



243 Jubug-Ri, Yangji-Myeon, Yongin-Si, Gyeonggi-Do, Korea 449-822  
Tel: +82-31-323-6008 Fax: +82-31-323-6010  
<http://www.ltalab.com>



Dates of Tests: May 21~ June 4, 2012  
Test Report S/N: LR500111205M  
Test Site : LTA CO., LTD.

FCC ID

**T7MLMR250R01C**

APPLICANT

**Kisan Telecom Co., Ltd.**

## TEST REPORT

### FCC Part 27 Certification

|                                     |   |                                            |
|-------------------------------------|---|--------------------------------------------|
| Classification                      | : | Licensed Non-Broadcast Station Transmitter |
| Manufacturing Description           | : | Optical DAS Repeater (LTE)                 |
| Manufacturer                        | : | Kisan Telecom Co., Ltd.                    |
| Model name                          | : | LMR250R01C                                 |
| Test Device Serial No.:             | : | Identification                             |
| FCC Rule Part(s)                    | : | §27, §2                                    |
| Rated RF Output Power(DL/UL)        | : | 30dBm (Uplink) / 50dBm (Downlink)          |
| Type Of Modulation and Designators: | : | LTE (F9W)                                  |
| Data of issue                       | : | June 4, 2012                               |

This test report is issued under the authority of:

Kyu-Hyun LEE, Technical Manager

The test was supervised by:

Jung-Moo Her, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. This report must not be used by the applicant to claim product endorsement by any agency.



NVLAP LAB Code.: 200723-0

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## 1. General information's

### 1-1 Test Performed

Company name : LTA Co., Ltd.  
 Address : 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 449-822  
 Web site : <http://www.ltalab.com>  
 E-mail : [chahn@ltalab.com](mailto:chahn@ltalab.com)  
 Telephone : +82-31-323-6008  
 Facsimile : +82-31-323-6010

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

### 1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

| Agency | Country | Accreditation No. | Validity   | Reference           |
|--------|---------|-------------------|------------|---------------------|
| NVLAP  | U.S.A   | 200723-0          | 2012-09-30 | ECT accredited Lab. |
| RRL    | KOREA   | KR0049            | 2013-04-24 | EMC accredited Lab. |
| FCC    | U.S.A   | 610755            | 2014-04-27 | FCC filing          |
| FCC    | U.S.A   | 649054            | 2013-04-13 | FCC CAB             |
| VCCI   | JAPAN   | R2133(10m), C2307 | 2014-06-21 | VCCI registration   |
| VCCI   | JAPAN   | T-2009            | 2013-12-23 | VCCI registration   |
| IC     | CANADA  | IC5799            | UPDATING   | IC filing           |

## 2. Information's about test item

### 2-1 Client

Company name : Kisan Telecom Co., Ltd.  
Address : 2F, Segi Bldg., 66-2 Bangyi-Dong Songpa-Gu, Seoul, 138-828, Korea  
Telephone : +82-2-3433-8341

### 2-2 Equipment Under Test (EUT)

Classification : Licensed Non-Broadcast Station Transmitter  
Trade name : Optical DAS Repeater (LTE)  
Model name : LMR250R01C  
Serial number : Identification  
Date of receipt : May 21, 2012  
EUT condition : Pre-production, not damaged  
Downlink : LTE Block C : 746~757MHz  
Uplink : LTE Block C : 776~787MHz  
Gain range : 20~30dB (Uplink) / 30~50dB (Downlink)  
Emission Designators : F9W  
Power Input : 120Vac

### 2.5 Mode of Operation

The EUT was powered by 120VAC. The EUT was configured for maximum gain, 50dB. Repeater simulators were used to provide the input signals to the EUT. Tests were performed with LTE modulations. The input power was the maximum declared by the manufacturer.

### 3. Test Report

#### 3.1 Summary of tests

| Parameter                                   | Status |
|---------------------------------------------|--------|
| <b>Transmitter Requirements</b>             |        |
| RF Power Output                             | C      |
| Occupied Bandwidth, Input/Output Comparison | C      |
| Intermodulation                             | C      |
| Spurious Emissions at antenna terminal      | C      |
| Field Strength of Spurious Radiation        | C      |
| Frequency Stability                         | C      |

Note 1: C=Complies    NC=Not Complies    NT=Not Tested    NA=Not Applicable

Note 2: The data in this test report are to be tested to the ANSI/TIA-603-C-2004 standard

## **3.2 Results Of Tests**

### **3.2.1 RF Power Output**

#### **1. Test Procedure**

The EUT RF output was connected to Powermeter. The EUT was setup to transmit continuously with maximum power. Powermeter was setup to measure power. Measurements were performed at one frequency (LTE Block C\_MAIN/MIMO) with all modulations.

#### **2. Test Results**

| <b>Direction</b> | <b>Block</b> | <b>Power output<br/>(dBm)</b> | <b>Power Output<br/>(W)</b> |
|------------------|--------------|-------------------------------|-----------------------------|
| DL_MAIN          | C            | 29.86                         | 0.968                       |
| DL_MIMO          | C            | 29.82                         | 0.959                       |
| UL_MAIN          | C            | -10.16                        | 0.000096                    |
| UL_MIMO          | C            | -10.15                        | 0.000097                    |

※ Input Signal Power: -20dBm (Downlink) / -40dBm (Uplink)

### 3.2.2 Occupied Bandwidth, Input/Output Comparison

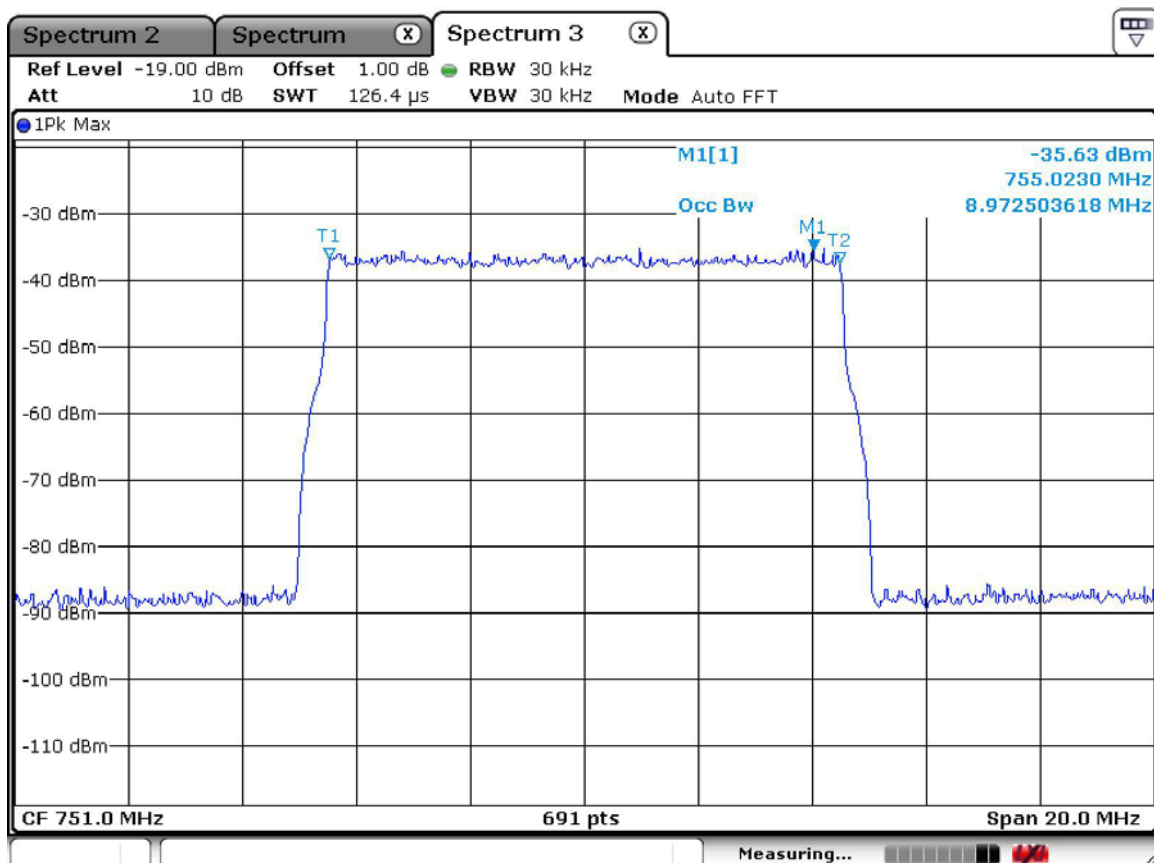
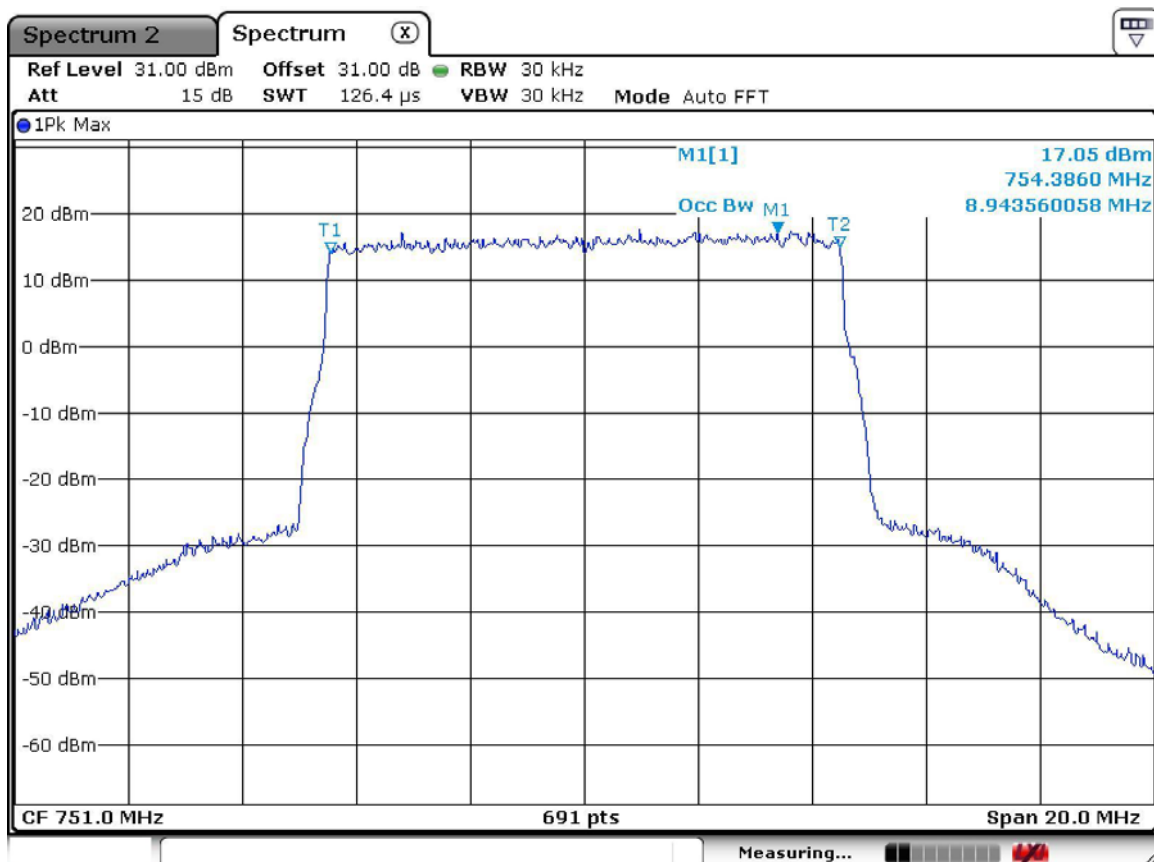
#### 1. Test Procedure

The EUT RF ports were connected to Spectrum analyzer. The EUT was setup to transmit maximum power. The spectrum analyzer was setup to measure the Occupied Bandwidth (defined as the 99% Power Bandwidth). The Occupied Bandwidth was measured at the input and output ports of the EUT at the middle channels for each type of modulation

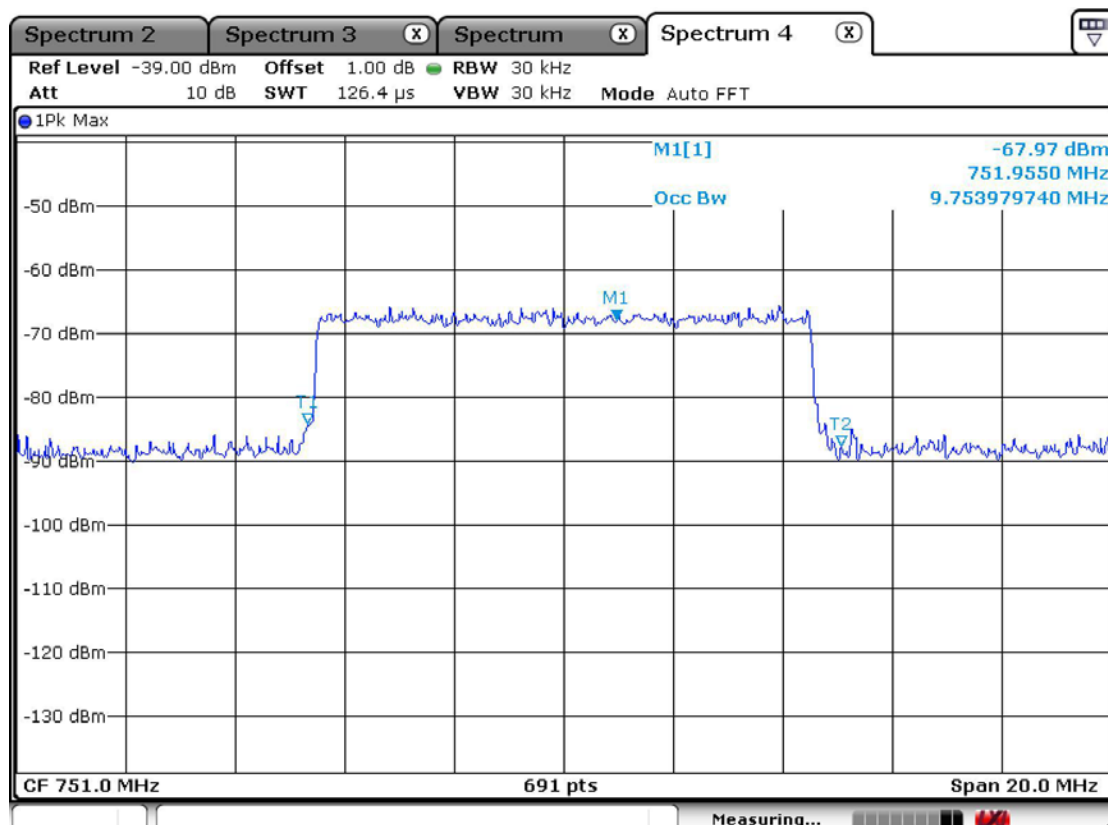
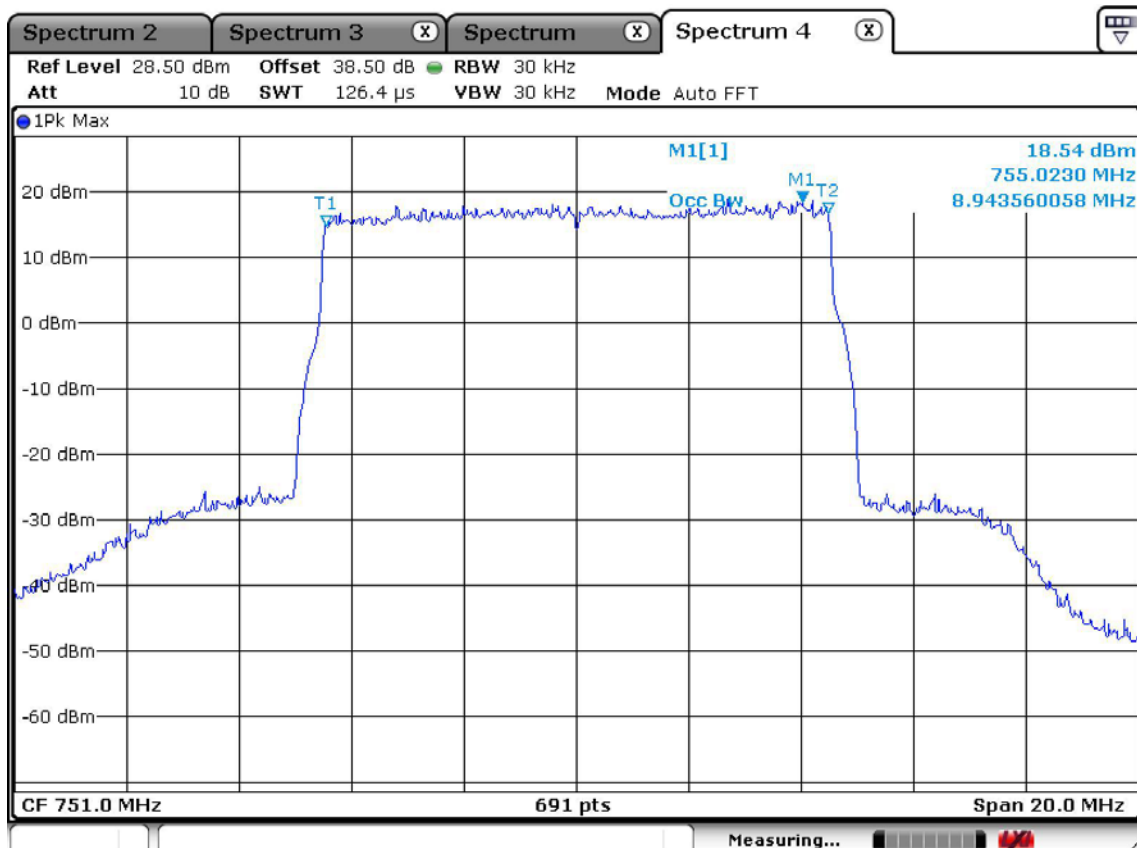
#### 2. Test Results : Complies

Refer to the following Graphs.

