

# RF TEST REPORT



Report No.:15030001-FCC-Part74

Supersede Report No.: N/A

|                                                                                                                                      |                                                                         |  |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--|
| Applicant                                                                                                                            | Beijing BBEF Science & Technology Co., Ltd.                             |  |
| Product Name                                                                                                                         | 1.3kW ATSC TV transmitter                                               |  |
| Model No.                                                                                                                            | BGTDV 31610                                                             |  |
| Serial No.                                                                                                                           | BGTDV 3169、BGTDV 31611、BGTDV 2862、BGTDV 25612、<br>BGTDV 2365、BGTDV 2364 |  |
| Test Standard                                                                                                                        | FCC Part 74: 2014, ANSI C63.4: 2014, ANSI/TIA 603-D 2010                |  |
| Test Date                                                                                                                            | March 24 <sup>th</sup> , 2015~May 20 <sup>th</sup> , 2015               |  |
| Issue Date                                                                                                                           | May 20 <sup>th</sup> , 2015                                             |  |
| Test Result                                                                                                                          | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail  |  |
| Equipment complied with the specification                                                                                            | <input checked="" type="checkbox"/>                                     |  |
| Equipment did not comply with the specification                                                                                      | <input type="checkbox"/>                                                |  |
| <i>Winnie Zhang</i>                                                                                                                  | <i>Chris You</i>                                                        |  |
| Winnie Zhang<br>Test Engineer                                                                                                        | Chris You<br>Checked By                                                 |  |
| This test report may be reproduced in full only<br>Test result presented in this test report is applicable to the tested sample only |                                                                         |  |

Issued by:

**SIEMIC (SHENZHEN-CHINA) LABORATORIES**

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## Laboratories Introduction

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### Accreditations for Conformity Assessment

| Country/Region | Scope                              |
|----------------|------------------------------------|
| USA            | EMC, RF/Wireless, SAR, Telecom     |
| Canada         | EMC, RF/Wireless, SAR, Telecom     |
| Taiwan         | EMC, RF, Telecom, SAR, Safety      |
| Hong Kong      | RF/Wireless, SAR, Telecom          |
| Australia      | EMC, RF, Telecom, SAR, Safety      |
| Korea          | EMI, EMS, RF, SAR, Telecom, Safety |
| Japan          | EMI, RF/Wireless, SAR, Telecom     |
| Singapore      | EMC, RF, SAR, Telecom              |
| Europe         | EMC, RF, SAR, Telecom, Safety      |

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## 1. Report Revision History

| Report No.          | Report Version | Description | Issue Date    |
|---------------------|----------------|-------------|---------------|
| 15030001-FCC-Part74 | NONE           | Original    | May 18th,2015 |
|                     |                |             |               |
|                     |                |             |               |
|                     |                |             |               |
|                     |                |             |               |
|                     |                |             |               |

## 2. Customer information

|                  |                                                                                           |
|------------------|-------------------------------------------------------------------------------------------|
| Applicant Name   | Beijing BBEF Science & Technology Co., Ltd.                                               |
| Applicant Add    | No.26, Area A, Tianzhu Airport Economic Development Zone, Shunyi District, Beijing, China |
| Manufacturer     | Beijing BBEF Science & Technology Co., Ltd.                                               |
| Manufacturer Add | No.26, Area A, Tianzhu Airport Economic Development Zone, Shunyi District, Beijing, China |

## 3. Test site information

|                      |                                                                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Lab performing tests | SIEMIC (Shenzhen-China) LABORATORIES                                                                                                         |
| Lab Address          | Zone A, Floor 1, Building 2 Wan Ye Long Technology Park<br>South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong<br>China 518108 |
| FCC Test Site No.    | 718246                                                                                                                                       |
| IC Test Site No.     | 4842E-1                                                                                                                                      |
| Test Software        | N/A                                                                                                                                          |

#### 4. Equipment under Test (EUT) Information

|                               |                                                                                                  |
|-------------------------------|--------------------------------------------------------------------------------------------------|
| Description of EUT:           | 1.3kW ATSC TV transmitter                                                                        |
| Main Model:                   | BGTDV 31610                                                                                      |
| Serial Model:                 | BGTDV 3169、BGTDV 31611、BGTDV 2862、BGTDV 25612、BGTDV 2365、BGTDV 2364                              |
| Date EUT received:            | Mar 24, 2015                                                                                     |
| Test Date(s):                 | Mar 24, 2015 to May 18, 2015                                                                     |
| Equipment Category :          | TBC                                                                                              |
| Antenna Gain:                 | 9.5dBi                                                                                           |
| Type of Modulation:           | ATSC                                                                                             |
| RF Operating Frequency (ies): | 470 MHz – 806 MHz                                                                                |
| Max. Output Power(ERP):       | 70.64dBm                                                                                         |
| Number of Channels:           | 14-69                                                                                            |
| Port:                         | Power Port, Ethernet Port, USB Port, N type connector, SMA connector, BNC connector, 1 5/8" EIA; |
| Input Power:                  | Three Phases<br>Input: AC 220V; 60Hz 30A                                                         |
| Trade Name :                  | NA                                                                                               |
| FCC ID:                       | 2AEMGBBEF2015042301                                                                              |

**Note:**

- The following information is provided to support the technical performance of the Beijing BBEF Science & Technology Co., Ltd. Digital TV Transmitter. The information is supplied for broadcast TV service according to applicable portions of FCC Rule Parts 74.
- The information in this report is provided in support of verification that the transmitter meets the appropriate requirements. Measurements were recorded of spectrum and other appropriate data to demonstrate compliance.  
(Refer to Test Summary)
- Measurements for these parameters were conducted at power output levels of 1,300 watts.  
Measurements were taken at the center frequency:  
Low channel: 14 channel=473 MHz  
Middle channel: 36 channel=605 MHz  
High channel: 69 channel=803 MHz

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- 
4. The differences of Series products are mainly due to different number of power amplifiers. Different number of power amplifiers causes different dividers, combiners, power amplifier power supplies and fans, while the equipment size and control system remains the same. So we select model BGTDV 31610 (have the maximum output power) to test. please refer to ANNEX D letter.

## 5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

| FCC Rules | Description of Test | Result     |
|-----------|---------------------|------------|
| §74.735   | Output Power        | Compliance |
| §74.736   | Emissions limit     | Compliance |
| §74.794   | Emissions mask      | Compliance |
| §74.750   | Radiated emission   | Compliance |
| §74.761   | Frequency tolerance | Compliance |

### Measurement Uncertainty

| Emissions                   |                                                                                                                                                 |               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Test Item                   | Description                                                                                                                                     | Uncertainty   |
| Radiated Spurious Emissions | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +5.6dB/-4.5dB |
| -                           | -                                                                                                                                               | -             |

## 6. Measurements, Examination And Derived Results

### 6.1 Output Power

|                      |                |
|----------------------|----------------|
| Temperature          | 23°C           |
| Relative Humidity    | 53%            |
| Atmospheric Pressure | 1004mbar       |
| Test date :          | March 20, 2015 |
| Tested By :          | Winnie Zhang   |

#### Requirement(s):

| Spec    | Item | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Applicable                          |
|---------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| §74.735 | a)   | The maximum peak effective radiated power (ERP) of an analog low power TV, TV translator, or TV booster station shall not exceed:<br>(1) 3 kW for VHF channels 2-13; and<br>(2) 150 kW for UHF channels 14-69.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/>            |
|         | b)   | The maximum ERP of a digital low power TV, TV translator, or TV booster station (average power) shall not exceed:<br>(1) 3 kW for VHF channels 2-13; and<br>(2) 15 kW for UHF channels 14-69.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/> |
|         | c)   | The limits in paragraphs (a) and (b) apply separately to the effective radiated powers that may be obtained by the use of horizontally or vertically polarized transmitting antennas, providing the applicable provisions of §§74.705, 74.706, 74.707 and 74.709 are met. For either omnidirectional or directional antennas, where the ERP values of the vertically and horizontally polarized components are not of equal strength, the ERP limits shall apply to the polarization with the larger ERP. Applications proposing the use of directional antenna systems must be accompanied by the following:<br>(1) Complete description of the proposed antenna system, including the manufacturer and model number of the proposed directional antenna. It is not acceptable to label the antenna with only a generic term such as “ Yagi” or “ Dipole” . A specific model number must be provided. In the case of individually designed antennas with no model number, or in the | <input type="checkbox"/>            |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                | <p>case of a composite antenna composed of two or more individual antennas, the antenna should be described as a “ custom” or “ composite” antenna, as appropriate. A full description of the design of the antenna should also be submitted.</p> <p>(2) Relative field horizontal plane pattern (horizontal polarization only) of the proposed directional antenna. A value of 1.0 should be used for the maximum radiation. The plot of the pattern should be oriented so that 0° corresponds to the maximum radiation of the directional antenna or, alternatively in the case of a symmetrical pattern, to the line of symmetry. The 0° on the plot should be referenced to the actual azimuth with respect to true North.</p> <p>(3) A tabulation of the relative field pattern required in paragraph (c)(2), of this section. The tabulation should use the same zero degree reference as the plotted pattern, and be tabulated at least every 10°. In addition, tabulated values of all maximas and minimas, with their corresponding azimuths, should be submitted.</p> <p>(4) All horizontal plane patterns must be plotted to the largest scale possible on unglazed letter-size polar coordinate paper (main engraving approximately 18 cm × 25 cm (7 inches × 10 inches)) using only scale divisions and subdivisions of 1, 2, 2.5 or 5 times 10-nth. Values of field strength on any pattern less than 10% of the maximum field strength plotted on that pattern must be shown on an enlarged scale.</p> <p>(5) The horizontal plane patterns that are required are the patterns for the complete directional antenna system. In the case of a composite antenna composed of two or more individual antennas, this means that the patterns for the composite antenna composed of two or more individual antennas, not the patterns for each of the individual antennas, must be submitted.</p> |  |
| Test Setup     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| Test Procedure | <p>For Conducted Power:</p> <p>The transmitter output port was connected to Spectrum Analyzer via a directional</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |

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|        |                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>coupler with suitable 50 <math>\Omega</math> load. The coupling value was 60 dB</p> <p>Set EUT at maximum power.</p> <p>Select lowest, middle, and highest channels for each band and different test mode.</p> <p>An offset of 60.1dB from the directional coupler and cable loss was added to the Power Viewer Plus program</p> <p>For ERP/EIRP:<br/>Calculate with antenna gain.</p> |
| Remark |                                                                                                                                                                                                                                                                                                                                                                                           |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                    |

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

#### Test data

| Channel | Channel frequency | Peak of output power | Peak of output power | Antenna Gain | ERP   | ERP   | Limit |
|---------|-------------------|----------------------|----------------------|--------------|-------|-------|-------|
|         | (MHz)             | (W)                  | dBm                  | dBi          | dBm   | (W)   | (W)   |
| Low     | 473               | 1300                 | 61.14                | 9.5          | 70.64 | 11588 | 15000 |
| Middle  | 605               | 1300                 | 61.14                | 9.5          | 70.64 | 11588 | 15000 |
| High    | 803               | 1300                 | 61.14                | 9.5          | 70.64 | 11588 | 15000 |

### Test Photos



Low Channel



Middle Channel



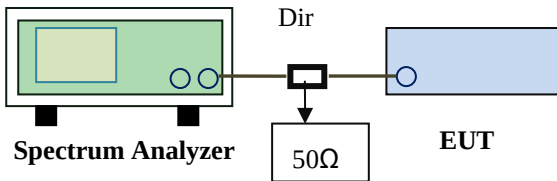
High Channel

## 6.2 Emission Bandwidth

|                      |                |
|----------------------|----------------|
| Temperature          | 23°C           |
| Relative Humidity    | 53%            |
| Atmospheric Pressure | 1004mbar       |
| Test date :          | March 24, 2015 |
| Tested By :          | Winnie Zhang   |

### Requirement(s):

| Spec             | Item | Requirement                                                                                                                                                                                                                                                                                                                                                                                      | Applicable                          |
|------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| §74.736 & 74.750 | a)   | The license of a low power TV, TV translator, or TV booster station authorizes the transmission of the visual signal by amplitude modulation (A5) and the accompanying aural signal by frequency modulation (F3).                                                                                                                                                                                | <input checked="" type="checkbox"/> |
|                  | b)   | Standard width television channels will be assigned and the transmitting apparatus shall be operated so as to limit spurious emissions to the lowest practicable value. Any emissions including intermodulation products and radio frequency harmonics which are not essential for the transmission of the desired picture and sound information shall be considered to be spurious emissions.   | <input checked="" type="checkbox"/> |
|                  | c)   | Any emissions appearing on frequencies more than 3 MHz above or below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than:<br>(1) 30 dB for transmitters rated at no more than 1 watt power output.<br>(2) 50 dB for transmitters rated at more than 1 watt power output.<br>(3) 60 dB for transmitters rated at more than 100 watts power output. | <input type="checkbox"/>            |
|                  | d)   | Greater attenuation than that specified in paragraph (c) of this section may be required if interference results from emissions outside the assigned channel.                                                                                                                                                                                                                                    | <input type="checkbox"/>            |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Setup     |  <p>Spectrum Analyzer      Dir      50Ω      EUT</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Test Procedure | <p>According to ANSI/TIA-603-D 2010, Emission bandwidth method.</p> <p>The transmitter output port was connected to Spectrum Analyzer via a directional coupler with suitable 50 Ω load. The coupling value was 60.0 dB</p> <p>Set EUT at maximum power.</p> <p>Select lowest, middle, and highest channels for each band and different test mode.</p> <p>An loss of the directional coupler port is 60dB</p> <p>The cable loss of the cable which connect between Spectrum Analyzer and Directional Coupling monitoring port is for low/mid/high frequency is 10.9, 11, 11.20dB</p> <p>Respectively (only add this cable loss at the Spectrum)</p> |
| Remark         | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Result         | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

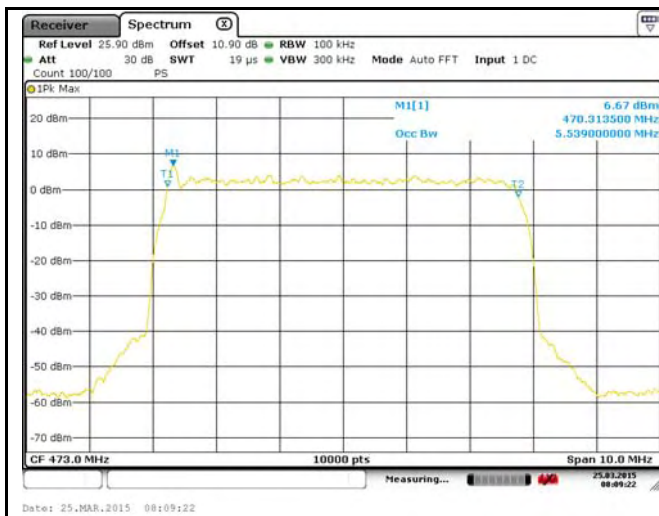
Test Data    ☒ Yes      ☐ N/A

Test Plot    ☒ Yes (See below)      ☐ N/A

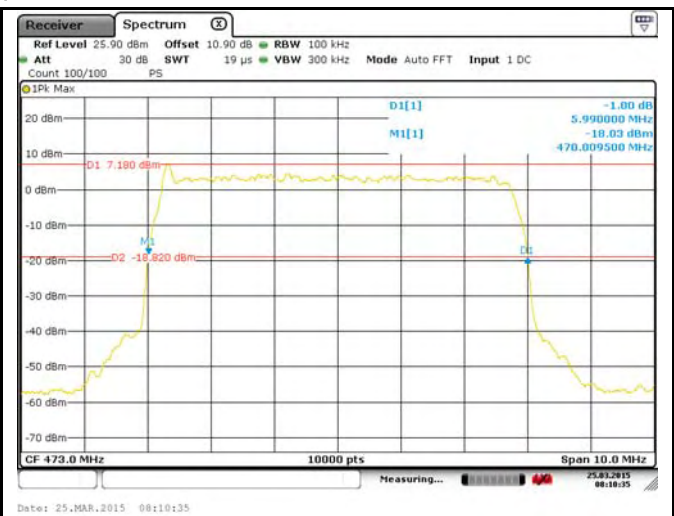
#### Test data

| Channel | Channel frequency | Emission bandwidth |           | Result |
|---------|-------------------|--------------------|-----------|--------|
|         | (MHz)             | 99% (MHz)          | 26dB(MHz) |        |
| Low     | 473               | 5.539              | 5.990     | Pass   |
| Middle  | 605               | 5.453              | 5.688     | Pass   |
| High    | 803               | 5.440              | 5.695     | Pass   |

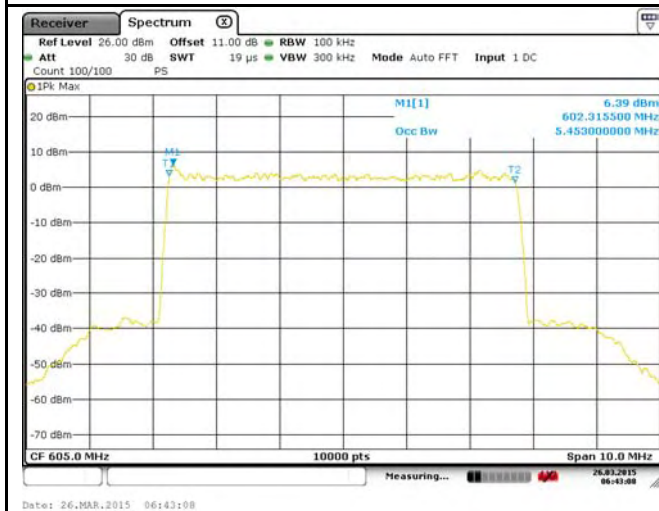
### Test plots



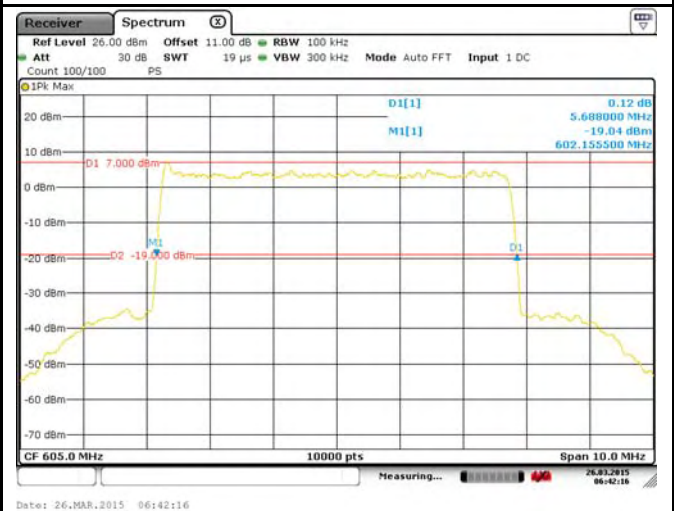
Low Channel (99%)



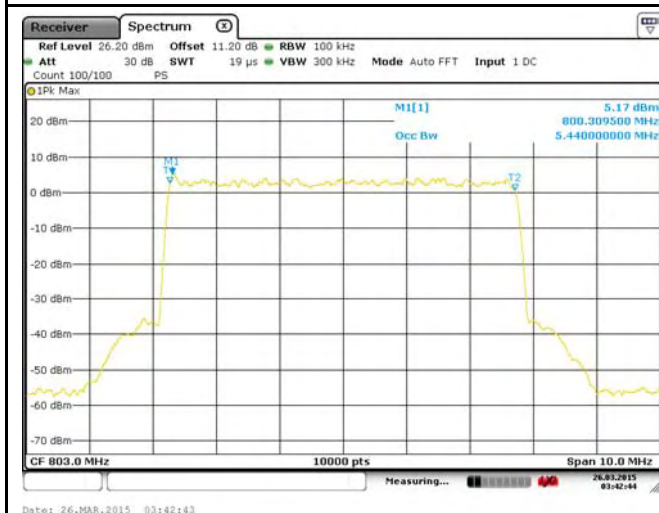
Low Channel (26dB)



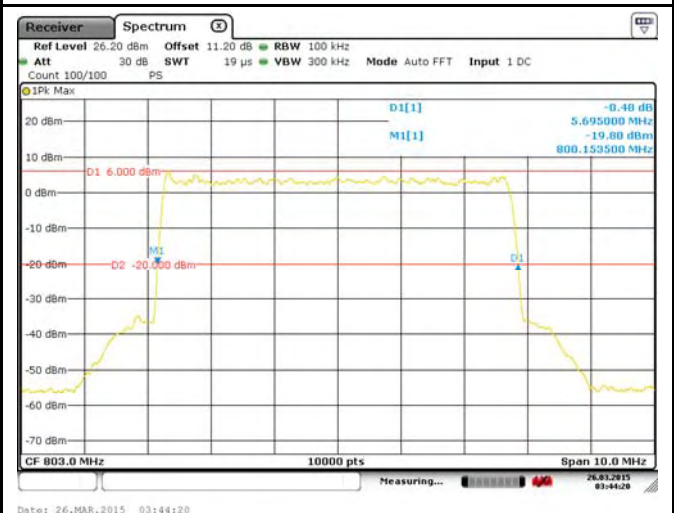
Middle Channel (99%)



Middle Channel (26dB)



High channel (99%)

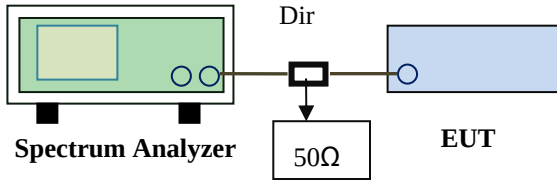


High channel (26dB)

### 6.3 Emissions Mask

|                      |                             |
|----------------------|-----------------------------|
| Temperature          | 22°C                        |
| Relative Humidity    | 53%                         |
| Atmospheric Pressure | 1012mbar                    |
| Test date :          | March 28, 2015~May 20, 2015 |
| Tested By :          | Winnie Zhang                |

#### Requirement(s):

| Spec                                | Item                                                                                                                                                                                                                                                                                    | Requirement                                                                                                                                                                                                                                                                                                                                                                                                      | Applicable                          |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| §74.794<br>(a)(2)(ii)               | (a)(2)<br>(ii)                                                                                                                                                                                                                                                                          | Stringent mask. In the first 500 kHz from the channel edges, emissions must be attenuated no less than 47 dB. More than 3 MHz from the channel edges, emissions must be attenuated no less than 76 dB. At any frequency between 0.5 and 3 MHz from the channel edges, emissions must be attenuated no less than the value determined by the following formula:<br>$A(\text{dB}) = 47 + 11.5 (\Delta f - 0.5)$    | <input checked="" type="checkbox"/> |
| §74.794<br>(b) (1)                  | (b)<br>(1)                                                                                                                                                                                                                                                                              | An FCC-certificated transmitter specifically certified for use on one or more of the above channels must include filtering with an attenuation of not less than 85 dB in the GPS bands, which will have the effect of reducing harmonics in the GPS bands from what is produced by the digital transmitter, and this attenuation must be demonstrated as part of the certification application to the Commission | NA                                  |
| Test Setup<br>§74.794<br>(a)(2)(ii) |  <p>The diagram shows a Spectrum Analyzer connected to a Directional Coupler (labeled 'Dir'). The Directional Coupler is connected to a 50Ω load and an EUT (Equipment Under Test) via a cable.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |
| Test Setup<br>§74.794<br>(b) (1)    |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |
| Test Procedure                      | According to ANSI/TIA-603-D 2010, Adjacent Channel Power method.<br>The transmitter output port was connected to Spectrum Analyzer via a directional coupler with suitable 50 Ω load. The coupling value was 60.0 dB                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |

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|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>Set EUT at maximum power.</p> <p>Select lowest, middle, and highest channels for each band and different test mode.</p> <p>Used Spectrum Analyzer connects to the Directional Coupling monitoring port to check the reference channel power and Adjacent power.</p> <p>The cable loss of the cable which connect between Spectrum Analyzer and Directional Coupling monitoring port is for low/mid/high frequency is 10.9, 11, 11.20dB Respectively (only add this cable loss at the Spectrum)</p> |
| Remark | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                |

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

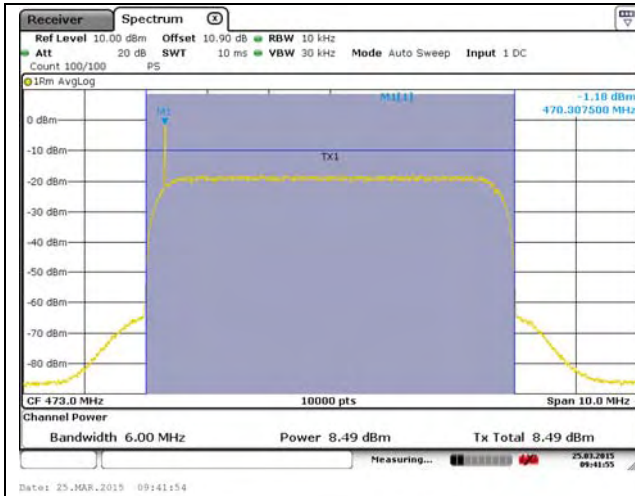
**Low channel (Channel = 14; frequency = 473 MHz;)**

**Lower Adjacent Channel Power**

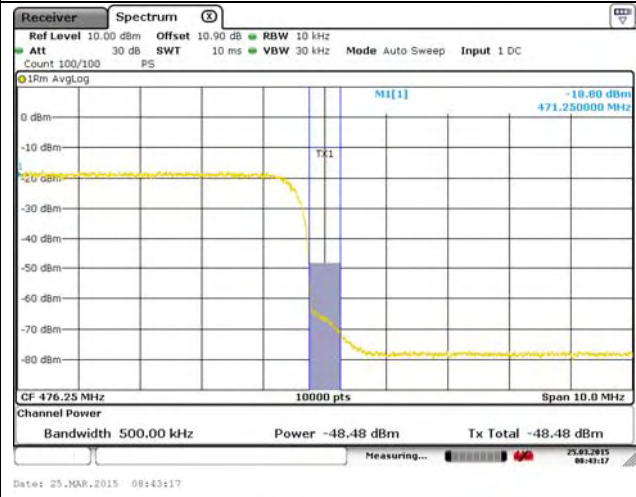
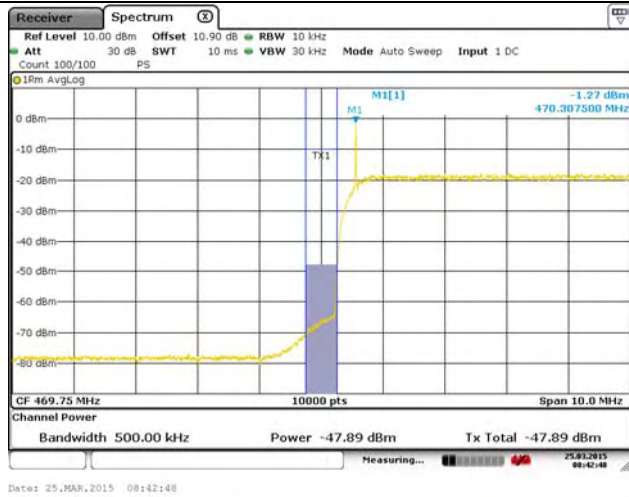
| Sub band | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|-----------------------------|--------------------|-------------|--------|
| -1       | 469.75          | 8.49                      | -47.89                      | -56.38             | -47         | Pass   |
| -2       | 469.25          | 8.49                      | -57.22                      | -65.71             | -49.9       | Pass   |
| -3       | 468.75          | 8.49                      | -61.43                      | -69.92             | -55.6       | Pass   |
| -4       | 468.25          | 8.49                      | -61.78                      | -70.27             | -61.4       | Pass   |
| -5       | 467.75          | 8.49                      | -61.80                      | -70.29             | -67.1       | Pass   |
| -6       | 467.25          | 8.49                      | -70.44                      | -78.93             | -71.9       | Pass   |
| -7       | 466.75          | 8.49                      | -70.69                      | -79.18             | -76         | Pass   |
| -8       | 466.25          | 8.49                      | -70.82                      | -79.5              | -76         | Pass   |
| -9       | 465.75          | 8.49                      | -71.01                      | -79.84             | -76         | Pass   |
| -10      | 465.25          | 8.49                      | -71.35                      | -80.19             | -76         | Pass   |
| -11      | 464.75          | 8.49                      | -71.70                      | -80.28             | -76         | Pass   |
| -12      | 464.25          | 8.49                      | -71.79                      | -79.31             | -76         | Pass   |

