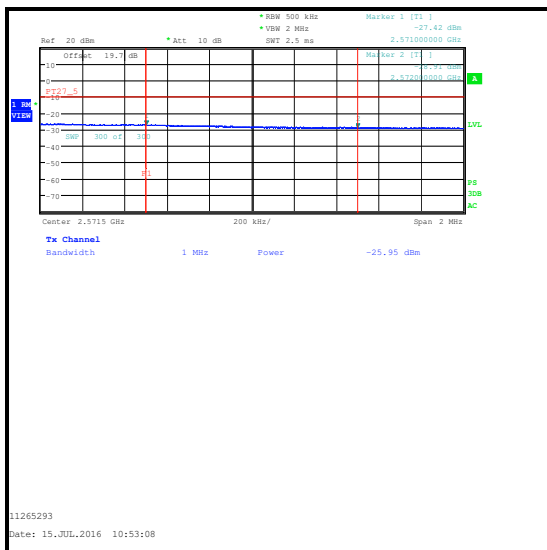
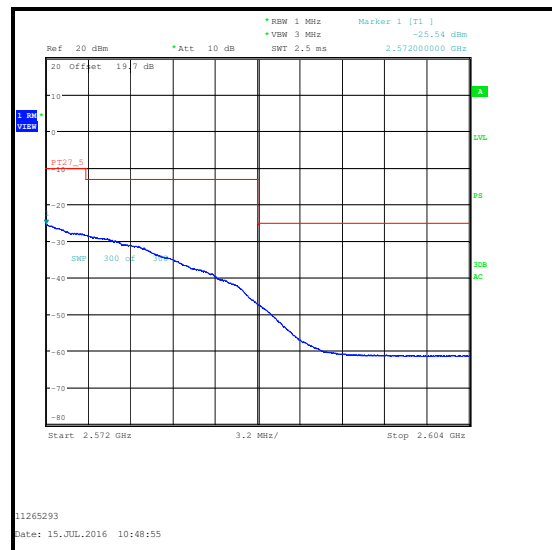
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2487.577        | 1                 | 74                    | -53.6                | -25.0       | 28.6        | Complied |
| 2582.538        | 1                 | 0                     | -55.6                | -13.0       | 42.6        | Complied |

**16QAM / 1 RB 74 Offset / 2475 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2595 MHz**

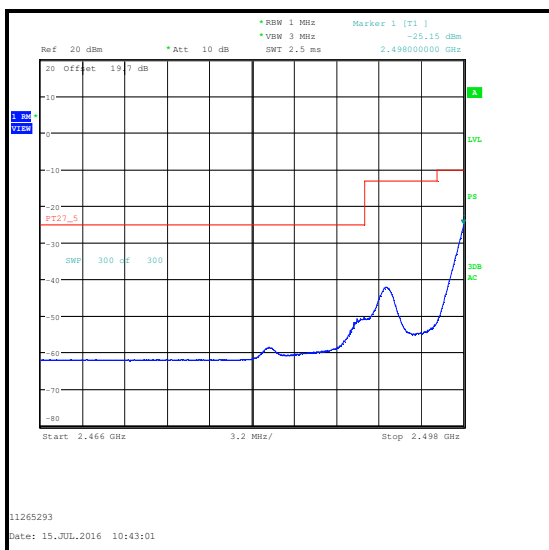
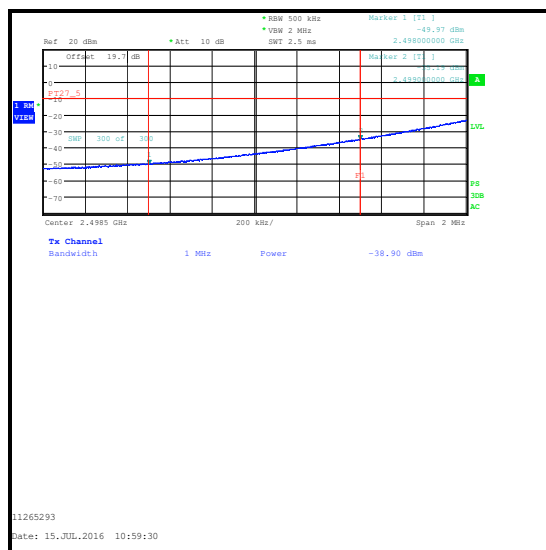
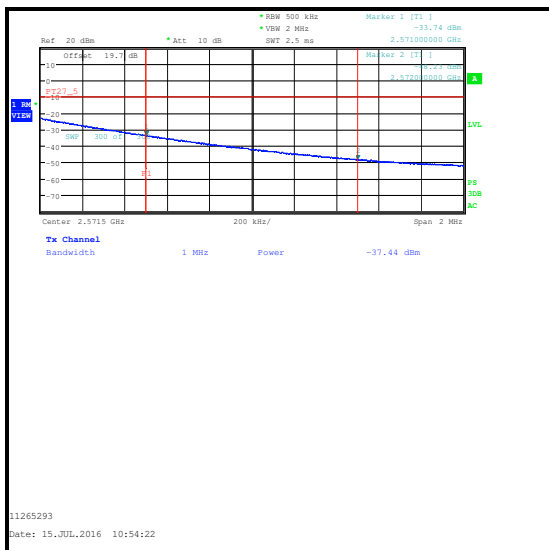
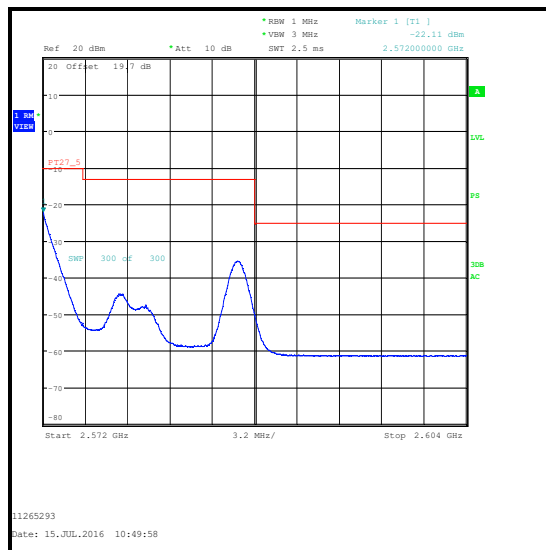
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 100               | 0                     | -28.8                | -10.0       | 18.8        | Complied |
| 2498 to 2499    | 100               | 0                     | -29.2*               | -10.0       | 19.2        | Complied |
| 2571 to 2572    | 100               | 0                     | -25.9*               | -10.0       | 15.9        | Complied |
| 2572            | 100               | 0                     | -25.5                | -10.0       | 15.5        | Complied |

**QPSK / 100 RB 0 Offset / 2466 to 2498 MHz****QPSK / 100 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 100 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 100 RB 0 Offset / 2572 to 2604 MHz**

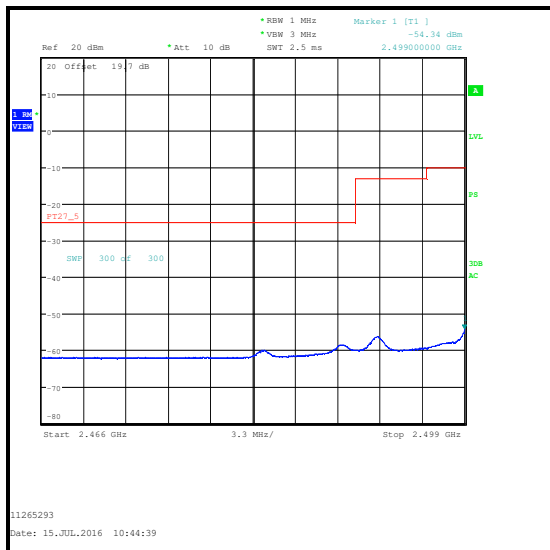
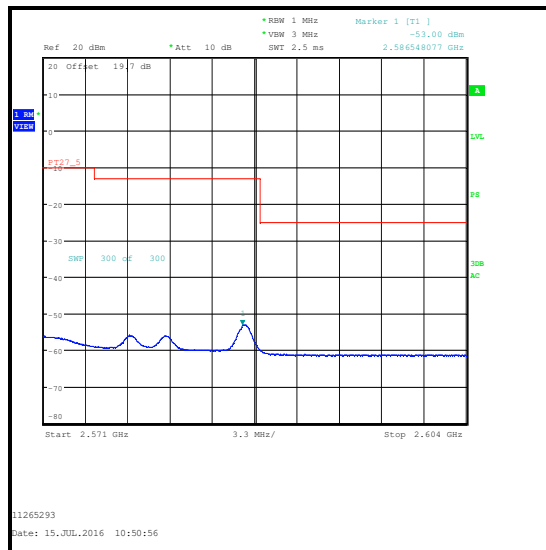
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -25.1                | -10.0       | 15.1        | Complied |
| 2498 to 2499    | 1                 | 0                     | -38.9*               | -10.0       | 28.9        | Complied |
| 2571 to 2572    | 1                 | 99                    | -37.4*               | -10.0       | 27.4        | Complied |
| 2572            | 1                 | 99                    | -22.1                | -10.0       | 12.1        | Complied |

**QPSK / 1 RB 0 Offset / 2466 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 99 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 99 Offset / 2572 to 2604 MHz**

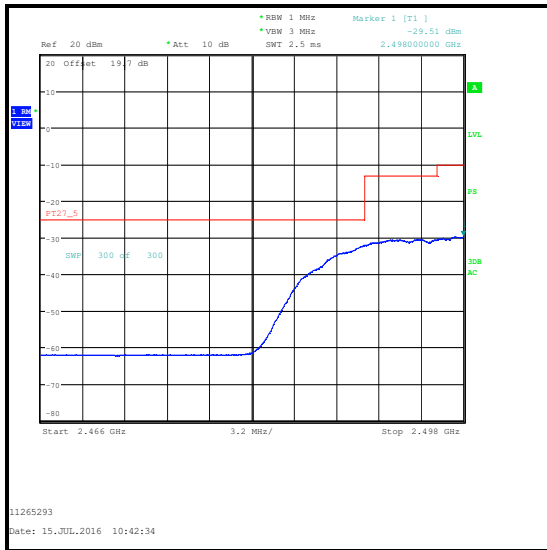
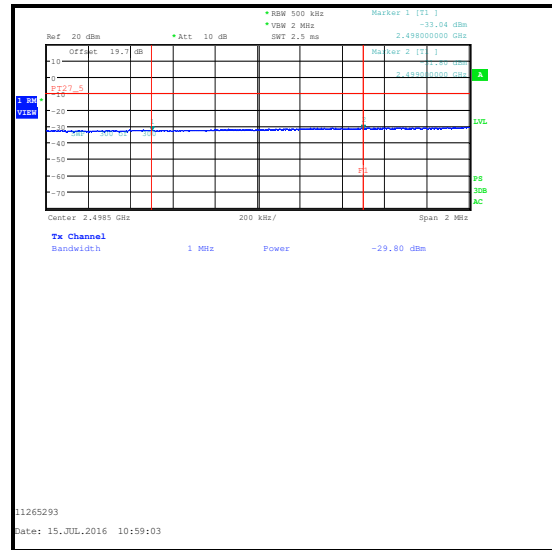
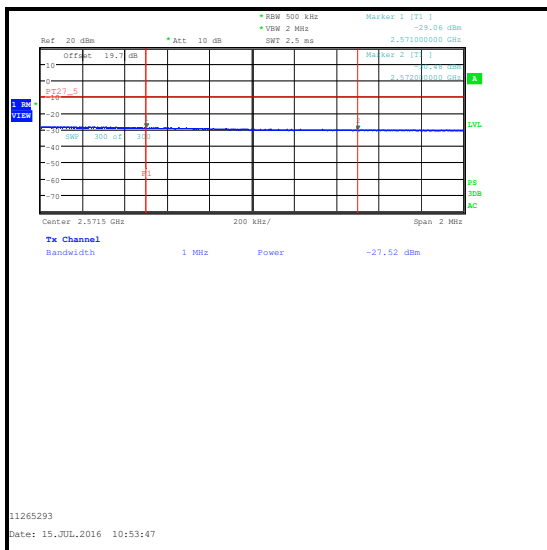
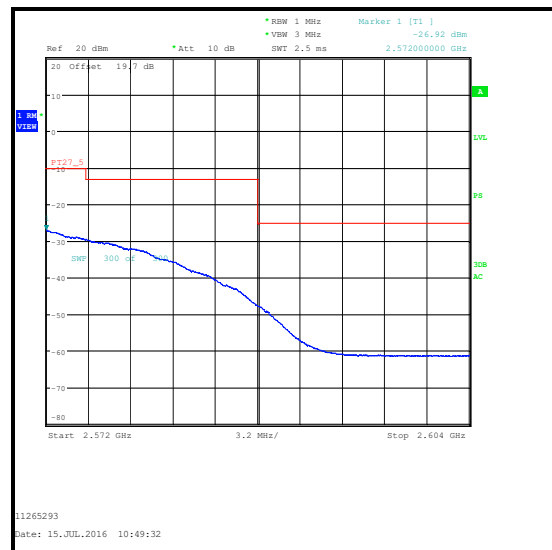
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 99                    | -54.3                | -10.0       | 44.3        | Complied |
| 2586.548        | 1                 | 0                     | -53.0                | -13.0       | 40.0        | Complied |

**QPSK / 1 RB 99 Offset / 2466 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2604 MHz**

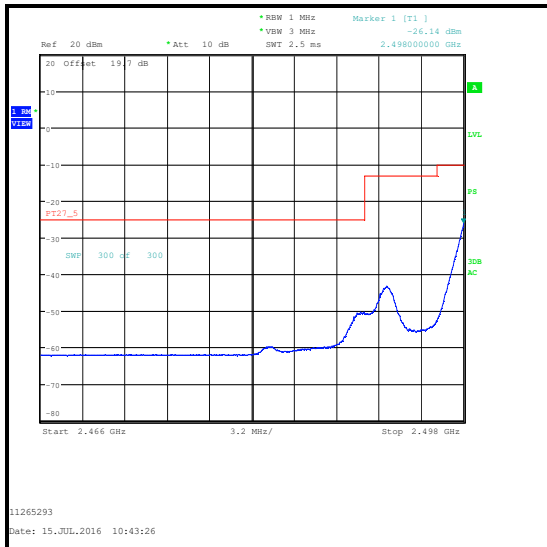
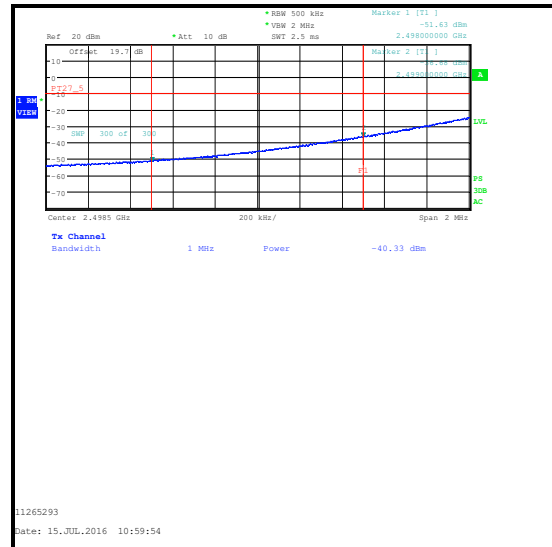
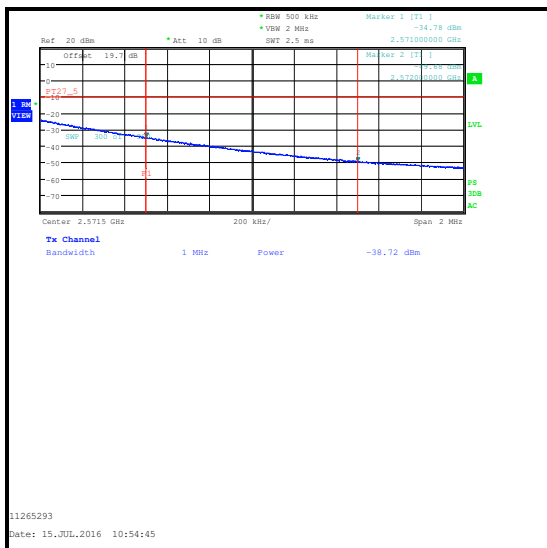
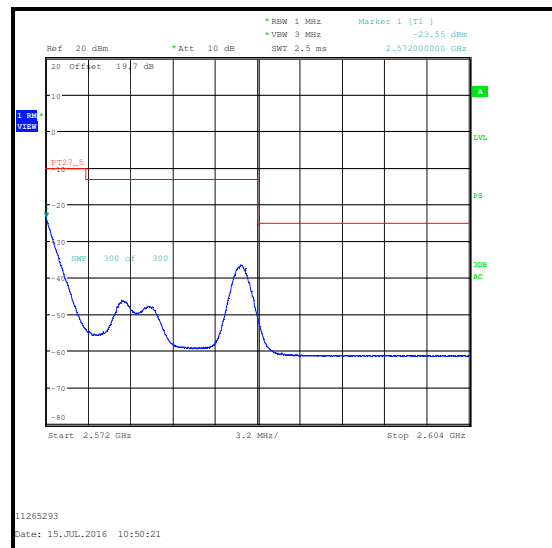
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 100               | 0                     | -29.5                | -10.0       | 19.5        | Complied |
| 2498 to 2499    | 100               | 0                     | -29.8*               | -10.0       | 19.8        | Complied |
| 2571 to 2572    | 100               | 0                     | -27.5*               | -10.0       | 17.5        | Complied |
| 2572            | 100               | 0                     | -26.9                | -10.0       | 16.9        | Complied |

**16QAM / 100 RB 0 Offset / 2466 to 2498 MHz****16QAM / 100 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 100 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 100 RB 0 Offset / 2572 to 2604 MHz**

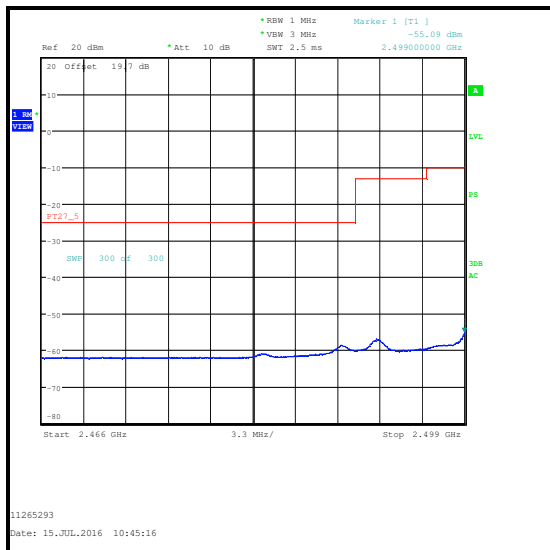
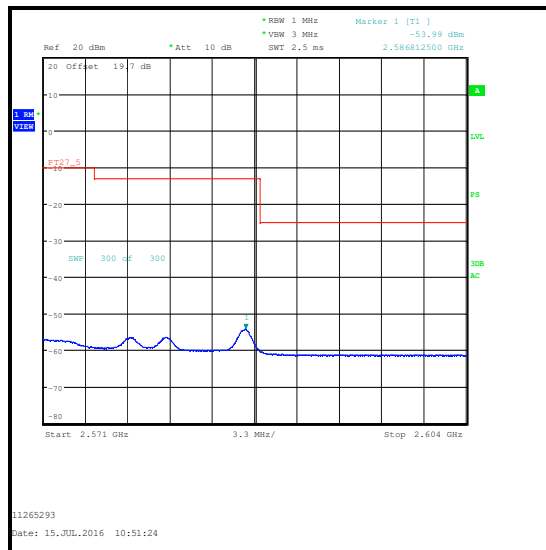
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -26.1                | -10.0       | 16.1        | Complied |
| 2498 to 2499    | 1                 | 0                     | -40.3*               | -10.0       | 30.3        | Complied |
| 2571 to 2572    | 1                 | 99                    | -38.7*               | -10.0       | 28.7        | Complied |
| 2572            | 1                 | 99                    | -23.5                | -10.0       | 13.5        | Complied |

**16QAM / 1 RB 0 Offset / 2466 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 99 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 99 Offset / 2572 to 2604 MHz**

**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 24                    | -55.1                | -10.0       | 45.1        | Complied |
| 2586.813        | 1                 | 0                     | -54.0                | -13.0       | 41.0        | Complied |

**16QAM / 1 RB 99 Offset / 2466 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2604 MHz****Test Equipment Used:**

| Asset No. | Instrument           | Manufacturer    | Type No.      | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|----------------------|-----------------|---------------|-------------|-----------------------|------------------------|
| M2002     | Thermohygrometer     | Testo           | 608-H1        | 45041825    | 02 Apr 2017           | 12                     |
| M1630     | Test Receiver        | Rohde & Schwarz | ESU40         | 100233      | 17 Feb 2017           | 12                     |
| A2504     | Directional Coupler  | AtlanTecRF      | CDC-003060-10 | 13122501839 | Calibrated before use | -                      |
| A2507     | Attenuator           | AtlanTecRF      | AN18-10       | 821846#2    | Calibrated before use | -                      |
| M199      | Power Meter          | Rohde & Schwarz | NRVS          | 827023/075  | 11 Apr 2018           | 24                     |
| M1267     | Thermal Power Sensor | Rohde & Schwarz | NRV-Z52       | 100155      | 15 Apr 2018           | 24                     |
| S0579     | DC Power Supply      | TTi             | EX1810R       | 444110      | Calibrated before use | -                      |
| M1269     | Multimeter           | Fluke           | 179           | 90250210    | 13 May 2017           | 12                     |

**5.2.6. Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz – UAT****Test Summary:**

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | Ben Mercer      | <b>Test Date:</b> | 20 July 2016 |
| <b>Test Sample IMEI:</b> | 358640070309241 |                   |              |

|                          |                                                                |
|--------------------------|----------------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1051 & 27.53(m)(4)                                     |
| <b>Test Method Used:</b> | KDB 971168 Section 6 referencing FCC Part 27.53 & note 3 below |

**Environmental Conditions:**

|                               |    |
|-------------------------------|----|
| <b>Temperature (°C):</b>      | 23 |
| <b>Relative Humidity (%):</b> | 48 |

**Note(s):**

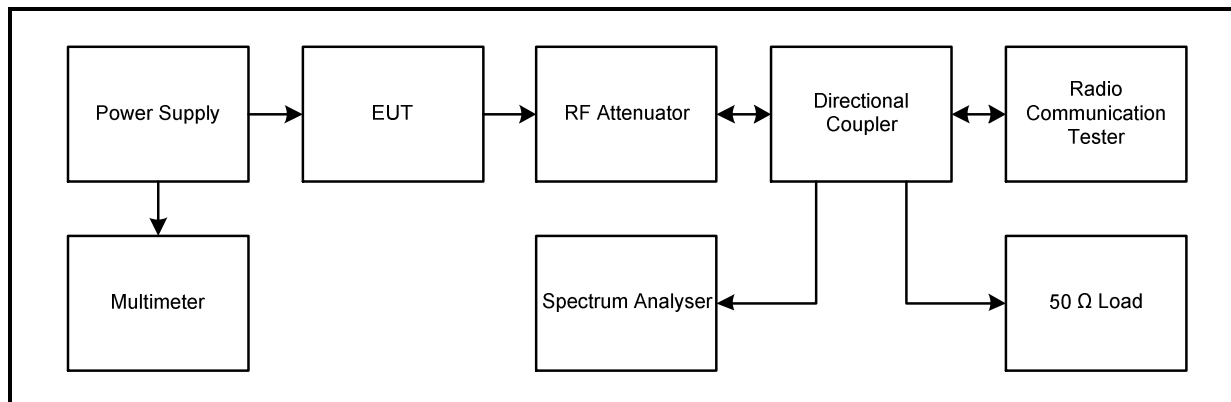
1. Measurements were performed conducted with the antenna gain included in the analyser reference level offset. The customer stated that the antenna gain is 0.6 dBi.
2. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with resource blocks settings as detailed in section 4.3 of this report.
3. Sweep time was set to auto and an RMS detector with trace averaging of 300 sweeps was used.
4. In accordance with 27.53(m)(4), the following limits were calculated:

| 5 MHz Channel Bandwidth |             | 10 MHz Channel Bandwidth |             |
|-------------------------|-------------|--------------------------|-------------|
| Frequency Range (MHz)   | Limit (dBm) | Frequency Range (MHz)    | Limit (dBm) |
| 30 – 2494               | -25         | 30 – 2491.013            | -25         |
| 2494 – 2496             | -13         | 2491.013 – 2496          | -13         |
| 2496 – 2500             | -10         | 2496 – 2500              | -10         |
| 2570 – 2575             | -10         | 2570 – 2575              | -10         |
| 2575 – 2576             | -13         | 2575 – 2578.987          | -13         |
| 2576 – 26000            | -25         | 2578.987 – 26000         | -25         |

**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Note(s):**

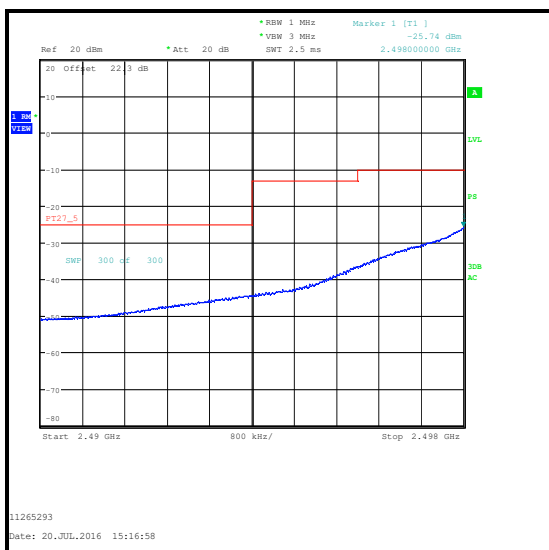
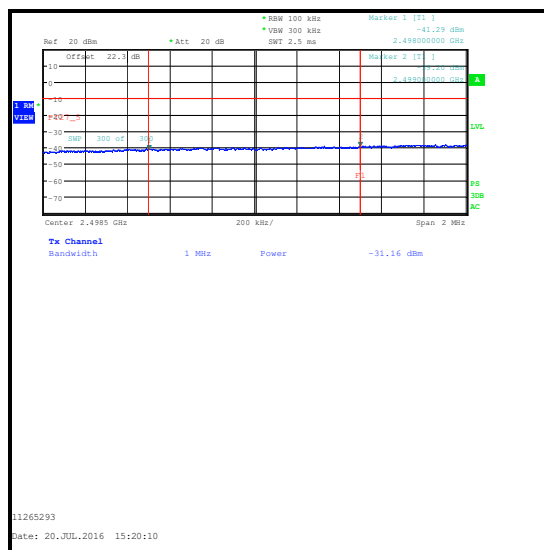
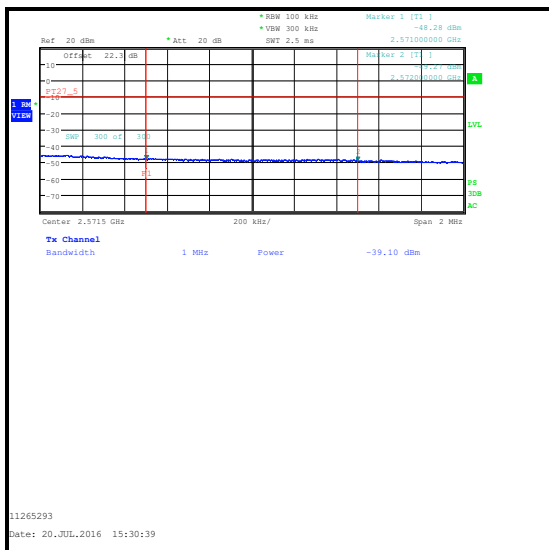
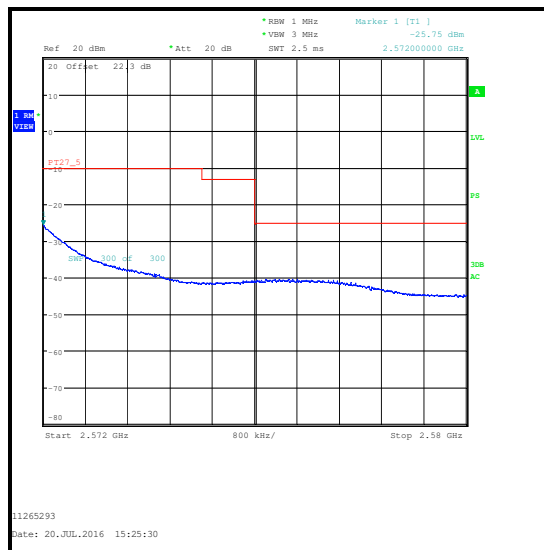
| 15 MHz Channel Bandwidth |             | 20 MHz Channel Bandwidth |             |
|--------------------------|-------------|--------------------------|-------------|
| Frequency Range (MHz)    | Limit (dBm) | Frequency Range (MHz)    | Limit (dBm) |
| 30 – 2490.5              | -25         | 30 – 2490.5              | -25         |
| 2490.5 – 2496            | -13         | 2490.5 – 2496            | -13         |
| 2496 – 2500              | -10         | 2496 – 2500              | -10         |
| 2570 – 2575              | -10         | 2570 – 2575              | -10         |
| 2575 – 2583.480          | -13         | 2575 – 2587.974          | -13         |
| 2583.480 – 26000         | -25         | 2587.974 – 26000         | -25         |

- For given channel bandwidth, the minimum value of the 99% occupied bandwidth was used to calculate the above limits. The choice of the minimum occupied bandwidth, regardless of modulation schemes, gives a worst case scenario for the applicable limit lines.
- The plots of this section illustrate the conducted emissions at band edges, at frequencies below 2499 MHz and above 2571 MHz. Compliance in the frequency ranges 2499 – 2500 MHz and 2570 – 2571 MHz are shown in section 5.2.10 of this report.
- In accordance with 27.53(m)(6), a narrower resolution bandwidth is allowed to be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz. The channel power function of the spectrum analyser was used where necessary.
- \* Integrated level (dBm)

**Test setup:**

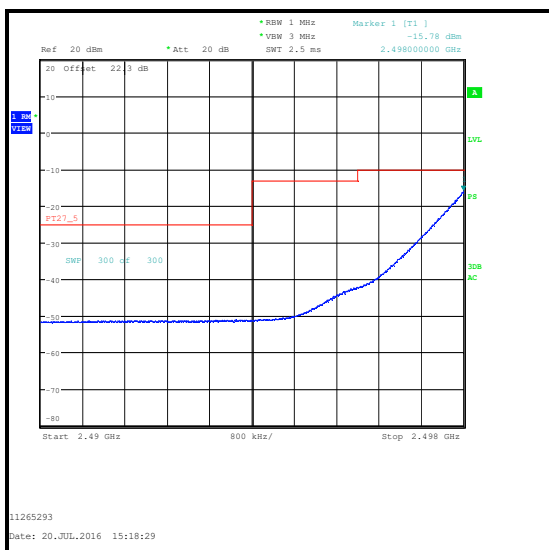
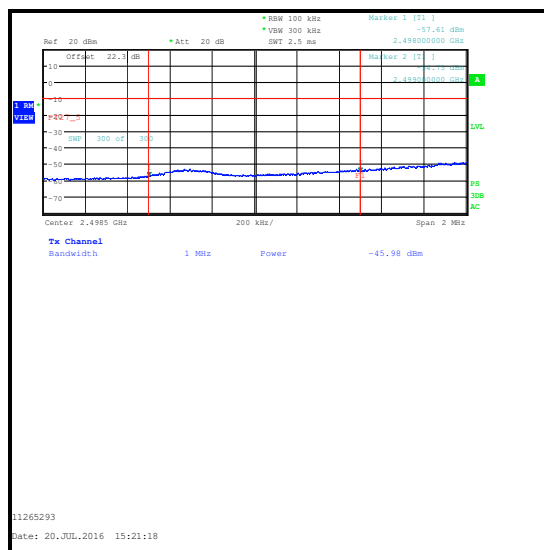
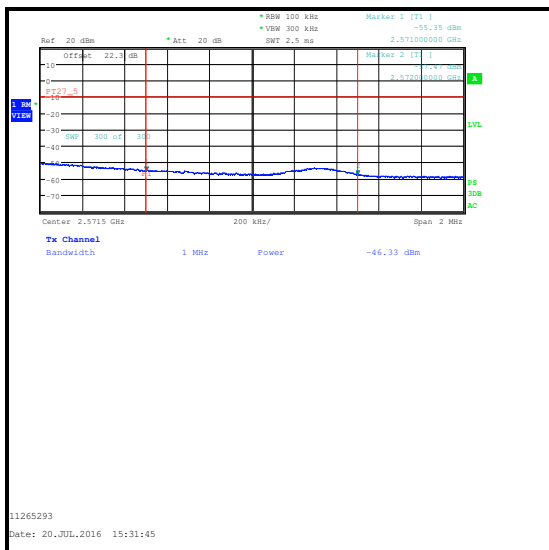
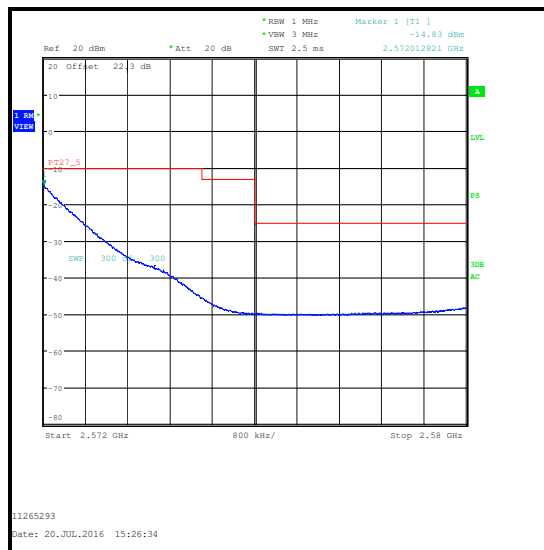
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 25                | 0                     | -25.7                | -10.0       | 15.7        | Complied |
| 2498 to 2499    | 25                | 0                     | -31.2*               | -10.0       | 21.2        | Complied |
| 2571 to 2572    | 25                | 0                     | -39.1*               | -10.0       | 29.1        | Complied |
| 2572            | 25                | 0                     | -25.7                | -10.0       | 15.7        | Complied |

