(2004)量认(国)字(H2402)号 No.L1659

FCC TEST REPORT

of

Wireless ADSL Router

FCC ID:	Q78-ZXV10W300
Brand Name:	ZTE, ZTE 中兴
Model No.:	ZXV10 W300
Serial No.:	N.A.
Report No.:	FCC05-8022
Date:	August 22, 2005

Prepared for

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park,
Nanshan District, Shenzhen, Guangdong, P.R.China

Prepared by

ShenZhen Electronic Product Quality Testing Center

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1 Test Report Certification

Product:	Wireless ADSL Router
FCC ID:	Q78-ZXV10W300
Model No.:	ZXV10 W300
Applicant:	ZTE CORPORATION
Applicant Address:	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Manufacturer:	ZTE CORPORATION
Manufacturer Address:	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Test Standards:	47 CFR Part 15, Subpart C
Test Result:	**PASS**

We, Shenzhen Electronic Product Quality Testing Center, hereby certify that the submitted samples of the above item, as detailed in chapter 2.1 of this report, has been tested in our facility. The test record, data evaluation and test configuration represented herein are true and accurate accounts of measurements of the sample's EMC characteristics under the conditions herein specified.

Tested by: Lin Xingsun, Date: Aug. 22, 2005
Lin Xingsun

Checked by: Smart Li, Date: Aug. 24, 2005
Smart Li

Approved by: Wang Keqin, Date: Aug. 24, 2005
Wang Keqin

2 General Information

2.1 Description of EUT

Product:	Wireless ADSL Router
Model No.:	ZXV10 W300
Brand Name:	ZTE, ZTE 中兴
Serial No.:	/
Power Supply:	a.c. 18V 500mA
I/O ports:	Wlan Interface (IEEE 802.11g/b, built-in antenna), ADSL (RJ-11) Ethernet (four, RJ-45)
Accessories:	AC/DC adapter (Model: ILA41-180500; Input: a.c. 120, 60Hz; Output a.c. 18V，500mA; Manufacturer: Intelink Electronic (Zhongshan) Co., Ltd.)

NOTE:

1. The EUT is a wireless ADSL use-end access device providing uplinks in multiple line transmission modes. It provides four 10/100Base-T Ethernet interfaces, one 802.11g/b wireless interface operating at 2.4GHz ISM band.
2. The Wlan interface of the EUT is compliance to IEEE 802.11b and IEEE 802.11g. The modulations are:

   - WLAN (IEEE 802.11b), Direct Sequence Spread Spectrum (DSSS).
   - WLAN (IEEE 802.11g), Orthogonal Frequency Division Multiplexing (OFDM).

   The Channels and transmitter center frequencies are:

   - Channel 1: 2412 MHz (lowest channel)
   - Channel 2: 2417 MHz
   - Channel 3: 2422 MHz
   - Channel 4: 2417 MHz
   - Channel 5: 2432 MHz
   - Channel 6: 2437 MHz (middle channel)
   - Channel 7: 2442 MHz
   - Channel 8: 2447 MHz
   - Channel 9: 2452 MHz
   - Channel 10: 2457 MHz
   - Channel 11: 2462 MHz (highest channel);
3. Please refer to Appendix I for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

2.2 Objective

Perform EMC test according to FCC rules Part 15 for FCC ID Certification.

2.3 Test Standards and Results

The EUT has been tested according to 47 CFR Part 15 “Radio Frequency Devices”.

Test items and the results are as bellow:

№	FCC Rules	Test Type	Result
1	§15.207	Conducted Emission	PASS
2	§15.247(a)(2)	6dB Bandwidth	PASS
3	§15.247(b)(3)	Maximum Peak Output Power	PASS
4	§15.247(b)(4) §15.203	Antenna Description	PASS
5	§15.247(b)(5) §1.107(b)(1) §1.1310	RF Exposure	PASS
6	§15.247(c)	Band Edge	PASS
7	§15.247(c) §15.209	Radiated Spurious Emission	PASS
8	§15.247(d)	Power Spectrum Density	PASS

2.4 List of Equipments Used

Description	Manufacturer	Model No.	Cal. Due Date	Serial No.
Test Receiver	Schwarzbeck	FCKL1528	2006.06.10	A0304230
Test Receiver	Rohde & Schwarz	ESIB26	2006.06.10	A0304218
LISN	Schwarzbeck	NSLK8127	2006.06.10	A0304233
Loop Antenna	Rohde & Schwarz	HFH2-Z2	2006.06.05	100047
Ultra Broadband Ant.	Rohde & Schwarz	HL562	2006.06.05	A0304224
Horn Ant.	Rohde & Schwarz	HF906	2006.06.05	100150
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	2006.05.31	A0304212
Mobile Phone Tester	Willtek	4403	2007.2.10	0811211
3G Communication Antenna	European Antennas	PSA 75301R/170	2006.04.10	A0304213
Temperature Chamber	JAPAN TABAI	PSL-4G	2006.02.05	A8708056
Shield Room	Nanbo Tech	Site 3	2006.03.18	A9901141
Shield Room	Nanbo Tech	Site 1	2006.01.17	A0304188
Anechoic Chamber	Albatross	EMC12.8×6.8×6.4(m)	2006.04.18	A0304210

2.5 Test Facility

Shenzhen Electronic Product Quality Testing Center (SET) is a third party testing organization accredited by China National Accreditation Committee for Laboratories (CNACL) according to ISO/IEC 17025. The accreditation certificate number is **L1659**.

The EMC chamber site No.1 (EMC12.8×6.8×6.4(m)), and the radiated and conducted Emission test equipments of SET are constructed and calibrated to meet the FCC requirements ANSI C63.4:2001 and CISPR 22/EN 55022. The FCC Registration Number is **261302**.

The EMC chamber site No.1 (EMC12.8×6.8×6.4(m)) also complies with Canada standard RSS 212, and acceptable to Industry Canada for the performance of radiated measurements. The Industry Canada Registration Number is **IC 5915**.

2.6 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3 Conducted Emission Measurement

3.1 Limits of Conducted Emission

According to FCC §15.207, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

NOTE:

1. The lower limit shall apply at the band edges.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.2 Test Procedure

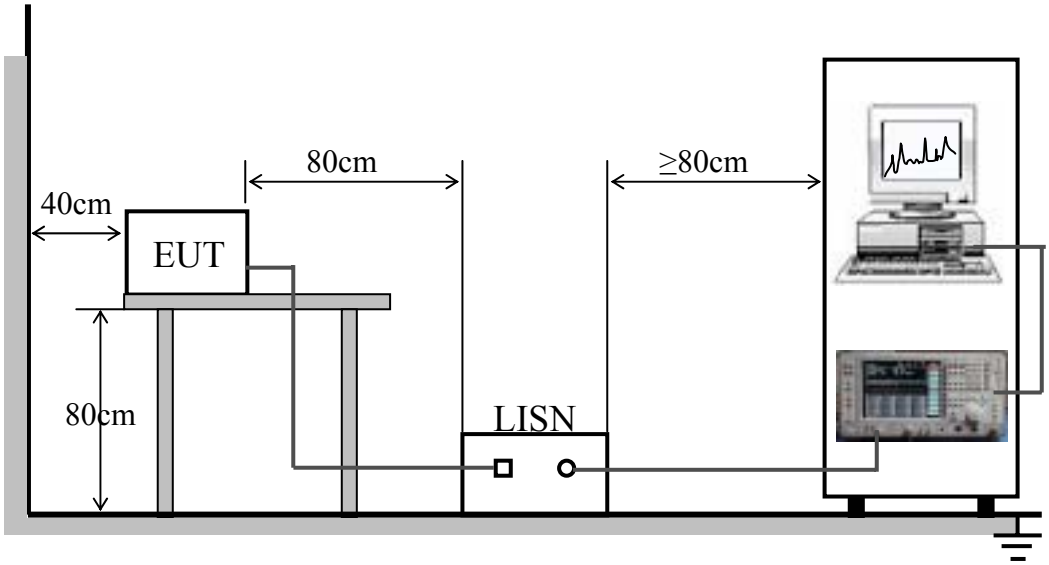
a. The EUT was placed on a 0.8m high insulating table and kept 0.4 meters from the conducting wall of shielded room.

b. The EUT was connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50Ω/50μH of coupling impedance for the measuring instrument.

c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

d. The frequency range from 150 kHz to 30 MHz was searched using CISPR Quasi-Peak and Average detector.

3.3 Test Setup



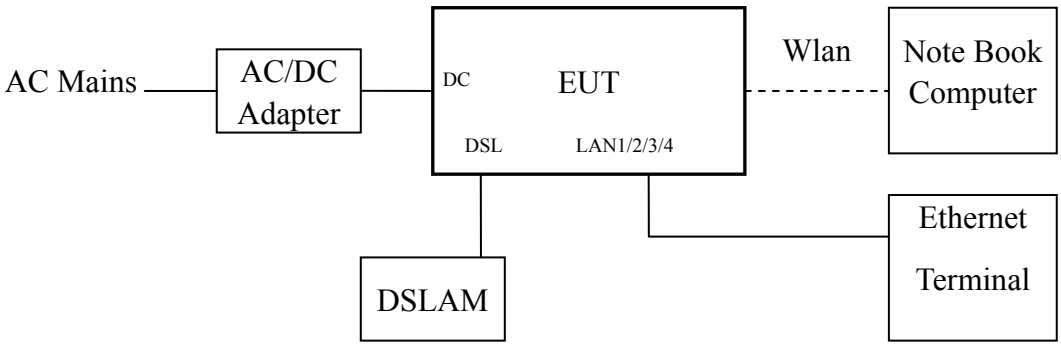
For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

3.4 EUT Setup and Operating Conditions

The EUT together with the AC/DC adapter was powered by 120V 60Hz AC power source.

A note book computer served as a companion equipment to establish wireless communication links with the EUT. A DSLAM and an Ethernet terminal were used to establish DSL and Ethernet connections. During the test, all connections were active and operating at maximum transmitting power and maximum data rate.

The configuration of the EUT is as the following figure.



The auxiliary equipments were listed bellow.

Auxiliary Equipments	Model	Serial No.	Manufacture
DSLAM	ZXB10-S416	/	ZTE
Note Book Computer	PP05L	/	DELL
Ethernet Terminal	ZXV10 D200	/	ZTE

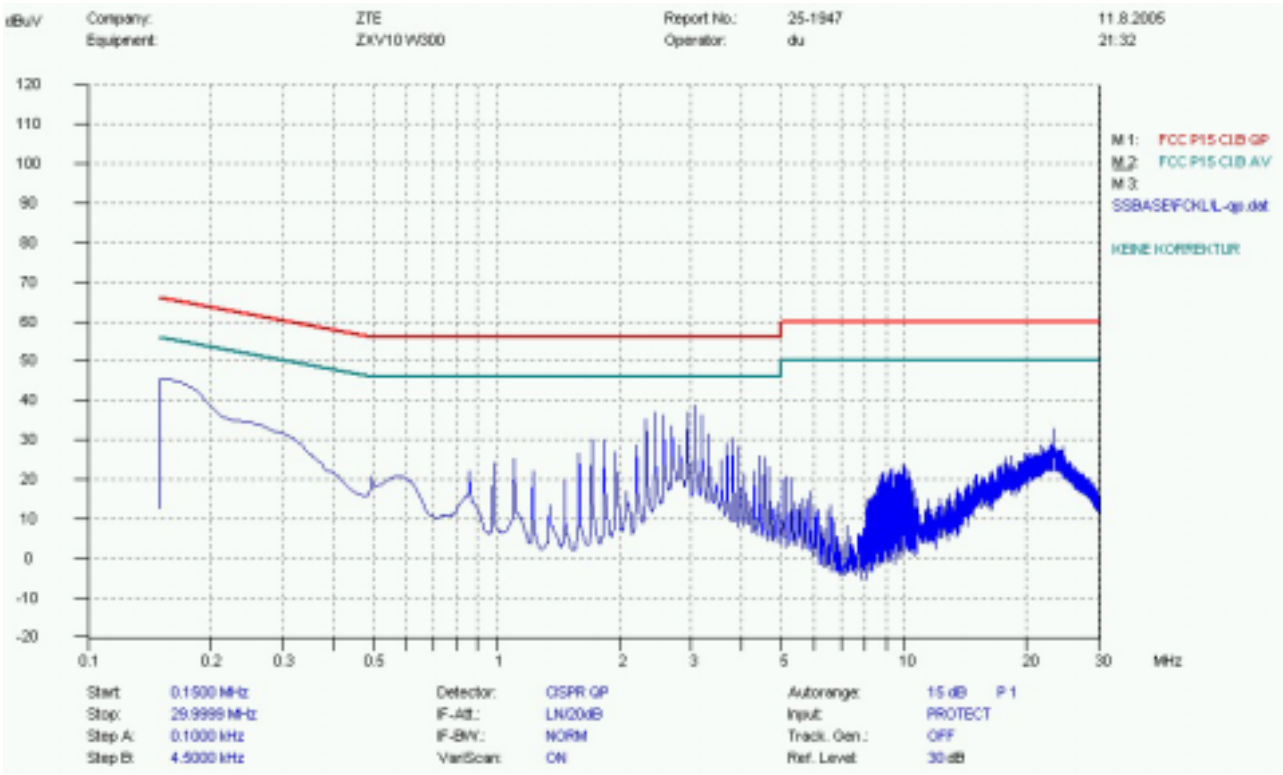
3.5 Test Results

No.	Freq. (MHz)	Limit Value (dBμV)		Emission Level (dBμV)	
		QP	AV	QP	AV
1	0.1500	66.0	56.0	45.3	--
2	2.4450	56.0	46.0	38.8	--
3	3.0570	56.0	46.0	40.5	--
4	23.1450	60.0	50.0	38.0	--

