SGS-CSTC Standards Technical Services Co., Ltd.
GuangZhou Branch Testing Center

CNAS TESTING
CNAS L0167

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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

TEST REPORT

Application No.:	GZEM1103000573RF
Applicant:	Philips Consumer Lifestyle
Manufacturer:	Philips Electronics Hong Kong Limited
Equipment Under Test (EUT):	
Product Name:	Docking Speaker
Product Description	Wireless control Docking Speaker with 2.4 GHz as carrier.
Model No.:	DS9800W/37
Trade Mark:	PHILIPS
FCC ID:	BOU-DS9800W
Standards:	FCC PART 15 Subpart C: 2009
Date of Receipt:	2011-03-18
Date of Test:	2011-03-18 to 2011-04-28
Date of Issue:	2011-05-31
Test Result :	**Pass***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 3 of this report for further detail.

Authorized Signature:

Strong Yao
2011 may

Strong Yao
Manager

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2011-05-31		Original

Authorized for issue by:				
Tested By		 **(Daniel He) /Signature**		2011-03-18 to 2011-04-28 **Date**
Prepared By		 **(Daniel He) /Signature**		2011-05-03 **Date**
Checked By		 **(Strong Yao) /Reviewer**		2011-05-31 **Date**

3 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Antenna Requirement	FCC PART 15C	Section 15.247(b)(4)	PASS
6dB Bandwidth	FCC PART 15C	Section 15.247 (a)(2)	PASS
Maximum Peak Output Power	FCC PART 15C	Section 15.247(b)(3)	PASS
Peak Power Spectral Density	FCC PART 15C	Section 15.247(e)	PASS
Conducted Spurious Emission (30MHz to 25GHz)	FCC PART 15C	Section 15.209 &15.247(d)	PASS
Radiated Spurious Emission (30MHz to 25GHz)	FCC PART 15C	Section 15.209 &15.247(d)	PASS
Band Edges Measurement	FCC PART 15C :	Section 15.247 (d) &15.205	PASS
Conducted Emission	FCC PART 15C	Section 15.207	PASS

Remark:

Pretest EUT on DSSS mode at 1Mb,2Mb,5.5Mb,11Mb rate and OFDM mode at 6Mb, 9Mb, 12Mb, 18Mb, 24Mb, 36Mb, 48Mb, 54Mb rate, finally find the worst case at 11Mb rate under DSSS and 54Mb under OFDM mode, and we make it in report.

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5 General Information

5.1 Client Information

Applicant:	Philips Consumer Lifestyle
Address of Applicant:	3029 East Governor John Sevier Hwy. Knoxville, TN 37914
Manufacturer:	Philips Electronics Hong Kong Limited
Address of Manufacturer:	5/F,Science Park East Avenue, Hong Kong Science Park, Shatin, New Territories, Hong Kong

5.2 General Description of E.U.T.

Product Name:	Docking Speaker
Model No.:	DS9800W/37
Number of Channels	11 Channels
Channel Separation	5 MHz
Operating Frequency:	2412MHz to 2462MHz
Type of Modulation	802.11b: DSSS(CCK/QPSK/BPSK) 802.11g: OFDM(BPSK/QPSK/16QAM/64QAM)
Transmit Data Rate:	802.11b :1M/2M/5.5M/11M bps 802.11g :6M/9M/12M/18M/24M/36M/48M/54M bps
Antenna Type	RG-178 Coaxial Cable
Antenna Gain	2dBi
Speciality:	Wireless control

5.3 Details of E.U.T.

EUT Power Supply:	AC 120V 60Hz for Docking Speaker DC 5.0V 2A for Charging Docking DC 3V for Controller Model:ASSA1A-050200
Adapter:	Input: AC 100-127V 50Hz-60Hz 0.45A Output: DC 5.0V 2A
Battery detail:	Type: Lithium cell Mode:CR2032
Power cord:	1.8 m x 2 wires unscreened AC cable 1.5 m x 2 wires unscreened DC cable

5.4 Description of Support Units

The EUT has been tested as an independent unit for fixed frequency by testing lab.

5.5 Standards Applicable for Testing

The customer requested FCC tests for the EUT.

The standard used was FCC PART 15 Subpart C: 2009. ANSI C63.4:2003. KDB558074:2005

5.6 Test Facility

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

- **NVLAP – Lab Code: 200611-0**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **FCC – Registration No.: 282399**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

5.7 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

5.8 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

5.9 Abnormalities from Standard Conditions

None.

5.10 Other Information Requested by the Customer

None.

6 Equipment Used during Test

RE in Chamber					
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2011-09-06
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2012-01-17
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	10036	2011-06-02
N/A	EMI Test Software	Audix	E3	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	2011-12-08
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2011-12-20
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2011-12-20
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2011-09-11
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2012-01-17
EMC0049	Amplifier	Agilent	8447D	2944A10862	2011-04-21
EMC0075	310N Amplifier	Sonama	310N	272683	2011-10-25
EMC0523	Active Loop Antenna	EMCO	6502	42963	2011-11-17
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	2011-05-17

Conducted Emission					
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m^3	N/A	N/A
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2011-09-25
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2011-11-24
EMC0107	Coaxial Cable	SGS	2m	N/A	2011-07-18
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A
EMC0120	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	2012-01-17
EMC0121	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	2012-01-17
EMC0122	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	2012-01-17

General used equipment					
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2011-12-16
EMC0007	DMM	Fluke	73	70671122	2011-12-16

Notice: Calibration duration for above equipments is 1 year.

7 Test Results

7.1 E.U.T. test conditions

Power supply: AC 120V

Temperature: 20.0 -25.0 °C

Humidity: 38-50 % RH

Atmospheric Pressure: 1000 -1010 mbar

Requirements: **15.31(e):** For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

15.32: Power supplies and CPU boards used with personal computers and for which separate authorizations are required to be obtained shall be tested as follows: Testing shall be in accordance with the procedures specified in Section 15.31 of this part.

Test frequencies: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and. if required. reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top. 1 near middle and 1 near bottom

EUT channels and frequencies list:

Channel	Frequency (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

Remark: Test frequency is the lowest channel: 1 channel (2412MHz), middle channel: 6 channel (2437MHz) and highest channel: 11 channel (2462MHz)

7.2 Antenna Requirement

7.2.1 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.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz bands that are used exclusively for fixed.

Point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted 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.

7.2.2 EUT Antenna

The antenna is RG-178 Coaxial Cable and no consideration of replacement. The best case gain of the antenna is 2dBi.

Test result: The unit does meet the FCC requirements.

7.3 6dB Bandwidth

Test Requirement: FCC Part 15.247(a)(2)

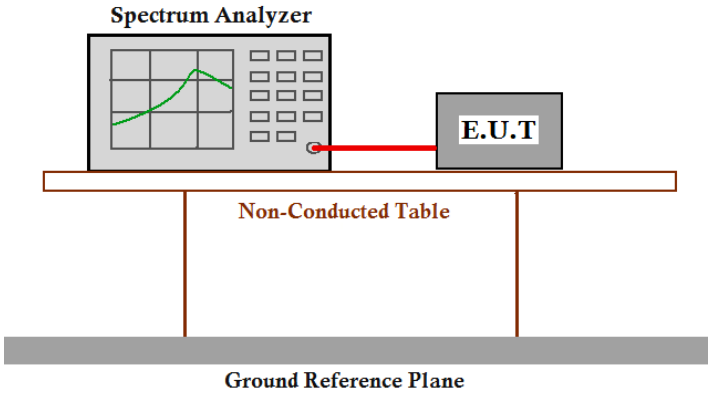
Test Limit: Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Method: ANSI C63.4:2003 and KDB558074

Remark: KDB558074, DTS test procedure of March 2005 KDB558074

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

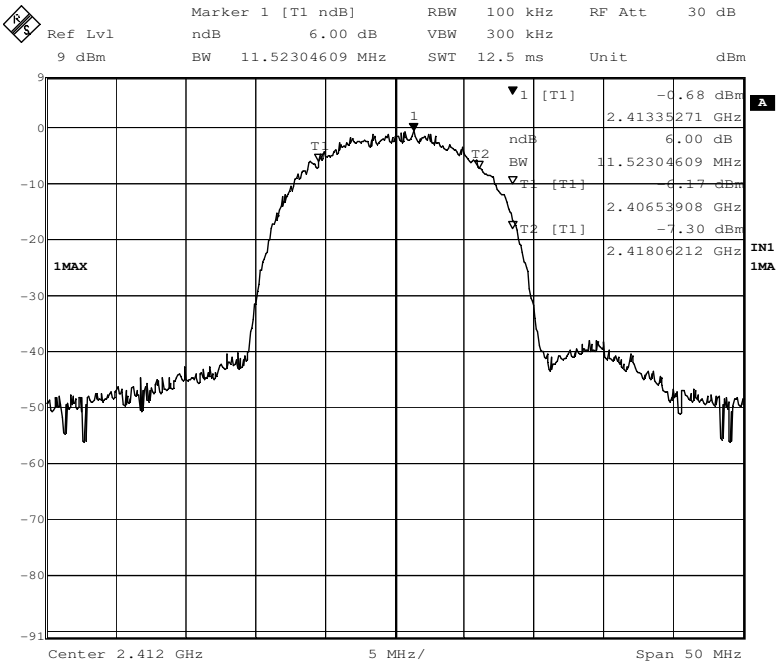
1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1.5dB) from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW=100KHz. VBW = 300KHz. Sweep = auto; Detector Function = Peak. Trace = Max Hold, Set span to encompass the entire emission bandwidth of the signal.
3. Mark the peak power frequency and -6dB (upper and lower) power frequency.
4. Repeat until all the test status is investigated.
5. Report the worse case.

Channel No.	Frequency (MHz)	Mode	Data Rate	Measured 6dB bandwidth (MHz)	Limit	Result
1	2412	802.11b	11 Mbps	11.523	≥500KHz	Pass
6	2437		11 Mbps	11.322		Pass
11	2462		11 Mbps	11.322		Pass
1	2412	802.11g	54 Mbps	16.532	≥500KHz	Pass
6	2437		54 Mbps	16.532		Pass
11	2462		54 Mbps	16.532		Pass

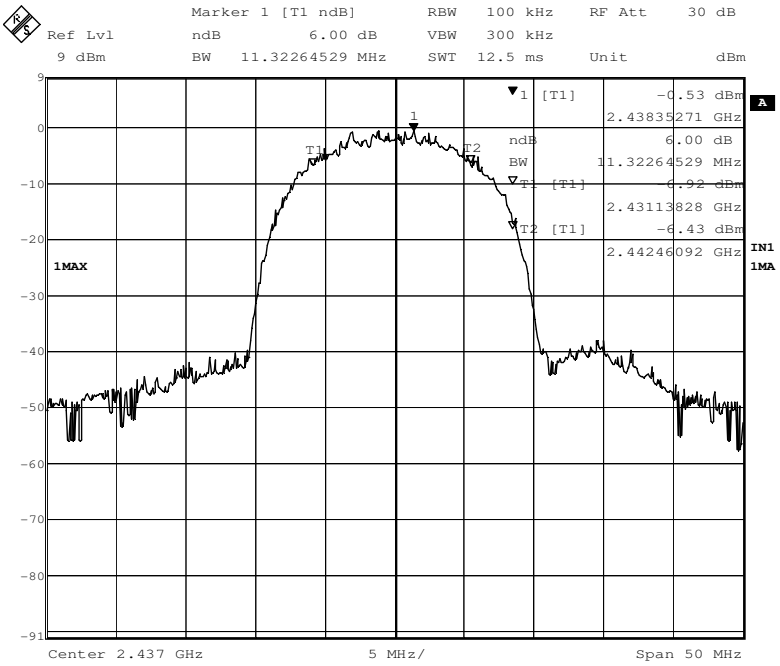
Test result: The unit does meet the FCC requirements.

6dB bandwidth:

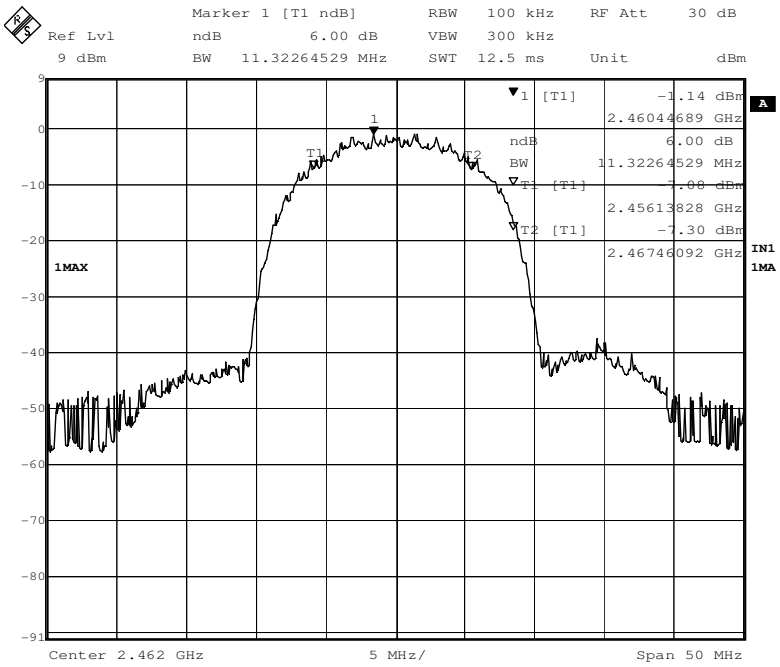
Result plot as follows:
802.11b mode with 11Mbps data rate
Channel 1:2.412GHz:



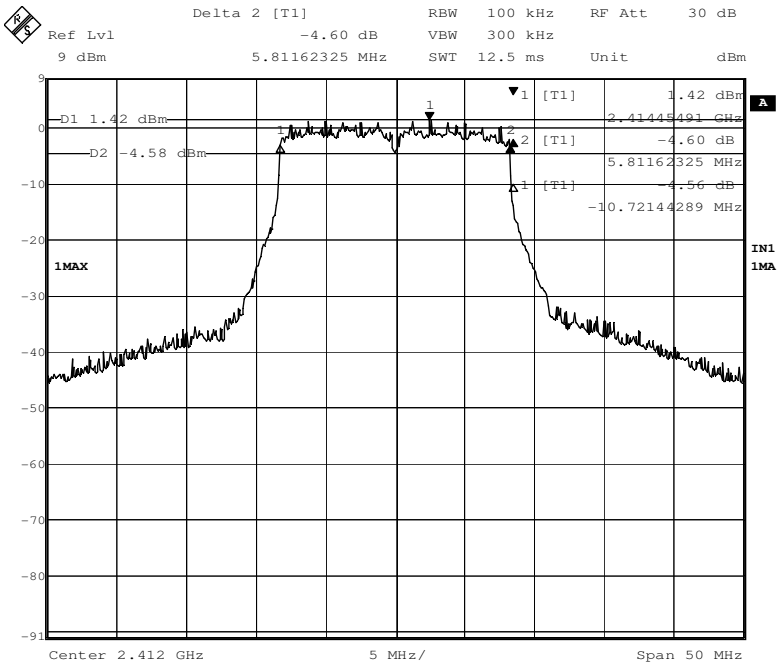
Channel 6:2.437GHz:



