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ISO/IEC17025 Accredited Lab.

# FCC ID TEST REPORT

for

**Alchemy Systems LP**

**MODEL: 8015-3B**

**FCC ID: V6Q8015-3B**

**Test Report Number: 1309001805E1**

**Issued Date: Oct. 9, 2013**

**Issued for:**

**Alchemy Systems LP**

**8015 Shoal Creek Blvd., Suite 100 Austin Texas 78757 United States**

**Issued By:**

**SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD.**

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## 1 TEST CERTIFICATION

<b>Product:</b>	Alchemy Systems LP
<b>Model:</b>	8015-3B
<b>Trade Mark</b>	N/A
<b>Applicant:</b>	Alchemy Systems LP
	8015 Shoal Creek Blvd., Suite 100 Austin Texas 78757 United States
<b>Manufacturer:</b>	TIANJIN PACHEM ELECTRONICS CO., LTD DAGANG DEVELOPMENT AREA, BINHAI NEW AREA, TIANJIN CHINA
<b>Tested:</b>	September 23, 2013~September 29, 2013
<b>Applicable Standards:</b>	FCC PART 15: 2012

The above equipment has been tested by SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

*Brown Lu*  
**Tested By:**

**Date:** 2013-10-09

(Brown Lu)

*Terry Tang*

**Check By:**

**Date:** 2013-10-09

(Terry Tang)

*Jack Chung*

**Approved By:**

**Date:** 2013-10-09

(Jack Chung)

## 2 TEST RESULT SUMMARY

### FCC Part 15 Subpart C, Paragraph 15.247

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Pass
§15.207 (a)	Conducted Emissions	Pass
§15.247(d)	Spurious Emissions at Antenna Port	Pass
§15.205	Restricted Bands	Pass
§15.209, §15.205, 1§15.247(d)	Spurious Emissions	Pass
§15.247 (a)(2)	6 dB Bandwidth	Pass
§15.247(b)(3)	Maximum Peak Output Power	Pass
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Pass
§15.247(e)	Power Spectral Density	Pass

NOTE:

” N/A” denotes test is not applicable in this Test Report

The test result judgment is decided by the limit of test standard

### 3 EUT DESCRIPTION

<b>Product</b>	Alchemy Systems LP
<b>Trade Mark</b>	N/A
<b>Model</b>	8015-3B
<b>Applicant</b>	Alchemy Systems LP
<b>EUT Type</b>	<input checked="" type="checkbox"/> Engineering Sample. <input type="checkbox"/> Product Sample, <input type="checkbox"/> Mass Product Sample.
<b>Serial Number</b>	N/A
<b>Antenna Type</b>	Integral antenna
<b>Antenna Gain</b>	0dbi
<b>EUT Power Rating</b>	DC 5V
<b>Temperature Range(Operating)</b>	-10~50°C
<b>Operating Frequency (WIFI)</b>	2405MHz ~ 2480MHz
<b>Type of Modulation</b>	GFSK
<b>Number of Channels</b>	26

*Note: N/A stand for no applicable.*

## 4 SETUP OF EQUIPMENT UNDER TEST AND TEST EQUIPMENTS USED

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2013-08-23	2014-08-22
TWO Line-V-NETW	R&S	EZH3-Z5	100394	2013-08-23	2014-08-22
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2013-08-23	2014-08-22
Ultra Broadband	R&S	HL562	100157	2013-08-25	2014-08-24
ESDV Test Receiver	R&S	ESDV	100008	2013-08-23	2014-08-22
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2013-08-24	2014-08-23
System Controller	CT	SC100	-	--	--
Printer	EPSON	PHOTO EX3	CFNH234850	--	--
Computer	IBM	8434	IS8434KCE9 9BLXLO*	--	--
Loop Antenna	EMCO	6502	00042960	2013-08-23	2014-08-22
Test Receiver	ROHDE&SCHW ARZ	ESI26	838786/013	2013-08-23	2014-08-22
3m OATS	--	--	N/A	2013-08-22	2014-08-21
Horn Antenna	SCHWARZBEC K	BBHA9170	BBHA91702 65	2013-08-24	2014-08-23
Horn Antenna	SCHWARZBEC K	BBHA9120D	9120D-631	2013-08-24	2014-08-23
Power meter	Anritsu	ML2487A	6K00003613	2013-08-24	2014-08-23
Power meter	Anritsu	MA2491A	32263	2013-08-24	2014-08-23
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2013-08-21	2014-08-20
LISN	AFJ	LS16C	10010947251	2013-08-21	2014-08-20
LISN(Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-23	2014-08-22
9*6*6 Anechoic	--	--	N/A	2013-08-22	2014-08-21
Pre-Amplifier	Compliance	PAM0118	1360976	2013-08-22	2014-08-21
Spectrum analyzer	Agilent	E4440A	100091	2013-08-22	2014-08-21

## 4.1. DESCRIPTION OF SUPPORT UNITS

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

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	PC	Erazer T410	1009213504		Lenovo	N/A	N/A

**Note:**

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

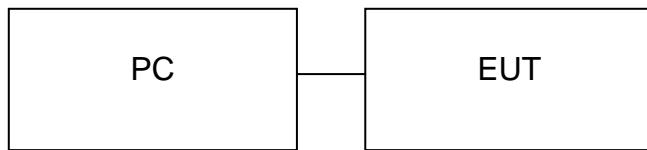
## 4.2. Description of Test Configuration

Channel list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2405	14	2444
2	2408	15	2447
3	2411	16	2450
4	2414	17	2453
5	2417	18	2456
6	2420	19	2459
7	2423	20	2462
8	2426	21	2465
9	2429	22	2468
10	2432	23	2471
11	2435	24	2474
12	2438	25	2477
13	2441	26	2480

EUT was tested with Channel 1, 13 and 26 .

### 4.3. CONFIGURATION OF SYSTEM UNDER TEST



(EUT: Alchemy Systems LP)

### 4.4. Justification

1. Set up EUT with the relative support equipments.
2. Make sure the test software control the EUT working state.  
(according to the standard measurement).

### 4.4. Test mode

Test mode (Continuous TX)	
2405MHz TX	Mode 1
2441MHz TX	Mode 2
2480MHz TX	Mode 3

## **5 FACILITIES AND ACCREDITATIONS**

### **5.1. FACILITIES**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

**CNAL-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 899988**

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files.

Registration No.: 899988.

#### **IC- Registration No.: 5205A-2**

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files.

Registration No.: 5205A-2

## 5.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 3.6\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.7\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.7\text{dB}$
6	Temperature	$\pm 0.5^\circ\text{C}$
7	Humidity	$\pm 2\%$

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## **ANTENNA REQUIREMENT**

### **Standard Applicable**

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **Antenna Connector Construction**

The EUT uses a inside jointing PCB Antenna, The Antenna is unique coupling antenna. The Antenna gain is 0dBi.please refer to the EUT internal photos.

## **- CONDUCTED EMISSIONS**

### **Applicable Standard**

The specification used was with the RSS-GEN limits.