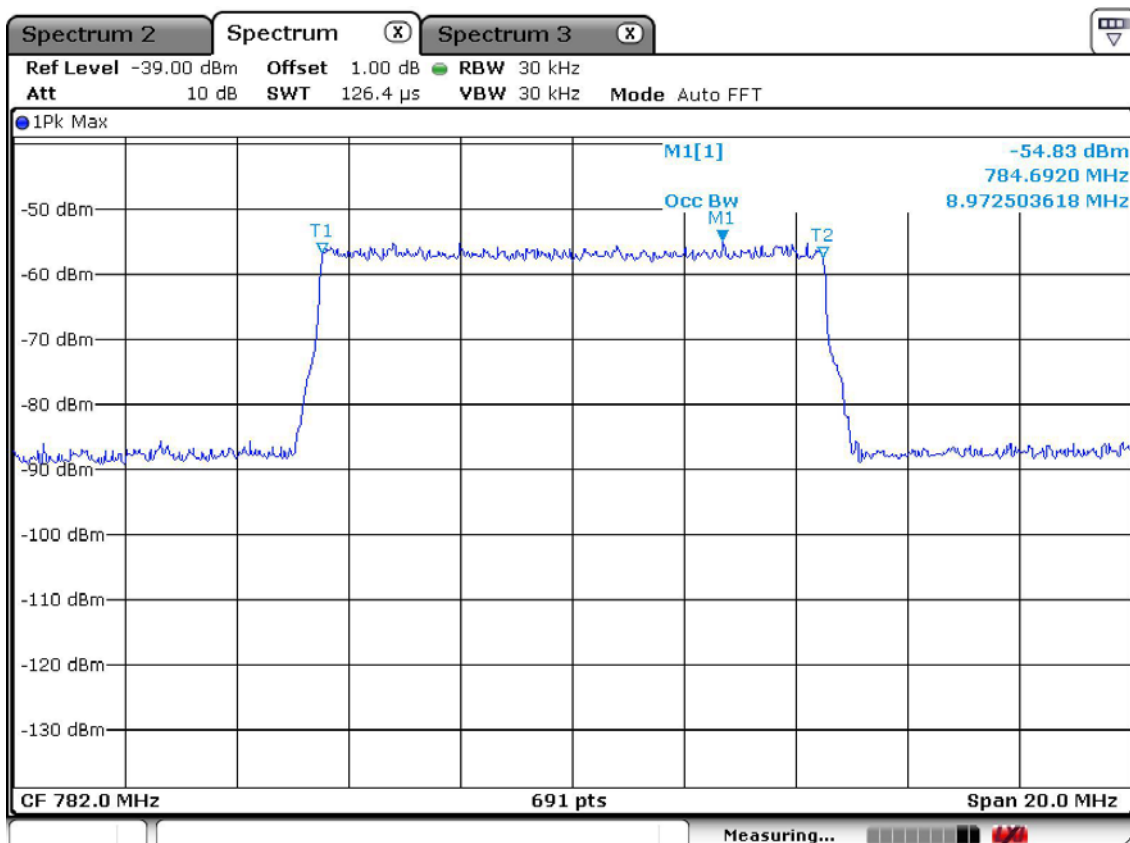
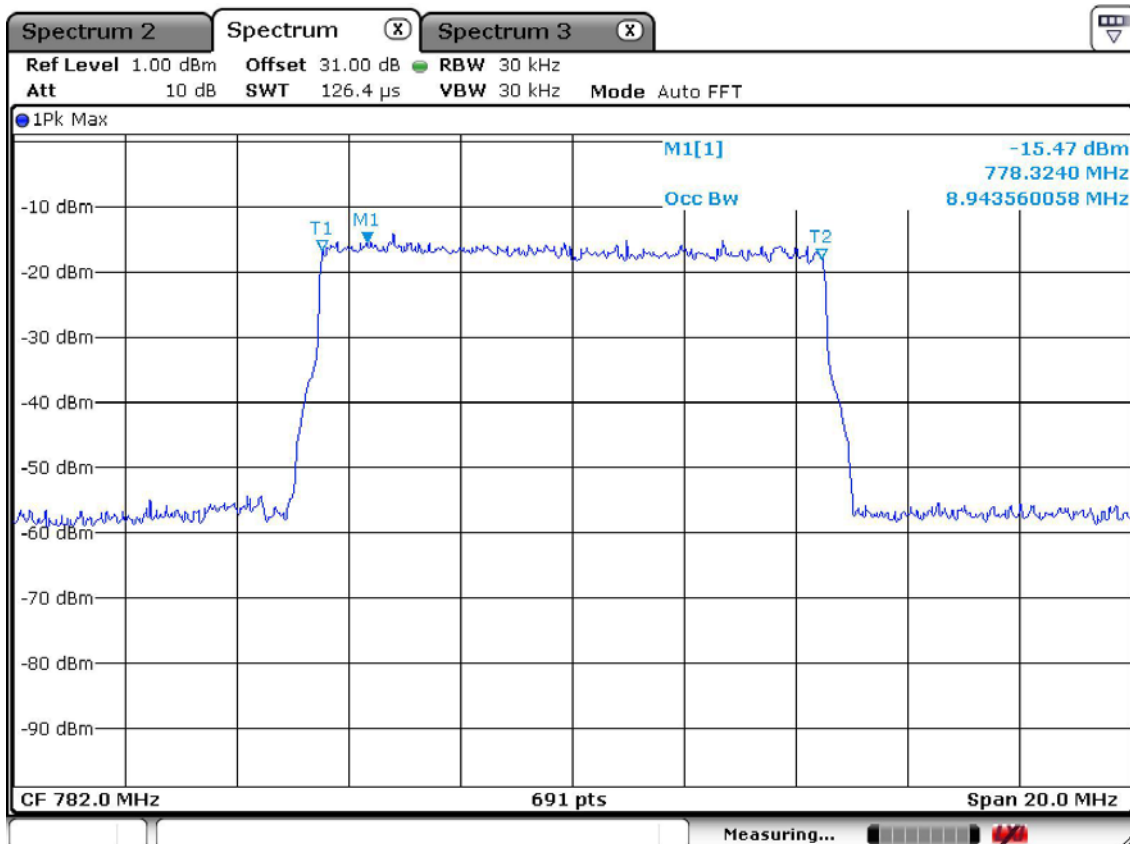
## Input/Output Bandwidth Comparison – LTE Block C\_DL-MAIN



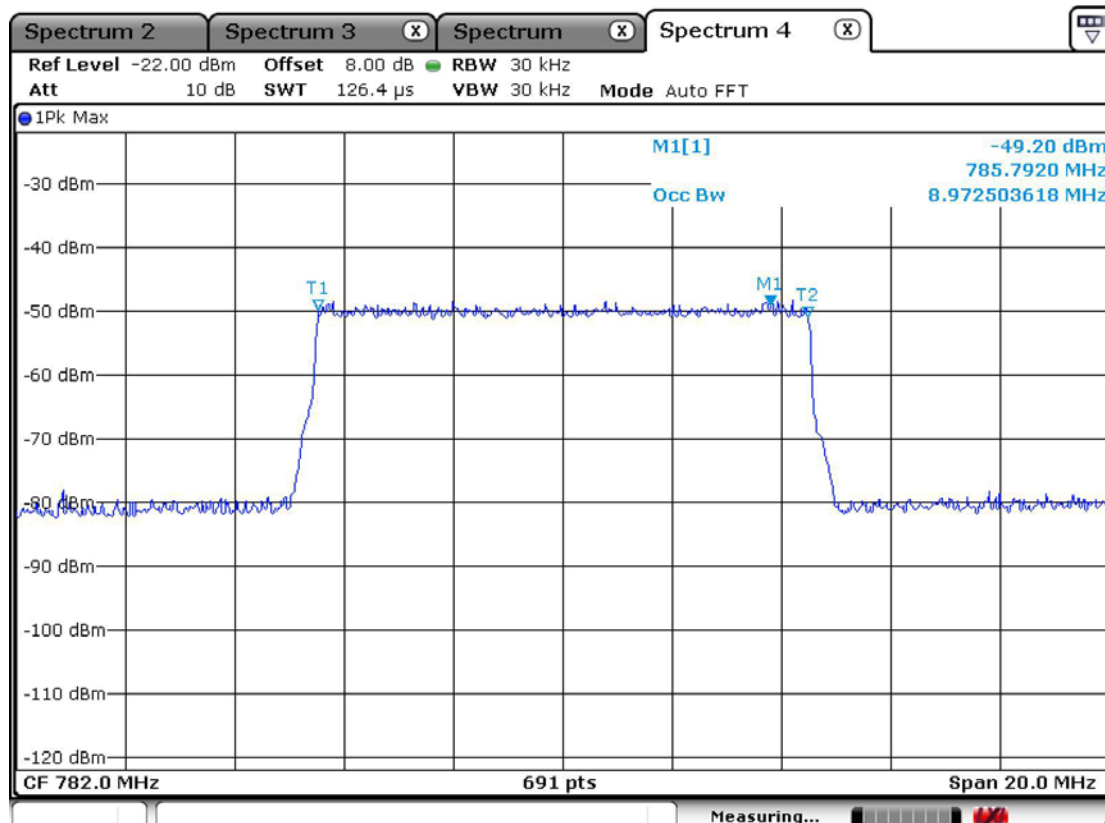
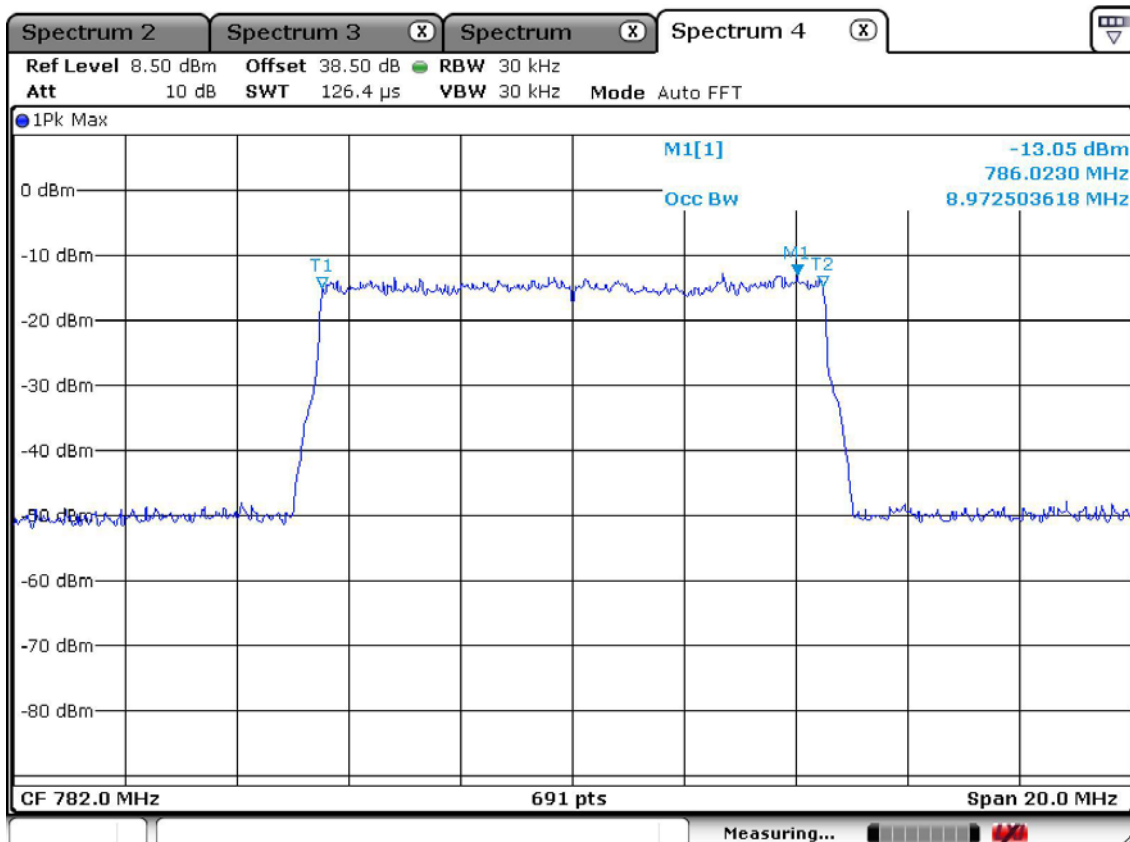
## Input/Output Bandwidth Comparison – LTE Block C\_DL-MIMO



## Input/Output Bandwidth Comparison – LTE Block C\_UL-MAIN



## Input/Output Bandwidth Comparison – LTE Block C\_UL-MIMO



### 3.2.3 Intermodulation

#### 1. Requirement

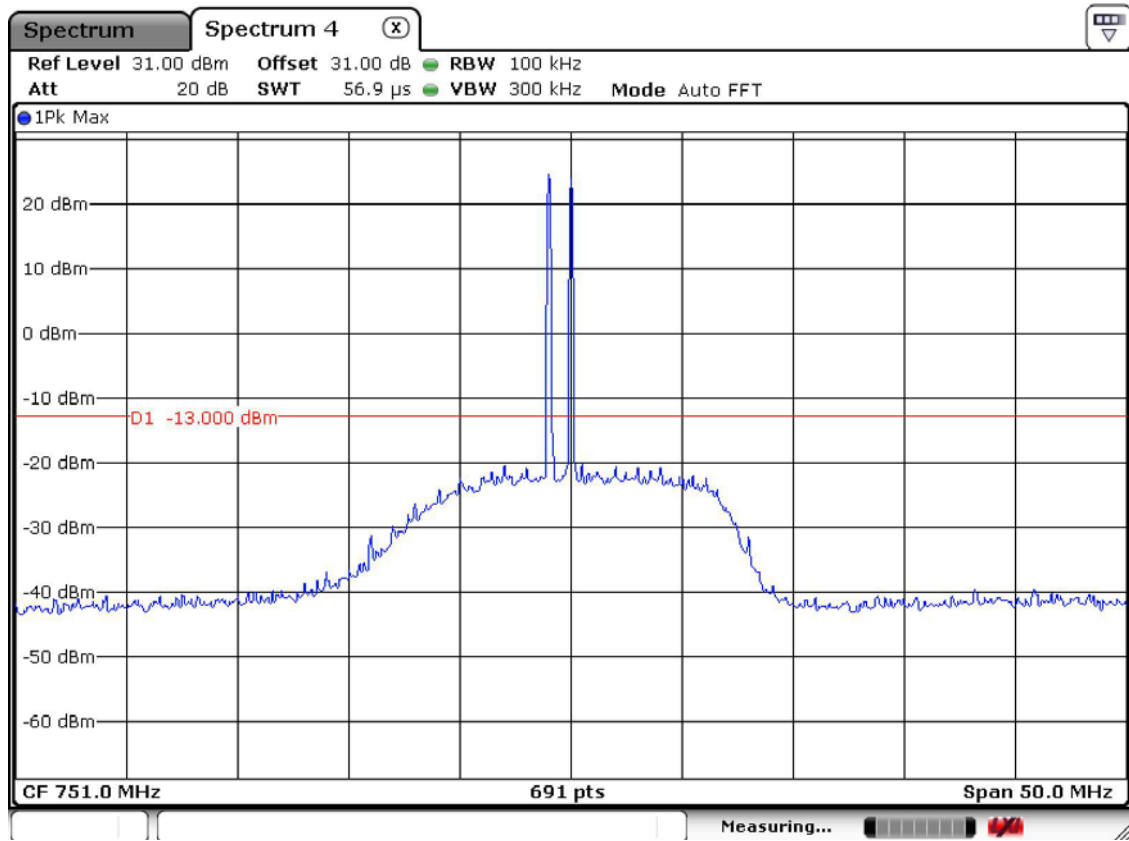
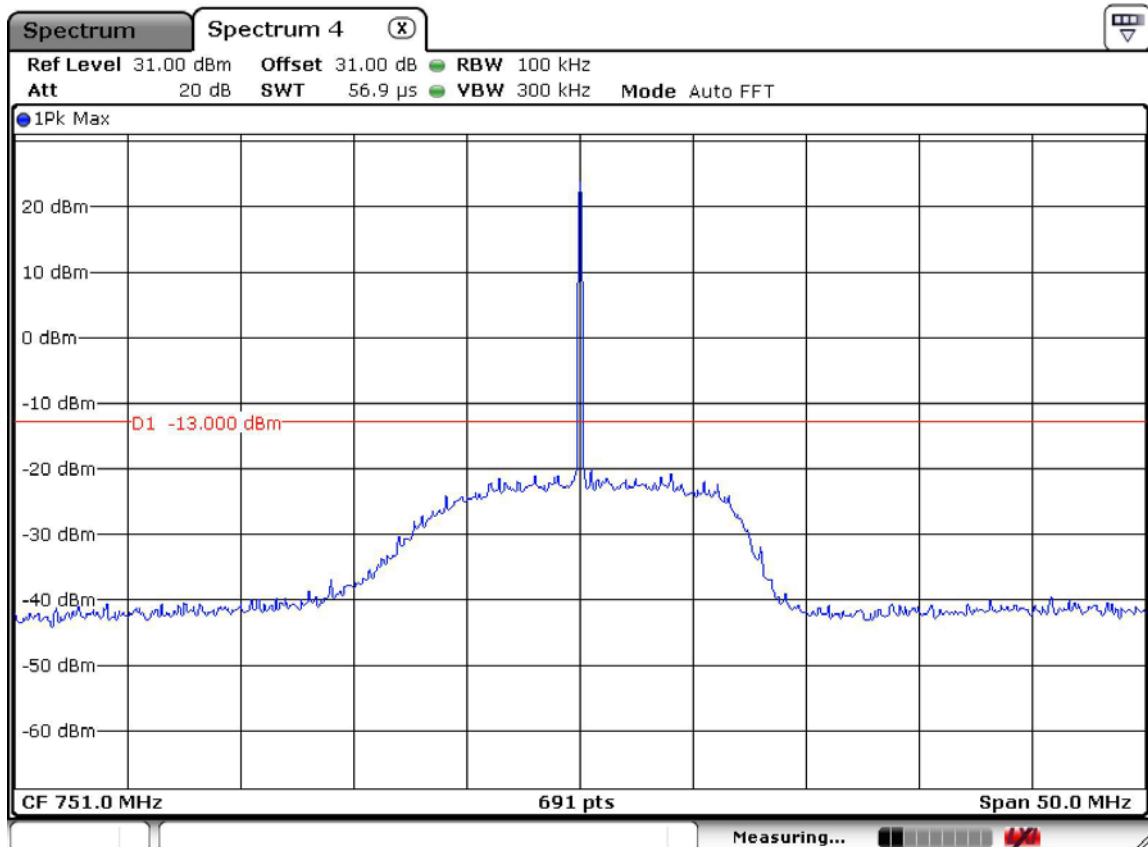
the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. The limit of emission equal to  $-13\text{dBm}$ .