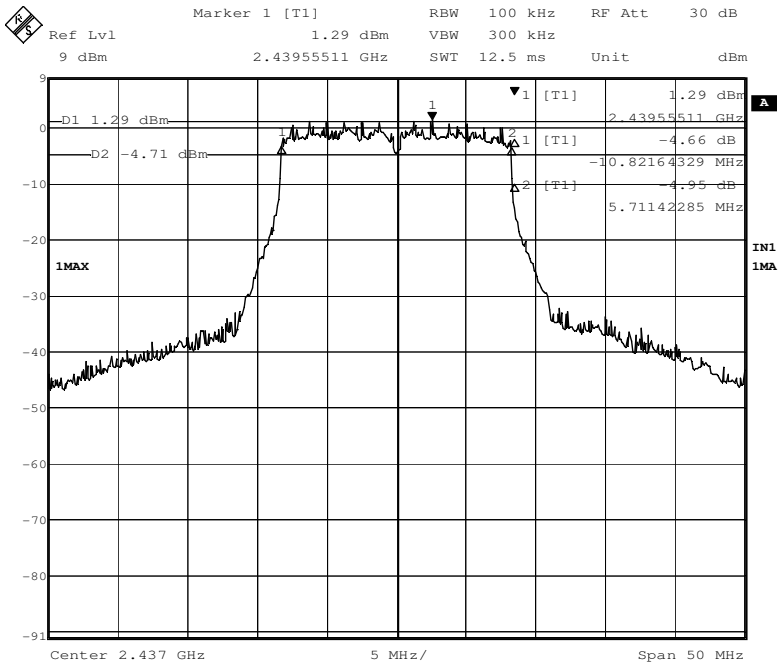
Channel 11:2.462GHz:



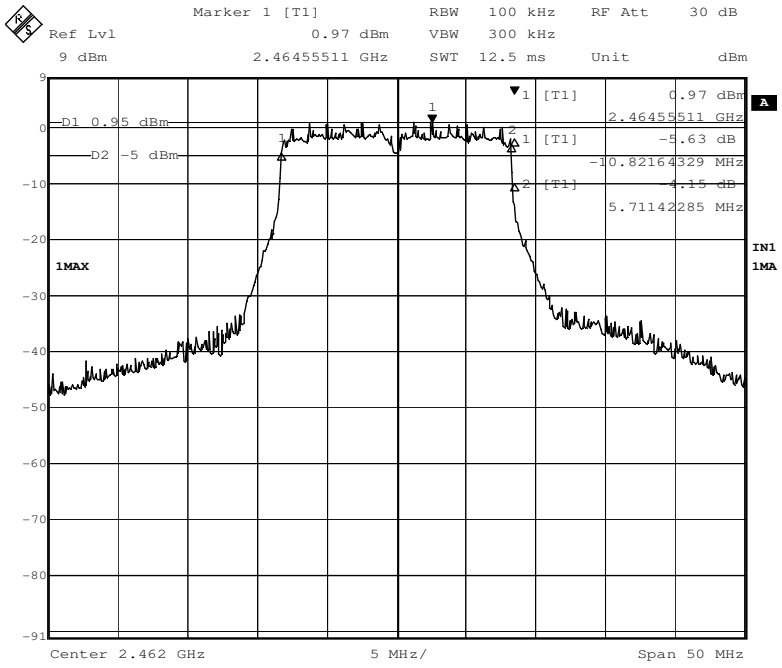
802.11g mode with 54Mbps data rate
Channel 1:2.412GHz:



Channel 6:2.437GHz:



Channel 11:2.462GHz:



7.4 Maximum Peak Output Power

Test Requirement: FCC Part 15.247(b)(3)

Test Limit: For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

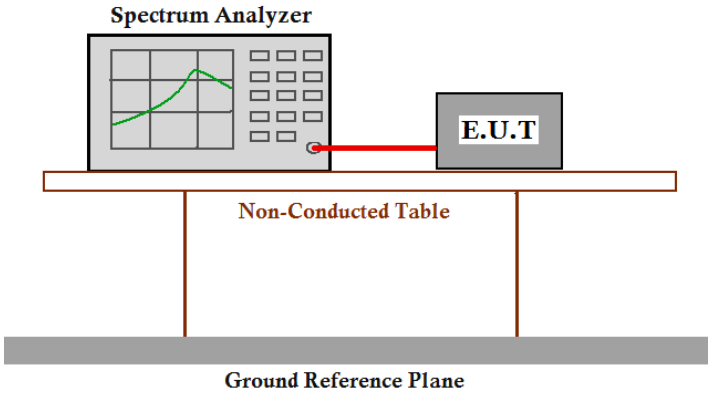
Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b) (1), (b) (2), and (b) (3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Method: ANSI C63.4:2003 and KDB558074(Power Output Option 2-Method #1).

Remark: KDB558074, DTS test procedure of March 2005 KDB558074

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (Cable loss =1.5dB) from the antenna port to the spectrum.

2. Set span to encompass the entire emission bandwidth (EBW) of the signal.

3. Set RBW = 1 MHz.

4. Set VBW ⩾ 3 MHz.

5. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.

6. 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”.

7. Trace average 100 traces in power averaging mode.

8. 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.

9. Measure the channel power of the test frequency with special test status.

10. Repeat until all the test status is investigated.

11. Report the worse case.

Test result:

Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Channel Power (dBm)	Limit	Result
1	2412	802.11b	11 Mbps	18.19	1W(30dBm)	Pass
6	2437		11 Mbps	18.71		Pass
11	2462		11 Mbps	18.30		Pass
1	2412	802.11g	54 Mbps	22.26		Pass
6	2437		54 Mbps	22.34		Pass
11	2462		54 Mbps	21.90		Pass

Remark:

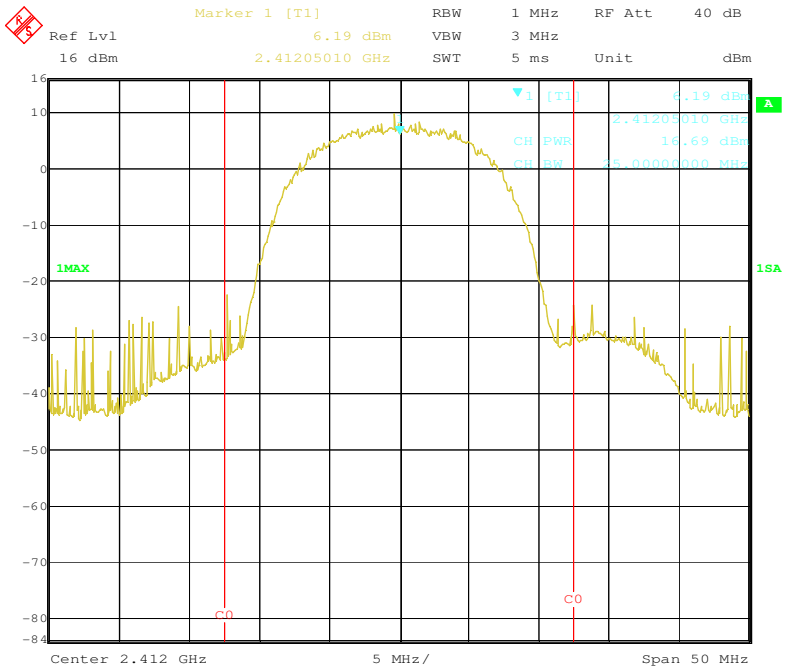
Level = Read Level + Cable Loss.

The unit does meet the FCC requirements.

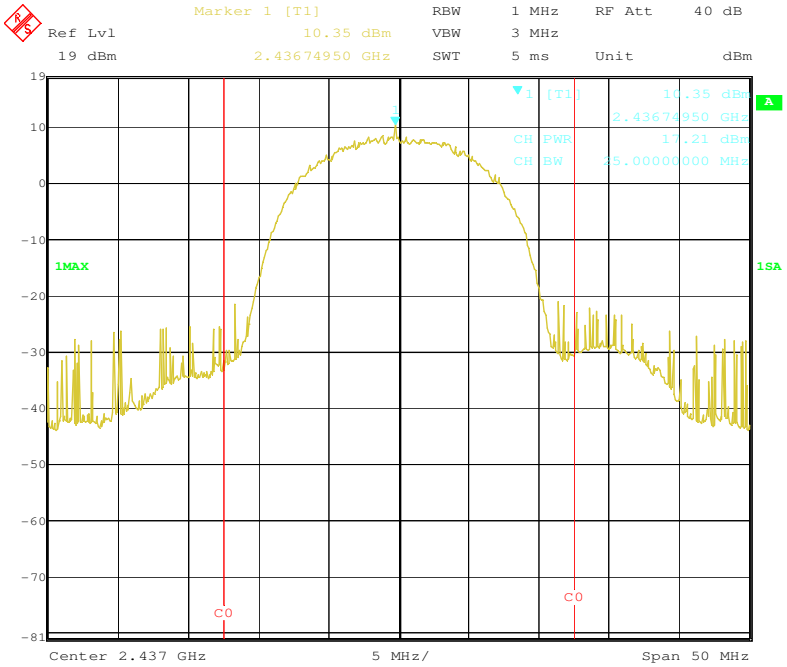
Result plot as follows:

802.11b mode with 11Mbps data rate

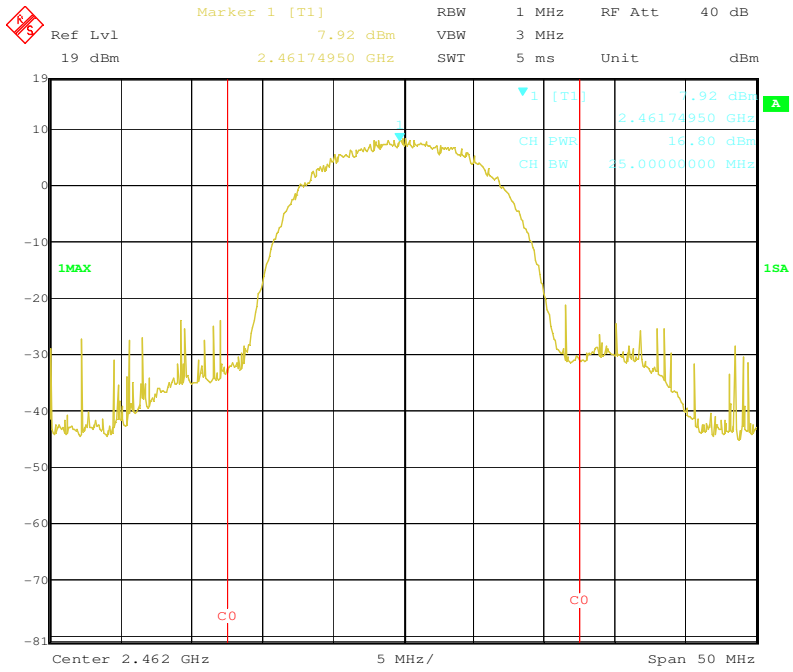
Channel 1:2.412GHz:



Channel 6:2.437GHz:

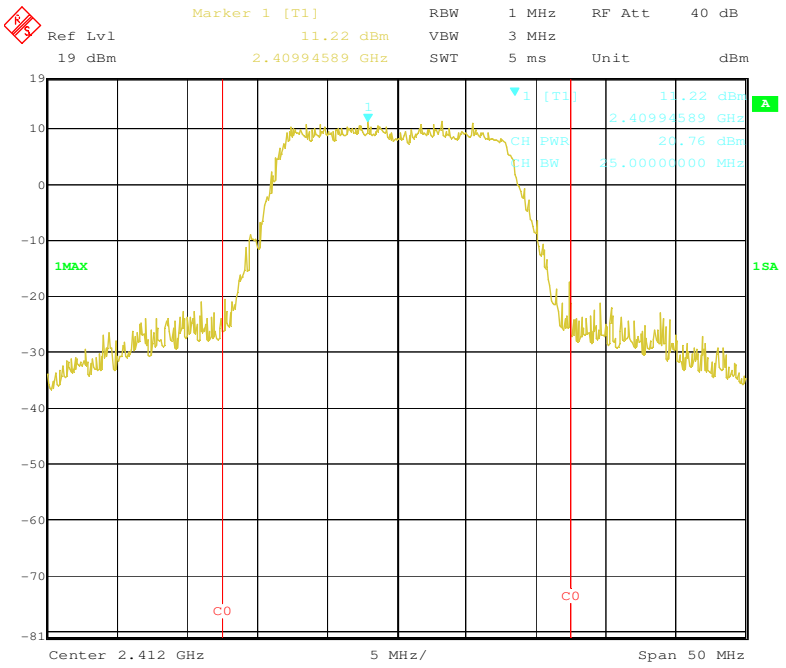


Channel 11:2.462GHz:

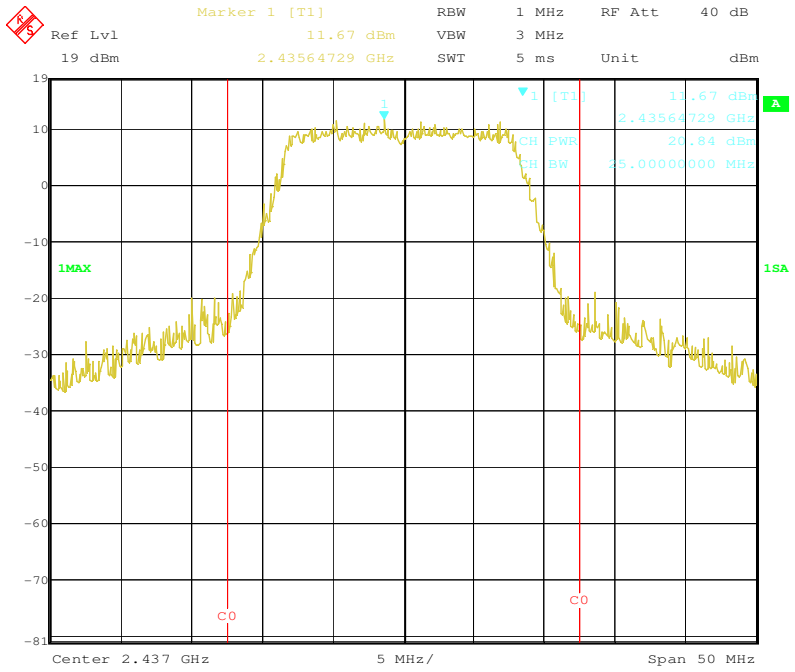


802.11g mode with 54Mbps data rate

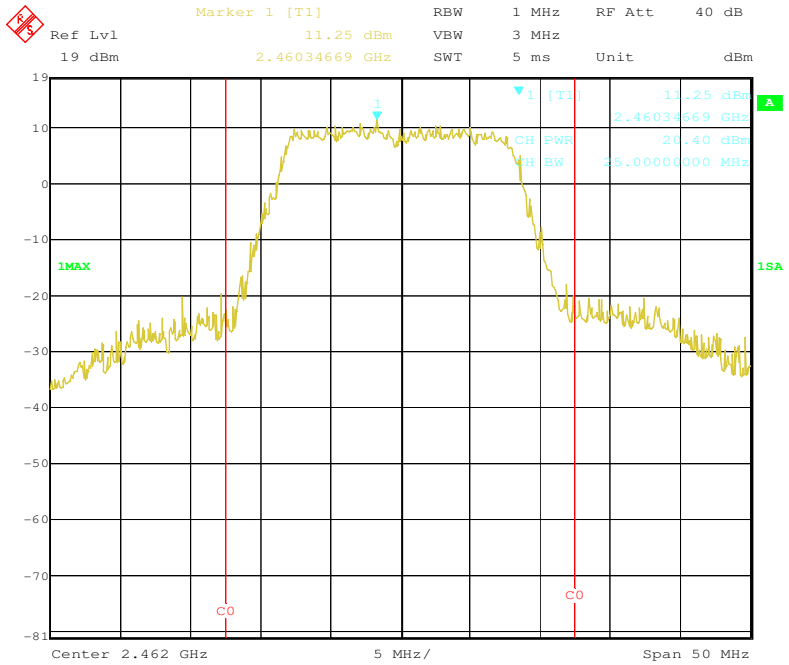
Channel 1:2.412GHz:



Channel 6:2.437GHz:



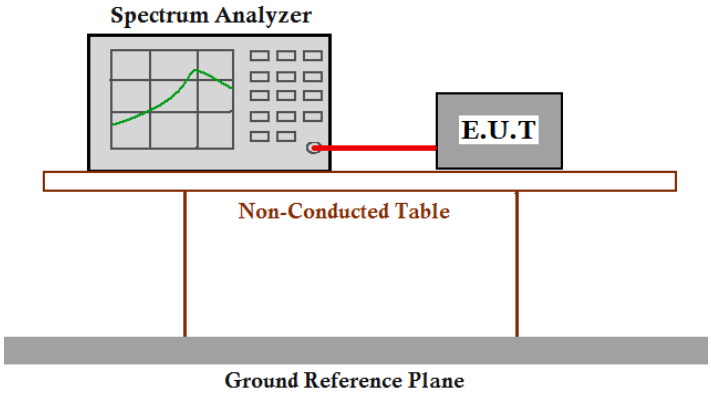
Channel 11:2.462GHz:



7.5 Peak Power Spectral Density

Test Requirement:	FCC Part 15.247(e)
Test Limit:	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.4:2003 and KDB558074 (PSD Option 1). Remark: KDB558074, DTS test procedure of March 2005 KDB558074
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1.5dB) from the antenna port to the spectrum analyzer or power meter.
2. Set the spectrum analyzer: RBW=3 KHz. VBW = 30 KHz. sweep= (SPAN/3 kHz); Detector Function = Peak. Trace = Max Hold, Centre = the Peak Power of the signal.
3. Measure the Power Spectral Density of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worse case.

Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Peak Power Spectral Density (dBm/3KHz)	Limit	Result
1	2412	802.11b	11 Mbps	-10.85	8dBm/3KHz	Pass
6	2437		11 Mbps	-10.63		Pass
11	2462		11 Mbps	-10.71		Pass
1	2412	802.11g	54 Mbps	-6.70		Pass
6	2437		54 Mbps	-6.69		Pass
11	2462		54 Mbps	-6.49		Pass

Test result:

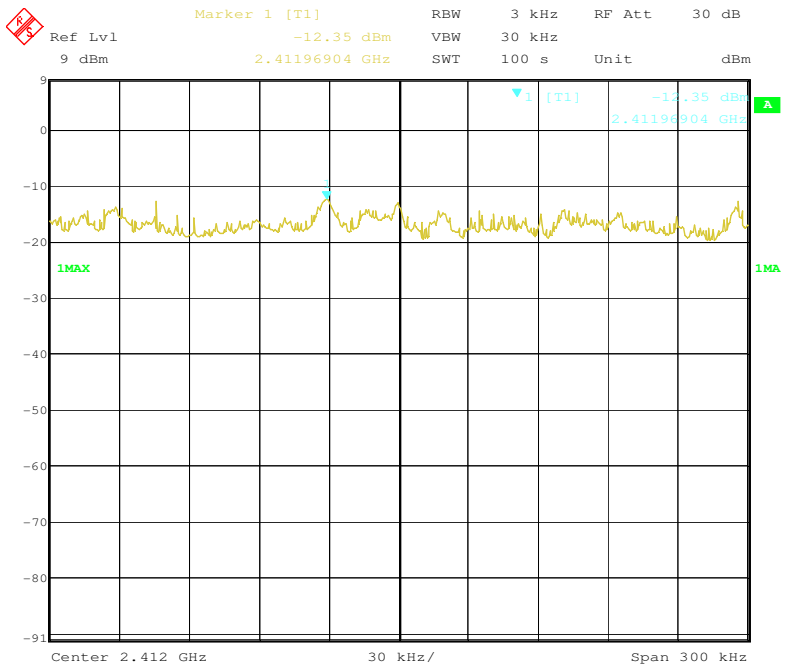
Level = Read Level + Cable Loss.

The unit does meet the FCC requirements.

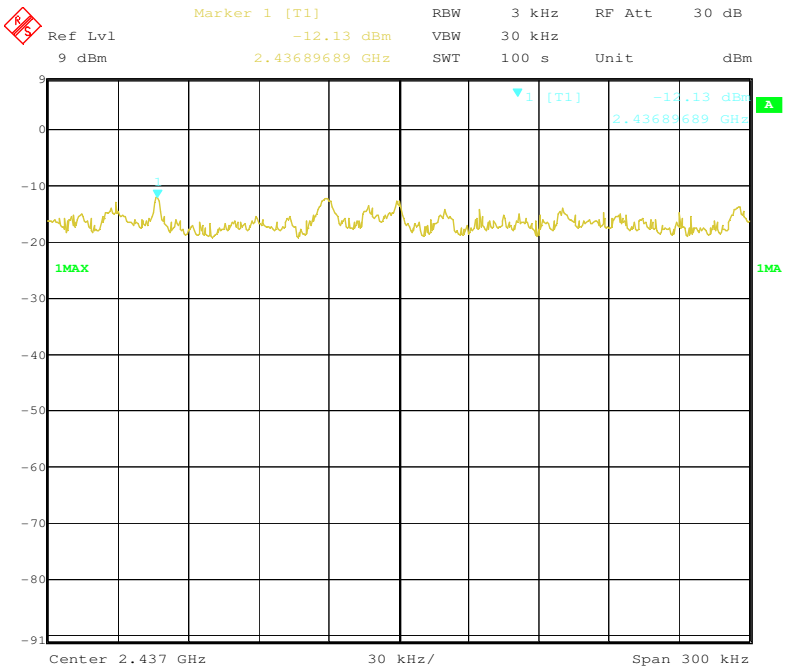
Result plot as follows:

802.11b mode with 11Mbps data rate

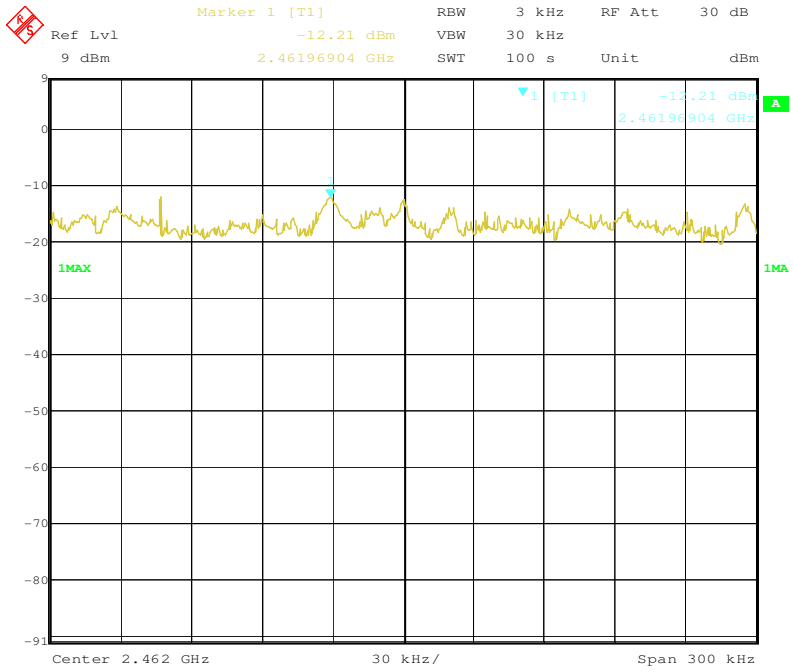
Channel 1:2.412GHz:



Channel 6:2.437GHz:

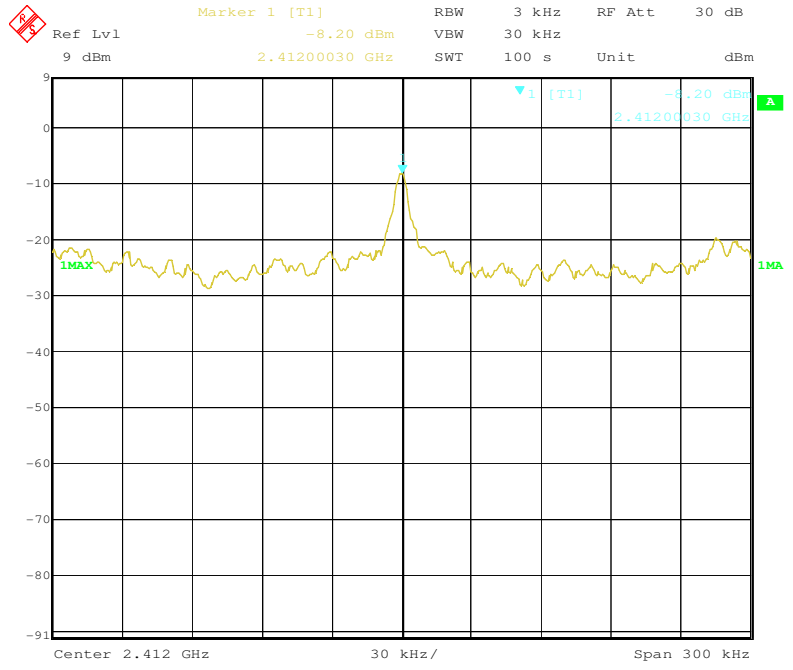


Channel 11:2.462GHz:

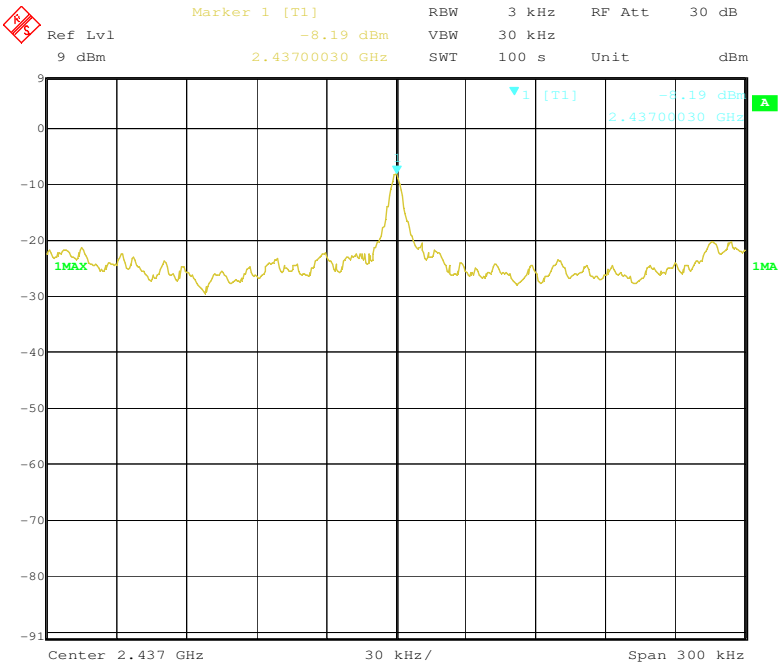


802.11g mode with 54Mbps data rate

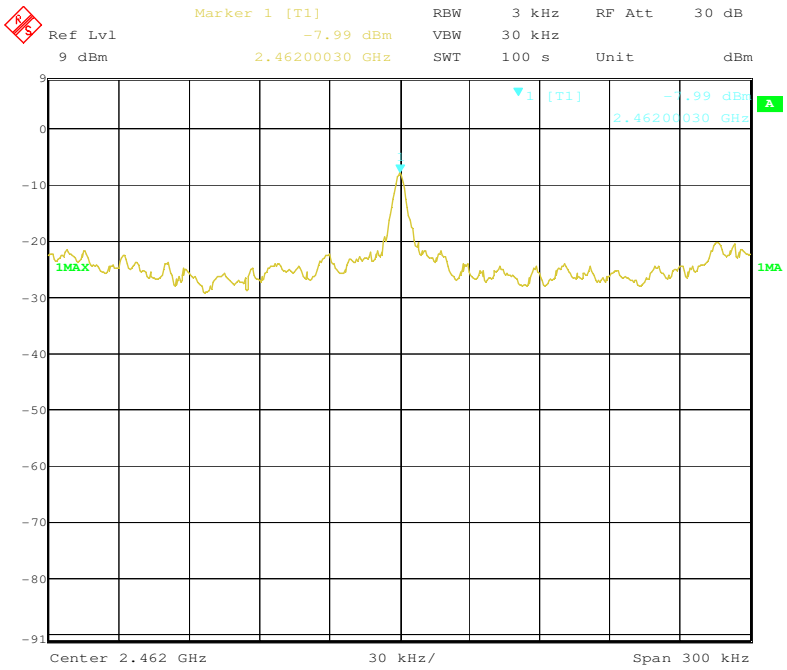
Channel 1:2.412GHz:



Channel 6:2.437GHz:



Channel 11:2.462GHz:



7.5 Conducted Spurious Emissions

Test Requirement: FCC Part 15.247(d)

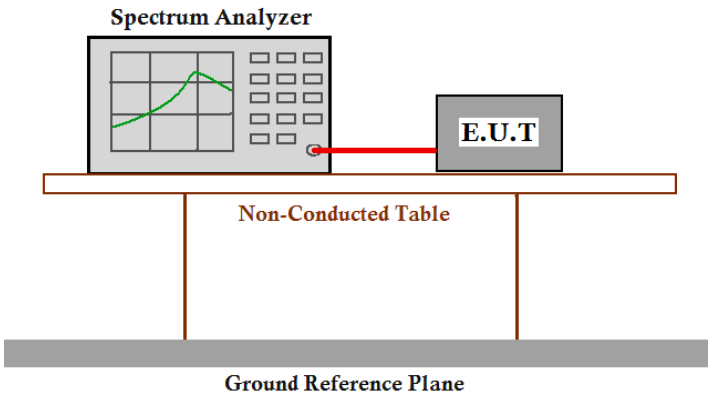
Test Limit: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that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

Test Method: ANSI C63.4:2003 and KDB558074.

