



# FCC Part 15C Test Report

## FCC ID: 2ABN7SWDVR850H

Product Name:	Wireless Digital Video Recorder
Trademark:	N/A
Model Name :	SRDVR-85000H SRDVR-85000T
Prepared For : Address :	SHENZHEN BAICHUAN SECURITY TECHNOLOGY CO., LTD 5th Floor, Building 7, Tangtou 3rd Industrial Area Shiyan Town, Baoan District, Shenzhen City, China
Prepared By : Address :	Shenzhen BCTC Technology Co., Ltd. No.101,Yousong Road,Longhua New District, Shenzhen,China
Test Date:	May 21 –May 30, 2016
Date of Report :	May 31, 2016
Report No.:	BCTC-160506199E



## TEST RESULT CERTIFICATION

**Applicant's name** ..... : SHENZHEN BAICHUAN SECURITY TECHNOLOGY CO., LTD  
**Address** ..... : 5th Floor, Building 7, Tangtou 3rd Industrial Area Shiyan Town,  
Baoan District, Shenzhen City, China

**Manufacture's Name** ..... : SHENZHEN BAICHUAN SECURITY TECHNOLOGY CO., LTD  
**Address** ..... : 5th Floor, Building 7, Tangtou 3rd Industrial Area Shiyan Town,  
Baoan District, Shenzhen City, China

### Product description

**Product name** ..... : Wireless Digital Video Recorder  
**Model and/or type reference** : SRDVR-85000H  
SRDVR-85000T

**Standards** ..... : FCC Part15.247

**Test procedure** ..... ANSI C63.10-2013

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



## 1.1 TEST FACILITY

Shenzhen BCTC Technology Co., Ltd.

Add. : No.101,Yousong Road,Longhua New District, Shenzhen,China

FCC Registered No.: 187086

## 1.2 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Digital Video Recorder	
Trade Name	N/A	
Model Name	SRDVR-85000H SRDVR-85000T	
Model Difference	The product is different for model name and outlook color.	
Product Description	The EUT is a Wireless Digital Video Recorder	
	Operation Frequency:	2405~2480 MHz
	Modulation Type:	OQPSK
	Radio Technology:	ZIGBEE
	Number Of Channel	16 CH
	Antenna type:	Internal antenna
	Antenna Gain (dBi)	3.0dbi
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
Channel List	Please refer to the Note 2.	
Power	DC 12V from adapter	
Adapter	Model:FJ-SW1202000U I/P:AC 100-240V 50/60Hz 0.6A Max O/P: DC 12V 2000mA	
hardware version	--	
Software version	--	
Serial number	--	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

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



2.

Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2405	05	2425	09	2445	13	2465
02	2410	06	2430	10	2450	14	2470
03	2415	07	2435	11	2455	15	2475
04	2420	08	2440	12	2460	16	2480

## 2.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	CH1/ CH8/ CH16
Mode 2	Link Mode
For Conducted Emission	
Final Test Mode	Description
Mode 4	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH1/ CH8/ CH16

Note:

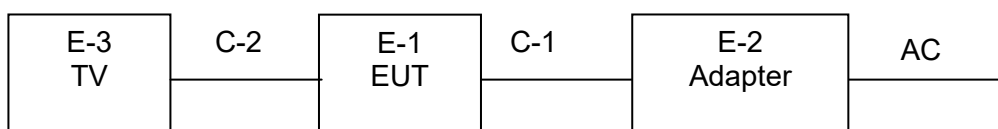
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported



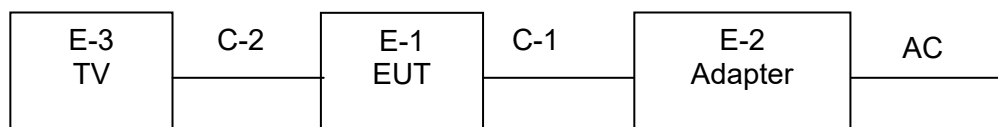


## 2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

### Conducted Emission Test



### Radiated Spurious Emission Test



## 2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Wireless Digital Video Recorder	N/A	SRDVR-85000H	N/A	EUT
E-2	Adapter	N/A	FJ-SW1202000U	N/A	
E-3	TV	SONY	SNT0156		

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	0.8m	Unshielded
C-2	NO	NO	0.5m	HDMI Line

#### Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



## 2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

### Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer	Agilent	E4407B	MY45109572	2015.08.25	2016.08.24
2	Test Receiver	R&S	ESPI	101396	2015.08.25	2016.08.24
3	Bilog Antenna	SCHWARZBECK	VULB9160	VULB9160-3369	2015.08.25	2016.08.24
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.08.24	2016.08.23
5	Spectrum Analyzer	Agilent	N9020A	MY5051041	2015.08.24	2016.08.23
6	Horn Antenna	SCHWARZBECK	9120D	9120D-1275	2015.08.25	2016.08.24
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.08.24	2016.08.23
8	Amplifier	SCHWARZBECK	BBV9718	9718-270	2015.08.25	2016.08.24
9	Amplifier	SCHWARZBECK	BBV9743	9743-119	2015.08.25	2016.08.24
10	Loop Antenna	ARA	PLSRDVR-85000H30/B	1029	2015.08.24	2016.08.23
11	Power Meter	R&S	NRVS	100696	2015.08.24	2016.08.23
12	Power Sensor	R&S	URV5-Z4	0395.1619.05	2015.08.24	2016.08.23
13	RF cables	R&S	N/A	N/A	2015.08.24	2016.08.23

### Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESCI	1166.5950K03-101165-ha	2015.08.24	2016.08.23
2	LISN	R&S	NSLK8126	8126466	2015.08.24	2016.08.23
3	LISN	R&S	NSLK8126	8126487	2015.08.24	2016.08.23
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.08.24	2016.08.23
5	RF cables	R&S	R204	R20X	2015.08.24	2016.08.23



### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

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

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

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

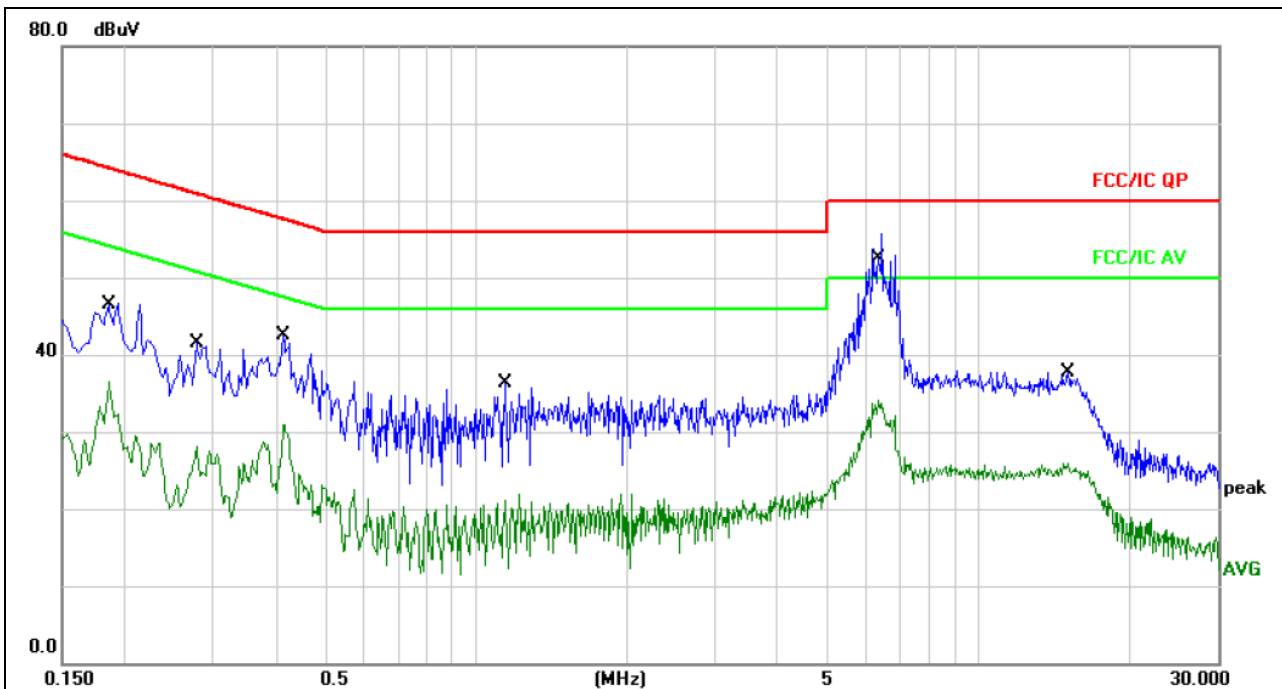
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