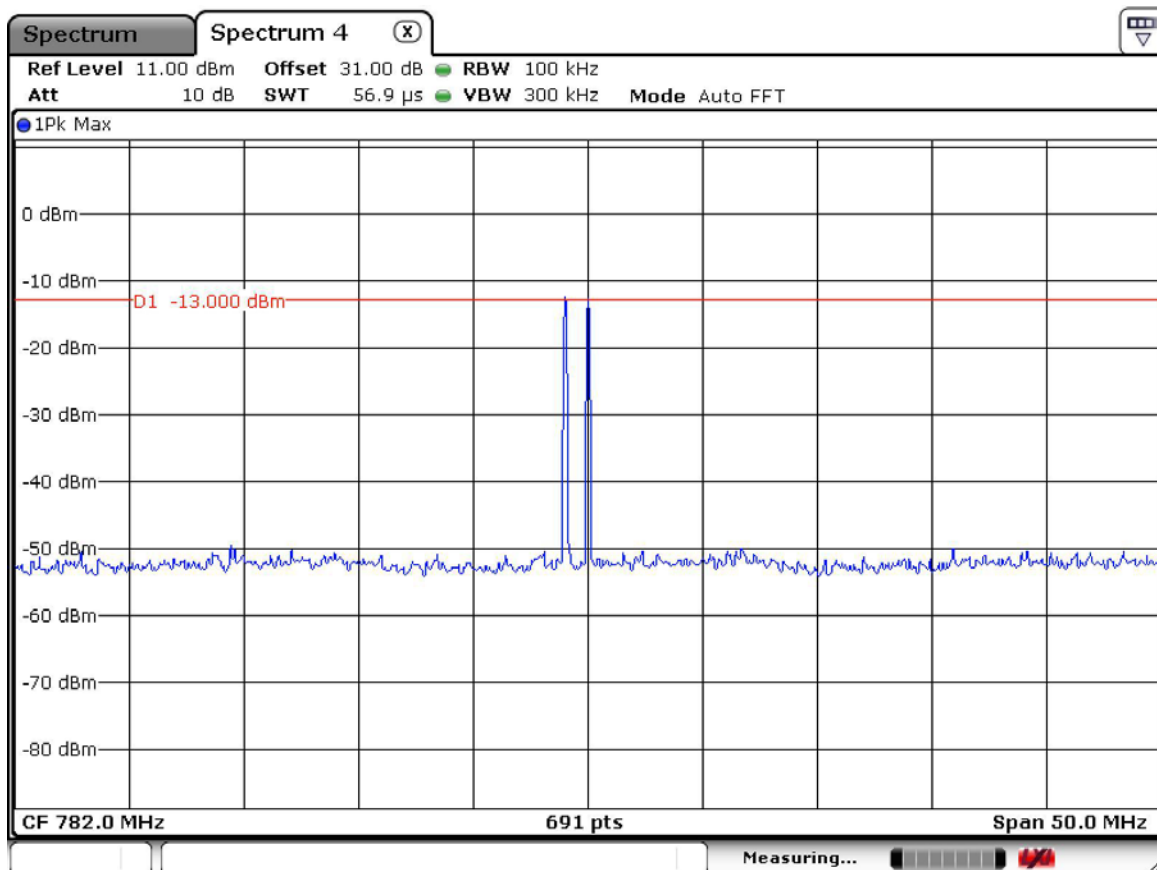
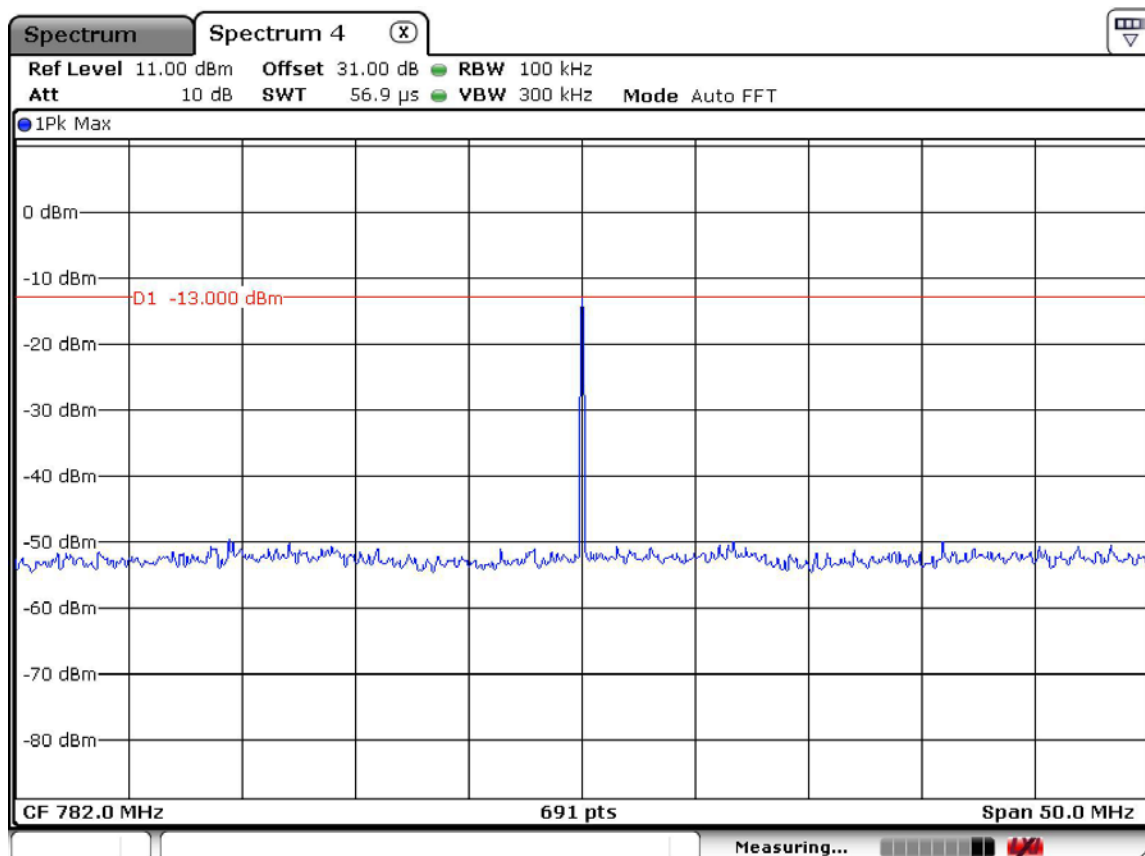
#### 2. Test Procedure

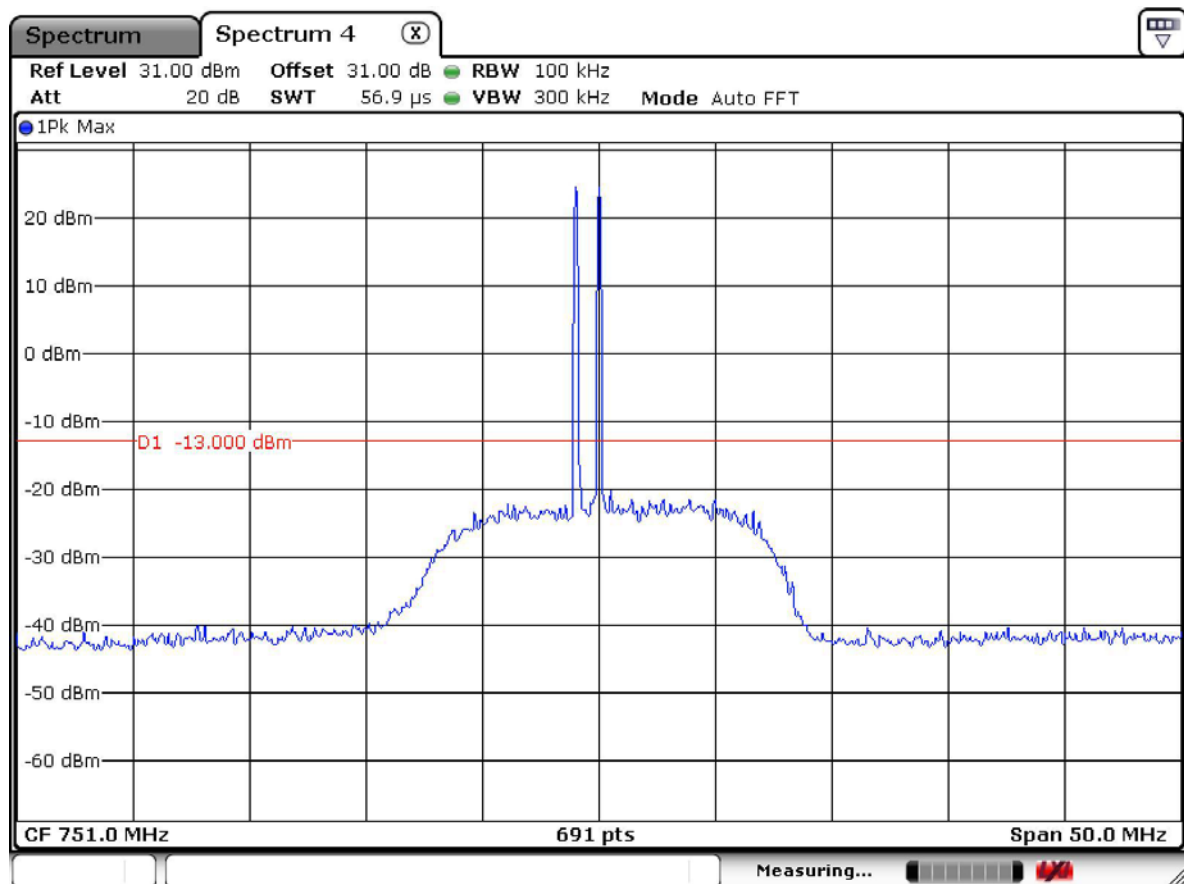
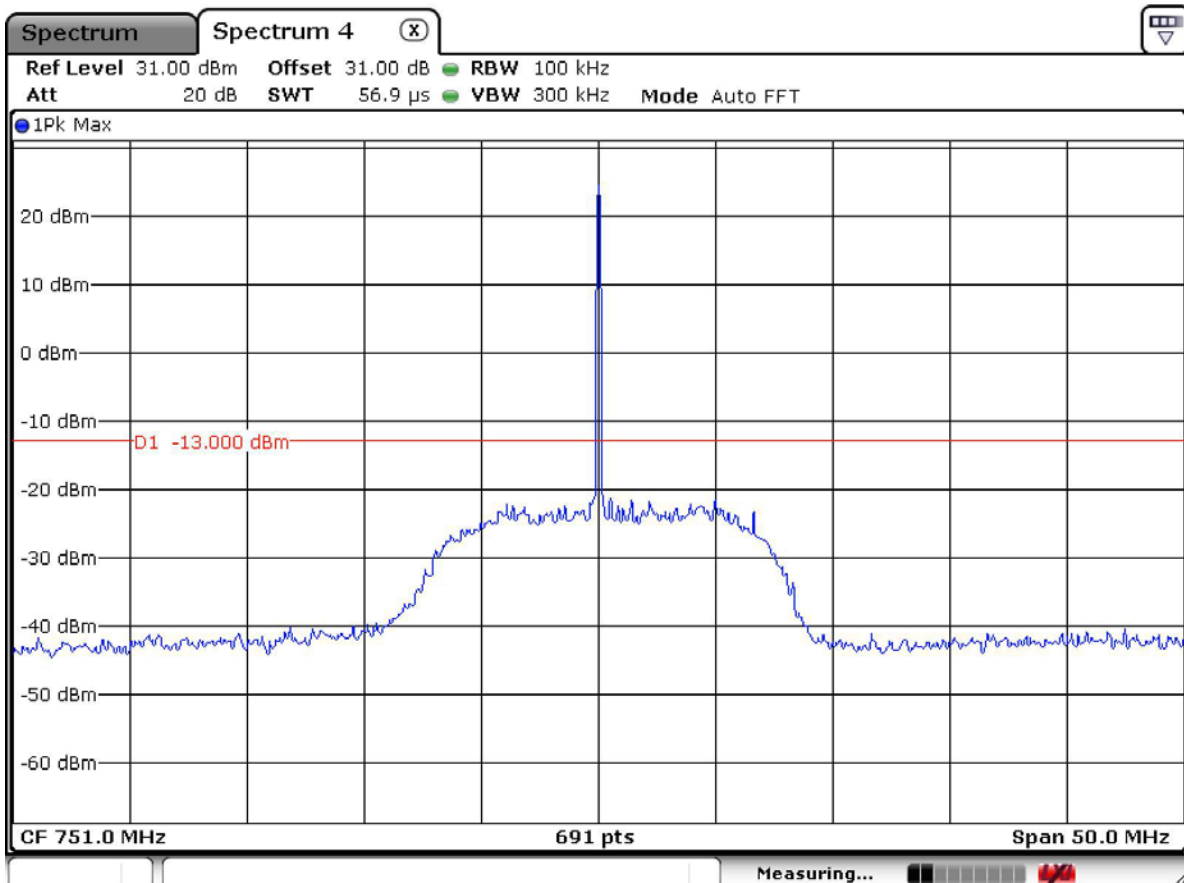
Two RF signals set as inputs. The frequencies of both RF signals shall be within the repeater's operating band. The spacing between both RF signals shall be the minimum possible spacing applied in a network. The level of both RF input signals shall be increased, until the maximum rated output power per channel, as declared by the manufacturer, is reached.

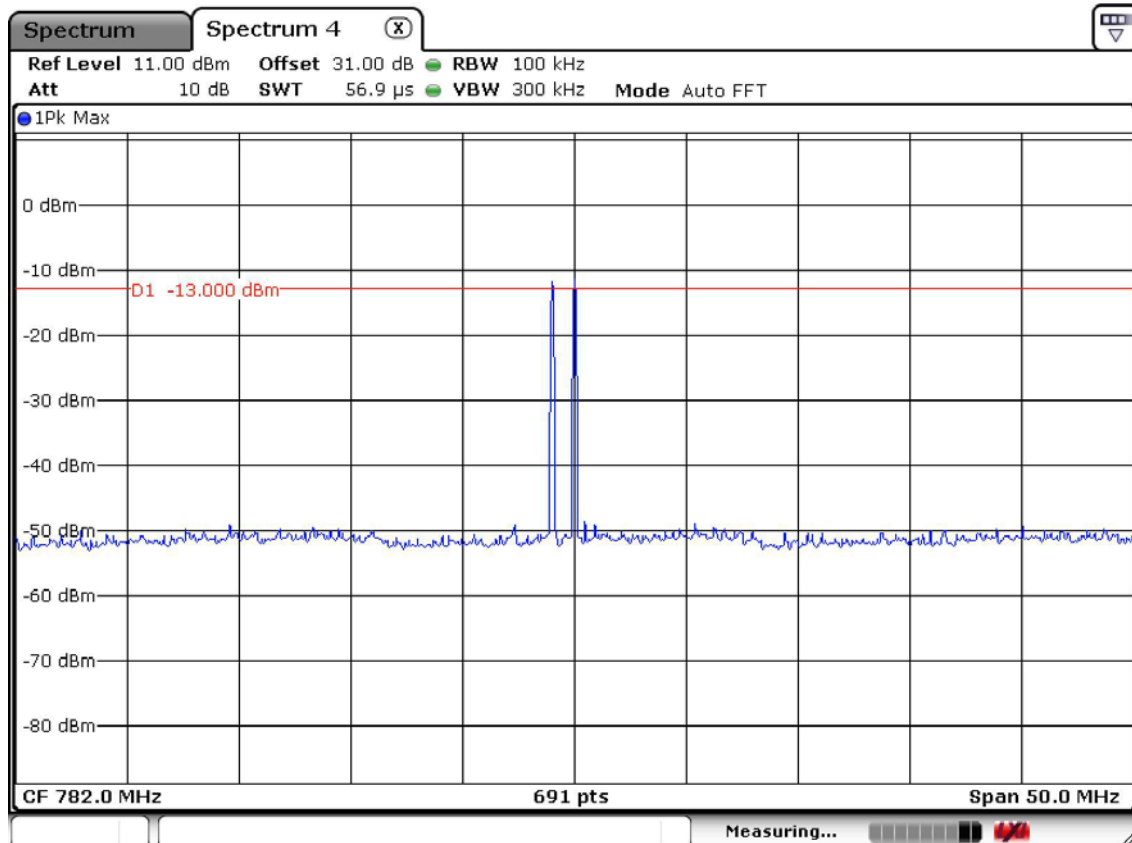
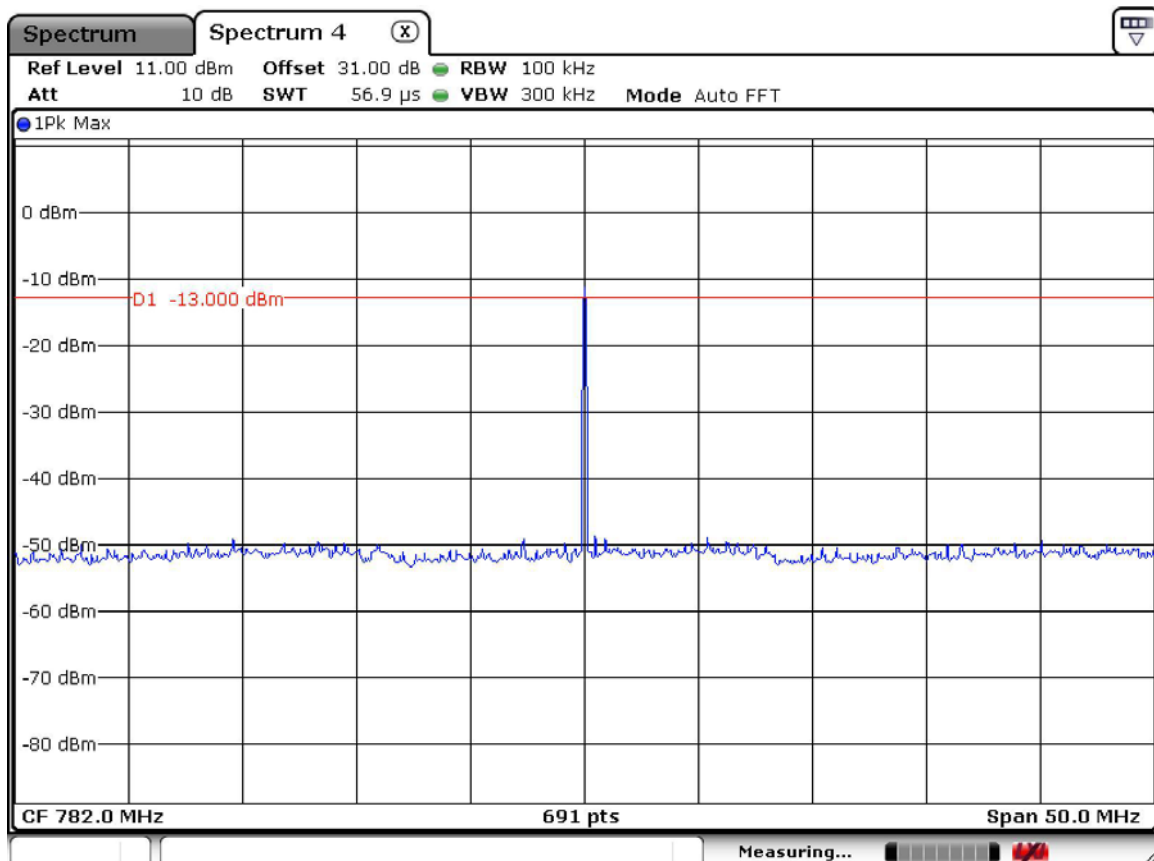
#### 3. Test Results : Complies

Refer to the following Graphs.

