



**Neutron Engineering Inc.**

# FCC Radio Test Report

**FCC ID: I38WL580E**

This report concerns (check one): ☒ Original Grant ☐ Class II Change

**Issued Date** : Jan. 27, 2014  
**Project No.** : 1312C200  
**Equipment** : Wireless Repeater  
**Model Name** : WL580E  
**APPLICANT** : AZTECH TECHNOLOGIES PTE LTD.  
**Address** : 31, Ubi Road 1, #09-01, Singapore 408694

**Tested by:** Neutron Engineering Inc. EMC Laboratory

**Date of Receipt:** Dec. 23, 2013

**Date of Test:** Dec. 23, 2013 ~ Feb. 13, 2014

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**Declaration**

**Neutron** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (NML) of R.O.C., or National Institute of Standards and Technology (NIST) of U.S.A.

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**Limitation**

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.



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**REPORT ISSUED HISTORY**

| Issued No.          | Description     | Issued Date   |
|---------------------|-----------------|---------------|
| NEI-FCCP-1-1312C200 | Original Issue. | Feb. 14, 2014 |



## **1. CERTIFICATION**

Equipment : Wireless Repeater  
Brand Name : Aztech  
Model Name : WL580E  
Applicant : AZTECH TECHNOLOGIES PTE LTD.  
Manufacture : Aztech Technologies Pte Ltd  
Address : 31, Ubi Road 1, #09-01, Singapore 408694  
Factory : Aztech Communication Device (DG) LTD  
Address : JiuJiangshui, Chang Ping town, Dongguan, Guang Dong  
Date of Test : Dec. 23, 2013 ~ Feb. 13, 2014  
Test Item : ENGINEERING SAMPLE  
Standard(s) : FCC Part15, Subpart E(15.407) / ANSI C63.4 : 2009;  
FCC KDB 789033 D01 General UNII Test Procedures v01r03 .

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-2-1312C200) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).



## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| FCC Part15, Subpart E  |                                   |          |        |
|------------------------|-----------------------------------|----------|--------|
| Standard(s)<br>Section | Test Item                         | Judgment | Remark |
| FCC                    |                                   |          |        |
| 15.207                 | AC Power Line Conducted Emissions | PASS     |        |
| 15.407(a)              | 26dB Spectrum Bandwidth           | PASS     |        |
| 15.407(a)              | Maximum Conducted Output Power    | PASS     |        |
| 15.407(a)              | Power Spectral Density            | PASS     |        |
| 15.407(a)              | Peak Excursion                    | PASS     |        |
| 15.407(a)              | Radiated Emissions                | PASS     |        |
| 15.407(b)              | Band Edge Emissions               | PASS     |        |
| 15.407(g)              | Frequency Stability               | PASS     |        |
| 15.203                 | Antenna Requirements              | PASS     |        |

**NOTE:**

(1) "N/A" denotes test is not applicable in this test report.



## 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C02/DG-CB03** at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792  
Neutron's test firm number for FCC: 319330

## 2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately **95%** ◦

### A. Conducted Measurement :

| Test Site | Method | Measurement Frequency Range | U , (dB) | NOTE |
|-----------|--------|-----------------------------|----------|------|
| DG-C02    | CISPR  | 150 KHz ~ 30MHz             | 1.94     |      |

### B. Radiated Measurement :

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U , (dB) | NOTE |
|-----------|--------|-----------------------------|------------|----------|------|
| DG-CB03   | CISPR  | 9KHz~30MHz                  | V          | 3.79     |      |
|           |        | 9KHz~30MHz                  | H          | 3.57     |      |
|           |        | 30MHz ~ 200MHz              | V          | 3.82     |      |
|           |        | 30MHz ~ 200MHz              | H          | 3.60     |      |
|           |        | 200MHz ~ 1,000MHz           | V          | 3.86     |      |
|           |        | 200MHz ~ 1,000MHz           | H          | 3.94     |      |
|           |        | 1GHz~18GHz                  | V          | 3.12     |      |
|           |        | 1GHz~18GHz                  | H          | 3.68     |      |
|           |        | 18GHz~40GHz                 | V          | 4.15     |      |
|           |        | 18GHz~40GHz                 | H          | 4.14     |      |



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                        |                                   |                                                                |
|------------------------|-----------------------------------|----------------------------------------------------------------|
| Equipment              | Wireless Repeater                 |                                                                |
| Brand Name             | Aztech                            |                                                                |
| Model Name             | WL580E                            |                                                                |
| Mode Different         | N/A                               |                                                                |
| Product Description    | Operation Frequency               | Band 1:5150MHz~5250MHz                                         |
|                        | Modulation Type                   | OFDM                                                           |
|                        | Bit Rate of Transmitter           | 11a:6/ 9/12/18/24/36/48/54Mbps<br>11n:300Mbps                  |
|                        | Output Power (Max.)               | 802.11a:16.95dBm<br>802.11N20:16.91 dBm<br>802.11N40:16.97 dBm |
| Power Source           | AC Mains                          |                                                                |
| Power Rating           | 100VAC-240VAC 50-60Hz 0.12A       |                                                                |
| Connecting I/O Port(s) | Please refer to the User's Manual |                                                                |

**Note:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2. Channel List:

| 802.11a/n20 MHz |                 | 802.11n 40MHz |                 |
|-----------------|-----------------|---------------|-----------------|
| Band 1          |                 |               |                 |
| Channel         | Frequency (MHz) | Channel       | Frequency (MHz) |
| 36              | 5180            | 38            | 5190            |
| 40              | 5200            | 46            | 5230            |
| 44              | 5220            |               |                 |
| 48              | 5240            |               |                 |

3. Antenna Specification:

| Ant. | Manufacturer | Model Name | Antenna Type | Connector | Gain (dBi) | Note  |
|------|--------------|------------|--------------|-----------|------------|-------|
| 1    | N/A          | N/A        | Internal     | N/A       | 2          | TX/RX |
| 2    | N/A          | N/A        | Internal     | N/A       | 2          | TX/RX |

Note:

(1) The EUT incorporates a MIMO function. Physically, the EUT provides two completed two transmitters and two receivers (2T2R), all transmit signals are completely uncorrelated, then, **Direction gain =  $G_{ANT}$** , that is Directional gain=2.

4.

| Operating Mode<br>TX Mode | 1TX                | 2TX               |
|---------------------------|--------------------|-------------------|
|                           |                    |                   |
| 802.11a                   | V (ANT 1 or ANT 2) | -                 |
| 802.11n(20MHz)            | -                  | V (ANT 1 + ANT 2) |
| 802.11n(40MHz)            | -                  | V (ANT 1 + ANT 2) |



### 3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Test Mode | Description                            |
|-------------------|----------------------------------------|
| Mode 1            | TX A Mode / CH36, CH40, CH48(Band 1)   |
| Mode 2            | TX N20 Mode / CH36, CH40, CH48(Band 1) |
| Mode 3            | TX N40 Mode / CH38, CH46 (Band 1)      |
| Mode 4            | TX Mode                                |

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

| For Conducted Test |             |
|--------------------|-------------|
| Final Test Mode    | Description |
| Mode 4             | TX Mode     |

| For Radiated Test |                                        |
|-------------------|----------------------------------------|
| Final Test Mode   | Description                            |
| Mode 1            | TX A Mode / CH36, CH40, CH48(Band 1)   |
| Mode 2            | TX N20 Mode / CH36, CH40, CH48(Band 1) |
| Mode 3            | TX N40 Mode / CH38, CH46 (Band 1)      |

Note: For Radiated Below 1G test, the 802.11a mode is found to be the worst case and recorded.



### 3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

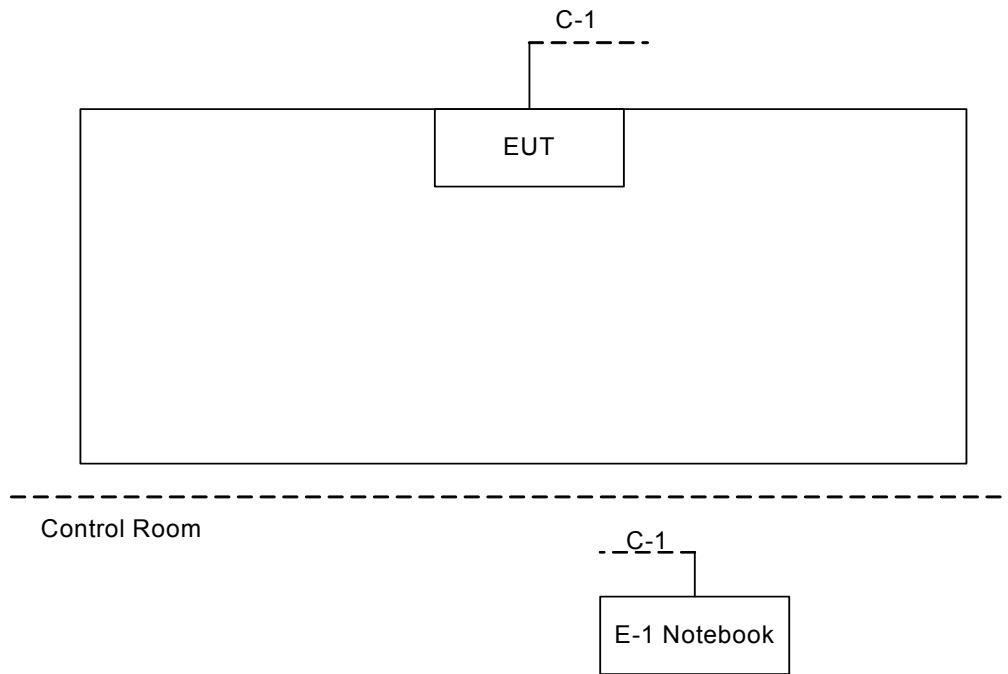
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product

| Test software version | QA       |         |          |
|-----------------------|----------|---------|----------|
| Frequency             | 5180 MHz | 5200MHz | 5240 MHz |
| A Mode                | 14       | 14      | 15       |
| N20 Mode              | 17       | 18      | 18       |
| Frequency             | 5190 MHz | 5230MHz |          |
| N40 Mode              | 16       | 17      |          |

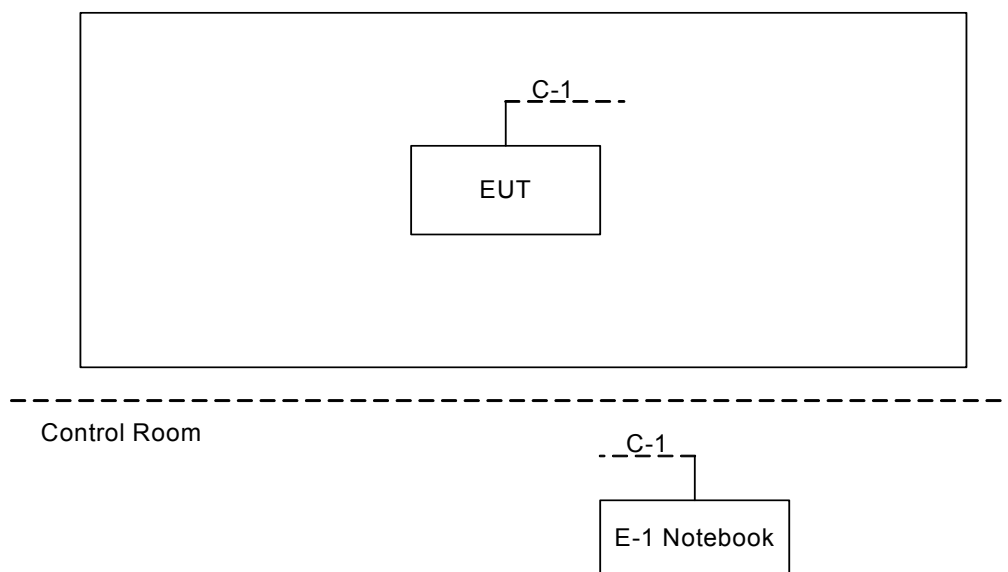


### 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

#### Conducted TX Mode:



#### Radiated TX Mode:





### 3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | FCC ID/IC | Series No. | Note |
|------|-----------|-----------|----------------|-----------|------------|------|
| E-1  | Notebook  | HP        | HP NB 331      | DOC       | N/A        |      |

| Item | Shielded Type | Ferrite Core | Length | Note       |
|------|---------------|--------------|--------|------------|
| C-1  | NO            | NO           | 10m    | RJ45 Cable |



#### **4. EMC EMISSION TEST**

##### **4.1 CONDUCTED EMISSION MEASUREMENT**

###### **4.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)**

| FREQUENCY (MHz) | Class A (dBuV) |         | Class B (dBuV) |           |
|-----------------|----------------|---------|----------------|-----------|
|                 | Quasi-peak     | Average | Quasi-peak     | Average   |
| 0.15 -0.5       | 79.00          | 66.00   | 66 - 56 *      | 56 - 46 * |
| 0.50 -5.0       | 73.00          | 60.00   | 56.00          | 46.00     |
| 5.0 -30.0       | 73.00          | 60.00   | 60.00          | 50.00     |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

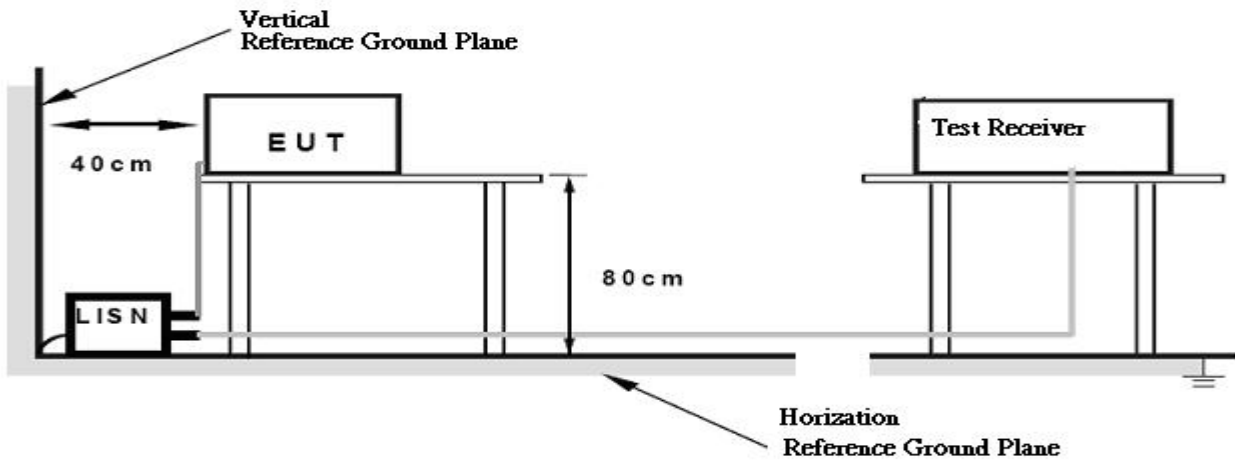
###### **4.1.2 TEST PROCEDURE**

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

###### **4.1.3 DEVIATION FROM TEST STANDARD**

No deviation

#### 4.1.4 TEST SETUP



#### 4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

#### 4.1.6 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: 120V/60Hz

#### 4.1.7 TEST RESULTS

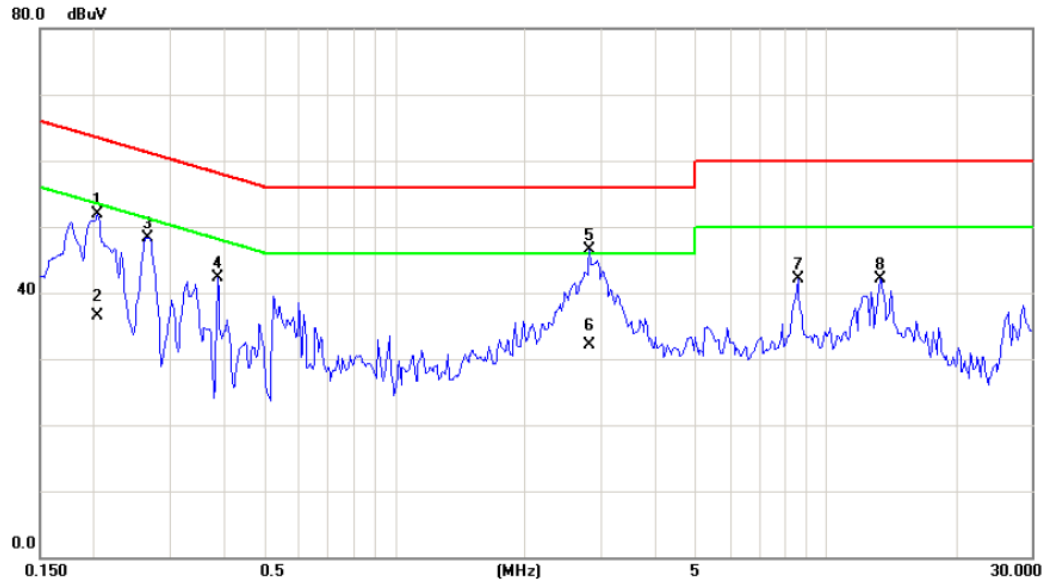
Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of 'Note'. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a "\*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.



Test Mode : TX Mode

**Line**

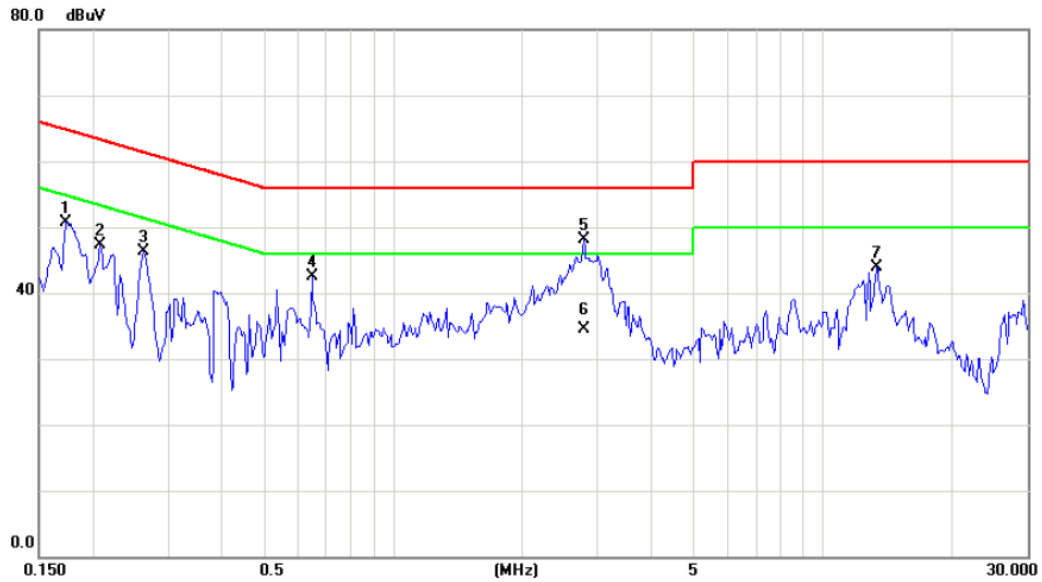


| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.2047       | 42.33                    | 9.65                    | 51.98                    | 63.42         | -11.44     | peak     |         |
| 2   |     | 0.2047       | 26.90                    | 9.65                    | 36.55                    | 53.42         | -16.87     | AVG      |         |
| 3   |     | 0.2672       | 38.68                    | 9.66                    | 48.34                    | 61.20         | -12.86     | peak     |         |
| 4   |     | 0.3883       | 32.58                    | 9.68                    | 42.26                    | 58.10         | -15.84     | peak     |         |
| 5   | *   | 2.8258       | 36.55                    | 9.86                    | 46.41                    | 56.00         | -9.59      | peak     |         |
| 6   |     | 2.8258       | 22.30                    | 9.86                    | 32.16                    | 46.00         | -13.84     | AVG      |         |
| 7   |     | 8.5938       | 31.99                    | 10.02                   | 42.01                    | 60.00         | -17.99     | peak     |         |
| 8   |     | 13.3594      | 31.86                    | 10.25                   | 42.11                    | 60.00         | -17.89     | peak     |         |



Test Mode : TX Mode

**Neutral**



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.1734       | 41.09                    | 9.70                    | 50.79                    | 64.80         | -14.01     | peak     |         |
| 2   |     | 0.2086       | 37.55                    | 9.71                    | 47.26                    | 63.26         | -16.00     | peak     |         |
| 3   |     | 0.2633       | 36.59                    | 9.72                    | 46.31                    | 61.33         | -15.02     | peak     |         |
| 4   |     | 0.6500       | 32.66                    | 9.75                    | 42.41                    | 56.00         | -13.59     | peak     |         |
| 5   | *   | 2.7828       | 38.21                    | 9.88                    | 48.09                    | 56.00         | -7.91      | peak     |         |
| 6   |     | 2.7828       | 24.60                    | 9.88                    | 34.48                    | 46.00         | -11.52     | AVG      |         |
| 7   |     | 13.3594      | 33.49                    | 10.43                   | 43.92                    | 60.00         | -16.08     | peak     |         |



## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies<br>(MHz) | Field Strength<br>(micorvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.490~1.705          | 24000/F(KHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

#### LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

| Frequencies<br>(MHz) | EIRP Limit (dBm) | Equivalent Field Strength<br>at 3m (dBμV/m) |
|----------------------|------------------|---------------------------------------------|
| 5150~5250            | -27              | 68.3                                        |
| 5250~5350            | -27              | 68.3                                        |
| 5470~5725            | -27              | 68.3                                        |
| 5725~5825            | -27              | 68.3                                        |
|                      | -17              | 78.3                                        |

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000 \sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

#### 4.2.2 TEST PROCEDURE

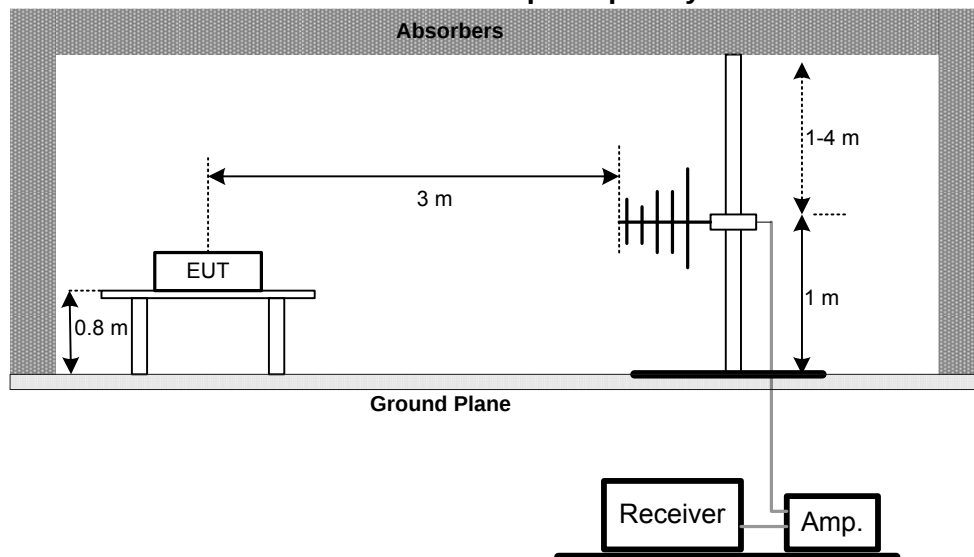
- The measuring distance of at 1.5m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 4.2.3 DEVIATION FROM TEST STANDARD

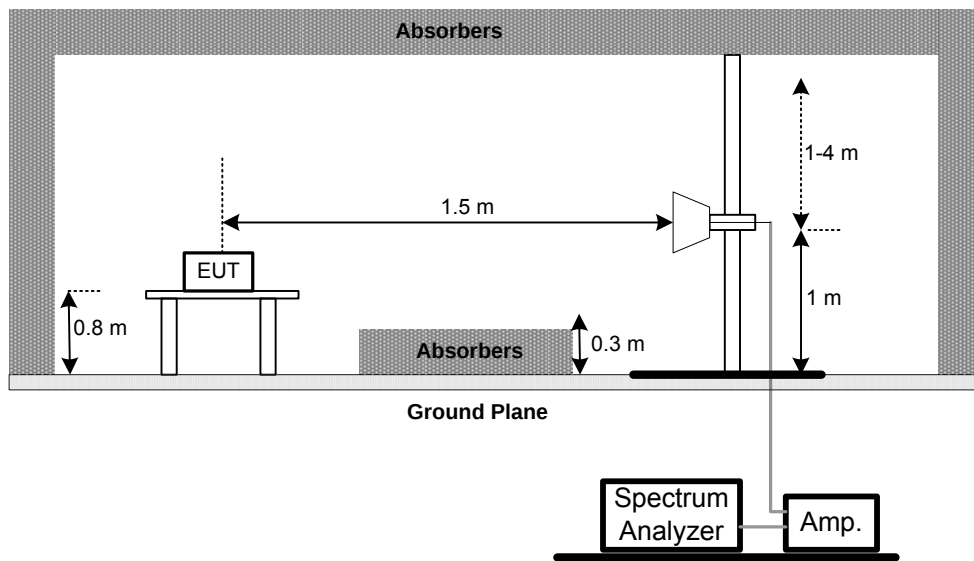
No deviation

#### 4.2.4 TEST SETUP

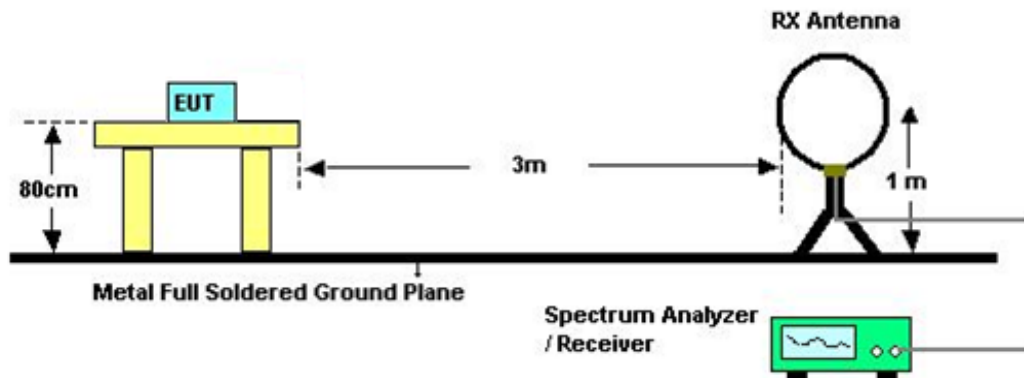
**Radiated Emission Test Set-Up Frequency 30 - 1000MHz**



### Radiated Emission Test Set-Up Frequency Above 1 GHz



### Radiated emissions below 30MHz



#### 4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

#### 4.2.6 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: 120V/60Hz



**4.2.7 TEST RESULTS (9K~ 30MHz)**

|             |         |
|-------------|---------|
| Test Mode : | TX Mode |
|-------------|---------|

| Freq.<br>(MHz) | Ant.<br>0°/90° | Reading(RA)<br>(dBuV) | Corr.Factor(CF)<br>(dB) | Measured(FS)<br>(dBuV/m) | Limits(QP)<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|----------------|-----------------------|-------------------------|--------------------------|------------------------|----------------|------|
| 0.0088         | 0°             | 25.11                 | 24.30                   | 49.41                    | 128.71                 | -79.30         | AV   |
| 0.0088         | 0°             | 29.24                 | 24.30                   | 53.54                    | 148.71                 | -95.17         | PK   |
| 0.0263         | 0°             | 21.52                 | 23.90                   | 45.42                    | 119.20                 | -73.78         | AV   |
| 0.0263         | 0°             | 24.46                 | 23.90                   | 48.36                    | 139.20                 | -90.84         | PK   |
| 0.0382         | 0°             | 21.44                 | 23.14                   | 44.58                    | 115.95                 | -71.37         | AV   |
| 0.0382         | 0°             | 24.41                 | 23.14                   | 47.55                    | 135.95                 | -88.40         | PK   |
| 0.0671         | 0°             | 18.14                 | 22.06                   | 40.20                    | 111.07                 | -70.87         | AV   |
| 0.0671         | 0°             | 23.45                 | 22.06                   | 45.51                    | 131.07                 | -85.56         | PK   |
| 0.2686         | 0°             | 20.28                 | 20.36                   | 40.64                    | 99.02                  | -58.39         | AVG  |
| 0.2686         | 0°             | 22.24                 | 20.36                   | 42.60                    | 119.02                 | -76.43         | PK   |
| 1.4762         | 0°             | 27.76                 | 19.55                   | 47.31                    | 64.22                  | -16.91         | QP   |

| Freq.<br>(MHz) | Ant.<br>0°/90° | Reading(RA)<br>(dBuV) | Corr.Factor(CF)<br>(dB) | Measured(FS)<br>(dBuV/m) | Limits(QP)<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|----------------|-----------------------|-------------------------|--------------------------|------------------------|----------------|------|
| 0.0088         | 90°            | 25.11                 | 24.30                   | 49.41                    | 128.71                 | -79.30         | AVG  |
| 0.0088         | 90°            | 29.24                 | 24.30                   | 53.54                    | 148.71                 | -95.17         | PK   |
| 0.0263         | 90°            | 21.52                 | 23.90                   | 45.42                    | 119.20                 | -73.78         | AVG  |
| 0.0263         | 90°            | 24.46                 | 23.90                   | 48.36                    | 139.20                 | -90.84         | PK   |
| 0.0382         | 90°            | 21.44                 | 23.14                   | 44.58                    | 115.95                 | -71.37         | AVG  |
| 0.0382         | 90°            | 24.41                 | 23.14                   | 47.55                    | 135.95                 | -88.40         | PK   |
| 0.0671         | 90°            | 18.14                 | 22.06                   | 40.20                    | 111.07                 | -70.87         | AVG  |
| 0.0671         | 90°            | 23.45                 | 22.06                   | 45.51                    | 131.07                 | -85.56         | PK   |
| 0.2686         | 90°            | 20.28                 | 20.36                   | 40.64                    | 99.02                  | -58.39         | AVG  |
| 0.2686         | 90°            | 22.24                 | 20.36                   | 42.60                    | 119.02                 | -76.43         | PK   |
| 1.4762         | 90°            | 27.76                 | 19.55                   | 47.31                    | 64.22                  | -16.91         | QP   |

**Remark:**

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor =  $40 \log (\text{specific distance} / \text{test distance})$  (dB);
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.



