



# **TEST REPORT**

**Test Report No. : UL-RPT-RP10295085JD04E V2.0**

**Manufacturer** : Sony Mobile Communications Inc.

**FCC ID** : PY7PM-0800

**Technology** : LTE – Band 7

**Test Standard(s)** : FCC Part 27 Subpart C

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2. The results in this report apply only to the sample(s) tested.
3. The sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 2.0 supersedes all previous versions.

**Date of Issue:** 01 August 2014

**Checked by:**

Sarah Williams  
Engineer, Radio Laboratory

**Issued by :**

pp

John Newell  
Group Quality Manager,  
Basingstoke,  
UL VS LTD



This laboratory is accredited by UKAS.  
The tests reported herein have been  
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## **UL VS LTD**

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**1. Customer Information**

|                      |                                                        |
|----------------------|--------------------------------------------------------|
| <b>Company Name:</b> | Sony Mobile Communications Inc.                        |
| <b>Address:</b>      | Nya Vattentornet Mobilvägen 10<br>Lund 22188<br>Sweden |

## **2. Summary of Testing**

### **2.1. General Information**

|                                 |                                                                                                                                  |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Specification Reference:</b> | 47CFR27                                                                                                                          |
| <b>Specification Title:</b>     | Code of Federal Regulations Volume 47 (Telecommunications):<br>Part 27 Subpart C (Miscellaneous Wireless Communication Services) |
| <b>Site Registration:</b>       | 209735                                                                                                                           |
| <b>Location of Testing:</b>     | UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park,<br>Basingstoke, Hampshire, RG24 8AH, United Kingdom               |
| <b>Test Dates:</b>              | 02 June 2014 to 13 June 2014                                                                                                     |

### **2.2. Summary of Test Results**

| FCC Reference (47CFR)                                                                                                                                                                                                 | Measurement                                                            | Result                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 2.1046 / 27.50(h)(2)                                                                                                                                                                                                  | Transmitter Output Power (EIRP)                                        |   |
| 2.1049                                                                                                                                                                                                                | Transmitter Occupied Bandwidth                                         |   |
| 2.1053 / 27.53(l)(4)                                                                                                                                                                                                  | Transmitter Radiated Spurious Emissions                                |   |
| 2.1053 / 27.53(l)(4)                                                                                                                                                                                                  | Transmitter Radiated Emissions at Band Edges                           |   |
| 2.1053 / 27.53(l)(4)                                                                                                                                                                                                  | Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz               |   |
| 2.1055 / 27.54                                                                                                                                                                                                        | Transmitter Frequency Stability<br>(Temperature and Voltage Variation) |  |
| Key to Results<br> = Complied  = Did not comply |                                                                        |                                                                                      |

### **2.3. Methods and Procedures**

|                   |                                                                              |
|-------------------|------------------------------------------------------------------------------|
| <b>Reference:</b> | ANSI/TIA-603-C-2004                                                          |
| <b>Title:</b>     | Land Mobile Communications Equipment, Measurements and performance Standards |
| <b>Reference:</b> | FCC KDB 971168 D01 v02r01, 7 June 2013                                       |
| <b>Title:</b>     | Measurement Guidance for Certification of Licensed Digital Transmitters      |

### **2.4. Deviations from the Test Specification**

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

### **3. Equipment Under Test (EUT)**

#### **3.1. Identification of Equipment Under Test (EUT)**

|                                   |                                            |
|-----------------------------------|--------------------------------------------|
| <b>Brand Name:</b>                | Sony                                       |
| <b>IMEI:</b>                      | 004402452705555 ( <i>Radiated sample</i> ) |
| <b>Test Sample Serial Number:</b> | CB5A1YYLUK                                 |
| <b>Hardware Version Number:</b>   | A                                          |
| <b>Software Version Number:</b>   | 23.0.A.0.204                               |
| <b>FCC ID:</b>                    | PY7PM-0800                                 |

|                                   |                                                             |
|-----------------------------------|-------------------------------------------------------------|
| <b>Brand Name:</b>                | Sony                                                        |
| <b>IMEI:</b>                      | 004402452705654 ( <i>Conducted sample with RF port #1</i> ) |
| <b>Test Sample Serial Number:</b> | CB5A1YYLVS                                                  |
| <b>Hardware Version Number:</b>   | A                                                           |
| <b>Software Version Number:</b>   | 23.0.A.0.204                                                |
| <b>FCC ID:</b>                    | PY7PM-0800                                                  |

|                              |            |
|------------------------------|------------|
| <b>Brand Name:</b>           | Sony       |
| <b>Description:</b>          | AC Charger |
| <b>Model Name or Number:</b> | EP880      |

|                              |            |
|------------------------------|------------|
| <b>Brand Name:</b>           | Generic    |
| <b>Description:</b>          | MHL Cable  |
| <b>Model Name or Number:</b> | Not marked |

|                              |             |
|------------------------------|-------------|
| <b>Brand Name:</b>           | Sony        |
| <b>Description:</b>          | MHL Adaptor |
| <b>Model Name or Number:</b> | IM750       |

|                              |           |
|------------------------------|-----------|
| <b>Brand Name:</b>           | Sony      |
| <b>Description:</b>          | USB Cable |
| <b>Model Name or Number:</b> | EC803     |

|                              |           |
|------------------------------|-----------|
| <b>Brand Name:</b>           | Sony      |
| <b>Description:</b>          | Deskstand |
| <b>Model Name or Number:</b> | DK43      |

**Identification of Equipment Under Test (EUT) (continued)**

|                       |        |
|-----------------------|--------|
| Brand Name:           | Sony   |
| Description:          | PHF    |
| Model Name or Number: | MH410c |

**3.2. Description of EUT**

The equipment under test (EUT) was a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac + NFC & ANT+.

**3.3. Modifications Incorporated in the EUT**

No modifications were applied to the EUT during testing.

**3.4. Additional Information Related to Testing**

|                           |                                |                 |                           |
|---------------------------|--------------------------------|-----------------|---------------------------|
| Tested Technology:        | LTE Band 7                     |                 |                           |
| Type of Equipment         | Transceiver                    |                 |                           |
| Channel Bandwidth:        | 5 MHz, 10 MHz, 15 MHz & 20 MHz |                 |                           |
| Modulation Type:          | QPSK & 16QAM                   |                 |                           |
| Duty Cycle:               | 100%                           |                 |                           |
| Antenna Gain:             | -1.2 dBi                       |                 |                           |
| Power Supply Requirement: | Nominal                        | 3.8 V           |                           |
|                           | Minimum                        | 3.42 V          |                           |
|                           | Maximum                        | 4.18 V          |                           |
| Transmit Frequency Range: | 2500 MHz to 2570 MHz           |                 |                           |
| Channels Tested:          | Channel Bandwidth              | N <sub>ul</sub> | Frequency of Uplink (MHz) |
| Bottom Channel            | 5                              | 20775           | 2502.5                    |
|                           | 10                             | 20800           | 2505.0                    |
|                           | 15                             | 20825           | 2507.5                    |
|                           | 20                             | 20850           | 2510.0                    |
| Middle Channel            | All                            | 21100           | 2535.0                    |
| Top Channel               | 5                              | 21425           | 2567.5                    |
|                           | 10                             | 21400           | 2565.0                    |
|                           | 15                             | 21375           | 2562.5                    |
|                           | 20                             | 21350           | 2560.0                    |

**3.5. Support Equipment**

The following support equipment was used to exercise the EUT during testing:

|                              |                    |
|------------------------------|--------------------|
| <b>Description:</b>          | 2 GB Micro SD Card |
| <b>Brand Name:</b>           | Generic            |
| <b>Model Name or Number:</b> | Not marked         |

|                              |                                |
|------------------------------|--------------------------------|
| <b>Brand Name:</b>           | Logik                          |
| <b>Description:</b>          | 22" High Definition Television |
| <b>Model Name or Number:</b> | L22FE12A                       |
| <b>Serial Number:</b>        | 1309020661                     |

|                              |                       |
|------------------------------|-----------------------|
| <b>Description:</b>          | Voltage variation jig |
| <b>Brand Name:</b>           | Not marked            |
| <b>Model Name or Number:</b> | Not marked            |
| <b>Serial Number:</b>        | Not marked            |

## **4. Operation and Monitoring of the EUT during Testing**

### **4.1. Operating Modes**

The EUT was tested in the following operating mode(s):

- Transmit Mode – The EUT was set to transmit with maximum output power using the required channel bandwidth. QPSK and 16QAM modulations were both tested, with Resource Block allocation as detailed in section 4.3.

### **4.2. Configuration and Peripherals**

The EUT was tested in the following configuration(s):

- The EUT was connected to a Rohde and Schwarz CMW500 LTE system simulator, operating in a transceiver mode.
- Transmitter radiated spurious emission tests were performed with the following configurations, employing all available accessories:
  - o Configuration 1 – Handset with the AC charger, USB Cable, MHL cable (terminated in to a television), MHL adaptor and PHF.
  - o Configuration 2 – Handset with the AC charger, USB Cable, Deskstand and PHF.

Pre-scans below 1 GHz were performed in both configurations 1 and 2, with final measurements limited to the configuration which provided worst case results. Pre-scans above 1 GHz were performed in the configuration that employed the most accessories (Configuration 1), with any final measurements being performed in both configurations.

- Transmitter radiated spurious emissions tests were performed with the EUT set to transmit with a 5 MHz channel bandwidth with QPSK modulation applied and 1 resource block with 0 offset. This was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest transmit output power level, it was deemed to be the worst case.
- The EUT was supplied with an RF conducted port and external RF connector, to allow conducted measurements to be performed where necessary.
- Testing at temperature and voltage extremes was performed using a voltage variation jig and adaptor supplied by the customer. The adaptor plugs onto the handset in place of the battery connector.
- The voltage variation jig and adaptor were used for conducted measurements set at the nominal voltage.
- The conducted sample with IMEI 004402452705654 was used for output power, occupied bandwidth, and frequency stability measurements.
- The radiated sample with IMEI 004402452705555 was used for all radiated measurements.

### **4.3. Resource Block Allocation**

| Channel Bandwidth (MHz) | Maximum No. of Resource Blocks | Resource Block / Offset Number |        |            |        |            |        |            |        |
|-------------------------|--------------------------------|--------------------------------|--------|------------|--------|------------|--------|------------|--------|
|                         |                                | Sub Test 1                     |        | Sub Test 2 |        | Sub Test 3 |        | Sub Test 4 |        |
|                         |                                | RB                             | Offset | RB         | Offset | RB         | Offset | RB         | Offset |
| 5                       | 25                             | 1                              | 0      | 1          | 24     | 12         | 6      | 25         | 0      |
| 10                      | 50                             | 1                              | 0      | 1          | 49     | 25         | 12     | 50         | 0      |
| 15                      | 75                             | 1                              | 0      | 1          | 74     | 36         | 18     | 75         | 0      |
| 20                      | 100                            | 1                              | 0      | 1          | 99     | 50         | 25     | 100        | 0      |

Transmitter Output Power was carried out using sub tests 1, 2, 3 and 4, with both QPSK and 16QAM modulation schemes.

Transmitter Occupied Bandwidth was carried out using sub tests 3 and 4, for both QPSK and 16QAM modulation schemes.

Transmitter Radiated Emissions testing was carried out using sub test 1, with a 5 MHz channel bandwidth and QPSK modulation scheme, as this was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest transmit output power level, it was deemed to be the worst case.

Transmitter Radiated Band Edge Emissions was tested with sub test 4 on all supported channel bandwidths, using QPSK and 16QAM modulations with the maximum resource blocks settings.

Transmitter Radiated Band Edge +/- 5.5 MHz Emissions was tested with sub tests 1, 2 and 4 on all supported channel bandwidths, using QPSK and 16QAM modulations. These sub-bands were selected as they include the resource block allocations closest to the edge of the bands.

Transmitter Frequency Stability test was carried out with sub test 4, with a channel bandwidth of 5 MHz only.

## **5. Measurements, Examinations and Derived Results**

### **5.1. General Comments**

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6* for Measurement Uncertainty details.

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

## **5.2. Test Results**

### **5.2.1. Transmitter Output Power (EIRP)**

#### **Test Summary:**

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | Ben Mercer      | <b>Test Date:</b> | 02 June 2014 |
| <b>Test Sample IMEI:</b> | 004402452705654 |                   |              |

|                          |                                             |
|--------------------------|---------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1046 & 27.50(h)(2)                  |
| <b>Test Method Used:</b> | As detailed in FCC KDB 971168 Section 5.2.1 |

#### **Environmental Conditions:**

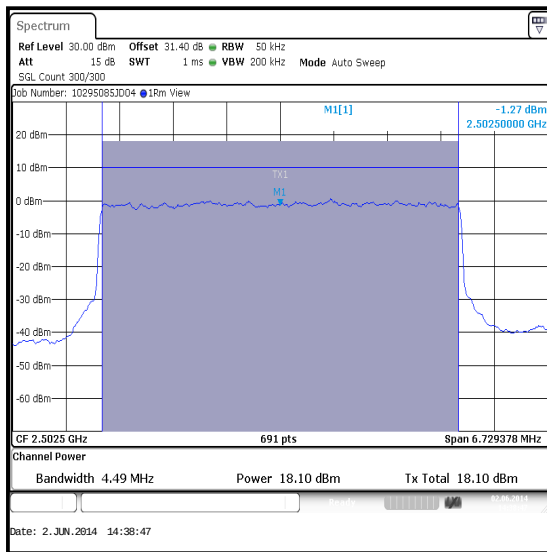
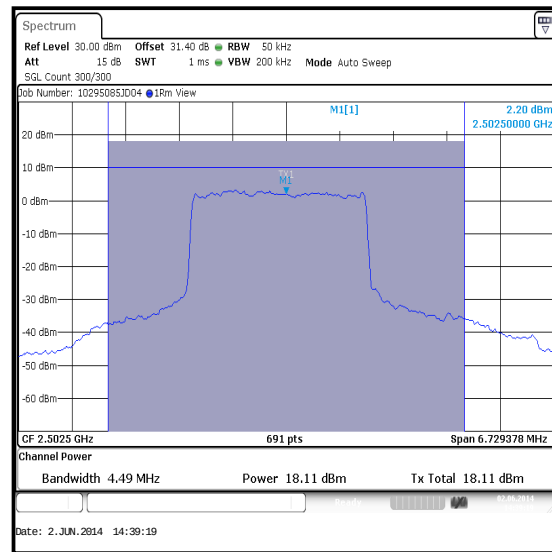
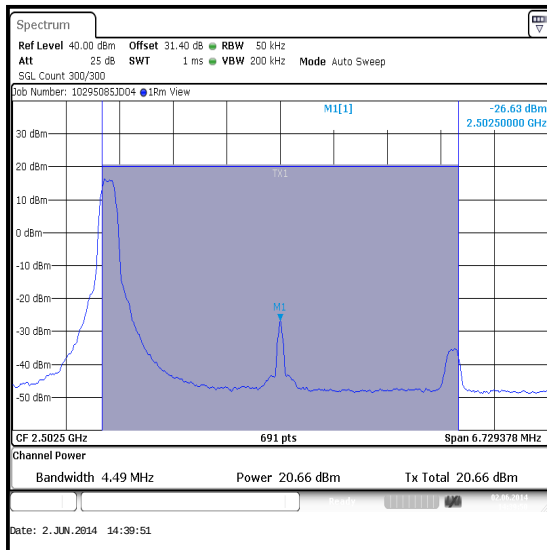
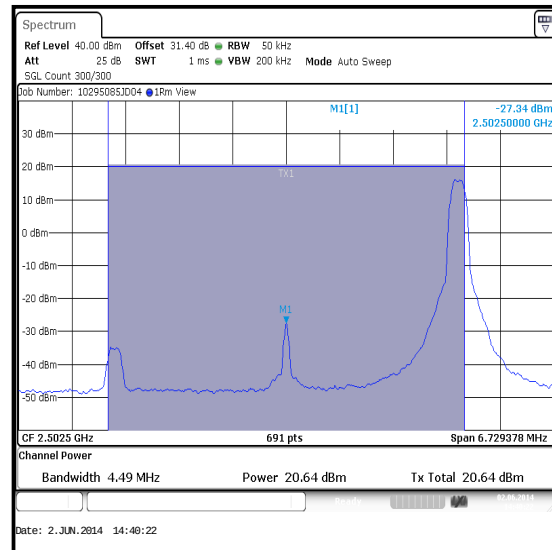
|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 24 to 27 |
| <b>Relative Humidity (%):</b> | 34 to 35 |

#### **Note(s):**

1. The customer stated a maximum antenna gain of -1.2 dBi. The antenna gain was added to the conducted output power to obtain the EIRP.
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. The spectrum analyser's channel power function was used to integrate across the occupied bandwidth. The resolution bandwidth was set to between 1-5% of the occupied bandwidth and the video bandwidth was set to at least 3 times the resolution bandwidth. An RMS detector was used, sweep time was set to auto and the trace was averaged over 300 traces. The span was set to at least 1.5 times the occupied bandwidth. The channel power results are recorded in the tables below.
4. The RF port of the EUT was connected to the spectrum analyser via RF cables, directional coupler and suitable attenuation. An RF level offset was entered on the spectrum analyser, to compensate for the signal path losses in these components.

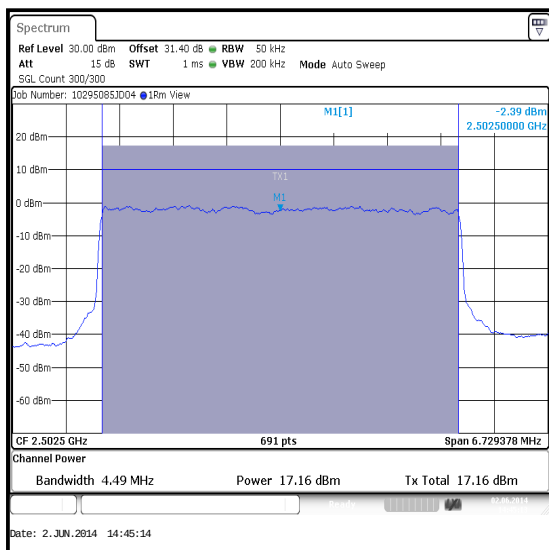
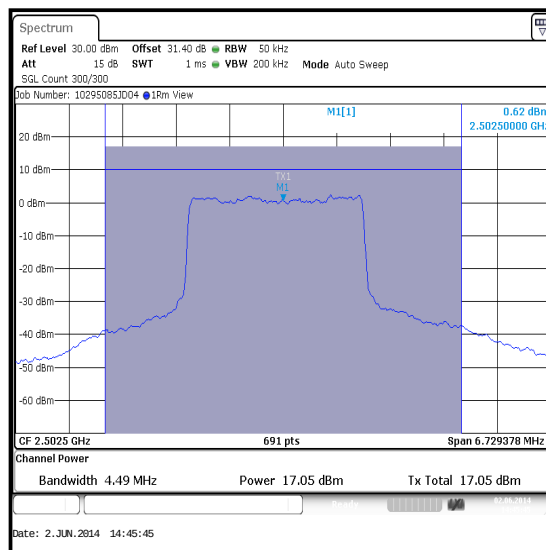
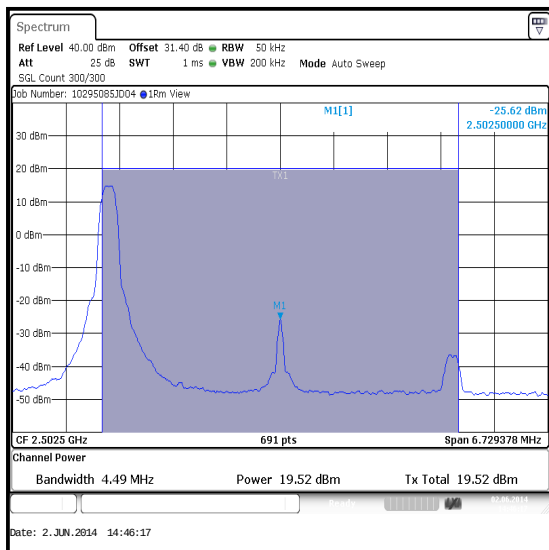
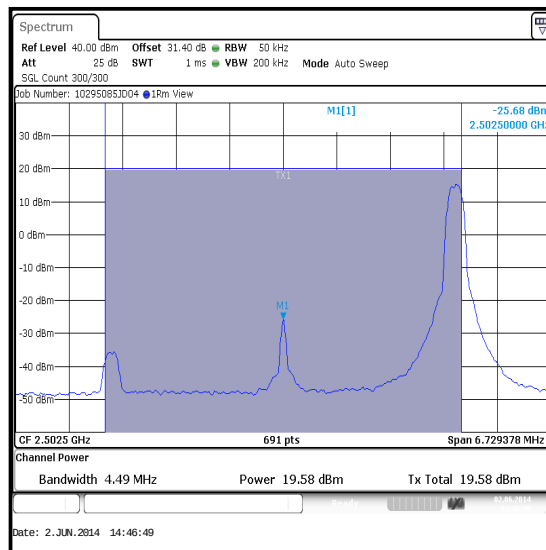
**Transmitter Output Power (EIRP) (continued)****Results: 5 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2502.5          | 25                | 0                     | 18.1                     | -1.2               | 16.9       | 33.0             | 16.1        | Complied |
| 2502.5          | 12                | 6                     | 18.1                     | -1.2               | 16.9       | 33.0             | 16.1        | Complied |
| 2502.5          | 1                 | 0                     | 20.7                     | -1.2               | 19.5       | 33.0             | 13.5        | Complied |
| 2502.5          | 1                 | 24                    | 20.6                     | -1.2               | 19.4       | 33.0             | 13.6        | Complied |

**QPSK / 25 Resource Block (0 Offset)****QPSK / 12 Resource Block (6 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (24 Offset)**

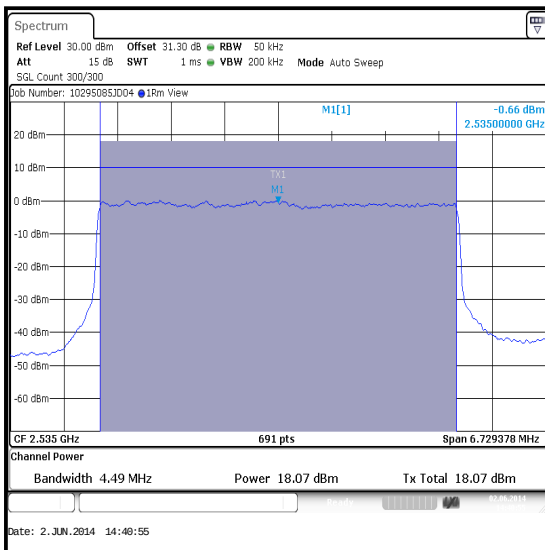
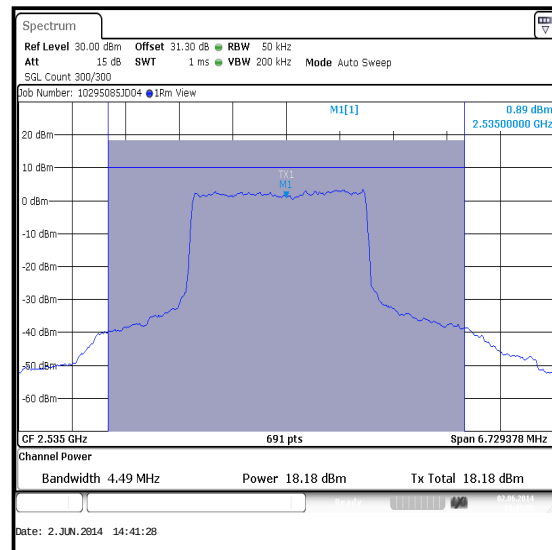
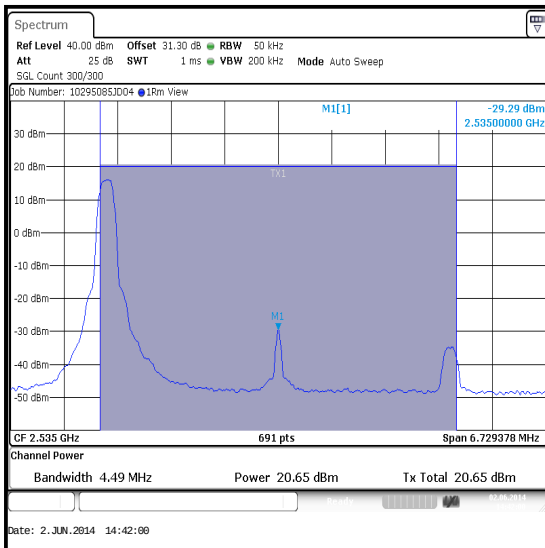
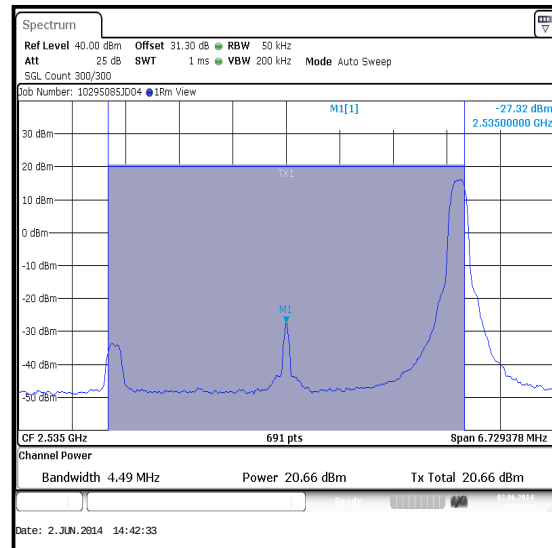
**Transmitter Output Power (EIRP) (continued)****Results: 5 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2502.5          | 25                | 0                     | 17.2                     | -1.2               | 16.0       | 33.0             | 17.0        | Complied |
| 2502.5          | 12                | 6                     | 17.1                     | -1.2               | 15.9       | 33.0             | 17.1        | Complied |
| 2502.5          | 1                 | 0                     | 19.5                     | -1.2               | 18.3       | 33.0             | 14.7        | Complied |
| 2502.5          | 1                 | 24                    | 19.6                     | -1.2               | 18.4       | 33.0             | 14.6        | Complied |

**16QAM / 25 Resource Block (0 Offset)****16QAM / 12 Resource Block (6 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (24 Offset)**

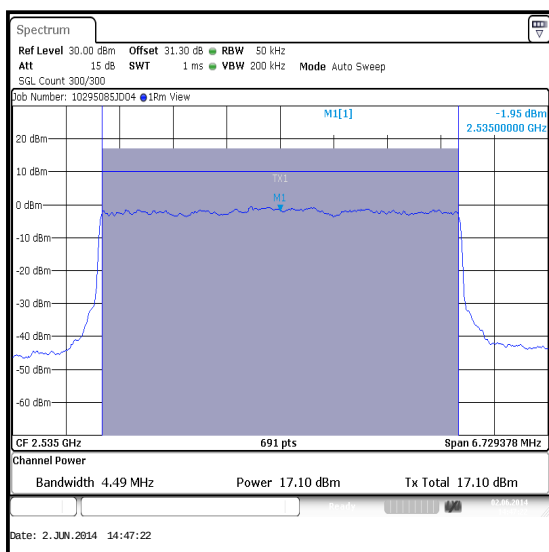
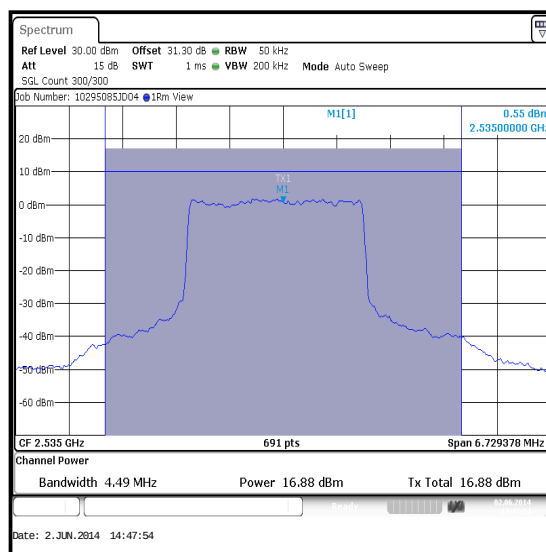
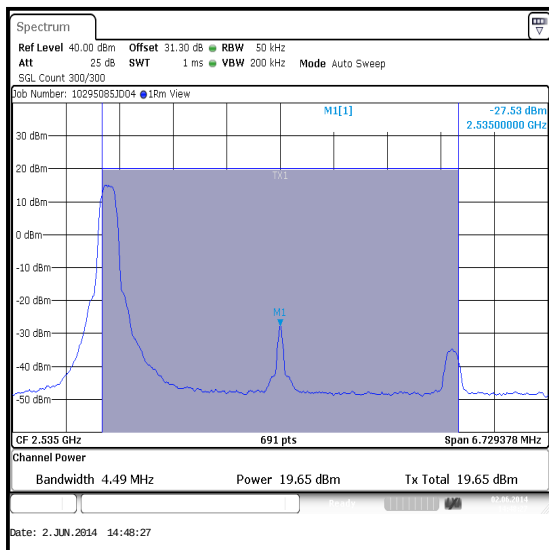
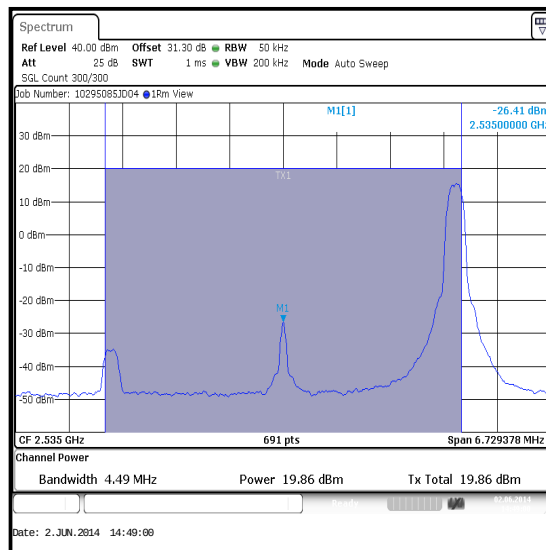
**Transmitter Output Power (EIRP) (continued)****Results: 5 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 25                | 0                     | 18.1                     | -1.2               | 16.9       | 33.0             | 16.1        | Complied |
| 2535.0          | 12                | 6                     | 18.2                     | -1.2               | 17.0       | 33.0             | 16.0        | Complied |
| 2535.0          | 1                 | 0                     | 20.7                     | -1.2               | 19.5       | 33.0             | 13.5        | Complied |
| 2535.0          | 1                 | 24                    | 20.7                     | -1.2               | 19.5       | 33.0             | 13.5        | Complied |

**QPSK / 25 Resource Block (0 Offset)****QPSK / 12 Resource Block (6 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (24 Offset)**

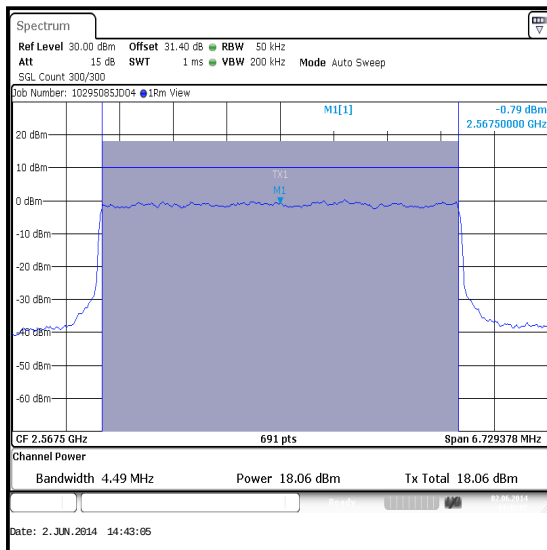
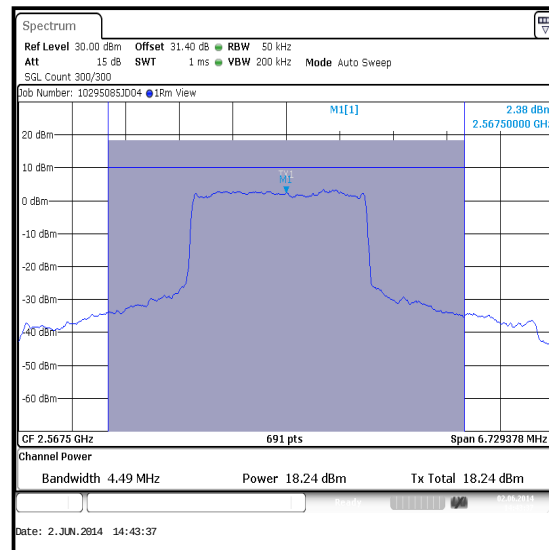
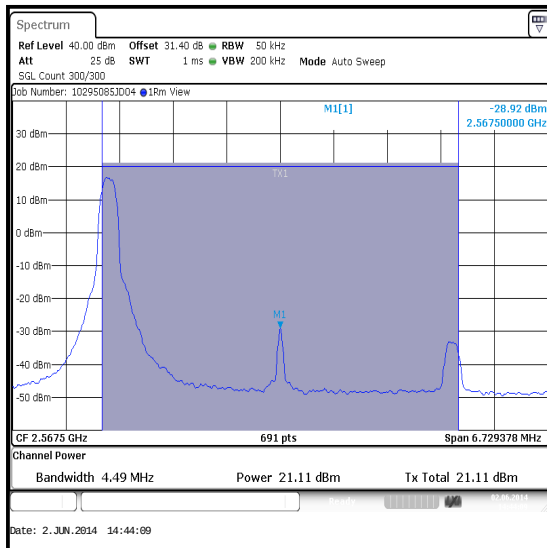
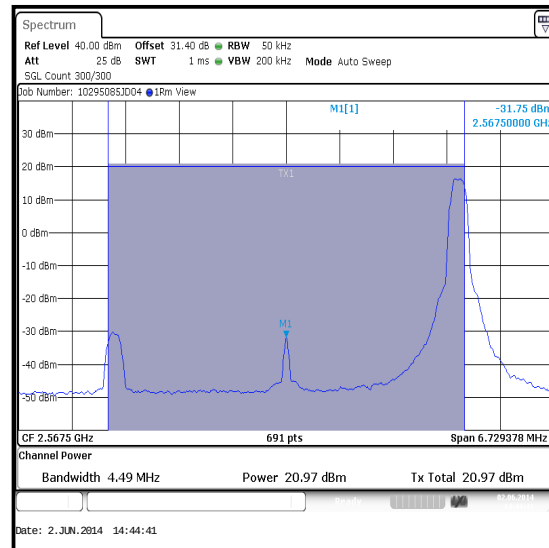
**Transmitter Output Power (EIRP) (continued)****Results: 5 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 25                | 0                     | 17.1                     | -1.2               | 15.9       | 33.0             | 17.1        | Complied |
| 2535.0          | 12                | 6                     | 16.9                     | -1.2               | 15.7       | 33.0             | 17.3        | Complied |
| 2535.0          | 1                 | 0                     | 19.7                     | -1.2               | 18.5       | 33.0             | 14.5        | Complied |
| 2535.0          | 1                 | 24                    | 19.9                     | -1.2               | 18.7       | 33.0             | 14.3        | Complied |

**16QAM / 25 Resource Block (0 Offset)****16QAM / 12 Resource Block (6 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (24 Offset)**

