

## FCC Part 22/24/27 Compliance Test Report

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                         |                            |                                                                                                                                |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Test Report no.:                                 | FCC_Cellular_RM-1075_01_ant1.docx                                                                                                                                                                                                                                                                                                                                                                                       | Date of Report:            | 06-Feb-2015                                                                                                                    |
| Number of pages:                                 | 135                                                                                                                                                                                                                                                                                                                                                                                                                     | Customer's Contact person: | Tero Huhtala                                                                                                                   |
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| FCC listing no.:                                 | 94436                                                                                                                                                                                                                                                                                                                                                                                                                   |                            |                                                                                                                                |
| IC recognition no.:                              | 661AK-1                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |                                                                                                                                |
| Tested devices/ accessories:                     | Phone RM-1075 / Dummy Battery SD-131 / Battery BV-T5C / Charger AC-20E / Headset WH-108                                                                                                                                                                                                                                                                                                                                 |                            |                                                                                                                                |
| FCC ID:                                          | PYATAA                                                                                                                                                                                                                                                                                                                                                                                                                  | IC:                        | -                                                                                                                              |
| Supplement reports:                              | -                                                                                                                                                                                                                                                                                                                                                                                                                       |                            |                                                                                                                                |
| Testing has been carried out in accordance with: | CFR 47, FCC rules Parts 22/24/27, TIA-603-C-2004 and IC standards, RSS-GEN (Issue 4, November 2014), RSS-133 (Issue 6, January 2013), RSS-132 (Issue 3, January 2013), RSS-139 (Issue 2, February 2009), RSS-199 (Issue 2, October 2014), RSS-130 (Issue 1, October 2013). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit". |                            |                                                                                                                                |
| Documentation:                                   | The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Microsoft.                                                                                                                                                                |                            |                                                                                                                                |
| Test Results:                                    | The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document                                                                                                                                                                                                                                                             |                            |                                                                                                                                |
| Date and signature for the contents:             |                                                                                                                                                                                                                                                                                                                                                                                                                         |                            |                                                                                                                                |

Timo Raiskio, Engineer, EMC & SAR

## 1. Summary for FCC Part 22/24/27 Compliance Test Report

|                               |                                                           |
|-------------------------------|-----------------------------------------------------------|
| Date of receipt               | 14-Jan-2014                                               |
| Testing completed             | 20-Jan-2014                                               |
| The customer's contact person | Tero Huhtala                                              |
| Test Plan referred to         | T:\Projects\RM-1075\TestPlan\RS_testplan_RM-1075.xlsm     |
| Notes                         | -                                                         |
| Document name                 | T:\Projects\RM-1075\EMC\FCC_Cellular_RM-1075_01_ant1.docx |

### 1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/WCDMA/WLAN/Bluetooth

The EUT is tested with maximum rated TX power.

Devices under tests

| Product       | Type           | SN                          | HW   | MV | SW                      | DUT   |
|---------------|----------------|-----------------------------|------|----|-------------------------|-------|
| Phone         | RM-1075        | 004402479016903             | 1690 | -  | 02156.00000.14506.01000 | 43249 |
| Dummy Battery | SD-131         | -                           | V.1  | -  | -                       | 43233 |
| Battery       | BV-T5C         | 08689                       | -    | -  | -                       | 43251 |
| Charger       | AC-20E Phihong | 4868673411351126902;0675628 | -    | -  | -                       | 43135 |
| Headset       | WH-108         | -                           | -    | -  | -                       | 43136 |
| Phone         | RM-1075        | 004402479019865             | 1690 | -  | 02156.00000.14506.01000 | 43253 |
| Battery       | BV-T5C         | 08407                       | -    | -  | -                       | 43256 |

### 1.2. Summary of Test Results, Antenna 1

**GSM 1900:**

| Section in CFR 47   | Section in RSS-GEN or RSS-133 | Name of the test                           | Result |
|---------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)          | 6.4                           | Conducted RF output power                  | -      |
| §24.232(b)          | 6.4                           | Radiated RF output power                   | PASSED |
| N/A                 | 6.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)          | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §24.238(a)          | 6.5                           | Band edge compliance                       | PASSED |
| §24.238(a), §2.1051 | 6.5                           | Spurious emissions at antenna terminals    | -      |
| §24.238(a), §2.1053 | 6.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)          | 6.3                           | Frequency stability, temperature variation | PASSED |
| §2.1055(d)          | 6.3                           | Frequency stability, voltage variation     | PASSED |

**GSM 850:**

| Section in CFR 47     | Section in RSS-GEN or RSS-132 | Name of the test                           | Result |
|-----------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a), 22.913(a) | 4.4                           | Conducted RF output power                  | -      |
| §22.913(a)            | 4.4                           | Radiated RF output power                   | PASSED |
| N/A                   | 5.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)            | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §22.917(a)            | 4.5                           | Band edge compliance                       | PASSED |
| §22.917(a), §2.1051   | 4.5                           | Spurious emissions at antenna terminals    | -      |
| §22.917(a), §2.1053   | 4.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)            | 4.3                           | Frequency stability, temperature variation | PASSED |
| §2.1055(d)            | 4.3                           | Frequency stability, voltage variation     | PASSED |

#### WCDMA2:

| Section in CFR 47   | Section in RSS-GEN or RSS-133 | Name of the test                           | Result |
|---------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)          | 6.4                           | Conducted RF output power                  | -      |
| §24.232(b)          | 6.4                           | Radiated RF output power                   | PASSED |
| N/A                 | 6.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)          | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §24.238(a)          | 6.5                           | Band edge compliance                       | PASSED |
| §24.238(a), §2.1051 | 6.5                           | Spurious emissions at antenna terminals    | -      |
| §24.238(a), §2.1053 | 6.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)          | 6.3                           | Frequency stability, temperature variation | -      |
| §2.1055(d)          | 6.3                           | Frequency stability, voltage variation     | -      |

#### WCDMA4:

| Section in CFR 47   | Section in RSS-GEN or RSS-139 | Name of the test                           | Result |
|---------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)          | 6.4                           | Conducted RF output power                  | -      |
| §27.50(d)(2)        | 6.4                           | Radiated RF output power                   | PASSED |
| N/A                 | 6.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)          | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §27.53(g)           | 6.5                           | Band edge compliance                       | PASSED |
| §27.53(g), §2.1051  | 6.5                           | Spurious emissions at antenna terminals    | -      |
| §24.238(a), §2.1053 | 6.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)          | 6.3                           | Frequency stability, temperature variation | PASSED |
| §2.1055(d)          | 6.3                           | Frequency stability, voltage variation     | PASSED |

#### WCDMA5:

| Section in CFR 47     | Section in RSS-GEN or RSS-132 | Name of the test                           | Result |
|-----------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a), 22.913(a) | 4.4                           | Conducted RF output power                  | -      |
| §22.913(a)            | 4.4                           | Radiated RF output power                   | PASSED |
| N/A                   | 5.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)            | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §22.917(a)            | 4.5                           | Band edge compliance                       | PASSED |
| §22.917(a), §2.1051   | 4.5                           | Spurious emissions at antenna terminals    | -      |
| §22.917(a), §2.1053   | 4.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)            | 4.3                           | Frequency stability, temperature variation | -      |
| §2.1055(d)            | 4.3                           | Frequency stability, voltage variation     | -      |

#### LTE2:

| Section in CFR 47   | Section in RSS-GEN or RSS-133 | Name of the test                           | Result |
|---------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)          | 6.4                           | Conducted RF output power                  | -      |
| §24.232(b)          | 6.4                           | Radiated RF output power                   | PASSED |
| N/A                 | 6.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)          | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §24.238(a)          | 6.5                           | Band edge compliance                       | PASSED |
| §24.238(a), §2.1051 | 6.5                           | Spurious emissions at antenna terminals    | -      |
| §24.238(a), §2.1053 | 6.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)          | 6.3                           | Frequency stability, temperature variation | -      |
| §2.1055(d)          | 6.3                           | Frequency stability, voltage variation     | -      |

**LTE4:**

| Section in CFR 47  | Section in RSS-GEN or RSS-139 | Name of the test                           | Result |
|--------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)         | 6.4                           | Conducted RF output power                  | -      |
| §27.50(d)(4)       | 6.4                           | Radiated RF output power                   | PASSED |
| N/A                | 6.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)         | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §27.53(h)          | 6.5                           | Band edge compliance                       | PASSED |
| §27.53(h), §2.1051 | 6.5                           | Spurious emissions at antenna terminals    | -      |
| §27.53(h), §2.1053 | 6.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)         | 6.3                           | Frequency stability, temperature variation | -      |
| §2.1055(d)         | 6.3                           | Frequency stability, voltage variation     | -      |

**LTE5:**

| Section in CFR 47     | Section in RSS-GEN or RSS-132 | Name of the test                           | Result |
|-----------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a), 22.913(a) | 4.4                           | Conducted RF output power                  | -      |
| §22.913(a)            | 4.4                           | Radiated RF output power                   | PASSED |
| N/A                   | 5.4                           | Peak to average power ratio                | PASSED |
| §2.1049(h)            | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §22.917(a)            | 4.5                           | Band edge compliance                       | PASSED |
| §22.917(a), §2.1051   | 4.5                           | Spurious emissions at antenna terminals    | -      |
| §22.917(a), §2.1053   | 4.5                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)            | 4.3                           | Frequency stability, temperature variation | -      |
| §2.1055(d)            | 4.3                           | Frequency stability, voltage variation     | -      |

**LTE7:**

| Section in CFR 47  | Section in RSS-GEN or RSS-199 | Name of the test                           | Result |
|--------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)         | 4.4                           | Conducted RF output power                  | -      |
| §27.50(h)(2)       | 4.4                           | Radiated RF output power                   | PASSED |
| N/A                | N/A                           | Peak to average power ratio                | -      |
| §2.1049(h)         | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §27.53(l)          | 4.5(b)                        | Band edge compliance                       | PASSED |
| §2.1051            | 4.5(b)                        | Spurious emissions at antenna terminals    | -      |
| §27.53(l), §2.1053 | 4.5(b)                        | Spurious radiated emissions                | PASSED |
| §27.54             | 4.3                           | Frequency stability, temperature variation | PASSED |
| §27.54             | 4.3                           | Frequency stability, voltage variation     | PASSED |

**LTE12:**

| Section in CFR 47 | Section in RSS-GEN or RSS-130 | Name of the test                           | Result |
|-------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)        | 4.4                           | Conducted RF output power                  | -      |
| §27.50(c)10       | 4.4                           | Radiated RF output power                   | PASSED |
| N/A               | N/A                           | Peak to average power ratio                | -      |
| §2.1049(h)        | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §27.53(f)         | 4.6                           | Band edge compliance                       | PASSED |
| §27.53(f)         | 4.6                           | Spurious emissions at antenna terminals    | -      |
| §27.53(f)         | 4.6                           | Spurious radiated emissions                | PASSED |
| §27.54            | 4.3                           | Frequency stability, temperature variation | PASSED |
| §27.54            | 4.3                           | Frequency stability, voltage variation     | PASSED |

**LTE17:**

| Section in CFR 47  | Section in RSS-GEN or RSS-130 | Name of the test                           | Result |
|--------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)         | 4.4                           | Conducted RF output power                  | -      |
| §27.50(c)(10)      | 4.4                           | Radiated RF output power                   | PASSED |
| N/A                | N/A                           | Peak to average power ratio                | -      |
| §2.1049(h)         | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §27.53(g)          | 4.6                           | Band edge compliance                       | PASSED |
| §27.53(g), §2.1051 | 4.6                           | Spurious emissions at antenna terminals    | -      |
| §27.53(g), §2.1051 | 4.6                           | Spurious radiated emissions                | PASSED |
| §2.1055(a)         | 4.3 (a)                       | Frequency stability, temperature variation | PASSED |
| §2.1055(d)         | 4.3 (a)                       | Frequency stability, voltage variation     | PASSED |

**LTE28:**

| Section in CFR 47 | Section in RSS-GEN or RSS-130 | Name of the test                           | Result |
|-------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)        | 4.4                           | Conducted RF output power                  | -      |
| §27.50(c)10       | 4.4                           | Radiated RF output power                   | PASSED |
| N/A               | 4.4                           | Peak to average power ratio                | -      |
| §2.1049(h)        | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §27.53(g)         | 4.6                           | Band edge compliance                       | PASSED |
| §27.53(g)         | 4.6                           | Spurious emissions at antenna terminals    | -      |
| §27.53(g)         | 4.6                           | Spurious radiated emissions                | PASSED |
| §27.54            | 4.3                           | Frequency stability, temperature variation | PASSED |
| §27.54            | 4.3                           | Frequency stability, voltage variation     | PASSED |

PASSED  
 FAILED  
 NP

The EUT complies with the essential requirements in the standard.  
 The EUT does not comply with the essential requirements in the standard.  
 The test was not performed by the TCC Microsoft Laboratory.

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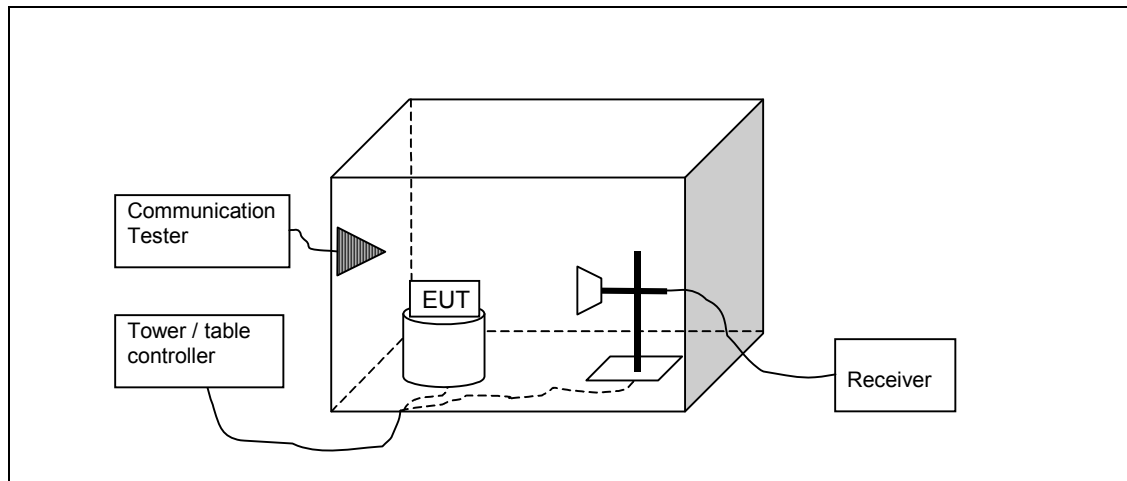
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## 2. Radiated RF output power

(FCC §22.913(a), §27.50(c)(10), §27.50(c)10, §27.50(h)(2), §27.50(d)(4), §27.50(d)(2), §24.232(b), RSS-132 4.4, RSS-133 6.4, RSS-139 6.4, RSS-199 4.4, RSS-130 4.4)

|                                                 |                    |
|-------------------------------------------------|--------------------|
| EUT with DUT number                             | RM-1075, DUT 43253 |
| Accessories with DUT numbers                    | BV-T5C, DUT 43256  |
| Operation Voltage [V] / [Hz]                    | Nominal            |
| Results                                         | PASSED             |
| Remarks                                         | -                  |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 20 / 45 / 102.9    |
| Date of measurements                            | 20-Jan-2015        |
| Measured by                                     | Timo Raiskio       |

### 2.1.1 Test setup



## 2.2. Test method and limit

The measurement is made according to TIA-603-C-2004 as follows:

The measurement is performed in the Anechoic Chamber with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system. The turntable is rotated 360 degrees and this is repeated for both horizontal and vertical receive antenna polarizations.

The EUT is placed on a nonconductive plate at 170 cm height.

The substitution method is used. The measurement results are obtained as described below:

$$P[dBm] = P_{SUBST\ TX} + P_{MEAS} - P_{SUBST\ RX} - L_{SUBST\ CABLES} + G_{SUBST\ TX\ ANT}$$

Where  $P_{SUBST\ TX}$  is signal generator level.  $P_{MEAS}$  is measured power level from the EUT.  $P_{SUBST\ RX}$  is measured power level in substitute measurement.  $L_{SUBST\ CABLE}$  is the loss of the cable between the signal generator and the substitution antenna and  $G_{SUBST\ TX\ ANT}$  is substitution antenna gain.

Limits for radiated RF output power measurements

| Frequency range [MHz] | Limit [W] | Limit [dBm] |
|-----------------------|-----------|-------------|
| 824 - 849             | 7 ERP     | 38.5        |
| 1850 - 1910           | 2 EIRP    | 33          |
| 1710 - 1755           | 1 EIRP    | 30          |

---

|                 |        |      |
|-----------------|--------|------|
| 2502.5 - 2567.5 | 2 EIRP | 33   |
| 699 - 712       | 2 ERP  | 33   |
| 704 - 716       | 3 ERP  | 34.8 |
| 703 - 748       | 3 ERP  | 34.8 |

### 2.3. GSM 850 test results

RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 128 / 824.2                    | 28.83     | 0.764   | -3.5                    | 32.33                 | VERTICAL     | PASSED  |
| 190 / 836.6                    | 28.59     | 0.722   | -3.04                   | 31.63                 | VERTICAL     | PASSED  |
| 251 / 848.8                    | 27.62     | 0.578   | -3.19                   | 30.81                 | VERTICAL     | PASSED  |

### 2.4. GSM 850 E-GPRS (MSC9) test results

RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 128 / 824.2                    | 25.19     | 0.33    | -7.14                   | 32.33                 | VERTICAL     | PASSED  |
| 190 / 836.6                    | 24.4      | 0.275   | -7.23                   | 31.63                 | VERTICAL     | PASSED  |
| 251 / 848.8                    | 26.3      | 0.426   | -4.1                    | 30.4                  | HORIZONTAL   | PASSED  |

### 2.5. GSM 1900 test results

RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 512 / 1850.2                   | 26.24      | 0.421    | -16.53                  | 42.77                 | HORIZONTAL   | PASSED  |
| 661 / 1880                     | 26.85      | 0.484    | -15.91                  | 42.76                 | HORIZONTAL   | PASSED  |
| 810 / 1909.8                   | 27.08      | 0.511    | -15.83                  | 42.91                 | HORIZONTAL   | PASSED  |

### 2.6. GSM 1900 E-GPRS (MSC9) test results

RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 512 / 1850.2                   | 25.39      | 0.346    | -17.38                  | 42.77                 | HORIZONTAL   | PASSED  |
| 661 / 1880                     | 26.31      | 0.427    | -16.45                  | 42.76                 | HORIZONTAL   | PASSED  |
| 810 / 1909.8                   | 26.63      | 0.46     | -16.28                  | 42.91                 | HORIZONTAL   | PASSED  |

## 2.7. WCDMA5 test results

RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 4132 / 826.4                   | 18.02     | 0.063   | -14.46                  | 32.48                 | VERTICAL     | PASSED  |
| 4175 / 835                     | 18.52     | 0.071   | -13.41                  | 31.93                 | VERTICAL     | PASSED  |
| 4233 / 846.6                   | 18.04     | 0.064   | -12.75                  | 30.79                 | VERTICAL     | PASSED  |

## 2.8. WCDMA2 test results

RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 9262 / 1852.4                  | 23.85      | 0.242    | -18.94                  | 42.79                 | HORIZONTAL   | PASSED  |
| 9400 / 1880                    | 24.1       | 0.257    | -18.66                  | 42.76                 | HORIZONTAL   | PASSED  |
| 9538 / 1907.6                  | 23.68      | 0.233    | -19.17                  | 42.85                 | HORIZONTAL   | PASSED  |

## 2.9. WCDMA4 test results

RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 1312 / 1712.4                  | 22.35      | 0.172    | -19.45                  | 41.8                  | HORIZONTAL   | PASSED  |
| 1412 / 1732.4                  | 22.96      | 0.198    | -18.93                  | 41.89                 | HORIZONTAL   | PASSED  |
| 1513 / 1752.6                  | 22.41      | 0.174    | -19.48                  | 41.89                 | HORIZONTAL   | PASSED  |

## 2.10. LTE2 test results

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 26065 / 1852.5                 | 24.91      | 0.309    | -17.89                  | 42.8                  | HORIZONTAL   | PASSED  |
| 18900 / 1880                   | 25.32      | 0.341    | -17.44                  | 42.76                 | HORIZONTAL   | PASSED  |
| 19175 / 1907.5                 | 24.97      | 0.314    | -17.88                  | 42.85                 | HORIZONTAL   | PASSED  |

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 26065 / 1852.5                 | 24.8       | 0.302    | -18                     | 42.8                  | HORIZONTAL   | PASSED  |
| 18900 / 1880                   | 25.47      | 0.352    | -17.29                  | 42.76                 | HORIZONTAL   | PASSED  |
| 19175 / 1907.5                 | 24.78      | 0.3      | -18.07                  | 42.85                 | HORIZONTAL   | PASSED  |

## 2.11. LTE4 test results

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 19975 / 1712.5                 | 24.09      | 0.257    | -17.71                  | 41.8                  | HORIZONTAL   | PASSED  |
| 20175 / 1732.5                 | 24.14      | 0.26     | -17.75                  | 41.89                 | HORIZONTAL   | PASSED  |
| 20375 / 1752.5                 | 23.99      | 0.251    | -17.9                   | 41.89                 | HORIZONTAL   | PASSED  |

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 19975 / 1712.5                 | 23.68      | 0.233    | -18.12                  | 41.8                  | HORIZONTAL   | PASSED  |
| 20175 / 1732.5                 | 24.22      | 0.264    | -17.67                  | 41.89                 | HORIZONTAL   | PASSED  |
| 20375 / 1752.5                 | 23.97      | 0.25     | -17.92                  | 41.89                 | HORIZONTAL   | PASSED  |

## 2.12. LTE5 test results

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 20425 / 826.5                  | 19.53     | 0.09    | -12.84                  | 32.37                 | HORIZONTAL   | PASSED  |
| 20525 / 836.5                  | 20.35     | 0.108   | -11.29                  | 31.64                 | HORIZONTAL   | PASSED  |
| 20625 / 846.5                  | 19.62     | 0.092   | -11.17                  | 30.79                 | VERTICAL     | PASSED  |

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 20425 / 826.5                  | 19.56     | 0.09    | -12.81                  | 32.37                 | HORIZONTAL   | PASSED  |
| 20525 / 836.5                  | 20.1      | 0.102   | -11.54                  | 31.64                 | HORIZONTAL   | PASSED  |
| 20625 / 846.5                  | 19.53     | 0.09    | -11.26                  | 30.79                 | VERTICAL     | PASSED  |

## 2.13. LTE7 test results

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 20775 / 2502.5                 | 23.66      | 0.232    | -22.79                  | 46.45                 | HORIZONTAL   | PASSED  |
| 21100 / 2535                   | 24.6       | 0.288    | -22.35                  | 46.95                 | HORIZONTAL   | PASSED  |
| 21425 / 2567.5                 | 25.66      | 0.368    | -21.23                  | 46.89                 | HORIZONTAL   | PASSED  |

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | EIRP [dBm] | EIRP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|------------|----------|-------------------------|-----------------------|--------------|---------|
| 20775 / 2502.5                 | 23.74      | 0.236    | -22.71                  | 46.45                 | HORIZONTAL   | PASSED  |
| 21100 / 2535                   | 24.49      | 0.281    | -22.46                  | 46.95                 | HORIZONTAL   | PASSED  |
| 21425 / 2567.5                 | 25.07      | 0.321    | -21.82                  | 46.89                 | HORIZONTAL   | PASSED  |

## 2.14. LTE12 test results

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 23035 / 701.5                  | 16.9      | 0.049   | -13.63                  | 30.53                 | VERTICAL     | PASSED  |
| 23095 / 707.5                  | 18.02     | 0.063   | -12.66                  | 30.68                 | VERTICAL     | PASSED  |
| 23155 / 713.5                  | 18.52     | 0.071   | -12.02                  | 30.54                 | VERTICAL     | PASSED  |

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 23035 / 701.5                  | 16.81     | 0.048   | -13.72                  | 30.53                 | VERTICAL     | PASSED  |
| 23095 / 707.5                  | 17.57     | 0.057   | -13.11                  | 30.68                 | VERTICAL     | PASSED  |
| 23155 / 713.5                  | 18.37     | 0.069   | -12.17                  | 30.54                 | VERTICAL     | PASSED  |

## 2.15. LTE17 test results

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 23755 / 706.5                  | 17.48     | 0.056   | -12.61                  | 30.09                 | HORIZONTAL   | PASSED  |
| 23790 / 710                    | 18.13     | 0.065   | -12.54                  | 30.67                 | VERTICAL     | PASSED  |
| 23825 / 713.5                  | 18.26     | 0.067   | -12.28                  | 30.54                 | VERTICAL     | PASSED  |

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 23755 / 706.5                  | 17.66     | 0.058   | -13.05                  | 30.71                 | VERTICAL     | PASSED  |
| 23790 / 710                    | 18.5      | 0.071   | -11.79                  | 30.29                 | HORIZONTAL   | PASSED  |
| 23825 / 713.5                  | 18.54     | 0.071   | -12                     | 30.54                 | VERTICAL     | PASSED  |

## 2.16. LTE28 test results

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 27235 / 705.5                  | 17.32     | 0.054   | -12.71                  | 30.03                 | HORIZONTAL   | PASSED  |
| 27435 / 725.5                  | 19.09     | 0.081   | -11.47                  | 30.56                 | VERTICAL     | PASSED  |
| 27635 / 745.5                  | 17.42     | 0.055   | -13.5                   | 30.92                 | VERTICAL     | PASSED  |

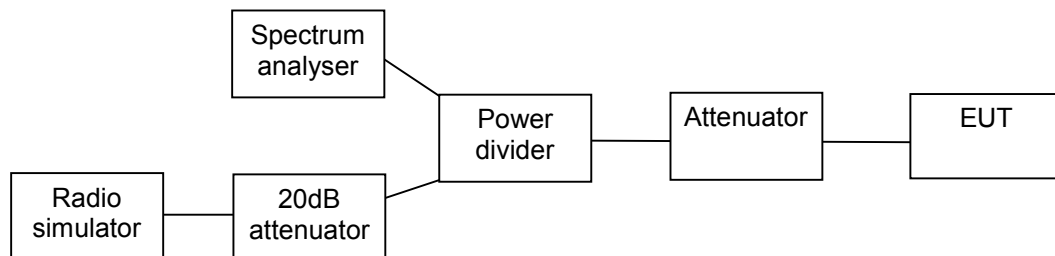
FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

| Channel / f <sub>c</sub> [MHz] | ERP [dBm] | ERP [W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|--------------------------------|-----------|---------|-------------------------|-----------------------|--------------|---------|
| 27235 / 705.5                  | 17.17     | 0.052   | -13.57                  | 30.74                 | VERTICAL     | PASSED  |
| 27435 / 725.5                  | 18.72     | 0.074   | -11.84                  | 30.56                 | VERTICAL     | PASSED  |
| 27635 / 745.5                  | 16.87     | 0.049   | -14.05                  | 30.92                 | VERTICAL     | PASSED  |

### 3. Peak to average power ratio (FCC N/A, RSS-133 6.4, RSS-132 5.4, RSS-139 6.4)

|                                                 |                                                   |
|-------------------------------------------------|---------------------------------------------------|
| EUT with DUT number                             | RM-1075, DUT 43249                                |
| Accessories with DUT numbers                    | BV-T5C DUT43251, AC-20 DUT43135, WH-108 DUT 43136 |
| Operation Voltage [V] / [Hz]                    | Nominal                                           |
| Results                                         | PASSED                                            |
| Remarks                                         | -                                                 |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 25 / 35                                           |
| Date of measurements                            | 15-Jan-2015                                       |
| Measured by                                     | Hannu Söderholm                                   |

#### 3.1. Test Setup



#### 3.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards.

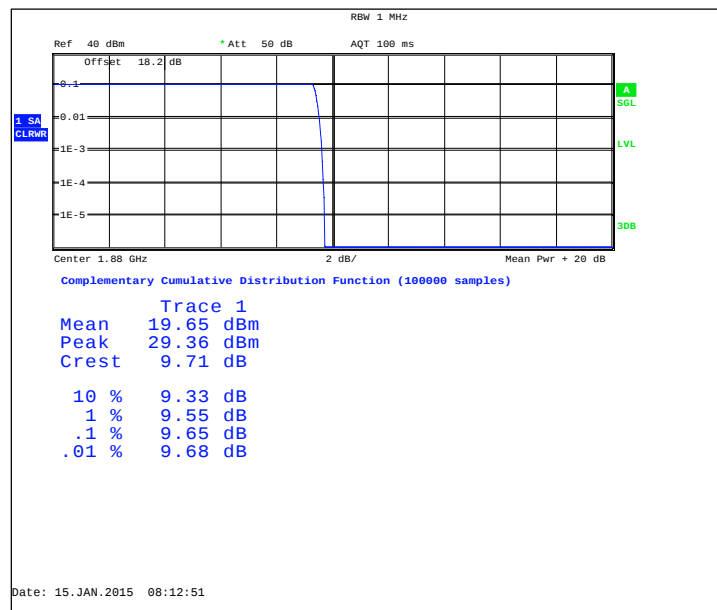
Limits for Peak to average power ratio measurements

| Peak to average power ratio [dB] |
|----------------------------------|
| $\leq 13$                        |

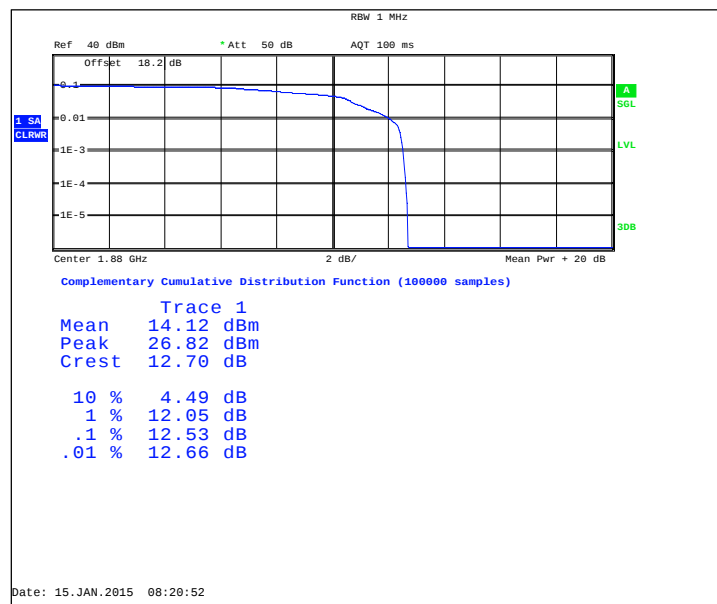
### 3.3. GSM 1900 Test results

| Operation mode (TX on) | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|------------------------|--------------------------------|----------------------------------|--------|
| GSM                    | 661 / 1880.0                   | 9.71                             | PASSED |
| EGPRS                  | 661 / 1880.0                   | 12.70                            | PASSED |

#### GSM



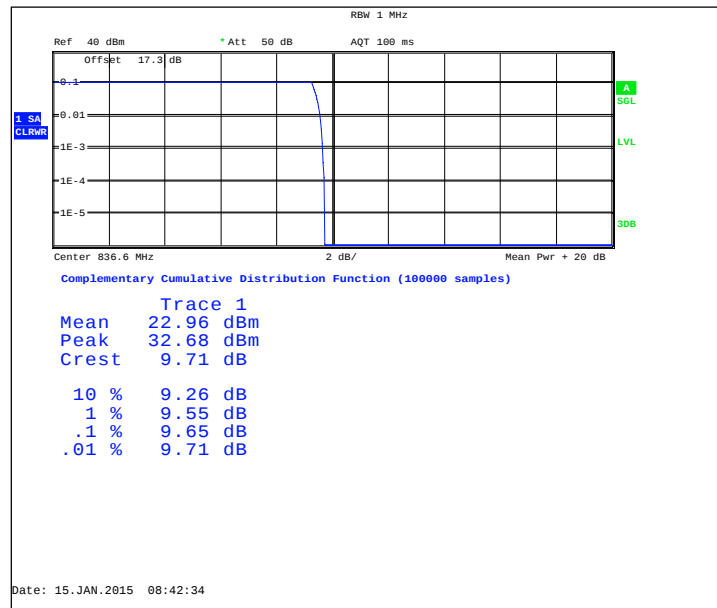
#### EGPRS



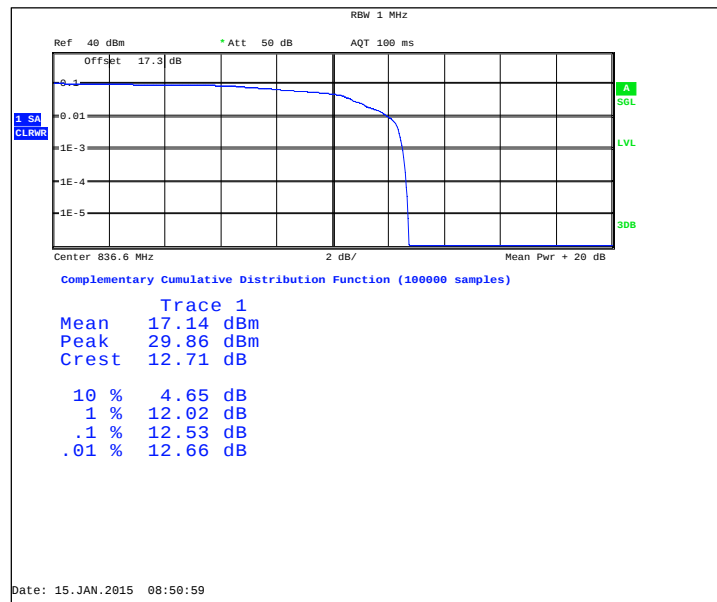
### 3.4. GSM 850 Test results

| Operation mode (TX on) | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|------------------------|--------------------------------|----------------------------------|--------|
| GSM                    | 190 / 836.6                    | 9.71                             | PASSED |
| EGPRS                  | 190 / 836.6                    | 12.71                            | PASSED |

#### GSM



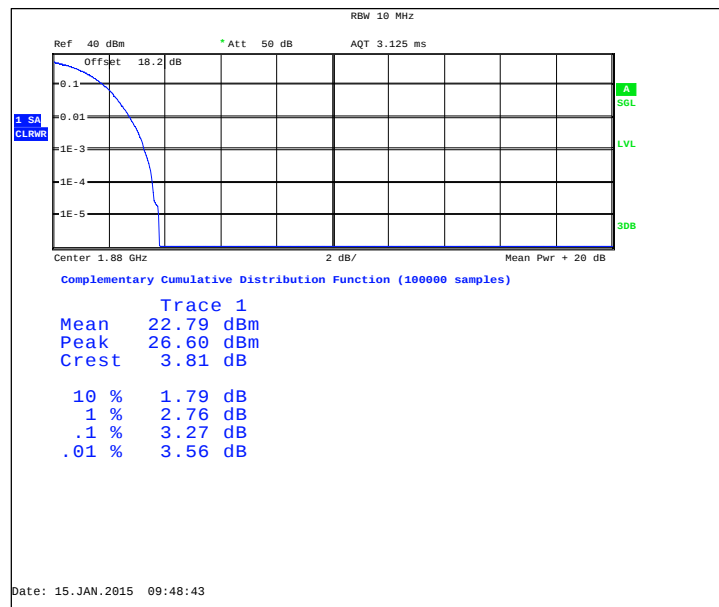
#### EGPRS



### 3.5. WCDMA2 Test results

| Operation mode (TX on) | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|------------------------|--------------------------------|----------------------------------|--------|
| FDD                    | 9400 / 1880.0                  | 3.81                             | PASSED |

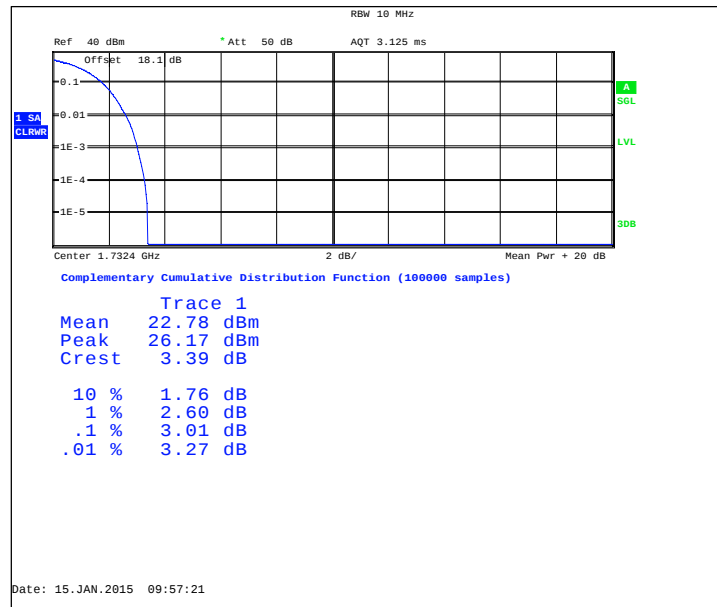
#### FDD



### 3.6. WCDMA4 Test results

| Operation mode (TX on) | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|------------------------|--------------------------------|----------------------------------|--------|
| FDD                    | 1412 / 1732.4                  | 3.39                             | PASSED |

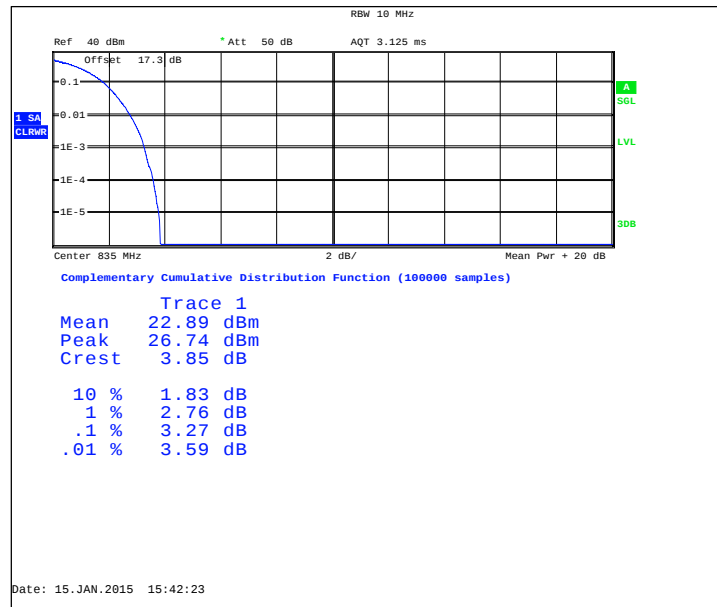
#### FDD



### 3.7. WCDMA5 Test results

| Operation mode (TX on) | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|------------------------|--------------------------------|----------------------------------|--------|
| FDD                    | 4175 / 835.0                   | 3.85                             | PASSED |

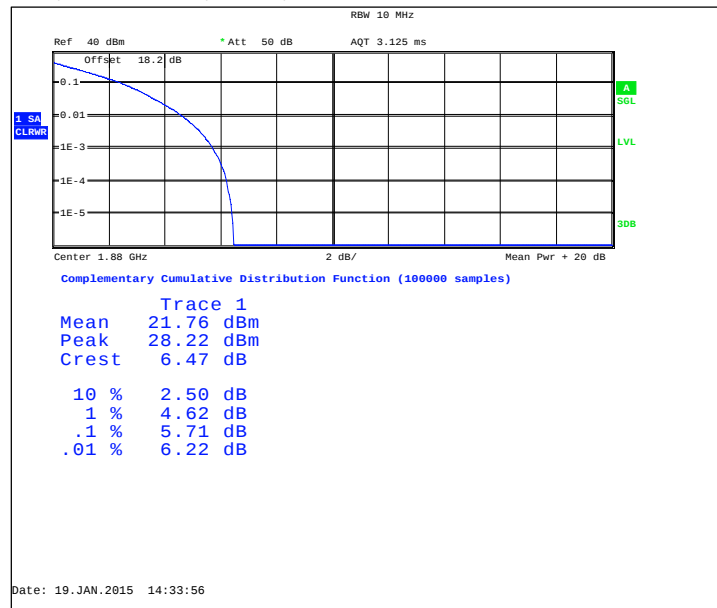
#### FDD



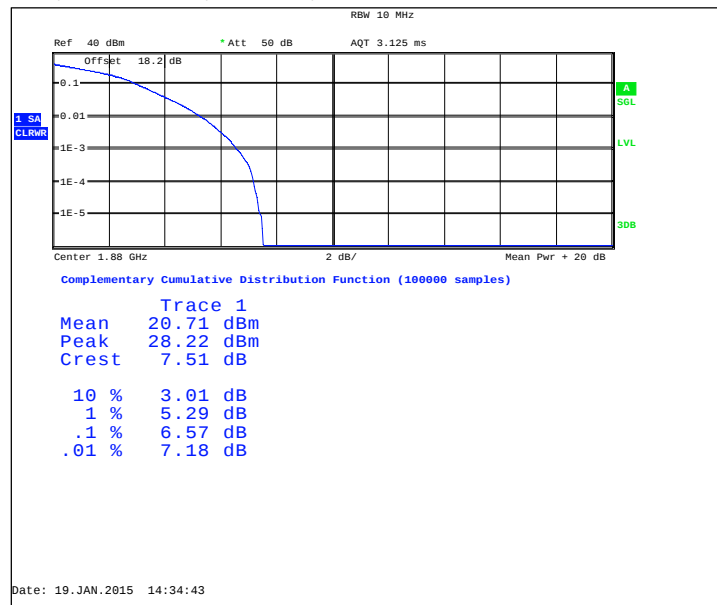
### 3.8. LTE2 Test results

| Operation mode (TX on)      | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|-----------------------------|--------------------------------|----------------------------------|--------|
| FDD, CBW 5MHz, QPSK, 25 RB  | 18900 / 1880.0                 | 6.47                             | PASSED |
| FDD, CBW 5MHz, 16QAM, 25 RB | 18900 / 1880.0                 | 7.51                             | PASSED |

#### FDD, CBW 5MHz, QPSK, 25 RB



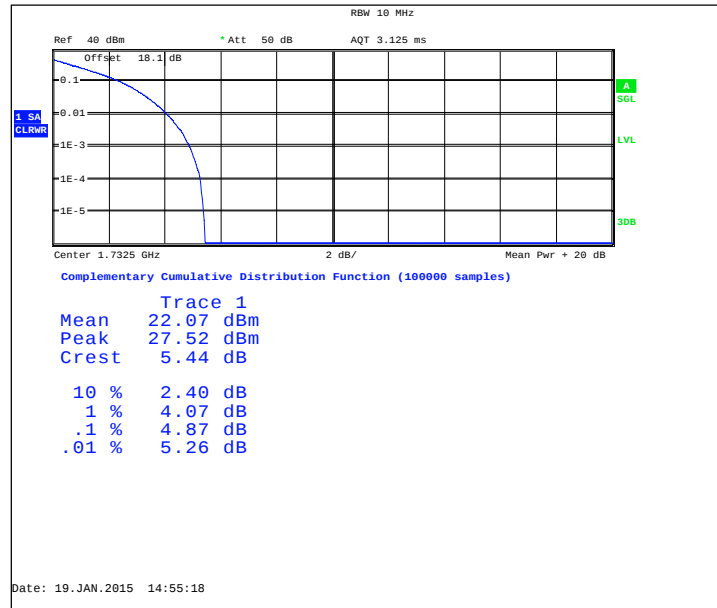
#### FDD, CBW 5MHz, 16QAM, 25 RB



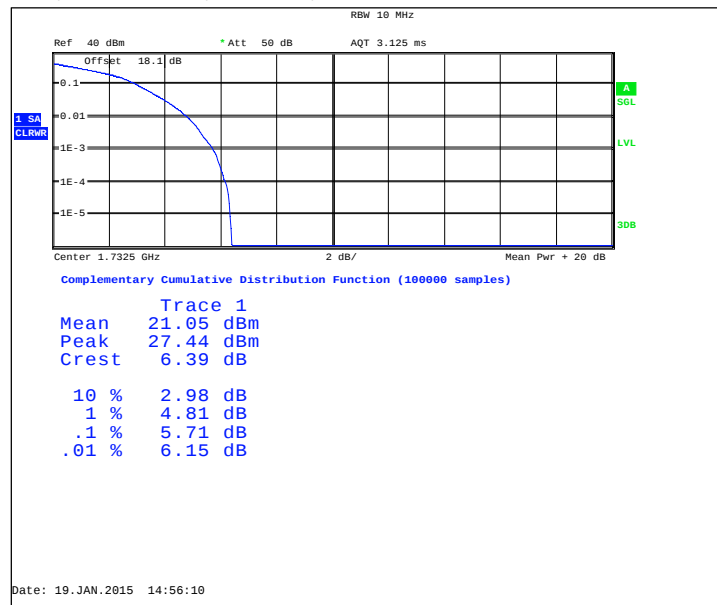
### 3.9. LTE4 Test results

| Operation mode (TX on)      | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|-----------------------------|--------------------------------|----------------------------------|--------|
| FDD, CBW 5MHz, QPSK, 25 RB  | 20175 / 1732.5                 | 5.44                             | PASSED |
| FDD, CBW 5MHz, 16QAM, 25 RB | 20175 / 1732.5                 | 6.39                             | PASSED |

#### FDD, CBW 5MHz, QPSK, 25 RB



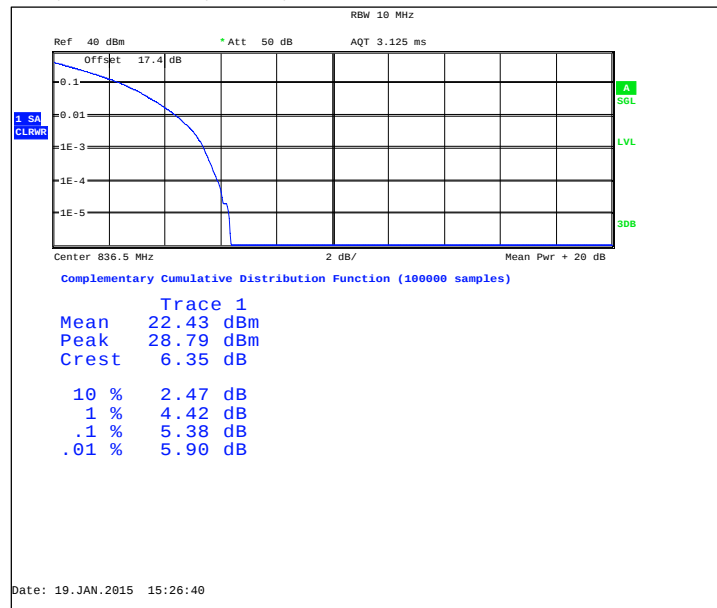
#### FDD, CBW 5MHz, 16QAM, 25 RB



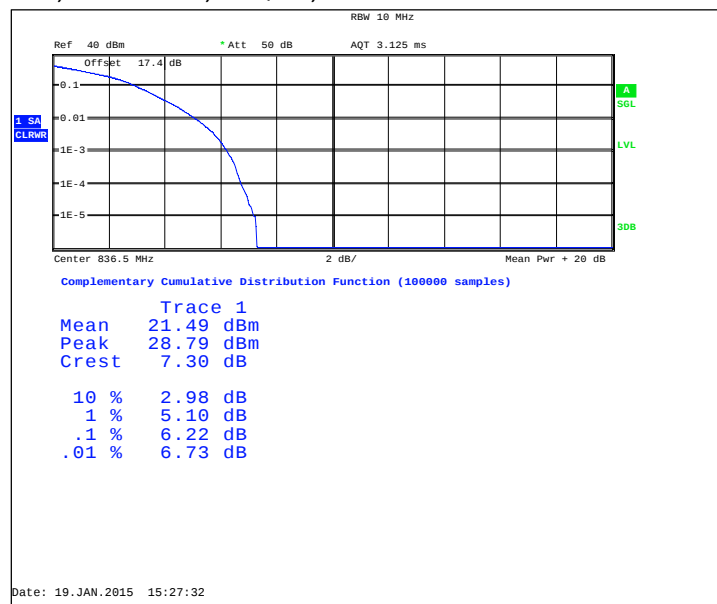
### 3.10. LTE5 Test results

| Operation mode (TX on)      | Channel / f <sub>c</sub> [MHz] | Peak to average power ratio [dB] | Result |
|-----------------------------|--------------------------------|----------------------------------|--------|
| FDD, CBW 5MHz, QPSK, 25 RB  | 20525 / 836.5                  | 6.35                             | PASSED |
| FDD, CBW 5MHz, 16QAM, 25 RB | 20525 / 836.5                  | 7.30                             | PASSED |

#### FDD, CBW 5MHz, QPSK, 25 RB



#### FDD, CBW 5MHz, 16QAM, 25 RB

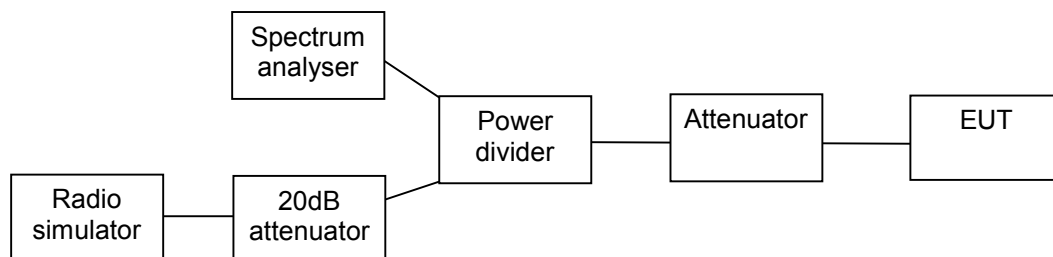


#### 4. 99 % occupied bandwidth

(FCC §2.1049(h), RSS-133 4.6.1, RSS-132 4.6.1, RSS-139 4.6.1, RSS-199 4.6.1, RSS-130 4.6.1)

|                                                 |                                                   |
|-------------------------------------------------|---------------------------------------------------|
| EUT with DUT number                             | RM-1075, DUT 43249                                |
| Accessories with DUT numbers                    | BV-T5C DUT43251, AC-20 DUT43135, WH-108 DUT 43136 |
| Operation Voltage [V] / [Hz]                    | Nominal                                           |
| Results                                         | PASSED                                            |
| Remarks                                         | -                                                 |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 25 / 35                                           |
| Date of measurements                            | 15-Jan-2015                                       |
| Measured by                                     | Hannu Söderholm                                   |

##### 4.1. Test Setup



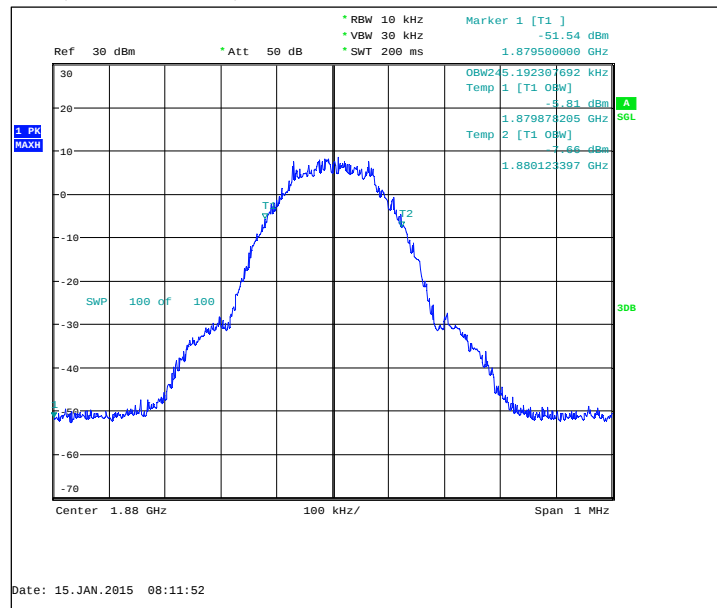
##### 4.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards.