**LTE Block C DL-MAIN**

**LTE Block C UL-MAIN**

**LTE Block C DL-MIMO**

LTE Block C UL-MIMO

### 3.2.4 Spurious Emissions at antenna terminal

#### 1. Requirement

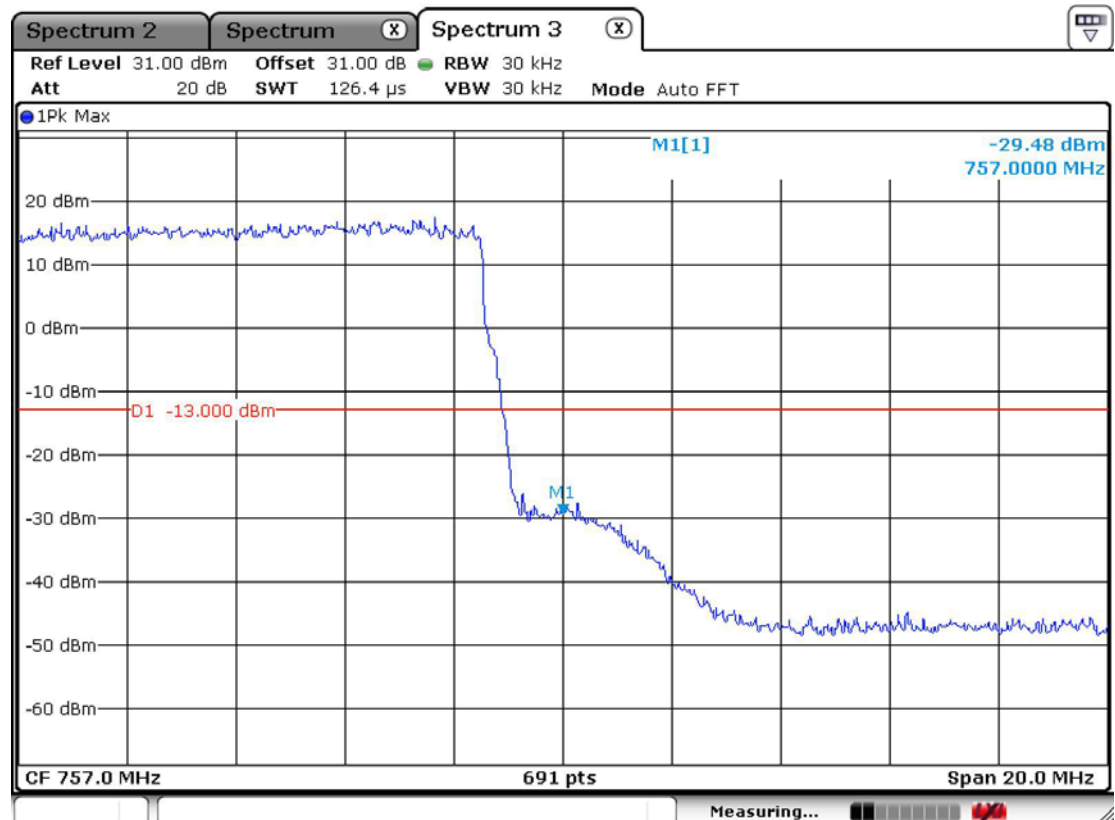
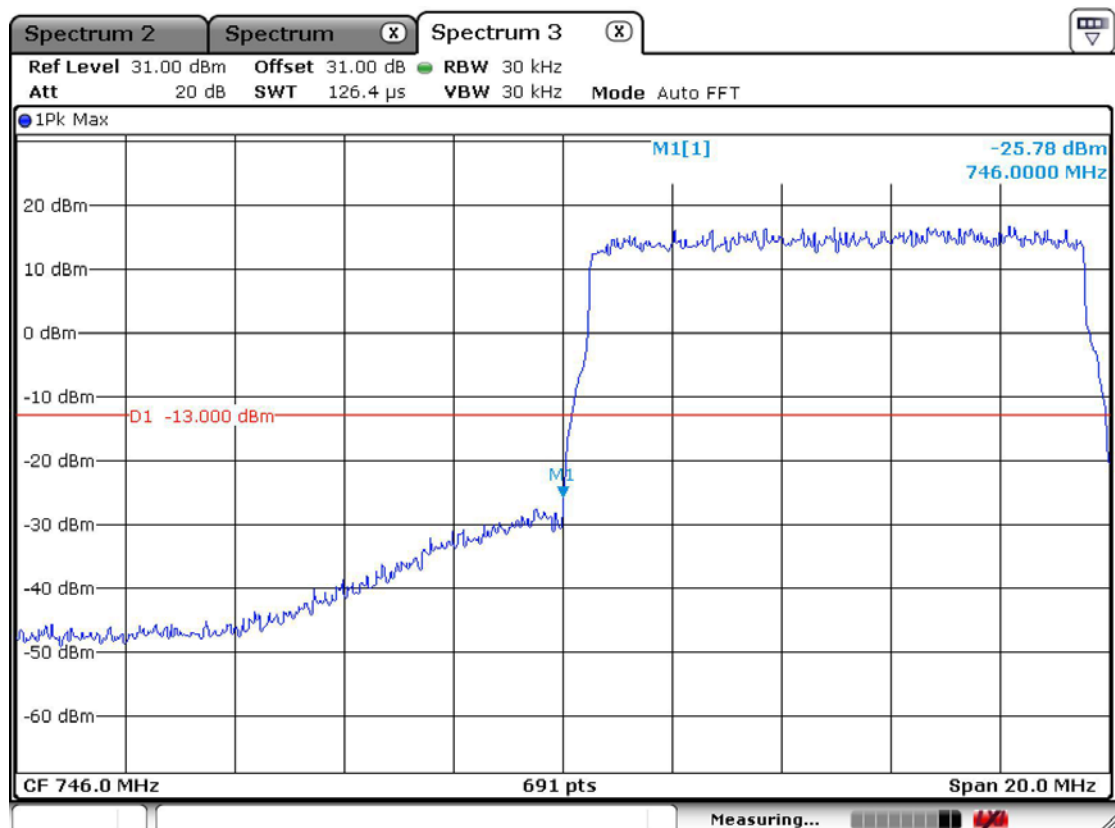
For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside of the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside of the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (2) On any frequency outside of the 776-787 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log (P)$  in a 6.25 KHz band segment for base and fixed stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based upon the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 30 kHz may be employed.

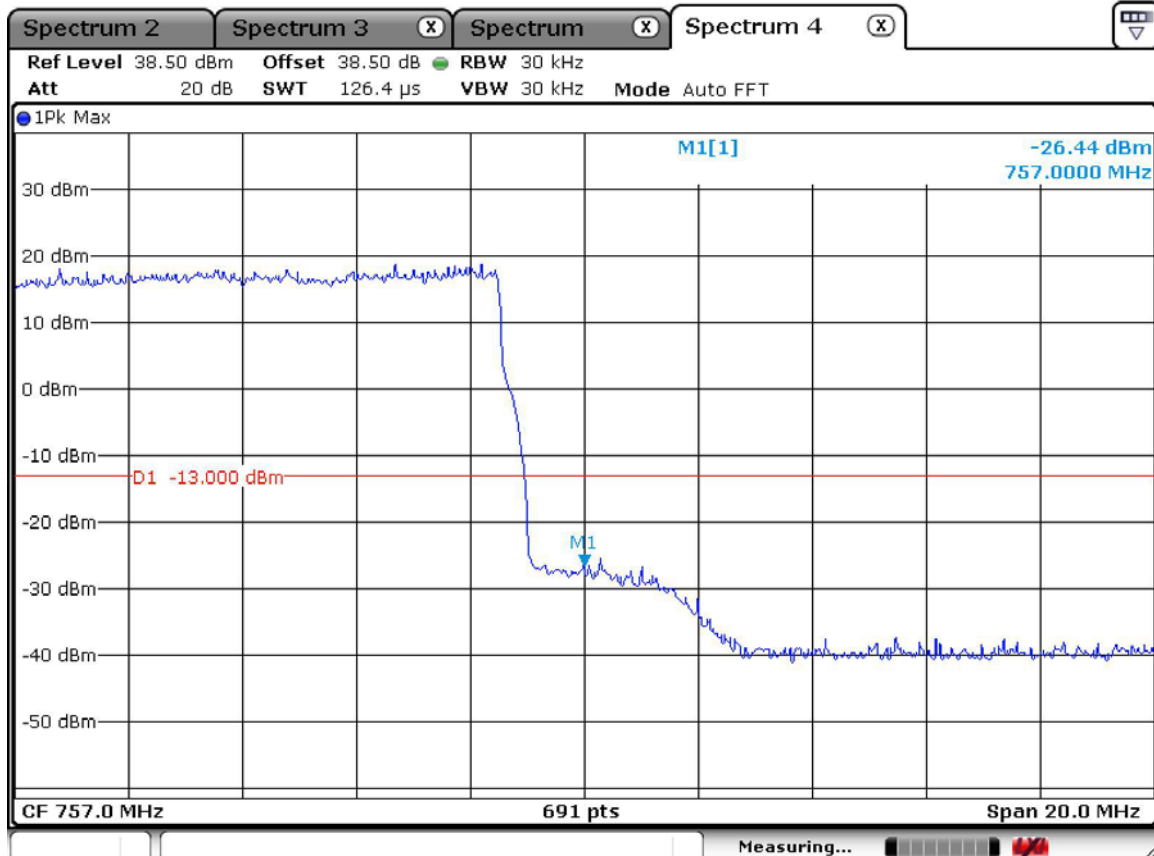
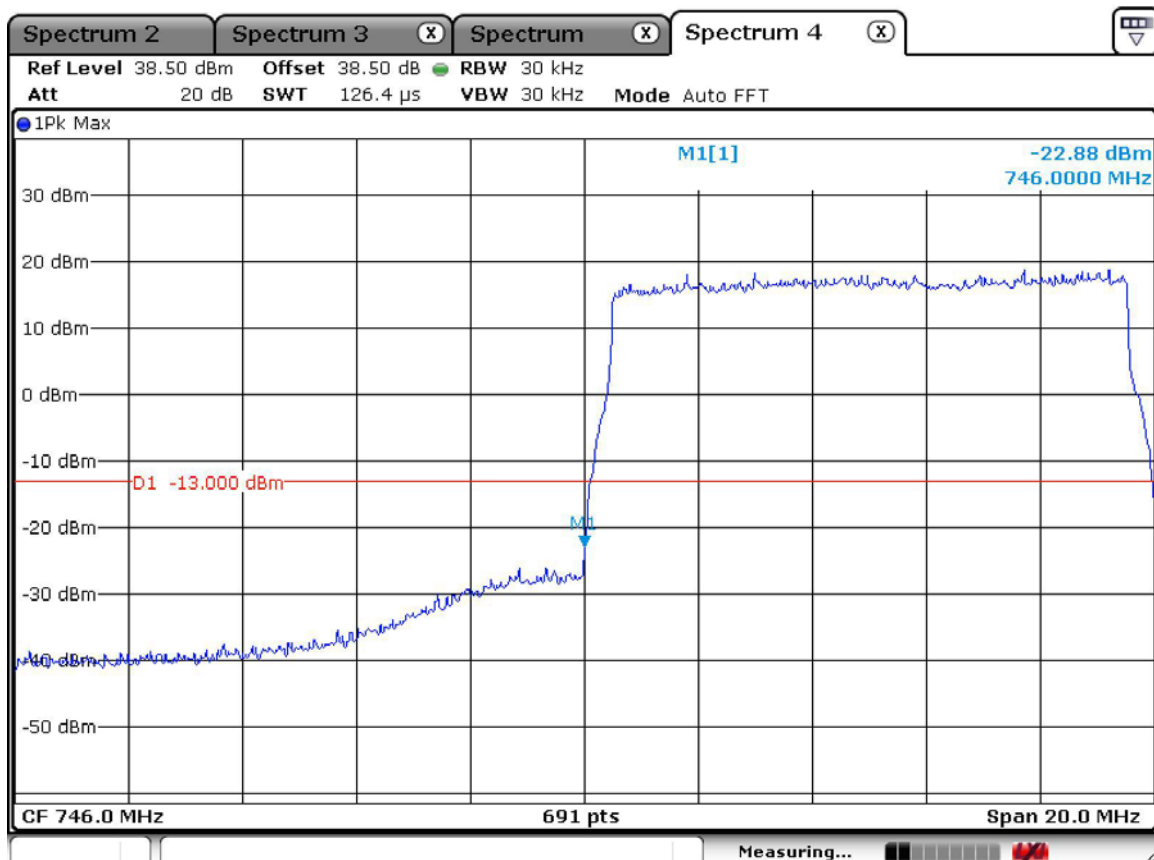
#### 2. Test Results : Complies

Refer to the following Graphs.

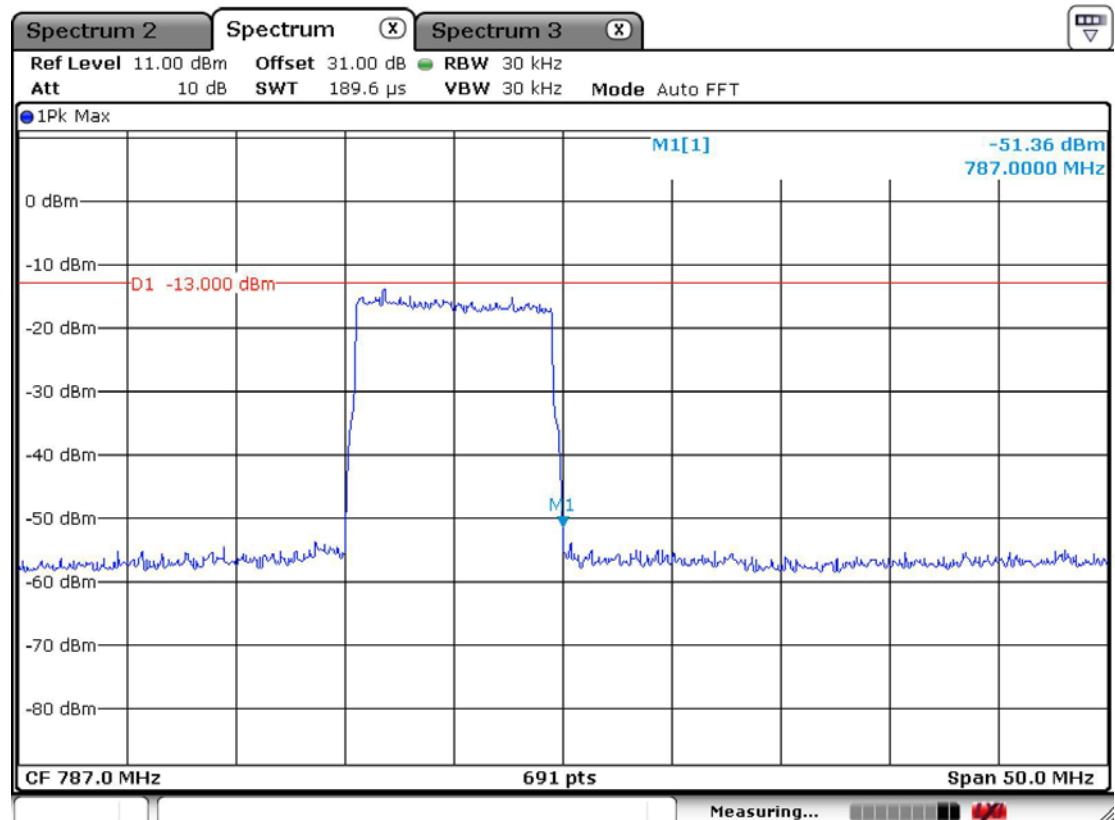
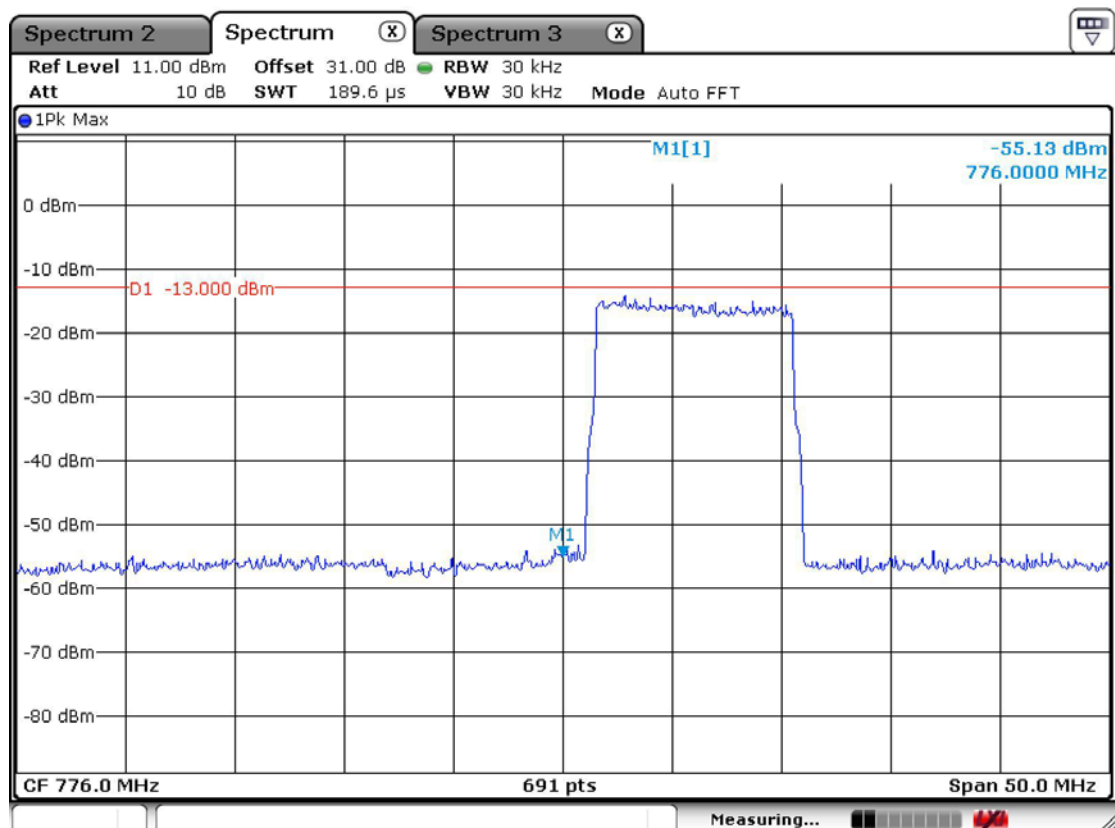
## Antenna Terminal Spurious Emissions, Band edge, LTE Block C\_DL-MAIN



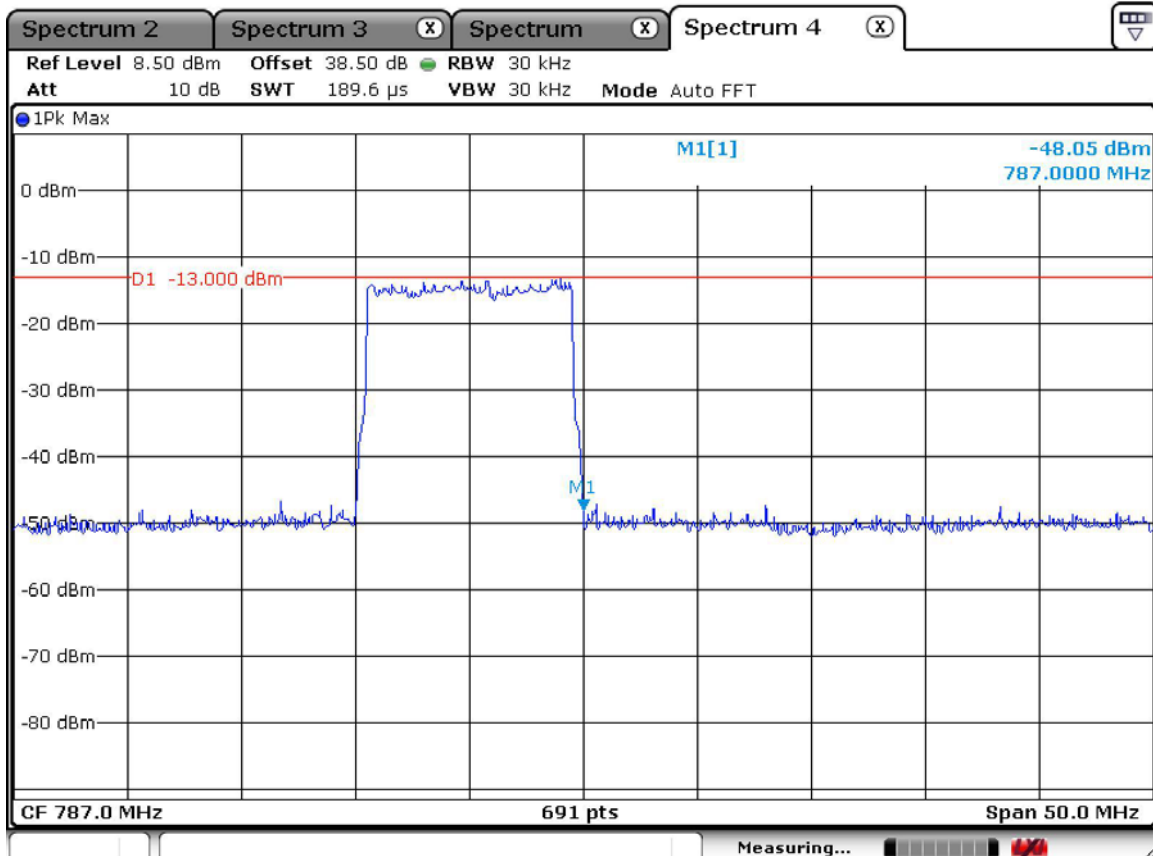
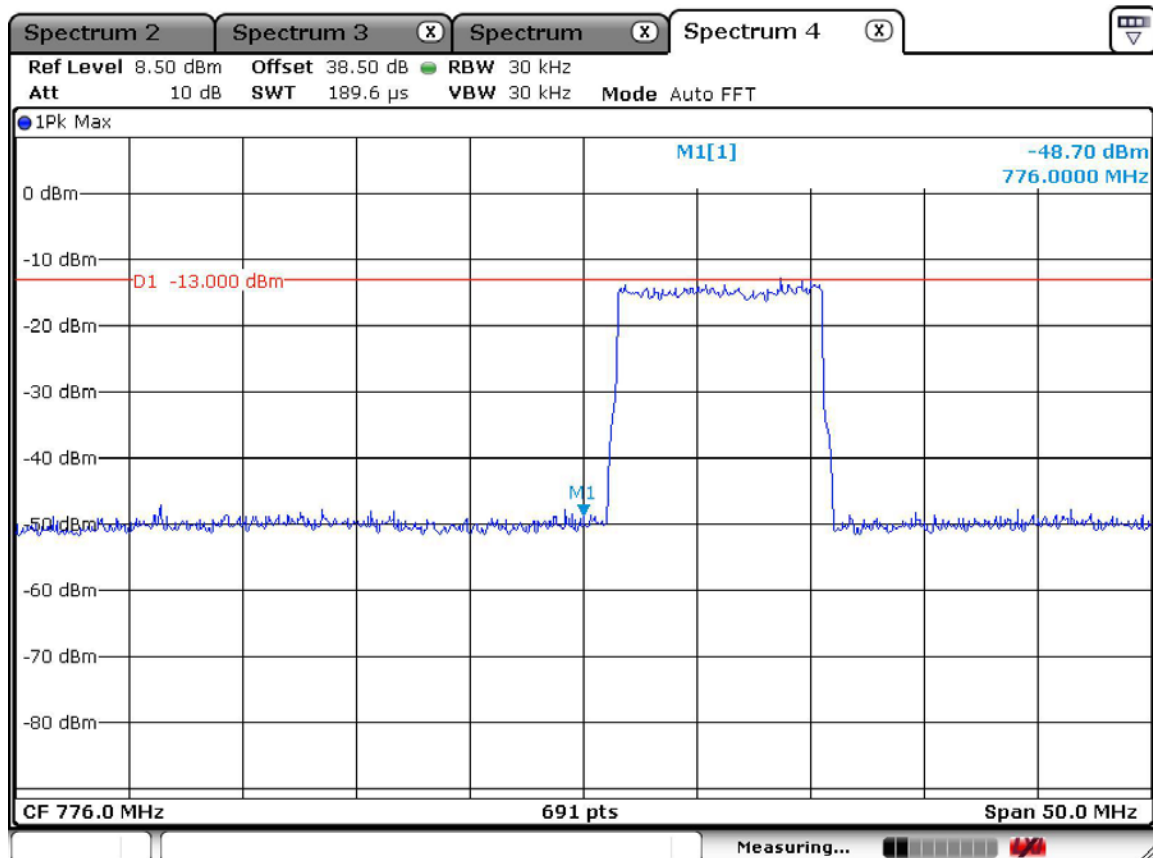
## Antenna Terminal Spurious Emissions, Band edge, LTE Block C\_DL-MIMO



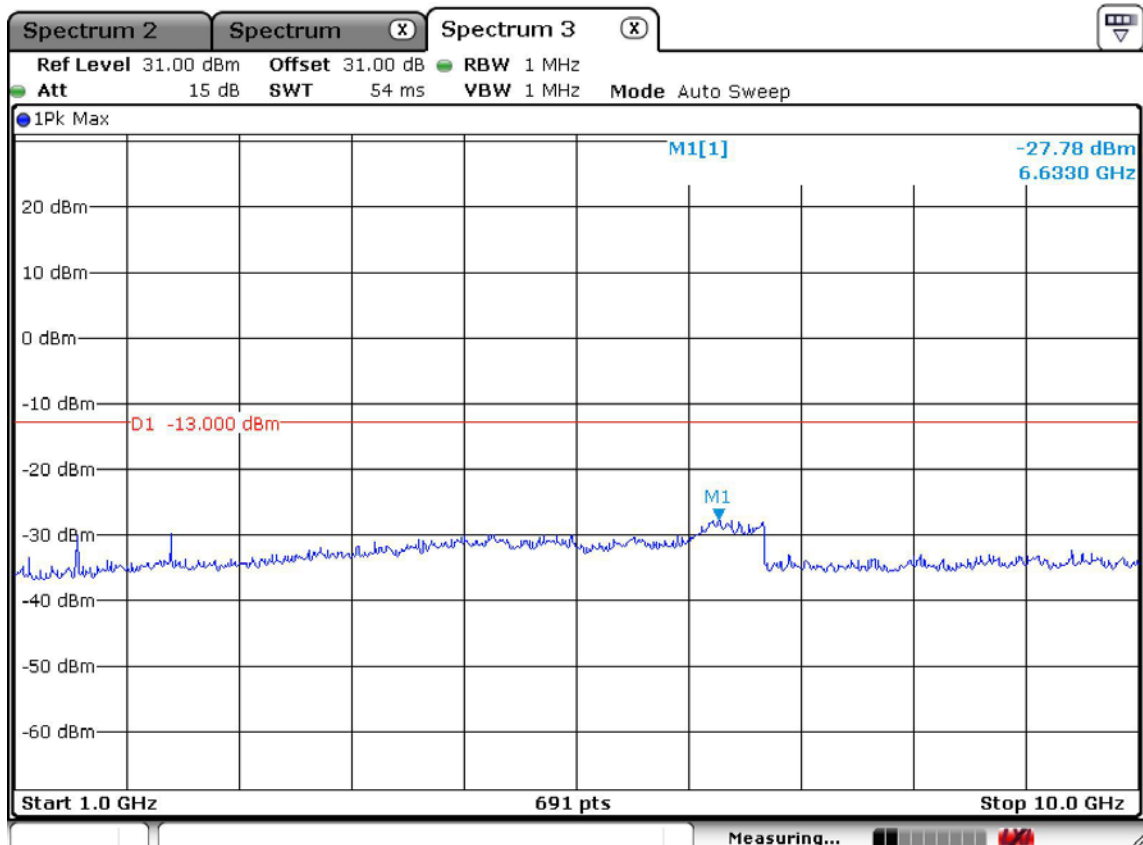
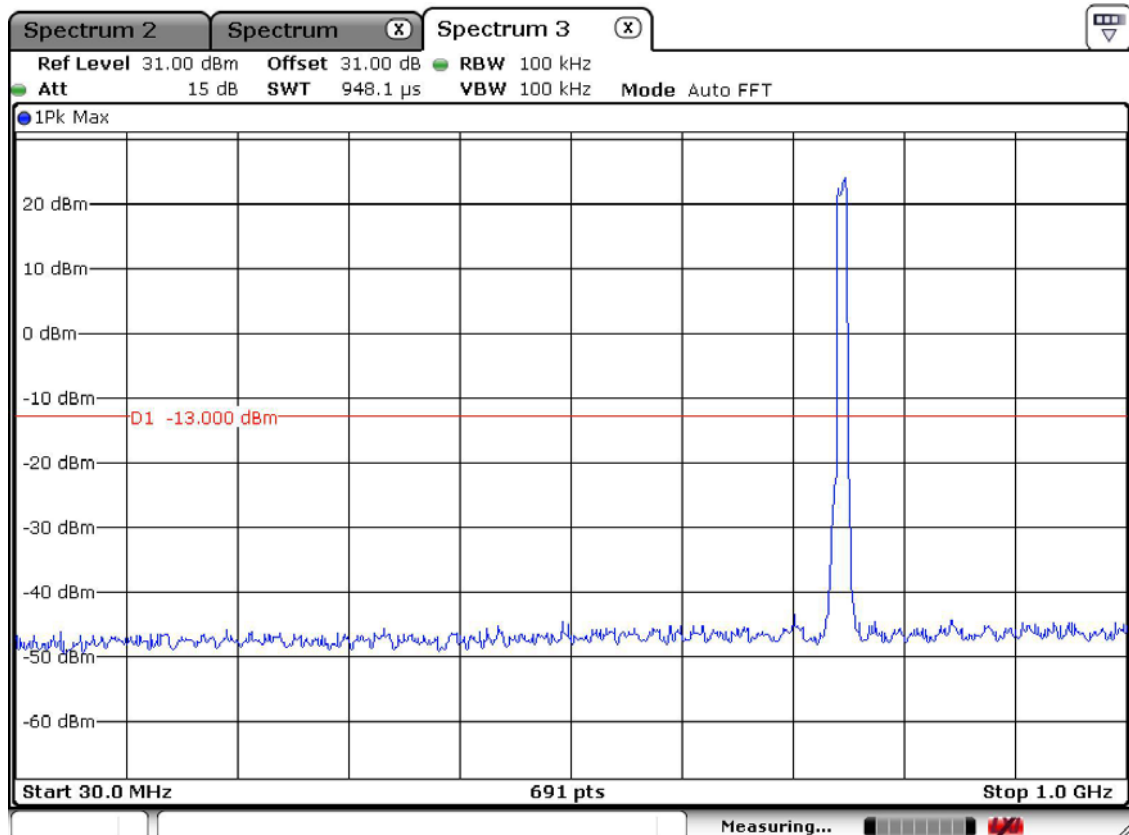
## Antenna Terminal Spurious Emissions, Band edge, LTE Block C\_UL-MAIN



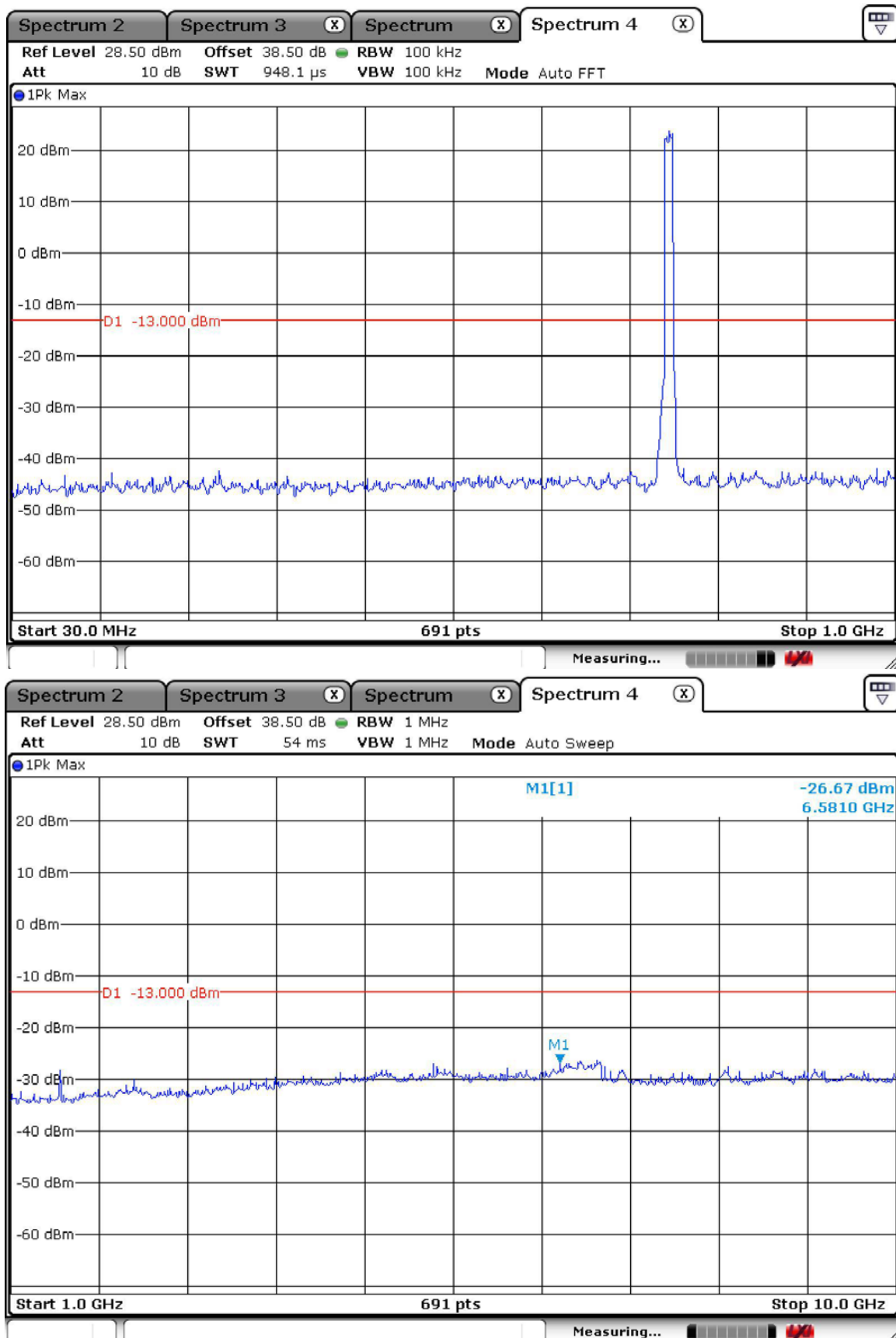
## Antenna Terminal Spurious Emissions, Band edge, LTE Block C\_UL-MIMO



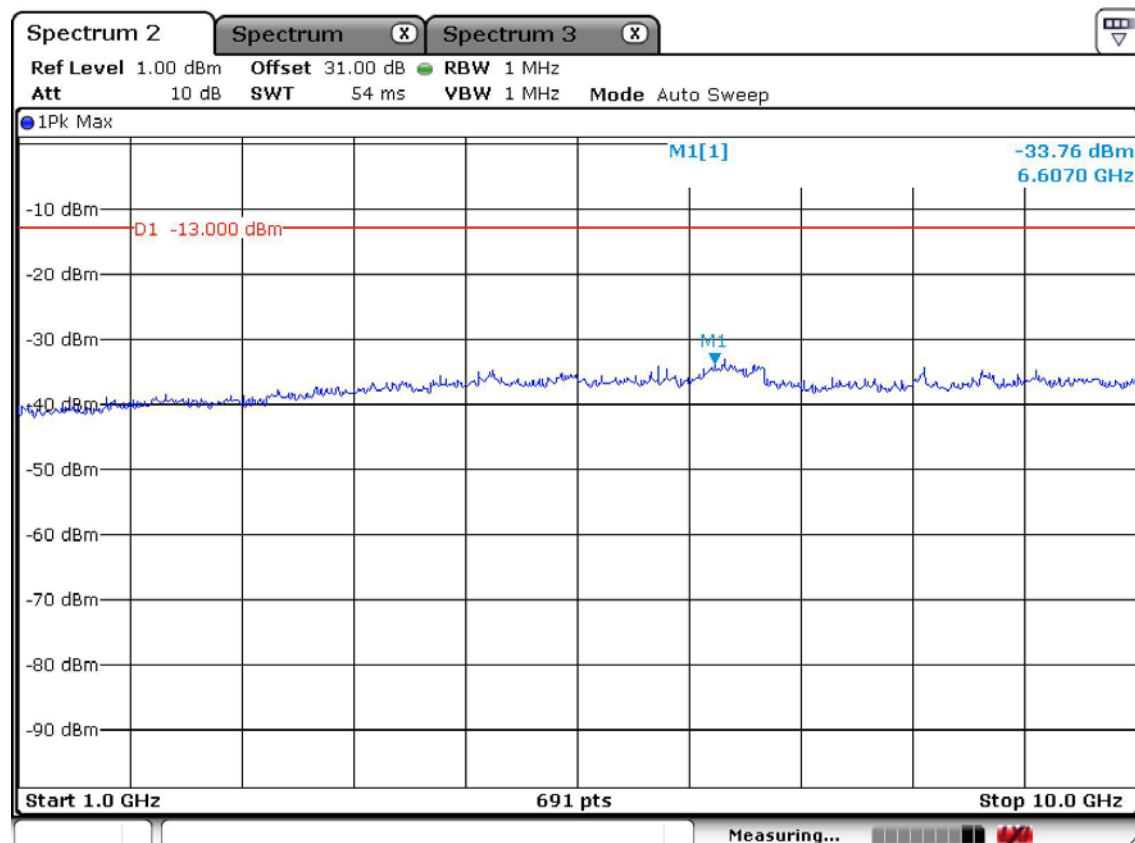
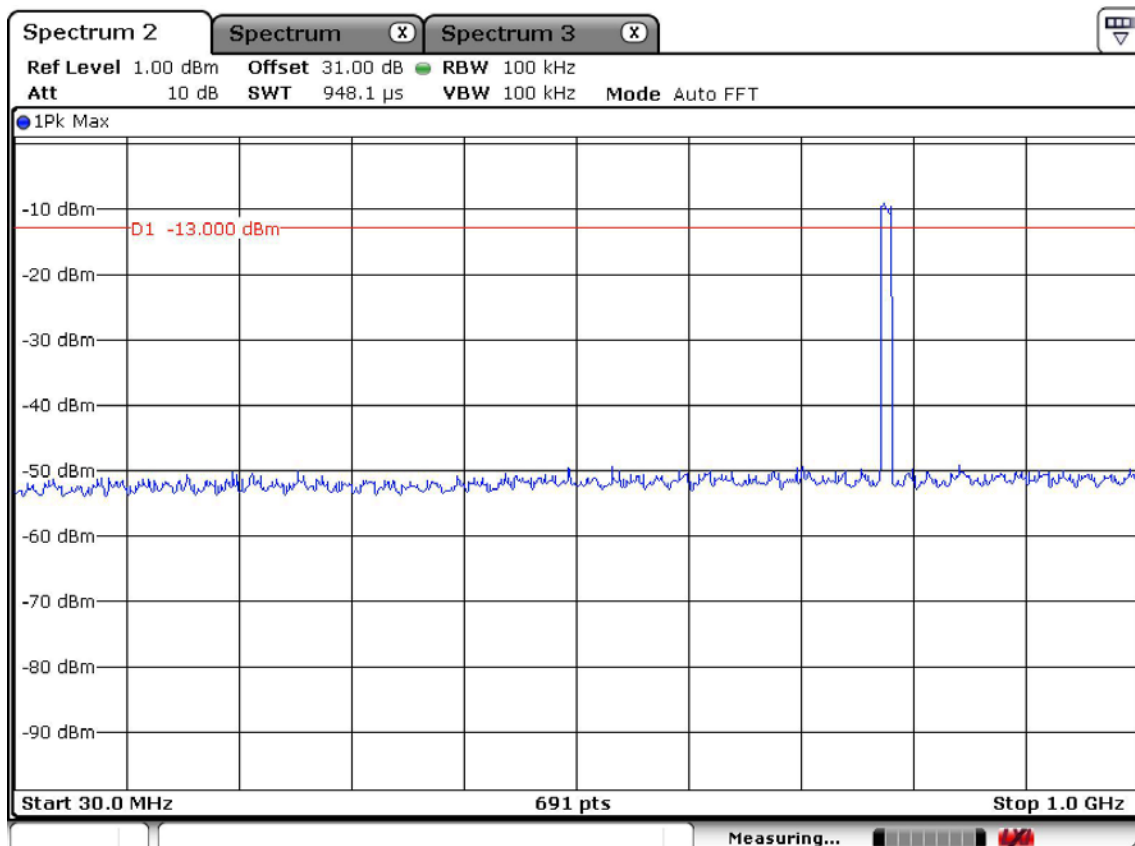
## Antenna Terminal Spurious Emissions, Spurious, LTE Block C\_DL-MAIN