**3.1.6 TEST RESULTS**

EUT :	Wireless Digital Video Recorder	Model Name. :	SRDVR-85000H
Temperature :	26°C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 12V from adapter	Test Mode :	Mode 2



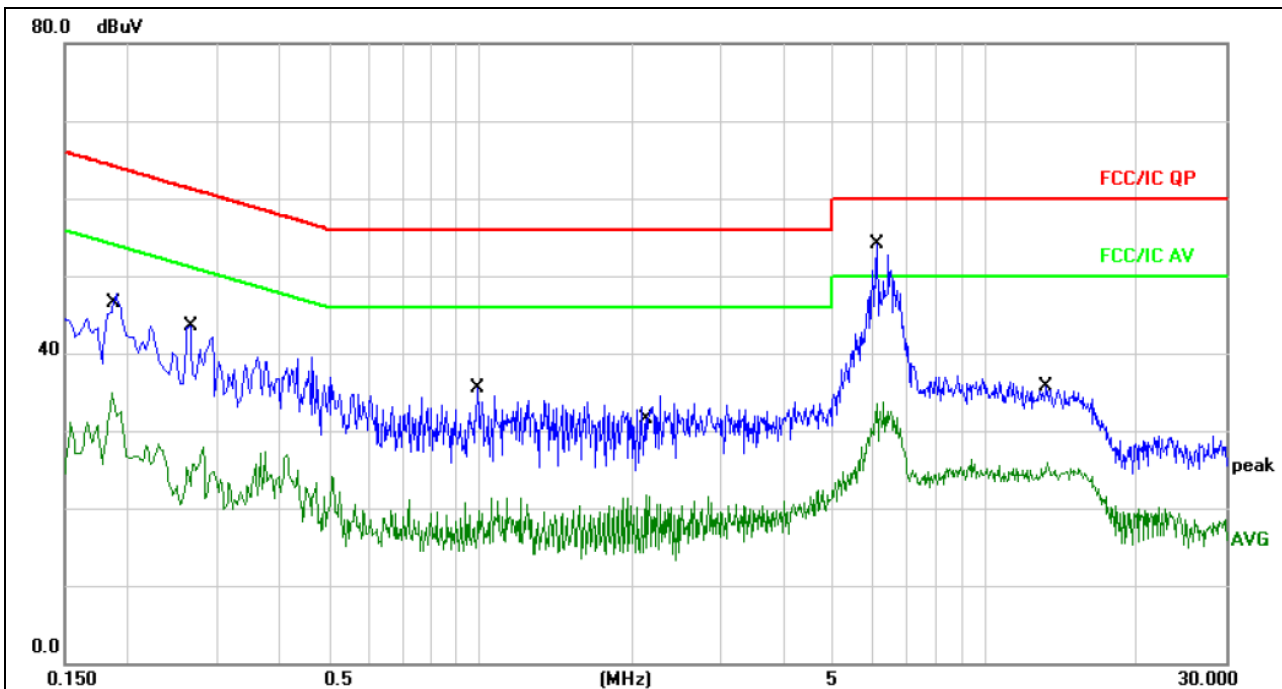
Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1860	36.47	10.06	46.53	64.21	-17.68	QP	
2		0.1860	26.36	10.06	36.42	54.21	-17.79	AVG	
3		0.2779	31.31	10.09	41.40	60.88	-19.48	QP	
4		0.2779	18.03	10.09	28.12	50.88	-22.76	AVG	
5		0.4140	32.46	10.11	42.57	57.57	-15.00	QP	
6		0.4140	20.89	10.11	31.00	47.57	-16.57	AVG	
7		1.1420	26.19	10.17	36.36	56.00	-19.64	QP	
8		1.1420	11.76	10.17	21.93	46.00	-24.07	AVG	
9	*	6.3460	45.52	10.09	55.61	60.00	-4.39	QP	
10		6.3460	23.92	10.09	34.01	50.00	-15.99	AVG	
11		15.0660	27.57	10.15	37.72	60.00	-22.28	QP	
12		15.0660	15.65	10.15	25.80	50.00	-24.20	AVG	



EUT :	Wireless Digital Video Recorder	Model Name. :	SRDVR-85000H
Temperature :	26°C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 12V from adapter	Test Mode :	Mode 2



## Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1860	37.57	10.06	47.63	64.21	-16.58	QP	
2		0.1860	24.75	10.06	34.81	54.21	-19.40	AVG	
3		0.2660	33.39	10.09	43.48	61.24	-17.76	QP	
4		0.2660	17.90	10.09	27.99	51.24	-23.25	AVG	
5		0.9860	25.42	10.16	35.58	56.00	-20.42	QP	
6		0.9860	11.05	10.16	21.21	46.00	-24.79	AVG	
7		2.1300	24.25	10.18	34.43	56.00	-21.57	QP	
8		2.1300	11.44	10.18	21.62	46.00	-24.38	AVG	
9	*	6.1180	44.05	10.09	54.14	60.00	-5.86	QP	
10		6.1180	23.62	10.09	33.71	50.00	-16.29	AVG	
11		13.2860	25.09	10.14	35.23	60.00	-24.77	QP	
12		13.2860	15.66	10.14	25.80	50.00	-24.20	AVG	



### 3.2 RADIATED EMISSION MEASUREMENT

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

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	25GHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



