FCC Part 15C Test Report

FCC ID: 2ALOXWF010

Product Name:	WiFi Endoscope
Trademark:	N/A
Model Name :	WF010, WF020, WF030, WF040, WF050, WF060, WF070, WF080, WF090
Prepared For : Address :	Shenzhen Deep Sea Investment Co., Ltd. Third to forth Floor, Building No.4, Guigu Compound, Qingquan Road, Longhua District, Shenzhen, China.
Prepared By : Address :	Shenzhen BCTC Technology Co., Ltd. No.101,Yousong Road,Longhua New District, Shenzhen,China
Test Date:	Mar. 22 – Apr. 07, 2017
Date of Report :	Apr. 07, 2017
Report No.:	BCTC-FY170301368E

TEST RESULT CERTIFICATION

Applicant's name	:	Shenzhen Deep Sea Investment Co., Ltd.
Address	:	Third to forth Floor, Building No.4, Guigu Compound, Qingquan Road, Longhua District, Shenzhen, China.
Manufacture's Name	:	Shenzhen Deep Sea Investment Co., Ltd.
Address	:	Third to forth Floor, Building No.4, Guigu Compound, Qingquan Road, Longhua District, Shenzhen, China.
Product description		
Product name	:	WiFi Endoscope
Model and/or type reference	:	WF010,WF020, WF030, WF040, WF050, WF060, WF070, WF080, WF090
Standards	:	FCC Part15.247 ANSI C63.10:2013 KDB 558074 D01 DTS Meas Guidance v03r03

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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Testing Engineer	:	Eric Yang
Reviewer (Supervisor)	:	Jade Yang
Approved & Authorized Signer(Manager)	:	Carson Zhang

Table of Contents

Page

1 . SUMMARY OF TEST RESULTS 5
1.1 TEST FACILITY 6
1.2 MEASUREMENT UNCERTAINTY 6
2 . GENERAL INFORMATION 7
2.1 GENERAL DESCRIPTION OF EUT 7
2.2 DESCRIPTION OF TEST MODES 8
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 9
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE) 10
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS 11
3 . EMC EMISSION TEST 12
3.1 CONDUCTED EMISSION MEASUREMENT 12
3.1.1 POWER LINE CONDUCTED EMISSION LIMITS 12
3.1.2 TEST PROCEDURE 12
3.1.3 DEVIATION FROM TEST STANDARD 12
3.1.4 TEST SETUP 13
3.1.5 EUT OPERATING CONDITIONS 13
3.1.6 TEST RESULTS 14
3.2 RADIATED EMISSION MEASUREMENT 16
3.2.1 RADIATED EMISSION LIMITS 16
3.2.2 TEST PROCEDURE 17
3.2.3 DEVIATION FROM TEST STANDARD 17
3.2.4 TEST SETUP 17
3.2.5 EUT OPERATING CONDITIONS 19
3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ) 20
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ) 21
3.2.8 TEST RESULTS (1GHZ~25GHZ) 22
3.3 RADIATED BAND EMISSION MEASUREMENT 27
3.3.1 TEST REQUIREMENT: 27
3.3.2 TEST PROCEDURE 27
3.3.3 DEVIATION FROM TEST STANDARD 28
3.3.4 TEST SETUP 28
3.3.5 EUT OPERATING CONDITIONS 28
4 . POWER SPECTRAL DENSITY TEST 33

Table of Contents

Page

4.1 APPLIED PROCEDURES / LIMIT 33
4.1.1 TEST PROCEDURE 33
4.1.2 DEVIATION FROM STANDARD 33
4.1.3 TEST SETUP 33
4.1.4 EUT OPERATION CONDITIONS 33
4.1.5 TEST RESULTS 34

5 . BANDWIDTH TEST 42

5.1 APPLIED PROCEDURES / LIMIT 42
5.1.1 TEST PROCEDURE 42
5.1.2 DEVIATION FROM STANDARD 42
5.1.3 TEST SETUP 42
5.1.4 EUT OPERATION CONDITIONS 42
5.1.5 TEST RESULTS 43

6 . PEAK OUTPUT POWER TEST 51

6.1 APPLIED PROCEDURES / LIMIT 51

6.1.1 TEST PROCEDURE 51
6.1.2 DEVIATION FROM STANDARD 51
6.1.3 TEST SETUP 51
6.1.4 EUT OPERATION CONDITIONS 51
6.1.5 TEST RESULTS 52

7 . 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE 53
7.1 APPLICABLE STANDARD 53
7.2 TEST PROCEDURE 53
7.3 DEVIATION FROM STANDARD 53
7.4 TEST SETUP 53
7.5 EUT OPERATION CONDITIONS 54
7.1 TEST RESULTS 54

8 . ANTENNA REQUIREMENT 59

8.1 STANDARD REQUIREMENT 59

8.2 EUT ANTENNA 59

9 . EUT TEST PHOTO 60

10 . EUT PHOTO 62

APPENDIX-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

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** ± **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	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	WiFi Endoscope
Trade Name	N/A
Model Name	WF010,WF020, WF030, WF040, WF050, WF060, WF070, WF080, WF090
Model Difference	All the model are the same circuit and RF module,except model names.
Product Description	The EUT is a WiFi Endoscope Operation Frequency: 802.11b/g/n20MHz:2412~2462 MHz 802.11n40MHz:2422~2452 MHz Modulation Type: WIFI: OFDM/DSSS Bit Rate of Transmitter 802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps 802.11n Up to 150Mbps Number Of Channel 802.11b/g/n20MHz:11 CH 802.11n40MHz: 7 CH Antenna Designation: Please see Note 3. 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 3.7V
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 for 802.11b/g/n(20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

Channel List for 802.11n(40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	05	2432	07	2442	09	2452
04	2427	06	2437	08	2447		

3.

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	PCB Antenna	N/A	1.3	

2.2 DESCRIPTION OF TEST MODES

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH9
Mode 5	Link Mode

Conducted Emission	
Final Test Mode	Description
Mode 5	Link Mode

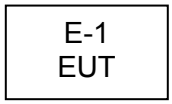
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH9

Note:

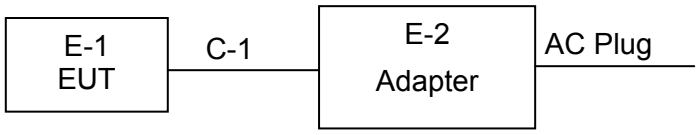
(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Conducted Emission Test



RF test setup:

Block diagram of EUT configuration(TX Mode)

Note:
1. The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.
2. Using the notebook and the transform board to control the fixed transmitting frequency and other test mode. After finishing the test setting, the notebook and the transform board will be removed during measurements.

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	WiFi Endoscope	N/A	WF010	N/A	EUT
E-2	Adapter	N/A	A8A-501000	N/A	Lab Provide
E-3	Notebook	Lenovo	S2	N/A	Lab Provide
E-4	Transfrom board	N/A	N/A	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8M	USB cable unshielded

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	2016.08.25	2017.08.24
2	Test Receiver	R&S	ESPI	101396	2016.08.25	2017.08.24
3	Bilog Antenna	SCHWARZBECK	VULB9160	VULB9160-3369	2016.08.25	2017.08.24
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.07.06	2017.07.05
5	Spectrum Analyzer	Agilent	N9020A	MY5051041	2016.07.06	2017.07.05
6	Horn Antenna	SCHWARZBECK	9120D	9120D-1275	2016.08.25	2017.08.24
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2016.07.06	2017.07.05
8	Amplifier	SCHWARZBECK	BBV9718	9718-270	2016.08.25	2017.08.24
9	Amplifier	SCHWARZBECK	BBV9743	9743-119	2016.08.25	2017.08.24
10	Loop Antenna	ARA	PLWF01030/B	1029	2016.07.06	2017.07.05
11	Power Meter	R&S	NRVS	100696	2016.07.06	2017.07.05
12	Power Sensor	R&S	NRV-Z55	161905	2016.07.06	2017.07.05
13	RF cables	R&S	N/A	N/A	2016.07.06	2017.07.05

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	2016.06.06	2017.06.05
2	LISN	R&S	NSLK8126	8126466	2016.08.25	2017.08.24
3	LISN	R&S	NSLK8126	8126487	2016.08.25	2017.08.24
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2016.06.07	2017.06.06
5	RF cables	R&S	R204	R20X	2016.07.06	2017.07.05

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

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

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	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

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

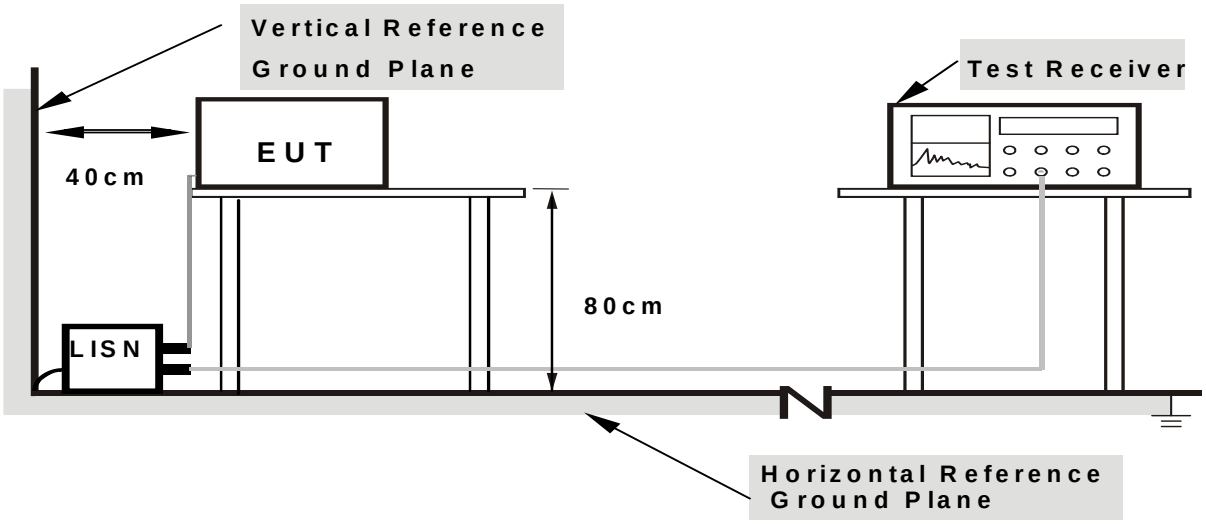
d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

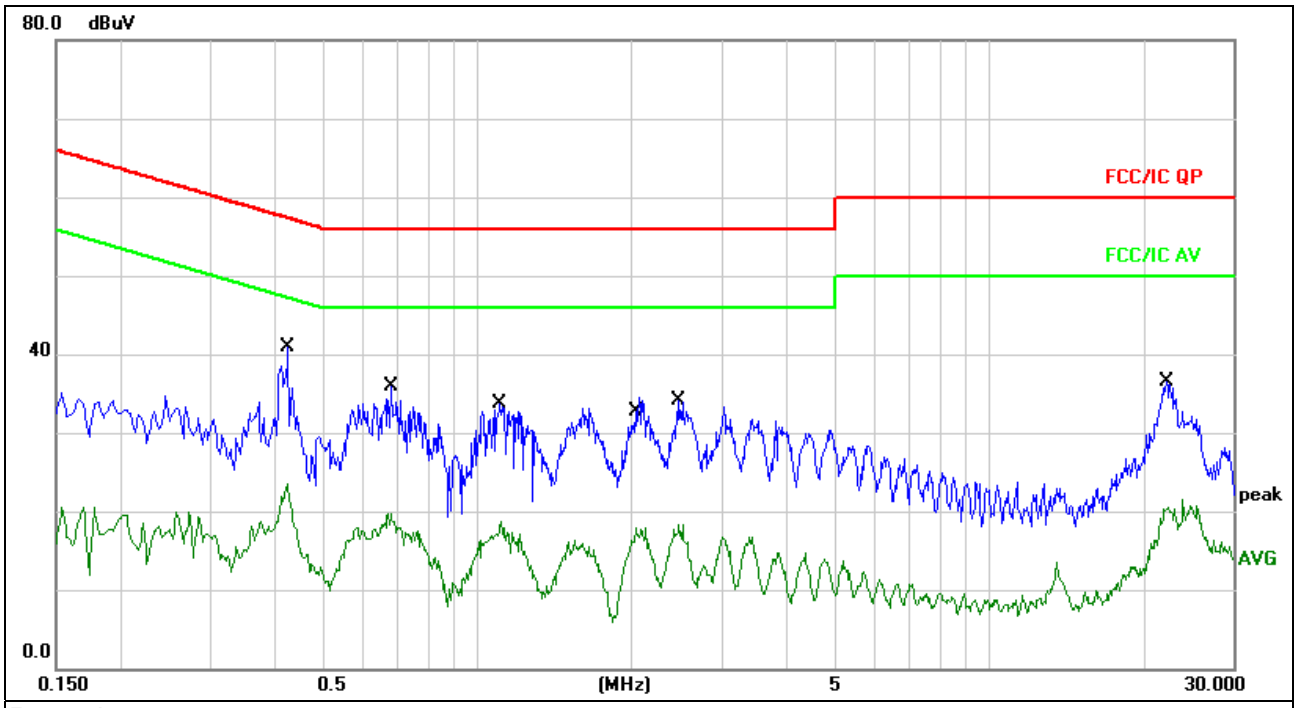
3.1.5 EUT OPERATING CONDITIONS

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

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

3.1.6 TEST RESULTS

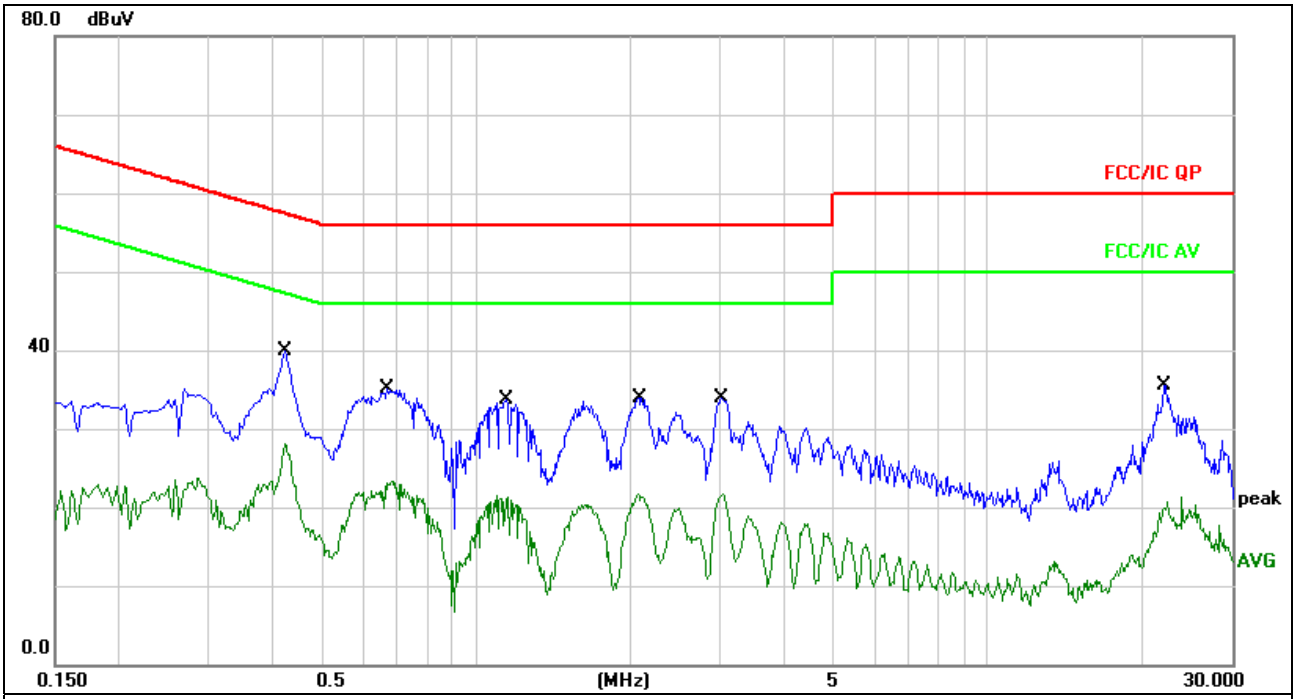
Temperature：	26℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	Input: AC120V/60Hz Output: DC 3.7V	Test Mode：	Mode 5