**Upper Adjacent Channel Power**

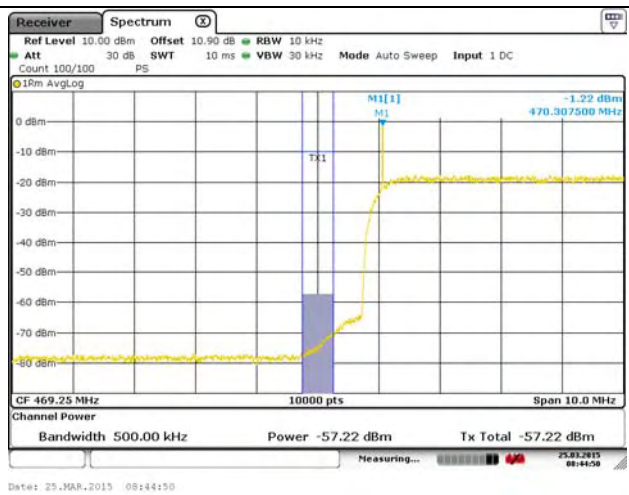
| Sub band | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|-----------------------------|--------------------|-------------|--------|
| -1       | 476.25          | 8.49                      | -48.48                      | -56.97             | -47         | Pass   |
| -2       | 476.75          | 8.49                      | -59.71                      | -68.2              | -49.9       | Pass   |
| -3       | 477.25          | 8.49                      | -68.02                      | -76.51             | -55.6       | Pass   |
| -4       | 477.75          | 8.49                      | -69.55                      | -78.04             | -61.4       | Pass   |
| -5       | 478.25          | 8.49                      | -69.65                      | -78.14             | -67.1       | Pass   |
| -6       | 478.75          | 8.49                      | -69.93                      | -78.42             | -71.9       | Pass   |
| -7       | 479.25          | 8.49                      | -69.89                      | -78.38             | -76         | Pass   |
| -8       | 479.75          | 8.49                      | -70.09                      | -78.58             | -76         | Pass   |
| -9       | 480.25          | 8.49                      | -70.61                      | -79.1              | -76         | Pass   |
| -10      | 480.75          | 8.49                      | -71.10                      | -79.59             | -76         | Pass   |
| -11      | 481.25          | 8.49                      | -71.33                      | -79.82             | -76         | Pass   |
| -12      | 481.75          | 8.49                      | -71.50                      | -79.99             | -76         | Pass   |



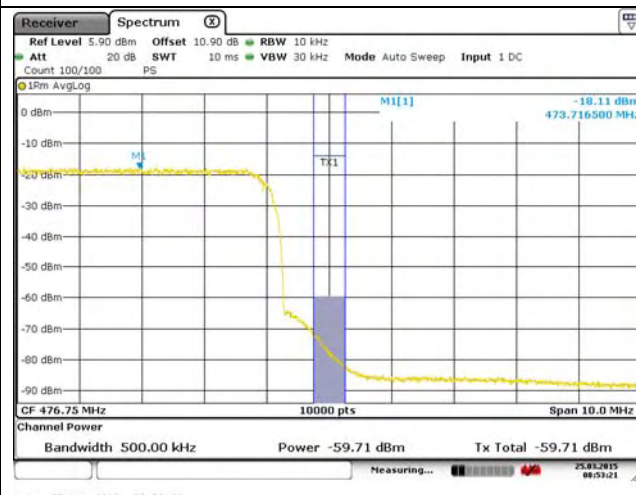
### Reference Channel Power



### Lower sideband Sub band-1

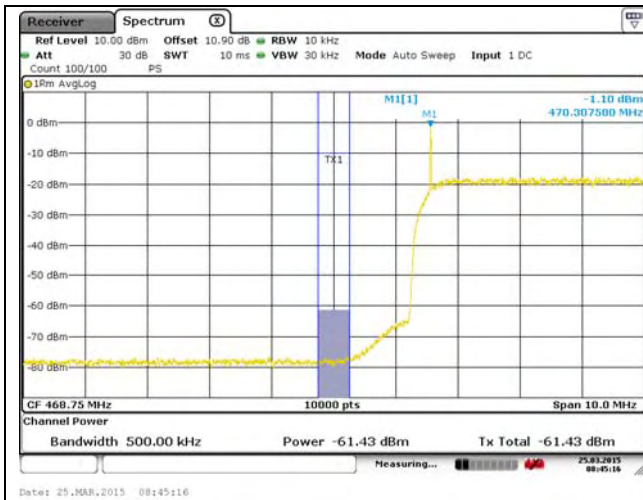


### Upper sideband Sub band-1

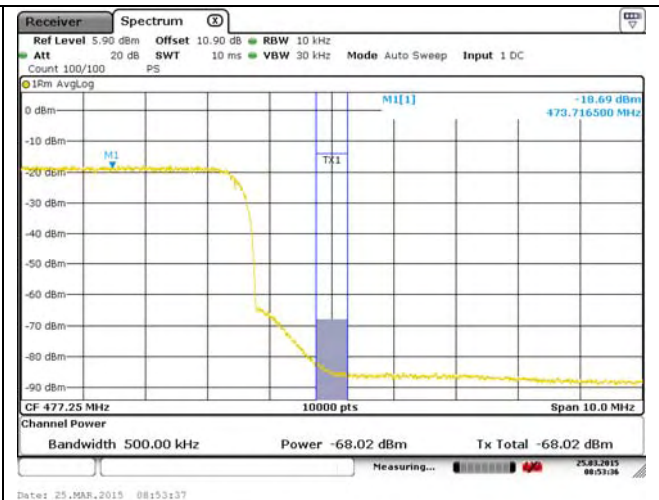


### Lower sideband Sub band-2

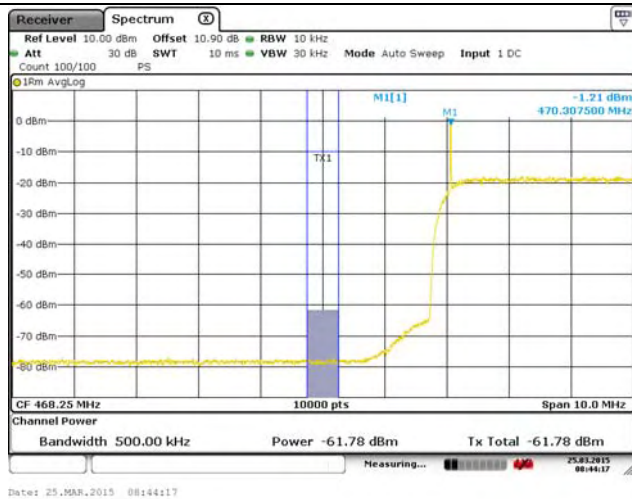
### Upper sideband Sub band-2



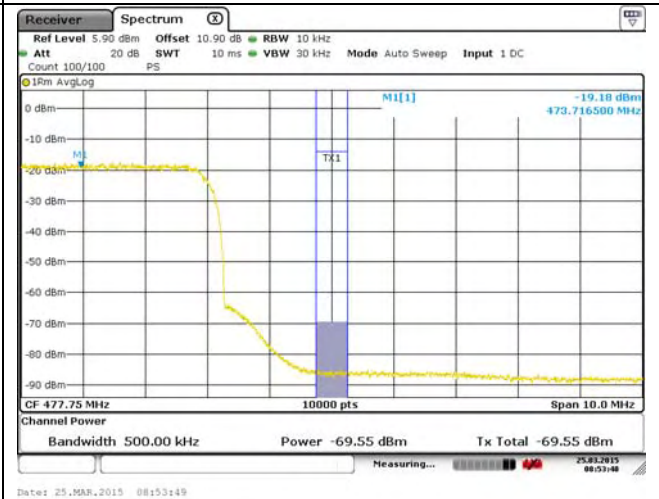
Lower sideband Sub band-3



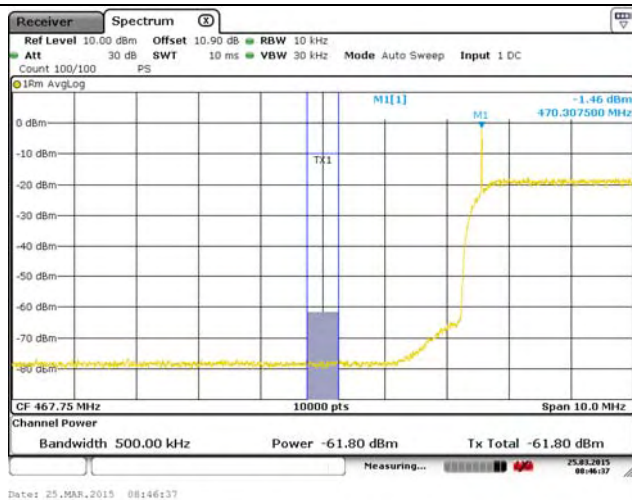
Upper sideband Sub band-3



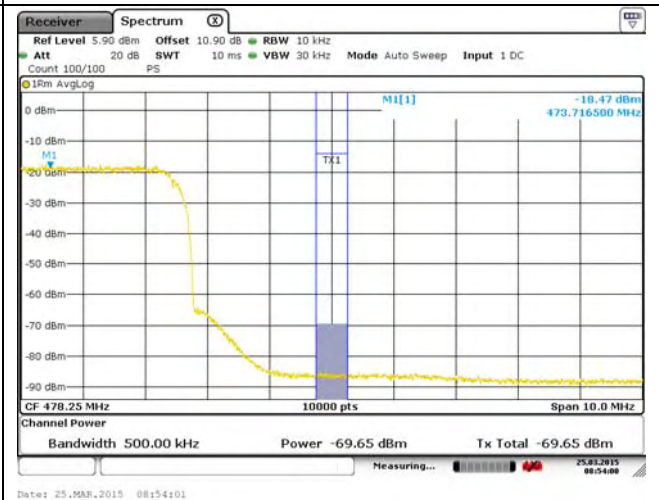
Lower sideband Sub band-4



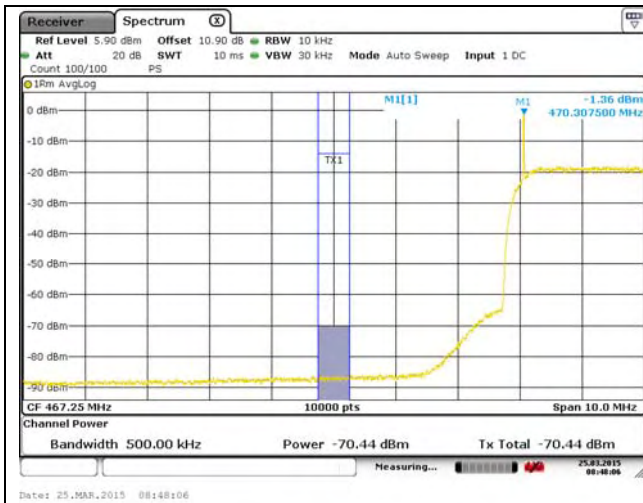
Upper sideband Sub band-4



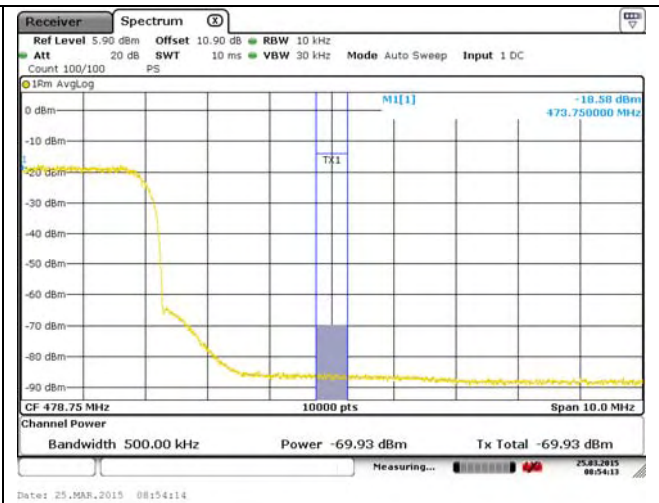
Lower sideband Sub band-5



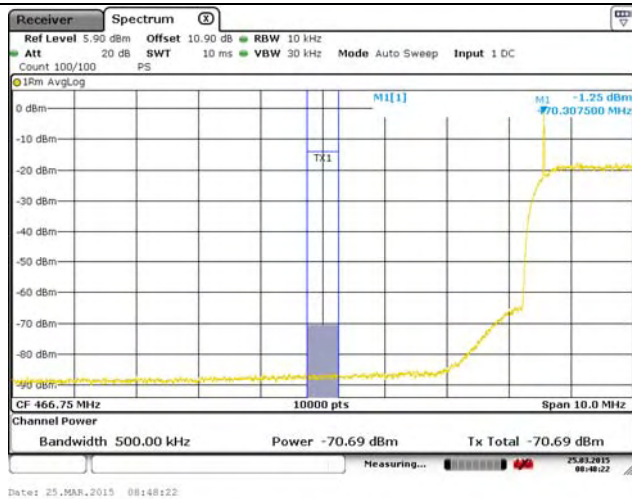
Upper sideband Sub band-5



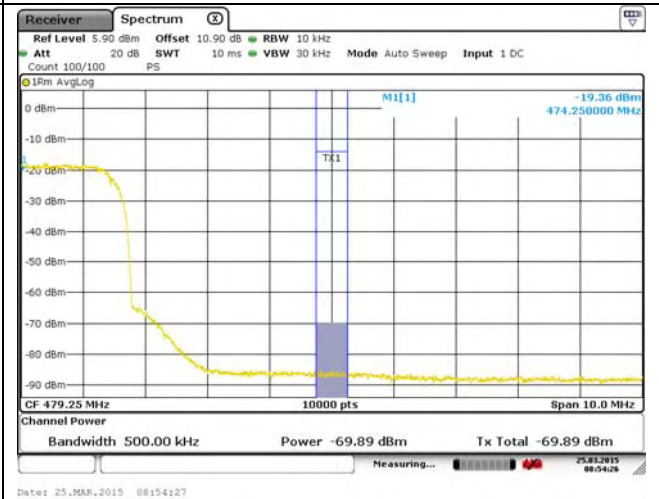
Lower sideband Sub band-6



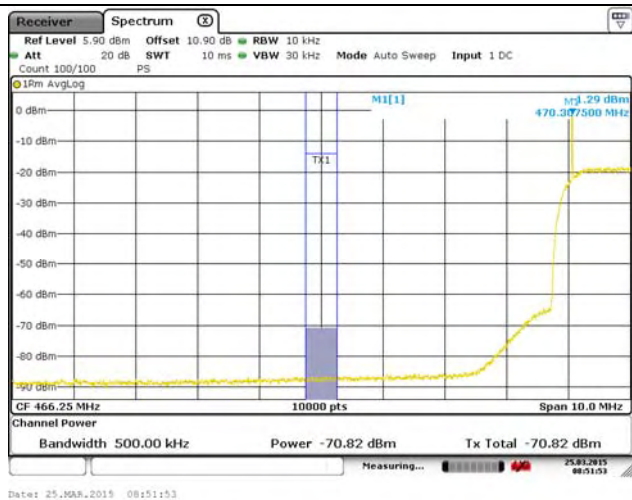
Upper sideband Sub band-6



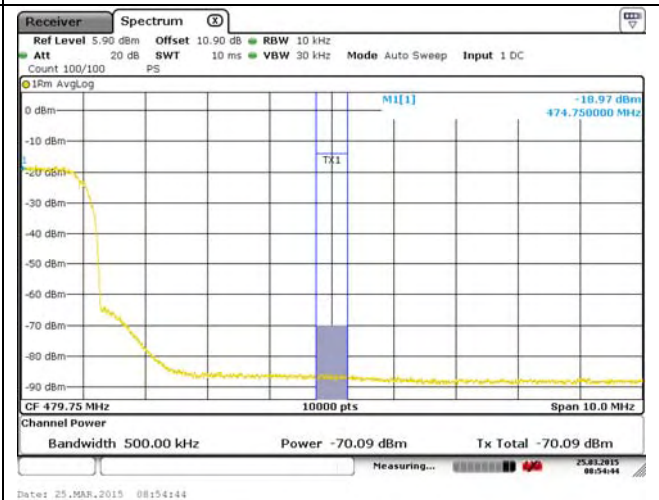
Lower sideband Sub band-7



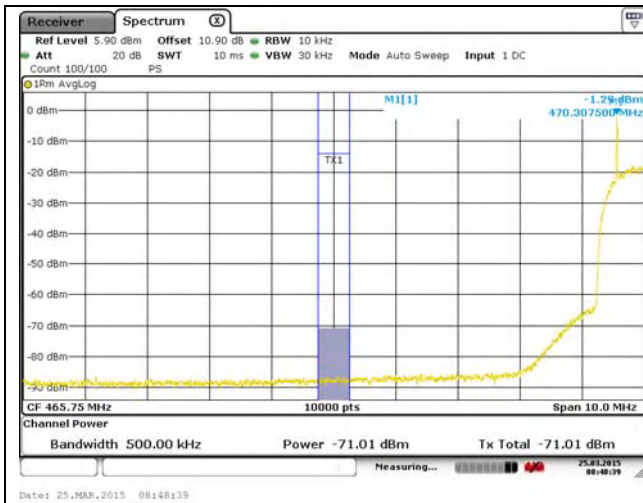
Upper sideband Sub band-7



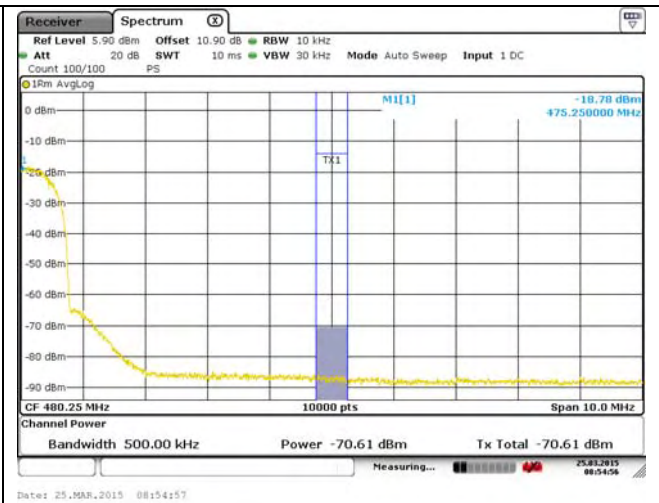
Lower sideband Sub band-8



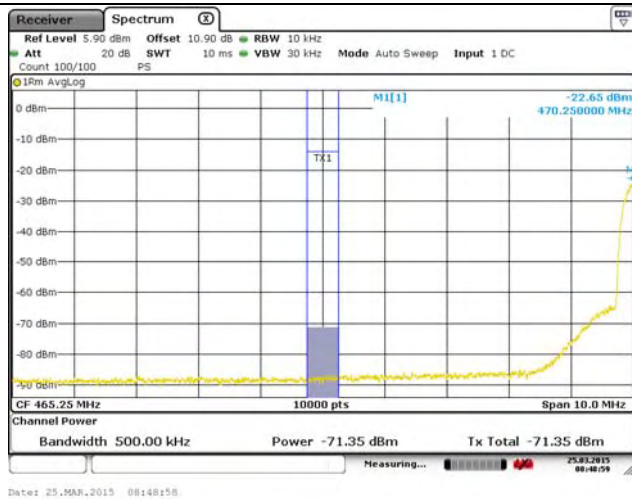
Upper sideband Sub band-8



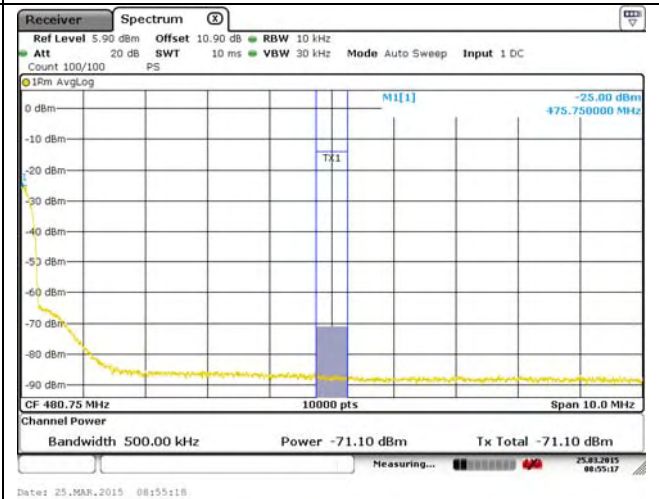
Lower sideband Sub band-9



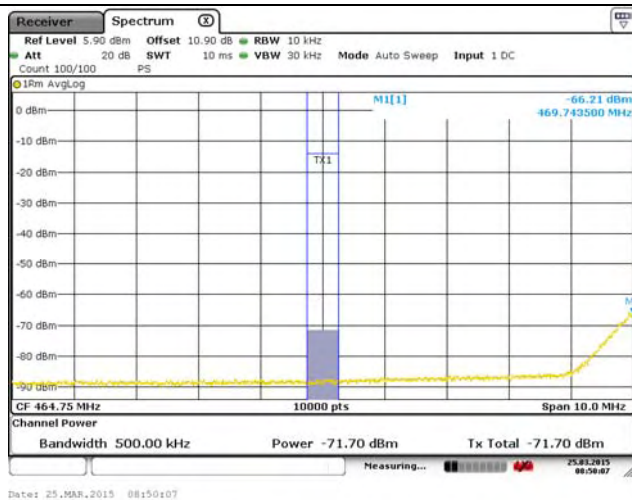
Upper sideband Sub band-9



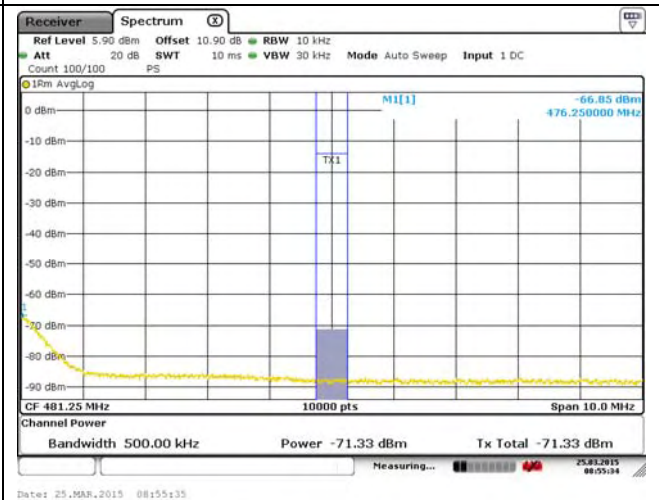
Lower sideband Sub band-10



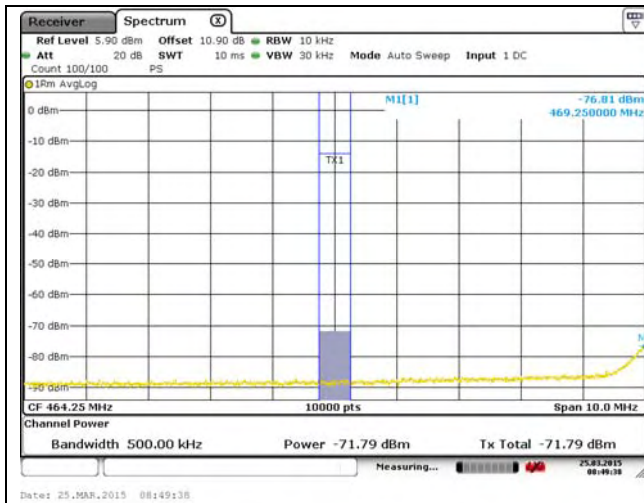
Upper sideband Sub band-10



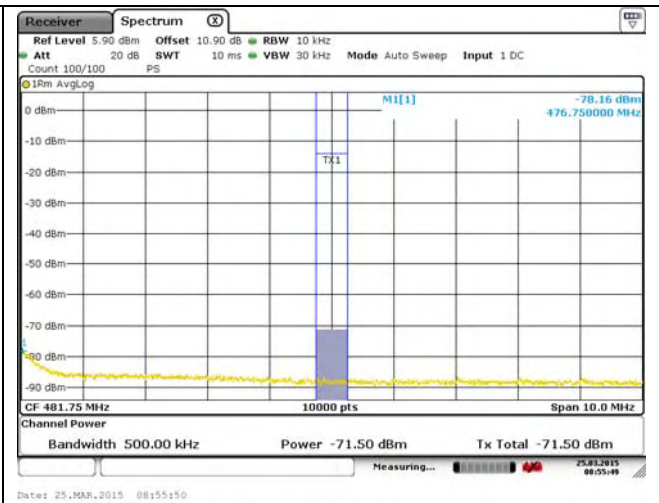
Lower sideband Sub band-11



Upper sideband Sub band-11



Lower sideband Sub band-12



Upper sideband Sub band-12

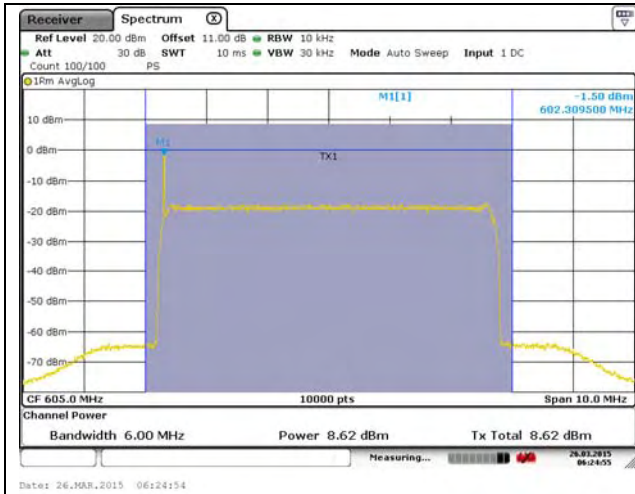
**Middle channel (Channel = 36; frequency = 605 MHz;)**