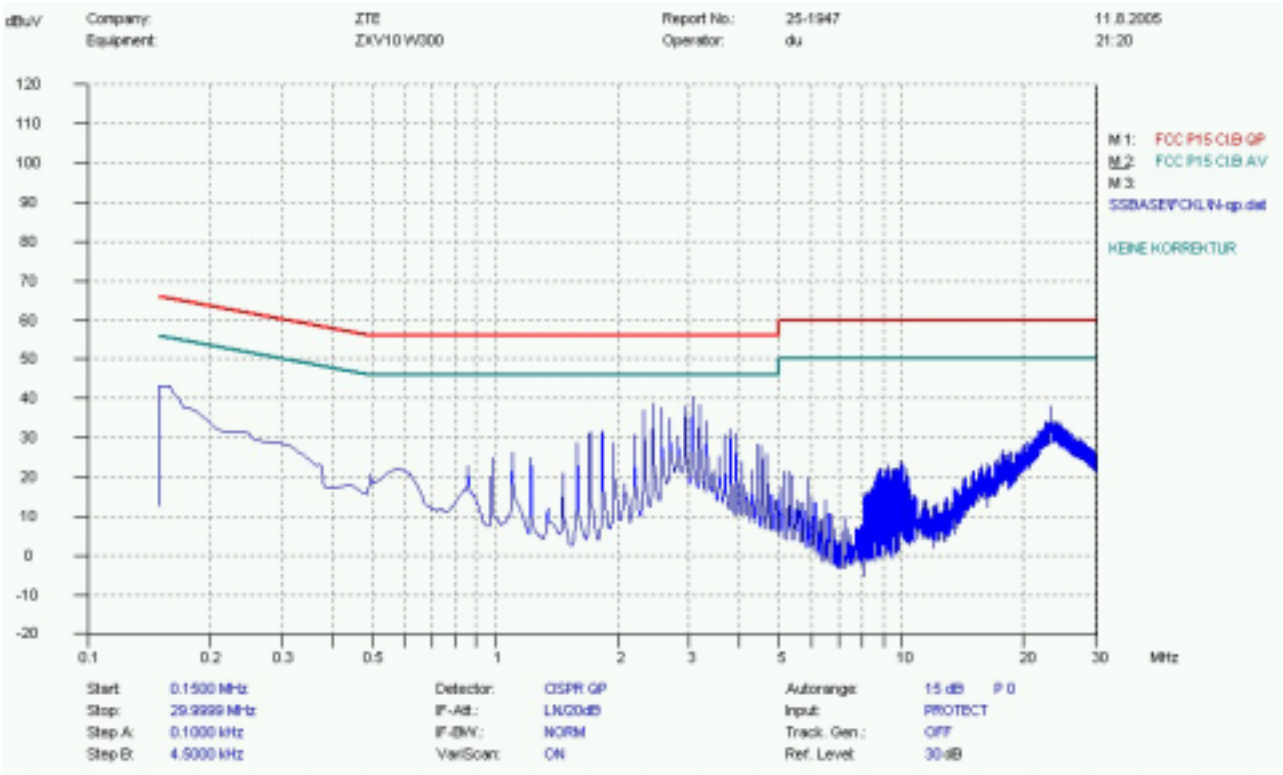
NOTE:

1. QP and AV are abbreviations of the quasi-peak and average individually.
2. If the emission levels measured with QP detector are lower than AV limits, there is unnecessary to measure with AV detector.
3. The emission levels recorded above is the larger ones of both L phase and N phase.

1. Mains terminal disturbance voltage, L phase



2. Mains terminal disturbance voltage, N phase



4 6dB Bandwidth Measurement

4.1 Limits of 6dB bandwidth

According to FCC §15.247 (a) (2), 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.

4.2 Test Procedure

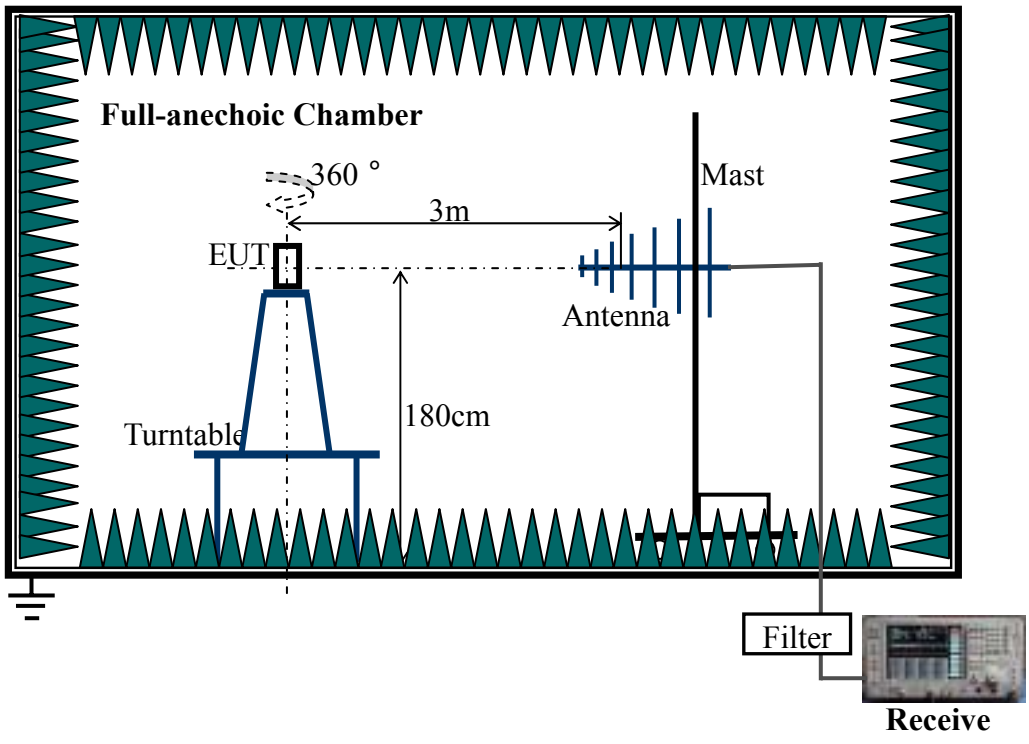
a. The transmitting bandwidth measurement was performed in a full anechoic chamber using radiation measurement method. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.

b. The EUT was placed on the vertical axis of a turntable 1.8 meters above the ground.

c. For the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. For the frequency range above 3 GHz, horn antenna was used. The antenna was at the same height as the EUT. Since the there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The polarization of the receiving antenna was the same as that of the EUT transmitting antenna.

d. The spectrum analyzer was set to Maxpeak Detector and Maximum Hold mode. The resolution bandwidth was set to VBW=RBW=100 kHz.

4.3 Test Setup

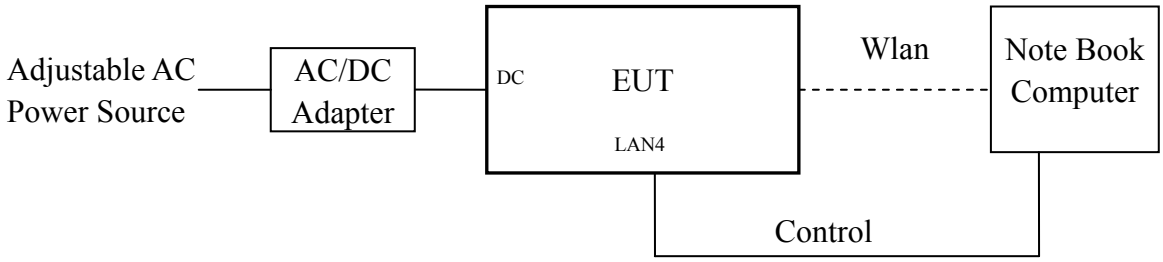


For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

4.4 EUT Setup and Operating Conditions

The EUT together with the AC/DC adapter was powered by 120V 60Hz AC Mains.

A note book computer (DELL, PP05L) served as a companion equipment to establish wireless communication links with the EUT. It was also a controller to set the EUT to specific frequencies and operating modes for measurement. The following figure shows the EUT setup.



The EUT were tested at different modulation: DSSS (IEEE 802.11b) and OFDM (IEEE802.11g). The bandwidth of lowest channel and highest channel were measured.

During the measurement of transmitter parameters, the EUT was continuously operating at maximum transmitting power and maximum data rate.

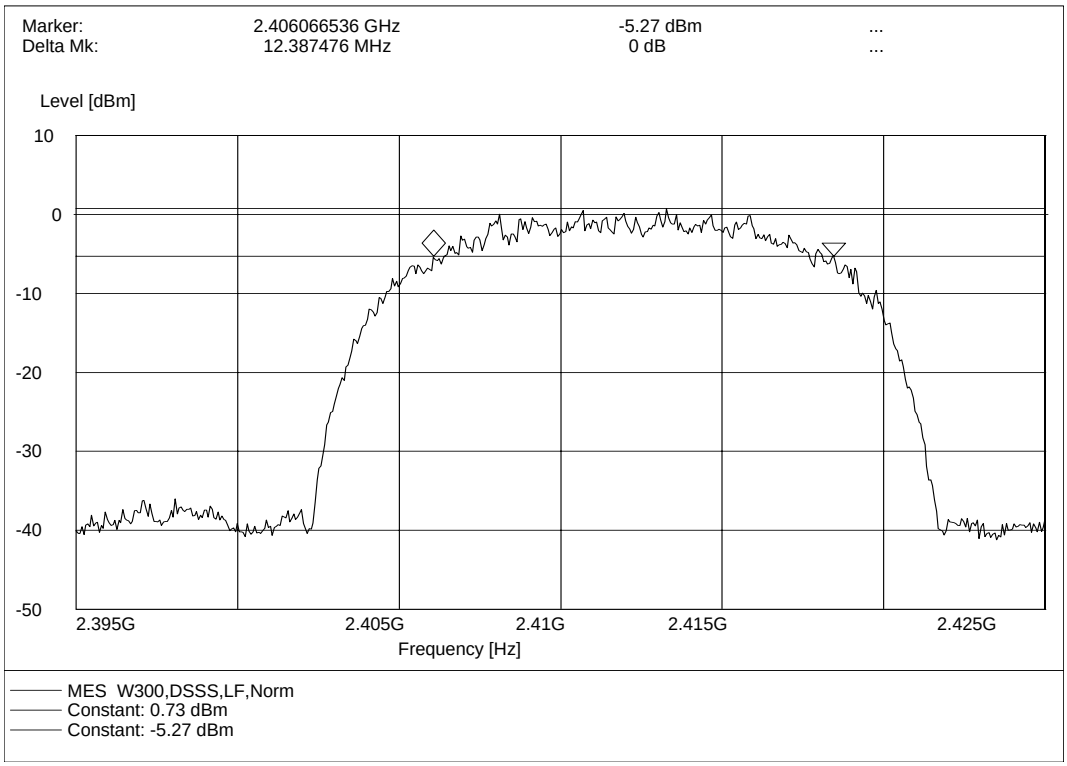
4.5 Test Results

The minimum 6 dB bandwidth is 12.4MHz.