Remark: KDB558074, DTS test procedure of March 2005 KDB558074

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:

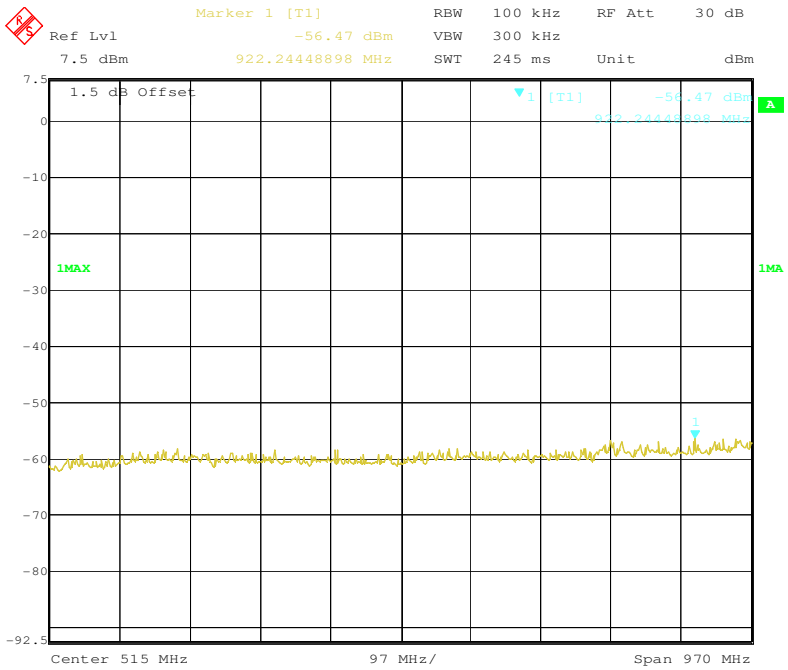


Test Procedure:

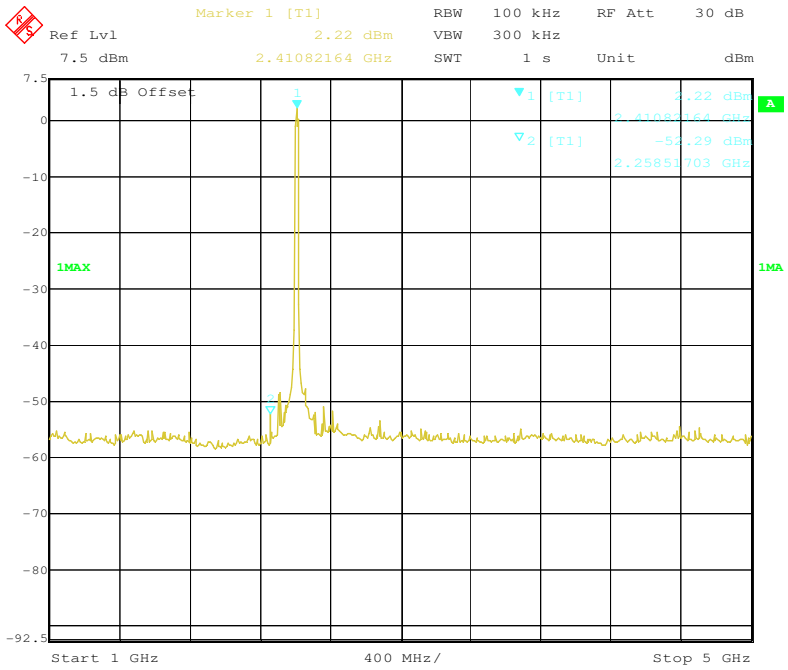
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer or power meter.
2. Set the spectrum analyzer: RBW=100 KHz, VBW = 300KHz. Sweep = auto; Detector Function = Peak. Trace = Max Hold, Scan up through 10th harmonic.
3. Measure the Conducted Spurious Emissions of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worse case.

