# FCC Part 15
# Subpart D Test Report
# of

E.U.T. : Wireless Residential Voice Gateway

MODEL : DPC3941

FCC ID. : VUIDPC3941

for

APPLICANT : PEGATRON CORPORATION

ADDRESS : 5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 112 Taiwan

Test Performed by

**ELECTRONICS TESTING CENTER, TAIWAN**
NO. 34. LIN 5. DINGFU, LINKOU DIST.,
NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.
TEL : (02)26023052 FAX: (02)26010910
http：// www.etc.org.tw; e-mail：emc@etc.org.tw

Report Number : 13-11-RBF-018

# TEST REPORT CERTIFICATION

| | | |
|---|---|---|
| Applicant | : | PEGATRON CORPORATION<br>5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 112 Taiwan |
| Manufacturer | : | MAINTEK COMPUTER<br>233 Jinfeng Rd., Suzhou, Jiangsu, PRC |

Description of EUT

| | | |
|---|---|---|
| a) Type of EUT | : | Wireless Residential Voice Gateway |
| b) Trade Name | : | --- |
| c) Model No. | : | DPC3941 |
| d) Power Supply | : | 100-120Vac, 50-60Hz, 1.1A |
| e) Frequency Range | : | 1921.536-1928.448MHz |

Regulation Applied : FCC Rules and Regulations Part 15 Subpart D

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.17-2006/ ANSI C63.4-2003, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note: 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of ETC.

| | | |
|---|---|---|
| Date Test Item Received | : | Nov. 16, 2013 |
| Date Test Campaign Completed | : | Dec. 23, 2013 |
| Date of Issue | : | Dec. 30, 2013 |

Test Engineer : Jiapeng Chen

(Jiapeng Chen, Engineer )

Approve & Authorized Signer : S. S. Liou

S. S. Liou, Section Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

## Table of Contents Page

# 1 GENERAL INFORMATION

## 1.1 Testing Laboratory

| | |
|---|---|
| Name | : Electronics Testing Center, Taiwan |
| Address | : NO. 34. LIN 5. DINGFU, LINKOU DIST., NEW TAIPEI CITY, TAIWAN, 24442, R.O.C. |
| Telephone | : 886-2-26023052 |
| Fax | : 886-2-26010910 |
| NVLAP lab registration# | : 200133-0 |
| IC OATS registration# | : 2949A-1 |

## 1.2 Client Information

| | |
|---|---|
| Name | : PEGATRON CORPORATION |
| Address | : 5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 112 Taiwan |
| Telephone | : 886 2 81439001 Ext : 33147 |
| Contact person | : Lawrence Yu |

## 1.3 Manufacturer

| | |
|---|---|
| Name | : MAINTEK COMPUTER |
| Address | : 233 Jinfeng Rd., Suzhou, Jiangsu, PRC |

# 2 TEST INFORMATION

## 2.1 Descriptino of Tested Device(s)

The tested equipment is a DECT base station which complies with ETSI EN 300175. The frequencies have been reprogrammed to comply with the FCC requirements to an Isochronous UPCS device after FCC Part 15D.

The EUT is a responding device as described in ANSI C63.17 and is designed to operate togerter with a DECT handset, which is then the initiating device.

| Frequency Channel | Frequency | Test Frequency |
|---|---|---|
| CH4 | 1928.448 MHz | $F_L$ |
| CH3 | 1926.720 MHz | - |
| CH2 | 1924.992 MHz | - |
| CH1 | 1923.264 MHz | - |
| CH0 | 1921.536 MHz | $F_H$ |

## 2.2 Test Environment

**Normal test condition**

| | |
|---|---|
| Temperature: | 20 – 25˚C |
| Relative humidty: | 55 – 75% |

**Extreme test condition (declared by manufacture)**

Please see the manufacturer declaration form.

# 3 TEST REPORT SUMMARY

## 3.1 Test Summary

| Requirement | FCC Paragraph # | Required | Customer Declaration | Test Pass |
|---|---|---|---|---|
| Coordination with fixed microwave | 15.307(b) | ■ | ■ | □ |
| Cross Reference | 15.309(b) | □ | □ | □ |
| Labeling requirements | 15.311 , 15.19(a)(3) | ■ | ■ | □ |
| Power line Conducted Emission | 15.315 , 15.207 | ■ | □ | ■ |
| Antenna Requirement | 15.317, 15.203 | ■ | ■ | □ |
| Digital Modulation Techniques | 15.319(b) | ■ | ■ | □ |
| Peak transmit Power | 15.319(c) | ■ | □ | ■ |
| Power spectral Density | 15.319(d) | ■ | □ | ■ |
| Antenna gain | 15.319(e) | ■ | ■ | □ |
| Automatic discontinuation of transmission | 15.319(f) | ■ | ■ | □ |
| Safety exposure levels | 15.319(i) | ■ | □ | ■ |
| Emission Bandwidth | 15.323(a) | ■ | □ | ■ |
| Emissions inside and outside the subband | 15.323(d) | ■ | □ | ■ |
| Frame period and jitter | 15.323(e) | ■ | □ | ■ |
| Carrier frequency stability | 15.323(f) | ■ | □ | ■ |

## 3.2 Devices for Tested System

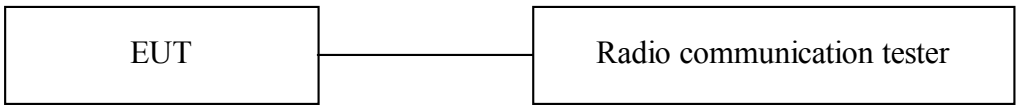
All measurements are traceable to national standards.

The tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC CFR47 Part 15, Paragraph 15.323 for Isochronous UPCS Devices and Industry Canada RSS-213 Issue 2.

The conducted test methods have been in accordance with ANSI C63.17-2006 where applicable. Radiated tests were conducted is accordance with ANSI C63.4-2003.

# 4 TEST SETUP

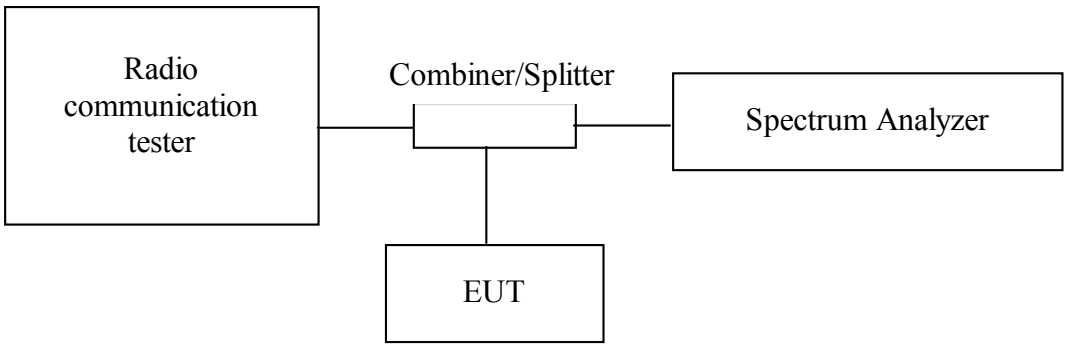
## 4.1 Frequency and Timing Measurements




**Test Set-up 1**

This setup is used for measuring Frame stability, Jitter, Carrier frequency stability at normal and extremet temperatures.

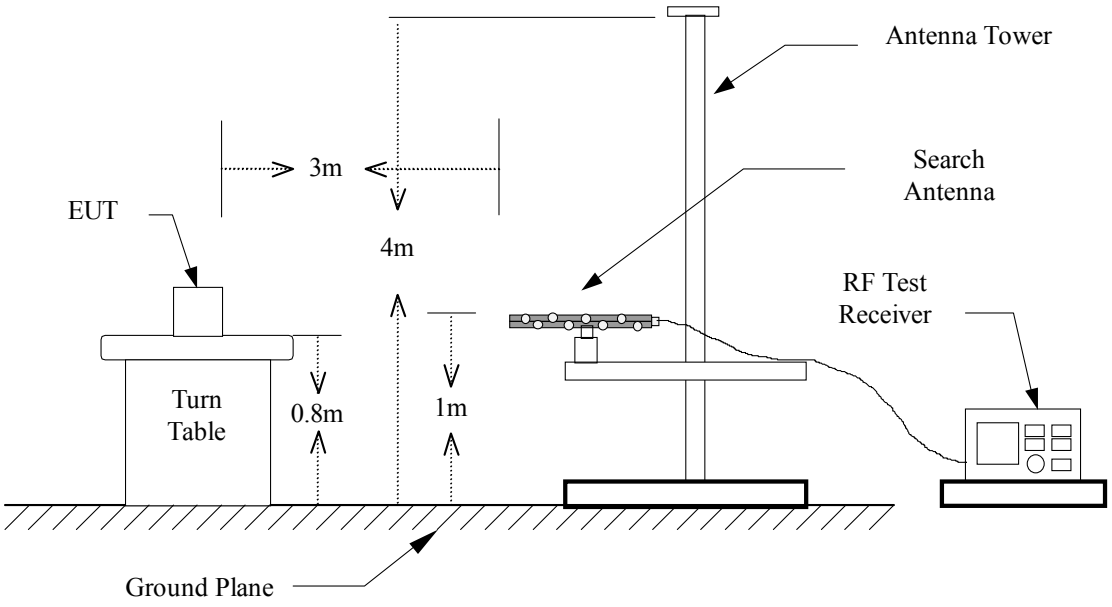
## 4.2 Conducted Emission Tests




**Test Set-up 2**

This setup is used for all conducted emission tests.

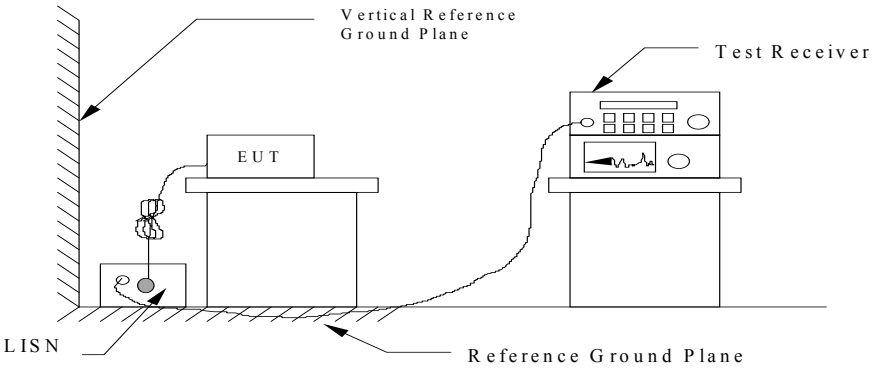
## 4.3 Radiated Emission Tests




**Test Set-up 3**

This test setup is used for all radiated emissions tests. For frequencies below 30 MHz the measuring distance is 10 m, for all toher frequencies it is 3m. Emissions above 1 GHz were measured with the Spectrum Analyzer, Horn Antenna and the preamplifier after the antenna.

## 4.4 Power Line Conducted Tests




**Test Set-up 4**

# 5 TEST EQUIPMENT LIST

To facilitate inclusion on each page of the test equipment used for related test, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

| Equipment | Manufacturer | Model No. | Next Cal. Due |
|---|---|---|---|
| EMI Test Receiver | Rohde & Schwarz | ESL | 2014/09/10 |
| Amplifier | HP | 8447D | 2014/05/02 |
| Bi-Log Antenna | ETC | MCTD 2756 | 2014/01/16 |
| Log-periodic Antenna | EMCO | 3146 | 2014/10/24 |
| Biconical Antenna | EMCO | 3110 | 2014/10/24 |
| EMI Test Receiver | Rohde & Schwarz | ESCI | 2014/08/01 |
| LOOP Antenna | EMCO | 6512 | 2014/09/29 |
| Spectrum Analyzer | R&S | FSP3 | 2014/08/07 |
| Signal generator | HP | 8656B | 2014/09/13 |
| Double Ridged Antenna | EMCO | 3115 | 2014/08/01 |
| Double Ridged Antenna | EMCO | 3116 | 2015/01/14 |
| Amplifier | HP | 8449B | 2014/01/08 |
| Amplifier | HP | 83051A | 2014/05/05 |
| Spectrum | R&S | FSP40 | 2013/12/06 |
| CTS60 DIGITAL RADIO TEST | R&S | CTS60 | 2014/04/28 |
| Line Impedance Stabilization network | EMCO | 3625/2 | 2014/05/06 |
| Line Impedance Stabilization network | Rohde & Schwarz | ESH2-Z5 | 2014/04/11 |
| Monitor | IBM | E54 | N.C.R. |
| Printer | HP | LaserJet 1000 | N.C.R. |
| Shielded Room | Riken | ---- | N.C.R. |
| Computer | Acer | Veriton | N.C.R. |

# 6 TEST RESULT

## 6.1 Corrdination with fixed microwave

### 6.1.1 Standard Applicable

**FCC 15.307 (b)**

Each application for certification of equipment operating under the provisions of this Subpart munst be accompanied by an affidavit from UTAM, Inc. certifying that the applicant is a participating member of UTAM, Inc. In the event a grantee fails to fulfill the obligations attendant to participation in UTAM, Inc., the Commissin may invoke administrative sanctions as necessary to preclude continued marketing and installation of devices coveed by the grant of certification, including but not limited to revoking certification.

**Result**

The affidavit from UTAM, Inc. is included in the documentation supplied by the applicant:

■ **Yes**

□ **No**

## 6.2 Cross Reference

### 6.2.1 Standard Applicable

**15.309(b)**

The requirements of Subpart D apply only to the radio transmitter contained in the PCS device. Other aspecgts of the operation of a PCS device may be subject to requirements contained else where in this Chapter. In particular, a PCS device that includes digital circuitry not direct associated with the radio transmitter also is subject to the requirements for unintentional radiators in Subpart B.

**15.109(a)**

For unintentional device, according to FCC §15.109(a), the field strength of radiated emissions from unintentional except for class A digital device radiators at a distance of 3 meters shall not exceed the following values:

| Frequency MHz | Distance Meters | Radiated μV/m | Radiated dBμV/m |
|---|---|---|---|
| 30 - 88 | 3 | 100 | 40.0 |
| 88 - 216 | 3 | 150 | 43.5 |
| 216 - 960 | 3 | 200 | 46.0 |
| Above 960 | 3 | 500 | 54.0 |

### 6.2.2 Test Results

| | |
|---|---|
| This requirement is not applicable because test sample do not included digital circuitry which is not direct associated with the radio transmitter | ■ |
| For test results according to FCC 15 subpart B, see the EMC report as attached | □ |
| For test results according to FCC 15 subpart B, see the measurement data as follow | □ |
| This requirement is covered b results of power line conducted emission test according to FCC 15.315 | □ |

# 6.3 Labeling Requirements

## 6.3.1 Standard Applicable

**FCC 15.19**

The FCC Identifier shall be displayed on the label, and the device(s) shall bear the following statement in a conspicuous location on the device or in the user manual if the device is too small:

*This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this deivce may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause underired operation.*

The label itself shall be of a permanent type, not a paper label, and shall last the lifetime of the equipments.

## 6.3.2 Result

See separate documents showing the label design and the placement of the label on the EUT.

# 6.4 Power Line Conducted Emissions

## 6.4.1 Standard Applicable

**15.315**

An unlicensed PCS device that is designed to connected to the public utility (AC) power line must meet the limites specified in Section 15.207.

**15.207(a)**

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

| Frequency MHz | Quasi Peak dB μV | Average dB μV |
|---|---|---|
| 0.15 - 0.5 | 66-56* | 56-46* |
| 0.5 - 5.0 | 56 | 46 |
| 5.0 - 30.0 | 60 | 50 |

* Decreases with the logarithm of the frequency

## 6.4.2 Measurement procedure

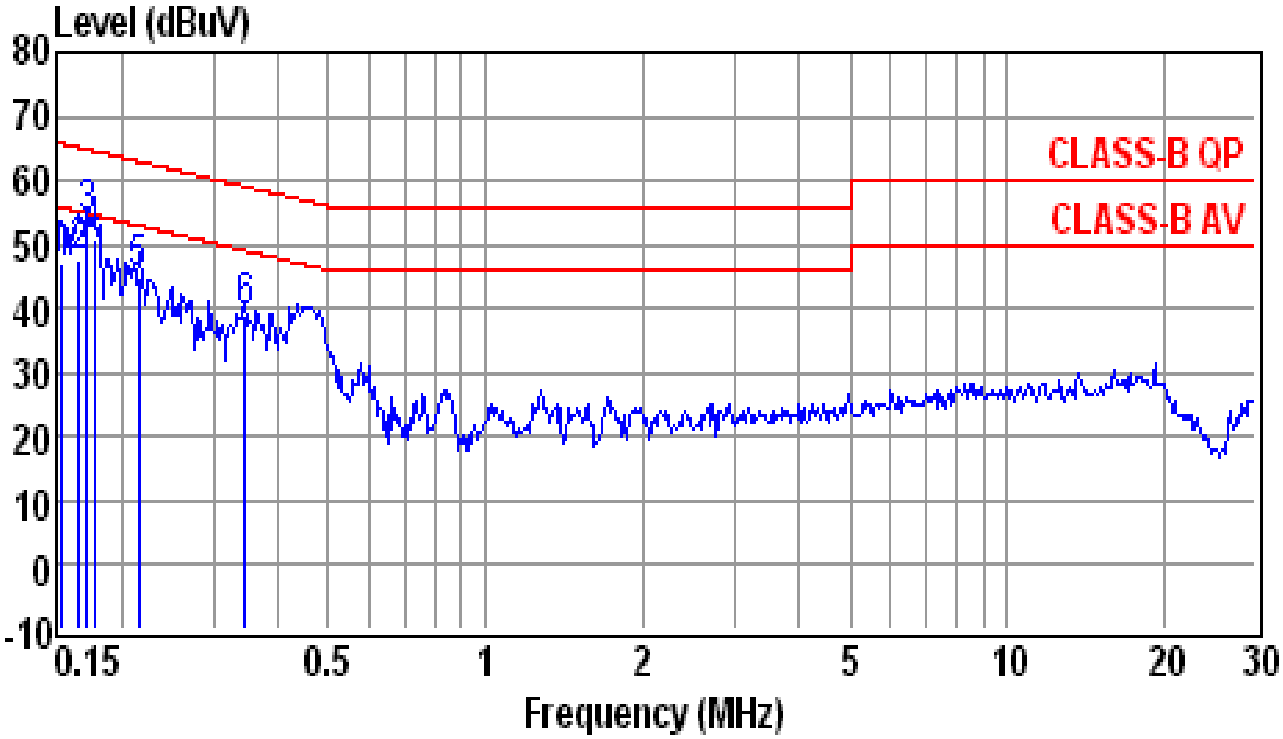
ANSI C63.4-2003 using 50 μH/50 ohms LISN.