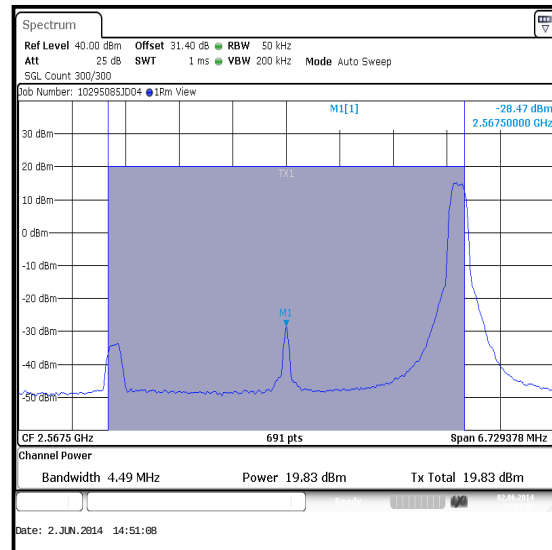
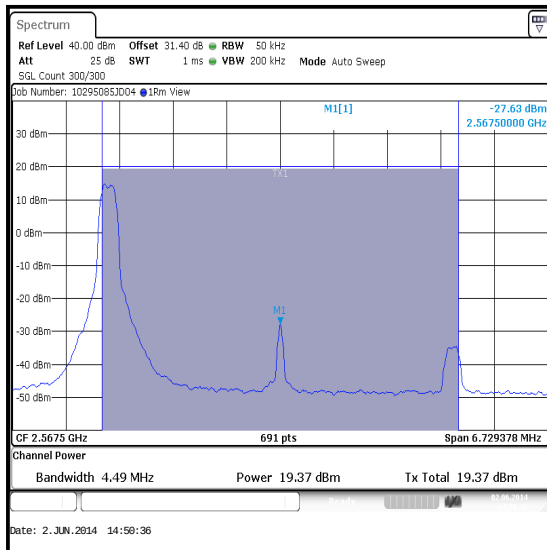
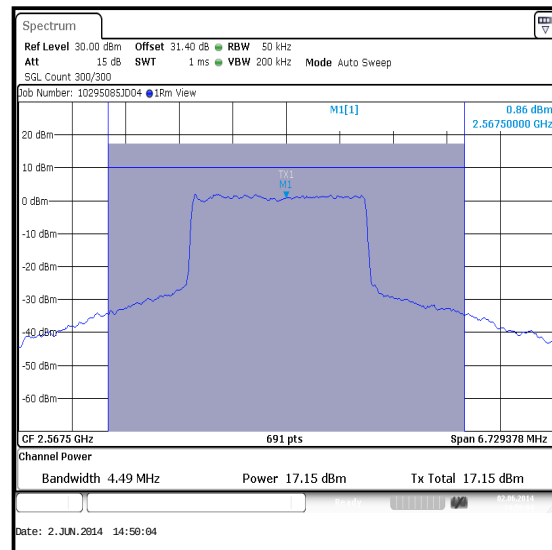
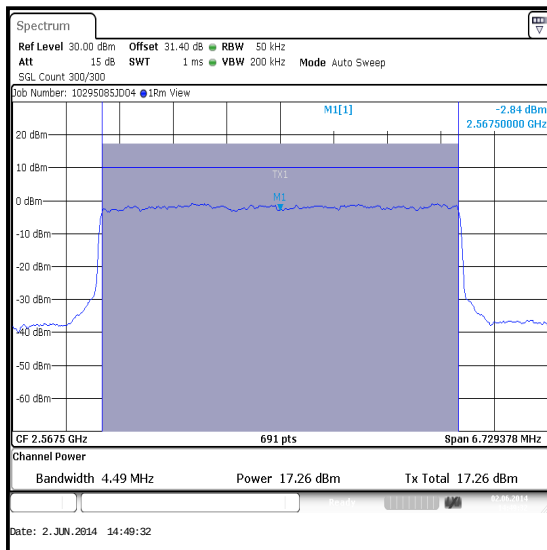
**Transmitter Output Power (EIRP) (continued)****Results: 5 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2567.5          | 25                | 0                     | 18.1                     | -1.2               | 16.9       | 33.0             | 16.1        | Complied |
| 2567.5          | 12                | 6                     | 18.2                     | -1.2               | 17.0       | 33.0             | 16.0        | Complied |
| 2567.5          | 1                 | 0                     | 21.1                     | -1.2               | 19.9       | 33.0             | 13.1        | Complied |
| 2567.5          | 1                 | 24                    | 21.0                     | -1.2               | 19.8       | 33.0             | 13.2        | Complied |

**QPSK / 25 Resource Block (0 Offset)****QPSK / 12 Resource Block (6 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (24 Offset)**

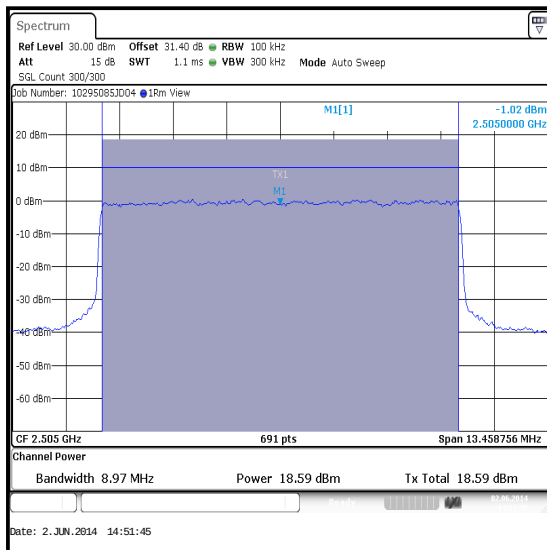
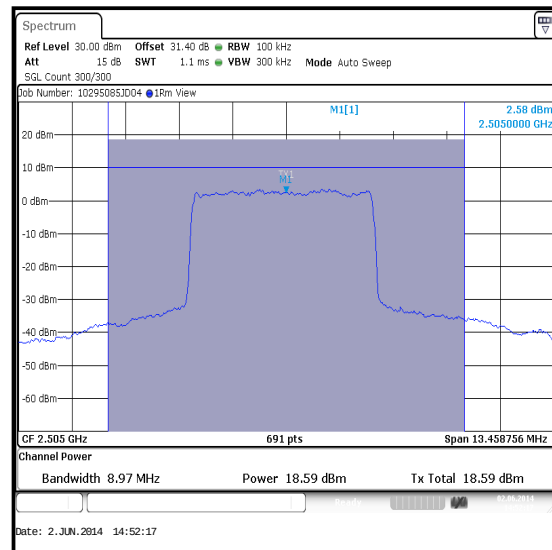
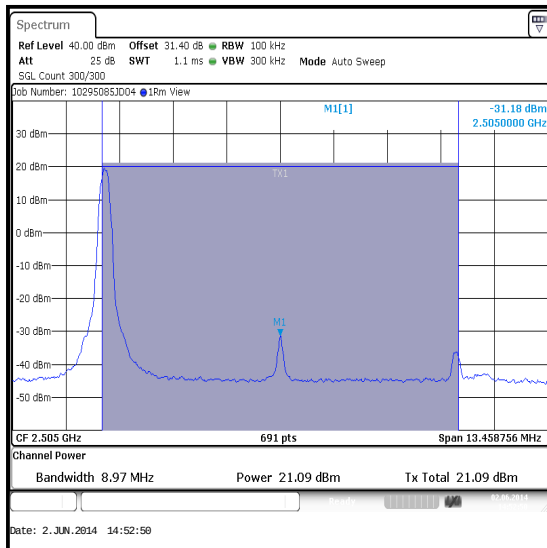
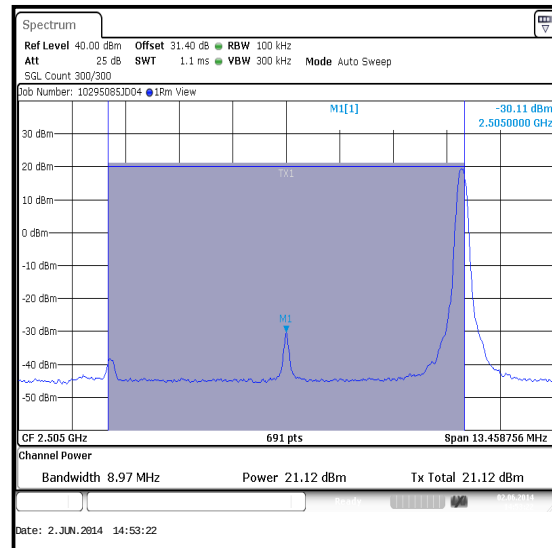
**Transmitter Output Power (EIRP) (continued)****Results: 5 MHz Channel Bandwidth / Top Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2567.5          | 25                | 0                     | 17.3                     | -1.2               | 16.1       | 33.0             | 16.9        | Complied |
| 2567.5          | 12                | 6                     | 17.2                     | -1.2               | 16.0       | 33.0             | 17.0        | Complied |
| 2567.5          | 1                 | 0                     | 19.4                     | -1.2               | 18.2       | 33.0             | 14.8        | Complied |
| 2567.5          | 1                 | 24                    | 19.8                     | -1.2               | 18.6       | 33.0             | 14.4        | Complied |



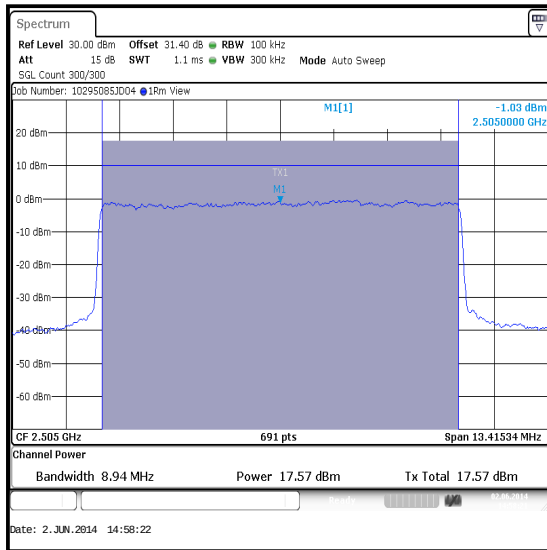
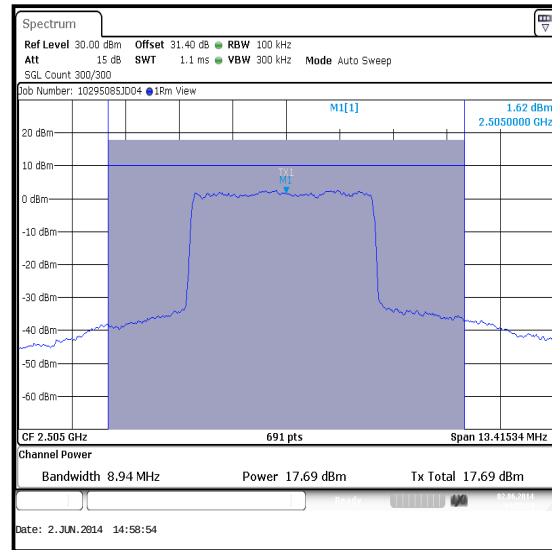
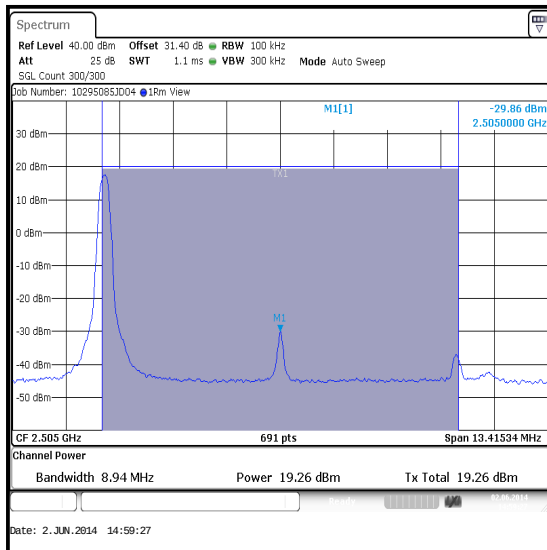
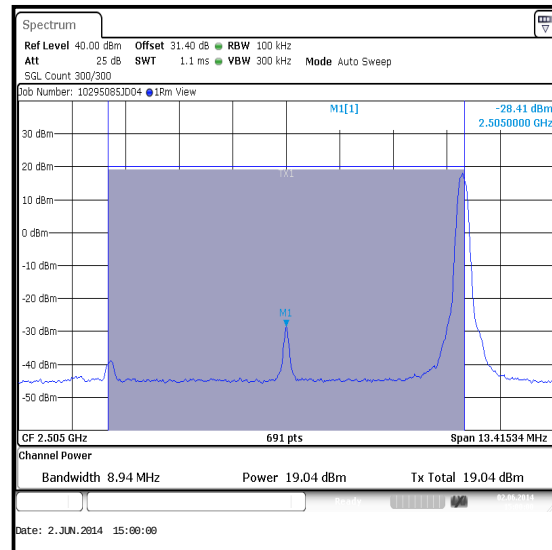
**Transmitter Output Power (EIRP) (continued)****Results: 10 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2505.0          | 50                | 0                     | 18.6                     | -1.2               | 17.4       | 33.0             | 15.6        | Complied |
| 2505.0          | 25                | 12                    | 18.6                     | -1.2               | 17.4       | 33.0             | 15.6        | Complied |
| 2505.0          | 1                 | 0                     | 21.1                     | -1.2               | 19.9       | 33.0             | 13.1        | Complied |
| 2505.0          | 1                 | 49                    | 21.1                     | -1.2               | 19.9       | 33.0             | 13.1        | Complied |

**QPSK / 50 Resource Block (0 Offset)****QPSK / 25 Resource Block (12 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (49 Offset)**

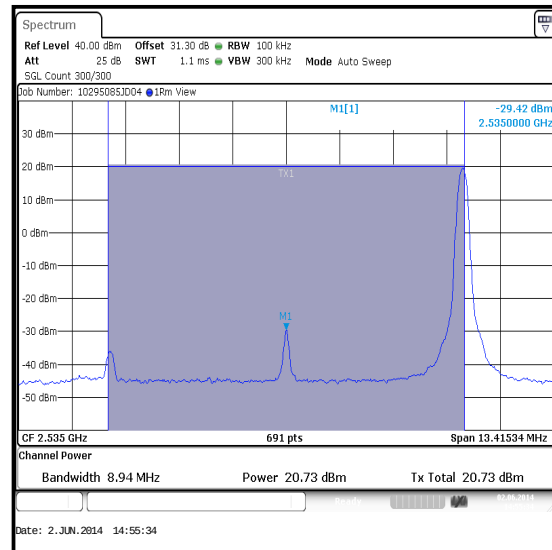
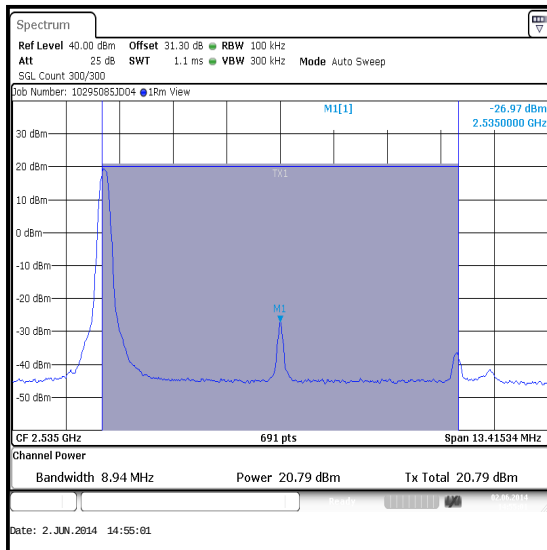
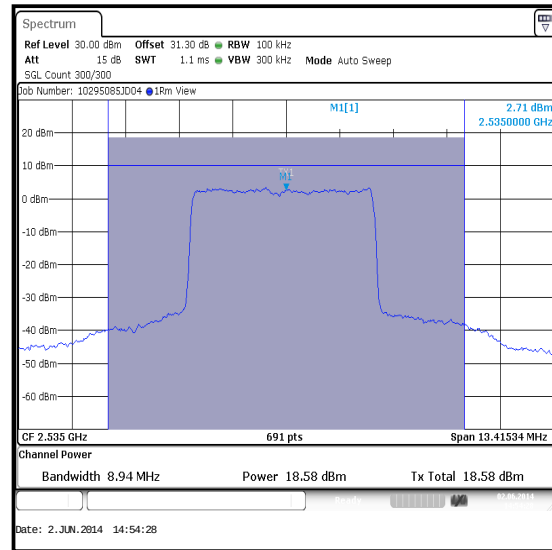
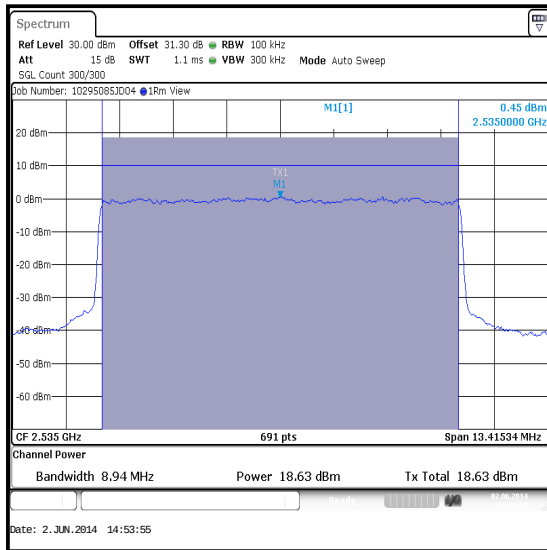
**Transmitter Output Power (EIRP) (continued)****Results: 10 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2505.0          | 50                | 0                     | 17.6                     | -1.2               | 16.4       | 33.0             | 16.6        | Complied |
| 2505.0          | 25                | 12                    | 17.7                     | -1.2               | 16.5       | 33.0             | 16.5        | Complied |
| 2505.0          | 1                 | 0                     | 19.3                     | -1.2               | 18.1       | 33.0             | 14.9        | Complied |
| 2505.0          | 1                 | 49                    | 19.0                     | -1.2               | 17.8       | 33.0             | 15.2        | Complied |

**16QAM / 50 Resource Block (0 Offset)****16QAM / 25 Resource Block (12 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (49 Offset)**

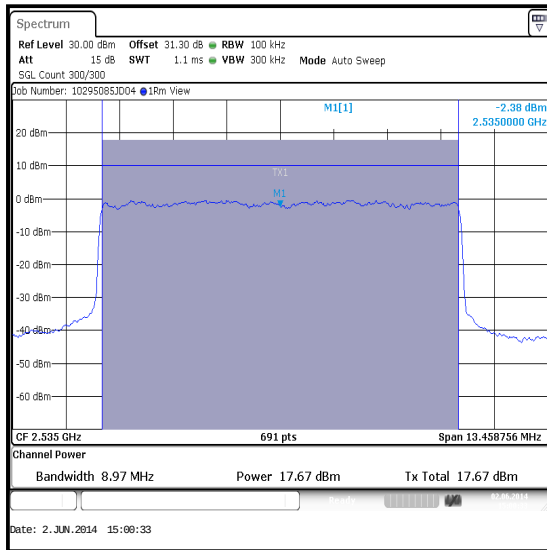
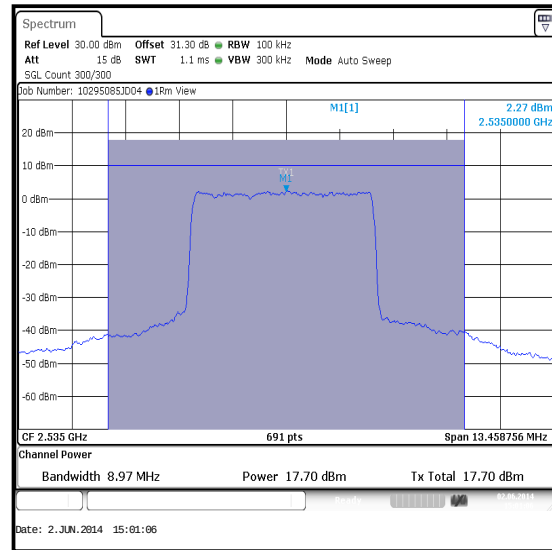
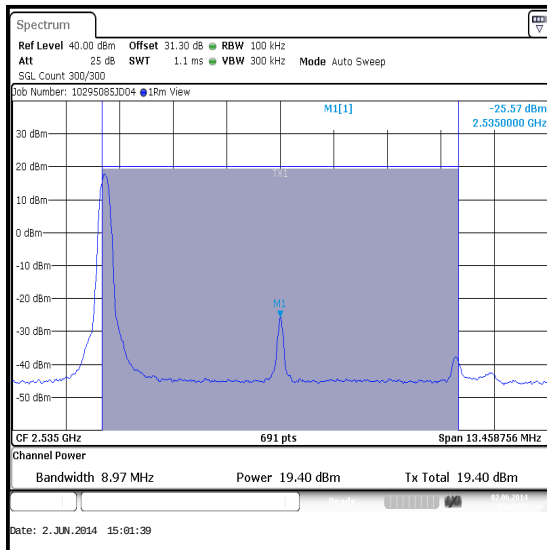
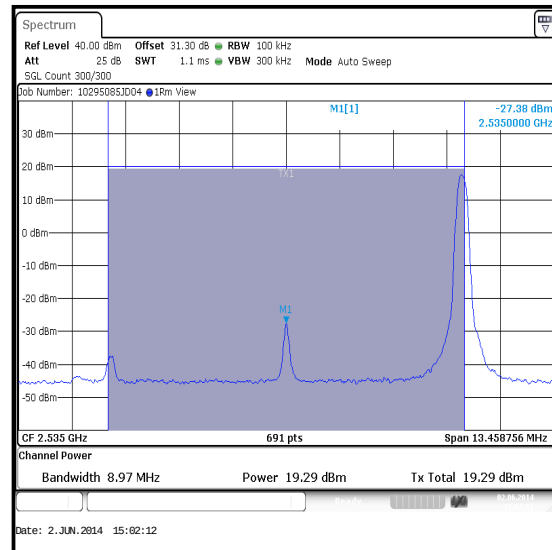
**Transmitter Output Power (EIRP) (continued)****Results: 10 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 50                | 0                     | 18.6                     | -1.2               | 17.4       | 33.0             | 15.6        | Complied |
| 2535.0          | 25                | 12                    | 18.6                     | -1.2               | 17.4       | 33.0             | 15.6        | Complied |
| 2535.0          | 1                 | 0                     | 20.8                     | -1.2               | 19.6       | 33.0             | 13.4        | Complied |
| 2535.0          | 1                 | 49                    | 20.7                     | -1.2               | 19.5       | 33.0             | 13.5        | Complied |



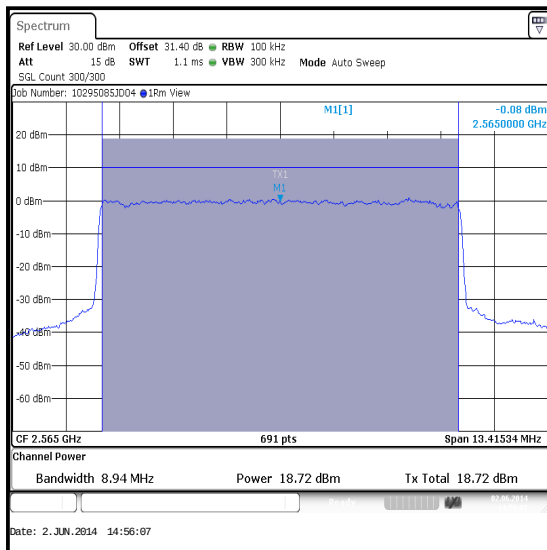
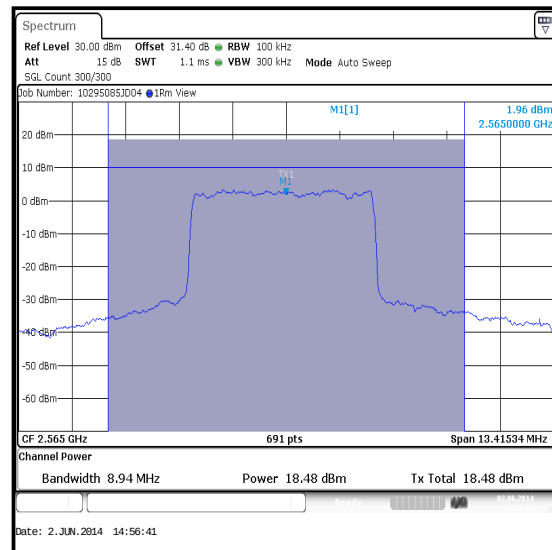
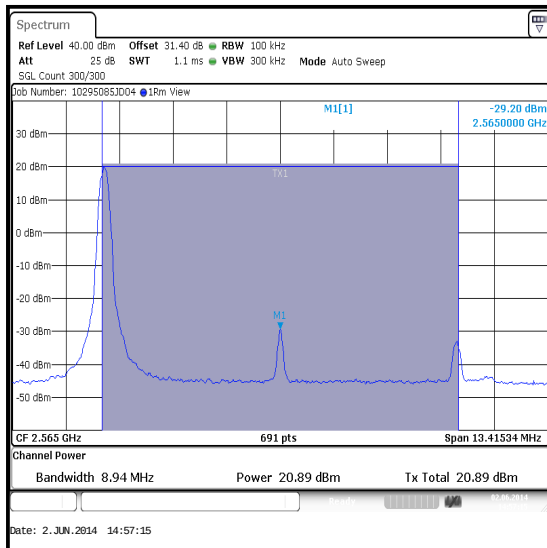
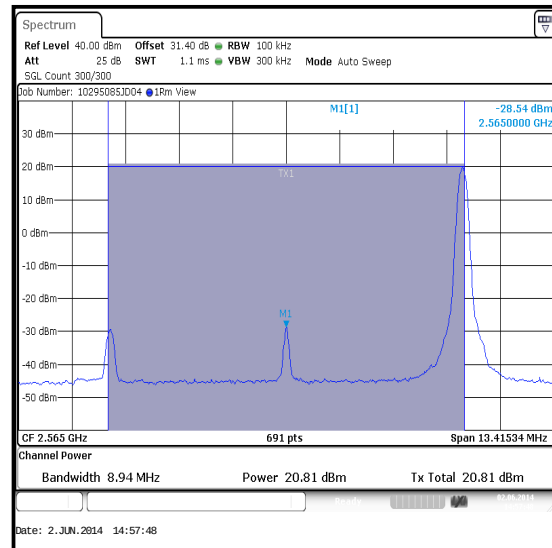
**Transmitter Output Power (EIRP) (continued)****Results: 10 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 50                | 0                     | 17.7                     | -1.2               | 16.5       | 33.0             | 16.5        | Complied |
| 2535.0          | 25                | 12                    | 17.7                     | -1.2               | 16.5       | 33.0             | 16.5        | Complied |
| 2535.0          | 1                 | 0                     | 19.4                     | -1.2               | 18.2       | 33.0             | 14.8        | Complied |
| 2535.0          | 1                 | 49                    | 19.3                     | -1.2               | 18.1       | 33.0             | 14.9        | Complied |

**16QAM / 50 Resource Block (0 Offset)****16QAM / 25 Resource Block (12 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (49 Offset)**

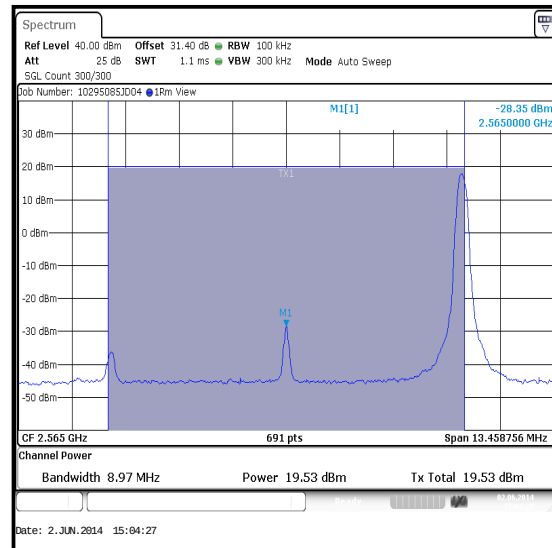
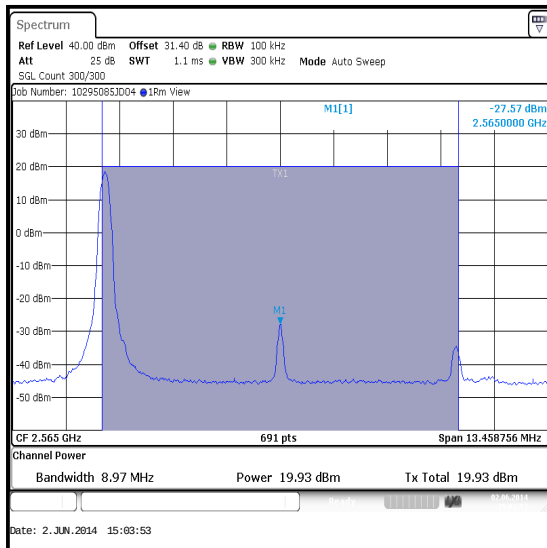
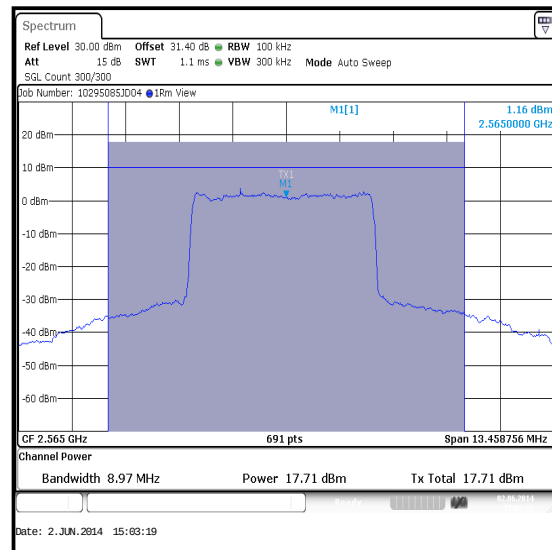
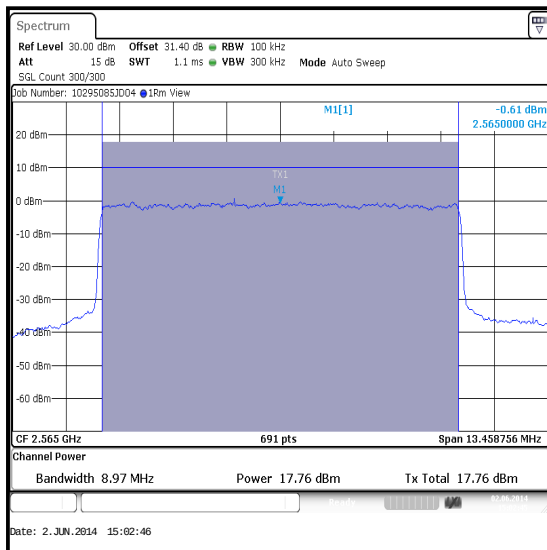
**Transmitter Output Power (EIRP) (continued)****Results: 10 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2565.0          | 50                | 0                     | 18.7                     | -1.2               | 17.5       | 33.0             | 15.5        | Complied |
| 2565.0          | 25                | 12                    | 18.5                     | -1.2               | 17.3       | 33.0             | 15.7        | Complied |
| 2565.0          | 1                 | 0                     | 20.9                     | -1.2               | 19.7       | 33.0             | 13.3        | Complied |
| 2565.0          | 1                 | 49                    | 20.8                     | -1.2               | 19.6       | 33.0             | 13.4        | Complied |

**QPSK / 50 Resource Block (0 Offset)****QPSK / 25 Resource Block (12 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (49 Offset)**

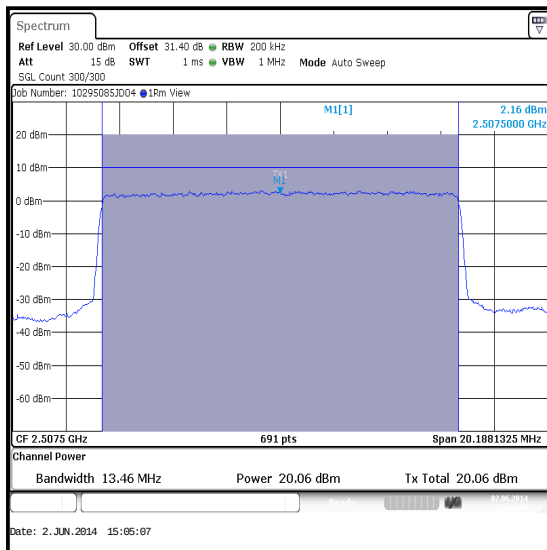
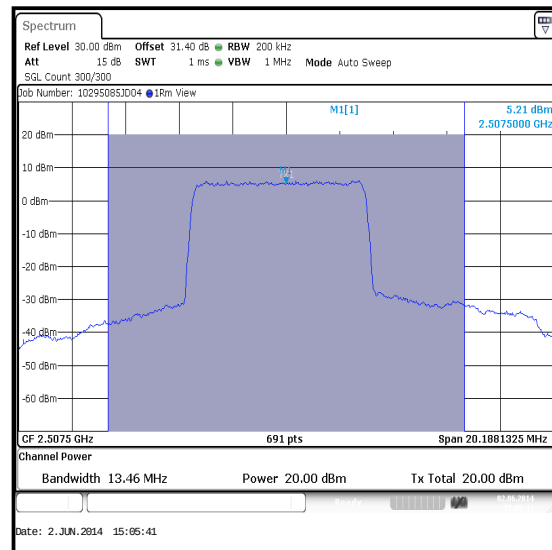
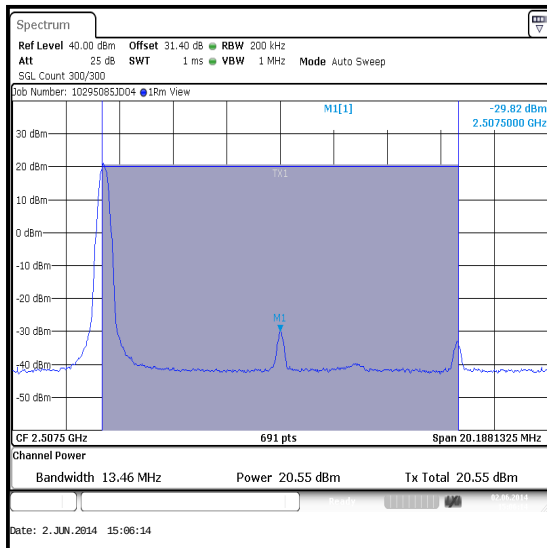
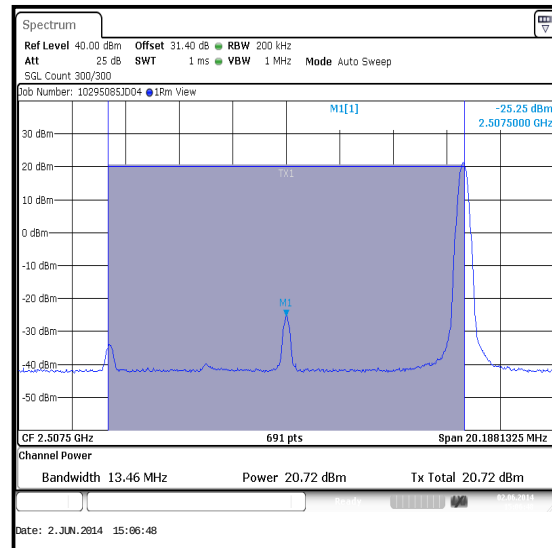
**Transmitter Output Power (EIRP) (continued)****Results: 10 MHz Channel Bandwidth / Top Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2565.0          | 50                | 0                     | 17.8                     | -1.2               | 16.6       | 33.0             | 16.4        | Complied |
| 2565.0          | 25                | 12                    | 17.7                     | -1.2               | 16.5       | 33.0             | 16.5        | Complied |
| 2565.0          | 1                 | 0                     | 19.9                     | -1.2               | 18.7       | 33.0             | 14.3        | Complied |
| 2565.0          | 1                 | 49                    | 19.5                     | -1.2               | 18.3       | 33.0             | 14.7        | Complied |