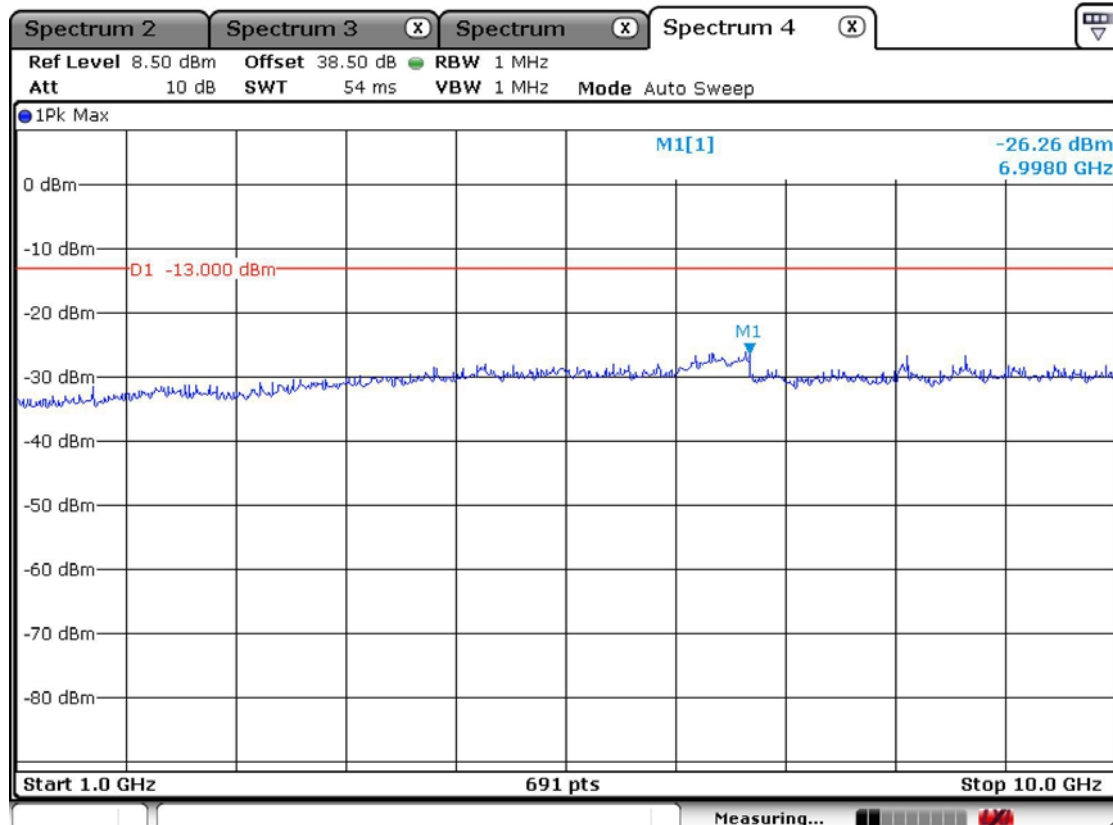
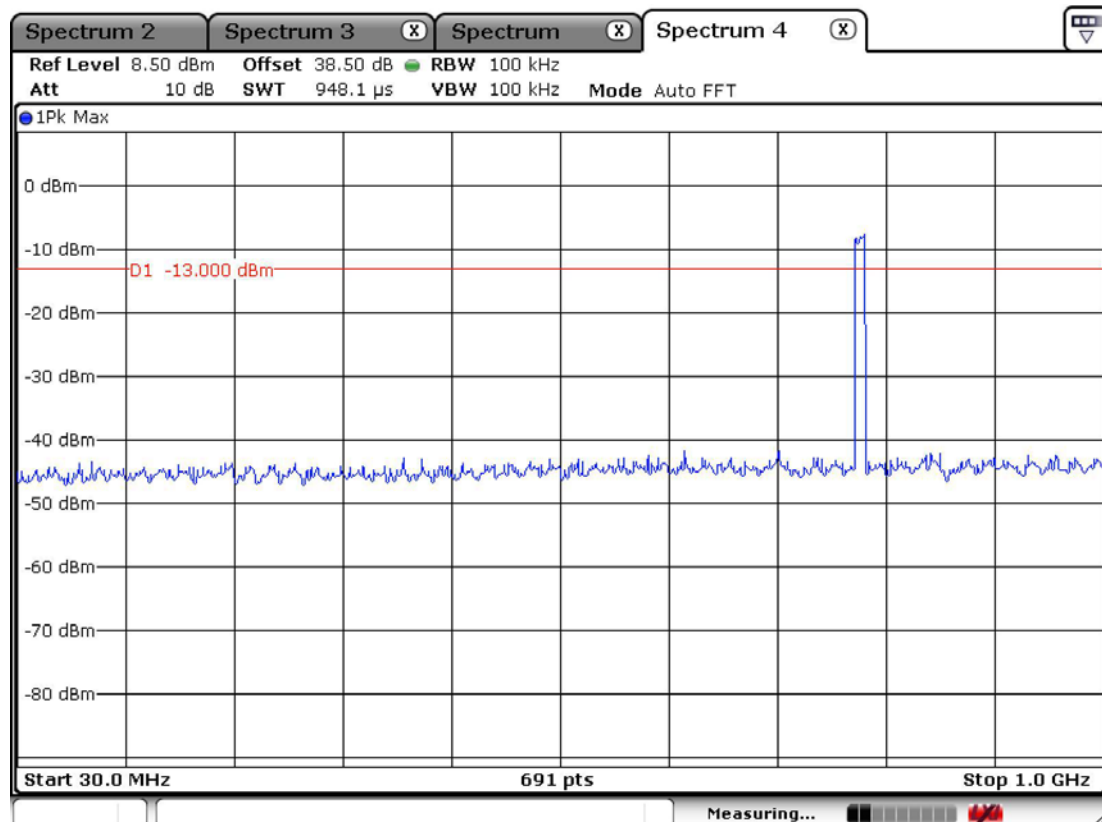
## Antenna Terminal Spurious Emissions, Spurious, LTE Block C\_DL-MIMO



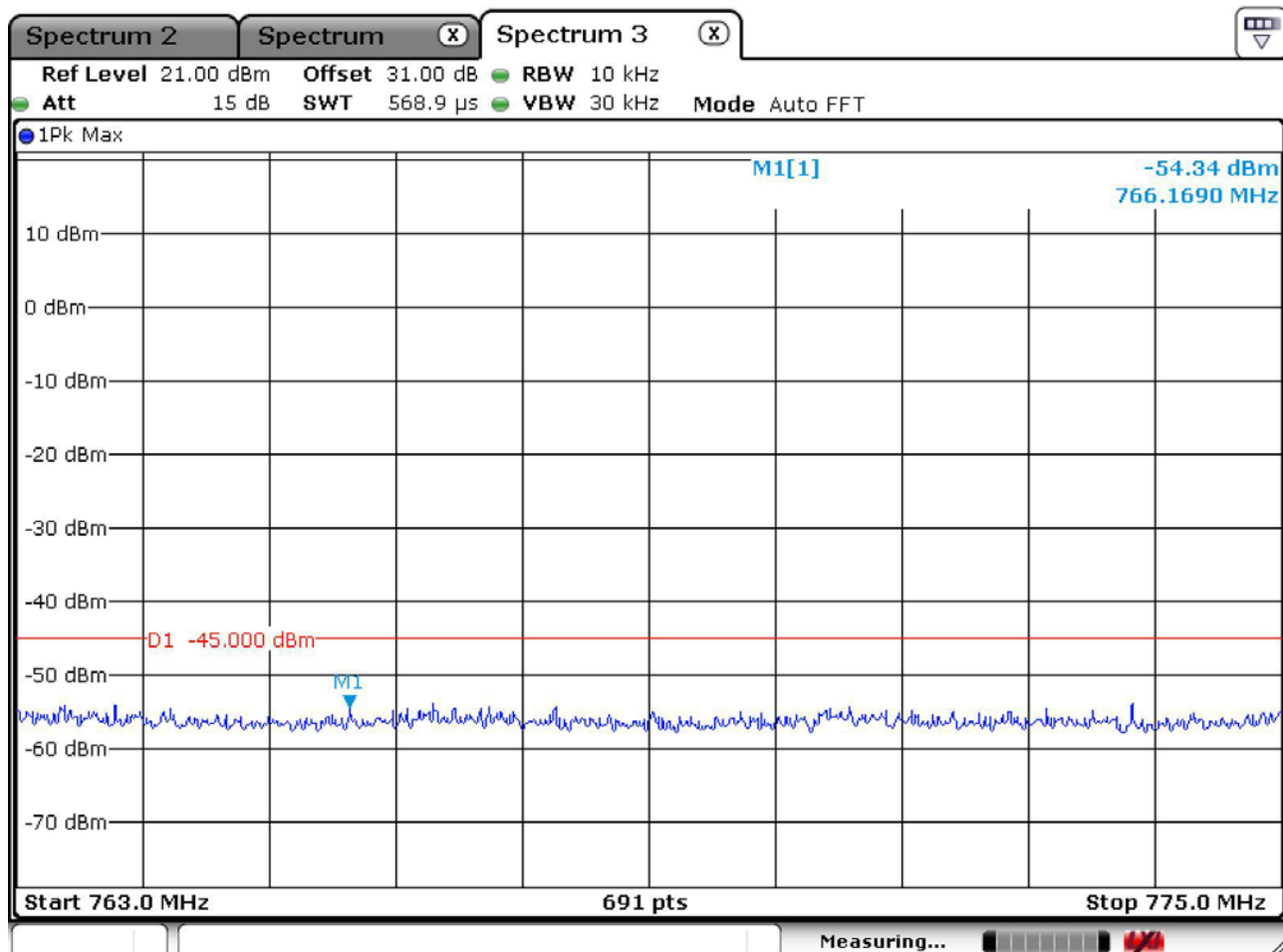
## Antenna Terminal Spurious Emissions, Spurious, LTE Block C\_UL-MAIN



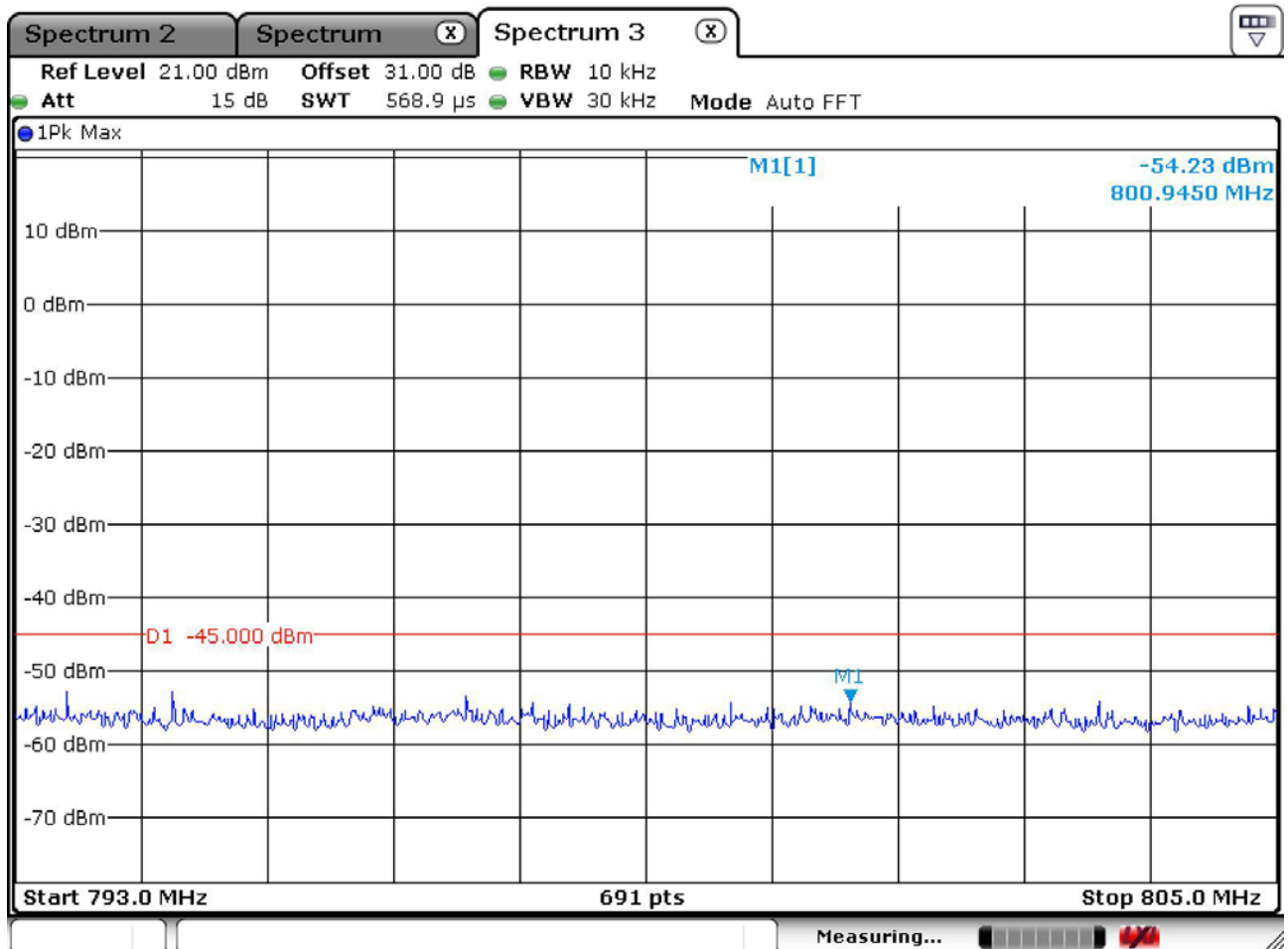
## Antenna Terminal Spurious Emissions, Spurious, LTE Block C\_UL-MIMO



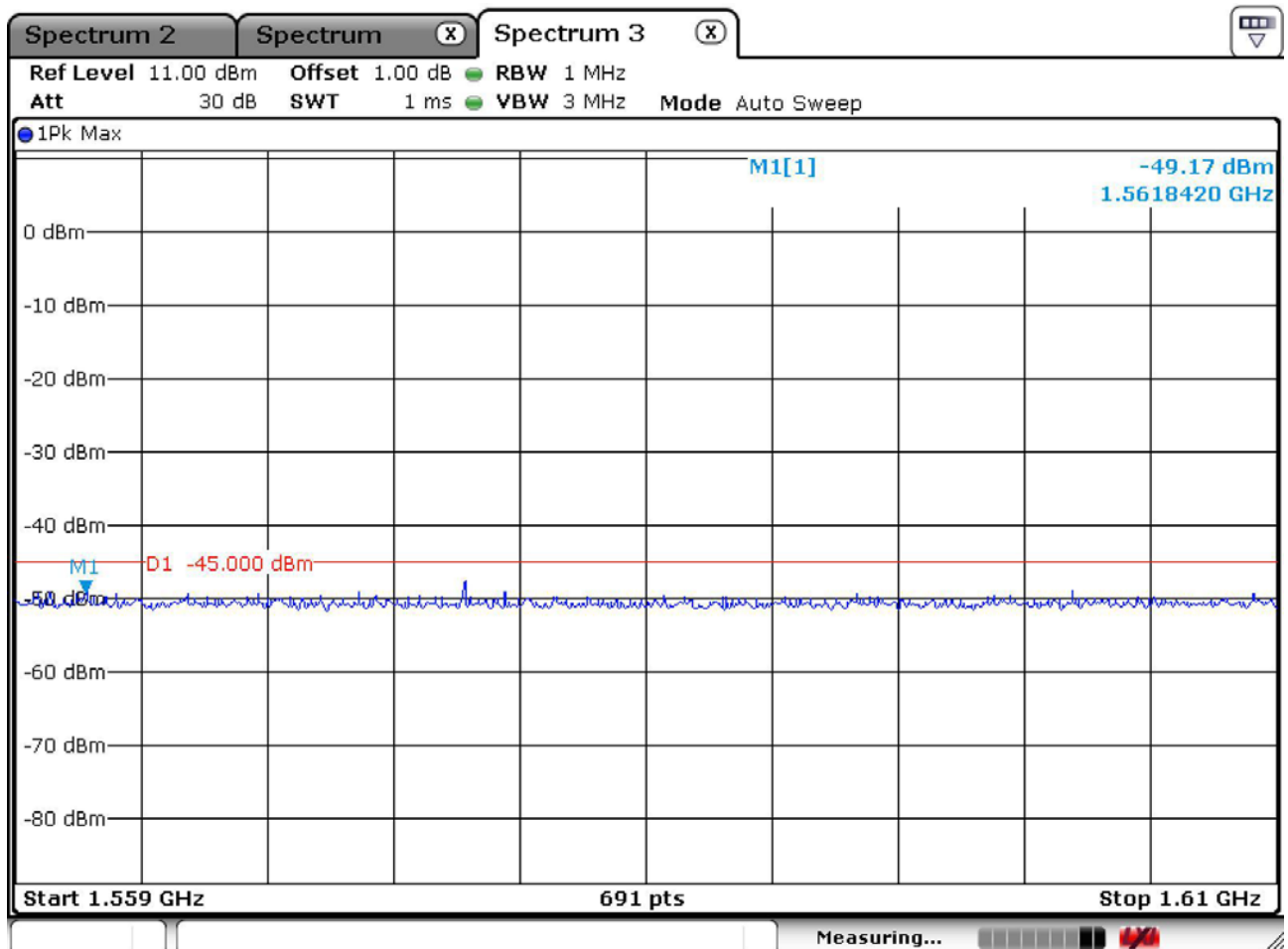
## Antenna Terminal Spurious Emissions, 763-775MHz (MAIN)



