FCC TEST REPORT

For

Shenzhen ZKC Software Technology Co.,Ltd

Android POS Terminal

Test Model: PC701

Additional Model NO.: PC800, PC900

Prepared for	:	Shenzhen ZKC Software Technology Co.,Ltd
Address	:	1st Floor, No. 1 Block, Zhongkenuo Industry Park, Beiqi Road, Xixiang Town, Bao’an District, Shenzhen, China
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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Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	October 12, 2015
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	October 12, 2015 - November 03, 2015
Date of Report	:	November 03, 2015

FCC TEST REPORT

FCC CFR 47 PART 15 C(15.247): 2014

Report Reference No.	**:**	**LCS1511040356E**
Date of Issue	:	November 03, 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.....	**:**	**Shenzhen ZKC Software Technology Co.,Ltd**
Address	:	1st Floor, No. 1 Block, Zhongkenuo Industry Park, Beiqi Road, Xixiang Town, Bao'an District, Shenzhen, China
Test Specification		
Standard	:	FCC CFR 47 PART 15 C(15.247): 2014 / ANSI C63.10: 2013
Test Report Form No.....	**:**	LCSEMC-1.0
TRF Originator	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	:	Dated 2011-03

Test Item Description.	**:**	**Android POS Terminal**
Trade Mark	:	N/A
Test Model	:	PC701
Ratings	:	DC 7.4V by Lithium ion polymer battery(2500mAh) Recharged by DC 9V/3A Travel Charger
Result	:	**Positive**

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

FCC -- TEST REPORT

Test Report No. : LCS1511040356E	November 03, 2015 Date of issue

Test Model.....	: PC701
EUT.....	: Android POS Terminal
Applicant.....	**: Shenzhen ZKC Software Technology Co.,Ltd**
Address.....	: 1st Floor, No. 1 Block, Zhongkenuo Industry Park, Beiqi Road, Xixiang Town, Bao'an District, Shenzhen, China
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: Shenzhen ZKC Software Technology Co.,Ltd**
Address.....	: 1st Floor, No. 1 Block, Zhongkenuo Industry Park, Beiqi Road, Xixiang Town, Bao'an District, Shenzhen, China
Telephone.....	: /
Fax.....	: /
Factory.....	**: Shenzhen ZKC Software Technology Co.,Ltd**
Address.....	: 1st Floor, No. 1 Block, Zhongkenuo Industry Park, Beiqi Road, Xixiang Town, Bao'an District, Shenzhen, China
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	:	Android POS Terminal
Test Model	:	PC701
Additional Model		PC800, PC900
Model Declaration	:	PCB board, structure and internal of the related model(s) are the same, So no additional models were tested.
Hardware Version	:	MT6572-PC701 V1.2 20151009
Software Version	:	ALPS.JB3.MP.V1.6.01
Power Supply	:	DC 7.4V by Lithium ion polymer battery(2500mAh) Recharged by DC 9V/3A Travel Charger
EUT Support Radios Application	:	GSM/GPRS/EGPRS(Only Downlink)/ WCDMA/HSUPA/HSDPA/WIFI/Bluetooth/GPS(Only RX)
Bluetooth	:	
Frequency Range	:	2402.00-2480.00MHz
Channel Spacing	:	2MHz
Channel Number	:	40
Modulation Technology	:	GFSK
Bluetooth Version	:	This report is only for Bluetooth V4.0 BLE part. For Bluetooth V3.0 part, please see another separate report.
Antenna Description	:	PIFA Antenna, 1.5dBi(Max.)
WIFI Technology	:	
Operating Frequency	:	2412.00-2462.00MHz
Channel Spacing	:	5MHz
Channel Number	:	11 Channels for 20MHz 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-MCS7
Antenna Description	:	PIFA Antenna, 1.5dBi(Max.)

1.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
Shenzhen Mingxin Power Technologies Co.,Ltd.	Charger	MX36Z1-0903 000	--	DOC

1.3. External I/O

I/O Port Description	Quantity	Cable
USB Port	3	1.0m
PSAM Slot	1	N/A
SIM Card Slot	2	N/A
TF Card Slot	1	N/A
DC IN	1	N/A
RJ45	1	N/A
RJ11	1	N/A
RS232	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. This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.

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:
BLE 4.0: 1Mbps, GFSK
802.11b Mode : 1 Mbps, DSSS.
802.11g Mode : 6 Mbps, OFDM.
802.11n Mode HT20:.MCS0, OFDM.

Channel List & Frequency

BLE 4.0

Frequency Band	Channel No.	Frequency(MHz)	Channel No.	Frequency(MHz)
2402~2480MHz	1	2402	21	2442
	2	2404	--	--
	3	2406	--	--
	--	--	38	2476
	--	--	39	2478
	20	2440	40	2480

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	--	--

***Note: Using a temporary antenna connector for the EUT when the conducted measurements are performed.

2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10: 2013, 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: 2013, 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: 2013

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

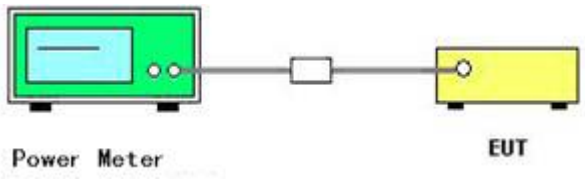
5.1.1. Standard Applicable

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	Dick	Configurations	802.11b/g/n

BLE 4.0

Channel	Frequency (MHz)	Conducted Power (dBm, Average)	Max. Limit (dBm)	Result
1	2402	-2.08	30	Complies
20	2440	-2.27	30	Complies
40	2480	-2.08	30	Complies

802.11b

Channel	Frequency (MHz)	Conducted Power (dBm, Average)	Max. Limit (dBm)	Result
1	2412	14.17	30	Complies
6	2437	14.34	30	Complies
11	2462	14.22	30	Complies

802.11g

Channel	Frequency (MHz)	Conducted Power (dBm, Average)	Max. Limit (dBm)	Result
1	2412	12.67	30	Complies
6	2437	12.81	30	Complies
11	2462	12.53	30	Complies

802.11n HT20

Channel	Frequency (MHz)	Conducted Power (dBm, Average)	Max. Limit (dBm)	Result
1	2412	11.25	30	Complies
6	2437	11.41	30	Complies
11	2462	11.58	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.

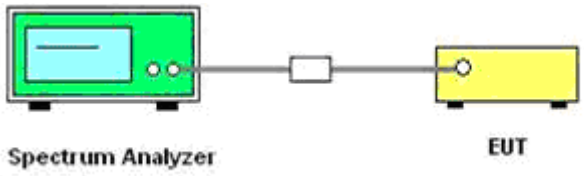
7) Sweep time = auto couple.

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	Dick	Configurations	802.11b/g/n

BLE 4.0

Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
1	2402	-17.297	8	Complies
20	2440	-17.466	8	Complies
40	2480	-17.258	8	Complies

802.11b

Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
1	2412	-17.877	8	Complies
6	2437	-17.443	8	Complies
11	2462	-17.368	8	Complies

802.11g

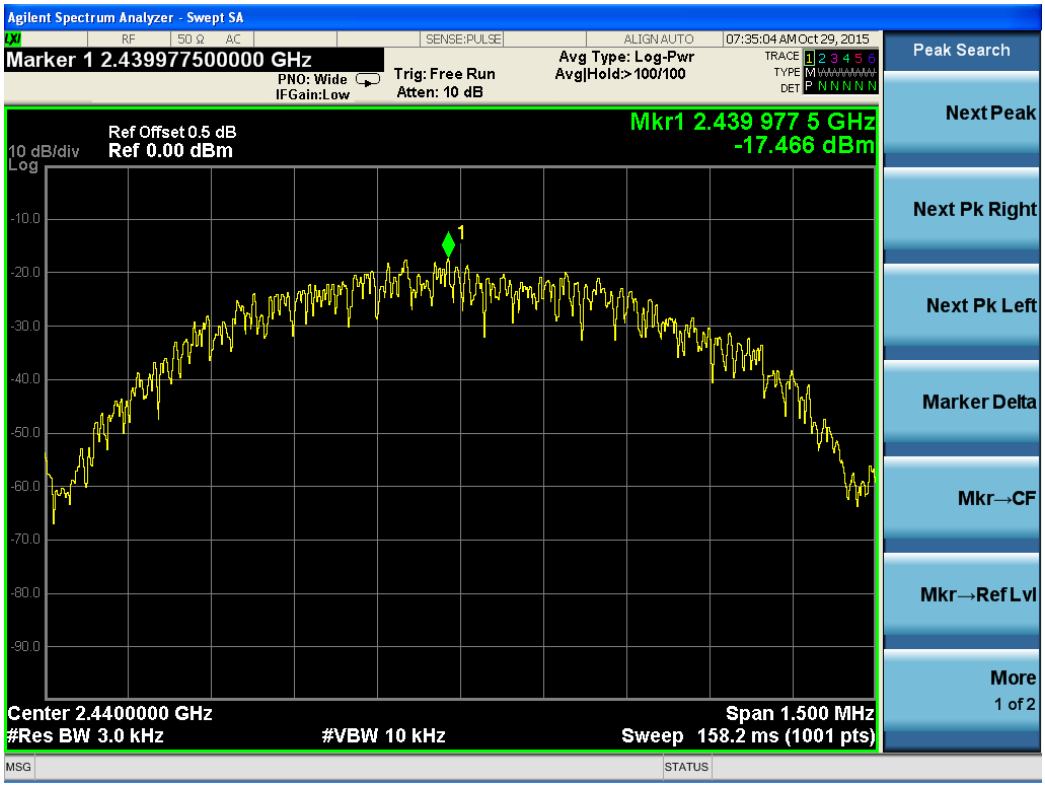
Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
1	2412	-22.827	8	Complies
6	2437	-22.608	8	Complies
11	2462	-21.815	8	Complies

802.11n HT20

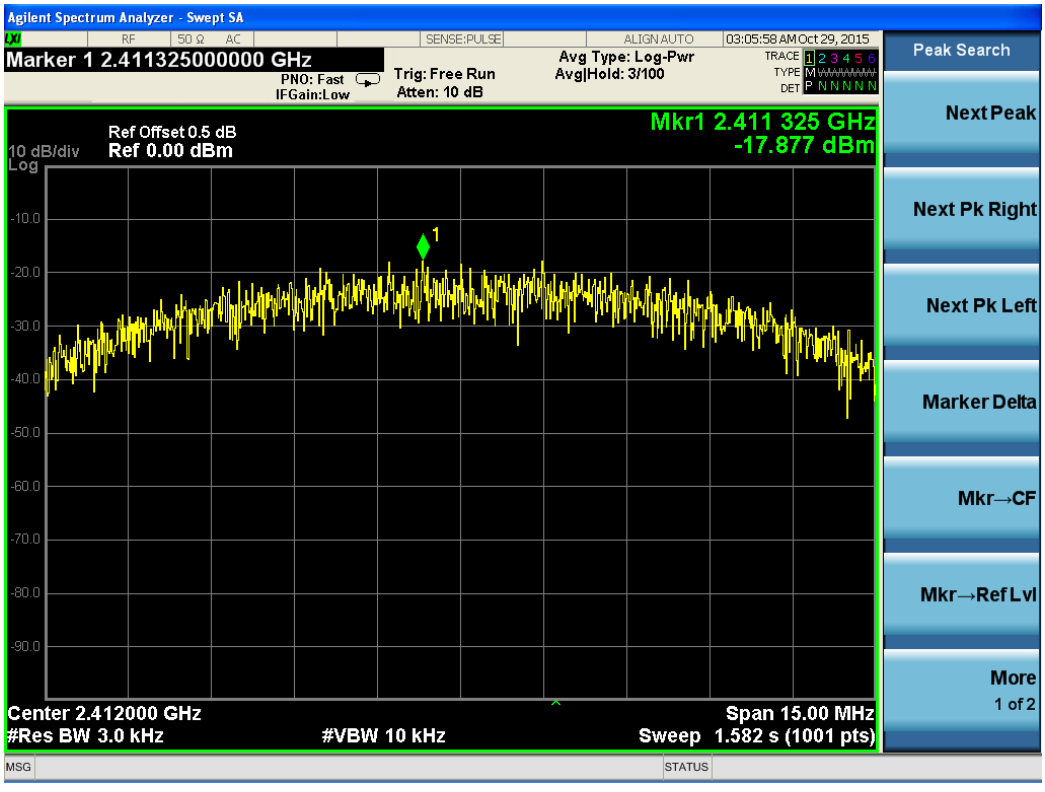
Channel	Frequency (MHz)	Power Density (dBm/3KHz)	Max. Limit (dBm/3KHz)	Result
1	2412	-22.092	8	Complies
6	2437	-22.554	8	Complies
11	2462	-21.443	8	Complies

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

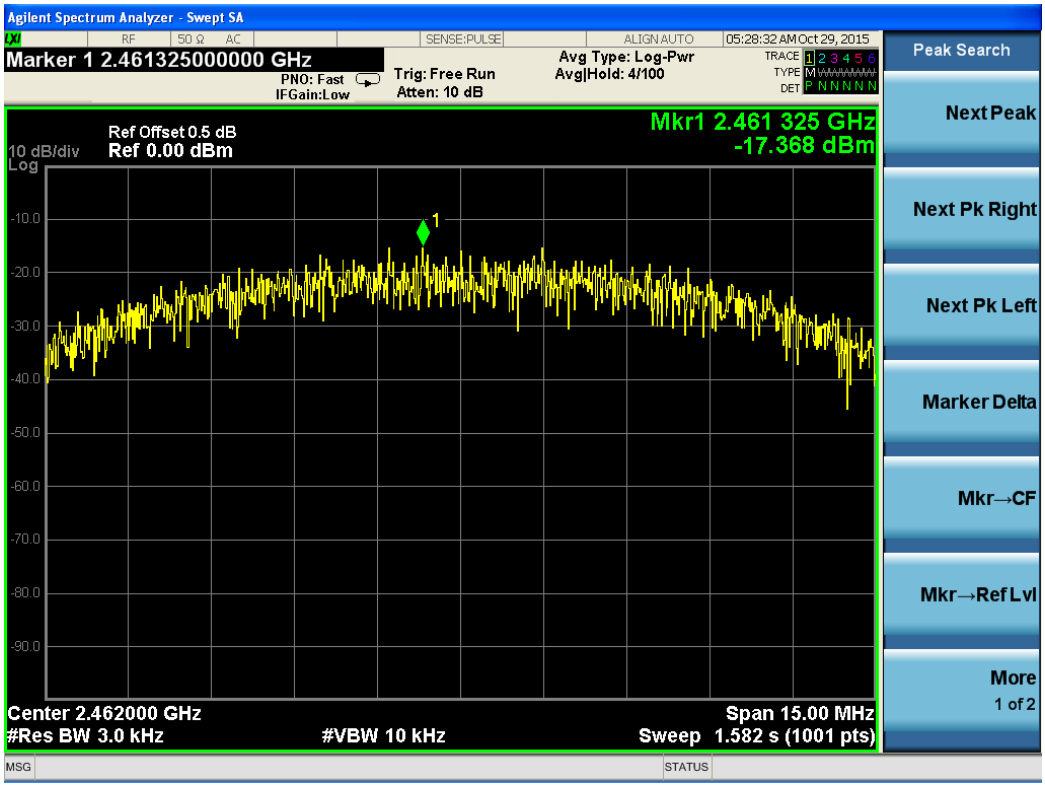
BLE 4.0 power density



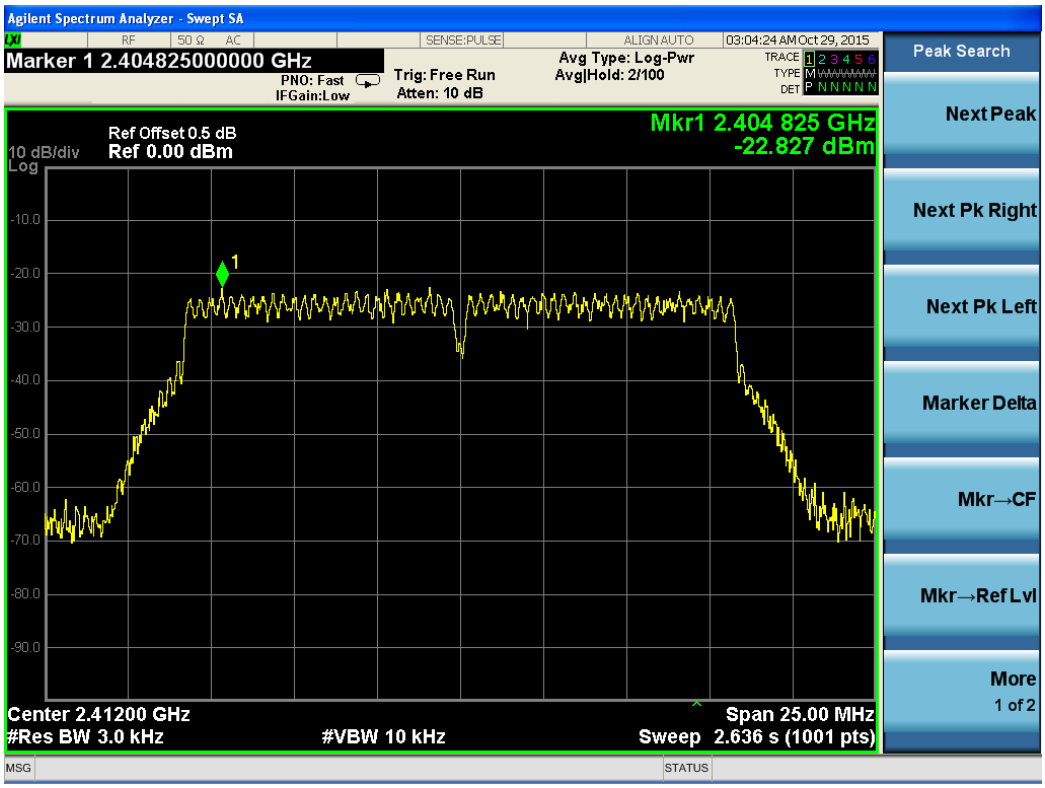
802.11b power density

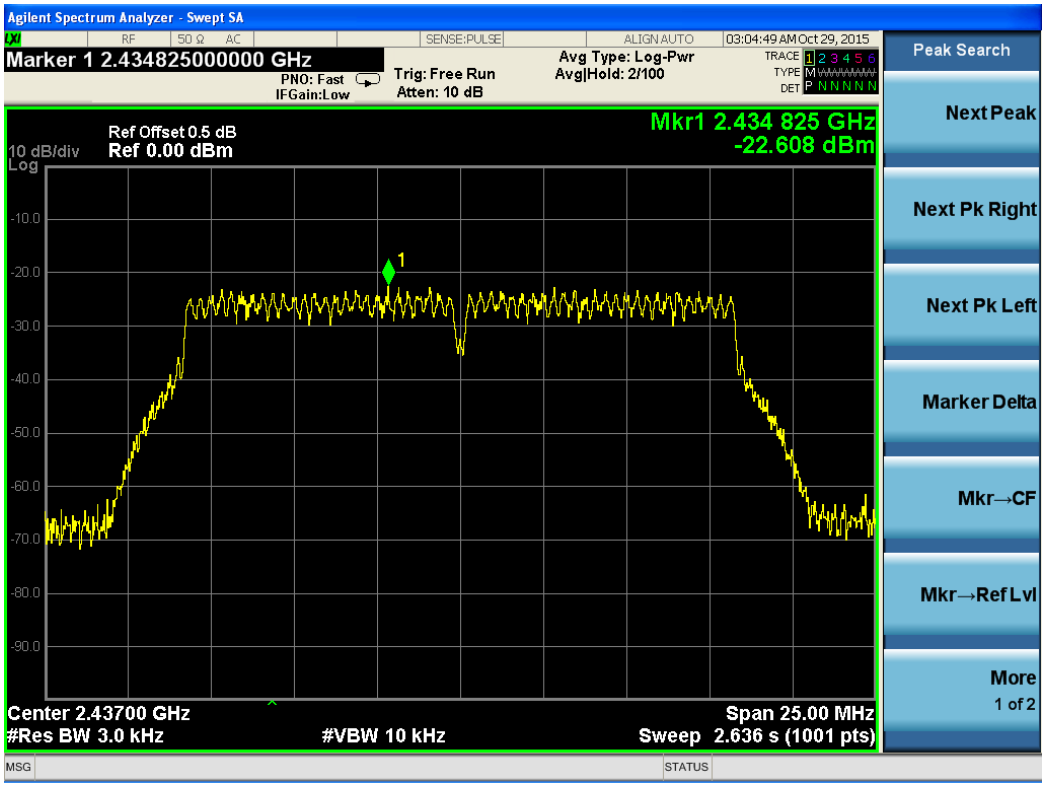


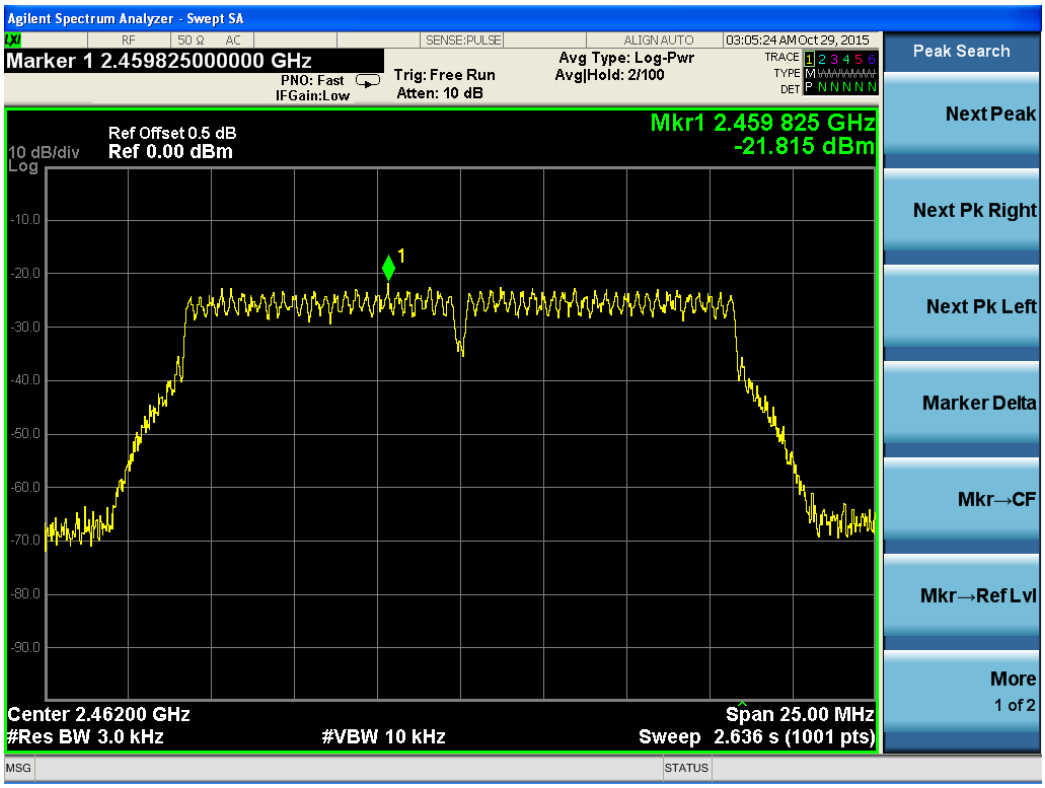

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
03:06:19 AM Oct 29, 2015
Marker 1 2.436325000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 2/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.436 325 GHz
-17.443 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
Center 2.437000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 15.00 MHz
Sweep 1.582 s (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
05:28:32 AM Oct 29, 2015
Marker 1 2.461325000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.461 325 GHz
-17.368 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
Center 2.462000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 15.00 MHz
Sweep 1.582 s (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

