FCC PART 15.247

EMI MEASUREMENT AND TEST REPORT

For

Hunan Novasky Electronic Technology Co., Ltd.

Office Building, Wanxuyuan, No. 203 Sanyi Avennue, Changsha, Hunan, China

FCC ID: ZIXDN-XXX

May 4, 2011

This Report Concerns: Original Report	Equipment Type: DN Series Life Detector
Test Engineer:	Jack Liu
Report No.:	BST11040098Y-1ER-3
Receive EUT Date/Test Date:	April 27, 2011/ April 28, 2011 – May 3, 2011
Reviewed By:	Christina
Prepared By:	**Shenzhen BST Technology Co.,Ltd.** 3F,Weames Technology Building, No. 10 Kefa Road,Science Park, Nanshan District,Shenzhen,Guangdong,China Tel: 0755-26747751～3 Fax: 0755-26747751～3 ext.826

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1. GENERAL INFORMATION

1.1. Report information

1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.

1.1.2.The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

Test Facility -
The test site used to collect the radiated data is located on the address of
emitel (Shenzhen) Limited
(FCC Registered Test Site Number: 746887) on
Building 2, 171 Meihua Road, Futian District, Shenzhen, 518049 China
The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

Available upon request.

2. PRODUCT DESCRIPTION

2.1. EUT Description

Applicant	:	Hunan Novasky Electronic Technology Co., Ltd.
Address	:	Office Building, Wanxuyuan, No. 203 Sanyi Avennue, Changsha, Hunan, China
Manufacturer	:	Hunan Novasky Electronic Technology Co., Ltd.
Address	:	Office Building, Wanxuyuan, No. 203 Sanyi Avennue, Changsha, Hunan, China
EUT Description	:	DN Series Life Detector
Trade Name	:	NOVASKY
Modulation	:	802.11b: DSSS 802.11g: OFDM
Model Number	:	DN-II, DN-III, DN-IV, DN-S
Power Supply	:	DC 10.8V Li Ion Battery
Antenna Type	:	Integral Antenna
Antenna gain	:	0dBi(2.4GHz)

2.2. Block Diagram of EUT Configuration

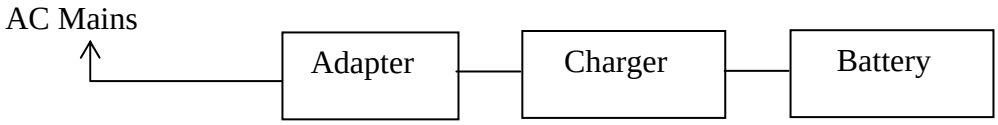


Figure 1 EUT SETUP for Charging mode

Figure 2 EUT SETUP for TX mode

2.3. Support Equipment List

Table 2 Ancillary Equipment

Name	Model No	S/N	Manufacturer	Used "√"
AC/DC Adapter Input: AC 100-240V, 50/60Hz Outpu: DC 24V/2.7A	STD-2427P	--	Adapter Tech	√
Charger	CH5000	--	Inspired Energy	√

2.4. Test Conditions

Temperature: 23~25℃

Relative Humidity: 55~63 %

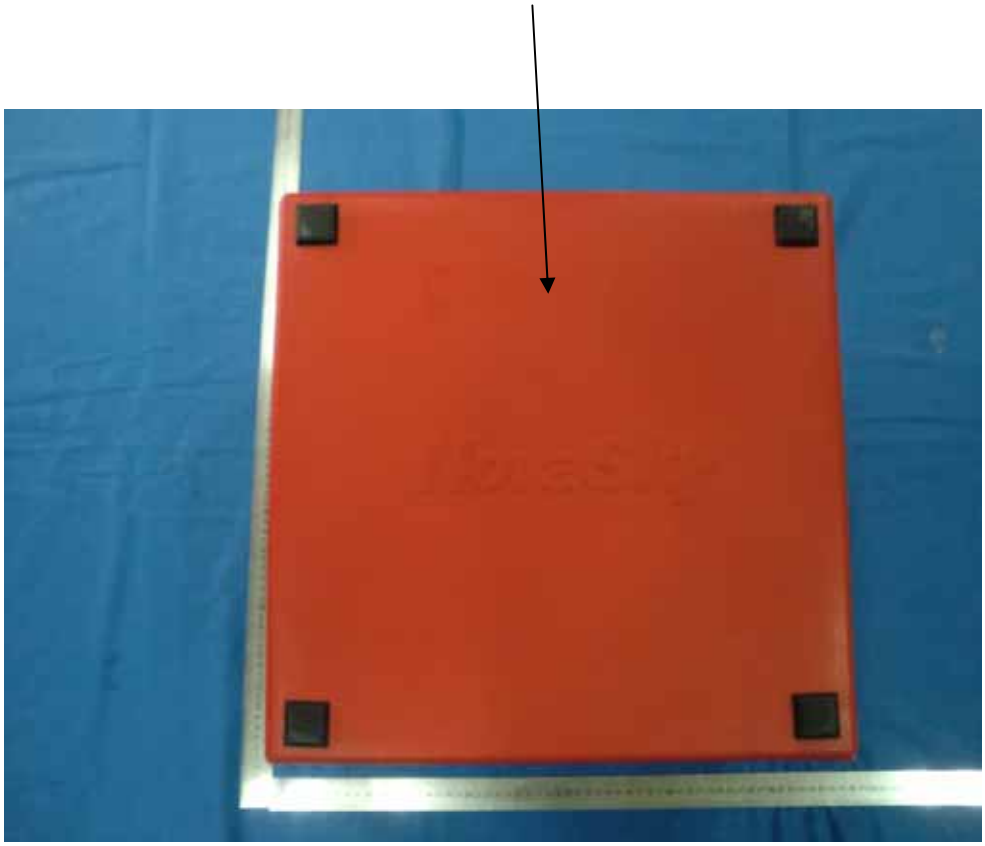
3. FCC ID LABEL

FCC ID: ZIXDN-XXX

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

Label Location on EUT

EUT Bottom View/ FCC ID Label Location



4. TEST RESULTS SUMMARY

FCC 15 Subpart C,Paragraph 15.247

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247 (i) , §1.1307 (b) (1), §2.1093	RF Exposure	PASS
§15.203	Antenna Requirement	PASS
§15.207 (a)	Conducted Emissions	PASS
§15.247(d)	Spurious Emissions at Antenna Port	PASS
§15.205	Restricted Bands	PASS
§15.209, §15.205, §15.247(d)	Spurious Emissions	PASS
§15.247 (a)(2)	6 dB Bandwidth	PASS
§15.247(b)(3)	Maximum Peak Output Power	PASS
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	PASS
§15.247(e)	Power Spectral Density	PASS

Modifications

No modification was made.

5. TEST EQUIPMENT USED

Equipment/Facilities	Manufacturer	Model #	Serial no.	Date of Cal.	Cal. Interval
Cable	Resenberger	N/A	NO.1	Mar 10，2011	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Mar 10，2011	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Mar 10，2011	1 Year
LISN	Rohde＆Schwarz	ESH3-Z5	100305	Mar 10，2011	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Mar 10，2011	1 Year
EMI Test Receiver	Rohde＆Schwarz	ESP13	100180	Oct.11,2010	1 Year
Spectrum Analyzer	Rohde＆Schwarz	FSP40	100273	Sep.10,2010	1 Year
3m Semi-Anechoic Chamber	Albatross Projects	9m×6m×6m	N/A	Feb.20,2011	1 Year
Signal Generator	FLUKE	PM5418 + Y/C	LO747012	Feb.20,2011	1 Year
Signal Generator	FLUKE	PM5418TX	LO738007	Feb.20,2011	1 Year
Loop Antenna	SCHWARZBECK	FMZB1516	113	Jan.30,2011	1 Year
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	9161-4079	Sep.22,2010	1 Year
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-564	Sep.22,2010	1 Year
Ultra Broadband Antenna	Rohde＆Schwarz	HL-562	100110	June.15,2010	1 Year
AMN	Rohde＆Schwarz	ESH3-Z5	100196	Oct.11,2010	1 Year
AMN	Rohde＆Schwarz	ESH3-Z5	100197	Oct.11,2010	1 Year
Pulse Limiter	Rohde＆Schwarz	ESH3-Z2	N/A	N/A	N/A
Power Meter	Rohde＆Schwarz	NRVD	100041	Feb.20,2011	1 Year
EMI Test Receiver	Rohde＆Schwarz	ESCS30	100003	Feb.20,2011	1 Year
Coaxial Cable with N-connectors	SCHWARZBECK	AK9515H	95549	Sep.22,2010	1 Year
Radio Communication Test Set	Rohde＆Schwarz	CMS 54	846621/024	Feb.20,2011	1 Year
Modulation Analyzer	Hewlett-Packard	8901B	2303A00362	Feb.20,2011	1 Year
Absorbing clamp	Rohde＆Schwarz	MDS-21	N/A	Oct.11,2010	1 Year

6. §15.247 (I) AND §1.1307 (B) (1), §2.1093 – RF EXPOSURE

6.1. Standard Applicable

According to §15.247 (i) and §1.1307(b)(1), 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 level in excess of the Commission's guidelines.

Limits for General Population/Uncontrolled Exposure

According to FCC Exclusion list, In the following table, f_{GHz} is mid-band frequency in GHz, and d is the distance to a person'sbody, excluding hands, wrists, feet, and ankles.

Exposure category	low threshold	high threshold
general population	$(60/f_{GHz})$ mW, $d < 2.5$ cm $(120/f_{GHz})$ mW, $d \geq 2.5$ cm	$(900/f_{GHz})$ mW, $d < 20$ cm
occupational	$(375/f_{GHz})$ mW, $d < 2.5$ cm $(900/f_{GHz})$ mW, $d \geq 2.5$ cm	$(2250/f_{GHz})$ mW, $d < 20$ cm

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

6.2. Test Result

Measurement Result:

The Max peak output power is 19.3mW<24.9mW.

The SAR measurement is not required.

7. §15.203 - ANTENNA REQUIREMENT

7.1. Standard Applicable

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

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

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

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

7.2. Antenna Connector Construction

The antenna used in this product is PCB antenna. The antenna is permanently attached. Refer to the product photo.

