FCC ID TEST REPORT

for

Mobile Phone

Model: Bliss

FCC ID: ZYPBLISS

Prepared for :	Nexpro International Limitada Guadalupe, Barrio Tournon, Frente Al Hotel Villas Oficinas Del Bufete Facio Y Canas, San Jose-Goicoechea, Costa Rica
Prepared by:	Shenzhen TCT Testing Technology Co.,Ltd 1F, Building 1, Yibaolai Industrial Park, Qiaotou Village, Fuyong Town, Baoan District, Shenzhen, Guangdong, China TEL: +86-0755-27363339 FAX: +86-0755-27673332

Report Number： TCT130826008F2-1
Date of Test： August 20 ~September 26, 2013
Date of Issue： September 26, 2013

Table of Contents

1.0 General Details

1.1 Test Lab Details

Name :	Shenzhen Tongce Testing Lab
Address:	1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China
Telephone:	13410377511
Fax:	--

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

FCC Registration Number: 572331

Shenzhen TCT Testing Technology Co., Ltd., Shenzhen EMC Laboratory: Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

Registration Number: 572331

Industry Canada (IC)

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

Registration Number IC: 10668A-1

1.2 Applicant Details

Applicant:	Nexpro International Limitada
Address:	Guadalupe, Barrio Tournon, Frente Al Hotel Villas Oficinas Del Bufete Facio Y Canas, San Jose-Goicoechea, Costa Rica
Telephone:	(58) 212 9930490
Fax:	(58) 212 9932945

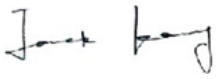
Manufacturer:	Nexpro International Limitada
Address:	Guadalupe, Barrio Tournon, Frente Al Hotel Villas Oficinas Del Bufete Facio Y Canas, San Jose-Goicoechea, Costa Rica
Telephone:	(58) 212 9930490
Fax:	(58) 212 9932945

1.3 Description of EUT

Product:	Mobile Phone
Model No.:	Bliss
Brand Name:	N.A.
Rating:	DC 3.7V Via Lithium Battery & DC 5V Via Adapter
	Battery information Model: Bliss Voltage: 3.7V/1000mAh
	Adapter Information Model:TPA-595055UU Brand Name: SZTY Input: AC 100-240V,50/60Hz 0.2A, Output: DC 5V 550mA
Operation Frequency:	IEEE 802.11b: 2412-2462 MHz IEEE 802.11g: 2412-2462 MHz IEEE 802.11n: 2412-2462 MHz(HT 20), 2422-2452 MHz(HT 40)
Channel number:	IEEE 802.11b/g: 11, IEEE 802.11n: 11(HT 20), 7(HT 40)
Channel spacing:	5 MHz
Modulation Type:	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
Antenna Designation:	A Built-in antenna and the maximum antenna gain is 0dBi.
Model Difference:	N.A.

1.4 Submitted sample(s): 1pcs

1.5 Test Engineer

The sample tested by 

Printed name: Jack Kang

2.0 Test equipments and Associated Equipment used during the test.

2.1 Test Equipments

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	July 7, 2013	July 6, 2014
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014
Pre-amplifier	Teseq	LAN6900	--	July 8, 2013	July 7, 2014
Pre-amplifier	Agilent	8447D	83153007374	July 8, 2013	July 7, 2014
Pre-amplifier	Agilent	8449B	3008A01738	July 8, 2013	July 7, 2014
Triple-loop antenna	ROHDE&SCHWARZ	HM020	843885/002	July 8, 2013	July 7, 2014
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	July 8, 2013	July 7, 2014
Horn Antenna	ETS LINDGREN	3117	--	July 8, 2013	July 7, 2014
Horn Antenna	ETS LINDGREN	3160	--	July 8, 2013	July 7, 2014
EMI Test Receiver	R&S	ESCS30	100139	July 7, 2013	July 6, 2014
LISN	AFJ	LS16C	16010222119	July 7, 2013	July 6, 2014

2.2 AE used during the test

Equipment type	Manufacturer	Model
N/A		
N/A		
N/A		
N/A		

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:		
Test Item	CFR 47 Section	Result
AC Power Line Conducted Emission	15.207(a)	PASS
Maximum Peak Output Power	15.247(b)	PASS
6 dB bandwidth	15.247 (a)	PASS
Maximum Power Density	15.247(e)	PASS
Band age Measurement	15.247 (d), 15.205 (a), 15.209 (a)	PASS
Radiated Emission	15.209	PASS
Antenna Requirement	15.203,15.247(c)	PASS

3.2 Test Standards

FCC Part 15:2012 Subpart C, Paragraph 15.247

2.2 Test Information

The test software was used to control E.U.T. work in Continuous TX mode(100 % duty cycle), and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information			
Mode	Channel	Frequency (MHz)	Date Rate (Mbps)
IEEE 802.11b	Low :CH1	2412	1
	Middle: CH6	2437	1
	High: CH11	2462	1
IEEE 802.11g	Low :CH1	2412	6
	Middle: CH6	2437	6
	High: CH11	2462	6
IEEE 802.11n (HT 20)	Low :CH1	2412	MSC0
	Middle: CH6	2437	MSC0
	High: CH11	2462	MSC0
IEEE 802.11n (HT 40)	Low :CH3	2422	MSC0
	Middle: CH6	2437	MSC0
	High: CH9	2452	MSC0
Note: According to exploratory test, E.U.T. will have maximum output power in those data rate, so those data rate were used for all test.			

4.0 EUT Modification

No modification by Shenzhen TCT Testing Technology Co., Ltd.

5.0 Measurement Uncertainty（95% confidence levels, k=2)

No.	Item	MU
1.	Radio Frequency	$\pm 1\times 10^{-9}$
2.	Temperature	±0.1℃
3.	Humidity	±1.0%
4.	RF power, conducted	±0.34dB
5.	RF power density, conducted	±1.45dB
6.	Spurious emissions, conducted	±3.70dB
7.	All emissions, radiated	±4.50dB

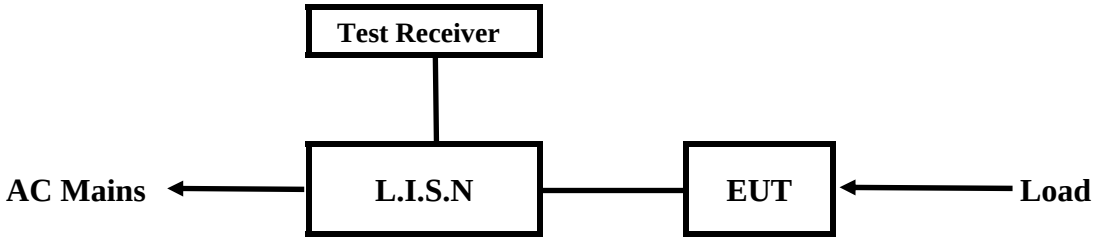
Note: 1) For IEE 802.11b/g/n (HT 20)Low channel: 2412MHz, Middle channel: 2437MHz, High channel: 2462MHz
For IEE 802.11n (HT 40) Low channel: 2422MHz, Middle channel: 2437MHz, High channel: 2452MHz

2) The device has an adapter for charging to the Built-In battery, and The E.U.T. can operate in charging mode.

3) The EUT is a portable device, and measurements were conducted in all three axis (X, Y, Z), and the worst case (Y axis) was submitted only.

6.0 Power Line Conducted Emission Test

6.1 Schematics of the test



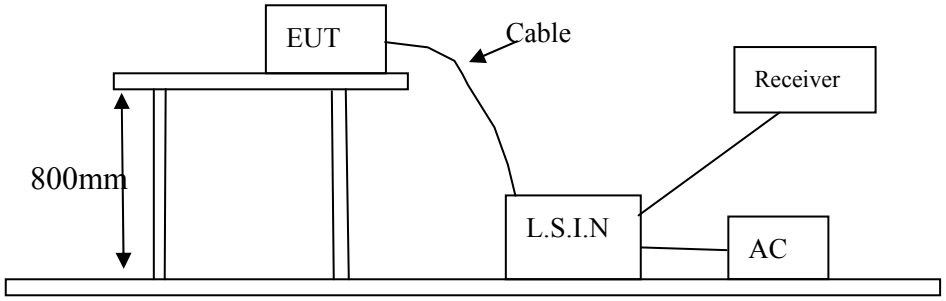
EUT: Equipment Under Test

6.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2009.The Frequency spectrum From 0.15MHz to 30MHz was investigated.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



6.3 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2009

A Setup the EUT and simulators as shown on the following

B Enable AF signal and confirm EUT active to normal condition

6.4 Test Equipment

Please refer to the Section 2

6.5 Conducted Emission Limit

Frequency(MHz)	Class A Limits (dBμV)		Class B Limits (dBμV)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The tighter limit shall apply at the transition frequencies

6.6 Photo documentation of the test set-up

Please refer to the Section 17

6.7 Test specification:

Environmental conditions: Temperature: 24° C Humidity: 50% Atmospheric pressure: 103kPa

Frequency range: 0.15 MHz – 30 MHz

The test was carried out in the following operation mode(s):

- Full load and Run EMC Test Software

6.8 Test result

Min. limit margin >10dB From 0.15MHz to 30MHz

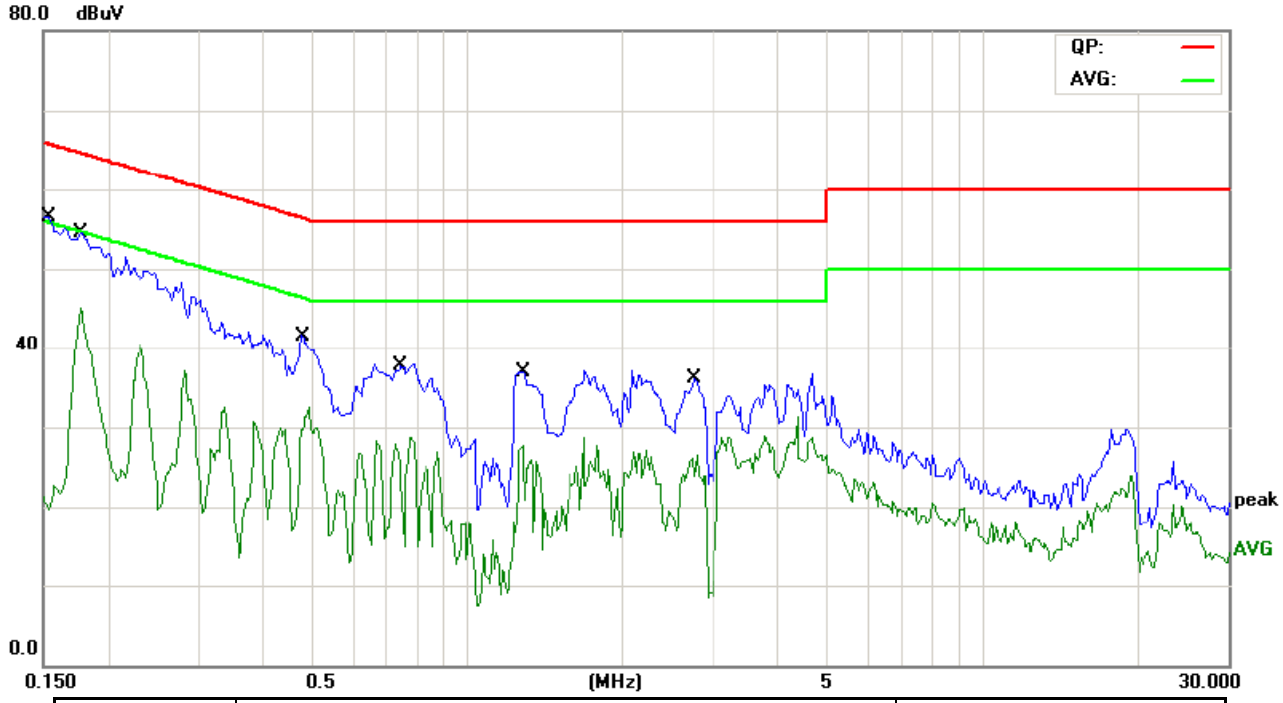
The requirements are FULFILLED

Remarks: 1) According to FCC part 15.207.

A Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)

EUT Description: Mobile Phone
Operation Mode: TX Mode
Tested By: Beryl Zhao
Test date: September 06, 2013

Start Frequency	Stop Frequency	Step	IF BW	Detector	Final M-Time
0.15MHz	30MHz	4.5KHz	10KHz	QP+AV	1s

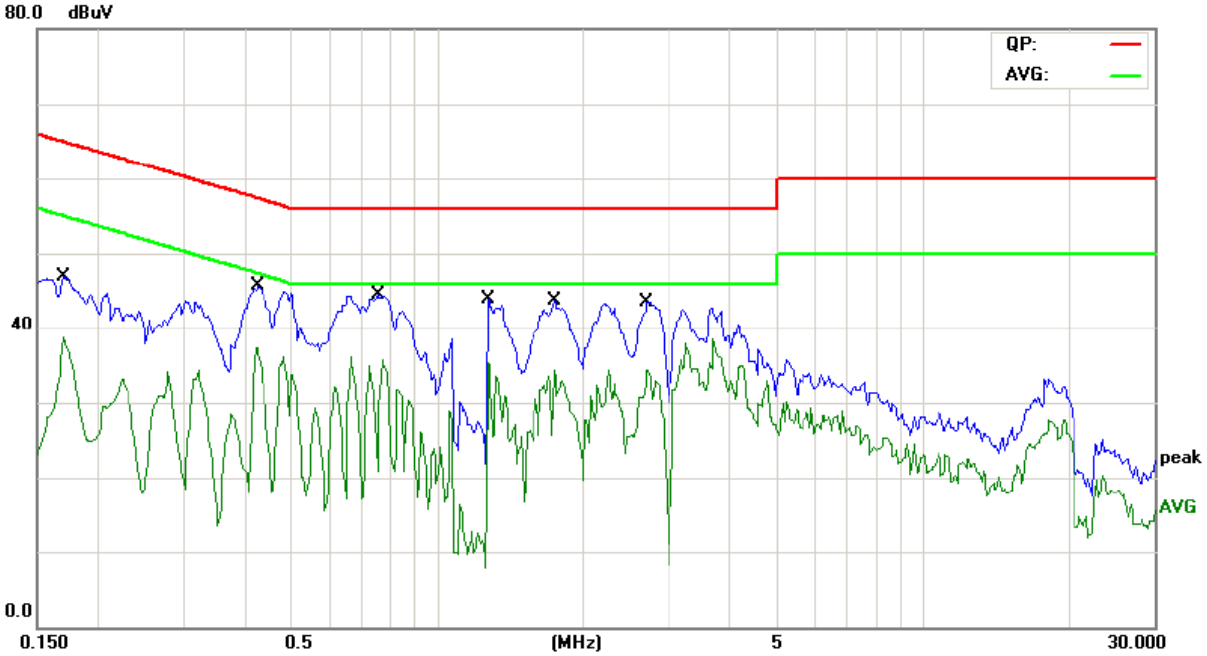


Frequency (MHz)	Reading(dBμV)				Limit (dBμV)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1539	47.72	30.37	--	--	65.78	55.78
0.1773	45.10	30.45	--	--	56.24	46.24
0.4859	35.09	25.66	--	--	56.00	46.00
0.7320	33.14	9.62	--	--	56.00	46.00
1.2789	32.77	16.99	--	--	56.00	46.00
2.7477	30.80	21.69	--	--	59.66	49.66

B Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT Description: Mobile Phone
Operation Mode: TX Mode
Tested By: Beryl Zhao
Test Date: September 06, 2013

Start Frequency	Stop Frequency	Step	IF BW	Detector	Final M-Time
0.15MHz	30MHz	4.5KHz	10KHz	QP+AV	1s



Frequency (MHz)	Reading(dBμV)				Limit (dBμV)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1695	--	--	41.61	30.53	64.98	54.98
0.4273	--	--	41.68	31.80	57.30	47.30
0.7516	--	--	40.74	30.42	56.00	46.00
1.2750	--	--	39.34	10.36	56.00	46.00
1.7477	--	--	39.07	29.41	56.00	46.00
2.7047	--	--	38.39	27.80	56.00	46.00

7.0 Maximum Peak Output Power

7.1 Test Equipment

Please refer to the Section 2

7.2 Test Specification:

Environmental conditions: Temperature: 23° C Humidity: 51% Atmospheric pressure: 103kPa

7.3 Limit

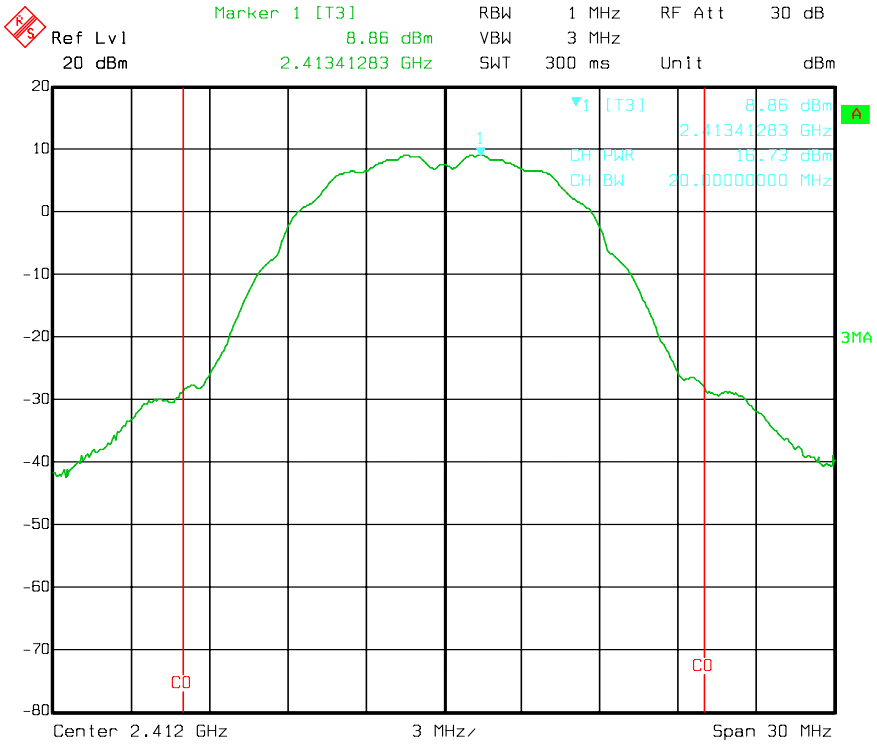
According to the 15.247(b)(3), For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.(30dBm)

7.4 Test Result

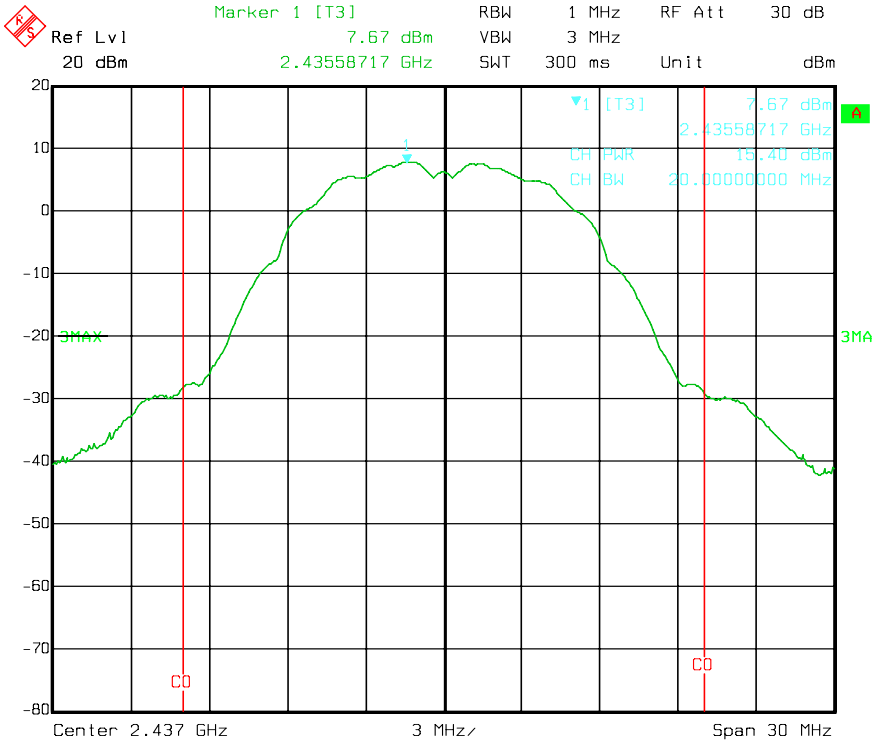
IEEE 802.11b mode			
Test channel	Channel output power (dBm)	Limit (dBm)	Result
Lowest	16.73	30	Pass
Middle	15.40	30	Pass
Highest	13.73	30	Pass
IEEE 802.11g mode			
Test channel	Channel output power (dBm)	Limit (dBm)	Result
Lowest	18.31	30	Pass
Middle	15.40	30	Pass
Highest	15.43	30	Pass
IEEE 802.11n (HT 20) mode			
Test channel	Channel output power (dBm)	Limit (dBm)	Result
Lowest	16.94	30	Pass
Middle	15.63	30	Pass
Highest	14.15	30	Pass
IEEE 802.11n(HT 40) mode			
Test channel	Channel output power (dBm)	Limit (dBm)	Result
Lowest	14.84	30	Pass
Middle	13.96	30	Pass
Highest	13.06	30	Pass