**Lower Adjacent Channel Power**

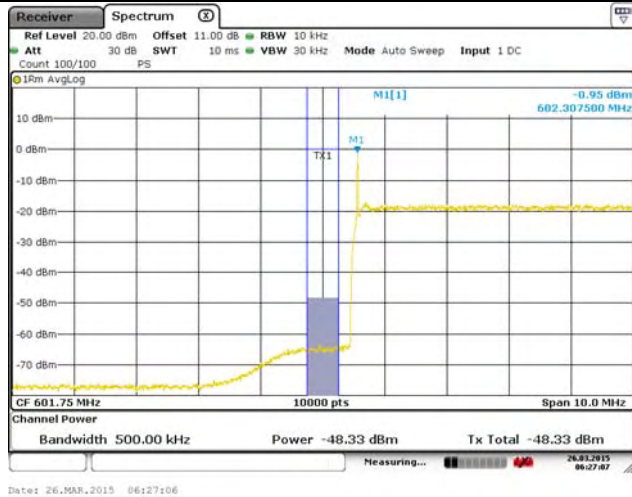
| Sub band | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|-----------------------------|--------------------|-------------|--------|
| -1       | 601.75          | 8.62                      | -48.33                      | -56.95             | -47         | Pass   |
| -2       | 601.25          | 8.62                      | -49.30                      | -57.92             | -49.9       | Pass   |
| -3       | 600.75          | 8.62                      | -53.57                      | -62.19             | -55.6       | Pass   |
| -4       | 600.25          | 8.62                      | -58.56                      | -67.18             | -61.4       | Pass   |
| -5       | 599.75          | 8.62                      | -66.67                      | -75.29             | -67.1       | Pass   |
| -6       | 599.25          | 8.62                      | -68.95                      | -77.57             | -71.9       | Pass   |
| -7       | 598.75          | 8.62                      | -69.84                      | -78.46             | -76         | Pass   |
| -8       | 598.25          | 8.62                      | -69.96                      | -78.58             | -76         | Pass   |
| -9       | 597.75          | 8.62                      | -70.41                      | -79.03             | -76         | Pass   |
| -10      | 597.25          | 8.62                      | -70.44                      | -79.06             | -76         | Pass   |
| -11      | 596.75          | 8.62                      | -70.60                      | -79.22             | -76         | Pass   |
| -12      | 596.25          | 8.62                      | -70.61                      | -79.23             | -76         | Pass   |

**Upper Adjacent Channel Power**

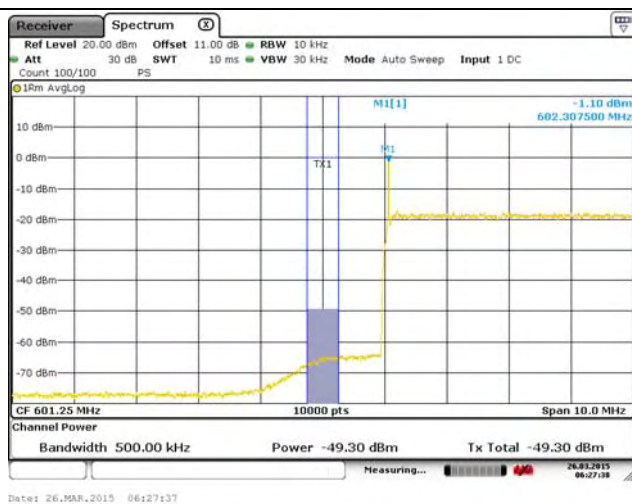
| Sub band | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|-----------------------------|--------------------|-------------|--------|
| -1       | 608.25          | 8.62                      | -47.87                      | -56.49             | -47         | Pass   |
| -2       | 608.75          | 8.62                      | -49.02                      | -57.64             | -49.9       | Pass   |
| -3       | 609.25          | 8.62                      | -52.64                      | -61.26             | -55.6       | Pass   |
| -4       | 609.75          | 8.62                      | -58.04                      | -66.66             | -61.4       | Pass   |
| -5       | 610.25          | 8.62                      | -66.20                      | -74.82             | -67.1       | Pass   |
| -6       | 610.75          | 8.62                      | -68.94                      | -77.56             | -71.9       | Pass   |
| -7       | 611.25          | 8.62                      | -69.65                      | -78.27             | -76         | Pass   |
| -8       | 611.75          | 8.62                      | -70.09                      | -78.71             | -76         | Pass   |
| -9       | 612.25          | 8.62                      | -70.13                      | -78.75             | -76         | Pass   |
| -10      | 612.75          | 8.62                      | -70.31                      | -78.93             | -76         | Pass   |
| -11      | 613.25          | 8.62                      | -70.37                      | -78.99             | -76         | Pass   |
| -12      | 613.75          | 8.62                      | -70.46                      | -79.08             | -76         | Pass   |



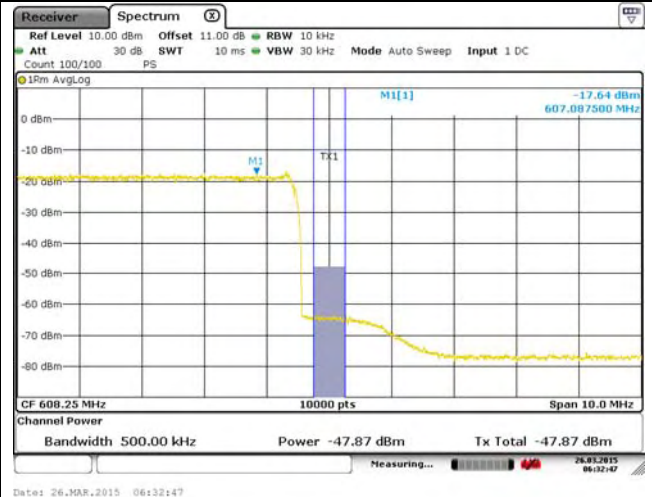
### Reference Channel Power



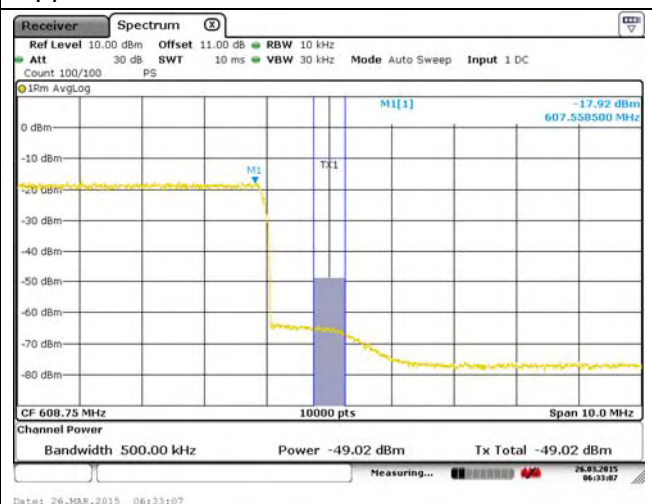
### Lower sideband Sub band-1



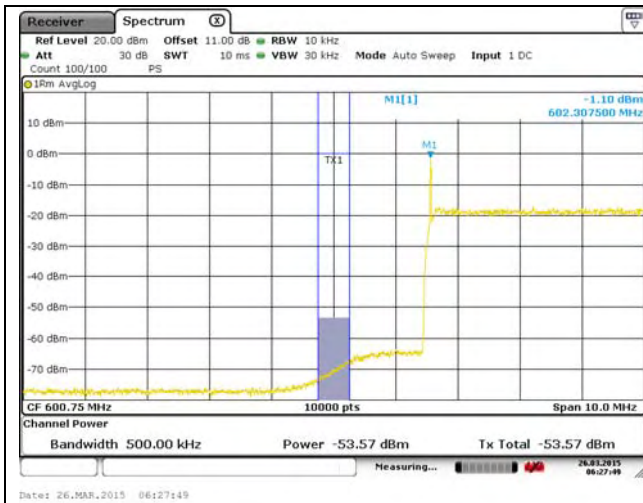
### Lower sideband Sub band-2



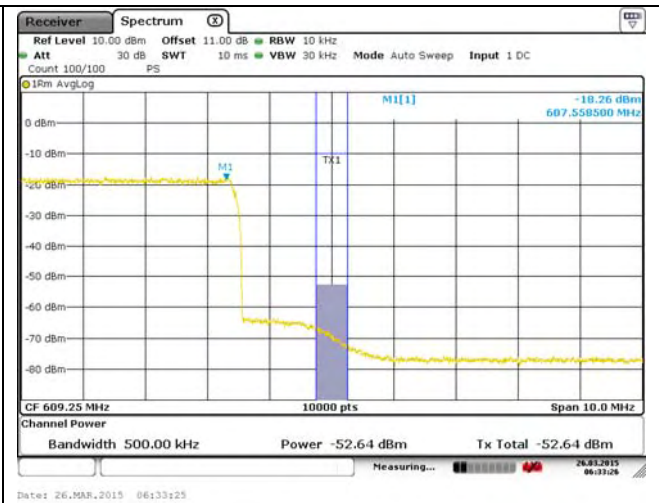
### Upper sideband Sub band-1



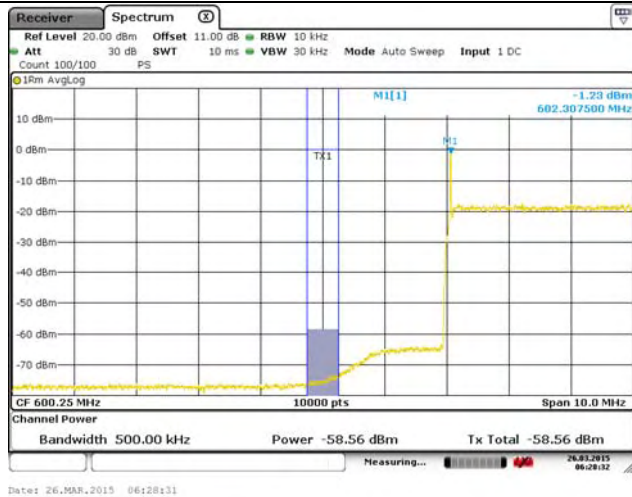
### Upper sideband Sub band-2



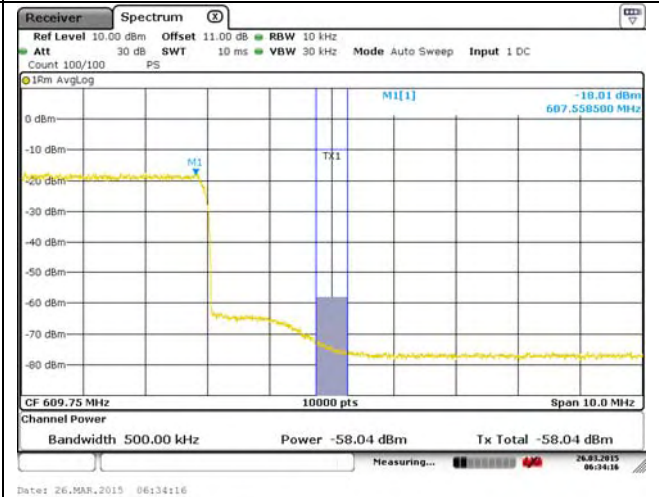
Lower sideband Sub band-3



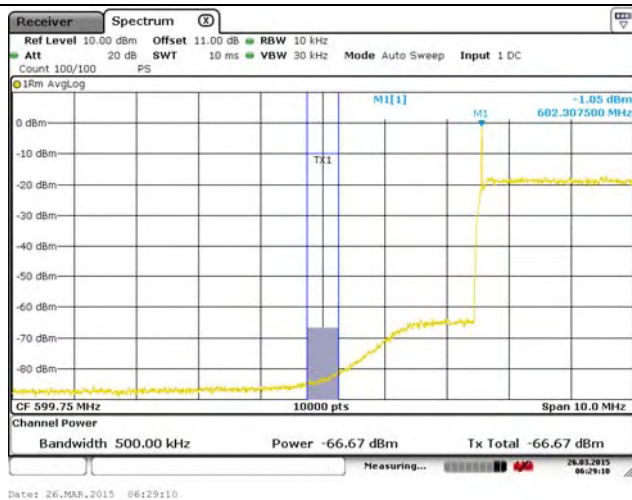
Upper sideband Sub band-3



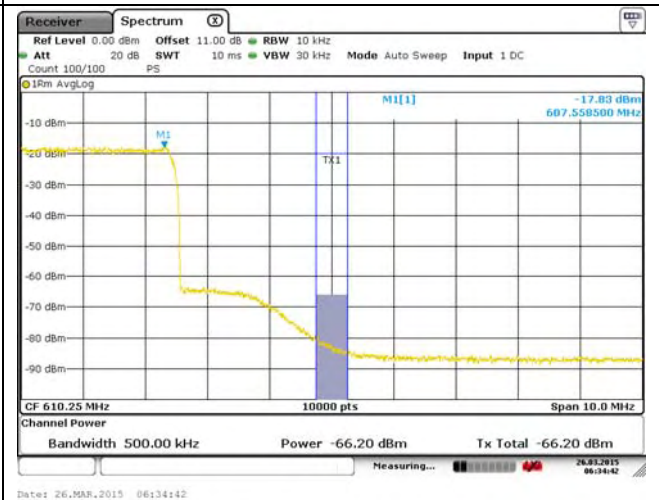
Lower sideband Sub band-4



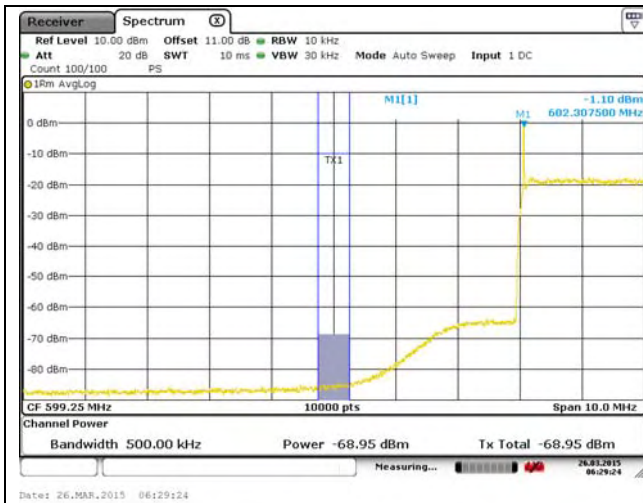
Upper sideband Sub band-4



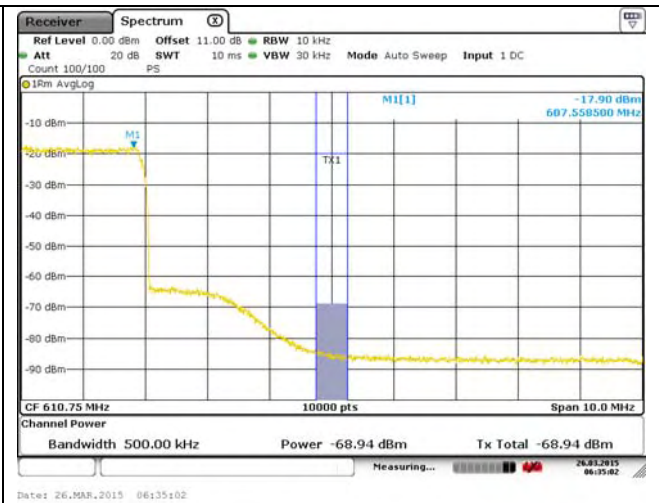
Lower sideband Sub band-5



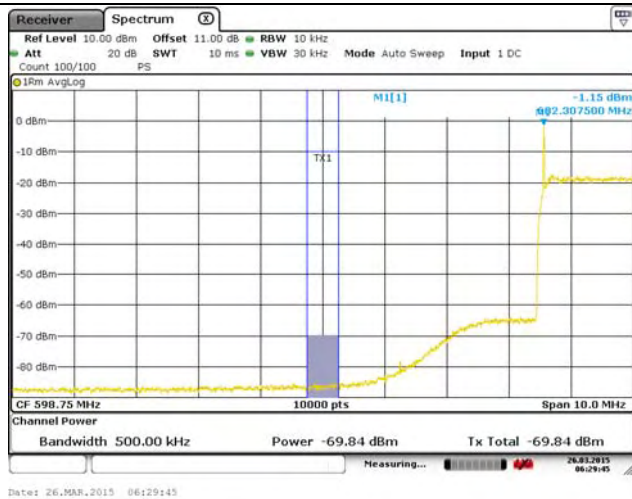
Upper sideband Sub band-5



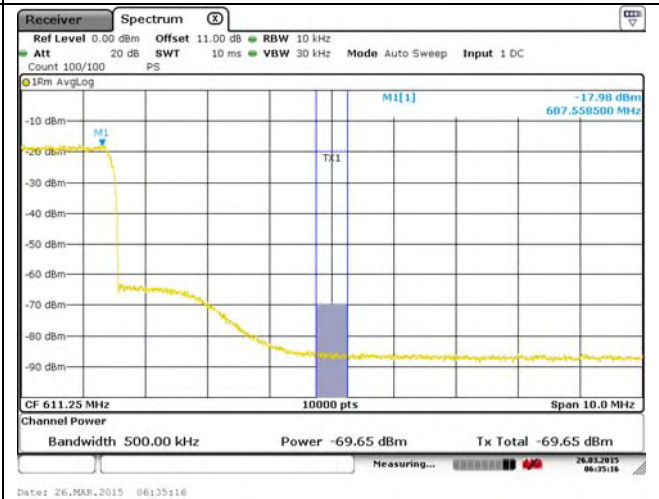
Lower sideband Sub band-6



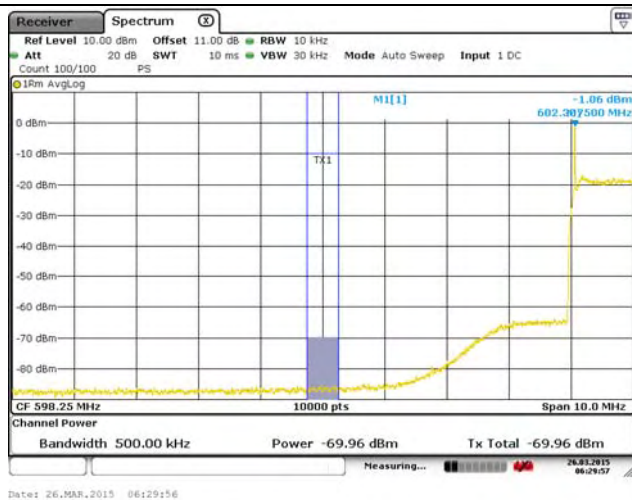
Upper sideband Sub band-6



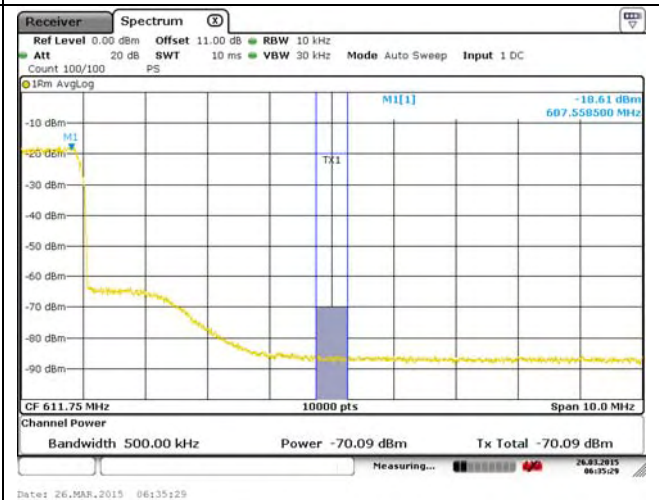
Lower sideband Sub band-7



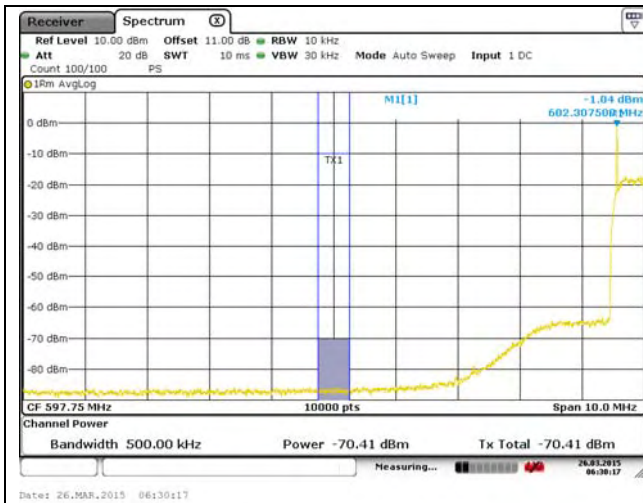
Upper sideband Sub band-7



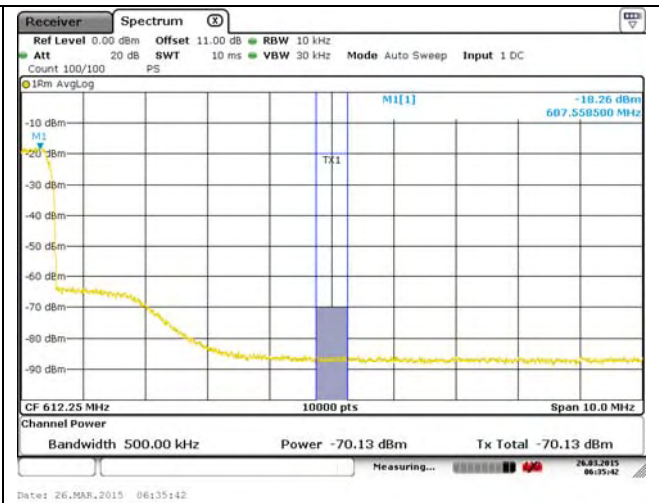
Lower sideband Sub band-8



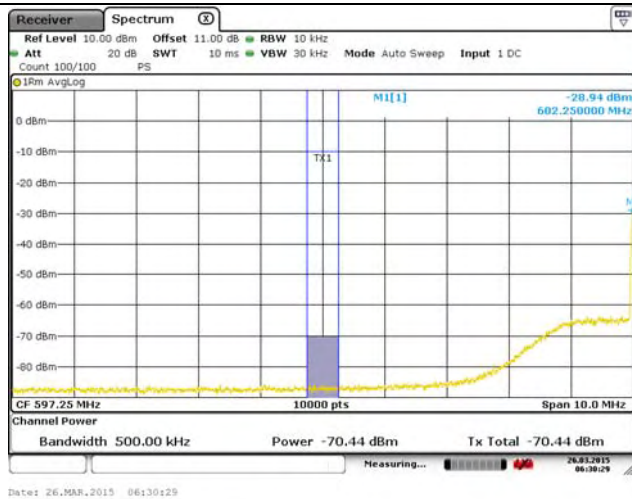
Upper sideband Sub band-8



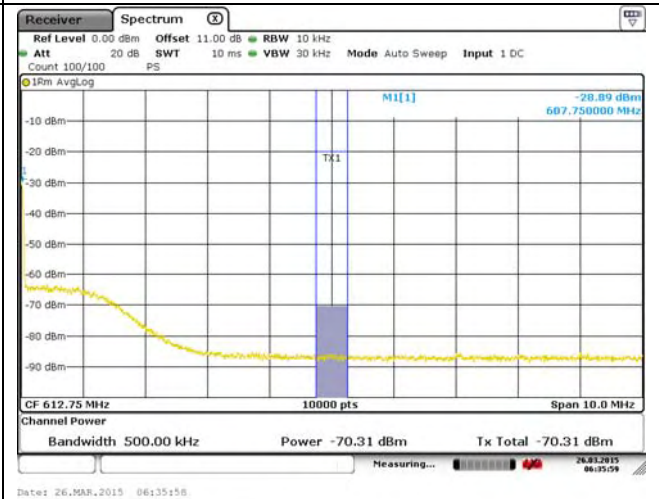
Lower sideband Sub band-9



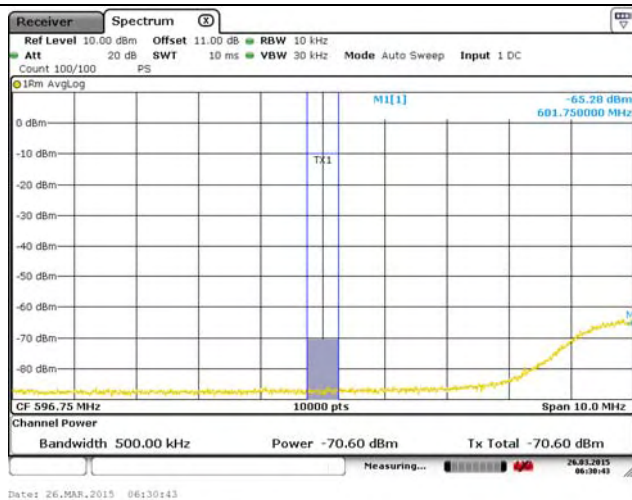
Upper sideband Sub band-9



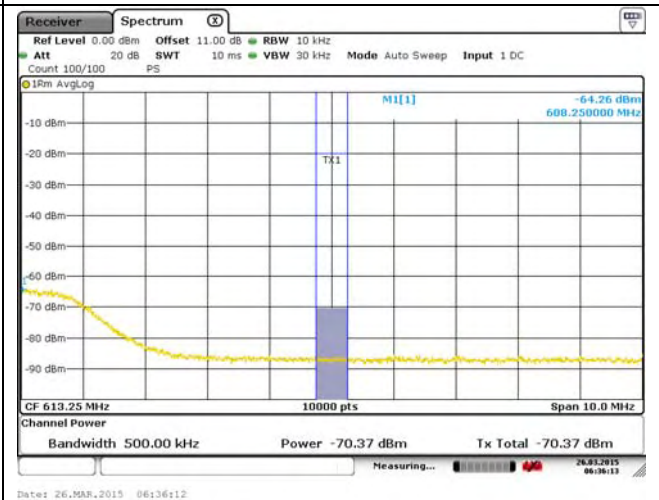
Lower sideband Sub band-10



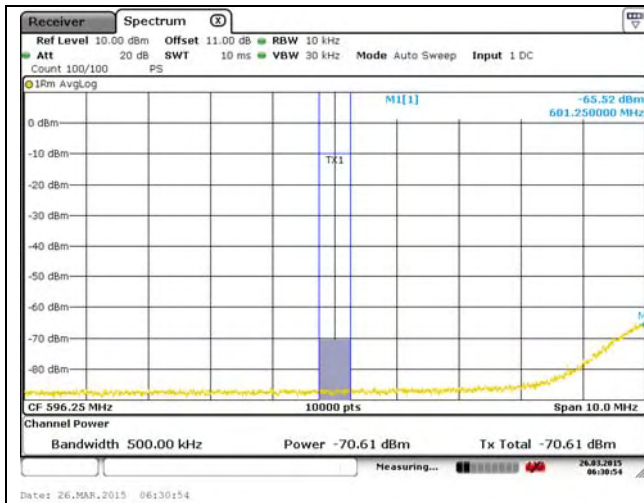
Upper sideband Sub band-10



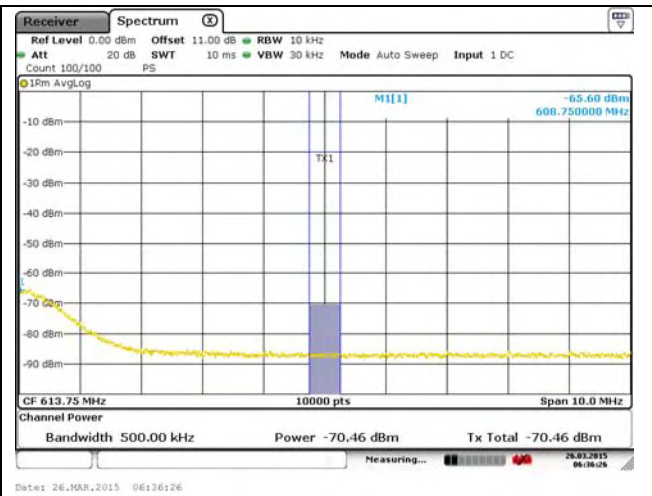
Lower sideband Sub band-11



Upper sideband Sub band-11



Lower sideband Sub band-12



Upper sideband Sub band-12

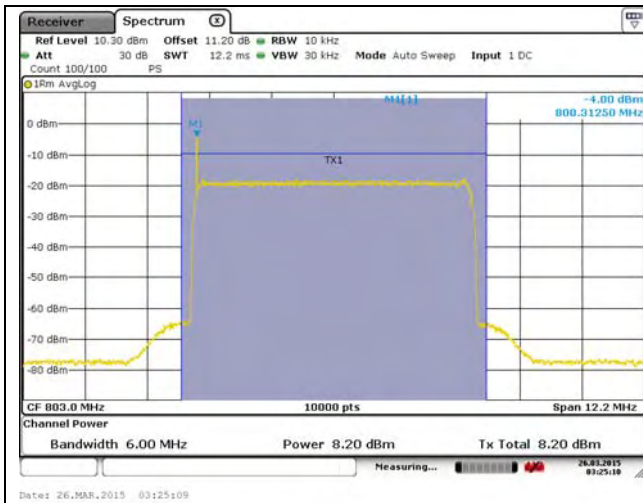
**High channel (Channel = 69; frequency = 803 MHz;)**