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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.4260	31.14	9.67	40.81	57.33	-16.52	QP	
2		0.4260	13.84	9.67	23.51	47.33	-23.82	AVG	
3		0.6780	26.22	9.68	35.90	56.00	-20.10	QP	
4		0.6780	10.06	9.68	19.74	46.00	-26.26	AVG	
5		1.1060	23.97	9.69	33.66	56.00	-22.34	QP	
6		1.1060	9.00	9.69	18.69	46.00	-27.31	AVG	
7		2.0380	24.70	9.71	34.41	56.00	-21.59	QP	
8		2.0380	8.27	9.71	17.98	46.00	-28.02	AVG	
9		2.4739	24.42	9.72	34.14	56.00	-21.86	QP	
10		2.4739	8.56	9.72	18.28	46.00	-27.72	AVG	
11		22.2139	26.59	9.85	36.44	60.00	-23.56	QP	
12		22.2139	11.68	9.85	21.53	50.00	-28.47	AVG	

Temperature：	26℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	Input: AC120V/60Hz Output: DC 3.7V	Test Mode：	Mode 5



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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.4220	30.25	9.67	39.92	57.41	-17.49	QP	
2		0.4220	18.48	9.67	28.15	47.41	-19.26	AVG	
3		0.6700	25.48	9.68	35.16	56.00	-20.84	QP	
4		0.6700	13.69	9.68	23.37	46.00	-22.63	AVG	
5		1.1420	23.99	9.69	33.68	56.00	-22.32	QP	
6		1.1420	11.72	9.69	21.41	46.00	-24.59	AVG	
7		2.0740	12.06	9.71	21.77	46.00	-24.23	AVG	
8		2.0820	24.27	9.71	33.98	56.00	-22.02	QP	
9		3.0220	24.11	9.72	33.83	56.00	-22.17	QP	
10		3.0220	11.95	9.72	21.67	46.00	-24.33	AVG	
11		22.1299	25.61	9.85	35.46	60.00	-24.54	QP	
12		22.1299	10.80	9.85	20.65	50.00	-29.35	AVG	

3.2 RADIATED EMISSION MEASUREMENT

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

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

Frequencies (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)	Limit (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

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable 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.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
h. Test the EUT in the lowest channel ,the middle 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

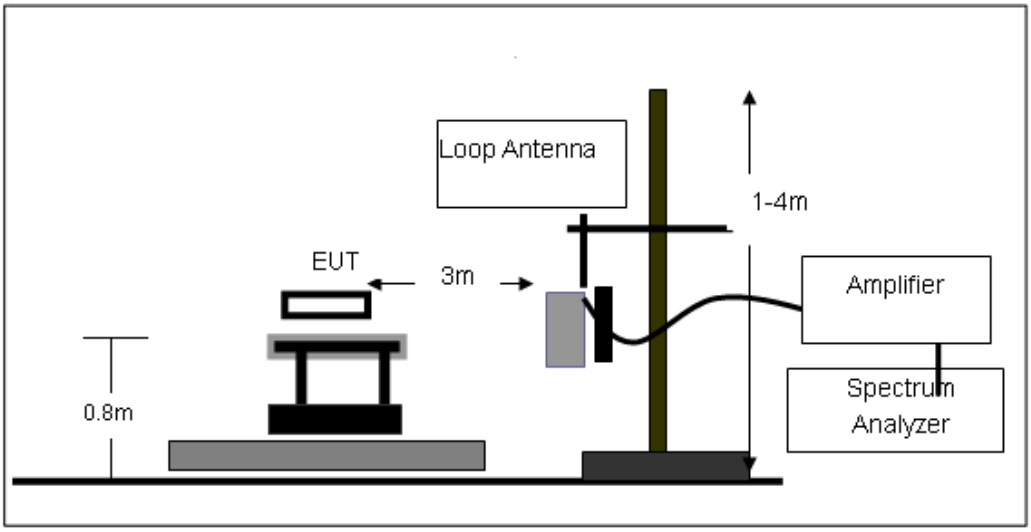
We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in t he report.

3.2.3 DEVIATION FROM TEST STANDARD

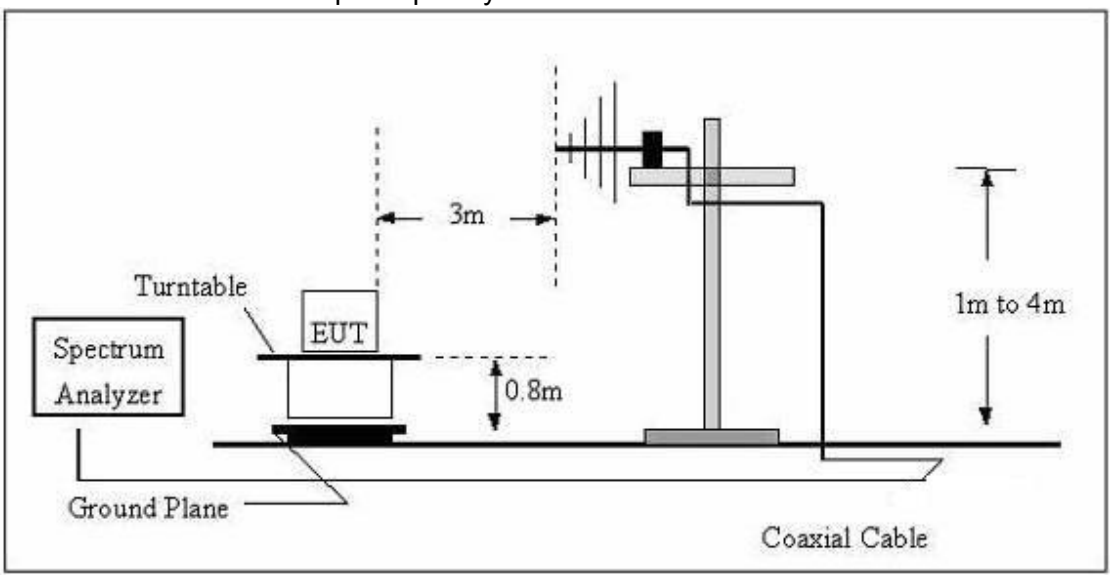
No deviation

3.2.4 TEST SETUP

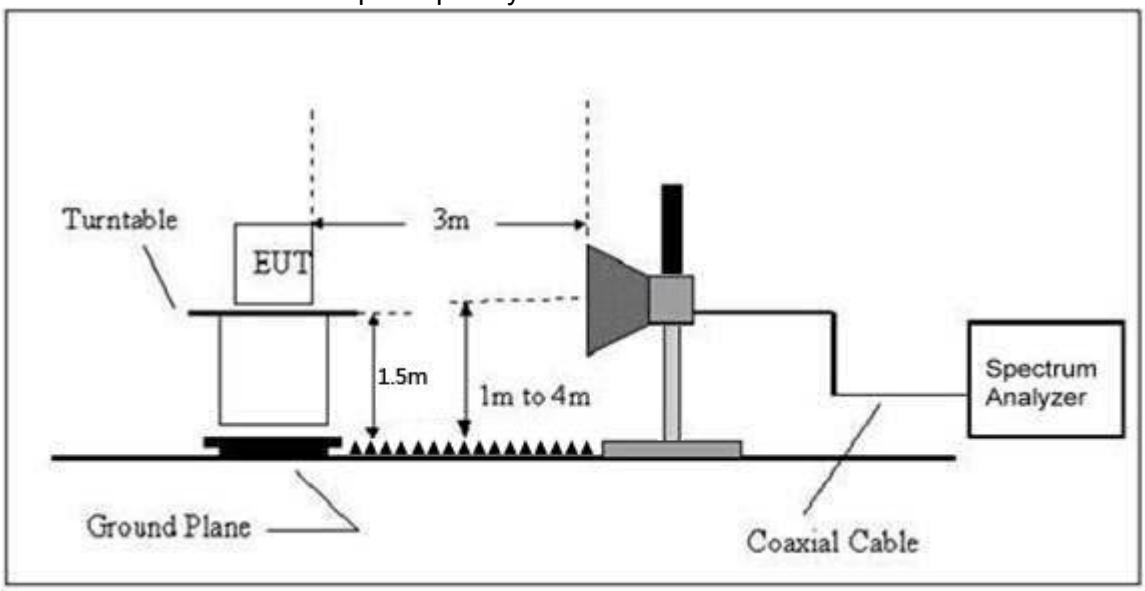
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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)

Temperature：	20℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	Mode 5	Polarization :	--

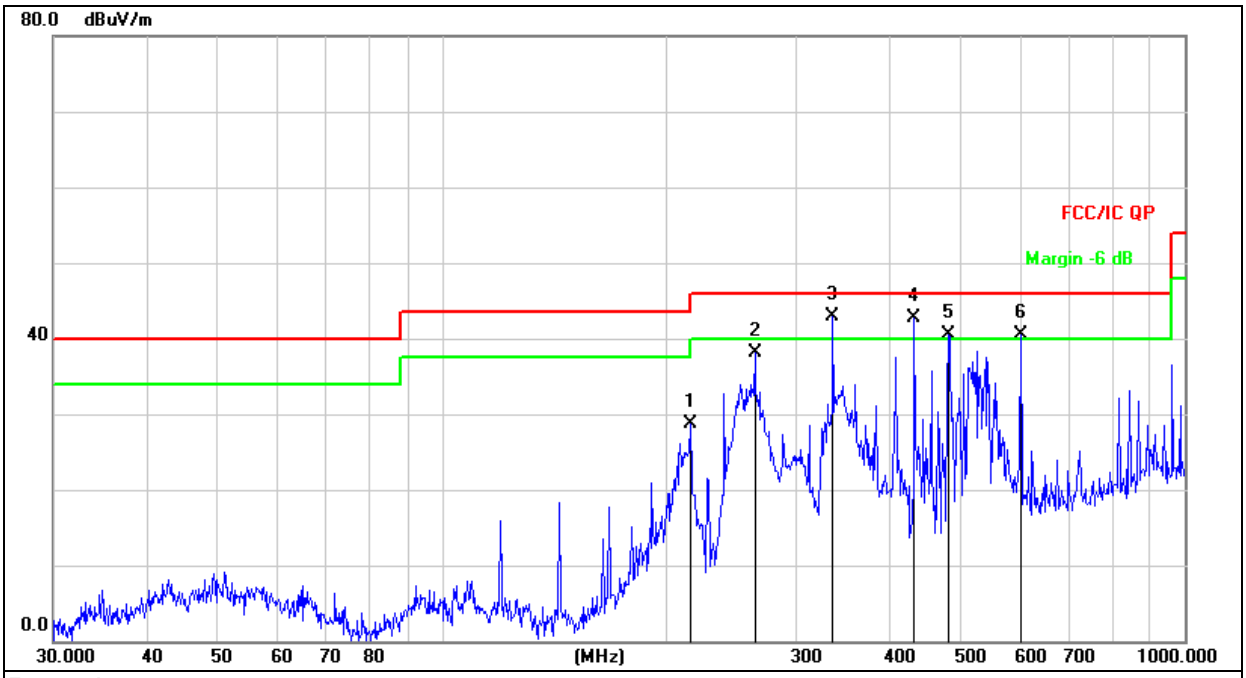
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

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 (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

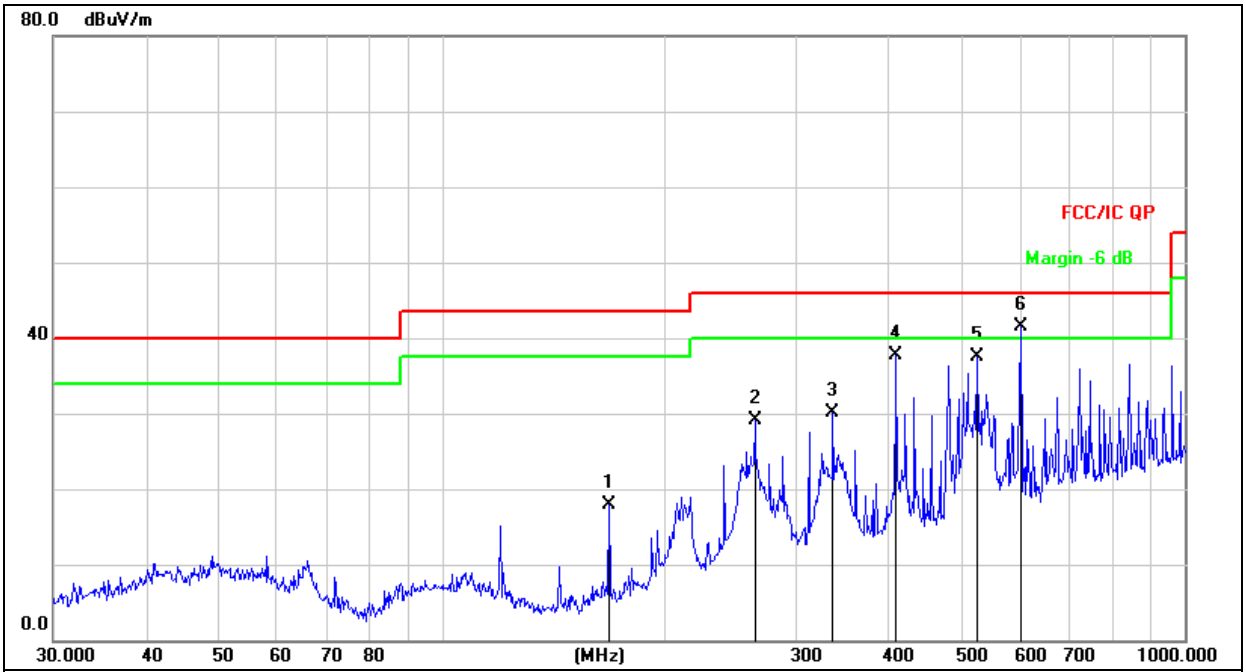
Temperature：	26℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Horizontal
Test Voltage ：	DC 3.7V		
Test Mode ：	Mode 5		



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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		216.0240	44.36	-15.61	28.75	46.00	-17.25	QP
2		263.8190	51.43	-13.28	38.15	46.00	-7.85	QP
3	*	336.0352	53.90	-10.94	42.96	46.00	-3.04	QP
4	!	432.5457	51.28	-8.62	42.66	46.00	-3.34	QP
5	!	480.5276	48.27	-7.68	40.59	46.00	-5.41	QP
6	!	601.4265	44.96	-4.47	40.49	46.00	-5.51	QP

Temperature：	26℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Vertical
Test Voltage ：	DC 3.7V		
Test Mode ：	Mode 5		



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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		167.8243	36.39	-18.57	17.82	43.50	-25.68	QP
2		263.8190	42.46	-13.28	29.18	46.00	-16.82	QP
3		336.0352	41.05	-10.94	30.11	46.00	-15.89	QP
4		408.9460	46.88	-9.13	37.75	46.00	-8.25	QP
5		526.3967	44.12	-6.56	37.56	46.00	-8.44	QP
6	*	601.4265	45.99	-4.47	41.52	46.00	-4.48	QP