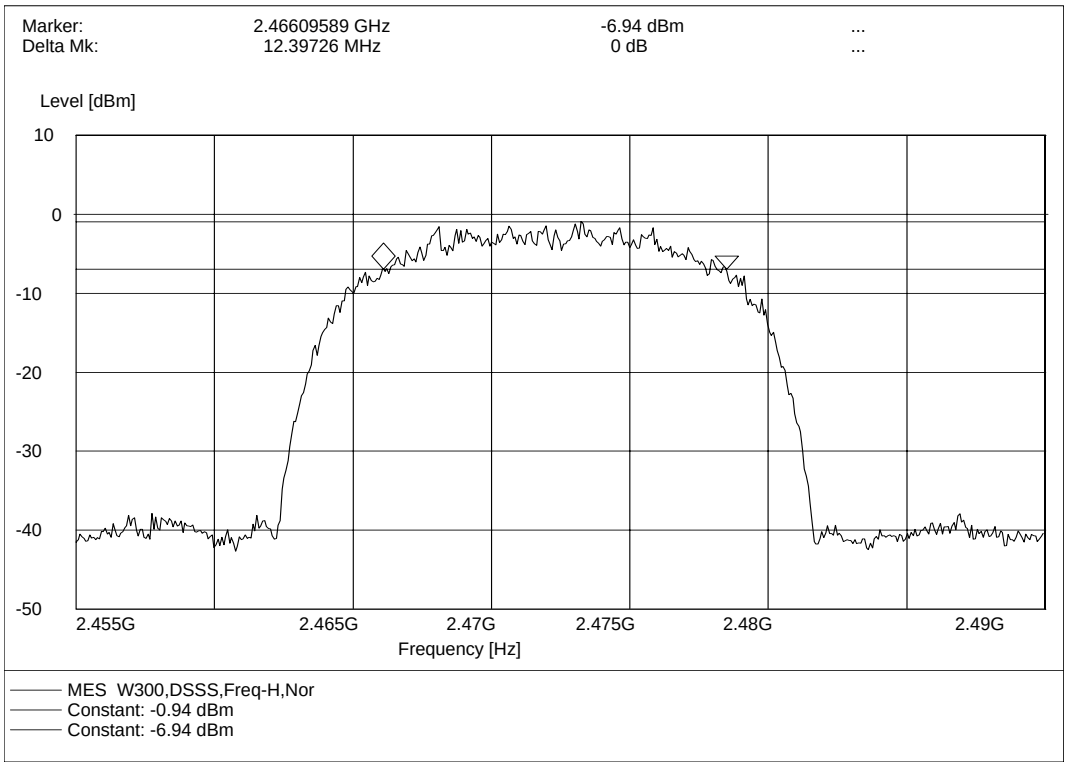
Refer to the following test plots.

Plot of 6dB bandwidth

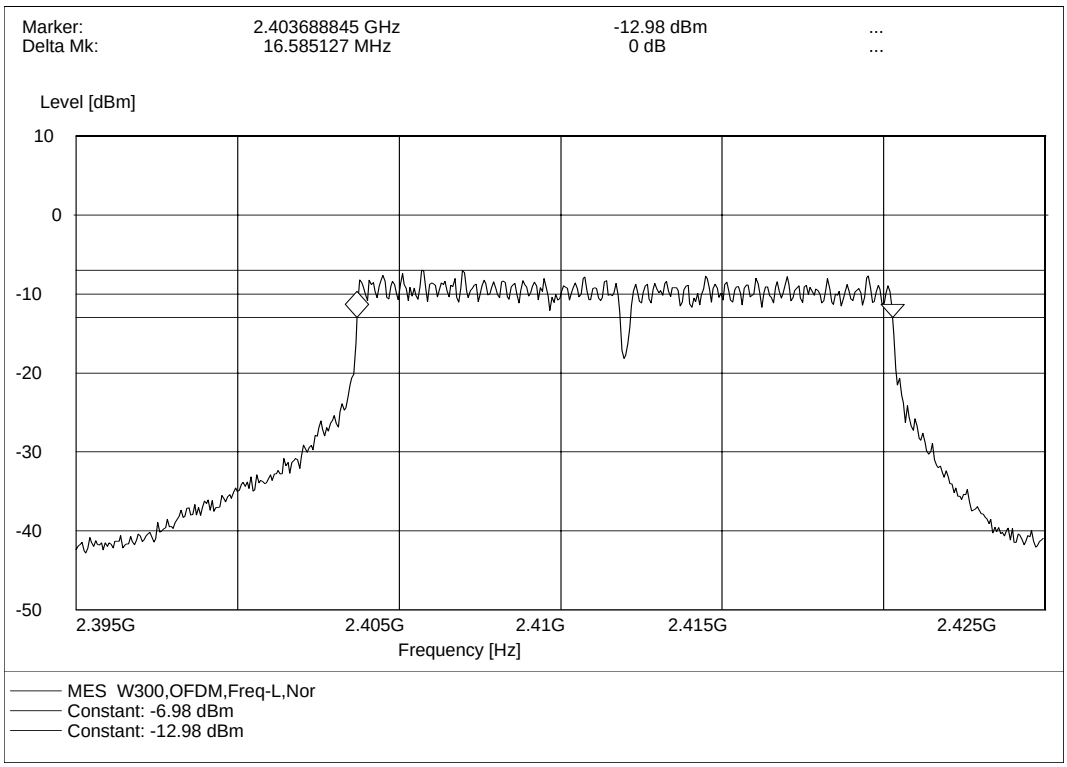
1. DSSS Modulation, lowest channel No.1



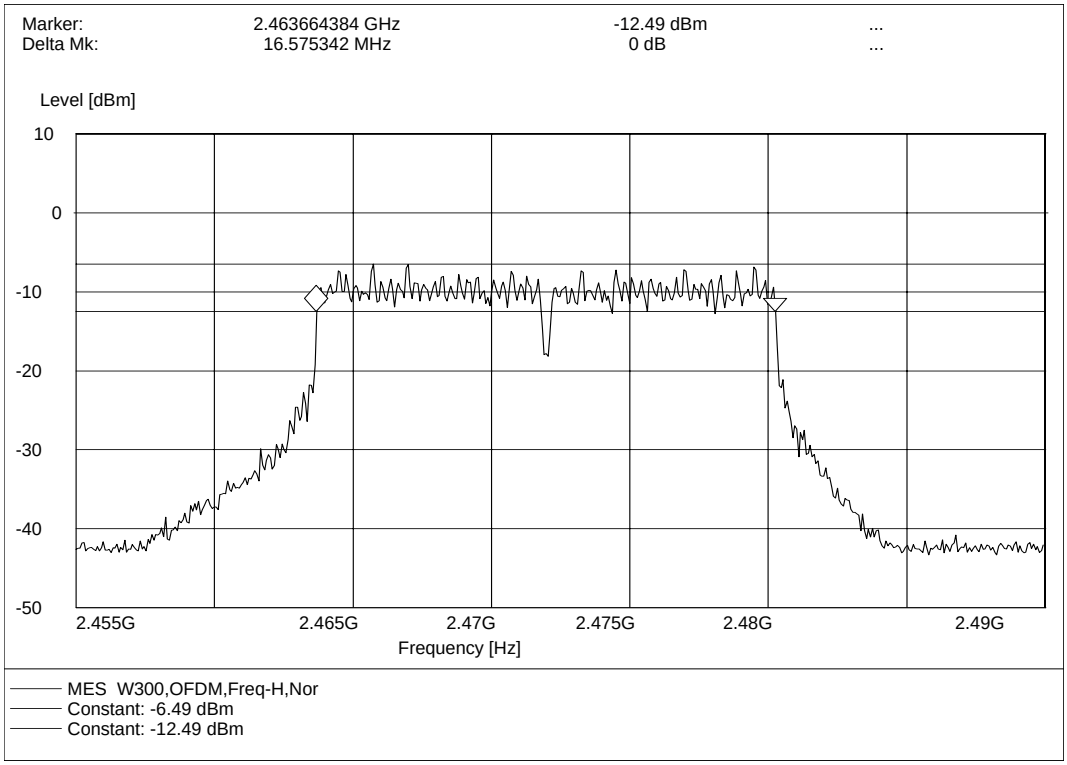
2. DSSS Modulation, highest channel No.11



3. OFDM Modulation, lowest channel No.1



4. OFDM Modulation, highest channel No.11



5 Transmitter Radiated Power Measurement

5.1 Limits of Maximum Peak Output Power

According to FCC §15.247 (b) (3), the maximum peak output power of systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands is 1 Watt.

5.2 Test Procedure

a. The radiated power measurement was performed in a full anechoic chamber. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.

b. The EUT was placed on the vertical axis of a turntable 1.8 meters above the ground. The table was turned from 0 degrees to 360 degrees to find the maximum reading.

a. In the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. In the frequency range above 3 GHz, horn antenna was used. The antenna was at the same height as the EUT. Since the there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The polarization of the receiving antenna was the same as that of the EUT transmitting antenna.

c. The spectrum analyzer was set to Maxpeak Detector and Maximum Hold mode. The resolution bandwidth was comparable to the emission bandwidth. For GSM signal, VBW=RBW=1MHz; for CDMA signal, VBW=RBW=3MHz.

5.3 Test Setup

Same as 4.3

5.4 EUT Setup and Operating Conditions

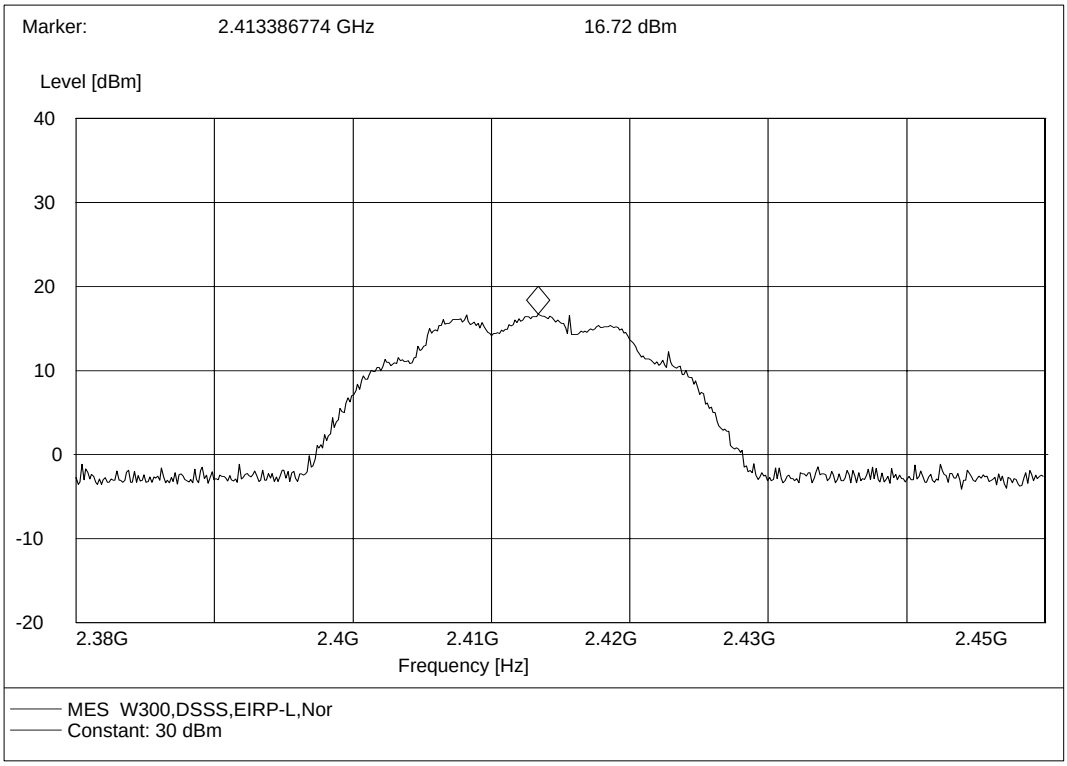
Refer to 4.4. The EIRP of lowest, middle and highest channels were measured.

5.5 Test Results

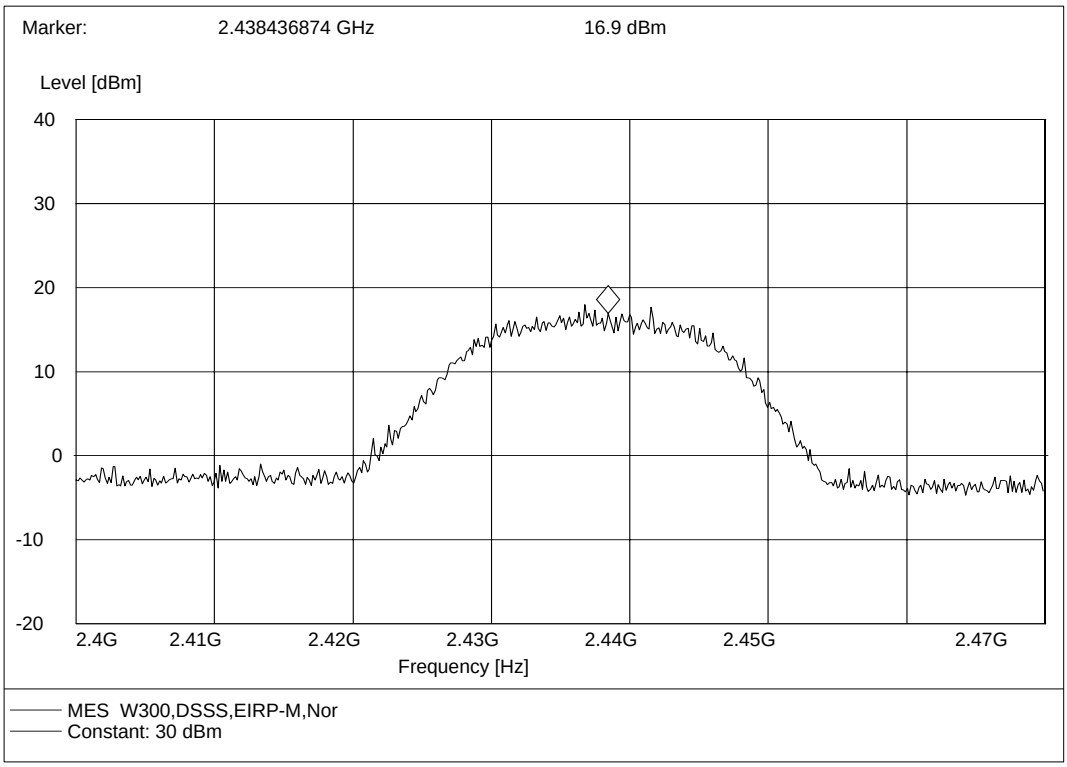
Modulation	Transmitter Power (dBm), EIRP			Limit
	Channel 1 2412MHz	Channel 6 2437MHz	Channel 11 2483MHz	
DSSS (IEEE 802.11b)	16.72	16.90	15.56	30dBm (1W)
OFDM (IEEE 802.11g)	17.79	17.99	17.59	