### 3.2.2 TEST PROCEDURE

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

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

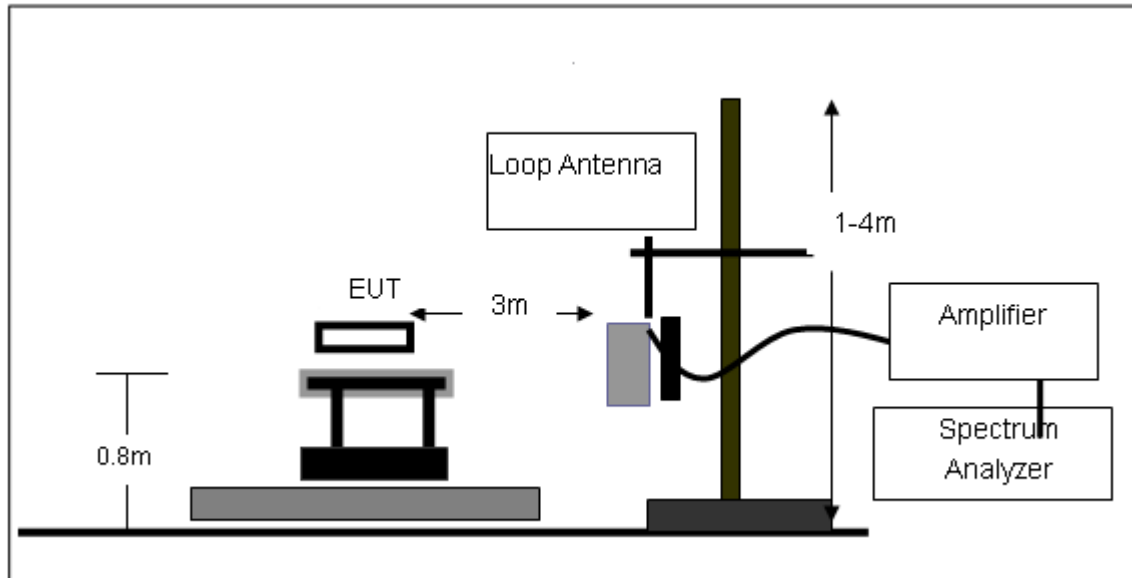
### 3.2.3 DEVIATION FROM TEST STANDARD

No deviation

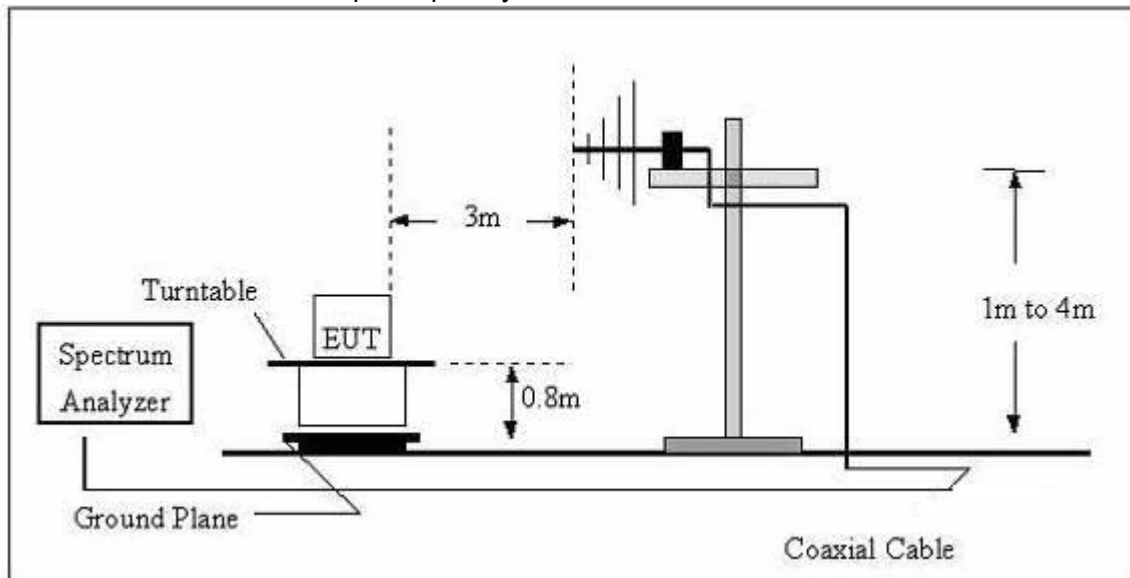


### 3.2.4 TEST SETUP

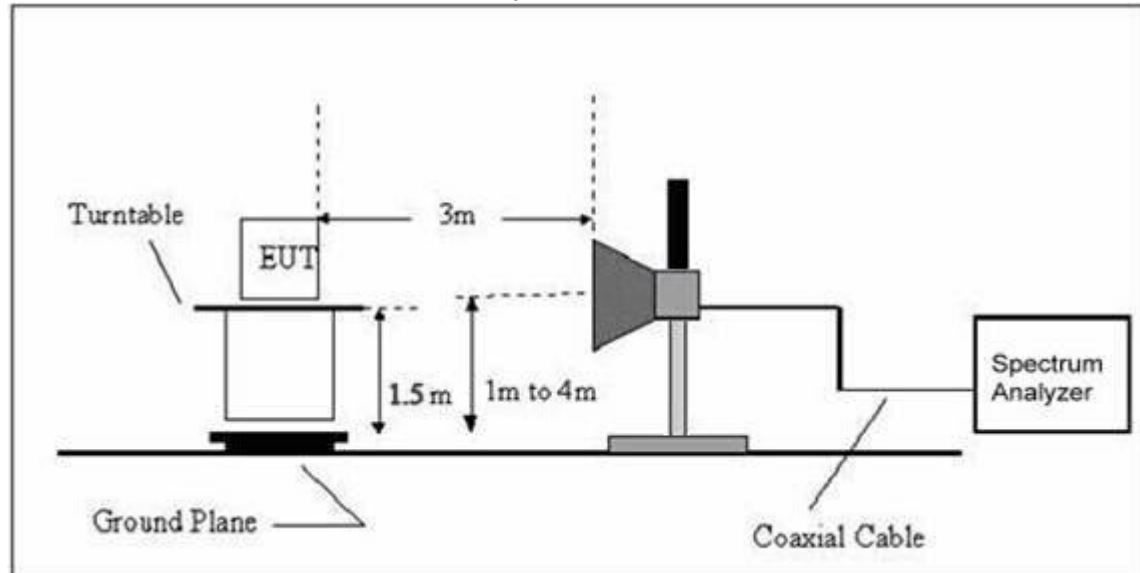
#### (A) Radiated Emission Test-Up Frequency Below 30MHz



#### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



### 3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)**

EUT:	Wireless Digital Video Recorder	Model Name. :	SRDVR-85000H
Temperature:	20℃	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 12V from adapter
Test Mode :	Mode 2	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

**NOTE:**

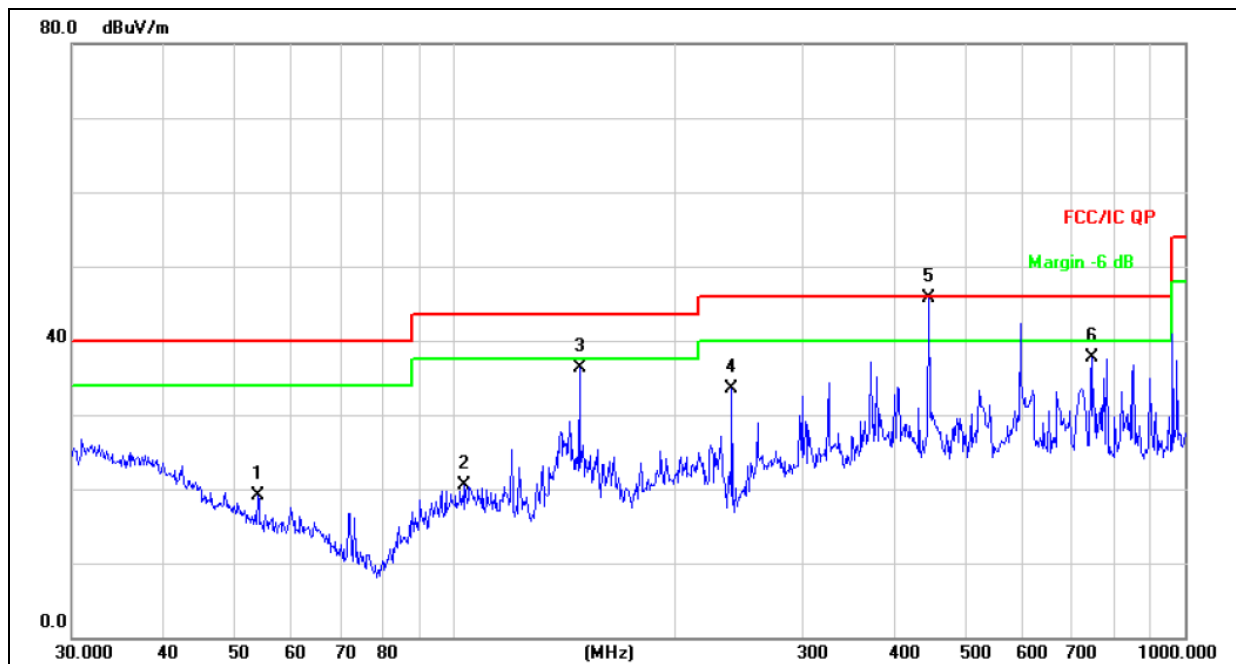
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log (\text{specific distance/test distance})(\text{dB})$ ;

Limit line = specific limits(dBuv) + distance extrapolation factor.