3.2.8 TEST RESULTS (1GHZ~25GHZ)

802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2412							
V	4824.00	67.29	39.55	7.85	25.66	61.25	74.00	-12.75	PK
V	4824.00	50.38	39.55	7.85	25.66	44.34	54.00	-9.66	AV
V	7236.00	64.16	38.33	7.52	24.55	57.90	74.00	-16.10	PK
V	7236.00	45.52	38.33	7.52	24.55	39.26	54.00	-14.74	AV
V	15450.00	49.31	35.23	6.75	26.59	47.42	74.00	-26.58	PK
H	4824.00	62.27	39.55	7.85	25.66	56.23	74.00	-17.77	PK
H	4824.00	48.25	39.55	7.85	25.66	42.21	54.00	-11.79	AV
H	7236.00	68.91	38.33	7.52	23.55	43.87	74.00	-30.13	PK
H	7236.00	51.46	38.33	7.52	23.22	43.87	54.00	-10.13	AV
H	15450.00	46.20	35.45	6.75	27.88	45.38	74.00	-28.62	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2437							
V	4874.00	66.74	38.89	7.57	25.45	60.87	74.00	-13.13	PK
V	4874.00	49.33	38.89	7.57	25.45	43.46	54.00	-10.54	AV
V	7311.00	65.08	38.78	7.35	24.78	58.43	74.00	-15.57	PK
V	7311.00	47.16	38.78	7.35	24.78	40.51	54.00	-13.49	AV
V	15450.00	51.35	35.89	6.42	26.47	48.35	74.00	-25.65	PK
H	4874.00	65.28	38.89	7.57	25.45	59.41	74.00	-14.59	PK
H	4874.00	48.17	38.89	7.57	25.45	42.30	54.00	-11.70	AV
H	7311.00	69.93	38.78	7.35	24.78	43.87	74.00	-30.13	PK
H	7311.00	47.26	38.78	7.35	24.78	40.61	54.00	-13.39	AV
H	15450.00	49.62	36.68	6.45	26.65	46.04	74.00	-27.96	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2462							
V	4924.00	65.86	38.75	7.46	25.45	60.02	74.00	-13.98	PK
V	4924.00	49.31	38.75	7.46	25.45	43.47	54.00	-10.53	AV
V	7386.00	69.42	38.65	7.22	24.78	62.77	74.00	-11.23	PK
V	7386.00	48.53	38.65	7.22	24.78	41.88	54.00	-12.12	AV
V	15450.00	52.72	35.58	6.35	26.47	49.96	74.00	-24.04	PK
H	4924.00	65.87	38.75	7.46	25.45	60.03	74.00	-13.97	PK
H	4924.00	51.43	38.75	7.46	25.45	45.59	54.00	-8.41	AV
H	7386.00	68.25	38.65	7.22	24.78	43.87	74.00	-30.13	PK
H	7386.00	49.94	38.65	7.22	24.78	43.29	54.00	-10.71	AV
H	15450.00	48.61	36.42	6.32	26.65	45.16	74.00	-28.84	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   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.

802.11g

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2412							
V	4824.00	68.53	39.55	7.85	25.66	62.49	74.00	-11.51	PK
V	4824.00	51.76	39.55	7.85	25.66	45.72	54.00	-8.28	AV
V	7236.00	64.98	38.33	7.52	24.55	58.72	74.00	-15.28	PK
V	7236.00	46.24	38.33	7.52	24.55	39.98	54.00	-14.02	AV
V	15450.00	50.62	35.23	6.75	26.59	48.73	74.00	-25.27	PK
H	4824.00	62.75	39.55	7.85	25.66	56.71	74.00	-17.29	PK
H	4824.00	48.34	39.55	7.85	25.66	42.30	54.00	-11.70	AV
H	7236.00	67.81	38.33	7.52	23.55	43.87	74.00	-30.13	PK
H	7236.00	49.69	38.33	7.52	23.22	42.10	54.00	-11.90	AV
H	15450.00	44.27	35.45	6.75	27.88	43.45	74.00	-30.55	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2437							
V	4874.00	67.38	38.89	7.57	25.45	61.51	74.00	-12.49	PK
V	4874.00	49.65	38.89	7.57	25.45	43.78	54.00	-10.22	AV
V	7311.00	65.23	38.78	7.35	24.78	58.58	74.00	-15.42	PK
V	7311.00	49.73	38.78	7.35	24.78	43.08	54.00	-10.92	AV
V	15450.00	51.42	35.89	6.42	26.47	48.42	74.00	-25.58	PK
H	4874.00	63.81	38.89	7.57	25.45	57.94	74.00	-16.06	PK
H	4874.00	48.72	38.89	7.57	25.45	42.85	54.00	-11.15	AV
H	7311.00	68.13	38.78	7.35	24.78	43.87	74.00	-30.13	PK
H	7311.00	47.43	38.78	7.35	24.78	40.78	54.00	-13.22	AV
H	15450.00	49.56	36.68	6.45	26.65	45.98	74.00	-28.02	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2462							
V	4924.00	69.58	38.75	7.46	25.45	63.74	74.00	-10.26	PK
V	4924.00	51.46	38.75	7.46	25.45	45.62	54.00	-8.38	AV
V	7386.00	67.29	38.65	7.22	24.78	60.64	74.00	-13.36	PK
V	7386.00	50.32	38.65	7.22	24.78	43.67	54.00	-10.33	AV
V	15450.00	52.77	35.58	6.35	26.47	50.01	74.00	-23.99	PK
H	4924.00	65.16	38.75	7.46	25.45	59.32	74.00	-14.68	PK
H	4924.00	51.59	38.75	7.46	25.45	45.75	54.00	-8.25	AV
H	7386.00	66.73	38.65	7.22	24.78	43.87	74.00	-30.13	PK
H	7386.00	47.16	38.65	7.22	24.78	40.51	54.00	-13.49	AV
H	15450.00	48.29	36.42	6.32	26.65	44.84	74.00	-29.16	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   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.

802.11n(20MHz)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2412							
V	4824.00	68.25	39.55	7.85	25.66	62.21	74.00	-11.79	PK
V	4824.00	49.09	39.55	7.85	25.66	43.05	54.00	-10.95	AV
V	7236.00	65.43	38.33	7.52	24.55	59.17	74.00	-14.83	PK
V	7236.00	49.21	38.33	7.52	24.55	42.95	54.00	-11.05	AV
V	15450.00	52.34	35.23	6.75	26.59	50.45	74.00	-23.55	PK
H	4824.00	65.76	39.55	7.85	25.66	59.72	74.00	-14.28	PK
H	4824.00	46.35	39.55	7.85	25.66	40.31	54.00	-13.69	AV
H	7236.00	54.28	38.33	7.52	23.55	43.87	74.00	-30.13	PK
H	7236.00	50.16	38.33	7.52	23.22	42.57	54.00	-11.43	AV
H	15450.00	48.29	35.45	6.75	27.88	47.47	74.00	-26.53	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2437							
V	4874.00	69.06	38.89	7.57	25.45	63.19	74.00	-10.81	PK
V	4874.00	51.53	38.89	7.57	25.45	45.66	54.00	-8.34	AV
V	7311.00	64.32	38.78	7.35	24.78	57.67	74.00	-16.33	PK
V	7311.00	46.82	38.78	7.35	24.78	40.17	54.00	-13.83	AV
V	15450.00	51.67	35.89	6.42	26.47	48.67	74.00	-25.33	PK
H	4874.00	64.49	38.89	7.57	25.45	58.62	74.00	-15.38	PK
H	4874.00	47.58	38.89	7.57	25.45	41.71	54.00	-12.29	AV
H	7311.00	58.83	38.78	7.35	24.78	43.87	74.00	-30.13	PK
H	7311.00	49.21	38.78	7.35	24.78	42.56	54.00	-11.44	AV
H	15450.00	48.52	36.68	6.45	26.65	44.94	74.00	-29.06	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2462							
V	4924.00	65.12	38.75	7.46	25.45	59.28	74.00	-14.72	PK
V	4924.00	48.36	38.75	7.46	25.45	42.52	54.00	-11.48	AV
V	7386.00	65.58	38.65	7.22	24.78	58.93	74.00	-15.07	PK
V	7386.00	47.61	38.65	7.22	24.78	40.96	54.00	-13.04	AV
V	15450.00	52.37	35.58	6.35	26.47	49.61	74.00	-24.39	PK
H	4924.00	62.15	38.75	7.46	25.45	56.31	74.00	-17.69	PK
H	4924.00	46.73	38.75	7.46	25.45	40.89	54.00	-13.11	AV
H	7386.00	59.92	38.65	7.22	24.78	53.27	74.00	-20.73	PK
H	7386.00	49.26	38.65	7.22	24.78	42.61	54.00	-11.39	AV
H	15450.00	48.85	36.42	6.32	26.65	45.40	74.00	-28.60	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
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.

802.11n(40MHz)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2422							
V	4844.000	65.16	39.55	7.77	25.66	59.04	74.00	-14.96	PK
V	4844.000	45.28	39.55	7.77	25.66	39.16	54.00	-14.84	AV
V	7266.000	56.61	38.33	7.30	24.55	50.13	74.00	-23.87	PK
V	7266.000	47.36	38.33	7.30	24.55	40.88	54.00	-13.12	AV
V	15450.00	49.16	35.23	6.60	26.59	47.12	74.00	-26.88	PK
H	4844.000	62.85	39.55	7.77	25.66	56.73	74.00	-17.27	PK
H	4844.000	43.01	39.55	7.77	25.66	36.89	54.00	-17.11	AV
H	7266.000	51. 35	38.33	7.30	23.55	43.87	74.00	-30.13	PK
H	7266.000	48.89	38.33	7.30	23.22	41.08	54.00	-12.92	AV
H	15450.00	49.73	35.45	6.60	27.88	48.76	74.00	-25.24	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2437							
V	4874.00	67.15	38.89	7.57	25.45	61.28	74.00	-12.72	PK
V	4874.00	46.63	38.89	7.57	25.45	40.76	54.00	-13.24	AV
V	7311.00	57.48	38.78	7.35	24.78	50.83	74.00	-23.17	PK
V	7311.00	48.29	38.78	7.35	24.78	41.64	54.00	-12.36	AV
V	15450.00	49.93	35.89	6.42	26.47	46.93	74.00	-27.07	PK
H	4874.00	55.72	38.89	7.57	25.45	49.85	74.00	-24.15	PK
H	4874.00	48.89	38.89	7.57	25.45	43.02	54.00	-10.98	AV
H	7311.00	54.72	38.78	7.35	24.78	48.07	74.00	-25.93	PK
H	7311.00	48.59	38.78	7.35	24.78	41.94	54.00	-12.06	AV
H	15450.00	49.12	36.68	6.42	26.65	45.51	74.00	-28.49	PK

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
		operation frequency:2452							
V	4904.00	66.12	38.75	7.38	25.45	60.20	74.00	-13.80	PK
V	4904.00	47.37	38.75	7.38	25.45	41.45	54.00	-12.55	AV
V	7356.00	55.92	38.65	7.15	24.78	49.20	74.00	-24.80	PK
V	7356.00	48.45	38.65	7.15	24.78	41.73	54.00	-12.27	AV
V	15450.00	52.69	35.58	6.25	26.47	49.83	74.00	-24.17	PK
H	4904.00	63.64	38.75	7.38	25.45	57.72	74.00	-16.28	PK
H	4904.00	45.35	38.75	7.38	25.45	39.43	54.00	-14.57	AV
H	7356.00	52.83	38.65	7.15	24.78	46.11	74.00	-27.89	PK
H	7356.00	49.21	38.65	7.15	24.78	42.49	54.00	-11.51	AV
H	15450.00	48.36	36.42	6.25	26.65	44.84	74.00	-29.16	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
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.

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)	Limit (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:

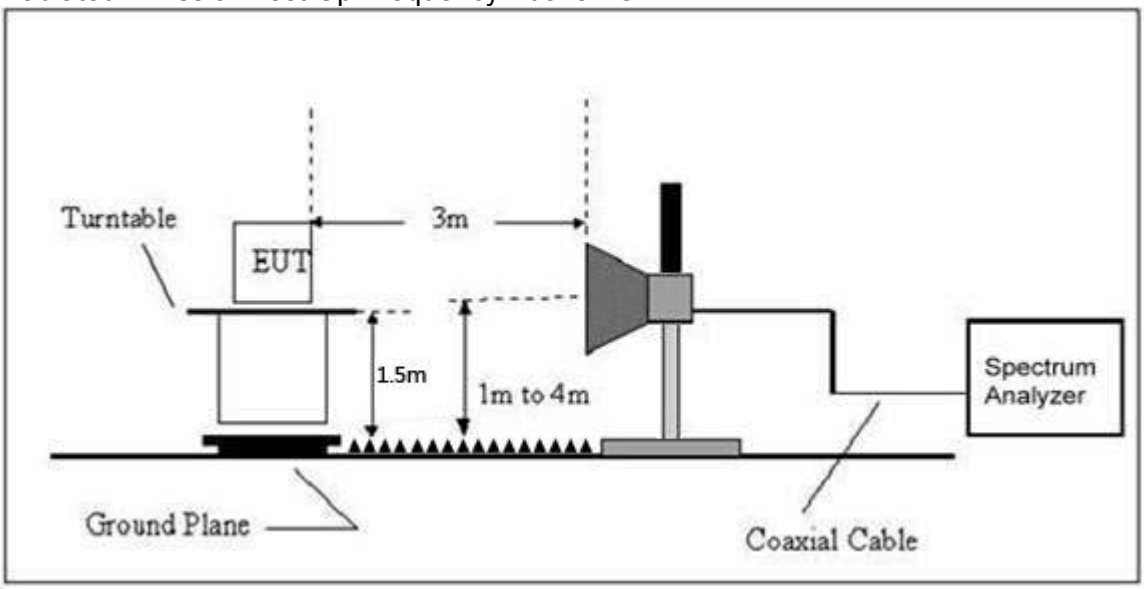
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

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

802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412							
V	2390.00	39.25	13.83	53.08	74.00	-20.92	PK
V	2390.00	27.31	13.83	41.14	54.00	-12.86	AV
V	2400.00	39.11	13.85	52.96	74.00	-21.04	PK
V	2400.00	26.37	13.85	40.22	54.00	-13.78	AV
H	2390.00	39.62	13.83	53.45	74.00	-20.55	PK
H	2390.00	27.04	13.83	40.87	54.00	-13.13	AV
V	2400.00	39.65	13.85	53.50	74.00	-20.50	PK
V	2400.00	27.34	13.85	41.19	54.00	-12.81	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2462							
V	2483.50	39.41	14.02	53.43	74.00	-20.57	PK
V	2483.50	27.24	14.02	41.26	54.00	-12.74	AV
V	2500.00	38.86	14.06	52.92	74.00	-21.08	PK
V	2500.00	27.52	14.06	41.58	54.00	-12.42	AV
H	2483.50	39.33	14.02	53.35	74.00	-20.65	PK
H	2483.50	26.89	14.02	40.91	54.00	-13.09	AV
H	2500.00	38.65	14.06	52.71	74.00	-21.29	PK
H	2500.00	28.34	14.06	42.40	54.00	-11.60	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.

802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412							
V	2390.00	36.93	13.83	50.76	74.00	-23.24	PK
V	2390.00	27.42	13.83	41.25	54.00	-12.75	AV
V	2400.00	36.37	13.85	50.22	74.00	-23.78	PK
V	2400.00	26.41	13.85	40.26	54.00	-13.74	AV
H	2390.00	39.52	13.83	53.35	74.00	-20.65	PK
H	2390.00	27.35	13.83	41.18	54.00	-12.82	AV
V	2400.00	36.48	13.85	50.33	74.00	-23.67	PK
V	2400.00	27.62	13.85	41.47	54.00	-12.53	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2462							
V	2483.50	36.19	14.02	50.21	74.00	-23.79	PK
V	2483.50	26.72	14.02	40.74	54.00	-13.26	AV
V	2500.00	36.42	14.06	50.48	74.00	-23.52	PK
V	2500.00	25.14	14.06	39.20	54.00	-14.80	AV
H	2483.50	39.53	14.02	53.55	74.00	-20.45	PK
H	2483.50	26.51	14.02	40.53	54.00	-13.47	AV
H	2500.00	35.47	14.06	49.53	74.00	-24.47	PK
H	2500.00	25.38	14.06	39.44	54.00	-14.56	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.

802.11n(20MHz)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412							
V	2390.00	35.15	13.83	48.98	74.00	-25.02	PK
V	2390.00	24.28	13.83	38.11	54.00	-15.89	AV
V	2400.00	37.36	13.85	51.21	74.00	-22.79	PK
V	2400.00	25.46	13.85	39.31	54.00	-14.69	AV
H	2390.00	37.22	13.83	51.05	74.00	-22.95	PK
H	2390.00	25.83	13.83	39.66	54.00	-14.34	AV
V	2400.00	36.29	13.85	50.14	74.00	-23.86	PK
V	2400.00	25.43	13.85	39.28	54.00	-14.72	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2462							
V	2483.50	37.12	14.02	51.14	74.00	-22.86	PK
V	2483.50	26.84	14.02	40.86	54.00	-13.14	AV
V	2500.00	36.91	14.06	50.97	74.00	-23.03	PK
V	2500.00	26.64	14.06	40.70	54.00	-13.30	AV
H	2483.50	36.25	14.02	50.27	74.00	-23.73	PK
H	2483.50	25.16	14.02	39.18	54.00	-14.82	AV
H	2500.00	38.04	14.06	52.10	74.00	-21.90	PK
H	2500.00	27.61	14.06	41.67	54.00	-12.33	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.

802.11n(40MHz)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2422							
V	2390.00	36.81	13.83	50.64	74.00	-23.36	PK
V	2390.00	27.50	13.83	41.33	54.00	-12.67	AV
V	2400.00	37.24	13.85	51.09	74.00	-22.91	PK
V	2400.00	25.35	13.85	39.20	54.00	-14.80	AV
H	2390.00	36.67	13.83	50.50	74.00	-23.50	PK
H	2390.00	25.23	13.83	39.06	54.00	-14.94	AV
V	2400.00	37.08	13.85	50.93	74.00	-23.07	PK
V	2400.00	25.85	13.85	39.70	54.00	-14.30	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2452							
V	2483.50	36.91	14.02	50.93	74.00	-23.07	PK
V	2483.50	25.76	14.02	39.78	54.00	-14.22	AV
V	2500.00	37.15	14.06	51.21	74.00	-22.79	PK
V	2500.00	25.54	14.06	39.60	54.00	-14.40	AV
H	2483.50	37.62	14.02	51.64	74.00	-22.36	PK
H	2483.50	25.83	14.02	39.85	54.00	-14.15	AV
H	2500.00	36.42	14.06	50.48	74.00	-23.52	PK
H	2500.00	26.66	14.06	40.72	54.00	-13.28	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

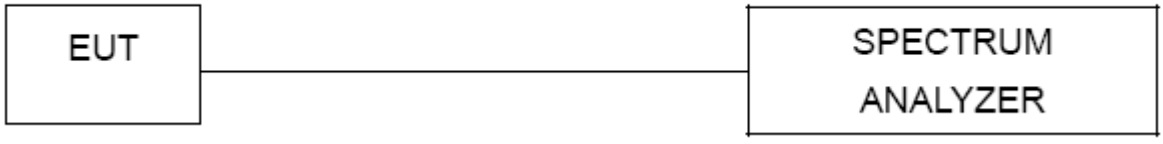
4.1.1 TEST PROCEDURE

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 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x 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

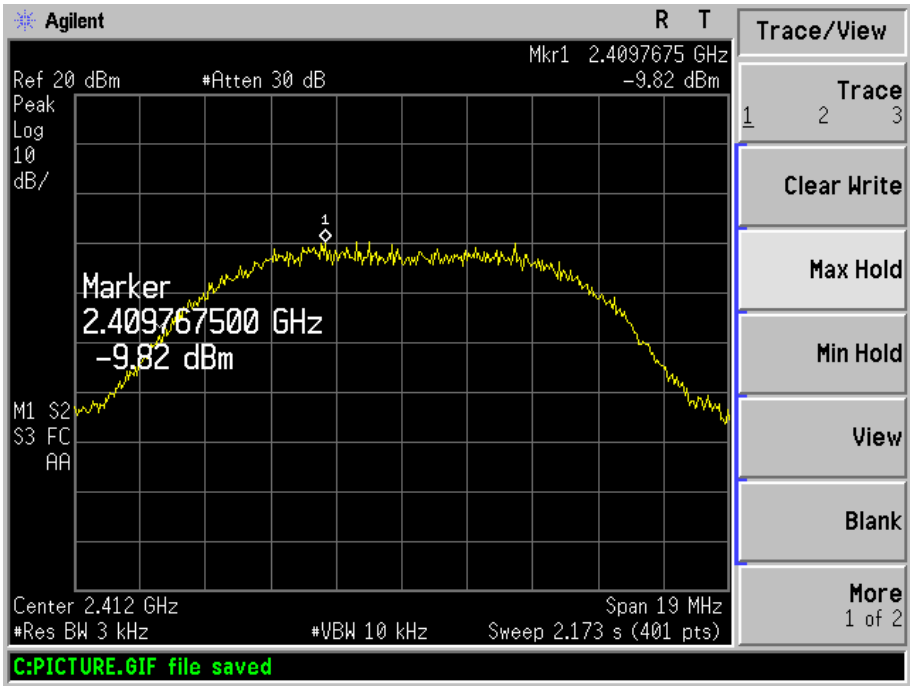
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

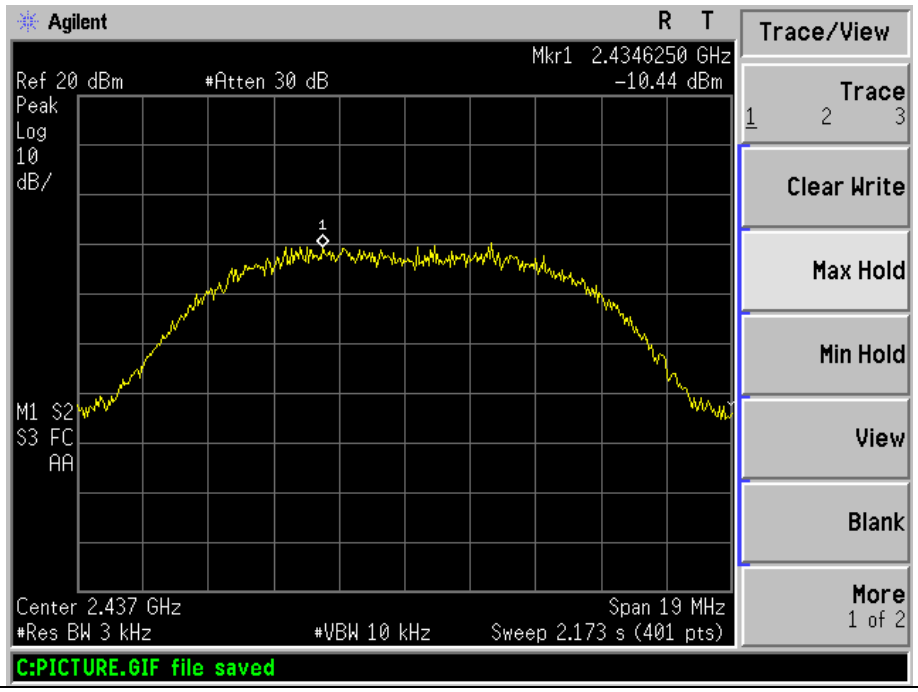
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX b Mode		

Frequency	Power Spectral Density(dBm)	Limit (dBm)	Result
2412 MHz	-9.82	8	PASS
2437 MHz	-10.44	8	PASS
2462 MHz	-10.17	8	PASS

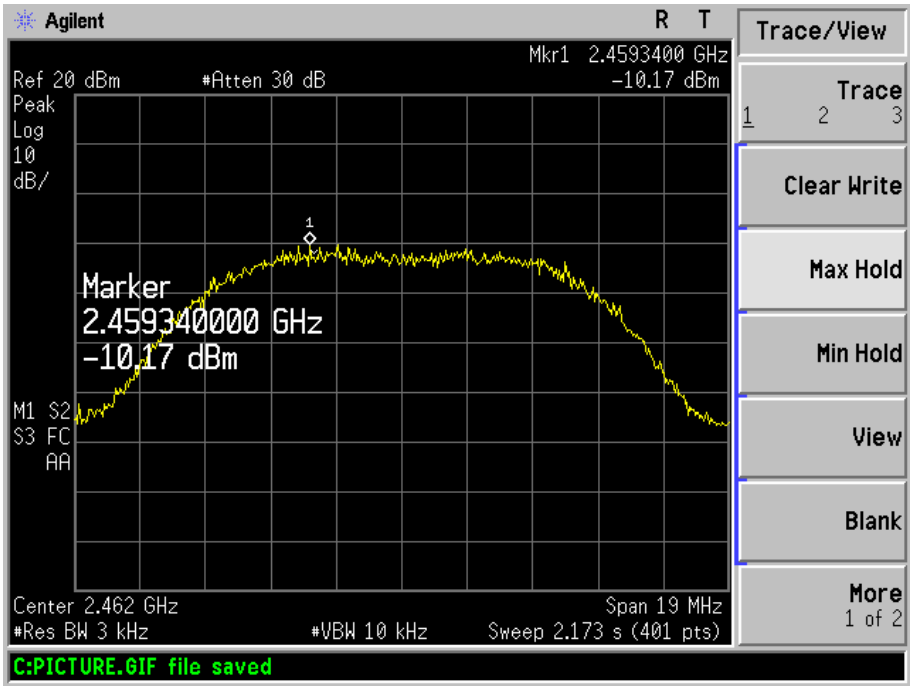
TX CH01



TX CH06



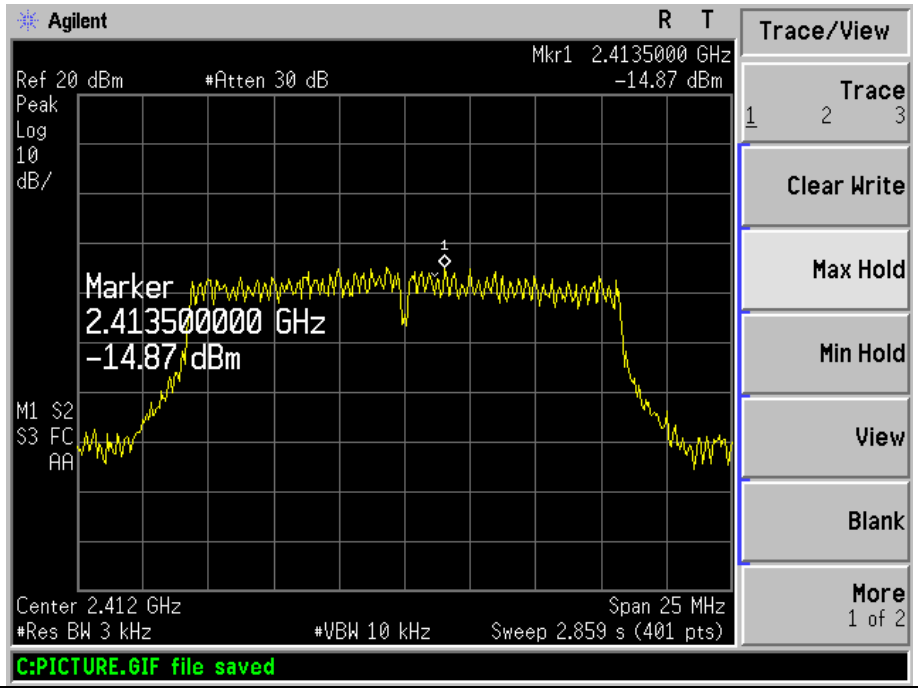
TX CH11



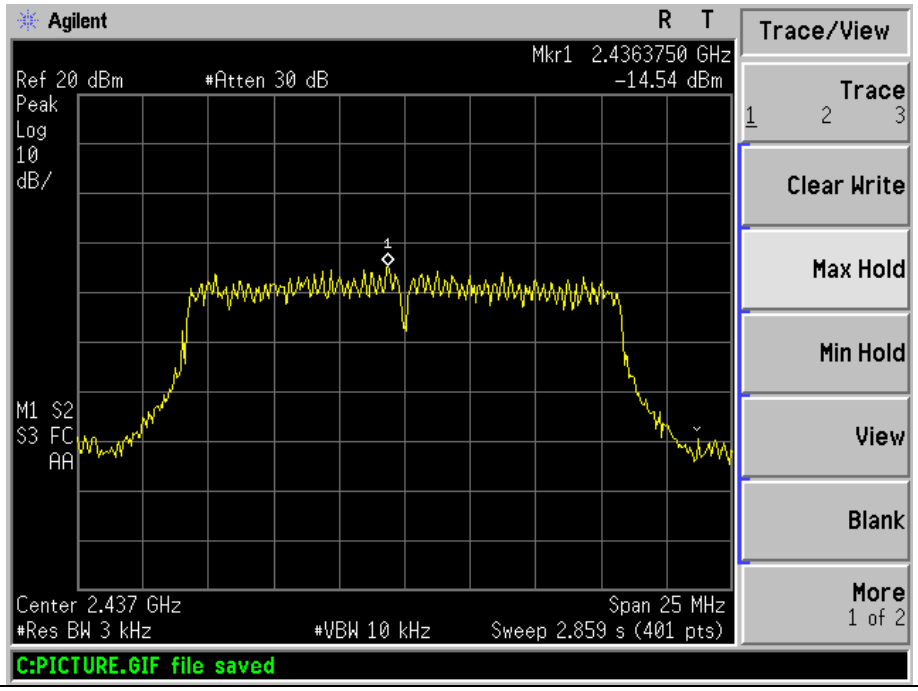
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX g Mode		

Frequency	Power Spectral Density(dBm)	Limit (dBm)	Result
2412 MHz	-14.87	8	PASS
2437 MHz	-14.54	8	PASS
2462 MHz	-14.55	8	PASS