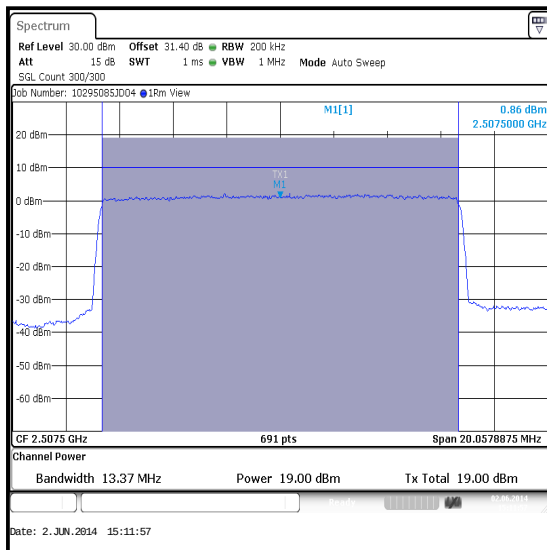
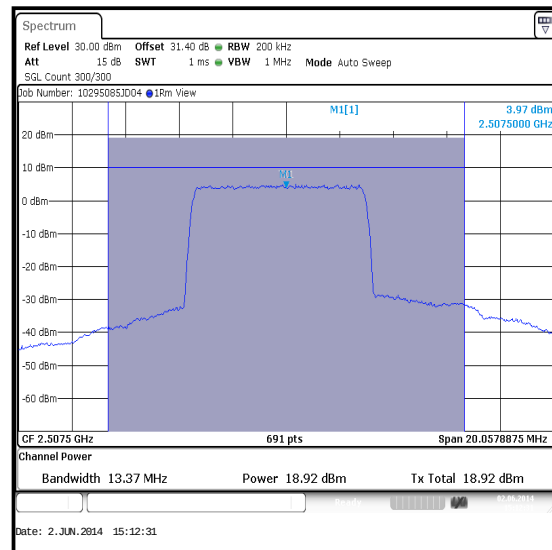
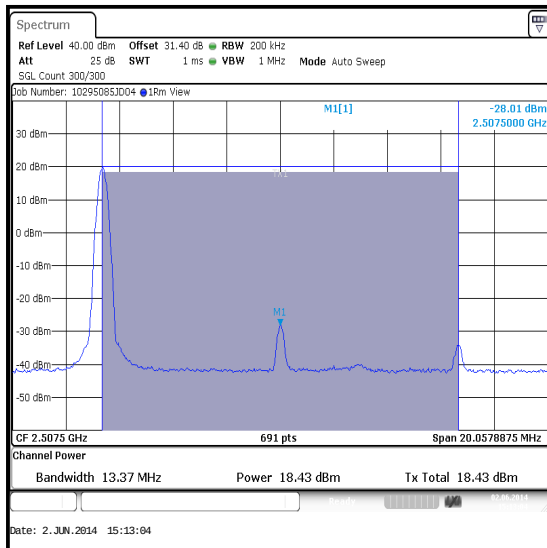
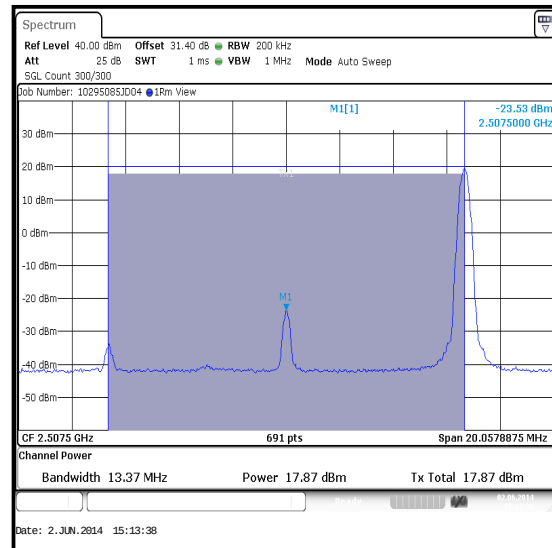
**Transmitter Output Power (EIRP) (continued)****Results: 15 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2507.5          | 75                | 0                     | 20.1                     | -1.2               | 18.9       | 33.0             | 14.1        | Complied |
| 2507.5          | 36                | 18                    | 20.0                     | -1.2               | 18.8       | 33.0             | 14.2        | Complied |
| 2507.5          | 1                 | 0                     | 20.6                     | -1.2               | 19.4       | 33.0             | 13.6        | Complied |
| 2507.5          | 1                 | 74                    | 20.7                     | -1.2               | 19.5       | 33.0             | 13.5        | Complied |

**QPSK / 75 Resource Block (0 Offset)****QPSK / 36 Resource Block (18 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (74 Offset)**

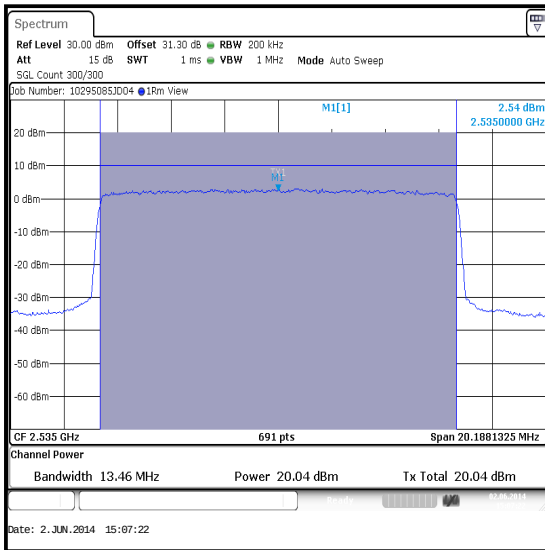
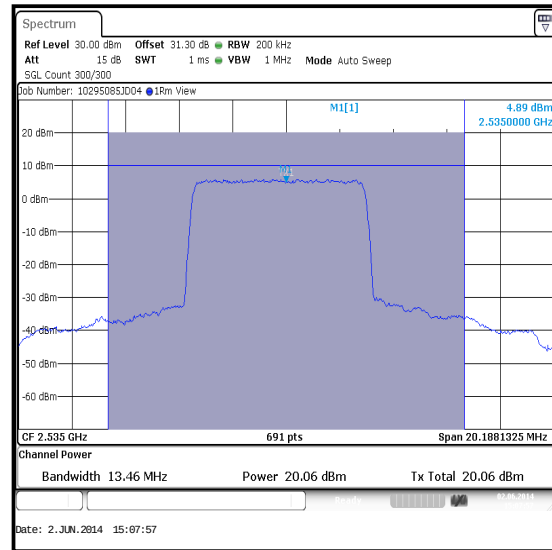
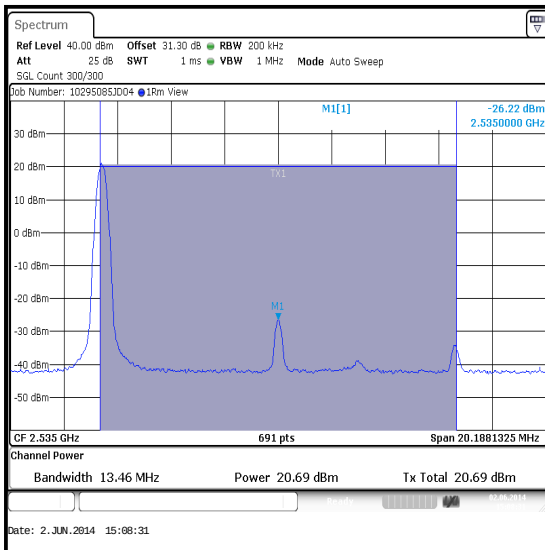
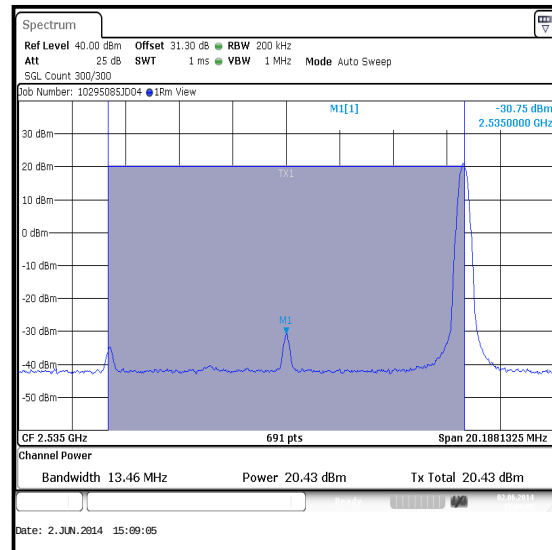
**Transmitter Output Power (EIRP) (continued)****Results: 15 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2507.5          | 75                | 0                     | 19.0                     | -1.2               | 17.8       | 33.0             | 15.2        | Complied |
| 2507.5          | 36                | 18                    | 18.9                     | -1.2               | 17.7       | 33.0             | 15.3        | Complied |
| 2507.5          | 1                 | 0                     | 18.4                     | -1.2               | 17.2       | 33.0             | 15.8        | Complied |
| 2507.5          | 1                 | 74                    | 17.9                     | -1.2               | 16.7       | 33.0             | 16.3        | Complied |

**16QAM / 75 Resource Block (0 Offset)****16QAM / 36 Resource Block (18 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (74 Offset)**

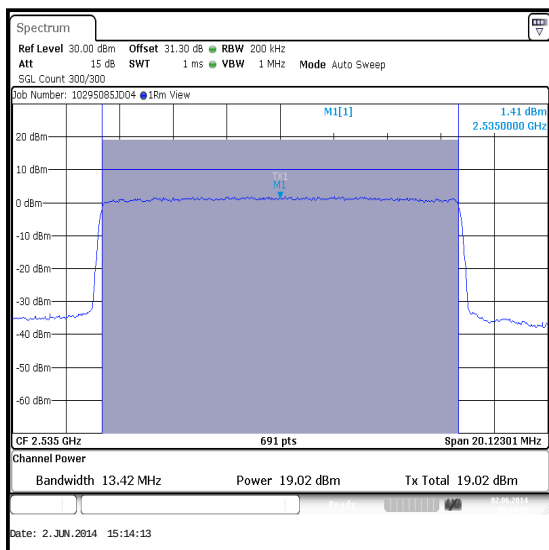
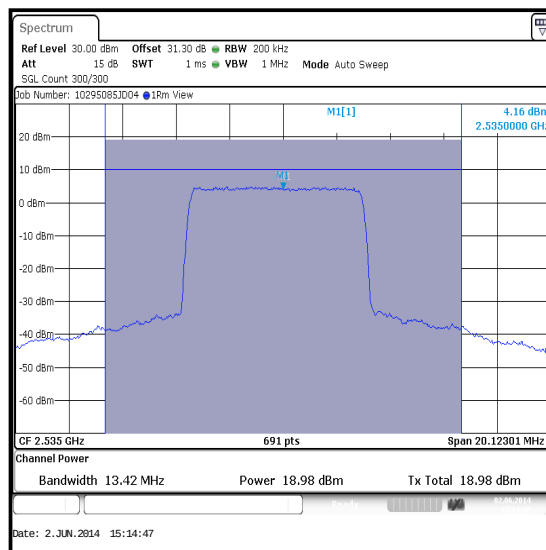
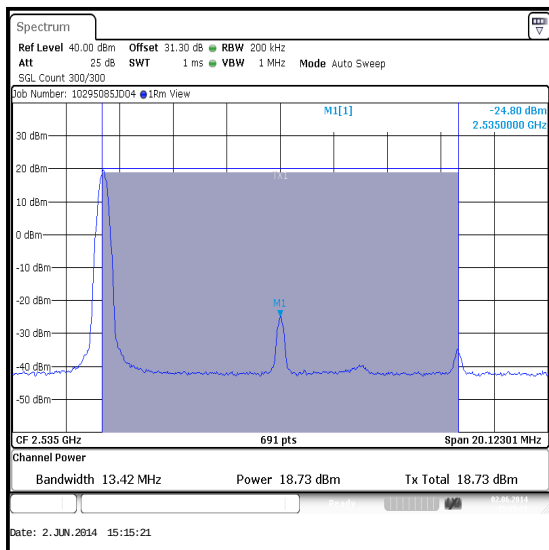
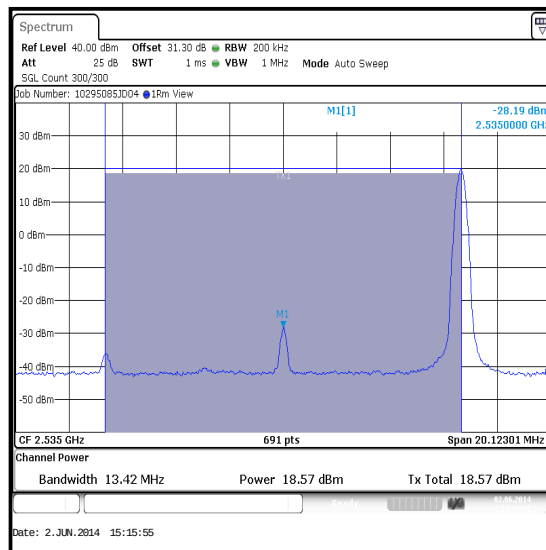
**Transmitter Output Power (EIRP) (continued)****Results: 15 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 75                | 0                     | 20.0                     | -1.2               | 18.8       | 33.0             | 14.2        | Complied |
| 2535.0          | 36                | 18                    | 20.1                     | -1.2               | 18.9       | 33.0             | 14.1        | Complied |
| 2535.0          | 1                 | 0                     | 20.7                     | -1.2               | 19.5       | 33.0             | 13.5        | Complied |
| 2535.0          | 1                 | 74                    | 20.4                     | -1.2               | 19.2       | 33.0             | 13.8        | Complied |

**QPSK / 75 Resource Block (0 Offset)****QPSK / 36 Resource Block (18 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (74 Offset)**

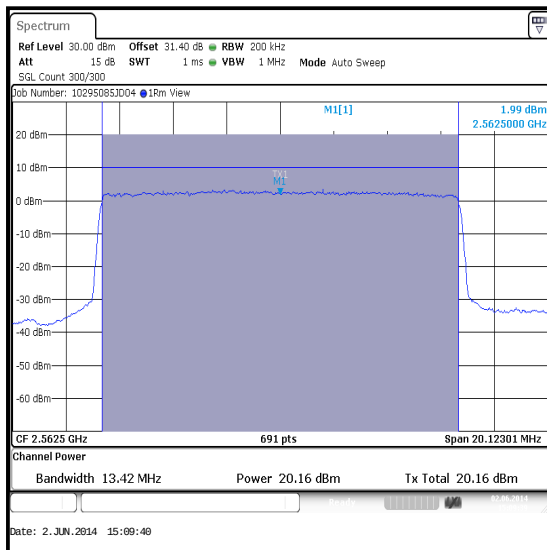
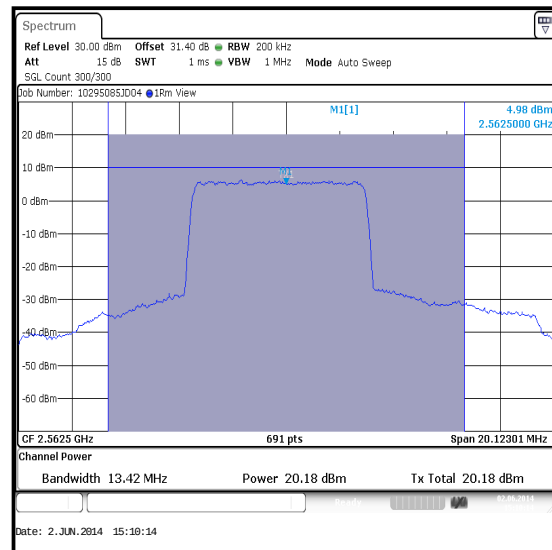
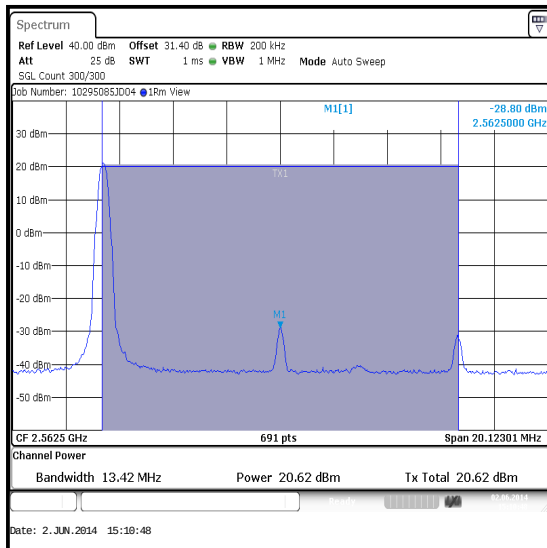
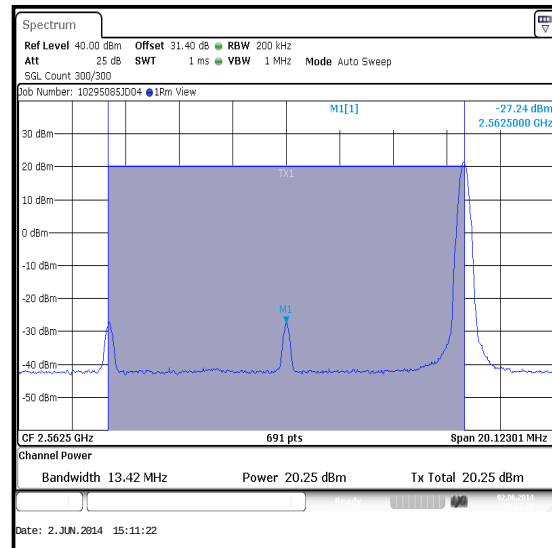
**Transmitter Output Power (EIRP) (continued)****Results: 15 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 75                | 0                     | 19.0                     | -1.2               | 17.8       | 33.0             | 15.2        | Complied |
| 2535.0          | 36                | 18                    | 19.0                     | -1.2               | 17.8       | 33.0             | 15.2        | Complied |
| 2535.0          | 1                 | 0                     | 18.7                     | -1.2               | 17.5       | 33.0             | 15.5        | Complied |
| 2535.0          | 1                 | 74                    | 18.6                     | -1.2               | 17.4       | 33.0             | 15.6        | Complied |

**16QAM / 75 Resource Block (0 Offset)****16QAM / 36 Resource Block (18 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (74 Offset)**

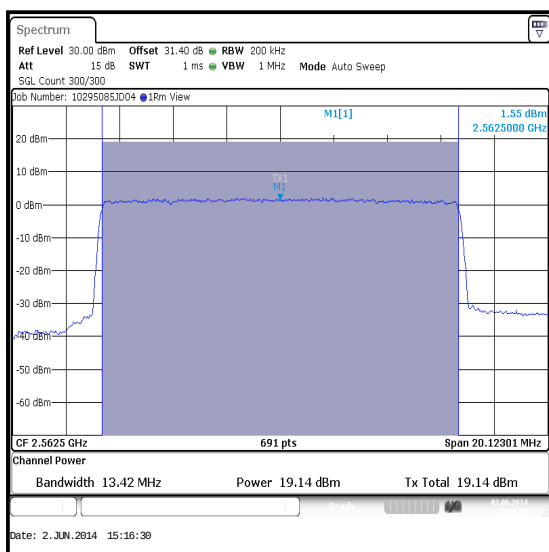
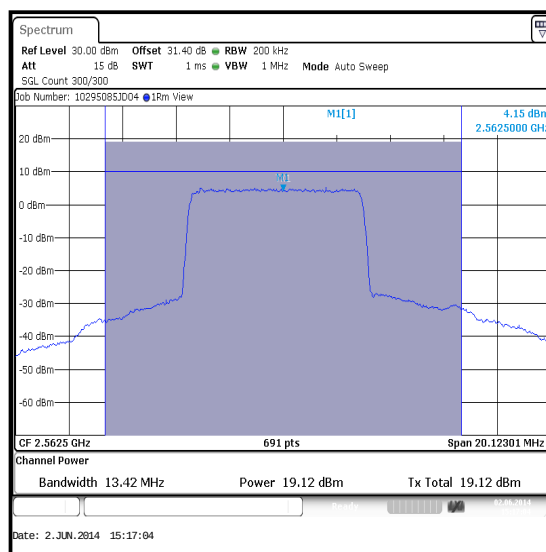
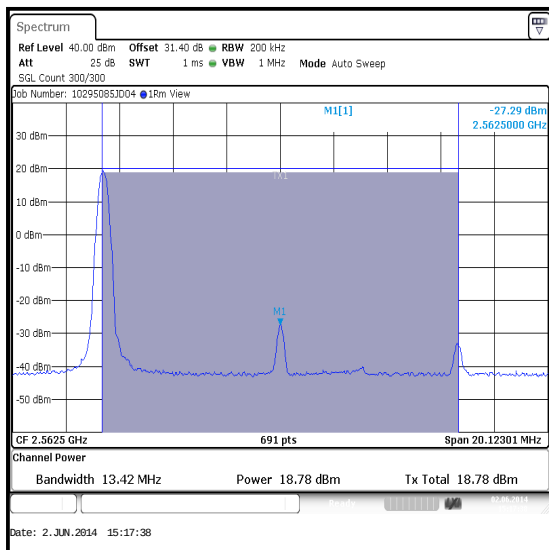
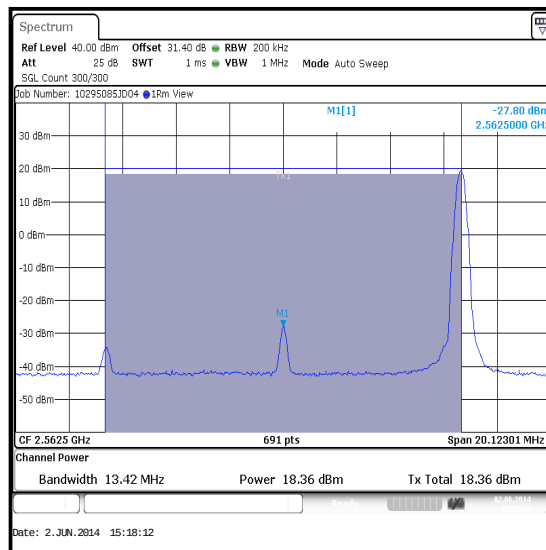
**Transmitter Output Power (EIRP) (continued)****Results: 15 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2562.5          | 75                | 0                     | 20.2                     | -1.2               | 19.0       | 33.0             | 14.0        | Complied |
| 2562.5          | 36                | 18                    | 20.2                     | -1.2               | 19.0       | 33.0             | 14.0        | Complied |
| 2562.5          | 1                 | 0                     | 20.6                     | -1.2               | 19.4       | 33.0             | 13.6        | Complied |
| 2562.5          | 1                 | 74                    | 20.3                     | -1.2               | 19.1       | 33.0             | 13.9        | Complied |

**QPSK / 75 Resource Block (0 Offset)****QPSK / 36 Resource Block (18 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (74 Offset)**

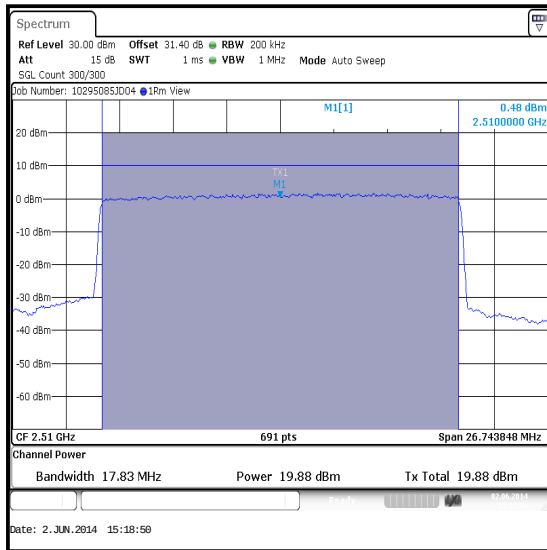
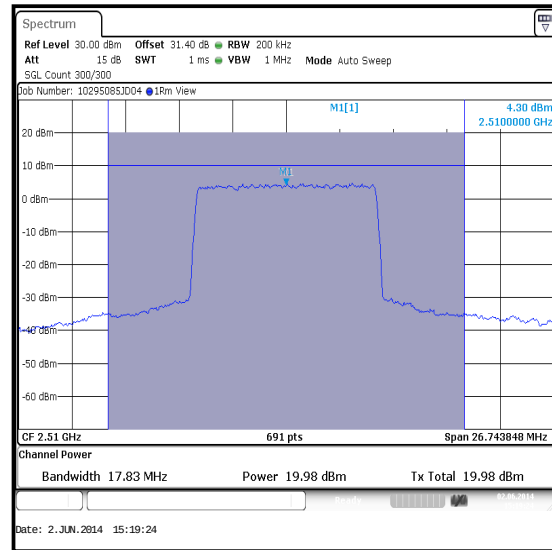
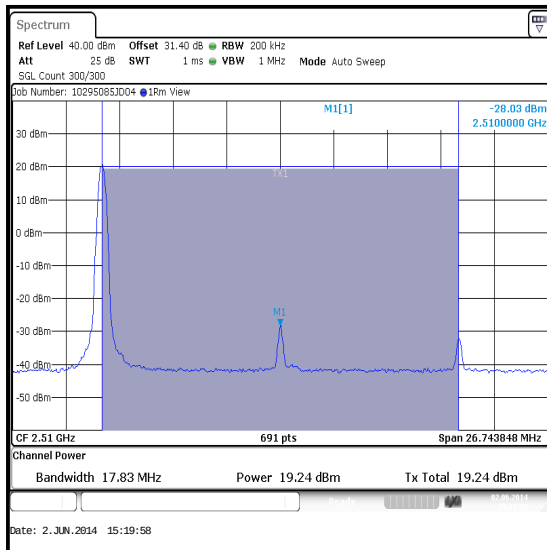
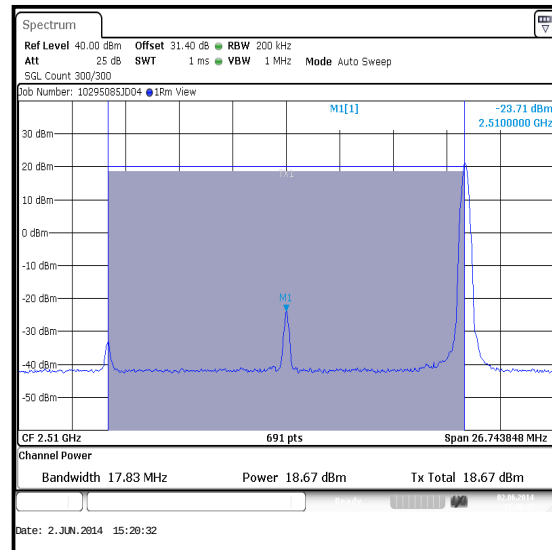
**Transmitter Output Power (EIRP) (continued)****Results: 15 MHz Channel Bandwidth / Top Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2562.5          | 75                | 0                     | 19.1                     | -1.2               | 17.9       | 33.0             | 15.1        | Complied |
| 2562.5          | 36                | 18                    | 19.1                     | -1.2               | 17.9       | 33.0             | 15.1        | Complied |
| 2562.5          | 1                 | 0                     | 18.8                     | -1.2               | 17.6       | 33.0             | 15.4        | Complied |
| 2562.5          | 1                 | 74                    | 18.4                     | -1.2               | 17.2       | 33.0             | 15.8        | Complied |

**16QAM / 75 Resource Block (0 Offset)****16QAM / 36 Resource Block (18 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (74 Offset)**

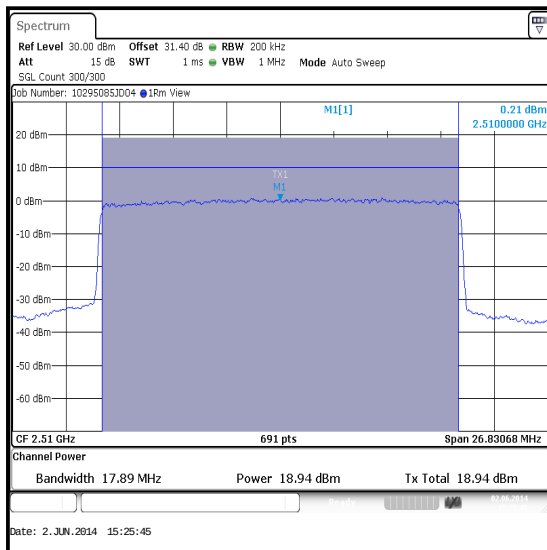
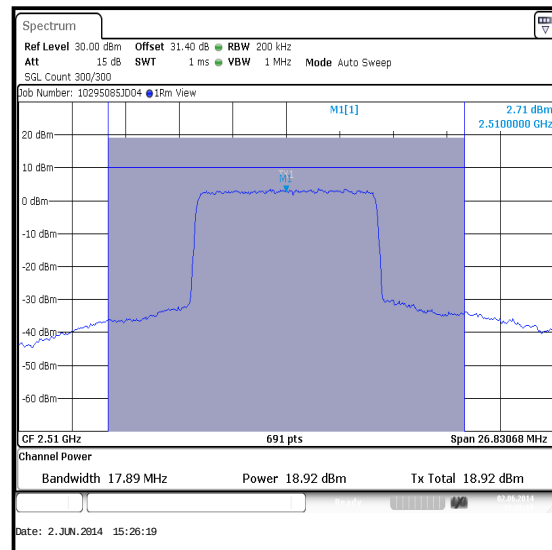
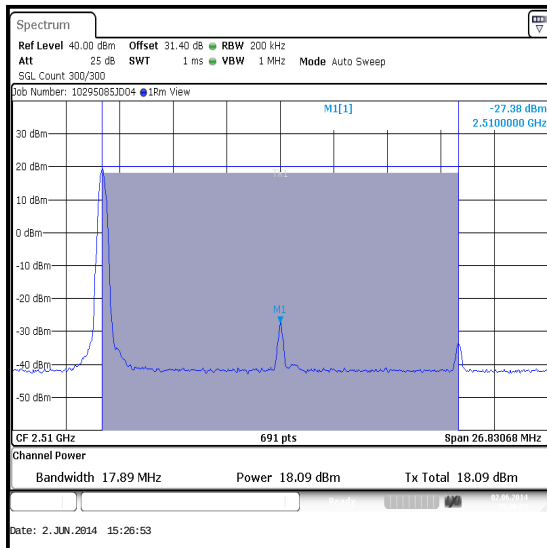
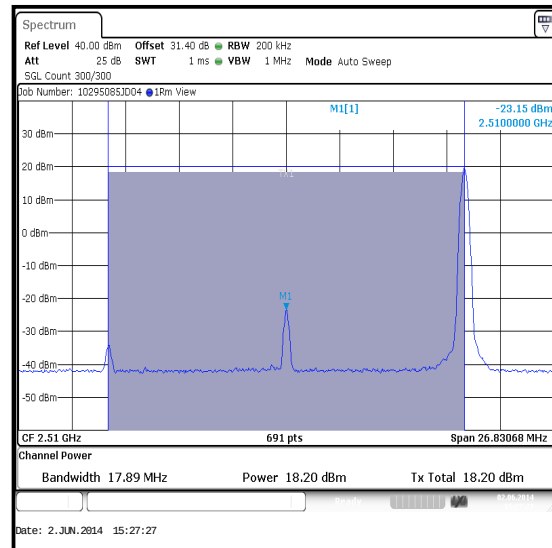
**Transmitter Output Power (EIRP) (continued)****Results: 20 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2510.0          | 100               | 0                     | 19.9                     | -1.2               | 18.7       | 33.0             | 14.3        | Complied |
| 2510.0          | 50                | 25                    | 20.0                     | -1.2               | 18.8       | 33.0             | 14.2        | Complied |
| 2510.0          | 1                 | 0                     | 19.2                     | -1.2               | 18.0       | 33.0             | 15.0        | Complied |
| 2510.0          | 1                 | 99                    | 18.7                     | -1.2               | 17.5       | 33.0             | 15.5        | Complied |

**QPSK / 100 Resource Block (0 Offset)****QPSK / 50 Resource Block (25 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (99 Offset)**

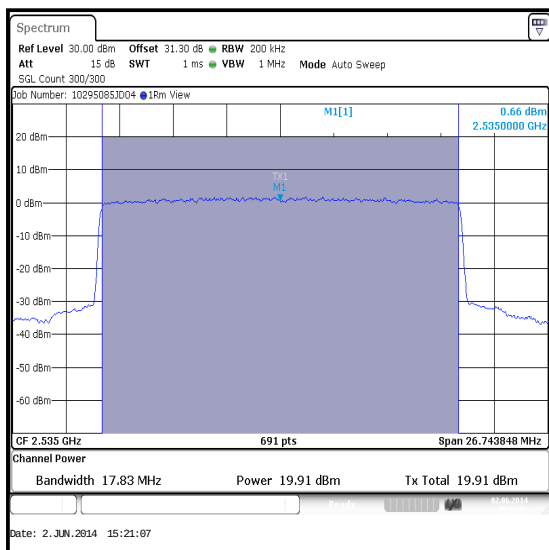
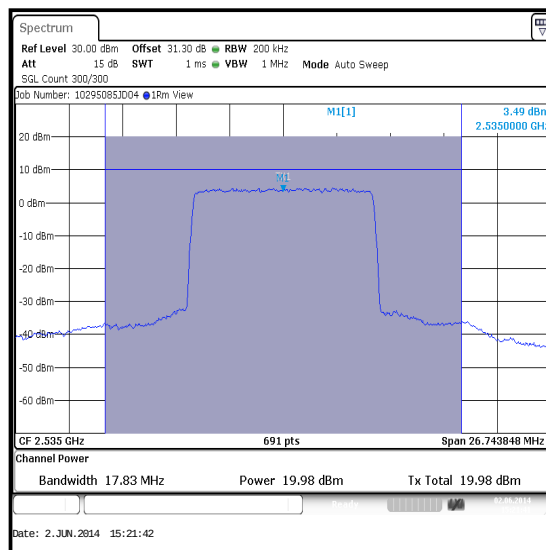
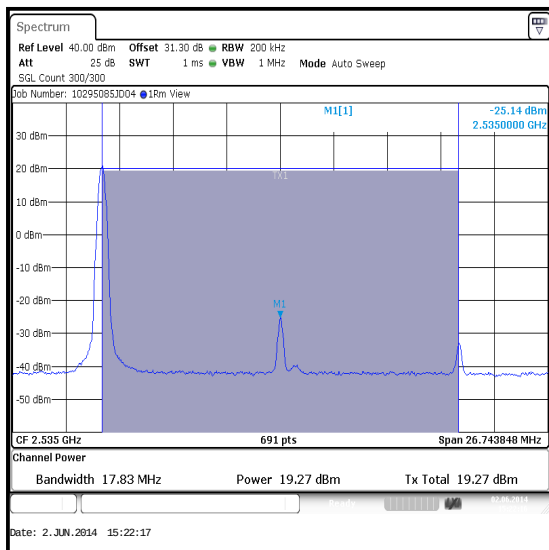
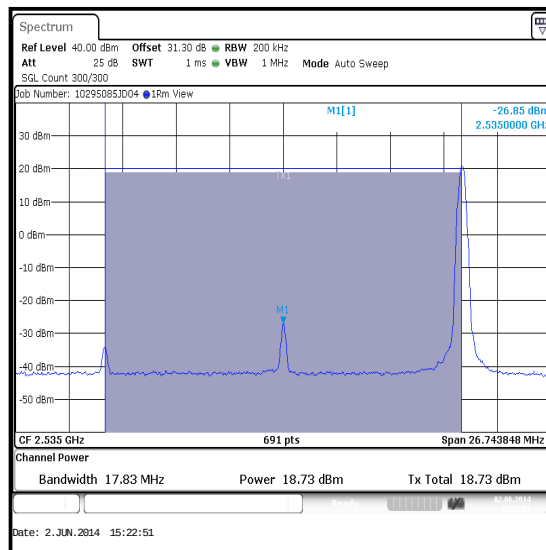
**Transmitter Output Power (EIRP) (continued)****Results: 20 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2510.0          | 100               | 0                     | 18.9                     | -1.2               | 17.7       | 33.0             | 15.3        | Complied |
| 2510.0          | 50                | 25                    | 18.9                     | -1.2               | 17.7       | 33.0             | 15.3        | Complied |
| 2510.0          | 1                 | 0                     | 18.1                     | -1.2               | 16.9       | 33.0             | 16.1        | Complied |
| 2510.0          | 1                 | 99                    | 18.2                     | -1.2               | 17.0       | 33.0             | 16.0        | Complied |

**16QAM / 100 Resource Block (0 Offset)****16QAM / 50 Resource Block (25 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (99 Offset)**