## 6.4.3 Test Results: Complies

**Measurement Data: See attached graph, (Peak detector)**

Highest measured value (L1 and L2):

All emissions were below the QP and Average limits when measured with Peak detector.

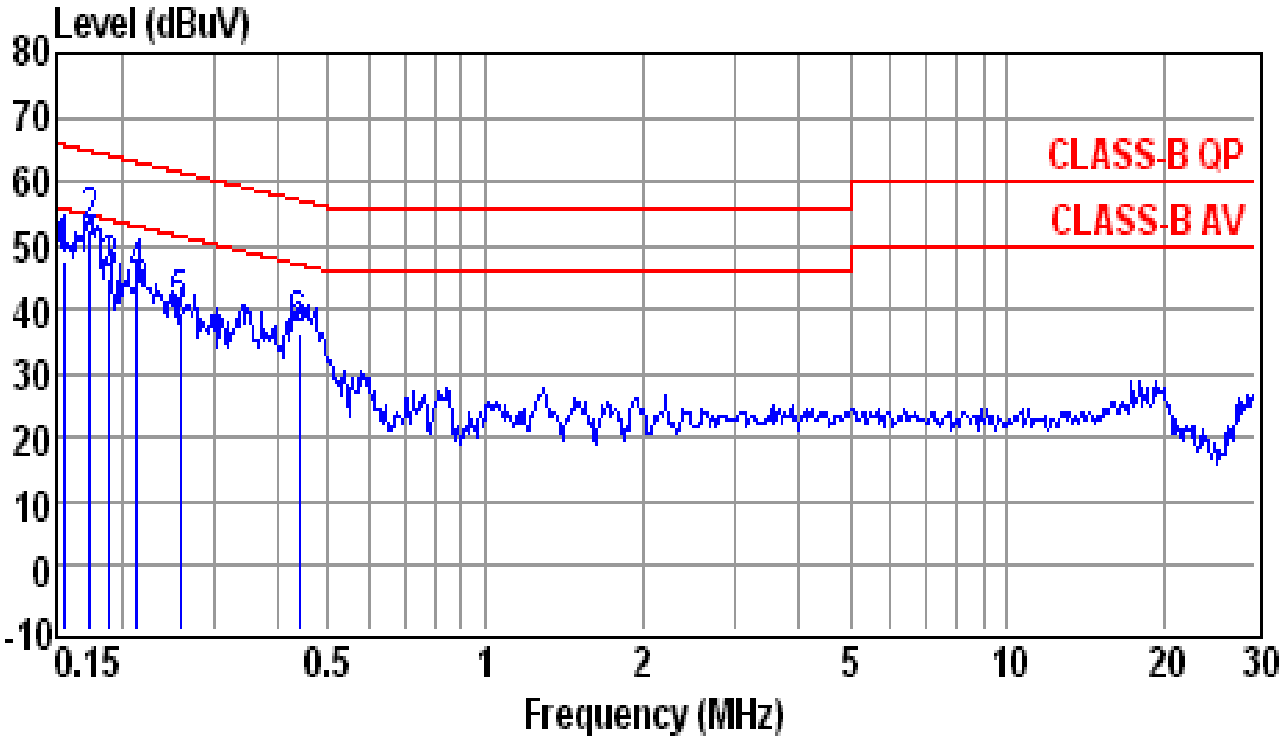



| | | | |
|---|---|---|---|
| Site | : conducted #1 | Date | : 11-19-2013 |
| Condition | : CLASS-B QP | LISN | : NEUTRAL |
| Tem / Hum | : 20 ℃ / 60% | Test Mode | : DECT link |
| EUT | : DPC3939 | Power Rating | : 120V/60Hz |
| Memo | : | Memo | : |

| Freq (MHz) | Reading (dBuV) | Factor (dB) | Emission Level (dBuV) | Limit Line (dBuV) | Over Limit (dB) | Remark |
|---|---|---|---|---|---|---|
| 0.1532 | 37.0 | 10.3 | 47.3 | 65.8 | -18.5 | QP |
| 0.1659 | 37.5 | 10.3 | 47.8 | 65.2 | -17.4 | QP |
| 0.1722 | 43.1 | 10.3 | 53.4 | 64.9 | -11.5 | QP |
| 0.1777 | 40.7 | 10.3 | 51.0 | 64.6 | -13.6 | QP |
| 0.2162 | 34.7 | 10.3 | 45.0 | 63.0 | -18.0 | QP |
| 0.3465 | 28.5 | 10.3 | 38.8 | 59.0 | -20.2 | QP |

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss




| | | | |
|---|---|---|---|
| Site | : conducted #1 | Date | : 11-19-2013 |
| Condition | : CLASS-B QP | LISN | : LINE |
| Tem / Hum | : 20 ℃ / 60% | Test Mode | : DECT link |
| EUT | : DPC3939 | Power Rating | : 120V/60Hz |
| Memo | : | Memo | : |

| Freq (MHz) | Reading (dBuV) | Factor (dB) | Emission Level (dBuV) | Limit Line (dBuV) | Over Limit (dB) | Remark |
|---|---|---|---|---|---|---|
| 0.1549 | 37.3 | 10.3 | 47.6 | 65.7 | -18.1 | QP |
| 0.1740 | 42.1 | 10.3 | 52.4 | 64.8 | -12.4 | QP |
| 0.1904 | 34.8 | 10.3 | 45.1 | 64.0 | -18.9 | QP |
| 0.2151 | 34.2 | 10.3 | 44.5 | 63.0 | -18.5 | QP |
| 0.2589 | 29.4 | 10.3 | 39.7 | 61.5 | -21.8 | QP |
| 0.4397 | 26.3 | 10.3 | 36.6 | 57.1 | -20.5 | QP |

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

### 6.4.4 Photos of Conduction Measuring Setup

## 6.5 Antenna Requirement

### 6.5.1 Standard Applicable

**FCC 15.317, 15.203**

Does the EUT have detachable antenna?

☐ Yes

■ No

If detachable, is the antenna connector non-standard?

☐ Yes

☐ No

The tested equipment has only integral antennas. The conducted tests were performed on a sample with a temporary antenna connects.

## 6.6 digital Modulation Techniques

### 6.6.1 Standard Applicable

**FCC 15.319(b)**

All transmissions must use only digital modulation techniques.

### 6.6.2 Result: Meets the requirement

Please see the declaration provided by applicant

# 6.7 Peak Power Output

## 6.7.1 Standard Applicable

**FCC 15.319(c)(f)**

Peak transmit power shall not exceed 100 microwatts multiplie by the square root of the emission bandwidth in Hz.

The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

## 6.7.2 Measurement procedure

Measurement method according to ANSI C63.17 2006 paragraph 6.1.2

## 6.7.3 Test Results: Complies

**Measurement Data:**

| Channel | Frequency (MHz) | Maximum Peak Output Power (dBm) | Maximum Peak Output Power (mw) | FCC Limit (dBm) |
|---|---|---|---|---|
| $F_L$ | 1921.536 | 19.09 | 81.096 | 19.15 |
| $F_H$ | 1928.448 | 19.06 | 80.538 | 19.15 |

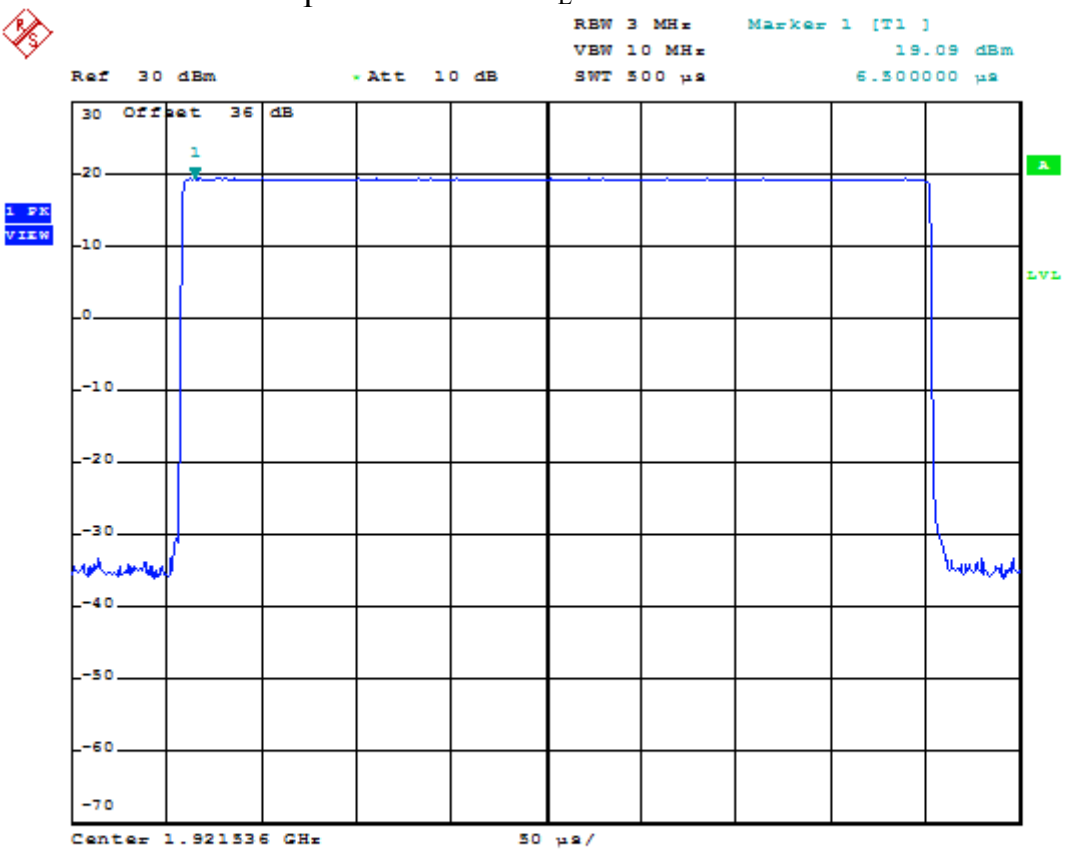
**Limit:**

Peak Transmit Power = 100 uW x $\sqrt{}$BW

BW = Emission Bandwidth in Hz.

The antenna gain value provided by manufacturer is 4.7 dBi. Hense the peak transmit power shall be reduced by 1.7 dB.

Maximum Peak Output Power: CH $F_L$

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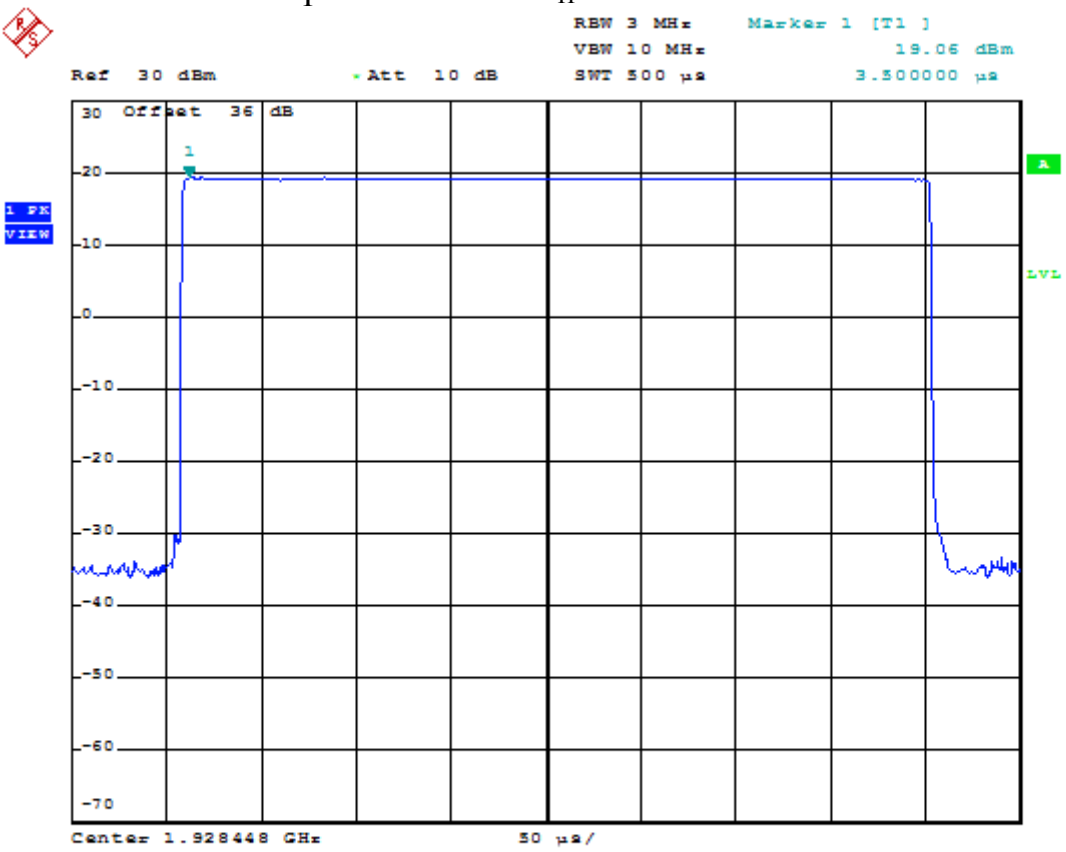
# Maximum Peak Output Power: CH $F_H$

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# 6.8 Power Spectral Density

## 6.8.1 Standard Applicable

**FCC 15.319(d)**

Power spectral density shall not exceed 3 milliwatts in any 3 kHz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3 kHz.

## 6.8.2 Measurement procedure

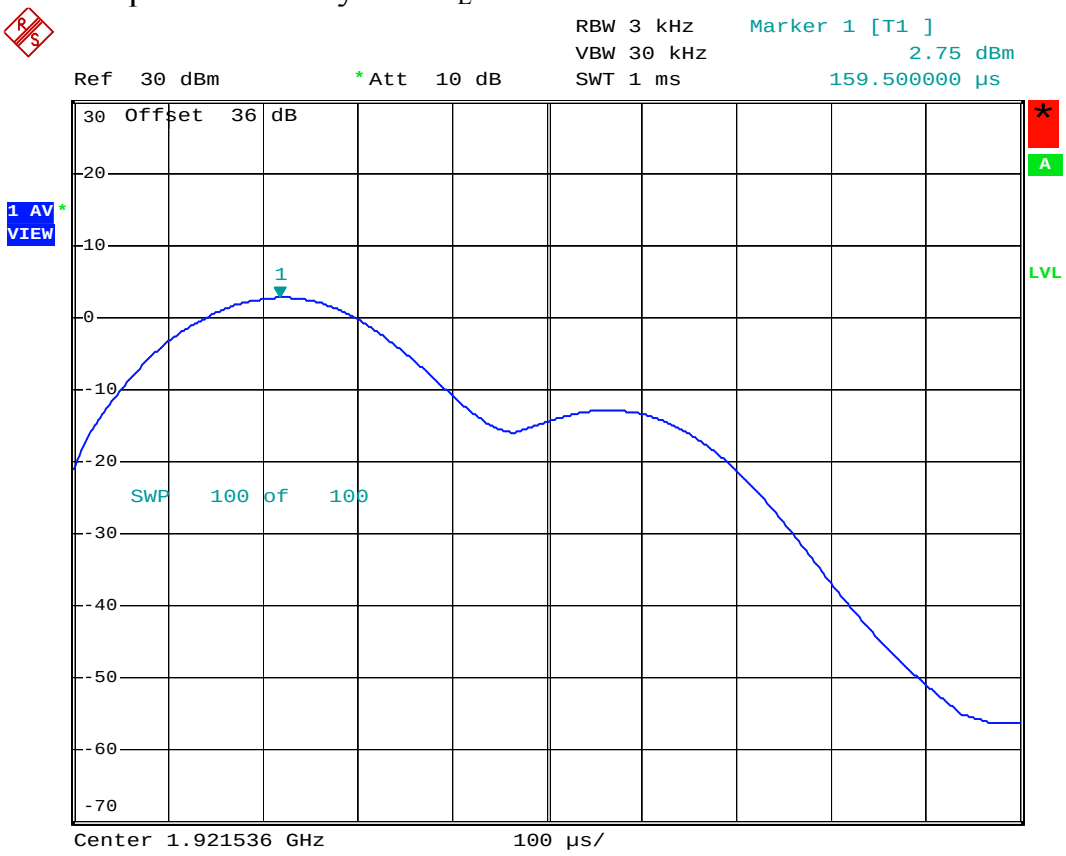
Measurement method according to ANSI C63.17 2006 paragraph 6.1.5