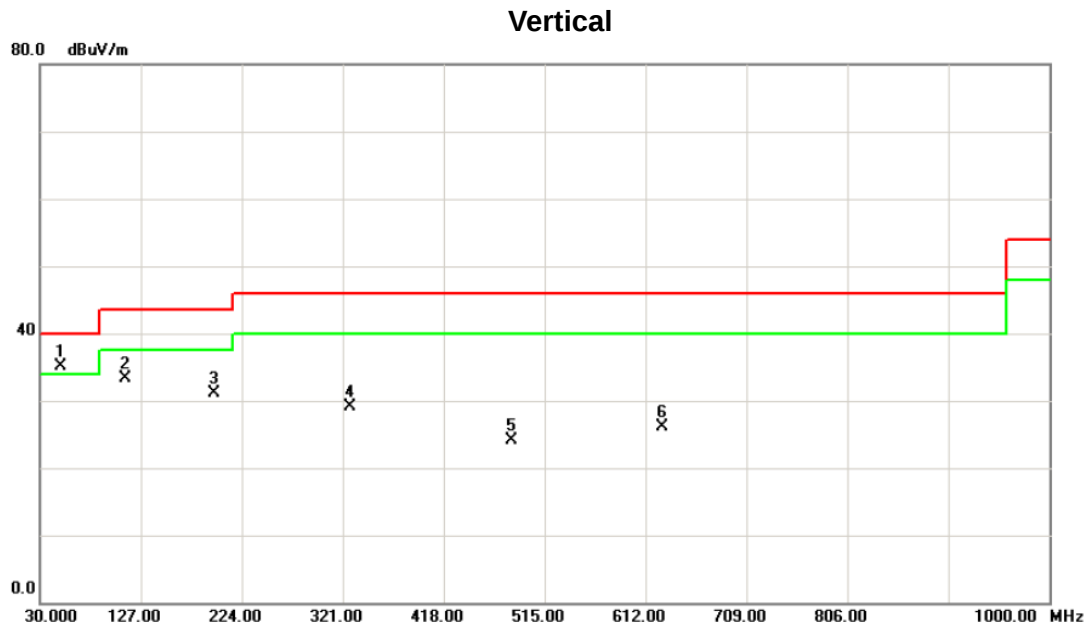
#### **4.2.8 TEST RESULTS-BETWEEN 30MHZ - 1000MHZ**

Remark:

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz ◦
- (2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (3) Measuring frequency range from 30MHz to 1000MHz ◦
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦



Test Mode : Band 1/TX A Mode 5180MHz

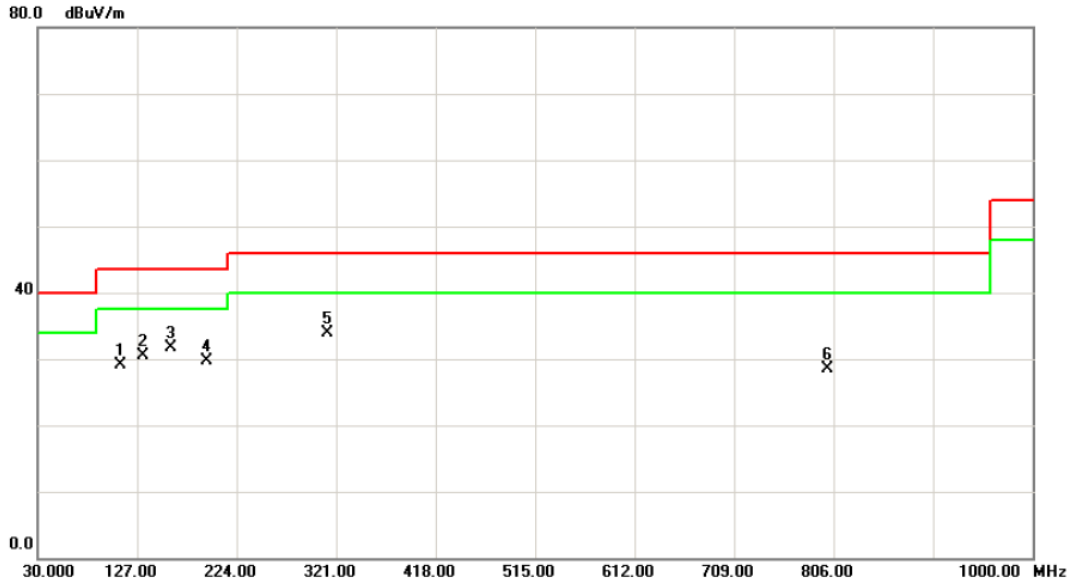


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   | *   | 50.3700  | 49.71         | -14.53         | 35.18       | 40.00  | -4.82  | peak     |         |
| 2   |     | 111.4800 | 48.20         | -14.95         | 33.25       | 43.50  | -10.25 | peak     |         |
| 3   |     | 197.8100 | 46.58         | -15.38         | 31.20       | 43.50  | -12.30 | peak     |         |
| 4   |     | 327.7900 | 40.32         | -11.18         | 29.14       | 46.00  | -16.86 | peak     |         |
| 5   |     | 482.9900 | 33.97         | -9.91          | 24.06       | 46.00  | -21.94 | peak     |         |
| 6   |     | 628.4900 | 32.99         | -6.87          | 26.12       | 46.00  | -19.88 | peak     |         |



Test Mode : Band 1/TX A Mode 5180MHz

**Horizontal**

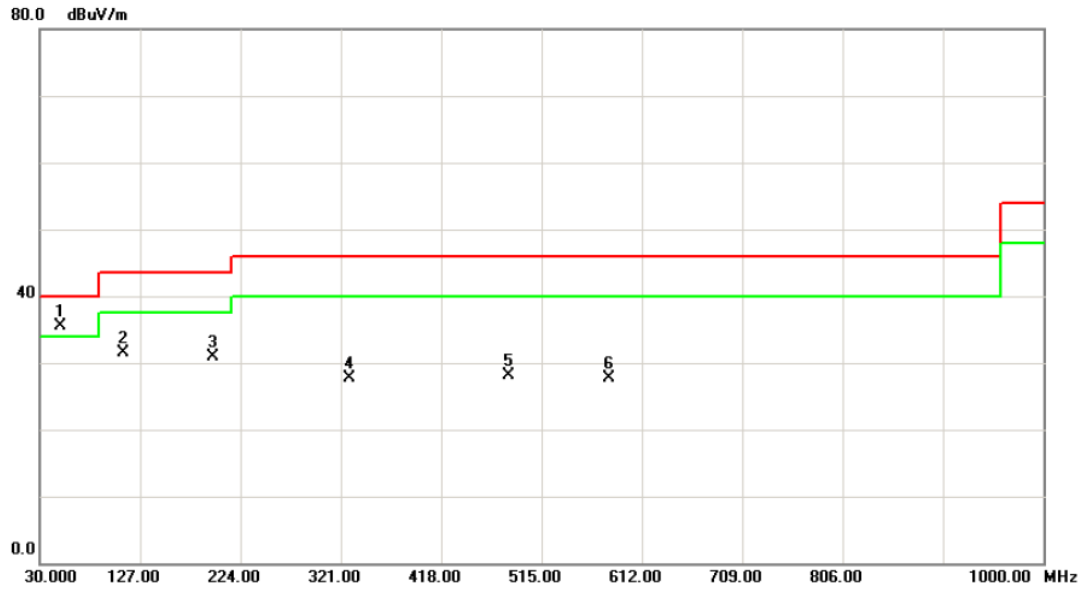


| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1       | 110.5100     | 44.27                    | -15.07                  | 29.20                      | 43.50           | -14.30     | peak     |         |
| 2       | 132.8200     | 44.48                    | -14.05                  | 30.43                      | 43.50           | -13.07     | peak     |         |
| 3 *     | 159.9800     | 44.38                    | -12.75                  | 31.63                      | 43.50           | -11.87     | peak     |         |
| 4       | 194.9000     | 44.86                    | -15.10                  | 29.76                      | 43.50           | -13.74     | peak     |         |
| 5       | 312.2700     | 44.90                    | -11.05                  | 33.85                      | 46.00           | -12.15     | peak     |         |
| 6       | 800.1800     | 30.04                    | -1.62                   | 28.42                      | 46.00           | -17.58     | peak     |         |



Test Mode : Band 1/TX A Mode 5200MHz

**Vertical**

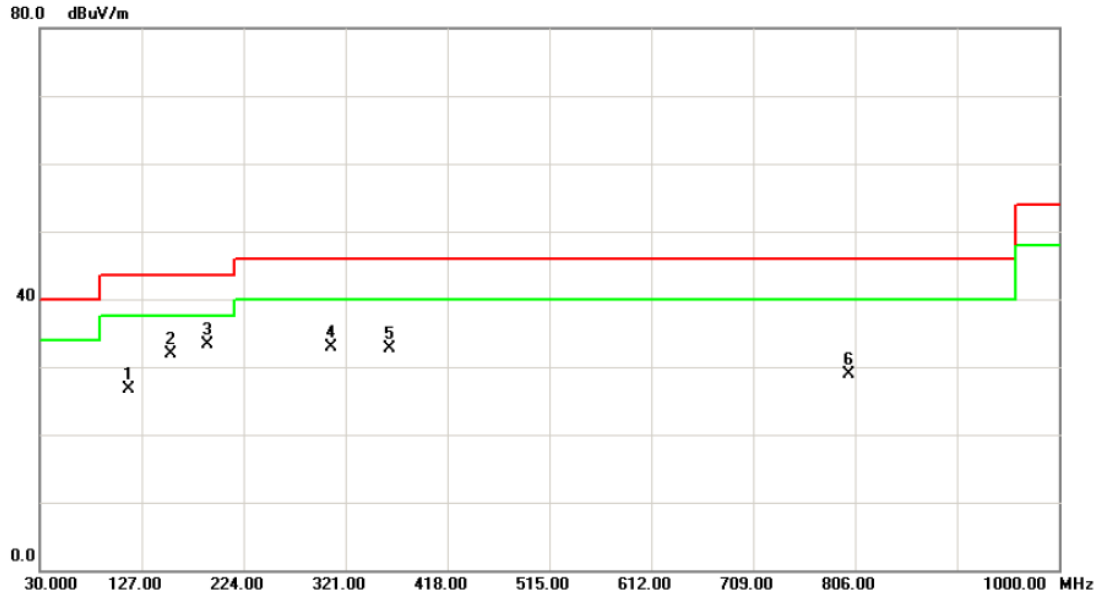


| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 50.3700      | 49.98                    | -14.53                  | 35.45                      | 40.00           | -4.55      | peak     |         |
| 2   |     | 110.5100     | 46.64                    | -15.07                  | 31.57                      | 43.50           | -11.93     | peak     |         |
| 3   |     | 196.8400     | 46.11                    | -15.28                  | 30.83                      | 43.50           | -12.67     | peak     |         |
| 4   |     | 329.7300     | 38.87                    | -11.20                  | 27.67                      | 46.00           | -18.33     | peak     |         |
| 5   |     | 482.9900     | 37.94                    | -9.91                   | 28.03                      | 46.00           | -17.97     | peak     |         |
| 6   |     | 579.9900     | 35.02                    | -7.26                   | 27.76                      | 46.00           | -18.24     | peak     |         |



Test Mode : Band 1/TX A Mode 5200MHz

**Horizontal**

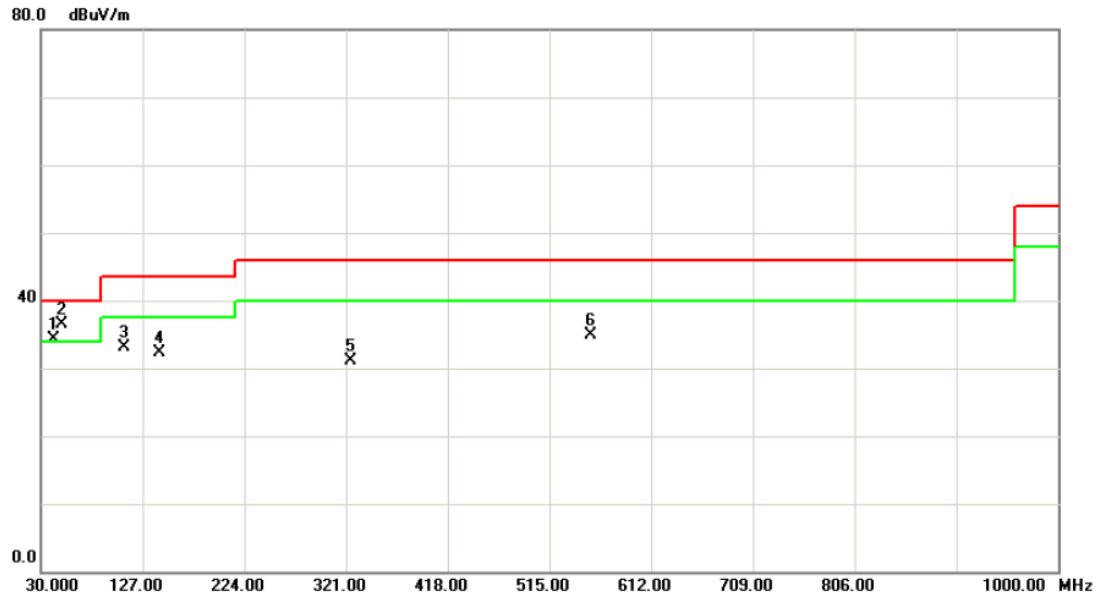


| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 114.3900     | 41.26                    | -14.59                  | 26.67                      | 43.50           | -16.83     | peak     |         |
| 2   |     | 155.1300     | 45.05                    | -13.13                  | 31.92                      | 43.50           | -11.58     | peak     |         |
| 3   | *   | 189.0800     | 47.85                    | -14.50                  | 33.35                      | 43.50           | -10.15     | peak     |         |
| 4   |     | 307.4200     | 43.83                    | -11.01                  | 32.82                      | 46.00           | -13.18     | peak     |         |
| 5   |     | 362.7100     | 43.61                    | -10.96                  | 32.65                      | 46.00           | -13.35     | peak     |         |
| 6   |     | 800.1800     | 30.58                    | -1.62                   | 28.96                      | 46.00           | -17.04     | peak     |         |



Test Mode : Band 1/TX A Mode 5240MHz

**Vertical**

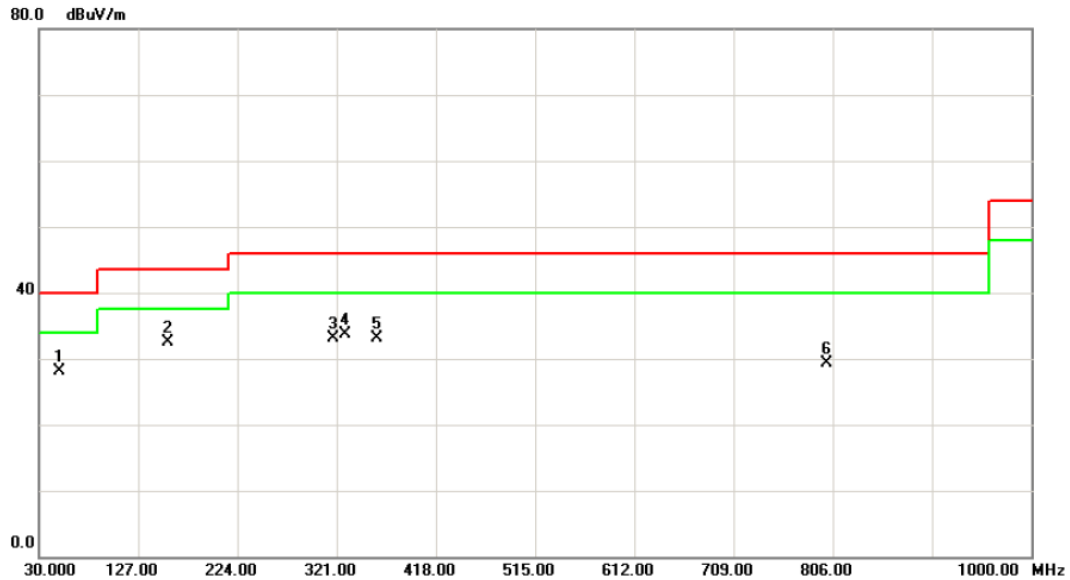


| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | !   | 41.6400      | 48.82                    | -14.44                  | 34.38                      | 40.00           | -5.62      | peak     |         |
| 2   | *   | 49.4000      | 51.04                    | -14.50                  | 36.54                      | 40.00           | -3.46      | peak     |         |
| 3   |     | 109.5400     | 48.21                    | -15.18                  | 33.03                      | 43.50           | -10.47     | peak     |         |
| 4   |     | 143.4900     | 46.46                    | -14.21                  | 32.25                      | 43.50           | -11.25     | peak     |         |
| 5   |     | 325.8500     | 42.37                    | -11.17                  | 31.20                      | 46.00           | -14.80     | peak     |         |
| 6   |     | 554.7700     | 41.01                    | -6.07                   | 34.94                      | 46.00           | -11.06     | peak     |         |



Test Mode : Band 1/TX A Mode 5240MHz

**Horizontal**



| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1       | 50.3700      | 42.60                    | -14.53                  | 28.07                      | 40.00           | -11.93     | peak     |         |
| 2 *     | 156.1000     | 45.49                    | -13.06                  | 32.43                      | 43.50           | -11.07     | peak     |         |
| 3       | 318.0900     | 44.18                    | -11.10                  | 33.08                      | 46.00           | -12.92     | peak     |         |
| 4       | 328.7600     | 44.82                    | -11.18                  | 33.64                      | 46.00           | -12.36     | peak     |         |
| 5       | 360.7700     | 44.15                    | -11.01                  | 33.14                      | 46.00           | -12.86     | peak     |         |
| 6       | 800.1800     | 30.95                    | -1.62                   | 29.33                      | 46.00           | -16.67     | peak     |         |



#### **4.2.9 TEST RESULTS - ABOVE 1000MHZ**

**Remark:**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes:  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.



|             |                           |
|-------------|---------------------------|
| Test Mode : | Band 1/ TX A Mode 5180MHz |
|-------------|---------------------------|

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5150.00        | V              | 12.38          | 2.33         | 42.72             | 55.10        | 45.05 | -49.67    | -59.72 | 68.30         | 54.00 | -27.00     | -41.30 | X/E  |
| 5173.50        | V              | 61.38          | 52.85        | 42.78             | 104.16       | 95.63 | -0.61     | -9.14  |               |       |            |        | X/F  |
| 10358.00       | V              | 40.12          | 31.58        | 16.02             | 56.14        | 47.60 | -48.63    | -57.17 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5150.00        | H              | 8.98           | 1.12         | 42.72             | 51.70        | 43.84 | -53.07    | -60.93 | 68.30         | 54.00 | -27.00     | -41.30 | X/E  |
| 5182.90        | H              | 59.97          | 51.66        | 42.80             | 102.77       | 94.46 | -2.00     | -10.31 |               |       |            |        | X/F  |
| 10366.00       | H              | 39.01          | 30.87        | 16.02             | 55.03        | 46.89 | -49.74    | -57.88 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

|             |                           |
|-------------|---------------------------|
| Test Mode : | Band 1/ TX A Mode 5200MHz |
|-------------|---------------------------|

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5195.40        | V              | 60.08          | 50.56        | 42.83             | 102.91       | 93.39 | -1.86     | -11.38 |               |       |            |        | X/F  |
| 10402.00       | V              | 40.56          | 31.84        | 15.96             | 56.52        | 47.80 | -48.25    | -56.97 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5196.40        | H              | 59.07          | 50.63        | 42.83             | 101.90       | 93.46 | -2.87     | -11.31 |               |       |            |        | X/F  |
| 10398.00       | H              | 39.28          | 31.06        | 15.97             | 55.25        | 47.03 | -49.52    | -57.74 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

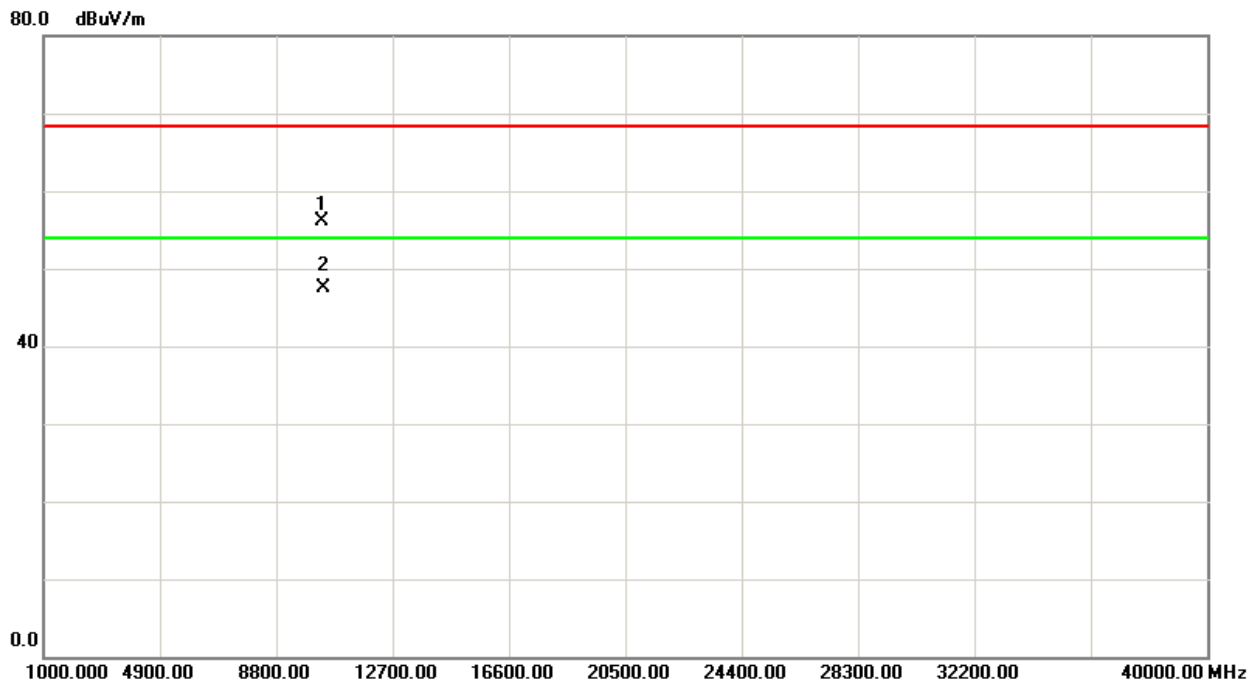
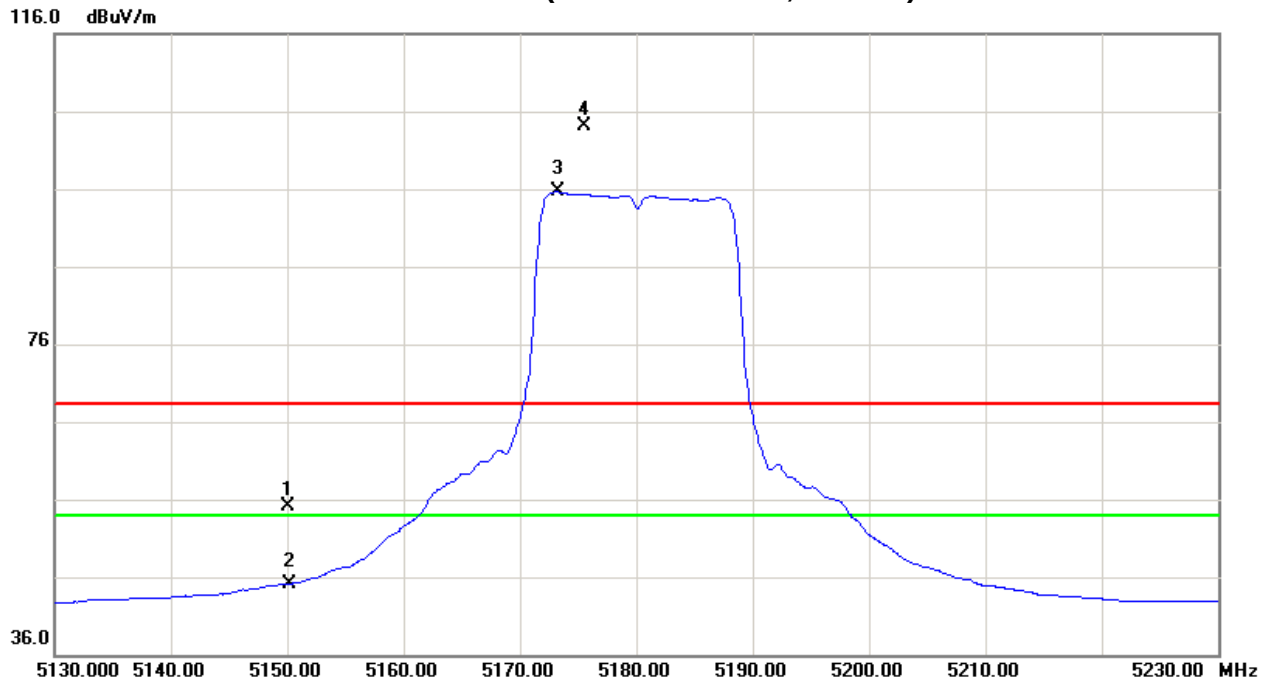
|             |                           |
|-------------|---------------------------|
| Test Mode : | Band 1/ TX A Mode 5240MHz |
|-------------|---------------------------|

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5241.40        | V              | 59.88          | 50.88        | 42.95             | 102.83       | 93.83 | -1.94     | -10.94 |               |       |            |        | X/F  |
| 10485.00       | V              | 40.31          | 31.59        | 15.84             | 56.15        | 47.43 | -48.62    | -57.34 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5235.10        | H              | 60.32          | 51.23        | 42.93             | 103.25       | 94.16 | -1.52     | -10.61 |               |       |            |        | X/F  |
| 10482.00       | H              | 39.02          | 31.06        | 15.84             | 54.86        | 46.90 | -49.91    | -57.87 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |



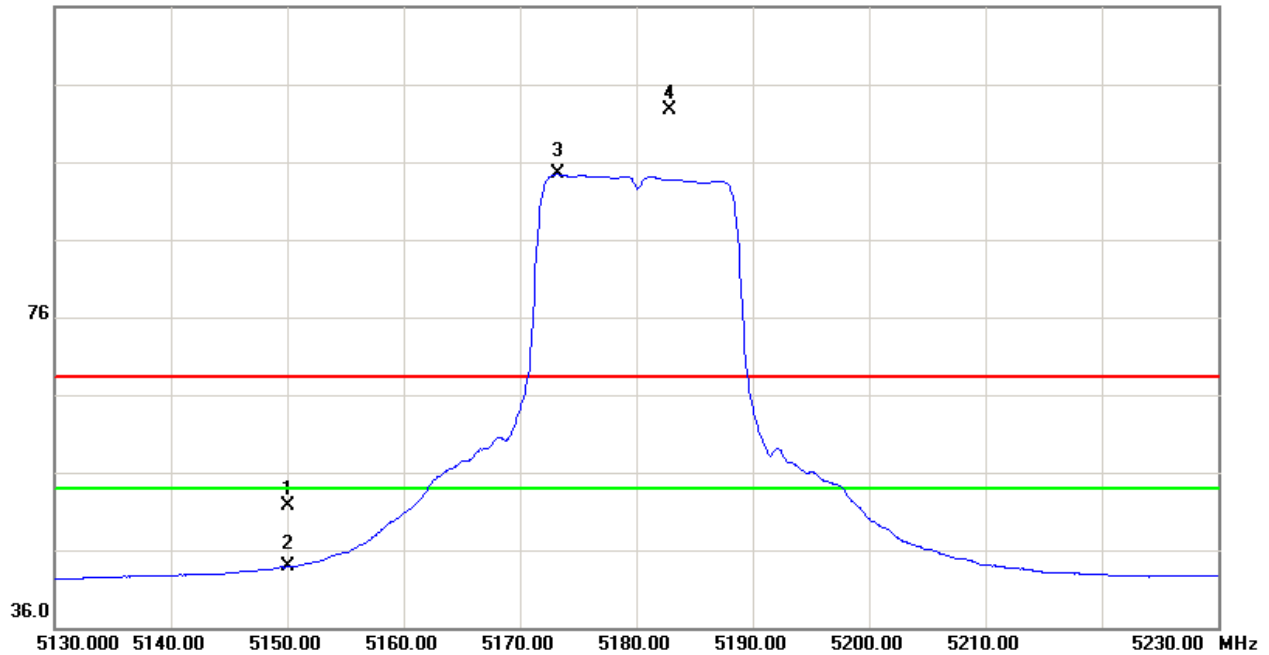
Orthogonal Axis:X  
Band 1/CH36(Above 1000 MHz, Vertical)



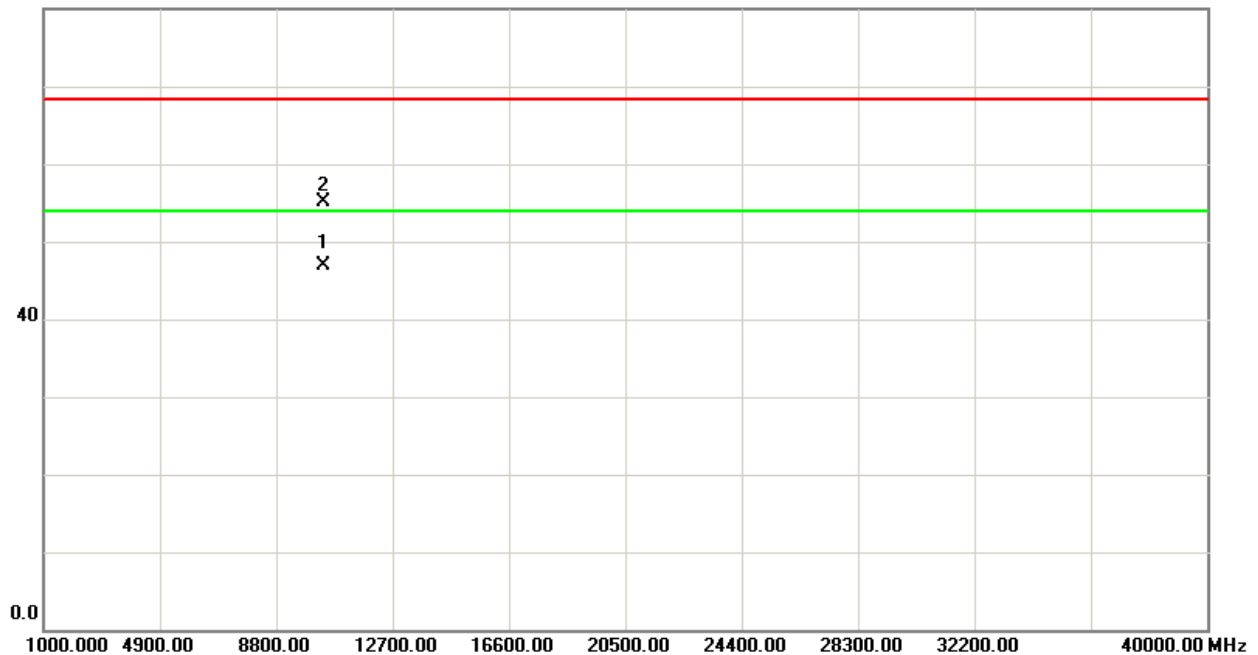


Orthogonal Axis:X  
Band 1/CH36(Above 1000 MHz, Horizontal)