Result plot as follows:
802.11b mode with 11Mbps data rate
Channel 1: 2.412GHz

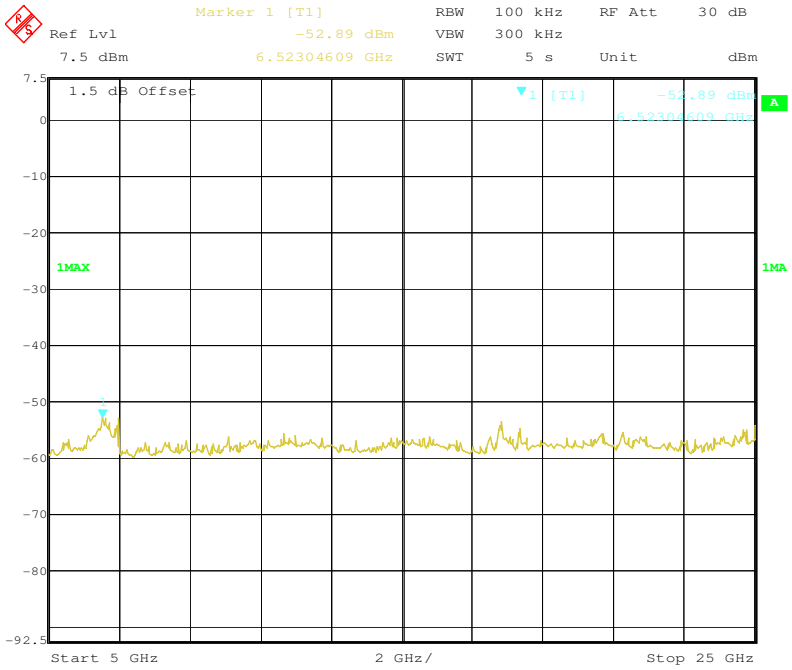
30MHz to 1GHz



1G to 5GHz

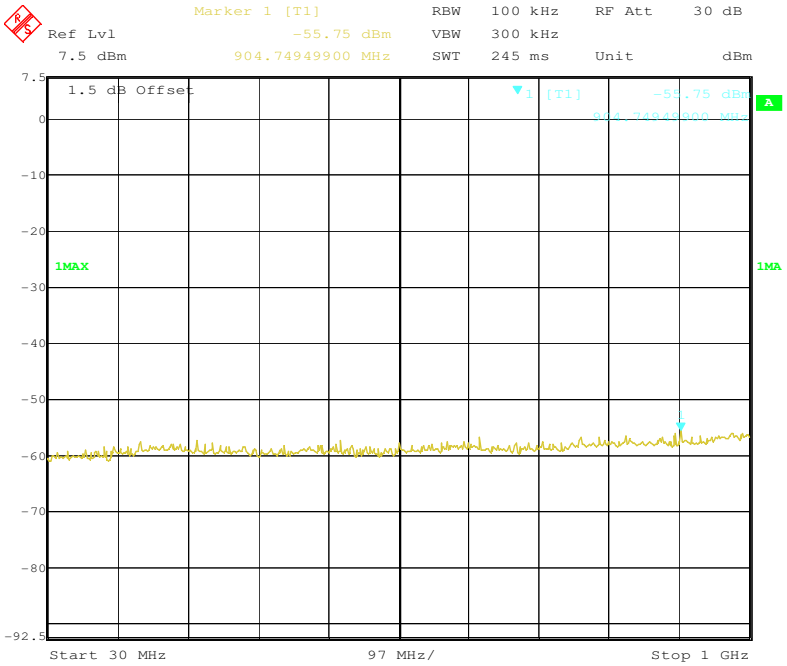


5G to 25GHz

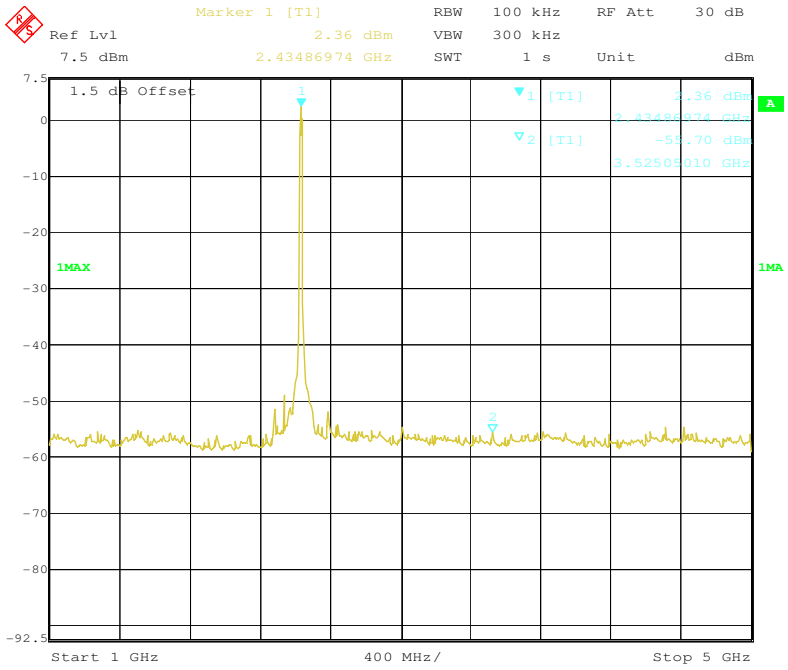


Channel 6:2.437GHz

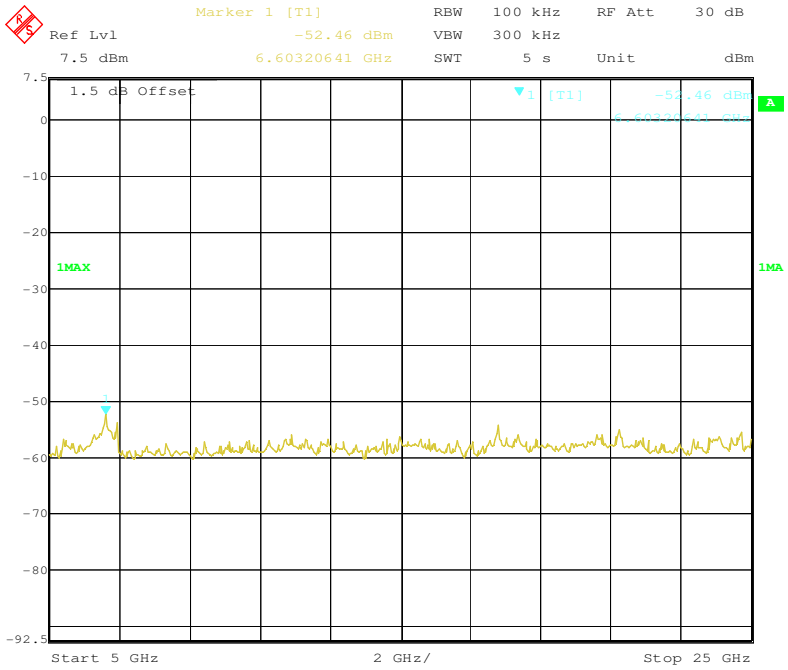
30M to 1GHz



1G to 5GHz

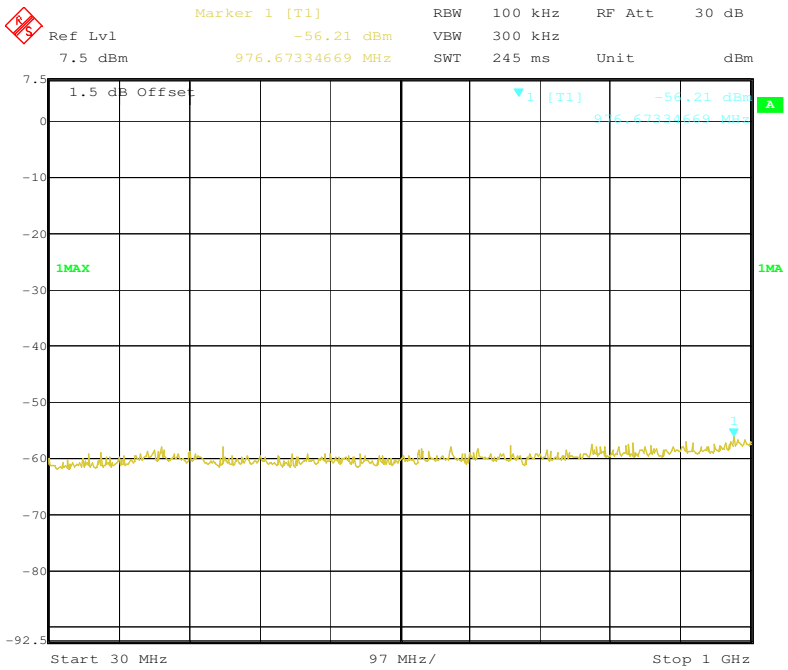


5G to 25GHz

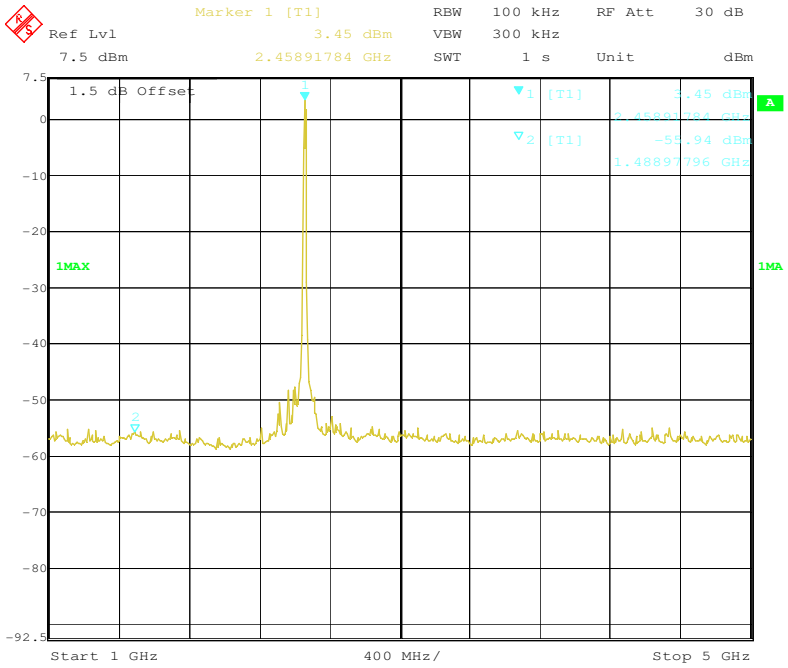


Channel1 1:2.462GHz

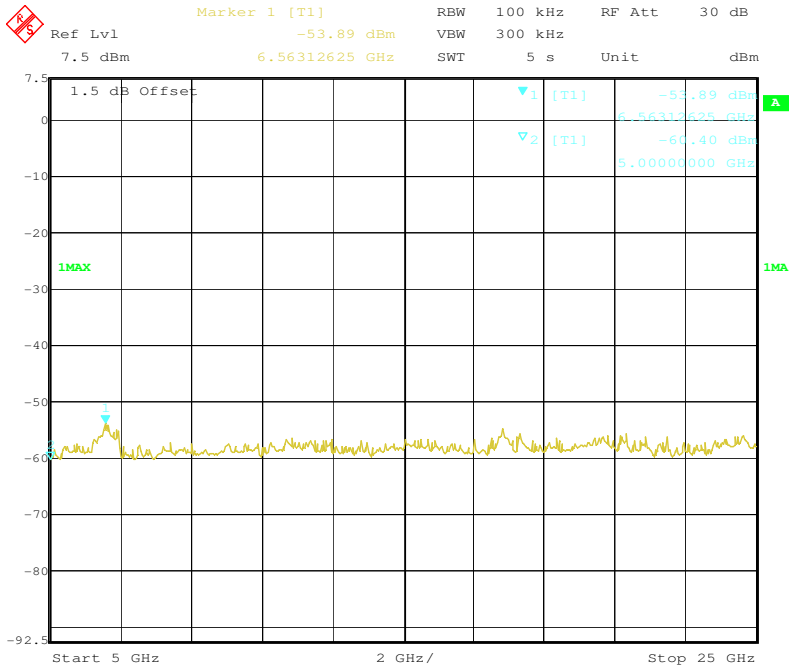
30M to 1GHz



1G to 5GHz

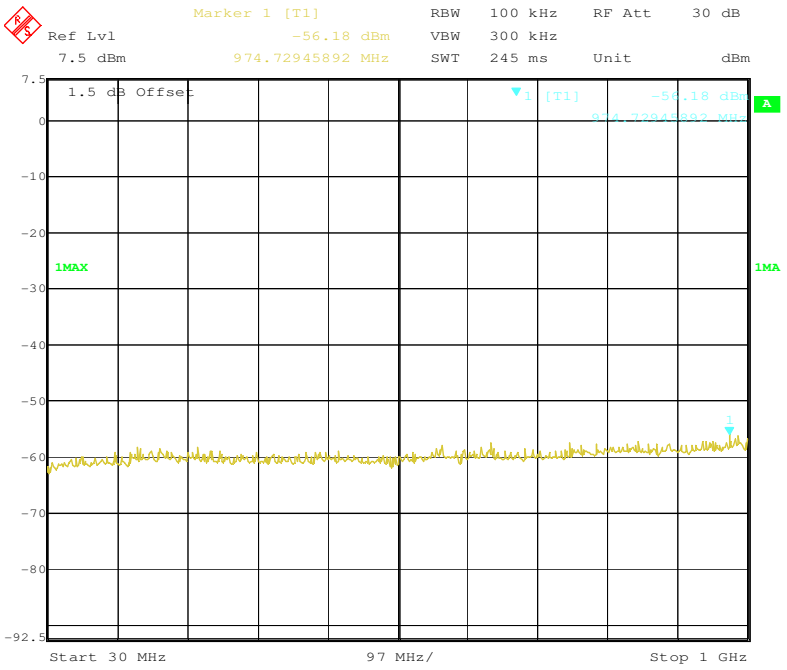


5G to 25GHz

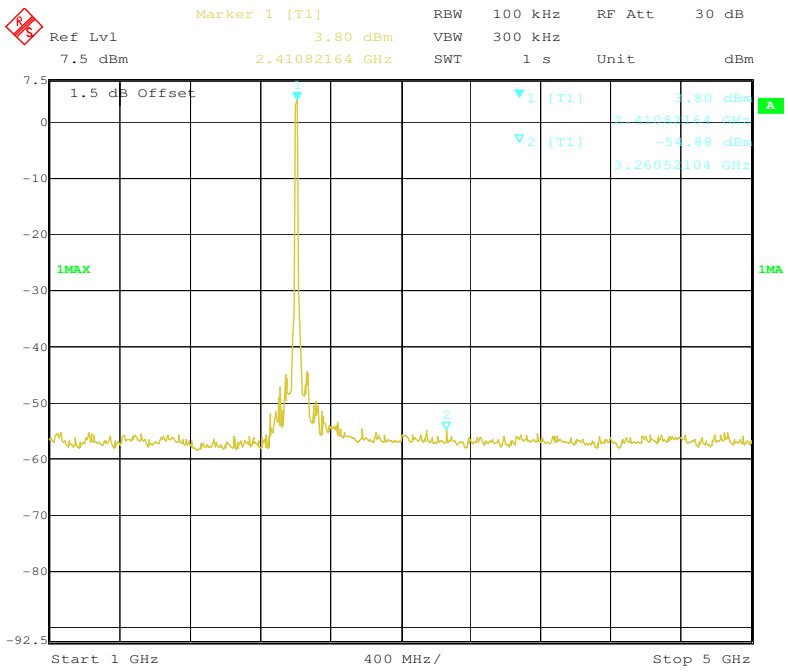


802.11g mode with 54Mbps data rate
Channel 1: 2.412GHz

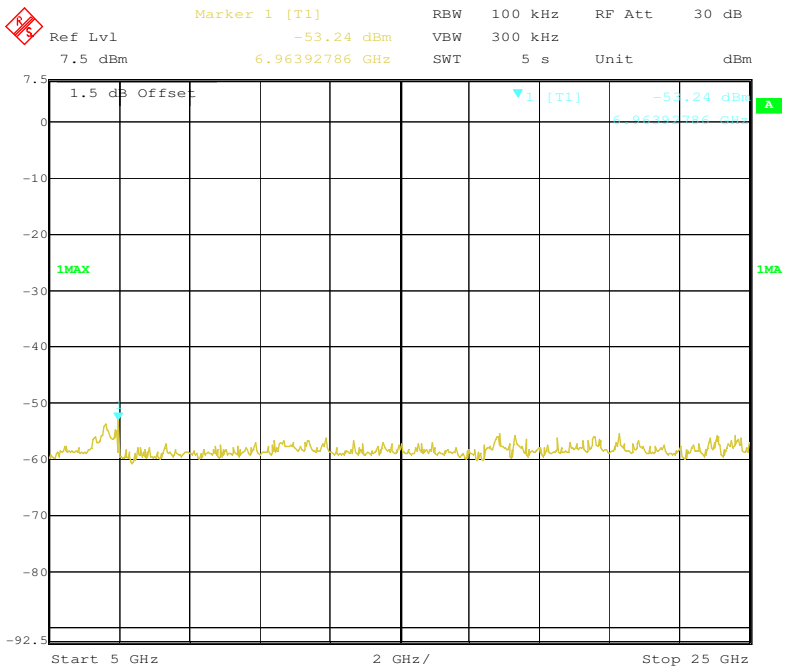
30M to 1GHz



1G to 5GHz

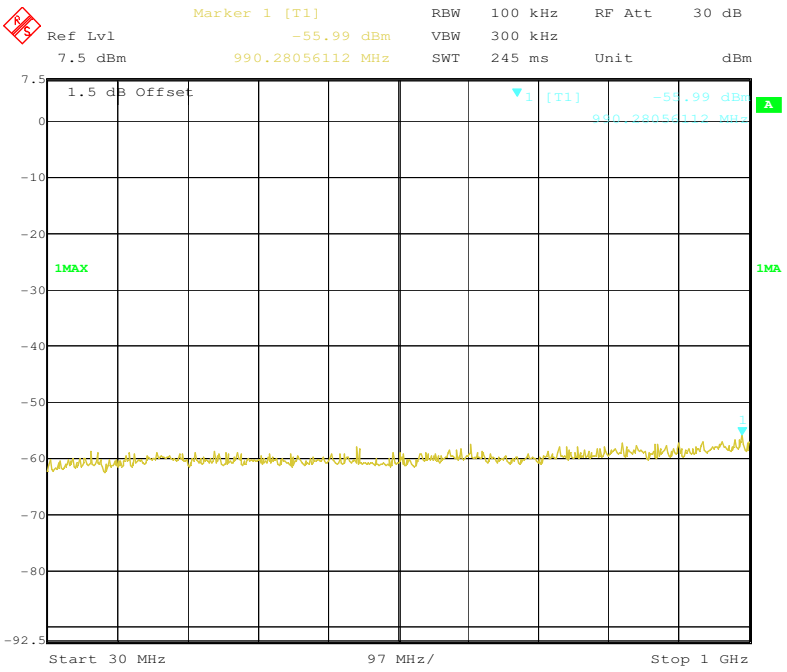


5G to 25GHz

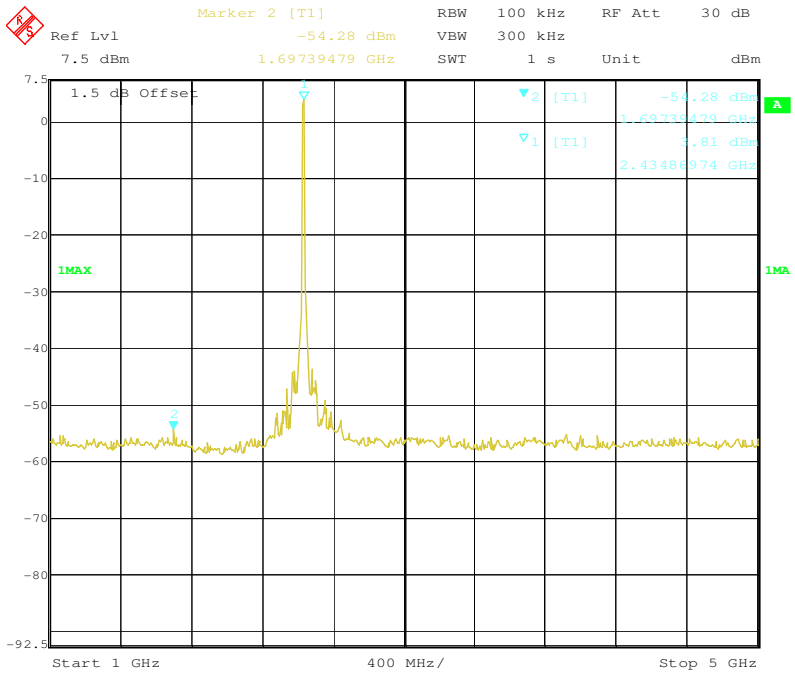


Channel 6: 2.437GHz

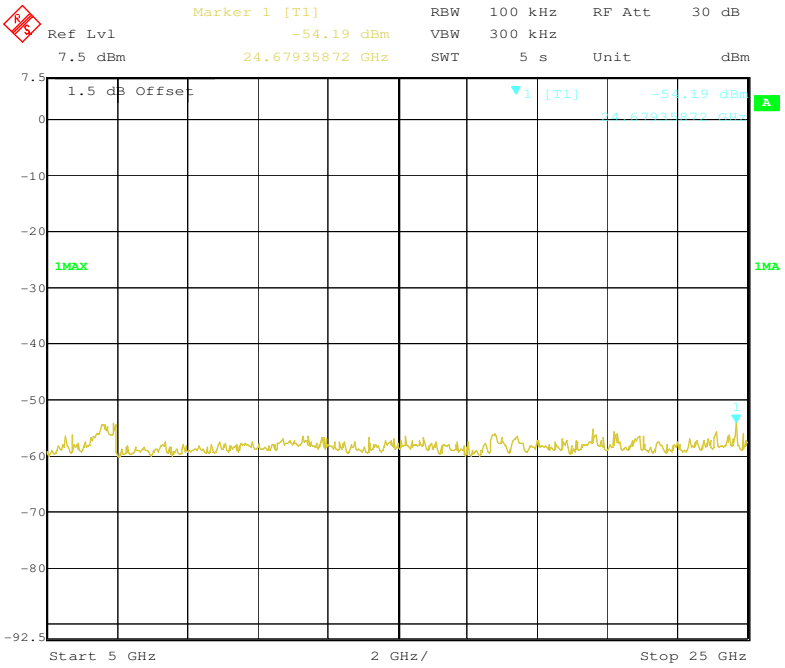
30M to 1GHz



1G to 5GHz

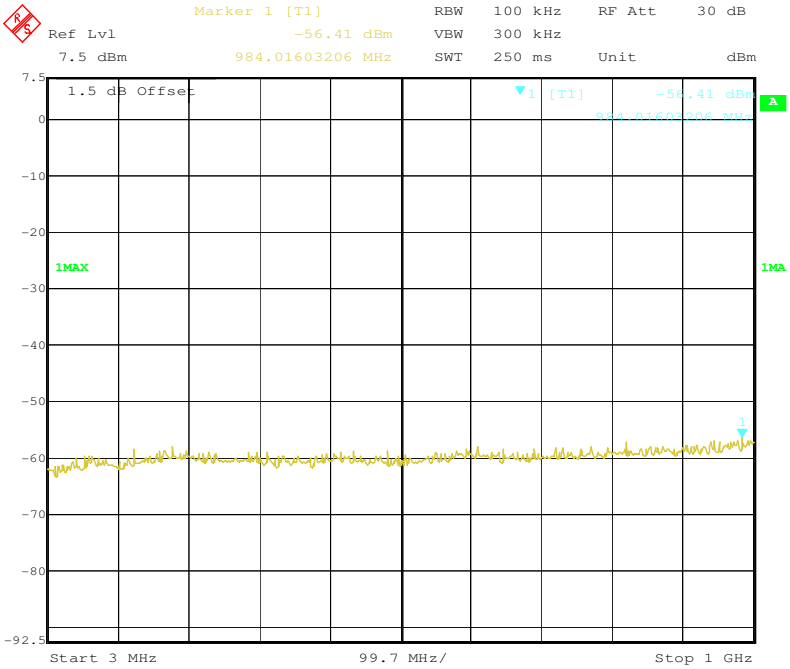


5G to 25GHz

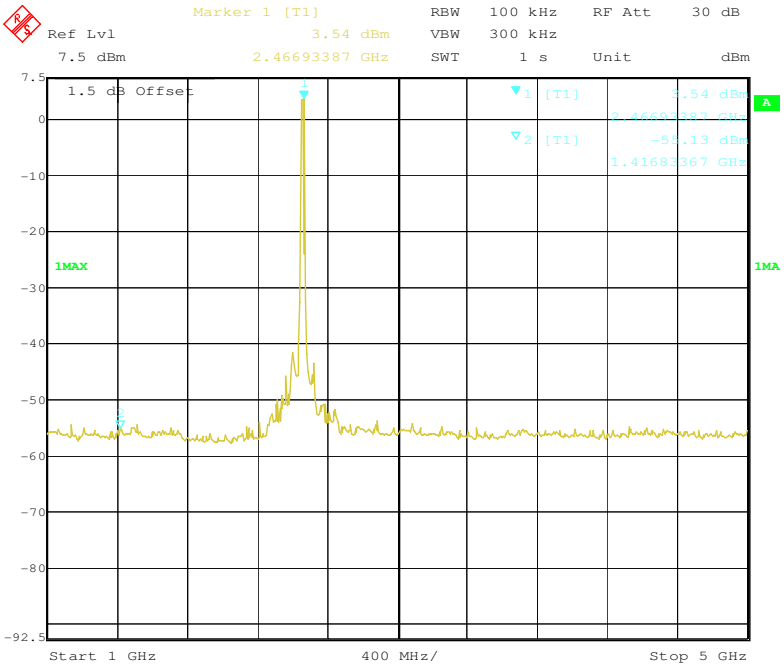


Channel 11: 2.462GHz

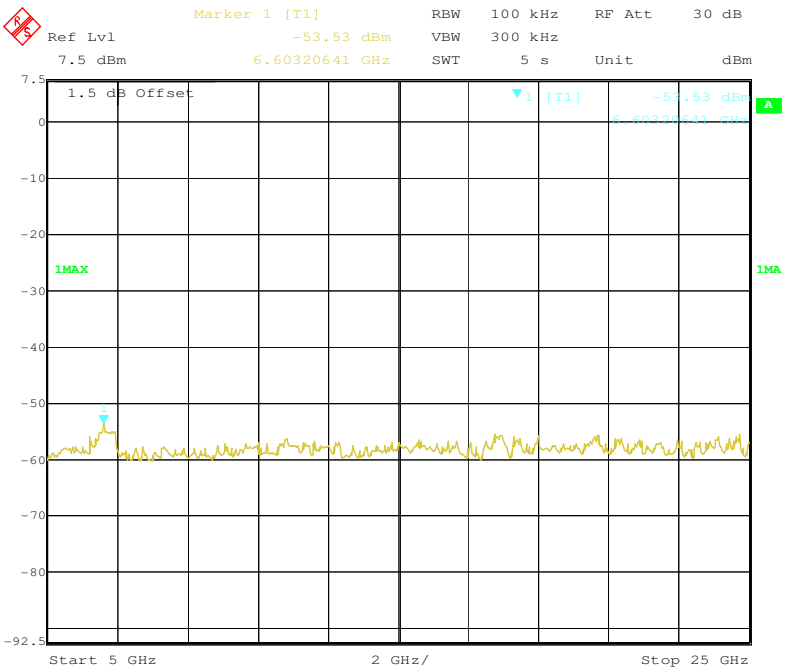
30M to 1GHz



1G to 5GHz



5G to 25GHz

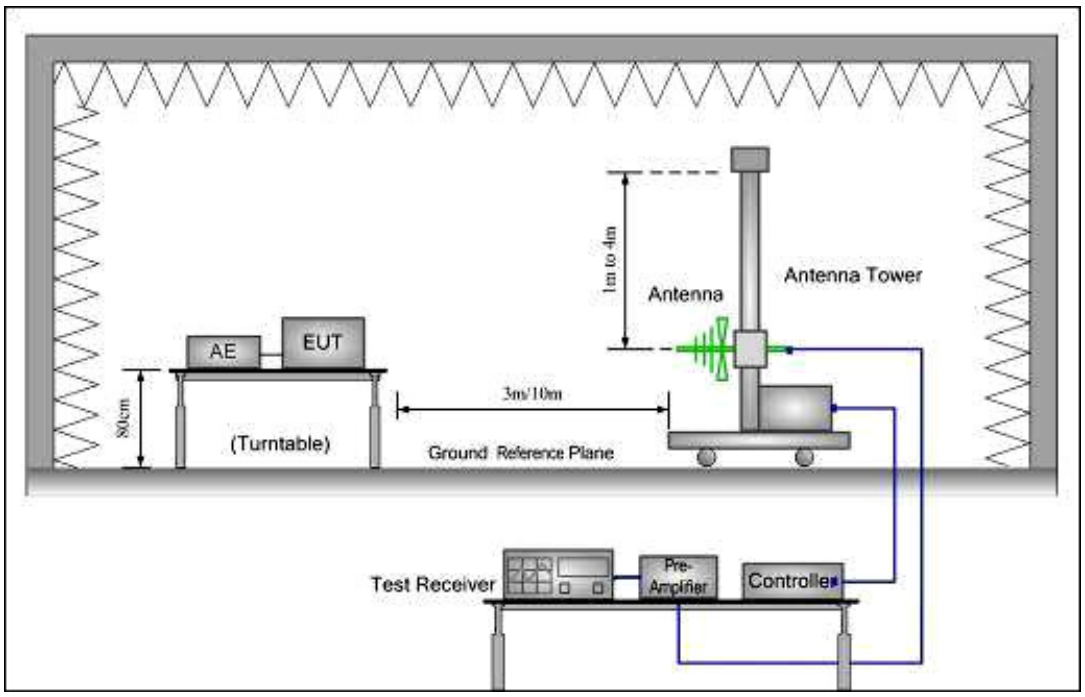


7.6 Radiated Spurious Emissions

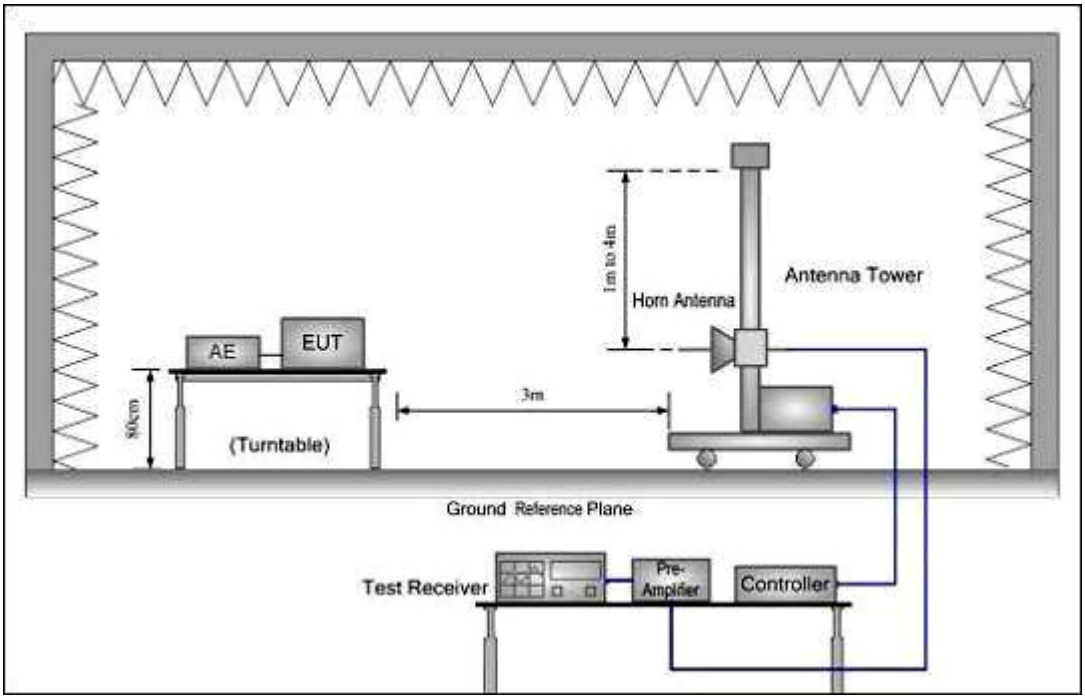
Test Requirement:	FCC 15.247(d) & 15.209
Test Method:	ANSI C63.4:2003 section 8 & 13
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Detector:	For PK value: RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz VBW ≥ RBW Sweep = auto Detector function = peak Trace = max hold For AV value: RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz VBW =10Hz Sweep = auto Detector function = peak Trace = max hold
15.209 Limit:	40.0 dBμV/m between 30MHz & 88MHz 43.5 dBμV/m between 88MHz & 216MHz 46.0 dBμV/m between 216MHz & 960MHz 54.0 dBμV/m above 960MHz
15.247(d) limit:	(d) 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, and provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Configuration:

1) 30MHz to 1GHz emissions:



2) 1GHz to 40GHz emissions:



Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 25GHz.When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

From 30MHz to 1GHz, read the Quasi-Peak field strength of the emissions with receiver QP detector RBW=120KHz.

Above 1GHz, read the Peak field strength and Average field strength.

Read the Peak field strength through RBW=1MHz,VBW=3MHz in spectrum analyzer setting;

Read the Average field strength through RBW=1MHz,VBW=10Hz in spectrum analyzer setting;

While maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the average field strength reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit.

7.6.1 Harmonic and other spurious emissions

7.6.1.1 802.11b mode with 11Mbps data rate

Test at Channel 1 (2.412GHz) in transmitting status

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Reading Level (dBμV)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
259.030	43.66	12.30	1.50	27.13	30.33	46.00	Vertical
344.250	45.41	14.20	1.60	27.40	33.81	46.00	V
269.590	52.08	12.30	1.50	27.11	38.77	46.00	Horizontal
319.060	49.53	13.50	1.60	27.22	37.41	46.00	H

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.000	31.54	6.30	33.37	44.53	49.00	74.00	V
7236.000	36.48	7.37	32.70	45.68	56.82	74.00	V
4824.000	31.54	6.30	33.37	45.00	49.47	74.00	H
7236.000	36.48	7.37	32.70	45.00	56.14	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.000	31.54	6.30	33.37	24.00	28.47	54.00	V
7236.000	36.48	7.37	32.70	23.86	35.01	54.00	V
4824.000	31.54	6.30	33.37	25.89	30.36	54.00	H
7236.000	36.48	7.37	32.70	25.92	37.06	54.00	H

Test at Channel6 (2.437GHz) in transmitting status

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
289.77	12..70	1.50	27.08	40.01	27.13	46.00	Vertical
345.99	14.20	1.70	27.42	47.33	35.81	46.00	V
165.36	8.90	1.20	27.36	40.76	23.50	43.50	Horizontal
269.99	12.30	1.50	27.11	43.08	29.77	46.00	H

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	31.57	6.27	33.15	44.59	49.28	74.00	V
7311.00	36.50	7.70	32.64	45.96	57.52	74.00	V
4874.00	31.57	6.27	33.15	45.25	49.94	74.00	H
7311.00	36.50	7.70	32.64	44.25	55.81	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	31.57	6.27	33.15	26.41	31.10	54.00	V
7311.00	36.50	7.70	32.64	25.86	37.42	54.00	V
4874.00	31.57	6.27	33.15	25.10	29.79	54.00	H
7311.00	36.50	7.70	32.64	26.36	37.92	54.00	H

Test at Channel11 (2.462GHz) in transmitting status

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
285.77	12.43	1.50	27.09	42.28	29.13	46.00	Vertical
396.96	15.84	1.70	27.75	40.49	30.28	46.00	V
271.25	12.30	1.50	27.11	48.08	34.77	46.00	Horizontal
320.44	13.50	1.60	27.23	46.54	34.41	46.00	H

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	31.62	6.20	32.93	45.36	50.24	74.00	V
7386.00	36.53	7.62	32.55	44.26	55.86	74.00	V
4924.00	31.62	6.20	32.93	45.52	50.41	74.00	H
7386.00	36.53	7.62	32.55	43.21	54.81	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	31.62	6.20	32.93	25.70	30.59	54.00	V
7386.00	36.53	7.62	32.55	25.32	36.92	54.00	V
4924.00	31.62	6.20	32.93	21.22	26.11	54.00	H
7386.00	36.53	7.62	32.55	25.65	37.25	54.00	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor –Preamplifier Factor.