Test Mode: IEEE 802.11b mode

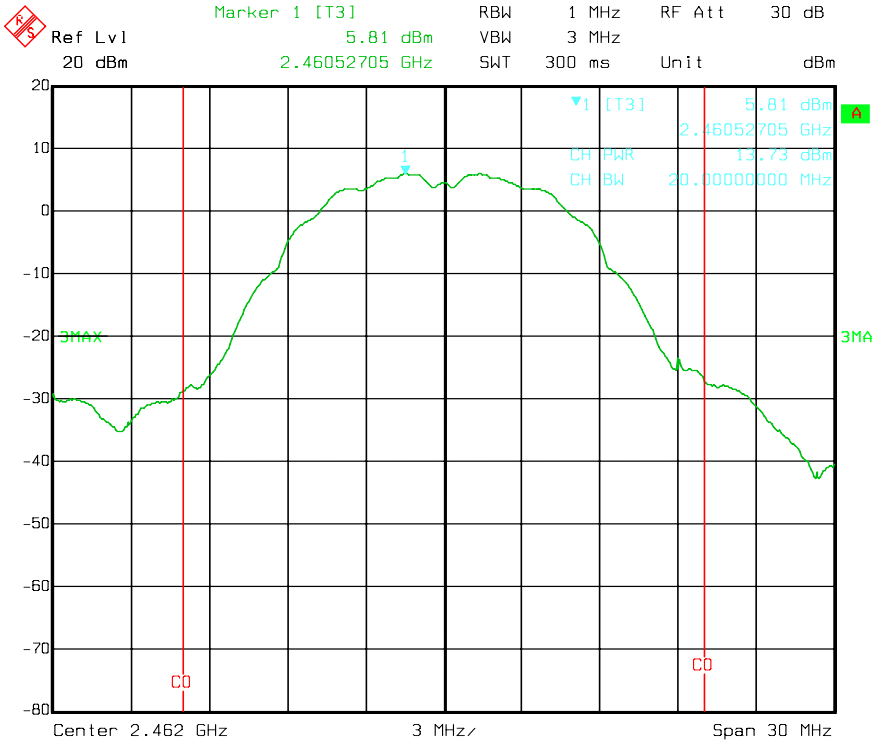
Low Channel



Middle channel

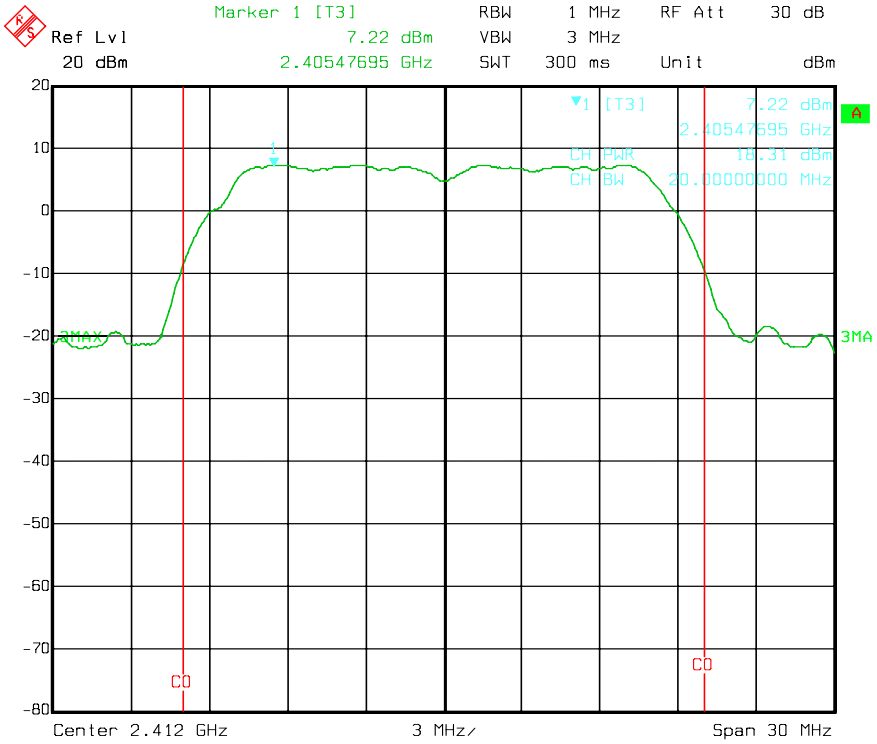


High channel

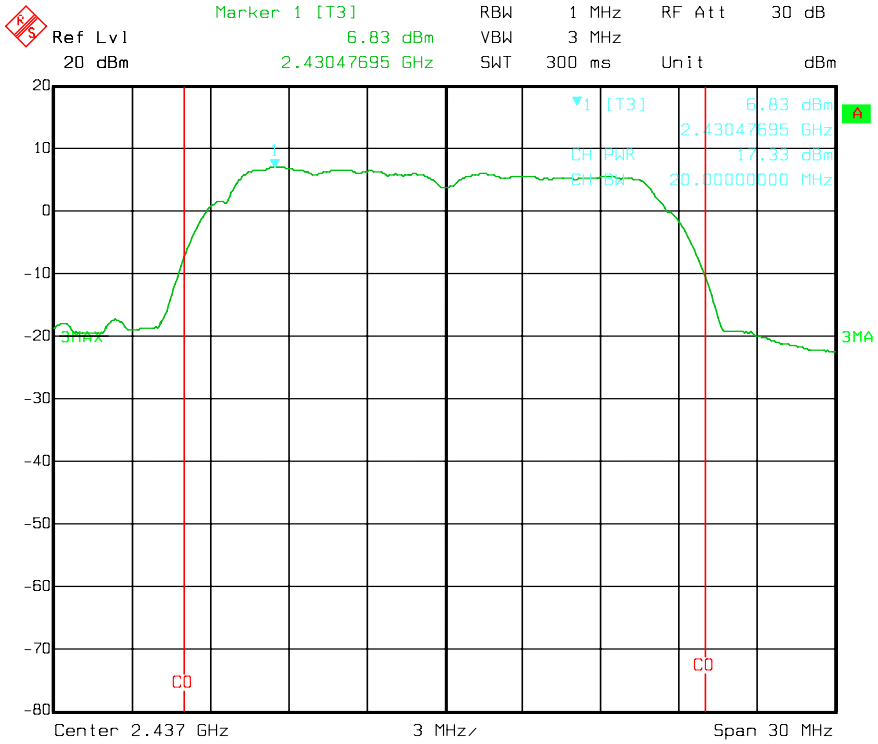


Test Mode: IEEE 802.11g mode

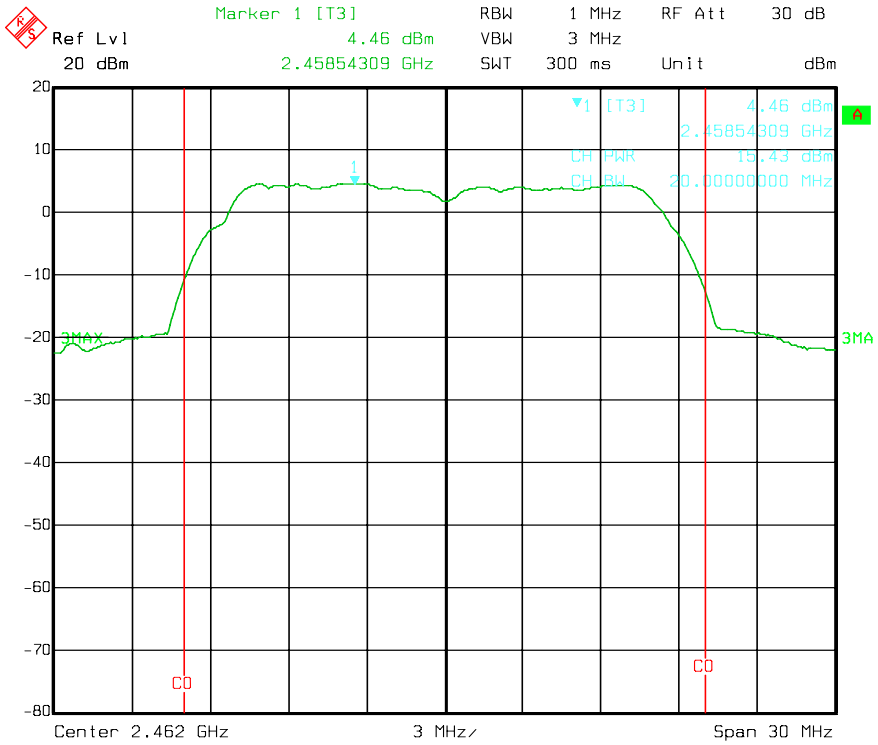
Low channel



Middle channel

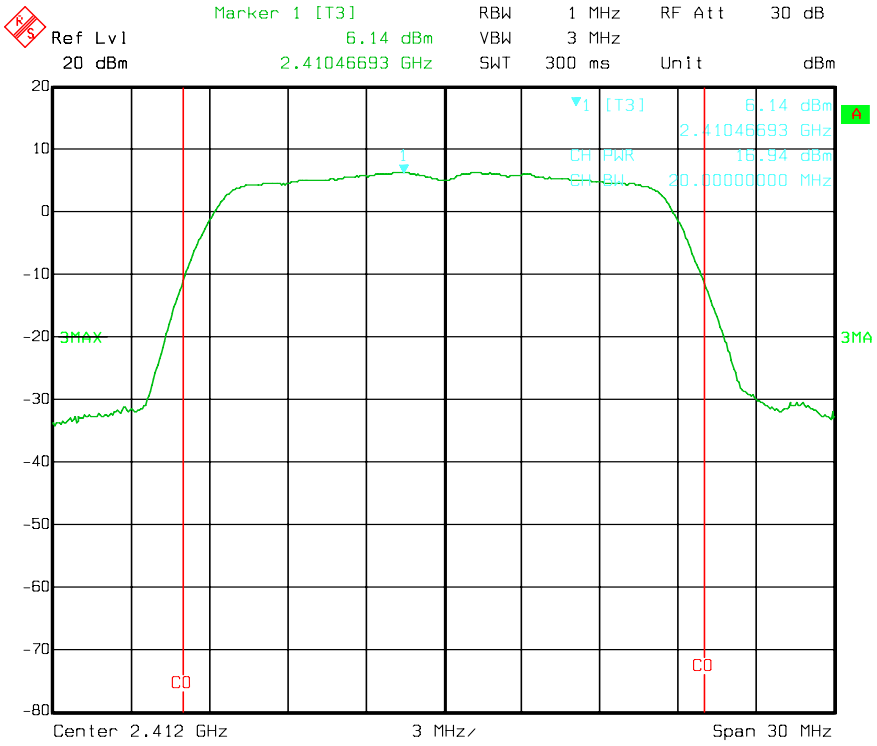


High channel

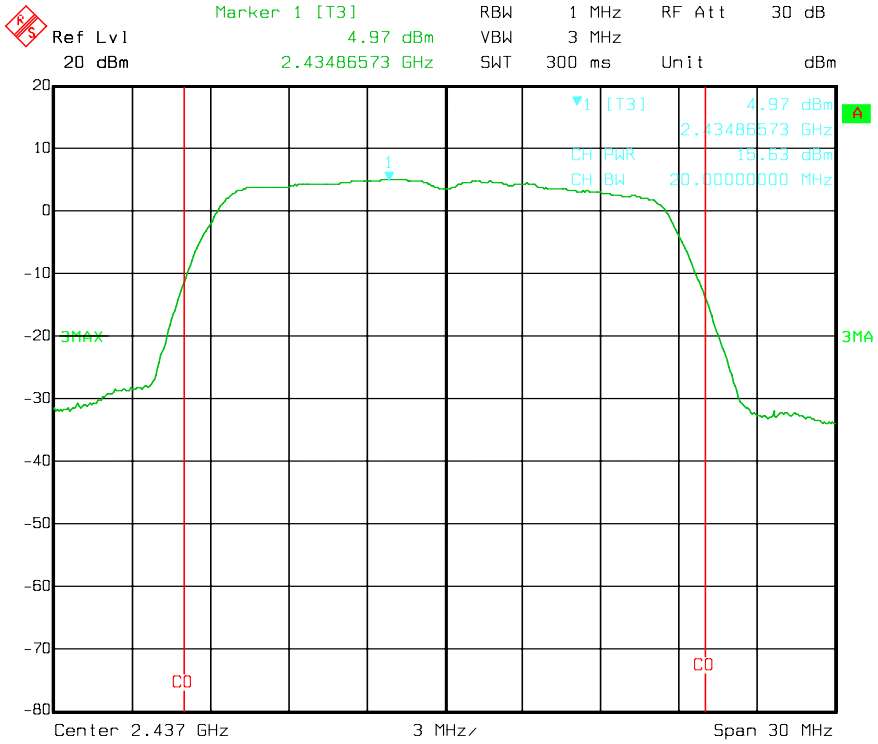


Test Mode: IEEE 802.11n (HT 20) mode

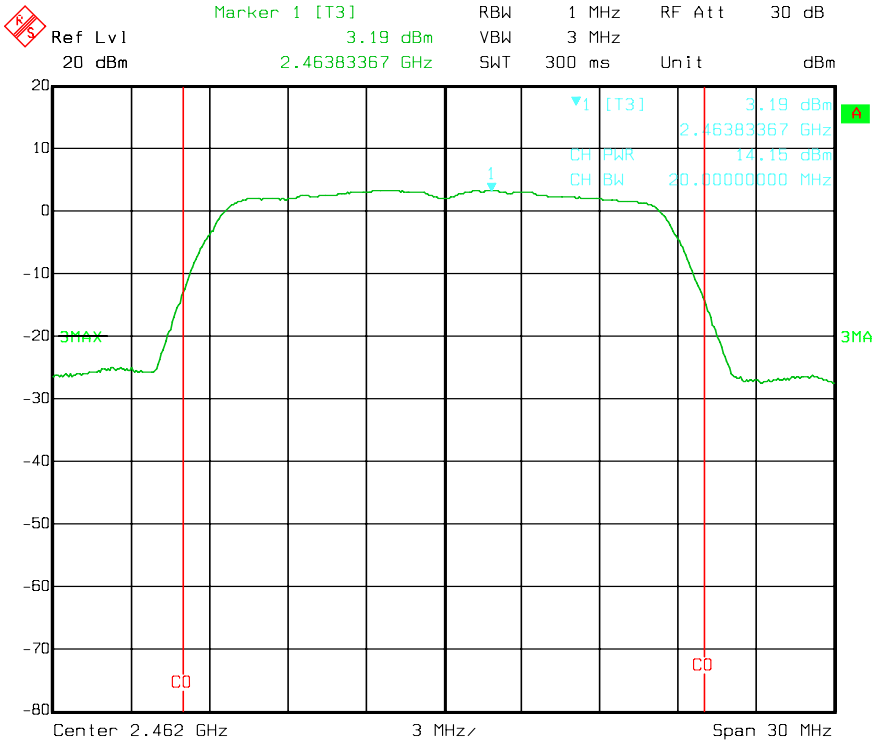
Low Channel



Middle channel

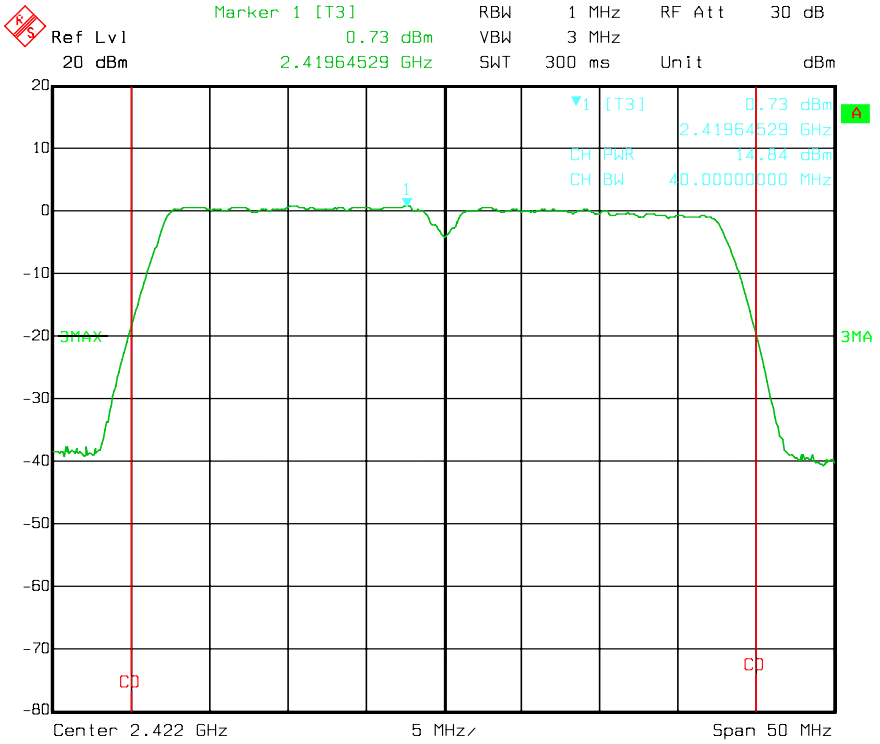


High channel

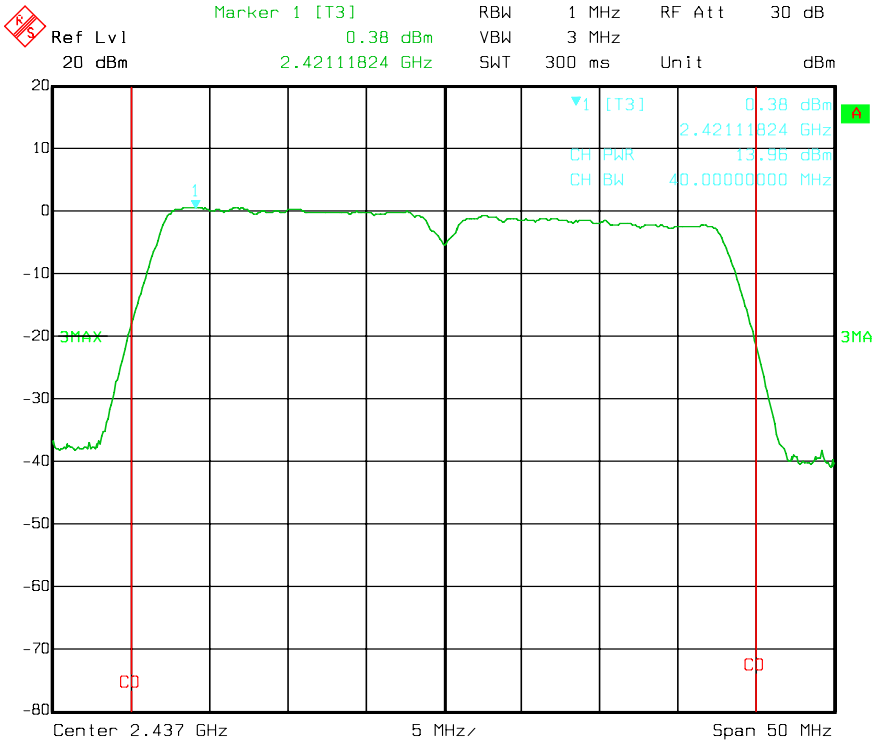


Test Mode: IEEE 802.11n (HT 40) mode

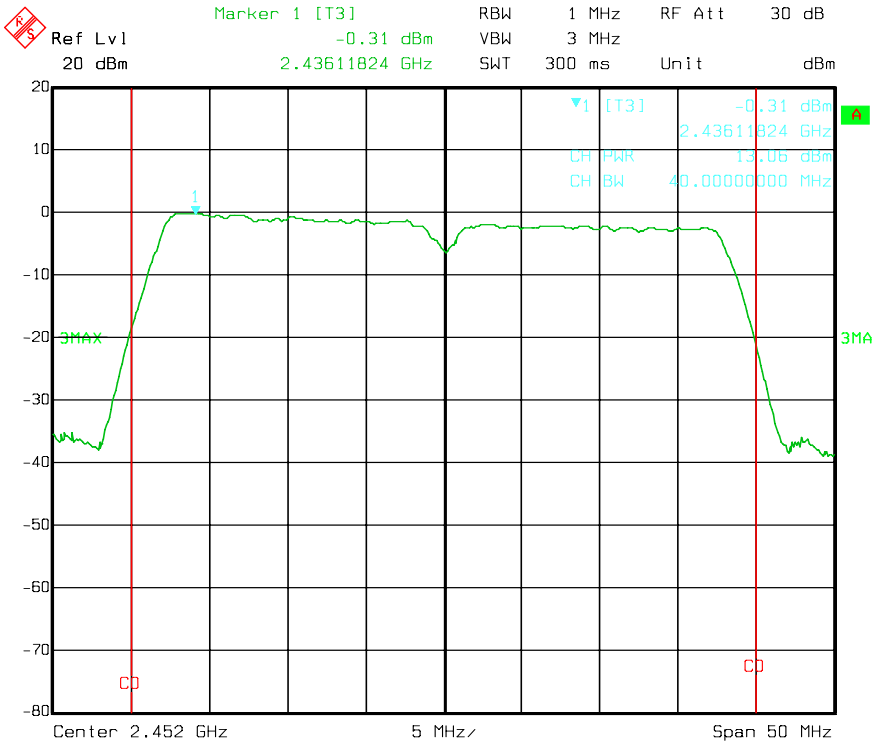
Low channel



Middle channel



High channel



8.0 6dB Bandwidth Measurement

8.1 Test Equipment

Please refer to the Section 2

8.2 Test Specification:

Environmental conditions: Temperature: 23° C Humidity: 51% Atmospheric pressure: 103kPa

8.3 Limit

According to 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.