**Lower Adjacent Channel Power**

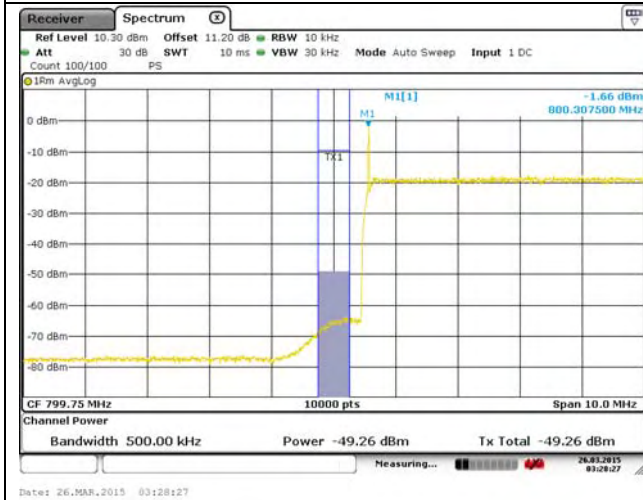
| Sub band | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|-----------------------------|--------------------|-------------|--------|
| -1       | 799.75          | 8.2                       | -49.26                      | -57.46             | -47         | Pass   |
| -2       | 799.25          | 8.2                       | -55.98                      | -64.18             | -49.9       | Pass   |
| -3       | 798.75          | 8.2                       | -60.61                      | -68.81             | -55.6       | Pass   |
| -4       | 798.25          | 8.2                       | -60.65                      | -68.85             | -61.4       | Pass   |
| -5       | 797.75          | 8.2                       | -60.57                      | -68.77             | -67.1       | Pass   |
| -6       | 797.25          | 8.2                       | -70.06                      | -78.26             | -71.9       | Pass   |
| -7       | 796.75          | 8.2                       | -70.38                      | -78.58             | -76         | Pass   |
| -8       | 796.25          | 8.2                       | -70.47                      | -78.67             | -76         | Pass   |
| -9       | 795.75          | 8.2                       | -70.54                      | -78.74             | -76         | Pass   |
| -10      | 795.25          | 8.2                       | -70.7                       | -78.9              | -76         | Pass   |
| -11      | 794.75          | 8.2                       | -70.88                      | -79.08             | -76         | Pass   |
| -12      | 794.25          | 8.2                       | -70.9                       | -79.1              | -76         | Pass   |

**Upper Adjacent Channel Power**

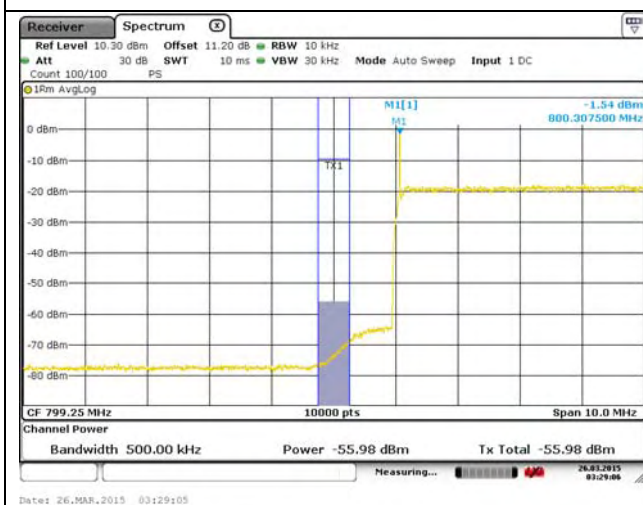
| Sub band | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|-----------------------------|--------------------|-------------|--------|
| -1       | 806.25          | 8.2                       | -50.82                      | -59.02             | -47         | Pass   |
| -2       | 806.75          | 8.2                       | -57.74                      | -65.42             | -49.9       | Pass   |
| -3       | 807.25          | 8.2                       | -60.76                      | -69.04             | -55.6       | Pass   |
| -4       | 807.75          | 8.2                       | -60.70                      | -68.92             | -61.4       | Pass   |
| -5       | 808.25          | 8.2                       | -60.66                      | -68.86             | -67.1       | Pass   |
| -6       | 808.75          | 8.2                       | -69.79                      | -77.99             | -71.9       | Pass   |
| -7       | 809.25          | 8.2                       | -69.86                      | -78.06             | -76         | Pass   |
| -8       | 809.75          | 8.2                       | -70.20                      | -78.40             | -76         | Pass   |
| -9       | 810.25          | 8.2                       | -70.35                      | -78.55             | -76         | Pass   |
| -10      | 810.75          | 8.2                       | -70.56                      | -78.76             | -76         | Pass   |
| -11      | 811.25          | 8.2                       | -70.90                      | -79.10             | -76         | Pass   |
| -12      | 811.75          | 8.2                       | -70.89                      | -79.09             | -76         | Pass   |



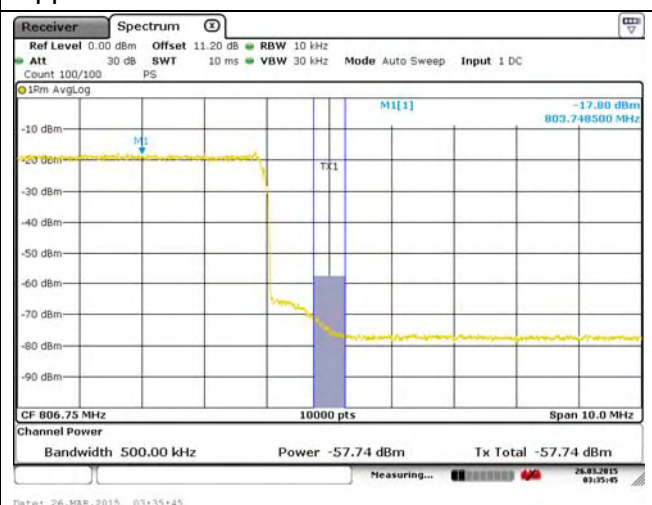
### Reference Channel Power



### Lower sideband Sub band-1

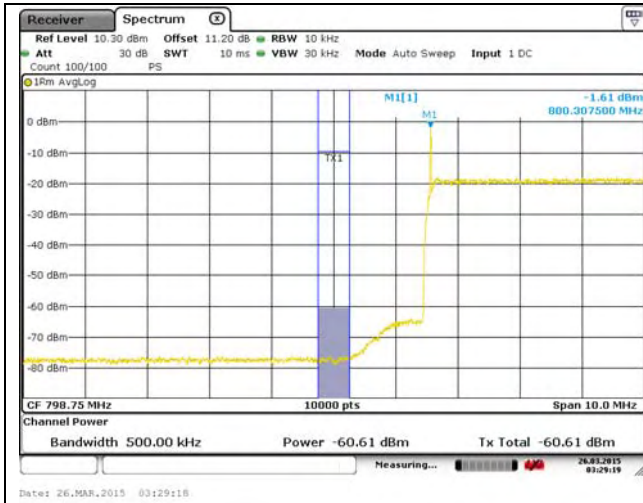


### Upper sideband Sub band-1

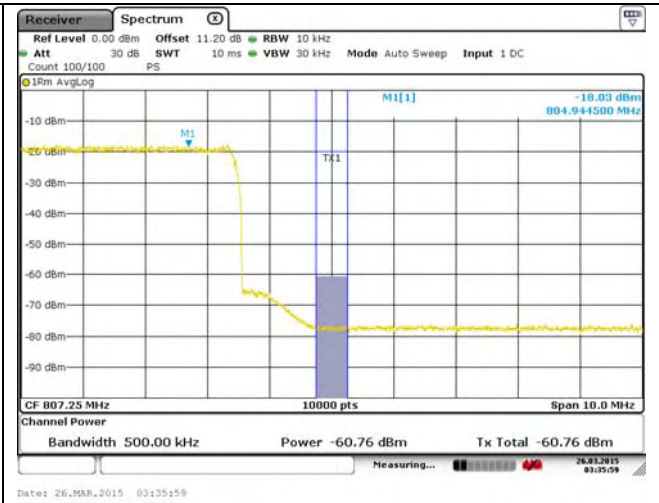


### Lower sideband Sub band-2

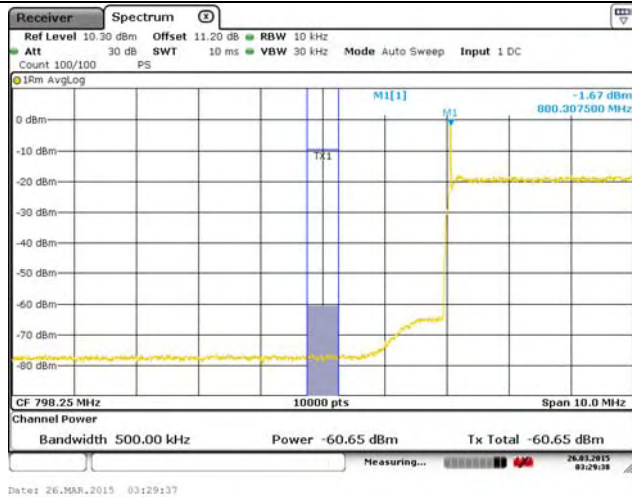
### Upper sideband Sub band-2



Lower sideband Sub band-3



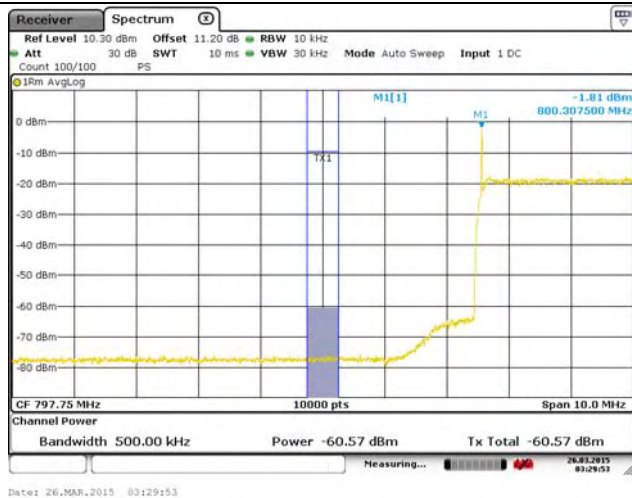
Upper sideband Sub band-3



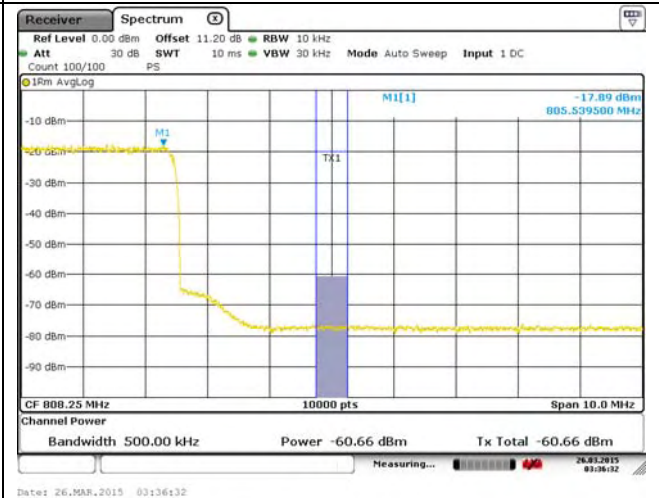
Lower sideband Sub band-4



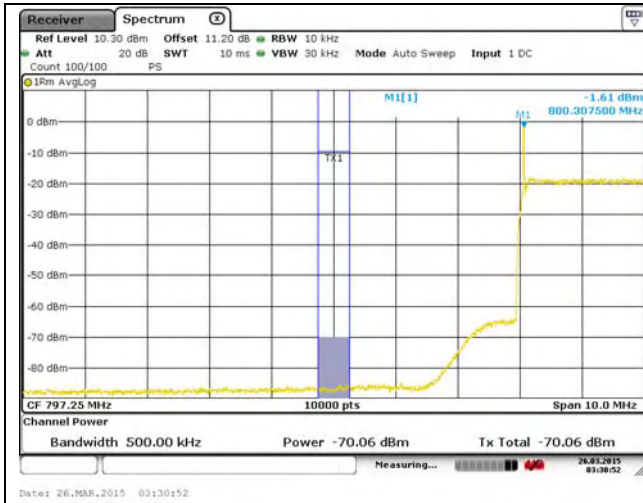
Upper sideband Sub band-4



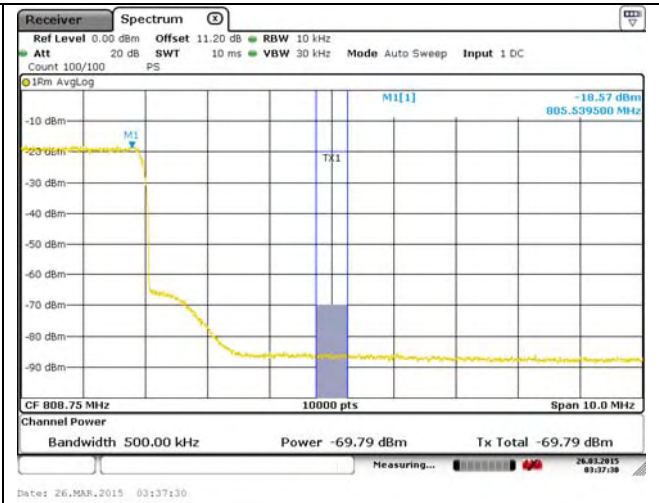
Lower sideband Sub band-5



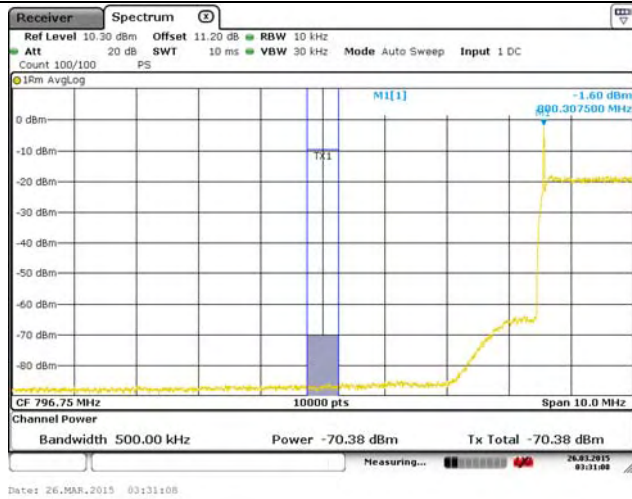
Upper sideband Sub band-5



Lower sideband Sub band-6



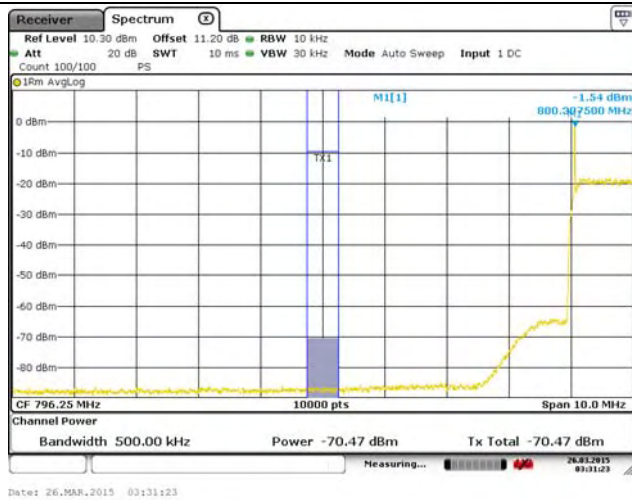
Upper sideband Sub band-6



Lower sideband Sub band-7



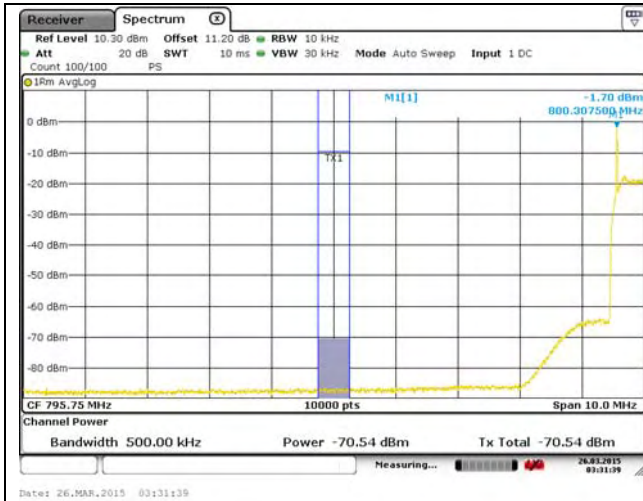
Upper sideband Sub band-7



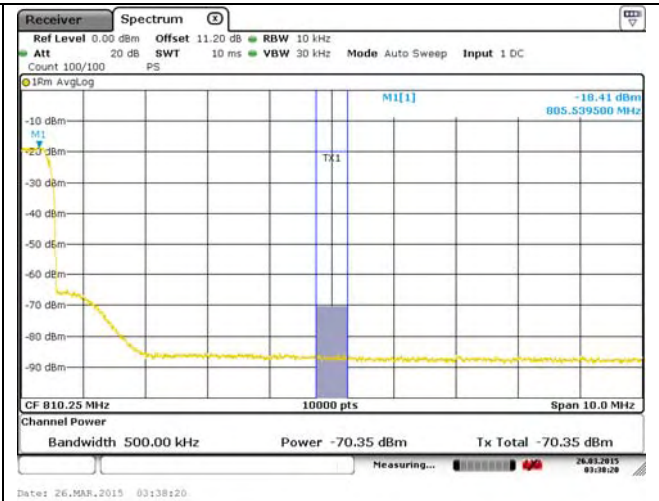
Lower sideband Sub band-8



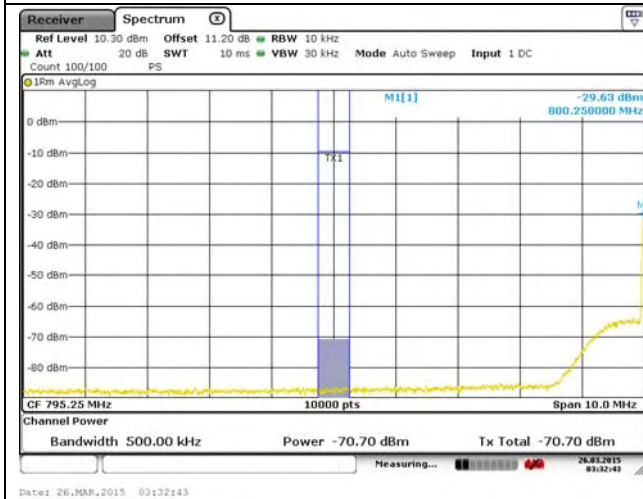
Upper sideband Sub band-8



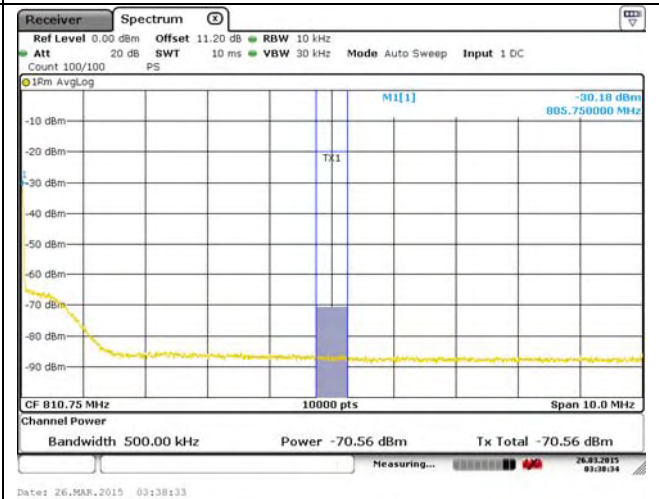
Lower sideband Sub band-9



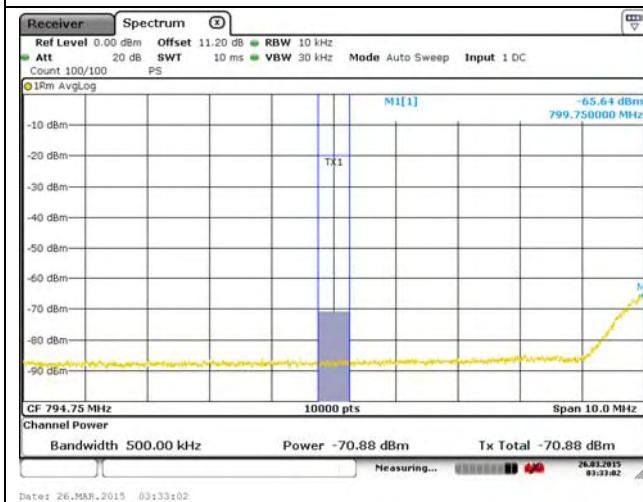
Upper sideband Sub band-9



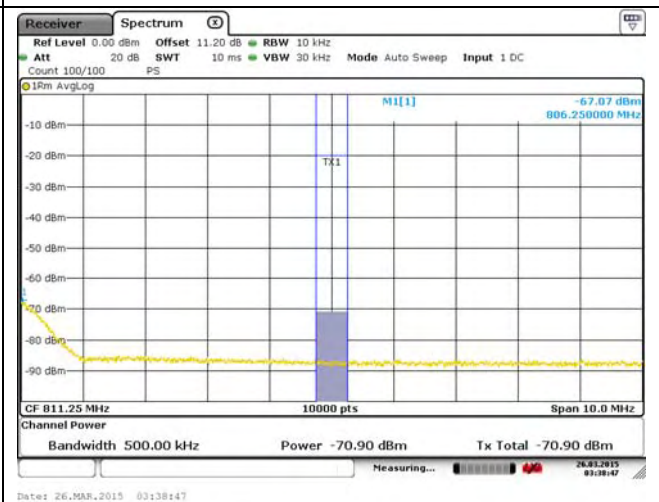
Lower sideband Sub band-10



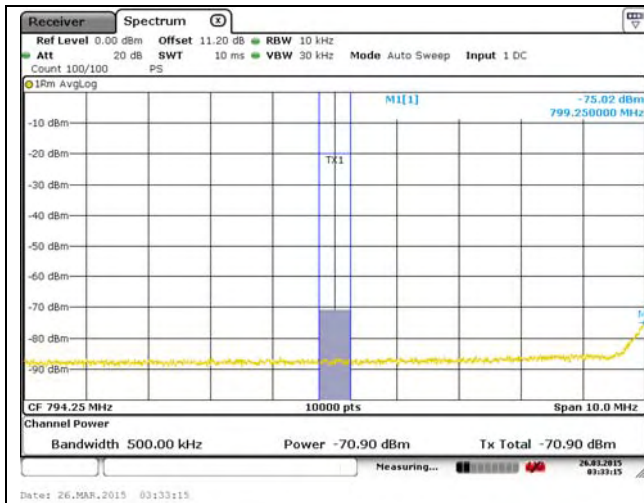
Upper sideband Sub band-10



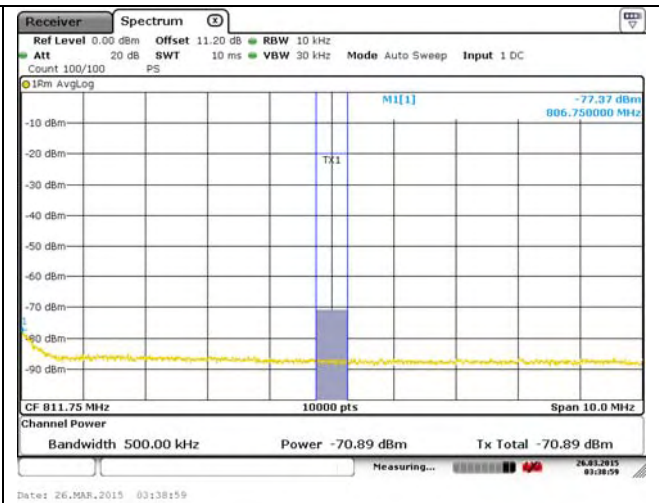
Lower sideband Sub band-11



Upper sideband Sub band-11



Lower sideband Sub band-12



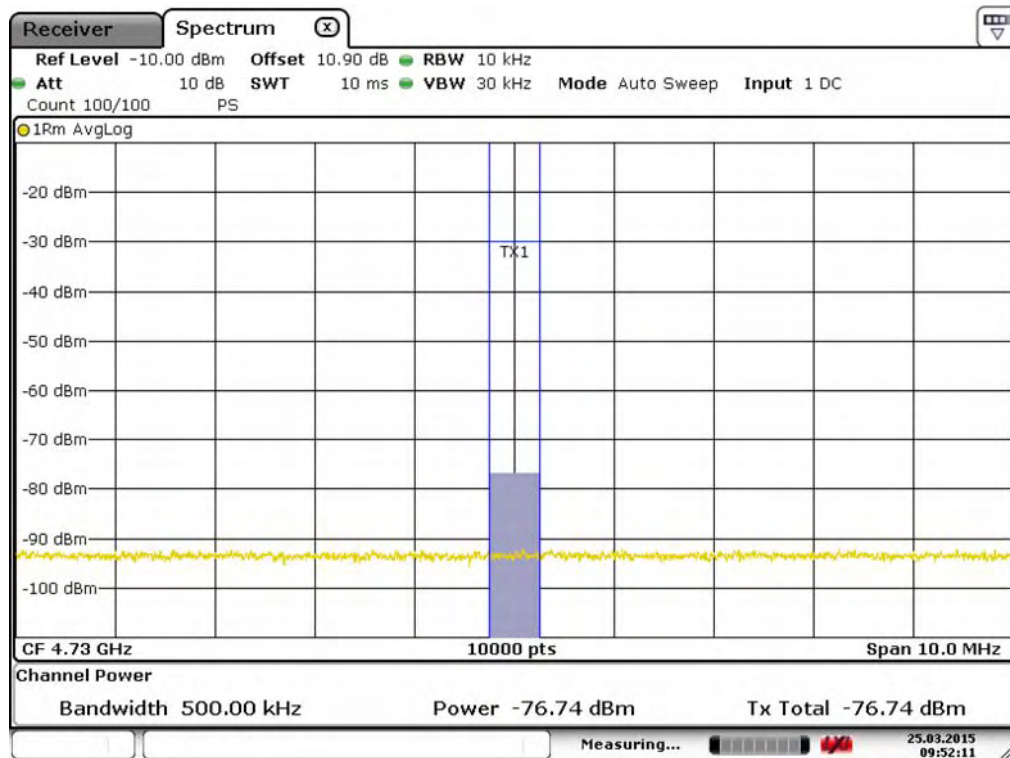
Upper sideband Sub band-12

## Harmonic Spectrum with Dielectric Coupling

### Lower Channel (473MHz)

| Harmonic | frequency (MHz) | 6 MHz reference channel power (dBm) | 500 kHz Harmonic Channel power (dBm) | Calculate power(dBc) | Limit (dBc) | Result |
|----------|-----------------|-------------------------------------|--------------------------------------|----------------------|-------------|--------|
| 1        | 473             | 8.62                                | -                                    |                      | -           | Pass   |
| 2        | 946             | 8.62                                | -80.97                               | -89.59               | -76         | Pass   |
| 3        | 1419            | 8.62                                | -82.15                               | -90.77               | -76         | Pass   |
| 4        | 1892            | 8.62                                | -80.66                               | -89.28               | -76         | Pass   |
| 5        | 2365            | 8.62                                | -78.77                               | -87.39               | -76         | Pass   |
| 6        | 2838            | 8.62                                | -76.93                               | -85.55               | -76         | Pass   |
| 7        | 3311            | 8.62                                | -79.35                               | -87.97               | -76         | Pass   |
| 8        | 3784            | 8.62                                | -78.42                               | -87.04               | -76         | Pass   |
| 9        | 4257            | 8.62                                | -77.27                               | -85.89               | -76         | Pass   |
| 10       | 4730            | 8.62                                | -76.74                               | -85.36               | -76         | Pass   |