Plots of EIRP

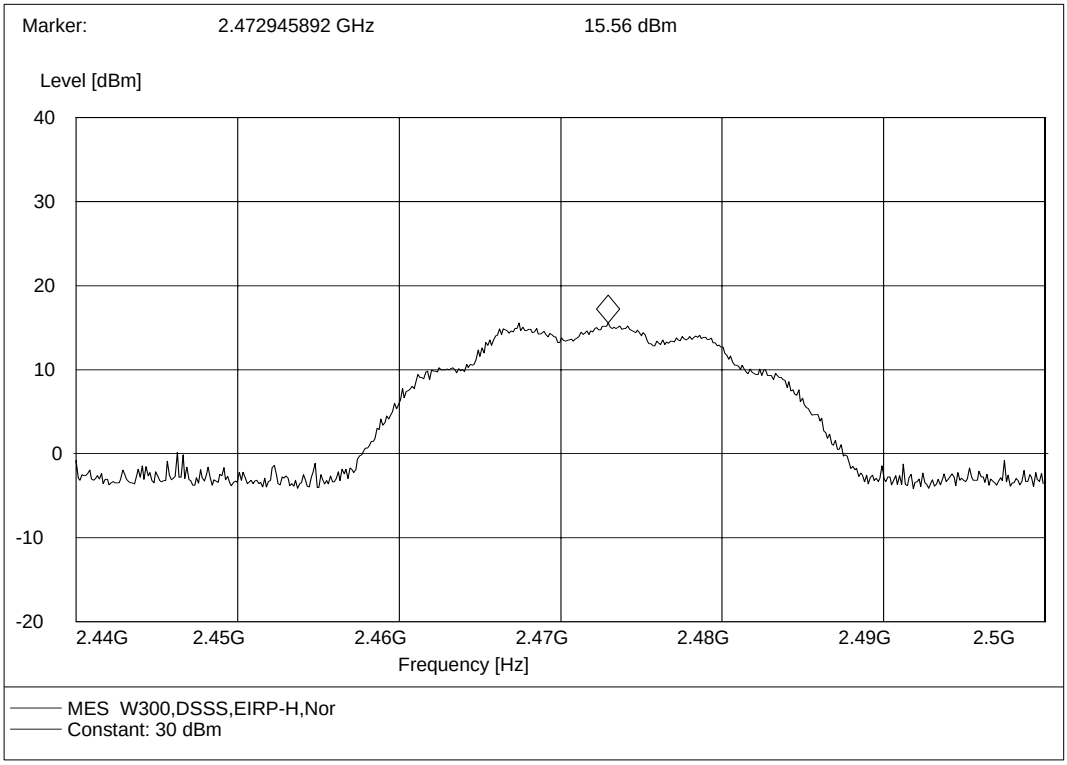
1. DSSS modulation, lowest channel No.1



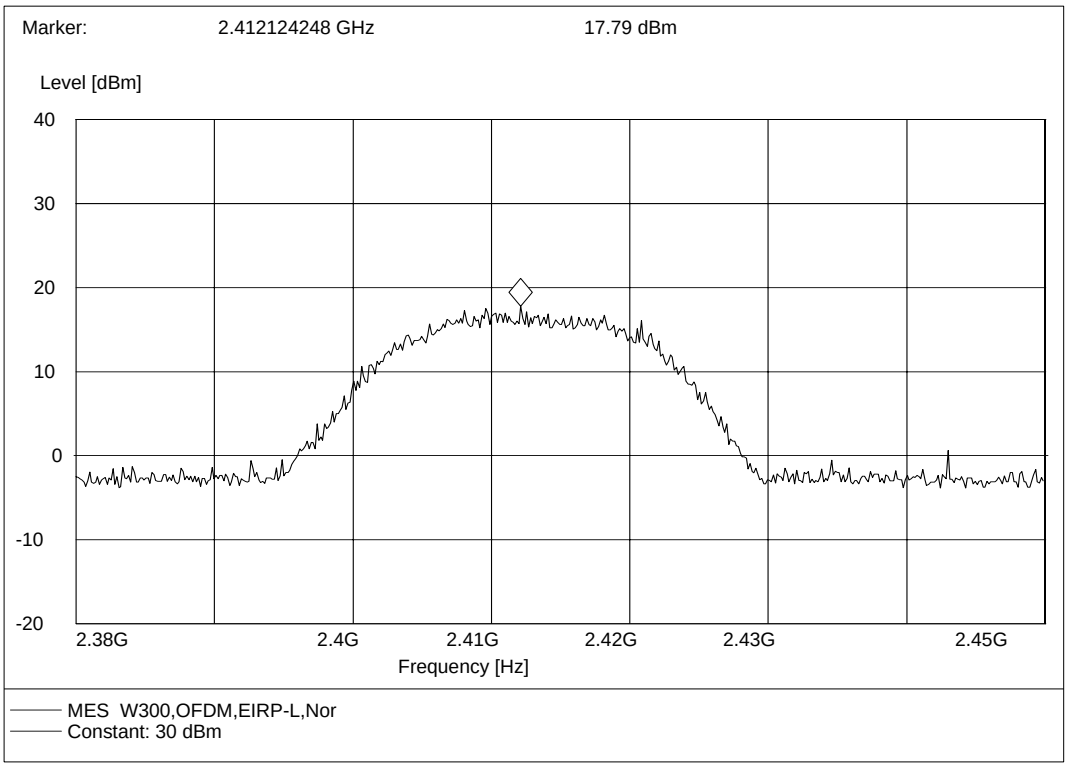
2. DSSS modulation, middle channel No.6



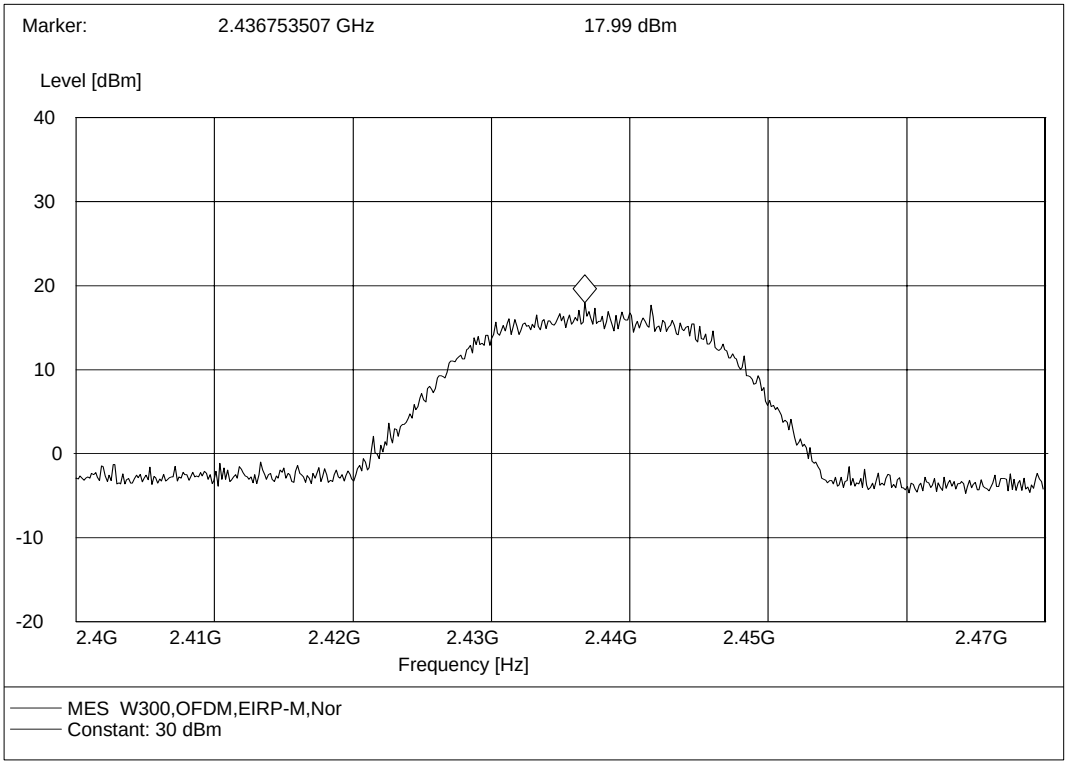
3. DSSS modulation, highest channel No.11



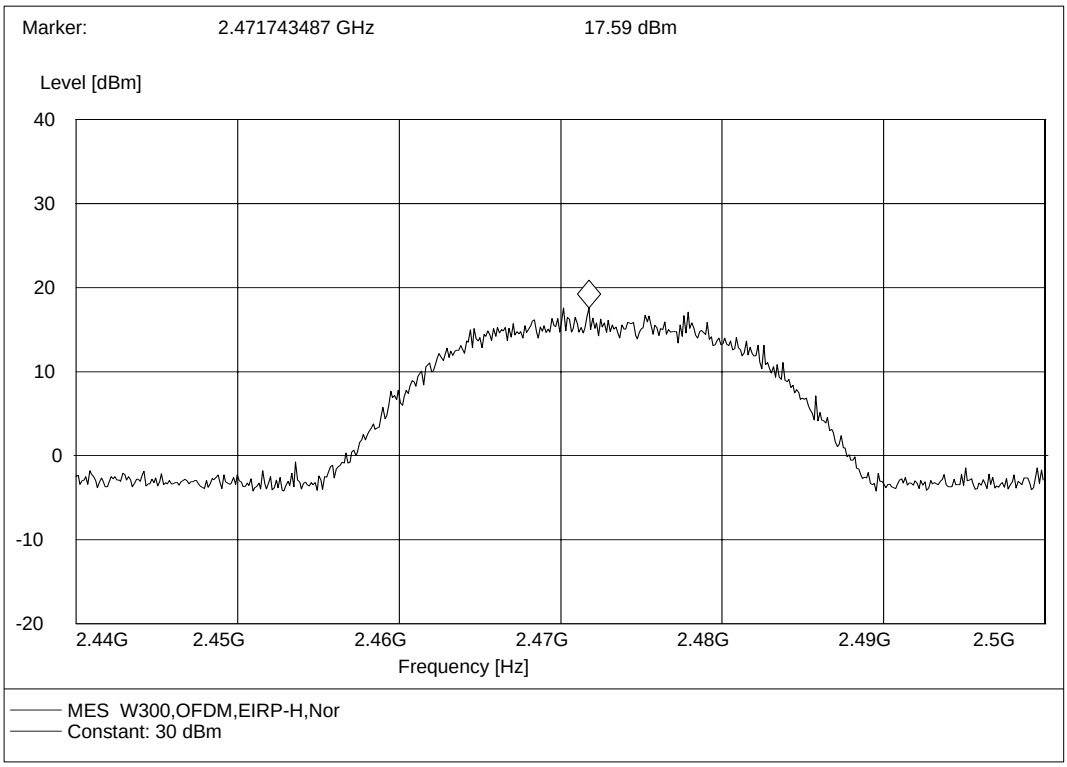
4. OFDM modulation, lowest channel No.1



5. OFDM modulation, middle channel No.6



6. OFDM modulation, highest channel No.11



6 Antenna Description

6.1 Antenna Requirements

According to FCC §15.247 (b) (4), Except as shown in following paragraphs (i), (ii), and (iii), if transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC §15.247 (b)(1), (b)(2), and (b)(3), as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

(iii) Fixed, point-to-point operation, as used in paragraphs (b)(4)(i) and (b)(4)(ii) of this section, excludes the use of point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum or digitally modulated intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

According to FCC §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 use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

6.2 Antenna Description

The antenna of the EUT is an internal antenna with 0.5 dBi gain.

7 RF Exposure Evaluation

7.1 RF Radiation Exposure Limits

According to FCC §15.247 (b) (4), Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. *See* FCC § 1.1307(b)(1).

According to FCC §1.1310, for general population/uncontrolled exposure at 2.4GHz, the limit for Maximum Permissible Exposure (MPE) is 1.0 mW/cm^2.

7.1 Evaluation of RF Radiation Exposure

The EUT uses internal antenna and is designed to operate at 20cm or far from persons.

The exposure type is general population/uncontrolled exposure.

The maximum measured power is 17.99dBm EIRP. See chapter 5.5 of this report.

The maximum radiation power density level is calculated using the general equation:

$$S=P*G/4\pi R^2$$

Here, P*G=17.99dBm=62.95mW, R=20 cm, π= 3.14.

Solving for S, the power density at 20 cm is **0.013 mW/cm^2**.

8 Band Edge Measurement

8.1 Requirements of Band Edge

According to FCC §15.247 (c), 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.

8.2 Test Procedure

a. The measurement of radiation power at the band edges was performed in a full anechoic chamber. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.

b. The EUT was placed on the vertical axis of a turntable 1.8 meters above the ground. The table was turned from 0 degrees to 360 degrees to find the maximum reading.

c. In the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. In the frequency range above 3 GHz, horn antenna was used. The antenna was at the same height as the EUT. Since the there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The measurement was performed with the antenna at horizontal and vertical polarization respectively.

d. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode. The resolution bandwidth was set to 100 kHz.

8.3 Test Setup

Same as 4.3

8.4 EUT Setup and Operating Conditions

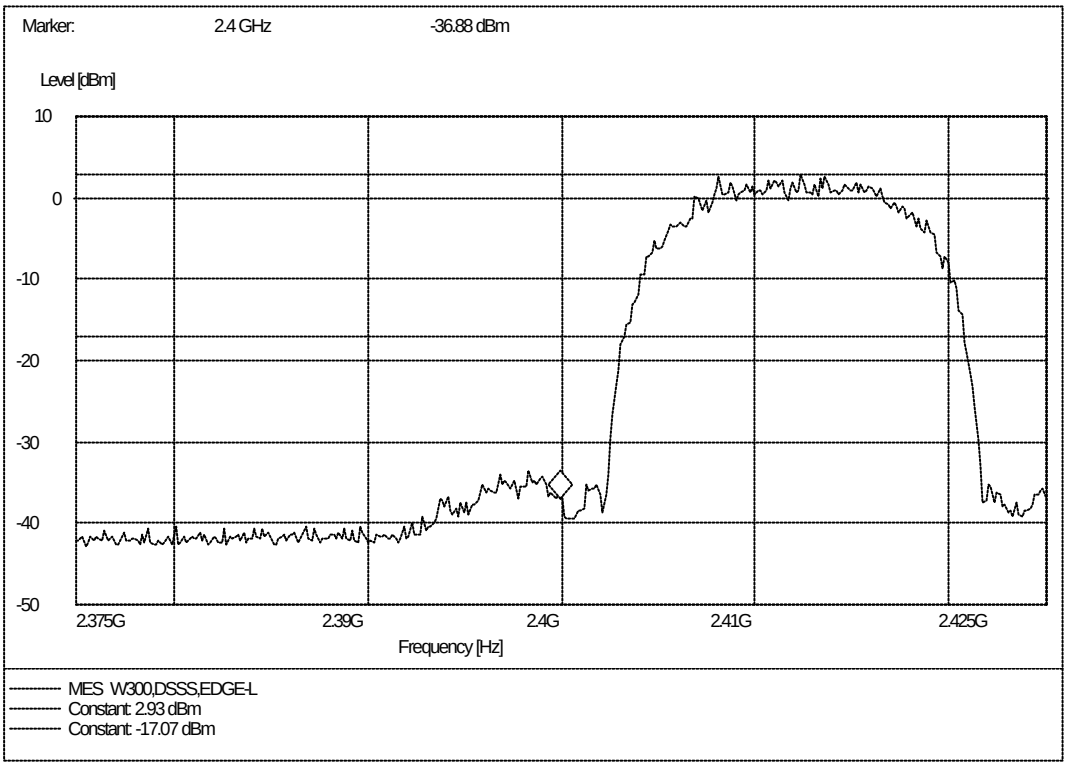
Refer to 4.4. The transmitter operated at the lowest and highest channels respectively.

8.5 Test Results

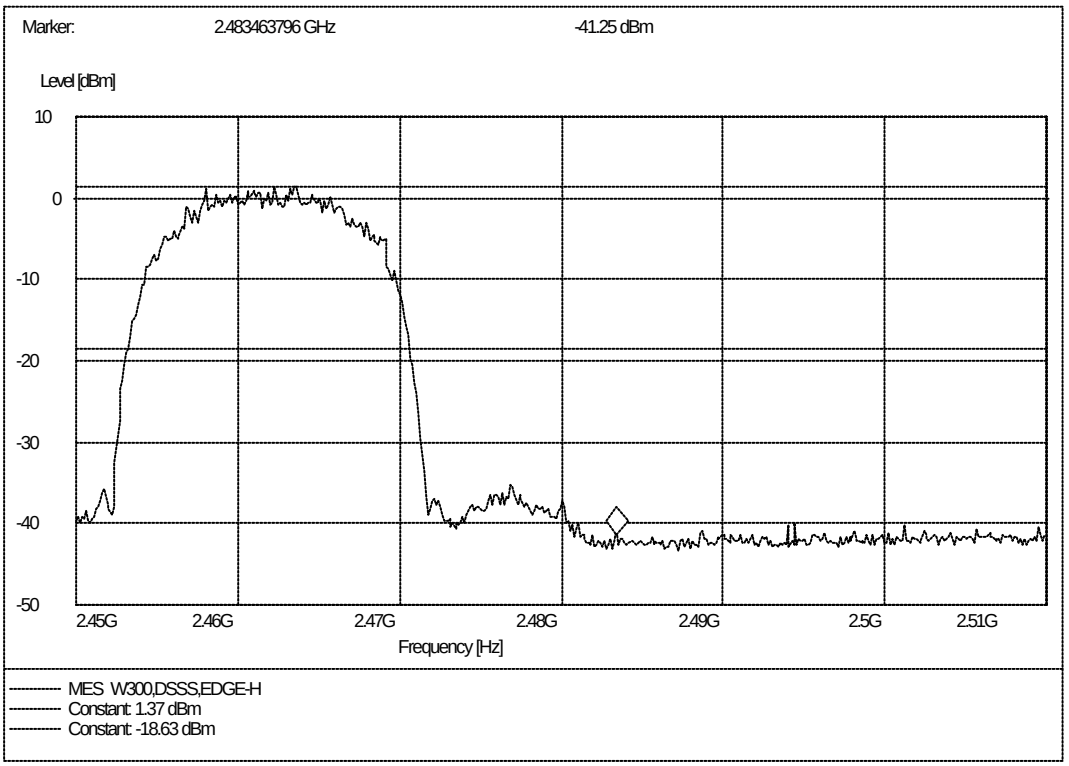
See test plots.

Band edge test plots

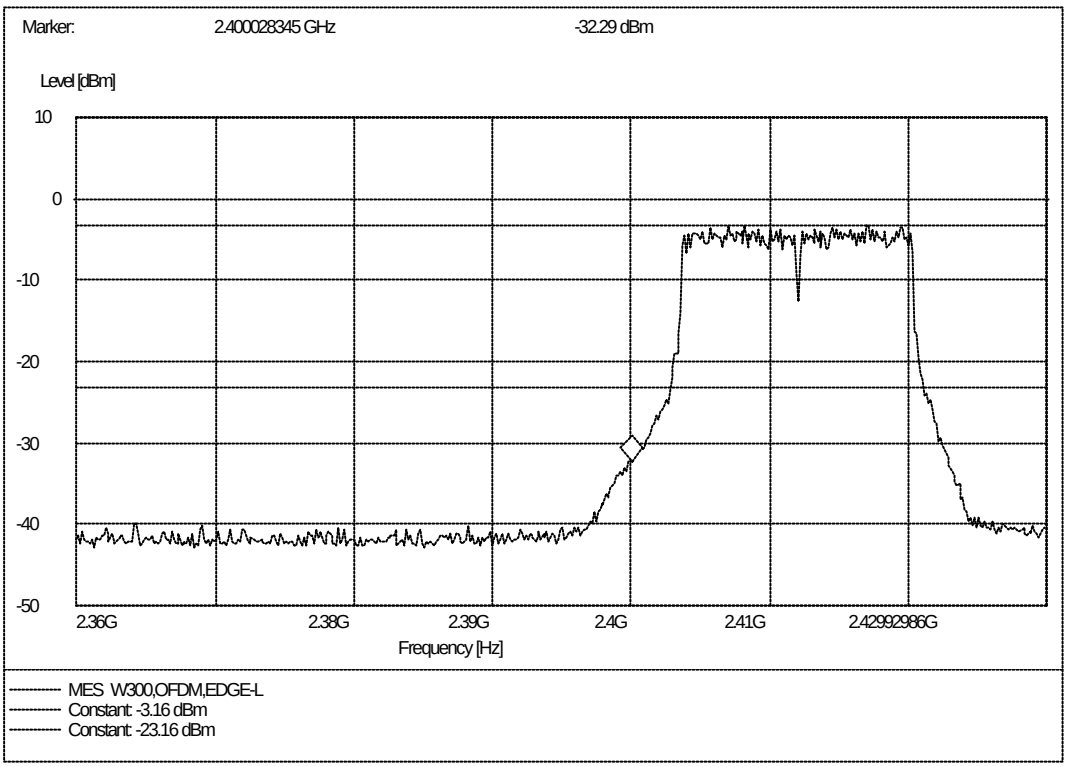
1. DSSS modulation, lowest channel No.1



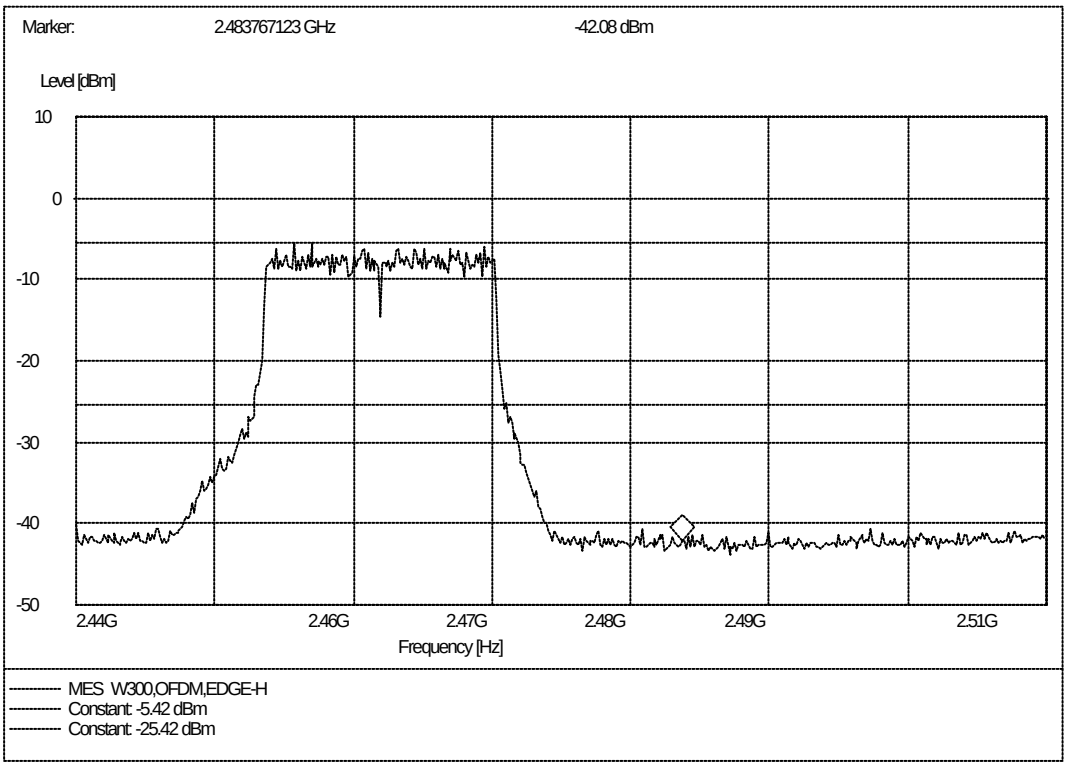
2. DSSS modulation, highest channel No.11



3. OFDM modulation, lowest channel No.1



4. OFDM modulation, highest channel No.11



9 Radiated Spurious Emission Measurement

9.1 Requirements of Radiated Spurious Emission

According to FCC §15.209 (a), Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
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

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules,

According to FCC §15.247 (c), attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

9.2 Test Procedure

a. The radiated field strength measurement was performed in a semi-anechoic chamber.

b. The EUT was placed on the top of an insulating table 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna is varied from 1 to 4 meter 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.

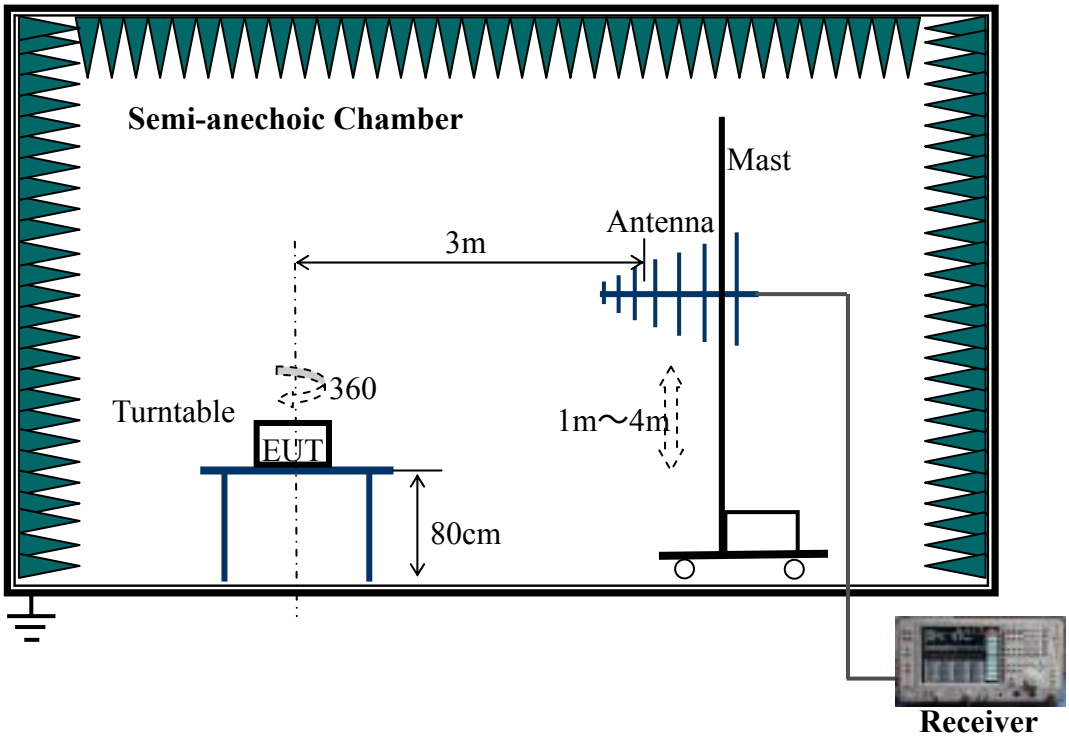
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The spurious radiations from 9 kHz to 10th harmonic of the fundamental frequency are researched. For the frequency range 9 kHz to 30 MHz, loop antenna was used. For the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. For the frequency range above 3 GHz, horn antenna was used.

f. For frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz, the test receiver was set to Average Detector mode and Max Peak Detector mode. For other frequency bands, the test receiver was set to Quasi-Peak Detector mode.

g. The resolution bandwidth of the test receiver was 120kHz for frequency below 1GHz and 1 MHz for frequency above 1GHz.

9.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

9.4 EUT Setup and Operating Conditions

Refer to 4.4. The EUT was operating at the lowest, middle and highest channels respectively.

9.5 Test Results

1. DSSS modulation, lowest channel No.1

Antenna Polarization: Vertical

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	50.44	QP	32.17	40
2	Other	106.72	QP	31.34	43.5
3	Other	250.00	QP	42.09	46
4	Fundamental	2412.00	AV	96.29	--
5			PK	105.72	--
6	Other	4078.15	AV	30.61	54
7			PK	44.40	74
8	Harmonic	4824.00	AV	32.37	54
9			PK	46.49	74
10	Harmonic	7236.00	AV	39.50	54
11			PK	52.93	74

Antenna Polarization: Horizontal

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	99.56	QP	25.66	43.5
2	Other	250.00	QP	36.42	46
3	Other	375.00	QP	37.08	46
4	Other	720..00	QP	39.01	46
5	Fundamental	2412.00	AV	97.11	--
6			PK	106.80	--
7	Other	2611.22	AV	34.78	54
8			PK	46.72	74
9	Harmonic	4824.00	AV	32.69	54
10			PK	46.49	74
11	Harmonic	7236.00	AV	40.64	54
12			PK	55.04	74

2. DSSS modulation, middle channel No.6

Antenna Polarization: Vertical

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	34.64	QP	30.04	40
2	Other	104.16	QP	32.15	43.5
3	Other	250.00	QP	40.19	46
4	Fundamental	2437.00	AV	96.79	--
5			PK	106.12	--
6	Other	4126.25	AV	45.66	54
7			PK	55.18	74
8	Harmonic	4874.00	AV	32.44	54
9			PK	46.22	74
10	Harmonic	7311.00	AV	39.39	54
11			PK	53.06	74

Antenna Polarization: Horizontal

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	99.36	QP	28.24	43.5
2	Other	250.00	QP	38.25	46
3	Other	375.00	QP	34.55	46
4	Other	720.00	QP	38.77	46
5	Other	2250.50	AV	33.83	54
6			PK	46.85	74
7	Fundamental	2437.00	AV	96.15	--
8			PK	106.12	--
9	Other	2611.22	AV	35.98	54
10			PK	48.13	74
11	Harmonic	4874.00	AV	32.88	54
12			PK	46.01	74
13	Harmonic	7311.00	AV	39.43	54
14			PK	52.70	74

3. DSSS modulation, highest channel No.11

Antenna Polarization: Vertical

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBmV/m)	Limits (dBmV/m)
1	Other	34.76	QP	30.10	40
2	Other	104.76	QP	33.52	43.5
3	Other	250.00	QP	42.04	46
4	Other	2310.62	AV	44.74	54
5			PK	56.15	74
6	Fundamental	2462.00	AV	94.49	--
7			PK	104.86	--
8	Other	4174.35	AV	31.72	54
9			PK	45.37	74
10	Harmonic	4924.00	AV	34.95	54
11			PK	50.29	74
12	Harmonic	7386.00	AV	38.88	54
13			PK	51.79	74

Antenna Polarization: Horizontal

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBmV/m)	Limits (dBmV/m)
1	Other	192.04	QP	30.83	43.5
2	Other	250.00	QP	38.95	46
3	Other	375.00	QP	35.12	46
4	Other	880.00	QP	36.23	46
5	Other	2310.62	AV	49.35	54
6			PK	58.74	74
7	Fundamental	2462	AV	94.61	--
8			PK	104.10	--
9	Other	2611.22	AV	39.56	54
10			PK	49.44	74
11	Harmonic	4924.00	AV	34.23	54
12			PK	48.55	74
13	Harmonic	7386.00	AV	38.19	54
14			PK	51.91	74

4. OFDM modulation, lowest channel No.1

Antenna Polarization: Vertical

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	30.64	QP	34.29	40
2	Other	48.52	QP	31.50	40
3	Other	250.00	QP	35.12	46
4	Other	732.12	QP	33.27	46
5	Fundamental	2412.00	AV	87.27	--
6			PK	100.46	--
7	Other	4076.24	AV	44.89	54
8			PK	56.71	74
9	Harmonic	4824.00	AV	33.21	54
10			PK	47.35	74
11	Harmonic	7236.00	AV	38.68	54
12			PK	52.28	74

Antenna Polarization: Horizontal

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	250.00	QP	37.46	46
2	Other	375.00	QP	36.30	46
3	Other	880.00	QP	39.00	46
4	Fundamental	2412.00	AV	85.31	--
5			PK	98.31	--
6	Harmonic	4824.00	AV	31.29	54
7			PK	44.76	74
8	Harmonic	7236.00	AV	38.80	54
9			PK	52.09	74

5. OFDM modulation, middle channel No.6

Antenna Polarization: Vertical

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	33.32	QP	27.80	40
2	Other	106.72	QP	33.79	43.5
3	Other	250.00	QP	41.07	46
4	Fundamental	2437.00	AV	87.13	--
5			PK	101.35	--
6	Other	4126.25	AV	45.92	54
7			PK	55.73	74
8	Harmonic	4874.00	AV	31.83	54
9			PK	45.73	74
10	Harmonic	7311.00	AV	39.01	54
11			PK	52.85	74

Antenna Polarization: Horizontal

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBμV/m)	Limits (dBμV/m)
1	Other	192.08	QP	32.98	43.5
2	Other	250.00	QP	38.34	46
3	Other	375.00	QP	34.56	46
4	Other	880.00	QP	35.89	46
5	Fundamental	2437.00	AV	87.54	--
6			PK	101.35	--
7	Harmonic	4824.00	AV	31.81	54
8			PK	45.45	74
9	Harmonic	7311.00	AV	39.42	54
10			PK	54.11	74

6. OFDM modulation, highest channel No.11

Antenna Polarization: Vertical

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBmV/m)	Limits (dBmV/m)
1	Other	33.12	QP	29.77	40
2	Other	106.72	QP	33.42	43.5
3	Other	250.00	QP	42.08	46
4	Other	1192.38	AV	27.99	54
5			PK	49.41	74
6	Fundamental	2462.00	AV	86.45	--
7			PK	99.70	--
8	Other	4174.34	AV	31.67	54
9			PK	45.50	74
10	Harmonic	4924.00	AV	31.64	54
11			PK	45.32	74
12	Harmonic	7386.00	AV	37.73	54
13			PK	51.42	74

Antenna Polarization: Horizontal

No.	Disturbance Source	Frequency (MHz)	Detector Function	Emission Level (dBmV/m)	Limits (dBmV/m)
1	Other	190.96	QP	30.79	43.5
2	Other	250.00	QP	39.91	46
3	Other	375.00	QP	34.24	46
4	Other	880.00	QP	35.49	46
5	Other	720.00	QP	38.53	46
6	Other	2310.62	AV	43.52	54
7			PK	55.75	74
8	Fundamental	2462.00	AV	85.00	--
9			PK	99.70	--
10	Harmonic	4924.00	AV	31.81	54
11			PK	45.74	74
12	Harmonic	7386.00	AV	37.70	54
13			PK	51.42	74

9 Power Spectrum Density Measurement

9.1 Limits of Power Spectrum Density

According to FCC §15.247(d), for digitally modulated systems, the peak 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.

9.2 Test Procedure

a. The radiated power spectrum density measurement was performed in a full anechoic chamber. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.

b. The EUT was placed on the vertical axis of a turntable 1.8 meters above the ground. The table was turned from 0 degrees to 360 degrees to find the maximum reading.

c. In the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. In the frequency range above 3 GHz, horn antenna was used. The antenna was at the same height as the EUT. Since the there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The measurement was performed with the antenna at horizontal and vertical polarization respectively.

d. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode. The resolution bandwidth was set to 3 kHz.

9.3 Test Setup

Same as 4.3

9.4 EUT Setup and Operating Conditions

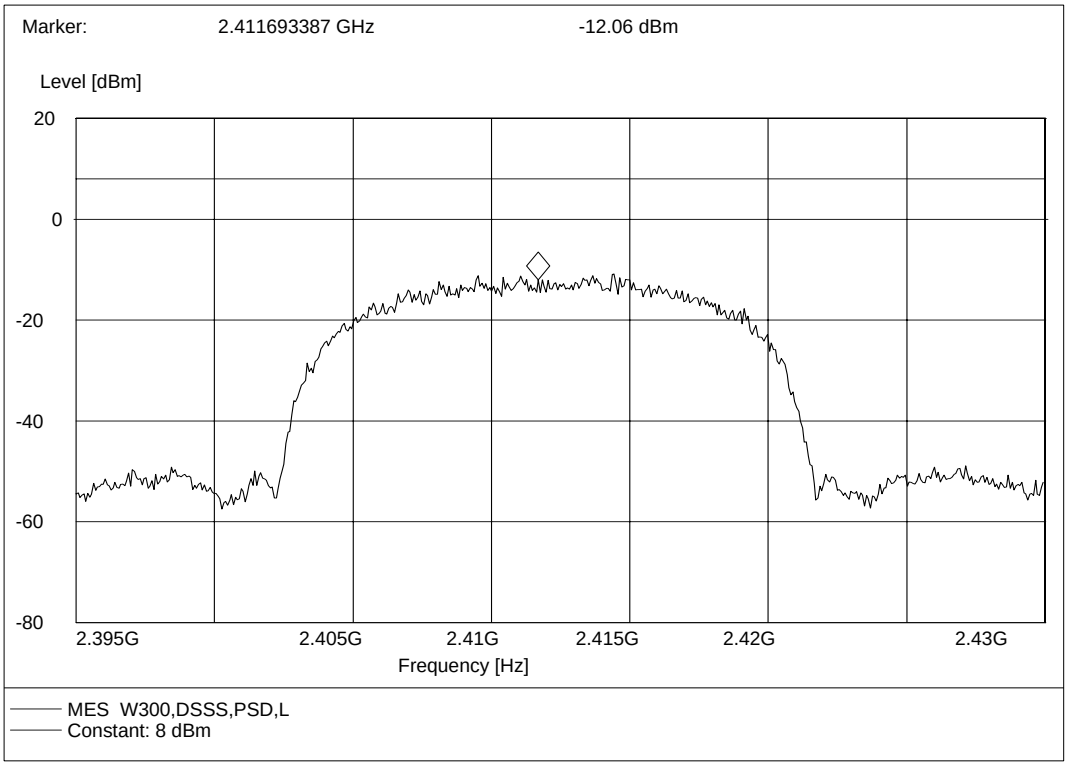
Refer to 4.4. The EUT was operating at lowest, middle and highest channels respectively.