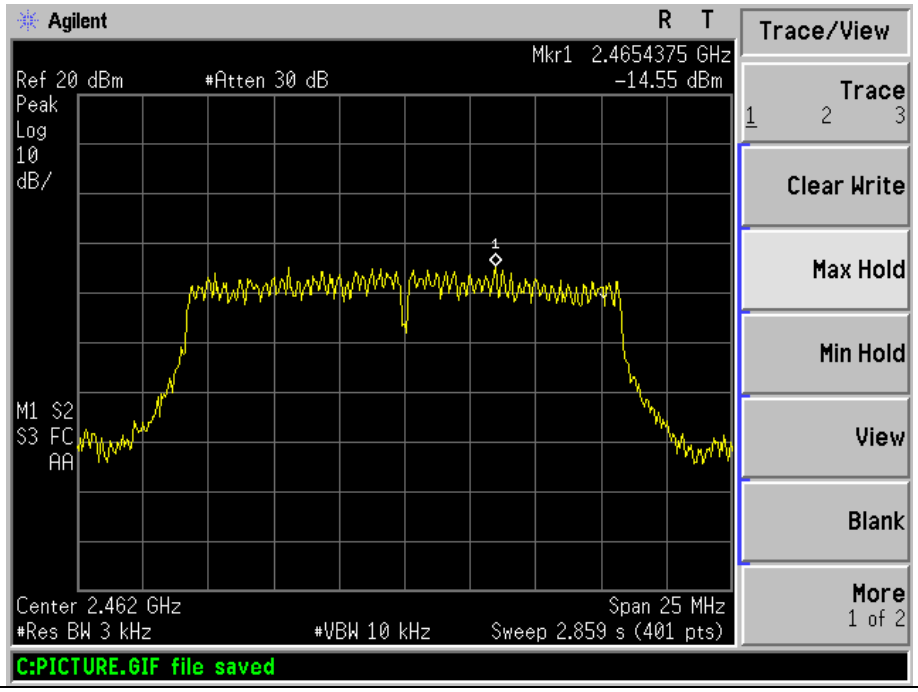
TX CH01



TX CH06



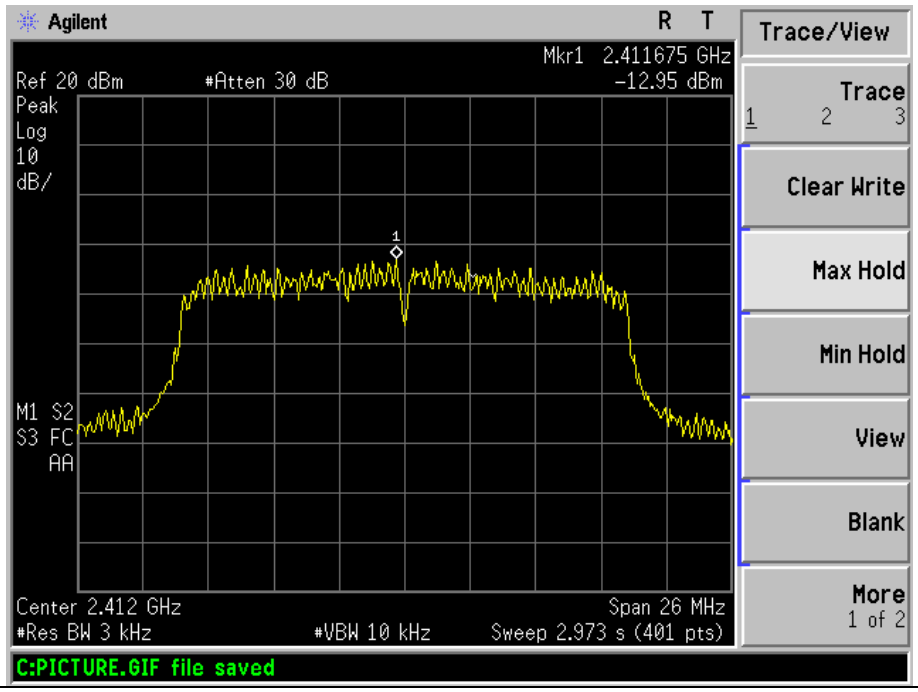
TX CH11



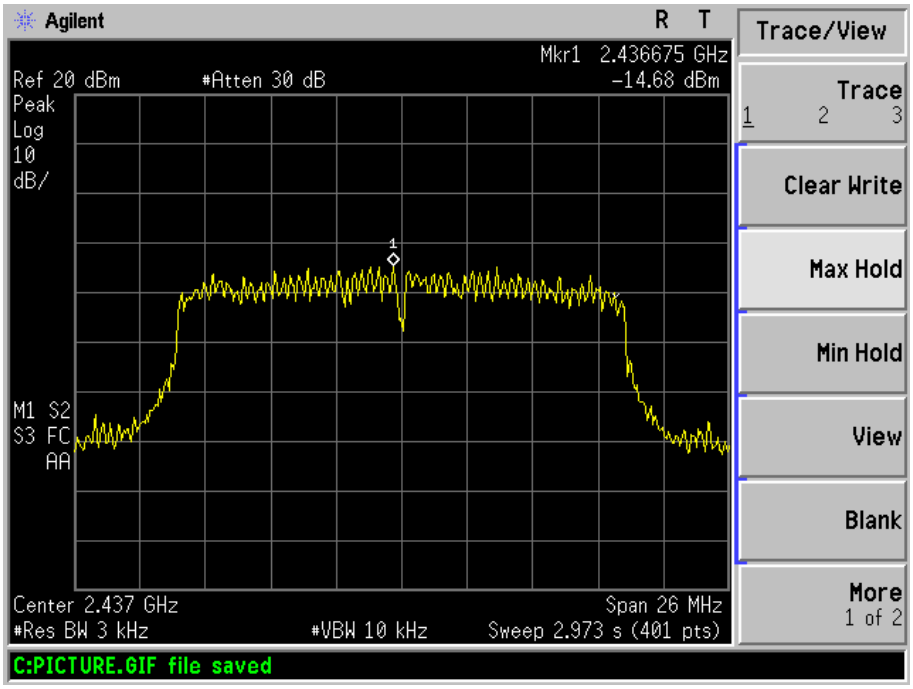
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX n Mode(20M)		

Frequency	Power Spectral Density(dBm)	Limit (dBm)	Result
2412 MHz	-12.95	8	PASS
2437 MHz	-14.68	8	PASS
2462 MHz	-14.98	8	PASS

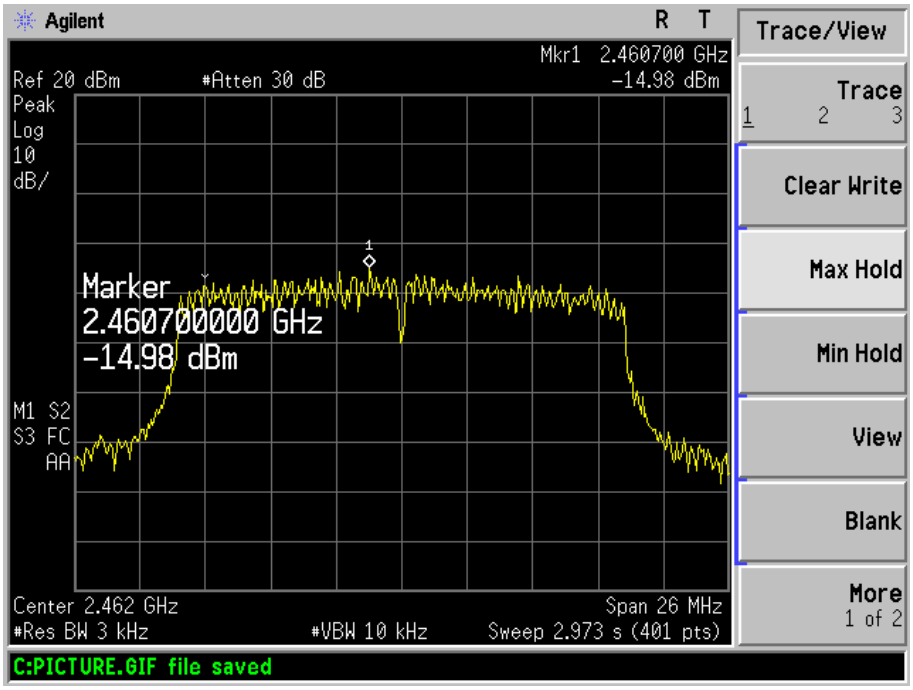
TX CH01



TX CH06



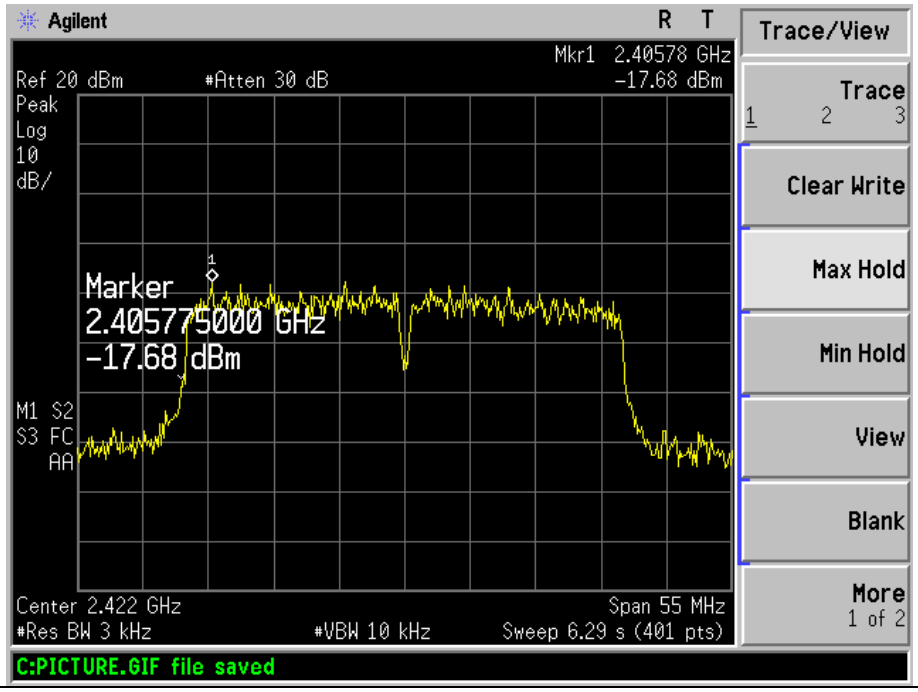
TX CH11



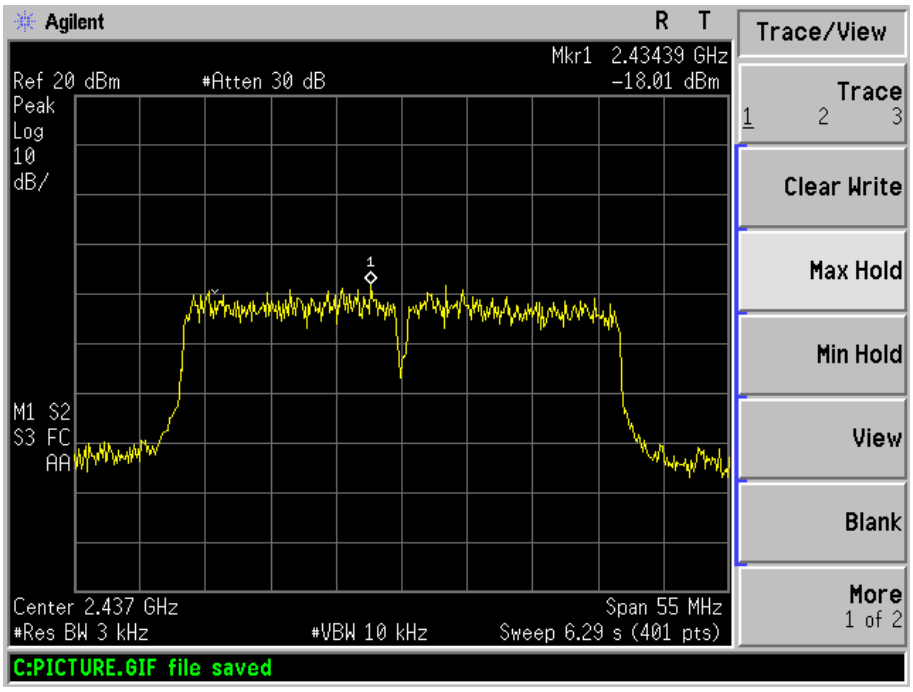
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX n Mode(40M)		

Frequency	Power Spectral Density(dBm)	Limit (dBm)	Result
2422 MHz	-17.68	8	PASS
2437 MHz	-18.01	8	PASS
2452 MHz	-19.32	8	PASS

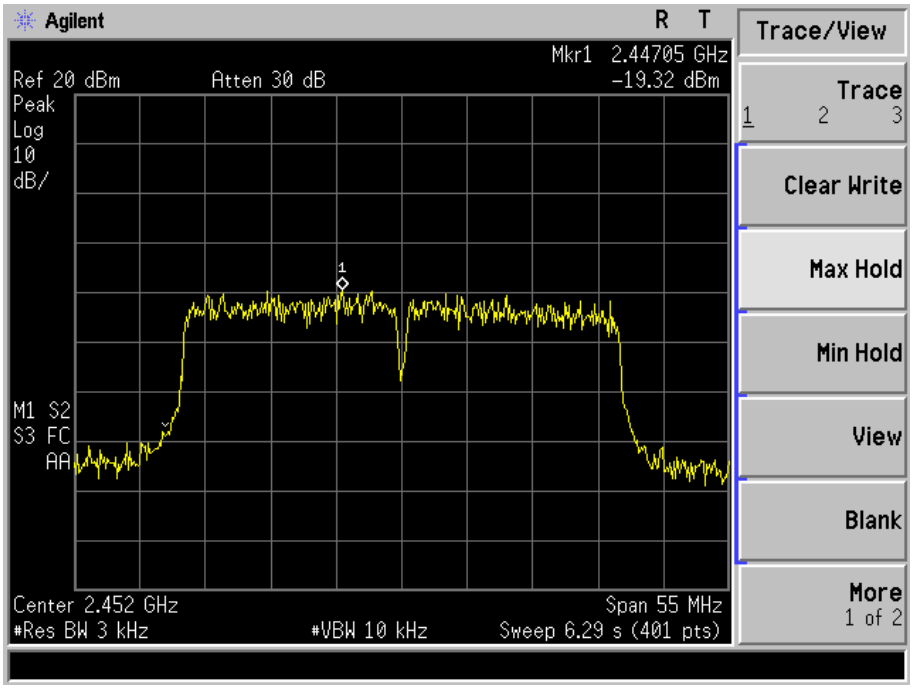
TX CH03



TX CH06



TX CH09



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	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

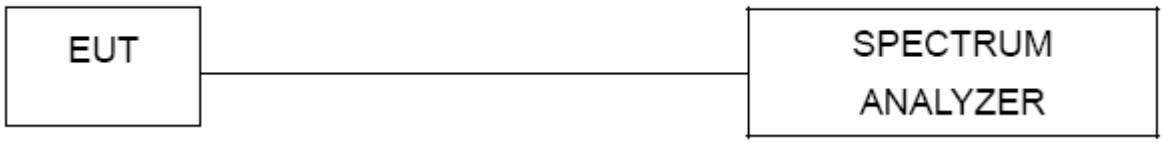
5.1.1 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x 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