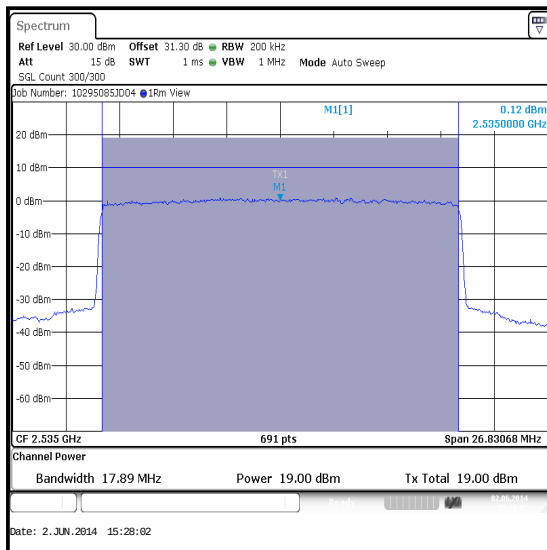
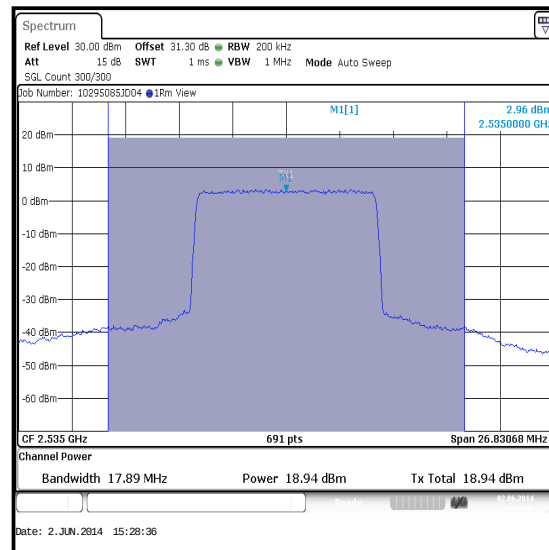
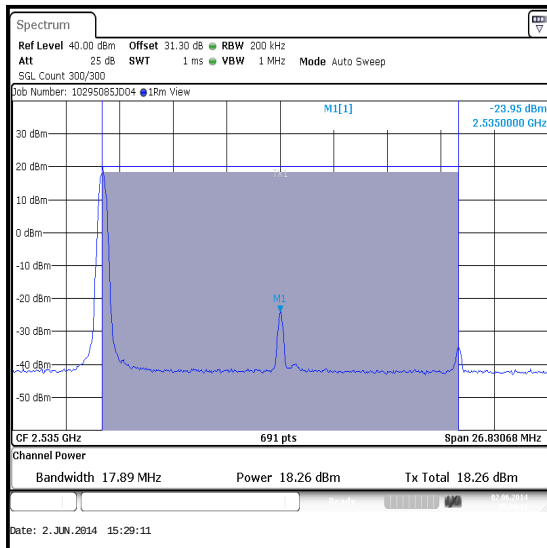
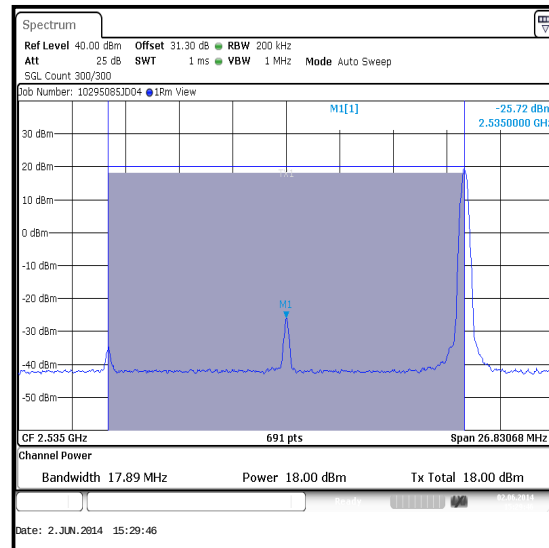
**Transmitter Output Power (EIRP) (continued)****Results: 20 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 100               | 0                     | 19.9                     | -1.2               | 18.7       | 33.0             | 14.3        | Complied |
| 2535.0          | 50                | 25                    | 20.0                     | -1.2               | 18.8       | 33.0             | 14.2        | Complied |
| 2535.0          | 1                 | 0                     | 19.3                     | -1.2               | 18.1       | 33.0             | 14.9        | Complied |
| 2535.0          | 1                 | 99                    | 18.7                     | -1.2               | 17.5       | 33.0             | 15.5        | Complied |

**QPSK / 100 Resource Block (0 Offset)****QPSK / 50 Resource Block (25 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (99 Offset)**

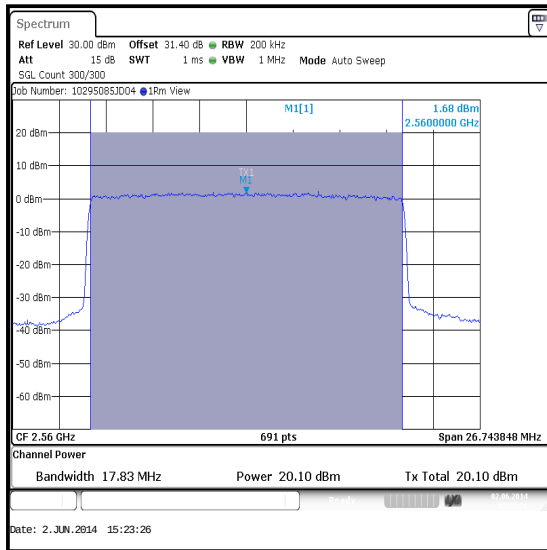
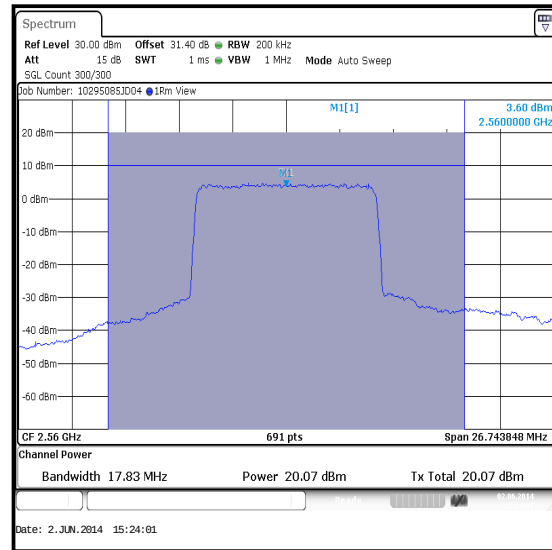
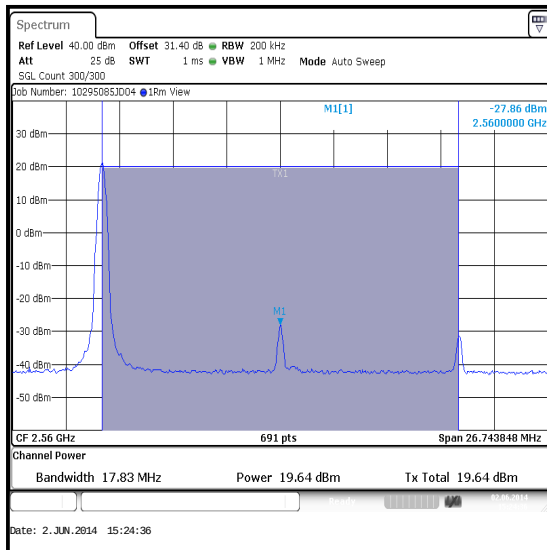
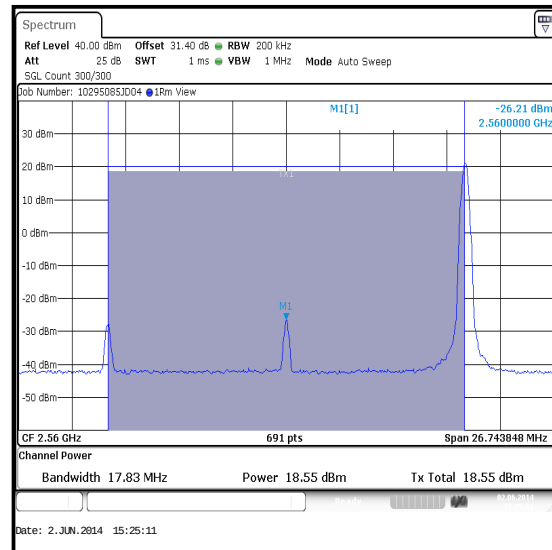
**Transmitter Output Power (EIRP) (continued)****Results: 20 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2535.0          | 100               | 0                     | 19.0                     | -1.2               | 17.8       | 33.0             | 15.2        | Complied |
| 2535.0          | 50                | 25                    | 18.9                     | -1.2               | 17.7       | 33.0             | 15.3        | Complied |
| 2535.0          | 1                 | 0                     | 18.3                     | -1.2               | 17.1       | 33.0             | 15.9        | Complied |
| 2535.0          | 1                 | 99                    | 18.0                     | -1.2               | 16.8       | 33.0             | 16.2        | Complied |

**16QAM / 100 Resource Block (0 Offset)****16QAM / 50 Resource Block (25 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (99 Offset)**

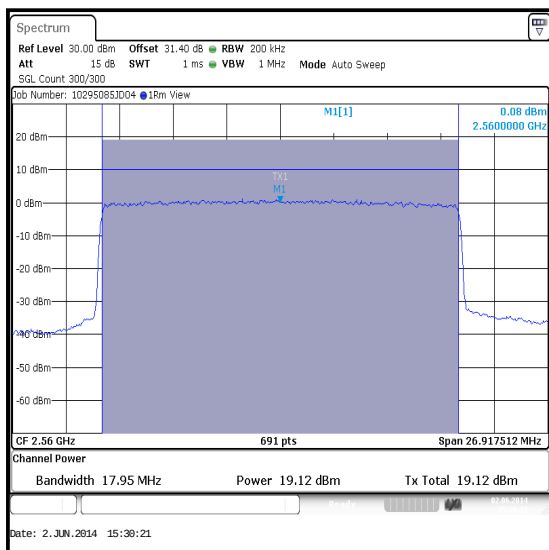
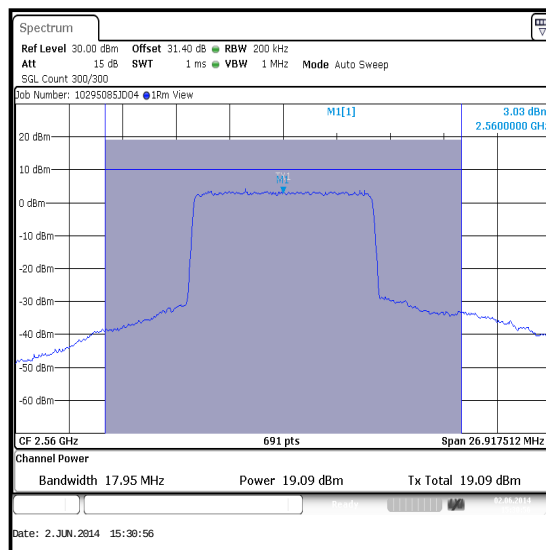
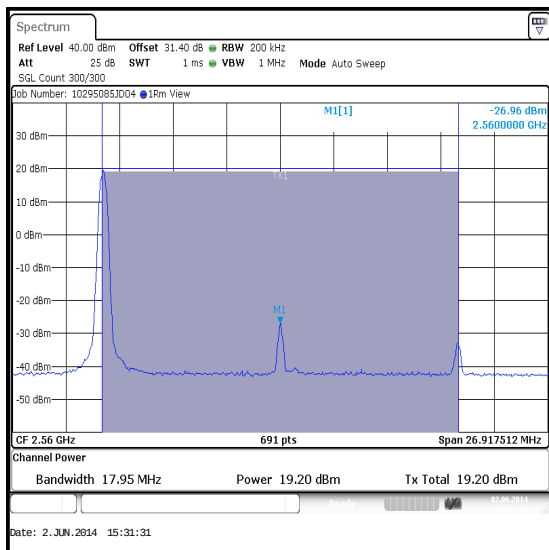
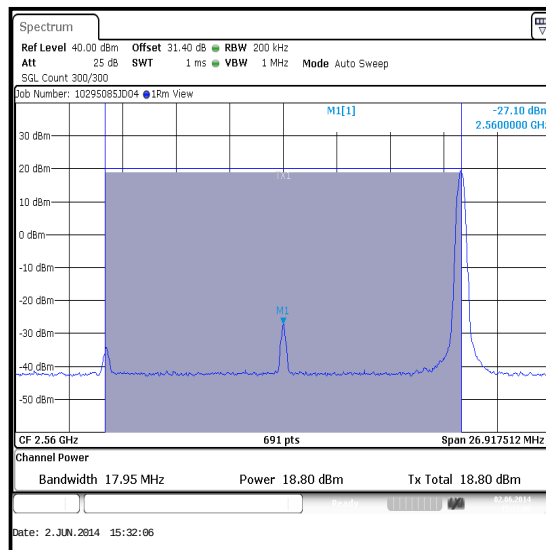
**Transmitter Output Power (EIRP) (continued)****Results: 20 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2560.0          | 100               | 0                     | 20.1                     | -1.2               | 18.9       | 33.0             | 14.1        | Complied |
| 2560.0          | 50                | 25                    | 20.1                     | -1.2               | 18.9       | 33.0             | 14.1        | Complied |
| 2560.0          | 1                 | 0                     | 19.6                     | -1.2               | 18.4       | 33.0             | 14.6        | Complied |
| 2560.0          | 1                 | 99                    | 18.6                     | -1.2               | 17.4       | 33.0             | 15.6        | Complied |

**QPSK / 100 Resource Block (0 Offset)****QPSK / 50 Resource Block (25 Offset)****QPSK / 1 Resource Block (0 Offset)****QPSK / 1 Resource Block (99 Offset)**

**Transmitter Output Power (EIRP) (continued)****Results: 20 MHz Channel Bandwidth / Top Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Conducted RF Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|--------------------------|--------------------|------------|------------------|-------------|----------|
| 2560.0          | 100               | 0                     | 19.1                     | -1.2               | 17.9       | 33.0             | 15.1        | Complied |
| 2560.0          | 50                | 25                    | 19.1                     | -1.2               | 17.9       | 33.0             | 15.1        | Complied |
| 2560.0          | 1                 | 0                     | 19.2                     | -1.2               | 18.0       | 33.0             | 15.0        | Complied |
| 2560.0          | 1                 | 99                    | 18.8                     | -1.2               | 17.6       | 33.0             | 15.4        | Complied |

**16QAM / 100 Resource Block (0 Offset)****16QAM / 50 Resource Block (25 Offset)****16QAM / 1 Resource Block (0 Offset)****16QAM / 1 Resource Block (99 Offset)**

**Transmitter Output Power (EIRP) (continued)****Test Equipment Used:**

| Asset No. | Instrument          | Manufacturer    | Type No.      | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|---------------------|-----------------|---------------|-------------|-----------------------|------------------------|
| M1659     | Thermohygrometer    | JM Handelspunkt | 30.5015.13    | None stated | 14 Mar 2015           | 12                     |
| L1127     | Signal Analyser     | Rohde & Schwarz | FSV13         | 100863      | 24 April 2015         | 12                     |
| A2536     | Directional Coupler | AtlanTecRF      | CDC-003060-20 | 14041701720 | Calibrated before use | -                      |
| A2506     | Attenuator          | AtlanTecRF      | AN18-10       | 821846#1    | Calibrated before use | -                      |
| S0557     | DC Power Supply     | Tti             | EL303R        | 395819      | Calibrated before use | -                      |
| M1251     | Digital Multimeter  | Fluke           | 175           | 8717019     | 19 May 2015           | 12                     |
| M1009     | Power Meter         | Hewlett Packard | 437B          | 3125U13706  | 04 Feb 2015           | 12                     |
| M1592     | Power Sensor        | Hewlett Packard | 8487A         | 3318A02094  | 28 Aug 2014           | 12                     |
| G0608     | Signal Generator    | Rohde & Schwarz | SMIQ 06B      | 838341/033  | 14 Feb 2015           | 12                     |

**5.2.2. Transmitter Occupied Bandwidth****Test Summary:**

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | Ben Mercer      | <b>Test Date:</b> | 02 June 2014 |
| <b>Test Sample IMEI:</b> | 004402452705654 |                   |              |

|                          |                                       |
|--------------------------|---------------------------------------|
| <b>FCC Reference:</b>    | Part 2.1049                           |
| <b>Test Method Used:</b> | As detailed in KDB 971168 Section 4.2 |

**Environmental Conditions:**

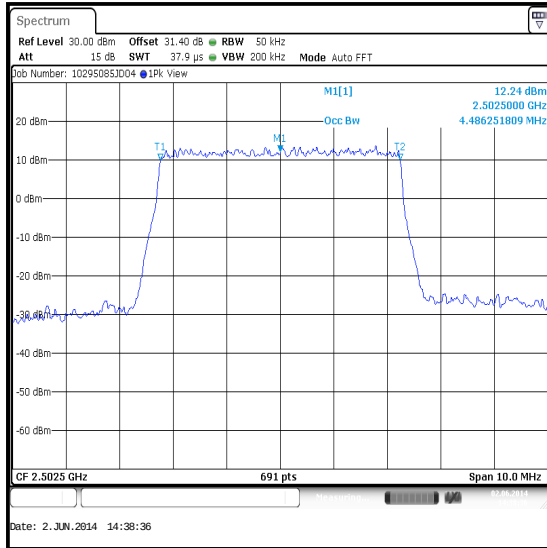
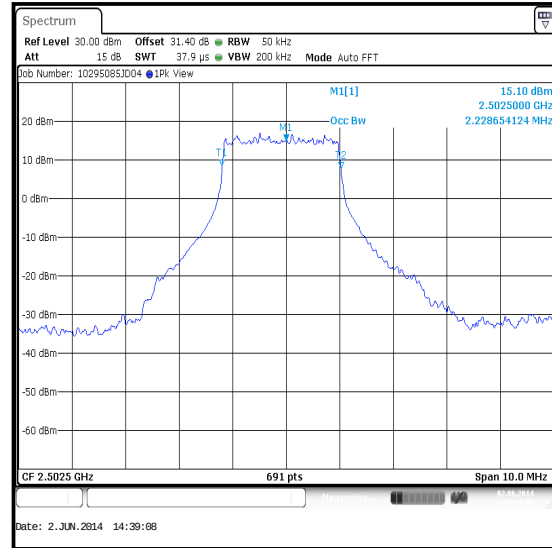
|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 24 to 27 |
| <b>Relative Humidity (%):</b> | 34 to 35 |

**Note(s):**

1. Occupied bandwidth (99% bandwidth) was measured using a test receiver occupied bandwidth function.
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. The RF port of the EUT was connected to the spectrum analyser via RF cables, directional coupler and suitable attenuation.

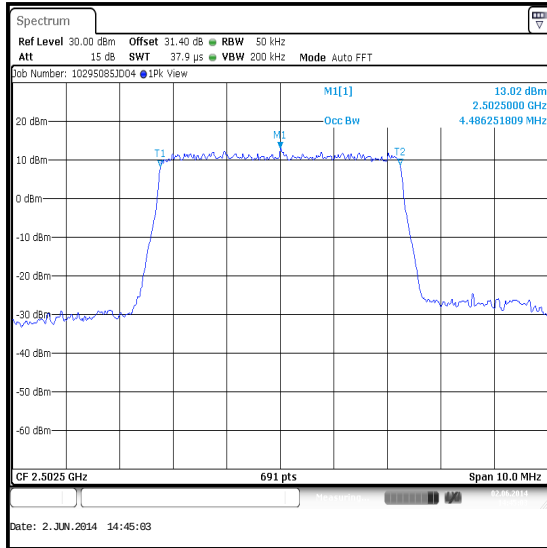
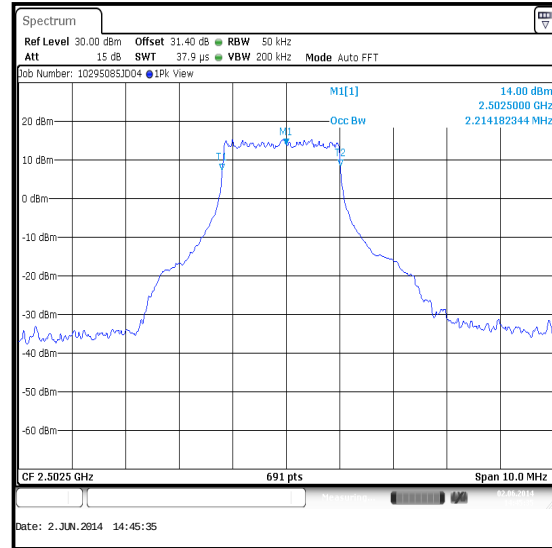
**Transmitter Occupied Bandwidth (continued)****Results: 5 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2502.5          | 25                | 0                     | 50                         | 200                   | 4.486                    |
| 2502.5          | 12                | 6                     | 50                         | 200                   | 2.229                    |

**QPSK / 25 Resource Block (0 Offset)****QPSK / 12 Resource Block (6 Offset)**

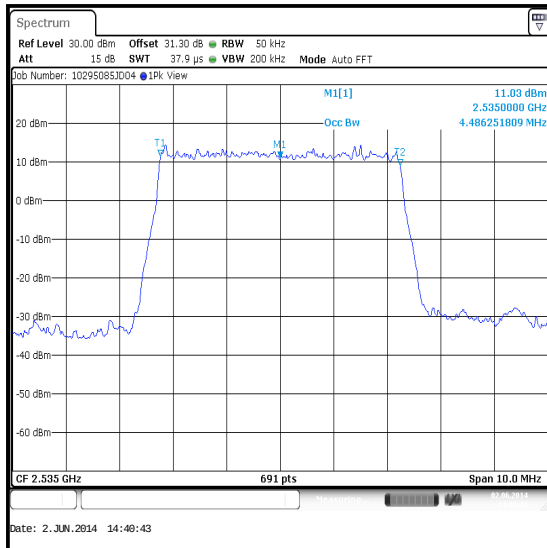
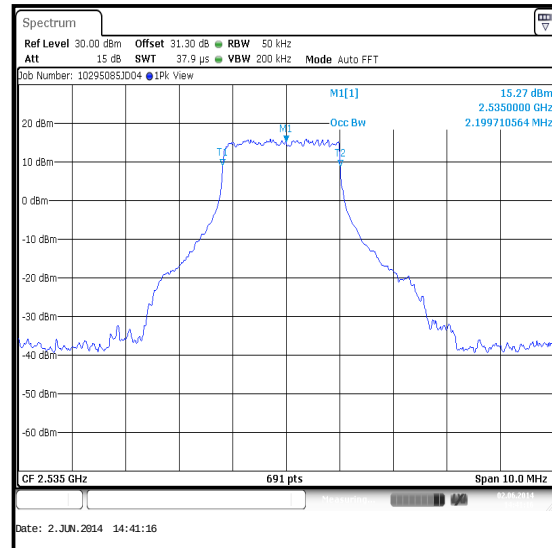
**Transmitter Occupied Bandwidth (continued)****Results: 5 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2502.5          | 25                | 0                     | 50                         | 200                   | 4.486                    |
| 2502.5          | 12                | 6                     | 50                         | 200                   | 2.214                    |

**16QAM / 25 Resource Block (0 Offset)****16QAM / 12 Resource Block (6 Offset)**

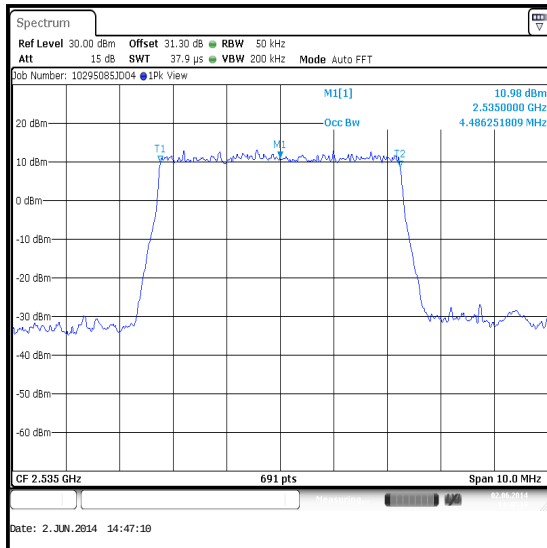
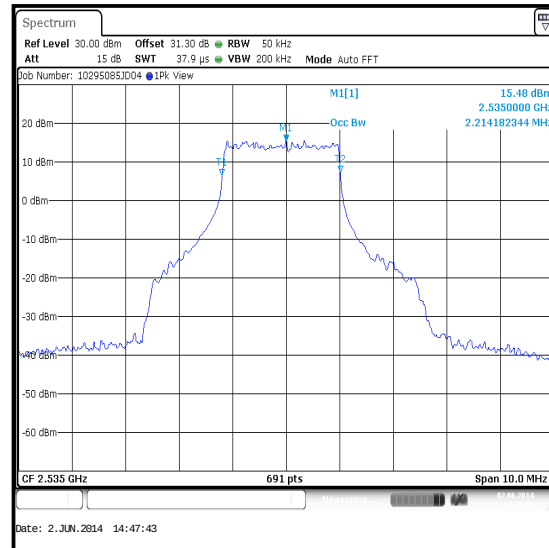
**Transmitter Occupied Bandwidth (continued)****Results: 5 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 25                | 0                     | 50                         | 200                   | 4.486                    |
| 2535.0          | 12                | 6                     | 50                         | 200                   | 2.200                    |

**QPSK / 25 Resource Block (0 Offset)****QPSK / 12 Resource Block (6 Offset)**

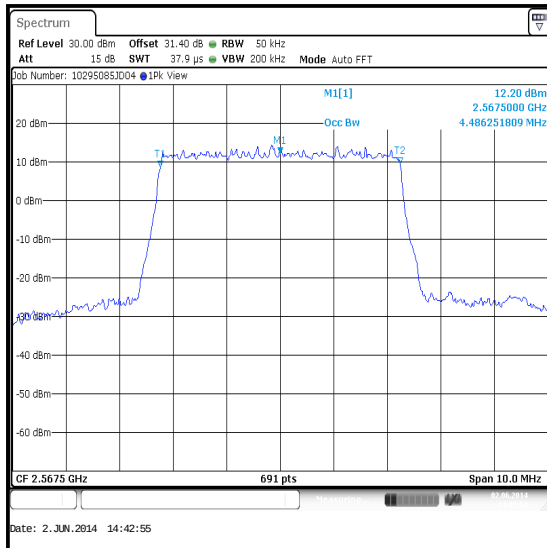
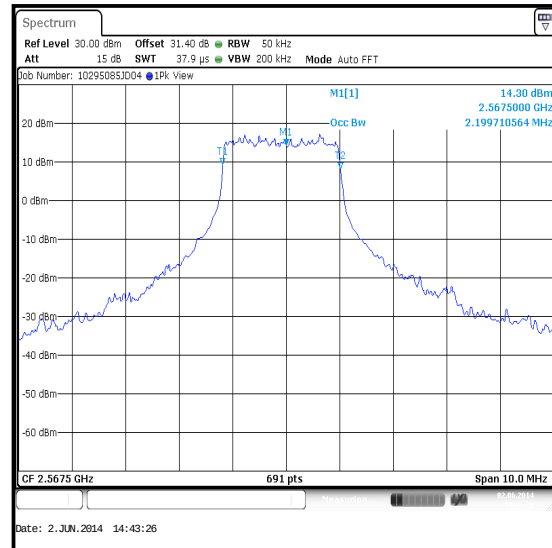
**Transmitter Occupied Bandwidth (continued)****Results: 5 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 25                | 0                     | 50                         | 200                   | 4.486                    |
| 2535.0          | 12                | 6                     | 50                         | 200                   | 2.214                    |

**16QAM / 25 Resource Block (0 Offset)****16QAM / 12 Resource Block (6 Offset)**

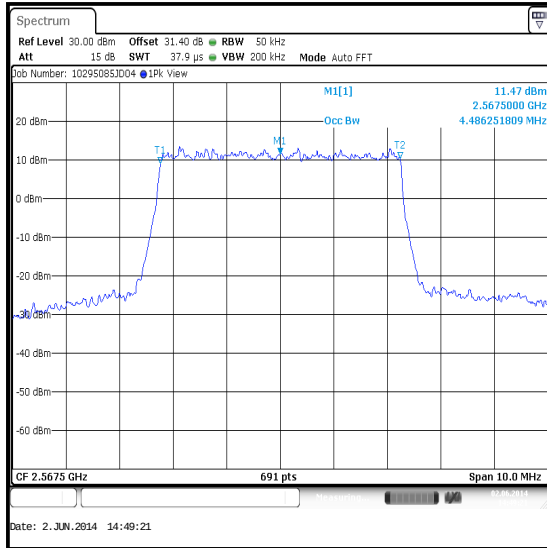
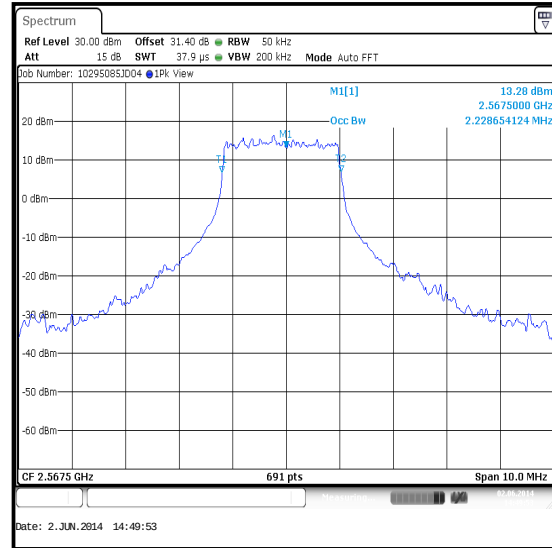
**Transmitter Occupied Bandwidth (continued)****Results: 5 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2567.5          | 25                | 0                     | 50                         | 200                   | 4.486                    |
| 2567.5          | 12                | 6                     | 50                         | 200                   | 2.200                    |

**QPSK / 25 Resource Block (0 Offset)****QPSK / 12 Resource Block (6 Offset)**

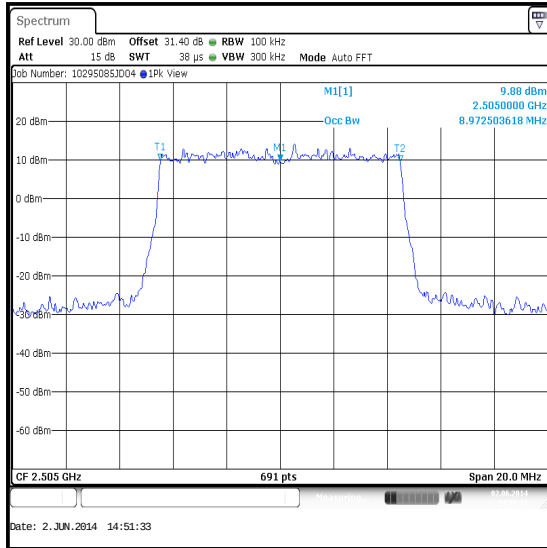
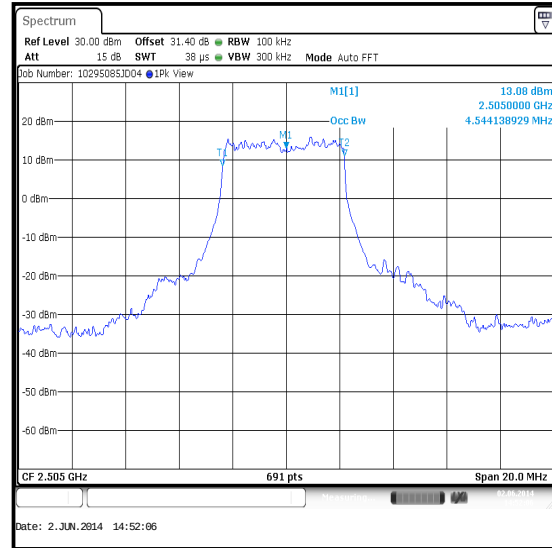
**Transmitter Occupied Bandwidth (continued)****Results: 5 MHz Channel Bandwidth / Top Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2567.5          | 25                | 0                     | 50                         | 200                   | 4.486                    |
| 2567.5          | 12                | 6                     | 50                         | 200                   | 2.229                    |

**16QAM / 25 Resource Block (0 Offset)****16QAM / 12 Resource Block (6 Offset)**

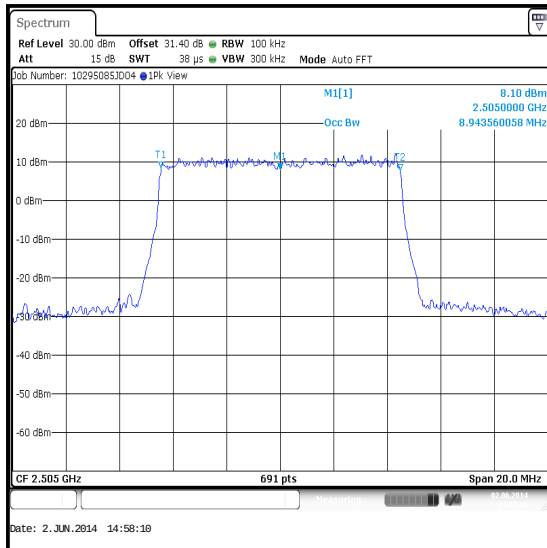
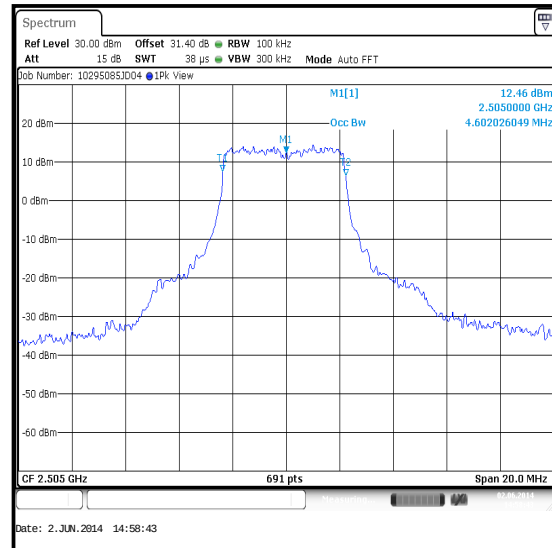
**Transmitter Occupied Bandwidth (continued)****Results: 10 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2505.0          | 50                | 0                     | 100                        | 300                   | 8.973                    |
| 2505.0          | 25                | 12                    | 100                        | 300                   | 4.544                    |

**QPSK / 50 Resource Block (0 Offset)****QPSK / 25 Resource Block (12 Offset)**

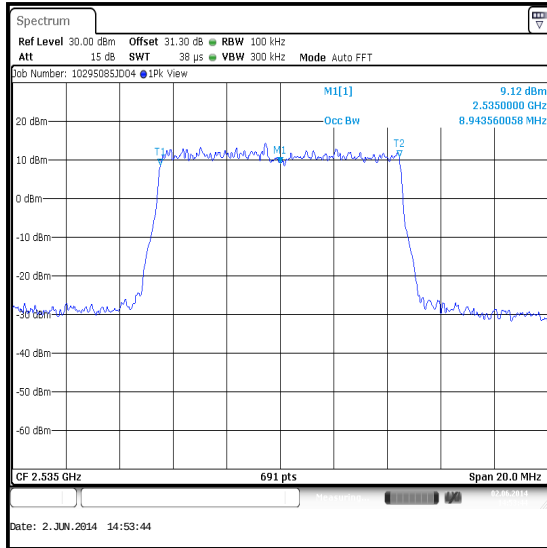
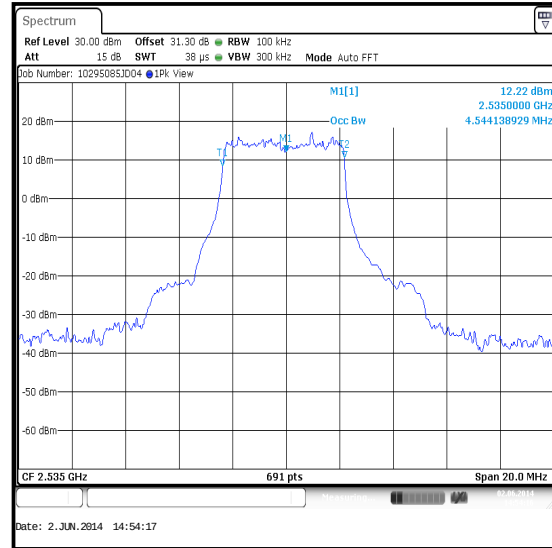
**Transmitter Occupied Bandwidth (continued)****Results: 10 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2505.0          | 50                | 0                     | 100                        | 300                   | 8.944                    |
| 2505.0          | 25                | 12                    | 100                        | 300                   | 4.602                    |