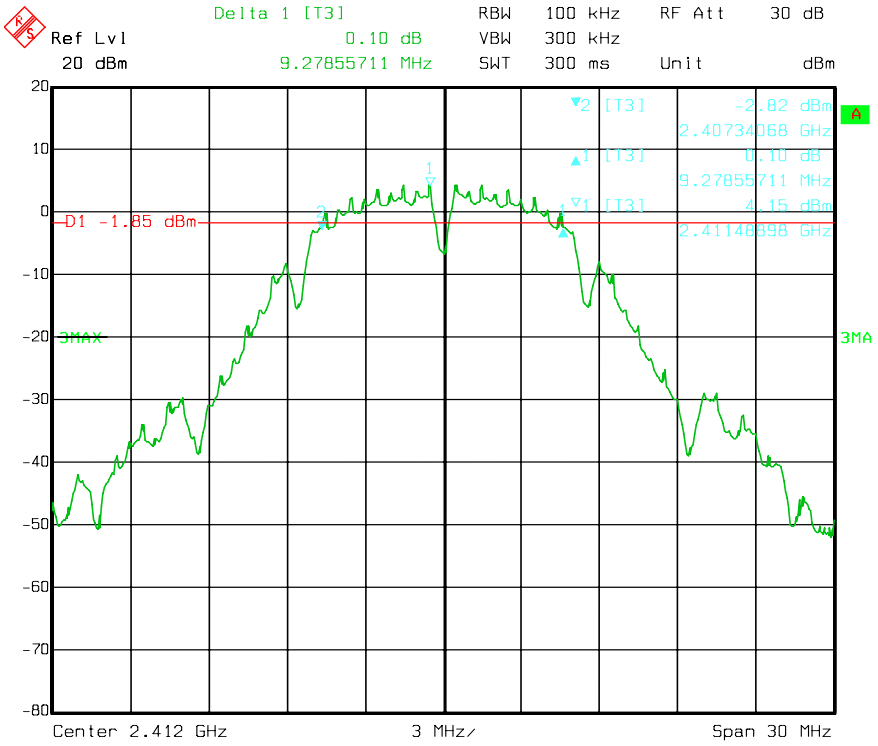
8.4 Test Result

IEEE 802.11b mode			
Test channel	6 dB occupied bandwidth (MHz)	Limit (kHz)	Result
Lowest	9.28	500	Pass
Middle	9.36	500	Pass
Highest	9.24	500	Pass
IEEE 802.11g mode			
Test channel	6 dB occupied bandwidth (MHz)	Limit (kHz)	Result
Lowest	16.66	500	Pass
Middle	16.66	500	Pass
Highest	16.64	500	Pass
IEEE 802.11n(HT 20) mode			
Test channel	6 dB occupied bandwidth (MHz)	Limit (kHz)	Result
Lowest	17.72	500	Pass
Middle	17.66	500	Pass
Highest	17.72	500	Pass
IEEE 802.11n(HT 40) mode			
Test channel	6 dB occupied bandwidth (MHz)	Limit (kHz)	Result
Lowest	36.57	500	Pass
Middle	36.59	500	Pass
Highest	36.70	500	Pass

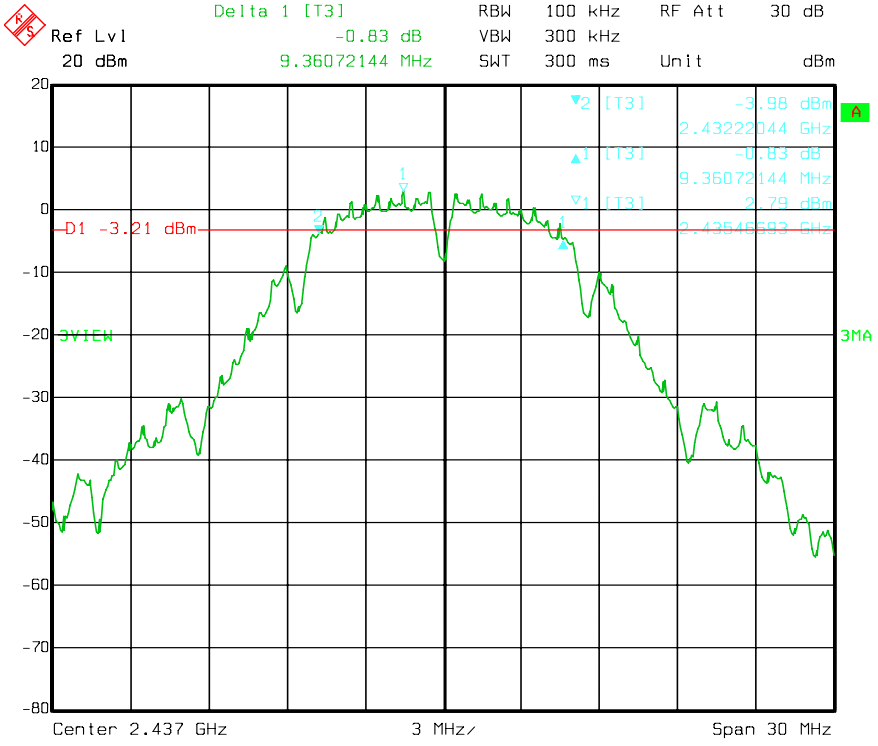
Test plots:

Test Mode: IEEE 802.11b mode

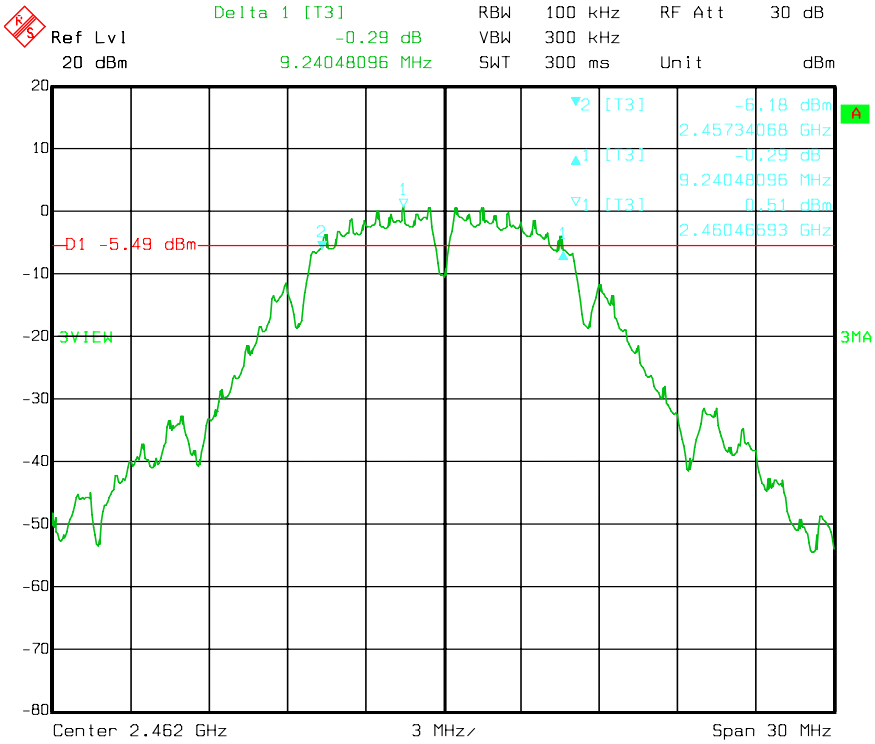
Low channel



Middle channel

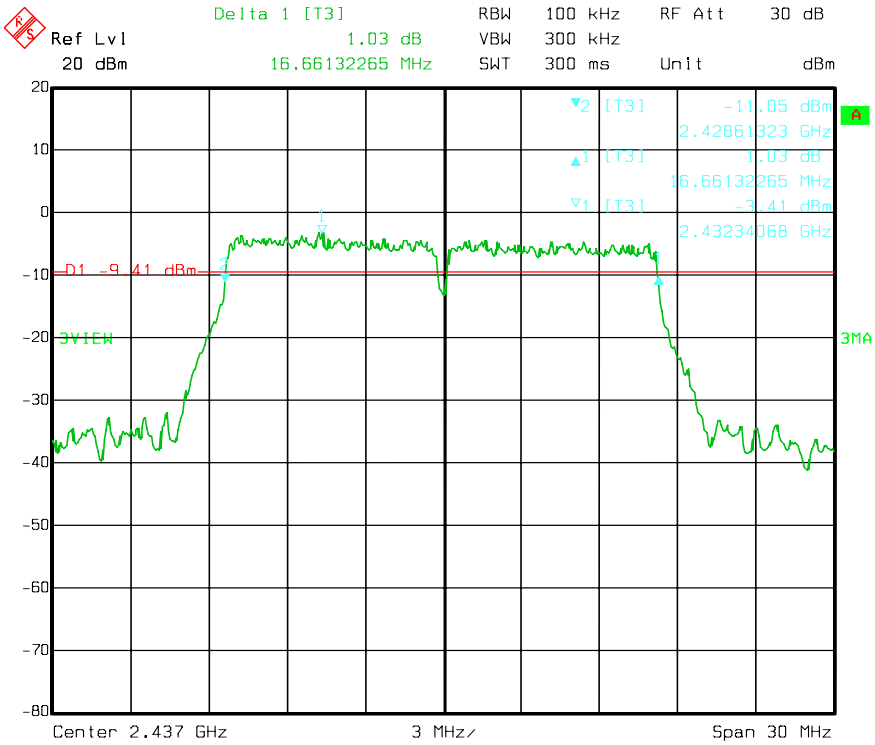


High channel

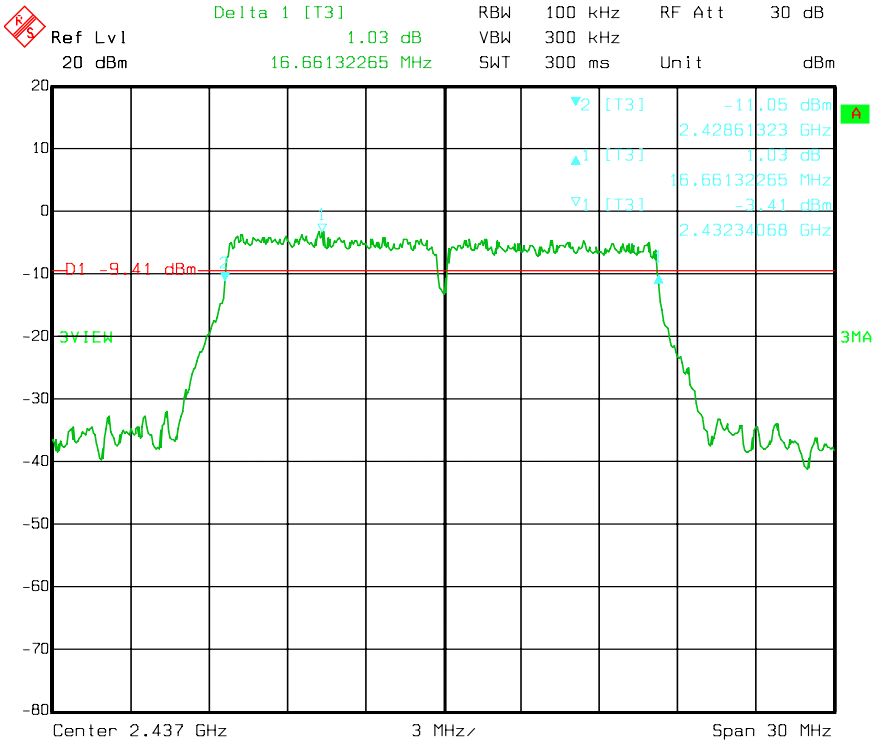


Test Mode: IEEE 802.11g mode

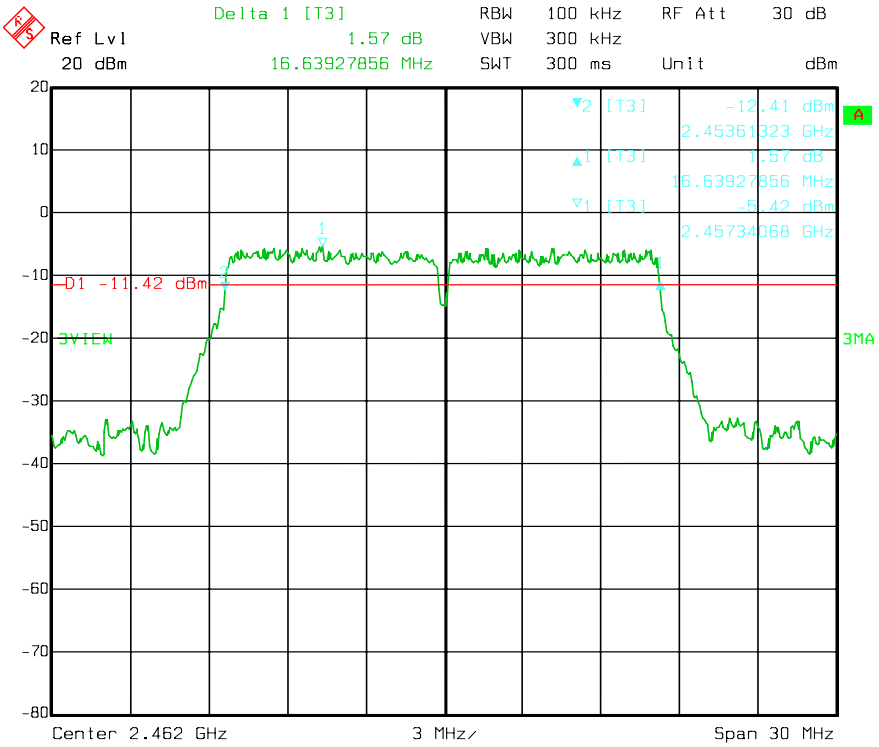
Low channel



Middle channel

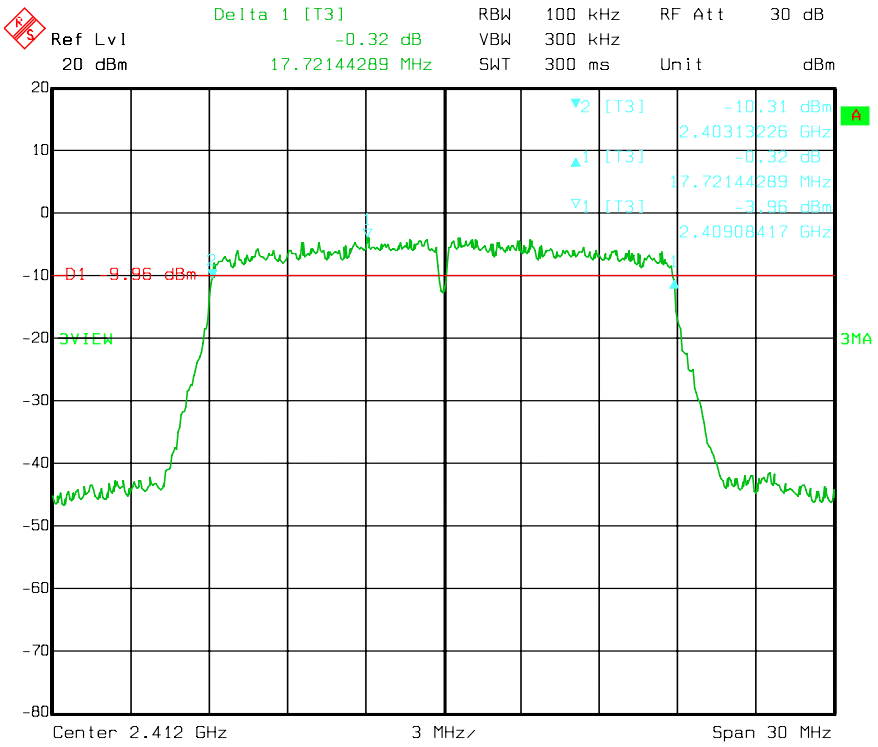


High channel

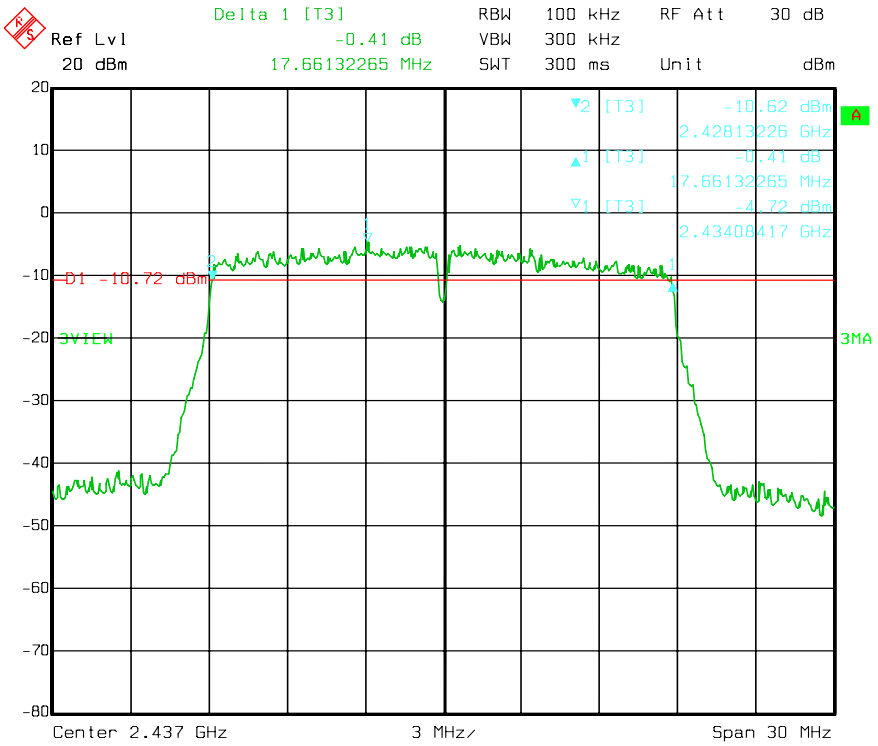


Test Mode: IEEE 802.11n (HT 20) mode

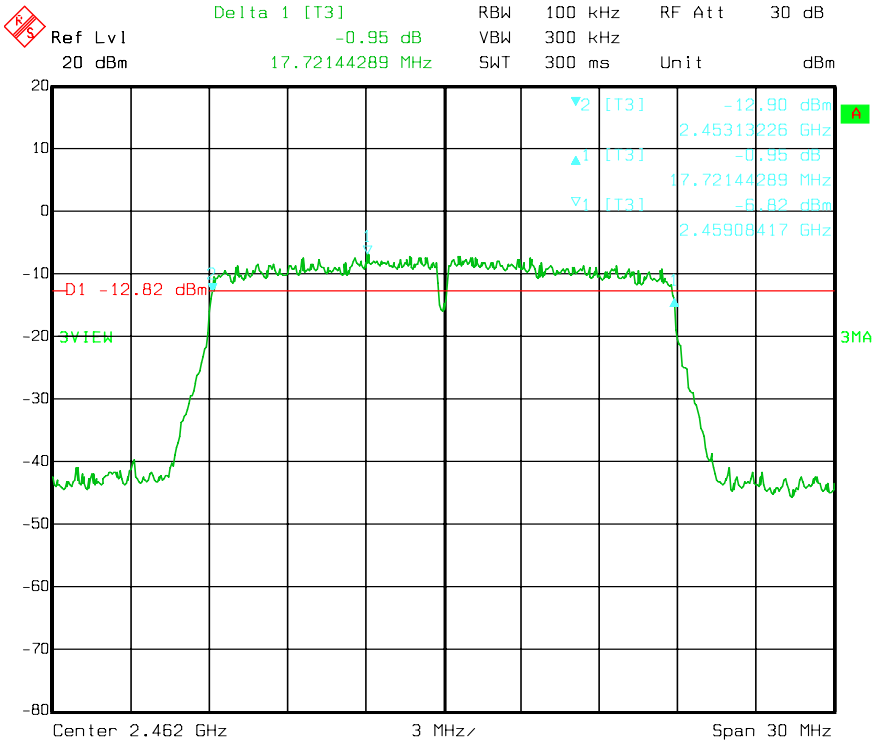
Low channel



Middle channel

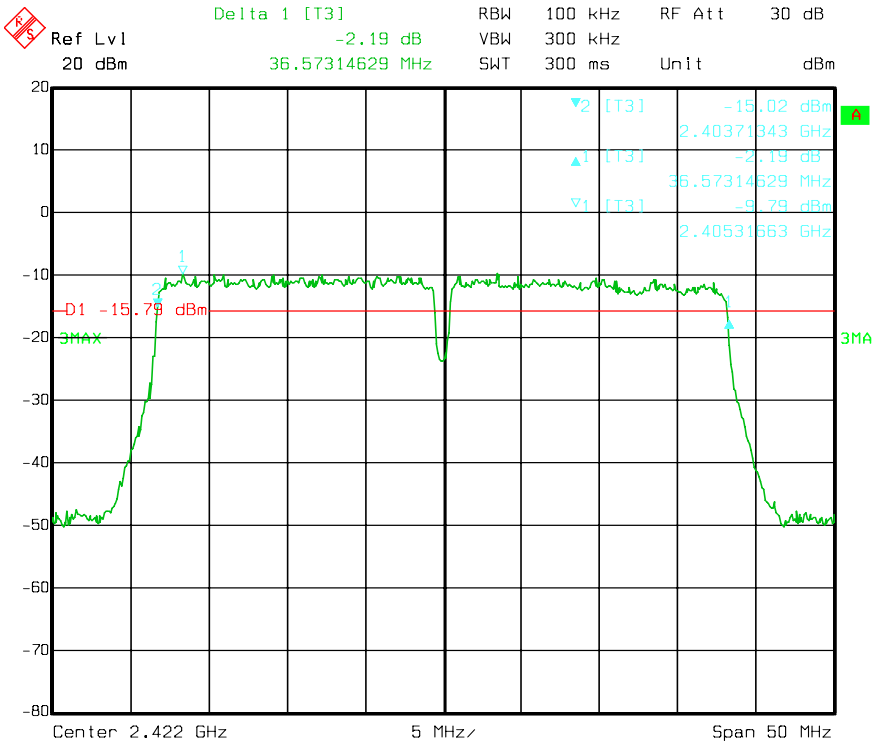


High channel

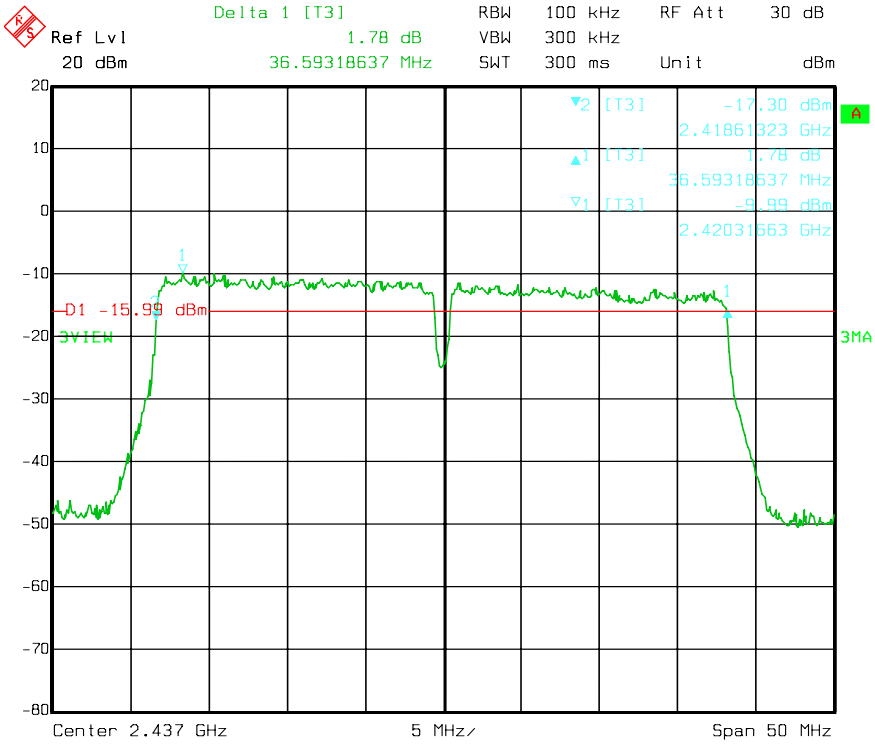


Test Mode: IEEE 802.11n(HT 40) mode

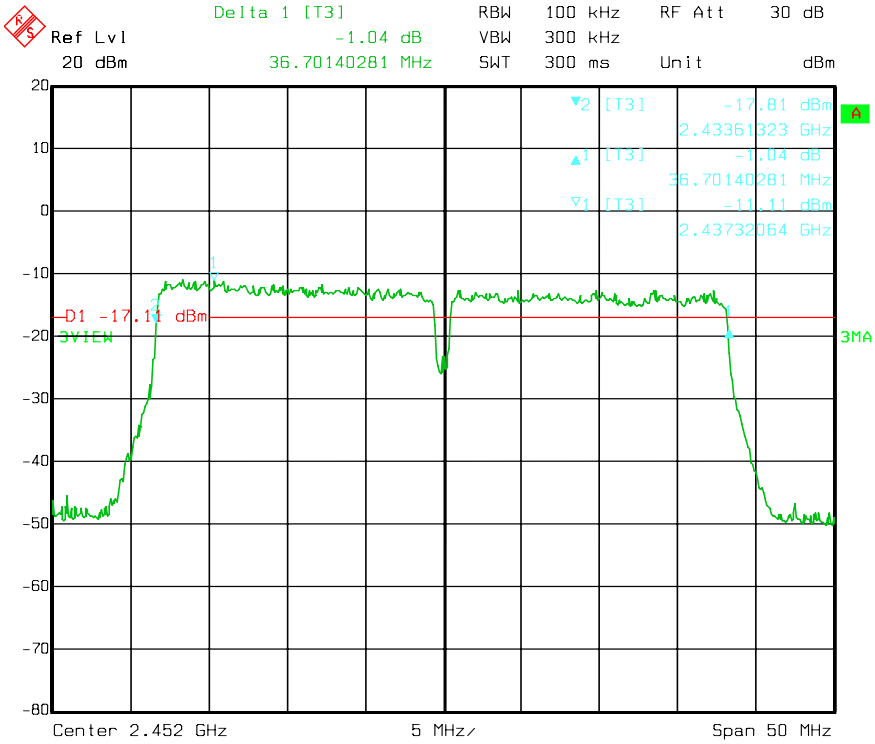
Low channel



Middle channel



High channel



9.0 Power Spectral Density Measurement

9.1 Test Equipment

Please refer to the Section 2

9.2 Test Specification:

Environmental conditions: Temperature: 23° C Humidity: 51% Atmospheric pressure: 103kPa

9.3 Limit

According to 15.247(e) 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.

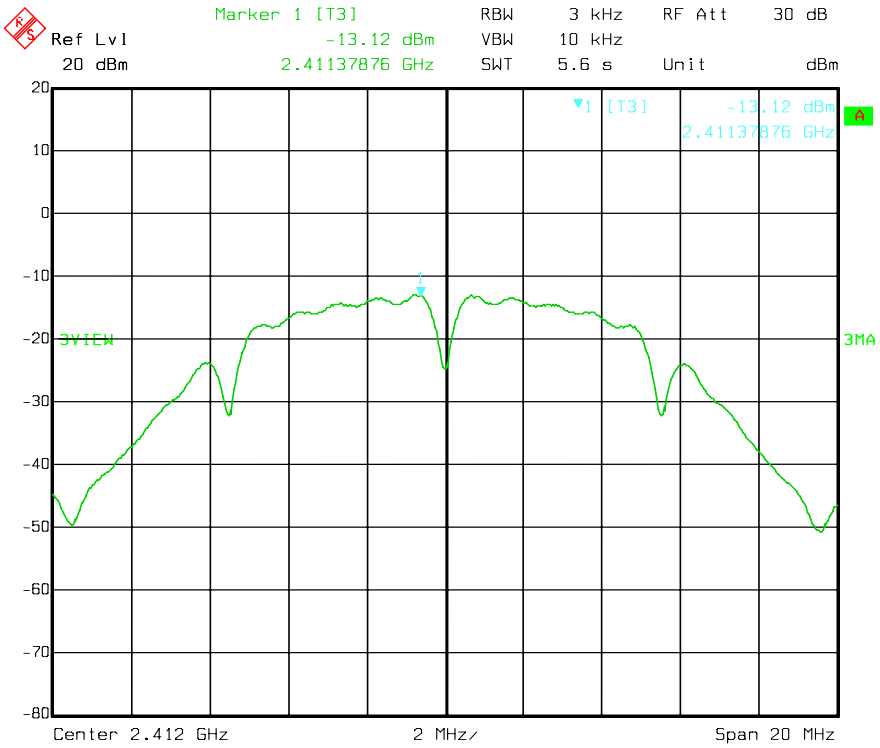
9.4 Test Result

IEEE 802.11b mode			
Test channel	Peak Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-13.12	8	Pass
Middle	-17.69	8	Pass
Highest	-17.80	8	Pass
IEEE 802.11g mode			
Test channel	Peak Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-19.75	8	Pass
Middle	-16.83	8	Pass
Highest	-18.19	8	Pass
IEEE 802.11n(HT 20) mode			
Test channel	Peak Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-18.39	8	Pass
Middle	-16.83	8	Pass
Highest	-19.79	8	Pass
IEEE 802.11 n(HT 40) mode			
Test channel	Peak Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-23.29	8	Pass
Middle	-23.82	8	Pass
Highest	-24.89	8	Pass

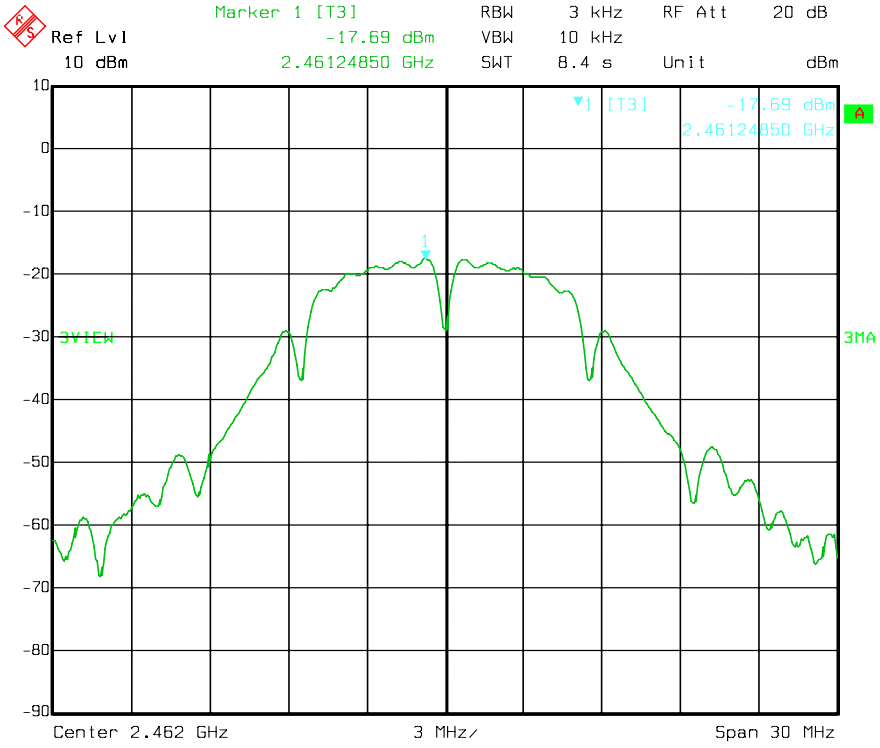
Test plots:

Test Mode: IEEE 802.11b mode

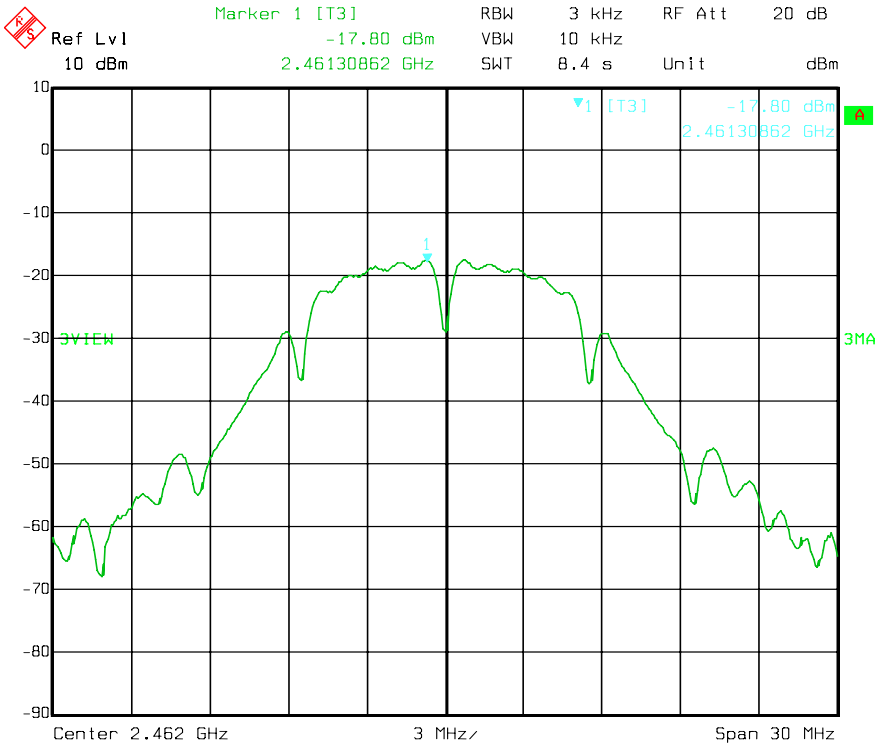
Low channel



Middle channel

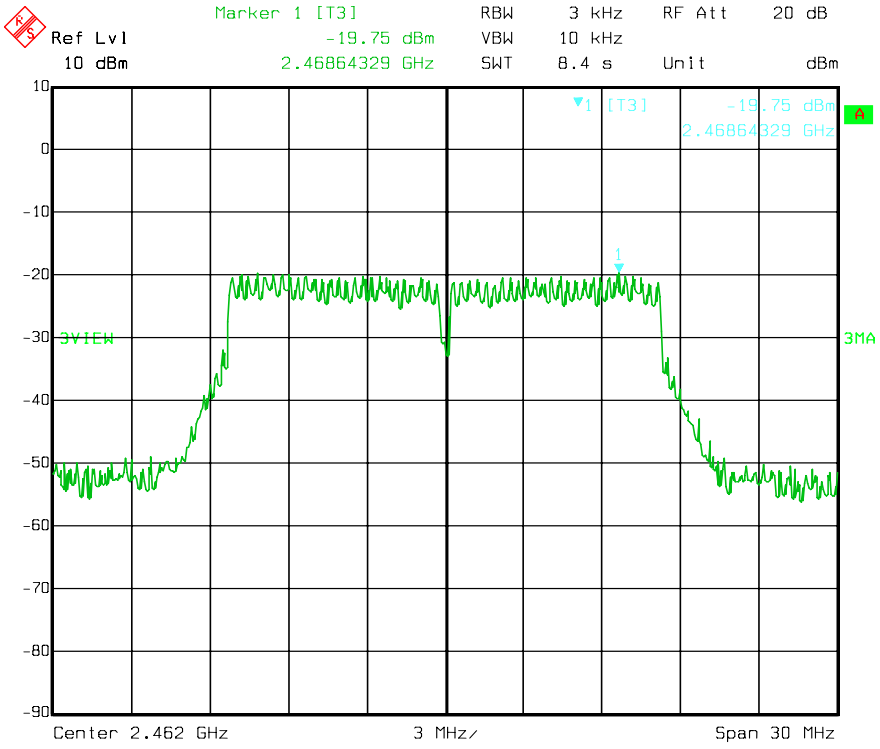


High channel

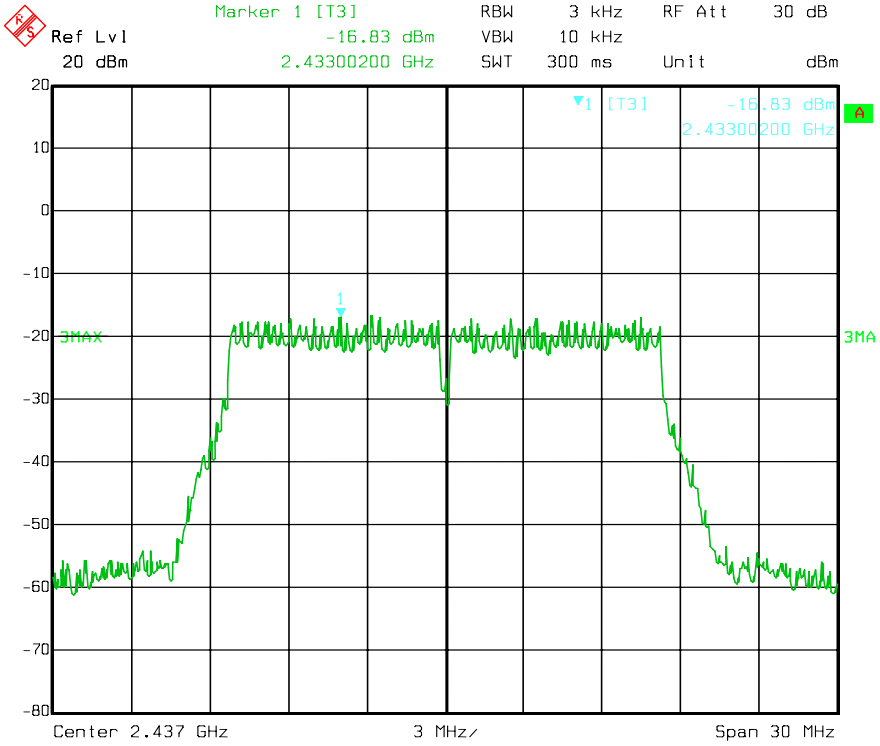


Test Mode: IEEE 802.11g mode

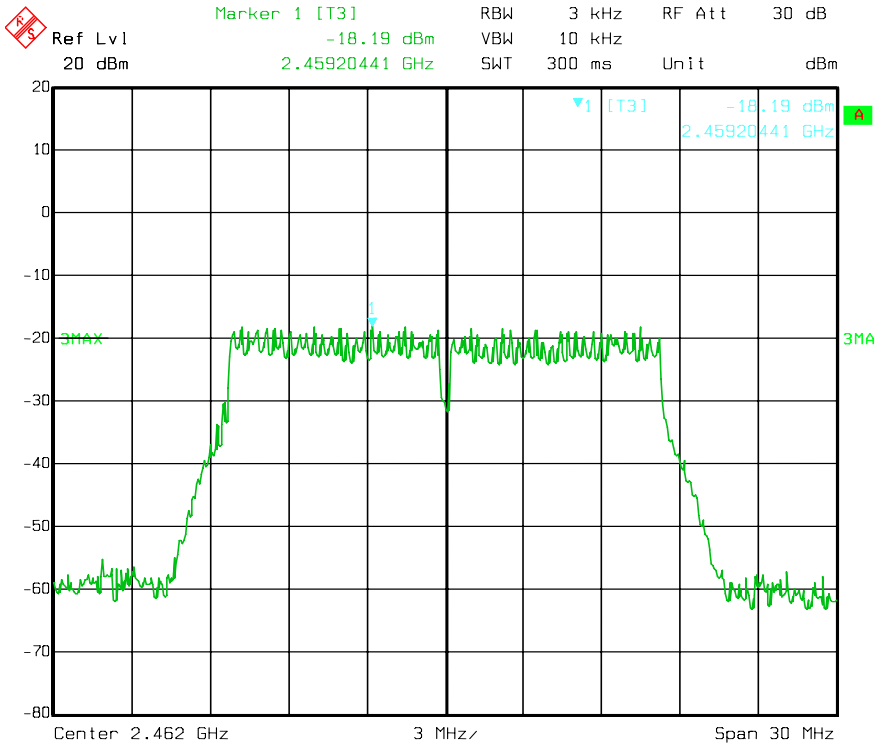
Low channel



Middle channel

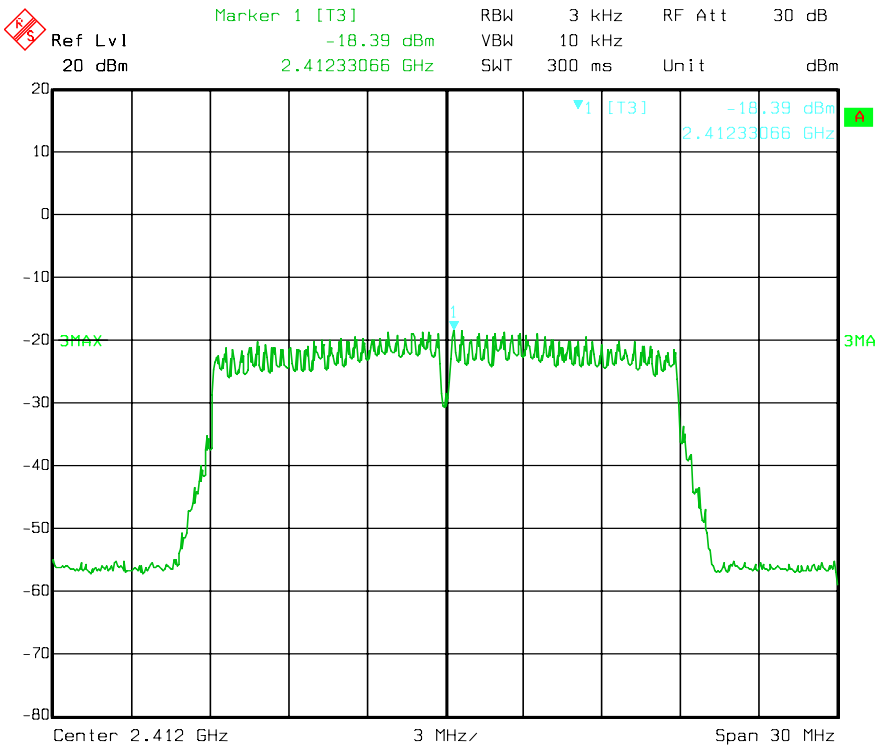


High channel

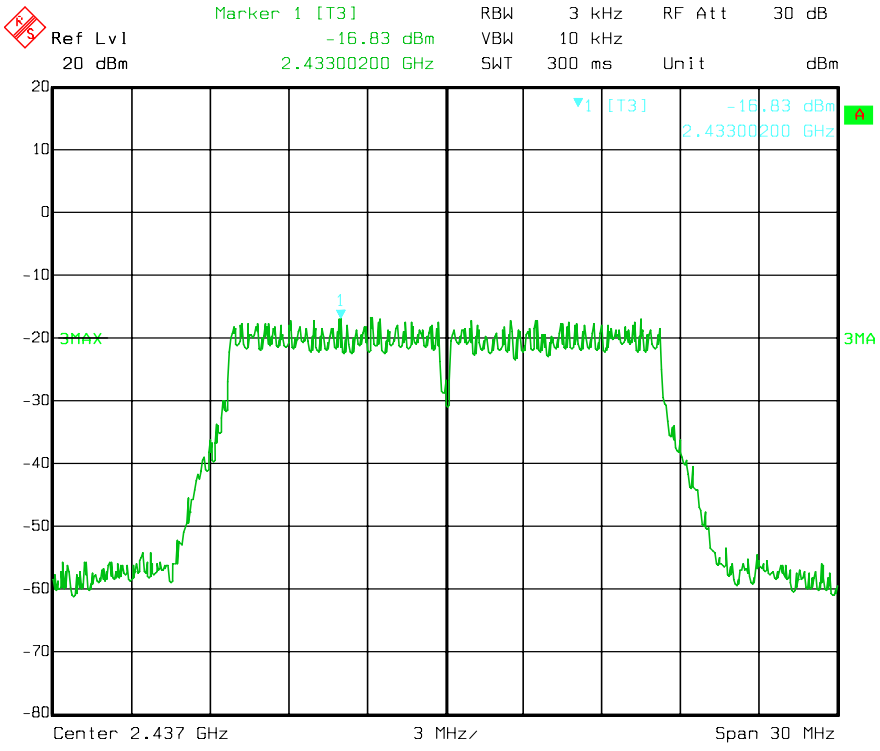


Test Mode: IEEE 802.11n (HT 20) mode

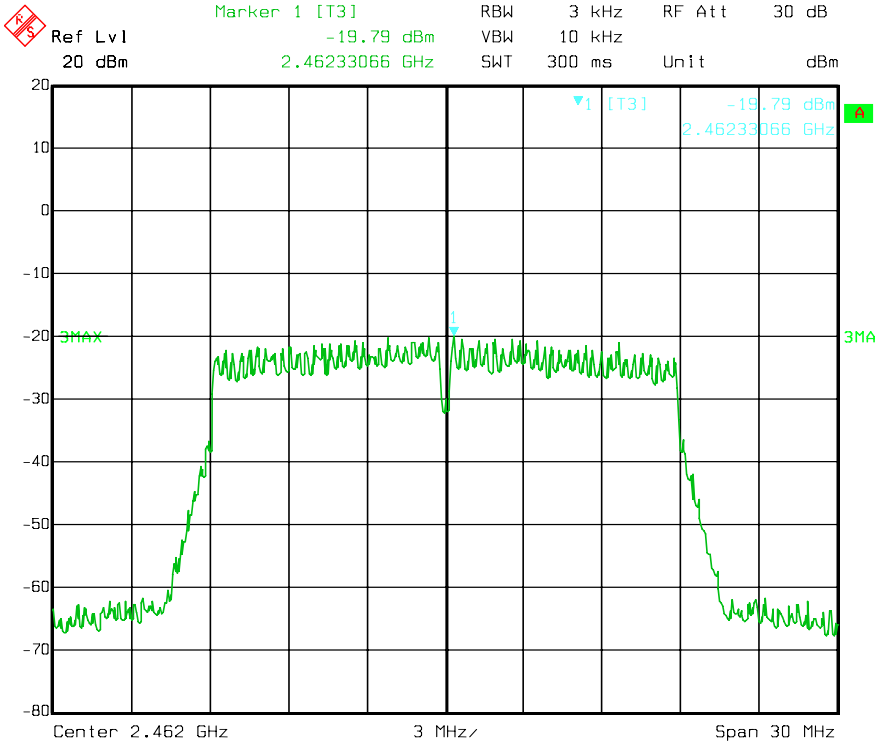
Low channel



Middle channel

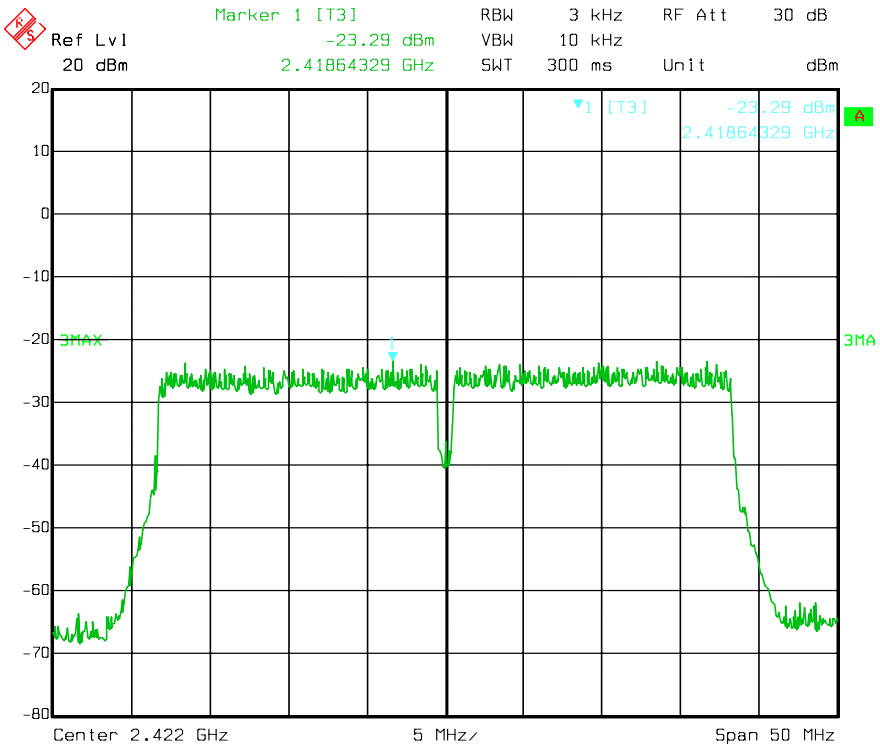


High channel

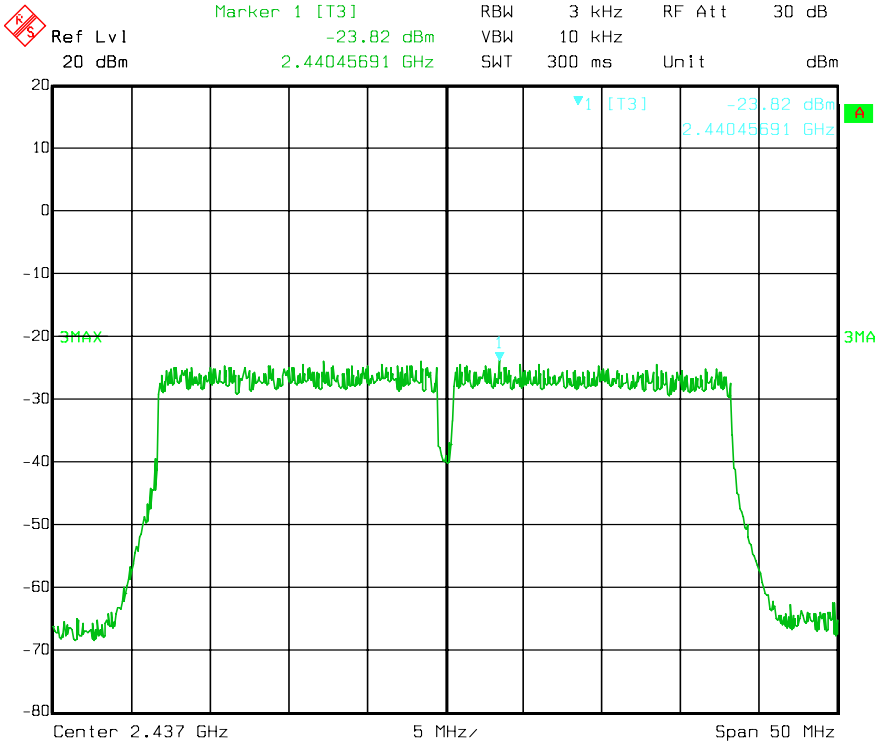


Test Mode: IEEE 802.11n(HT 40) mode

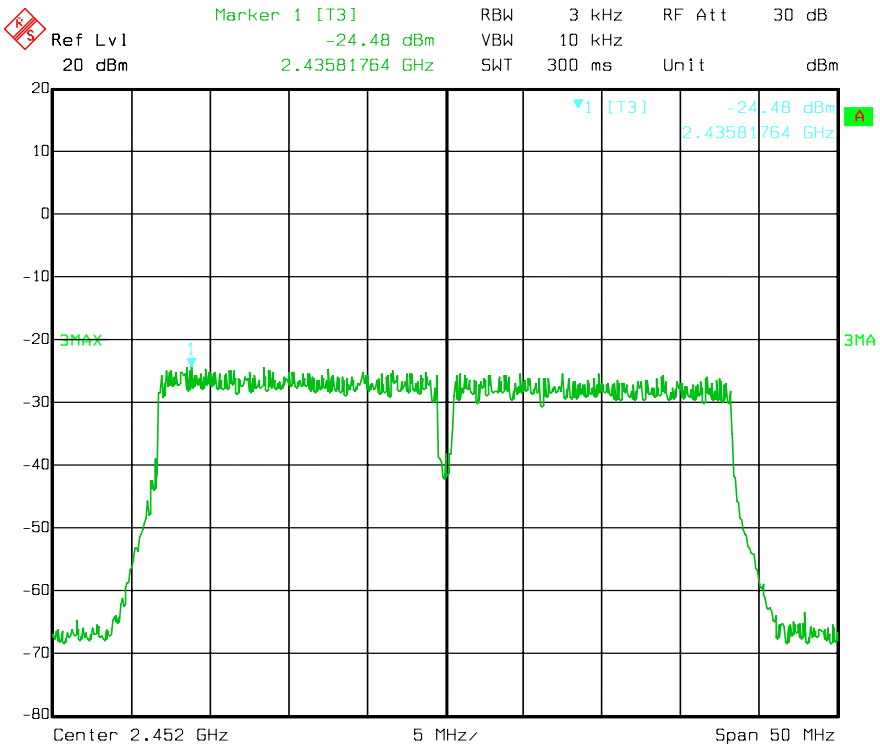
Low channel



Middle channel



High channel



10.0 Band age Measurement

10.1 Test Equipment

Please refer to the Section 2

10.2 Test Specification:

Environmental conditions: Temperature: 23° C Humidity: 51% Atmospheric pressure: 103kPa

10.3 Limit

According to 15.247(d), 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 15.209(a)

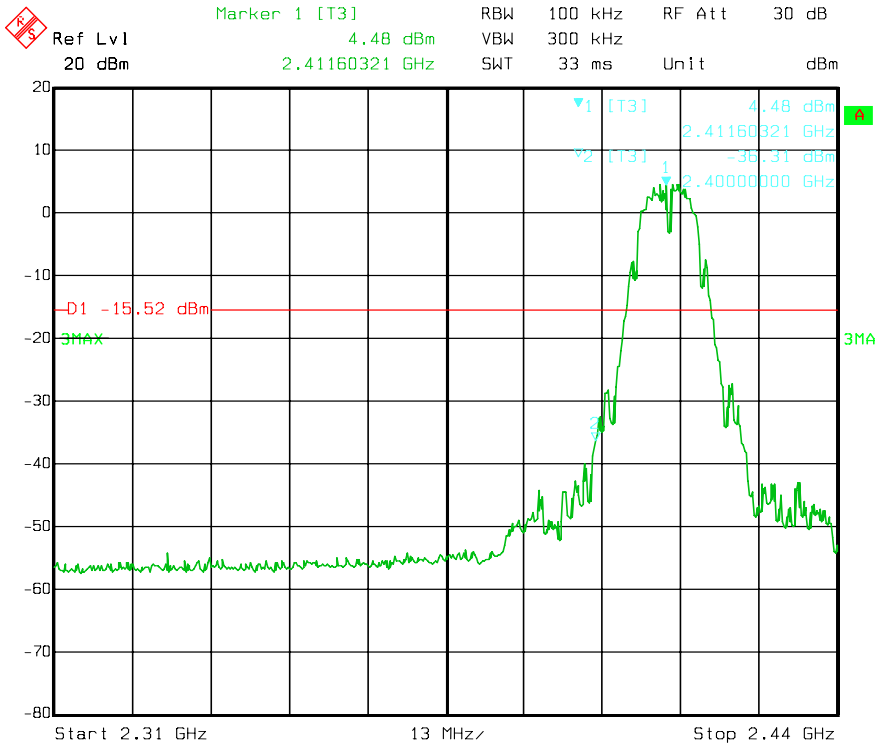
10.5 Test Result:

Pass

Test plots:

Test Mode: IEEE 802.11b mode

Low channel

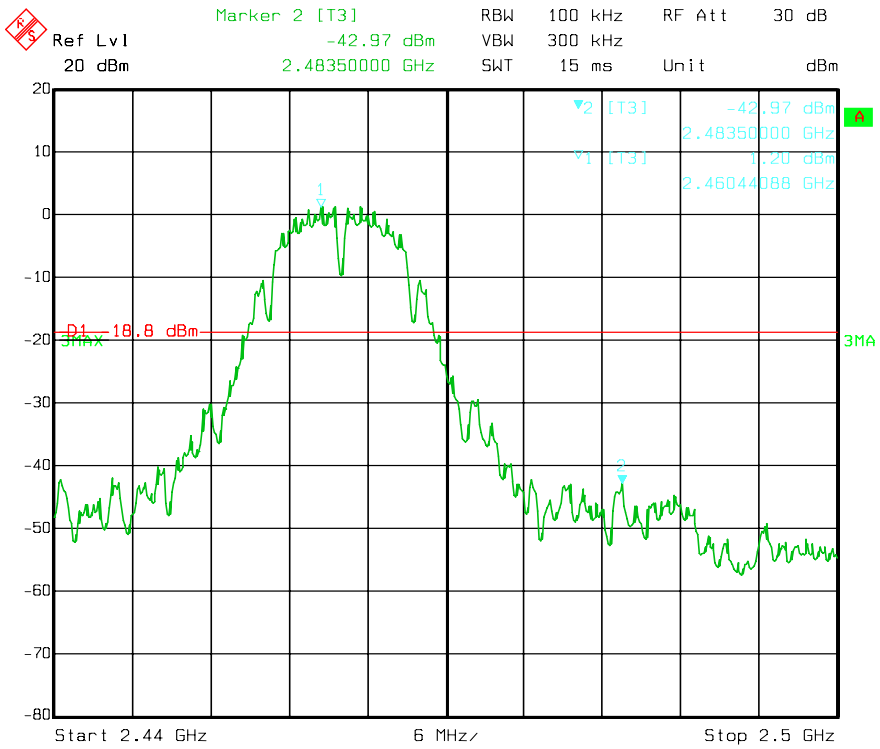


Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

2) The maximum emission was 48.35dBuv at 2375.3 MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

High channel



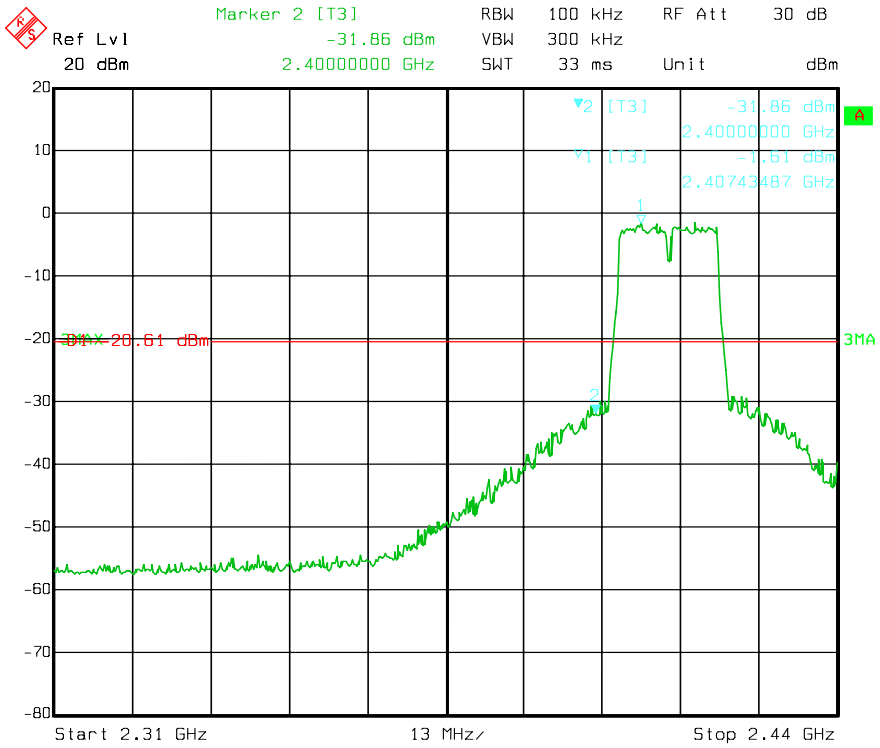
Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

2) The maximum emission was 49.33dBuv at 2489.66MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

Test Mode: IEEE 802.11g mode

Low channel

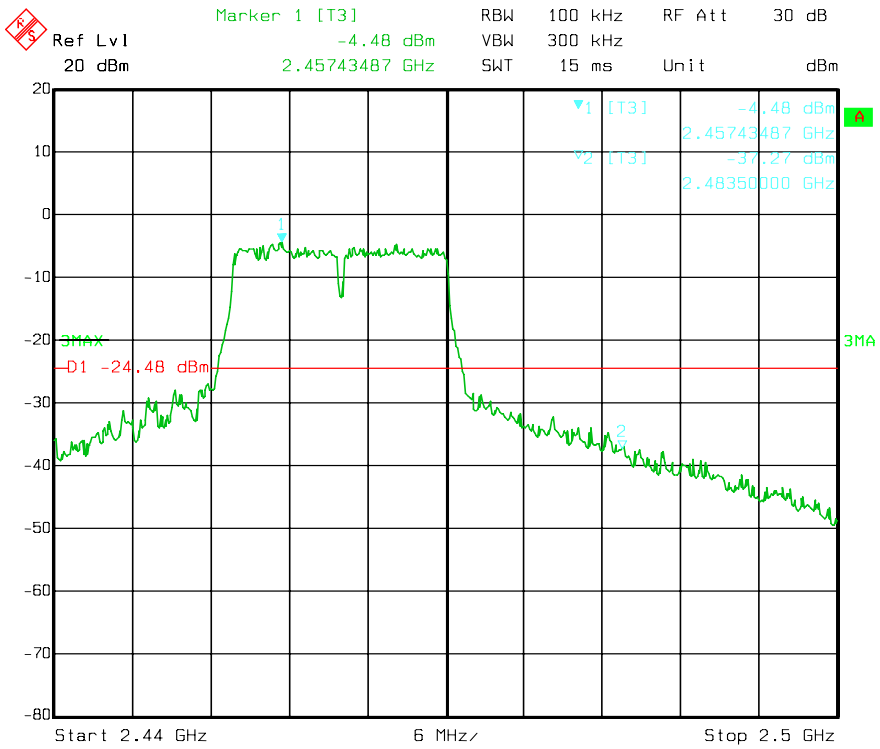


Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

2) The maximum emission was 48.01dBuv at 2364.7 MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