**3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)**

Temperature :	26℃	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Horizontal
Test Voltage :	DC 12V from adapter		
Test Mode :	Mode 2		



Remark:

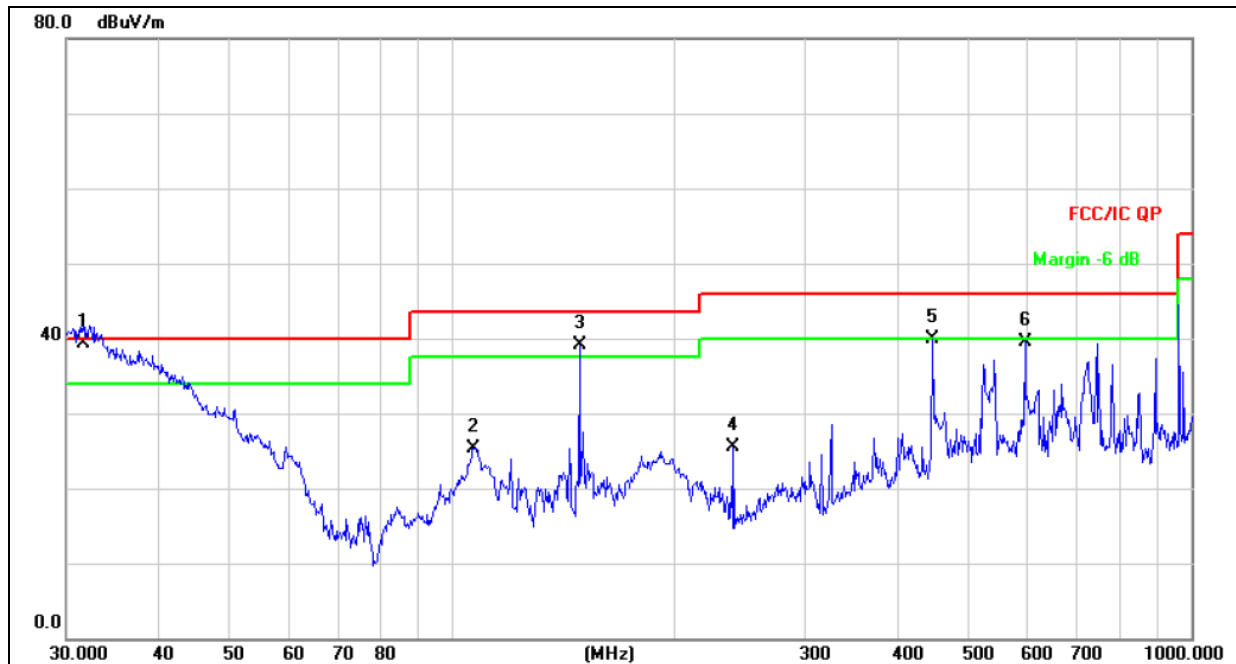
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and BT TX mode was link.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		53.8818	30.02	-10.93	19.09	40.00	-20.91	QP		
2		103.4421	36.58	-16.16	20.42	43.50	-23.08	QP		
3		148.4410	49.19	-12.93	36.26	43.50	-7.24	QP		
4		239.9874	47.94	-14.49	33.45	46.00	-12.55	QP		
5	*	446.4141	53.78	-9.08	44.70	46.00	-1.30	QP		
6		744.8661	41.23	-3.49	37.74	46.00	-8.26	QP		



Temperature :	26°C	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Vertical
Test Voltage :	DC 12V from adapter		
Test Mode :	Mode 2		



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and BT TX mode was link.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	31.6202	47.25	-8.24	39.01	40.00	-0.99	QP		
2		106.7587	41.23	-15.85	25.38	43.50	-18.12	QP		
3	!	148.4410	51.98	-12.93	39.05	43.50	-4.45	QP		
4		239.9874	39.92	-14.49	25.43	46.00	-20.57	QP		
5		446.4141	49.00	-9.08	39.92	46.00	-6.08	QP		
6		595.1329	45.43	-5.83	39.60	46.00	-6.40	QP		



### 3.2.8 TEST RESULTS (1GHZ~25GHZ)

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2405							
V	4810.00	39.41	19.34	58.75	74.00	-15.25	PK
V	4810.00	25.75	19.34	45.09	54.00	-8.91	AV
V	7215.00	35.06	17.11	52.17	74.00	-21.83	PK
V	7215.00	22.87	17.11	39.98	54.00	-14.02	AV
V	16130.00	29.97	21.89	51.86	74.00	-22.14	PK
H	4810.00	39.41	19.34	58.75	74.00	-15.25	PK
H	4810.00	25.75	19.34	45.09	54.00	-8.91	AV
H	7215.00	34.90	17.11	52.01	74.00	-21.99	PK
H	7215.00	23.04	17.11	40.15	54.00	-13.85	AV
H	16130.00	29.71	21.89	51.60	74.00	-22.40	PK

<b>operation frequency:2440</b>							
V	4880.00	40.34	19.42	59.76	74.00	-14.24	PK
V	4880.00	25.79	19.42	45.21	54.00	-8.79	AV
V	7320.00	34.51	17.20	51.71	74.00	-22.29	PK
V	7320.00	23.19	17.20	40.39	54.00	-13.61	AV
V	16130.00	28.22	21.89	50.11	74.00	-23.89	PK
H	4880.00	38.38	13.94	52.32	114.00	-21.68	PK
H	4880.00	25.61	13.94	39.55	94.00	-14.45	AV
H	7320.00	34.50	17.20	51.70	74.00	-22.30	PK
H	7320.00	23.21	17.20	40.41	54.00	-13.59	AV
H	16130.00	29.88	21.89	51.77	74.00	-22.23	PK

<b>operation frequency:2480</b>							
V	4960.00	41.14	19.51	60.65	74.00	-13.35	PK
V	4960.00	26.07	19.51	45.58	54.00	-8.42	AV
V	7440.00	34.35	17.24	51.59	74.00	-22.41	PK
V	7440.00	25.75	17.24	42.99	54.00	-11.01	AV
V	16130.00	30.10	21.89	51.99	74.00	-22.01	PK
H	4960.00	39.61	19.51	59.12	74.00	-14.88	PK
H	4960.00	25.12	19.51	44.63	54.00	-9.37	AV
H	7440.00	38.34	17.24	55.58	74.00	-18.42	PK
H	7440.00	23.27	17.24	40.51	54.00	-13.49	AV
H	16130.00	30.42	21.89	52.31	74.00	-21.69	PK

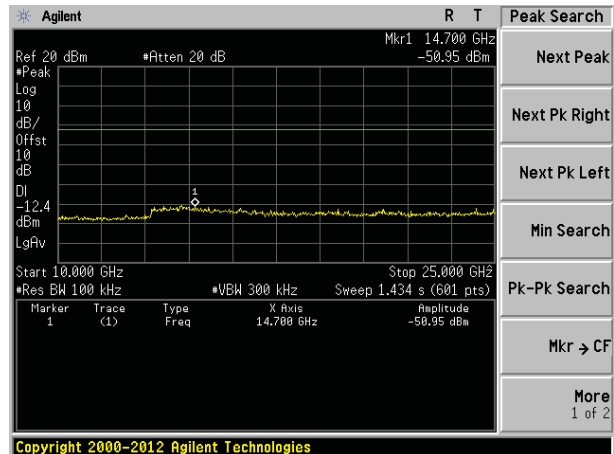
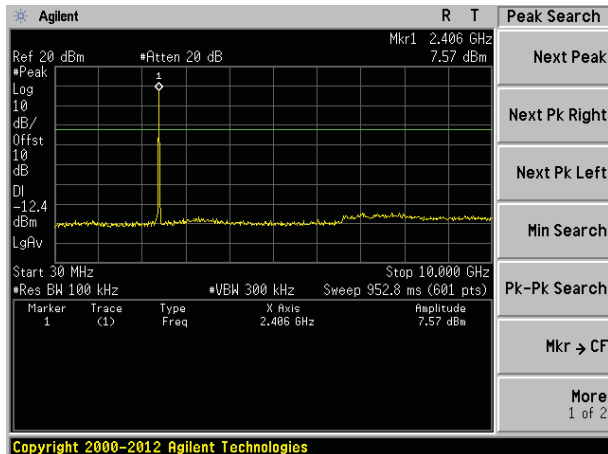
**Remark:**

1. Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

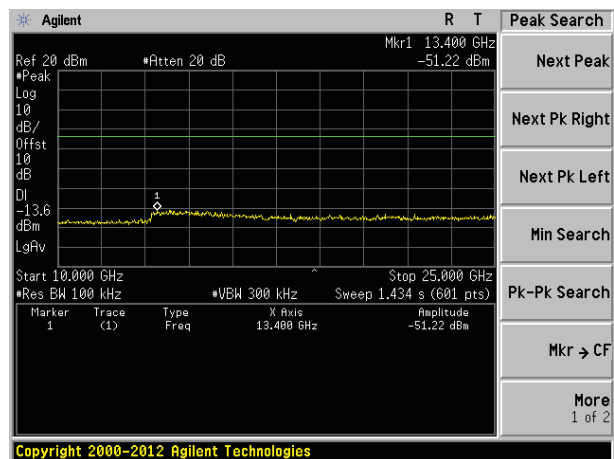
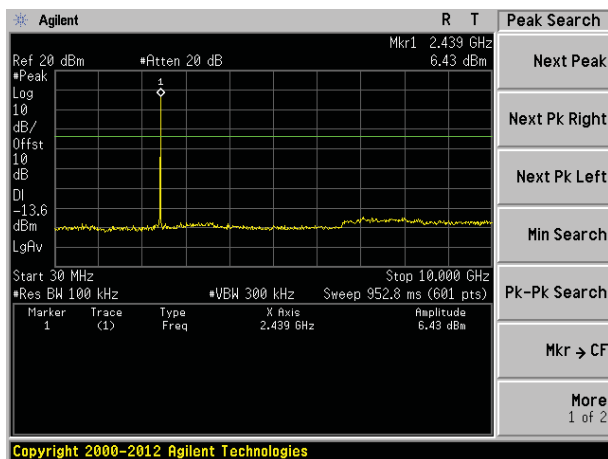