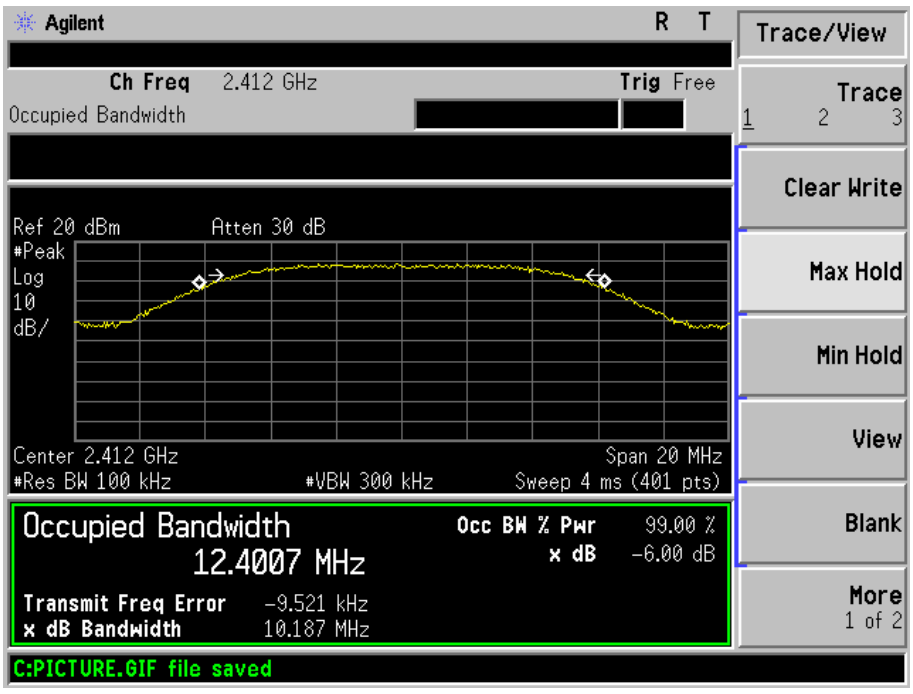
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

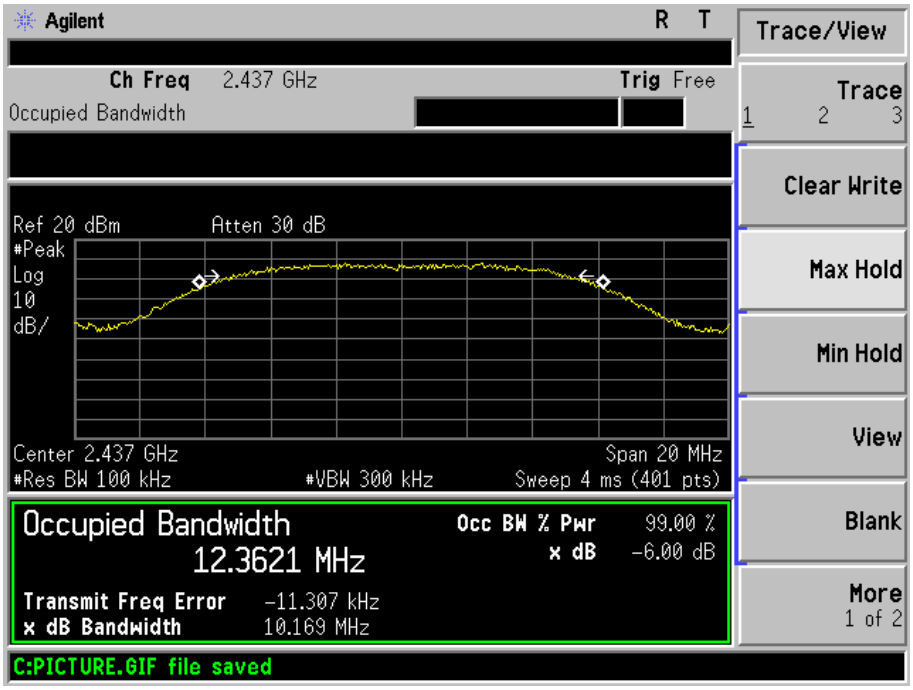
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX b Mode		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.187	500	Pass
Middle	2437	10.169	500	Pass
High	2462	10.268	500	Pass

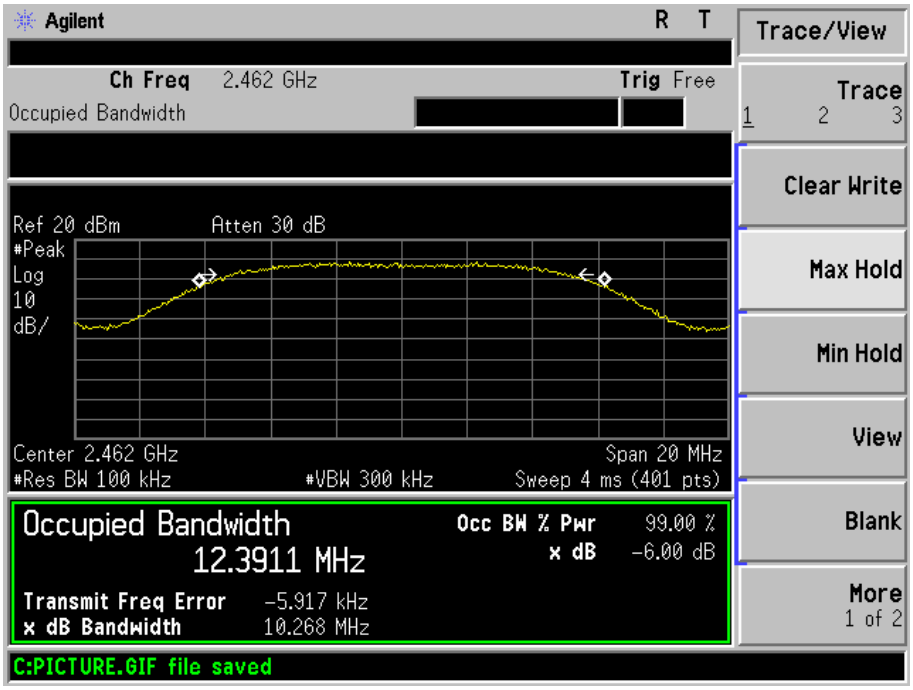
TX CH 01



TX CH 06



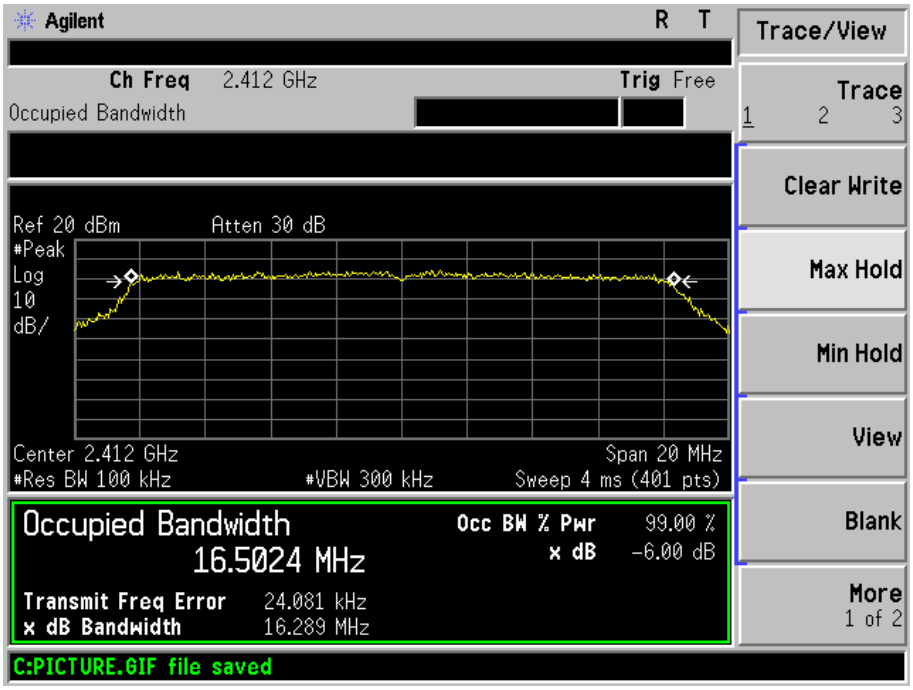
TX CH 11



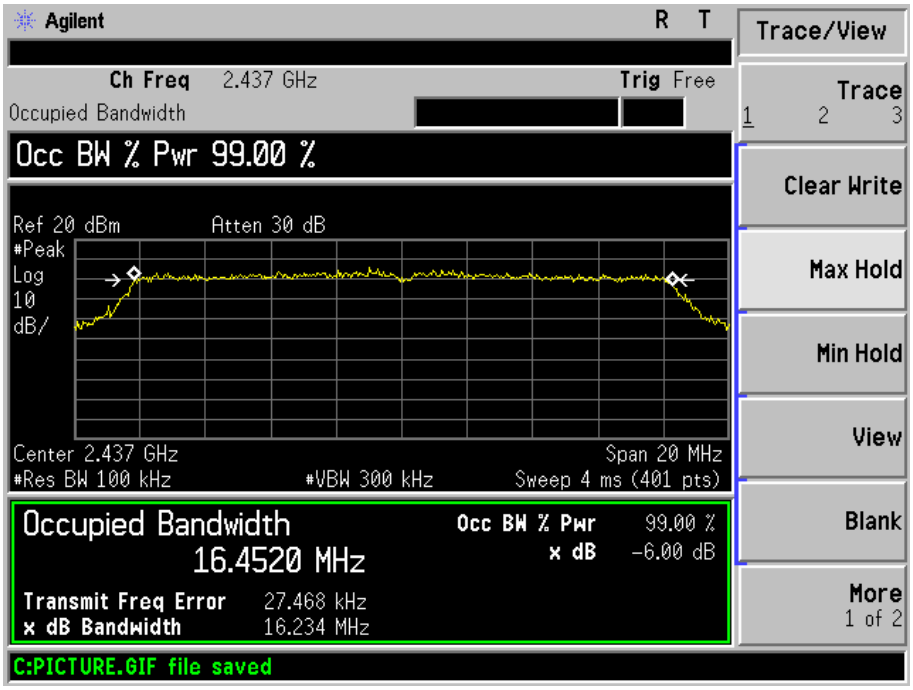
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX g Mode		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.289	500	Pass
Middle	2437	16.234	500	Pass
High	2462	16.179	500	Pass

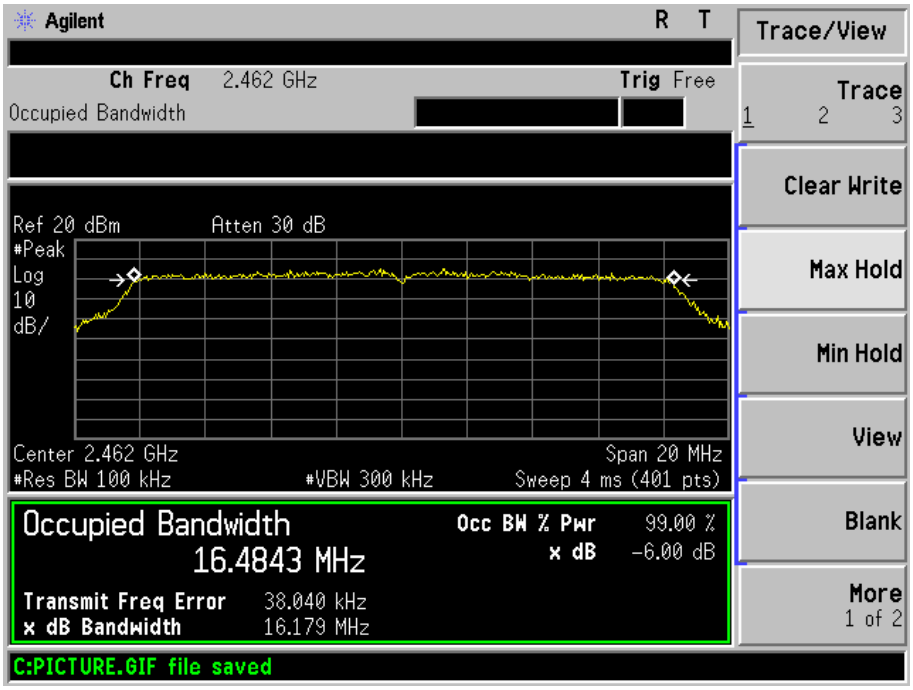
TX CH 01



TX CH 06



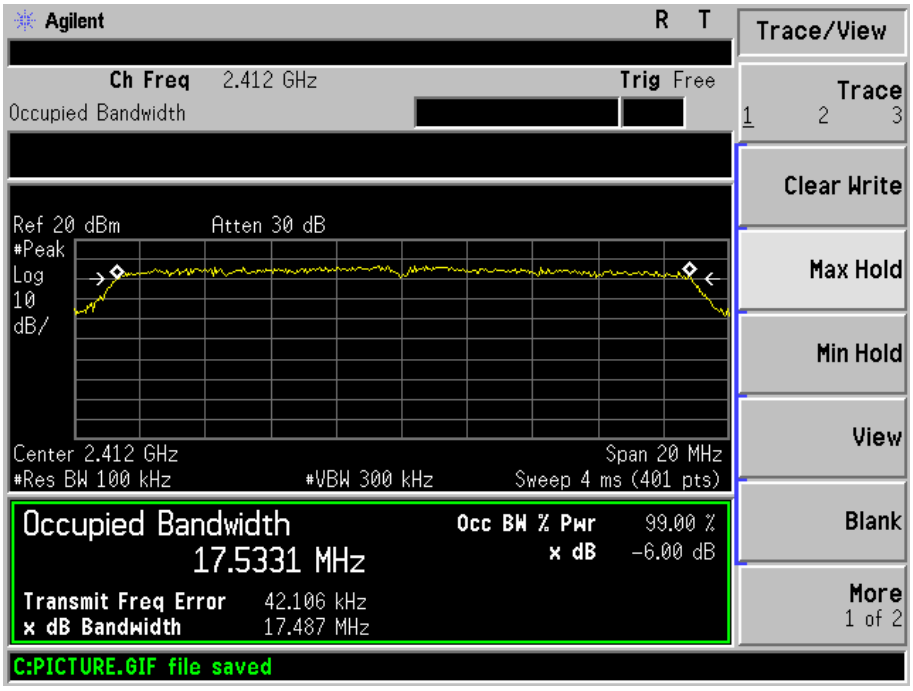
TX CH 11



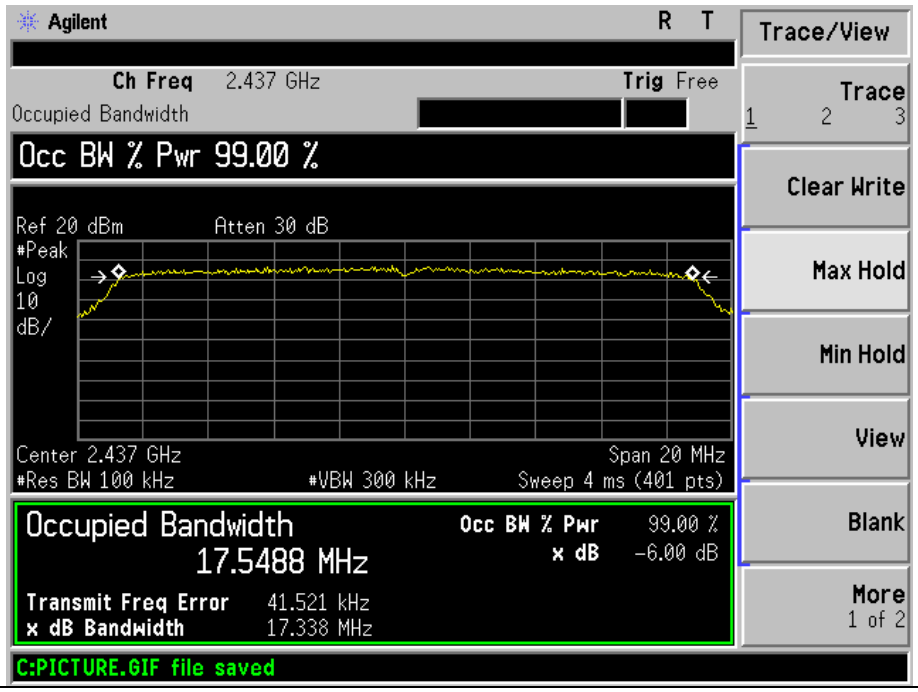
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX n Mode(20M)		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.487	500	Pass
Middle	2437	17.338	500	Pass
High	2462	17.196	500	Pass