**QPSK / 25 RB 0 Offset / 2490 to 2498 MHz****QPSK / 25 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2572 to 2580 MHz**

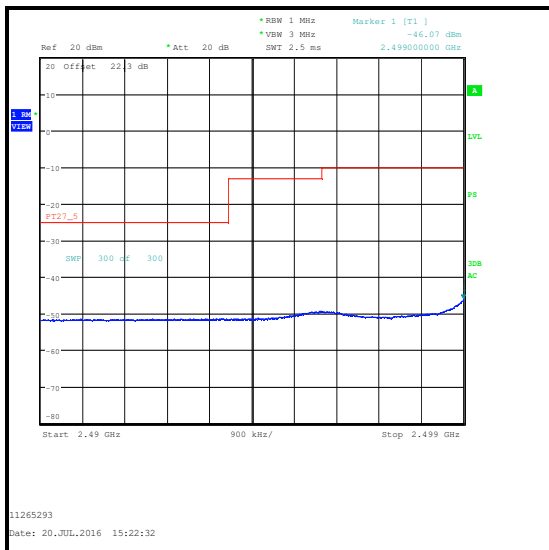
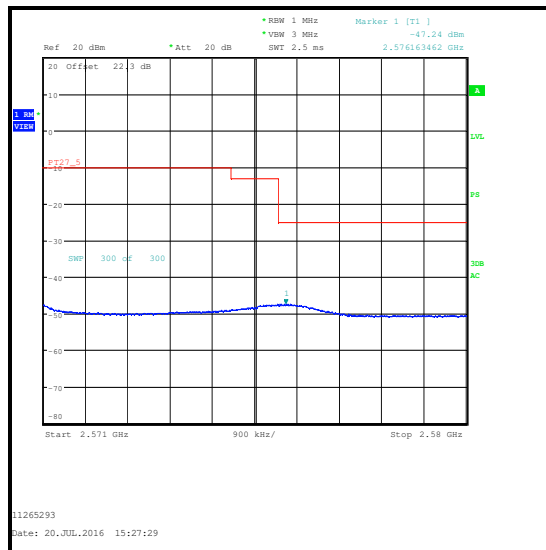
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -15.8                | -10.0       | 5.8         | Complied |
| 2498 to 2499    | 1                 | 0                     | -46.0*               | -10.0       | 36.0        | Complied |
| 2571 to 2572    | 1                 | 24                    | -46.3*               | -10.0       | 36.3        | Complied |
| 2572.013        | 1                 | 24                    | -14.8                | -10.0       | 4.8         | Complied |

**QPSK / 1 RB 0 Offset / 2490 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2572 to 2580 MHz**

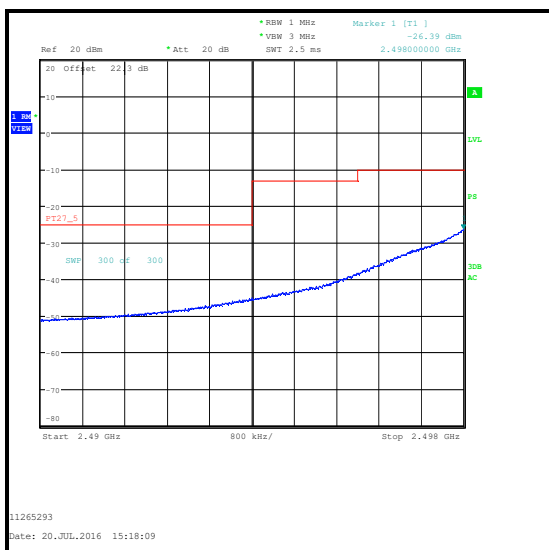
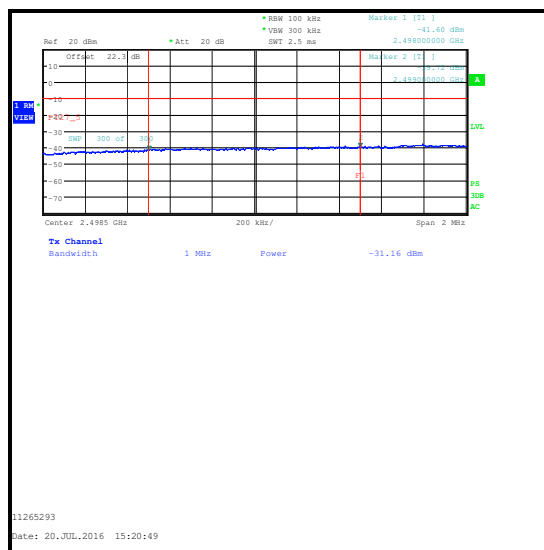
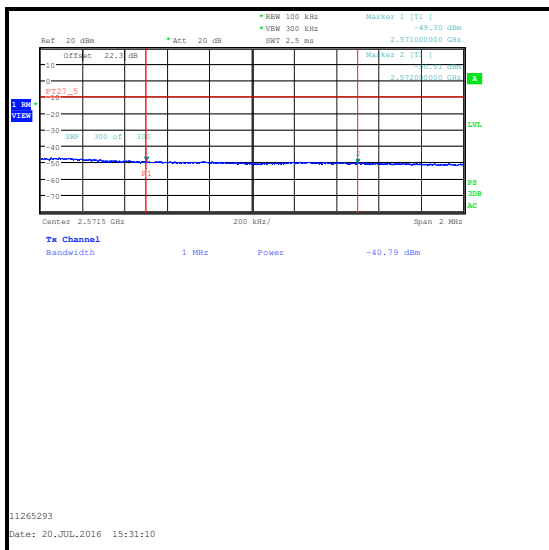
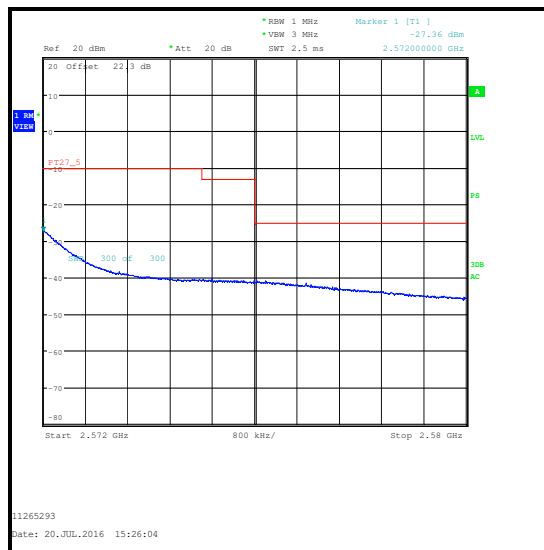
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 24                    | -46.1                | -10.0       | 36.1        | Complied |
| 2576.163        | 1                 | 0                     | -47.2                | -25.0       | 22.2        | Complied |

**QPSK / 1 RB 24 Offset / 2490 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2580 MHz**

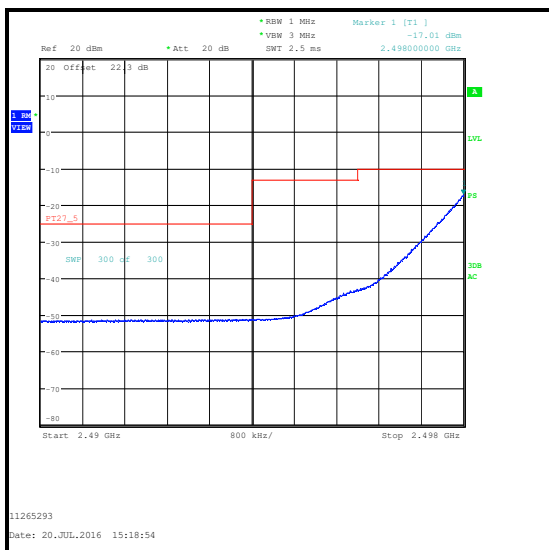
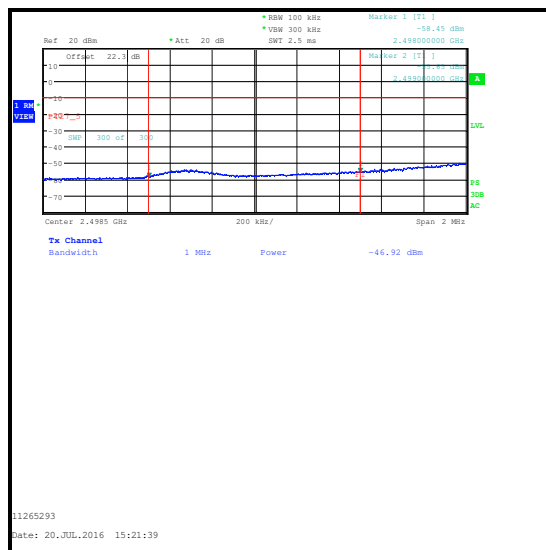
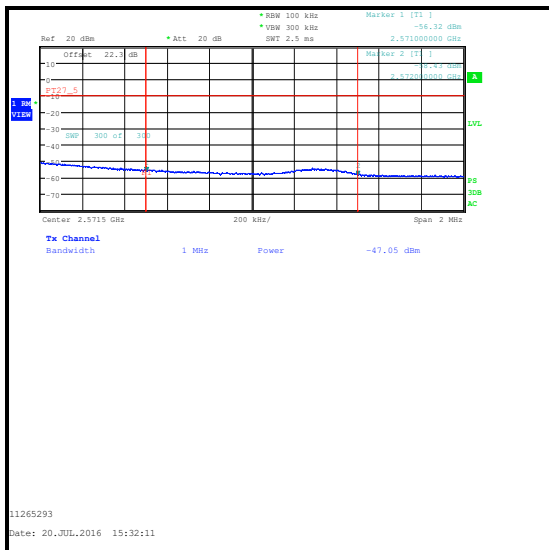
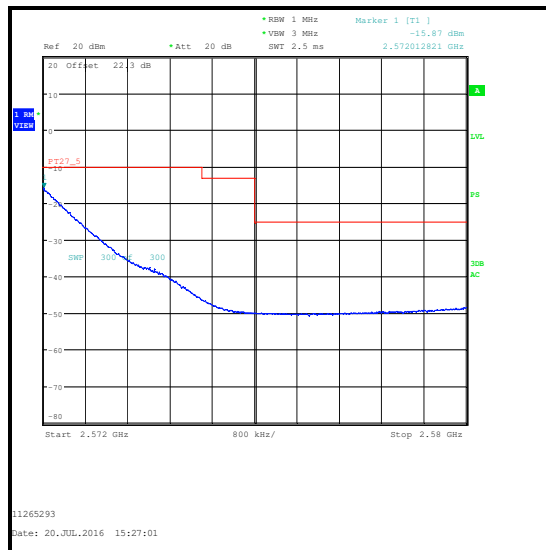
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 25                | 0                     | -26.4                | -10.0       | 16.4        | Complied |
| 2498 to 2499    | 25                | 0                     | -31.2*               | -10.0       | 21.2        | Complied |
| 2571 to 2572    | 25                | 0                     | -40.8*               | -10.0       | 30.8        | Complied |
| 2572            | 25                | 0                     | -27.4                | -10.0       | 17.4        | Complied |

**16QAM / 25 RB 0 Offset / 2490 to 2498 MHz****16QAM / 25 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2572 to 2580 MHz**

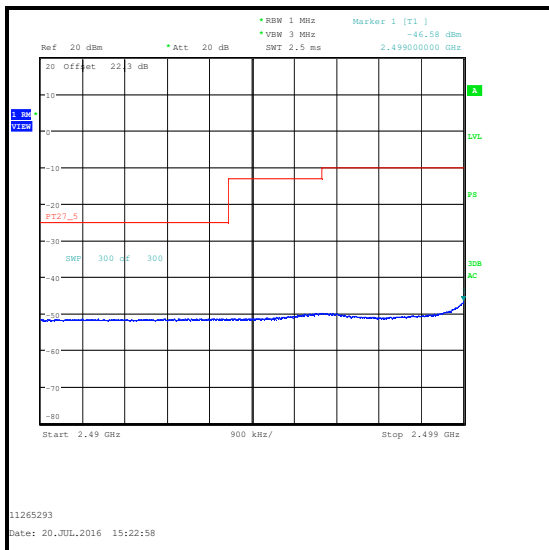
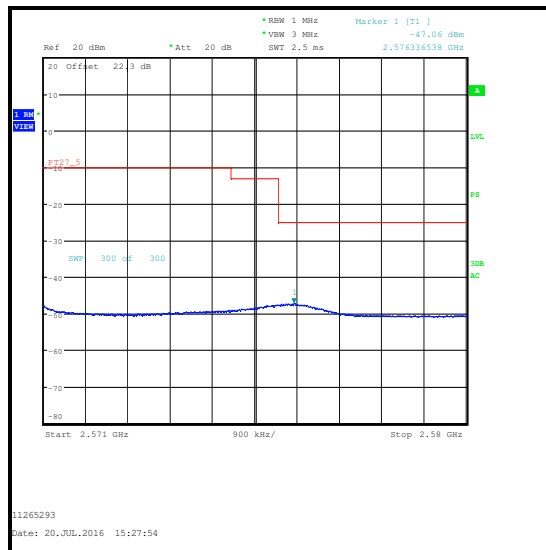
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -17.0                | -10.0       | 7.0         | Complied |
| 2498 to 2499    | 1                 | 0                     | -46.9*               | -10.0       | 36.9        | Complied |
| 2571 to 2572    | 1                 | 24                    | -47.0*               | -10.0       | 37.0        | Complied |
| 2572.013        | 1                 | 24                    | -15.9                | -10.0       | 5.9         | Complied |

**16QAM / 1 RB 0 Offset / 2490 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2572 to 2580 MHz**

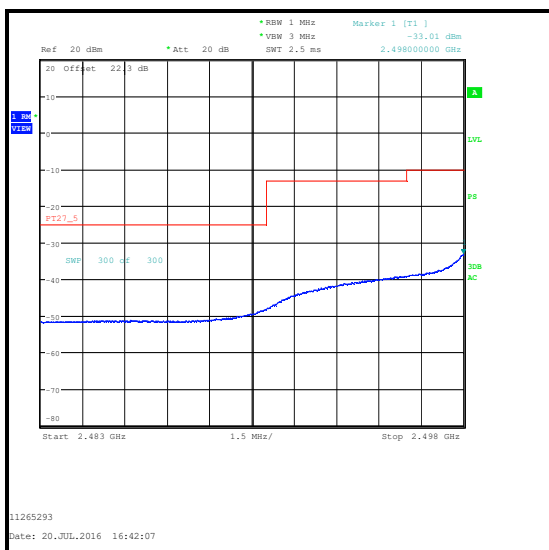
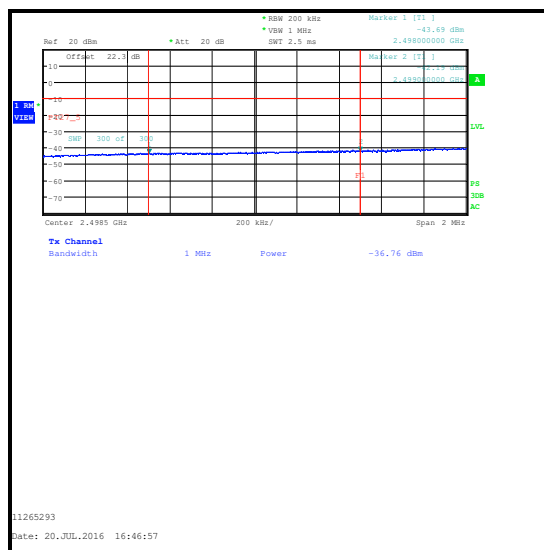
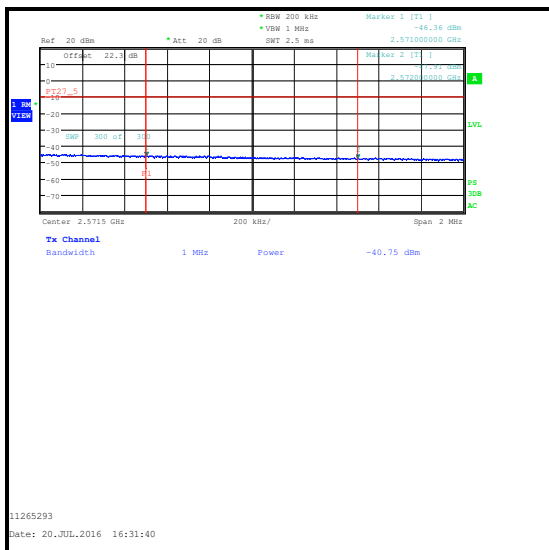
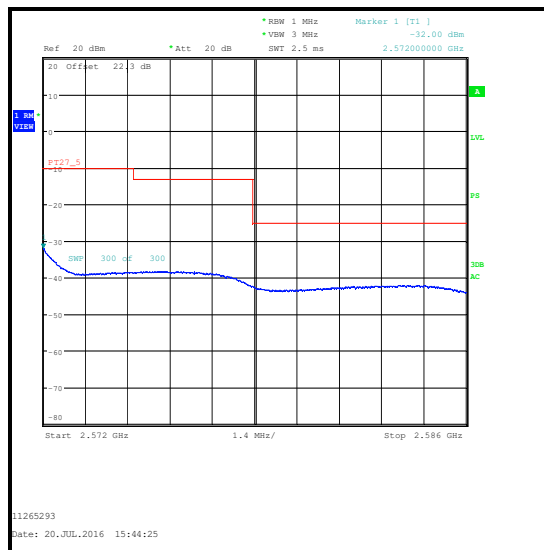
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 5 MHz Channel Bandwidth / 2490 to 2499 MHz & 2571 to 2580 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 24                    | -46.6                | -10.0       | 36.6        | Complied |
| 2576.337        | 1                 | 0                     | -47.1                | -25.0       | 22.1        | Complied |

**16QAM / 1 RB 24 Offset / 2490 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2580 MHz**

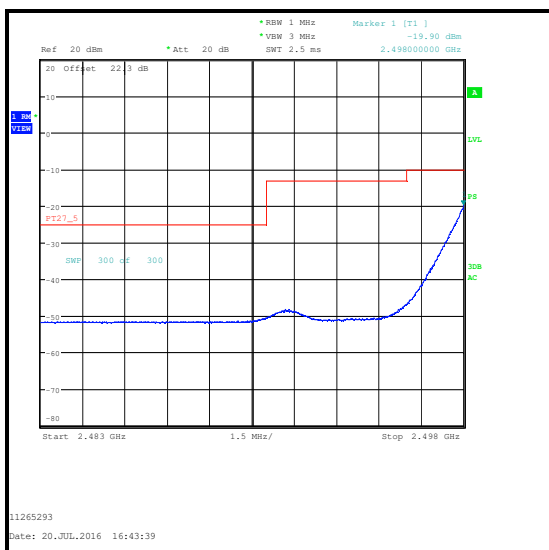
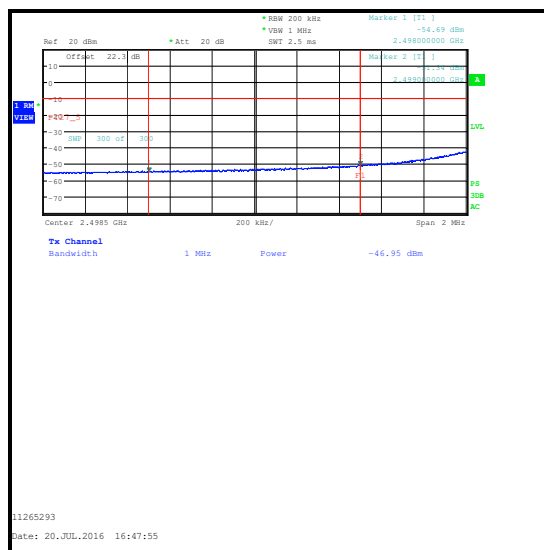
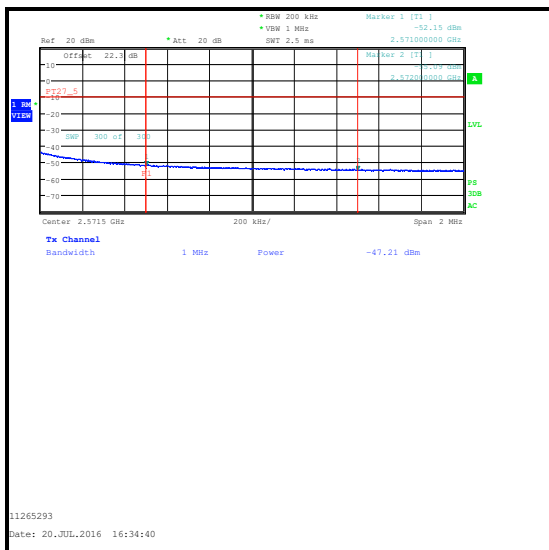
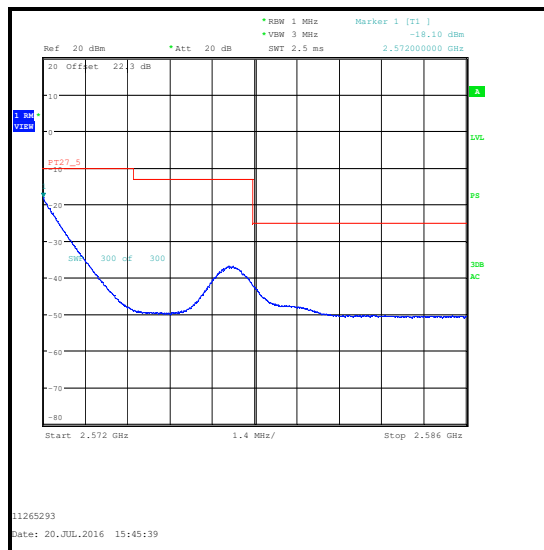
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 50                | 0                     | -33.0                | -10.0       | 23.0        | Complied |
| 2498 to 2499    | 50                | 0                     | -36.8*               | -10.0       | 26.8        | Complied |
| 2571 to 2572    | 50                | 0                     | -40.7*               | -10.0       | 30.7        | Complied |
| 2572            | 50                | 0                     | -32.0                | -10.0       | 22.0        | Complied |

**QPSK / 50 RB 0 Offset / 2483 to 2498 MHz****QPSK / 50 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2572 to 2586 MHz**

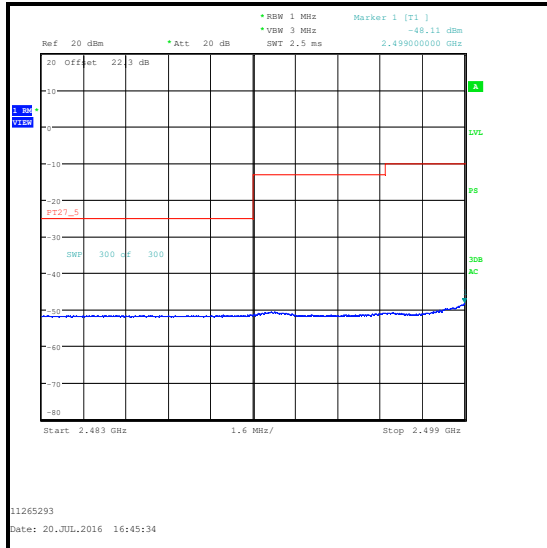
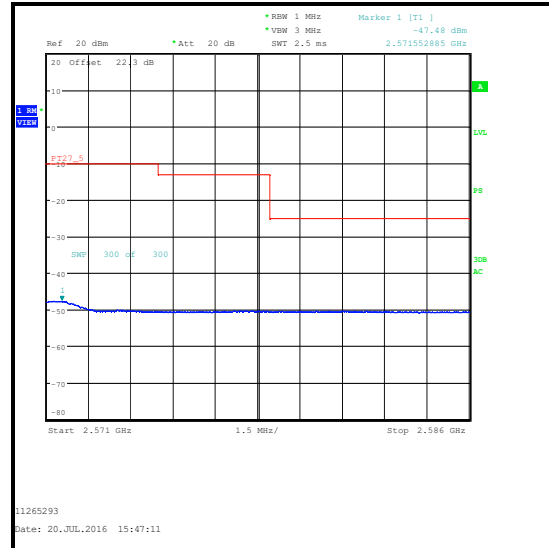
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -19.9                | -10.0       | 9.9         | Complied |
| 2498 to 2499    | 1                 | 0                     | -46.9*               | -10.0       | 36.9        | Complied |
| 2571 to 2572    | 1                 | 49                    | -47.2*               | -10.0       | 37.2        | Complied |
| 2572            | 1                 | 49                    | -18.1                | -10.0       | 8.1         | Complied |

**QPSK / 1 RB 0 Offset / 2483 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2572 to 2586 MHz**

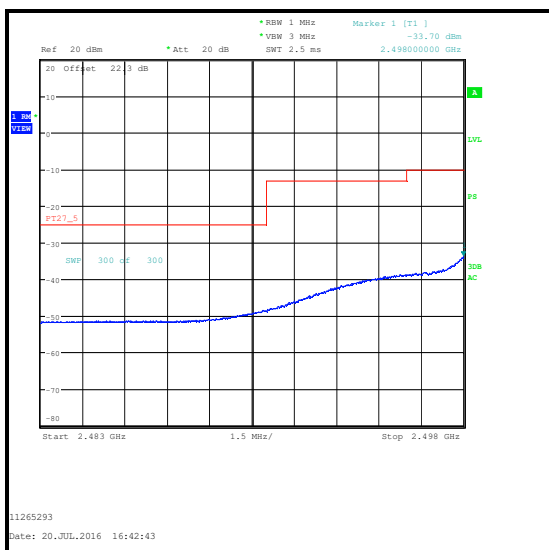
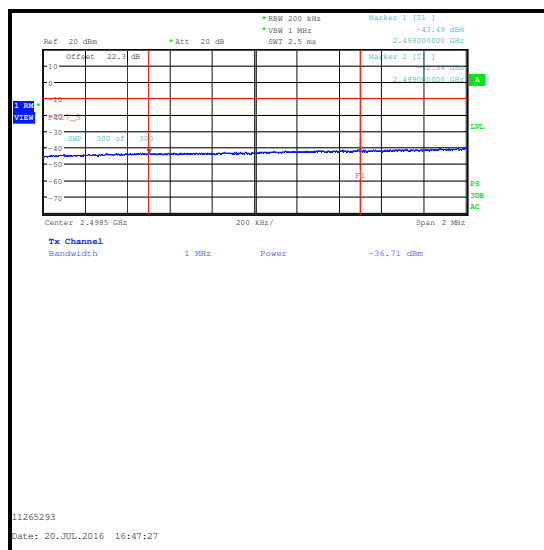
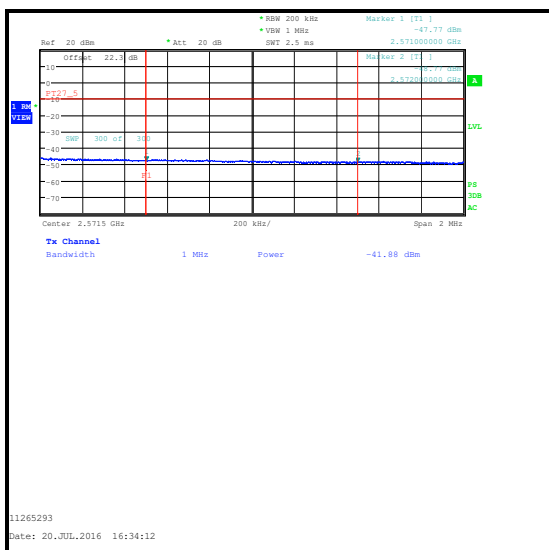
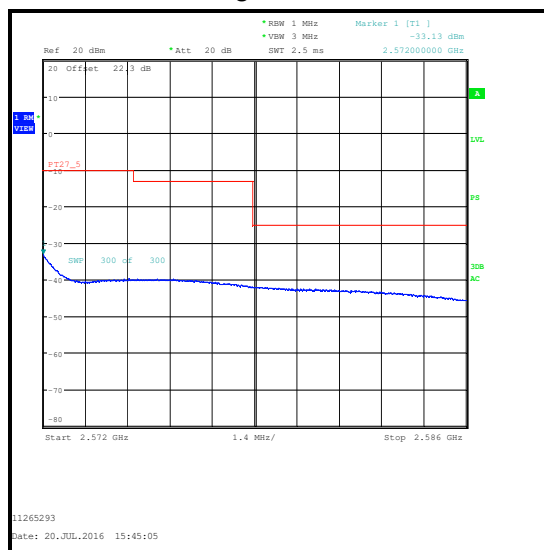
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 49                    | -48.1                | -10.0       | 38.1        | Complied |
| 2571.553        | 1                 | 0                     | -47.5                | -10.0       | 37.5        | Complied |