**16QAM / 50 Resource Block (0 Offset)****16QAM / 25 Resource Block (12 Offset)**

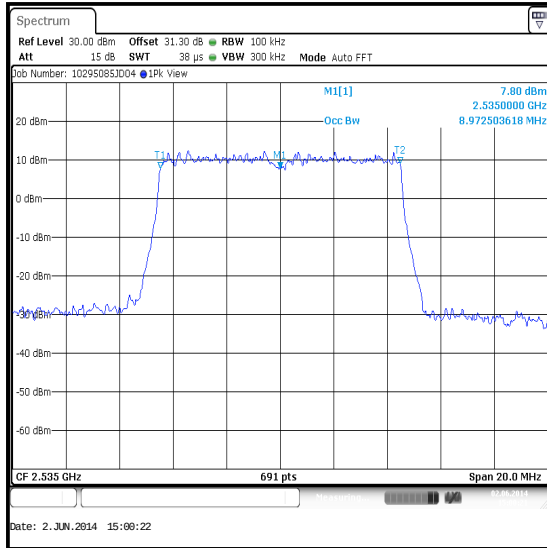
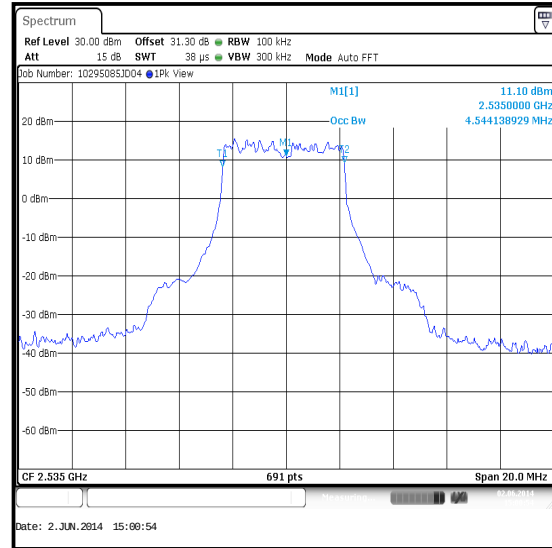
**Transmitter Occupied Bandwidth (continued)****Results: 10 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 50                | 0                     | 100                        | 300                   | 8.944                    |
| 2535.0          | 25                | 12                    | 100                        | 300                   | 4.544                    |

**QPSK / 50 Resource Block (0 Offset)****QPSK / 25 Resource Block (12 Offset)**

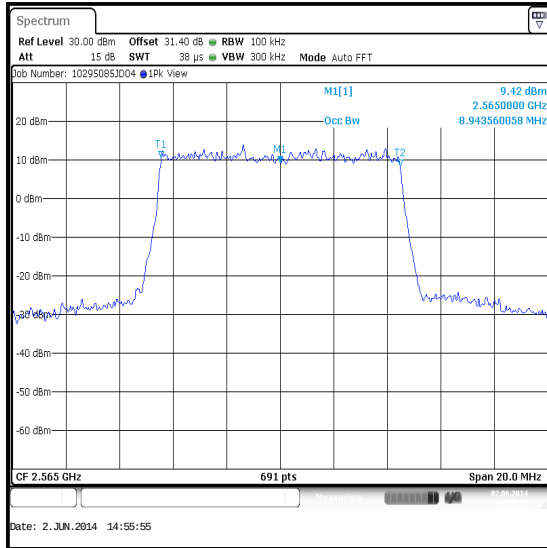
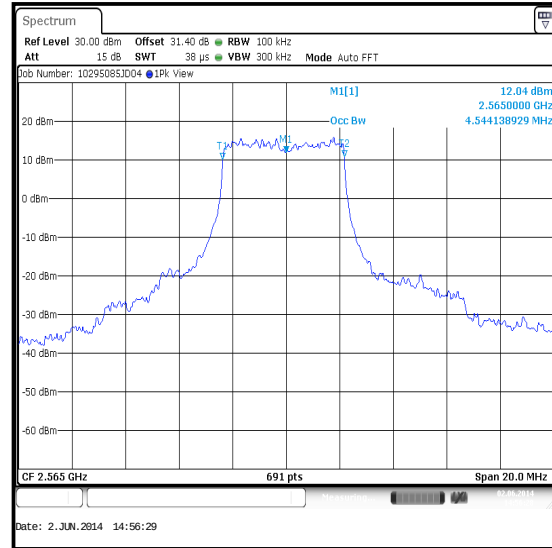
**Transmitter Occupied Bandwidth (continued)****Results: 10 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 50                | 0                     | 100                        | 300                   | 8.973                    |
| 2535.0          | 25                | 12                    | 100                        | 300                   | 4.544                    |

**16QAM / 50 Resource Block (0 Offset)****16QAM / 25 Resource Block (12 Offset)**

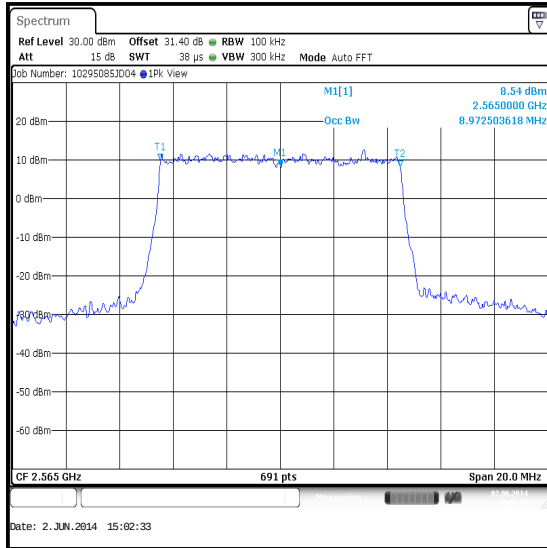
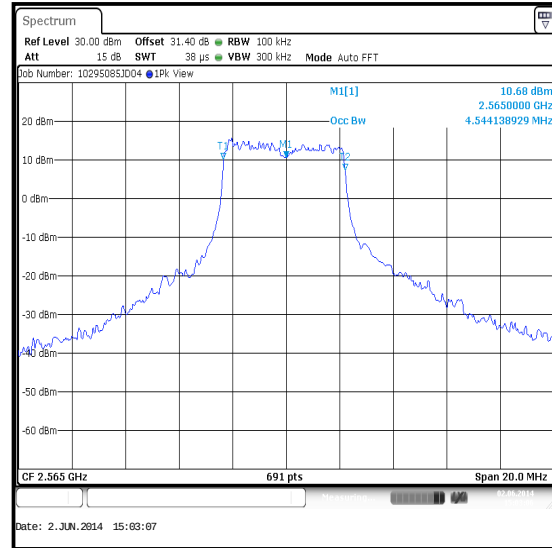
**Transmitter Occupied Bandwidth (continued)****Results: 10 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2565.0          | 50                | 0                     | 100                        | 300                   | 8.944                    |
| 2565.0          | 25                | 12                    | 100                        | 300                   | 4.544                    |

**QPSK / 50 Resource Block (0 Offset)****QPSK / 25 Resource Block (12 Offset)**

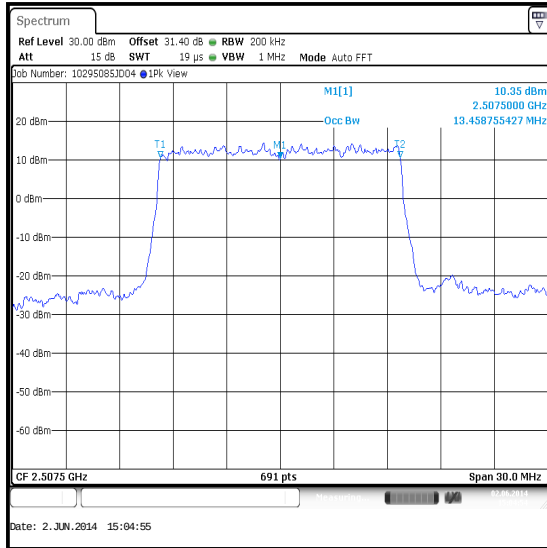
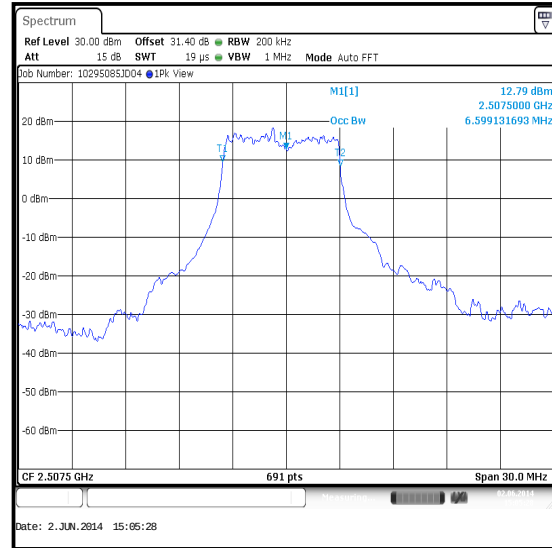
**Transmitter Occupied Bandwidth (continued)****Results: 10 MHz Channel Bandwidth / Top Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2565.0          | 50                | 0                     | 100                        | 300                   | 8.973                    |
| 2565.0          | 25                | 12                    | 100                        | 300                   | 4.544                    |

**16QAM / 50 Resource Block (0 Offset)****16QAM / 25 Resource Block (12 Offset)**

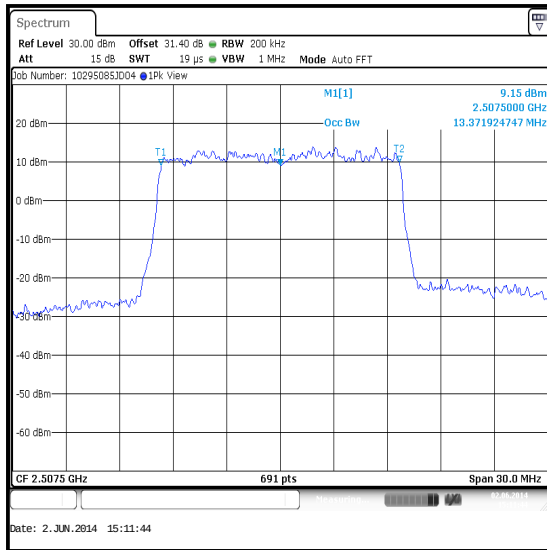
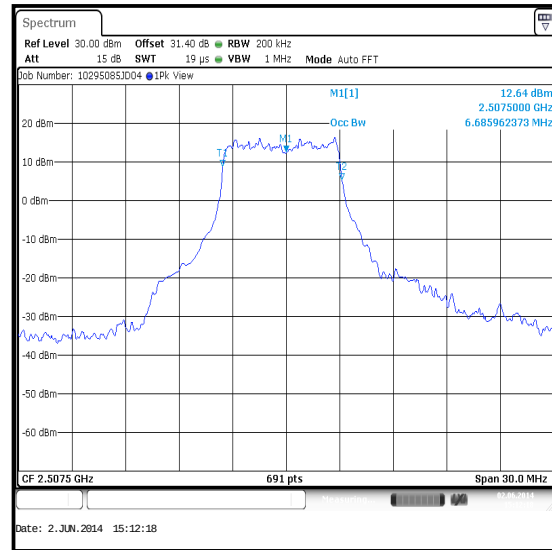
**Transmitter Occupied Bandwidth (continued)****Results: 15 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2507.5          | 75                | 0                     | 200                        | 1000                  | 13.459                   |
| 2507.5          | 36                | 18                    | 200                        | 1000                  | 6.599                    |

**QPSK / 75 Resource Block (0 Offset)****QPSK / 36 Resource Block (18 Offset)**

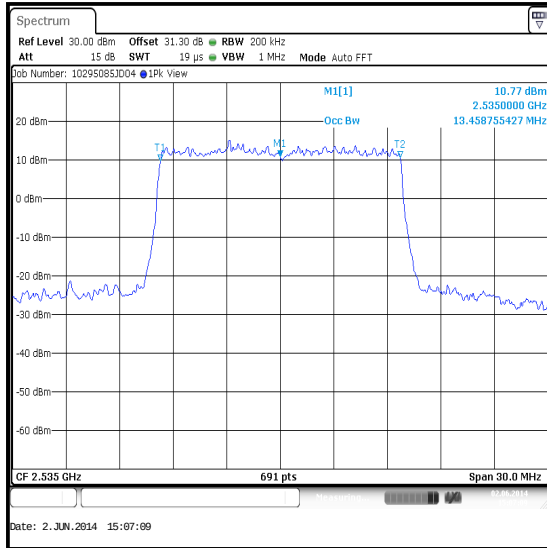
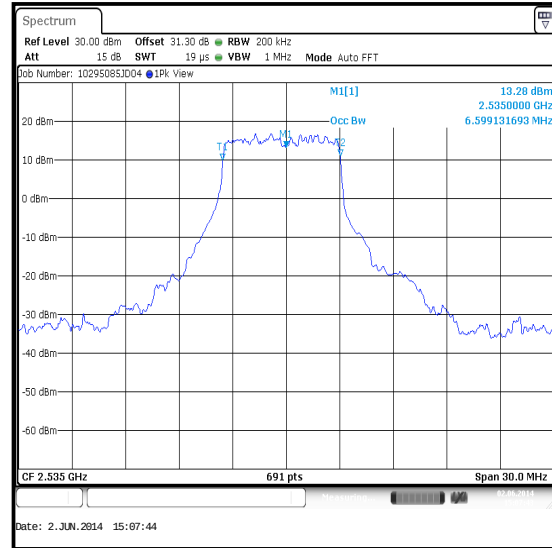
**Transmitter Occupied Bandwidth (continued)****Results: 15 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2507.5          | 75                | 0                     | 200                        | 1000                  | 13.372                   |
| 2507.5          | 36                | 18                    | 200                        | 1000                  | 6.686                    |

**16QAM / 75 Resource Block (0 Offset)****16QAM / 36 Resource Block (18 Offset)**

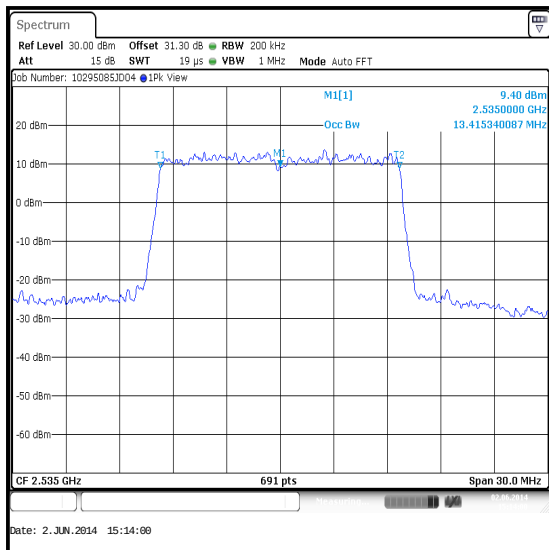
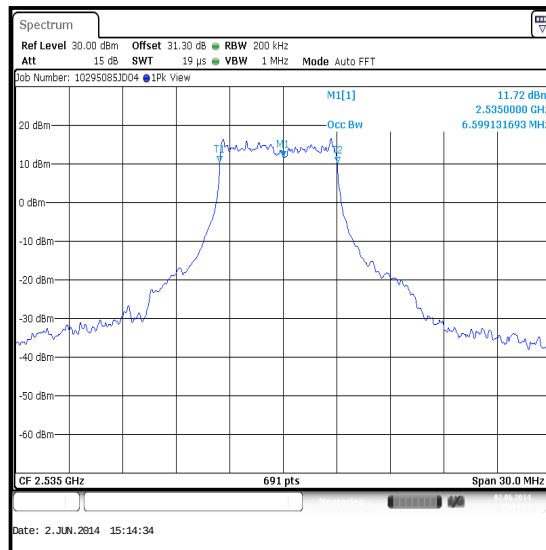
**Transmitter Occupied Bandwidth (continued)****Results: 15 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 75                | 0                     | 200                        | 1000                  | 13.459                   |
| 2535.0          | 36                | 18                    | 200                        | 1000                  | 6.599                    |

**QPSK / 75 Resource Block (0 Offset)****QPSK / 36 Resource Block (18 Offset)**

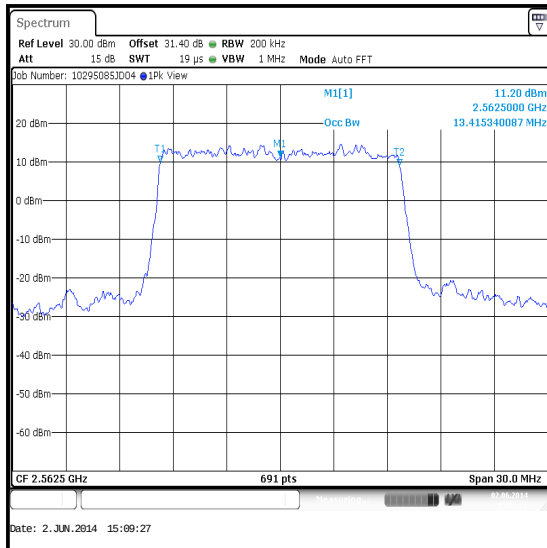
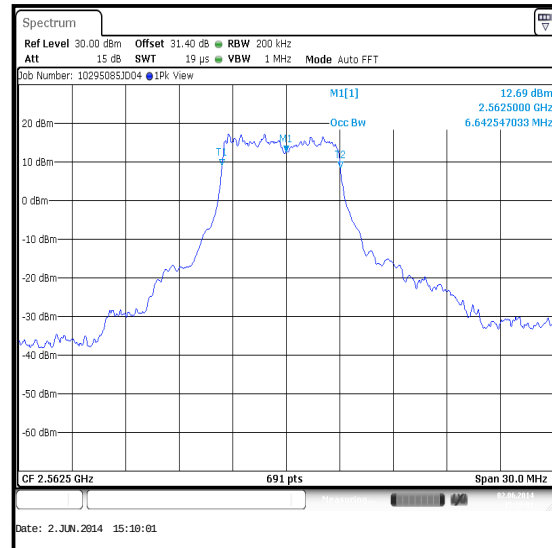
**Transmitter Occupied Bandwidth (continued)****Results: 15 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 75                | 0                     | 200                        | 1000                  | 13.415                   |
| 2535.0          | 36                | 18                    | 200                        | 1000                  | 6.599                    |

**16QAM / 75 Resource Block (0 Offset)****16QAM / 36 Resource Block (18 Offset)**

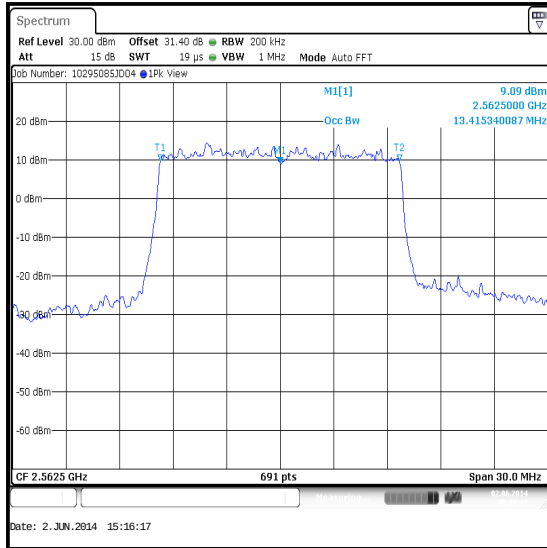
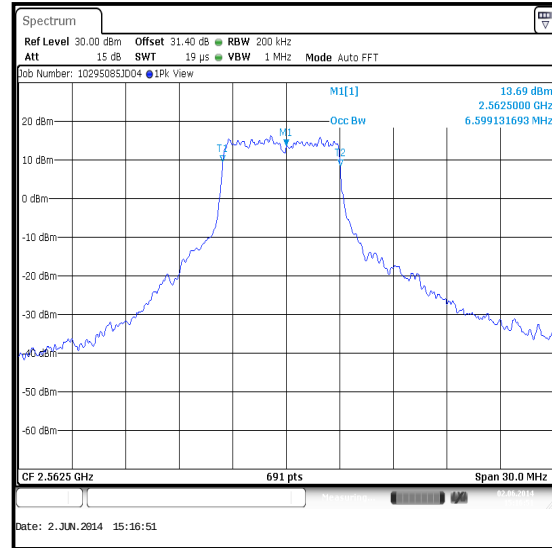
**Transmitter Occupied Bandwidth (continued)****Results: 15 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2562.5          | 75                | 0                     | 200                        | 1000                  | 13.415                   |
| 2562.5          | 36                | 18                    | 200                        | 1000                  | 6.643                    |

**QPSK / 75 Resource Block (0 Offset)****QPSK / 36 Resource Block (18 Offset)**

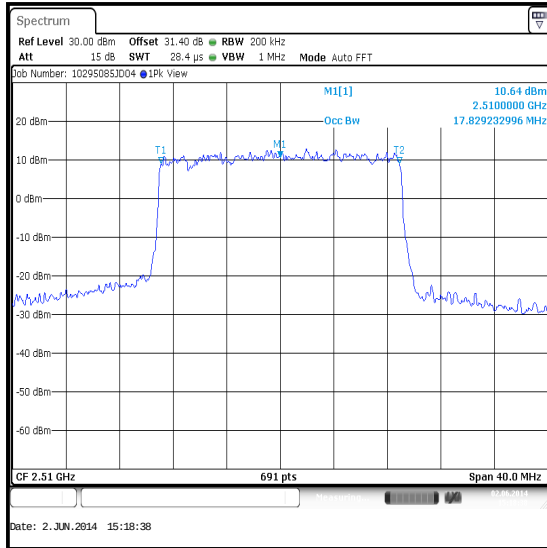
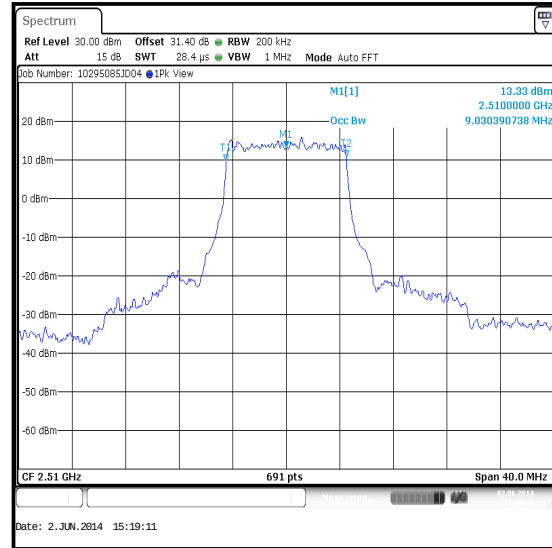
**Transmitter Occupied Bandwidth (continued)****Results: 15 MHz Channel Bandwidth / Top Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2562.5          | 75                | 0                     | 200                        | 1000                  | 13.415                   |
| 2562.5          | 36                | 18                    | 200                        | 1000                  | 6.599                    |

**16QAM / 75 Resource Block (0 Offset)****16QAM / 36 Resource Block (18 Offset)**

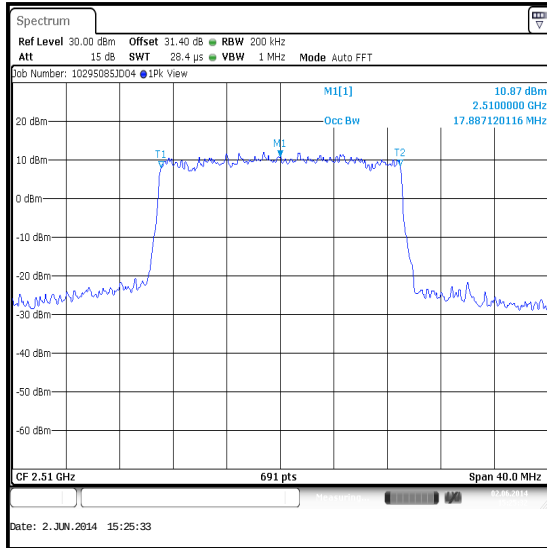
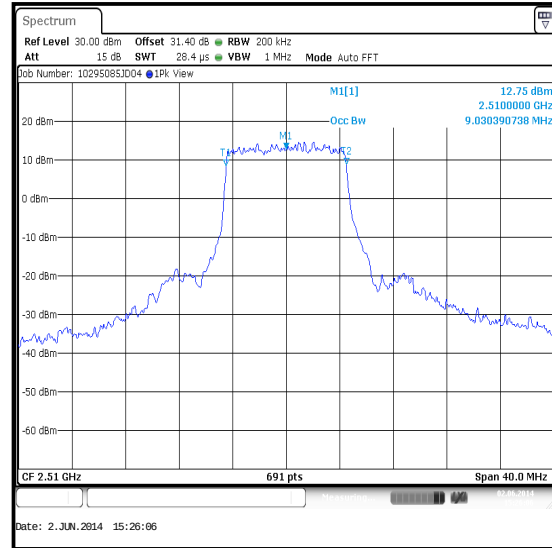
**Transmitter Occupied Bandwidth (continued)****Results: 20 MHz Channel Bandwidth / Bottom Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2510.0          | 100               | 0                     | 200                        | 1000                  | 17.829                   |
| 2510.0          | 50                | 25                    | 200                        | 1000                  | 9.030                    |

**QPSK / 100 Resource Block (0 Offset)****QPSK / 50 Resource Block (25 Offset)**

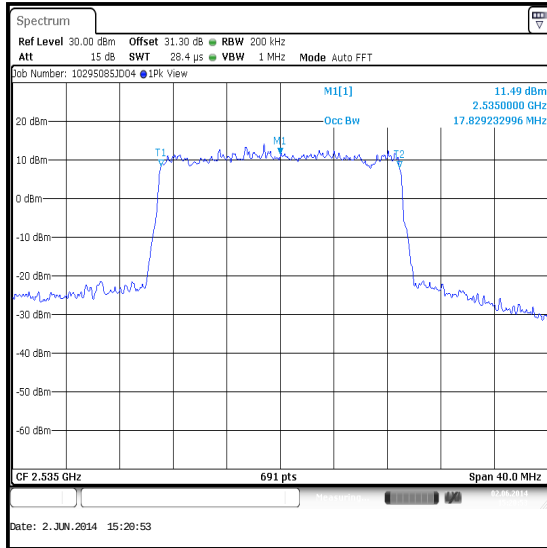
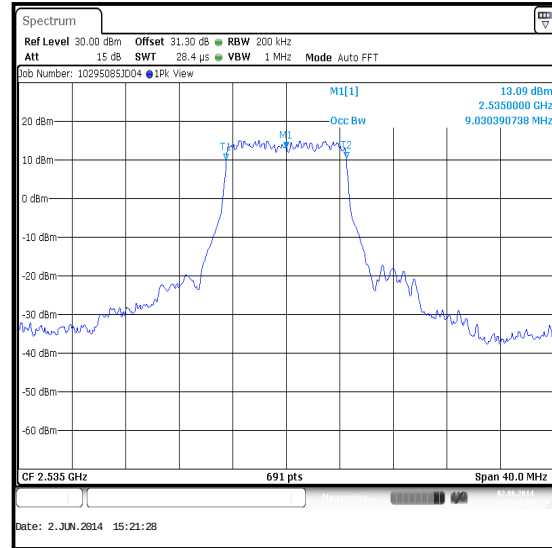
**Transmitter Occupied Bandwidth (continued)****Results: 20 MHz Channel Bandwidth / Bottom Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2510.0          | 100               | 0                     | 200                        | 1000                  | 17.887                   |
| 2510.0          | 50                | 25                    | 200                        | 1000                  | 9.030                    |

**16QAM / 100 Resource Block (0 Offset)****16QAM / 50 Resource Block (25 Offset)**

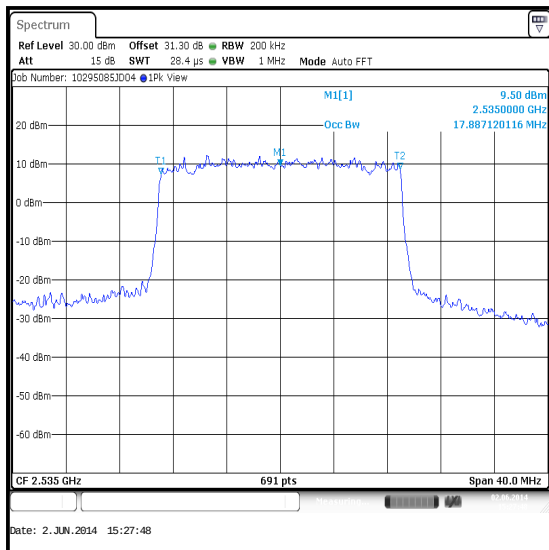
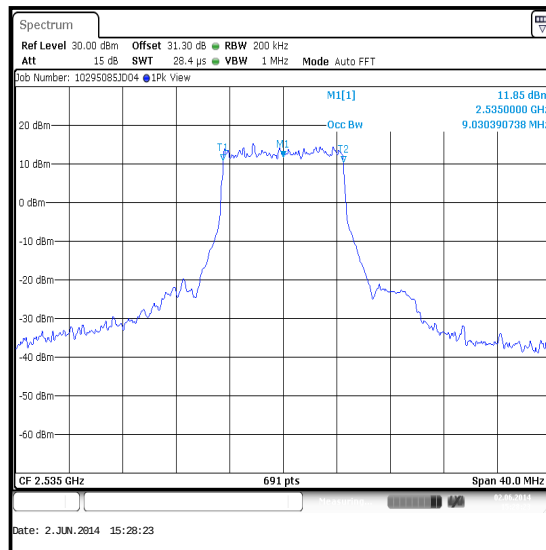
**Transmitter Occupied Bandwidth (continued)****Results: 20 MHz Channel Bandwidth / Middle Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 100               | 0                     | 200                        | 1000                  | 17.829                   |
| 2535.0          | 50                | 25                    | 200                        | 1000                  | 9.030                    |

**QPSK / 100 Resource Block (0 Offset)****QPSK / 50 Resource Block (25 Offset)**

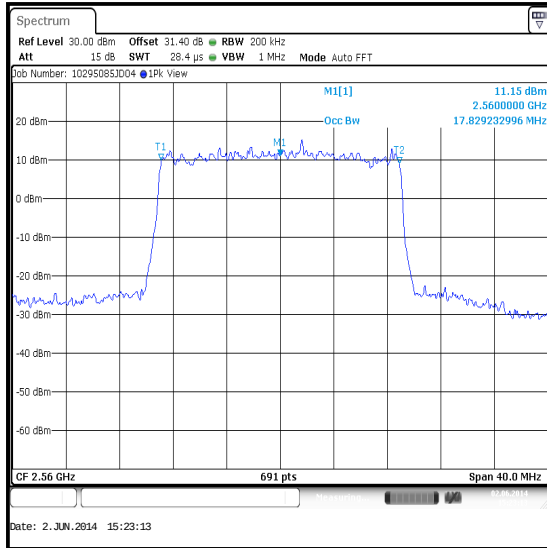
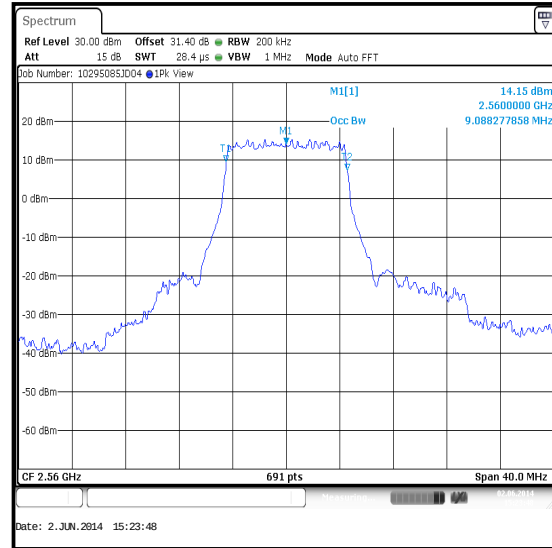
**Transmitter Occupied Bandwidth (continued)****Results: 20 MHz Channel Bandwidth / Middle Channel / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2535.0          | 100               | 0                     | 200                        | 1000                  | 17.887                   |
| 2535.0          | 50                | 25                    | 200                        | 1000                  | 9.030                    |

**16QAM / 100 Resource Block (0 Offset)****16QAM / 50 Resource Block (25 Offset)**

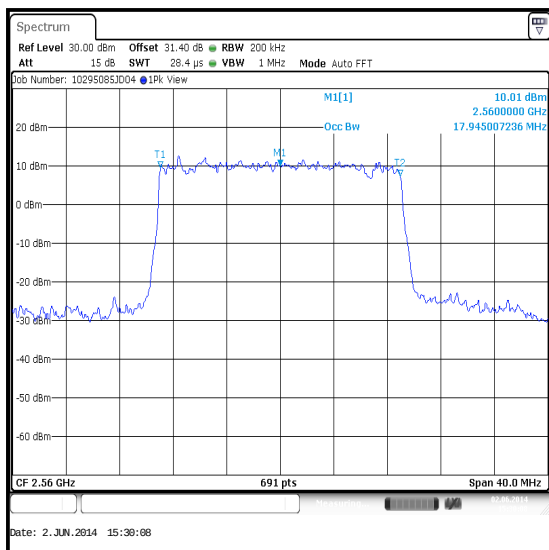
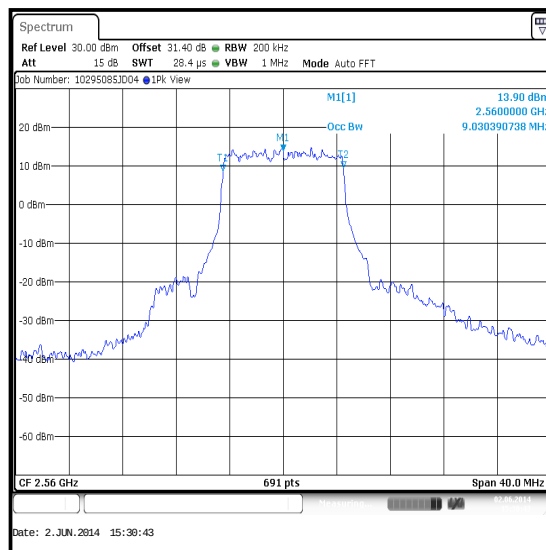
**Transmitter Occupied Bandwidth (continued)****Results: 20 MHz Channel Bandwidth / Top Channel / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2560.0          | 100               | 0                     | 200                        | 1000                  | 17.829                   |
| 2560.0          | 50                | 25                    | 200                        | 1000                  | 9.088                    |

**QPSK / 100 Resource Block (0 Offset)****QPSK / 50 Resource Block (25 Offset)**

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

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Resolution Bandwidth (kHz) | Video Bandwidth (kHz) | Occupied Bandwidth (MHz) |
|-----------------|-------------------|-----------------------|----------------------------|-----------------------|--------------------------|
| 2560.0          | 100               | 0                     | 200                        | 1000                  | 17.945                   |
| 2560.0          | 50                | 25                    | 200                        | 1000                  | 9.030                    |

**16QAM / 100 Resource Block (0 Offset)****16QAM / 50 Resource Block (25 Offset)****Test Equipment Used:**

| Asset No. | Instrument          | Manufacturer    | Type No.      | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|---------------------|-----------------|---------------|-------------|-----------------------|------------------------|
| M1659     | Thermohygrometer    | JM Handelspunkt | 30.5015.13    | None stated | 14 Mar 2015           | 12                     |
| L1127     | Signal Analyser     | Rohde & Schwarz | FSV13         | 100863      | 24 April 2015         | 12                     |
| A2536     | Directional Coupler | AtlanTecRF      | CDC-003060-20 | 14041701720 | Calibrated before use | -                      |
| A2506     | Attenuator          | AtlanTecRF      | AN18-10       | 821846#1    | Calibrated before use | -                      |
| S0557     | DC Power Supply     | Tti             | EL303R        | 395819      | Calibrated before use | -                      |
| M1251     | Digital Multimeter  | Fluke           | 175           | 8717019     | 19 May 2015           | 12                     |
| G0608     | Signal Generator    | Rohde & Schwarz | SMIQ 06B      | 838341/033  | 14 Feb 2015           | 12                     |
| M1009     | Power Meter         | Hewlett Packard | 437B          | 3125U13706  | 04 Feb 2015           | 12                     |
| M1592     | Power Sensor        | Hewlett Packard | 8487A         | 3318A02094  | 28 Aug 2014           | 12                     |