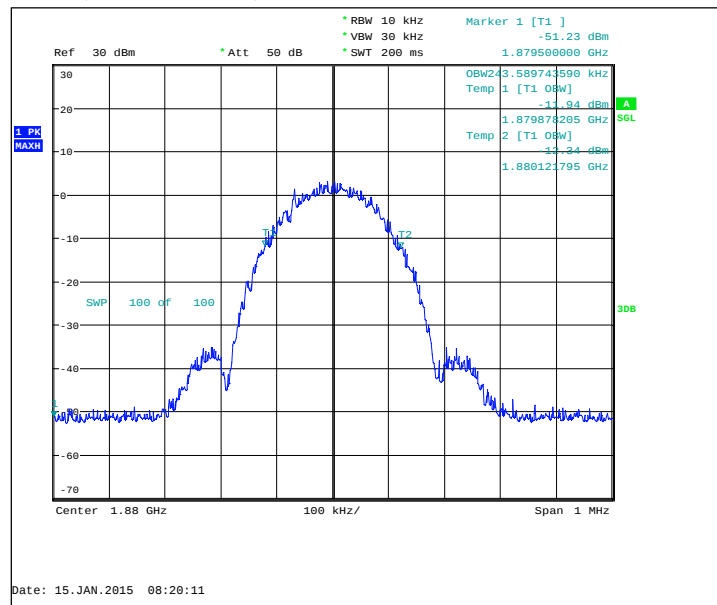
### 4.3. GSM 1900 Test results

| Operation mode (TX on) | 99% Occupied bandwidth [kHz] |
|------------------------|------------------------------|
| GSM                    | 245.2                        |
| EGPRS                  | 243.6                        |

#### GSM, Channel 661 / 1880.0 MHz



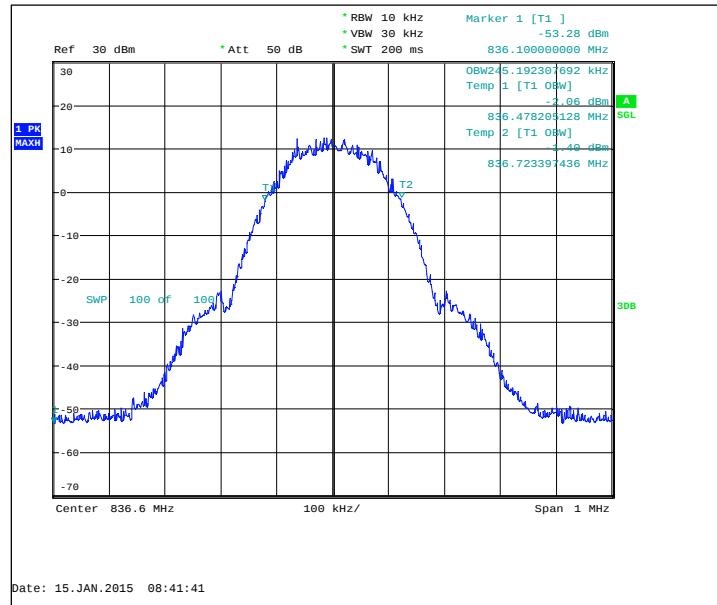
#### EGPRS, Channel 661 / 1880.0 MHz



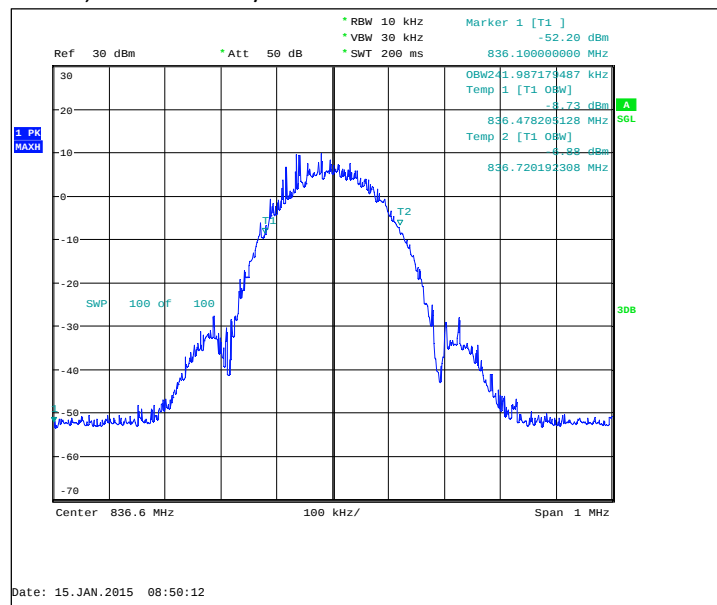
#### 4.4. GSM 850 Test results

| Operation mode (TX on) | 99% Occupied bandwidth [kHz] |
|------------------------|------------------------------|
| GSM                    | 245.2                        |
| EGPRS                  | 242                          |

##### GSM, Channel 190 / 836.6 MHz



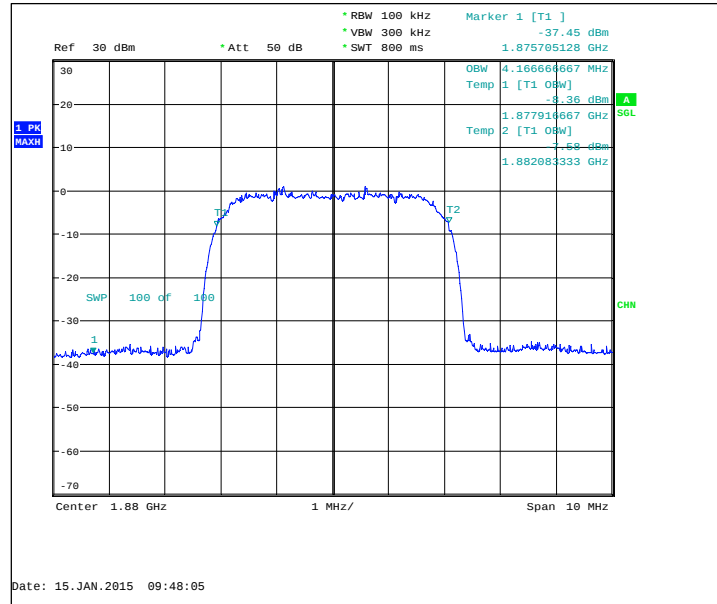
##### EGPRS, Channel 190 / 836.6 MHz



#### 4.5. WCDMA2 Test results

| Operation mode (TX on) | 99% Occupied bandwidth [kHz] |
|------------------------|------------------------------|
| FDD                    | 4166.7                       |

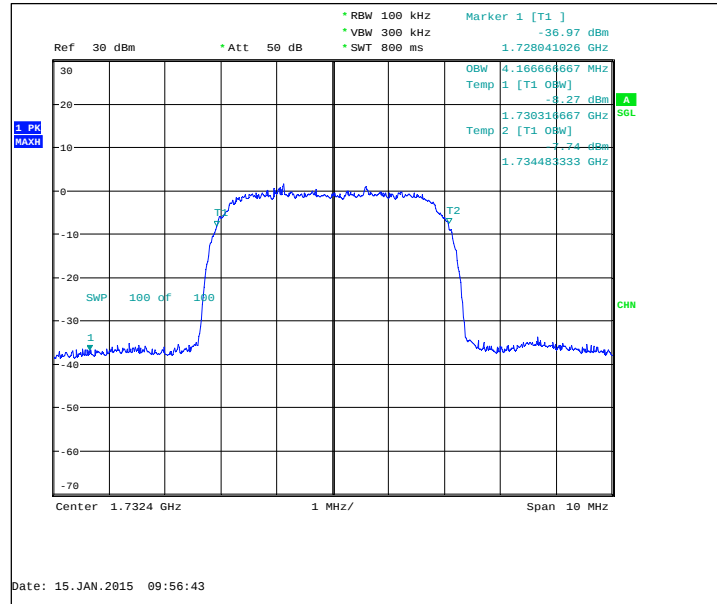
FDD, Channel 9400 / 1880.0 MHz



#### 4.6. WCDMA4 Test results

| Operation mode (TX on) | 99% Occupied bandwidth [kHz] |
|------------------------|------------------------------|
| FDD                    | 4166.7                       |

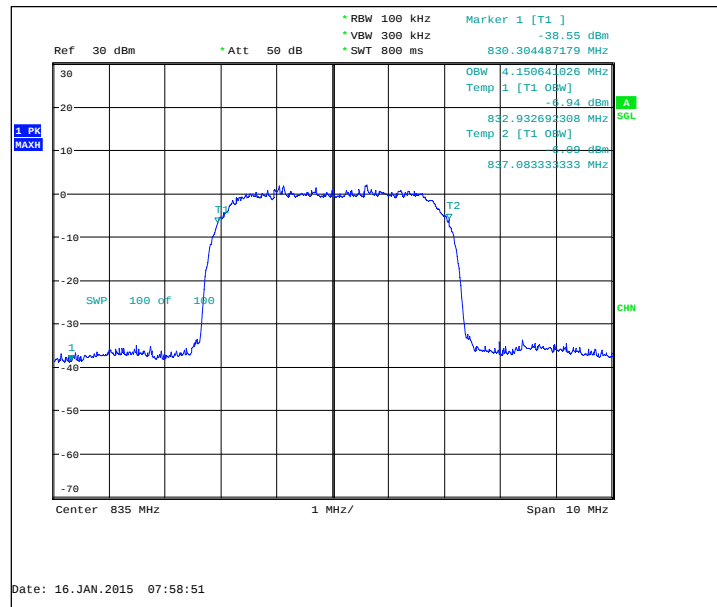
FDD, Channel 1412 / 1732.4 MHz



#### 4.7. WCDMA5 Test results

| Operation mode (TX on) | 99% Occupied bandwidth [kHz] |
|------------------------|------------------------------|
| FDD                    | 4150.6                       |

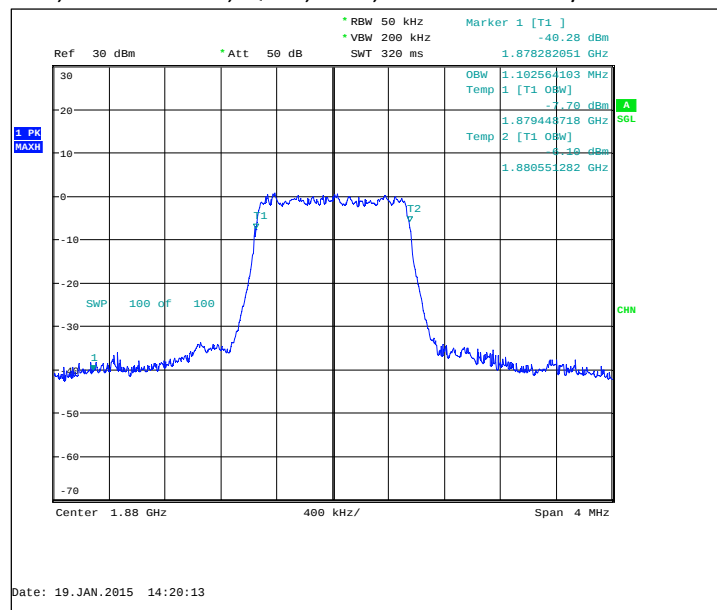
FDD, Channel 4175 / 835.0 MHz



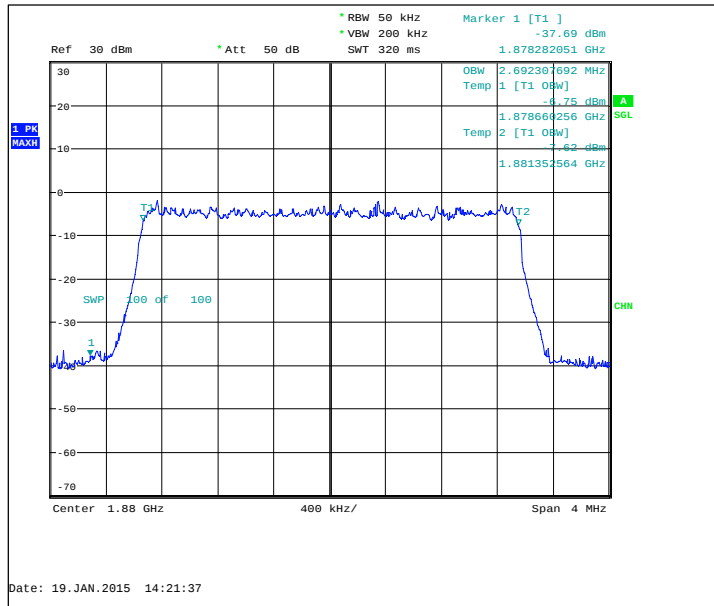
#### 4.8. LTE2 Test results

| Operation mode (TX on)        | 99% Occupied bandwidth [kHz] |
|-------------------------------|------------------------------|
| FDD, CBW 1.4MHz, QPSK, 6 RB   | 1102.6                       |
| FDD, CBW 3MHz, QPSK, 15 RB    | 2692.3                       |
| FDD, CBW 5MHz, QPSK, 25 RB    | 4498.4                       |
| FDD, CBW 10MHz, QPSK, 50 RB   | 8990.4                       |
| FDD, CBW 15MHz, QPSK, 75 RB   | 13461.5                      |
| FDD, CBW 20MHz, QPSK, 100 RB  | 17908.7                      |
| FDD, CBW 1.4MHz, 16QAM, 6 RB  | 1115.4                       |
| FDD, CBW 3MHz, 16QAM, 15 RB   | 2685.9                       |
| FDD, CBW 5MHz, 16QAM, 25 RB   | 4476                         |
| FDD, CBW 10MHz, 16QAM, 50 RB  | 8966.3                       |
| FDD, CBW 15MHz, 16QAM, 75 RB  | 13397.4                      |
| FDD, CBW 20MHz, 16QAM, 100 RB | 17908.7                      |

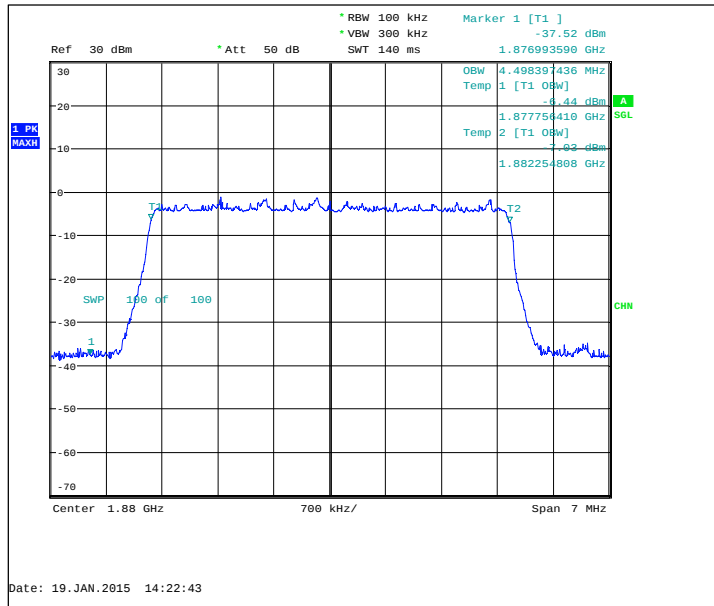
FDD, CBW 1.4MHz, QPSK, 6 RB, Channel 18900 / 1880.0 MHz



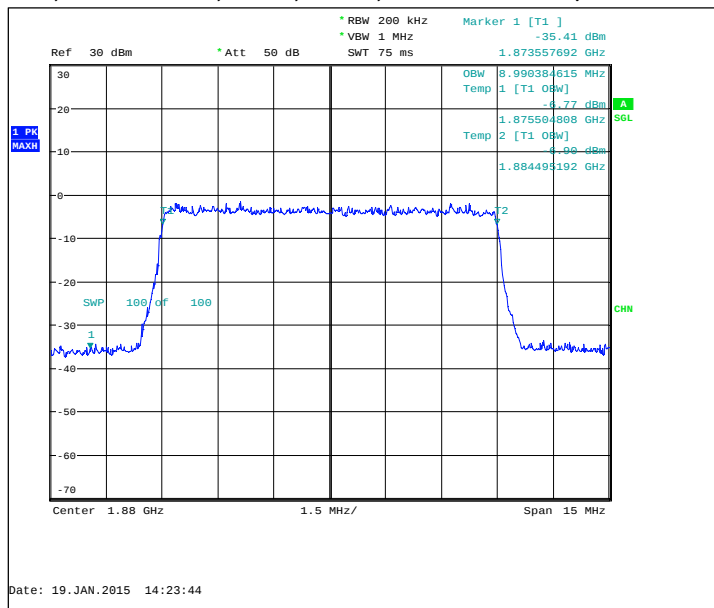
FDD, CBW 3MHz, QPSK, 15 RB, Channel 18900 / 1880.0 MHz



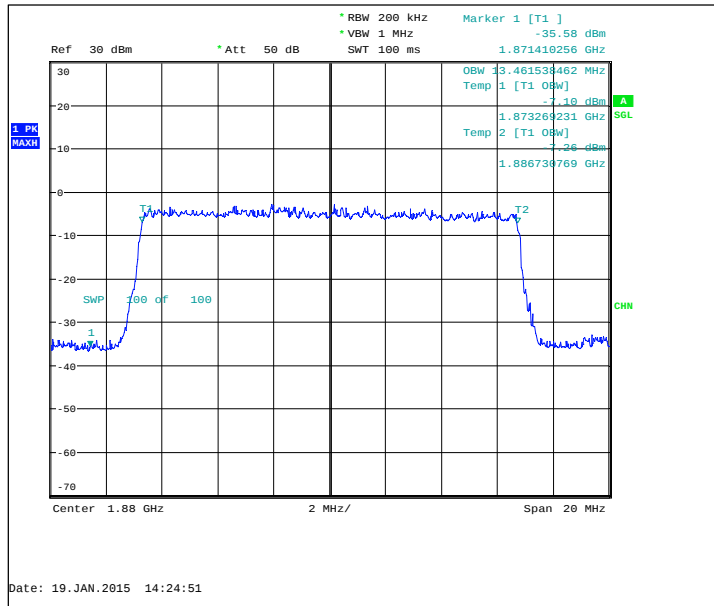
FDD, CBW 5MHz, QPSK, 25 RB, Channel 18900 / 1880.0 MHz



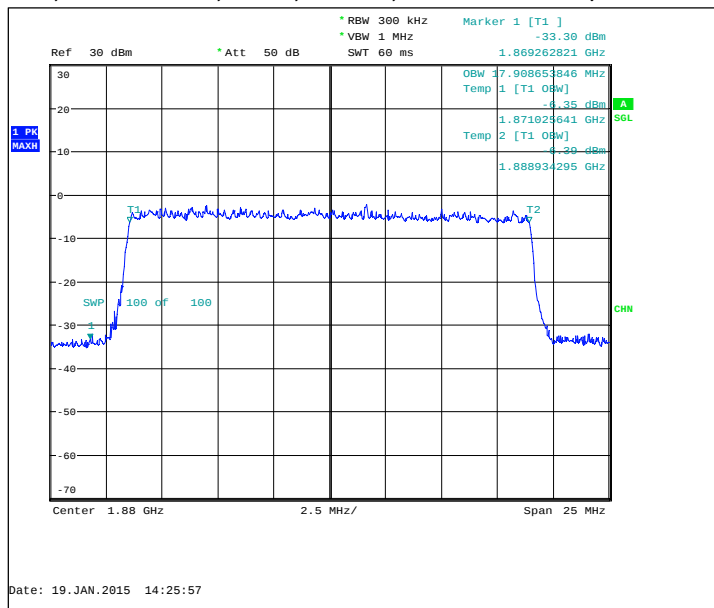
FDD, CBW 10MHz, QPSK, 50 RB, Channel 18900 / 1880.0 MHz



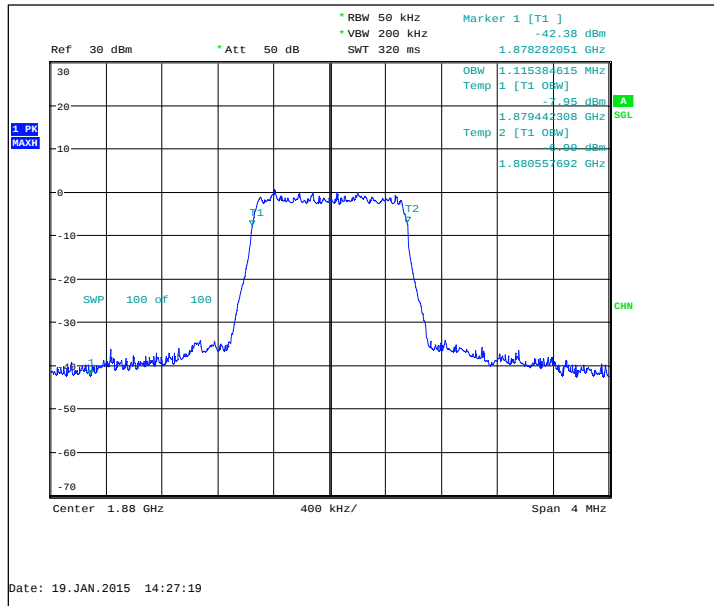
FDD, CBW 15MHz, QPSK, 75 RB, Channel 18900 / 1880.0 MHz



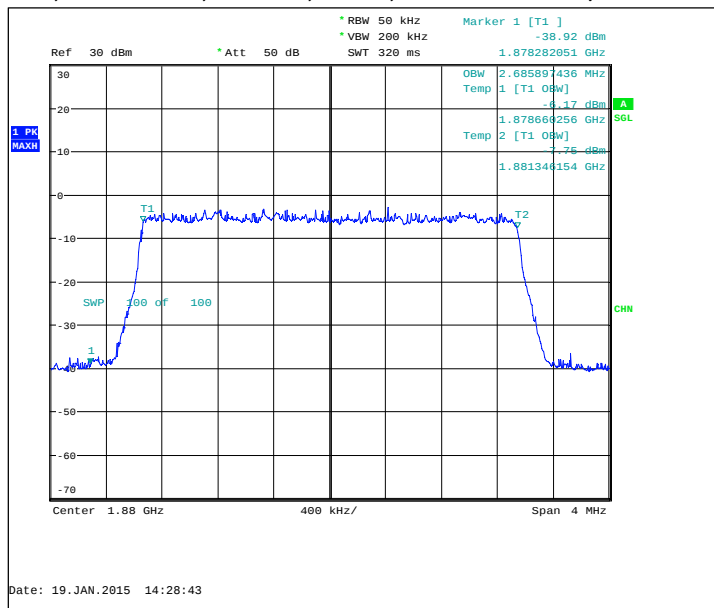
FDD, CBW 20MHz, QPSK, 100 RB, Channel 18900 / 1880.0 MHz



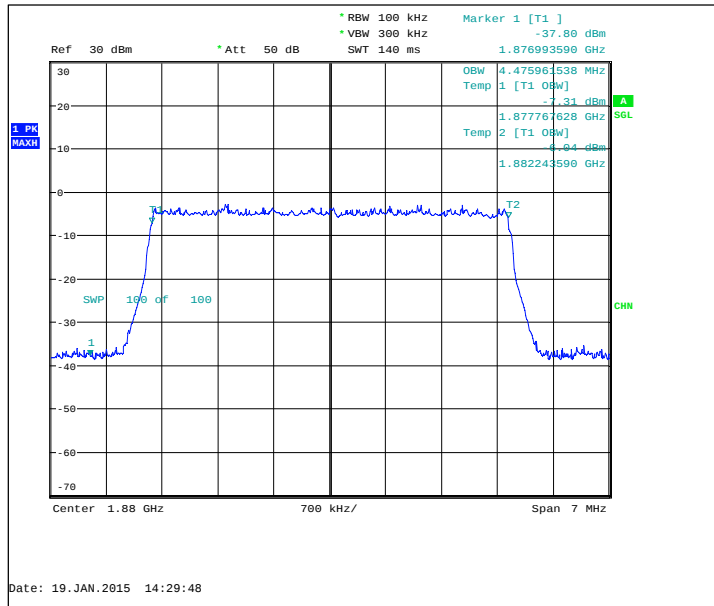
FDD, CBW 1.4MHz, 16QAM, 6 RB, Channel 18900 / 1880.0 MHz



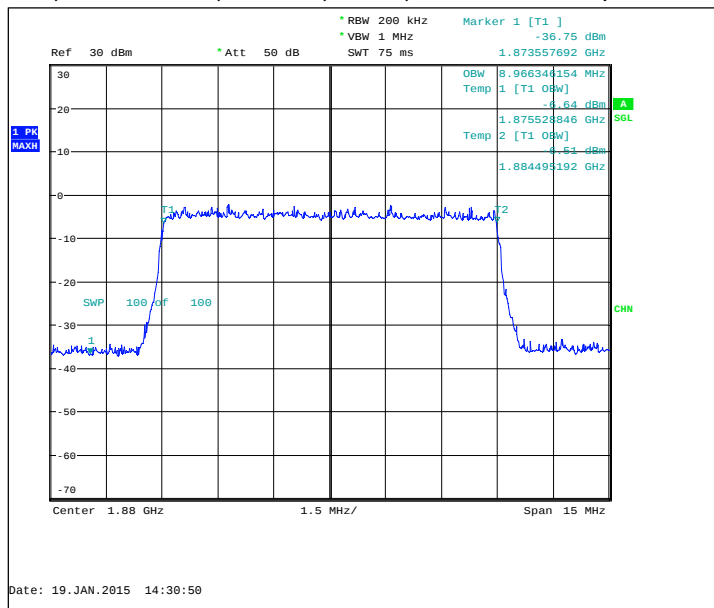
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 18900 / 1880.0 MHz



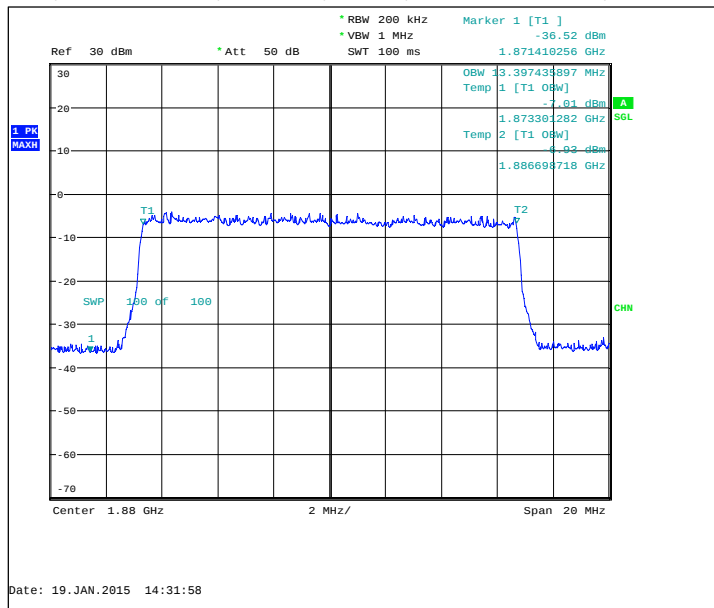
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 18900 / 1880.0 MHz



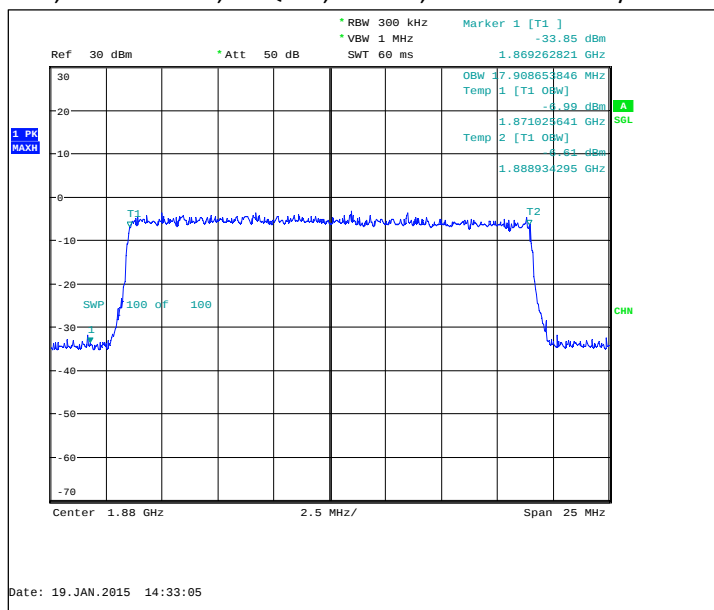
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 18900 / 1880.0 MHz



FDD, CBW 15MHz, 16QAM, 75 RB, Channel 18900 / 1880.0 MHz



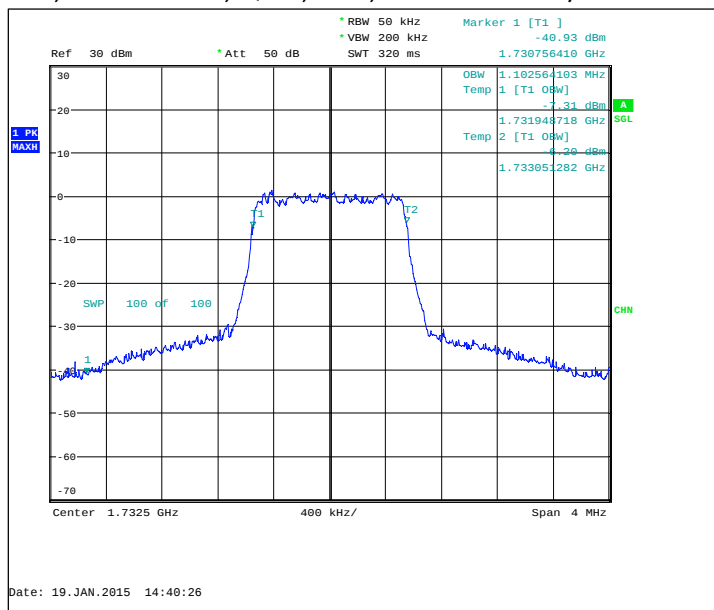
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 18900 / 1880.0 MHz



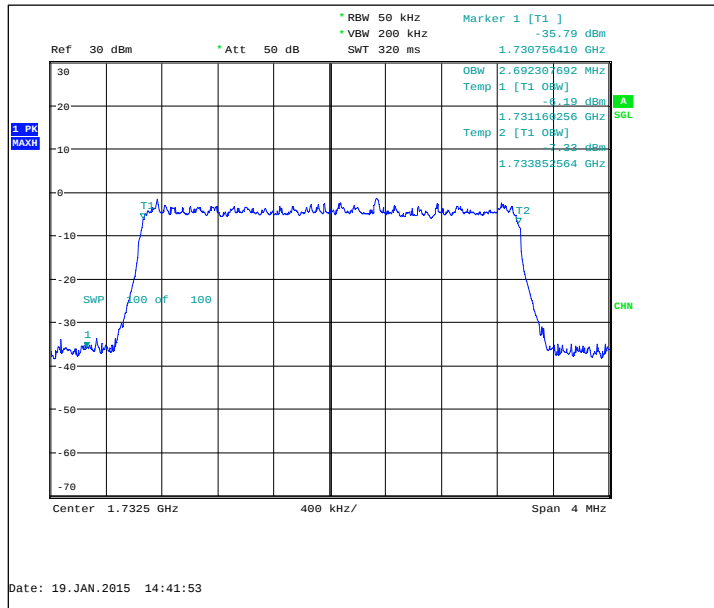
#### 4.9. LTE4 Test results

| Operation mode (TX on)        | 99% Occupied bandwidth [kHz] |
|-------------------------------|------------------------------|
| FDD, CBW 1.4MHz, QPSK, 6 RB   | 1102.6                       |
| FDD, CBW 3MHz, QPSK, 15 RB    | 2692.3                       |
| FDD, CBW 5MHz, QPSK, 25 RB    | 4498.4                       |
| FDD, CBW 10MHz, QPSK, 50 RB   | 8966.3                       |
| FDD, CBW 15MHz, QPSK, 75 RB   | 13397.4                      |
| FDD, CBW 20MHz, QPSK, 100 RB  | 17828.5                      |
| FDD, CBW 1.4MHz, 16QAM, 6 RB  | 1109                         |
| FDD, CBW 3MHz, 16QAM, 15 RB   | 2685.9                       |
| FDD, CBW 5MHz, 16QAM, 25 RB   | 4476                         |
| FDD, CBW 10MHz, 16QAM, 50 RB  | 8966.3                       |
| FDD, CBW 15MHz, 16QAM, 75 RB  | 13397.4                      |
| FDD, CBW 20MHz, 16QAM, 100 RB | 17868.6                      |

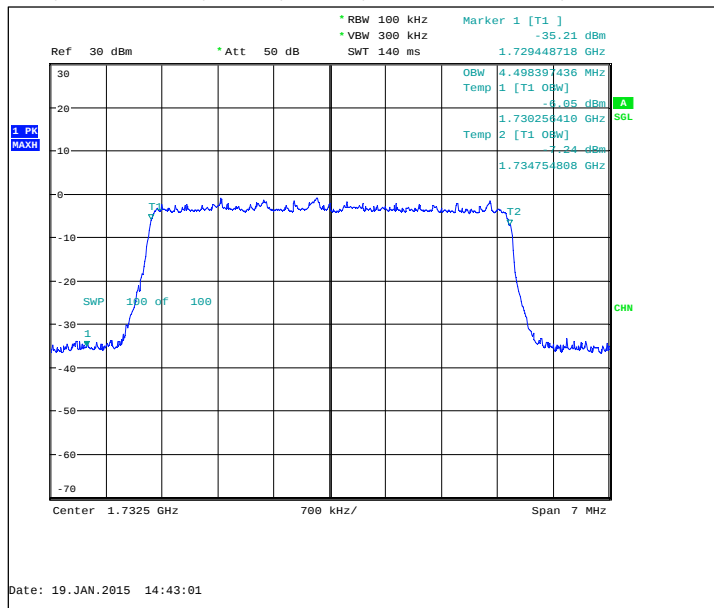
FDD, CBW 1.4MHz, QPSK, 6 RB, Channel 20175 / 1732.5 MHz



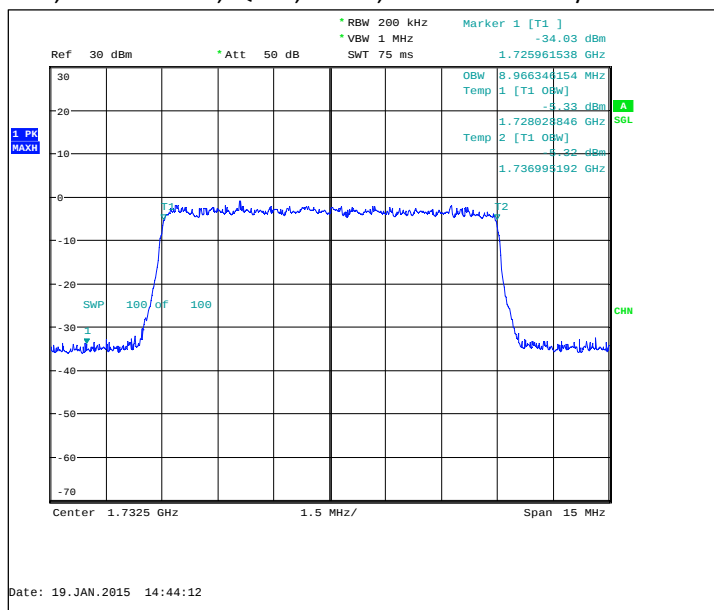
FDD, CBW 3MHz, QPSK, 15 RB, Channel 20175 / 1732.5 MHz



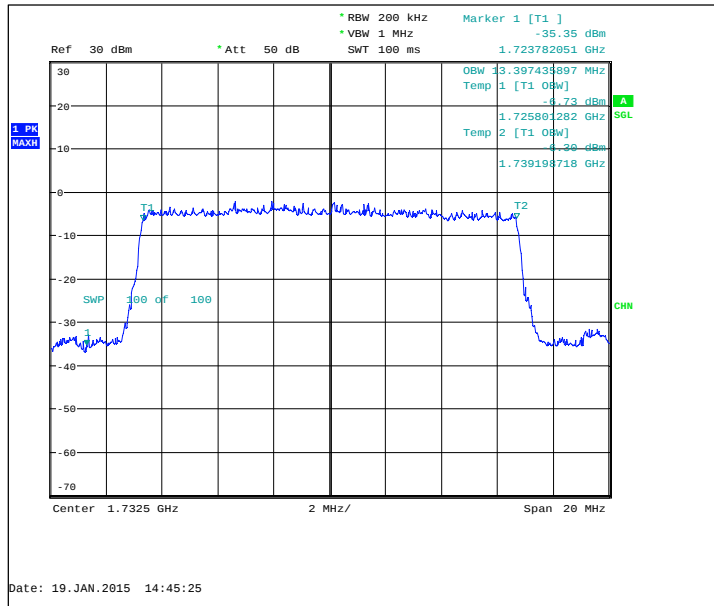
FDD, CBW 5MHz, QPSK, 25 RB, Channel 20175 / 1732.5 MHz



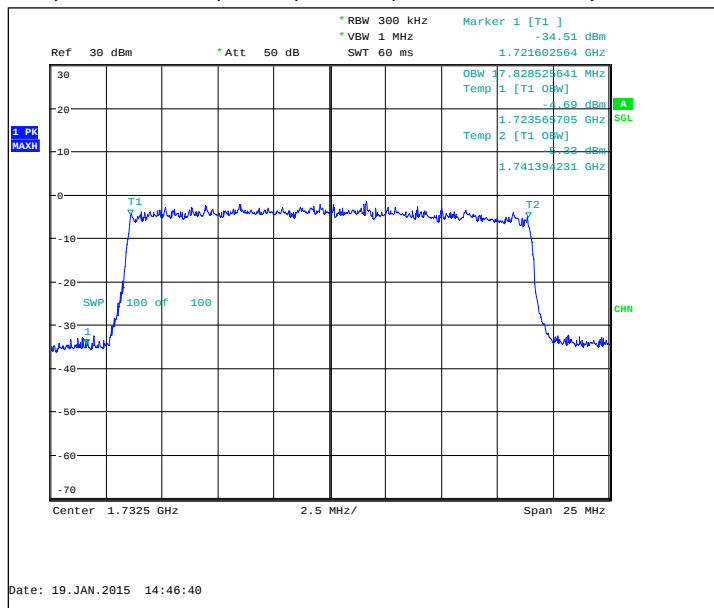
FDD, CBW 10MHz, QPSK, 50 RB, Channel 20175 / 1732.5 MHz