Remark: No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

7.6.1.2 802.11g mode with 54Mbps data rate

Test at Channel 1 (2.412GHz) in transmitting status

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
395.52	15.84	1.70	27.74	43.48	33.28	46.00	Vertical
481.04	17.32	1.90	27.99	38.77	29.99	46.00	V
319.06	13.50	1.60	27.22	49.53	37.41	46.00	Horizontal
397.63	15.92	1.70	27.75	42.01	31.87	46.00	H

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	31.54	6.30	33.37	45.69	50.15	74.00	V
7236.00	36.48	7.37	32.70	44.52	55.67	74.00	V
4824.00	31.54	6.30	33.37	45.00	49.47	74.00	H
7326.00	36.48	7.37	32.70	45.00	56.14	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4824.00	31.54	6.30	33.37	27.52	31.99	54.00	V
7236.00	36.48	7.37	32.70	26.86	38.00	54.00	V
4824.00	31.54	6.30	33.37	25.12	29.59	54.00	H
7326.00	36.48	7.37	32.70	25.65	36.79	54.00	H

Test at Channel 6 (2.437GHz) in transmitting status

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
259.03	12.30	1.50	27.13	43.66	30.33	46.00	Vertical
344.25	14.20	1.60	27.40	45.41	33.81	46.00	V
394.69	15.76	1.70	27.73	41.15	30.87	46.00	Horizontal
472.56	17.18	1.90	27.97	43.81	34.92	46.00	H

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	31.57	6.27	33.15	44.92	49.61	74.00	V
7311.00	36.50	7.70	32.64	44.65	56.21	74.00	V
4874.00	31.57	6.27	33.15	44.29	48.97	74.00	H
7311.00	36.50	7.70	32.64	43.70	55.26	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4874.00	31.57	6.27	33.15	26.51	31.20	54.00	V
7311.00	36.50	7.70	32.64	26.41	37.97	54.00	V
4874.00	31.57	6.27	33.15	25.99	30.68	54.00	H
7311.00	36.50	7.70	32.64	24.52	36.08	54.00	H

Test at Channel 11 (2.462GHz) in transmitting status

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
285.77	12.43	1.50	27.09	42.28	29.13	46.00	Vertical
396.96	15.84	1.70	27.75	40.49	30.28	46.00	V
271.25	12.30	1.50	27.11	48.08	34.77	46.00	Horizontal
398.67	15.92	1.80	27.76	40.92	30.87	46.00	H

1~25 GHz Harmonics & Spurious Emissions. Peak & Average Measurement

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	31.62	6.20	32.93	44.13	49.02	74.00	V
7386.00	36.53	7.62	32.55	43.85	55.45	74.00	V
4924.00	31.62	6.20	32.93	44.68	49.57	74.00	H
7386.00	36.53	7.62	32.55	43.85	55.45	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
4924.00	31.62	6.20	32.93	16.73	21.62	54.00	V
7386.00	36.53	7.62	32.55	25.66	37.26	54.00	V
4924.00	31.62	6.20	32.93	44.68	49.57	54.00	H
7386.00	36.53	7.62	32.55	43.85	55.45	54.00	H

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor –Preamplifier Factor.

Remark: No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

Remark:

1).For this intentional radiator operates below 25 GHz. The spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the third harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 3rd harmonic.

2). As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

3). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

Test result: The unit does meet the FCC requirements.

7.6.2 Radiated Emissions which fall in the restricted bands

Test Requirement:	Section 15.247(d) 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) (see Section 15.205(c)).
Test Method:	ANSI 63.4:2003
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Limit:	40.0 dBμV/m between 30MHz & 88MHz; 43.5 dBμV/m between 88MHz & 216MHz; 46.0 dBμV/m between 216MHz & 960MHz; 54.0 dBμV/m above 960MHz.
Detector:	For PK value: RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz VBW ≥ RBW Sweep = auto Detector function = peak Trace = max hold For AV value: RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz VBW =10Hz Sweep = auto Detector function = peak Trace = max hold

Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section. only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	
13.36 - 13.41	322 - 335.4		

Test Result:

7.6.2.1 802.11b mode with 11Mbps data rate

Test at Channel 1 (2.412GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	46.52	43.08	74.00	Vertical
2390.000	27.61	4.30	35.60	47.56	43.86	74.00	V
2483.500	27.55	4.40	35.60	46.42	42.77	74.00	V
2500.000	27.77	4.30	35.60	46.67	43.14	74.00	V
2310.000	27.93	4.23	35.60	46.03	42.39	74.00	Horizontal
2390.000	27.61	4.30	35.60	50.50	46.81	74.00	H
2483.500	27.55	4.40	35.60	46.03	42.39	74.00	H
2500.000	27.77	4.30	35.60	47.36	43.83	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	24.64	21.20	54.00	Vertical
2390.000	27.61	4.30	35.60	25.41	21.72	54.00	V
2483.500	27.55	4.40	35.60	24.05	20.40	54.00	V
2500.000	27.77	4.30	35.60	24.75	21.22	54.00	V
2310.000	27.93	4.23	35.60	27.34	23.90	54.00	Horizontal
2390.000	27.61	4.30	35.60	25.08	21.39	54.00	H
2483.500	27.55	4.40	35.60	24.50	20.85	54.00	H
2500.000	27.77	4.30	35.60	25.36	21.83	54.00	H

Test at Channel 6 (2.437GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	46.51	43.07	74.00	Vertical
2390.000	27.61	4.30	35.60	48.32	44.63	74.00	V
2483.500	27.55	4.40	35.60	46.23	42.59	74.00	V
2500.000	27.77	4.30	35.60	46.70	43.16	74.00	V
2310.000	27.93	4.23	35.60	46.01	42.57	74.00	Horizontal
2390.000	27.61	4.30	35.60	46.29	42.59	74.00	H
2483.500	27.55	4.40	35.60	46.86	43.21	74.00	H
2500.000	27.77	4.30	35.60	46.53	42.99	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	25.06	21.62	54.00	Vertical
2390.000	27.61	4.30	35.60	24.91	21.22	54.00	V
2483.500	27.55	4.40	35.60	24.25	20.60	54.00	V
2500.000	27.77	4.30	35.60	24.70	21.16	54.00	V
2310.000	27.93	4.23	35.60	26.33	22.89	54.00	Horizontal
2390.000	27.61	4.30	35.60	25.06	21.36	54.00	H
2483.500	27.55	4.40	35.60	26.36	22.71	54.00	H
2500.000	27.77	4.30	35.60	25.52	21.99	54.00	H

Test at Channel 11 (2.462GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	47.25	43.81	74.00	Vertical
2390.000	27.61	4.30	35.60	46.98	43.29	74.00	V
2483.500	27.55	4.40	35.60	46.90	43.25	74.00	V
2500.000	27.77	4.30	35.60	46.69	43.16	74.00	V
2310.000	27.93	4.23	35.60	46.57	43.13	74.00	Horizontal
2390.000	27.61	4.30	35.60	46.96	43.26	74.00	H
2483.500	27.55	4.40	35.60	46.96	43.31	74.00	H
2500.000	27.77	4.30	35.60	46.48	42.95	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	23.55	20.11	54.00	Vertical
2390.000	27.61	4.30	35.60	25.07	21.37	54.00	V
2483.500	27.55	4.40	35.60	26.33	22.68	54.00	V
2500.000	27.77	4.30	35.60	24.25	20.72	54.00	V
2310.000	27.93	4.23	35.60	24.22	20.78	54.00	Horizontal
2390.000	27.61	4.30	35.60	26.03	22.33	54.00	H
2483.500	27.55	4.40	35.60	24.23	20.58	54.00	H
2500.000	27.77	4.30	35.60	24.52	20.99	54.00	H

7.6.2.2 802.11g mode with 54Mbps data rate

Test at Channel 1 (2.412GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	47.02	43.58	74.00	Vertical
2390.000	27.61	4.30	35.60	51.38	47.69	74.00	V
2483.500	27.55	4.40	35.60	46.52	42.87	74.00	V
2500.000	27.77	4.30	35.60	46.94	43.41	74.00	V
2310.000	27.93	4.23	35.60	46.95	43.51	74.00	Horizontal
2390.000	27.61	4.30	35.60	52.63	48.94	74.00	H
2483.500	27.55	4.40	35.60	46.69	43.04	74.00	H
2500.000	27.77	4.30	35.60	46.78	43.25	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	25.13	21.69	54.00	Vertical
2390.000	27.61	4.30	35.60	25.27	21.58	54.00	V
2483.500	27.55	4.40	35.60	24.07	20.43	54.00	V
2500.000	27.77	4.30	35.60	24.79	21.26	54.00	V
2310.000	27.93	4.23	35.60	27.65	24.21	54.00	Horizontal
2390.000	27.61	4.30	35.60	25.91	22.22	54.00	H
2483.500	27.55	4.40	35.60	24.19	20.54	54.00	H
2500.000	27.77	4.30	35.60	24.73	21.20	54.00	H

Test at Channel 6 (2.437GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	46.62	43.18	74.00	Vertical
2390.000	27.61	4.30	35.60	47.13	43.44	74.00	V
2483.500	27.55	4.40	35.60	47.56	43.91	74.00	V
2500.000	27.77	4.30	35.60	46.88	43.34	74.00	V
2310.000	27.93	4.23	35.60	45.69	42.25	74.00	Horizontal
2390.000	27.61	4.30	35.60	47.53	43.83	74.00	H
2483.500	27.55	4.40	35.60	46.52	42.88	74.00	H
2500.000	27.77	4.30	35.60	47.44	43.91	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	27.52	24.08	54.00	Vertical
2390.000	27.61	4.30	35.60	24.52	20.83	54.00	V
2483.500	27.55	4.40	35.60	25.05	21.41	54.00	V
2500.000	27.77	4.30	35.60	24.63	21.09	54.00	V
2310.000	27.93	4.23	35.60	23.59	20.15	54.00	Horizontal
2390.000	27.61	4.30	35.60	25.04	21.34	54.00	H
2483.500	27.55	4.40	35.60	24.03	20.38	54.00	H
2500.000	27.77	4.30	35.60	23.65	20.12	54.00	H

Test at Channel 11 (2.462GHz) in transmitting status

Peak Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	46.65	43.21	74.00	Vertical
2390.000	27.61	4.30	35.60	46.95	43.26	74.00	V
2483.500	27.55	4.40	35.60	46.74	43.09	74.00	V
2500.000	27.77	4.30	35.60	46.99	43.46	74.00	V
2310.000	27.93	4.23	35.60	47.88	44.44	74.00	Horizontal
2390.000	27.61	4.30	35.60	45.99	42.29	74.00	H
2483.500	27.55	4.40	35.60	46.95	43.30	74.00	H
2500.000	27.77	4.30	35.60	46.52	42.99	74.00	H

Average Measurement:

Frequency (MHz)	Antenna factors (dB/m)	Cable loss (dB)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
2310.000	27.93	4.23	35.60	25.66	22.22	54.00	Vertical
2390.000	27.61	4.30	35.60	24.55	20.86	54.00	V
2483.500	27.55	4.40	35.60	24.56	20.91	54.00	V
2500.000	27.77	4.30	35.60	24.58	21.05	54.00	V
2310.000	27.93	4.23	35.60	23.58	20.14	54.00	Horizontal
2390.000	27.61	4.30	35.60	26.88	23.19	54.00	H
2483.500	27.55	4.40	35.60	25.85	22.20	54.00	H
2500.000	27.77	4.30	35.60	24.55	21.02	54.00	H

7.7 Band Edges Requirement

Test Requirement: FCC Part 15.247(d)

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.

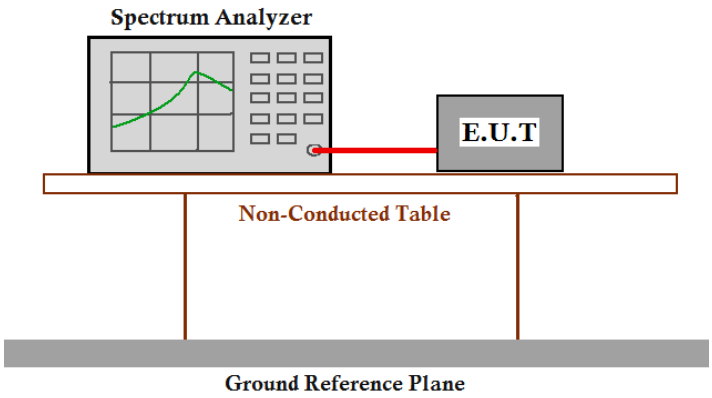
Frequency Band: 2400MHz to 2483.5MHz

Test Method: ANSI C63.4:2003 and KDB558074.

Remark: KDB558074, DTS test procedure of March 2005 KDB558074

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer or power meter.
2. Set RBW=100 kHz , VBW=100KHz ,suitable frequency span including 100 kHz bandwidth from band edge..
3. Measure the Conducted Spurious Emissions and Radiated Emissions of the test frequency with special test status.
4. Repeat until all the test status is investigated.
5. Report the worse.

Test result with plots as follows:

The band edges was measured and recorded Result:

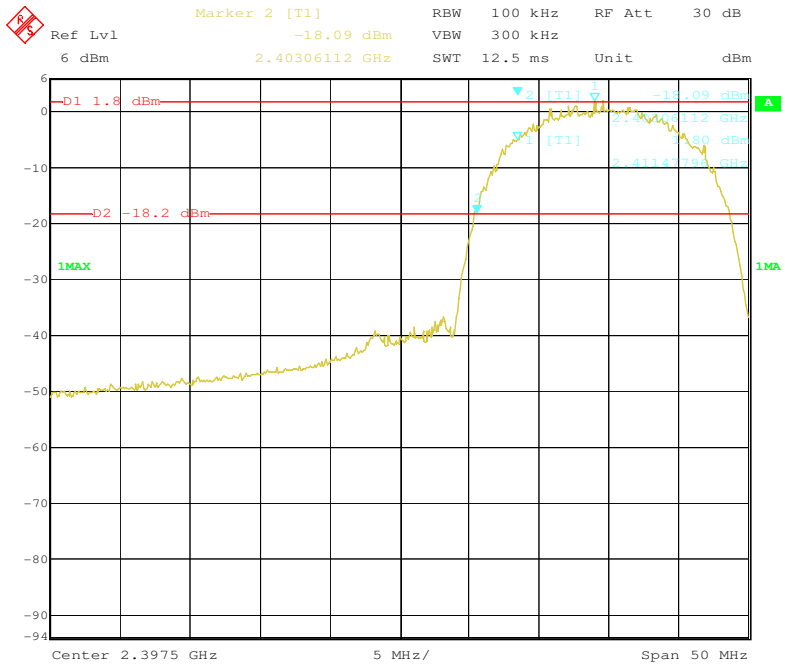
The Lower Edges attenuated more than 20dB.

The Upper Edges attenuated more than 20dB.