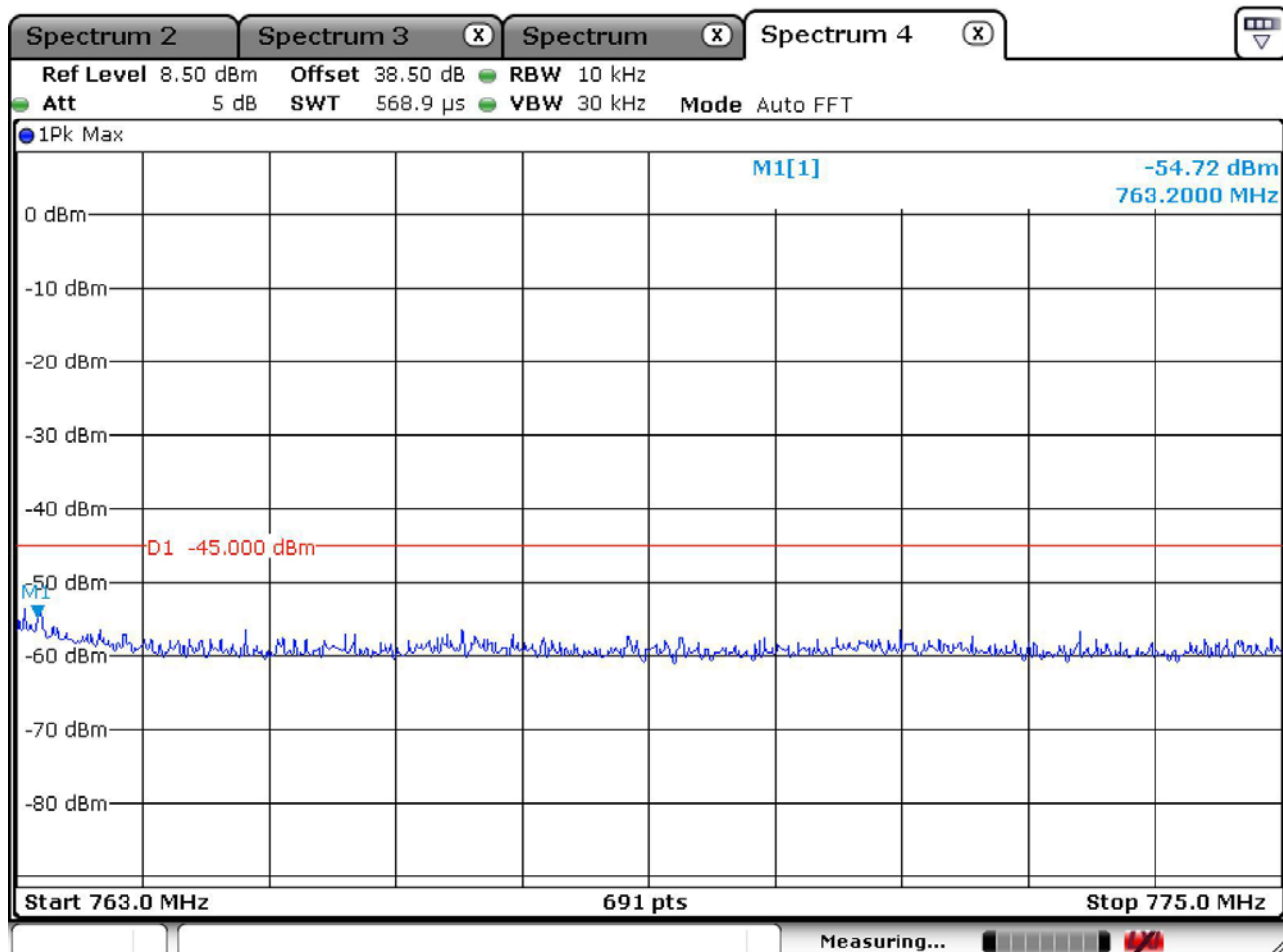
## Antenna Terminal Spurious Emissions, 793-805MHz (MAIN)



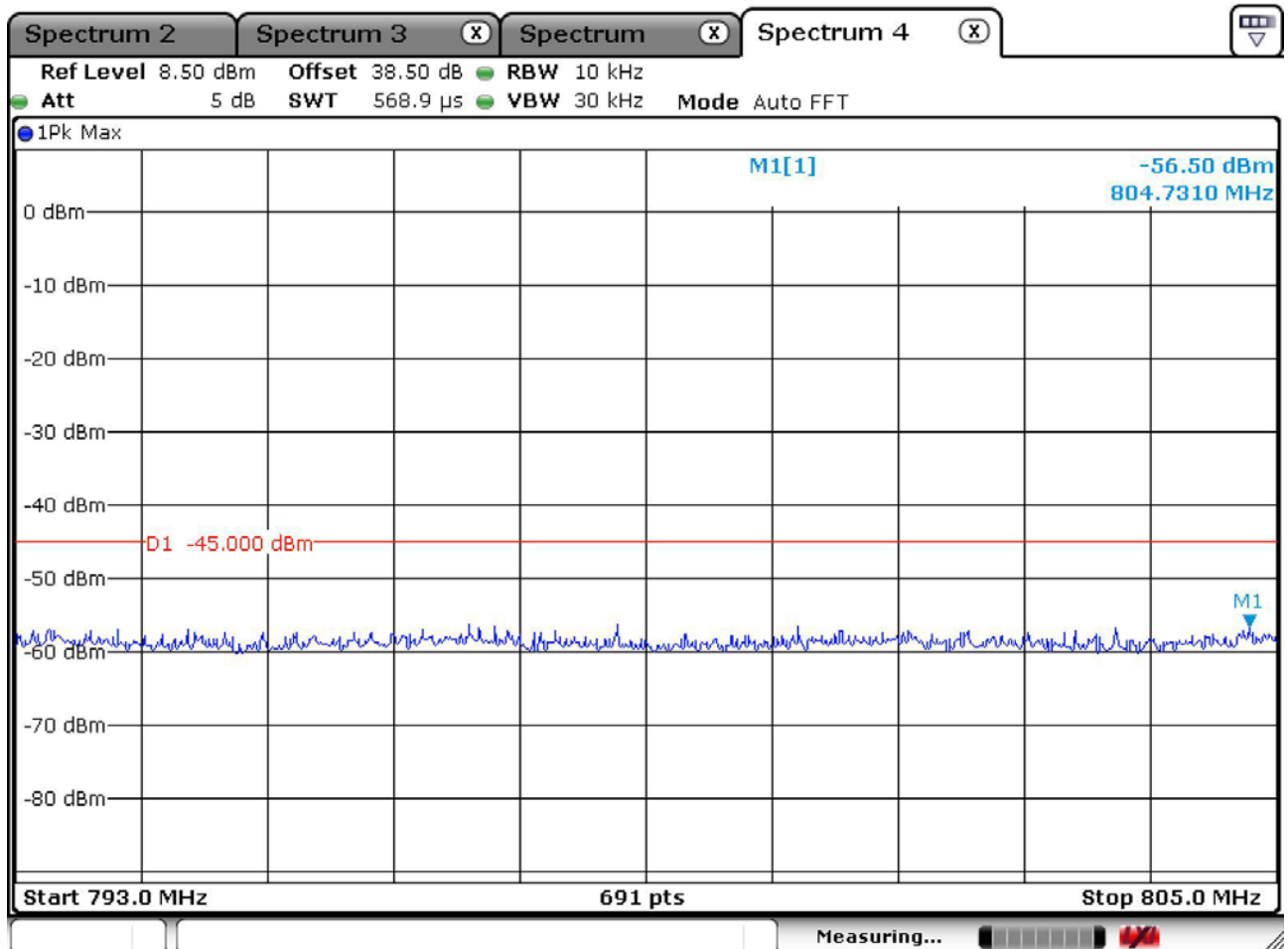
**Antenna Terminal Spurious Emissions, additional requirement 27.53(f)**  
**1559-1610MHz (MAIN)**



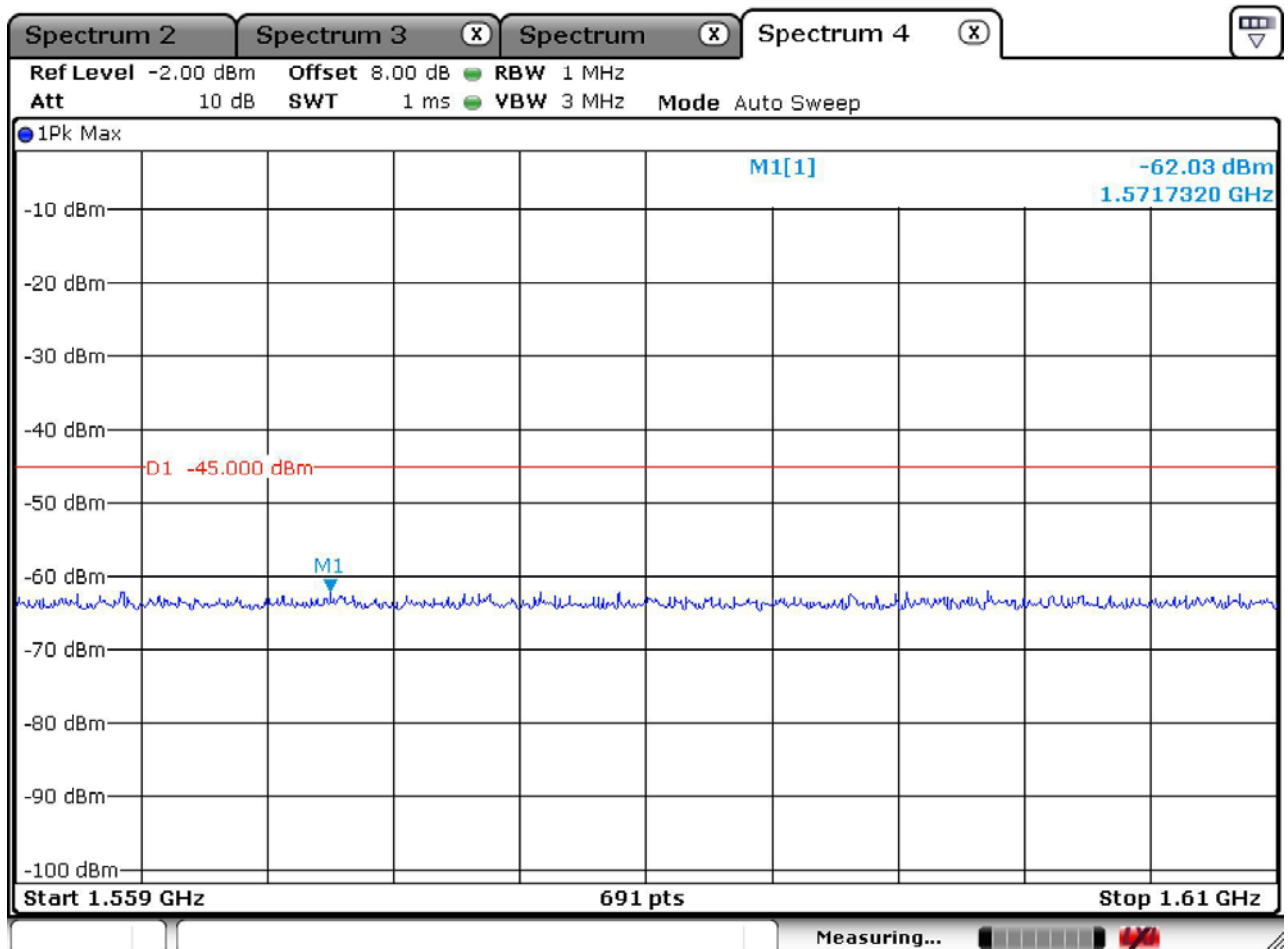
## Antenna Terminal Spurious Emissions, 763-775MHz (MIMO)



## Antenna Terminal Spurious Emissions, 793-805MHz (MIMO)



**Antenna Terminal Spurious Emissions, additional requirement 27.53(f)**  
**1559-1610MHz (MIMO)**



### 3.2.5 Field Strength of Spurious Emissions 27.53 (c)

#### 4. Requirement

For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside of the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside of the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (2) On any frequency outside of the 776-787 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;

#### 5. Test Procedure

Test measurements were made in accordance with ANSI C63.4-2003, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

#### 6. Test Results : Complies

Refer to the following Graphs.

Note: The Plots are worst case in LTE Block C (MIMO)

**Radiated Emission, < 1GHz**

243 Jibug-ni, yangji-Myeon, Youngin-si,  
Gyeonggi-do 449-822 Korea  
Tel :+82-31-3236008,9  
Fax:+82-31-3236010

EUT/Model No.: LMR250R01C

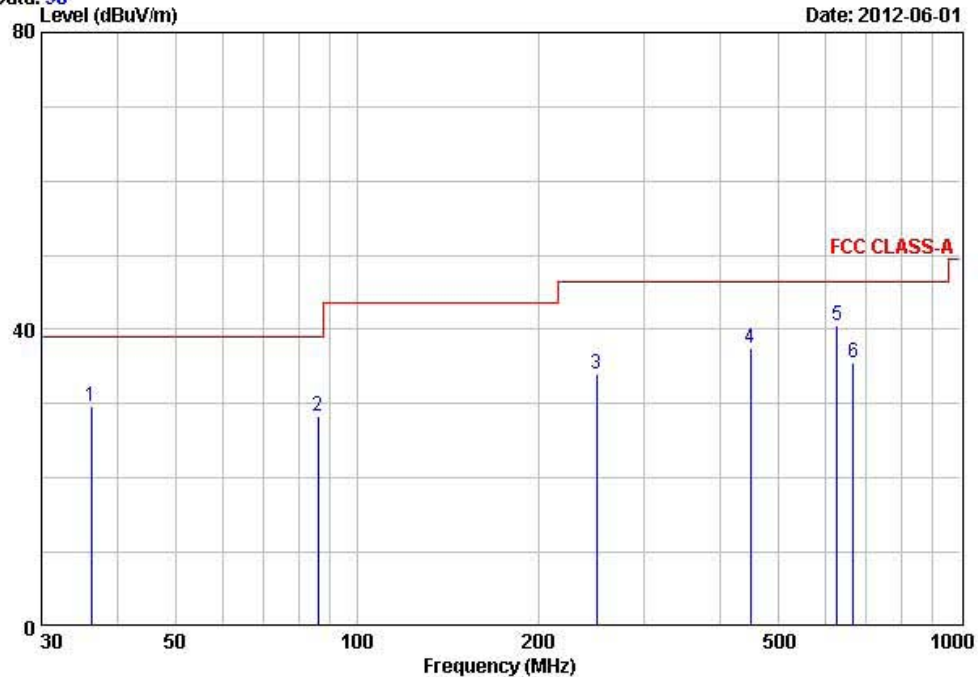
TEST MODE: LTE Downlink mode

Temp Humi : 24 / 47

Tested by: PARK H W

Data: 98

Date: 2012-06-01



|   | Freq   | Reading | C.F    | Result | Limit | Margin | Height | Angle | Polarity   |
|---|--------|---------|--------|--------|-------|--------|--------|-------|------------|
|   | MHz    | dBuV/m  | dB/m   | dBuV/m | QP    | dB     | cm     | deg   |            |
| 1 | 36.30  | 46.20   | -16.61 | 29.59  | 39.00 | 9.41   | 100    | 123   | VERTICAL   |
| 2 | 86.33  | 47.90   | -19.58 | 28.32  | 39.00 | 10.68  | 400    | 189   | HORIZONTAL |
| 3 | 250.02 | 46.80   | -12.74 | 34.06  | 46.40 | 12.34  | 381    | 345   | HORIZONTAL |
| 4 | 450.03 | 44.90   | -7.47  | 37.43  | 46.40 | 8.97   | 214    | 116   | HORIZONTAL |
| 5 | 625.01 | 43.20   | -2.63  | 40.57  | 46.40 | 5.83   | 142    | 333   | VERTICAL   |
| 6 | 665.33 | 37.20   | -1.58  | 35.62  | 46.40 | 10.78  | 146    | 298   | VERTICAL   |

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain



243 Jibug-ni, yangji-Myeon, Youngin-si,  
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Tel. +82-31-3236008,9  
Fax: +82-31-3236010

EUT/Model No.: LMR250R01C

TEST MODE: LTE Uplink mode

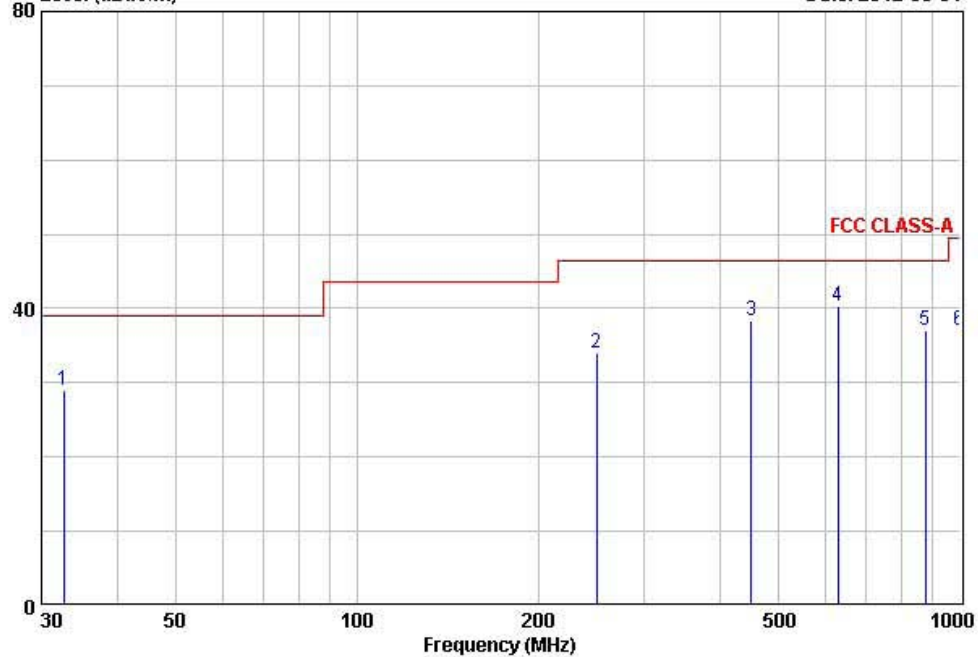
Temp Humi : 24 / 47

Tested by: PARK H W

Data: 97

Level (dBuV/m)

Date: 2012-06-01



|   | Freq    | Reading | C.F    | Result | Limit  | Margin | Height | Angle | Polarity   |
|---|---------|---------|--------|--------|--------|--------|--------|-------|------------|
|   | MHz     | dBuV/m  | dB/m   | dBuV/m | dBuV/m | dB     | cm     | deg   |            |
| 1 | 32.64   | 45.80   | -16.80 | 29.00  | 39.00  | 10.00  | 100    | 43    | VERTICAL   |
| 2 | 250.03  | 46.70   | -12.74 | 33.96  | 46.40  | 12.44  | 376    | 350   | HORIZONTAL |
| 3 | 451.24  | 45.70   | -7.44  | 38.26  | 46.40  | 8.14   | 100    | 233   | VERTICAL   |
| 4 | 627.26  | 42.90   | -2.57  | 40.33  | 46.40  | 6.07   | 138    | 296   | VERTICAL   |
| 5 | 875.64  | 34.50   | 2.54   | 37.04  | 46.40  | 9.36   | 142    | 135   | HORIZONTAL |
| 6 | 1000.00 | 30.90   | 6.17   | 37.07  | 49.50  | 12.43  | 103    | 247   | VERTICAL   |

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

**Radiated Emission, > 1GHz**

**There were no emissions detected above the noise floor, which was at least 20 dB below the specification limit**

| Frequency<br>[MHz]                                                        | Reading<br>[dBuV / m] | Pol. | Correction Factor |       | EIRP<br>[dBm]    |        | Limit<br>[dBm] | Margin<br>[dB] |
|---------------------------------------------------------------------------|-----------------------|------|-------------------|-------|------------------|--------|----------------|----------------|
|                                                                           |                       |      | Antenna           | Cable | S / G<br>Reading | Result |                |                |
|                                                                           |                       |      |                   |       |                  |        |                |                |
| No other emissions were detected at a level greater than 20dB below limit |                       |      |                   |       |                  |        |                |                |
|                                                                           |                       |      |                   |       |                  |        |                |                |

### 3.2.6 Frequency Stability

#### 1. Requirement

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

#### 2. Test Procedure

The EUT was placed inside the temperature chamber. The RF output port was connected to a spectrum analyzer. The EUT was setup to transmit the maximum power. After the temperature stabilized for approximately 20 minutes, the transmitting frequency was measured by the spectrum analyzer and recorded. At room temperature, the frequency was measured when the EUT was powered with the nominal voltage and with 85% and 115% of the nominal voltage.