## 6.8.3 Test Results: Complies

**Measurement Data:**

| Channel | Frequency (MHz) | Power spectral Density (dBm) | FCC Limit (dBm) |
|---|---|---|---|
| $F_L$ | 1921.536 | 2.73 | 4.77 |
| $F_H$ | 1928.448 | 2.53 | 4.77 |

# Power Spectral Density: CH $F_L$

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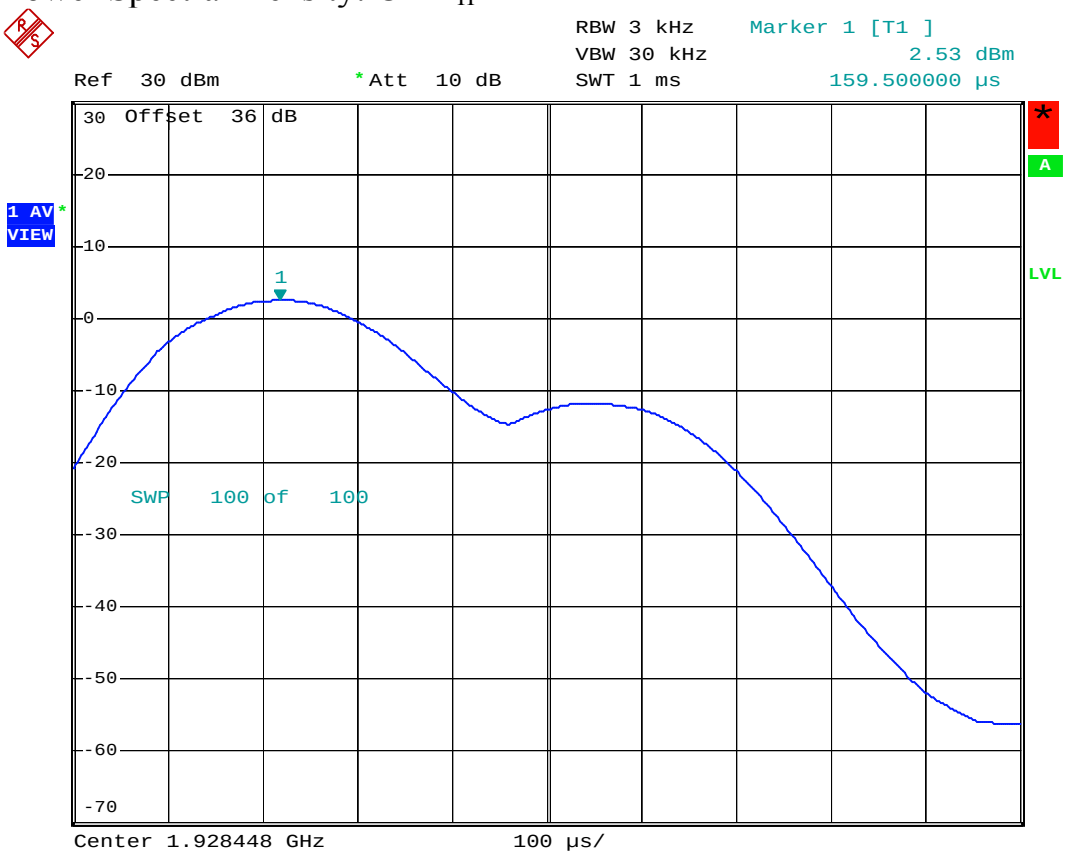
# Power Spectral Density: CH $F_H$

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## 6.9 Antenna Gain

### 6.9.1 Standard Applicable

**FCC 15.323(e)**

The peak transmit power shall be reduced by the amount in decibels that the mzximum directional gain of the antenna exceeds 3 dBi.

### 6.9.2 Results: Meets the requirement

The antenna gain value provided by manufacturer is 4.7 dBi. Hense the peak transmit power shall be reduced by 1.7 dB.

## 6.10 Automatic discontinuation of transmission

### 6.10.1 Standard Applicable

**FCC 15.319(f)**

The device shall automatically discontinue transmissionin case of either absence of information to transmit or opwerational failure. These provisions are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

### 6.10.2 Procedure

Please see the declaration provided by applicant.

### 6.10.3 Results: Meets the requirement

## 6.11 Safety exposure levels

### 6.11.1 Standard Applicable

**FCC 15.319(i)**

UPCS devices are subject to the radio frequency radiation exposure requirements specified in FCC parts 1.1307 (b), 2.1091 and 2.1093, as appropriate. All equipment shall be considered to operate in a "general population / uncontrolled environment. For portable devices tests according to IEEE 1528 are requested, applicable.

### 6.11.2 Measurement procedure

Consideration of radio frequency radiation exposure for EUT is done as

| | |
|---|---|
| SAR test according IEEE 1528 (for PP) | ☐ |
| MPE calculation as below (for FP, Repeater) | ■ |

SAR test results: not applicable

MPE calculation:

The EUT is considered as a mobile device according to OET Bulletin 65, Edition –97-01. Therefore distance to human body of min. 20 cm is determined.

The limit of Power density for General Population / Umcontrolled Exposure is 1.0 $mW/cm^2$.

Formula:

$$S = EIRP/4_{TT}R^2$$

Calculation:

| | | |
|---|---|---|
| EIRP | Radiated Power (dBm) | 23.79 |
| EIRP | Radiated Power (mW) | 239.33 |
| R | Disance (cm) | 20 |
| S | Power Density ($mW/cm^2$) | 0.0476 |

### 6.11.3 Results: Complies

# 6.12 Emission Bandwidth B

## 6.12.1 Standard Applicable

**FCC 15.323(a)**

The 26 dB Bandwidth B shall be larger than 50 kHz and less than 2.5 MHz.

## 6.12.2 Measurement procedure

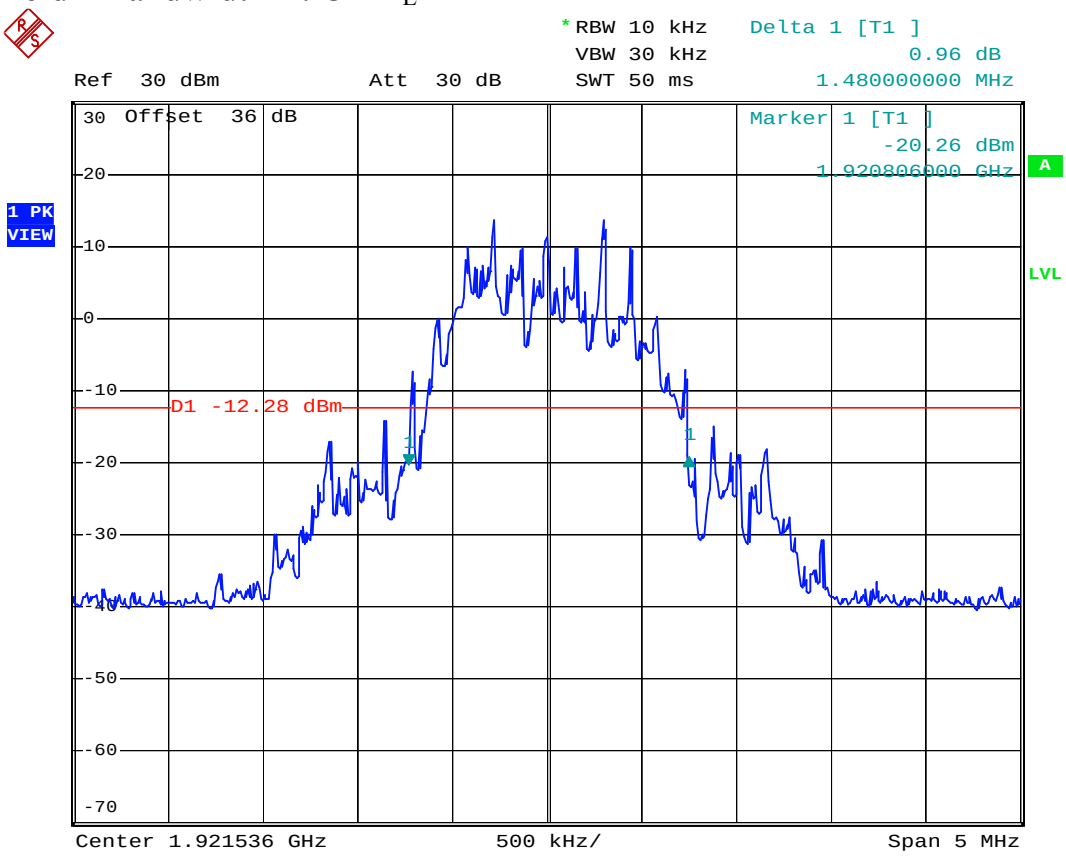
Measurement method according to ANSI C63.17 2006 paragraph 6.1.3

## 6.12.3 Test Results: Complies

**Measurement Data:**

| Channel | Frequency (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|
| $F_L$ | 1921.536 | 1.48 |
| $F_H$ | 1928.448 | 1.48 |

# 26 dB Bandwidth B: CH $F_L$

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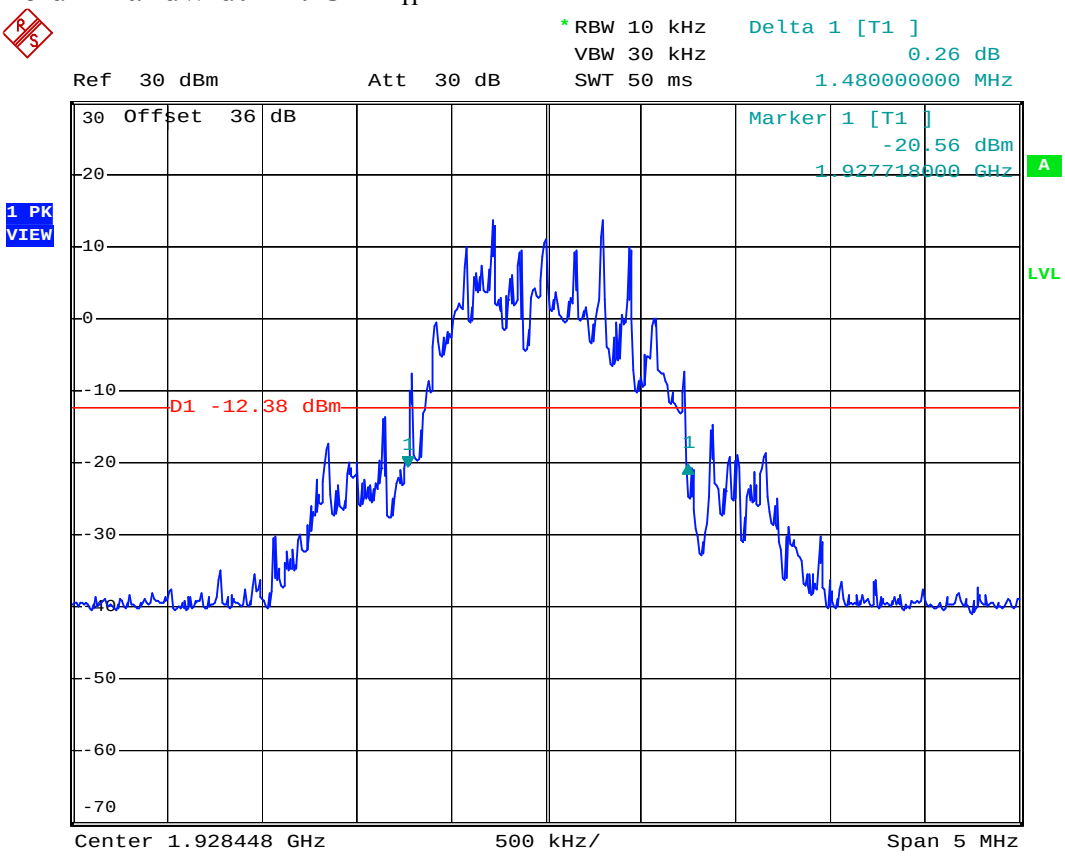
# 26 dB Bandwidth B: CH $F_H$

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# 6.13 Emissions inside and outside the subband

## 6.13.1 Standard Applicable

**FCC 15.323(d)**

**Emissions inside the subband**

B < f ≦ 2B: less than or equal to 30dB below max. permitted peak power level

2B < f ≦ 3B: less than or equal to 50 dB below max. permitted peak power level

3B< f ≦ UPCs Band Edge: less than or equal to 60 dB below max. permitted peak power level

**Emissions outside the subband**

f ≦ 1.25MHz outside UPCS band: ≦ -9.5dBm

1.25MHz ≦ f ≦2.5MHz outside UPCS band: ≦ -29.5dBm

f ≧ 2.5MHz outside UPCS band: The EUT shall pass the test either a) or b) as follow:

| | |
|---|---|
| a) In the region at 2.5 MHz or greater below and above the lower and upper band edges respectively, the measured emission level shall not exceed –39.5 dBm | ■ |
| b) In the region at 2.5MHz or greater below and above the lower and upper band edges respectively, the measured emission level shali not exceed the limits of 47CFR15.209. Measurement shall be made as a radiated test. | □ |

## 6.13.2 Measurement procedure

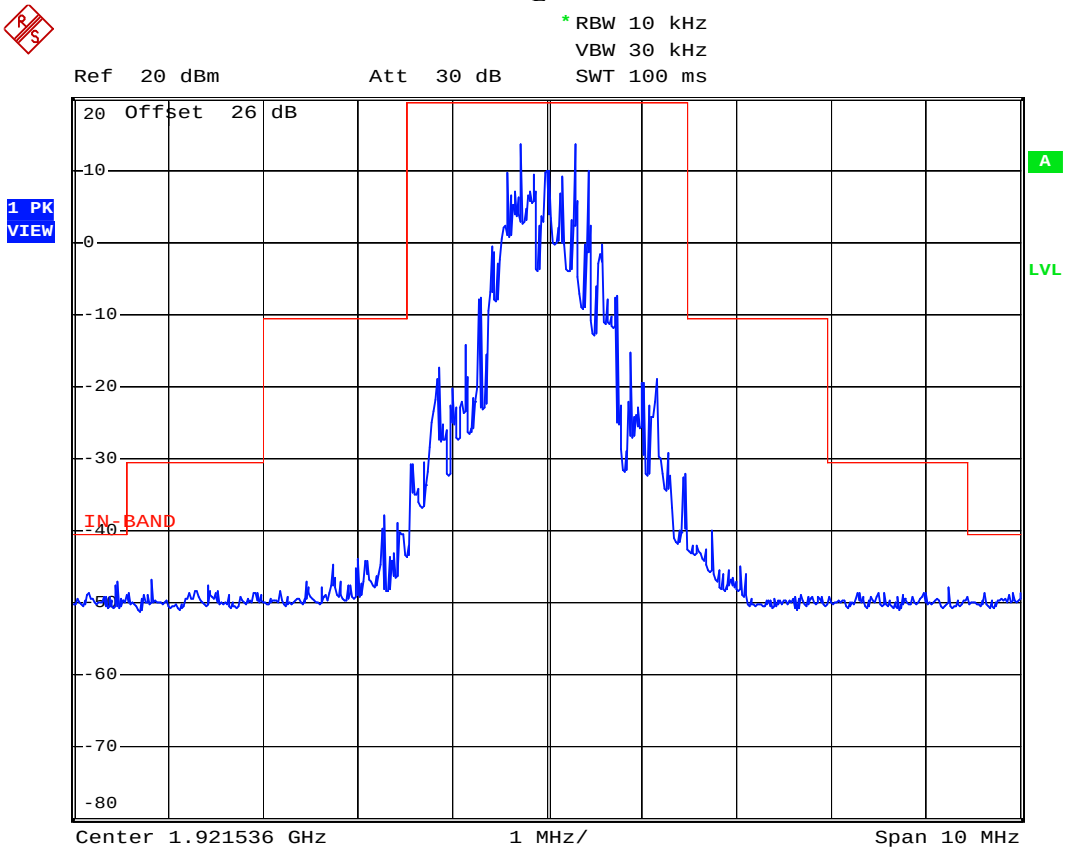
Measurement method according to ANSI C63.17 2006 paragraph 6.1.6

## 6.13.3 Results: Complies

**Measurement Data:**

See plots.