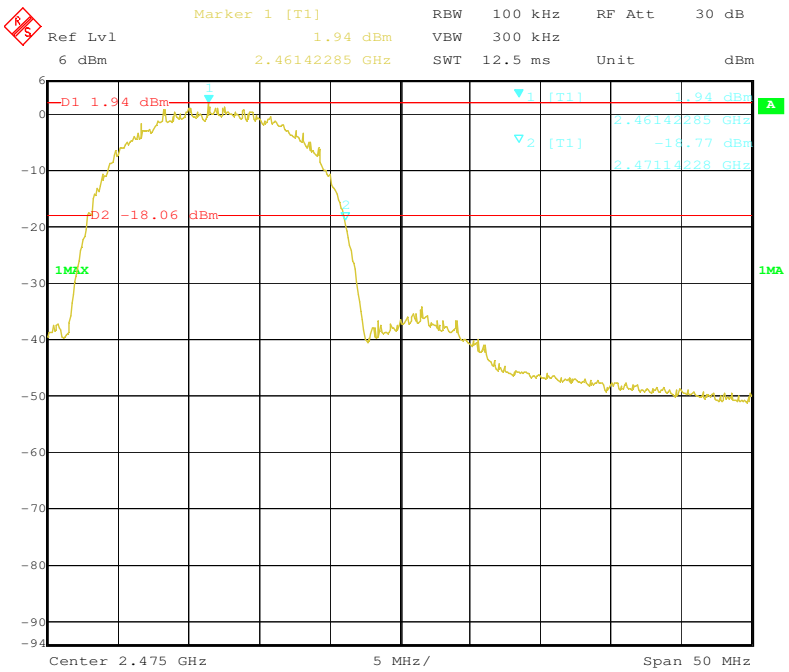
Result plot as follows:

802.11b mode with 11 Mbps data rate

Channel1: 2.412GHz



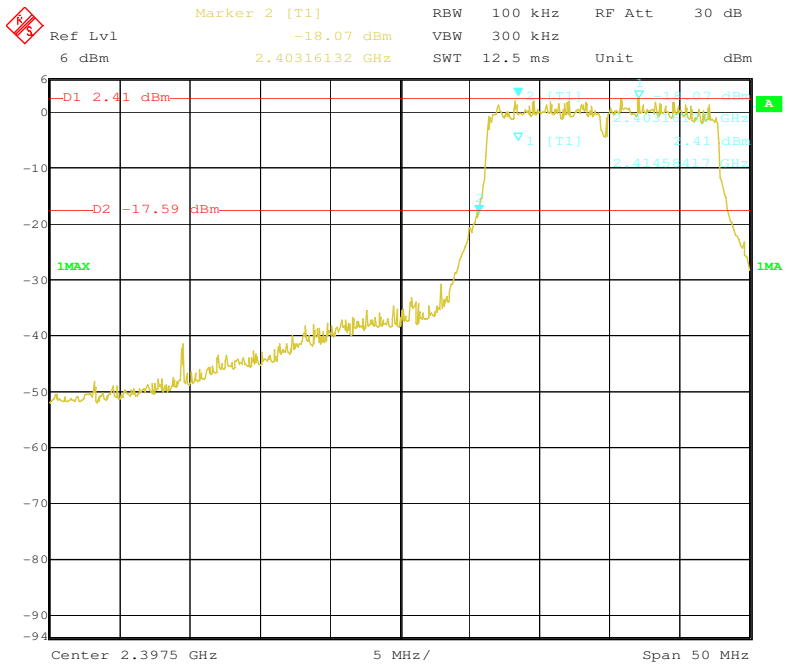
Channel 11: 2.462GHz



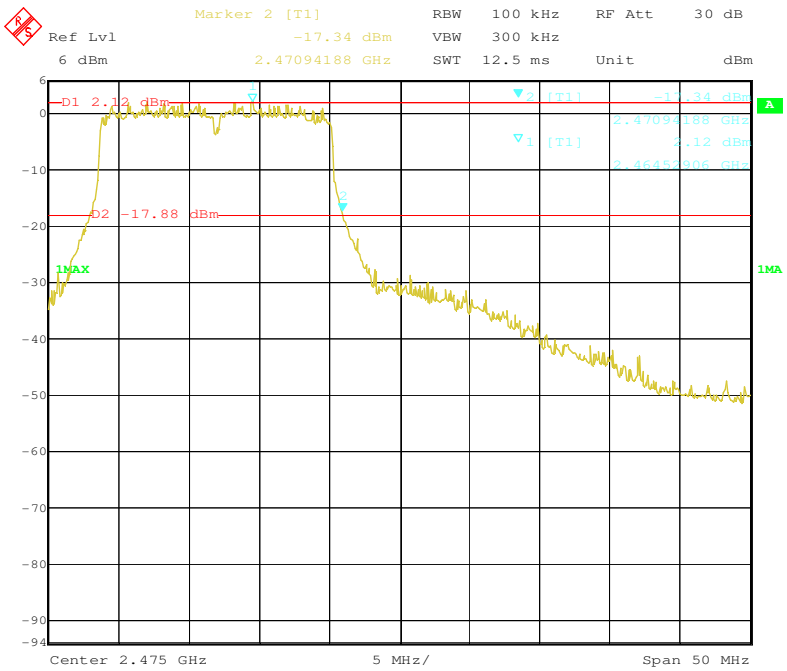
Result plot as follows:

802.11g mode with 54Mbps data rate

Channel 1: 2.412GHz



Channel 11: 2.462GHz



7.8 Conducted Emissions at Mains Terminals 150 kHz to 30MHz

Test Requirement: FCC Part 15.207

Test Method: ANSI C63.4:2003

Frequency Range: 150KHz to 30MHz

Detector: Peak for pre-scan (9kHz Resolution Bandwidth)

Test Limit

Limits for conducted disturbance at the mains ports of class B

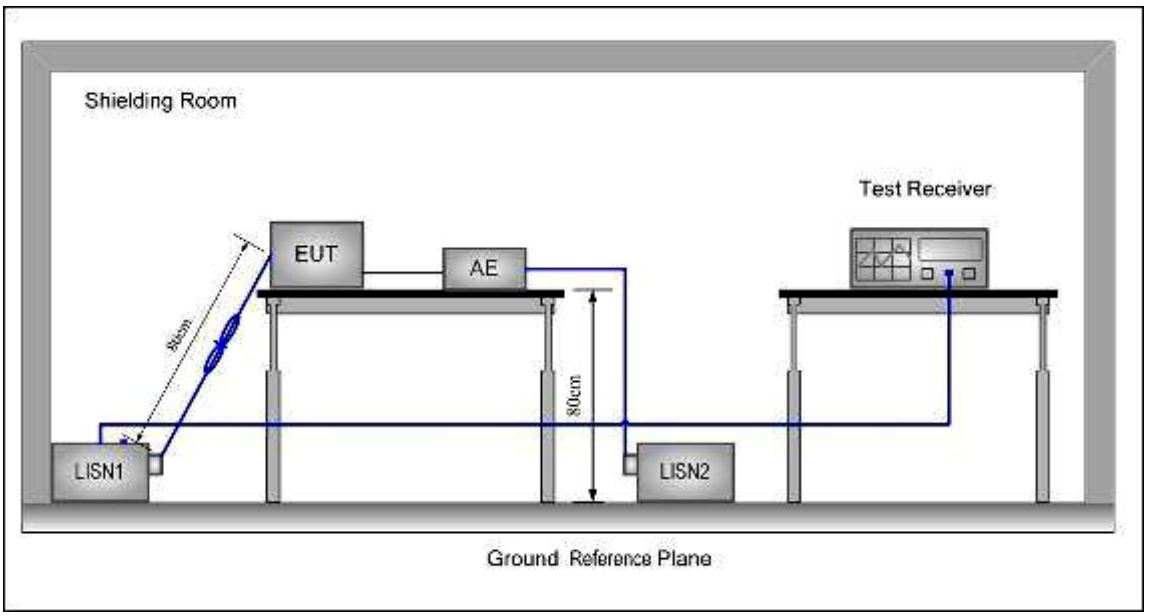
Frequency Range (MHz)	Class B Limit (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

EUT Operation:

Test in normal mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Test Configuration:



Test procedure:

1. The mains terminal disturbance voltage test was conducted in a shielded room.

2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

7.8.1 Measurement Data

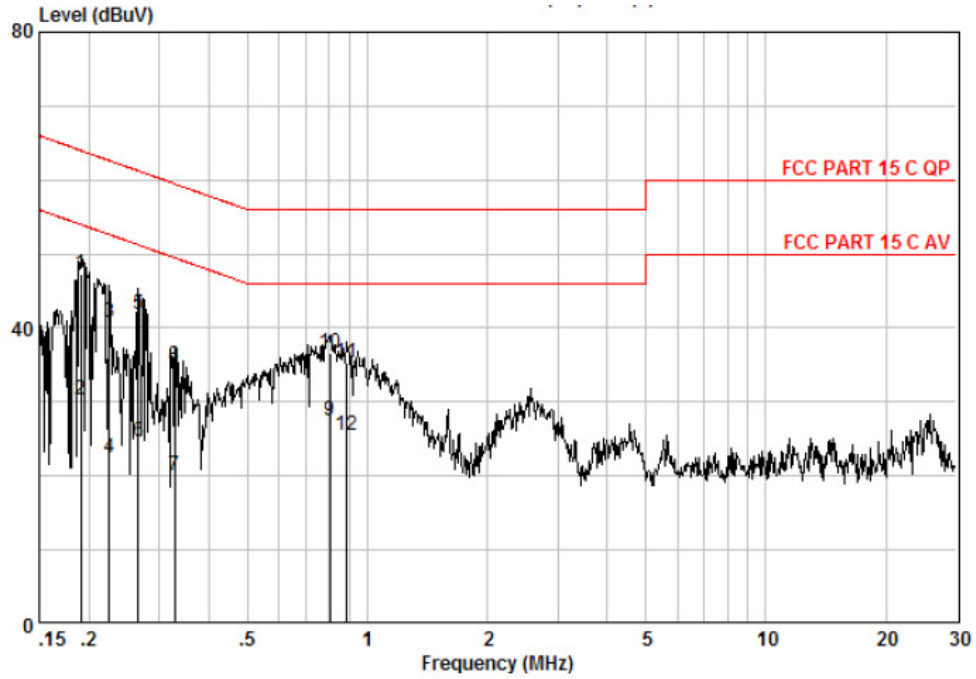
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected. For EUT the communicating was worst case mode.

The following Quasi-Peak and Average measurements were performed on the EUT:

Neutral Line

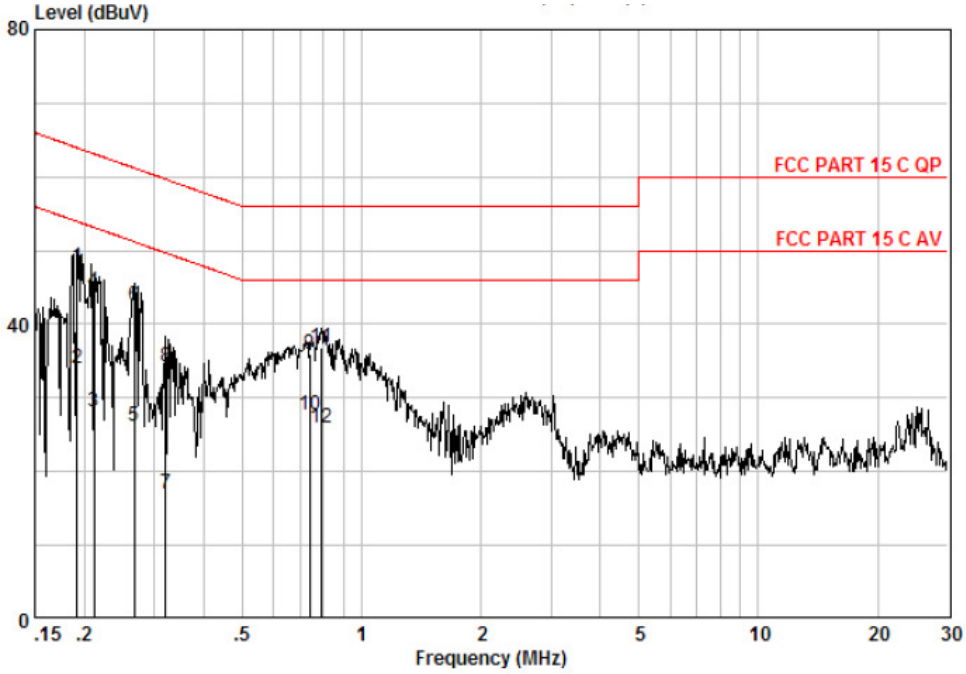
Level(dB μ V)



Measure data:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.190	37.48	0.12	9.62	47.22	64.02	-16.80	QP
0.190	20.46	0.12	9.62	30.20	54.02	-23.82	AVERAGE
0.224	31.00	0.12	9.62	40.74	62.66	-21.92	QP
0.224	12.81	0.12	9.62	22.55	52.66	-30.11	AVERAGE
0.266	32.08	0.09	9.62	41.80	61.25	-19.45	QP
0.266	14.81	0.09	9.62	24.53	51.25	-26.72	AVERAGE
0.329	10.29	0.07	9.63	19.98	49.49	-29.50	AVERAGE
0.329	25.28	0.07	9.63	34.97	59.49	-24.51	QP
0.804	17.88	0.05	9.62	27.55	46.00	-18.45	AVERAGE
0.804	26.98	0.05	9.62	36.65	56.00	-19.35	QP
0.885	25.70	0.05	9.63	35.38	56.00	-20.62	QP
0.885	15.91	0.05	9.63	25.59	46.00	-20.41	AVERAGE

Live Line



Measure result:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.191	38.06	0.12	9.62	47.80	63.98	-16.18	QP
0.191	24.18	0.12	9.62	33.92	53.98	-20.06	AVERAGE
0.212	18.30	0.12	9.62	28.04	53.14	-25.10	AVERAGE
0.212	34.74	0.12	9.62	44.48	63.14	-18.66	QP
0.267	16.39	0.09	9.62	26.10	51.20	-25.10	AVERAGE
0.267	32.76	0.09	9.62	42.47	61.20	-18.73	QP
0.320	7.35	0.07	9.61	17.04	49.71	-32.67	AVERAGE
0.320	24.44	0.07	9.61	34.13	59.71	-25.58	QP
0.739	26.32	0.04	9.62	35.98	56.00	-20.02	QP
0.739	18.09	0.04	9.62	27.75	46.00	-18.25	AVERAGE
0.792	27.26	0.05	9.62	36.93	56.00	-19.07	QP
0.792	16.31	0.05	9.62	25.98	46.00	-20.02	AVERAGE

--End of Report--