For conducted:

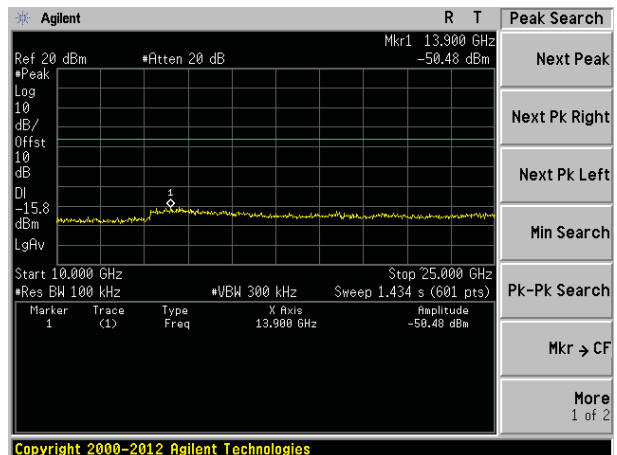
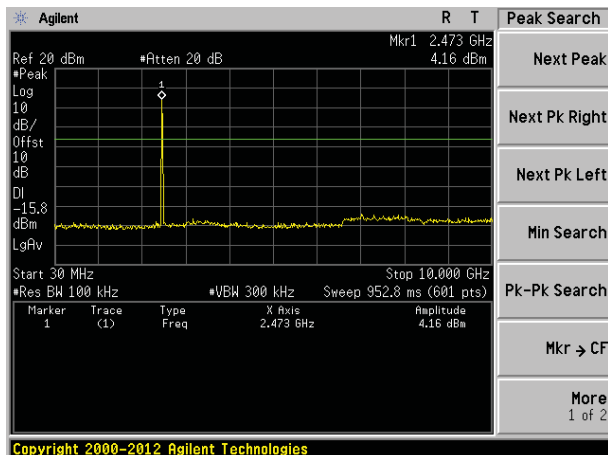
2405MHz



2440MHz



2480MHz





### 3.3 RADIATED BAND EMISSION MEASUREMENT

#### 3.3.1 TEST REQUIREMENT:

FCC Part15 C Section 15.209 and 15.205

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

#### 3.3.2 TEST PROCEDURE

Above 1GHz test procedure as below:

- a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel,the Highest channel

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

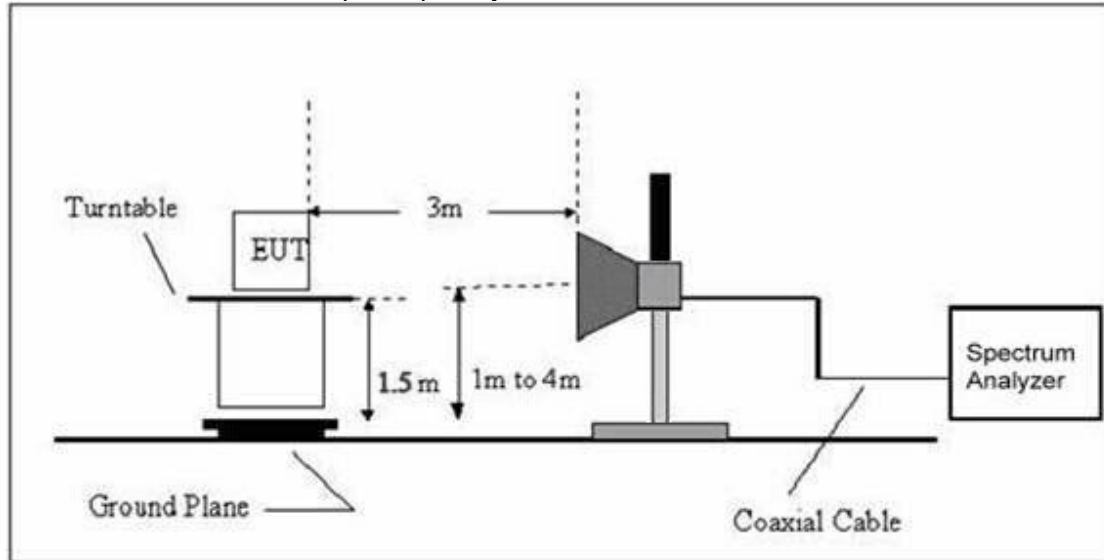


### 3.3.3 DEVIATION FROM TEST STANDARD

No deviation

### 3.3.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



### 3.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



### 3.3.6 TEST RESULT

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2405							
V	2390.00	37.38	13.83	51.21	74.00	-22.79	PK
V	2390.00	25.97	13.83	39.80	54.00	-14.20	AV
V	2400.00	37.59	13.85	51.44	74.00	-22.56	PK
V	2400.00	25.54	13.85	39.39	54.00	-14.61	AV
H	2390.00	37.68	13.83	51.51	74.00	-22.49	PK
H	2390.00	26.00	13.83	39.83	54.00	-14.17	AV
H	2400.00	37.54	13.85	51.39	74.00	-22.61	PK
H	2400.00	25.94	13.85	39.79	54.00	-14.21	AV

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2480							
V	2483.50	37.59	14.02	51.61	74.00	-22.39	PK
V	2483.50	26.21	14.02	40.23	54.00	-13.77	AV
V	2500.00	37.53	14.06	51.59	74.00	-22.41	PK
V	2500.00	25.64	14.06	39.70	54.00	-14.30	AV
H	2483.50	37.72	14.02	51.74	74.00	-22.26	PK
H	2483.50	26.25	14.02	40.27	54.00	-13.73	AV
H	2500.00	37.33	14.06	51.39	74.00	-22.61	PK
H	2500.00	26.50	14.06	40.56	54.00	-13.44	AV

**Remark:**

1. Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



## 4. POWER SPECTRAL DENSITY TEST

### 4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

#### 4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
4. Set the VBW  $\geq 3 \times \text{RBW}$ .
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

#### 4.1.2 DEVIATION FROM STANDARD

No deviation.