# In-band Unwanted Emission: CH $F_L$

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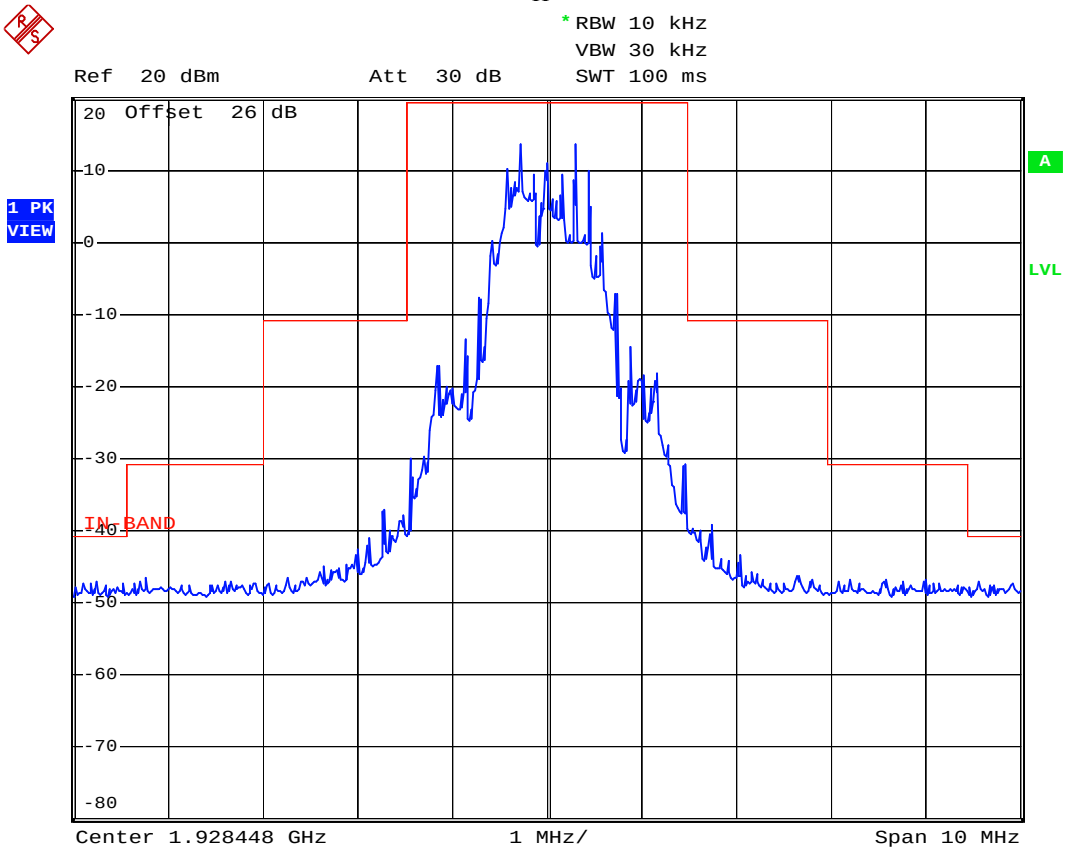
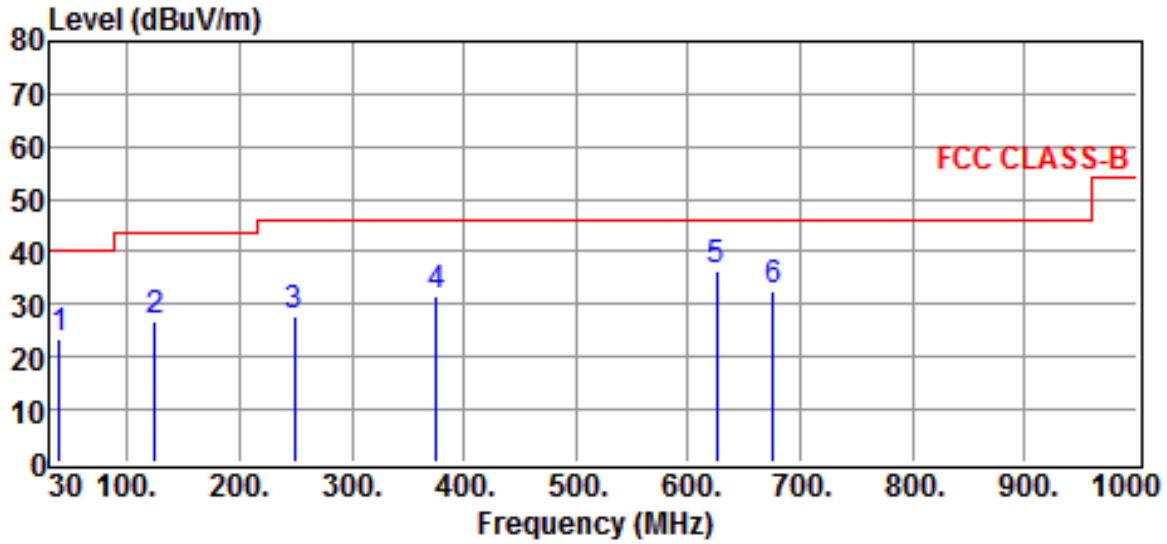
# In-band Unwanted Emission: CH $F_H$




Date: 23.DEC.2013 17:05:43

Out-of -band Unwanted Emission:

A. Out-of -band Unwanted Emission (below 1GHz)

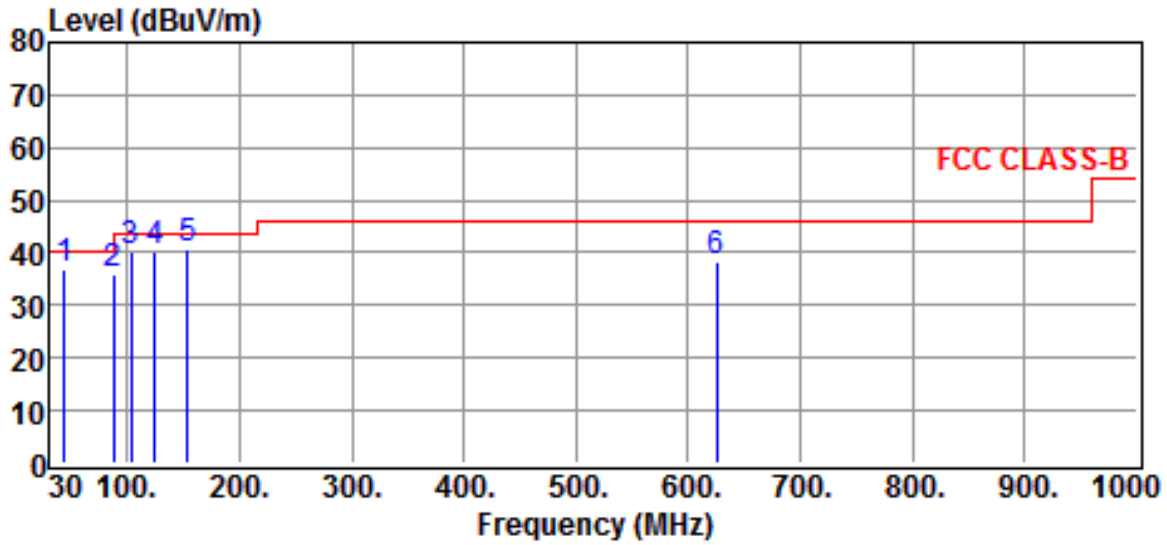



| | | | |
|---|---|---|---|
| Site | :Open Site | Date | :2013-11-18 |
| Limit | :FCC CLASS-B | Ant. Pol. | :HORIZONTAL |
| EUT | :DECT | Temp. | :25 |
| Power Rating | :120V | Humi. | :65 |
| Model | :DPC3941 | Engineer. | :Jiapeng |
| Test Mode | :DECT MODE (2 PHONE LINK) | | |
| Test Mode | : | | |

| Freq<br>MHz | Reading<br>dBuV | Correction Factor<br>dB | Result<br>dBuV/m | Limits<br>dBuV/m | Over limit<br>dB | Detector |
|---|---|---|---|---|---|---|
| 39.7000 | 10.2 | 13.5 | 23.7 | 40.0 | -16.3 | QP |
| 125.0600 | 14.1 | 12.7 | 26.8 | 43.5 | -16.7 | QP |
| 249.2200 | 13.3 | 14.5 | 27.8 | 46.0 | -18.2 | QP |
| 375.3200 | 13.1 | 18.5 | 31.6 | 46.0 | -14.4 | QP |
| 625.5800 | 12.8 | 23.5 | 36.3 | 46.0 | -9.7 | QP |
| 676.0200 | 7.9 | 24.5 | 32.4 | 46.0 | -13.6 | QP |

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result
5. Radiated emission from 9kHz to 30MHz was invastgated with a Loop antenna. No emissions that are more than 20dB below the limit were found.




| | | | |
|---|---|---|---|
| Site | :Open Site | Date | :2013-12-24 |
| Limit | :FCC CLASS-B | Ant. Pol. | :VERTICAL |
| EUT | :DECT | Temp. | :25 |
| Power Rating | :120V | Humi. | :65 |
| Model | :DPC3941 | Engineer. | :Jiapeng |
| Test Mode | :DECT MODE (2 PHONE LINK) | | |
| Test Mode | : | | |

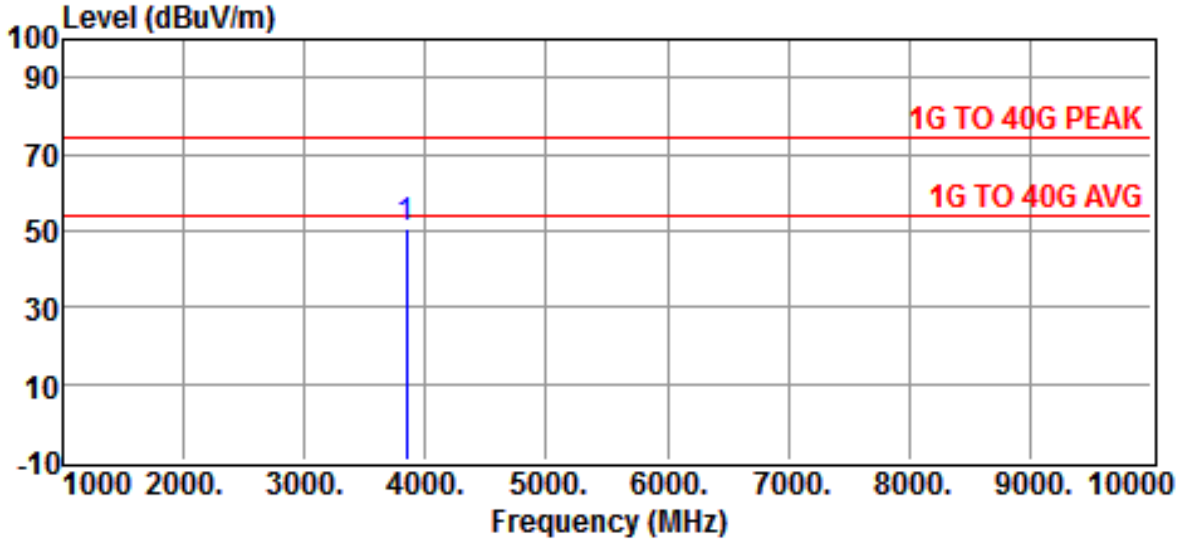
| Freq<br>MHz | Reading<br>dBuV | Correction Factor<br>dB | Result<br>dBuV/m | Limits<br>dBuV/m | Over limit<br>dB | Detector |
|---|---|---|---|---|---|---|
| 43.5800 | 24.0 | 12.9 | 36.9 | 40.0 | -3.1 | QP |
| 87.2300 | 25.3 | 10.8 | 36.1 | 40.0 | -3.9 | QP |
| 103.7200 | 28.7 | 11.7 | 40.4 | 43.5 | -3.1 | QP |
| 125.0600 | 27.6 | 12.7 | 40.3 | 43.5 | -3.2 | QP |
| 154.1600 | 26.5 | 14.0 | 40.5 | 43.5 | -3.0 | QP |
| 625.5800 | 14.8 | 23.5 | 38.3 | 46.0 | -7.7 | QP |

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result
5. Radiated emission from 9kHz to 30MHz was invastgated with a Loop antenna. No emissions that are more than 20dB below the limit were found.

B. Out-of -band Unwanted Emission (above 1GHz):

a) CH $F_L$

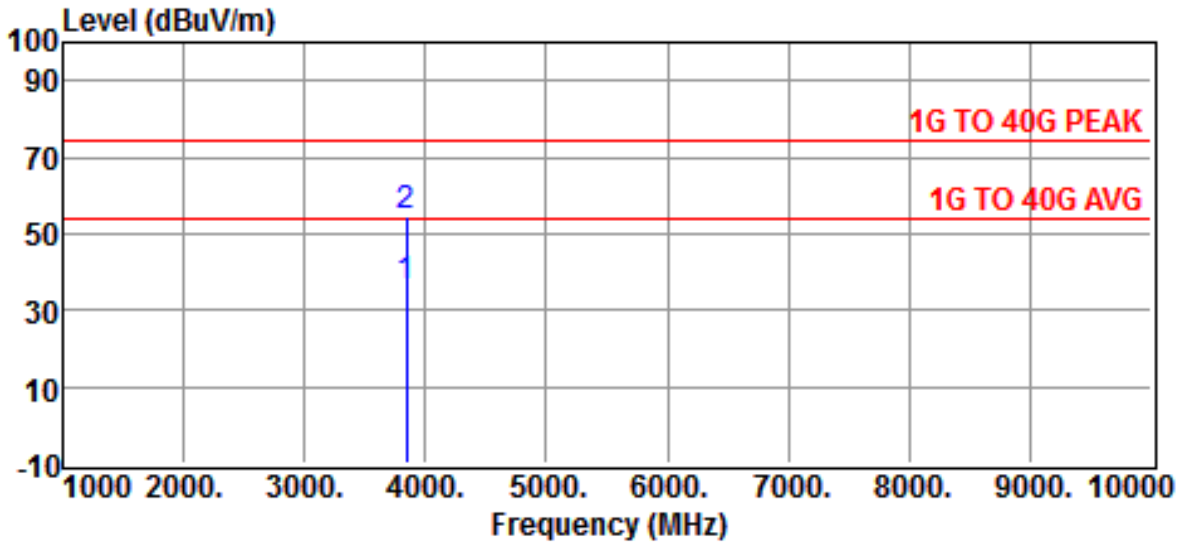



| | | | |
|---|---|---|---|
| Site | :CHAMBER #2 | Date | :2013-11-27 |
| Limit | :1G TO 40G PEAK | Ant. Pol. | :HORIZONTAL |
| EUT | :DECT | Temp. | :20 |
| Power Rating | :120V/60Hz | Humi. | :58 |
| Model | :DPC3939 | Engineer. | :Jiapeng |
| Test Mode | :FL | | |
| Test Mode | : | | |

| Freq<br>MHz | Reading<br>dBuV | Correction Factor<br>dB | Result<br>dBuV/m | Limits<br>dBuV/m | Over limit<br>dB | Detector |
|---|---|---|---|---|---|---|
| 3842.8720 | 51.4 | -0.7 | 50.7 | 74.0 | -23.3 | Peak |

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result



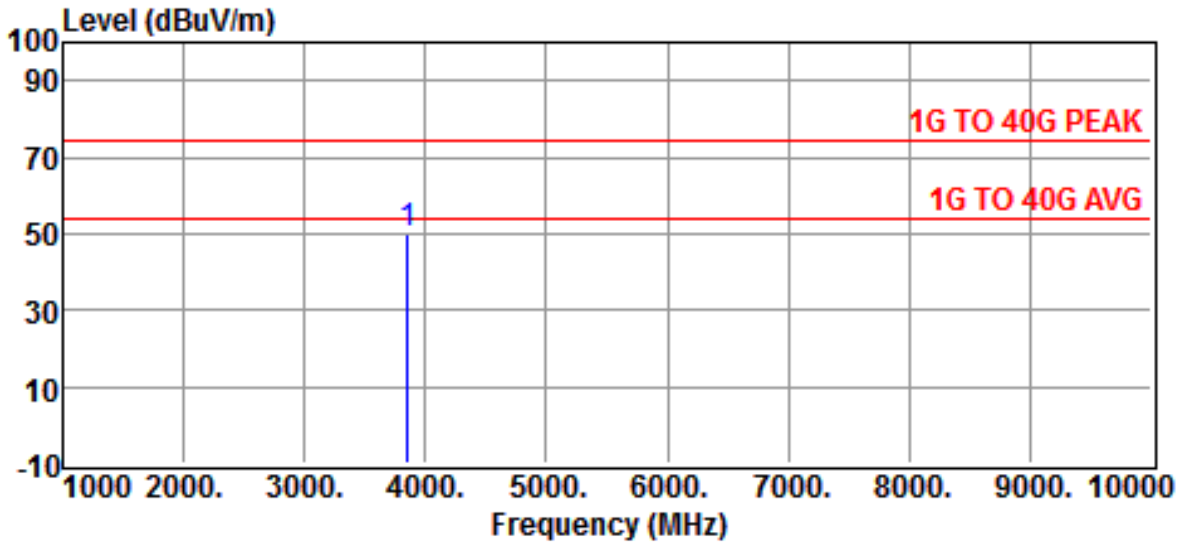

| | | | |
|---|---|---|---|
| Site | :CHAMBER #2 | Date | :2013-11-27 |
| Limit | :1G TO 40G PEAK | Ant. Pol. | :VERTICAL |
| EUT | :DECT | Temp. | :20 |
| Power Rating | :120V/60Hz | Humi. | :58 |
| Model | :DPC3939 | Engineer. | :Jiapeng |
| Test Mode | :FL | | |
| Test Mode | : | | |

| Freq<br>MHz | Reading<br>dBuV | Correction Factor<br>dB | Result<br>dBuV/m | Limits<br>dBuV/m | Over limit<br>dB | Detector |
|---|---|---|---|---|---|---|
| 3843.0720 | 36.7 | -0.7 | 36.0 | 54.0 | -18.0 | Average |
| 3843.0720 | 55.3 | -0.7 | 54.6 | 74.0 | -19.4 | Peak |