116.0 dBuV/m

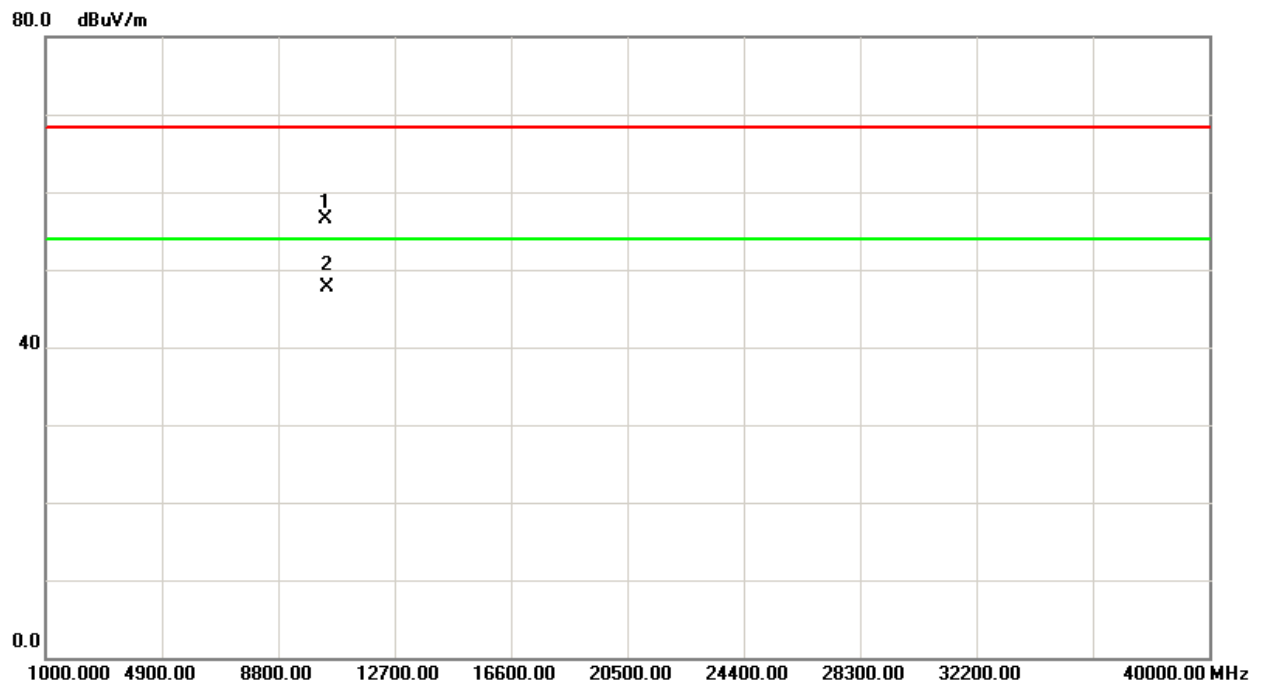
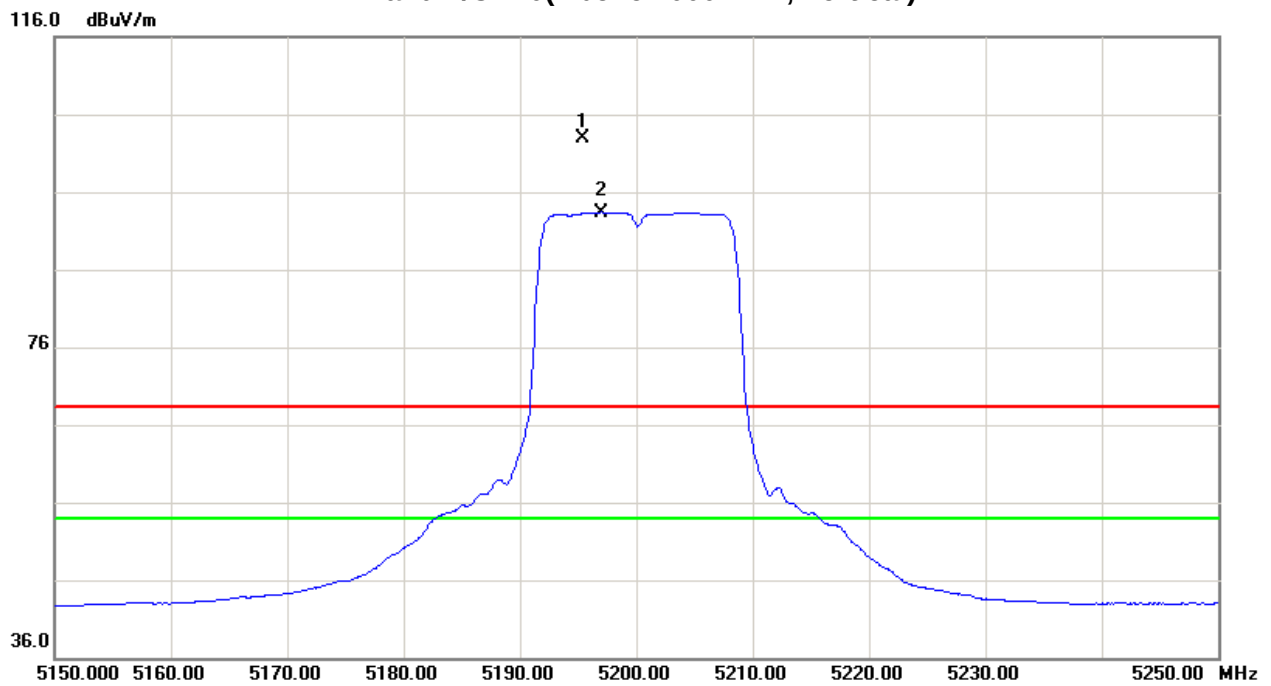


80.0 dBuV/m



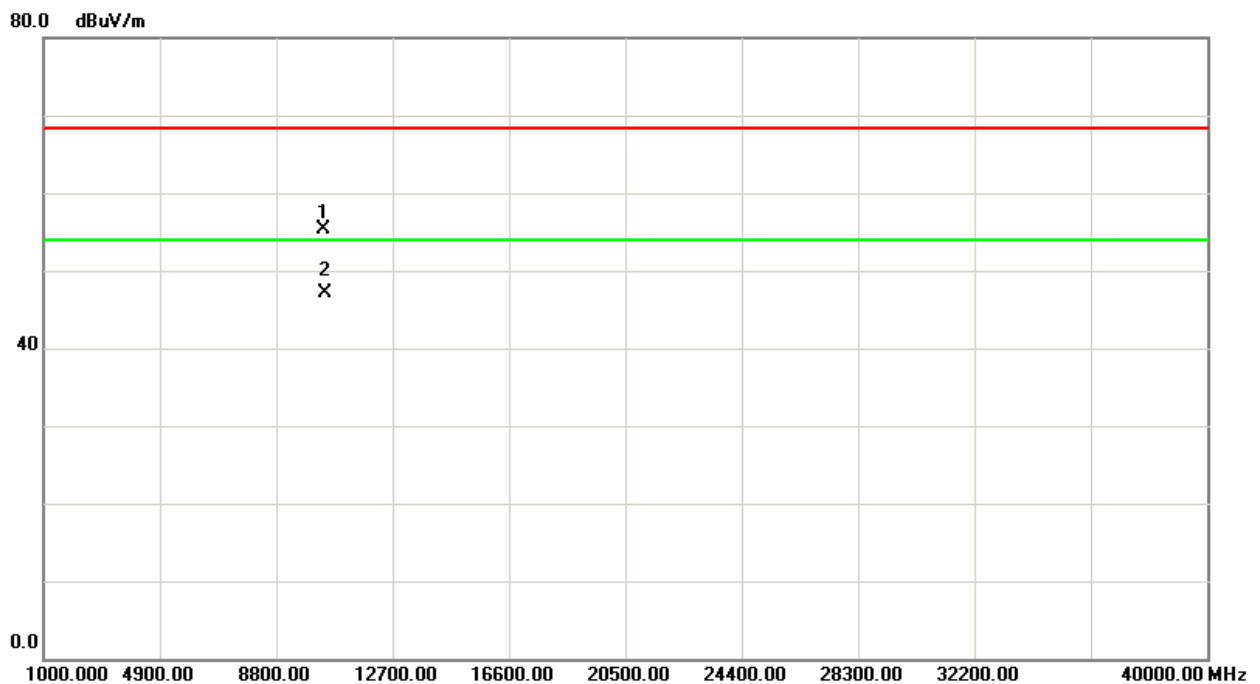
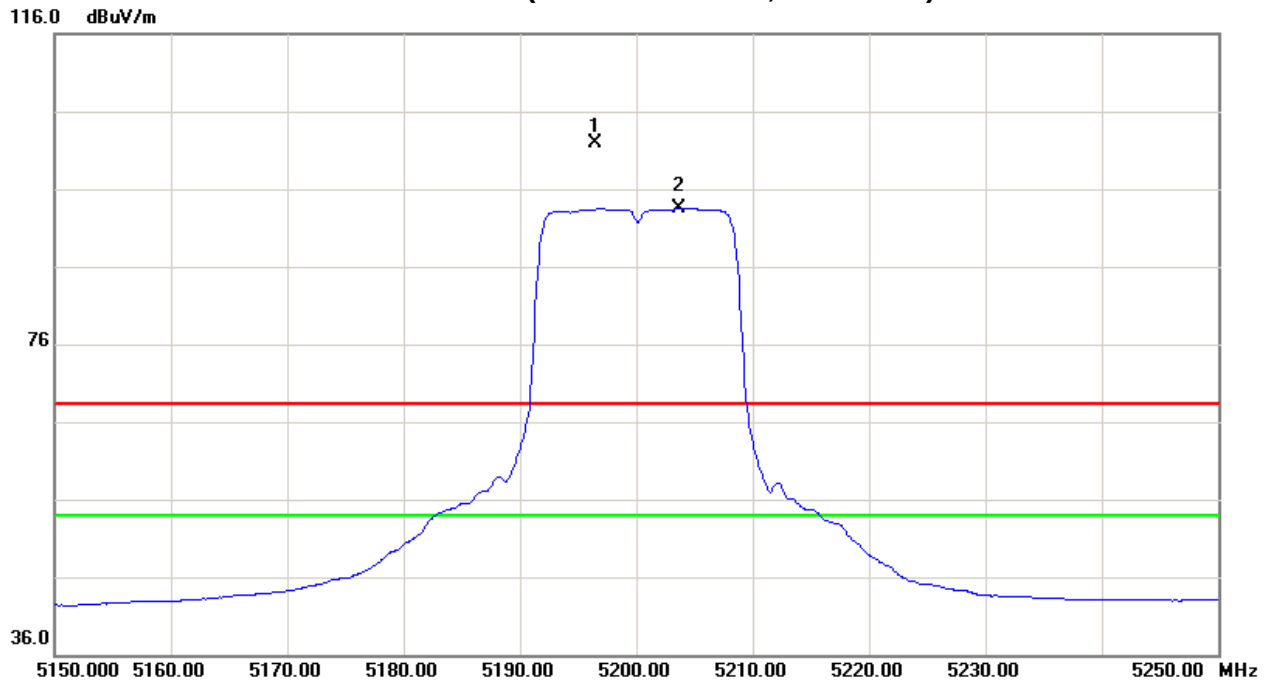


Orthogonal Axis:X  
Band 1/CH40(Above 1000 MHz, Vertical)



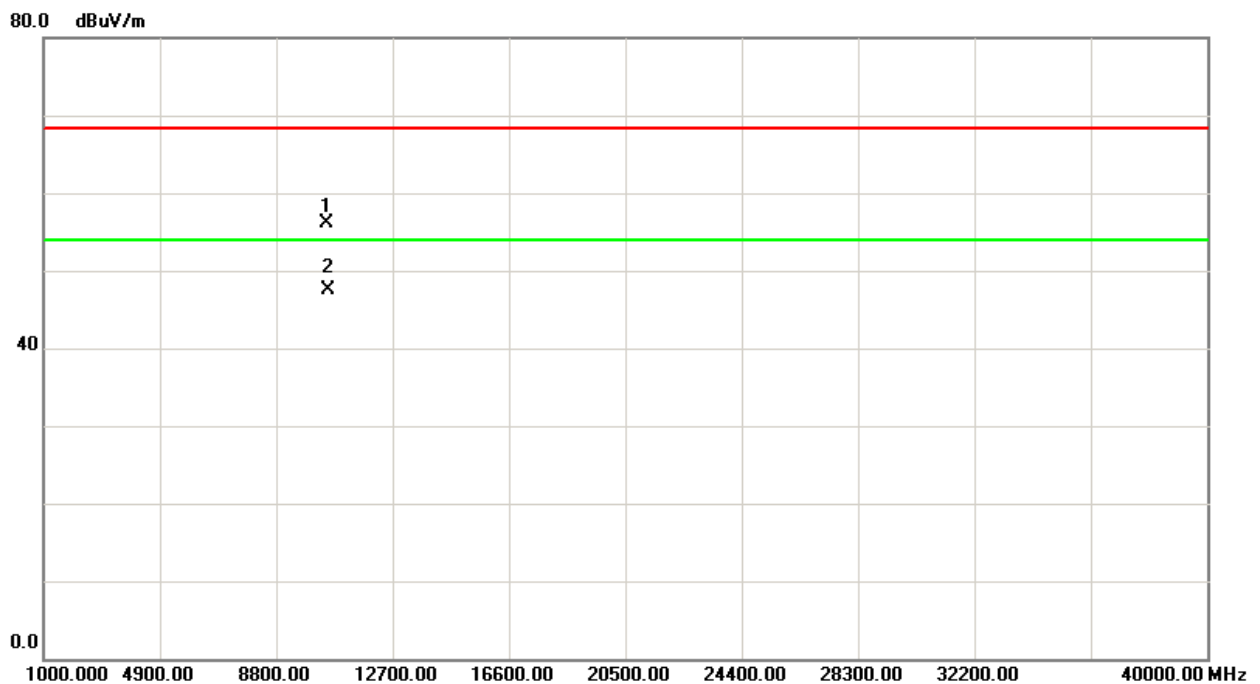
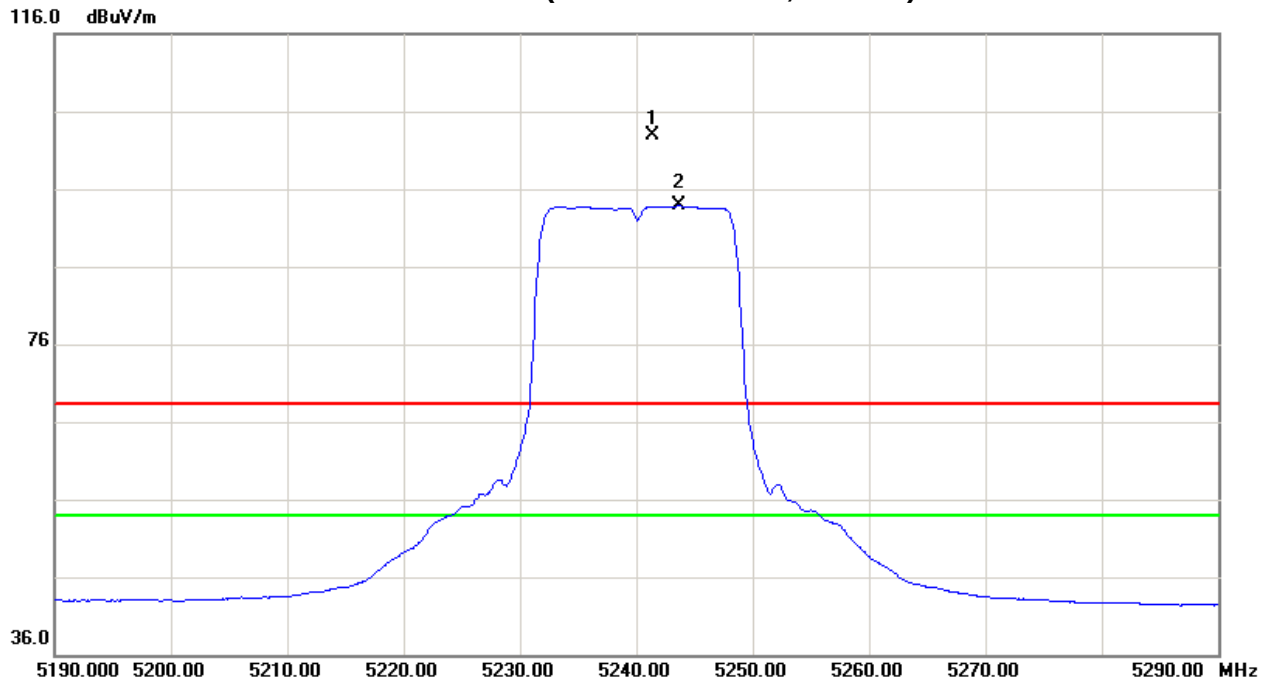


Orthogonal Axis:X  
Band 1/CH40(Above 1000 MHz, Horizontal)



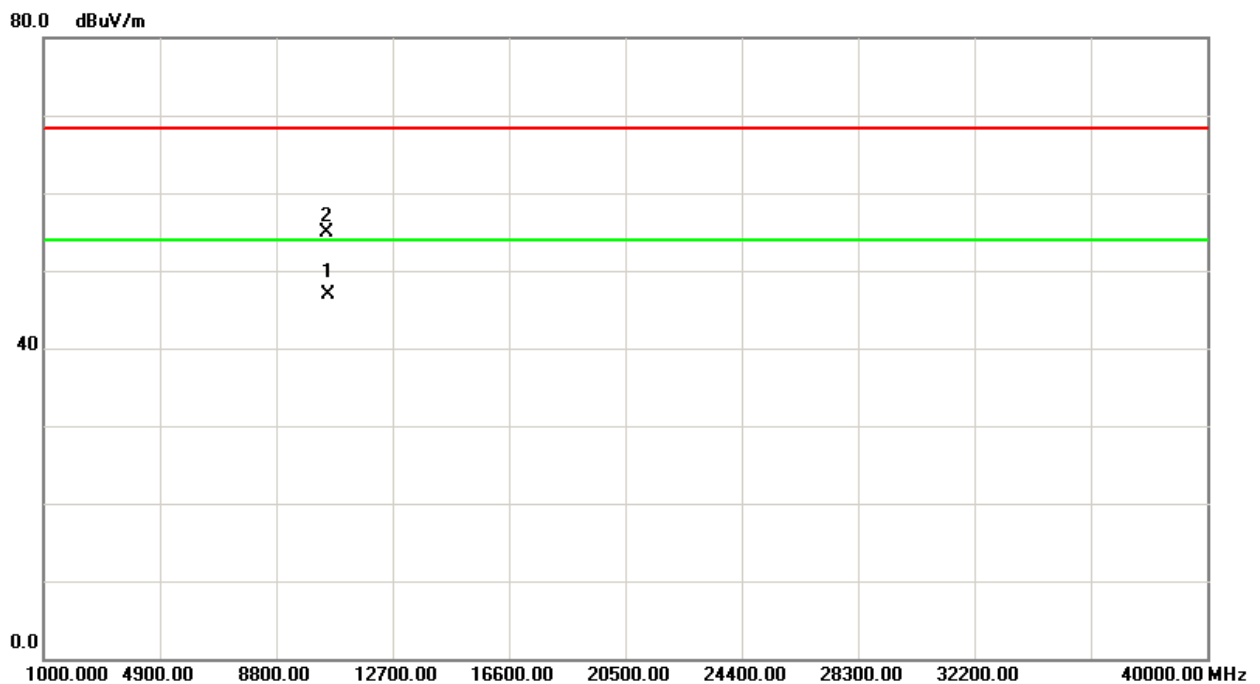
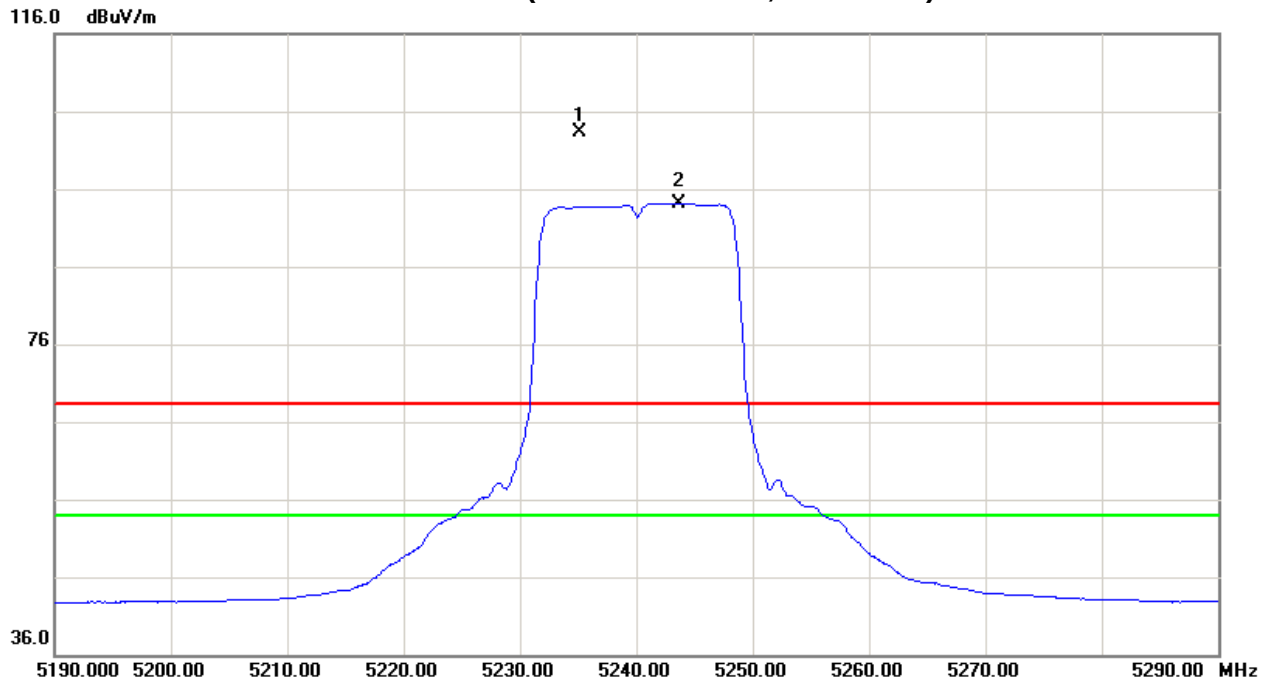


Orthogonal Axis:X  
Band 1/CH48(Above 1000 MHz, Vertical)





Orthogonal Axis:X  
Band 1/CH48(Above 1000 MHz, Horizontal)





|             |                             |
|-------------|-----------------------------|
| Test Mode : | Band 1/ TX N20 Mode 5180MHz |
|-------------|-----------------------------|

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5150.00        | V              | 10.61          | 0.71         | 42.72             | 53.33        | 43.43 | -51.44    | -61.34 | 68.30         | 54.00 | -27.00     | -41.30 | X/E  |
| 5178.80        | V              | 59.75          | 49.79        | 42.79             | 102.54       | 92.58 | -2.23     | -12.19 |               |       |            |        | X/F  |
| 10362.00       | V              | 37.29          | 28.38        | 16.02             | 53.31        | 44.40 | -51.46    | -60.37 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5150.00        | H              | 9.72           | 0.58         | 42.72             | 52.44        | 43.30 | -52.33    | -61.47 | 68.30         | 54.00 | -27.00     | -41.30 | X/E  |
| 5172.90        | H              | 60.20          | 49.84        | 42.78             | 102.98       | 92.62 | -1.79     | -12.15 |               |       |            |        | X/F  |
| 10365.00       | H              | 35.95          | 27.51        | 16.02             | 51.97        | 43.53 | -52.80    | -61.24 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

|             |                             |
|-------------|-----------------------------|
| Test Mode : | Band 1/ TX N20 Mode 5200MHz |
|-------------|-----------------------------|

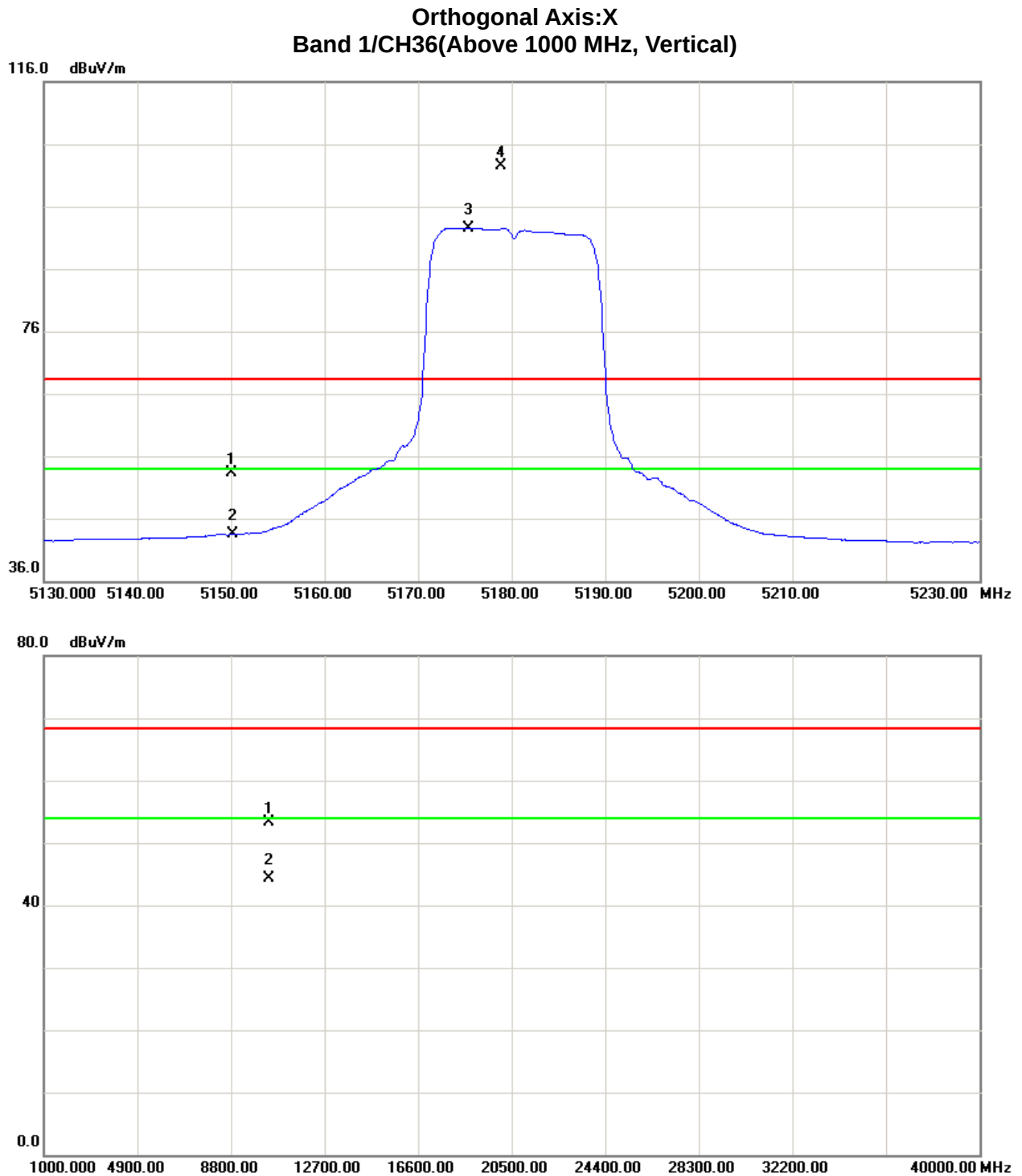
| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5197.30        | V              | 61.12          | 50.81        | 42.84             | 103.96       | 93.65 | -0.81     | -11.12 |               |       |            |        | X/F  |
| 10406.00       | V              | 37.28          | 28.64        | 15.97             | 53.25        | 44.61 | -51.52    | -60.16 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5204.60        | H              | 61.64          | 50.35        | 42.86             | 104.50       | 93.21 | -0.27     | -11.56 |               |       |            |        | X/F  |
| 10403.00       | H              | 36.31          | 28.11        | 15.96             | 52.27        | 44.07 | -52.50    | -60.70 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

|             |                             |
|-------------|-----------------------------|
| Test Mode : | Band 1/ TX N20 Mode 5240MHz |
|-------------|-----------------------------|

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5242.50        | V              | 59.12          | 49.20        | 42.95             | 102.07       | 92.15 | -2.70     | -12.62 |               |       |            |        | X/F  |
| 10485.00       | V              | 37.42          | 28.59        | 15.84             | 53.26        | 44.43 | -51.51    | -60.34 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