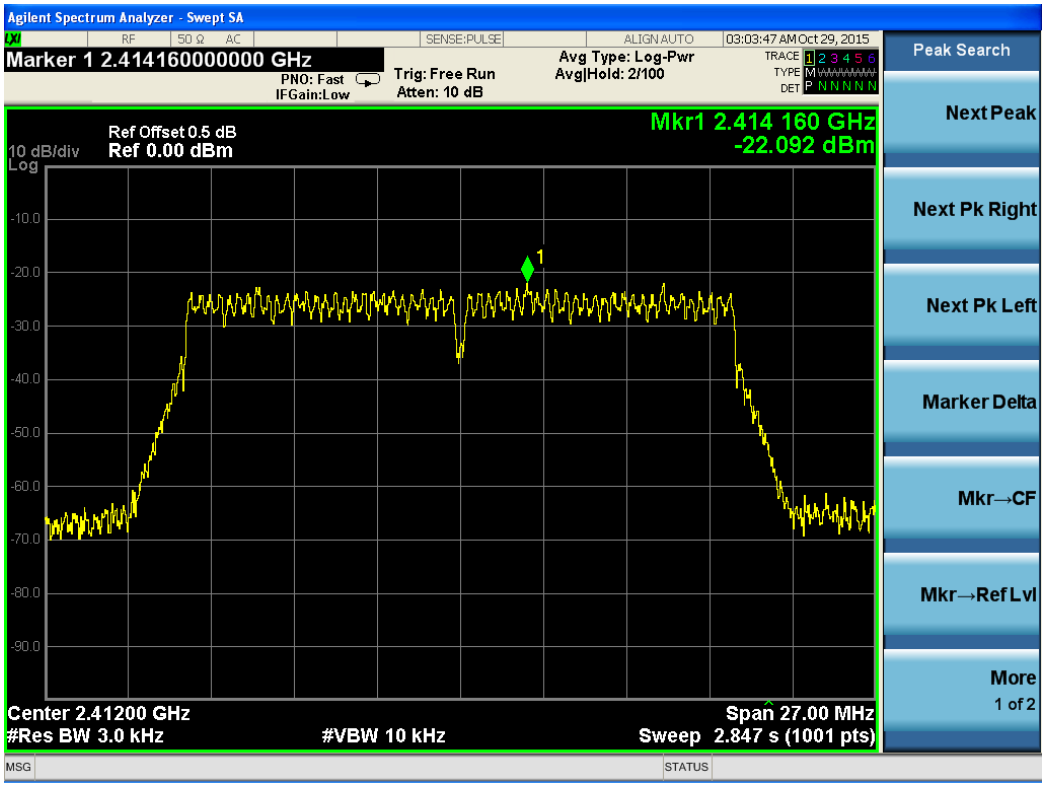
802.11g power density

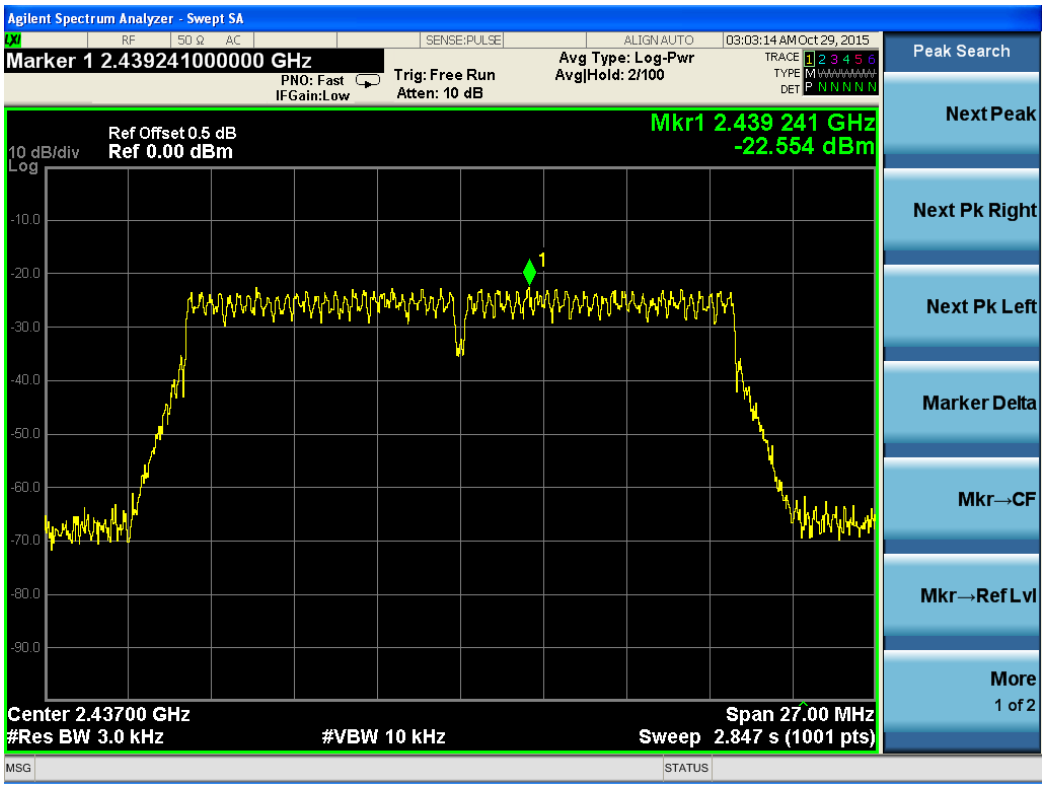


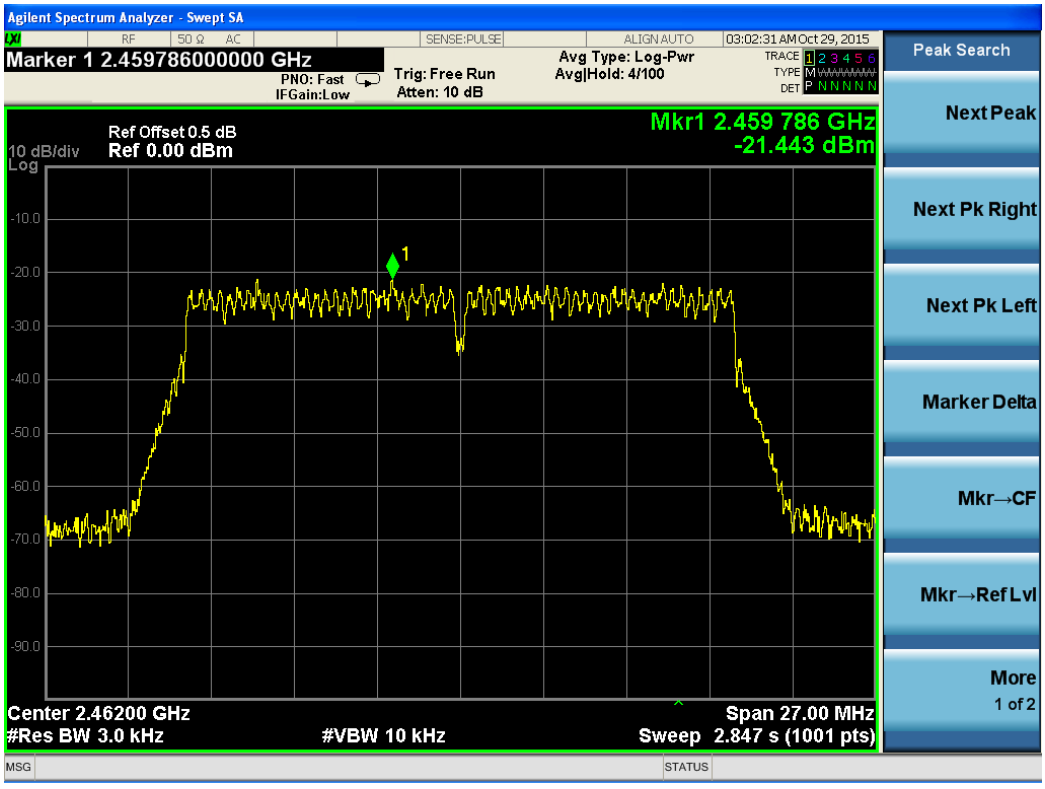




802.11n HT20 power density







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

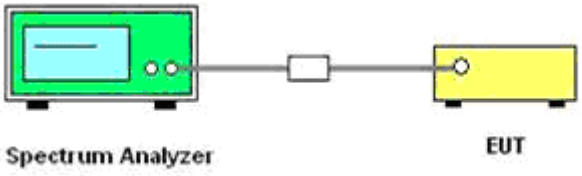
1) The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.

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) For 20dB Bandwidth measurement, RBW is set in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW. 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	Dick	Configurations	802.11b/g/n

BLE 4.0

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2402	0.69	500	Complies
20	2440	0.69	500	Complies
40	2480	0.69	500	Complies

802.11b

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	9.54	500	Complies
6	2437	9.54	500	Complies
11	2462	9.54	500	Complies

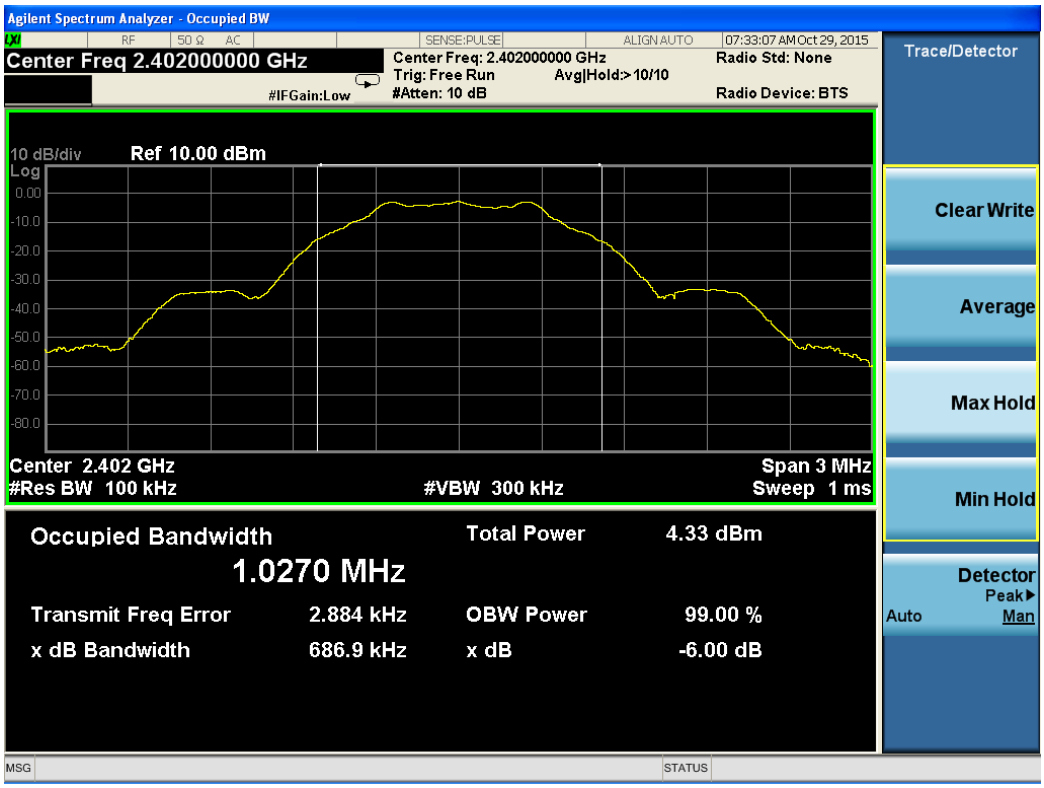
802.11g

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	16.42	500	Complies
6	2437	16.61	500	Complies
11	2462	16.62	500	Complies

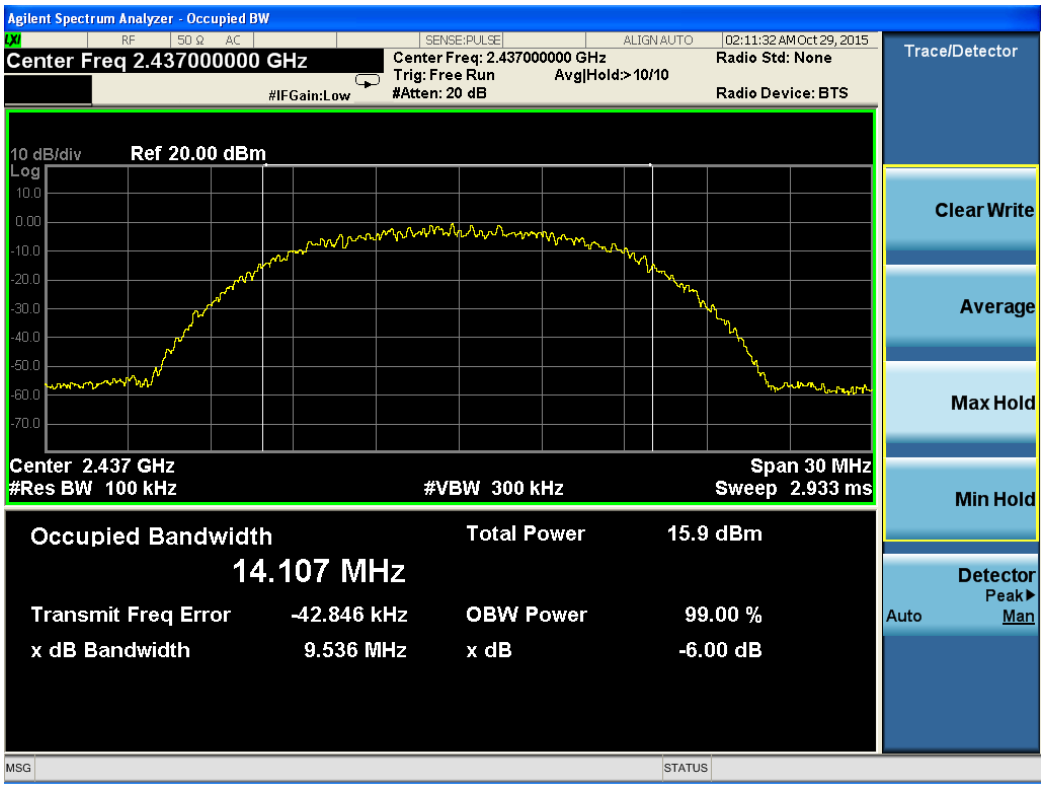
802.11n HT20

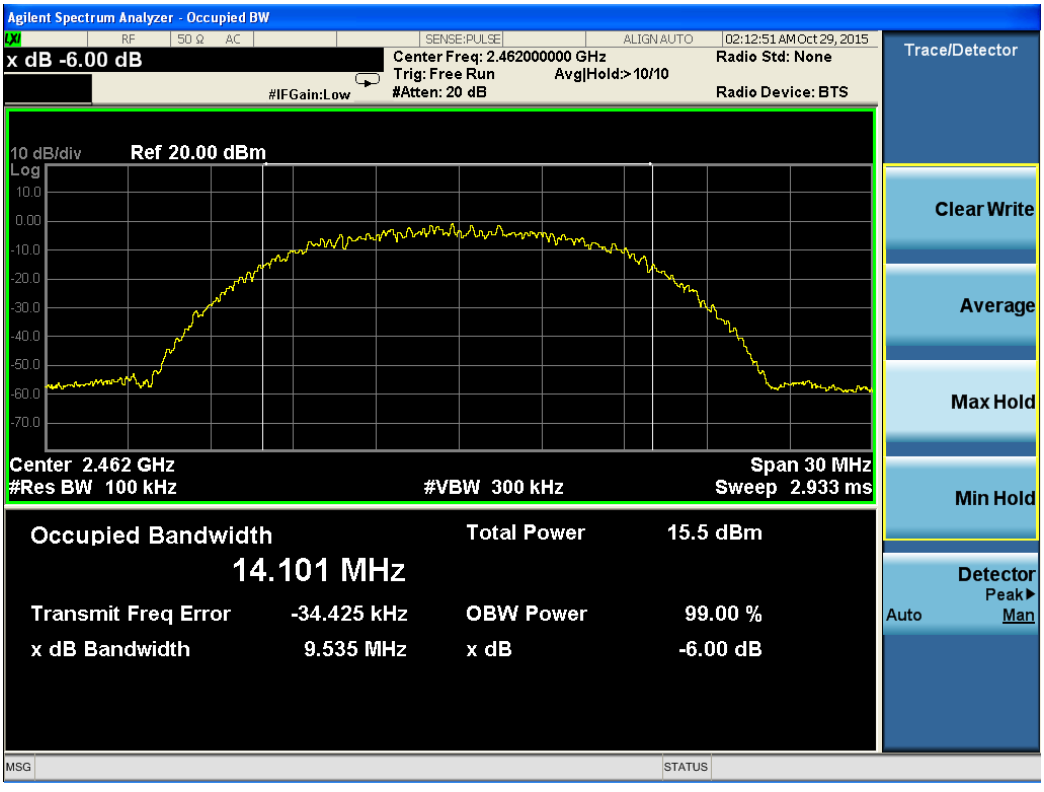
Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	17.83	500	Complies
6	2437	17.82	500	Complies
11	2462	17.83	500	Complies

BLE 4.0 channel, 6dB bandwidth

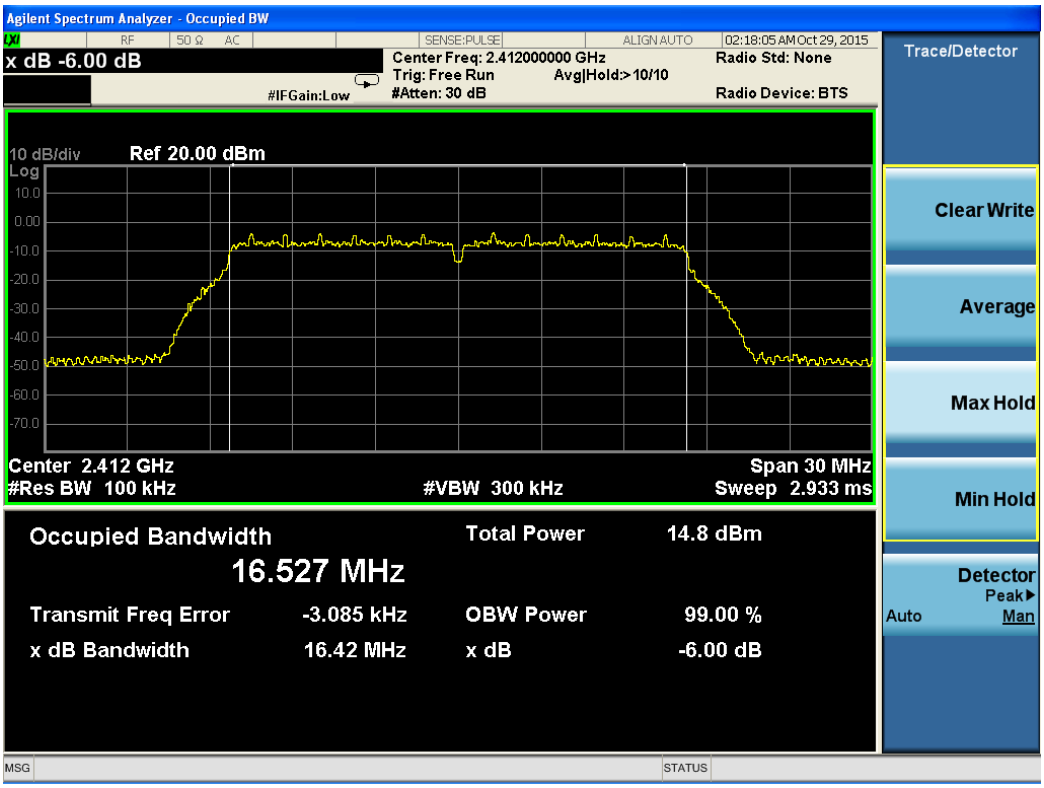


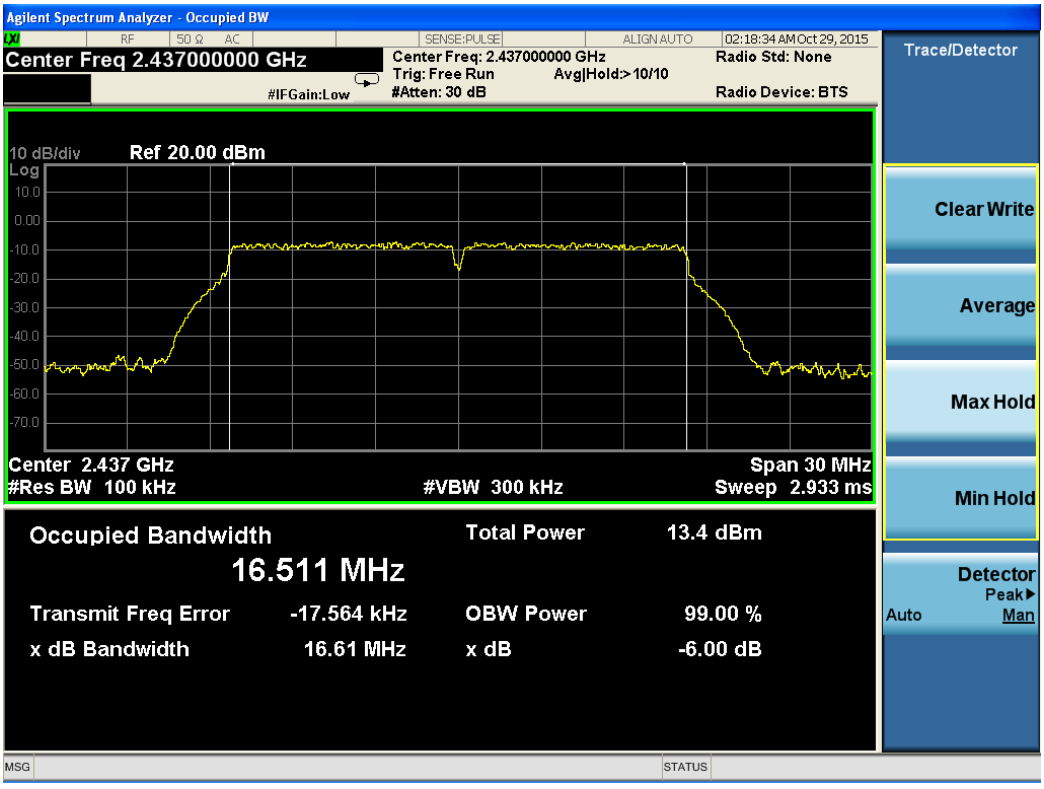
802.11b channel, 6dB bandwidth

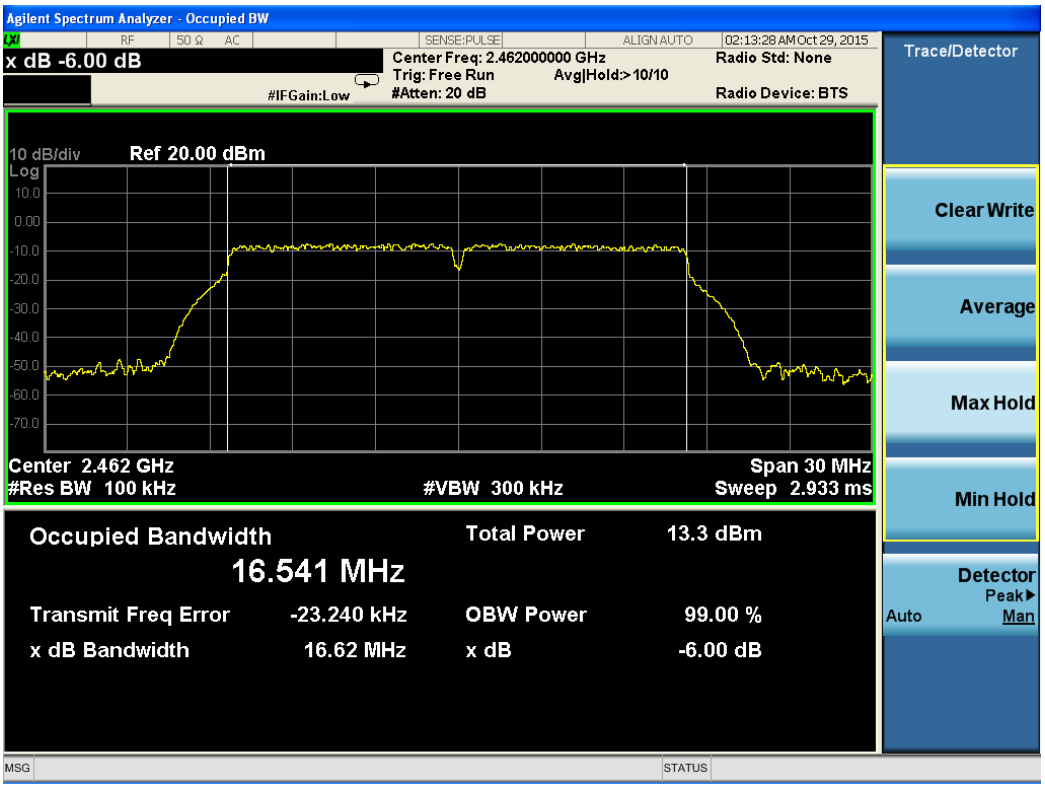

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
02:11:32 AM Oct 29, 2015
Center Freq 2.437000000 GHz
Center Freq: 2.437000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.437 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
14.107 MHz
Total Power
15.9 dBm
Transmit Freq Error
-42.846 kHz
OBW Power
99.00 %
x dB Bandwidth
9.536 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
02:12:51 AM Oct 29, 2015
x dB -6.00 dB
Center Freq: 2.462000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.462 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
14.101 MHz
Total Power
15.5 dBm
Transmit Freq Error
-34.425 kHz
OBW Power
99.00 %
x dB Bandwidth
9.535 MHz
x dB
-6.00 dB
Clear Write
Average
Max Hold
Min Hold
Detector
Peak
Auto
Man
MSG
STATUS

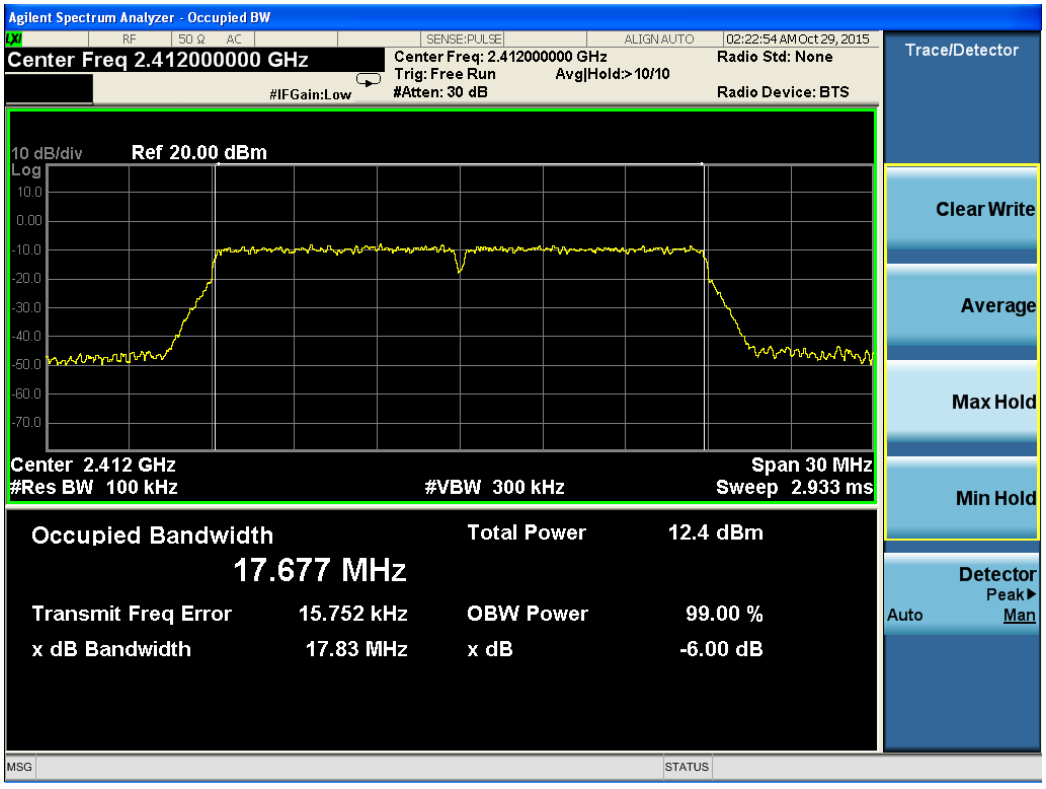
802.11g channel, 6dB bandwidth

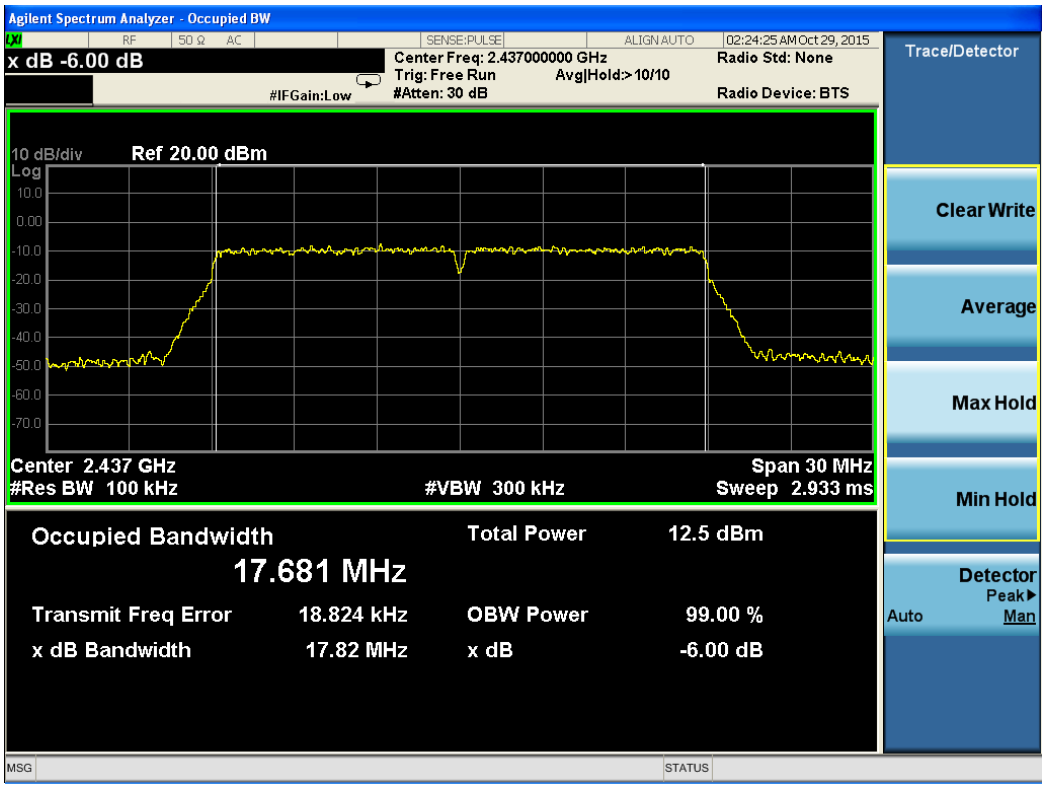


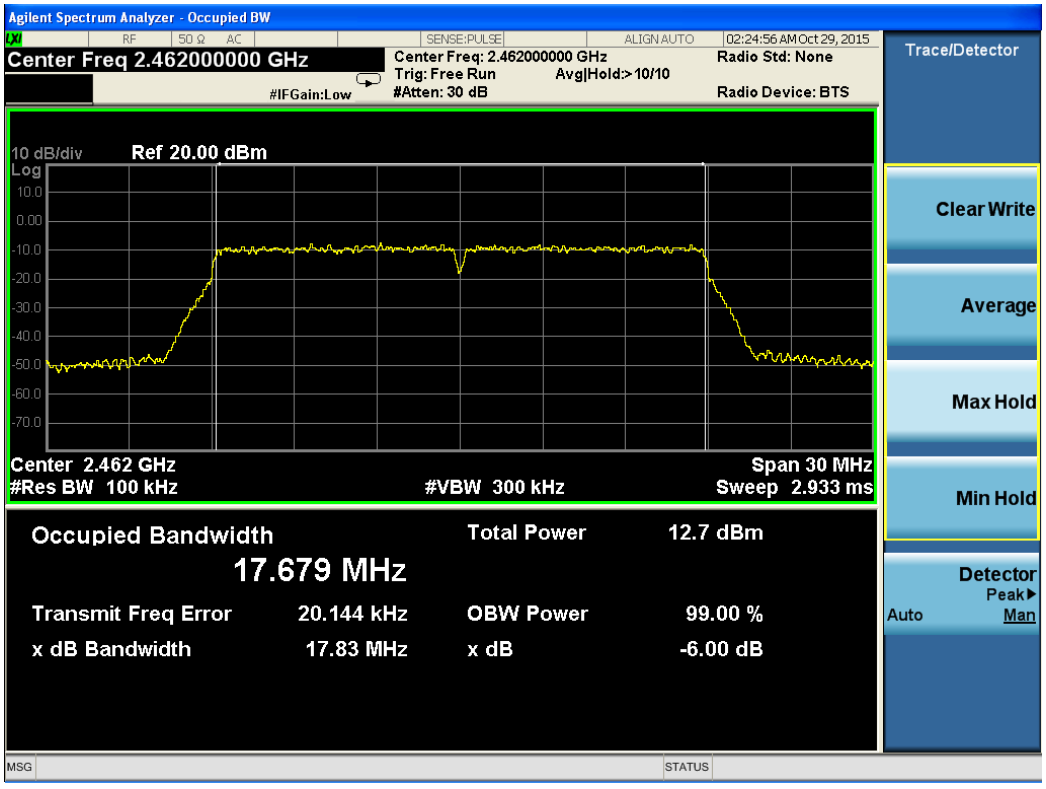




802.11n HT20 channel, 6dB bandwidth




Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
02:24:25 AM Oct 29, 2015
x dB -6.00 dB
Center Freq: 2.437000000 GHz
Trig: Free Run Avg|Hold:>10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.437 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
17.681 MHz
Total Power 12.5 dBm
Transmit Freq Error 18.824 kHz
OBW Power 99.00 %
x dB Bandwidth 17.82 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
02:24:56 AM Oct 29, 2015
Center Freq 2.462000000 GHz
Center Freq: 2.462000000 GHz
Trig: Free Run Avg|Hold:>10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.462 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
17.679 MHz
Total Power 12.7 dBm
Transmit Freq Error 20.144 kHz
OBW Power 99.00 %
x dB Bandwidth 17.83 MHz
x dB -6.00 dB
Clear Write
Average
Max Hold
Min Hold
Detector
Peak
Auto
Man
MSG
STATUS

BLE 4.0

Channel	Frequency	20dB Bandwidth (MHz)	Limit
1	2402	1.20	Non-specified
20	2440	1.20	
40	2480	1.20	

802.11b

Channel	Frequency	20dB Bandwidth (MHz)	Limit
1	2412	15.91	Non-specified
6	2437	15.90	
11	2462	15.89	

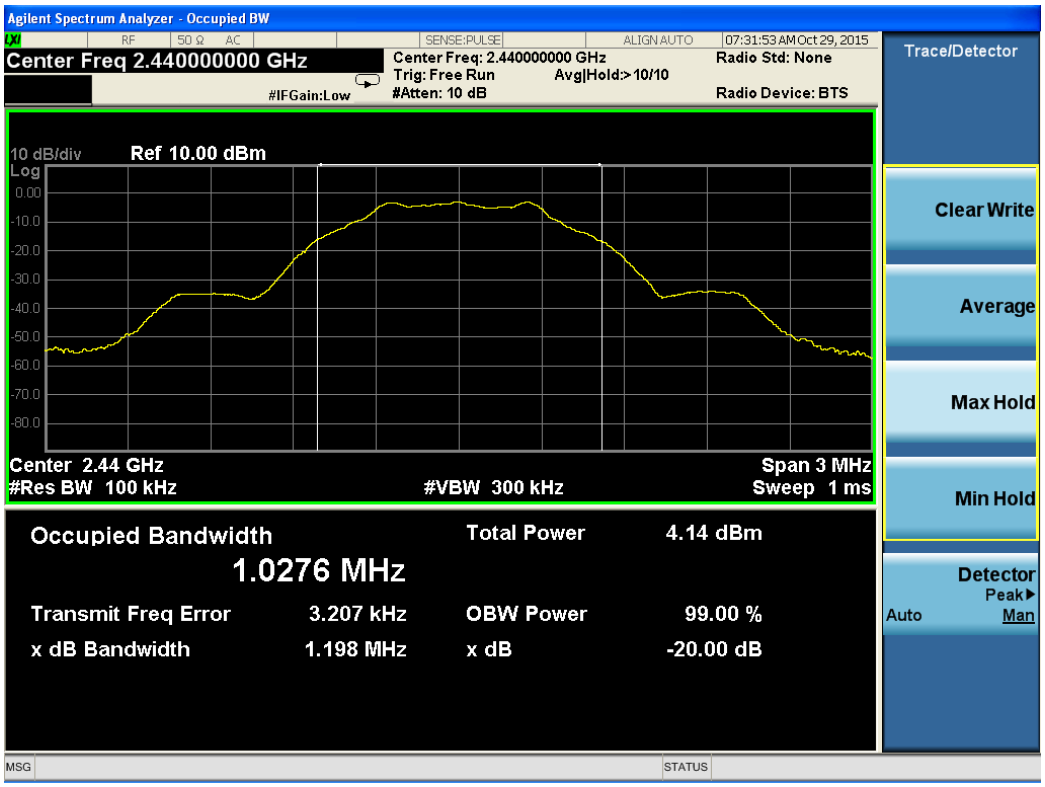
802.11g

Channel	Frequency	20dB Bandwidth (MHz)	Limit
1	2412	18.20	Non-specified
6	2437	18.54	
11	2462	18.78	

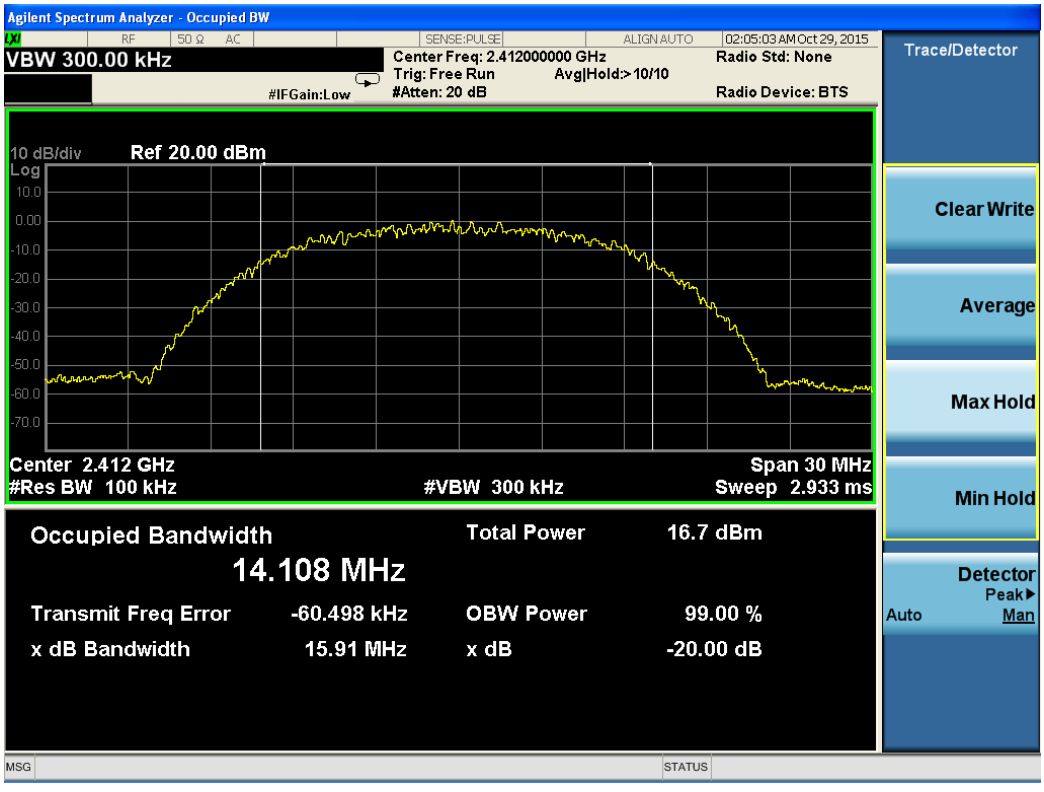
802.11n HT20

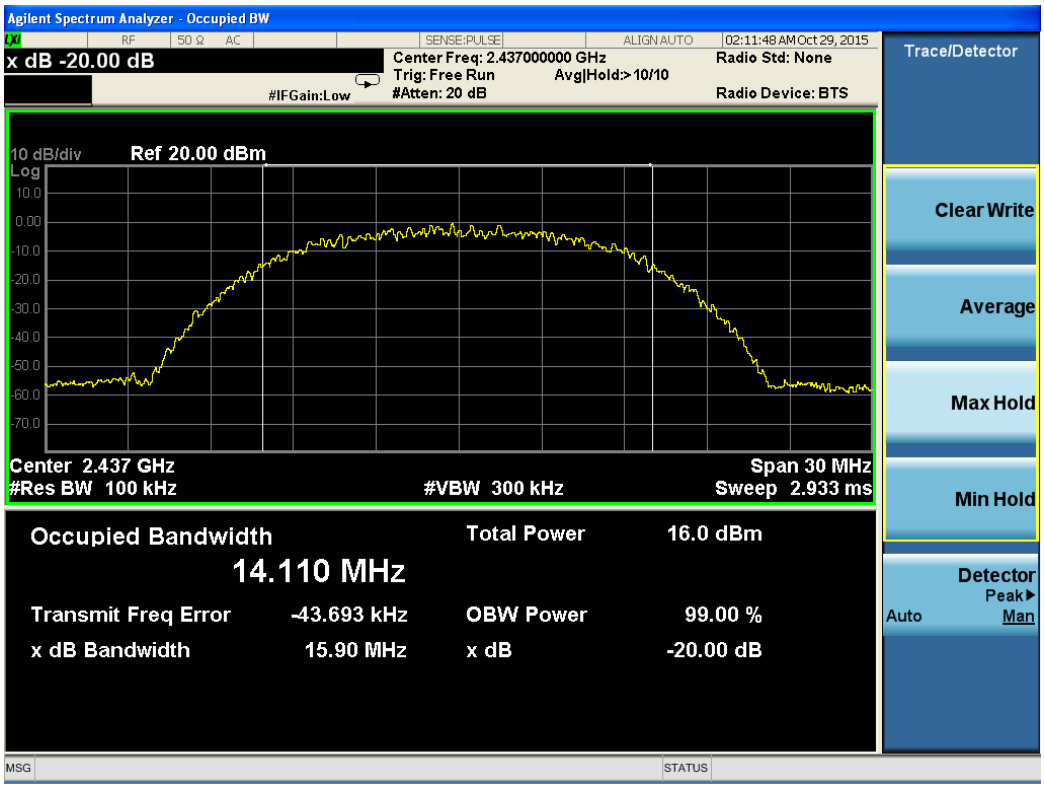
Channel	Frequency	20dB Bandwidth (MHz)	Limit
1	2412	19.11	Non-specified
6	2437	19.03	
11	2462	19.11	

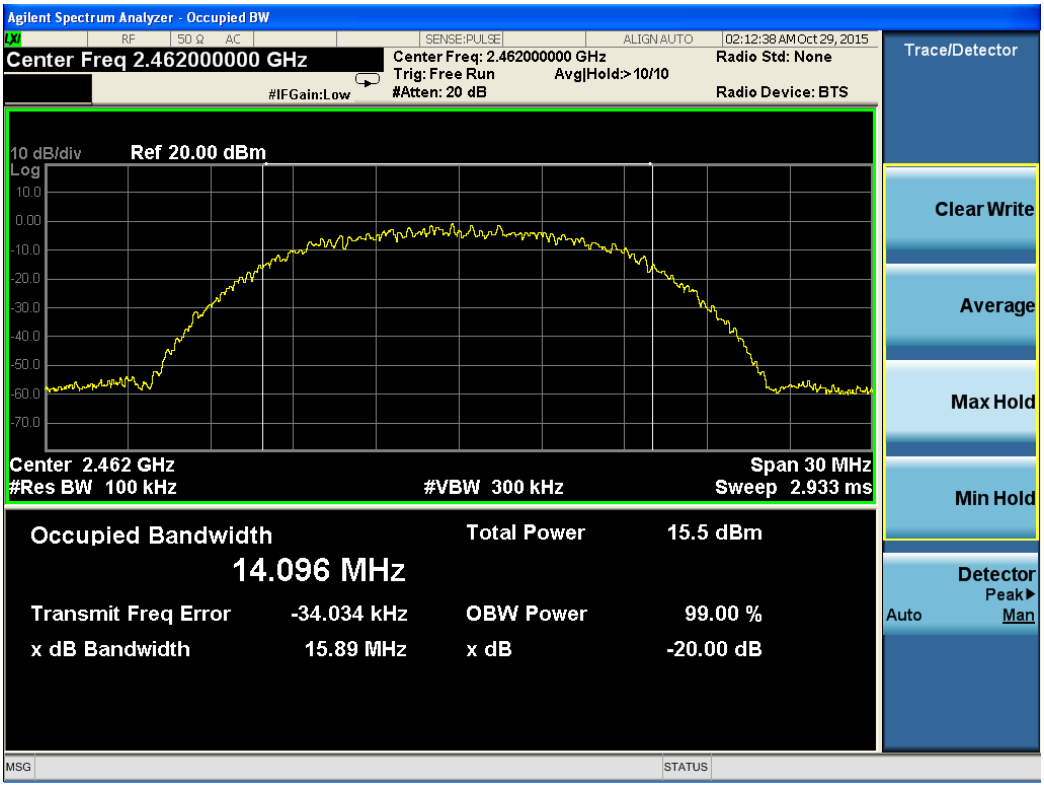
BLE 4.0 channel, 20dB bandwidth



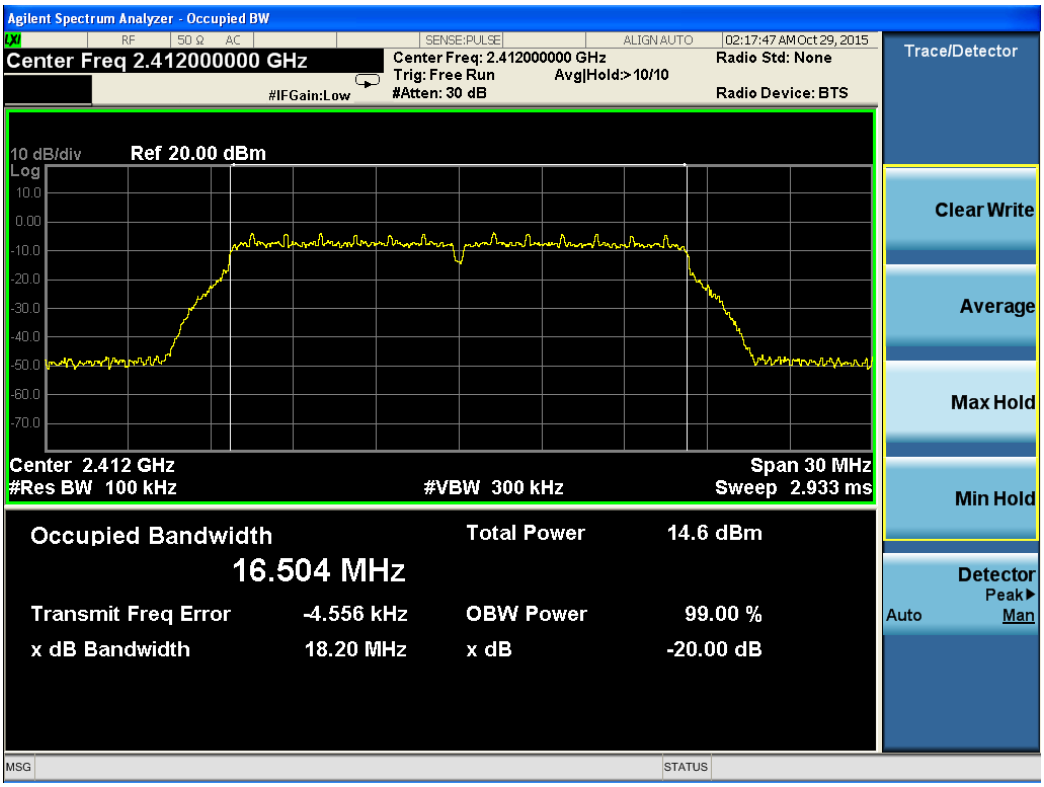
802.11b channel, 20dB bandwidth

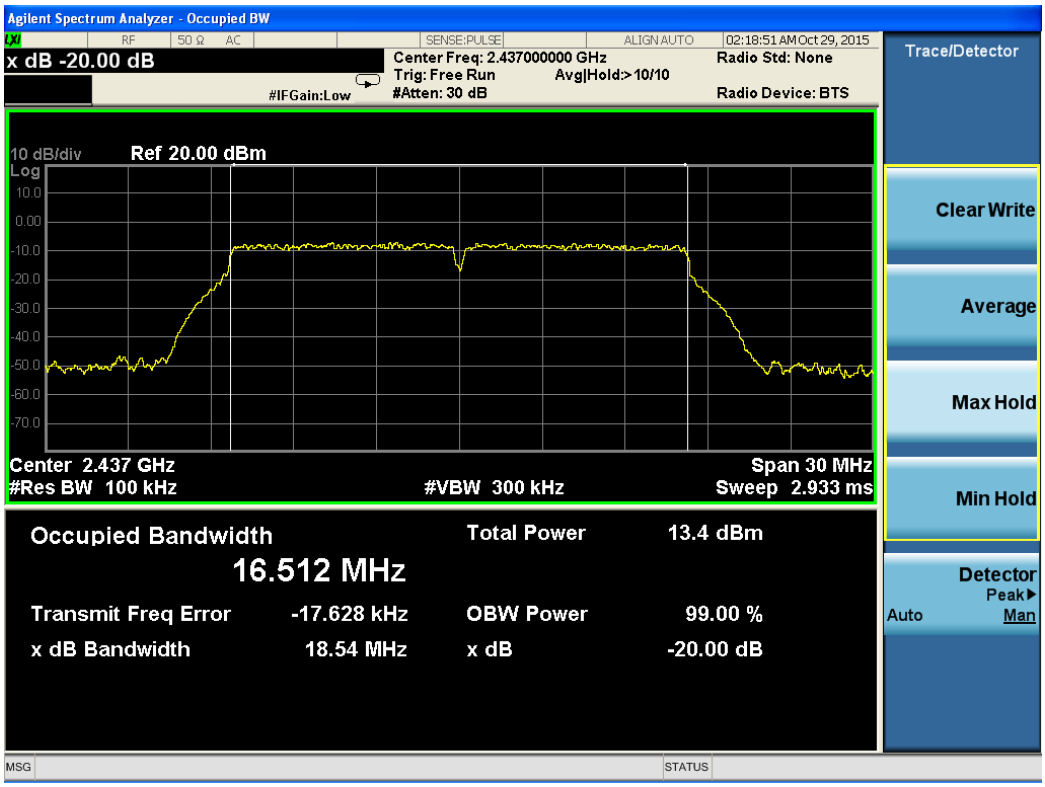


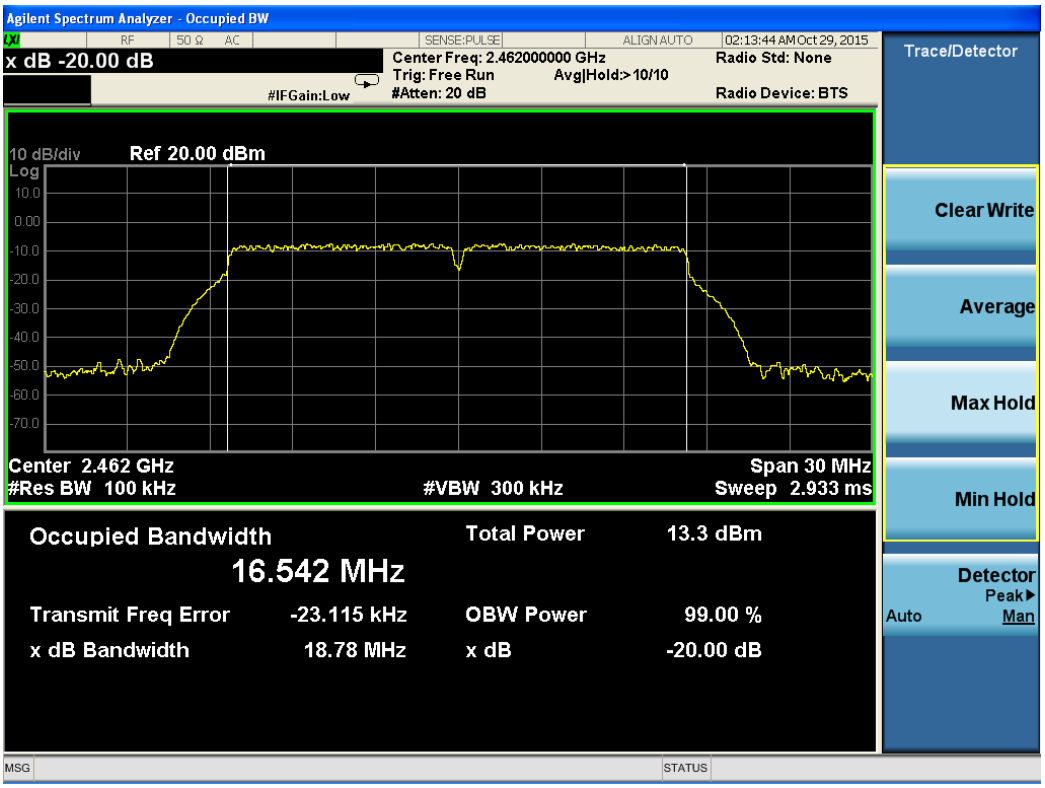

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
02:11:48 AM Oct 29, 2015
x dB -20.00 dB
Center Freq: 2.437000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 20 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.437 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
14.110 MHz
Total Power
16.0 dBm
Transmit Freq Error
-43.693 kHz
OBW Power
99.00 %
x dB Bandwidth
15.90 MHz
x dB
-20.00 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
02:12:38 AM Oct 29, 2015
Center Freq 2.462000000 GHz
Center Freq: 2.462000000 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 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.462 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
14.096 MHz
Total Power
15.5 dBm
Transmit Freq Error
-34.034 kHz
OBW Power
99.00 %
x dB Bandwidth
15.89 MHz
x dB
-20.00 dB
Clear Write
Average
Max Hold
Min Hold
Detector
Peak
Auto
Man
MSG
STATUS

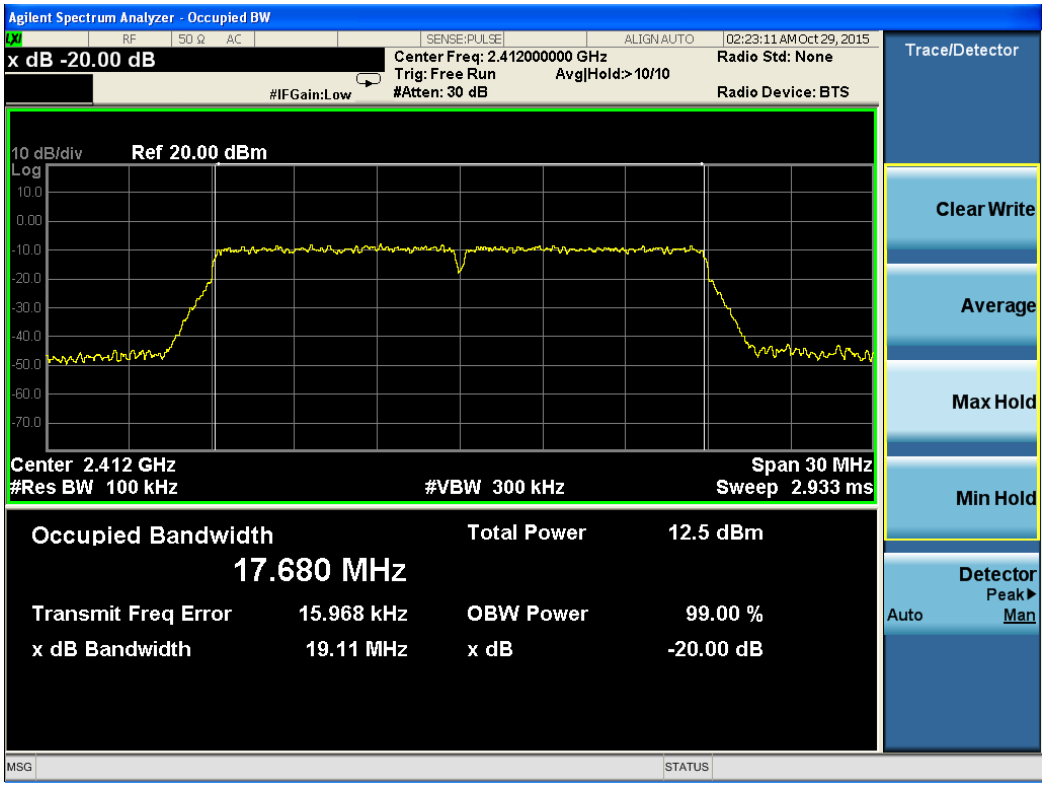
802.11g channel, 20dB bandwidth

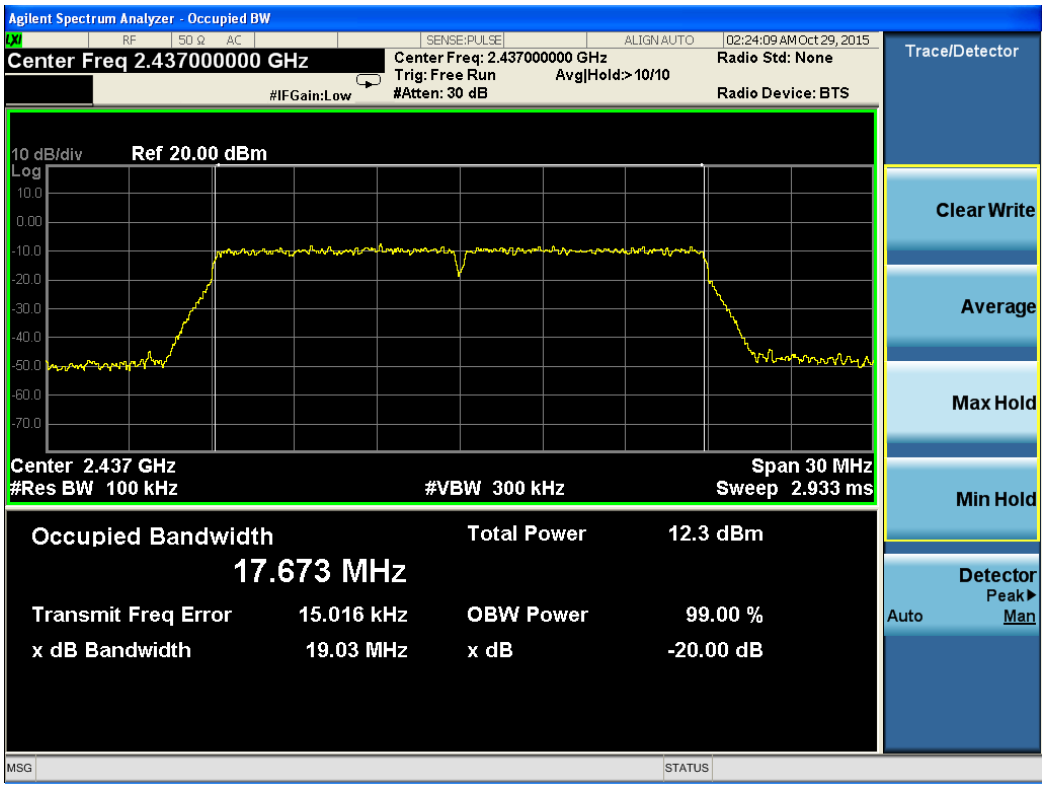






802.11n HT20 channel, 20dB bandwidth




Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
02:24:09 AM Oct 29, 2015
Center Freq 2.437000000 GHz
Center Freq: 2.437000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.437 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
17.673 MHz
Total Power
12.3 dBm
Transmit Freq Error
15.016 kHz
OBW Power
99.00 %
x dB Bandwidth
19.03 MHz
x dB
-20.00 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
02:25:26 AM Oct 29, 2015
x dB -20.00 dB
Center Freq: 2.462000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Trace/Detector
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.462 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 2.933 ms
Occupied Bandwidth
17.676 MHz
Total Power
12.7 dBm
Transmit Freq Error
21.128 kHz
OBW Power
99.00 %
x dB Bandwidth
19.11 MHz
x dB
-20.00 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: 2013. 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.

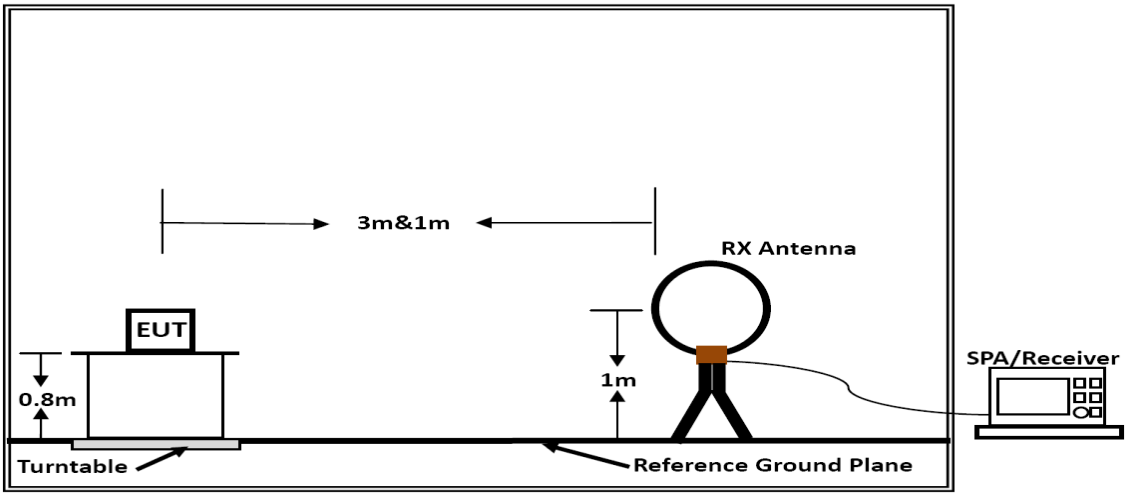
7) When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 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.

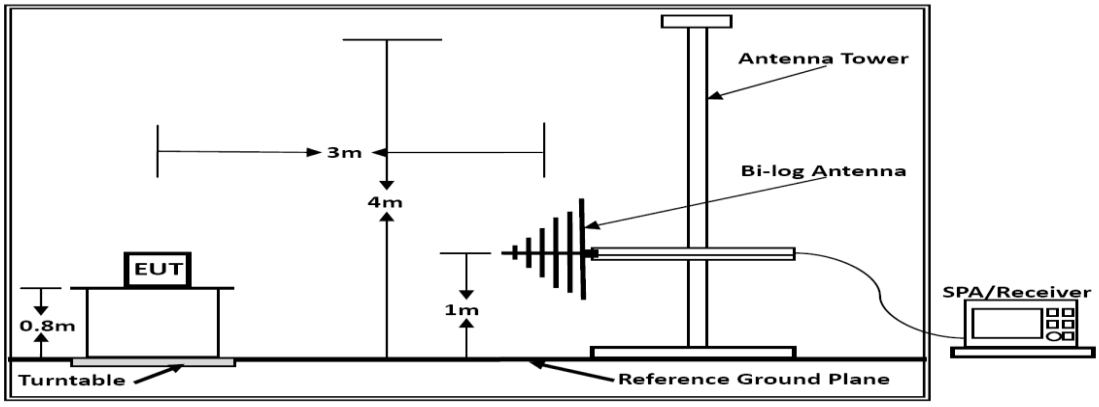
9) For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emission sat the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with 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.

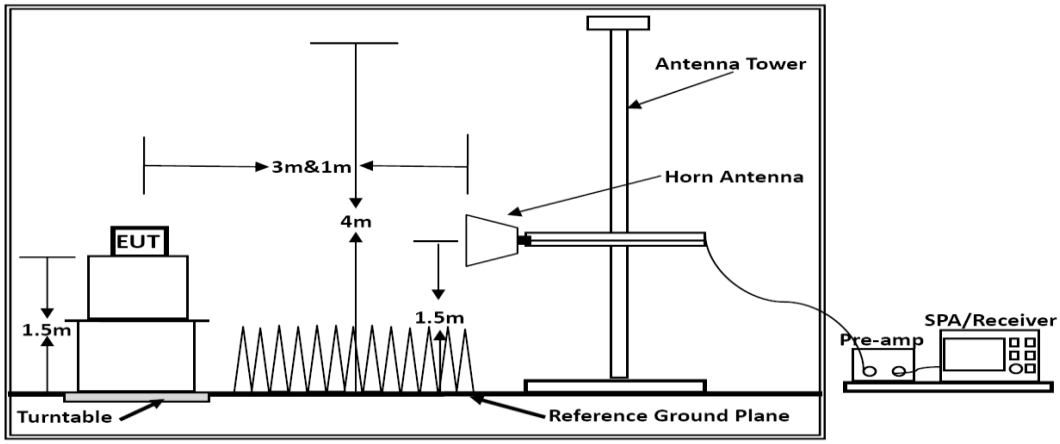
5.4.4. Test Setup Layout



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	Dick	Configurations	BLE 4.0; 802.11b/g/n

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

Note:

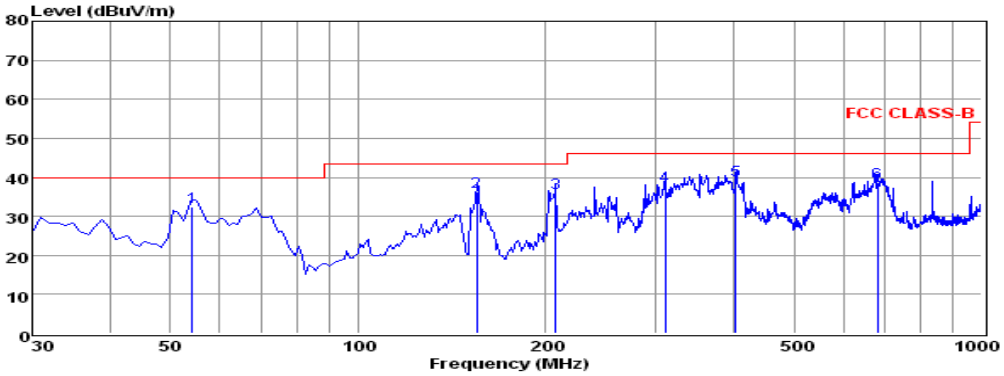
The radiated emissions from 9kHz to 30MHz are at least 20dB below the official limit and no need to report.

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)

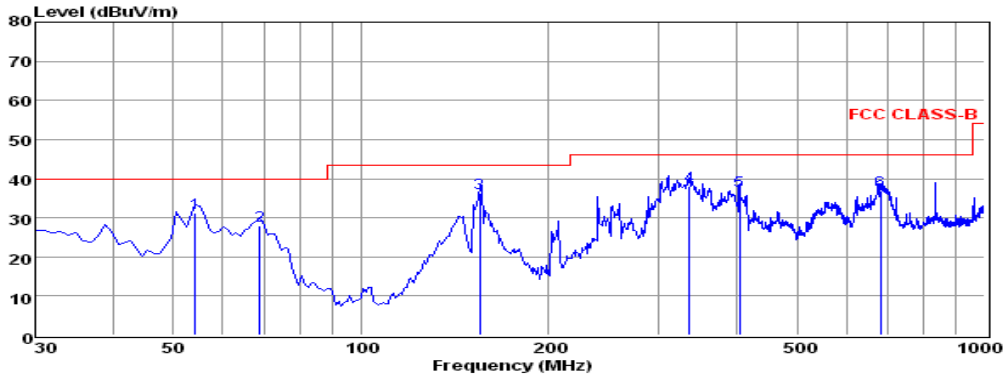
Temperature	25℃	Humidity	60%
Test Engineer	Dick	Configurations	802.11b (High Channel)



Env./Ins: 24℃/56%
EUT: Android POS terminal
M/N: PC701
Power Rating: AC 120V/60Hz
Test Mode: TX-HIGH CHANNEL(802.11b)
Operator: Dick
Memo:
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	54.25	18.85	0.46	13.05	32.36	40.00	-7.64	QP
2	155.13	27.11	0.76	8.47	36.34	43.50	-7.16	QP
3	207.51	24.41	0.86	10.81	36.08	43.50	-7.42	QP
4	311.30	23.41	1.09	13.21	37.71	46.00	-8.29	QP
5	403.45	22.73	1.32	15.13	39.18	46.00	-6.82	QP
6	680.87	18.42	1.61	18.74	38.77	46.00	-7.23	QP

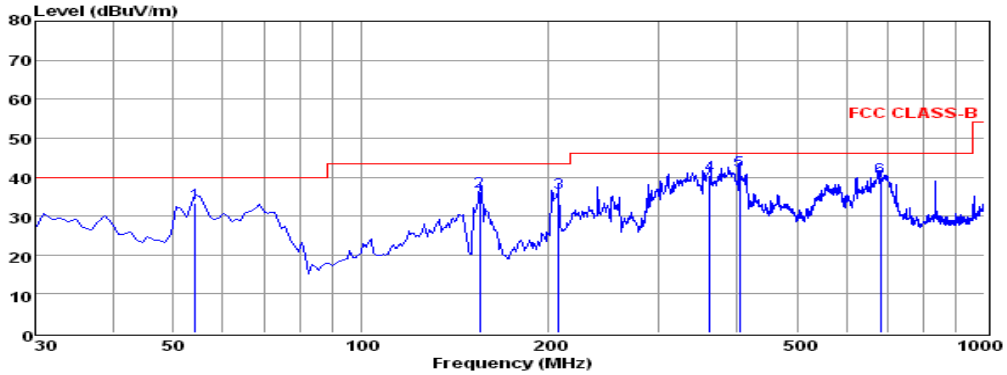
Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported



Env./Ins: 24℃/56%
EUT: Android POS terminal
M/N: PC701
Power Rating: AC 120V/60Hz
Test Mode: TX-HIGH CHANNEL(802.11b)
Operator: Dick
Memo:
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	54.25	17.85	0.46	13.05	31.36	40.00	-8.64	QP
2	68.80	18.38	0.51	9.14	28.03	40.00	-11.97	QP
3	155.13	27.11	0.76	8.47	36.34	43.50	-7.16	QP
4	336.52	22.97	1.09	13.98	38.04	46.00	-7.96	QP
5	404.42	20.28	1.32	15.15	36.75	46.00	-9.25	QP
6	680.87	16.42	1.61	18.74	36.77	46.00	-9.23	QP

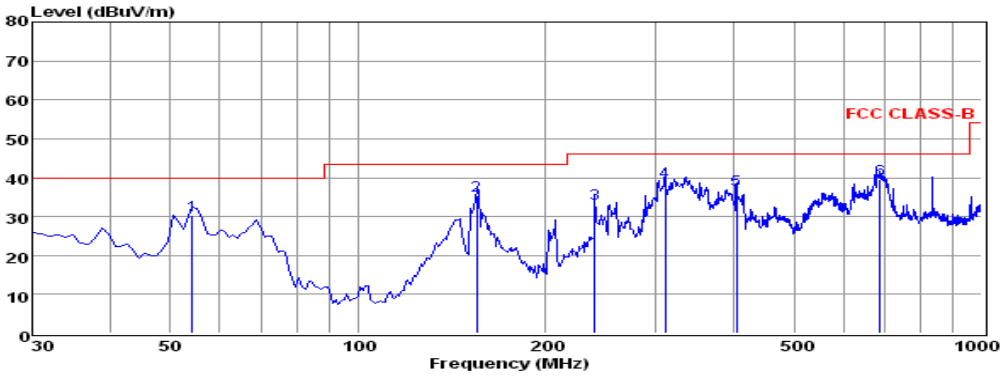
Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported



Env./Ins: 24℃/56%
EUT: Android POS terminal
M/N: PC701
Power Rating: AC 240V/60Hz
Test Mode: TX-HIGH CHANNEL(802.11b)
Operator: Dick
Memo:
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	54.25	19.85	0.46	13.05	33.36	40.00	-6.64	QP
2	155.13	27.11	0.76	8.47	36.34	43.50	-7.16	QP
3	207.51	24.41	0.86	10.81	36.08	43.50	-7.42	QP
4	362.71	24.82	1.17	14.45	40.44	46.00	-5.56	QP
5	404.42	25.28	1.32	15.15	41.75	46.00	-4.25	QP
6	680.87	19.42	1.61	18.74	39.77	46.00	-6.23	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

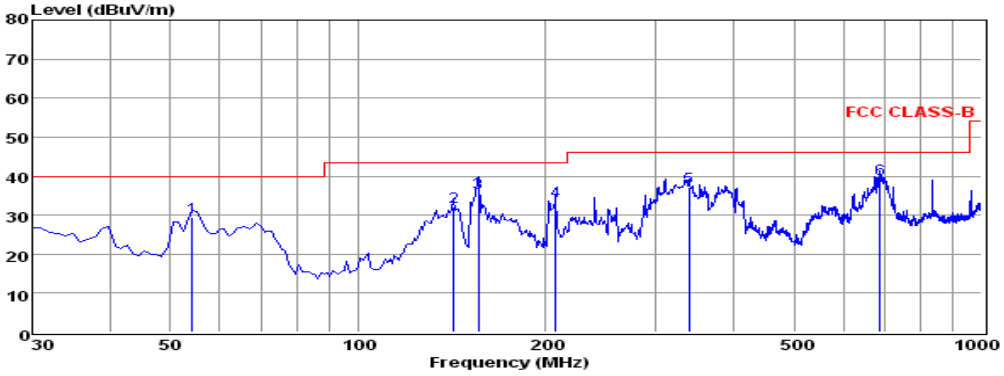


Env./Ins: 24℃/56%
EUT: Android POS terminal
M/N: PC701
Power Rating: AC 240V/60Hz
Test Mode: TX-HIGH CHANNEL(802.11b)
Operator: Dick
Memo:
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	54.25	16.85	0.46	13.05	30.36	40.00	-9.64	QP
2	155.13	26.11	0.76	8.47	35.34	43.50	-8.16	QP
3	239.52	20.29	1.01	12.07	33.37	46.00	-12.63	QP
4	311.30	24.59	1.09	13.21	38.89	46.00	-7.11	QP
5	404.42	20.28	1.32	15.15	36.75	46.00	-9.25	QP
6	687.66	19.04	1.73	18.77	39.54	46.00	-6.46	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

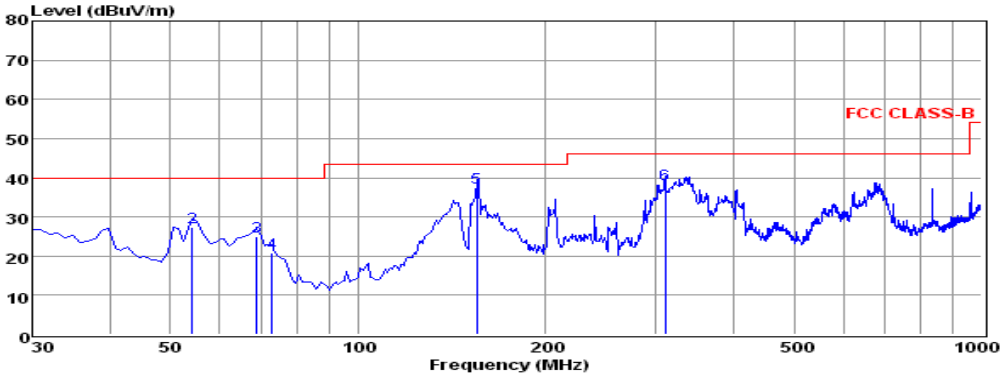
Temperature	25℃	Humidity	60%
Test Engineer	Dick	Configurations	BLE (High Channel)



Env./Ins: 24℃/56%
EUT: Android POS terminal
M/N: PC701
Power Rating: AC 120V/60Hz
Test Mode: TX-HIGH CHANNEL(BLE)
Operator: Dick
Memo:
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	54.25	15.85	0.46	13.05	29.36	40.00	-10.64	QP
2	142.52	23.35	0.71	8.21	32.27	43.50	-11.23	QP
3	156.10	26.47	0.76	8.51	35.74	43.50	-7.76	QP
4	207.51	21.82	0.86	10.81	33.49	43.50	-10.01	QP
5	339.43	21.88	1.16	14.10	37.14	46.00	-8.86	QP
6	686.69	18.74	1.73	18.76	39.23	46.00	-6.77	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



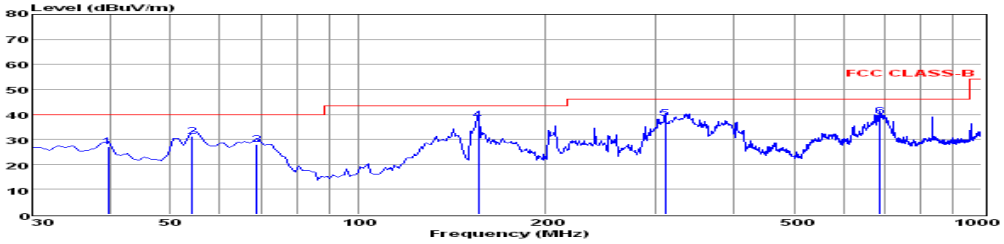
Env./Ins: 24℃/56%
EUT: Android POS terminal
M/N: PC701
Power Rating: AC 120V/60Hz
Test Mode: TX-HIGH CHANNEL(BLE)
Operator: Dick
Memo:
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	30.00	11.97	0.39	12.33	24.69	40.00	-15.31	QP
2	54.25	13.85	0.46	13.05	27.36	40.00	-12.64	QP
3	68.80	15.38	0.51	9.14	25.03	40.00	-14.97	QP
4	72.68	12.15	0.55	8.19	20.89	40.00	-19.11	QP
5	155.13	28.25	0.76	8.47	37.48	43.50	-6.02	QP
6	311.30	24.02	1.09	13.21	38.32	46.00	-7.68	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

Shenzhen LCS Compliance Testing Laboratory Ltd.
Add: Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-82591330 E-mail: webmaster@LCS-cert.com
Fax: 0755-82591332 Http: www.LCS-cert.com

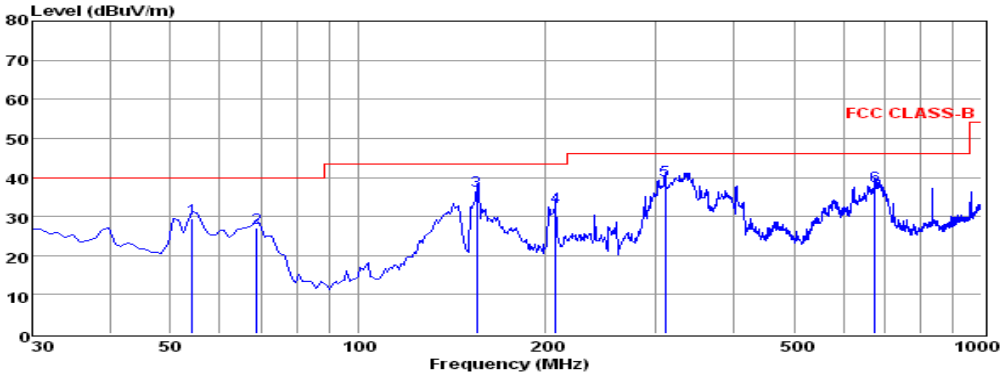
Data: 145 File: E:\2015 Test Data\ERIC.EM6 (146)



Env./Ins: 24℃/56%
EUT: Android POS terminal
M/N: PC701
Power Rating: AC 240V/60Hz
Test Mode: TX-HIGH CHANNEL(BLE)
Operator: Dick
Memo:
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	39.70	13.12	0.38	13.50	27.00	40.00	-13.00	QP
2	54.25	17.85	0.46	13.05	31.36	40.00	-8.64	QP
3	68.80	18.38	0.51	9.14	28.03	40.00	-11.97	QP
4	156.10	28.47	0.76	8.51	37.74	43.50	-5.76	QP
5	311.30	24.02	1.09	13.21	38.32	46.00	-7.68	QP
6	686.69	18.74	1.73	18.76	39.23	46.00	-6.77	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: Android POS terminal
M/N: PC701
Power Rating: AC 240V/60Hz
Test Mode: TX-HIGH CHANNEL(BLE)
Operator: Dick
Memo:
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	54.25	15.85	0.46	13.05	29.36	40.00	-10.64	QP
2	68.80	17.38	0.51	9.14	27.03	40.00	-12.97	QP
3	155.13	27.25	0.76	8.47	36.48	43.50	-7.02	QP
4	207.51	20.82	0.86	10.81	32.49	43.50	-11.01	QP
5	311.30	25.02	1.09	13.21	39.32	46.00	-6.68	QP
6	675.05	17.50	1.57	18.72	37.79	46.00	-8.21	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)and BLE (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)

Note: Only recorded the worst test result.

BLE 4.0

Channel 1

Freq. MHz	Reading Level dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
4804.17	44.28	33.06	35.04	3.94	46.24	74	-27.76	Peak	Horizontal
4804.20	33.23	33.06	35.04	3.94	35.19	54	-18.81	Average	Horizontal
4804.17	43.57	33.06	35.04	3.94	45.53	74	-28.47	Peak	Vertical
4804.20	35.68	33.06	35.04	3.94	37.64	54	-16.36	Average	Vertical

Channel 20

Freq. MHz	Reading Level dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
4880.24	43.61	33.16	35.15	3.96	45.58	74	-28.42	Peak	Horizontal
4880.26	32.41	33.16	35.15	3.96	34.38	54	-19.62	Average	Horizontal
4880.24	44.31	33.16	35.15	3.96	46.28	74	-27.72	Peak	Vertical
4880.26	33.58	33.16	35.15	3.96	35.55	54	-18.45	Average	Vertical

Channel 40

Freq. MHz	Reading Level dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
4960.33	41.39	33.26	35.14	3.98	43.49	74	-30.51	Peak	Horizontal
4960.36	32.31	33.26	35.14	3.98	34.41	54	-19.59	Average	Horizontal
4960.33	45.05	33.26	35.14	3.98	47.15	74	-26.85	Peak	Vertical
4960.36	33.77	33.26	35.14	3.98	35.87	54	-18.13	Average	Vertical

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	52.67	33.06	35.04	3.94	54.63	74	-19.37	Peak	Horizontal
4824.19	41.99	33.06	35.04	3.94	43.95	54	-10.05	Average	Horizontal
4824.17	53.14	33.06	35.04	3.94	55.10	74	-18.90	Peak	Vertical
4824.19	45.14	33.06	35.04	3.94	47.10	54	-6.90	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	51.36	33.16	35.15	3.96	53.33	74	-20.67	Peak	Horizontal
4874.33	43.90	33.16	35.15	3.96	45.87	54	-8.13	Average	Horizontal
4874.31	52.60	33.16	35.15	3.96	54.57	74	-19.43	Peak	Vertical
4874.33	42.91	33.16	35.15	3.96	44.88	54	-9.12	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.
4924.34	52.74	33.26	35.14	3.98	54.84	74	-19.16	Peak	Horizontal
4924.37	41.89	33.26	35.14	3.98	43.99	54	-10.01	Average	Horizontal
4924.34	54.25	33.26	35.14	3.98	56.35	74	-17.65	Peak	Vertical
4924.37	43.69	33.26	35.14	3.98	45.79	54	-8.21	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.
4824.23	51.24	33.06	35.04	3.94	53.20	74	-20.80	Peak	Horizontal
4824.25	41.48	33.06	35.04	3.94	43.44	54	-10.56	Average	Horizontal
4824.23	52.69	33.06	35.04	3.94	54.65	74	-19.35	Peak	Vertical
4824.25	44.32	33.06	35.04	3.94	46.28	54	-7.72	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.
4874.36	51.37	33.16	35.15	3.96	53.34	74	-20.66	Peak	Horizontal
4874.39	39.24	33.16	35.15	3.96	41.21	54	-12.79	Average	Horizontal
4874.36	52.27	33.16	35.15	3.96	54.24	74	-19.76	Peak	Vertical
4874.39	42.84	33.16	35.15	3.96	44.81	54	-9.19	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.
4924.41	50.53	33.26	35.14	3.98	52.63	74	-21.37	Peak	Horizontal
4924.44	40.60	33.26	35.14	3.98	42.70	54	-11.30	Average	Horizontal
4924.41	52.84	33.26	35.14	3.98	54.94	74	-19.06	Peak	Vertical
4924.44	41.73	33.26	35.14	3.98	43.83	54	-10.17	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.
4824.18	49.18	33.06	35.04	3.94	51.14	74	-22.86	Peak	Horizontal
4824.20	40.63	33.06	35.04	3.94	42.59	54	-11.41	Average	Horizontal
4824.18	50.05	33.06	35.04	3.94	52.01	74	-21.99	Peak	Vertical
4824.20	39.94	33.06	35.04	3.94	41.90	54	-12.10	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.
4874.33	47.46	33.16	35.15	3.96	49.43	74	-24.57	Peak	Horizontal
4874.36	39.98	33.16	35.15	3.96	41.95	54	-12.05	Average	Horizontal
4874.33	48.69	33.16	35.15	3.96	50.66	74	-23.34	Peak	Vertical
4874.36	39.99	33.16	35.15	3.96	41.96	54	-12.04	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.
4924.43	46.09	33.26	35.14	3.98	48.19	74	-25.81	Peak	Horizontal
4924.45	35.81	33.26	35.14	3.98	37.91	54	-16.09	Average	Horizontal
4924.43	49.73	33.26	35.14	3.98	51.83	74	-22.17	Peak	Vertical
4924.45	40.34	33.26	35.14	3.98	42.44	54	-11.56	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)

Note: Only recorded the worst test result.

BLE 4.0

Tx-2402

Freq. MHz	Reading Level dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
2374.61	42.08	32.89	35.16	3.51	43.32	74	-30.68	Peak	Horizontal
2374.63	33.40	32.90	35.16	3.51	34.65	54	-19.35	Average	Horizontal
2390.00	46.50	32.92	35.16	3.54	47.80	74	-26.20	Peak	Horizontal
2389.97	37.69	32.92	35.16	3.54	38.99	54	-15.01	Average	Horizontal
2400.00	55.87	32.92	35.16	3.54	57.17	74	-16.83	Peak	Horizontal
2399.99	47.32	32.92	35.16	3.54	48.62	54	-5.38	Average	Horizontal
2374.61	41.32	32.89	35.16	3.51	42.56	74	-31.44	Peak	Vertical
2374.63	32.89	32.90	35.16	3.51	34.14	54	-19.86	Average	Vertical
2390.00	45.61	32.92	35.16	3.54	46.91	74	-27.09	Peak	Vertical
2389.97	39.15	32.92	35.16	3.54	40.45	54	-13.55	Average	Vertical
2400.00	57.88	32.92	35.16	3.54	59.18	74	-14.82	Peak	Vertical
2399.99	48.54	32.92	35.16	3.54	49.84	54	-4.16	Average	Vertical

Tx-2480

Freq. MHz	Reading Level dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
2483.50	46.17	33.06	35.18	3.60	47.65	74	-26.35	Peak	Horizontal
2483.51	36.59	33.08	35.18	3.60	38.09	54	-15.91	Average	Horizontal
2487.57	41.22	33.08	35.18	3.62	42.74	74	-31.26	Peak	Horizontal
2487.60	31.04	33.08	35.18	3.62	32.56	54	-21.44	Average	Horizontal
2483.50	44.47	33.06	35.18	3.60	45.95	74	-28.05	Peak	Vertical
2483.51	36.91	33.08	35.18	3.60	38.41	54	-15.59	Average	Vertical
2487.57	42.56	33.08	35.18	3.62	44.08	74	-29.92	Peak	Vertical
2487.60	33.84	33.08	35.18	3.62	35.36	54	-18.64	Average	Vertical

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.
2371.86	46.35	32.89	35.16	3.51	47.59	74	-26.41	Peak	Horizontal
2371.89	38.13	32.90	35.16	3.51	39.38	54	-14.62	Average	Horizontal
2390.00	48.58	32.92	35.16	3.54	49.88	74	-24.12	Peak	Horizontal
2389.97	37.75	32.92	35.16	3.54	39.05	54	-14.95	Average	Horizontal
2400.00	59.14	32.92	35.16	3.54	60.44	74	-13.56	Peak	Horizontal
2399.98	48.30	32.92	35.16	3.54	49.60	54	-4.40	Average	Horizontal
2371.86	49.38	32.89	35.16	3.51	50.62	74	-23.38	Peak	Vertical
2371.89	37.70	32.90	35.16	3.51	38.95	54	-15.05	Average	Vertical
2390.00	48.46	32.92	35.16	3.54	49.76	74	-24.24	Peak	Vertical
2389.97	37.15	32.92	35.16	3.54	38.45	54	-15.55	Average	Vertical
2400.00	61.31	32.92	35.16	3.54	62.61	74	-11.39	Peak	Vertical
2399.98	48.85	32.92	35.16	3.54	50.15	54	-3.85	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	45.73	33.06	35.18	3.60	47.21	74	-26.79	Peak	Horizontal
2483.51	37.86	33.08	35.18	3.60	39.36	54	-14.64	Average	Horizontal
2489.15	51.32	33.08	35.18	3.62	52.84	74	-21.16	Peak	Horizontal
2489.17	39.38	33.08	35.18	3.62	40.90	54	-13.10	Average	Horizontal
2483.50	46.74	33.06	35.18	3.60	48.22	74	-25.78	Peak	Vertical
2483.53	36.02	33.08	35.18	3.60	37.52	54	-16.48	Average	Vertical
2489.15	52.44	33.08	35.18	3.62	53.96	74	-20.04	Peak	Vertical
2489.17	43.27	33.08	35.18	3.62	44.79	54	-9.21	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.
2375.54	45.82	32.89	35.16	3.51	47.06	74	-26.94	Peak	Horizontal
2375.57	36.54	32.90	35.16	3.51	37.79	54	-16.21	Average	Horizontal
2390.00	50.37	32.92	35.16	3.54	51.67	74	-22.33	Peak	Horizontal
2389.97	35.61	32.92	35.16	3.54	36.91	54	-17.09	Average	Horizontal
2400.00	60.41	32.92	35.16	3.54	61.71	74	-12.29	Peak	Horizontal
2399.97	47.02	32.92	35.16	3.54	48.32	54	-5.68	Average	Horizontal
2375.54	46.82	32.89	35.16	3.51	48.06	74	-25.94	Peak	Vertical
2375.57	35.52	32.90	35.16	3.51	36.77	54	-17.23	Average	Vertical
2390.00	48.30	32.92	35.16	3.54	49.60	74	-24.40	Peak	Vertical
2389.97	39.35	32.92	35.16	3.54	40.65	54	-13.35	Average	Vertical
2400.00	58.10	32.92	35.16	3.54	59.40	74	-14.60	Peak	Vertical
2399.97	50.25	32.92	35.16	3.54	51.55	54	-2.45	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	45.75	33.06	35.18	3.60	47.23	74	-26.77	Peak	Horizontal
2483.51	34.66	33.08	35.18	3.60	36.16	54	-17.84	Average	Horizontal
2488.13	49.24	33.08	35.18	3.62	50.76	74	-23.24	Peak	Horizontal
2488.15	36.55	33.08	35.18	3.62	38.07	54	-15.93	Average	Horizontal
2483.50	44.96	33.06	35.18	3.60	46.44	74	-27.56	Peak	Vertical
2483.51	32.72	33.08	35.18	3.60	34.22	54	-19.78	Average	Vertical
2488.13	50.93	33.08	35.18	3.62	52.45	74	-21.55	Peak	Vertical
2488.15	41.50	33.08	35.18	3.62	43.02	54	-10.98	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.
2373.26	46.23	32.89	35.16	3.51	47.47	74	-26.53	Peak	Horizontal
2373.29	37.24	32.90	35.16	3.51	38.49	54	-15.51	Average	Horizontal
2390.00	48.76	32.92	35.16	3.54	50.06	74	-23.94	Peak	Horizontal
2389.97	38.66	32.92	35.16	3.54	39.96	54	-14.04	Average	Horizontal
2400.00	55.50	32.92	35.16	3.54	56.80	74	-17.20	Peak	Horizontal
2399.97	48.09	32.92	35.16	3.54	49.39	54	-4.61	Average	Horizontal
2373.26	43.84	32.89	35.16	3.51	45.08	74	-28.92	Peak	Vertical
2373.29	37.49	32.90	35.16	3.51	38.74	54	-15.26	Average	Vertical
2390.00	47.93	32.92	35.16	3.54	49.23	74	-24.77	Peak	Vertical
2389.97	36.67	32.92	35.16	3.54	37.97	54	-16.03	Average	Vertical
2400.00	57.82	32.92	35.16	3.54	59.12	74	-14.88	Peak	Vertical
2399.97	47.75	32.92	35.16	3.54	49.05	54	-4.95	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	42.48	33.06	35.18	3.60	43.96	74	-30.04	Peak	Horizontal
2483.51	32.98	33.08	35.18	3.60	34.48	54	-19.52	Average	Horizontal
2487.44	48.25	33.08	35.18	3.62	49.77	74	-24.23	Peak	Horizontal
2487.46	35.41	33.08	35.18	3.62	36.93	54	-17.07	Average	Horizontal
2483.50	44.82	33.06	35.18	3.60	46.30	74	-27.70	Peak	Vertical
2483.53	32.06	33.08	35.18	3.60	33.56	54	-20.44	Average	Vertical
2487.44	47.60	33.08	35.18	3.62	49.12	74	-24.88	Peak	Vertical
2487.46	39.60	33.08	35.18	3.62	41.12	54	-12.88	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

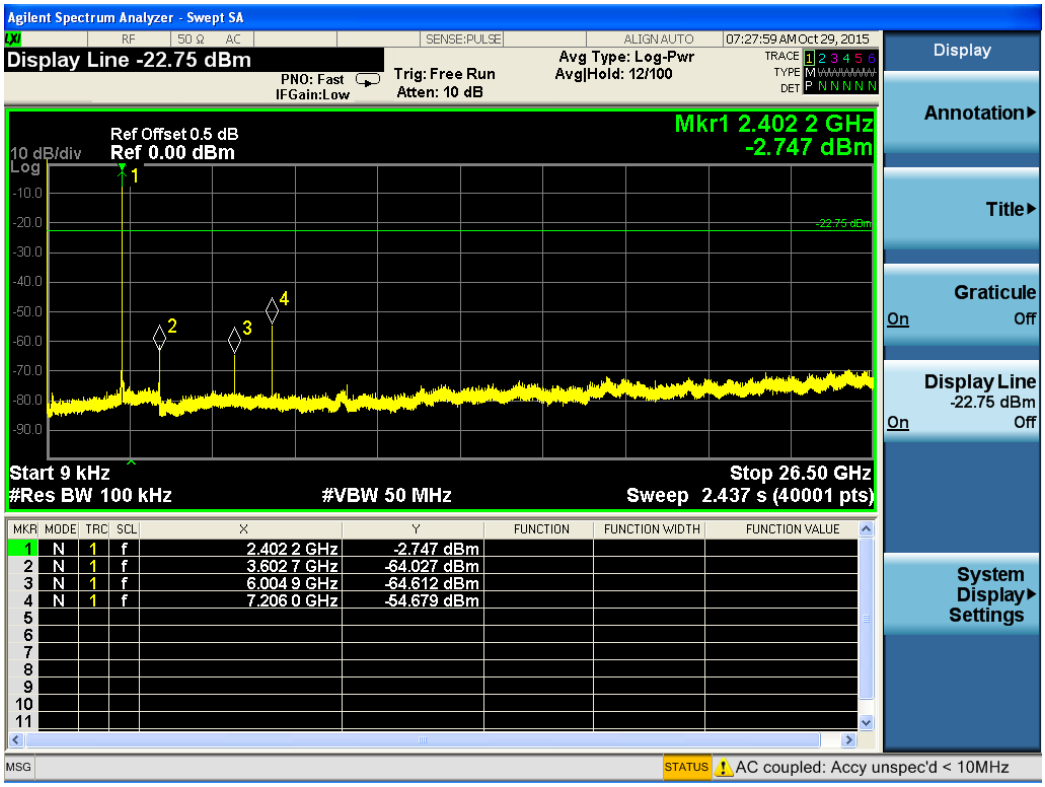
This test setup layout is the same as that shown in section 5.3.4.

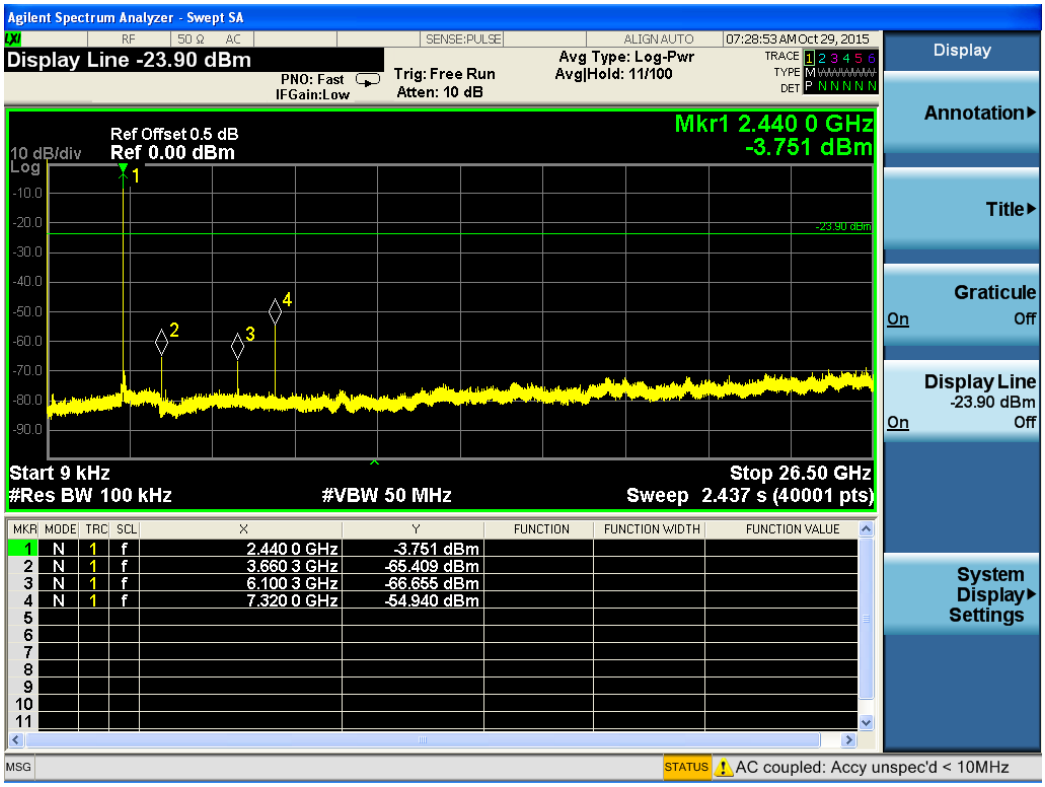
5.5.5. EUT Operation during Test

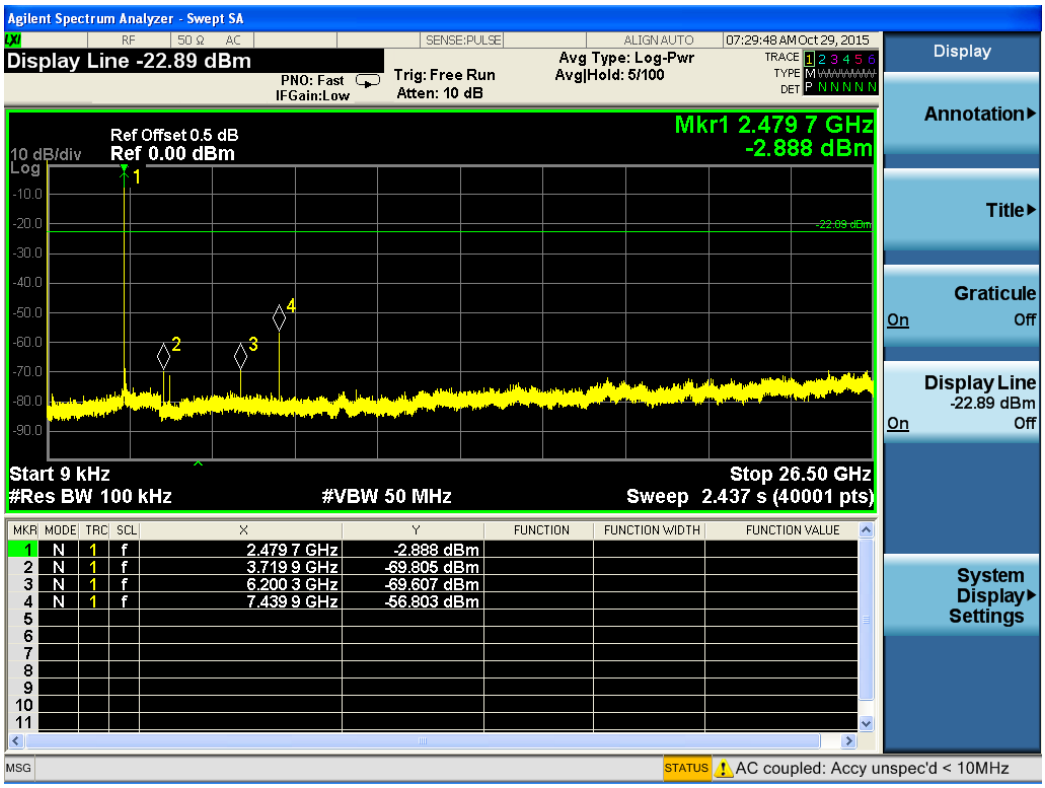
The EUT was programmed to be in continuously transmitting mode.

5.5.6. Test Results of Conducted Spurious Emissions

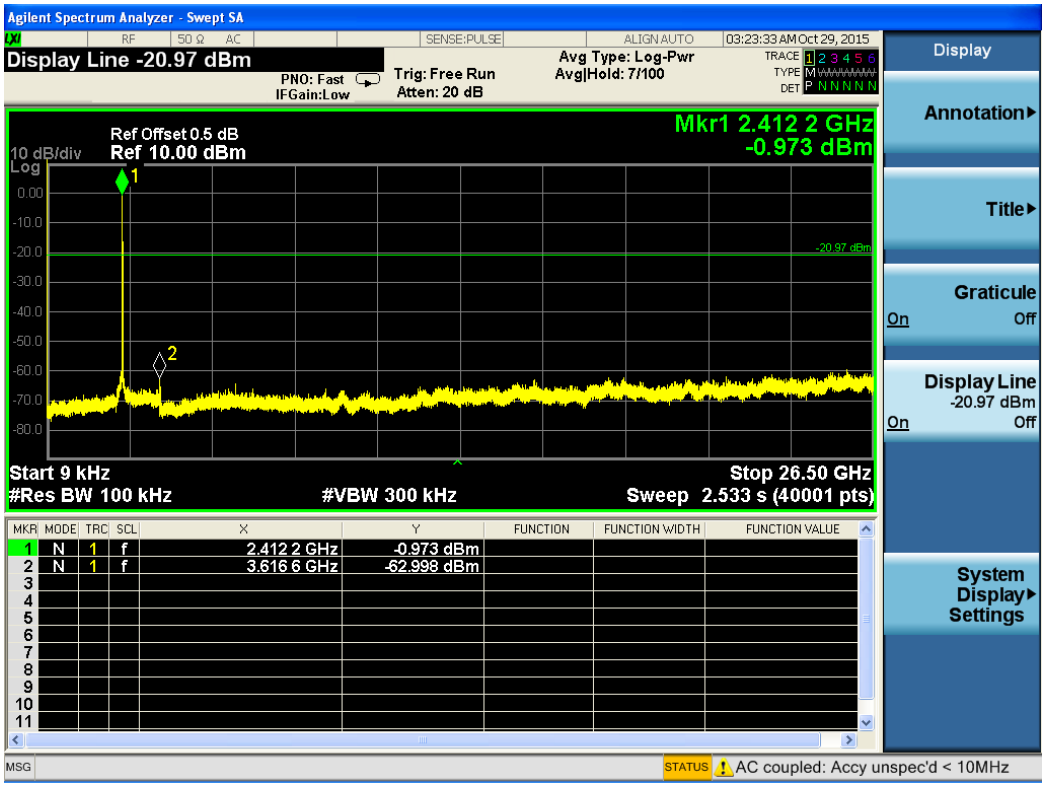
BLE 4.0

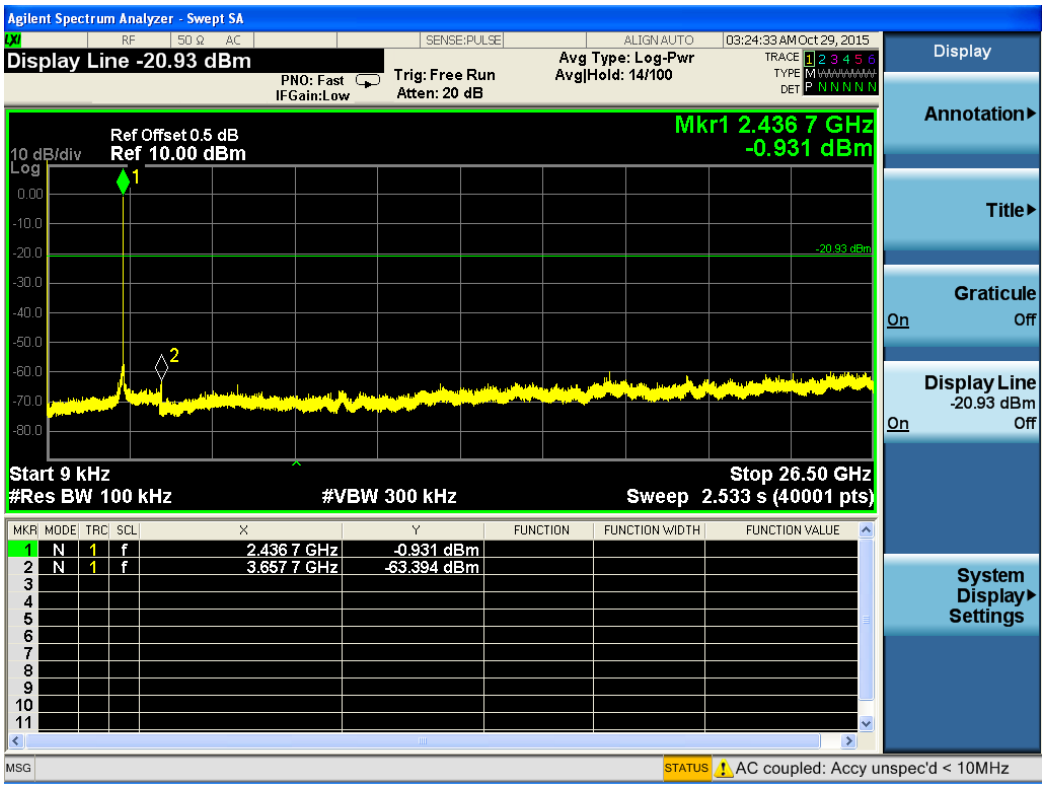


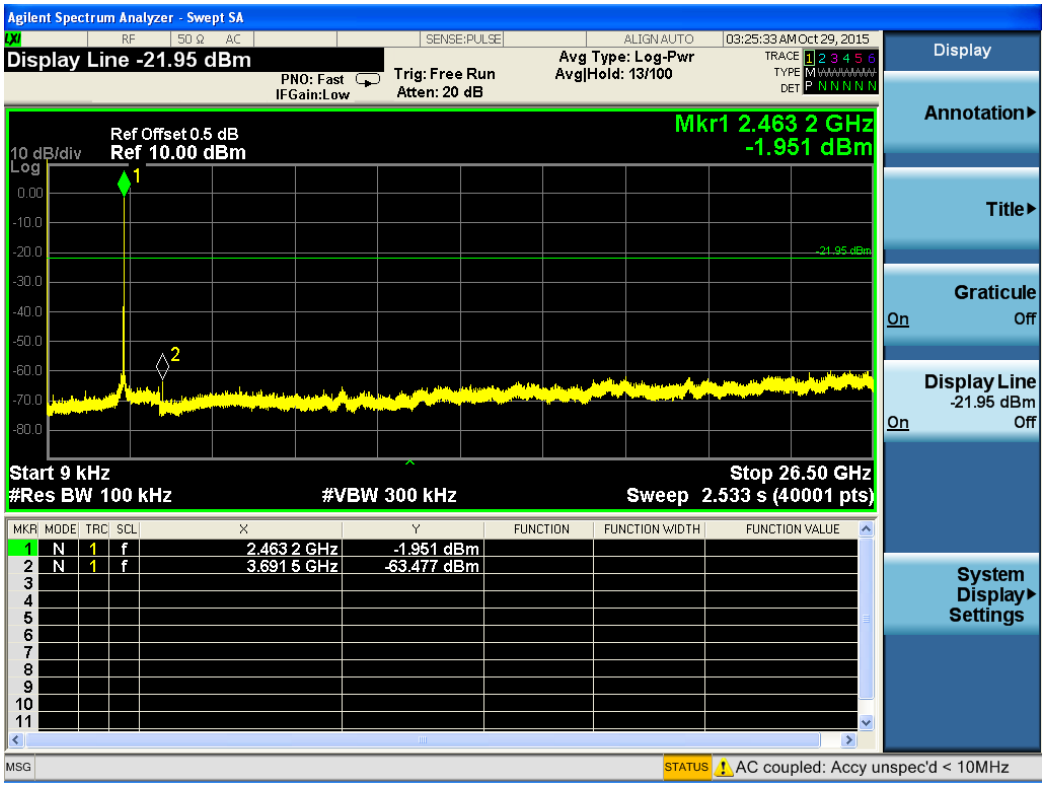



Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
07:29:48 AM Oct 29, 2015
Display Line -22.89 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 5/100
Ref Offset 0.5 dB
10 dB/div
Ref 0.00 dBm
Log
Mkr1 2.479 7 GHz
-2.888 dBm
-22.89 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 50 MHz
Stop 26.50 GHz
Sweep 2.437 s (40001 pts)
1 N 1 f 2.479 7 GHz -2.888 dBm
2 N 1 f 3.719 9 GHz -69.805 dBm
3 N 1 f 6.200 3 GHz -69.607 dBm
4 N 1 f 7.439 9 GHz -56.803 dBm
Display
Annotation
Title
Graticule On Off
Display Line -22.89 dBm On Off
System Display Settings
MSG
STATUS
AC coupled: Accy unspec'd < 10MHz

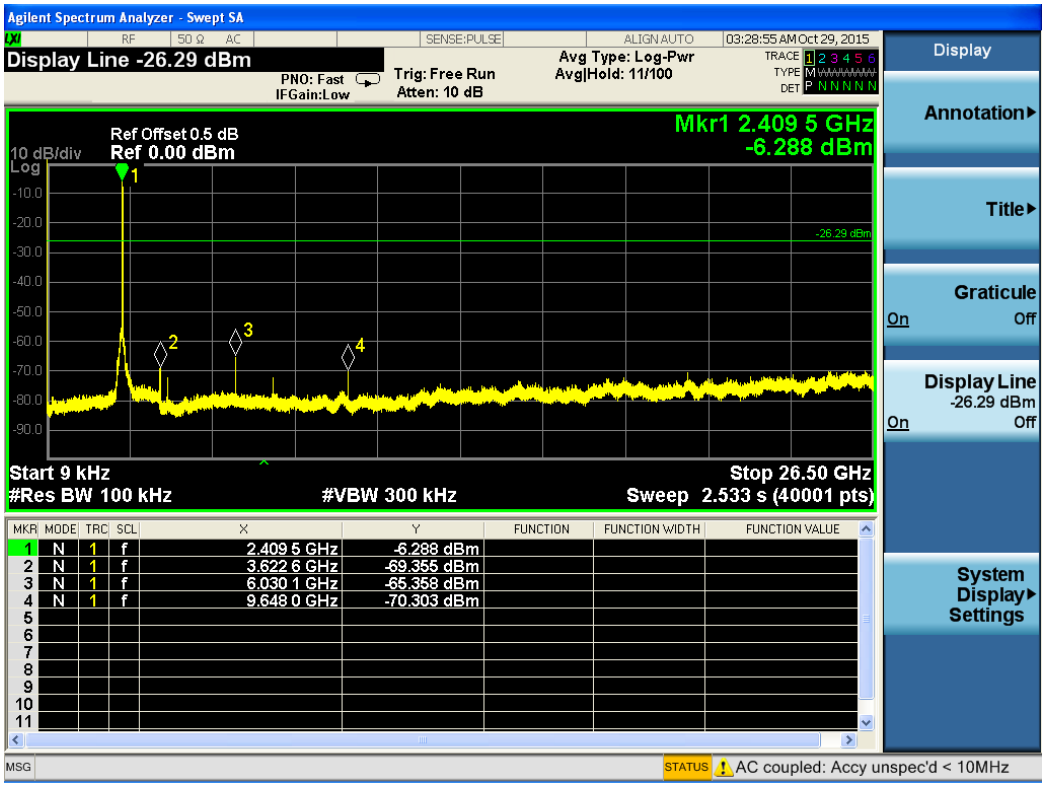
802.11b

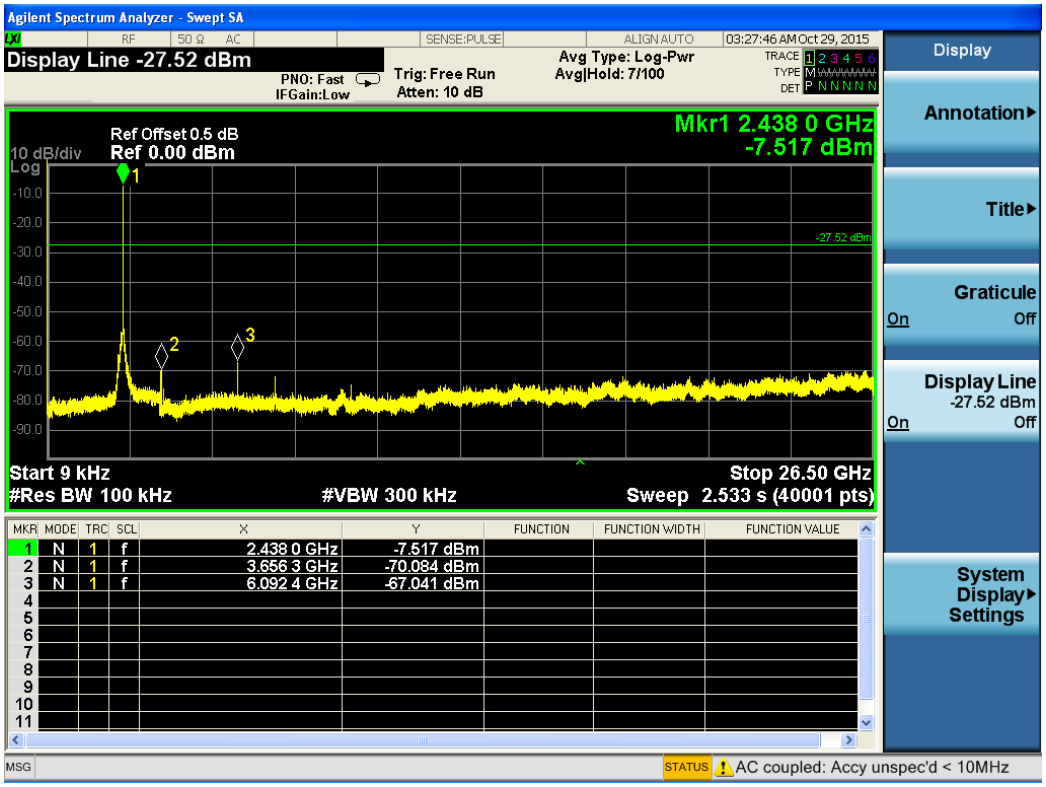

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:PULSE
ALIGN AUTO
03:23:33 AM Oct 29, 2015
Display Line -20.97 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
Ref Offset 0.5 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 2.412 2 GHz
-0.973 dBm
-20.97 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.412 2 GHz -0.973 dBm
2 N 1 f 3.616 6 GHz -62.998 dBm
Display
Annotation
Title
Graticule On Off
Display Line -20.97 dBm On Off
System Display Settings
MSG
STATUS
AC coupled: Accy unspec'd < 10MHz

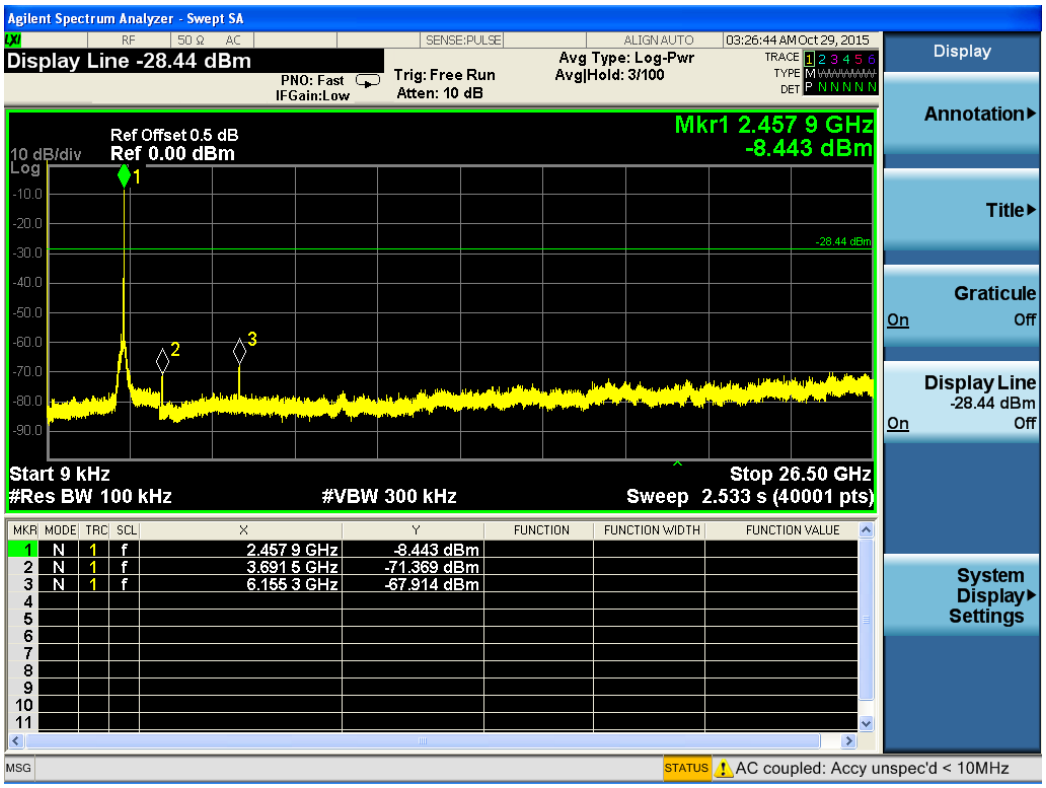




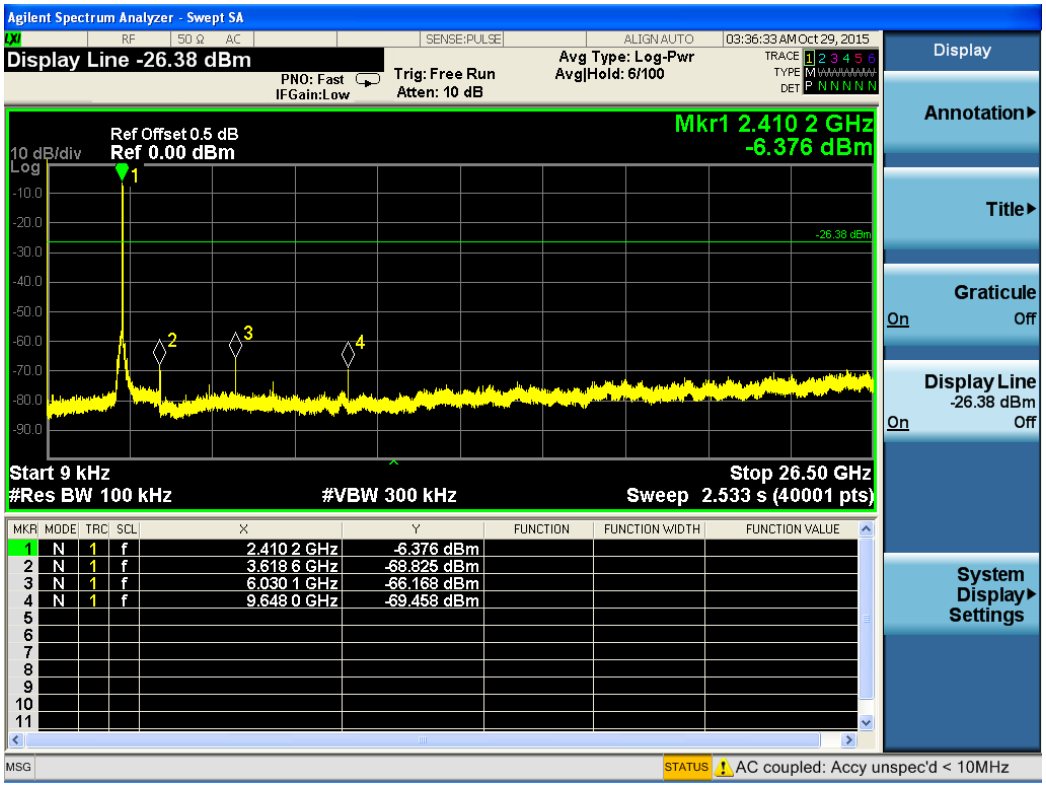
802.11g

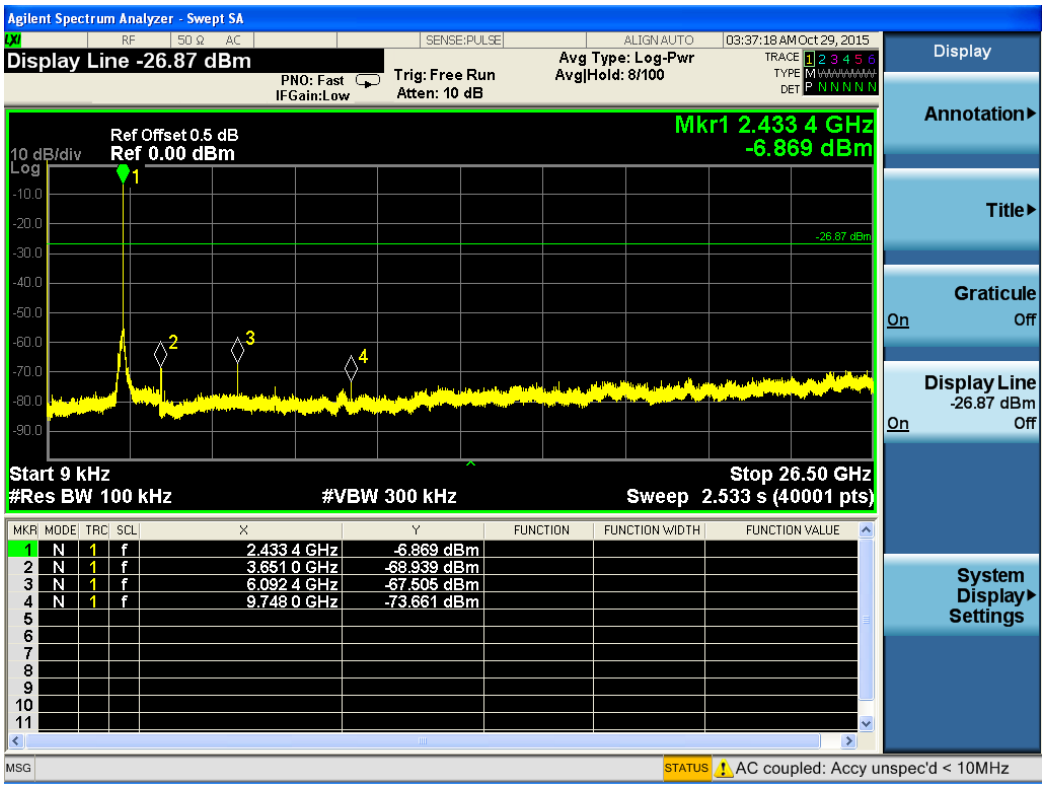

Agilent Spectrum Analyzer - Swept SA
Display Line -26.29 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 11/100
03:28:55 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.409 5 GHz
-6.288 dBm
-26.29 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.409 5 GHz -6.288 dBm
2 N 1 f 3.622 6 GHz -69.355 dBm
3 N 1 f 6.030 1 GHz -65.358 dBm
4 N 1 f 9.648 0 GHz -70.303 dBm
Display
Annotation
Title
Graticule On Off
Display Line -26.29 dBm On Off
System Display Settings
AC coupled: Accy unspec'd < 10MHz

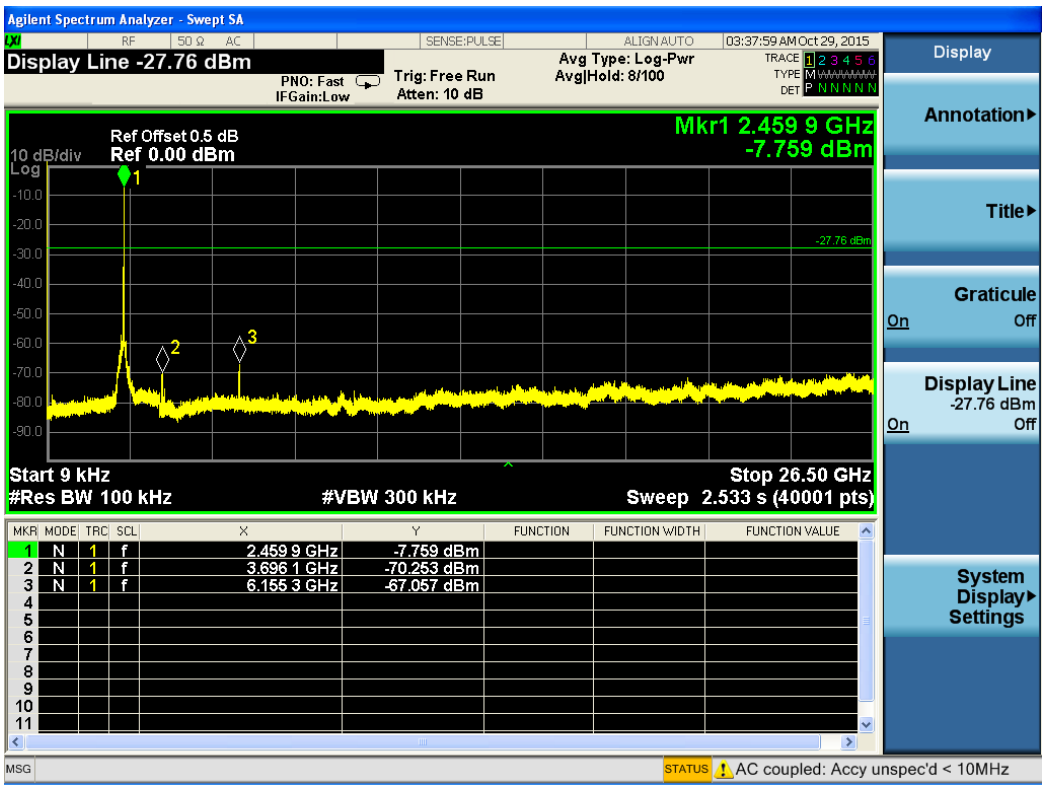

Agilent Spectrum Analyzer - Swept SA
Display Line -27.52 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 7/100
03:27:46 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.438 0 GHz
-7.517 dBm
-27.52 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.438 0 GHz -7.517 dBm
2 N 1 f 3.656 3 GHz -70.084 dBm
3 N 1 f 6.092 4 GHz -67.041 dBm
Display
Annotation
Title
Graticule On Off
Display Line -27.52 dBm On Off
System Display Settings
AC coupled: Accy unspec'd < 10MHz


Agilent Spectrum Analyzer - Swept SA
Display Line -28.44 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
03:26:44 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.457 9 GHz
-8.443 dBm
-28.44 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 2.457 9 GHz -8.443 dBm
2 N 1 f 3.691 5 GHz -71.369 dBm
3 N 1 f 6.155 3 GHz -67.914 dBm
Display
Annotation
Title
Graticule On Off
Display Line -28.44 dBm On Off
System Display Settings
AC coupled: Accy unspec'd < 10MHz

802.11n HT20

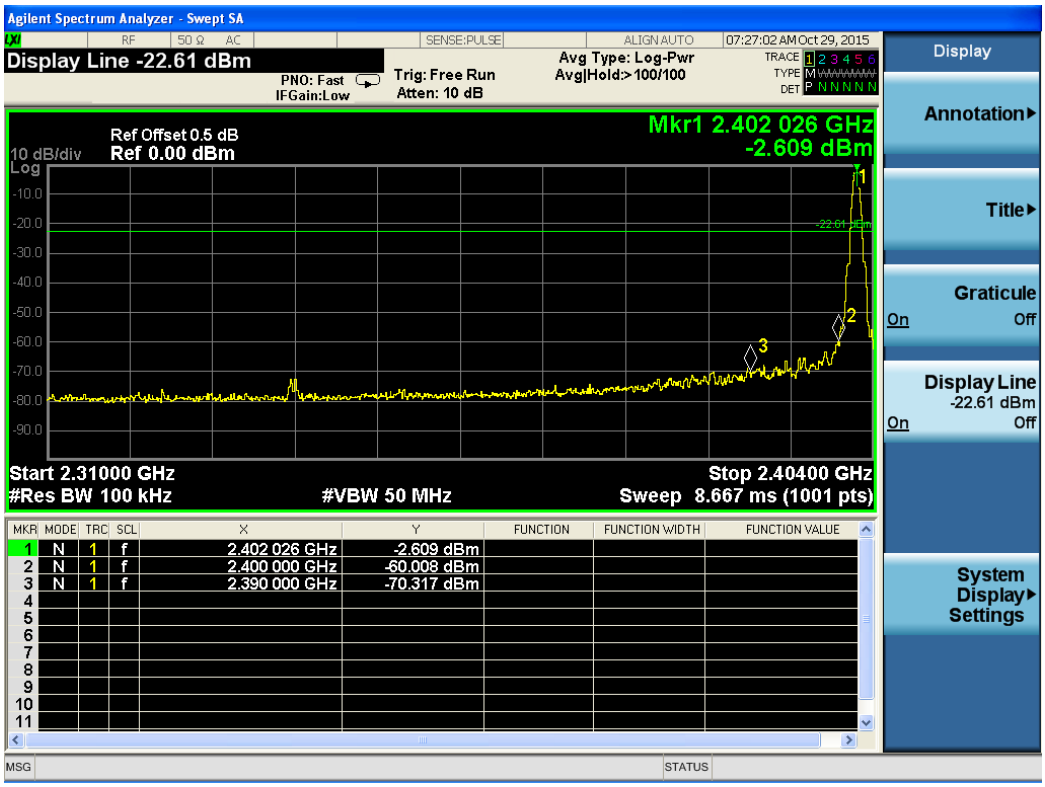

Agilent Spectrum Analyzer - Swept SA
Display Line -26.38 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 6/100
03:36:33 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.410 2 GHz
-6.376 dBm
-26.38 dBm
Start 9 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.533 s (40001 pts)
1 N 1 f 2.410 2 GHz -6.376 dBm
2 N 1 f 3.618 6 GHz -68.825 dBm
3 N 1 f 6.030 1 GHz -66.168 dBm
4 N 1 f 9.648 0 GHz -69.458 dBm
Display
Annotation
Title
Graticule On Off
Display Line -26.38 dBm On Off
System Display Settings
AC coupled: Accy unspec'd < 10MHz

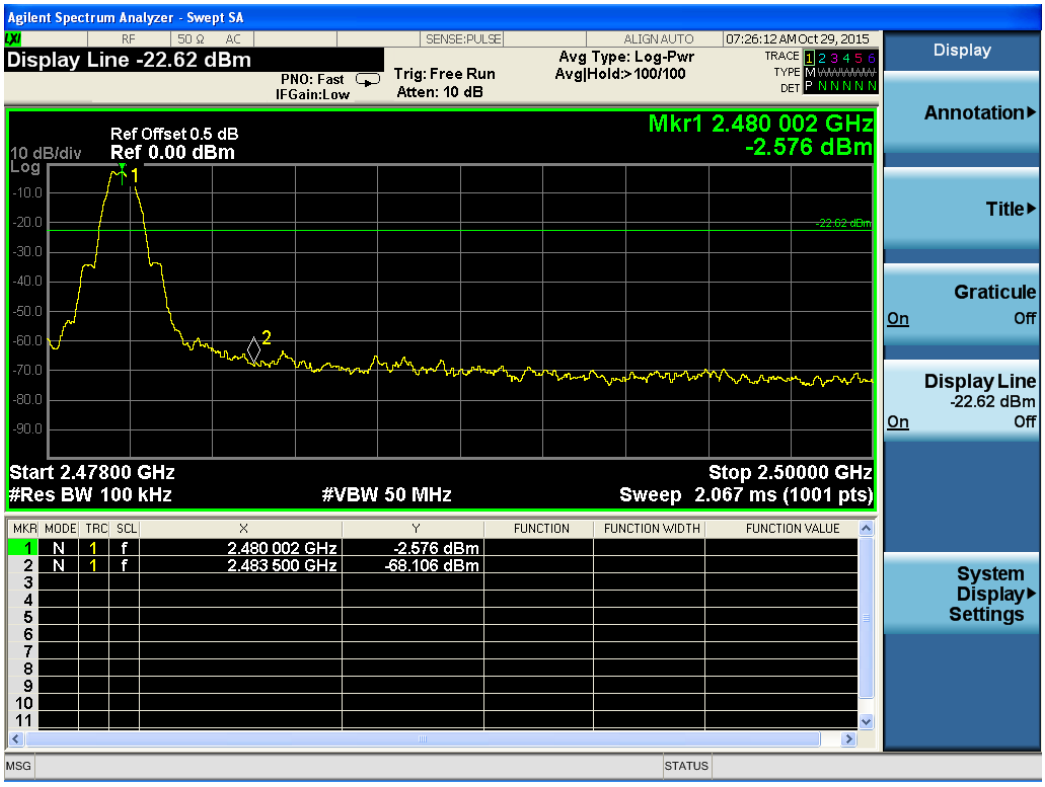




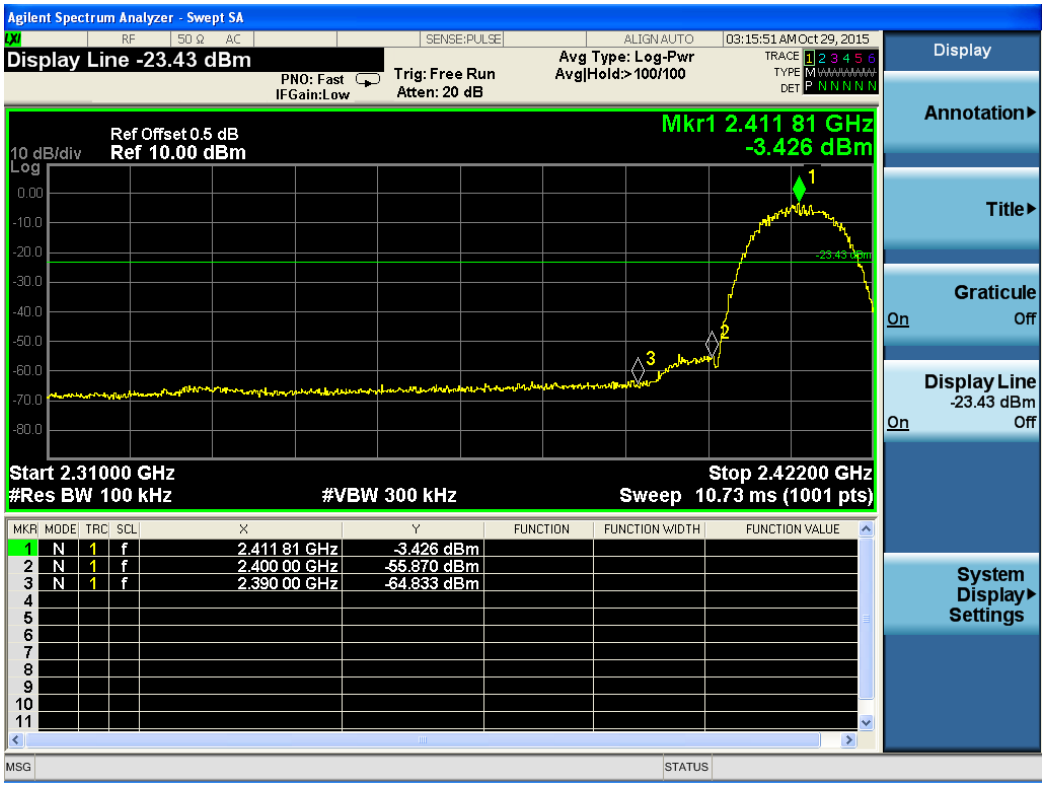
5.5.7. Test Results of Band Edges Test

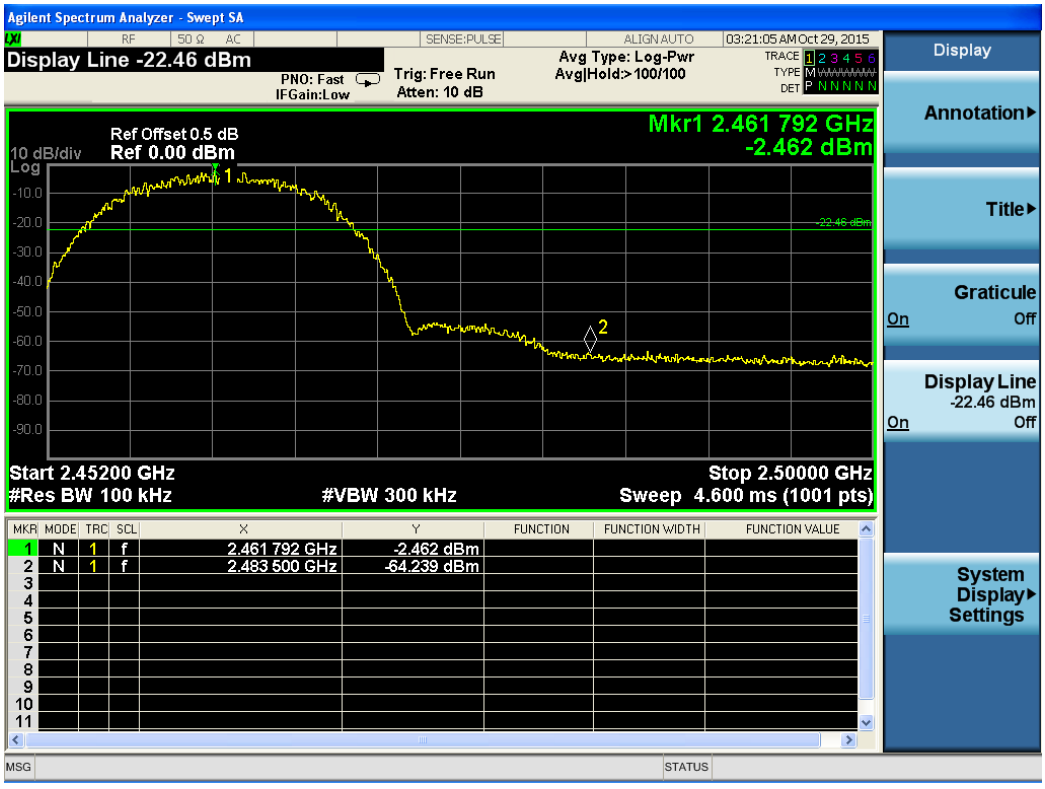
BLE 4.0



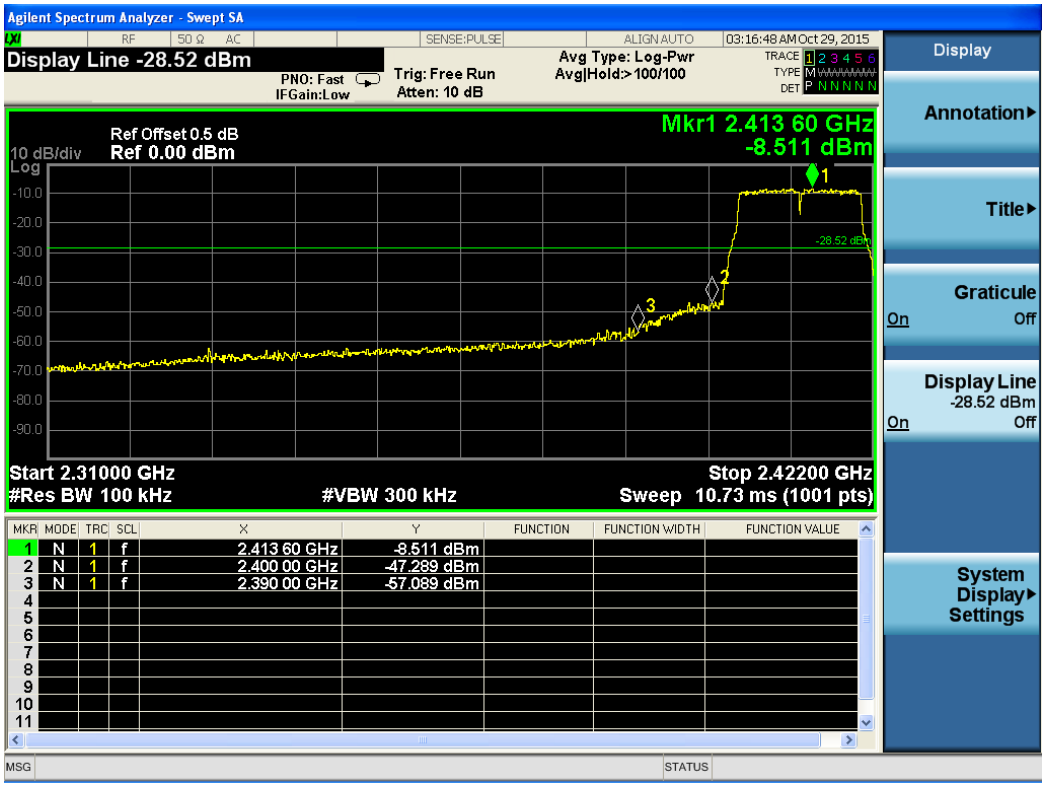


802.11b


Agilent Spectrum Analyzer - Swept SA
Display Line -23.43 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:15:51 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 2.411 81 GHz
-3.426 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 2.411 81 GHz -3.426 dBm
2 N 1 f 2.400 00 GHz -55.870 dBm
3 N 1 f 2.390 00 GHz -64.833 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-23.43 dBm
On Off
System
Display
Settings
MSG
STATUS

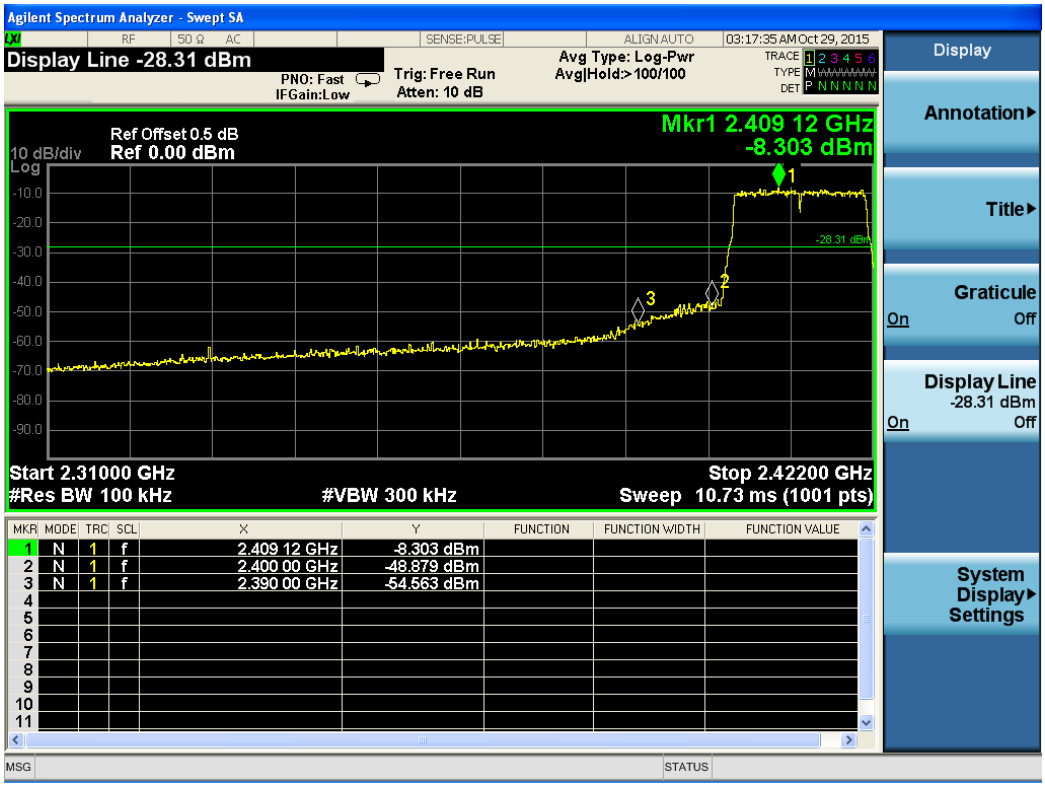

Agilent Spectrum Analyzer - Swept SA
Display Line -22.46 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:21:05 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 0.00 dBm
Log
Mkr1 2.461 792 GHz
-2.462 dBm
Start 2.45200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 4.600 ms (1001 pts)
1 N 1 f 2.461 792 GHz -2.462 dBm
2 N 1 f 2.483 500 GHz -64.239 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-22.46 dBm
On Off
System
Display
Settings
MSG
STATUS

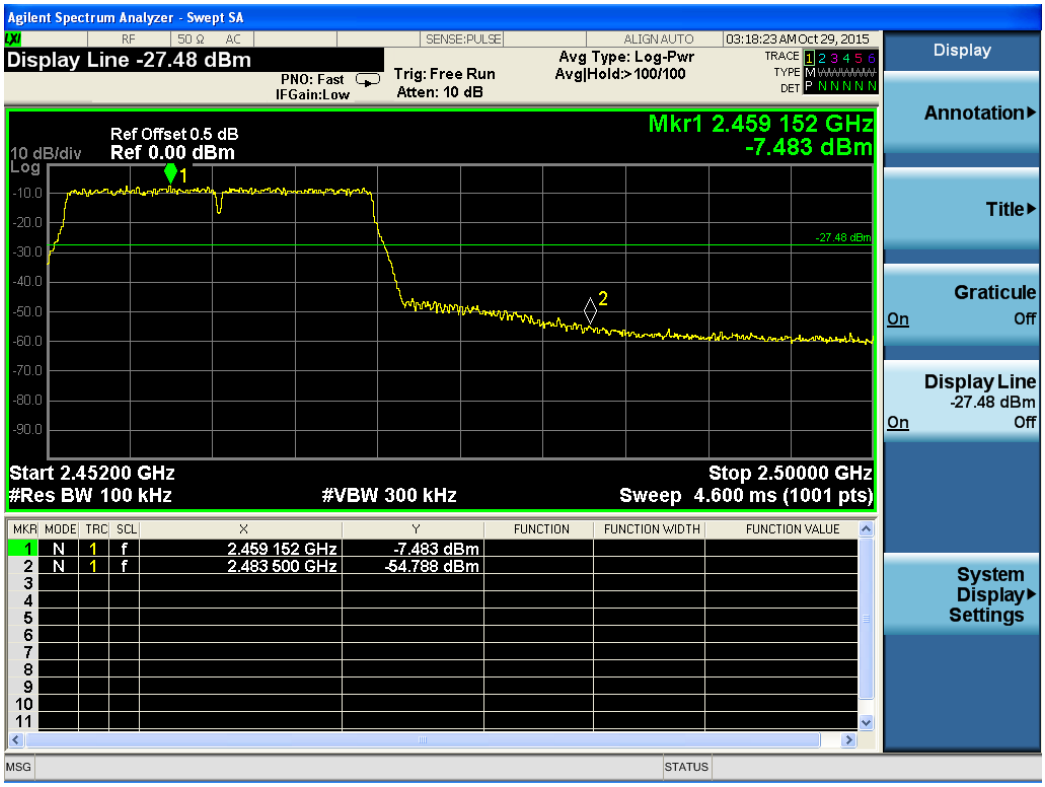
802.11g


Agilent Spectrum Analyzer - Swept SA
Display Line -28.52 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:16:48 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.413 60 GHz
-8.511 dBm
-28.52 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 2.413 60 GHz -8.511 dBm
2 N 1 f 2.400 00 GHz -47.289 dBm
3 N 1 f 2.390 00 GHz -57.089 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-28.52 dBm
On Off
System
Display
Settings
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Display Line -27.85 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:19:57 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Log
Ref 0.00 dBm
Mkr1 2.462 896 GHz
-7.845 dBm
-27.85 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 2.462 896 GHz -7.845 dBm
2 N 1 f 2.483 500 GHz -56.049 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-27.85 dBm
On Off
System
Display
Settings
MSG
STATUS

802.11n HT20


Agilent Spectrum Analyzer - Swept SA
Display Line -28.31 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:17:35 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 0.00 dBm
Mkr1 2.409 12 GHz
-8.303 dBm
-28.31 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 -8.303 dBm
2 N 1 f 2.400 00 GHz -48.879 dBm
3 N 1 f 2.390 00 GHz -54.563 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-28.31 dBm
On Off
System
Display
Settings
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Display Line -27.48 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
03:18:23 AM Oct 29, 2015
Ref Offset 0.5 dB
10 dB/div
Ref 0.00 dBm
Mkr1 2.459 152 GHz
-7.483 dBm
-27.48 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 2.459 152 GHz -7.483 dBm
2 N 1 f 2.483 500 GHz -54.788 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-27.48 dBm
On Off
System
Display
Settings
MSG
STATUS

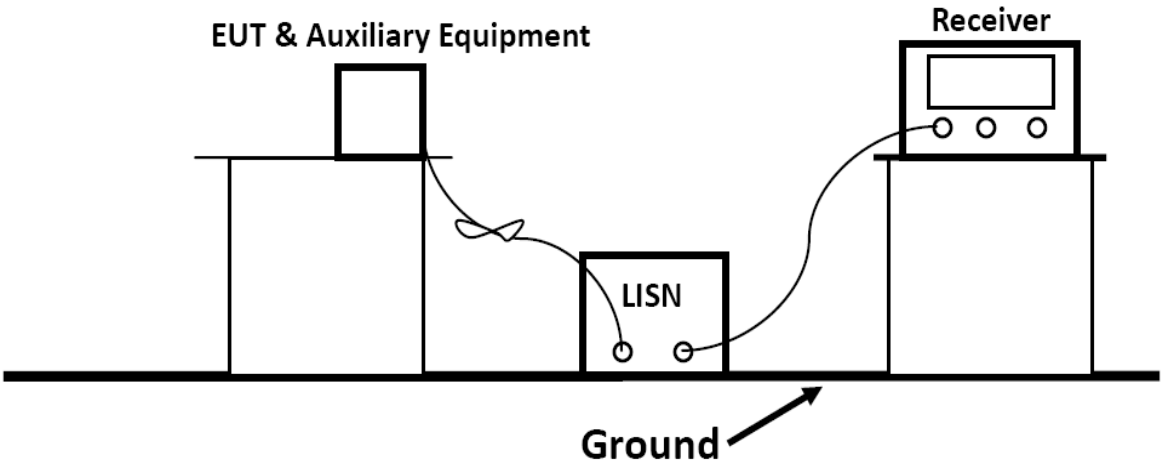
5.6. Power line conducted emissions

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

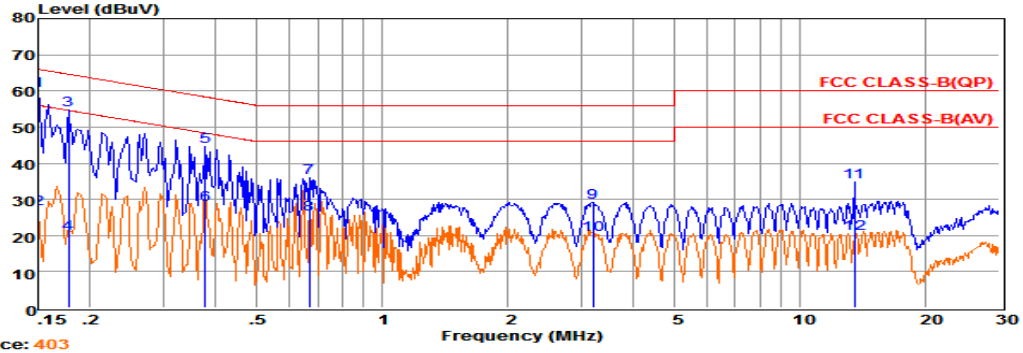


5.6.3 Test Results

PASS.

The test data please refer to following page.

Test Result For Line Power Input 240V/60Hz

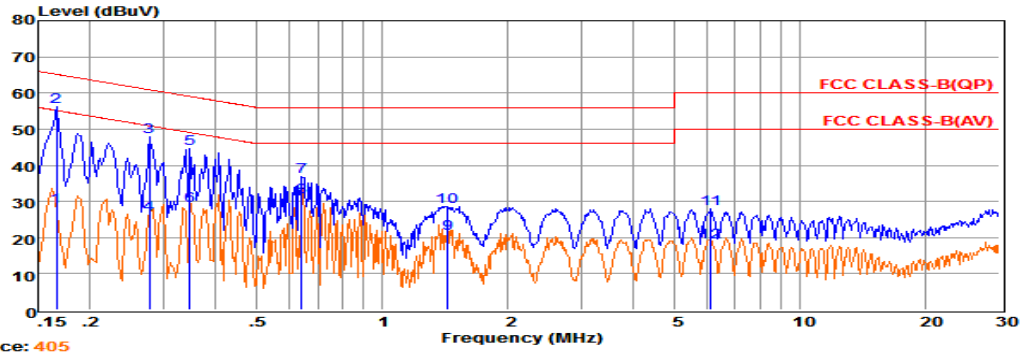


Trace: 403

Env. Ins:	24*/56%
EUT:	Android pos termimal
M/N:	PC701
Power Rating:	AC 240V/60Hz
Test Mode:	TX-HIGH CHANEEL(802.116)
Operator:	DICK
Memo:	
Pol:	NEUTRAL

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15000	40.26	9.70	0.02	10.00	59.98	66.00	-6.02	QP
2	0.15010	7.51	9.70	0.02	10.00	27.23	55.99	-28.76	Average
3	0.17772	34.99	9.64	0.02	10.00	54.65	64.59	-9.94	QP
4	0.17782	0.99	9.63	0.02	10.00	20.64	54.59	-33.95	Average
5	0.37711	24.81	9.61	0.04	10.00	44.46	58.34	-13.88	QP
6	0.37721	8.81	9.61	0.04	10.00	28.46	48.34	-19.88	Average
7	0.66832	16.20	9.63	0.04	10.00	35.87	56.00	-20.13	QP
8	0.66842	6.11	9.63	0.04	10.00	25.78	46.00	-20.22	Average
9	3.18996	9.52	9.65	0.06	10.00	29.23	56.00	-26.77	QP
10	3.19096	0.47	9.65	0.06	10.00	20.18	46.00	-25.82	Average
11	13.47925	14.81	9.74	0.10	10.00	34.65	60.00	-25.35	QP
12	13.48025	0.65	9.74	0.10	10.00	20.49	50.00	-29.51	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.



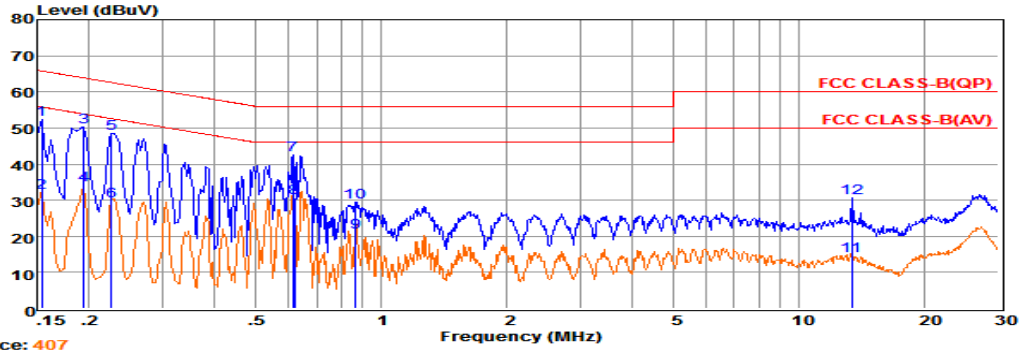
Trace: 405

Env. Ins:	24*/56%
EUT:	Android pos termimal
M/N:	PC701
Power Rating:	AC 240V/60Hz
Test Mode:	TX-HIGH CHANEEL(802.116)
Operator:	DICK
Memo:	
Pol:	LINE

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.16586	8.86	9.59	0.02	10.00	28.47	55.16	-26.69	Average
2	0.16589	36.63	9.59	0.02	10.00	56.24	65.16	-8.92	QP
3	0.27734	28.30	9.63	0.03	10.00	47.96	60.90	-12.94	QP
4	0.27739	6.91	9.63	0.03	10.00	26.57	50.89	-24.32	Average
5	0.34646	25.05	9.62	0.03	10.00	44.70	59.05	-14.35	QP
6	0.34661	9.14	9.62	0.03	10.00	28.79	49.04	-20.25	Average
7	0.64058	17.31	9.63	0.04	10.00	36.98	56.00	-19.02	QP
8	0.64080	11.48	9.63	0.04	10.00	31.15	46.00	-14.85	Average
9	1.43277	1.34	9.64	0.05	10.00	21.03	46.00	-24.97	Average
10	1.43328	8.98	9.64	0.05	10.00	28.67	56.00	-27.33	QP
11	6.12086	8.29	9.67	0.07	10.00	28.03	60.00	-31.97	QP
12	6.12857	-1.10	9.67	0.07	10.00	18.64	50.00	-31.36	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.

Test Result For Line Power Input 120V/60Hz

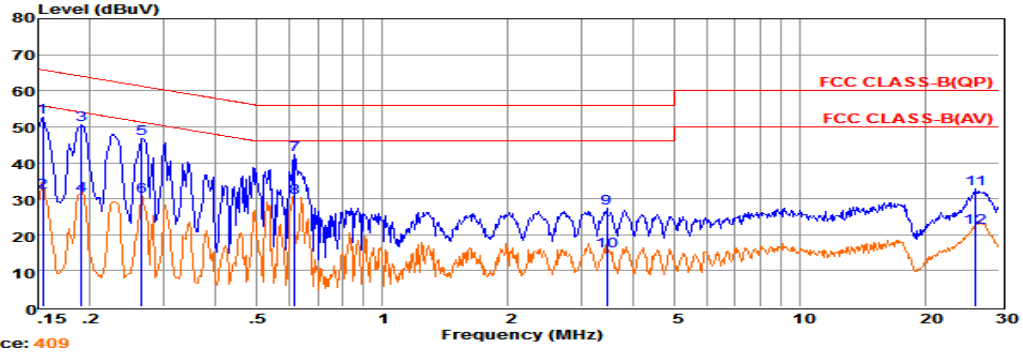


Trace: 407

Env. Ins:	24*/56%
EUT:	Android pos termimal
M/N:	PC701
Power Rating:	AC 120V/60Hz
Test Mode:	TX-HIGH CHANEEL(802.116)
Operator:	DICK
Memo:	
Pol:	LINE

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15403	32.74	9.58	0.02	10.00	52.34	65.78	-13.44	QP
2	0.15427	12.48	9.58	0.02	10.00	32.08	55.77	-23.69	Average
3	0.19447	30.75	9.62	0.02	10.00	50.39	63.84	-13.45	QP
4	0.19465	14.61	9.62	0.02	10.00	34.25	53.84	-19.59	Average
5	0.22556	28.82	9.63	0.03	10.00	48.48	62.61	-14.13	QP
6	0.22564	10.17	9.63	0.03	10.00	29.83	52.61	-22.78	Average
7	0.61400	22.97	9.63	0.04	10.00	42.64	56.00	-13.36	QP
8	0.61956	10.83	9.63	0.04	10.00	30.50	46.00	-15.50	Average
9	0.86627	1.33	9.63	0.04	10.00	21.00	46.00	-25.00	Average
10	0.86643	9.89	9.63	0.04	10.00	29.56	56.00	-26.44	QP
1113	.40020	-5.11	9.70	0.10	10.00	14.69	50.00	-35.31	Average
1213	.40802	10.76	9.70	0.10	10.00	30.56	60.00	-29.44	QP

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



Trace: 409

Env. Ins:	24*/56%
EUT:	Android pos termimal
M/N:	PC701
Power Rating:	AC 120V/60Hz
Test Mode:	TX-HIGH CHANEEL(802.116)
Operator:	DICK
Memo:	
Pol:	NEUTRAL

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15403	32.79	9.69	0.02	10.00	52.50	65.78	-13.28	QP
2	0.15427	12.19	9.69	0.02	10.00	31.90	55.77	-23.87	Average
3	0.19039	30.81	9.61	0.02	10.00	50.44	64.02	-13.58	QP
4	0.19087	11.45	9.61	0.02	10.00	31.08	54.00	-22.92	Average
5	0.26583	27.14	9.60	0.03	10.00	46.77	61.25	-14.48	QP
6	0.26599	11.12	9.60	0.03	10.00	30.75	51.24	-20.49	Average
7	0.61726	22.53	9.63	0.04	10.00	42.20	56.00	-13.80	QP
8	0.61757	10.60	9.63	0.04	10.00	30.27	46.00	-15.73	Average
9	3.45383	7.60	9.65	0.06	10.00	27.31	56.00	-28.69	QP
10	3.45830	-4.36	9.65	0.06	10.00	15.35	46.00	-30.65	Average
1126	.27819	12.74	9.83	0.13	10.00	32.70	60.00	-27.30	QP
1226	.27990	2.07	9.83	0.13	10.00	22.03	50.00	-27.97	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. 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 16,2015	July 15,2016
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 16,2015	July 15,2016
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz-40GHz	July 16,2015	July 15,2016
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	July 16,2015	July 15,2016
MAX Signal Analyzer	Agilent	N9020A	MY50510140	20Hz~26.5GHz	Oct. 27, 2015	Oct. 26, 2016
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 10,2015	June 09,2016
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	June 10,2015	June 09,2016
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	June 10,2015	June 09,2016
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 16,2015	July 15,2016
Power Meter	R&S	NRVS	100444	DC-40GHz	June 18,2015	June 17,2016
Power Sensor	R&S	NRV-Z51	100458	DC-30GHz	June 18,2015	June 17,2016
Power Sensor	R&S	NRV-Z32	10057	30MHz-6GHz	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----------