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result

b) CH $F_H$

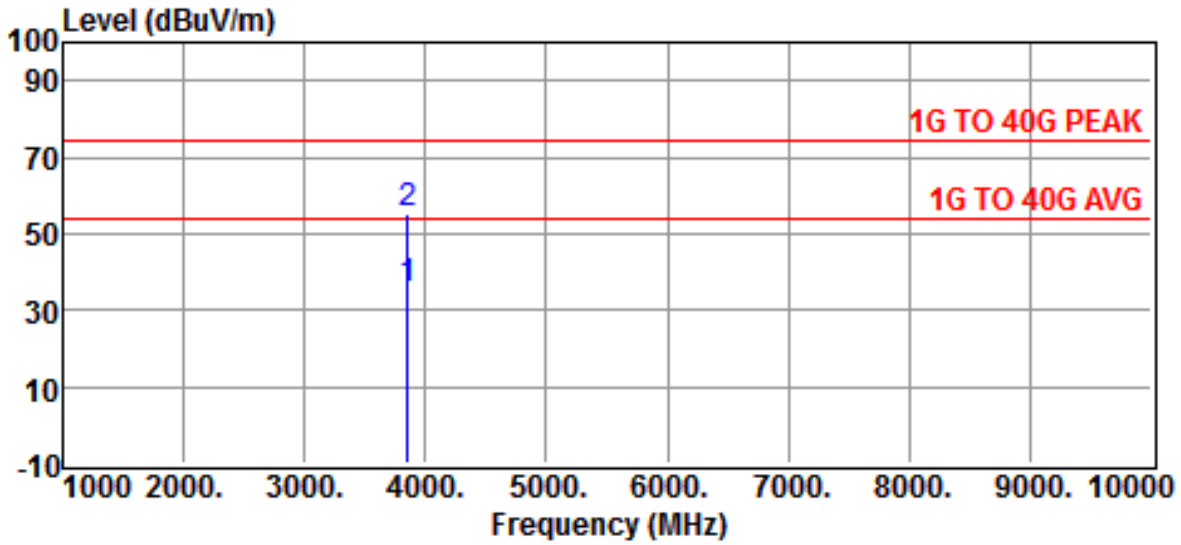



| | | | |
|---|---|---|---|
| Site | :CHAMBER #2 | Date | :2013-11-27 |
| Limit | :1G TO 40G PEAK | Ant. Pol. | :HORIZONTAL |
| EUT | :DECT | Temp. | :20 |
| Power Rating | :120V/60Hz | Humi. | :58 |
| Model | :DPC3939 | Engineer. | :Jiapeng |
| Test Mode | :FH | | |
| Test Mode | : | | |

| Freq<br>MHz | Reading<br>dBuV | Correction Factor<br>dB | Result<br>dBuV/m | Limits<br>dBuV/m | Over limit<br>dB | Detector |
|---|---|---|---|---|---|---|
| 3856.8960 | 50.8 | -0.7 | 50.1 | 74.0 | -23.9 | Peak |

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result



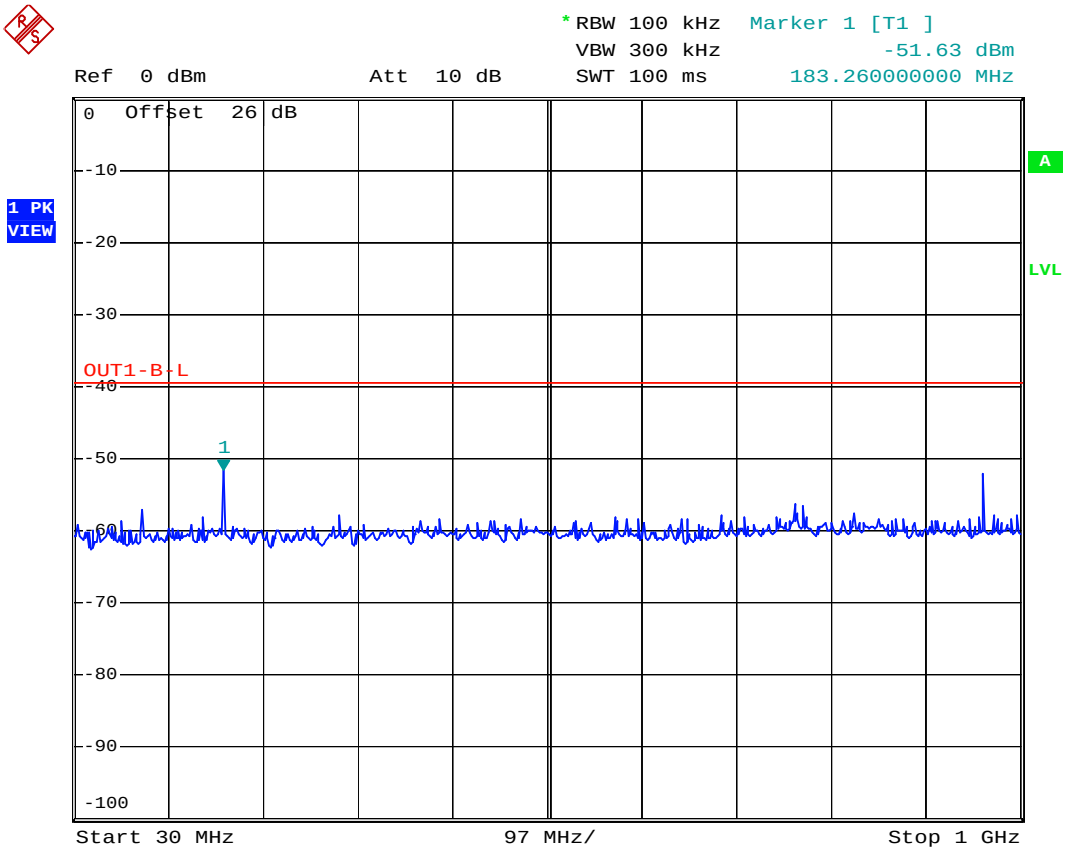

| | | | |
|---|---|---|---|
| Site | :CHAMBER #2 | Date | :2013-11-27 |
| Limit | :1G TO 40G PEAK | Ant. Pol. | :VERTICAL |
| EUT | :DECT | Temp. | :20 |
| Power Rating | :120V/60Hz | Humi. | :58 |
| Model | :DPC3939 | Engineer. | :Jiapeng |
| Test Mode | :FH | | |
| Test Mode | : | | |

| Freq<br>MHz | Reading<br>dBuV | Correction Factor<br>dB | Result<br>dBuV/m | Limits<br>dBuV/m | Over limit<br>dB | Detector |
|---|---|---|---|---|---|---|
| 3856.8960 | 36.3 | -0.7 | 35.6 | 54.0 | -18.4 | Average |
| 3856.8960 | 56.0 | -0.7 | 55.3 | 74.0 | -18.7 | Peak |

Note :

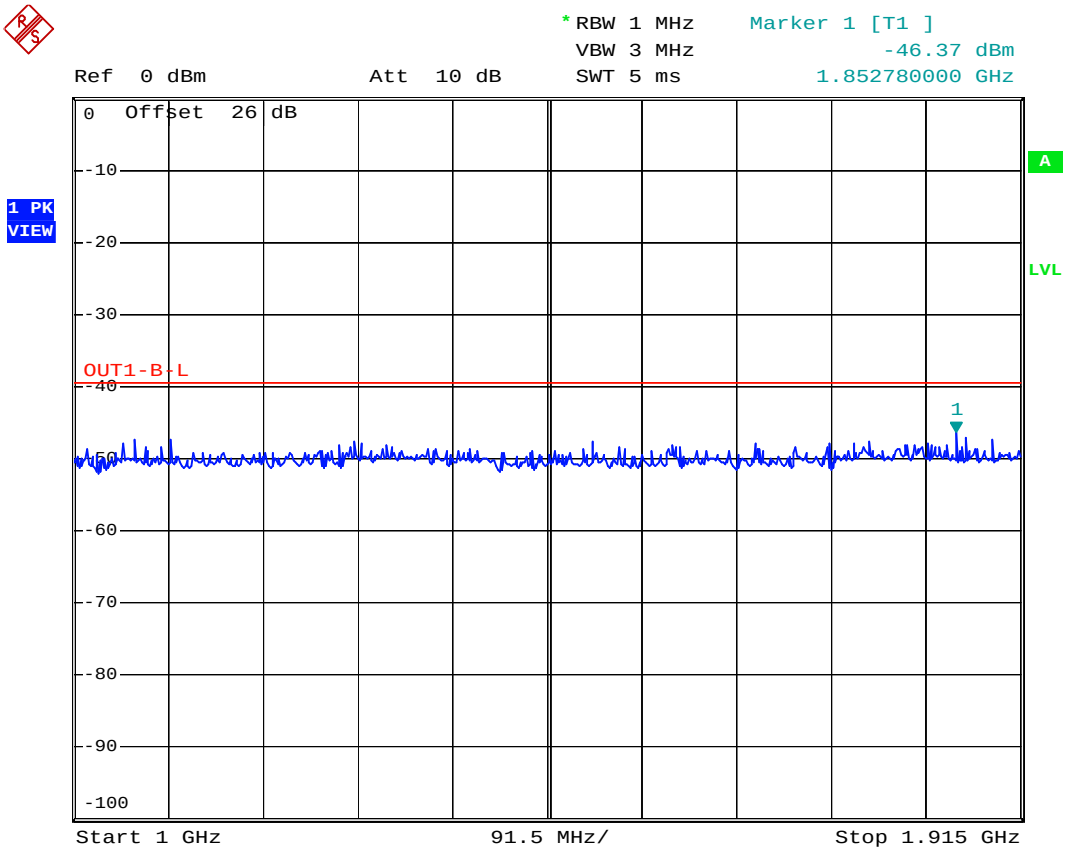
1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result

# Out-of -band Unwanted Emission:



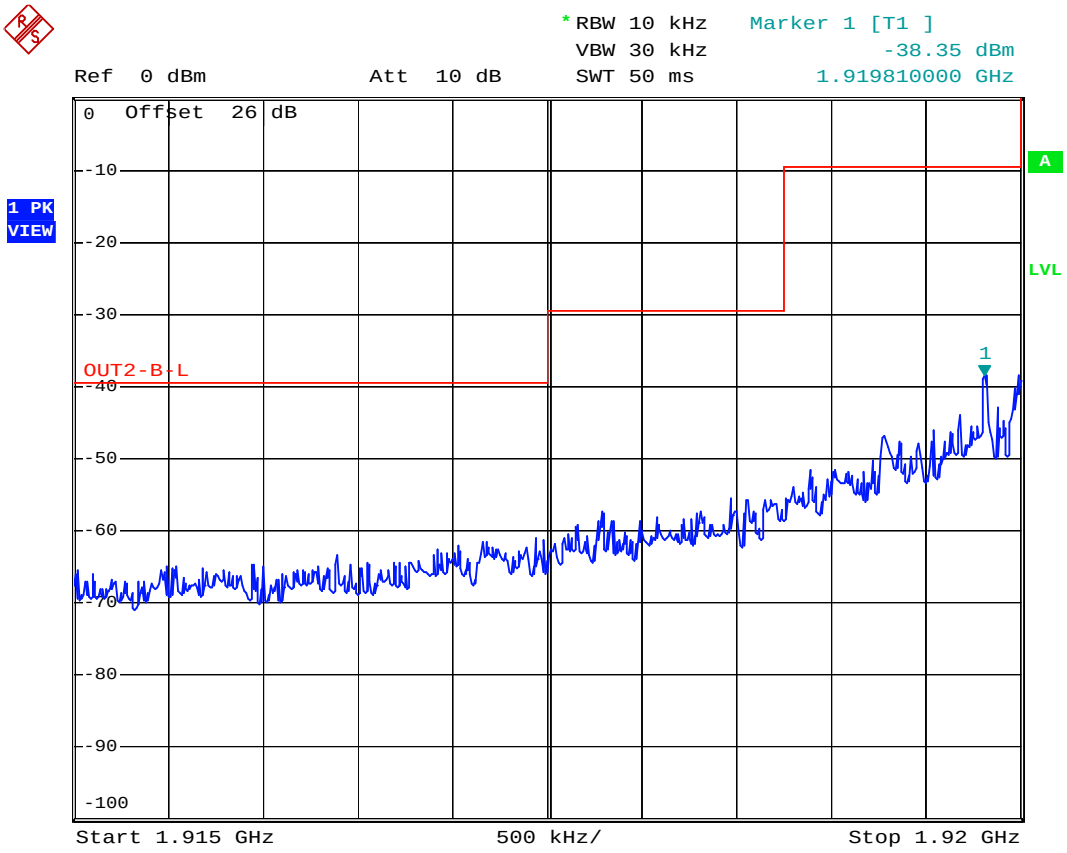

Date: 23.DEC.2013 16:51:16

# Out-of -band Unwanted Emission:



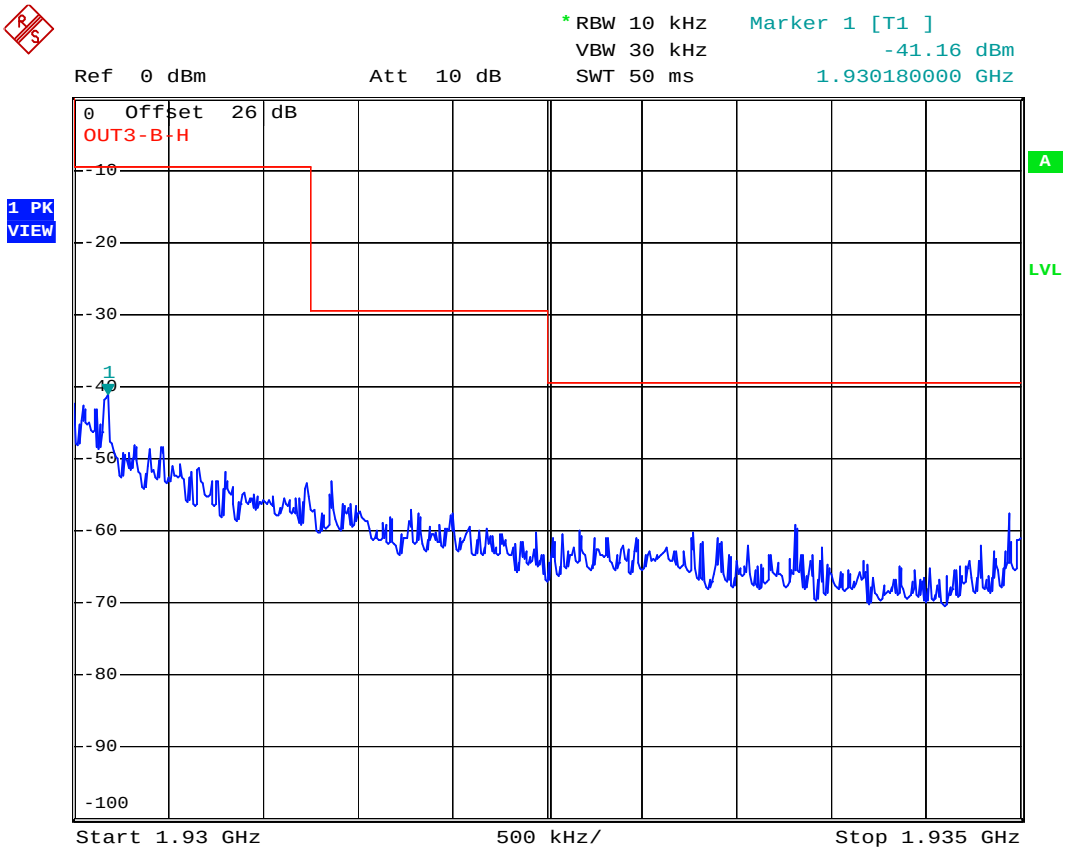

Date: 23.DEC.2013 16:50:38

# Out-of -band Unwanted Emission:



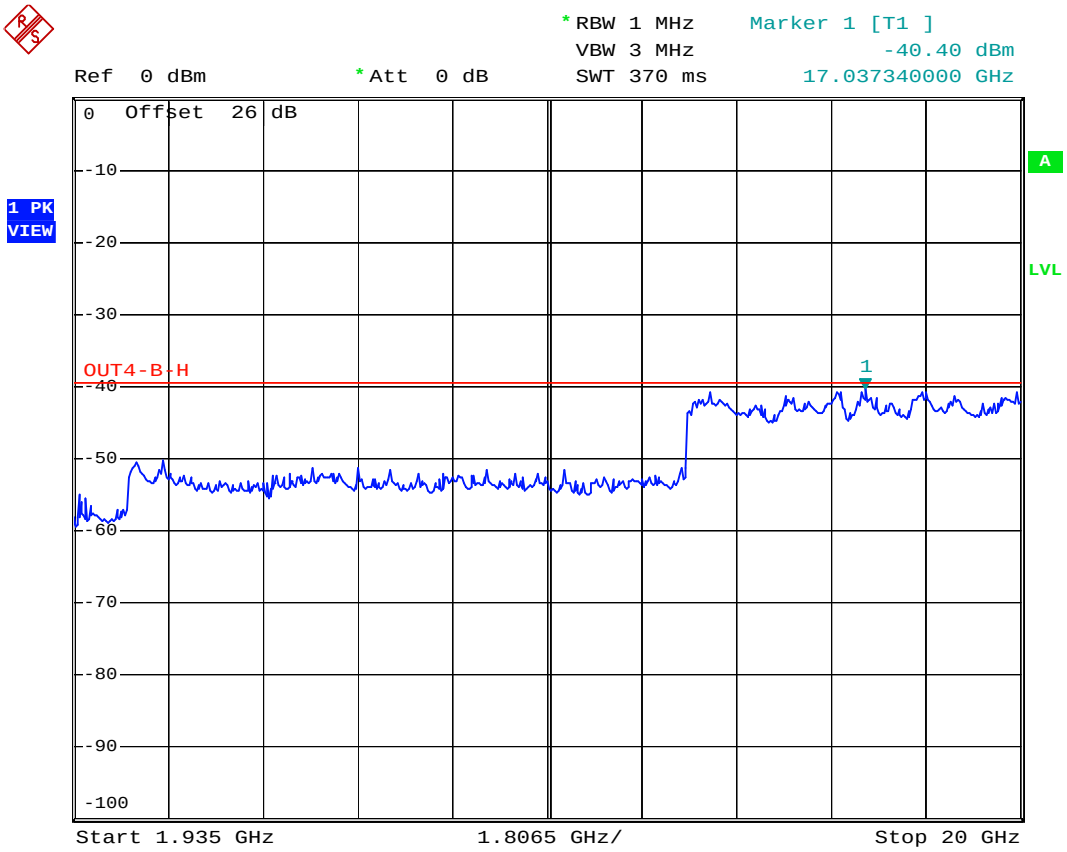

Date: 23.DEC.2013 16:49:08

# Out-of -band Unwanted Emission:




Date: 23.DEC.2013 16:47:58

# Out-of -band Unwanted Emission:




Date: 23.DEC.2013 16:46:35

### 6.13.4 Photos of Radiation Measuring Setup

# 6.14 Frame period and jitter

## 6.14.1 Standard Applicable

**FCC 15.323(e)**

The frame period (a set of consecutive time slots in which the position of each time slot can cbe identified by reference to a synchronizing source) of an intentinal radiator operating in these subbnads shall be 20 missliseconds/X where X is a positive whole number. Each device that implements time division for the purposes of maintainging a duplex connection on a given frequency carrier shall maintaina frame repetition rate with a frequency stability of at least 50 parts per millions (ppm). Each device which further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm. The jitter (time-releated, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25 microseconds for any two consecutive transmissions. Transmissions shall be continuous in every time and spectrum window during the frame period defined for the device.