### Worst case Harmonic Energy at 10th Harmonic

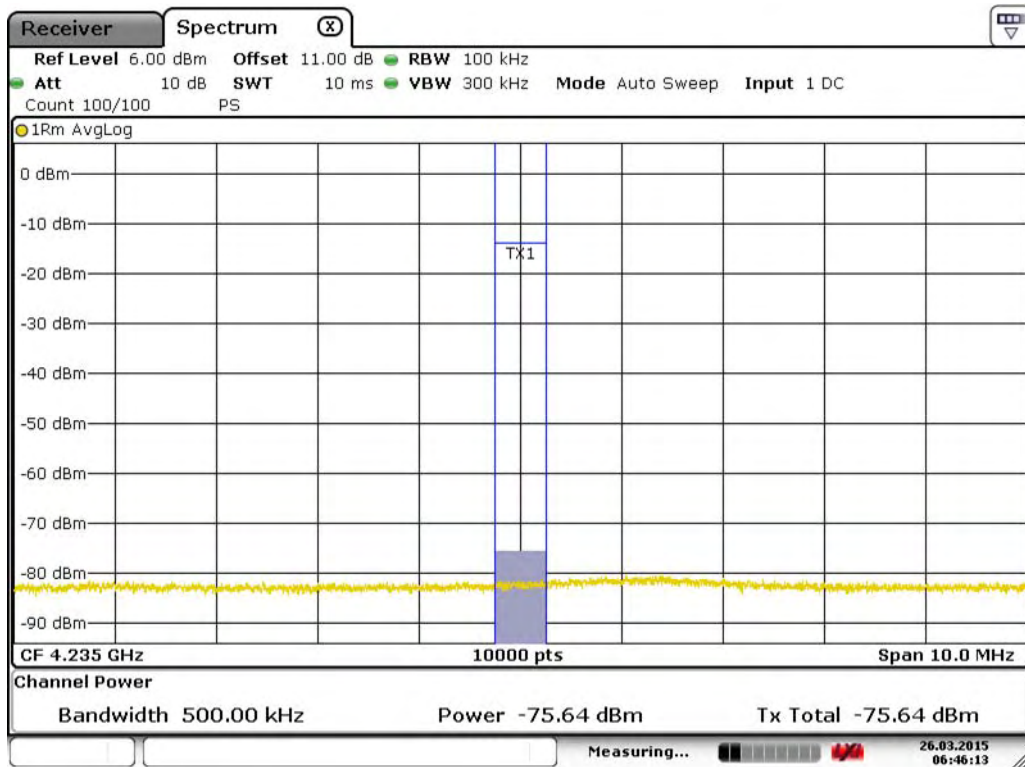


Date: 25.MAR.2015 09:52:11

### Middle Channel (605MHz)

| Harmonic | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz Harmonic Channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|--------------------------------------|--------------------|-------------|--------|
| 1        | 605             | 8.2                       | -                                    |                    | -           | Pass   |
| 2        | 1210            | 8.2                       | -78.50                               | -86.7              | -76         | Pass   |
| 3        | 1815            | 8.2                       | -80.36                               | -88.56             | -76         | Pass   |
| 4        | 2420            | 8.2                       | -78.32                               | -86.52             | -76         | Pass   |
| 5        | 3025            | 8.2                       | -78.20                               | -86.4              | -76         | Pass   |
| 6        | 3630            | 8.2                       | -78.03                               | -86.23             | -76         | Pass   |
| 7        | 4235            | 8.2                       | -75.64                               | -83.84             | -76         | Pass   |
| 8        | 4840            | 8.2                       | -75.69                               | -83.89             | -76         | Pass   |
| 9        | 5445            | 8.2                       | -78.01                               | -86.21             | -76         | Pass   |
| 10       | 6050            | 8.2                       | -77.58                               | -85.78             | -76         | Pass   |

### Worst case Harmonic Energy at 7th Harmonic



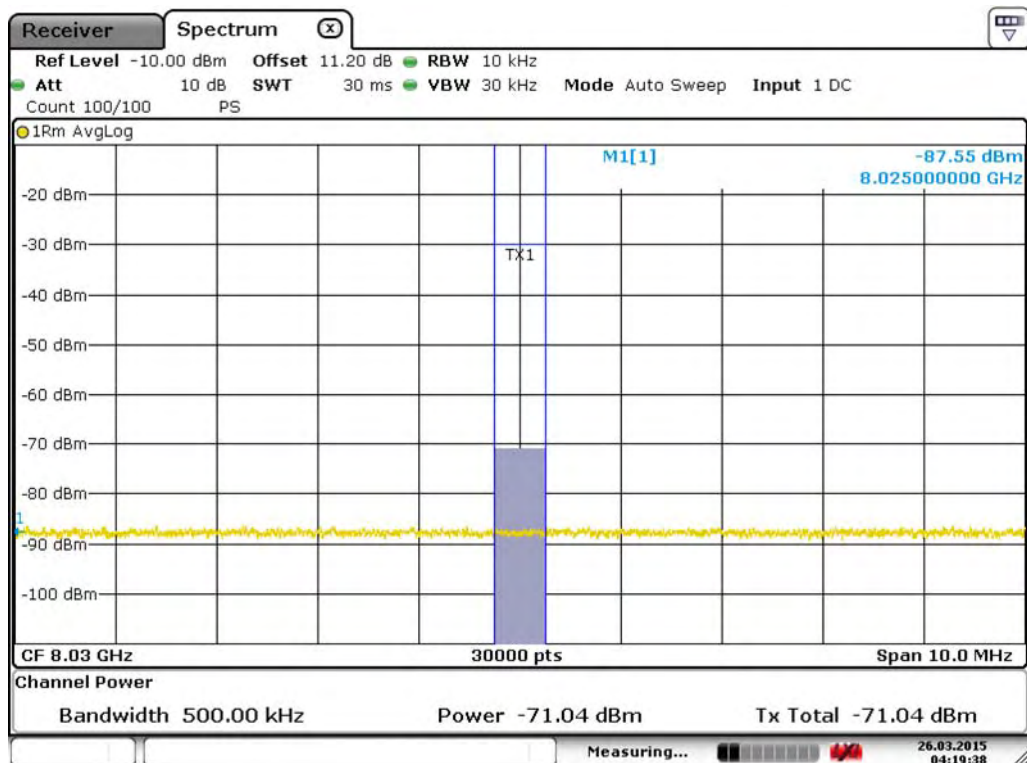
Date: 26.MAR.2015 06:46:12

## High Channel (803MHz)

| Harmonic | frequency (MHz) | 6 MHz channel power (dBm) | 500 kHz Harmonic Channel power (dBm) | Sub band power dBc | Limit (dBc) | Result |
|----------|-----------------|---------------------------|--------------------------------------|--------------------|-------------|--------|
| 1        | 803             | 8.2                       | -                                    |                    | -           | Pass   |
| 2        | 1606            | 8.2                       | -77.10                               | -85.3              | -76         | Pass   |
| 3        | 2409            | 8.2                       | -78.41                               | -86.61             | -76         | Pass   |
| 4        | 3212            | 8.2                       | -78.97                               | -87.17             | -76         | Pass   |
| 5        | 4015            | 8.2                       | -77.33                               | -85.53             | -76         | Pass   |
| 6        | 4818            | 8.2                       | -76.34                               | -84.54             | -76         | Pass   |
| 7        | 5621            | 8.2                       | -78.65                               | -86.85             | -76         | Pass   |
| 8        | 6424            | 8.2                       | -76.00                               | -84.2              | -76         | Pass   |
| 9        | 7227            | 8.2                       | -71.45                               | -79.65             | -76         | Pass   |
| 10       | 8030            | 8.2                       | -71.04                               | -79.24             | -76         | Pass   |

Note: Calculate Power= reference channel power- Measured power

### Worst case Harmonic Energy at 10th Harmonic

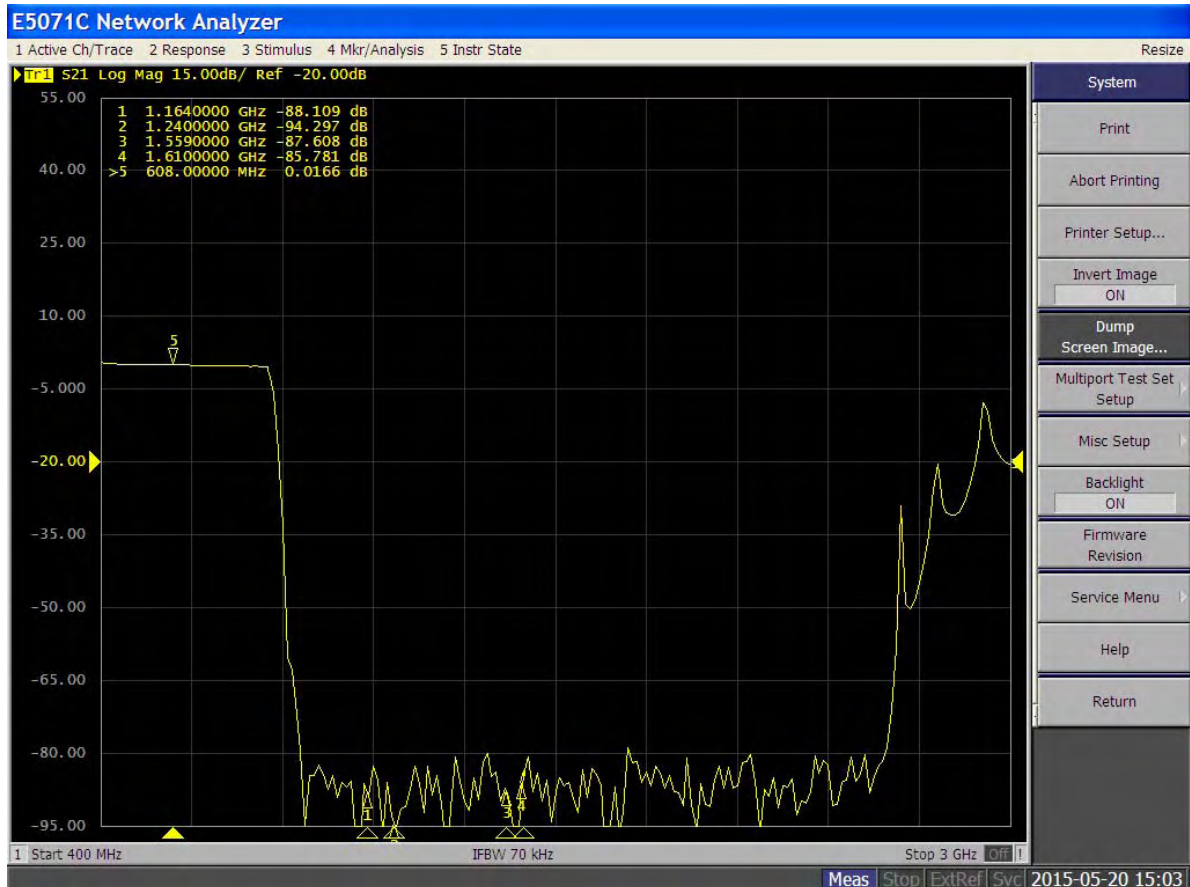


Date: 26.MAR.2015 04:19:38

|             |                     |
|-------------|---------------------|
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## Attenuation to GPS Band Frequencies

The Below network analyzer plot of the output filtering for this transmitter demonstrates compliance with emission attenuation requirements for GPS band protection as specified in FCC 74.794.



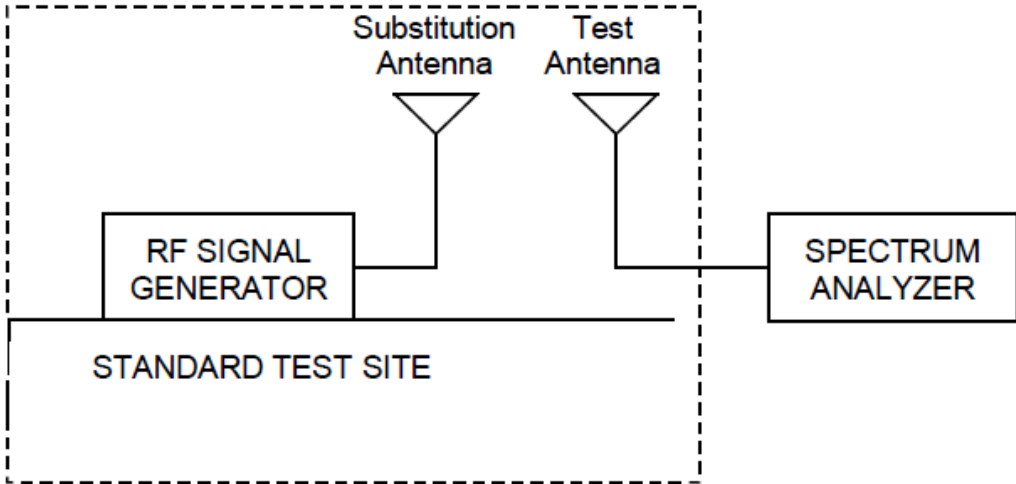
## 6.4 Radiated emission

|                      |                |
|----------------------|----------------|
| Temperature          | 23°C           |
| Relative Humidity    | 53%            |
| Atmospheric Pressure | 1004mbar       |
| Test date :          | March 26, 2015 |
| Tested By :          | Winnie Zhang   |

### Requirement(s):

| Spec                | Item  | Requirement                                                                                                                                                                                                                                                                                                                                                                                                  | Applicable                          |
|---------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| §74.750(a)<br>(iii) | a)    | Radio frequency harmonics of the visual and aural carriers, measured at the output terminals of the transmitter, shall be attenuated no less than 60 dB below the peak visual output power within the assigned channel. All other emissions appearing on frequencies more than 3 megacycles above or below the upper and lower edges, respectively, of the assigned channel shall be attenuated no less than | <input type="checkbox"/>            |
|                     | (i)   | 30 dB for transmitters rated at no more than 1 watt power output.                                                                                                                                                                                                                                                                                                                                            | <input type="checkbox"/>            |
|                     | (ii)  | 50 dB for transmitters rated at more than 1 watt power output.                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/>            |
|                     | (iii) | 60 dB for transmitters rated at more than 100 watts power output.                                                                                                                                                                                                                                                                                                                                            | <input checked="" type="checkbox"/> |

|            |                |
|------------|----------------|
| Test Setup | <p>(set 1)</p> |
|------------|----------------|

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |  <p style="text-align: center;">(set 2)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p><b>Test Procedure</b></p> | <p>Method of Measurement Unwanted Emissions: Radiated Spurious (Non-Radiating Load)</p> <ol style="list-style-type: none"> <li>a) Connect the equipment as illustrated.</li> <li>b) Adjust the spectrum analyzer for the following settings: <ol style="list-style-type: none"> <li>1) Resolution Bandwidth = 100 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1GHz.</li> <li>2) Video Bandwidth = 300 kHz for spurious emissions below 1 GHz, and 3 MHz for spurious emissions above 1 GHz.</li> <li>3) Sweep Speed slow enough to maintain measurement calibration.</li> <li>4) Detector Mode = Positive Peak.</li> </ol> </li> <li>c) Place the transmitter to be tested on the Floor.</li> <li>d) Radiation from the device was measured at a distance of 10m(30MHz~1GHz) and 3m(above 1GHz) in 4 different physical rotation angles: 0, 90, 180 and 270 degrees ( 0 degrees being the front side of the device).</li> <li>e) The transmitter was rotated 90 degrees for each of the measurement orientation. For each spurious frequency, raise and lower the test antenna at 2m high to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.</li> <li>f) Repeat step e) for each spurious frequency with the test antenna polarized vertically.</li> <li>g) Reconnect the equipment as illustrated.</li> <li>h) Keep the spectrum analyzer adjusted as in step e).</li> <li>i) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At the lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.</li> <li>j) Feed the substitution antenna at the transmitter end with a signal generator connected to</li> </ol> |

|             |                     |
|-------------|---------------------|
| Test Report | 15030001-FCC-Part74 |
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|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>the antenna by means of a non radiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.</p> <p>k) Repeat step j) with both antennas vertically polarized for each spurious frequency.</p> <p>l) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps k) and l) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:</p> $P_d(\text{dBm}) = P_g(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dB)}$ <p>where:</p> <p>P<sub>d</sub> is the dipole equivalent power and</p> <p>P<sub>g</sub> is the generator output power into the substitution antenna.</p> <p>n) The P<sub>d</sub> levels record in step m) are the absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:</p> $\text{Radiated spurious emissions (dB)} = 10 \log_{10} \left( \frac{\text{TX power in watts}}{0.001} \right) - \text{the levels in step m)}$ <p>NOTE: It is permissible to use other antennas provided they can be referenced to a dipole.</p> |
| Remark | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☐ N/A

Low channel power= 1300W ≈ 61.14 dBm,

**Low channel (front side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 946             | -26.22                  | V              | 5.8                          | 0.78            | -21.2                   | 1.14        | -22.34      |
| 946             | -28.22                  | H              | 5.8                          | 0.78            | -23.2                   | 1.14        | -24.34      |
| 1419            | -29.19                  | V              | 8.4                          | 1.61            | -22.4                   | 1.14        | -23.54      |
| 1419            | -31.59                  | H              | 8.4                          | 1.61            | -27.3                   | 1.14        | -25.94      |
| 75.45           | -52.78                  | V              | 6.3                          | 0.26            | -46.74                  | 1.14        | -47.88      |
| 52.19           | -50.16                  | H              | 6.3                          | 0.41            | -44.27                  | 1.14        | -45.41      |

**Low channel (left side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 946             | -27.33                  | V              | 5.8                          | 0.78            | -22.31                  | 1.14        | -23.45      |
| 946             | -29.09                  | H              | 5.8                          | 0.78            | -24.07                  | 1.14        | -25.21      |
| 1419            | -30.17                  | V              | 8.4                          | 1.61            | -25.88                  | 1.14        | -24.52      |
| 1419            | -33.66                  | H              | 8.4                          | 1.61            | -29.37                  | 1.14        | -28.01      |
| 75.45           | -54.29                  | V              | 6.3                          | 0.26            | -48.25                  | 1.14        | -49.39      |
| 52.19           | -51.27                  | H              | 6.3                          | 0.41            | -45.38                  | 1.14        | -46.52      |

**Low channel (right side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 946             | -28.39                  | V              | 5.8                          | 0.78            | -23.37                  | 1.14        | -24.51      |
| 946             | -27.44                  | H              | 5.8                          | 0.78            | -22.42                  | 1.14        | -23.56      |
| 1419            | -29.01                  | V              | 8.4                          | 1.61            | -24.72                  | 1.14        | -23.36      |
| 1419            | -30.34                  | H              | 8.4                          | 1.61            | -26.05                  | 1.14        | -24.69      |
| 75.45           | -51.32                  | V              | 6.3                          | 0.26            | -45.28                  | 1.14        | -46.42      |
| 52.19           | -50.29                  | H              | 6.3                          | 0.41            | -44.4                   | 1.14        | -45.54      |

**Low channel (rear side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 946             | -23.09                  | V              | 5.8                          | 0.78            | -18.07                  | 1.14        | -19.21      |
| 946             | -22.39                  | H              | 5.8                          | 0.78            | -17.37                  | 1.14        | -18.51      |
| 1419            | -25.31                  | V              | 8.4                          | 1.61            | -21.02                  | 1.14        | -19.66      |

|       |        |   |     |      |        |      |        |
|-------|--------|---|-----|------|--------|------|--------|
| 1419  | -28.39 | H | 8.4 | 1.61 | -24.1  | 1.14 | -22.74 |
| 75.45 | -45.98 | V | 6.3 | 0.26 | -39.94 | 1.14 | -41.08 |
| 52.19 | -48.75 | H | 6.3 | 0.41 | -42.86 | 1.14 | -44    |

Middle channel power = 1300W  $\approx$  61.14 dBm

**Middle channel (front side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1210            | -23.12                  | V              | 6                            | 1.48            | -18.6                   | 1.14        | -19.74      |
| 1210            | -23.45                  | H              | 6                            | 1.48            | -18.93                  | 1.14        | -20.07      |
| 324.8           | -51.77                  | V              | 6.4                          | 0.76            | -46.13                  | 1.14        | -47.27      |
| 715.2           | -53.87                  | H              | 6.8                          | 0.91            | -47.98                  | 1.14        | -49.12      |

**Middle channel (left side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1210            | -24.67                  | V              | 6                            | 1.48            | -20.15                  | 1.14        | -21.29      |
| 1210            | -25.84                  | H              | 6                            | 1.48            | -21.32                  | 1.14        | -22.46      |
| 324.8           | -49.76                  | V              | 6.4                          | 0.76            | -44.12                  | 1.14        | -45.26      |
| 715.2           | -48.1                   | H              | 6.8                          | 0.91            | -42.21                  | 1.14        | -43.35      |

**Middle channel (right side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1210            | -22.89                  | V              | 6                            | 1.48            | -18.37                  | 1.14        | -19.51      |
| 1210            | -21.77                  | H              | 6                            | 1.48            | -17.25                  | 1.14        | -18.39      |
| 324.8           | -47.89                  | V              | 6.4                          | 0.76            | -42.25                  | 1.14        | -43.39      |
| 715.2           | -49.09                  | H              | 6.8                          | 0.91            | -43.2                   | 1.14        | -44.34      |

**Middle channel (rear side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1210            | -21.59                  | V              | 6                            | 1.48            | -17.07                  | 1.14        | -18.21      |
| 1210            | -22.57                  | H              | 6                            | 1.48            | -18.05                  | 1.14        | -19.19      |
| 324.8           | -52.78                  | V              | 6.4                          | 0.76            | -47.14                  | 1.14        | -48.28      |
| 715.2           | -50.16                  | H              | 6.8                          | 0.91            | -44.27                  | 1.14        | -45.41      |

High channel power= 1300W  $\approx$  61.14 dBm

**High channel (front side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1606            | -21.78                  | V              | 8.2                          | 1.65            | -17.63                  | 1.14        | -16.37      |
| 1606            | -22.13                  | H              | 8.2                          | 1.65            | -17.98                  | 1.14        | -16.72      |
| 124.8           | -49.77                  | V              | 6.3                          | 0.57            | -44.04                  | 1.14        | -45.18      |
| 315.2           | -46.29                  | H              | 6.4                          | 0.76            | -40.65                  | 1.14        | -41.79      |

**High channel (left side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1606            | -20.33                  | V              | 8.2                          | 1.65            | -16.18                  | 1.14        | -14.92      |
| 1606            | -22                     | H              | 8.2                          | 1.65            | -17.85                  | 1.14        | -16.59      |
| 124.8           | -49.29                  | V              | 6.3                          | 0.57            | -43.56                  | 1.14        | -44.7       |
| 315.2           | -48.48                  | H              | 6.4                          | 0.76            | -42.84                  | 1.14        | -43.98      |

**High channel (right side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1606            | -19.13                  | V              | 8.2                          | 1.65            | -14.98                  | 1.14        | -13.72      |
| 1606            | -20.56                  | H              | 8.2                          | 1.65            | -16.41                  | 1.14        | -15.15      |
| 124.8           | -49.64                  | V              | 6.3                          | 0.57            | -43.91                  | 1.14        | -45.05      |
| 315.2           | -47.39                  | H              | 6.4                          | 0.76            | -41.75                  | 1.14        | -42.89      |

**High channel (rear side)**

| Frequency (MHz) | Substituted level (dBm) | Polarity (H/V) | Antenna Gain Correction (dB) | Cable Loss (dB) | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------|----------------|------------------------------|-----------------|-------------------------|-------------|-------------|
| 1606            | -18.33                  | V              | 8.2                          | 1.65            | -14.18                  | 1.14        | -12.92      |
| 1606            | -19.87                  | H              | 8.2                          | 1.65            | -15.72                  | 1.14        | -14.46      |
| 124.8           | -46.29                  | V              | 6.3                          | 0.57            | -40.56                  | 1.14        | -41.7       |
| 315.2           | -49.56                  | H              | 6.4                          | 0.76            | -43.92                  | 1.14        | -45.06      |

## 6.5 Frequency tolerance

|                      |                |
|----------------------|----------------|
| Temperature          | 24°C           |
| Relative Humidity    | 54%            |
| Atmospheric Pressure | 1005mbar       |
| Test date :          | March 26, 2015 |
| Tested By :          | Winnie Zhang   |

### Requirement(s):

| Spec       | Item                                                                                                                            | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                        | Applicable                          |
|------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| §74.761    |                                                                                                                                 | The licensee of a low power TV, TV translator, or TV booster station shall maintain the transmitter output frequencies as set forth below. The frequency tolerance of stations using direct frequency conversion of a received signal and not engaging in offset carrier operation as set forth in paragraph (d) of this section will be referenced to the authorized plus or minus 10 kHz offset, if any, of the primary station. | <input type="checkbox"/>            |
|            | a                                                                                                                               | The visual carrier shall be maintained to within 0.02 percent of the assigned visual carrier frequency for transmitters rated at not more than 100 watts peak visual power.                                                                                                                                                                                                                                                        | <input type="checkbox"/>            |
|            | b                                                                                                                               | The visual carrier shall be maintained to within 0.002 percent of the assigned visual carrier frequency for transmitters rated at more than 100 watts peak visual power.                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> |
|            | c                                                                                                                               | The aural carrier of stations employing modulating equipment shall be maintained at 4.5 MHz $\pm$ 1 kHz above the visual carrier frequency.                                                                                                                                                                                                                                                                                        | <input type="checkbox"/>            |
|            | d                                                                                                                               | The visual carrier shall be maintained to within 1 kHz of the assigned channel carrier frequency if the low power TV, TV translator, or TV booster station is authorized with a specified offset designation in order to provide protection under the provisions of §74.705 or §74.707.                                                                                                                                            | <input type="checkbox"/>            |
| Test Setup | <pre> graph LR     SA[Spectrum Analyzer] --- 50[50Ω]     50 --- Dir[Dir]     Dir --- EUT[EUT]     EUT --- TR[Temp. Room] </pre> |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                     |