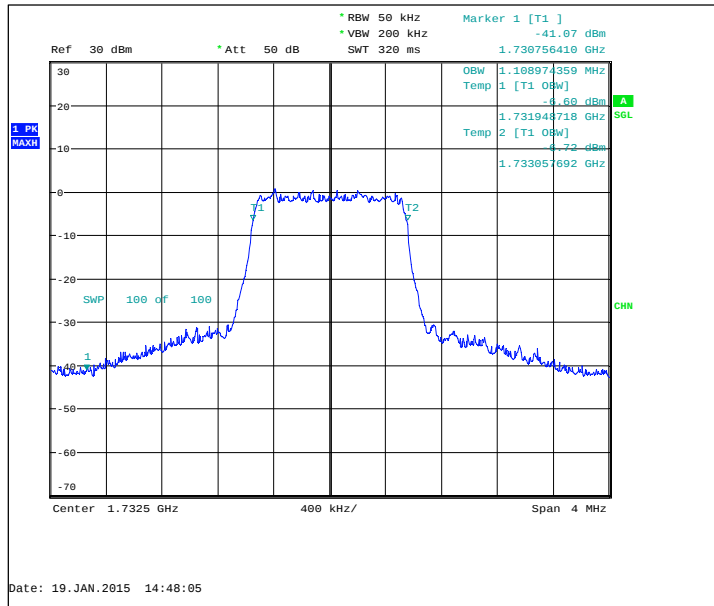
FDD, CBW 15MHz, QPSK, 75 RB, Channel 20175 / 1732.5 MHz



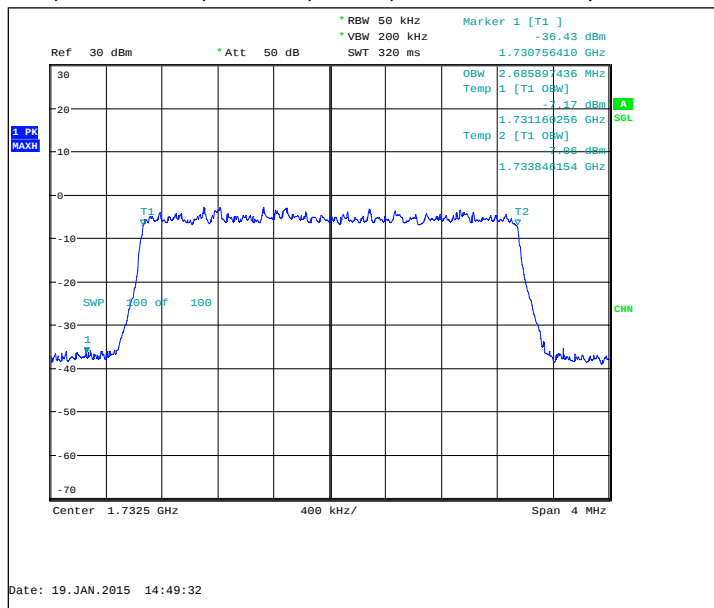
FDD, CBW 20MHz, QPSK, 100 RB, Channel 20175 / 1732.5 MHz



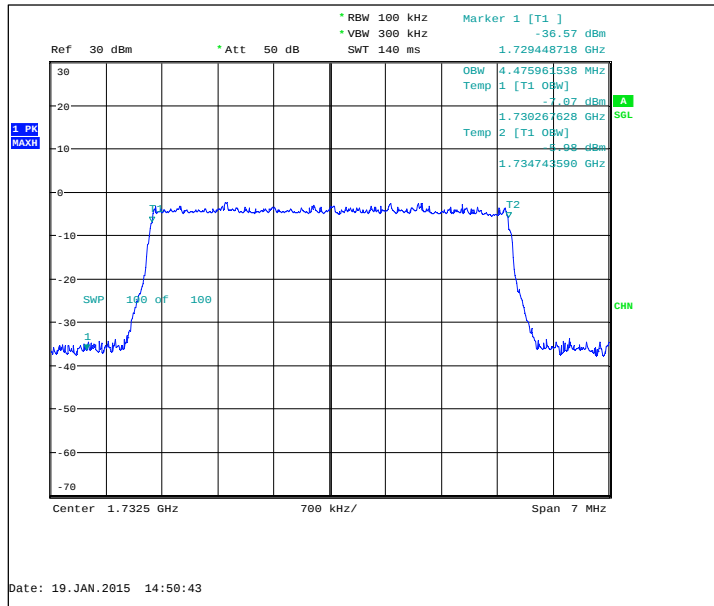
FDD, CBW 1.4MHz, 16QAM, 6 RB, Channel 20175 / 1732.5 MHz



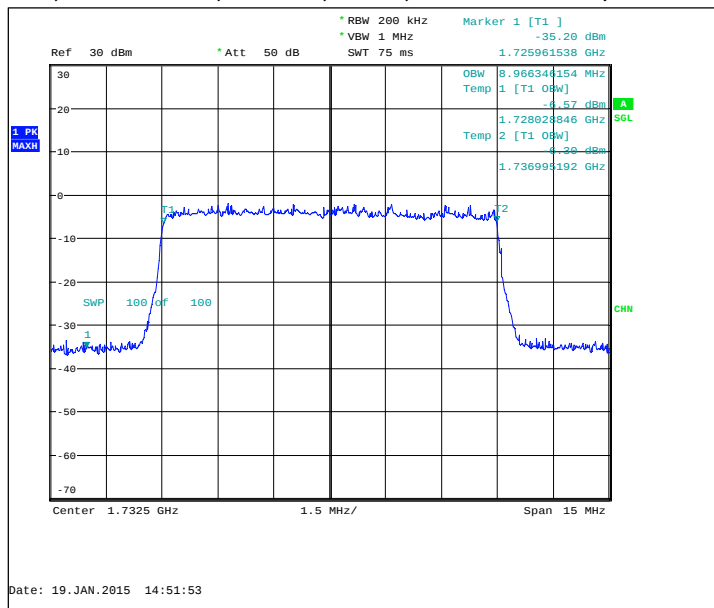
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 20175 / 1732.5 MHz



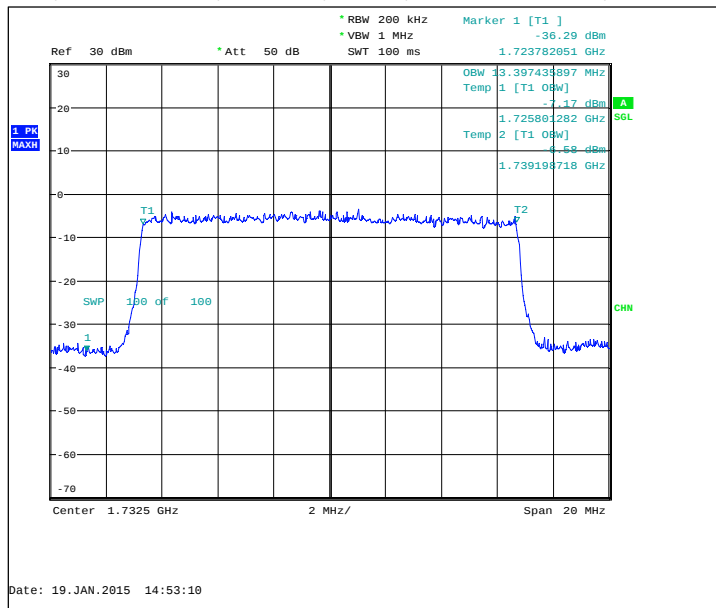
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 20175 / 1732.5 MHz



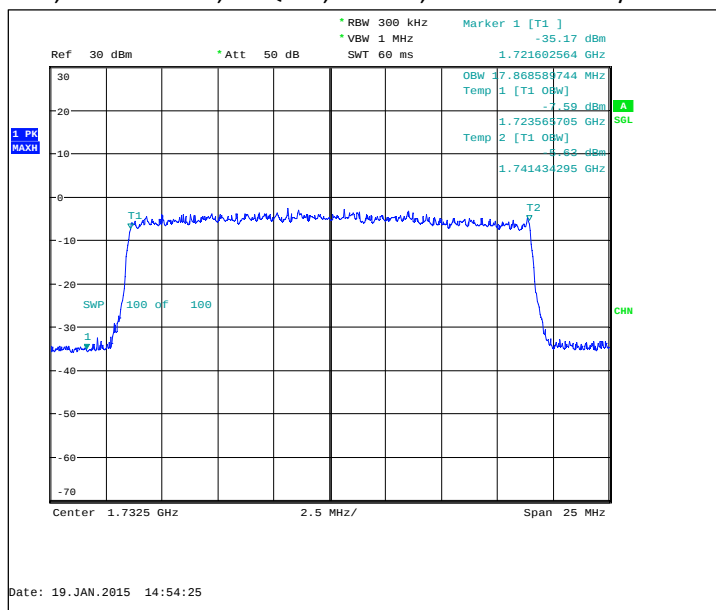
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 20175 / 1732.5 MHz



FDD, CBW 15MHz, 16QAM, 75 RB, Channel 20175 / 1732.5 MHz



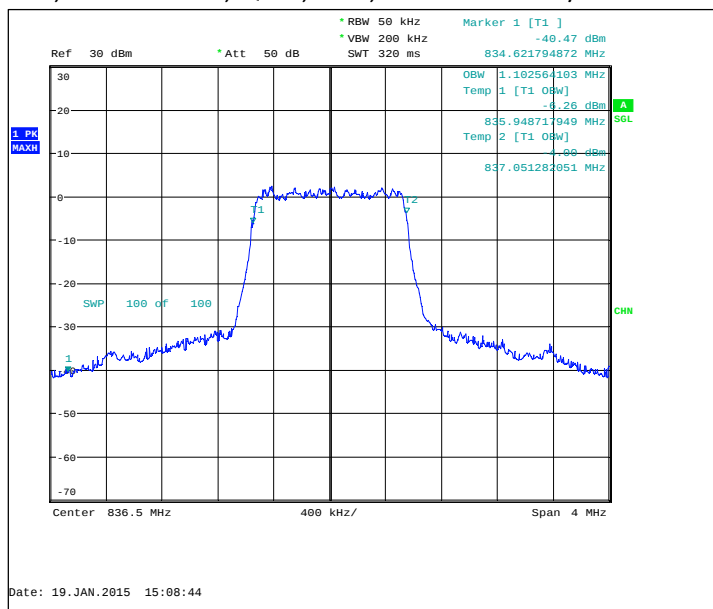
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 20175 / 1732.5 MHz



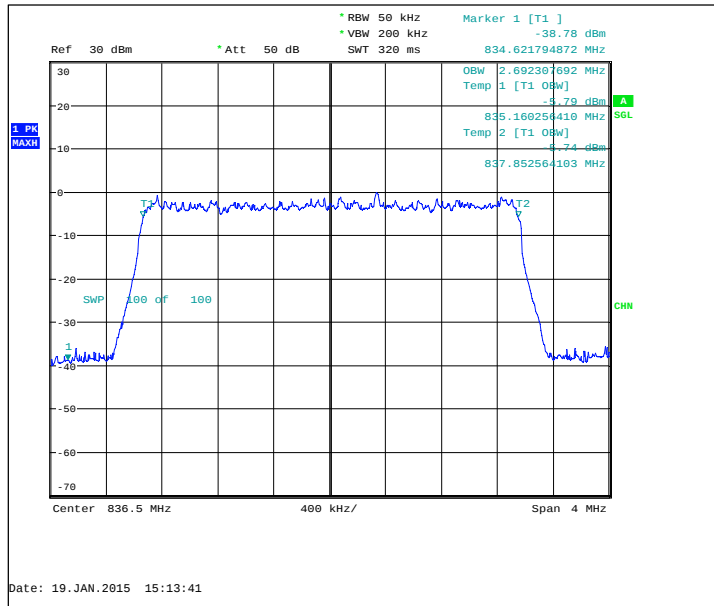
#### 4.10. LTE5 Test results

| Operation mode (TX on)       | 99% Occupied bandwidth [kHz] |
|------------------------------|------------------------------|
| FDD, CBW 1.4MHz, QPSK, 6 RB  | 1102.6                       |
| FDD, CBW 3MHz, QPSK, 15 RB   | 2692.3                       |
| FDD, CBW 5MHz, QPSK, 25 RB   | 4487.2                       |
| FDD, CBW 10MHz, QPSK, 50 RB  | 8966.3                       |
| FDD, CBW 1.4MHz, 16QAM, 6 RB | 1109                         |
| FDD, CBW 3MHz, 16QAM, 15 RB  | 2685.9                       |
| FDD, CBW 5MHz, 16QAM, 25 RB  | 4487.2                       |
| FDD, CBW 10MHz, 16QAM, 50 RB | 8966.3                       |

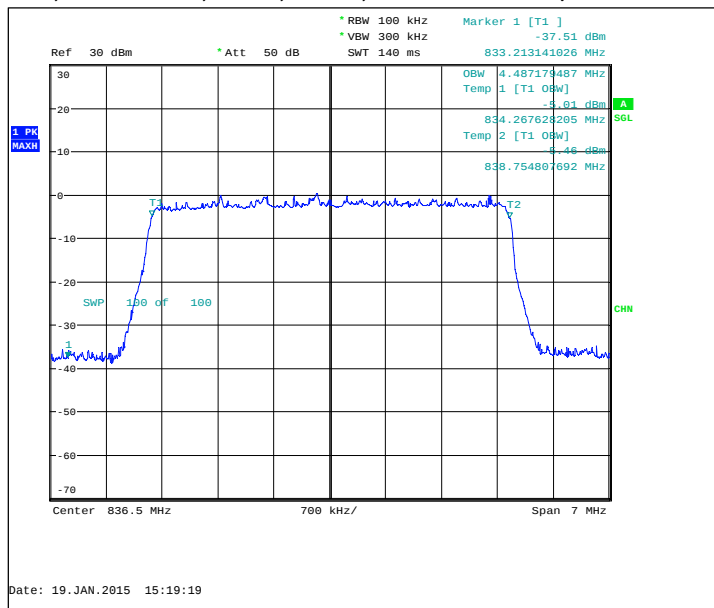
FDD, CBW 1.4MHz, QPSK, 6 RB, Channel 20525 / 836.5 MHz



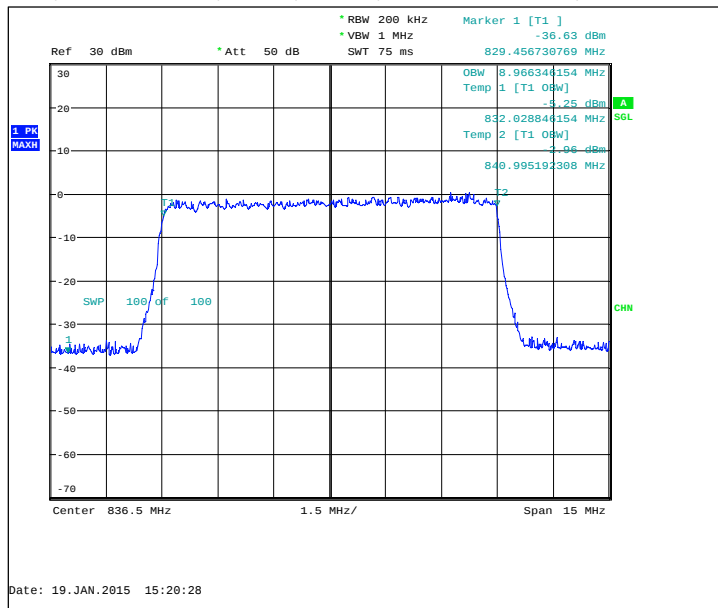
FDD, CBW 3MHz, QPSK, 15 RB, Channel 20525 / 836.5 MHz



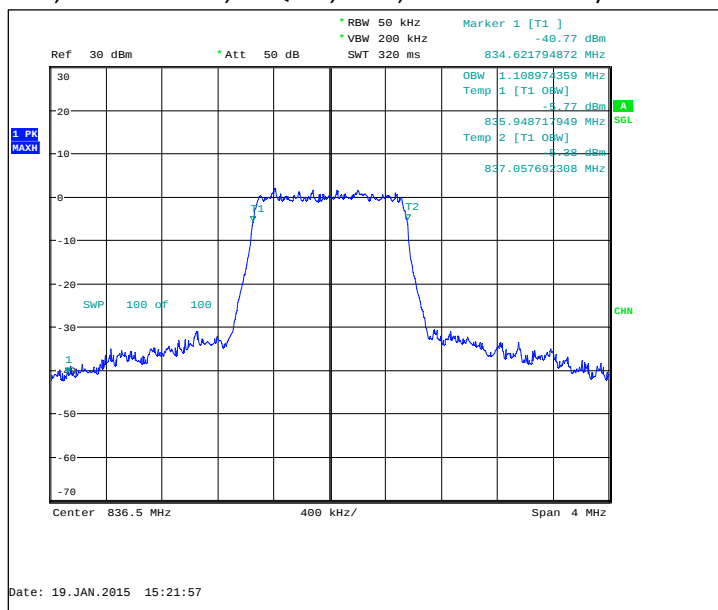
FDD, CBW 5MHz, QPSK, 25 RB, Channel 20525 / 836.5 MHz



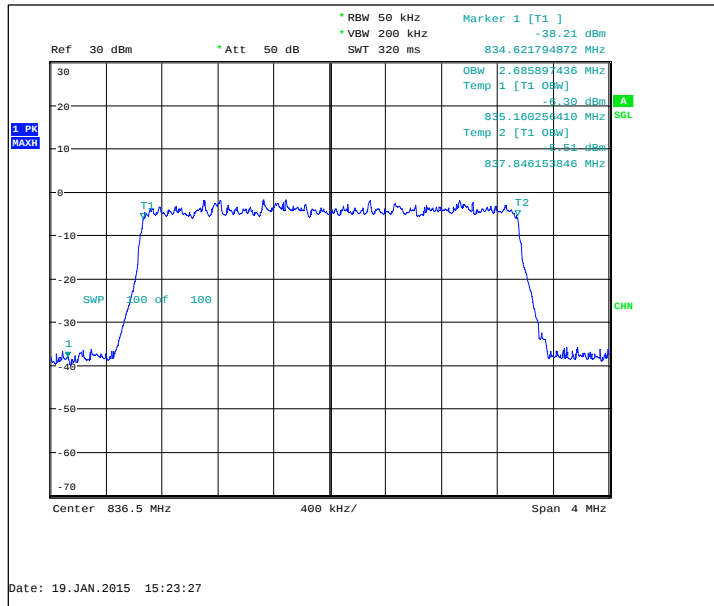
FDD, CBW 10MHz, QPSK, 50 RB, Channel 20525 / 836.5 MHz



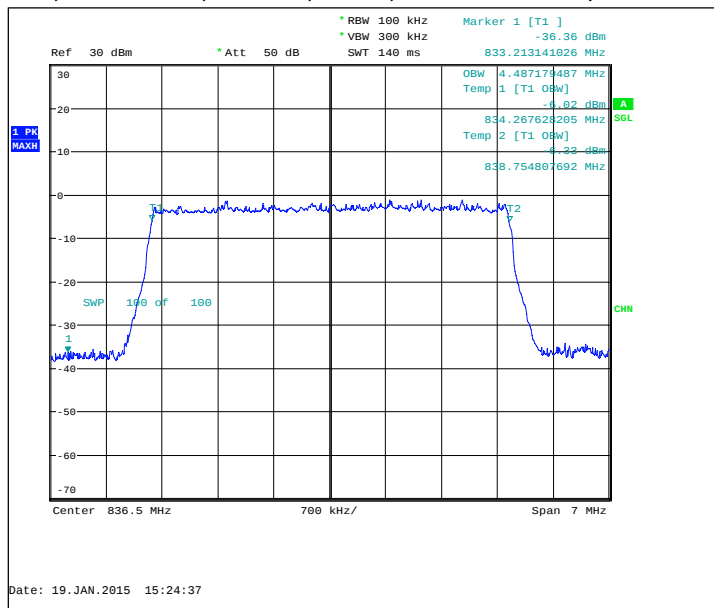
FDD, CBW 1.4MHz, 16QAM, 6 RB, Channel 20525 / 836.5 MHz



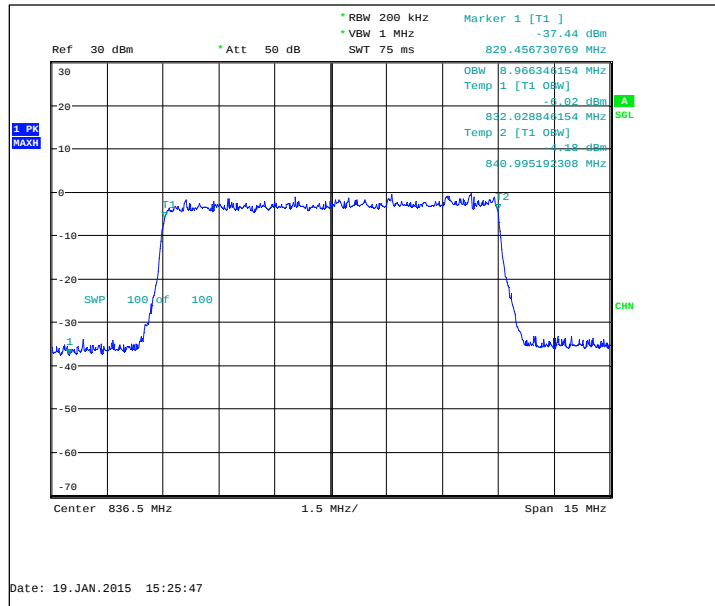
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 20525 / 836.5 MHz



FDD, CBW 5MHz, 16QAM, 25 RB, Channel 20525 / 836.5 MHz



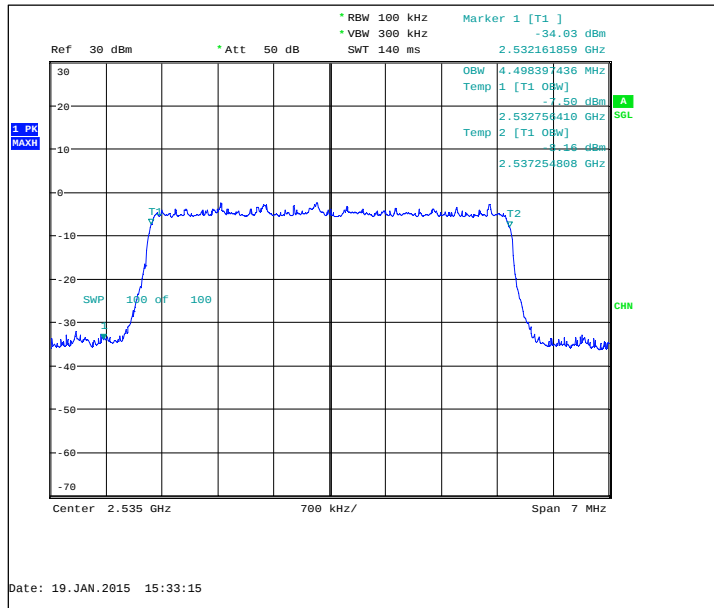
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 20525 / 836.5 MHz



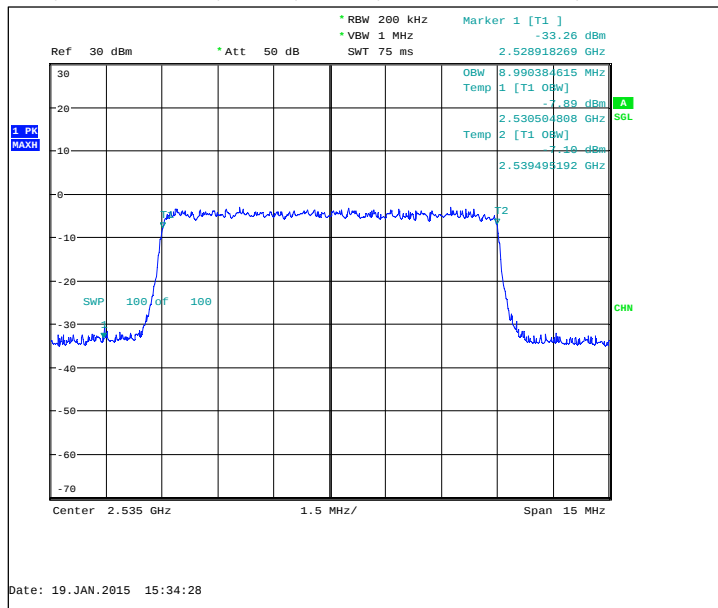
#### 4.11. LTE7 Test results

| Operation mode (TX on)        | 99% Occupied bandwidth [kHz] |
|-------------------------------|------------------------------|
| FDD, CBW 5MHz, QPSK, 25 RB    | 4498.4                       |
| FDD, CBW 10MHz, QPSK, 50 RB   | 8990.4                       |
| FDD, CBW 15MHz, QPSK, 75 RB   | 13461.5                      |
| FDD, CBW 20MHz, QPSK, 100 RB  | 17868.6                      |
| FDD, CBW 5MHz, 16QAM, 25 RB   | 4487.2                       |
| FDD, CBW 10MHz, 16QAM, 50 RB  | 8966.3                       |
| FDD, CBW 15MHz, 16QAM, 75 RB  | 13397.4                      |
| FDD, CBW 20MHz, 16QAM, 100 RB | 17908.7                      |

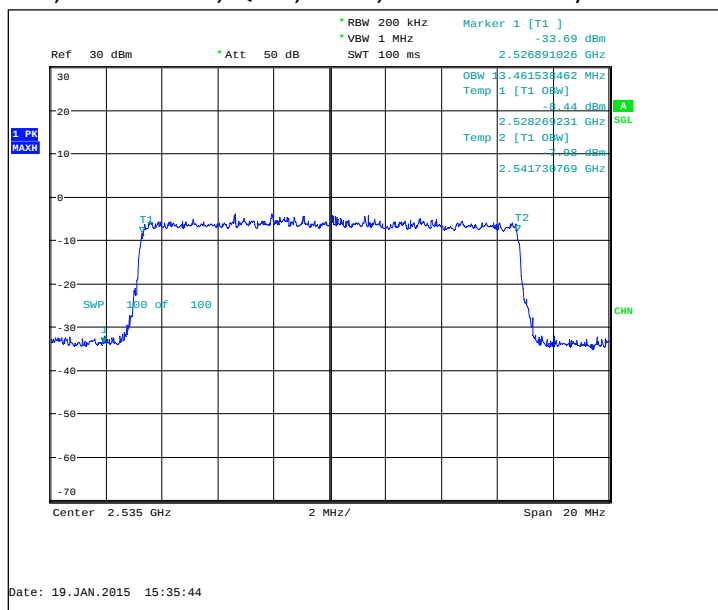
FDD, CBW 5MHz, QPSK, 25 RB, Channel 21100 / 2535.0 MHz



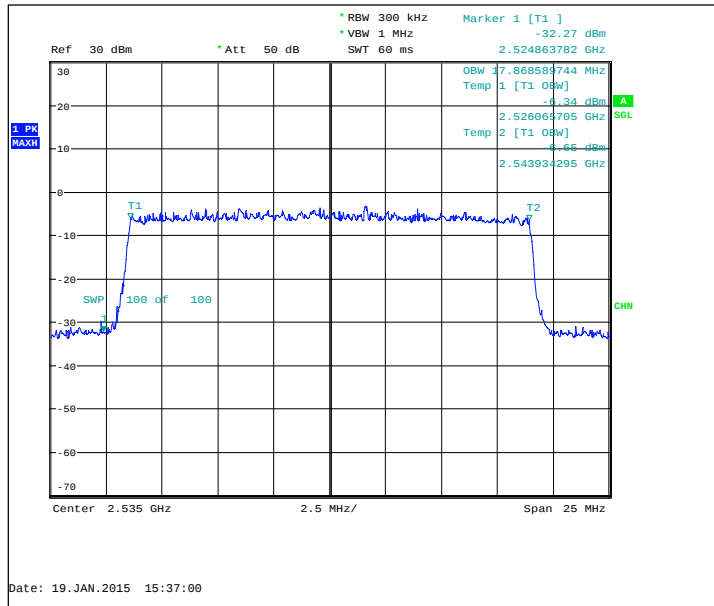
FDD, CBW 10MHz, QPSK, 50 RB, Channel 21100 / 2535.0 MHz



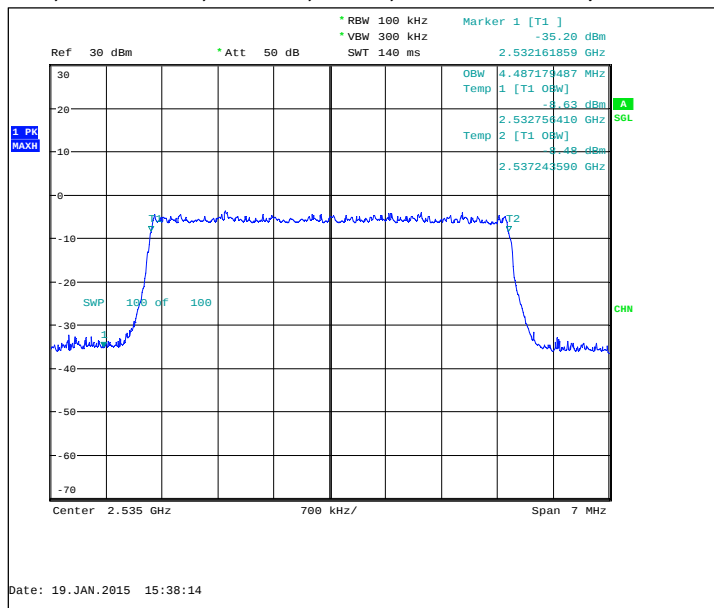
FDD, CBW 15MHz, QPSK, 75 RB, Channel 21100 / 2535.0 MHz



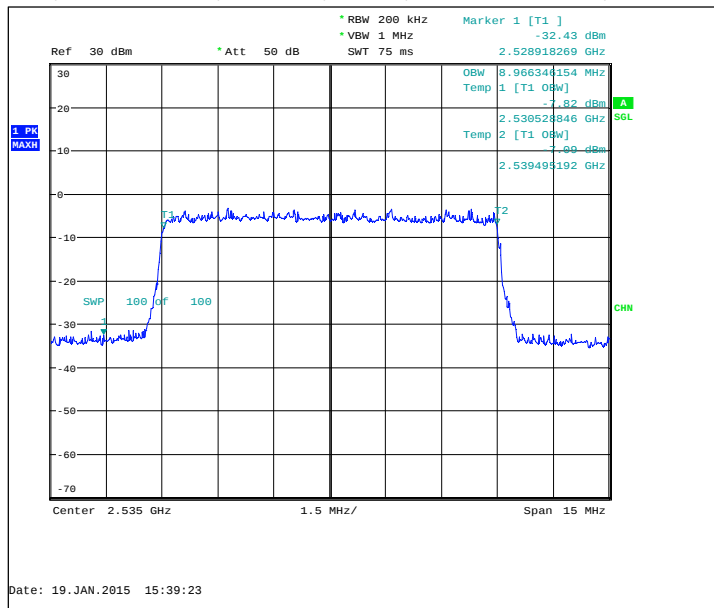
FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz



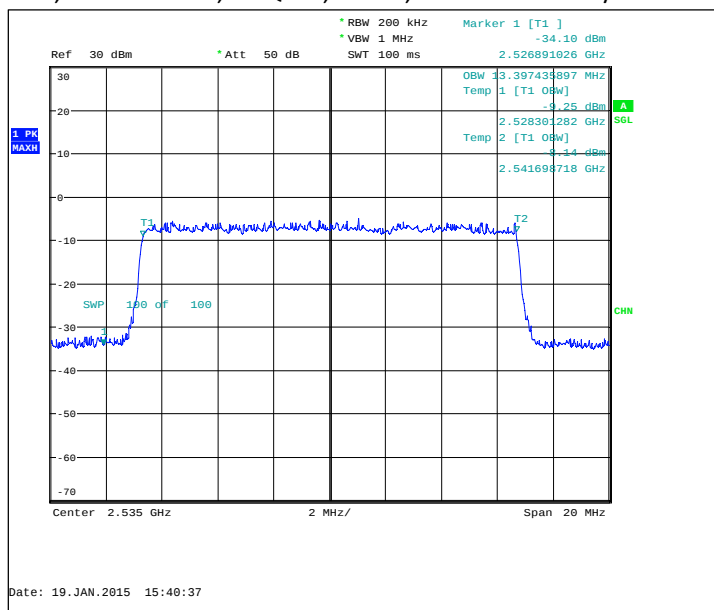
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 21100 / 2535.0 MHz



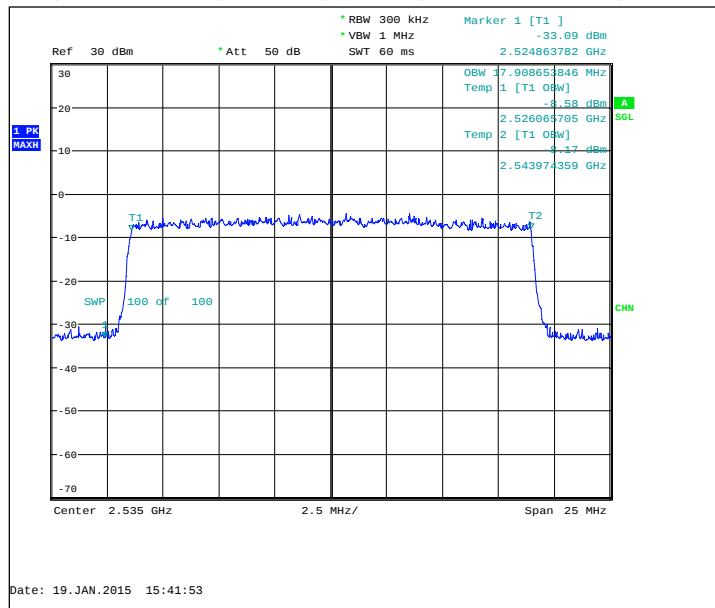
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 21100 / 2535.0 MHz



FDD, CBW 15MHz, 16QAM, 75 RB, Channel 21100 / 2535.0 MHz



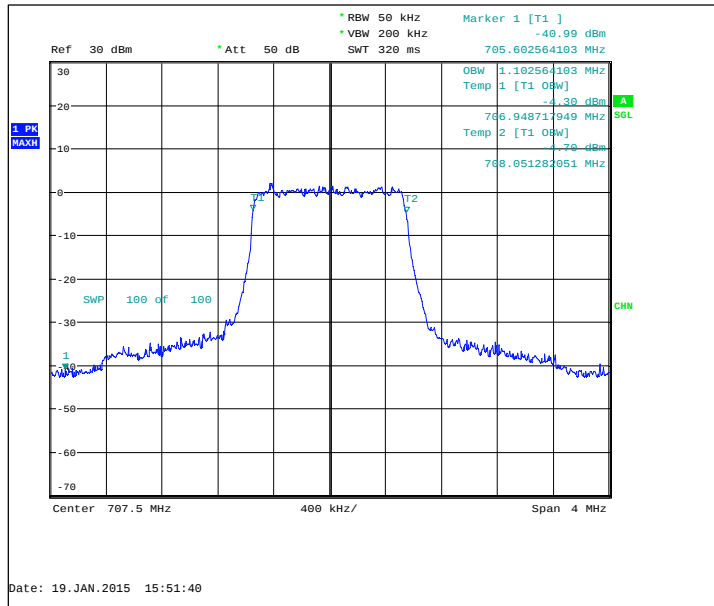
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 21100 / 2535.0 MHz



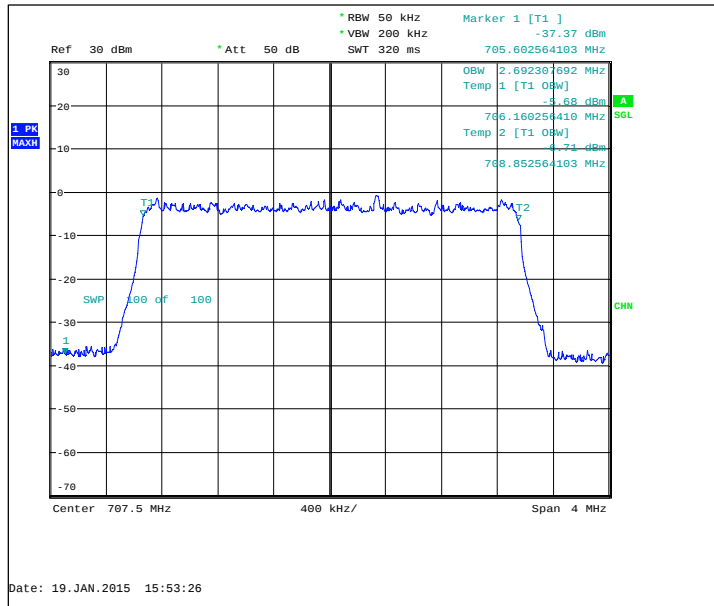
## 4.12. LTE12 Test results

| Operation mode (TX on)       | 99% Occupied bandwidth [kHz] |
|------------------------------|------------------------------|
| FDD, CBW 1.4MHz, QPSK, 6 RB  | 1102.6                       |
| FDD, CBW 3MHz, QPSK, 15 RB   | 2692.3                       |
| FDD, CBW 5MHz, QPSK, 25 RB   | 4498.4                       |
| FDD, CBW 10MHz, QPSK, 50 RB  | 8942.3                       |
| FDD, CBW 1.4MHz, 16QAM, 6 RB | 1102.6                       |
| FDD, CBW 3MHz, 16QAM, 15 RB  | 2685.9                       |
| FDD, CBW 5MHz, 16QAM, 25 RB  | 4476                         |
| FDD, CBW 10MHz, 16QAM, 50 RB | 8966.3                       |

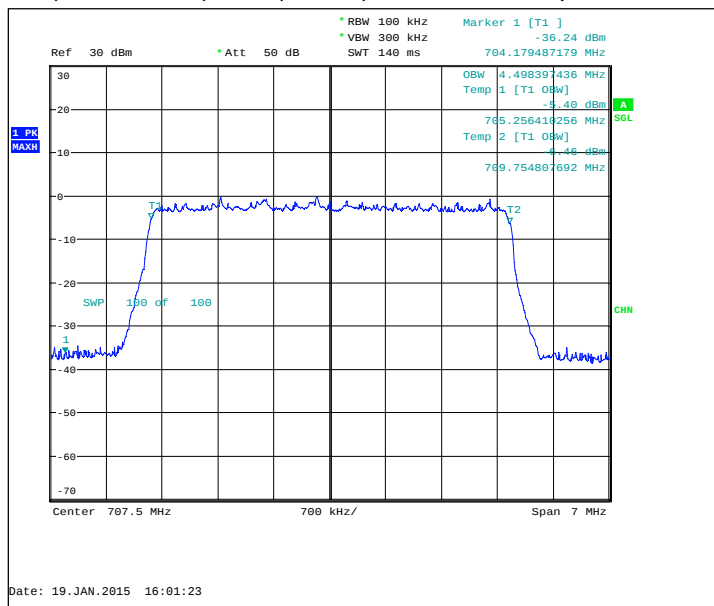
FDD, CBW 1.4MHz, QPSK, 6 RB, Channel 23095 / 707.5 MHz



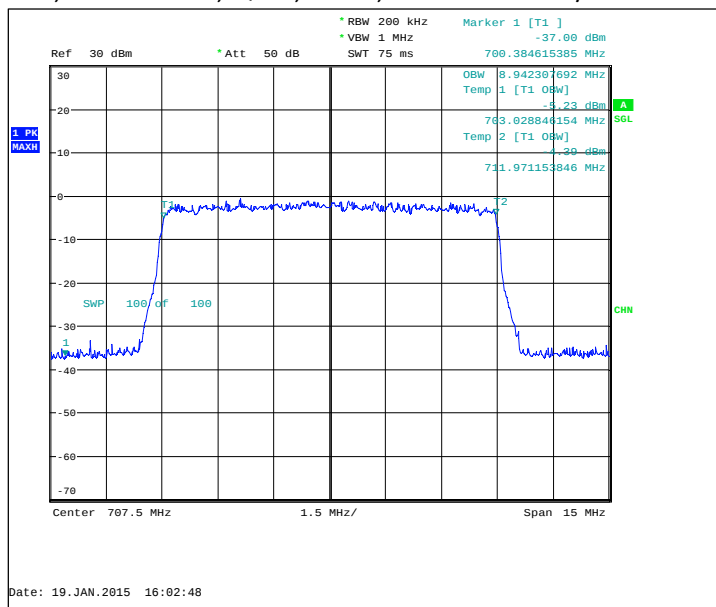
FDD, CBW 3MHz, QPSK, 15 RB, Channel 23095 / 707.5 MHz



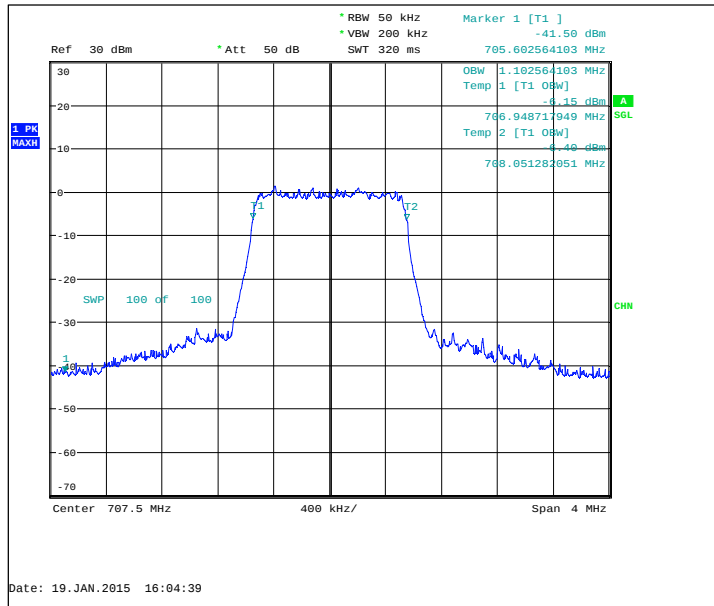
FDD, CBW 5MHz, QPSK, 25 RB, Channel 23095 / 707.5 MHz



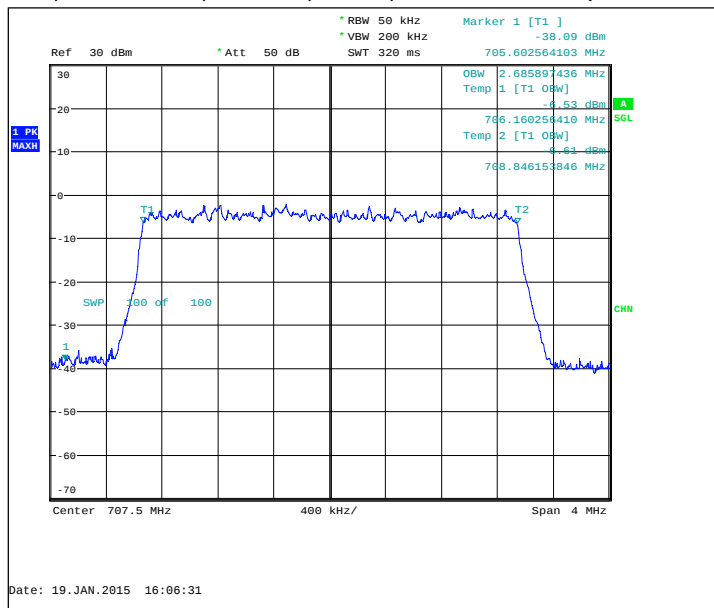
FDD, CBW 10MHz, QPSK, 50 RB, Channel 23095 / 707.5 MHz



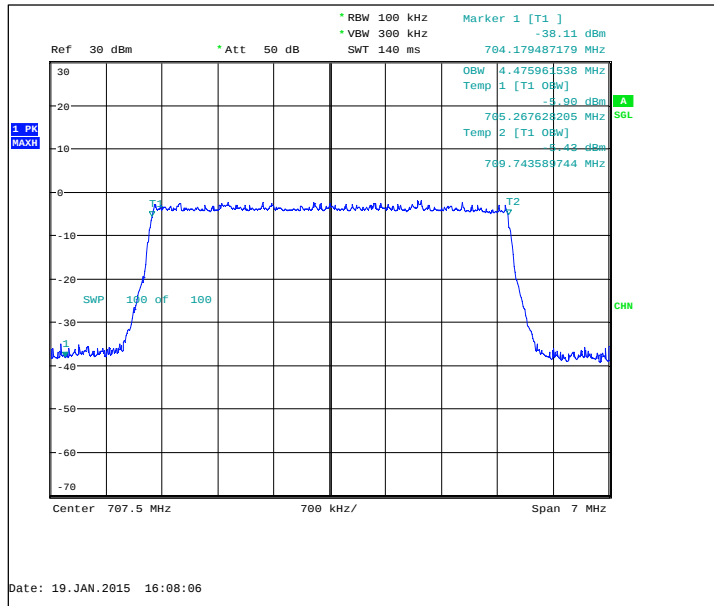
FDD, CBW 1.4MHz, 16QAM, 6 RB, Channel 23095 / 707.5 MHz



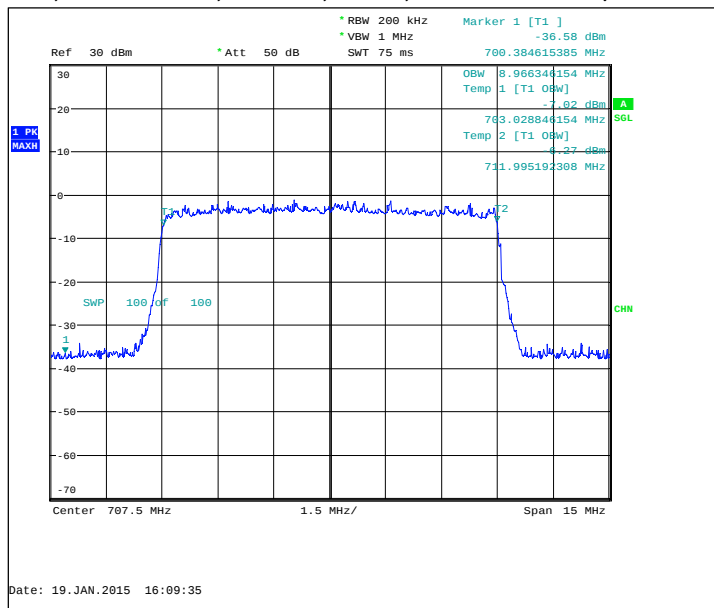
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 23095 / 707.5 MHz