#### 4.1.3 TEST SETUP



#### 4.1.4 EUT OPERATION CONDITIONS

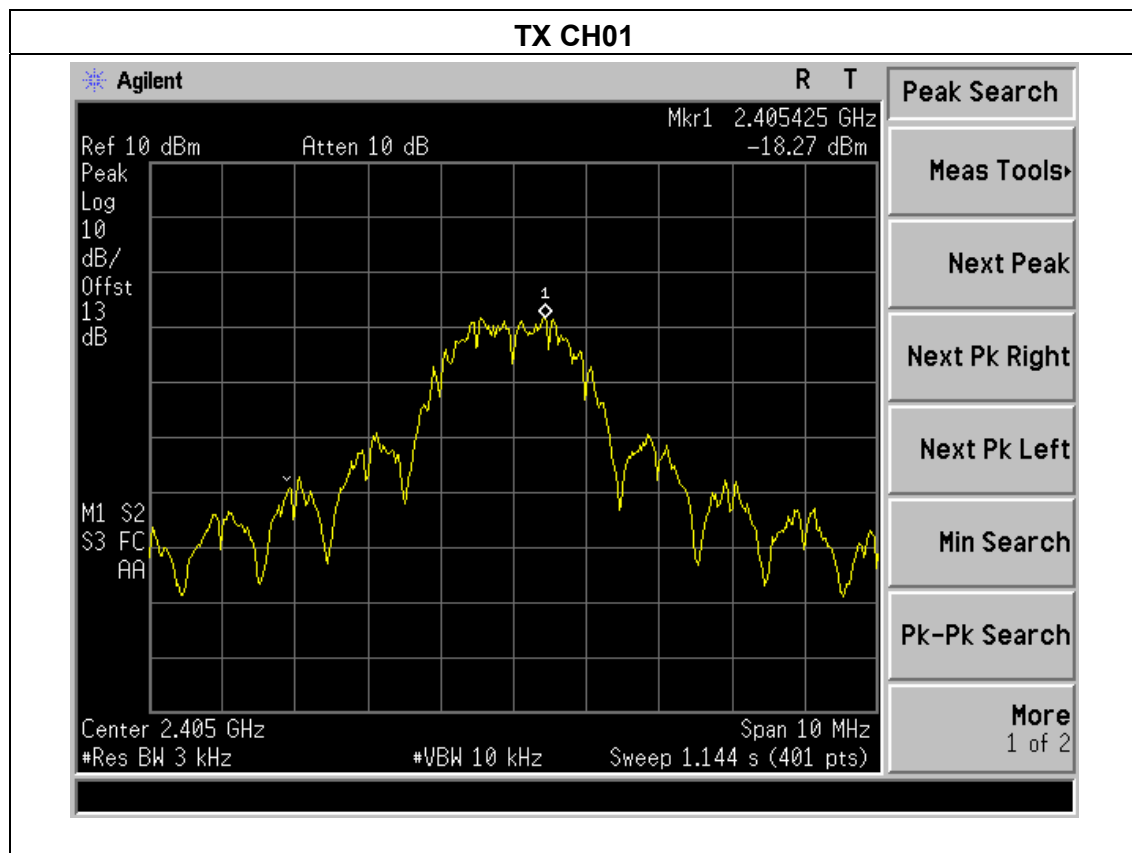
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.



#### 4.1.5 TEST RESULTS

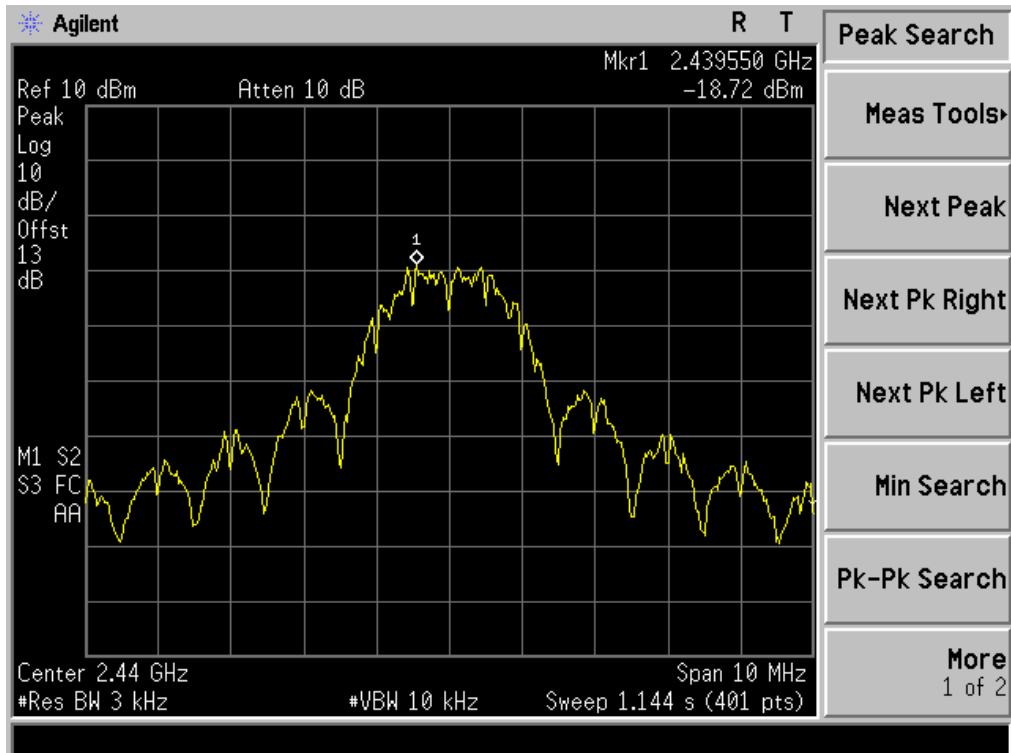
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 12V from adapter
Test Mode :	TX Mode		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2405 MHz	-18.27	8	PASS
2440 MHz	-18.72	8	PASS
2480 MHz	-22.97	8	PASS