### **Test Procedure**

During the conducted emission test, the EUT was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

### **Test Result**

PASS

Test Mode: Normal Operating

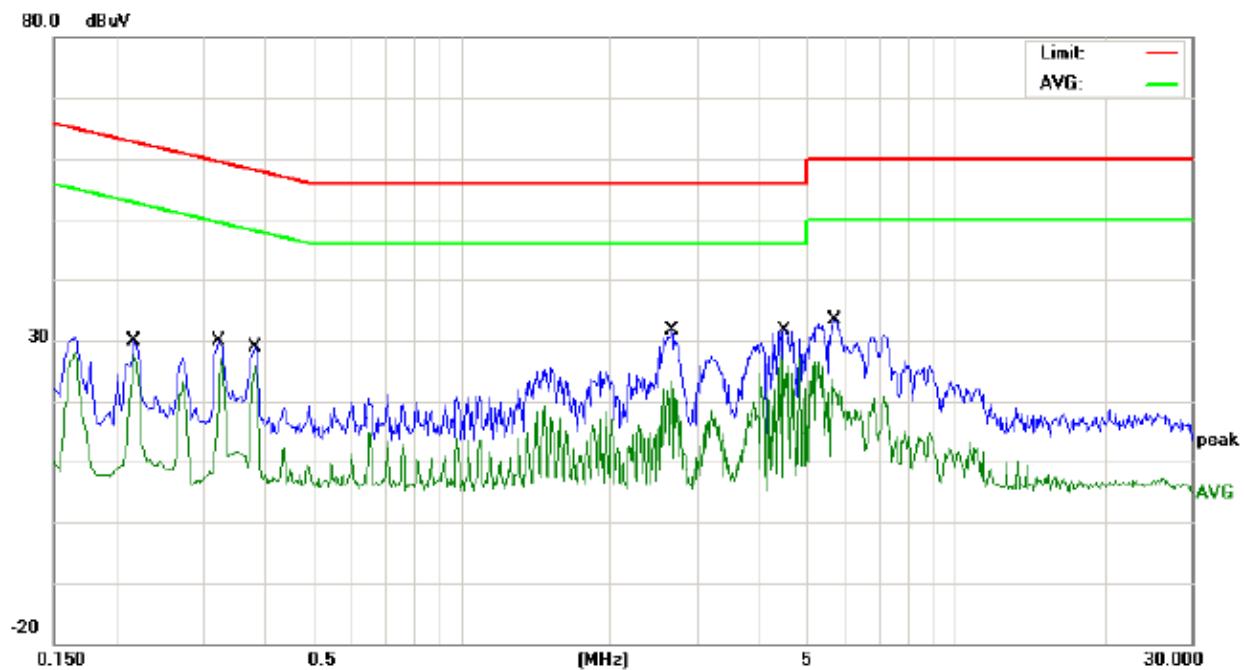
### **Environmental Conditions**

Temperature:	26 °C
Relative Humidity:	60%
ATM Pressure:	100.0kPa

### **Plot(s) of Test Data**

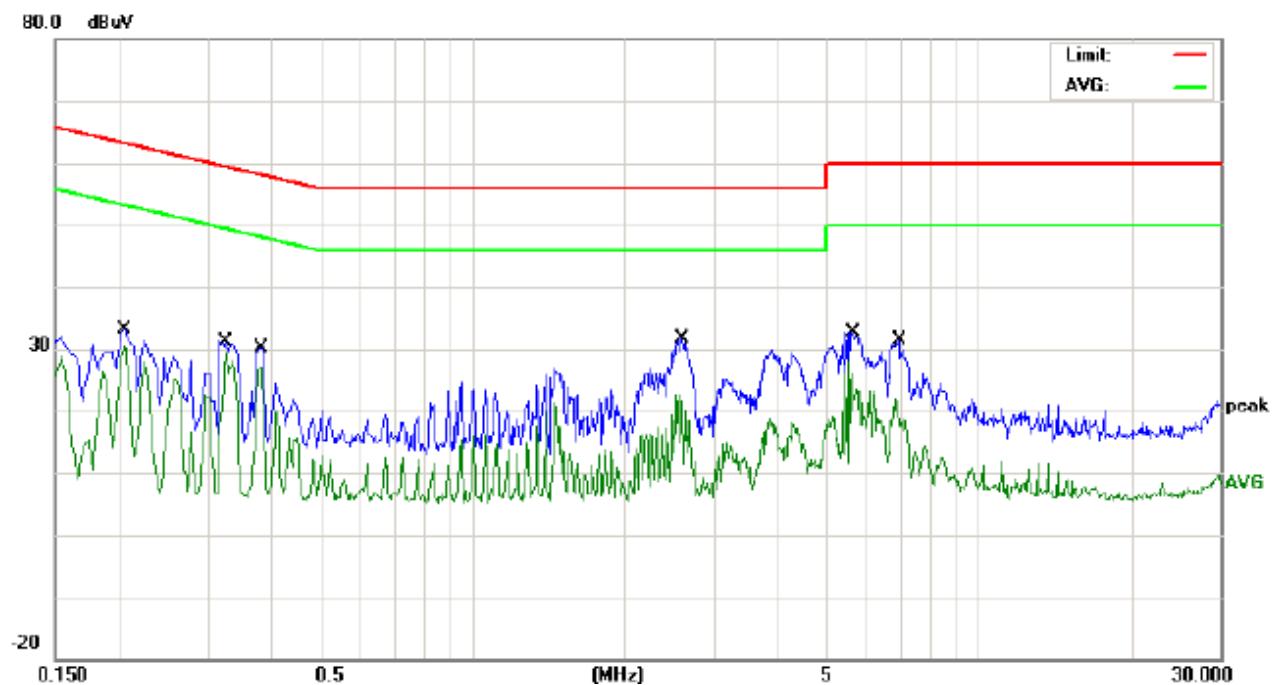
Plot(s) of Test Data is presented hereinafter as reference.

Phase: Live



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2180	19.57	10.36	29.93	62.89	-32.96	QP	
2		0.2180	17.15	10.36	27.51	52.89	-25.38	AVG	
3		0.3234	19.05	10.61	29.66	59.62	-29.96	QP	
4		0.3234	11.88	10.61	22.49	49.62	-27.13	AVG	
5		0.3832	18.23	10.53	28.76	58.21	-29.45	QP	
6		0.3832	14.81	10.53	25.34	48.21	-22.87	AVG	
7		2.6700	20.84	10.69	31.53	56.00	-24.47	QP	
8		2.6700	12.75	10.69	23.44	46.00	-22.56	AVG	
9		4.4899	20.65	10.62	31.27	56.00	-24.73	QP	
10	*	4.4899	16.15	10.62	26.77	46.00	-19.23	AVG	
11		5.6940	22.81	10.57	33.38	60.00	-26.62	QP	
12		5.6940	11.52	10.57	22.09	50.00	-27.91	AVG	

Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1		0.2060	22.88	10.32	33.20	63.36	-30.16	QP	
2		0.2060	19.98	10.32	30.30	53.36	-23.06	AVG	
3		0.3260	20.52	10.61	31.13	59.55	-28.42	QP	
4	*	0.3260	19.05	10.61	29.66	49.55	-19.89	AVG	
5		0.3832	19.57	10.53	30.10	58.21	-28.11	QP	
6		0.3832	14.96	10.53	25.49	48.21	-22.72	AVG	
7		2.5900	20.39	10.69	31.08	56.00	-24.92	QP	
8		2.5900	12.03	10.69	22.72	46.00	-23.28	AVG	
9		5.5700	21.84	10.58	32.42	60.00	-27.58	QP	
10		5.5700	13.87	10.58	24.45	50.00	-25.55	AVG	
11		6.9340	20.19	10.52	30.71	60.00	-29.29	QP	
12		6.9340	9.49	10.52	20.01	50.00	-29.99	AVG	

Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

## - SPURIOUS EMISSIONS

### Test Equipment

Please refer to section 4 this report.

### Test Procedure

The out of band emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part Subpart C limits.