**5.2.3. Transmitter Radiated Spurious Emissions****Test Summary:**

|                          |                                 |                    |                                |
|--------------------------|---------------------------------|--------------------|--------------------------------|
| <b>Test Engineers:</b>   | Andrew Edwards &<br>Nick Steele | <b>Test Dates:</b> | 05 June 2014 &<br>08 June 2014 |
| <b>Test Sample IMEI:</b> | 004402452705555                 |                    |                                |

|                          |                                                                   |
|--------------------------|-------------------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1053 & 27.53(l)(4)                                        |
| <b>Test Method Used:</b> | As detailed in KDB 971168 Section 6.1 referencing FCC Part 2.1053 |
| <b>Frequency Range:</b>  | 30 MHz to 26 GHz                                                  |
| <b>Configuration:</b>    | 5 MHz, QPSK, 1RB, 0 Offset                                        |

**Environmental Conditions:**

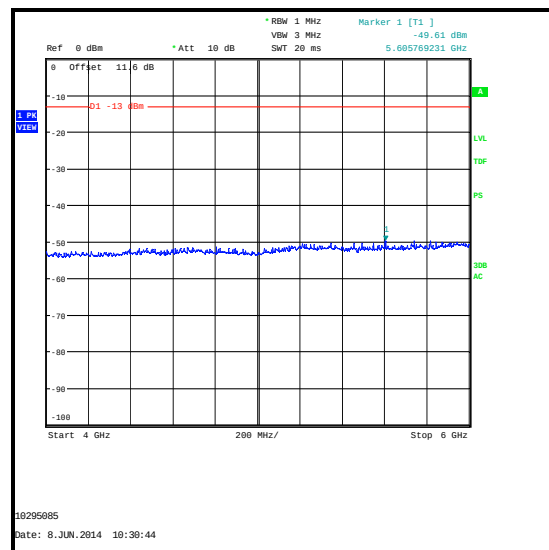
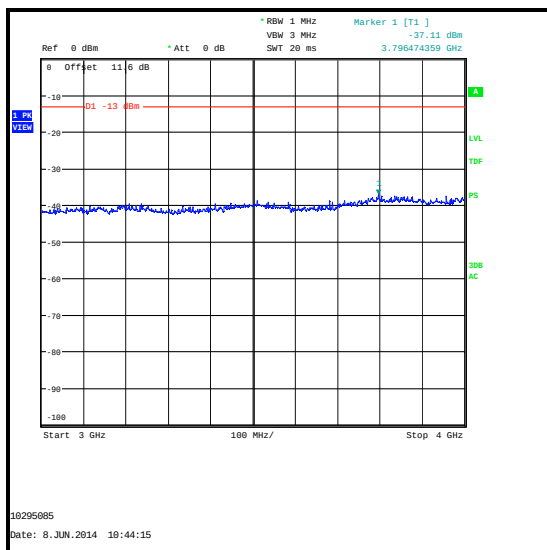
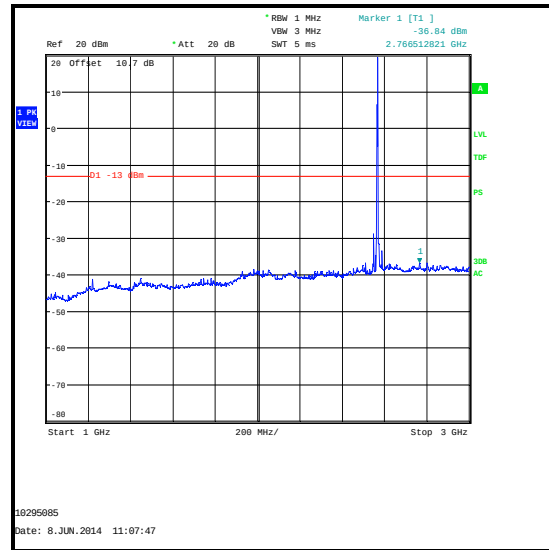
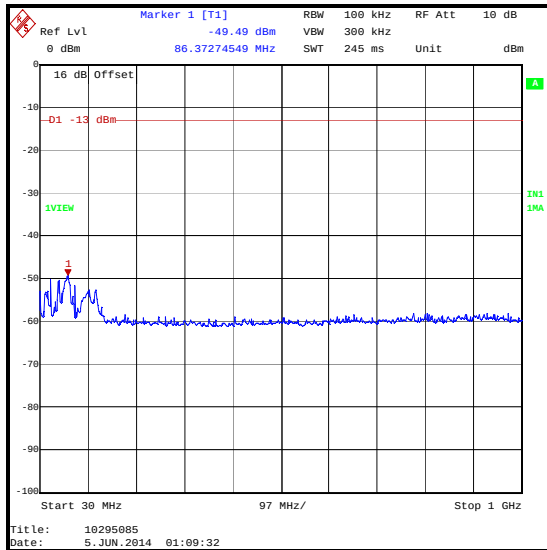
|                               |          |
|-------------------------------|----------|
| <b>Temperature (°C):</b>      | 24 to 25 |
| <b>Relative Humidity (%):</b> | 32 to 39 |

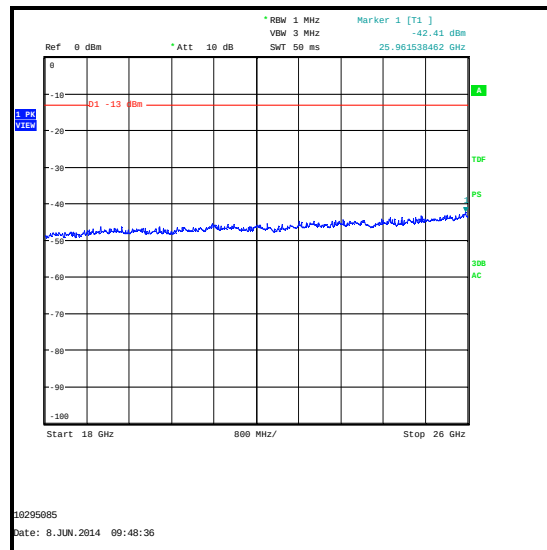
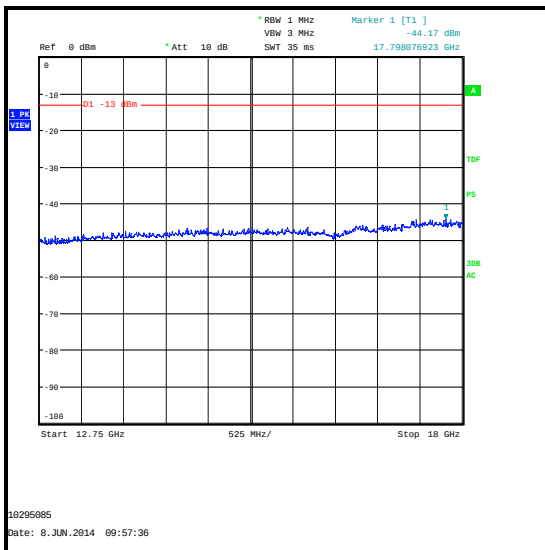
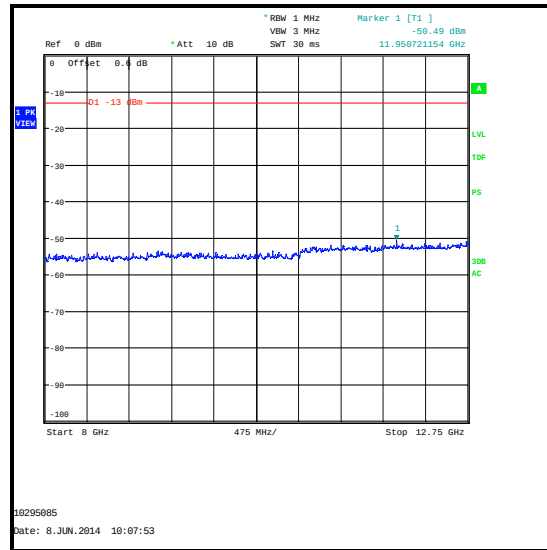
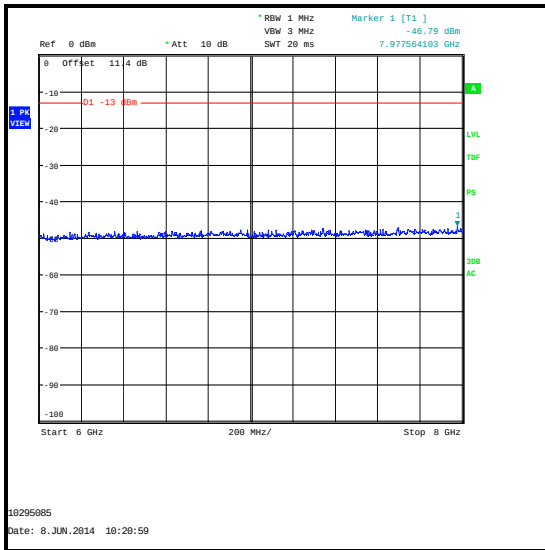
**Note(s):**

1. The EUT was set to transmit with a 5 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, as this mode emits the highest transmit output power level, it was deemed to be the worst case.
2. Pre-scans have been taken with a limit line set at -13 dBm. In accordance with 27.53(m)(4), the results table has a limit of -25 dBm.
3. The emission seen on the 1 GHz to 3 GHz plot at approximately 2567.5 MHz is the EUT carrier.
4. All emissions shown on the pre-scan plots were investigated. Final measurements were made using appropriate RF filters and attenuators where required. All emissions shown on the pre-scan plots were found to be below the measurement system noise floor or ambient, therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
5. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) 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.
6. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) 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. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) 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.

**Results: Top Channel**

| Frequency (MHz) | Antenna Polarisation | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|----------------------|----------------------|-------------|-------------|----------|
| 2766.513        | Vertical             | -36.8                | -25.0       | 11.8        | Complied |

**Transmitter Radiated Spurious Emissions (continued)**

**Transmitter Radiated Spurious Emissions (continued)**

**Transmitter Out of Band Radiated Emissions (continued)****Test Equipment Used:**

| Asset No. | Instrument       | Manufacturer    | Type No.   | Serial No.  | Date Calibration Due | Cal. Interval (Months) |
|-----------|------------------|-----------------|------------|-------------|----------------------|------------------------|
| A490      | Antenna          | Chase           | CBL6111A   | 1590        | 29 Apr 2015          | 12                     |
| A1834     | Attenuator       | Hewlett Packard | 8491B      | 10444       | 15 Nov 2014          | 12                     |
| K0001     | 5m RSE Chamber   | Rainford EMC    | N/A        | N/A         | 26 Nov 2014          | 12                     |
| G0543     | Amplifier        | Sonoma          | 310N       | 230801      | 19 Aug 2014          | 3                      |
| M1273     | Test Receiver    | Rohde & Schwarz | ESIB 26    | 100275      | 15 Feb 2015          | 12                     |
| M1622     | Thermohygrometer | JM Handelspunkt | 30.5015.13 | Not stated  | 31 Dec 2014          | 12                     |
| M1656     | Thermohygrometer | JM Handelspunkt | 30.5015.13 | None stated | 14 Mar 2015          | 12                     |
| K0002     | 3m RSE Chamber   | Rainford EMC    | N/A        | N/A         | 14 Nov 2014          | 12                     |
| M1874     | Test Receiver    | Rohde & Schwarz | ESU26      | 100553      | 15 May 2015          | 12                     |
| A1534     | Pre Amplifier    | Hewlett Packard | 8449B      | 3008A00405  | 18 May 2015          | 12                     |
| A1396     | Attenuator       | Huber & Suhner  | 6810.17.B  | 757987      | 02 May 2015          | 12                     |
| A1975     | High Pass Filter | AtlanTecRF      | AFH-03000  | 090424010   | 12 Apr 2015          | 12                     |
| A1818     | Antenna          | EMCO            | 3115       | 00075692    | 14 Nov 2014          | 12                     |
| A253      | Antenna          | Flann Microwave | 12240-20   | 128         | 14 Nov 2014          | 12                     |
| A254      | Antenna          | Flann Microwave | 14240-20   | 139         | 14 Nov 2014          | 12                     |
| A255      | Antenna          | Flann Microwave | 16240-20   | 519         | 14 Nov 2014          | 12                     |
| A256      | Antenna          | Flann Microwave | 18240-20   | 400         | 14 Nov 2014          | 12                     |
| A436      | Antenna          | Flann Microwave | 20240-20   | 330         | 14 Nov 2014          | 12                     |

**5.2.4. Transmitter Radiated Emissions at Band Edges****Test Summary:**

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | Nick Steele     | <b>Test Date:</b> | 08 June 2014 |
| <b>Test Sample IMEI:</b> | 004402452705555 |                   |              |

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

**Environmental Conditions:**

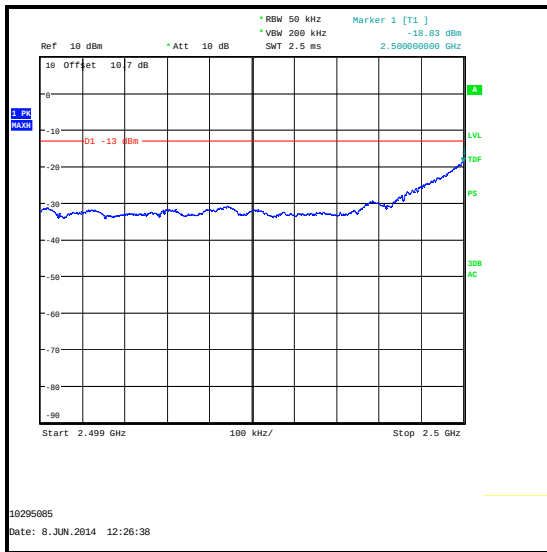
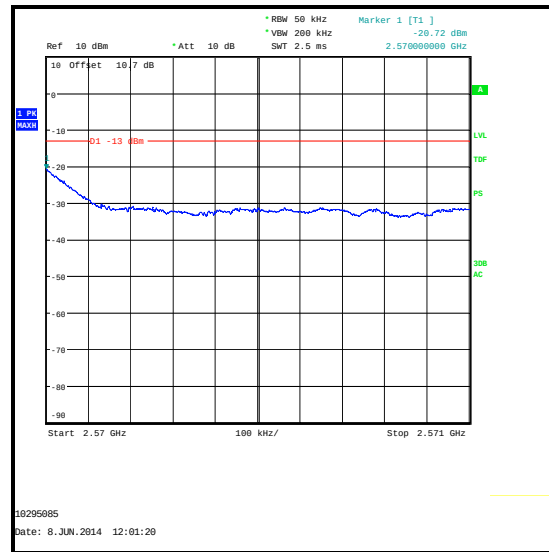
|                               |    |
|-------------------------------|----|
| <b>Temperature (°C):</b>      | 26 |
| <b>Relative Humidity (%):</b> | 38 |

**Note(s):**

1. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with the maximum resource blocks settings as detailed in section 4.3 of this report.

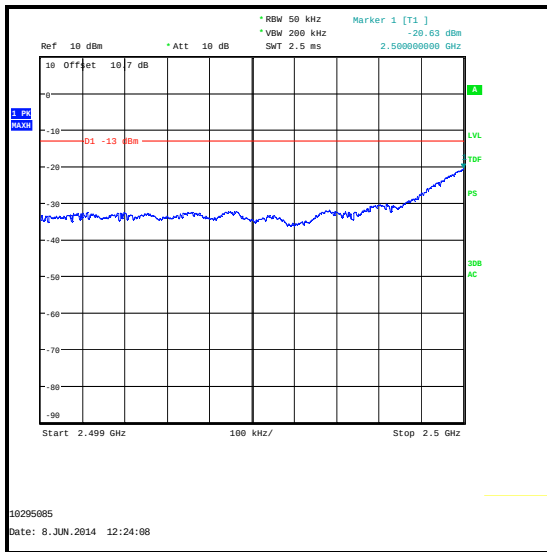
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 25                | 0                     | -18.8                | -13.0       | 5.8         | Complied |
| 2570            | 25                | 0                     | -20.7                | -13.0       | 7.7         | Complied |

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

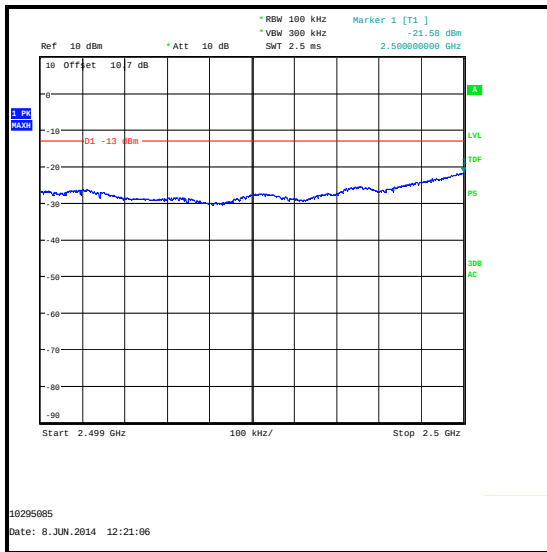
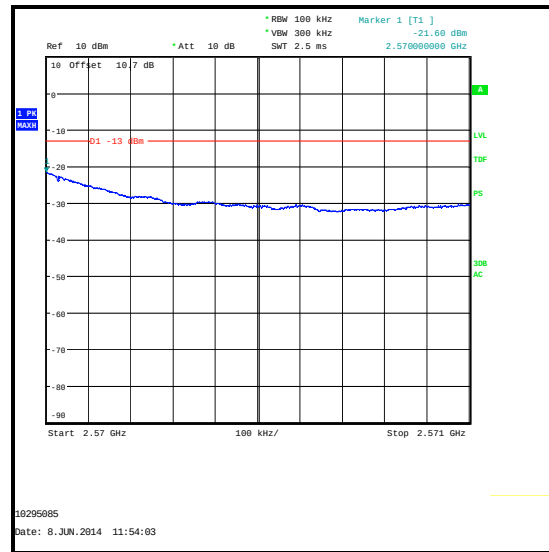
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 5 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 25                | 0                     | -20.6                | -13.0       | 7.6         | Complied |
| 2570            | 25                | 0                     | -22.0                | -13.0       | 9.0         | Complied |

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

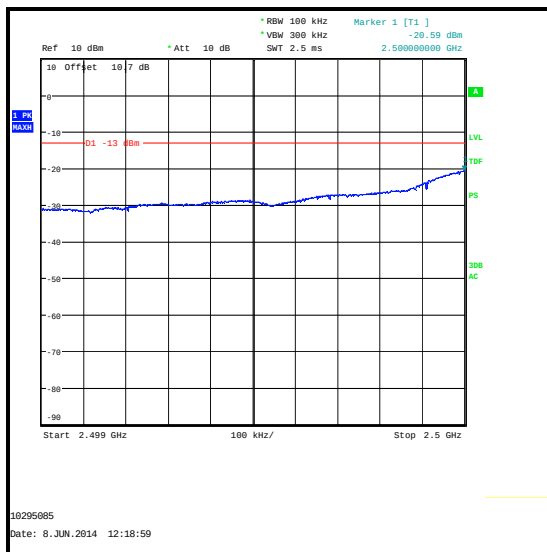
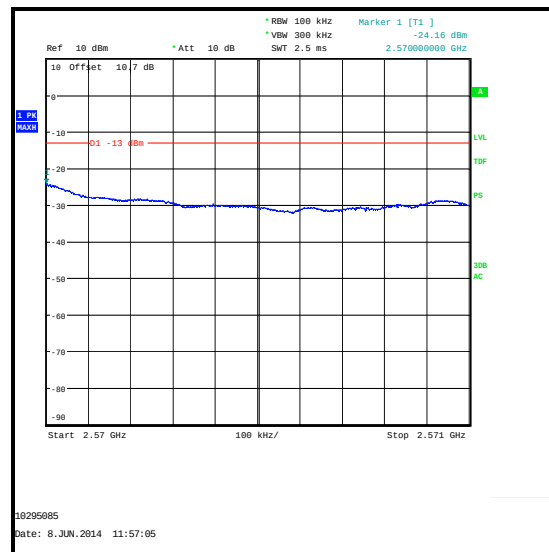
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 50                | 0                     | -21.6                | -13.0       | 8.6         | Complied |
| 2570            | 50                | 0                     | -21.6                | -13.0       | 8.6         | Complied |

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

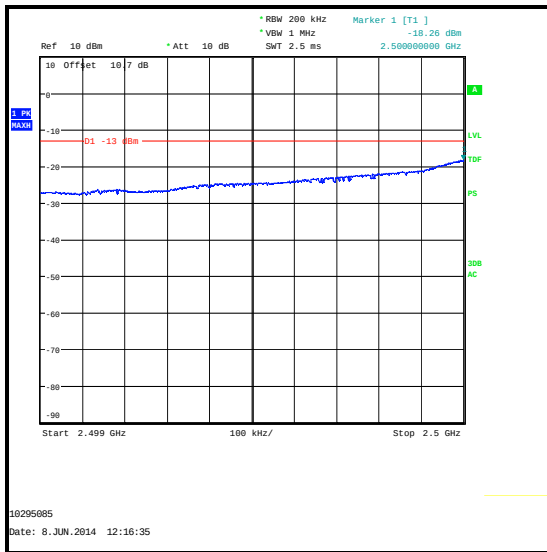
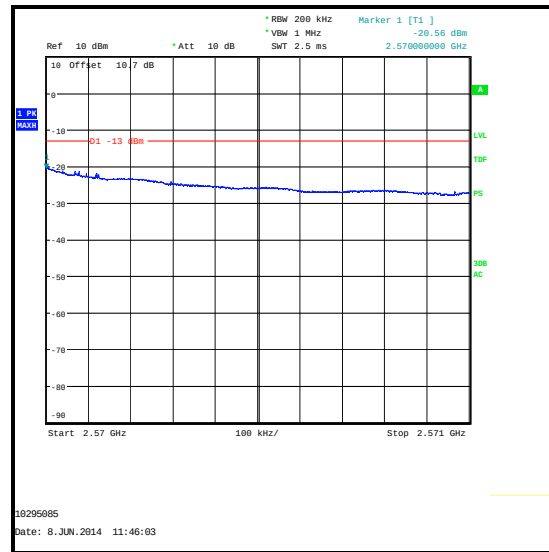
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 10 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 50                | 0                     | -20.6                | -13.0       | 7.6         | Complied |
| 2570            | 50                | 0                     | -24.2                | -13.0       | 11.2        | Complied |

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

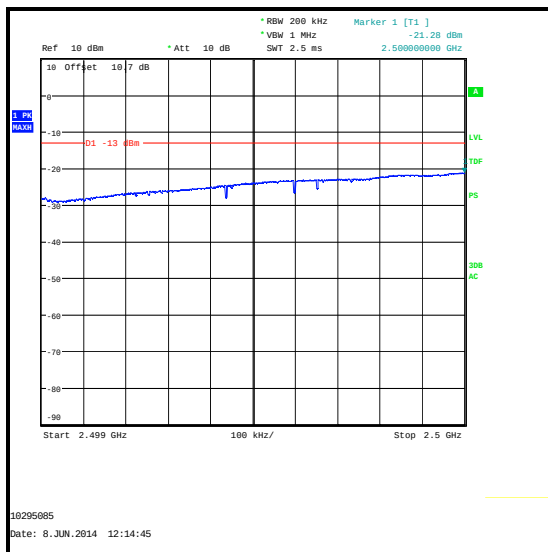
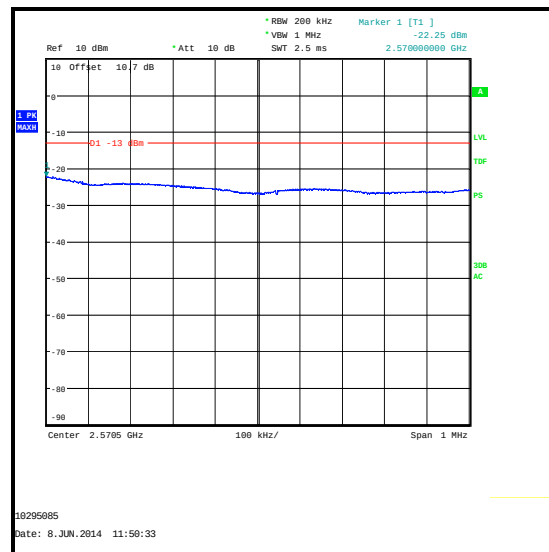
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 75                | 0                     | -18.3                | -13.0       | 5.3         | Complied |
| 2570            | 75                | 0                     | -20.6                | -13.0       | 7.6         | Complied |

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

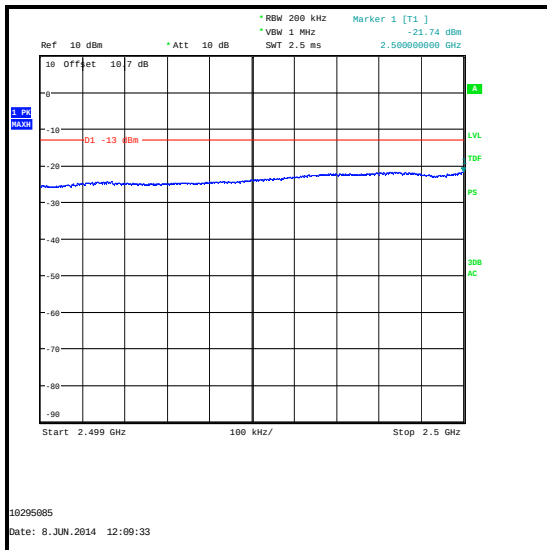
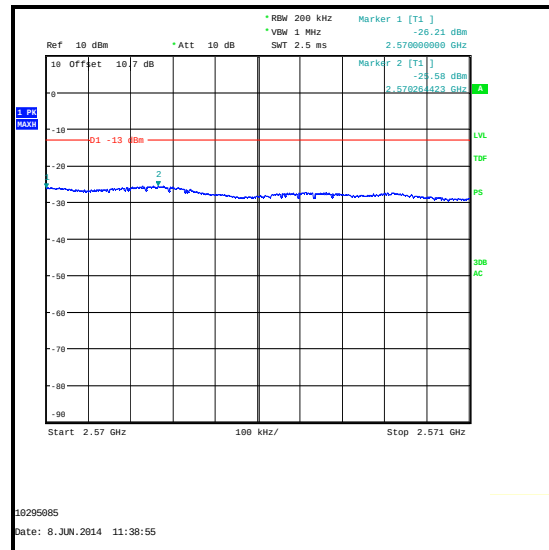
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 15 MHz Channel Bandwidth / 16QAM**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 75                | 0                     | -21.3                | -13.0       | 8.3         | Complied |
| 2570            | 75                | 0                     | -22.3                | -13.0       | 9.3         | Complied |

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

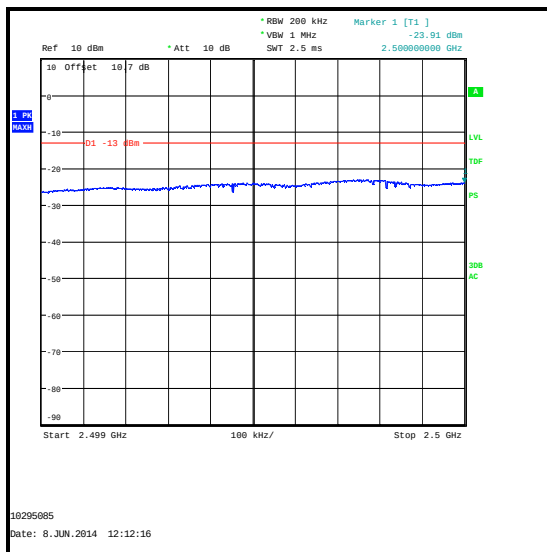
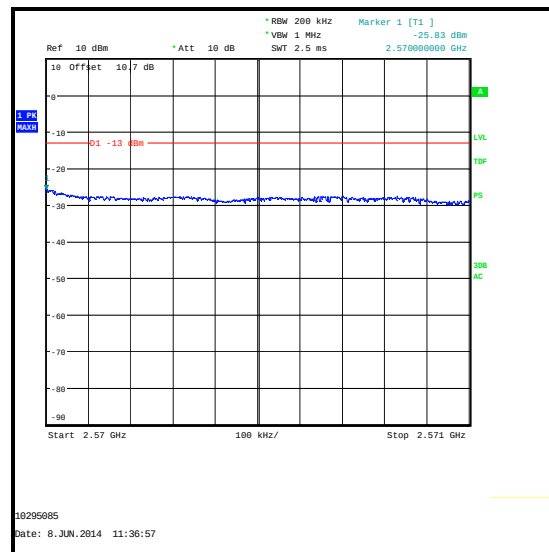
**Transmitter Radiated Emissions at Band Edges (continued)****Results: 20 MHz Channel Bandwidth / QPSK**

| Frequency (MHz) | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 100               | 0                     | -21.7                | -13.0       | 8.7         | Complied |
| 2570            | 100               | 0                     | -26.2                | -13.0       | 13.2        | Complied |
| 2570.264        | 100               | 0                     | -25.6                | -13.0       | 12.6        | Complied |

**QPSK / Lower Band Edge****QPSK / 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   |
|-----------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2500            | 100               | 0                     | -23.9                | -13.0       | 10.9        | Complied |
| 2570            | 100               | 0                     | -25.8                | -13.0       | 12.8        | Complied |

**16QAM / Lower Band Edge****16QAM / Upper Band Edge****Test Equipment Used:**

| Asset No. | Instrument       | Manufacturer    | Type No.   | Serial No.  | Date Calibration Due | Cal. Interval (Months) |
|-----------|------------------|-----------------|------------|-------------|----------------------|------------------------|
| M1656     | Thermohygrometer | JM Handelspunkt | 30.5015.13 | None stated | 14 Mar 2015          | 12                     |
| K0002     | 3m RSE Chamber   | Rainford EMC    | N/A        | N/A         | 14 Nov 2014          | 12                     |
| M1874     | Test Receiver    | Rohde & Schwarz | ESU26      | 100553      | 15 May 2015          | 12                     |
| A1534     | Pre Amplifier    | Hewlett Packard | 8449B      | 3008A00405  | 18 May 2015          | 12                     |
| A1818     | Antenna          | EMCO            | 3115       | 00075692    | 14 Nov 2014          | 12                     |

**5.2.5. Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz****Test Summary:**

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | David Doyle     | <b>Test Date:</b> | 13 June 2014 |
| <b>Test Sample IMEI:</b> | 004402452705555 |                   |              |

|                          |                                                                               |
|--------------------------|-------------------------------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1053 & 27.53(l)(4)                                                    |
| <b>Test Method Used:</b> | As detailed in KDB 971168 Section 6 referencing FCC Part 27.53 & note 2 below |

**Environmental Conditions:**

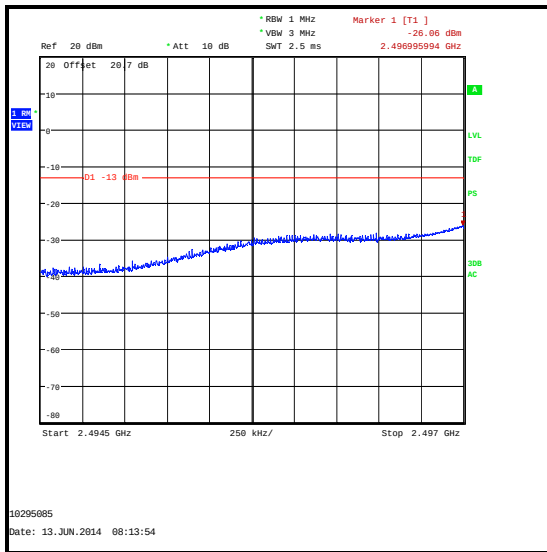
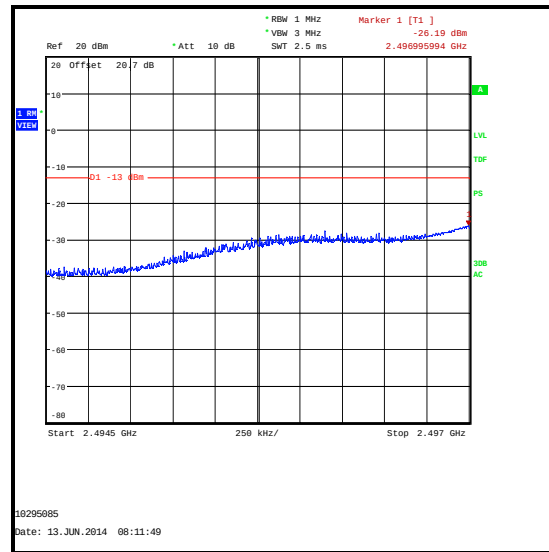
|                               |    |
|-------------------------------|----|
| <b>Temperature (°C):</b>      | 24 |
| <b>Relative Humidity (%):</b> | 43 |

**Note(s):**

1. Measurements were performed with the EUT transmitting QPSK and 16QAM modulation schemes, with resource block settings as detailed in section 4.3.
2. In accordance with KDB 971168 D01 section 6.0, a relaxation of the resolution bandwidth has been applied at the edge of the authorised frequency band to increase the measurement accuracy in the ranges 2497 to 2498 MHz, 2498 to 2499 MHz, 2571 to 2572 MHz and 2572 to 2573 MHz. Where necessary the channel power function of the spectrum analyser was used to integrate over 1 MHz.

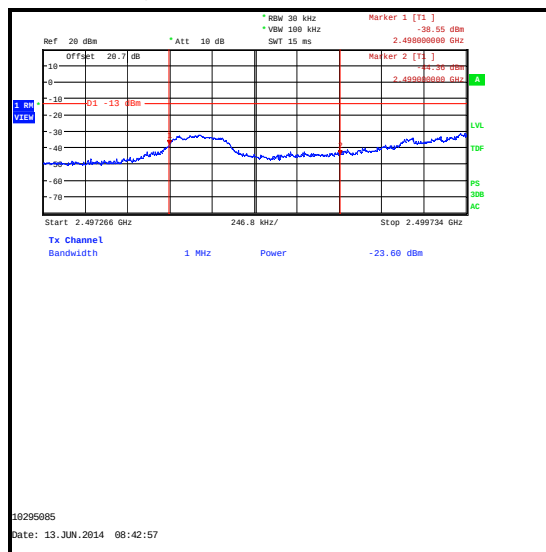
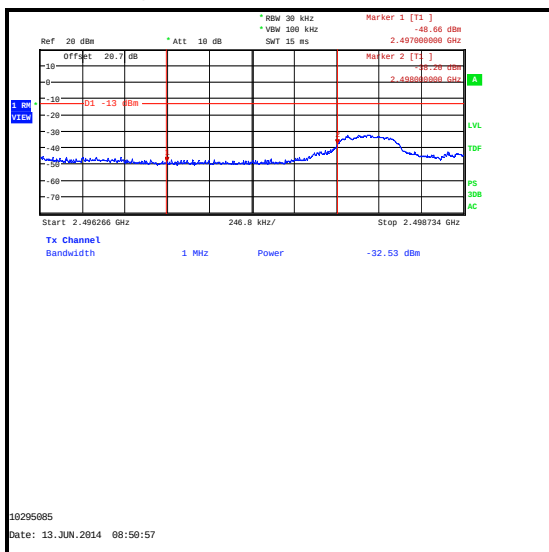
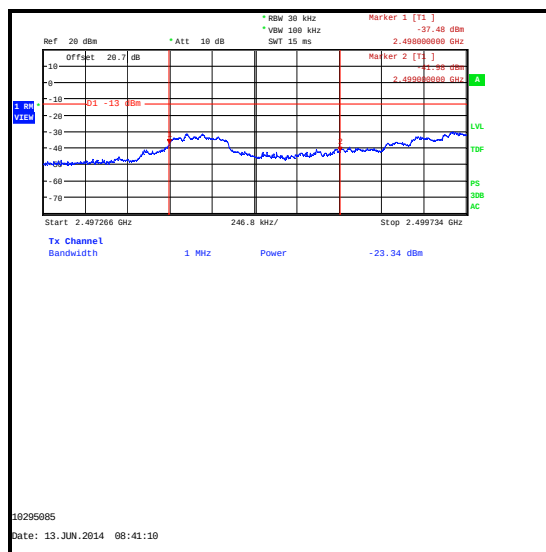
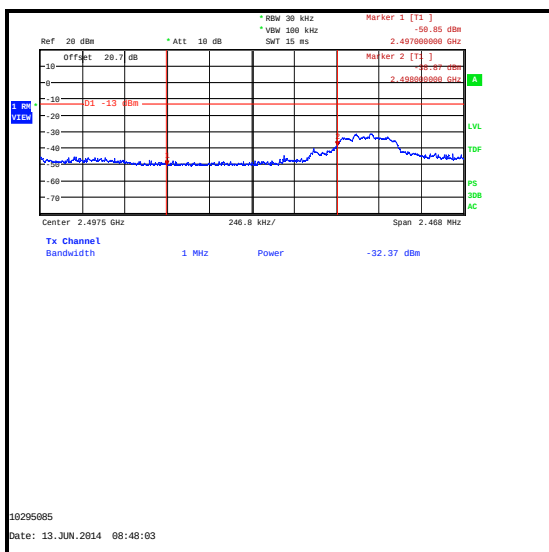
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2494.5 MHz to 2497 MHz / Sub-test 1**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2496.996        | QPSK              | 1                 | 0                     | -26.1                | -13.0       | 13.1        | Complied |
| 2496.996        | 16QAM             | 1                 | 0                     | -26.2                | -13.0       | 13.2        | Complied |

**QPSK****16QAM**

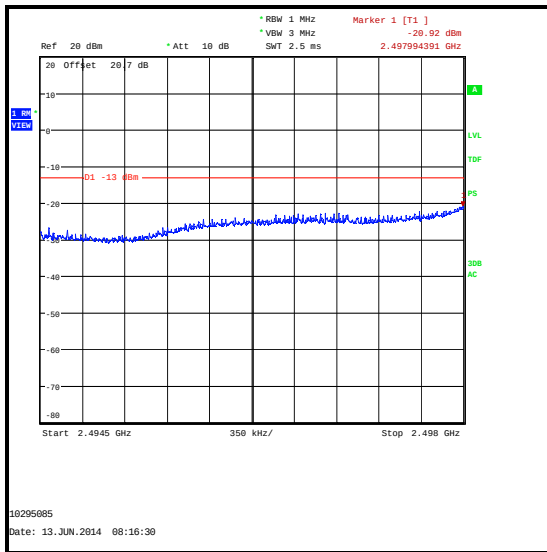
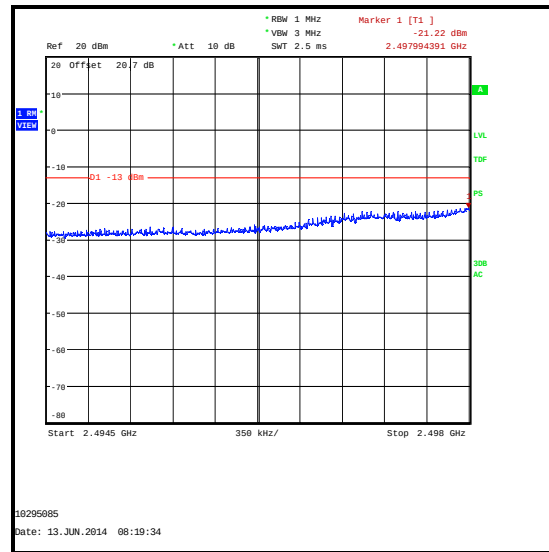
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2497 MHz to 2499 MHz / Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2497 to 2498    | QPSK              | 1                 | 0                     | -32.4                  | -13.0       | 19.4        | Complied |
| 2498 to 2499    | QPSK              | 1                 | 0                     | -23.3                  | -13.0       | 10.3        | Complied |
| 2497 to 2498    | 16QAM             | 1                 | 0                     | -32.5                  | -13.0       | 19.5        | Complied |
| 2498 to 2499    | 16QAM             | 1                 | 0                     | -23.6                  | -13.0       | 10.6        | Complied |



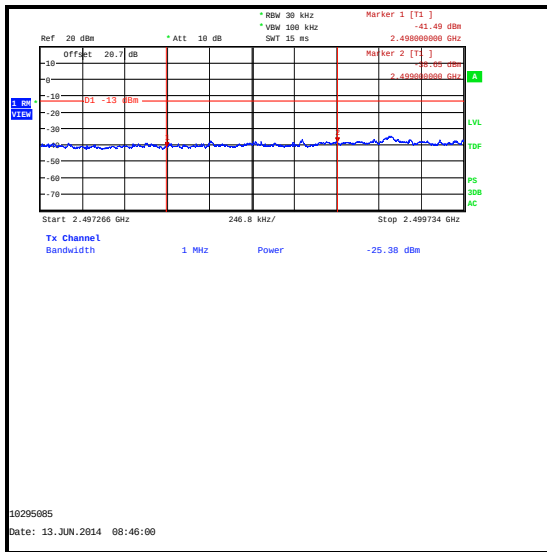
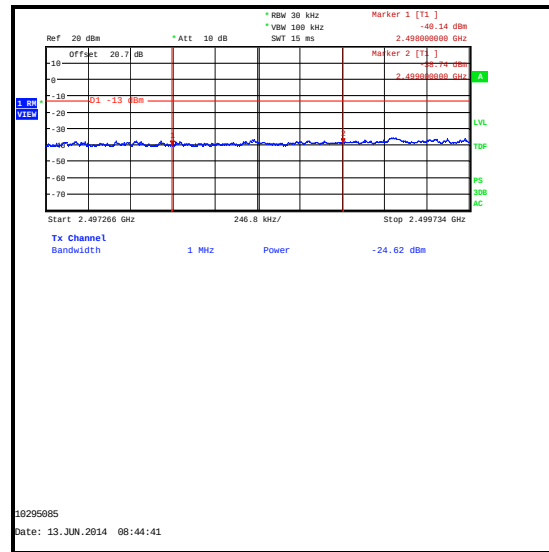
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2494.5 MHz to 2498 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Blocks | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-----------------|-----------------------|----------------------|-------------|-------------|----------|
| 2497.994        | QPSK              | 25              | 0                     | -20.9                | -13.0       | 7.9         | Complied |
| 2497.994        | 16QAM             | 25              | 0                     | -21.2                | -13.0       | 8.2         | Complied |

**QPSK****16QAM**

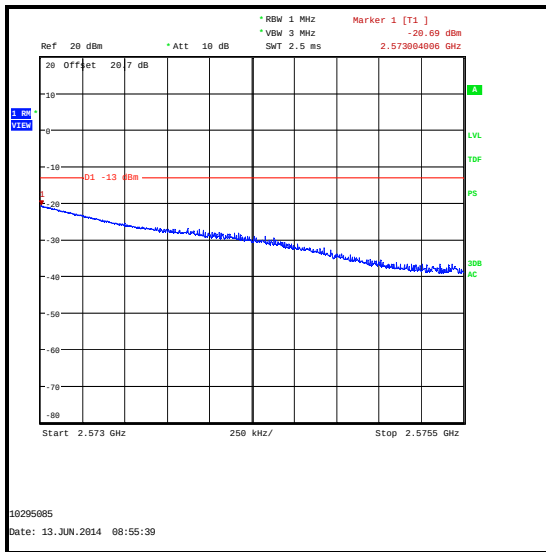
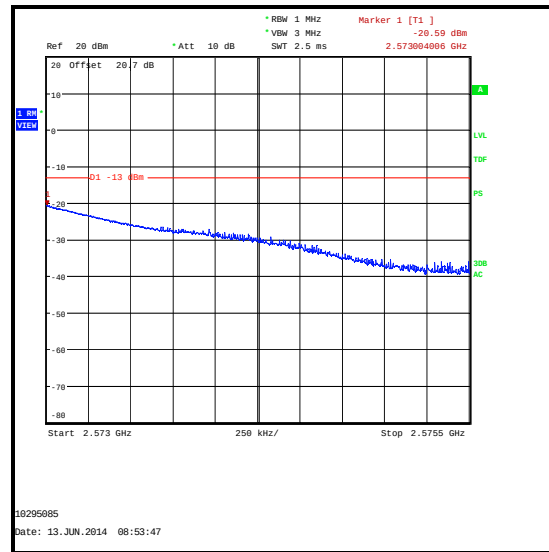
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2498 MHz to 2499 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2498 to 2499    | QPSK              | 25                | 0                     | -25.4                  | -13.0       | 12.4        | Complied |
| 2498 to 2499    | 16QAM             | 25                | 0                     | -24.6                  | -13.0       | 11.6        | Complied |

**QPSK****16QAM**

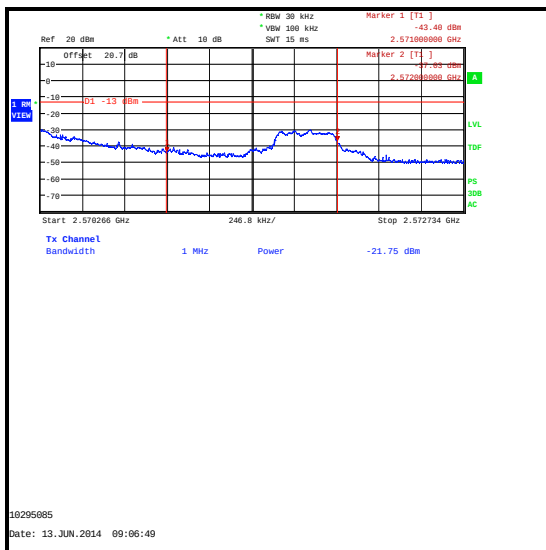
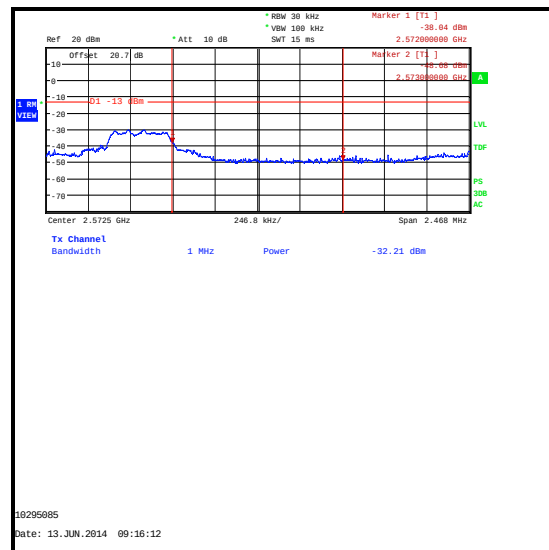
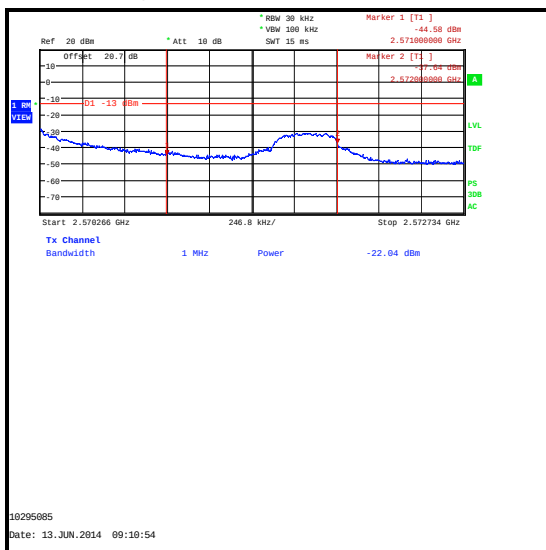
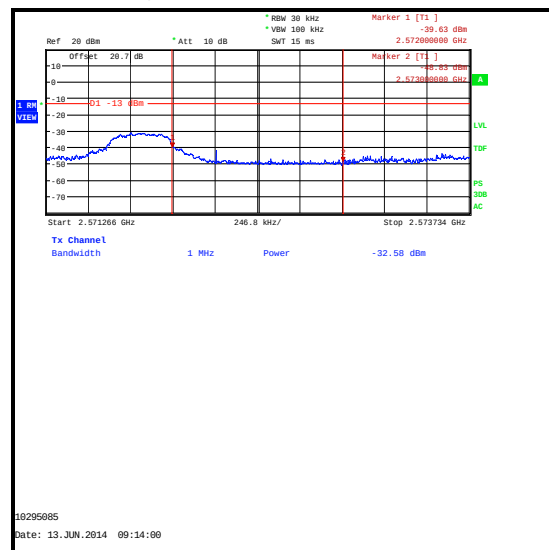
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2573 MHz to 2575.5 MHz / Sub-test 2**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2573.004        | QPSK              | 1                 | 24                    | -20.7                | -13.0       | 7.7         | Complied |
| 2573.004        | 16QAM             | 1                 | 24                    | -20.6                | -13.0       | 7.6         | Complied |

**QPSK****16QAM**

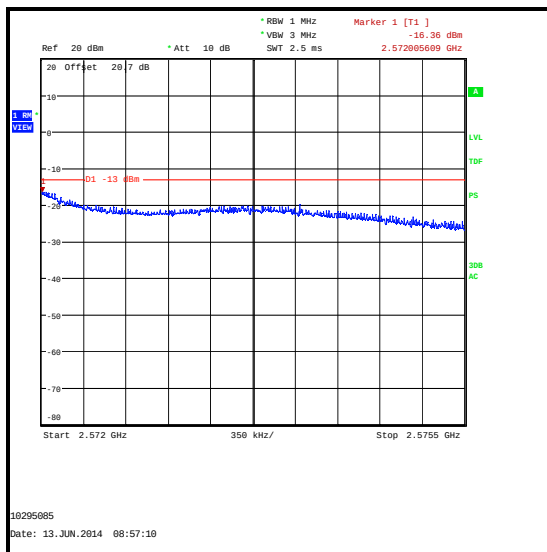
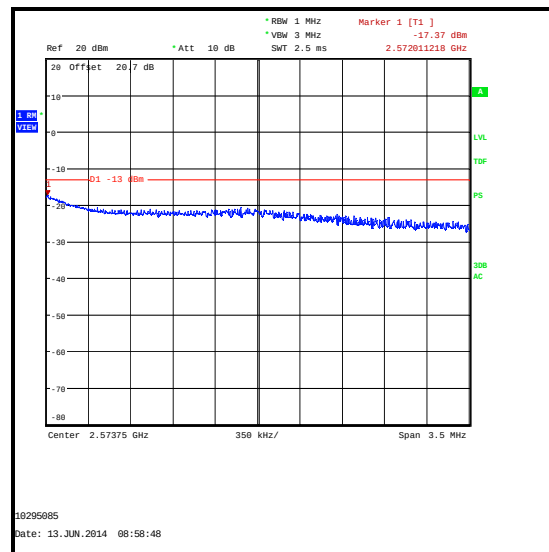
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2571 MHz to 2573 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2571 to 2572    | QPSK              | 1                 | 24                    | -21.8                  | -13.0       | 8.8         | Complied |
| 2572 to 2573    | QPSK              | 1                 | 24                    | -32.2                  | -13.0       | 19.2        | Complied |
| 2571 to 2572    | 16QAM             | 1                 | 24                    | -22.0                  | -13.0       | 9.0         | Complied |
| 2572 to 2573    | 16QAM             | 1                 | 24                    | -32.6                  | -13.0       | 19.6        | Complied |

**QPSK / 2571 to 2572 MHz****QPSK / 2572 to 2573 MHz****16QAM / 2571 to 2572 MHz****16QAM / 2572 to 2573 MHz**

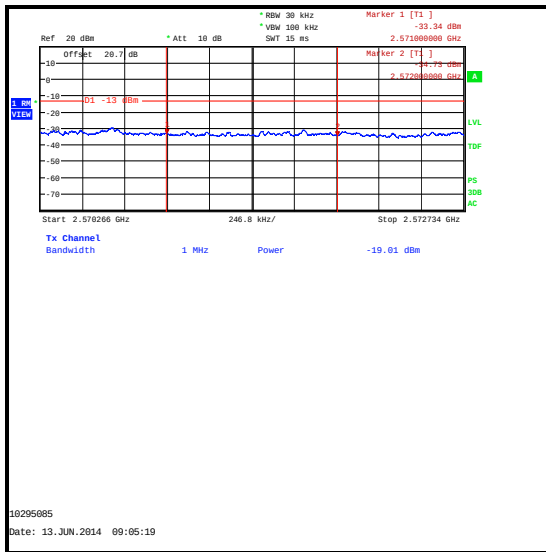
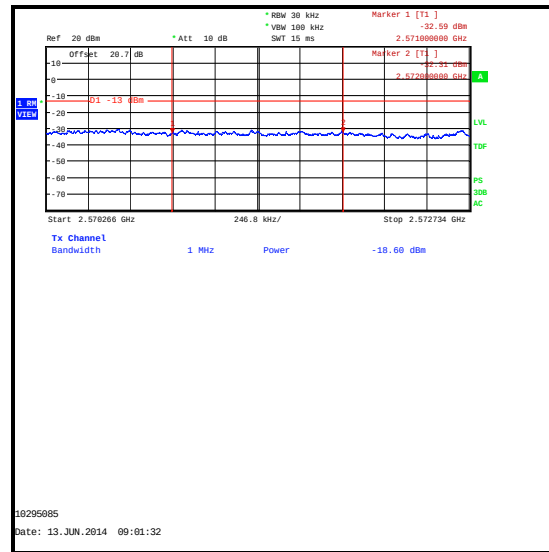
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2572 MHz to 2575.5 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2572.006        | QPSK              | 25                | 0                     | -16.4                | -13.0       | 3.4         | Complied |
| 2572.011        | 16QAM             | 25                | 0                     | -17.4                | -13.0       | 4.4         | Complied |

**QPSK****16QAM**

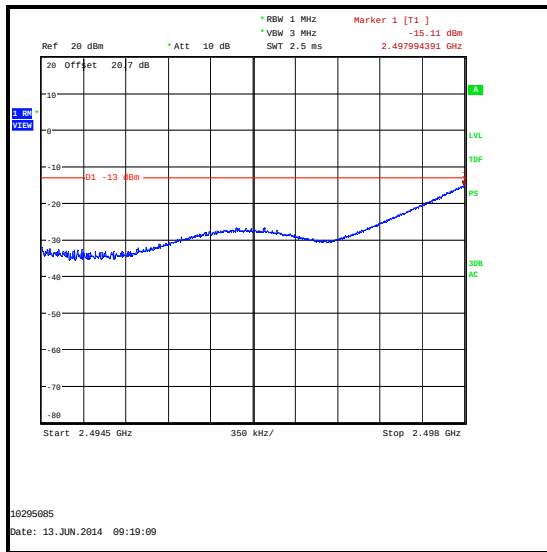
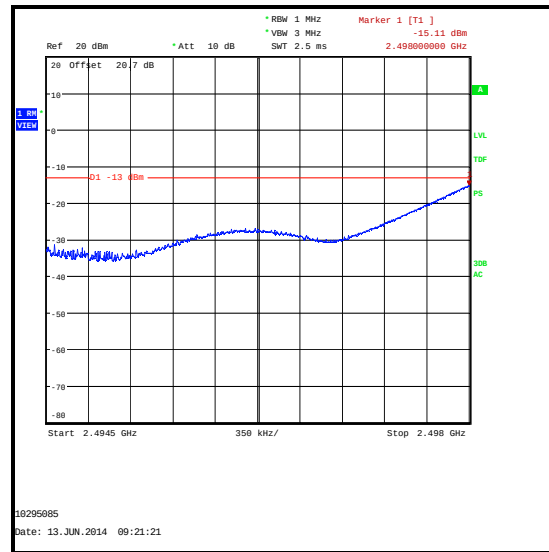
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 5 MHz Channel Bandwidth / 2571 MHz to 2572 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2571 to 2572    | QPSK              | 25                | 0                     | -19.0                  | -13.0       | 6.0         | Complied |
| 2571 to 2572    | 16QAM             | 25                | 0                     | -18.6                  | -13.0       | 5.6         | Complied |

**QPSK****16QAM**

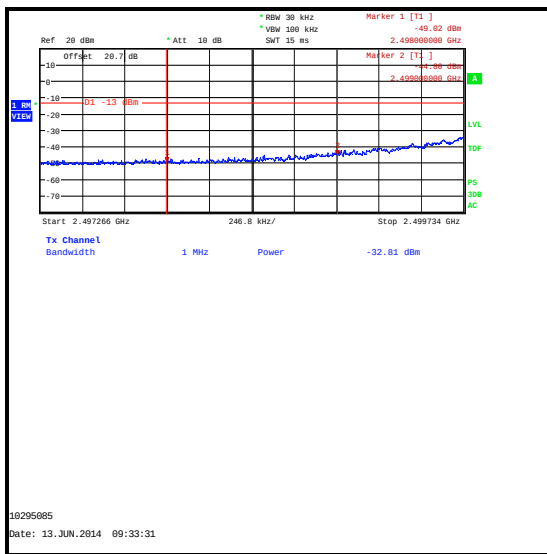
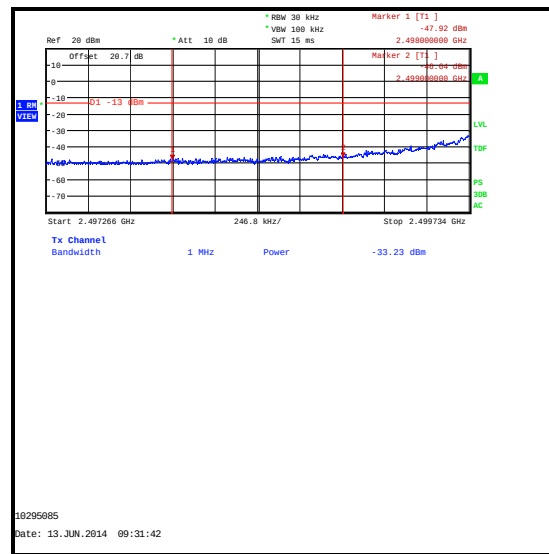
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2494.5 MHz to 2498 MHz / Sub-test 1**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2497.994        | QPSK              | 1                 | 0                     | -15.1                | -13.0       | 2.1         | Complied |
| 2498.000        | 16QAM             | 1                 | 0                     | -15.1                | -13.0       | 2.1         | Complied |

**QPSK****16QAM**

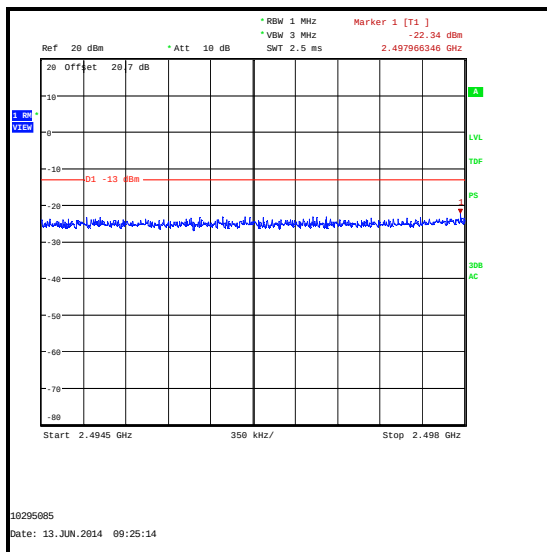
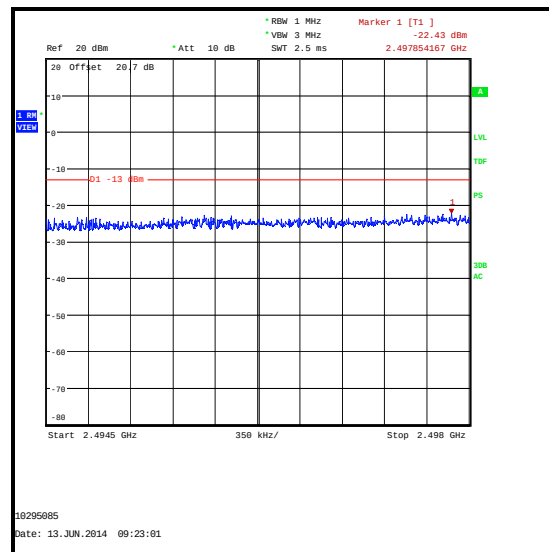
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2498 MHz to 2499 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2498 to 2499    | QPSK              | 1                 | 0                     | -32.8                  | -13.0       | 19.8        | Complied |
| 2498 to 2499    | 16QAM             | 1                 | 0                     | -33.2                  | -13.0       | 20.2        | Complied |

**QPSK****16QAM**

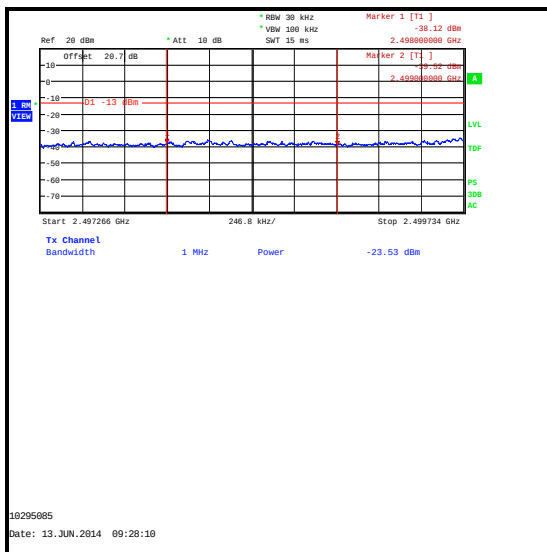
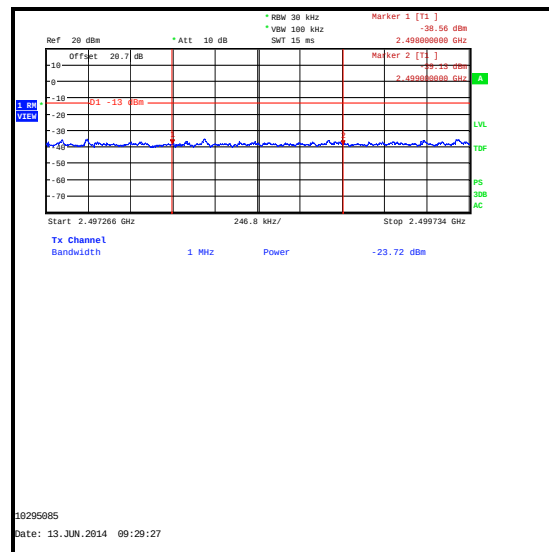
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2494.5 MHz to 2498 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2497.966        | QPSK              | 50                | 0                     | -22.3                | -13.0       | 9.3         | Complied |
| 2497.854        | 16QAM             | 50                | 0                     | -22.4                | -13.0       | 9.4         | Complied |

**QPSK****16QAM**

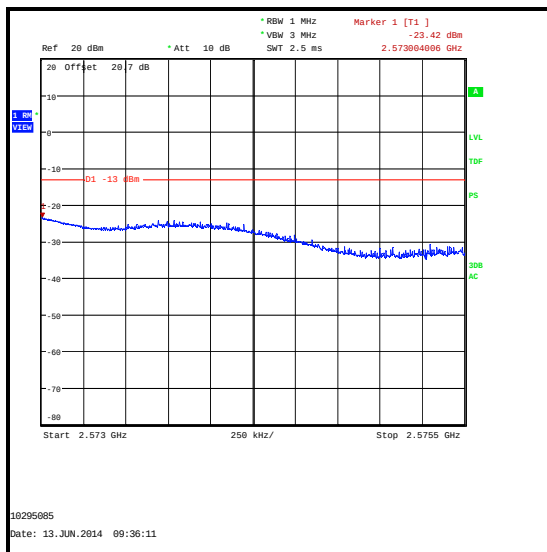
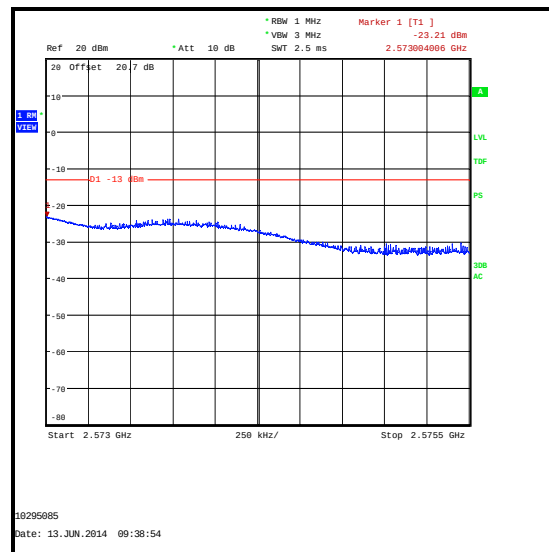
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2498 MHz to 2499 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2498 to 2499    | QPSK              | 50                | 0                     | -23.5                  | -13.0       | 10.5        | Complied |
| 2498 to 2499    | 16QAM             | 50                | 0                     | -23.7                  | -13.0       | 10.7        | Complied |

**QPSK****16QAM**

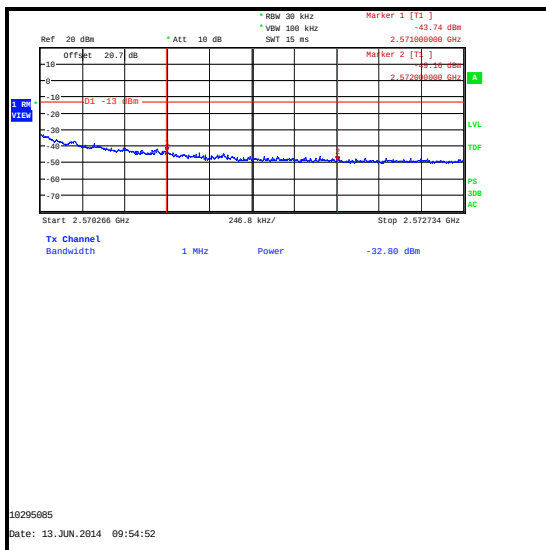
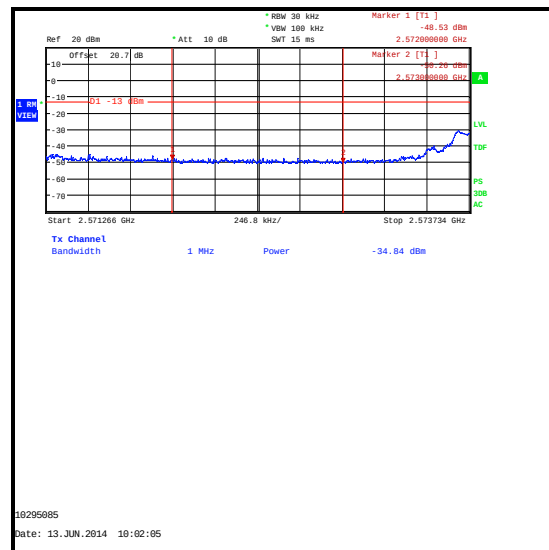
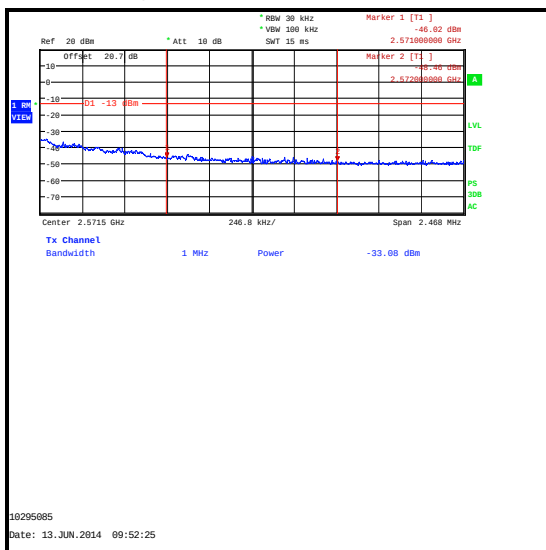
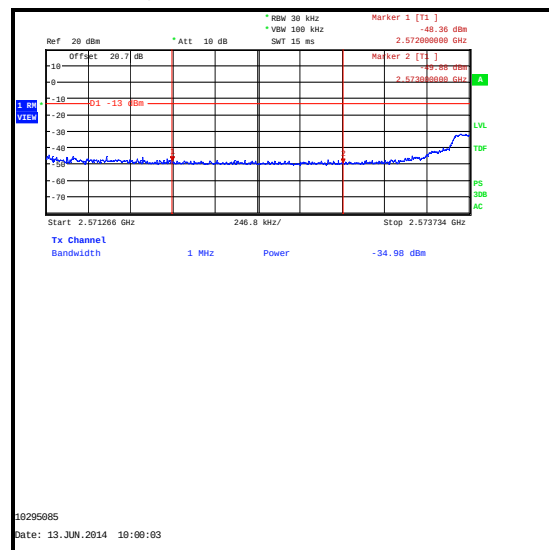
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2573 MHz to 2575.5 MHz / Sub-test 2**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2573.004        | QPSK              | 1                 | 49                    | -23.4                | -13.0       | 10.4        | Complied |
| 2573.004        | 16QAM             | 1                 | 49                    | -23.2                | -13.0       | 10.2        | Complied |

**QPSK****16QAM**

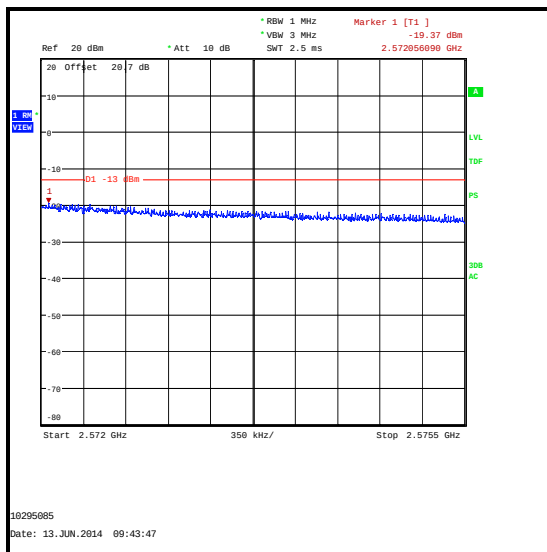
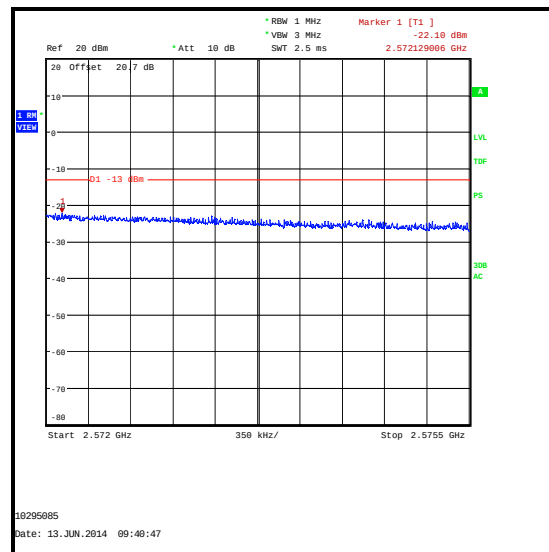
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2571 MHz to 2573 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2571 to 2572    | QPSK              | 1                 | 49                    | -32.8                  | -13.0       | 19.8        | Complied |
| 2572 to 2573    | QPSK              | 1                 | 49                    | -34.8                  | -13.0       | 21.8        | Complied |
| 2571 to 2572    | 16QAM             | 1                 | 49                    | -33.1                  | -13.0       | 20.1        | Complied |
| 2572 to 2573    | 16QAM             | 1                 | 49                    | -35.0                  | -13.0       | 22.0        | Complied |

**QPSK / 2571 to 2572 MHz****QPSK / 2572 to 2573 MHz****16QAM / 2571 to 2572 MHz****16QAM / 2572 to 2573 MHz**

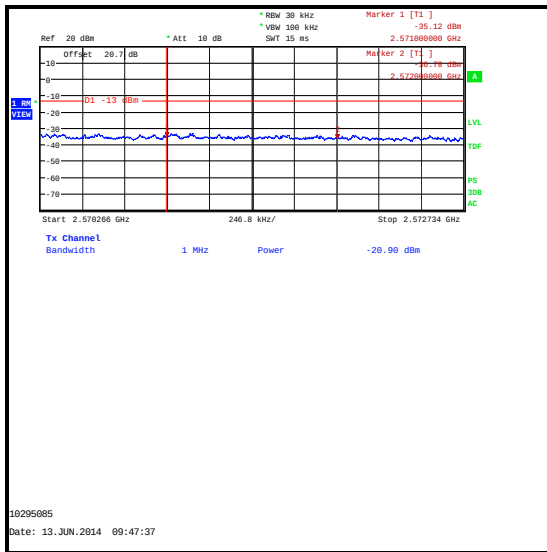
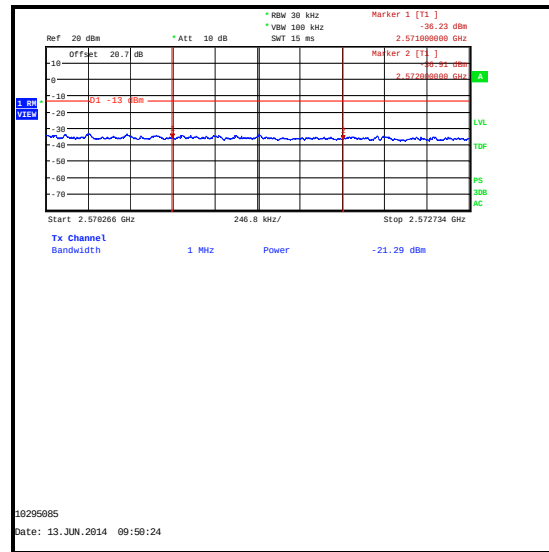
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2572 MHz to 2575.5 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2572.056        | QPSK              | 50                | 0                     | -19.4                | -13.0       | 6.4         | Complied |
| 2572.129        | 16QAM             | 50                | 0                     | -22.1                | -13.0       | 9.1         | Complied |