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|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Procedure | <p>a) Connect the equipment as illustrated.</p> <p>b) Operate the equipment in standby conditions for 15 minutes before proceeding.</p> <p>c) Record the carrier frequency of the transmitter as MCFMHz .</p> <p>d) Calculate the ppm frequency error by the following:</p> $ppm\ error = \left( \frac{MCF_{MHz}}{ACF_{MHz}} - 1 \right) * 10^6$ <p>where</p> <p>MCFMHz is the Measured Carrier Frequency in MHz</p> <p>ACFMHz is the Assigned Carrier Frequency in MHz</p> <p>e) The value recorded in step d) is the carrier frequency stability.</p> |
| Remark         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Result         | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☐ N/A

**Test data (Low frequency= 473 MHz )**

| Temperature (°C) | Voltage (AC<br>110V/60Hz 3<br>Phases) | Test frequency<br>(MHz) | Measurement<br>(ppm) | Limit<br>(ppm) | Result |
|------------------|---------------------------------------|-------------------------|----------------------|----------------|--------|
| 0                | 110V                                  | 472.9997450             | 5.4                  | 20             | Pass   |
| 10               |                                       | 472.9997450             | 5.4                  | 20             | Pass   |
| 20               |                                       | 472.9997350             | 5.6                  | 20             | Pass   |
| 30               |                                       | 472.9997250             | 5.8                  | 20             | Pass   |
| 40               |                                       | 472.9997450             | 5.4                  | 20             | Pass   |
| 50               |                                       | 472.9997650             | 5.0                  | 20             | Pass   |
| 30               | 121V                                  | 472.9997750             | 4.8                  | 20             | Pass   |
| 30               | 99V                                   | 472.9998750             | 2.6                  | 20             | Pass   |

**Test data (Middle frequency= 605 MHz)**

| Temperature (°C) | Voltage (AC<br>110V/60Hz 3<br>Phases) | Test frequency<br>(MHz) | Measurement<br>(ppm) | Limit<br>(ppm) | Result |
|------------------|---------------------------------------|-------------------------|----------------------|----------------|--------|
| 0                | 110V                                  | 605.0000250             | 4.0                  | 20             | Pass   |
| 10               |                                       | 605.0000250             | 4.0                  | 20             | Pass   |
| 20               |                                       | 605.0000250             | 4.0                  | 20             | Pass   |
| 30               |                                       | 605.0000250             | 4.0                  | 20             | Pass   |
| 40               |                                       | 605.0000250             | 4.0                  | 20             | Pass   |
| 50               |                                       | 605.0000250             | 4.0                  | 20             | Pass   |
| 30               | 121V                                  | 605.0000420             | 4.0                  | 20             | Pass   |
| 30               | 99V                                   | 605.0000420             | 4.0                  | 20             | Pass   |

**Test data (High frequency= 803 MHz)**

| Temperature (°C) | Voltage (AC<br>110V/60Hz 3<br>Phases) | Test frequency<br>(MHz) | Measurement<br>(ppm) | Limit<br>(ppm) | Result |
|------------------|---------------------------------------|-------------------------|----------------------|----------------|--------|
| 0                | 110V                                  | 803.0002230             | 2.8                  | 20             | Pass   |
| 10               |                                       | 803.0002230             | 2.8                  | 20             | Pass   |
| 20               |                                       | 803.0002220             | 2.8                  | 20             | Pass   |
| 30               |                                       | 803.0002250             | 2.8                  | 20             | Pass   |
| 40               |                                       | 803.0002240             | 2.8                  | 20             | Pass   |
| 50               |                                       | 803.0002230             | 2.8                  | 20             | Pass   |
| 30               | 121V                                  | 803.0001920             | 2.8                  | 20             | Pass   |
| 30               | 99V                                   | 803.0001750             | 2.8                  | 20             | Pass   |

## Annex A. TEST INSTRUMENT

| Instrument                             | Model    | Serial #               | Cal Date   | Cal Due    | In use                              |
|----------------------------------------|----------|------------------------|------------|------------|-------------------------------------|
| <b>RF conducted test</b>               |          |                        |            |            |                                     |
| R&S EMI Receiver                       | ESR26    | 1316.3003K26-101264-BP | 09/18/2014 | 09/17/2015 | <input checked="" type="checkbox"/> |
| AC Power Supply                        | HPA-3360 | HP1412120346           | 09/18/2014 | 09/17/2015 | <input checked="" type="checkbox"/> |
| Agilent Power Meter                    | E4418B   | MY41294989             | 06/14/2014 | 06/15/2015 | <input checked="" type="checkbox"/> |
| <b>Radiated Emissions</b>              |          |                        |            |            |                                     |
| R&S EMI Receiver                       | ESR26    | 1316.3003K26-101264-BP | 09/18/2014 | 09/17/2015 | <input checked="" type="checkbox"/> |
| Positioning Controller                 | UC3000   | MF780208282            | 11/20/2014 | 11/19/2015 | <input checked="" type="checkbox"/> |
| Bilog Antenna<br>(30MHz~6GHz)          | JB6      | A110712                | 09/22/2014 | 09/21/2015 | <input checked="" type="checkbox"/> |
| Bilog Antenna<br>(30MHz~2GHz)          | JB1      | A112017                | 09/22/2014 | 09/21/2015 | <input checked="" type="checkbox"/> |
| A-INFOMW Horn Antenna<br>(1~18GHz)     | AH-118   | 71259                  | 09/25/2014 | 09/24/2015 | <input checked="" type="checkbox"/> |
| EMCO Horn Antenna<br>(1~18GHz)         | AH-118   | 71283                  | 09/25/2014 | 09/24/2015 | <input checked="" type="checkbox"/> |
| OPT010<br>AMPLIFIER(0.1~1300MHz)       | 8447E    | 2727A02430             | 09/02/2014 | 09/01/2015 | <input checked="" type="checkbox"/> |
| Microwave<br>Preamplifier(0.5 ~ 18GHz) | PAM-118  | 443008                 | 09/02/2014 | 09/01/2015 | <input checked="" type="checkbox"/> |
| Network Analyzer                       | E5071C   | US39173518             | 09/20/2014 | 09/19/2014 |                                     |

## Annex B. EUT And Test Setup Photographs

### Annex B.i. Photograph: EUT External Photo



EUT - Front View



EUT - Left View



EUT - Right View

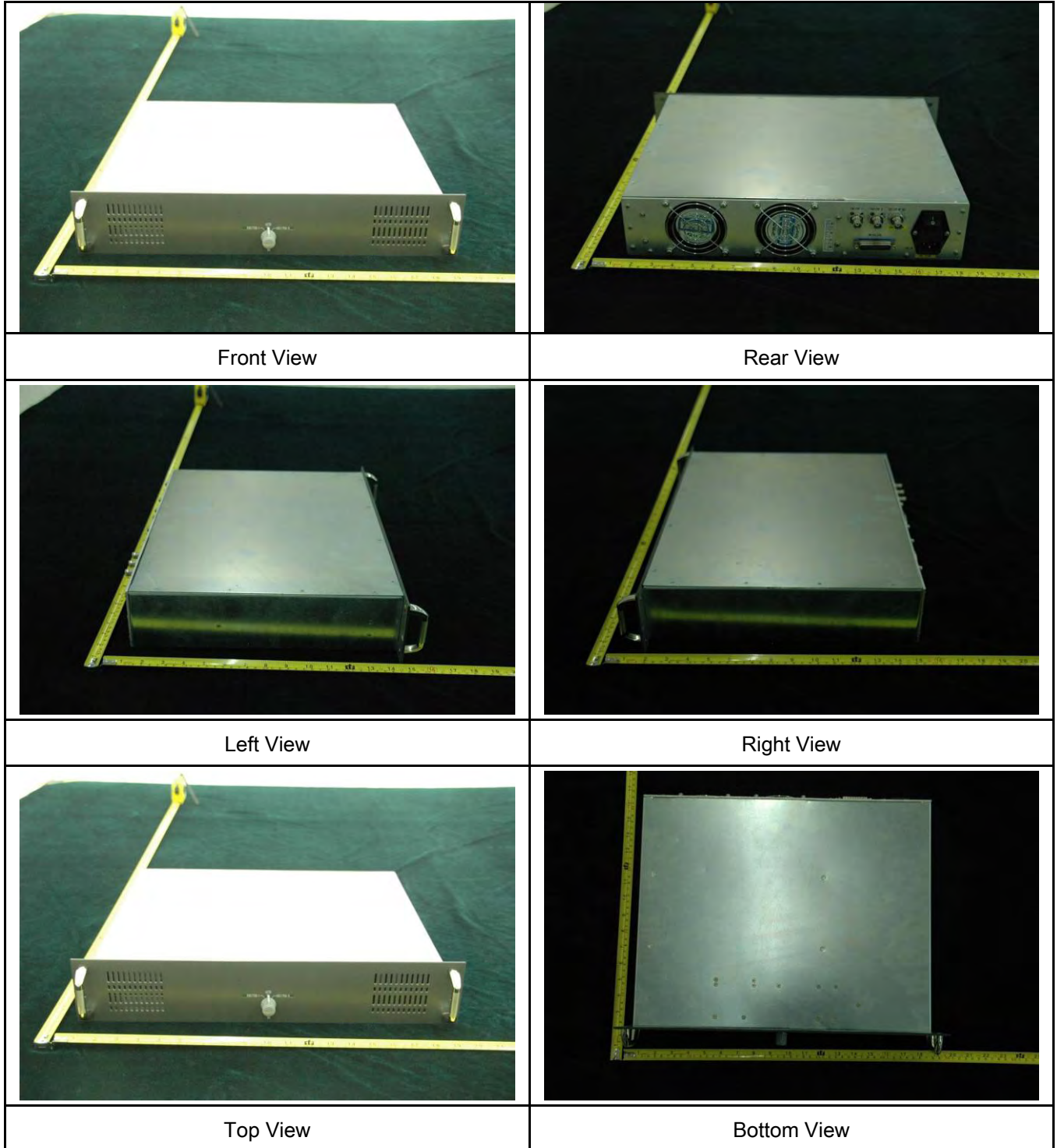


EUT - Rear View

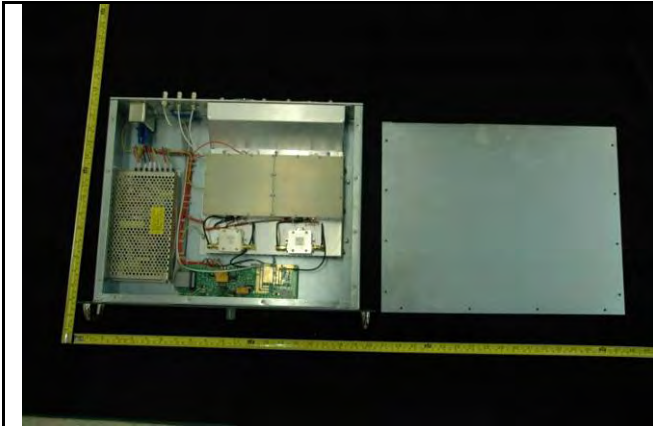
|                    |                                                                                   |  |  |
|--------------------|-----------------------------------------------------------------------------------|--|--|
|                    |  |  |  |
| EUT - Antenna View |                                                                                   |  |  |

## Annex B.ii. Photograph: EUT Internal Photo

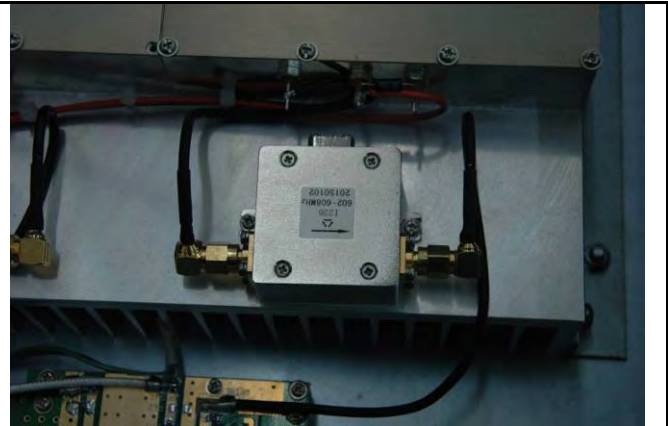
### B1. Switch Module - external



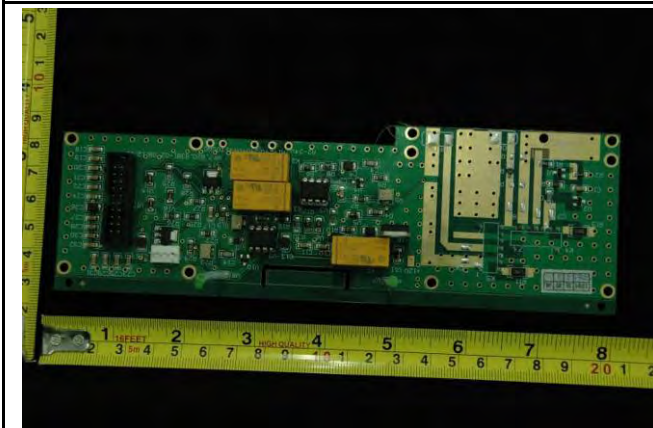
## B2. Switch Module - internal



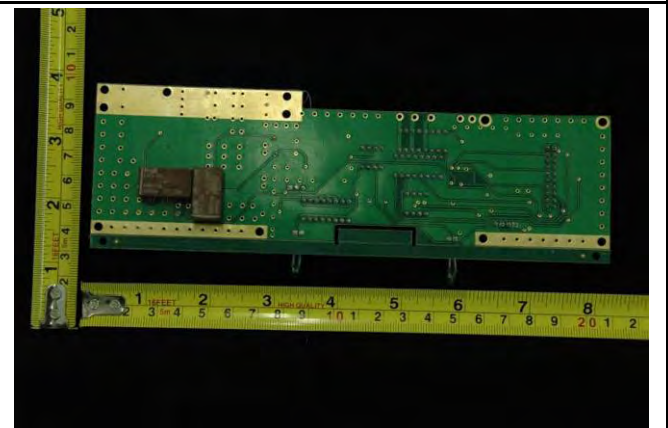
Uncover View



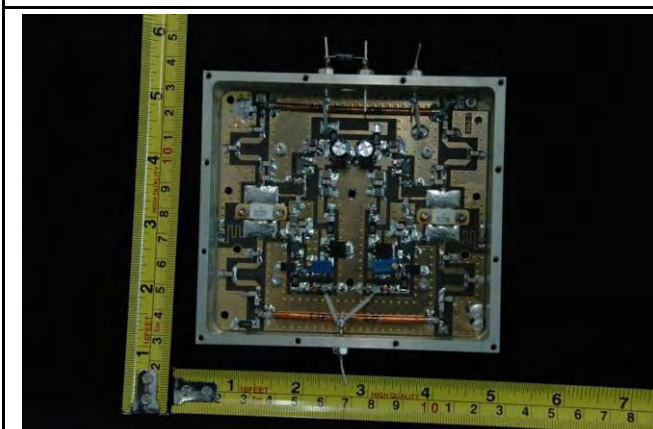
Isolators



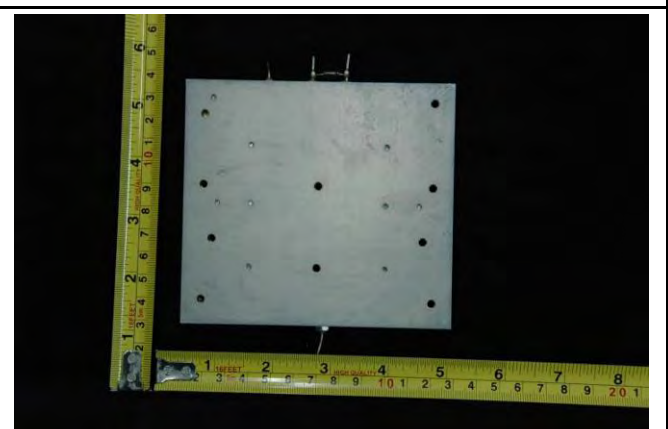
Switch board Top View



Switch board Bottom View



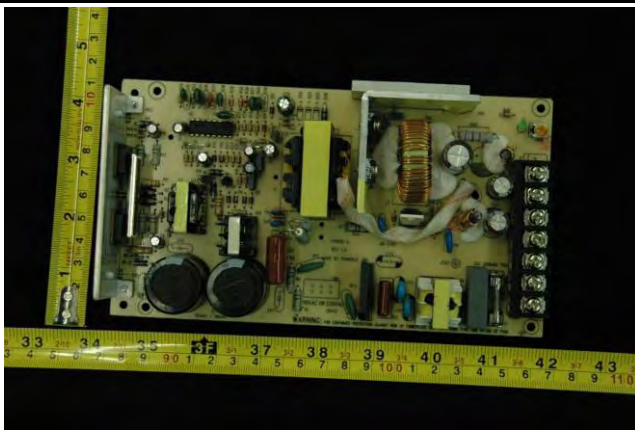
Amplifier board Top View



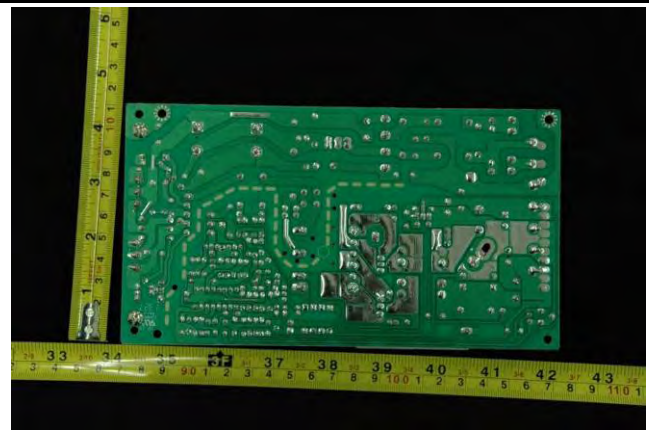
Amplifier board Bottom View



Power supply Front View

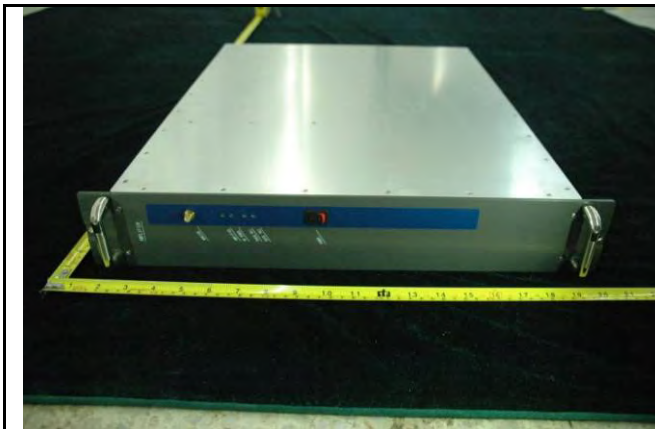


Power supply mainboard Top View

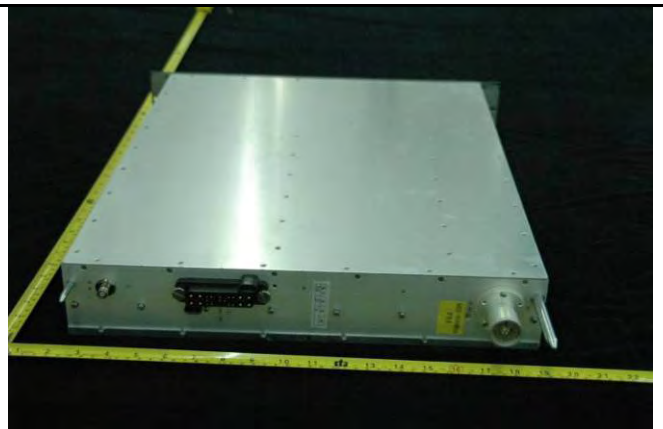


Power supply mainboard Bottom View

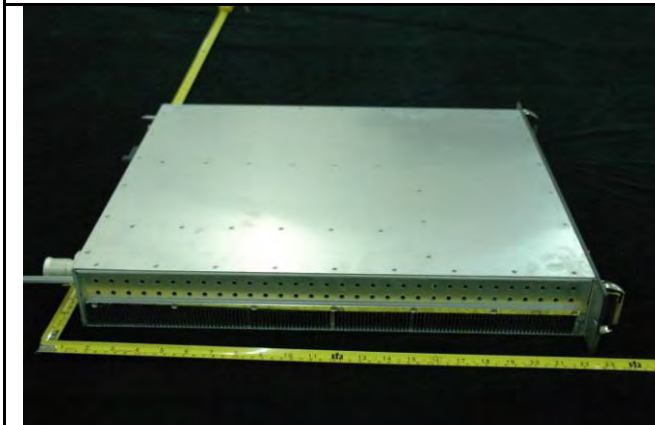
B3. PA - external



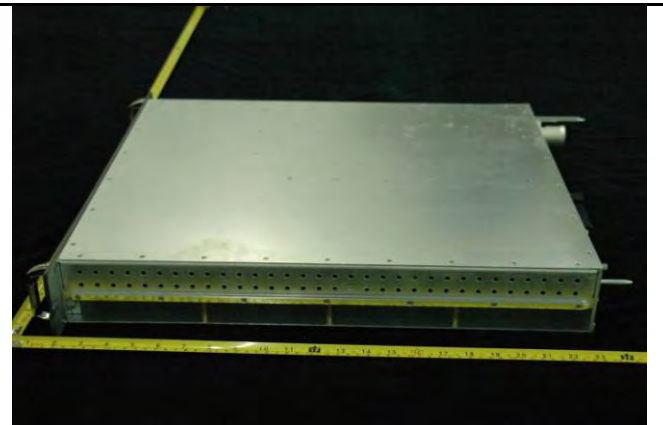
Front View



Rear View



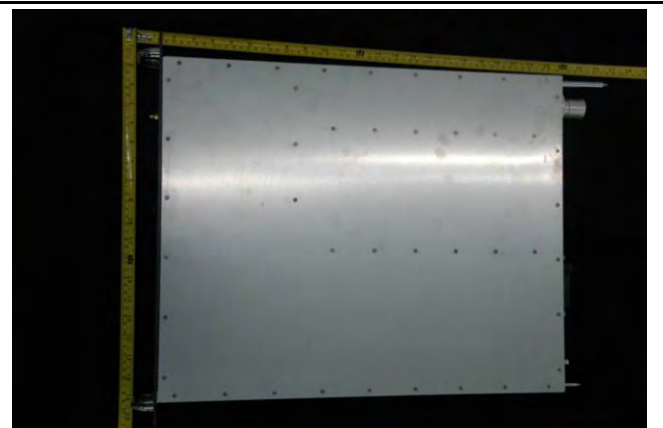
Left View



Right View



Top View

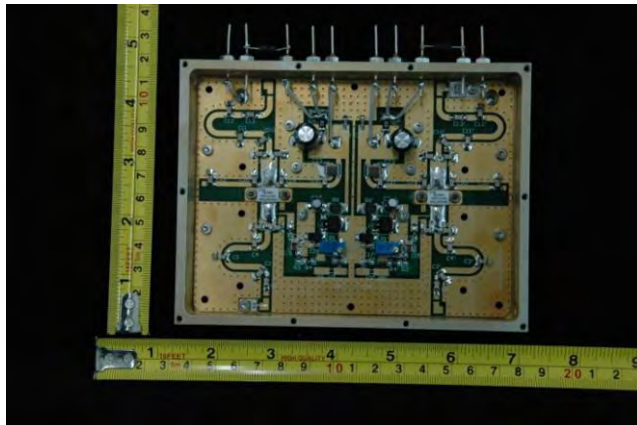
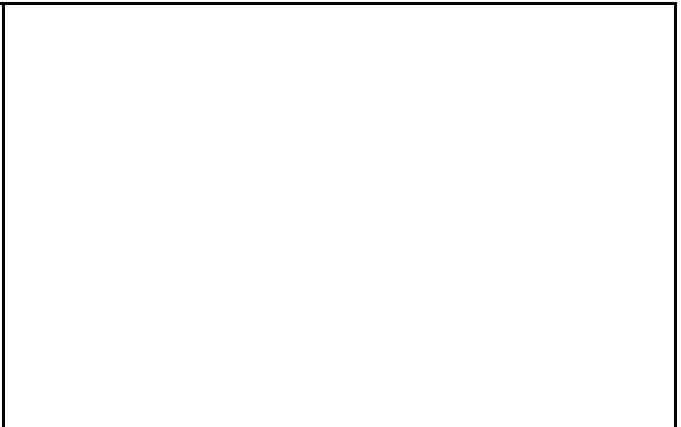