FDD, CBW 5MHz, 16QAM, 25 RB, Channel 23095 / 707.5 MHz



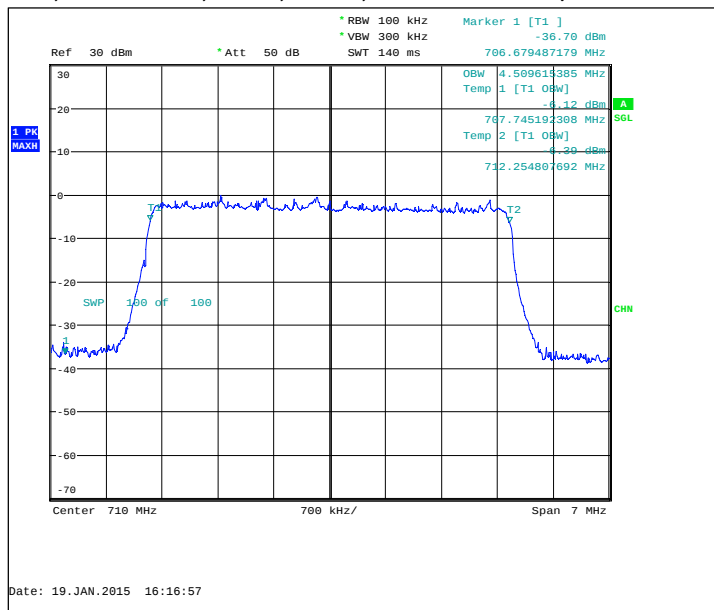
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 23095 / 707.5 MHz



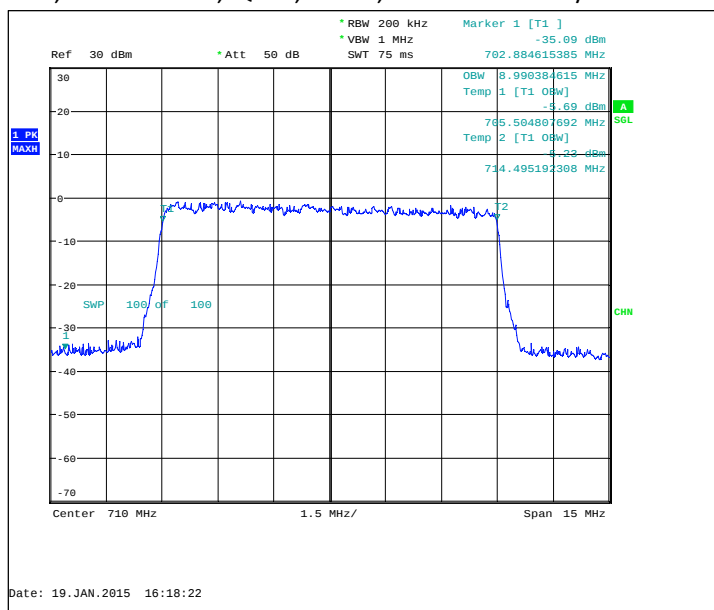
#### 4.13. LTE17 Test results

| Operation mode (TX on)       | 99% Occupied bandwidth [kHz] |
|------------------------------|------------------------------|
| FDD, CBW 5MHz, QPSK, 25 RB   | 4509.6                       |
| FDD, CBW 10MHz, QPSK, 50 RB  | 8990.4                       |
| FDD, CBW 5MHz, 16QAM, 25 RB  | 4487.2                       |
| FDD, CBW 10MHz, 16QAM, 50 RB | 8990.4                       |

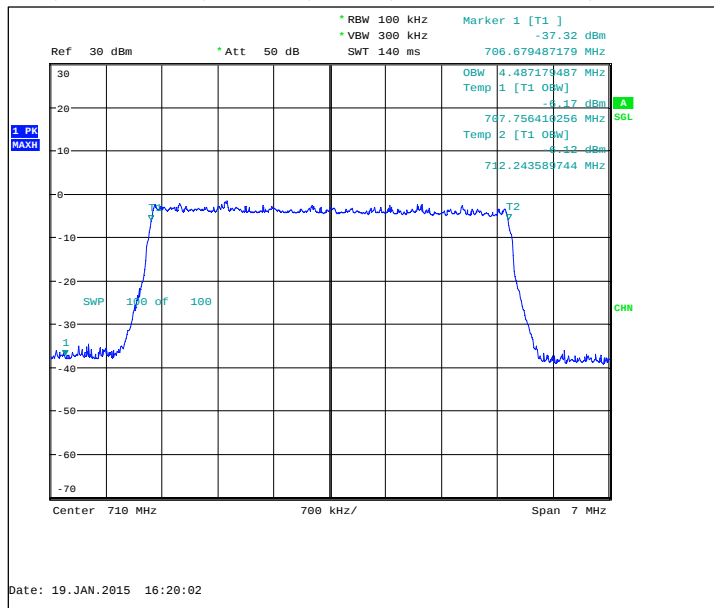
FDD, CBW 5MHz, QPSK, 25 RB, Channel 23790 / 710.0 MHz



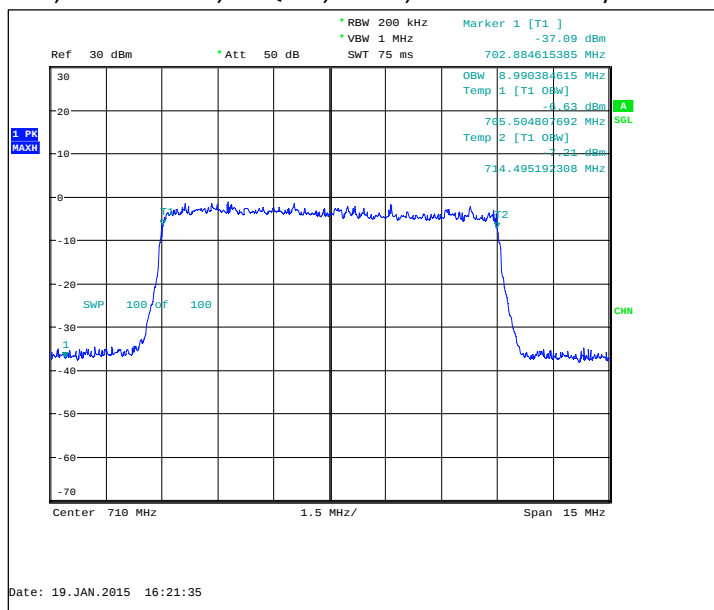
FDD, CBW 10MHz, QPSK, 50 RB, Channel 23790 / 710.0 MHz



FDD, CBW 5MHz, 16QAM, 25 RB, Channel 23790 / 710.0 MHz



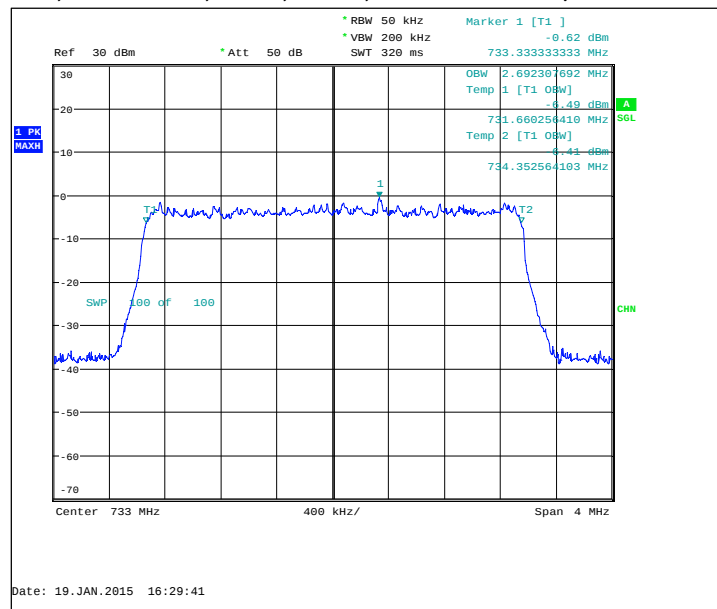
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 23790 / 710.0 MHz



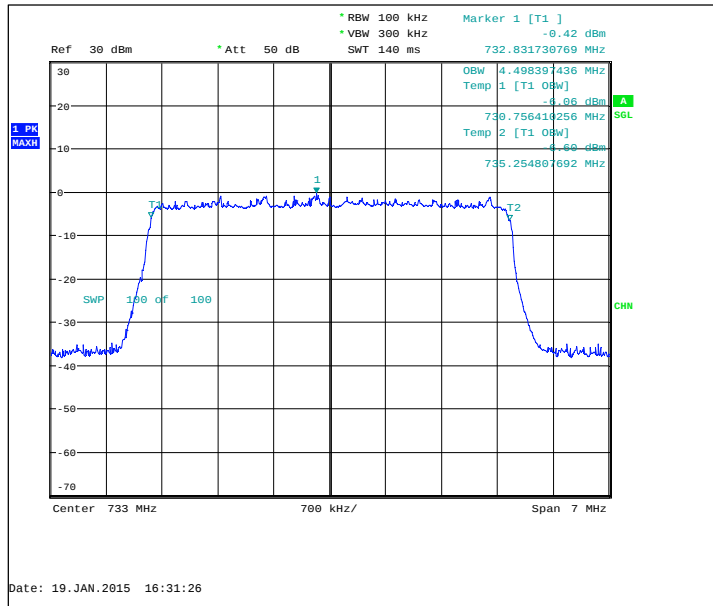
#### 4.14. LTE28 Test results

| Operation mode (TX on)        | 99% Occupied bandwidth [kHz] |
|-------------------------------|------------------------------|
| FDD, CBW 3MHz, QPSK, 15 RB    | 2692.3                       |
| FDD, CBW 5MHz, QPSK, 25 RB    | 4498.4                       |
| FDD, CBW 10MHz, QPSK, 50 RB   | 8942.3                       |
| FDD, CBW 15MHz, QPSK, 75 RB   | 13429.5                      |
| FDD, CBW 20MHz, QPSK, 100 RB  | 17868.6                      |
| FDD, CBW 3MHz, 16QAM, 15 RB   | 2685.9                       |
| FDD, CBW 5MHz, 16QAM, 25 RB   | 4476                         |
| FDD, CBW 10MHz, 16QAM, 50 RB  | 8942.3                       |
| FDD, CBW 15MHz, 16QAM, 75 RB  | 13365.4                      |
| FDD, CBW 20MHz, 16QAM, 100 RB | 17868.6                      |

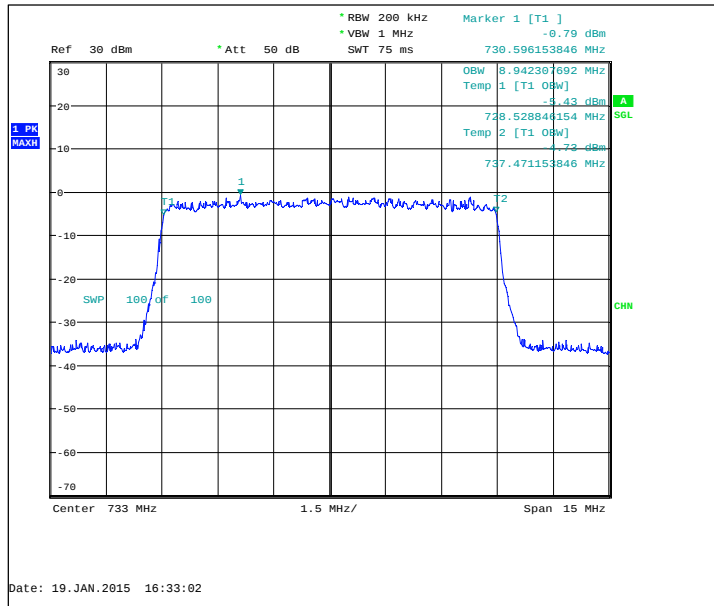
FDD, CBW 3MHz, QPSK, 15 RB, Channel 27435 / 725.5 MHz



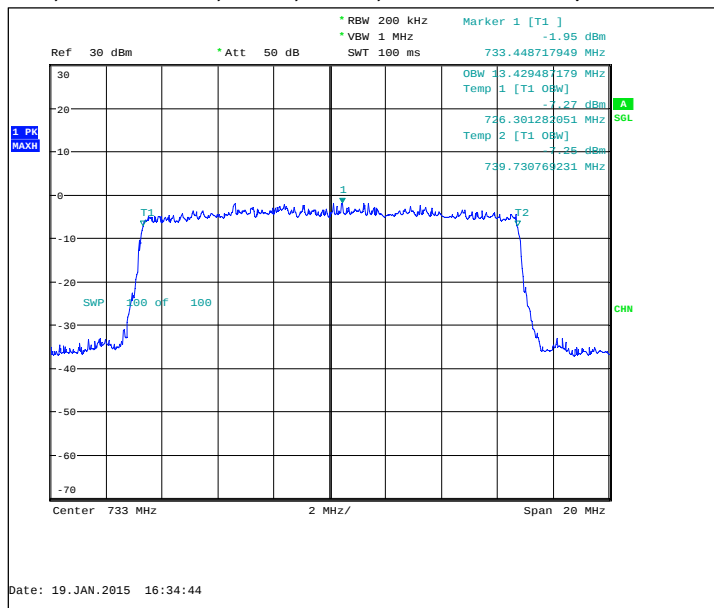
FDD, CBW 5MHz, QPSK, 25 RB, Channel 27435 / 725.5 MHz



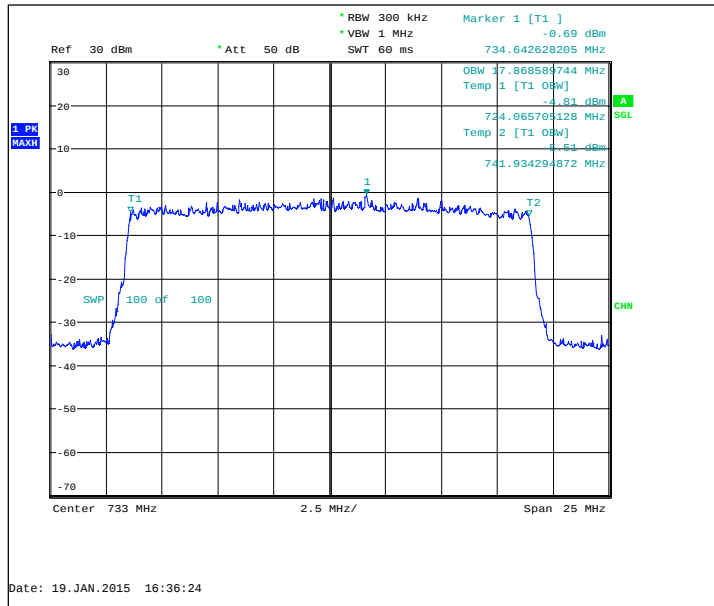
FDD, CBW 10MHz, QPSK, 50 RB, Channel 27435 / 725.5 MHz



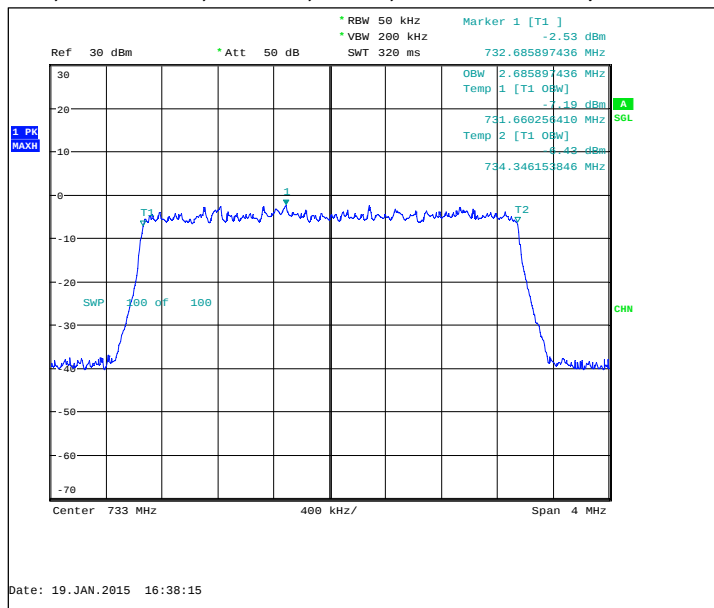
FDD, CBW 15MHz, QPSK, 75 RB, Channel 27435 / 725.5 MHz



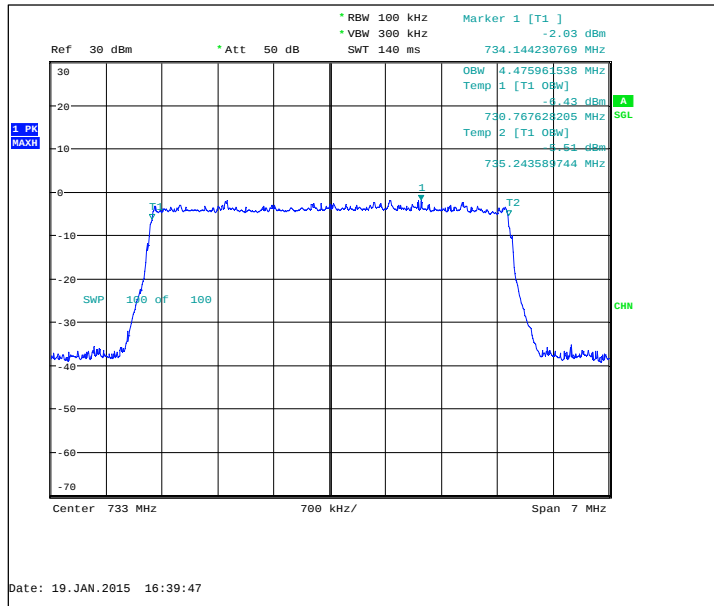
FDD, CBW 20MHz, QPSK, 100 RB, Channel 27435 / 725.5 MHz



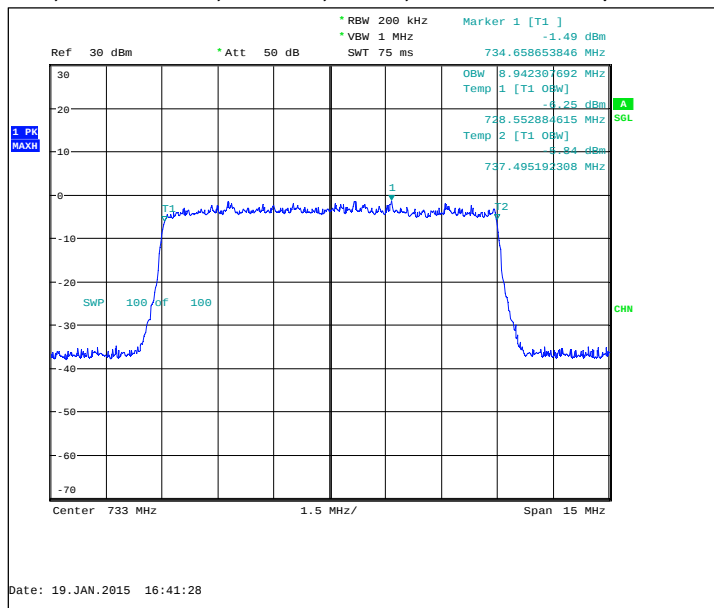
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 27435 / 725.5 MHz



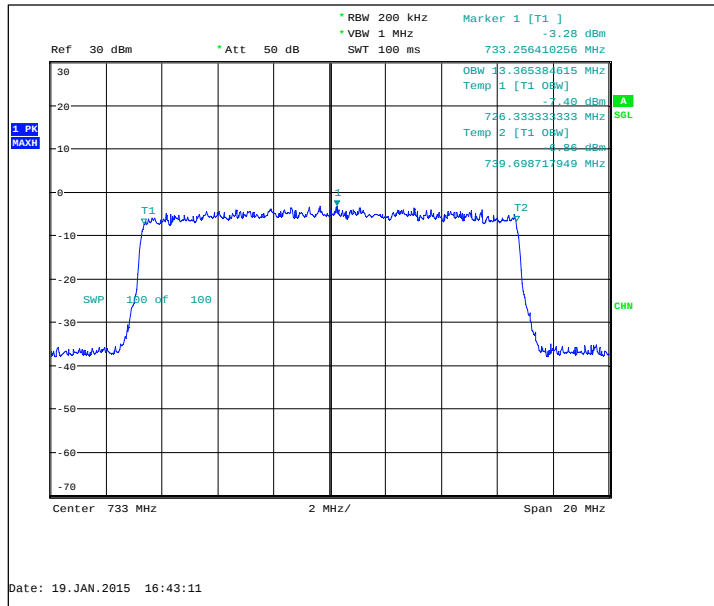
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 27435 / 725.5 MHz



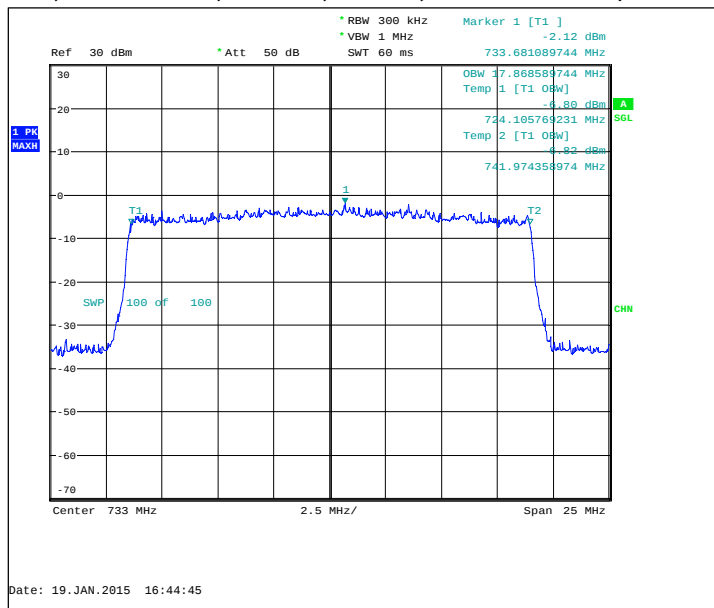
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 27435 / 725.5 MHz



FDD, CBW 15MHz, 16QAM, 75 RB, Channel 27435 / 725.5 MHz



FDD, CBW 20MHz, 16QAM, 100 RB, Channel 27435 / 725.5 MHz

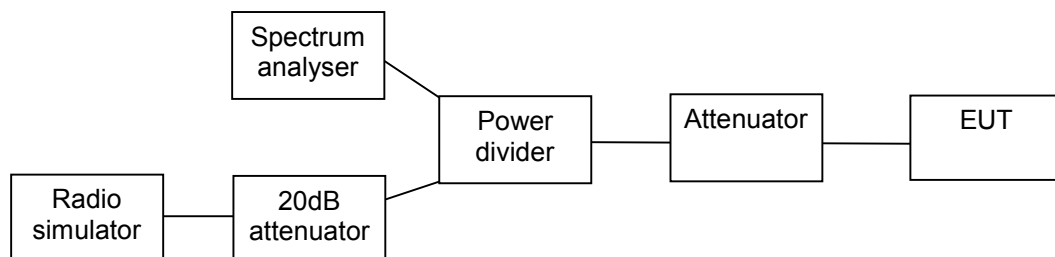


## 5. Band edge compliance

(FCC §24.238(a), §27.53(f), §27.53(l), §27.53(h), §27.53(g), §22.917(a), RSS-133 6.5, RSS-132 4.5, RSS-139 6.5, RSS-199 4.5(b), RSS-130 4.6)

|                                                 |                                                   |
|-------------------------------------------------|---------------------------------------------------|
| EUT with DUT number                             | RM-1075, DUT 43249                                |
| Accessories with DUT numbers                    | BV-T5C DUT43251, AC-20 DUT43135, WH-108 DUT 43136 |
| Operation Voltage [V] / [Hz]                    | Nominal                                           |
| Results                                         | PASSED                                            |
| Remarks                                         | -                                                 |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 25 / 35                                           |
| Date of measurements                            | 15-Jan-2015                                       |
| Measured by                                     | Hannu Söderholm                                   |

### 5.1. Test Setup



### 5.2. Test method and limit

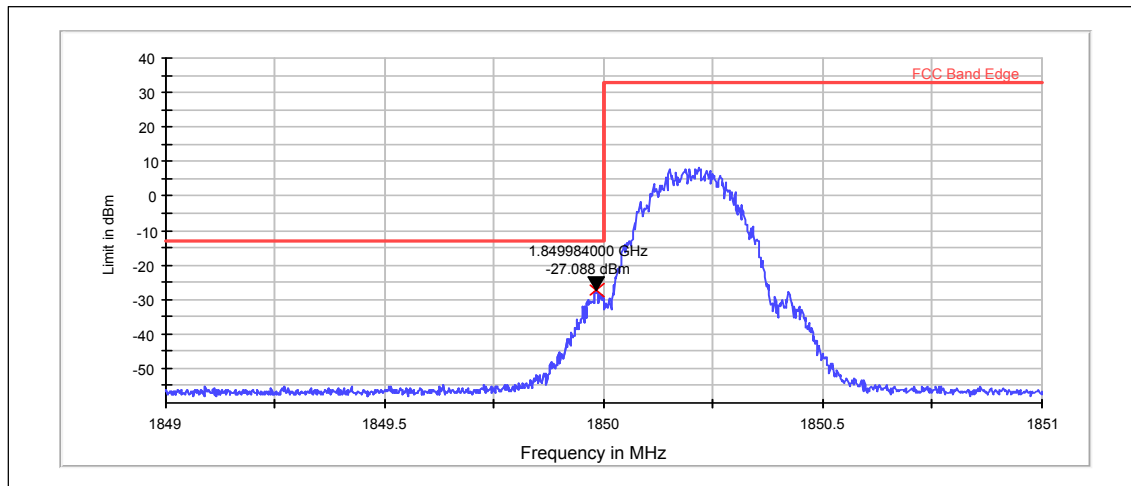
The measurement is made according to applicable FCC rule parts and IC standards.

Limits for band edge compliance measurements

| Operation band | Frequency range [MHz]                                          | Limit [dBm]                                                                                                                              |
|----------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| GSM 1900       | Below 1850 and above 1910                                      | -13                                                                                                                                      |
| GSM 850        | Below 824 and above 849                                        | -13                                                                                                                                      |
| WCDMA2         | Below 1850 and above 1910                                      | -13                                                                                                                                      |
| WCDMA4         | Below 1710 and above 1755                                      | -13                                                                                                                                      |
| WCDMA5         | Below 824 and above 849                                        | -13                                                                                                                                      |
| LTE2           | Below 1850 and above 1910                                      | -13                                                                                                                                      |
| LTE4           | Below 1710 and above 1755                                      | -13                                                                                                                                      |
| LTE5           | Below 824 and above 849                                        | -13                                                                                                                                      |
| LTE7           | 2496 - 2499<br>2499 - 2500<br>2570 - 2571<br>2571 - 2575       | -10 (RBW = 1 MHz, VBW = 3 MHz)<br>-10 (RBW = 500 kHz, VBW = 2 MHz)<br>-10 (RBW = 500 kHz, VBW = 2 MHz)<br>-10 (RBW = 1 MHz, VBW = 3 MHz) |
| LTE12          | 698.9 - 699.0 and 716.0 - 716.1<br>Below 698.9 and above 716.1 | -13 (RBW = 30 kHz, VBW = 100 kHz)<br>-13 (RBW = 100 kHz, VBW = 300 kHz)                                                                  |
| LTE17          | 703.9 - 704 and 716 - 716.1<br>Below 703.9 and above 716.1     | -13 (RBW = 30 kHz, VBW = 100 kHz)<br>-13 (RBW = 100 kHz, VBW = 300 kHz)                                                                  |
| LTE28          | 702.9 - 703 and 748 - 748.1<br>Below 702.9 and above 748.1     | -13 (RBW = 30 kHz, VBW = 100 kHz)<br>-13 (RBW = 100 kHz, VBW = 300 kHz)                                                                  |

### 5.3. GSM 1900 Test results

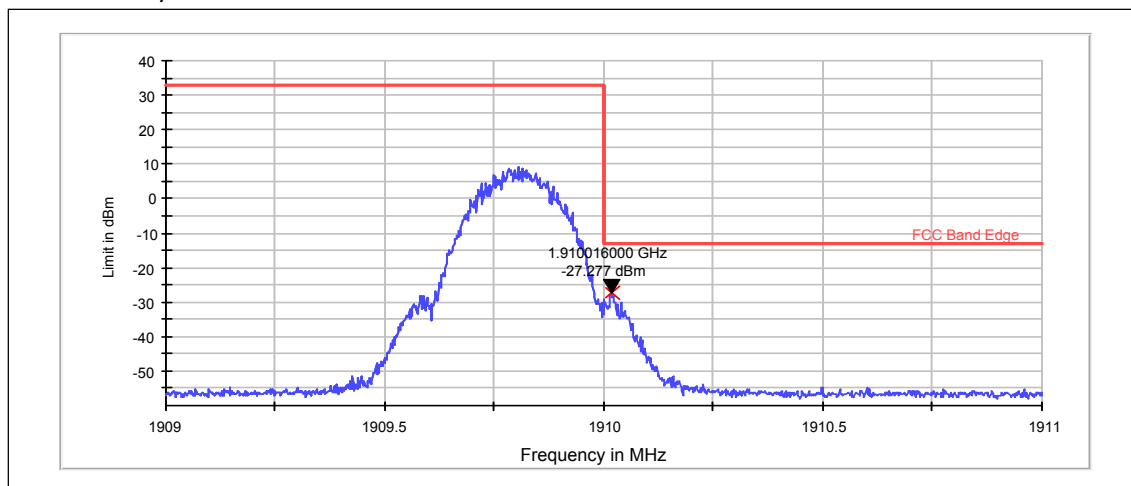
Channel 512 / 1850.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| GSM                    | 1849.984        | -27.09      | PASSED |

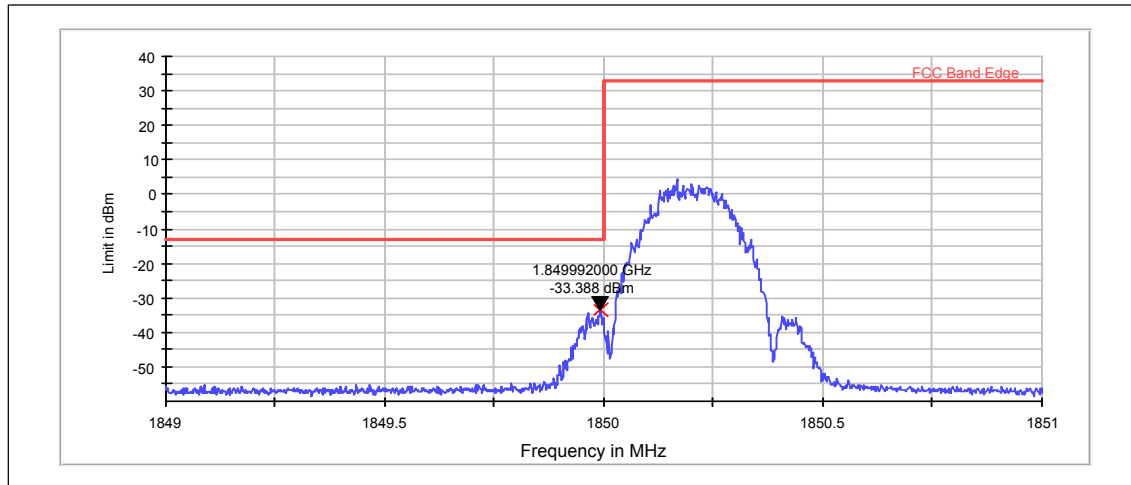
Channel 810 / 1909.8 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| GSM                    | 1910.016        | -27.28      | PASSED |

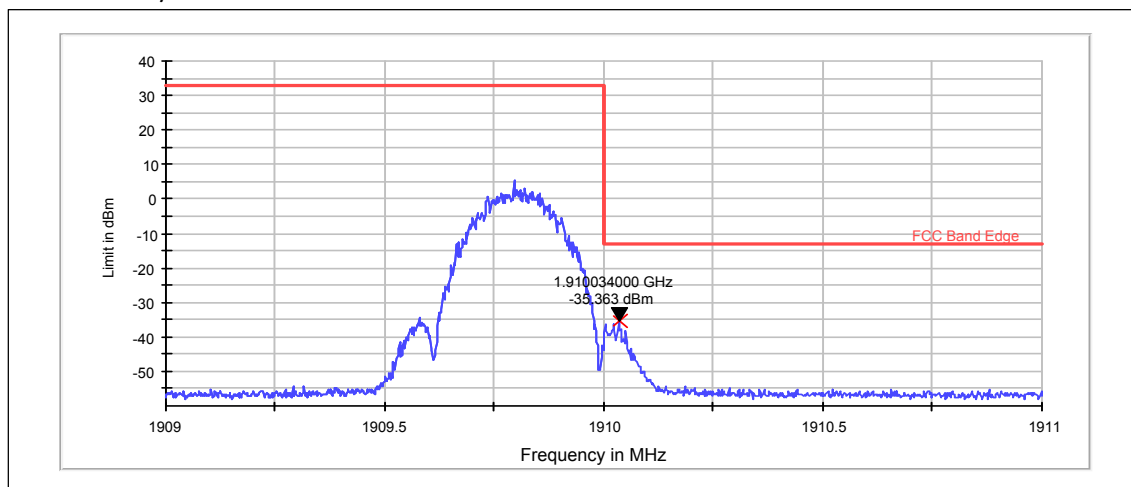
### Channel 512 / 1850.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| EGPRS                  | 1849.992        | -33.39      | PASSED |

### Channel 810 / 1909.8 MHz

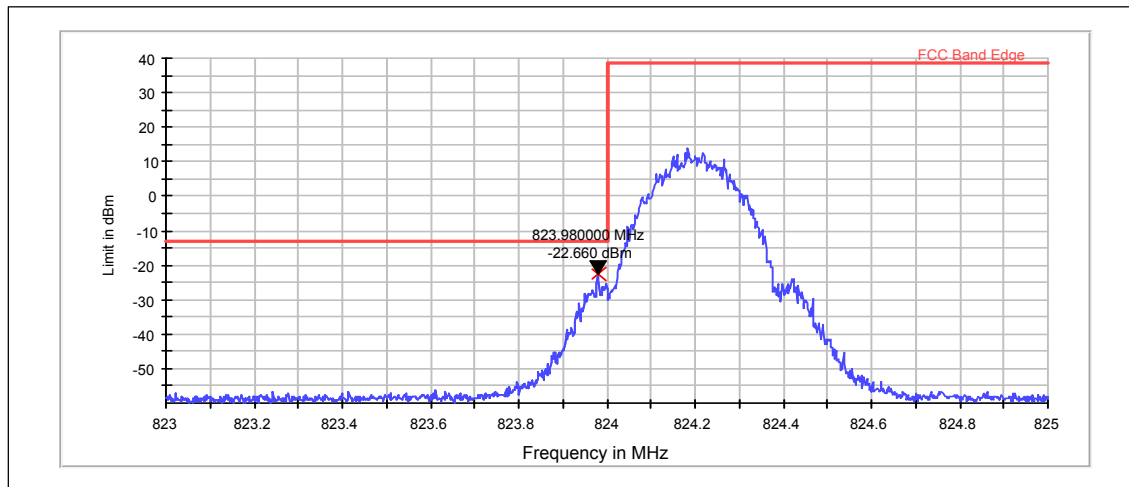


RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| EGPRS                  | 1910.034        | -35.36      | PASSED |

## 5.4. GSM 850 Test results

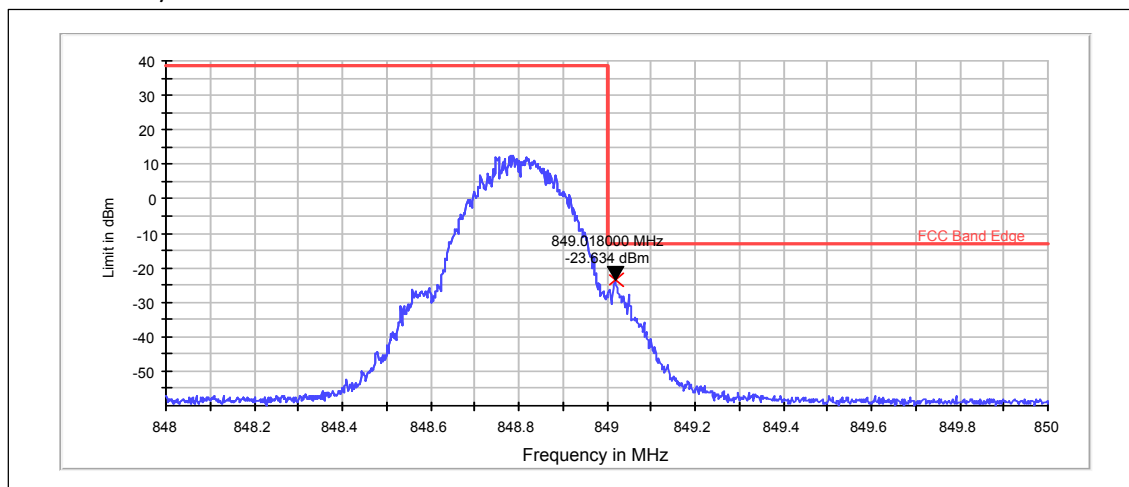
Channel 128 / 824.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| GSM                    | 823.980         | -22.66      | PASSED |

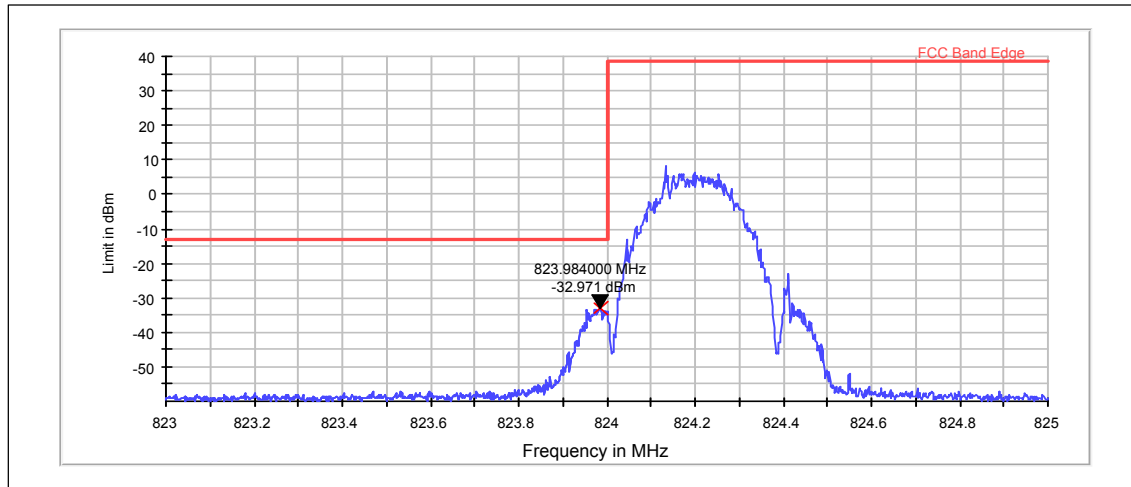
Channel 251 / 848.8 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| GSM                    | 849.018         | -23.63      | PASSED |

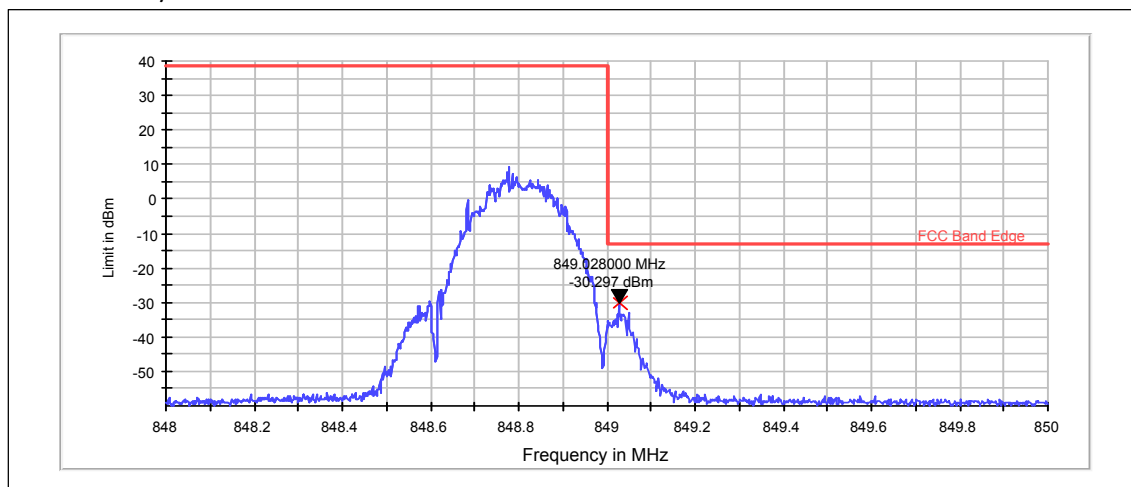
### Channel 128 / 824.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| EGPRS                  | 823.984         | -32.97      | PASSED |

### Channel 251 / 848.8 MHz

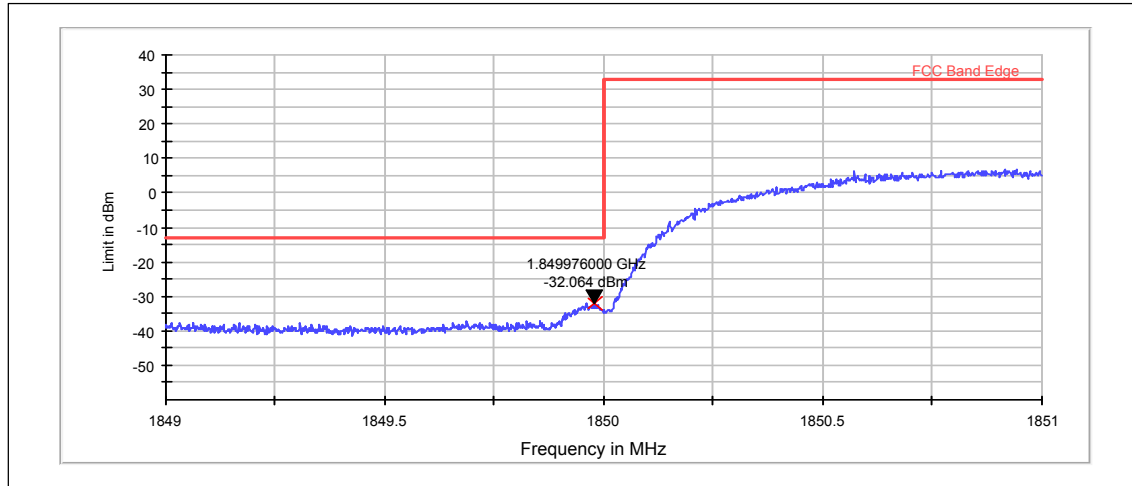


RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| EGPRS                  | 849.028         | -30.30      | PASSED |

## 5.5. WCDMA2 Test results

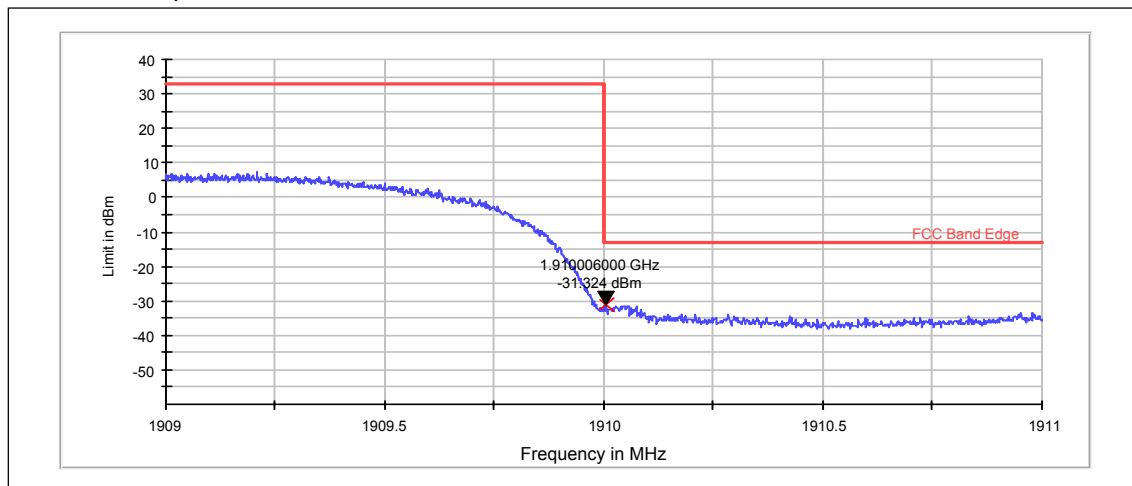
Channel 9262 / 1852.4 MHz



RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| FDD                    | 1849.976        | -32.06      | PASSED |