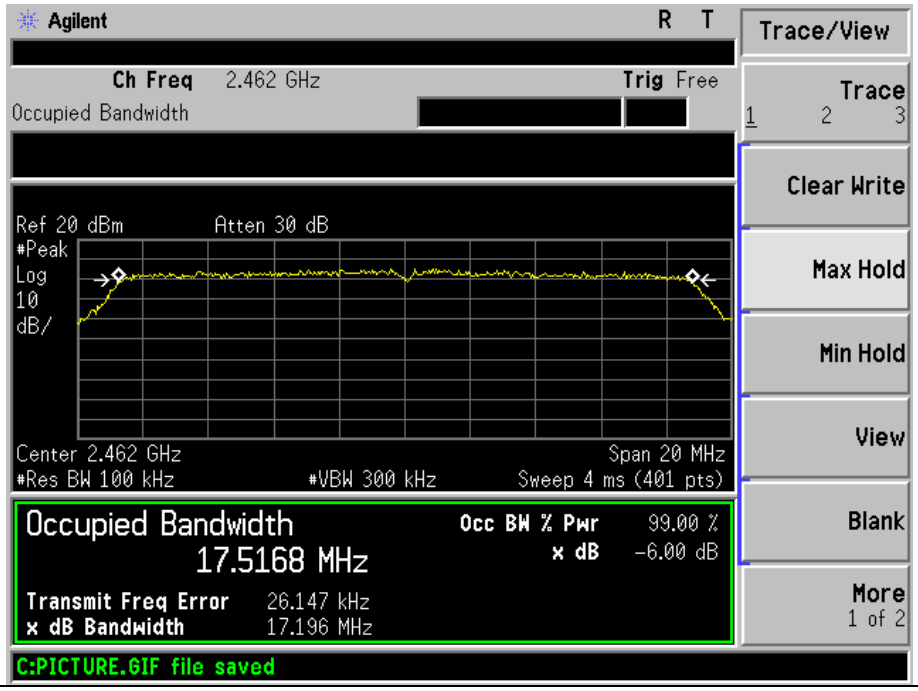
TX CH 01



TX CH 06



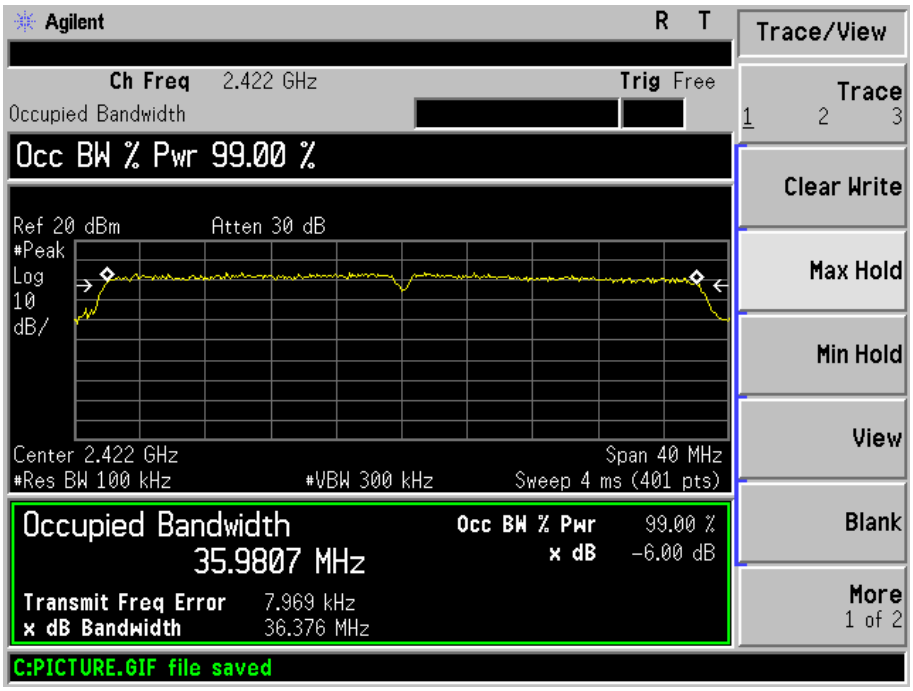
TX CH 11



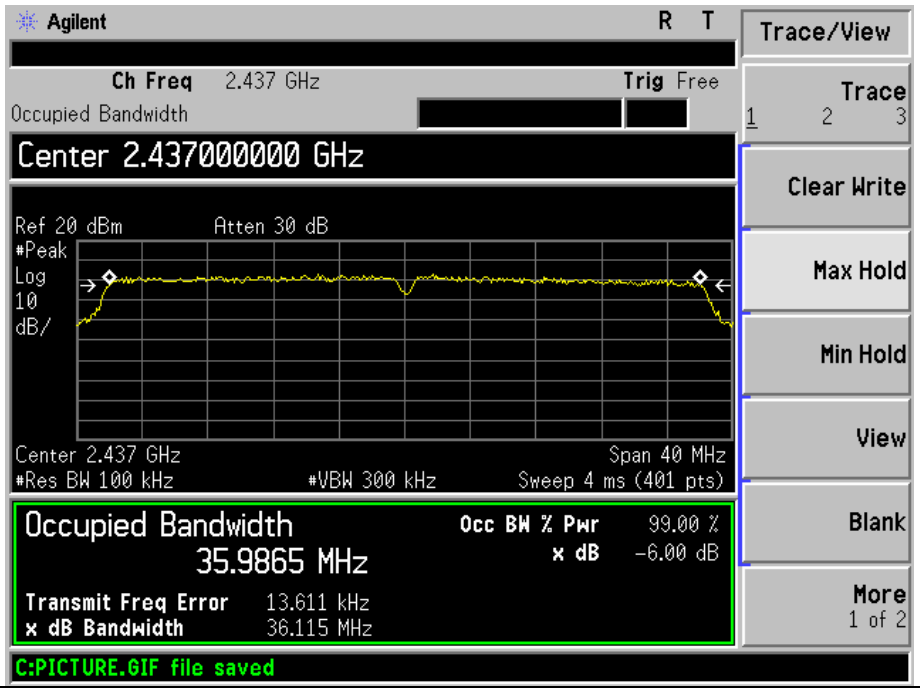
Temperature：	25℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX n Mode(40M)		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.376	500	Pass
Middle	2437	36.115	500	Pass
High	2452	36.31	500	Pass

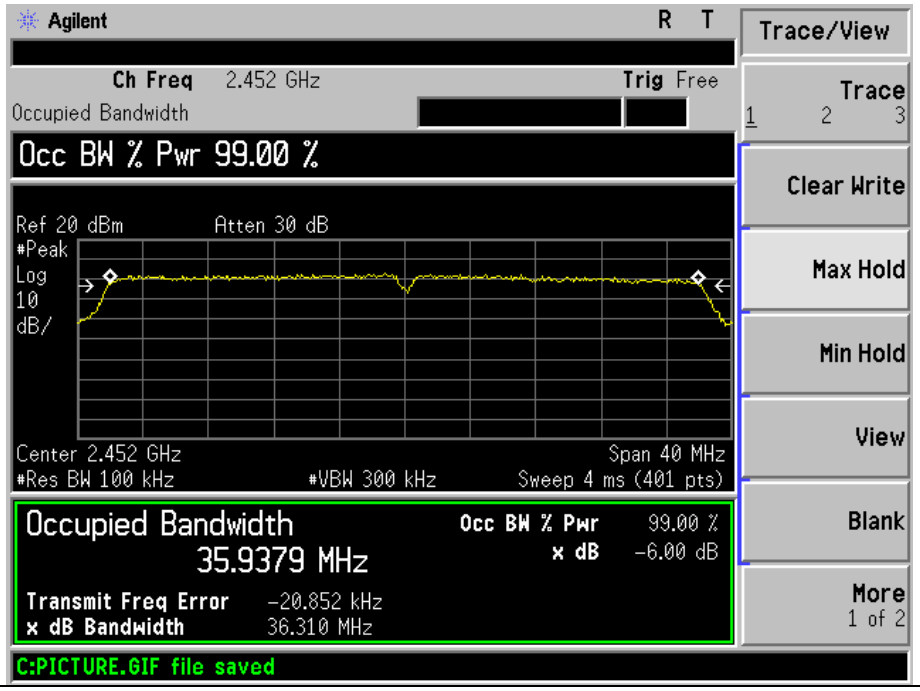
TX CH 03



TX CH 06



TX CH 09



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

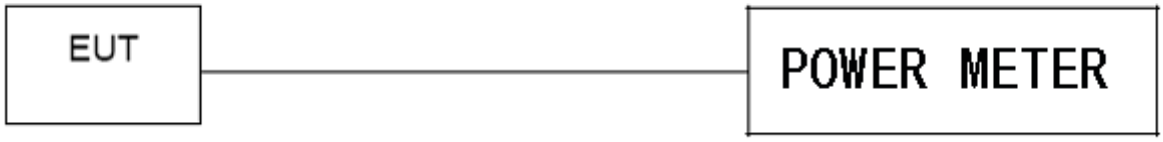
6.1.1 TEST PROCEDURE

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℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V

	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
802.11b	2412	9.08	30
	2437	8.97	30
	2462	9.42	30
802.11g	2412	8.37	30
	2437	8.61	30
	2462	8.45	30
802.11n20	2412	8.49	30
	2437	8.33	30
	2462	8.26	30
802.11n40	2422	7.36	30
	2437	7.28	30
	2452	7.42	30

7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

7.1 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)).

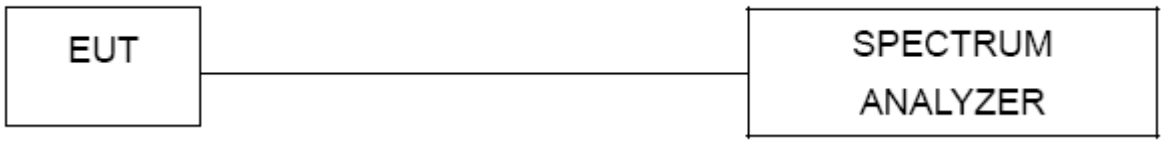
7.2 TEST PROCEDURE

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.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP

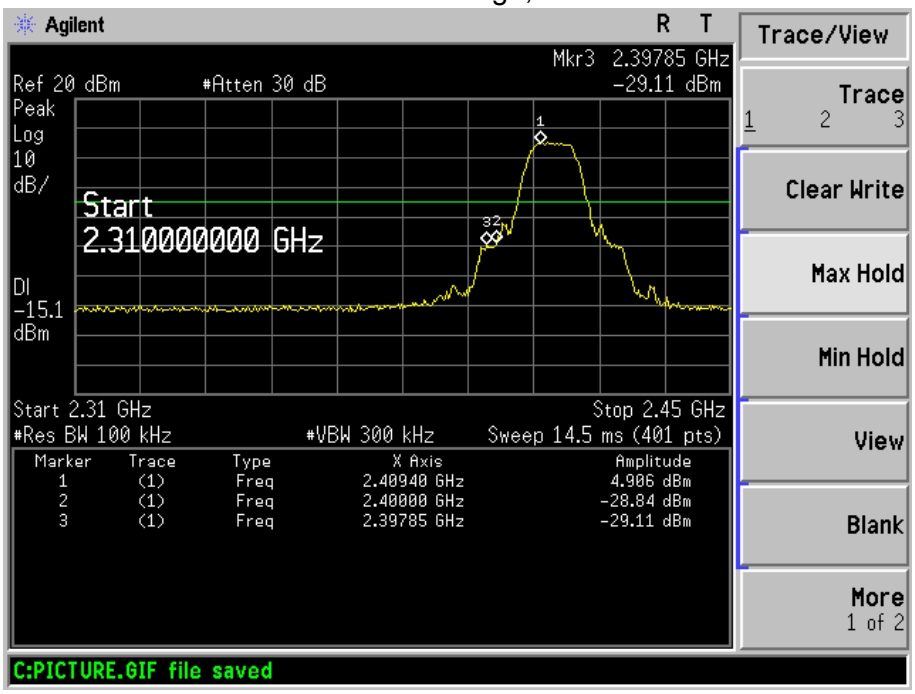


7.5 EUT OPERATION CONDITIONS

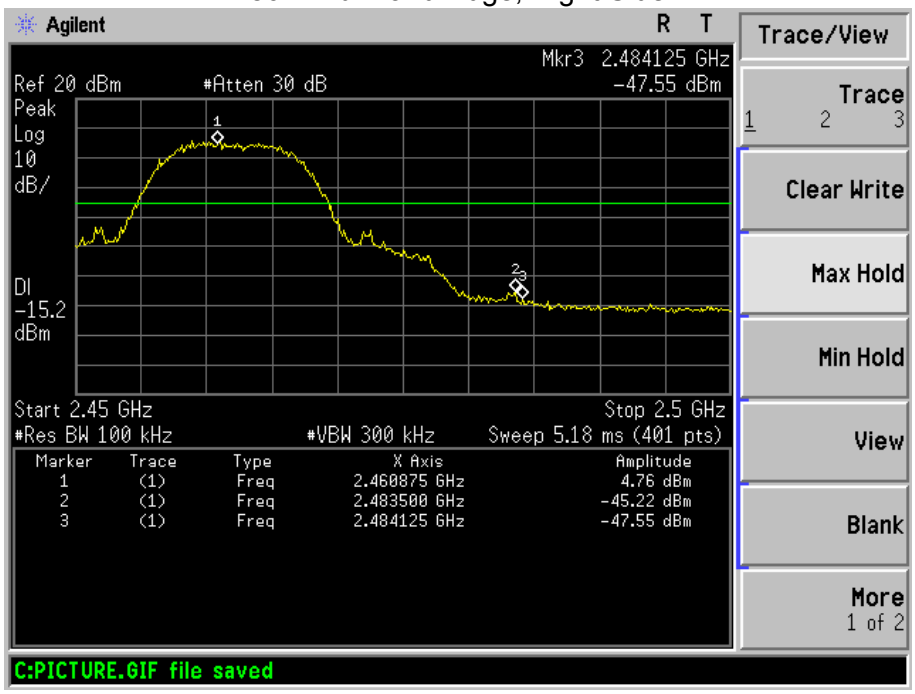
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1 TEST RESULTS

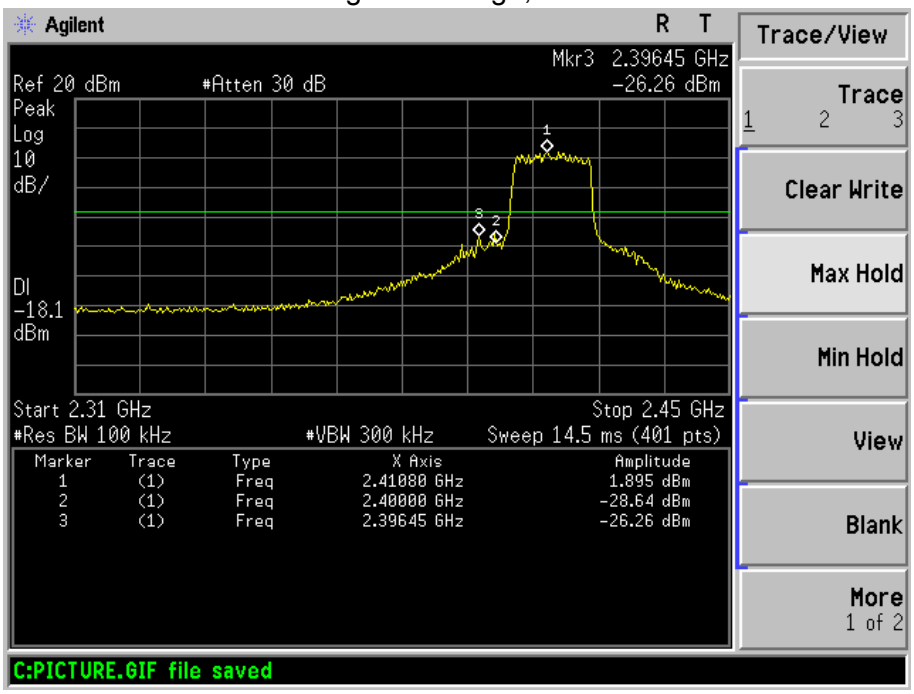
802.11b: Band Edge, Left Side



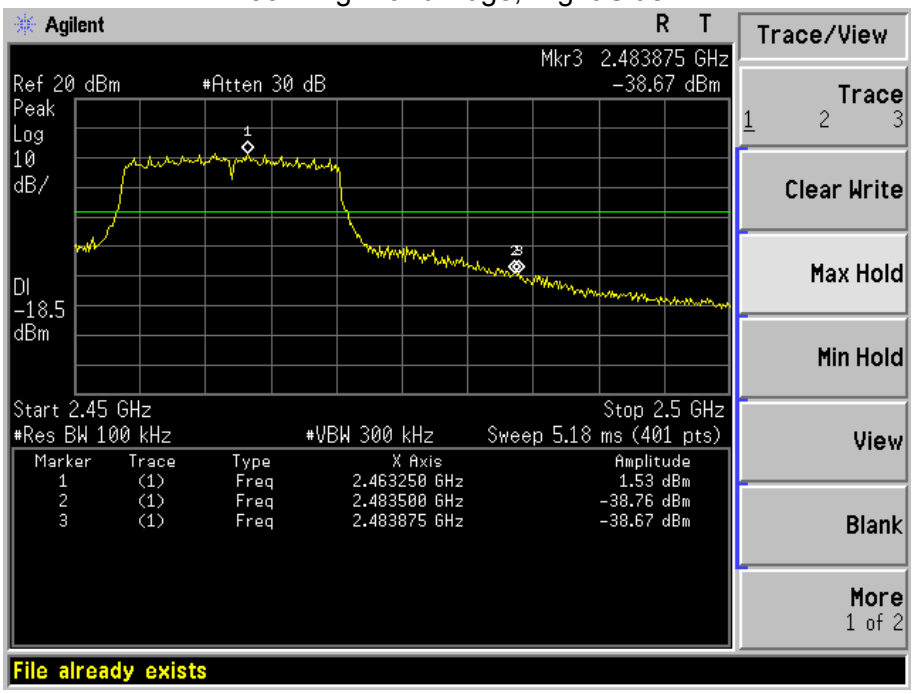
802.11b: Band Edge, Right Side



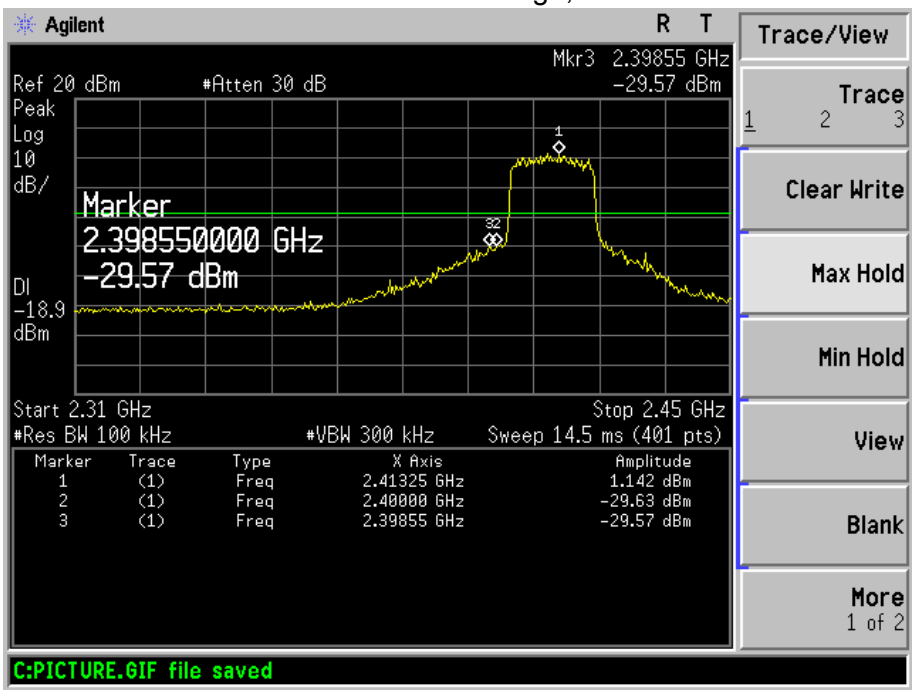
802.11g: Band Edge, Left Side



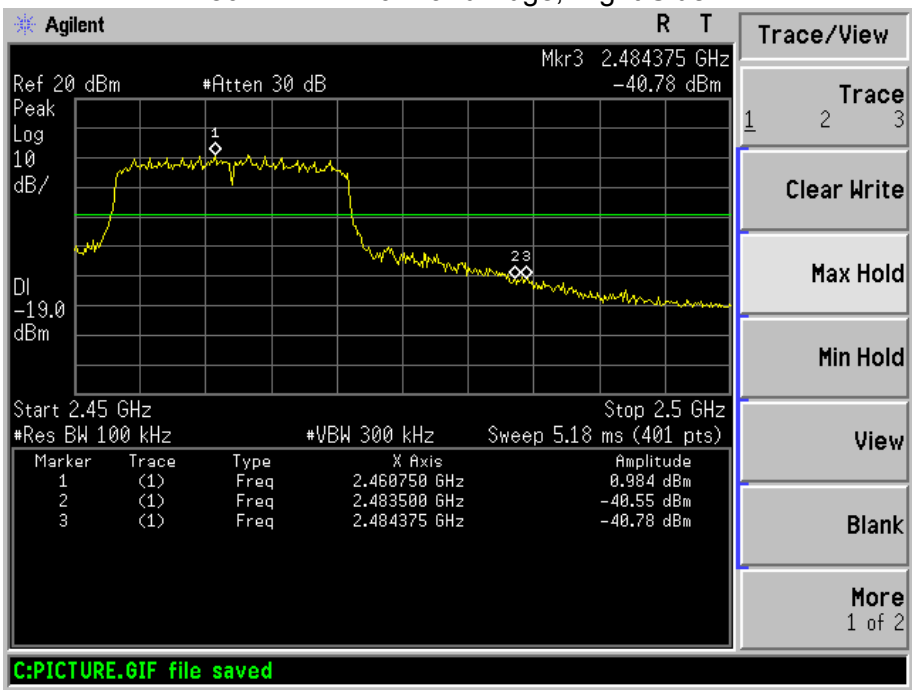
802.11g: Band Edge, Right Side



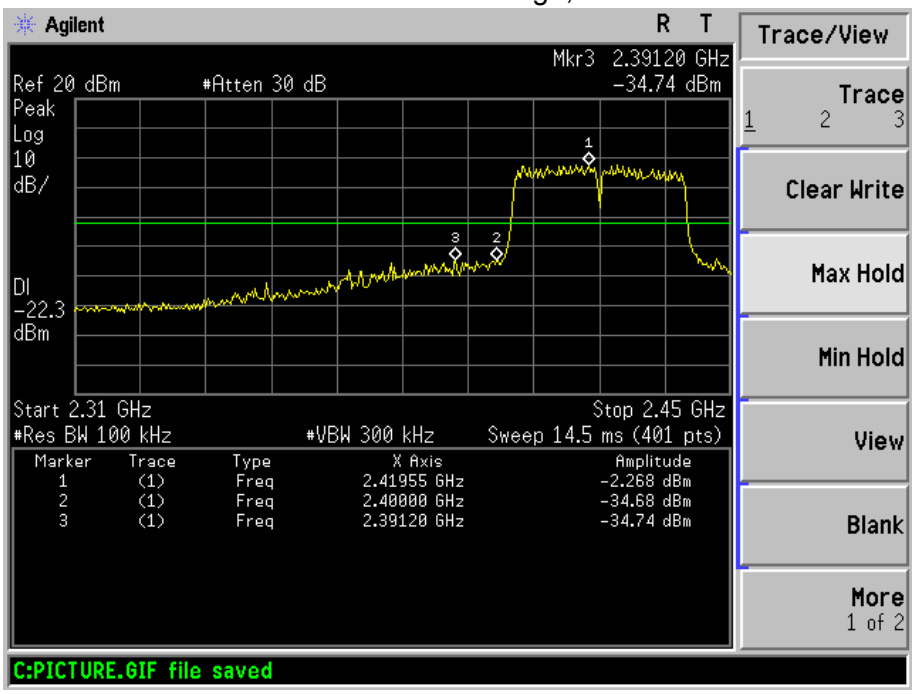
802.11n-HT20: Band Edge, Left Side



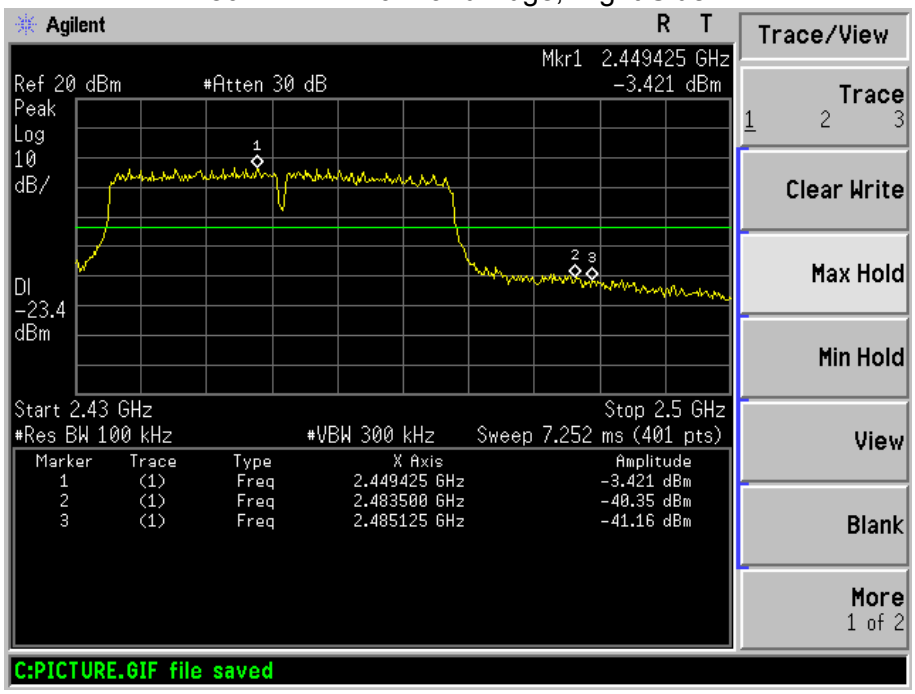
802.11n-HT20: Band Edge, Right Side



802.11n-HT40: Band Edge, Left Side



802.11n-HT40: 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.

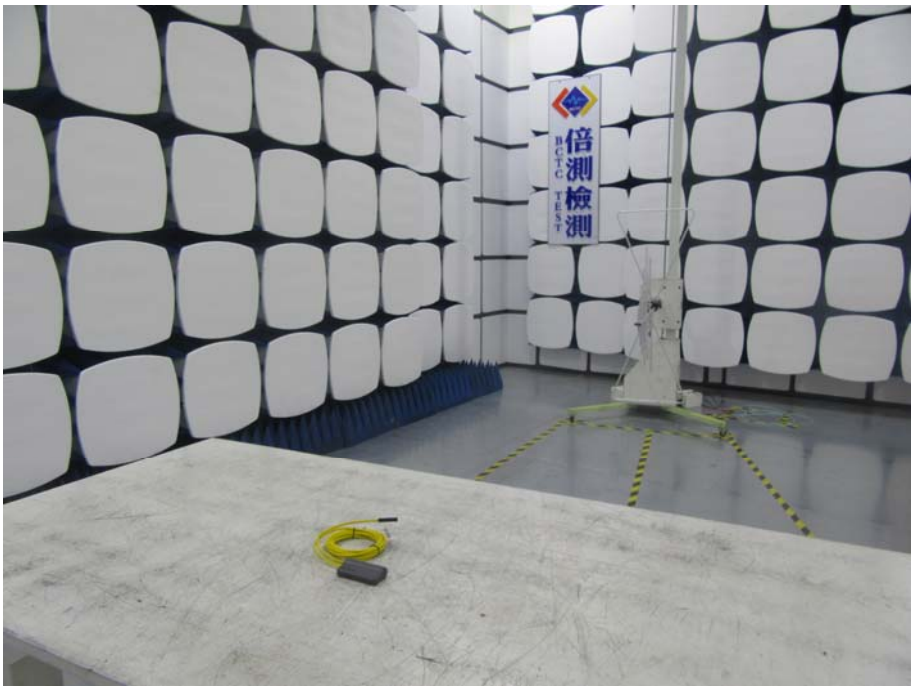
8.2 EUT ANTENNA

The EUT antenna is PCB antenna. It complies with the standard requirement.

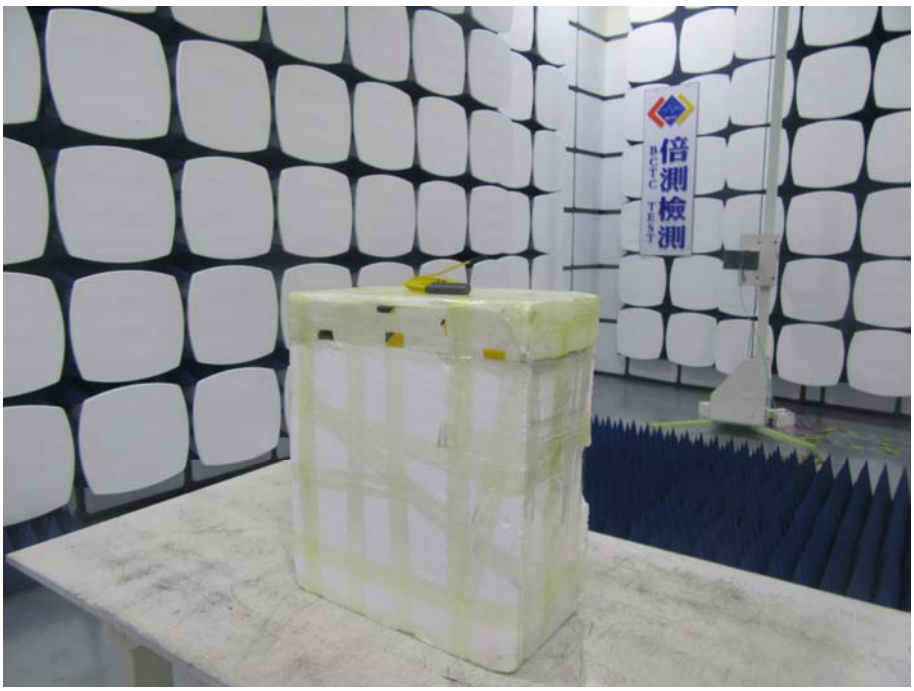
9. EUT TEST PHOTO

Conducted Measurement Photos

Radiated Measurement Photos



Radiated Measurement Photos



10. EUT PHOTO

※※※※※ **END OF REPORT** ※※※※※