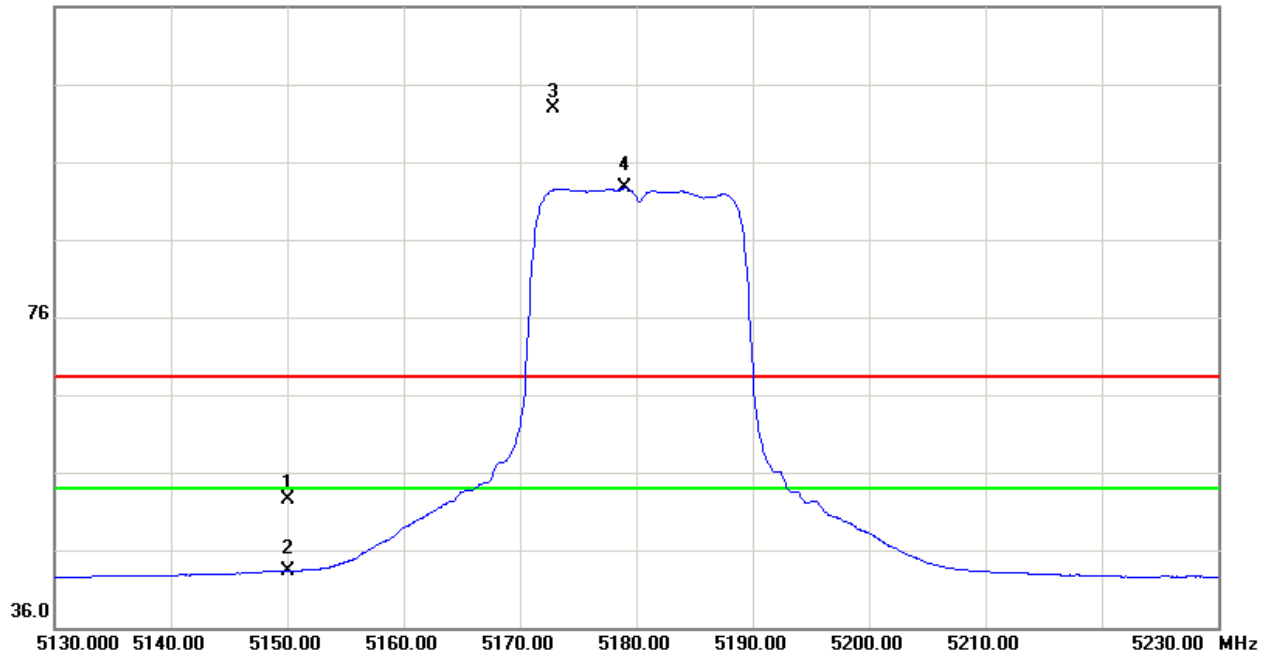
| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBuV/m) |       | Act.(dBm) |        | Limit(dBuV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBuV) | AV<br>(dBuV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5241.90        | H              | 59.02          | 49.67        | 42.95             | 101.97       | 92.62 | -2.80     | -12.15 |               |       |            |        | X/F  |
| 10485.00       | H              | 35.98          | 28.19        | 15.84             | 51.82        | 44.03 | -52.95    | -60.74 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |



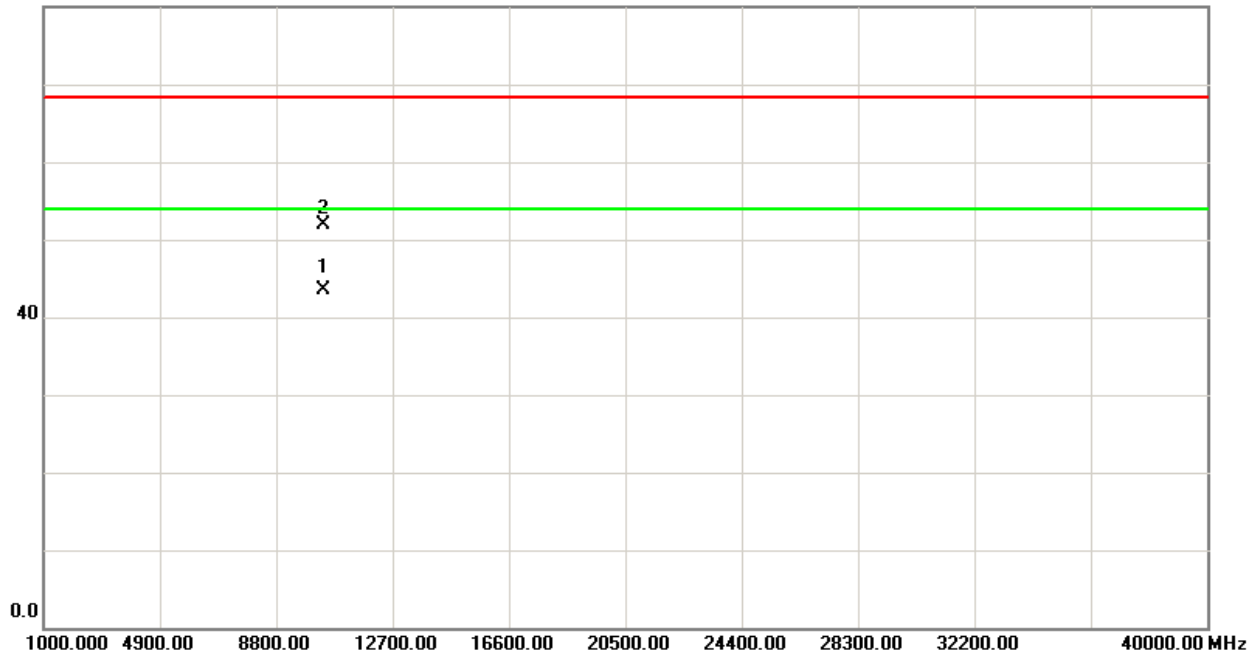


Orthogonal Axis:X  
Band 1/CH36(Above 1000 MHz, Horizontal)

116.0 dBuV/m

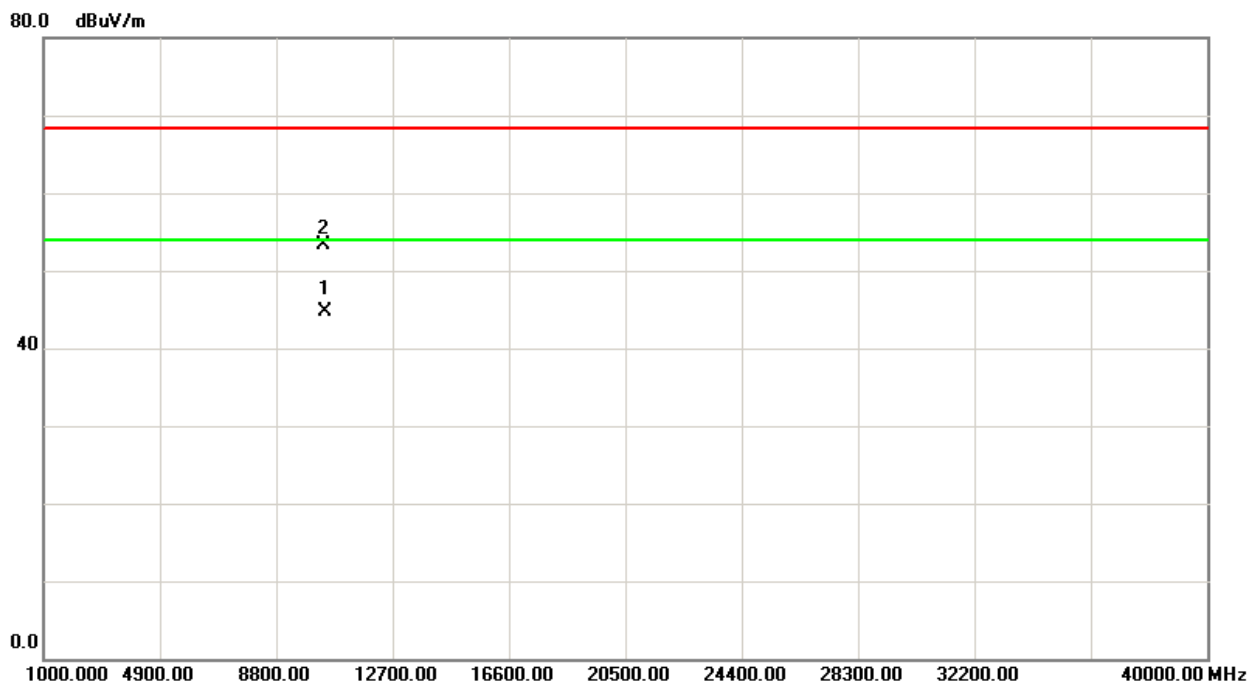
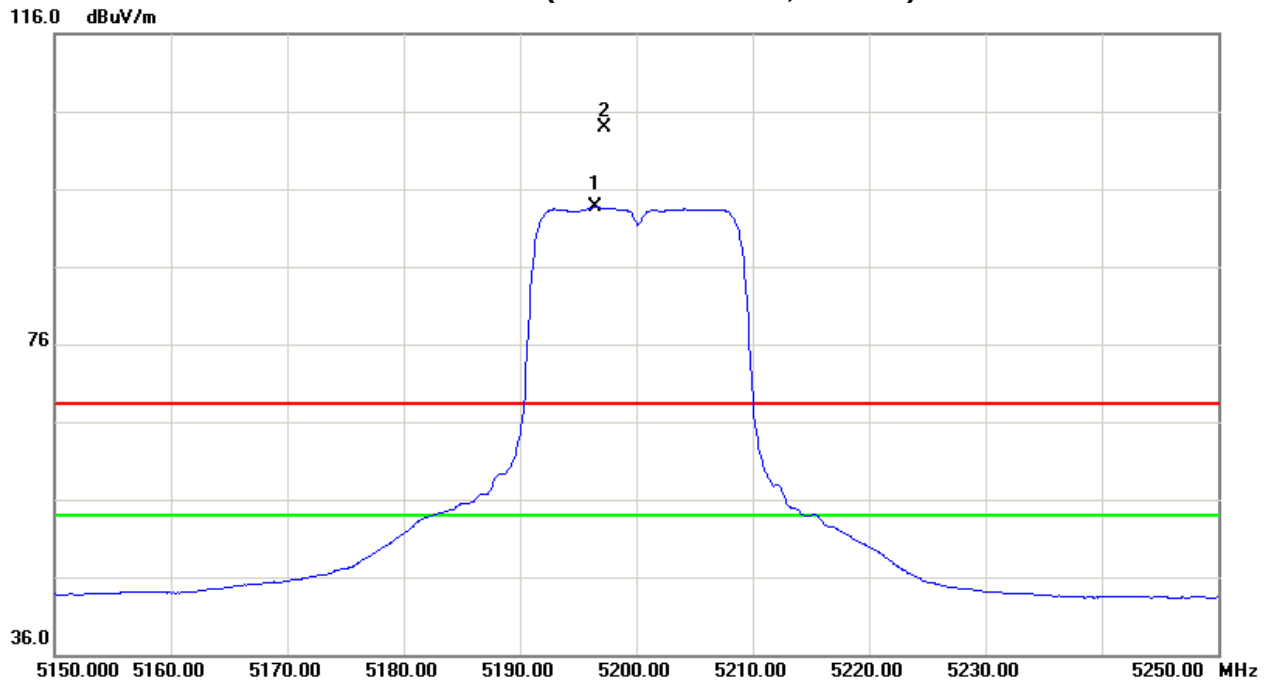


80.0 dBuV/m





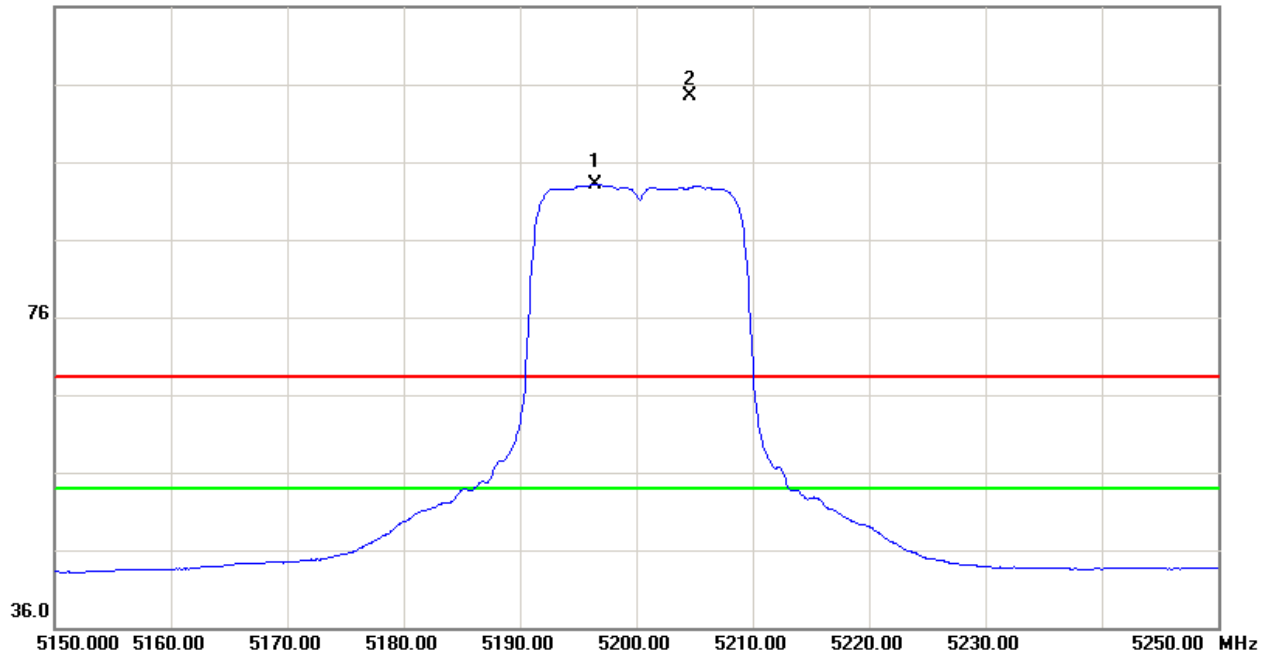
Orthogonal Axis:X  
Band 1/CH40(Above 1000 MHz, Vertical)



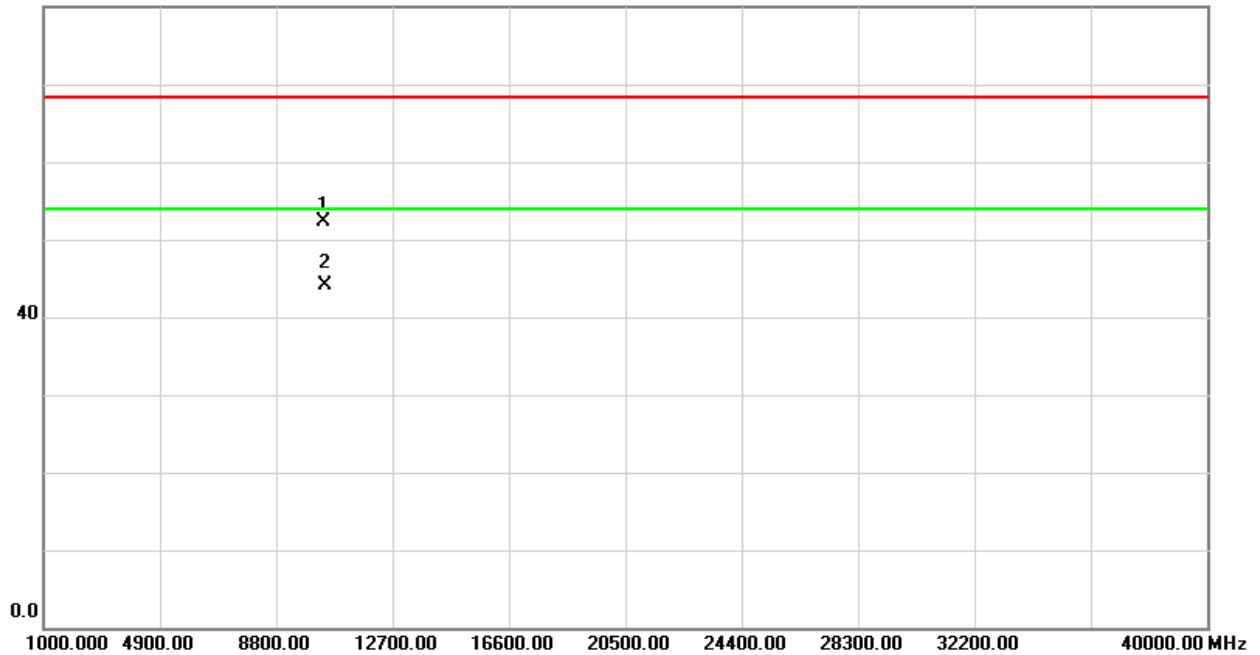


Orthogonal Axis:X  
Band 1/CH40(Above 1000 MHz, Horizontal)

116.0 dBuV/m



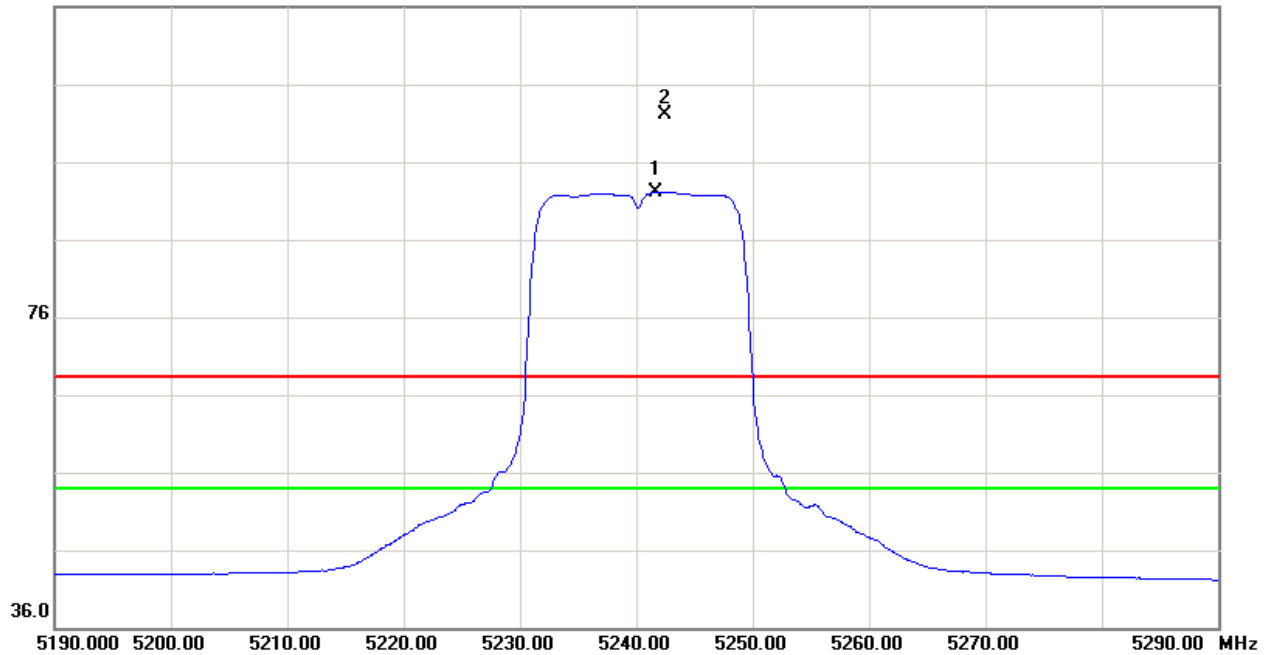
80.0 dBuV/m



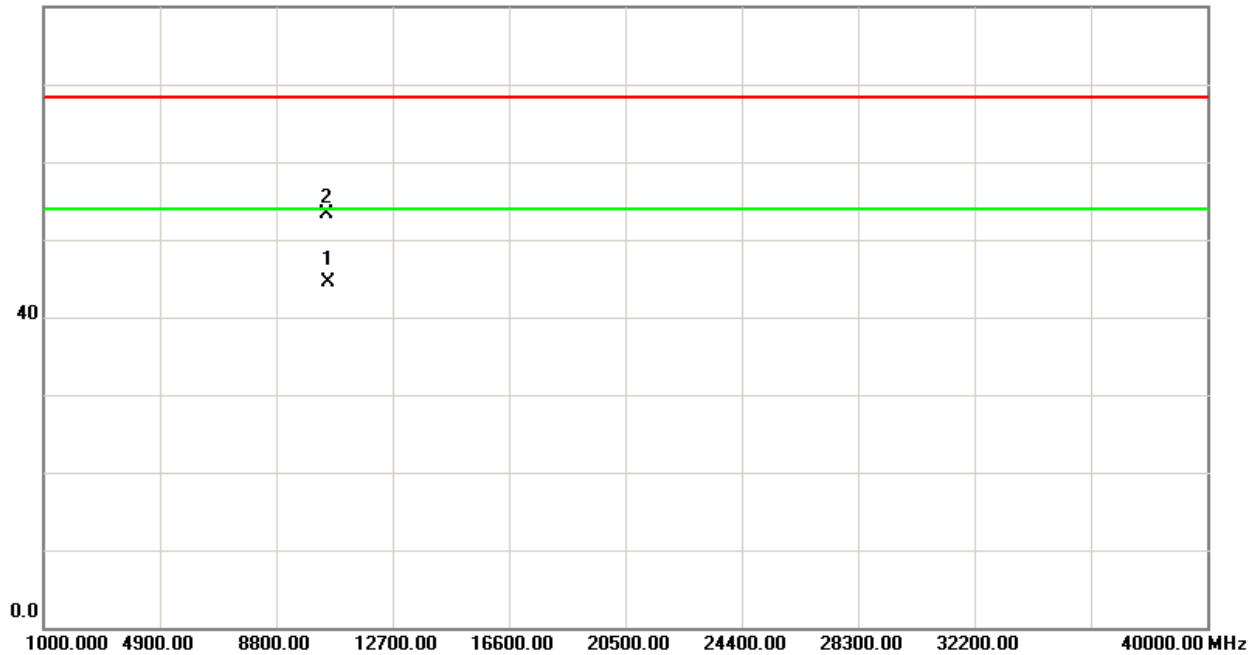


Orthogonal Axis:X  
Band 1/CH48(Above 1000 MHz, Vertical)

116.0 dBuV/m

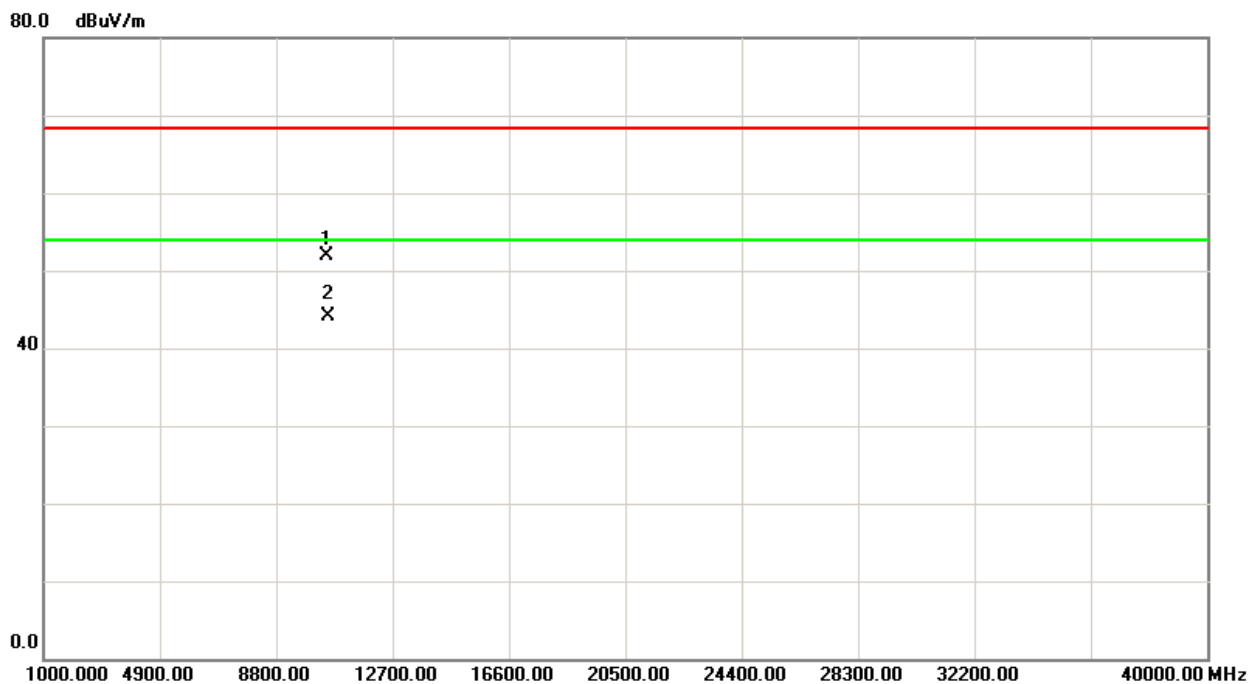
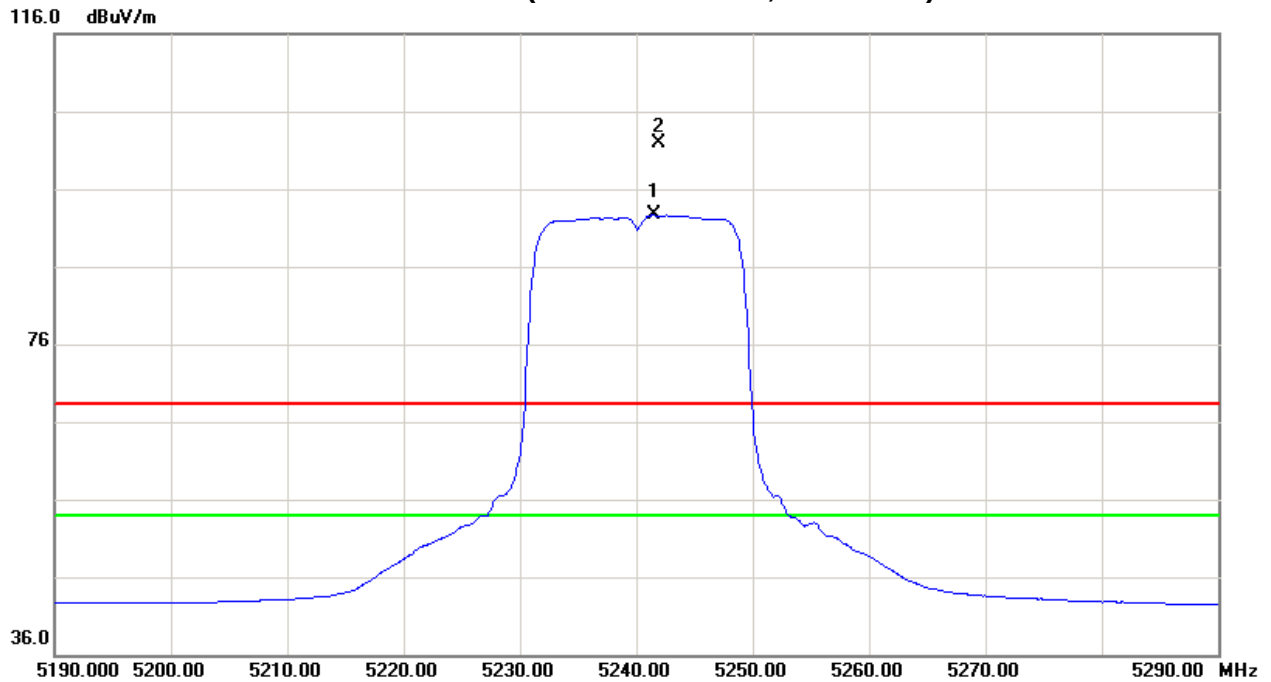


80.0 dBuV/m





Orthogonal Axis:X  
Band 1/CH48(Above 1000 MHz, Horizontal)





Test Mode : Band 1/ TX N40 Mode 5190MHz

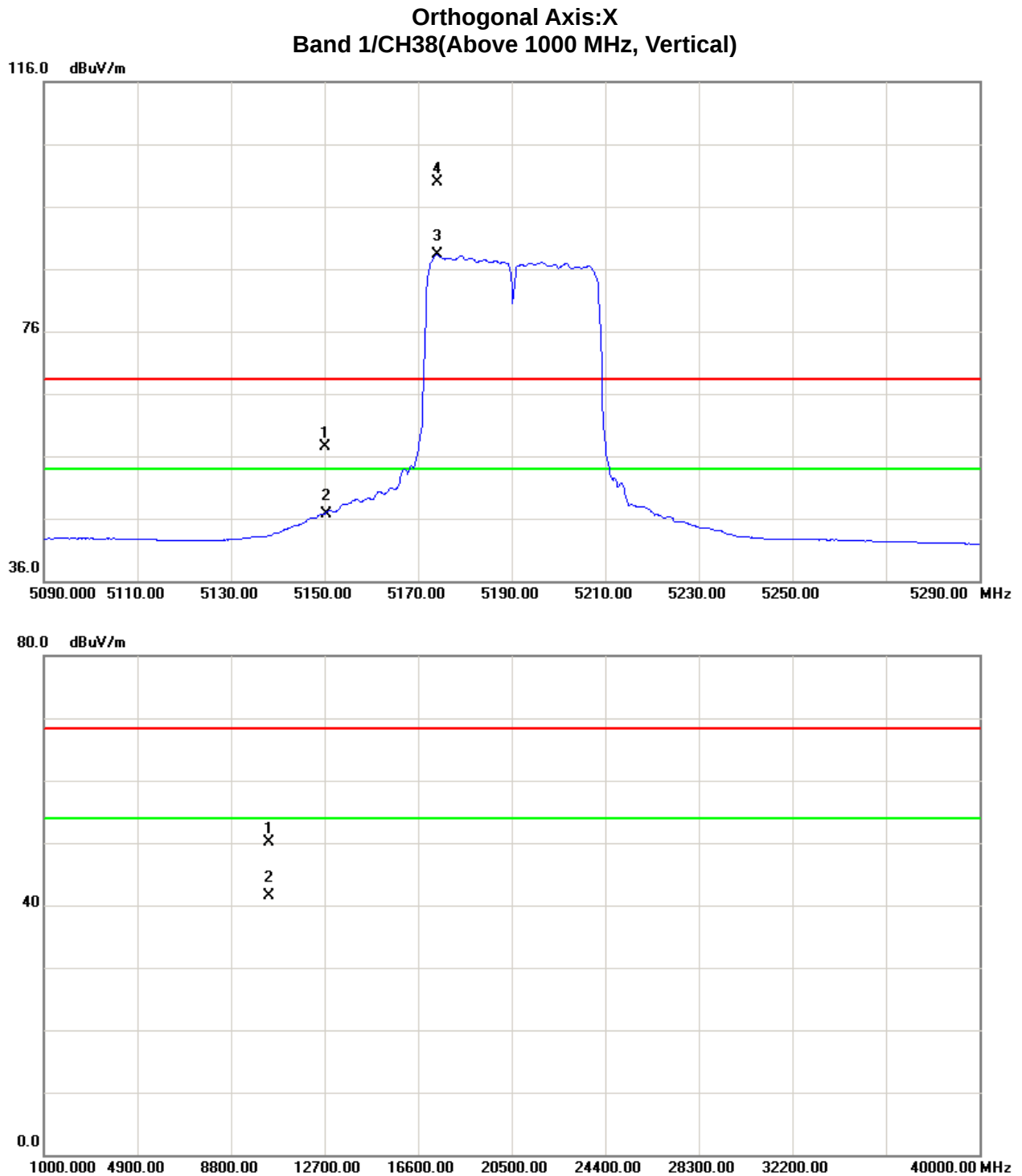
| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBUV/m) |       | Act.(dBm) |        | Limit(dBUV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBUV) | AV<br>(dBUV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5150.00        | V              | 14.81          | 4.07         | 42.72             | 57.53        | 46.79 | -47.24    | -57.98 | 68.30         | 54.00 | -27.00     | -41.30 | X/E  |
| 5174.20        | V              | 57.22          | 45.45        | 42.78             | 100.00       | 88.23 | -4.77     | -16.54 |               |       |            |        | X/F  |
| 10384.00       | V              | 34.22          | 25.46        | 15.98             | 50.20        | 41.44 | -54.57    | -63.33 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBUV/m) |       | Act.(dBm) |        | Limit(dBUV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBUV) | AV<br>(dBUV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5150.00        | H              | 13.01          | 4.23         | 42.72             | 55.73        | 46.95 | -49.04    | -57.82 | 68.30         | 54.00 | -27.00     | -41.30 | X/E  |
| 5179.80        | H              | 59.98          | 46.41        | 42.79             | 102.77       | 89.20 | -2.00     | -15.57 |               |       |            |        | X/F  |
| 10386.00       | H              | 32.84          | 24.39        | 15.98             | 48.82        | 40.37 | -55.95    | -64.40 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