9.5 Test Results

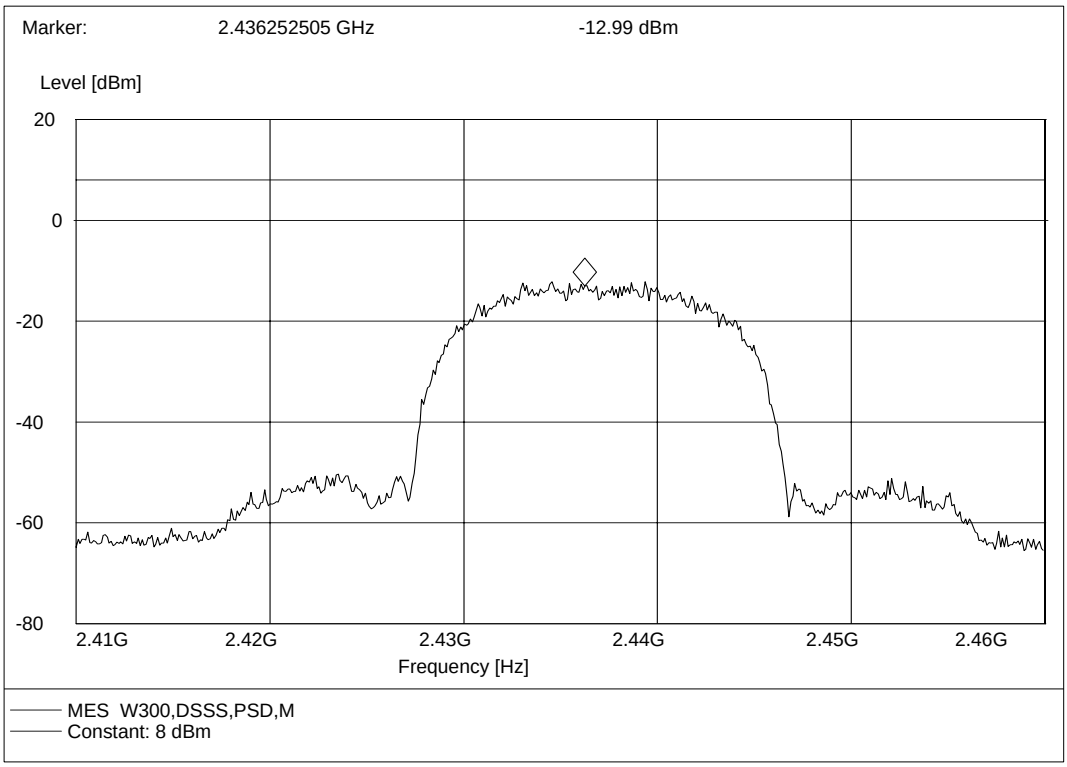
Modulation	Power spectrum density (dBm/3kHz), EIRP			Limit (dBm/3kHz)
	Channel 1 2412MHz	Channel 6 2437MHz	Channel 11 2483MHz	
DSSS (IEEE 802.11b)	-12.06	-12.99	-14.47	8
OFDM (IEEE 802.11g)	-17.29	-19.22	-19.95	

Plots of power spectrum density

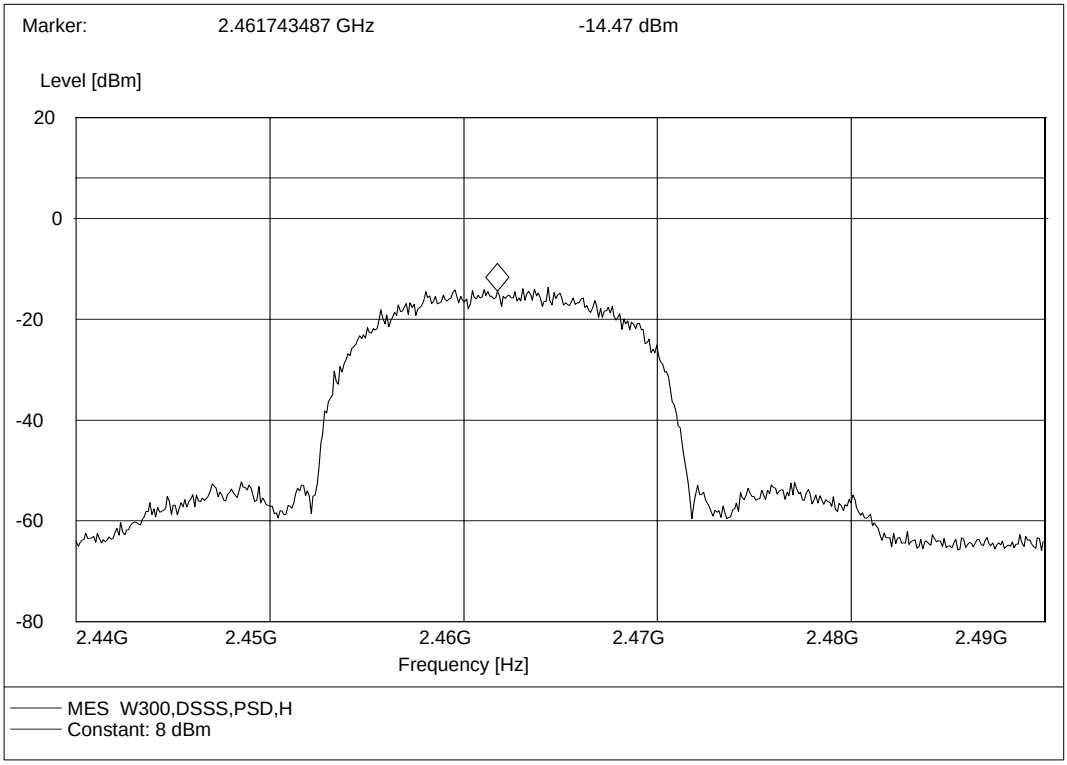
1. DSSS modulation, lowest channel No.1



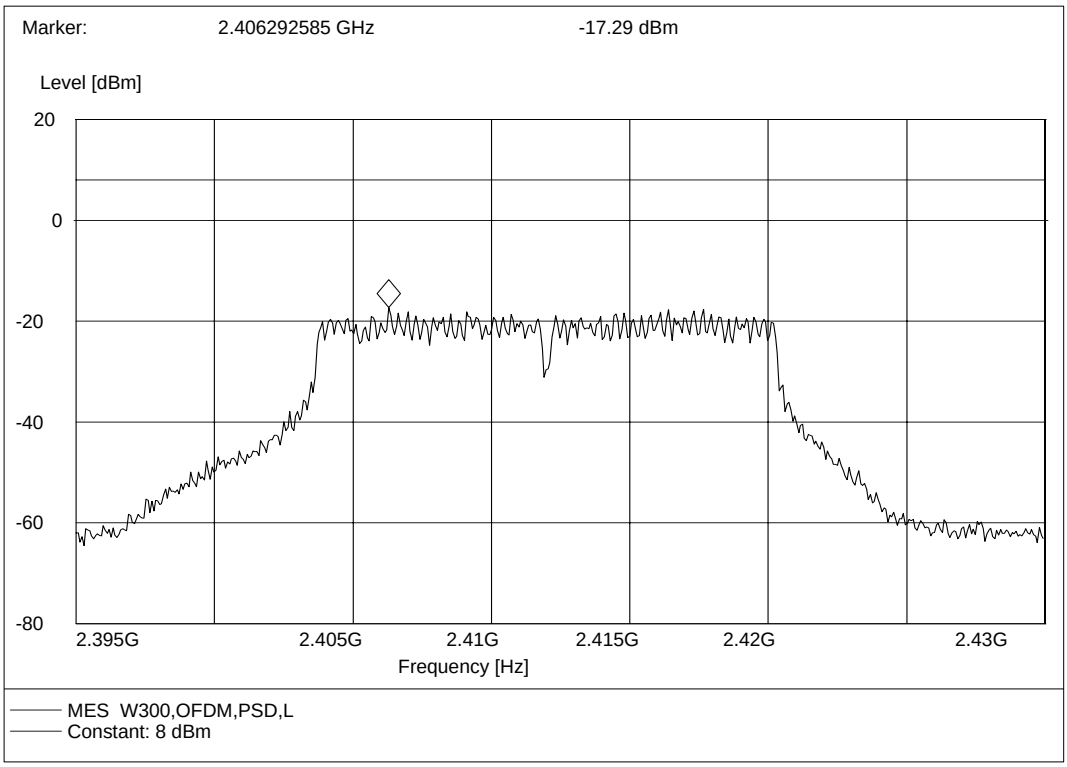
2. DSSS modulation, middle channel No.6



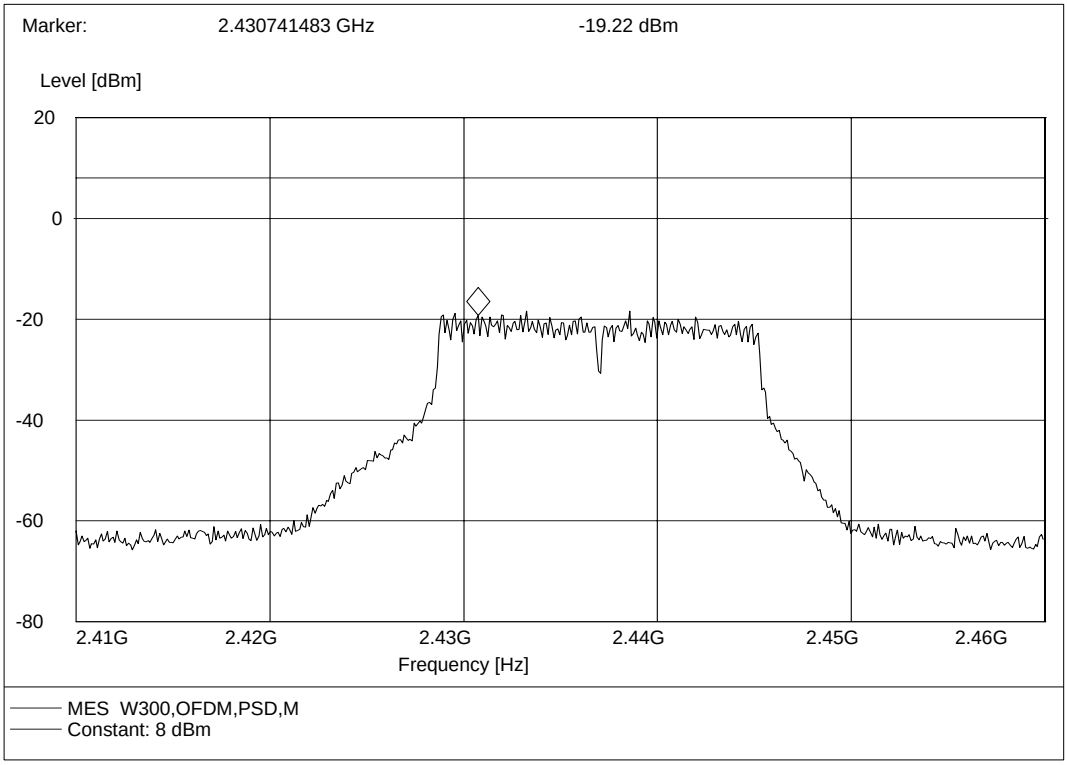
3. DSSS modulation, highest channel No.11



