FCC TEST REPORT

For

NTEK Systems Inc.

Doortalk2

Test Model: Doortalk2

Prepared for	:	NTEK Systems Inc.
Address	:	Topy 1 Bldg. #3 Economia Street Brgy. Bagumbayan Libis Quezon City Philippines
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
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Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	May 19, 2015
Number of tested samples	:	1
Serial number	:	DT2-K150100001
Date of Test	:	May 19, 2015 - June 23, 2015
Date of Report	:	June 23, 2015

FCC TEST REPORT **FCC CFR 47 PART 15 C(15.247): 2014**	
Report Reference No. ..... :	**LCS1505231378E**
Date of Issue ..... :	June 23, 2015
Testing Laboratory Name..... :	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address ..... :	1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure..... :	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name..... :	**NTEK Systems Inc.**
Address ..... :	Topy 1 Bldg. #3 Economia Street Brgy. Bagumbayan Libis Quezon City Philippines
Test Specification	
Standard ..... :	FCC CFR 47 PART 15 C(15.247): 2014 / ANSI C63.10: 2009
Test Report Form No..... :	LCSEMC-1.0
TRF Originator ..... :	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF ..... :	Dated 2011-03

Test Item Description. ..... :	**Doortalk2**
Trade Mark ..... :	DoorTalk™
Test Model ..... :	Doortalk2
Ratings ..... :	DC 5V
Result ..... :	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Leo Lee/ File administrators	Glin Lu/ Technique principal	Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS1505231378E	June 23, 2015 Date of issue

Test Model.....	: Doortalk2
EUT.....	: Doortalk2
Applicant.....	**: NTEK Systems Inc.**
Address.....	: Topy 1 Bldg. #3 Economia Street Brgy. Bagumbayan Libis Quezon City Philippines
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: NTEK Systems Inc.**
Address.....	: Topy 1 Bldg. #3 Economia Street Brgy. Bagumbayan Libis Quezon City Philippines
Telephone.....	: /
Fax.....	: /
Factory.....	**: NTEK Systems Inc.**
Address.....	: Topy 1 Bldg. #3 Economia Street Brgy. Bagumbayan Libis Quezon City Philippines
Telephone.....	: /
Fax.....	: /

Test Result	**Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Doortalk2
Test Model	:	Doortalk2
Hardware Version	:	DoorTalk 2 Rev. 2-0
Software Version	:	DoorTalk Software Version 1.0
Power Supply	:	DC 5V
Operating Frequency	:	2412.00-2462.00MHz
Channel Spacing	:	5MHz
Channel Number	:	11 Channels for 20MHz Bandwidth
		7 Channels for 40MHz Bandwidth
Modulation Technology	:	802.11b: DSSS(CCK,DQPSK,DBPSK)
		802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)
		802.11n: OFDM (64QAM, 16QAM,QPSK,BPSK)
Data Rates	:	802.11b: 1-11Mbps
		802.11g: 6-54Mbps
		802.11n: MCS0-MCS8
Antenna Description	:	PCB Antenna, 5.0dBi(Max.)

1.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
NTEK Systems Inc.	Adapter	MK136B-05021 00-1-2	/	VOC

1.3. External I/O

I/O Port Description	Quantity	Cable
LAN Port	1	N/A
Micro HDMI Port	1	N/A
USB Port	2	1.0m, unshielded
Micro SD Slot	1	N/A

1.4. Description of Test Facility

CNAS Registration Number. is L4595.

FCC Registration Number. is 899208.

Industry Canada Registration Number. is 9642A-1.

VCCI Registration Number. is C-4260 and R-3804.

ESMD Registration Number. is ARCB0108.

UL Registration Number. is 100571-492.

TUV SUD Registration Number. is SCN1081.

TUV RH Registration Number. is UA 50296516-001

1.5. Statement of The Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	9KHz~30MHz	3.10dB	(1)
		30MHz~200MHz	2.96dB	(1)
		200MHz~1000MHz	3.10dB	(1)
		1GHz~26.5GHz	3.80dB	(1)
		26.5GHz~40GHz	3.90dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	1.63dB	(1)
Power disturbance	:	30MHz~300MHz	1.60dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.7. Description Of Test Modes

The EUT has been tested under operating condition.

The EUT was set to transmit at 100% duty cycle.

Worst-case mode and channel used for 150kHz-30 MHz power line conducted emissions was the mode and channel with the highest output power, that was determined to be 802.11b mode(Low Channel).

Worst-case mode and channel used for 9kHz-1000 MHz radiated emissions was the mode and channel with the highest output power, that was determined to be 802.11b mode(Low Channel).

Worst-Case data rates were utilized from preliminary testing of the Chipset, worst-case data rates used during the testing are as follows:
802.11b Mode : 1 Mbps, DSSS.
802.11g Mode : 6 Mbps, OFDM.
802.11n Mode HT20:.MCS0, OFDM.
802.11n Mode HT40:.MCS0, OFDM.

Channel List & Frequency

802.11b/g/n(HT20):

Frequency Band	Channel No.	Frequency(MHz)	Channel No.	Frequency(MHz)
2412~2462MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	--	--

802.11n(HT40):

Frequency Band	Channel No.	Frequency(MHz)	Channel No.	Frequency(MHz)
2422~2452MHz	1	--	7	2442
	2	--	8	2447
	3	2422	9	2452
	4	2427	10	--
	5	2432	11	--
	6	2437	--	--

2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10: 2009, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd..

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to FCC's request, Test Procedure KDB558074 D01 DTS Meas Guidance v03r02 is required to be used for this kind of FCC 15.247 digital modulation device.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.205, 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

2.3. General Test Procedures

2.3.1 Conducted Emissions

According to the requirements in Section 6.2 of ANSI C63.10: 2009, AC power-line conducted emissions shall be measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table and the turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 6.3 of ANSI C63.10: 2009

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous transmit condition.

3.2. EUT Exercise Software

N/A

3.3. Special Accessories

N/A

3.4. Block Diagram/Schematics

Please refer to the related document

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.

4. SUMMARY OF TEST RESULTS

Applied Standard: FCC Part 15 Subpart C		
FCC Rules	**Description of Test**	**Result**
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.247(a)(2)	6dB Bandwidth	Compliant
§15.209, §15.247(d)	Radiated and Conducted Spurious Emissions	Compliant
§15.205	Emissions at Restricted Band	Compliant
§15.207(a)	Line Conducted Emissions	Compliant
§15.203	Antenna Requirements	Compliant

5. TEST RESULT

5.1. Maximum Conducted Output Power Measurement

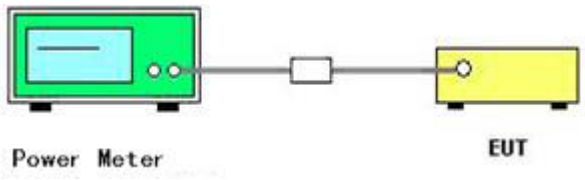
5.1.1. Standard Applicable

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

5.1.2. Test Procedures

The transmitter output (antenna port) was connected to the power meter.

5.1.3. Test Setup Layout



5.1.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.1.5. Test Result of Maximum Conducted Output Power

Temperature	25°C	Humidity	60%
Test Engineer	Leo	Configurations	802.11b/g/n

802.11b

Channel	Frequency (MHz)	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412	17.57	30	Complies
6	2437	17.52	30	Complies
11	2462	17.48	30	Complies

802.11g

Channel	Frequency (MHz)	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412	13.76	30	Complies
6	2437	13.71	30	Complies
11	2462	13.67	30	Complies

802.11n HT20

Channel	Frequency (MHz)	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412	12.77	30	Complies
6	2437	12.74	30	Complies
11	2462	12.69	30	Complies

802.11n HT40

Channel	Frequency (MHz)	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422	12.33	30	Complies
6	2437	12.39	30	Complies
9	2452	12.41	30	Complies

5.2. Power Spectral Density Measurement

5.2.1. Standard Applicable

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.

5.2.2. Test Procedures

1) The transmitter was connected directly to a Spectrum Analyzer through a directional couple.

2) The power was monitored at the coupler port with a Spectrum Analyzer. The power level was set to the maximum level.

3) Set the RBW = 3 kHz.

4) Set the VBW ≥ 3*RBW

5) Set the span to 1.5 times the DTS channel bandwidth.

6) Detector = peak.

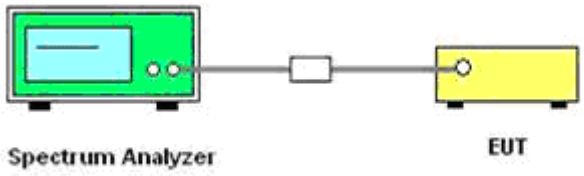
7) Sweep time = auto couple.

8) Trace mode = max hold.

9) Allow trace to fully stabilize.

10) Use the peak marker function to determine the maximum power level in any 3 kHz band segment within the fundamental EBW.

5.2.3. Test Setup Layout



5.2.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.2.5. Test Result of Power Spectral Density

Temperature	25℃	Humidity	60%
Test Engineer	Leo	Configurations	802.11b/g/n

802.11b

Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
1	2412	-16.717	8	Complies
6	2437	-17.108	8	Complies
11	2462	-17.392	8	Complies

802.11g

Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
1	2412	-21.658	8	Complies
6	2437	-22.070	8	Complies
11	2462	-22.076	8	Complies

802.11n HT20

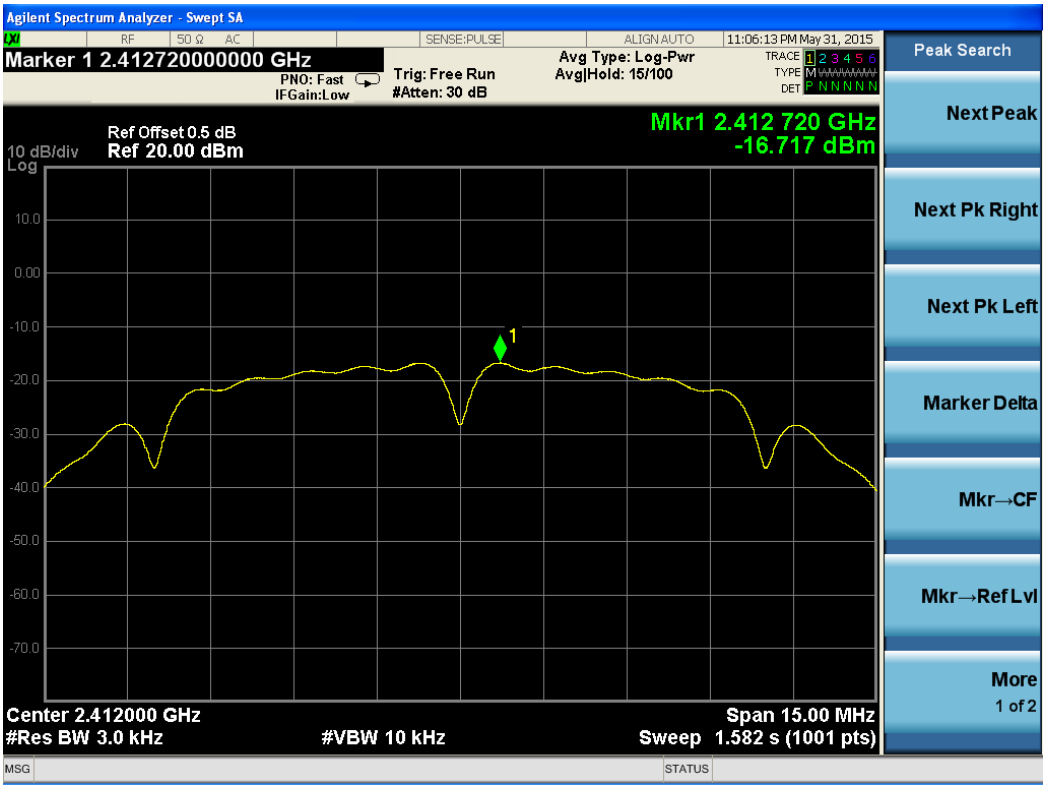
Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
1	2412	-22.586	8	Complies
6	2437	-23.562	8	Complies
11	2462	-23.387	8	Complies

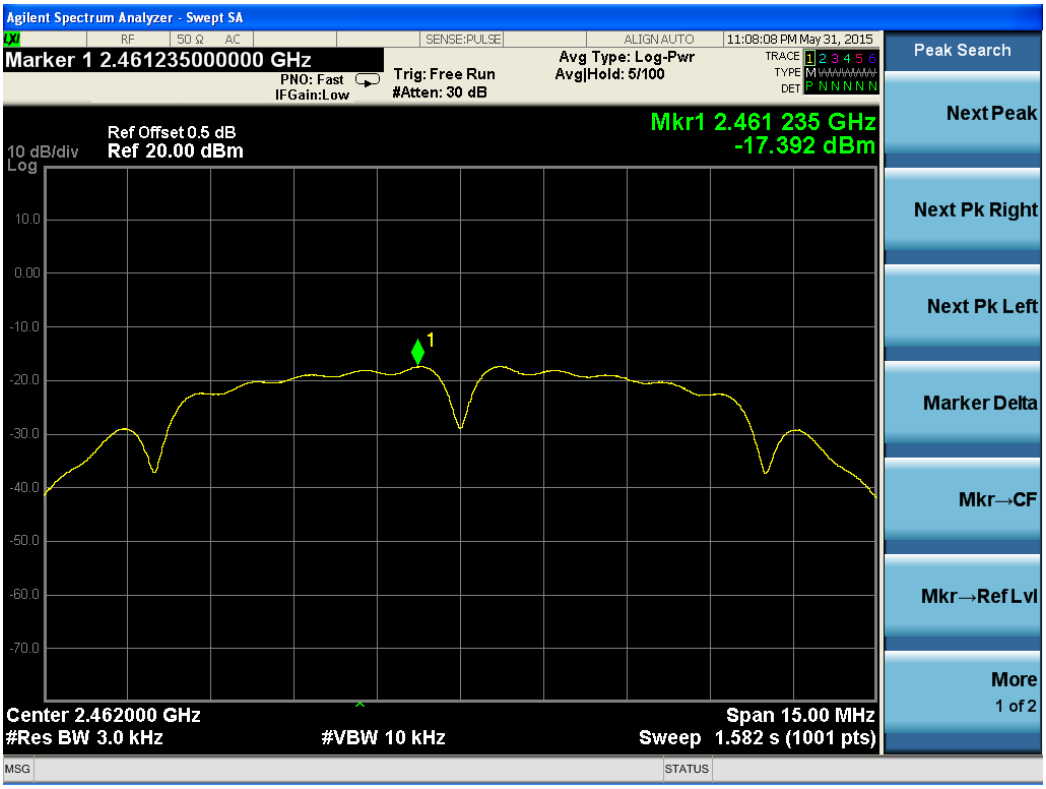
802.11n HT40

Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
3	2422	-26.863	8	Complies
6	2437	-26.847	8	Complies
9	2452	-26.259	8	Complies

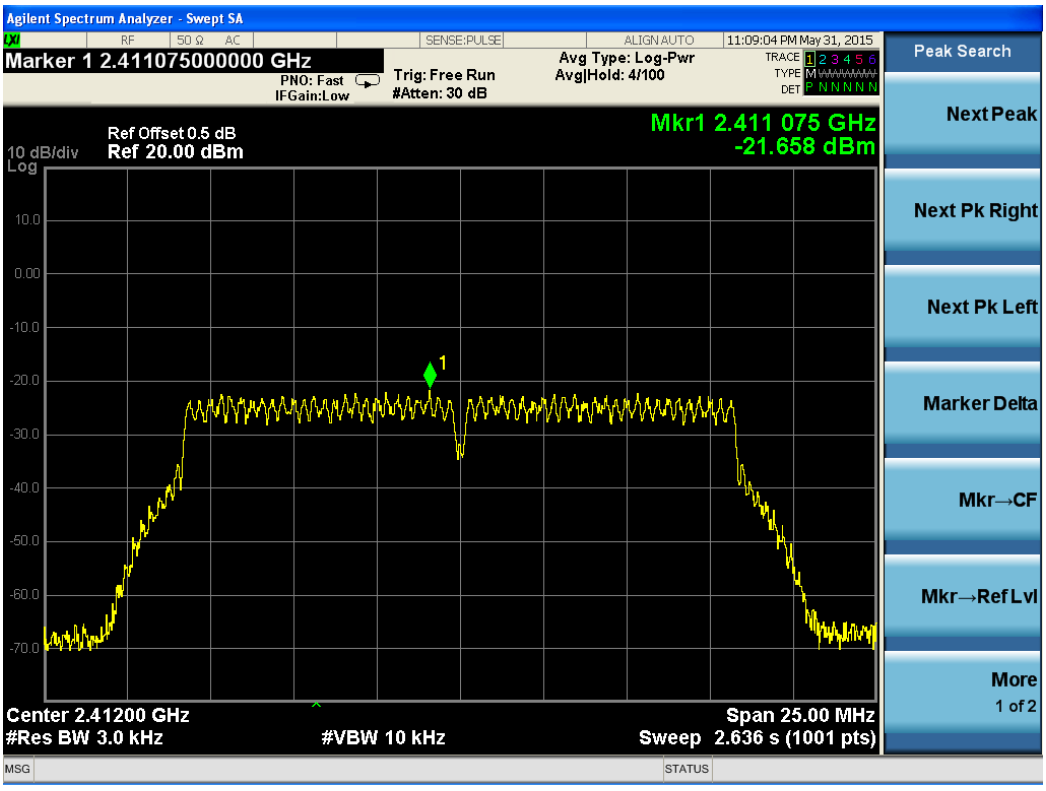
Note: The measured power density (dBm) has the offset with cable loss already.

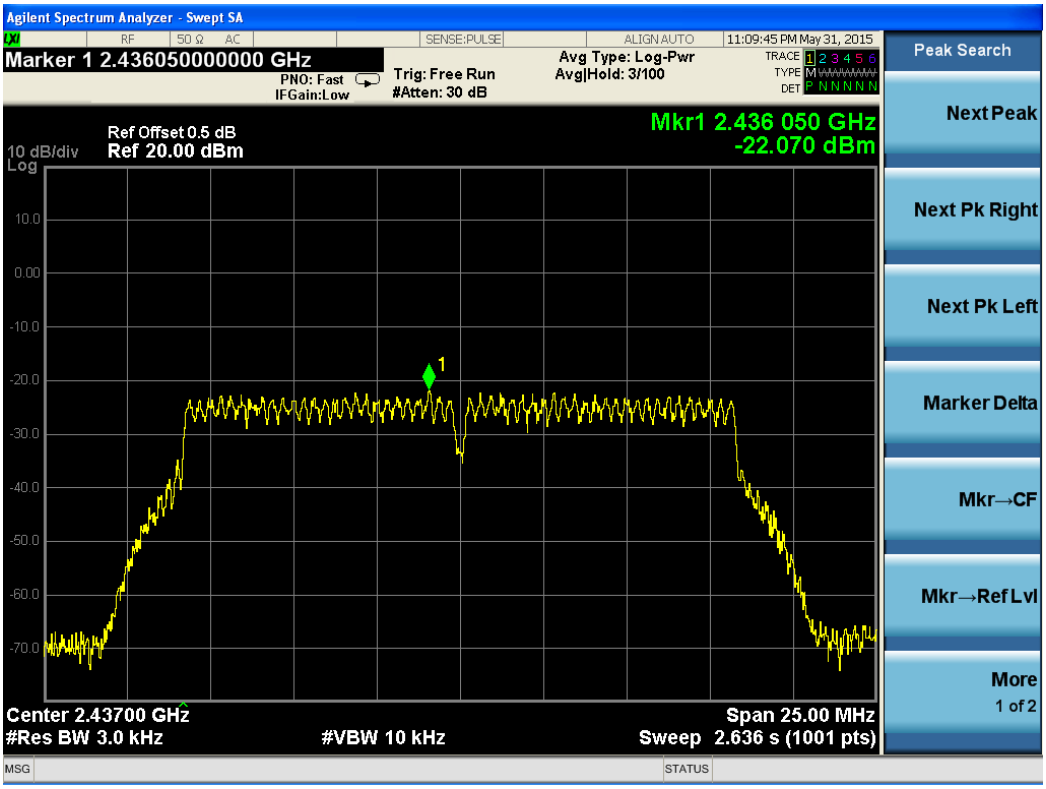
802.11b power density

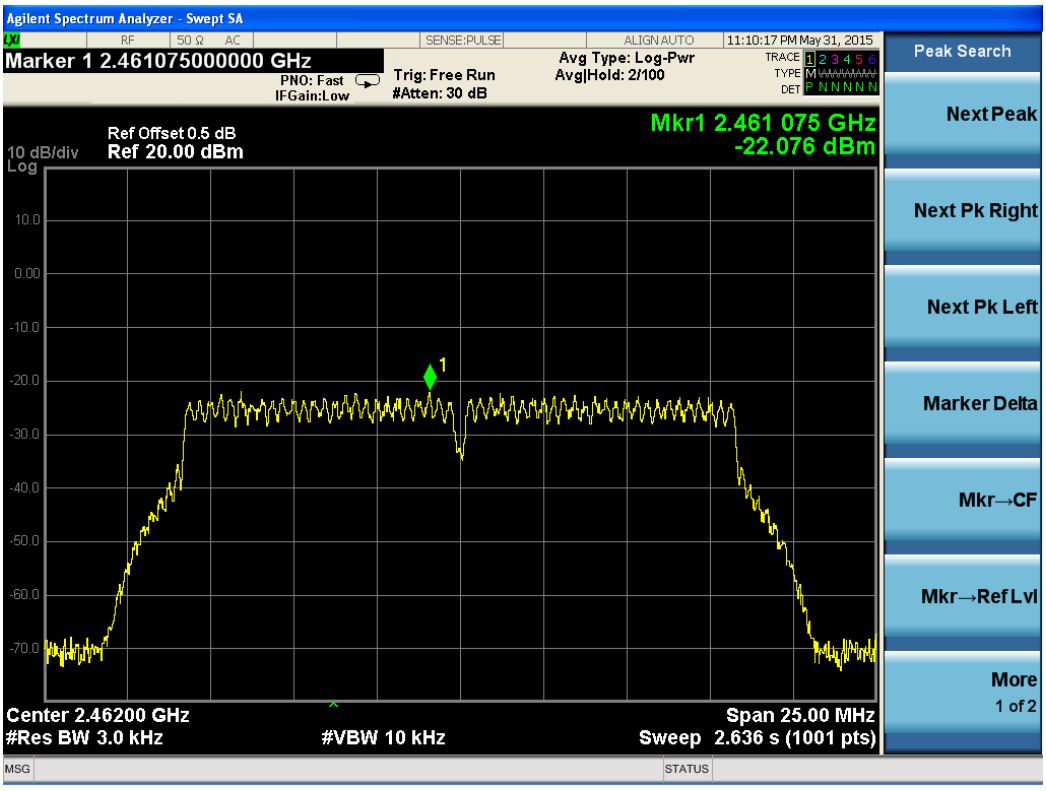




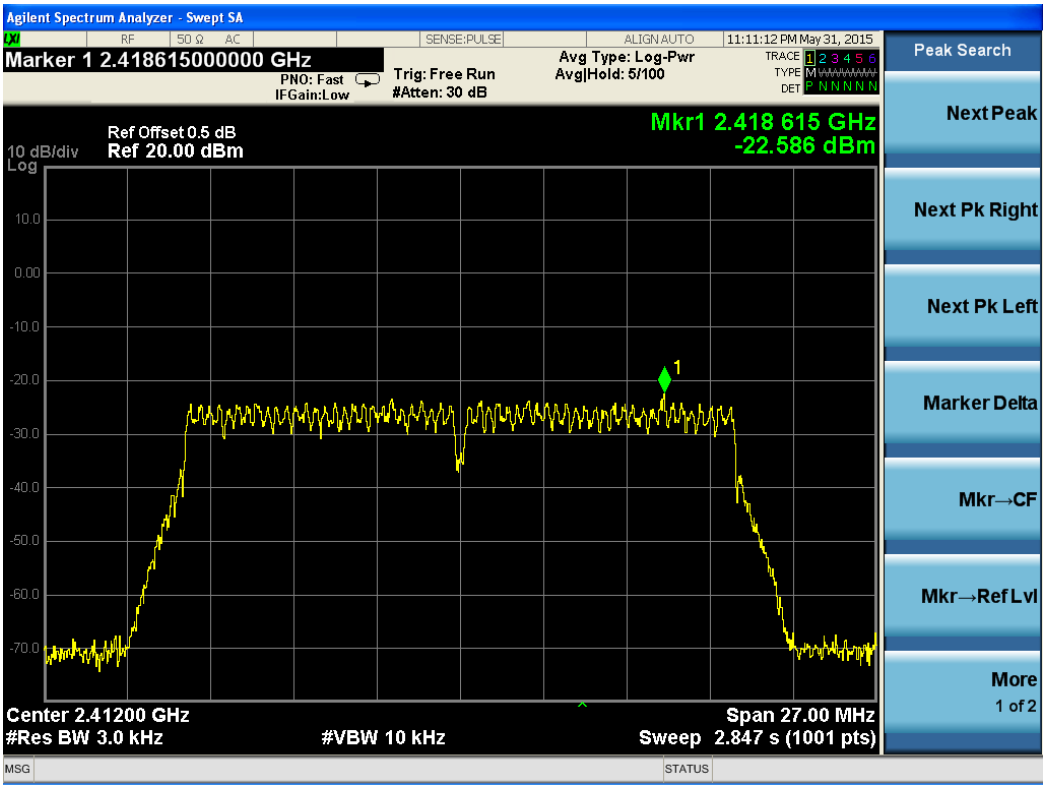
802.11g power density

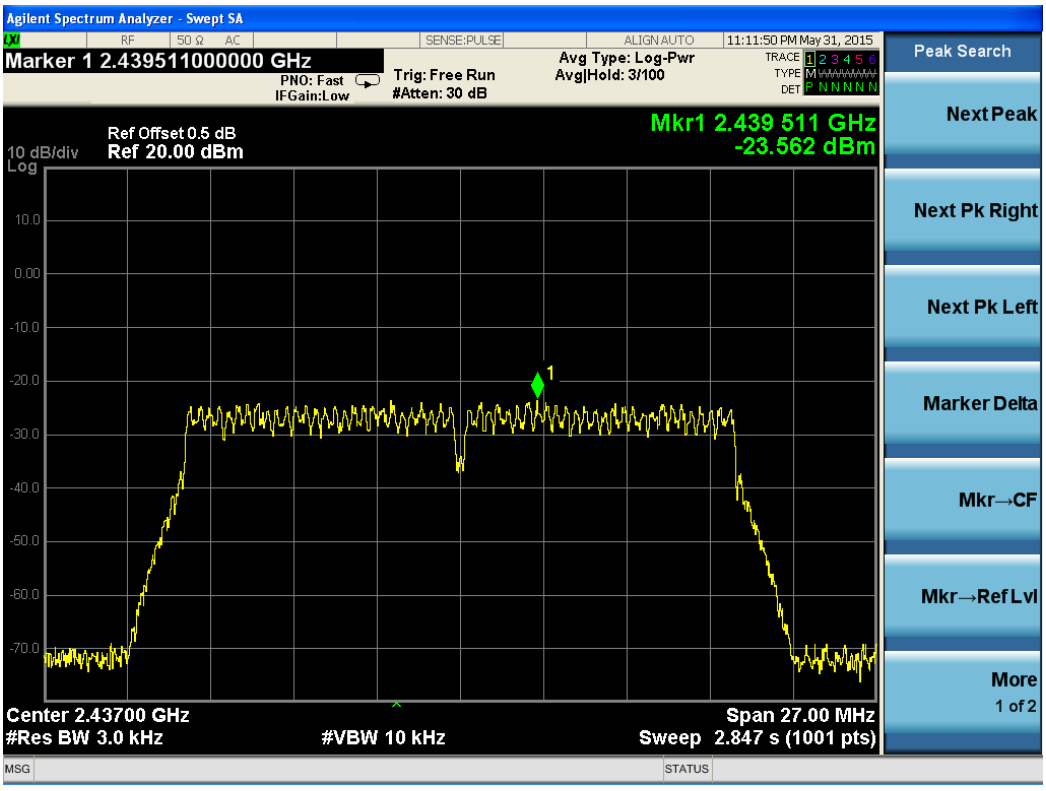


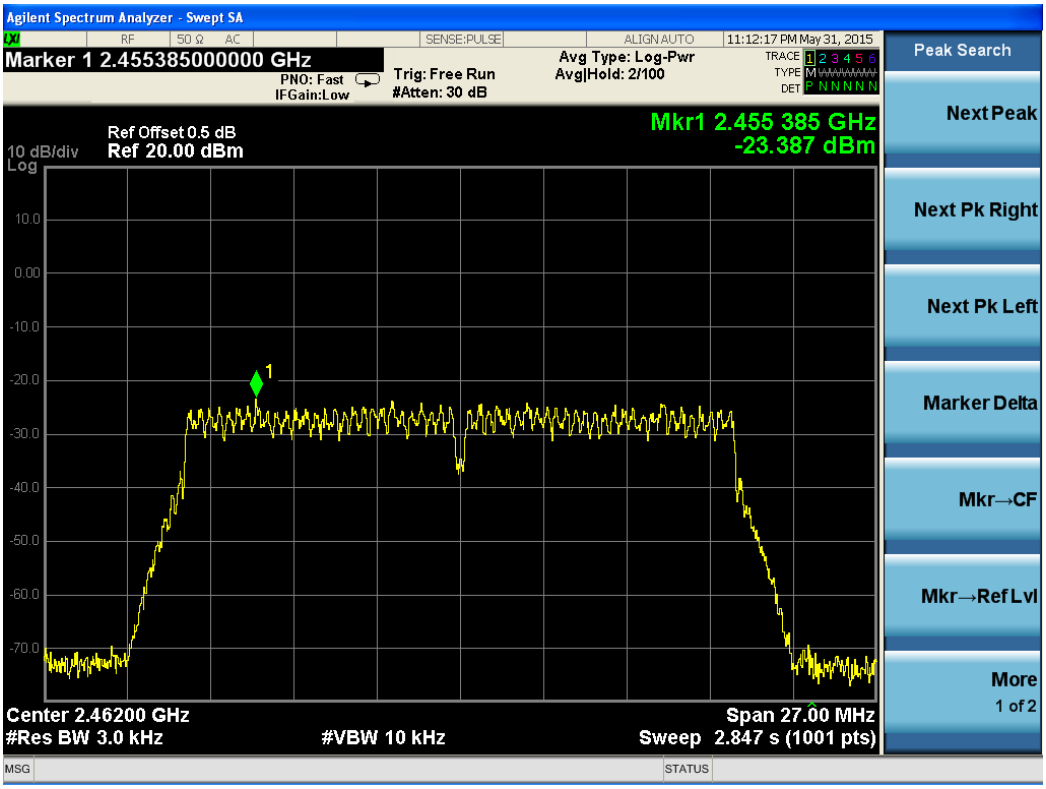




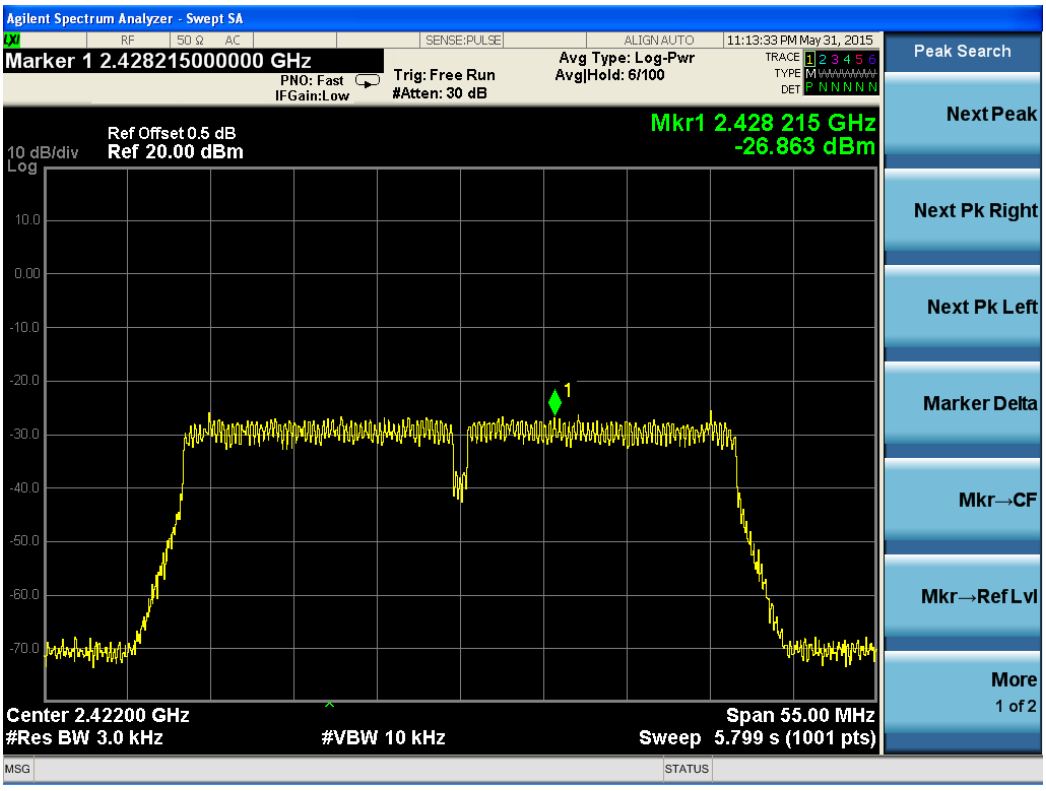
802.11n HT20 power density

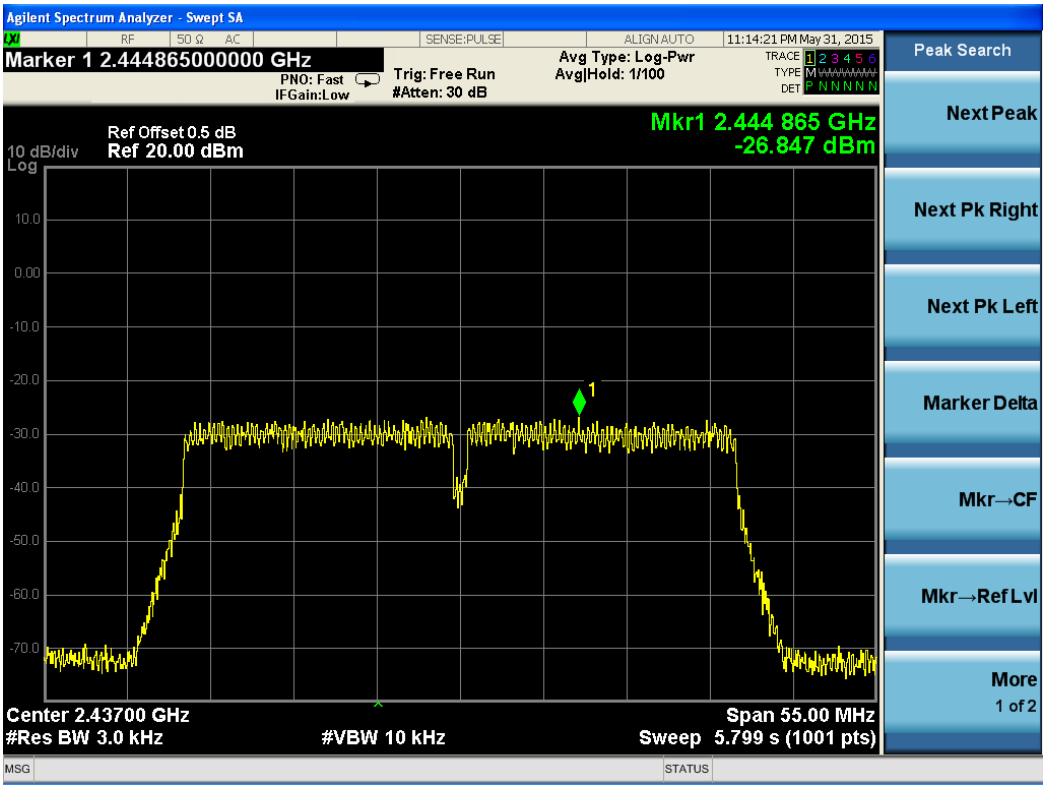


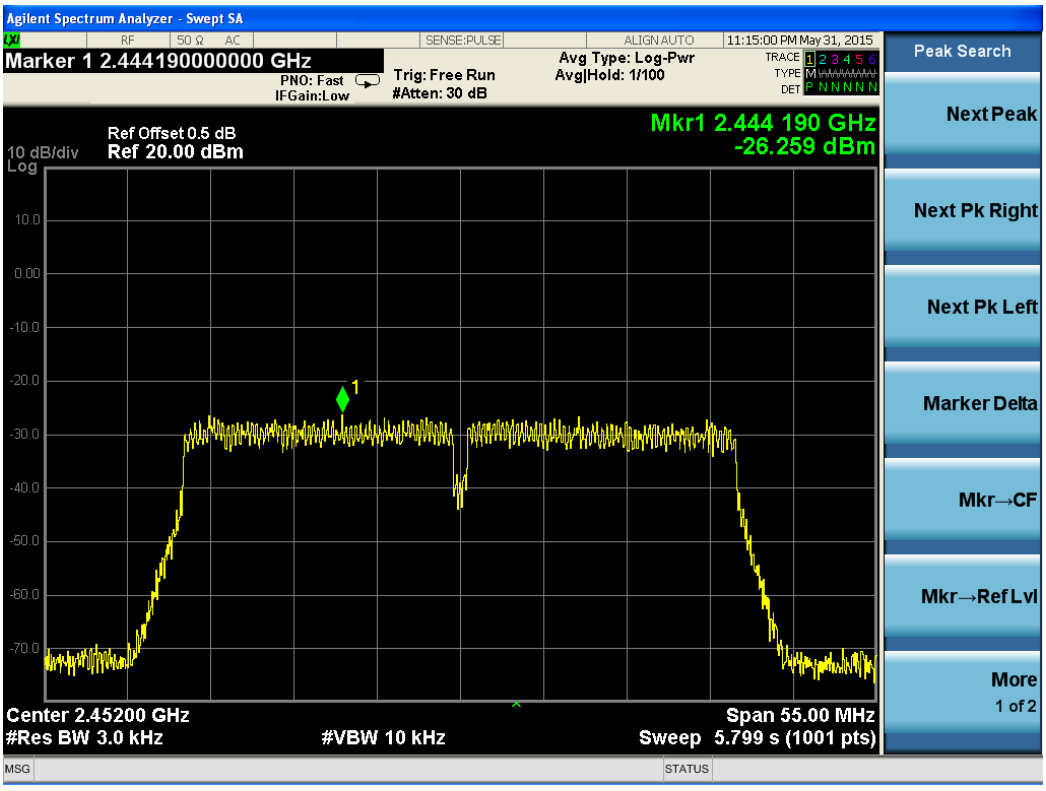




802.11n HT40 power density







5.3. 6 dB Spectrum Bandwidth Measurement

5.3.1. Standard Applicable

According to §15.247(a)(2): 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.

5.3.2. Instruments Setting

The following table is the setting of the Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> RBW
Detector	Peak
Trace	Max Hold
Sweep Time	100ms

5.3.3. Test Procedures

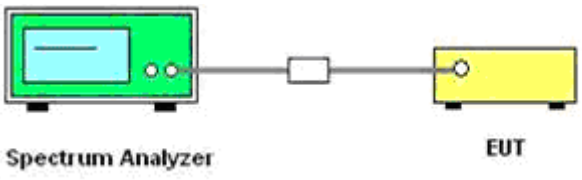
1) The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.

2) The resolution bandwidth and the video bandwidth were set according to KDB558074 D01 DTS Meas. Guidance v03r02.

3) Measured the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

4) Measured the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20dB relative to the maximum level measured in the fundamental emission.

5.3.4. Test Setup Layout



5.3.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.3.6. Test Result of Spectrum Bandwidth

Temperature	25℃	Humidity	60%
Test Engineer	Leo	Configurations	802.11b/g/n

802.11b

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	9.16	500	Complies
6	2437	9.16	500	Complies
11	2462	9.15	500	Complies

802.11g

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	16.61	500	Complies
6	2437	16.62	500	Complies
11	2462	16.62	500	Complies

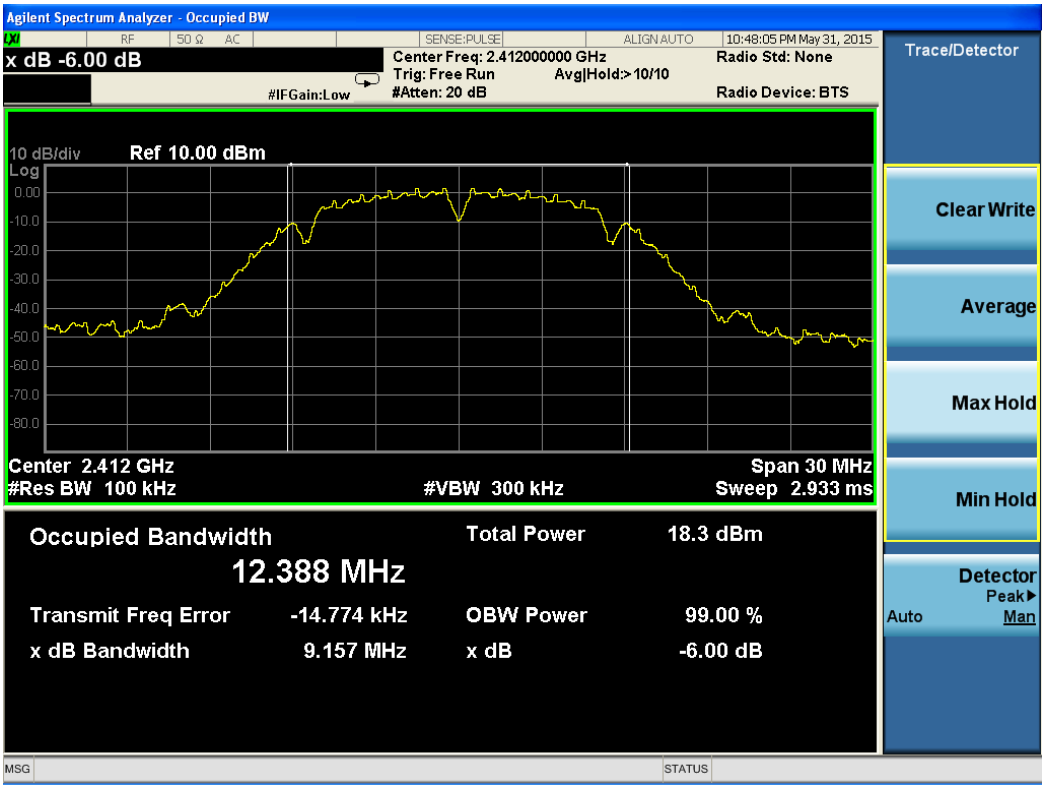
802.11n HT20

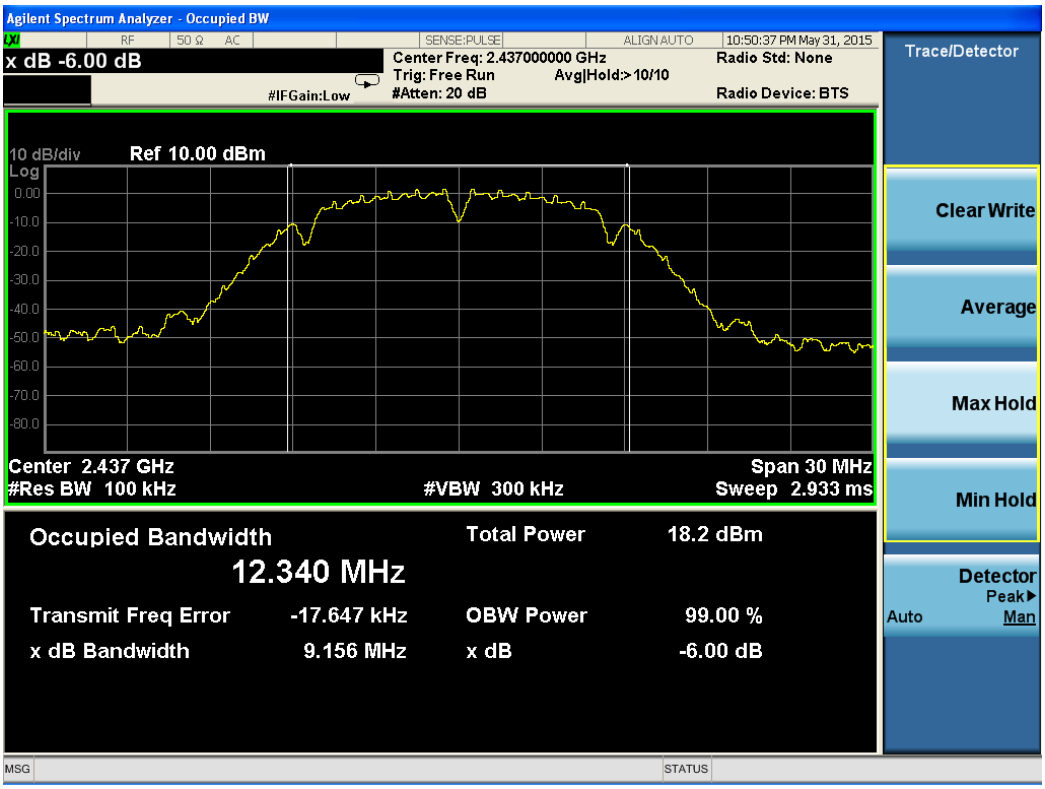
Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	17.81	500	Complies
6	2437	17.82	500	Complies
11	2462	17.82	500	Complies

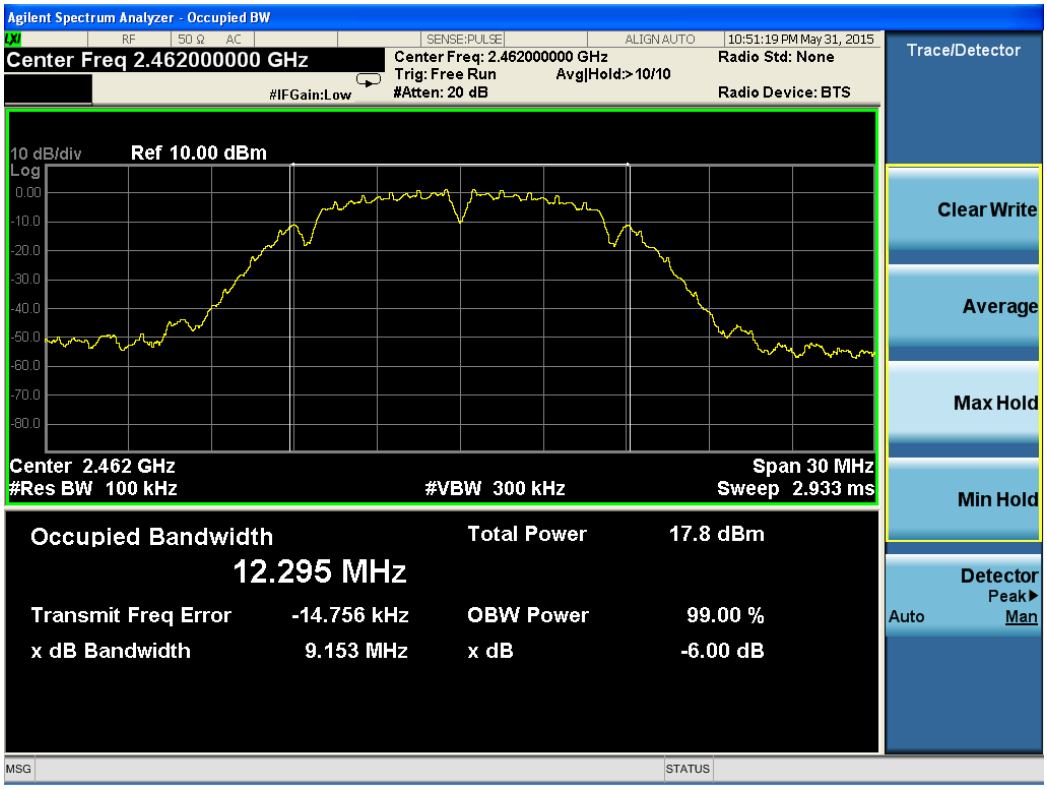
802.11n HT40

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
3	2422	36.50	500	Complies
6	2437	36.52	500	Complies
9	2452	36.50	500	Complies

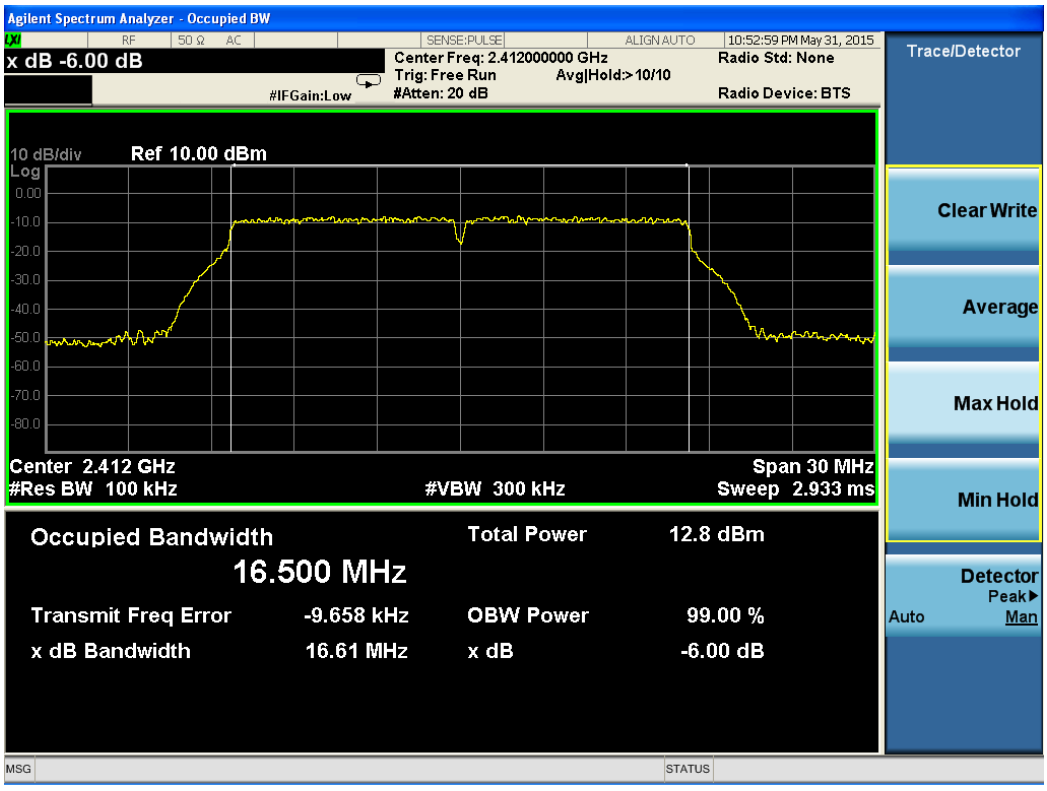
802.11b channel, 6dB bandwidth

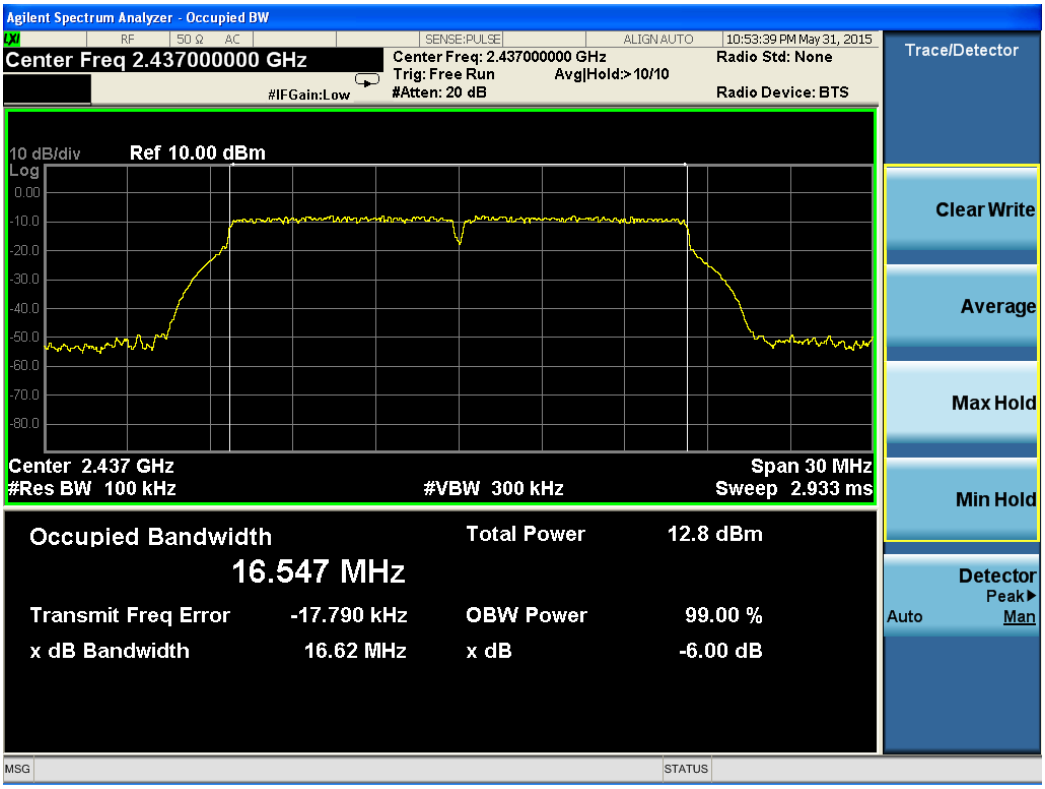


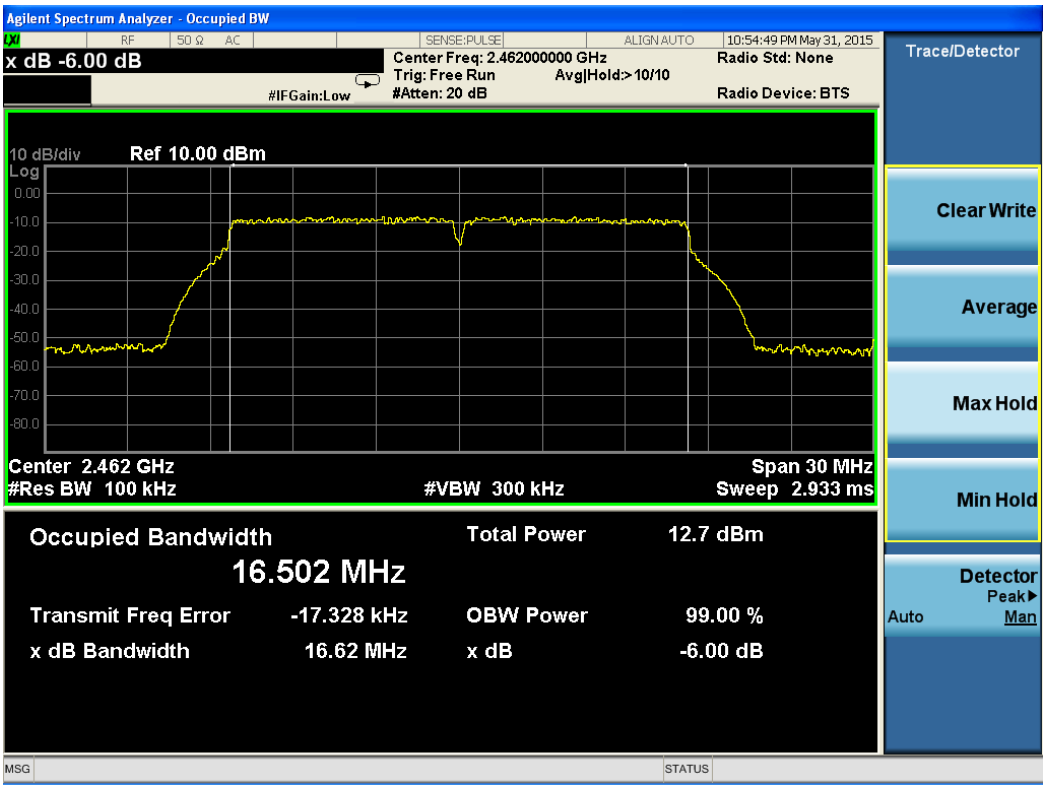




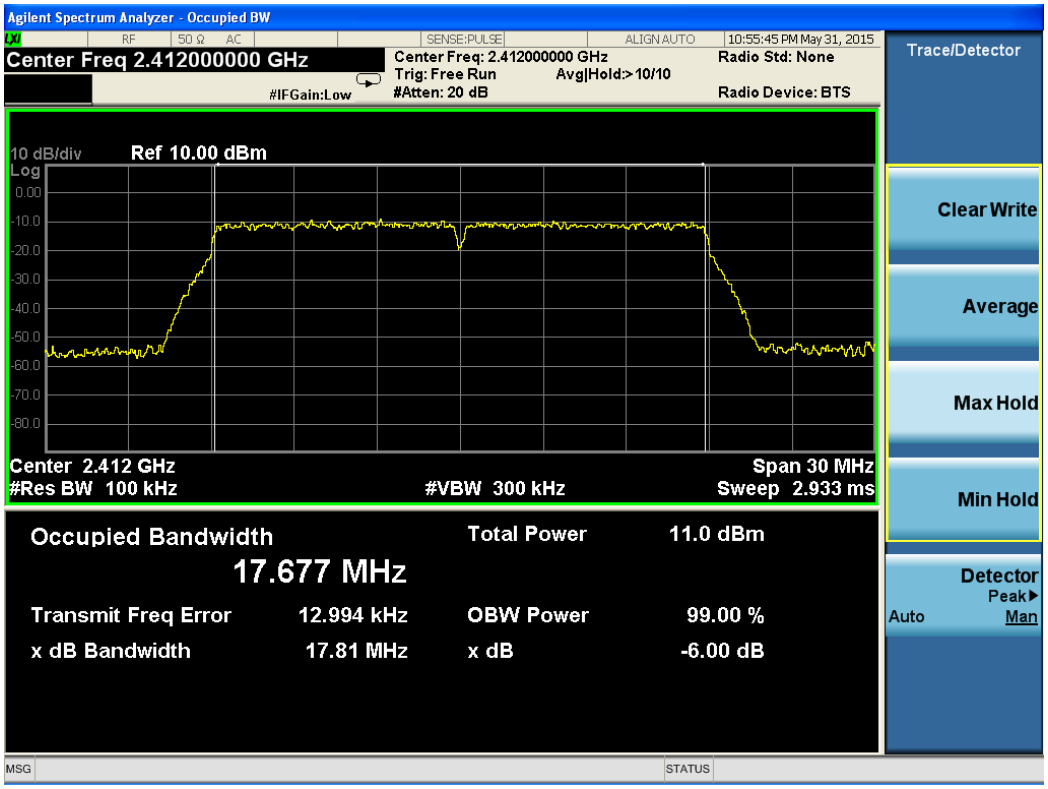
802.11g channel, 6dB bandwidth

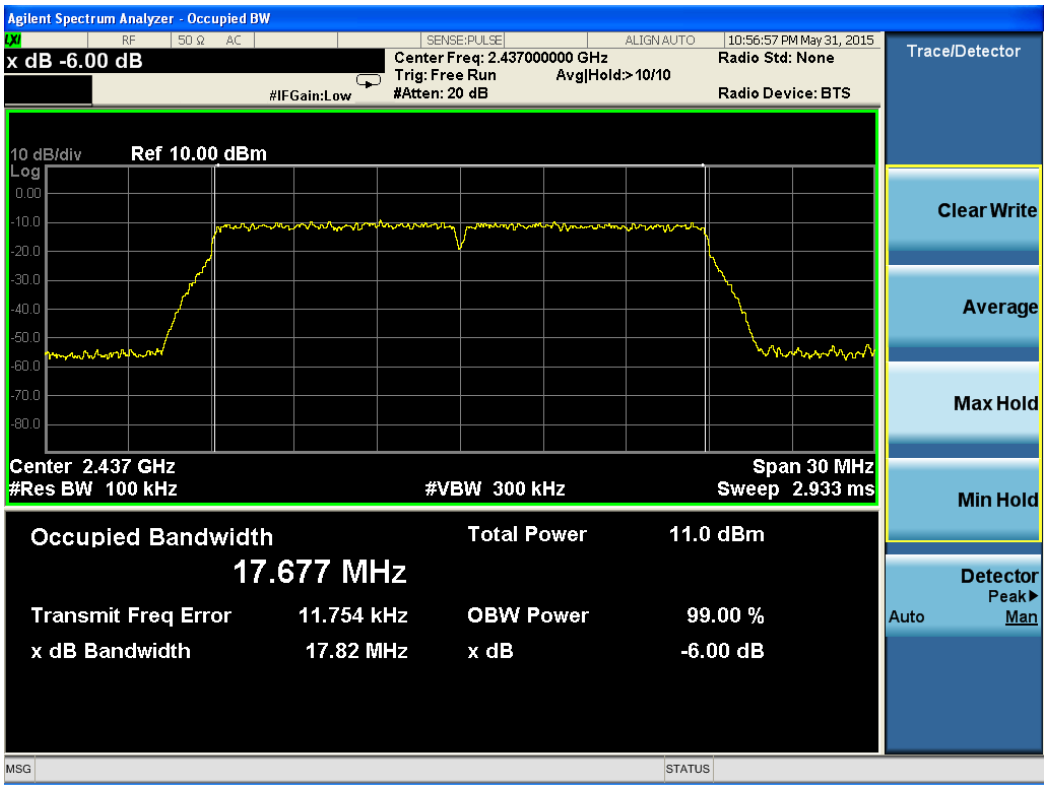


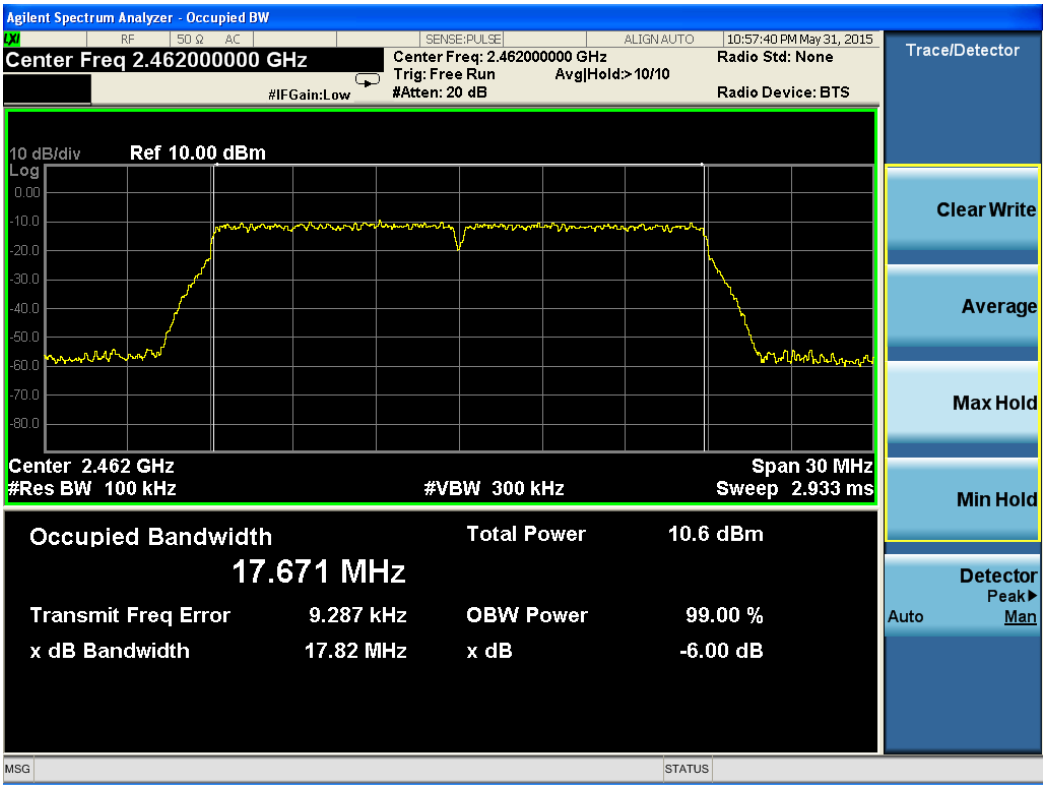




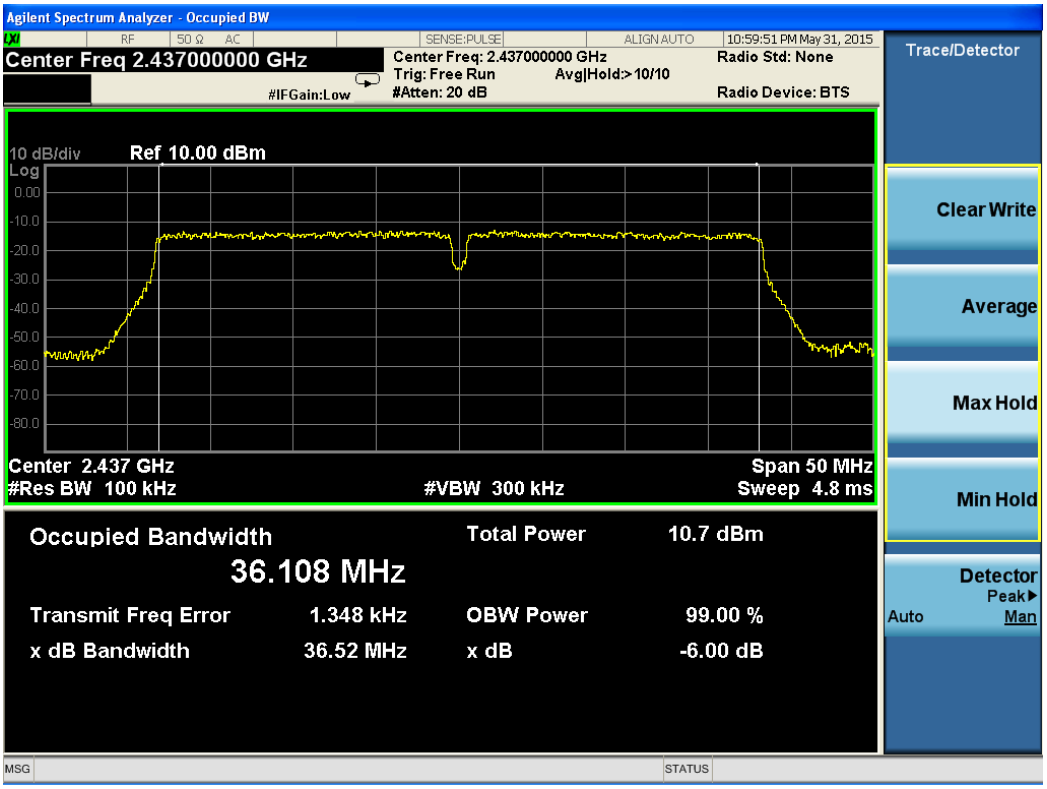
802.11n HT20 channel, 6dB bandwidth







802.11n HT40 channel, 6dB bandwidth


Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
10:59:51 PM May 31, 2015
Center Freq 2.437000000 GHz
Center Freq: 2.437000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.437 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 50 MHz
Sweep 4.8 ms
Occupied Bandwidth
36.108 MHz
Total Power 10.7 dBm
Transmit Freq Error 1.348 kHz
OBW Power 99.00 %
x dB Bandwidth 36.52 MHz
x dB -6.00 dB
Clear Write
Average
Max Hold
Min Hold
Detector
Peak
Auto
Man
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
11:01:59 PM May 31, 2015
x dB -6.00 dB
Center Freq: 2.452000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.452 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 50 MHz
Sweep 4.8 ms
Occupied Bandwidth
36.102 MHz
Total Power 10.9 dBm
Transmit Freq Error 288 Hz
OBW Power 99.00 %
x dB Bandwidth 36.50 MHz
x dB -6.00 dB
Clear Write
Average
Max Hold
Min Hold
Detector
Peak
Auto
Man
MSG
STATUS

5.4. Radiated Emissions Measurement

5.4.1. Standard Applicable

According to §15.247 (d): 20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies(MHz)	Field Strength(microvolts/meter)	Measurement Distance(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

5.4.2. Instruments Setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

5.4.3. Test Procedures

1) Configure the EUT according to ANSI C63.10: 2009. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.

2) Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

3) The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.

4) For each suspected emissions, the antenna tower was scan (from 1 m to 4 m) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading

5) Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

6) For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

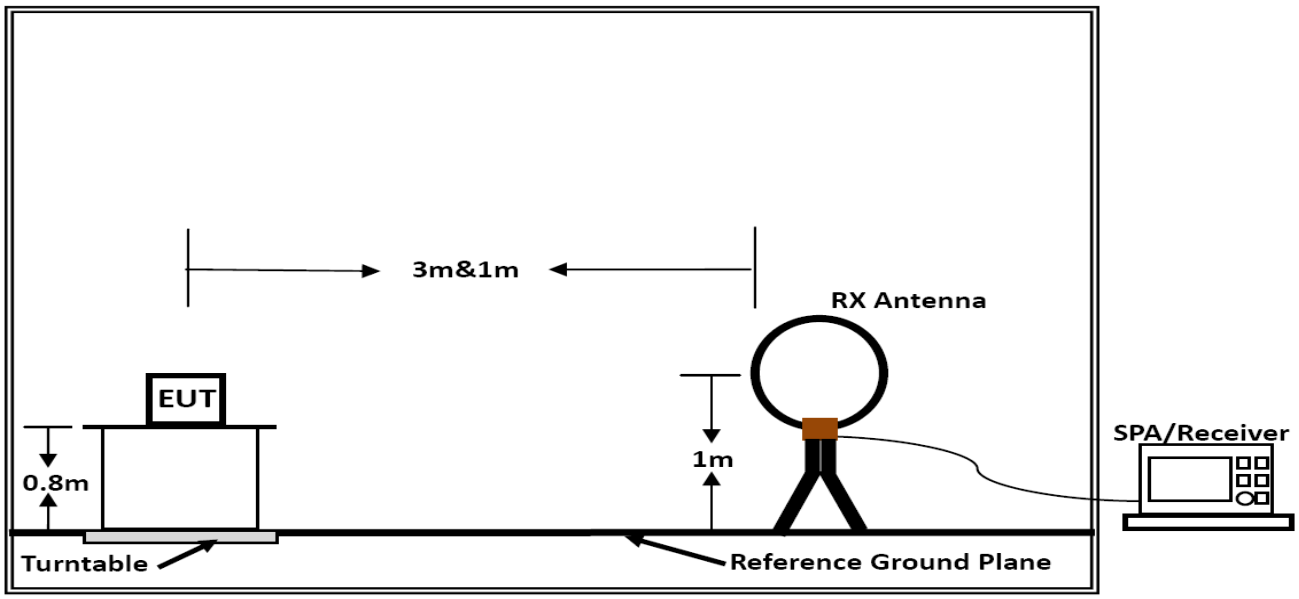
7) When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

8) If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.

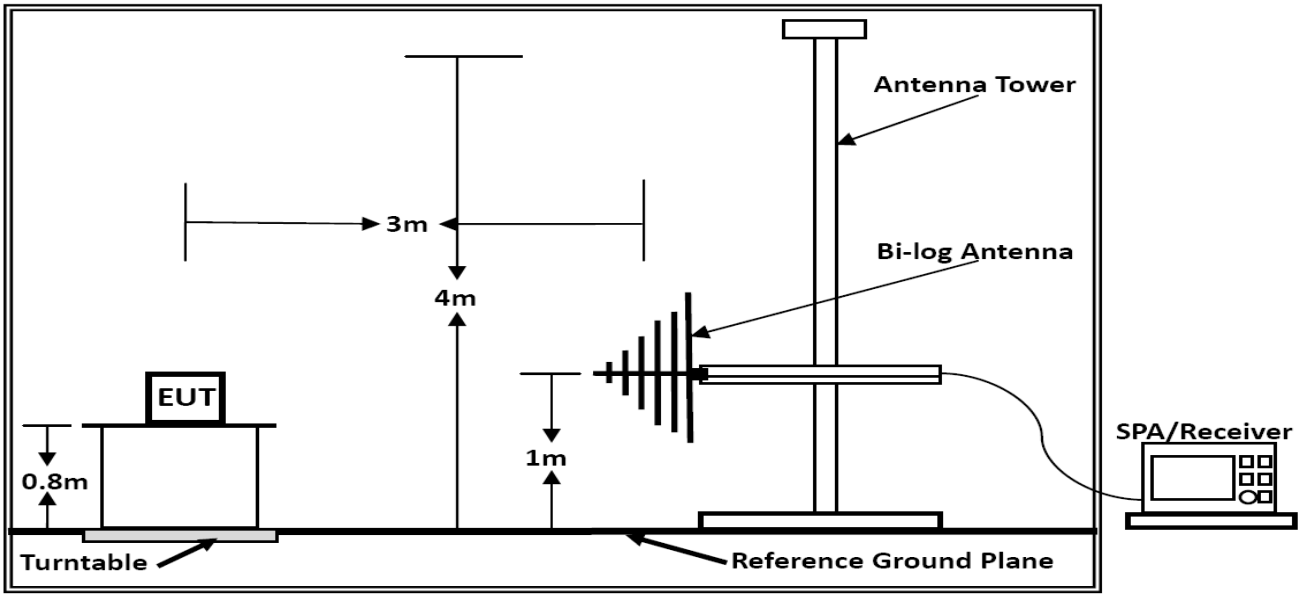
9) For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emission sat the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

10) In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

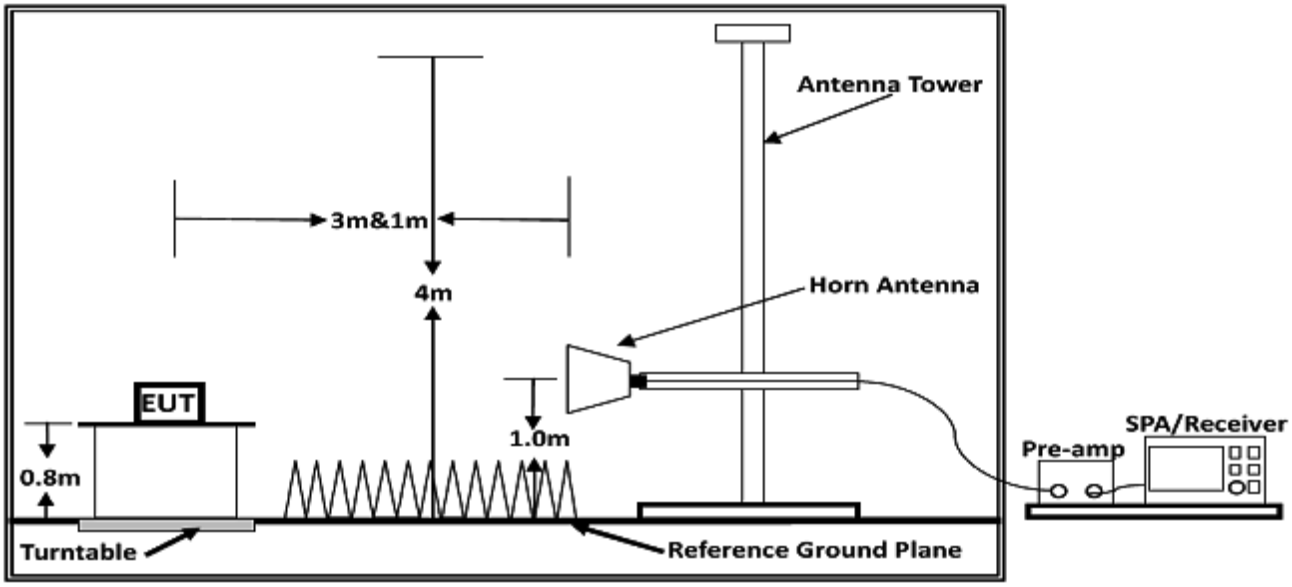
5.4.4. Test Setup Layout



Below 30MHz



Below 1GHz



Above 1GHz

Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

5.4.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.4.6. Results of Radiated Emissions (9kHz~30MHz)

Temperature	25℃	Humidity	60%
Test Engineer	Leo	Configurations	802.11b/g/n

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

Note:

The radiated emissions from 9kHz to 30MHz are at least 20dB below the official limit and no need to report.

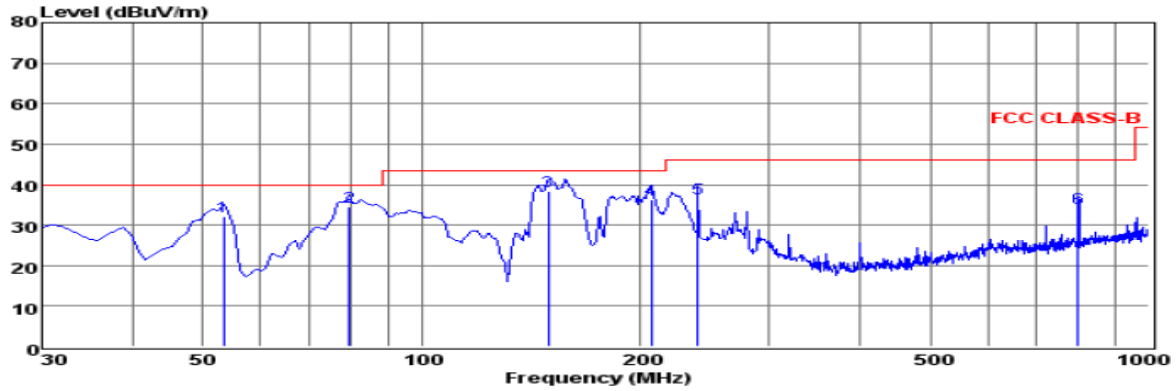
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

5.4.7. Results of Radiated Emissions (30MHz~1GHz)

Temperature	25℃	Humidity	60%
Test Engineer	Leo	Configurations	802.11b (Low Channel)

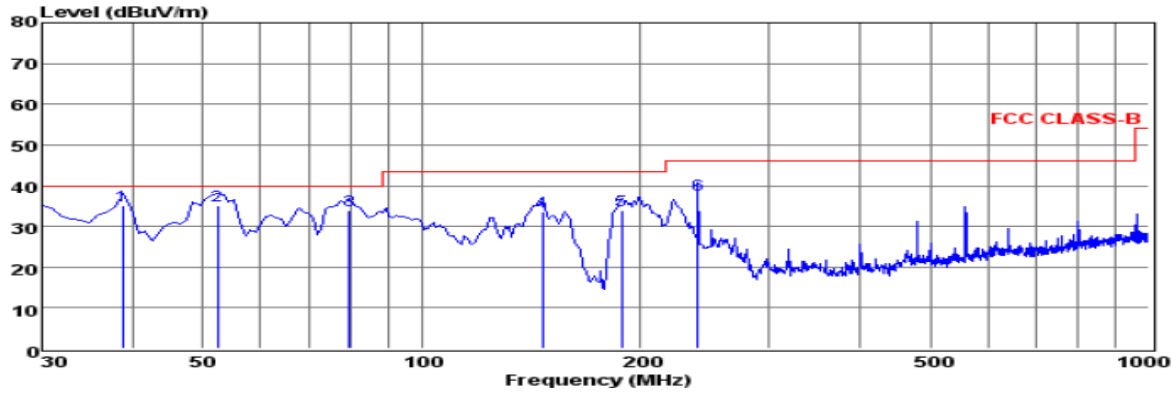
Test result for 802.11b (Low Channel)



Env./Ins: 24℃/56%
EUT: Doortalk2
M/N: Doortalk2
Power Rating: AC 120V/60Hz
Test Mode: TX-Low Channel(802.11b)
Operator: Leo
Memo:
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	53.28	18.50	0.46	13.10	32.06	40.00	-7.94	QP
2	79.47	25.45	0.65	8.46	34.56	40.00	-5.44	QP
3	149.31	29.35	0.86	8.26	38.47	43.50	-5.03	QP
4	206.54	24.39	0.99	10.78	36.16	43.50	-7.34	QP
5	239.52	23.38	1.01	12.07	36.46	46.00	-9.54	QP
6	800.18	12.53	1.68	20.06	34.27	46.00	-11.73	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported



Env./Ins: 24℃/56%
EUT: Doortalk2
M/N: Doortalk2
Power Rating: AC 120V/60Hz
Test Mode: TX-Low Channel(802.11b)
Operator: Leo
Memo:
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	38.73	21.33	0.38	13.25	34.96	40.00	-5.04	QP
2	52.31	21.49	0.46	13.14	35.09	40.00	-4.91	QP
3	79.47	24.80	0.65	8.46	33.91	40.00	-6.09	QP
4	146.40	24.53	0.77	8.23	33.53	43.50	-9.97	QP
5	188.11	22.64	0.98	10.39	34.01	43.50	-9.49	QP
6	239.52	24.66	1.01	12.07	37.74	46.00	-8.26	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported

Note:

Pre-scan all mode and recorded the worst case results in this report (802.11b (Low Channel)).

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

5.4.8. Results for Radiated Emissions (Above 1GHz)

802.11b

Channel 1

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4824.17	56.34	33.06	35.04	3.94	58.30	74	-15.70	Peak	Horizontal
4824.19	46.92	33.06	35.04	3.94	48.88	54	-5.12	Average	Horizontal
4824.17	56.62	33.06	35.04	3.94	58.58	74	-15.42	Peak	Vertical
4824.19	46.37	33.06	35.04	3.94	48.33	54	-5.67	Average	Vertical

Channel 6

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4874.31	54.92	33.16	35.15	3.96	56.89	74	-17.11	Peak	Horizontal
4874.33	45.12	33.16	35.15	3.96	47.09	54	-6.91	Average	Horizontal
4874.30	56.20	33.16	35.15	3.96	58.17	74	-15.83	Peak	Vertical
4874.33	46.24	33.16	35.15	3.96	48.21	54	-5.79	Average	Vertical

Channel 11

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4924.11	53.52	33.26	35.14	3.98	55.62	74	-18.38	Peak	Horizontal
4924.13	43.87	33.26	35.14	3.98	45.97	54	-8.03	Average	Horizontal
4924.11	53.38	33.26	35.14	3.98	55.48	74	-18.52	Peak	Vertical
4924.13	43.62	33.26	35.14	3.98	45.72	54	-8.28	Average	Vertical

802.11g

Channel 1

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4824.13	52.59	33.06	35.04	3.94	54.55	74	-19.45	Peak	Horizontal
4824.16	41.50	33.06	35.04	3.94	43.46	54	-10.54	Average	Horizontal
4824.13	53.23	33.06	35.04	3.94	55.19	74	-18.81	Peak	Vertical
4824.16	42.90	33.06	35.04	3.94	44.86	54	-9.14	Average	Vertical

Channel 6

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4874.20	52.90	33.16	35.15	3.96	54.87	74	-19.13	Peak	Horizontal
4874.23	43.39	33.16	35.15	3.96	45.36	54	-8.64	Average	Horizontal
4874.20	54.17	33.16	35.15	3.96	56.14	74	-17.86	Peak	Vertical
4874.23	45.38	33.16	35.15	3.96	47.35	54	-6.65	Average	Vertical

Channel 11

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4924.17	54.19	33.26	35.14	3.98	56.29	74	-17.71	Peak	Horizontal
4924.19	45.87	33.26	35.14	3.98	47.97	54	-6.03	Average	Horizontal
4924.17	55.26	33.26	35.14	3.98	57.36	74	-16.64	Peak	Vertical
4924.19	45.82	33.26	35.14	3.98	47.92	54	-6.08	Average	Vertical

802.11n HT20

Channel 1

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4824.31	52.01	33.06	35.04	3.94	53.97	74	-20.03	Peak	Horizontal
4824.33	41.58	33.06	35.04	3.94	43.54	54	-10.46	Average	Horizontal
4824.30	54.47	33.06	35.04	3.94	56.43	74	-17.57	Peak	Vertical
4824.33	43.21	33.06	35.04	3.94	45.17	54	-8.83	Average	Vertical

Channel 6

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4874.24	50.93	33.16	35.15	3.96	52.90	74	-21.10	Peak	Horizontal
4874.27	41.15	33.16	35.15	3.96	43.12	54	-10.88	Average	Horizontal
4874.24	53.16	33.16	35.15	3.96	55.13	74	-18.87	Peak	Vertical
4874.27	42.20	33.16	35.15	3.96	44.17	54	-9.83	Average	Vertical

Channel 11

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4924.31	50.11	33.26	35.14	3.98	52.21	74	-21.79	Peak	Horizontal
4924.33	40.13	33.26	35.14	3.98	42.23	54	-11.77	Average	Horizontal
4924.31	51.44	33.26	35.14	3.98	53.54	74	-20.46	Peak	Vertical
4924.33	41.54	33.26	35.14	3.98	43.64	54	-10.36	Average	Vertical

802.11n HT40

Channel 3

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4844.19	46.84	33.06	35.04	3.94	48.80	74	-25.20	Peak	Horizontal
4844.22	36.28	33.06	35.04	3.94	38.24	54	-15.76	Average	Horizontal
4844.19	48.97	33.06	35.04	3.94	50.93	74	-23.07	Peak	Vertical
4844.22	39.89	33.06	35.04	3.94	41.85	54	-12.15	Average	Vertical

Channel 6

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4874.41	47.93	33.16	35.15	3.96	49.90	74	-24.10	Peak	Horizontal
4874.44	37.30	33.16	35.15	3.96	39.27	54	-14.73	Average	Horizontal
4874.41	48.11	33.16	35.15	3.96	50.08	74	-23.92	Peak	Vertical
4874.44	37.52	33.16	35.15	3.96	39.49	54	-14.51	Average	Vertical

Channel 9

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
4904.24	48.75	33.26	35.14	3.98	50.85	74	-23.15	Peak	Horizontal
4904.27	39.69	33.26	35.14	3.98	41.79	54	-12.21	Average	Horizontal
4904.24	50.26	33.26	35.14	3.98	52.36	74	-21.64	Peak	Vertical
4904.27	39.13	33.26	35.14	3.98	41.23	54	-12.77	Average	Vertical

Notes:

1. *Measuring frequencies from 9k~10th harmonic or 26.5GHz (which is less), No emission found between lowest internal used/generated frequency to 30MHz.*
2. *Radiated emissions measured in frequency range from 30MHz~10th harmonic or 26.5GHz (which is less) were made with an instrument using Peak detector mode.*
3. *The radiated emissions from 18GHz to 25GHz are at least 20dB below the official limit and no need to report.*

5.4.9. Results of Band Edges Test (Radiated)

802.11b

Tx-2412

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2371.17	44.73	32.89	35.16	3.51	45.97	74	-28.03	Peak	Horizontal
2371.19	36.70	32.90	35.16	3.51	37.95	54	-16.05	Average	Horizontal
2390.00	48.32	32.92	35.16	3.54	49.62	74	-24.38	Peak	Horizontal
2389.97	36.65	32.92	35.16	3.54	37.95	54	-16.05	Average	Horizontal
2371.17	46.94	32.89	35.16	3.51	48.18	74	-25.82	Peak	Vertical
2371.19	35.62	32.90	35.16	3.51	36.87	54	-17.13	Average	Vertical
2390.00	46.85	32.92	35.16	3.54	48.15	74	-25.85	Peak	Vertical
2389.97	37.31	32.92	35.16	3.54	38.61	54	-15.39	Average	Vertical

Tx-2462

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2483.50	47.61	33.06	35.18	3.60	49.09	74	-24.91	Peak	Horizontal
2483.53	38.34	33.08	35.18	3.60	39.84	54	-14.16	Average	Horizontal
2486.41	44.36	33.08	35.18	3.62	45.88	74	-28.12	Peak	Horizontal
2486.43	35.75	33.08	35.18	3.62	37.27	54	-16.73	Average	Horizontal
2483.50	46.88	33.06	35.18	3.60	48.36	74	-25.64	Peak	Vertical
2483.53	38.83	33.08	35.18	3.60	40.33	54	-13.67	Average	Vertical
2486.41	44.39	33.08	35.18	3.62	45.91	74	-28.09	Peak	Vertical
2486.43	32.98	33.08	35.18	3.62	34.50	54	-19.50	Average	Vertical

802.11g

Tx-2412

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2376.34	43.47	32.89	35.16	3.51	44.71	74	-29.29	Peak	Horizontal
2376.37	36.38	32.90	35.16	3.51	37.63	54	-16.37	Average	Horizontal
2390.00	48.49	32.92	35.16	3.54	49.79	74	-24.21	Peak	Horizontal
2389.97	34.24	32.92	35.16	3.54	35.54	54	-18.46	Average	Horizontal
2376.34	45.12	32.89	35.16	3.51	46.36	74	-27.64	Peak	Vertical
2376.37	34.61	32.90	35.16	3.51	35.86	54	-18.14	Average	Vertical
2390.00	46.85	32.92	35.16	3.54	48.15	74	-25.85	Peak	Vertical
2389.97	37.28	32.92	35.16	3.54	38.58	54	-15.42	Average	Vertical

Tx-2462

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2483.50	48.58	33.06	35.18	3.60	50.06	74	-23.94	Peak	Horizontal
2483.51	37.31	33.08	35.18	3.60	38.81	54	-15.19	Average	Horizontal
2487.43	46.33	33.08	35.18	3.62	47.85	74	-26.15	Peak	Horizontal
2487.45	33.50	33.08	35.18	3.62	35.02	54	-18.98	Average	Horizontal
2483.50	47.87	33.06	35.18	3.60	49.35	74	-24.65	Peak	Vertical
2483.51	36.83	33.08	35.18	3.60	38.33	54	-15.67	Average	Vertical
2487.43	46.41	33.08	35.18	3.62	47.93	74	-26.07	Peak	Vertical
2487.45	35.88	33.08	35.18	3.62	37.40	54	-16.60	Average	Vertical

802.11n(HT20)

Tx-2412

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2377.55	45.19	32.89	35.16	3.51	46.43	74	-27.57	Peak	Horizontal
2377.57	36.00	32.90	35.16	3.51	37.25	54	-16.75	Average	Horizontal
2390.00	47.55	32.92	35.16	3.54	48.85	74	-25.15	Peak	Horizontal
2389.97	36.21	32.92	35.16	3.54	37.51	54	-16.49	Average	Horizontal
2377.55	42.84	32.89	35.16	3.51	44.08	74	-29.92	Peak	Vertical
2377.57	36.44	32.90	35.16	3.51	37.69	54	-16.31	Average	Vertical
2390.00	47.55	32.92	35.16	3.54	48.85	74	-25.15	Peak	Vertical
2389.99	37.17	32.92	35.16	3.54	38.47	54	-15.53	Average	Vertical

Tx-2462

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2483.50	47.42	33.06	35.18	3.60	48.90	74	-25.10	Peak	Horizontal
2483.51	36.01	33.08	35.18	3.60	37.51	54	-16.49	Average	Horizontal
2487.36	44.29	33.08	35.18	3.62	45.81	74	-28.19	Peak	Horizontal
2487.39	33.03	33.08	35.18	3.62	34.55	54	-19.45	Average	Horizontal
2483.50	47.37	33.06	35.18	3.60	48.85	74	-25.15	Peak	Vertical
2483.53	35.60	33.08	35.18	3.60	37.10	54	-16.90	Average	Vertical
2487.36	45.76	33.08	35.18	3.62	47.28	74	-26.72	Peak	Vertical
2487.39	34.61	33.08	35.18	3.62	36.13	54	-17.87	Average	Vertical

802.11n(HT40)

Tx-2422

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2376.47	44.85	32.89	35.16	3.51	46.09	74	-27.91	Peak	Horizontal
2376.50	34.51	32.90	35.16	3.51	35.76	54	-18.24	Average	Horizontal
2390.00	45.66	32.92	35.16	3.54	46.96	74	-27.04	Peak	Horizontal
2389.98	37.32	32.92	35.16	3.54	38.62	54	-15.38	Average	Horizontal
2376.18	43.68	32.89	35.16	3.51	44.92	74	-29.08	Peak	Vertical
2376.50	35.68	32.90	35.16	3.51	36.93	54	-17.07	Average	Vertical
2390.00	46.74	32.92	35.16	3.54	48.04	74	-25.96	Peak	Vertical
2389.99	35.95	32.92	35.16	3.54	37.25	54	-16.75	Average	Vertical

Tx-2452

Freq. MHz	Reading dBuv	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
2483.50	46.93	33.06	35.18	3.60	48.41	74	-25.59	Peak	Horizontal
2483.51	36.54	33.08	35.18	3.60	38.04	54	-15.96	Average	Horizontal
2489.64	44.16	33.08	35.18	3.62	45.68	74	-28.32	Peak	Horizontal
2489.67	33.26	33.08	35.18	3.62	34.78	54	-19.22	Average	Horizontal
2483.50	46.30	33.06	35.18	3.60	47.78	74	-26.22	Peak	Vertical
2483.51	36.13	33.08	35.18	3.60	37.63	54	-16.37	Average	Vertical
2489.64	45.15	33.08	35.18	3.62	46.67	74	-27.33	Peak	Vertical
2489.67	34.22	33.08	35.18	3.62	35.74	54	-18.26	Average	Vertical

5.5. Conducted Spurious Emissions and Band Edges Test

5.5.1. Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a)is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

5.5.2. Instruments Setting

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Detector	Peak
Attenuation	Auto
RB / VB (Emission in restricted band)	100KHz/300KHz
RB / VB (Emission in non-restricted band)	100KHz/300KHz

5.5.3. Test Procedures

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz

The spectrum from 9kHz to 26.5GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

5.5.4. Test Setup Layout

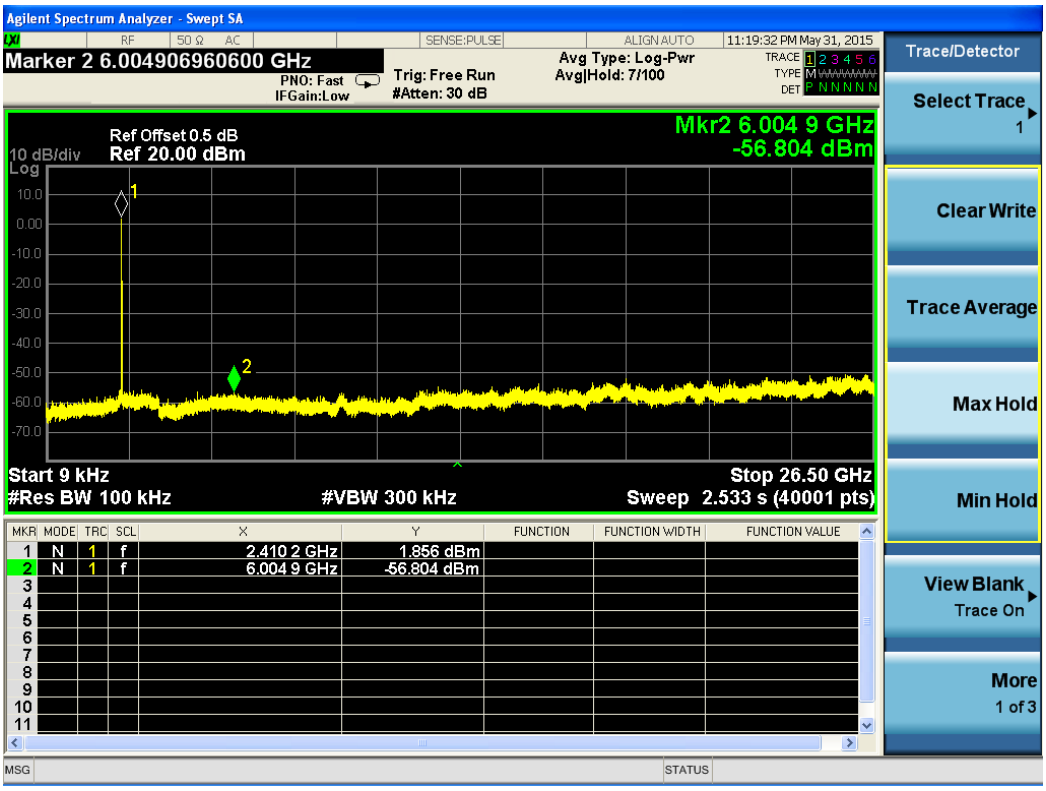
This test setup layout is the same as that shown in section 5.3.4.

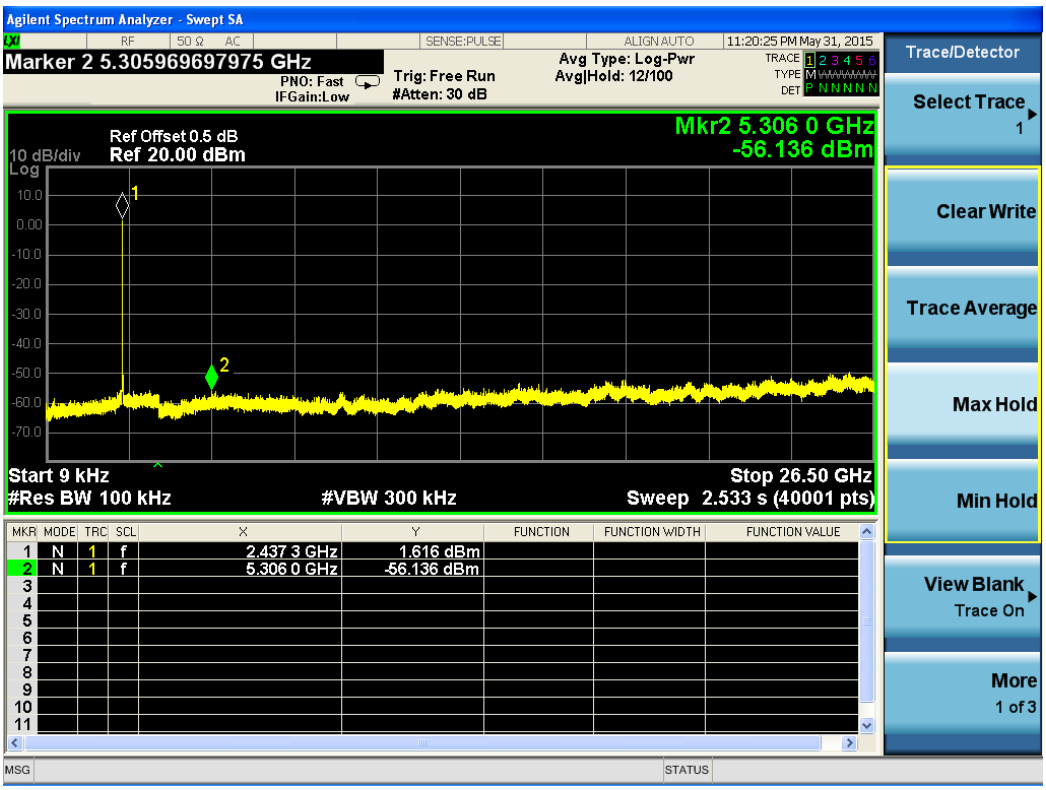
5.5.5. EUT Operation during Test

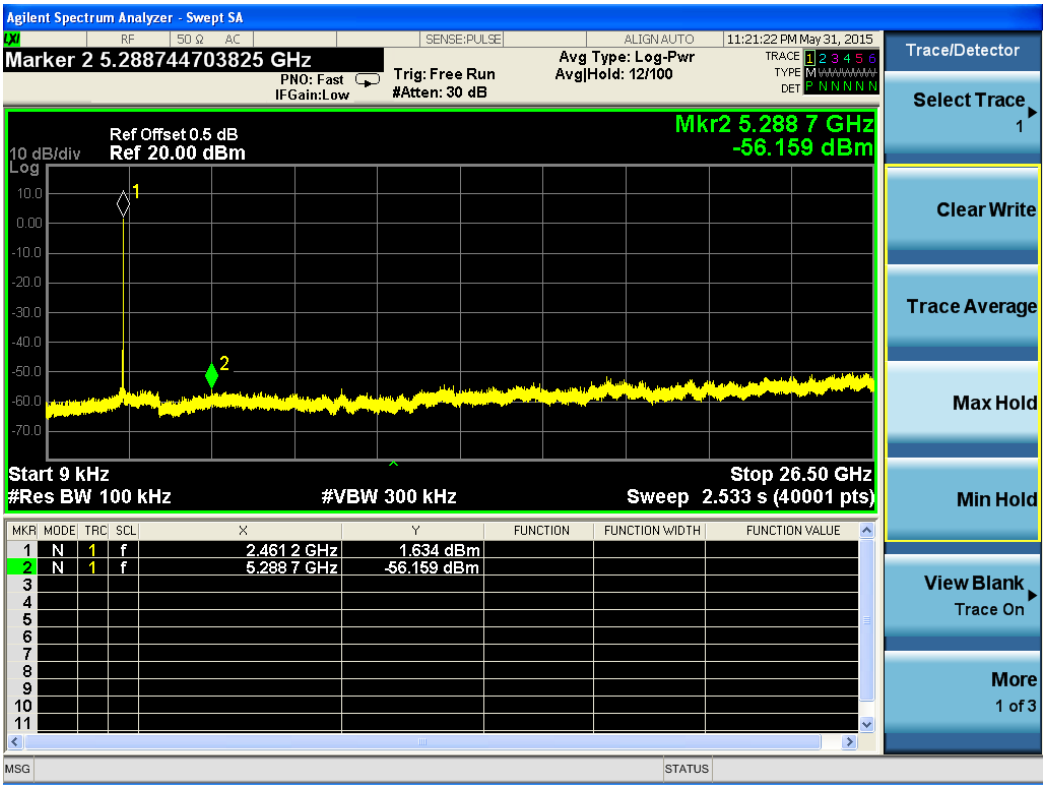
The EUT was programmed to be in continuously transmitting mode.

5.5.6. Test Results of Conducted Spurious Emissions

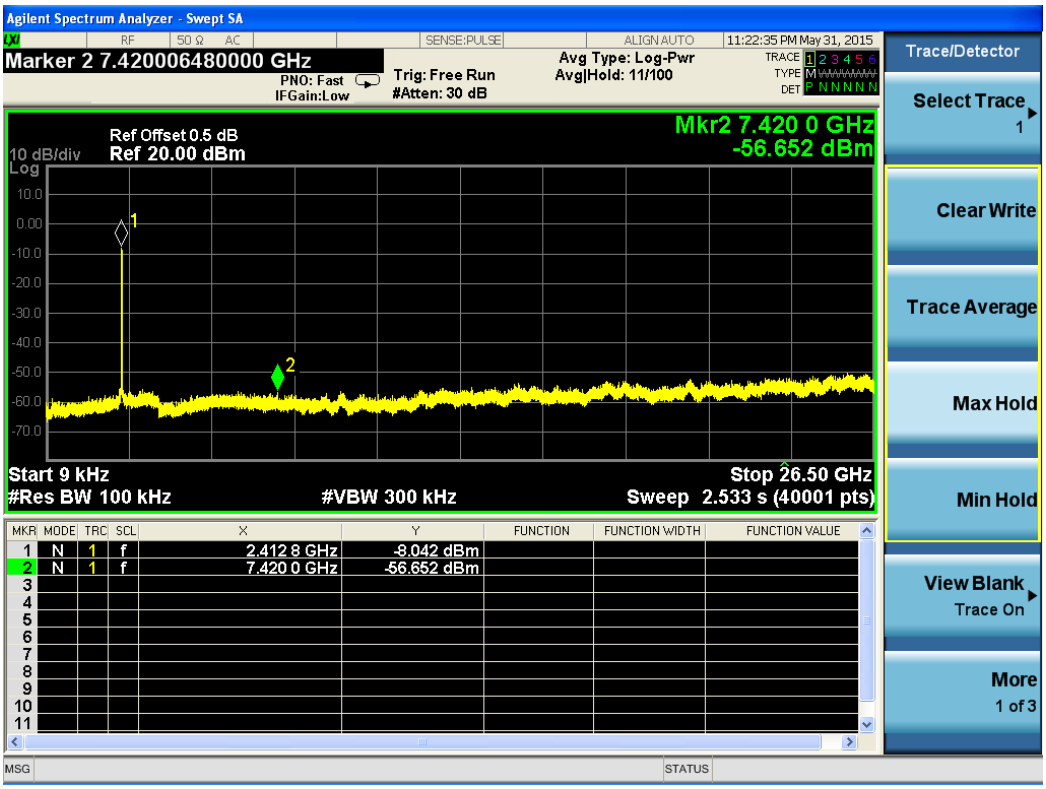
802.11b

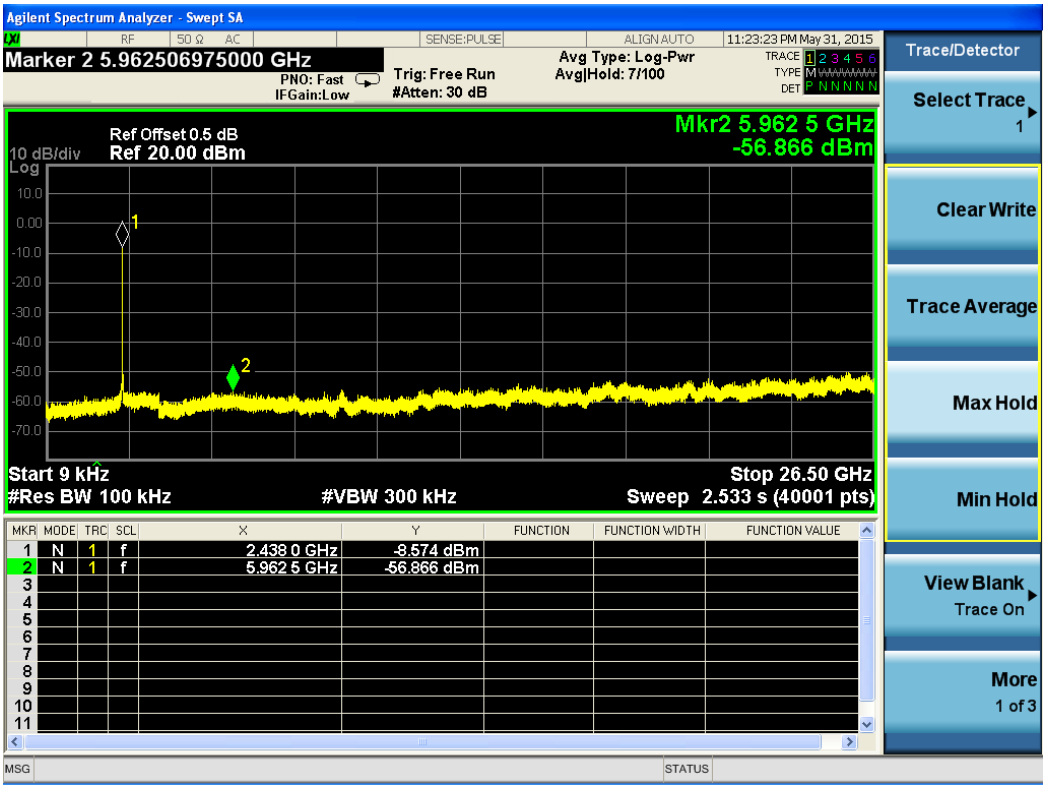


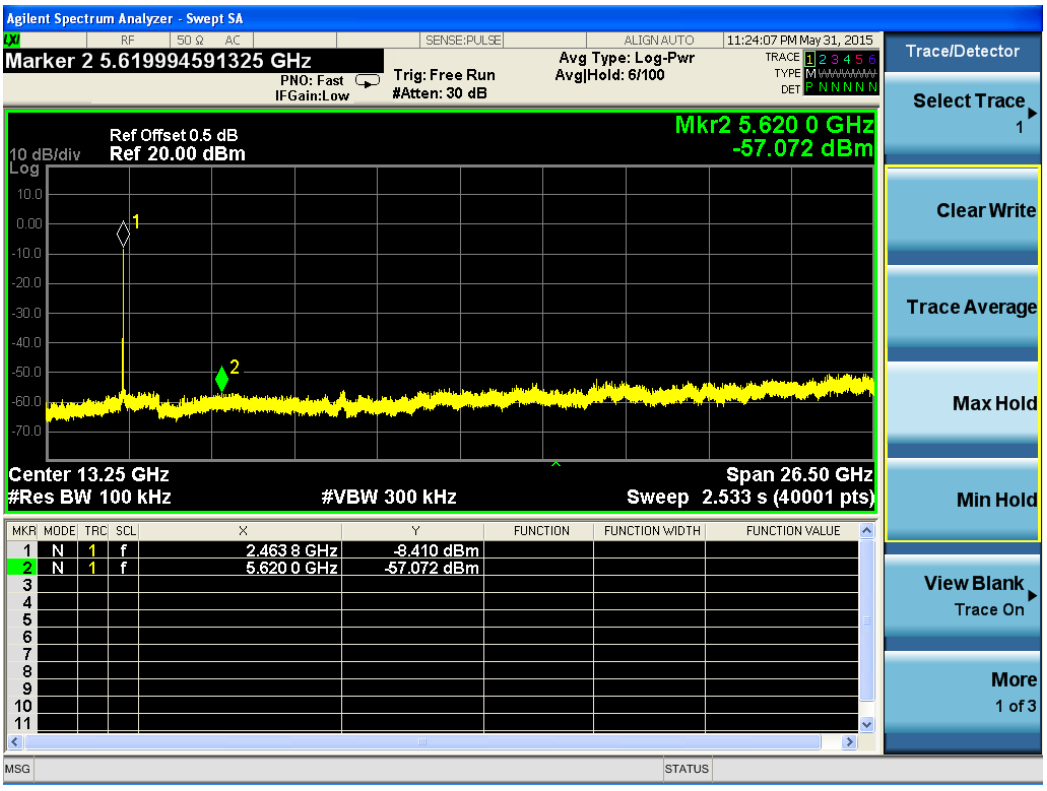



Agilent Spectrum Analyzer - Swept SA
Marker 2 5.288744703825 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 12/100
11:21:22 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.288 7 GHz
-56.159 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.461 2 GHz 1.634 dBm
2 N 1 f 5.288 7 GHz -56.159 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

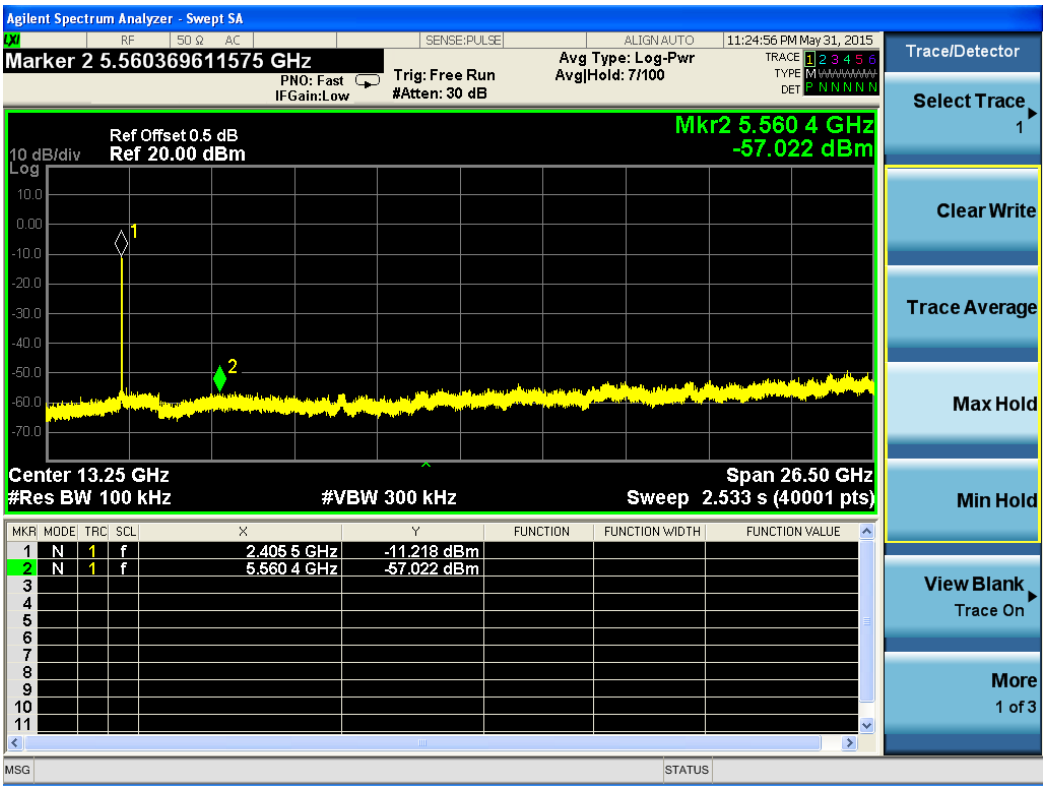
802.11g

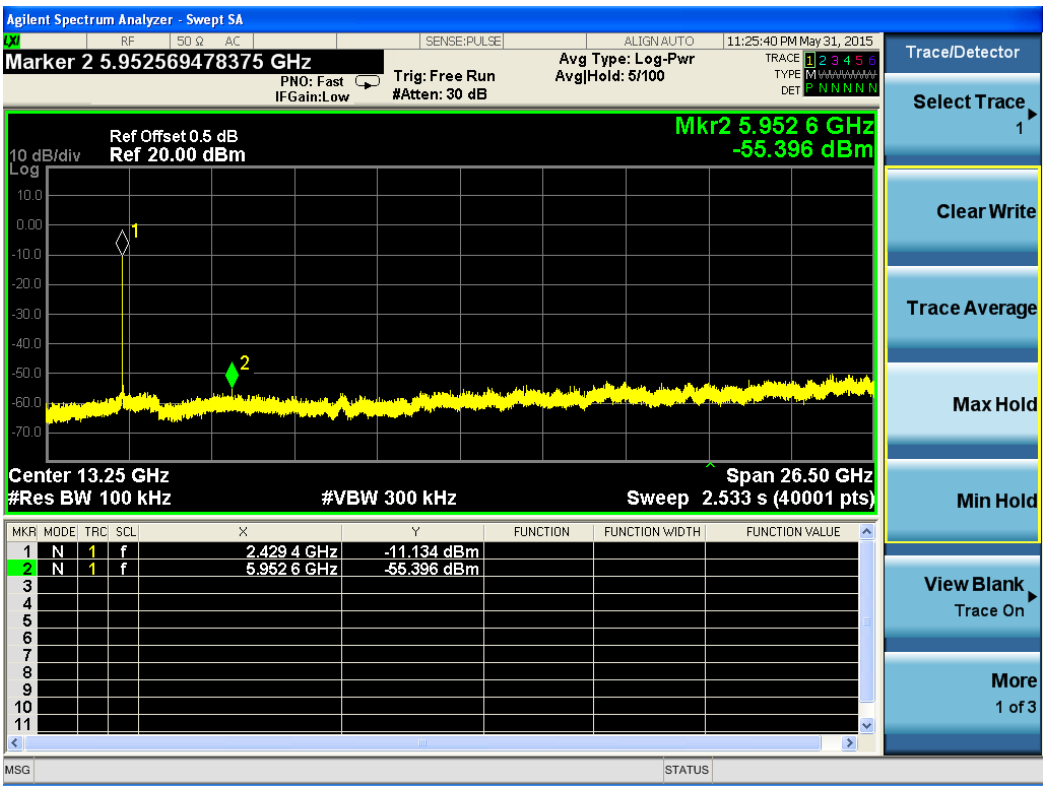

Agilent Spectrum Analyzer - Swept SA
Marker 2 7.420006480000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 11/100
11:22:35 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 7.420 0 GHz
-56.652 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.412 8 GHz -8.042 dBm
2 N 1 f 7.420 0 GHz -56.652 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

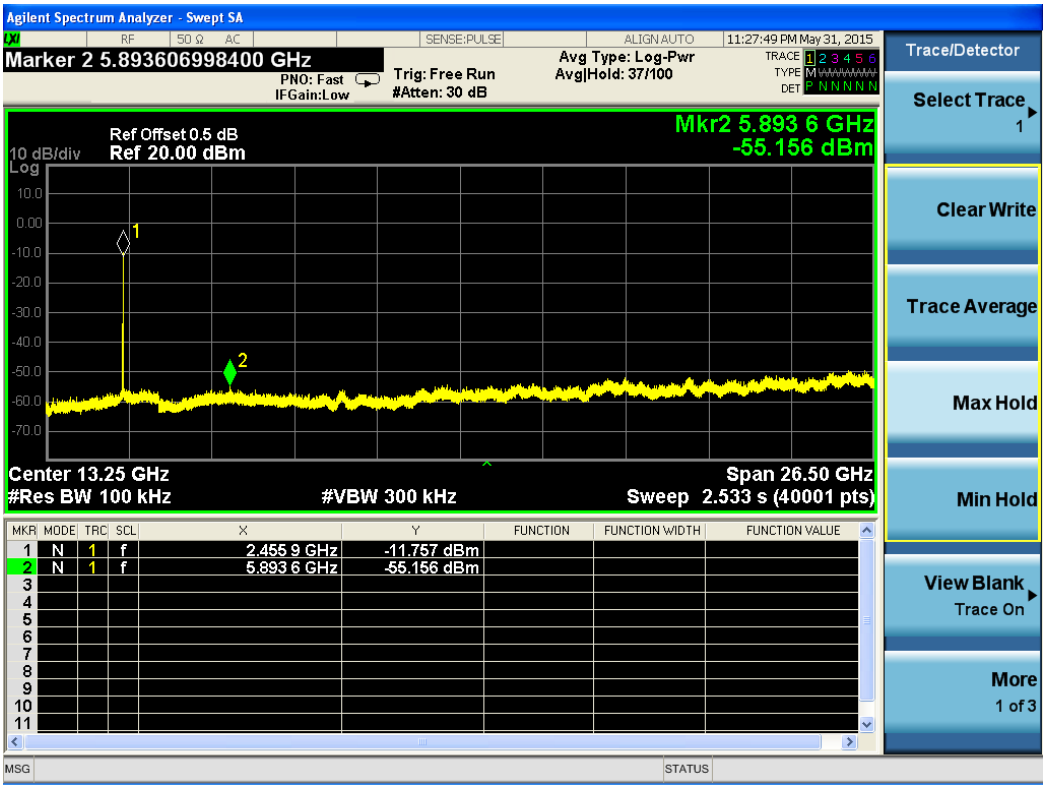

Agilent Spectrum Analyzer - Swept SA
Marker 2 5.962506975000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
11:23:23 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.962 5 GHz
-56.866 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.438 0 GHz -8.574 dBm
2 N 1 f 5.962 5 GHz -56.866 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3


Agilent Spectrum Analyzer - Swept SA
Marker 2 5.619994591325 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 6/100
11:24:07 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.620 0 GHz
-57.072 dBm
Center 13.25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.463 8 GHz -8.410 dBm
2 N 1 f 5.620 0 GHz -57.072 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

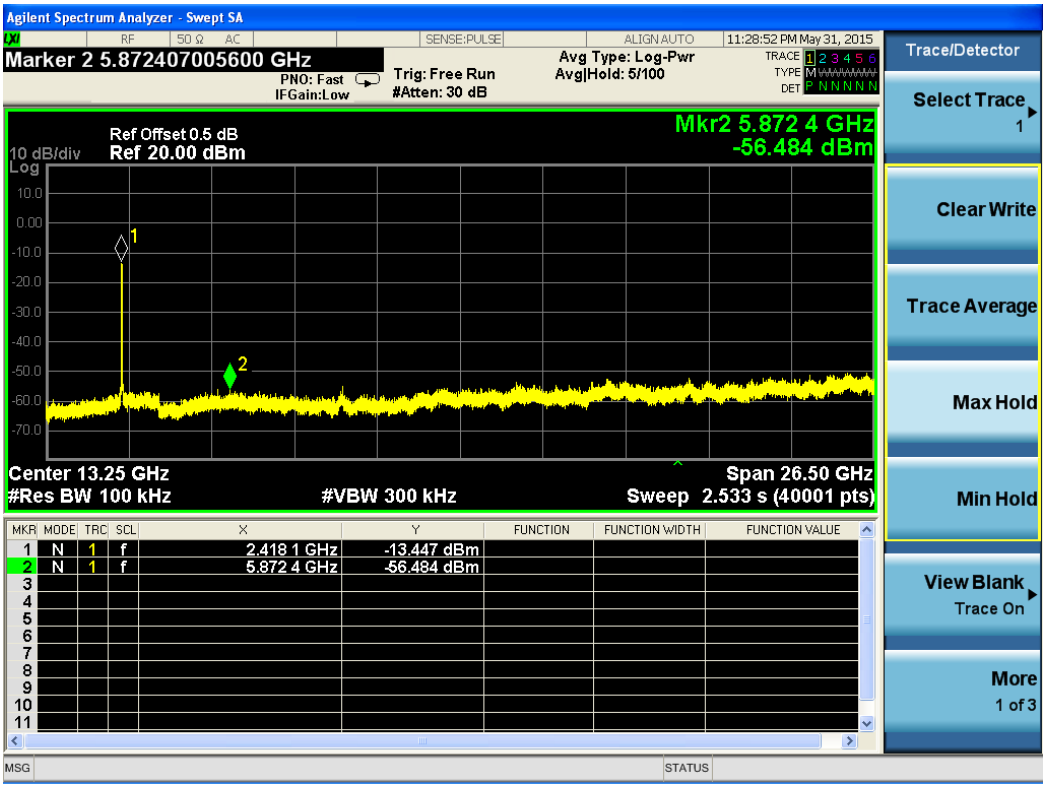
802.11n HT20

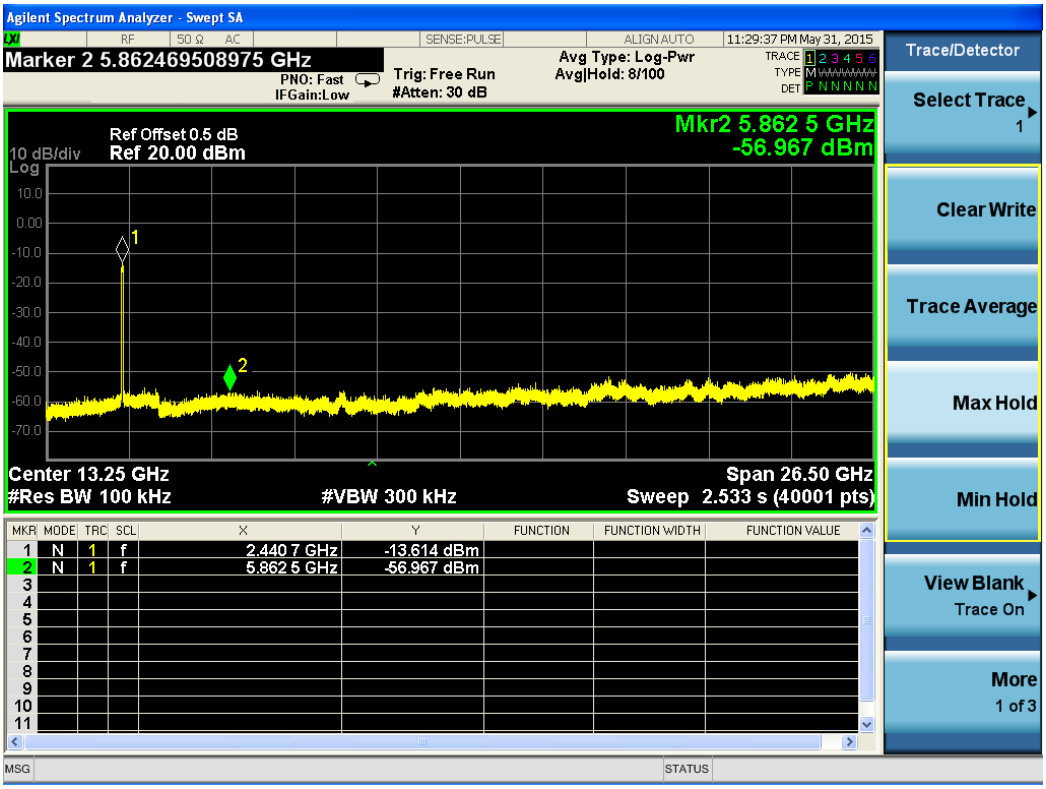

Agilent Spectrum Analyzer - Swept SA
Marker 2 5.560369611575 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
11:24:56 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.560 4 GHz
-57.022 dBm
Center 13.25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.405 5 GHz -11.218 dBm
2 N 1 f 5.560 4 GHz -57.022 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

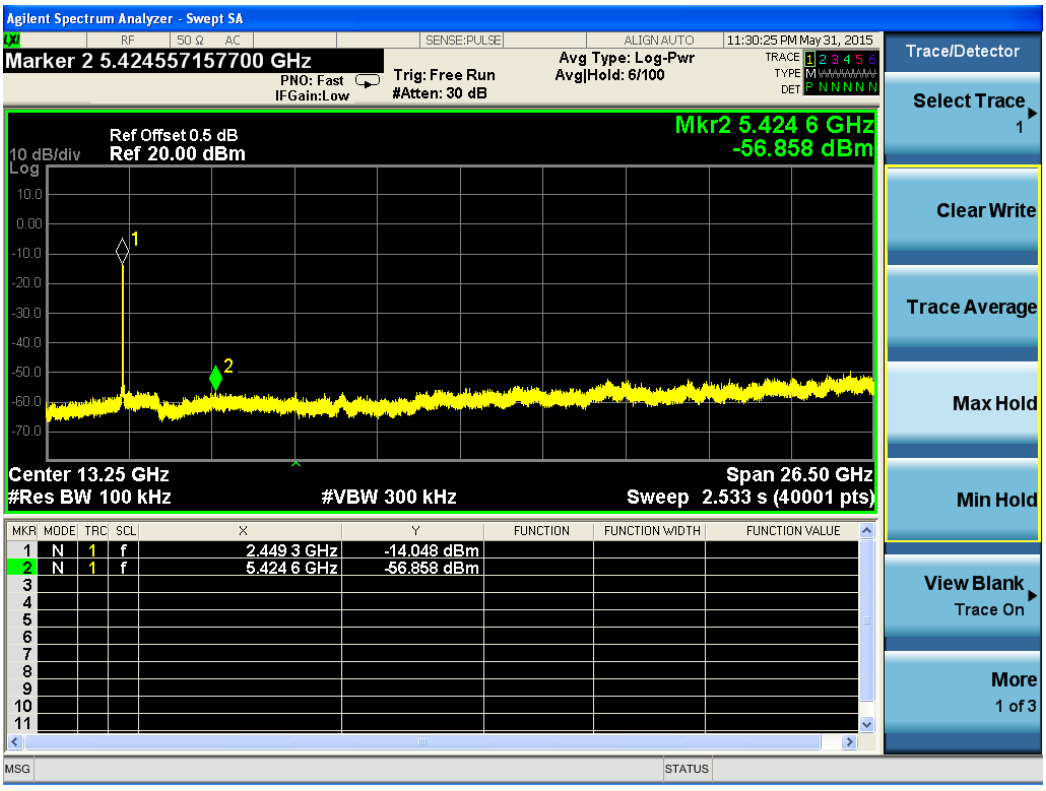

Agilent Spectrum Analyzer - Swept SA
Marker 2 5.952569478375 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 5/100
11:25:40 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.952 6 GHz
-55.396 dBm
Center 13.25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.429 4 GHz -11.134 dBm
2 N 1 f 5.952 6 GHz -55.396 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3


Agilent Spectrum Analyzer - Swept SA
Marker 2 5.893606998400 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 37/100
11:27:49 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.893 6 GHz
-55.156 dBm
Center 13.25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.455 9 GHz -11.757 dBm
2 N 1 f 5.893 6 GHz -55.156 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

802.11n HT40


Agilent Spectrum Analyzer - Swept SA
Marker 2 5.872407005600 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 5/100
11:28:52 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.872 4 GHz
-56.484 dBm
Center 13.25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.418 1 GHz -13.447 dBm
2 N 1 f 5.872 4 GHz -56.484 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3


Agilent Spectrum Analyzer - Swept SA
Marker 2 5.862469508975 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 8/100
11:29:37 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.862 5 GHz
-56.967 dBm
Center 13.25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.440 7 GHz -13.614 dBm
2 N 1 f 5.862 5 GHz -56.967 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3


Agilent Spectrum Analyzer - Swept SA
Marker 2 5.424557157700 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 6/100
11:30:25 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 5.424 6 GHz
-56.858 dBm
Center 13.25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.449 3 GHz -14.048 dBm
2 N 1 f 5.424 6 GHz -56.858 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

5.5.7. Test Results of Band Edges Test

802.11b

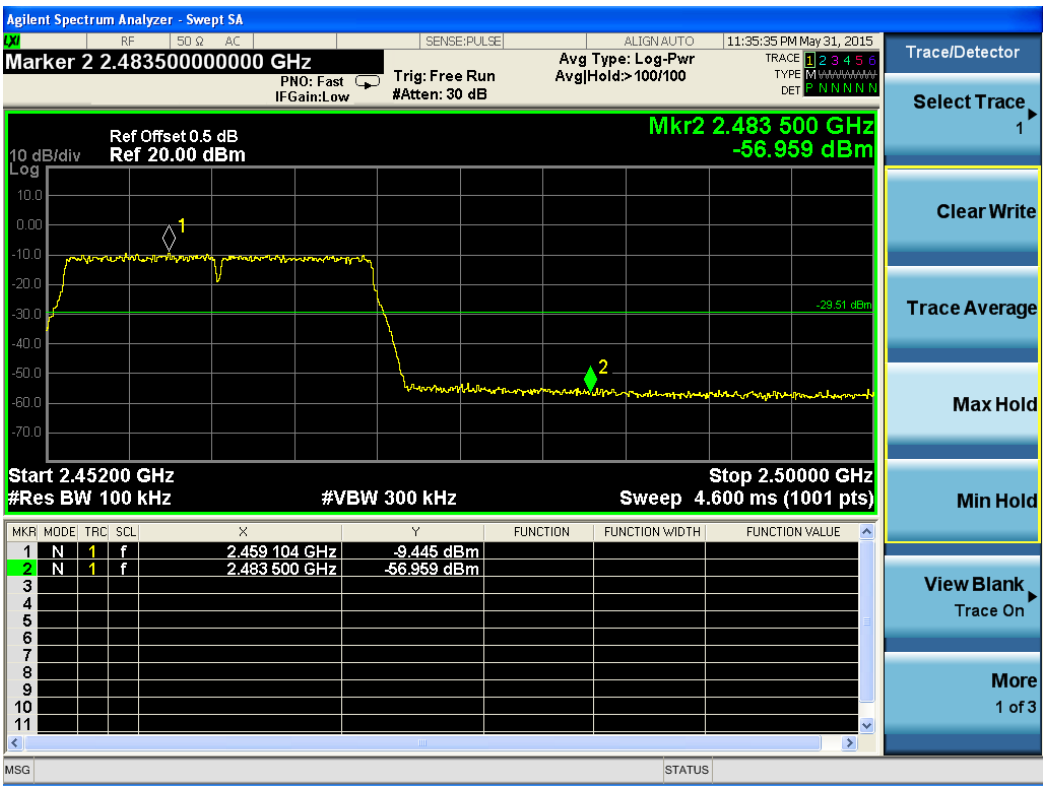
802.11g


Agilent Spectrum Analyzer - Swept SA
Marker 3 2.390000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:40:01 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr3 2.390 00 GHz
-54.452 dBm
-27.94 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.42200 GHz
Sweep 10.73 ms (1001 pts)
1 N 1 f 2.409 46 GHz -7.944 dBm
2 N 1 f 2.400 00 GHz -49.215 dBm
3 N 1 f 2.390 00 GHz -54.452 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3


Agilent Spectrum Analyzer - Swept SA
Marker 2 2.483500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:34:36 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 2.483 500 GHz
-54.873 dBm
-24.49 dBm
Start 2.45200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 4.600 ms (1001 pts)
1 N 1 f 2.459 248 GHz -7.483 dBm
2 N 1 f 2.483 500 GHz -54.873 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

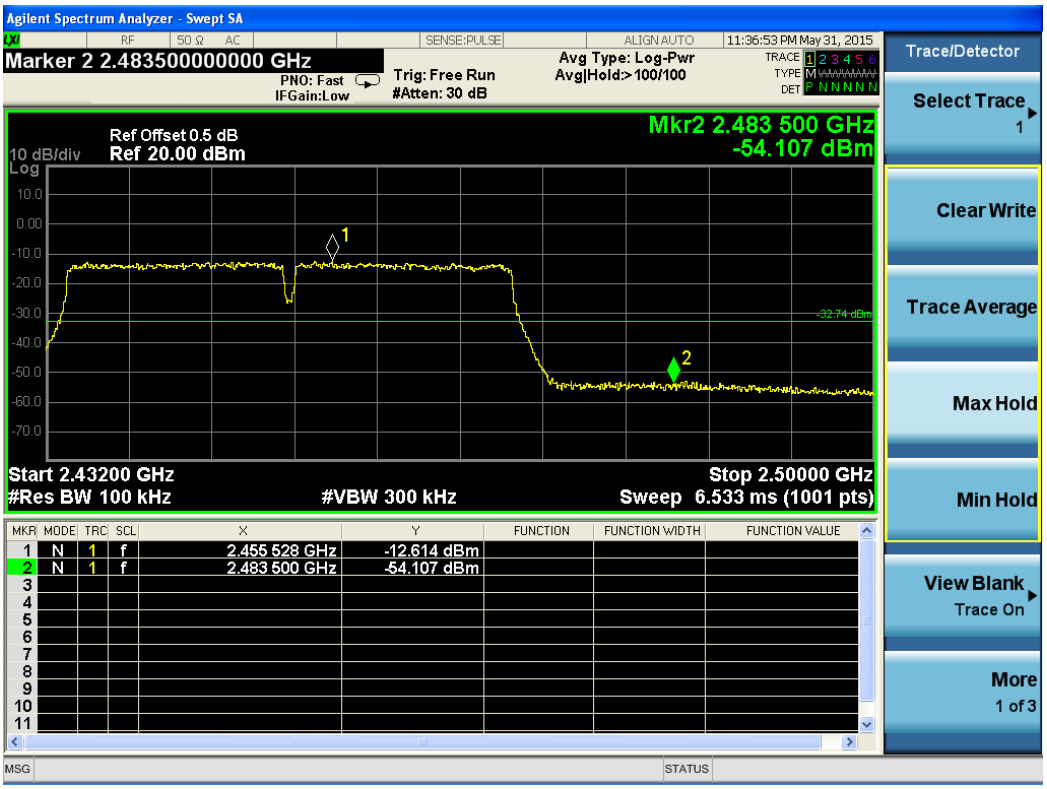
802.11n HT20


Agilent Spectrum Analyzer - Swept SA
Marker 3 2.390000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:39:08 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr3 2.390 00 GHz
-56.418 dBm
-29.61 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.42200 GHz
Sweep 10.73 ms (1001 pts)
1 N 1 f 2.409 12 GHz -9.609 dBm
2 N 1 f 2.400 00 GHz -53.585 dBm
3 N 1 f 2.390 00 GHz -56.418 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 2 2.483500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:35:35 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Mkr2 2.483 500 GHz
-56.959 dBm
-29.51 dBm
Start 2.45200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 4.600 ms (1001 pts)
1 N 1 f 2.459 104 GHz -9.445 dBm
2 N 1 f 2.483 500 GHz -56.959 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3
MSG
STATUS

802.11n HT40


Agilent Spectrum Analyzer - Swept SA
Marker 3 2.390000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:38:08 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr3 2.390 00 GHz
-54.238 dBm
32.30 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.44200 GHz
Sweep 12.67 ms (1001 pts)
1 N 1 f 2.424 18 GHz -12.303 dBm
2 N 1 f 2.400 00 GHz -52.982 dBm
3 N 1 f 2.390 00 GHz -54.238 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3


Agilent Spectrum Analyzer - Swept SA
Marker 2 2.483500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:36:53 PM May 31, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr2 2.483 500 GHz
-54.107 dBm
-32.74 dBm
Start 2.43200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 6.533 ms (1001 pts)
1 N 1 f 2.455 528 GHz -12.614 dBm
2 N 1 f 2.483 500 GHz -54.107 dBm
Trace/Detector
Select Trace 1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank Trace On
More 1 of 3

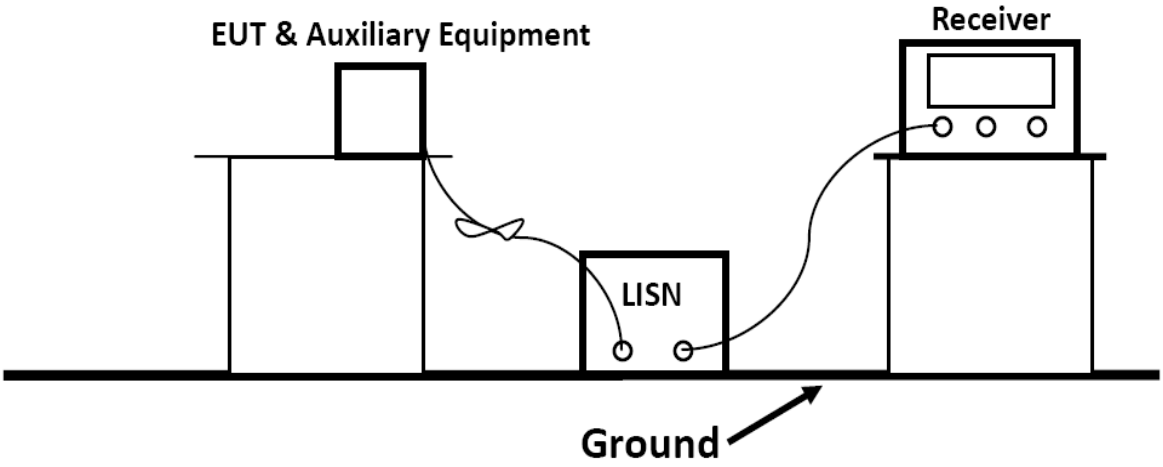
5.6. Power line conducted emissions

5.6.1 Standard Applicable

According to §15.207 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	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

5.6.2 Block Diagram of Test Setup

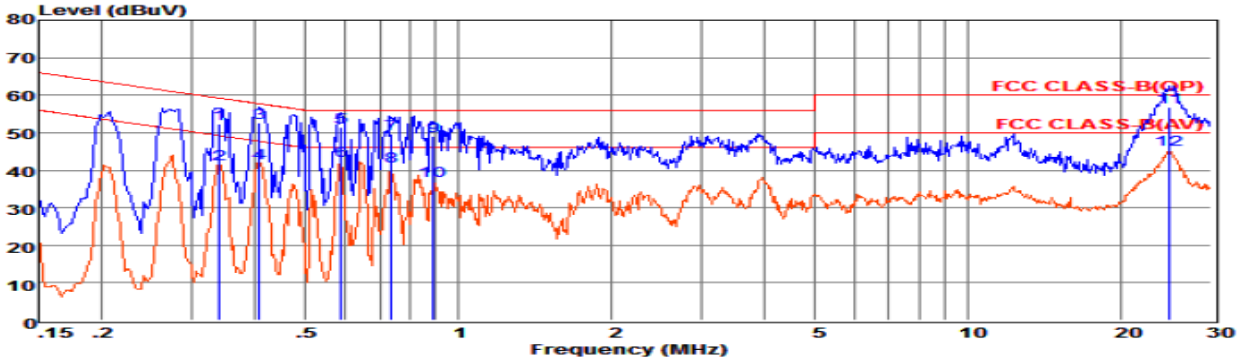


5.6.3 Test Results

PASS.

The test data please refer to following page.

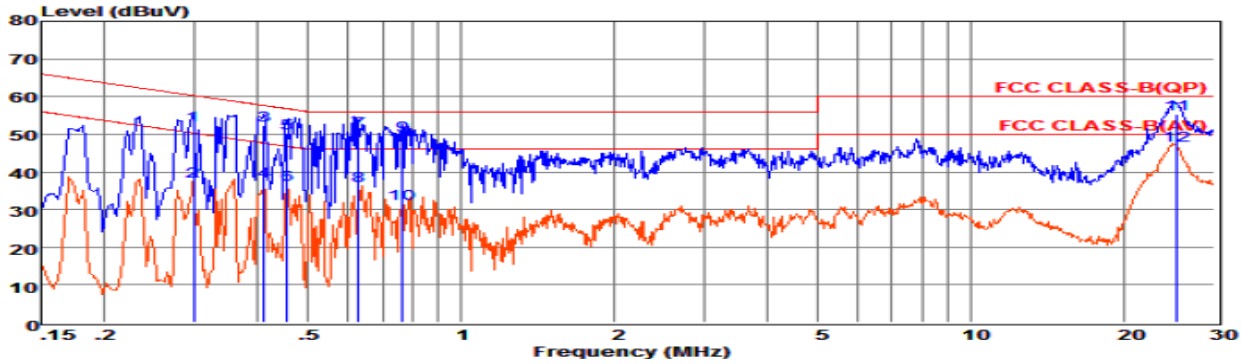
Test result for 802.11b (Low Channel)




```
Env. Ins:               24*/56%
EUT:                    Doortalk2
M/N:                    Doortalk2
Power Rating:           AC 120V/60Hz
Test Mode:              TX-Low Channel(802.11b)
Operator:               Leo
Memo:
Pol:                    LINE
```

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.33920	32.79	9.62	0.03	10.00	52.44	59.22	-6.78	QP
2	0.33921	21.85	9.62	0.03	10.00	41.50	49.22	-7.72	Average
3	0.40615	33.03	9.62	0.04	10.00	52.69	57.73	-5.04	QP
4	0.40616	22.35	9.62	0.04	10.00	42.01	47.73	-5.72	Average
5	0.58851	31.67	9.63	0.04	10.00	51.34	56.00	-4.66	QP
6	0.58852	22.72	9.63	0.04	10.00	42.39	46.00	-3.61	Average
7	0.73910	30.12	9.64	0.04	10.00	49.80	56.00	-6.20	QP
8	0.73911	21.23	9.64	0.04	10.00	40.91	46.00	-5.09	Average
9	0.89441	29.36	9.63	0.05	10.00	49.04	56.00	-6.96	QP
10	0.89442	17.63	9.63	0.05	10.00	37.31	46.00	-8.69	Average
1124	.92213	37.11	9.71	0.13	10.00	56.95	60.00	-3.05	QP
1224	.92253	25.63	9.71	0.13	10.00	45.47	50.00	-4.53	Average

```
Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
         2. The emission levels that are 20dB below the official
            limit are not reported.
```




```
Env. Ins:               24*/56%
EUT:                    Doortalk2
M/N:                    Doortalk2
Power Rating:           AC 120V/60Hz
Test Mode:              TX-Low Channel(802.11b)
Operator:               Leo
Memo:
Pol:                    NEUTRAL
```

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.29869	32.59	9.60	0.03	10.00	52.22	60.28	-8.06	QP
2	0.29870	17.81	9.60	0.03	10.00	37.44	50.28	-12.84	Average
3	0.41048	32.69	9.61	0.04	10.00	52.34	57.64	-5.30	QP
4	0.41049	17.85	9.61	0.04	10.00	37.50	47.64	-10.14	Average
5	0.45636	30.71	9.62	0.04	10.00	50.37	56.76	-6.39	QP
6	0.45637	16.95	9.62	0.04	10.00	36.61	46.76	-10.15	Average
7	0.63048	31.08	9.63	0.04	10.00	50.75	56.00	-5.25	QP
8	0.63049	16.76	9.63	0.04	10.00	36.43	46.00	-9.57	Average
9	0.76702	30.10	9.63	0.04	10.00	49.77	56.00	-6.23	QP
10	0.76703	11.94	9.63	0.04	10.00	31.61	46.00	-14.39	Average
1125	.32143	35.40	9.83	0.13	10.00	55.36	60.00	-4.64	QP
1225	.32163	26.97	9.83	0.13	10.00	46.93	50.00	-3.07	Average

```
Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
         2. The emission levels that are 20dB below the official
            limit are not reported.
```

****Note: Pre-scan all mode and recorded the worst case results in this report (802.11b (Low Channel)).*

5.7. Antenna Requirements

5.7.1. Standard Applicable

According to §15.203, An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.7.2. Antenna Connector Construction

The antenna used for transmitting is permanently attached and no consideration of replacement. Please see EUT photo for details.

5.7.3. Antenna Gain

Parameter Setting	
Detector:	Peak
Sweep Time:	Auto
Resolution bandwidth:	3MHz
Video bandwidth:	3MHz
Trace-Mode:	Max hold

Note: The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For WLAN devices, the DSSS mode is used.

Test Reult				
T_{nom}	V_{nom}	Lowest Channel 2412 MHz	Middle Channel 2437 MHz	Highest Channel 2462 MHz
Conducted power [dBm] Measured with DSSS modulation		10.24	10.16	10.09
Radiated power [dBm] Measured with DSSS modulation		14.89	14.93	14.41
Gain [dBi] Calculated		4.65	4.77	4.32
Measurement uncertainty			± 1.6 dB (cond.) / ± 3.8 dB (rad.)	

5.7.4. Results: Compliance.

6. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal Date	Due Date
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	June 18,2015	June 17,2016
Signal analyzer	Agilent	E4448A(External mixers to 40GHz)	US44300469	9kHz~40GHz	July 16,2014	July 15,2015
LISN	MESS Tec	NNB-2/16Z	99079	9KHz-30MHz	June 18,2015	June 17,2016
LISN (Support Unit)	EMCO	3819/2NM	9703-1839	9KHz-30MHz	June 18,2015	June 17,2016
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9KHz-30MHz	June 18,2015	June 17,2016
ISN	SCHAFFNER	ISN ST08	21653	9KHz-30MHz	June 18,2015	June 17,2016
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30M-1GHz 3m	June 18,2015	June 17,2016
Amplifier	SCHAFFNER	COA9231A	18667	9kHz-2GHzz	June 18,2015	June 17,2016
Amplifier	Agilent	8449B	3008A02120	1GHz-26.5GHz	July 16,2014	July 15,2015
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz-40GHz	July 16,2014	July 15,2015
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	July 16,2014	July 15,2015
MAX Signal Analyzer	Agilent	N9020A	MY50510140	20Hz~26.5GHz	Oct. 27, 2014	Oct. 26, 2015
Loop Antenna	R&S	HFH2-Z2	860004/001	9k-30MHz	June 18,2015	June 17,2016
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	30MHz-1GHz	June 10,2014	June 09,2015
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	June 10,2014	June 09,2015
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	June 10,2014	June 09,2015
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz-1GHz	June 18,2015	June 17,2016
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz-40GHz	June 18,2015	June 17,2016
Spectrum Meter	R&S	FSP 30	100023	9kHz-30GHz	July 16,2014	July 15,2015
Power Meter	R&S	NRVS	100444	DC-40GHz	June 18,2015	June 17,2016
RF CABLE-1m	JYE Bao	RG142	CB034-1m	20MHz-7GHz	June 18,2015	June 17,2016
RF CABLE-2m	JYE Bao	RG142	CB035-2m	20MHz-1GHz	June 18,2015	June 17,2016
Note: All equipment through GRGT EST calibration						

----------THE END OF REPORT----------