Test Mode : Band 1/ TX N40 Mode 5230MHz

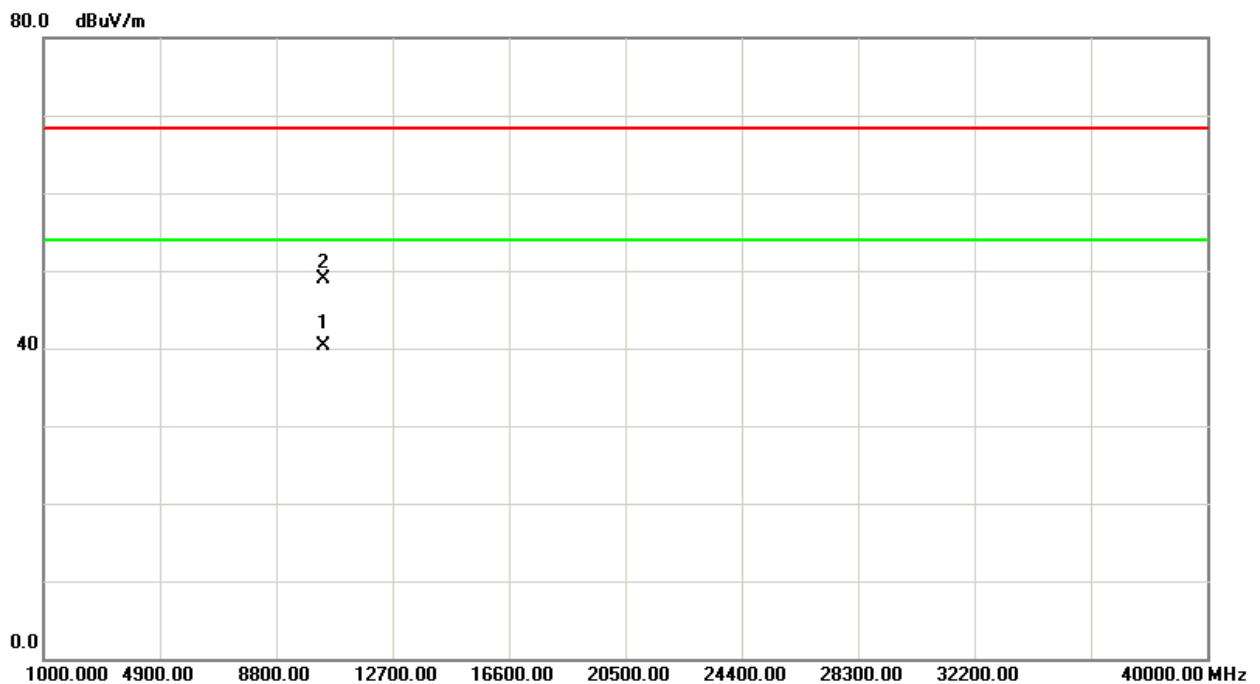
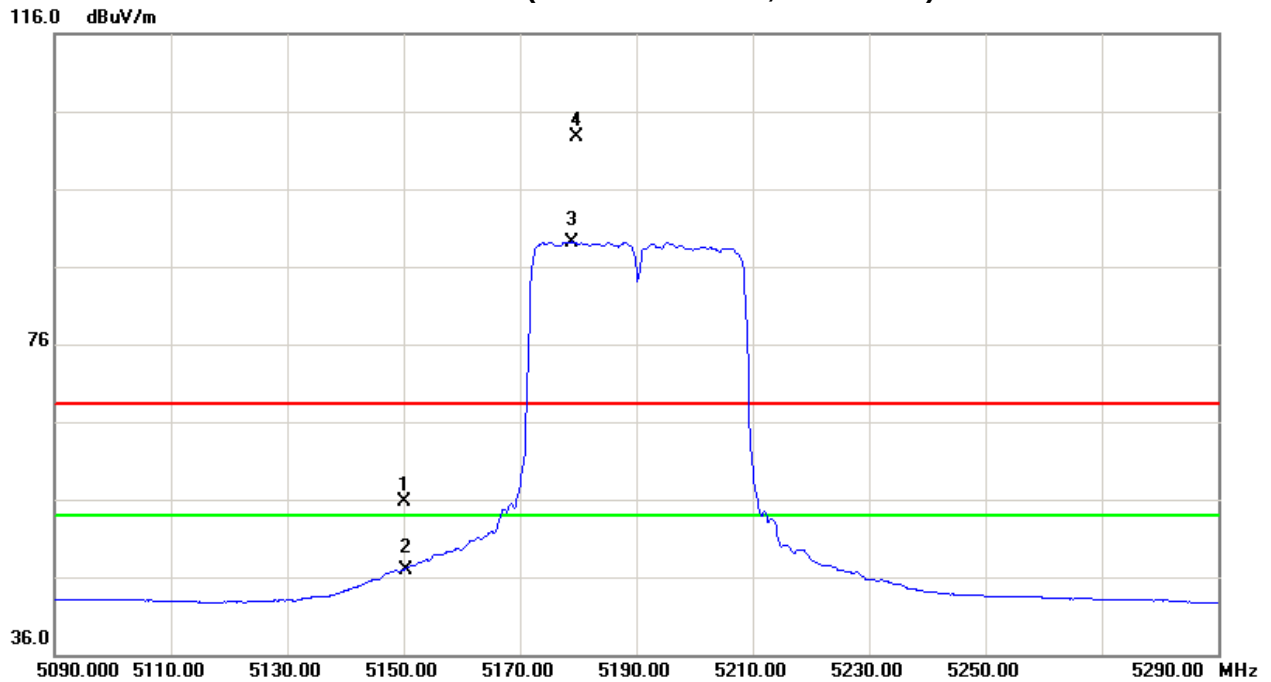
| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBUV/m) |       | Act.(dBm) |        | Limit(dBUV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBUV) | AV<br>(dBUV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5220.20        | V              | 57.59          | 44.14        | 42.89             | 100.48       | 87.03 | -4.29     | -17.74 |               |       |            |        | X/F  |
| 10463.00       | V              | 34.25          | 25.62        | 15.88             | 50.13        | 41.50 | -54.64    | -63.27 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |

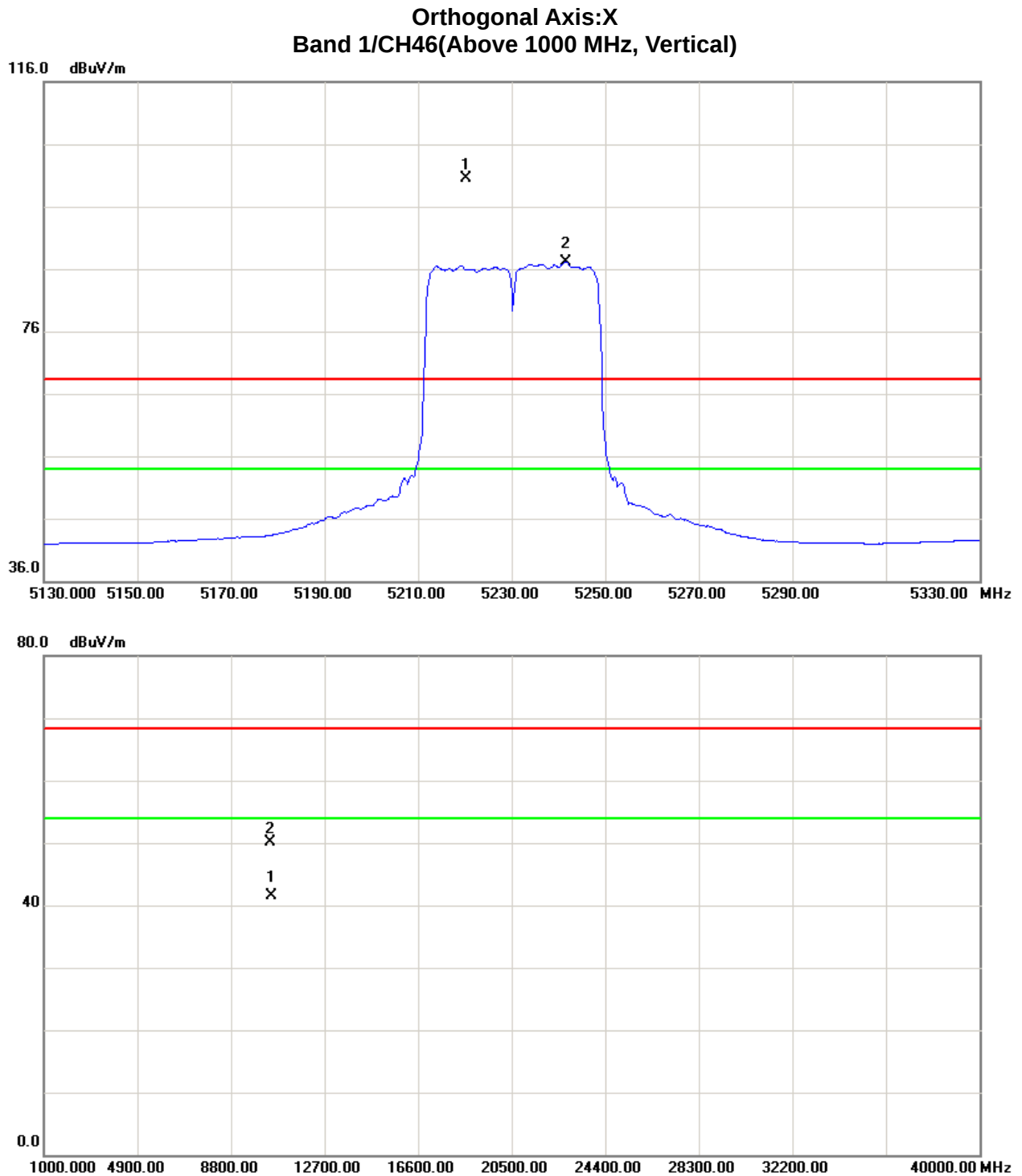
| Freq.<br>(MHz) | Ant.Pd.<br>H/V | Reading        |              | Ant./CF<br>CF(dB) | Act.(dBUV/m) |       | Act.(dBm) |        | Limit(dBUV/m) |       | Limit(dBm) |        | Note |
|----------------|----------------|----------------|--------------|-------------------|--------------|-------|-----------|--------|---------------|-------|------------|--------|------|
|                |                | Peak<br>(dBUV) | AV<br>(dBUV) |                   | Peak         | AV    | Peak      | AV     | Peak          | AV    | Peak       | AV     |      |
| 5219.20        | H              | 60.66          | 46.70        | 42.93             | 103.59       | 89.63 | -1.18     | -15.14 |               |       |            |        | X/F  |
| 10463.00       | H              | 33.28          | 25.10        | 15.88             | 49.16        | 40.98 | -55.61    | -63.79 | 68.30         | 54.00 | -27.00     | -41.30 | X/H  |





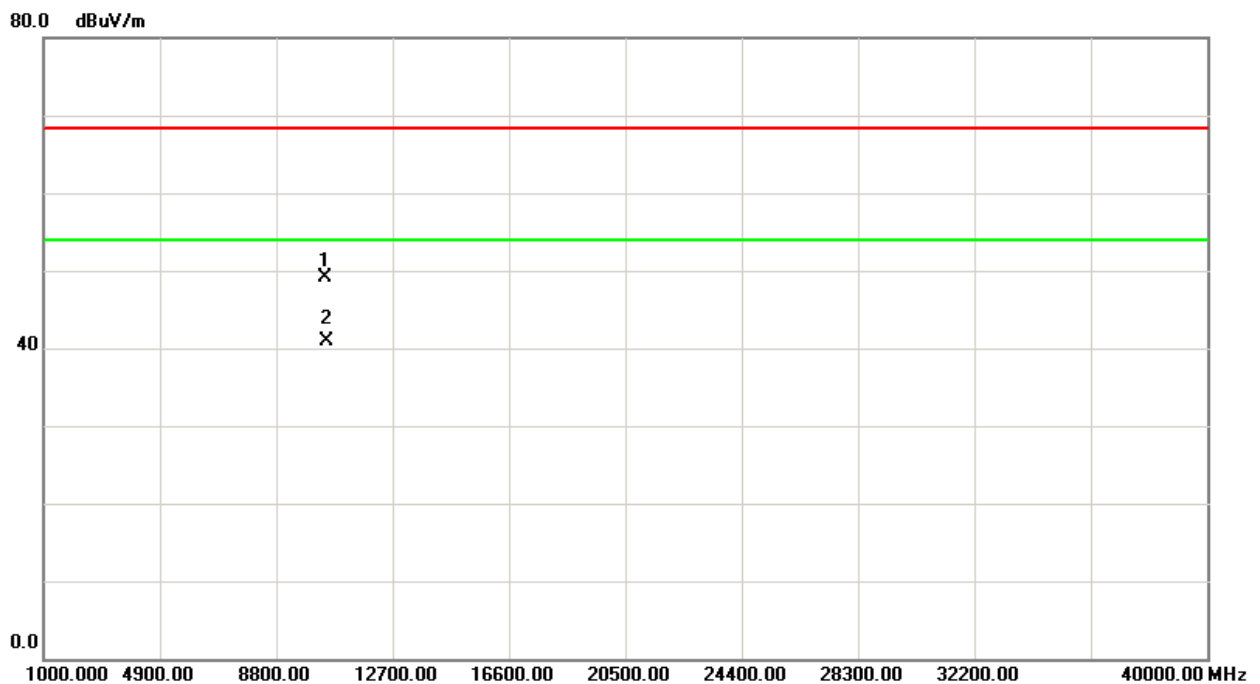
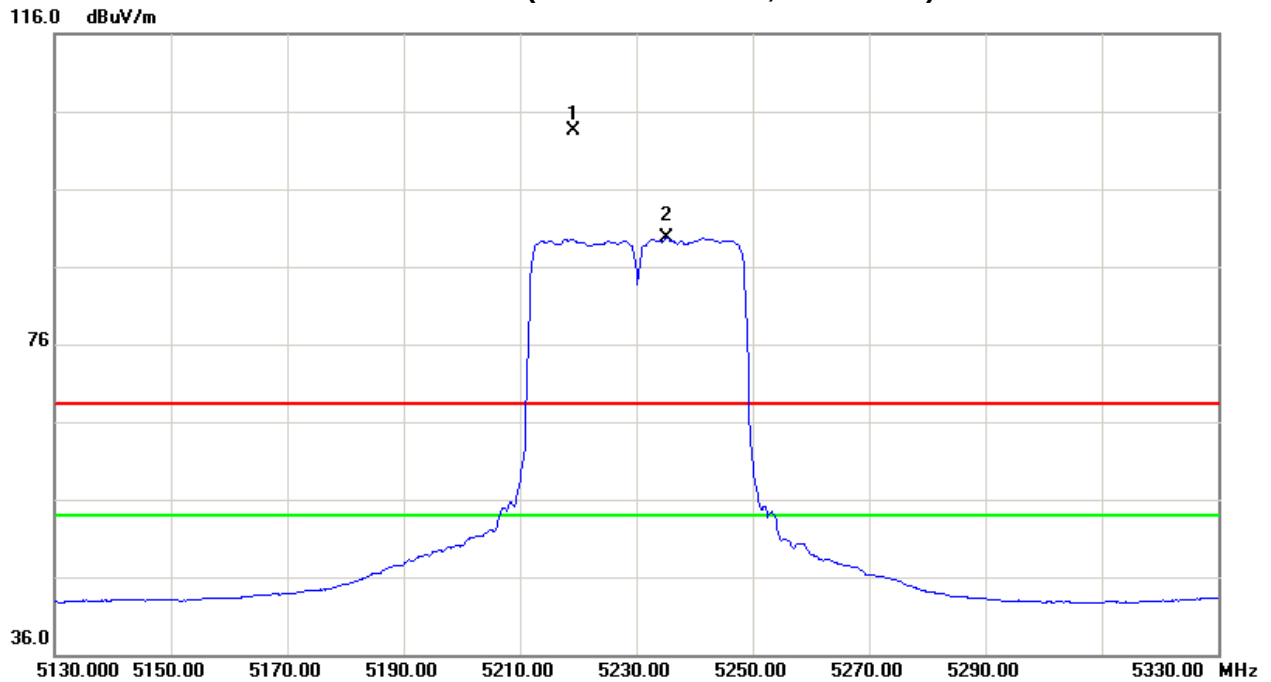
Orthogonal Axis:X  
Band 1/CH38(Above 1000 MHz, Horizontal)







Orthogonal Axis:X  
Band 1/CH46(Above 1000 MHz, Horizontal)





## 5. 26dB SPECTRUM BANDWIDTH

### 5.1 APPLIED PROCEDURES / LIMIT

| FCC Part15, Subpart E |       |                       |        |
|-----------------------|-------|-----------------------|--------|
| Test Item             | Limit | Frequency Range (MHz) | Result |
| 26 dB Bandwidth       | ----- | 5150MHz~5250          | PASS   |

#### 5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

| Spectrum Parameters | Setting          |
|---------------------|------------------|
| Attenuation         | Auto             |
| Span Frequency      | > 26dB Bandwidth |
| RB                  | 300 kHz          |
| VB                  | 1000 kHz         |
| Detector            | Peak             |
| Trace               | Max Hold         |
| Sweep Time          | Auto             |

c. Measured the spectrum width with power higher than 26dB below carrier

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



#### 5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 5.1.5 EUT TEST CONDITIONS

Temperature: 25°C

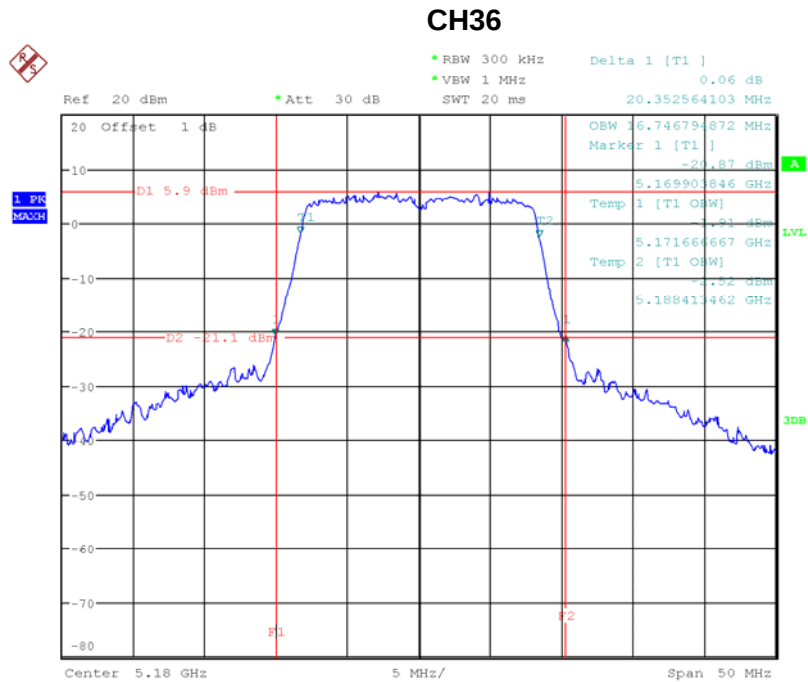
Relative Humidity: 55%

Test Voltage: 120V/60Hz



## 5.1.6 TEST RESULTS

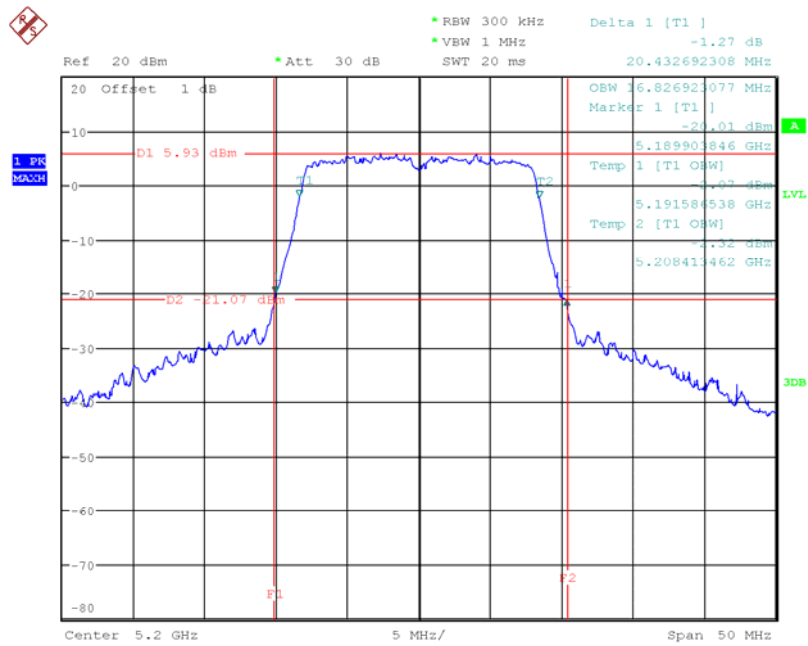
Test Mode : Band 1/TX A Mode\_CH36/40/48



Date: 21.JAN.2014 09:39:33

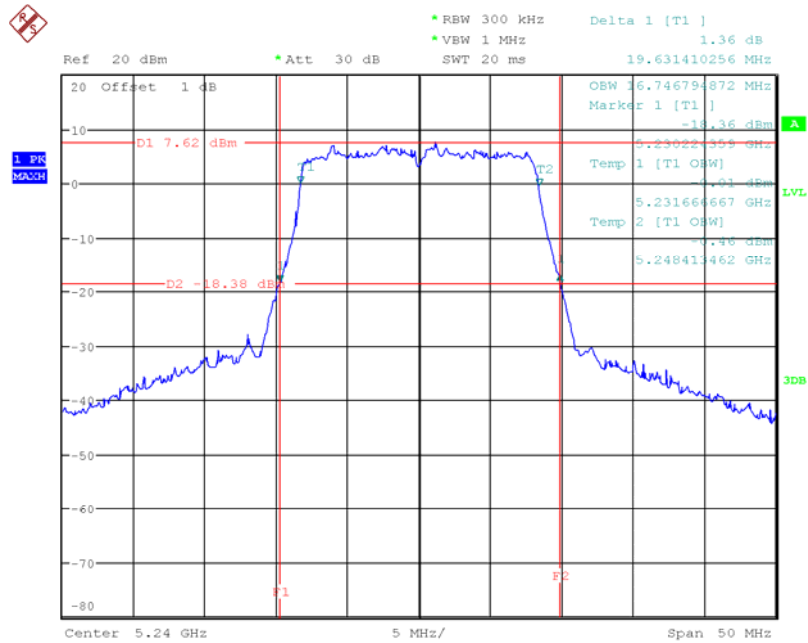


### CH40



Date: 21.JAN.2014 09:38:35

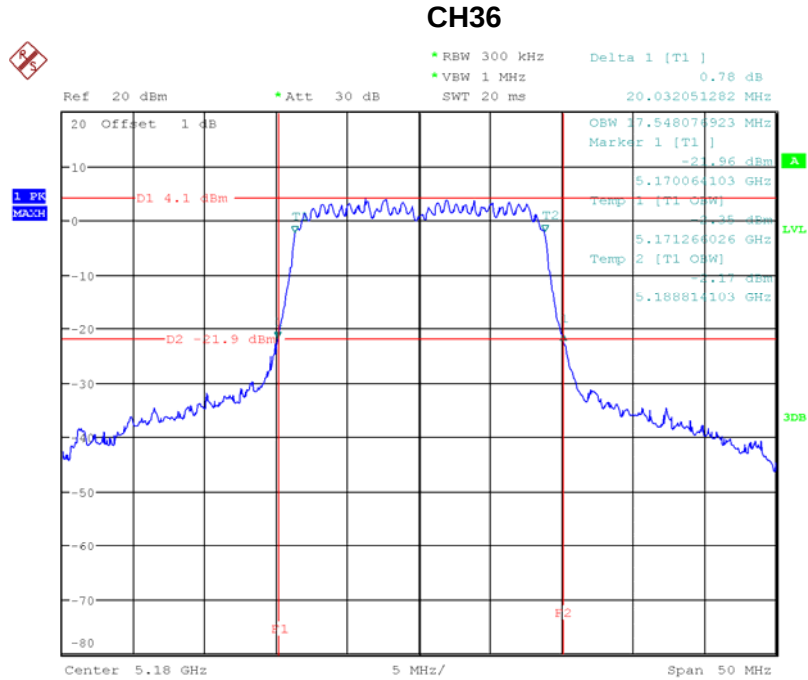
### CH48



Date: 21.JAN.2014 09:37:06



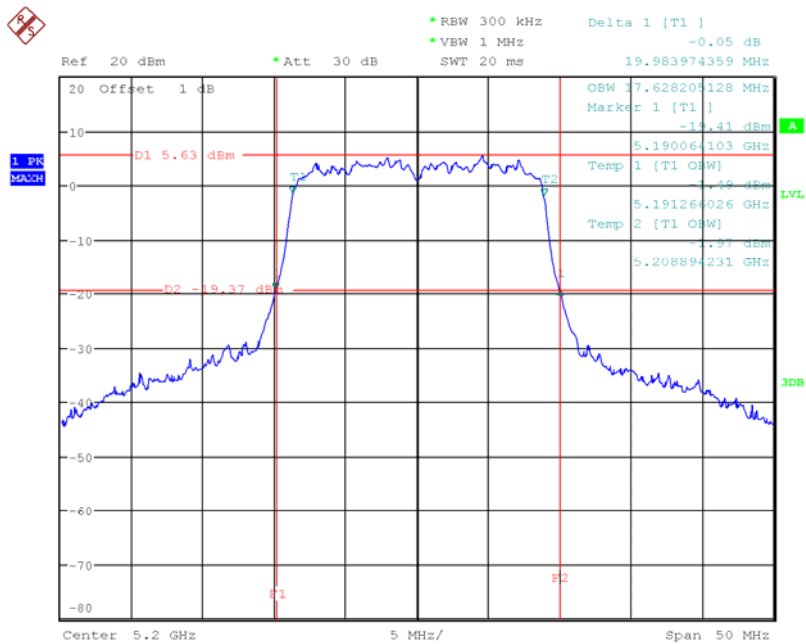
Test Mode : Band 1/TXN20 Mode\_CH36/40/48-ANT 1



Date: 21.JAN.2014 09:42:04

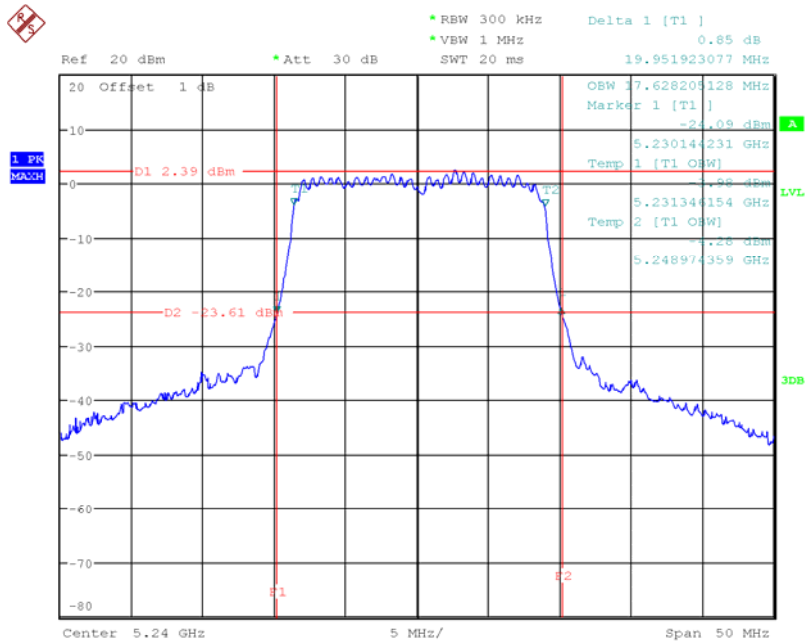


### CH40



Date: 21.JAN.2014 09:45:09

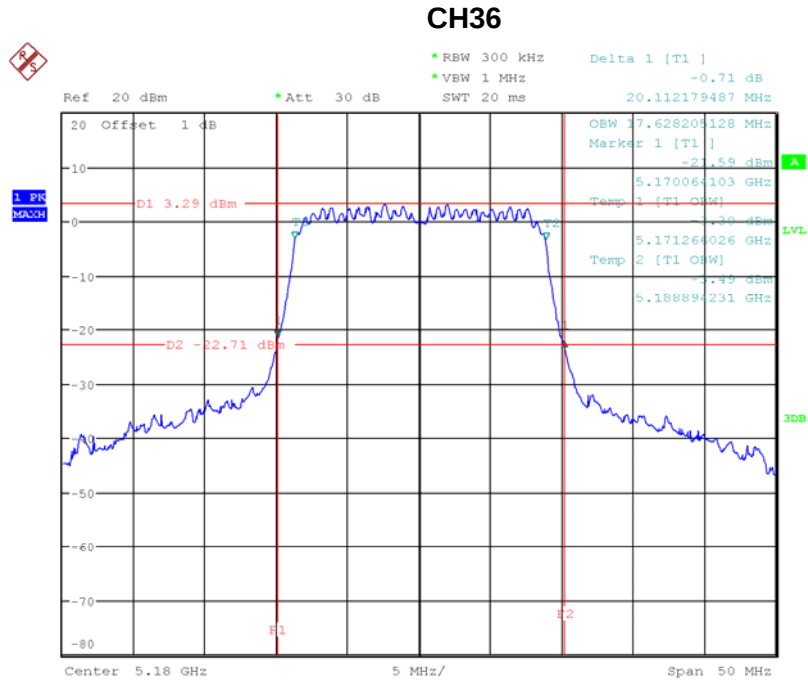
### CH48



Date: 21.JAN.2014 09:50:30



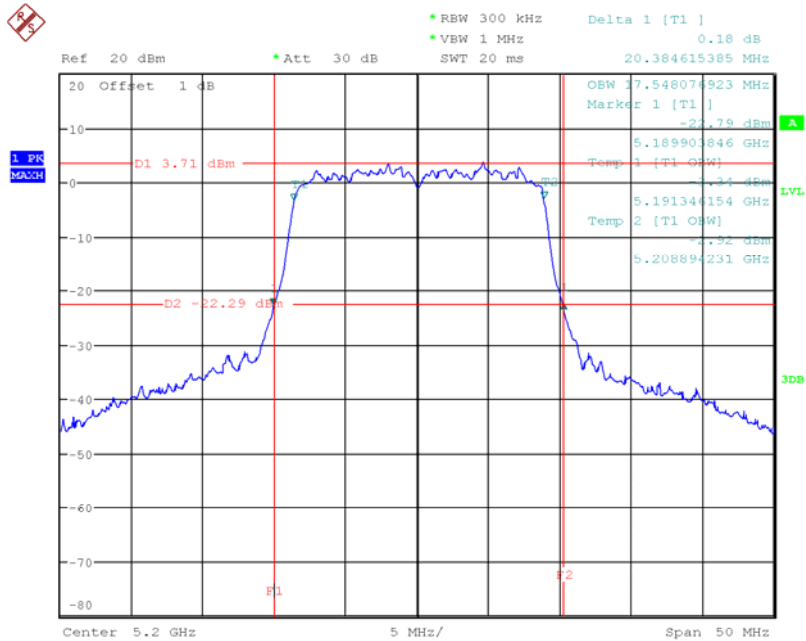
Test Mode : Band 1/TXN20 Mode\_CH36/40/48-ANT 2