**QPSK / 1 RB 49 Offset / 2483 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2586 MHz**

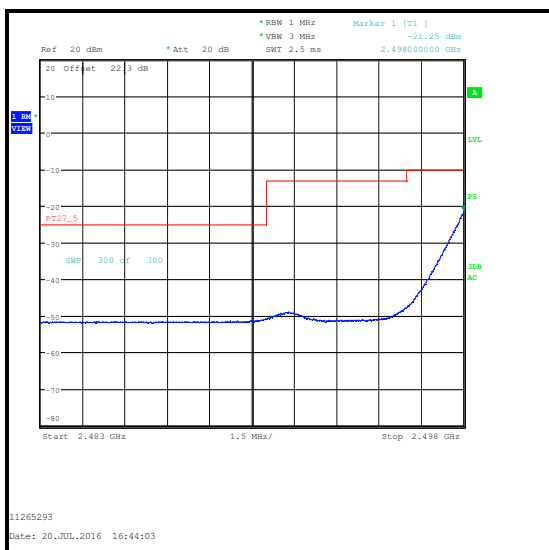
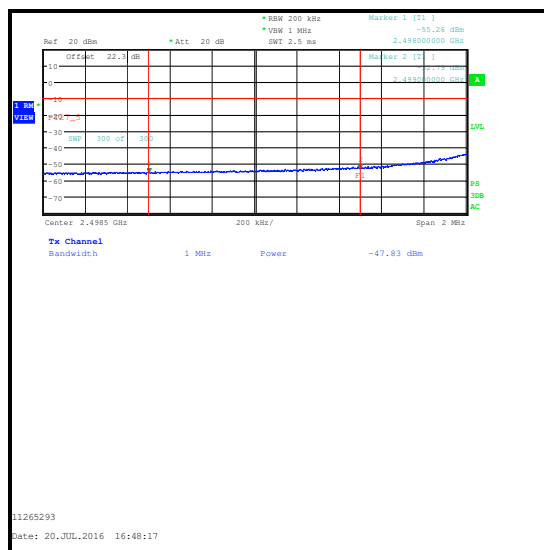
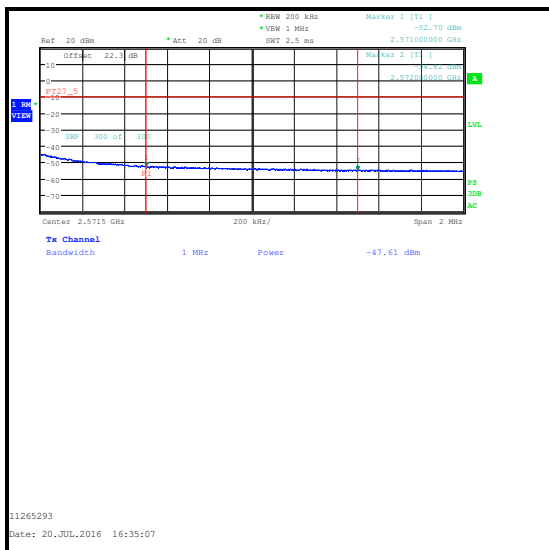
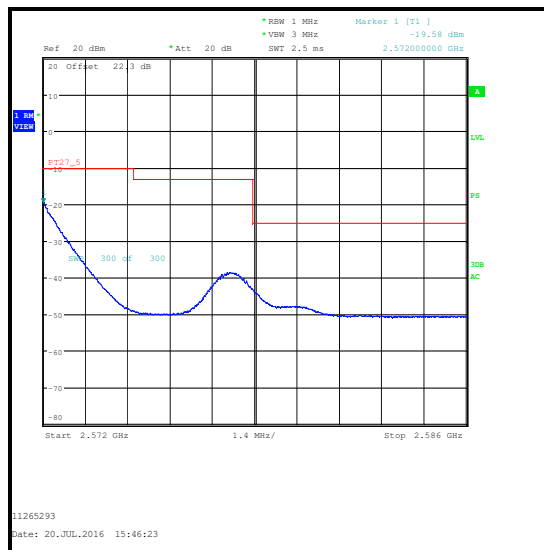
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 50                | 0                     | -33.7                | -10.0       | 23.7        | Complied |
| 2498 to 2499    | 50                | 0                     | -36.7*               | -10.0       | 26.7        | Complied |
| 2571 to 2572    | 50                | 0                     | -41.9*               | -10.0       | 31.9        | Complied |
| 2572            | 50                | 0                     | -33.1                | -10.0       | 23.1        | Complied |

**16QAM / 50 RB 0 Offset / 2483 to 2498 MHz****16QAM / 50 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 50 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 50 RB 0 Offset / 2572 to 2586 MHz**

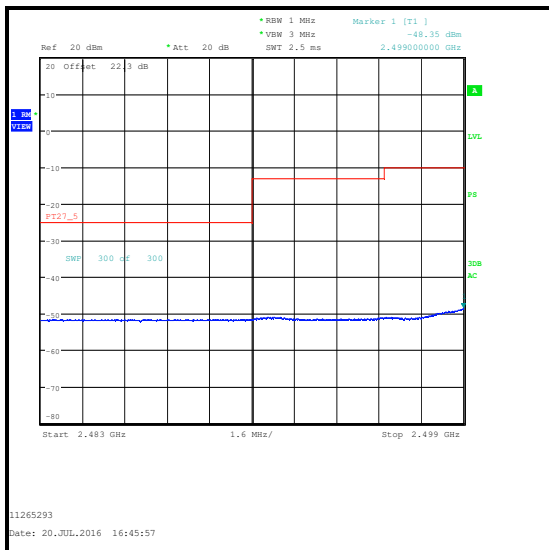
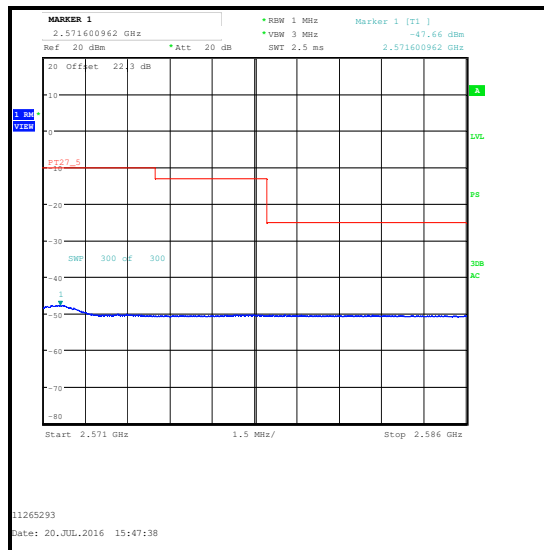
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -21.2                | -10.0       | 11.2        | Complied |
| 2498 to 2499    | 1                 | 0                     | -47.8*               | -10.0       | 37.8        | Complied |
| 2571 to 2572    | 1                 | 49                    | -47.6*               | -10.0       | 37.6        | Complied |
| 2572            | 1                 | 49                    | -19.6                | -10.0       | 9.6         | Complied |

**16QAM / 1 RB 0 Offset / 2483 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2572 to 2586 MHz**

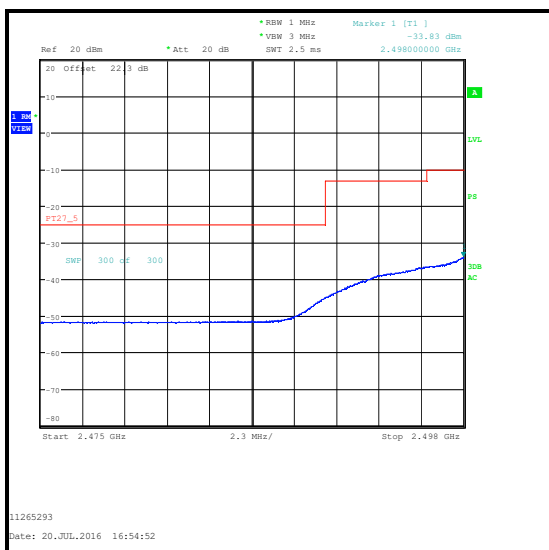
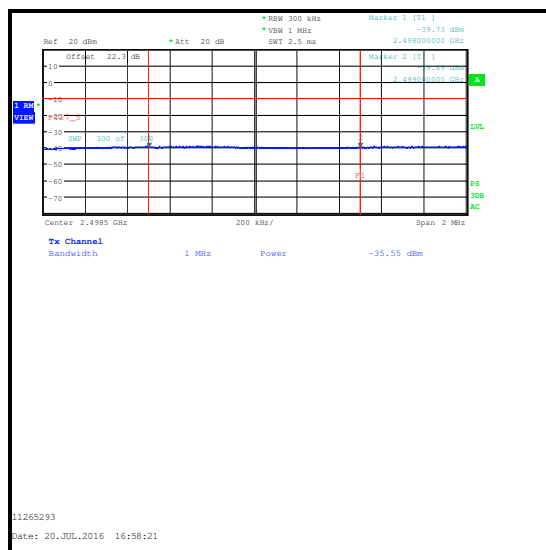
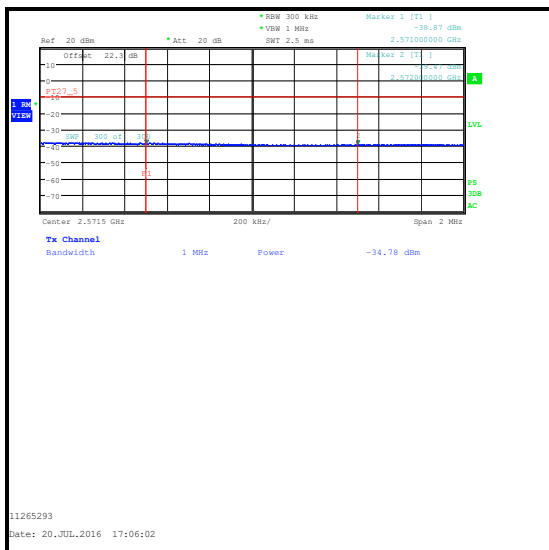
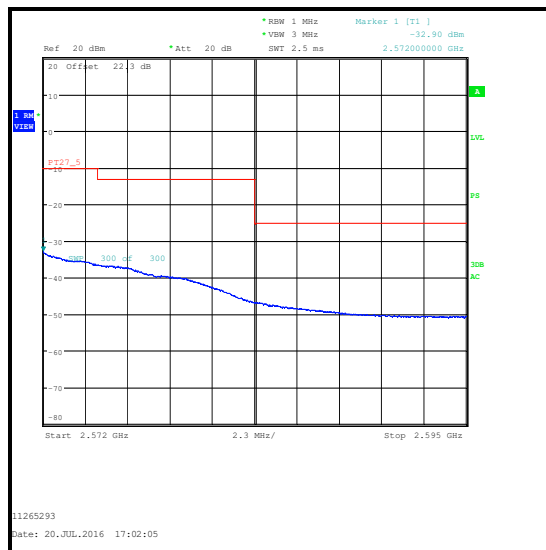
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 10 MHz Channel Bandwidth / 2483 to 2499 MHz & 2571 to 2586 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 49                    | -48.3                | -10.0       | 38.3        | Complied |
| 2571.601        | 1                 | 0                     | -47.7                | -10.0       | 37.7        | Complied |

**16QAM / 1 RB 49 Offset / 2483 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2586 MHz**

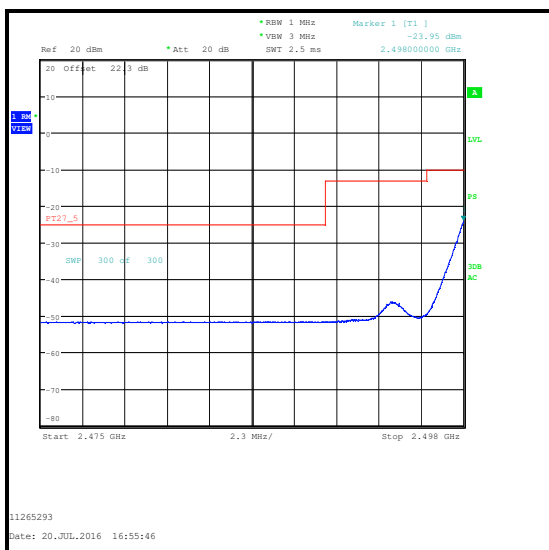
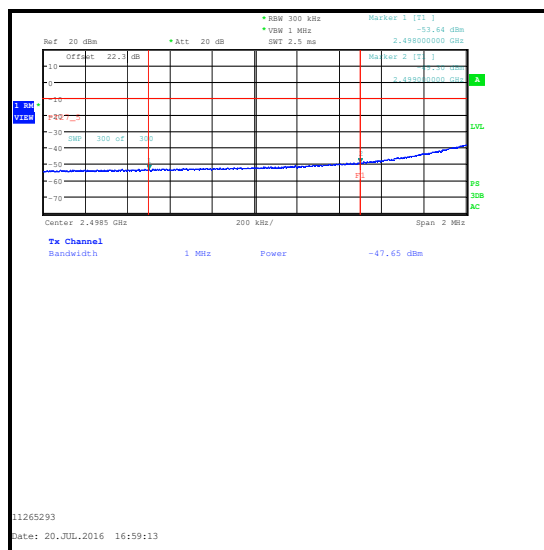
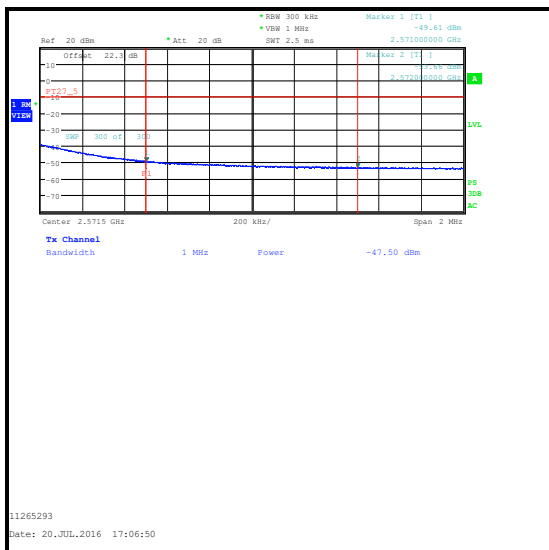
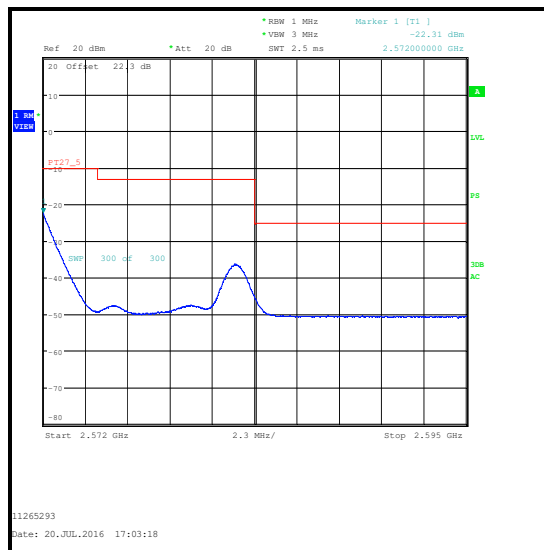
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 75                | 0                     | -33.8                | -10.0       | 23.8        | Complied |
| 2498 to 2499    | 75                | 0                     | -35.5*               | -10.0       | 25.5        | Complied |
| 2571 to 2572    | 75                | 0                     | -34.8*               | -10.0       | 24.8        | Complied |
| 2572            | 75                | 0                     | -32.9                | -10.0       | 22.9        | Complied |

**QPSK / 75 RB 0 Offset / 2475 to 2498 MHz****QPSK / 75 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 75 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 75 RB 0 Offset / 2572 to 2595 MHz**

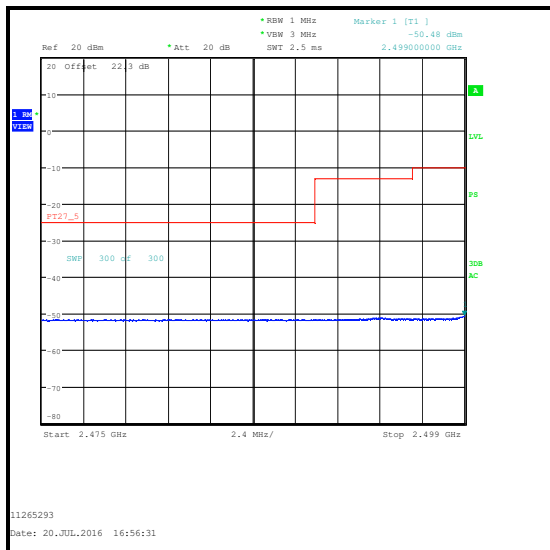
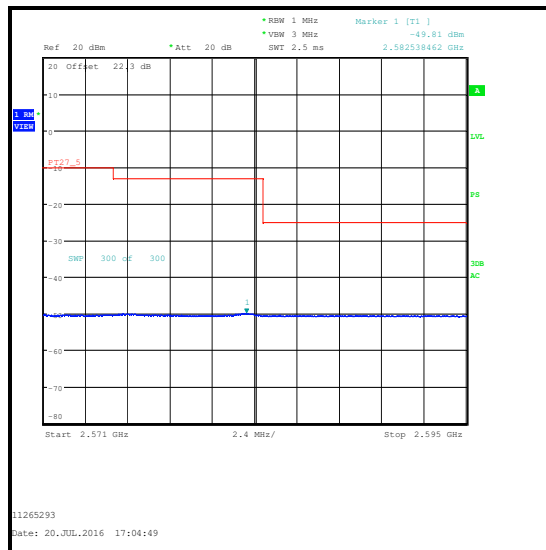
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -23.9                | -10.0       | 13.9        | Complied |
| 2498 to 2499    | 1                 | 0                     | -47.6*               | -10.0       | 37.6        | Complied |
| 2571 to 2572    | 1                 | 74                    | -47.5*               | -10.0       | 37.5        | Complied |
| 2572            | 1                 | 74                    | -22.3                | -10.0       | 12.3        | Complied |

**QPSK / 1 RB 0 Offset / 2475 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 74 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 74 Offset / 2572 to 2595 MHz**

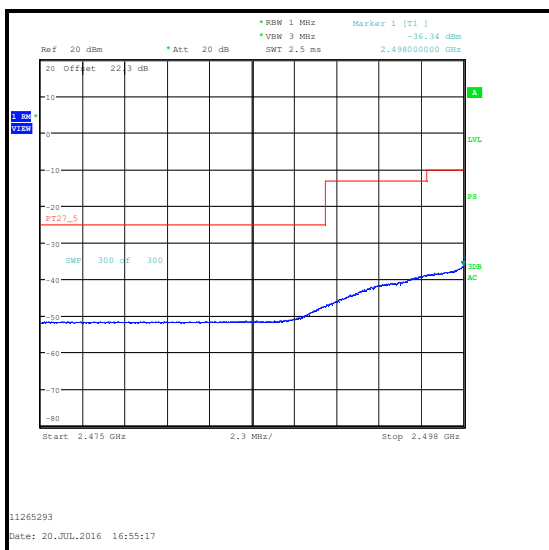
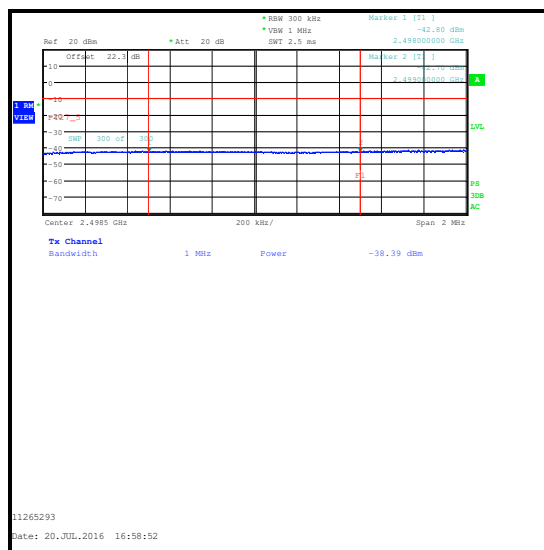
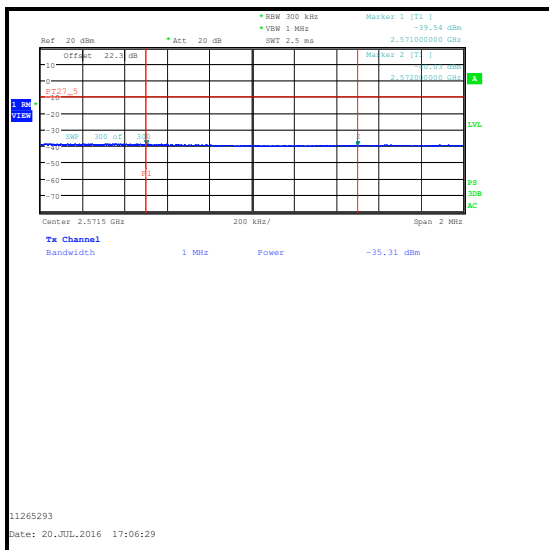
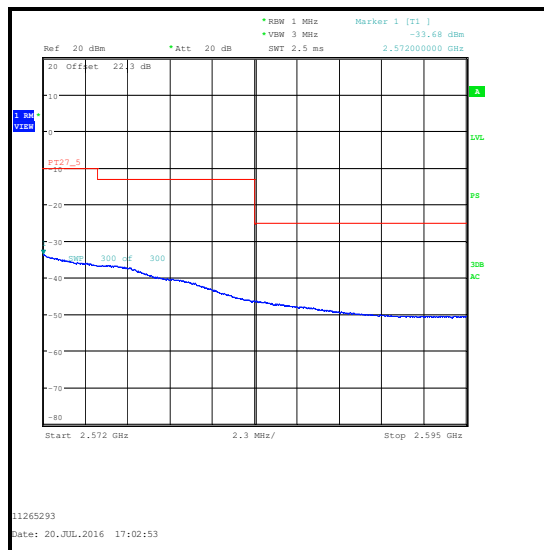
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 74                    | -50.5                | -10.0       | 40.5        | Complied |
| 2582.538        | 1                 | 0                     | -49.8                | -13.0       | 36.8        | Complied |

**QPSK / 1 RB 74 Offset / 2475 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2595 MHz**

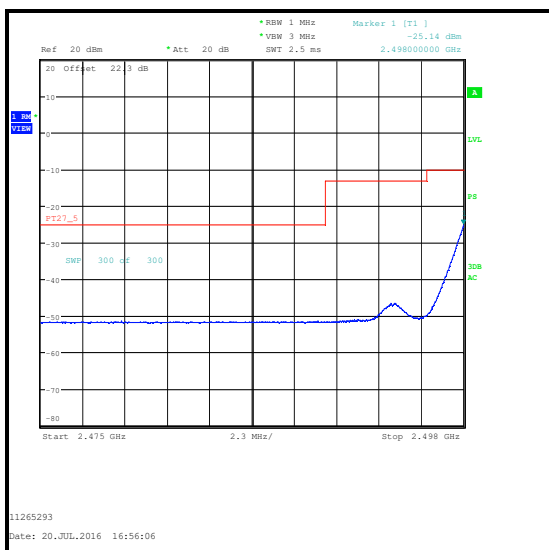
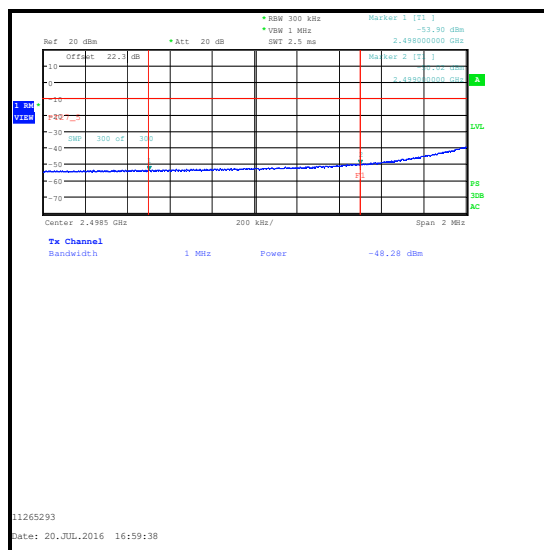
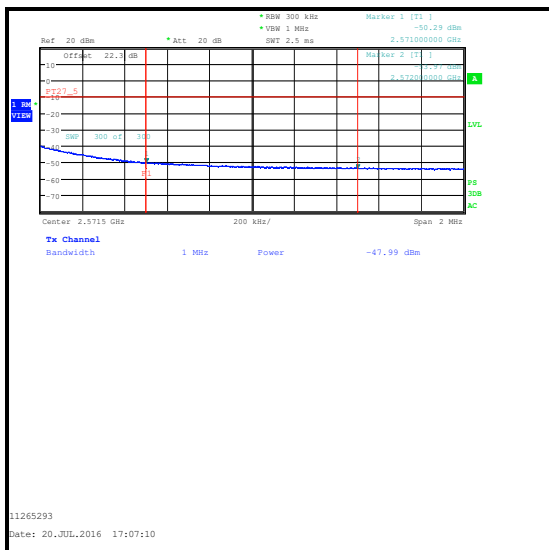
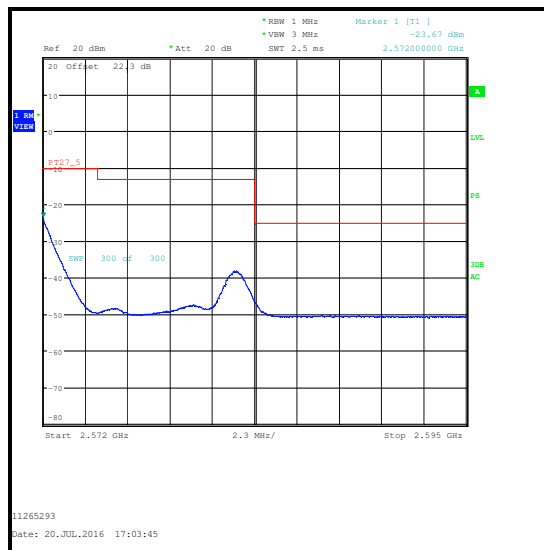
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 75                | 0                     | -36.3                | -10.0       | 26.3        | Complied |
| 2498 to 2499    | 75                | 0                     | -38.4*               | -10.0       | 28.4        | Complied |
| 2571 to 2572    | 75                | 0                     | -35.3*               | -10.0       | 25.3        | Complied |
| 2572            | 75                | 0                     | -33.7                | -10.0       | 23.7        | Complied |

**16QAM / 75 RB 0 Offset / 2475 to 2498 MHz****16QAM / 75 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 75 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 75 RB 0 Offset / 2572 to 2595MHz**

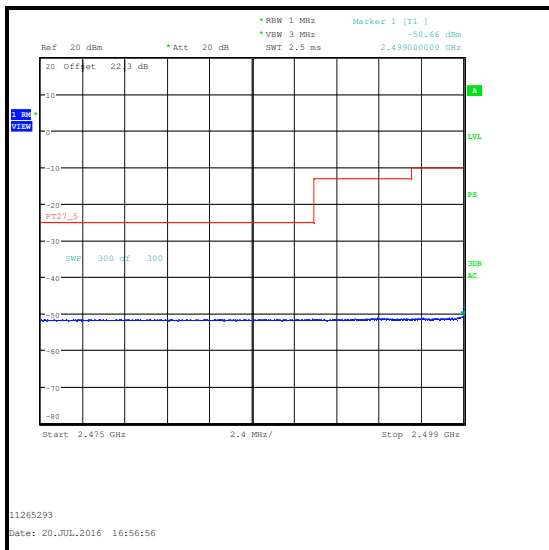
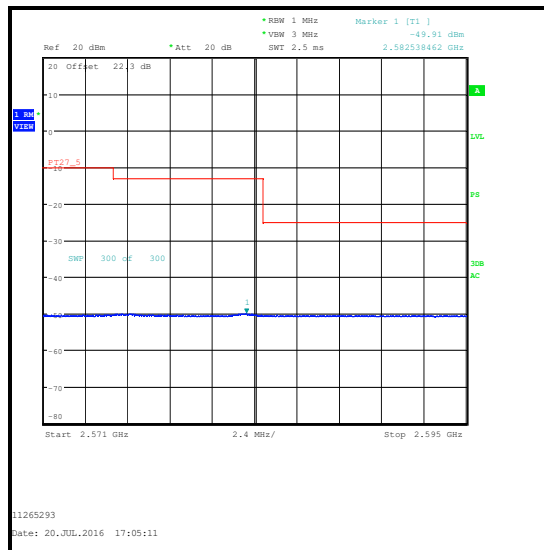
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -25.1                | -10.0       | 15.1        | Complied |
| 2498 to 2499    | 1                 | 0                     | -48.3*               | -10.0       | 38.3        | Complied |
| 2571 to 2572    | 1                 | 74                    | -48.0*               | -10.0       | 38.0        | Complied |
| 2572            | 1                 | 74                    | -23.7                | -10.0       | 13.7        | Complied |

**16QAM / 1 RB 0 Offset / 2475 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 74 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 74 Offset / 2572 to 2595 MHz**

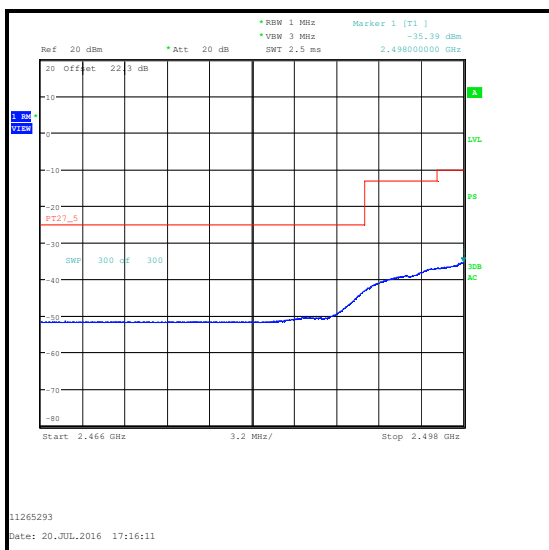
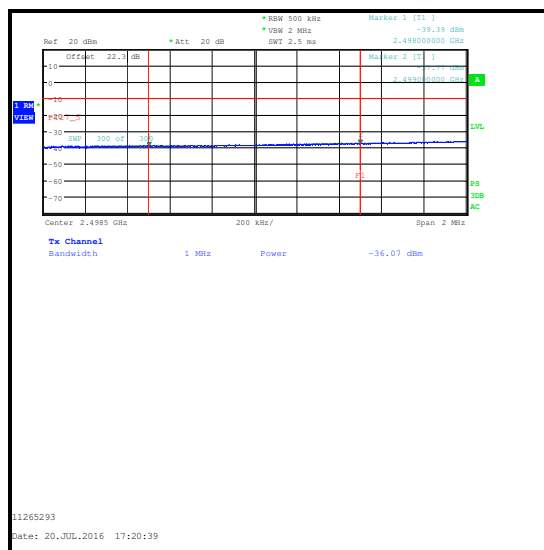
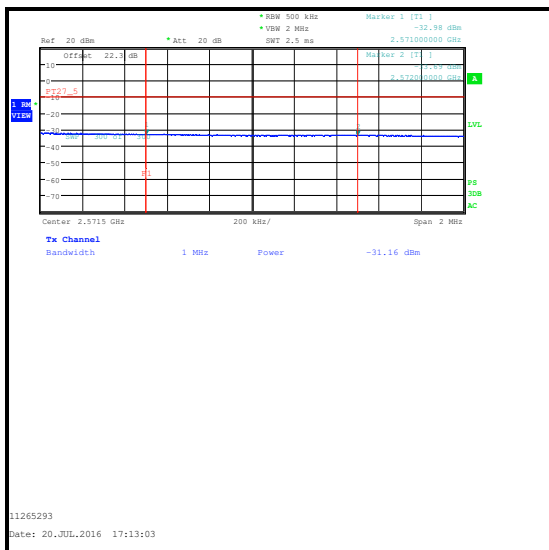
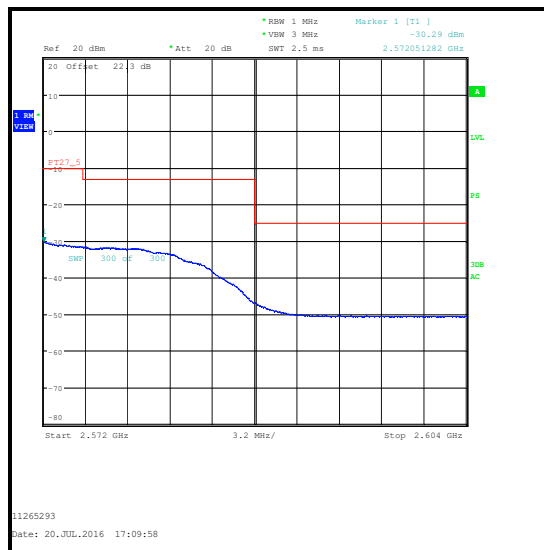
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 15 MHz Channel Bandwidth / 2475 to 2499 MHz & 2571 to 2595 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 74                    | -50.7                | -10.0       | 40.7        | Complied |
| 2582.538        | 1                 | 0                     | -49.9                | -13.0       | 36.9        | Complied |