### Environmental Conditions

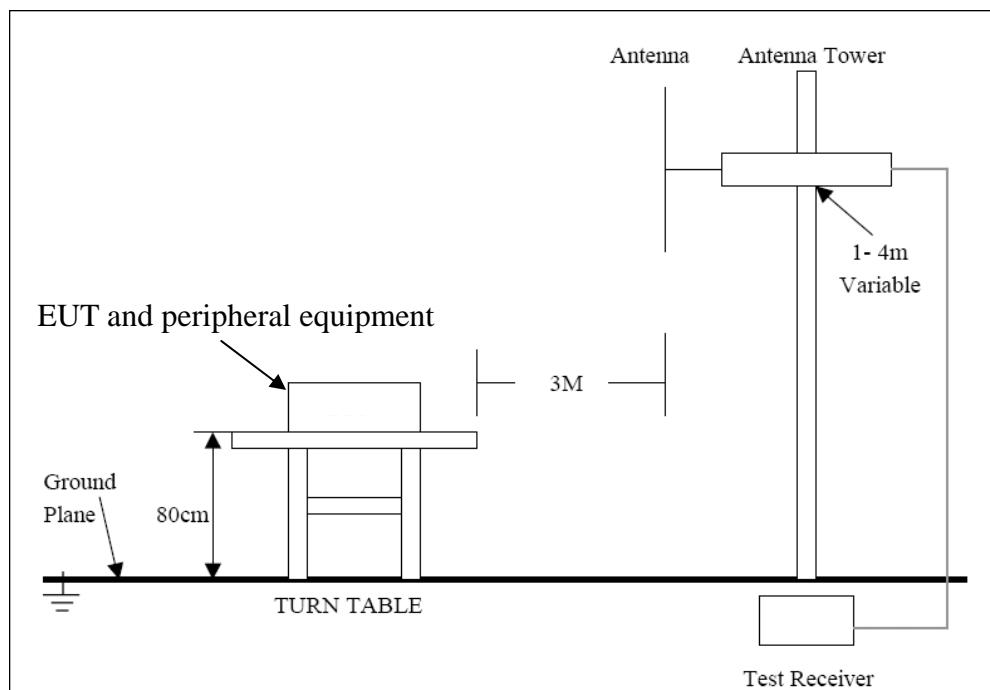
Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

### Radiated Test Setup

The system was investigated from 9KHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	Detector
9KHz-30MHz	9kHz	30 kHz	QP
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	Ave



For the accrual test configuration, please refer to the related items-photos of Testing.

## Radiated Emission Limit

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100**	3
88–216	150**	3
216–960	200**	3
Above 960	500	3

### Radiated Emission Test Result

*Test Mode:* Transmitting

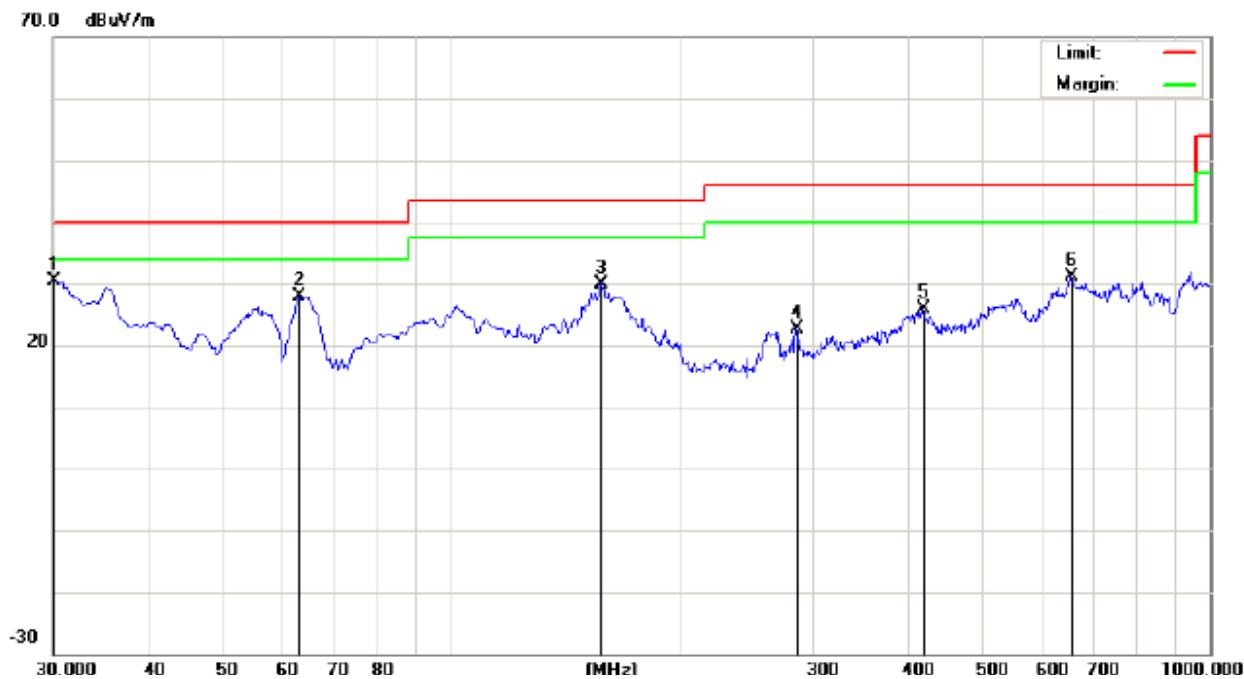
NOTE: 9KHz-30MHz the measurements were greater than 20dB below the limit.

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FCC ID: V6Q8015-3B

From 30MHz to 1GHz

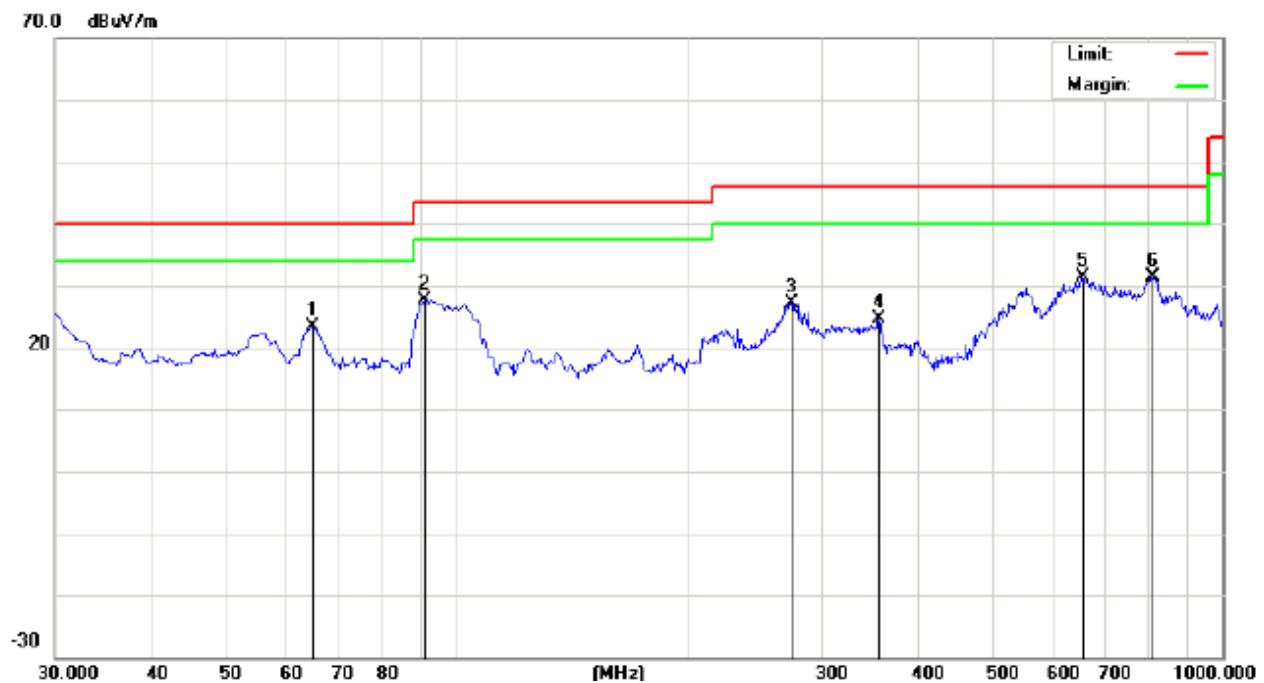
**Horizontal:**



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	
8		661.1505	25.73	5.73	31.46	47.00	-15.54	peak			
1	*	30.0000	33.38	-2.95	30.43	40.00	-9.57	peak			
2		63.0915	39.42	-11.45	27.97	40.00	-12.03	peak			
3		158.0399	33.58	-3.74	29.84	43.50	-13.66	peak			
4		285.1099	26.60	-3.87	22.73	46.00	-23.27	peak			
5		418.9700	25.52	0.24	25.76	46.00	-20.24	peak			
6		654.6798	25.85	5.30	31.15	46.00	-14.85	peak			

Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

*Vertical:*



No.	Mk.	Freq. MHz	Reading	Correct	Measure-	Limit	Over	Antenna Height cm	Table	Comment
			Level dBuV	Factor dB	ment dBuV/m				Degree	
6		654.6798	25.85	5.30	31.15	46.00	-14.85	peak		
1		64.9200	34.33	-10.98	23.35	40.00	-16.65	peak		
2		91.1099	37.08	-9.50	27.58	43.50	-15.92	peak		
3		273.4700	31.39	-4.20	27.19	46.00	-18.81	peak		
4		355.9200	27.54	-2.92	24.62	46.00	-21.38	peak		
5		654.6798	26.04	5.30	31.34	46.00	-14.66	peak		
6	*	807.9400	24.64	6.78	31.42	46.00	-14.58	peak		

Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

Above 1GHz to 25GHz:

Operation Mode: 2405MHz TX (Channel 1 ) Test Date : Sept.27, 2013  
Frequency Range: Above 1GHz Temperature : 28°C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: LHZ

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4805.6	V	55.26	38.26	74	54	-18.74	-15.74
7213.9	V	54.79	37.22	74	54	-19.21	-16.78
9622.9	V	56.05	39.75	74	54	-17.95	-14.25
4812.8	H	57.06	42.69	74	54	-16.94	-11.31
7217.1	H	56.62	40.74	74	54	-17.38	-13.26

**All emissions not reported were more than 20dB below the specified limit or in the noise floor.**

**Note:** (1) All Readings are Peak Value and AV.

(2) Emission Level= Reading Level+Probe Factor +Cable Loss.

(3) Data of measurement within this frequency range shown “--” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Report No.: 1309001805E1    Issued: Oct. 9, 2013    Revised: None  
FCC ID: V6Q8015-3B

Operation Mode: 2441MHzTX (Channel 13) Test Date : Sept.27, 2013  
Frequency Range: Above 1GHz Temperature : 28°C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: LHZ

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4881.2	V	54.79	39.37	74	54	-19.21	-14.63
7327.6	V	51.69	38.26	74	54	-22.31	-15.74
4881.2	H	50.44	37.05	74	54	-23.56	-16.95
7327.6	H	57.26	41.63	74	54	-16.74	-12.37
7328.6	H	54.35	39.38	74	54	-19.65	-14.62

**All emissions not reported were more than 20dB below the specified limit or in the noise floor.**

**Note:**

- (1) All Readings are Peak Value and AV.
- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) Data of measurement within this frequency range shown “--” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Operation Mode: 2480MHzTX (Channel 26) Test Date : Sept.27, 2013

Frequency Range:      Above 1GHz      Temperature : 28°C  
Test Result:              PASS      Humidity : 65 %  
Measured Distance:      3m      Test By:      LHZ

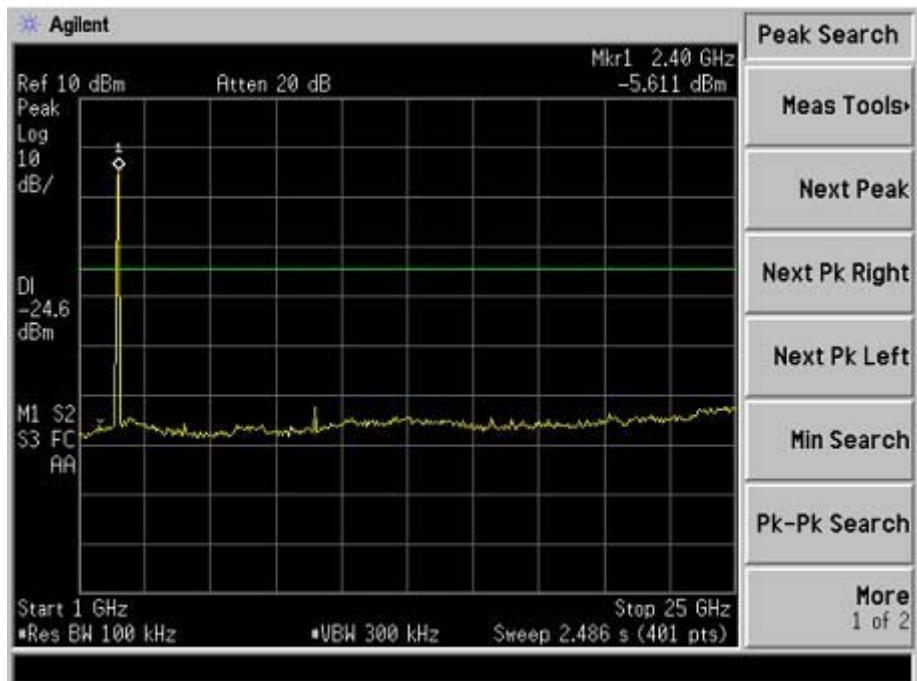
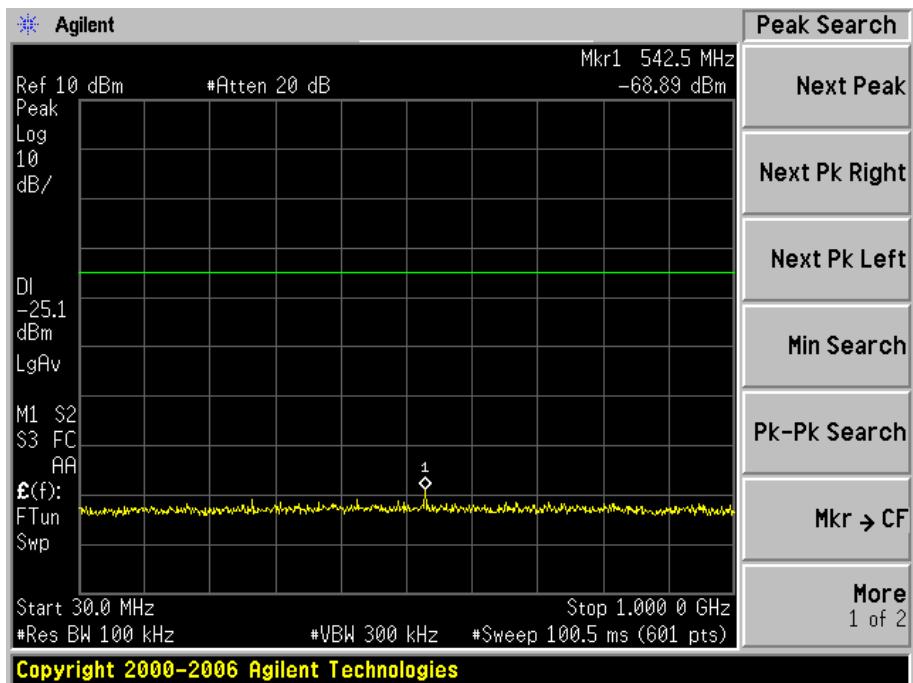
Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4958.6	V	55.05	40.59	74	54	-18.95	-13.41
7442.4	V	56.41	39.44	74	54	-17.59	-14.56
4963.1	H	56.04	40.99	74	54	-17.96	-13.01
7443.6	H	55.37	41.94	74	54	-18.63	-12.06

**No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.247.**

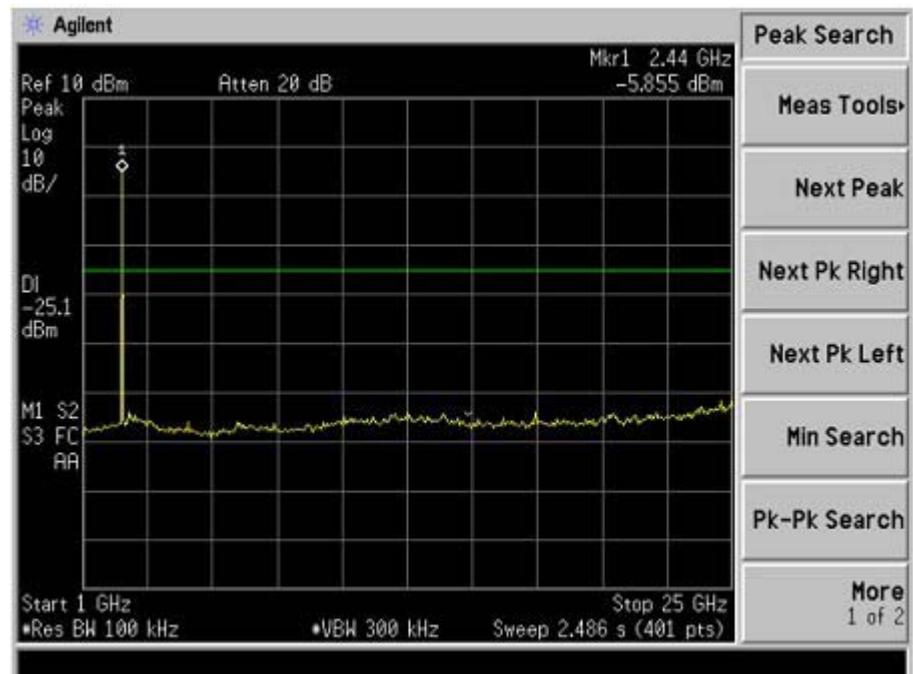
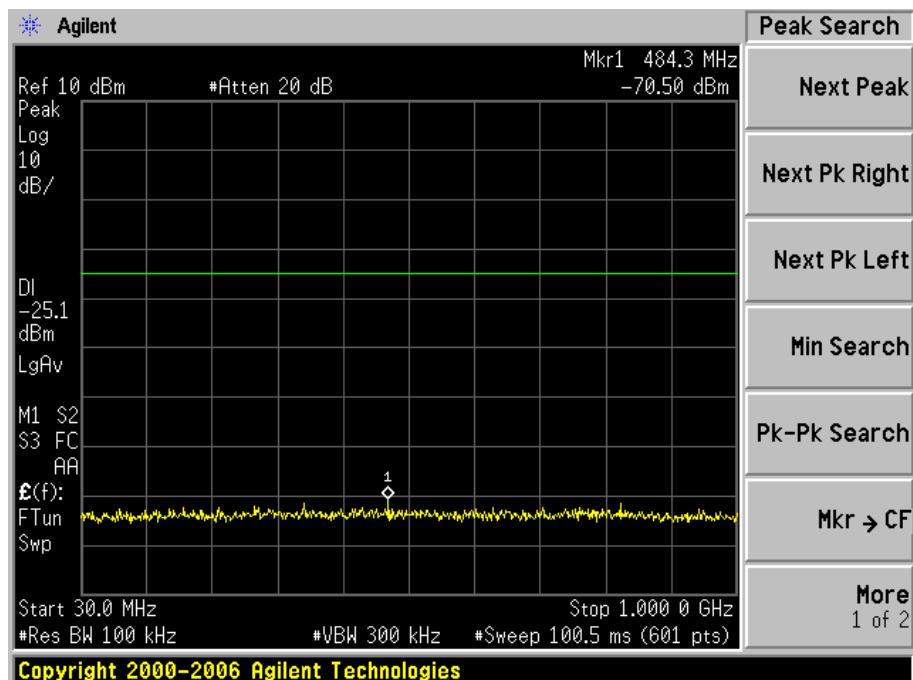
**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.  
(3) Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Antenna port conducted spurious emissions

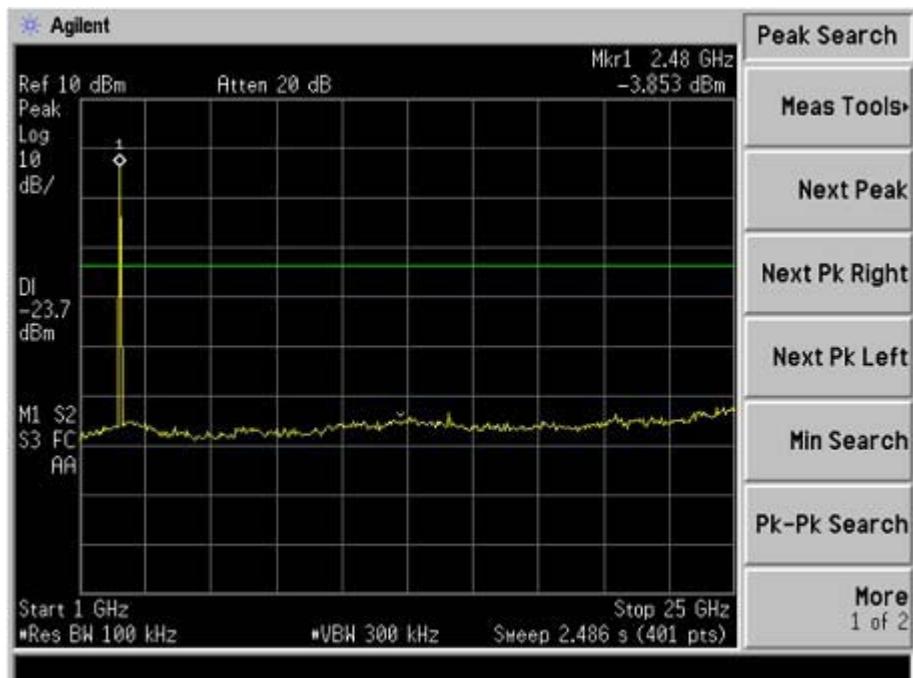
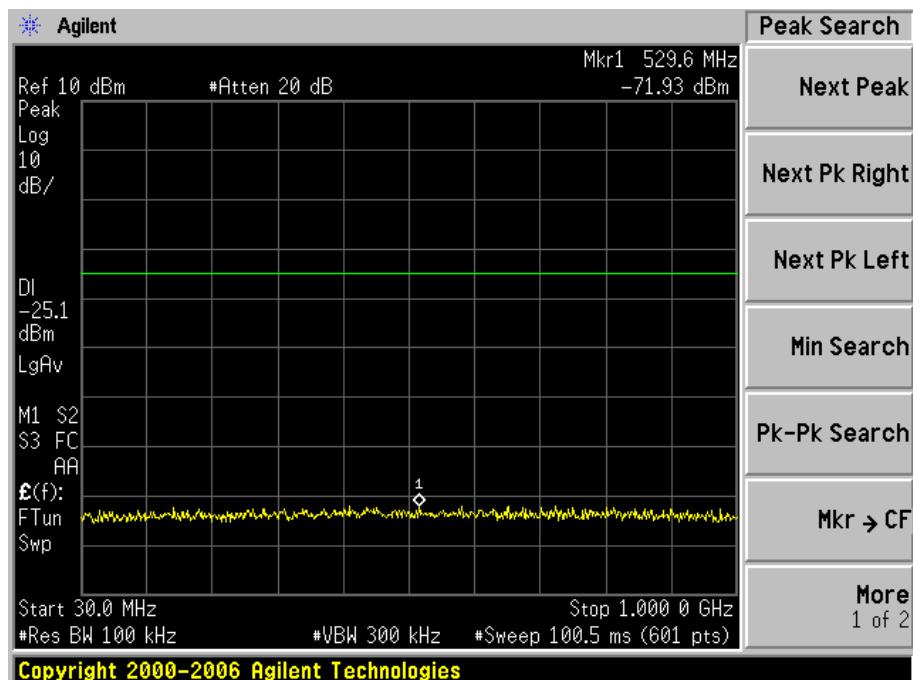
### Low channel



## Middle channel



## High channel



## **– 6dB BANDWIDTH TESTING**

### **Test Equipment**

Please refer to Section 4 this report.

### **Test Procedure**

1. Set EUT in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as  $RBW=100\text{KHz}$ ,  $VBW \geq RBW$ ,  $\text{Span}=40\text{MHz}$ ,  $\text{Sweep}=\text{auto}$ .
4. Mark the peak frequency and -6dB(upper and lower)frequency.
5. Repeat until all the rest channels are investigated.

### **Environmental Conditions**

Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

### **Applicable Standard**

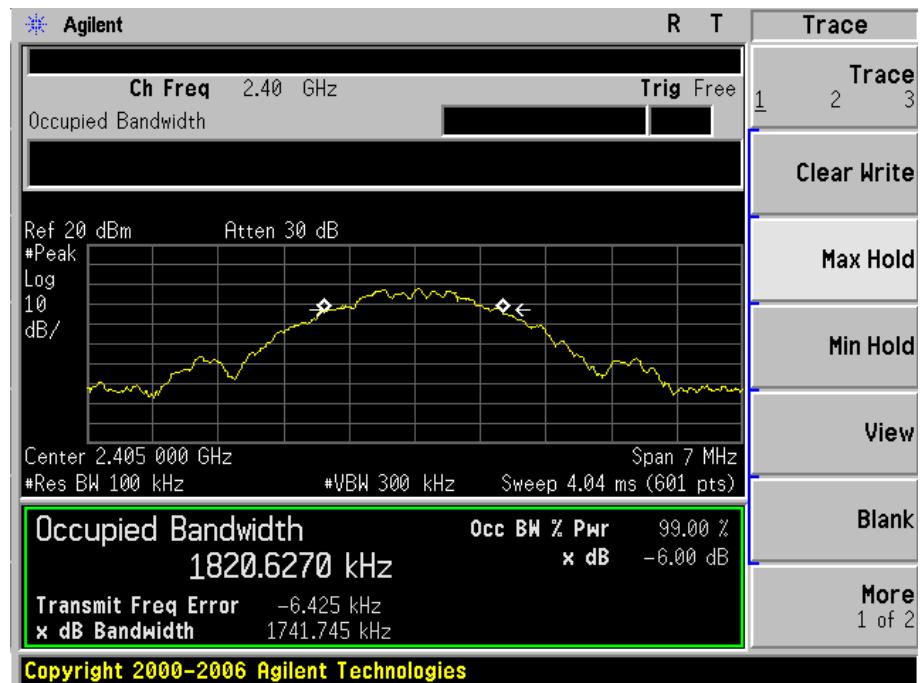
Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

## Test Result: Pass.

Please refer to the following tables

Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)	Limit (kHz)	Ref. Plot
2405	1	1741.7	>500	PLOT 1
2441	1	1741.5	>500	PLOT 2
2480	1	1741.4	>500	PLOT 3

### Low Channel



### Middle channel



### High Channel



## **- MAXIMUM PEAK OUTPUT POWER**

### **Test Equipment**

Please refer to Section 4 this report.

### **Test Procedure**

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set the RBW =1MHz, VBW  $\geq$  3RBW, span  $\geq$  1.5\*6dbbandwith.  
Sweep time = auto couple, Detector = peak, Trace mode = max hold.
4. Record the maximum power from the Power meter.
5. The maximum peak power shall be less 1 Watt (30dBm).

**Note :** The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

### **Environmental Conditions**

Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

### **Applicable Standard**

According to §FCC PART 15 C, for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

## Test Result

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2405	1	<b>0.35</b>	30
Mid	2441	1	0.16	30
High	2480	1	0.24	30

## **-100 kHz BANDWIDTH OF FREQUENCY BAND EDGE**

### **Test Equipment**

Please refer to Section 4 this report.

### **Test Procedure**

The out of band emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part Subpart C limits.

### **Environmental Conditions**

Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

### **Applicable Standard**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### **Test Result**

PASS

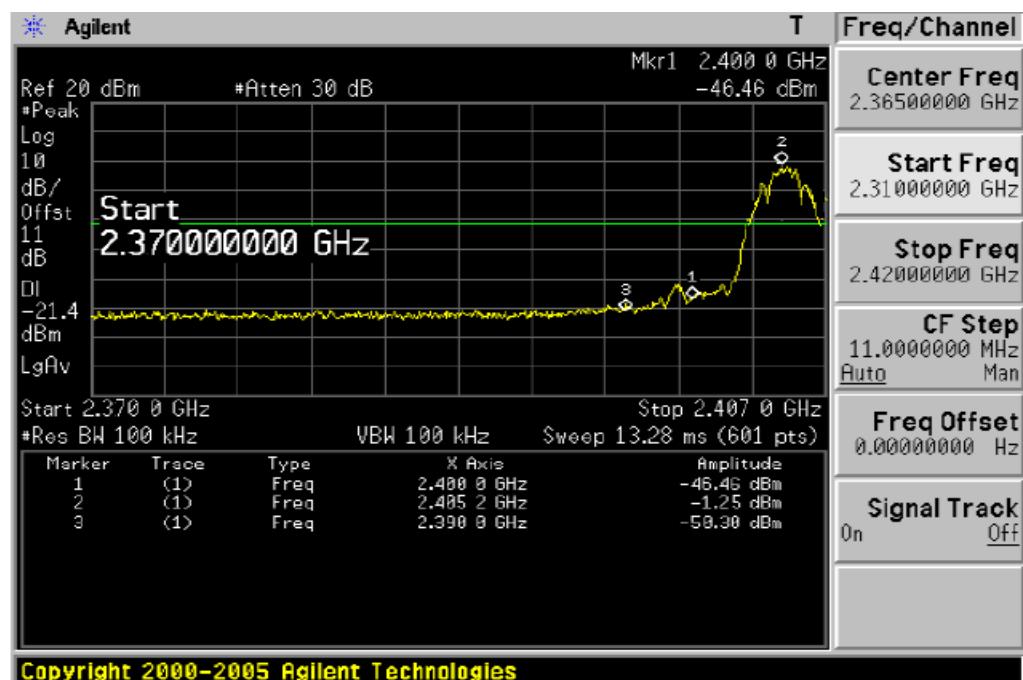
**Radiated measurement:**

Indicated		result (PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dB $\mu$ V/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
Low Channel (2405MHz)											
2390	39.75	AV	225	1.5	V	30.3	4.1	33.1	41.05	54	12.95
2390	39.74	AV	270	2	H	30.3	4.1	33.1	41.04	54	12.96
2390	57.02	PK	180	1.5	V	30.3	4.1	33.1	58.32	74	15.68
2390	55.29	PK	360	2	H	30.3	4.1	33.1	56.59	74	17.41
High Channel (2480MHz)											
2483.5	38.95	AV	270	1	V	31	4.4	32.7	41.65	54	12.35
2483.5	35.61	AV	225	2	H	31	4.4	32.7	38.31	54	15.69
2483.5	51.15	PK	270	1	V	31	4.4	32.7	53.85	74	20.15
2483.5	50.56	PK	90	2	H	31	4.4	32.7	53.26	74	20.74

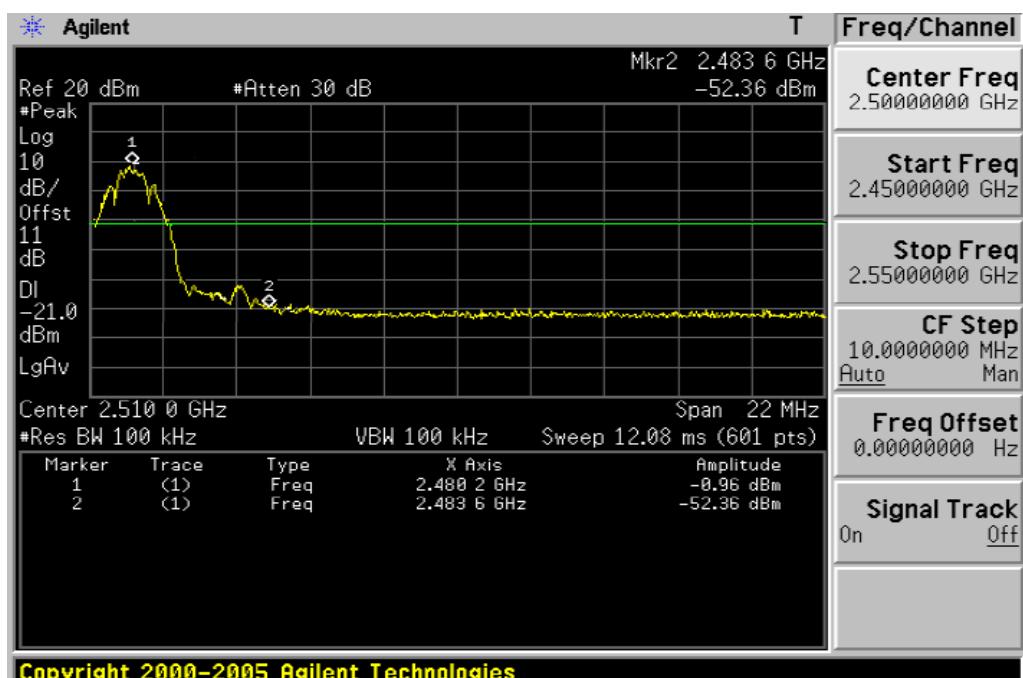
Note: the BAND EDGE RESTRICTED BANDS emission is too low at least 20dB to the Fundamental.

**Conducted measurement:**

**Low channel**



**High channel**



## **- MAXIMUM CONDUCTED POWER**

### **SPECTRAL DENSITY**

#### **Test Equipment**

Please refer to Section 4 this report.

#### **Test Procedure**

- 1, This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.
- 2, Set analyzer center frequency to DTS channel center frequency.
- 3, Set the RBW to:3 kHz  $\leq$  RBW  $\leq$  100 kHz, Set the VBW  $\geq$  3 RBW, Detector = peak. Sweep time = auto couple
- 4, Trace mode = max hold, Allow trace to fully stabilize.

**Note :** The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

#### **Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

#### **Applicable Standard**

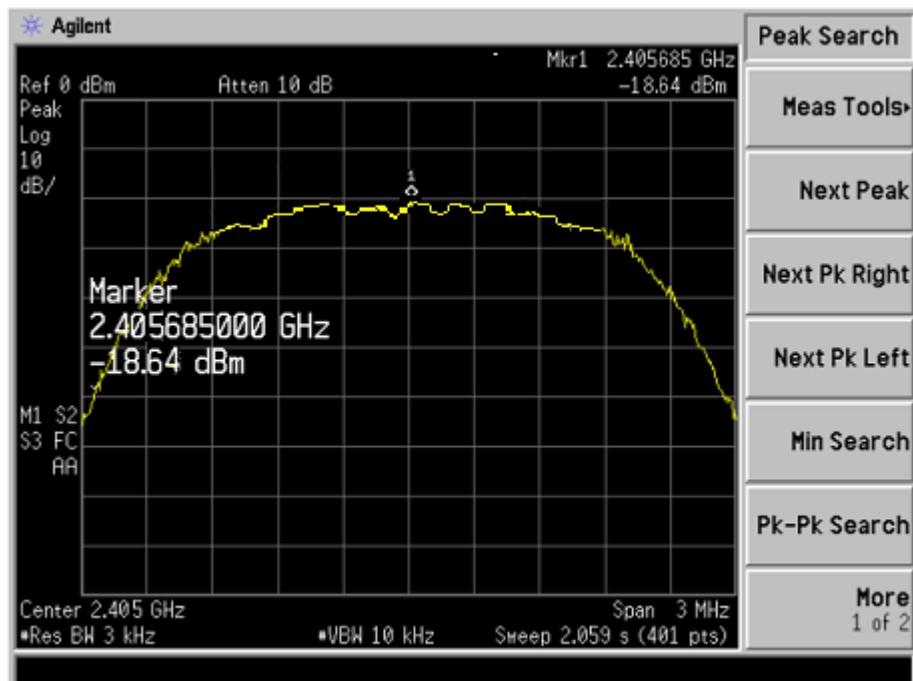
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

## Test Result

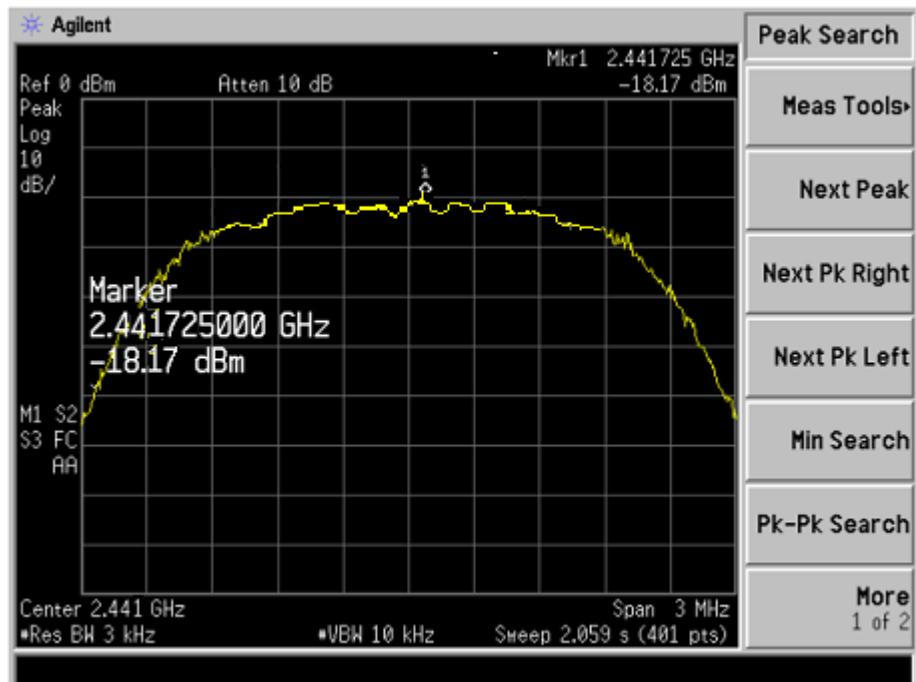
PASS

Channel Frequency (MHz)	Data Rate (Mbps)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	RESULT
2405	1	-18.64	8	Compliant
2441	1	-18.17	8	Compliant
2480	1	-18.71	8	Compliant

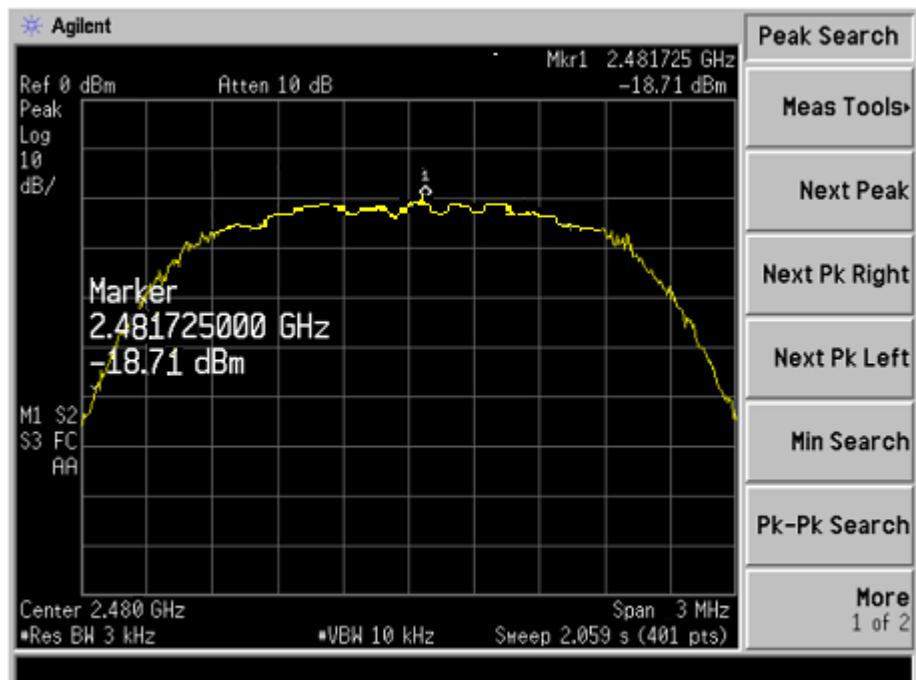
### Low Channel



### Middle Channel



### High Channel

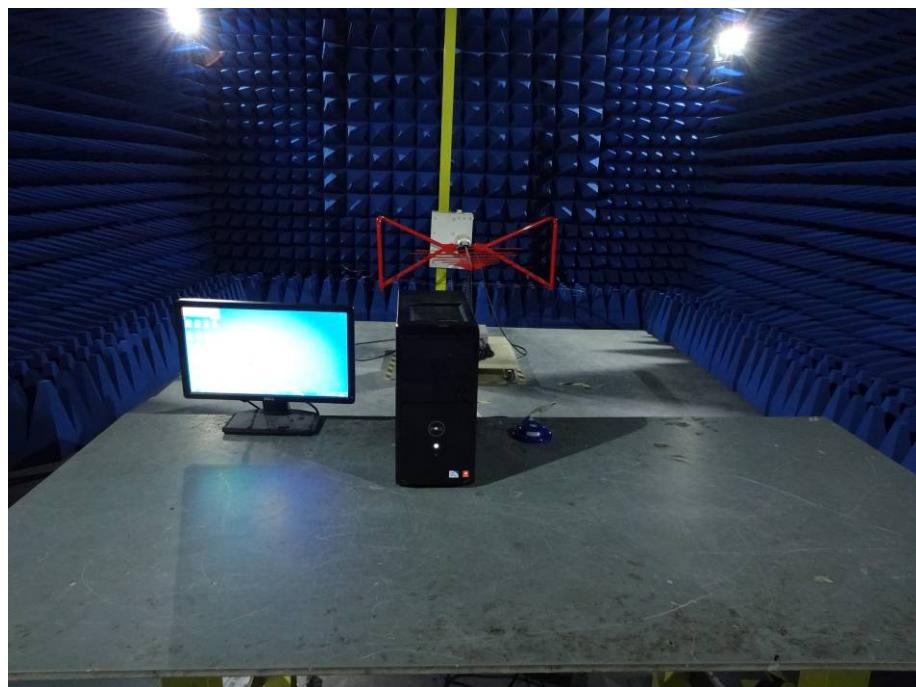


## PHOTOGRAPHS OF THE TEST CONFIGURATION

### CONDUCTED EMISSION TEST



### RADIATED EMISSION TEST BELOW 1GHZ

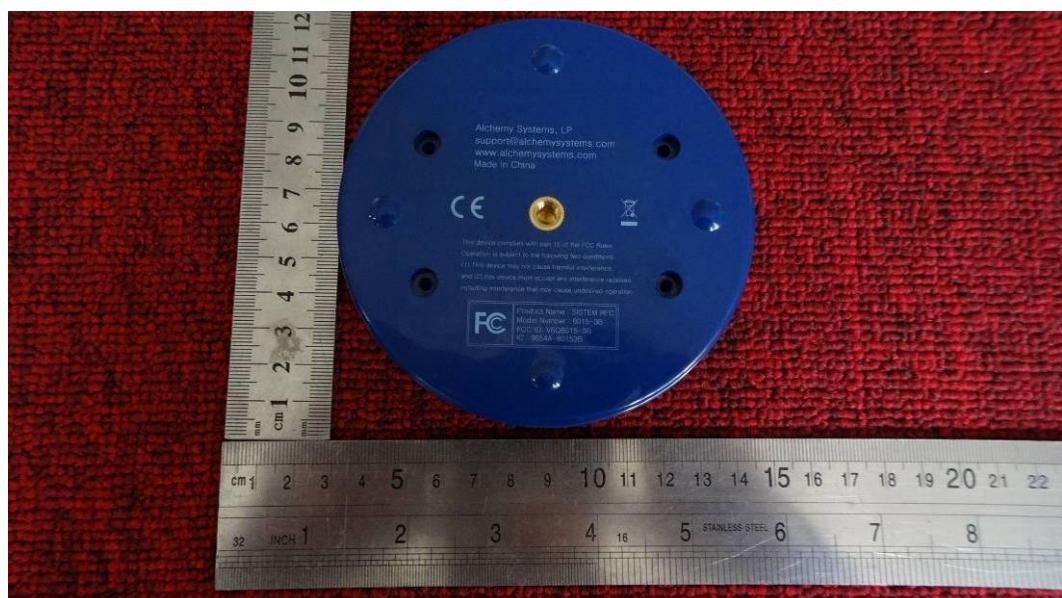


## PHOTOGRAPHS OF EUT

Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



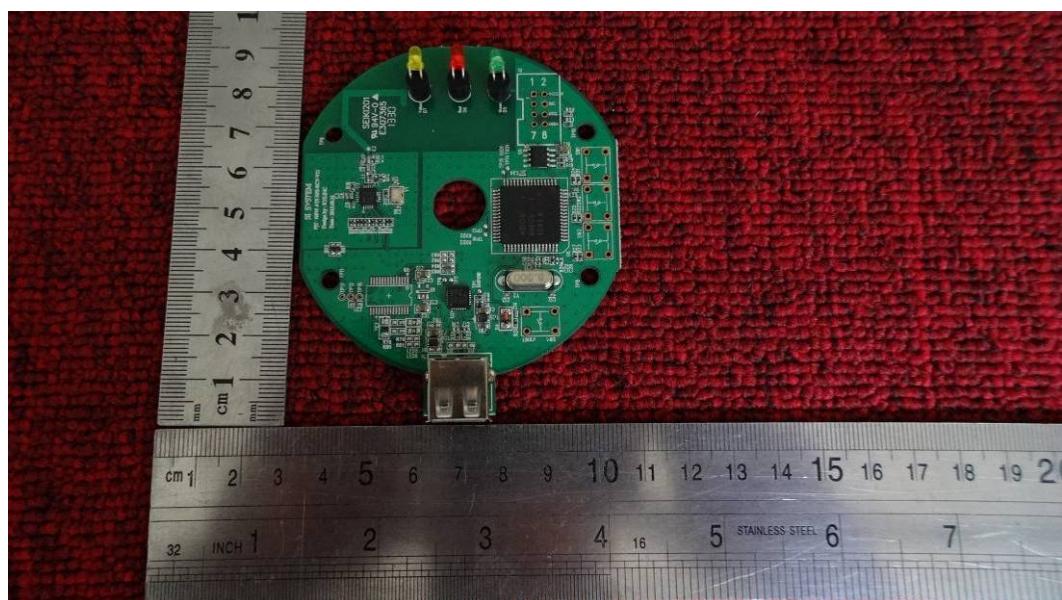
Appearance photograph of EUT



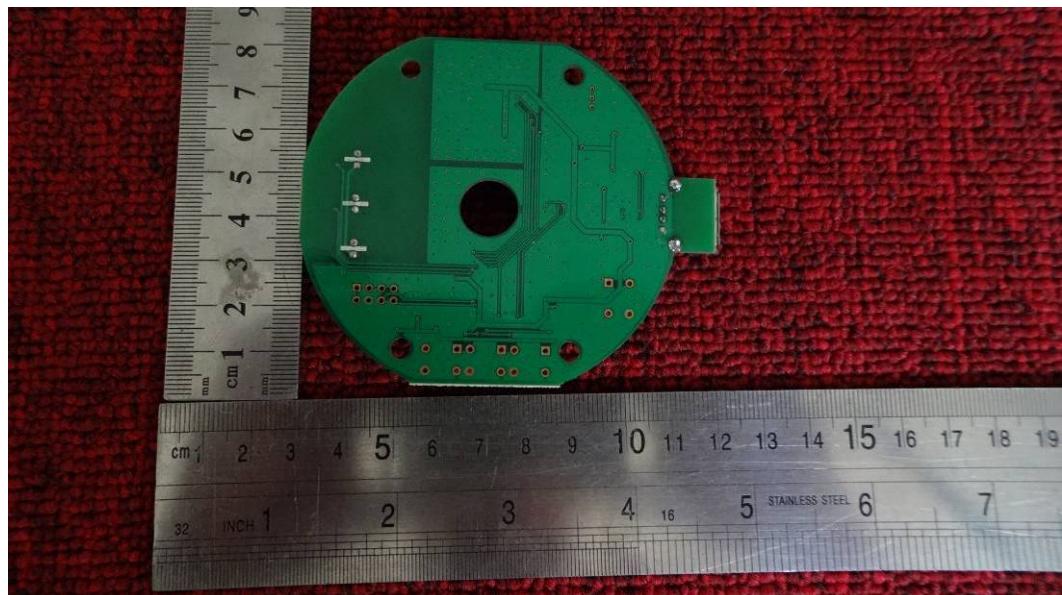
Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



**---END OF REPORT---**