Date: 21.JAN.2014 09:42:37

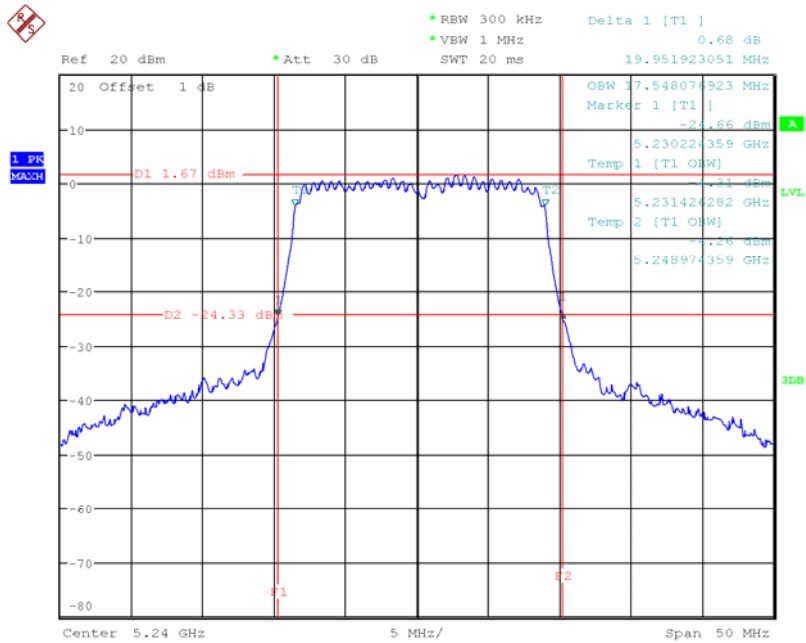


### CH40



Date: 21.JAN.2014 09:45:45

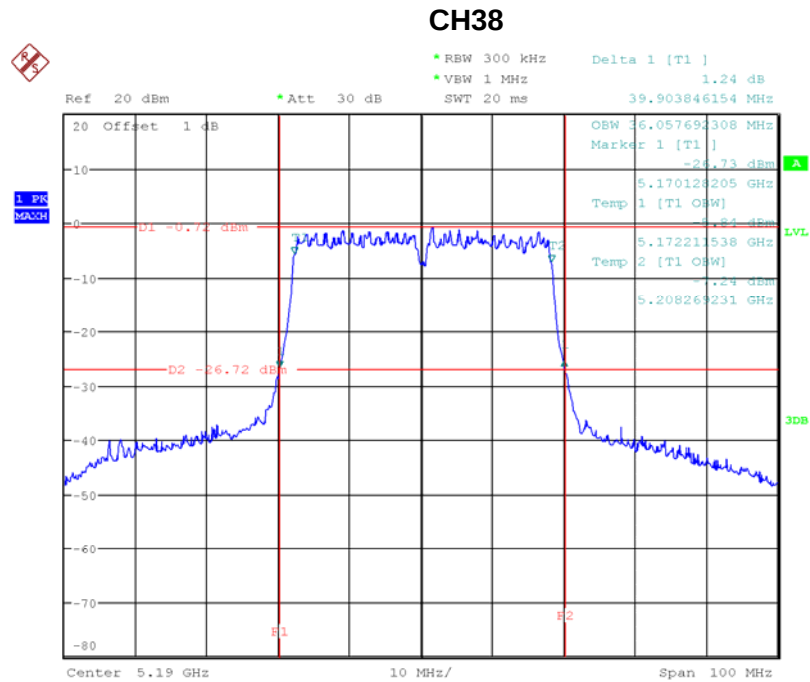
### CH48



Date: 21.JAN.2014 09:51:11



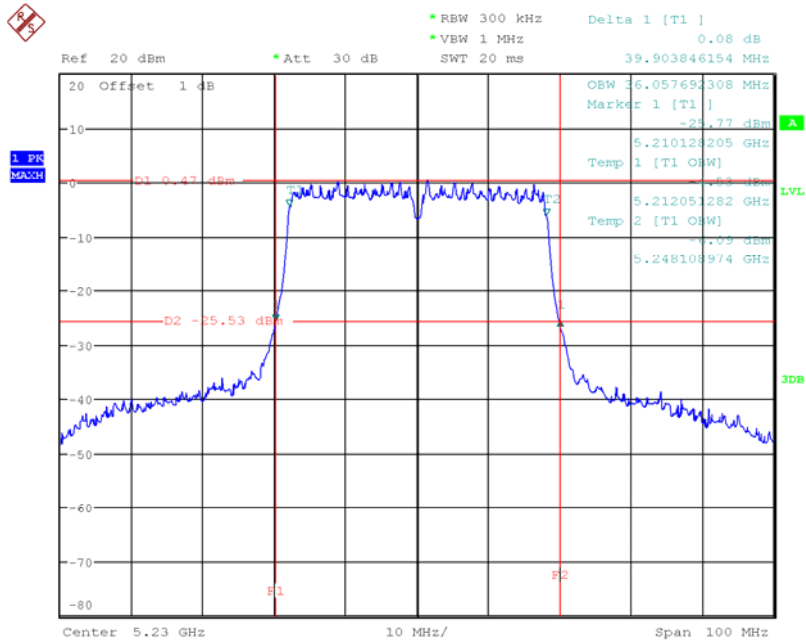
Test Mode : Band 1/TX N40 Mode\_CH38/46-ANT 1



Date: 21.JAN.2014 10:05:18



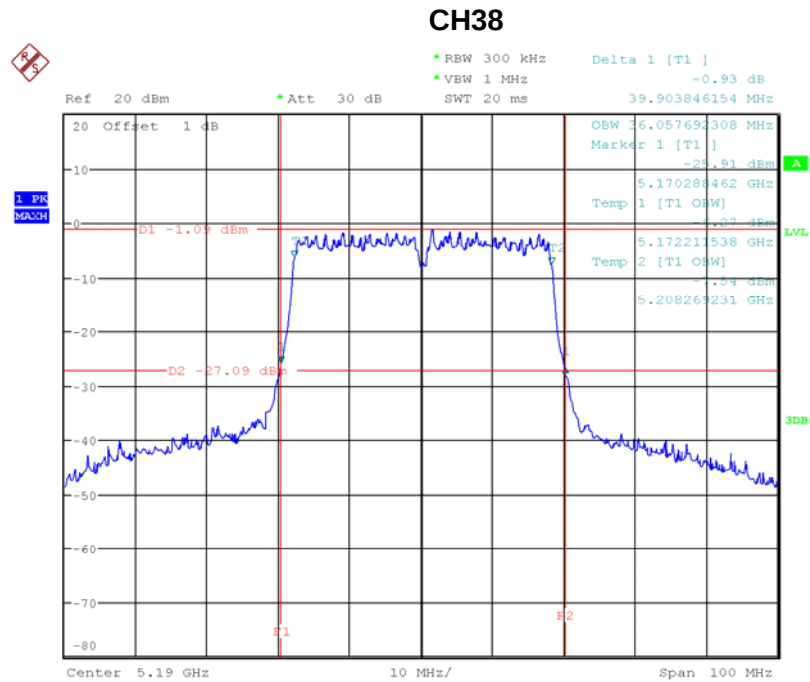
### CH46



Date: 21.JAN.2014 10:02:11



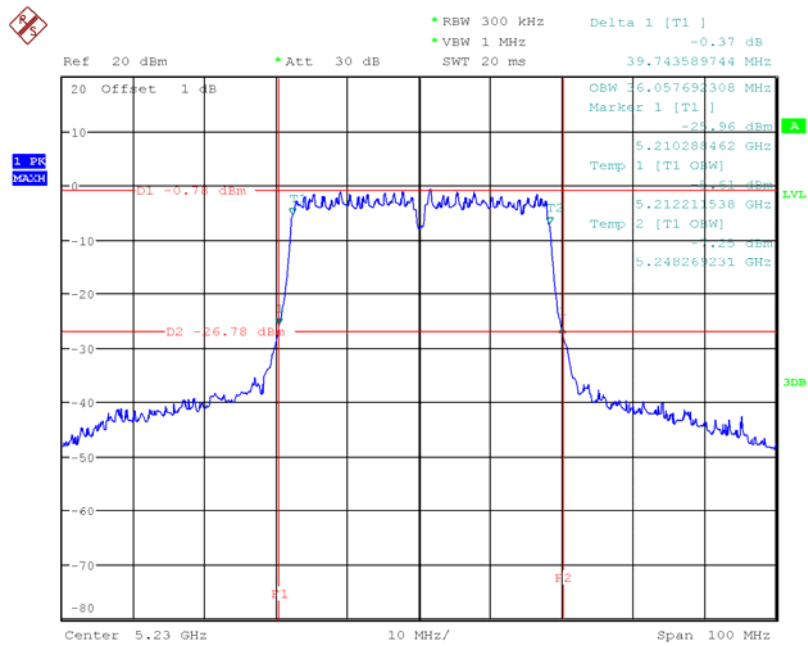
Test Mode : Band 1/TX N40 Mode\_CH38/46-ANT 2



Date: 21.JAN.2014 10:05:55



### CH46



Date: 21.JAN.2014 10:02:51



## 6. MAXIMUM CONDUCTED OUTPUT POWER

### 6.1 APPLIED PROCEDURES / LIMIT

| FCC Part15, Subpart E  |                       |                                                            |        |
|------------------------|-----------------------|------------------------------------------------------------|--------|
| Test Item              | Frequency Range (MHz) | Limit                                                      | Result |
| Conducted Output Power | 5150 - 5250           | not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B, | PASS   |

**Note:** where “B” is the 26 dB emissions bandwidth in MHz.

#### 6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b.

| Spectrum Parameter | Setting                                                      |
|--------------------|--------------------------------------------------------------|
| Attenuation        | Auto                                                         |
| Span Frequency     | Encompass the entire emissions bandwidth (EBW) of the signal |
| RBW                | = 1 MHz.                                                     |
| VBW                | $\geq$ 3 MHz.                                                |
| Detector           | RMS                                                          |
| Trace              | Max Hold                                                     |
| Sweep Time         | auto                                                         |

- b. Test was performed in accordance with method of KDB 789033 D01.



#### **6.1.2 DEVIATION FROM STANDARD**

No deviation.

#### **6.1.3 TEST SETUP**



#### **6.1.4 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

#### **6.1.5 EUT TEST CONDITIONS**

Temperature: 25°C  
Relative Humidity: 55%  
Test Voltage: 120V/60Hz



**6.1.6 TEST RESULTS**

| Test Mode :Band 1/TX A Mode |                 |                              |             |           |
|-----------------------------|-----------------|------------------------------|-------------|-----------|
| Test Channel                | Frequency (MHz) | Conducted Output Power (dBm) | LIMIT (dBm) | LIMIT (W) |
| CH36                        | 5180            | 16.89                        | 17.00       | 0.0501    |
| CH40                        | 5200            | 16.70                        | 17.00       | 0.0501    |
| CH48                        | 5240            | 16.95                        | 17.00       | 0.0501    |



**Test Mode :Band 1/TX N20 Mode-ANT 1**

| Test Channel | Frequency (MHz) | Conducted Output Power (dBm) | LIMIT (dBm) | LIMIT (W) |
|--------------|-----------------|------------------------------|-------------|-----------|
| CH36         | 5180            | 13.87                        | 17.00       | 0.0501    |
| CH40         | 5200            | 13.88                        | 17.00       | 0.0501    |
| CH48         | 5240            | 13.92                        | 17.00       | 0.0501    |

**Test Mode :Band 1/TX N20 Mode-ANT 2**

| Test Channel | Frequency (MHz) | Conducted Output Power (dBm) | LIMIT (dBm) | LIMIT (W) |
|--------------|-----------------|------------------------------|-------------|-----------|
| CH36         | 5180            | 13.84                        | 17.00       | 0.0501    |
| CH40         | 5200            | 13.91                        | 17.00       | 0.0501    |
| CH48         | 5240            | 13.86                        | 17.00       | 0.0501    |

**Test Mode :Band 1/TX N20 Mode-Total**

| Test Channel | Frequency (MHz) | Conducted Output Power (dBm) | LIMIT (dBm) | LIMIT (W) |
|--------------|-----------------|------------------------------|-------------|-----------|
| CH36         | 5180            | 16.87                        | 17.00       | 0.0501    |
| CH40         | 5200            | 16.91                        | 17.00       | 0.0501    |
| CH48         | 5240            | 16.90                        | 17.00       | 0.0501    |



**Test Mode : Band 1/TX N40 Mode-ANT 1**

| Test Channel | Frequency (MHz) | Conducted Output Power (dBm) | LIMIT (dBm) | LIMIT (W) |
|--------------|-----------------|------------------------------|-------------|-----------|
| CH38         | 5190            | 13.89                        | 17.00       | 0.0501    |
| CH46         | 5230            | 13.96                        | 17.00       | 0.0501    |

**Test Mode : Band 1/TX N40 Mode-ANT 2**

| Test Channel | Frequency (MHz) | Conducted Output Power (dBm) | LIMIT (dBm) | LIMIT (W) |
|--------------|-----------------|------------------------------|-------------|-----------|
| CH38         | 5190            | 13.88                        | 17.00       | 0.0501    |
| CH46         | 5230            | 13.96                        | 17.00       | 0.0501    |

**Test Mode : Band 1/TX N40 Mode-Total**

| Test Channel | Frequency (MHz) | Conducted Output Power (dBm) | LIMIT (dBm) | LIMIT (W) |
|--------------|-----------------|------------------------------|-------------|-----------|
| CH38         | 5190            | 16.90                        | 17.00       | 0.0501    |
| CH46         | 5230            | 16.97                        | 17.00       | 0.0501    |



## 7. ANTENNA CONDUCTED SPURIOUS EMISSION

### 7.1 APPLIED PROCEDURES / LIMIT

| FCC Part15, Subpart E               |              |                       |        |
|-------------------------------------|--------------|-----------------------|--------|
| Test Item                           | Limit        | Frequency Range (MHz) | Result |
| Antenna conducted Spurious Emission | -27 dBm/1MHz | 5150 – 5250           | PASS   |

#### 7.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

| Spectrum Parameter | Setting  |
|--------------------|----------|
| Attenuation        | Auto     |
| RB                 | 1000 kHz |
| VB                 | 1000 kHz |
| Trace              | Max Hold |
| Sweep Time         | Auto     |

#### 7.1.2 DEVIATION FROM STANDARD

No deviation.

#### 7.1.3 TEST SETUP



#### 7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 7.1.5 EUT TEST CONDITIONS

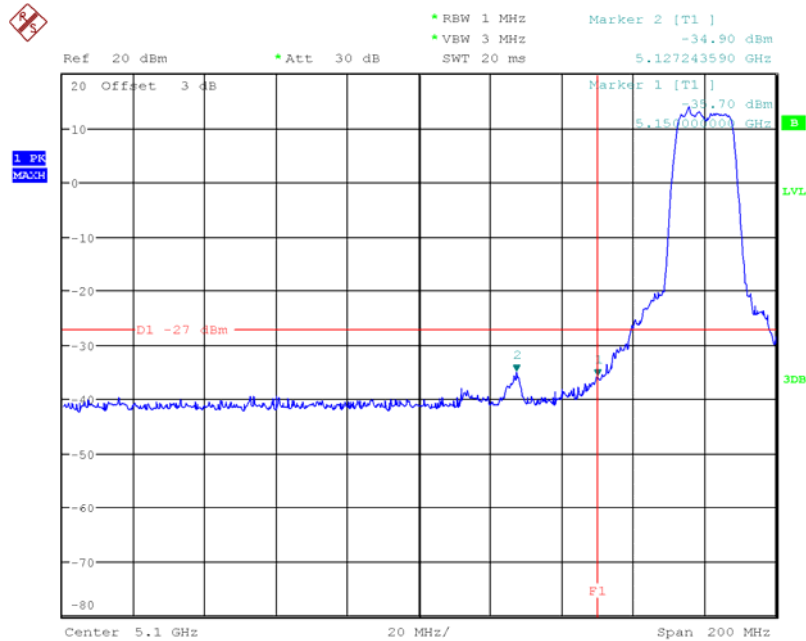
Temperature: 25°C  
Relative Humidity: 55%  
Test Voltage: 120V/60Hz



## 7.1.6 TEST RESULTS

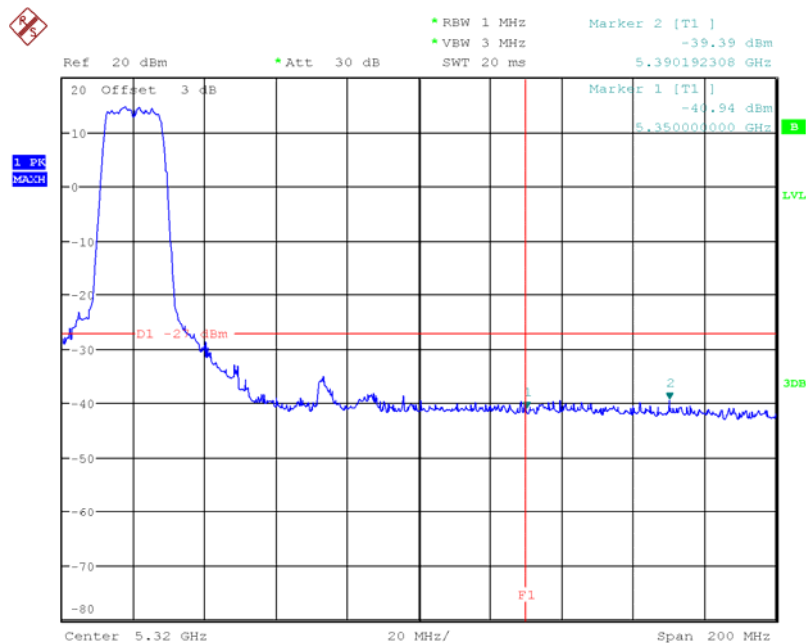
Test Mode : Band 1/TX A Mode

### TX mode CH36



Date: 21.JAN.2014 09:40:03

### TX mode CH48

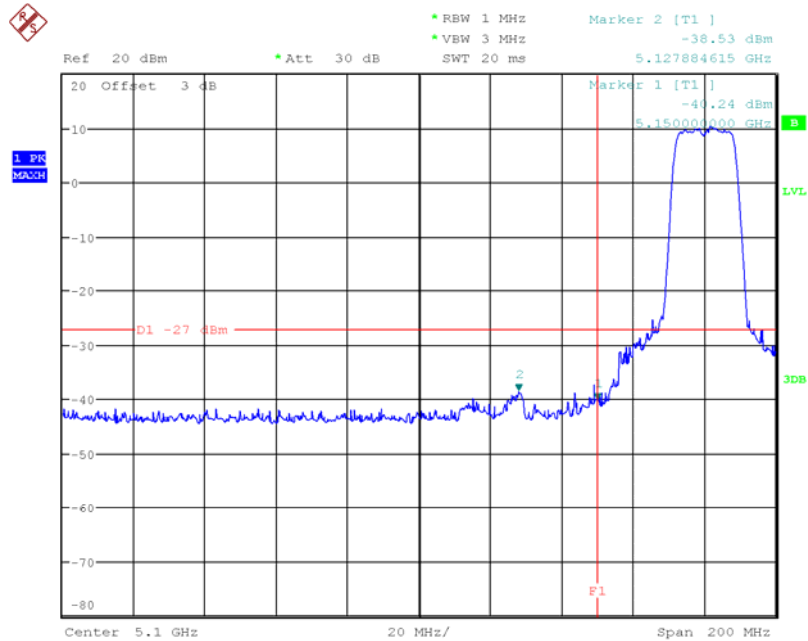


Date: 21.JAN.2014 09:35:25



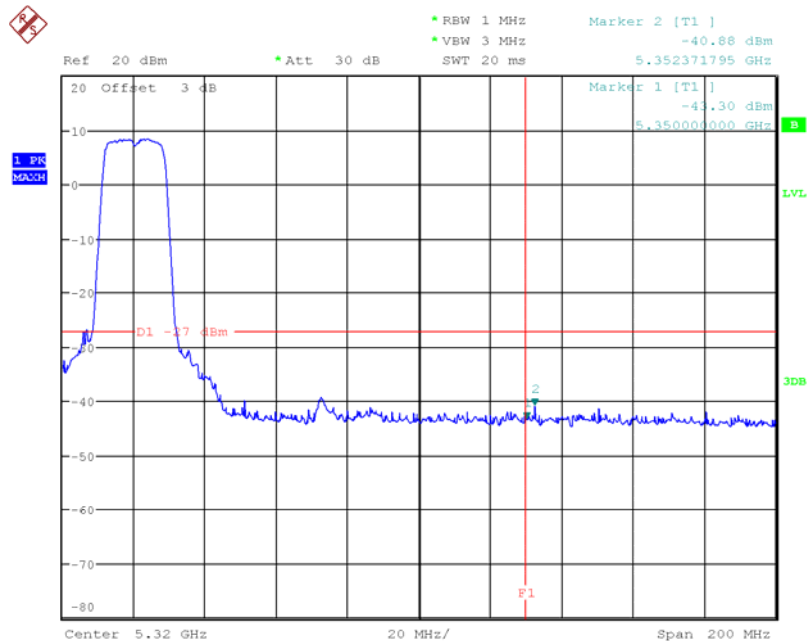
Test Mode : Band 1/TX N20 Mode-ANT 1

### TX mode CH36



Date: 21.JAN.2014 09:42:52

### TX mode CH48

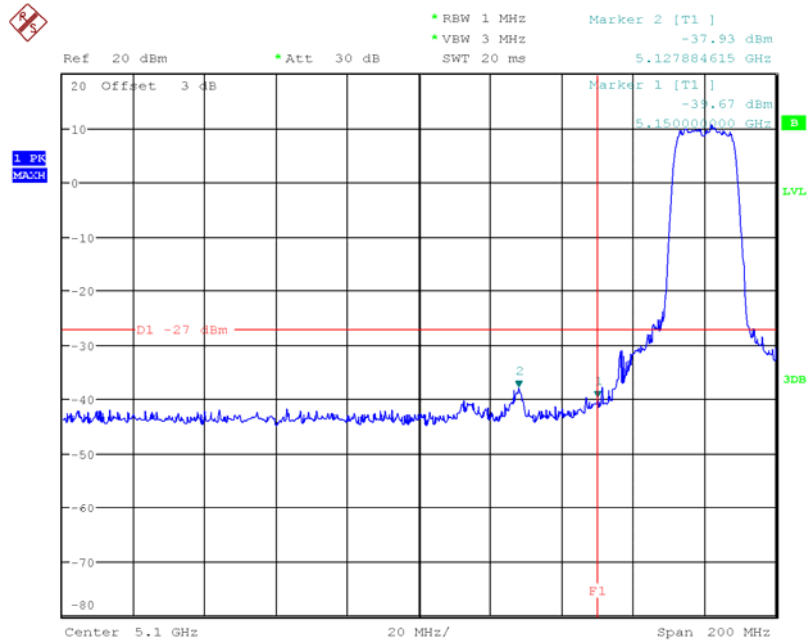


Date: 21.JAN.2014 09:51:37



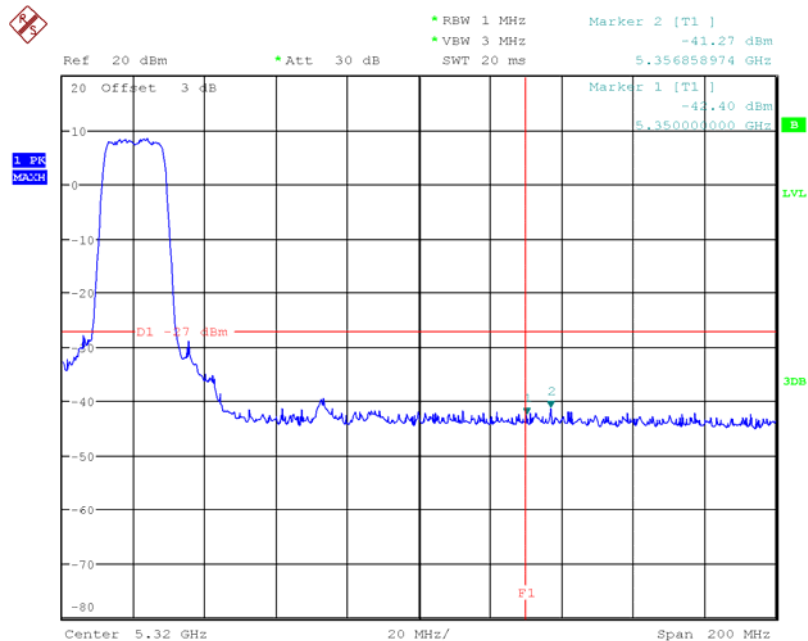
Test Mode : Band 1/TX N20 Mode-ANT 2

### TX mode CH36



Date: 21.JAN.2014 09:43:05

### TX mode CH48

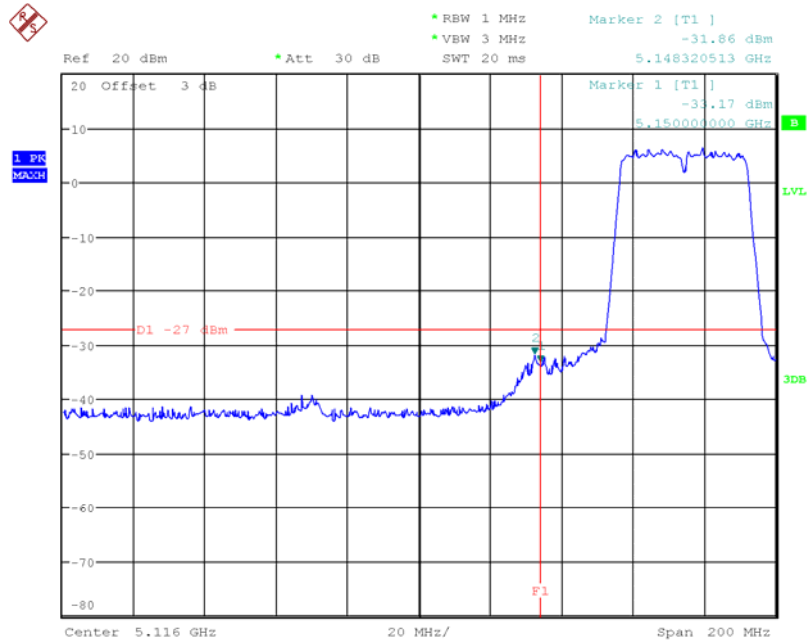


Date: 21.JAN.2014 09:51:49



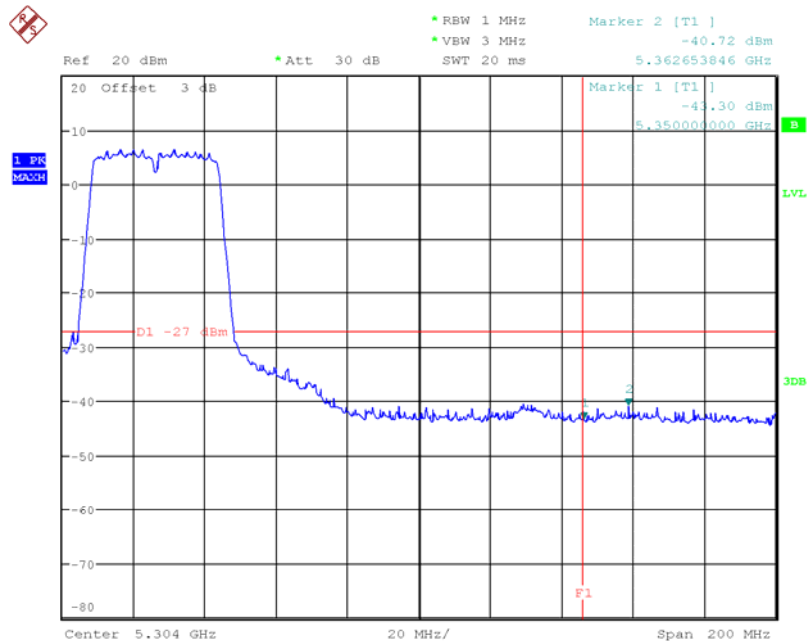
Test Mode : Band 1/TX N40 Mode-ANT 1

### TX mode CH38



Date: 21.JAN.2014 10:06:34

### TX mode CH46

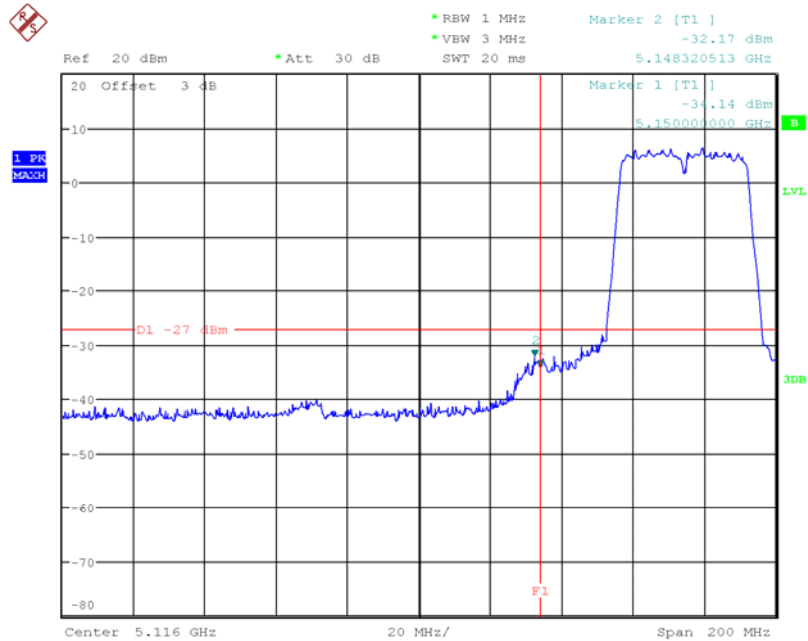


Date: 21.JAN.2014 10:03:51



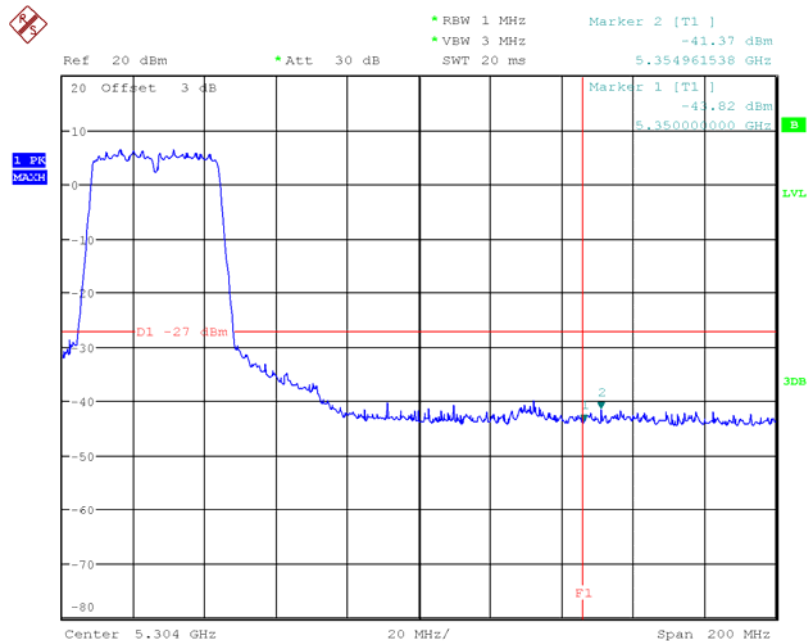
Test Mode : Band 1/TX N40 Mode-ANT 2

### TX mode CH38



Date: 21.JAN.2014 10:06:50

### TX mode CH46



Date: 21.JAN.2014 10:04:09



## 8. POWER SPECTRAL DENSITY TEST

### 8.1 APPLIED PROCEDURES / LIMIT

| FCC Part15, Subpart E  |       |                       |        |
|------------------------|-------|-----------------------|--------|
| Test Item              | Limit | Frequency Range (MHz) | Result |
| Power Spectral Density | 4 dBm | 5150 - 5250           | PASS   |

#### 8.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

| Spectrum Parameter | Setting                                                      |
|--------------------|--------------------------------------------------------------|
| Attenuation        | Auto                                                         |
| Span Frequency     | Encompass the entire emissions bandwidth (EBW) of the signal |
| RB                 | = 1 MHz.                                                     |
| VB                 | ≥ 3 MHz.                                                     |
| Detector           | RMS                                                          |
| Trace              | Max Hold                                                     |
| Sweep Time         | Auto                                                         |

#### 8.1.2 DEVIATION FROM STANDARD

No deviation.

#### 8.1.3 TEST SETUP



#### 8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

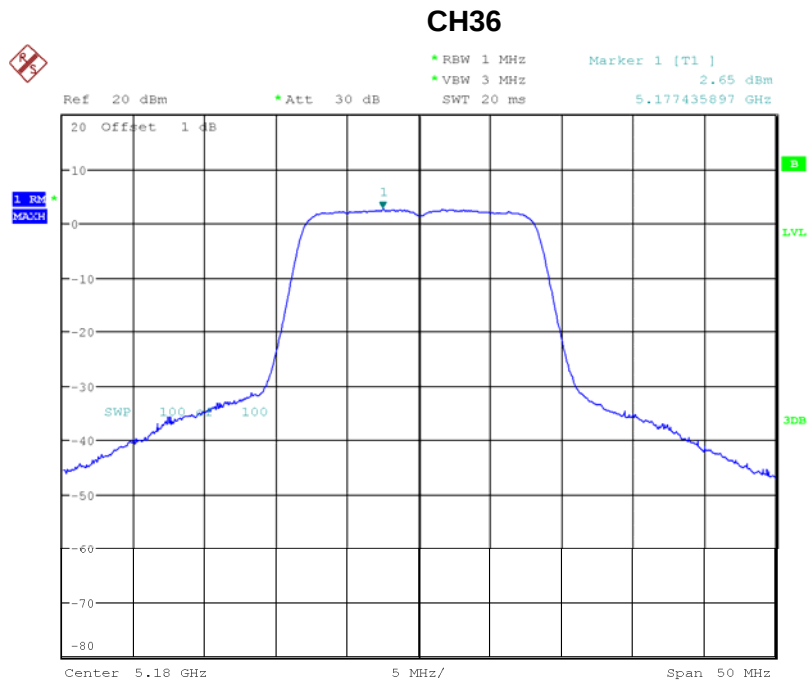
#### 8.1.5 EUT TEST CONDITIONS

Temperature: 25°C  
Relative Humidity: 55%  
Test Voltage: 120V/60Hz



## 8.1.6 TEST RESULTS

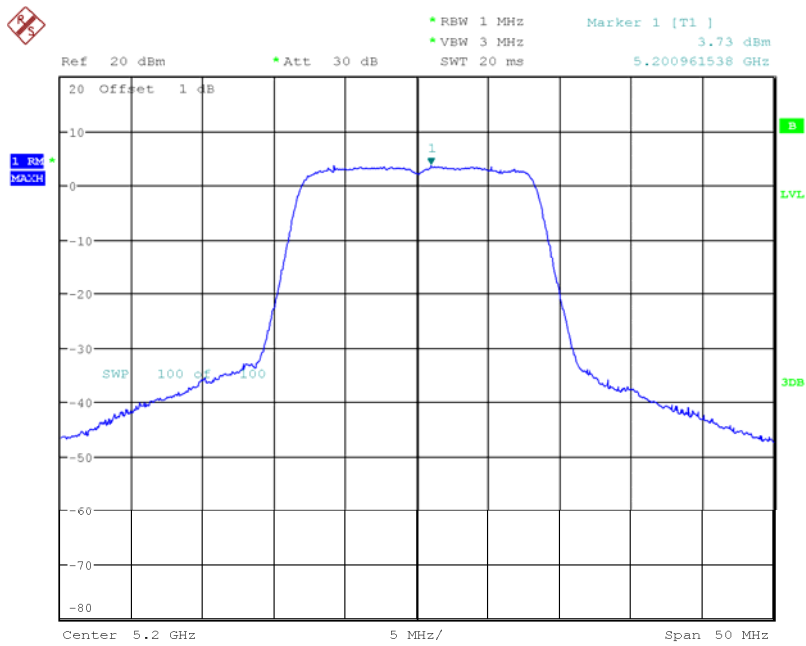
Test Mode : Band 1/TX A Mode\_CH36/40/48



Date: 21.JAN.2014 09:28:11

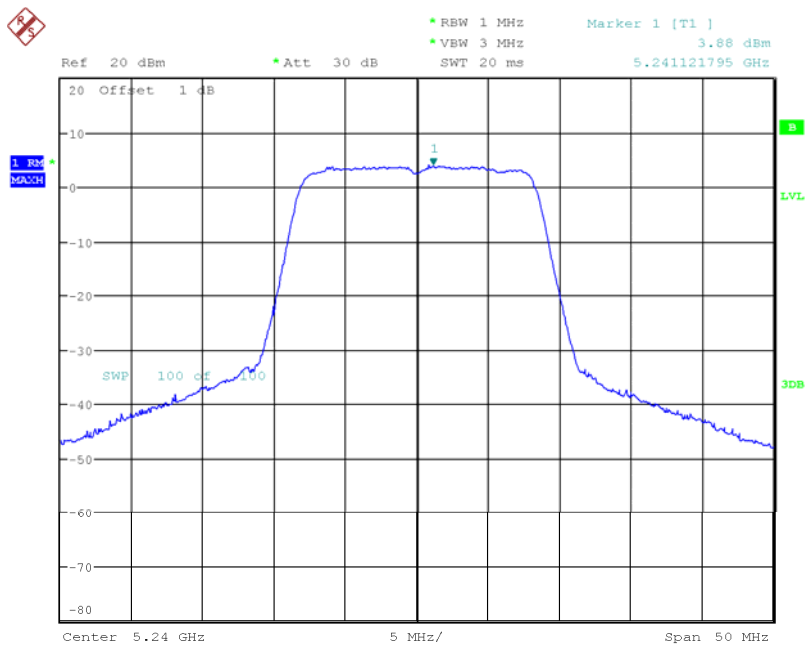


### CH40



Date: 21.JAN.2014 09:30:23

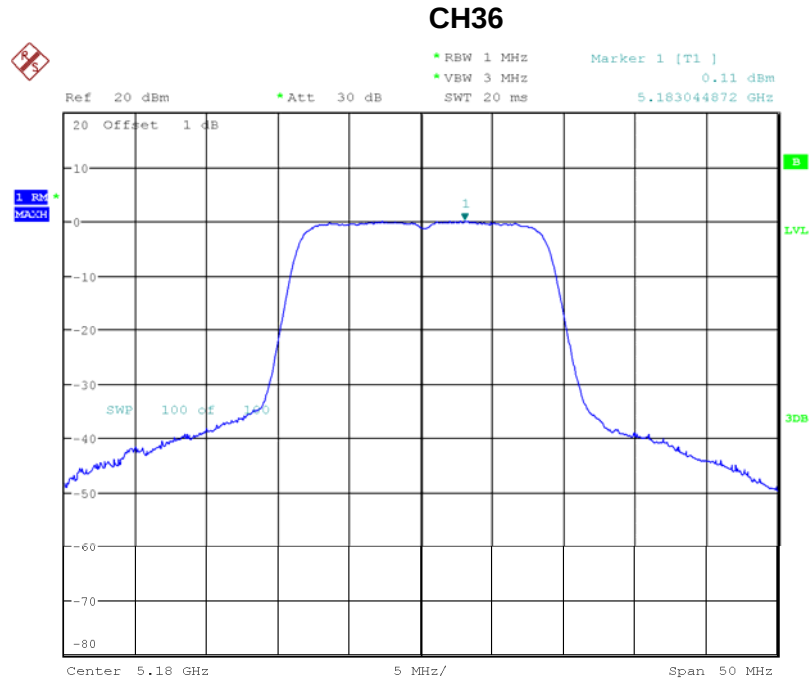
### CH48



Date: 21.JAN.2014 09:31:17



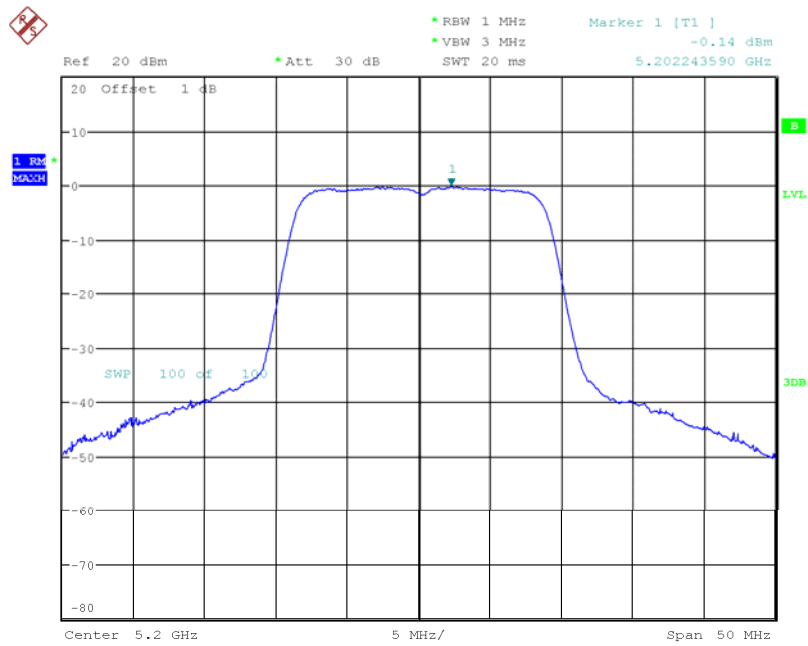
Test Mode : Band 1/TX N20 Mode\_CH13/40/48-ANT 1



Date: 21.JAN.2014 09:56:06

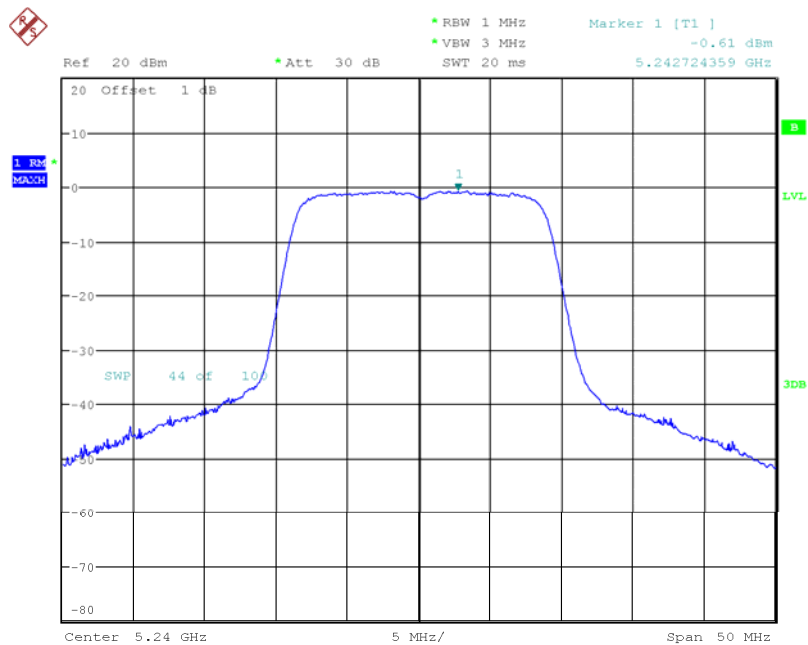


### CH40



Date: 21.JAN.2014 09:55:04

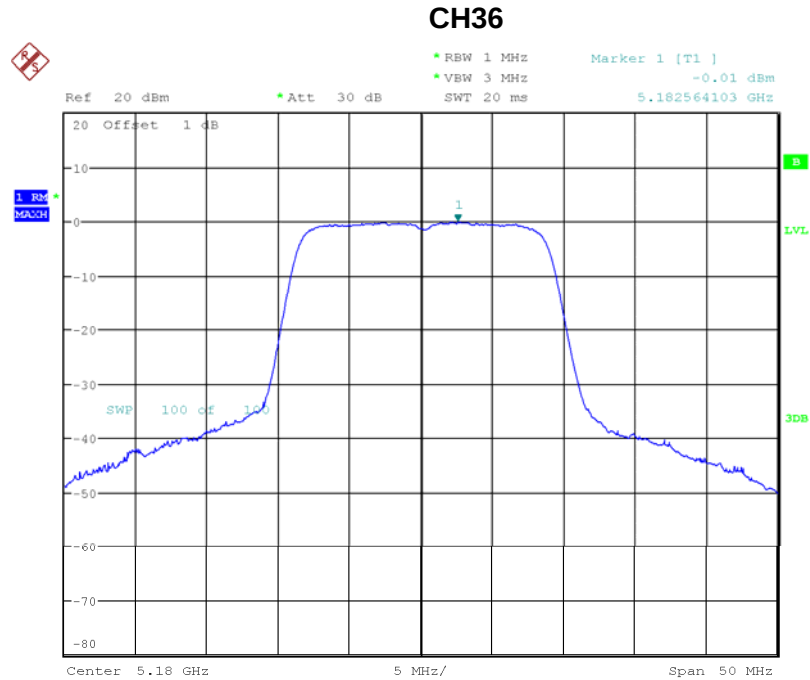
### CH48



Date: 21.JAN.2014 09:53:51



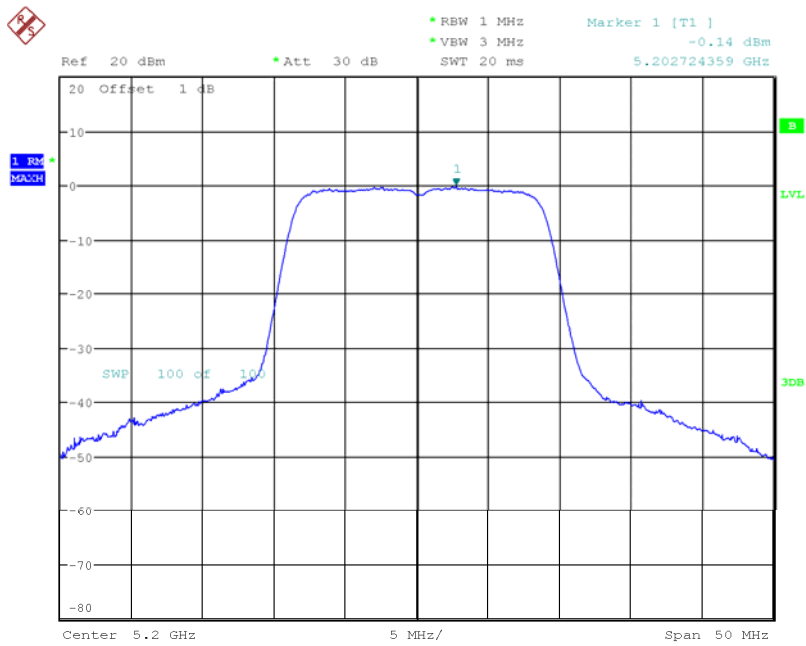
Test Mode : Band 1/TX N20 Mode\_CH13/40/48-ANT 2



Date: 21.JAN.2014 09:56:15

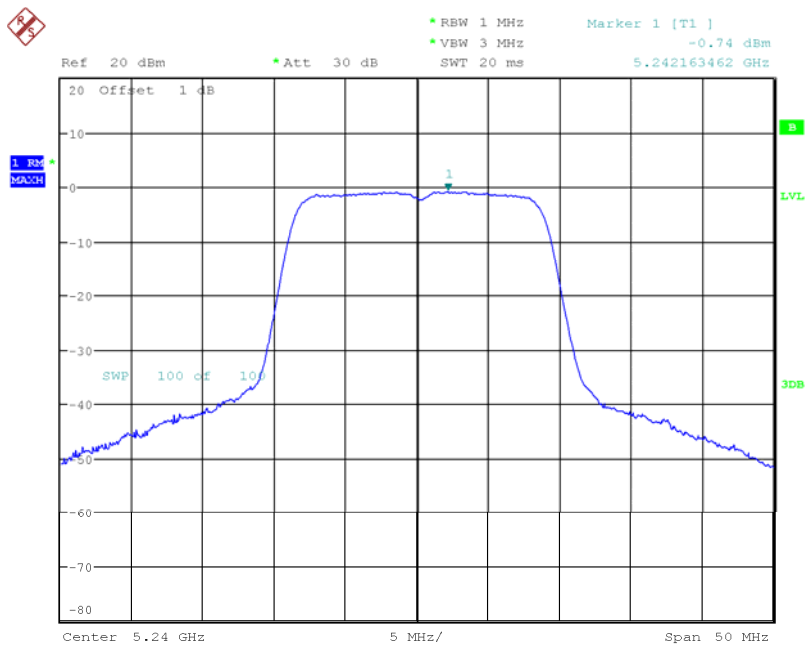


### CH40



Date: 21.JAN.2014 09:55:12

### CH48



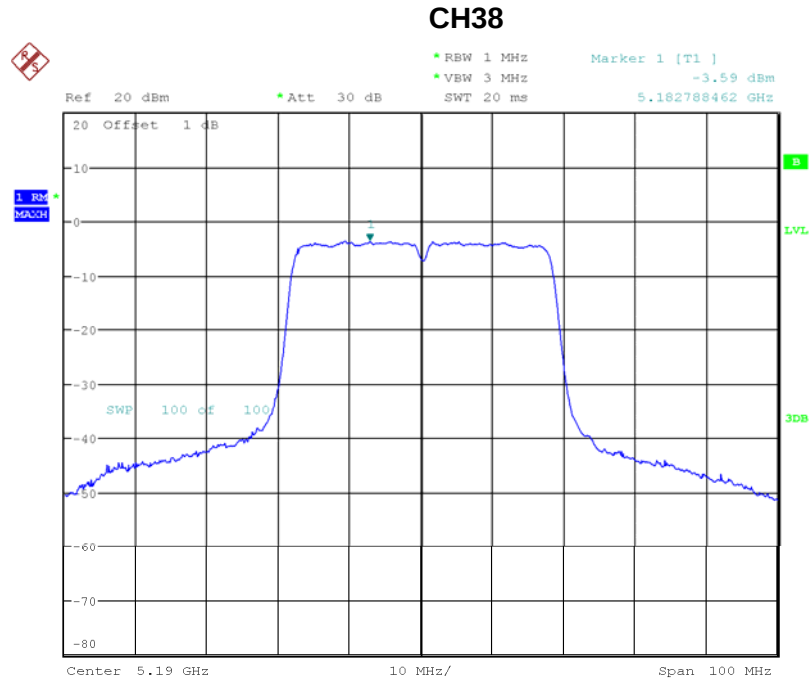
Date: 21.JAN.2014 09:54:05



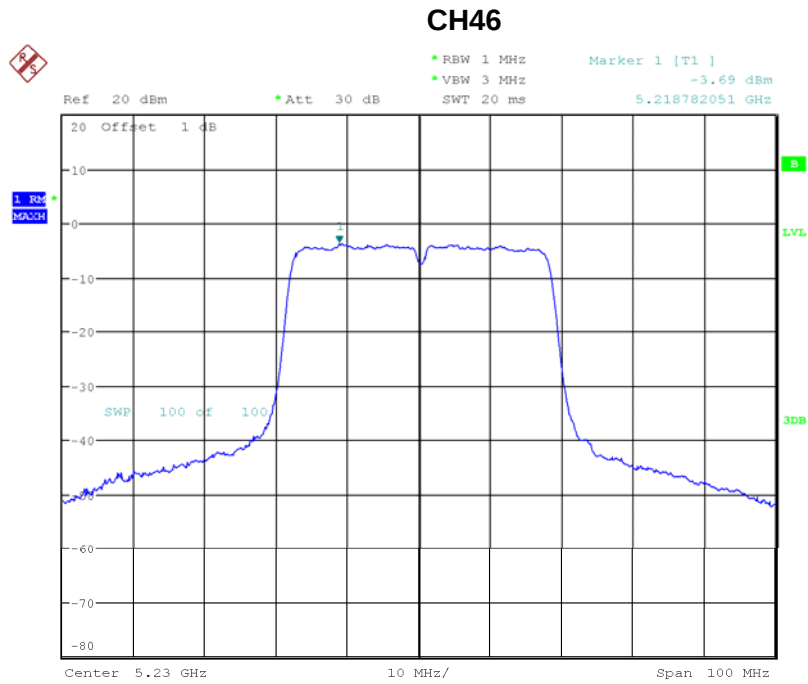
| Test Mode : Band 1/TX N20 Mode-Total |                    |                        |                |
|--------------------------------------|--------------------|------------------------|----------------|
| Test Channel                         | Frequency<br>(MHz) | Power Density<br>(dBm) | LIMIT<br>(dBm) |
| CH36                                 | 5180               | 3.06                   | 4.00           |
| CH40                                 | 5200               | 2.87                   | 4.00           |
| CH48                                 | 5240               | 2.34                   | 4.00           |



Test Mode : Band 1/TX N40 Mode\_CH38/46-ANT 1



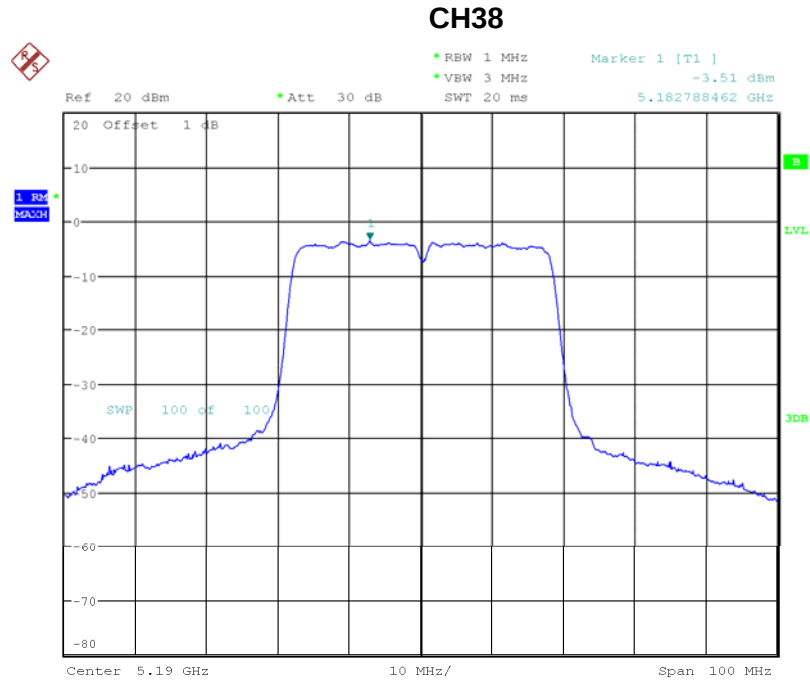
Date: 21.JAN.2014 09:58:51



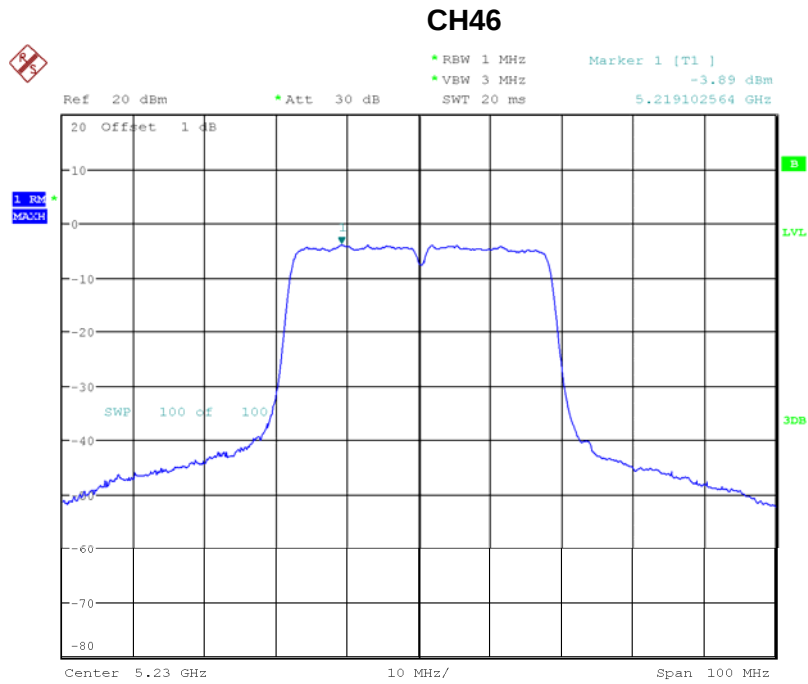
Date: 21.JAN.2014 10:00:31



Test Mode : Band 1/TX N40 Mode\_CH38/46-ANT 2



Date: 21.JAN.2014 09:59:09



Date: 21.JAN.2014 10:00:50



| Test Mode : Band 1/TX N40 Mode-Total |                    |                        |                |
|--------------------------------------|--------------------|------------------------|----------------|
| Test Channel                         | Frequency<br>(MHz) | Power Density<br>(dBm) | LIMIT<br>(dBm) |
| CH38                                 | 5190               | -0.54                  | 4.00           |
| CH46                                 | 5230               | -0.78                  | 4.00           |



## 9. PEAK EXCURSION MEASUREMENT

### 9.1 APPLIED PROCEDURES / LIMIT

| FCC Part15, Subpart E      |       |                       |        |
|----------------------------|-------|-----------------------|--------|
| Test Item                  | Limit | Frequency Range (MHz) | Result |
| Peak Excursion Measurement | 13 dB | 5150 - 5250           | PASS   |

#### 9.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

| Spectrum Parameter | Setting                                                      |
|--------------------|--------------------------------------------------------------|
| Attenuation        | Auto                                                         |
| Span Frequency     | Encompass the entire emissions bandwidth (EBW) of the signal |
| RB                 | 1000 kHz (Peak Trace) / 1000 kHz (Average Trace)             |
| VB                 | 3000 kHz (Peak Trace) / 3000 kHz (Average Trace)             |
| Detector           | Peak (Peak Trace) / RMS (Average Trace)                      |
| Trace              | Max Hold                                                     |
| Sweep Time         | 60s                                                          |

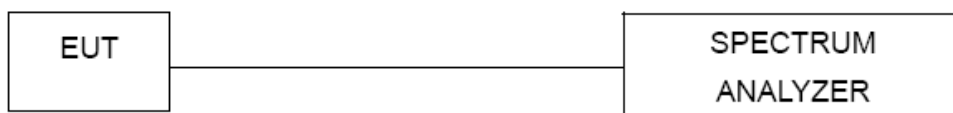
c. Peak Trace: Set RBW = 1 MHz, VBW  $\geq$  3 MHz with peak detector and maxhold settings.

d. Average Trace: set RBW = 1 MHz, VBW = 3 MHz with RMS detector and trace average across 100 traces in power averaging mode.