High channel



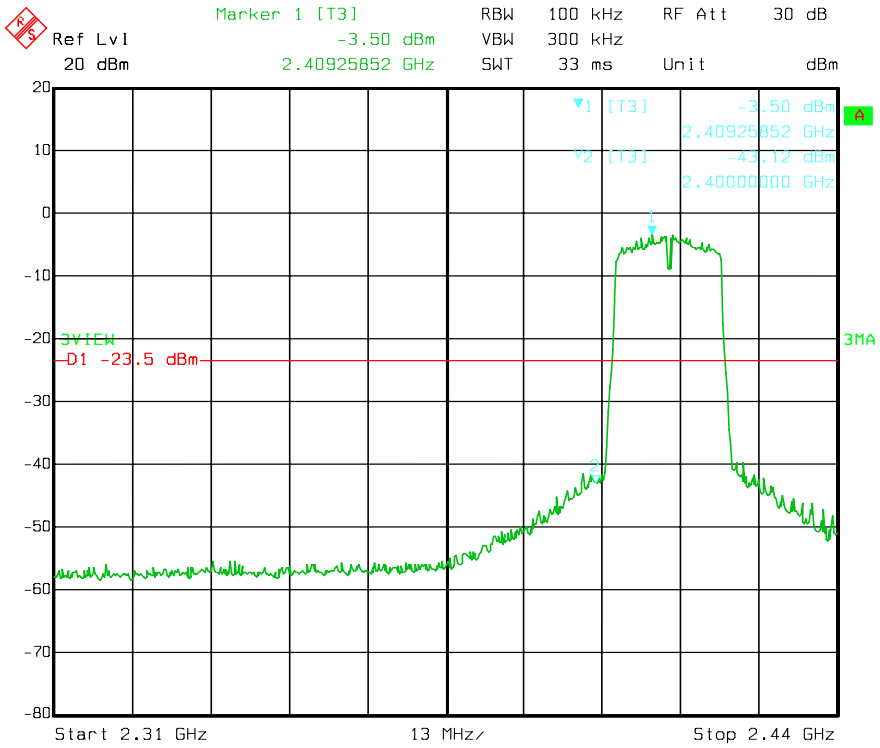
Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

2) The maximum emission was 51.42dBuv at 2486.3 MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

Test Mode: IEEE 802.11n (HT 20) mode

Low channel

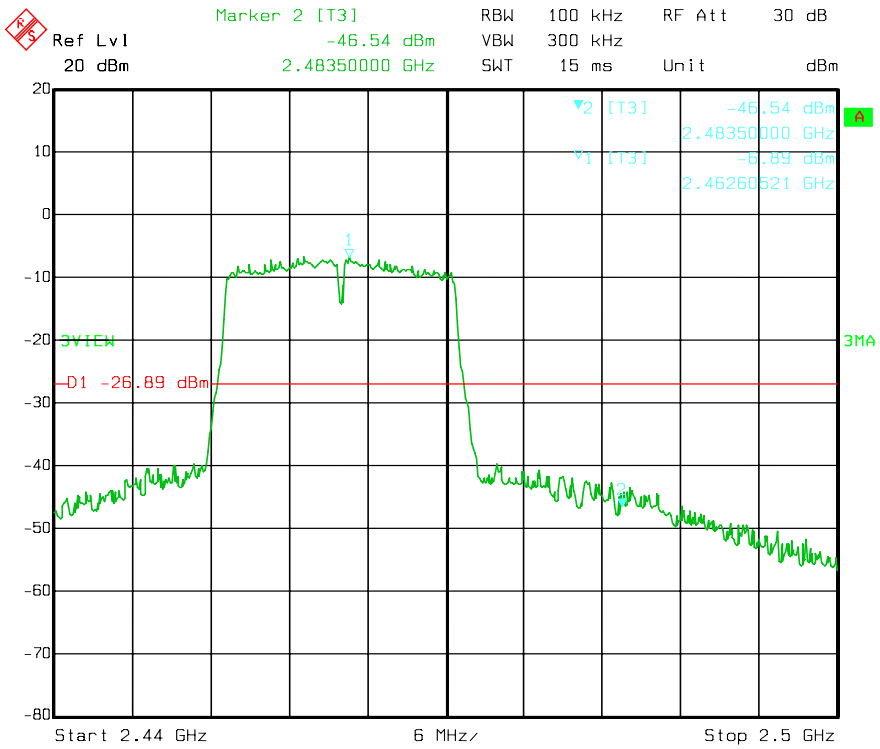


Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

2) The maximum emission was 51.11dBuv at 2374.3MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

High channel



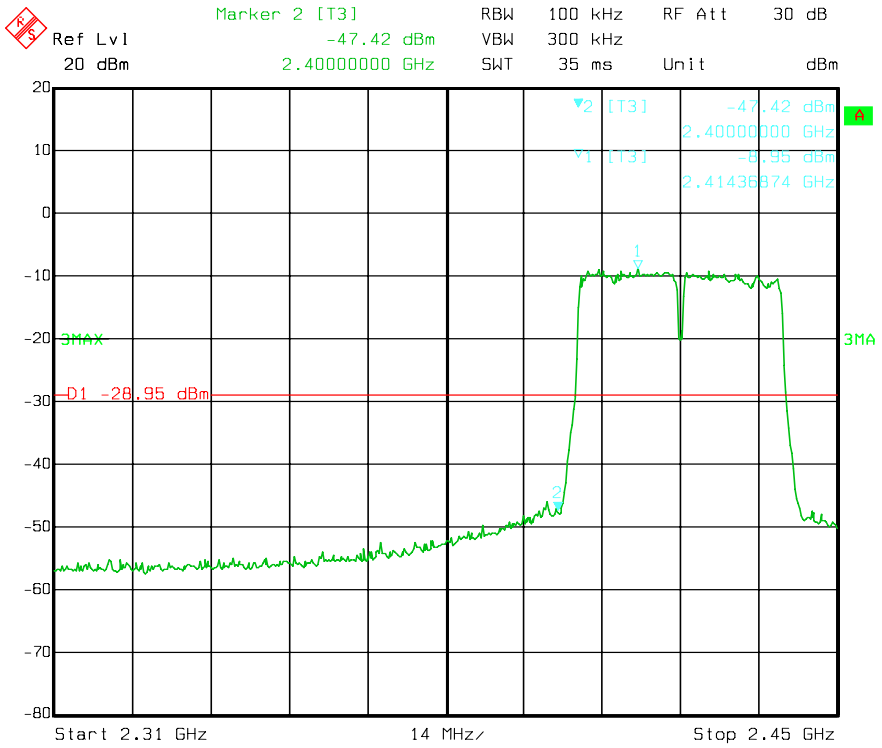
Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

2) The maximum emission was 51.24dBuv at 2484.2 MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

Test Mode: IEEE 802.11n (HT 40) mode

Low channel

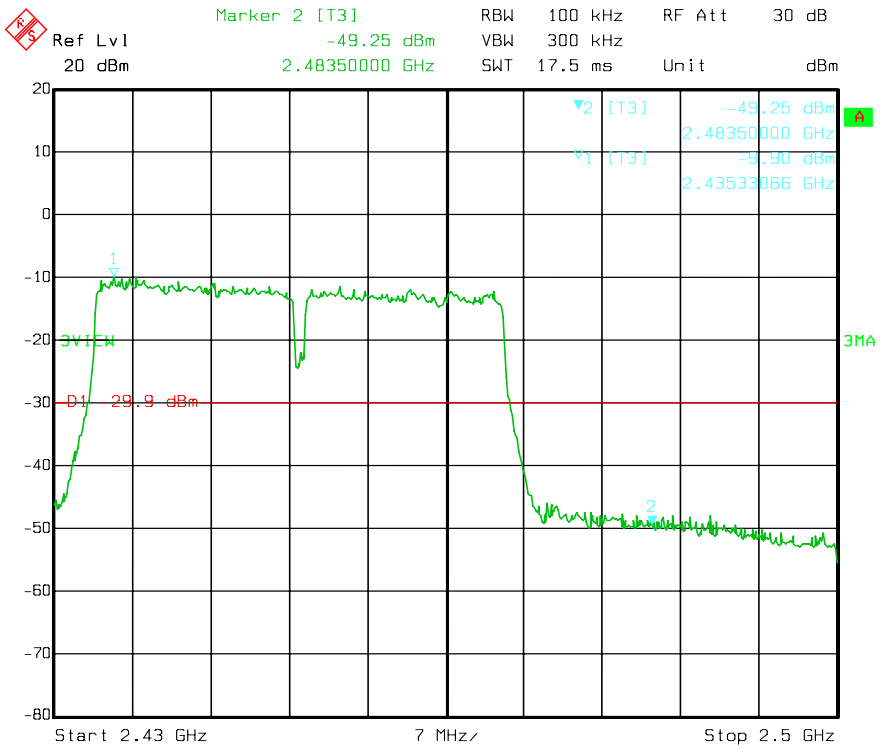


Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

2) The maximum emission was 51.12dBuv at 2396.2 MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

High channel



Remark: 1) The radiated measurement was made in horizontal and vertical polarity;

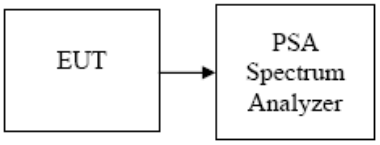
2) The maximum emission was 51.32dBuv at 2484.9 MHz, which is less than the Average limit.

3) Radiated emissions which fall in the restricted band, as defined in 15.205(a), comply with the radiated emission limits specified in 15.209(a).

11.0 Spurious Emission Test

11.1 Conducted Measurement

11.1.1 Test configuration



11.1.2 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. 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) (see Section 15.205(c)).

11.1.3 Test procedure:

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site. The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz. Measurements are made over the 30MHz to 26GHzrange with the transmitter set to the lowest, middle, and highest channels.

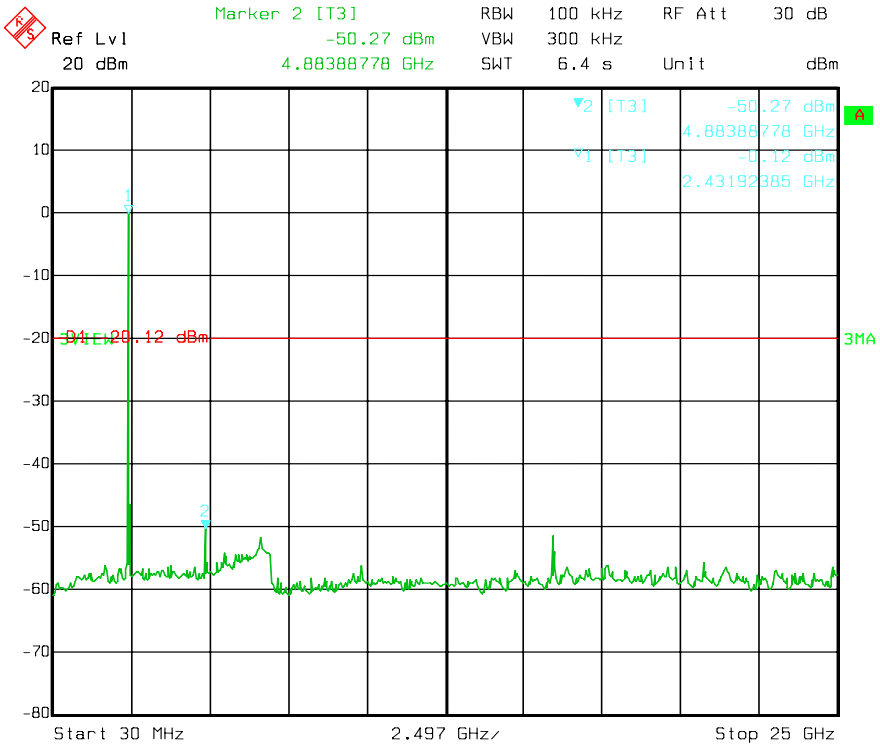
11.1.4 Test Result:

Test plots please refer to next pages.

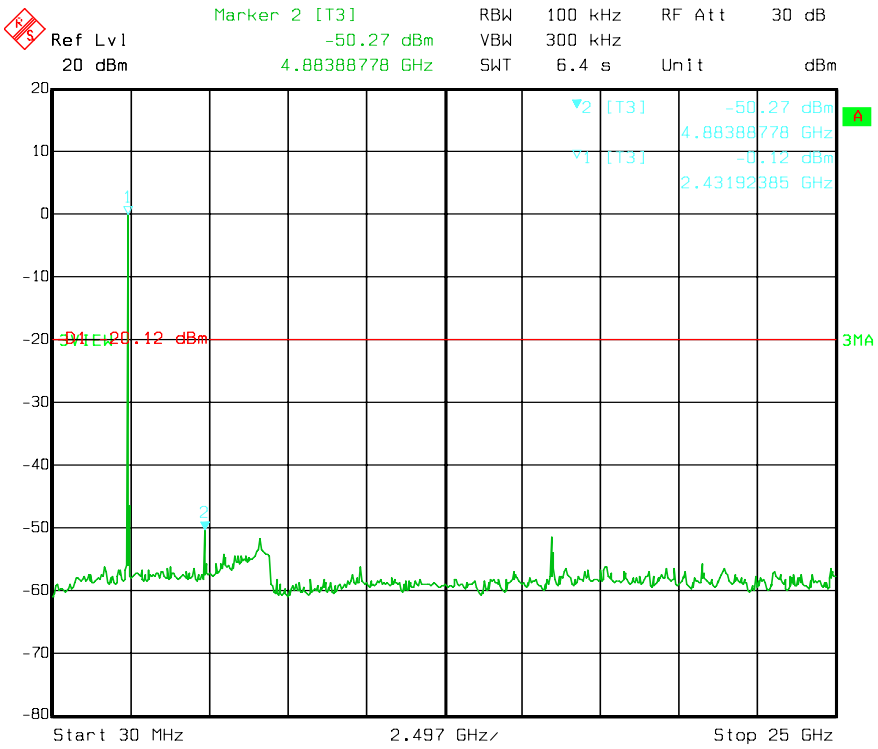
Test Plots:

Test Mode: IEEE 802.11b mode

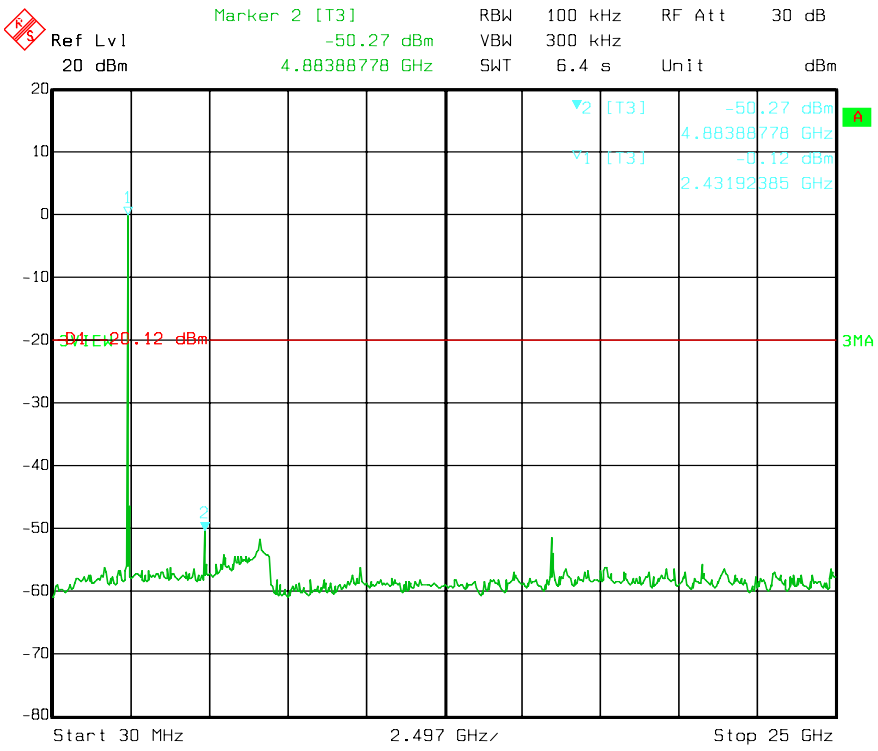
Low channel



Middle channel

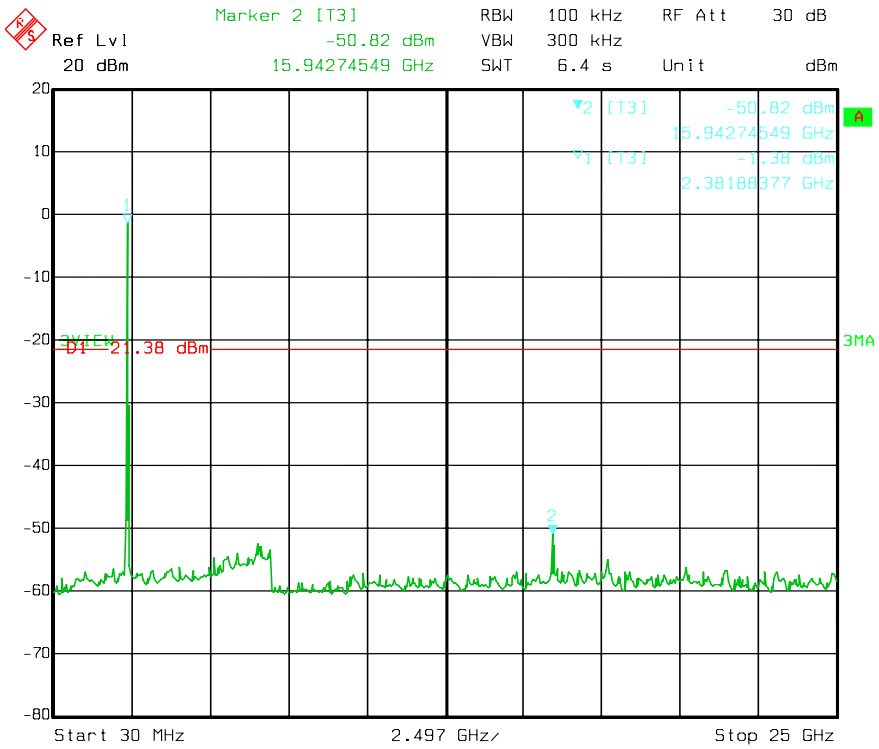


High channel

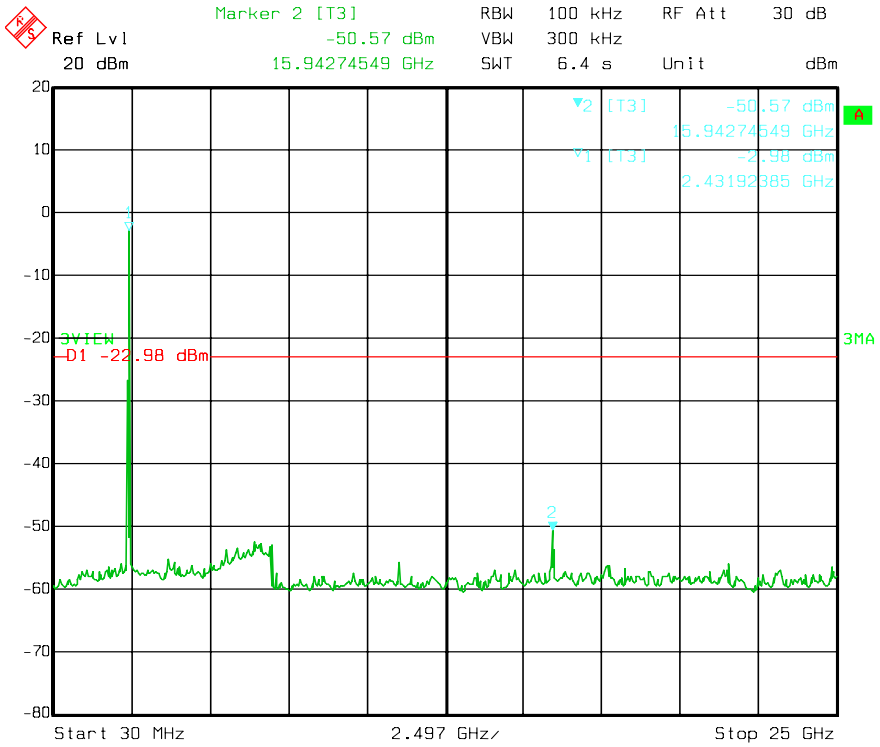


Test Mode: IEEE 802.11g mode

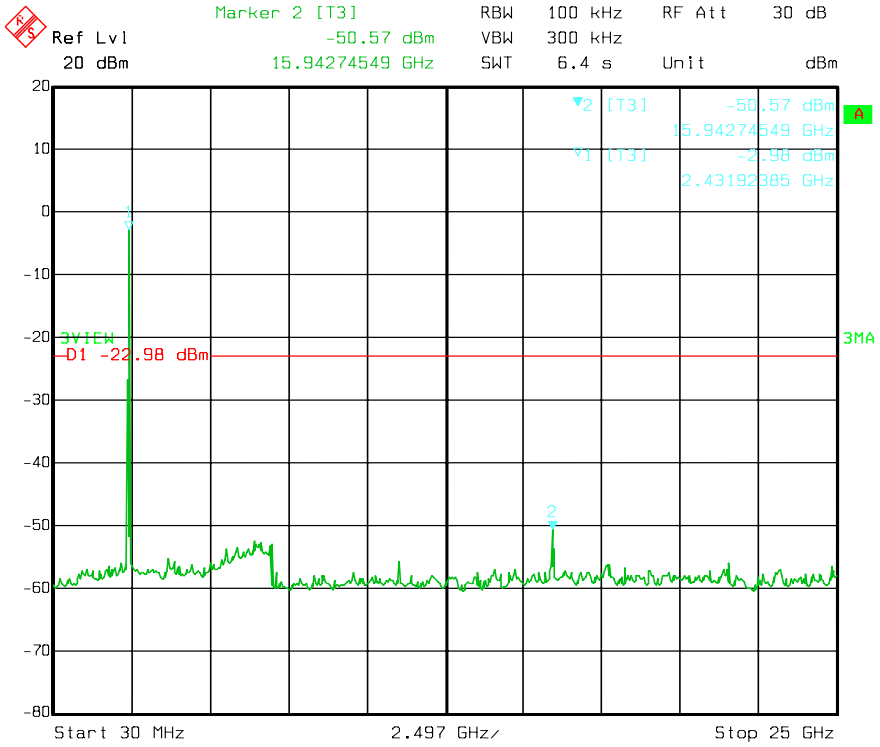
Low channel



Middle channel

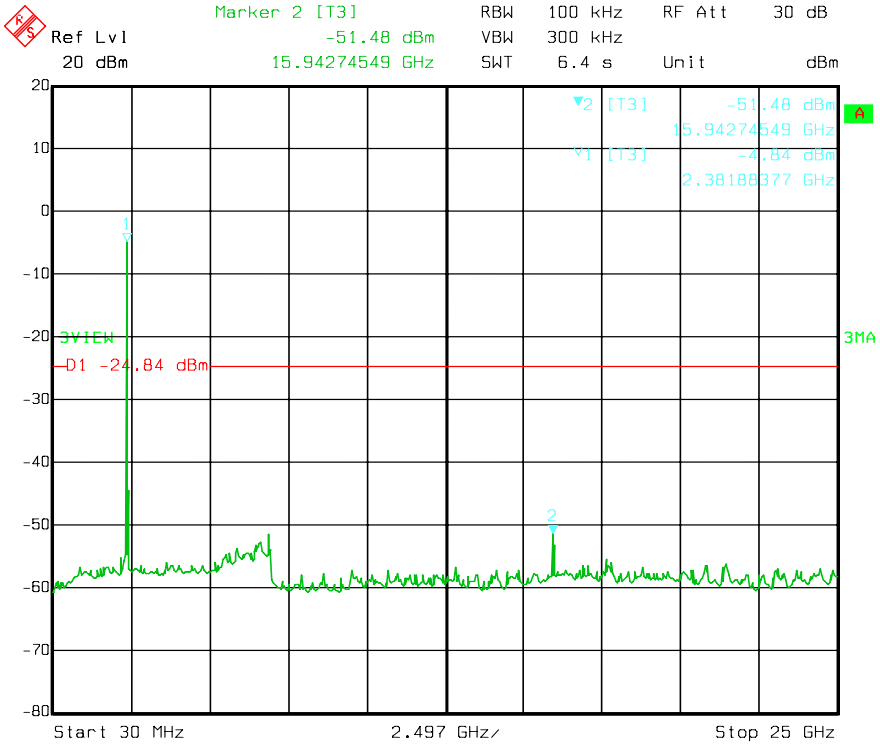


High channel

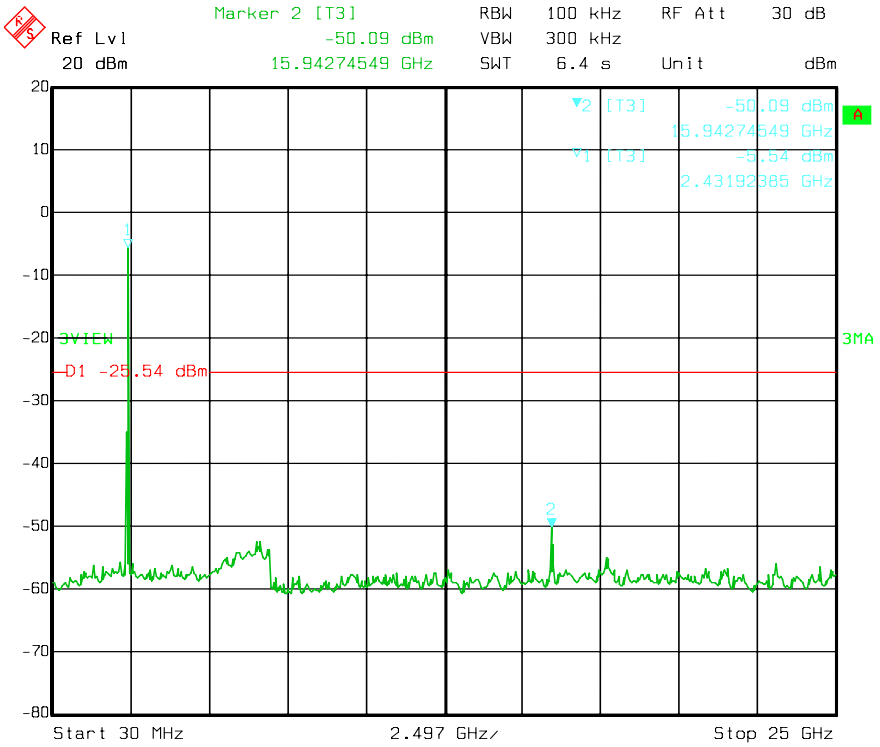


Test Mode: IEEE 802.11n(HT 20) mode

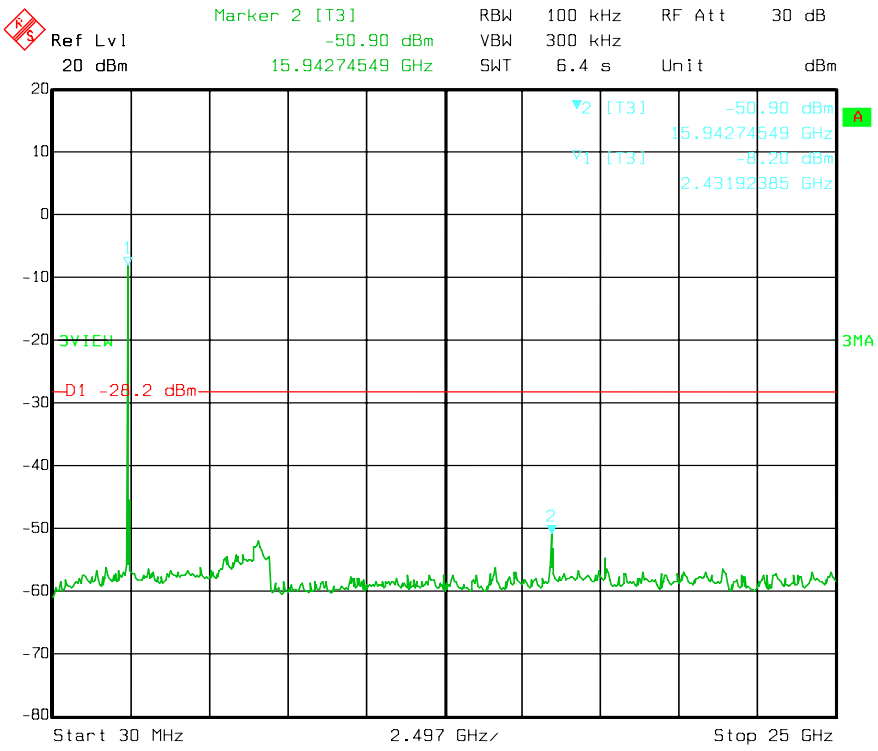
Low channel



Middle channel

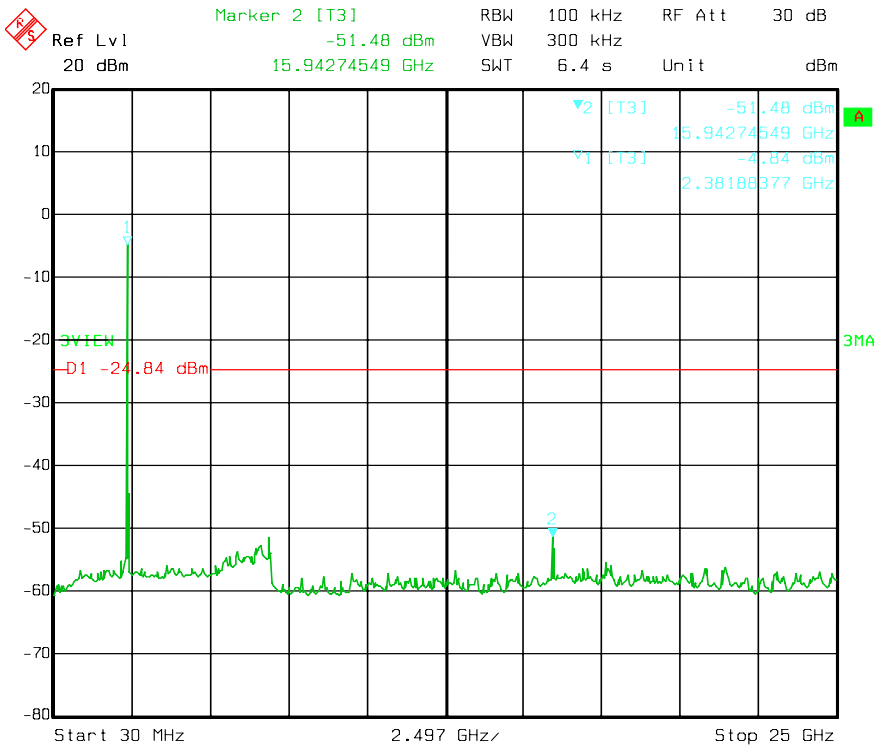


High channel

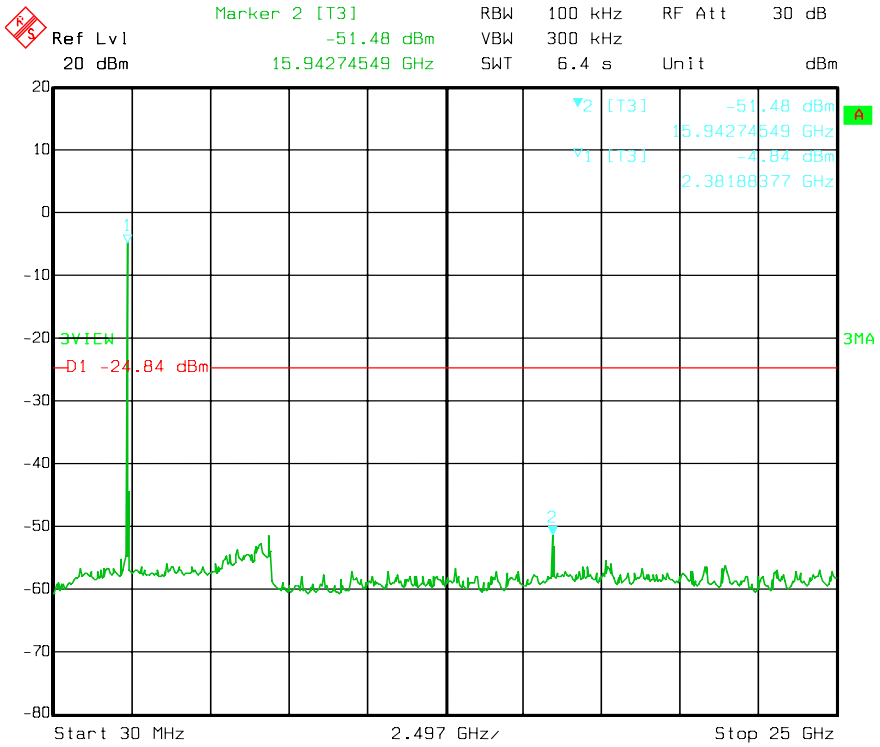


Test Mode: IEEE 802.11n(HT 40) mode

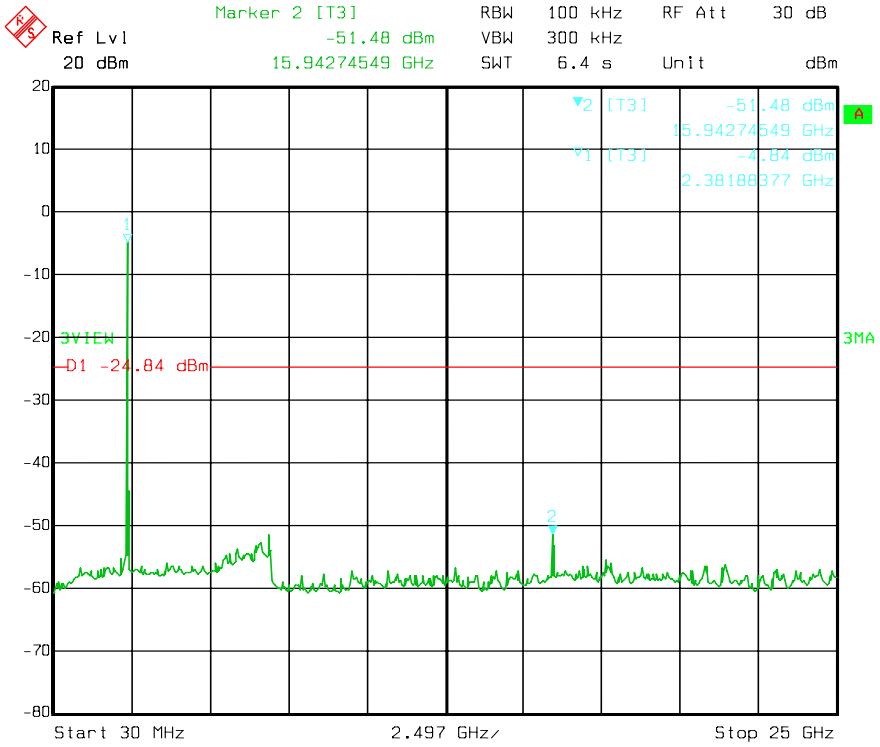
Low channel



Middle channel



High channel

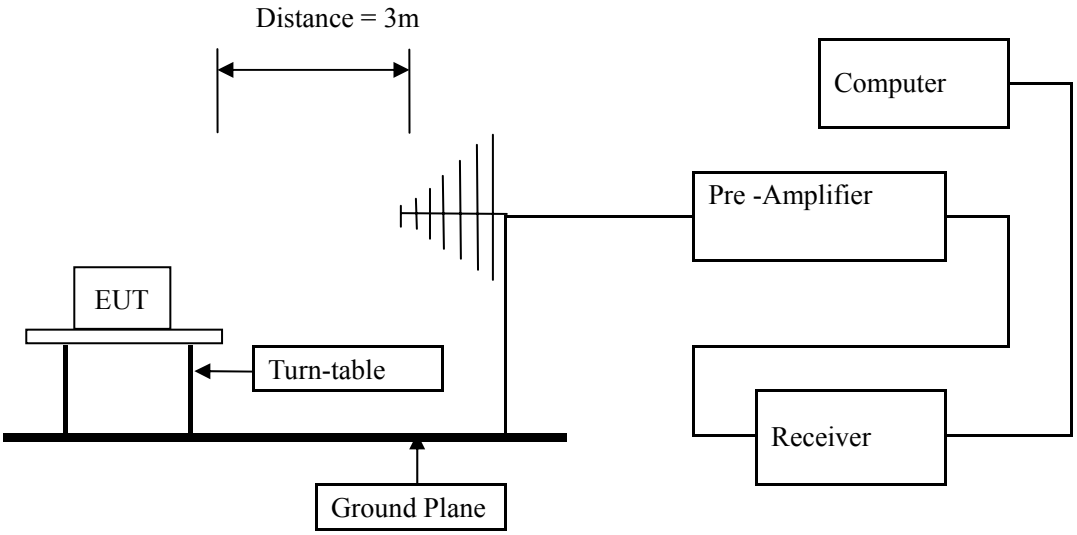


11.2 Radiated emissions

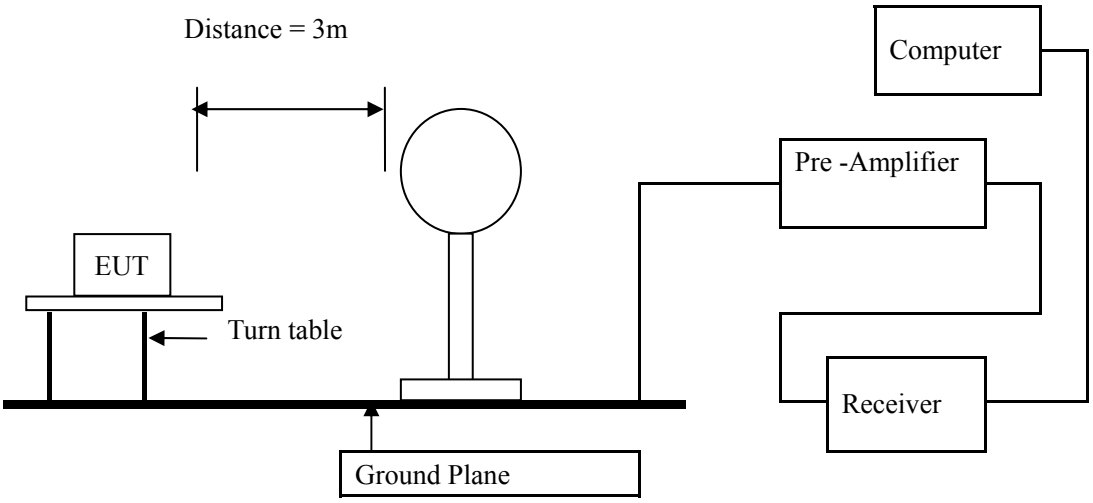
11.2.1 Test Method and test Procedure:

1) The EUT was tested according to ANSI C63.10 –2009.
2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2009.
3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
5) The antenna polarization: Vertical polarization and Horizontal polarization.

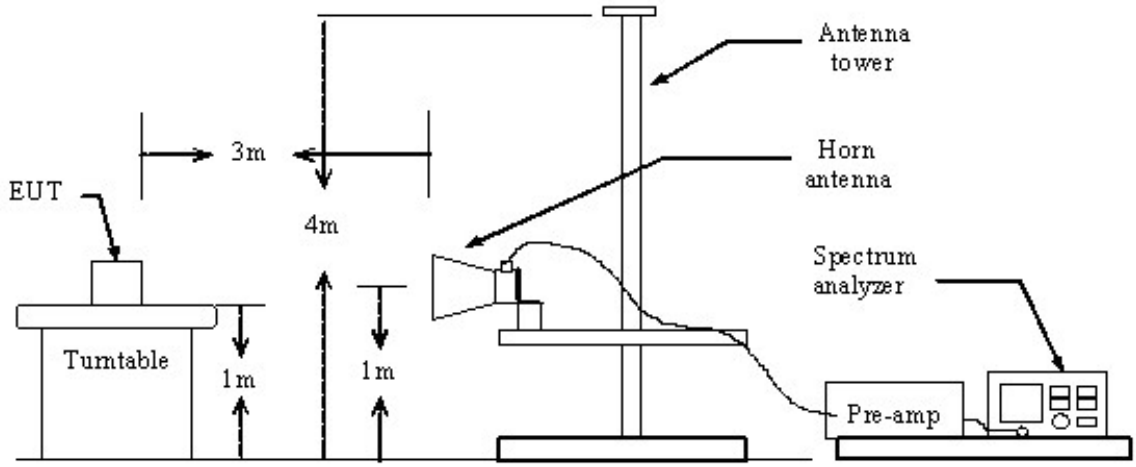
Block diagram of Test setup



Block diagram of Test setup for frequency below 30MHz



Block diagram of Test setup for frequency above 1GHz



11.2.2 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2009

11.2.3 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dBμV/m)
0.009-0.490	3	20log 2400/F (kHz) + 80
0.490-1.705	3	20log 24000/F (kHz) + 40
1.705-30	3	20log 30 + 40
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1) RF Voltage (dBuV) = 20 log RF Voltage (uV)

2) In the Above Table, the tighter limit applies at the band edges.

3) Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4) This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

5) All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK and AV detector.

6) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula Ld1 = Ld2 * (d2/d1)

11.2.4 Photo documentation of the test set-up

Please refer to the Section 16

11.2.5 Test Equipment:

Please refer to the Section 2

11.2.6 Test specification:

Environmental conditions: Temperature 24° C Humidity: 49% Atmospheric pressure: 103kPa

11.2.7 Test result

A Radiated Emission (9 kHz----30 MHz)

Note: 1) Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor
2) The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Result: Pass

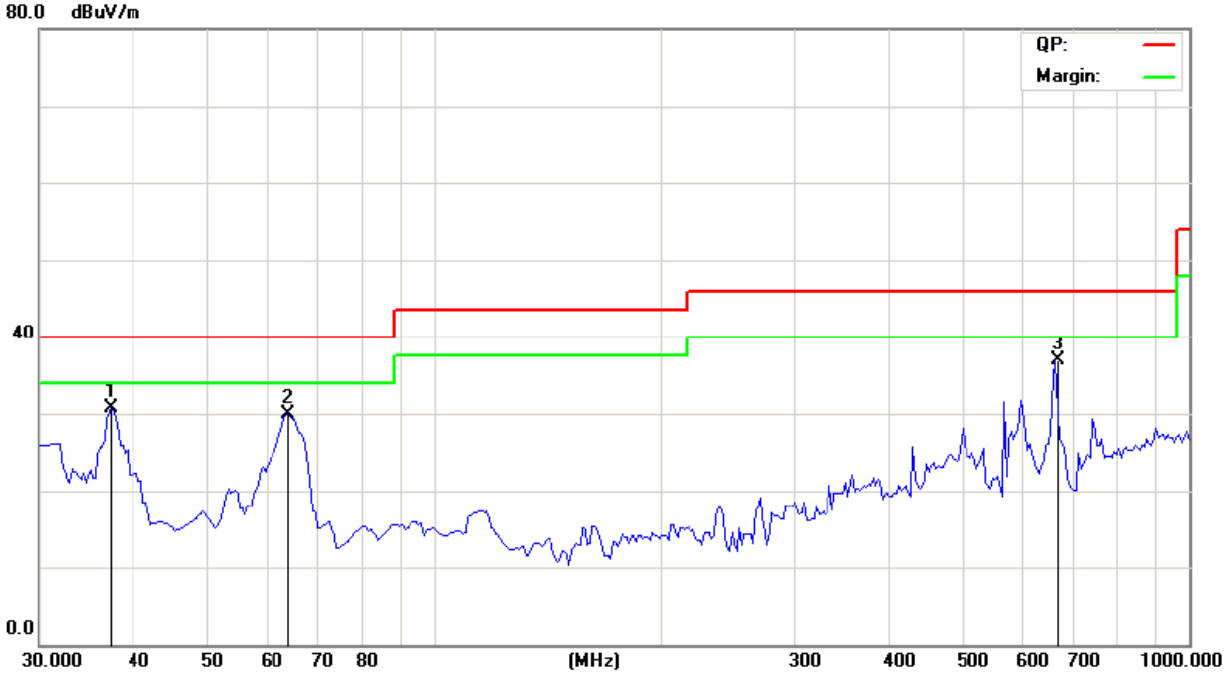
Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
--	--	V	--
--	--	H	--
--	--	V	--
--	--	H	--

B General Radiated Emissions Data

Radiated Emission In Horizontal (30MHz----1000MHz)

Please refer to following diagram for individual

Test Mode: IEE 802.11b High channel

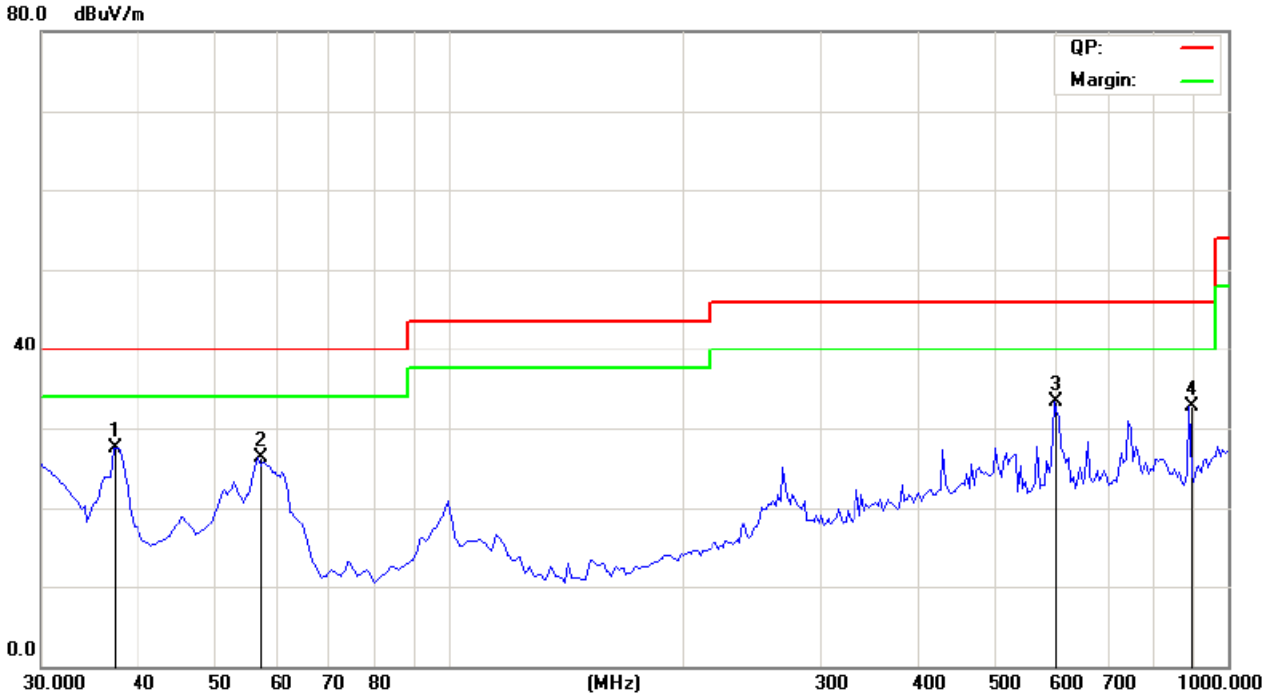


Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
37.3016	30.63	H	40.00
64.0800	29.89	H	40.00
667.5951	36.88	H	46.00

Radiated Emission In Vertical (30MHz----1000MHz)

Please refer to following diagram for individual

Test Mode: IEE 802.11b High channel



Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
37.3016	27.51	V	40.00
57.2143	26.27	V	40.00
599.5590	33.39	V	46.00
896.9737	32.69	V	46.00

Note: Pre-tests were made in continuous transmitting mode at lowest, Middle and highest channel with IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT 20) and 802.11n (HT 40) mode, which indicates that the worst case is IEEE 802.11b mode(High channel), so it is reported IEEE 802.11b(High channel) mode only.

C Fundamental & Harmonics Radiated Emission Data (1000MHz-25000MHz)

IEEE 802.11b mode: Low channel: 2412 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1310.22	H	52.36	---	-4.2	48.16	---	74	54	-5.84
4824.00	H	50.14	---	-3.94	46.20	---	74	54	-7.80
5600.00	H	49.88	---	-2.83	47.05	---	74	54	-6.95
7236.00	H	46.37	---	0.52	46.89	---	74	54	-7.11
16884.00	H	43.33	---	6.73	50.06	---	74	54	-3.94
24120.00	H	41.21	---	8.11	49.32	---	74	54	-4.68
1308.22	V	51.99	---	-4.25	47.74	---	74	54	-6.26
4824.00	V	52.61	---	-3.94	48.67	---	74	54	-5.33
5600.00	V	50.13	---	-2.87	47.26	---	74	54	-6.74
7236.00	V	46.78	---	0.52	47.30	---	74	54	-6.70
16884.00	V	41.76	---	6.73	48.49	---	74	54	-5.51
24120.00	V	40.27	---	8.11	48.38	---	74	54	-5.62

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11b mode: Middle channel: 2437 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1309.98	H	53.75	---	-4.2	49.55	---	74	54	-4.45
4874.00	H	50.29	---	-3.98	46.31	---	74	54	-7.69
5600.00	H	48.82	---	-2.83	45.99	---	74	54	-8.01
7311.00	H	44.32	---	0.57	44.89	---	74	54	-9.11
17059.00	H	43.76	---	6.79	50.55	---	74	54	-3.45
24370.00	H	39.69	---	8.16	47.85	---	74	54	-6.15
1313.74	V	51.11	---	-4.25	46.86	---	74	54	-7.14
4874.00	V	48.63	---	-3.98	44.65	---	74	54	-9.35
5600.00	V	45.52	---	-2.87	42.65	---	74	54	-11.35
7311.00	V	43.27	---	0.57	43.84	---	74	54	-10.16
17059.00	V	41.75	---	6.79	48.54	---	74	54	-5.46
24370.00	V	41.11	---	8.16	49.27	---	74	54	-4.73

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11b mode: High channel: 2462 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1213.29	H	53.06	---	-4.20	48.86	---	74	54	-5.14
4924.00	H	51.75	---	-3.98	47.77	---	74	54	-6.23
5600.00	H	48.87	---	-2.83	46.04	---	74	54	-7.96
7386.00	H	44.65	---	0.57	45.22	---	74	54	-8.78
17234.00	H	42.37	---	6.79	49.16	---	74	54	-4.84
24620.00	H	40.08	---	8.16	48.24	---	74	54	-5.76
1310.01	V	52.37	---	-4.25	48.12	---	74	54	-5.88
4924.00	V	51.96	---	-3.98	47.98	---	74	54	-6.02
5600.00	V	48.94	---	-2.87	46.07	---	74	54	-7.93
7386.00	V	43.05	---	0.57	43.62	---	74	54	-10.38
17234.00	V	42.38	---	6.79	49.17	---	74	54	-4.83
24620.00	V	41.23	---	8.16	49.39	---	74	54	-4.61

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11g mode: Low channel: 2412 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1306.42	H	51.36	---	-4.2	47.16	---	74	54	-6.84
4824.00	H	50.02	---	-3.94	46.08	---	74	54	-7.92
5600.00	H	48.24	---	-2.83	45.41	---	74	54	-8.59
7236.00	H	44.75	---	0.52	45.27	---	74	54	-8.73
16884.00	H	42.27	---	6.73	49.00	---	74	54	-5.00
24120.00	H	41.21	---	8.11	49.32	---	74	54	-4.68
1312.33	V	53.24	---	-4.25	48.99	---	74	54	-5.01
4824.00	V	52.36	---	-3.94	48.42	---	74	54	-5.58
5600.00	V	49.67	---	-2.87	46.8	---	74	54	-7.2
7236.00	V	44.24	---	0.52	44.76	---	74	54	-9.24
16884.00	V	52.75	---	6.73	59.48	---	74	54	5.48
24120.00	V	39.67	---	8.11	47.78	---	74	54	-6.22

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11g mode: Middle channel: 2437 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1310.23	H	53.14	---	-4.20	48.94	---	74	54	-5.06
4874.00	H	51.75	---	-3.98	47.77	---	74	54	-6.23
5600.00	H	48.36	---	-2.83	45.53	---	74	54	-8.47
7311.00	H	44.23	---	0.57	44.80	---	74	54	-9.20
17059.00	H	42.75	---	6.79	49.54	---	74	54	-4.46
24370.00	H	39.39	---	8.16	47.55	---	74	54	-6.45
1310.32	V	52.34	---	-4.25	48.09	---	74	54	-5.91
4874.00	V	50.24	---	-3.98	46.26	---	74	54	-7.74
5600.00	V	49.68	---	-2.87	46.81	---	74	54	-7.19
7311.00	V	45.37	---	0.57	45.94	---	74	54	-8.06
17059.00	V	43.75	---	6.79	50.54	---	74	54	-3.46
24370.00	V	38.63	---	8.16	46.79	---	74	54	-7.21

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11g mode: High channel: 2462 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1209.32	H	53.67	---	-4.2	49.47	---	74	54	-4.53
4924.00	H	51.27	---	-3.98	47.29	---	74	54	-6.71
5600.00	H	50.11	---	-2.83	47.28	---	74	54	-6.72
7386.00	H	45.75	---	0.57	46.32	---	74	54	-7.68
17234.00	H	43.72	---	6.79	50.51	---	74	54	-3.49
24620.00	H	42.37	---	8.16	50.53	---	74	54	-3.47
1310.55	V	52.73	---	-4.25	48.48	---	74	54	-5.52
4924.00	V	50.75	---	-3.98	46.77	---	74	54	-7.23
5600.00	V	28.34	---	-2.87	25.47	---	74	54	-28.53
7386.00	V	45.37	---	0.57	45.94	---	74	54	-8.06
17234.00	V	41.76	---	6.79	48.55	---	74	54	-5.45
24620.00	V	39.67	---	8.16	47.83	---	74	54	-6.17

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11n (HT 20) mode: Low channel: 2412 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1309.35	H	52.76	---	-4.2	48.56	---	74	54	-5.44
4824.00	H	51.34	---	-3.94	47.40	---	74	54	-6.60
5600.00	H	47.88	---	-2.83	45.05	---	74	54	-8.95
7236.00	H	46.98	---	0.52	47.50	---	74	54	-6.50
16884.00	H	43.75	---	6.73	50.48	---	74	54	-3.52
24120.00	H	41.62	---	8.11	49.73	---	74	54	-4.27
1312.21	V	53.24	---	-4.25	48.99	---	74	54	-5.01
4824.00	V	50.32	---	-3.94	46.38	---	74	54	-7.62
5600.00	V	48.67	---	-2.87	45.80	---	74	54	-8.20
7236.00	V	44.98	---	0.52	45.50	---	74	54	-8.50
16884.00	V	42.15	---	6.73	48.88	---	74	54	-5.12
24120.00	V	40.24	---	8.11	48.35	---	74	54	-5.65

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11n (HT 20) mode: Middle channel: 2437 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1309.97	H	53.23	---	-4.2	49.03	---	74	54	-4.97
4874.00	H	52.31	---	-3.98	48.33	---	74	54	-5.67
5600.00	H	49.68	---	-2.83	46.85	---	74	54	-7.15
7311.00	H	45.76	---	0.57	46.33	---	74	54	-7.67
17059.00	H	43.62	---	6.79	50.41	---	74	54	-3.59
24370.00	H	40.25	---	8.16	48.41	---	74	54	-5.59
1310.36	V	52.34	---	-4.25	48.09	---	74	54	-5.91
4874.00	V	51.36	---	-3.98	47.38	---	74	54	-6.62
5600.00	V	48.51	---	-2.87	45.64	---	74	54	-8.36
7311.00	V	45.18	---	0.57	45.75	---	74	54	-8.25
17059.00	V	42.37	---	6.79	49.16	---	74	54	-4.84
24370.00	V	40.76	---	8.16	48.92	---	74	54	-5.08

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11n (HT 20) mode: High channel: 2462 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1209.47	H	53.76	---	-4.2	49.56	---	74	54	-4.44
4924.00	H	52.14	---	-3.98	48.16	---	74	54	-5.84
5600.00	H	49.35	---	-2.83	46.52	---	74	54	-7.48
7386.00	H	45.78	---	0.57	46.35	---	74	54	-7.65
17234.00	H	43.39	---	6.79	50.18	---	74	54	-3.82
24620.00	H	41.56	---	8.16	49.72	---	74	54	-4.28
1313.72	V	52.14	---	-4.25	47.89	---	74	54	-6.11
4924.00	V	52.47	---	-3.98	48.49	---	74	54	-5.51
5600.00	V	50.24	---	-2.87	47.37	---	74	54	-6.63
7386.00	V	44.39	---	0.57	44.96	---	74	54	-9.04
17234.00	V	42.27	---	6.79	49.06	---	74	54	-4.94
24620.00	V	39.36	---	8.16	47.52	---	74	54	-6.48

IEEE 802.11n (HT 40) mode: Low channel: 2422 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1209.75	H	53.24	---	-4.2	49.04	---	74	54	-4.96
4844.00	H	52.34	---	-3.94	48.40	---	74	54	-5.6
5600.00	H	50.23	---	-2.83	47.40	---	74	54	-6.6
7236.00	H	46.02	---	0.52	46.54	---	74	54	-7.46
16954.00	H	43.78	---	6.73	50.51	---	74	54	-3.49
21798.00	H	41.75	---	8.11	49.86	---	74	54	-4.14
1310.16	V	52.75	---	-4.25	48.50	---	74	54	-5.50
4844.00	V	49.68	---	-3.94	45.74	---	74	54	-8.26
5600.00	V	49.75	---	-2.87	46.88	---	74	54	-7.12
7236.00	V	45.36	---	0.52	45.88	---	74	54	-8.12
16954.00	V	42.82	---	6.73	49.55	---	74	54	-4.45
21798.00	V	38.69	---	8.11	46.80	---	74	54	-7.20

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11n (HT 40) mode: Middle channel: 2437 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1202.56	H	52.89	---	-4.2	48.69	---	74	54	-5.31
4874.00	H	52.32	---	-3.98	48.34	---	74	54	-5.66
5600.00	H	50.12	---	-2.83	47.29	---	74	54	-6.71
7311.00	H	46.32	---	0.57	46.89	---	74	54	-7.11
17059.00	H	42.76	---	6.79	49.55	---	74	54	-4.45
24370.00	H	41.56	---	8.16	49.72	---	74	54	-4.28
1310.37	V	52.12	---	-4.25	47.87	---	74	54	-6.13
4874.00	V	51.23	---	-3.98	47.25	---	74	54	-6.75
5600.00	V	49.65	---	-2.87	46.78	---	74	54	-7.22
7311.00	V	44.75	---	0.57	45.32	---	74	54	-8.68
17059.00	V	42.07	---	6.79	48.86	---	74	54	-5.14
24370.00	V	39.68	---	8.16	47.84	---	74	54	-6.16

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

IEEE 802.11n (HT 40) mode: High channel: 2452 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1210.32	H	52.36	---	-4.2	48.16	---	74	54	-5.84
4904.00	H	51.24	---	-3.98	47.26	---	74	54	-6.74
5600.00	H	49.68	---	-2.83	46.85	---	74	54	-7.15
7356.00	H	44.37	---	0.57	44.94	---	74	54	-9.06
17164.00	H	42.76	---	6.79	49.55	---	74	54	-4.45
24520.00	H	40.36	---	8.16	48.52	---	74	54	-5.48
1312.07	V	53.23	---	-4.25	48.98	---	74	54	-5.02
4904.00	V	51.01	---	-3.98	47.03	---	74	54	-6.97
5600.00	V	49.68	---	-2.87	46.81	---	74	54	-7.19
7356.00	V	45.32	---	0.57	45.89	---	74	54	-8.11
17164.00	V	42.78	---	6.79	49.57	---	74	54	-4.43
24520.00	V	40.65	---	8.16	48.81	---	74	54	-5.19

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made with peak detector and Average (AV) detector.

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

12.0 Antenna Requirement

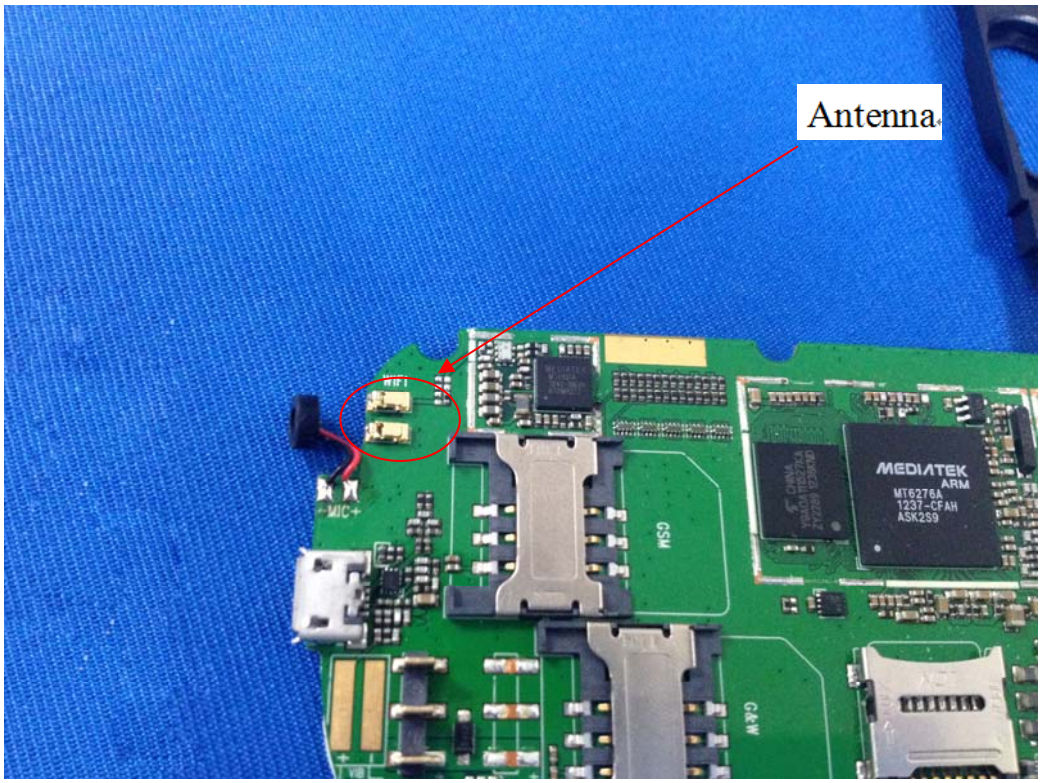
12.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

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

12.2 Antenna Specification

According to the manufacturer declared, the EUT has a Built-in antenna; the directional gain of antenna is 0 dBi, and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.



13.0 FCC ID Label

FCC ID: ZYPBLISS

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.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location: