

FCC PART 22H, PART 24E  
FCC PART 27  
MEASUREMENT AND TEST REPORT

For

**Posh Mobile Limited**

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**FCC ID: 2ABN6L540**

|                                                |                                                                                                                                                                                                                                                         |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Type:</b><br>Original Report         | <b>Product Type:</b><br>Volt LTE                                                                                                                                                                                                                        |
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| <b>Report Number:</b> RDG160503003-00C         |                                                                                                                                                                                                                                                         |
| <b>Report Date:</b> 2016-05-19                 |                                                                                                                                                                                                                                                         |
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *Posh Mobile Limited*'s product, model number: *L540(FCC ID: 2ABN6L540)* (the "EUT") in this report was a *Volt LTE*, which was measured approximately: 14.2 cm (L) x 7.0 cm (W) x 0.9cm (H), rated input voltage: DC3.8V rechargeable Li-ion battery or DC5V charging from adapter.

Adapter information:

PART NO.: C01-L540

MODEL: HJ-0502000W1-US

INPUT: 100-240V ~ 50/60Hz 0.3A

OUTPUT: DC 5V, 2A

P/N :5834004751

*All measurement and test data in this report was gathered from production sample serial number: 160503003 (Assigned by BACL, Dongguan). The EUT was received on 2016-05-03.*

### Objective

This report is prepared on behalf of *Posh Mobile Limited* in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E and part 27 of the Federal Communications Commission's rules.

The objective is to determine compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, spurious emissions at antenna terminal, spurious radiated emission, frequency stability and band edge.

### Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: 2ABN6L540  
FCC Part 15C DSS submissions with FCC ID: 2ABN6L540  
FCC Part 15C DTS submissions with FCC ID: 2ABN6L540

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services

Part 24 Subpart E - Personal Communication Services

Part 27 – Miscellaneous wireless communications services

Applicable Standards: TIA/EIA 603-D-2010.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp.(Dongguan).

## **Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communications Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 06, 2015.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

## SYSTEM TEST CONFIGURATION

### Justification

The EUT was configured for testing according to TIA/EIA-603-D-2010.

The test items were performed with the EUT operating at testing mode.

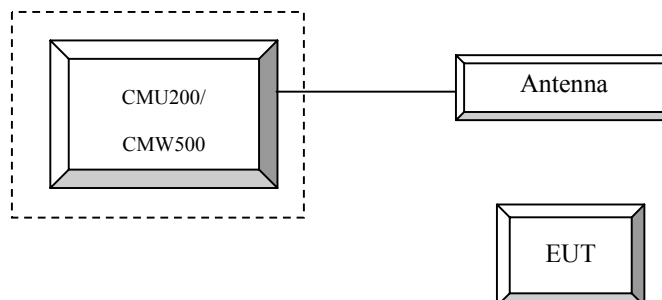
### Equipment Modifications

No modification was made to the EUT.

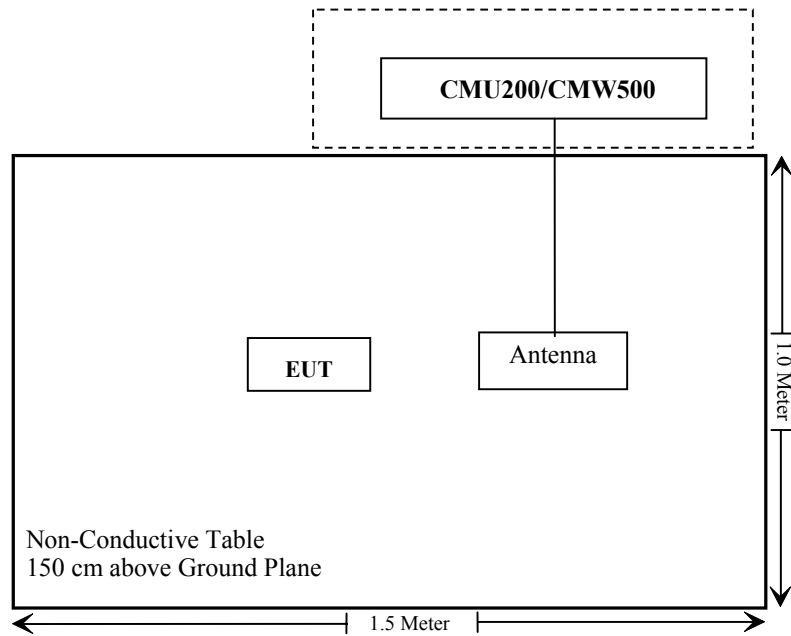
### Support Equipment List and Details

| Manufacturer | Description                          | Model  | Serial Number |
|--------------|--------------------------------------|--------|---------------|
| R&S          | Universal Radio Communication Tester | CMU200 | 109038        |
| R&S          | Universal Radio Communication Tester | CMW500 | T-03-EM342    |
| N/A          | ANTENNA                              | N/A    | N/A           |

### Configuration of Test Setup



## Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS**

| FCC Rules                                          | Description of Test                                                    | Result         |
|----------------------------------------------------|------------------------------------------------------------------------|----------------|
| §1.1310, §2.1093                                   | RF Exposure                                                            | Compliance     |
| §2.1046;<br>§ 22.913 (a); § 24.232 (c);<br>§27.50  | RF Output Power                                                        | Compliance     |
| § 2.1047                                           | Modulation Characteristics                                             | Not Applicable |
| § 2.1049; § 22.905<br>§ 22.917; § 24.238; §27.53   | Occupied Bandwidth                                                     | Compliance     |
| § 2.1051,<br>§ 22.917 (a); § 24.238 (a);<br>§27.53 | Spurious Emissions at Antenna Terminal                                 | Compliance     |
| § 2.1053<br>§ 22.917 (a); § 24.238 (a);<br>§27.53  | Spurious Radiation Emissions                                           | Compliance     |
| § 22.917 (a); § 24.238 (a);<br>§27.53              | Out of band emission, Band Edge                                        | Compliance     |
| § 2.1055<br>§ 22.355; § 24.235; §27.54             | Frequency stability vs. temperature<br>Frequency stability vs. voltage | Compliance     |



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## **FCC §1.1310 & §2.1093- RF EXPOSURE**

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### **Applicable Standard**

FCC§1.1310 and §2.1093.

### **Test Result**

Compliant, please refer to the SAR report: RDG160503003-20.

## **FCC §2.1047 - MODULATION CHARACTERISTIC**

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According to FCC § 2.1047(d), Part 22H & 24E, Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

**FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50 - RF OUTPUT POWER****Applicable Standard**

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications..

According to FCC §2.1046 and §27.50 (d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

According to §24.232 (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

**Test Procedure****GSM/GPRS**

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + GPRS or GSM + EGSM

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850

> 30 dBm for GPRS 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desired test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0 > 4 dB

Slot Config > Unchanged (if already set under MS signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3

Network Coding Scheme > CS4 (GPRS)

Bit Stream > 2E9-1 PSR Bit Stream

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal on to turn on the signal and change settings

**WCDMA-Release 99**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

|                                   |                         |              |
|-----------------------------------|-------------------------|--------------|
| <b>WCDMA<br/>General Settings</b> | Loopback Mode           | Test Mode 1  |
|                                   | Rel99 RMC               | 12.2kbps RMC |
|                                   | Power Control Algorithm | Algorithm2   |
|                                   | $\beta_c / \beta_d$     | 8/15         |

**WCDMA HSDPA**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

|                                    | Mode                            | HSDPA        | HSDPA | HSDPA | HSDPA |
|------------------------------------|---------------------------------|--------------|-------|-------|-------|
|                                    | Subset                          | 1            | 2     | 3     | 4     |
| <b>WCDMA<br/>General Settings</b>  | Loopback Mode                   | Test Mode 1  |       |       |       |
|                                    | Rel99 RMC                       | 12.2kbps RMC |       |       |       |
|                                    | HSDPA FRC                       | H-Set1       |       |       |       |
|                                    | Power Control Algorithm         | Algorithm2   |       |       |       |
|                                    | $\beta_c$                       | 2/15         | 12/15 | 15/15 | 15/15 |
|                                    | $\beta_d$                       | 15/15        | 15/15 | 8/15  | 4/15  |
|                                    | $\beta_d$ (SF)                  | 64           |       |       |       |
|                                    | $\beta_c / \beta_d$             | 2/15         | 12/15 | 15/8  | 15/4  |
|                                    | $\beta_{hs}$                    | 4/15         | 24/15 | 30/15 | 30/15 |
|                                    | MPR(dB)                         | 0            | 0     | 0.5   | 0.5   |
| <b>HSDPA<br/>Specific Settings</b> | DACK                            | 8            |       |       |       |
|                                    | DNAK                            | 8            |       |       |       |
|                                    | DCQI                            | 8            |       |       |       |
|                                    | Ack-Nack repetition factor      | 3            |       |       |       |
|                                    | CQI Feedback                    | 4ms          |       |       |       |
|                                    | CQI Repetition Factor           | 2            |       |       |       |
|                                    | $A_{hs} = \beta_{hs} / \beta_c$ | 30/15        |       |       |       |

**WCDMA HSUPA**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

|                                  | Mode                                | HSUPA                                                                                                                                        | HSUPA                                                | HSUPA                                                                                                                                        | HSUPA | HSUPA |
|----------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
|                                  | Subset                              | 1                                                                                                                                            | 2                                                    | 3                                                                                                                                            | 4     | 5     |
| WCDM<br>A<br>General<br>Settings | Loopback Mode                       | Test Mode 1                                                                                                                                  |                                                      |                                                                                                                                              |       |       |
|                                  | Rel99 RMC                           | 12.2kbps RMC                                                                                                                                 |                                                      |                                                                                                                                              |       |       |
|                                  | HSDPA FRC                           | H-Set1                                                                                                                                       |                                                      |                                                                                                                                              |       |       |
|                                  | HSUPA Test                          | HSUPA Loopback                                                                                                                               |                                                      |                                                                                                                                              |       |       |
|                                  | Power Control<br>Algorithm          | Algorithm2                                                                                                                                   |                                                      |                                                                                                                                              |       |       |
|                                  | $\beta_c$                           | 11/15                                                                                                                                        | 6/15                                                 | 15/15                                                                                                                                        | 2/15  | 15/15 |
|                                  | $\beta_d$                           | 15/15                                                                                                                                        | 15/15                                                | 9/15                                                                                                                                         | 15/15 | 0     |
|                                  | $\beta_{ec}$                        | 209/225                                                                                                                                      | 12/15                                                | 30/15                                                                                                                                        | 2/15  | 5/15  |
|                                  | $\beta_c/\beta_d$                   | 11/15                                                                                                                                        | 6/15                                                 | 15/9                                                                                                                                         | 2/15  | -     |
|                                  | $\beta_{hs}$                        | 22/15                                                                                                                                        | 12/15                                                | 30/15                                                                                                                                        | 4/15  | 5/15  |
|                                  | CM(dB)                              | 1.0                                                                                                                                          | 3.0                                                  | 2.0                                                                                                                                          | 3.0   | 1.0   |
|                                  | MPR(dB)                             | 0                                                                                                                                            | 2                                                    | 1                                                                                                                                            | 2     | 0     |
| HSDPA<br>Specific<br>Settings    | DACK                                | 8                                                                                                                                            |                                                      |                                                                                                                                              |       |       |
|                                  | DNAK                                | 8                                                                                                                                            |                                                      |                                                                                                                                              |       |       |
|                                  | DCQI                                | 8                                                                                                                                            |                                                      |                                                                                                                                              |       |       |
|                                  | Ack-Nack repetition<br>factor       | 3                                                                                                                                            |                                                      |                                                                                                                                              |       |       |
|                                  | CQI Feedback                        | 4ms                                                                                                                                          |                                                      |                                                                                                                                              |       |       |
|                                  | CQI Repetition<br>Factor            | 2                                                                                                                                            |                                                      |                                                                                                                                              |       |       |
|                                  | Ahs= $\beta_{hs}/\beta_c$           | 30/15                                                                                                                                        |                                                      |                                                                                                                                              |       |       |
| HSUPA<br>Specific<br>Settings    | DE-DPCCH                            | 6                                                                                                                                            | 8                                                    | 8                                                                                                                                            | 5     | 7     |
|                                  | DHARQ                               | 0                                                                                                                                            | 0                                                    | 0                                                                                                                                            | 0     | 0     |
|                                  | AG Index                            | 20                                                                                                                                           | 12                                                   | 15                                                                                                                                           | 17    | 21    |
|                                  | ETFCI                               | 75                                                                                                                                           | 67                                                   | 92                                                                                                                                           | 71    | 81    |
|                                  | Associated Max UL<br>Data Rate kbps | 242.1                                                                                                                                        | 174.9                                                | 482.8                                                                                                                                        | 205.8 | 308.9 |
|                                  | Reference E_FCIs                    | E-TFCI 11 E<br>E-TFCI PO 4<br>E-TFCI 67<br>E-TFCI PO 18<br>E-TFCI 71<br>E-TFCI PO23<br>E-TFCI 75<br>E-TFCI PO26<br>E-TFCI 81<br>E-TFCI PO 27 | E-TFCI 11<br>E-TFCI PO4<br>E-TFCI 92<br>E-TFCI PO 18 | E-TFCI 11 E<br>E-TFCI PO 4<br>E-TFCI 67<br>E-TFCI PO 18<br>E-TFCI 71<br>E-TFCI PO23<br>E-TFCI 75<br>E-TFCI PO26<br>E-TFCI 81<br>E-TFCI PO 27 |       |       |
|                                  |                                     |                                                                                                                                              |                                                      |                                                                                                                                              |       |       |
|                                  |                                     |                                                                                                                                              |                                                      |                                                                                                                                              |       |       |

**HSPA+**

The following tests were conducted according to the test requirements in Table C.11.1.4 of 3GPP TS 34.121-1

| Sub-test | $\beta_c$<br>(Note 3) | $\beta_d$ | $\beta_{HS}$<br>(Note 1) | $\beta_{ec}$ | $\beta_{ed}$<br>(2xSF2)<br>(Note 4)            | $\beta_{ed}$<br>(2xSF4)<br>(Note 4)            | CM<br>(dB)<br>(Note 2) | MPR<br>(dB)<br>(Note 2) | AG<br>Index<br>(Note 4) | E-TFCI<br>(Note 5) | E-TFCI<br>(boost) |
|----------|-----------------------|-----------|--------------------------|--------------|------------------------------------------------|------------------------------------------------|------------------------|-------------------------|-------------------------|--------------------|-------------------|
| 1        | 1                     | 0         | 30/15                    | 30/15        | $\beta_{ed1}$ : 30/15<br>$\beta_{ed2}$ : 30/15 | $\beta_{ed3}$ : 24/15<br>$\beta_{ed4}$ : 24/15 | 3.5                    | 2.5                     | 14                      | 105                | 105               |

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.

Note 4:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

**DC-HSDPA**

The following tests were conducted according to the test requirements in Table C.8.1.12 of 3GPP TS 34.121-1

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

| Parameter                                                                                                                                              | Unit      | Value |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| Nominal Avg. Inf. Bit Rate                                                                                                                             | kbps      | 60    |
| Inter-TTI Distance                                                                                                                                     | TTI's     | 1     |
| Number of HARQ Processes                                                                                                                               | Processes | 6     |
| Information Bit Payload ( $N_{INF}$ )                                                                                                                  | Bits      | 120   |
| Number Code Blocks                                                                                                                                     | Blocks    | 1     |
| Binary Channel Bits Per TTI                                                                                                                            | Bits      | 960   |
| Total Available SML's in UE                                                                                                                            | SML's     | 19200 |
| Number of SML's per HARQ Proc.                                                                                                                         | SML's     | 3200  |
| Coding Rate                                                                                                                                            |           | 0.15  |
| Number of Physical Channel Codes                                                                                                                       | Codes     | 1     |
| Modulation                                                                                                                                             |           | QPSK  |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.               |           |       |
| Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. |           |       |

**LTE:**

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**

| Modulation | Channel bandwidth / Transmission bandwidth (RB) |         |       |        |        |        | MPR (dB) |
|------------|-------------------------------------------------|---------|-------|--------|--------|--------|----------|
|            | 1.4 MHz                                         | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |          |
| QPSK       | > 5                                             | > 4     | > 8   | > 12   | > 16   | > 18   | ≤ 1      |
| 16 QAM     | ≤ 5                                             | ≤ 4     | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | ≤ 1      |
| 64 QAM     | > 5                                             | > 4     | > 8   | > 12   | > 16   | > 18   | ≤ 2      |

The allowed A-MPR values specified below in Table 6.2.4-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS\_01".

**Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)**

| Network Signalling value | Requirements (sub-clause) | E-UTRA Band              | Channel bandwidth (MHz) | Resources Blocks ( $N_{RB}$ ) | A-MPR (dB)    |
|--------------------------|---------------------------|--------------------------|-------------------------|-------------------------------|---------------|
| NS_01                    | 6.6.2.1.1                 | Table 5.5-1              | 1.4, 3, 5, 10, 15, 20   | Table 5.6-1                   | NA            |
| NS_03                    | 6.6.2.2.1                 | 2, 4, 10, 23, 25, 35, 36 | 3                       | >5                            | ≤ 1           |
|                          |                           |                          | 5                       | >6                            | ≤ 1           |
|                          |                           |                          | 10                      | >6                            | ≤ 1           |
|                          |                           |                          | 15                      | >8                            | ≤ 1           |
|                          |                           |                          | 20                      | >10                           | ≤ 1           |
| NS_04                    | 6.6.2.2.2                 | 41                       | 5                       | >6                            | ≤ 1           |
|                          |                           |                          | 10, 15, 20              | See Table 6.2.4-4             |               |
| NS_05                    | 6.6.3.3.1                 | 1                        | 10, 15, 20              | ≥ 50                          | ≤ 1           |
| NS_06                    | 6.6.2.2.3                 | 12, 13, 14, 17           | 1.4, 3, 5, 10           | Table 5.6-1                   | n/a           |
| NS_07                    | 6.6.2.2.3                 | 13                       | 10                      | Table 6.2.4-2                 | Table 6.2.4-2 |
|                          | 6.6.3.3.2                 |                          |                         |                               |               |
| NS_08                    | 6.6.3.3.3                 | 19                       | 10, 15                  | > 44                          | ≤ 3           |
| NS_09                    | 6.6.3.3.4                 | 21                       | 10, 15                  | > 40                          | ≤ 1           |
|                          |                           |                          |                         | > 55                          | ≤ 2           |
| NS_10                    |                           | 20                       | 15, 20                  | Table 6.2.4-3                 | Table 6.2.4-3 |
| NS_11                    | 6.6.2.2.1                 | 23 <sup>1</sup>          | 1.4, 3, 5, 10           | Table 6.2.4-5                 | Table 6.2.4-5 |
| ..                       |                           |                          |                         |                               |               |
| NS_32                    | -                         | -                        | -                       | -                             | -             |

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

*Radiated method:*

ANSI/TIA 603-D section 2.2.17

**Test Equipment List and Details**

| Manufacturer   | Description               | Model       | Serial Number | Calibration Date | Calibration Due Date |
|----------------|---------------------------|-------------|---------------|------------------|----------------------|
| R&S            | EMI Test Receiver         | ESCI        | 100224        | 2015-08-03       | 2016-08-02           |
| Sunol Sciences | Antenna                   | JB3         | A060611-3     | 2014-11-06       | 2017-11-05           |
| HP             | Amplifier                 | 8447E       | 2434A02181    | 2015-09-01       | 2016-09-01           |
| R&S            | Spectrum Analyzer         | FSEM        | DE23437       | 2015-11-23       | 2016-11-22           |
| ETS LINDGREN   | Horn Antenna              | 3115        | 000 527 35    | 2015-09-06       | 2018-09-06           |
| Mini-Circuit   | Amplifier                 | ZVA-213-S+  | 054201245     | 2016-02-19       | 2017-02-19           |
| Giga           | Signal Generator          | E8247C      | MY43321350    | 2014-10-16       | 2016-10-15           |
| EMCO           | Adjustable Dipole Antenna | 3121C       | 9109-753      | N/A              | N/A                  |
| TDK RF         | Horn Antenna              | HRN-0118    | 130 084       | 2015-09-06       | 2018-09-06           |
| N/A            | Coaxial Cable             | 14m         | N/A           | 2016-05-06       | 2017-05-06           |
| N/A            | Coaxial Cable             | 8m          | N/A           | 2016-05-06       | 2017-05-06           |
| N/A            | Coaxial Cable             | 0.1m        | N/A           | 2016-05-06       | 2017-05-06           |
| E-Microwave    | DC Blocking               | EMDCB-00036 | 0E01201047    | 2016-05-06       | 2017-05-06           |
| E-Microwave    | Attenuator                | EMCA10-5RN  | OE01203239    | 2016-05-06       | 2017-05-06           |
| Pasternack     | RF Coaxial Cable          | RF-01       | N/A           | 2016-05-06       | 2017-05-06           |
| Pasternack     | RF Coaxial Cable          | RF-02       | N/A           | 2016-05-06       | 2017-05-06           |
| N/A            | Two-way Splitter          | ODP-1-6-2S  | OE0120142     | 2016-05-06       | 2017-05-06           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data****Environmental Conditions**

|                           |                 |
|---------------------------|-----------------|
| <b>Temperature:</b>       | 25.1~30.4°C     |
| <b>Relative Humidity:</b> | 50~64 %         |
| <b>ATM Pressure:</b>      | 100.3~100.6 kPa |

*The testing was performed by Rocky Xiao from 2016-05-06 to 2016-05-16.*



**Conducted Power****Cellular Band (Part 22H) & PCS Band (Part 24E)**

| Band     | Channel No. | Peak Output Power (dBm) |                |                |                |                |                |                |                |                |
|----------|-------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|          |             | GSM                     | GPRS 1 TX Slot | GPRS 2 TX Slot | GPRS 3 TX Slot | GPRS 4 TX Slot | EDGE 1 TX Slot | EDGE 2 TX Slot | EDGE 3 TX Slot | EDGE 4 TX Slot |
| Cellular | 128         | 32.45                   | 32.26          | 31.68          | 29.78          | 28.61          | 26.29          | 25.40          | 23.51          | 22.72          |
|          | 190         | 32.42                   | 32.12          | 31.54          | 29.65          | 28.47          | 26.22          | 25.17          | 23.32          | 22.48          |
|          | 251         | 32.22                   | 32.04          | 31.39          | 29.42          | 28.20          | 25.97          | 24.93          | 23.16          | 22.33          |
| PCS      | 512         | 30.46                   | 30.44          | 29.65          | 27.35          | 26.07          | 26.78          | 25.87          | 23.90          | 22.77          |
|          | 661         | 30.19                   | 30.15          | 29.38          | 27.21          | 25.94          | 26.27          | 25.34          | 23.42          | 22.27          |
|          | 810         | 30.12                   | 30.09          | 29.45          | 27.60          | 26.37          | 25.91          | 24.99          | 23.01          | 21.78          |

**WCDMA Band II**

| Mode            | 3GPP Sub Test | Average Output Power (dBm) |                   |                             |                      |                           |                    |
|-----------------|---------------|----------------------------|-------------------|-----------------------------|----------------------|---------------------------|--------------------|
|                 |               | Low Channel (Ave. Power)   | Low Channel (PAR) | Middle Channel (Ave. Power) | Middle Channel (PAR) | High Channel (Ave. Power) | High Channel (PAR) |
| Rel 99 (QPSK)   | 1             | 22                         | 2.76              | 21.86                       | 3.12                 | 21.66                     | 3.16               |
| HSDPA (QPSK)    | 1             | 21.55                      | 2.58              | 21.36                       | 2.98                 | 21.18                     | 2.81               |
|                 | 2             | 21.41                      | 2.59              | 21.31                       | 2.99                 | 21.19                     | 2.99               |
|                 | 3             | 21.35                      | 2.61              | 21.59                       | 2.97                 | 21.15                     | 3.01               |
|                 | 4             | 21.41                      | 2.59              | 21.68                       | 2.84                 | 21.17                     | 3.06               |
| HSUPA (QPSK)    | 1             | 21.56                      | 2.63              | 21.36                       | 2.92                 | 21.16                     | 2.96               |
|                 | 2             | 21.43                      | 2.64              | 21.45                       | 3.05                 | 21.13                     | 2.85               |
|                 | 3             | 21.45                      | 2.59              | 21.43                       | 2.87                 | 21.21                     | 2.89               |
|                 | 4             | 21.48                      | 2.60              | 21.54                       | 2.92                 | 21.23                     | 2.79               |
|                 | 5             | 21.42                      | 2.58              | 21.51                       | 2.98                 | 21.24                     | 2.93               |
| DC-HSDPA (QPSK) | 1             | 21.55                      | 2.61              | 21.47                       | 2.87                 | 21.18                     | 2.83               |
|                 | 2             | 21.41                      | 2.66              | 21.35                       | 2.71                 | 21.25                     | 2.79               |
|                 | 3             | 21.33                      | 2.64              | 21.22                       | 2.94                 | 21.23                     | 2.87               |
|                 | 4             | 21.29                      | 2.58              | 21.37                       | 2.61                 | 21.24                     | 2.91               |
| HSPA+ (16QAM)   | 1             | 21.31                      | 2.59              | 21.46                       | 2.82                 | 21.18                     | 2.85               |

**WCDMA Band V**

| Mode            | 3GPP Sub Test | Average Output Power (dBm) |                   |                             |                      |                           |                    |
|-----------------|---------------|----------------------------|-------------------|-----------------------------|----------------------|---------------------------|--------------------|
|                 |               | Low Channel (Ave. Power)   | Low Channel (PAR) | Middle Channel (Ave. Power) | Middle Channel (PAR) | High Channel (Ave. Power) | High Channel (PAR) |
| Rel 99 (QPSK)   | 1             | 22.27                      | 3.16              | 22.12                       | 3.32                 | 21.95                     | 3.00               |
| HSDPA (QPSK)    | 1             | 21.31                      | 3.01              | 21.09                       | 3.01                 | 20.89                     | 2.94               |
|                 | 2             | 21.15                      | 3.02              | 21.07                       | 3.02                 | 20.88                     | 2.96               |
|                 | 3             | 21.18                      | 3.00              | 21.03                       | 2.99                 | 20.89                     | 2.95               |
|                 | 4             | 21.23                      | 2.98              | 21.06                       | 2.98                 | 20.91                     | 2.97               |
| HSUPA (QPSK)    | 1             | 21.28                      | 3.01              | 21.08                       | 2.96                 | 20.92                     | 2.95               |
|                 | 2             | 21.19                      | 2.99              | 21.01                       | 3.00                 | 20.84                     | 2.94               |
|                 | 3             | 21.05                      | 2.94              | 21.03                       | 3.02                 | 20.81                     | 2.95               |
|                 | 4             | 21.11                      | 2.93              | 20.98                       | 2.96                 | 20.86                     | 2.93               |
| DC-HSDPA (QPSK) | 5             | 21.06                      | 2.96              | 20.96                       | 2.98                 | 20.77                     | 2.89               |
|                 | 1             | 20.95                      | 2.96              | 20.85                       | 2.96                 | 20.74                     | 2.91               |
|                 | 2             | 20.82                      | 2.97              | 20.97                       | 2.89                 | 20.78                     | 2.99               |
|                 | 3             | 20.89                      | 2.95              | 20.85                       | 2.88                 | 20.87                     | 3.00               |
|                 | 4             | 20.81                      | 3.02              | 20.87                       | 2.84                 | 20.84                     | 2.87               |
| HSPA+ (16QAM)   | 1             | 20.89                      | 3.00              | 20.78                       | 2.95                 | 20.89                     | 3.00               |

**LTE Band II (PART 27)**

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 1.4MHz            | QPSK       | 1#0                        | 21.53             | 21.39                | 21.38              |
|                   |            | 1#3                        | 21.44             | 21.32                | 21.40              |
|                   |            | 1#5                        | 21.55             | 21.40                | 21.34              |
|                   |            | 3#0                        | 20.99             | 21.24                | 20.98              |
|                   |            | 3#1                        | 20.90             | 21.19                | 21.01              |
|                   |            | 3#3                        | 20.99             | 21.00                | 20.73              |
|                   |            | 6#0                        | 20.54             | 20.37                | 20.31              |
|                   | 16QAM      | 1#0                        | 21.22             | 21.29                | 21.29              |
|                   |            | 1#3                        | 20.85             | 21.12                | 21.24              |
|                   |            | 1#5                        | 20.95             | 21.16                | 20.99              |
|                   |            | 3#0                        | 21.41             | 21.27                | 21.23              |
|                   |            | 3#1                        | 20.97             | 21.21                | 21.39              |
|                   |            | 3#3                        | 21.30             | 21.21                | 21.31              |
|                   |            | 6#0                        | 20.52             | 20.41                | 20.29              |

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 3 MHz             | QPSK       | 1#0                        | 21.38             | 21.29                | 21.40              |
|                   |            | 1#7                        | 21.03             | 21.24                | 21.06              |
|                   |            | 1#14                       | 21.23             | 21.28                | 21.55              |
|                   |            | 8#0                        | 20.61             | 20.37                | 20.50              |
|                   |            | 8#4                        | 20.20             | 20.39                | 20.36              |
|                   |            | 8#7                        | 20.47             | 20.38                | 20.15              |
|                   |            | 15#0                       | 20.55             | 20.30                | 20.45              |
|                   | 16QAM      | 1#0                        | 21.29             | 21.35                | 21.42              |
|                   |            | 1#7                        | 21.86             | 21.61                | 21.54              |
|                   |            | 1#14                       | 21.81             | 21.57                | 21.53              |
|                   |            | 8#0                        | 21.93             | 21.66                | 21.75              |
|                   |            | 8#4                        | 21.12             | 21.32                | 21.36              |
|                   |            | 8#7                        | 21.11             | 21.27                | 21.18              |
|                   |            | 15#0                       | 20.67             | 20.47                | 20.21              |
| 5 MHz             | QPSK       | 1#0                        | 21.52             | 21.35                | 21.62              |
|                   |            | 1#12                       | 21.52             | 21.28                | 20.99              |
|                   |            | 1#24                       | 21.23             | 21.05                | 20.86              |
|                   |            | 12#0                       | 20.40             | 20.32                | 20.55              |
|                   |            | 12#6                       | 20.04             | 20.30                | 20.21              |
|                   |            | 12#11                      | 20.04             | 20.28                | 20.00              |
|                   |            | 25#0                       | 20.26             | 20.23                | 19.96              |
|                   | 16QAM      | 1#0                        | 21.44             | 21.29                | 21.23              |
|                   |            | 1#12                       | 21.52             | 21.34                | 21.26              |
|                   |            | 1#24                       | 21.07             | 21.02                | 20.98              |
|                   |            | 12#0                       | 20.68             | 20.65                | 20.47              |
|                   |            | 12#6                       | 20.33             | 20.42                | 20.47              |
|                   |            | 12#11                      | 20.26             | 20.47                | 20.33              |
|                   |            | 25#0                       | 20.56             | 20.32                | 20.60              |
| 10 MHz            | QPSK       | 1#0                        | 21.62             | 21.32                | 21.29              |
|                   |            | 1#24                       | 20.10             | 20.07                | 20.30              |
|                   |            | 1#49                       | 20.55             | 20.48                | 20.33              |
|                   |            | 25#0                       | 20.45             | 20.25                | 20.04              |
|                   |            | 25#12                      | 20.27             | 20.17                | 20.00              |
|                   |            | 25#24                      | 19.80             | 20.03                | 20.02              |
|                   |            | 50#0                       | 20.35             | 20.21                | 20.51              |
|                   | 16QAM      | 1#0                        | 21.03             | 21.12                | 21.28              |
|                   |            | 1#24                       | 19.99             | 19.94                | 20.01              |
|                   |            | 1#49                       | 20.48             | 20.50                | 20.43              |
|                   |            | 25#0                       | 20.10             | 20.36                | 20.26              |
|                   |            | 25#12                      | 20.37             | 20.31                | 19.97              |
|                   |            | 25#24                      | 20.31             | 19.97                | 20.14              |
|                   |            | 50#0                       | 20.48             | 20.11                | 20.02              |

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 15 MHz            | QPSK       | 1#0                        | 21.26             | 21.33                | 21.27              |
|                   |            | 1#37                       | 20.90             | 20.85                | 20.81              |
|                   |            | 1#74                       | 20.34             | 20.45                | 20.34              |
|                   |            | 36#0                       | 20.18             | 20.37                | 20.08              |
|                   |            | 36#17                      | 20.01             | 20.26                | 20.15              |
|                   |            | 36#35                      | 19.93             | 20.21                | 20.41              |
|                   |            | 75#0                       | 20.23             | 20.38                | 20.16              |
|                   | 16QAM      | 1#0                        | 21.04             | 21.13                | 21.08              |
|                   |            | 1#37                       | 20.82             | 20.57                | 20.93              |
|                   |            | 1#74                       | 20.24             | 20.40                | 20.17              |
|                   |            | 36#0                       | 20.67             | 20.62                | 20.57              |
|                   |            | 36#17                      | 20.31             | 20.28                | 20.46              |
|                   |            | 36#35                      | 20.12             | 20.34                | 20.03              |
|                   |            | 75#0                       | 20.49             | 20.14                | 20.41              |
| 20 MHz            | QPSK       | 1#0                        | 20.28             | 21.43                | 20.43              |
|                   |            | 1#49                       | 21.66             | 20.82                | 20.62              |
|                   |            | 1#99                       | 20.79             | 20.34                | 20.20              |
|                   |            | 50#0                       | 20.51             | 20.29                | 20.00              |
|                   |            | 50#24                      | 20.24             | 20.26                | 20.43              |
|                   |            | 50#49                      | 20.27             | 19.75                | 20.00              |
|                   |            | 100#0                      | 19.46             | 20.24                | 20.42              |
|                   | 16QAM      | 1#0                        | 20.47             | 21.69                | 21.44              |
|                   |            | 1#49                       | 20.83             | 20.80                | 20.86              |
|                   |            | 1#99                       | 20.17             | 20.52                | 20.39              |
|                   |            | 50#0                       | 20.07             | 20.20                | 20.15              |
|                   |            | 50#24                      | 20.10             | 20.23                | 20.50              |
|                   |            | 50#49                      | 20.05             | 19.60                | 19.84              |
|                   |            | 100#0                      | 20.09             | 20.13                | 20.31              |

**LTE Band IV (PART 27)**

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 1.4MHz            | QPSK       | 1#0                        | 21.67             | 21.65                | 21.51              |
|                   |            | 1#3                        | 21.83             | 21.74                | 21.49              |
|                   |            | 1#5                        | 21.39             | 21.66                | 21.62              |
|                   |            | 3#0                        | 21.52             | 21.72                | 21.62              |
|                   |            | 3#1                        | 21.45             | 21.70                | 21.47              |
|                   |            | 3#3                        | 21.65             | 21.71                | 21.97              |
|                   |            | 6#0                        | 20.56             | 20.67                | 20.54              |
|                   | 16QAM      | 1#0                        | 21.71             | 21.51                | 21.65              |
|                   |            | 1#3                        | 21.54             | 21.69                | 21.82              |
|                   |            | 1#5                        | 21.43             | 21.48                | 21.40              |
|                   |            | 3#0                        | 21.46             | 21.86                | 21.56              |
|                   |            | 3#1                        | 21.84             | 21.62                | 21.78              |
|                   |            | 3#3                        | 21.70             | 21.75                | 21.46              |
|                   |            | 6#0                        | 20.89             | 20.95                | 20.41              |
| 3 MHz             | QPSK       | 1#0                        | 21.82             | 21.58                | 21.86              |
|                   |            | 1#7                        | 21.74             | 21.71                | 21.41              |
|                   |            | 1#14                       | 21.60             | 21.60                | 21.87              |
|                   |            | 8#0                        | 20.45             | 20.71                | 20.54              |
|                   |            | 8#4                        | 20.77             | 20.77                | 20.70              |
|                   |            | 8#7                        | 20.95             | 20.76                | 20.89              |
|                   |            | 15#0                       | 20.79             | 20.69                | 20.69              |
|                   | 16QAM      | 1#0                        | 21.84             | 21.33                | 21.87              |
|                   |            | 1#7                        | 21.66             | 21.55                | 21.45              |
|                   |            | 1#14                       | 21.62             | 21.70                | 21.79              |
|                   |            | 8#0                        | 20.90             | 20.94                | 20.63              |
|                   |            | 8#4                        | 20.50             | 20.87                | 20.66              |
|                   |            | 8#7                        | 20.82             | 20.51                | 20.78              |
|                   |            | 15#0                       | 20.80             | 20.96                | 20.56              |

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 5 MHz             | QPSK       | 1#0                        | 21.58             | 21.72                | 21.78              |
|                   |            | 1#12                       | 21.73             | 21.77                | 21.96              |
|                   |            | 1#24                       | 21.67             | 21.73                | 21.88              |
|                   |            | 12#0                       | 20.91             | 20.71                | 20.71              |
|                   |            | 12#6                       | 20.71             | 20.75                | 20.54              |
|                   |            | 12#11                      | 20.87             | 20.75                | 20.76              |
|                   |            | 25#0                       | 20.75             | 20.66                | 20.91              |
|                   | 16QAM      | 1#0                        | 21.91             | 21.53                | 21.81              |
|                   |            | 1#12                       | 21.71             | 21.67                | 21.95              |
|                   |            | 1#24                       | 21.56             | 21.68                | 21.77              |
|                   |            | 12#0                       | 20.42             | 20.91                | 20.82              |
|                   |            | 12#6                       | 20.94             | 20.74                | 21.01              |
|                   |            | 12#11                      | 20.48             | 20.79                | 20.74              |
|                   |            | 25#0                       | 20.68             | 20.44                | 20.66              |
| 10 MHz            | QPSK       | 1#0                        | 21.73             | 21.55                | 21.25              |
|                   |            | 1#24                       | 21.86             | 21.75                | 21.88              |
|                   |            | 1#49                       | 21.50             | 21.49                | 21.56              |
|                   |            | 25#0                       | 20.35             | 20.61                | 20.76              |
|                   |            | 25#12                      | 20.55             | 20.61                | 20.35              |
|                   |            | 25#24                      | 20.86             | 20.62                | 20.61              |
|                   |            | 50#0                       | 20.46             | 20.64                | 20.85              |
|                   | 16QAM      | 1#0                        | 21.66             | 21.59                | 21.63              |
|                   |            | 1#24                       | 21.69             | 21.82                | 21.76              |
|                   |            | 1#49                       | 21.78             | 21.42                | 21.64              |
|                   |            | 25#0                       | 20.65             | 20.70                | 20.79              |
|                   |            | 25#12                      | 20.89             | 20.53                | 20.82              |
|                   |            | 25#24                      | 20.68             | 20.78                | 20.32              |
|                   |            | 50#0                       | 20.43             | 20.76                | 20.56              |

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 15 MHz            | QPSK       | 1#0                        | 21.03             | 21.01                | 21.17              |
|                   |            | 1#37                       | 21.00             | 21.22                | 21.05              |
|                   |            | 1#74                       | 20.92             | 20.92                | 20.83              |
|                   |            | 36#0                       | 20.08             | 20.04                | 20.16              |
|                   |            | 36#17                      | 20.26             | 20.12                | 19.84              |
|                   |            | 36#35                      | 20.31             | 20.10                | 19.84              |
|                   |            | 75#0                       | 19.98             | 20.13                | 20.31              |
|                   | 16QAM      | 1#0                        | 20.77             | 21.16                | 20.80              |
|                   |            | 1#37                       | 21.17             | 20.99                | 21.39              |
|                   |            | 1#74                       | 21.00             | 20.88                | 20.69              |
|                   |            | 36#0                       | 19.93             | 19.77                | 19.76              |
|                   |            | 36#17                      | 20.41             | 19.94                | 19.89              |
|                   |            | 36#35                      | 19.82             | 20.35                | 20.23              |
|                   |            | 75#0                       | 19.99             | 19.99                | 20.38              |
| 20 MHz            | QPSK       | 1#0                        | 19.87             | 20.48                | 19.90              |
|                   |            | 1#49                       | 21.84             | 21.85                | 21.85              |
|                   |            | 1#99                       | 20.30             | 20.45                | 20.49              |
|                   |            | 50#0                       | 19.87             | 19.98                | 19.98              |
|                   |            | 50#24                      | 20.35             | 20.07                | 19.81              |
|                   |            | 50#49                      | 20.25             | 20.12                | 19.97              |
|                   |            | 100#0                      | 20.49             | 20.37                | 20.62              |
|                   | 16QAM      | 1#0                        | 20.27             | 20.31                | 20.38              |
|                   |            | 1#49                       | 21.36             | 21.06                | 20.96              |
|                   |            | 1#99                       | 20.61             | 20.48                | 20.24              |
|                   |            | 50#0                       | 19.78             | 20.12                | 20.21              |
|                   |            | 50#24                      | 19.84             | 19.96                | 20.35              |
|                   |            | 50#49                      | 20.32             | 20.06                | 20.39              |
|                   |            | 100#0                      | 20.21             | 20.26                | 20.36              |

**LTE Band VII (PART 27)**

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 5 MHz             | QPSK       | 1#0                        | 19.97             | 19.95                | 19.88              |
|                   |            | 1#12                       | 19.83             | 19.85                | 19.69              |
|                   |            | 1#24                       | 20.52             | 20.75                | 20.64              |
|                   |            | 12#0                       | 18.75             | 18.76                | 18.99              |
|                   |            | 12#6                       | 19.07             | 18.87                | 18.90              |
|                   |            | 12#11                      | 19.01             | 19.08                | 18.98              |
|                   |            | 25#0                       | 19.16             | 18.93                | 19.01              |
|                   | 16QAM      | 1#0                        | 19.81             | 19.81                | 19.76              |
|                   |            | 1#12                       | 20.01             | 19.71                | 19.62              |
|                   |            | 1#24                       | 20.71             | 20.56                | 21.00              |
|                   |            | 12#0                       | 19.01             | 19.04                | 18.95              |
|                   |            | 12#6                       | 19.02             | 18.80                | 18.94              |
|                   |            | 12#11                      | 19.08             | 19.11                | 19.37              |
|                   |            | 25#0                       | 19.05             | 18.69                | 18.79              |
| 10 MHz            | QPSK       | 1#0                        | 19.09             | 19.02                | 19.24              |
|                   |            | 1#24                       | 19.78             | 19.73                | 19.55              |
|                   |            | 1#49                       | 20.17             | 20.41                | 20.40              |
|                   |            | 25#0                       | 18.57             | 18.47                | 18.26              |
|                   |            | 25#12                      | 18.95             | 18.72                | 18.78              |
|                   |            | 25#24                      | 19.49             | 19.23                | 19.34              |
|                   |            | 50#0                       | 19.16             | 18.89                | 18.95              |
|                   | 16QAM      | 1#0                        | 18.79             | 18.99                | 19.12              |
|                   |            | 1#24                       | 19.58             | 19.63                | 19.66              |
|                   |            | 1#49                       | 20.21             | 20.22                | 20.67              |
|                   |            | 25#0                       | 18.59             | 18.30                | 18.65              |
|                   |            | 25#12                      | 18.70             | 18.82                | 18.98              |
|                   |            | 25#24                      | 19.40             | 19.31                | 19.01              |
|                   |            | 50#0                       | 18.68             | 18.63                | 18.61              |



| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 15 MHz            | QPSK       | 1#0                        | 18.59             | 18.75                | 18.97              |
|                   |            | 1#37                       | 19.81             | 19.67                | 19.89              |
|                   |            | 1#74                       | 20.92             | 20.93                | 20.86              |
|                   |            | 36#0                       | 18.05             | 18.24                | 17.98              |
|                   |            | 36#17                      | 18.61             | 18.55                | 18.51              |
|                   |            | 36#35                      | 19.48             | 19.45                | 19.42              |
|                   |            | 75#0                       | 19.14             | 18.85                | 18.69              |
|                   | 16QAM      | 1#0                        | 18.71             | 18.80                | 18.64              |
|                   |            | 1#37                       | 19.61             | 19.88                | 19.50              |
|                   |            | 1#74                       | 20.85             | 20.81                | 21.04              |
|                   |            | 36#0                       | 18.41             | 18.53                | 18.23              |
|                   |            | 36#17                      | 18.49             | 18.77                | 18.45              |
|                   |            | 36#35                      | 19.72             | 19.49                | 19.59              |
|                   |            | 75#0                       | 19.08             | 18.64                | 19.06              |
| 20 MHz            | QPSK       | 1#0                        | 20.17             | 18.67                | 19.86              |
|                   |            | 1#49                       | 19.77             | 19.55                | 19.38              |
|                   |            | 1#99                       | 20.92             | 20.92                | 21.10              |
|                   |            | 50#0                       | 18.43             | 18.19                | 18.44              |
|                   |            | 50#24                      | 19.22             | 18.95                | 19.22              |
|                   |            | 50#49                      | 19.61             | 19.62                | 19.55              |
|                   |            | 100#0                      | 18.95             | 19.19                | 19.41              |
|                   | 16QAM      | 1#0                        | 18.78             | 18.85                | 18.43              |
|                   |            | 1#49                       | 19.39             | 19.79                | 19.58              |
|                   |            | 1#99                       | 21.06             | 21.15                | 21.20              |
|                   |            | 50#0                       | 18.34             | 18.04                | 18.24              |
|                   |            | 50#24                      | 19.15             | 19.16                | 19.11              |
|                   |            | 50#49                      | 19.75             | 19.41                | 19.89              |
|                   |            | 100#0                      | 19.09             | 19.41                | 18.91              |

**LTE Band 17 (PART 27)**

| Channel Bandwidth | Modulation | Resource Block & RB offset | Low Channel (dBm) | Middle Channel (dBm) | High Channel (dBm) |
|-------------------|------------|----------------------------|-------------------|----------------------|--------------------|
| 5 MHz             | QPSK       | 1#0                        | 21.26             | 21.58                | 21.49              |
|                   |            | 1#12                       | 21.20             | 21.84                | 21.25              |
|                   |            | 1#24                       | 21.64             | 21.72                | 21.68              |
|                   |            | 12#0                       | 20.46             | 20.74                | 20.34              |
|                   |            | 12#6                       | 20.59             | 20.82                | 20.82              |
|                   |            | 12#11                      | 20.52             | 20.81                | 20.65              |
|                   |            | 25#0                       | 20.61             | 20.73                | 20.49              |
|                   | 16QAM      | 1#0                        | 20.43             | 20.58                | 20.36              |
|                   |            | 1#12                       | 20.30             | 20.29                | 20.47              |
|                   |            | 1#24                       | 20.16             | 20.19                | 20.17              |
|                   |            | 12#0                       | 19.24             | 19.75                | 19.89              |
|                   |            | 12#6                       | 19.24             | 19.36                | 19.24              |
|                   |            | 12#11                      | 19.62             | 19.28                | 19.16              |
|                   |            | 25#0                       | 19.36             | 19.68                | 19.44              |
| 10 MHz            | QPSK       | 1#0                        | 21.62             | 21.64                | 21.65              |
|                   |            | 1#24                       | 21.88             | 21.67                | 21.69              |
|                   |            | 1#49                       | 21.28             | 21.81                | 21.54              |
|                   |            | 25#0                       | 20.69             | 20.61                | 20.19              |
|                   |            | 25#12                      | 20.47             | 20.62                | 20.34              |
|                   |            | 25#24                      | 20.66             | 20.79                | 20.85              |
|                   |            | 50#0                       | 20.18             | 20.68                | 20.31              |
|                   | 16QAM      | 1#0                        | 21.39             | 21.88                | 21.79              |
|                   |            | 1#24                       | 21.39             | 21.39                | 21.63              |
|                   |            | 1#49                       | 22.03             | 22.09                | 21.98              |
|                   |            | 25#0                       | 20.88             | 20.49                | 20.56              |
|                   |            | 25#12                      | 20.50             | 20.81                | 20.63              |
|                   |            | 25#24                      | 20.83             | 20.78                | 20.71              |
|                   |            | 50#0                       | 20.66             | 20.63                | 20.96              |

**Band II**

| Test Modulation |        | Channel Bandwidth | Low Channel PAR (dB) | Middle Channel PAR (dB) | High Channel PAR (dB) | Limit (dB) |
|-----------------|--------|-------------------|----------------------|-------------------------|-----------------------|------------|
| QPSK            | 1 RB   | 20 MHz            | 4.64                 | 4.32                    | 3.20                  | 13         |
|                 | 100 RB |                   | 6.32                 | 6.24                    | 6.28                  | 13         |
| 16QAM           | 1 RB   | 20 MHz            | 5.52                 | 4.80                    | 4.00                  | 13         |
|                 | 100 RB |                   | 7.12                 | 7.04                    | 6.96                  | 13         |

**Band IV**

| Test Modulation |        | Channel Bandwidth | Low Channel PAR (dB) | Middle Channel PAR (dB) | High Channel PAR (dB) | Limit (dB) |
|-----------------|--------|-------------------|----------------------|-------------------------|-----------------------|------------|
| QPSK            | 1 RB   | 20 MHz            | 3.16                 | 3.20                    | 3.68                  | 13         |
|                 | 100 RB |                   | 6.24                 | 6.32                    | 6.20                  | 13         |
| 16QAM           | 1 RB   | 20 MHz            | 3.20                 | 3.40                    | 3.68                  | 13         |
|                 | 100 RB |                   | 7.04                 | 7.20                    | 6.96                  | 13         |

**Band VII**

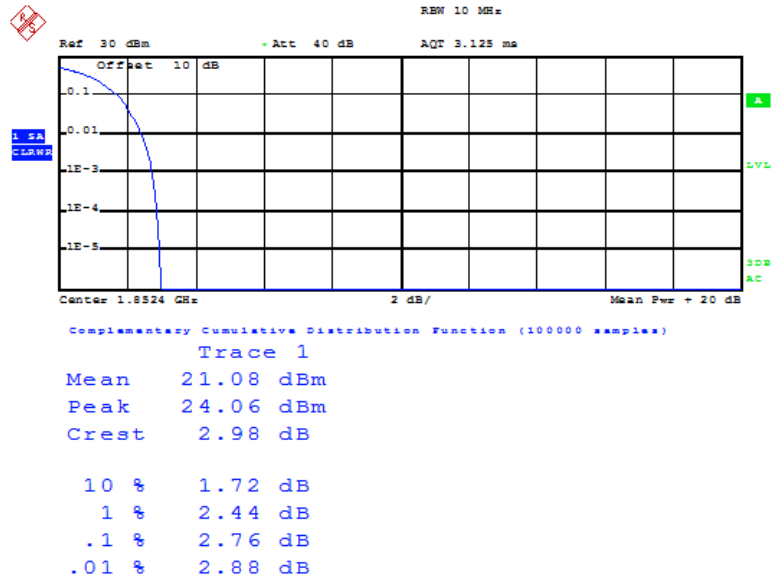
| Test Modulation |        | Channel Bandwidth | Low Channel PAR (dB) | Middle Channel PAR (dB) | High Channel PAR (dB) | Limit (dB) |
|-----------------|--------|-------------------|----------------------|-------------------------|-----------------------|------------|
| QPSK            | 1 RB   | 20 MHz            | 3.76                 | 3.84                    | 3.60                  | 13         |
|                 | 100 RB |                   | 6.36                 | 6.28                    | 6.24                  | 13         |
| 16QAM           | 1 RB   | 20 MHz            | 4.52                 | 4.92                    | 4.40                  | 13         |
|                 | 100 RB |                   | 7.00                 | 7.04                    | 6.96                  | 13         |

**Band 17**

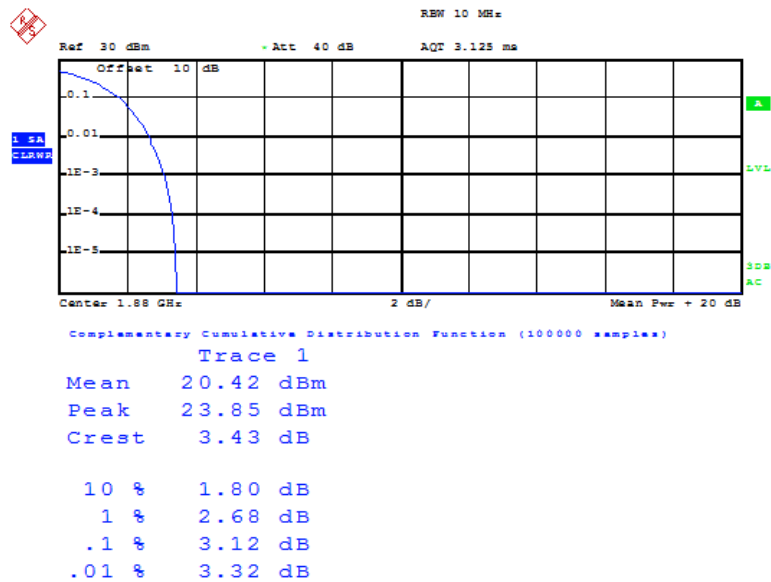
| Test Modulation |        | Channel Bandwidth | Low Channel PAR (dB) | Middle Channel PAR (dB) | High Channel PAR (dB) | Limit (dB) |
|-----------------|--------|-------------------|----------------------|-------------------------|-----------------------|------------|
| QPSK            | 1 RB   | 10 MHz            | 4.48                 | 4.32                    | 4.48                  | 13         |
|                 | 100 RB |                   | 5.48                 | 5.56                    | 5.52                  | 13         |
| 16QAM           | 1 RB   | 10 MHz            | 4.32                 | 4.36                    | 4.24                  | 13         |
|                 | 100 RB |                   | 5.52                 | 5.60                    | 5.52                  | 13         |

Note: peak-to-average ratio (PAR) <13 dB.

Peak-to-average ratio (PAR)

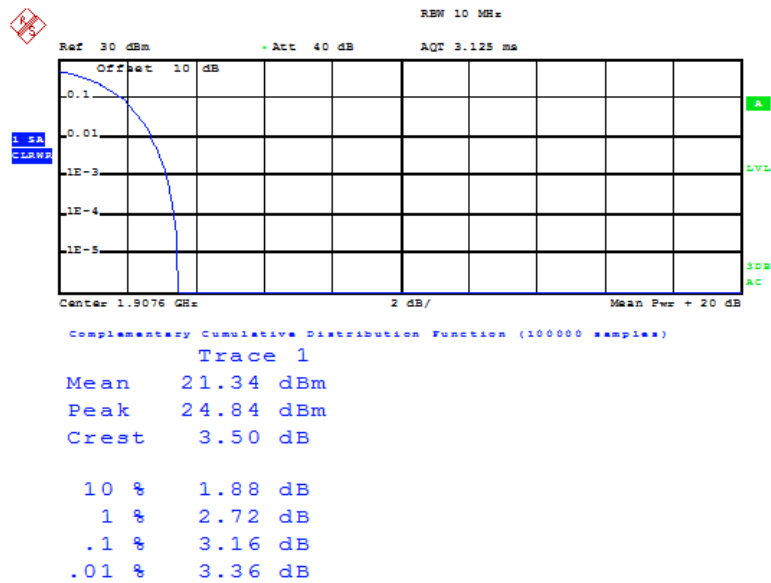
**WCDMA Band II****Low Channel**

Date: 10.MAY.2016 10:43:00

**Middle Channel**

Date: 10.MAY.2016 10:42:33

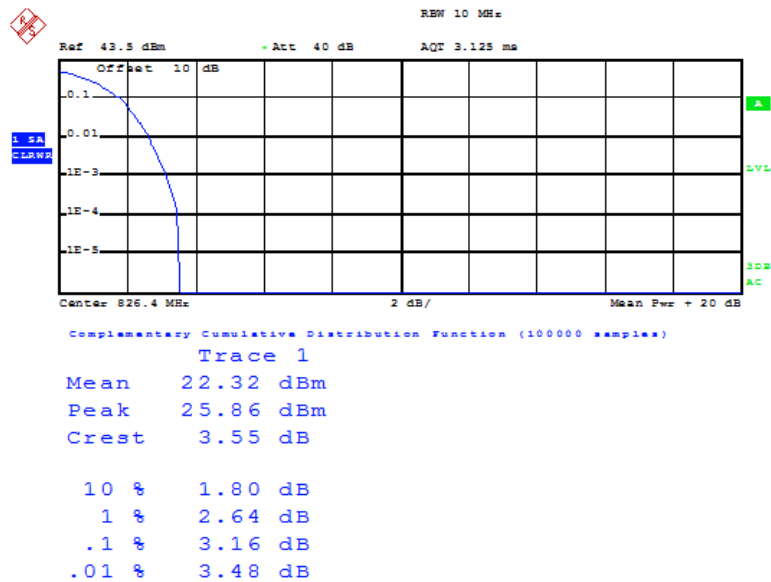
### High Channel



Date: 10.MAY.2016 10:44:07

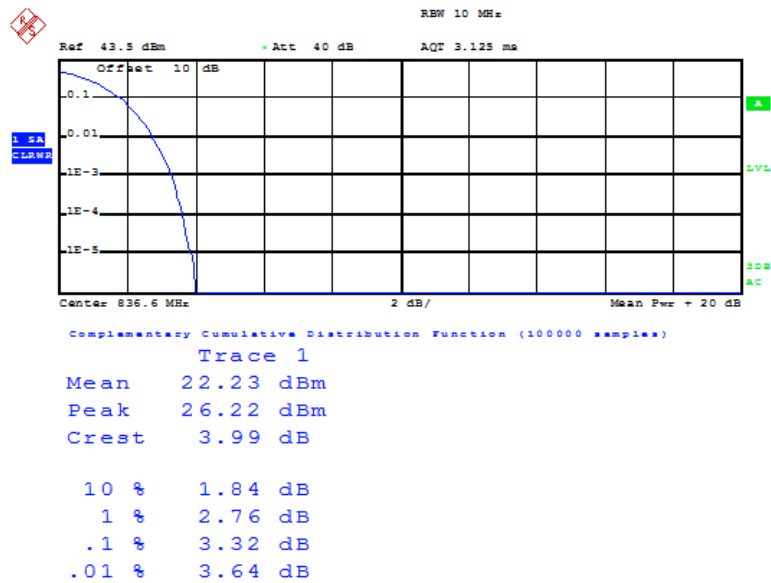
### WCDMA Band V

### Low Channel



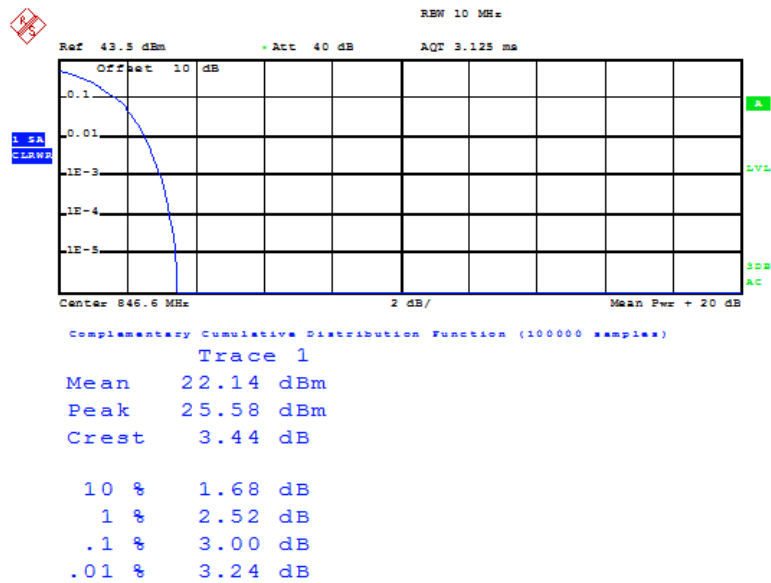
Date: 10.MAY.2016 10:37:14

### Middle Channel



Date: 10.MAY.2016 10:34:40

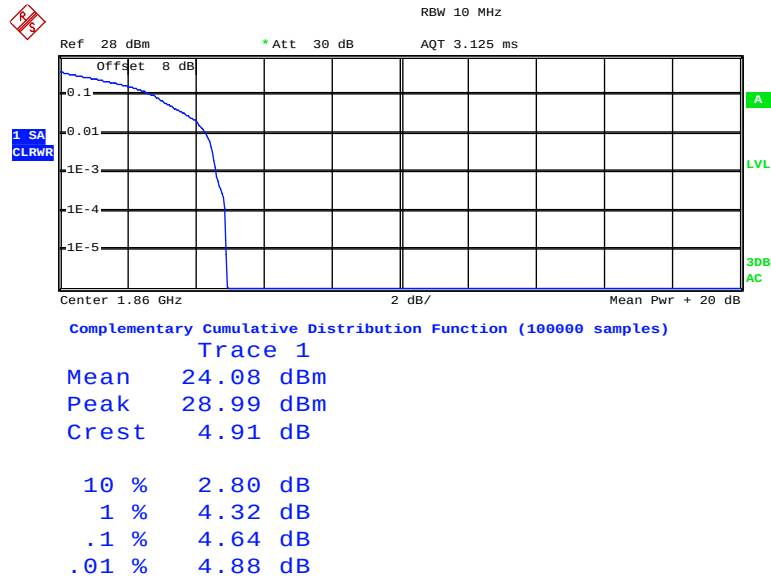
### High Channel



Date: 10.MAY.2016 10:37:36

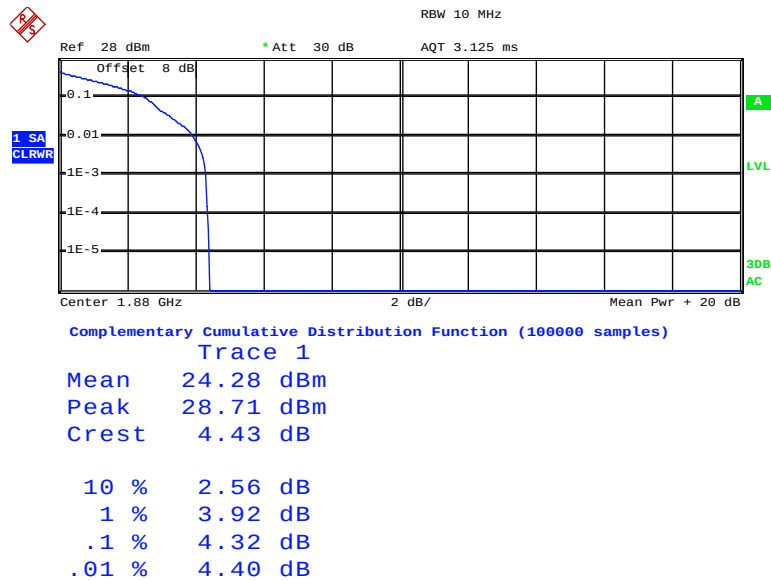
## LTE Band II (PART 27)