## 6.14.2 Measurement procedure

- Frame frequency stability $\leqq$ 50 ppm
- TDMA frame frequency stability $\leqq$ 10 ppm (That translates to frequency drift of 19.2 kHz/slot for 1920 MHz carrier)
- Frame jitter $\leqq$ 25μs

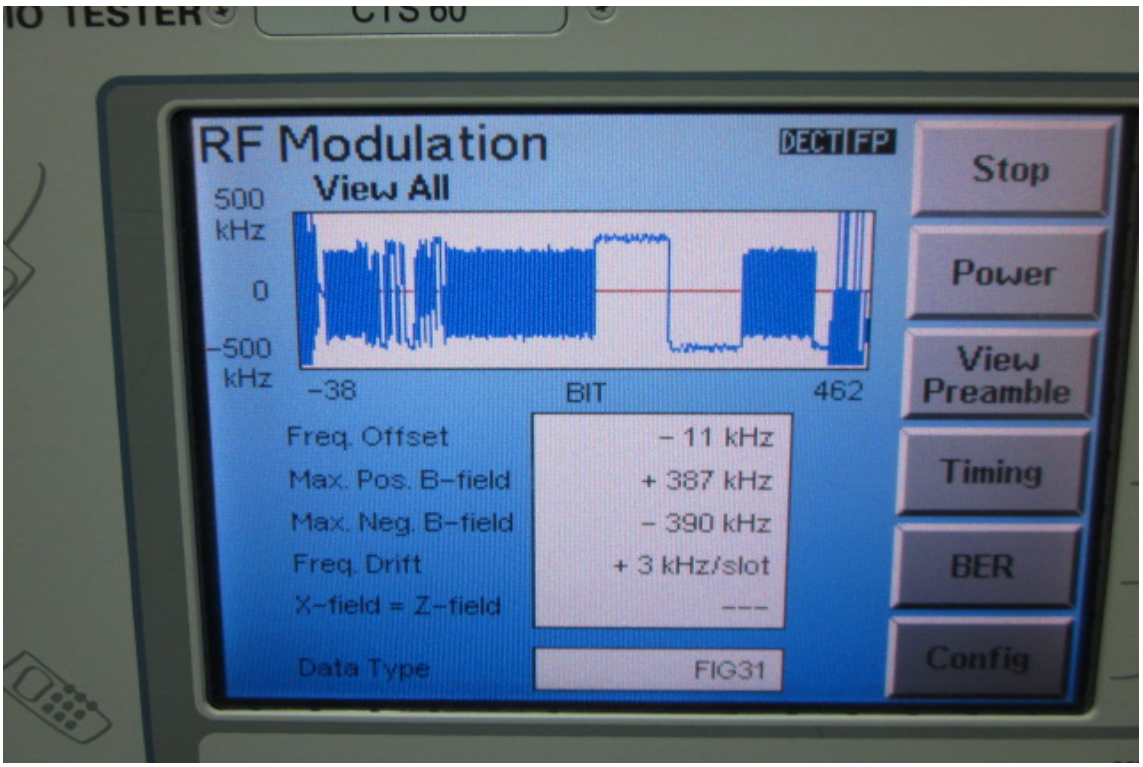
### 6.14.3 Test Results: Complies

**Measurement Data**

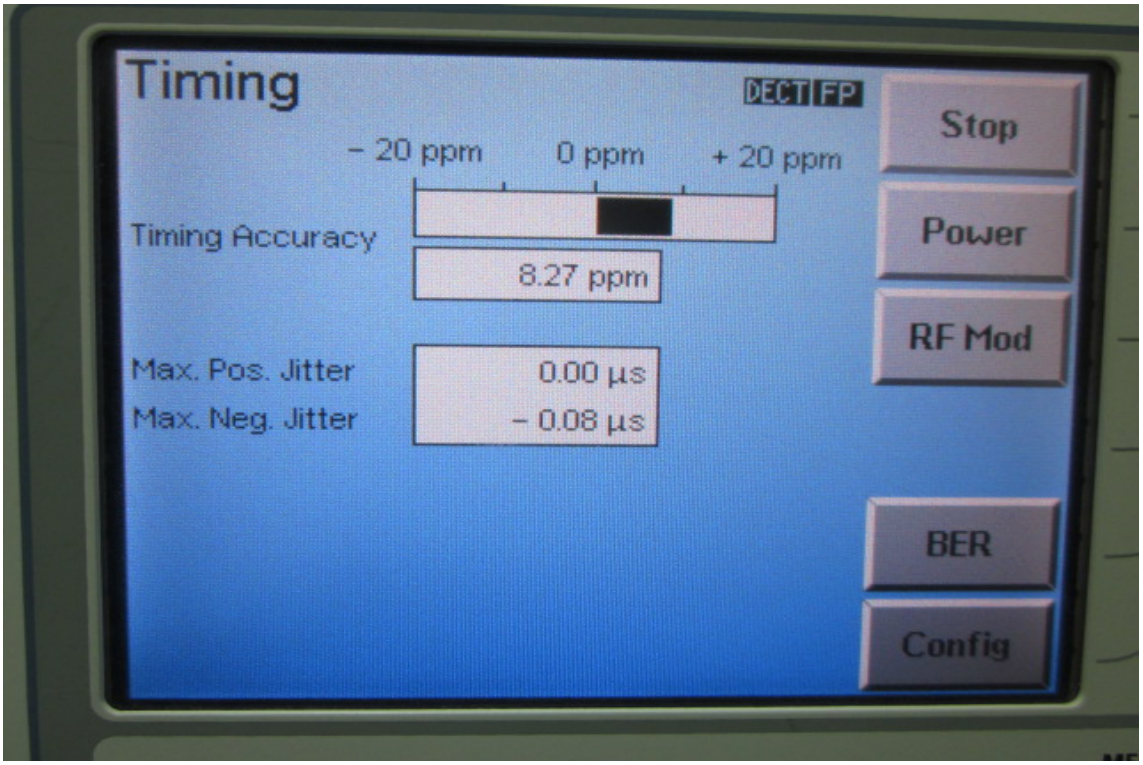
| Channel No. | Frequency (KHz/slot) | | Jitter (us) | |
|---|---|---|---|---|
| | Drift | Limit | Result | Limit |
| $F_L$ | 3 | 19.2 | -0.08 | 25 |
| $F_H$ | 4 | 19.2 | -0.08 | 25 |

Photos of worst-case disply follow:

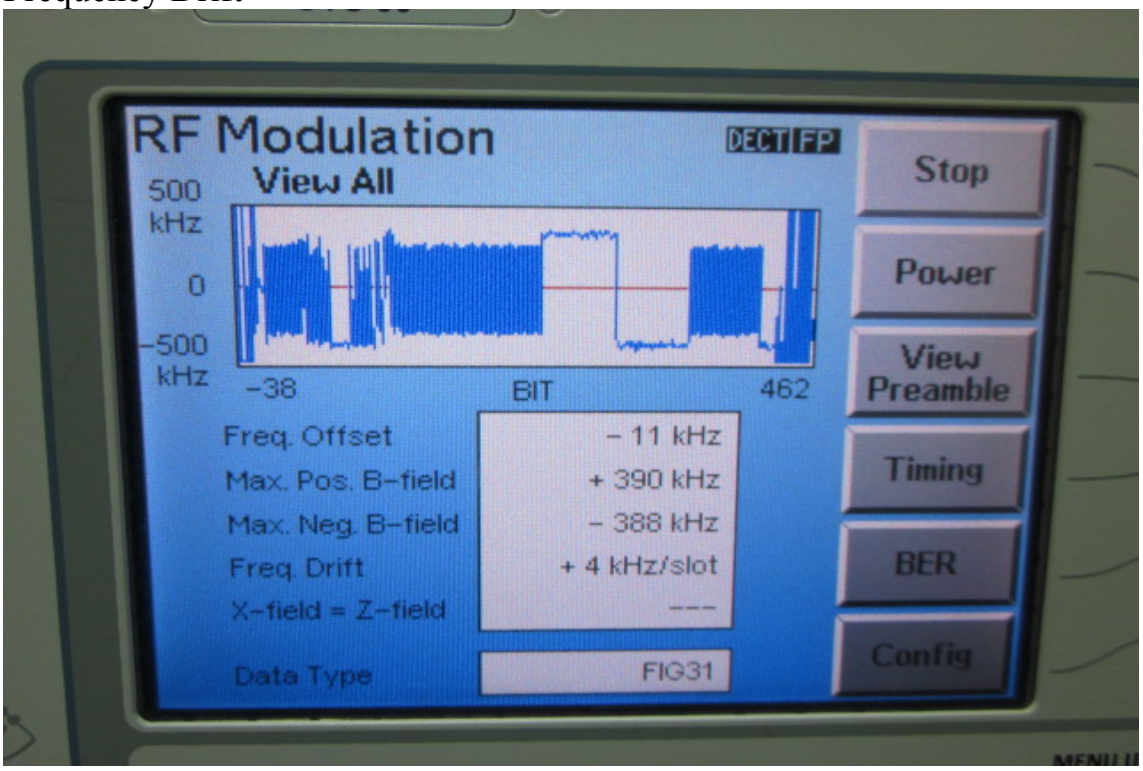
Frequency Drift



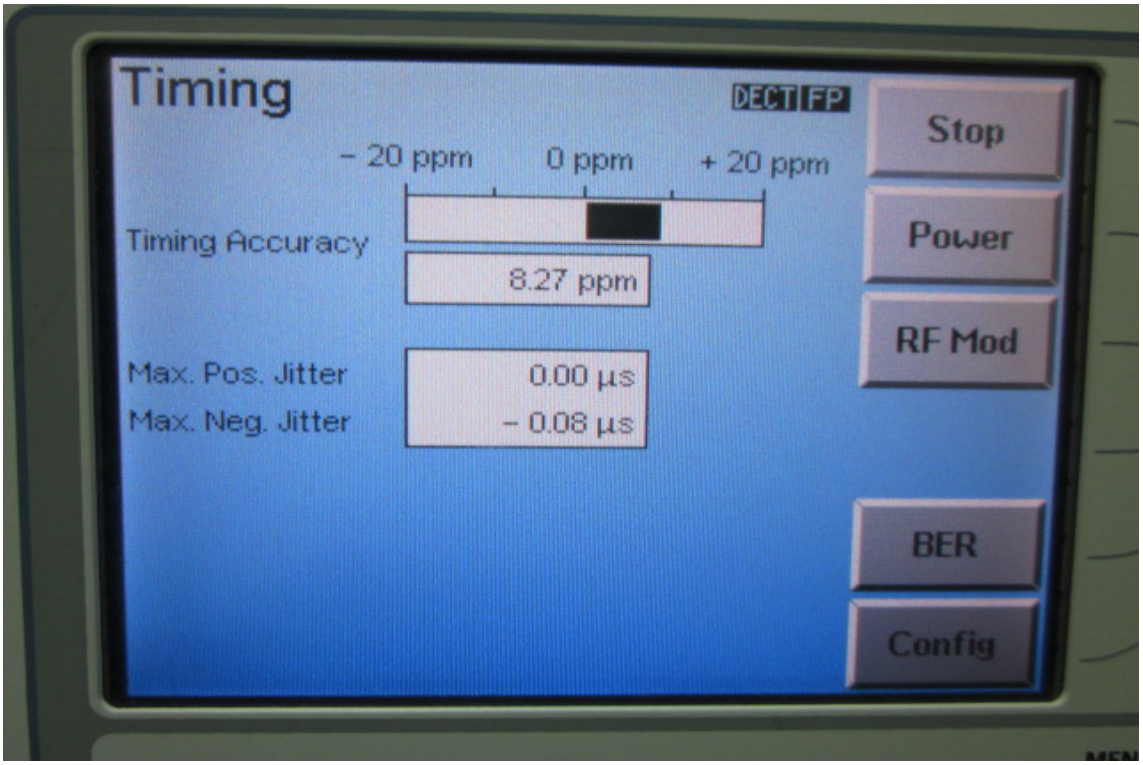

TDMA Frame Jitter



Frequency Drift




TDMA Frame Jitter



# 6.15 Carrier frequency stability

## 6.15.1 Standard Applicable

**FCC 15.323(f)**

The frequency stability of the carrier frequency of the intentional radiator shall be maintained within ± 10 ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of -20˚C to +50˚C degrees C at normal supply voltage, a nd over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20˚C. For equipment that is capable only of operating form a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

## 6.15.2 Measurement Requirement

- Carrier frequency stability ≦ 10 ppm over 1 hour or interval between channel access monitoring, whichever is shorter (That translates to frequency drift of 19.2 kHz for 1920 MHz carrier)
- Carrier frequency stability over -20˚C to +50˚C at normal supply voltage, and over 85% to 115% of rated supply voltage (voltage variation not required for battery operated device)

### 6.15.3 Test Results: Complies

**Measurement Data**

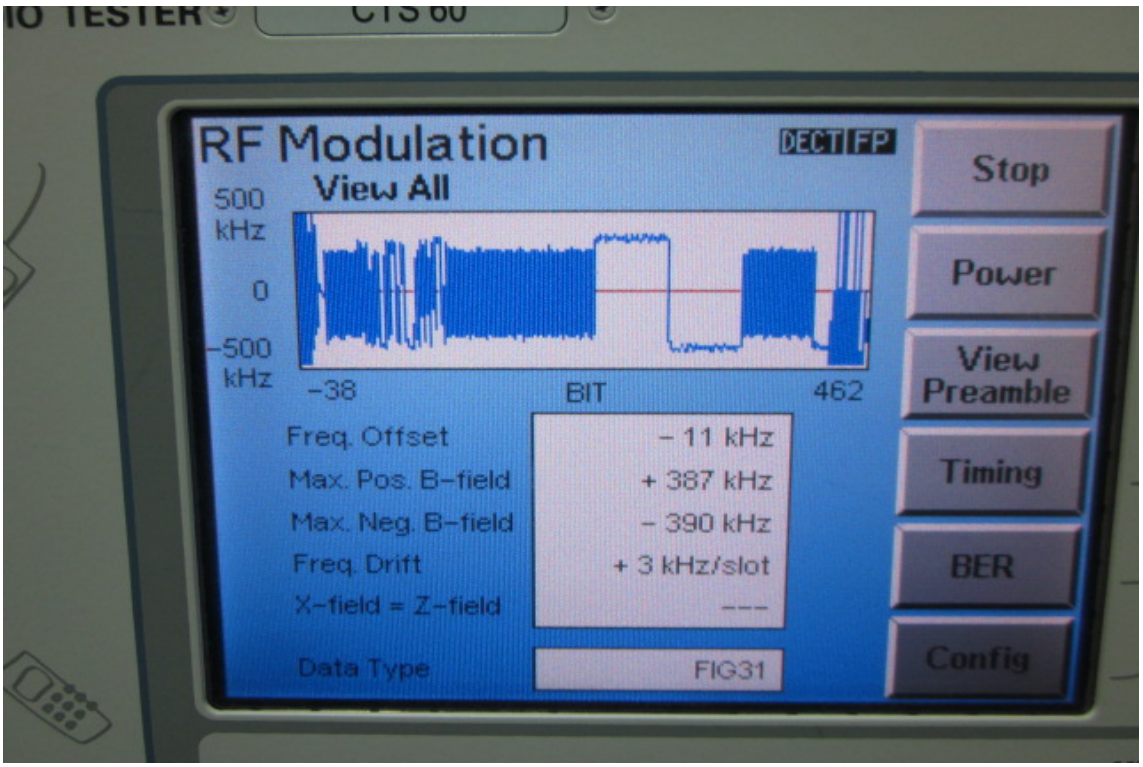
**a) Carrier Frequncy Stability with Supply Voltage**