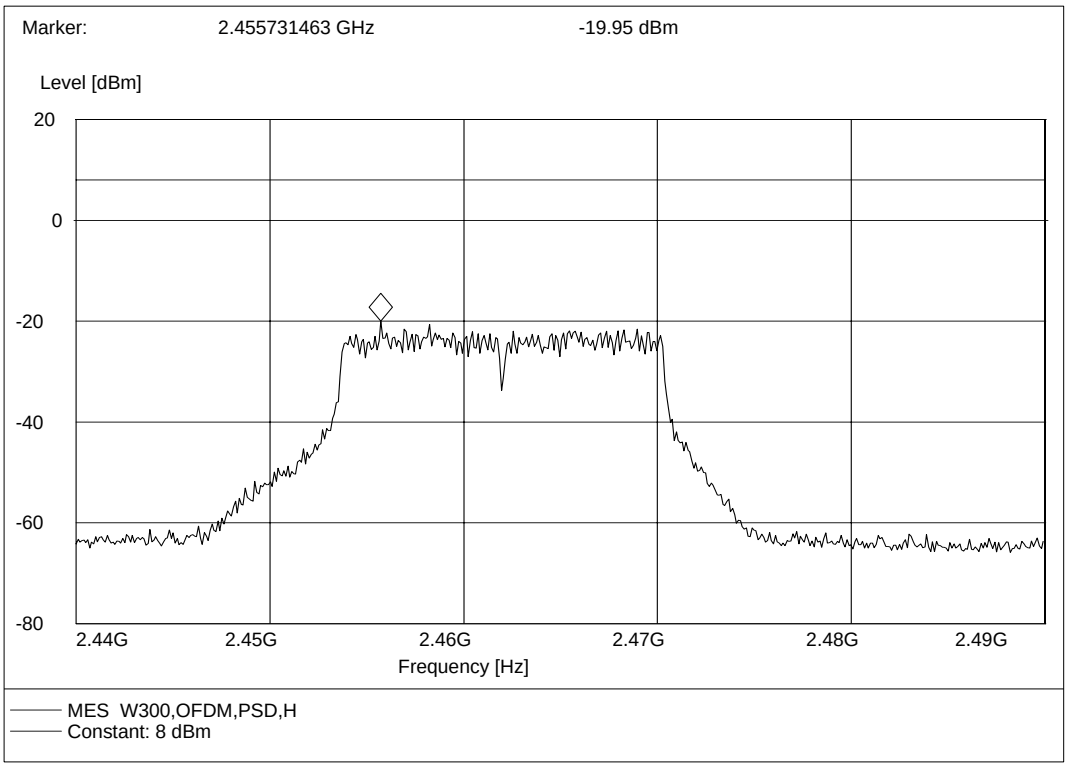
4. OFDM modulation, lowest channel No.1



5. OFDM modulation, middle channel No.6



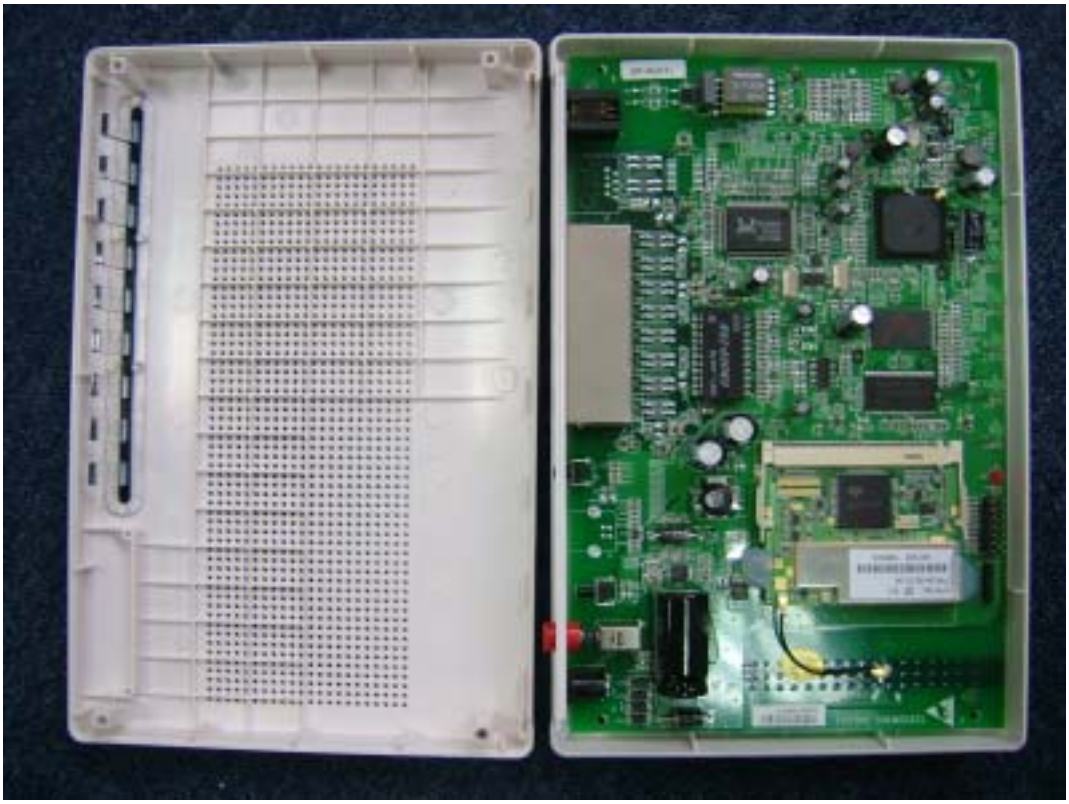
6. OFDM modulation, highest channel No.11

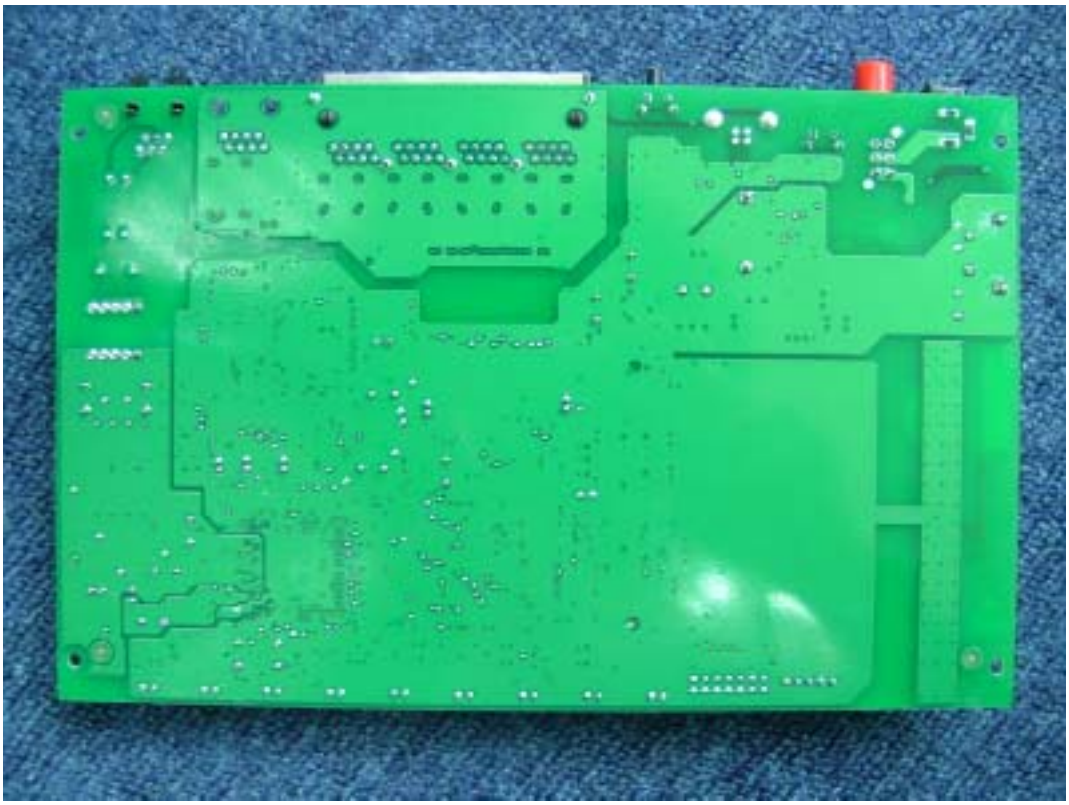


Appendix I：Photographs of the EUT

1. Appearance of the EUT

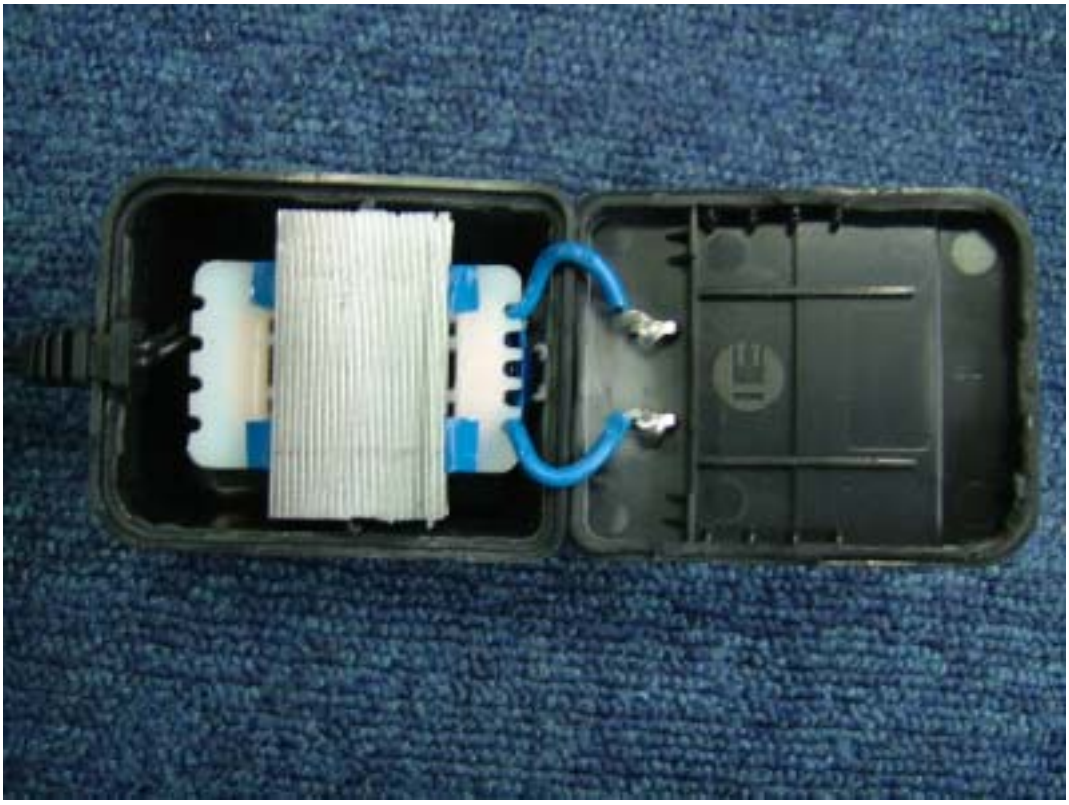
2. Inside of the EUT





3. Appearance of the AC/DC Adapter

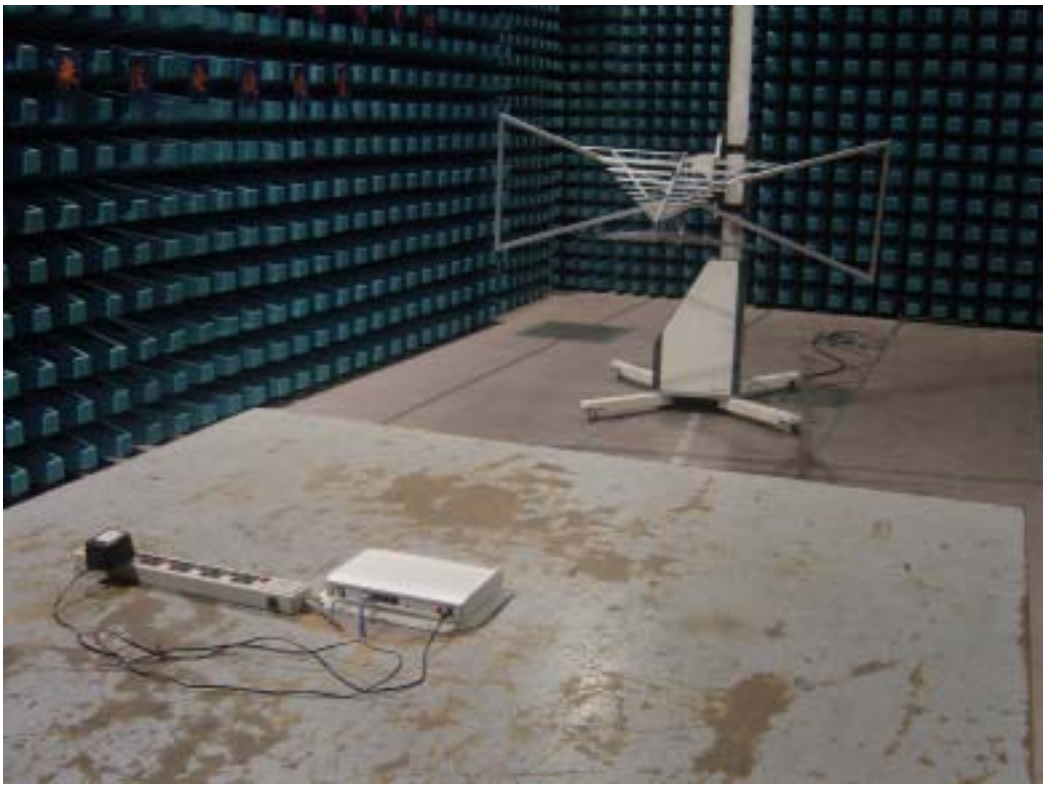
4. Inside of the AC/DC Adapter



Appendix II：Photographs of the Test Configuration

1. AC Mains Conducted Emission Measurement

2. Radiated Field Strength Measurement



3. Radiated Power Measurement