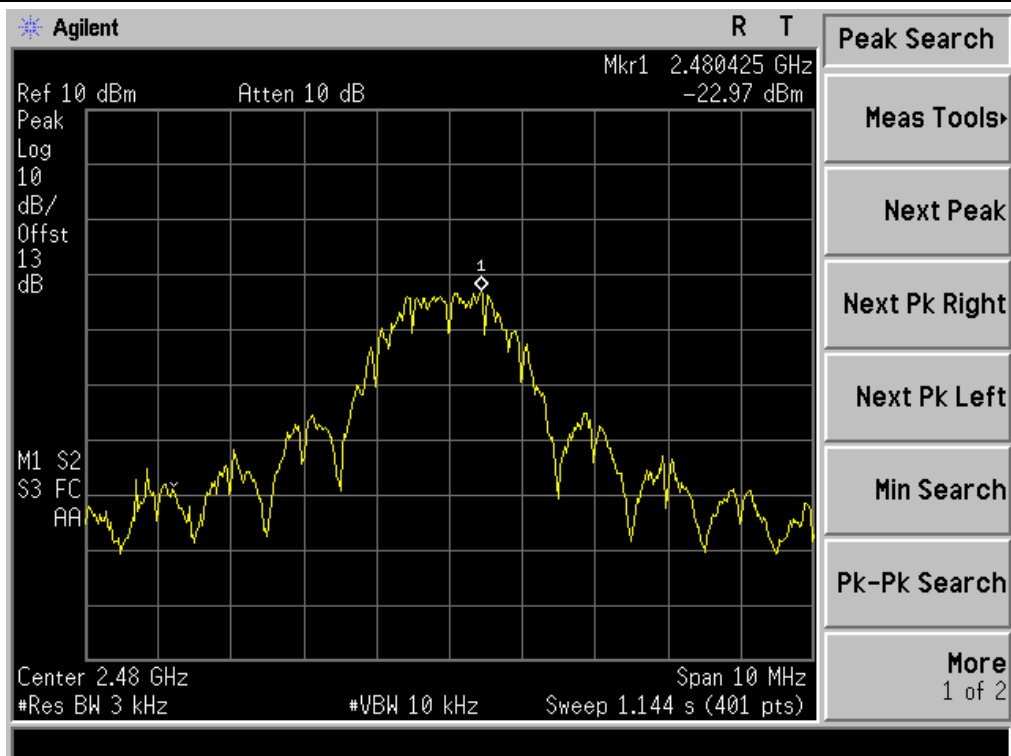




## TX CH08



## TX CH16





## 5. BANDWIDTH TEST

### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

#### 5.1.1 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



#### 5.1.4 EUT OPERATION CONDITIONS

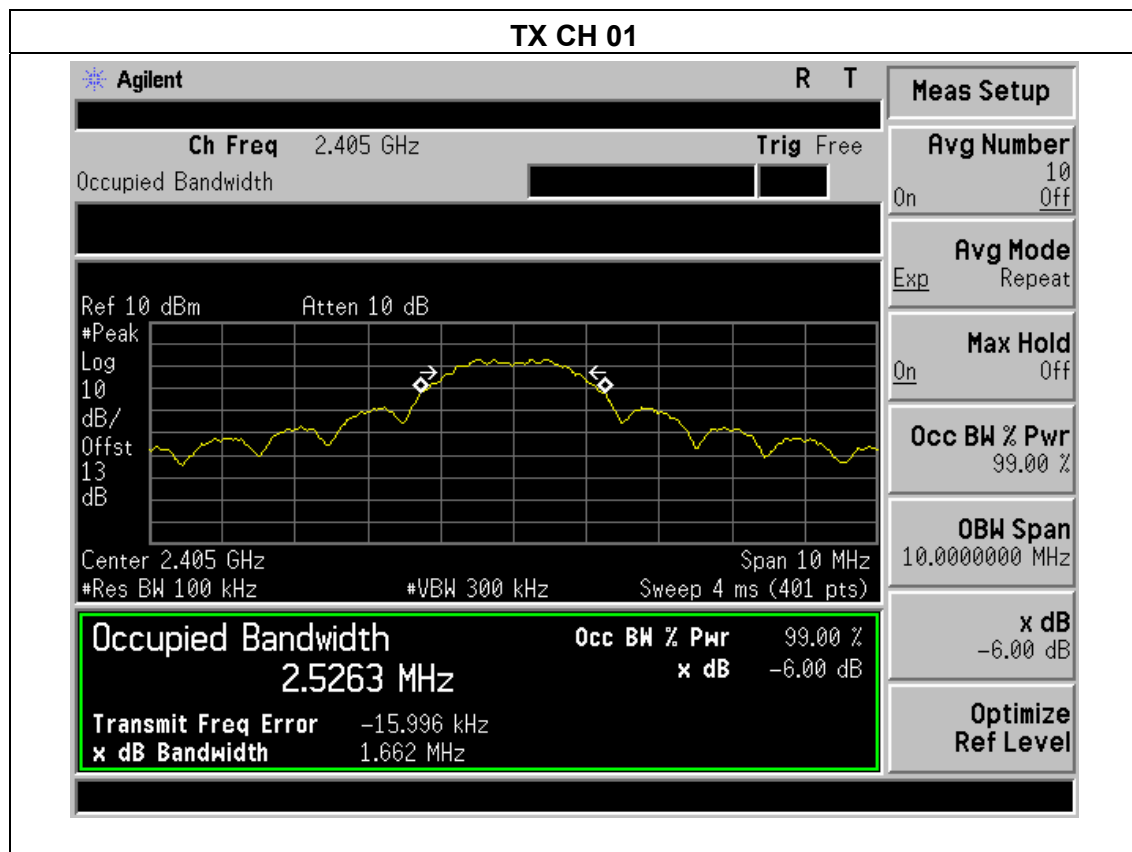
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



### 5.1.5 TEST RESULTS

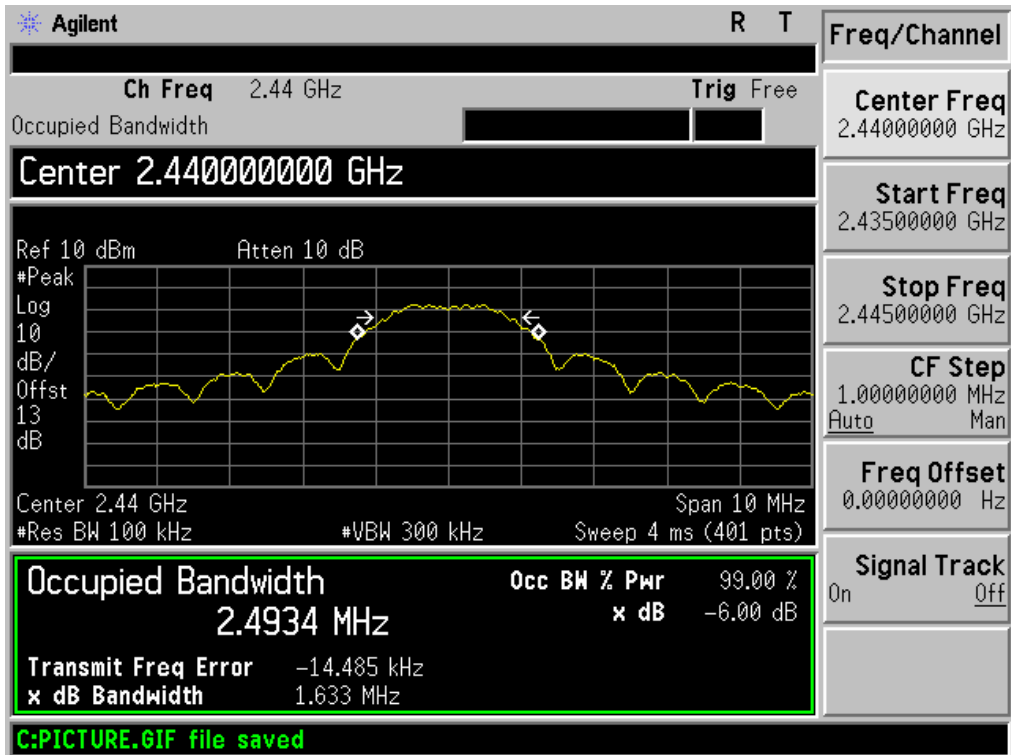
Temperature :	25°C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V from adapter
Test Mode :	TX Mode		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2405	1.662	500	Pass
Middle	2440	1.633	500	Pass
High	2480	1.589	500	Pass

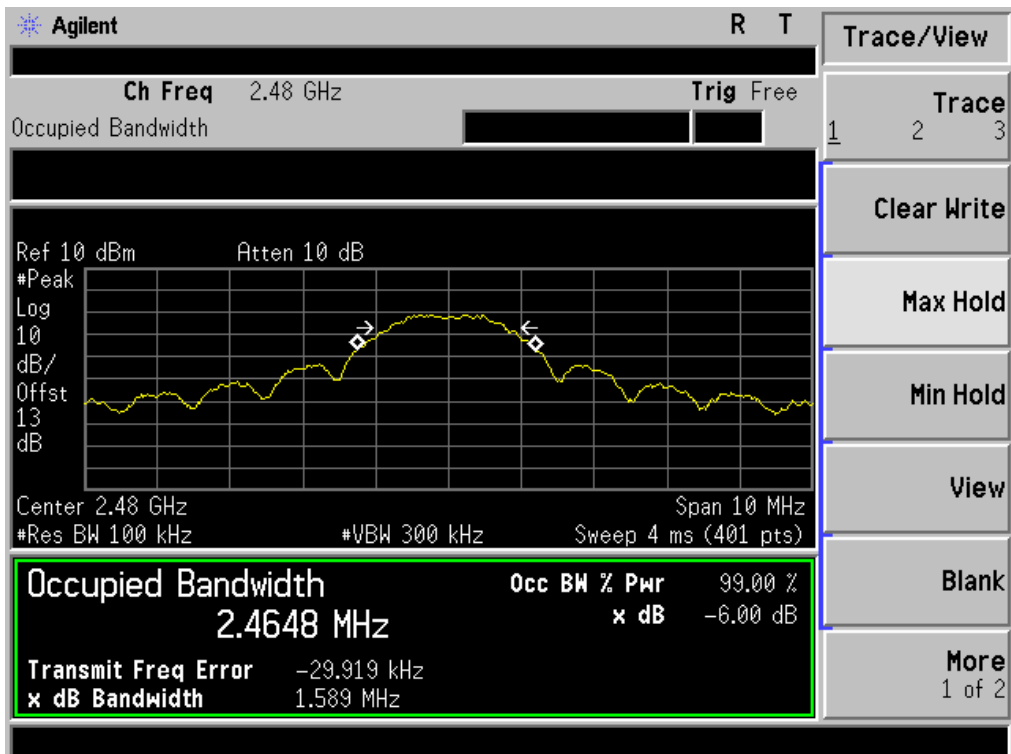




## TX CH 08



## TX CH 16







## 6. PEAK OUTPUT POWER TEST

### 6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

#### 6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

#### 6.1.2 DEVIATION FROM STANDARD

No deviation.

#### 6.1.3 TEST SETUP



#### 6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**6.1.5 TEST RESULTS**

Temperature :	25°C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V from adapter
Test Mode :	TX		

TX Mode			
Test Channe	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
CH01	2405	5.82	30
CH08	2440	5.87	30
CH16	2480	5.79	30



## 7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

### 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 PROCEDURE

- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.

### 7.1 DEVIATION FROM STANDARD

No deviation.