**16QAM / 1 RB 74 Offset / 2475 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2595 MHz**

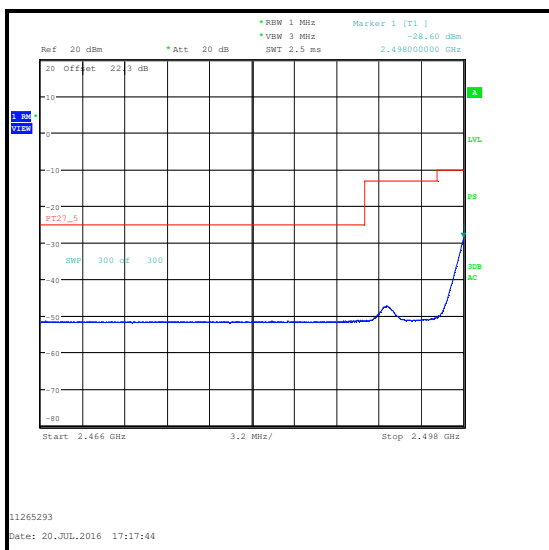
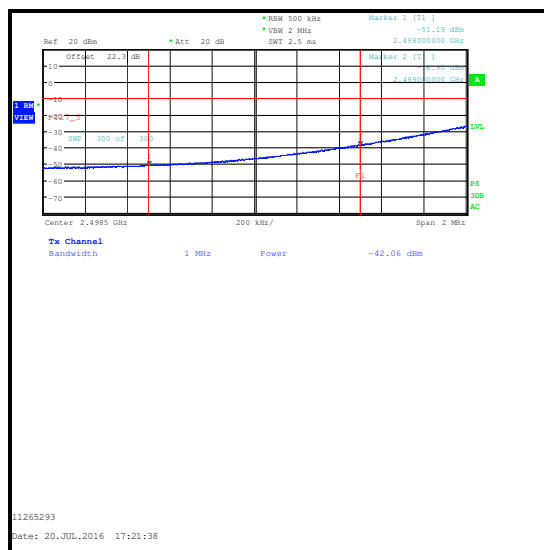
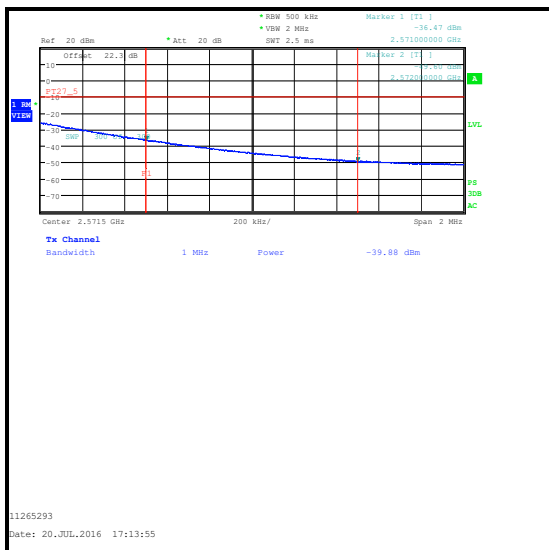
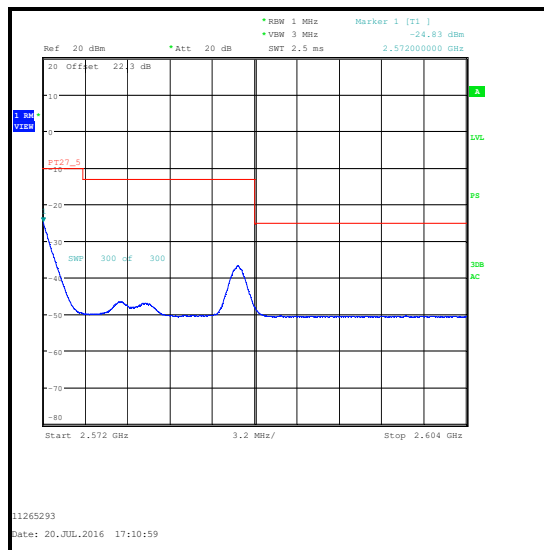
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 100               | 0                     | -35.4                | -10.0       | 25.4        | Complied |
| 2498 to 2499    | 100               | 0                     | -36.1*               | -10.0       | 26.1        | Complied |
| 2571 to 2572    | 100               | 0                     | -31.2*               | -10.0       | 21.2        | Complied |
| 2572.051        | 100               | 0                     | -30.3                | -10.0       | 20.3        | Complied |

**QPSK / 100 RB 0 Offset / 2466 to 2498 MHz****QPSK / 100 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 100 RB 0 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 100 RB 0 Offset / 2572 to 2604 MHz**

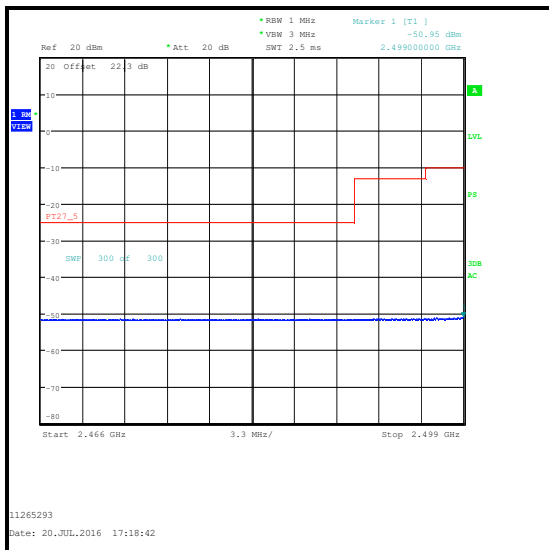
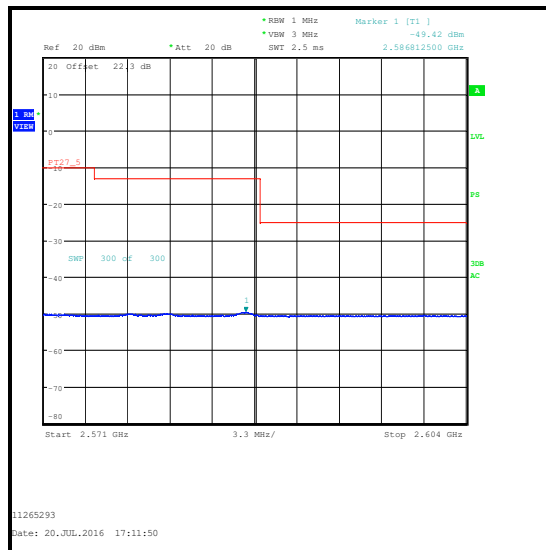
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -28.6                | -10.0       | 18.6        | Complied |
| 2498 to 2499    | 1                 | 0                     | -42.1*               | -10.0       | 32.1        | Complied |
| 2571 to 2572    | 1                 | 99                    | -39.9*               | -10.0       | 29.9        | Complied |
| 2572            | 1                 | 99                    | -24.8                | -10.0       | 14.8        | Complied |

**QPSK / 1 RB 0 Offset / 2466 to 2498 MHz****QPSK / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****QPSK / 1 RB 99 Offset / 2571 to 2572 MHz / Integrated level****QPSK / 1 RB 99 Offset / 2572 to 2604 MHz**

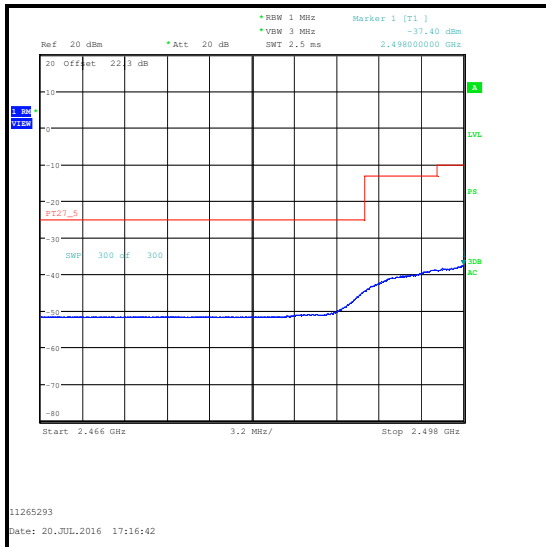
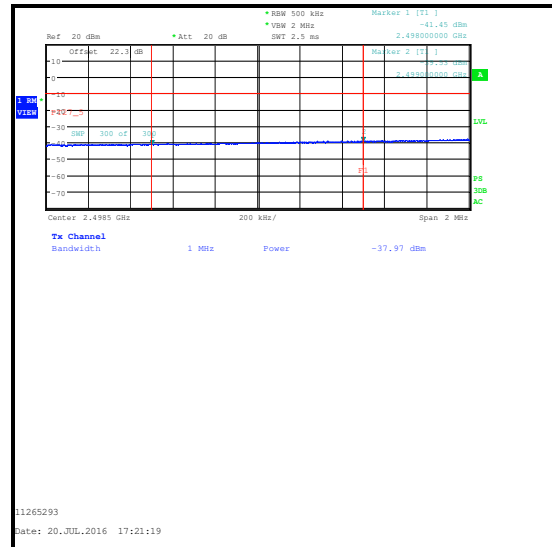
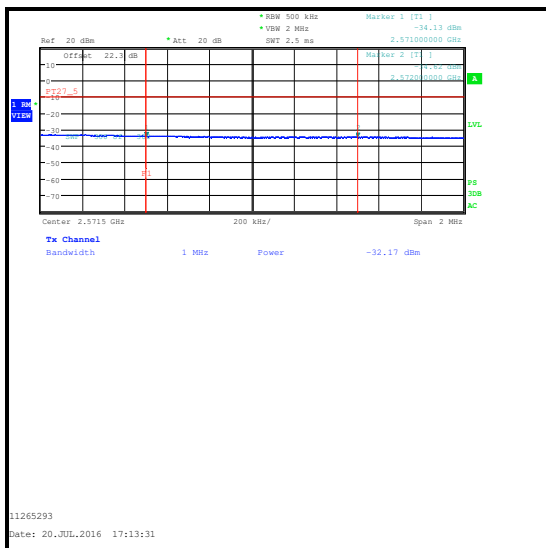
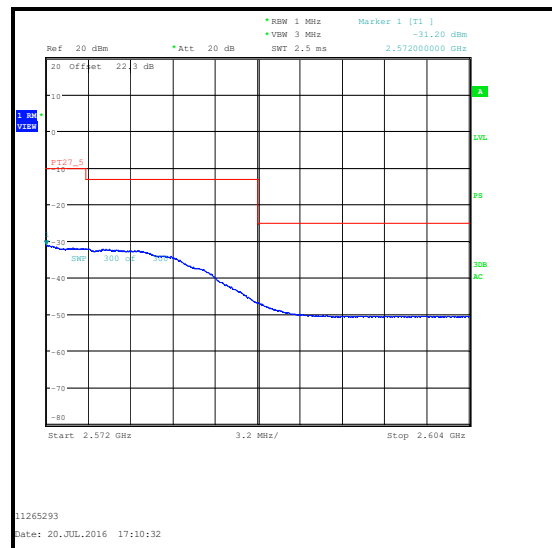
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 99                    | -50.9                | -10.0       | 40.9        | Complied |
| 2586.813        | 1                 | 0                     | -49.4                | -13.0       | 36.4        | Complied |

**QPSK / 1 RB 99 Offset / 2466 to 2499 MHz****QPSK / 1 RB 0 Offset / 2571 to 2604 MHz**

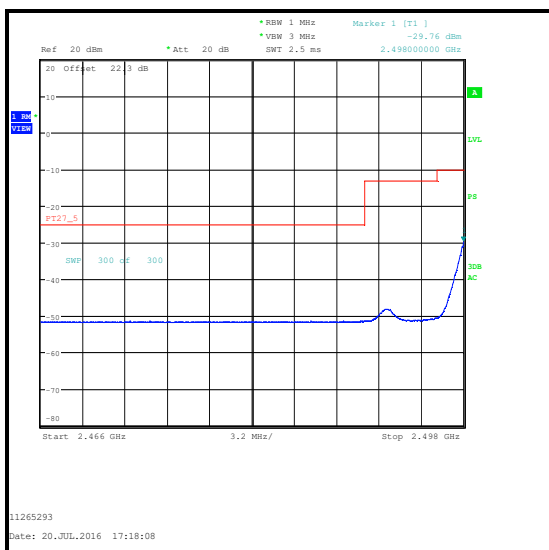
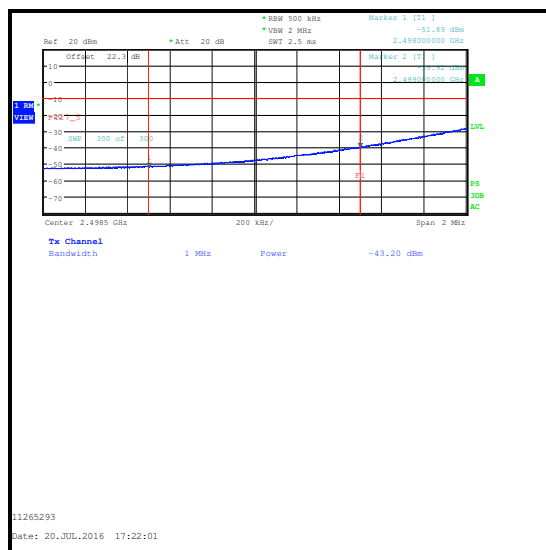
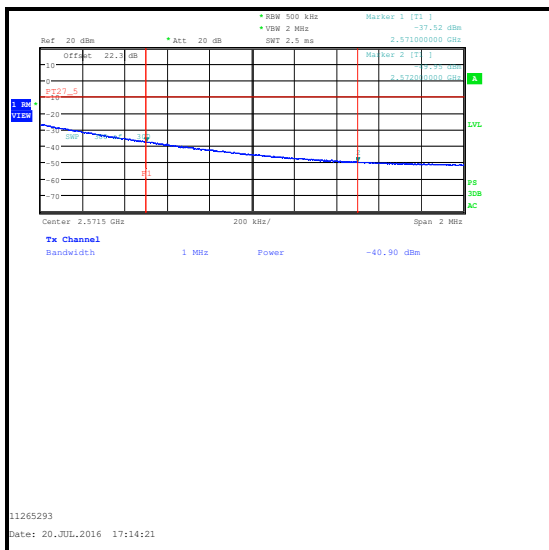
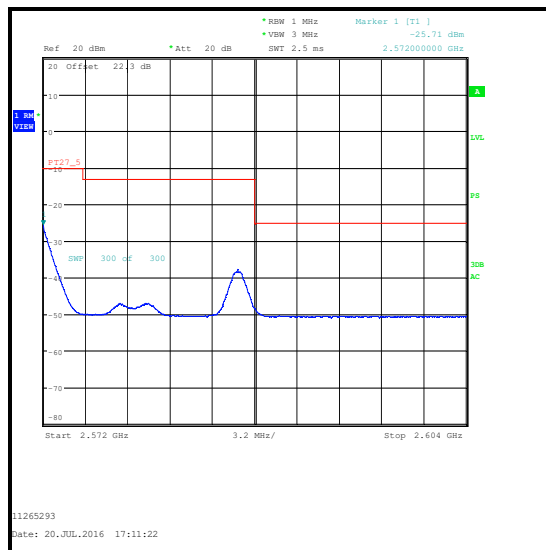
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 100               | 0                     | -37.4                | -10.0       | 27.4        | Complied |
| 2498 to 2499    | 100               | 0                     | -38.0*               | -10.0       | 28.0        | Complied |
| 2571 to 2572    | 100               | 0                     | -32.2*               | -10.0       | 22.2        | Complied |
| 2572            | 100               | 0                     | -31.2                | -10.0       | 21.2        | Complied |

**16QAM / 100 RB 0 Offset / 2466 to 2498 MHz****16QAM / 100 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 100 RB 0 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 100 RB 0 Offset / 2572 to 2604 MHz**

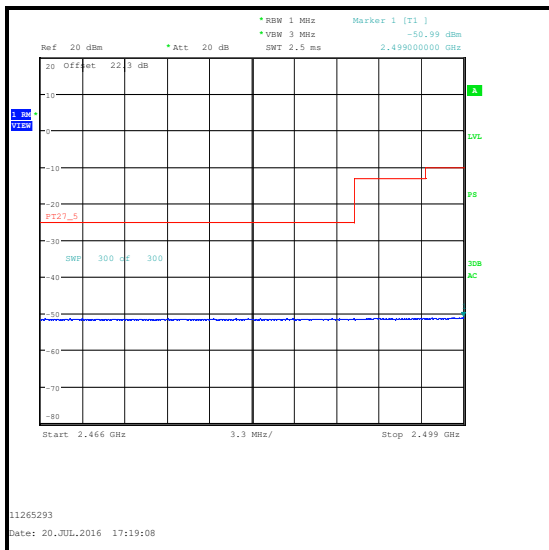
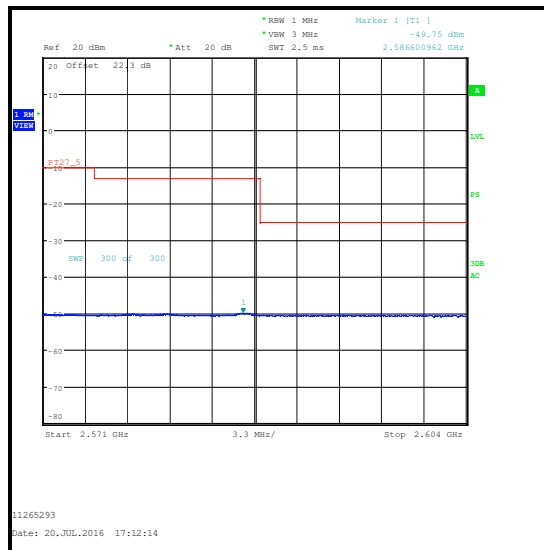
**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498            | 1                 | 0                     | -29.8                | -10.0       | 19.8        | Complied |
| 2498 to 2499    | 1                 | 0                     | -43.2*               | -10.0       | 33.2        | Complied |
| 2571 to 2572    | 1                 | 99                    | -40.9*               | -10.0       | 30.9        | Complied |
| 2572            | 1                 | 99                    | -25.7                | -10.0       | 15.7        | Complied |

**16QAM / 1 RB 0 Offset / 2466 to 2498 MHz****16QAM / 1 RB 0 Offset / 2498 to 2499 MHz / Integrated level****16QAM / 1 RB 99 Offset / 2571 to 2572 MHz / Integrated level****16QAM / 1 RB 99 Offset / 2572 to 2604MHz**

**Transmitter Conducted Emissions at Band Edges  $\pm$  X MHz (continued)****Results: 20 MHz Channel Bandwidth / 2466 to 2499 MHz & 2571 to 2604 MHz / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499            | 1                 | 24                    | -51.0                | -10.0       | 41.0        | Complied |
| 2586.601        | 1                 | 0                     | -49.7                | -13.0       | 36.7        | Complied |

**16QAM / 1 RB 99 Offset / 2466 to 2499 MHz****16QAM / 1 RB 0 Offset / 2571 to 2604 MHz****Test Equipment Used:**

| Asset No. | Instrument           | Manufacturer    | Type No.      | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|----------------------|-----------------|---------------|-------------|-----------------------|------------------------|
| M2002     | Thermohygrometer     | Testo           | 608-H1        | 45041825    | 02 Apr 2017           | 12                     |
| M1630     | Test Receiver        | Rohde & Schwarz | ESU40         | 100233      | 17 Feb 2017           | 12                     |
| A2504     | Directional Coupler  | AtlanTecRF      | CDC-003060-10 | 13122501839 | Calibrated before use | -                      |
| A2507     | Attenuator           | AtlanTecRF      | AN18-10       | 821846#2    | Calibrated before use | -                      |
| M199      | Power Meter          | Rohde & Schwarz | NRVS          | 827023/075  | 11 Apr 2018           | 24                     |
| M1267     | Thermal Power Sensor | Rohde & Schwarz | NRV-Z52       | 100155      | 15 Apr 2018           | 24                     |
| S0579     | DC Power Supply      | TTi             | EX1810R       | 444110      | Calibrated before use | -                      |
| M1269     | Multimeter           | Fluke           | 179           | 90250210    | 13 May 2017           | 12                     |

**5.2.7. Transmitter Radiated Spurious Emissions - LAT****Test Summary:**

|                          |                 |                    |                              |
|--------------------------|-----------------|--------------------|------------------------------|
| <b>Test Engineer:</b>    | Andrew Edwards  | <b>Test Dates:</b> | 16 July 2016<br>20 July 2016 |
| <b>Test Sample IMEI:</b> | 358640070286456 |                    |                              |

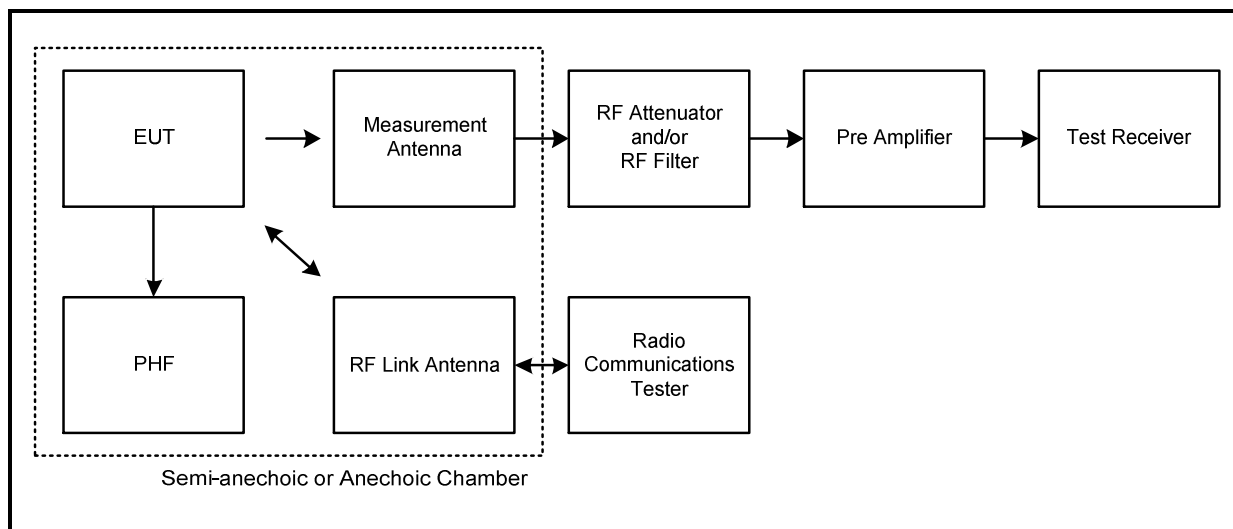
|                          |                                                    |
|--------------------------|----------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1053 & 27.53(m)(4)                         |
| <b>Test Method Used:</b> | KDB 971168 Section 6.1 referencing FCC Part 2.1053 |
| <b>Frequency Range:</b>  | 30 MHz to 26 GHz                                   |
| <b>Configuration:</b>    | 10 MHz, QPSK, 1RB, 0 Offset                        |

**Environmental Conditions:**

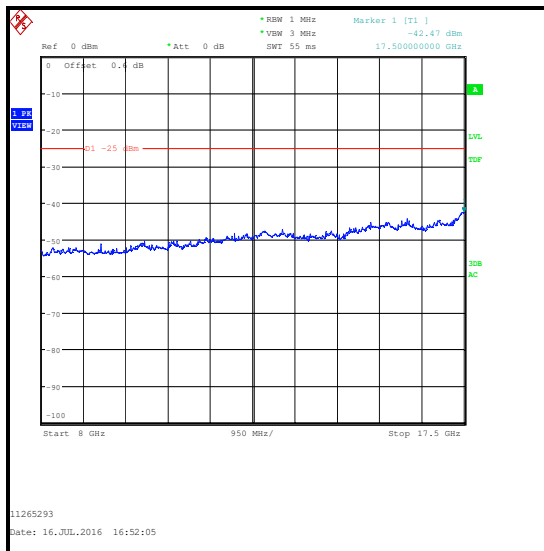
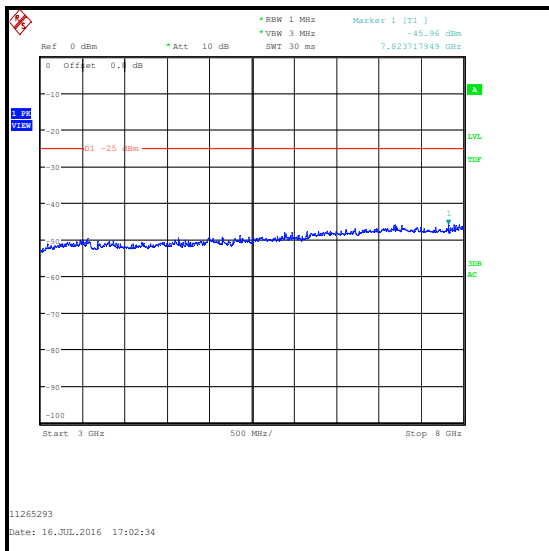
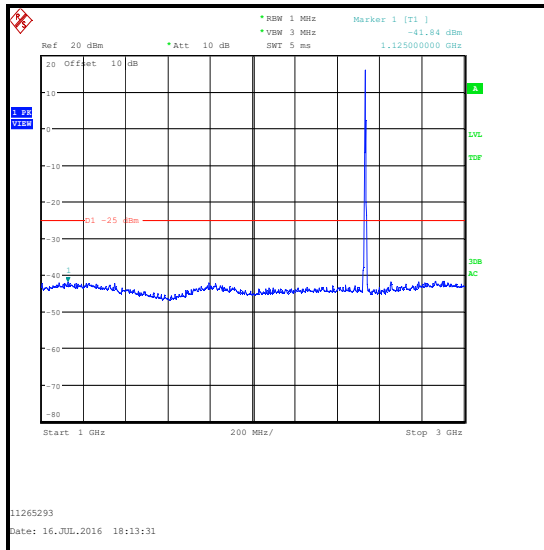
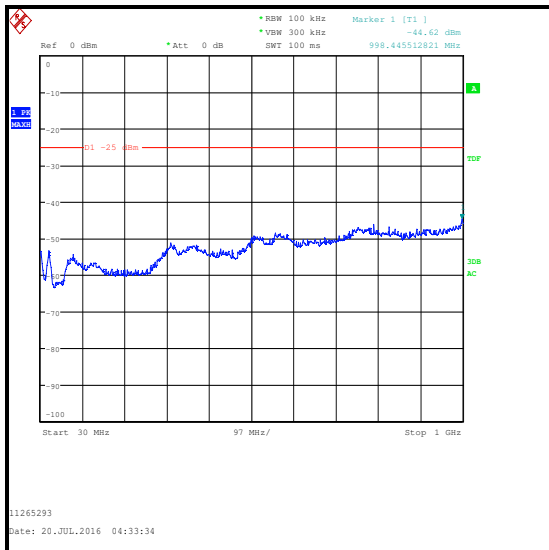
|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 25 to 27 |
| <b>Relative Humidity (%):</b> | 43 to 46 |

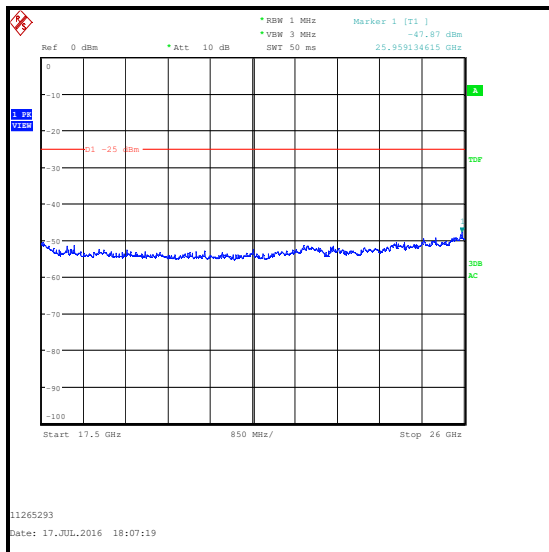
**Note(s):**

1. The EUT was set to transmit with a 10 MHz channel bandwidth with QPSK modulation applied and 1 resource block with 0 offset, as this was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and was therefore deemed to be the worst case.
2. The emission seen on the 1 GHz to 3 GHz plot at approximately 2535 MHz is the EUT carrier.
3. No spurious emissions were detected above the measurement system noise floor therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
4. Middle channel results are recorded in this report and are representative of bottom and top channel results which are held on the UL IT server and available for inspection on request.
5. Pre-scan measurements below 1 GHz are performed on separate plots with different transducer factors for vertical and horizontal polarisation. The pre-scan plot for 30 MHz to 1 GHz in this test report is for vertical only. All other plots are stored on the company server and are available if required.
6. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
7. Pre-scans above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
8. Radiated spurious emission testing between 150 kHz and 30 MHz was performed for support of the NFC test report. No spurious emissions were observed above the noise floor of the measurement system.

**Transmitter Radiated Spurious Emissions – LAT (continued)****Test setup for radiated measurements:****Results: Middle Channel**

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|------------------|-------------|-------------|----------|
| 1125.000        | -41.8            | -25.0       | 16.8        | Complied |

**Transmitter Radiated Spurious Emissions – LAT (continued)**

**Transmitter Radiated Spurious Emissions – LAT (continued)****Test Equipment Used:**

| Asset No. | Instrument       | Manufacturer    | Type No.     | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|------------------|-----------------|--------------|-------------|-----------------------|------------------------|
| M2003     | Thermohygrometer | Testo           | 608-H1       | 45046641    | 22 Apr 2017           | 12                     |
| K0017     | 3m RSE Chamber   | Rainford EMC    | N/A          | N/A         | 17 May 2017           | 12                     |
| M1995     | Test Receiver    | Rohde & Schwarz | ESU40        | 100428      | 21 Mar 2017           | 12                     |
| A2888     | Antenna          | Schwarzbeck     | VULB 9163    | 9163-941    | 07 Apr 2017           | 12                     |
| A2889     | Antenna          | Schwarzbeck     | BBHA 9120 B  | BBHA 9120 B | 07 Apr 2017           | 12                     |
| A2890     | Antenna          | Schwarzbeck     | HWRD 750     | 014         | 06 May 2017           | 12                     |
| A2892     | Antenna          | Schwarzbeck     | BBHA 9170    | 9170-727    | 07 Apr 2017           | 12                     |
| A2863     | Pre-Amplifier    | Agilent         | 8449B        | 3008A02100  | 07 Jan 2017           | 12                     |
| A2891     | Pre-Amplifier    | Schwarzbeck     | BBV 9718     | 9718-306    | 07 Apr 2017           | 12                     |
| A2893     | Pre-Amplifier    | Schwarzbeck     | BBV 9721     | 9721-021    | 07 Apr 2017           | 12                     |
| S0582     | Power Supply     | Schwarzbeck     | PS9721       | 00005       | Calibrated before use | -                      |
| M1818     | Multimeter       | Fluke           | 79 Series II | 71811580    | 27 Apr 2017           | 12                     |
| A2916     | Attenuator       | AtlanTecRF      | AN18W5-10    | 832827#1    | 19 May 2017           | 12                     |
| A2914     | High Pass Filter | AtlanTecRF      | AFH-03000    | 2155        | 19 May 2017           | 12                     |
| A2947     | High Pass Filter | AtlanTecRF      | AFH-07000    | 1601900001  | 01 May 2017           | 12                     |

**5.2.8. Transmitter Radiated Spurious Emissions - UAT****Test Summary:**

|                          |                 |                    |                                 |
|--------------------------|-----------------|--------------------|---------------------------------|
| <b>Test Engineer:</b>    | Andrew Edwards  | <b>Test Dates:</b> | 13 July 2016 to<br>17 July 2016 |
| <b>Test Sample IMEI:</b> | 358460070309175 |                    |                                 |

|                          |                                                    |
|--------------------------|----------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1053 & 27.53(m)(4)                         |
| <b>Test Method Used:</b> | KDB 971168 Section 6.1 referencing FCC Part 2.1053 |
| <b>Frequency Range:</b>  | 30 MHz to 26 GHz                                   |
| <b>Configuration:</b>    | 10 MHz, QPSK, 1RB, 0 Offset                        |

**Environmental Conditions:**

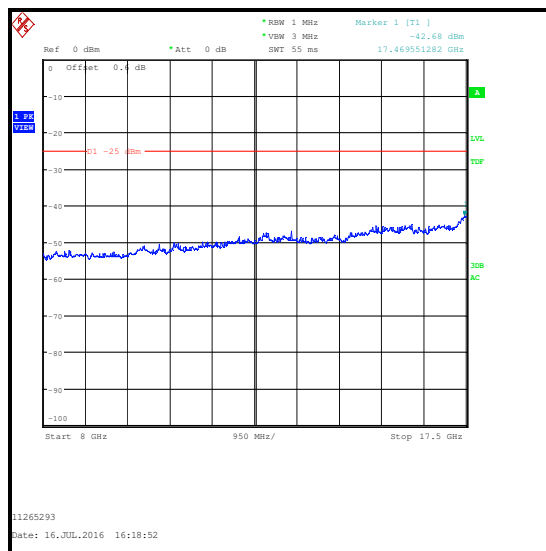
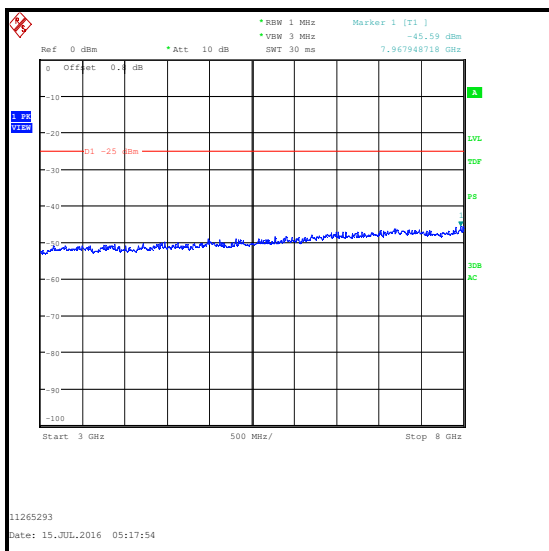
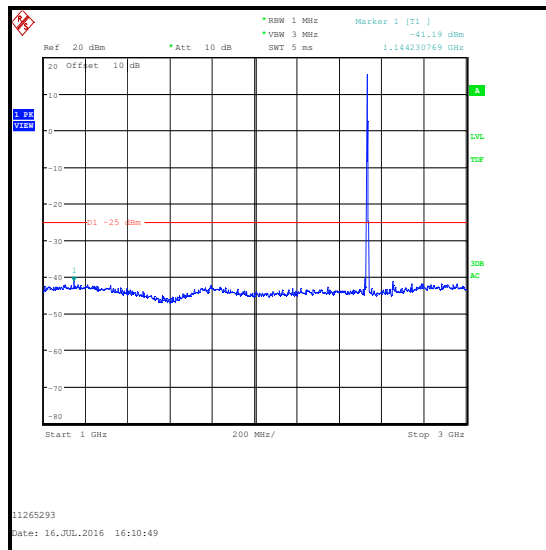
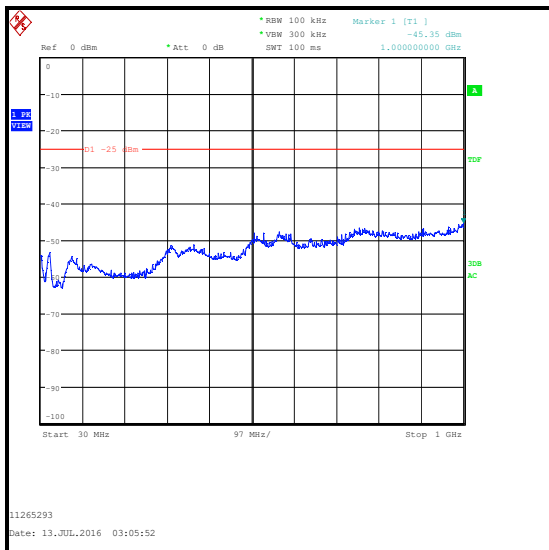
|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 25 to 26 |
| <b>Relative Humidity (%):</b> | 42 to 43 |

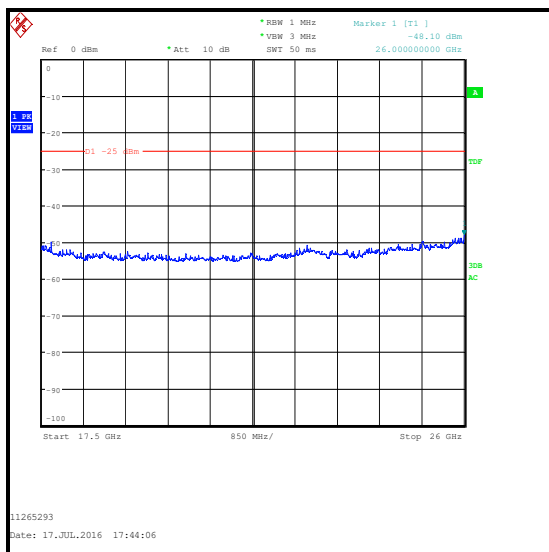
**Note(s):**

1. The EUT was set to transmit with a 10 MHz channel bandwidth with QPSK modulation applied and 1 resource block with 0 offset, as this was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and was therefore deemed to be the worst case.
2. The emission seen on the 1 GHz to 3 GHz plot at approximately 2535 MHz is the EUT carrier.
3. No spurious emissions were detected above the measurement system noise floor therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
4. Middle channel results are recorded in this report and are representative of bottom and top channel results which are held on the UL IT server and available for inspection on request.
5. Pre-scan measurements below 1 GHz are performed on separate plots with different transducer factors for vertical and horizontal polarisation. The pre-scan plot for 30 MHz to 1 GHz in this test report is for vertical only. All other plots are stored on the company server and are available if required.
6. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
7. Pre-scans above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
8. Radiated spurious emission testing between 150 kHz and 30 MHz was performed for support of the NFC test report. No spurious emissions were observed above the noise floor of the measurement system.

**Results: Middle Channel**

| Frequency (MHz) | Peak Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|------------------|-------------|-------------|----------|
| 1144.231        | -41.2            | -25.0       | 16.2        | Complied |

**Transmitter Radiated Spurious Emissions – UAT (continued)**

**Transmitter Radiated Spurious Emissions – UAT (continued)****Test Equipment Used:**

| Asset No. | Instrument       | Manufacturer    | Type No.    | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|------------------|-----------------|-------------|-------------|-----------------------|------------------------|
| M2003     | Thermohygrometer | Testo           | 608-H1      | 45046641    | 22 Apr 2017           | 12                     |
| K0017     | 3m RSE Chamber   | Rainford EMC    | N/A         | N/A         | 17 May 2017           | 12                     |
| M1995     | Test Receiver    | Rohde & Schwarz | ESU40       | 100428      | 21 Mar 2017           | 12                     |
| A2889     | Antenna          | Schwarzbeck     | BBHA 9120 B | BBHA 9120 B | 07 Apr 2017           | 12                     |
| A2890     | Antenna          | Schwarzbeck     | HWRD 750    | 014         | 06 May 2017           | 12                     |
| A2892     | Antenna          | Schwarzbeck     | BBHA 9170   | 9170-727    | 07 Apr 2017           | 12                     |
| A2863     | Pre-Amplifier    | Agilent         | 8449B       | 3008A02100  | 07 Jan 2017           | 12                     |
| A2891     | Pre-Amplifier    | Schwarzbeck     | BBV 9718    | 9718-306    | 07 Apr 2017           | 12                     |
| A2893     | Pre-Amplifier    | Schwarzbeck     | BBV 9721    | 9721-021    | 07 Apr 2017           | 12                     |
| S0582     | Power Supply     | Schwarzbeck     | PS9721      | 00005       | Calibrated before use | -                      |
| A2916     | Attenuator       | AtlanTecRF      | AN18W5-10   | 832827#1    | 19 May 2017           | 12                     |
| A2914     | High Pass Filter | AtlanTecRF      | AFH-03000   | 2155        | 19 May 2017           | 12                     |
| A2947     | High Pass Filter | AtlanTecRF      | AFH-07000   | 1601900001  | 01 May 2017           | 12                     |

**5.2.9. Transmitter Radiated Emissions at Band Edges - LAT****Test Summary:**

|                          |                 |                    |                                |
|--------------------------|-----------------|--------------------|--------------------------------|
| <b>Test Engineer:</b>    | Andrew Edwards  | <b>Test Dates:</b> | 19 July 2016 &<br>20 July 2016 |
| <b>Test Sample IMEI:</b> | 358640070286456 |                    |                                |

|                          |                                                         |
|--------------------------|---------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1053 & 27.53(m)(4)                              |
| <b>Test Method Used:</b> | KDB 971168 Section 6.1 referencing FCC Part 27.53(m)(6) |

**Environmental Conditions:**

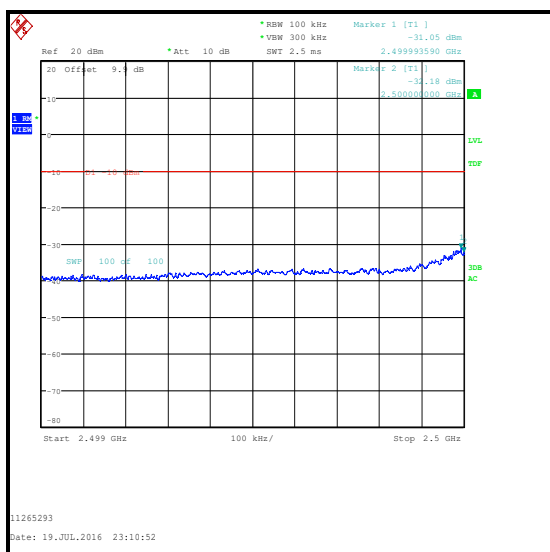
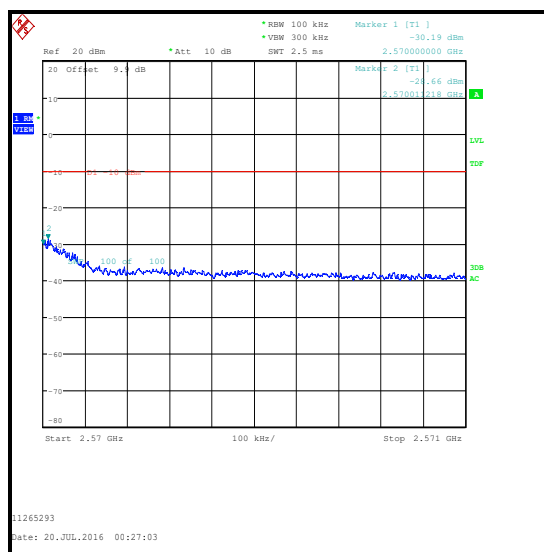
|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 26 to 27 |
| <b>Relative Humidity (%):</b> | 41       |

**Note(s):**

1. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with resource blocks settings as detailed in section 4.3 of this report.
2. 5 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 100 kHz (>2% of the emission bandwidth) and video bandwidth of 300 kHz (three times the resolution bandwidth).
3. 10 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 200 kHz (>2% of the emission bandwidth) and video bandwidth of 1 MHz (as close to > three times the resolution bandwidth as the test receiver allowed).
4. 15 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 300 kHz (>2% of the emission bandwidth) and video bandwidth of 1 MHz (as close to > three times the resolution bandwidth as the test receiver allowed).
5. 20 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 500 kHz (>2% of the emission bandwidth) and video bandwidth of 2 MHz (as close to > three times the resolution bandwidth as the test receiver allowed).
6. In accordance with Part 27.53(m)(6), a narrower resolution bandwidth may be used, provided that the measured power is integrated over the full required measurement bandwidth. For 20 MHz Channel bandwidth, this was applied for the first 1 MHz immediately outside and adjacent to the operating band, using both available modulation schemes for the following cases: transmitting 1 resource block with 0 resource blocks offset for the lower band edge and transmitting 1 resource block with 99 resource blocks offset for the upper band edge.
7. \*Integrated level (dBm).

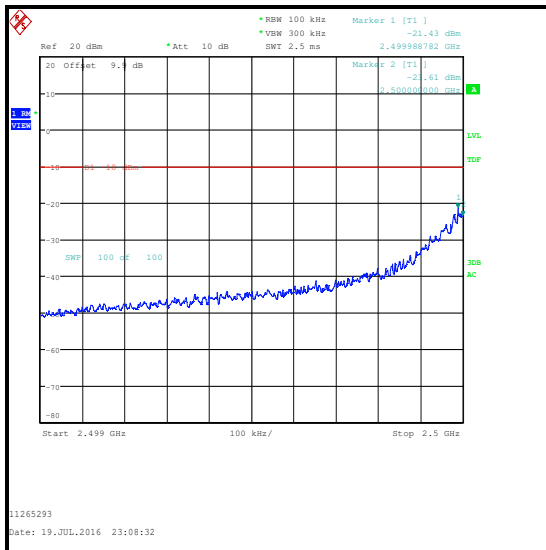
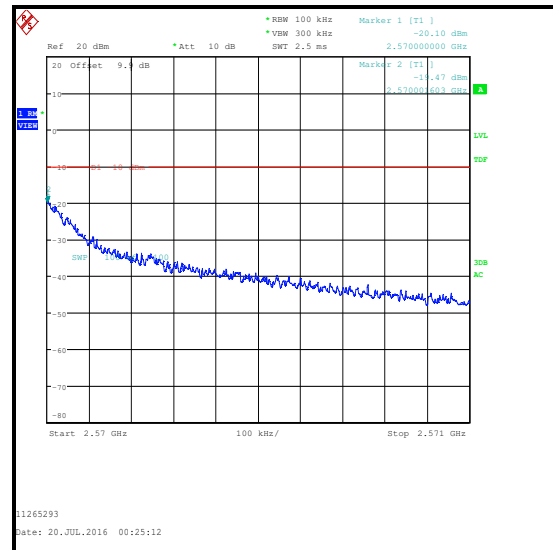
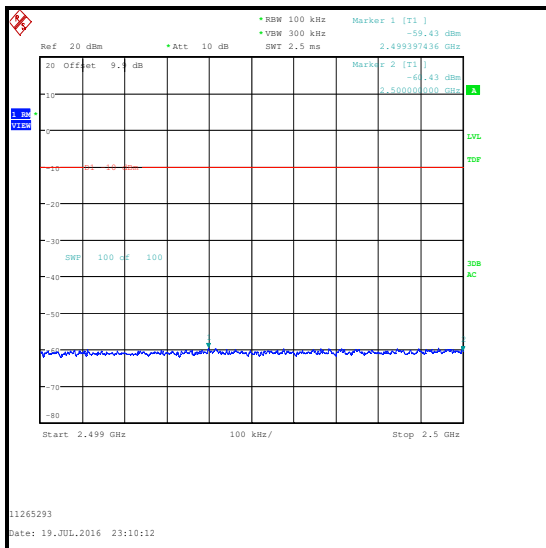
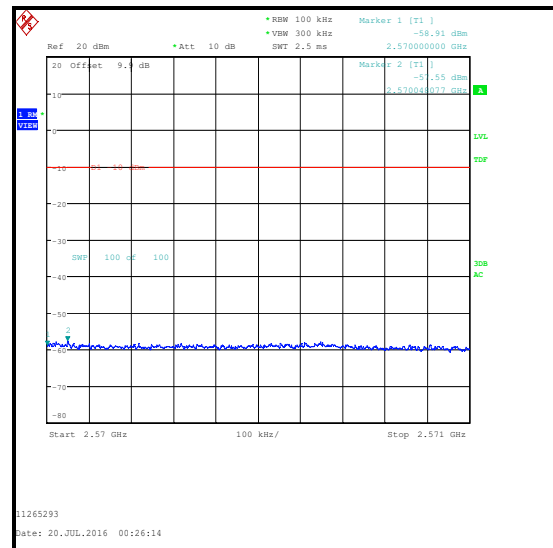
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.994        | 25                | 0                     | -31.0                | -10.0       | 21.0        | Complied |
| 2500            | 25                | 0                     | -32.2                | -10.0       | 22.2        | Complied |
| 2570            | 25                | 0                     | -30.2                | -10.0       | 20.2        | Complied |
| 2570.011        | 25                | 0                     | -28.7                | -10.0       | 18.7        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

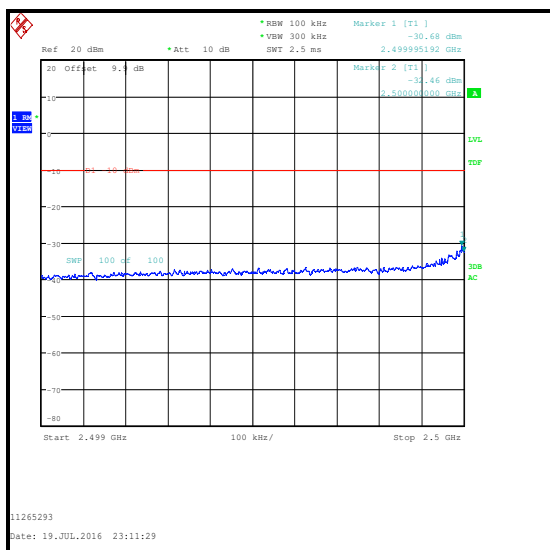
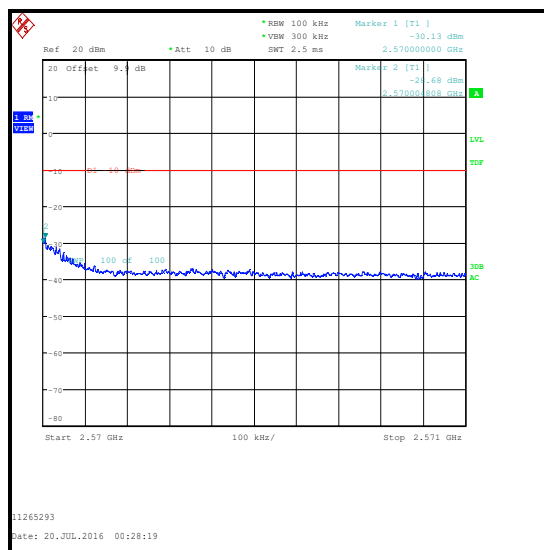
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.989        | 1                 | 0                     | -21.4                | -10.0       | 11.4        | Complied |
| 2500            | 1                 | 0                     | -23.6                | -10.0       | 13.6        | Complied |
| 2570            | 1                 | 24                    | -20.1                | -10.0       | 10.1        | Complied |
| 2570.002        | 1                 | 24                    | -19.5                | -10.0       | 9.5         | Complied |
| 2500            | 1                 | 24                    | -60.4                | -10.0       | 50.4        | Complied |
| 2570            | 1                 | 0                     | -58.9                | -10.0       | 48.9        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 24 Offset / Upper Band Edge****QPSK / 1 RB 24 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

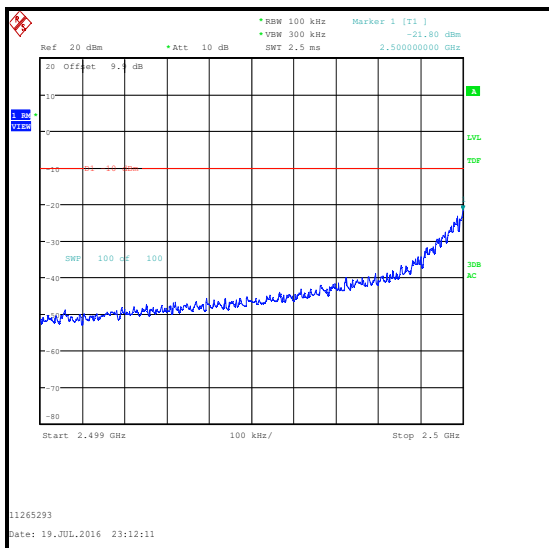
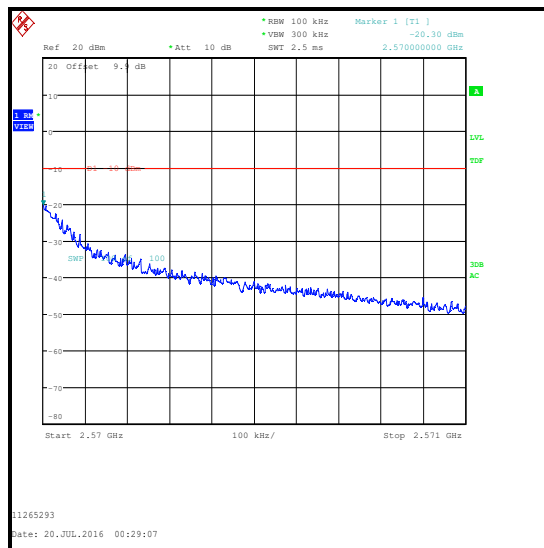
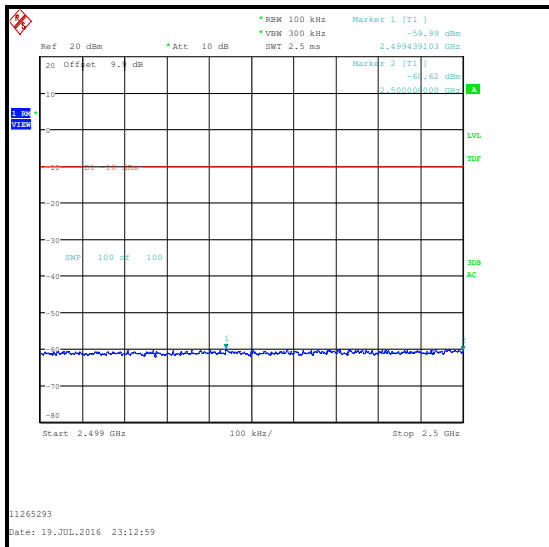
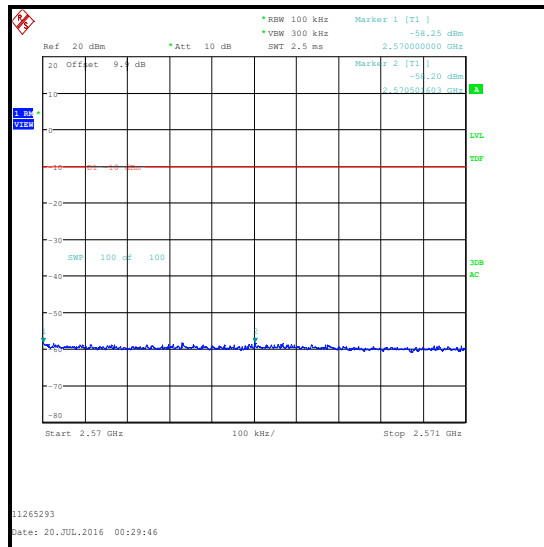
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.995        | 25                | 0                     | -30.7                | -10.0       | 20.7        | Complied |
| 2500            | 25                | 0                     | -32.5                | -10.0       | 22.5        | Complied |
| 2570            | 25                | 0                     | -30.1                | -10.0       | 20.1        | Complied |
| 2570.005        | 25                | 0                     | -28.7                | -10.0       | 18.7        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

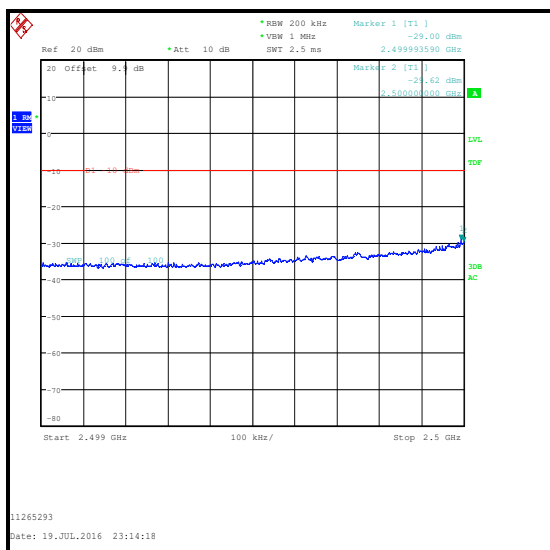
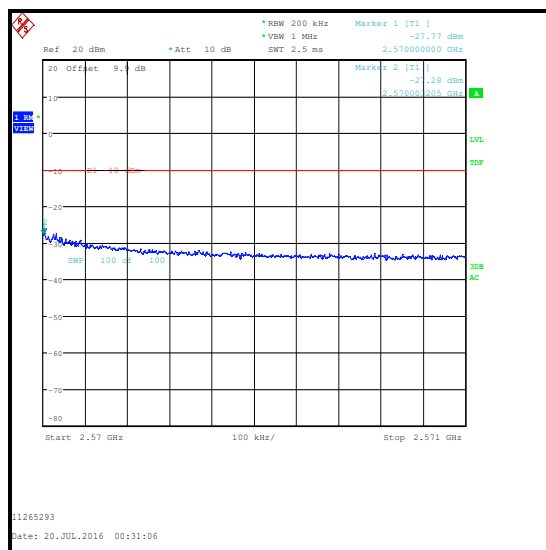
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 1                 | 0                     | -21.8                | -10.0       | 11.8        | Complied |
| 2570            | 1                 | 24                    | -20.3                | -10.0       | 10.3        | Complied |
| 2500            | 1                 | 24                    | -60.6                | -10.0       | 50.6        | Complied |
| 2570            | 1                 | 0                     | -58.2                | -10.0       | 48.2        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 24 Offset / Upper Band Edge****16QAM / 1 RB 24 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

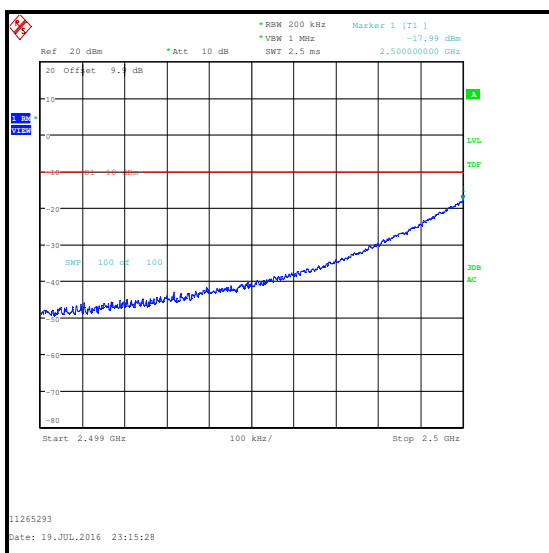
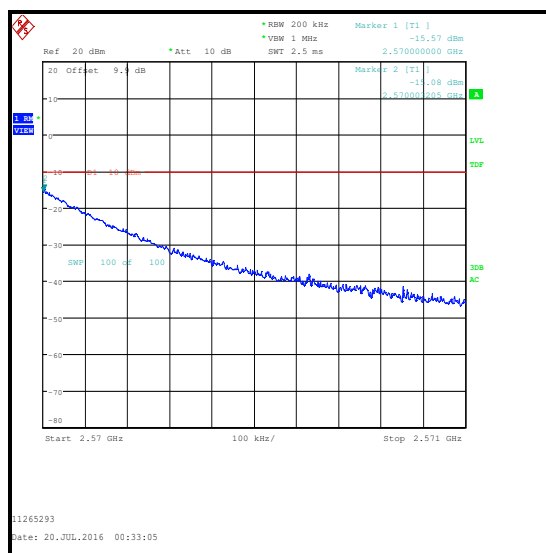
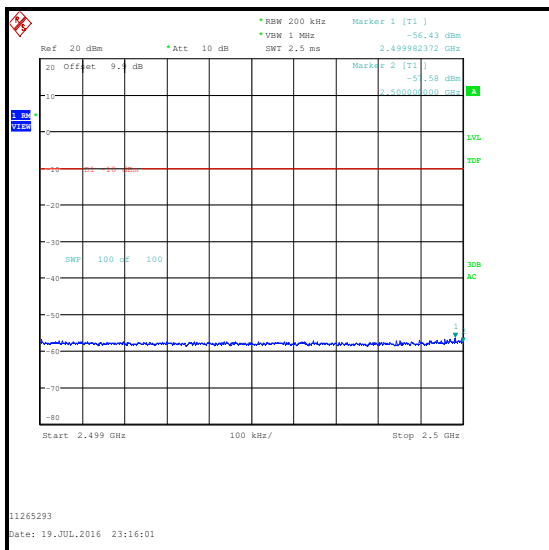
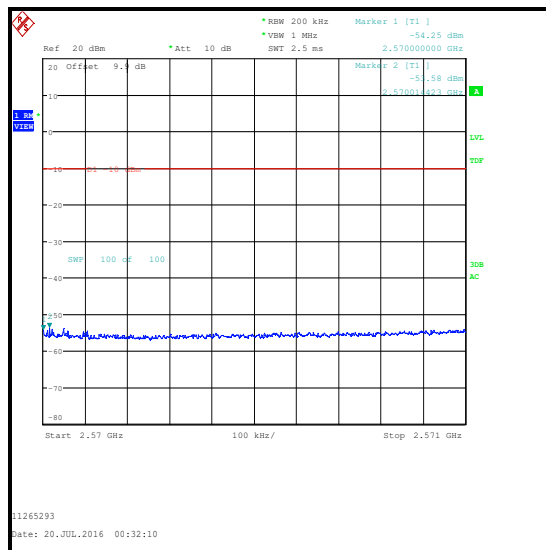
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.994        | 50                | 0                     | -29.0                | -10.0       | 19.0        | Complied |
| 2500            | 50                | 0                     | -29.6                | -10.0       | 19.6        | Complied |
| 2570            | 50                | 0                     | -27.8                | -10.0       | 17.8        | Complied |
| 2570.003        | 50                | 0                     | -27.3                | -10.0       | 17.3        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

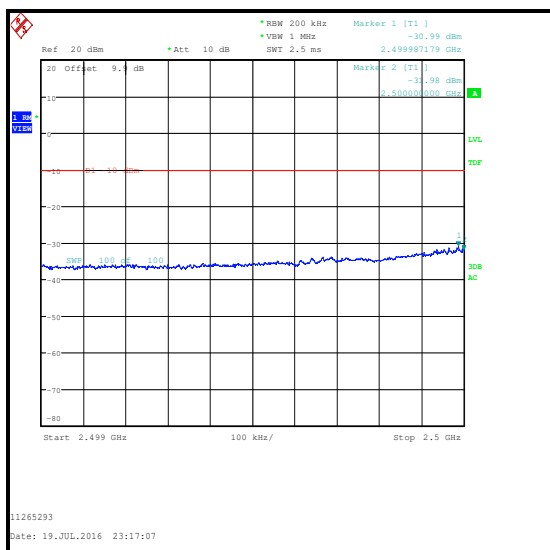
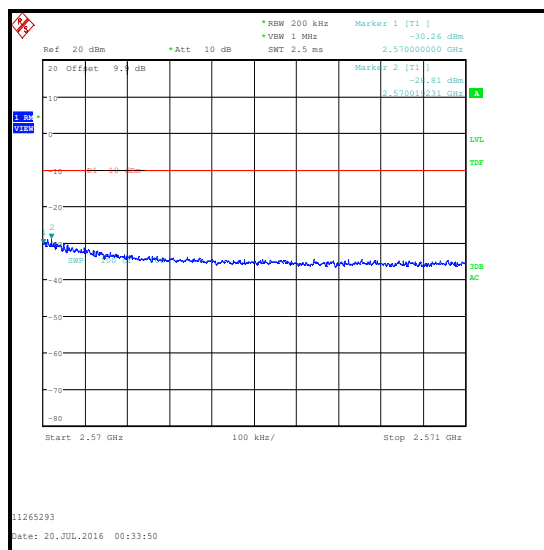
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 1                 | 0                     | -18.0                | -10.0       | 8.0         | Complied |
| 2570            | 1                 | 49                    | -15.6                | -10.0       | 5.6         | Complied |
| 2570.003        | 1                 | 49                    | -15.1                | -10.0       | 5.1         | Complied |
| 2500            | 1                 | 49                    | -57.6                | -10.0       | 47.6        | Complied |
| 2570            | 1                 | 0                     | -54.2                | -10.0       | 44.2        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 49 Offset / Upper Band Edge****QPSK / 1 RB 49 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

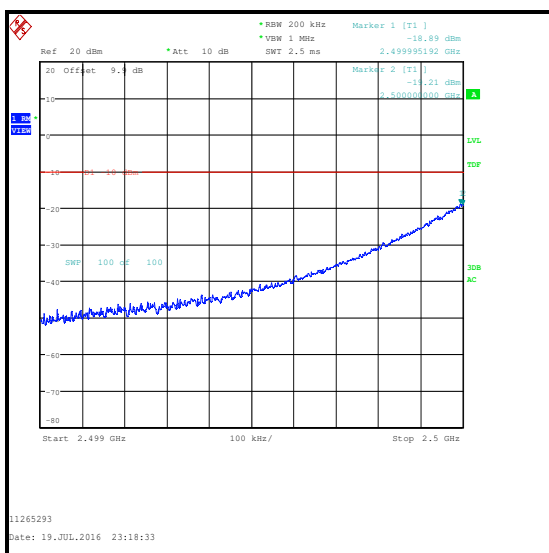
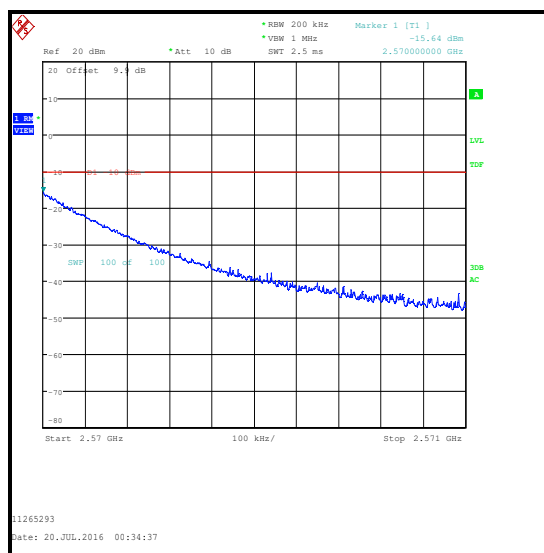
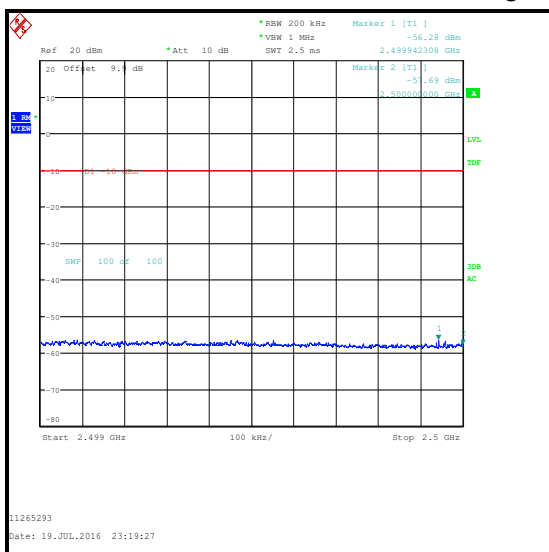
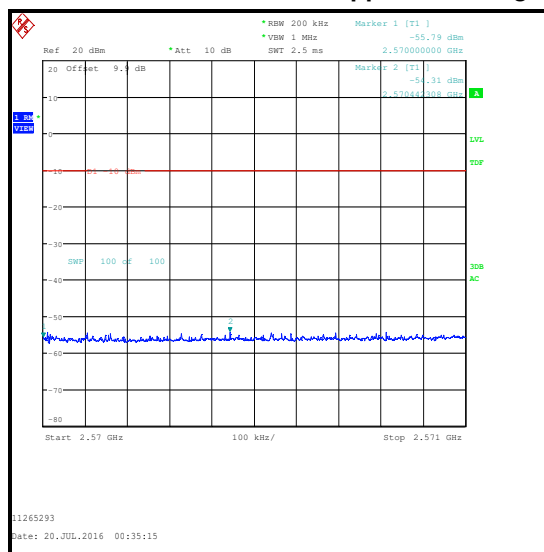
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.987        | 50                | 0                     | -31.0                | -10.0       | 21.0        | Complied |
| 2500            | 50                | 0                     | -32.0                | -10.0       | 22.0        | Complied |
| 2570            | 50                | 0                     | -30.3                | -10.0       | 20.3        | Complied |
| 2570.019        | 50                | 0                     | -28.8                | -10.0       | 18.8        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

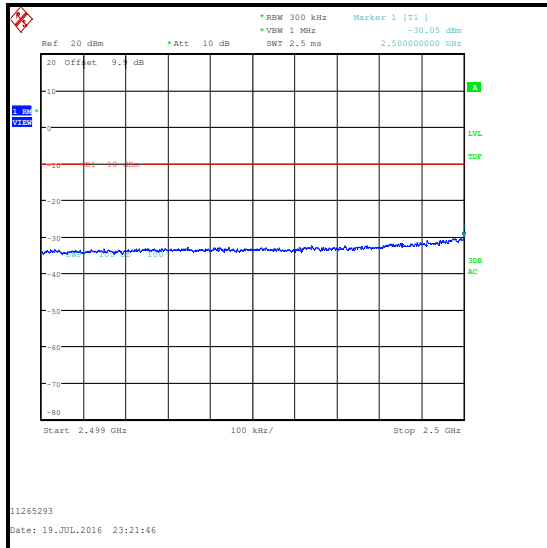
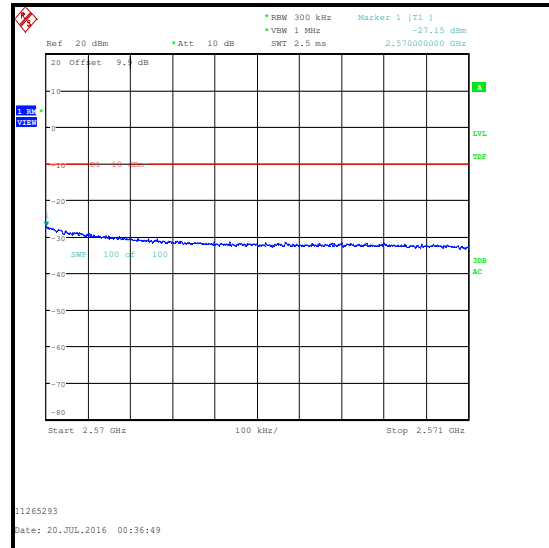
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.995        | 1                 | 0                     | -18.9                | -10.0       | 8.9         | Complied |
| 2500            | 1                 | 0                     | -19.2                | -10.0       | 9.2         | Complied |
| 2570            | 1                 | 49                    | -15.6                | -10.0       | 5.6         | Complied |
| 2500            | 1                 | 49                    | -57.7                | -10.0       | 47.7        | Complied |
| 2570            | 1                 | 0                     | -55.8                | -10.0       | 45.8        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 49 Offset / Upper Band Edge****16QAM / 1 RB 49 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

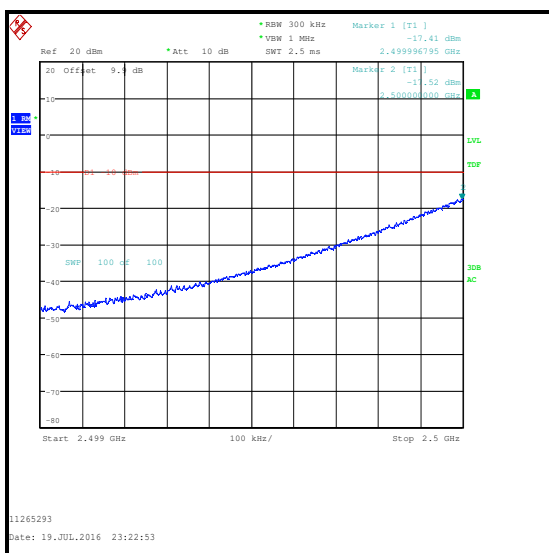
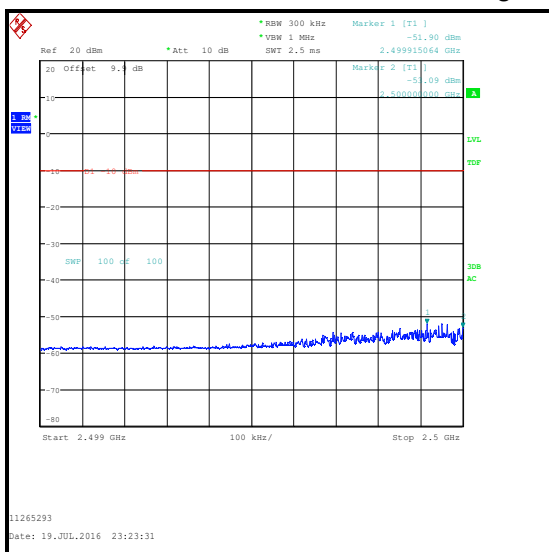
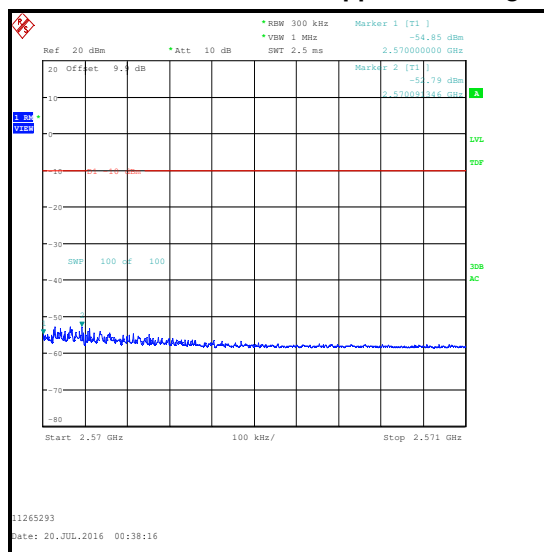
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 75                | 0                     | -30.0                | -10.0       | 20.0        | Complied |
| 2570            | 75                | 0                     | -27.1                | -10.0       | 17.1        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

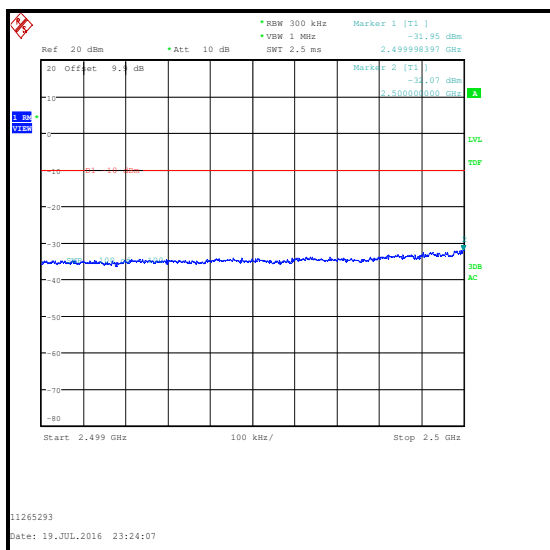
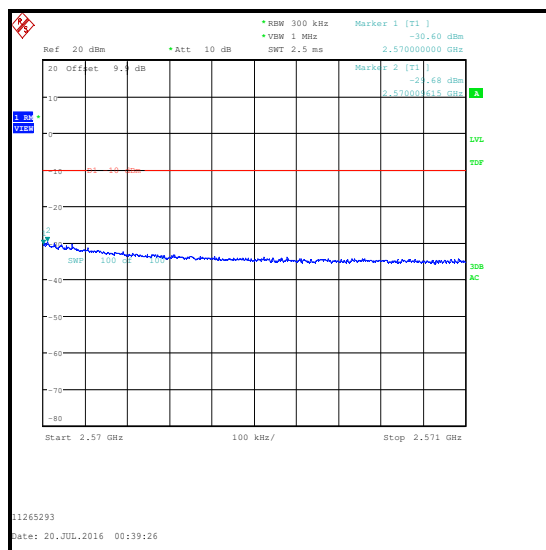
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.997        | 1                 | 0                     | -17.4                | -10.0       | 7.4         | Complied |
| 2500            | 1                 | 0                     | -17.5                | -10.0       | 7.5         | Complied |
| 2570            | 1                 | 74                    | -14.4                | -10.0       | 4.4         | Complied |
| 2500            | 1                 | 74                    | -53.1                | -10.0       | 43.1        | Complied |
| 2570            | 1                 | 0                     | -54.8                | -10.0       | 44.8        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 74 Offset / Upper Band Edge****QPSK / 1 RB 74 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

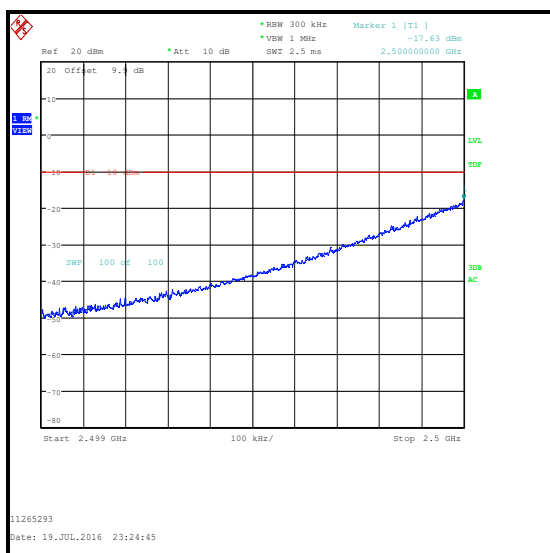
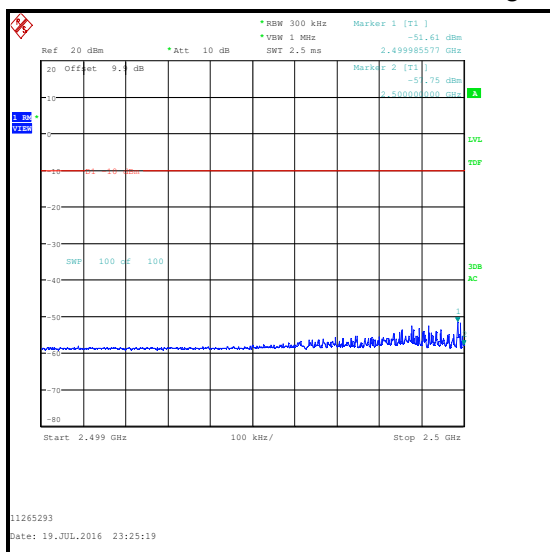
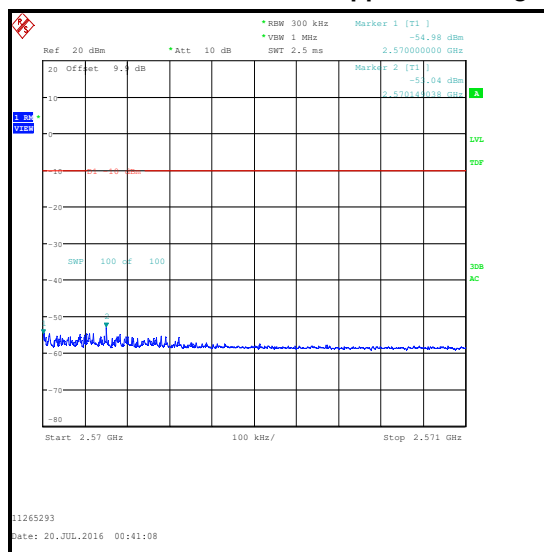
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.998        | 75                | 0                     | -31.9                | -10.0       | 21.9        | Complied |
| 2500            | 75                | 0                     | -32.1                | -10.0       | 22.1        | Complied |
| 2570            | 75                | 0                     | -30.6                | -10.0       | 20.6        | Complied |
| 2570.010        | 75                | 0                     | -29.7                | -10.0       | 19.7        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

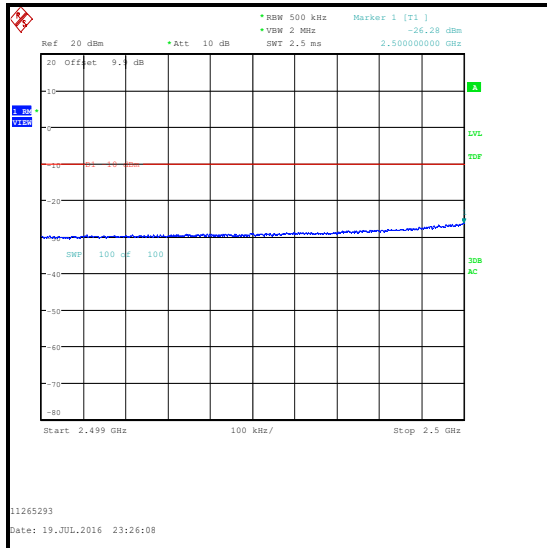
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 1                 | 0                     | -17.6                | -10.0       | 7.6         | Complied |
| 2570            | 1                 | 74                    | -15.4                | -10.0       | 5.4         | Complied |
| 2570.005        | 1                 | 74                    | -15.0                | -10.0       | 5.0         | Complied |
| 2500            | 1                 | 74                    | -57.7                | -10.0       | 47.7        | Complied |
| 2570            | 1                 | 0                     | -55.0                | -10.0       | 45.0        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 74 Offset / Upper Band Edge****16QAM / 1 RB 74 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

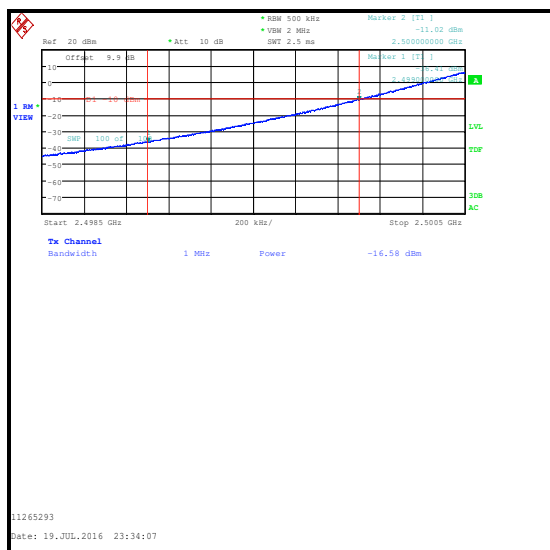
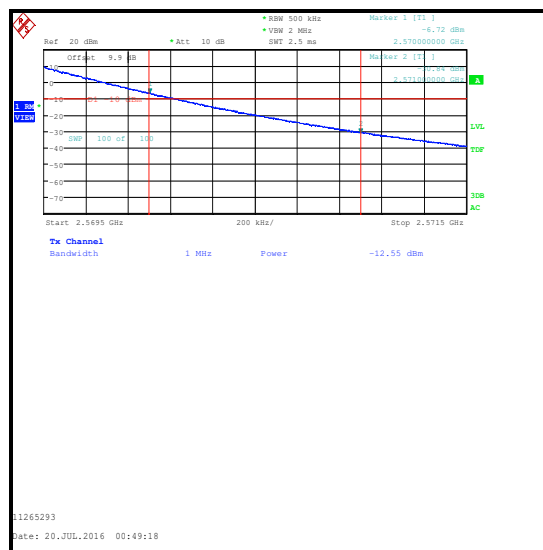
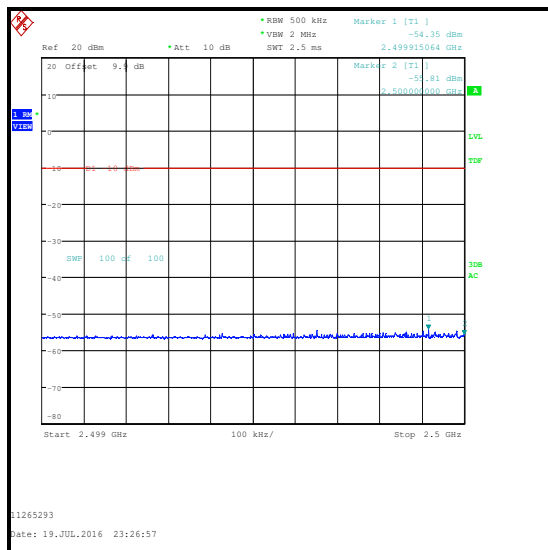
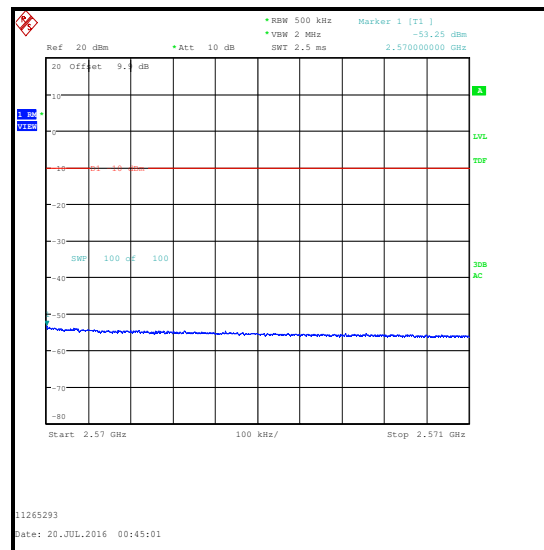
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 100               | 0                     | -26.3                | -10.0       | 16.3        | Complied |
| 2570            | 100               | 0                     | -24.7                | -10.0       | 14.7        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

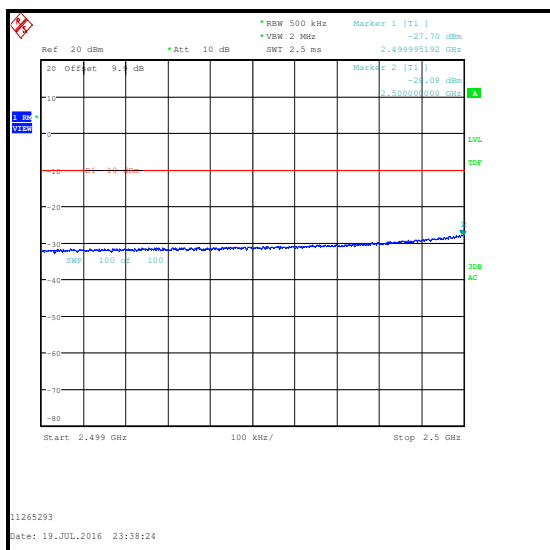
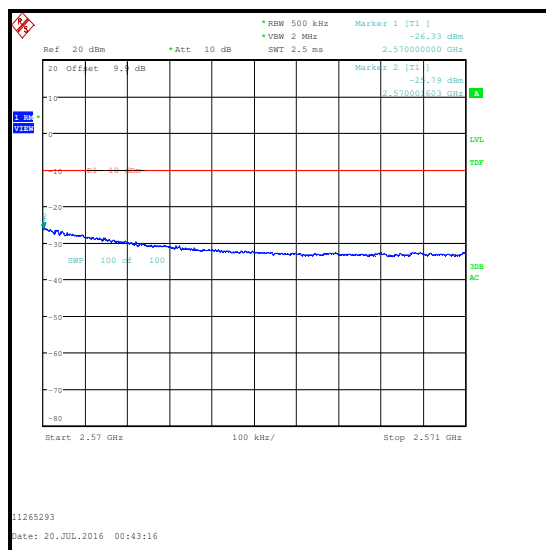
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499 to 2500    | 1                 | 0                     | -16.6*               | -10.0       | 6.6         | Complied |
| 2570 to 2571    | 1                 | 99                    | -12.5*               | -10.0       | 2.5         | Complied |
| 2500            | 1                 | 99                    | -55.8                | -10.0       | 45.8        | Complied |
| 2570            | 1                 | 0                     | -53.2                | -10.0       | 43.2        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge / 2499 to 2500 MHz / Integrated level****QPSK / 1 RB 99 Offset / Upper Band Edge / 2570 to 2571 MHz / Integrated level****QPSK / 1 RB 99 Offset / Upper Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

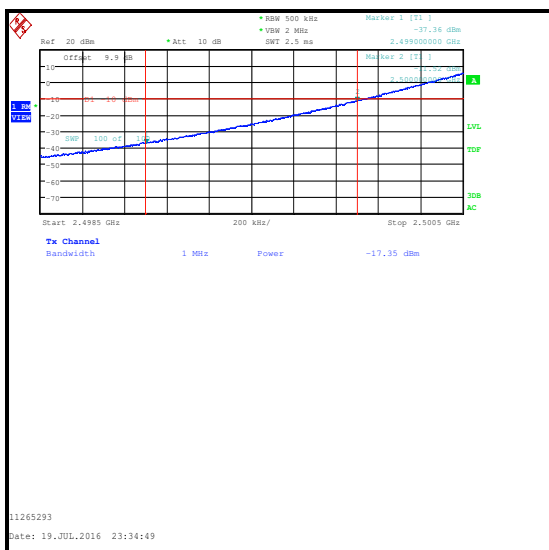
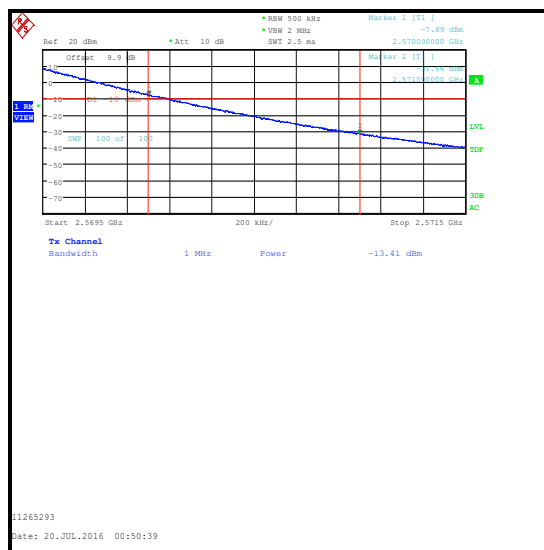
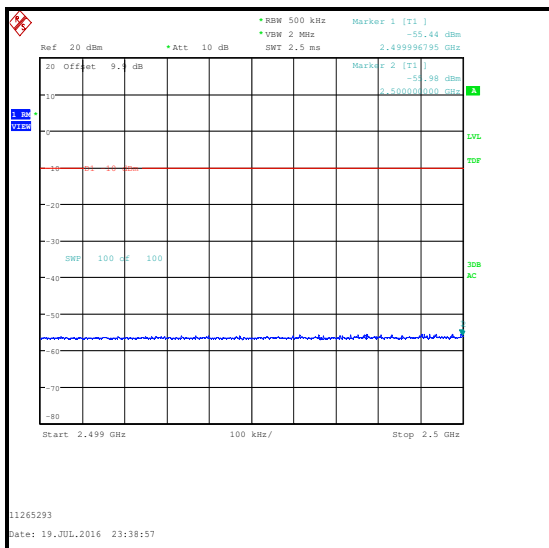
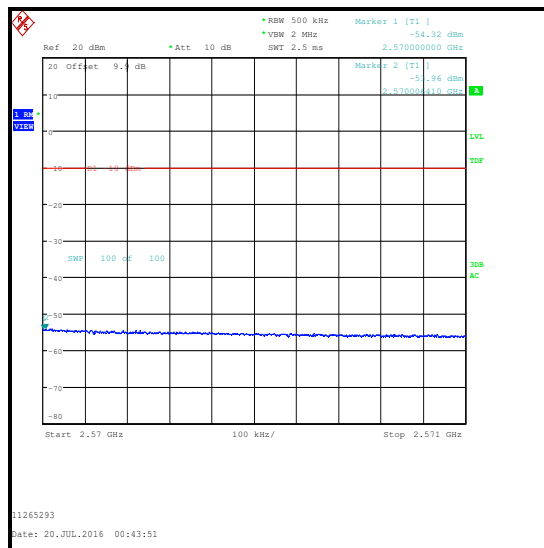
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.995        | 100               | 0                     | -27.7                | -10.0       | 17.7        | Complied |
| 2500            | 100               | 0                     | -28.1                | -10.0       | 18.1        | Complied |
| 2570            | 100               | 0                     | -26.3                | -10.0       | 16.3        | Complied |
| 2570.002        | 100               | 0                     | -25.8                | -10.0       | 15.8        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499 to 2500    | 1                 | 0                     | -17.3*               | -10.0       | 7.3         | Complied |
| 2570 to 2571    | 1                 | 99                    | -13.4*               | -10.0       | 3.4         | Complied |
| 2500            | 1                 | 99                    | -56.0                | -10.0       | 46.0        | Complied |
| 2570            | 1                 | 0                     | -54.3                | -10.0       | 44.3        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge / 2499 to 2500 MHz / Integrated level****16QAM / 1 RB 99 Offset / Upper Band Edge / 2570 to 2571 MHz / Integrated level****16QAM / 1 RB 99 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

**Transmitter Radiated Emissions at Band Edges (continued)****Test Equipment Used:**

| Asset No. | Instrument       | Manufacturer    | Type No.    | Serial No.      | Date Calibration Due | Cal. Interval (Months) |
|-----------|------------------|-----------------|-------------|-----------------|----------------------|------------------------|
| M2003     | Thermohygrometer | Testo           | 608-H1      | 45046641        | 22 Apr 2017          | 12                     |
| K0017     | 3m RSE Chamber   | Rainford EMC    | N/A         | N/A             | 17 May 2017          | 12                     |
| M1995     | Test Receiver    | Rohde & Schwarz | ESU40       | 100428          | 21 Mar 2017          | 12                     |
| A2893     | Pre-Amplifier    | Schwarzbeck     | BBV 9721    | 9721-021        | 07 Apr 2017          | 12                     |
| A2889     | Antenna          | Schwarzbeck     | BBHA 9120 B | BBHA 9120 B 653 | 07 Apr 2017          | 12                     |
| A2916     | Attenuator       | AtlanTecRF      | AN18W5-10   | 832827#1        | 19 May 2017          | 12                     |

**5.2.10. Transmitter Radiated Emissions at Band Edges - UAT****Test Summary:**

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | Andrew Edwards  | <b>Test Date:</b> | 19 July 2016 |
| <b>Test Sample IMEI:</b> | 358460070309175 |                   |              |

|                          |                                                         |
|--------------------------|---------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1053 & 27.53(m)(4)                              |
| <b>Test Method Used:</b> | KDB 971168 Section 6.1 referencing FCC Part 27.53(m)(6) |

**Environmental Conditions:**

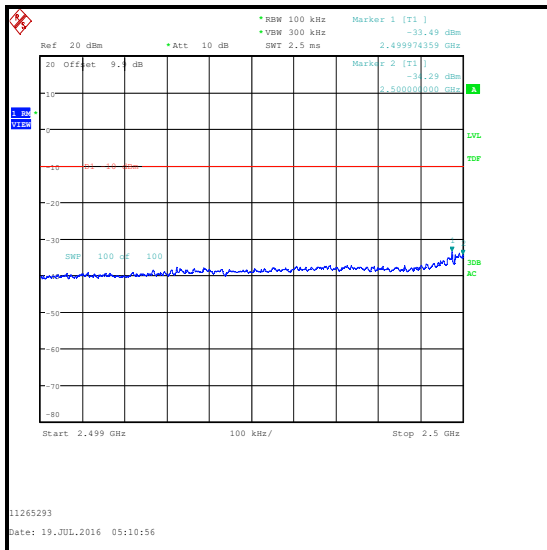
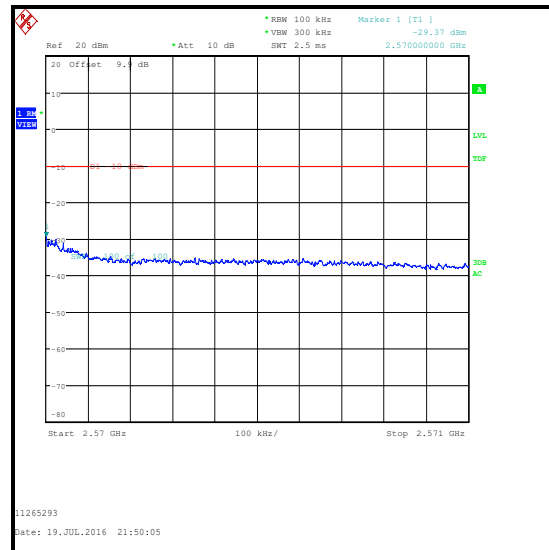
|                               |    |
|-------------------------------|----|
| <b>Temperature (°C):</b>      | 26 |
| <b>Relative Humidity (%):</b> | 39 |

**Note(s):**

1. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with resource blocks settings as detailed in section 4.3 of this report.
2. 5 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 100 kHz (>2% of the emission bandwidth) and video bandwidth of 300 kHz (three times the resolution bandwidth).
3. 10 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 200 kHz (>2% of the emission bandwidth) and video bandwidth of 1 MHz (as close to > three times the resolution bandwidth as the test receiver allowed).
4. 15 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 300 kHz (>2% of the emission bandwidth) and video bandwidth of 1 MHz (as close to > three times the resolution bandwidth as the test receiver allowed).
5. 20 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 500 kHz (>2% of the emission bandwidth) and video bandwidth of 2 MHz (as close to > three times the resolution bandwidth as the test receiver allowed).
6. In accordance with Part 27.53(m)(6), a narrower resolution bandwidth may be used, provided that the measured power is integrated over the full required measurement bandwidth. For 20 MHz Channel bandwidth, this was applied for the first 1 MHz immediately outside and adjacent to the operating band, using both available modulation schemes for the following cases: transmitting 1 resource block with 99 resource blocks offset for the upper band edge.
7. \*Integrated level (dBm).

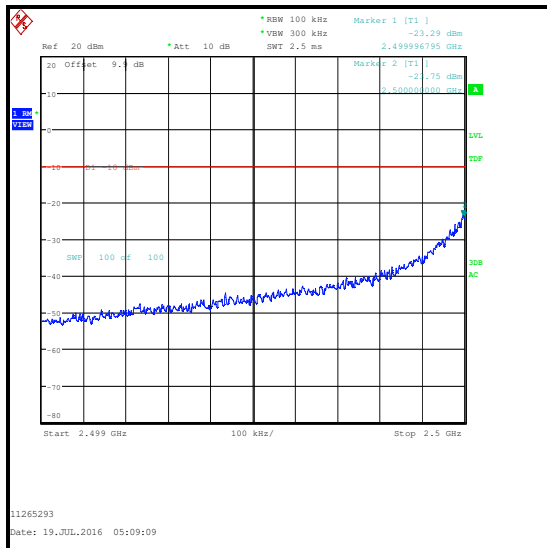
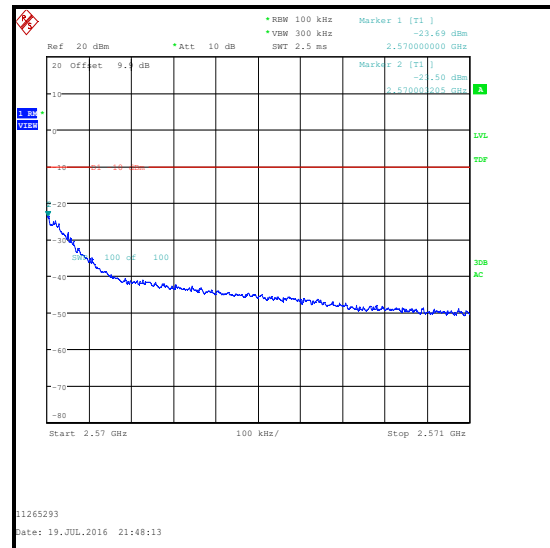
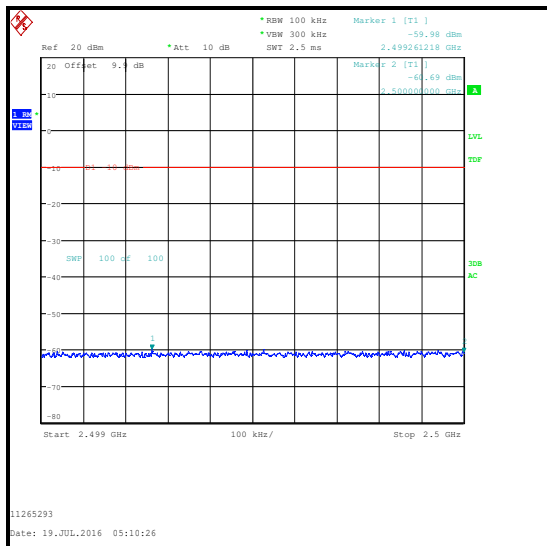
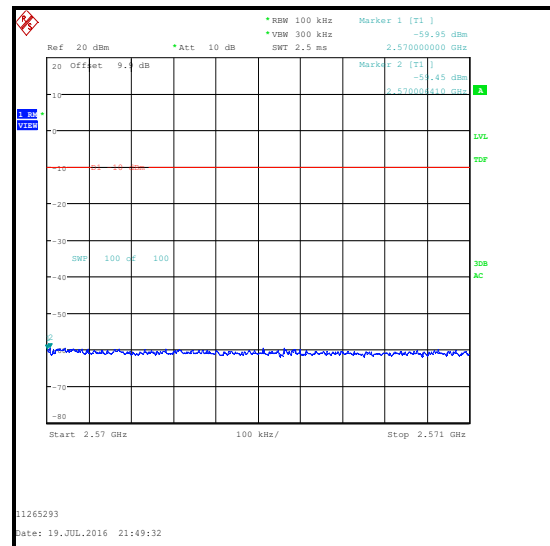
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.974        | 25                | 0                     | -33.5                | -10.0       | 23.5        | Complied |
| 2500            | 25                | 0                     | -34.3                | -10.0       | 24.3        | Complied |
| 2570            | 25                | 0                     | -29.4                | -10.0       | 19.4        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

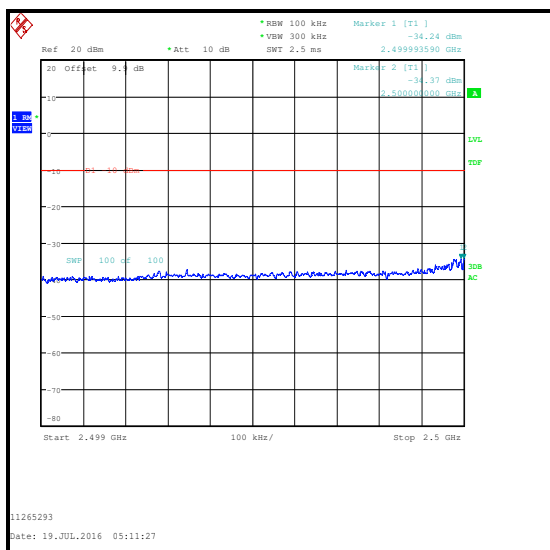
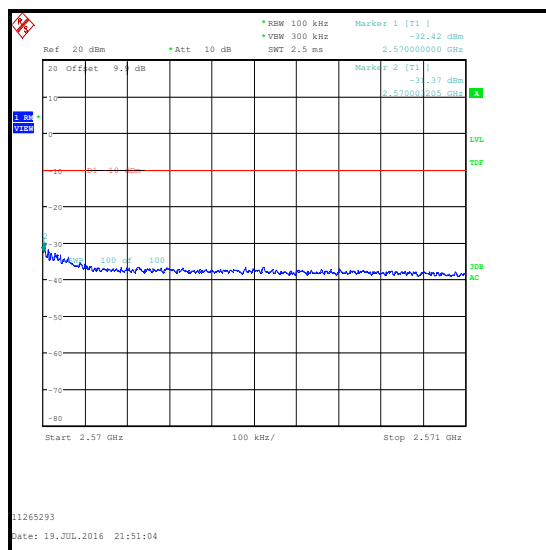
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.997        | 1                 | 0                     | -23.3                | -10.0       | 13.3        | Complied |
| 2500            | 1                 | 0                     | -23.7                | -10.0       | 13.7        | Complied |
| 2570            | 1                 | 24                    | -23.7                | -10.0       | 13.7        | Complied |
| 2570.003        | 1                 | 24                    | -23.5                | -10.0       | 13.5        | Complied |
| 2500            | 1                 | 24                    | -60.7                | -10.0       | 50.7        | Complied |
| 2570            | 1                 | 0                     | -59.9                | -10.0       | 49.9        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 24 Offset / Upper Band Edge****QPSK / 1 RB 24 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

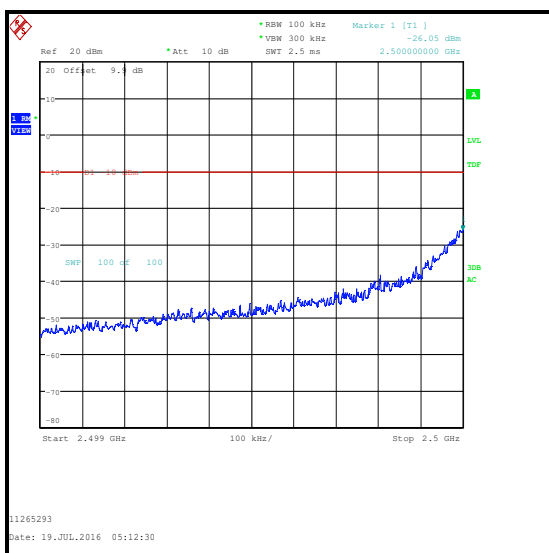
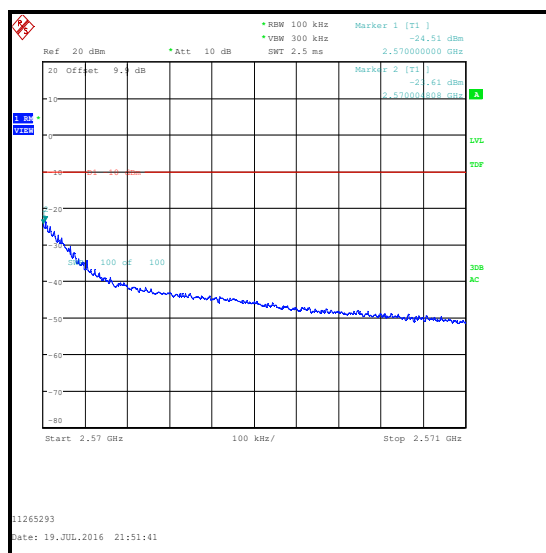
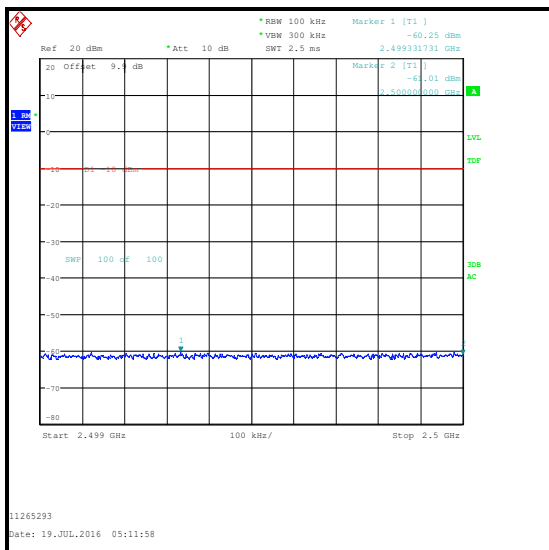
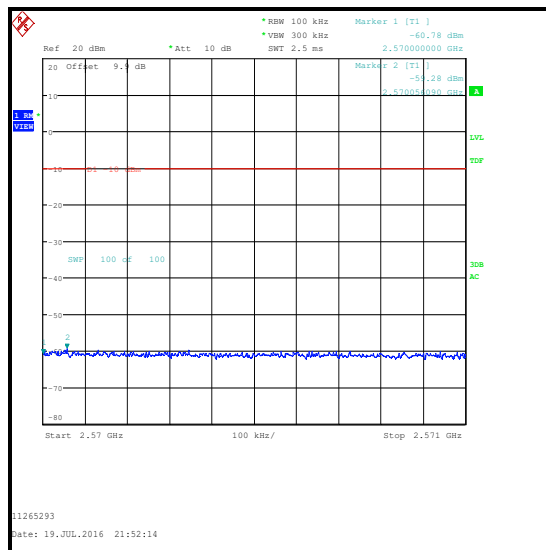
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.994        | 25                | 0                     | -34.2                | -10.0       | 24.2        | Complied |
| 2500            | 25                | 0                     | -34.4                | -10.0       | 24.4        | Complied |
| 2570            | 25                | 0                     | -32.4                | -10.0       | 22.4        | Complied |
| 2570.003        | 25                | 0                     | -31.4                | -10.0       | 21.4        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

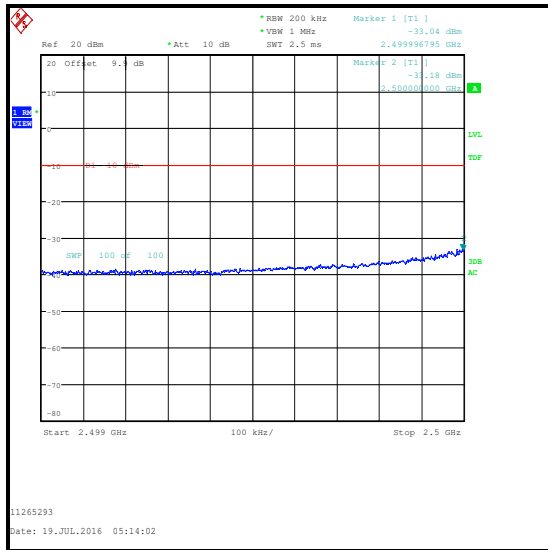
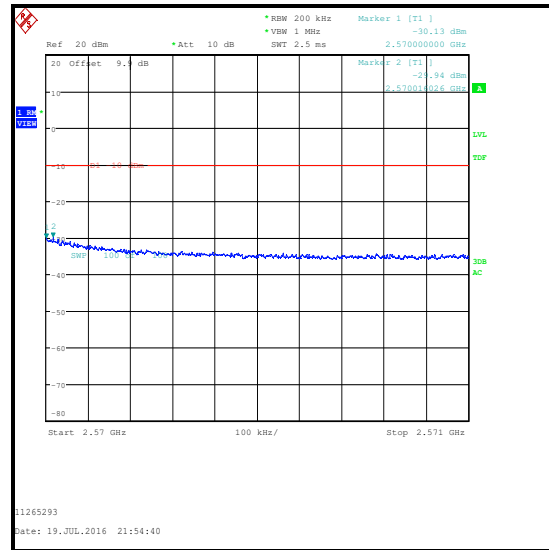
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 1                 | 0                     | -26.0                | -10.0       | 16.0        | Complied |
| 2570            | 1                 | 24                    | -24.5                | -10.0       | 14.5        | Complied |
| 2570.005        | 1                 | 24                    | -23.6                | -10.0       | 13.6        | Complied |
| 2500            | 1                 | 24                    | -61.0                | -10.0       | 51.0        | Complied |
| 2570            | 1                 | 0                     | -60.8                | -10.0       | 50.8        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 24 Offset / Upper Band Edge****16QAM / 1 RB 24 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

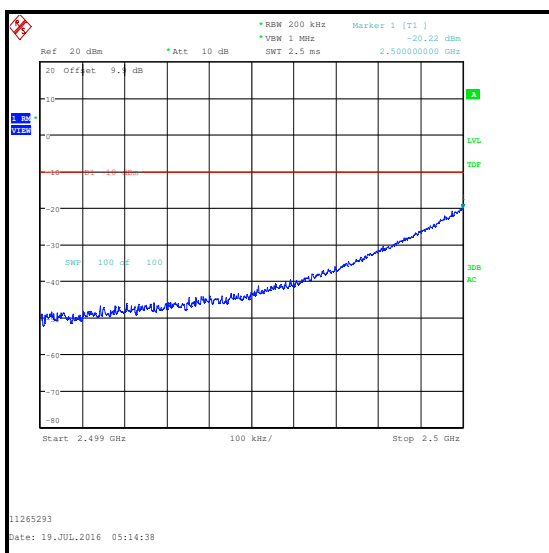
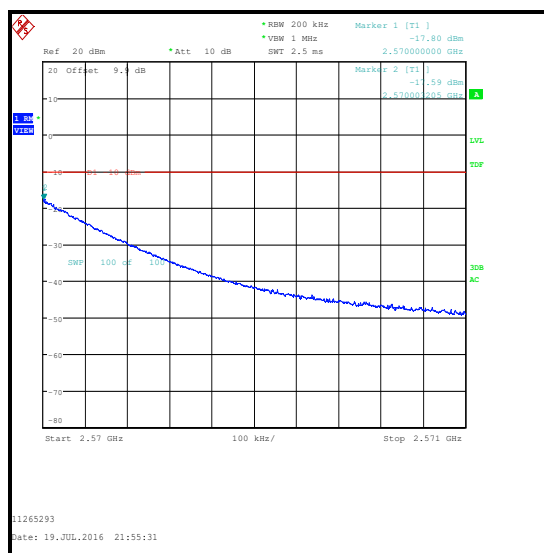
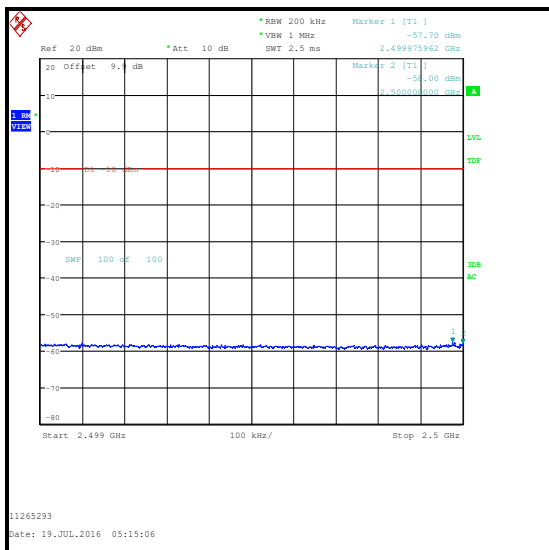
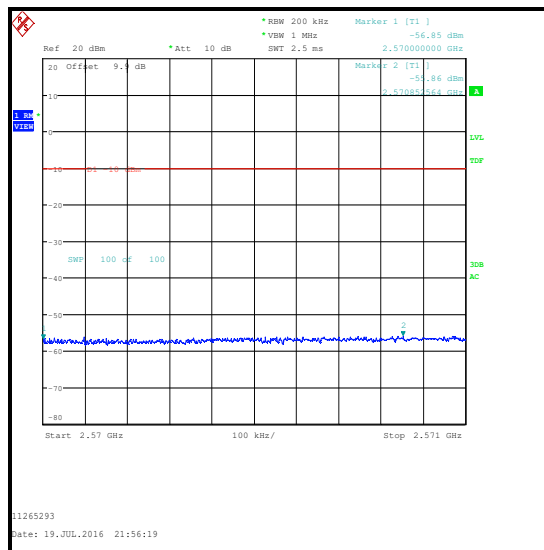
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.997        | 50                | 0                     | -33.0                | -10.0       | 23.0        | Complied |
| 2500            | 50                | 0                     | -33.2                | -10.0       | 23.2        | Complied |
| 2570            | 50                | 0                     | -30.1                | -10.0       | 20.1        | Complied |
| 2570.016        | 50                | 0                     | -29.9                | -10.0       | 19.9        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / QPSK**

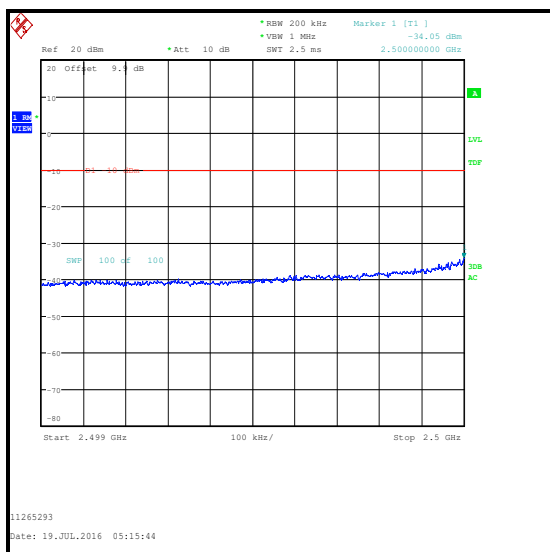
| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 1                 | 0                     | -20.2                | -10.0       | 10.2        | Complied |
| 2570            | 1                 | 49                    | -17.8                | -10.0       | 7.8         | Complied |
| 2570.003        | 1                 | 49                    | -17.6                | -10.0       | 7.6         | Complied |
| 2500            | 1                 | 49                    | -58.0                | -10.0       | 48.0        | Complied |
| 2570            | 1                 | 0                     | -56.8                | -10.0       | 46.8        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 49 Offset / Upper Band Edge****QPSK / 1 RB 49 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

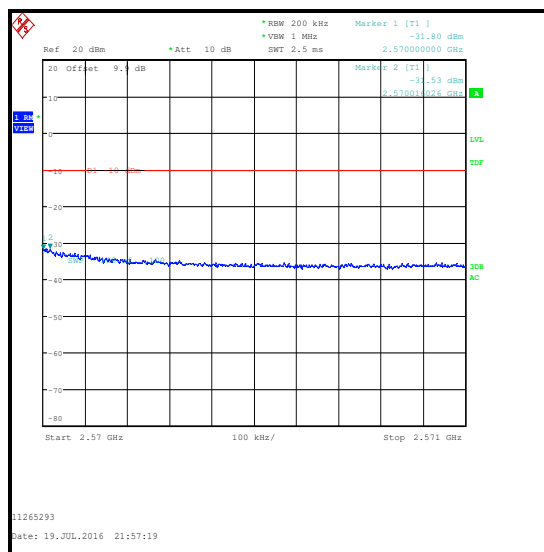
### Transmitter Radiated Emissions at Band Edges (continued)

### **Results: 10 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 50                | 0                     | -34.0                | -10.0       | 24.0        | Complied |
| 2570            | 50                | 0                     | -31.8                | -10.0       | 21.8        | Complied |
| 2570.016        | 50                | 0                     | -31.5                | -10.0       | 21.5        | Complied |



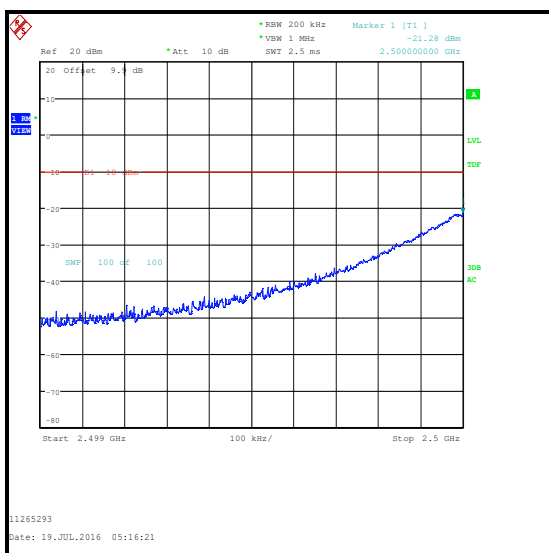
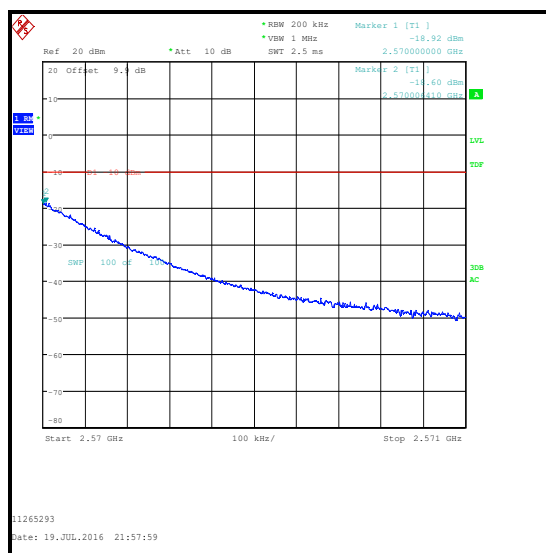
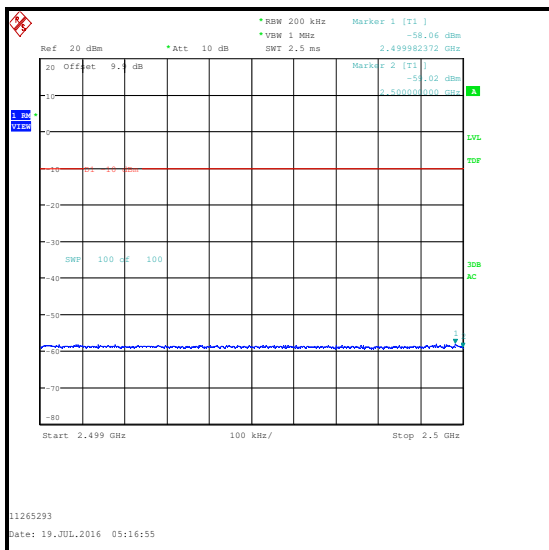
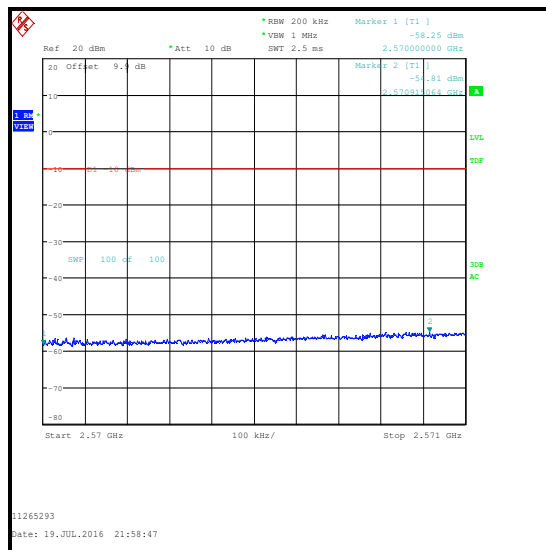
### 16QAM / Lower Band Edge



### 16QAM / Upper Band Edge

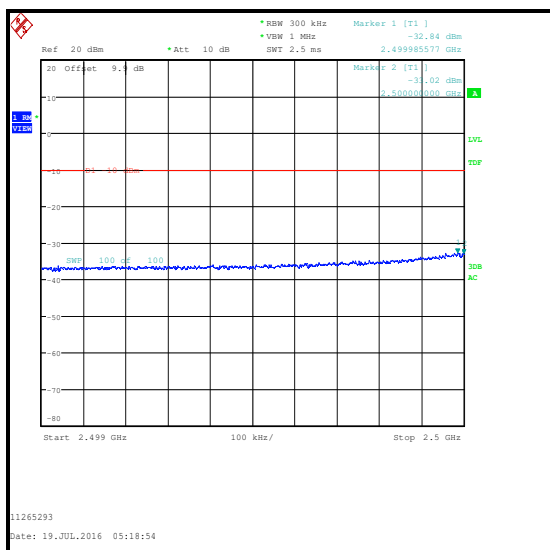
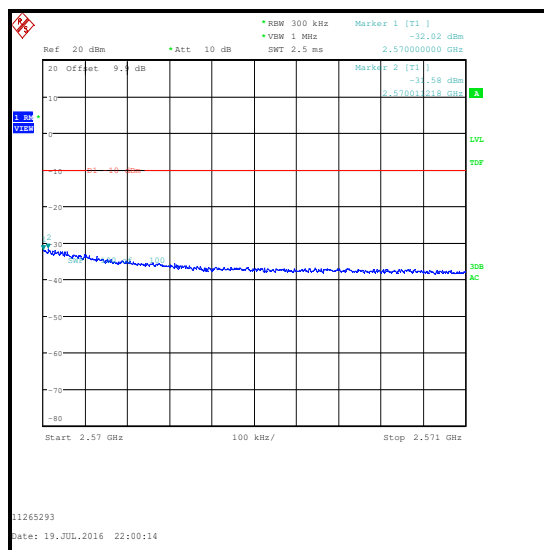
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 1                 | 0                     | -21.3                | -10.0       | 11.3        | Complied |
| 2570            | 1                 | 49                    | -18.9                | -10.0       | 8.9         | Complied |
| 2570.006        | 1                 | 49                    | -18.6                | -10.0       | 8.6         | Complied |
| 2500            | 1                 | 49                    | -59.0                | -10.0       | 49.0        | Complied |
| 2570            | 1                 | 0                     | -58.2                | -10.0       | 48.2        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 49 Offset / Upper Band Edge****16QAM / 1 RB 49 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

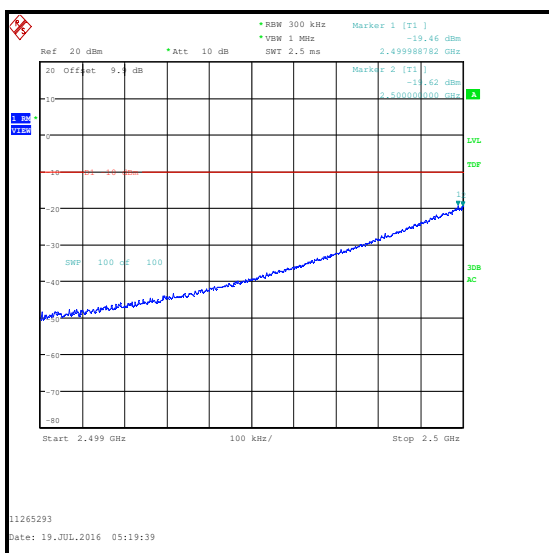
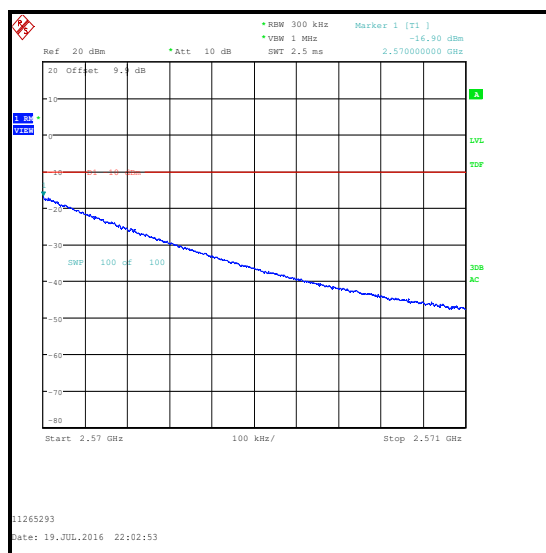
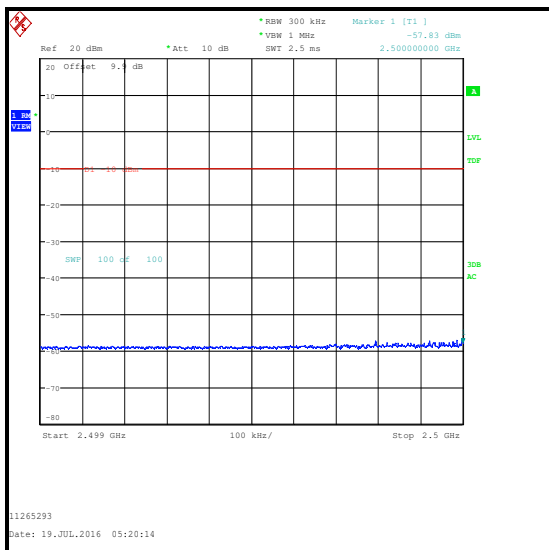
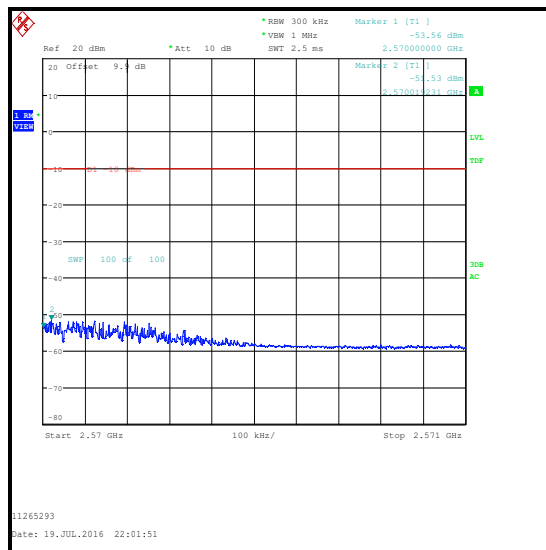
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.986        | 75                | 0                     | -32.8                | -10.0       | 22.8        | Complied |
| 2500            | 75                | 0                     | -33.0                | -10.0       | 23.0        | Complied |
| 2570            | 75                | 0                     | -32.0                | -10.0       | 22.0        | Complied |
| 2570.011        | 75                | 0                     | -31.6                | -10.0       | 21.6        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

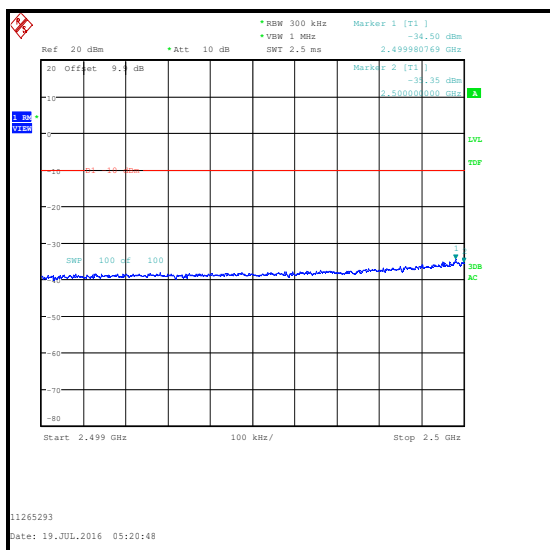
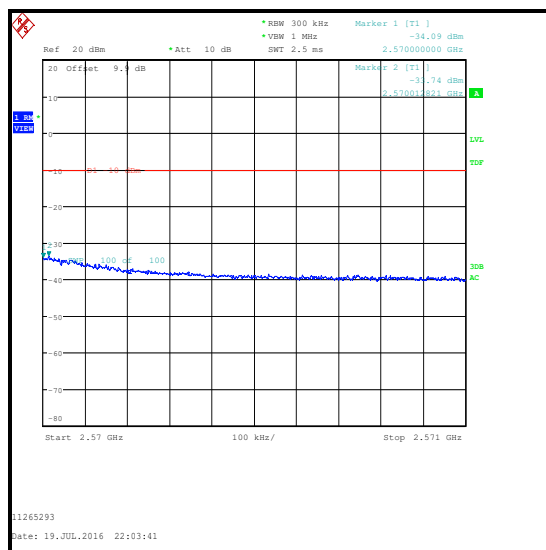
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.989        | 1                 | 0                     | -19.5                | -10.0       | 9.5         | Complied |
| 2500            | 1                 | 0                     | -19.6                | -10.0       | 9.6         | Complied |
| 2570            | 1                 | 74                    | -16.9                | -10.0       | 6.9         | Complied |
| 2500            | 1                 | 74                    | -57.8                | -10.0       | 47.8        | Complied |
| 2570            | 1                 | 0                     | -53.6                | -10.0       | 43.6        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 74 Offset / Upper Band Edge****QPSK / 1 RB 74 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

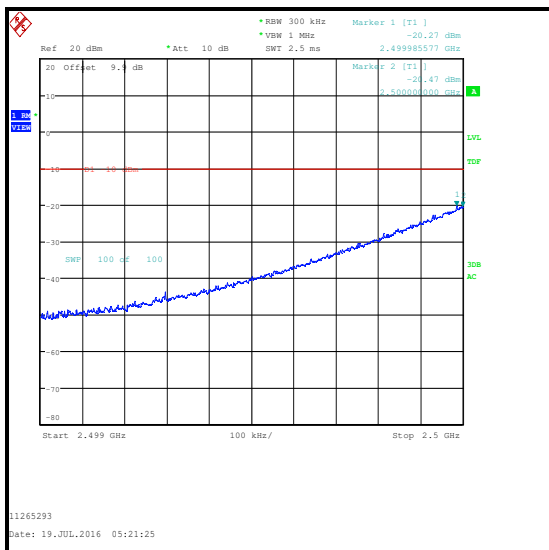
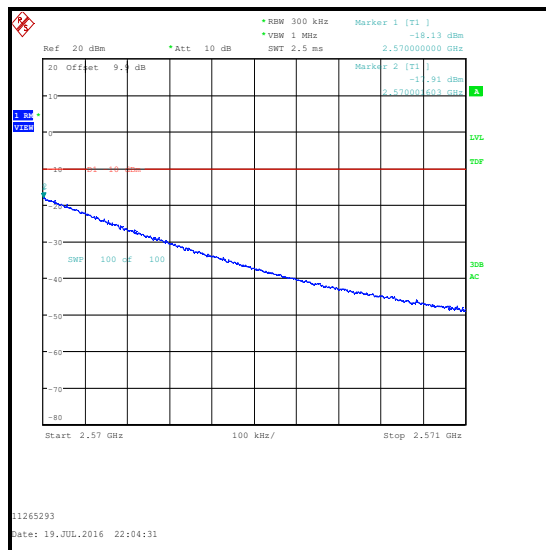
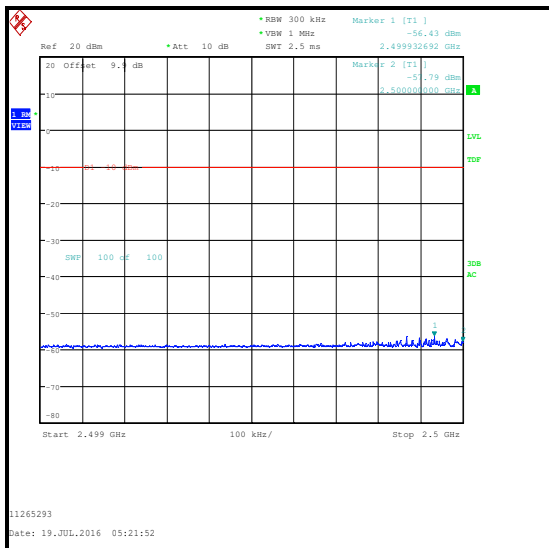
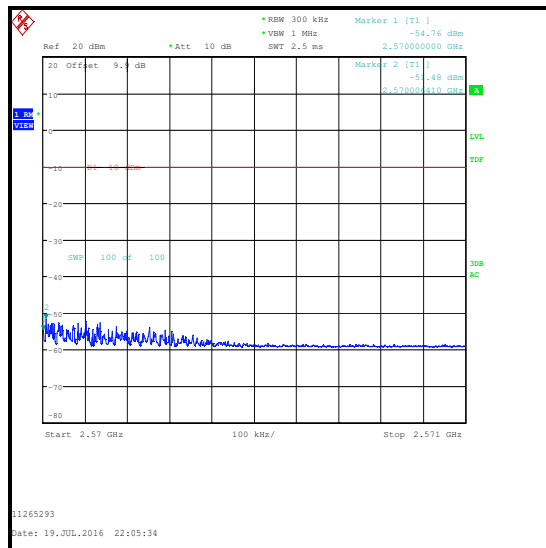
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.981        | 75                | 0                     | -34.5                | -10.0       | 24.5        | Complied |
| 2500            | 75                | 0                     | -35.3                | -10.0       | 25.3        | Complied |
| 2570            | 75                | 0                     | -34.1                | -10.0       | 24.1        | Complied |
| 2570.013        | 75                | 0                     | -33.7                | -10.0       | 23.7        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

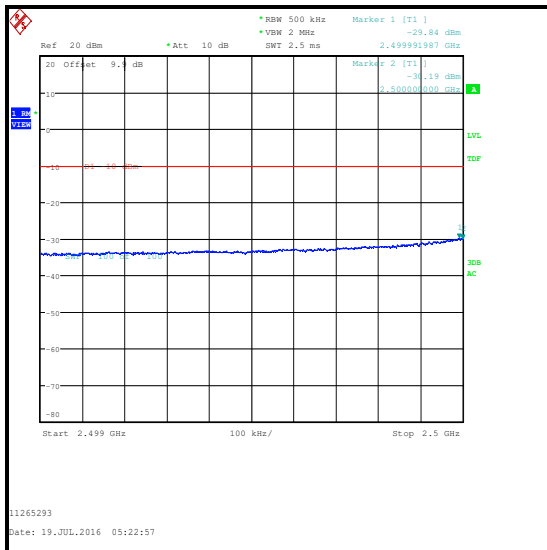
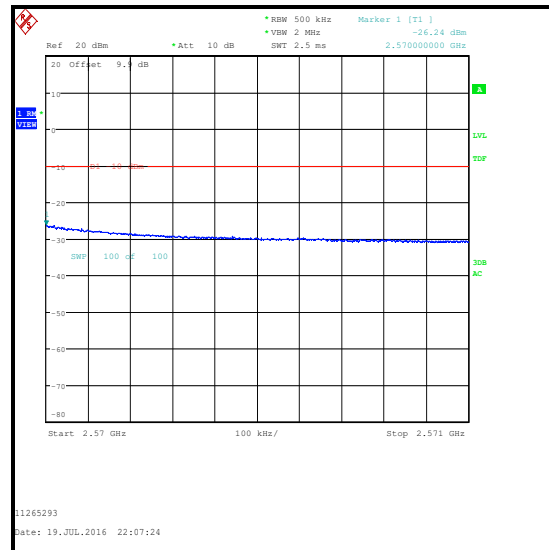
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.986        | 1                 | 0                     | -20.3                | -10.0       | 10.3        | Complied |
| 2500            | 1                 | 0                     | -20.5                | -10.0       | 10.5        | Complied |
| 2570            | 1                 | 74                    | -18.1                | -10.0       | 8.1         | Complied |
| 2570.002        | 1                 | 74                    | -17.9                | -10.0       | 7.9         | Complied |
| 2500            | 1                 | 74                    | -57.8                | -10.0       | 47.8        | Complied |
| 2570            | 1                 | 0                     | -54.8                | -10.0       | 44.8        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 74 Offset / Upper Band Edge****16QAM / 1 RB 74 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

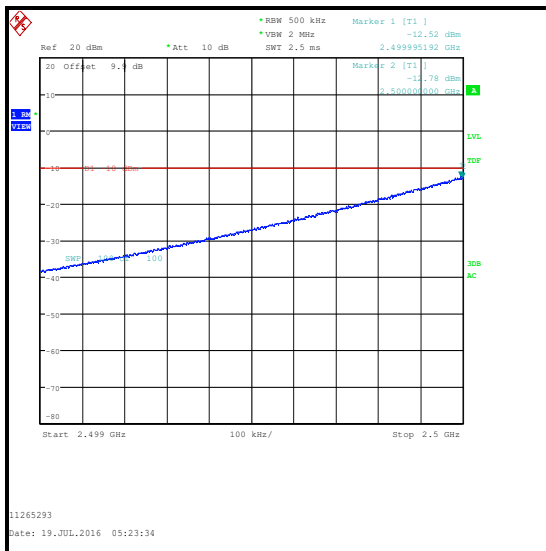
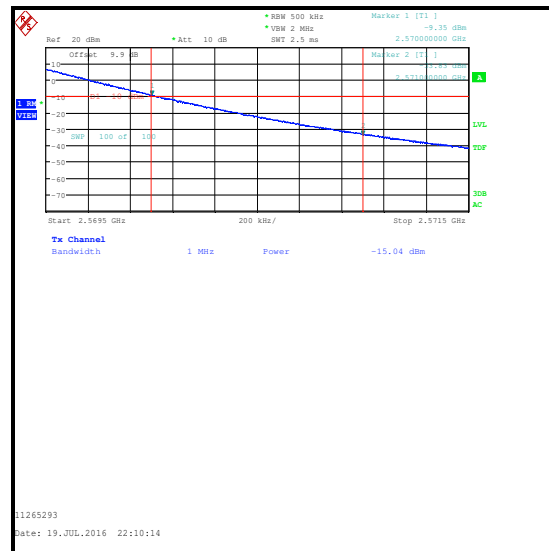
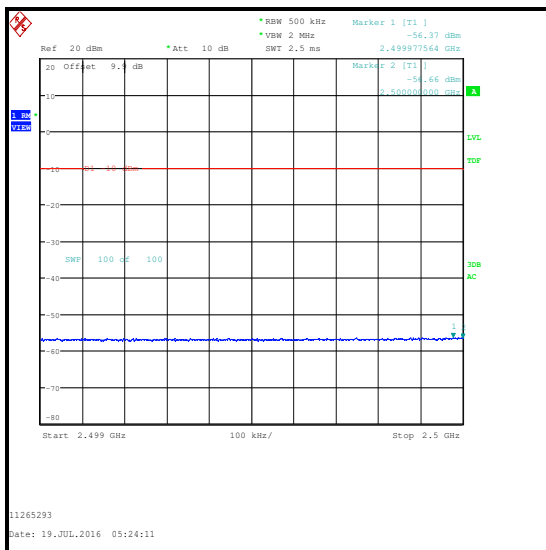
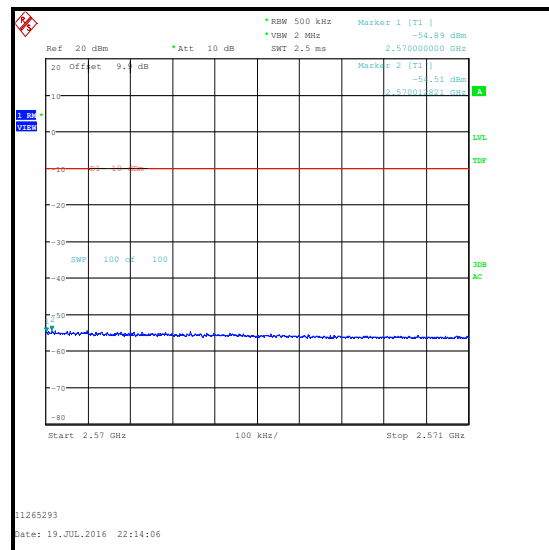
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.992        | 100               | 0                     | -29.8                | -10.0       | 19.8        | Complied |
| 2500            | 100               | 0                     | -30.2                | -10.0       | 20.2        | Complied |
| 2570            | 100               | 0                     | -26.2                | -10.0       | 16.2        | Complied |

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

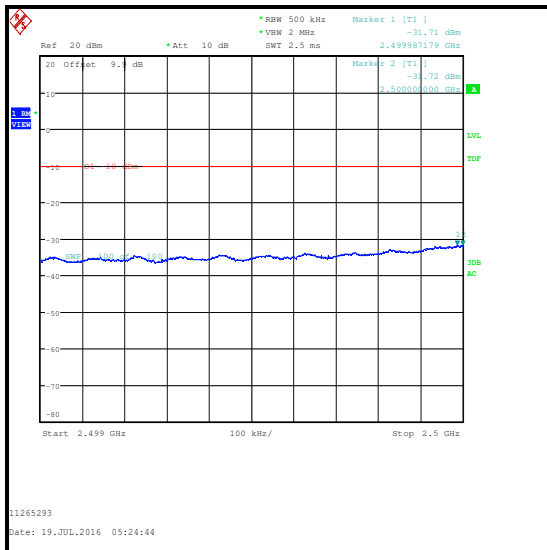
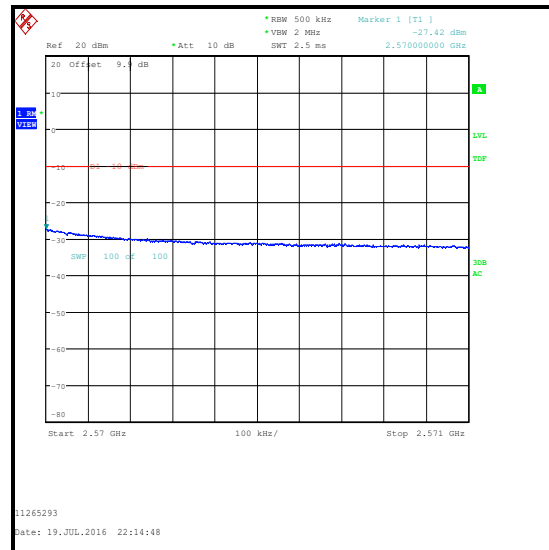
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.995        | 1                 | 0                     | -12.5                | -10.0       | 2.5         | Complied |
| 2500            | 1                 | 0                     | -12.8                | -10.0       | 2.8         | Complied |
| 2570 to 2571    | 1                 | 99                    | -15.0*               | -10.0       | 5.0         | Complied |
| 2500            | 1                 | 99                    | -56.7                | -10.0       | 46.7        | Complied |
| 2570            | 1                 | 0                     | -54.9                | -10.0       | 44.9        | Complied |

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 99 Offset / Upper Band Edge / 2570 to 2571 MHz / Integrated level****QPSK / 1 RB 99 Offset / Lower Band Edge****QPSK / 1 RB 99 Offset / Upper Band Edge**

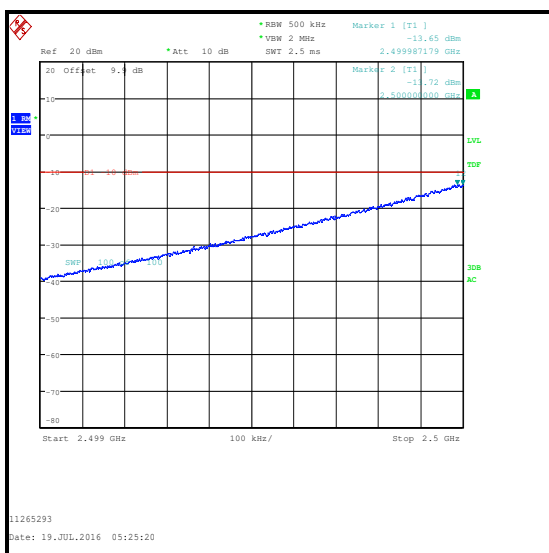
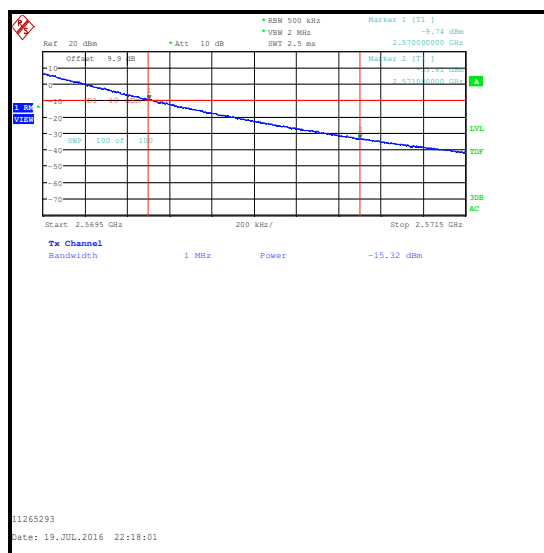
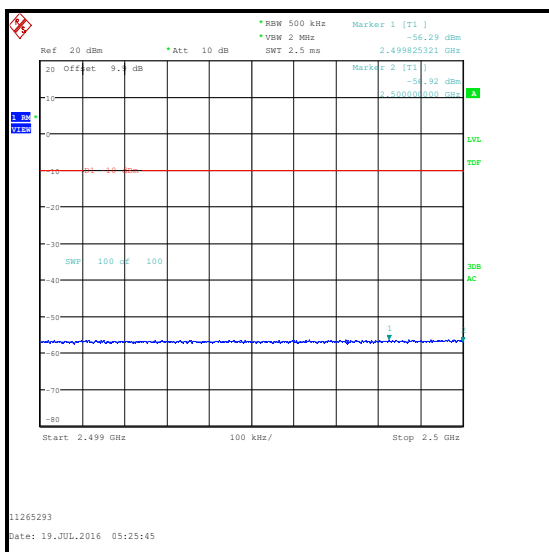
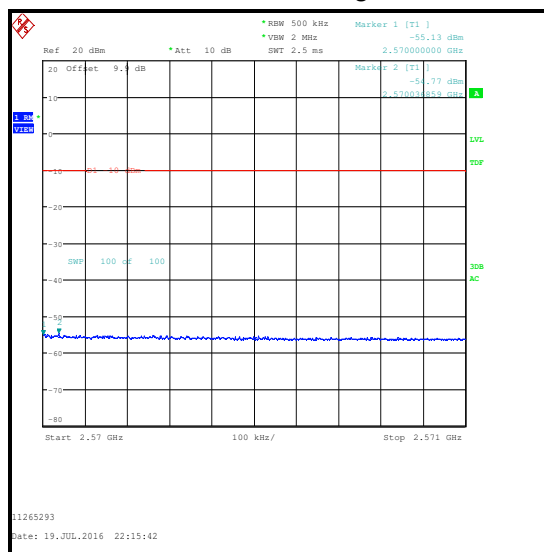
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.987        | 100               | 0                     | -31.7                | -10.0       | 21.7        | Complied |
| 2500            | 100               | 0                     | -31.7                | -10.0       | 21.7        | Complied |
| 2570            | 100               | 0                     | -27.4                | -10.0       | 17.4        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2499.987        | 1                 | 0                     | -13.6                | -10.0       | 3.6         | Complied |
| 2500            | 1                 | 0                     | -13.7                | -10.0       | 3.7         | Complied |
| 2570 to 2571    | 1                 | 99                    | -15.3*               | -10.0       | 5.3         | Complied |
| 2500            | 1                 | 99                    | -56.9                | -10.0       | 46.9        | Complied |
| 2570            | 1                 | 0                     | -55.1                | -10.0       | 45.1        | Complied |

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 99 Offset / Upper Band Edge / 2570 to 2571 MHz / Integrated level****16QAM / 1 RB 99 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

**Transmitter Radiated Emissions at Band Edges (continued)****Test Equipment Used:**

| Asset No. | Instrument       | Manufacturer    | Type No.    | Serial No.      | Date Calibration Due | Cal. Interval (Months) |
|-----------|------------------|-----------------|-------------|-----------------|----------------------|------------------------|
| M2003     | Thermohygrometer | Testo           | 608-H1      | 45046641        | 22 Apr 2017          | 12                     |
| K0017     | 3m RSE Chamber   | Rainford EMC    | N/A         | N/A             | 17 May 2017          | 12                     |
| M1995     | Test Receiver    | Rohde & Schwarz | ESU40       | 100428          | 21 Mar 2017          | 12                     |
| A2893     | Pre-Amplifier    | Schwarzbeck     | BBV 9721    | 9721-021        | 07 Apr 2017          | 12                     |
| A2889     | Antenna          | Schwarzbeck     | BBHA 9120 B | BBHA 9120 B 653 | 07 Apr 2017          | 12                     |
| A2916     | Attenuator       | AtlanTecRF      | AN18W5-10   | 832827#1        | 19 May 2017          | 12                     |

**5.2.11. Transmitter Frequency Stability (Temperature Variation)****Test Summary:**

|                          |                 |                    |                                |
|--------------------------|-----------------|--------------------|--------------------------------|
| <b>Test Engineer:</b>    | Stefan Ho       | <b>Test Dates:</b> | 03 June 2016 &<br>09 June 2016 |
| <b>Test Sample IMEI:</b> | 358640070266615 |                    |                                |

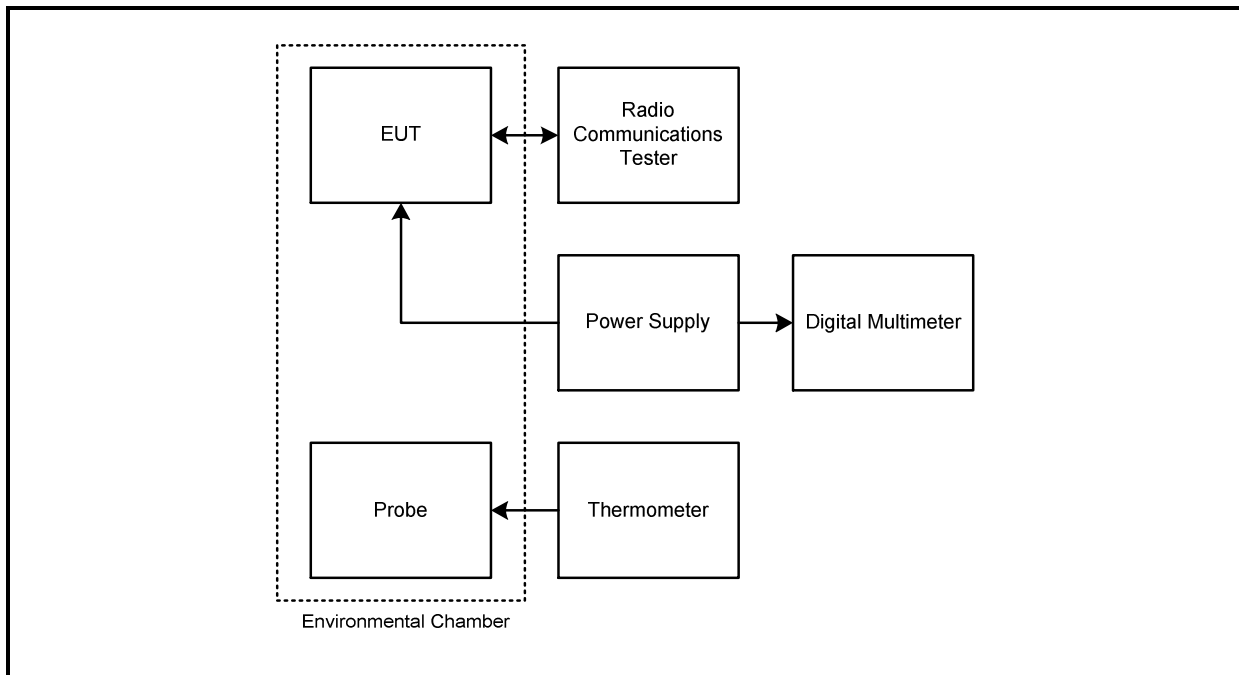
|                          |                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1055 & 27.54                                                                        |
| <b>Test Method Used:</b> | KDB 971168 Section 9.0 referencing<br>ANSI TIA-603-D-2010 Section 2.2.2 and FCC Part 2.1055 |

**Environmental Conditions:**

|                                       |          |
|---------------------------------------|----------|
| <b>Ambient Temperature (°C):</b>      | 23       |
| <b>Ambient Relative Humidity (%):</b> | 46 to 48 |

**Note(s):**

1. Flying leads were connected internally to the EUT in place of the battery. These leads extended and connected to a bench power supply at the nominal voltage of 3.8 V.
2. Frequency error was measured using a calibrated Rohde and Schwarz CMW 500 Universal Radio Communications Tester in accordance with current Rohde and Schwarz application notes. The EUT was connected by suitable RF cables to the CMW 500. A bi-directional communications link was established between the EUT and CMW 500. The frequency meter value was recorded.
3. Temperature was monitored throughout the test with a calibrated digital thermometer.

**Test setup:**

**Transmitter Frequency Stability (Temperature Variation) (continued)****Results: Bottom Channel (2502.5 MHz)**

| Temperature (°C) | Frequency Error (Hz) | Measured Frequency (MHz) | Lower Band Edge Limit (MHz) | Margin (MHz) | Result   |
|------------------|----------------------|--------------------------|-----------------------------|--------------|----------|
| -30              | 10                   | 2502.500010              | 2500                        | 2.500010     | Complied |
| -20              | 9                    | 2502.500009              | 2500                        | 2.500009     | Complied |
| -10              | 9                    | 2502.500009              | 2500                        | 2.500009     | Complied |
| 0                | 11                   | 2502.500011              | 2500                        | 2.500011     | Complied |
| 10               | 10                   | 2502.500010              | 2500                        | 2.500010     | Complied |
| 20               | 9                    | 2502.500009              | 2500                        | 2.500009     | Complied |
| 30               | 11                   | 2502.500011              | 2500                        | 2.500011     | Complied |
| 40               | 9                    | 2502.500009              | 2500                        | 2.500009     | Complied |
| 50               | 8                    | 2502.500008              | 2500                        | 2.500008     | Complied |

**Results: Top Channel (2567.5 MHz)**

| Temperature (°C) | Frequency Error (Hz) | Measured Frequency (MHz) | Upper Band Edge Limit (MHz) | Margin (MHz) | Result   |
|------------------|----------------------|--------------------------|-----------------------------|--------------|----------|
| -30              | 9                    | 2567.500009              | 2570                        | 2.499991     | Complied |
| -20              | 8                    | 2567.499992              | 2570                        | 2.500008     | Complied |
| -10              | 8                    | 2567.500008              | 2570                        | 2.499992     | Complied |
| 0                | 9                    | 2567.500009              | 2570                        | 2.499991     | Complied |
| 10               | 12                   | 2567.500012              | 2570                        | 2.499988     | Complied |
| 20               | 7                    | 2567.500007              | 2570                        | 2.499993     | Complied |
| 30               | 8                    | 2567.500008              | 2570                        | 2.499992     | Complied |
| 40               | 11                   | 2567.500011              | 2570                        | 2.499989     | Complied |
| 50               | 13                   | 2567.500013              | 2570                        | 2.499987     | Complied |

**Test Equipment Used:**

| Asset No. | Instrument                  | Manufacturer    | Type No. | Serial No. | Date Calibration Due  | Cal. Interval (Months) |
|-----------|-----------------------------|-----------------|----------|------------|-----------------------|------------------------|
| M2002     | Thermohygrometer            | Testo           | 608-H1   | 45041825   | 02 Apr 2017           | 12                     |
| M1869     | Wideband Radio Comms Tester | Rohde & Schwarz | CMW 500  | 145923     | 05 Apr 2017           | 12                     |
| M1815     | Environmental Chamber       | Votsch/Heraeus  | VT4002   | 521/83083  | Calibrated before use | -                      |
| M1642     | Thermometer                 | Fluke           | 52II     | 18890119   | 25 Apr 2017           | 12                     |
| S021      | DC power supply             | TTI             | CPX200   | 061034     | Calibrated before use | -                      |
| M1269     | Multimeter                  | Fluke           | 179      | 90250210   | 13 May 2017           | 12                     |

**5.2.12. Transmitter Frequency Stability (Voltage Variation)****Test Summary:**

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | Stefan Ho       | <b>Test Date:</b> | 02 June 2016 |
| <b>Test Sample IMEI:</b> | 358640070266615 |                   |              |

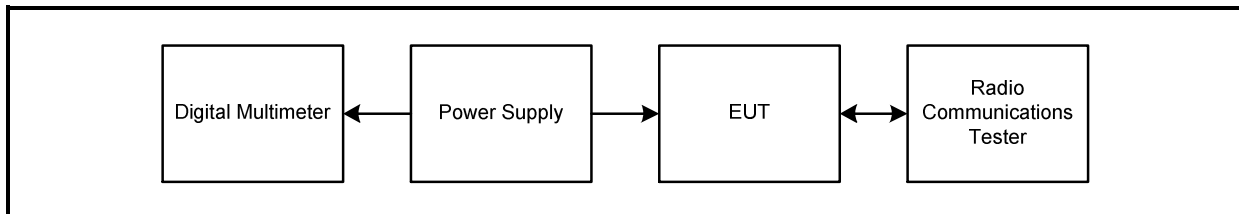
|                          |                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1055 & 27.54                                                                        |
| <b>Test Method Used:</b> | KDB 971168 Section 9.0 referencing<br>ANSI TIA-603-D-2010 Section 2.2.2 and FCC Part 2.1055 |

**Environmental Conditions:**

|                               |    |
|-------------------------------|----|
| <b>Temperature (°C):</b>      | 23 |
| <b>Relative Humidity (%):</b> | 48 |

**Note(s):**

1. Flying leads were connected internally to the EUT in place of the battery. These leads extended and connected to a bench power supply.
2. Frequency error was measured using a calibrated Rohde and Schwarz CMW 500 Universal Radio Communications Tester in accordance with current Rohde and Schwarz application notes. The EUT was connected by suitable RF cables to the CMW 500. A bi-directional communications link was established between the EUT and CMW 500. The frequency meter value was recorded.
3. Voltage was monitored throughout the test with a calibrated digital voltmeter.

**Test setup:**

**Transmitter Frequency Stability (Voltage Variation) (continued)****Results: Bottom Channel (2502.5 MHz)**

| Supply Voltage (V) | Frequency Error (Hz) | Measured Frequency (MHz) | Lower Band Edge Limit (MHz) | Margin (MHz) | Result   |
|--------------------|----------------------|--------------------------|-----------------------------|--------------|----------|
| 3.4                | 9                    | 2502.500009              | 2500                        | 2.500009     | Complied |
| 4.2                | 9                    | 2502.500009              | 2500                        | 2.500009     | Complied |

**Results: Top Channel (2567.5 MHz)**

| Supply Voltage (V) | Frequency Error (Hz) | Measured Frequency (MHz) | Upper Band Edge Limit (MHz) | Margin (MHz) | Result   |
|--------------------|----------------------|--------------------------|-----------------------------|--------------|----------|
| 3.4                | 9                    | 2567.500009              | 2570                        | 2.499991     | Complied |
| 4.2                | 7                    | 2567.500007              | 2570                        | 2.499993     | Complied |

**Test Equipment Used:**

| Asset No. | Instrument                  | Manufacturer    | Type No. | Serial No. | Date Calibration Due  | Cal. Interval (Months) |
|-----------|-----------------------------|-----------------|----------|------------|-----------------------|------------------------|
| M2002     | Thermohygrometer            | Testo           | 608-H1   | 45041825   | 02 Apr 2017           | 12                     |
| M1869     | Wideband Radio Comms Tester | Rohde & Schwarz | CMW 500  | 145923     | 05 Apr 2017           | 12                     |
| S021      | DC power supply             | TTI             | CPX200   | 061034     | Calibrated before use | -                      |
| M1269     | Multimeter                  | Fluke           | 179      | 90250210   | 13 May 2017           | 12                     |

## **6. Measurement Uncertainty**

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

| <b>Measurement Type</b>      | <b>Range</b>     | <b>Confidence Level (%)</b> | <b>Calculated Uncertainty</b> |
|------------------------------|------------------|-----------------------------|-------------------------------|
| Conducted Output Power       | 2500 to 2570 MHz | 95%                         | $\pm 1.36$ dB                 |
| Frequency Stability          | 2500 to 2570 MHz | 95%                         | $\pm 23$ Hz                   |
| Occupied Bandwidth           | 2500 to 2570 MHz | 95%                         | $\pm 3.92$ %                  |
| Conducted Spurious Emissions | 2500 to 2570 MHz | 95%                         | $\pm 2.62$ dB                 |
| Radiated Spurious Emissions  | 30 MHz to 1 GHz  | 95%                         | $\pm 2.94$ dB                 |
| Radiated Spurious Emissions  | 1 GHz to 26 GHz  | 95%                         | $\pm 2.94$ dB                 |

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

**7. Report Revision History**

| Version Number | Revision Details |        |                                 |
|----------------|------------------|--------|---------------------------------|
|                | Page No(s)       | Clause | Details                         |
| 1.0            | -                | -      | Initial Version                 |
| 2.0            | -                | -      | Updates as requested by the TCB |

--- END OF REPORT ---