## QPSK\_20MHz\_1RB\_Low Channel



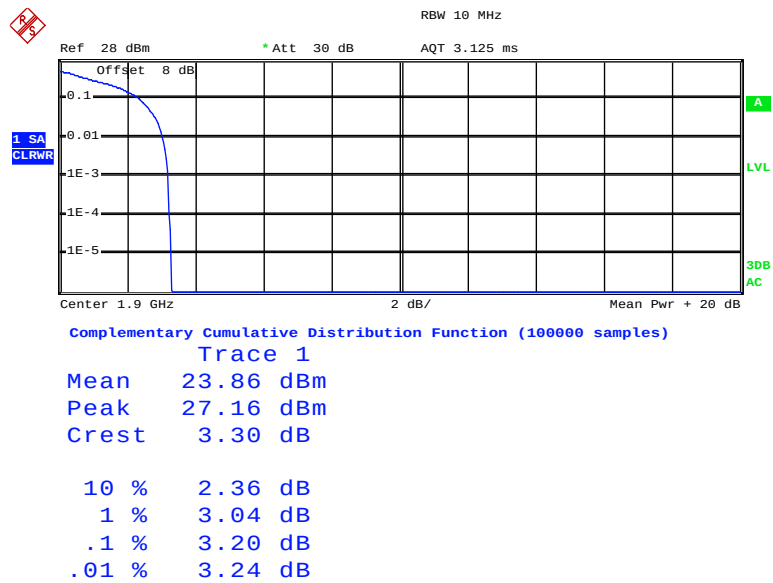
Date: 16.MAY.2016 13:12:10

## QPSK\_20MHz\_1RB Middle Channel



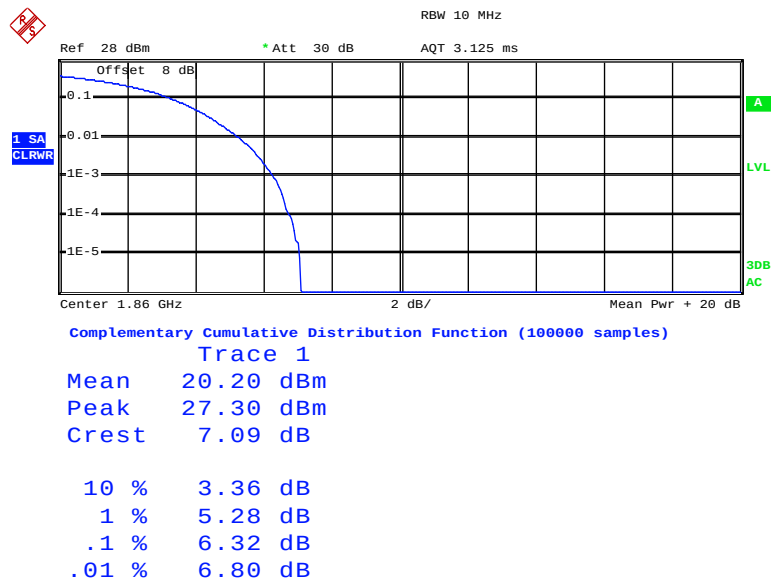
Date: 16.MAY.2016 13:13:02

### QPSK\_20MHz\_1RB High Channel



Date: 16.MAY.2016 13:11:13

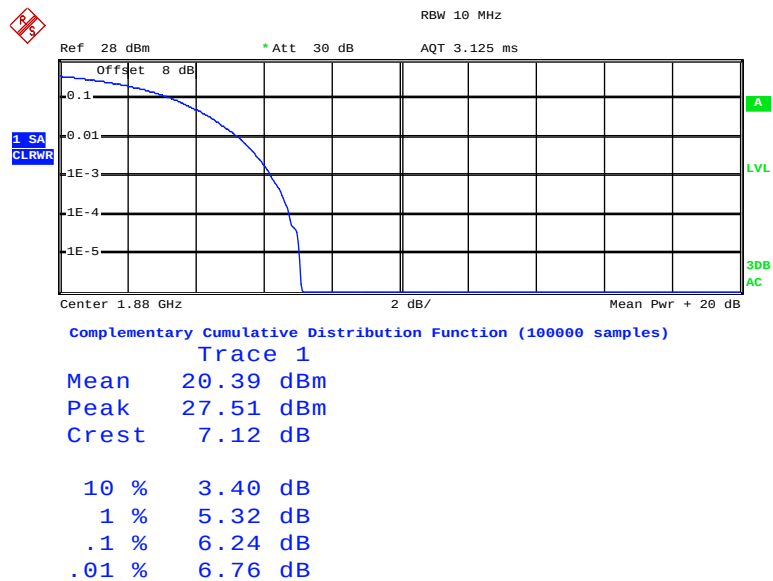
### QPSK\_20MHz\_FULL RB Low Channel



Date: 16.MAY.2016 13:03:10

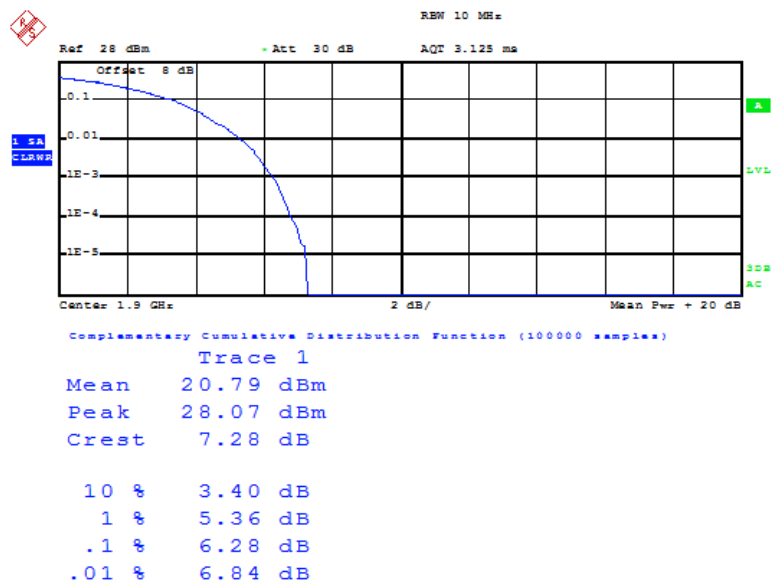


### QPSK\_20MHz\_FULL RB Middle Channel



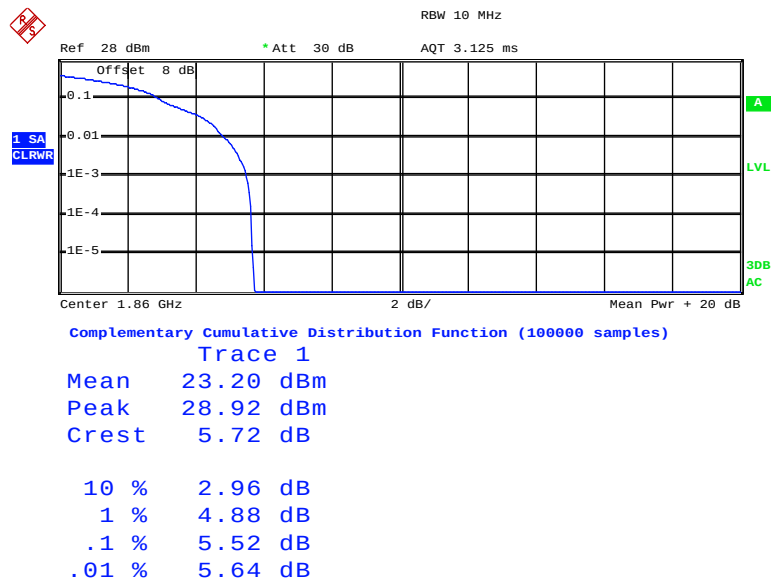
Date: 16.MAY.2016 12:59:51

### QPSK 20MHz\_FULL RB High Channel



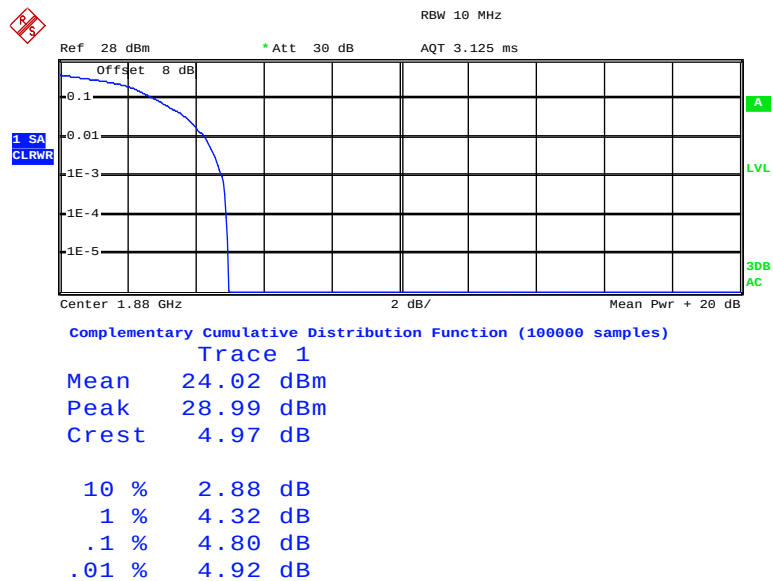
Date: 16.MAY.2016 13:05:13

### 16QAM\_20MHz\_1RB\_Low Channel



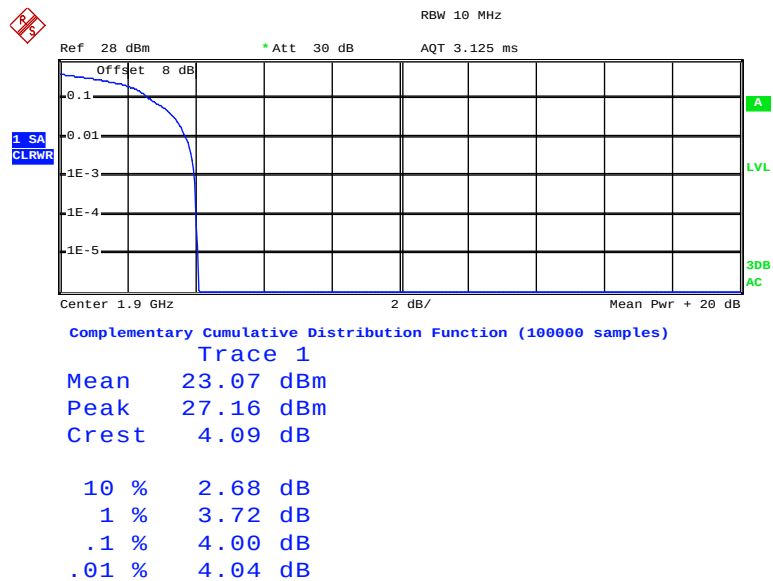
Date: 16.MAY.2016 13:12:18

### 16QAM 20MHz\_1RB Middle Channel



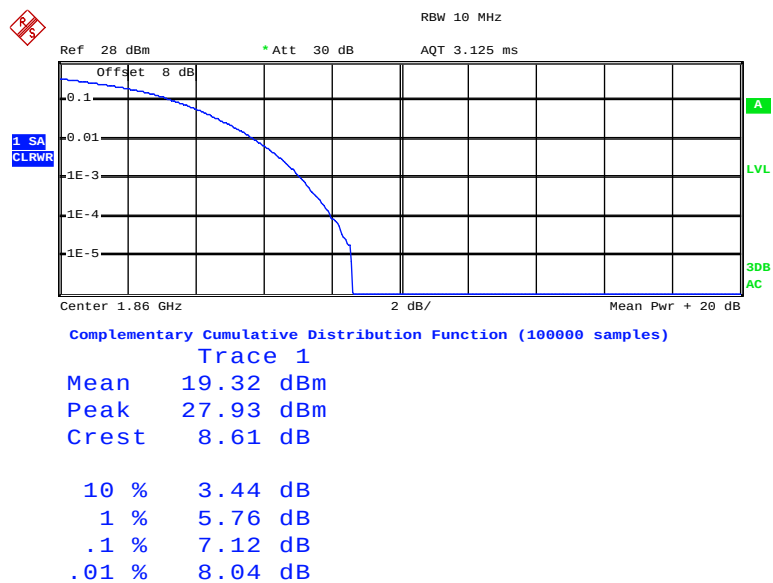
Date: 16.MAY.2016 13:13:10

### 16QAM 20MHz\_1RB High Channel



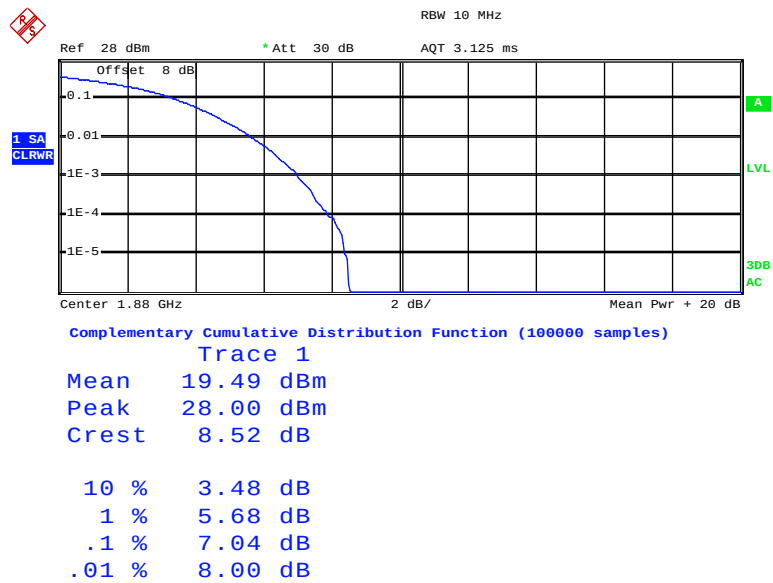
Date: 16.MAY.2016 13:11:21

### 16QAM 20MHz\_FULL RB Low Channel



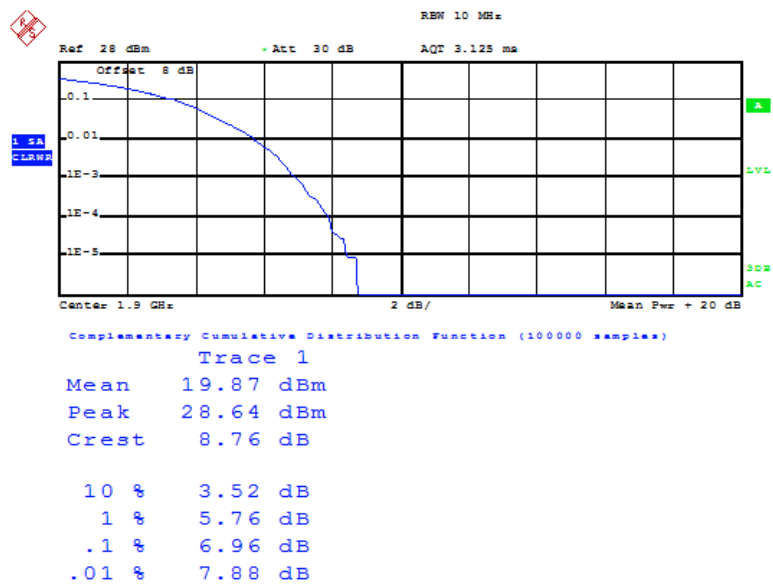
Date: 16.MAY.2016 13:03:28

### 16QAM 20MHz\_FULL RB Middle Channel



Date: 16.MAY.2016 13:01:29

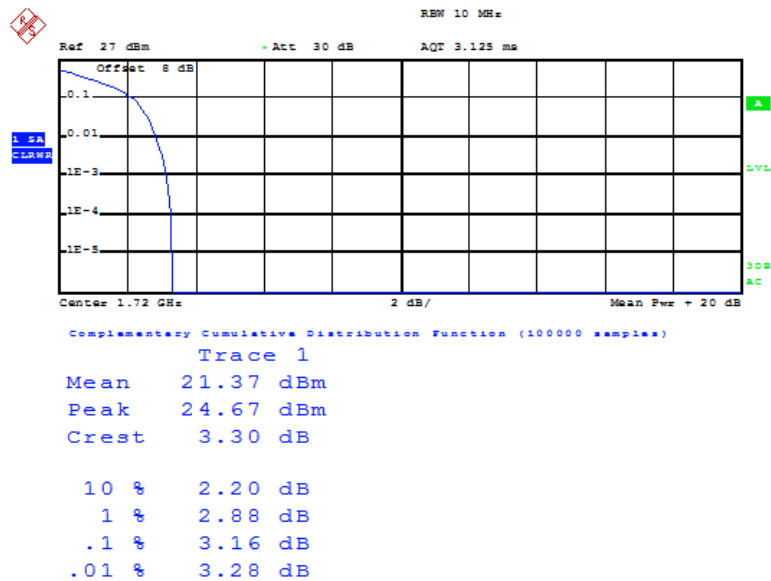
### 16QAM 20MHz\_FULL RB High Channel



Date: 16.MAY.2016 13:05:25

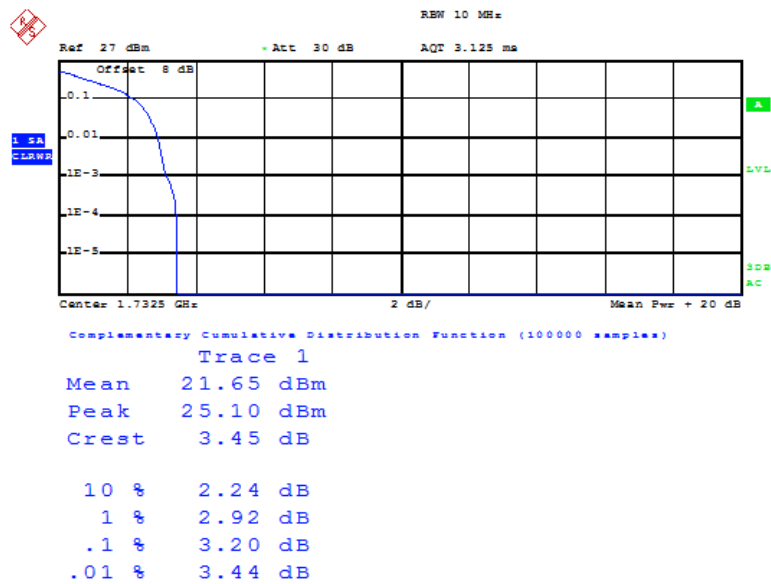
## LTE Band IV (PART 27)

## QPSK\_20MHz\_1RB\_Low Channel



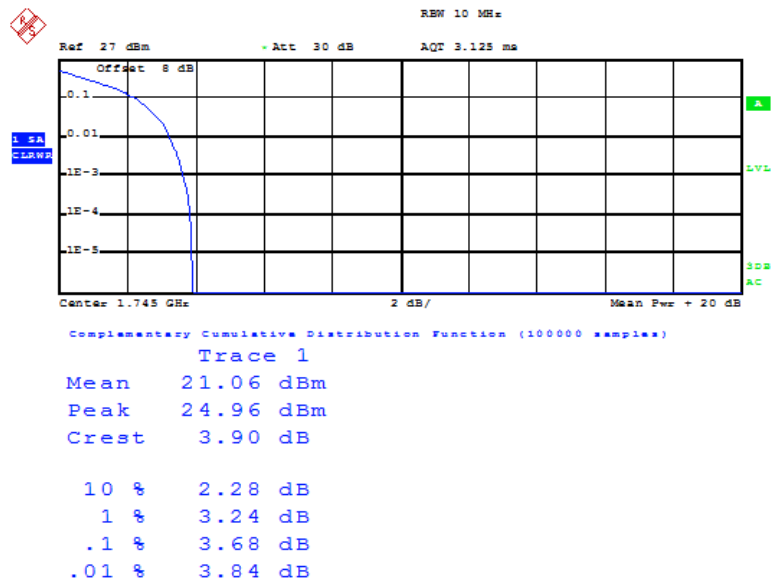
Date: 6.MAY.2016 16:14:42

## QPSK\_20MHz\_1RB Middle Channel



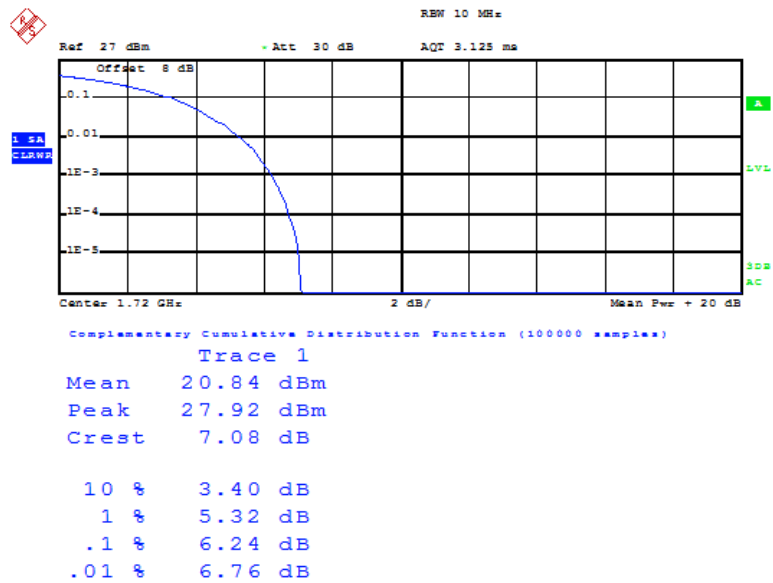
Date: 6.MAY.2016 16:14:23

### QPSK\_20MHz\_1RB High Channel

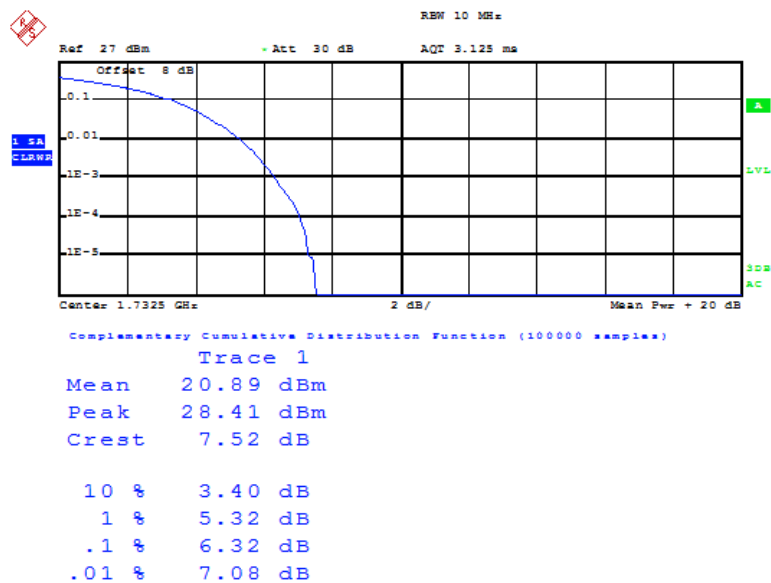


Date: 6.MAY.2016 16:13:50

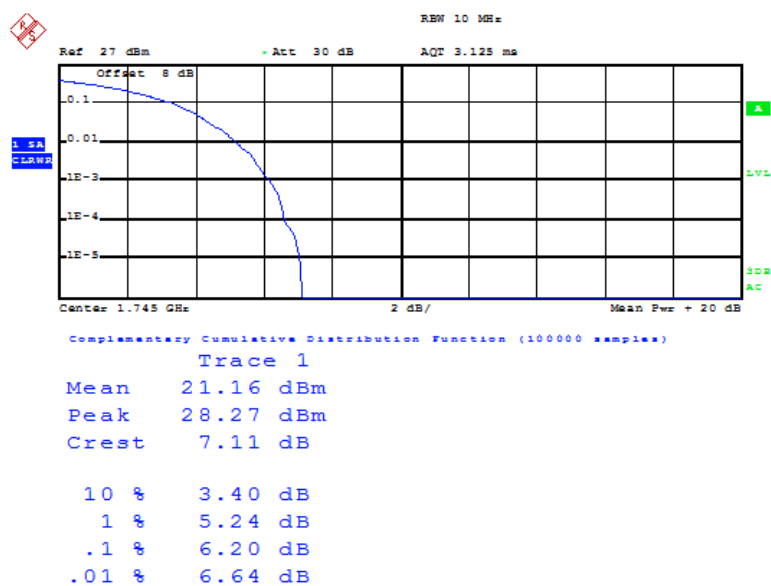
### QPSK\_20MHz\_FULL RB Low Channel



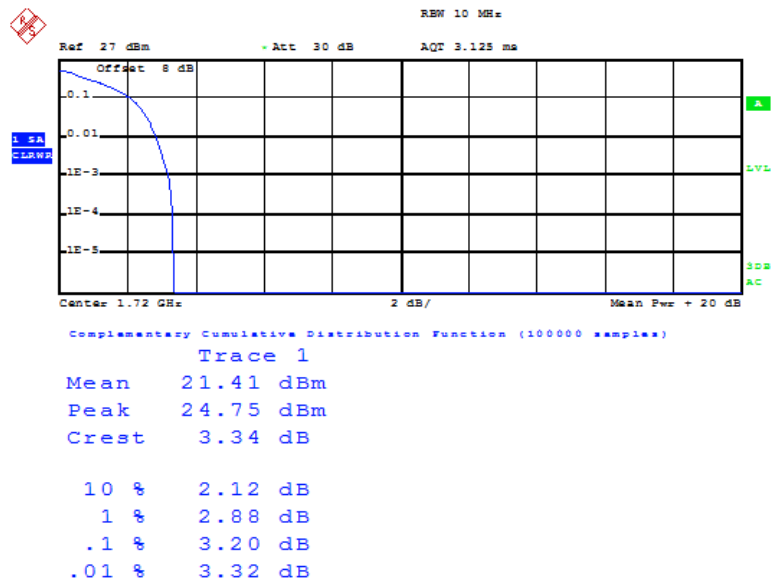
Date: 6.MAY.2016 13:37:56

**QPSK\_20MHz\_FULL RB Middle Channel**

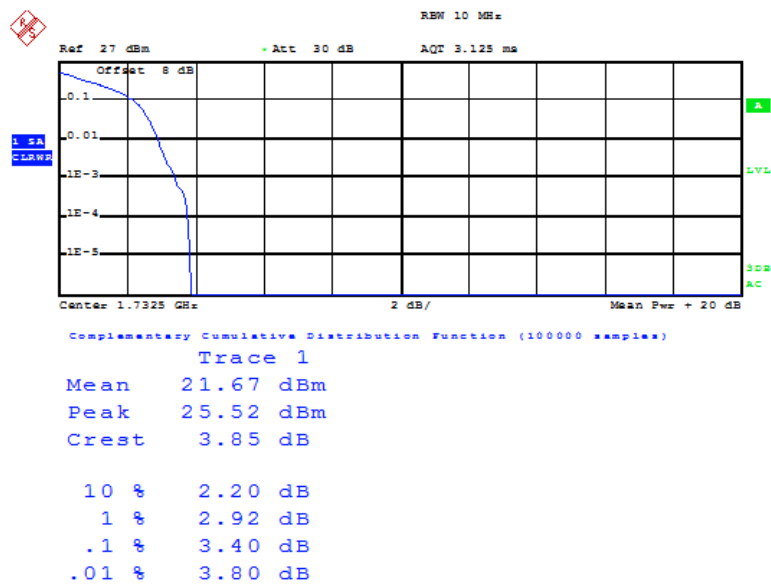
Date: 6.MAY.2016 13:38:31

**QPSK 20MHz\_FULL RB High Channel**

Date: 6.MAY.2016 13:39:13

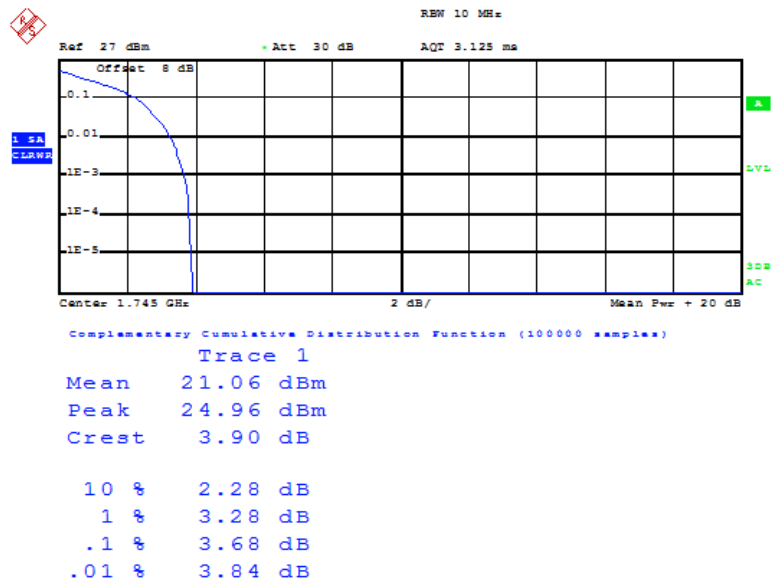
**16QAM\_20MHz\_1RB\_Low Channel**

Date: 6.MAY.2016 16:14:40

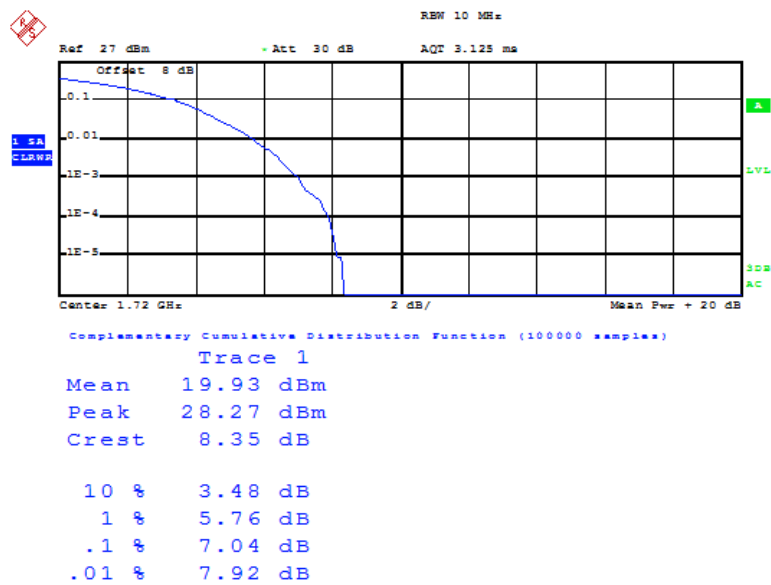
**16QAM 20MHz\_1RB Middle Channel**

Date: 6.MAY.2016 16:14:25



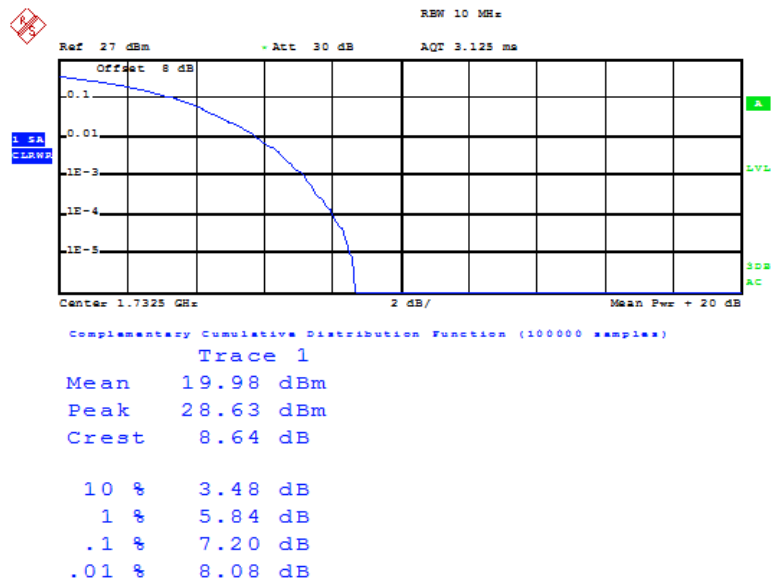
**16QAM 20MHz\_1RB High Channel**

Date: 6.MAY.2016 16:13:52

**16QAM 20MHz\_FULL RB Low Channel**

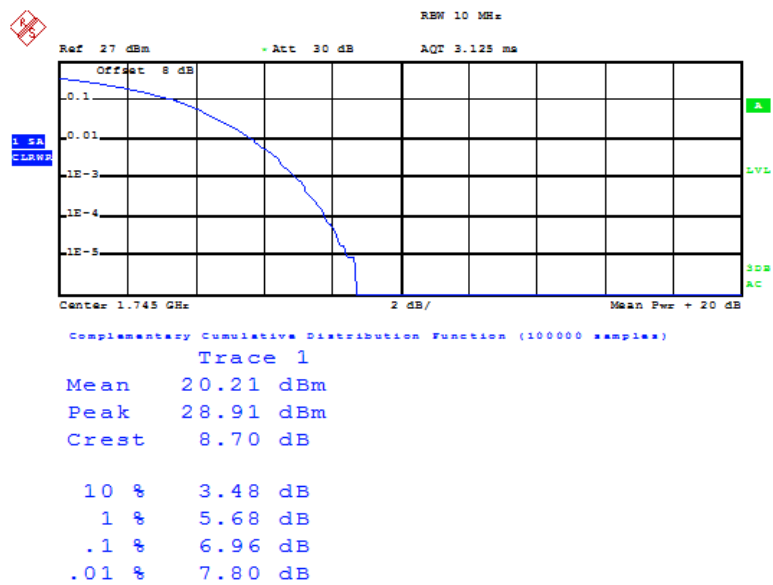
Date: 6.MAY.2016 13:38:07

### 16QAM 20MHz\_FULL RB Middle Channel



Date: 6.MAY.2016 13:38:43

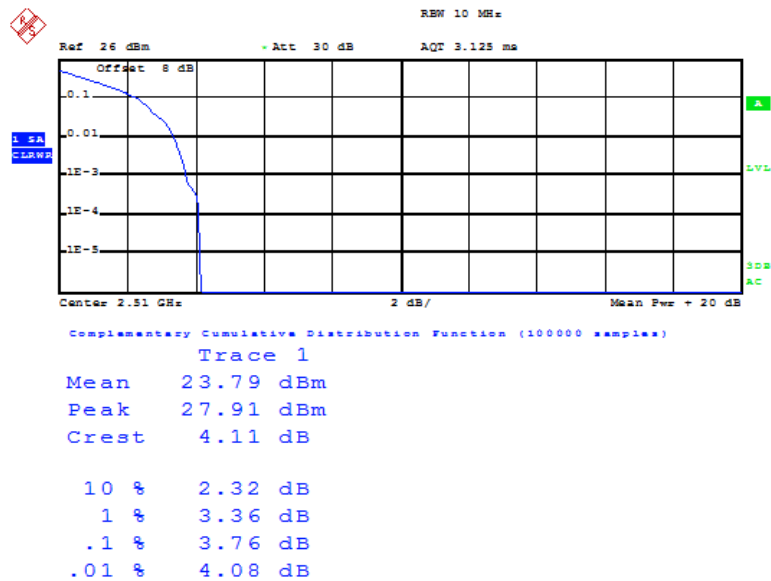
### 16QAM 20MHz\_FULL RB High Channel



Date: 6.MAY.2016 13:39:20

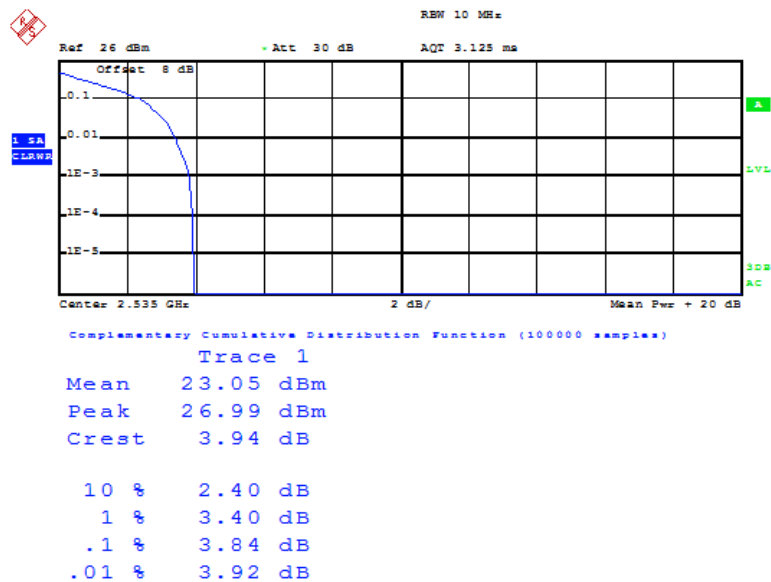
## LTE Band VII (PART 27)

## QPSK\_20MHz\_1RB\_Low Channel



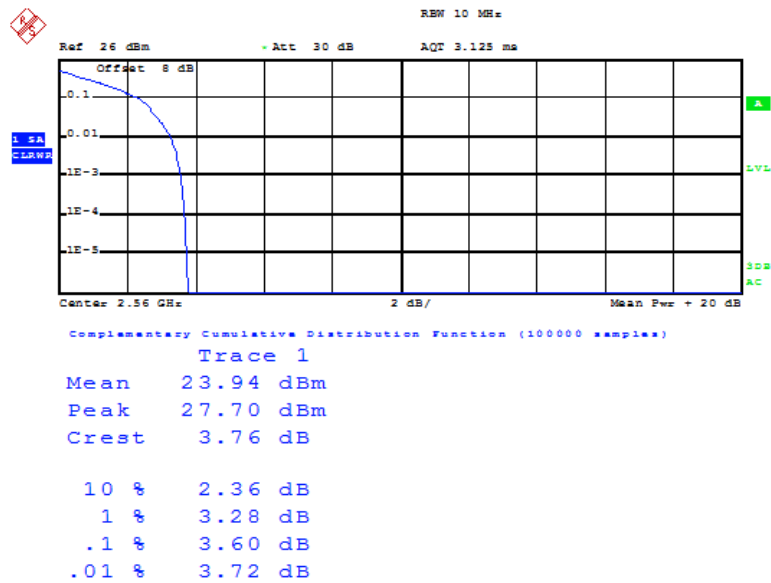
Date: 16.MAY.2016 13:22:02

## QPSK\_20MHz\_1RB Middle Channel



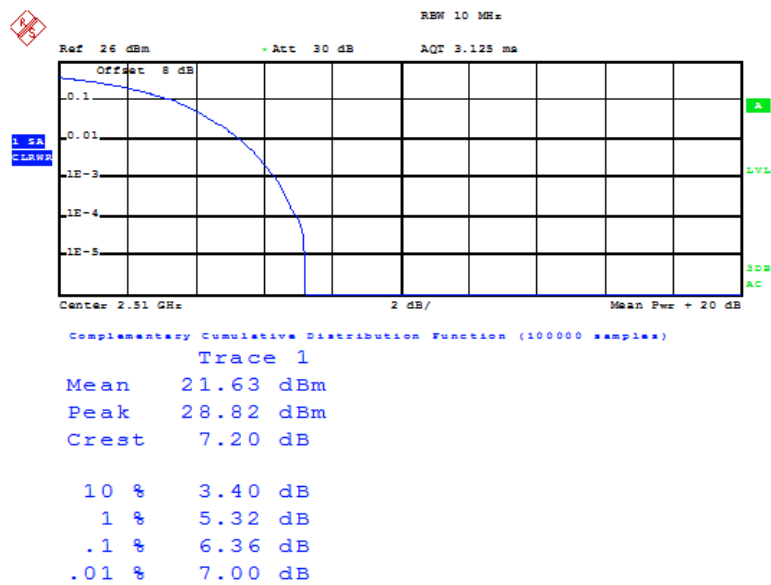
Date: 16.MAY.2016 13:20:31

### QPSK\_20MHz\_1RB High Channel



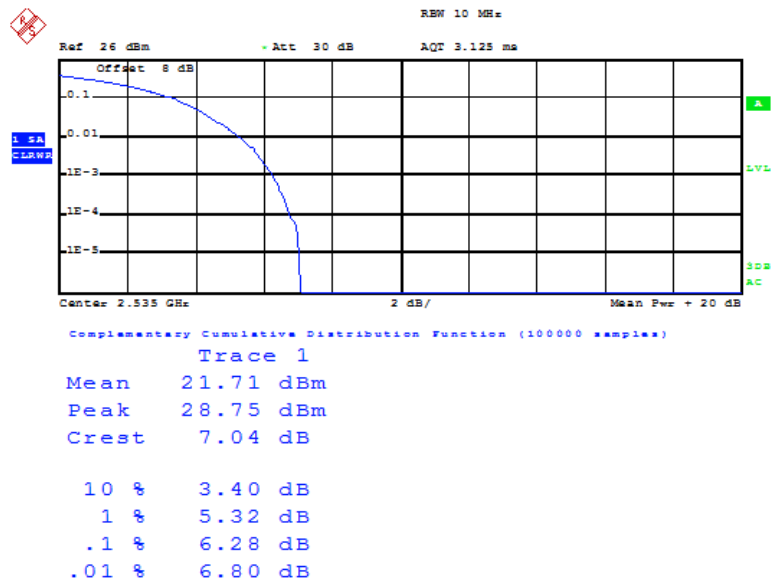
Date: 16.MAY.2016 13:22:58

### QPSK\_20MHz\_FULL RB Low Channel



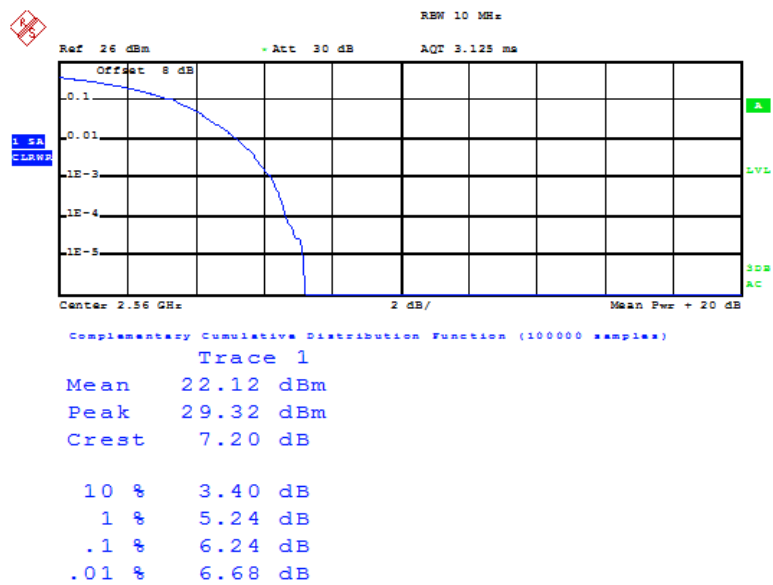
Date: 16.MAY.2016 13:30:00

### QPSK\_20MHz\_FULL RB Middle Channel



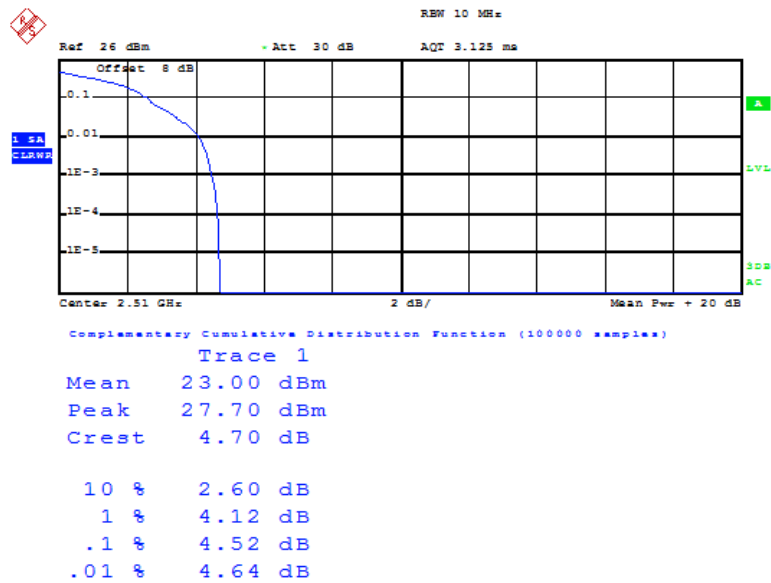
Date: 16.MAY.2016 13:29:12

### QPSK 20MHz\_FULL RB High Channel



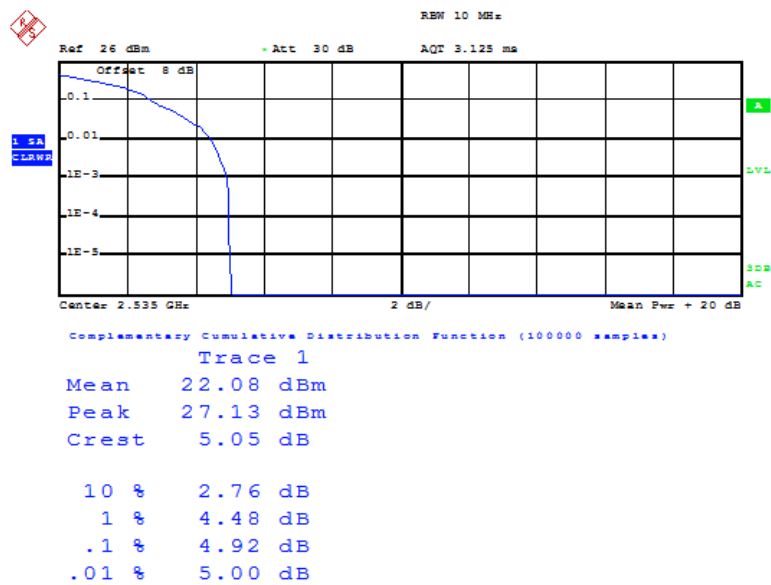
Date: 16.MAY.2016 13:30:33

### 16QAM\_20MHz\_1RB\_Low Channel



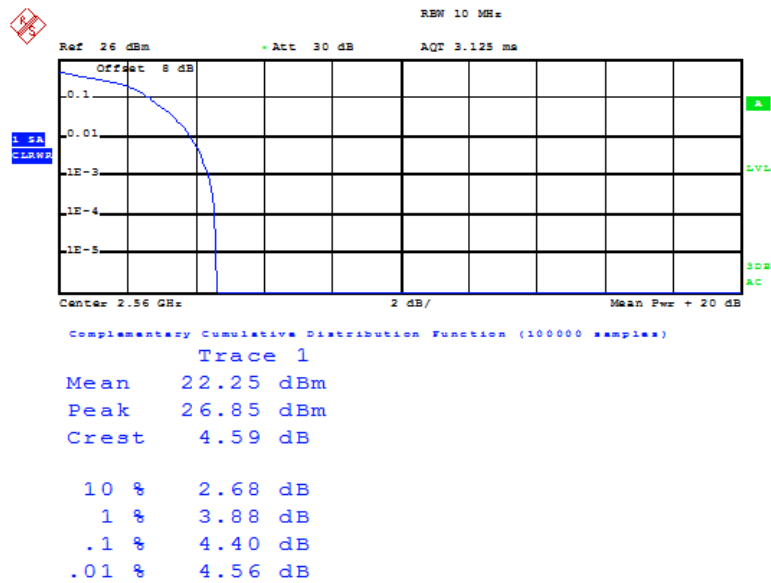
Date: 16.MAY.2016 13:22:12

### 16QAM 20MHz\_1RB Middle Channel



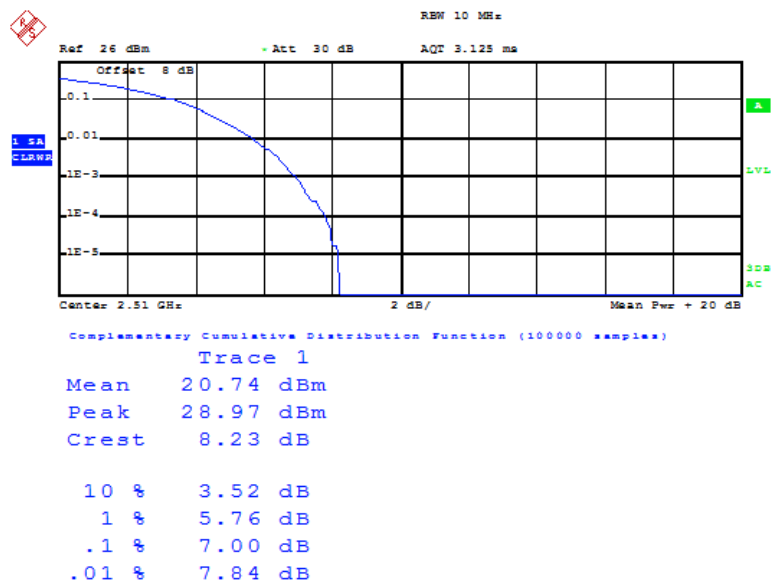
Date: 16.MAY.2016 13:20:39

### 16QAM 20MHz\_1RB High Channel



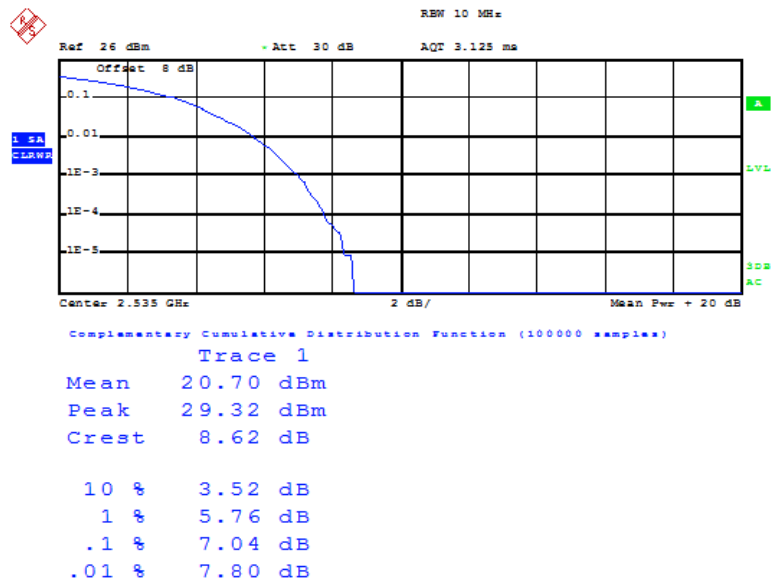
Date: 16.MAY.2016 13:24:02

### 16QAM 20MHz\_FULL RB Low Channel



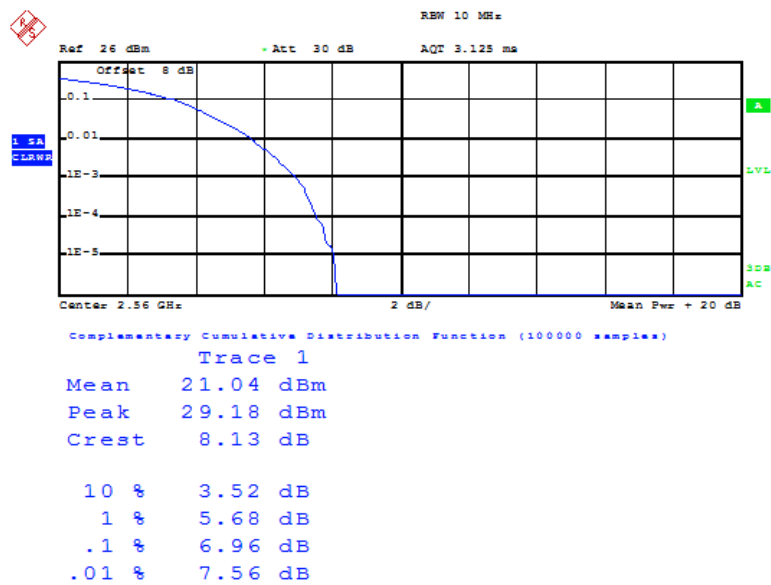
Date: 16.MAY.2016 13:30:09

### 16QAM 20MHz\_FULL RB Middle Channel



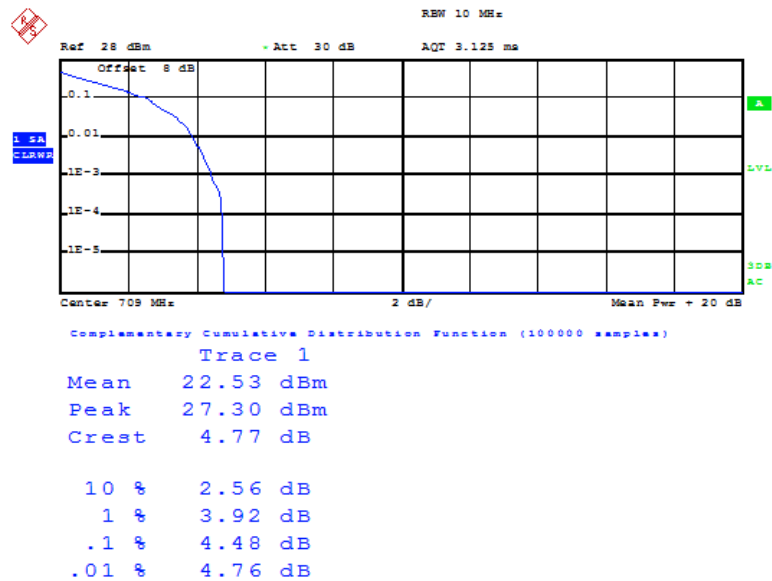
Date: 16.MAY.2016 13:29:24

### 16QAM 20MHz\_FULL RB High Channel

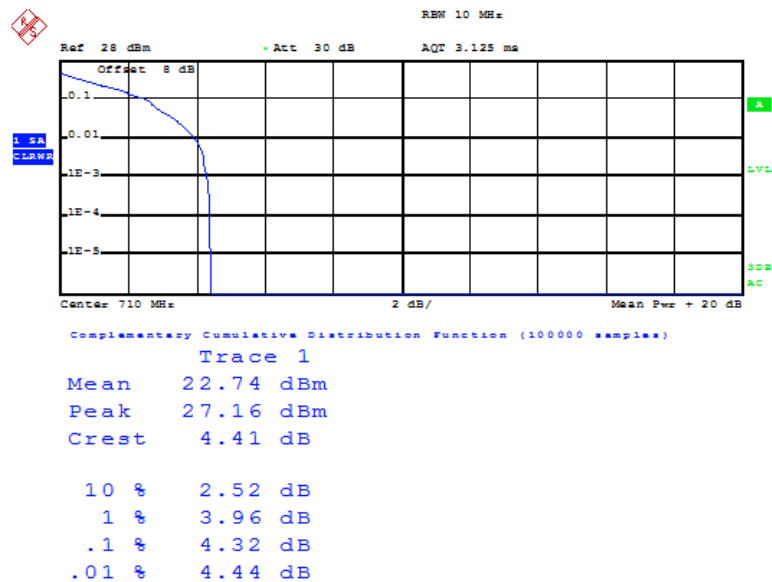


Date: 16.MAY.2016 13:30:43



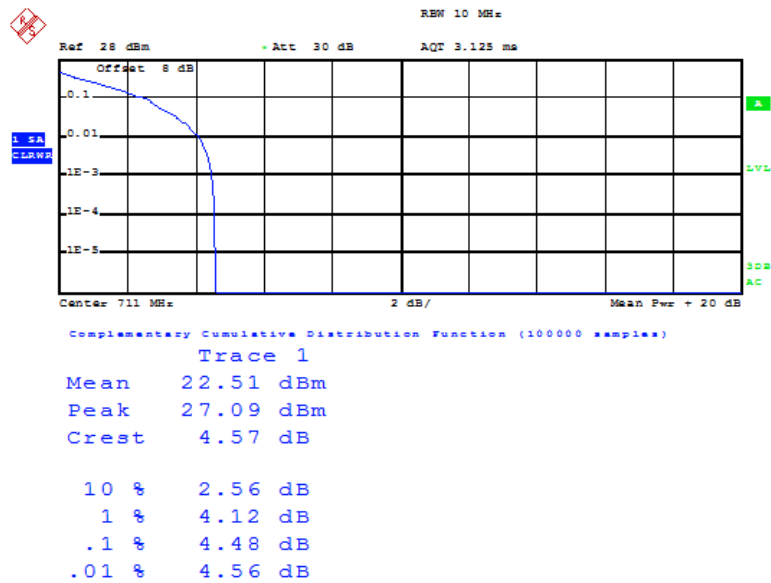
**LTE Band 17 (PART 27)****QPSK\_10MHz\_1RB\_Low Channel**

Date: 6.MAY.2016 16:29:41

**QPSK\_10MHz\_1RB Middle Channel**

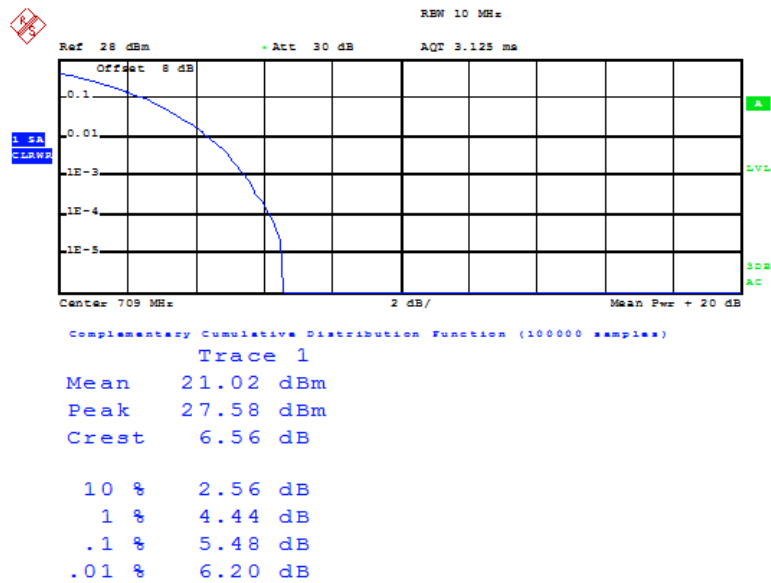
Date: 6.MAY.2016 16:29:31

### QPSK\_10MHz\_1RB High Channel



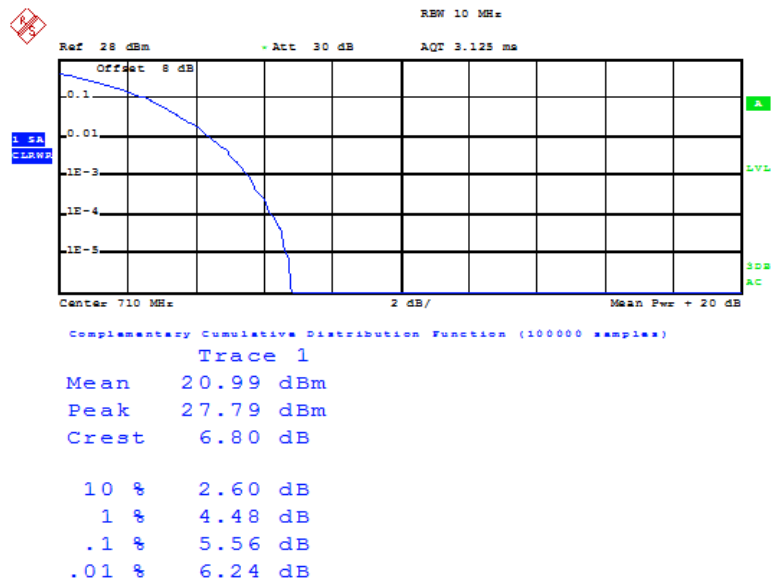
Date: 6.MAY.2016 16:29:12

### QPSK\_10MHz\_FULL RB Low Channel



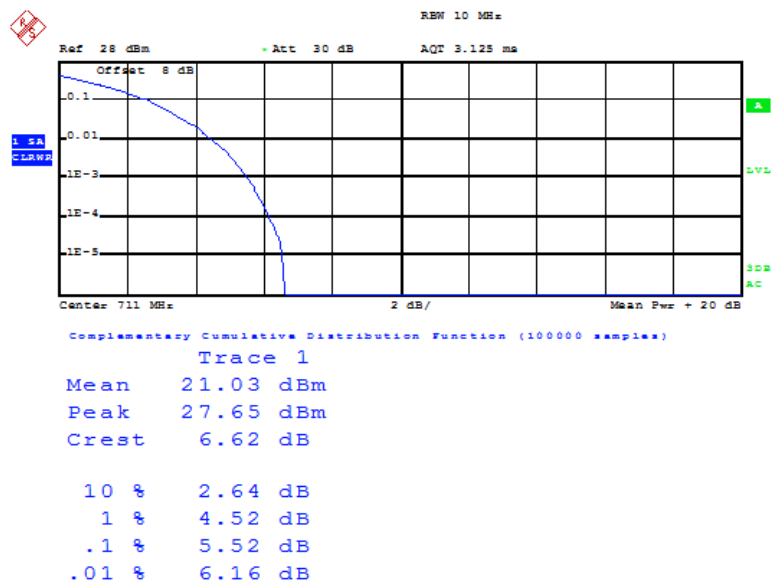
Date: 6.MAY.2016 16:28:35

### QPSK\_10MHz\_FULL RB Middle Channel



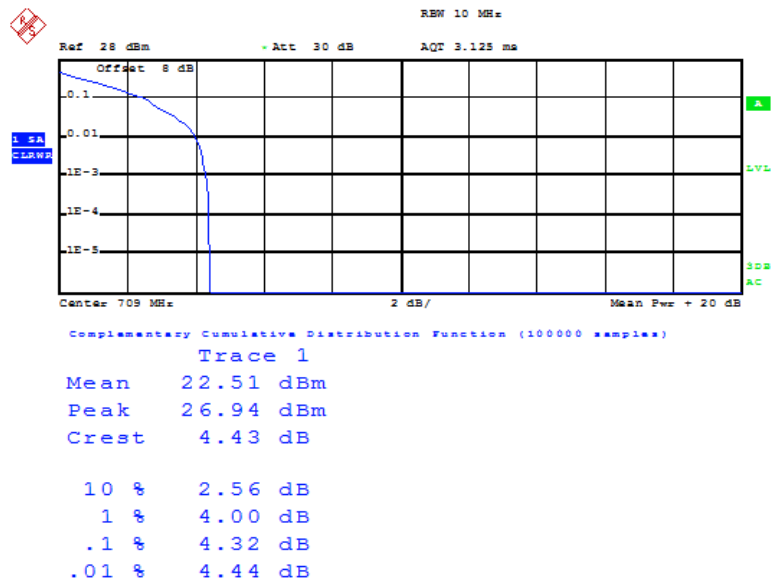
Date: 6.MAY.2016 16:28:13

### QPSK 10MHz\_FULL RB High Channel



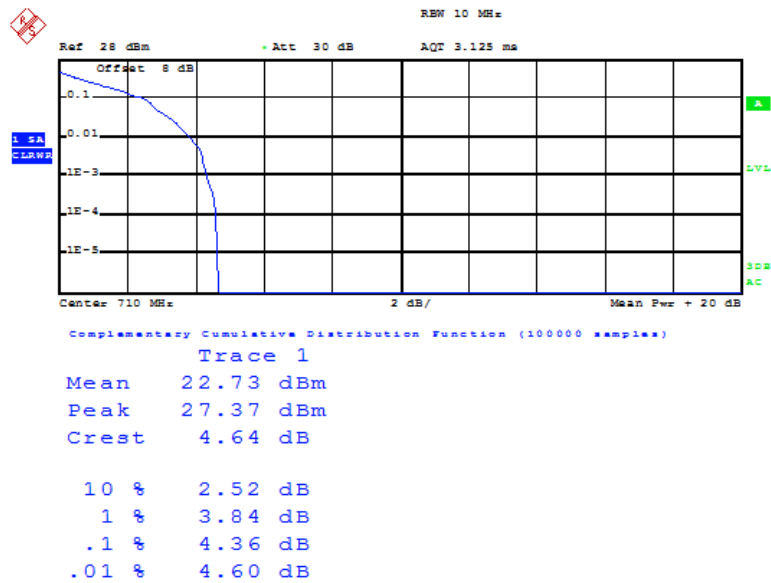
Date: 6.MAY.2016 16:28:56

### 16QAM\_10MHz\_1RB\_Low Channel

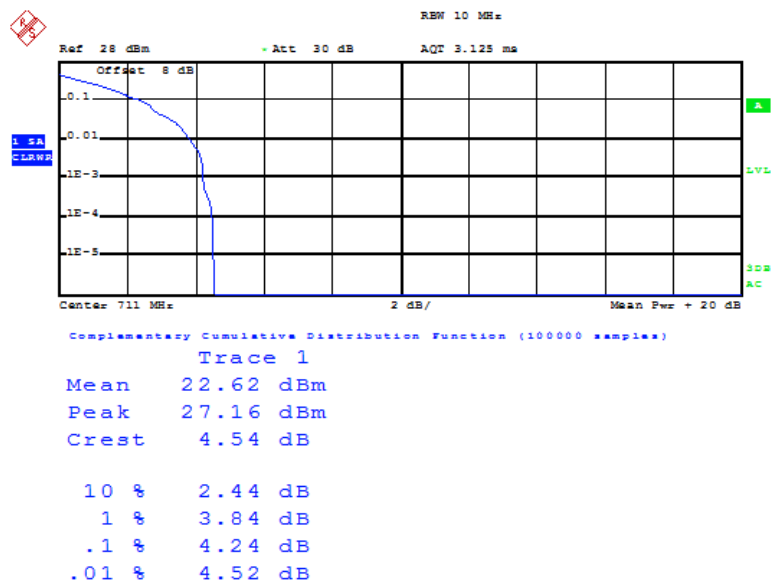


Date: 6.MAY.2016 16:29:42

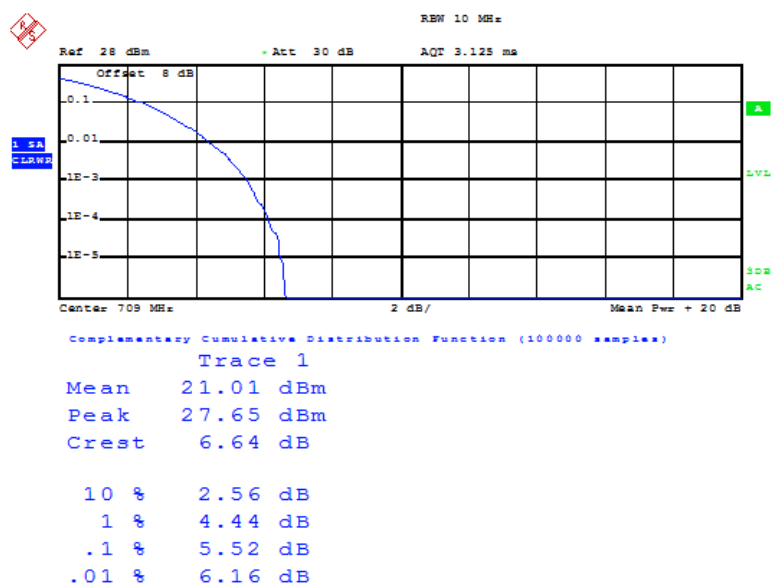
### 16QAM 10MHz\_1RB Middle Channel



Date: 6.MAY.2016 16:29:30

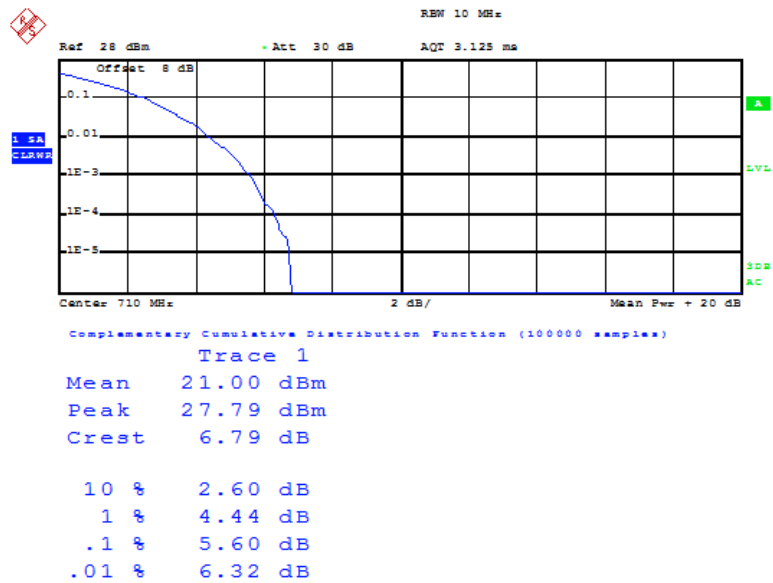
**16QAM 10MHz\_1RB High Channel**

Date: 6.MAY.2016 16:29:14

**16QAM 10MHz\_FULL RB Low Channel**

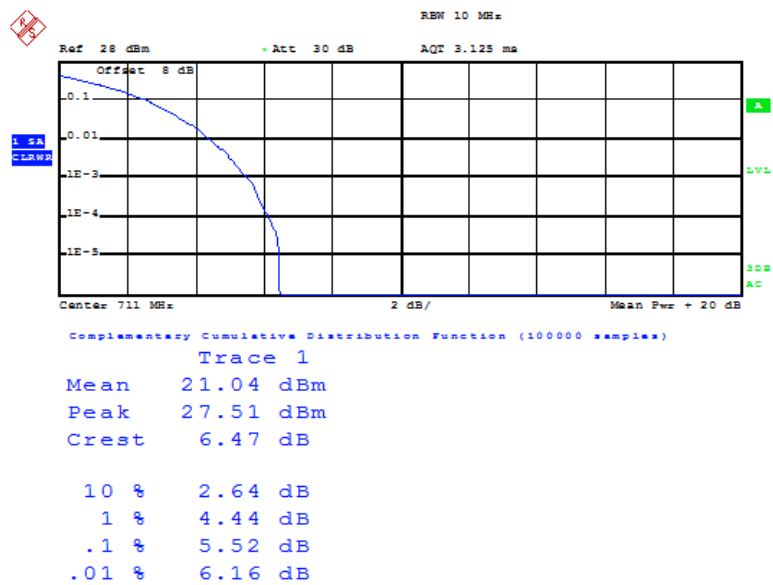
Date: 6.MAY.2016 16:28:37

### 16QAM 10MHz\_FULL RB Middle Channel



Date: 6.MAY.2016 16:28:09

### 16QAM 10MHz\_FULL RB High Channel



Date: 6.MAY.2016 16:28:55

## ERP &amp; EIRP

| Frequency<br>(MHz)           | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|------------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                              |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| GSM 850 Middle Channel       |                |                               |                        |                              |                    |                            |                |                |
| 836.600                      | H              | 89.58                         | 14.7                   | 0.0                          | 1                  | 13.7                       | 38.45          | 24.8           |
| 836.600                      | V              | 103.21                        | 31.4                   | 0.0                          | 1                  | 30.4                       | 38.45          | 8.1            |
| EGPRS 850 Middle Channel     |                |                               |                        |                              |                    |                            |                |                |
| 836.600                      | H              | 86.28                         | 11.4                   | 0.0                          | 1                  | 10.4                       | 38.45          | 28.1           |
| 836.600                      | V              | 97.18                         | 25.4                   | 0.0                          | 1                  | 24.4                       | 38.45          | 14.1           |
| WCDMA Band V Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 836.600                      | H              | 85.91                         | 11                     | 0.0                          | 1                  | 10.0                       | 38.45          | 28.45          |
| 836.600                      | V              | 95.83                         | 24                     | 0.0                          | 1                  | 23.0                       | 38.45          | 15.45          |
| PCS 1900 Middle Channel      |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 91.86                         | 20.3                   | 11.7                         | 1.4                | 30.6                       | 33.0           | 0.4            |
| 1880.000                     | V              | 89.37                         | 17.9                   | 11.7                         | 1.4                | 28.2                       | 33.0           | 4.8            |
| EGPRS 1900 Middle Channel    |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 85.61                         | 17                     | 11.7                         | 1.4                | 27.3                       | 33.0           | 5.7            |
| 1880.000                     | V              | 84.68                         | 13.2                   | 11.7                         | 1.4                | 23.5                       | 33.0           | 9.5            |
| WCDMA Band II Middle Channel |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 84.07                         | 11.5                   | 11.7                         | 1.4                | 22.8                       | 33.0           | 10.2           |
| 1880.000                     | V              | 82.66                         | 11.2                   | 11.7                         | 1.4                | 21.5                       | 33.0           | 11.5           |

**LTE Band II**

| Frequency<br>(MHz)           | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|------------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                              |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK 1.4 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.42                         | 11.8                   | 11.7                         | 1.4                | 22.1                       | 33.00          | 10.9           |
| 1880.000                     | V              | 81.20                         | 9.7                    | 11.7                         | 1.4                | 20.0                       | 33.00          | 13.0           |
| QPSK 3 MHz Middle Channel    |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.44                         | 11.8                   | 11.7                         | 1.4                | 22.1                       | 33.00          | 10.9           |
| 1880.000                     | V              | 81.21                         | 9.8                    | 11.7                         | 1.4                | 20.1                       | 33.00          | 12.9           |
| QPSK 5 MHz Middle Channel    |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.57                         | 12                     | 11.7                         | 1.4                | 22.3                       | 33.00          | 12.7           |
| 1880.000                     | V              | 81.34                         | 9.9                    | 11.7                         | 1.4                | 20.2                       | 33.00          | 12.8           |
| QPSK 10 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 82.70                         | 11.1                   | 11.7                         | 1.4                | 21.4                       | 33.00          | 11.6           |
| 1880.000                     | V              | 80.48                         | 9                      | 11.7                         | 1.4                | 19.3                       | 33.00          | 13.7           |
| QPSK 15 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 82.67                         | 11.1                   | 11.7                         | 1.4                | 21.4                       | 33.00          | 11.6           |
| 1880.000                     | V              | 80.42                         | 9                      | 11.7                         | 1.4                | 19.3                       | 33.00          | 13.7           |
| QPSK 20 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 82.49                         | 10.9                   | 11.7                         | 1.4                | 21.2                       | 33.00          | 11.8           |
| 1880.000                     | V              | 80.24                         | 8.8                    | 11.7                         | 1.4                | 19.1                       | 33.00          | 13.9           |
| 16QAM 1.4 MHz Middle Channel |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.21                         | 11.60                  | 11.7                         | 1.4                | 21.90                      | 33.00          | 11.10          |
| 1880.000                     | V              | 81.08                         | 9.60                   | 11.7                         | 1.4                | 19.90                      | 33.00          | 13.10          |
| 16QAM 3 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.54                         | 11.90                  | 11.7                         | 1.4                | 22.20                      | 33.00          | 10.80          |
| 1880.000                     | V              | 81.41                         | 10.00                  | 11.7                         | 1.4                | 20.30                      | 33.00          | 12.70          |
| 16QAM 5 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.53                         | 11.90                  | 11.7                         | 1.4                | 22.20                      | 33.00          | 10.80          |
| 1880.000                     | V              | 81.40                         | 9.90                   | 11.7                         | 1.4                | 20.20                      | 33.00          | 12.80          |
| 16QAM 10 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.27                         | 11.70                  | 11.7                         | 1.4                | 22.00                      | 33.00          | 11.00          |
| 1880.000                     | V              | 81.15                         | 9.70                   | 11.7                         | 1.4                | 20.00                      | 33.00          | 13.00          |
| 16QAM 15 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 83.19                         | 11.60                  | 11.7                         | 1.4                | 21.90                      | 33.00          | 11.10          |
| 1880.000                     | V              | 81.03                         | 9.60                   | 11.7                         | 1.4                | 19.90                      | 33.00          | 13.10          |
| 16QAM 20 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1880.000                     | H              | 82.78                         | 11.20                  | 11.7                         | 1.4                | 21.50                      | 33.00          | 11.50          |
| 1880.000                     | V              | 80.59                         | 9.10                   | 11.7                         | 1.4                | 19.40                      | 33.00          | 13.60          |



**LTE Band IV**

| Frequency<br>(MHz)           | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|------------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                              |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK 1.4 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 85.97                         | 13                     | 10.9                         | 1.4                | 22.5                       | 30.00          | 7.5            |
| 1732.500                     | V              | 86.45                         | 13.1                   | 10.9                         | 1.4                | 22.6                       | 30.00          | 7.4            |
| QPSK 3 MHz Middle Channel    |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 85.71                         | 12.7                   | 10.9                         | 1.4                | 22.2                       | 30.00          | 7.8            |
| 1732.500                     | V              | 86.23                         | 12.9                   | 10.9                         | 1.4                | 22.4                       | 30.00          | 7.6            |
| QPSK 5 MHz Middle Channel    |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 85.53                         | 12.5                   | 10.9                         | 1.4                | 22.0                       | 30.00          | 8.0            |
| 1732.500                     | V              | 85.99                         | 12.7                   | 10.9                         | 1.4                | 22.2                       | 30.00          | 7.8            |
| QPSK 10 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 83.39                         | 10.4                   | 10.9                         | 1.4                | 19.9                       | 30.00          | 10.1           |
| 1732.500                     | V              | 83.86                         | 10.5                   | 10.9                         | 1.4                | 20.0                       | 30.00          | 10.0           |
| QPSK 15 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 82.58                         | 9.6                    | 10.9                         | 1.4                | 19.1                       | 30.00          | 10.9           |
| 1732.500                     | V              | 83.06                         | 9.7                    | 10.9                         | 1.4                | 19.2                       | 30.00          | 10.8           |
| QPSK 20 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 82.15                         | 9.1                    | 10.9                         | 1.4                | 18.6                       | 30.00          | 11.4           |
| 1732.500                     | V              | 82.63                         | 9.3                    | 10.9                         | 1.4                | 18.8                       | 30.00          | 11.2           |
| 16QAM 1.4 MHz Middle Channel |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 85.77                         | 12.8                   | 10.9                         | 1.4                | 22.3                       | 30.00          | 7.7            |
| 1732.500                     | V              | 86.26                         | 12.9                   | 10.9                         | 1.4                | 22.4                       | 30.00          | 7.6            |
| 16QAM 3 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 85.53                         | 12.5                   | 10.9                         | 1.4                | 22.0                       | 30.00          | 8.0            |
| 1732.500                     | V              | 86.01                         | 12.7                   | 10.9                         | 1.4                | 22.2                       | 30.00          | 7.8            |
| 16QAM 5 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 85.34                         | 12.3                   | 10.9                         | 1.4                | 21.8                       | 30.00          | 8.2            |
| 1732.500                     | V              | 85.78                         | 12.5                   | 10.9                         | 1.4                | 22.0                       | 30.00          | 8.0            |
| 16QAM 10 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 83.20                         | 10.2                   | 10.9                         | 1.4                | 19.7                       | 30.00          | 10.3           |
| 1732.500                     | V              | 83.62                         | 10.3                   | 10.9                         | 1.4                | 19.8                       | 30.00          | 10.2           |
| 16QAM 15 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 82.39                         | 9.4                    | 10.9                         | 1.4                | 18.9                       | 30.00          | 11.1           |
| 1732.500                     | V              | 82.87                         | 9.5                    | 10.9                         | 1.4                | 19.0                       | 30.00          | 11.0           |
| 16QAM 20 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 1732.500                     | H              | 81.99                         | 9                      | 10.9                         | 1.4                | 18.5                       | 30.00          | 11.5           |
| 1732.500                     | V              | 82.47                         | 9.1                    | 10.9                         | 1.4                | 18.6                       | 30.00          | 11.4           |

**LTE Band VII**

| Frequency<br>(MHz)          | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                             |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK 5 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 83.70                         | 12.5                   | 13.1                         | 2.5                | 23.1                       | 33.00          | 9.9            |
| 2535.000                    | V              | 77.41                         | 7.7                    | 13.1                         | 2.5                | 18.3                       | 33.00          | 14.7           |
| QPSK 10 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 82.42                         | 11.2                   | 13.1                         | 2.5                | 21.8                       | 33.00          | 11.2           |
| 2535.000                    | V              | 75.85                         | 6.1                    | 13.1                         | 2.5                | 16.7                       | 33.00          | 16.3           |
| QPSK 15 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 81.54                         | 10.3                   | 13.1                         | 2.5                | 20.9                       | 33.00          | 12.1           |
| 2535.000                    | V              | 75.69                         | 5.9                    | 13.1                         | 2.5                | 16.5                       | 33.00          | 16.5           |
| QPSK 20 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 82.15                         | 10.9                   | 13.1                         | 2.5                | 21.5                       | 33.00          | 11.5           |
| 2535.000                    | V              | 75.48                         | 5.7                    | 13.1                         | 2.5                | 16.3                       | 33.00          | 16.7           |
| 16QAM 5 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 83.55                         | 12.3                   | 13.1                         | 2.5                | 22.9                       | 33.00          | 10.1           |
| 2535.000                    | V              | 76.95                         | 7.2                    | 13.1                         | 2.5                | 17.8                       | 33.00          | 15.2           |
| 16QAM 10 MHz Middle Channel |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 83.05                         | 11.8                   | 13.1                         | 2.5                | 22.4                       | 33.00          | 10.6           |
| 2535.000                    | V              | 75.99                         | 6.2                    | 13.1                         | 2.5                | 16.8                       | 33.00          | 16.2           |
| 16QAM 15 MHz Middle Channel |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 81.25                         | 10                     | 13.1                         | 2.5                | 20.6                       | 33.00          | 12.4           |
| 2535.000                    | V              | 75.21                         | 5.5                    | 13.1                         | 2.5                | 16.1                       | 33.00          | 16.9           |
| 16QAM 20 MHz Middle Channel |                |                               |                        |                              |                    |                            |                |                |
| 2535.000                    | H              | 81.59                         | 10.4                   | 13.1                         | 2.5                | 21.0                       | 33.00          | 12.0           |
| 2535.000                    | V              | 75.17                         | 5.4                    | 13.1                         | 2.5                | 16.0                       | 33.00          | 17.0           |

**LTE Band 17**

| Frequency<br>(MHz)          | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                             |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK 5 MHz Middle Channel   |                |                               |                        |                              |                    |                            |                |                |
| 710.000                     | H              | 94.24                         | 17.4                   | 0.0                          | 0.9                | 16.5                       | 34.77          | 18.3           |
| 710.000                     | V              | 98.27                         | 23.9                   | 0.0                          | 0.9                | 23.0                       | 34.77          | 11.8           |
| QPSK 10 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 710.000                     | H              | 93.45                         | 16.6                   | 0.0                          | 0.9                | 15.7                       | 34.77          | 19.1           |
| 710.000                     | V              | 96.54                         | 22.2                   | 0.0                          | 0.9                | 21.3                       | 34.77          | 13.5           |
| 16QAM 5 MHz Middle Channel  |                |                               |                        |                              |                    |                            |                |                |
| 710.000                     | H              | 88.68                         | 11.9                   | 0.0                          | 0.9                | 11.0                       | 34.77          | 23.8           |
| 710.000                     | V              | 95.64                         | 21.3                   | 0.0                          | 0.9                | 20.4                       | 34.77          | 14.4           |
| 16QAM 10 MHz Middle Channel |                |                               |                        |                              |                    |                            |                |                |
| 710.000                     | H              | 85.27                         | 8.5                    | 0.0                          | 0.9                | 7.6                        | 34.77          | 27.2           |
| 710.000                     | V              | 96.91                         | 22.6                   | 0.0                          | 0.9                | 21.7                       | 34.77          | 13.1           |

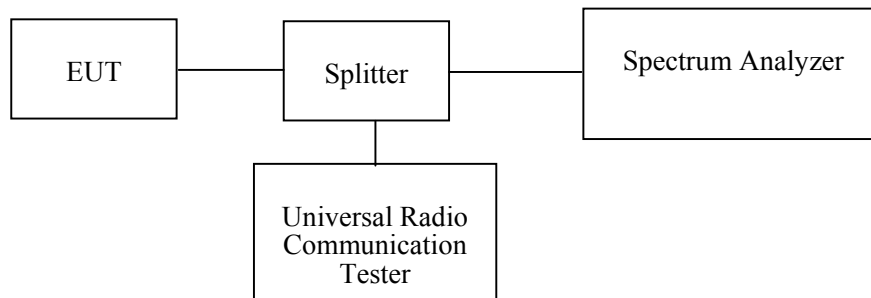
**FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53- OCCUPIED BANDWIDTH****Applicable Standard**

FCC §2.1049, §22.917, §22.905, §24.238 and §27.53.

**Test Procedure**

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The 26 dB & 99% bandwidth was recorded.

**Test Equipment List and Details**

| Manufacturer | Description                          | Model       | Serial Number         | Calibration Date | Calibration Due Date |
|--------------|--------------------------------------|-------------|-----------------------|------------------|----------------------|
| R&S          | Spectrum Analyzer                    | FSP 38      | 100478                | 2015-11-23       | 2016-11-22           |
| R&S          | Spectrum Analyzer                    | FSEM        | 831259/019            | 2015-07-28       | 2016-07-27           |
| R&S          | Universal Radio Communication Tester | CMU200      | 109 038               | 2015-07-28       | 2016-07-27           |
| R&S          | Wideband Radio Communication Tester  | CMW500      | 1201.002K50-146520-wh | 2015-12-19       | 2016-12-19           |
| N/A          | Coaxial Cable                        | 0.1m        | N/A                   | 2016-05-06       | 2017-05-06           |
| E-Microwave  | DC Blocking                          | EMDCB-00036 | 0E01201047            | 2016-05-06       | 2017-05-06           |
| E-Microwave  | Attenuator                           | EMCA10-5RN  | 0E01203239            | 2016-05-06       | 2017-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-01       | N/A                   | 2016-05-06       | 2017-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-02       | N/A                   | 2016-05-06       | 2017-05-06           |
| N/A          | Two-way Splitter                     | ODP-1-6-2S  | 0E0120142             | 2016-05-06       | 2017-05-06           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data****Environmental Conditions**

|                           |                 |
|---------------------------|-----------------|
| <b>Temperature:</b>       | 28.7~29.3°C     |
| <b>Relative Humidity:</b> | 50~64 %         |
| <b>ATM Pressure:</b>      | 100.3~100.6 kPa |

The testing was performed by Rocky Xiao from 2016-05-10 to 2016-05-14.

Test Mode: Transmitting

Test Result: Compliant. Please refer to the following table and plots.

| Band          | Channel No. | Mode   | 99% Occupied Bandwidth (kHz) | 26 dB Occupied Bandwidth (kHz) |
|---------------|-------------|--------|------------------------------|--------------------------------|
| Cellular      | 190         | GSM    | 0.246                        | 0.316                          |
|               |             | EDGE   | 0.248                        | 0.312                          |
| PCS           | 661         | PCS    | 0.246                        | 0.316                          |
|               |             | EDGE   | 0.254                        | 0.310                          |
| WCDMA Band II | 9400        | Rel 99 | 4.220                        | 4.860                          |
|               | 9400        | HSDPA  | 4.220                        | 4.840                          |
|               | 9400        | HSUPA  | 4.220                        | 4.860                          |
| WCDMA Band V  | 4175        | Rel 99 | 4.240                        | 4.880                          |
|               | 4175        | HSDPA  | 4.240                        | 4.860                          |
|               | 4175        | HSUPA  | 4.220                        | 4.860                          |

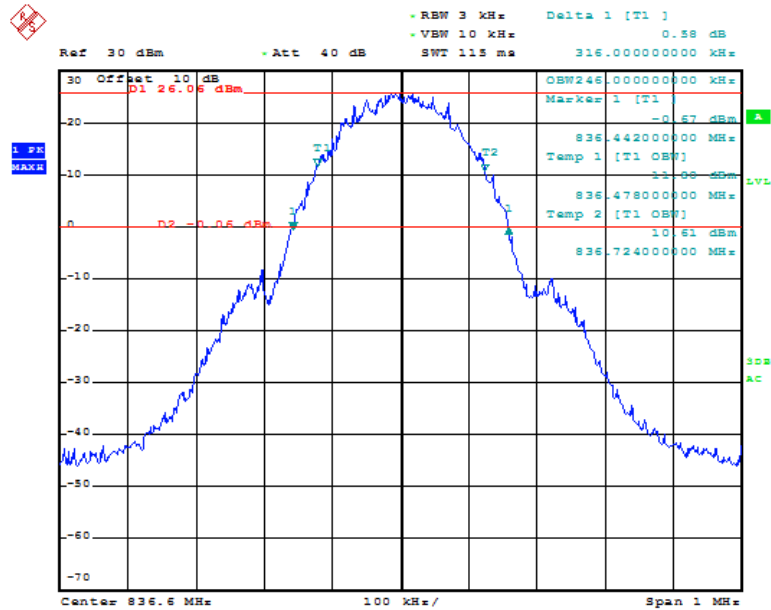
| Band        | Test Modulation | Test Bandwidth (MHz) | Test Channel | 99% Occupied Bandwidth (MHz) | 26 dB Occupied Bandwidth (MHz) |
|-------------|-----------------|----------------------|--------------|------------------------------|--------------------------------|
| LTE Band II | QPSK            | 1.4                  | M            | 1.110                        | 1.308                          |
|             |                 | 3                    |              | 2.772                        | 3.096                          |
|             |                 | 5                    |              | 4.560                        | 5.120                          |
|             |                 | 10                   |              | 9.160                        | 10.480                         |
|             |                 | 15                   |              | 13.680                       | 15.180                         |
|             |                 | 20                   |              | 18.080                       | 19.680                         |
|             | 16QAM           | 1.4                  | M            | 1.110                        | 1.320                          |
|             |                 | 3                    |              | 2.772                        | 3.084                          |
|             |                 | 5                    |              | 4.560                        | 5.100                          |
|             |                 | 10                   |              | 9.160                        | 10.480                         |
|             |                 | 15                   |              | 13.620                       | 15.240                         |
|             |                 | 20                   |              | 18.080                       | 19.920                         |

| Band        | Test Modulation | Test Bandwidth (MHz) | Test Channel | 99% Occupied Bandwidth (MHz) | 26 dB Occupied Bandwidth (MHz) |
|-------------|-----------------|----------------------|--------------|------------------------------|--------------------------------|
| LTE Band IV | QPSK            | 1.4                  | M            | 1.098                        | 1.278                          |
|             |                 | 3                    |              | 2.748                        | 3.060                          |
|             |                 | 5                    |              | 4.520                        | 5.060                          |
|             |                 | 10                   |              | 9.080                        | 10.400                         |
|             |                 | 15                   |              | 13.620                       | 15.120                         |
|             |                 | 20                   |              | 18.000                       | 19.520                         |
|             | 16QAM           | 1.4                  | M            | 1.098                        | 1.272                          |
|             |                 | 3                    |              | 2.748                        | 3.060                          |
|             |                 | 5                    |              | 4.540                        | 5.020                          |
|             |                 | 10                   |              | 9.080                        | 10.360                         |
|             |                 | 15                   |              | 13.620                       | 15.120                         |
|             |                 | 20                   |              | 18.000                       | 19.520                         |

| Band         | Test Modulation | Test Bandwidth (MHz) | Test Channel | 99% Occupied Bandwidth (MHz) | 26 dB Occupied Bandwidth (MHz) |
|--------------|-----------------|----------------------|--------------|------------------------------|--------------------------------|
| LTE Band VII | QPSK            | 5                    | M            | 4.540                        | 5.080                          |
|              |                 | 10                   |              | 9.120                        | 10.320                         |
|              |                 | 15                   |              | 13.620                       | 15.120                         |
|              |                 | 20                   |              | 18.080                       | 19.680                         |
|              | 16QAM           | 5                    | M            | 4.560                        | 5.060                          |
|              |                 | 10                   |              | 9.120                        | 10.400                         |
|              |                 | 15                   |              | 13.620                       | 15.060                         |
|              |                 | 20                   |              | 18.080                       | 19.600                         |

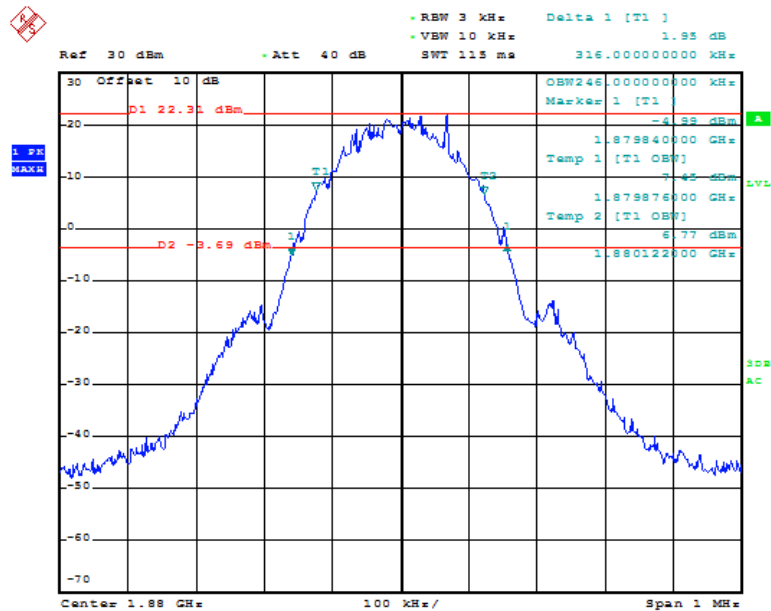
| Band          | Test Modulation | Test Bandwidth (MHz) | Test Channel | 99% Occupied Bandwidth (MHz) | 26 dB Occupied Bandwidth (MHz) |
|---------------|-----------------|----------------------|--------------|------------------------------|--------------------------------|
| LTE Band XVII | QPSK            | 5                    | M            | 4.560                        | 5.040                          |
|               |                 | 10                   |              | 9.200                        | 10.440                         |
|               | 16QAM           | 5                    | M            | 4.560                        | 5.040                          |
|               |                 | 10                   |              | 9.200                        | 10.360                         |

## GMSK 850 Cellular Band



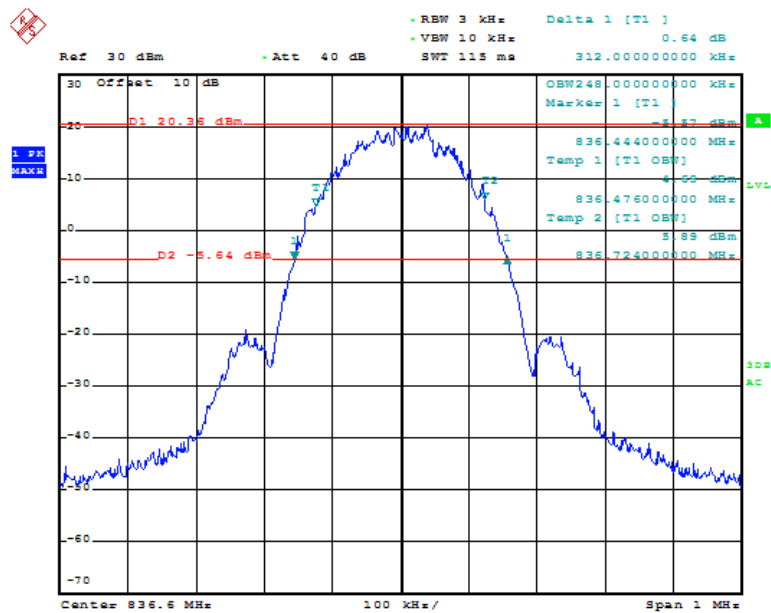
Date: 14.MAY.2016 15:17:24

## GMSK PCS Band



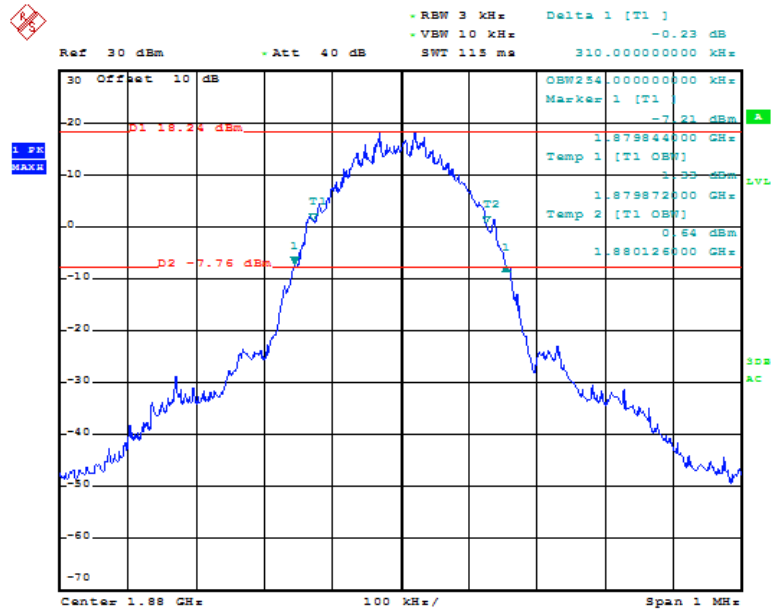
Date: 14.MAY.2016 15:38:57

## EDGE 850 Cellular Band



Date: 14.MAY.2016 15:12:07

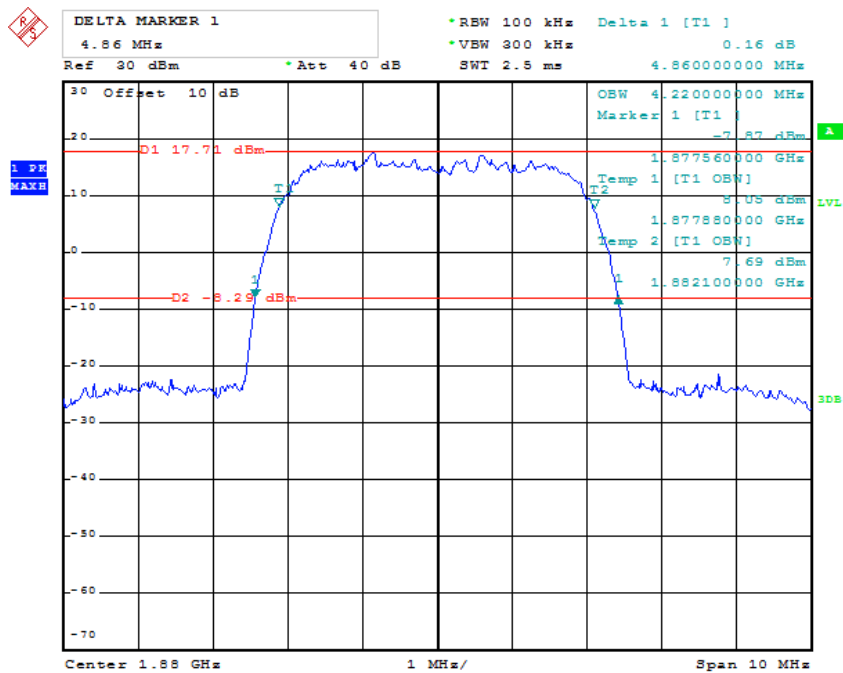
## EDGE PCS Band



Date: 14.MAY.2016 15:44:47

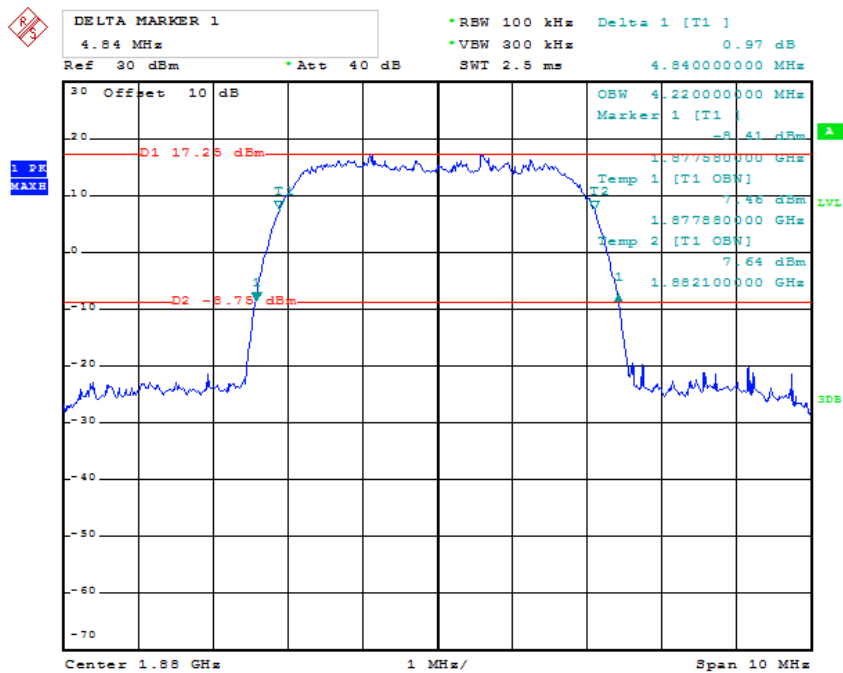


### REL99 Band II



Date: 11.MAY.2016 10:47:23

### HSDPA Band II



Date: 11.MAY.2016 10:42:46

DELTA MARKER 1  
4.86 MHz

• RBW 100 kHz Delta 1 [T1]  
• VBW 300 kHz 0.51 dB  
Ref 30 dBm Att 40 dB SWT 2.5 ms 4.860000000 MHz

30 Offset 10 dB  
20  
10  
0  
-10  
-20  
-30  
-40  
-50  
-60  
-70

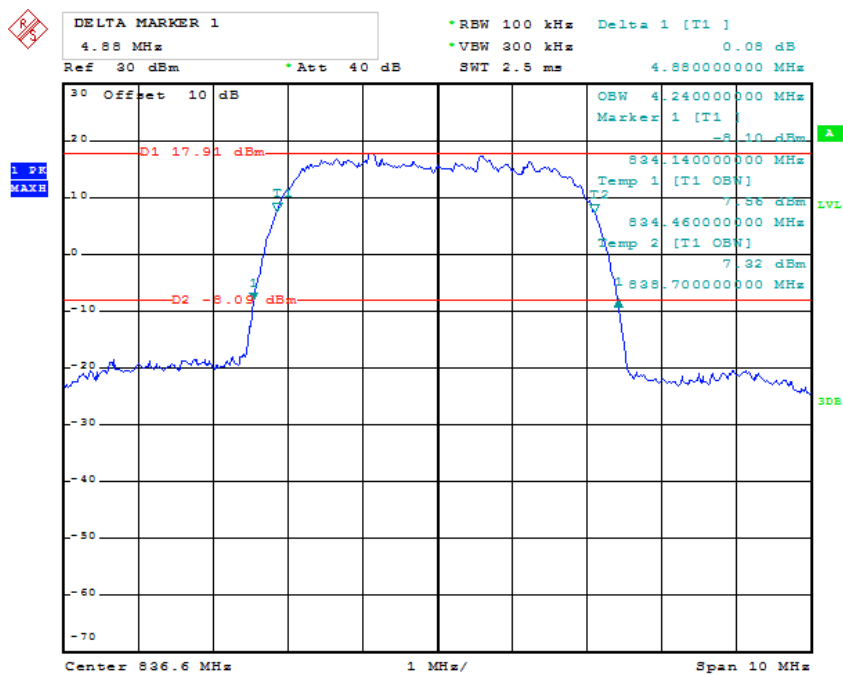
D1 17.42 dBm  
D2 -8.58 dBm

OBW 4.220000000 MHz  
Marker 1 [T1]  
Temp 1 [T1 OBW]  
Temp 2 [T1 OBW]

1.877560000 GHz  
1.877880000 GHz  
1.882100000 GHz

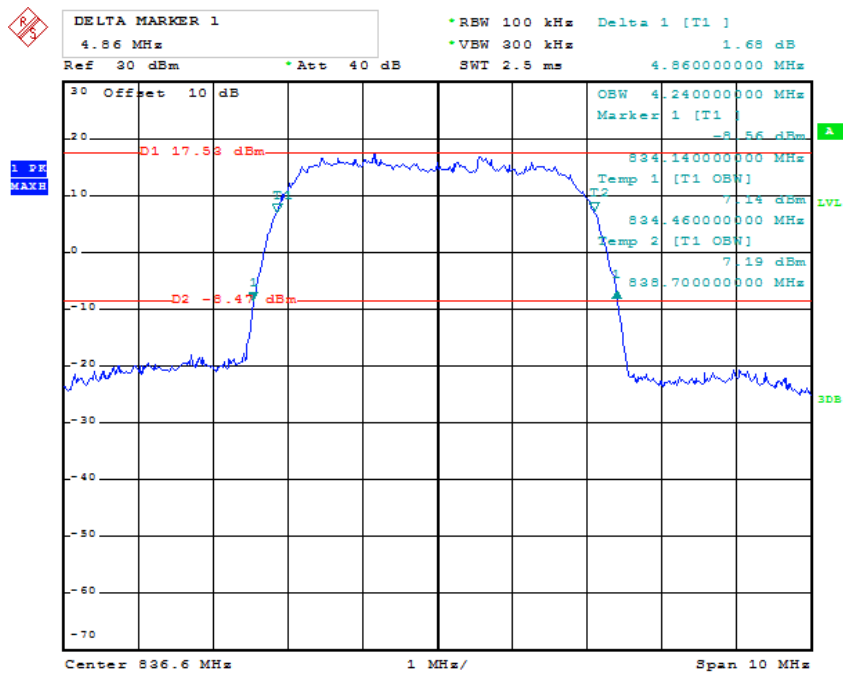
7.41 dBm  
7.47 dBm

Center 1.88 GHz 1 MHz/  
Span 10 MHz

**REL99 Band V**

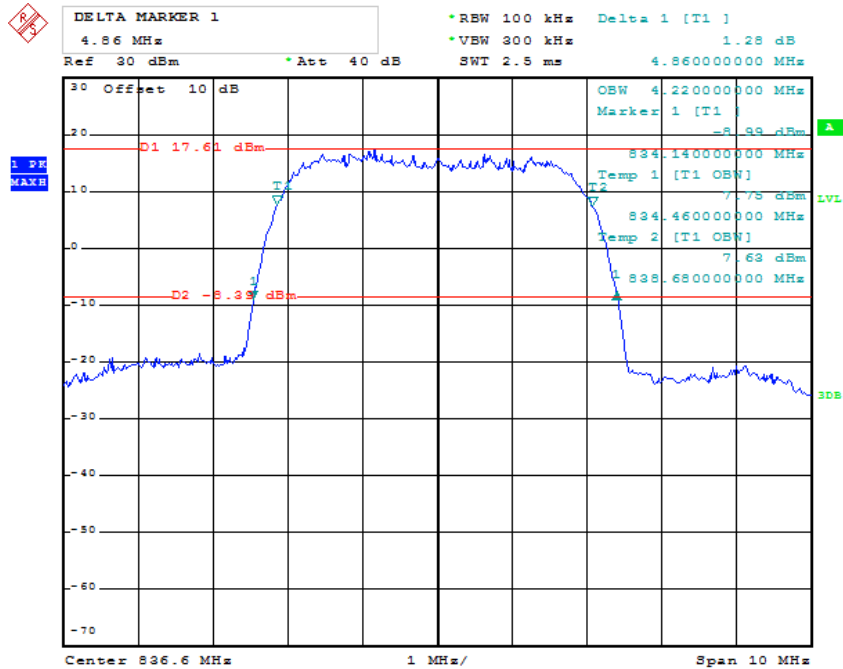
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## HSDPA Band V



Date: 11.MAY.2016 11:04:26

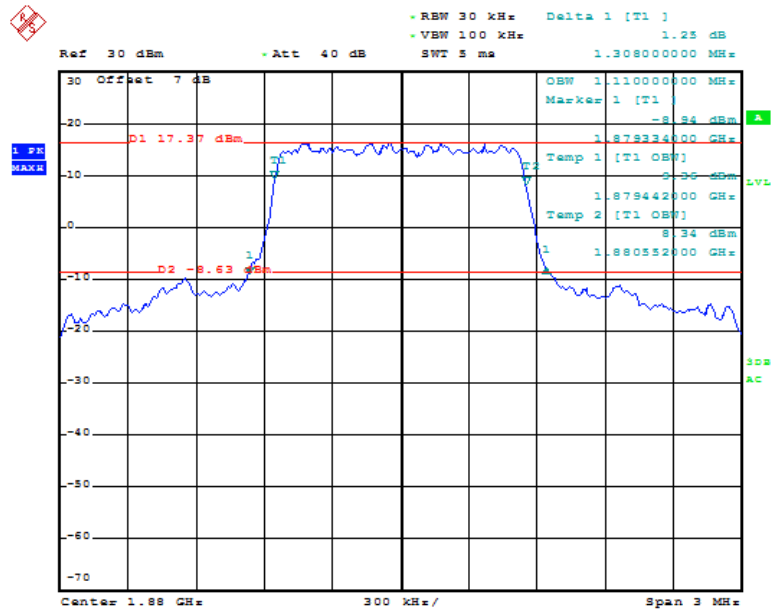
## HSUPA Band V



Date: 11.MAY.2016 11:06:18

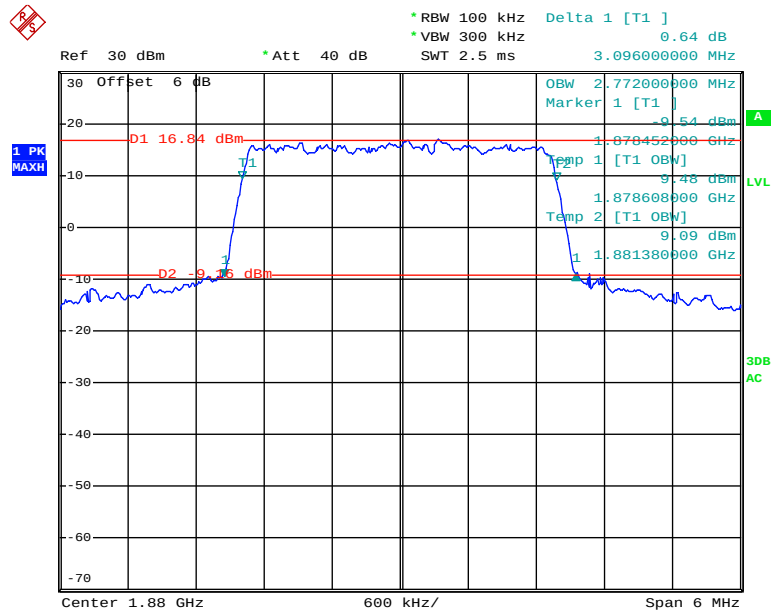
## LTE Band II

## QPSK\_1.4 MHz



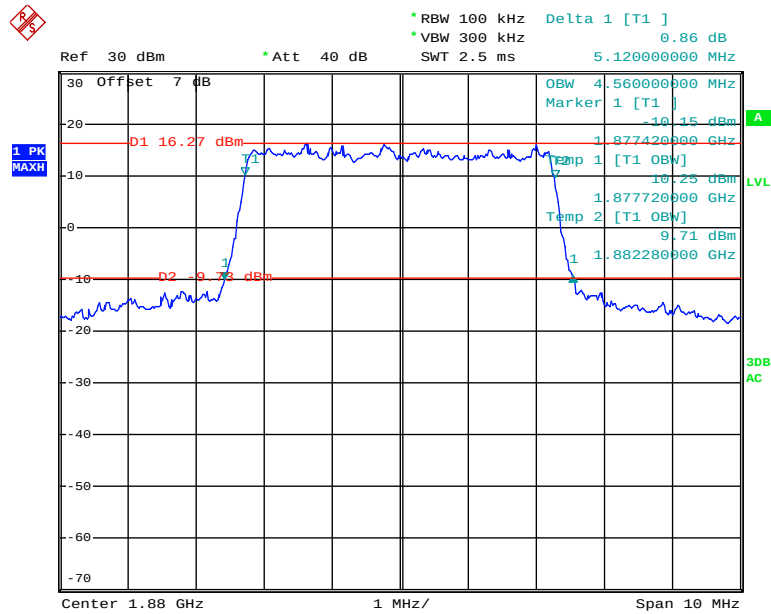
Date: 10.MAY.2016 19:18:41

## QPSK\_3 MHz



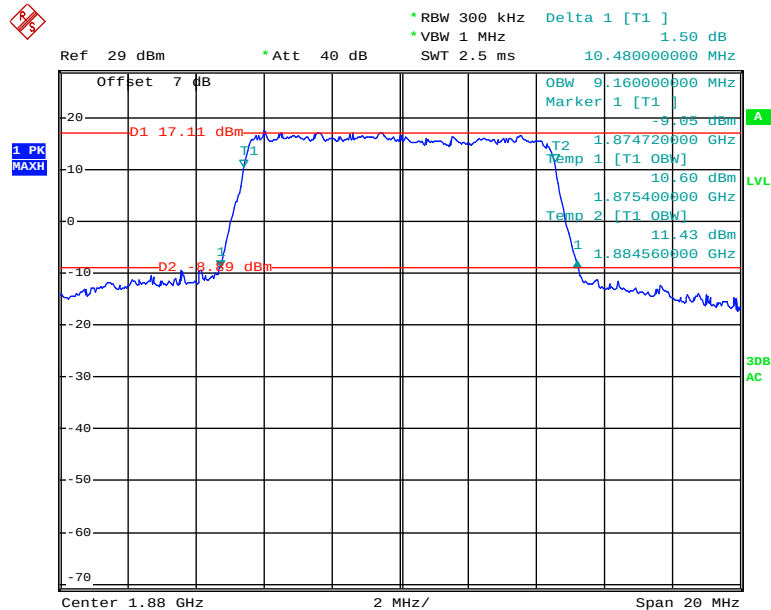
Date: 10.MAY.2016 19:16:05

### QPSK\_5 MHz



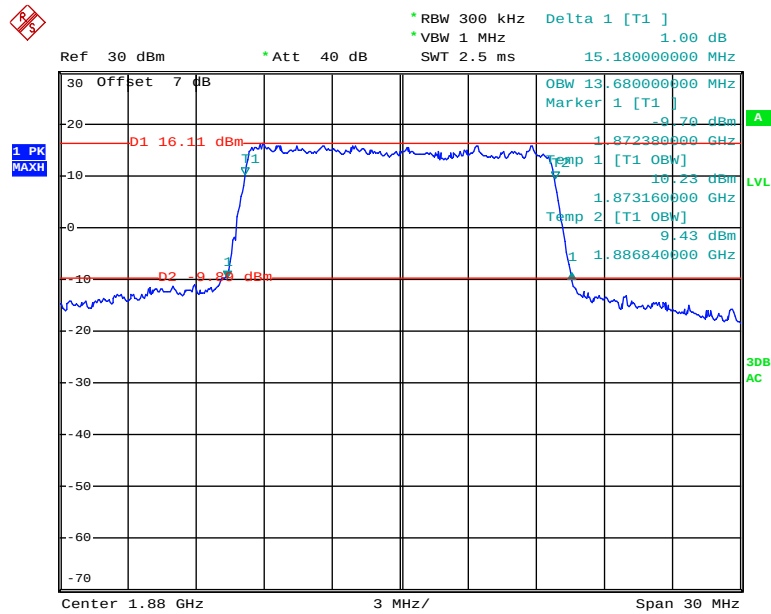
Date: 10.MAY.2016 19:08:04

### QPSK\_10 MHz



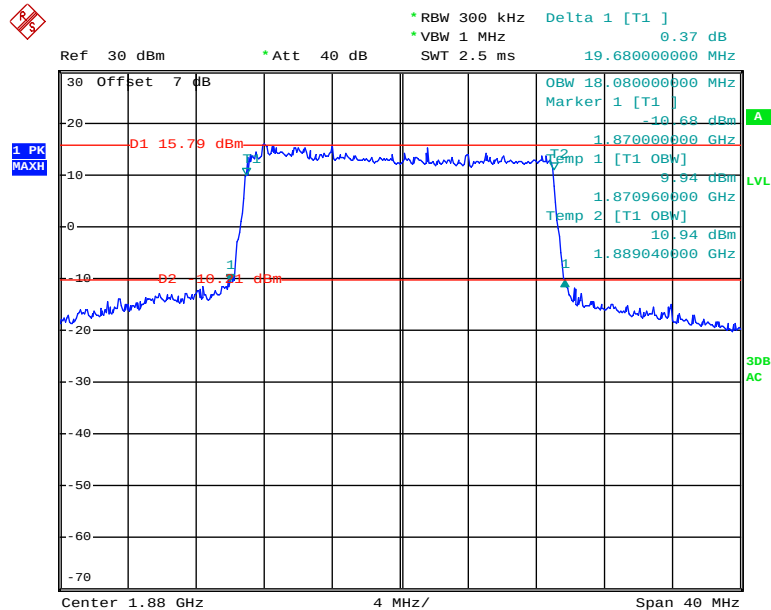
Date: 10.MAY.2016 19:03:55

### QPSK\_15 MHz



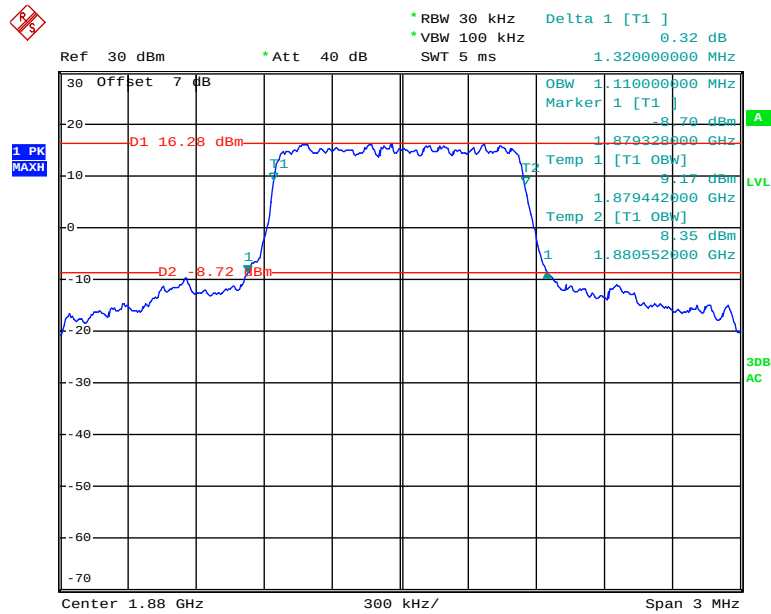
Date: 10.MAY.2016 18:54:34

### QPSK\_20 MHz



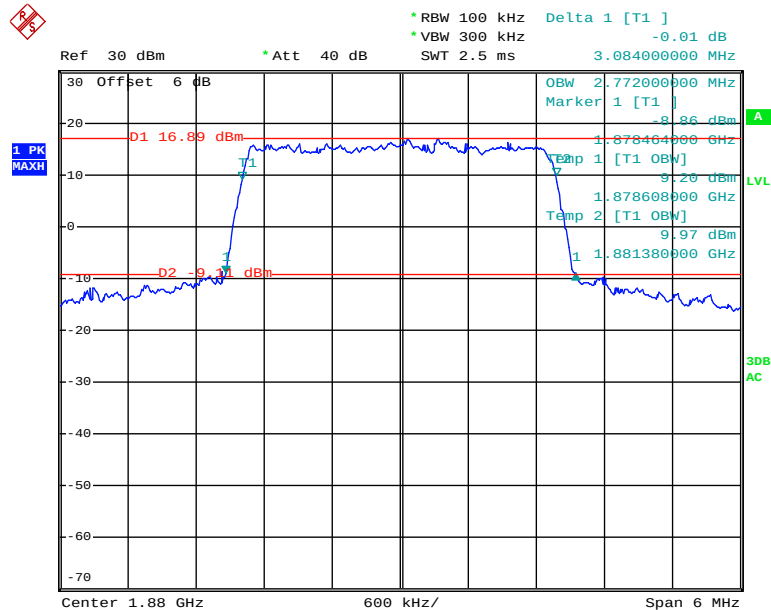
Date: 10.MAY.2016 18:50:10

## 16QAM\_1.4 MHz

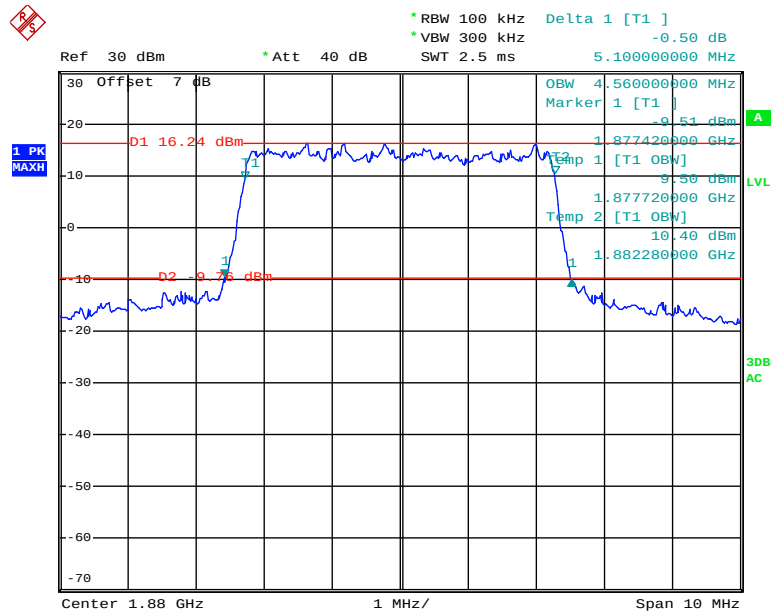


Date: 10.MAY.2016 19:20:05

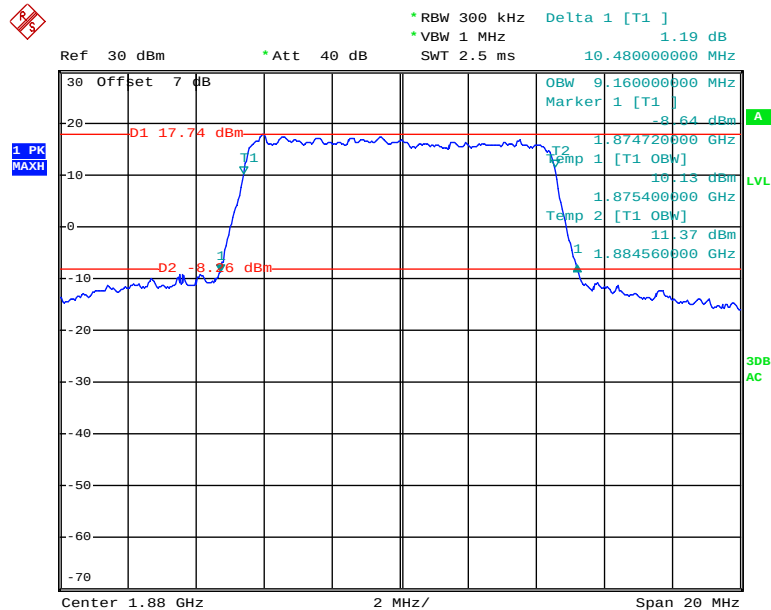
## 16QAM\_3 MHz



Date: 10.MAY.2016 19:17:12

**16QAM\_5 MHz**

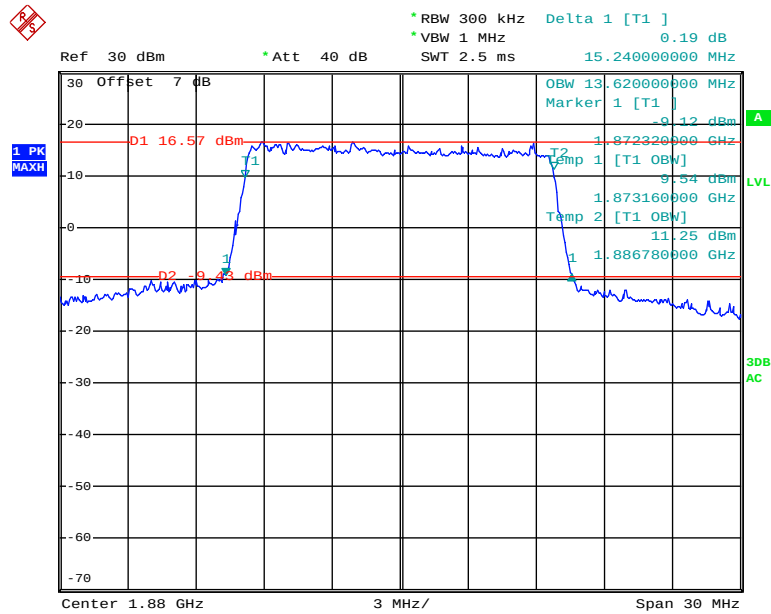
Date: 10.MAY.2016 19:06:43

**16QAM\_10 MHz**

Date: 10.MAY.2016 18:57:24

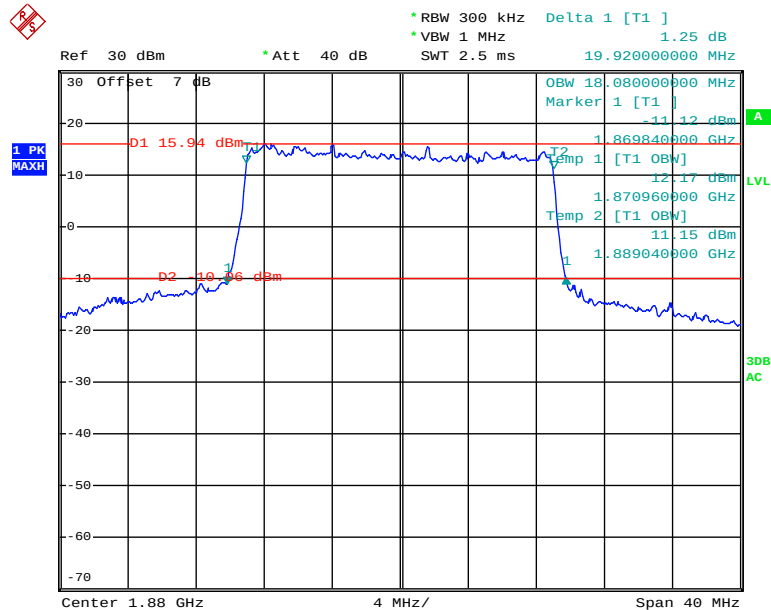


### 16QAM\_15 MHz



Date: 10.MAY.2016 18:53:15

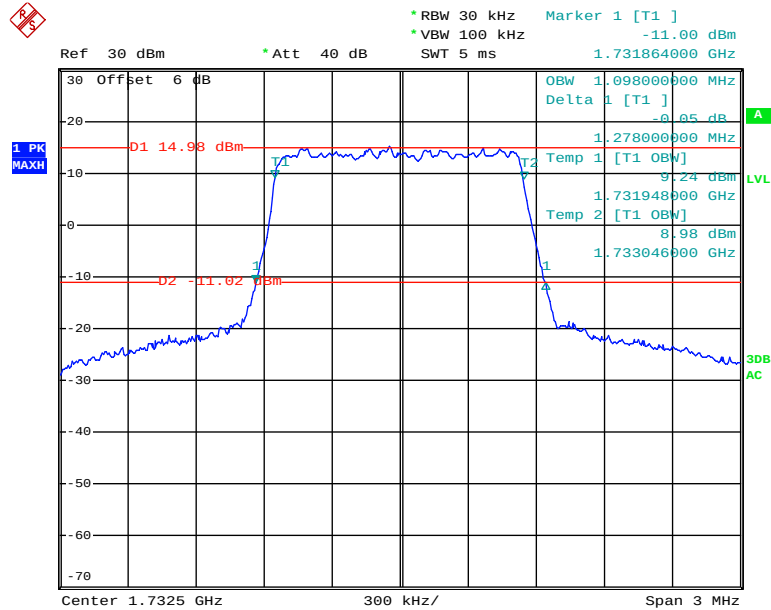
### 16QAM\_20 MHz



Date: 10.MAY.2016 18:06:44

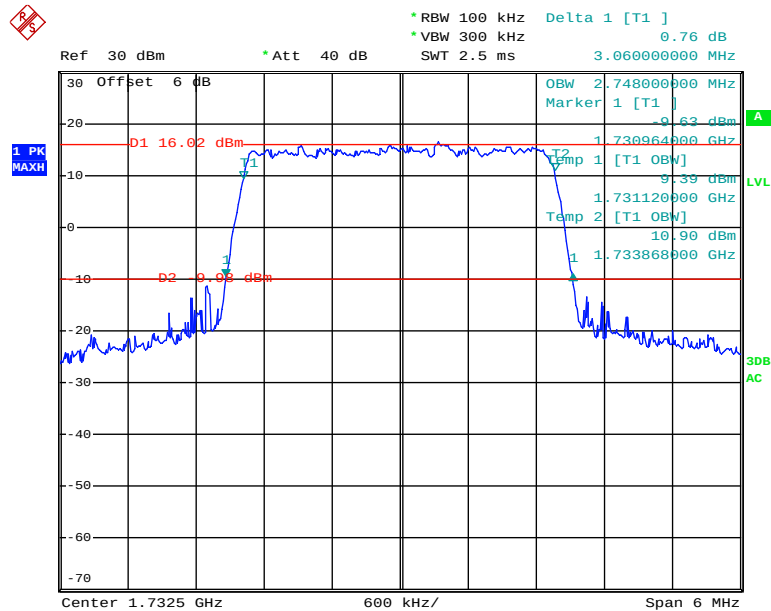
## LTE Band IV

## QPSK\_1.4 MHz



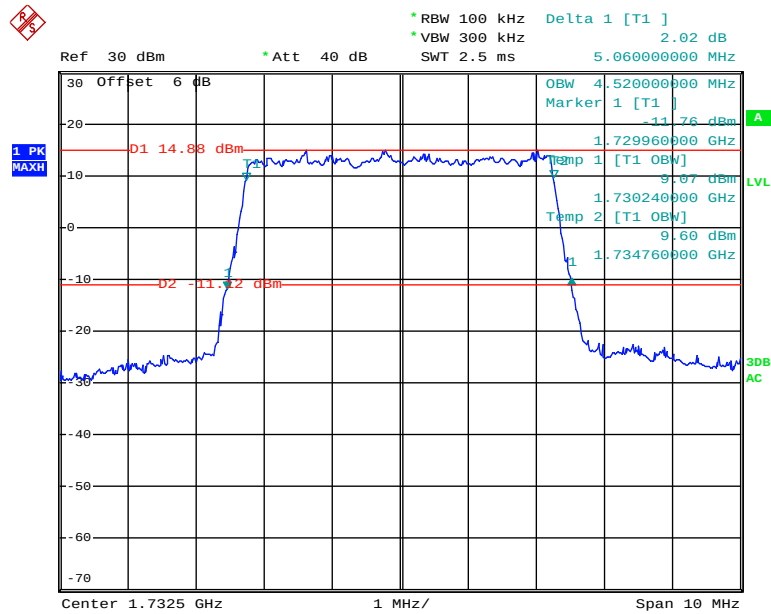
Date: 10.MAY.2016 20:06:33

## QPSK\_3 MHz



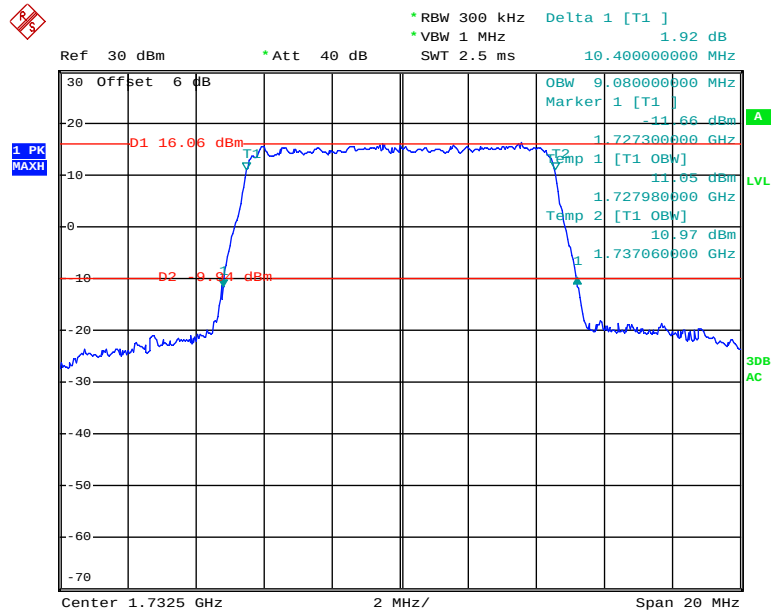
Date: 10.MAY.2016 19:28:50

## QPSK\_5 MHz



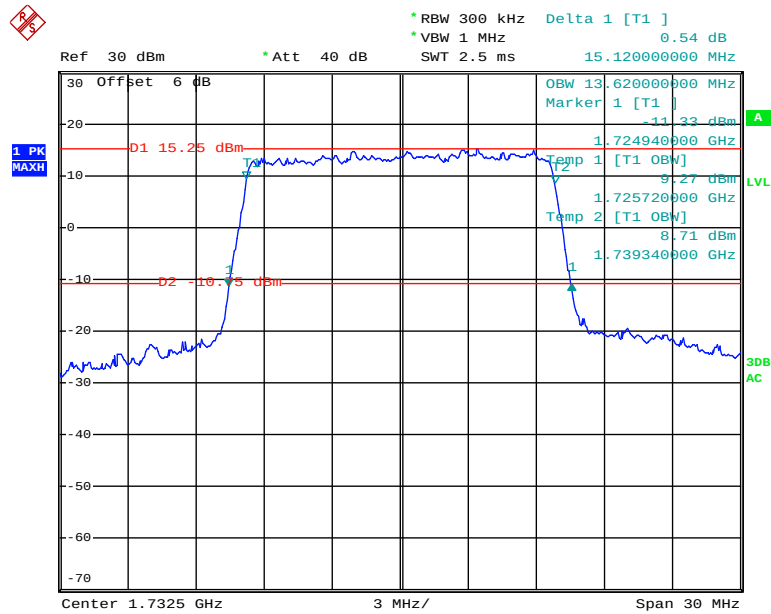
Date: 10.MAY.2016 20:03:13

## QPSK\_10 MHz



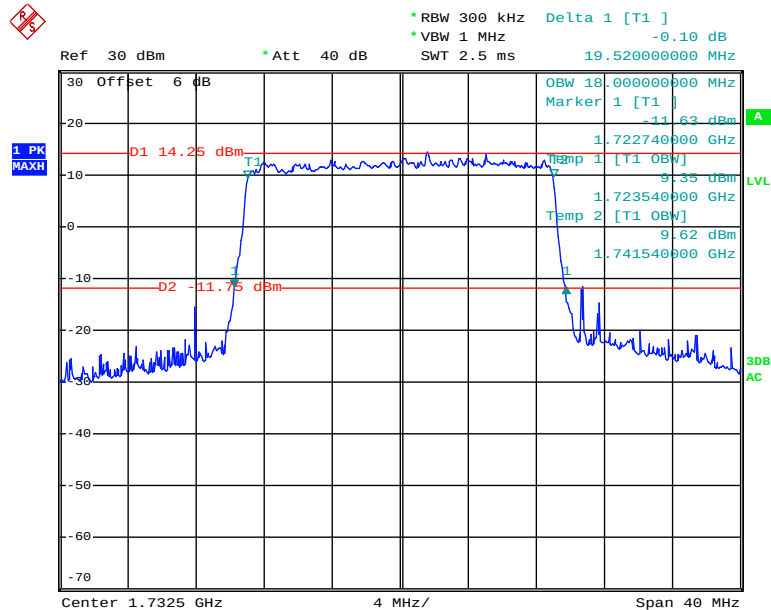
Date: 10.MAY.2016 19:59:50

### QPSK\_15 MHz



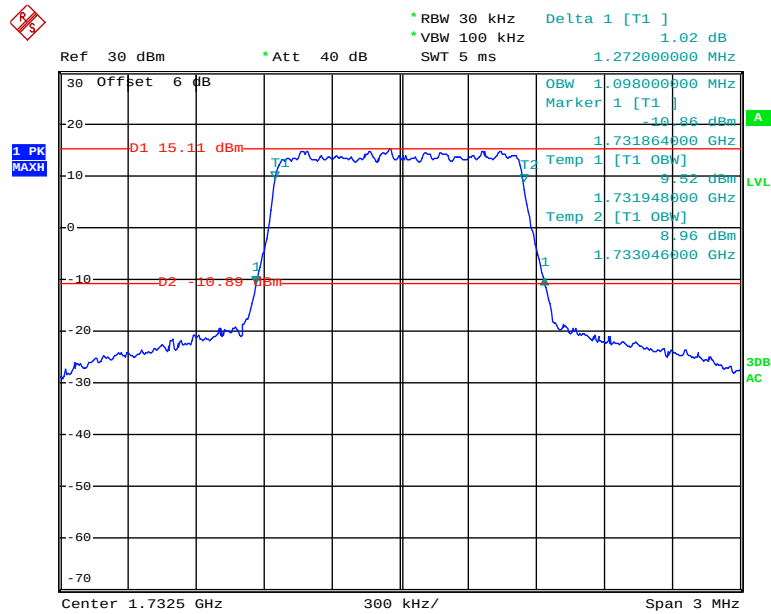
Date: 10.MAY.2016 19:55:54

### QPSK\_20 MHz



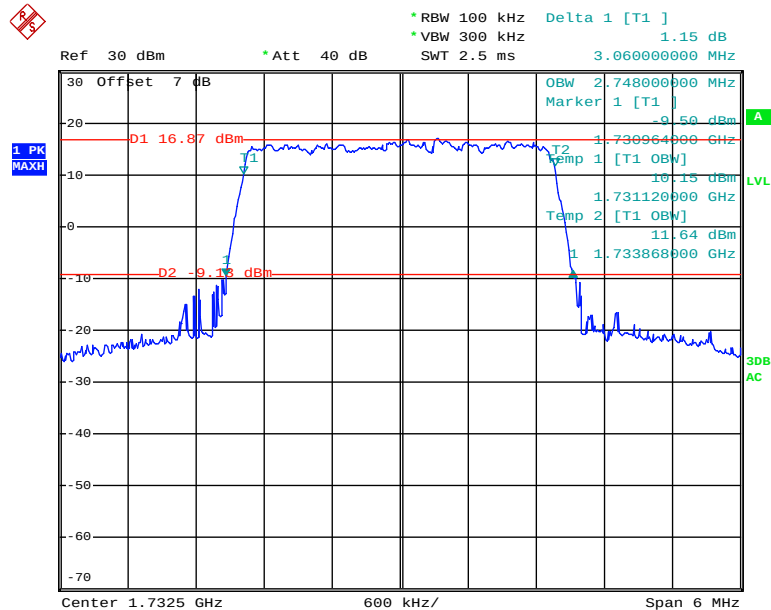
Date: 10.MAY.2016 19:50:52

### 16QAM\_1.4 MHz



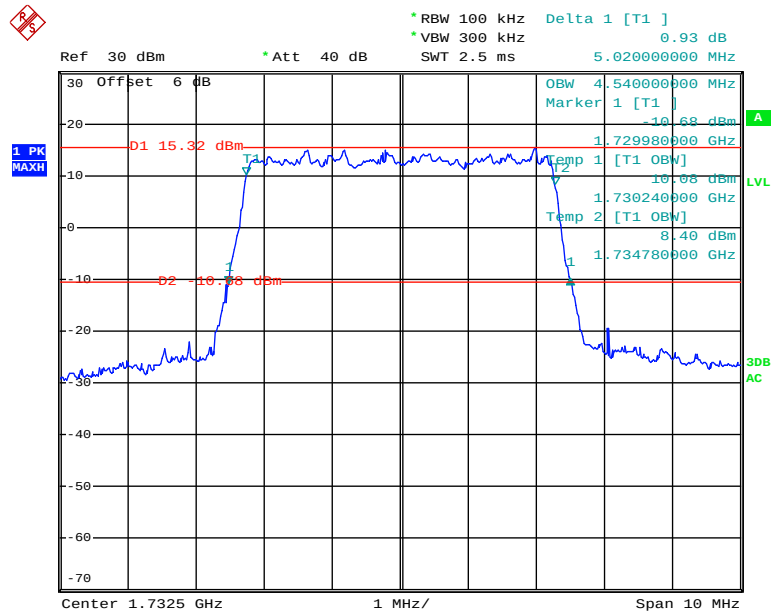
Date: 10.MAY.2016 20:05:31

### 16QAM\_3 MHz



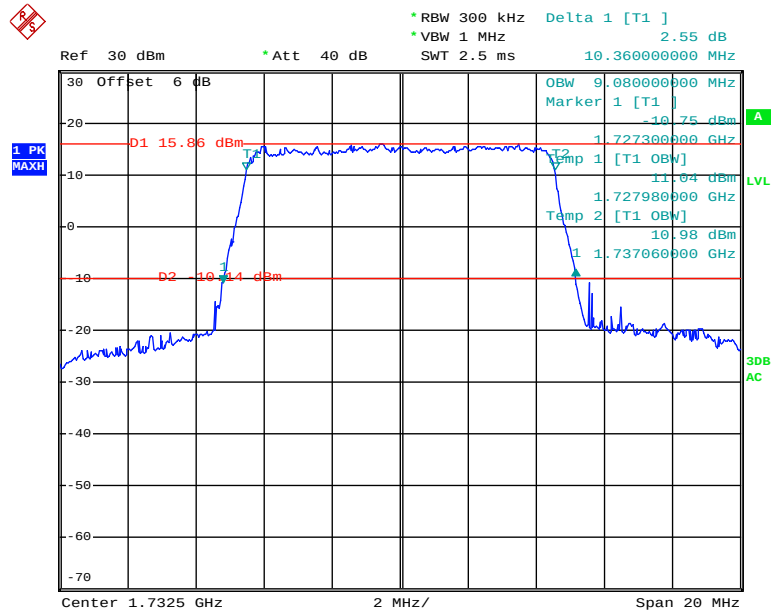
Date: 10.MAY.2016 19:26:40

## 16QAM\_5 MHz



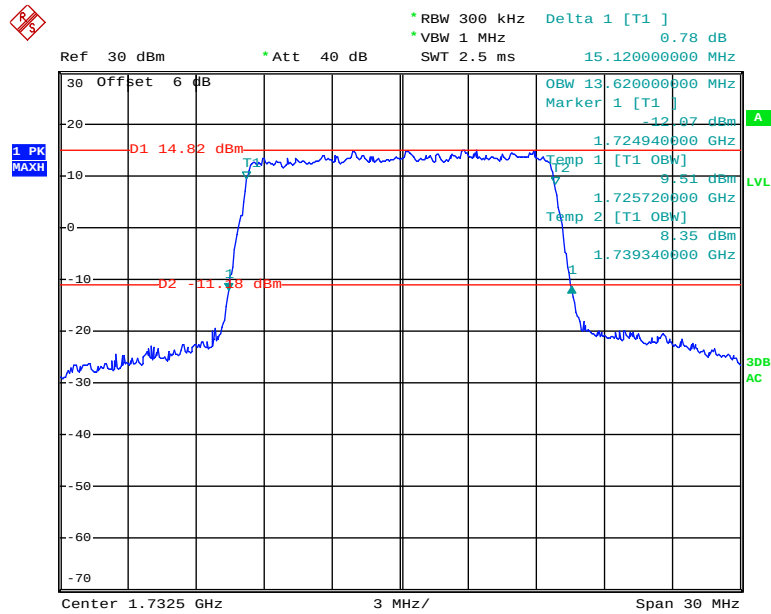
Date: 10.MAY.2016 20:01:28

## 16QAM\_10 MHz



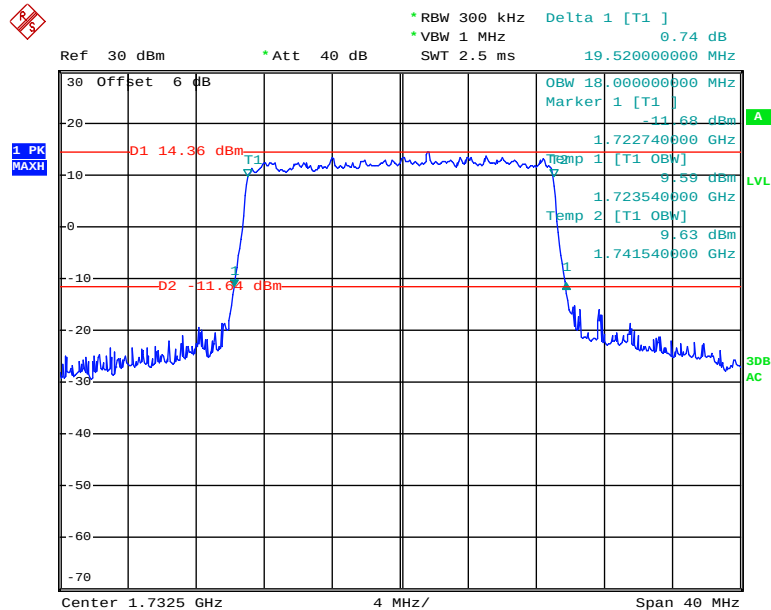
Date: 10.MAY.2016 19:58:21

## 16QAM\_15 MHz



Date: 10.MAY.2016 19:53:37

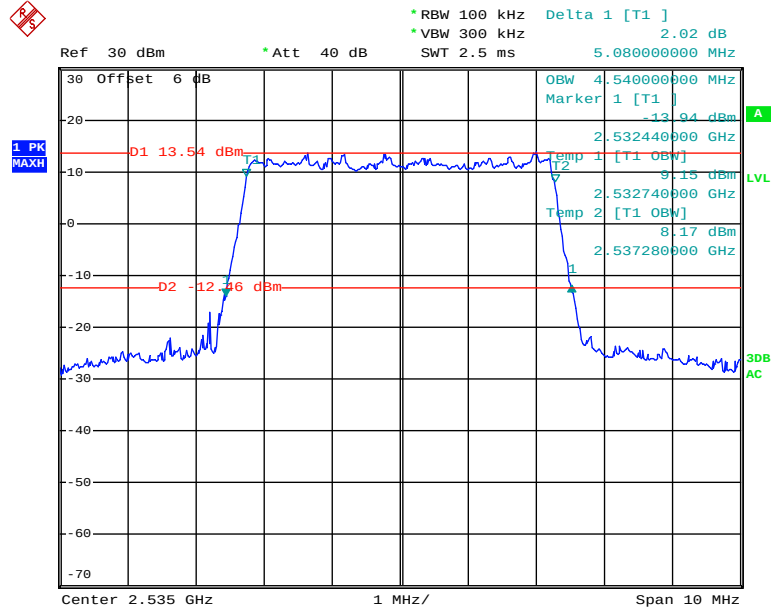
## 16QAM\_20 MHz



Date: 10.MAY.2016 19:48:59

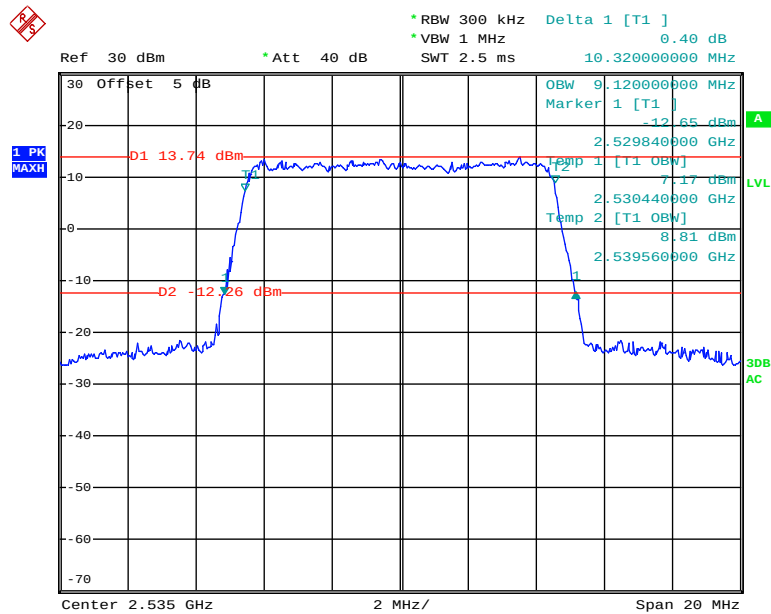
## LTE Band VII

## QPSK\_5 MHz



Date: 10.MAY.2016 20:20:07

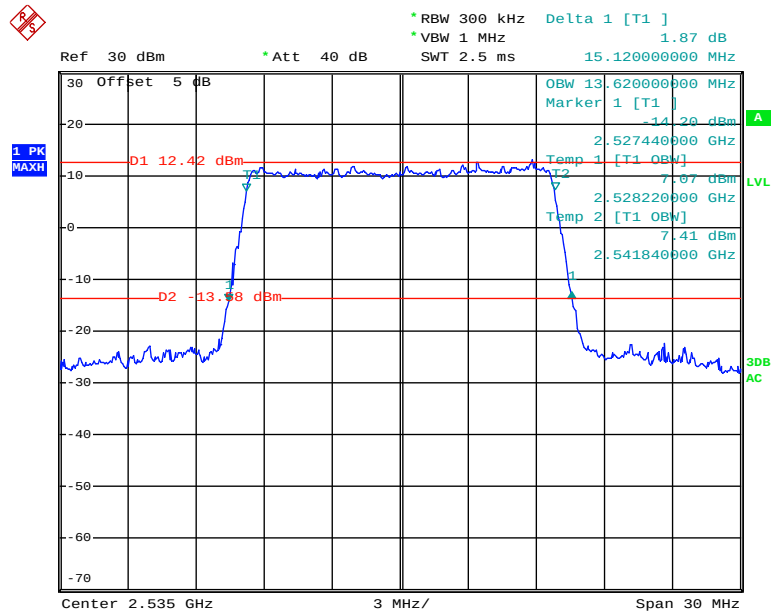
## QPSK\_10 MHz



Date: 10.MAY.2016 20:23:08

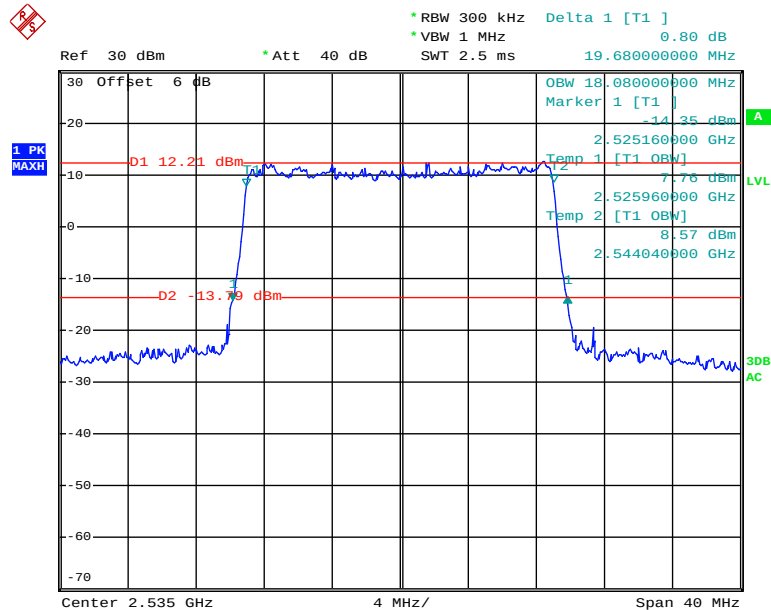


## QPSK\_15 MHz



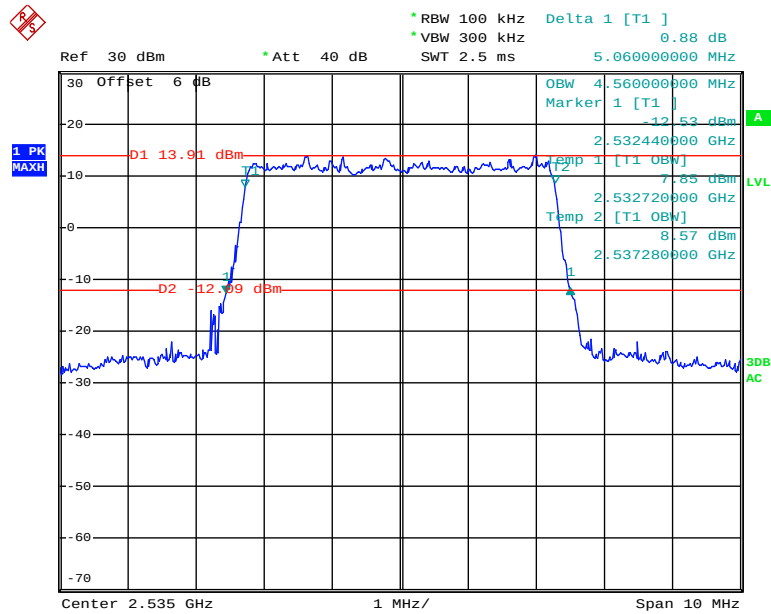
Date: 10.MAY.2016 20:26:24

## QPSK\_20 MHz



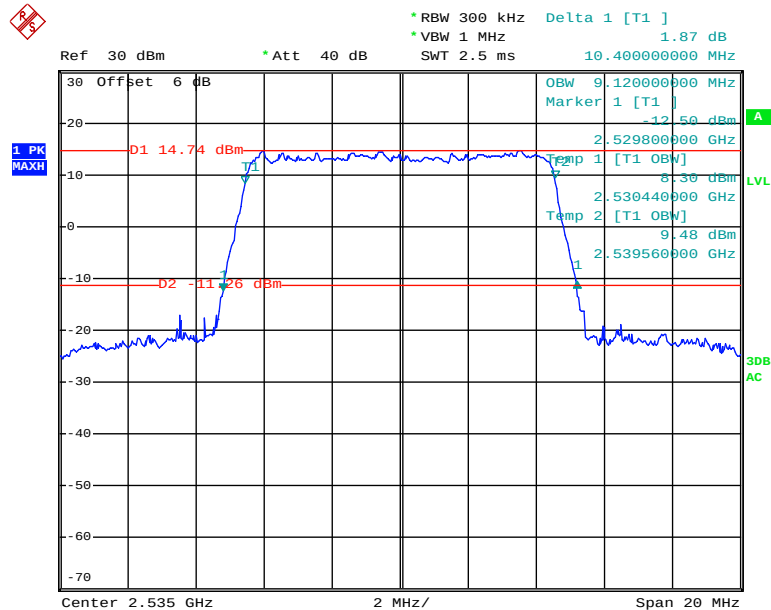
Date: 10.MAY.2016 20:31:08

## 16QAM\_5 MHz



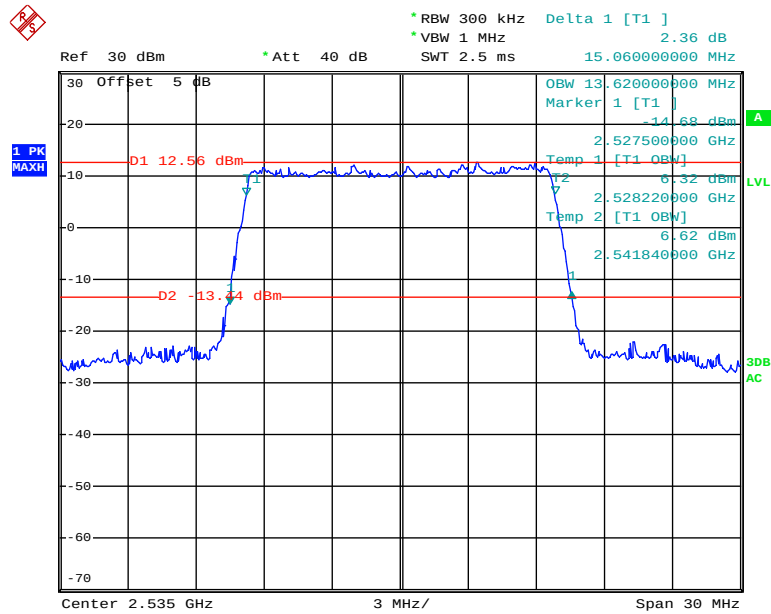
Date: 10.MAY.2016 20:17:24

## 16QAM\_10 MHz



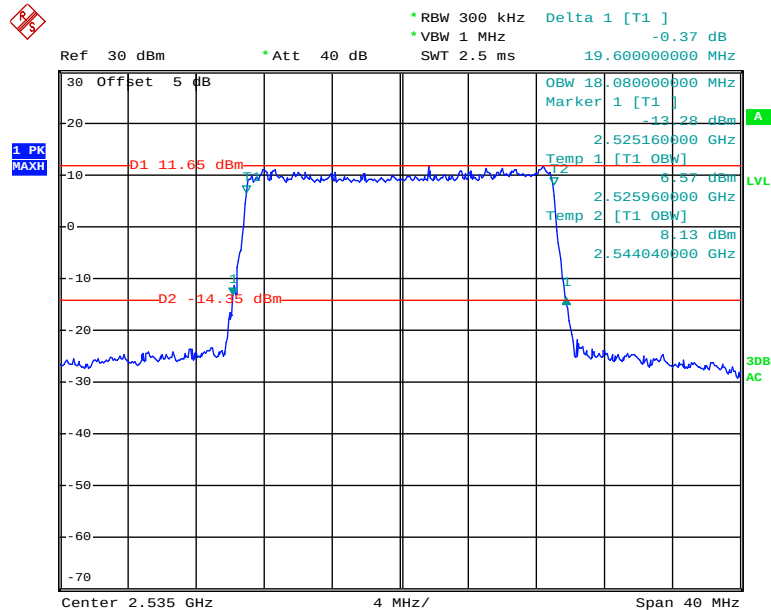
Date: 10.MAY.2016 20:21:38

## 16QAM\_15 MHz



Date: 10.MAY.2016 20:24:21

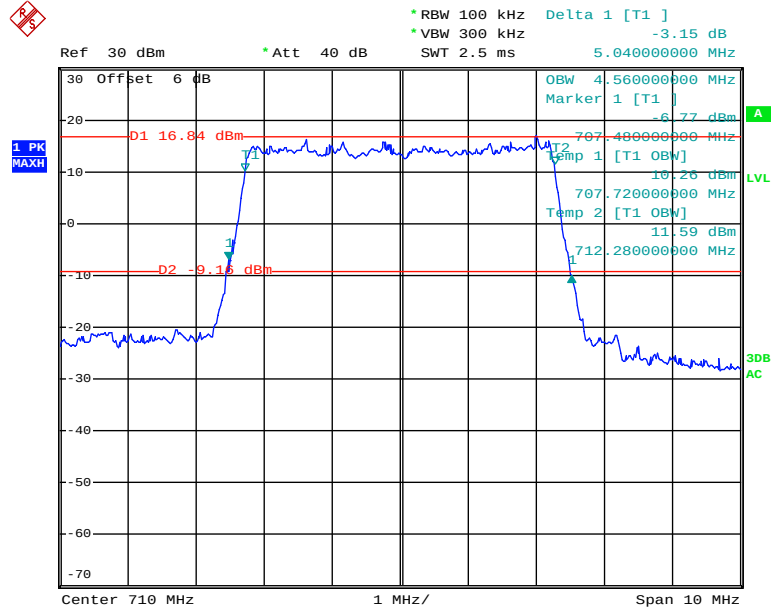
## 16QAM\_20 MHz



Date: 10.MAY.2016 20:27:42

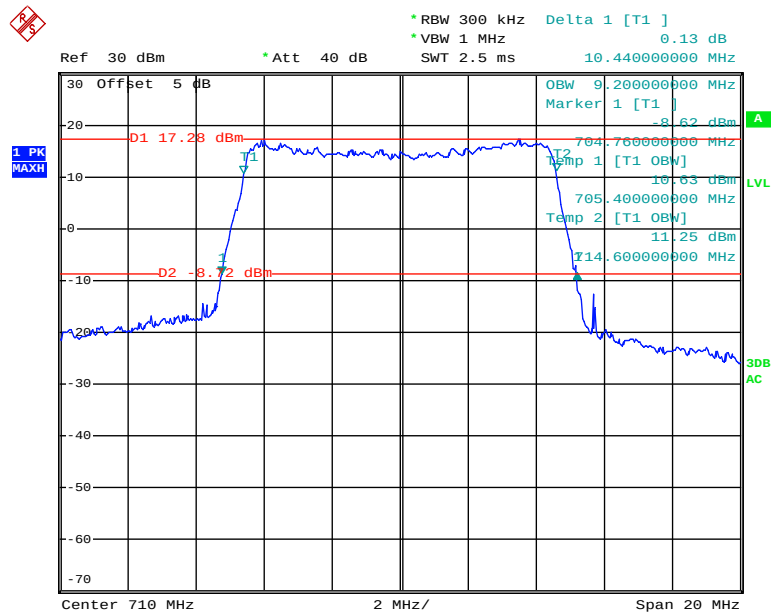
LTE Band 17

QPSK\_5 MHz



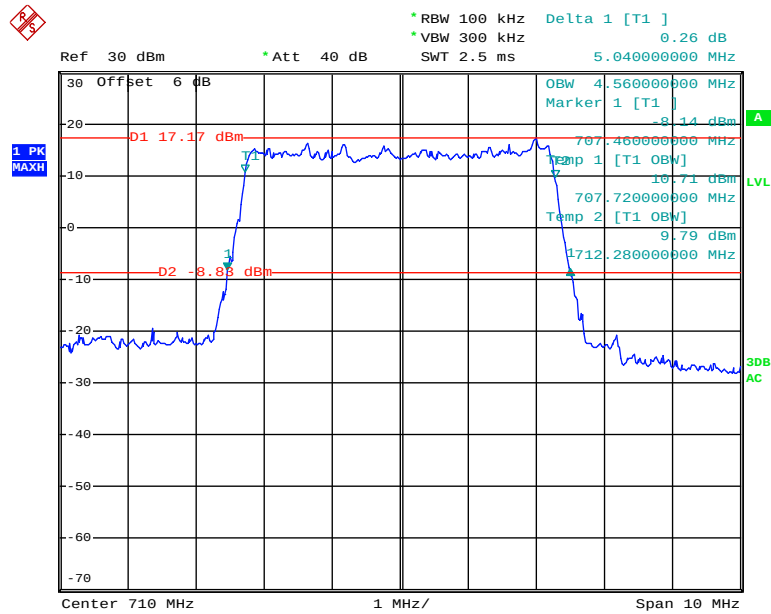
Date: 10.MAY.2016 20:35:15

QPSK\_10 MHz



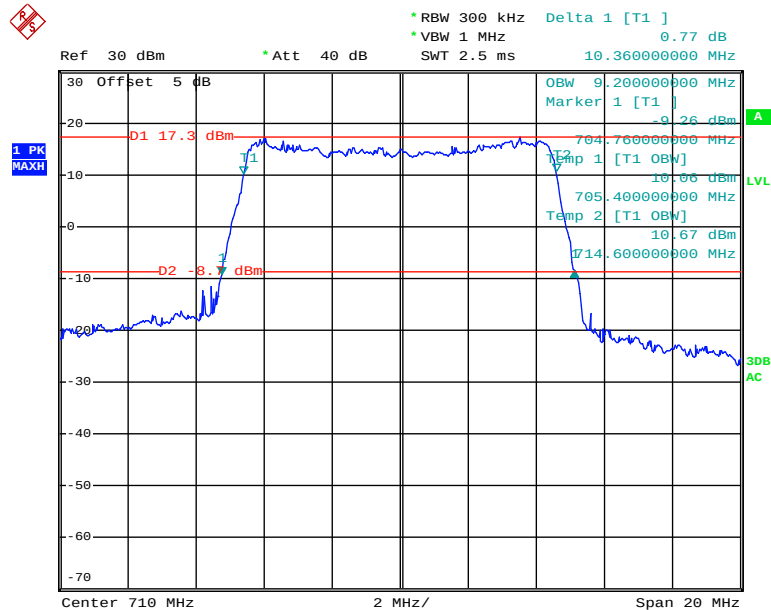
Date: 10.MAY.2016 20:38:59

### 16QAM\_5 MHz



Date: 10.MAY.2016 20:34:23

### 16QAM\_10 MHz



Date: 10.MAY.2016 20:37:20

## **FCC §2.1051, §22.917(a) & §24.238(a) & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS**

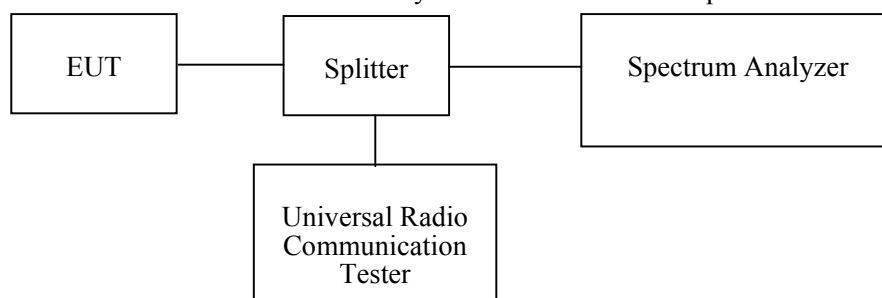
### **Applicable Standard**

FCC §2.1051, §22.917(a) , §24.238(a) and §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

### **Test Procedure**

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.



**Test Equipment List and Details**

| Manufacturer | Description                          | Model       | Serial Number         | Calibration Date | Calibration Due Date |
|--------------|--------------------------------------|-------------|-----------------------|------------------|----------------------|
| R&S          | Spectrum Analyzer                    | FSP 38      | 100478                | 2015-11-23       | 2016-11-22           |
| R&S          | Spectrum Analyzer                    | FSEM        | 831259/019            | 2015-07-28       | 2016-07-27           |
| R&S          | Universal Radio Communication Tester | CMU200      | 109 038               | 2015-07-28       | 2016-07-27           |
| R&S          | Wideband Radio Communication Tester  | CMW500      | 1201.002K50-146520-wh | 2015-12-19       | 2016-12-19           |
| N/A          | Coaxial Cable                        | 0.1m        | N/A                   | 2015-05-06       | 2016-05-06           |
| E-Microwave  | DC Blocking                          | EMDCB-00036 | 0E01201047            | 2015-05-06       | 2016-05-06           |
| E-Microwave  | Attenuator                           | EMCA10-5RN  | OE01203239            | 2015-05-06       | 2016-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-01       | N/A                   | 2015-05-06       | 2016-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-02       | N/A                   | 2015-05-06       | 2016-05-06           |
| N/A          | Two-way Splitter                     | ODP-1-6-2S  | OE0120142             | 2015-05-06       | 2016-05-06           |
| N/A          | Coaxial Cable                        | 0.1m        | N/A                   | 2016-05-06       | 2017-05-06           |
| E-Microwave  | DC Blocking                          | EMDCB-00036 | 0E01201047            | 2016-05-06       | 2017-05-06           |
| E-Microwave  | Attenuator                           | EMCA10-5RN  | OE01203239            | 2016-05-06       | 2017-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-01       | N/A                   | 2016-05-06       | 2017-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-02       | N/A                   | 2016-05-06       | 2017-05-06           |
| N/A          | Two-way Splitter                     | ODP-1-6-2S  | OE0120142             | 2016-05-06       | 2017-05-06           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

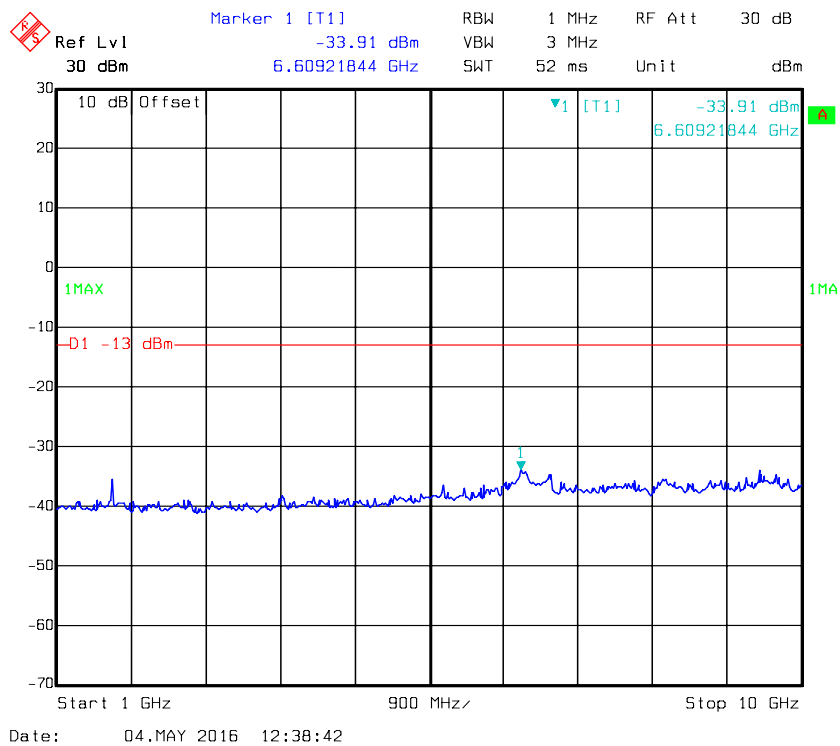
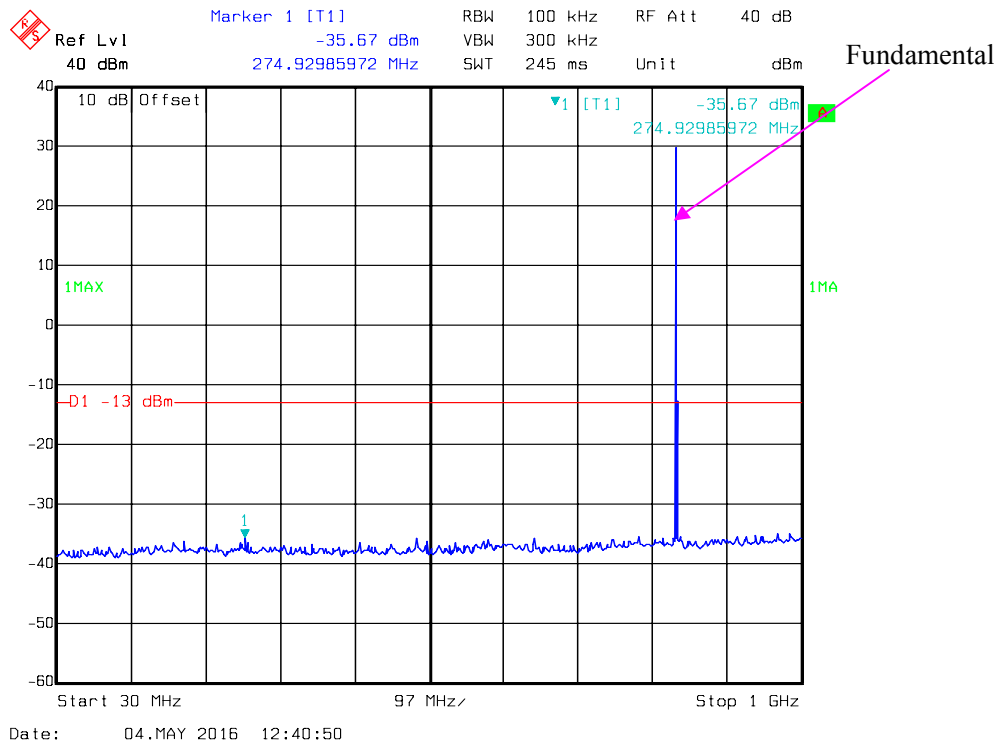
**Test Data****Environmental Conditions**

|                           |                 |
|---------------------------|-----------------|
| <b>Temperature:</b>       | 28.1~30.4°C     |
| <b>Relative Humidity:</b> | 50~68 %         |
| <b>ATM Pressure:</b>      | 100.3~100.5 kPa |

*The testing was performed by Rocky Xiao from 2016-05-04 to 2016-05-12.*

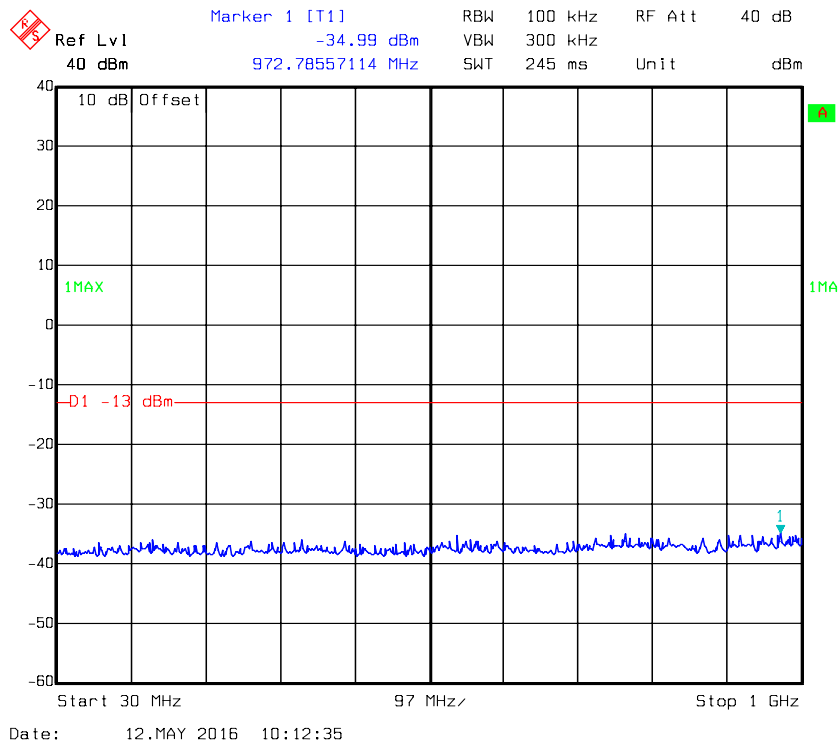
Please refer to the following plots.

### GSM850\_Middle Channel

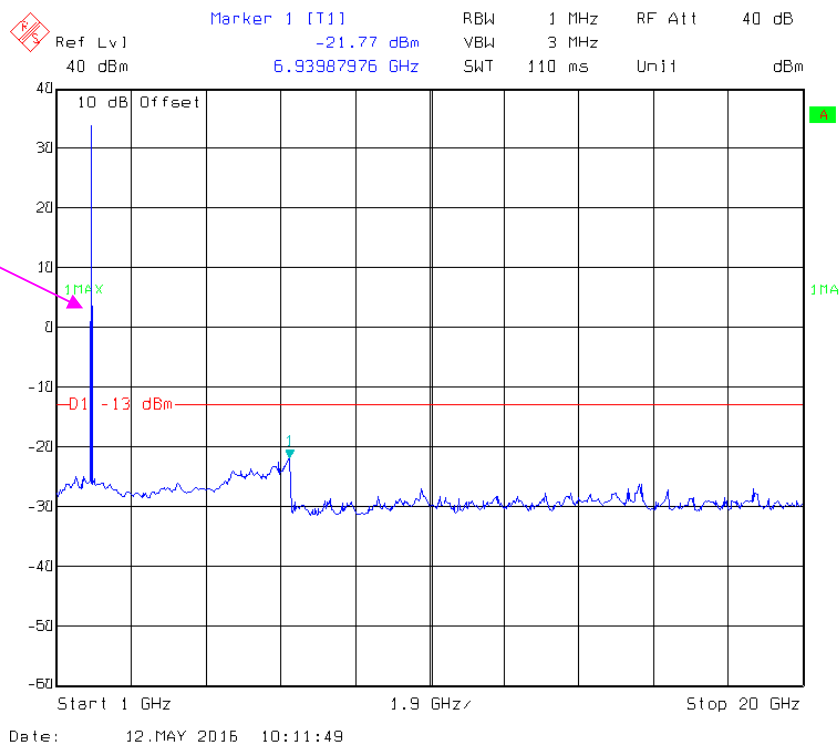




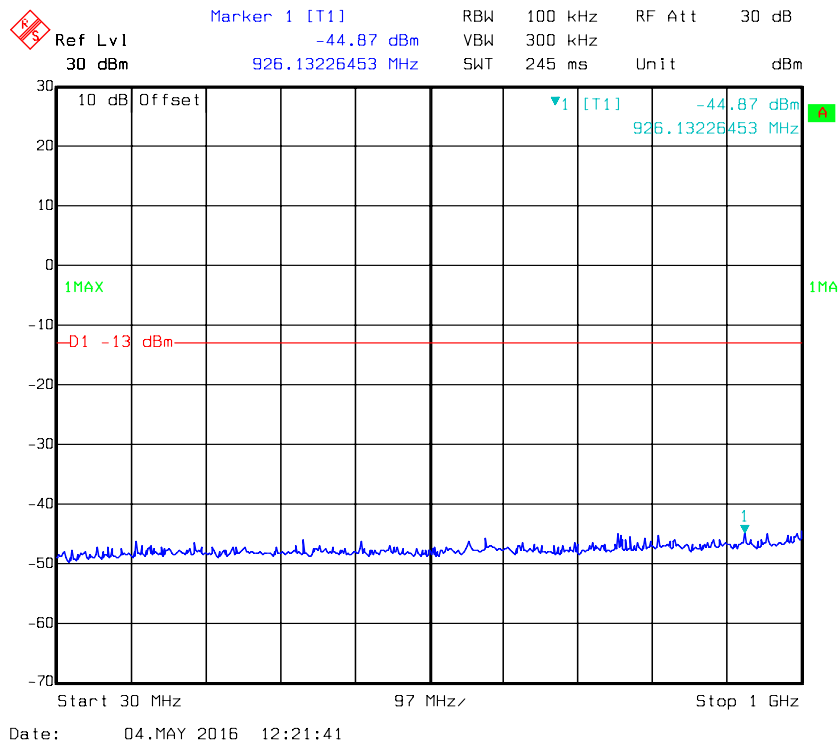
### PCS 1900\_ Middle Channel



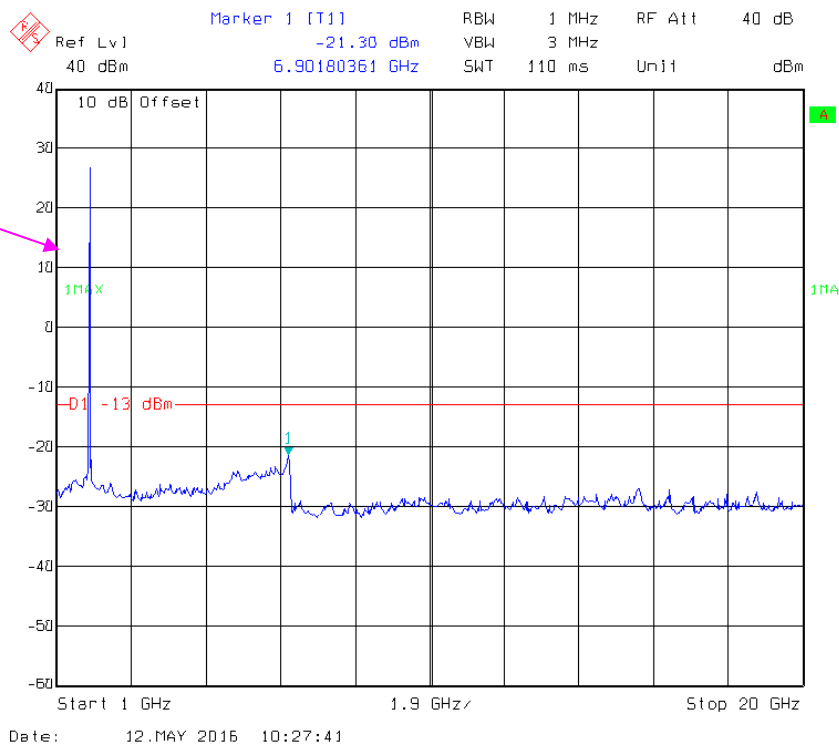
Fundamental



### REL99 Band II\_ Middle Channel

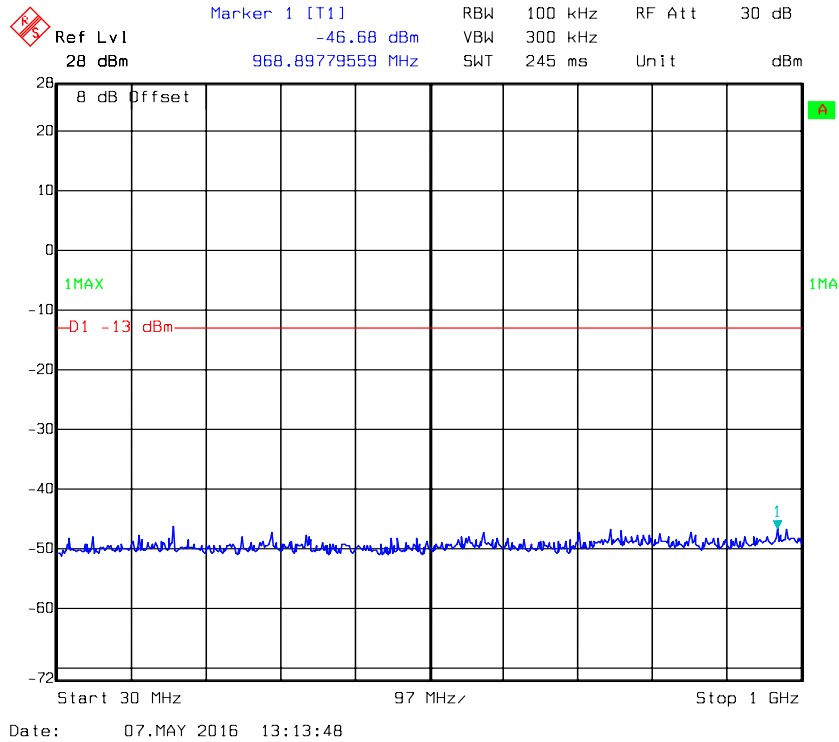


Fundamental

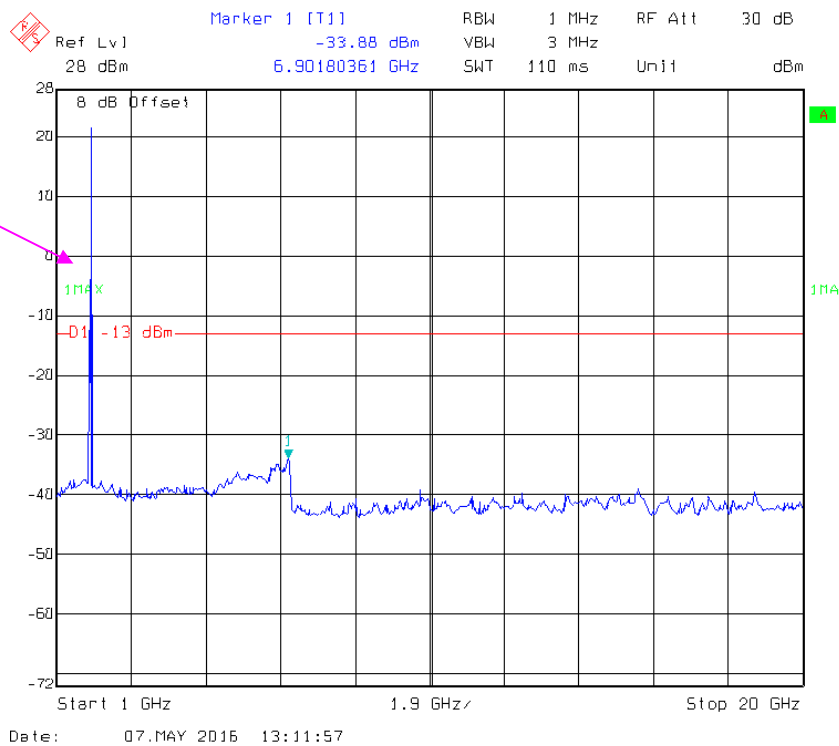


# LTE Band II (Middle Channel)

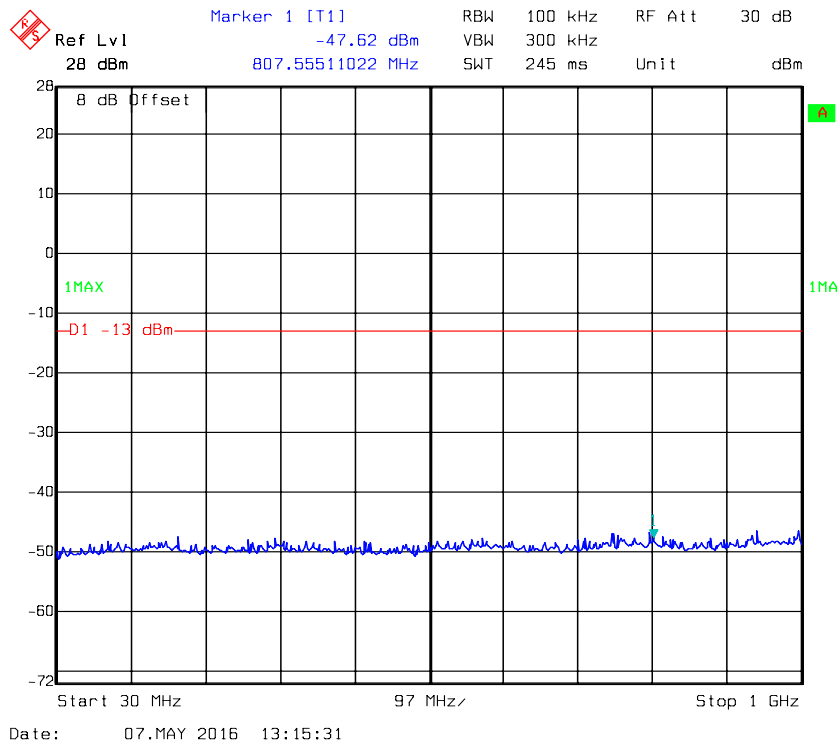
## QPSK-1.4 MHz



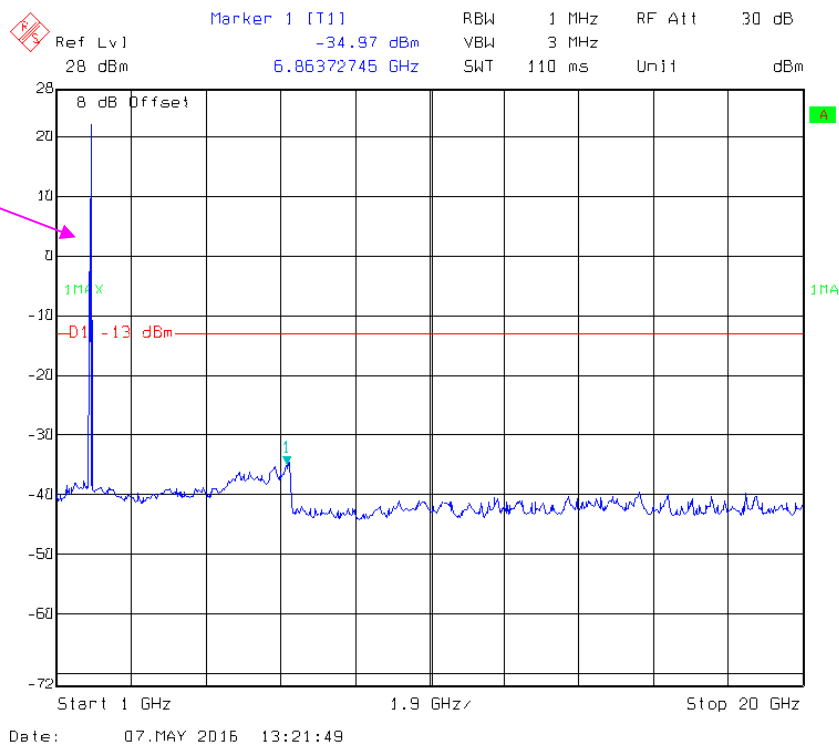
Fundamental



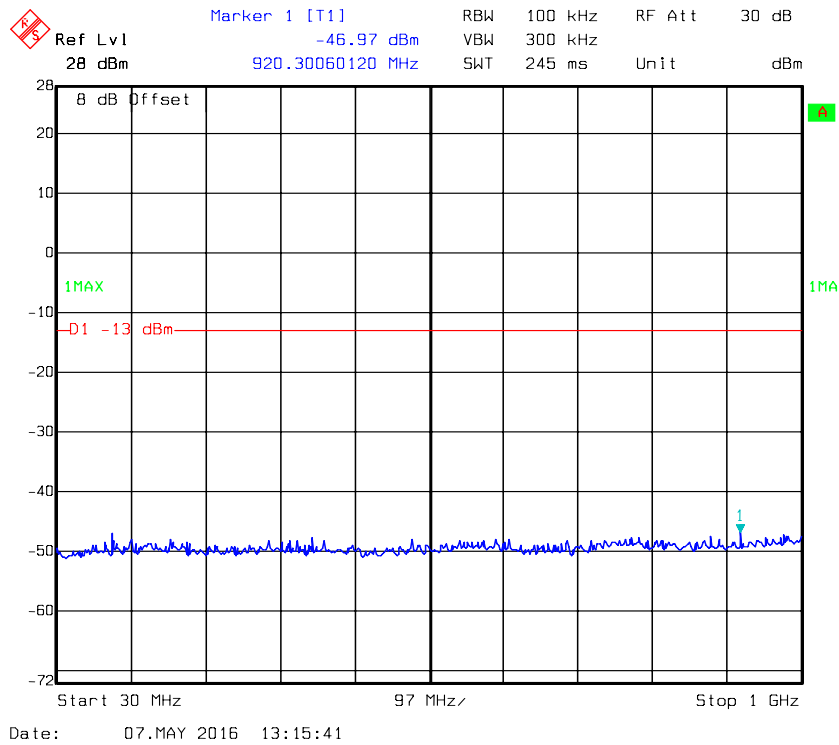
### QPSK\_3MHz



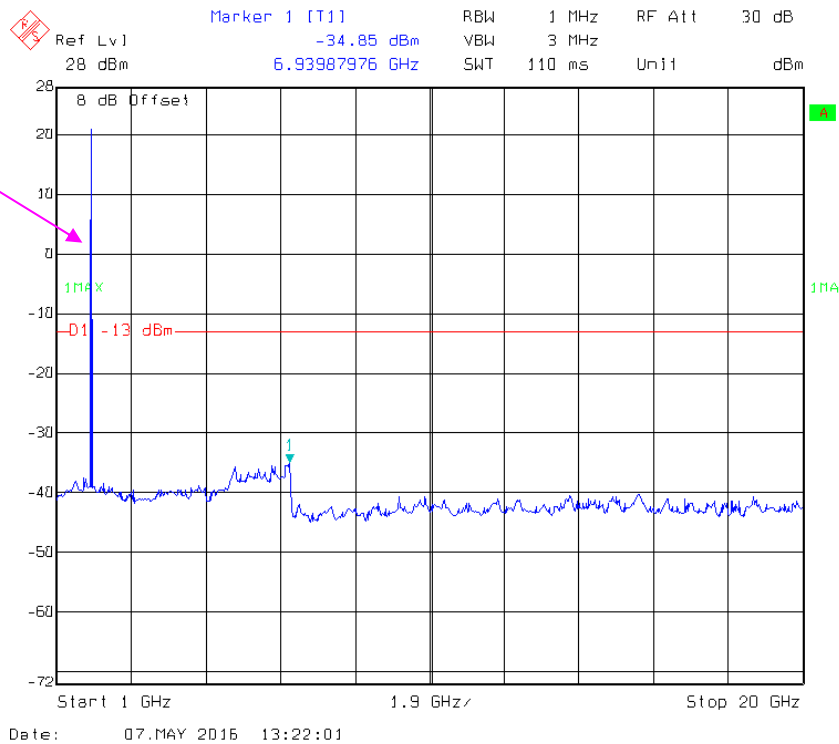
Fundamental



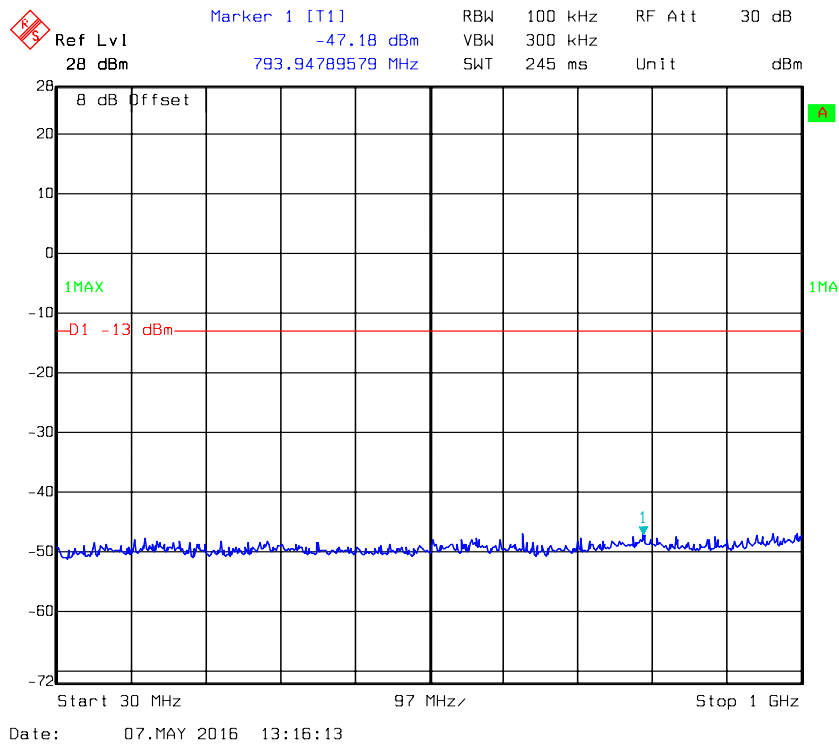
### QPSK\_5MHz



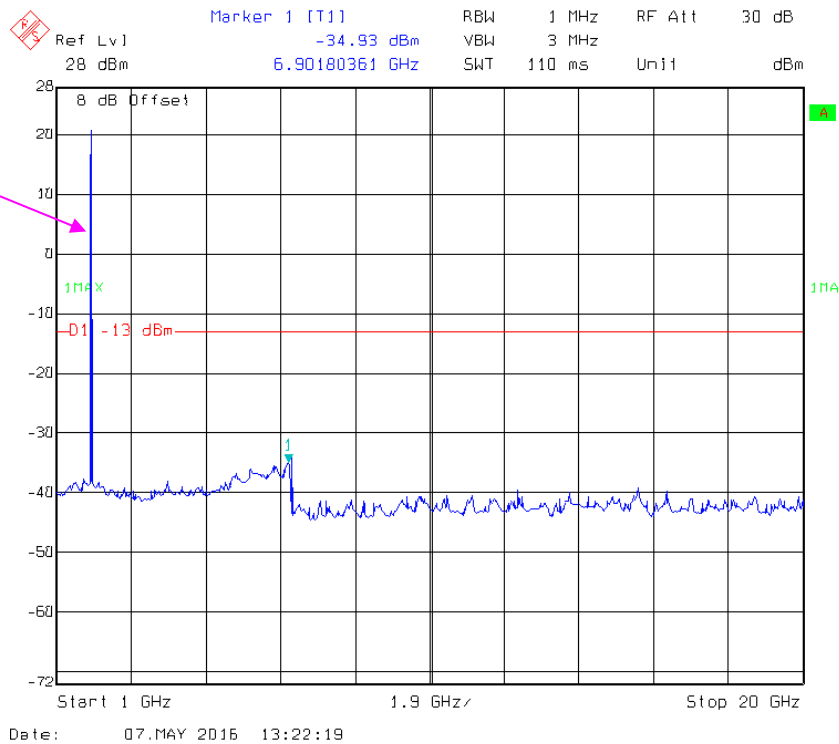
Fundamental



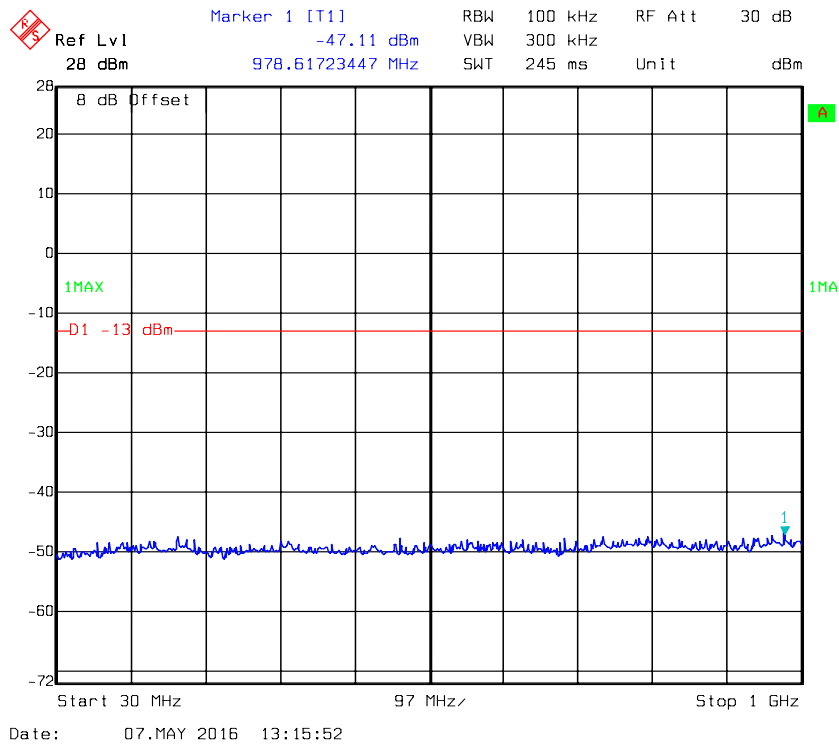
### QPSK\_10MHz



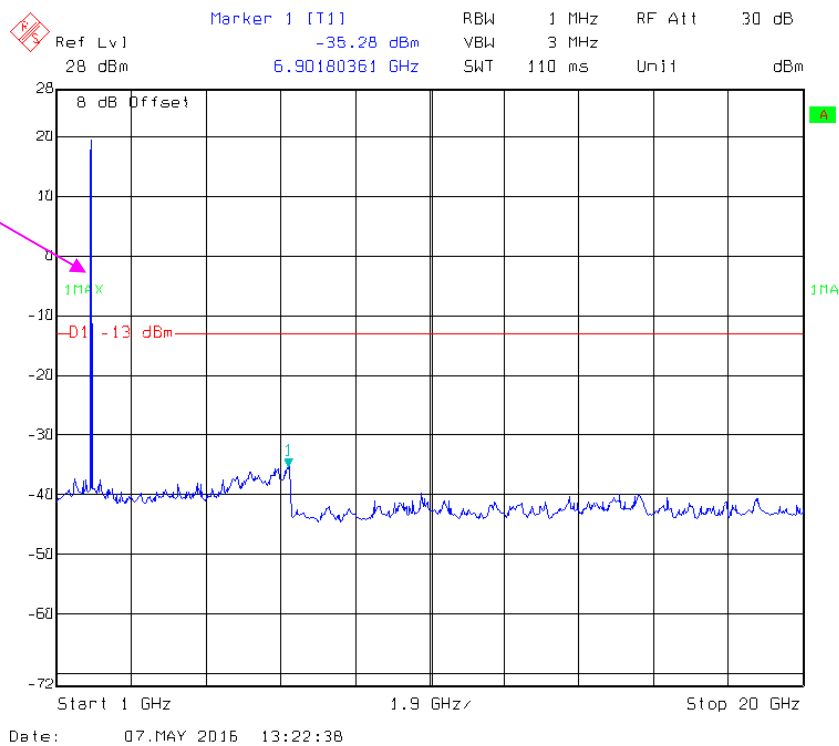
Fundamental



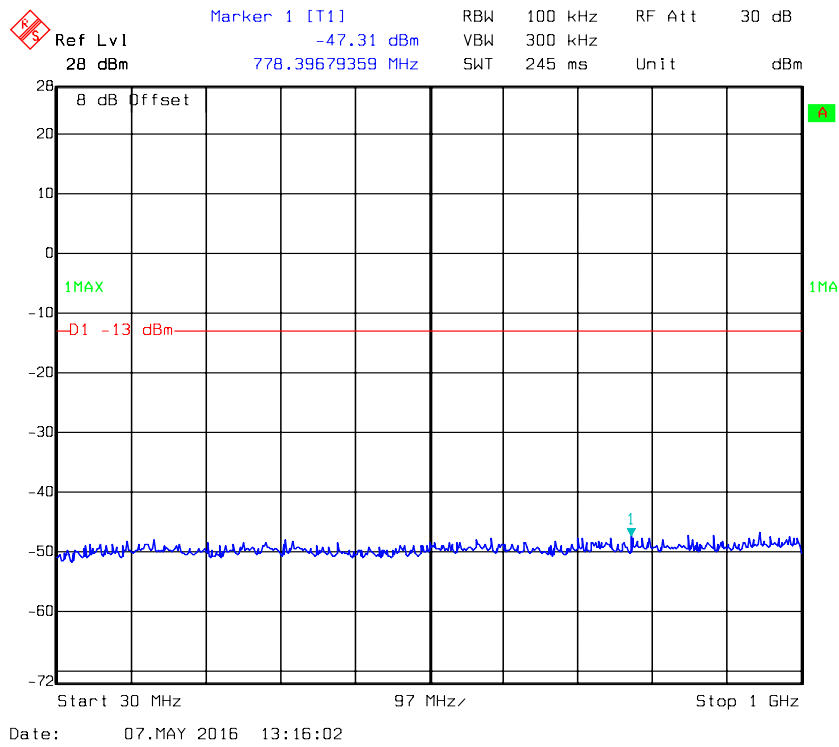
### QPSK\_15MHz



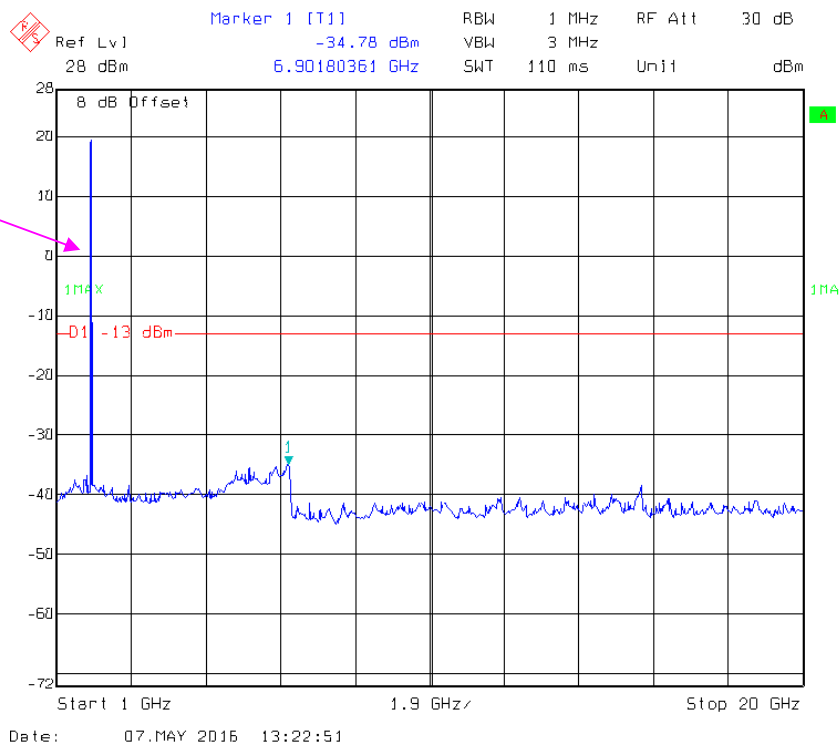
Fundamental



### QPSK\_20MHz



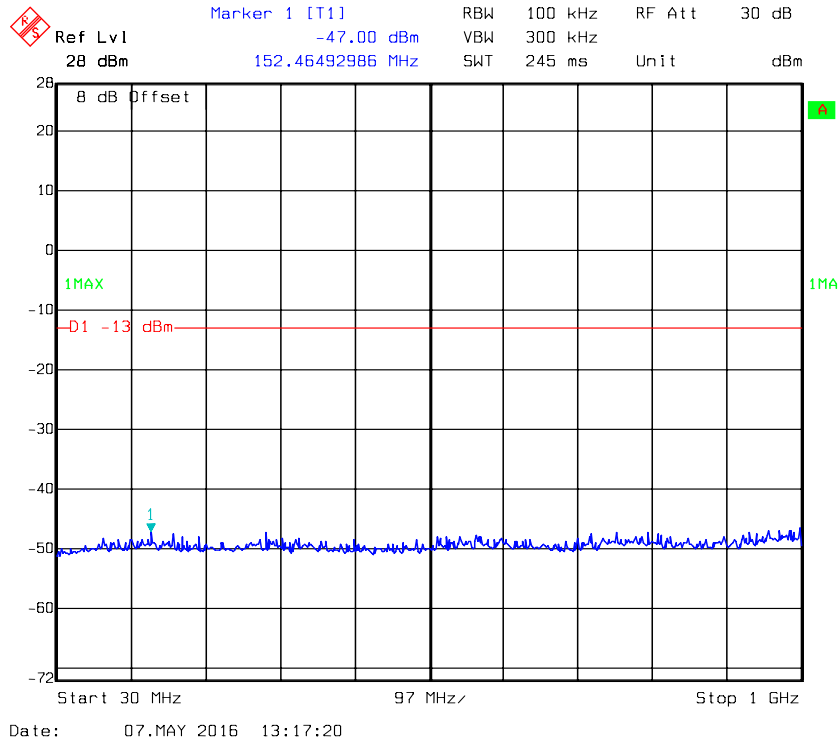
Fundamental



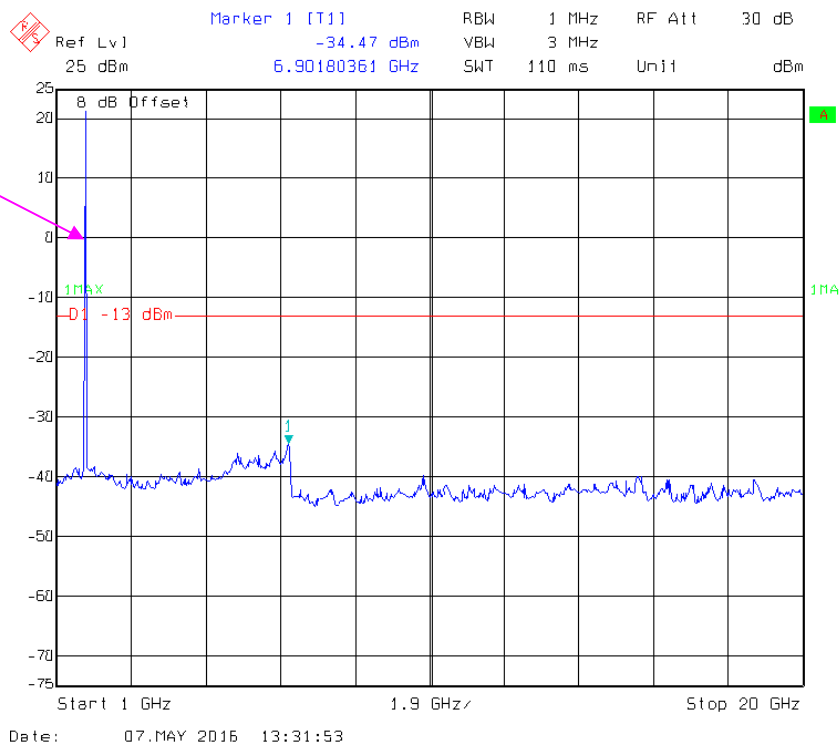


# LTE Band IV (Middle Channel)

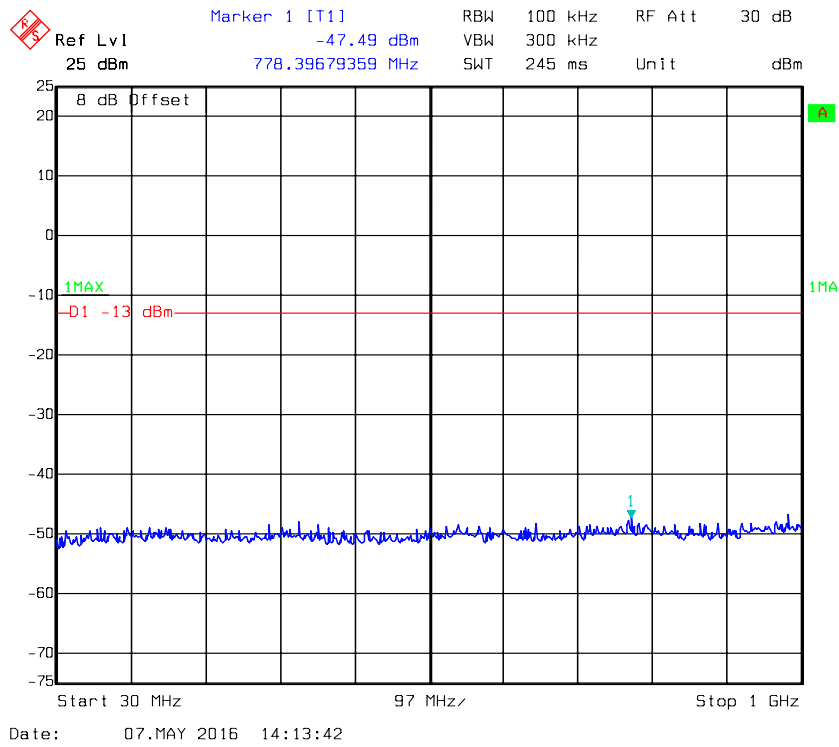
## QPSK-1.4 MHz



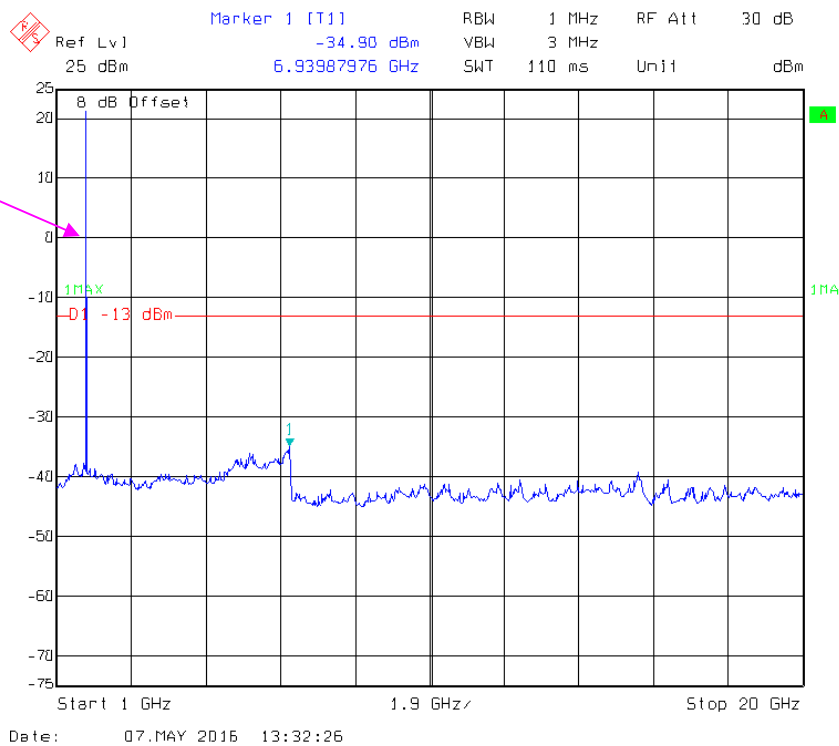
Fundamental



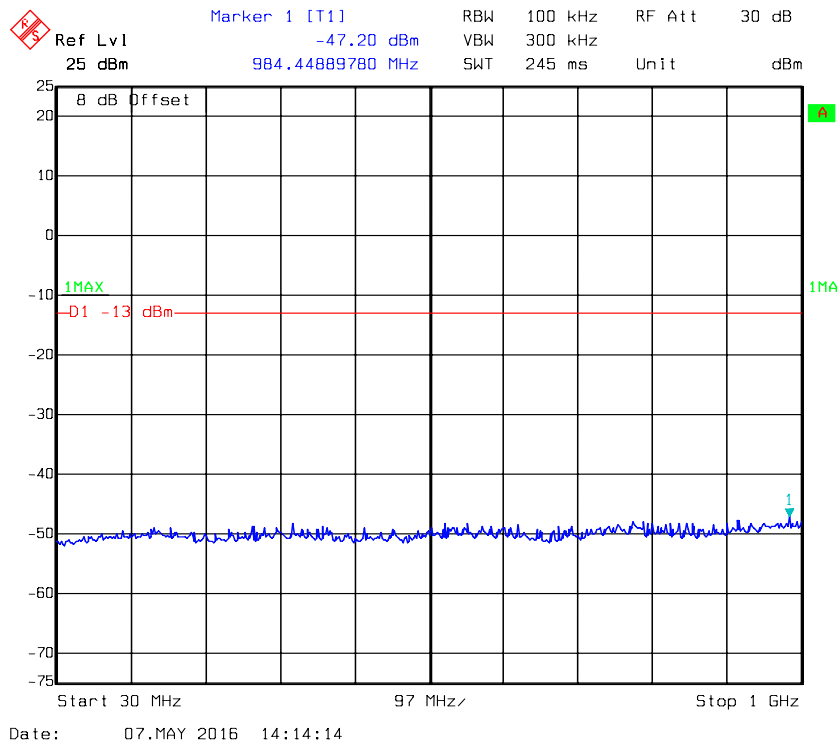
### QPSK\_3MHz



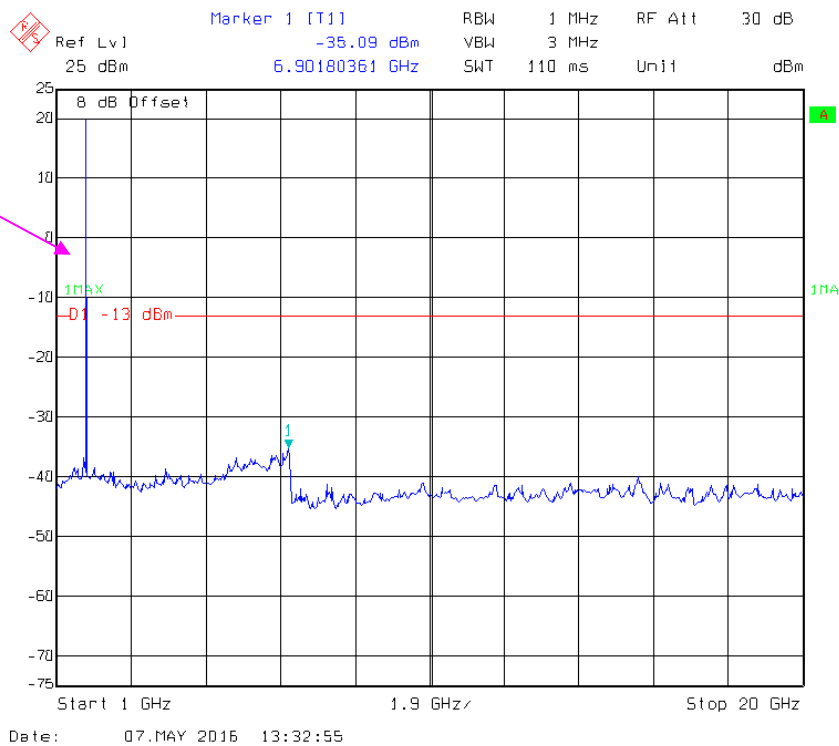
Fundamental



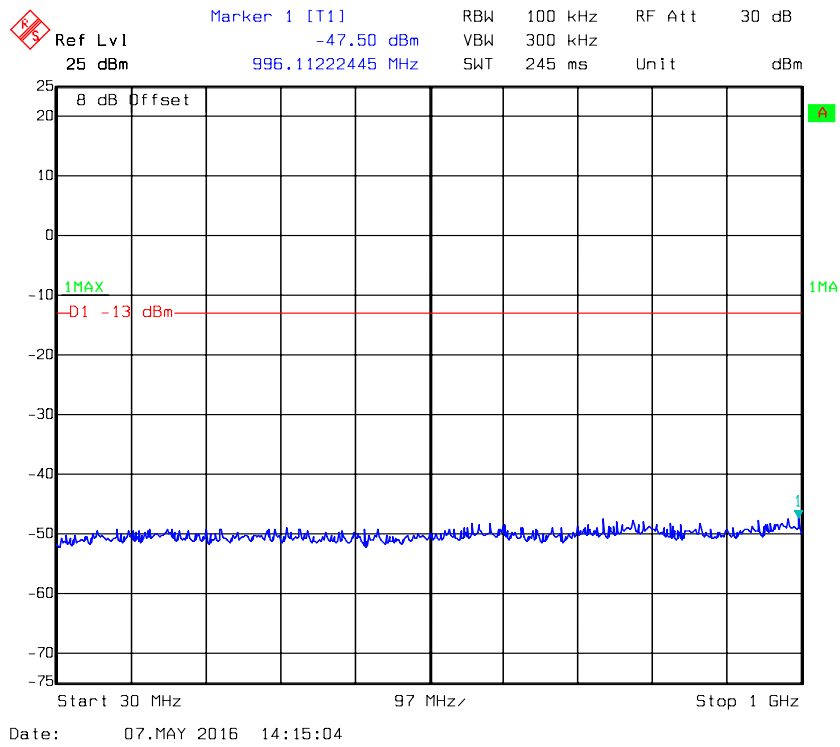
### QPSK\_5MHz



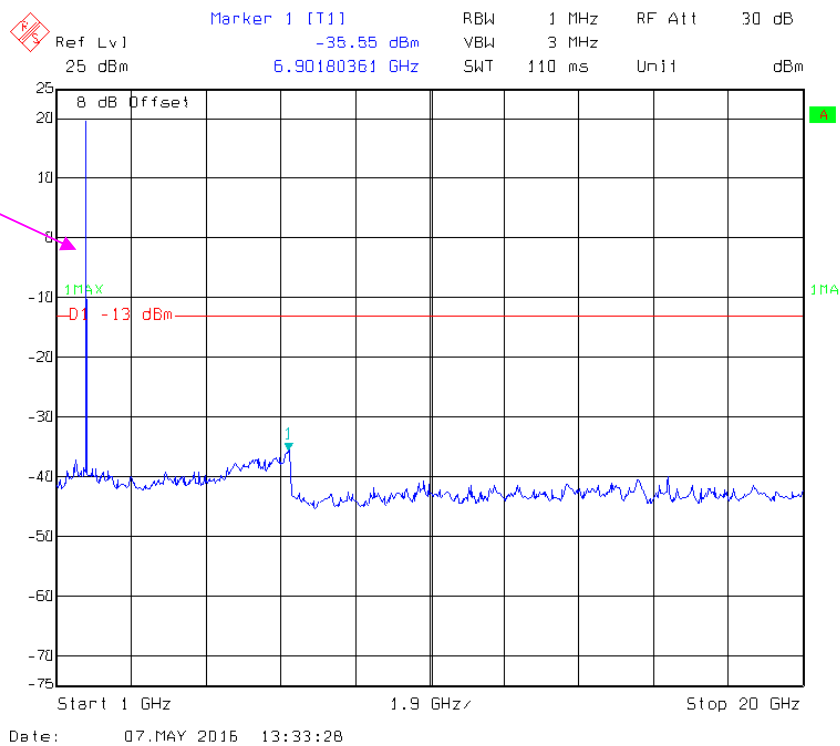
Fundamental



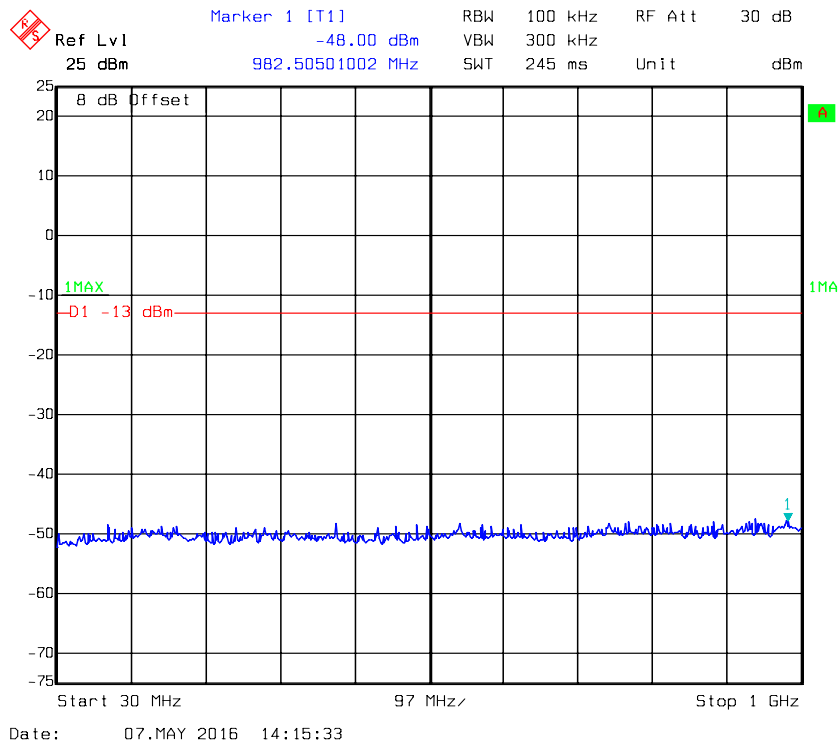
### QPSK\_10MHz



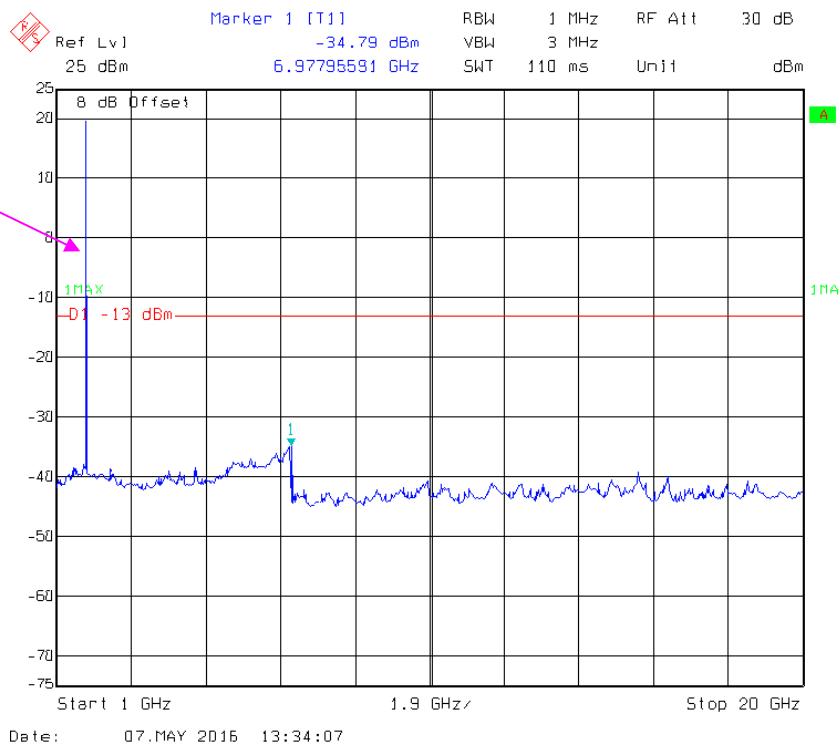
Fundamental



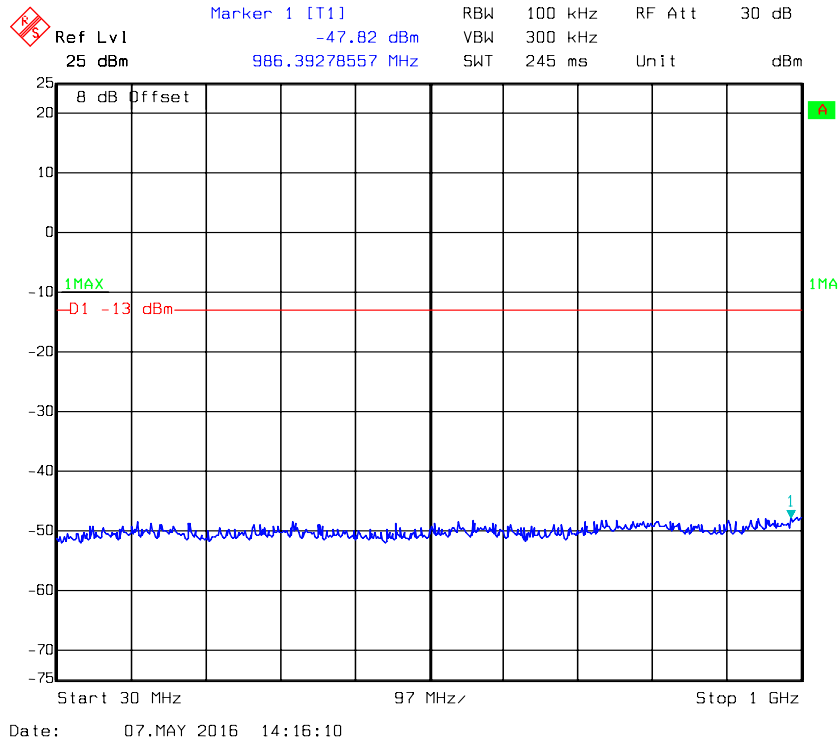
### QPSK\_15MHz



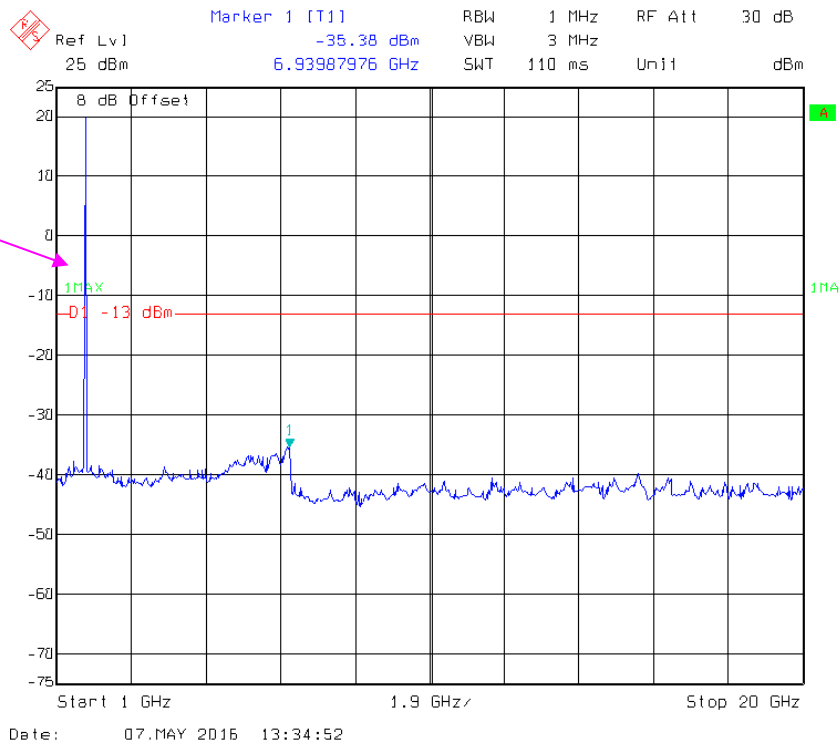
Fundamental



### QPSK\_20MHz

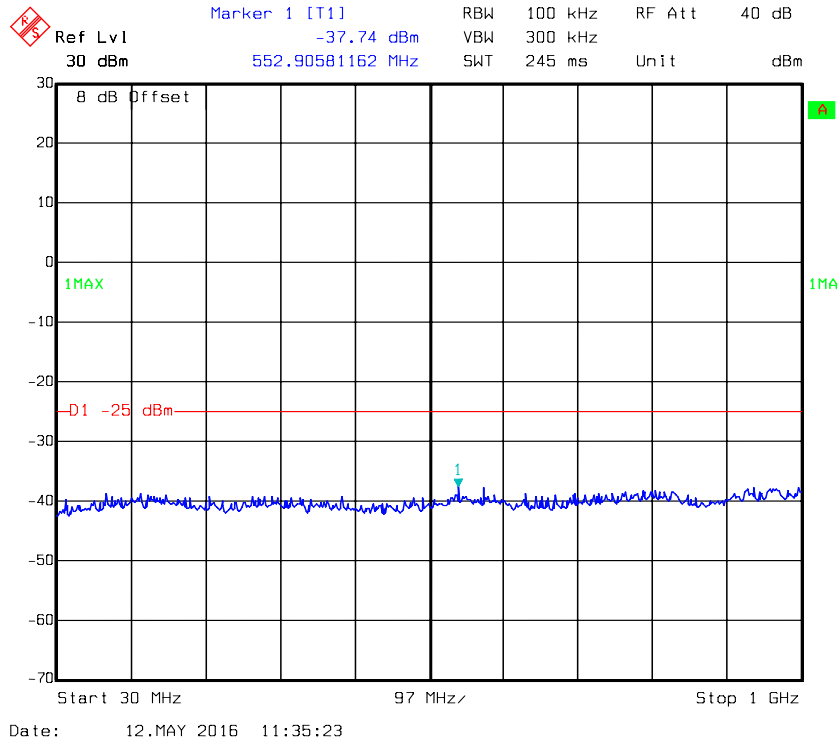


Fundamental

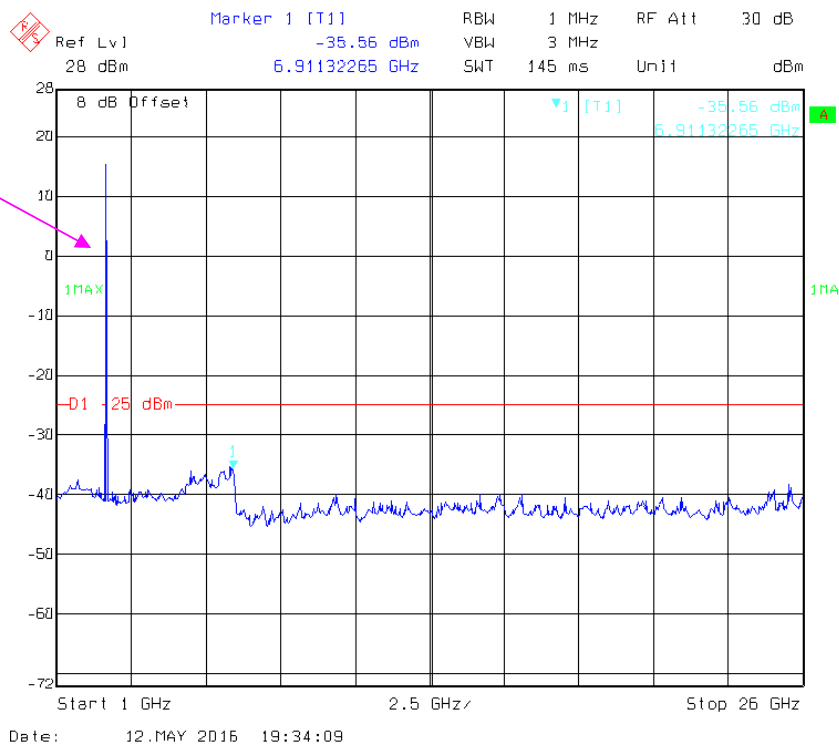


# LTE Band VII (Middle Channel)

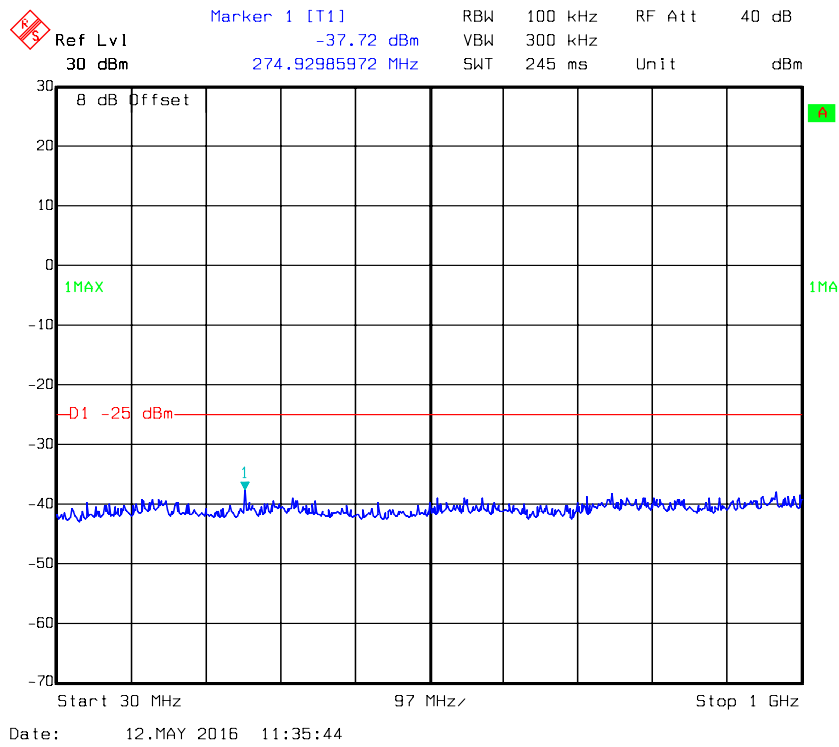
## QPSK\_5MHz



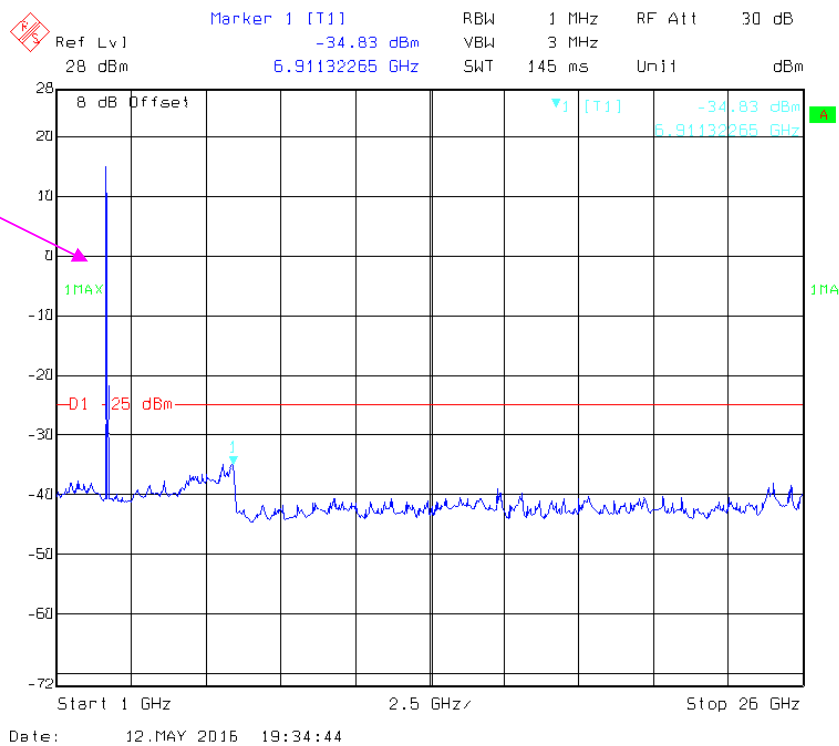
Fundamental



### QPSK\_10MHz

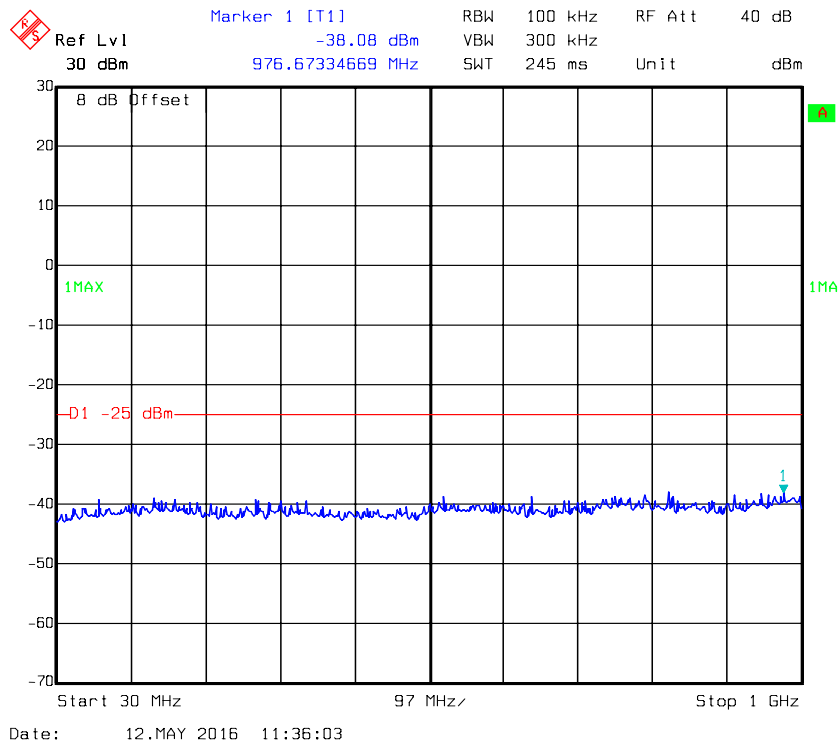


Fundamental

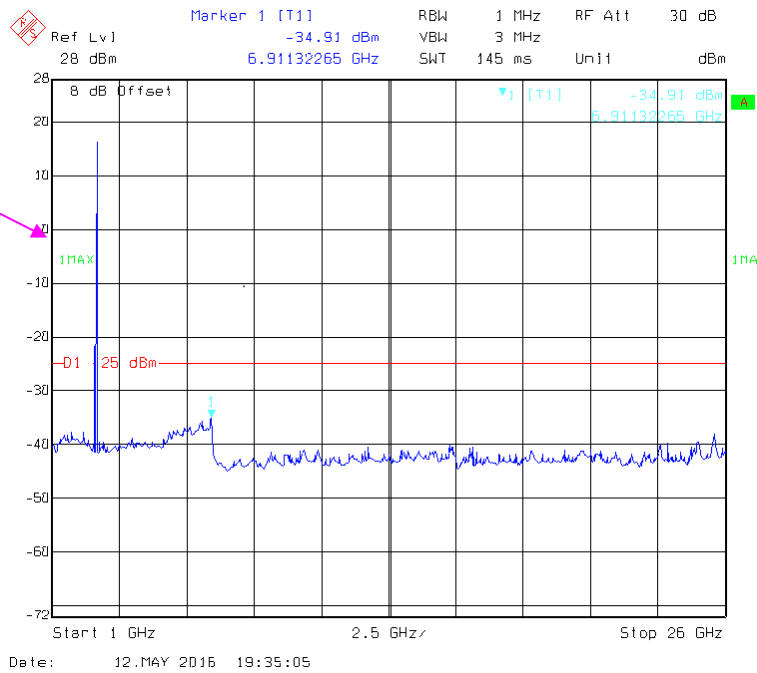




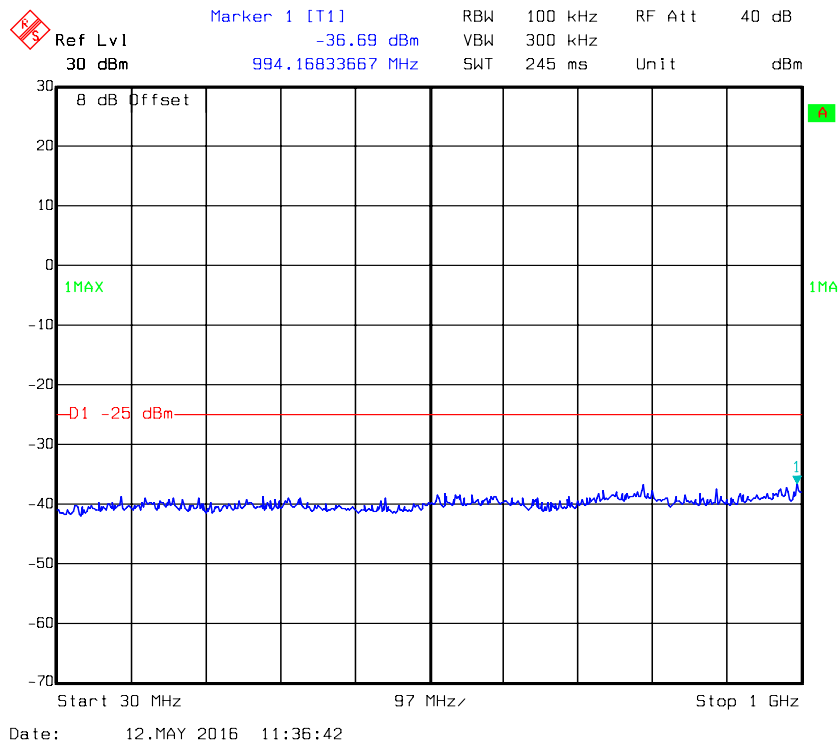
### QPSK\_15MHz



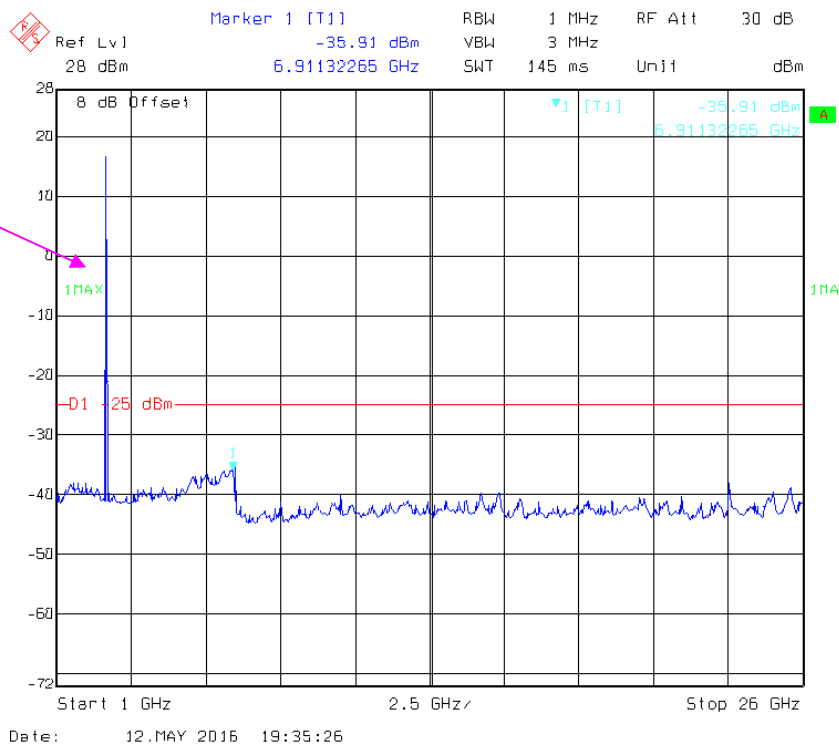
Fundamental



### QPSK\_20MHz

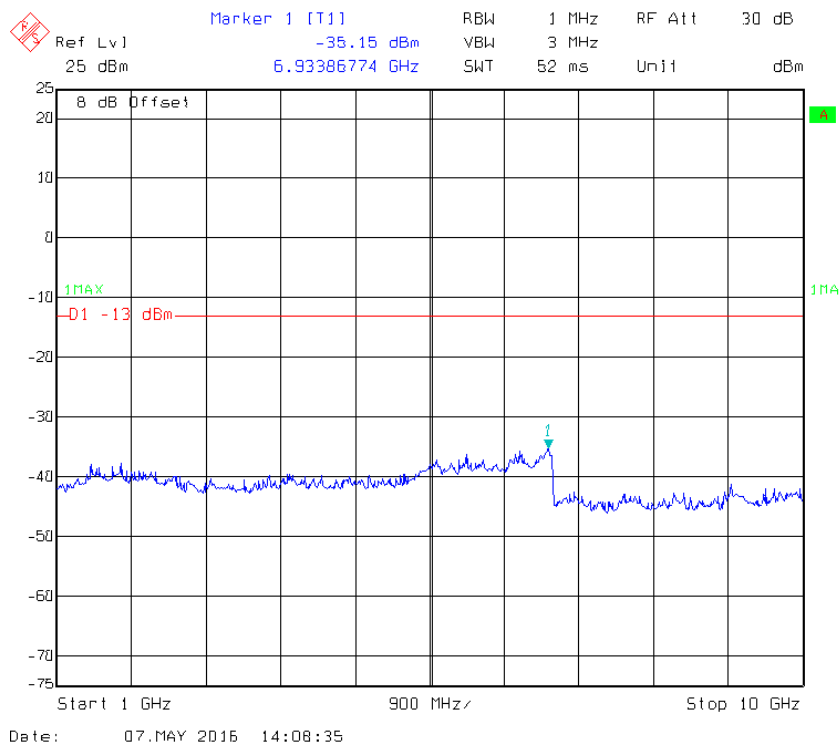
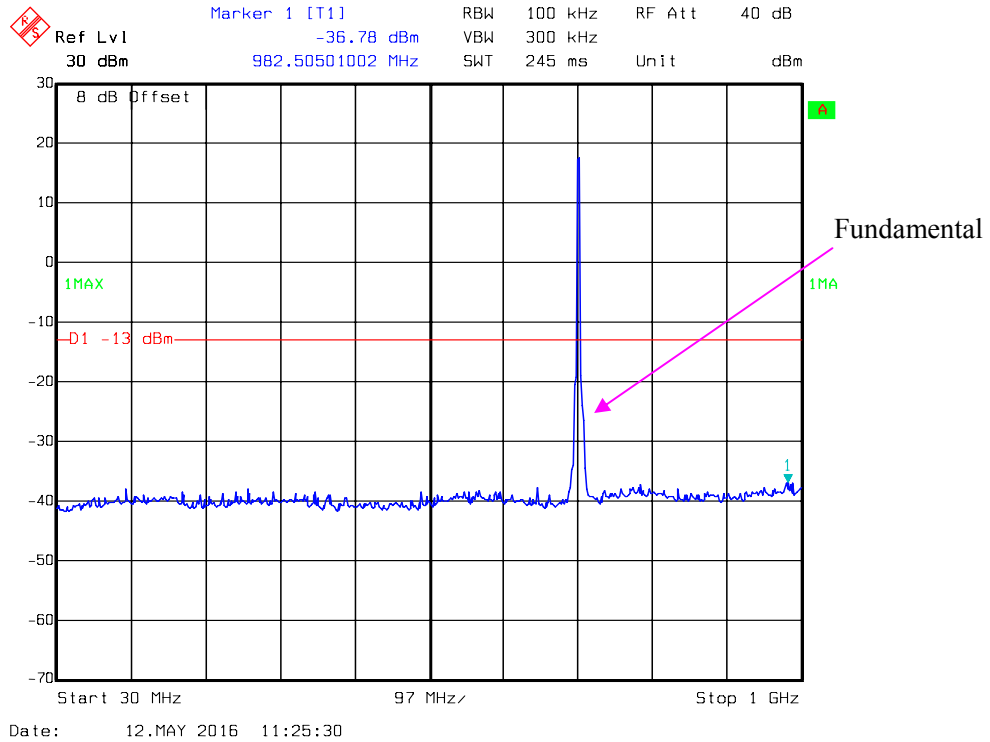


Fundamental

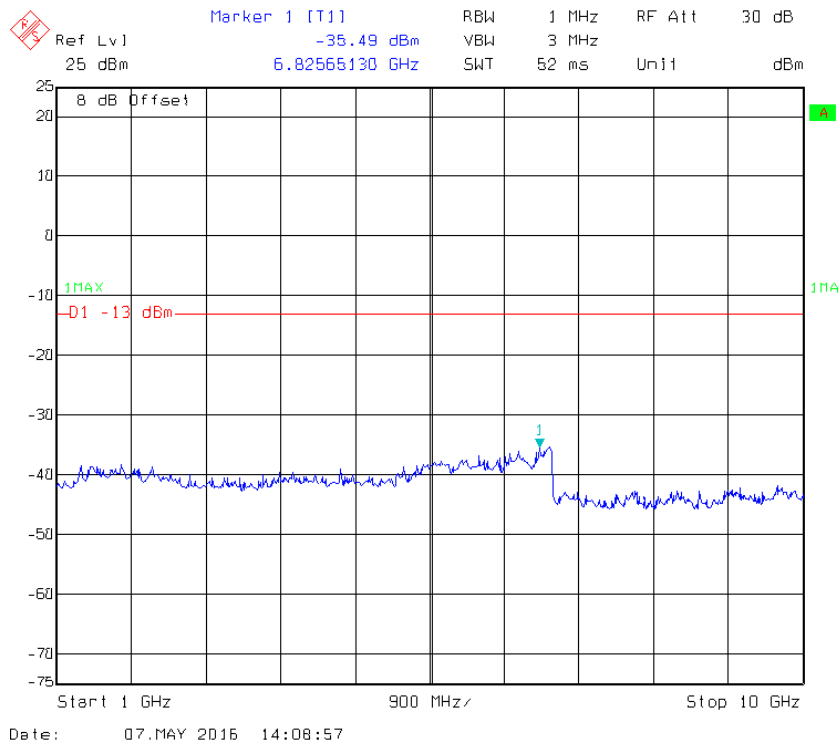
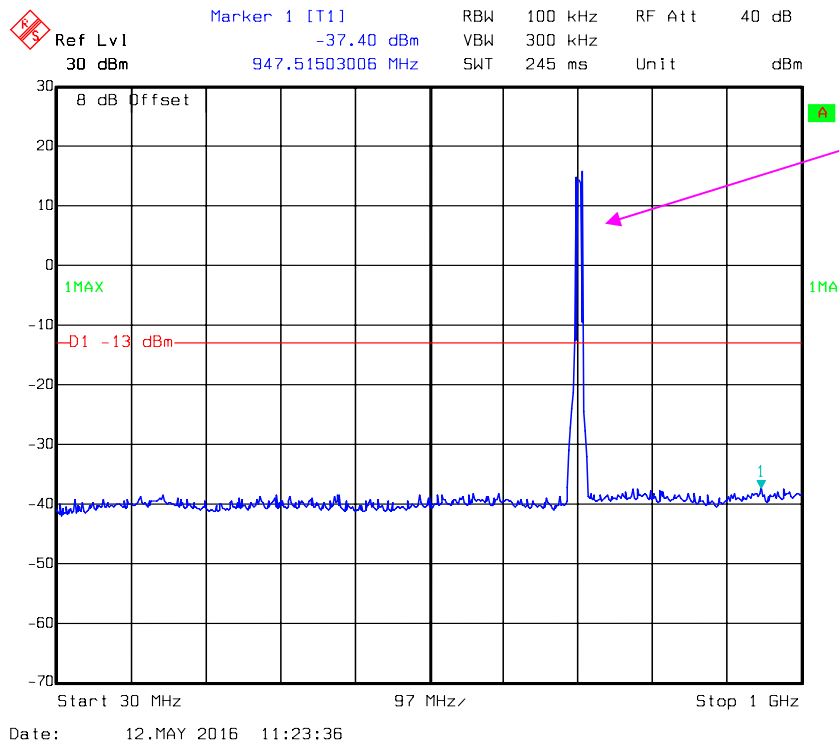


# LTE Band 17 (Middle Channel)

## QPSK\_5MHz



### QPSK\_10MHz



## FCC §2.1053, §22.917 & §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS

### Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53.

### Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB =  $10 \lg (\text{TXpwr in Watts}/0.001)$  – the absolute level

Spurious attenuation limit in dB =  $43 + 10 \log_{10} (\text{power out in Watts})$

### Test Equipment List and Details

| Manufacturer   | Description               | Model      | Serial Number | Calibration Date | Calibration Due Date |
|----------------|---------------------------|------------|---------------|------------------|----------------------|
| R&S            | EMI Test Receiver         | ESCI       | 100224        | 2015-08-03       | 2016-08-02           |
| Sunol Sciences | Antenna                   | JB3        | A060611-3     | 2014-11-06       | 2017-11-05           |
| HP             | Amplifier                 | 8447E      | 2434A02181    | 2015-09-01       | 2016-09-01           |
| R&S            | Spectrum Analyzer         | FSEM       | DE23437       | 2015-11-23       | 2016-11-22           |
| ETS LINDGREN   | Horn Antenna              | 3115       | 000 527 35    | 2015-09-06       | 2018-09-06           |
| Mini-Circuit   | Amplifier                 | ZVA-213-S+ | 054201245     | 2016-02-19       | 2017-02-19           |
| HP             | Signal Generator          | E4422B     | MY41000355    | 2015-11-23       | 2016-11-22           |
| EMCO           | Adjustable Dipole Antenna | 3121C      | 9109-753      | N/A              | N/A                  |
| TDK RF         | Horn Antenna              | HRN-0118   | 130 084       | 2015-09-06       | 2018-09-06           |
| N/A            | Coaxial Cable             | 14m        | N/A           | 2016-05-06       | 2017-05-06           |
| N/A            | Coaxial Cable             | 8m         | N/A           | 2016-05-06       | 2017-05-06           |
| N/A            | Coaxial Cable             | 2m         | N/A           | 2016-05-06       | 2017-05-06           |
| Mini Circuit   | High Pass Filter          | VHF-3100+  | 31251         | 2016-05-06       | 2017-05-06           |
| Mini Circuit   | High Pass Filte           | VHF-1200+  | N/A           | 2016-05-06       | 2017-05-06           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## Test Data

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 26.3 °C   |
| Relative Humidity: | 70 %      |
| ATM Pressure:      | 100.3 kPa |

The testing was performed by Rocky Xiao on 2016-05-08.

EUT Operation Mode: Transmitting

### Cellular Band

#### 30MHz-10 GHz

| Frequency<br>(MHz)                      | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                                         |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| GSM850, Frequency:836.600 MHz           |                |                               |                        |                              |                    |                            |                |                |
| 1673.200                                | H              | 45.28                         | -55.8                  | 10.6                         | 1.5                | -46.7                      | -13.0          | 33.7           |
| 1673.200                                | V              | 44.58                         | -56.8                  | 10.6                         | 1.5                | -47.7                      | -13.0          | 34.7           |
| 2509.800                                | H              | 50.61                         | -47.4                  | 13.1                         | 2.8                | -37.1                      | -13.0          | 24.1           |
| 2509.800                                | V              | 50.59                         | -46.5                  | 13.1                         | 2.8                | -36.2                      | -13.0          | 23.2           |
| 378.000                                 | H              | 35.54                         | -62.5                  | 0.0                          | 0.6                | -63.1                      | -13.0          | 50.1           |
| 378.000                                 | V              | 33.74                         | -61.7                  | 0.0                          | 0.6                | -62.3                      | -13.0          | 49.3           |
| WCDMA Band V R99, Frequency:836.600 MHz |                |                               |                        |                              |                    |                            |                |                |
| 1673.200                                | H              | 34.50                         | -66.6                  | 10.6                         | 1.5                | -57.5                      | -13.0          | 44.5           |
| 1673.200                                | V              | 40.54                         | -60.8                  | 10.6                         | 1.5                | -51.7                      | -13.0          | 38.7           |
| 354.300                                 | H              | 34.87                         | -66                    | 0.0                          | 0.6                | -66.6                      | -13.0          | 53.6           |
| 354.300                                 | V              | 33.56                         | -64.7                  | 0.0                          | 0.6                | -65.3                      | -13.0          | 52.3           |

**PCS Band****30MHz-20GHz:**

| Frequency<br>(MHz)                         | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|--------------------------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                                            |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| GSM1900, Frequency:1880.000 MHz            |                |                               |                        |                              |                    |                            |                |                |
| 3760.000                                   | H              | 66.35                         | -27.9                  | 13.8                         | 2.9                | -17.0                      | -13.0          | 4.0            |
| 3760.000                                   | V              | 64.10                         | -29                    | 13.8                         | 2.9                | -18.1                      | -13.0          | 5.1            |
| 335.000                                    | H              | 35.61                         | -67.6                  | 0.0                          | 0.6                | -68.2                      | -13.0          | 55.2           |
| 335.000                                    | V              | 34.15                         | -66.5                  | 0.0                          | 0.6                | -67.1                      | -13.0          | 54.1           |
| WCDMA Band II, R99, Frequency:1880.000 MHz |                |                               |                        |                              |                    |                            |                |                |
| 3760.000                                   | H              | 66.13                         | -28.2                  | 13.8                         | 2.9                | -17.3                      | -13.0          | 4.3            |
| 3760.000                                   | V              | 54.28                         | -38.8                  | 13.8                         | 2.9                | -27.9                      | -13.0          | 14.9           |
| 369.000                                    | H              | 34.50                         | -64.6                  | 0.0                          | 0.6                | -65.2                      | -13.0          | 52.2           |
| 369.000                                    | V              | 33.21                         | -63.3                  | 0.0                          | 0.6                | -63.9                      | -13.0          | 50.9           |

**LTE band II(30MHz-20GMHz):**

| Frequency<br>(MHz)          | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                             |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK, Frequency:1880.00 MHz |                |                               |                        |                              |                    |                            |                |                |
| 3760.000                    | H              | 35.88                         | -58.4                  | 13.8                         | 2.9                | -47.5                      | -13.0          | 34.5           |
| 3760.000                    | V              | 35.58                         | -57.5                  | 13.8                         | 2.9                | -46.6                      | -13.0          | 33.6           |
| 5640.000                    | H              | 39.88                         | -51.8                  | 14.0                         | 2.1                | -39.9                      | -13.0          | 26.9           |
| 5640.000                    | V              | 37.42                         | -54.2                  | 14.0                         | 2.1                | -42.3                      | -13.0          | 29.3           |
| 181.600                     | H              | 34.82                         | -73.9                  | 0.0                          | 0.4                | -74.3                      | -13.0          | 61.3           |
| 181.600                     | V              | 33.94                         | -73.1                  | 0.0                          | 0.4                | -73.5                      | -13.0          | 60.5           |

**LTE Band IV(30MHz-20GMHz):**

| Frequency<br>(MHz)          | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                             |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK, Frequency:1732.50 MHz |                |                               |                        |                              |                    |                            |                |                |
| 3465.000                    | H              | 36.91                         | -60                    | 13.9                         | 1.9                | -48.0                      | -13.0          | 35.0           |
| 3465.000                    | V              | 36.17                         | -60                    | 13.9                         | 1.9                | -48.0                      | -13.0          | 35.0           |
| 5197.500                    | H              | 43.80                         | -47.2                  | 14.0                         | 2.3                | -35.5                      | -13.0          | 22.5           |
| 5197.500                    | V              | 42.70                         | -49.8                  | 14.0                         | 2.3                | -38.1                      | -13.0          | 25.1           |
| 181.600                     | H              | 35.31                         | -73.4                  | 0.0                          | 0.4                | -73.8                      | -13.0          | 60.8           |
| 181.600                     | V              | 34.28                         | -72.8                  | 0.0                          | 0.4                | -73.2                      | -13.0          | 60.2           |

**LTE Band VII(30MHz-26GHz):**

| Frequency<br>(MHz)          | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-----------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                             |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK, Frequency:2535.00 MHz |                |                               |                        |                              |                    |                            |                |                |
| 5070.000                    | H              | 38.90                         | -52.4                  | 13.9                         | 2.4                | -40.9                      | -25            | 15.9           |
| 5070.000                    | V              | 38.04                         | -54.1                  | 13.9                         | 2.4                | -42.6                      | -25            | 17.6           |
| 7605.000                    | H              | 36.57                         | -50.9                  | 13.2                         | 3.1                | -40.8                      | -25            | 15.8           |
| 7605.000                    | V              | 35.57                         | -51.9                  | 13.2                         | 3.1                | -41.8                      | -25            | 16.8           |
| 181.600                     | H              | 35.87                         | -72.8                  | 0.0                          | 0.4                | -73.2                      | -25            | 48.2           |
| 181.600                     | V              | 34.69                         | -72.4                  | 0.0                          | 0.4                | -72.8                      | -25            | 47.8           |

**LTE Band 17(30MHz-10GMHz)**

| Frequency<br>(MHz)        | Polar<br>(H/V) | Receiver<br>Reading<br>(dBμV) | Substituted Method     |                              |                    | Absolute<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------------------------|----------------|-------------------------------|------------------------|------------------------------|--------------------|----------------------------|----------------|----------------|
|                           |                |                               | S.G.<br>Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable Loss<br>(dB) |                            |                |                |
| QPSK,Frequency:710.00 MHz |                |                               |                        |                              |                    |                            |                |                |
| 1420.000                  | H              | 34.61                         | -66.3                  | 9.1                          | 1.3                | -58.5                      | -13.0          | 45.5           |
| 1420.000                  | V              | 34.43                         | -66.2                  | 9.1                          | 1.3                | -58.4                      | -13.0          | 45.4           |
| 2130.000                  | H              | 36.38                         | -59.6                  | 11.2                         | 1.4                | -49.8                      | -13.0          | 36.8           |
| 2130.000                  | V              | 34.56                         | -60.2                  | 11.2                         | 1.4                | -50.4                      | -13.0          | 37.4           |
| 181.600                   | H              | 34.26                         | -74.4                  | 0.0                          | 0.4                | -74.8                      | -13.0          | 61.8           |
| 181.600                   | V              | 33.58                         | -73.5                  | 0.0                          | 0.4                | -73.9                      | -13.0          | 60.9           |

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = SG Level - Cable loss + Antenna Gain
- 3) Margin = Limit-Absolute Level



## FCC §22.917(a) & §24.238(a) & §27.53- BAND EDGES

### Applicable Standard

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

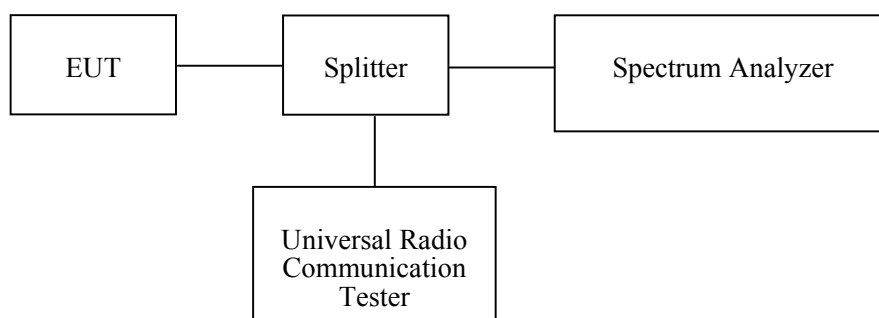
According to §27.53 (h), AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.

According to §27.53 (m), (4) For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log(P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log(P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

### Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



**Test Equipment List and Details**

| Manufacturer | Description                          | Model       | Serial Number         | Calibration Date | Calibration Due Date |
|--------------|--------------------------------------|-------------|-----------------------|------------------|----------------------|
| R&S          | Spectrum Analyzer                    | FSP 38      | 100478                | 2015-11-23       | 2016-11-22           |
| R&S          | Spectrum Analyzer                    | FSEM        | 831259/019            | 2015-07-28       | 2016-07-27           |
| R&S          | Universal Radio Communication Tester | CMU200      | 109 038               | 2015-07-28       | 2016-07-27           |
| R&S          | Wideband Radio Communication Tester  | CMW500      | 1201.002K50-146520-wh | 2015-12-19       | 2016-12-19           |
| N/A          | Coaxial Cable                        | 0.1m        | N/A                   | 2015-05-06       | 2015-05-06           |
| E-Microwave  | DC Blocking                          | EMDCB-00036 | 0E01201047            | 2015-05-06       | 2015-05-06           |
| E-Microwave  | Attenuator                           | EMCA10-5RN  | OE01203239            | 2015-05-06       | 2015-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-01       | N/A                   | 2015-05-06       | 2015-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-02       | N/A                   | 2015-05-06       | 2015-05-06           |
| N/A          | Two-way Splitter                     | ODP-1-6-2S  | OE0120142             | 2015-05-06       | 2015-05-06           |
| N/A          | Coaxial Cable                        | 0.1m        | N/A                   | 2016-05-06       | 2017-05-06           |
| E-Microwave  | DC Blocking                          | EMDCB-00036 | 0E01201047            | 2016-05-06       | 2017-05-06           |
| E-Microwave  | Attenuator                           | EMCA10-5RN  | OE01203239            | 2016-05-06       | 2017-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-01       | N/A                   | 2016-05-06       | 2017-05-06           |
| Pasternack   | RF Coaxial Cable                     | RF-02       | N/A                   | 2016-05-06       | 2017-05-06           |
| N/A          | Two-way Splitter                     | ODP-1-6-2S  | OE0120142             | 2016-05-06       | 2017-05-06           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data****Environmental Conditions**

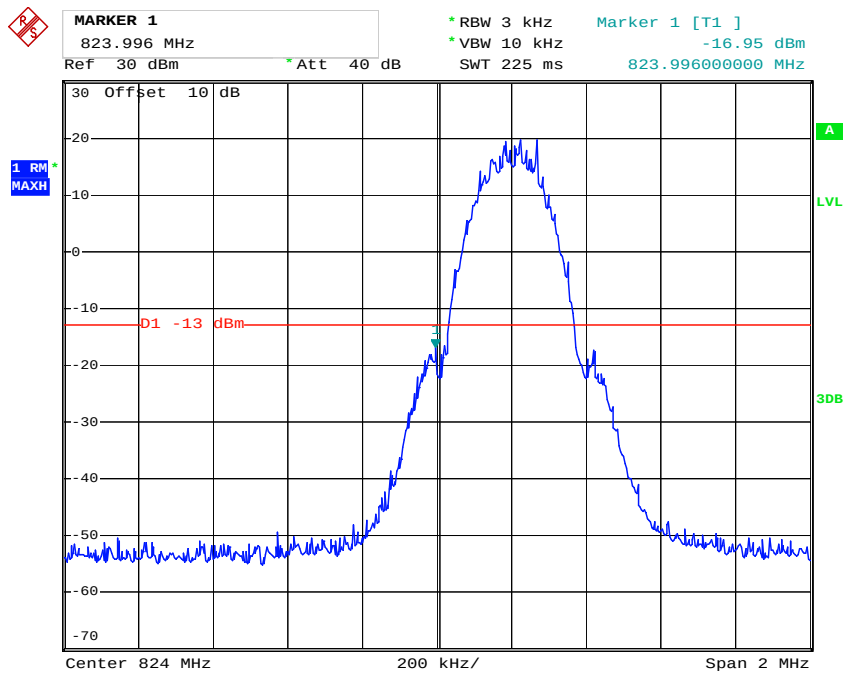
|                           |                 |
|---------------------------|-----------------|
| <b>Temperature:</b>       | 28.1~30.4°C     |
| <b>Relative Humidity:</b> | 50~72 %         |
| <b>ATM Pressure:</b>      | 100.3~100.5 kPa |

The testing was performed by Rocky Xiao from 2016-05-03 to 2016-05-12.

Test Mode: Transmitting

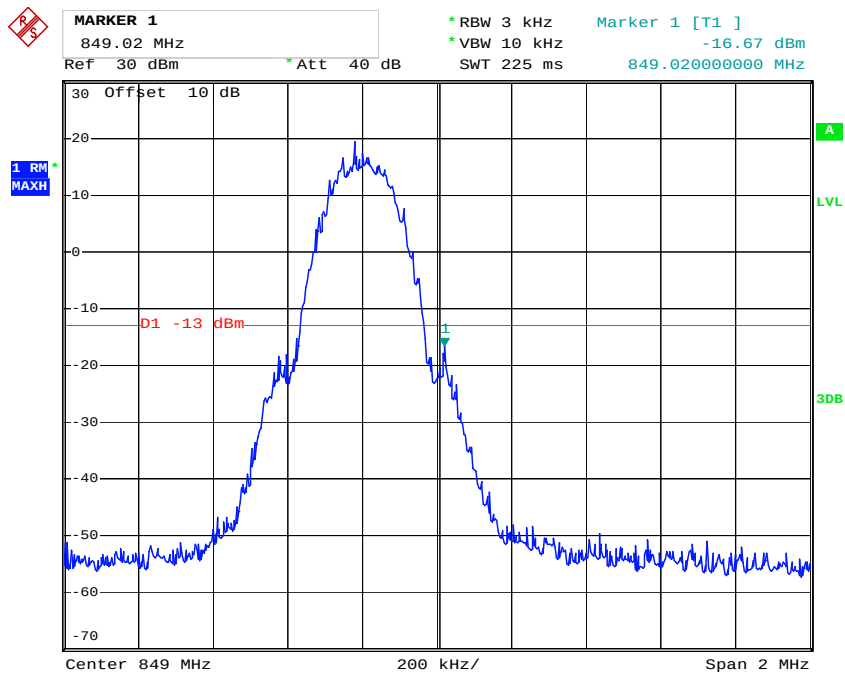
Test Result: Compliant. Please refer to the following plots.

### GSM 850, Left Band Edge



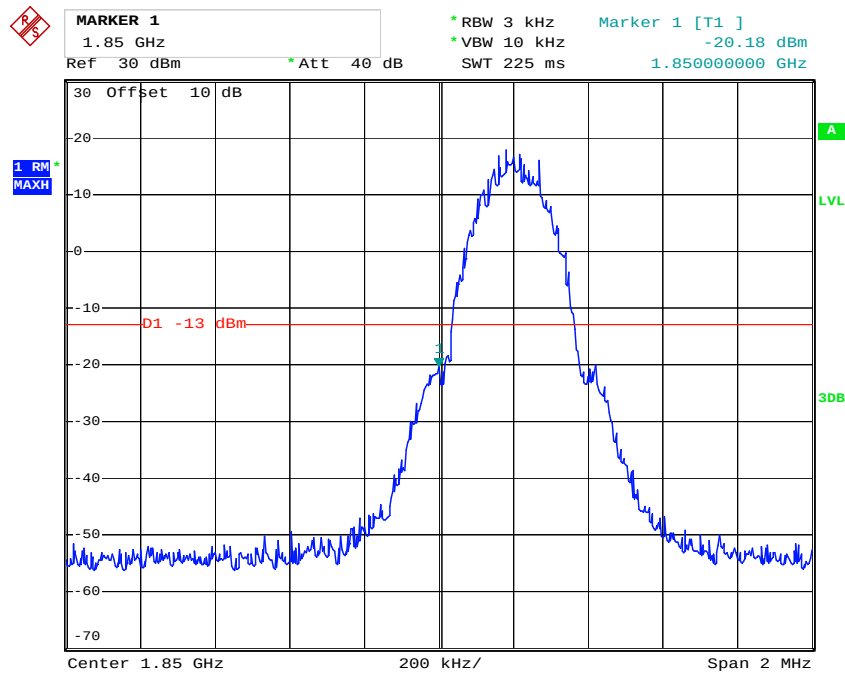
Date: 11.MAY.2016 10:05:33

### GSM 850, Right Band Edge



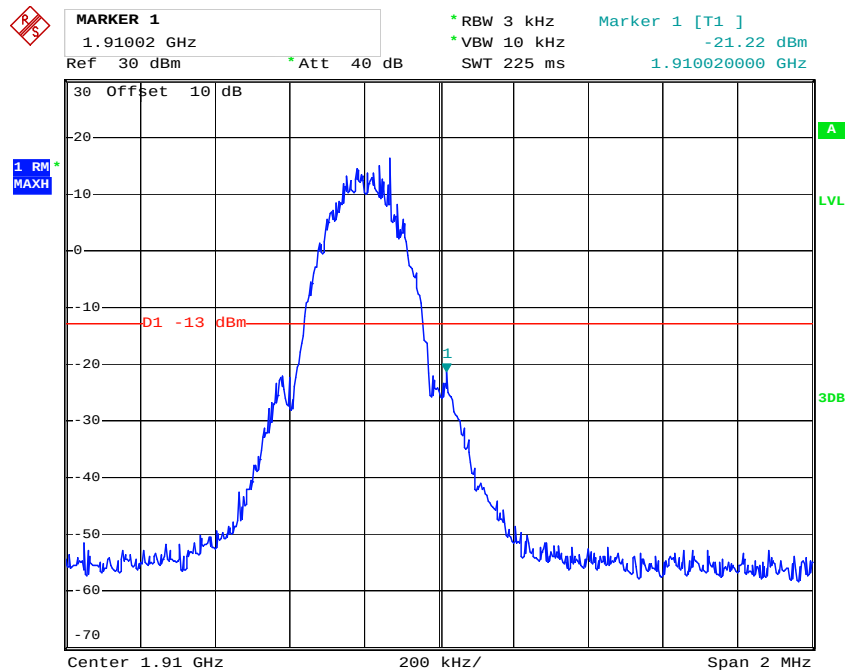
Date: 11.MAY.2016 10:02:43

## GSM 1900, Left Band Edge



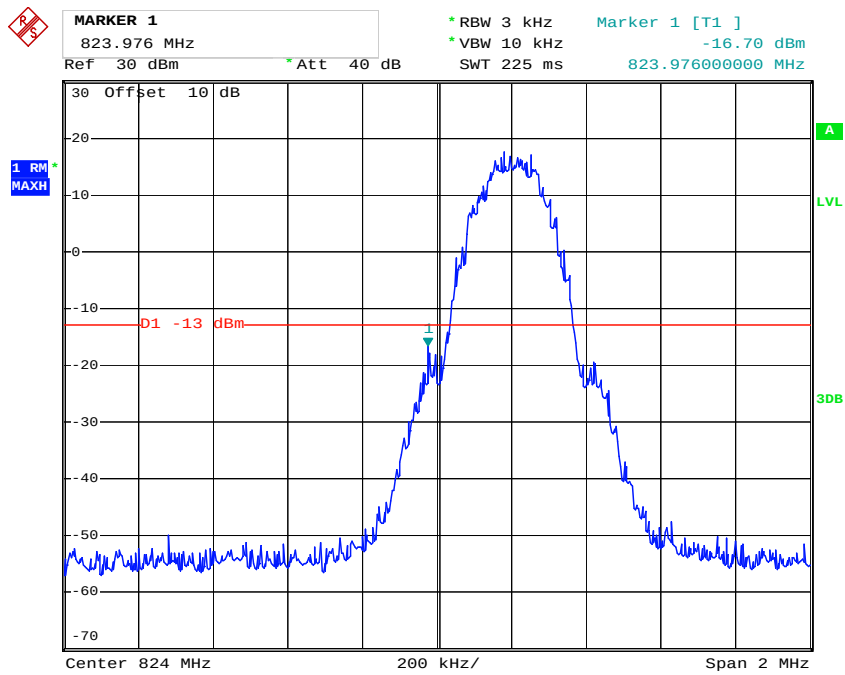
Date: 11.MAY.2016 10:17:21

## GSM 1900, Right Band Edge



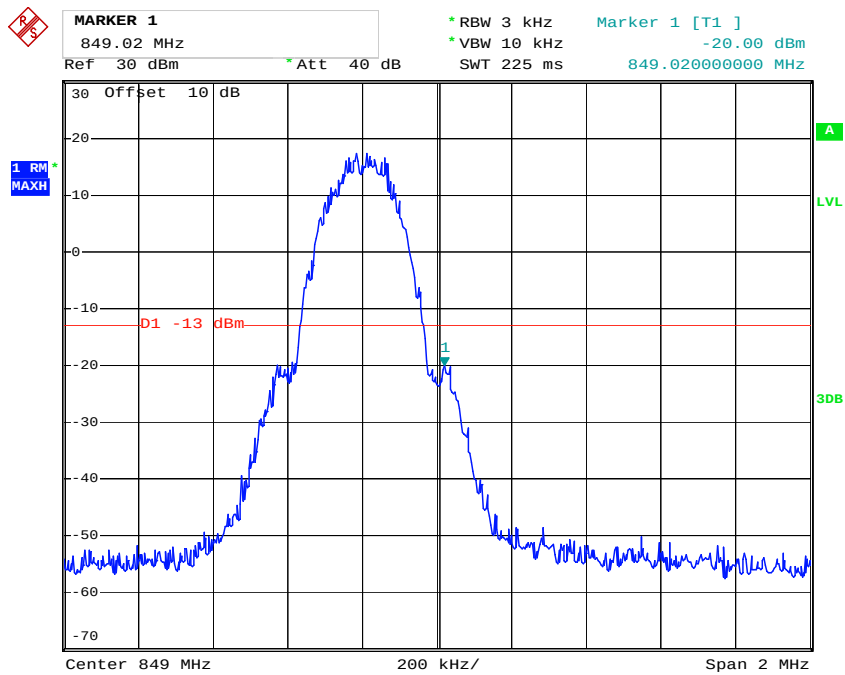
Date: 11.MAY.2016 10:18:47

### EDGE 850, Left Band Edge



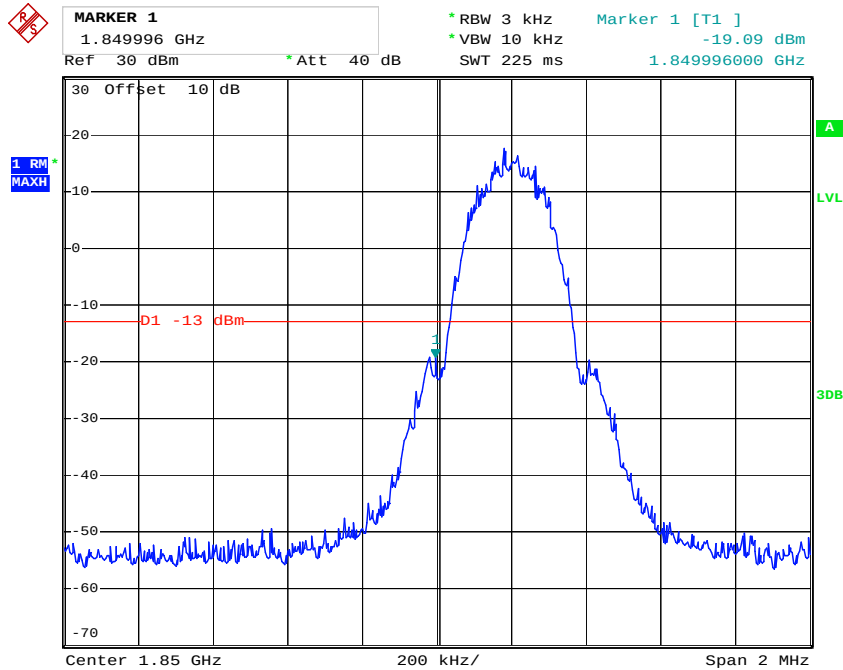
Date: 11.MAY.2016 10:10:36

### EDGE 850, Right Band Edge



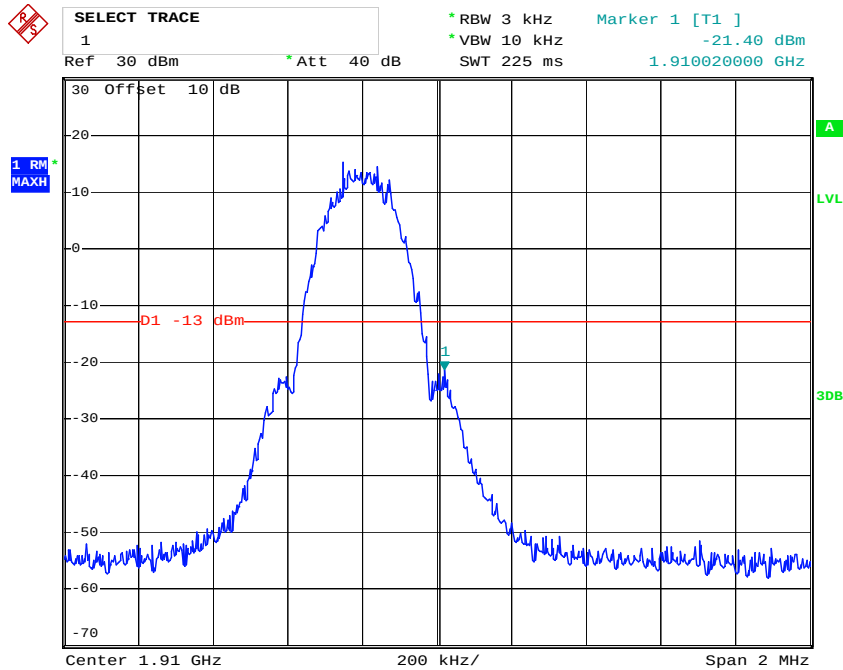
Date: 11.MAY.2016 10:11:38

### EDGE 1900, Left Band Edge



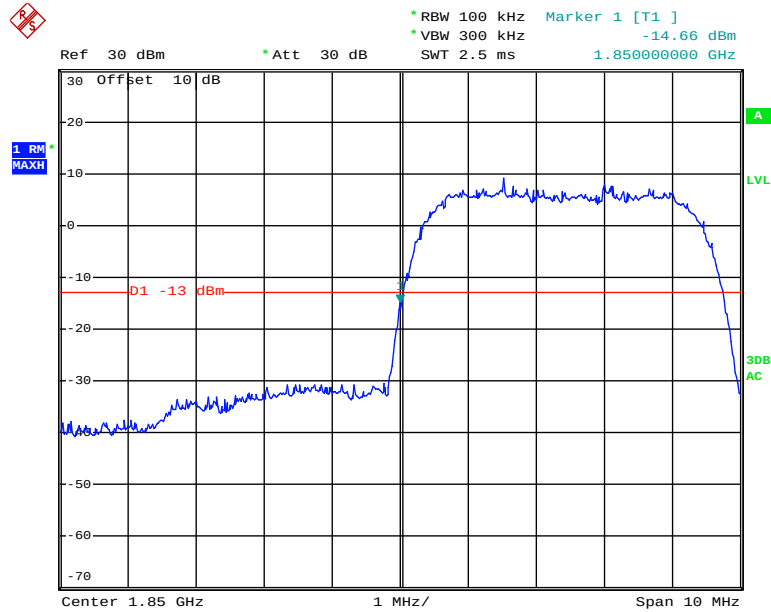
Date: 11.MAY.2016 10:22:55

### EDGE 1900, Right Band Edge



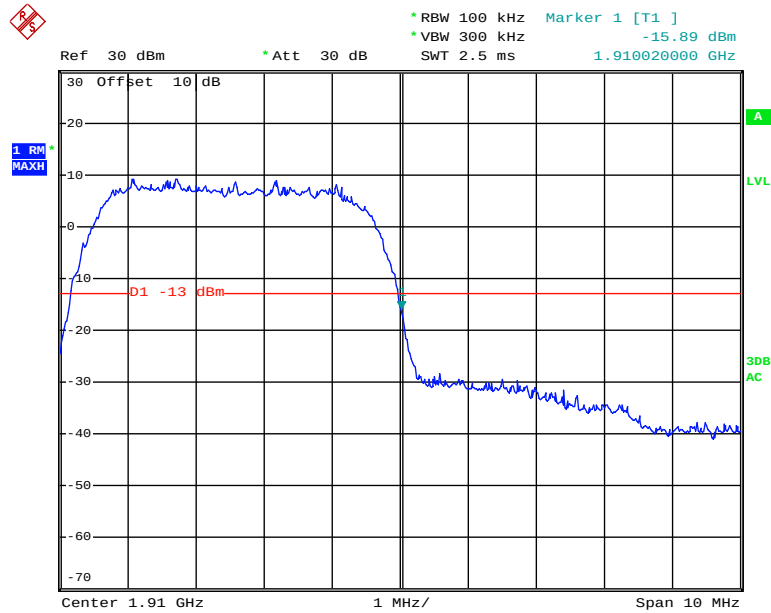
Date: 11.MAY.2016 10:21:35

### REL99 Band II, Left Band Edge



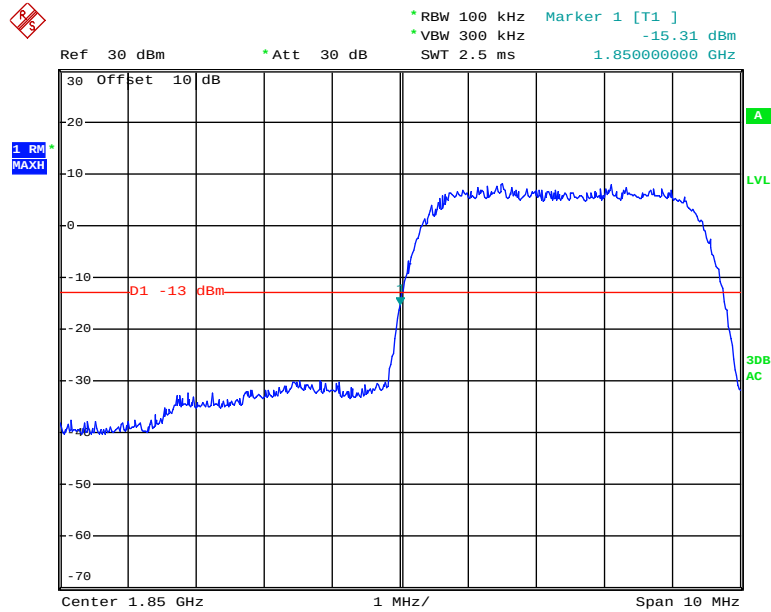
Date: 3.MAY.2016 11:32:33

### REL99 Band II, Right Band Edge



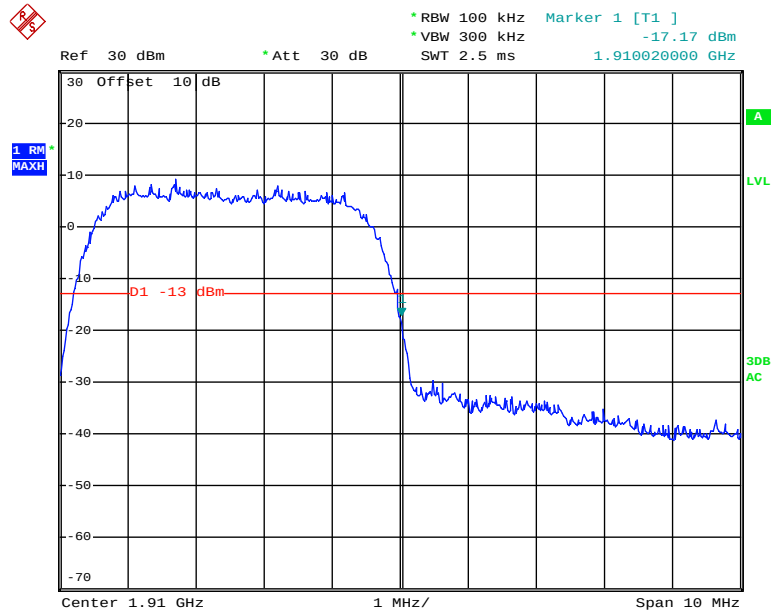
Date: 3.MAY.2016 12:49:01

### HSDPA Band II, Left Band Edge



Date: 3.MAY.2016 11:28:26

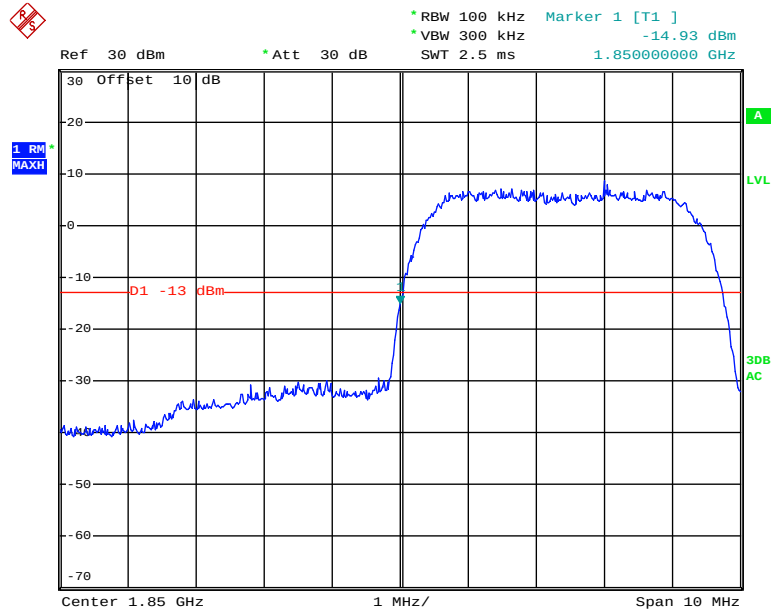
### HSDPA Band II, Right Band Edge



Date: 3.MAY.2016 12:52:19

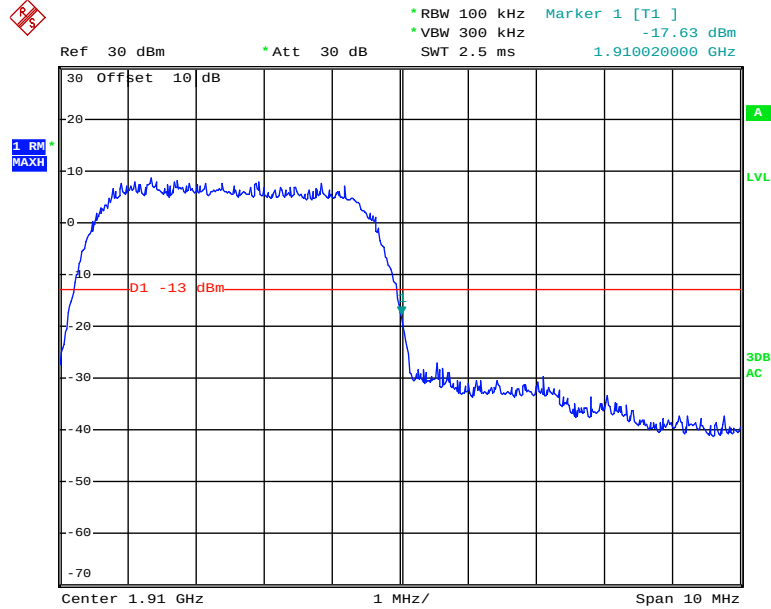


### HSUPA Band II, Left Band Edge



Date: 3.MAY.2016 11:32:04

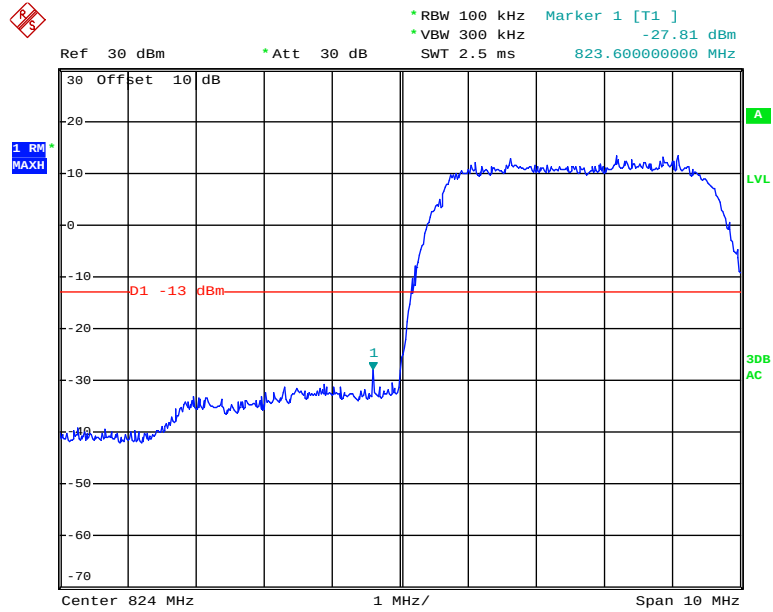
### HSUPA Band II, Right Band Edge



Date: 3.MAY.2016 12:53:54

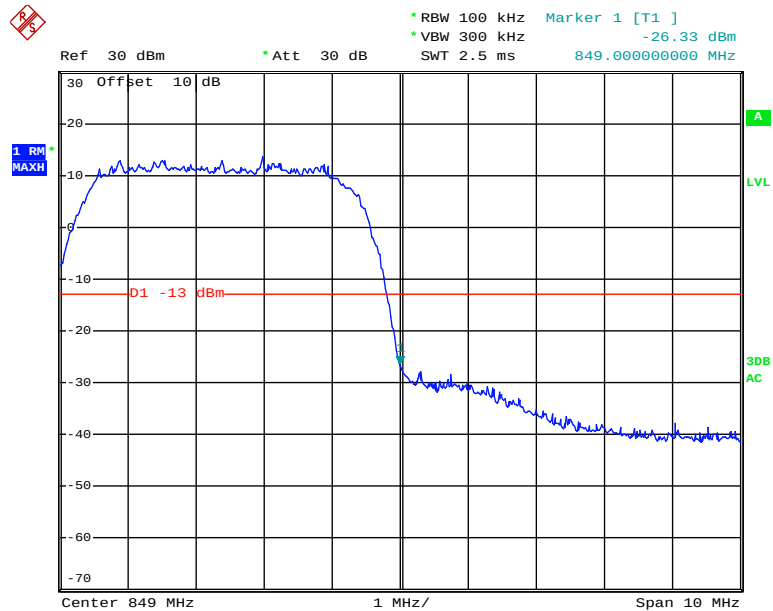
WCDMA Band V

REL99 Band V, Left Band Edge



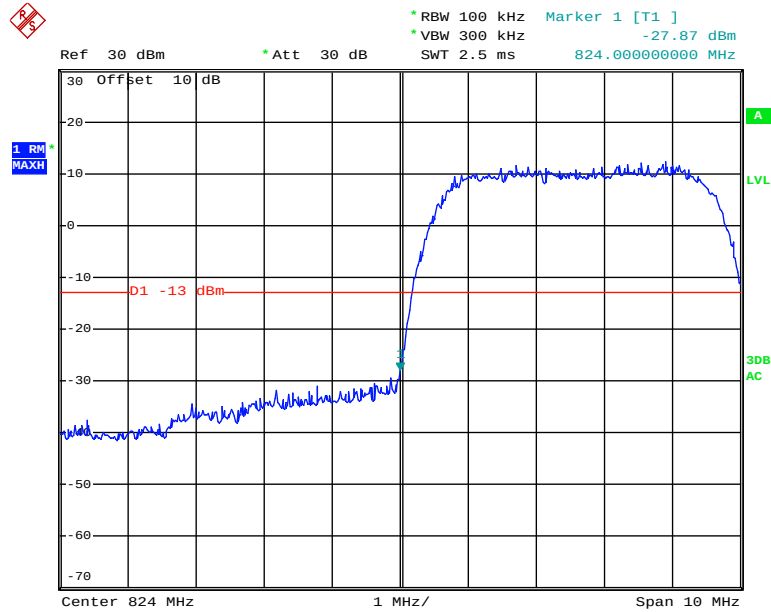
Date: 3.MAY.2016 13:02:22

REL99 Band V Right Band Edge



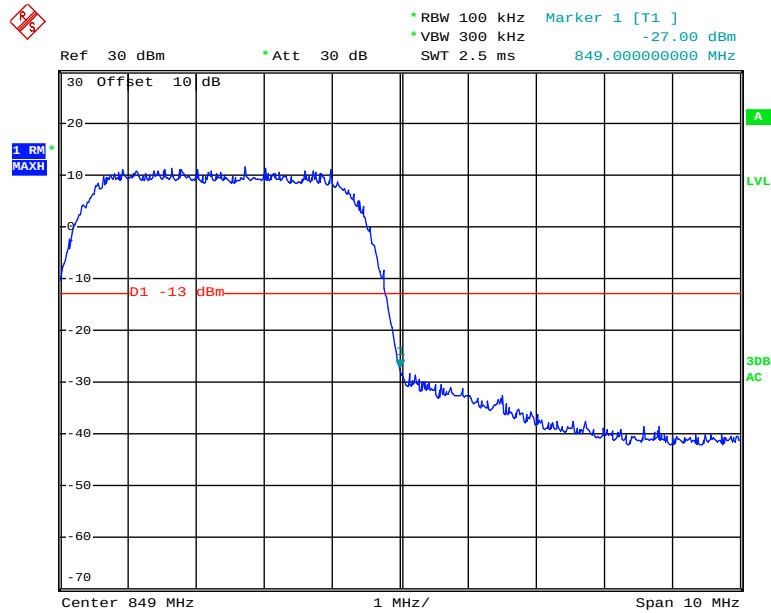
Date: 3.MAY.2016 13:04:26

### HSDPA Band V, Left Band Edge



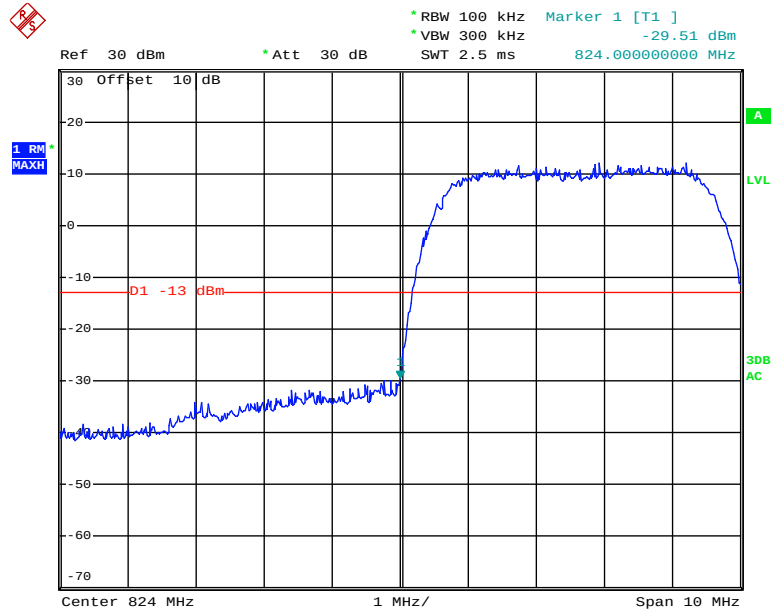
Date: 3.MAY.2016 13:01:18

### HSDPA Band V, Right Band Edge



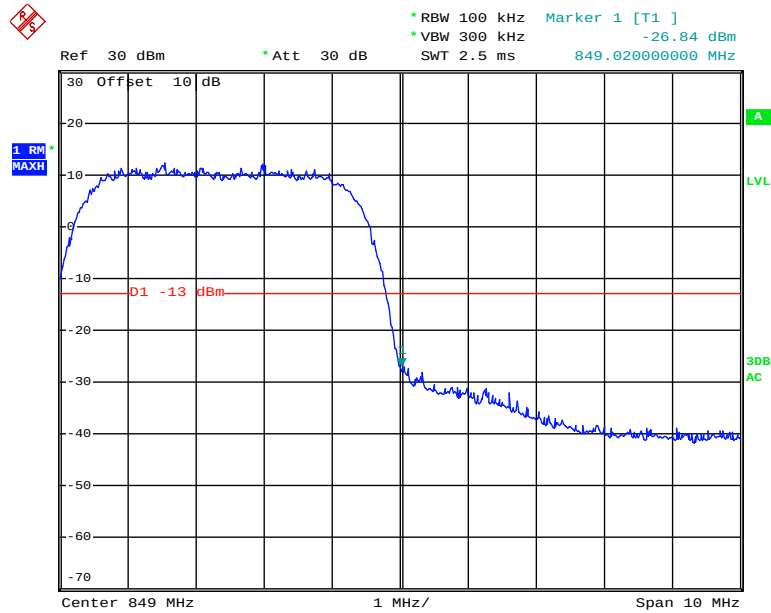
Date: 3.MAY.2016 13:00:27

### HSUPA Band V, Left Band Edge



Date: 3.MAY.2016 12:57:50

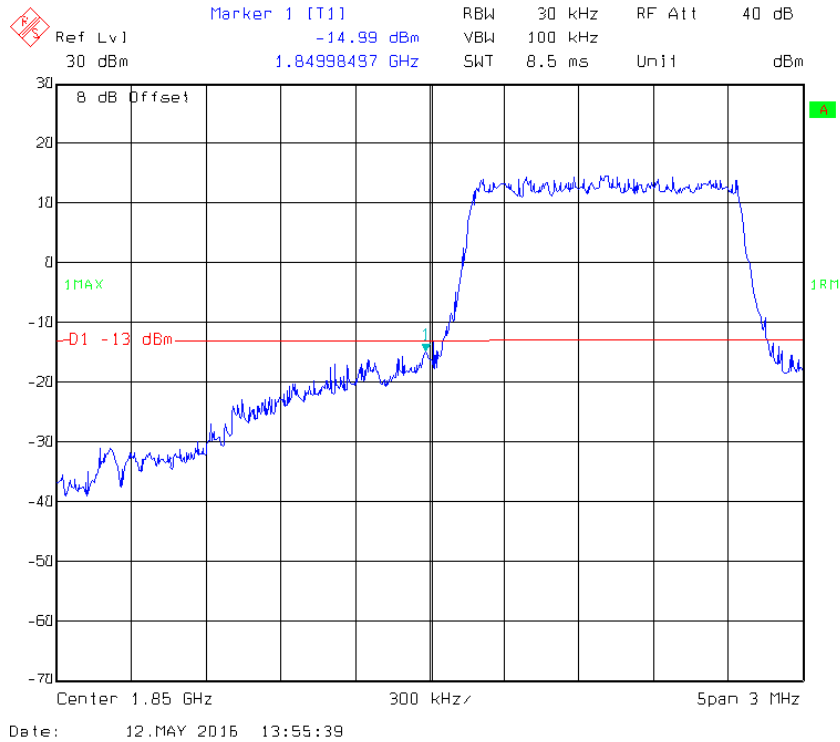
### HSUPA Band V, Right Band Edge



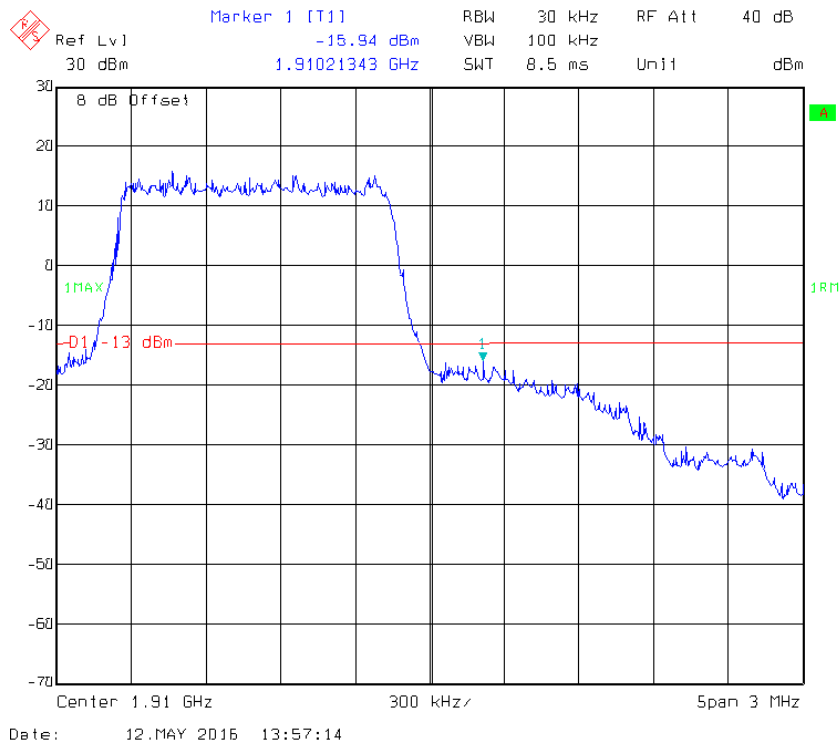
Date: 3.MAY.2016 12:59:34

**LTE Band II**

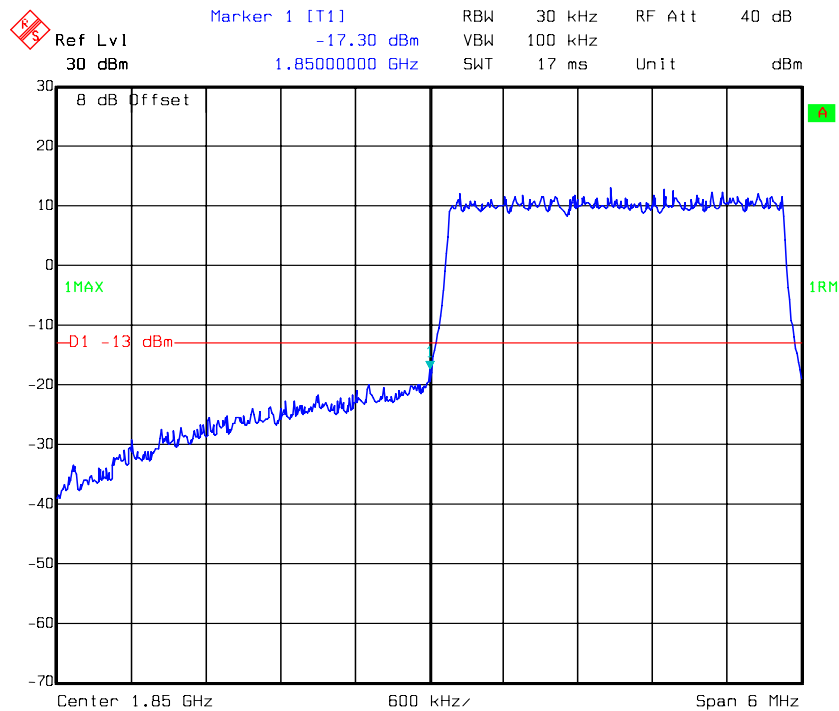
**QPSK\_1.4MHz\_FULL RB\_Left**



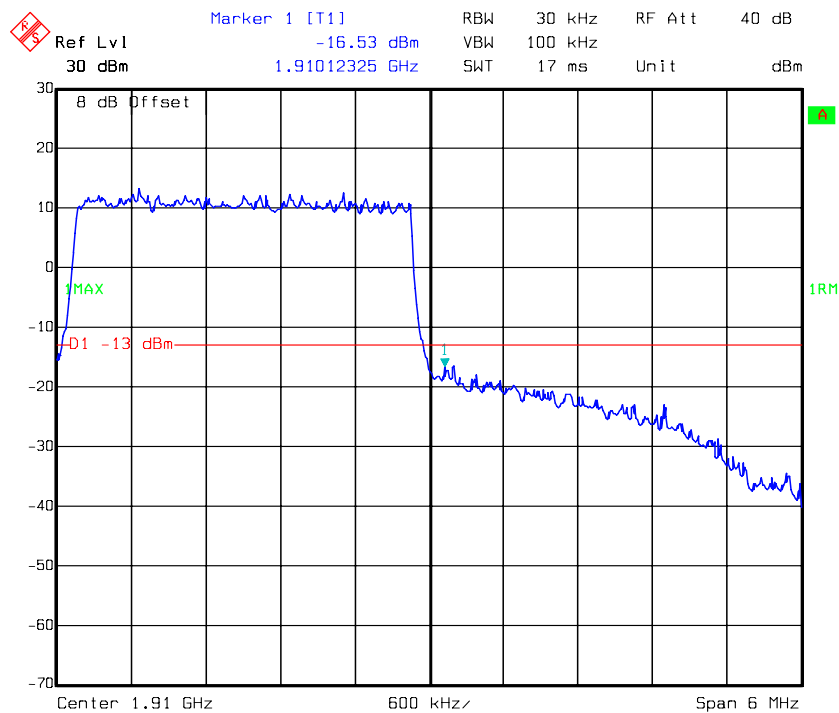
**QPSK\_1.4MHz\_FULL RB\_Right**



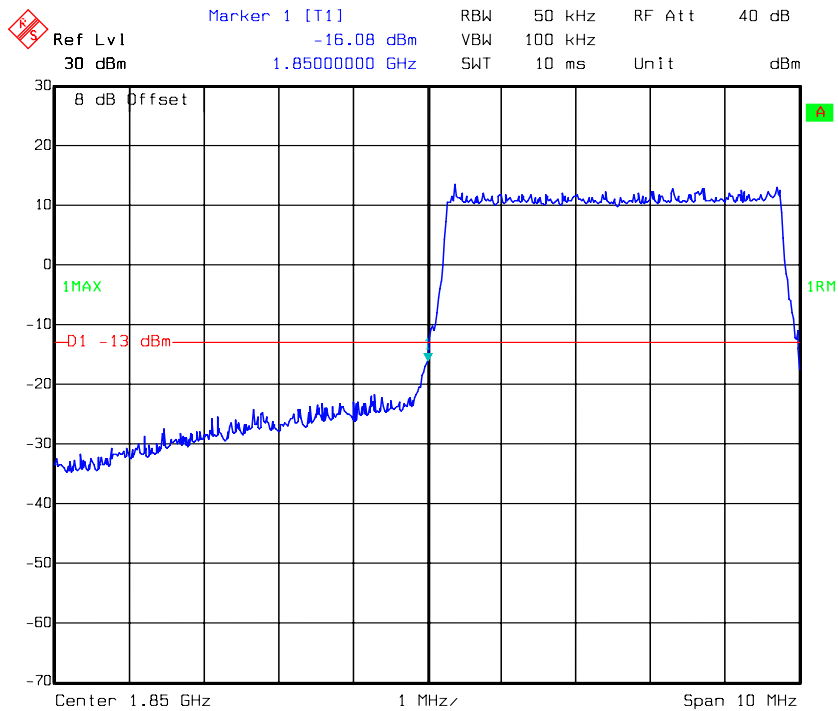
QPSK\_3MHz\_FULL RB\_Left



QPSK\_3MHz\_FULL RB\_Right

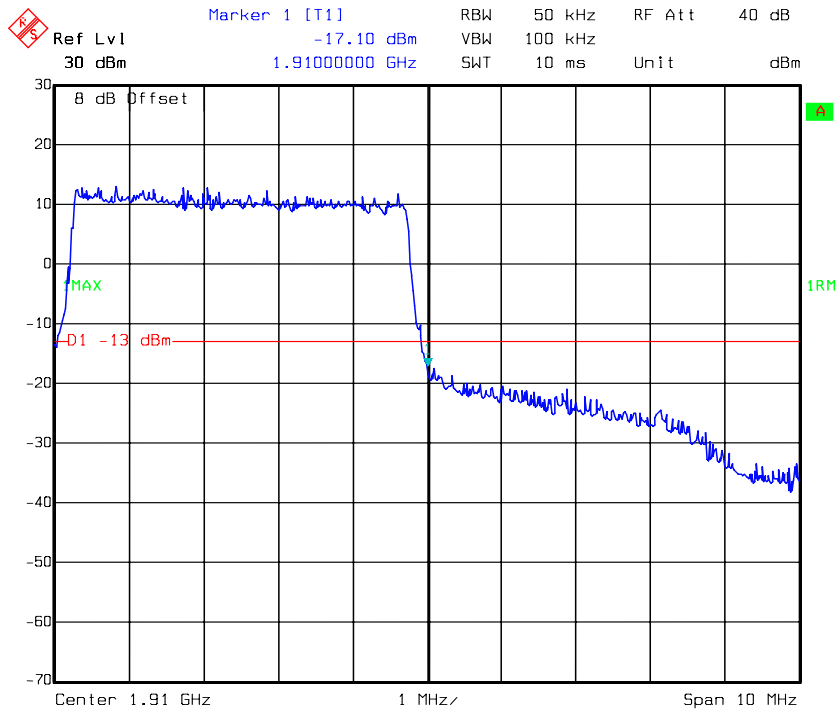


QPSK\_5MHz\_FULL RB\_ Left



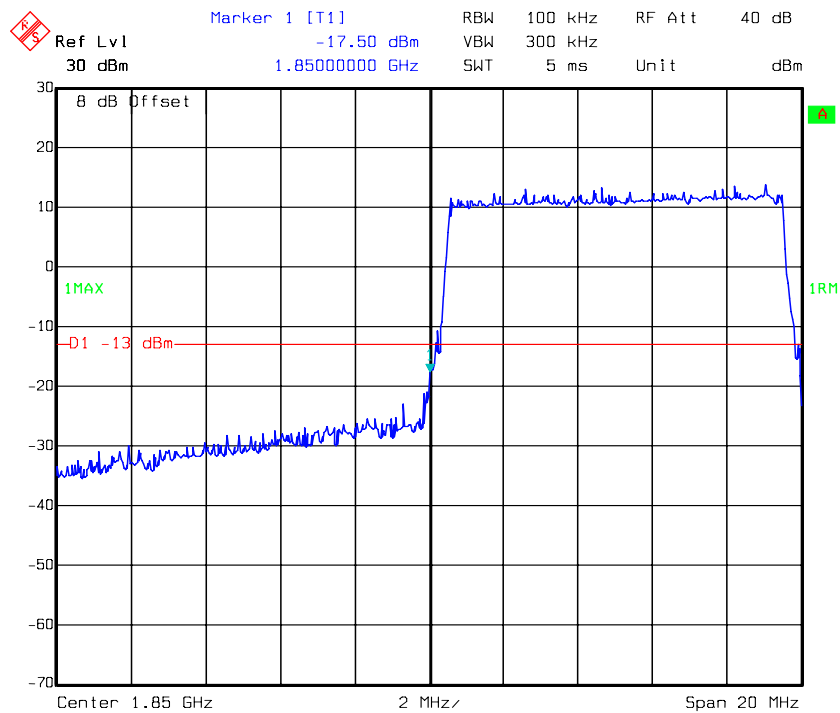
Date: 12.MAY 2016 14:08:11

QPSK\_5MHz\_FULL RB\_ Right



Date: 12.MAY 2016 14:11:06

QPSK\_10MHz\_FULL RB\_Left



Date: 12.MAY 2016 14:15:57

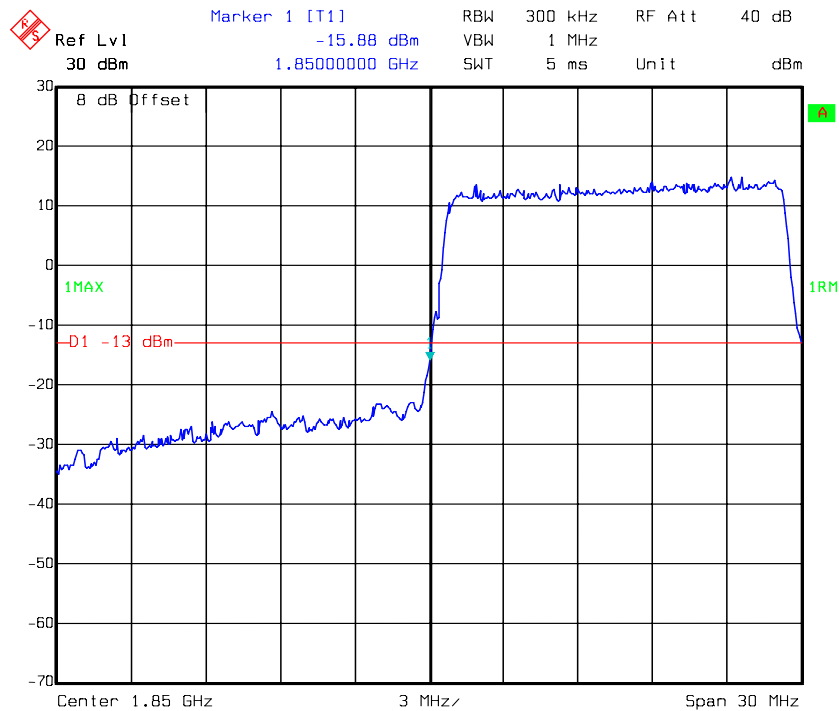
QPSK\_10MHz\_FULL RB\_Right



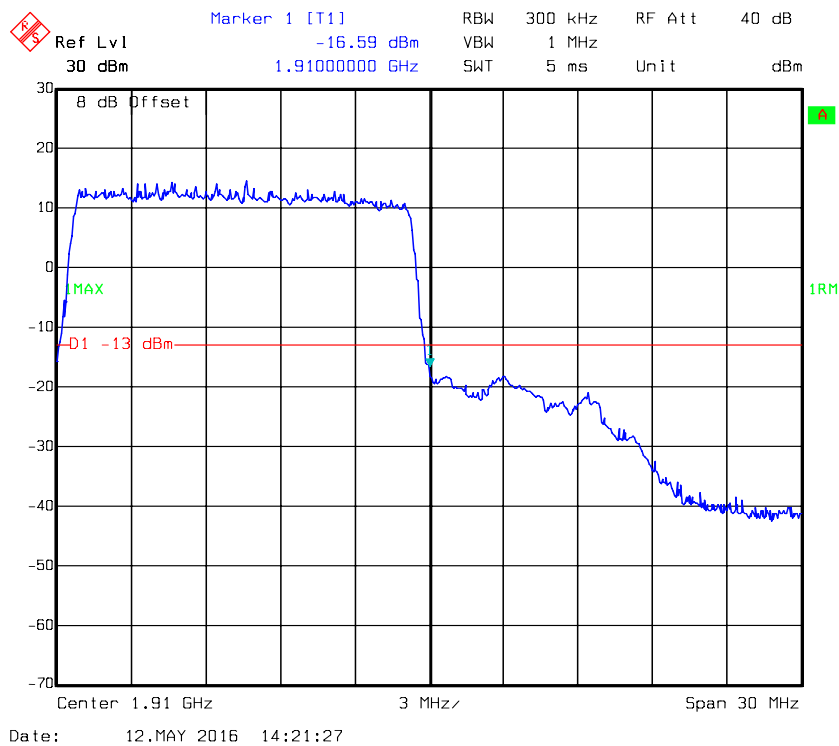
Date: 12.MAY 2016 14:14:52



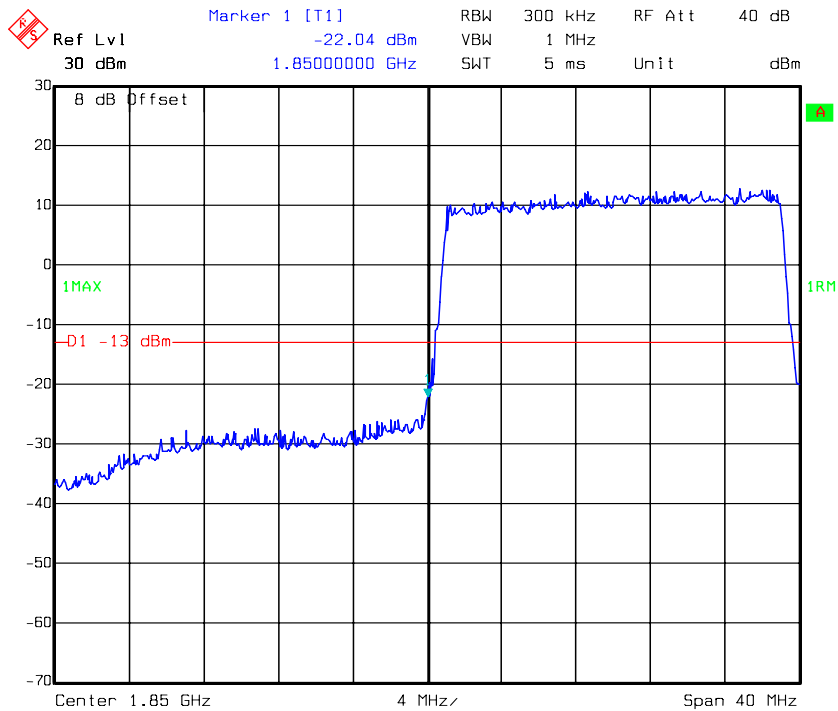
QPSK\_15MHz\_FULL RB\_Left



QPSK\_15MHz\_FULL RB\_Right

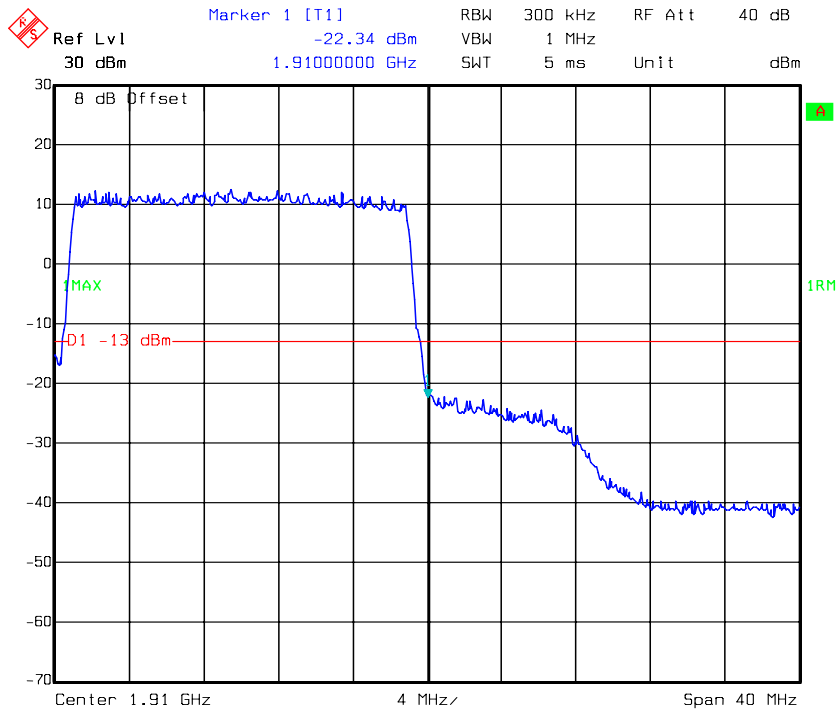


QPSK\_20MHz\_FULL RB\_Left



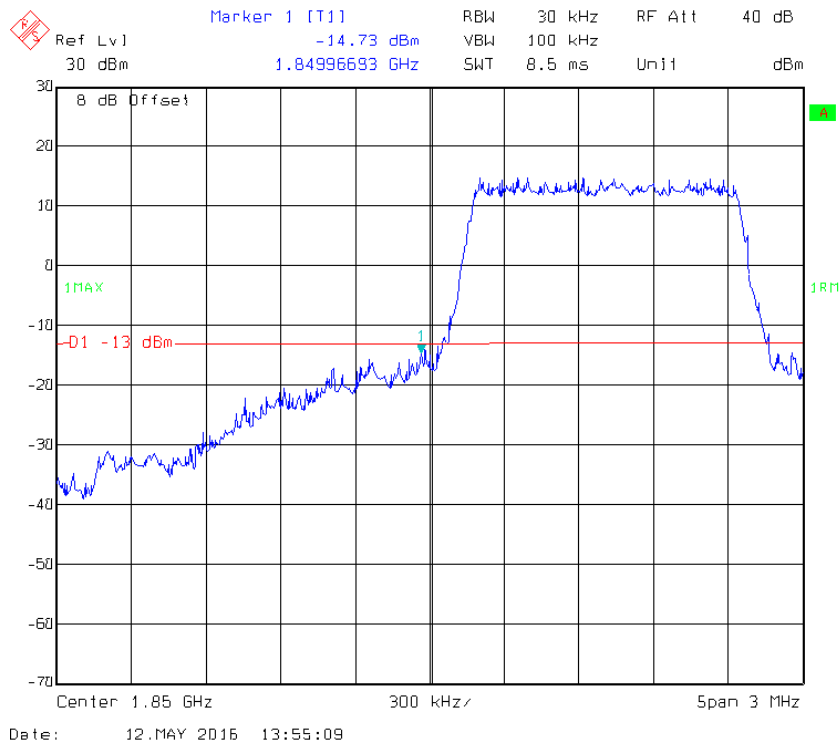
Date: 12.MAY 2016 14:24:52

QPSK\_20MHz\_FULL RB\_Right

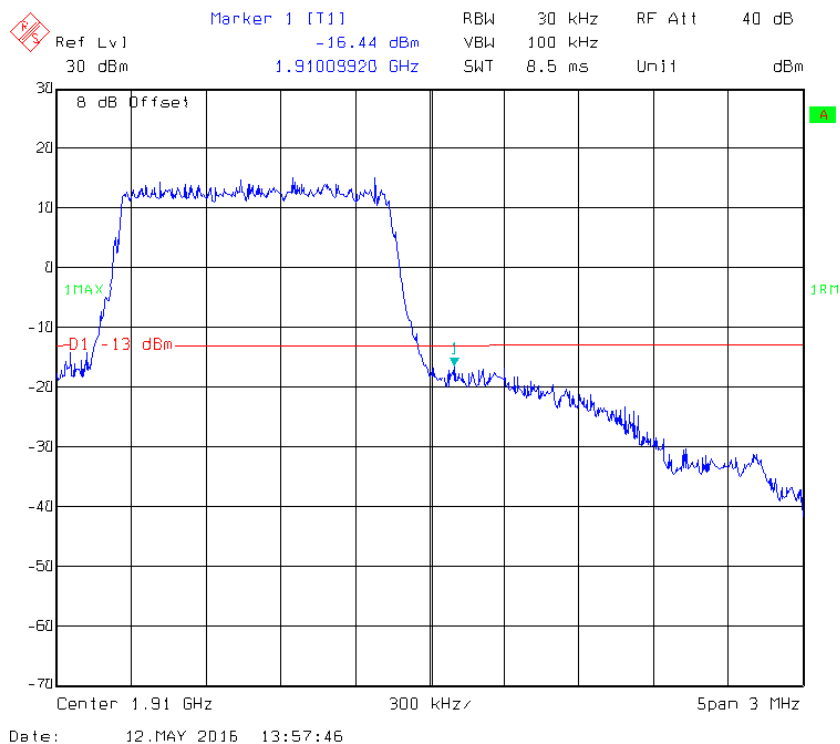


Date: 12.MAY 2016 14:23:46

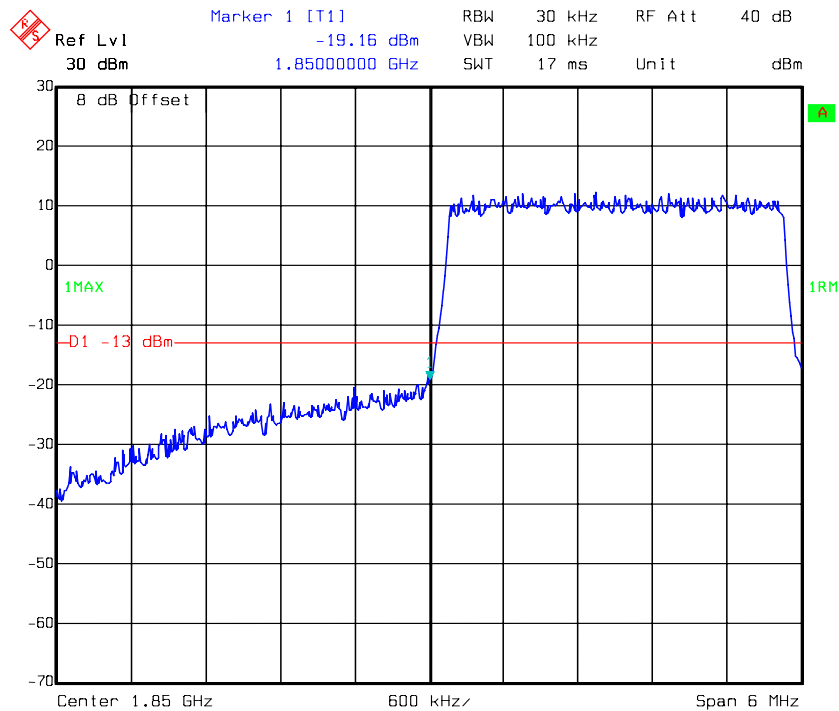
16QAM\_1.4MHz\_FULL RB\_Left



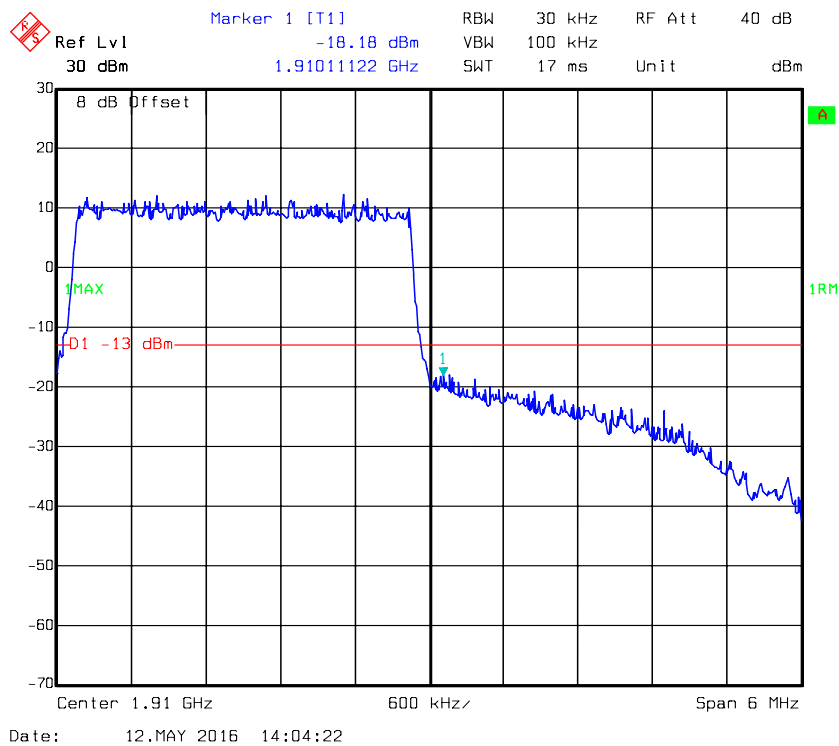
16QAM\_1.4MHz\_FULL RB\_Right



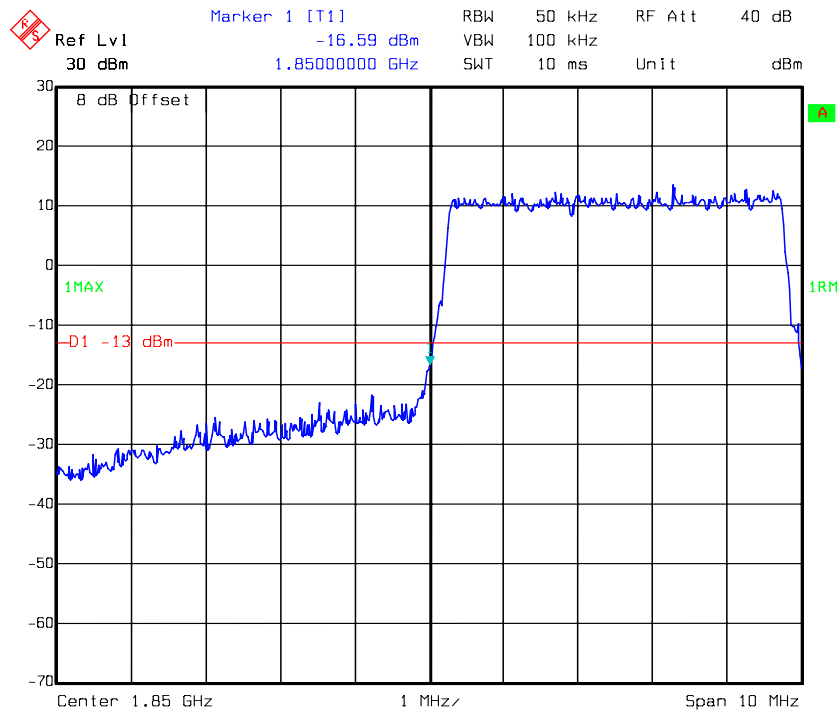
16QAM\_3MHz\_FULL RB\_Left



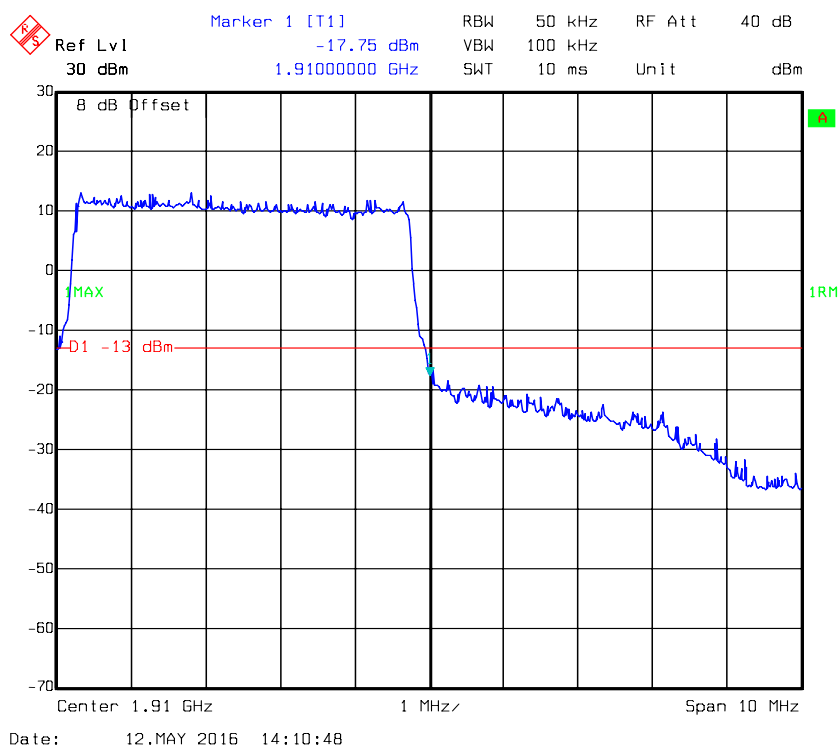
16QAM\_3M\_FULL RB\_Right



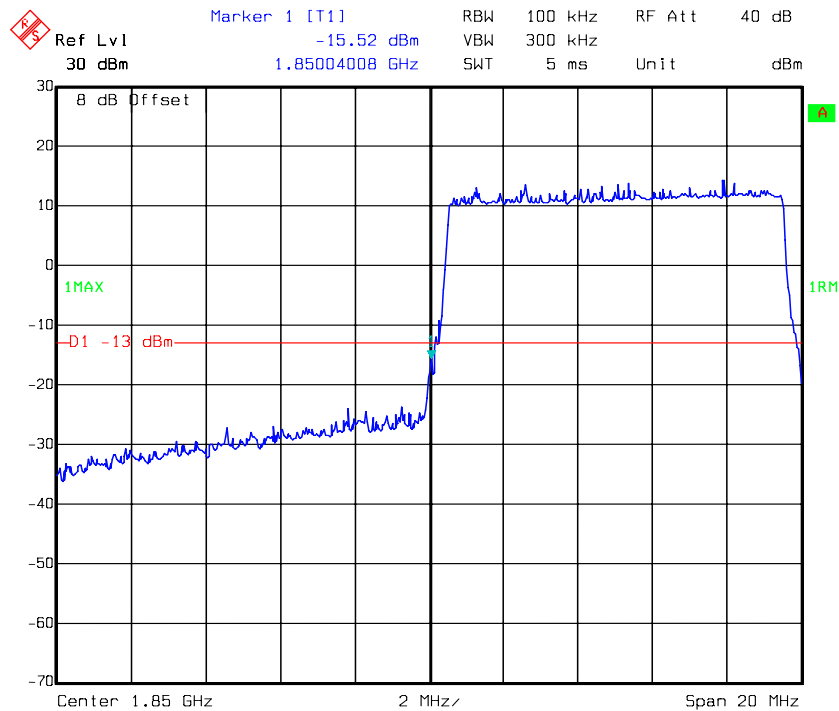
16QAM\_5MHz\_FULL RB\_Left



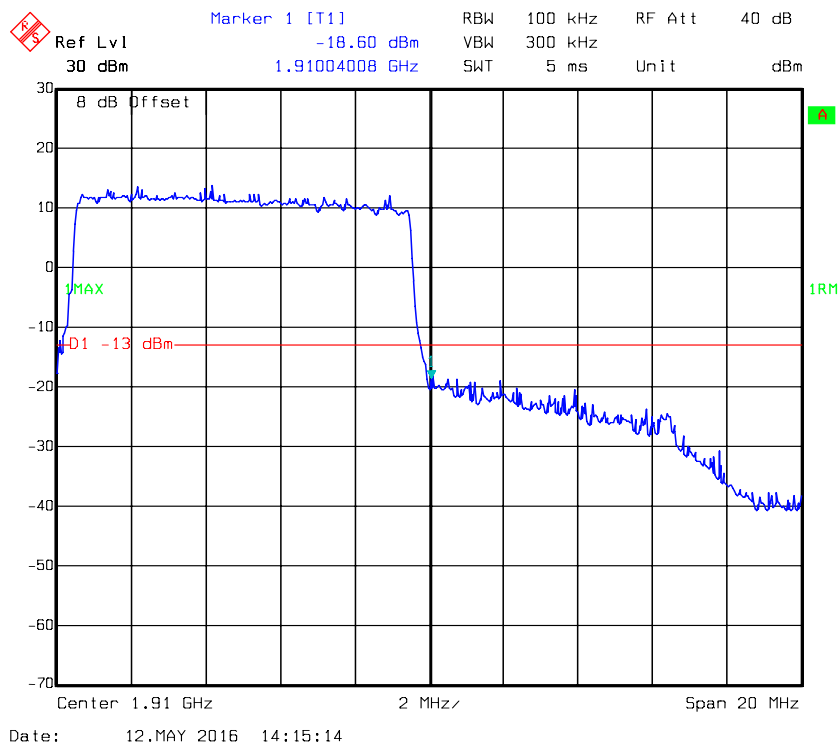
16QAM\_5MHz\_FULL RB\_Right



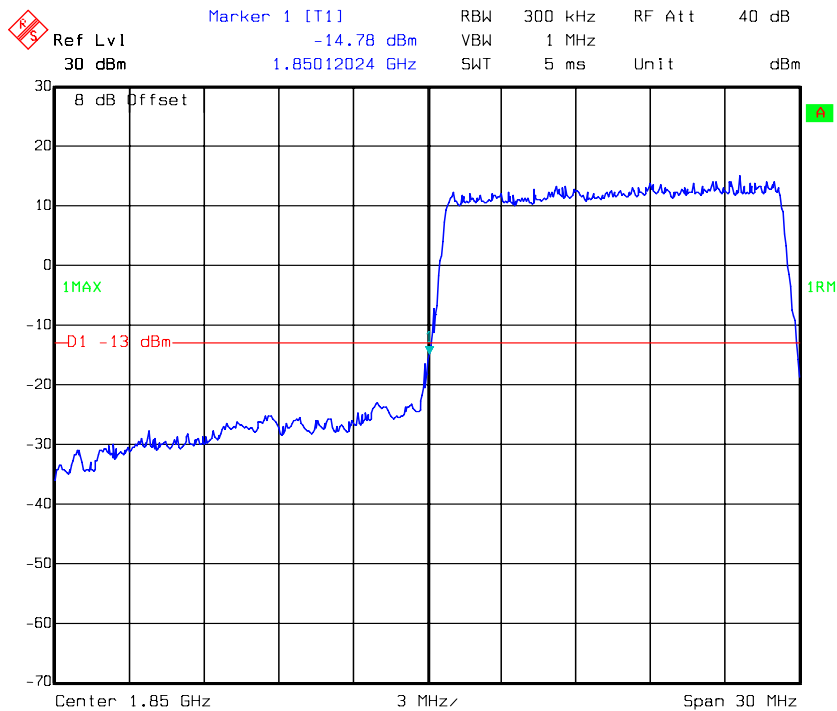
16QAM\_10MHz\_FULL RB\_ Left



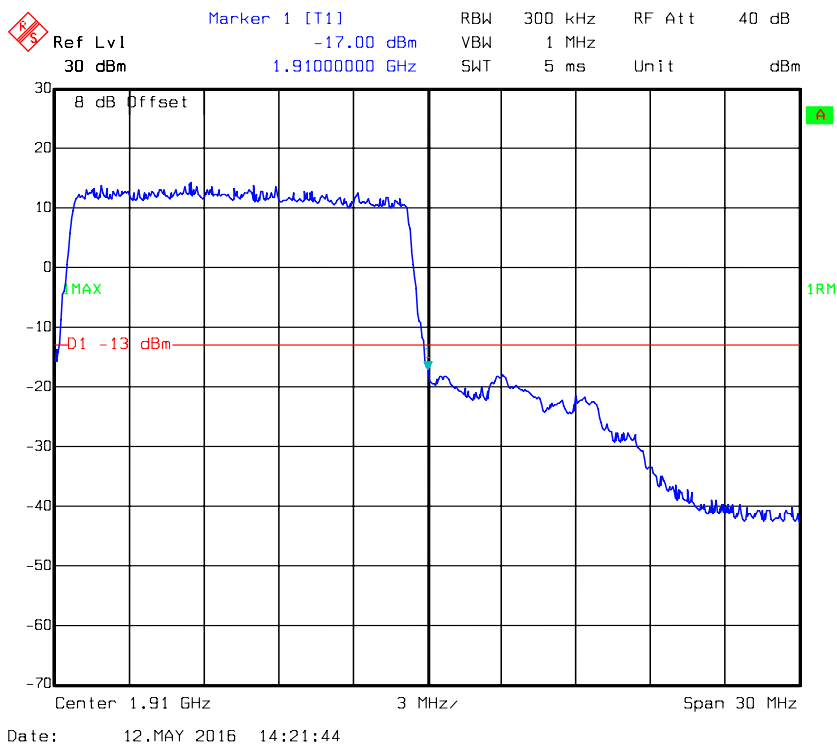
16QAM\_10MHz\_FULL RB\_ Right



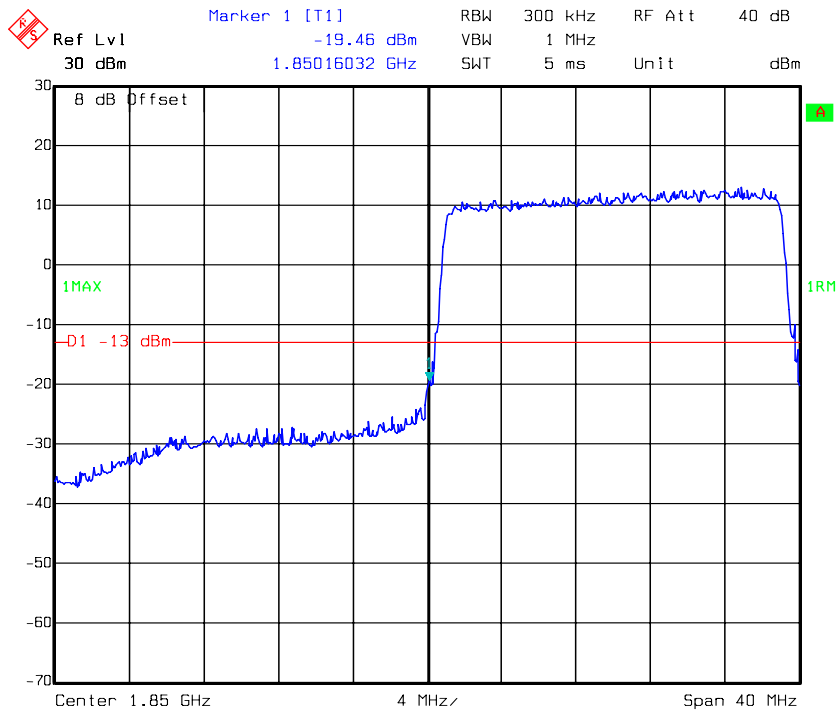
16QAM\_15MHz\_FULL RB\_ Left



16QAM\_15MHz\_FULL RB\_ Right

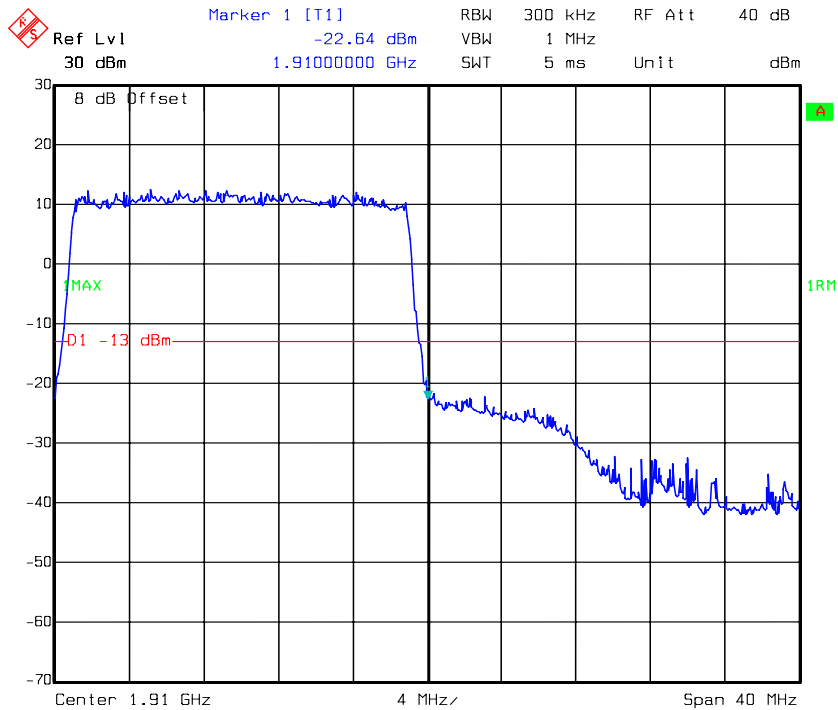


16QAM\_20MHz\_FULL RB\_Left



Date: 12.MAY 2016 14:25:23

16QAM\_20MHz\_FULL RB\_Right

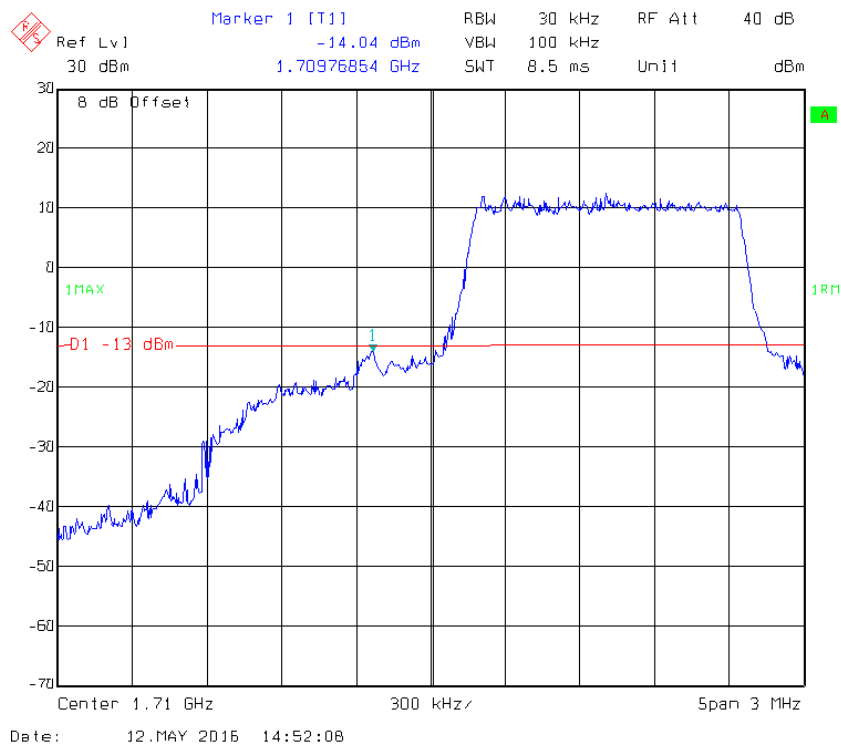


Date: 12.MAY 2016 14:24:16

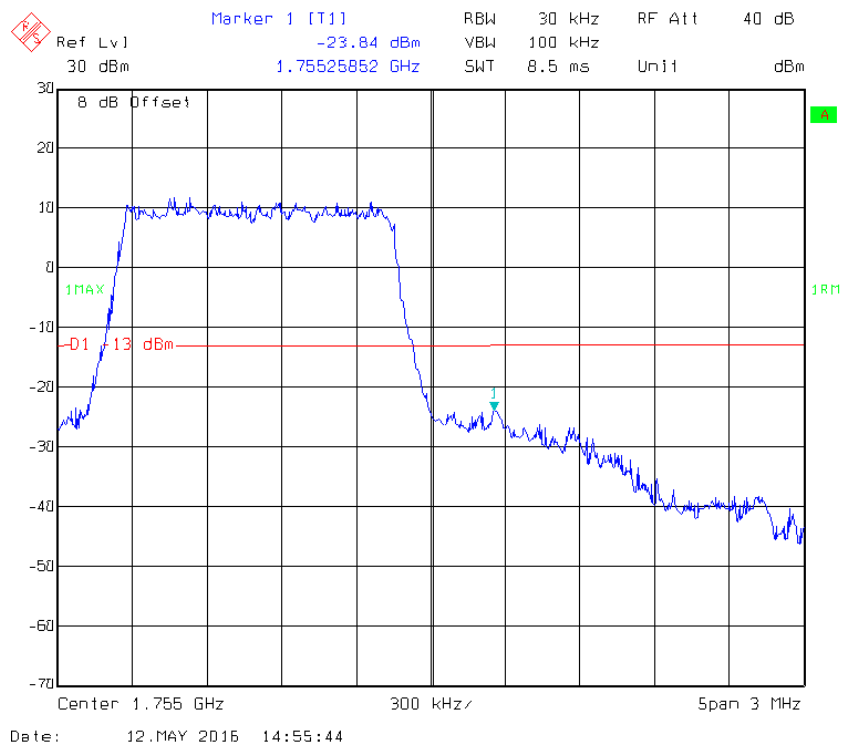


## LTE Band IV

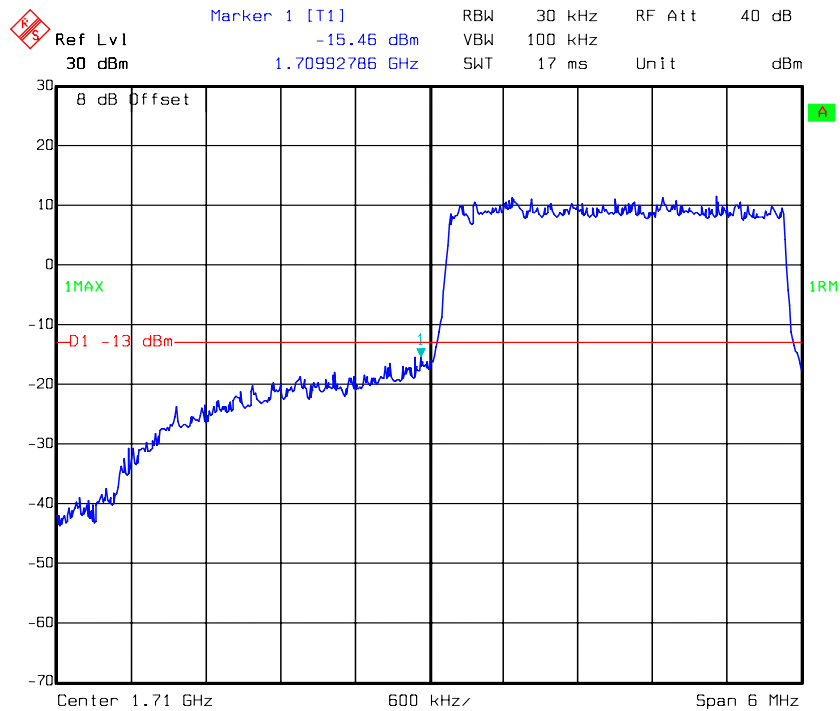
## QPSK\_1.4MHz\_FULL RB\_Left



## QPSK\_1.4MHz\_FULL RB\_Right

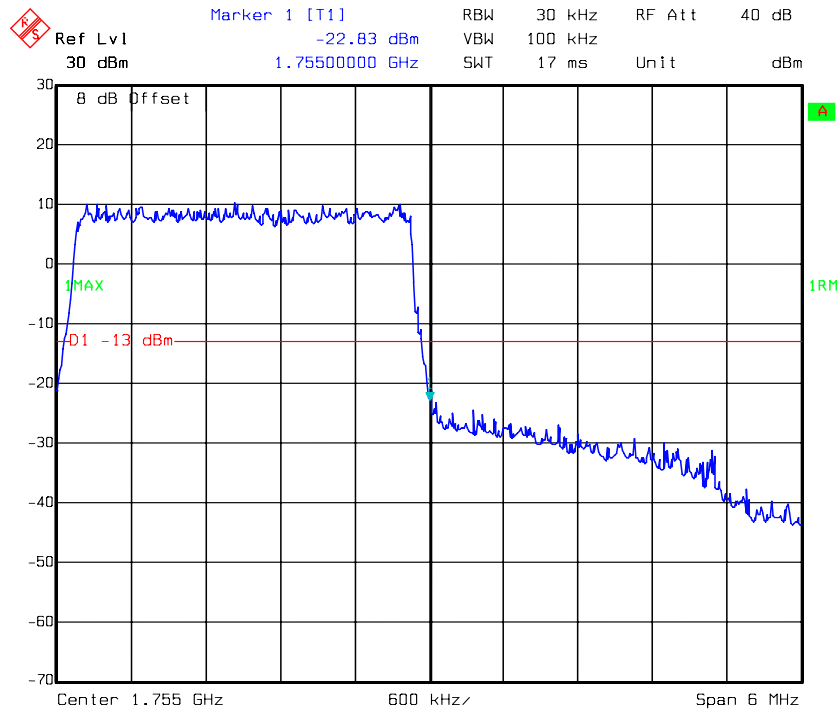


QPSK\_3MHz\_FULL RB\_Left



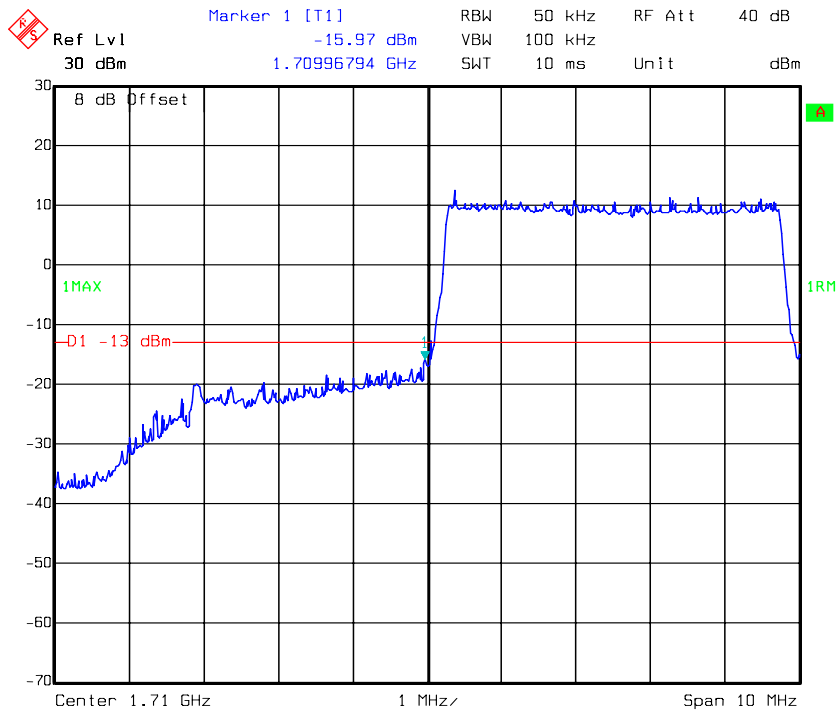
Date: 12.MAY 2016 15:18:59

QPSK\_3MHz\_FULL RB\_Right



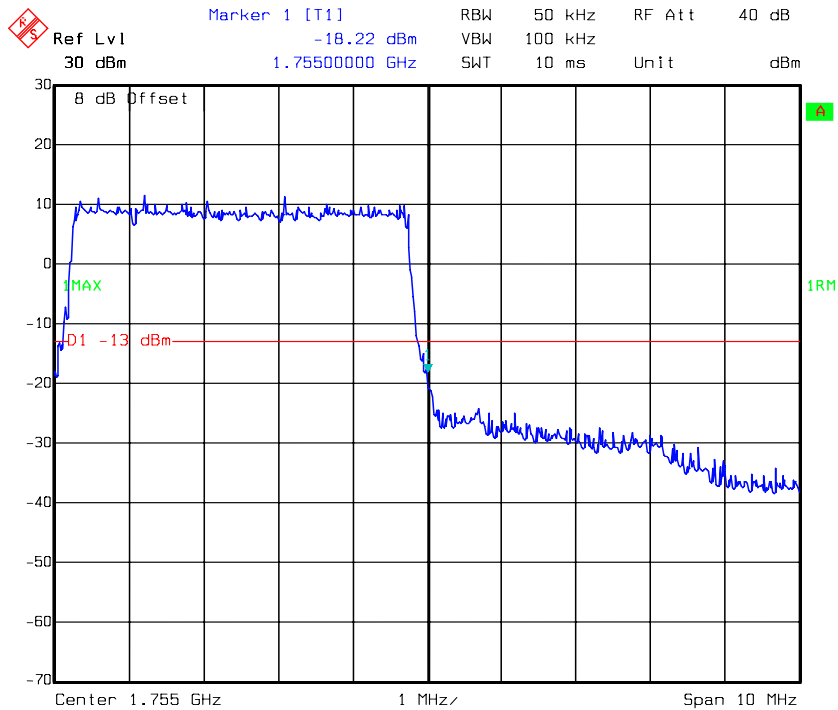
Date: 12.MAY 2016 15:18:04

QPSK\_5MHz\_FULL RB\_Left



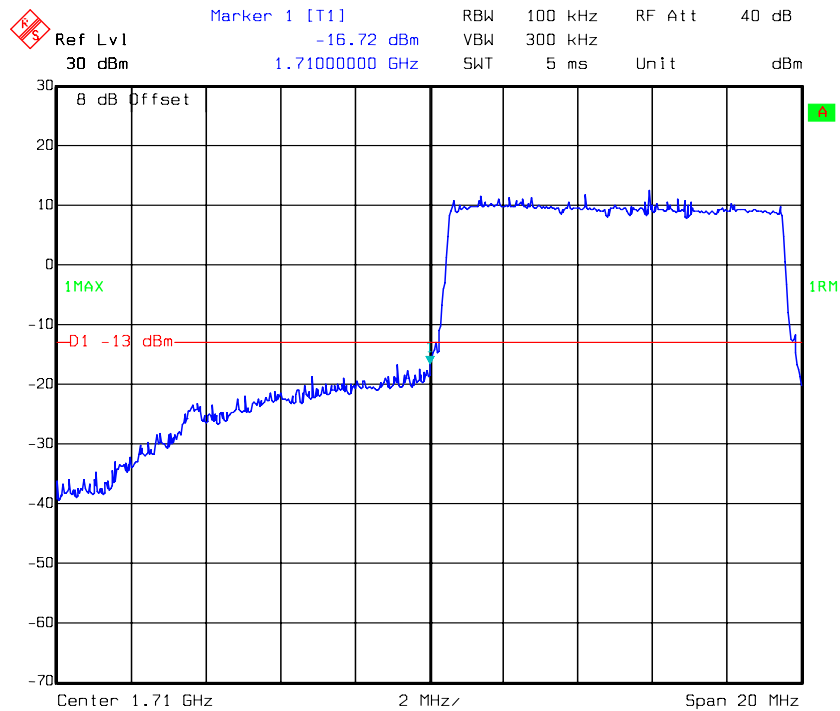
Date: 12.MAY 2016 15:22:38

QPSK\_5MHz\_FULL RB\_Right



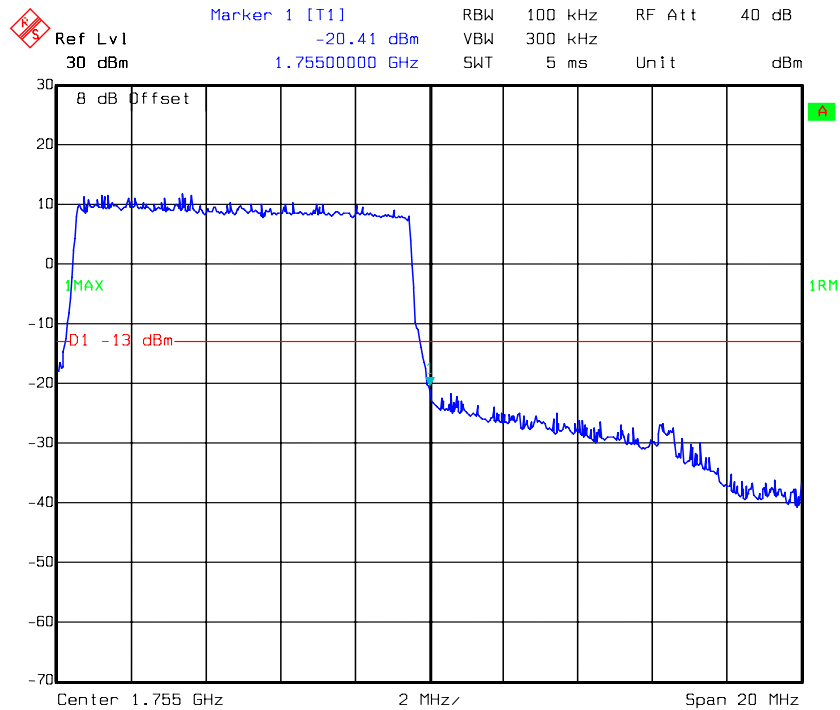
Date: 12.MAY 2016 15:24:32

*QPSK\_10MHz\_FULL RB\_Left*



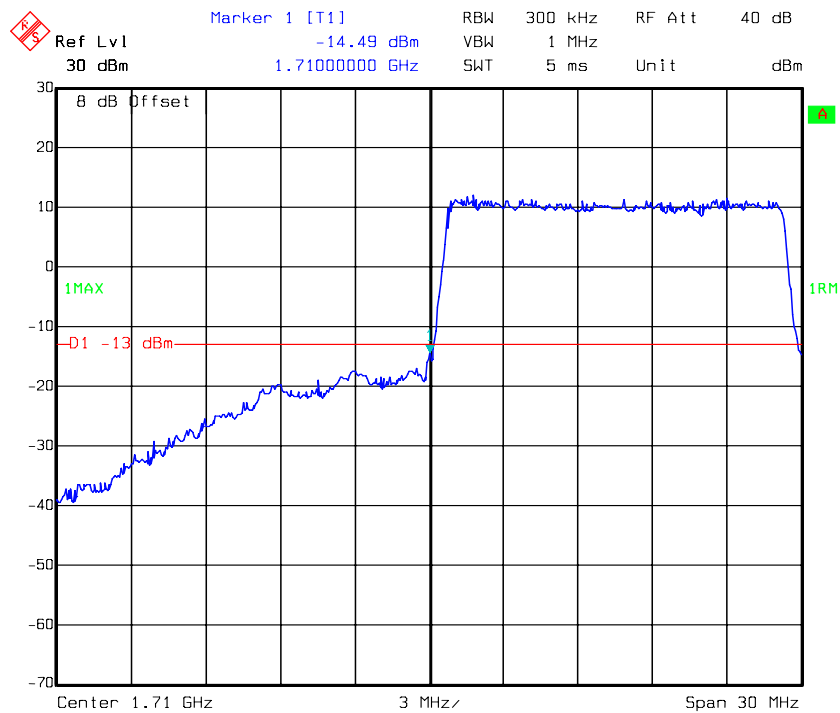
Date: 12.MAY 2016 15:46:14

*QPSK\_10MHz\_FULL RB\_Right*



Date: 12.MAY 2016 15:27:14

## QPSK\_15MHz\_FULL RB\_Left



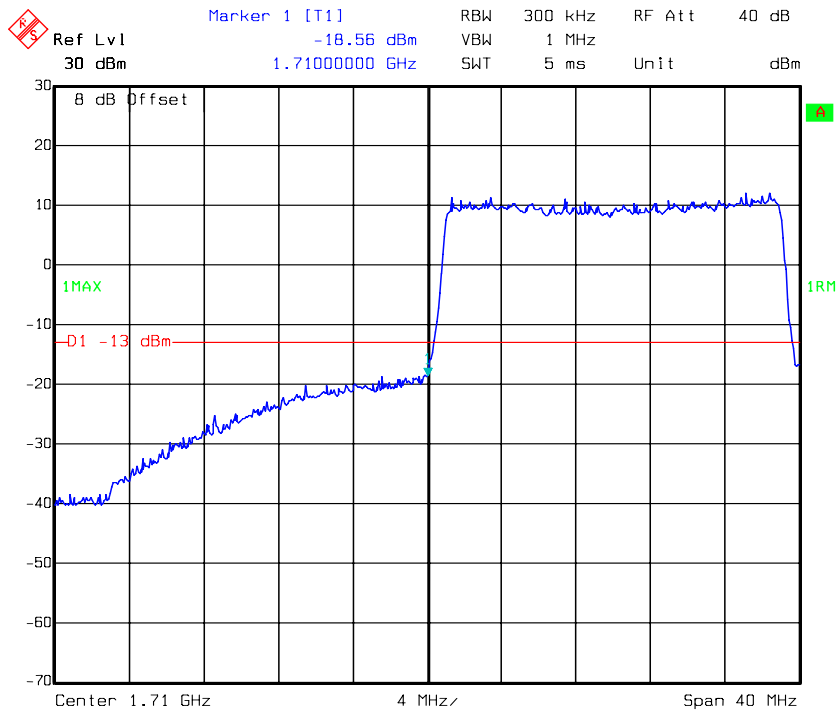
Date: 12.MAY 2016 15:34:57

## QPSK\_15MHz\_FULL RB\_Right



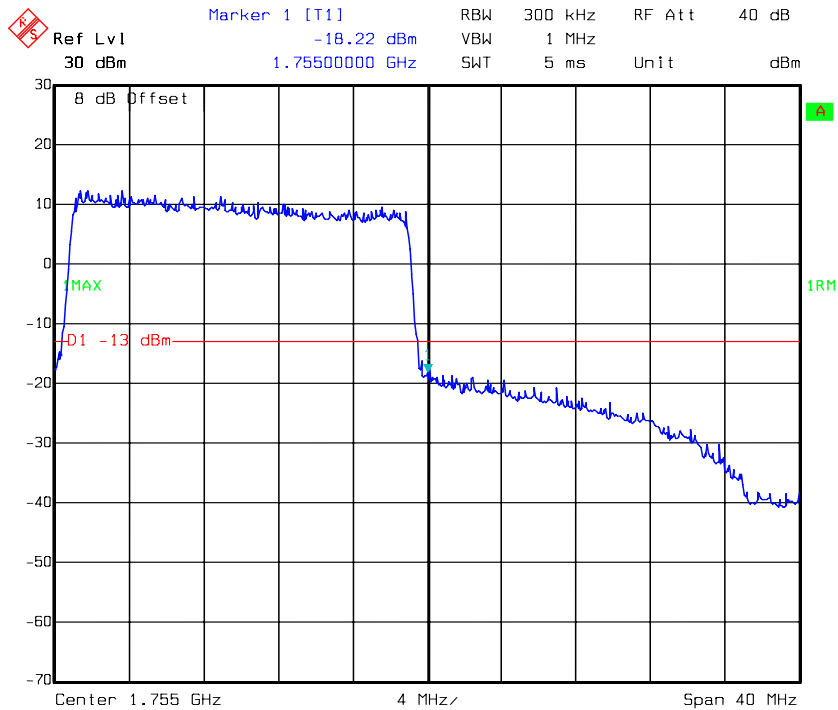
Date: 12.MAY 2016 15:36:23

QPSK\_20MHz\_FULL RB\_Left



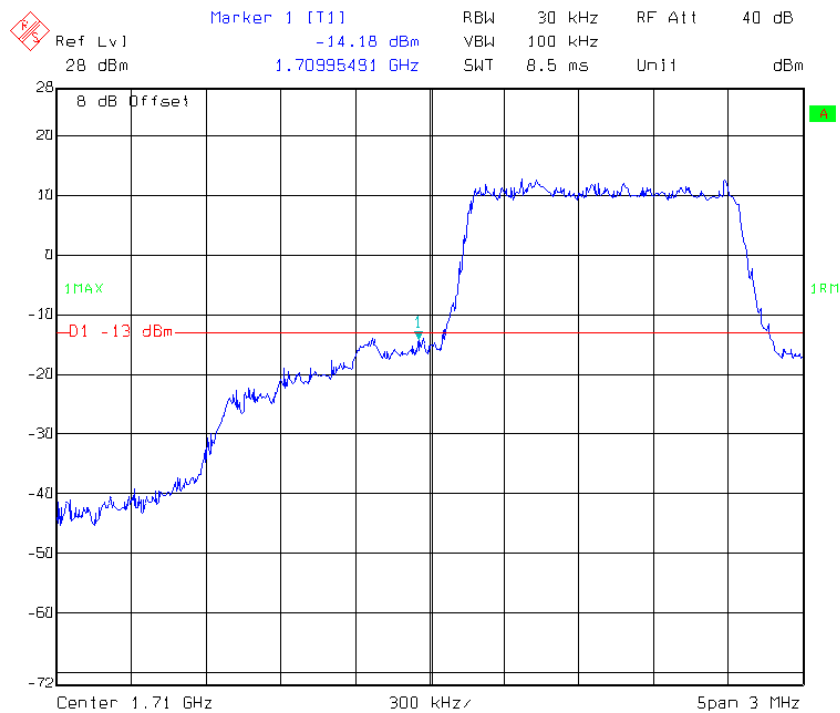
Date: 12.MAY 2016 15:39:54

QPSK\_20MHz\_FULL RB\_Right

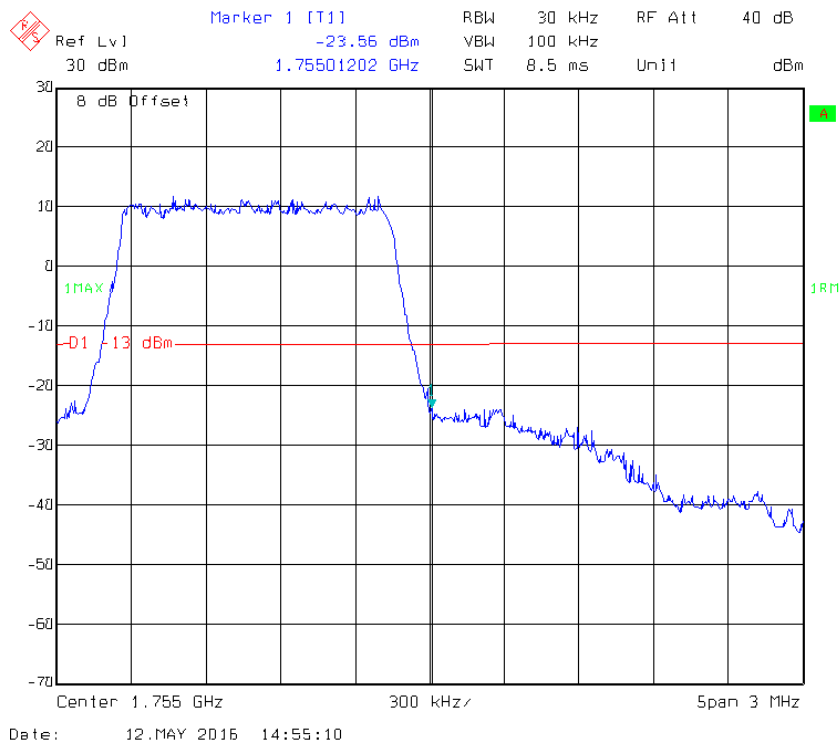


Date: 12.MAY 2016 15:38:22

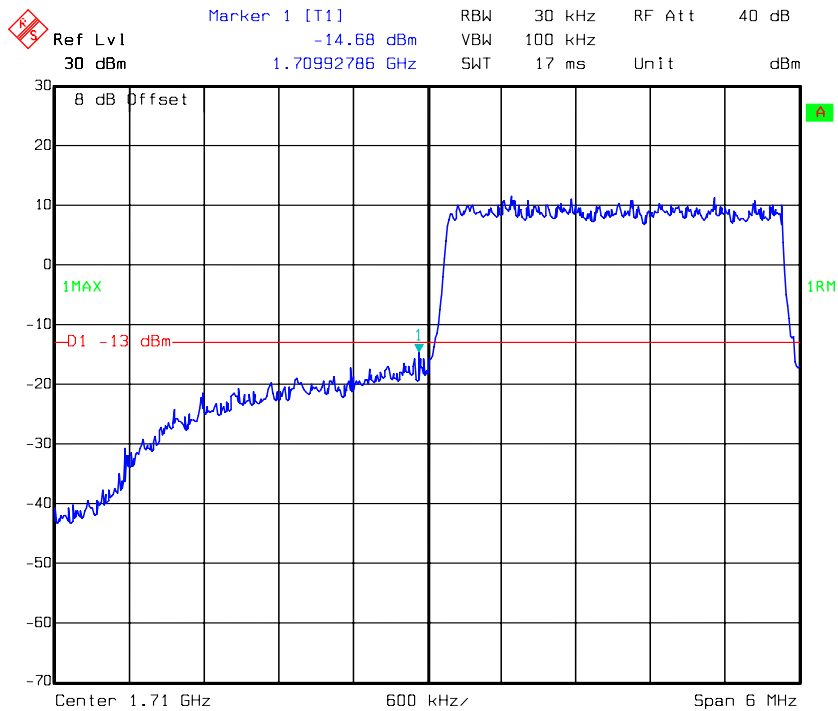
16QAM\_1.4MHz\_FULL RB\_Left



16QAM\_1.4MHz\_FULL RB\_Right

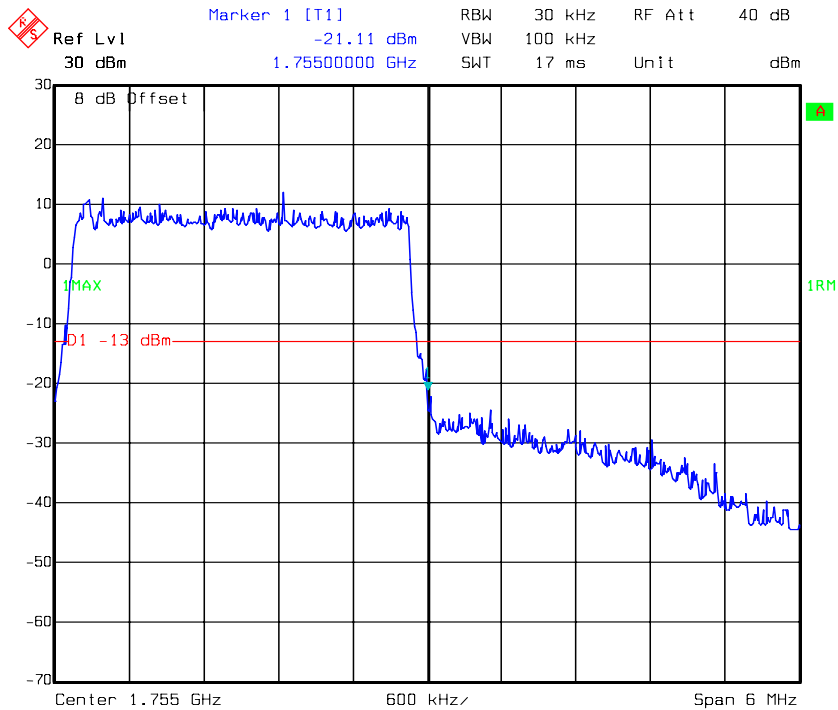


16QAM\_3MHz\_FULL RB\_Left



Date: 12.MAY 2016 15:19:20

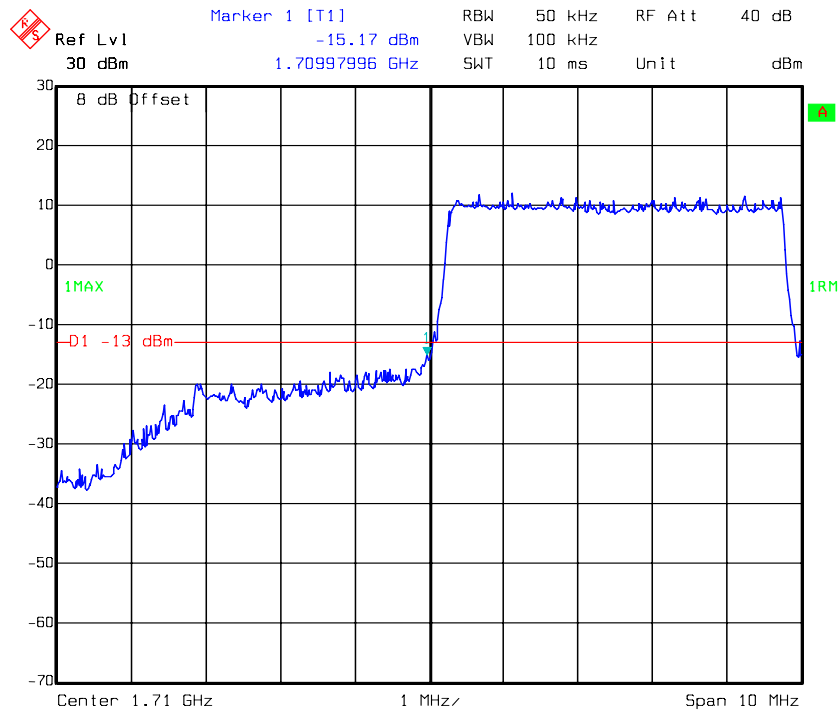
16QAM\_3M\_FULL RB\_Right



Date: 12.MAY 2016 15:18:17

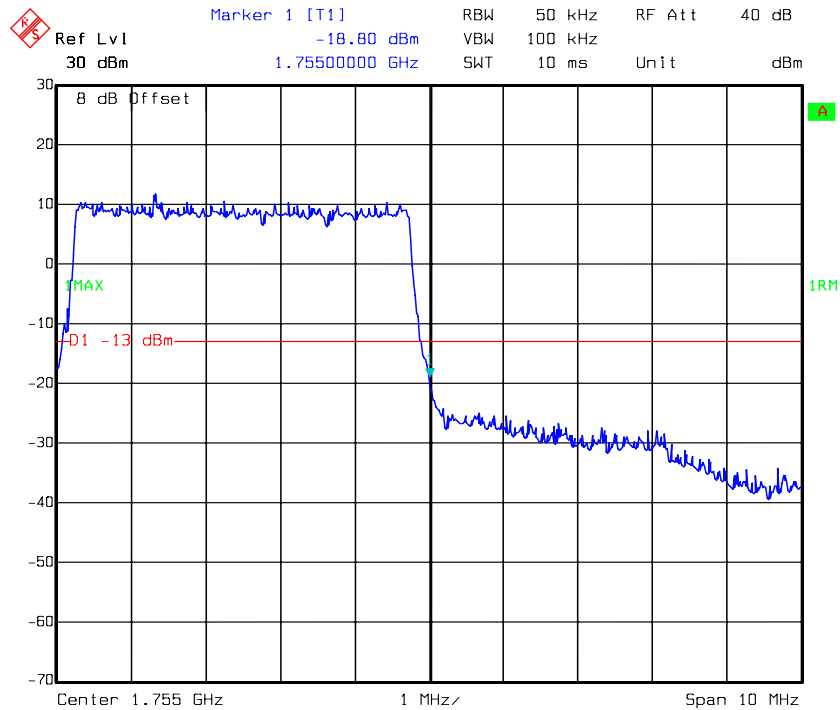


16QAM\_5MHz\_FULL RB\_ Left



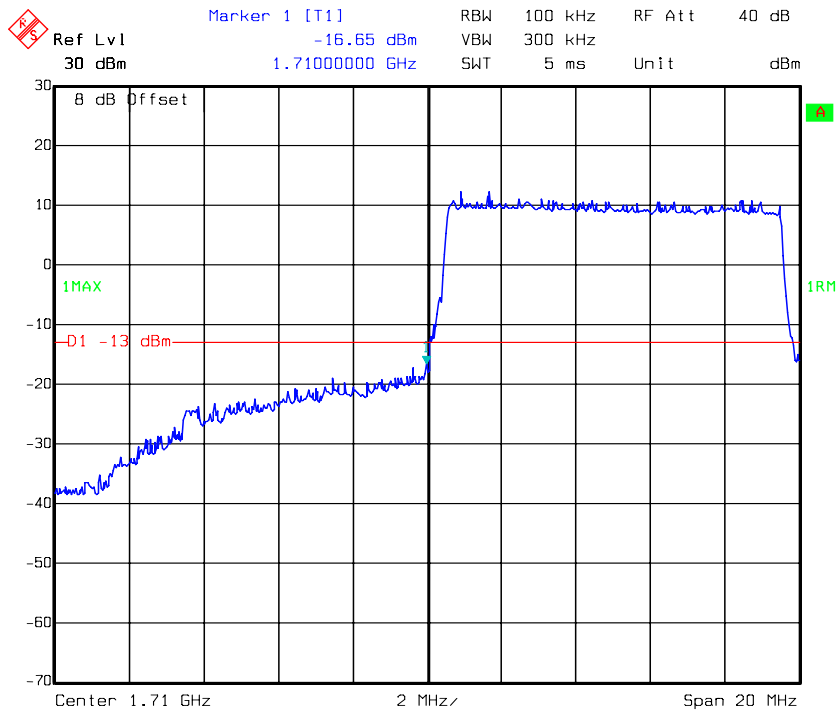
Date: 12.MAY 2016 15:43:59

16QAM\_5MHz\_FULL RB\_ Right



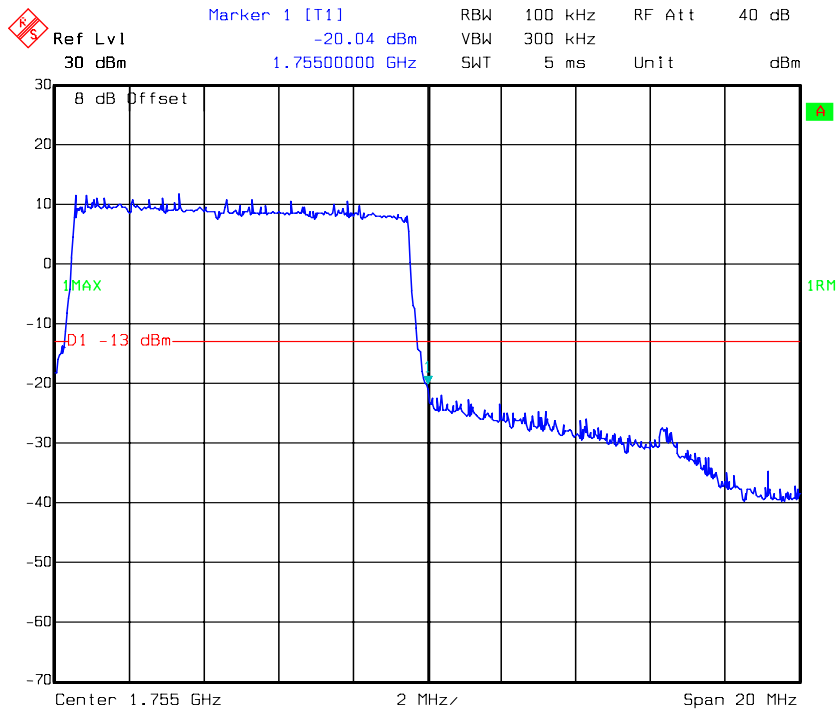
Date: 12.MAY 2016 15:24:48

16QAM\_10MHz\_FULL RB\_Left



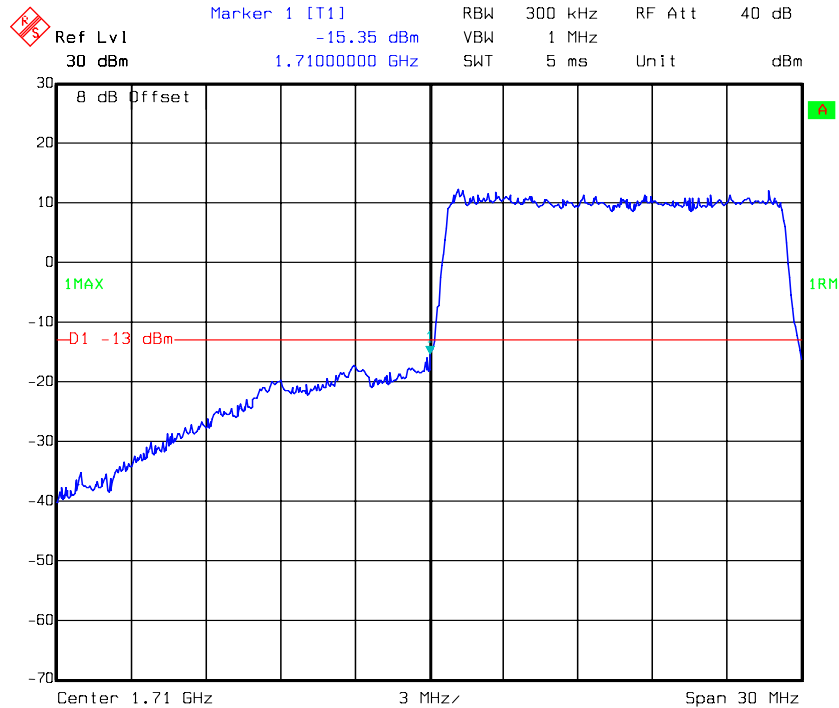
Date: 12.MAY 2016 15:30:28

16QAM\_10MHz\_FULL RB\_Right



Date: 12.MAY 2016 15:29:03

16QAM\_15MHz\_FULL RB\_ Left



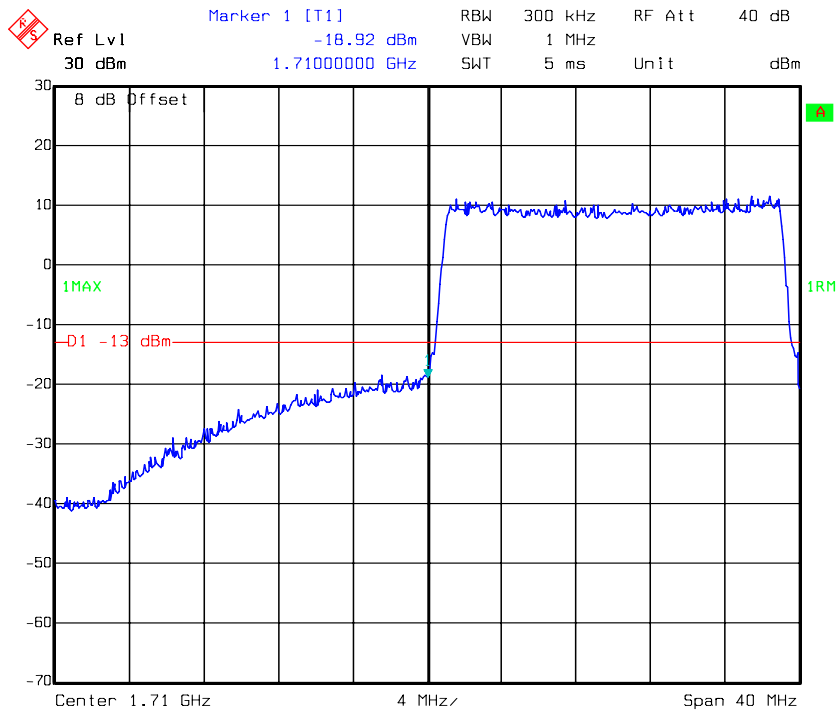
Date: 12.MAY 2016 15:35:25

16QAM\_15MHz\_FULL RB\_ Right



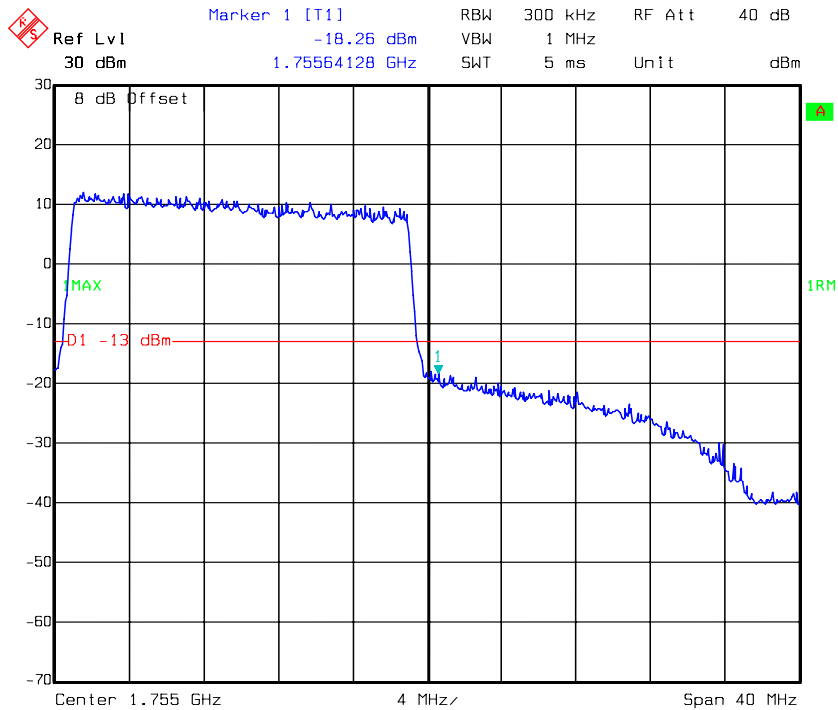
Date: 12.MAY 2016 15:36:42

16QAM\_20MHz\_FULL RB\_Left

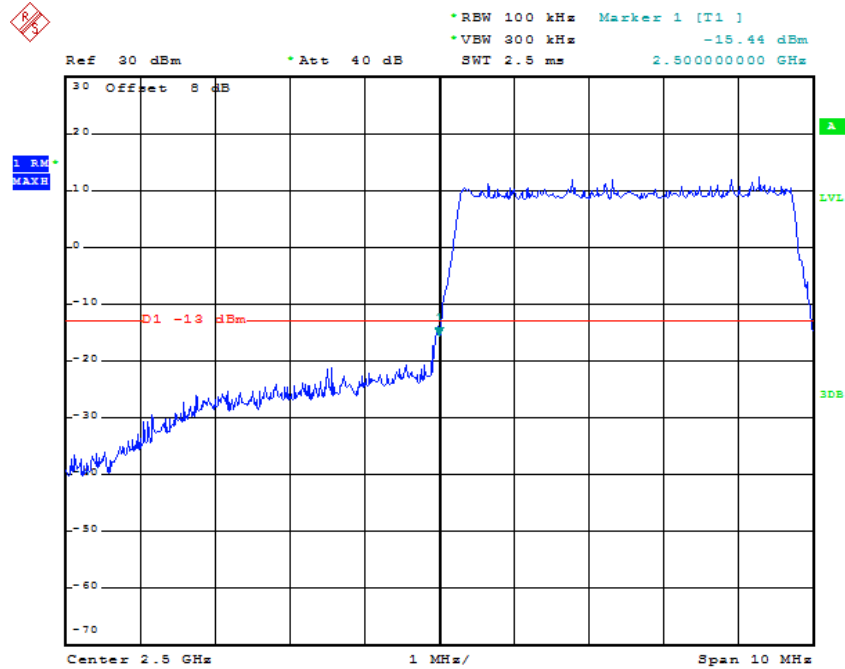


Date: 12.MAY 2016 15:40:48

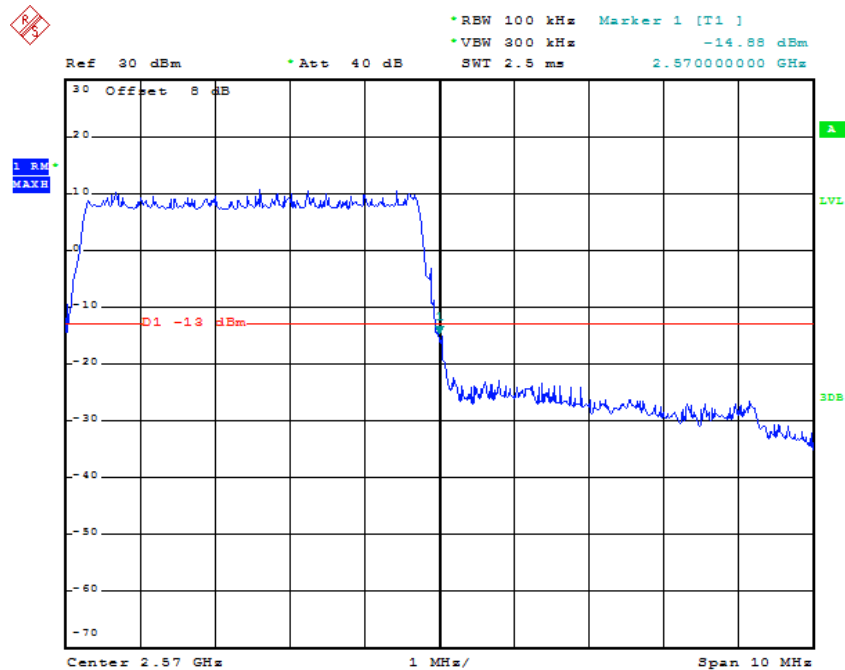
16QAM\_20MHz\_FULL RB\_Right



Date: 12.MAY 2016 15:38:42

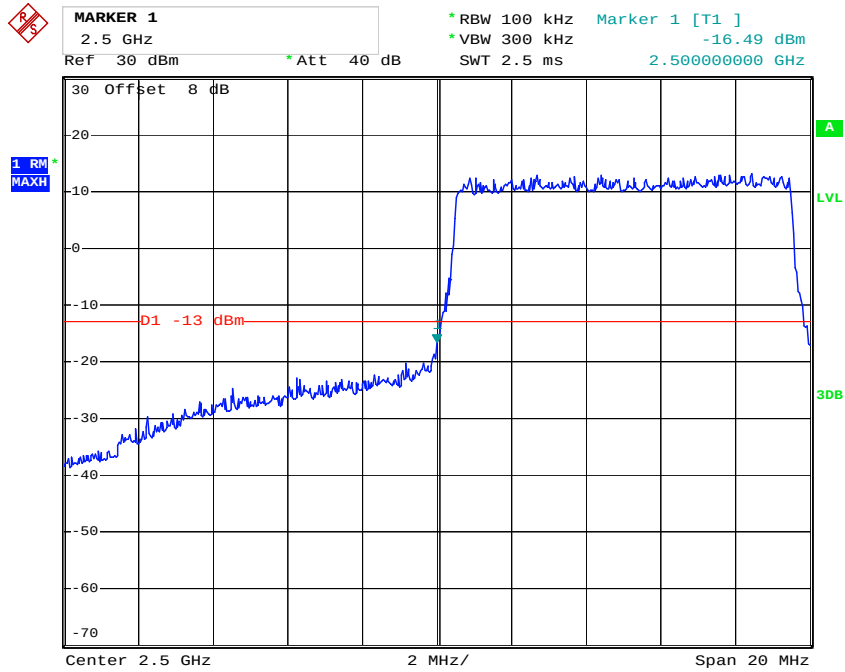
**LTE Band VII***QPSK\_5MHz\_FULL RB\_Left*

Date: 12.MAY.2016 17:53:22

*QPSK\_5MHz\_FULL RB\_Right*

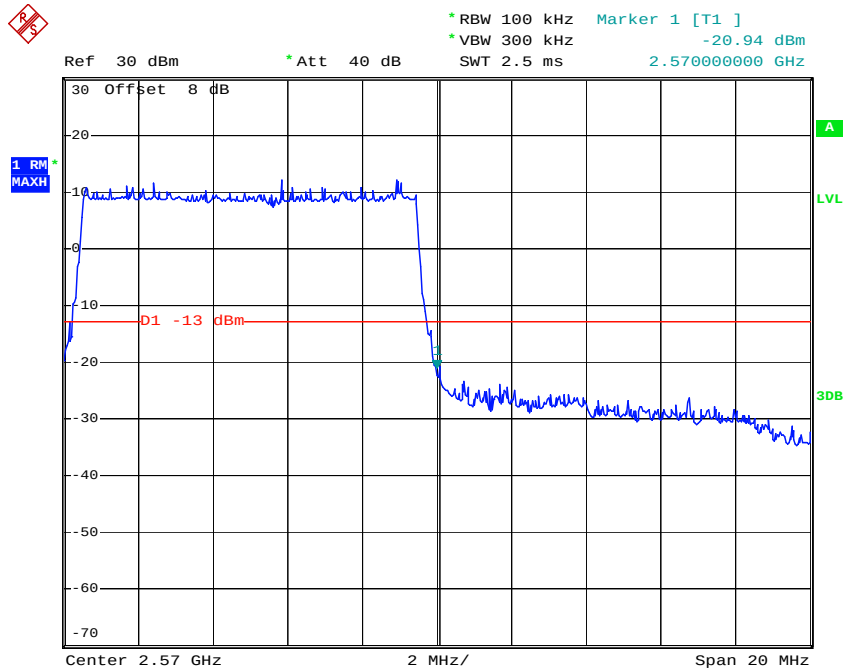
Date: 12.MAY.2016 17:52:11

QPSK\_10MHz\_FULL RB\_Left



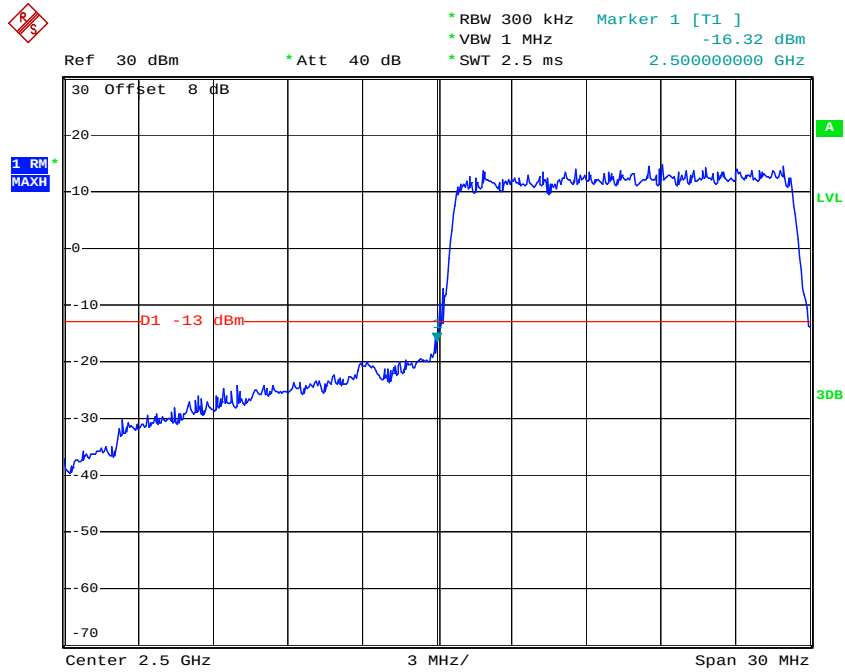
Date: 12.MAY.2016 17:45:35

QPSK\_10MHz\_FULL RB\_Right



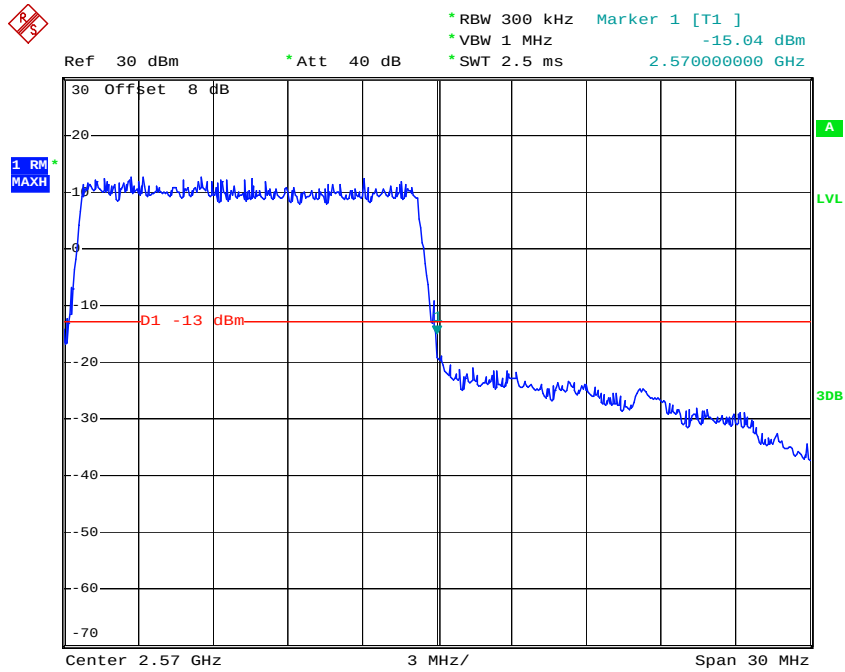
Date: 12.MAY.2016 17:46:56

QPSK\_15MHz\_FULL RB\_Left



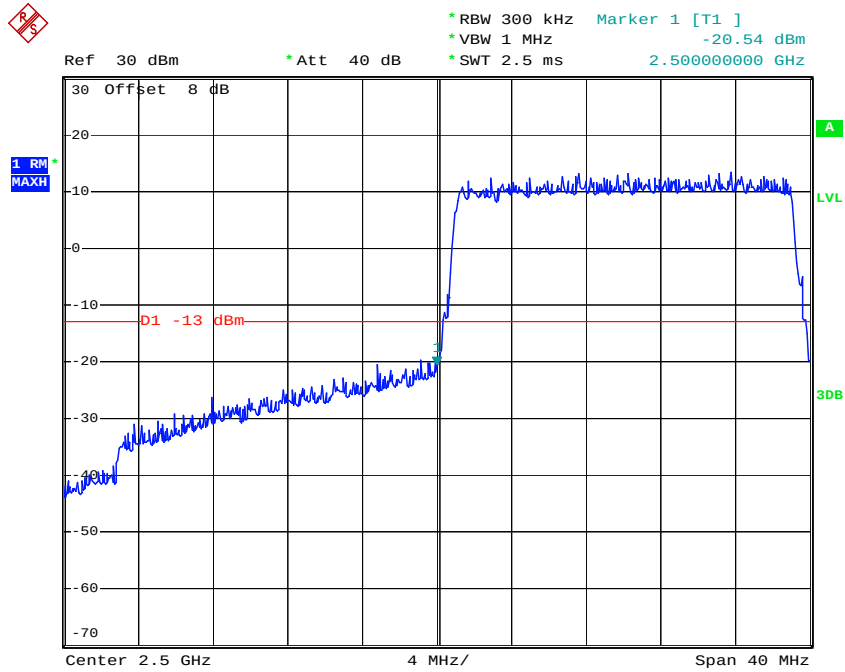
Date: 12.MAY.2016 17:56:18

QPSK\_15MHz\_FULL RB\_Right



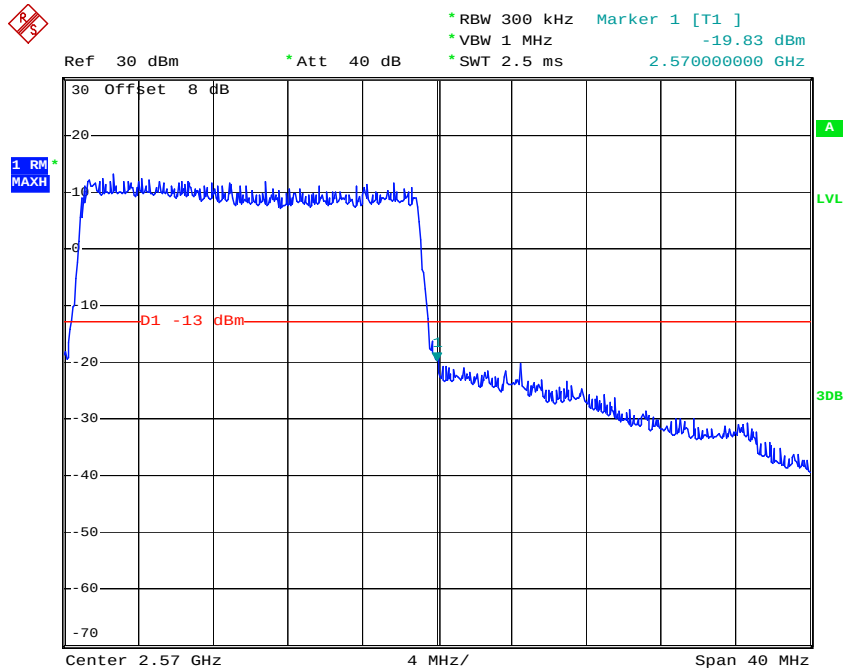
Date: 12.MAY.2016 17:57:28

QPSK\_20MHz\_FULL RB\_Left



Date: 12.MAY.2016 18:00:55

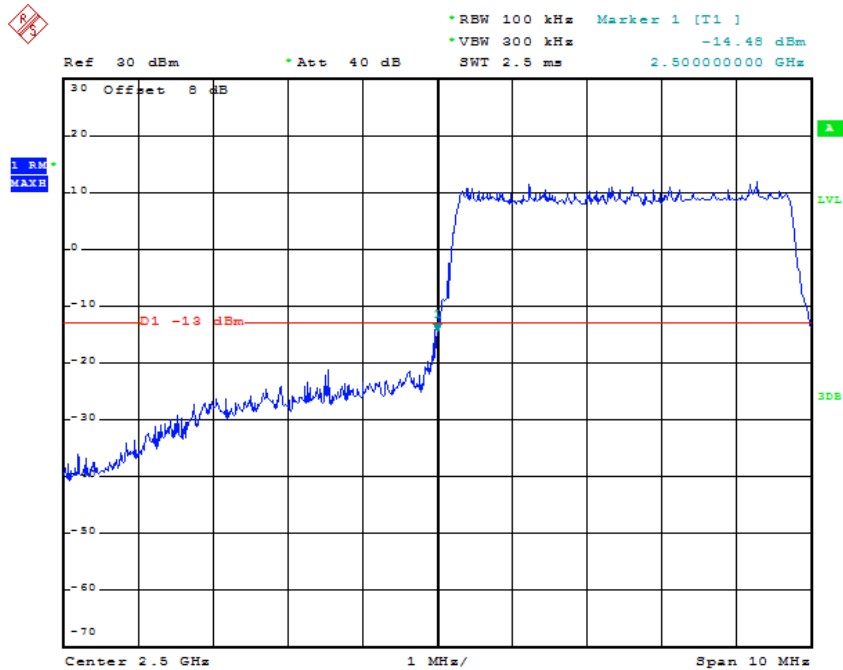
QPSK\_20MHz\_FULL RB\_Right



Date: 12.MAY.2016 18:00:14

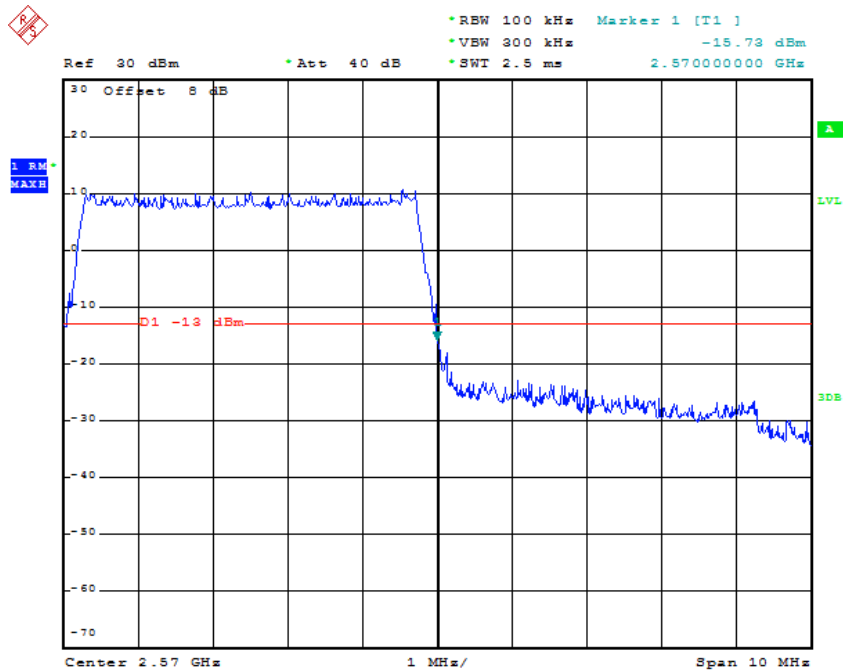


16QAM\_5MHz\_FULL RB\_Left



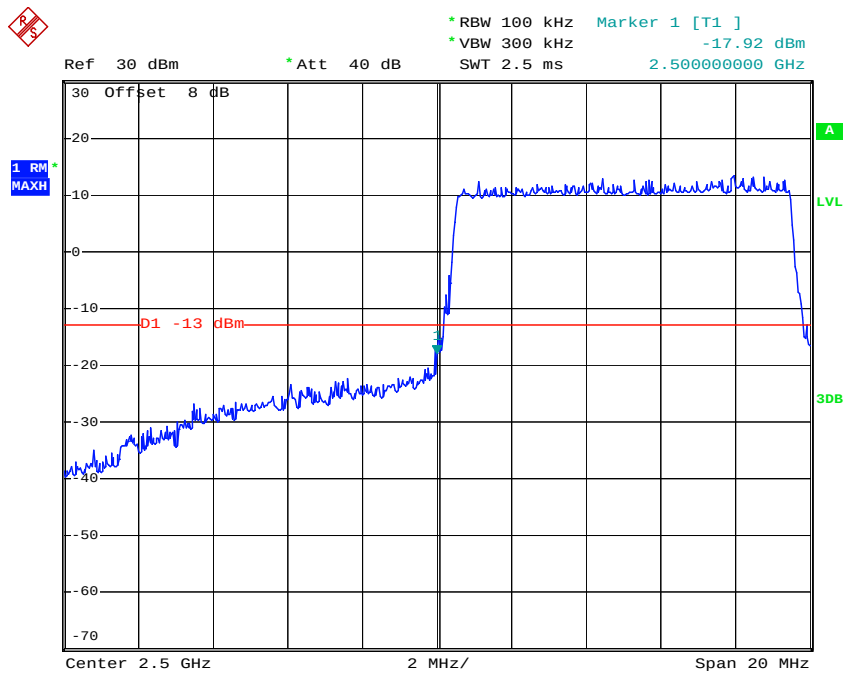
Date: 12.MAY.2016 17:53:35

16QAM\_5MHz\_FULL RB\_Right



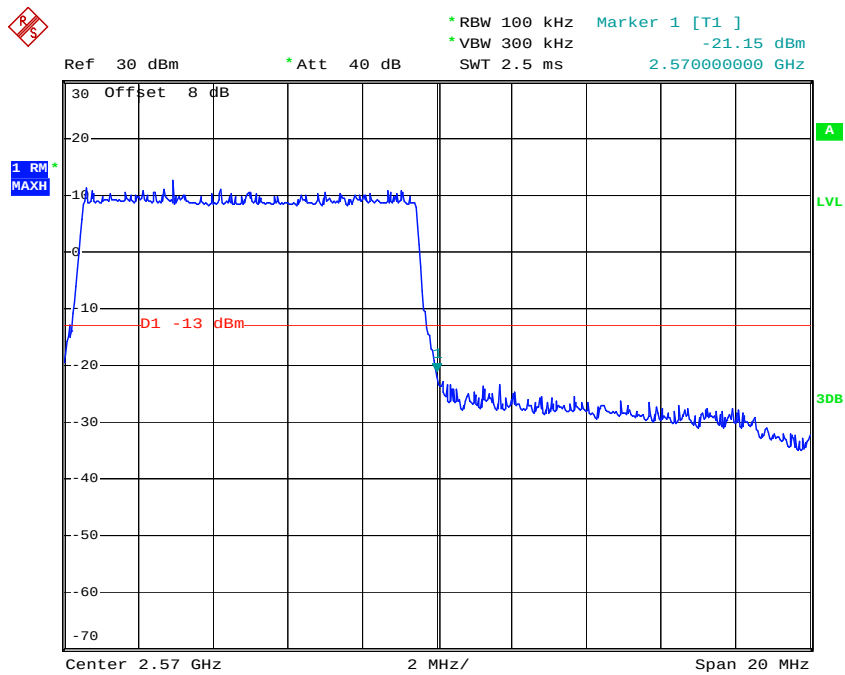
Date: 12.MAY.2016 18:04:21

16QAM\_10MHz\_FULL RB\_Left



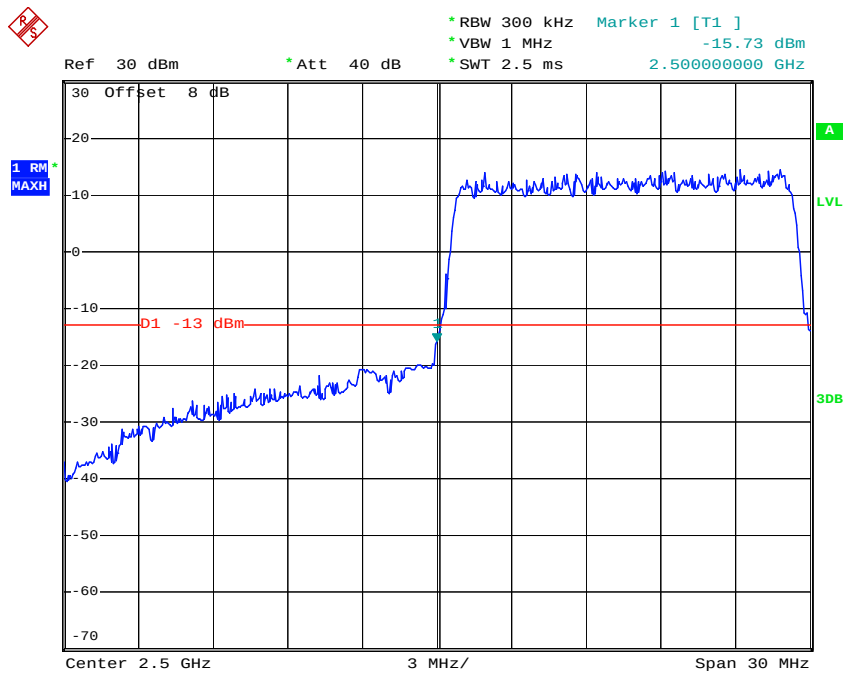
Date: 12.MAY.2016 17:45:50

16QAM\_10MHz\_FULL RB\_Right



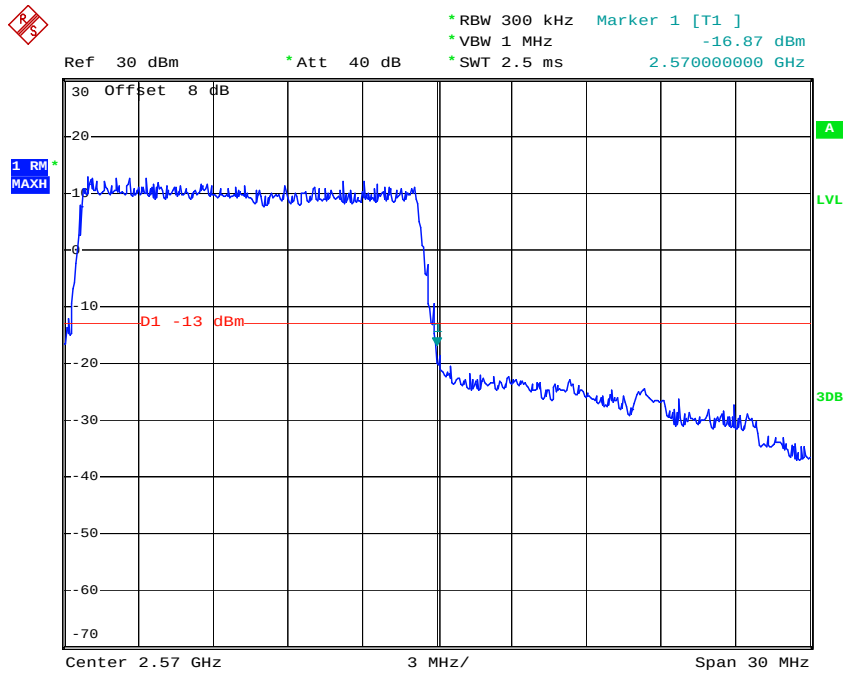
Date: 12.MAY.2016 17:46:44

16QAM\_15MHz\_FULL RB\_ Left



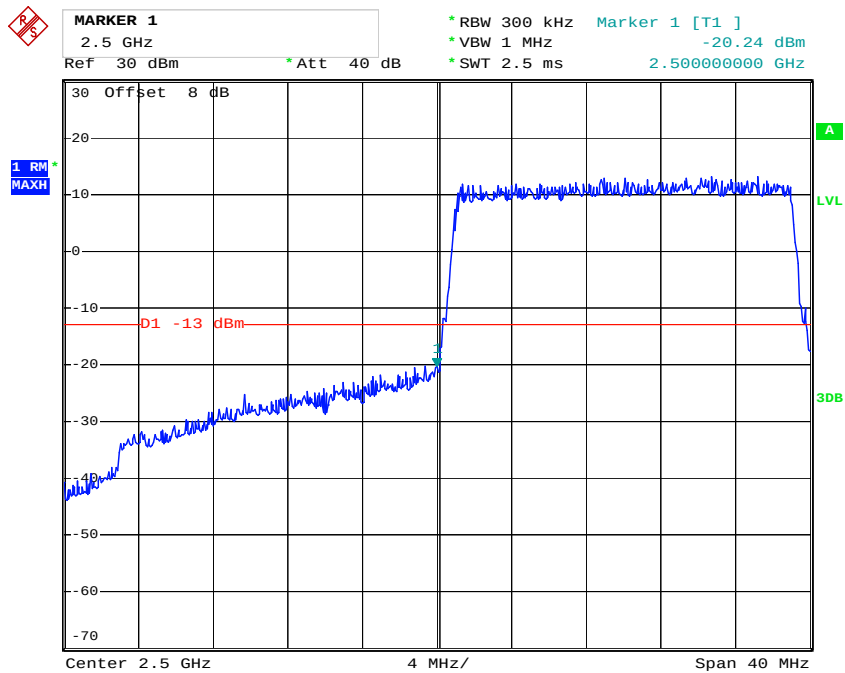
Date: 12.MAY.2016 17:56:52

16QAM\_15MHz\_FULL RB\_ Right



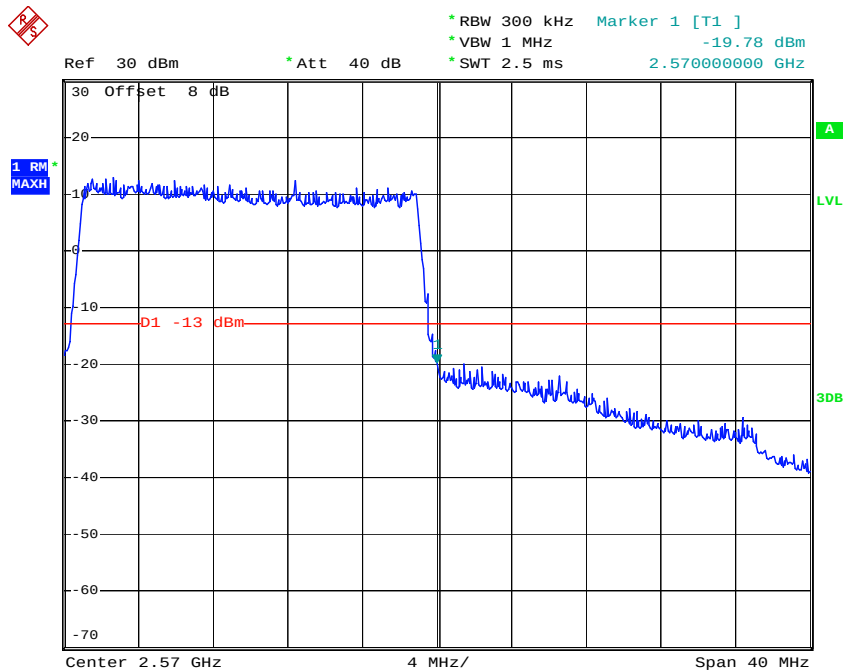
Date: 12.MAY.2016 17:57:42

16QAM\_20MHz\_FULL RB\_Left



Date: 12.MAY.2016 18:00:43

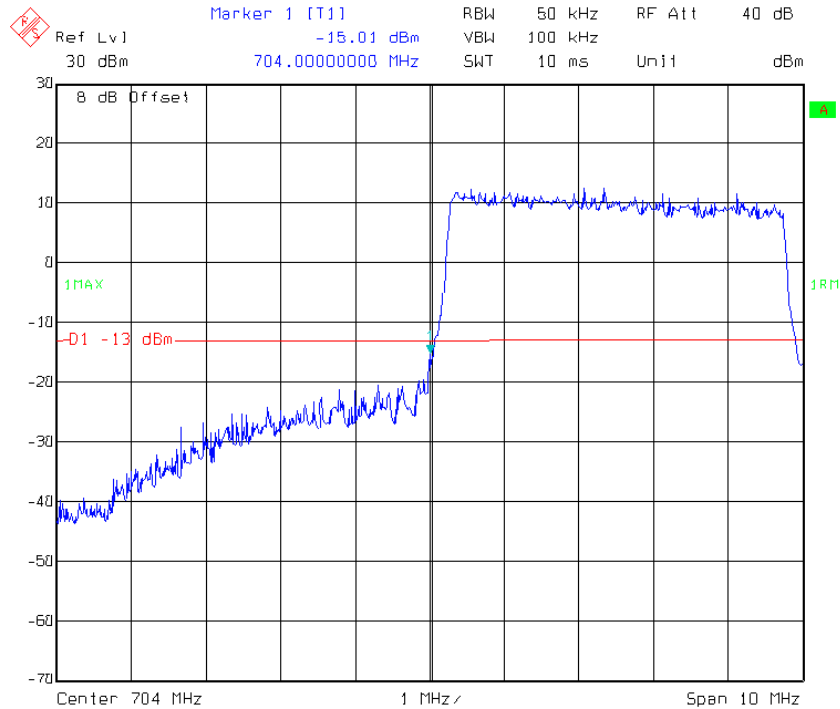
16QAM\_20MHz\_FULL RB\_Right



Date: 12.MAY.2016 18:00:02

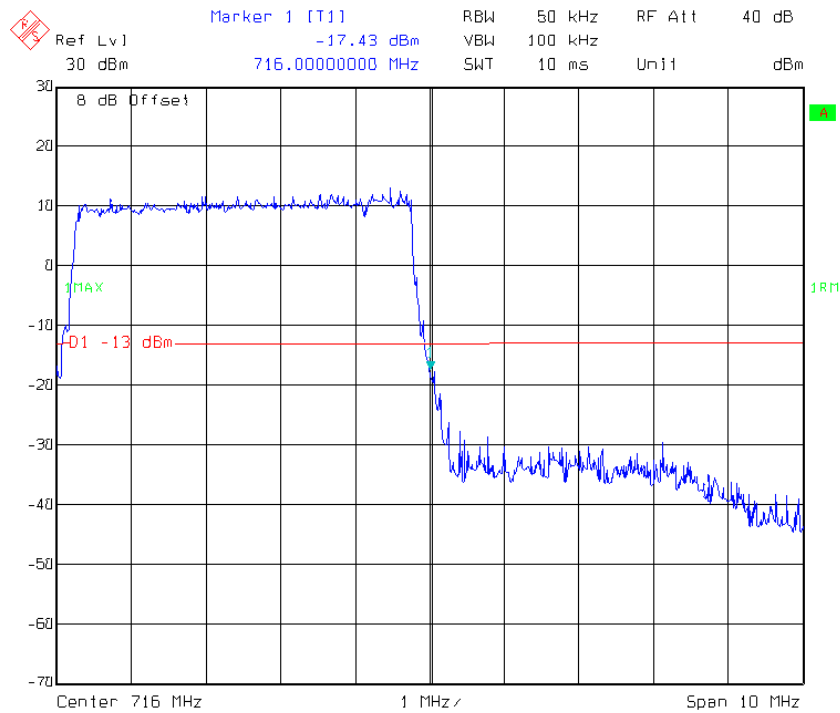
**LTE Band 17**

**QPSK\_5MHz\_FULL RB\_Left**



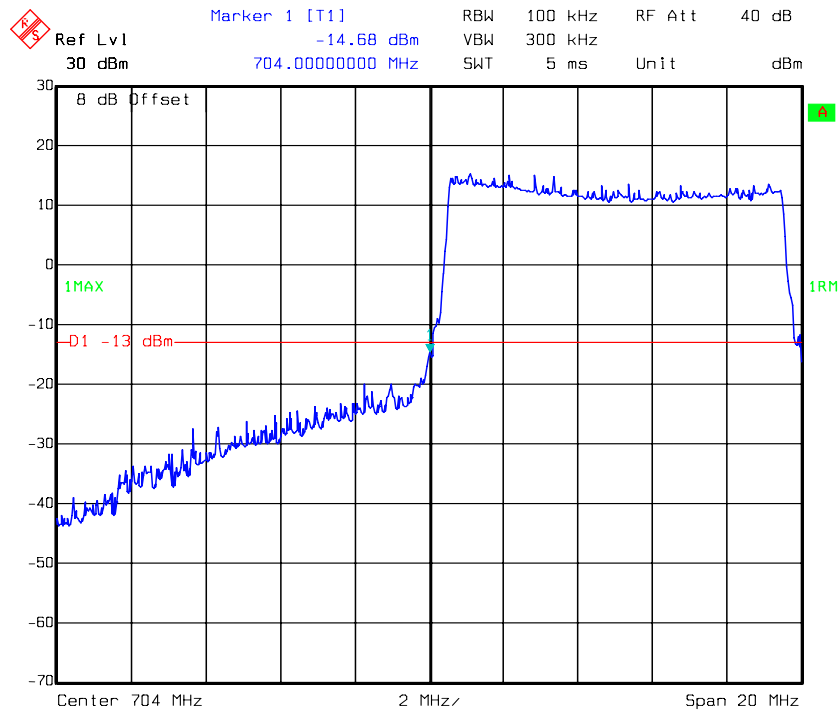
Date: 12.MAY 2016 16:16:15

**QPSK\_5MHz\_FULL RB\_Right**



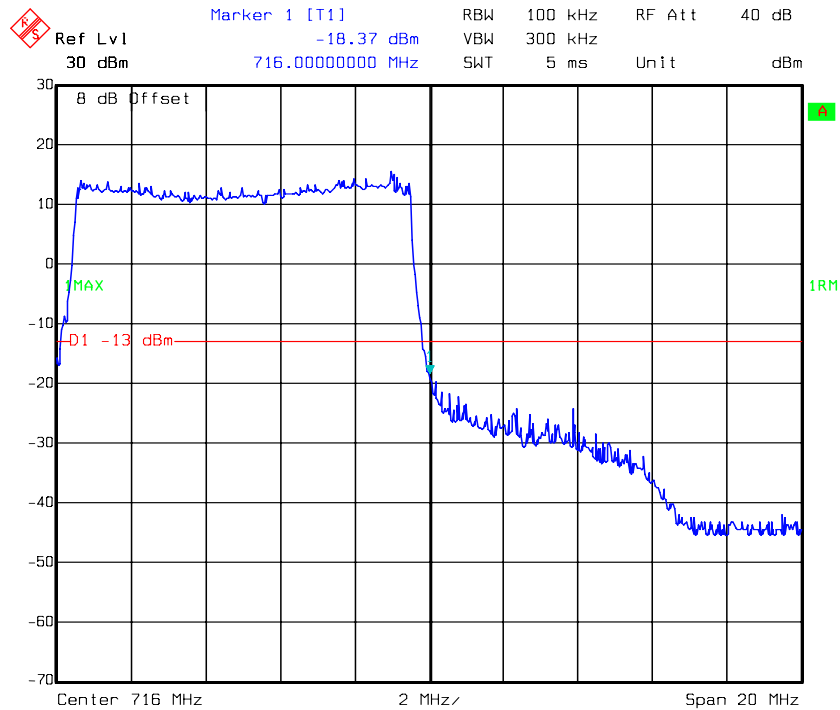
Date: 12.MAY 2016 16:17:48

*QPSK\_10MHz\_FULL RB\_Left*



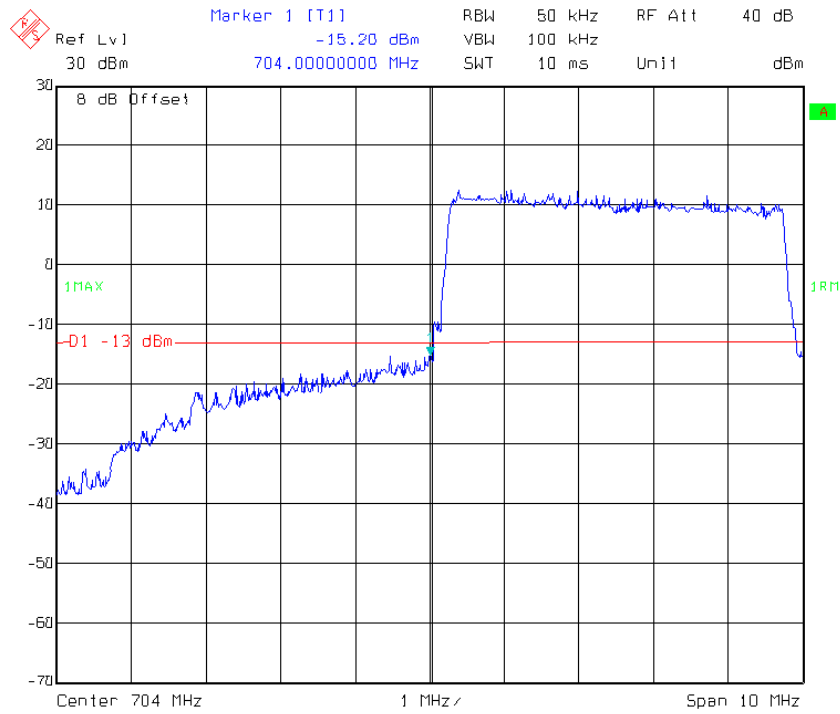
Date: 12.MAY 2016 16:22:12

*QPSK\_10MHz\_FULL RB\_Right*



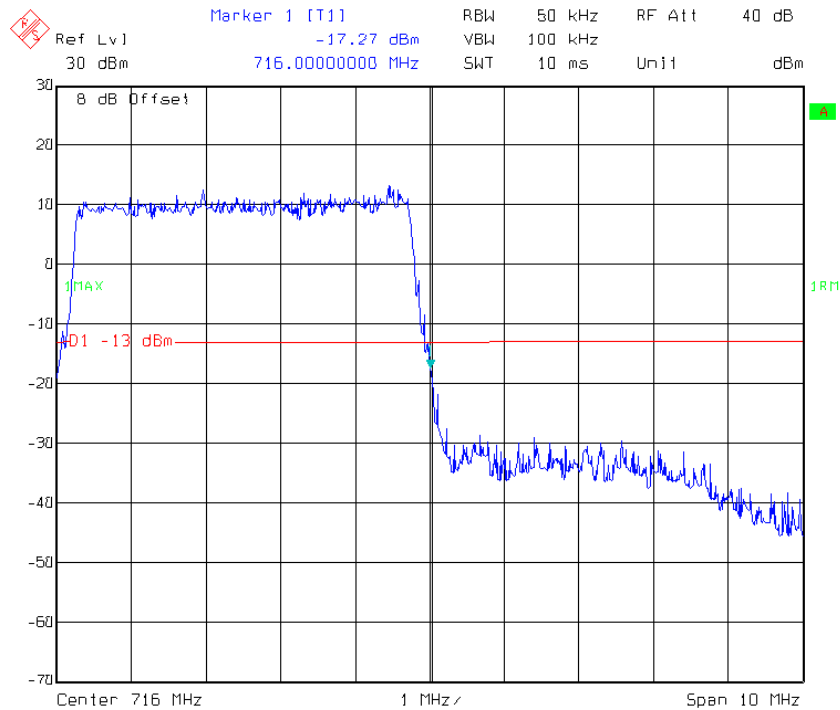
Date: 12.MAY 2016 16:21:13

16QAM\_5MHz\_FULL RB\_ Left



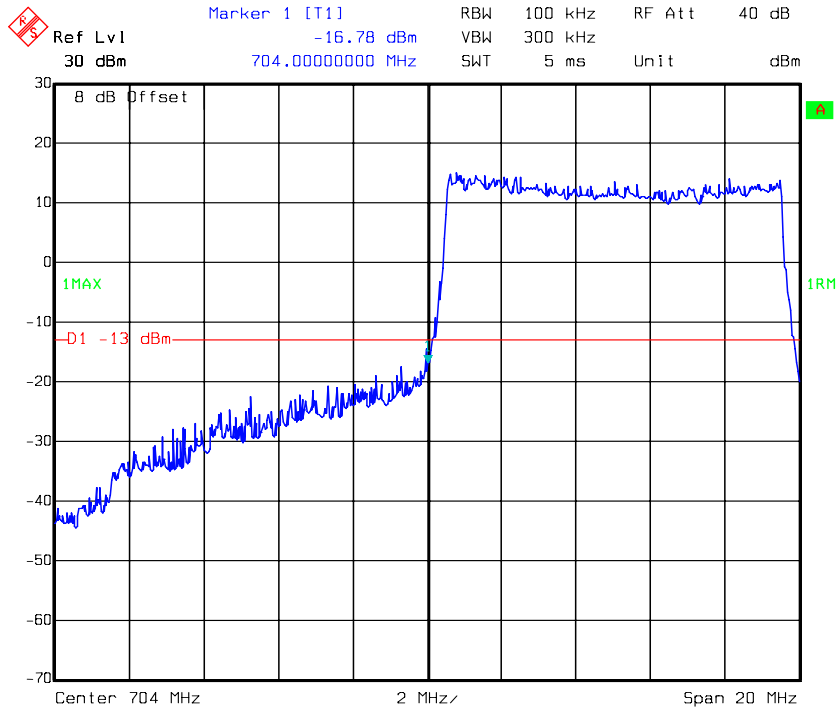
Date: 12.MAY 2016 16:14:55

16QAM\_5MHz\_FULL RB\_ Right



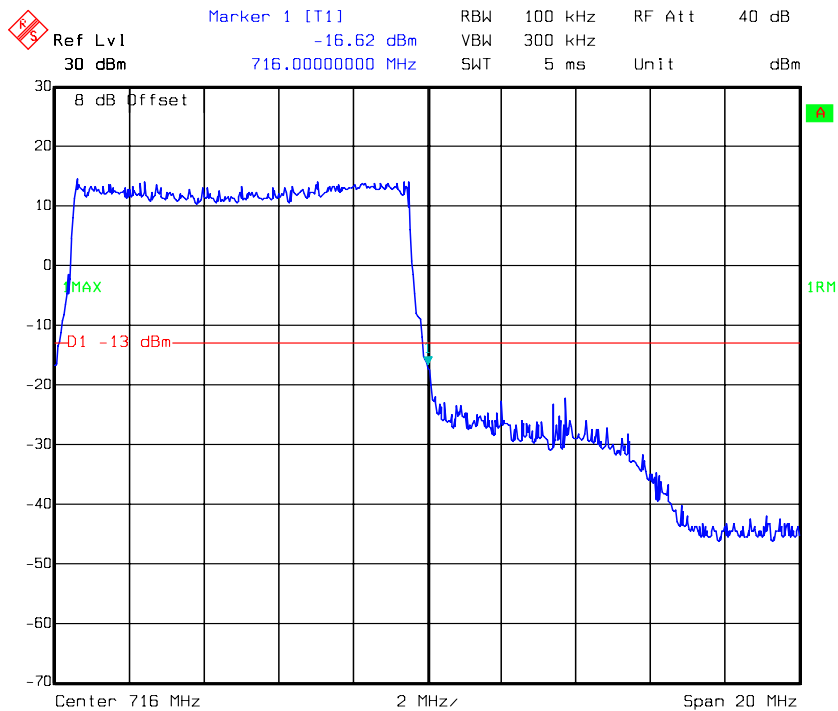
Date: 12.MAY 2016 16:18:03

16QAM\_10MHz\_FULL RB\_ Left



Date: 12.MAY 2016 16:22:27

16QAM\_10MHz\_FULL RB\_ Right



Date: 12.MAY 2016 16:21:37



**FCC §2.1055, §22.355 & §24.235 & §27.54 - FREQUENCY STABILITY****Applicable Standard**

FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235, §27.54

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

| Frequency Range (MHz) | Base, fixed (ppm) | Mobile > 3 watts (ppm) | Mobile ≤ 3 watts (ppm) |
|-----------------------|-------------------|------------------------|------------------------|
| 25 to 50              | 20.0              | 20.0                   | 50.0                   |
| 50 to 450             | 5.0               | 5.0                    | 50.0                   |
| 450 to 512            | 2.5               | 5.0                    | 5.0                    |
| 821 to 896            | 1.5               | 2.5                    | 2.5                    |
| 928 to 929.           | 5.0               | N/A                    | N/A                    |
| 929 to 960.           | 1.5               | N/A                    | N/A                    |
| 2110 to 2220          | 10.0              | N/A                    | N/A                    |

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

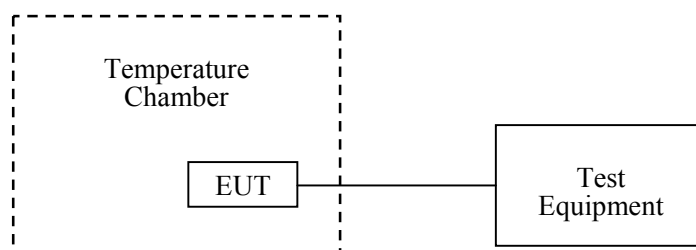
According to §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

**Test Procedure**

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.



**Test Equipment List and Details**

| Manufacturer | Description                          | Model  | Serial Number         | Calibration Date | Calibration Due Date |
|--------------|--------------------------------------|--------|-----------------------|------------------|----------------------|
| Dongzhixu    | High Temperature Test Chamber        | DP1000 | 201105083-4           | 2015-09-10       | 2016-09-09           |
| R&S          | Universal Radio Communication Tester | CMU200 | 109 038               | 2015-07-28       | 2016-07-27           |
| R&S          | Wideband Radio Communication Tester  | CMW500 | 1201.002K50-146520-wh | 2015-12-19       | 2016-12-19           |
| UNI-T        | Multimeter                           | UT39A  | M130199938            | 2016-04-02       | 2017-04-02           |
| Pasternack   | RF Coaxial Cable                     | RF-01  | /                     | 2016-05-06       | 2017-05-06           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data****Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 28.3°C    |
| <b>Relative Humidity:</b> | 59 %      |
| <b>ATM Pressure:</b>      | 100.4 kPa |

*The testing was performed by Rocky Xiao from 2016-05-09..*

**Cellular Band (Part 22H)**

| GMSK, Middle Channel, $f_c = 836.6$ MHz |                 |                 |                 |       |
|-----------------------------------------|-----------------|-----------------|-----------------|-------|
| Temperature                             | Voltage         | Frequency Error | Frequency Error | Limit |
| °C                                      | V <sub>DC</sub> | Hz              | ppm             | ppm   |
| -30                                     | 3.8             | -13             | -0.016          | 2.5   |
| -20                                     | 3.8             | -12             | -0.014          | 2.5   |
| -10                                     | 3.8             | -14             | -0.017          | 2.5   |
| 0                                       | 3.8             | -9              | -0.011          | 2.5   |
| 10                                      | 3.8             | -12             | -0.014          | 2.5   |
| 20                                      | 3.8             | -8              | -0.010          | 2.5   |
| 30                                      | 3.8             | -7              | -0.008          | 2.5   |
| 40                                      | 3.8             | -9              | -0.011          | 2.5   |
| 50                                      | 3.8             | -4              | -0.005          | 2.5   |
| 25                                      | 3.6             | 6               | 0.007           | 2.5   |
| 25                                      | 4.35            | -8              | -0.010          | 2.5   |

**Cellular Band (Part 22H)**

| EDGE, Middle Channel, $f_c = 836.6$ MHz |                 |                 |                 |       |
|-----------------------------------------|-----------------|-----------------|-----------------|-------|
| Temperature                             | Voltage         | Frequency Error | Frequency Error | Limit |
| °C                                      | V <sub>DC</sub> | Hz              | ppm             | ppm   |
| -30                                     | 3.8             | 5               | 0.000           | 2.5   |
| -20                                     | 3.8             | -6              | 0.006           | 2.5   |
| -10                                     | 3.8             | -4              | 0.002           | 2.5   |
| 0                                       | 3.8             | 13              | -0.005          | 2.5   |
| 10                                      | 3.8             | 8               | 0.004           | 2.5   |
| 20                                      | 3.8             | 6               | -0.005          | 2.5   |
| 30                                      | 3.8             | -3              | -0.004          | 2.5   |
| 40                                      | 3.8             | -2              | -0.006          | 2.5   |
| 50                                      | 3.8             | -3              | 0.006           | 2.5   |
| 25                                      | 3.6             | 9               | 0.010           | 2.5   |
| 25                                      | 4.35            | 5               | 0.012           | 2.5   |

**PCS Band (Part 24E)**

| GMSK, Middle Channel, $f_c = 1880.0$ MHz |                 |                 |                 |        |
|------------------------------------------|-----------------|-----------------|-----------------|--------|
| Temperature                              | Voltage         | Frequency Error | Frequency Error | Result |
| °C                                       | V <sub>DC</sub> | Hz              | ppm             |        |
| -30                                      | 3.8             | -9              | -0.003          | 2.5    |
| -20                                      | 3.8             | -1              | -0.001          | 2.5    |
| -10                                      | 3.8             | -7              | -0.004          | 2.5    |
| 0                                        | 3.8             | 11              | -0.001          | 2.5    |
| 10                                       | 3.8             | -12             | -0.006          | 2.5    |
| 20                                       | 3.8             | -10             | -0.005          | 2.5    |
| 30                                       | 3.8             | 2               | 0.000           | 2.5    |
| 40                                       | 3.8             | -14             | -0.007          | 2.5    |
| 50                                       | 3.8             | 1               | 0.000           | 2.5    |
| 25                                       | 3.6             | 6               | -0.005          | 2.5    |
| 25                                       | 4.35            | -9              | -0.004          | 2.5    |

**PCS Band (Part 24E)**

| EDGE, Middle Channel, $f_c = 1880.0$ MHz |                 |                 |                 |        |
|------------------------------------------|-----------------|-----------------|-----------------|--------|
| Temperature                              | Voltage         | Frequency Error | Frequency Error | Result |
| °C                                       | V <sub>DC</sub> | Hz              | ppm             |        |
| -30                                      | 3.8             | 6               | 0.000           | Pass   |
| -20                                      | 3.8             | 4               | 0.003           | Pass   |
| -10                                      | 3.8             | 2               | 0.001           | Pass   |
| 0                                        | 3.8             | 10              | -0.002          | Pass   |
| 10                                       | 3.8             | 1               | 0.002           | Pass   |
| 20                                       | 3.8             | 9               | -0.002          | Pass   |
| 30                                       | 3.8             | -1              | -0.002          | Pass   |
| 40                                       | 3.8             | -4              | -0.003          | Pass   |
| 50                                       | 3.8             | -3              | 0.003           | Pass   |
| 25                                       | 3.6             | 7               | 0.004           | Pass   |
| 25                                       | 4.35            | 2               | 0.005           | Pass   |

**WCDMA Band V: Re199**

| Middle Channel, $f_c = 836.6$ MHz |                 |                 |                 |       |
|-----------------------------------|-----------------|-----------------|-----------------|-------|
| Temperature                       | Voltage         | Frequency Error | Frequency Error | Limit |
| °C                                | V <sub>DC</sub> | Hz              | ppm             | ppm   |
| -30                               | 3.8             | 2               | 0.001           | 2.5   |
| -20                               | 3.8             | 4               | 0.005           | 2.5   |
| -10                               | 3.8             | 9               | 0.011           | 2.5   |
| 0                                 | 3.8             | 6               | 0.007           | 2.5   |
| 10                                | 3.8             | 9               | 0.010           | 2.5   |
| 20                                | 3.8             | -5              | -0.006          | 2.5   |
| 30                                | 3.8             | -4              | -0.005          | 2.5   |
| 40                                | 3.8             | 14              | 0.012           | 2.5   |
| 50                                | 3.8             | -5              | -0.006          | 2.5   |
| 25                                | 3.6             | -8              | -0.002          | 2.5   |
| 25                                | 4.35            | -3              | -0.004          | 2.5   |

**WCDMA Band II: Re199**

| Middle Channel, $f_c = 1880.0$ MHz |                 |                 |                 |        |
|------------------------------------|-----------------|-----------------|-----------------|--------|
| Temperature                        | Voltage         | Frequency Error | Frequency Error | Result |
| °C                                 | V <sub>DC</sub> | Hz              | ppm             |        |
| -30                                | 3.8             | 2               | 0.000           | Pass   |
| -20                                | 3.8             | 5               | 0.003           | Pass   |
| -10                                | 3.8             | 2               | 0.001           | Pass   |
| 0                                  | 3.8             | 9               | -0.002          | Pass   |
| 10                                 | 3.8             | 3               | 0.002           | Pass   |
| 20                                 | 3.8             | 5               | -0.002          | Pass   |
| 30                                 | 3.8             | -3              | -0.002          | Pass   |
| 40                                 | 3.8             | -5              | -0.003          | Pass   |
| 50                                 | 3.8             | 9               | 0.003           | Pass   |
| 25                                 | 3.6             | -3              | 0.004           | Pass   |
| 25                                 | 4.35            | 14              | 0.005           | Pass   |

**WCDMA Band V: HSUPA**

| Middle Channel, $f_c = 836.6$ MHz |                 |                 |                 |       |
|-----------------------------------|-----------------|-----------------|-----------------|-------|
| Temperature                       | Voltage         | Frequency Error | Frequency Error | Limit |
| °C                                | V <sub>DC</sub> | Hz              | ppm             | ppm   |
| -30                               | 3.8             | -6              | -0.002          | 2.5   |
| -20                               | 3.8             | 6               | 0.007           | 2.5   |
| -10                               | 3.8             | 7               | 0.005           | 2.5   |
| 0                                 | 3.8             | 10              | 0.012           | 2.5   |
| 10                                | 3.8             | 2               | 0.000           | 2.5   |
| 20                                | 3.8             | 9               | 0.011           | 2.5   |
| 30                                | 3.8             | -1              | -0.001          | 2.5   |
| 40                                | 3.8             | 9               | 0.006           | 2.5   |
| 50                                | 3.8             | 2               | 0.002           | 2.5   |
| 25                                | 3.6             | 0               | -0.007          | 2.5   |
| 25                                | 4.35            | 7               | 0.008           | 2.5   |

**WCDMA Band II: HSUPA**

| Middle Channel, $f_c = 1880.0$ MHz |                 |                 |                 |        |
|------------------------------------|-----------------|-----------------|-----------------|--------|
| Temperature                        | Voltage         | Frequency Error | Frequency Error | Result |
| °C                                 | V <sub>DC</sub> | Hz              | ppm             |        |
| -30                                | 3.8             | 1               | 0.000           | Pass   |
| -20                                | 3.8             | -2              | -0.001          | Pass   |
| -10                                | 3.8             | 2               | 0.001           | Pass   |
| 0                                  | 3.8             | 11              | 0.005           | Pass   |
| 10                                 | 3.8             | 1               | 0.001           | Pass   |
| 20                                 | 3.8             | -1              | -0.001          | Pass   |
| 30                                 | 3.8             | 14              | 0.008           | Pass   |
| 40                                 | 3.8             | 9               | 0.005           | Pass   |
| 50                                 | 3.8             | 8               | -0.003          | Pass   |
| 25                                 | 3.6             | -2              | 0.003           | Pass   |
| 25                                 | 4.35            | 7               | 0.004           | Pass   |

**WCDMA Band V: HSDPA**

| Middle Channel, $f_c = 836.6$ MHz |                 |                 |                 |       |
|-----------------------------------|-----------------|-----------------|-----------------|-------|
| Temperature                       | Voltage         | Frequency Error | Frequency Error | Limit |
| °C                                | V <sub>DC</sub> | Hz              | ppm             | ppm   |
| -30                               | 3.8             | 2               | 0.004           | 2.5   |
| -20                               | 3.8             | 8               | 0.010           | 2.5   |
| -10                               | 3.8             | 6               | 0.000           | 2.5   |
| 0                                 | 3.8             | 6               | 0.007           | 2.5   |
| 10                                | 3.8             | 10              | 0.012           | 2.5   |
| 20                                | 3.8             | 3               | 0.004           | 2.5   |
| 30                                | 3.8             | 14              | 0.011           | 2.5   |
| 40                                | 3.8             | 2               | 0.002           | 2.5   |
| 50                                | 3.8             | -5              | -0.004          | 2.5   |
| 25                                | 3.6             | 3               | 0.006           | 2.5   |
| 25                                | 4.35            | 15              | 0.016           | 2.5   |

**WCDMA Band II: HSDPA**

| Middle Channel, $f_c = 1880.0$ MHz |                 |                 |                 |        |
|------------------------------------|-----------------|-----------------|-----------------|--------|
| Temperature                        | Voltage         | Frequency Error | Frequency Error | Result |
| °C                                 | V <sub>DC</sub> | Hz              | ppm             |        |
| -30                                | 3.8             | 3               | 0.001           | Pass   |
| -20                                | 3.8             | 1               | 0.001           | Pass   |
| -10                                | 3.8             | 4               | 0.000           | Pass   |
| 0                                  | 3.8             | -1              | -0.001          | Pass   |
| 10                                 | 3.8             | 7               | 0.004           | Pass   |
| 20                                 | 3.8             | 10              | 0.005           | Pass   |
| 30                                 | 3.8             | -6              | -0.003          | Pass   |
| 40                                 | 3.8             | 1               | 0.001           | Pass   |
| 50                                 | 3.8             | 9               | 0.002           | Pass   |
| 25                                 | 3.6             | 2               | 0.003           | Pass   |
| 25                                 | 4.35            | -3              | -0.002          | Pass   |

**LTE Band II:**

| <b>QPSK, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 1880</math> MHz</b> |                       |                        |                        |               |
|--------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                   | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                            | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                  | -30                   | -13.00                 | -0.0069                | Pass          |
| 3.8                                                                                  | -20                   | -10.00                 | -0.0053                | Pass          |
| 3.8                                                                                  | -10                   | -12.00                 | -0.0064                | Pass          |
| 3.8                                                                                  | 0                     | -10.00                 | -0.0053                | Pass          |
| 3.8                                                                                  | 10                    | -10.00                 | -0.0053                | Pass          |
| 3.8                                                                                  | 20                    | -12.00                 | -0.0064                | Pass          |
| 3.8                                                                                  | 30                    | -9.00                  | -0.0048                | Pass          |
| 3.8                                                                                  | 40                    | -15.00                 | -0.0080                | Pass          |
| 3.8                                                                                  | 50                    | -12.00                 | -0.0064                | Pass          |
| 3.6                                                                                  | 25                    | -15.00                 | -0.0080                | Pass          |
| 4.35                                                                                 | 25                    | -13.00                 | -0.0069                | Pass          |

| <b>16QAM, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 1880</math> MHz</b> |                       |                        |                        |               |
|---------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                    | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                             | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                   | -30                   | -11.00                 | -0.0059                | Pass          |
| 3.8                                                                                   | -20                   | -15.00                 | -0.0080                | Pass          |
| 3.8                                                                                   | -10                   | -12.00                 | -0.0064                | Pass          |
| 3.8                                                                                   | 0                     | -12.00                 | -0.0064                | Pass          |
| 3.8                                                                                   | 10                    | -14.00                 | -0.0074                | Pass          |
| 3.8                                                                                   | 20                    | -10.00                 | -0.0053                | Pass          |
| 3.8                                                                                   | 30                    | -9.00                  | -0.0048                | Pass          |
| 3.8                                                                                   | 40                    | -10.00                 | -0.0053                | Pass          |
| 3.8                                                                                   | 50                    | -14.00                 | -0.0074                | Pass          |
| 3.6                                                                                   | 25                    | -11.00                 | -0.0059                | Pass          |
| 4.35                                                                                  | 25                    | -13.00                 | -0.0069                | Pass          |



**LTE Band IV:**

| <b>QPSK, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 1732.5</math> MHz</b> |                       |                        |                        |               |
|----------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                     | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                              | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                    | -30                   | -12.00                 | -0.0069                | Pass          |
| 3.8                                                                                    | -20                   | -12.00                 | -0.0069                | Pass          |
| 3.8                                                                                    | -10                   | -14.00                 | -0.0081                | Pass          |
| 3.8                                                                                    | 0                     | -9.00                  | -0.0052                | Pass          |
| 3.8                                                                                    | 10                    | -10.00                 | -0.0058                | Pass          |
| 3.8                                                                                    | 20                    | -8.00                  | -0.0046                | Pass          |
| 3.8                                                                                    | 30                    | -14.00                 | -0.0081                | Pass          |
| 3.8                                                                                    | 40                    | -8.00                  | -0.0046                | Pass          |
| 3.8                                                                                    | 50                    | -11.00                 | -0.0063                | Pass          |
| 3.6                                                                                    | 25                    | -10.00                 | -0.0058                | Pass          |
| 4.35                                                                                   | 25                    | -12.00                 | -0.0069                | Pass          |

| <b>16QAM, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 1732.5</math> MHz</b> |                       |                        |                        |               |
|-----------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                      | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                               | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                     | -30                   | -12.00                 | -0.0069                | Pass          |
| 3.8                                                                                     | -20                   | -13.00                 | -0.0075                | Pass          |
| 3.8                                                                                     | -10                   | -9.00                  | -0.0052                | Pass          |
| 3.8                                                                                     | 0                     | -8.00                  | -0.0046                | Pass          |
| 3.8                                                                                     | 10                    | -9.00                  | -0.0052                | Pass          |
| 3.8                                                                                     | 20                    | -10.00                 | -0.0058                | Pass          |
| 3.8                                                                                     | 30                    | -11.00                 | -0.0063                | Pass          |
| 3.8                                                                                     | 40                    | -13.00                 | -0.0075                | Pass          |
| 3.8                                                                                     | 50                    | -11.00                 | -0.0063                | Pass          |
| 3.6                                                                                     | 25                    | -13.00                 | -0.0075                | Pass          |
| 4.35                                                                                    | 25                    | -12.00                 | -0.0069                | Pass          |

**LTE Band VII:**

| <b>QPSK, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 2535</math> MHz</b> |                       |                        |                        |               |
|--------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                   | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                            | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                  | -30                   | -8.00                  | -0.0032                | Pass          |
| 3.8                                                                                  | -20                   | -13.00                 | -0.0051                | Pass          |
| 3.8                                                                                  | -10                   | -7.00                  | -0.0028                | Pass          |
| 3.8                                                                                  | 0                     | -10.00                 | -0.0039                | Pass          |
| 3.8                                                                                  | 10                    | -13.00                 | -0.0051                | Pass          |
| 3.8                                                                                  | 20                    | -12.00                 | -0.0047                | Pass          |
| 3.8                                                                                  | 30                    | -12.00                 | -0.0047                | Pass          |
| 3.8                                                                                  | 40                    | -8.00                  | -0.0032                | Pass          |
| 3.8                                                                                  | 50                    | -11.00                 | -0.0043                | Pass          |
| 3.6                                                                                  | 25                    | -7.00                  | -0.0028                | Pass          |
| 4.35                                                                                 | 25                    | -15.00                 | -0.0059                | Pass          |

| <b>16QAM, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 2535</math> MHz</b> |                       |                        |                        |               |
|---------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                    | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                             | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                   | -30                   | -12.00                 | -0.0047                | Pass          |
| 3.8                                                                                   | -20                   | -14.00                 | -0.0055                | Pass          |
| 3.8                                                                                   | -10                   | -13.00                 | -0.0051                | Pass          |
| 3.8                                                                                   | 0                     | -12.00                 | -0.0047                | Pass          |
| 3.8                                                                                   | 10                    | -9.00                  | -0.0036                | Pass          |
| 3.8                                                                                   | 20                    | -12.00                 | -0.0047                | Pass          |
| 3.8                                                                                   | 30                    | -14.00                 | -0.0055                | Pass          |
| 3.8                                                                                   | 40                    | -13.00                 | -0.0051                | Pass          |
| 3.8                                                                                   | 50                    | -15.00                 | -0.0059                | Pass          |
| 3.6                                                                                   | 25                    | -15.00                 | -0.0059                | Pass          |
| 4.35                                                                                  | 25                    | -13.00                 | -0.0051                | Pass          |

**LTE Band 17:**

| <b>QPSK, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 710</math> MHz</b> |                       |                        |                        |               |
|-------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                  | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                           | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                 | -30                   | 13.00                  | 0.0183                 | Pass          |
| 3.8                                                                                 | -20                   | 11.00                  | 0.0155                 | Pass          |
| 3.8                                                                                 | -10                   | 12.00                  | 0.0169                 | Pass          |
| 3.8                                                                                 | 0                     | 13.00                  | 0.0183                 | Pass          |
| 3.8                                                                                 | 10                    | 13.00                  | 0.0183                 | Pass          |
| 3.8                                                                                 | 20                    | 8.00                   | 0.0113                 | Pass          |
| 3.8                                                                                 | 30                    | 10.00                  | 0.0141                 | Pass          |
| 3.8                                                                                 | 40                    | 8.00                   | 0.0113                 | Pass          |
| 3.8                                                                                 | 50                    | 11.00                  | 0.0155                 | Pass          |
| 3.6                                                                                 | 25                    | 8.00                   | 0.0113                 | Pass          |
| 4.35                                                                                | 25                    | 13.00                  | 0.0183                 | Pass          |

| <b>16QAM, Channel Bandwidth:10MHz<br/>Middle Channel, <math>f_c = 710</math> MHz</b> |                       |                        |                        |               |
|--------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|---------------|
| <b>Temperature</b>                                                                   | <b>Voltage</b>        | <b>Frequency Error</b> | <b>Frequency Error</b> | <b>Result</b> |
| <b>°C</b>                                                                            | <b>V<sub>DC</sub></b> | <b>Hz</b>              | <b>ppm</b>             |               |
| 3.8                                                                                  | -30                   | 13.00                  | 0.0183                 | Pass          |
| 3.8                                                                                  | -20                   | 11.00                  | 0.0155                 | Pass          |
| 3.8                                                                                  | -10                   | 12.00                  | 0.0169                 | Pass          |
| 3.8                                                                                  | 0                     | 13.00                  | 0.0183                 | Pass          |
| 3.8                                                                                  | 10                    | 13.00                  | 0.0183                 | Pass          |
| 3.8                                                                                  | 20                    | 8.00                   | 0.0113                 | Pass          |
| 3.8                                                                                  | 30                    | 10.00                  | 0.0141                 | Pass          |
| 3.8                                                                                  | 40                    | 8.00                   | 0.0113                 | Pass          |
| 3.8                                                                                  | 50                    | 11.00                  | 0.0155                 | Pass          |
| 3.6                                                                                  | 25                    | 8.00                   | 0.0113                 | Pass          |
| 4.35                                                                                 | 25                    | 13.00                  | 0.0183                 | Pass          |

Note: The fundamental emissions stay within the authorized bands of operation based on the frequency deviation measured is small.

\*\*\*\*\* END OF REPORT \*\*\*\*\*