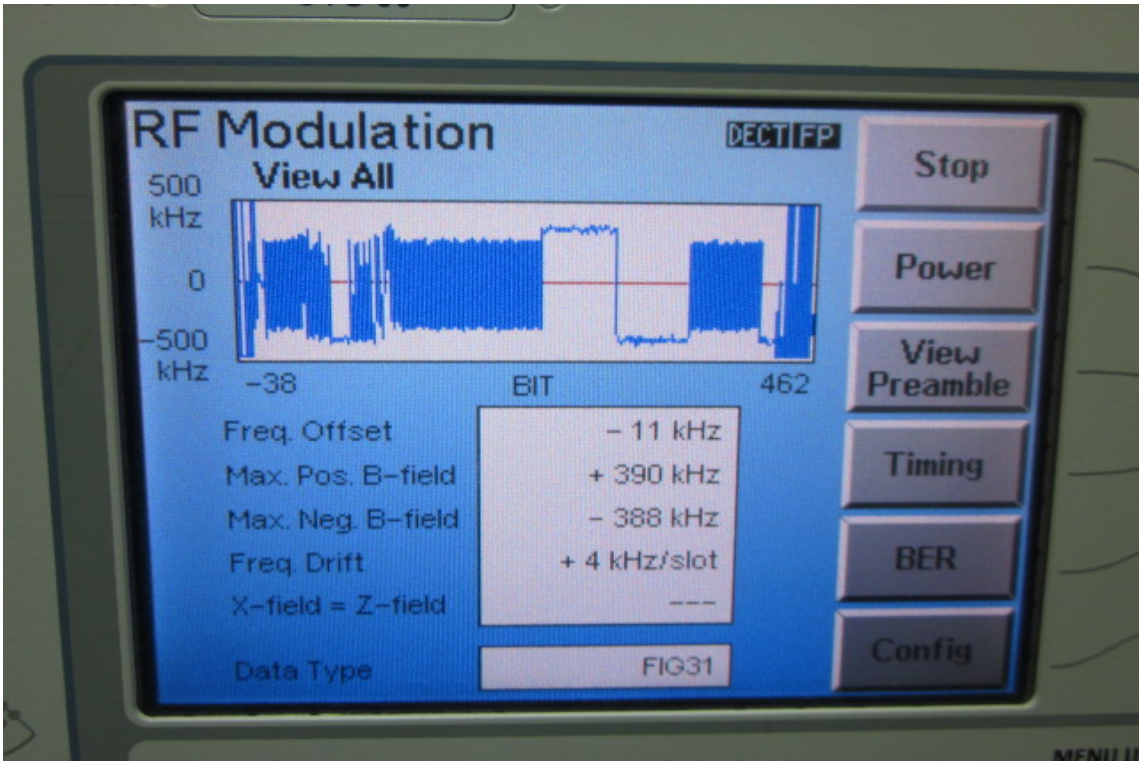
| Channel No. | Frequency Offset (KHz) | | | Limit (KHz) |
|---|---|---|---|---|
| | 102V (85%) | 120V (Normal) | 138V (115%) | |
| $F_L$ | 2 | 1 | 2 | ±19.2 |
| $F_H$ | 4 | 3 | 3 | ±19.2 |

**b) Carrier Frequency Stablility with Temperature and Time**

| Channel No. | Frequency Offset (KHz) | | | Limit (KHz) |
|---|---|---|---|---|
| | -20˚C | 20˚C | 50˚C | |
| $F_L$ | -2 | 2 | 3 | ±19.2 |
| $F_H$ | -1 | 3 | 4 | ±19.2 |

Test was conducted for duration longer than 1 hour. Photo of worst-case display follows:



# CONSTRUCTED PHOTOS of EUT

1. Top View of EUT

2. Bottom View of EUT

# CONSTRUCTED PHOTOS of EUT

3. Front View of EUT


4. Side View of EUT

# CONSTRUCTED PHOTOS of EUT

5. Rear View of EUT

6. Side View of EUT

# CONSTRUCTED PHOTOS of EUT

7. Internal View of EUT

8. Battery

# CONSTRUCTED PHOTOS of EUT

9. Component View of PCB

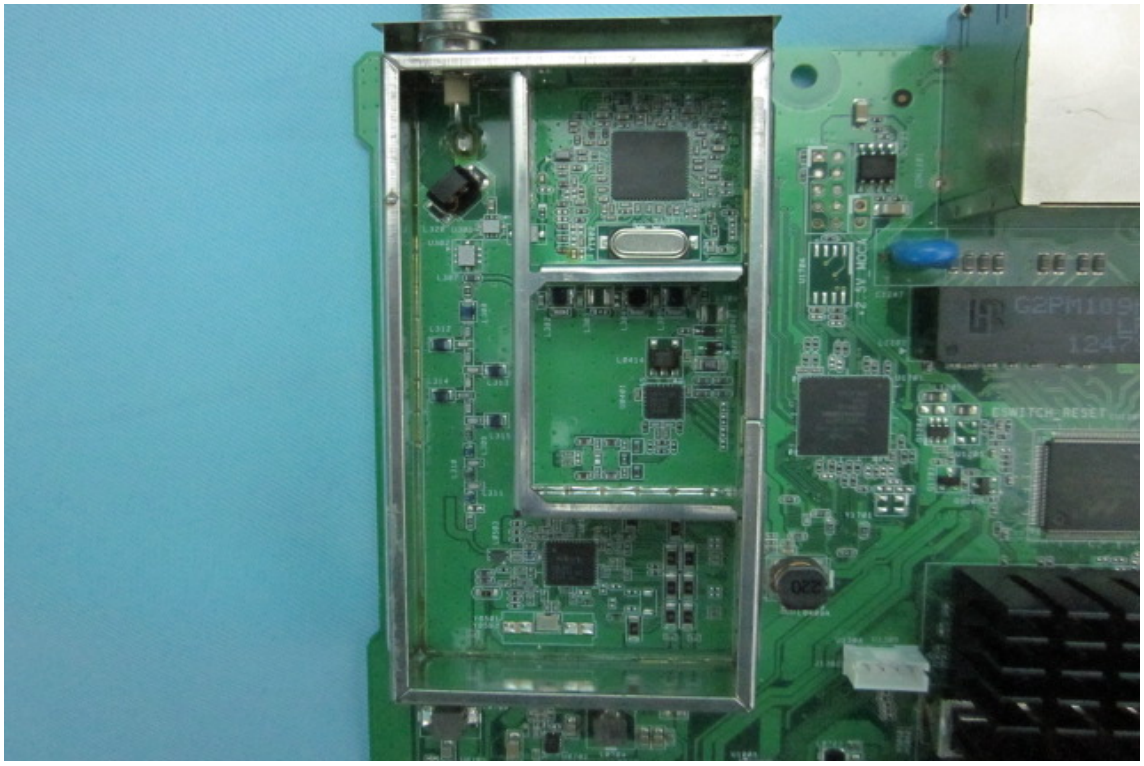
# CONSTRUCTED PHOTOS of EUT

10. Component View of PCB

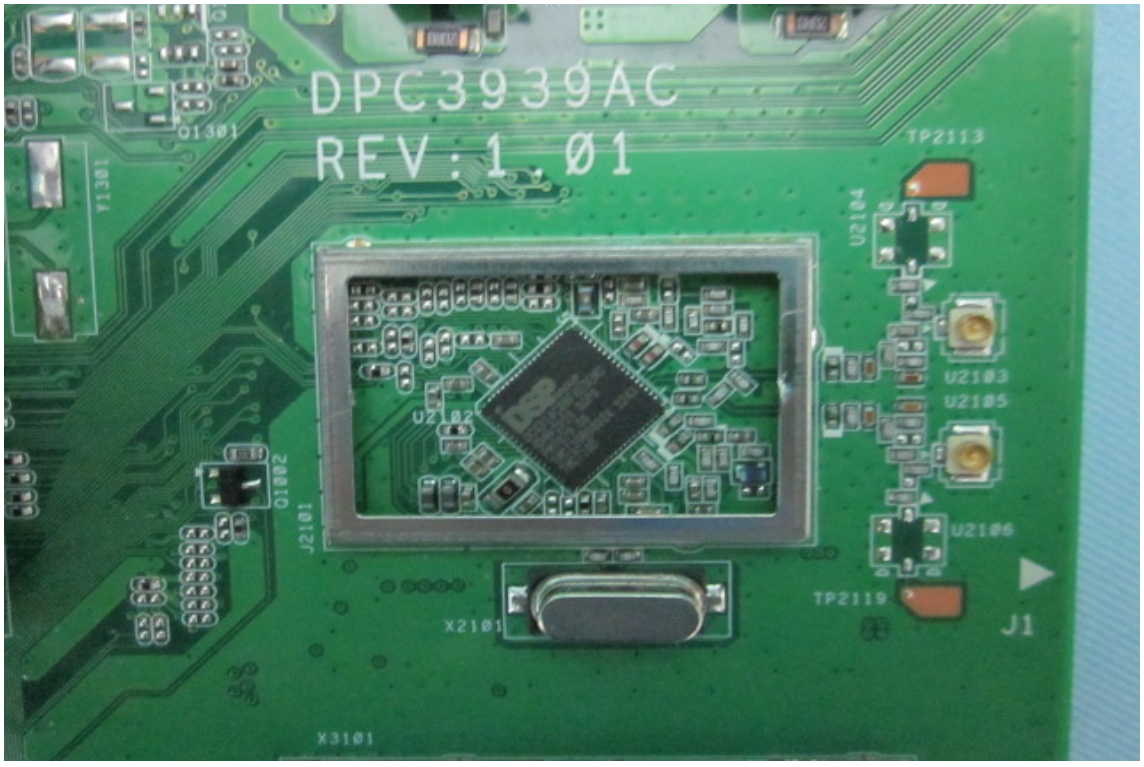
11. Solder View of PCB

# CONSTRUCTED PHOTOS of EUT

12. Component View of PCB

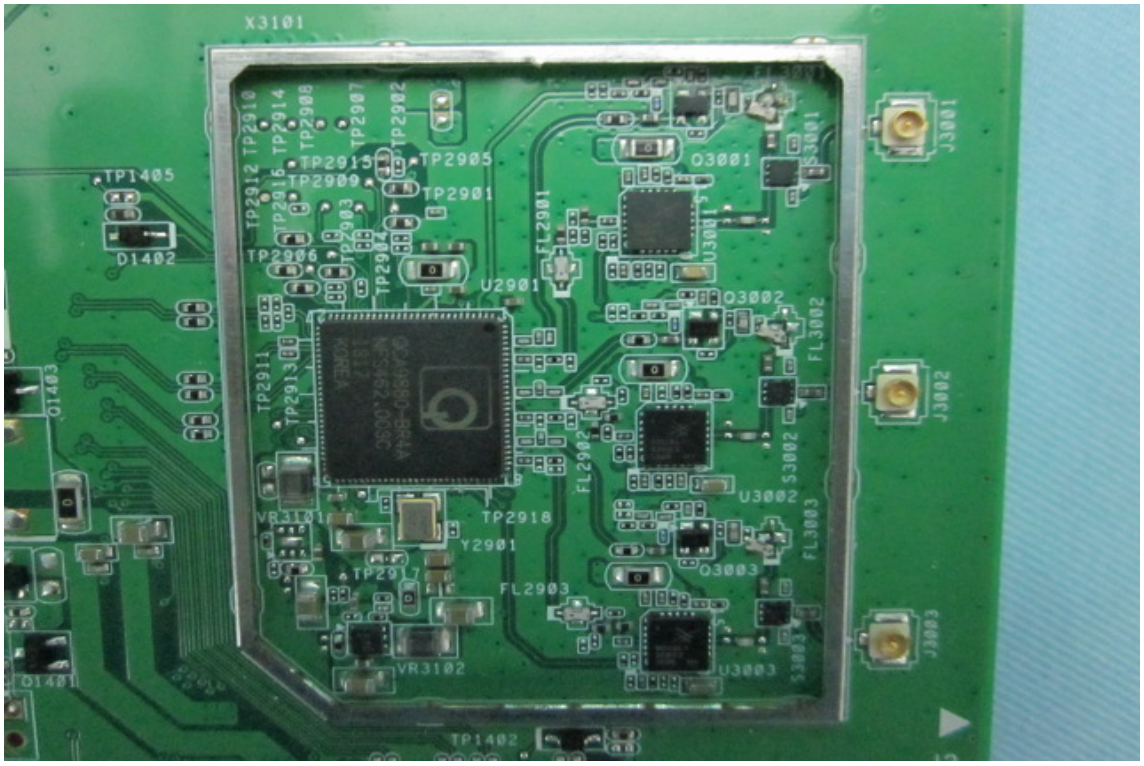


13. Component View of PCB

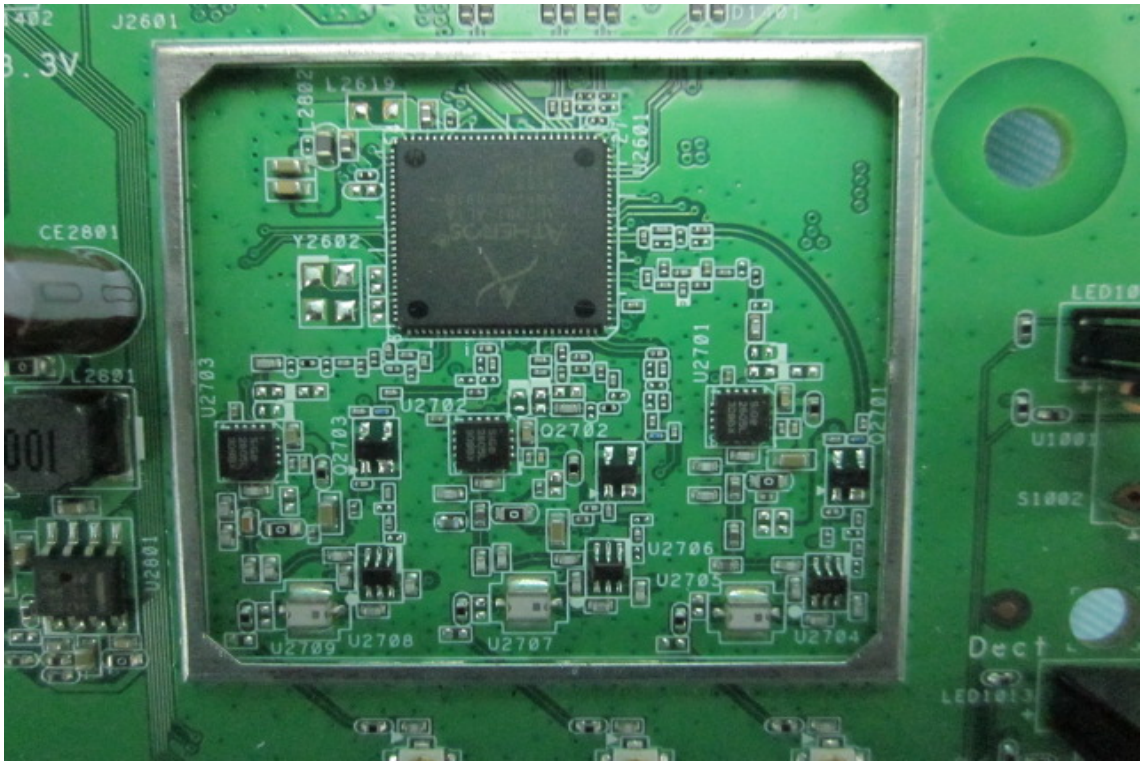


# CONSTRUCTED PHOTOS of EUT

14. Component View of PCB

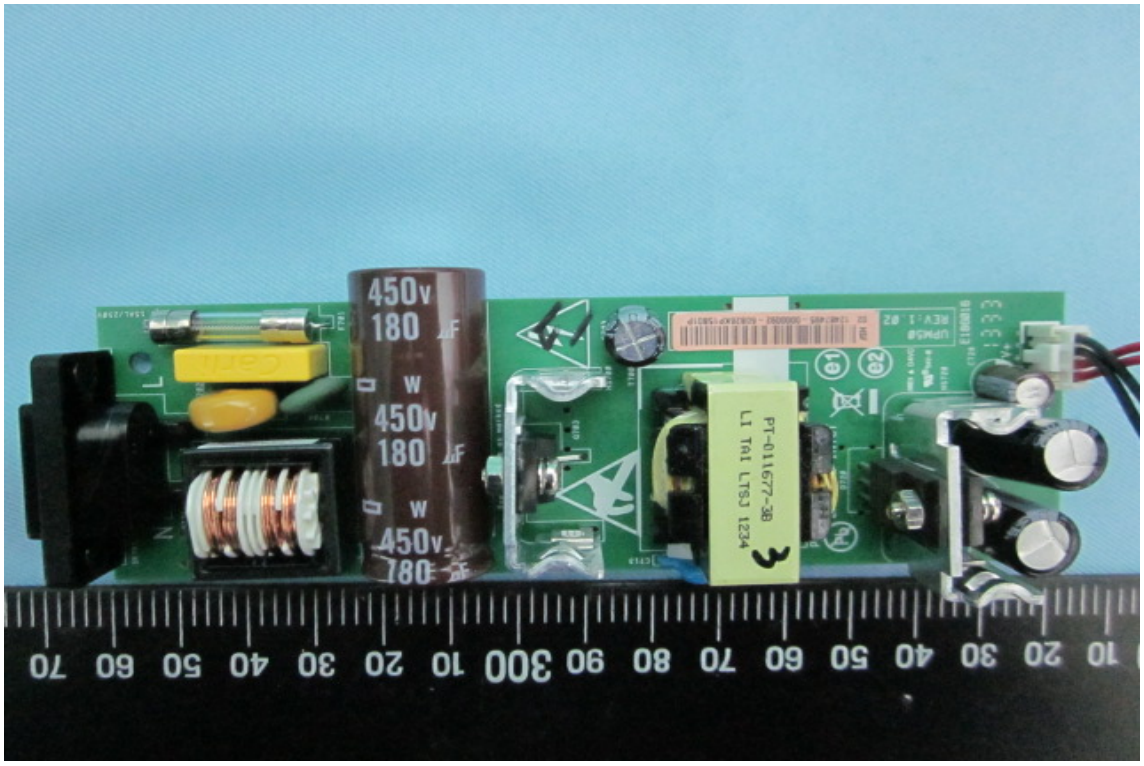



15. Component View of PCB

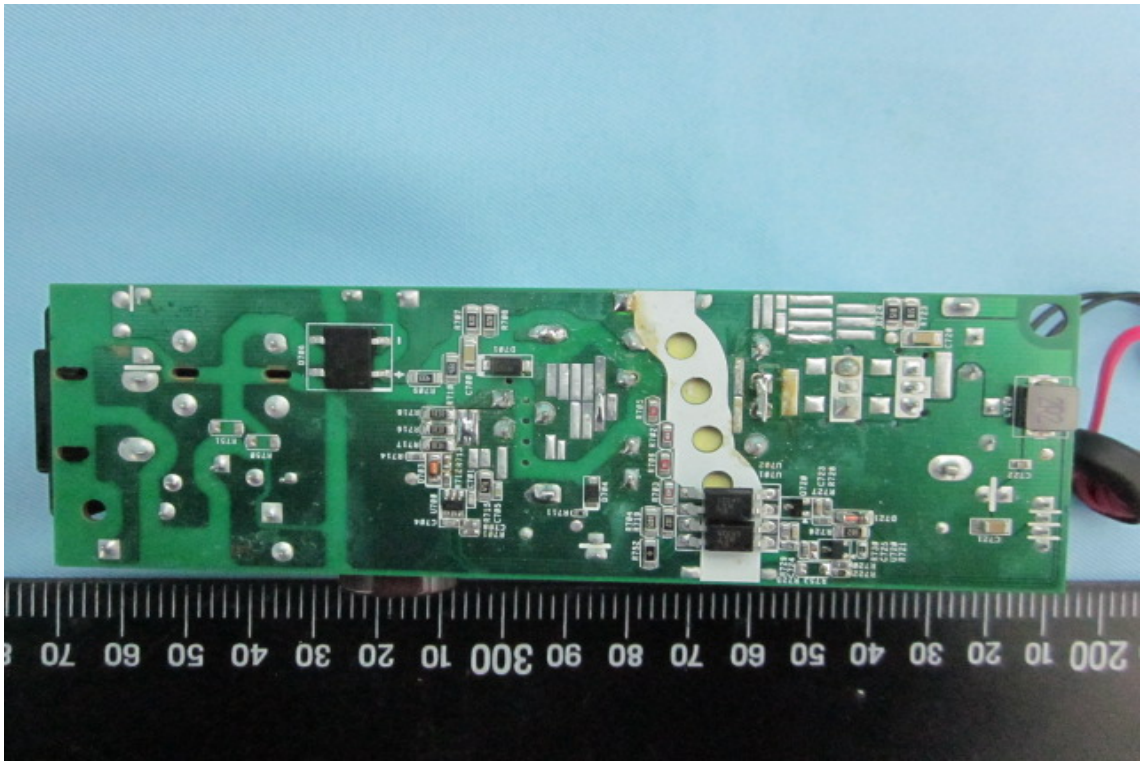


# CONSTRUCTED PHOTOS of EUT

16. Component View of PCB

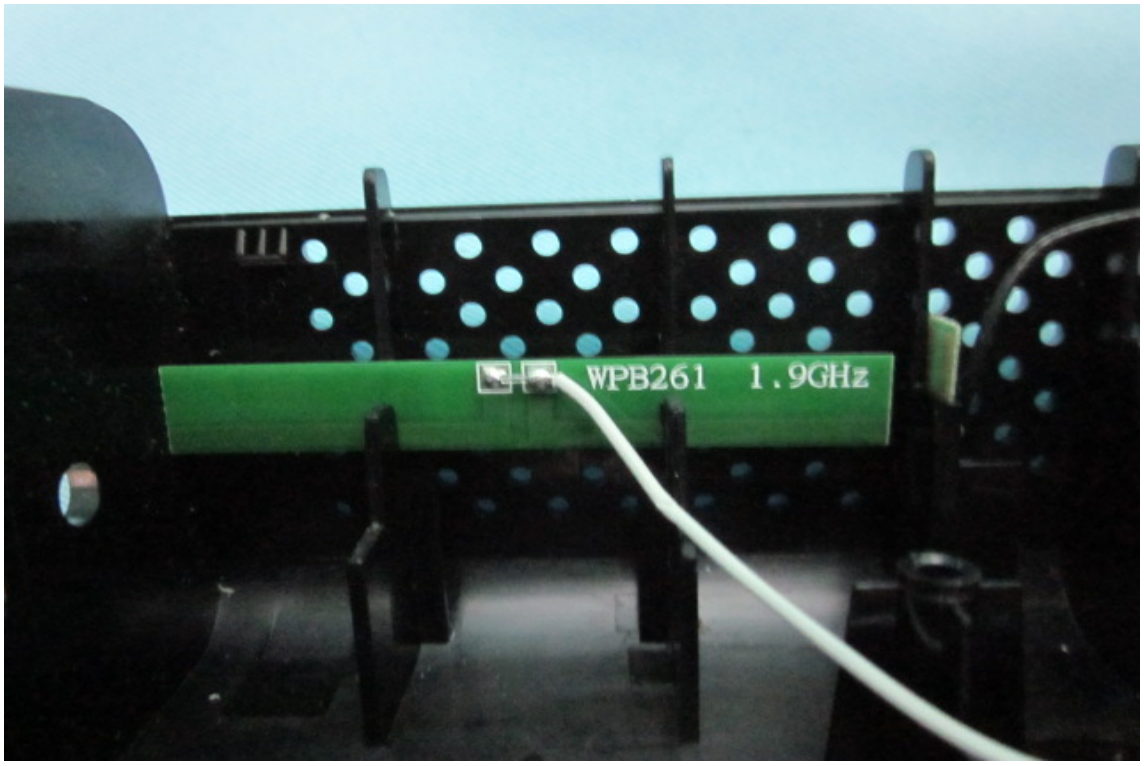



17. Solder View of PCB

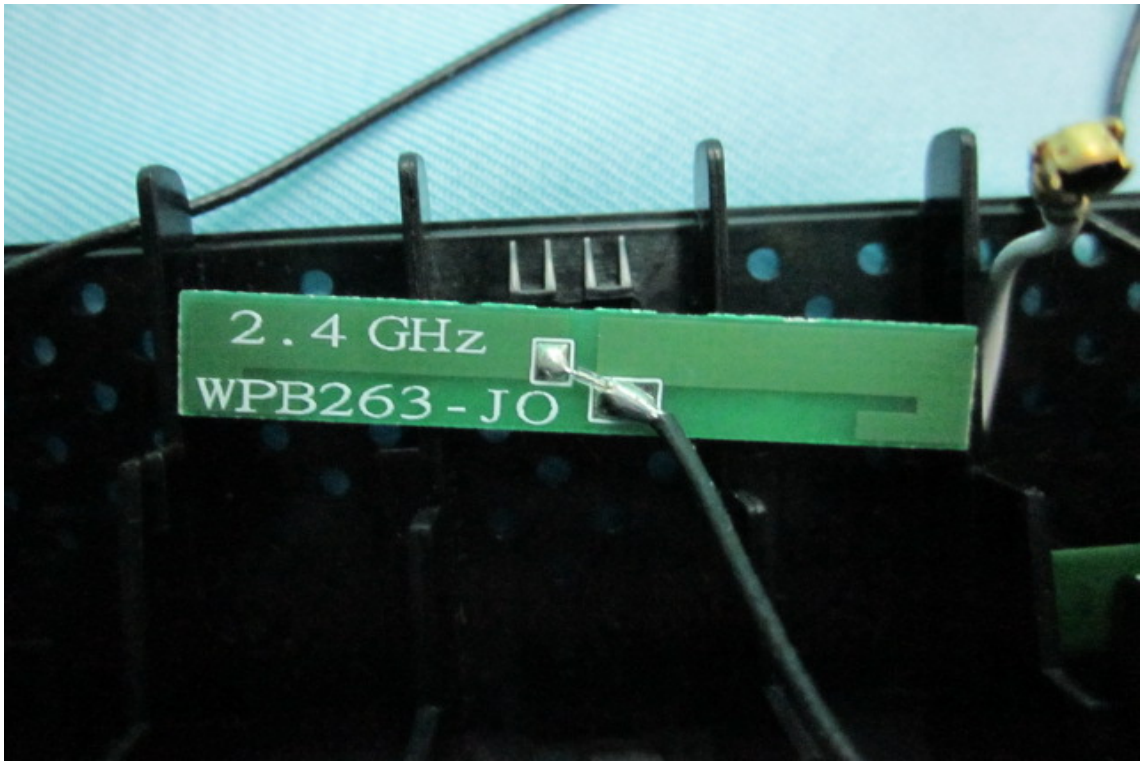


# CONSTRUCTED PHOTOS of EUT

18. Antenna

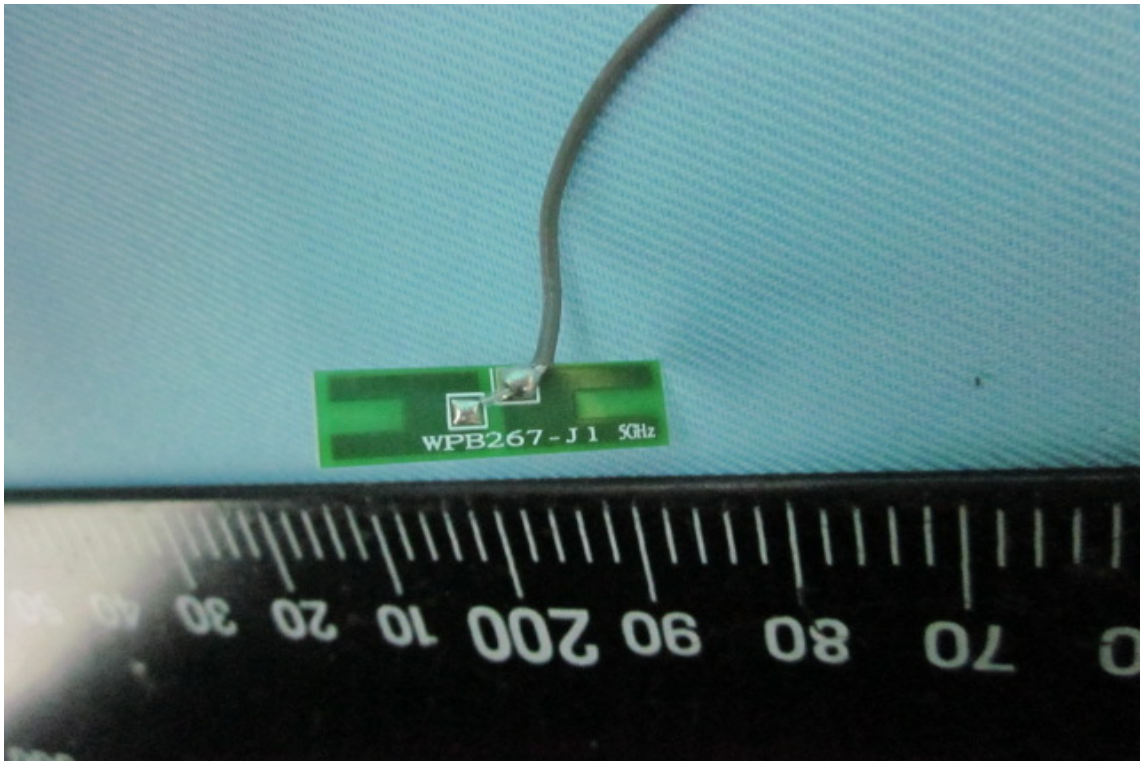



19. Antenna

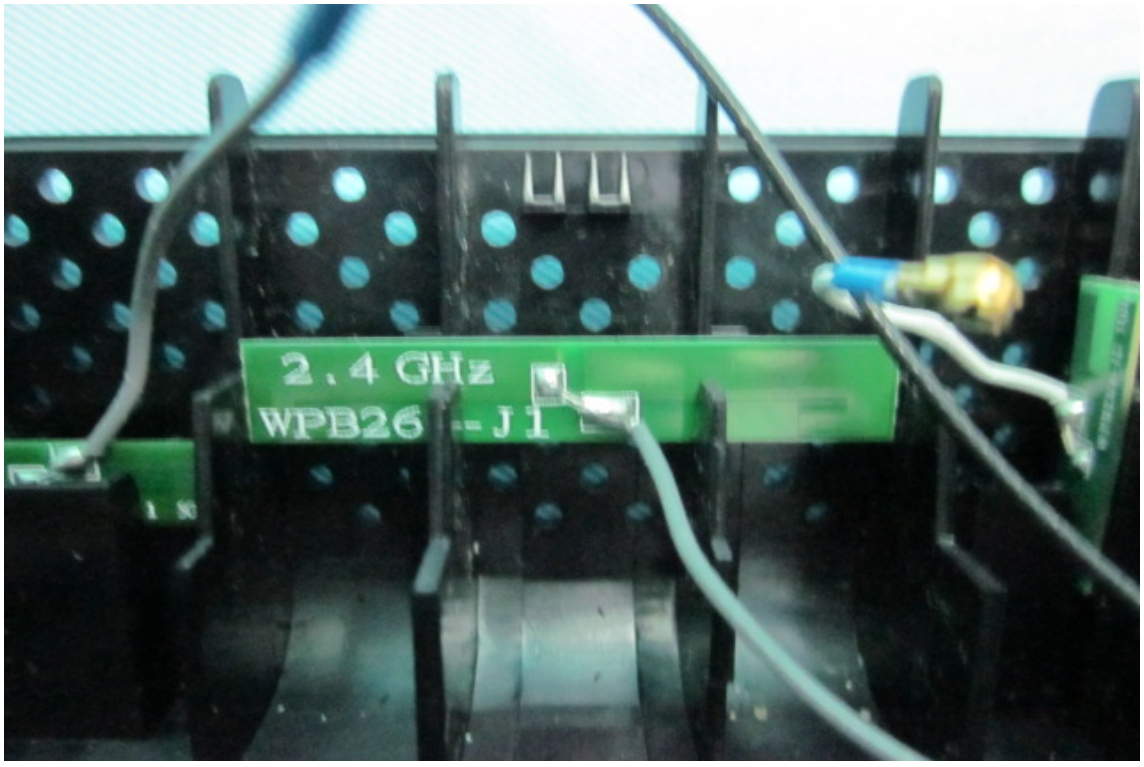


# CONSTRUCTED PHOTOS of EUT

20. Antenna

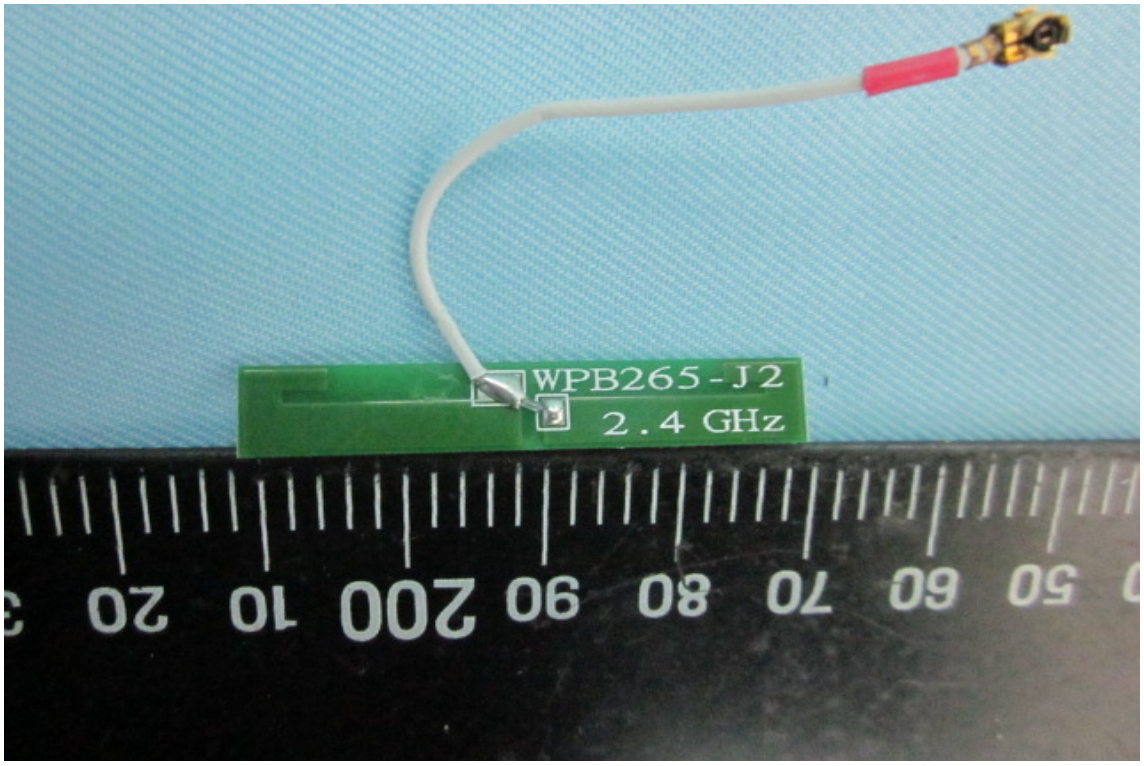



21. Antenna



# CONSTRUCTED PHOTOS of EUT

22. Antenna




23. Antenna