Channel 9538 / 1907.6 MHz

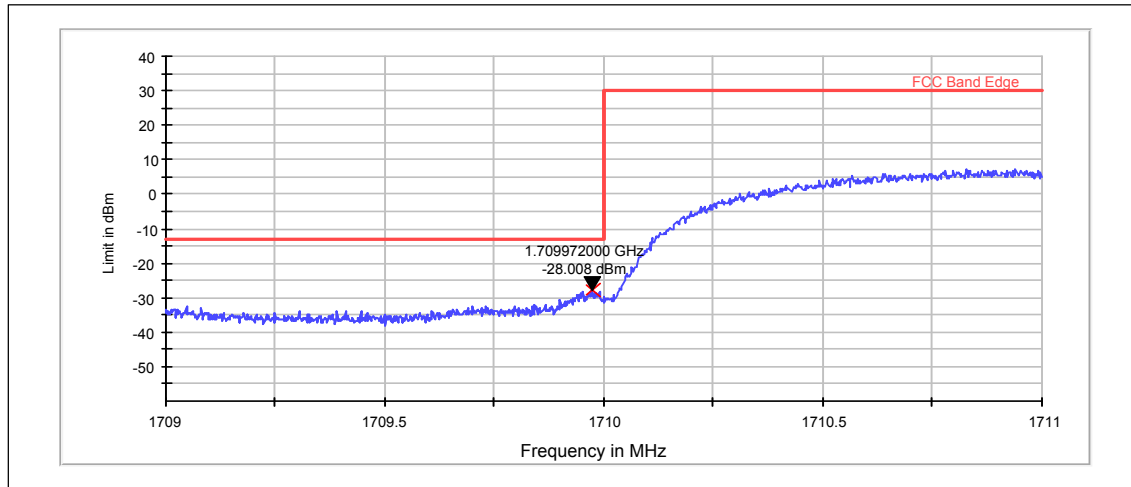


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| FDD                    | 1910.006        | -31.32      | PASSED |

## 5.6. WCDMA4 Test results

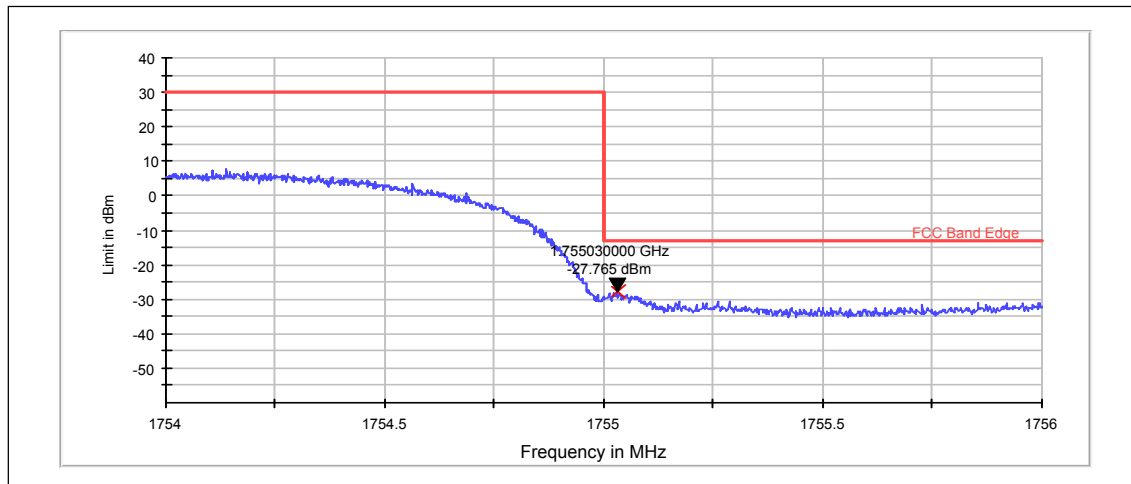
Channel 1312 / 1712.4 MHz



RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| FDD                    | 1709.972        | -28.01      | PASSED |

Channel 1513 / 1752.6 MHz

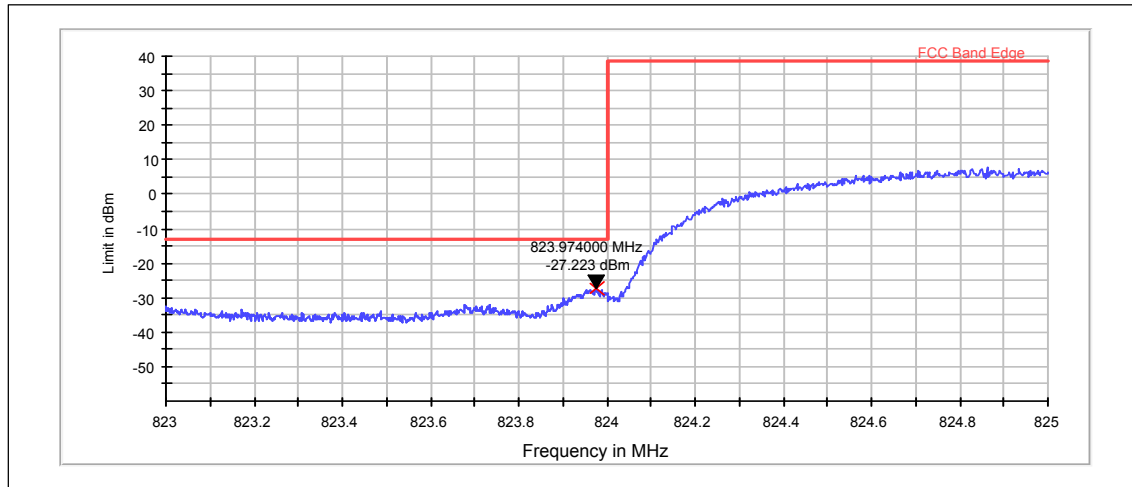


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| FDD                    | 1755.030        | -27.77      | PASSED |

## 5.7. WCDMA5 Test results

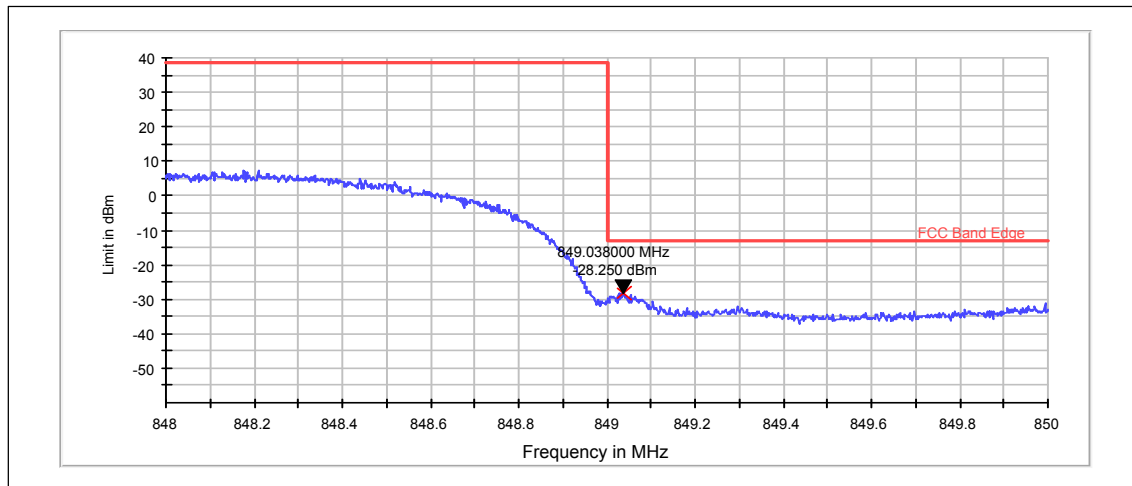
Channel 4132 / 826.4 MHz



RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| FDD                    | 823.974         | -27.22      | PASSED |

Channel 4233 / 846.6 MHz

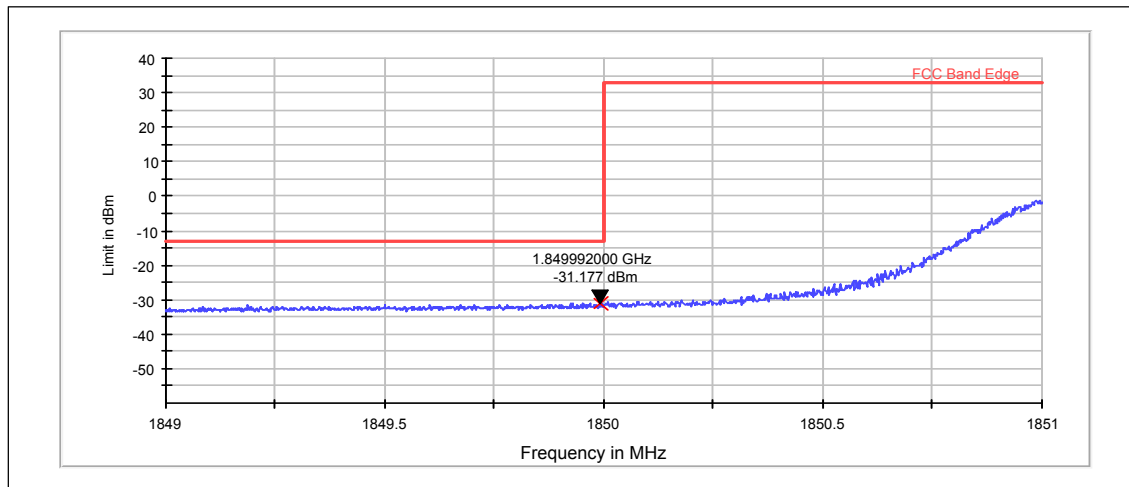


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Operation mode (TX on) | Frequency [MHz] | Level [dBm] | Result |
|------------------------|-----------------|-------------|--------|
| FDD                    | 849.038         | -28.25      | PASSED |

## 5.8. LTE2 Test results

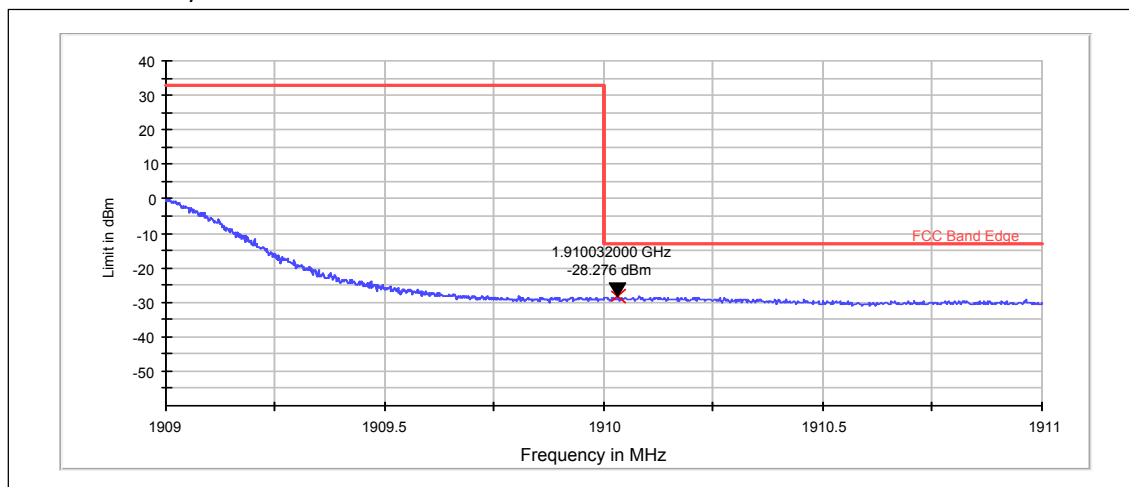
Channel 18700 / 1860 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 1849.992        | -31.18      | PASSED |

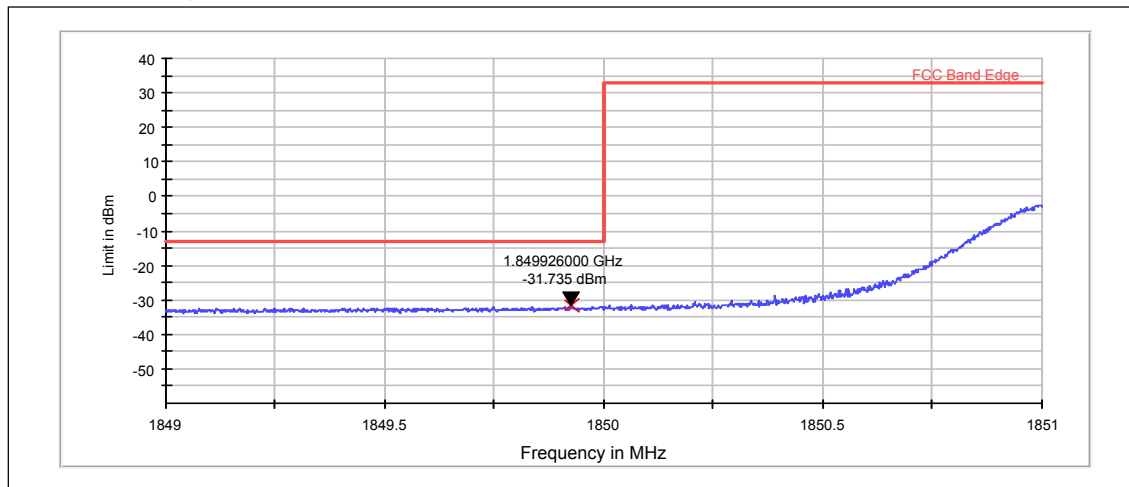
Channel 19100 / 1900 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 1910.032        | -28.28      | PASSED |

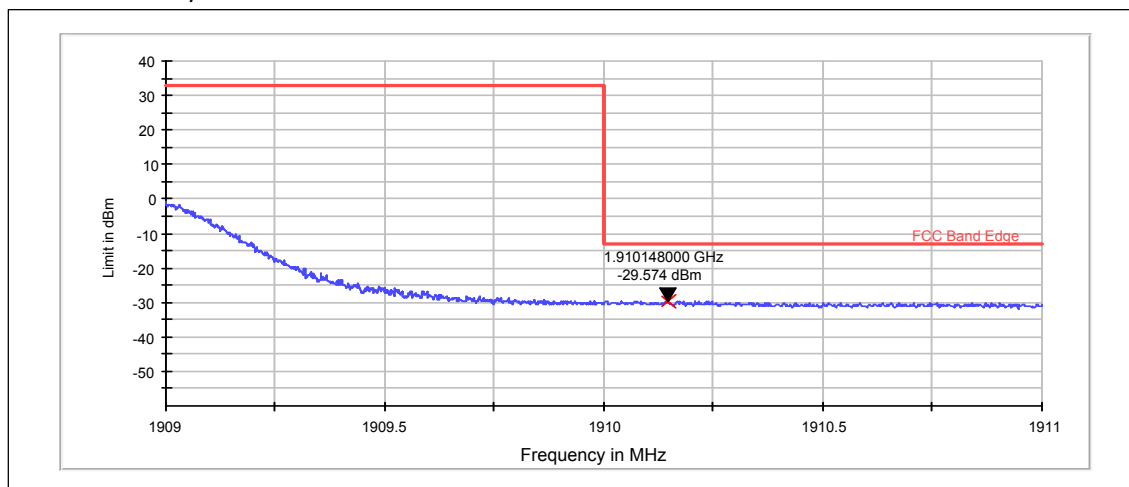
### Channel 18700 / 1860 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 1849.926        | -31.73      | PASSED |

### Channel 19100 / 1900 MHz

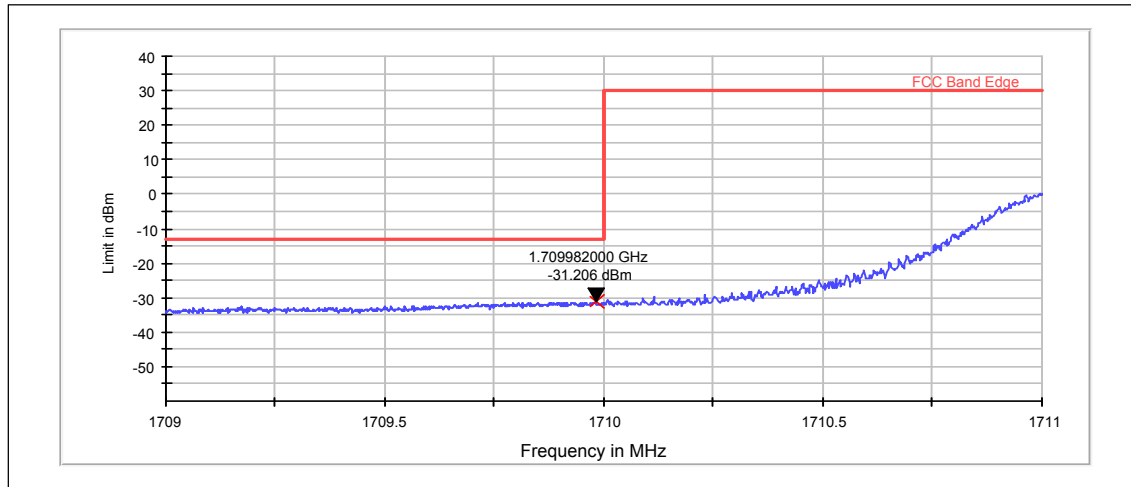


RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 1910.148        | -29.57      | PASSED |

## 5.9. LTE4 Test results

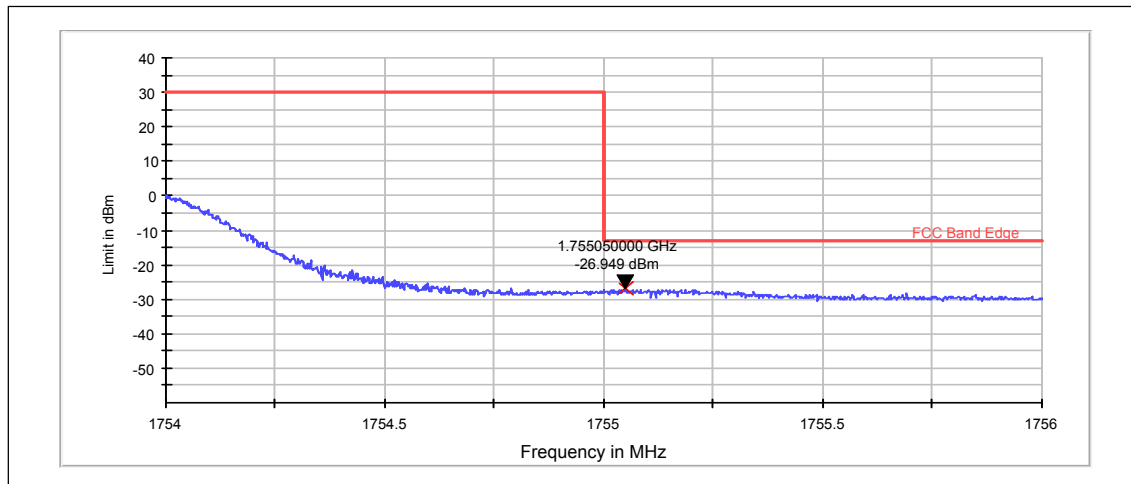
Channel 20050 / 1720 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 1709.982        | -31.21      | PASSED |

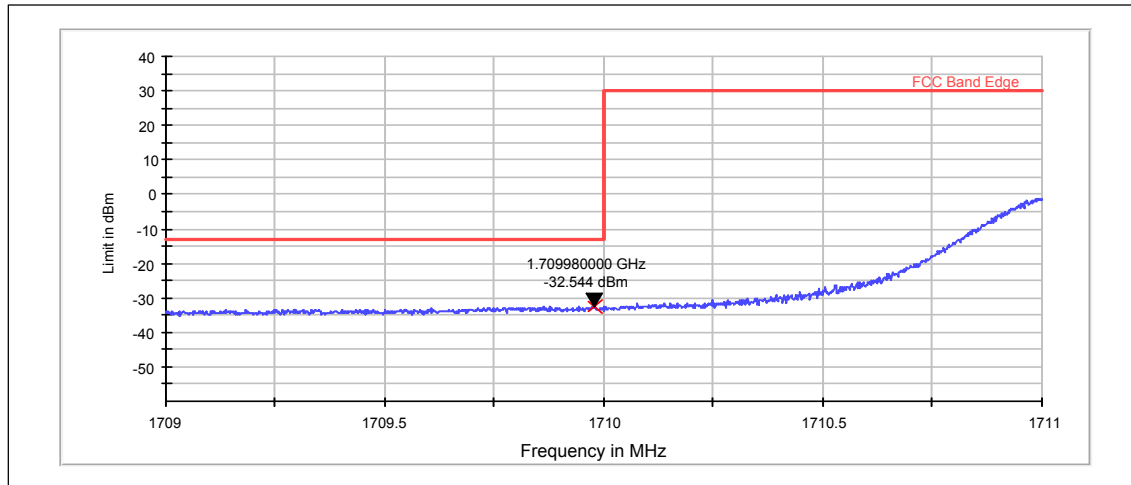
Channel 20300 / 1745 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 1755.050        | -26.95      | PASSED |

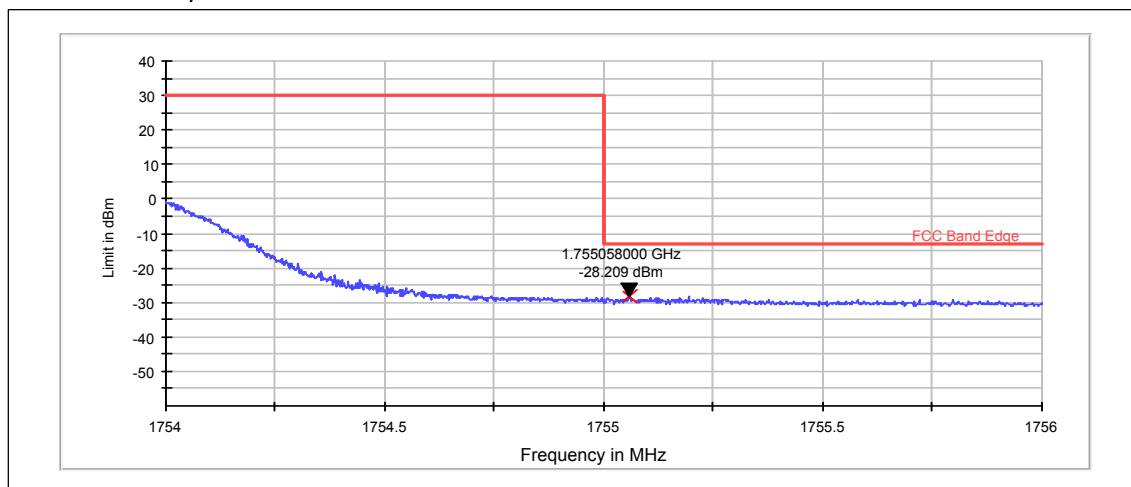
### Channel 20050 / 1720 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 1709.980        | -32.54      | PASSED |

### Channel 20300 / 1745 MHz

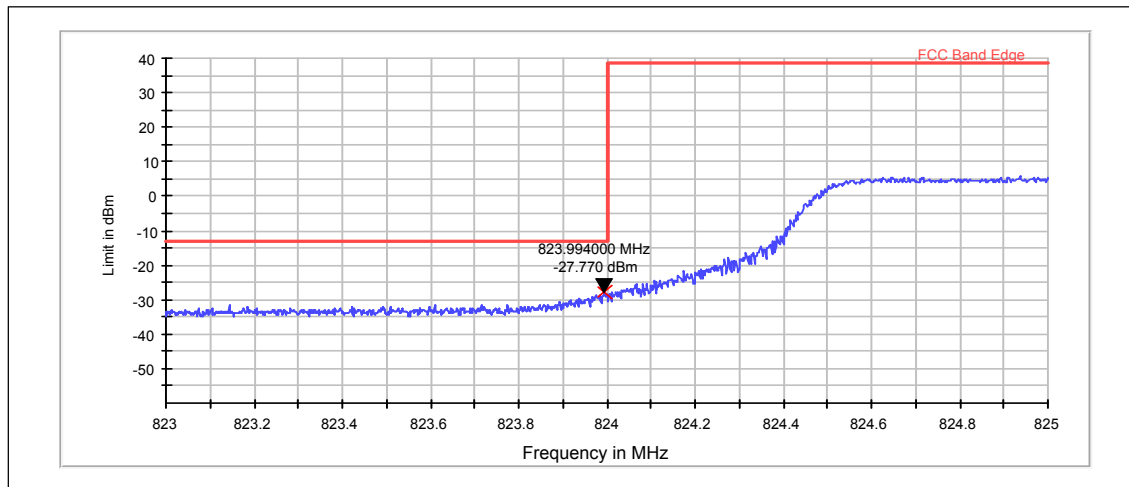


RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 1755.058        | -28.21      | PASSED |

## 5.10. LTE5 Test results

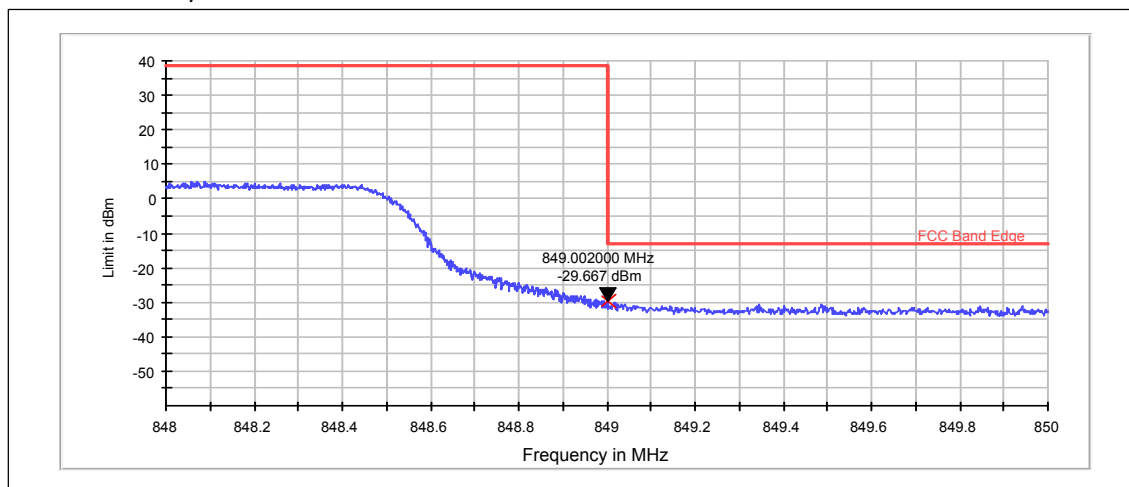
Channel 20450 / 829 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

| Operation mode (TX on)      | Frequency [MHz] | Level [dBm] | Result |
|-----------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, QPSK, 50 RB | 823.994         | -27.77      | PASSED |

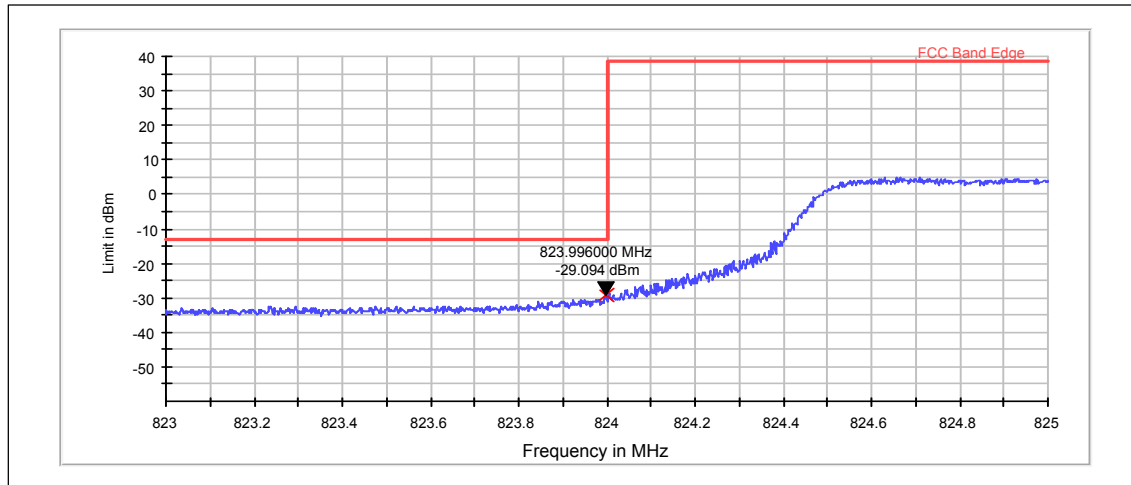
Channel 20600 / 844 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

| Operation mode (TX on)      | Frequency [MHz] | Level [dBm] | Result |
|-----------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, QPSK, 50 RB | 849.002         | -29.67      | PASSED |

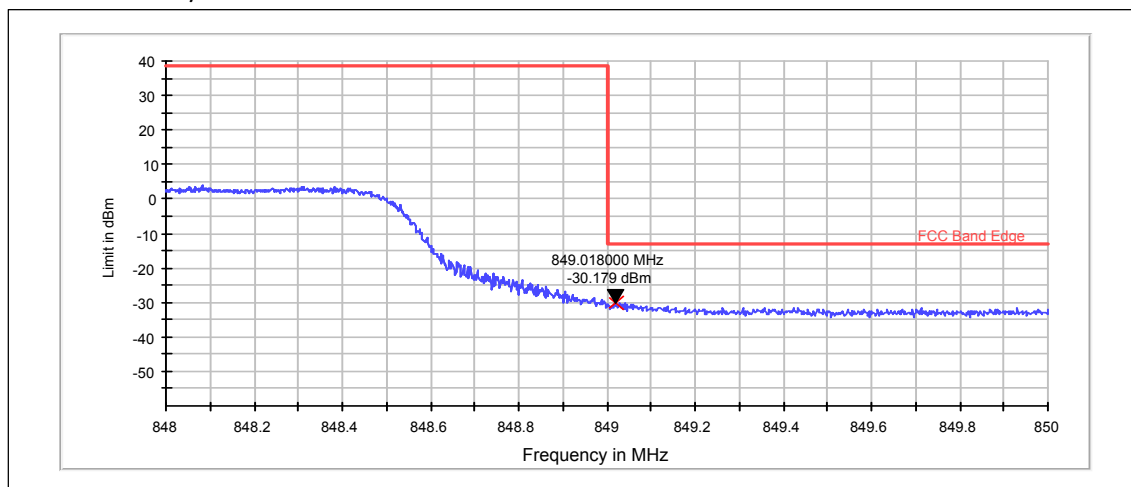
### Channel 20450 / 829 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, 16QAM, 50 RB | 823.996         | -29.09      | PASSED |

### Channel 20600 / 844 MHz

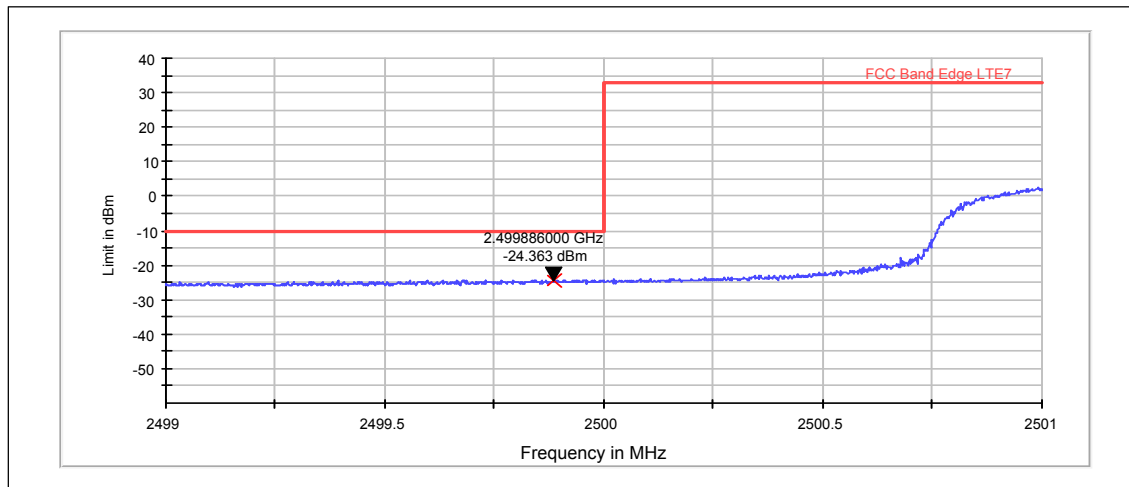


RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, 16QAM, 50 RB | 849.018         | -30.18      | PASSED |

## 5.11. LTE7 Test results

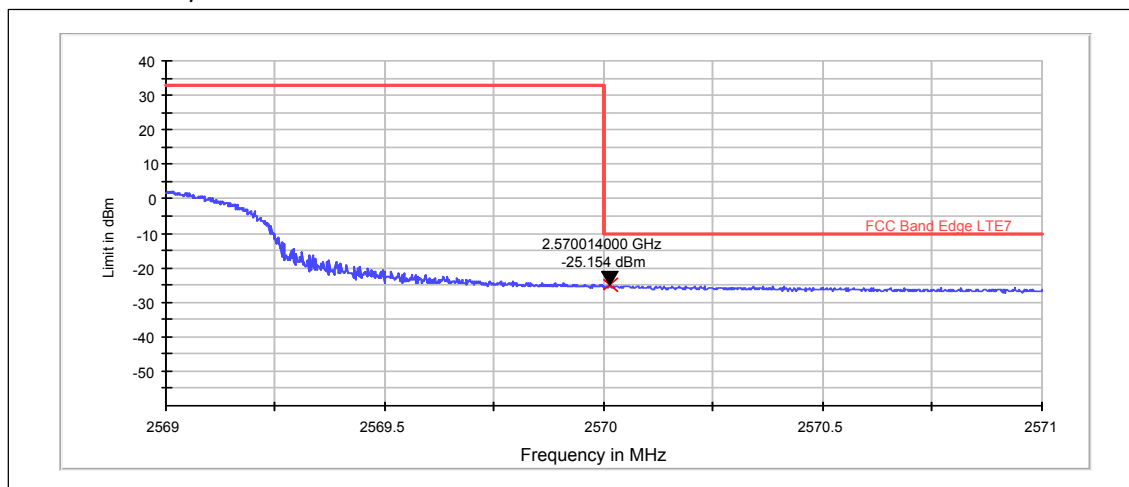
Channel 20850 / 2510 MHz



RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 2499.886        | -24.36      | PASSED |

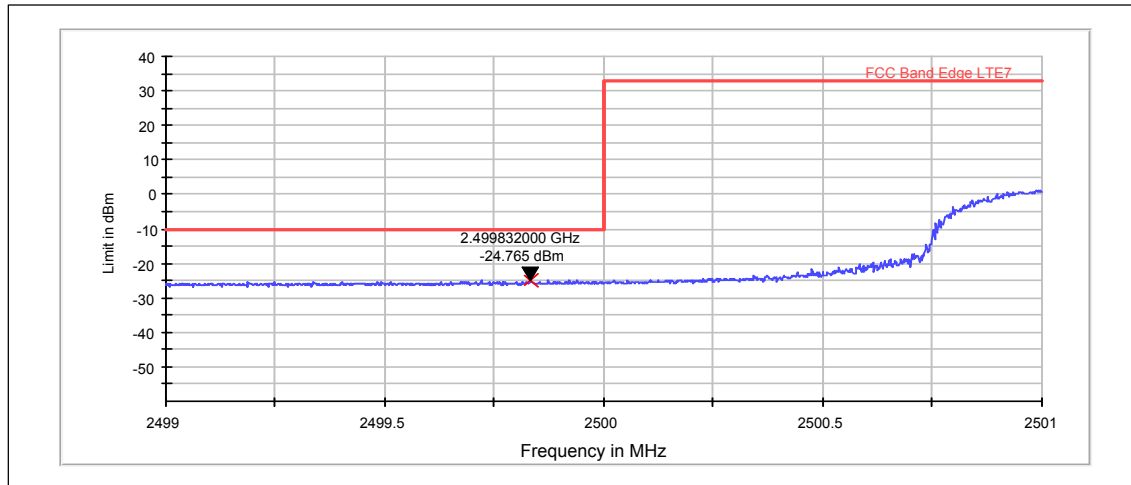
Channel 21350 / 2560 MHz



RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 2570.014        | -25.15      | PASSED |

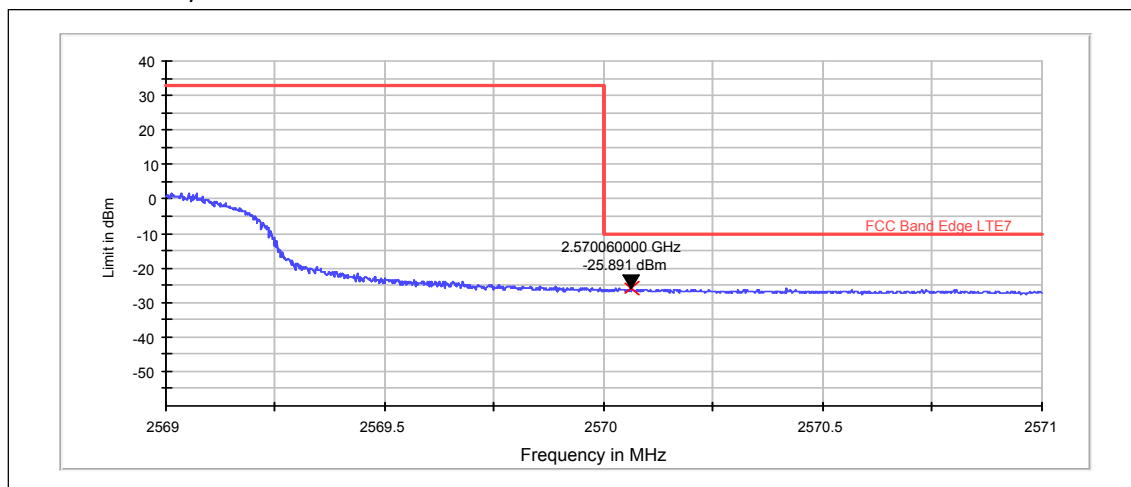
### Channel 20850 / 2510 MHz



RMS detector, Max hold

| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 2499.832        | -24.76      | PASSED |

### Channel 21350 / 2560 MHz

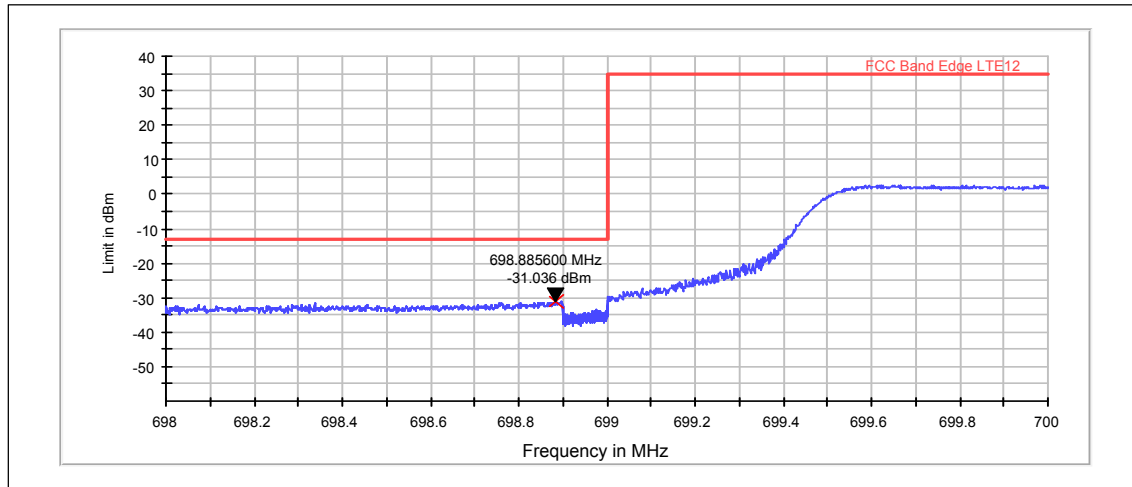


RMS detector, Max hold

| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 2570.060        | -25.89      | PASSED |

## 5.12. LTE12 Test results

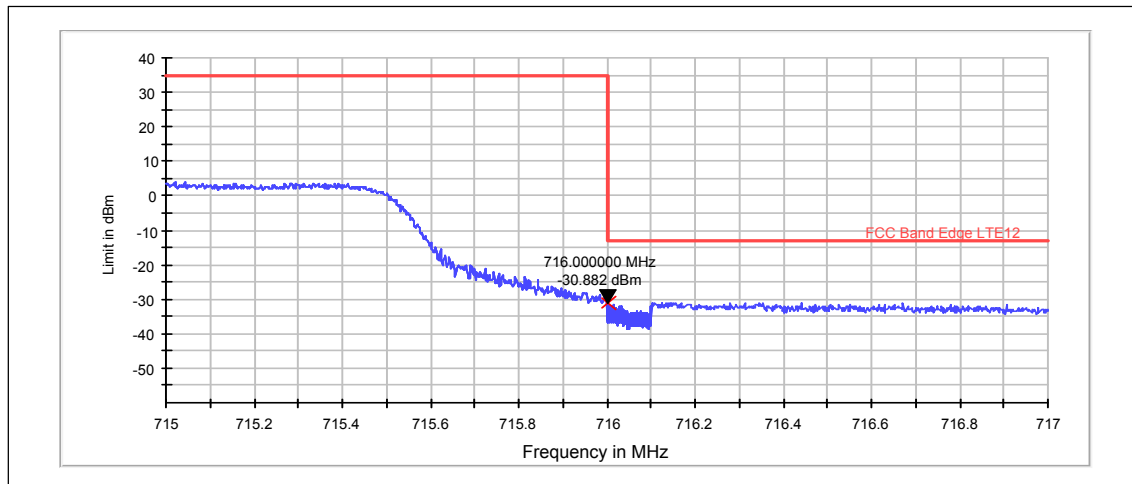
Channel 23060 / 704 MHz



RMS detector, Max hold

| Operation mode (TX on)      | Frequency [MHz] | Level [dBm] | Result |
|-----------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, QPSK, 50 RB | 698.886         | -31.04      | PASSED |

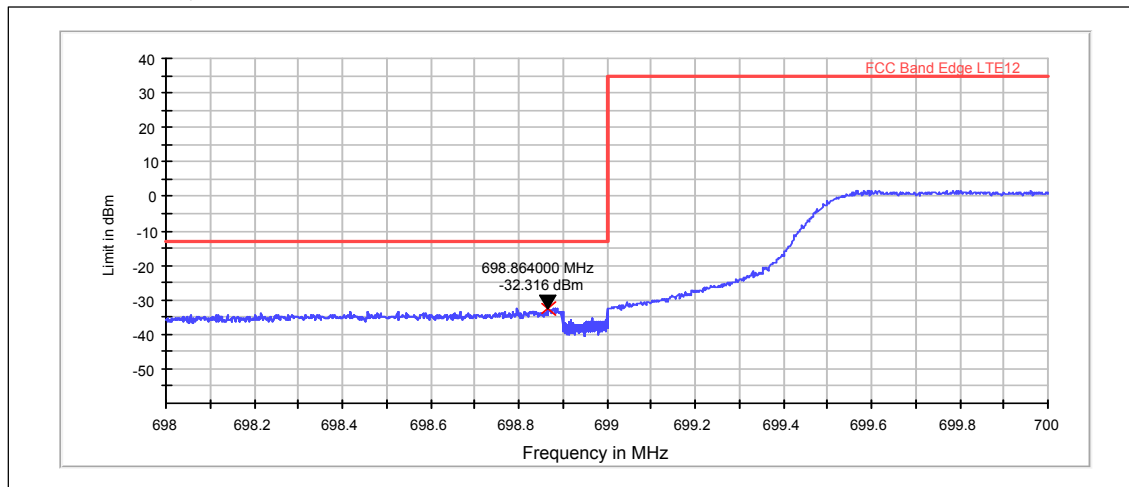
Channel 23130 / 711 MHz



RMS detector, Max hold

| Operation mode (TX on)      | Frequency [MHz] | Level [dBm] | Result |
|-----------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, QPSK, 50 RB | 716.000         | -30.88      | PASSED |

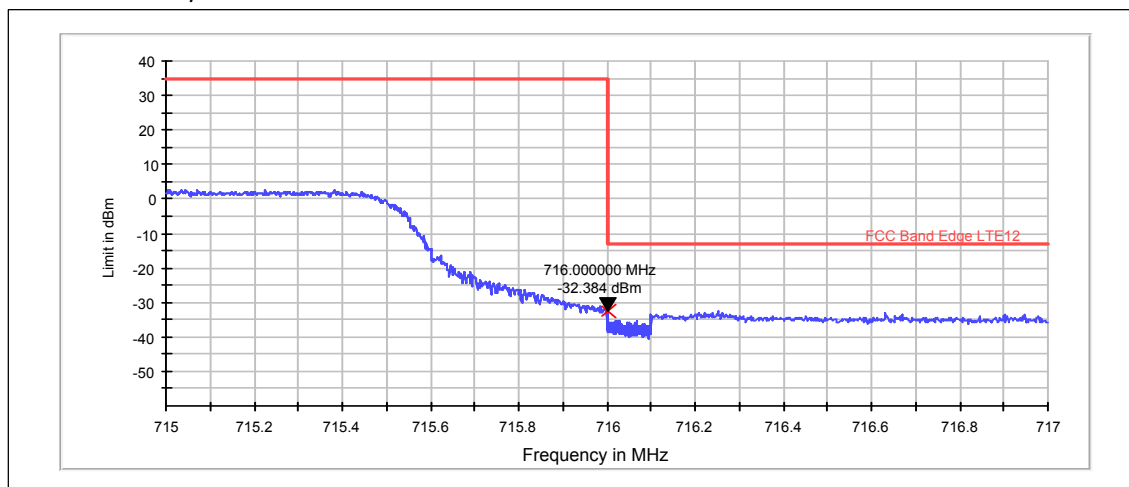
### Channel 23060 / 704 MHz



RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, 16QAM, 50 RB | 698.864         | -32.32      | PASSED |