#### 9.1.2 DEVIATION FROM STANDARD

No deviation.

#### 9.1.3 TEST SETUP



#### 9.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 9.1.5 EUT TEST CONDITIONS

Temperature: 25°C

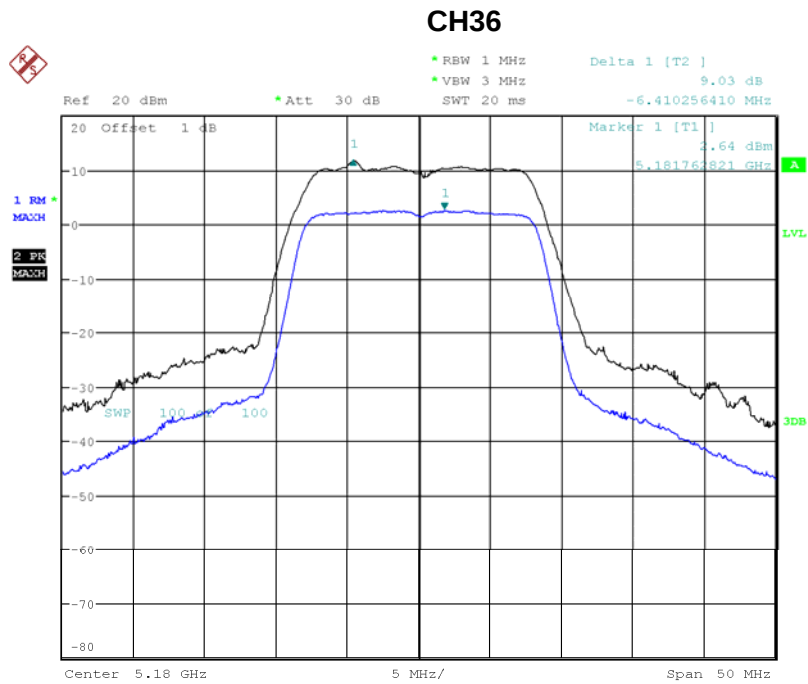
Relative Humidity: 55%

Test Voltage: 120V/60Hz



## 9.1.6 TEST RESULTS

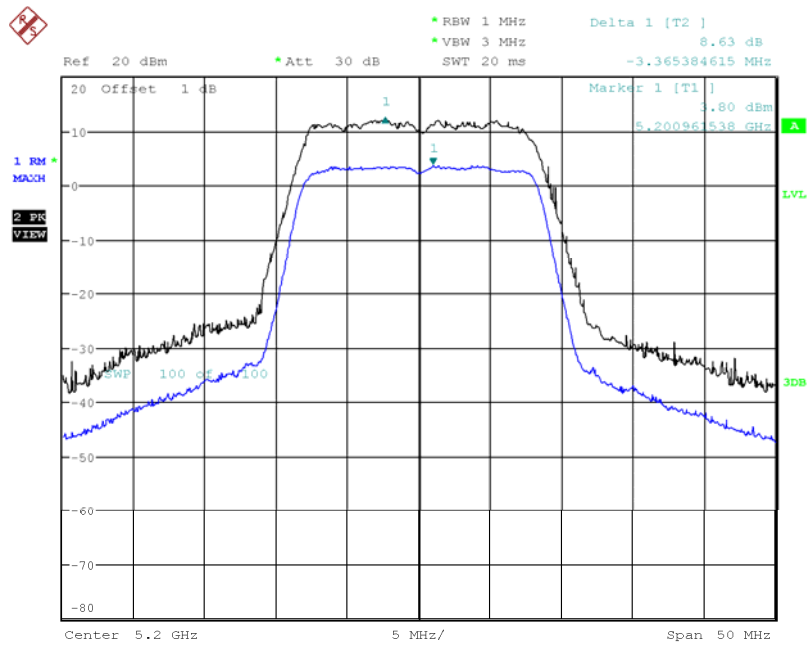
Test Mode :Band 1/TX A Mode\_CH36/40/48



Date: 21.JAN.2014 09:28:28

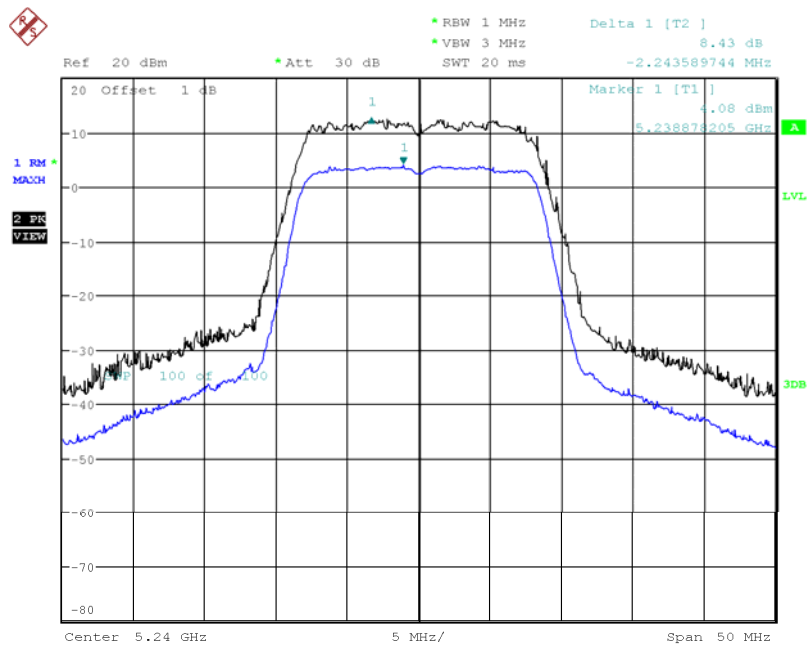


### CH40



Date: 21.JAN.2014 09:30:37

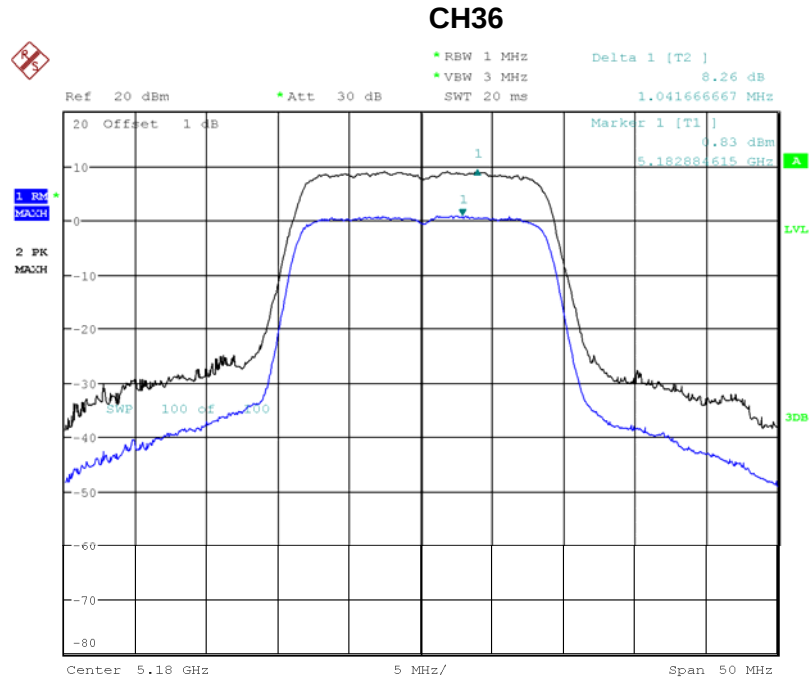
### CH48



Date: 21.JAN.2014 09:31:31



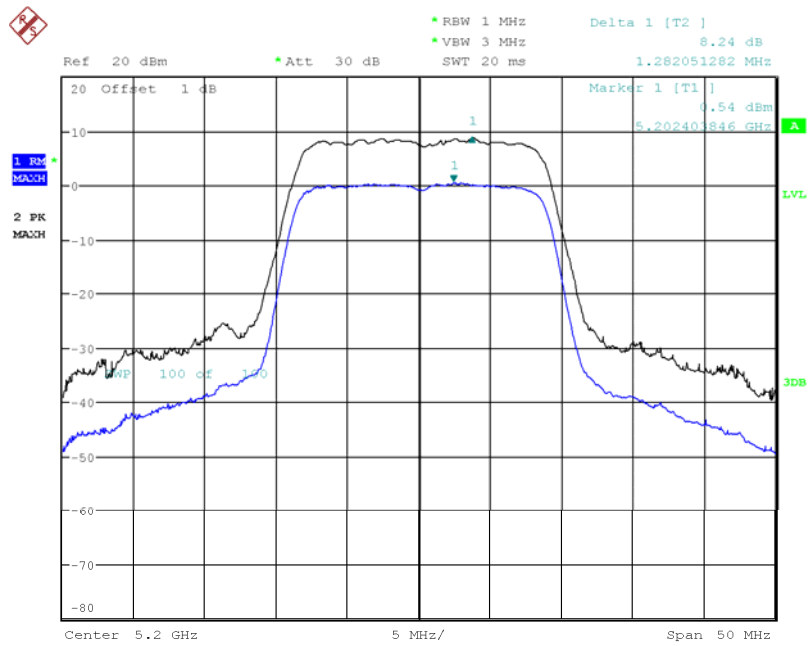
Test Mode :Band 1/TX N20 Mode\_CH36/40/48-ANT 1



Date: 21.JAN.2014 09:55:45

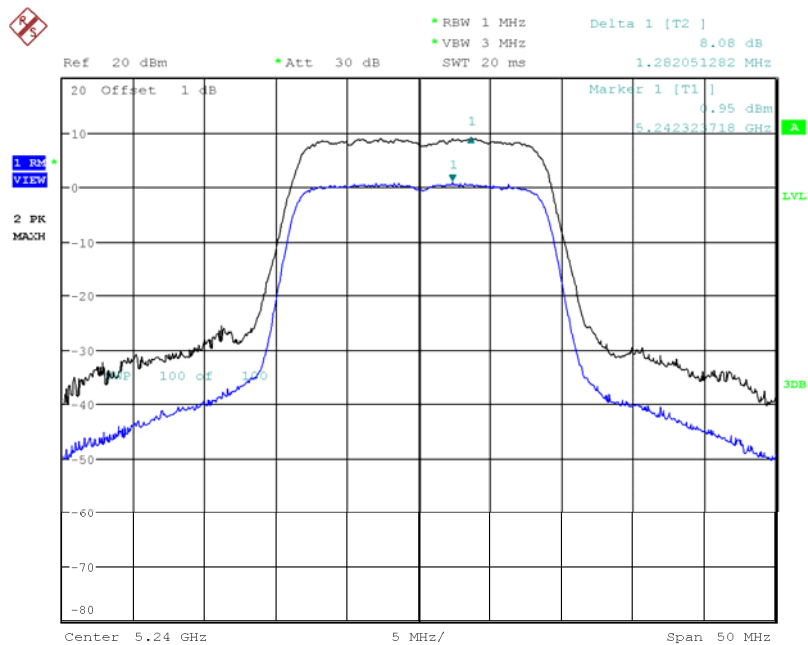


### CH40



Date: 21.JAN.2014 09:54:43

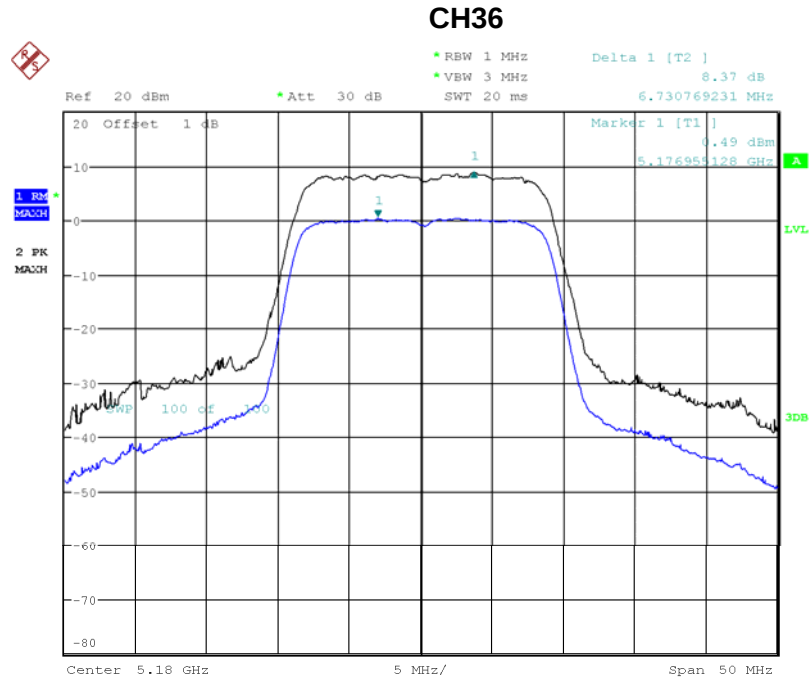
### CH48



Date: 21.JAN.2014 09:53:16



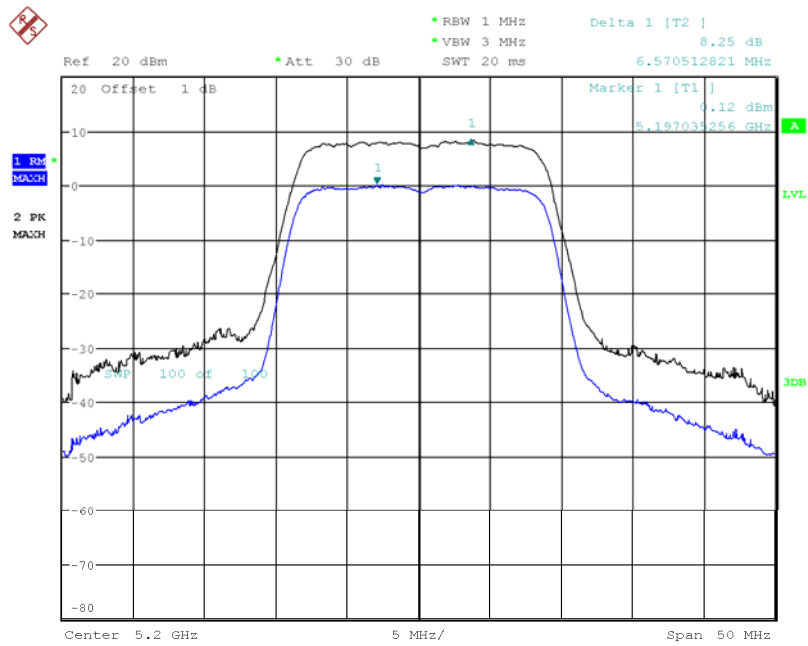
Test Mode :Band 1/TX N20 Mode\_CH36/40/48-ANT 2



Date: 21.JAN.2014 09:55:57

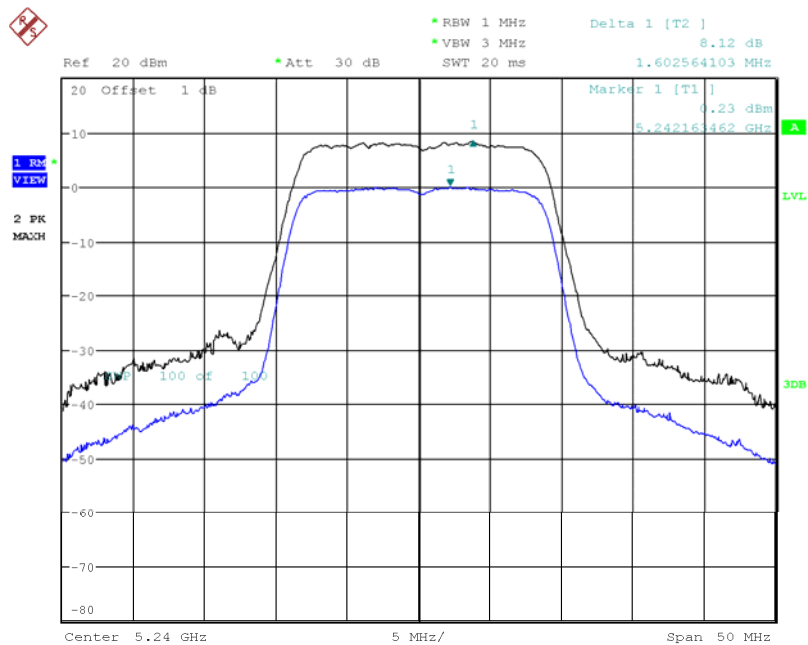


### CH40



Date: 21.JAN.2014 09:54:54

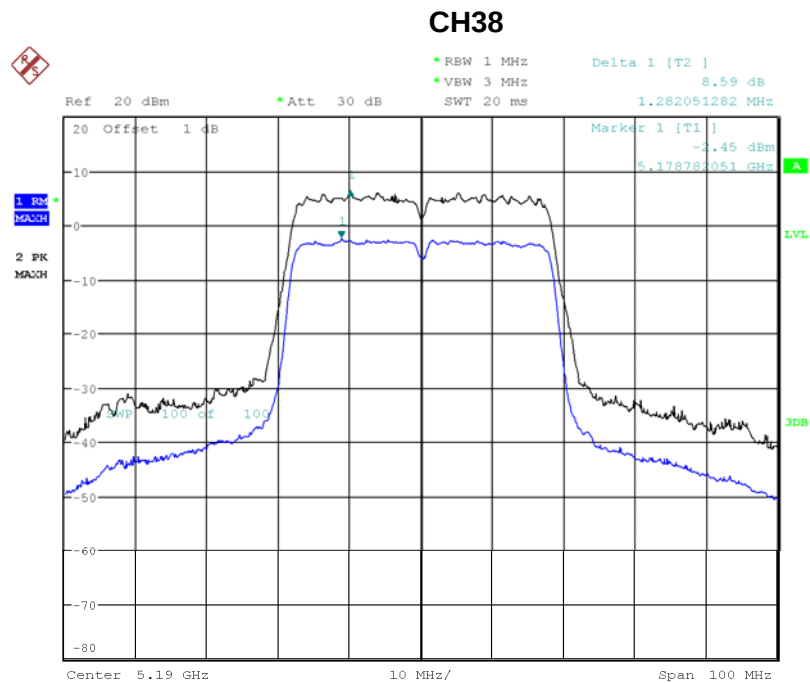
### CH48



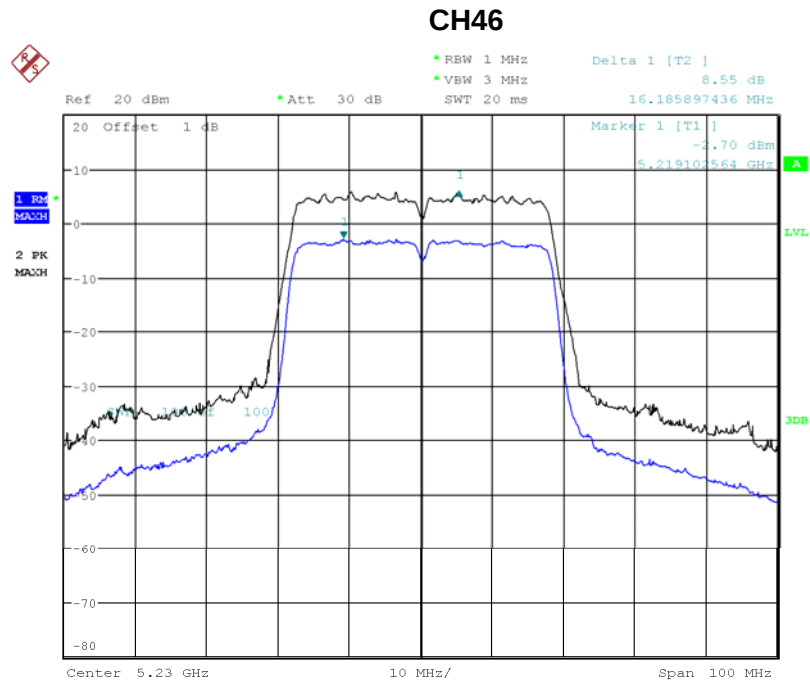
Date: 21.JAN.2014 09:53:31



Test Mode :Band 1/TX N40 Mode\_CH38/46-ANT 1



Date: 21.JAN.2014 09:58:04

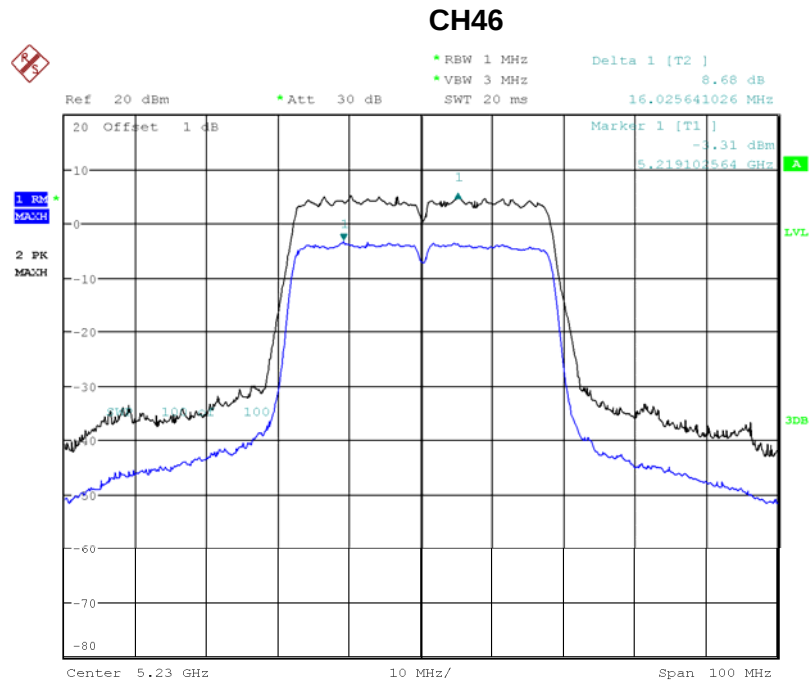


Date: 21.JAN.2014 09:59:51



## CH38





Date: 21.JAN.2014 10:00:10



## 10. FREQUENCY STABILITY MEASUREMENT

### 10.1 APPLIED PROCEDURES / LIMIT

| FCC Part15, Subpart E 15.407(g) |                                |                       |        |
|---------------------------------|--------------------------------|-----------------------|--------|
| Test Item                       | Limit                          | Frequency Range (MHz) | Result |
| Frequency Stability             | specified in the user's manual | 5150 – 5250           | PASS   |

#### 10.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

| Spectrum Parameter | Setting                                          |
|--------------------|--------------------------------------------------|
| Attenuation        | Auto                                             |
| Span Frequency     | Entire absence of modulation emissions bandwidth |
| RB                 | 10 kHz                                           |
| VB                 | 10 kHz                                           |
| Sweep Time         | Auto                                             |

c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

d. user manual temperature is -30°C~50°C.

#### 10.1.2 DEVIATION FROM STANDARD

No deviation.

#### 10.1.3 TEST SETUP



#### 10.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 10.1.5 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: 120V/60Hz

**10.1.6 TEST RESULTS**

|             |        |
|-------------|--------|
| Test Mode : | Band 1 |
|-------------|--------|

**Voltage vs. Frequency Stability**

| Voltage              | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (V)                  | 5180                        |
| 132                  | 5179.986000                 |
| 120                  | 5179.985000                 |
| 118                  | 5179.984000                 |
| Max. Deviation (MHz) | 0.016000                    |
| Max. Deviation (ppm) | 3.09                        |

**Temperature vs. Frequency Stability**

| Temperature          | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| (°C)                 | 5180                        |
| 0                    | 5179.998000                 |
| 10                   | 5179.993000                 |
| 20                   | 5179.996000                 |
| 30                   | 5179.992000                 |
| 40                   | 5179.996000                 |
| Max. Deviation (MHz) | 0.008000                    |
| Max. Deviation (ppm) | 1.54                        |



## 11. MEASUREMENT INSTRUMENTS LIST

| Conducted Emission Measurement |                   |              |          |            |                  |
|--------------------------------|-------------------|--------------|----------|------------|------------------|
| Item                           | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1                              | LISN              | EMCO         | 3816/2   | 00052765   | Apr. 25, 2014    |
| 2                              | LISN              | R&S          | ENV216   | 100087     | Nov.15, 2014     |
| 3                              | Test Cable        | N/A          | C_17     | N/A        | Mar.15, 2014     |
| 4                              | EMI TEST RECEIVER | R&S          | ESCS30   | 826547/022 | Apr. 25, 2014    |
| 5                              | 50Ω Terminator    | SHX          | TF2-3G-A | 08122902   | Apr. 25, 2014    |

| Radiated Emission Measurement |                         |              |           |            |                  |
|-------------------------------|-------------------------|--------------|-----------|------------|------------------|
| Item                          | Kind of Equipment       | Manufacturer | Type No.  | Serial No. | Calibrated until |
| 1                             | Antenna                 | Schwarbeck   | VULB9160  | 9160-3232  | Apr. 25, 2014    |
| 2                             | Amplifier               | HP           | 8447D     | 2944A09673 | Apr. 25, 2014    |
| 3                             | Test Receiver           | R&S          | ESCI      | 100382     | Apr. 25, 2014    |
| 4                             | Test Cable              | N/A          | C-01_CB03 | N/A        | Jul. 02, 2014    |
| 5                             | Antenna                 | ETS          | 3115      | 00075789   | Apr. 25, 2014    |
| 6                             | Amplifier               | Agilent      | 8449B     | 3008A02274 | Apr. 25, 2014    |
| 7                             | Spectrum                | Agilent      | E4408B    | US39240143 | Nov.15, 2014     |
| 8                             | Test Cable              | HUBER+SUHNER | C-45      | N/A        | Apr. 30, 2014    |
| 9                             | Controller              | CT           | SC100     | N/A        | N/A              |
| 10                            | Horn Antenna            | EMCO         | 3115      | 9605-4803  | Apr. 25, 2014    |
| 11                            | Active Loop Antenna     | R&S          | HFH2-Z2   | 830749/020 | Apr. 25, 2014    |
| 12                            | Broad-Band Horn Antenna | Schwarzbeck  | BBHA 9170 | 9170319    | Oct. 22, 2014    |

| 26dB Spectrum Bandwidth Measurement |                   |              |          |            |                  |
|-------------------------------------|-------------------|--------------|----------|------------|------------------|
| Item                                | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1                                   | Spectrum Analyzer | R&S          | FSP 40   | 100185     | Nov.15, 2014     |

| Maximum Conducted Output Power Measurement |                   |              |          |            |                  |
|--------------------------------------------|-------------------|--------------|----------|------------|------------------|
| Item                                       | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1                                          | Spectrum Analyzer | R&S          | FSP 40   | 100185     | Nov.15, 2014     |



**Antenna Conducted Spurious Emission Measurement**

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|----------|------------|------------------|
| 1    | Spectrum Analyzer | R&S          | FSP 40   | 100185     | Nov.15, 2014     |

**Power Spectral Density Measurement**

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|----------|------------|------------------|
| 1    | Spectrum Analyzer | R&S          | FSP 40   | 100185     | Nov.15, 2014     |

**Peak Excursion Measurement**

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|----------|------------|------------------|
| 1    | Spectrum Analyzer | R&S          | FSP 40   | 100185     | Nov.15, 2014     |

**Frequency Stability Measurement**

| Item | Kind of Equipment     | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-----------------------|--------------|----------|------------|------------------|
| 1    | Spectrum Analyzer     | R&S          | FSP 40   | 100185     | Nov.15, 2014     |
| 2    | Precision Oven Tester | HOLINK       | H-T-1F-D | BA03101701 | May.25.2014      |

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.



**12. EUT TEST PHOTO**

**Conducted Measurement Photos**



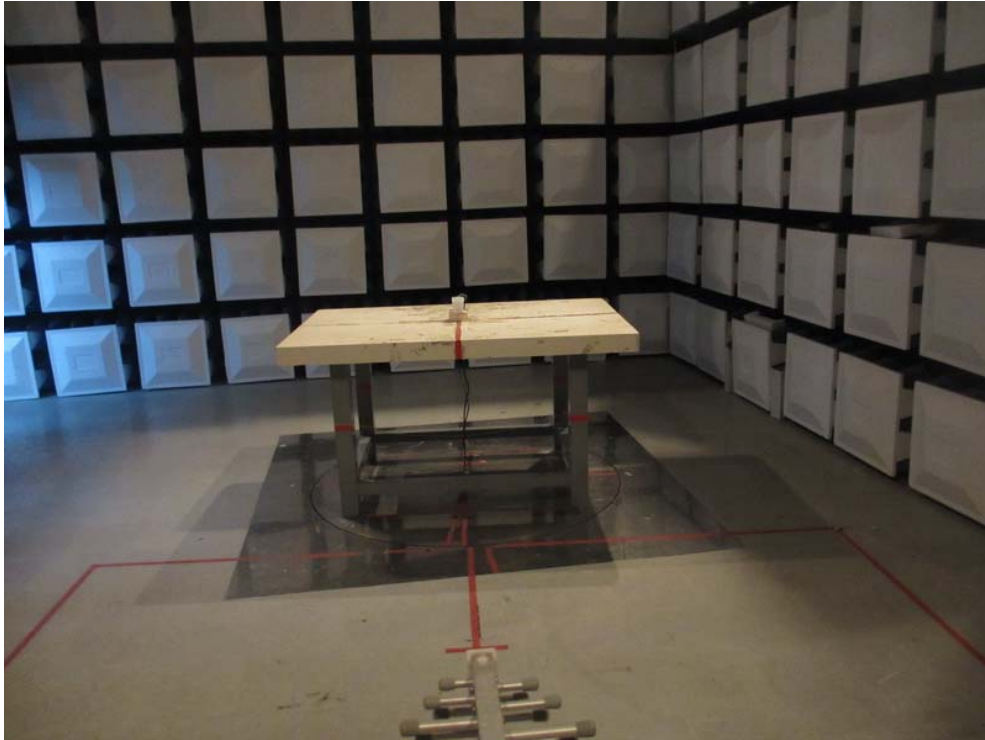


**Radiated Measurement Photos  
9K~30MHz**





**Radiated Measurement Photos  
30~1000MHz**





**Radiated Measurement Photos  
Above 1000MHz**