**QPSK****16QAM**

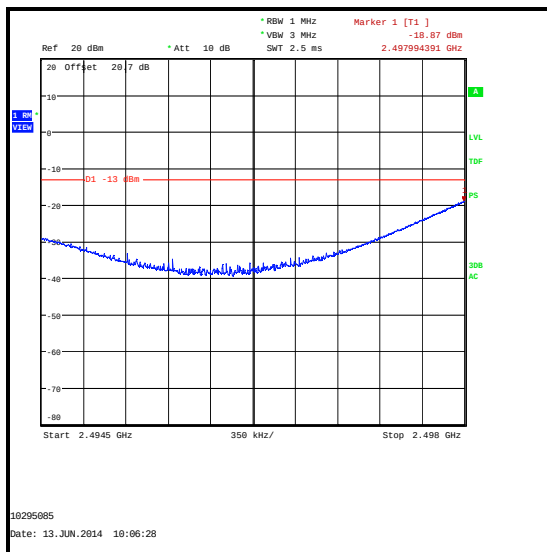
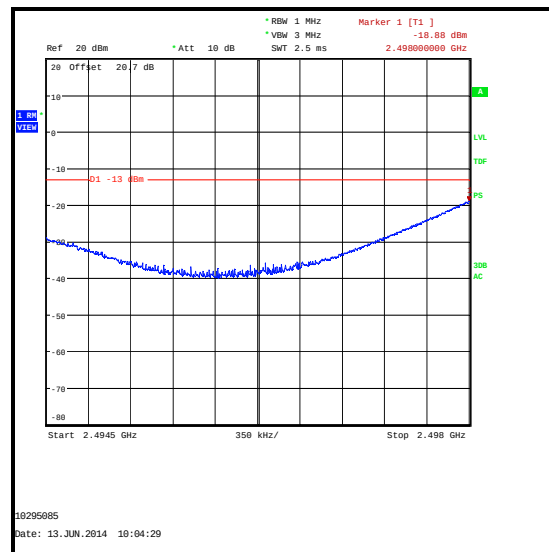
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 10 MHz Channel Bandwidth / 2571 MHz to 2572 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2571 to 2572    | QPSK              | 50                | 0                     | -20.9                  | -13.0       | 7.9         | Complied |
| 2571 to 2572    | 16QAM             | 50                | 0                     | -21.3                  | -13.0       | 8.3         | Complied |

**QPSK****16QAM**

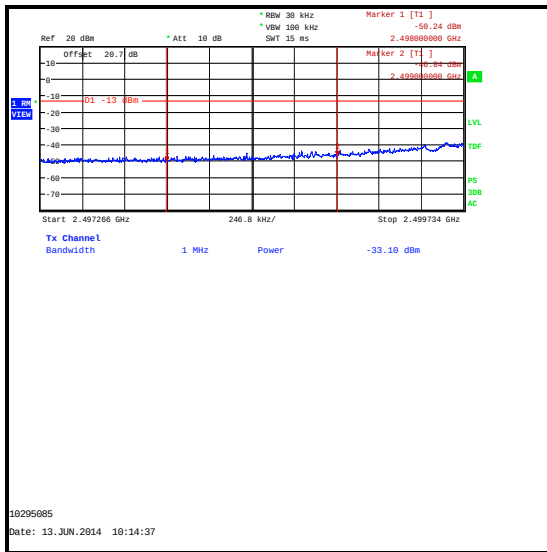
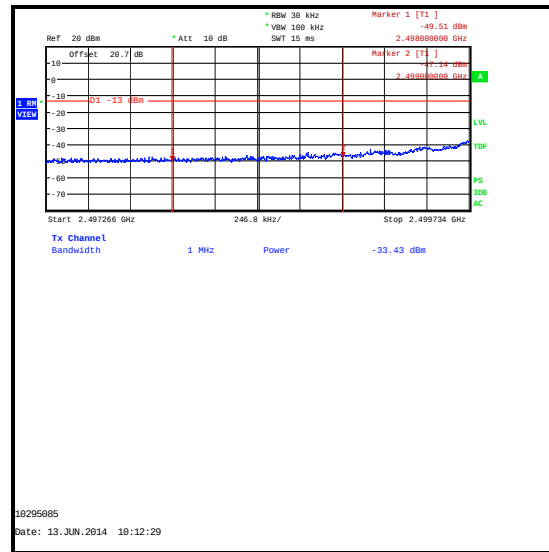
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 15 MHz Channel Bandwidth / 2494.5 MHz to 2498 MHz / Sub-test 1**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2497.994        | QPSK              | 1                 | 0                     | -18.9                | -13.0       | 5.9         | Complied |
| 2498.000        | 16QAM             | 1                 | 0                     | -18.9                | -13.0       | 5.9         | Complied |

**QPSK****16QAM**

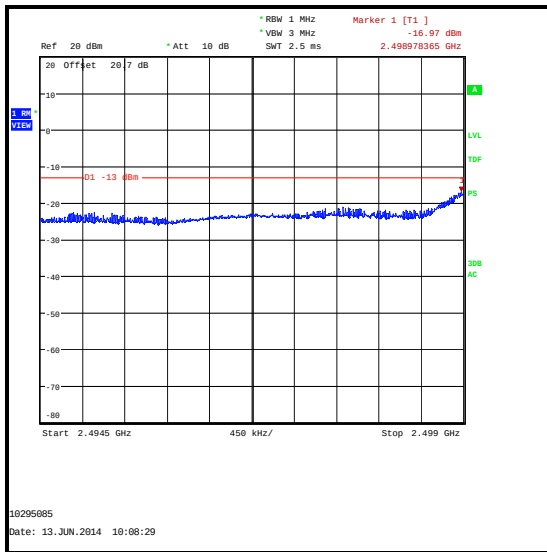
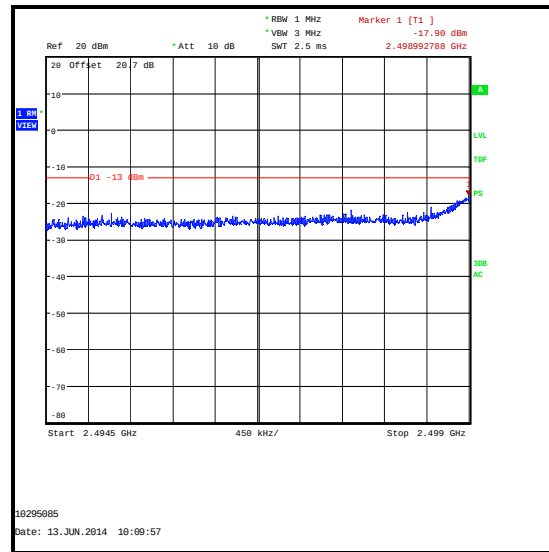
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 15 MHz Channel Bandwidth / 2498 MHz to 2499 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2498 to 2499    | QPSK              | 1                 | 0                     | -33.1                  | -13.0       | 20.1        | Complied |
| 2498 to 2499    | 16QAM             | 1                 | 0                     | -33.4                  | -13.0       | 20.4        | Complied |

**QPSK****16QAM**

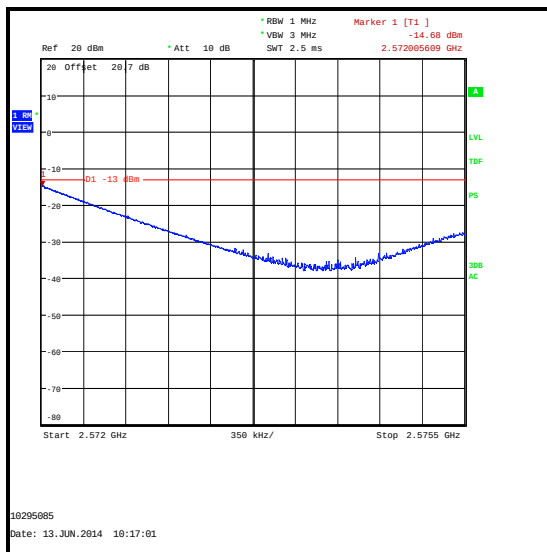
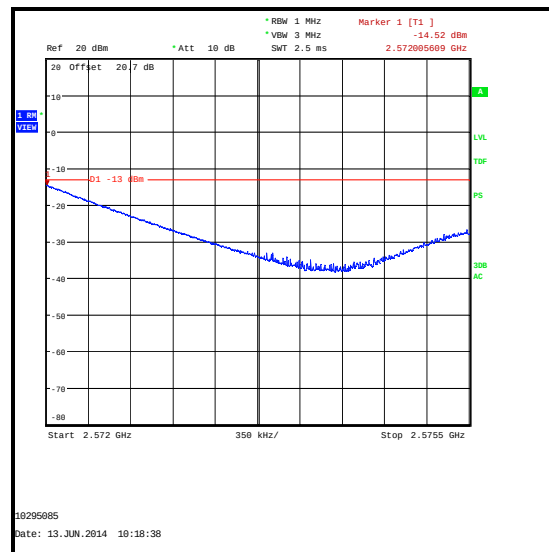
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 15 MHz Channel Bandwidth / 2494.5 MHz to 2499 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498.978        | QPSK              | 75                | 0                     | -17.0                | -13.0       | 4.0         | Complied |
| 2498.993        | 16QAM             | 75                | 0                     | -17.9                | -13.0       | 4.9         | Complied |

**QPSK****16QAM**

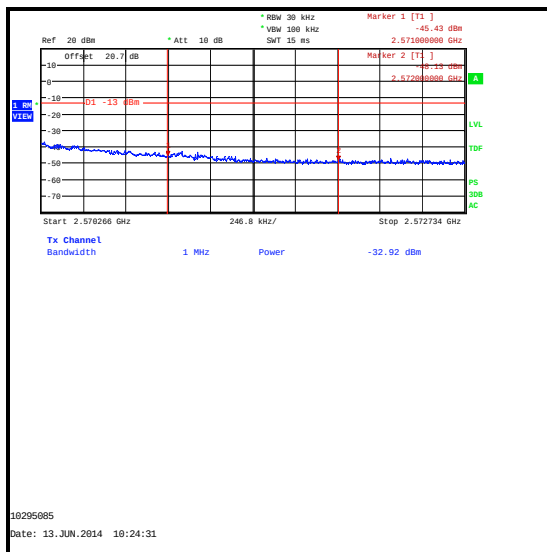
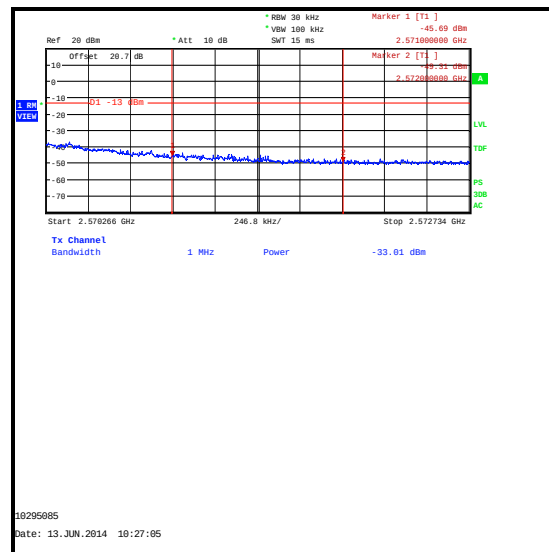
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 15 MHz Channel Bandwidth / 2572 MHz to 2575.5 MHz / Sub-test 2**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2572.006        | QPSK              | 1                 | 74                    | -14.7                | -13.0       | 1.7         | Complied |
| 2572.006        | 16QAM             | 1                 | 74                    | -14.5                | -13.0       | 1.5         | Complied |

**QPSK****16QAM**

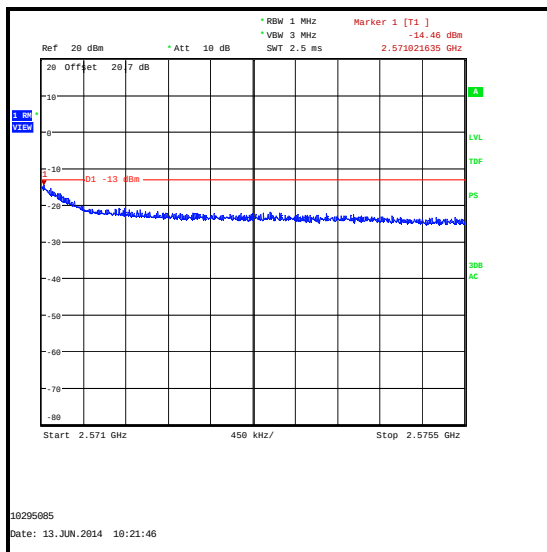
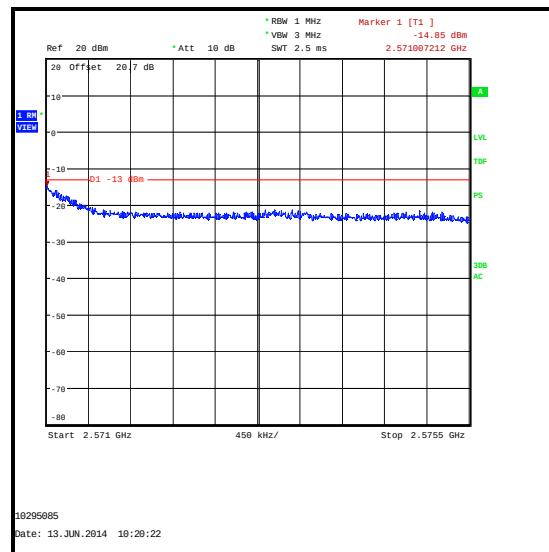
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 15 MHz Channel Bandwidth / 2571 MHz to 2572 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2571 to 2572    | QPSK              | 1                 | 74                    | -32.9                  | -13.0       | 19.9        | Complied |
| 2571 to 2572    | 16QAM             | 1                 | 74                    | -33.0                  | -13.0       | 20.0        | Complied |

**QPSK****16QAM**

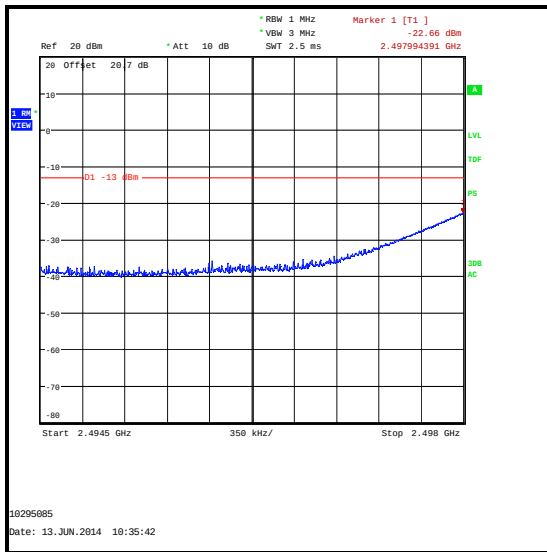
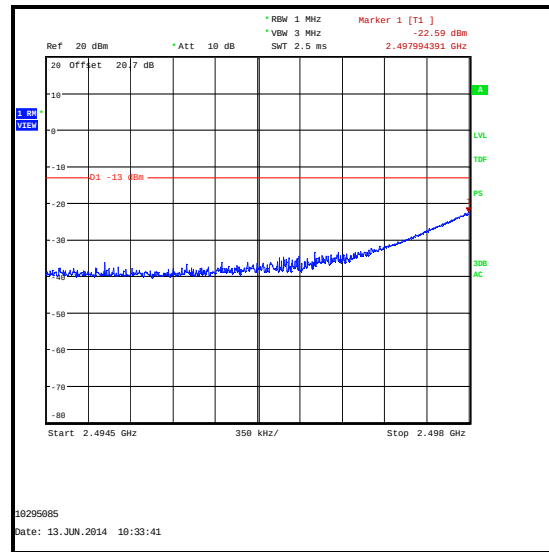
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 15 MHz Channel Bandwidth / 2571 MHz to 2575.5 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2571.021        | QPSK              | 75                | 0                     | -14.5                | -13.0       | 1.5         | Complied |
| 2571.007        | 16QAM             | 75                | 0                     | -14.9                | -13.0       | 1.9         | Complied |

**QPSK****16QAM**

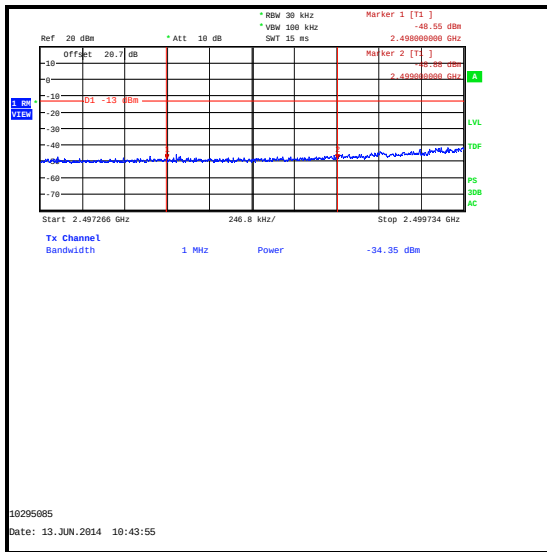
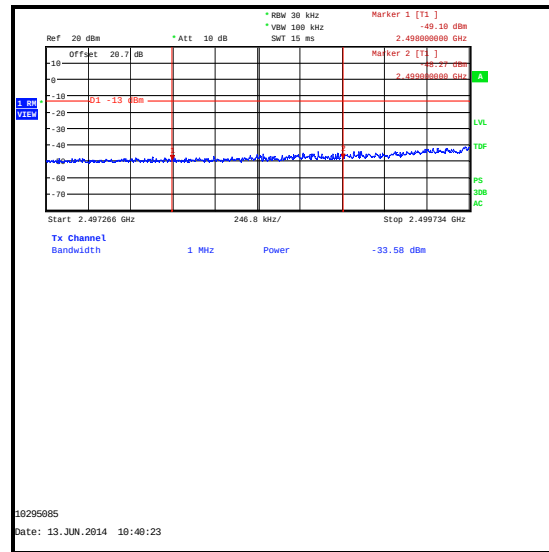
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 20 MHz Channel Bandwidth / 2494.5 MHz to 2498 MHz / Sub-test 1**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2497.994        | QPSK              | 1                 | 0                     | -22.7                | -13.0       | 9.7         | Complied |
| 2497.994        | 16QAM             | 1                 | 0                     | -22.6                | -13.0       | 9.6         | Complied |

**QPSK****16QAM**

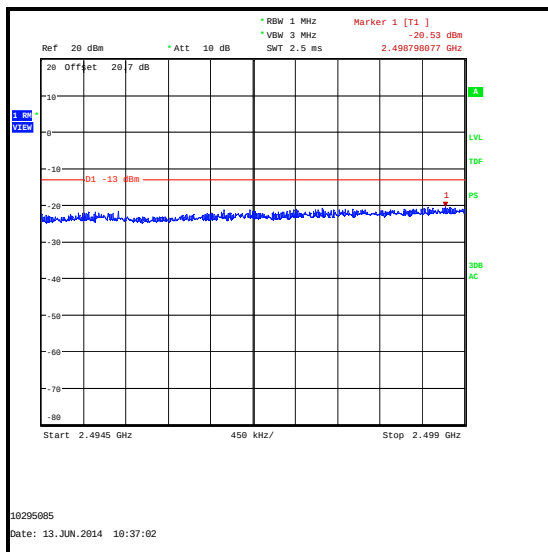
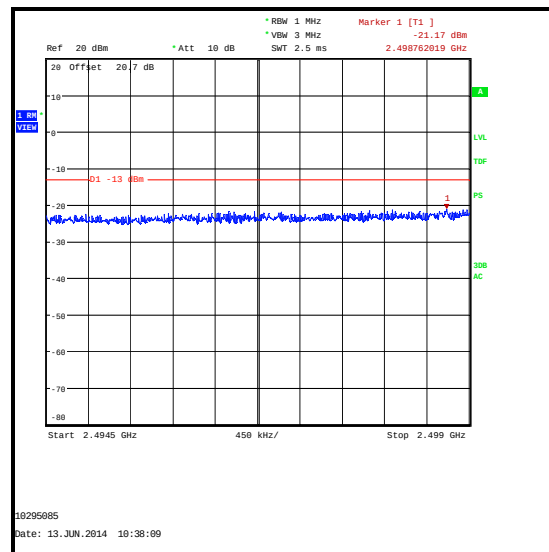
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 20 MHz Channel Bandwidth / 2498 MHz to 2499 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2498 to 2499    | QPSK              | 1                 | 0                     | -34.4                  | -13.0       | 21.4        | Complied |
| 2498 to 2499    | 16QAM             | 1                 | 0                     | -33.6                  | -13.0       | 20.6        | Complied |

**QPSK****16QAM**

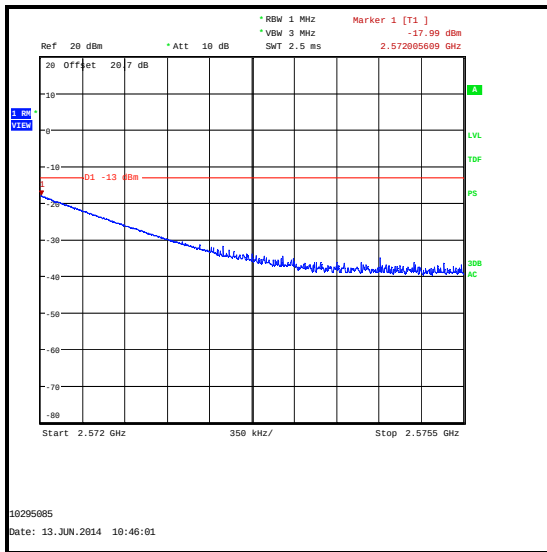
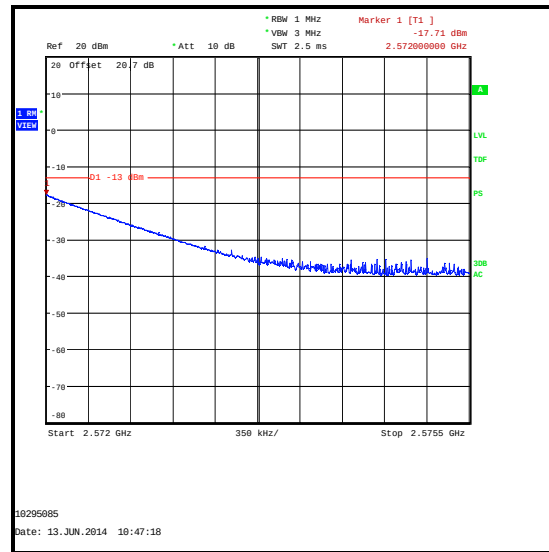
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 20 MHz Channel Bandwidth / 2494.5 MHz to 2499 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2498.798        | QPSK              | 100               | 0                     | -20.5                | -13.0       | 7.5         | Complied |
| 2498.762        | 16QAM             | 100               | 0                     | -21.2                | -13.0       | 8.2         | Complied |

**QPSK****16QAM**

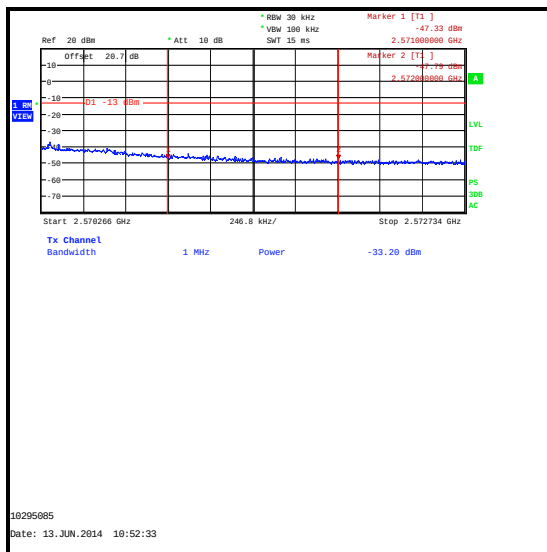
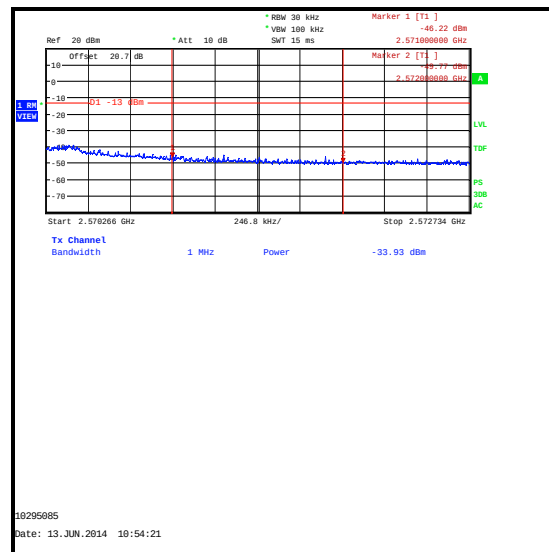
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 20 MHz Channel Bandwidth / 2572 MHz to 2575.5 MHz / Sub-test 2**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2572.006        | QPSK              | 1                 | 99                    | -18.0                | -13.0       | 5.0         | Complied |
| 2572.000        | 16QAM             | 1                 | 99                    | -17.7                | -13.0       | 4.7         | Complied |

**QPSK****16QAM**

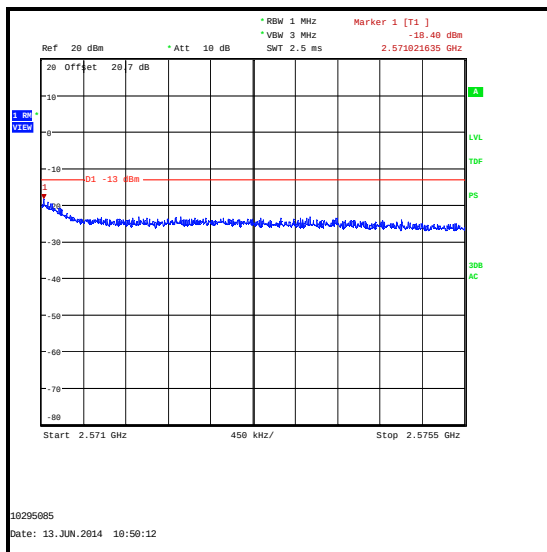
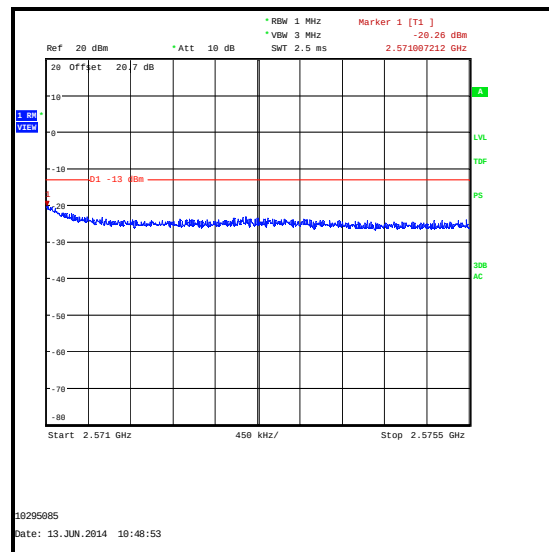
**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 20 MHz Channel Bandwidth / 2571 MHz to 2572 MHz Integrated Result**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Integrated Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|------------------------|-------------|-------------|----------|
| 2571 to 2572    | QPSK              | 1                 | 99                    | -33.2                  | -13.0       | 20.2        | Complied |
| 2571 to 2572    | 16QAM             | 1                 | 99                    | -33.9                  | -13.0       | 20.9        | Complied |

**QPSK****16QAM**

**Transmitter Radiated Emissions at Band Edges +/- 5.5 MHz (continued)****Results: 20 MHz Channel Bandwidth / 2571 MHz to 2575.5 MHz / Sub-test 4**

| Frequency (MHz) | Modulation Scheme | Resource Block(s) | Resource Block Offset | Emission Level (dBm) | Limit (dBm) | Margin (dB) | Result   |
|-----------------|-------------------|-------------------|-----------------------|----------------------|-------------|-------------|----------|
| 2571.022        | QPSK              | 100               | 0                     | -18.4                | -13.0       | 5.4         | Complied |
| 2571.007        | 16QAM             | 100               | 0                     | -20.3                | -13.0       | 7.3         | Complied |

**QPSK****16QAM****Test Equipment Used:**

| Asset No. | Instrument       | Manufacturer    | Type No.   | Serial No.  | Date Calibration Due | Cal. Interval (Months) |
|-----------|------------------|-----------------|------------|-------------|----------------------|------------------------|
| M1656     | Thermohygrometer | JM Handelspunkt | 30.5015.13 | None stated | 14 Mar 2015          | 12                     |
| K0002     | 3m RSE Chamber   | Rainford EMC    | N/A        | N/A         | 14 Nov 2014          | 12                     |
| M1874     | Test Receiver    | Rohde & Schwarz | ESU26      | 100553      | 13 May 2015          | 12                     |
| A1534     | Pre Amplifier    | Hewlett Packard | 8449B      | 3008A00405  | 18 May 2015          | 12                     |
| A1818     | Antenna          | EMCO            | 3115       | 00075692    | 14 Nov 2014          | 12                     |

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

|                          |                 |                   |              |
|--------------------------|-----------------|-------------------|--------------|
| <b>Test Engineer:</b>    | Keith Tucker    | <b>Test Date:</b> | 05 June 2014 |
| <b>Test Sample IMEI:</b> | 004402452705654 |                   |              |

|                          |                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------|
| <b>FCC Reference:</b>    | Parts 2.1055 & 27.54                                                                                    |
| <b>Test Method Used:</b> | As detailed in KDB 971168 Section 9.0 referencing ANSI TIA-603-C-2004 Section 2.2.2 and FCC Part 2.1055 |

**Environmental Conditions:**

|                               |    |
|-------------------------------|----|
| <b>Temperature (°C):</b>      | 26 |
| <b>Relative Humidity (%):</b> | 30 |

**Note(s):**

1. A voltage variation jig was connected to the EUT which was powered via a bench power supply at the nominal voltage of 3.8V.
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.

**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              | 22                   | 2502.499978              | 2500                        | 2.499978     | Complied |
| -20              | 21                   | 2502.499979              | 2500                        | 2.499979     | Complied |
| -10              | 22                   | 2502.499978              | 2500                        | 2.499978     | Complied |
| 0                | 25                   | 2502.500025              | 2500                        | 2.500025     | Complied |
| 10               | 20                   | 2502.499980              | 2500                        | 2.499980     | Complied |
| 20               | 22                   | 2502.500022              | 2500                        | 2.500022     | Complied |
| 30               | 20                   | 2502.499980              | 2500                        | 2.499980     | Complied |
| 40               | 23                   | 2502.500023              | 2500                        | 2.500023     | Complied |
| 50               | 26                   | 2502.499974              | 2500                        | 2.499974     | Complied |

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

| Temperature (°C) | Frequency Error (Hz) | Measured Frequency (MHz) | Upper Band Edge Limit (MHz) | Margin (MHz) | Result   |
|------------------|----------------------|--------------------------|-----------------------------|--------------|----------|
| -30              | 35                   | 2567.500035              | 2570                        | 2.499965     | Complied |
| -20              | 36                   | 2567.500036              | 2570                        | 2.499964     | Complied |
| -10              | 22                   | 2567.500022              | 2570                        | 2.499978     | Complied |
| 0                | 23                   | 2567.500023              | 2570                        | 2.499977     | Complied |
| 10               | 31                   | 2567.500031              | 2570                        | 2.499969     | Complied |
| 20               | 32                   | 2567.500032              | 2570                        | 2.499968     | Complied |
| 30               | 25                   | 2567.500025              | 2570                        | 2.499975     | Complied |
| 40               | 35                   | 2567.500035              | 2570                        | 2.499965     | Complied |
| 50               | 22                   | 2567.500022              | 2570                        | 2.499978     | Complied |

**Test Equipment Used:**

| Asset No. | Instrument                  | Manufacturer    | Type No.       | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|-----------------------------|-----------------|----------------|-------------|-----------------------|------------------------|
| M1659     | Thermohygrometer            | JM Handelpunkt  | 30.5015.13     | None stated | 14 Mar 2015           | 12                     |
| M1870     | Wideband Radio Comms Tester | Rohde & Schwarz | CMW500         | 145919      | 05 May 2015           | 12                     |
| E0513     | Environmental Chamber       | TAS             | LT600 Series 3 | 23900506    | Calibrated before use | -                      |
| M1249     | Thermometer                 | Fluke           | 52II           | 88800049    | 02 May 2015           | 12                     |
| S021      | Dual DC power supply        | Tti             | CPX200         | 061034      | Calibrated before use | -                      |
| M1251     | Multimeter                  | Fluke           | 175            | 89170179    | 19 May 2015           | 12                     |

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

|                   |                 |            |              |
|-------------------|-----------------|------------|--------------|
| Test Engineer:    | Keith Tucker    | Test Date: | 05 June 2014 |
| Test Sample IMEI: | 004402452705654 |            |              |

|                   |                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------|
| FCC Reference:    | Parts 2.1055 & 27.54                                                                                    |
| Test Method Used: | As detailed in KDB 971168 Section 9.0 referencing ANSI TIA-603-C-2004 Section 2.2.2 and FCC Part 2.1055 |

**Environmental Conditions:**

|                        |    |
|------------------------|----|
| Temperature (°C):      | 26 |
| Relative Humidity (%): | 30 |

**Note(s):**

1. A voltage variation jig was connected to the EUT which was powered via 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.

**Results: Bottom Channel (2502.5 MHz)**

| Supply Voltage (V) | Frequency Error (Hz) | Measured Frequency (MHz) | Lower Band Edge Limit (MHz) | Margin (MHz) | Result   |
|--------------------|----------------------|--------------------------|-----------------------------|--------------|----------|
| 3.42               | 27                   | 2502.500027              | 2500                        | 2.500027     | Complied |
| 4.18               | 24                   | 2502.500024              | 2500                        | 2.500024     | Complied |

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

| Supply Voltage (V) | Frequency Error (Hz) | Measured Frequency (MHz) | Upper Band Edge Limit (MHz) | Margin (MHz) | Result   |
|--------------------|----------------------|--------------------------|-----------------------------|--------------|----------|
| 3.42               | 35                   | 2567.500035              | 2570                        | 2.499965     | Complied |
| 4.18               | 36                   | 2567.500036              | 2570                        | 2.499964     | Complied |

**Transmitter Frequency Stability (Voltage Variation) (continued)****Test Equipment Used:**

| Asset No. | Instrument                  | Manufacturer    | Type No.   | Serial No.  | Date Calibration Due  | Cal. Interval (Months) |
|-----------|-----------------------------|-----------------|------------|-------------|-----------------------|------------------------|
| M1659     | Thermohygrometer            | JM Handelspunkt | 30.5015.13 | None stated | 14 Mar 2015           | 12                     |
| M1870     | Wideband Radio Comms Tester | Rohde & Schwarz | CMW500     | 145919      | 05 May 2015           | 12                     |
| S021      | Dual DC power supply        | Tti             | CPX200     | 061034      | Calibrated before use | -                      |
| M1251     | Multimeter                  | Fluke           | 175        | 89170179    | 19 May 2015           | 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".

| Measurement Type            | Range            | Confidence Level (%) | Calculated Uncertainty |
|-----------------------------|------------------|----------------------|------------------------|
| Conducted Output Power      | 2500 to 2570 MHz | 95%                  | $\pm 1.13$ dB          |
| Frequency Stability         | 2500 to 2570 MHz | 95%                  | $\pm 23$ Hz            |
| Occupied Bandwidth          | 2500 to 2570 MHz | 95%                  | $\pm 3.92$ %           |
| Radiated Spurious Emissions | 30 MHz to 1 GHz  | 95%                  | $\pm 5.65$ 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            | -                | -      | EUT Description update |

--- END OF REPORT ---