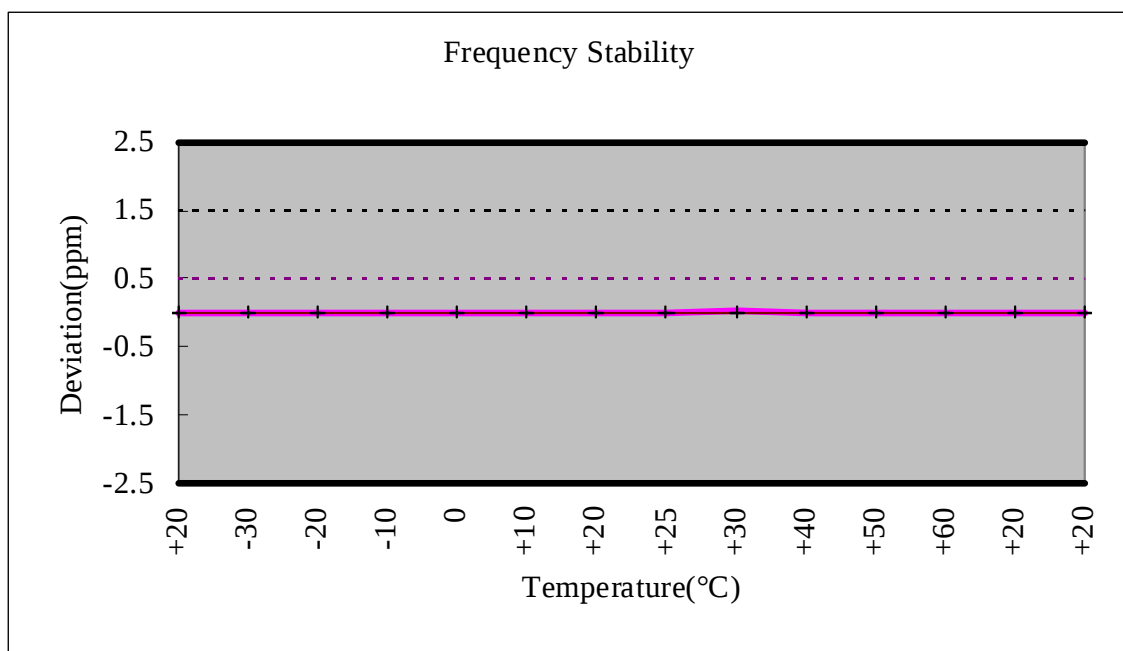
#### 3. Test Results : Complies

-refer to the next page

**LTE Block C mode DL-MAIN**

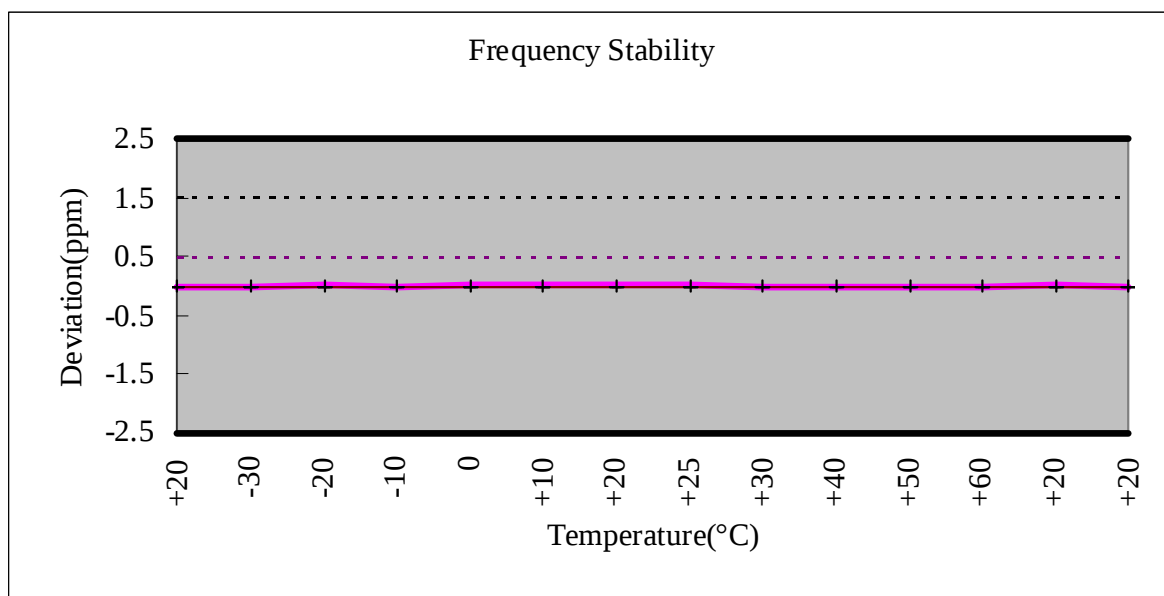
OPERATING FREQUENCY : 751,000,000 Hz  
 REFERENCE VOLTAGE : 120 VAC  
 DEVIATION LIMIT : ± 0.00010 % or 1 ppm

| VOLTAGE<br>(%) | POWER<br>(VAC) | TEMP<br>(°C) | FREQ<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|--------------|--------------|------------------|
| 100%           | 120            | +20(Ref)     | 751,000,000  | 0.000000         |
| 100%           |                | -30          | 751,000,006  | 0.000001         |
| 100%           |                | -20          | 751,000,004  | 0.000001         |
| 100%           |                | -10          | 751,000,002  | 0.000000         |
| 100%           |                | 0            | 751,000,003  | 0.000000         |
| 100%           |                | +10          | 751,000,002  | 0.000000         |
| 100%           |                | +20          | 751,000,003  | 0.000000         |
| 100%           |                | +25          | 751,000,005  | 0.000001         |
| 100%           |                | +30          | 751,000,008  | 0.000001         |
| 100%           |                | +40          | 751,000,007  | 0.000001         |
| 100%           |                | +50          | 751,000,005  | 0.000001         |
| 100%           |                | +60          | 751,000,006  | 0.000001         |
| 85%            | 102            | +20          | 751,000,005  | 0.000001         |
| 115%           | 138            | +20          | 751,000,002  | 0.000000         |



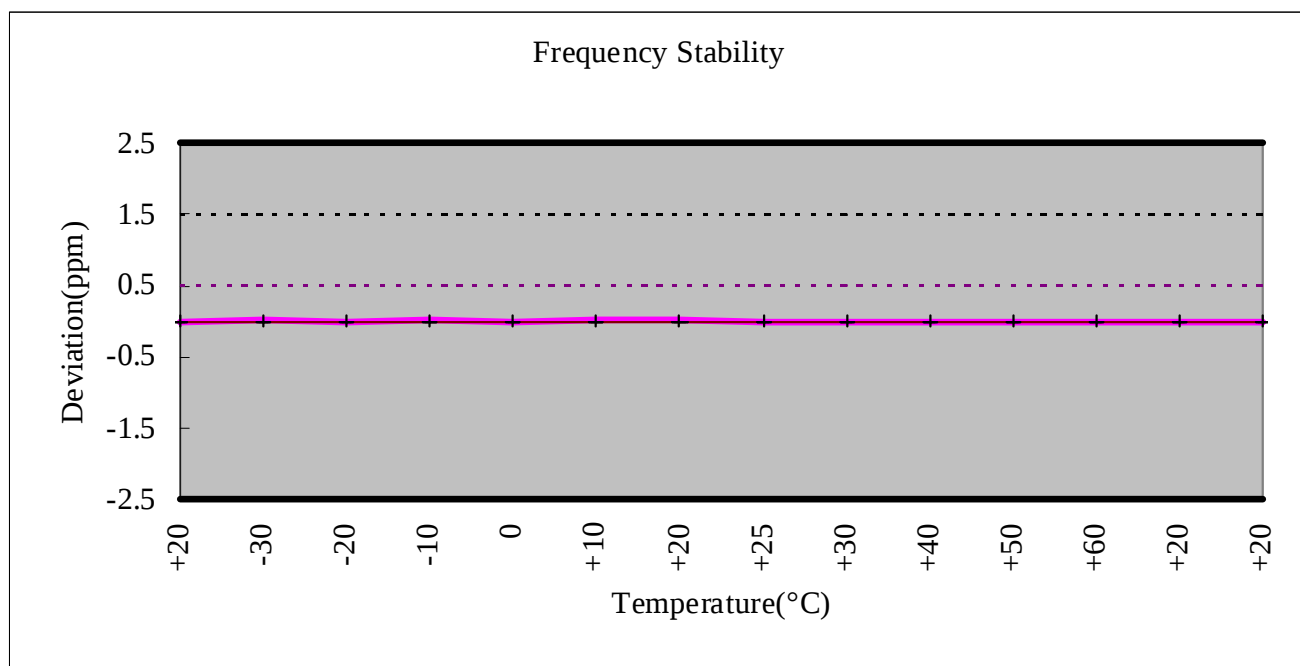
**LTE Block C mode DL-MIMO**OPERATING FREQUENCY : 751,000,000 HzREFERENCE VOLTAGE : 120 VACDEVIATION LIMIT : ± 0.00010 % or 1 ppm

| VOLTAGE<br>(%) | POWER<br>(VAC) | TEMP<br>(°C) | FREQ<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|--------------|--------------|------------------|
| 100%           | 120            | +20(Ref)     | 751,000,000  | 0.000000         |
| 100%           |                | -30          | 751,000,002  | 0.000008         |
| 100%           |                | -20          | 751,000,005  | 0.000005         |
| 100%           |                | -10          | 751,000,002  | 0.000004         |
| 100%           |                | 0            | 751,000,006  | 0.000003         |
| 100%           |                | +10          | 751,000,008  | 0.000001         |
| 100%           |                | +20          | 751,000,009  | 0.000000         |
| 100%           |                | +25          | 751,000,004  | -0.000002        |
| 100%           |                | +30          | 751,000,001  | -0.000005        |
| 100%           |                | +40          | 751,000,002  | -0.000006        |
| 100%           |                | +50          | 751,000,002  | -0.000006        |
| 100%           |                | +60          | 751,000,001  | -0.000008        |
| 85%            | 102            | +20          | 751,000,003  | -0.000001        |
| 115%           | 138            | +20          | 751,000,001  | -0.000001        |



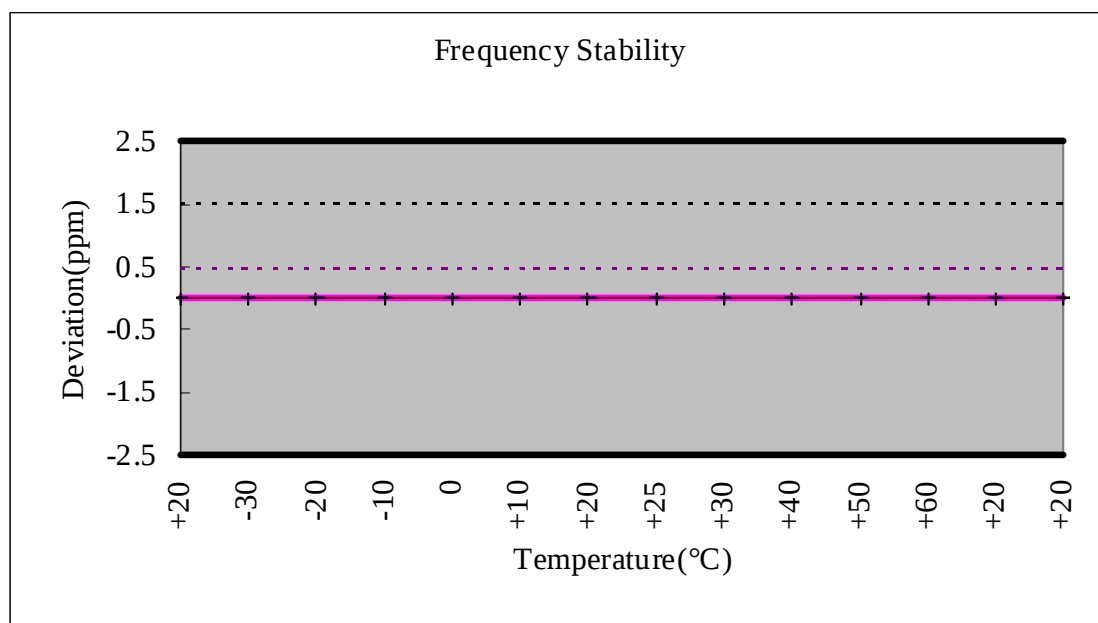
**LTE Block C mode UL-MAIN**OPERATING FREQUENCY : 782,000,000 HzREFERENCE VOLTAGE : 120 VACDEVIATION LIMIT : ± 0.00010 % or 1 ppm

| VOLTAGE<br>(%) | POWER<br>(VAC) | TEMP<br>(°C) | FREQ<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|--------------|--------------|------------------|
| 100%           | 120            | +20(Ref)     | 782,000,000  | 0.000000         |
| 100%           |                | -30          | 782,000,006  | 0.000001         |
| 100%           |                | -20          | 782,000,004  | 0.000001         |
| 100%           |                | -10          | 782,000,006  | 0.000001         |
| 100%           |                | 0            | 782,000,002  | 0.000000         |
| 100%           |                | +10          | 782,000,007  | 0.000001         |
| 100%           |                | +20          | 782,000,005  | 0.000001         |
| 100%           |                | +25          | 782,000,002  | 0.000000         |
| 100%           |                | +30          | 782,000,004  | 0.000001         |
| 100%           |                | +40          | 782,000,003  | 0.000000         |
| 100%           |                | +50          | 782,000,003  | 0.000000         |
| 100%           |                | +60          | 782,000,001  | 0.000000         |
| 85%            | 102            | +20          | 782,000,003  | 0.000000         |
| 115%           | 138            | +20          | 782,000,002  | 0.000000         |



**LTE Block C mode UL-MIMO**OPERATING FREQUENCY : 782,000,000 HzREFERENCE VOLTAGE : 120 VACDEVIATION LIMIT : ± 0.00010 % or 1 ppm

| VOLTAGE<br>(%) | POWER<br>(VAC) | TEMP<br>(°C)) | FREQ<br>(Hz) | Deviation<br>(%) |
|----------------|----------------|---------------|--------------|------------------|
| 100%           | 120            | +20(Ref)      | 782,000,000  | 0.000000         |
| 100%           |                | -30           | 782,000,006  | 0.000008         |
| 100%           |                | -20           | 782,000,002  | 0.000005         |
| 100%           |                | -10           | 782,000,005  | 0.000004         |
| 100%           |                | 0             | 782,000,003  | 0.000003         |
| 100%           |                | +10           | 782,000,001  | 0.000001         |
| 100%           |                | +20           | 782,000,004  | 0.000000         |
| 100%           |                | +25           | 782,000,004  | -0.000002        |
| 100%           |                | +30           | 782,000,005  | -0.000005        |
| 100%           |                | +40           | 782,000,002  | -0.000006        |
| 100%           |                | +50           | 782,000,001  | -0.000006        |
| 100%           |                | +60           | 782,000,003  | -0.000008        |
| 85%            | 102            | +20           | 782,000,005  | -0.000001        |
| 115%           | 138            | +20           | 782,000,003  | -0.000001        |



### **3.3 CONCLUSION**

The data collected shows that the **Kisan Telecom Co., Ltd. Optical DAS Repeater (LTE)**  
**FCC ID: T7MLMR250R01C** complies with all the requirements of Parts 27 of the FCC Rules.

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APPENDIX

**TEST EQUIPMENT USED FOR TESTS**

|    | Description                          | Model No.        | Serial No.  | Manufacturer           | Interval | Last Cal. Date |
|----|--------------------------------------|------------------|-------------|------------------------|----------|----------------|
| 1  | Spectrum Analyzer (~30GHz)           | FSV-30           | 100757      | R&S                    | 1 year   | 2012-01-10     |
| 2  | Signal Generator (~3.2GHz)           | 8648C            | 3623A02597  | HP                     | 1 year   | 2012-03-26     |
| 3  | Signal Generator (1~20GHz)           | 83711B           | US34490456  | HP                     | 1 year   | 2012-03-26     |
| 4  | Attenuator (3dB)                     | 8491A            | 37822       | HP                     | 2 year   | 2010-10-08     |
| 5  | Attenuator (10dB)                    | 8491A            | 63196       | HP                     | 2 year   | 2010-10-08     |
| 6  | Attenuator (30dB)                    | 8498A            | 3318A10929  | HP                     | 2 year   | 2011-01-05     |
| 7  | Test Receiver (~30MHz)               | ESHS10           | 828404/009  | R&S                    | 1 year   | 2012-03-26     |
| 8  | EMI Test Receiver (~1GHz)            | ESCI7            | 100722      | R&S                    | 1 year   | 2011-10-07     |
| 9  | RF Amplifier (~1.3GHz)               | 8447D            | 2439A09058  | HP                     | 2 year   | 2010-10-08     |
| 10 | RF Amplifier (1~18GHz)               | 8449B            | 3008A02126  | HP                     | 2 year   | 2012-03-26     |
| 11 | Horn Antenna (1~18GHz)               | BBHA 9120D       | 9120D122    | SCHWARZBECK            | 2 year   | 2010-12-24     |
| 12 | Horn Antenna (18 ~ 40GHz)            | SAS-574          | 154         | Schwarzbeck            | 2 year   | 2010-11-25     |
| 13 | Horn Antenna (18 ~ 40GHz)            | SAS-574          | 155         | Schwarzbeck            | 2 year   | 2010-11-25     |
| 14 | TRILOG Antenna                       | VULB 9160        | 9160-3172   | SCHWARZBECK            | 2 year   | 2010-10-07     |
| 15 | Dipole Antenna                       | VHA9103          | 2116        | SCHWARZBECK            | 2 year   | 2010-11-25     |
| 16 | Dipole Antenna                       | VHA9103          | 2117        | SCHWARZBECK            | 2 year   | 2010-11-25     |
| 17 | Dipole Antenna                       | VHA9105          | 2261        | SCHWARZBECK            | 2 year   | 2010-11-25     |
| 18 | Dipole Antenna                       | VHA9105          | 2262        | SCHWARZBECK            | 2 year   | 2010-11-25     |
| 19 | Hygro-Thermograph                    | THB-36           | 0041557-01  | ISUZU                  | 2 year   | 2013-04-26     |
| 20 | Splitter (SMA)                       | ZFSC-2-2500      | SF617800326 | Mini-Circuits          | -        | -              |
| 21 | Power Divider                        | 11636A           | 6243        | HP                     | 2 year   | 2010-10-08     |
| 22 | DC Power Supply                      | 6622A            | 3448A03079  | HP                     | -        | -              |
| 23 | Frequency Counter                    | 5342A            | 2826A12411  | HP                     | 1 year   | 2012-03-26     |
| 24 | Power Meter                          | EPM-441A         | GB32481702  | HP                     | 1 year   | 2012-03-26     |
| 25 | Power Sensor                         | 8481A            | US41030291  | HP                     | 1 year   | 2011-10-07     |
| 26 | Audio Analyzer                       | 8903B            | 3729A18901  | HP                     | 1 year   | 2011-10-07     |
| 27 | Modulation Analyzer                  | 8901B            | 3749A05878  | HP                     | 1 year   | 2011-10-07     |
| 28 | TEMP & HUMIDITY Chamber              | YJ-500           | LTAS06041   | JinYoung Tech          | 1 year   | 2011-10-07     |
| 29 | Stop Watch                           | HS-3             | 601Q09R     | CASIO                  | 2 year   | 2012-03-26     |
| 30 | LISN                                 | ENV216           | 100408      | R&S                    | 1 year   | 2011-10-07     |
| 31 | UNIVERSAL RADIO COMMUNICATION TESTER | CMU200           | 106243      | R&S                    | 2 year   | 2012-05-11     |
| 32 | Highpass Filter                      | WHKX1.5/15G-10SS | 74          | Wainwright Instruments | -        | -              |
| 33 | Highpass Filter                      | WHKX3.0/18G-10SS | 118         | Wainwright Instruments | -        | -              |
| 34 | Loop Antenna                         | FMZB 1516        | 151602/94   | SCHWARZBECK            | 2 year   | 2011-04-05     |