8. §15.207 - CONDUCTED EMISSIONS

8.1. Applicable Standard

The specification used was with the FCC Part 15.207 limits.

8.2. Test Procedure

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

8.3. Conducted Power line Emission Limits

FCC Part 15 Paragraph 15.207 (dBuV)		
Frequency Range (MHZ)	Class A QP/AV	Class B QP/AV
0.15-0.5	79/66	65-56/56-46
0.5-5.0	73/60	56-46
5.0-3.0	73/60	60-50

Note: In the above table, the tighter limit applies at the band edges.

8.4. Block Diagram of Test Setup

8.4.1.Block Diagram of connection between the EUT and the simulators

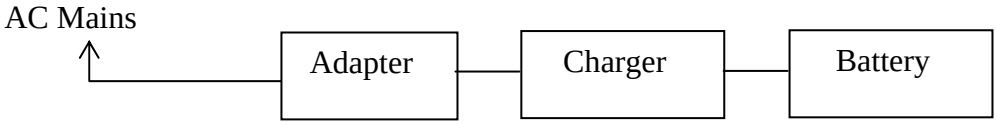
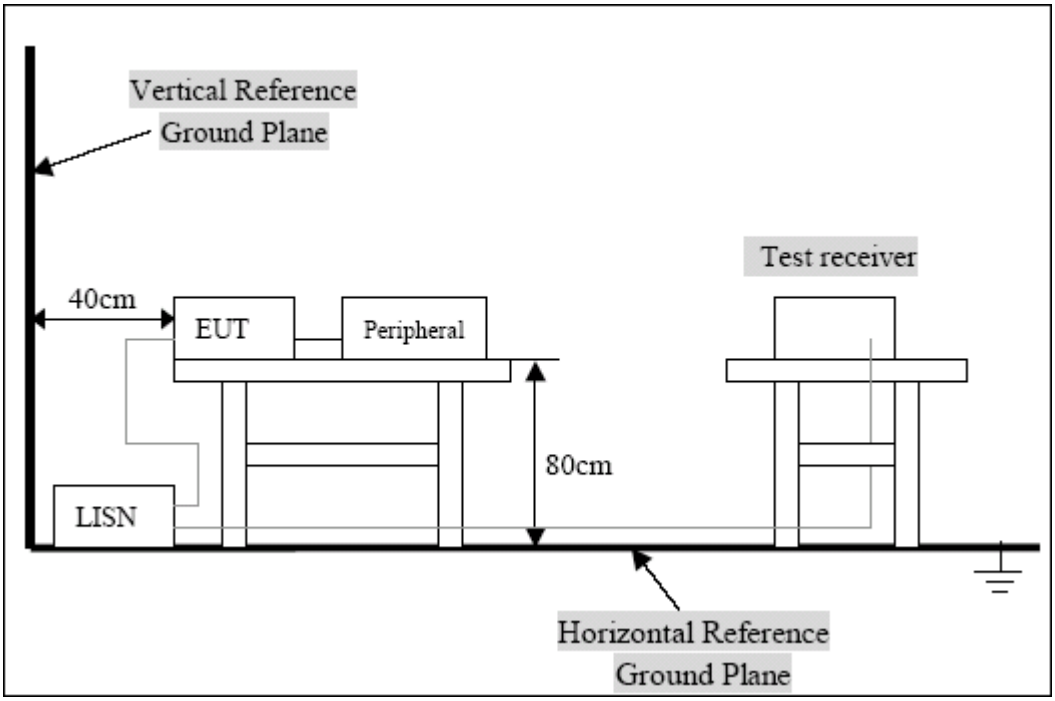


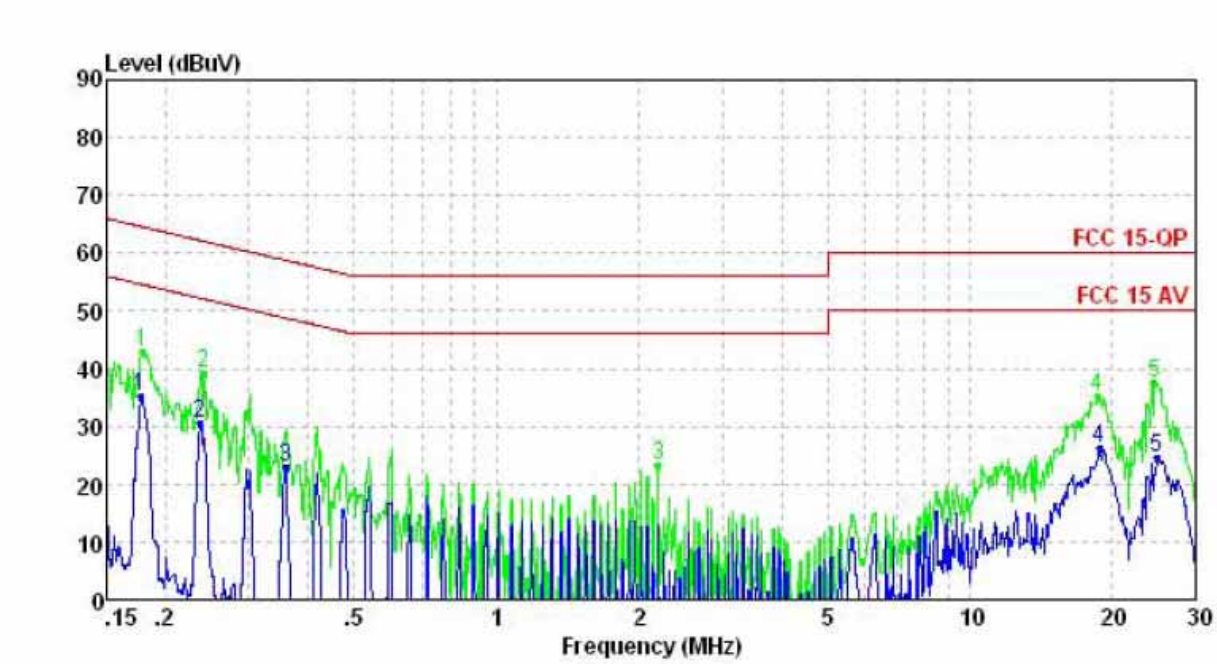
Figure 1 EUT SETUP for Charging mode

8.4.2.Test Setup Diagram



8.5. Conducted Power Line Test Result

Pass.

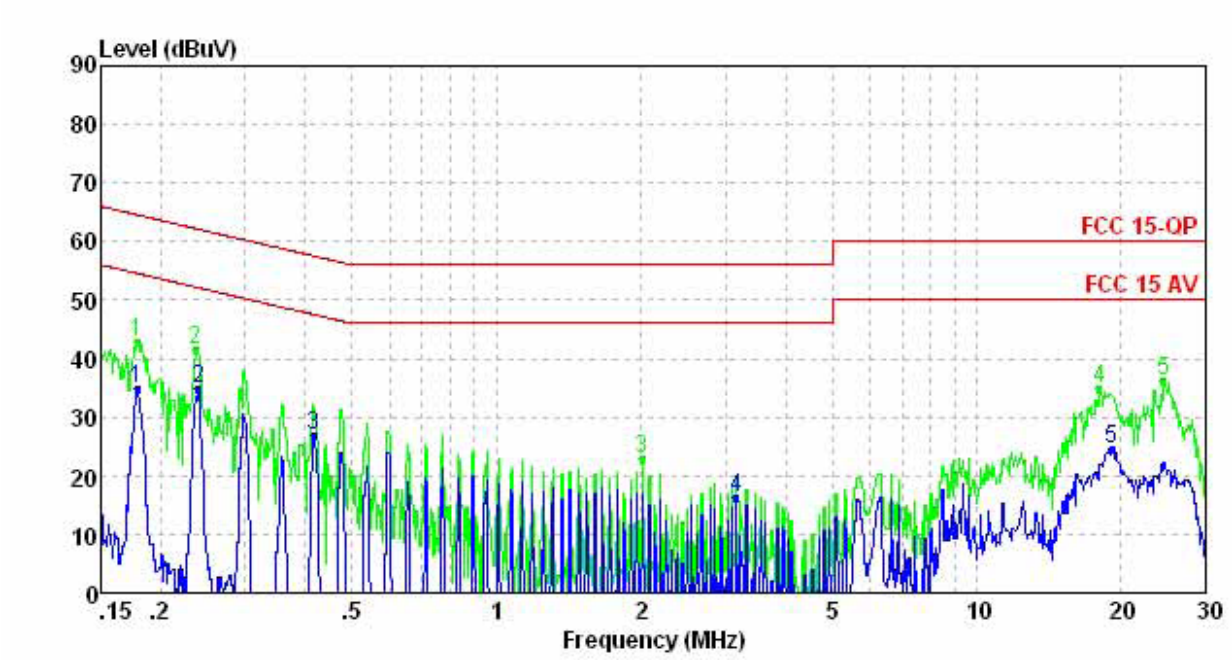


Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1 Max	0.18	35.24	54.64	-19.40	Average	LINE
2	0.24	30.52	52.22	-21.70	Average	LINE
3	0.36	23.02	48.74	-25.72	Average	LINE
4	18.82	26.11	50.00	-23.89	Average	LINE
5	24.79	24.47	50.00	-25.53	Average	LINE

Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1 Max	0.18	42.77	64.55	-21.78	Peak	LINE
2	0.24	39.34	62.08	-22.74	Peak	LINE
3	2.20	23.32	56.00	-32.68	Peak	LINE
4	18.62	35.06	60.00	-24.94	Peak	LINE
5	24.53	37.63	60.00	-22.37	Peak	LINE



Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1	0.18	34.73	54.55	-19.82	Average	NEUTRAL
2 Max	0.24	34.86	52.13	-17.27	Average	NEUTRAL
3	0.42	26.81	47.51	-20.70	Average	NEUTRAL
4	3.16	16.18	46.00	-29.82	Average	NEUTRAL
5	19.12	24.71	50.00	-25.29	Average	NEUTRAL

Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1	0.18	42.90	64.55	-21.65	Peak	NEUTRAL
2 Max	0.24	41.51	62.22	-20.71	Peak	NEUTRAL
3	2.01	22.84	56.00	-33.16	Peak	NEUTRAL
4	18.04	34.82	60.00	-25.18	Peak	NEUTRAL
5	24.53	36.31	60.00	-23.69	Peak	NEUTRAL

9. §15.209, §15.205, §15.247(D) - Spurious Emissions

9.1. Test Equipment

Please refer to section 2 this report.

9.2. Test Procedure

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

9.3. Radiated Test Setup

9.3.1.Block Diagram of connection between the EUT and the simulators

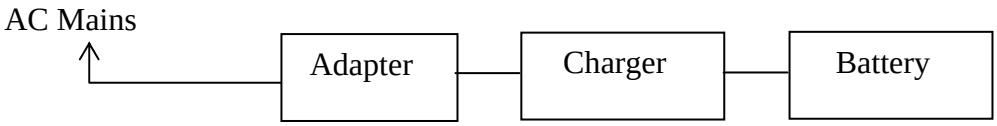
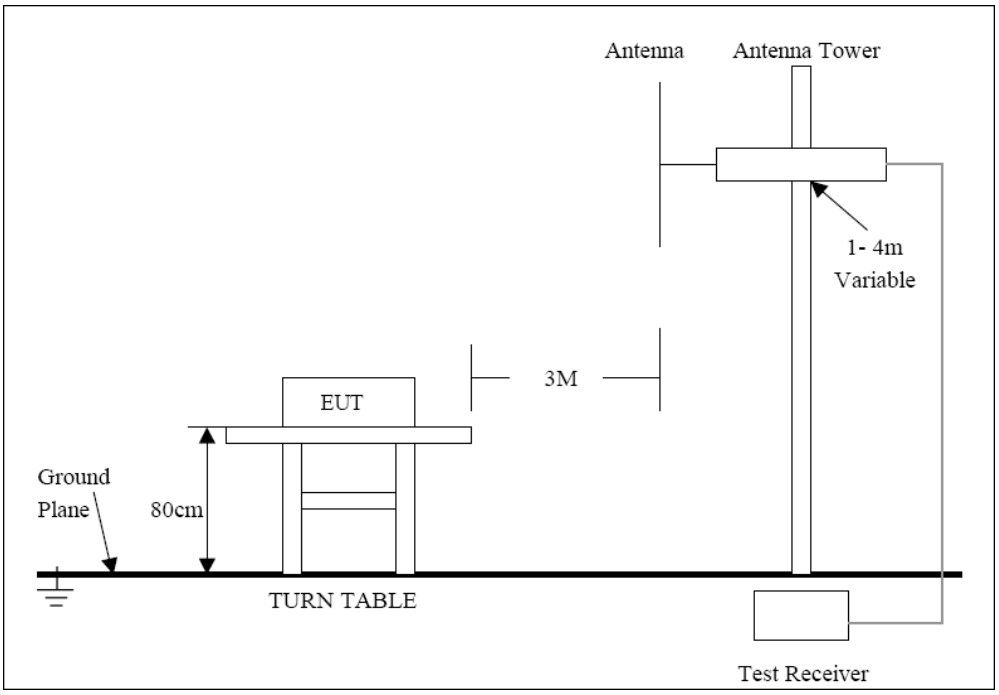


Figure 1 EUT SETUP for Charging mode

Figure 2 EUT SETUP for TX mode

9.3.2.Test Setup Diagram



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

9.4. Radiated Emission Limit

CARRIER FREQUENCY WILL NOT EXCEEDS 48.0 dBuV/m AT 3M. OUT-OF-BAND EMISSIONS SHALL NOT EXCEED:

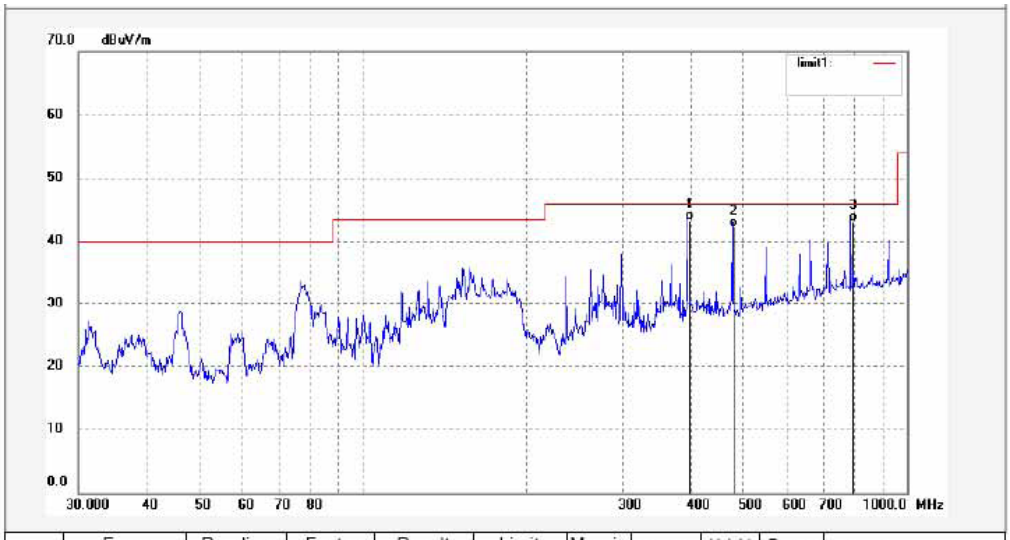
Frequency (MHz)	Distance (m)	Field Strength (dBuV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
ABOVE 960	3	54.0

9.5. Radiated Emission Test Result

Pass.

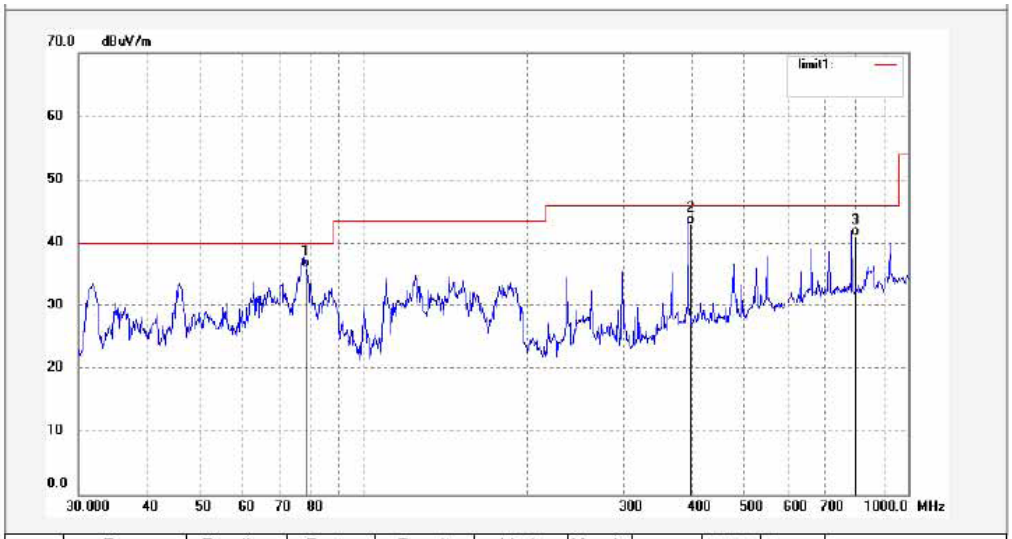
Date of Test:	April 29, 2011	Temperature:	25°C
EUT:	DN Series Life Detector	Humidity:	51%
Model No.:	DN-II	Power Supply:	AC 120V/60Hz
Test Mode:	Charging	Test Engineer:	Jack

Horizontal Polarization



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	400.0010	21.09	22.20	43.29	46.00	-2.71	QP			
2	483.2360	18.32	23.89	42.21	46.00	-3.79	QP			
3	800.0004	15.24	27.86	43.10	46.00	-2.90	QP			

Horizontal Polarization



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	78.7407	22.46	13.64	36.10	40.00	-3.90	QP			
2	400.0010	20.68	22.20	42.88	46.00	-3.12	QP			
3	800.0004	13.14	27.86	41.00	46.00	-5.00	QP			

Date of Test:	April 29, 2011	Temperature:	25°C
EUT:	DN Series Life Detector	Humidity:	51%
Model No.:	DN-II	Power Supply:	DC 10.8V Li Ion Battery

IEEE 802.11b Channel: Low

Freq. (MHz)	Emission (dBuV/m) Peak Detector	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4824.00	49.75	HORZ	74.0 / 54.0	-24.25
4824.00	48.96	VERT	74.0 / 54.0	-25.04
7236.00	49.26	HORZ	74.0 / 54.0	-24.74
7236.08	48.14	VERT	74.0 / 54.0	-25.86
9648.02	49.95	HORZ	74.0 / 54.0	-24.05
9648.10	48.64	VERT	74.0 / 54.0	-25.36
24120.04	-	HORZ	74.0 / 54.0	-
24120.20	-	VERT	74.0 / 54.0	-

IEEE 802.11b Channel: Mid

Freq. (MHz)	Emission (dBuV/m) Peak Detector	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4874.00	49.89	HORZ	74.0 / 54.0	-24.11
4874.00	48.57	VERT	74.0 / 54.0	-25.43
7311.00	48.92	HORZ	74.0 / 54.0	-25.08
7311.02	47.63	VERT	74.0 / 54.0	-26.37
9748.10	49.78	HORZ	74.0 / 54.0	-24.22
9748.00	48.54	VERT	74.0 / 54.0	-25.46
24370.10	-	HORZ	74.0 / 54.0	-
24370.00	-	VERT	74.0 / 54.0	-

IEEE 802.11b Channel: High

Freq. (MHz)	Emission (dBuV/m) Peak Detector	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4924.00	49.93	HORZ	74.0 / 54.0	-24.07
4924.00	48.65	VERT	74.0 / 54.0	-25.35
7386.12	49.11	HORZ	74.0 / 54.0	-24.89
7368.00	48.05	VERT	74.0 / 54.0	-25.95
9848.00	48.91	HORZ	74.0 / 54.0	-25.09
9848.00	48.15	VERT	74.0 / 54.0	-25.85
24620.11	-	HORZ	74.0 / 54.0	-
24620.00	-	VERT	74.0 / 54.0	-

Note: (1) All Reading Levels below 1GHz are Quasi-Peak, above are peak and average value.
(2) Emission Level = Reading Level + Probe Factor + Cable Loss.
(3) The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
(4) Where an emission level is indicated by a –, levels had a margin greater than 20 dB when compared to the limit.

Date of Test:	April 29, 2011	Temperature:	25°C
EUT:	DN Series Life Detector	Humidity:	51%
Model No.:	DN-II	Power Supply:	DC 10.8V Li Ion Battery

IEEE 802.11g Channel: Low

Freq. (MHz)	Emission (dBuV/m) Peak	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
2398.40	62.19/42.56	HORZ	74.0 / 54.0	-11.81/-11.44
2398.40	52.54/39.38	VERT	74.0 / 54.0	-21..46/-14.62
4824.00	49.74	HORZ	74.0 / 54.0	-24.02
4824.00	48.16	VERT	74.0 / 54.0	-25.77
7236.00	49.08	HORZ	74.0 / 54.0	-25.22
7236.08	48.22	VERT	74.0 / 54.0	-26.04
9648.02	48.71	HORZ	74.0 / 54.0	-25.22
9648.10	48.03	VERT	74.0 / 54.0	-25.89
24120.04	-	HORZ	74.0 / 54.0	-
24120.20	-	VERT	74.0 / 54.0	-

IEEE 802.11g Channel: Mid

Freq. (MHz)	Emission (dBuV/m) Peak	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
4874.00	49.94	HORZ	74.0 / 54.0	-24.06
4874.00	48.13	VERT	74.0 / 54.0	-25.87
7311.00	49.56	HORZ	74.0 / 54.0	-24.44
7311.02	48.24	VERT	74.0 / 54.0	-25.76
9748.10	49.57	HORZ	74.0 / 54.0	-24.43
9748.00	48.33	VERT	74.0 / 54.0	-25.67
24370.10	-	HORZ	74.0 / 54.0	-
24370.00	-	VERT	74.0 / 54.0	-

IEEE 802.11g Channel: High

Freq. (MHz)	Emission (dBuV/m) Peak	HORIZ / VERT	Limits (dBuV/m) Peak / Average	Margin (dB)
2484.16	57.91/40.22	HORZ	74.0 / 54.0	-16.09/-13.78
2484.16	48.39/37.59	VERT	74.0 / 54.0	-25.61/-16.41
4924.00	49.23	HORZ	74.0 / 54.0	-24.77
4924.00	48.12	VERT	74.0 / 54.0	-25.88
7386.12	48.87	HORZ	74.0 / 54.0	-25.13
7368.00	47.15	VERT	74.0 / 54.0	-26.85
9848.00	49.24	HORZ	74.0 / 54.0	-24.76
9848.00	48.58	VERT	74.0 / 54.0	-25.42
24620.11	-	HORZ	74.0 / 54.0	-
24620.00	-	VERT	74.0 / 54.0	-

Note: (1) All Reading Levels below 1GHz are Quasi-Peak, above are peak and average value.
(2) Emission Level = Reading Level + Probe Factor + Cable Loss.
(3) The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
(4) Where an emission level is indicated by a –, levels had a margin greater than 20 dB when compared to the limit.

Date of Test:	April 29, 2011	Temperature:	25°C
EUT:	DN Series Life Detector	Humidity:	51%
Model No.:	DN-II	Power Supply:	DC 10.8V Li Ion Battery

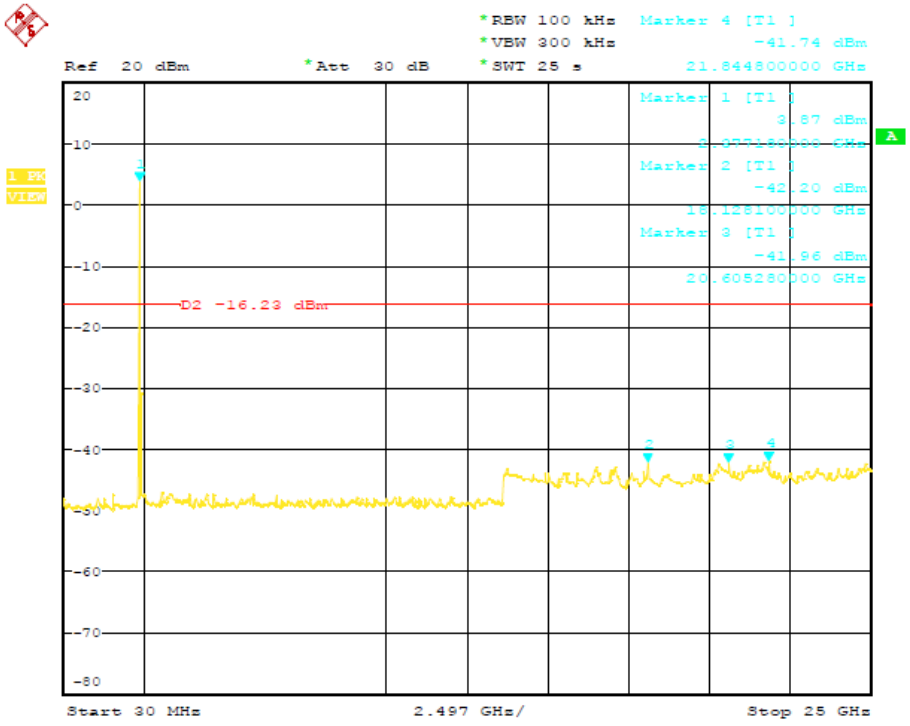
General Radiated Emission Data (The worst mode: 802.11b Channel Mid)

Freq. (MHz)	Emission (dBuV/m) QP Detector	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
134.08	21.34	HORZ	43.5	-22.16
38.48	31.17	VERT	40.0	-8.83
360.04	32.16	HORZ	46.0	-13.84
158.72	25.94	VERT	43.5	-17.56
372.00	31.02	HORZ	46.0	-14.98
360.00	27.56	VERT	46.0	-18.44

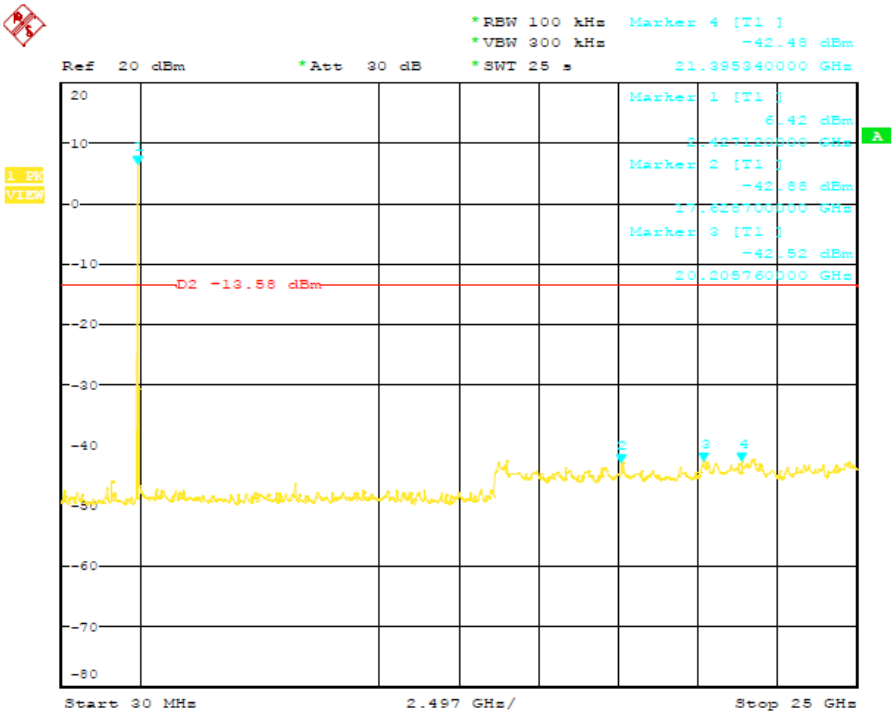
Antenna port conducted spurious emissions

802.11b mode:

Low channel

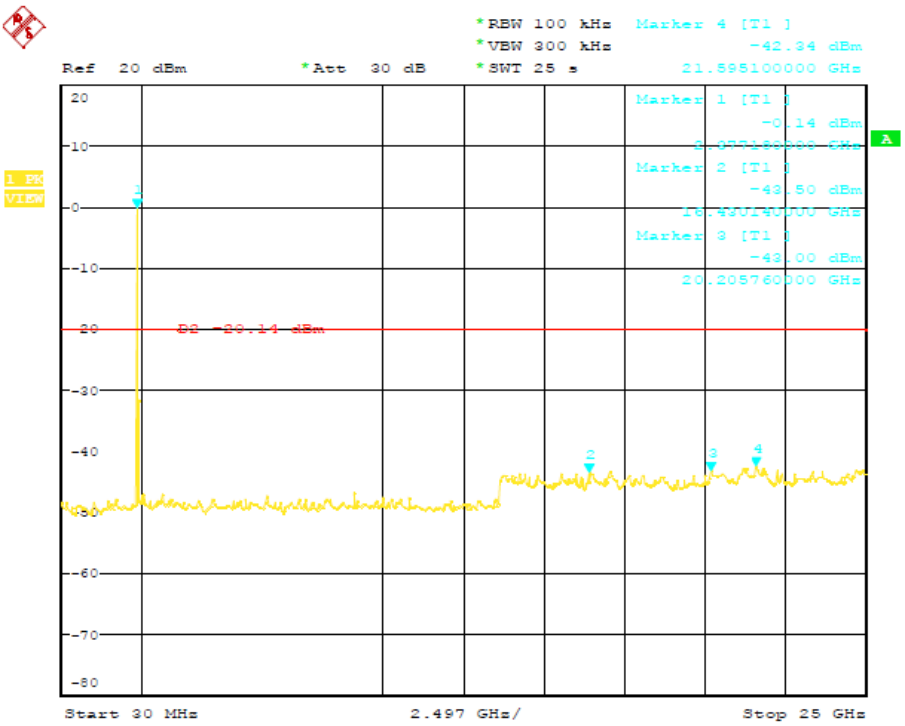


High channel

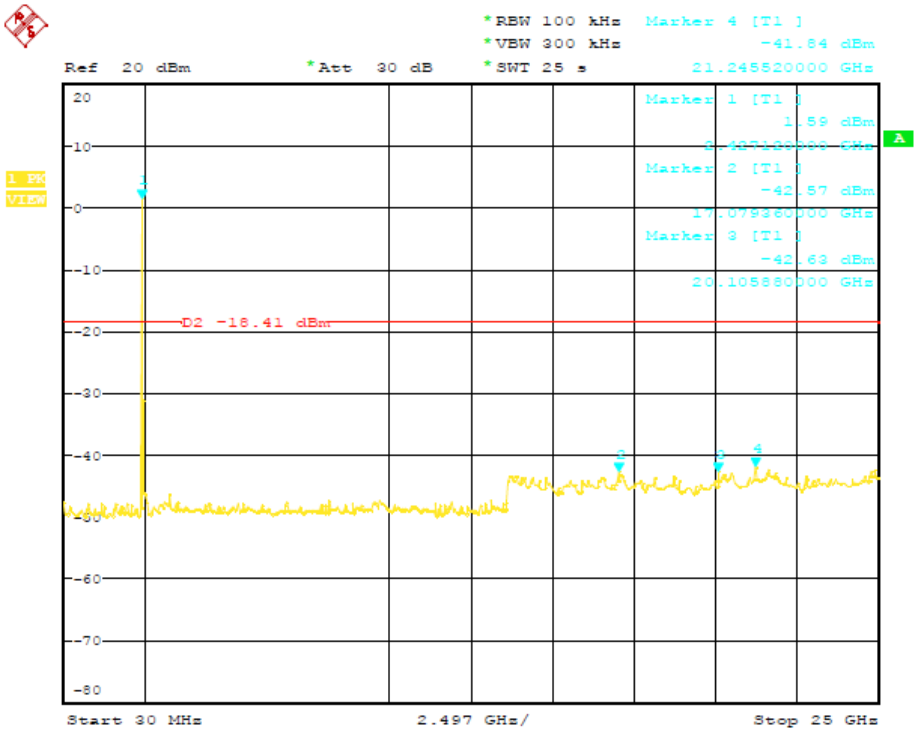


802.11b mode:

Low channel



High channel



10. §15.247(A) (2) – 6DB BANDWIDTH TESTING

10.1. Test Equipment

Please refer to Section 4 this report.

10.2.Test Procedure

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

10.3.Applicable Standard

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

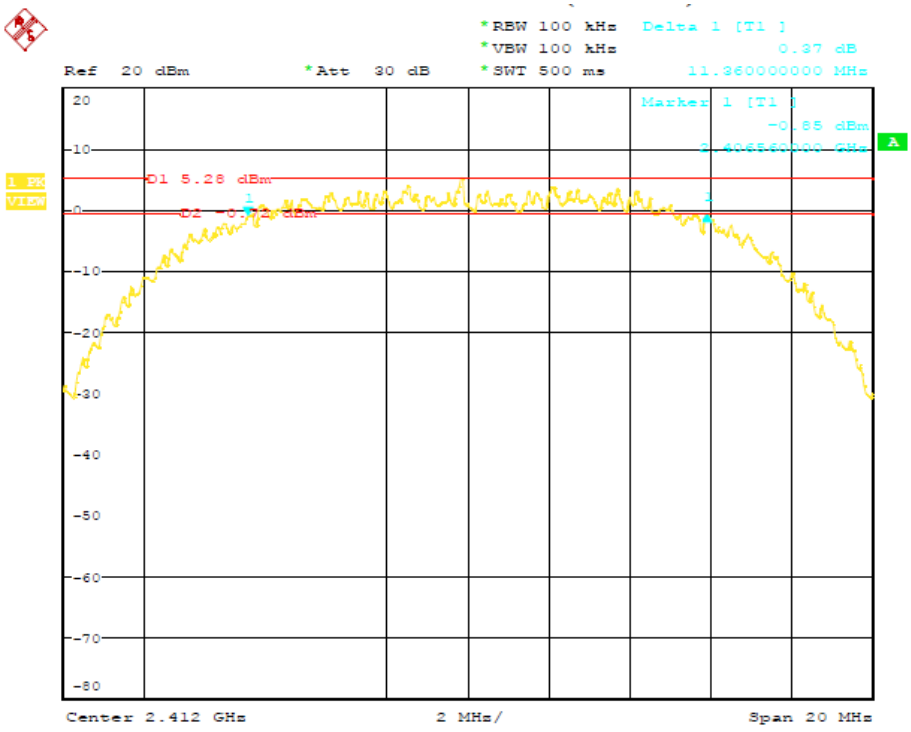
10.4.Test Result:Pass.

Please refer to the following tables

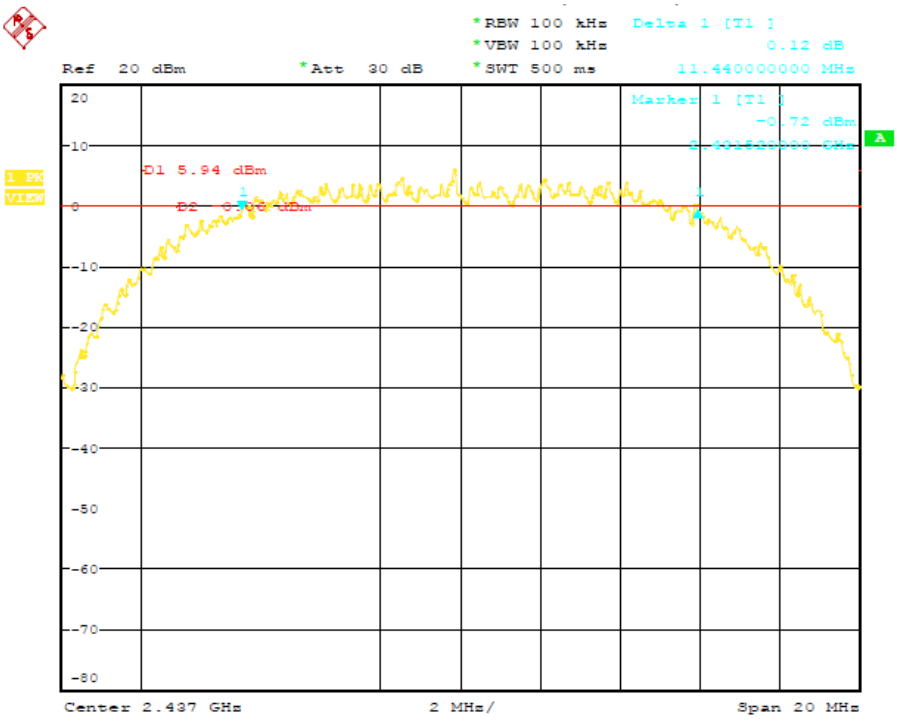
Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)	Limit (kHz)	Ref. Plot
802.11b Mode				
2412	1	11360	＞500	PLOT 1
2437	1	11440	＞500	PLOT 2
2462	1	11400	＞500	PLOT 3
802.11g Mode				
2412	6	16520	＞500	PLOT 4
2437	6	16520	＞500	PLOT 5
2462	6	16520	＞500	PLOT 6

802.11b Mode:

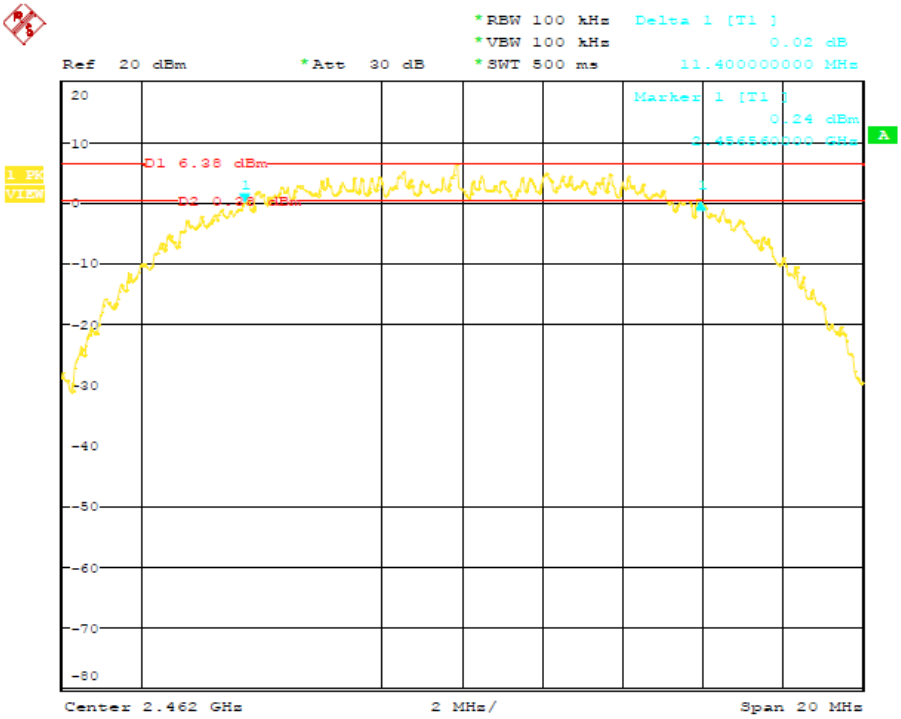
Low Channel



Middle Channel

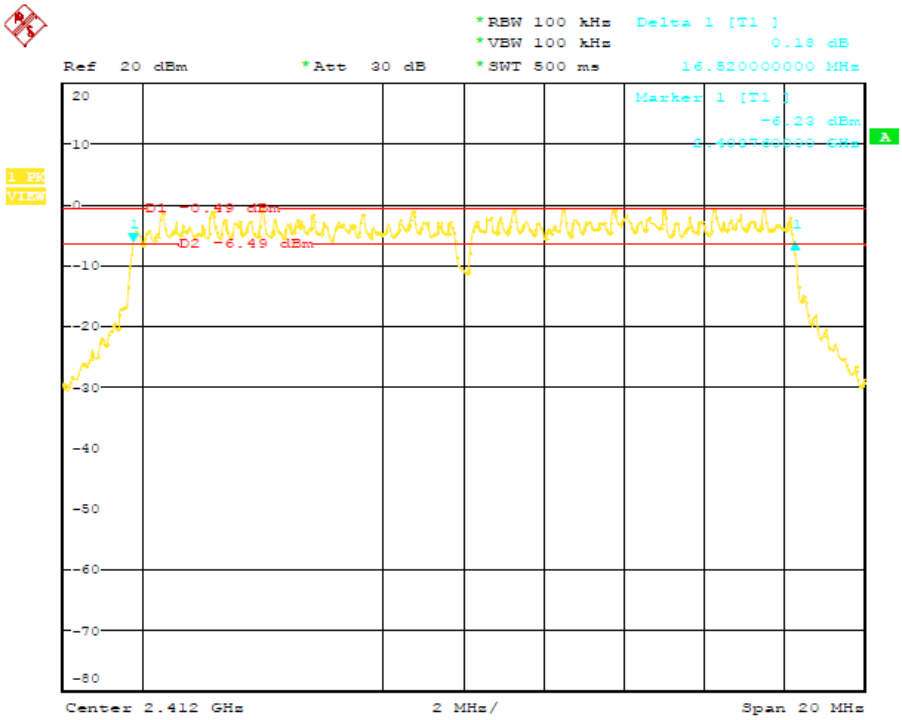


High Channel

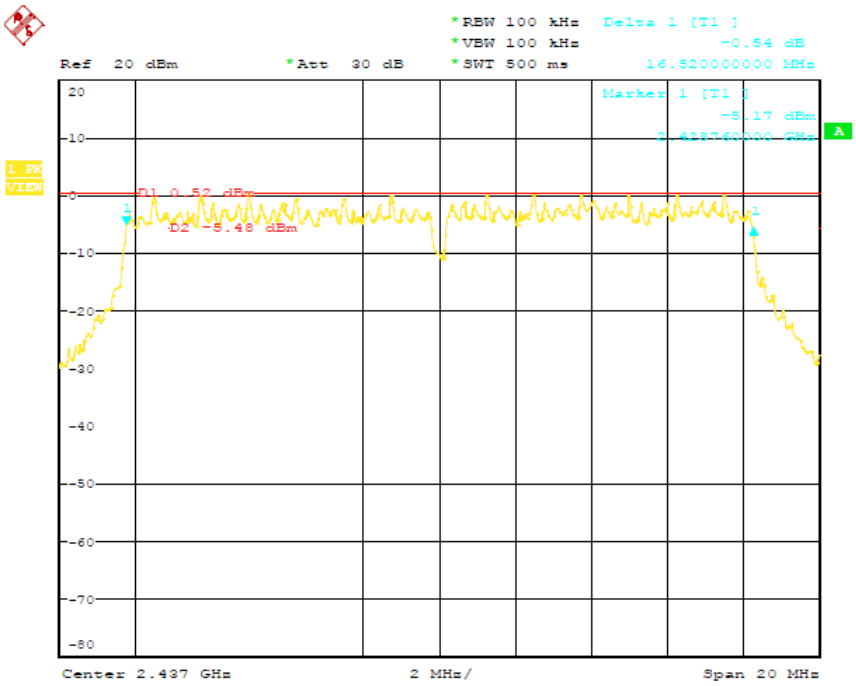


802.11g Mode:

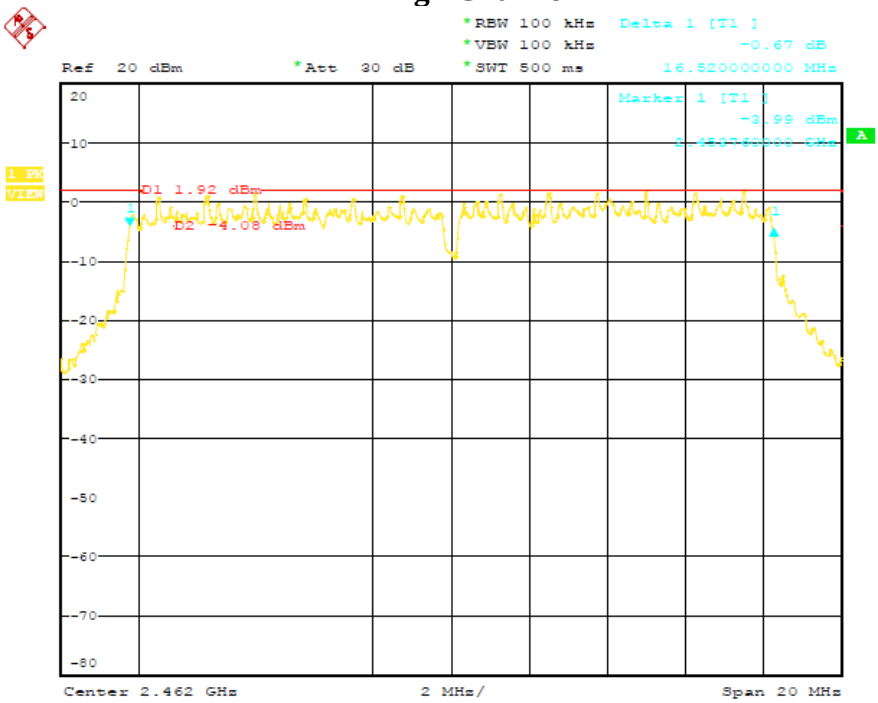
Low Channel



Middle Channel



High Channel



11. §15.247(B) (3) - Maximum Peak Output Power

11.1. Test Equipment

Please refer to Section 4 this report.

11.2.Test Procedure

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz.
3. Set VBW≥3 MHz.
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”.
6. Trace average 100 traces in power averaging mode.
7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

11.3.Applicable Standard

According to §15.247(b) (3), for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

11.4. Test Result

Pass

802.11b Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	1	12.19	30
Mid	2437	1	12.46	30
High	2462	1	12.86	30

802.11g Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	6	11.05	30
Mid	2437	6	11.84	30
High	2462	6	12.34	30

12. §15.247(D) – 100 KHZ Bandwidth of Frequency Band Edge

12.1.Test Equipment

Please refer to Section 4 this report.

12.2.Test Procedure

1, Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

2, 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.

3,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.

Note: For Rdstricted Band

RBW=1MHz

VBW=1 MHz

4, 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.

5,Repeat above procedures until all measured frequencies were complete.

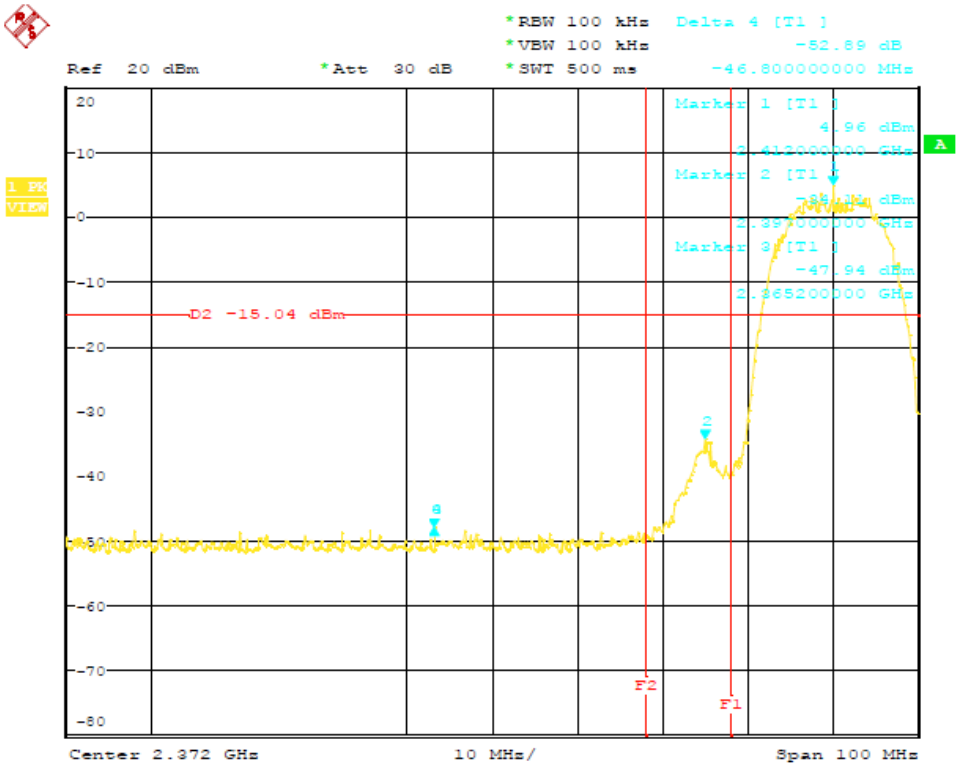
12.3.Applicable Standard

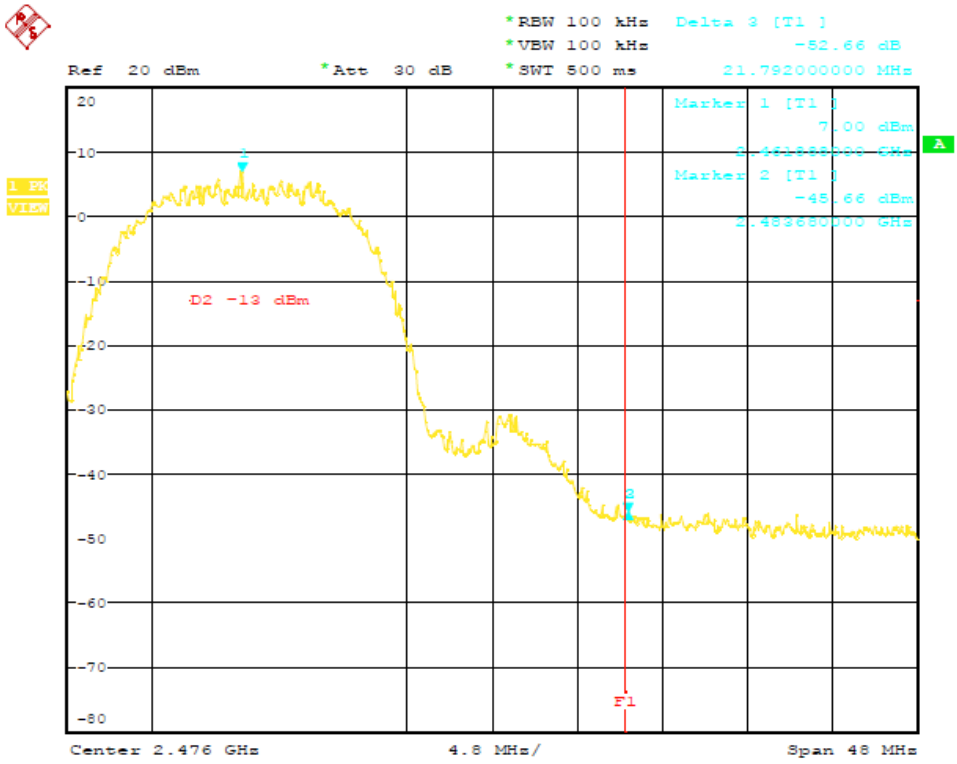
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

12.4.Test Result

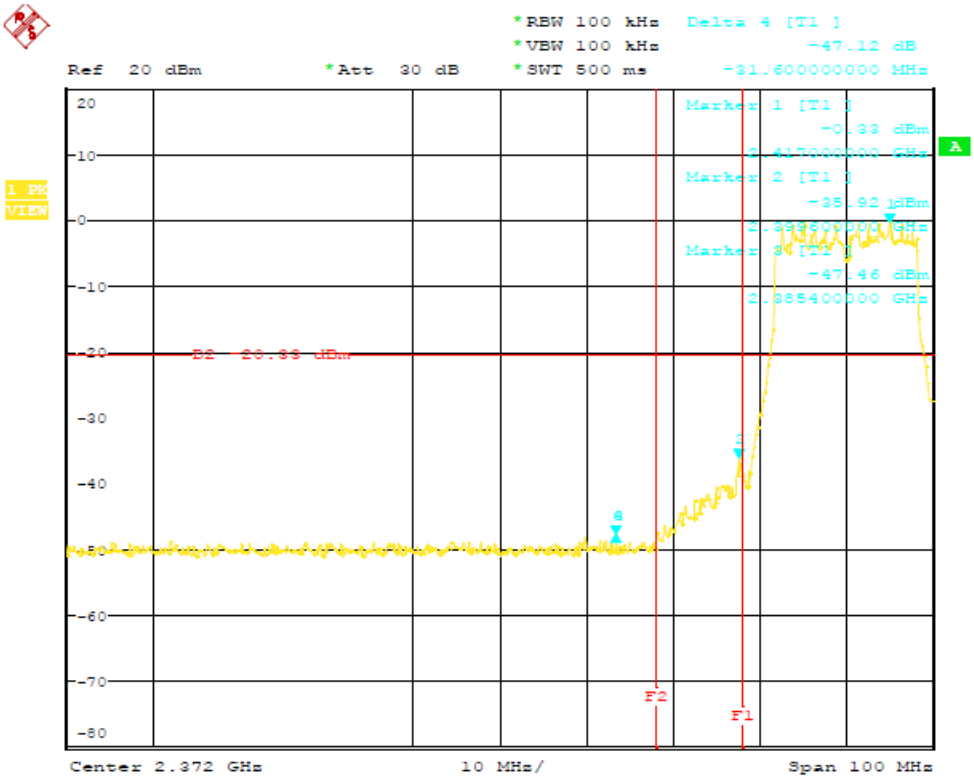
Pass.

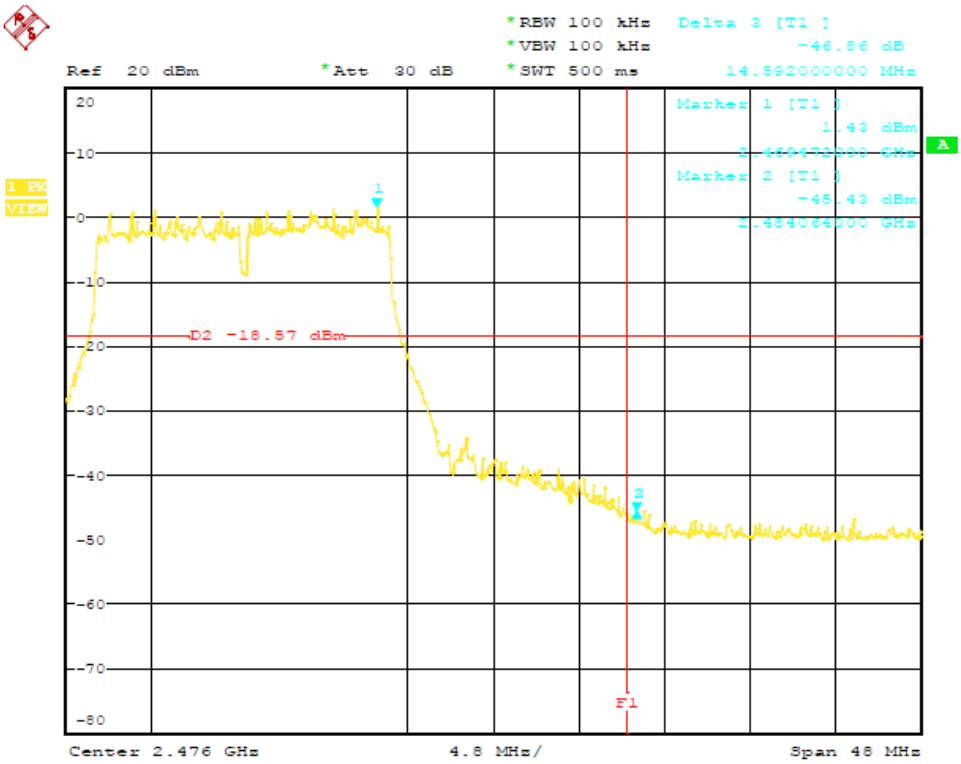
802.11b Mode:


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Delta 4 [T1]
-82.89 dB
-46.800000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
4.96 dBm
Marker 2 [T1]
Marker 3 [T1]
-47.94 dBm
D2 -15.04 dBm
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Delta 3 [T1]
-52.66 dB
21.792000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
7.00 dBm
Marker 2 [T1]
-45.66 dBm
D2 -13 dBm
F1
Center 2.476 GHz
4.8 MHz/
Span 48 MHz

802.11g Mode:


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Delta 4 [T1]
-47.12 dB
-31.600000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-0.33 dBm
2.417000000 GHz
Marker 2 [T1]
-35.92 dBm
2.399600000 GHz
Marker 3 [T1]
-47.46 dBm
2.385400000 GHz
D2 -20.33 dBm
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Delta 3 [T1]
-46.86 dB
14.592000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
1.43 dBm
Marker 2 [T1]
-45.43 dBm
D2 -18.57 dBm
F1
Center 2.476 GHz
4.8 MHz/
Span 48 MHz

13. §15.247(E) - Power Spectral Density

13.1. Test Equipment

Please refer to Section 4 this report.

13.2.Test Procedure

1,Set EUT in the transmitting mode.
2,Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3,Set the spectrum analyzer as RBW=3KHz,VBW=10KHz,Span=1.5MHz,Sweep=500S.
4,Record the max.reading
5, Repeat the above procedure until the measurements for all frequencies are completed.

13.3.Applicable Standard

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

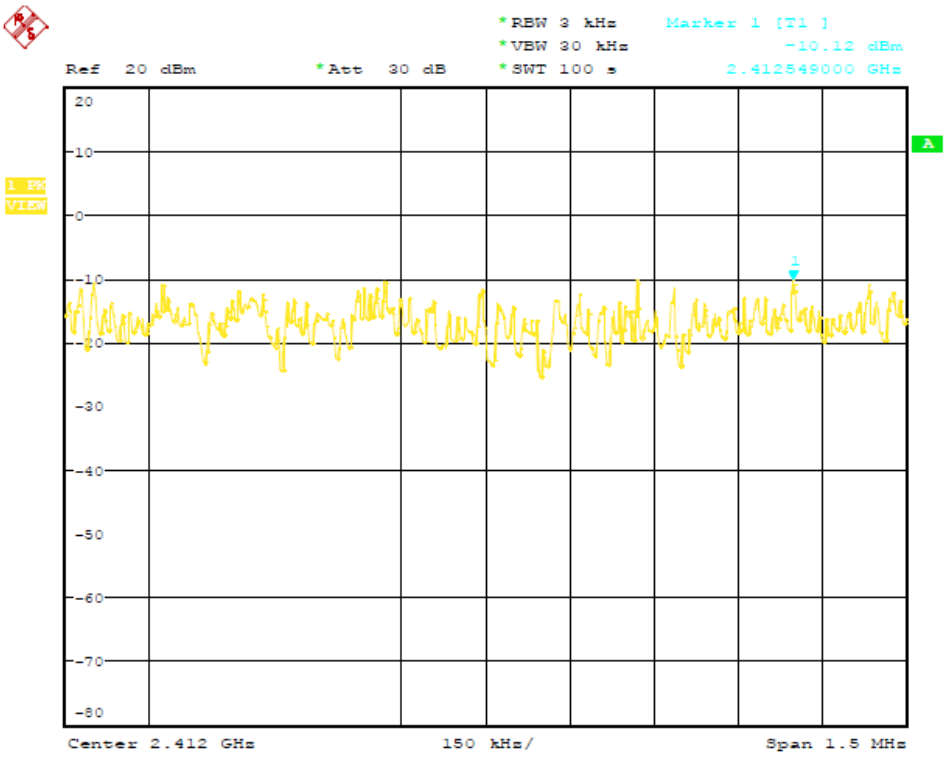
13.4.Test Result

PASS

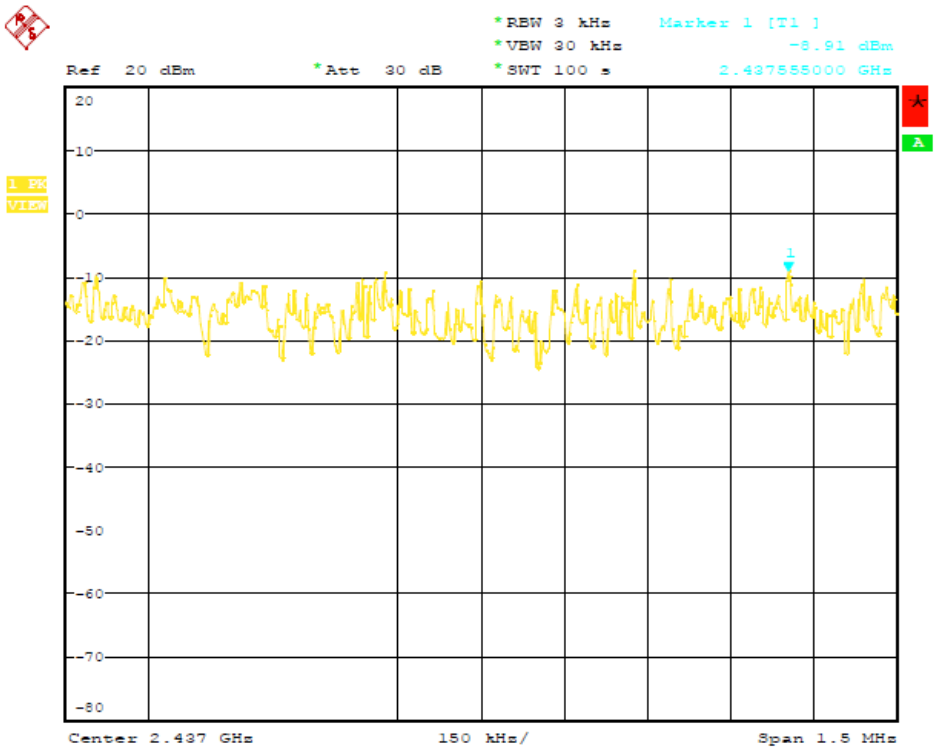
Channel Frequency (MHz)	Data Rate (Mbps)	PSD (dBm/3kHz)	Limit (dBm/3kHZ)	RESULT
802.11b Mode				
2412	1	-10.12	8	Compliant
2437	1	-8.91	8	Compliant
2462	1	-8.93	8	Compliant
802.11g Mode				
2412	6	-16.07	8	Compliant
2437	6	-15.24	8	Compliant
2462	6	-15.26	8	Compliant

802.11b Mode:

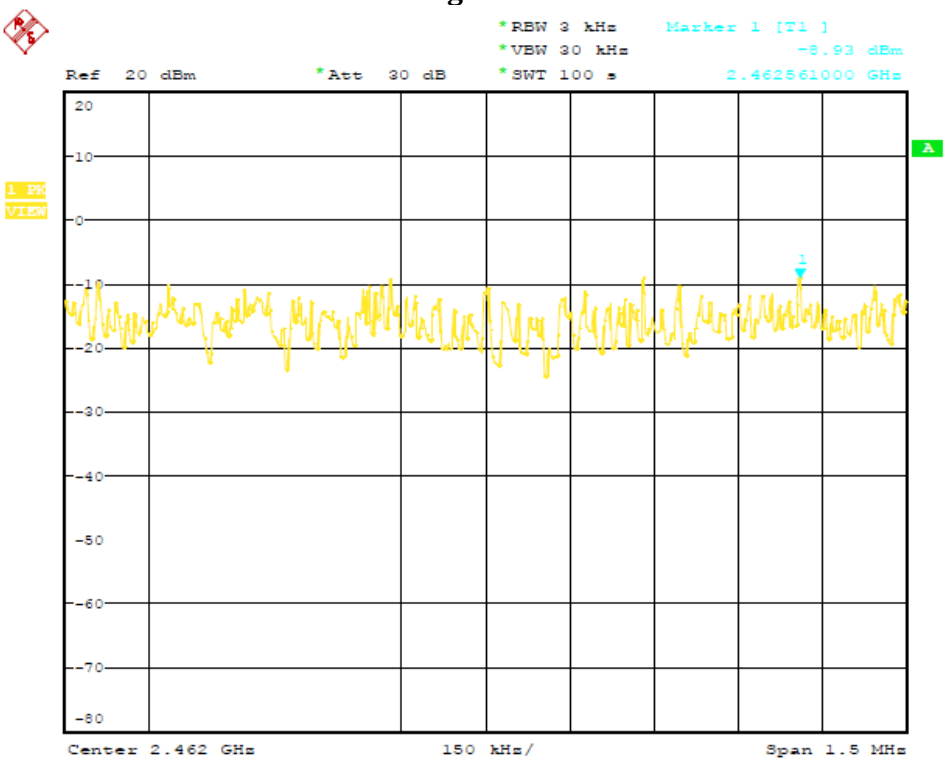
Low Channel



Middle Channel

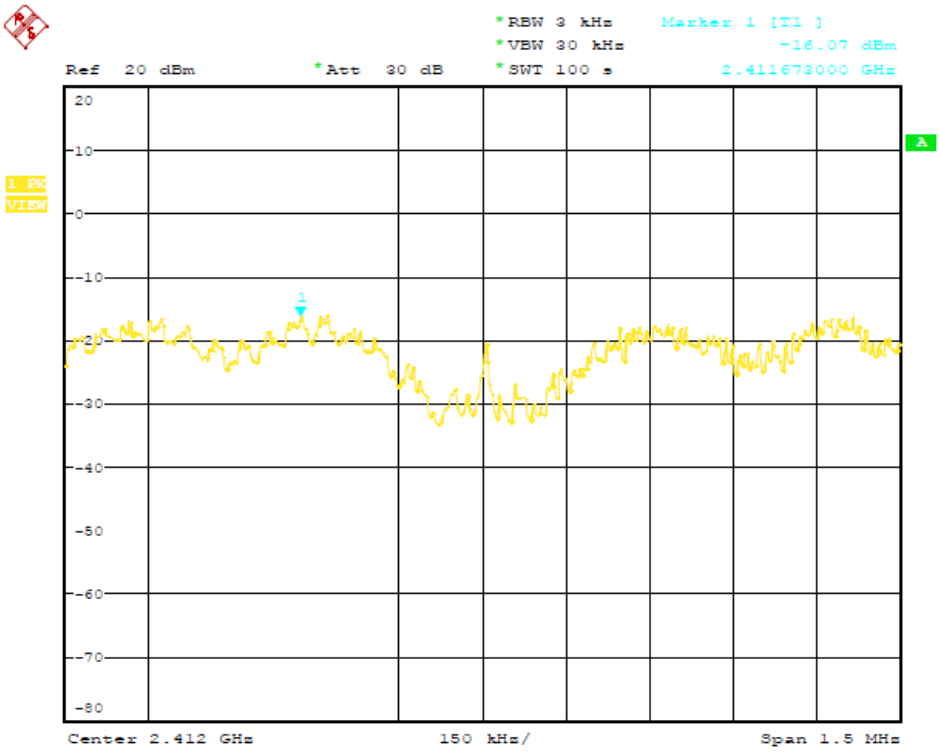


High Channel

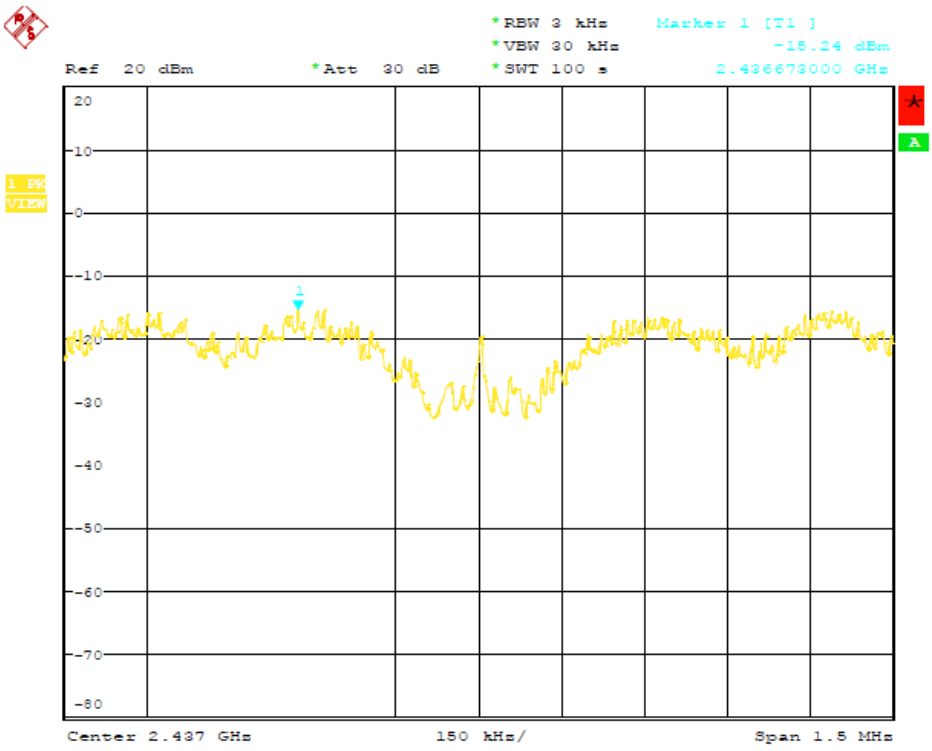


802.11g Mode:

Low Channel



Middle Channel



High Channel