### 7.2 TEST SETUP

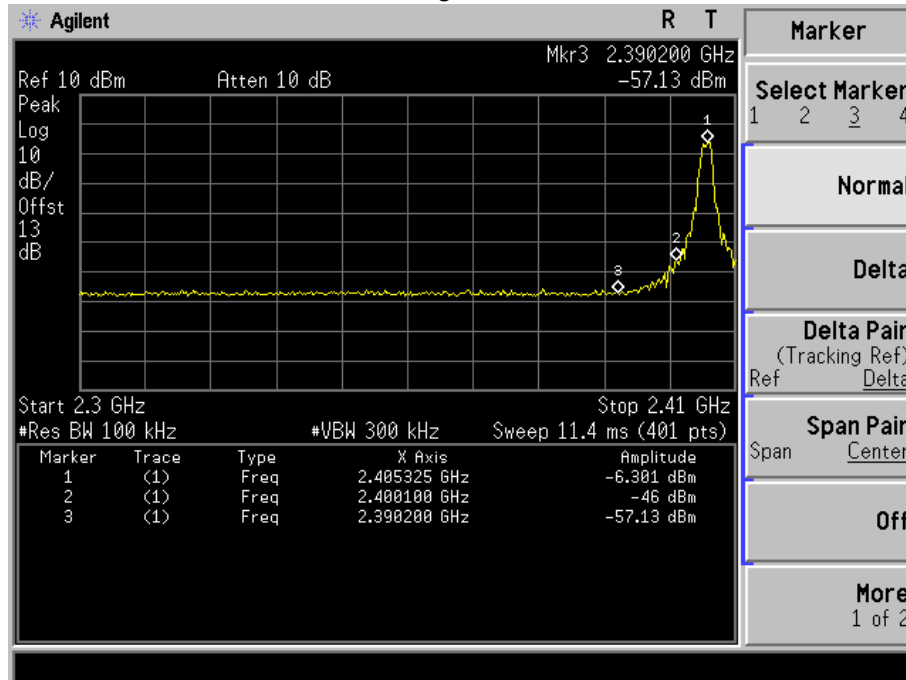


### 7.3 EUT OPERATION CONDITIONS

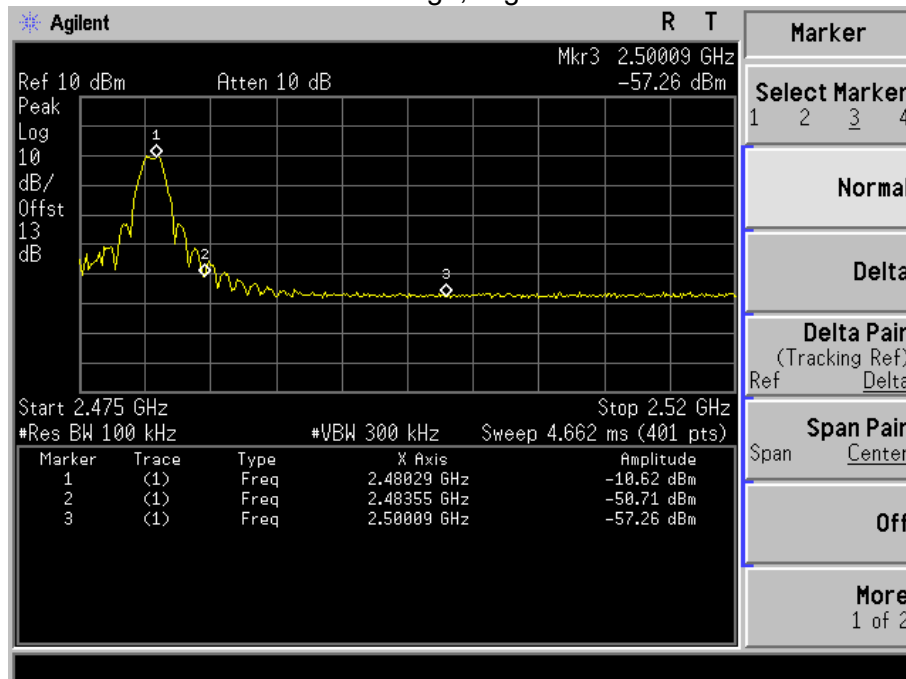
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 7.4 TEST RESULTS

Band Edge, Left Side



Band Edge, Right Side





## **8. ANTENNA REQUIREMENT**

### **8.1 STANDARD REQUIREMENT**

15.203 requirement: For intentional device, 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.

### **8.2 EUT ANTENNA**

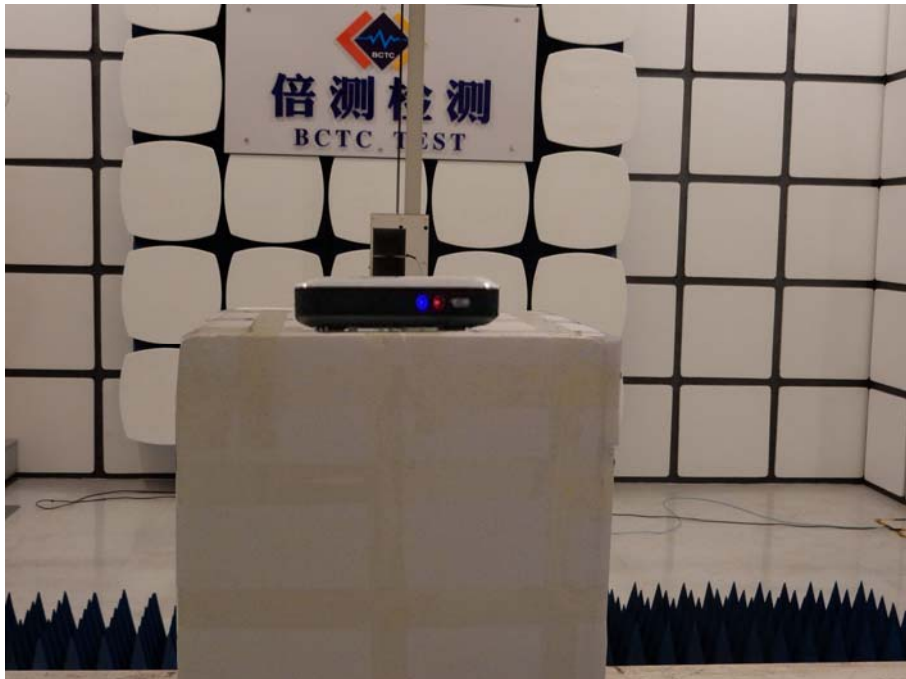
The EUT antenna is internal antenna,. It comply with the standard requirement.

## 9. EUT TEST PHOTO

### Radiated Measurement Photos



### Radiated Measurement Photos



### Conducted Measurement Photos



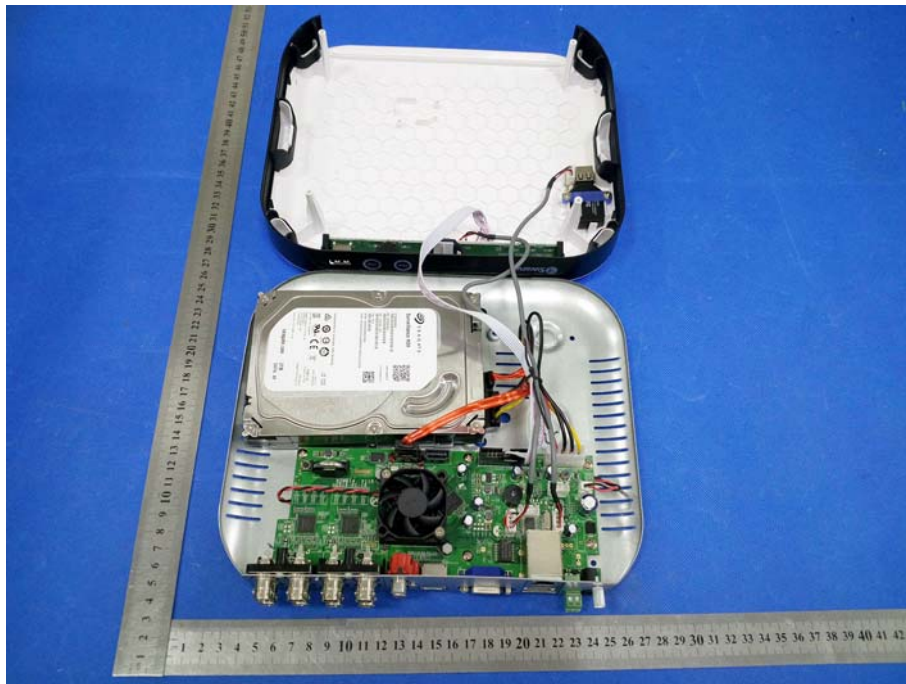


## 10. EUT PHOTO









※※※※※ END OF REPORT ※※※※※