### Channel 23130 / 711 MHz

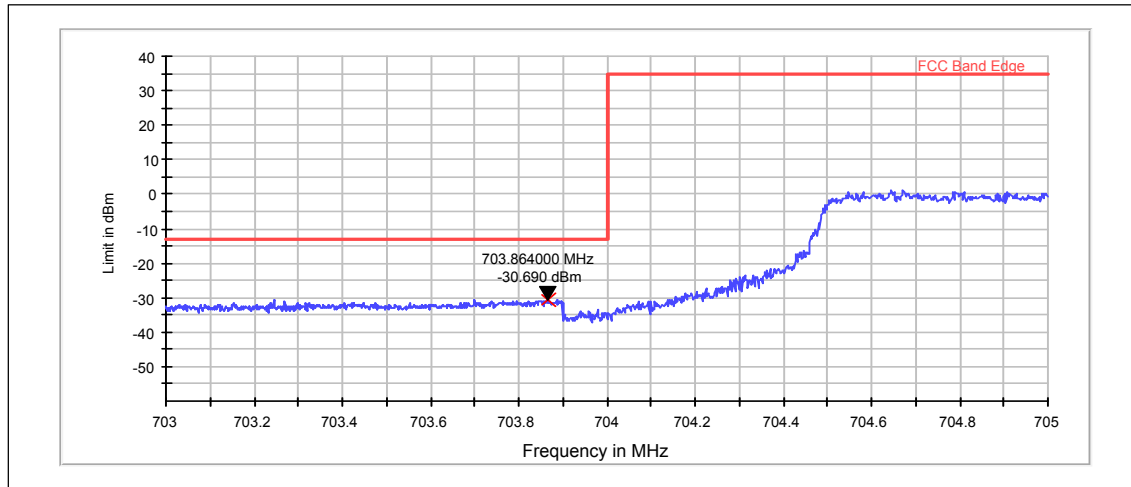


RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, 16QAM, 50 RB | 716.000         | -32.38      | PASSED |

### 5.13. LTE17 Test results

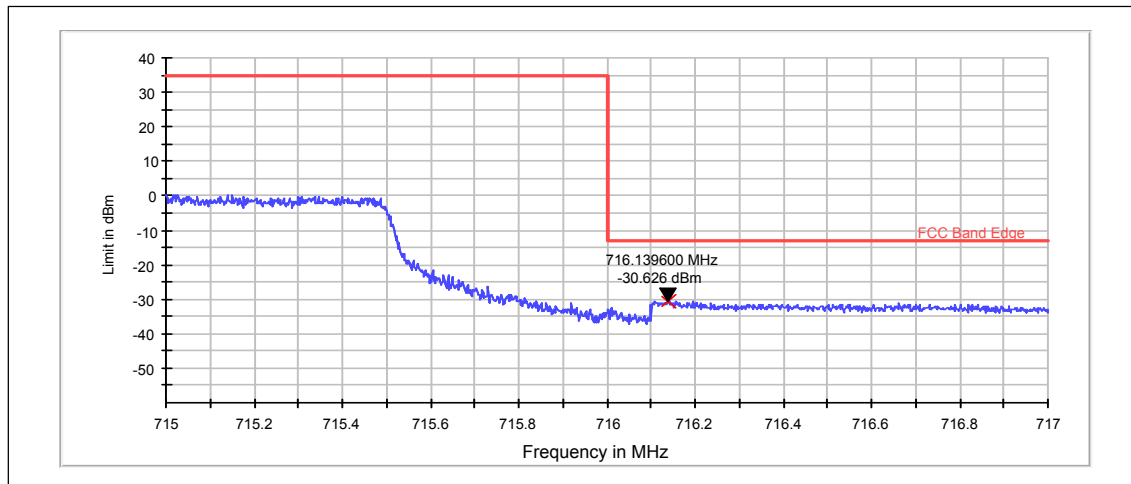
Channel 23780 / 709 MHz



RMS detector, Max hold

| Operation mode (TX on)      | Frequency [MHz] | Level [dBm] | Result |
|-----------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, QPSK, 50 RB | 703.864         | -30.69      | PASSED |

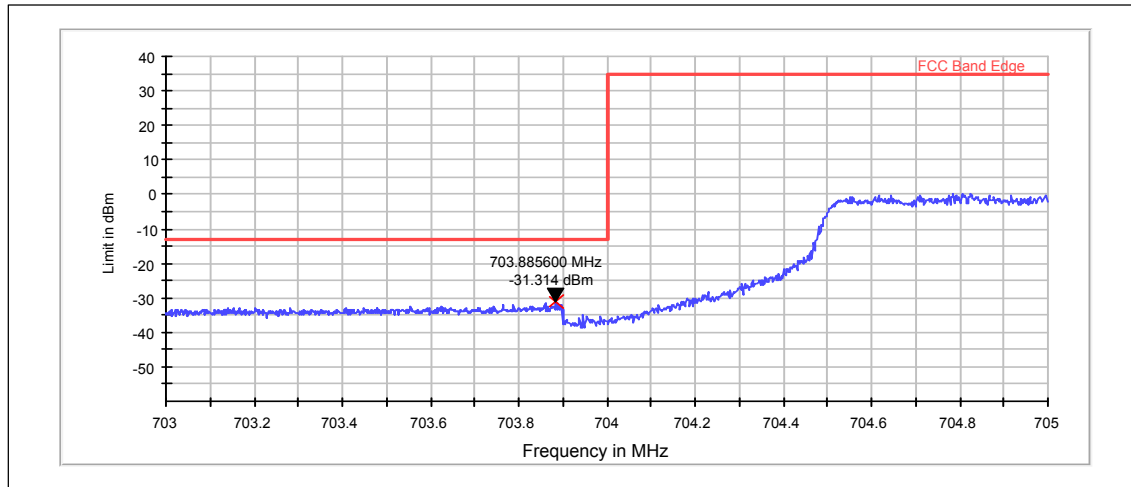
Channel 23800 / 711 MHz



RMS detector, Max hold

| Operation mode (TX on)      | Frequency [MHz] | Level [dBm] | Result |
|-----------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, QPSK, 50 RB | 716.140         | -30.63      | PASSED |

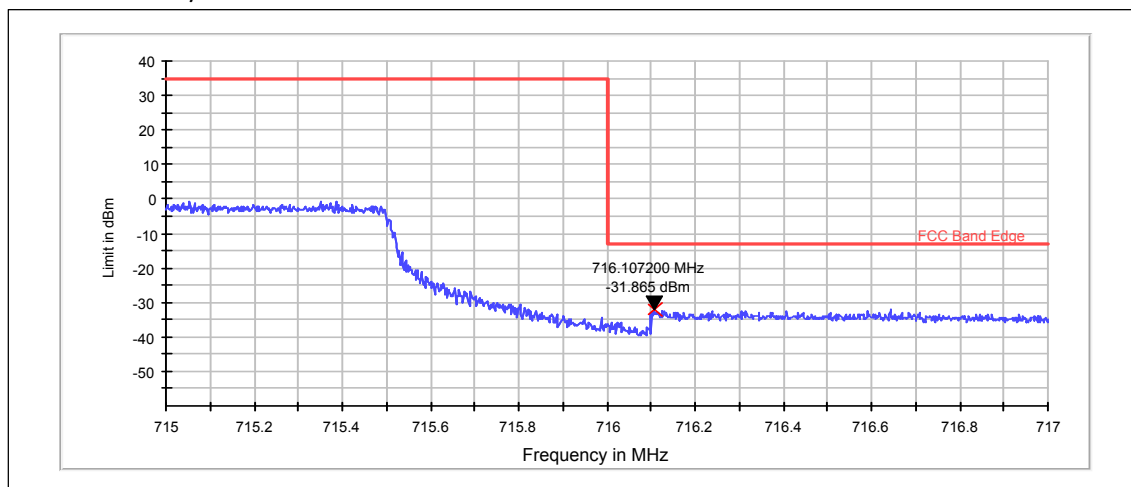
### Channel 23780 / 709 MHz



### RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, 16QAM, 50 RB | 703.886         | -31.31      | PASSED |

### Channel 23800 / 711 MHz

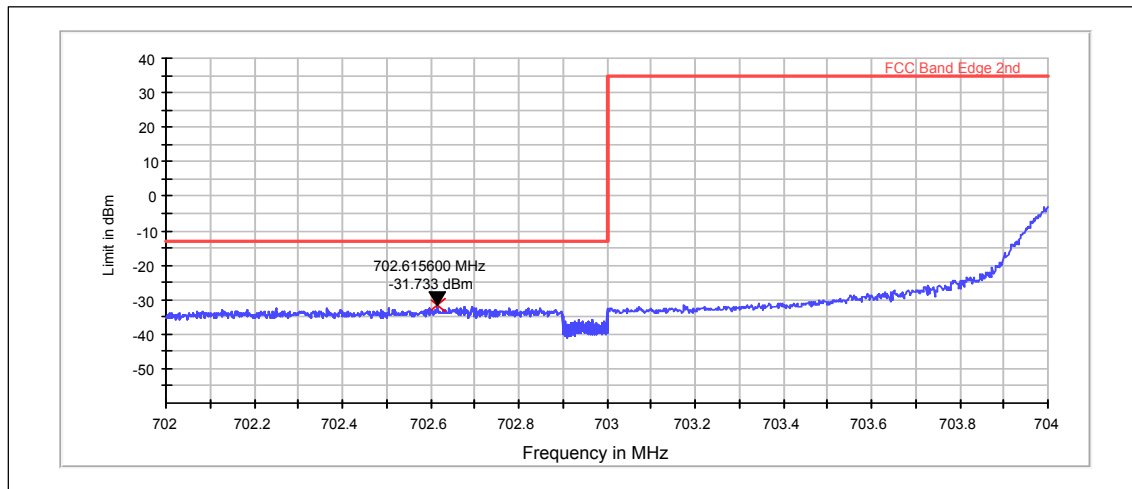


### RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 10MHz, 16QAM, 50 RB | 716.107         | -31.87      | PASSED |

## 5.14. LTE28 Test results

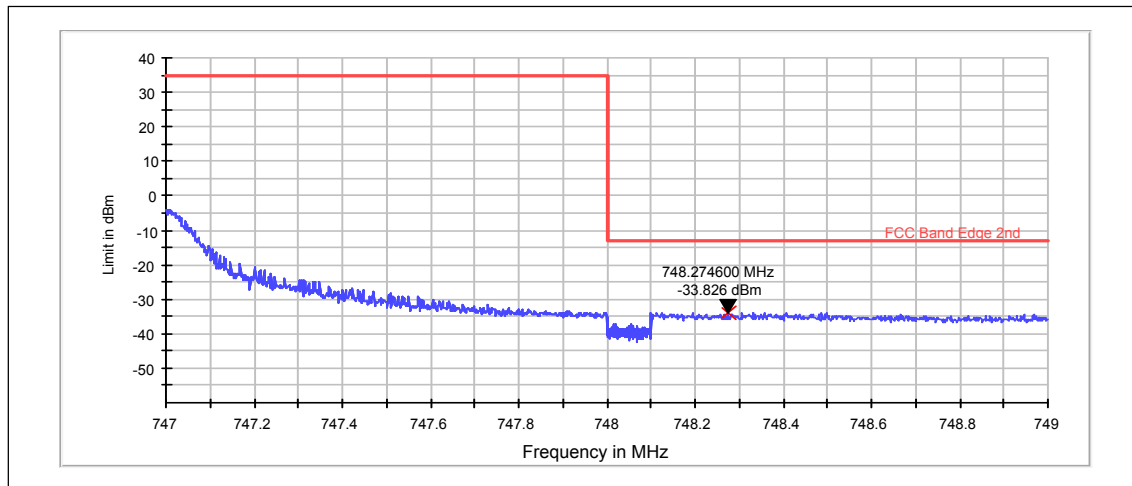
Channel 27310 / 713 MHz



RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 702.616         | -31.73      | PASSED |

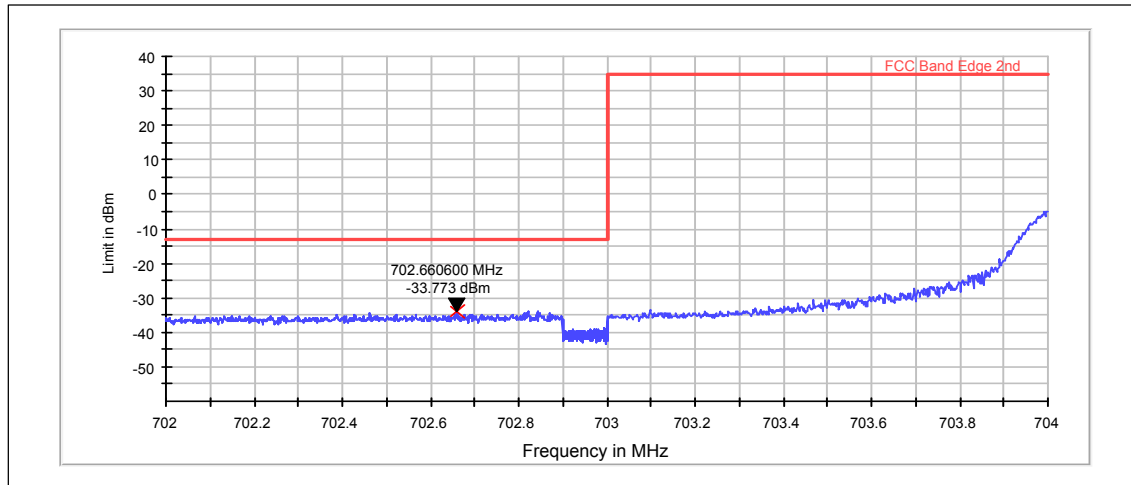
Channel 27560 / 738 MHz



RMS detector, Max hold

| Operation mode (TX on)       | Frequency [MHz] | Level [dBm] | Result |
|------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, QPSK, 100 RB | 748.275         | -33.83      | PASSED |

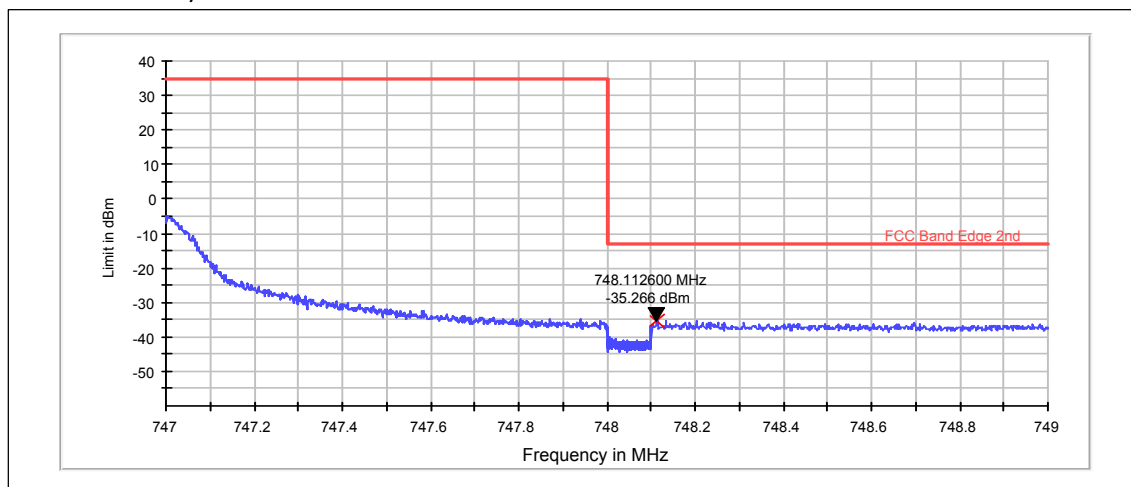
### Channel 27310 / 713 MHz



RMS detector, Max hold

| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 702.661         | -33.77      | PASSED |

### Channel 27560 / 738 MHz



RMS detector, Max hold

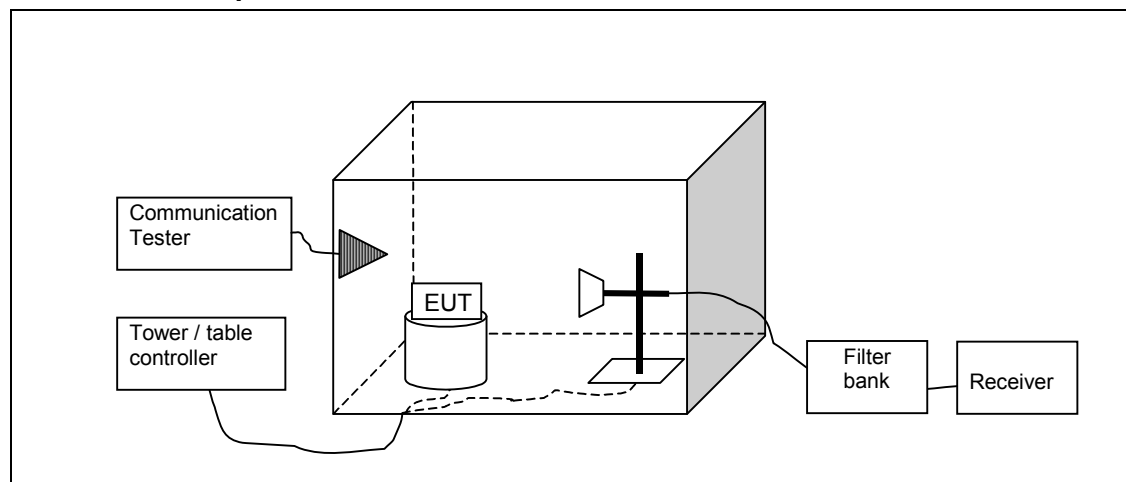
| Operation mode (TX on)        | Frequency [MHz] | Level [dBm] | Result |
|-------------------------------|-----------------|-------------|--------|
| FDD, CBW 20MHz, 16QAM, 100 RB | 748.113         | -35.27      | PASSED |

## 6. Spurious radiated emissions

(FCC §22.917(a), §27.53(f), §27.53(g), §2.1051, §27.53(l), §2.1053, §27.53(h), §2.1053, §22.917(a), §2.1053, §24.238(a), §2.1053, §2.1053, RSS-132 4.5, RSS-133 6.5, RSS-139 6.5, RSS-199 4.5(b), RSS-130 4.6)

|                                                        |                                                                  |
|--------------------------------------------------------|------------------------------------------------------------------|
| <b>EUT with DUT number</b>                             | RM-1075, DUT 43253                                               |
| <b>Accessories with DUT numbers</b>                    | BV-T5C, DUT 43256 ; AC-20E Pihong, DUT 43135 ; WH-108, DUT 43136 |
| <b>Operation Voltage [V] / [Hz]</b>                    | Nominal                                                          |
| <b>Results</b>                                         | PASSED                                                           |
| <b>Remarks</b>                                         | -                                                                |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 20 / 45 / 99.3                                                   |
| <b>Date of measurements</b>                            | 17-Jan-2015                                                      |
| <b>Measured by</b>                                     | Timo Raisio                                                      |

### 6.1.1 Test setup



## 6.2. Test method and limit

The measurement is made according to TIA-603-C-2004 as follows:

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement is made up to 10th harmonic of the EUT highest TX channel.

The substitution method is used.

The measurement results are obtained as described below:

$$P [dBm] = P_{SUBST TX} + G_{SUBST TX ANT} - L_{SUBST CABLE}$$

Where  $P_{SUBST TX}$  is signal generator level, which produces the same receiver reading  $P_{MEAS}$  in dBm as EUT.  $G_{SUBST TX ANT}$  is substitution antenna gain and  $L_{SUBST CABLE}$  is the loss of the cable between the signal generator and the substitution antenna.

Limits for spurious radiated emissions measurements

| Operation band | Frequency range [MHz]                                          | Limit [dBm]                                                                                      |
|----------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| GSM 850        | 30 - 8500                                                      | -13                                                                                              |
| GSM 1900       | 30 - 19100                                                     | -13                                                                                              |
| WCDMA2         | 30 - 19100                                                     | -13                                                                                              |
| WCDMA4         | 30 - 17500                                                     | -13                                                                                              |
| WCDMA5         | 30 - 8500                                                      | -13                                                                                              |
| LTE2           | 30 - 19100                                                     | -13                                                                                              |
| LTE4           | 30 - 17500                                                     | -13                                                                                              |
| LTE5           | 30 - 8500                                                      | -13                                                                                              |
| LTE7           | 30 - 25700                                                     | -13                                                                                              |
| LTE17          | 30 - 7200                                                      | -13 (RBW = 100 kHz, ERP)                                                                         |
| LTE28          | 30 - 8000<br>763-775 and 793-805<br>1559 - 1610<br>1559 - 1610 | -13 (RBW = 100 kHz, ERP)<br>-35 (RBW = 6.25 kHz, ERP)<br>-40 (RBW = 1 MHz)<br>-50 (RBW = 700 Hz) |
| LTE12          | 30 - 7200                                                      | -13                                                                                              |

### 6.3. GSM 850 test results

Channel 190 / 836.6 MHz

Peak detector

| Frequency [MHz] | P [dBm] | P [μW]  | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|---------|-------------------------|-----------------------|--------------|---------|
| 1673.186        | -48.48  | 0.01419 | -41.88                  | -6.6                  | VERTICAL     | PASSED  |
| 1673.307        | -48.63  | 0.01371 | -41.93                  | -6.7                  | HORIZONTAL   | PASSED  |
| 1673.427        | -54.1   | 0.00389 | -47.4                   | -6.7                  | HORIZONTAL   | PASSED  |
| 2509.619        | -44.15  | 0.03846 | -44.35                  | 0.2                   | HORIZONTAL   | PASSED  |
| 2509.82         | -42.23  | 0.05984 | -42.53                  | 0.3                   | VERTICAL     | PASSED  |
| 3370.501        | -59.8   | 0.00105 | -60.6                   | 0.8                   | HORIZONTAL   | PASSED  |

### 6.4. GSM 850 E-GPRS (MSC9) test results

Channel 190 / 836.6 MHz

Peak detector

| Frequency [MHz] | P [dBm] | P [μW]  | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|---------|-------------------------|-----------------------|--------------|---------|
| 1673.26         | -48.16  | 0.01528 | -41.56                  | -6.6                  | VERTICAL     | PASSED  |
| 2509.78         | -46.29  | 0.0235  | -46.59                  | 0.3                   | VERTICAL     | PASSED  |

### 6.5. GSM 1900 test results

Channel 661 / 1880.0 MHz

Peak detector

| Frequency [MHz] | P [dBm] | P [μW]  | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|---------|-------------------------|-----------------------|--------------|---------|
| 1910.573        | -43.6   | 0.04365 | -40.9                   | -2.7                  | VERTICAL     | PASSED  |
| 1910.693        | -39.71  | 0.10691 | -36.91                  | -2.8                  | HORIZONTAL   | PASSED  |
| 1911.668        | -39.77  | 0.10544 | -36.97                  | -2.8                  | HORIZONTAL   | PASSED  |
| 1918.894        | -44.34  | 0.03681 | -41.54                  | -2.8                  | VERTICAL     | PASSED  |
| 9322.164        | -43.66  | 0.04305 | -62.76                  | 19.1                  | VERTICAL     | PASSED  |
| 11158.657       | -44.79  | 0.03319 | -64.79                  | 20                    | VERTICAL     | PASSED  |

### 6.6. GSM 1900 E-GPRS (MSC9) test results

Channel 661 / 1880.0 MHz

Peak detector

| Frequency [MHz] | P [dBm] | P [μW]  | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|---------|-------------------------|-----------------------|--------------|---------|
| 3759.86         | -54.99  | 0.00317 | -59.49                  | 4.5                   | VERTICAL     | PASSED  |
| 5640.06         | -48.52  | 0.01406 | -56.72                  | 8.2                   | HORIZONTAL   | PASSED  |

## 6.7. WCDMA2 test results

Channel 9400 / 1880.0 MHz

FDD mode, Peak detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1911.941        | -50.72  | 0.00847      | -47.52                  | -3.2                  | HORIZONTAL   | PASSED  |
| 1912.906        | -49.73  | 0.01064      | -46.53                  | -3.2                  | HORIZONTAL   | PASSED  |
| 1931.008        | -56.35  | 0.00232      | -53.25                  | -3.1                  | HORIZONTAL   | PASSED  |
| 3762.184        | -51.96  | 0.00637      | -56.46                  | 4.5                   | VERTICAL     | PASSED  |
| 5636.413        | -51.42  | 0.00721      | -59.62                  | 8.2                   | HORIZONTAL   | PASSED  |
| 7523.547        | -46.3   | 0.02344      | -60.5                   | 14.2                  | VERTICAL     | PASSED  |
| 9236.774        | -44.15  | 0.03846      | -63.35                  | 19.2                  | VERTICAL     | PASSED  |
| 9339.499        | -43.84  | 0.0413       | -62.54                  | 18.7                  | HORIZONTAL   | PASSED  |
| 9407.675        | -45.23  | 0.02999      | -63.63                  | 18.4                  | VERTICAL     | PASSED  |
| 10522.946       | -44.39  | 0.03639      | -62.79                  | 18.4                  | HORIZONTAL   | PASSED  |
| 11278.056       | -44.2   | 0.03802      | -63                     | 18.8                  | HORIZONTAL   | PASSED  |
| 13167.355       | -52.39  | 0.00577      | -64.09                  | 11.7                  | HORIZONTAL   | PASSED  |
| 15039.459       | -51.57  | 0.00697      | -65.77                  | 14.2                  | HORIZONTAL   | PASSED  |
| 16921.984       | -50.91  | 0.00811      | -67.21                  | 16.3                  | HORIZONTAL   | PASSED  |

## 6.8. WCDMA4 test results

Channel 1412 / 1732.4 MHz

FDD mode, Peak detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1757.525        | -47.42  | 0.01811      | -43.02                  | -4.4                  | VERTICAL     | PASSED  |
| 1758.317        | -49.67  | 0.01079      | -45.27                  | -4.4                  | HORIZONTAL   | PASSED  |
| 1772.585        | -49.42  | 0.01143      | -45.22                  | -4.2                  | VERTICAL     | PASSED  |
| 3463.898        | -55.29  | 0.00296      | -59.29                  | 4                     | HORIZONTAL   | PASSED  |
| 5199.424        | -51.86  | 0.00652      | -59.56                  | 7.7                   | HORIZONTAL   | PASSED  |
| 6936.955        | -48.12  | 0.01542      | -58.92                  | 10.8                  | VERTICAL     | PASSED  |
| 8666.068        | -46.8   | 0.02089      | -63.7                   | 16.9                  | VERTICAL     | PASSED  |
| 10391.093       | -45.49  | 0.02825      | -63.49                  | 18                    | VERTICAL     | PASSED  |
| 10794.77        | -44.36  | 0.03664      | -62.66                  | 18.3                  | HORIZONTAL   | PASSED  |
| 10900.942       | -43.64  | 0.04325      | -62.84                  | 19.2                  | VERTICAL     | PASSED  |
| 11348.156       | -43.63  | 0.04335      | -63.23                  | 19.6                  | VERTICAL     | PASSED  |
| 12133.273       | -45.9   | 0.0257       | -64.4                   | 18.5                  | HORIZONTAL   | PASSED  |
| 13854.651       | -51.93  | 0.00641      | -63.83                  | 11.9                  | HORIZONTAL   | PASSED  |
| 15582.081       | -50.83  | 0.00826      | -66.43                  | 15.6                  | VERTICAL     | PASSED  |
| 17319.812       | -48.45  | 0.01429      | -66.25                  | 17.8                  | VERTICAL     | PASSED  |

## 6.9. WCDMA5 test results

Channel 4175 / 835.0 MHz

FDD mode, Peak detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 821.759         | -49.29  | 0.01178      | -81.49                  | 32.2                  | HORIZONTAL   | PASSED  |
| 852.45          | -50.28  | 0.00938      | -81.28                  | 31                    | VERTICAL     | PASSED  |
| 857.365         | -50.31  | 0.00931      | -81.41                  | 31.1                  | HORIZONTAL   | PASSED  |
| 861.957         | -49.15  | 0.01216      | -81.05                  | 31.9                  | VERTICAL     | PASSED  |
| 864.256         | -49.55  | 0.01109      | -81.15                  | 31.6                  | HORIZONTAL   | PASSED  |
| 865.456         | -49.84  | 0.01038      | -81.84                  | 32                    | VERTICAL     | PASSED  |
| 1672.465        | -48.73  | 0.0134       | -42.13                  | -6.6                  | VERTICAL     | PASSED  |
| 2512.355        | -54.53  | 0.00352      | -55.03                  | 0.5                   | HORIZONTAL   | PASSED  |
| 3341.303        | -59.51  | 0.00112      | -60.11                  | 0.6                   | HORIZONTAL   | PASSED  |
| 4181.553        | -57.13  | 0.00194      | -60.73                  | 3.6                   | HORIZONTAL   | PASSED  |
| 5000.721        | -54.69  | 0.0034       | -60.49                  | 5.8                   | VERTICAL     | PASSED  |
| 5845.741        | -54.15  | 0.00385      | -60.25                  | 6.1                   | VERTICAL     | PASSED  |
| 6684.349        | -50.89  | 0.00815      | -58.79                  | 7.9                   | VERTICAL     | PASSED  |
| 7505.922        | -49.97  | 0.01007      | -61.97                  | 12                    | HORIZONTAL   | PASSED  |
| 8358.317        | -50.1   | 0.00977      | -63.6                   | 13.5                  | VERTICAL     | PASSED  |

## 6.10. LTE2 test results

Channel 18900 / 1880.0 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1866.117        | -62.85  | 0.00052      | -59.75                  | -3.1                  | HORIZONTAL   | PASSED  |
| 1899.347        | -49.87  | 0.0103       | -46.57                  | -3.3                  | HORIZONTAL   | PASSED  |
| 1899.494        | -61.79  | 0.00066      | -58.49                  | -3.3                  | HORIZONTAL   | PASSED  |
| 1904.128        | -55.31  | 0.00294      | -52.01                  | -3.3                  | HORIZONTAL   | PASSED  |
| 1912.074        | -47.02  | 0.01986      | -43.82                  | -3.2                  | HORIZONTAL   | PASSED  |
| 3760.341        | -55.39  | 0.00289      | -59.89                  | 4.5                   | HORIZONTAL   | PASSED  |
| 5640.461        | -58.52  | 0.00141      | -66.72                  | 8.2                   | HORIZONTAL   | PASSED  |
| 7520.782        | -51.99  | 0.00632      | -65.89                  | 13.9                  | HORIZONTAL   | PASSED  |

Channel 18900 / 1880.0 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1866.212        | -44.1   | 0.0389       | -41                     | -3.1                  | HORIZONTAL   | PASSED  |
| 1867.4          | -44.14  | 0.03855      | -41.04                  | -3.1                  | HORIZONTAL   | PASSED  |
| 1894.875        | -48.33  | 0.01469      | -45.03                  | -3.3                  | HORIZONTAL   | PASSED  |
| 1901.413        | -59.17  | 0.00121      | -55.87                  | -3.3                  | HORIZONTAL   | PASSED  |
| 1908.357        | -47.65  | 0.01718      | -44.45                  | -3.2                  | HORIZONTAL   | PASSED  |

|          |        |         |        |      |            |        |
|----------|--------|---------|--------|------|------------|--------|
| 1909.955 | -46.84 | 0.0207  | -43.64 | -3.2 | HORIZONTAL | PASSED |
| 3760.18  | -57.39 | 0.00182 | -61.89 | 4.5  | HORIZONTAL | PASSED |
| 5640.421 | -58.66 | 0.00136 | -66.86 | 8.2  | HORIZONTAL | PASSED |
| 7520.661 | -51.61 | 0.0069  | -65.51 | 13.9 | HORIZONTAL | PASSED |

## 6.11. LTE4 test results

Channel 20175 / 1732.5 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 3465.421        | -62.86  | 0.00052      | -66.86                  | 4                     | HORIZONTAL   | PASSED  |
| 5198.081        | -56.27  | 0.00236      | -63.77                  | 7.5                   | VERTICAL     | PASSED  |
| 6930.661        | -56.89  | 0.00205      | -67.89                  | 11                    | VERTICAL     | PASSED  |
| 8672.3          | -57.22  | 0.0019       | -74.22                  | 17                    | VERTICAL     | PASSED  |
| 10389.649       | -56.57  | 0.0022       | -74.57                  | 18                    | VERTICAL     | PASSED  |

Channel 20175 / 1732.5 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 3465.541        | -65.89  | 0.00026      | -69.89                  | 4                     | HORIZONTAL   | PASSED  |
| 5198.001        | -56.07  | 0.00247      | -63.57                  | 7.5                   | VERTICAL     | PASSED  |
| 6930.621        | -57.21  | 0.0019       | -68.21                  | 11                    | VERTICAL     | PASSED  |
| 8672.42         | -57.21  | 0.0019       | -74.31                  | 17.1                  | VERTICAL     | PASSED  |
| 10388.687       | -56.23  | 0.00238      | -74.23                  | 18                    | VERTICAL     | PASSED  |

## LTE5 test results

Channel 20525 / 836.5 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 855.132         | -62.17  | 0.00061      | -93.07                  | 30.9                  | HORIZONTAL   | PASSED  |
| 883.068         | -47.17  | 0.01919      | -80.27                  | 33.1                  | HORIZONTAL   | PASSED  |
| 883.413         | -47.14  | 0.01932      | -80.24                  | 33.1                  | HORIZONTAL   | PASSED  |
| 1673.421        | -52.24  | 0.00597      | -45.54                  | -6.7                  | HORIZONTAL   | PASSED  |
| 2510.001        | -68.55  | 0.00014      | -68.75                  | 0.2                   | HORIZONTAL   | PASSED  |
| 3342.974        | -78.51  | 1E-05        | -79.01                  | 0.5                   | HORIZONTAL   | PASSED  |

Channel 20525 / 836.5 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 856.615         | -62     | 0.00063      | -93                     | 31                    | HORIZONTAL   | PASSED  |
| 879.894         | -47.16  | 0.01923      | -80.26                  | 33.1                  | HORIZONTAL   | PASSED  |
| 883.09          | -47.86  | 0.01637      | -80.96                  | 33.1                  | HORIZONTAL   | PASSED  |
| 1673.421        | -53.03  | 0.00498      | -46.33                  | -6.7                  | HORIZONTAL   | PASSED  |
| 2509.841        | -72.26  | 6E-05        | -72.46                  | 0.2                   | HORIZONTAL   | PASSED  |
| 3355.88         | -78.41  | 1E-05        | -79.01                  | 0.6                   | HORIZONTAL   | PASSED  |

## 6.12. LTE7 test results

Channel 21100 / 2535.0 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 2553.953        | -63.61  | 0.00044      | -64.81                  | 1.2                   | HORIZONTAL   | PASSED  |
| 2655.686        | -40.29  | 0.09354      | -41.49                  | 1.2                   | HORIZONTAL   | PASSED  |
| 5065.01         | -62.77  | 0.00053      | -71.17                  | 8.4                   | HORIZONTAL   | PASSED  |
| 7605.501        | -50.18  | 0.00959      | -64.18                  | 14                    | HORIZONTAL   | PASSED  |
| 10139.579       | -56.5   | 0.00224      | -73                     | 16.5                  | HORIZONTAL   | PASSED  |

Channel 21100 / 2535.0 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 2552.891        | -63.6   | 0.00044      | -64.8                   | 1.2                   | HORIZONTAL   | PASSED  |
| 5065.812        | -62.76  | 0.00053      | -71.16                  | 8.4                   | HORIZONTAL   | PASSED  |
| 7605.541        | -50.83  | 0.00826      | -64.83                  | 14                    | HORIZONTAL   | PASSED  |
| 10149.599       | -56.93  | 0.00203      | -73.33                  | 16.4                  | HORIZONTAL   | PASSED  |

### 6.13. LTE12 test results

Channel 23095 / 707.5 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1415.421        | -73.12  | 5E-05        | -64.42                  | -8.7                  | HORIZONTAL   | PASSED  |
| 2123.081        | -66.17  | 0.00024      | -62.87                  | -3.3                  | VERTICAL     | PASSED  |
| 2839.719        | -71.75  | 7E-05        | -74.65                  | 2.9                   | VERTICAL     | PASSED  |

Channel 23095 / 707.5 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1415.301        | -76.47  | 2E-05        | -67.77                  | -8.7                  | VERTICAL     | PASSED  |
| 2123.041        | -61.74  | 0.00067      | -58.44                  | -3.3                  | VERTICAL     | PASSED  |
| 2838.798        | -71.44  | 7E-05        | -74.24                  | 2.8                   | VERTICAL     | PASSED  |

### 6.14. LTE17 test results

Channel 23790 / 710 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1429.84         | -79.43  | 1E-05        | -71.23                  | -8.2                  | HORIZONTAL   | PASSED  |
| 2140            | -74.94  | 3E-05        | -71.94                  | -3                    | HORIZONTAL   | PASSED  |
| 2844.83         | -71.63  | 7E-05        | -74.63                  | 3                     | VERTICAL     | PASSED  |

Channel 23790 / 710 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 1420.381        | -71.31  | 7E-05        | -62.61                  | -8.7                  | HORIZONTAL   | PASSED  |
| 2130.581        | -66.56  | 0.00022      | -63.56                  | -3                    | VERTICAL     | PASSED  |
| 2846.433        | -71.96  | 6E-05        | -74.56                  | 2.6                   | HORIZONTAL   | PASSED  |

## 6.15. LTE28 test results

Channel 27435 / 725.5 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 764.994         | -74.43  | 4E-05        | -107.03                 | 32.6                  | HORIZONTAL   | PASSED  |
| 770.04          | -75.47  | 3E-05        | -106.97                 | 31.5                  | VERTICAL     | PASSED  |
| 795.01          | -75.23  | 3E-05        | -107.03                 | 31.8                  | HORIZONTAL   | PASSED  |
| 1451.421        | -76.67  | 2E-05        | -68.27                  | -8.4                  | HORIZONTAL   | PASSED  |
| 1609.84         | -69.2   | 0.00012      | -62.9                   | -6.3                  | VERTICAL     | PASSED  |
| 2177.001        | -67.39  | 0.00018      | -64.69                  | -2.7                  | VERTICAL     | PASSED  |
| 2906.228        | -71.32  | 7E-05        | -74.22                  | 2.9                   | VERTICAL     | PASSED  |
| 2965.992        | -70.92  | 8E-05        | -73.92                  | 3                     | VERTICAL     | PASSED  |
| 7995.691        | -68.27  | 0.00015      | -81.77                  | 13.5                  | VERTICAL     | PASSED  |

Channel 27435 / 725.5 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

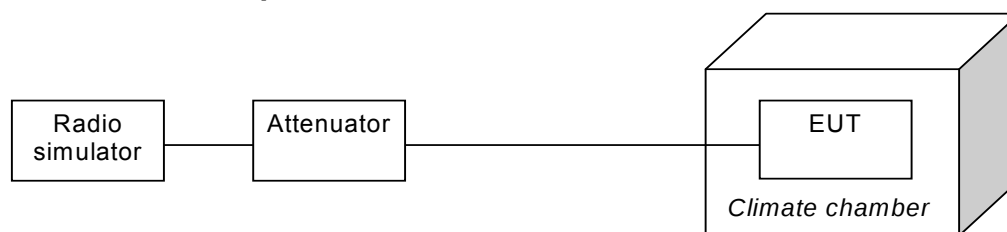
| Frequency [MHz] | P [dBm] | P [ $\mu$ W] | P <sub>MEAS</sub> [dBm] | A <sub>TOT</sub> [dB] | Polarisation | Results |
|-----------------|---------|--------------|-------------------------|-----------------------|--------------|---------|
| 765.571         | -74.47  | 4E-05        | -106.97                 | 32.5                  | HORIZONTAL   | PASSED  |
| 770.401         | -75.48  | 3E-05        | -106.98                 | 31.5                  | VERTICAL     | PASSED  |
| 795.01          | -75.23  | 3E-05        | -107.03                 | 31.8                  | HORIZONTAL   | PASSED  |
| 1441.08         | -79.77  | 1E-05        | -71.47                  | -8.3                  | VERTICAL     | PASSED  |
| 1609.96         | -69.28  | 0.00012      | -62.98                  | -6.3                  | VERTICAL     | PASSED  |
| 2176.961        | -71.79  | 7E-05        | -69.09                  | -2.7                  | VERTICAL     | PASSED  |
| 2908.112        | -71.34  | 7E-05        | -74.24                  | 2.9                   | HORIZONTAL   | PASSED  |
| 2966.473        | -71.1   | 8E-05        | -74.3                   | 3.2                   | HORIZONTAL   | PASSED  |
| 8000            | -68.25  | 0.00015      | -81.75                  | 13.5                  | VERTICAL     | PASSED  |

## 7. Frequency stability, temperature variation

(FCC §2.1055(a), §27.54, RSS-133 6.3, RSS-132 4.3, RSS-139 6.3, RSS-199 4.3, RSS-130 4.3, RSS-130 4.3 (a))

|                                                 |                                                   |
|-------------------------------------------------|---------------------------------------------------|
| EUT with DUT number                             | RM-1075, DUT 43249                                |
| Accessories with DUT numbers                    | BV-T5C DUT43251, AC-20 DUT43135, WH-108 DUT 43136 |
| Operation Voltage [V] / [Hz]                    | Nominal                                           |
| Results                                         | PASSED                                            |
| Remarks                                         | -                                                 |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | -30 to 50                                         |
| Date of measurements                            | 16-Jan-2015                                       |
| Measured by                                     | Hannu Söderholm                                   |

### 7.1. Test Setup



### 7.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards as follows:

The climate chamber temperature is set to the maximum value and the temperature is allowed to stabilize.

The EUT is placed in the chamber.

The EUT is set in idle mode for 15 minutes.

The EUT is set to transmit.

The transmit frequency error was measured immediately.

The steps c - e were repeated for each temperature. Limits for frequency stability, temperature variation measurements

| Frequency deviation [ppm] |
|---------------------------|
| +/- 2.5                   |

### 7.3. GSM 850 Test results

GSM, Channel 190 / 836.6 MHz

| Temperature [°C] | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|------------------|-----------------|----------------|-----------------|--------|
| 50               | 836.60          | 5.17000        | 0.0062          | PASSED |
| 40               | 836.60          | 5.29000        | 0.0063          | PASSED |
| 30               | 836.60          | 12.46000       | 0.0149          | PASSED |
| 20               | 836.60          | 5.42000        | 0.0065          | PASSED |
| 10               | 836.60          | 8.59000        | 0.0103          | PASSED |
| 0                | 836.60          | 9.62000        | 0.0115          | PASSED |
| -10              | 836.60          | 11.11000       | 0.0133          | PASSED |
| -20              | 836.60          | 11.17000       | 0.0134          | PASSED |
| -30              | 836.60          | 14.66000       | 0.0175          | PASSED |

### 7.4. GSM 1900 Test results

GSM, Channel 661 / 1880.0 MHz

| Temperature [°C] | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|------------------|-----------------|----------------|-----------------|--------|
| 50               | 1880.00         | 42.62000       | 0.0227          | PASSED |
| 40               | 1880.00         | 49.53000       | 0.0263          | PASSED |
| 30               | 1880.00         | 44.62000       | 0.0237          | PASSED |
| 20               | 1880.00         | 46.81000       | 0.0249          | PASSED |
| 10               | 1880.00         | 45.78000       | 0.0244          | PASSED |
| 0                | 1880.00         | 48.88000       | 0.026           | PASSED |
| -10              | 1880.00         | 49.27000       | 0.0262          | PASSED |
| -20              | 1880.00         | 53.72000       | 0.0286          | PASSED |
| -30              | 1880.00         | 53.08000       | 0.0282          | PASSED |

### 7.5. WCDMA4 Test results

FDD, Channel 1412 / 1732.4 MHz

| Temperature [°C] | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|------------------|-----------------|----------------|-----------------|--------|
| 50               | 1732.40         | 1.17493        | 0.0007          | PASSED |
| 40               | 1732.40         | -2.34985       | -0.0014         | PASSED |
| 30               | 1732.40         | -1.00000       | -0.0006         | PASSED |
| 20               | 1732.40         | -1.00000       | -0.0006         | PASSED |
| 10               | 1732.40         | -1.00000       | -0.0006         | PASSED |
| 0                | 1732.40         | 1.60217        | 0.0009          | PASSED |
| -10              | 1732.40         | 3.06702        | 0.0018          | PASSED |
| -20              | 1732.40         | 4.53186        | 0.0026          | PASSED |
| -30              | 1732.40         | 5.64575        | 0.0033          | PASSED |

## 7.6. LTE7 Test results

FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz

| Temperature [°C] | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|------------------|-----------------|----------------|-----------------|--------|
| 50               | 2535.00         | -3.14713       | -0.0012         | PASSED |
| 40               | 2535.00         | -6.09398       | -0.0024         | PASSED |
| 30               | 2535.00         | 1.07288        | 0.0004          | PASSED |
| 20               | 2535.00         | 5.62191        | 0.0022          | PASSED |
| 10               | 2535.00         | 0.60081        | 0.0002          | PASSED |
| 0                | 2535.00         | 2.36034        | 0.0009          | PASSED |
| -10              | 2535.00         | 1.75953        | 0.0007          | PASSED |
| -20              | 2535.00         | 1.01566        | 0.0004          | PASSED |
| -30              | 2535.00         | 2.47479        | 0.001           | PASSED |

## 7.7. LTE12 Test results

FDD, CBW 10MHz, QPSK, 50 RB, Channel 23095 / 707.5 MHz

| Temperature [°C] | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|------------------|-----------------|----------------|-----------------|--------|
| 50               | 707.50          | -2.27451       | -0.0032         | PASSED |
| 40               | 707.50          | -1.11580       | -0.0016         | PASSED |
| 30               | 707.50          | -2.07424       | -0.0029         | PASSED |
| 20               | 707.50          | -2.90394       | -0.0041         | PASSED |
| 10               | 707.50          | -2.17438       | -0.0031         | PASSED |
| 0                | 707.50          | -0.32902       | -0.0005         | PASSED |
| -10              | 707.50          | -0.50068       | -0.0007         | PASSED |
| -20              | 707.50          | -0.65804       | -0.0009         | PASSED |
| -30              | 707.50          | -2.14577       | -0.003          | PASSED |

## 7.8. LTE17 Test results

FDD, CBW 10MHz, QPSK, 50 RB, Channel 23790 / 710.0 MHz

| Temperature [°C] | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|------------------|-----------------|----------------|-----------------|--------|
| 50               | 710.00          | 0.64373        | 0.0009          | PASSED |
| 40               | 710.00          | 0.40054        | 0.0006          | PASSED |
| 30               | 710.00          | -0.24319       | -0.0003         | PASSED |
| 20               | 710.00          | 0.32902        | 0.0005          | PASSED |
| 10               | 710.00          | 0.07153        | 0.0001          | PASSED |
| 0                | 710.00          | 1.57356        | 0.0022          | PASSED |
| -10              | 710.00          | 0.61512        | 0.0009          | PASSED |
| -20              | 710.00          | 0.44346        | 0.0006          | PASSED |
| -30              | 710.00          | 1.14441        | 0.0016          | PASSED |

## 7.9. LTE28 Test results

FDD, CBW 10MHz, QPSK, 50 RB, Channel 27435 / 725.5 MHz

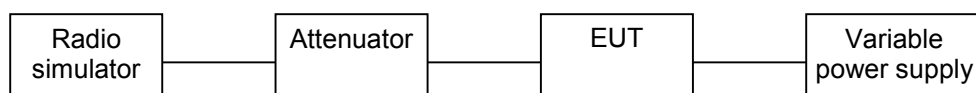
| Temperature [°C] | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|------------------|-----------------|----------------|-----------------|--------|
| 50               | 725.50          | -1.18733       | -0.0016         | PASSED |
| 40               | 725.50          | -0.52929       | -0.0007         | PASSED |
| 30               | 725.50          | -0.05722       | -0.0001         | PASSED |
| 20               | 725.50          | -0.32902       | -0.0005         | PASSED |
| 10               | 725.50          | 1.70231        | 0.0023          | PASSED |
| 0                | 725.50          | 0.50068        | 0.0007          | PASSED |
| -10              | 725.50          | 1.18733        | 0.0016          | PASSED |
| -20              | 725.50          | 1.01566        | 0.0014          | PASSED |
| -30              | 725.50          | 1.57356        | 0.0022          | PASSED |
| -30              | 725.50          | 1.57356        | 0.0022          | PASSED |

## 8. Frequency stability, voltage variation

(FCC §2.1055(d), §27.54, RSS-133 6.3, RSS-132 4.3, RSS-139 6.3, RSS-199 4.3, RSS-130 4.3, RSS-130 4.3 (a))

|                                                 |                    |
|-------------------------------------------------|--------------------|
| EUT with DUT number                             | RM-1075, DUT 43249 |
| Accessories with DUT numbers                    | SD-131, DUT 43233  |
| Operation Voltage [V] / [Hz]                    | Nominal            |
| Results                                         | PASSED             |
| Remarks                                         | -                  |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 25 / 35 / 100      |
| Date of measurements                            | 15-Jan-2015        |
| Measured by                                     | Timo Raiskio       |

### 8.1. Test Setup



### 8.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards as follows:

The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.

Limits for frequency stability, voltage variation measurements

| Frequency deviation [ppm] |
|---------------------------|
| +/- 2.5                   |

### 8.3. GSM 1900 Test results

GSM,

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.3                   | 1880.00         | 46.56000       | 0.0248          | PASSED |
| Battery cut-off point / 3.4 | 1880.00         | 50.95000       | 0.0271          | PASSED |
| Nominal / 3.8               | 1880.00         | 52.82000       | 0.0281          | PASSED |

### 8.4. GSM 850 Test results

GSM,

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.3                   | 836.60          | 9.81000        | 0.0117          | PASSED |
| Battery cut-off point / 3.4 | 836.60          | 5.23000        | 0.0063          | PASSED |
| Nominal / 3.8               | 836.60          | 6.46000        | 0.0077          | PASSED |

### 8.5. WCDMA4 Test results

FDD,

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.3                   | 1732.40         | 0.71716        | 0.0004          | PASSED |
| Battery cut-off point / 3.4 | 1732.40         | -1.90735       | -0.0011         | PASSED |
| Nominal / 3.8               | 1732.40         | 3.12805        | 0.0018          | PASSED |

## 8.6. LTE7 Test results

FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.3                   | 2535.00         | -4.39167       | -0.0017         | PASSED |
| Battery cut-off point / 3.4 | 2535.00         | -3.10421       | -0.0012         | PASSED |
| Nominal / 3.8               | 2535.00         | -4.24862       | -0.0017         | PASSED |

## 8.7. LTE12 Test results

FDD, CBW 5MHz, QPSK, 25 RB, Channel 23095 / 707.5 MHz

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.3                   | 707.50          | -2.04563       | -0.0029         | PASSED |
| Battery cut-off point / 3.4 | 707.50          | -1.05858       | -0.0015         | PASSED |
| Nominal / 3.8               | 707.50          | -1.60217       | -0.0023         | PASSED |

## 8.8. LTE17 Test results

FDD, CBW 10MHz, QPSK, 50 RB, Channel 23790 / 710.0 MHz

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.3                   | 710.00          | -1.10149       | -0.0015         | PASSED |
| Battery cut-off point / 3.4 | 710.00          | -0.50068       | -0.0007         | PASSED |
| Nominal / 3.8               | 710.00          | 0.84400        | 0.0012          | PASSED |

## 8.9. LTE28 Test results

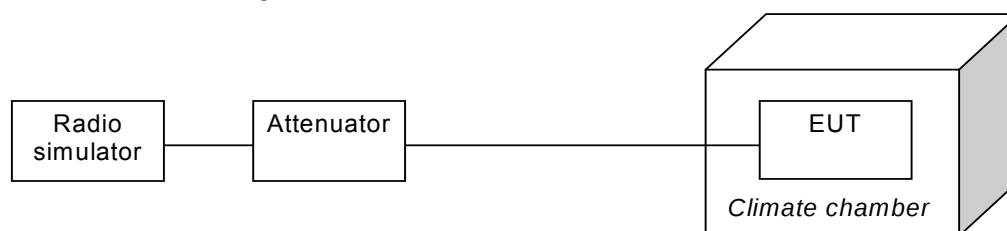
FDD, CBW 20MHz, QPSK, 100 RB, Channel 27435 / 725.5 MHz

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.3                   | 725.50          | -0.24319       | -0.0003         | PASSED |
| Battery cut-off point / 3.4 | 725.50          | 0.98705        | 0.0014          | PASSED |
| Nominal / 3.8               | 725.50          | -0.08583       | -0.0001         | PASSED |

## 9. Frequency stability, temperature variation, (Band edge method) (RSS-139 6.3, RSS-199 4.3, RSS-130 4.3, RSS-130 4.3 (a))

|                                                        |                                                   |
|--------------------------------------------------------|---------------------------------------------------|
| <b>EUT with DUT number</b>                             | RM-1075, DUT 43249                                |
| <b>Accessories with DUT numbers</b>                    | BV-T5C DUT43251, AC-20 DUT43135, WH-108 DUT 43136 |
| <b>Operation Voltage [V] / [Hz]</b>                    | Nominal                                           |
| <b>Results</b>                                         | PASSED                                            |
| <b>Remarks</b>                                         | -                                                 |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | -30 to 50                                         |
| <b>Date of measurements</b>                            | 16-Jan-2015                                       |
| <b>Measured by</b>                                     | Hannu Söderholm                                   |

### 9.1. Test Setup



### 9.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards as follows:

The climate chamber temperature is set to the maximum value and the temperature is allowed to stabilize.

The EUT is placed in the chamber.

The EUT is set in idle mode for 15 minutes.

The EUT is set to transmit.

The transmit frequency error was measured immediately.

The steps c - e were repeated for each temperature.

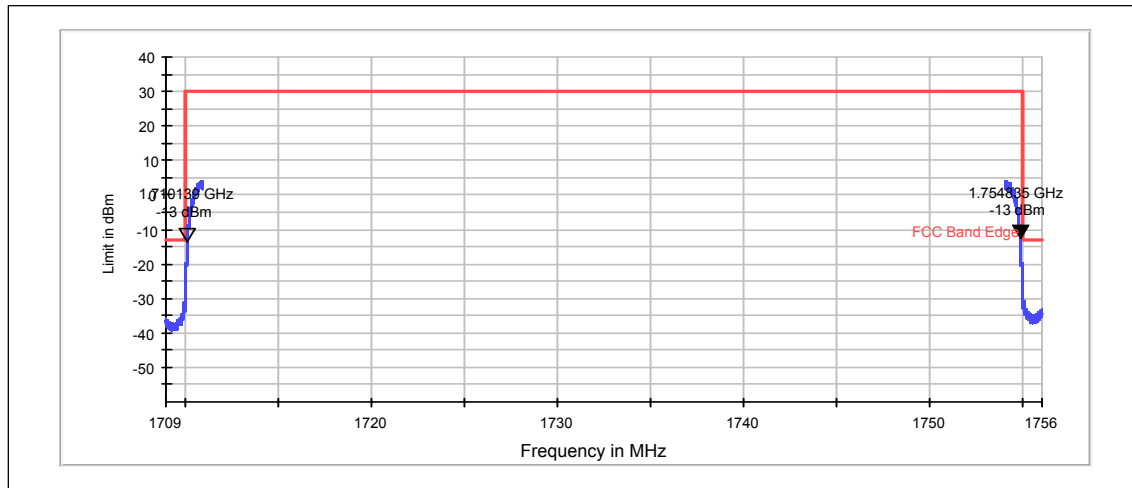
The results were then calculated as per section 4.3 of RSS-130.

Limits for frequency stability, temperature variation measurements

| Limit                                          |
|------------------------------------------------|
| The results must be within the operating band. |

### 9.3. WCDMA4 Test results

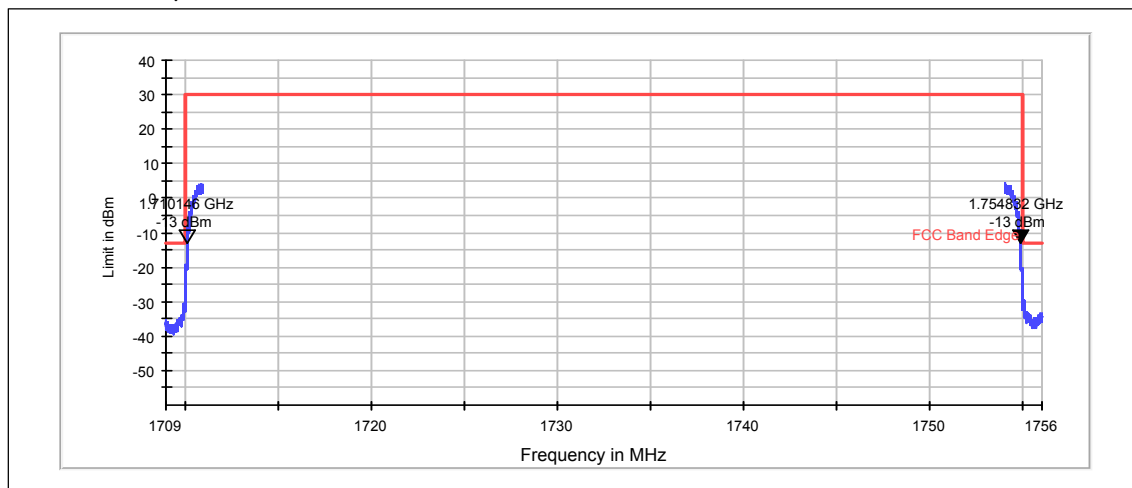
Channel 1412 / 1732.4 MHz



RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 50               | 18.60046       | 1710.139000      | 1710.138981        | 1754.835000       | 1754.835018        | PASSED |

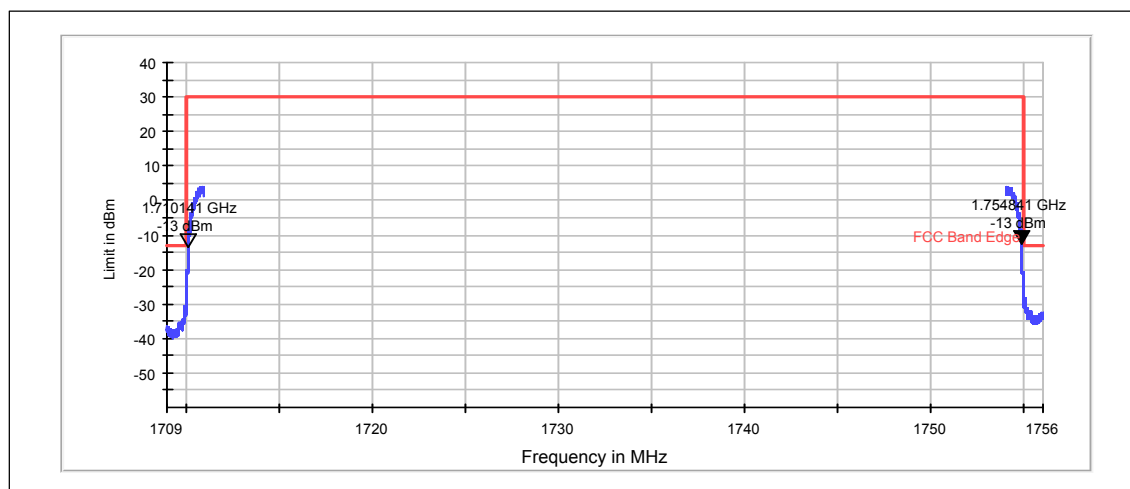
Channel 1412 / 1732.4 MHz



RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 20               | -1.00000       | 1710.145800      | 1710.145799        | 1754.831800       | 1754.831801        | PASSED |

Channel 1412 / 1732.4 MHz

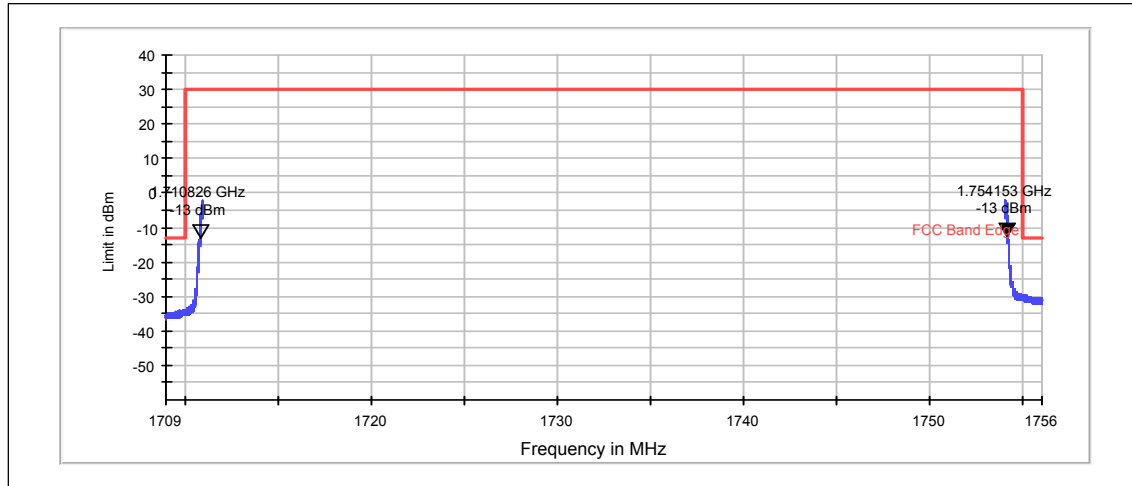


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | 13.29041       | 1710.140600      | 1710.140586        | 1754.840600       | 1754.840613        | PASSED |

## 9.4. LTE4 Test results

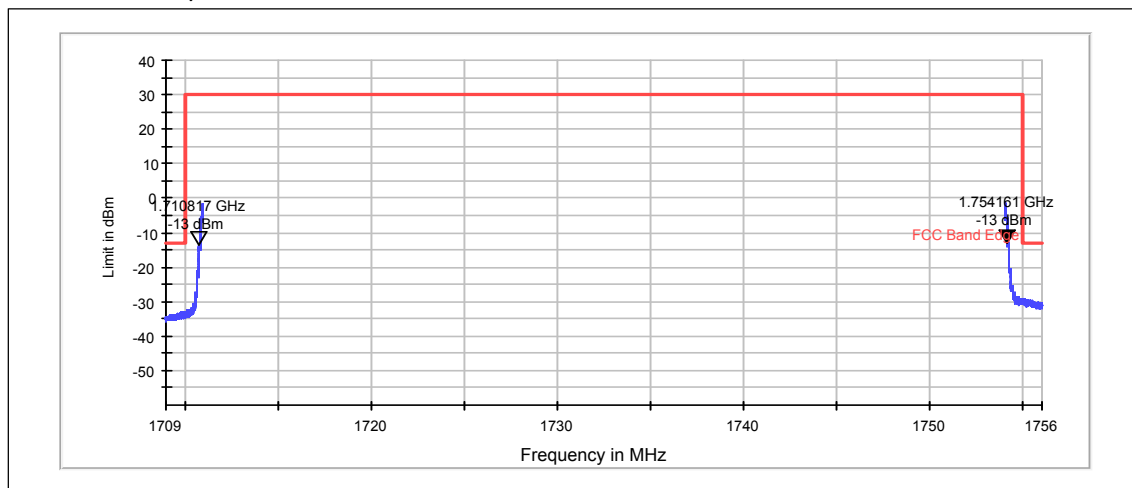
Channel 20175 / 1732.5 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 50               | -2.66075       | 1710.825600      | 1710.825597        | 1754.153000       | 1754.153002        | PASSED |

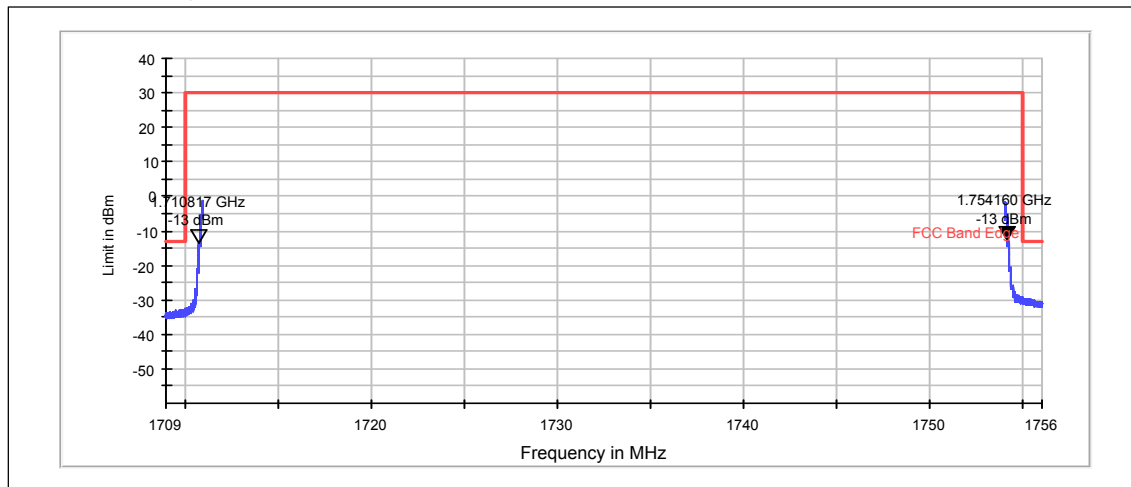
Channel 20175 / 1732.5 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 20               | 0.14305        | 1710.816600      | 1710.816599        | 1754.161000       | 1754.161000        | PASSED |

Channel 20175 / 1732.5 MHz

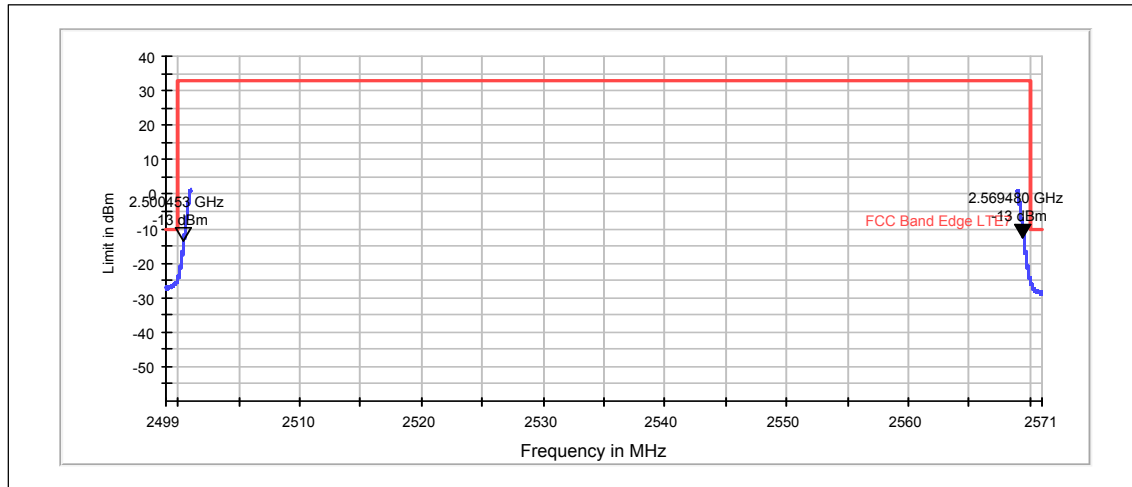


RMS (RBW: 500 kHz, VBW: 2 MHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | -0.52929       | 1710.816600      | 1710.816599        | 1754.160400       | 1754.160400        | PASSED |

## 9.5. LTE7 Test results

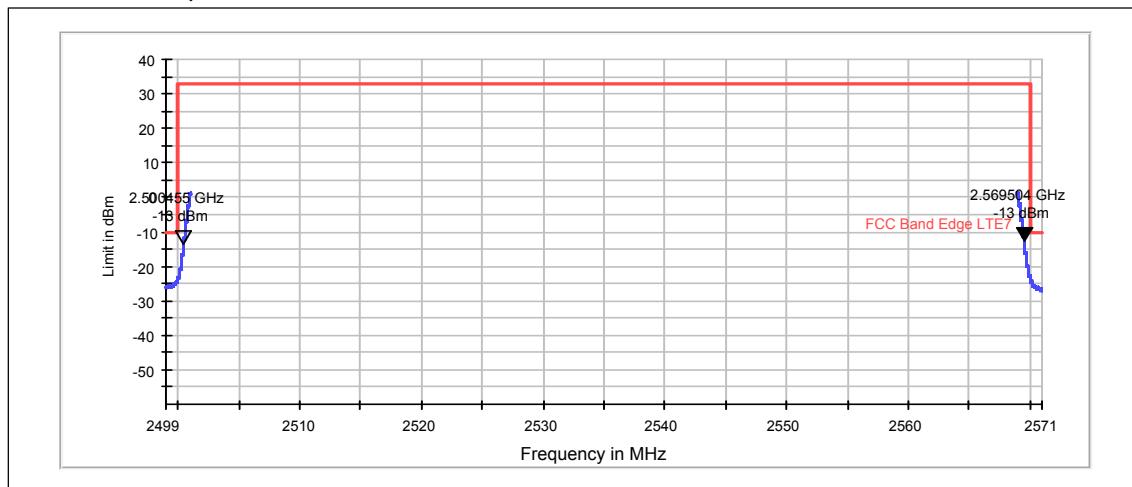
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 50               | -7.19547       | 2500.452800      | 2500.452792        | 2569.480200       | 2569.480207        | PASSED |

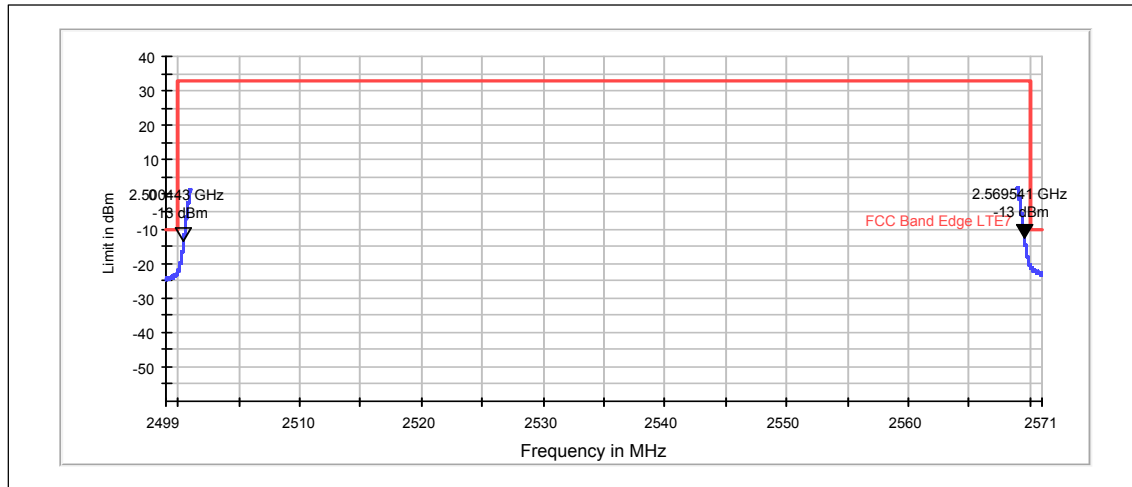
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 20               | -2.94685       | 2500.455400      | 2500.455397        | 2569.503600       | 2569.503602        | PASSED |

Channel 21100 / 2535.0 MHz

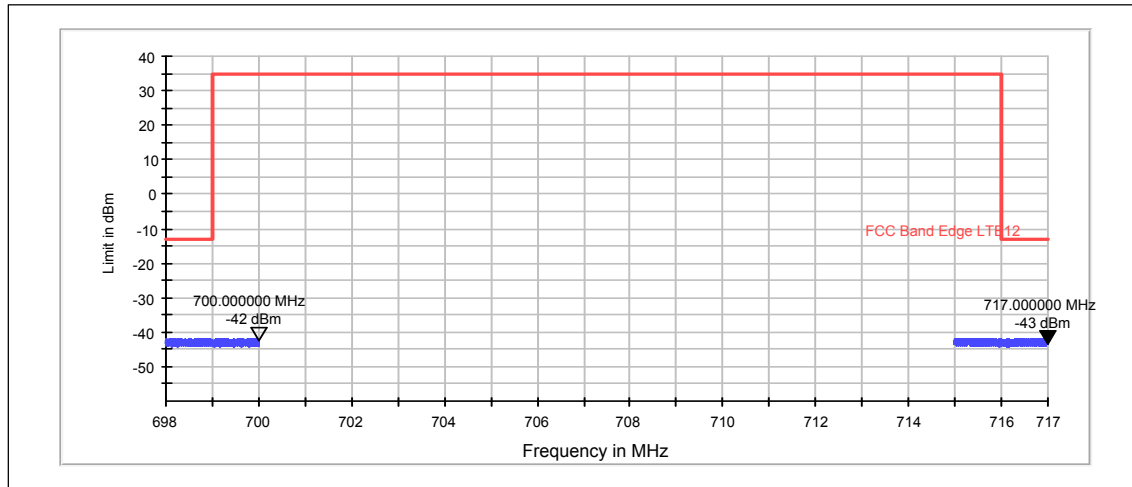


RMS (RBW: 500 kHz, VBW: 2 MHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | -1.17302       | 2500.443200      | 2500.443198        | 2569.541200       | 2569.541201        | PASSED |

## 9.6. LTE12 Test results

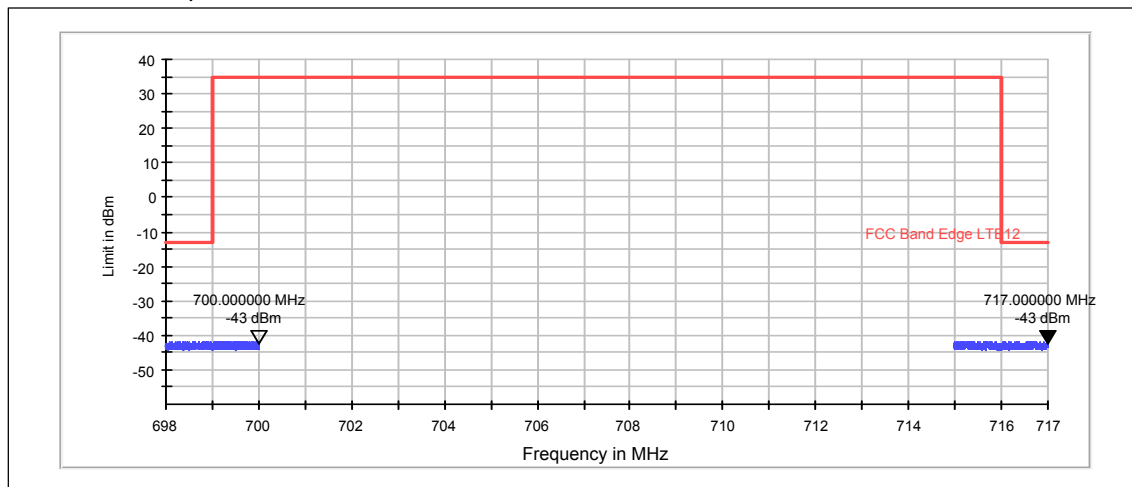
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 50               | 0.31471        | 700.000000       | 699.999999         | 717.000000        | 717.000000         | PASSED |

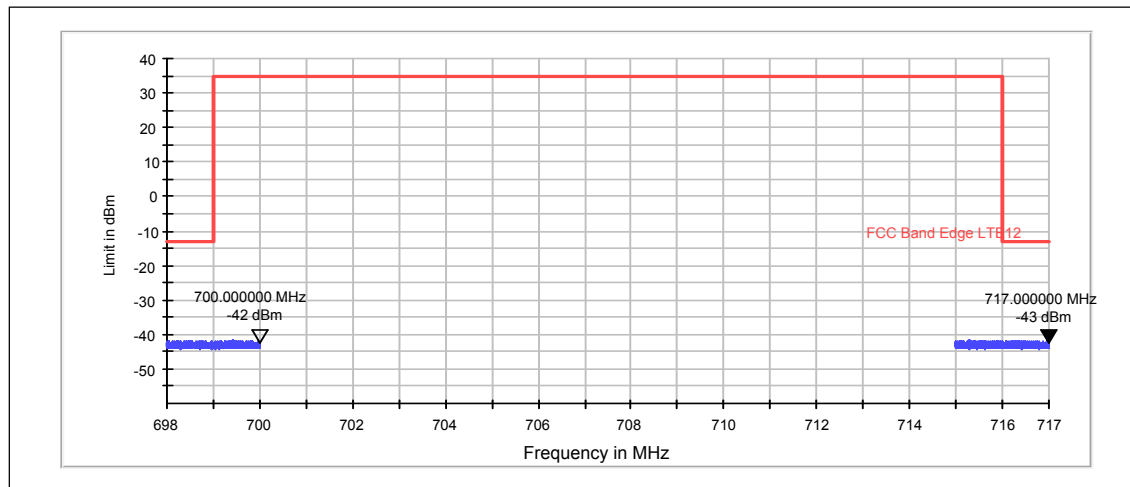
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 20               | -0.60081       | 700.000000       | 699.999999         | 717.000000        | 717.000000         | PASSED |

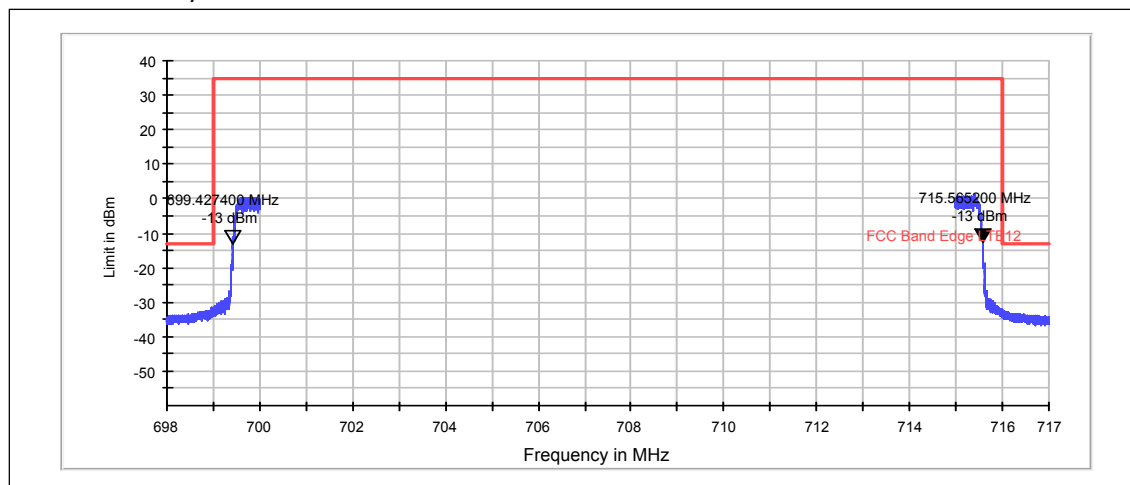
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | 0.64373        | 700.000000       | 699.999999         | 717.000000        | 717.000000         | PASSED |

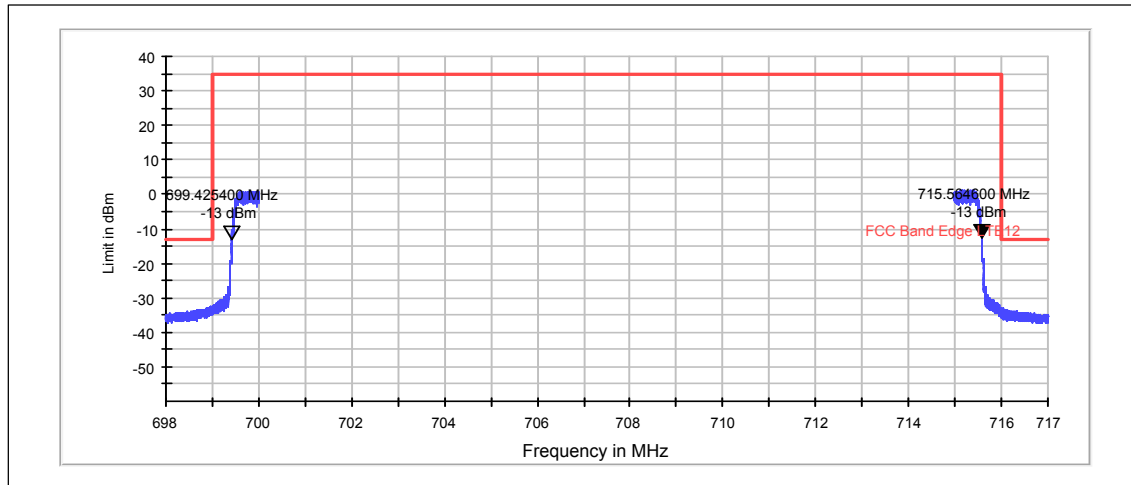
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 50               | 0.17166        | 699.427400       | 699.427399         | 715.565200        | 715.565200         | PASSED |

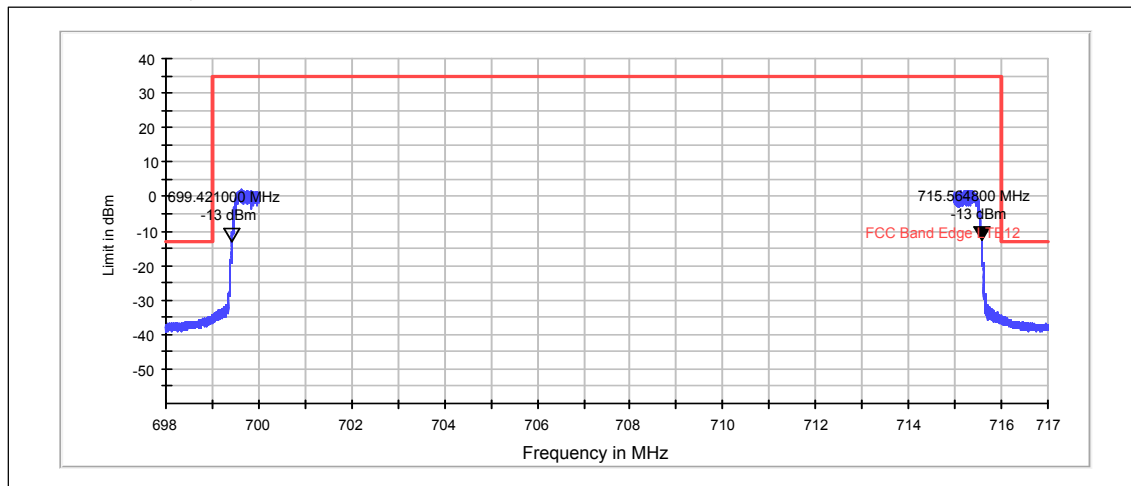
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 20               | 1.11580        | 699.425400       | 699.425398         | 715.564600        | 715.564601         | PASSED |

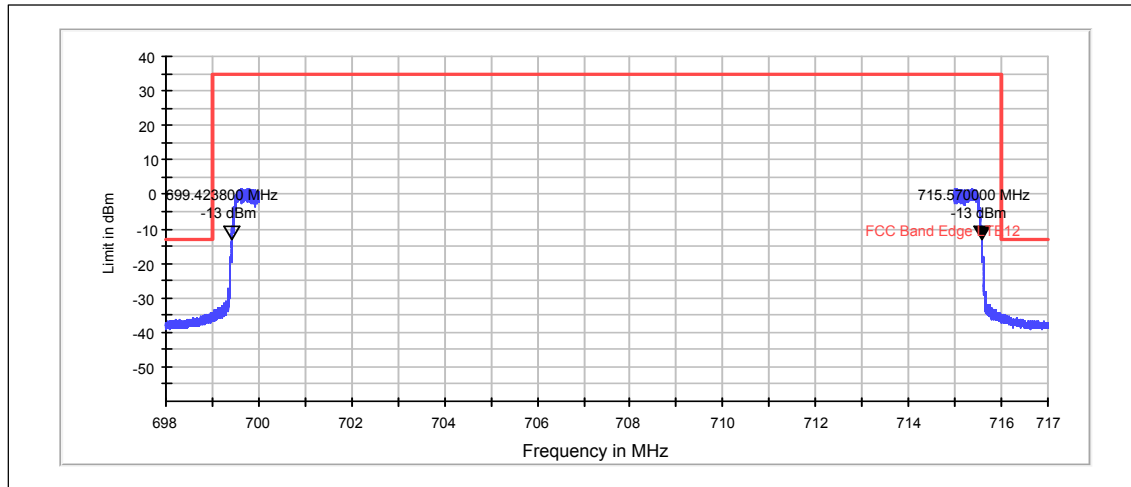
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | 0.04292        | 699.421000       | 699.420999         | 715.564800        | 715.564800         | PASSED |

Channel 23095 / 707.5 MHz

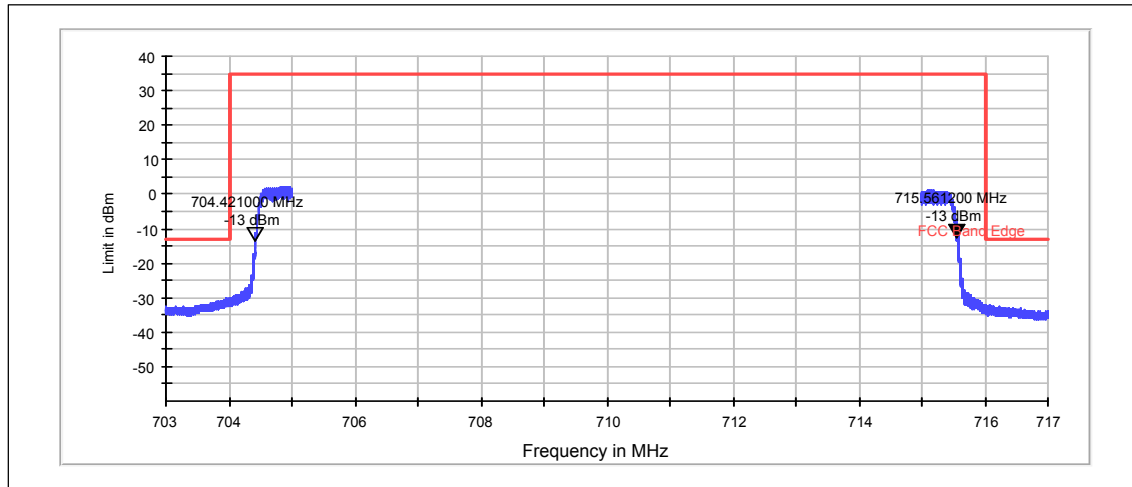


RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | 0.38624        | 699.423800       | 699.423799         | 715.570000        | 715.570000         | PASSED |

## 9.7. LTE17 Test results

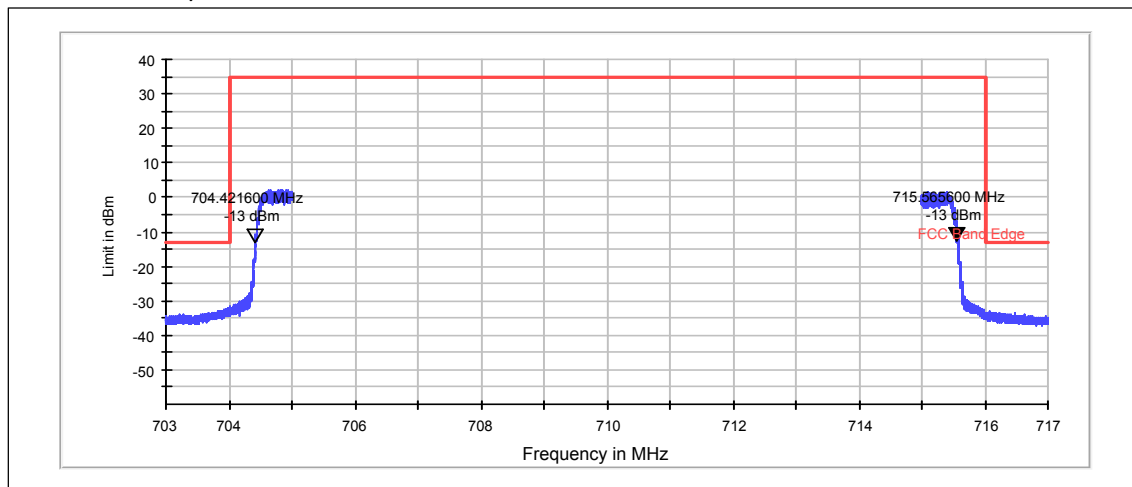
Channel 23790 / 710.0 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 50               | -3.21865       | 704.421000       | 704.420996         | 715.561200        | 715.561203         | PASSED |

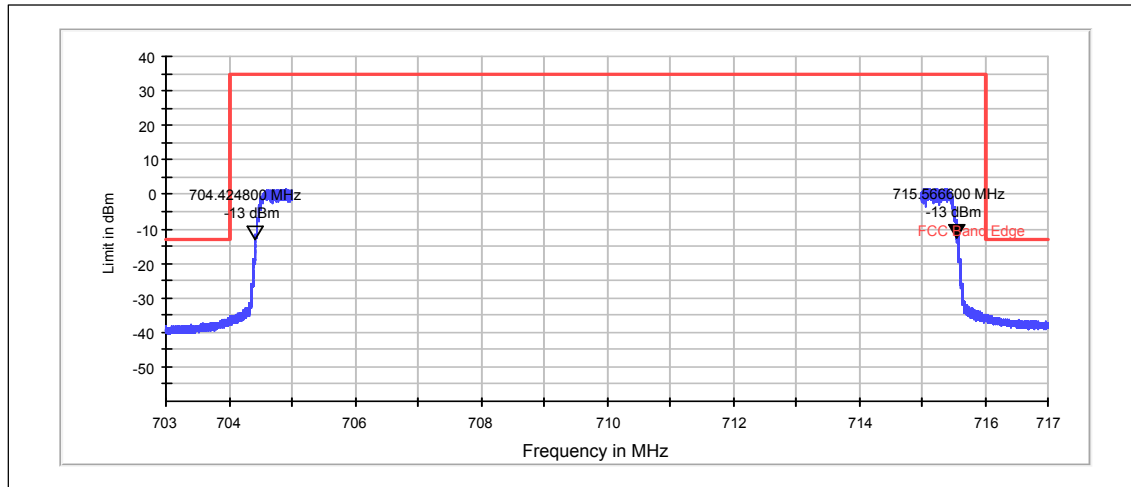
Channel 23790 / 710.0 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 20               | -0.24319       | 704.421600       | 704.421599         | 715.565600        | 715.565600         | PASSED |

Channel 23790 / 710.0 MHz

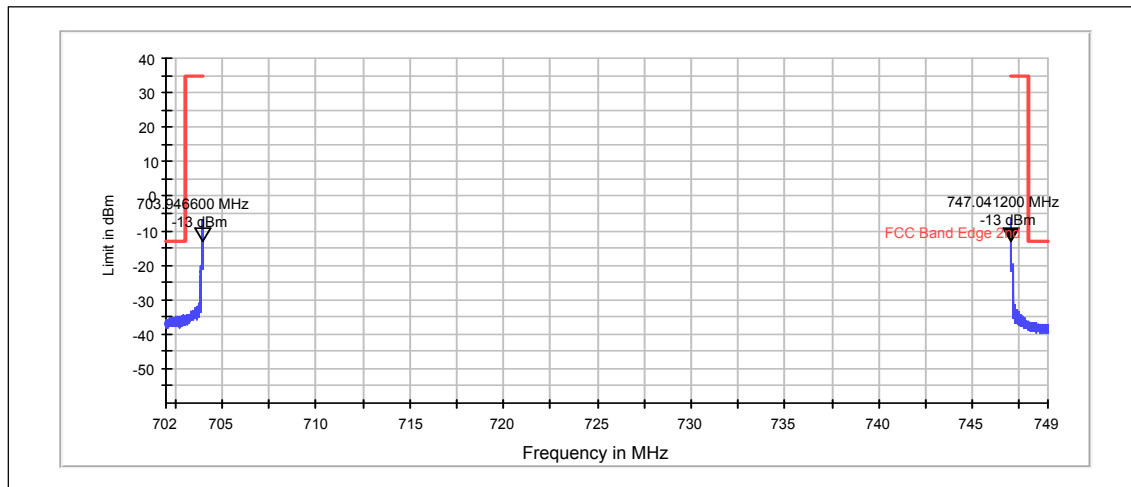


RMS (RBW: 100 kHz, VBW: 300 kHz)

| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | -0.44346       | 704.424800       | 704.424799         | 715.566600        | 715.566600         | PASSED |

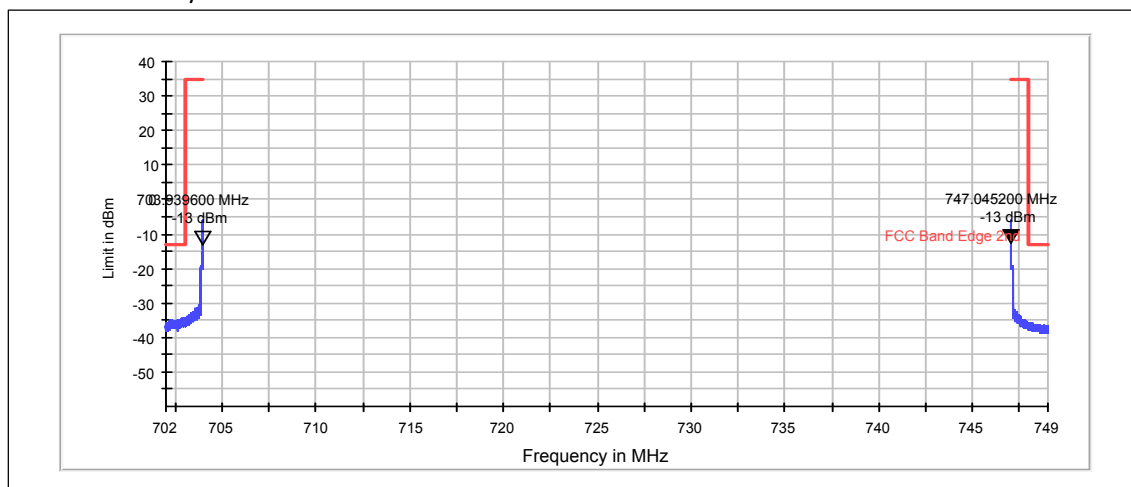
## 9.8. LTE28 Test results

Channel 27435 / 725.5 MHz



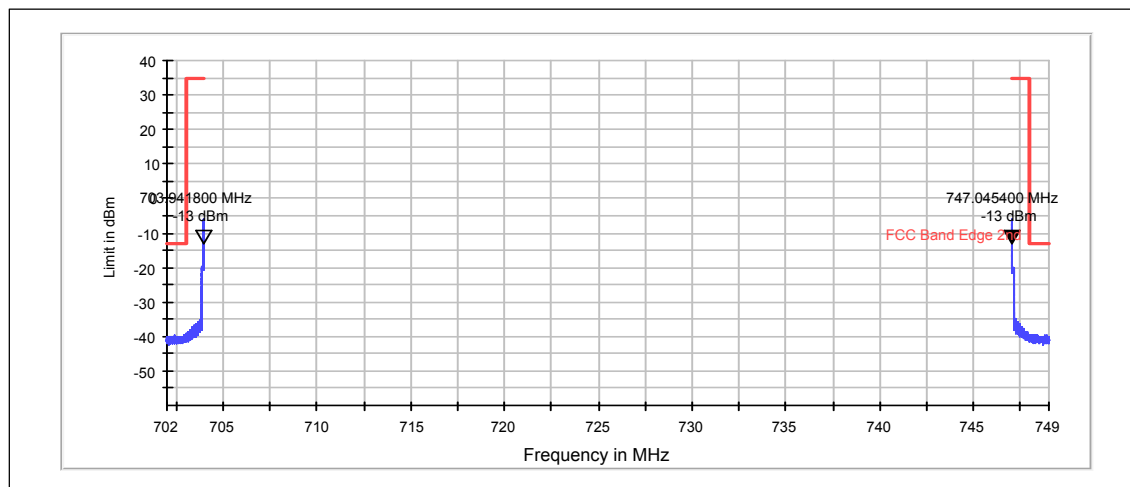
| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 50               | -2.01702       | 703.946600       | 703.946597         | 747.041200        | 747.041202         | PASSED |

Channel 27435 / 725.5 MHz



| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| 20               | -1.98841       | 703.939600       | 703.939598         | 747.045200        | 747.045201         | PASSED |

Channel 27435 / 725.5 MHz



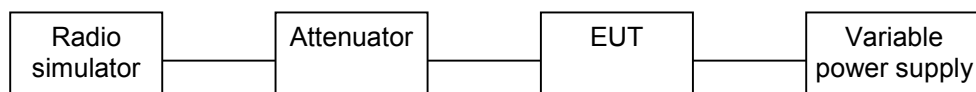
| Temperature [°C] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| -30              | -1.51634       | 703.941800       | 703.941798         | 747.045400        | 747.045401         | PASSED |

## 10. Frequency stability, voltage variation, (Band edge method)

§2.1055(d), §27.54, (RSS-139 6.3, RSS-130 4.3, RSS-199 4.3, RSS-130 4.3 (a))

|                                                 |                    |
|-------------------------------------------------|--------------------|
| EUT with DUT number                             | RM-1075, DUT 43249 |
| Accessories with DUT numbers                    | SD-131, DUT 43233  |
| Operation Voltage [V] / [Hz]                    | Nominal            |
| Results                                         | PASSED             |
| Remarks                                         | -                  |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 25 / 35 / 100      |
| Date of measurements                            | 15-Jan-2015        |
| Measured by                                     | Hannu Söderholm    |

### 10.1. Test Setup



### 10.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards as follows:

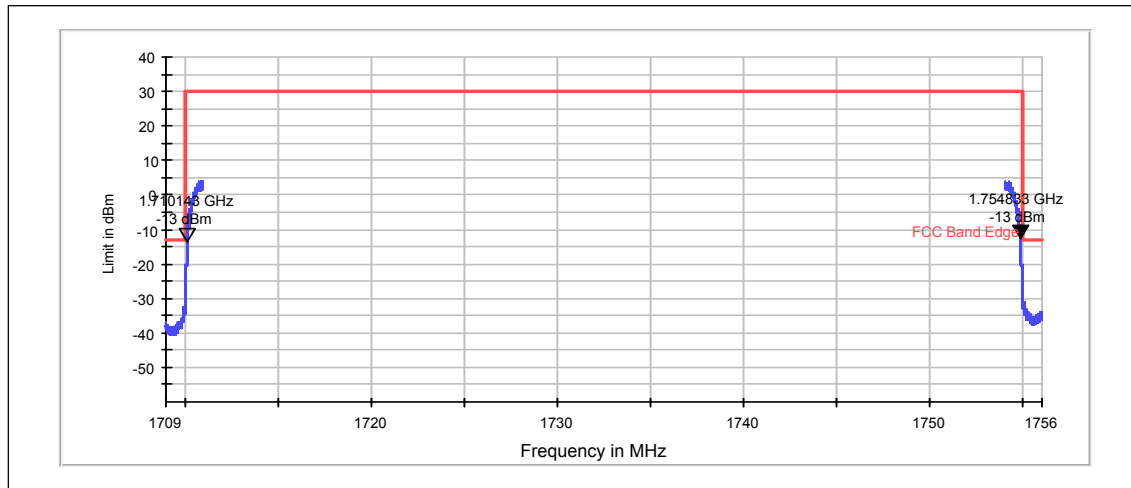
The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.

The results were then calculated as per section 4.3 of RSS-130.

Limits for frequency stability, voltage variation measurements

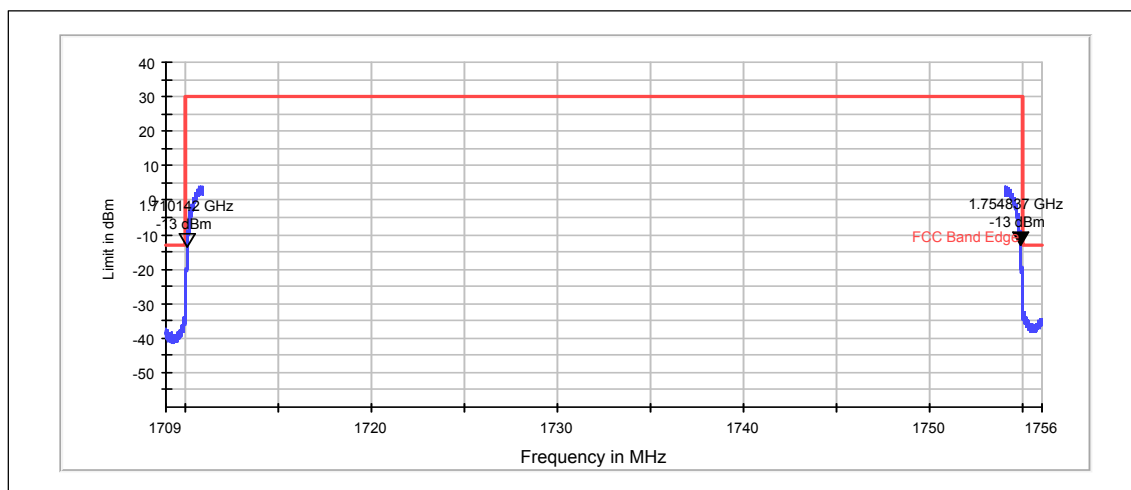
| Limit                                          |
|------------------------------------------------|
| The results must be within the operating band. |

### 10.3. WCDMA4 Test results



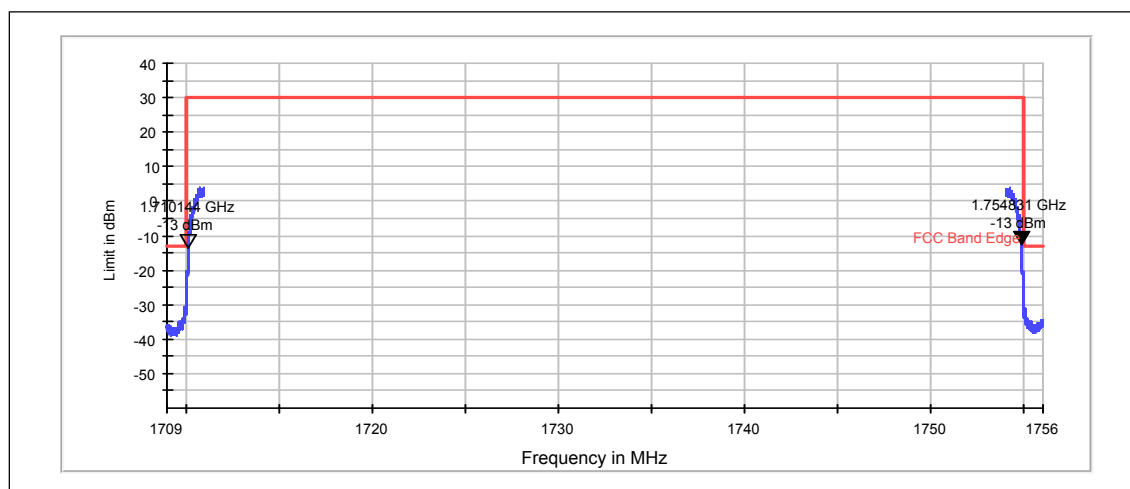
RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Max / 4.3         | 12.64954       | 1710.143400      | 1710.143387        | 1754.833200       | 1754.833212        | PASSED |



RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Voltage level [V]           | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-----------------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Battery cut-off point / 3.4 | 16.22009       | 1710.142200      | 1710.142183        | 1754.837200       | 1754.837216        | PASSED |

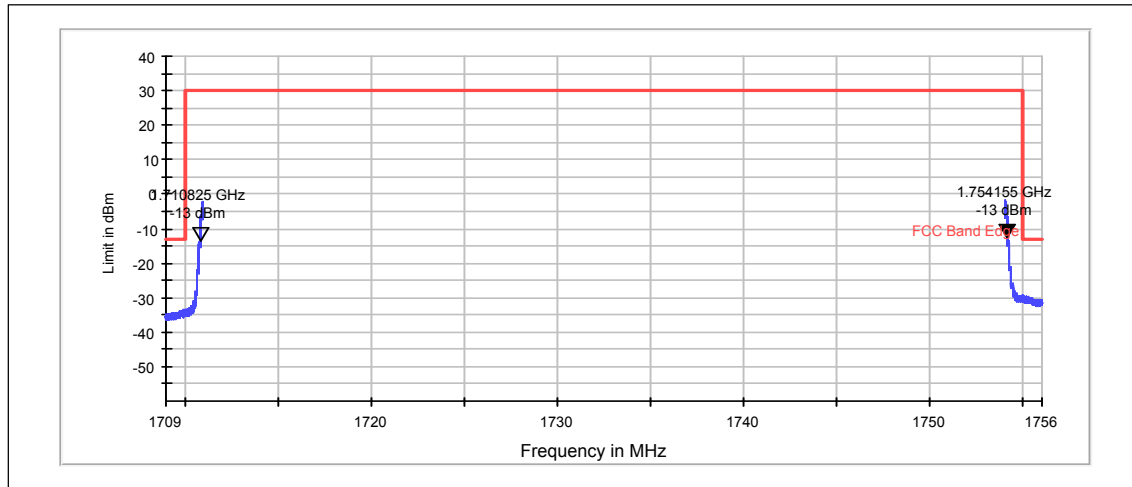


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Nominal / 3.8     | -1.03760       | 1710.144400      | 1710.144398        | 1754.831400       | 1754.831401        | PASSED |

## 10.4. LTE4 Test results

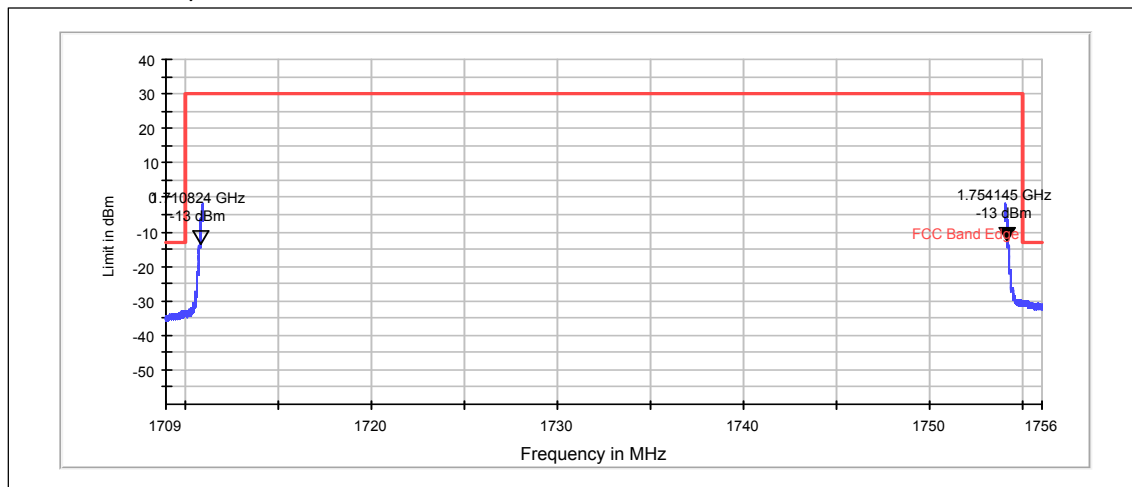
Channel 20175 / 1732.5 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Max / 4.3         | -1.95980       | 1710.825200      | 1710.825198        | 1754.154800       | 1754.154801        | PASSED |

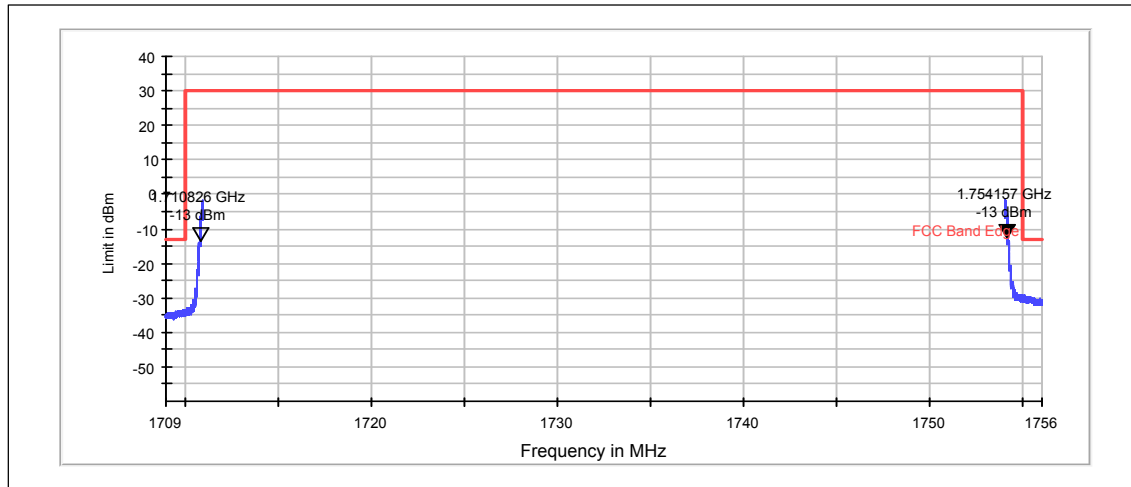
Channel 20175 / 1732.5 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Voltage level [V]           | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-----------------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Battery cut-off point / 3.4 | -2.27451       | 1710.824000      | 1710.823997        | 1754.145000       | 1754.145002        | PASSED |

Channel 20175 / 1732.5 MHz

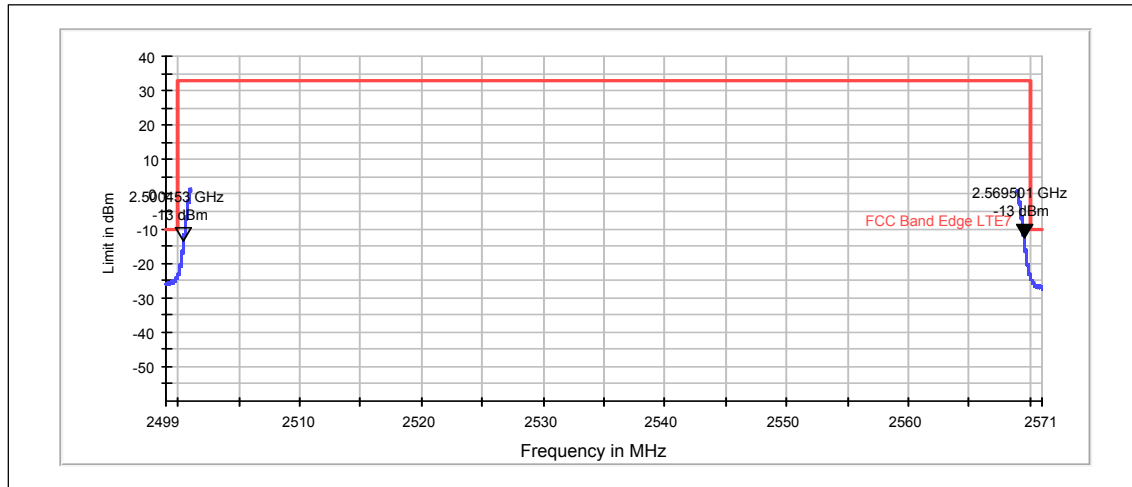


RMS (RBW: 500 kHz, VBW: 2 MHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Nominal / 3.8     | -1.97411       | 1710.825800      | 1710.825798        | 1754.156600       | 1754.156601        | PASSED |

## 10.5. LTE7 Test results

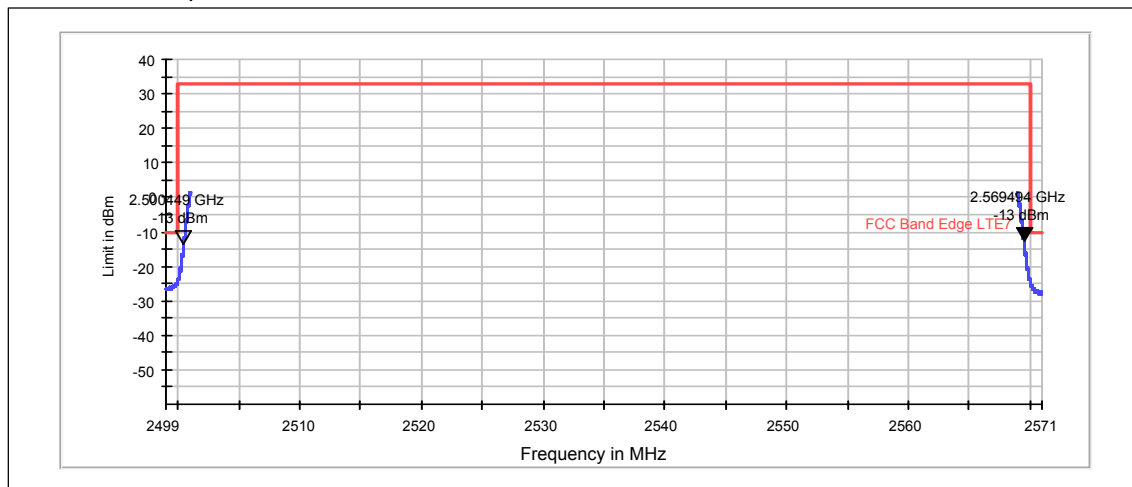
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Max / 4.3         | -5.97954       | 2500.453400      | 2500.453394        | 2569.501000       | 2569.501005        | PASSED |

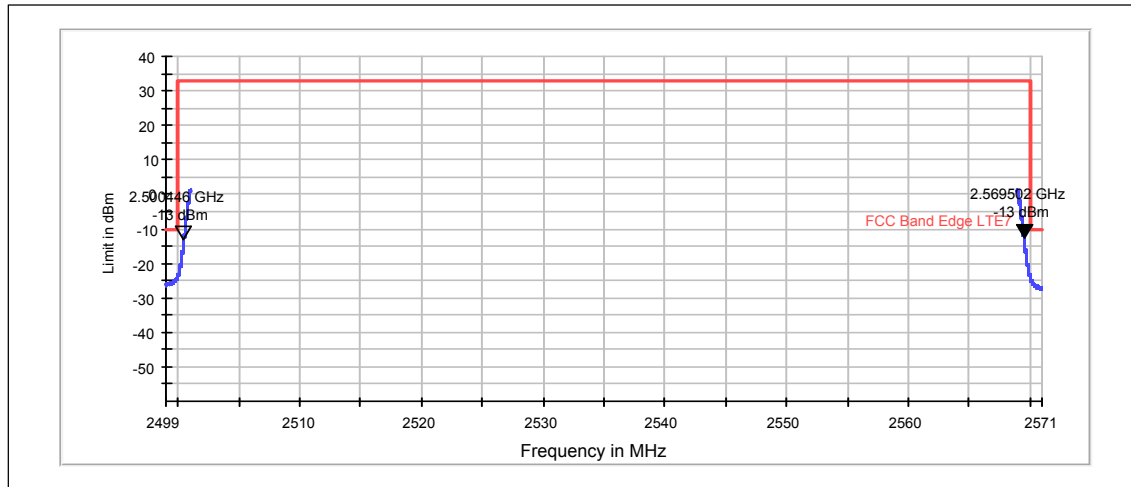
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

| Voltage level [V]           | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-----------------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Battery cut-off point / 3.4 | -11.91616      | 2500.449200      | 2500.449188        | 2569.494200       | 2569.494211        | PASSED |

Channel 21100 / 2535.0 MHz

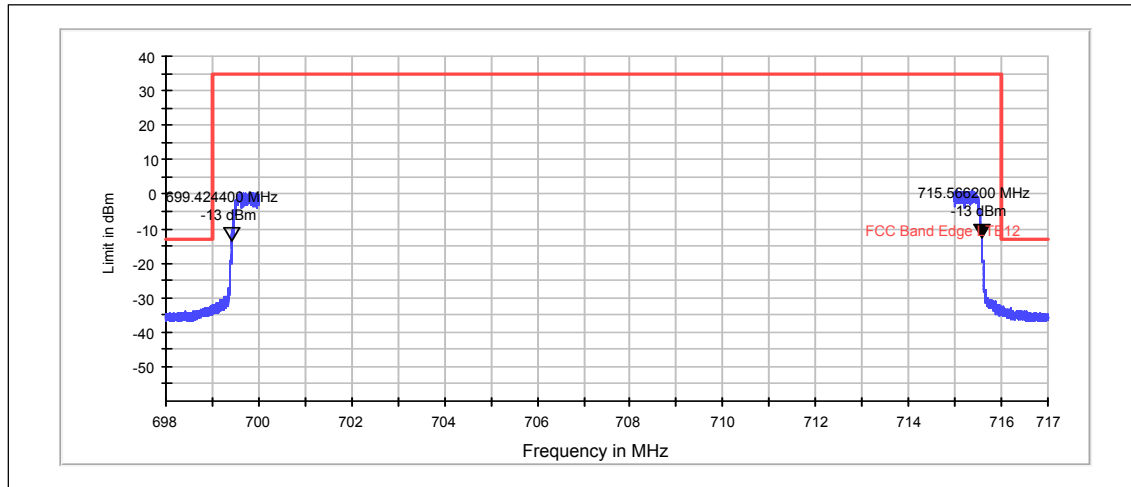


RMS (RBW: 500 kHz, VBW: 2 MHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Nominal / 3.8     | -12.81738      | 2500.445800      | 2500.445787        | 2569.502400       | 2569.502412        | PASSED |

## 10.6. LTE12 Test results

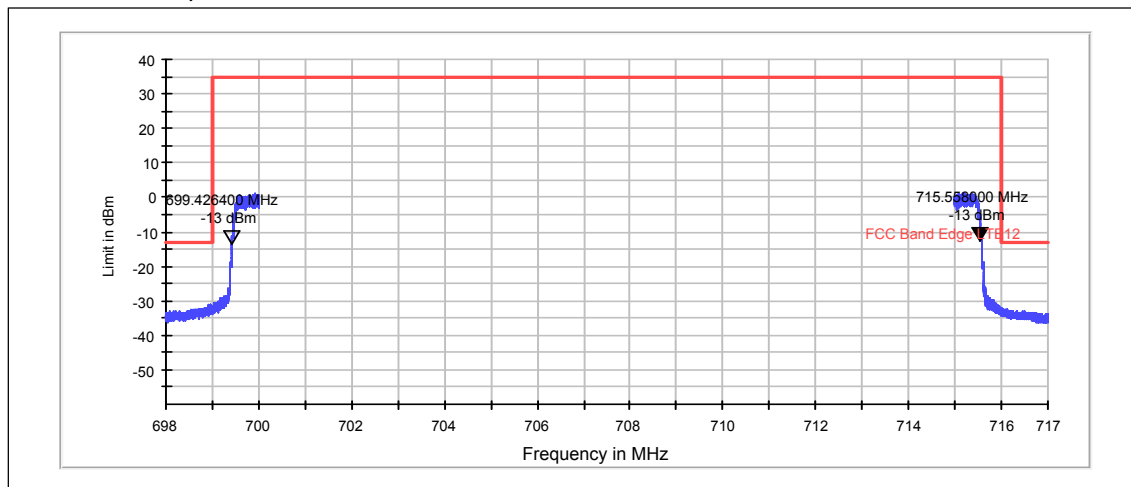
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Max / 4.3         | -0.62943       | 699.424400       | 699.424399         | 715.566200        | 715.566200         | PASSED |

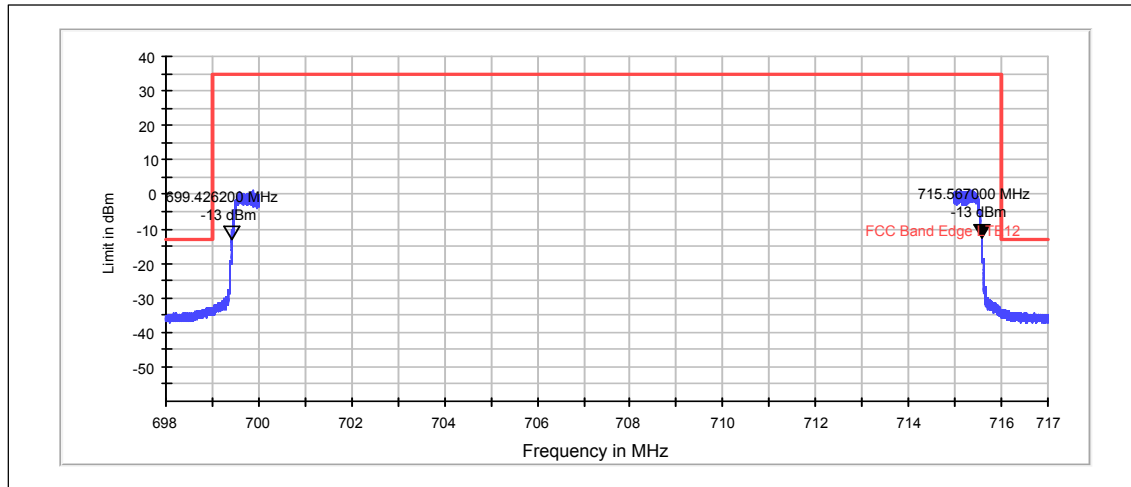
Channel 23095 / 707.5 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Voltage level [V]           | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-----------------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Battery cut-off point / 3.4 | 0.45776        | 699.426400       | 699.426399         | 715.558000        | 715.558000         | PASSED |

Channel 23095 / 707.5 MHz

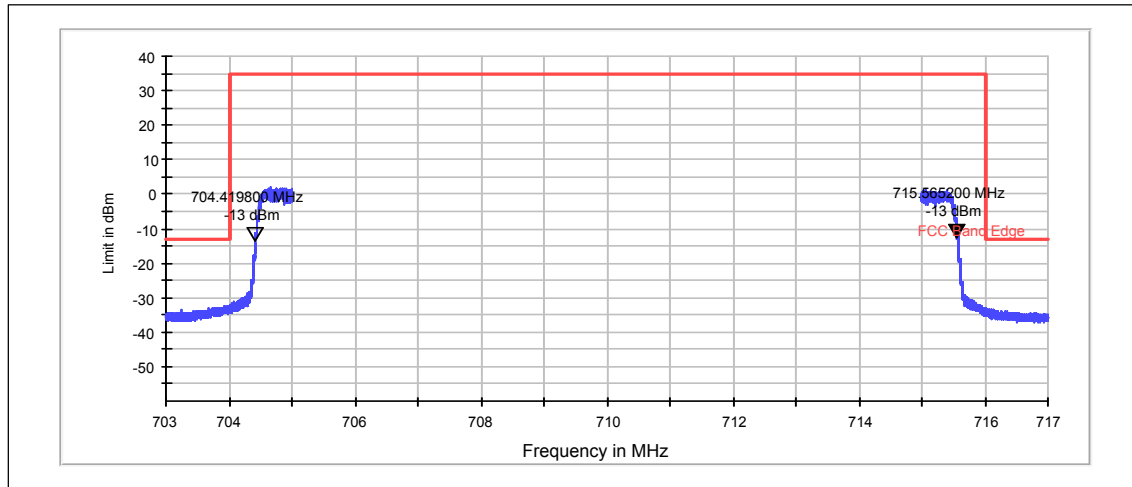


RMS (RBW: 100 kHz, VBW: 300 kHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Nominal / 3.8     | -0.22888       | 699.426200       | 699.426199         | 715.567000        | 715.567000         | PASSED |

## 10.7. LTE17 Test results

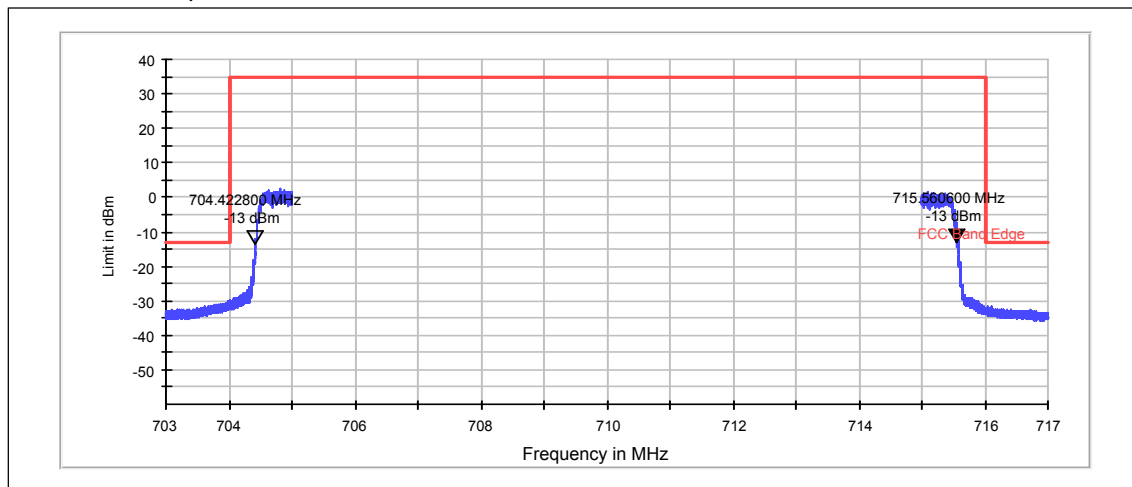
Channel 23790 / 710.0 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Max / 4.3         | -3.20435       | 704.419800       | 704.419796         | 715.565200        | 715.565203         | PASSED |

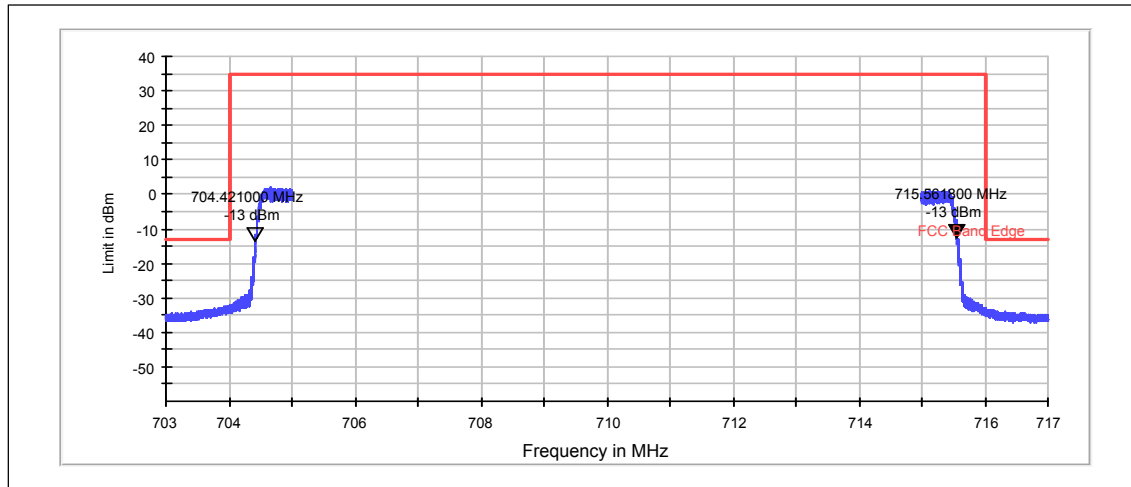
Channel 23790 / 710.0 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Voltage level [V]           | Deviation [Hz] | Low marker [MHz] | Marker - Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-----------------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Battery cut-off point / 3.4 | -1.28746       | 704.422800       | 704.422798         | 715.560600        | 715.560601         | PASSED |

Channel 23790 / 710.0 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz)

| Voltage level [V] | Deviation [Hz] | Low marker [MHz] | Marker – Dev [MHz] | High marker [MHz] | Marker + Dev [MHz] | Result |
|-------------------|----------------|------------------|--------------------|-------------------|--------------------|--------|
| Nominal / 3.8     | -2.14577       | 704.421000       | 704.420997         | 715.561800        | 715.561802         | PASSED |

## 11. Test Equipment

### 11.1. Conducted measurements

| Eq. No   | Equipment                           | Type        | Manufacturer  | Used in                 |
|----------|-------------------------------------|-------------|---------------|-------------------------|
| TM38112  | Power supply                        | 6632A       | Agilent       | 22/24/27, 15C, 15E      |
| TM38114  | Power supply                        | 6632A       | Agilent       | 22/24/27, 15C, 15E      |
| TM210233 | Communication Tester                | CMU200      | R&S           | 22/24/27                |
| TM30600  | Impulse limiter                     | ESH3-Z2     | R&S           | 15C, 15B                |
| TM26490  | LISN 50 µH                          | ESH3-Z5     | R&S           | 15C, 15B                |
| TM26491  | LISN 50 µH                          | ESH3-Z5     | R&S           | 15C, 15B                |
| TM37610  | Spectrum Analyzer                   | FSU26       | R&S           | 22/24/27, 15C, 15E      |
| TM23007  | Oscilloscope                        | TDS684B     | Tektronix     | 15E                     |
| TM22806  | Battery                             | BAT 20/E    | Fiskars       | 15C, 15B                |
| TM22805  | UPS                                 | PS 20/1.2   | Fiskars       | 15C, 15B                |
| -        | Temperature and humidity logger     | 175-H2      | Testo         | 15C, 15B                |
| -        | Temperature and humidity logger     | 175-H2      | Testo         | 22/24/27, 15C           |
| -        | Air pressure and temperature logger | 635-2       | Testo         | 22/24/27, 15C, 15B      |
| -        | Air pressure sensor                 | 0638-1835   | Testo         | 22/24/27, 15C, 15B      |
| -        | Temperature test chamber            | VT 4002     | Vötsch        | 22/24/27                |
| 2001     | Bluetooth tester                    | CBT         | R&S           | 15C, 15B                |
| 2009     | LISN 50 µH                          | ENV216      | R&S           | 15C, 15B                |
| 2010     | LISN 50 µH                          | ENV216      | R&S           | 15C, 15B                |
| 2012     | Power splitter                      | 11667B      | Agilent       | 22/24/27, 15C           |
| 2013     | Attenuator                          | 8493C       | Agilent       | 22/24/27, 15C           |
| 2014     | Attenuator                          | 8493C       | Agilent       | 22/24/27, 15C           |
| 2019     | Power splitter                      | ZN2PD-9G-S+ | Mini-Circuits | 15E                     |
| 2020     | Power splitter                      | ZN2PD-9G-S+ | Mini-Circuits | 15E                     |
| 2021     | Communication Tester                | CMW500      | R&S           | 22/24/27                |
| 2022     | Communication Tester                | CMU200      | R&S           | 22/24/27                |
| 2023     | Spectrum Analyzer                   | ESMI-RF     | R&S           | 15B/15C                 |
| 2024     | Analyzer display unit               | ESAI-D      | R&S           | 15B/15C                 |
| 2026     | Signal Generator                    | SMF 100A    | R&S           | 22/24/27, 15C, 15E, 15B |
| -        | Bluetooth tester                    | CBT         | R&S           | 15C, 15B                |
| -        | Communication Tester                | CMU200      | R&S           | 22/24/27, 15B           |

### 11.2. Radiated measurements

| Eq. No  | Equipment               | Type        | Manufacturer | Used in                 |
|---------|-------------------------|-------------|--------------|-------------------------|
| -       | Antenna                 | BBHA 9120 D | Schwarzbeck  | 22/24/27, 15C           |
| TM38845 | Receiver                | ESIB 26     | R&S          | 22/24/27, 15C, 15E, 15B |
| -       | Antenna                 | HL562       | R&S          | 22/24/27, 15C, 15E, 15B |
| -       | Turntable               | 2188        | EMCO         | 22/24/27, 15C, 15E, 15B |
| -       | Turntable controller    | 2090        | EMCO         | 22/24/27, 15C, 15E, 15B |
| -       | RF system panel         | OSP130      | R&S          | 22/24/27, 15C, 15E, 15B |
| -       | Mini mast               | 2075-2      | ETS Lindgren | 22/24/27, 15C, 15B      |
| TM38843 | Mini mast               | 2075        | Emco         | 22/24/27, 15C, 15B      |
| TM38842 | Antenna mast controller | 2090        | Emco         | 22/24/27, 15C, 15B      |
| TM30643 | LISN 50 µH              | LISN-5-20-2 | FCC          | 22/24/27, 15C, 15B      |
| TM30644 | LISN 50 µH              | LISN-5-20-2 | FCC          | 22/24/27, 15C, 15B      |

| Eq. No  | Equipment                           | Type                                   | Manufacturer | Used in                 |
|---------|-------------------------------------|----------------------------------------|--------------|-------------------------|
| -       | Temperature and humidity logger     | 175-H2                                 | Testo        | 22/24/27, 15C, 15B      |
| -       | Air pressure and temperature logger | 635-2                                  | Testo        | 22/24/27, 15C, 15B      |
| -       | Air pressure sensor                 | 0638-1835                              | Testo        | 22/24/27, 15C, 15B      |
| TM37523 | Preamplifier                        | AMF-4D-10M-3G-25-20P                   | Miteq        | 22/24/27, 15C, 15B      |
| TM37498 | Preamplifier                        | AMF-5D-020180-26-10P                   | Miteq        | 22/24/27, 15C, 15B      |
| TM30599 | Semi anechoic chamber               | UNKNOWN                                | TDK          | 22/24/27, 15C, 15B      |
| TM22638 | Power supply                        | OL63743-901                            | -            | 22/24/27, 15C, 15E, 15B |
| TM38066 | High pass filter                    | WHKX3.0/18G-12SS                       | Wainwright   | 22/24/27, 15C, 15E, 15B |
| 2028    | High pass filter                    | WHKX 1.0/15G-12SS                      | Wainwright   | 22/24/27, 15C, 15E, 15B |
| TM37545 | Tunable notch filter                | 800.0/960.0-0.2/40-8SSK                | Wainwright   | 22                      |
| TM26512 | Tunable notch filter                | WRCD1850/1910-0.2/40-10SSK             | Wainwright   | 24                      |
| -       | Band reject filter                  | WRCG1877/1883-1870/1890-40/6EE         | Wainwright   | 24                      |
| -       | Band reject filter                  | WRCG1729.4/1735.4-1722.4/1742.4-40/6SS | Wainwright   | 27                      |
| TM23892 | Controller                          | G-1000SDX                              | Yaesu        | 22/24/27, 15C, 15E      |
| 2001    | Bluetooth tester                    | CBT                                    | R&S          | 15C, 15B                |
| 2002    | Communication Tester                | CMU200                                 | R&S          | 22/24/27, 15B           |
| 6023    | Antenna                             | VUBA 9117                              | Schwarzbeck  | 22/24/27                |
| 2021    | Communication Tester                | CMW500                                 | R&S          | 22/24/27                |
| 2025    | Antenna                             | HFH2-Z2                                | R&S          | 15C                     |
| 2026    | Signal Generator                    | SMF 100A                               | R&S          | 22/24/27, 15C, 15E, 15B |
| 2052    | Antenna                             | BBHA 9120 D                            | Schwarzbeck  | 22/24/27, 15C, 15B, 15E |
| -       | Antenna                             | QSH18S20                               | Q-Par        | 22/24/27, 15C, 15B, 15E |
| -       | Antenna                             | QSH20S20                               | Q-Par        | 22/24/27, 15C, 15B, 15E |
| -       | Antenna                             | QSH20S20                               | Q-Par        | 22/24/27, 15C, 15B, 15E |
| -       | Bluetooth tester                    | CBT                                    | R&S          | 15C, 15B                |