Bottom View

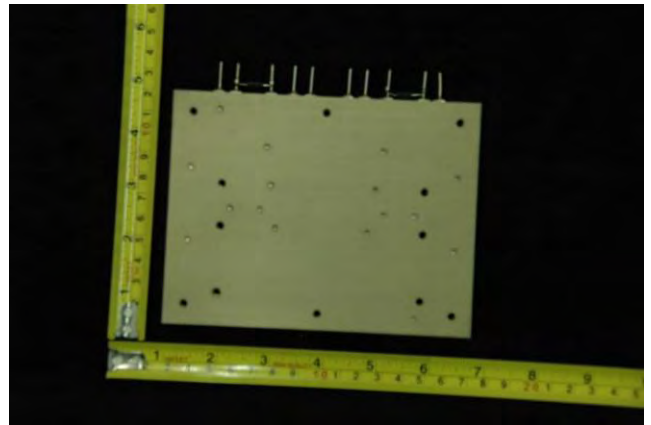
B4. PA - internal



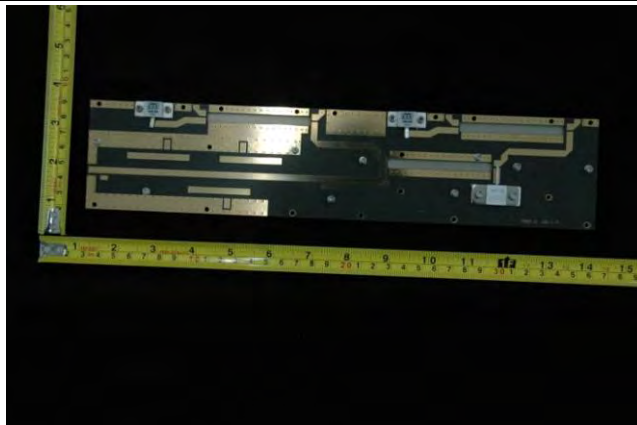
Uncover View



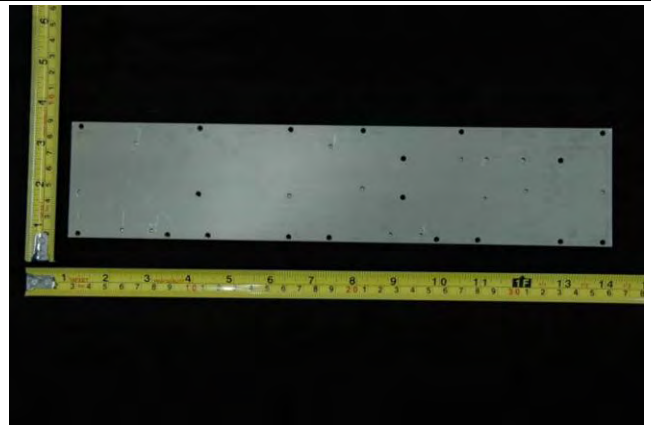
End pre-amplifier Top View



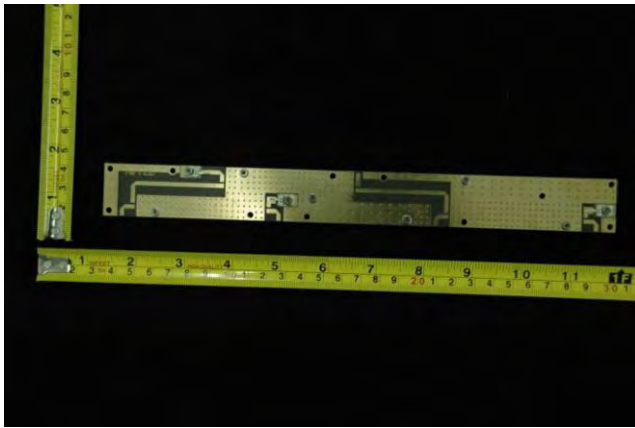
End pre-amplifier Bottom View



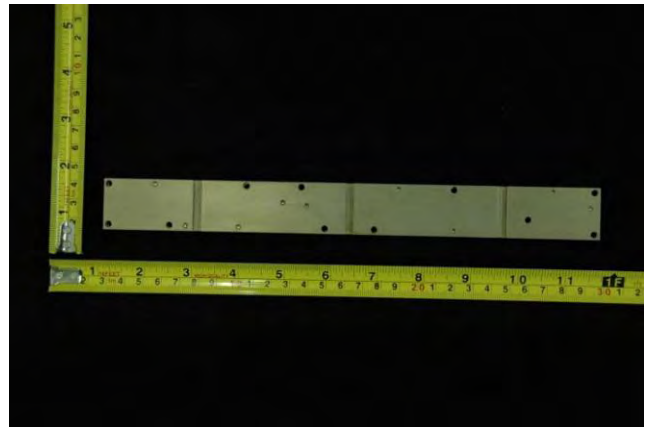
Synthesizer Top View



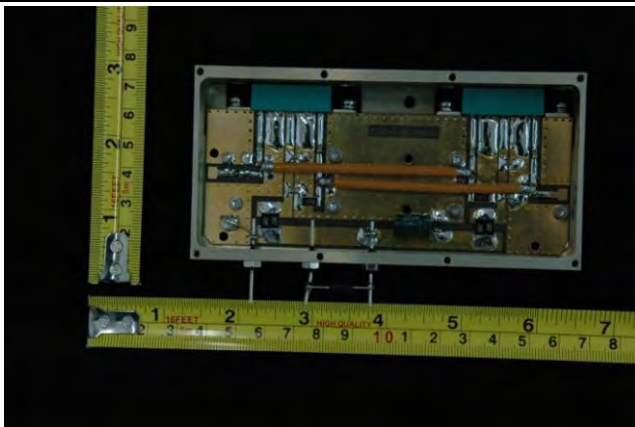
Synthesizer Bottom View



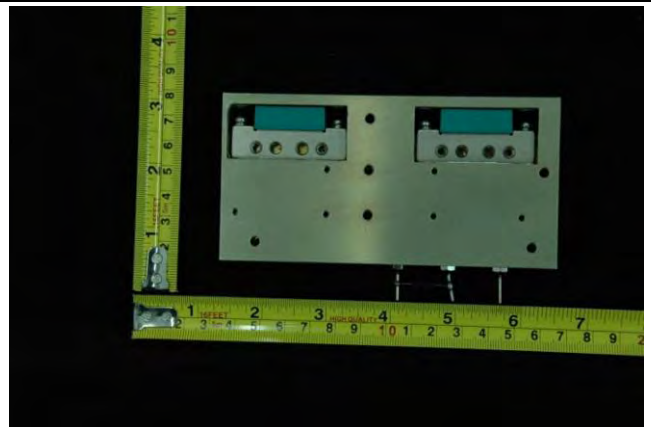
Splitter Top View



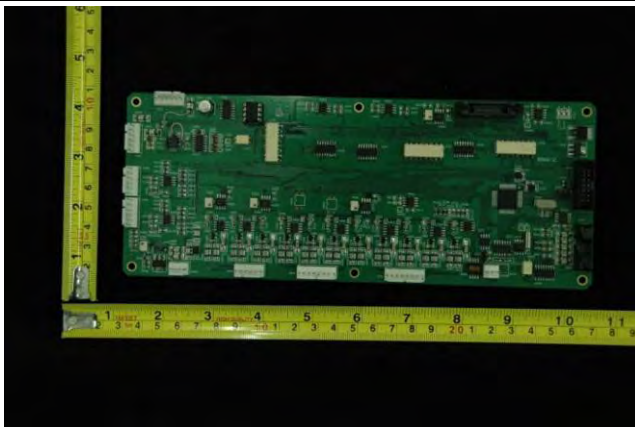
Splitter Bottom View



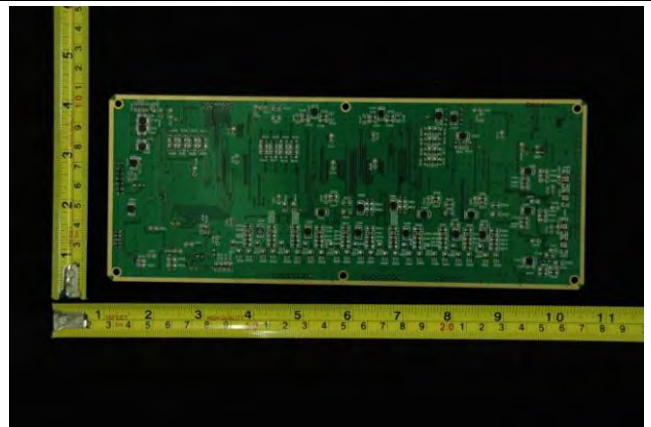
Pre-amplifier Top View



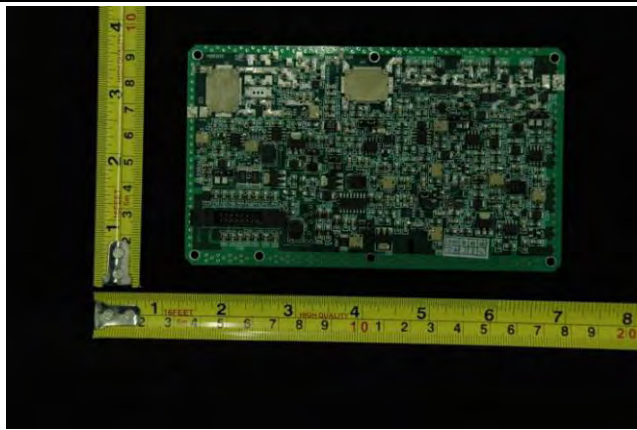
Pre-amplifier Bottom View



Monitoring sampling control board Top View



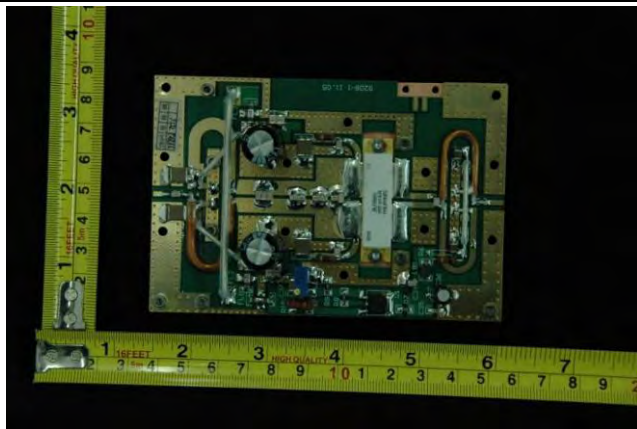
Monitoring sampling control board Bottom View



Input control board Top View



Input control board Bottom View

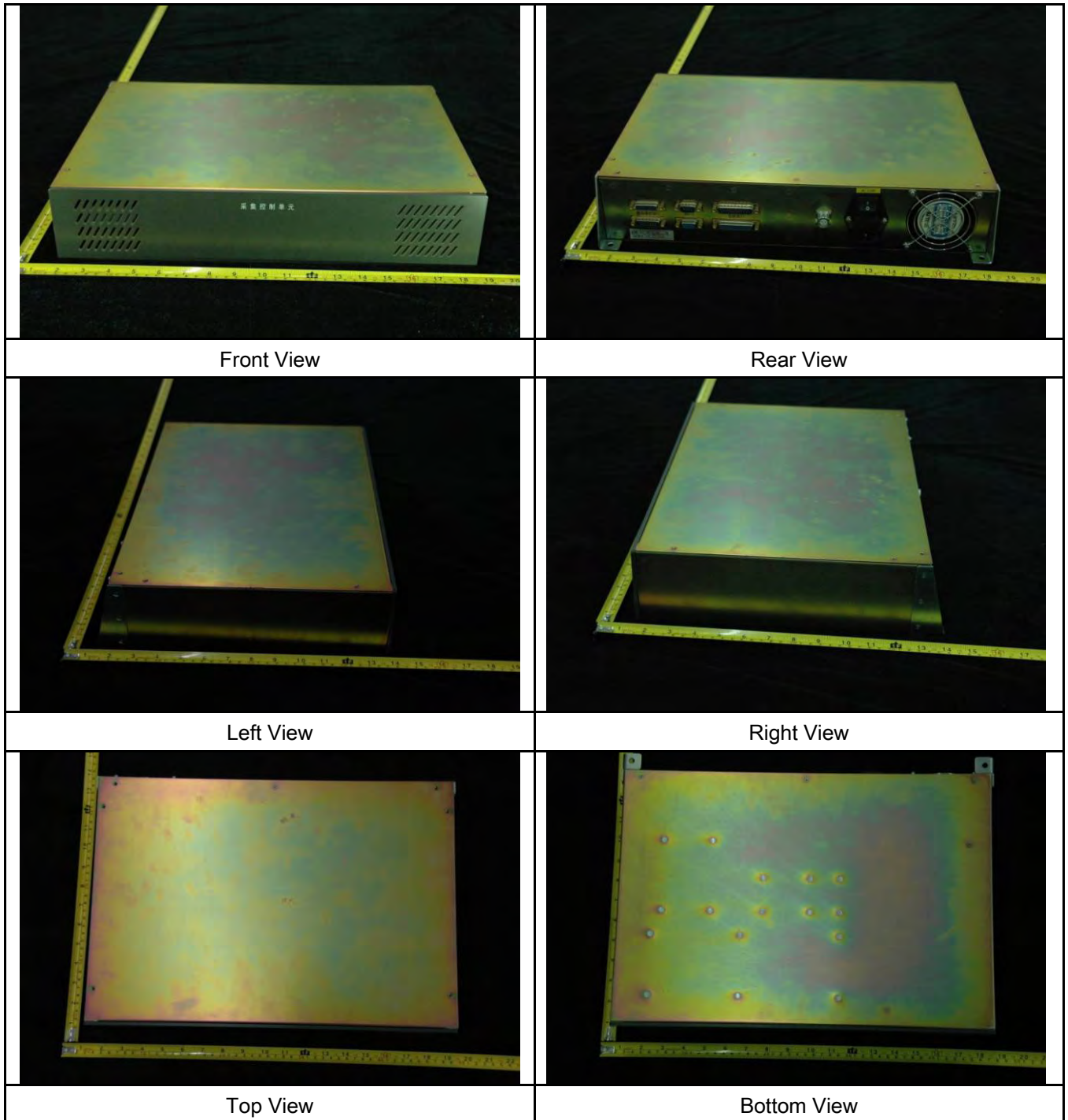


Final amplifier Top View

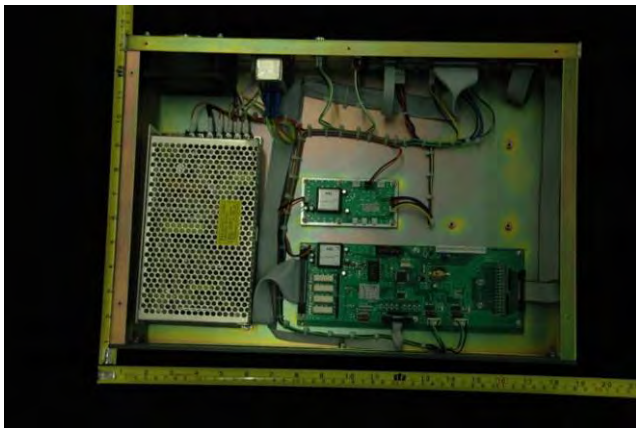


Final amplifier Bottom View

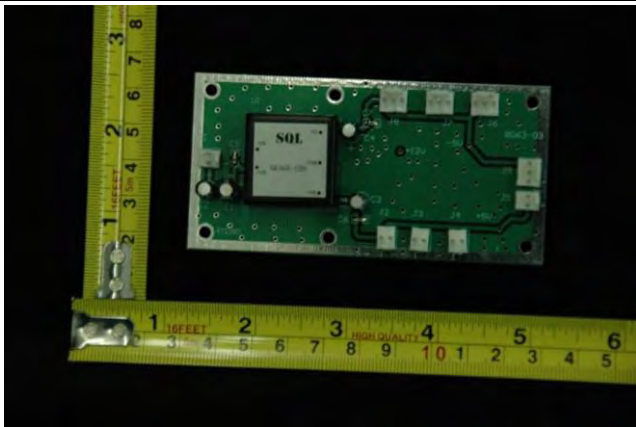
B5. Acquisition control unit-external



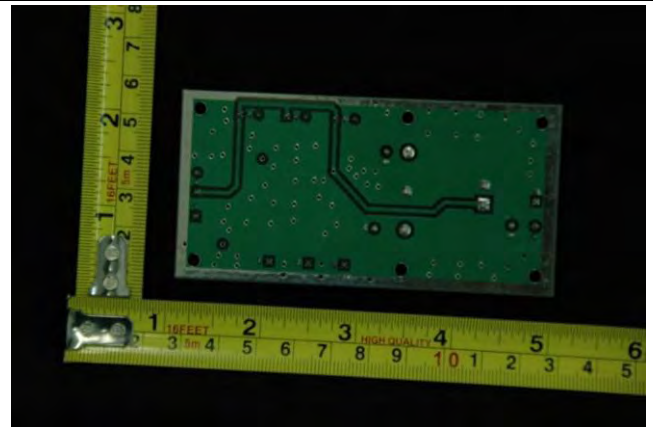
B6. Acquisition control unit-internal



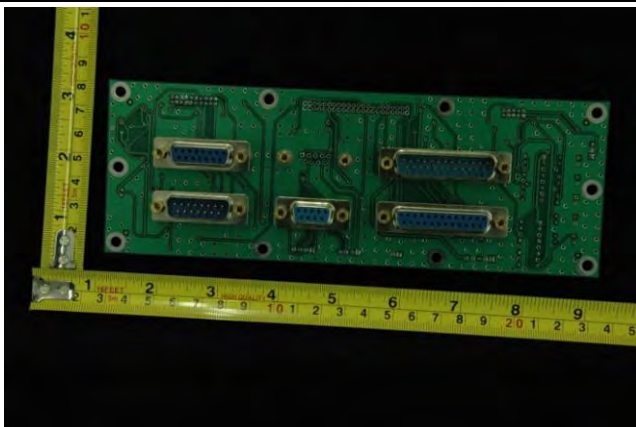
Top View



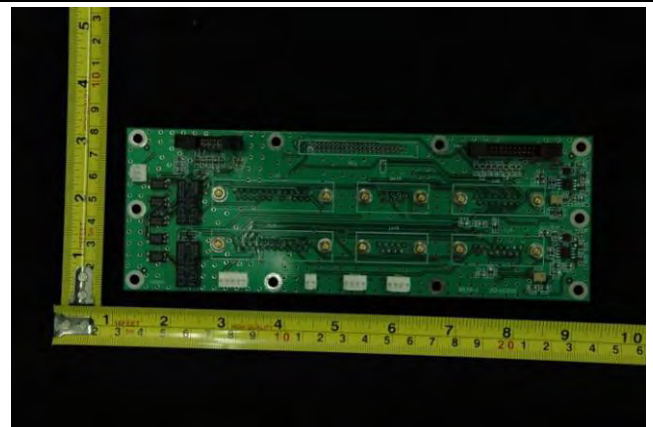
Power board Top View



Power board Bottom View



Control board Top View

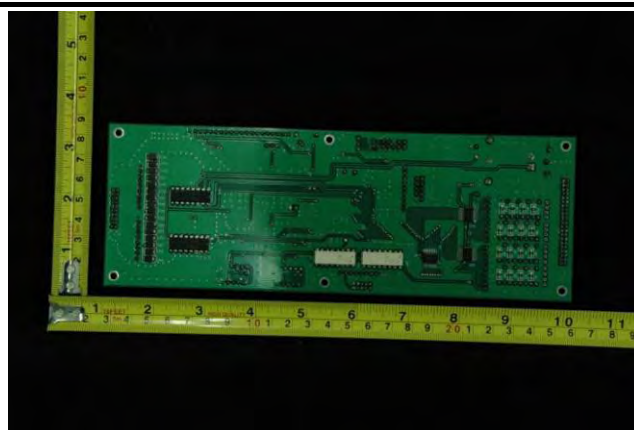


Control board Bottom View

|             |                     |
|-------------|---------------------|
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SCM control board Top View

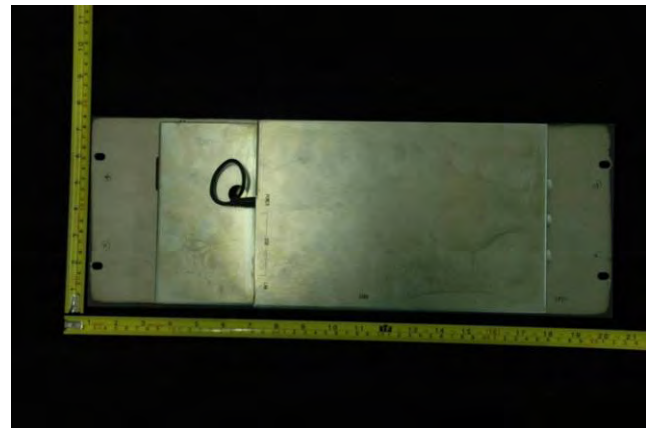


SCM control board Bottom View

B7.Control unit-external



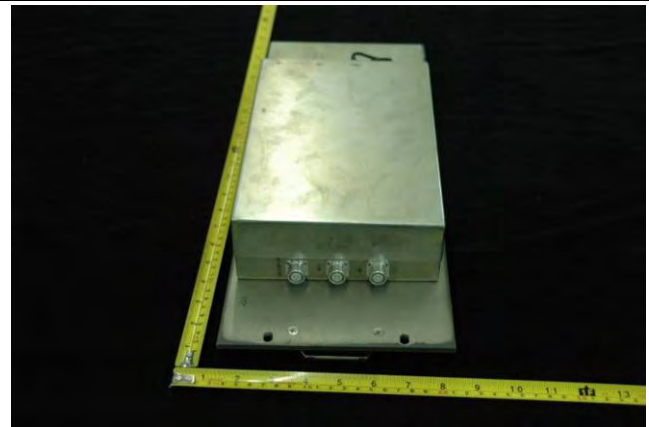
Front View



Rear View

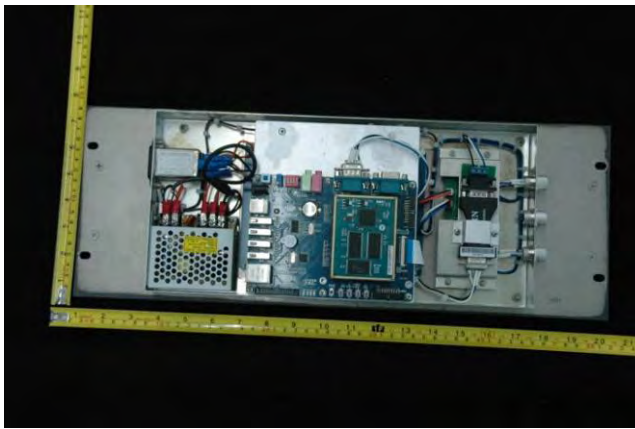


Left View

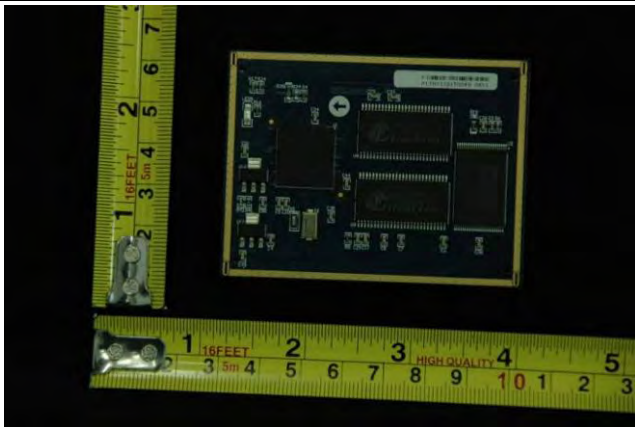


Right View

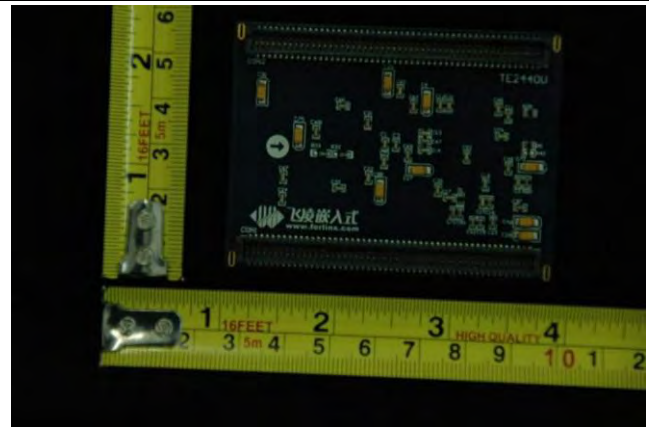
B8.Control unit-internal



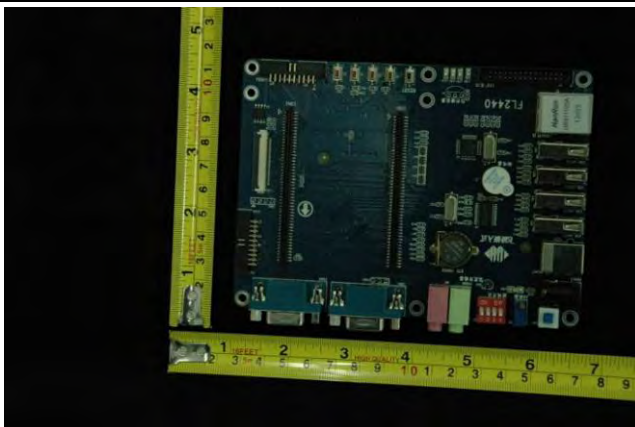
Uncover View



Core board Top View



Core board Bottom View



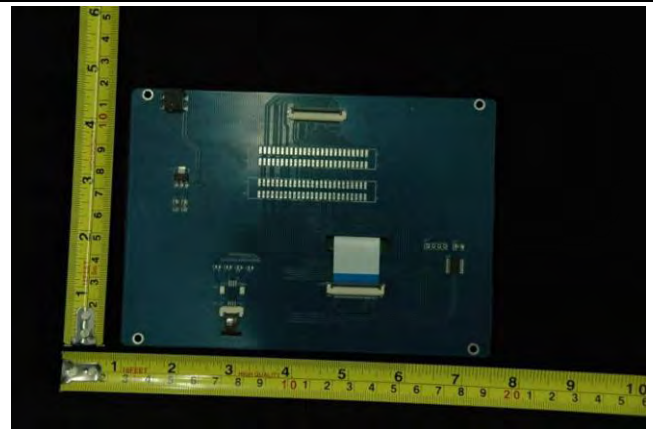
Mother board Top View



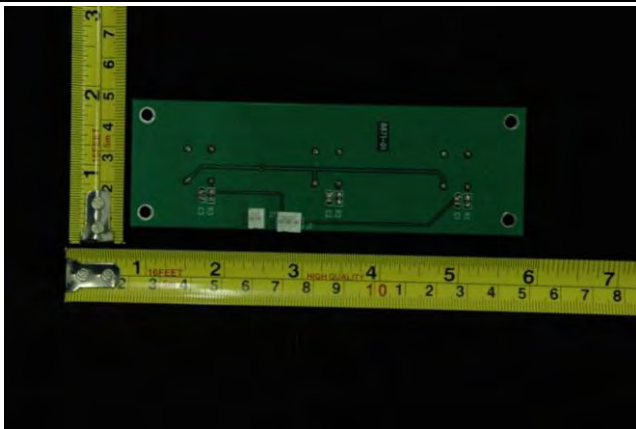
Mother board Bottom View



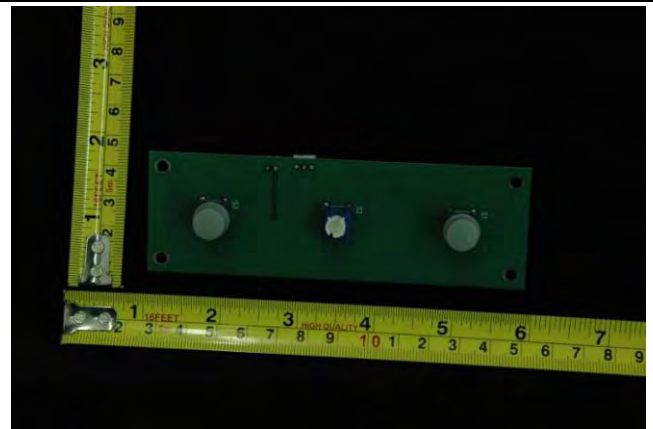
LCD Top View



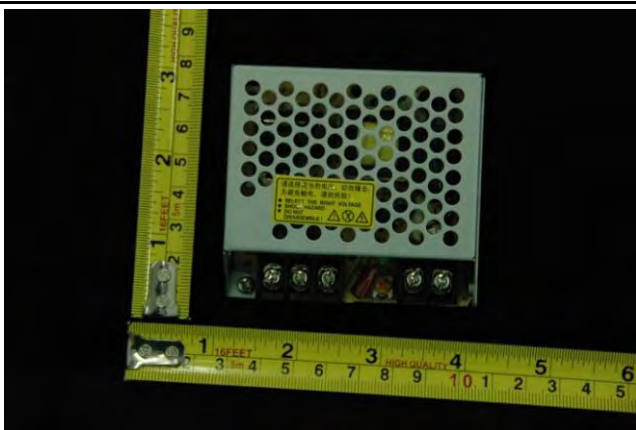
LCD Bottom View



Key board Top View



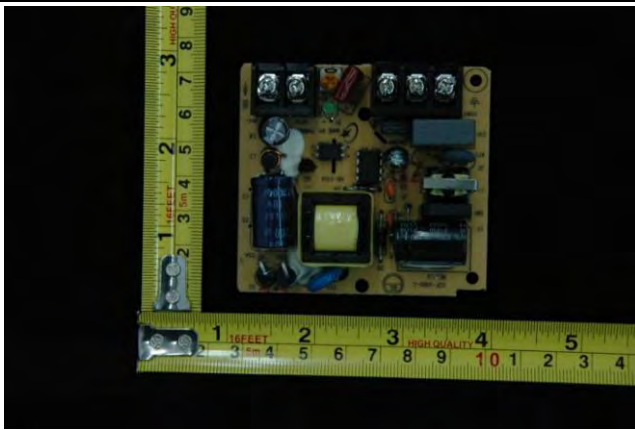
Key board Bottom View



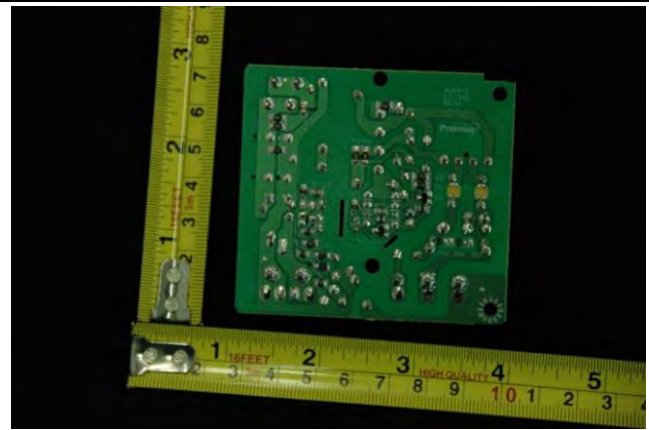
Power supply Top View



Power supply Bottom View



Power supply main board Top View



Power supply main board Bottom View

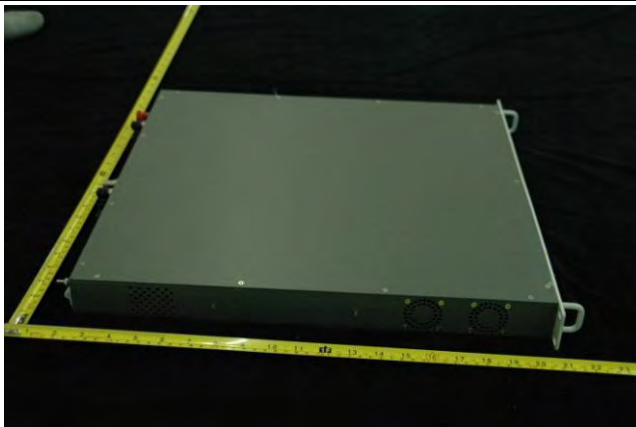
B9.Exciter-external



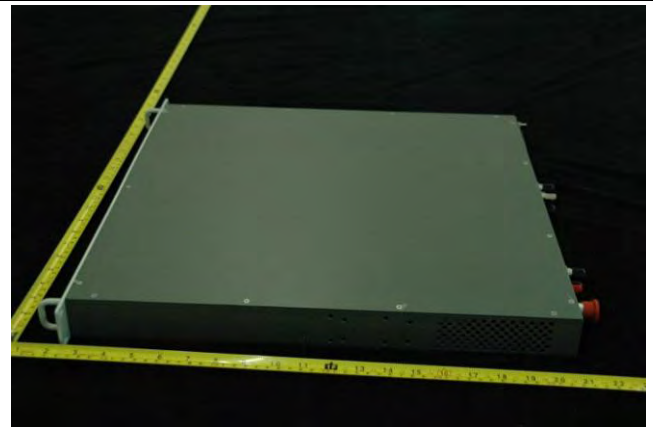
Front View



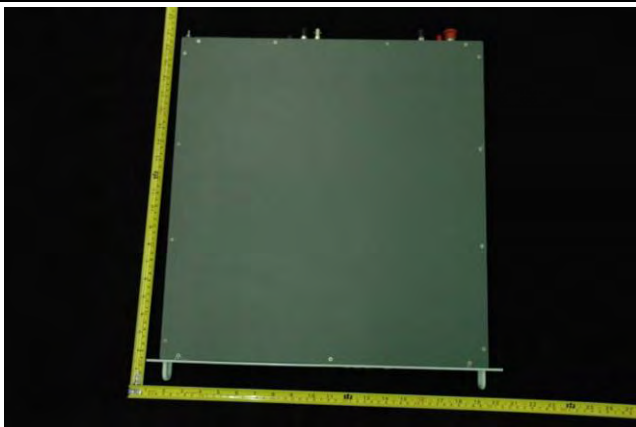
Rear View



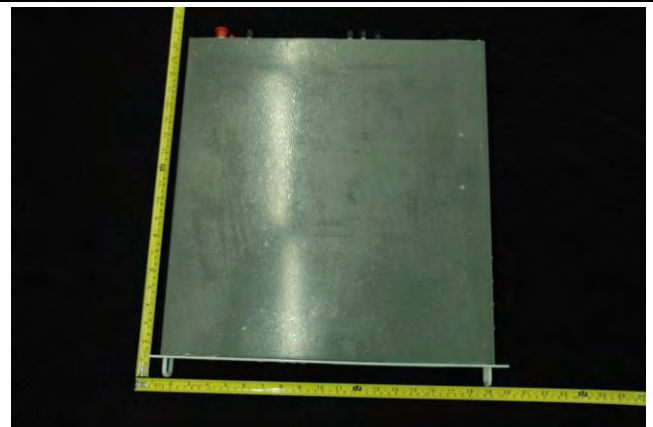
Left View



Right View

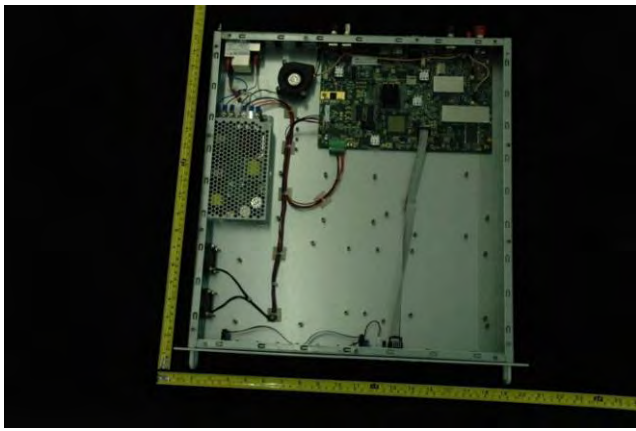


Top View



Bottom View

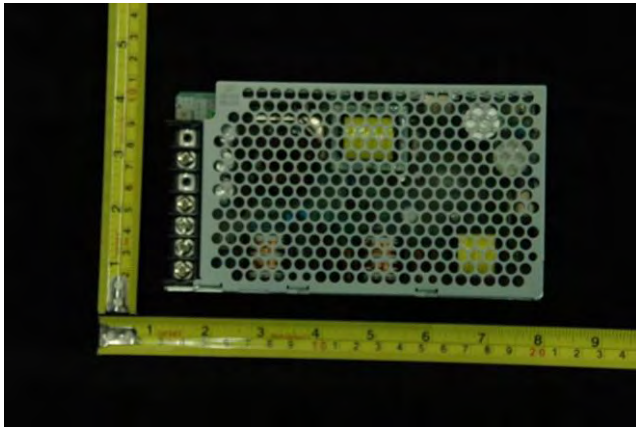
B10.Exciter-internal



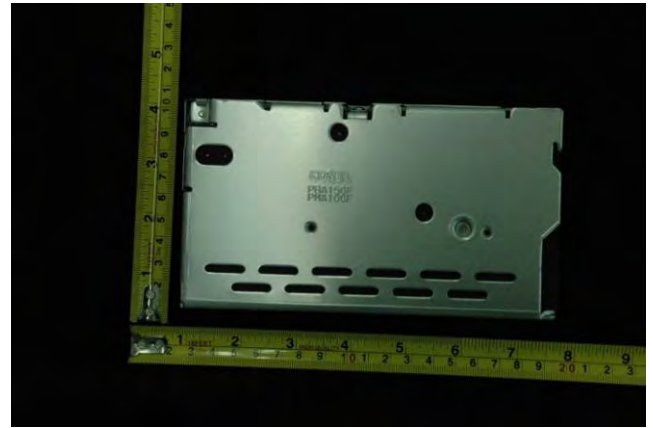
Uncover View



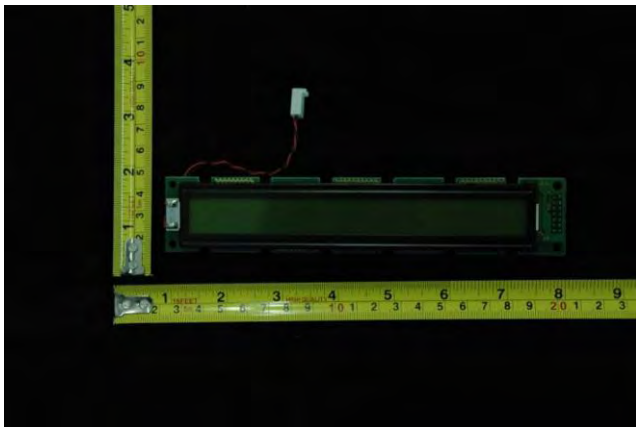
Power supply Front View



Power supply Top View



Power supply Bottom View

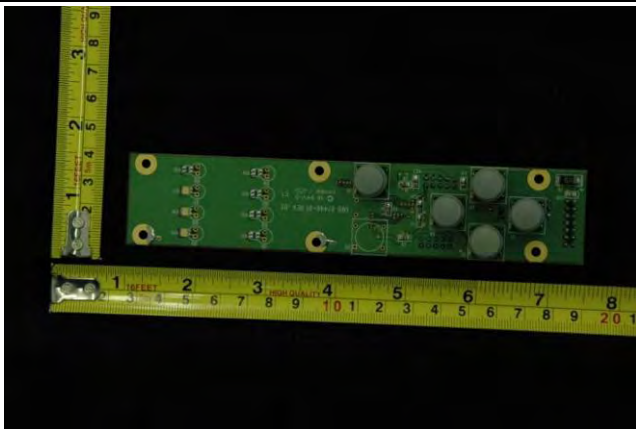


Display Top View

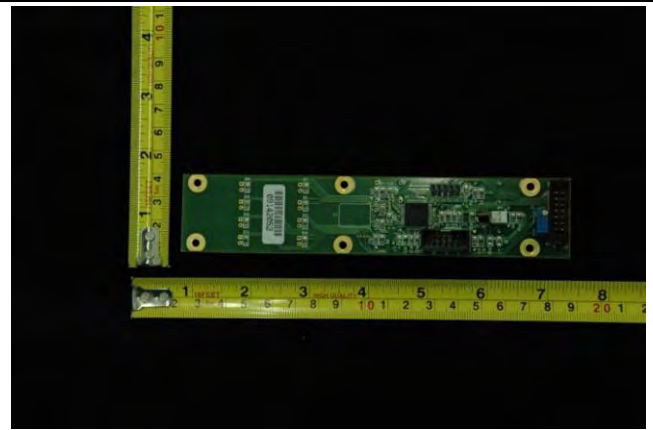


Display Bottom View

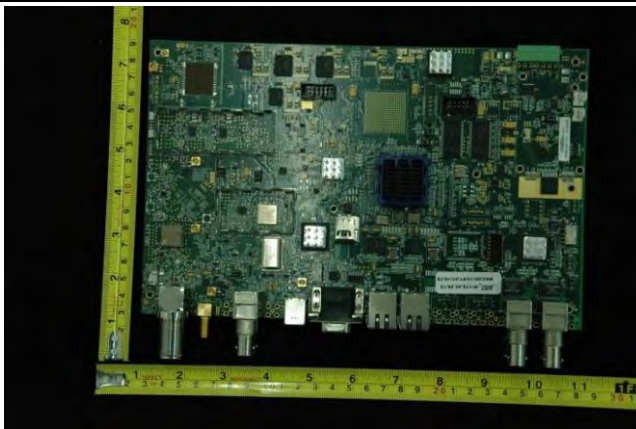
|             |                     |
|-------------|---------------------|
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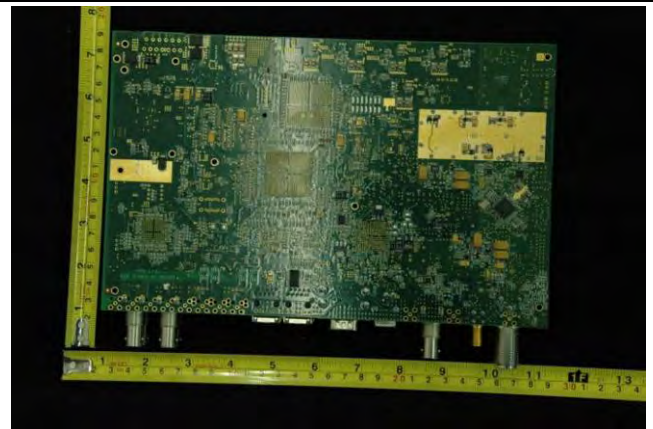
Key board Top View



Key board Bottom View

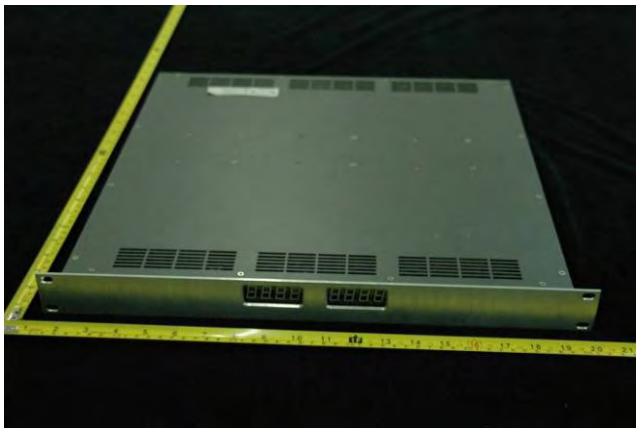


Main board Top View



Main board Bottom View

B11. Power Supply-external



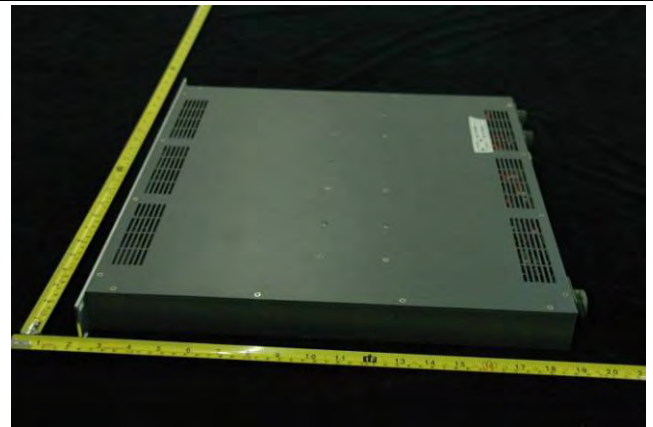
Front View



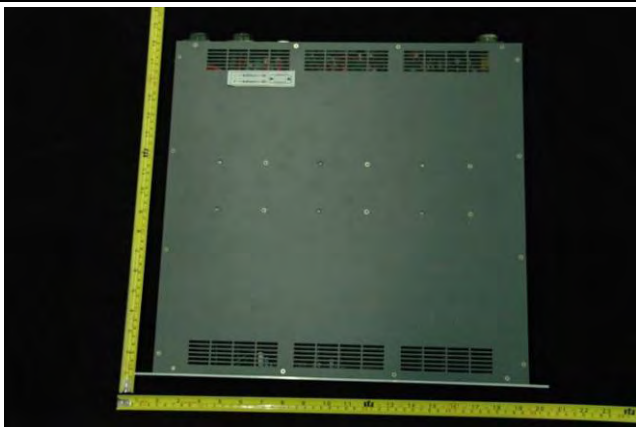
Rear View



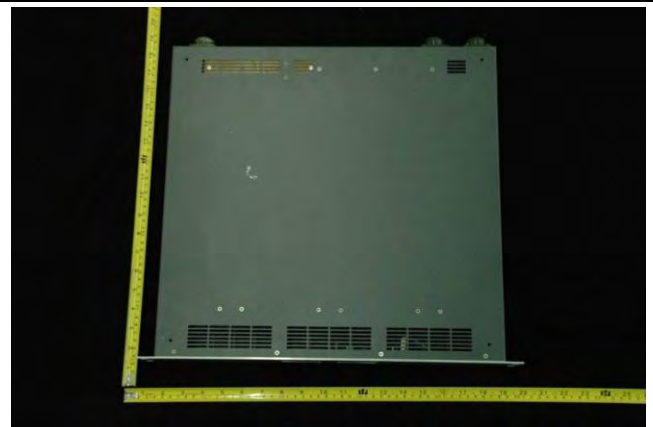
Left View



Right View

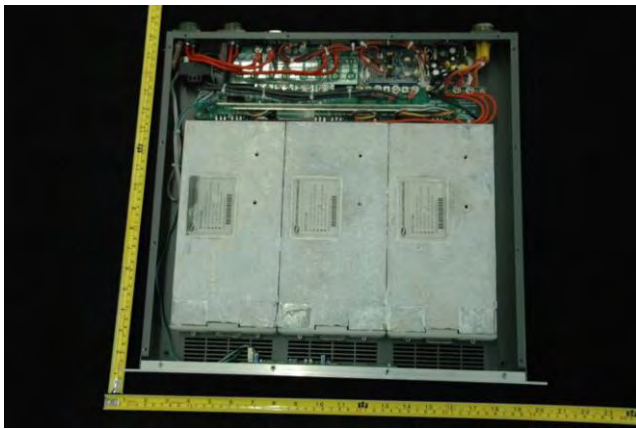


Top View



Bottom View

B12. Power supply-internal



Uncover View

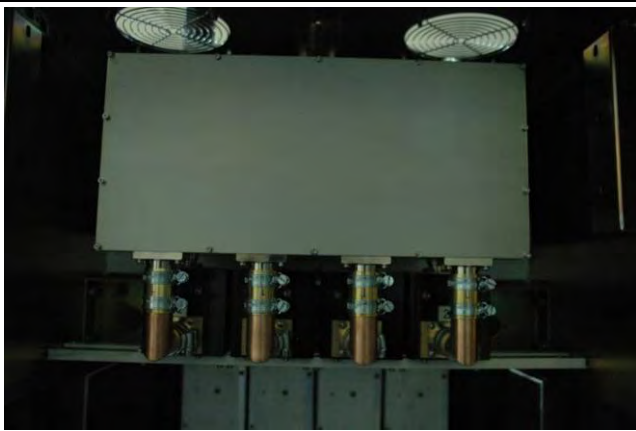


Power supply mainboard Top View

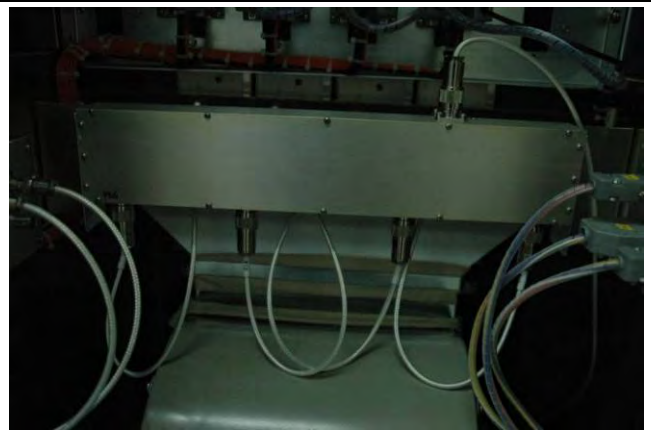


Power supply mainboard Bottom View

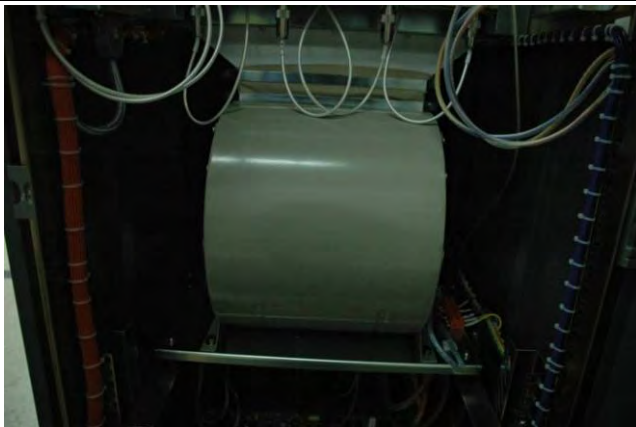
## Accessories



Synthesizer



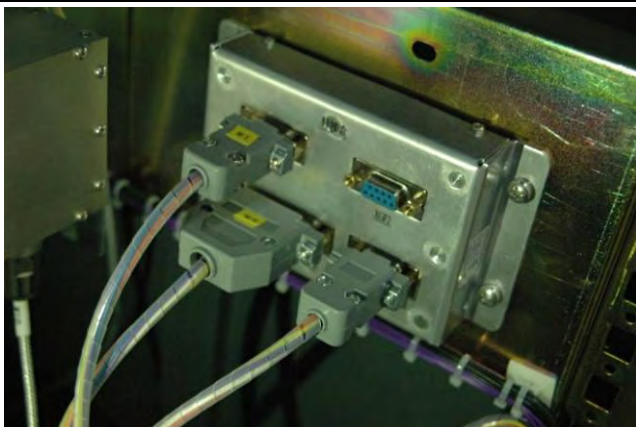
Splitter



Blower



Detection monitoring box



Adapter box

**Annex B.iii. Photograph: Test Setup Photo**



Radiated Spurious Emissions Test Setup Below 1GHz

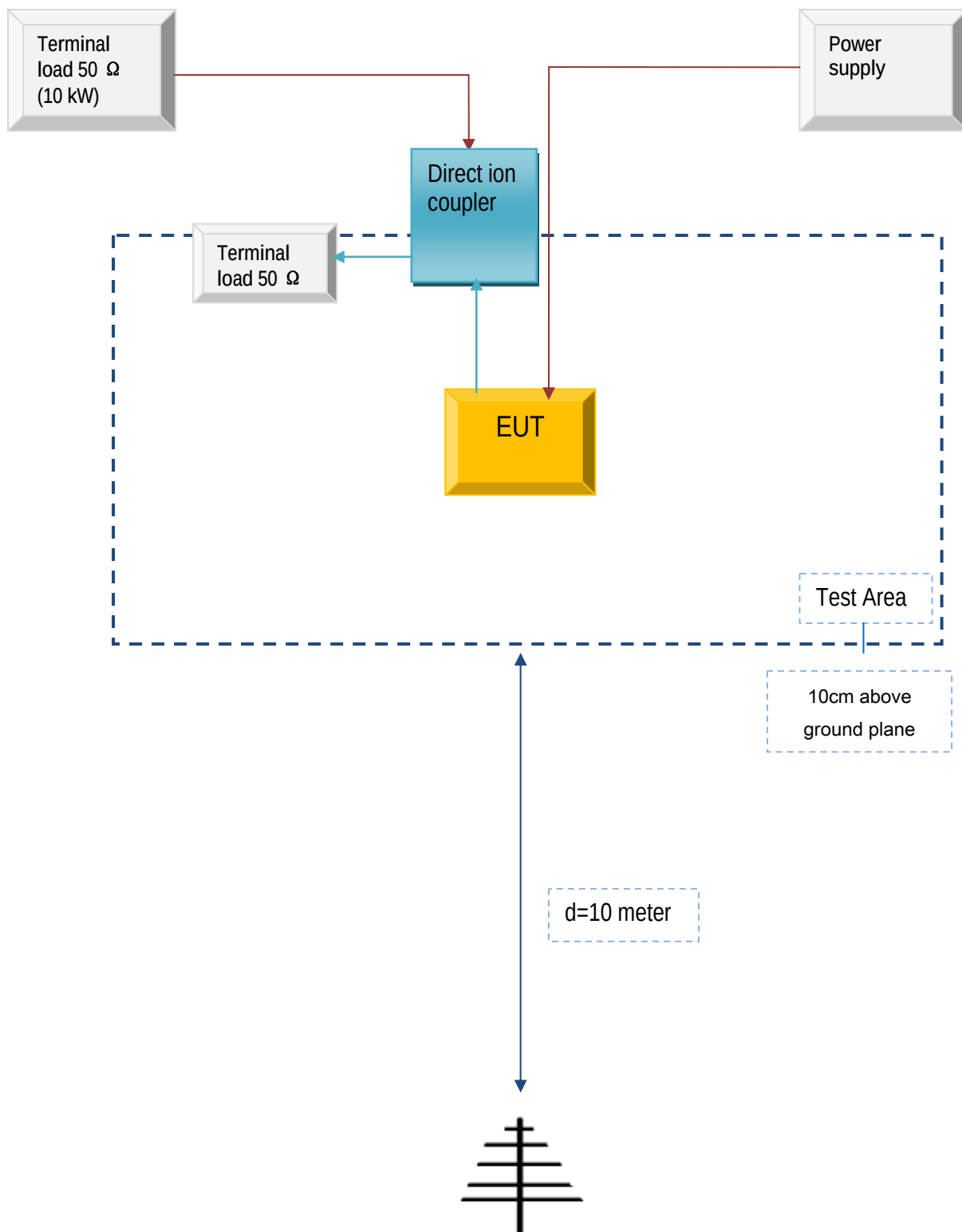


Radiated Spurious Emissions Test Setup Above  
1GHz

## Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

### Annex C.ii. TEST SET UP BLOCK

#### Block Configuration Diagram for Radiated Emissions



## **Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION**

The following is a description of supporting equipment and details of cables used with the EUT.

| Manufacturer | Equipment Description | Model        | Calibration Date | Calibration Due Date |
|--------------|-----------------------|--------------|------------------|----------------------|
| BBEF         | Directional coupler   | PF2.969.6123 | 01/05/2015       | 01/04/2016           |
| RF-BED       | Terminal load         | DLS-10kW     | N/A              | N/A                  |

## Annex D. DECLARATION OF SIMILARITY



北京北广科技股份有限公司  
Beijing BBEF Science & Technology Co., Ltd

北广科技 创造非凡

To: SIEMIC (Shenzhen-China) laboratories

### Declaration Letter

For our business issue and marketing requirement, we would like to list below 7 model numbers on the FCC reports, the details difference as following:

#### Differences of Product Series Models

| No. | Products Name             | Product Model | Number of PA Unit | Power Divider Type | Power Combiner Type | Number of PA Power Supply | Number of blower | Remarks                                                                                                                                                                                                                                                                      |
|-----|---------------------------|---------------|-------------------|--------------------|---------------------|---------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | 1.3kW ATSC TV transmitter | BGTDV31610    | 4                 | One to four        | Four to one         | 2                         | 2                | The differences of Series products are mainly due to different number of power amplifiers. Different number of power amplifiers causes different dividers, combiners, power amplifier power supplies and fans, while the equipment size and control system remains the same. |
| 2   | 1.2kW ATSC TV transmitter | BGTDV3169     | 4                 | One to four        | Four to one         | 2                         | 2                |                                                                                                                                                                                                                                                                              |
| 3   | 1kW ATSC TV transmitter   | BGTDV31611    | 3                 | One to three       | Three to one        | 2                         | 2                |                                                                                                                                                                                                                                                                              |
| 4   | 750W ATSC TV transmitter  | BGTDV2862     | 2                 | One to two         | Two to one          | 1                         | 1                |                                                                                                                                                                                                                                                                              |
| 5   | 500W ATSC TV transmitter  | BGTDV25612    | 2                 | One to two         | Two to one          | 1                         | 1                |                                                                                                                                                                                                                                                                              |
| 6   | 300W ATSC TV transmitter  | BGTDV2365     | 1                 | No                 | No                  | 1                         | 1                |                                                                                                                                                                                                                                                                              |
| 7   | 250W ATSC TV transmitter  | BGTDV2364     | 1                 | No                 | No                  | 1                         | 1                |                                                                                                                                                                                                                                                                              |

Thank you!

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