



FCC RADIO TEST REPORT

FCC ID:HHOJHR-N855R

Product : Intelligent Dual Band Gigabit Wireless Router

Trade Name :  **JCG**

Model Name : JHR-N855R

Serial Model : N/A

Report No. : NTEK- 2013NT0929348F

Prepared for

Shenzhen Yichen Technoloy Development Co.,LTD
5F,NO.1, Honghualing 2nd industrial Zone, Xili Town,Nanshan
District,Shenzhen, China.

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street
Bao'an District, Shenzhen P.R. China
Tel.: +86-0755-61156588 Fax.: +86-0755-61156599
Website:www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name Shenzhen Yichen Technology Development Co.,LTD
Address 5F,NO.1, Honghualing 2nd industrial Zone, Xili Town,Nanshan District,
 Shenzhen, China

Manufacture's Name... Shenzhen Yichen Technology Development Co.,LTD
Address 5F,NO.1, Honghualing 2nd industrial Zone, Xili Town,Nanshan District,
 Shenzhen, China

Product description

Product name Intelligent Dual Band Gigabit Wireless Router

Model and/or type JHR-N855R
reference

Serial Model N/A

Standards FCC Part15.247

Test procedure ANSI C63.4-2003

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date (s) of performance of tests 08 Oct. 2013 ~20 Oct. 2013

Date of Issue 20 Oct. 2013

Test Result **Pass**

Testing Engineer : Saint Xu
 (Saint Xu)

Technical Manager : Brown Lu
 (Brown Lu)

Authorized Signatory : Bovey Yang
 (Bovey Yang)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

Add.:1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Intelligent Dual Band Gigabit Wireless Router	
Trade Name		
Model Name	JHR-N855R	
Product Description	The EUT is a Intelligent Dual Band Gigabit Wireless Router	
	Operation Frequency:	802.11b/g/n(20MHz):2412~2462 MHz 802.11n(40MHz):2422~2452 MHz
	Modulation Type:	CCK/OFDM/DBPSK/DAPSK
	Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps 802.11n(20MHz):150/144.44/130/117/115.56/104/86.67/78/52/6.5Mbps 802.11n(40MHz):300/270/240/180/150/120/108/90/54 Mbps
	Number Of Channel	802.11b/g/n20MHz:11CH 802.11n40MHz:7CH
	Max.Output Power(Conducted):	22.31 dBm
	Operation Frequency:	5725 MHz ~ 5850 MHz
	Modulation Type:	OFDM (BPSK / QPSK / 16QAM / 64QAM)
	Max.Output Power(Conducted):	22.09 dBm
	Antenna Designation:	Please see Note 3.
	Antenna Gain (dBi)	Please see Note 3.
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
Channel List	Please refer to the Note 2.	
Ratings	DC12V, 2A	
Adapter	Adapter1 Model No.: NSA25EU-120200 AC Power Input: 100-240V~, 50/60Hz, 1.0A Output: 12.0V $\overline{\text{---}}$, 2.0A Adapter2 Model No.: F18W-120200SPAU AC Power Input: 100-240V~, 50/60Hz, 0.6A Output: 12.0V $\overline{\text{---}}$, 2.0A	
Battery	N/A	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. 2.4GHz

Channel List for 802.11b/g/n(20 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452	-	-

Channel List for 802.11n(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	06	2437	09	2452	-	-
04	2427	07	2442	-	-	-	-
05	2432	08	2447	-	-	-	-

5GHz

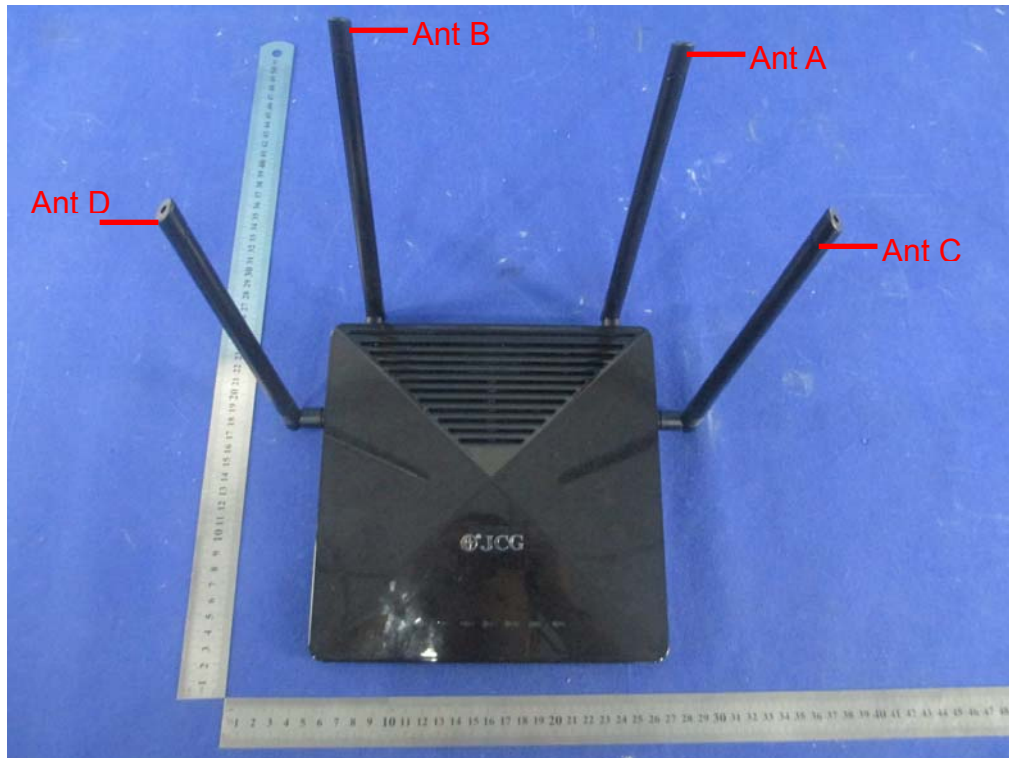
802.11a Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

802.11n (BW 20/40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

3.

Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	N/A	N/A	external antenna	Reserve SMA-type	2.4G:7.0 5G:5.0	Wifi Antenna
B	N/A	N/A	external antenna	Reserve SMA-type	2.4G:7.0	Wifi Antenna
C	N/A	N/A	external antenna	Reserve SMA-type	5G:5.0	Wifi Antenna
D	N/A	N/A	external antenna	Reserve SMA-type	5G:5.0	Wifi Antenna



The Control software(tool_WIFI.exe) can control antenna A B C D ,

For 2.4GHz mode, antenna A B are transmitting, antenna C D were closed, two antennas simultaneously transmit. And the data is recorded for radiated emission and band edge.

For 5GHz mode, antenna A C D are transmitting, antenna B were closed

Three antennas simultaneously transmit. And the data is recorded for radiated emission and band edge.

For MIMO mode , Directional gain= $G_{ANT} + 10\log(N)\text{dbi} = 13.02\text{dbi}$ in 2.4GHz

Directional gain= $G_{ANT} + 10\log(N)\text{dbi} = 11.02\text{dbi}$ in 5GHz

802.11a/b/g/n 2.4GHz & 5GHz has MIMO mode.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH9
Mode 5	Link Mode
Mode 5	802.11a /n CH149/ CH157/ CH 165
Mode 6	802.11n40 CH 151 / CH 159

For Conducted Emission	
Final Test Mode	Description
Mode 5	Link Mode

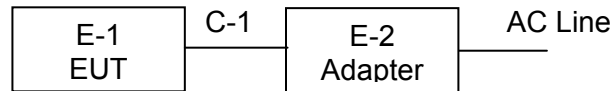
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH 9
Mode 5	Link Mode
Mode 5	802.11a /n CH149/ CH157/ CH165
Mode 6	802.11n40 CH151 / CH159

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
E-1	Intelligent Dual Band Gigabit Wireless Router	 JCG	JHR-N855R	N/A	EUT
E-2	Adapter	N/A	NSA25EU-120200	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	150cm	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2013.07.06	2014.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2013.06.07	2014.06.06	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2013.07.06	2014.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2013.06.07	2014.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2013.06.07	2014.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2013.07.06	2014.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2013.07.06	2014.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2012.12.22	2013.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2013.06.08	2014.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2013.07.06	2014.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2013.07.06	2014.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2013.06.06	2014.06.05	1 year
2	LISN	R&S	ENV216	101313	2013.08.24	2014.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2013.08.24	2014.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2013.06.07	2014.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2013.06.07	2014.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2013.06.08	2014.06.07	1 year

1	Attenuation	MCE	24-10-34	BN9258	2013.06.08	2014.06.07	1 year
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3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

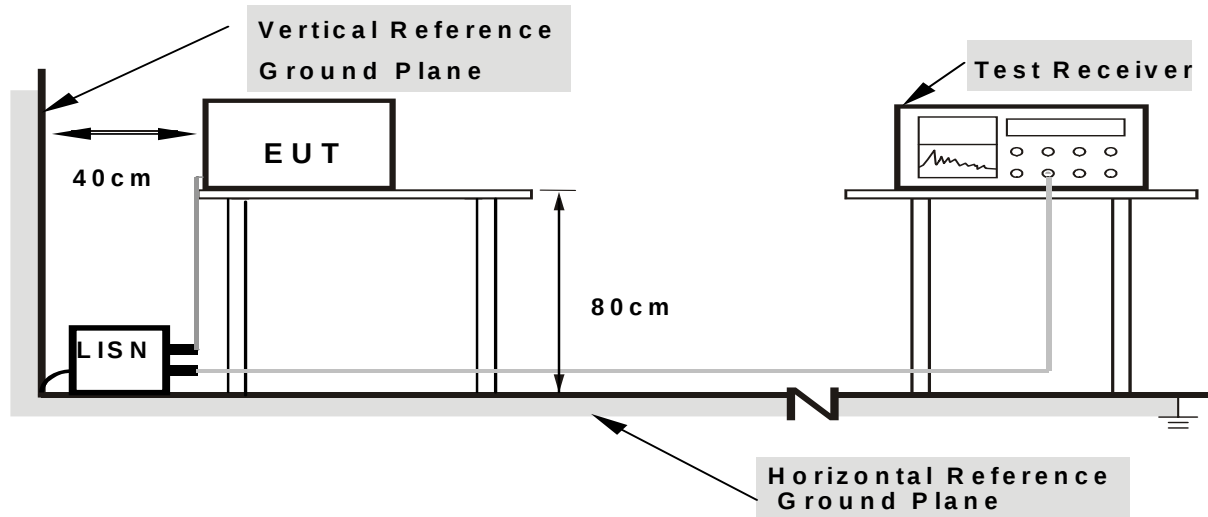
3.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

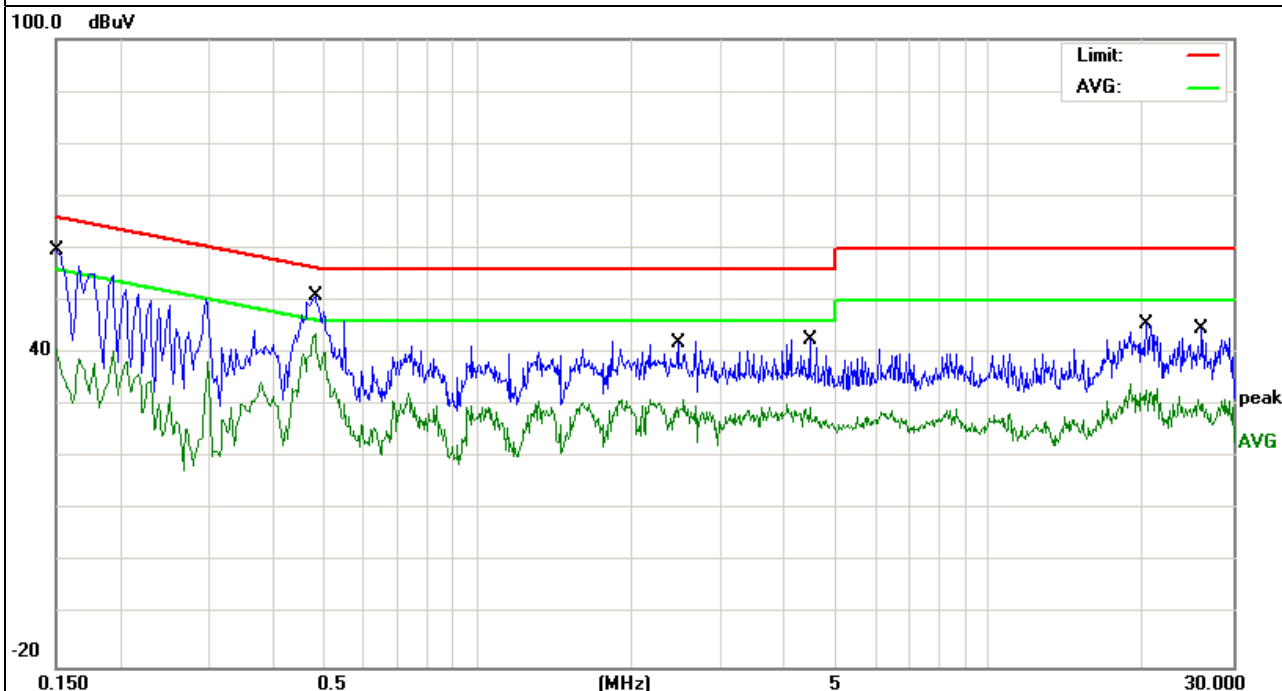
3.1.6 TEST RESULTS

EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name. :	JHR-N855R
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 12V From Adapter 1 AC120V/60Hz	Test Mode :	Mode 5

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1500	39.74	20.05	59.79	65.99	-6.20	QP
0.1500	20.77	20.05	40.82	55.99	-15.17	AVG
0.4818	31.35	19.70	51.05	56.31	-5.26	QP
0.4818	24.13	19.70	43.83	46.31	-2.48	AVG
2.4620	22.24	19.72	41.96	56.00	-14.04	QP
2.4620	11.48	19.72	31.20	46.00	-14.80	AVG
4.4579	22.85	19.77	42.62	56.00	-13.38	QP
4.4579	10.56	19.77	30.33	46.00	-15.67	AVG
20.2896	25.14	20.48	45.62	60.00	-14.38	QP
20.2896	13.57	20.48	34.05	50.00	-15.95	AVG
26.1219	24.29	20.36	44.65	60.00	-15.35	QP
26.1219	10.81	20.36	31.17	50.00	-18.83	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

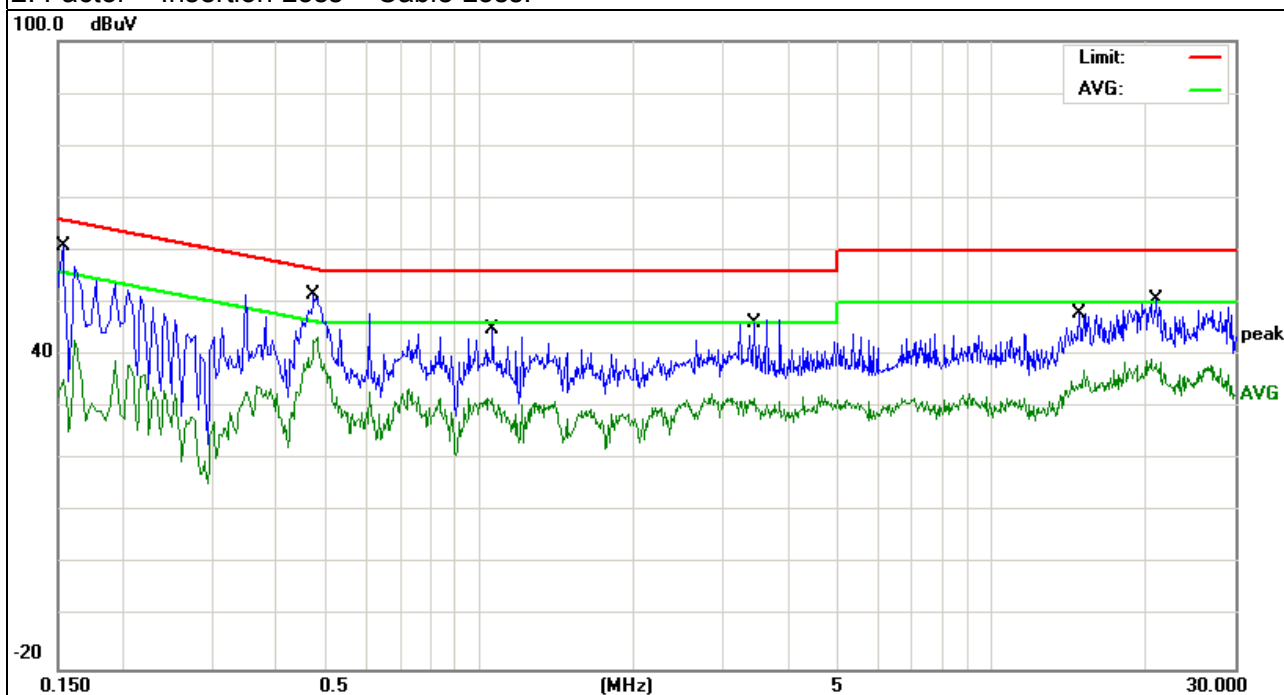


EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name. :	JHR-N855R
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 12V From Adapter 1 AC120V/60Hz	Test Mode :	Mode 5

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.1539	40.94	20.04	60.98	65.78	-4.80	QP
0.1539	22.91	20.04	42.95	55.78	-12.83	AVG
0.4738	31.76	19.71	51.47	56.45	-4.98	QP
0.4738	23.79	19.71	43.50	46.45	-2.95	AVG
1.0620	25.33	19.70	45.03	56.00	-10.97	QP
1.0620	11.99	19.70	31.69	46.00	-14.31	AVG
3.4460	26.30	19.74	46.04	56.00	-9.96	QP
3.4460	12.99	19.74	32.73	46.00	-13.27	AVG
14.8739	27.91	20.03	47.94	60.00	-12.06	QP
14.8739	17.27	20.03	37.30	50.00	-12.70	AVG
21.0940	30.30	20.46	50.76	60.00	-9.24	QP
21.0940	18.66	20.46	39.12	50.00	-10.88	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

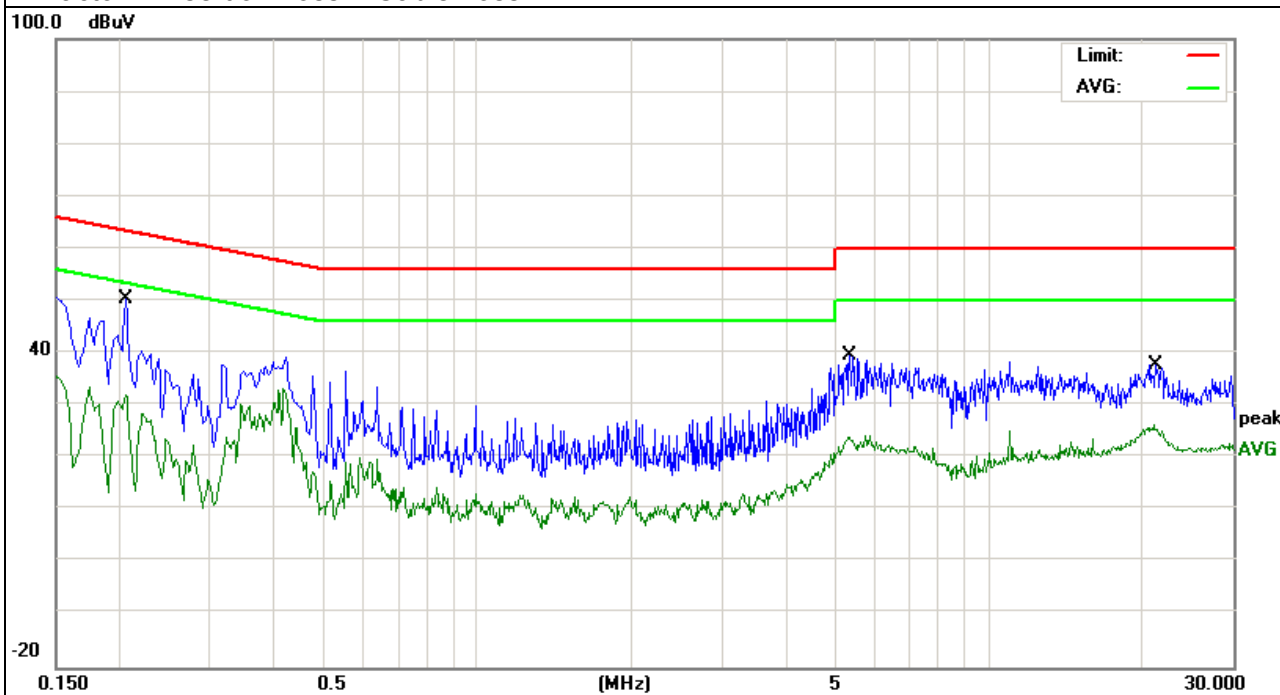


EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name. :	JHR-N855R
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 12V From Adapter 2 AC120V/60Hz	Test Mode :	Mode 5

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.2060	39.61	10.69	50.30	63.36	-13.06	QP
0.2060	21.35	10.69	32.04	53.36	-21.32	AVG
5.3539	28.90	10.66	39.56	60.00	-20.44	QP
5.3539	13.57	10.66	24.23	50.00	-25.77	AVG
21.1660	26.60	11.08	37.68	60.00	-22.32	QP
21.1660	15.34	11.08	26.42	50.00	-23.58	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

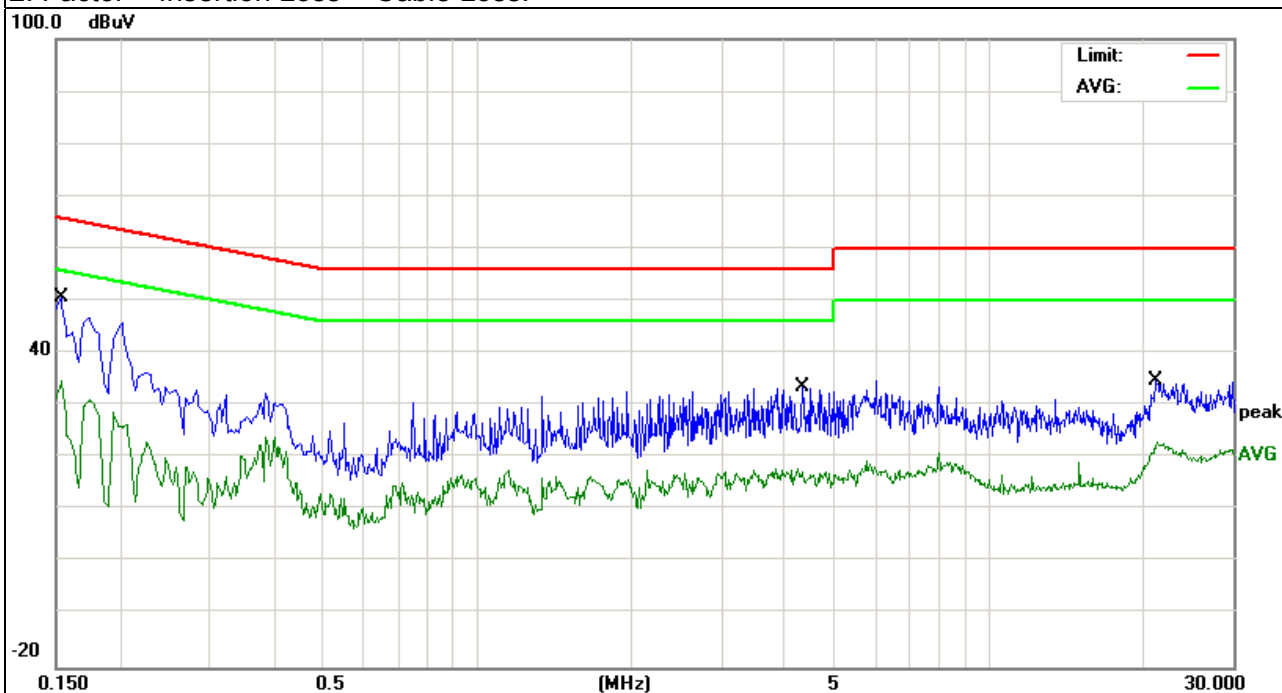


EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name. :	JHR-N855R
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 12V From Adapter 2 AC120V/60Hz	Test Mode :	Mode 5

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1539	39.08	11.43	50.51	65.78	-15.27	QP
0.1539	23.18	11.43	34.61	55.78	-21.17	AVG
4.3179	23.03	10.62	33.65	56.00	-22.35	QP
4.3179	7.30	10.62	17.92	46.00	-28.08	AVG
21.1900	23.62	11.08	34.70	60.00	-25.30	QP
21.1900	11.85	11.08	22.93	50.00	-27.07	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

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 (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz 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 120kHz for QP

3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

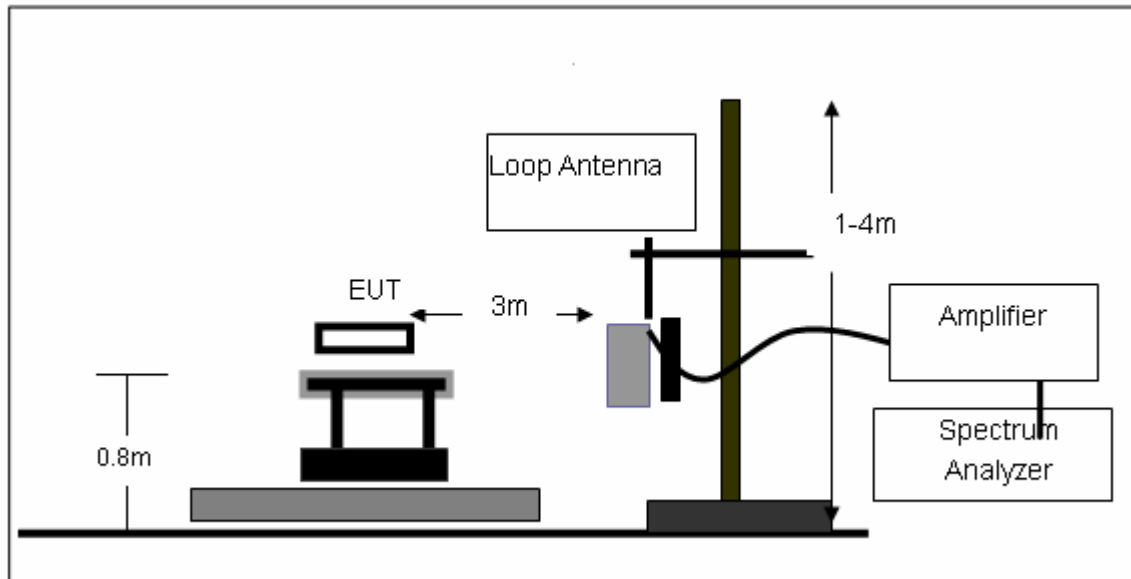
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

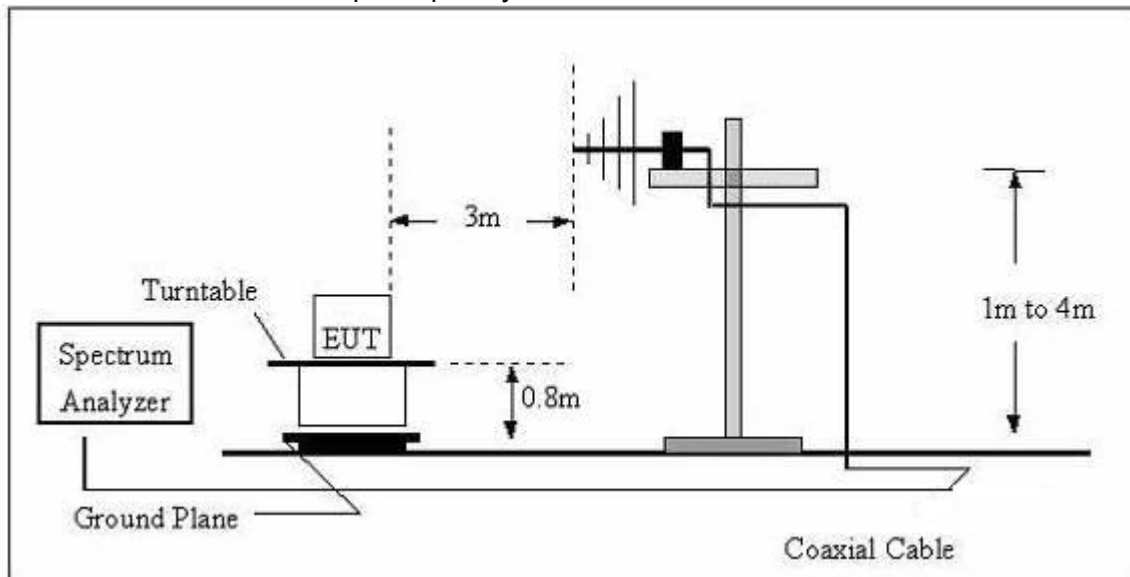
No deviation

3.2.4 TEST SETUP

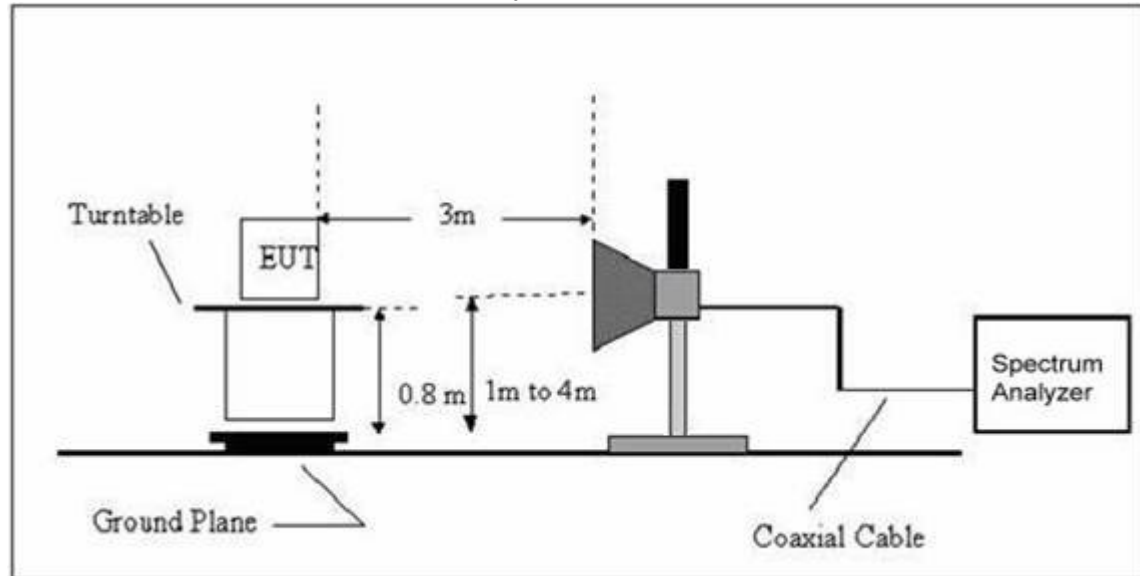
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz

**3.2.5 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT:	Intelligent Dual Band Gigabit Wireless Router	Model Name. :	JHR-N855R
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})(\text{dB})$;

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

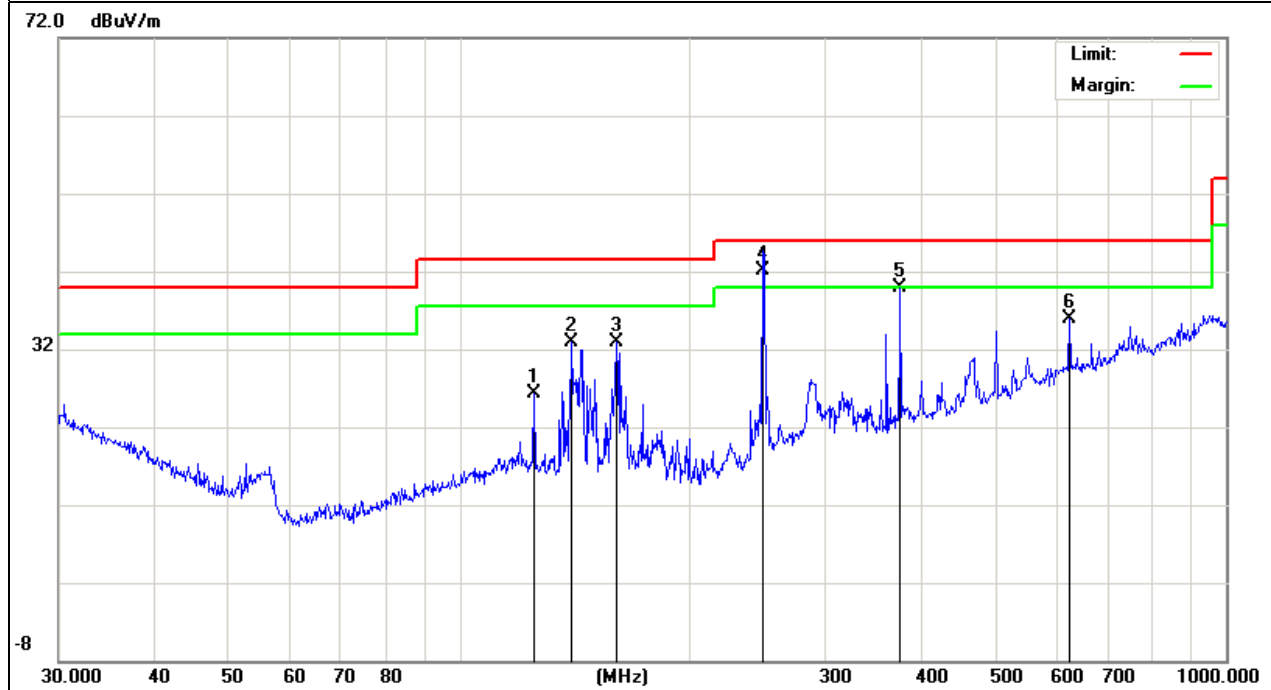
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 12V From Adapter 1 AC120V/60Hz
Test Mode :	TX	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
125.0066	14.06	12.21	26.27	43.50	-17.23	QP
139.8508	20.69	12.17	32.86	43.50	-10.64	QP
160.3455	21.87	10.99	32.86	43.50	-10.64	QP
248.5518	28.79	13.25	42.04	46.00	-3.96	QP
375.9385	22.95	16.96	39.91	46.00	-6.09	QP
625.0778	12.28	23.60	35.88	46.00	-10.12	QP

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

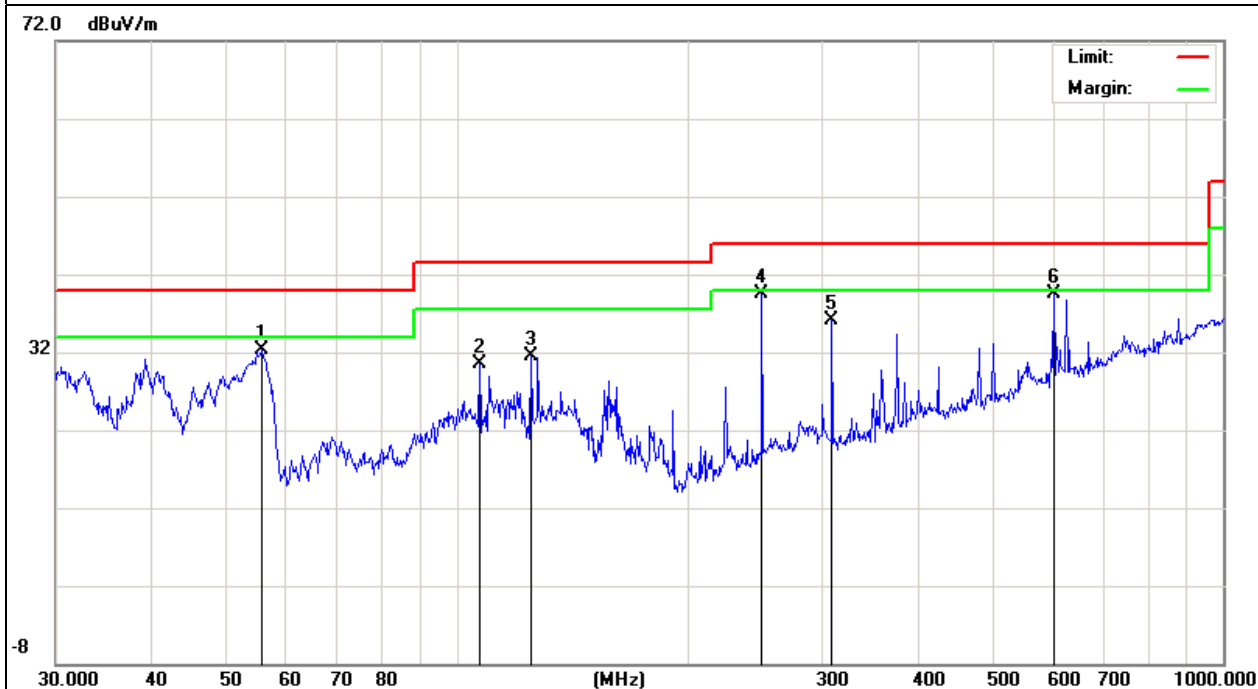


EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 12V From Adapter1 AC120V/60Hz
Test Mode :	TX	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
55.8047	26.20	6.04	32.24	40.00	-7.76	QP
107.1337	19.11	11.30	30.41	43.50	-13.09	QP
125.0066	19.27	12.21	31.48	43.50	-12.02	QP
250.3012	25.95	13.54	39.49	46.00	-6.51	QP
308.9125	21.06	15.01	36.07	46.00	-9.93	QP
601.4265	16.61	22.88	39.49	46.00	-6.51	QP

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

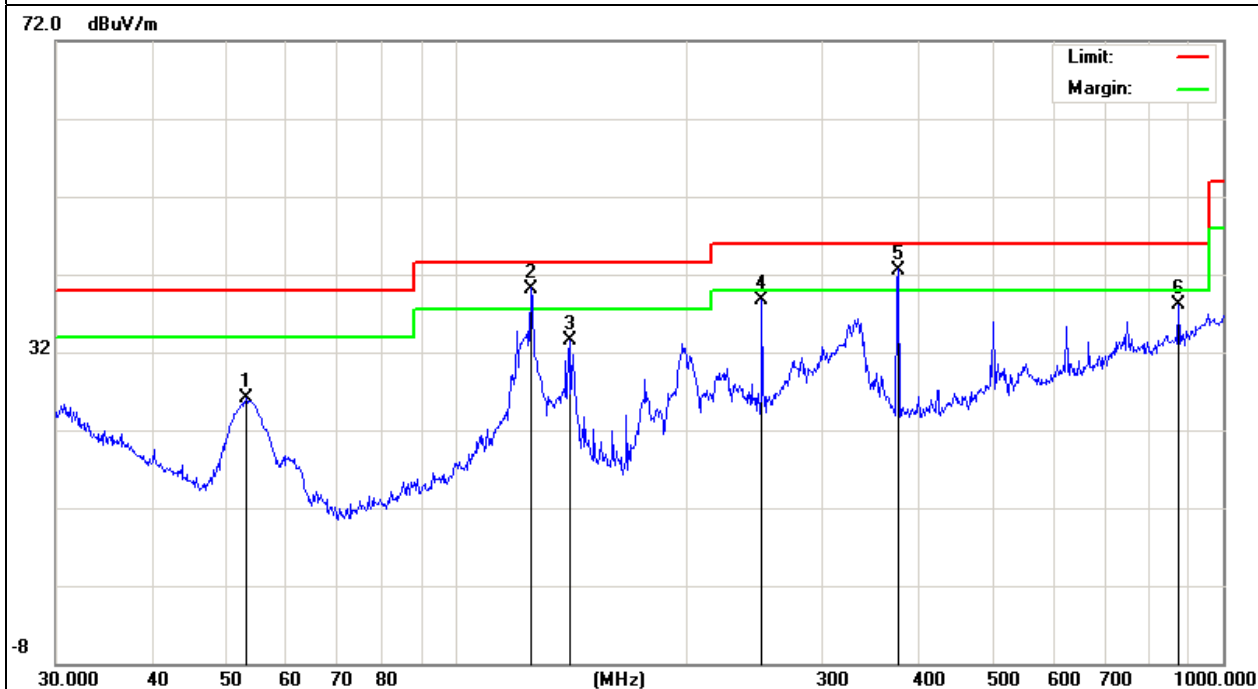


EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 12V From Adapter 2 AC120V/60Hz
Test Mode :	TX	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
53.1313	19.17	6.92	26.09	40.00	-13.91	QP
125.0066	27.99	12.21	40.20	43.50	-3.30	QP
140.8351	21.43	12.14	33.57	43.50	-9.93	QP
250.3009	25.13	13.54	38.67	46.00	-7.33	QP
377.2590	25.58	17.02	42.60	46.00	-3.40	QP
875.2468	10.80	27.32	38.12	46.00	-7.88	QP

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

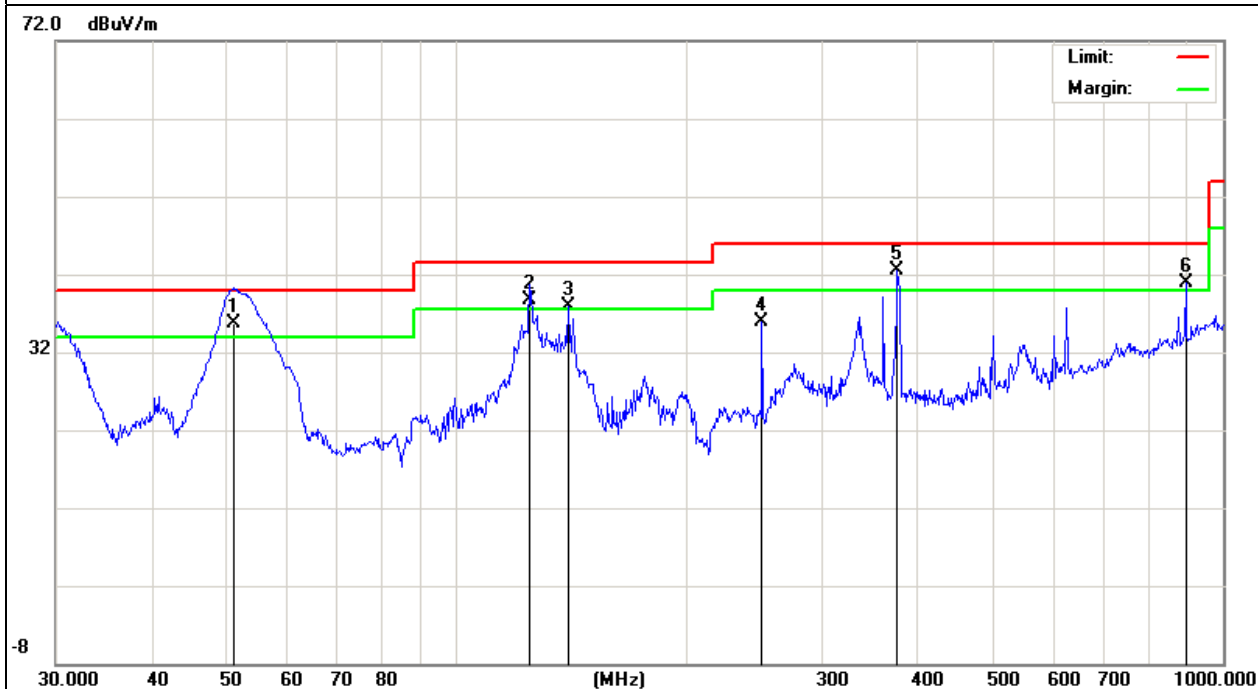


EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 12V From Adapter 2 AC120V/60Hz
Test Mode :	TX	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
51.3004	27.98	7.67	35.65	40.00	-4.35	QP
124.5690	26.58	12.20	38.78	43.50	-4.72	QP
139.8506	25.75	12.17	37.92	43.50	-5.58	QP
250.3010	22.30	13.54	35.84	46.00	-10.16	QP
375.9384	25.54	16.96	42.50	46.00	-3.50	QP
893.8567	13.38	27.60	40.98	46.00	-5.02	QP

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

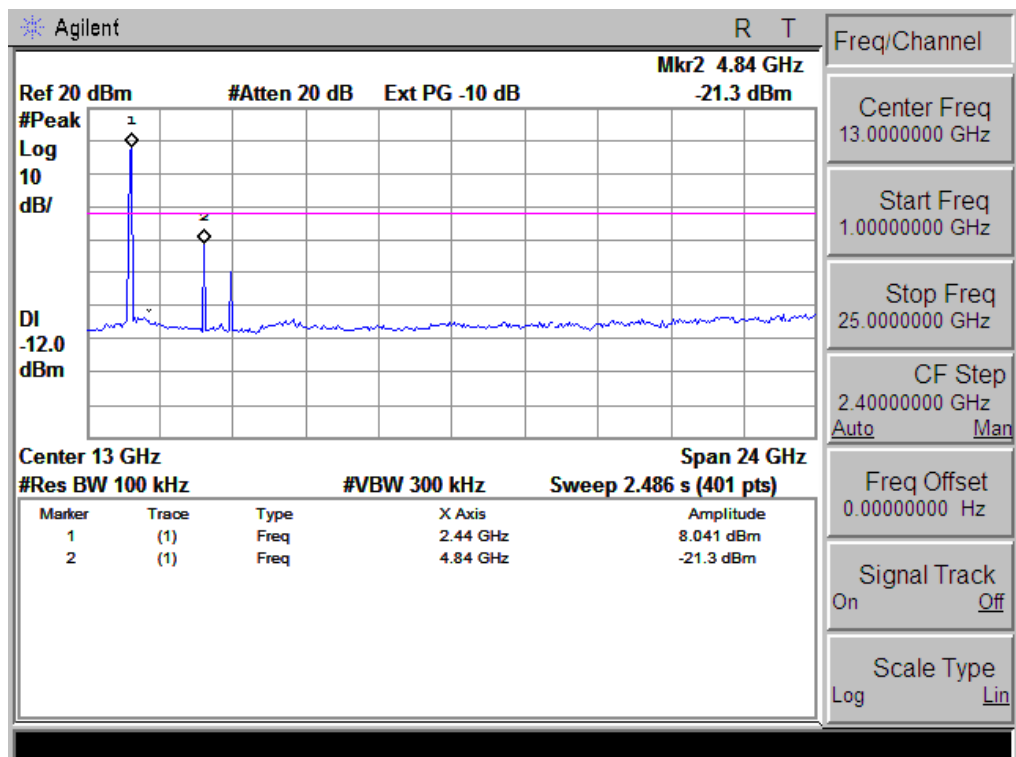
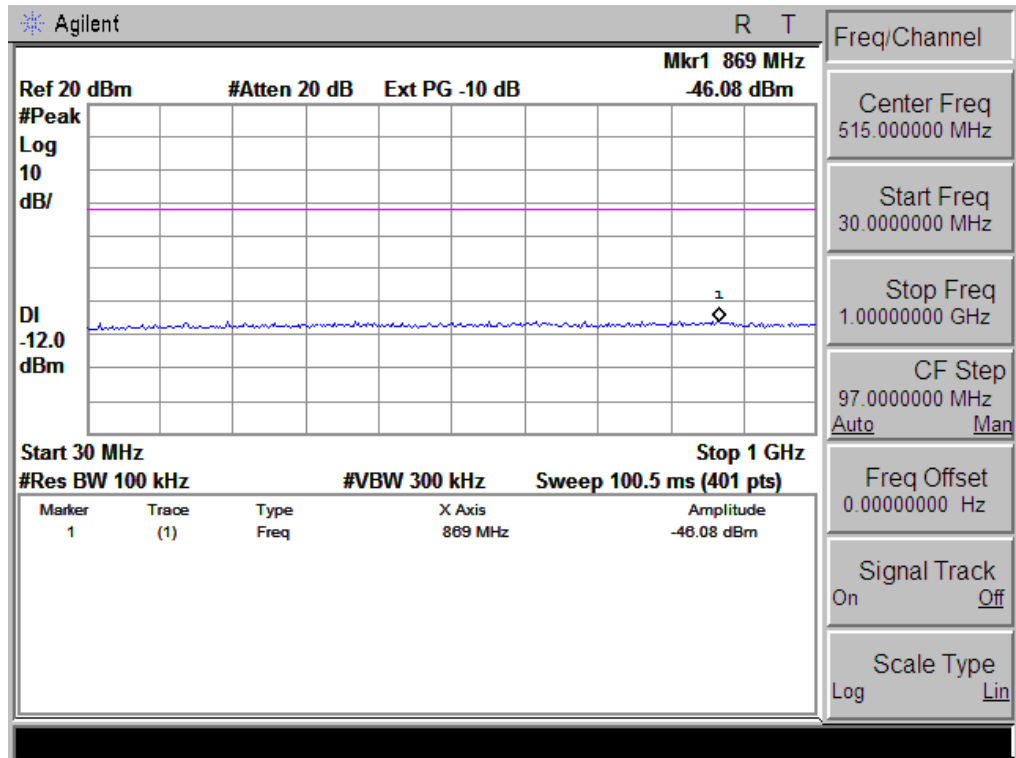
802.11b Low Channel (2412 MHz)-Above 1G							
4823.427	38.51	10.43	48.94	74	-25.06	Pk	Vertical
7236.236	32.22	12.37	44.59	74	-29.41	Pk	Vertical
4824.526	38.39	10.43	48.82	74	-25.18	Pk	Horizontal
7235.954	32.14	12.37	44.51	74	-29.49	Pk	Horizontal
802.11b Mid Channel (2437 MHz)-Above 1G							
4874.624	40.33	10.45	50.78	74	-23.22	Pk	Vertical
7311.282	33.65	12.41	46.06	74	-27.94	Pk	Vertical
4876.291	42.28	10.45	52.73	74	-21.27	Pk	Horizontal
7311.954	32.13	12.41	44.54	74	-29.46	Pk	Horizontal
802.11b High Channel (2462 MHz)- Above 1G							
4925.354	35.27	10.39	45.66	74	-28.34	Pk	Vertical
7386.234	30.14	12.68	42.82	74	-31.18	Pk	Vertical
4924.204	34.15	10.39	44.54	74	-29.46	Pk	Horizontal
7386.362	33.02	12.68	45.7	74	-28.3	Pk	Horizontal

Note:"802.11b" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

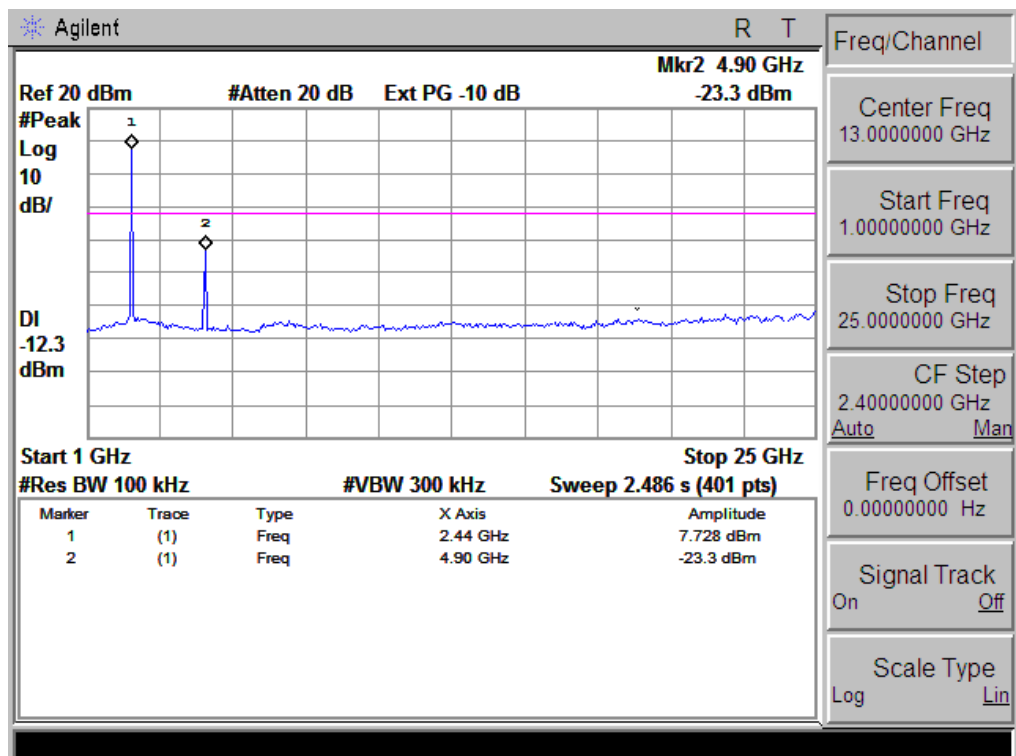
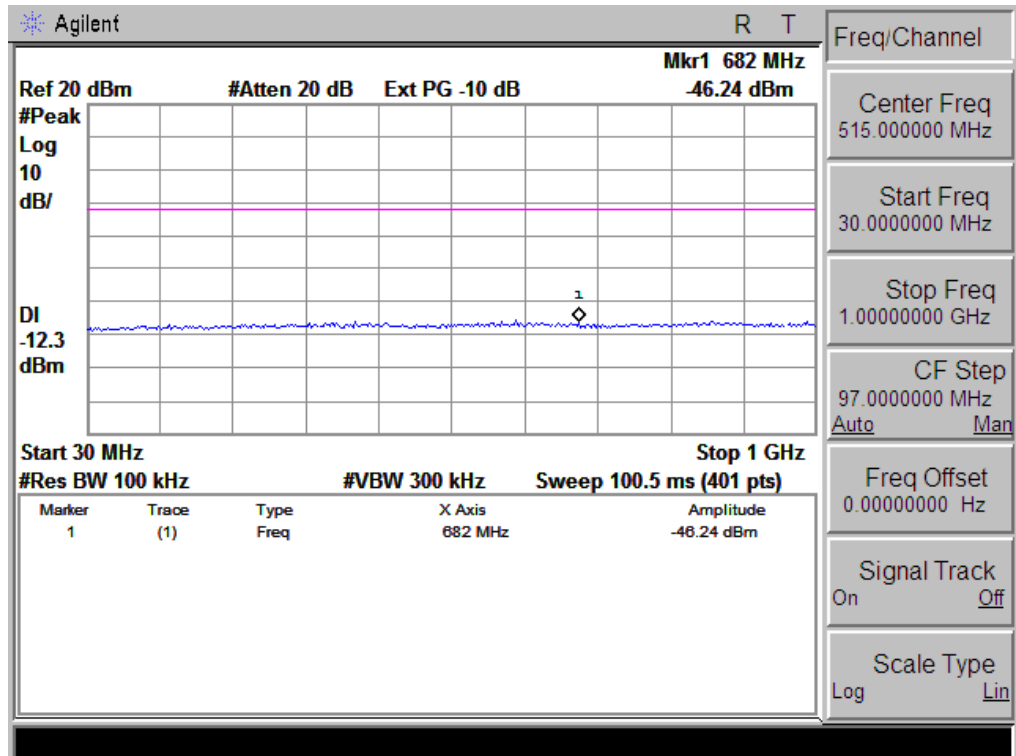
802.11a Low Channel (5745 MHz)-Above 1G							
11490.015	40.51	10.43	50.94	74	-23.06	Pk	Vertical
17235.032	34.22	12.37	46.59	74	-27.41	Pk	Vertical
11490.015	36.09	10.43	46.52	74	-27.48	Pk	Horizontal
17235.032	35.74	12.37	48.11	74	-25.89	Pk	Horizontal
802.11a Mid Channel (5785 MHz)-Above 1G							
11570.068	41.33	10.45	51.78	74	-22.22	Pk	Vertical
17355.148	33.95	12.41	46.36	74	-27.64	Pk	Vertical
11570.068	41.28	10.45	51.73	74	-22.27	Pk	Horizontal
17355.148	36.86	12.41	49.27	74	-24.73	Pk	Horizontal
802.11a High Channel (5825 MHz)- Above 1G							
11650.286	39.27	10.39	49.66	74	-24.34	Pk	Vertical
17475.412	38.14	12.68	50.82	74	-23.18	Pk	Vertical
11650.286	42.15	10.39	52.54	74	-21.46	Pk	Horizontal
17475.412	39.02	12.68	51.7	74	-22.3	Pk	Horizontal

Note:"802.11a(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

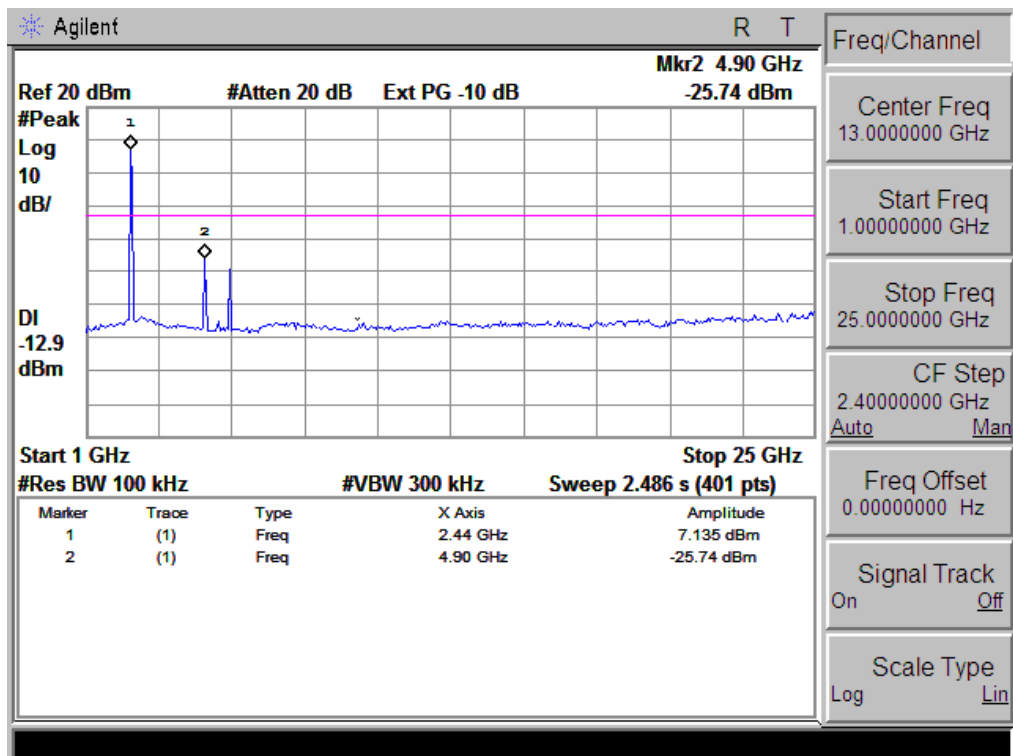
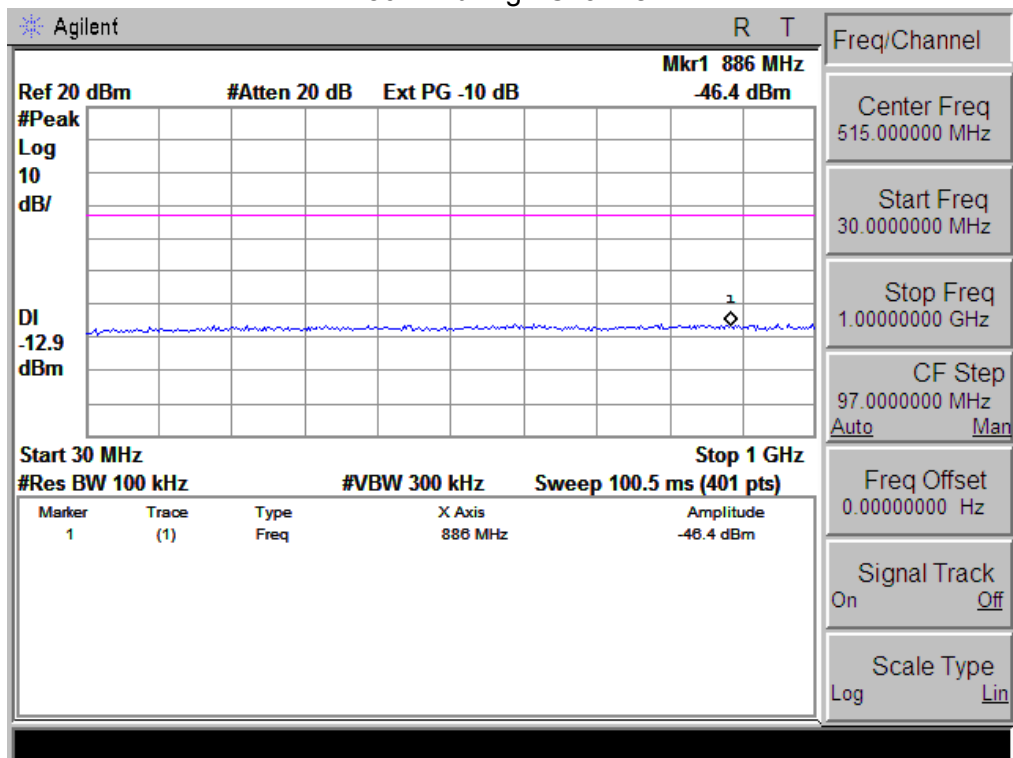
Conducted Spurious Emissions at Antenna Port: 802.11b Low Channel



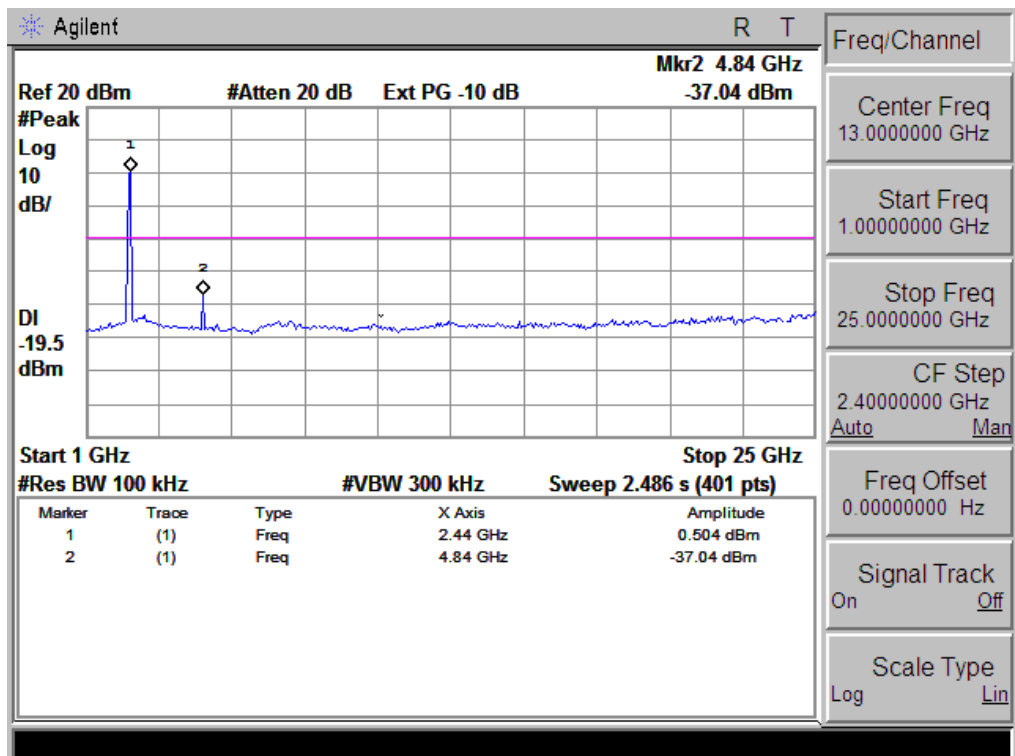
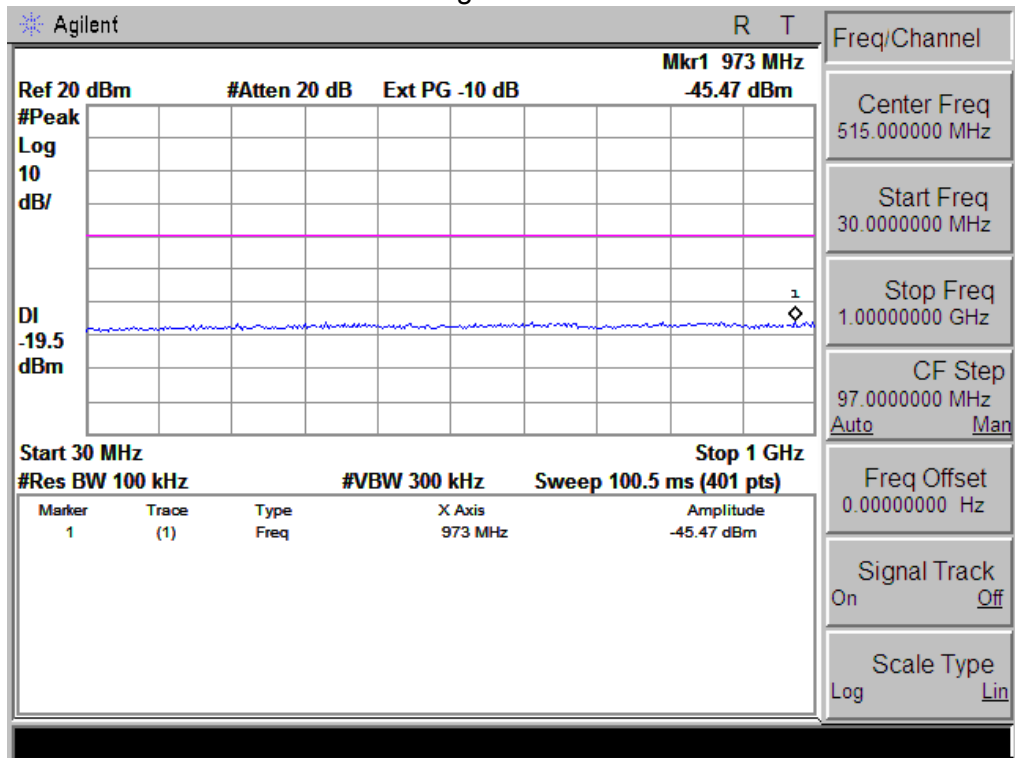
802.11b Middle Channel



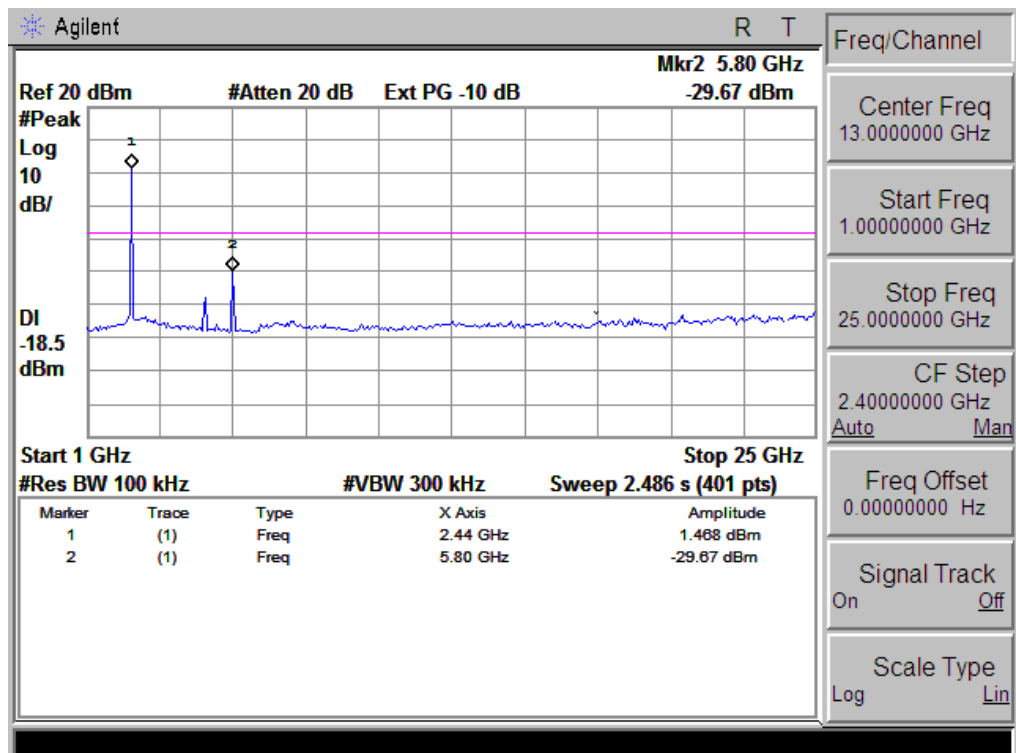
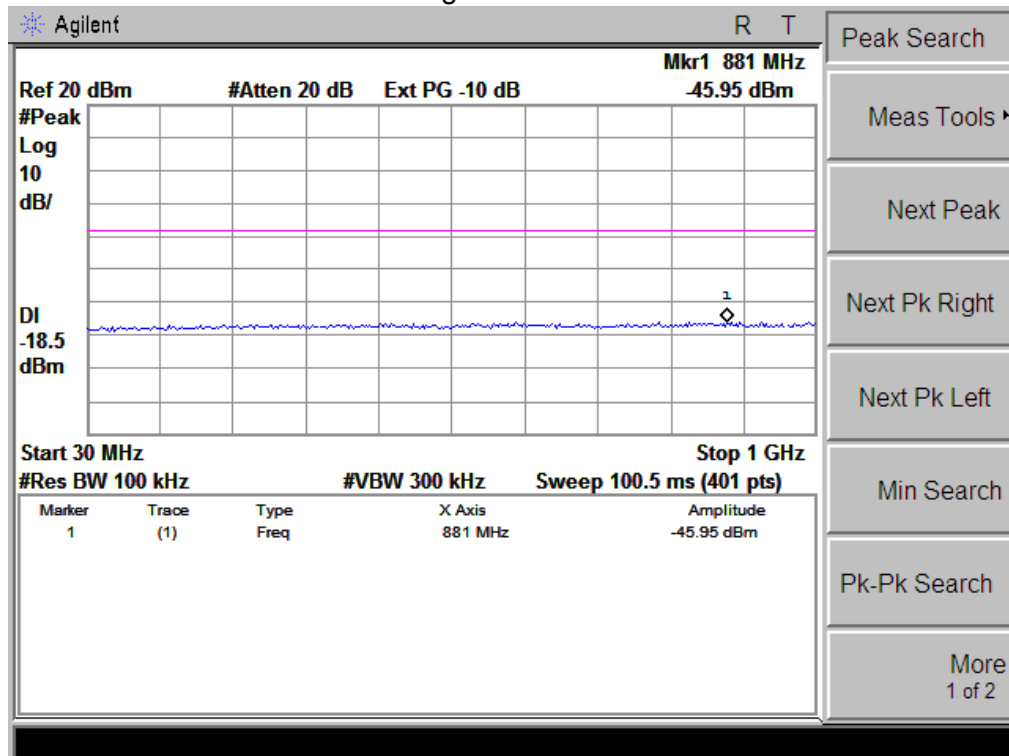
802.11b High Channel



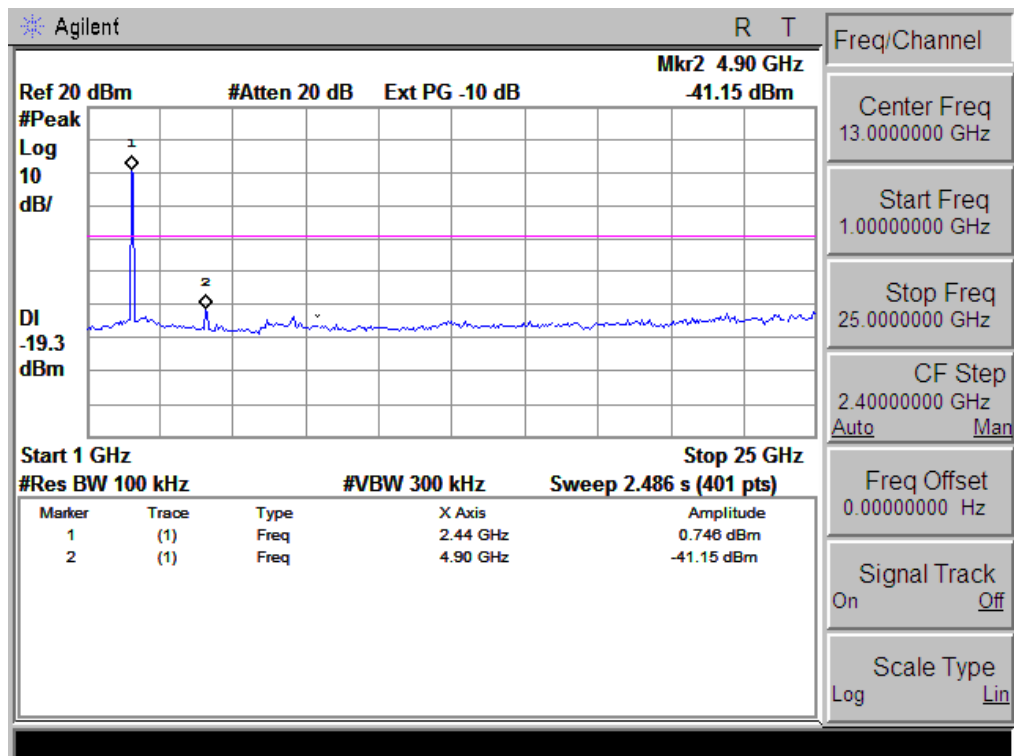
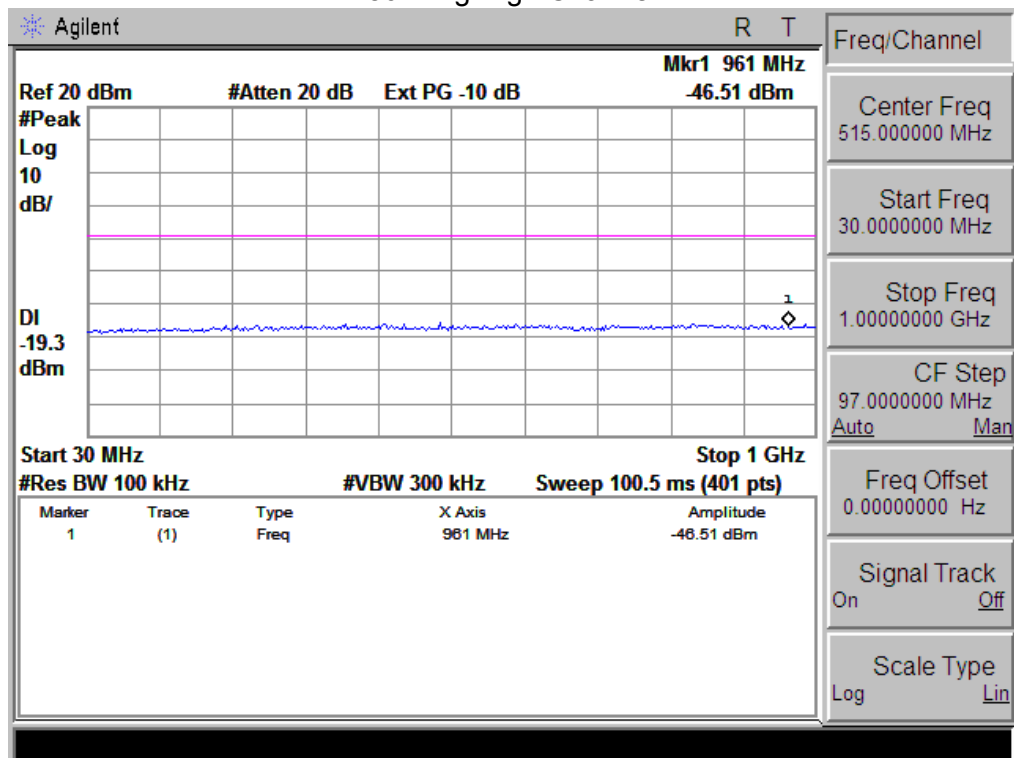
802.11g Low Channel



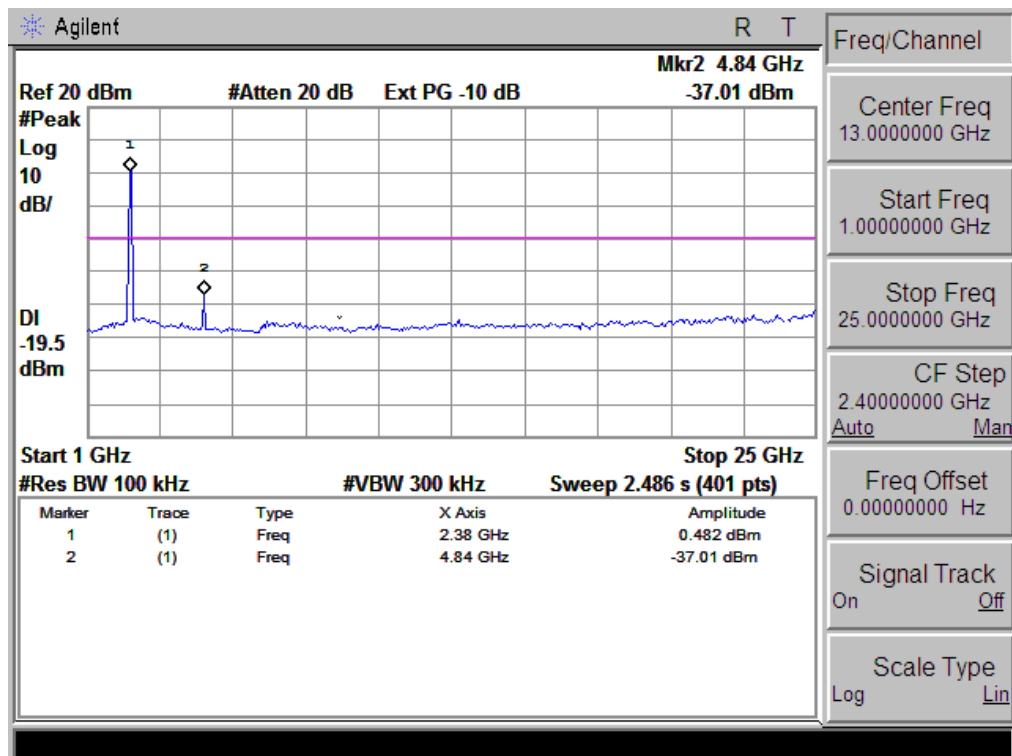
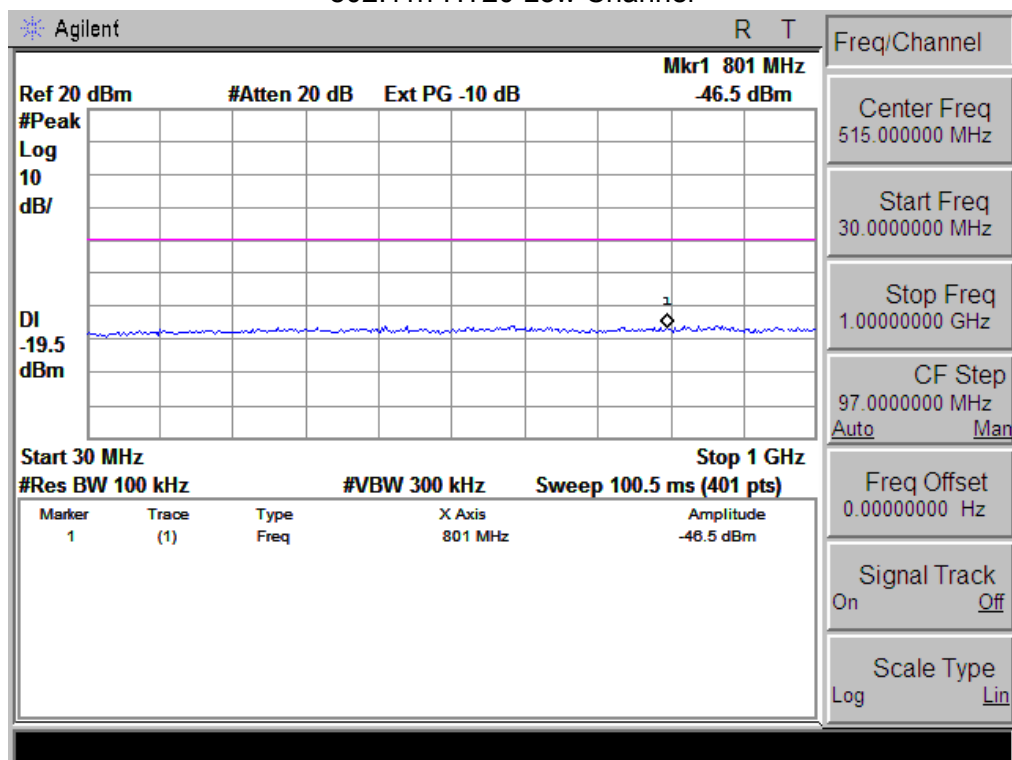
802.11g Middle Channel



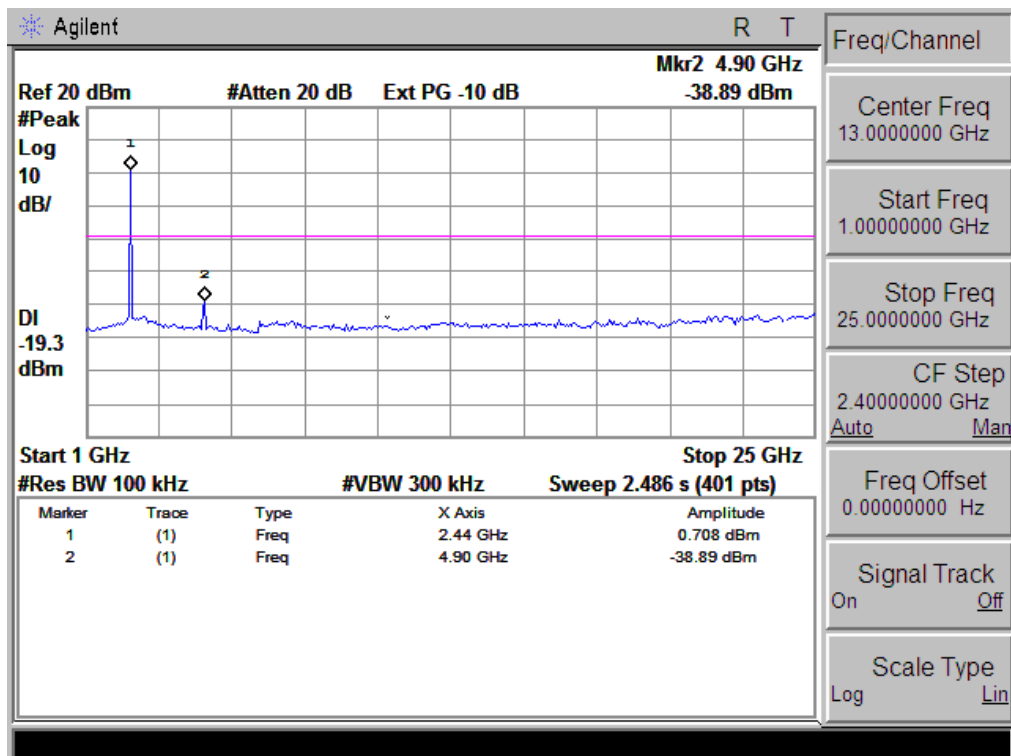
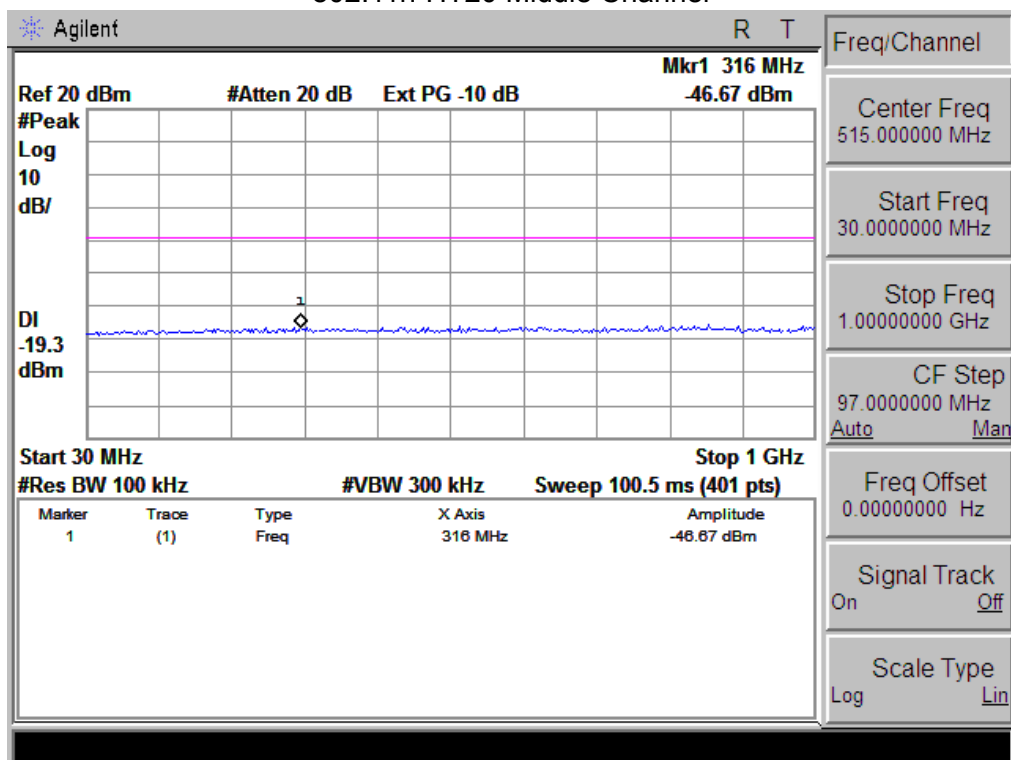
802.11g High Channel



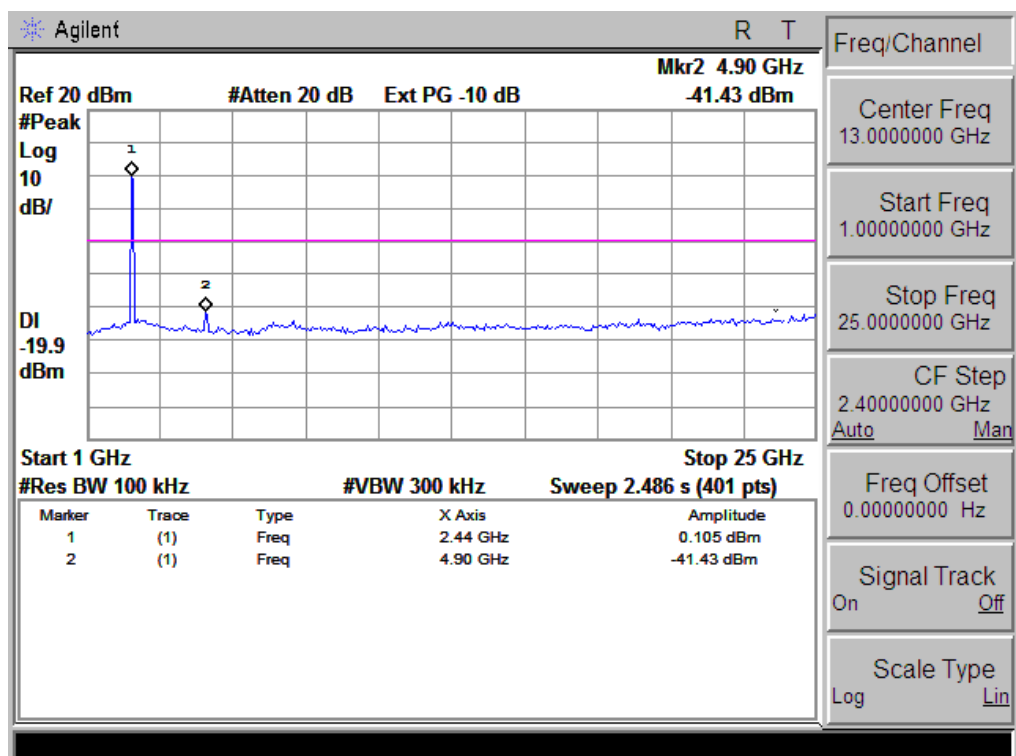
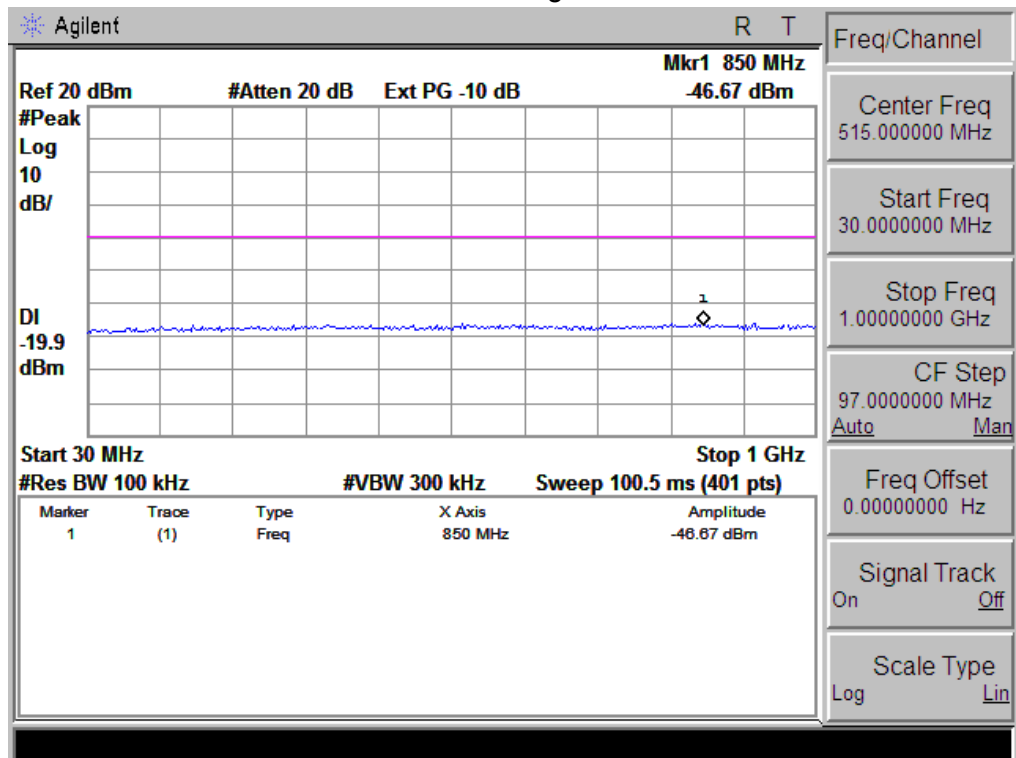
802.11n-HT20 Low Channel



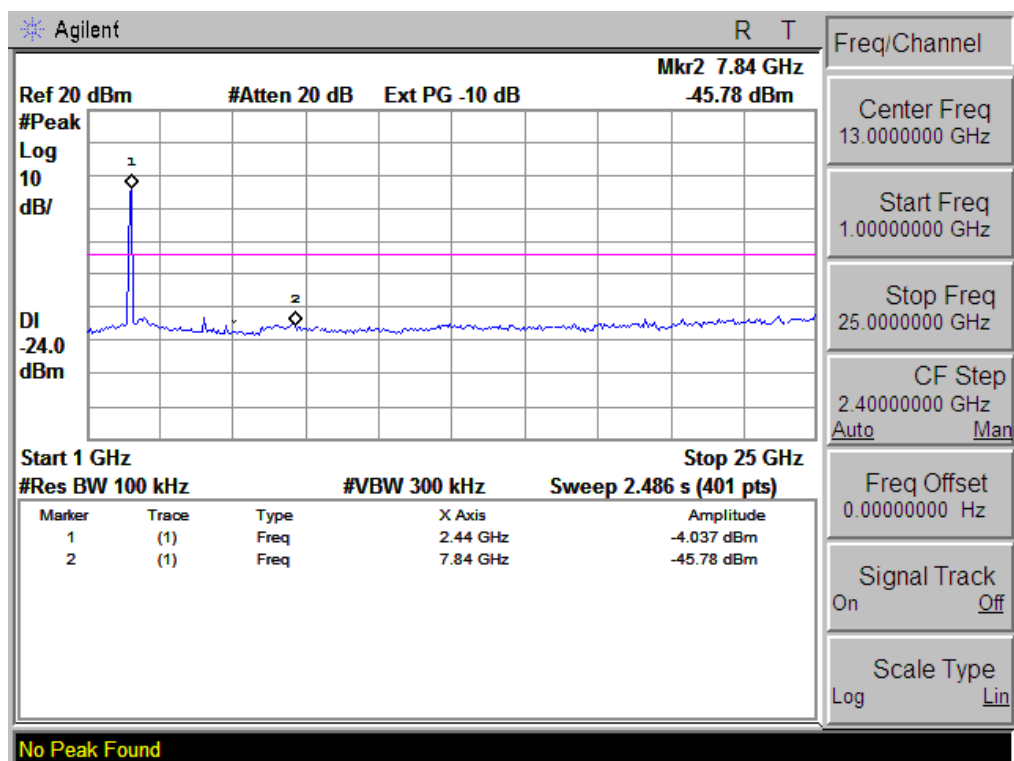
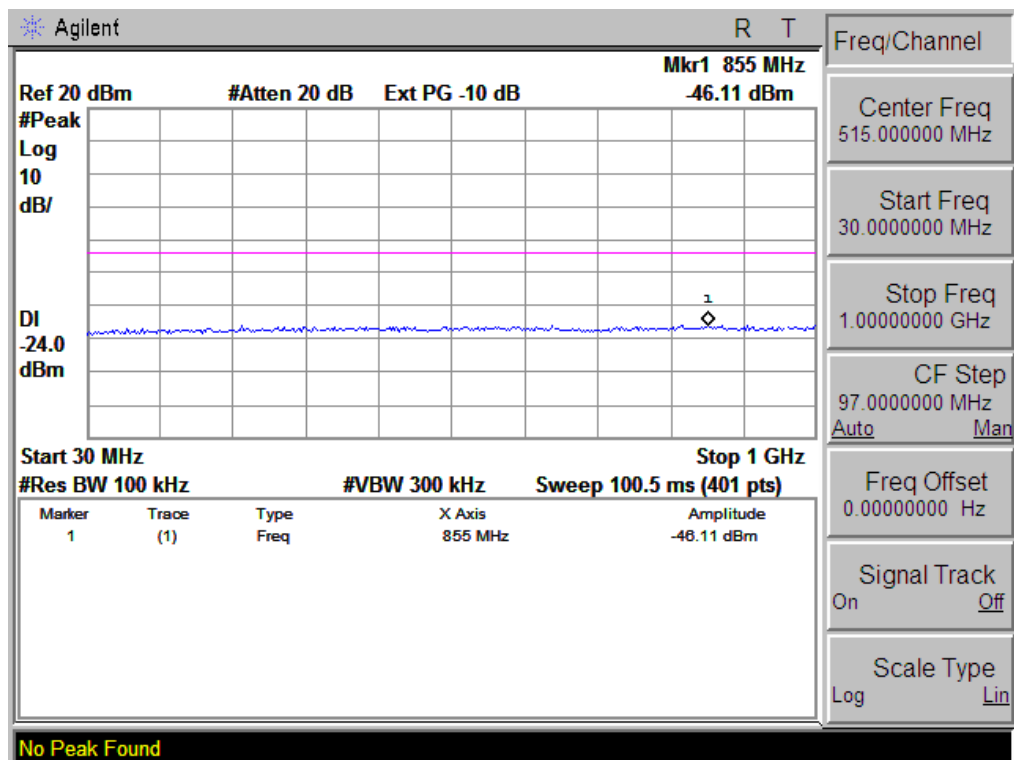
802.11n-HT20 Middle Channel



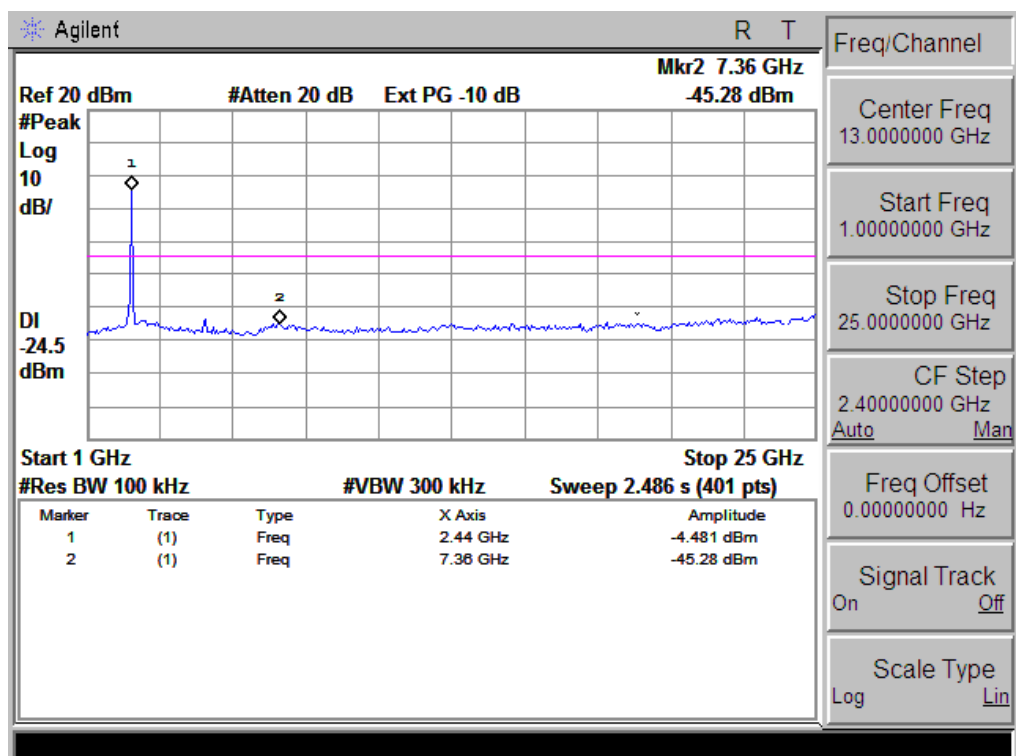
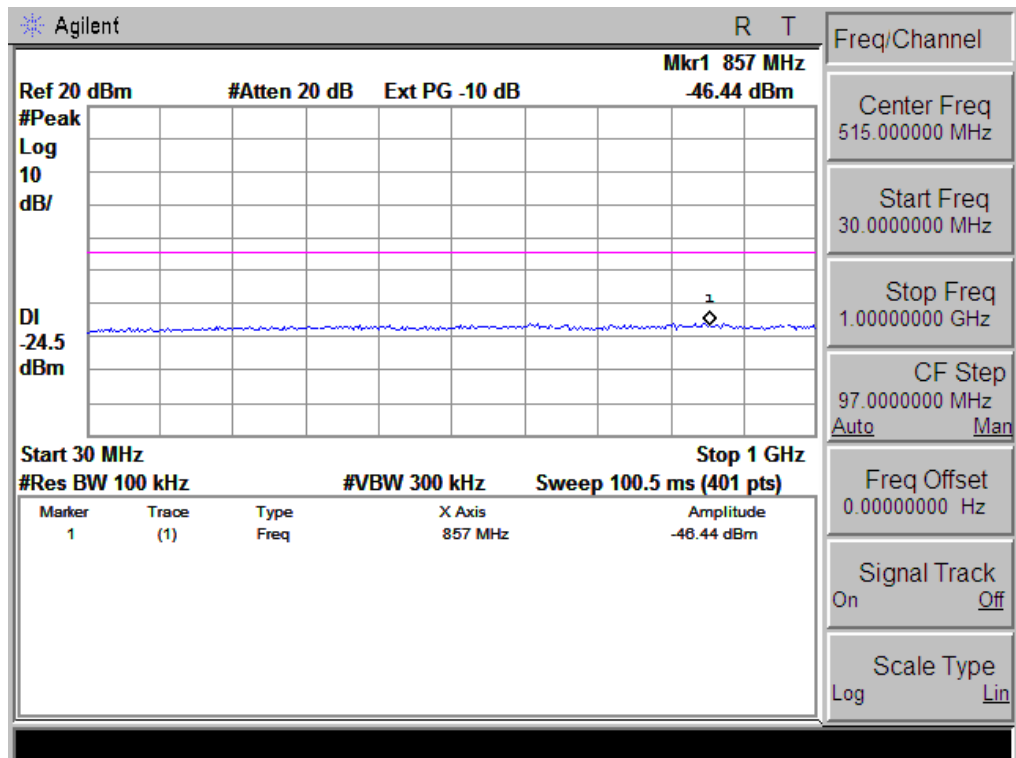
802.11n-HT20 High Channel



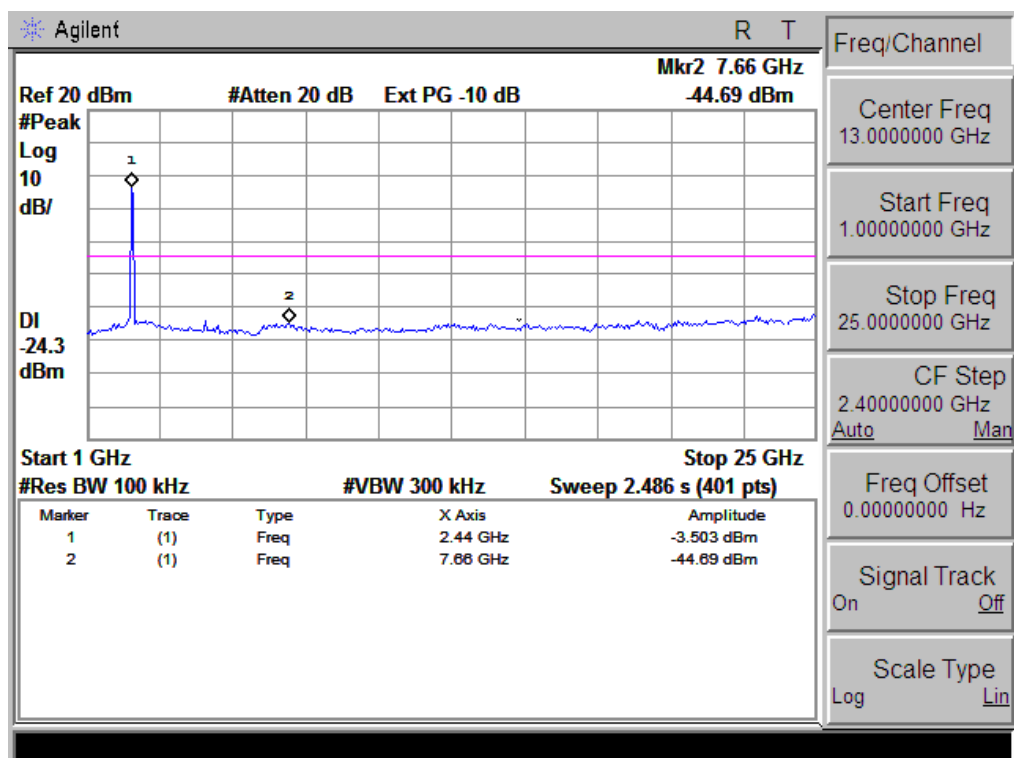
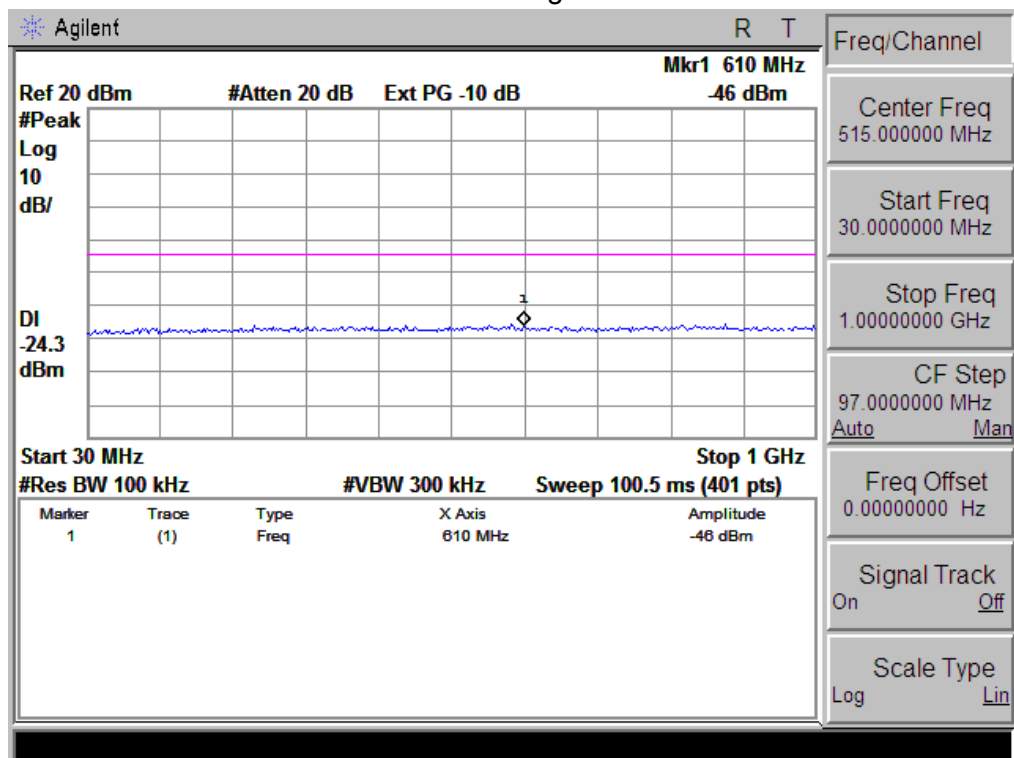
802.11n-HT40 Low Channel



802.11n-HT40 Middle Channel

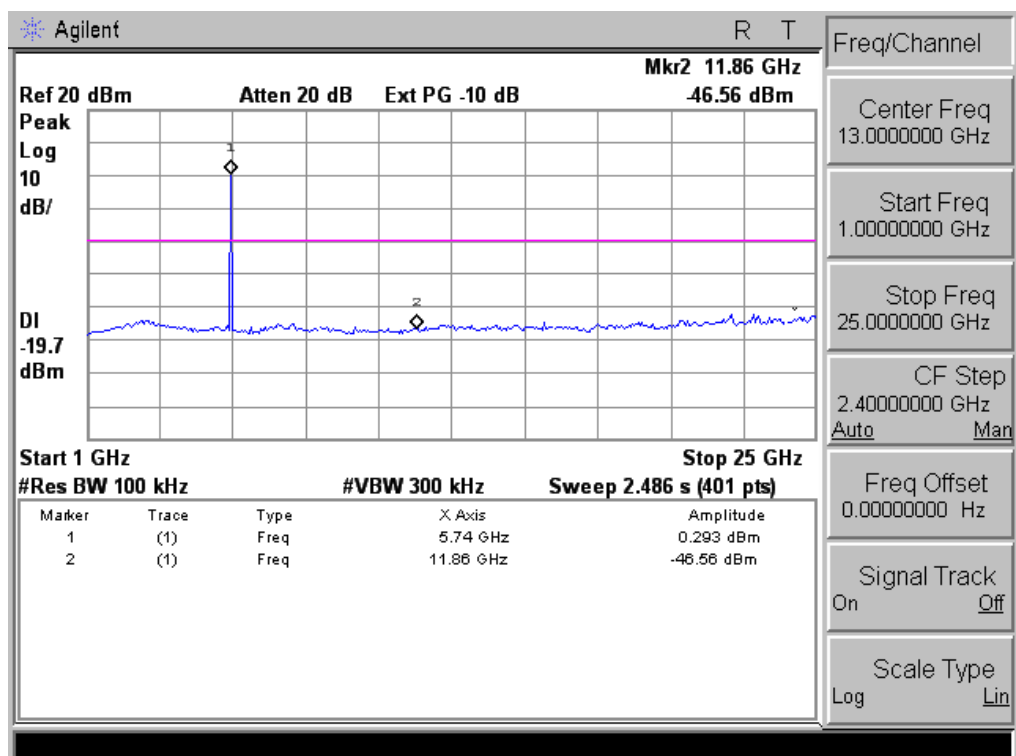
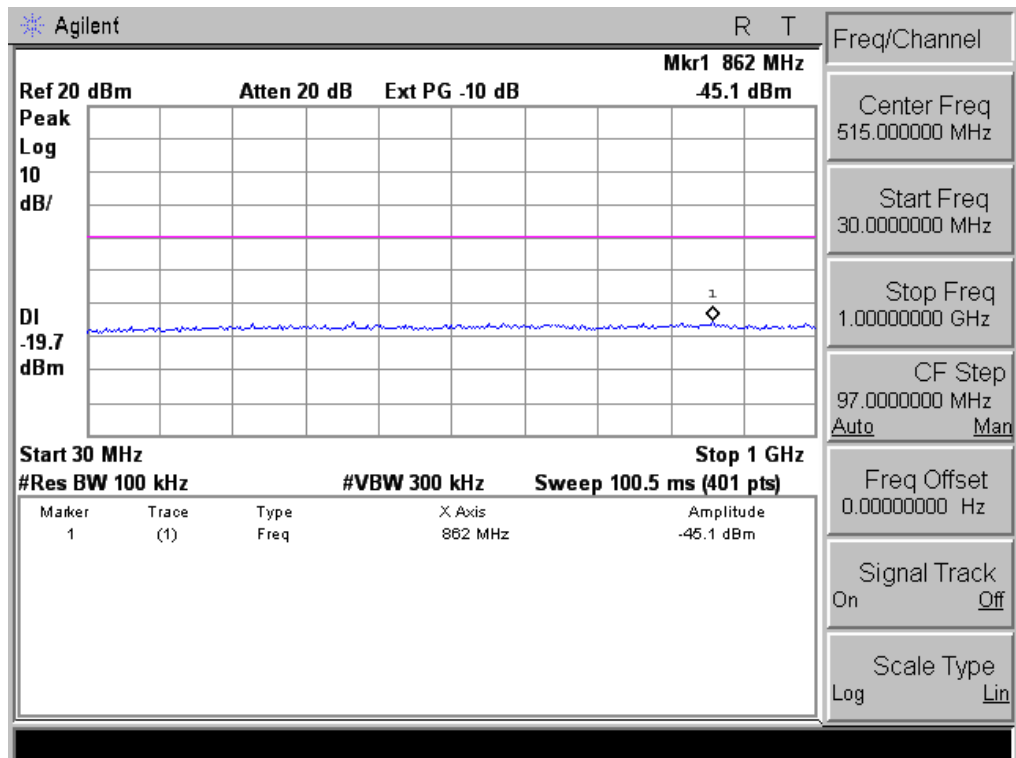


802.11n-HT40 High Channel



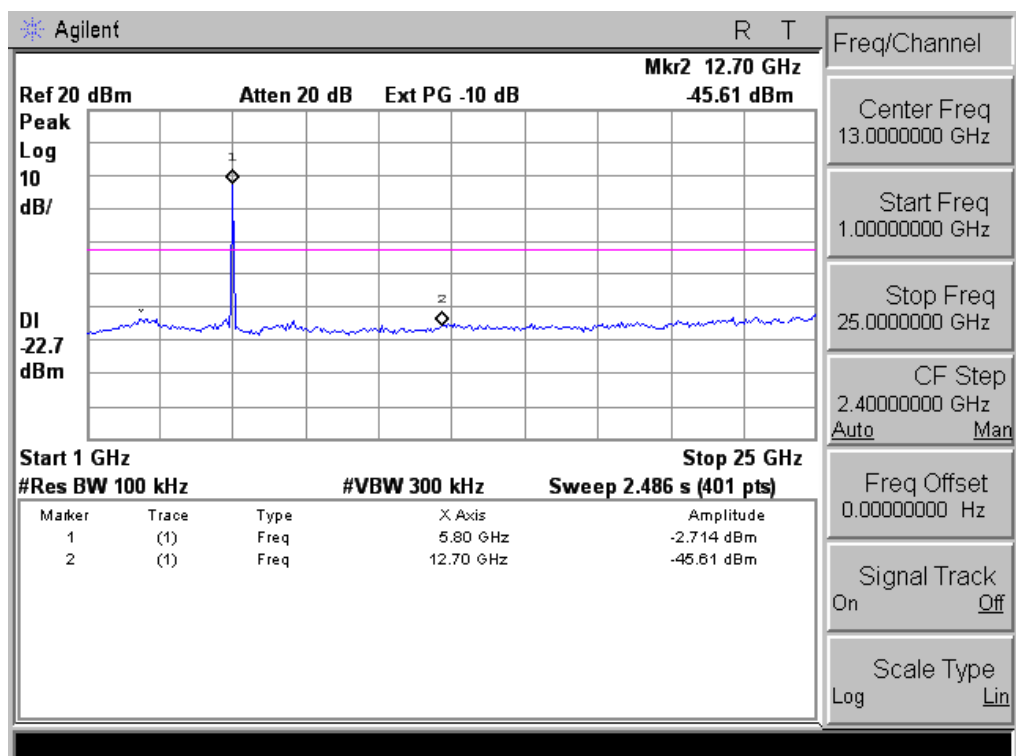
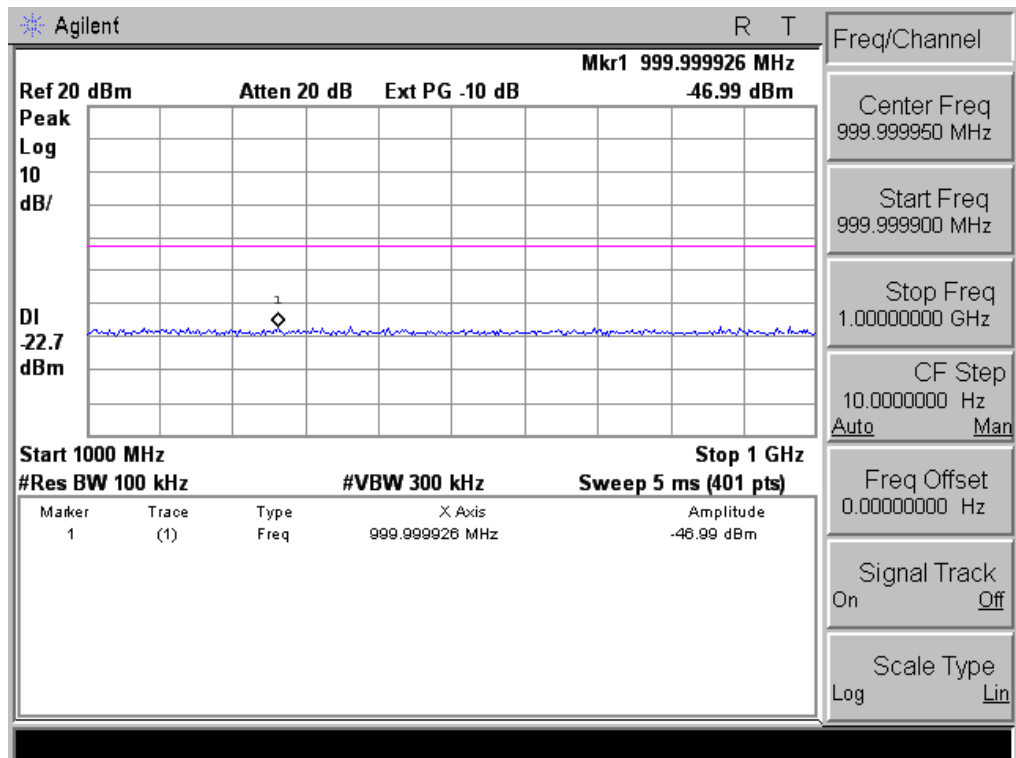
5GHz:

802.11a Low Channel



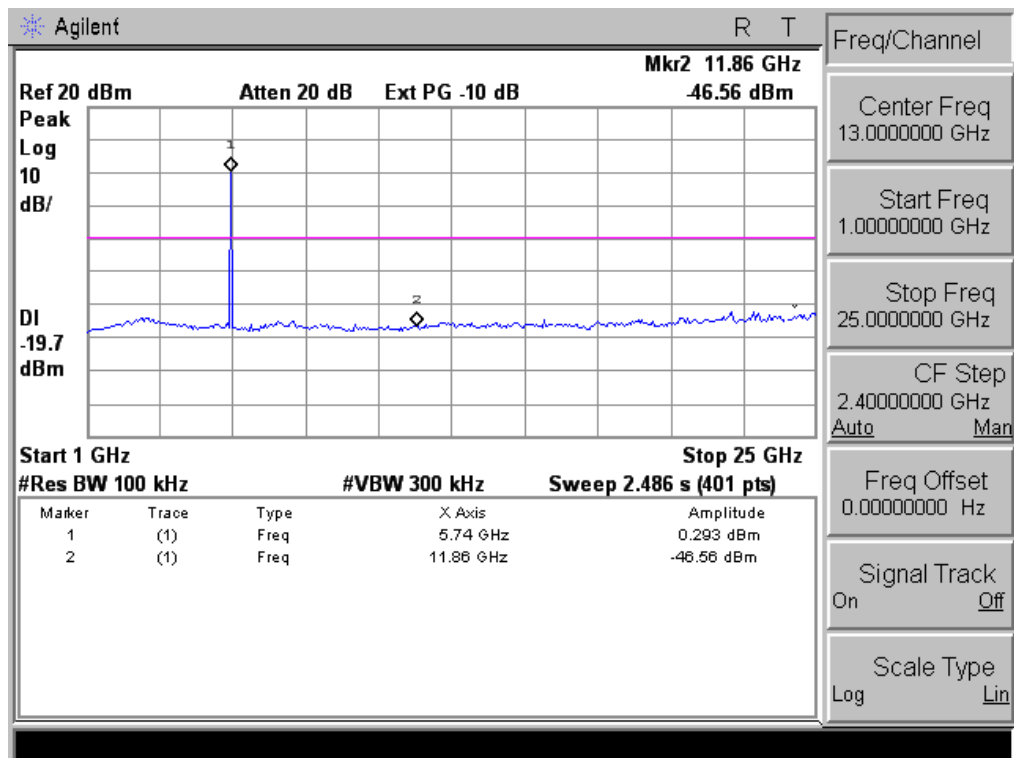
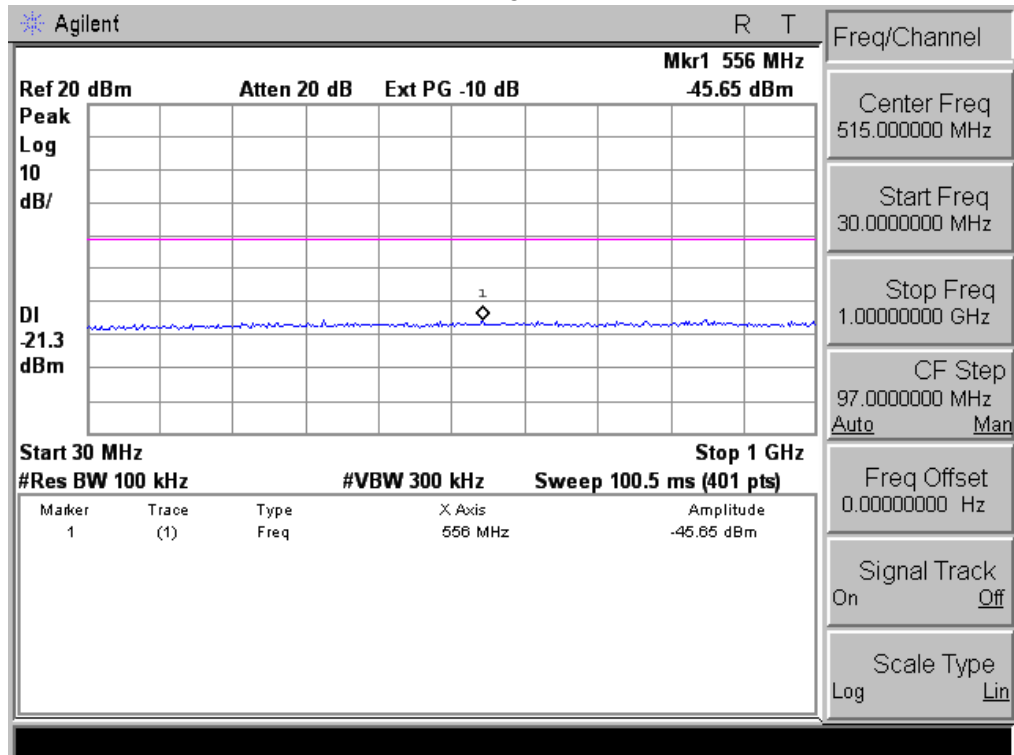
Note: No emission detected above 25GHz

802.11a Middle Channel



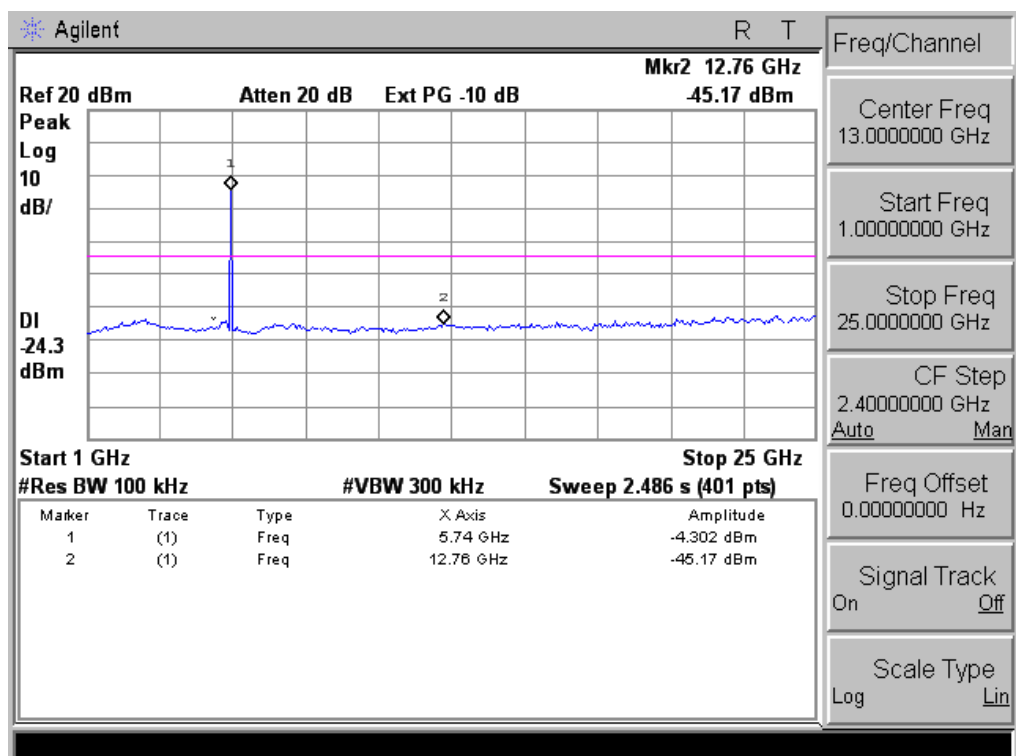
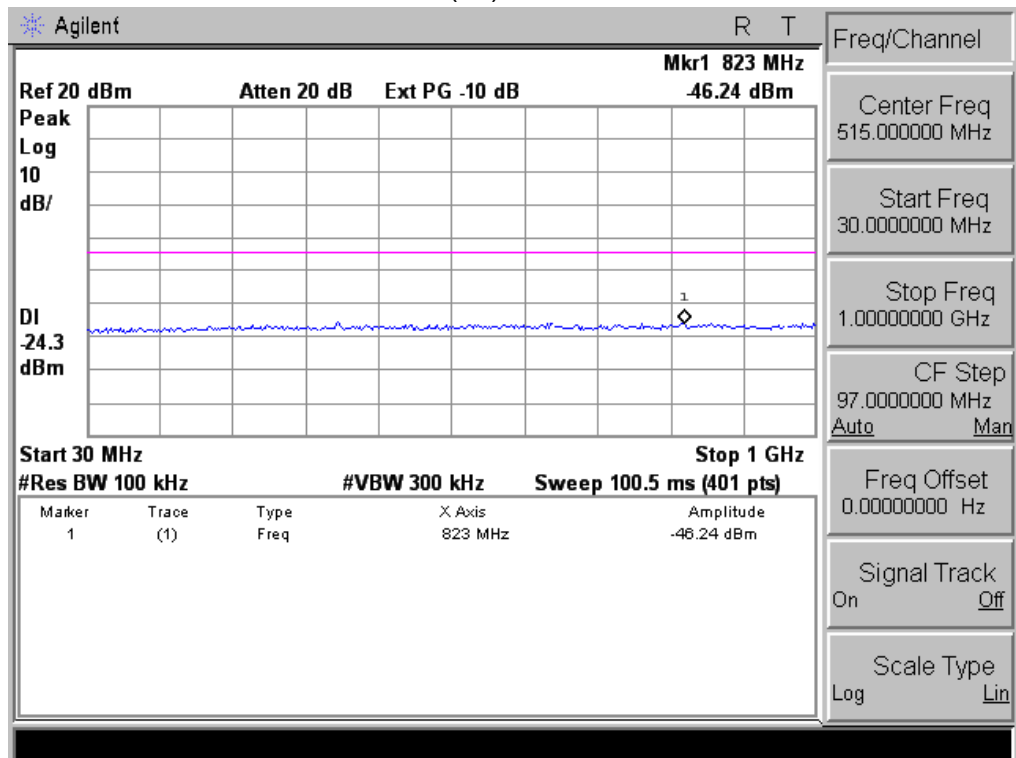
Note: No emission detected above 25GHz

802.11a High Channel



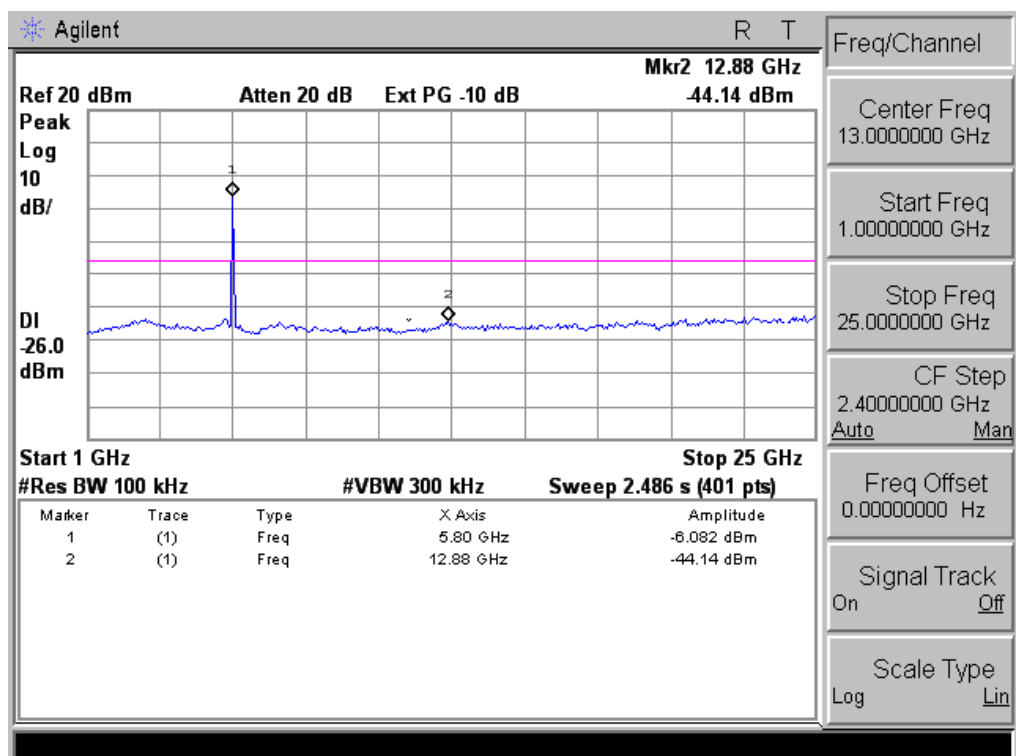
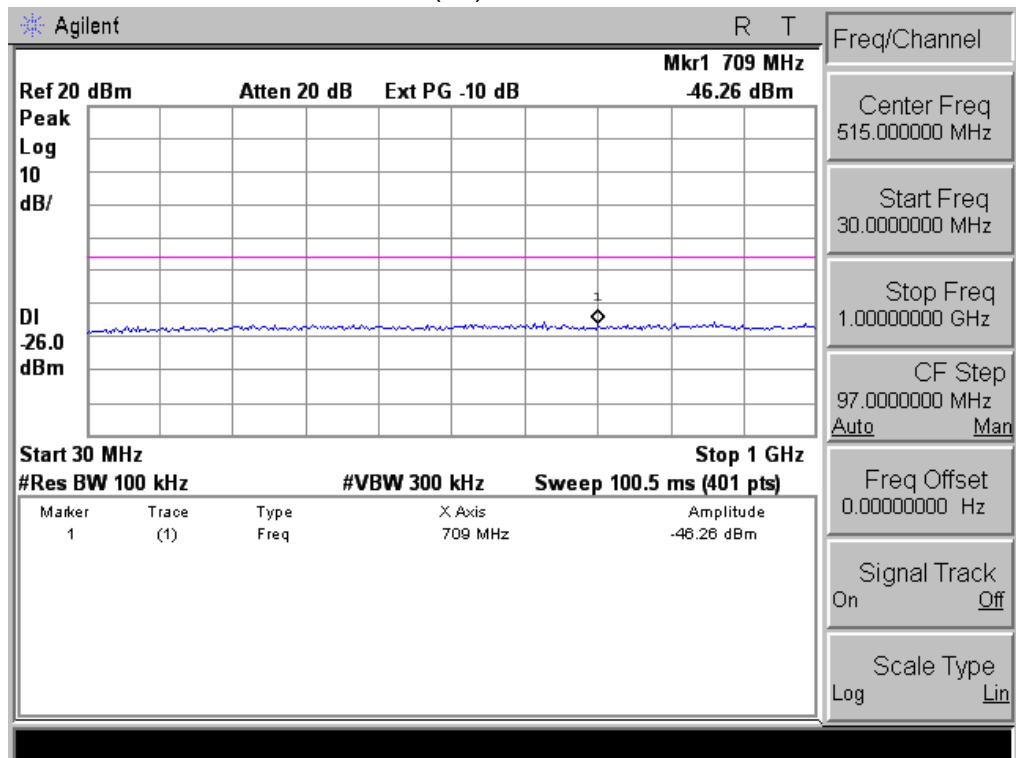
Note: No emission detected above 25GHz

802.11n(20) Low Channel



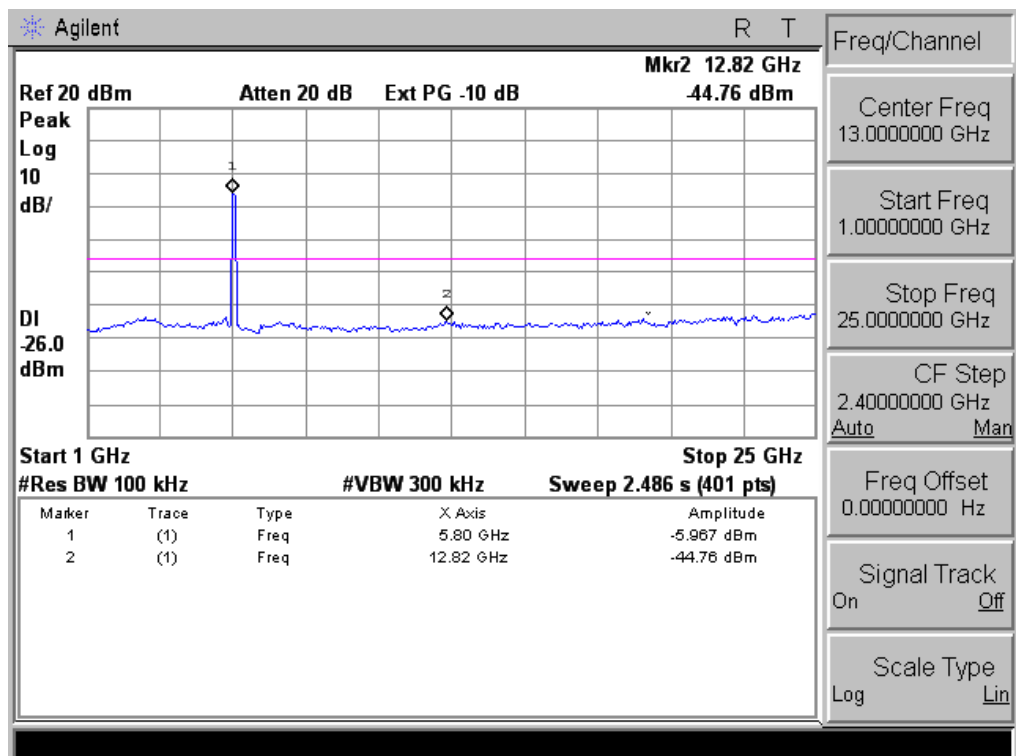
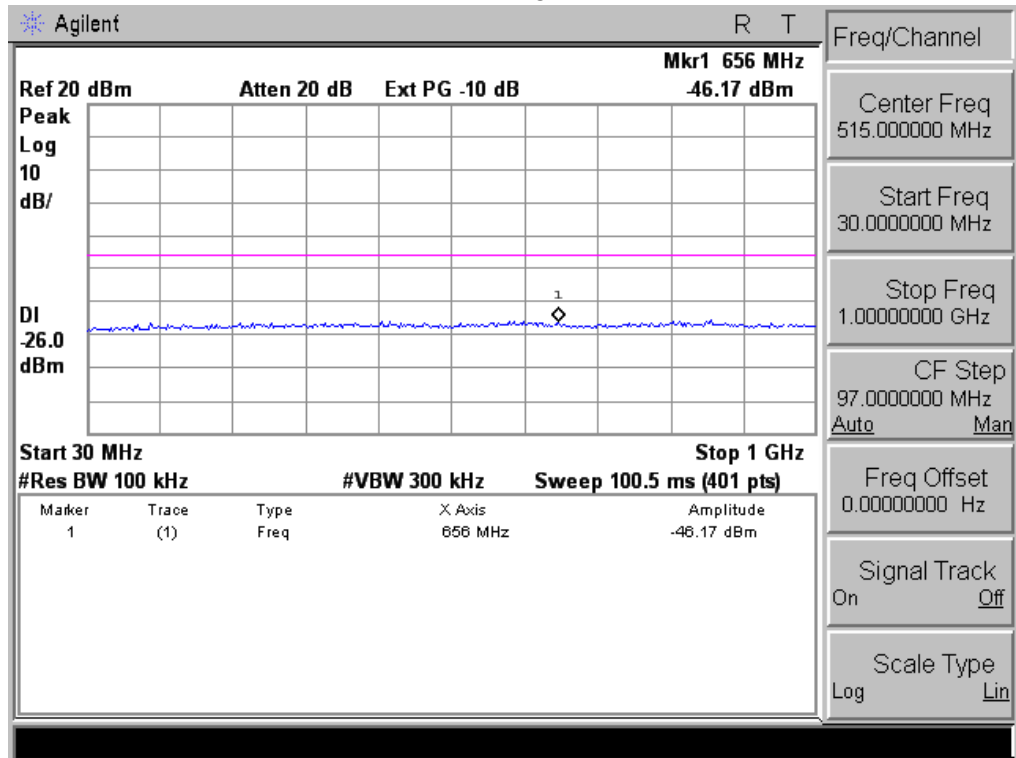
Note: No emission detected above 25GHz

802.11n(20) Middle Channel



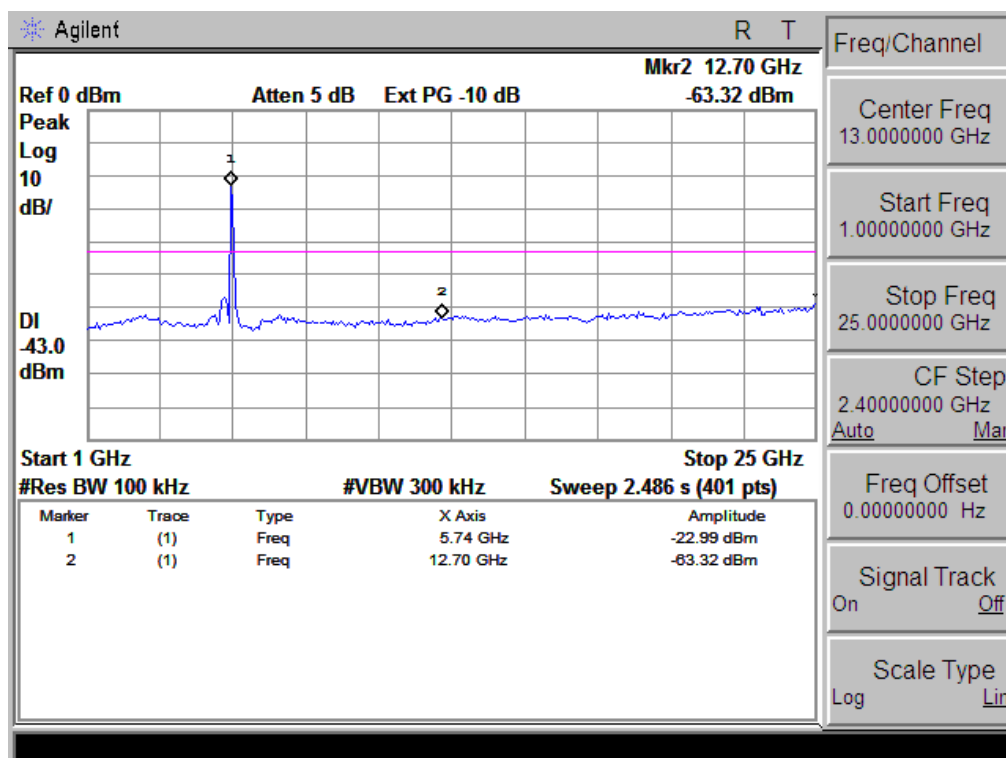
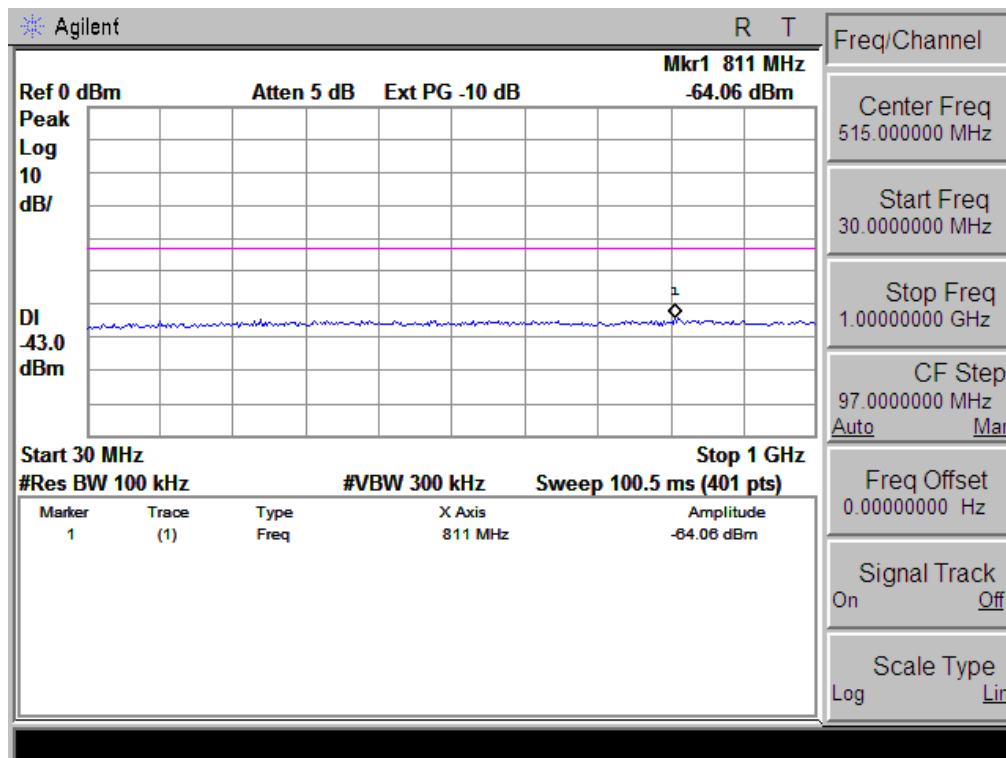
Note: No emission detected above 25GHz

802.11n(20) High Channel



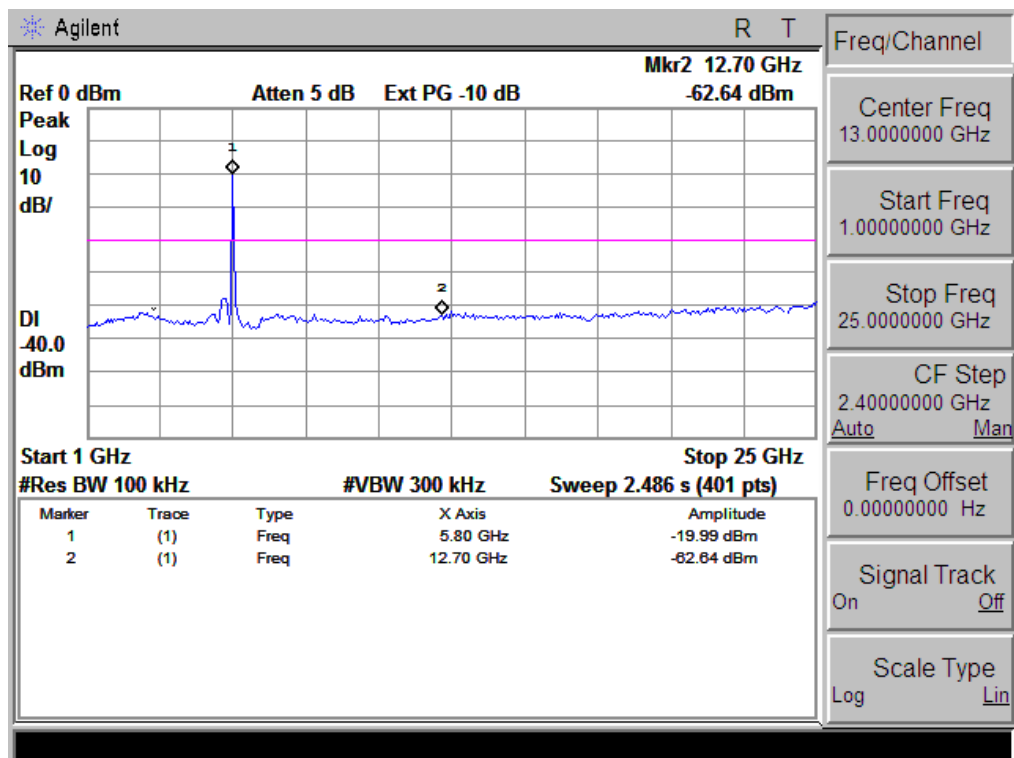
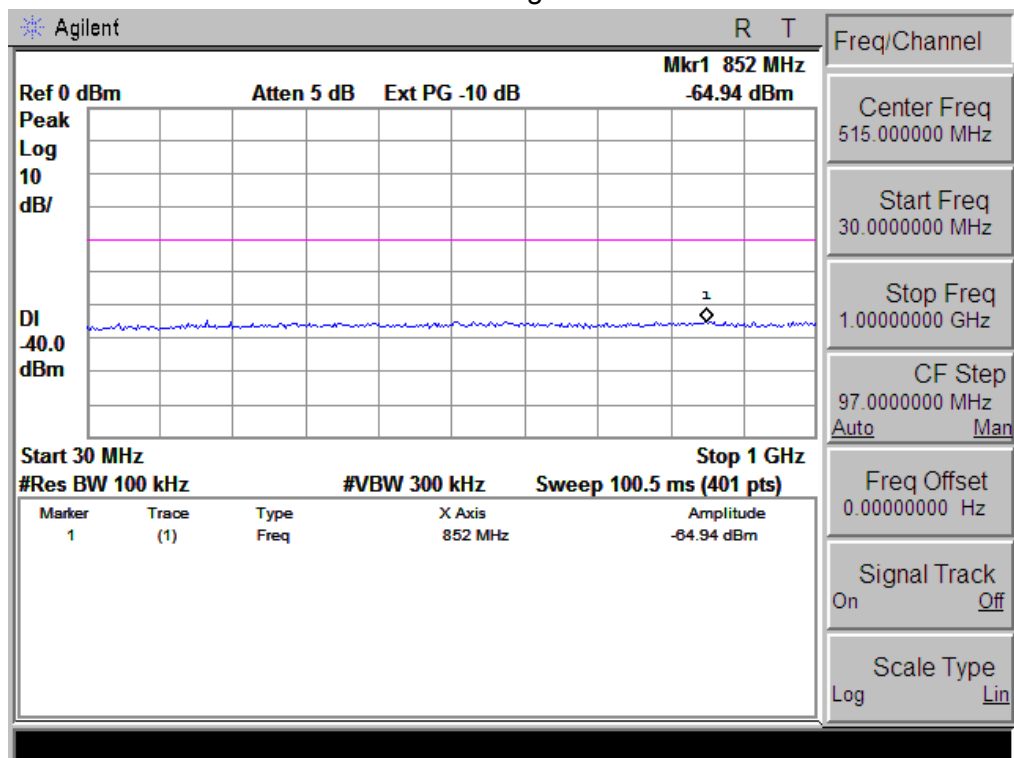
Note: No emission detected above 25GHz

802.11n 40 Low Channel



Note: No emission detected above 25GHz

802.11n 40 High Channel



Note: No emission detected above 25GHz

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW ≥ 3 kHz.
4. Set the VBW $\geq 3 \times$ RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

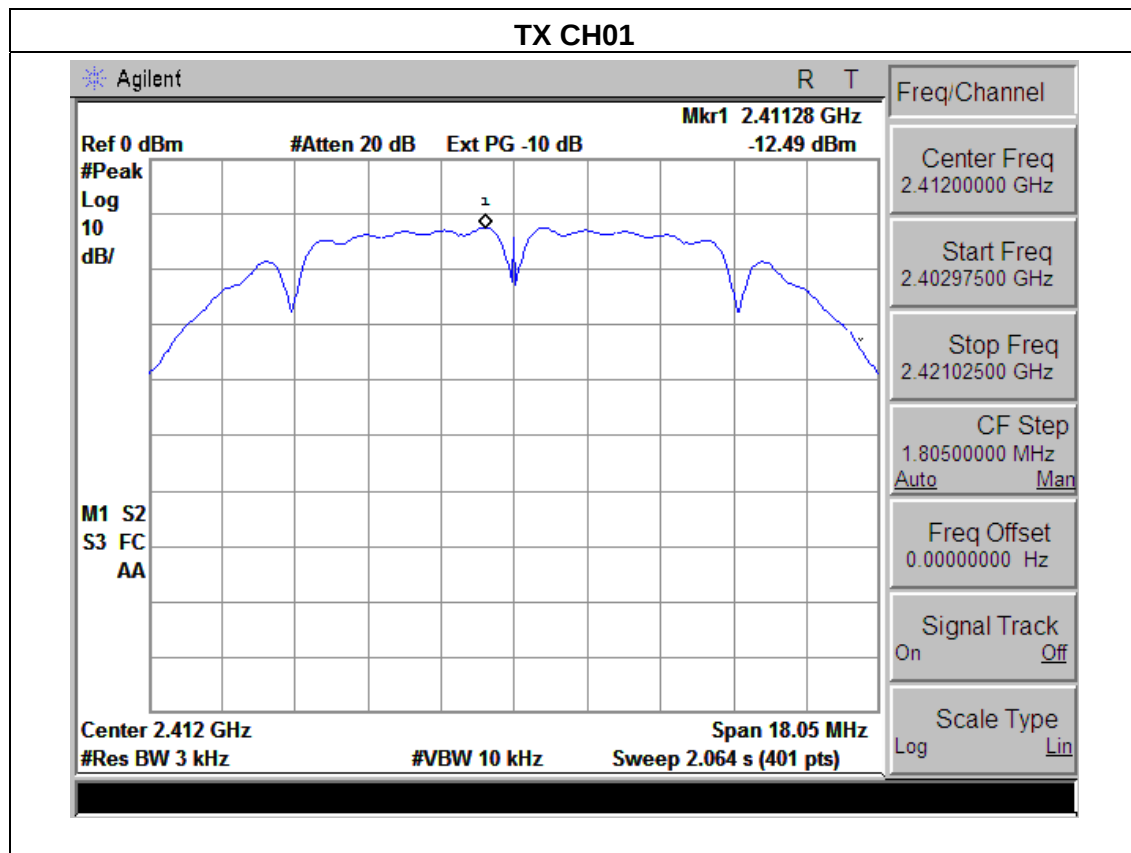
4.1.5 TEST RESULTS

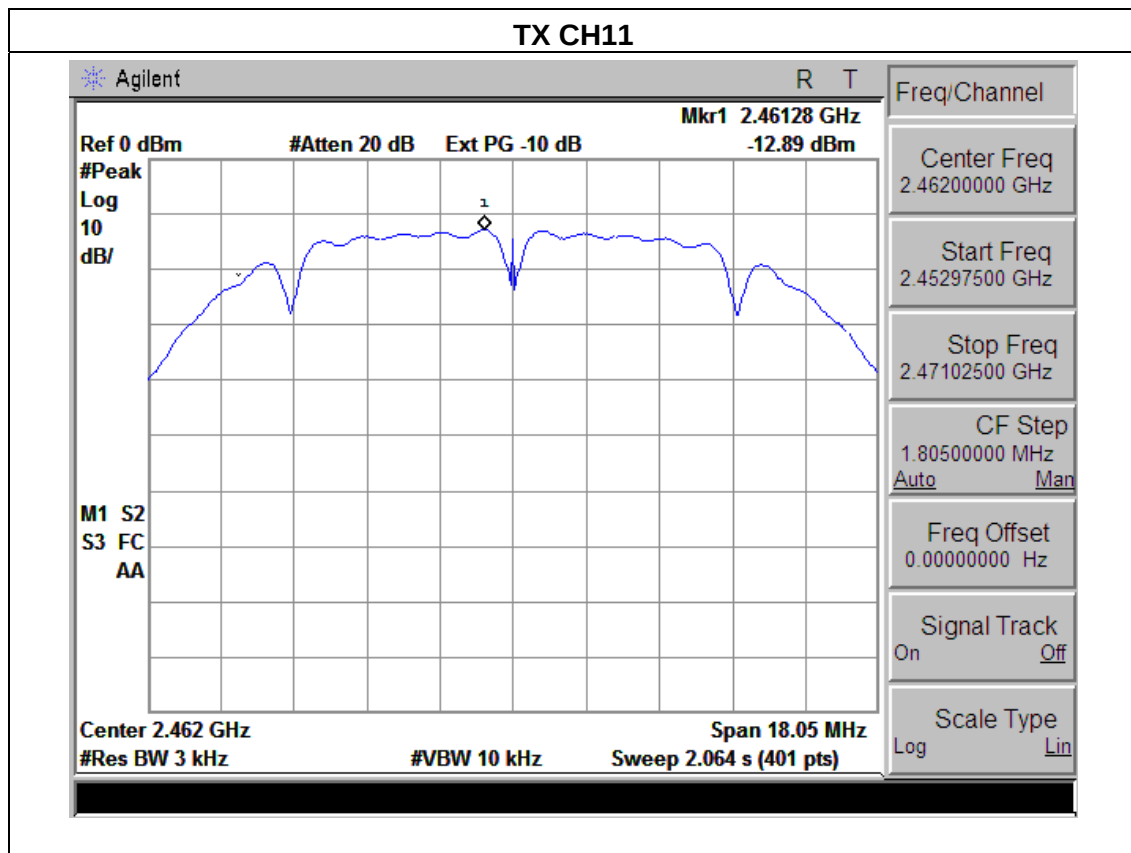
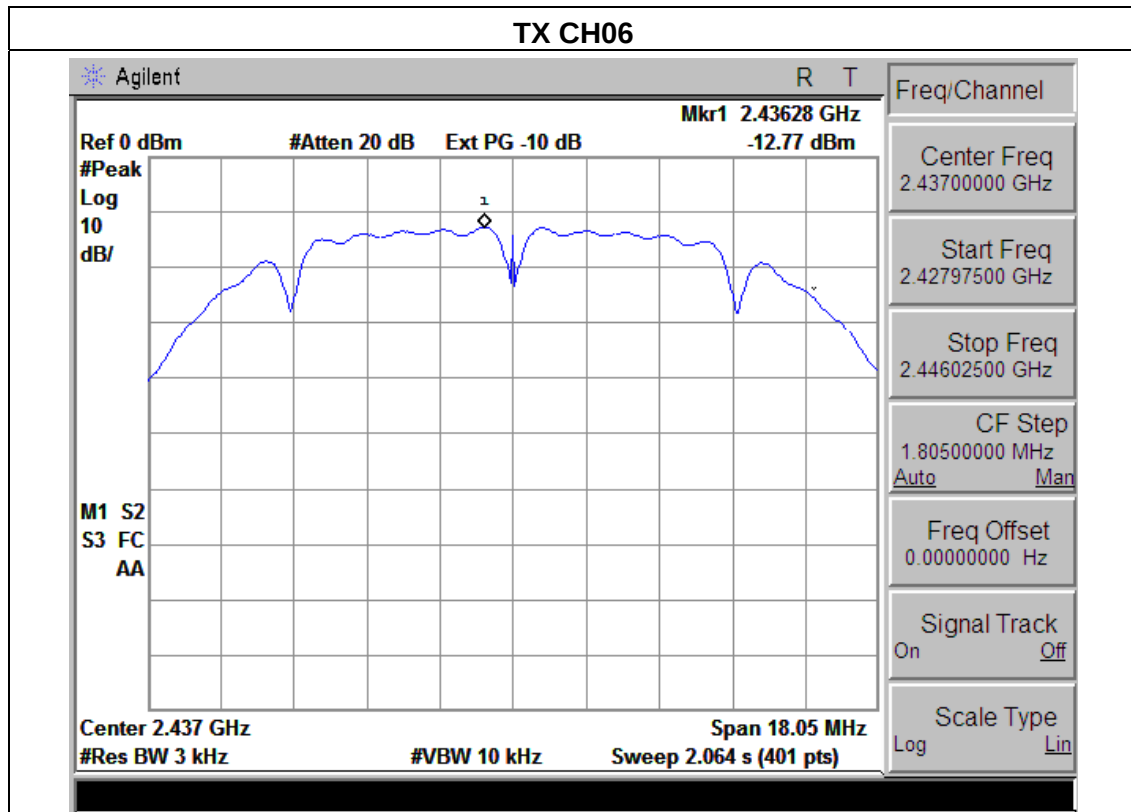
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX b Mode /CH01, CH06, CH11		

Frequency	Power Density A (dBm)	Power Density B (dBm)	Limit (dBm)	Result
2412 MHz	-12.49	-13.35	0.98	PASS
2437 MHz	-12.77	-13.54	0.98	PASS
2462 MHz	-12.89	-13.46	0.98	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 2.4G mode , Limit = $8-13.02+6=0.98$ dBm for output power.



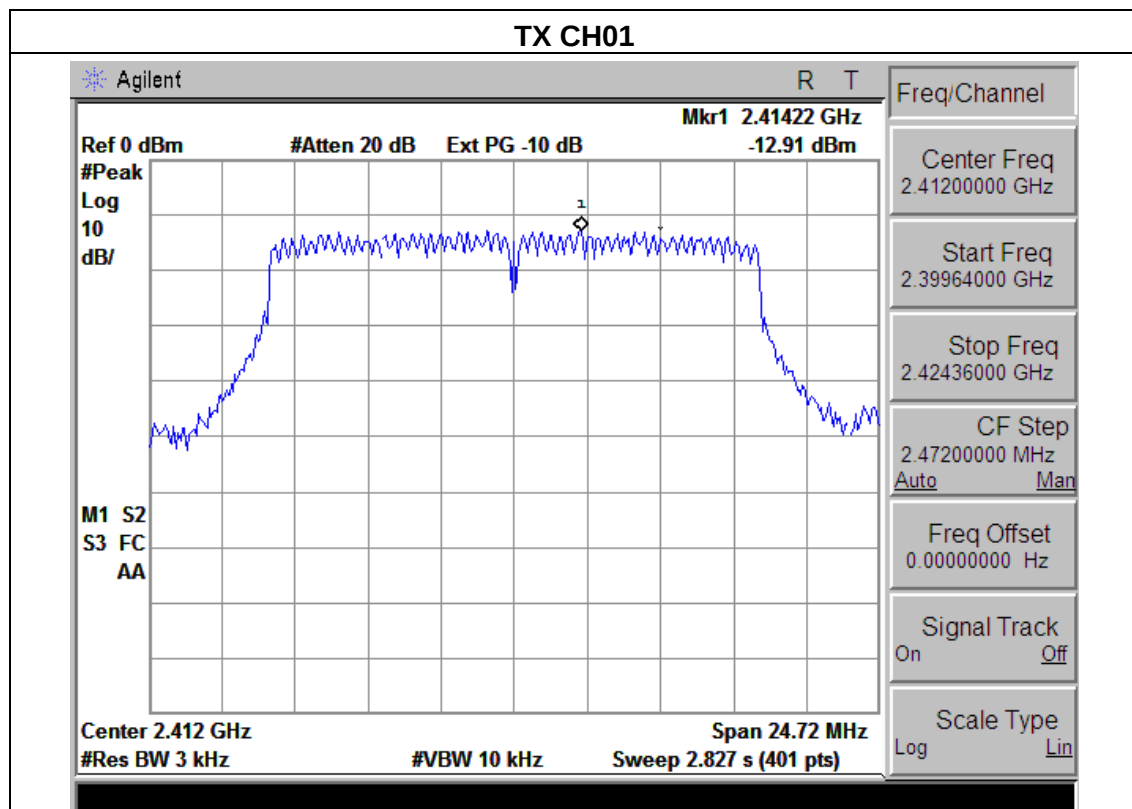


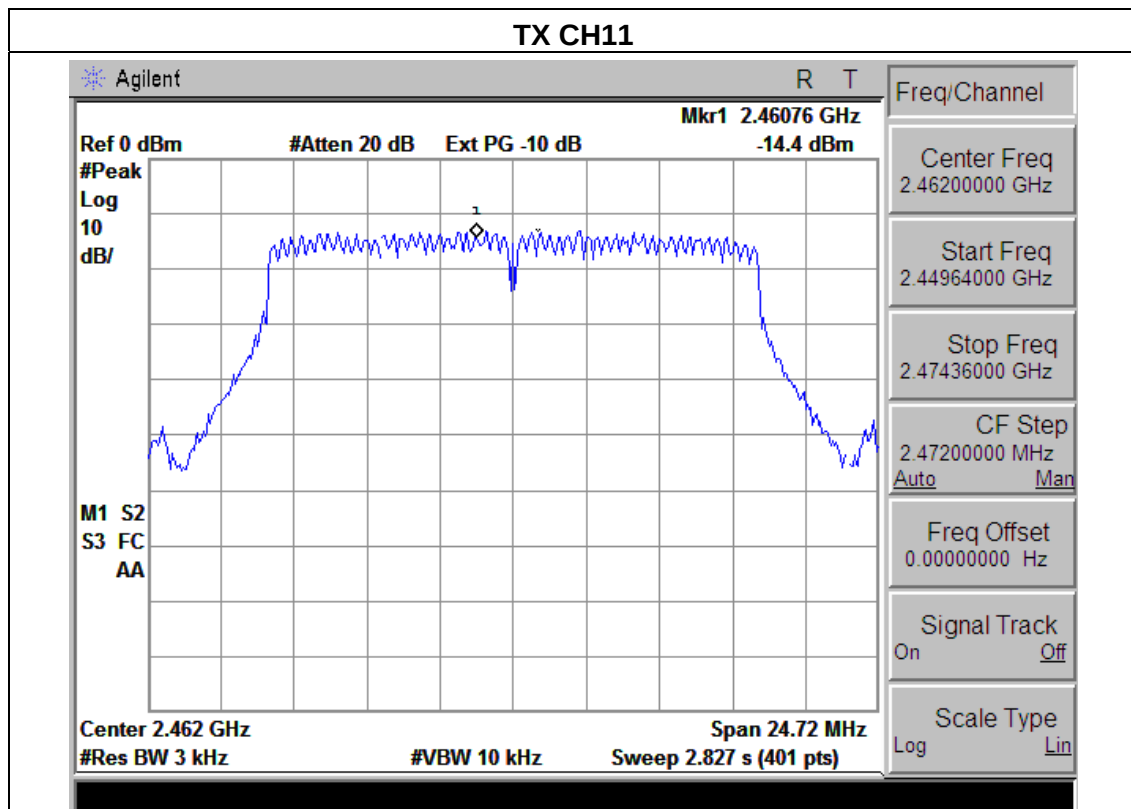
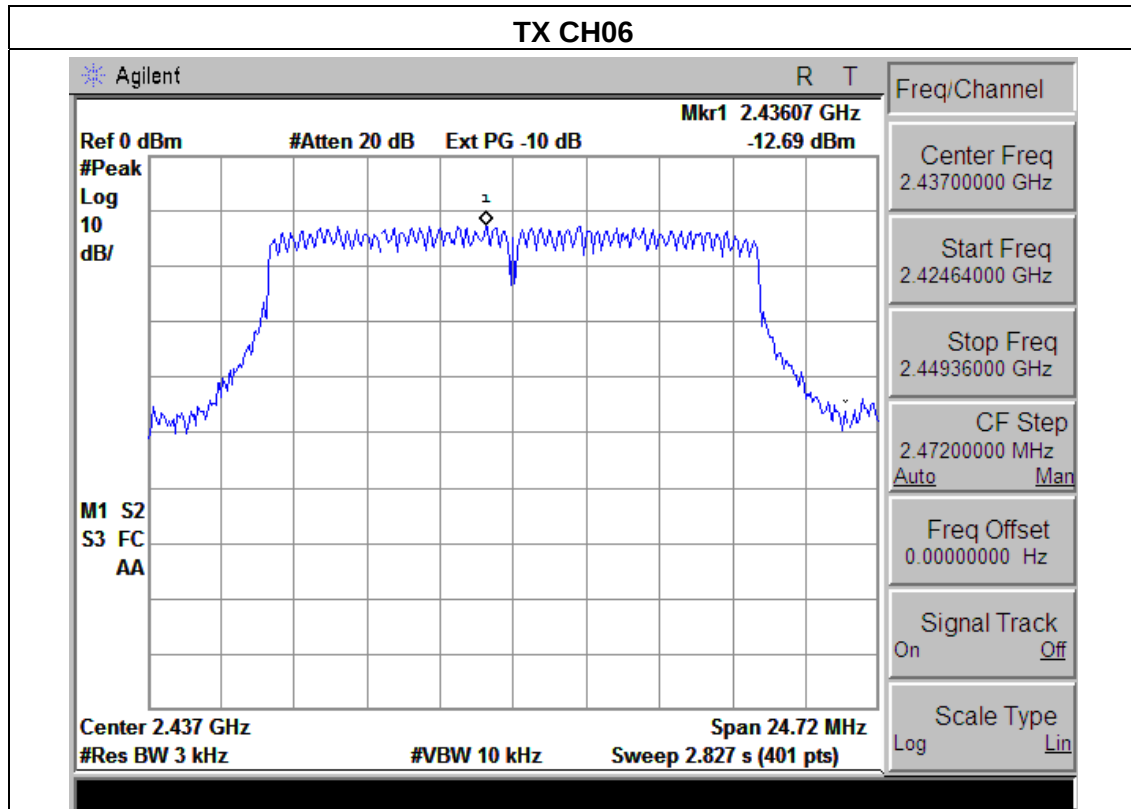
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	Power Density A (dBm)	Power Density B (dBm)	Limit (dBm)	Result
2412 MHz	-12.91	-13.76	0.98	PASS
2437 MHz	-12.69	-13.86	0.98	PASS
2462 MHz	-14.40	-13.96	0.98	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 2.4G mode , Limit = $8-13.02+6=0.98$ dBm for output power.



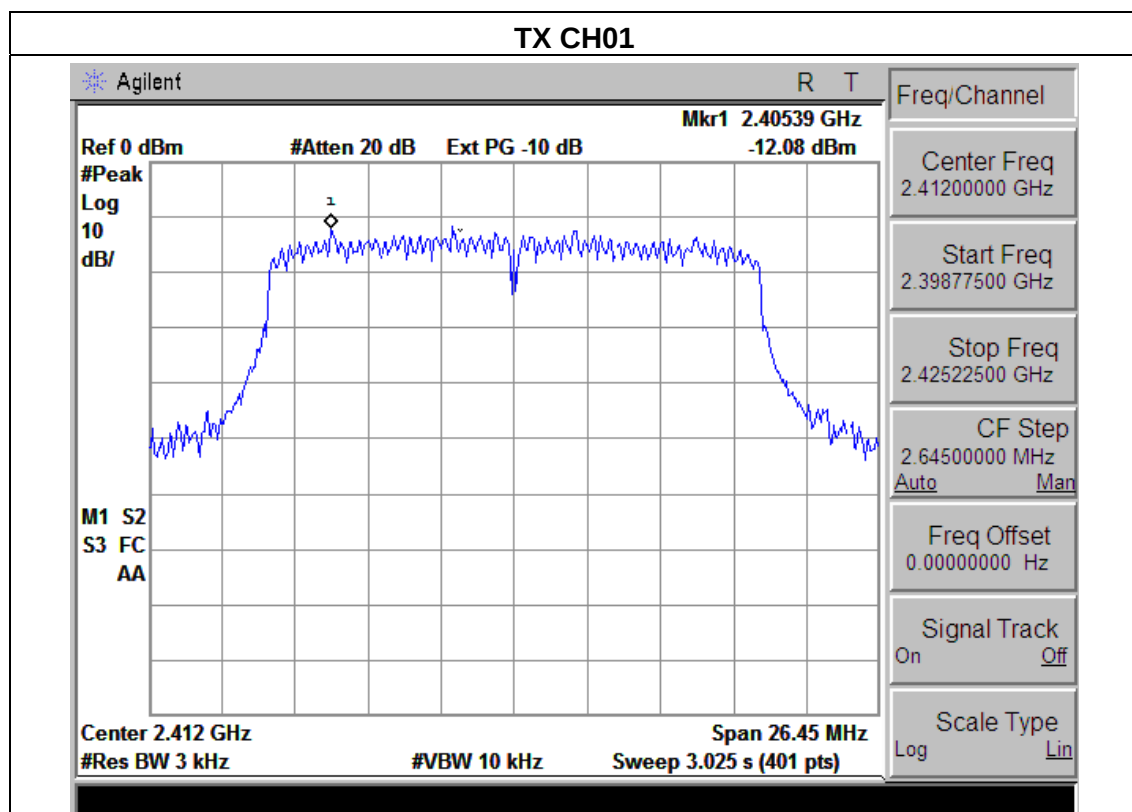


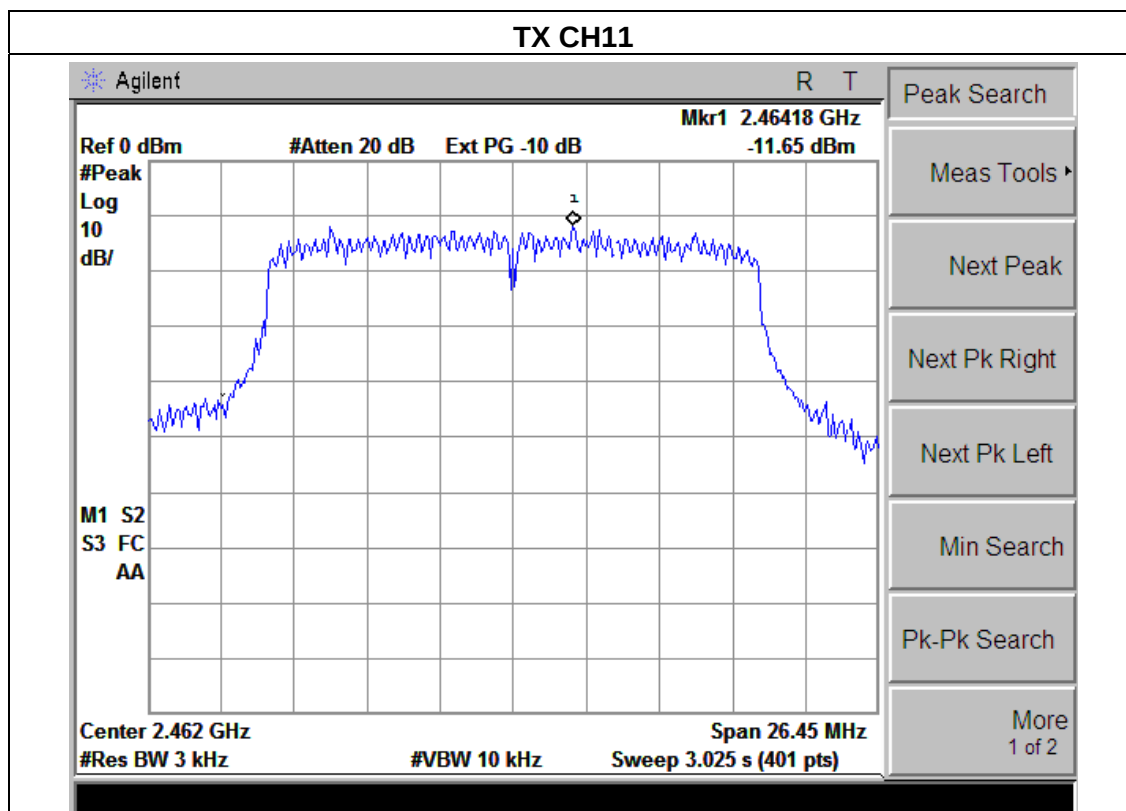
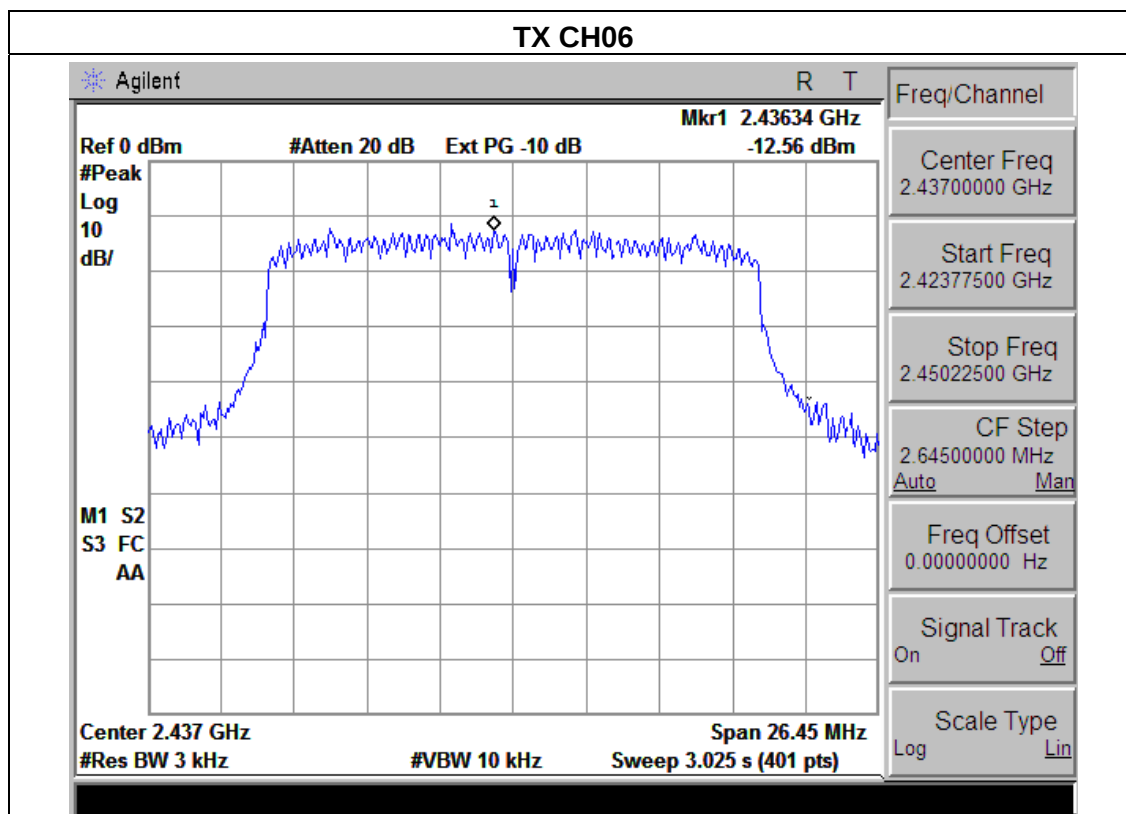
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n Mode (20MHz)/CH01, CH06, CH11		

Frequency	Power Density A (dBm)	Power Density B (dBm)	Limit (dBm)	Result
2412 MHz	-12.08	-13.74	0.98	PASS
2437 MHz	-12.56	-13.43	0.98	PASS
2462 MHz	-11.65	-12.56	0.98	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 2.4G mode , Limit = $-8-13.02+6=0.98$ dBm for output power.



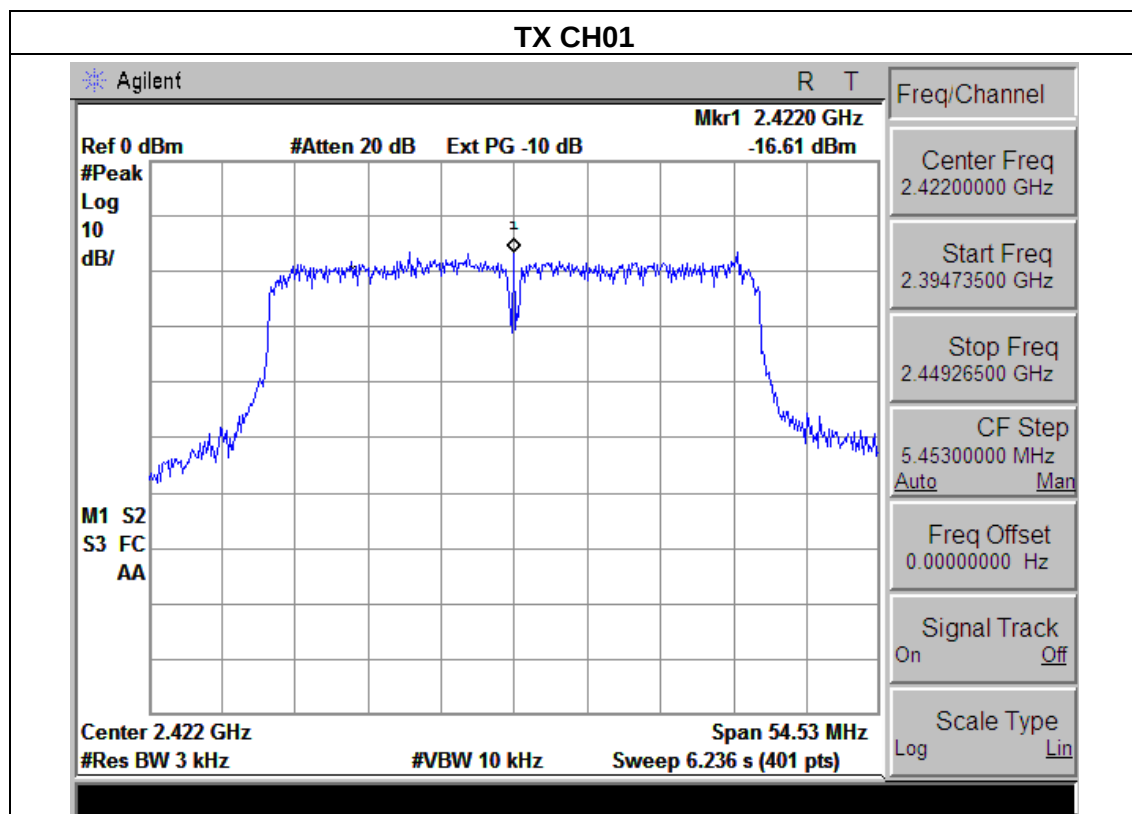


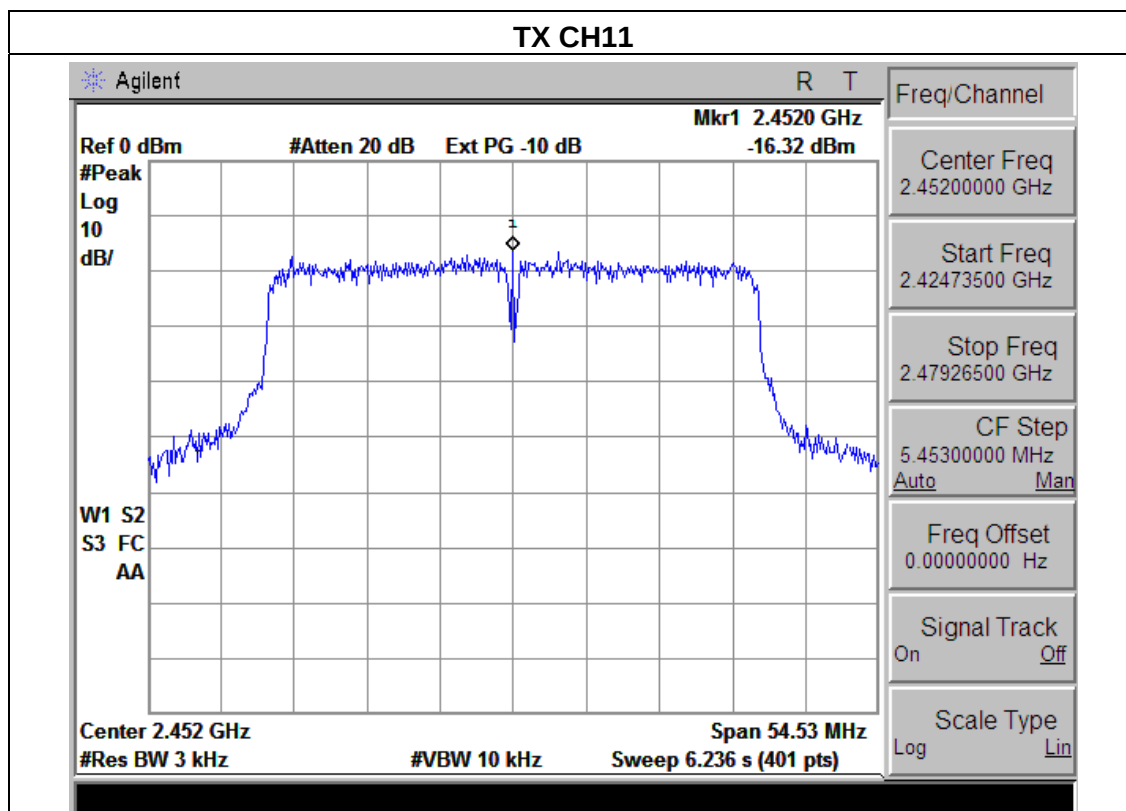
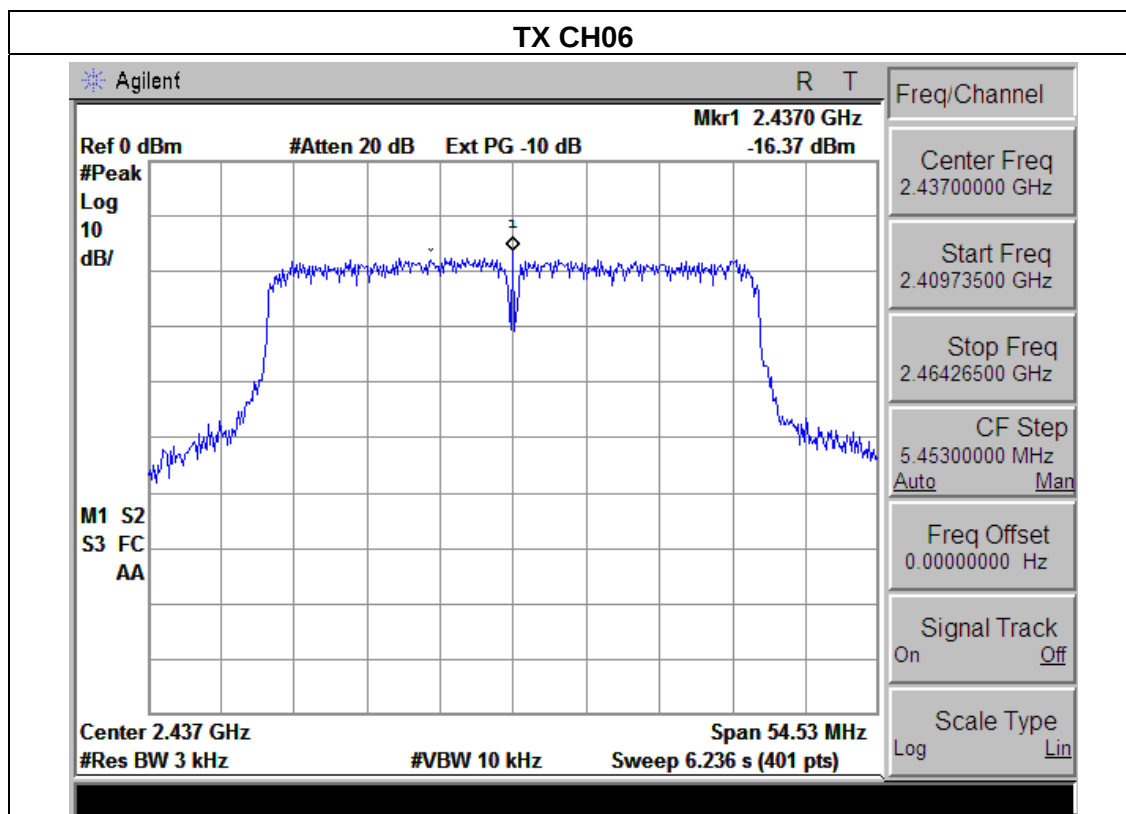
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n Mode (40MHz)/CH01, CH06, CH11		

Frequency	Power Density A (dBm)	Power Density B (dBm)	Limit (dBm)	Result
2412 MHz	-16.61	-17.94	0.98	PASS
2437 MHz	-16.37	-17.68	0.98	PASS
2462 MHz	-16.32	-17.54	0.98	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 2.4G mode , Limit = $8-13.02+6=0.98$ dBm for output power.



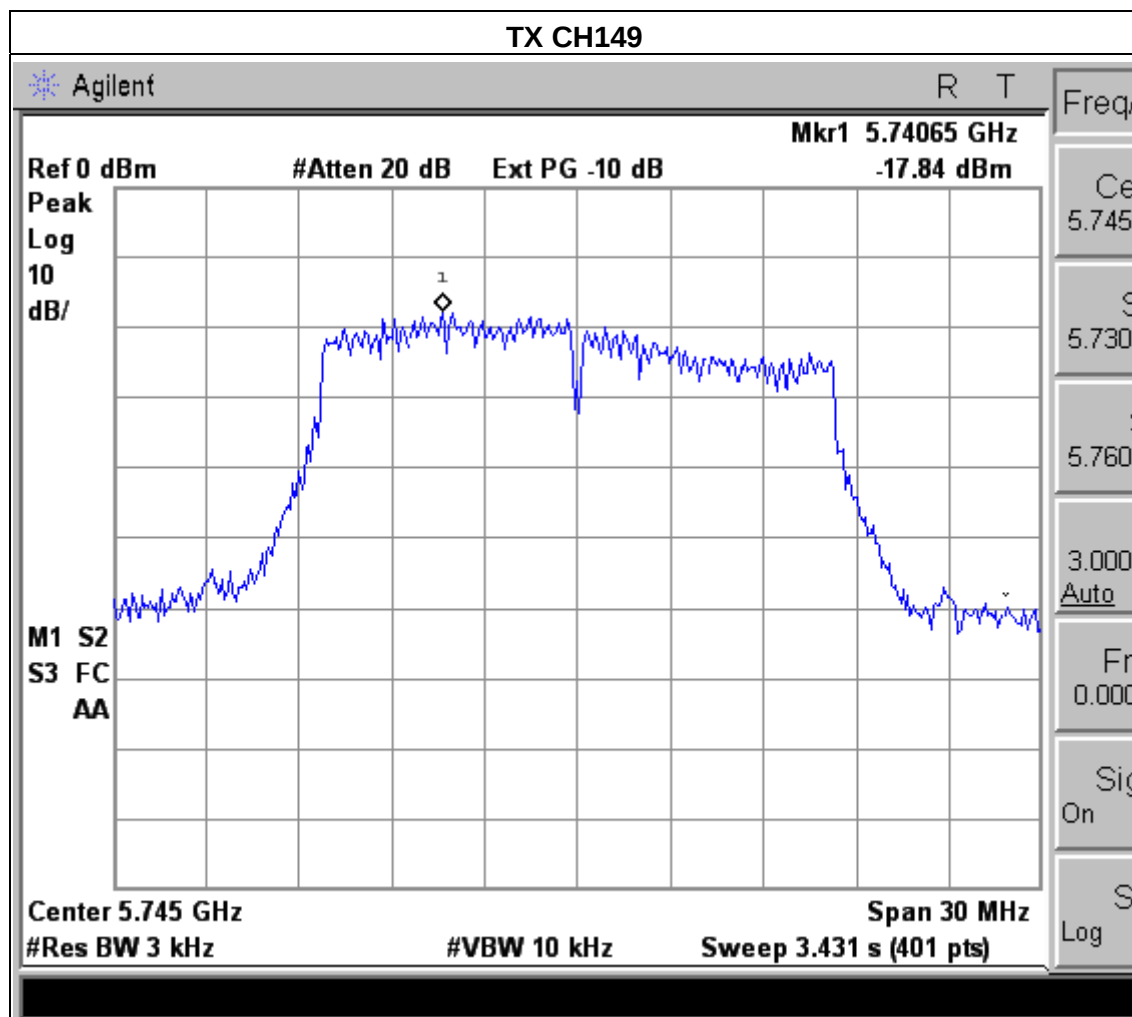


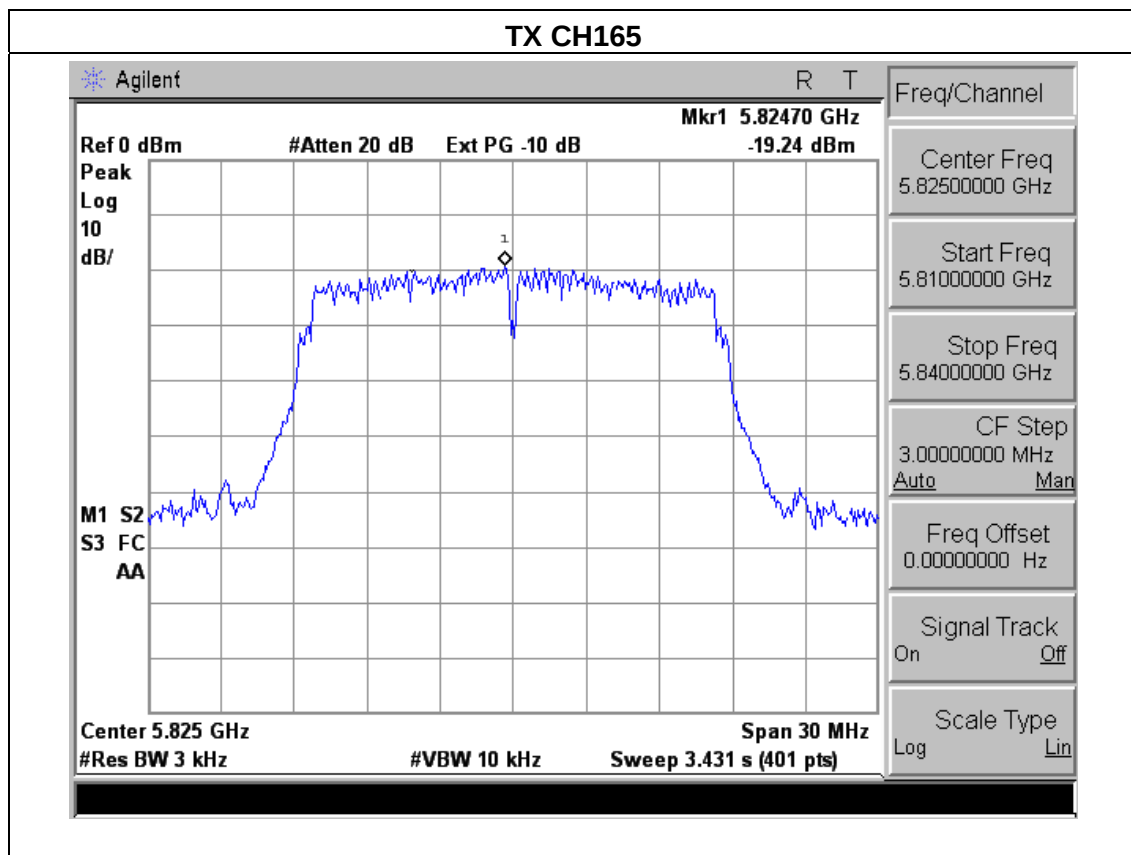
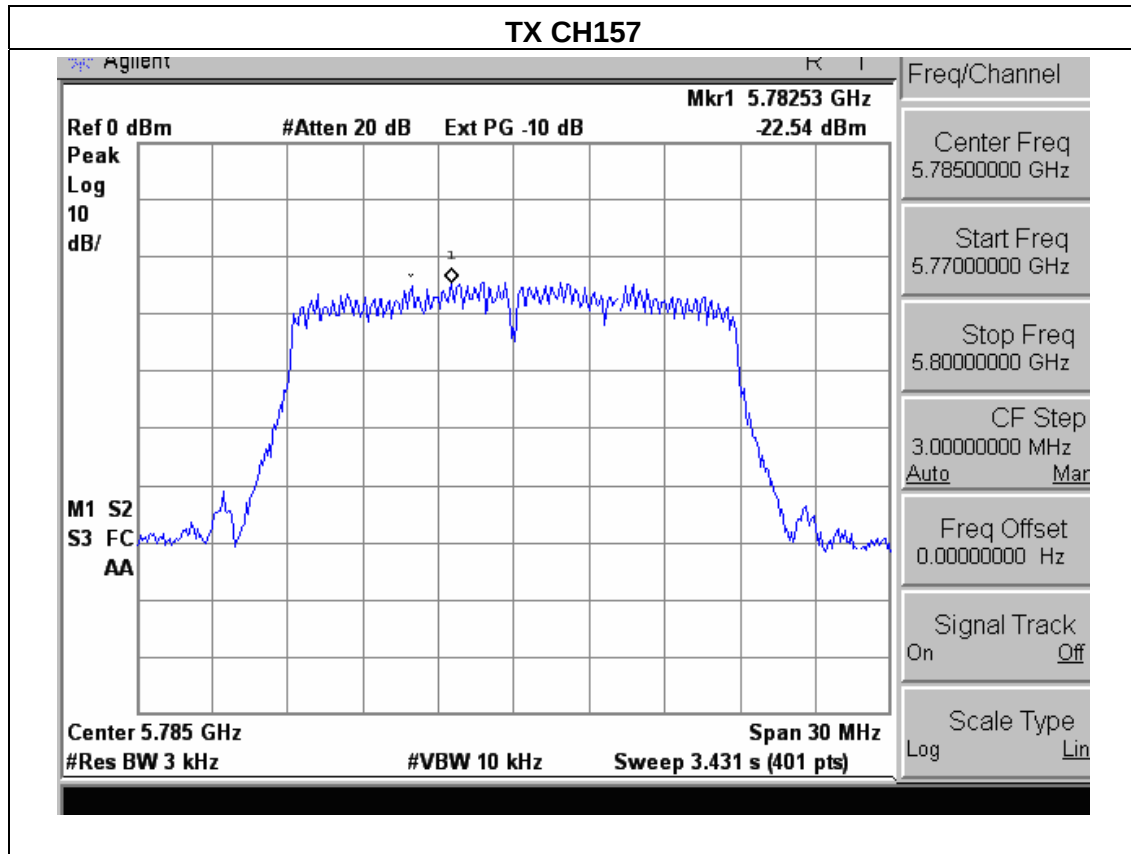
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX a Mode /CH149, CH157, CH165		

Frequency	Power Density A (dBm)	Power Density C (dBm)	Power Density D (dBm)	Limit (dBm)	Result
5745MHz	-17.84	-18.78	-19.87	2.98	PASS
5785 MHz	-22.54	-23.76	-23.56	2.98	PASS
5825 MHz	-19.24	-20.56	-20.87	2.98	PASS

Note: A C D Represent the value of antenna A and C,D,The worst data is A Antenna a ,only shown Antenna A Plot.

For 5G mode , Limit = $8-11.02+6=2.98$ dBm for output power.



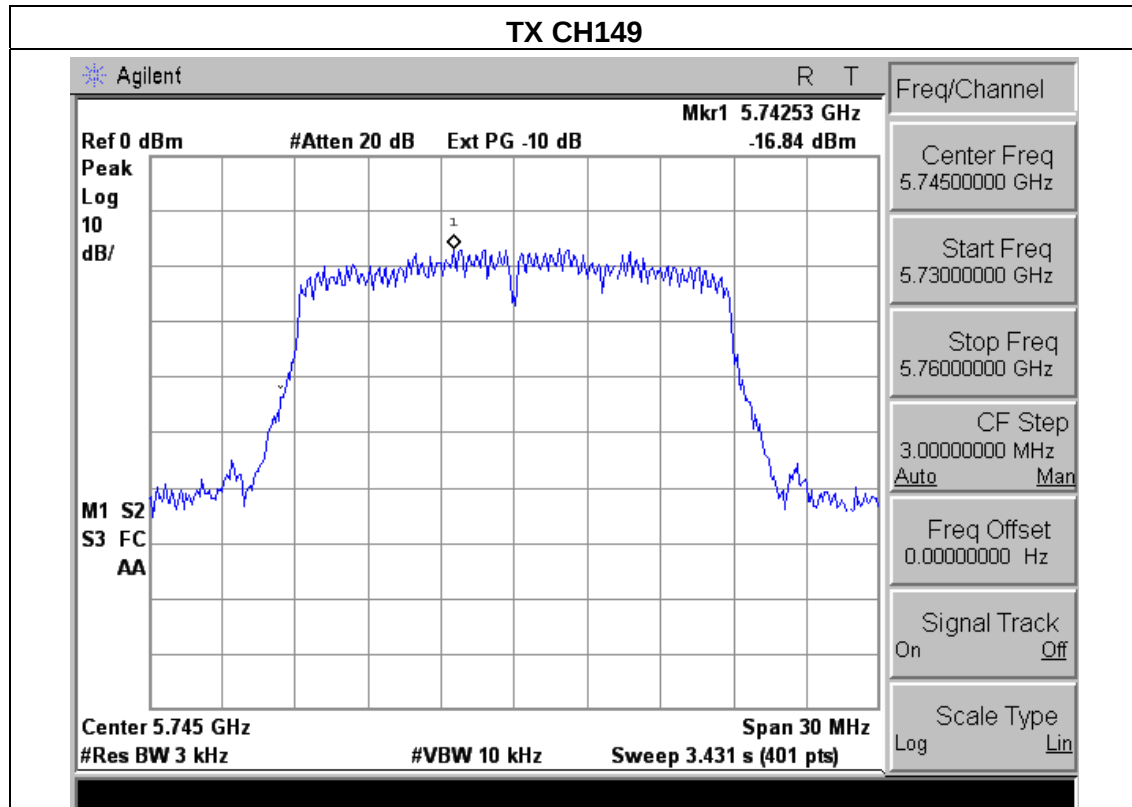


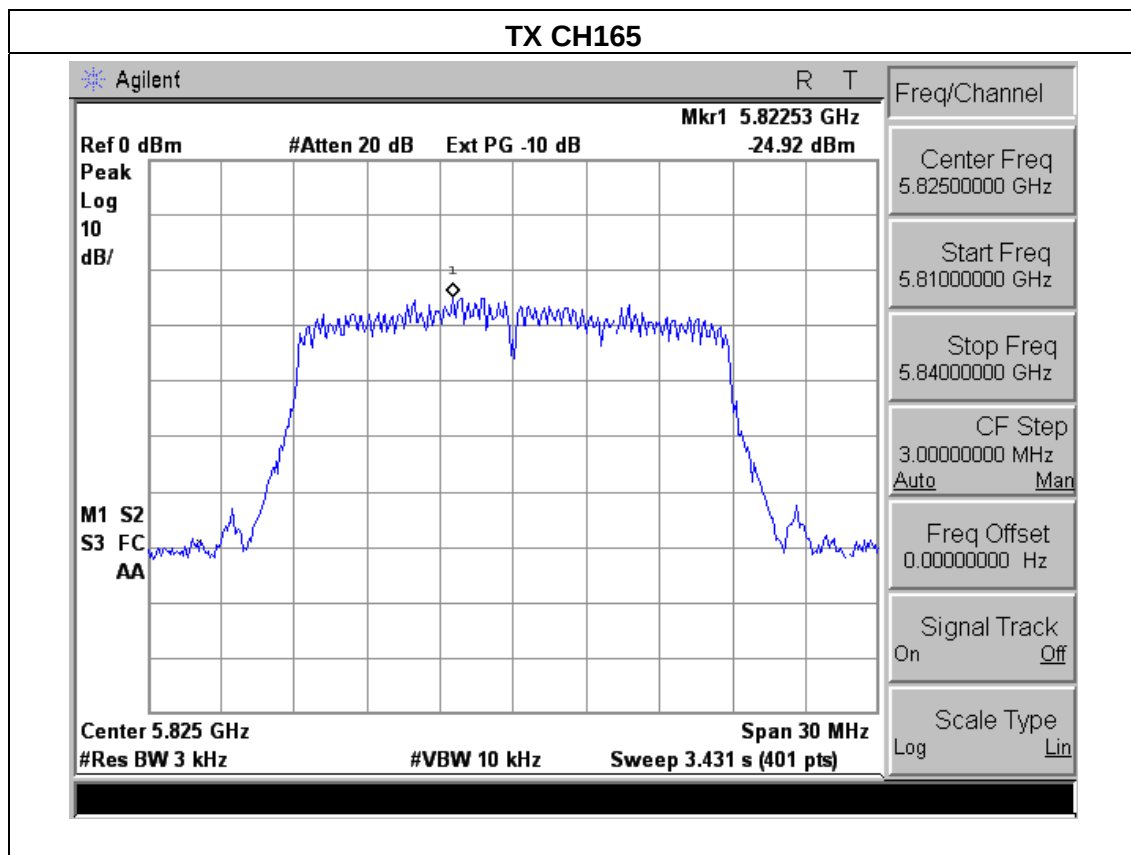
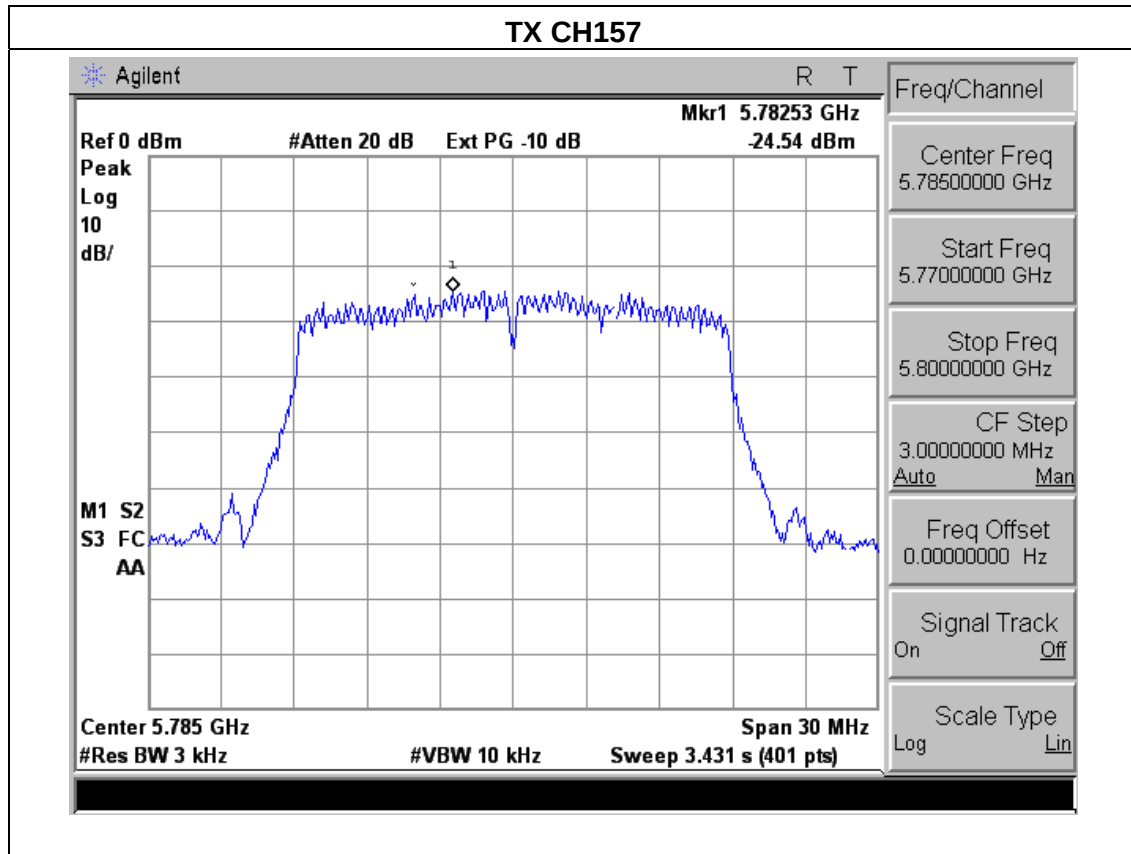
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n(20) Mode(5G) /CH149, CH157, CH165		

Frequency	Power Density A (dBm)	Power Density C (dBm)	Power Density D (dBm)	Limit (dBm)	Result
5745MHz	-16.84	-17.76	-18.84	2.98	PASS
5785 MHz	-24.54	-25.42	-26.76	2.98	PASS
5825 MHz	-24.92	-25.56	-26.74	2.98	PASS

Note: A C D Represent the value of antenna A and C,D,The worst data is A Antenna a ,only shown Antenna A Plot.

For 5G mode , Limit = $8-11.02+6=2.98$ dBm for output power.



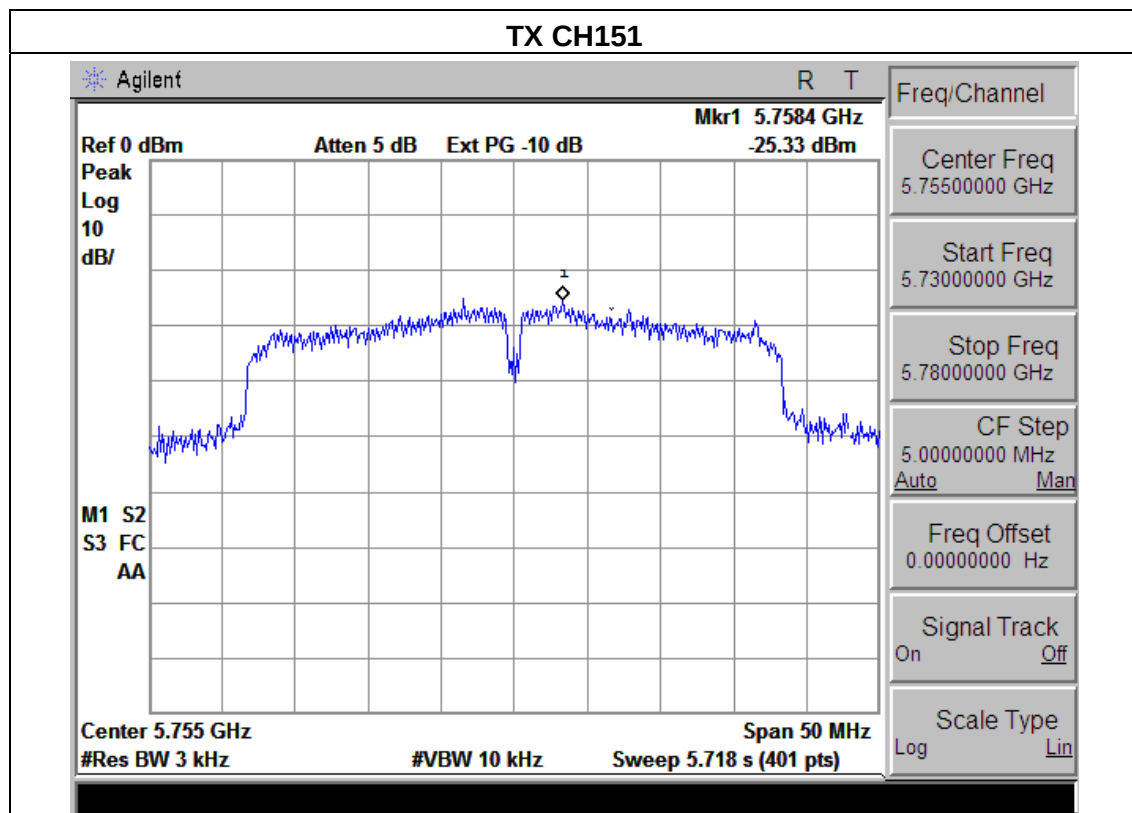


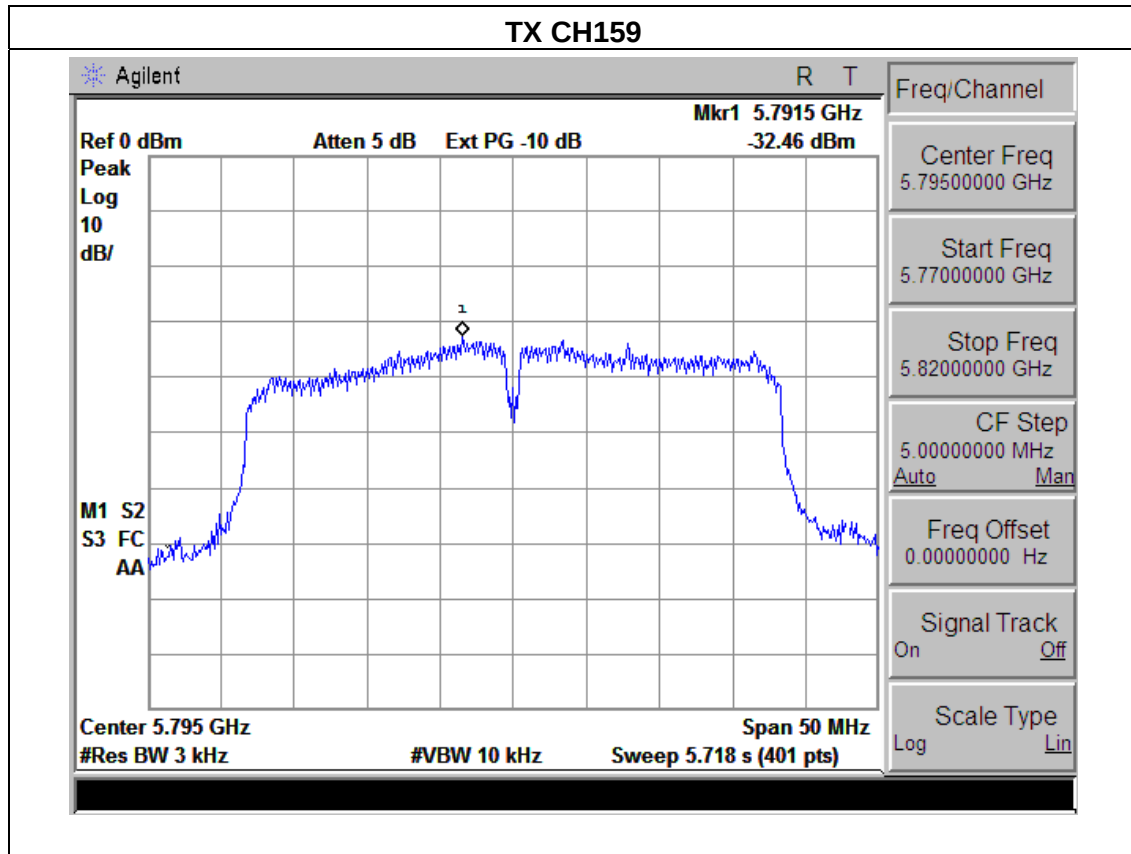
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n40 Mode(5G) /CH151, CH159		

Frequency	Power Density A (dBm)	Power Density C (dBm)	Power Density D (dBm)	Limit (dBm)	Result
5755 MHz	-25.33	-26.86	-27.12	2.98	PASS
5795 MHz	-32.46	-33.56	-33.56	2.98	PASS

Note: A C D Represent the value of antenna A and C,D,The worst data is A Antenna a ,only shown Antenna A Plot.

For 5G mode , Limit = $8-11.02+6=2.98$ dBm for output power.





5. BANDWIDTH TEST

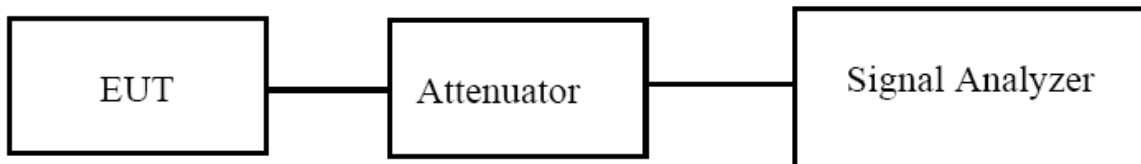
5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

5.1.1 TEST PROCEDURE

According to KDB 558074 D01 DTS Meas Guidance v03r01

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.



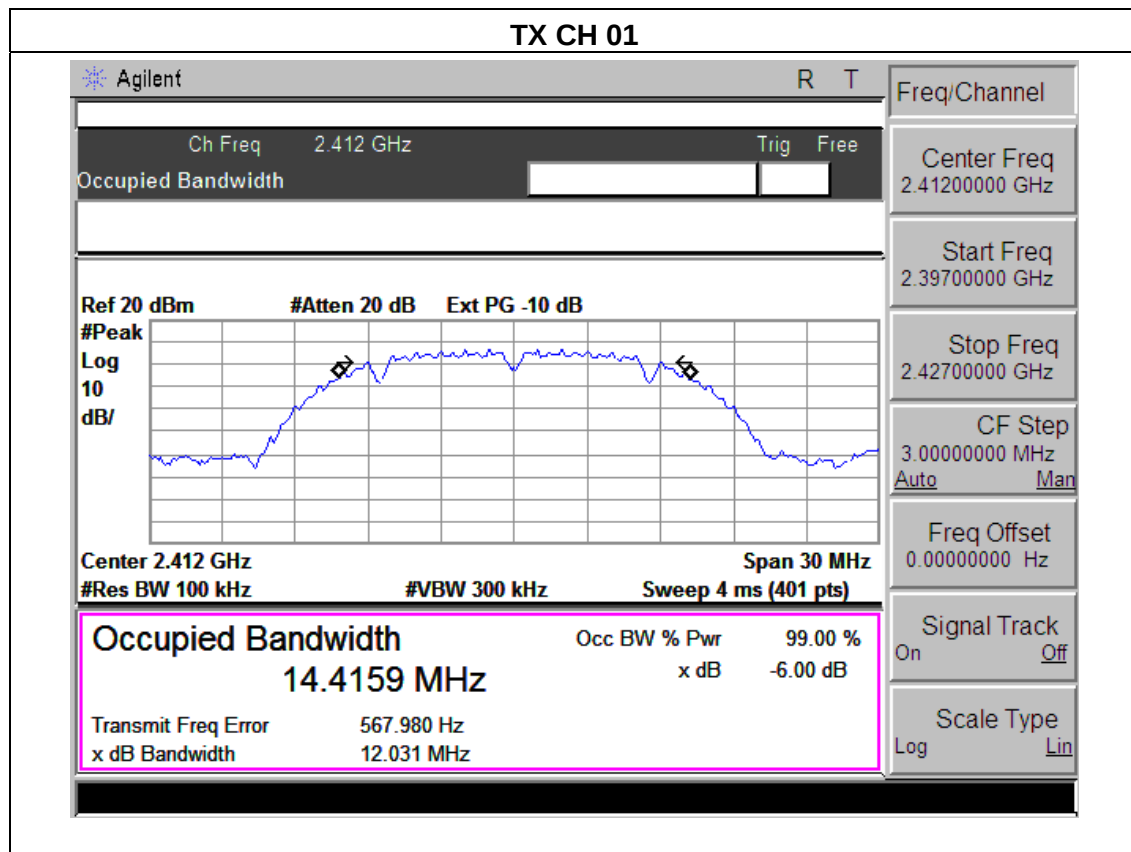
5.1.2 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

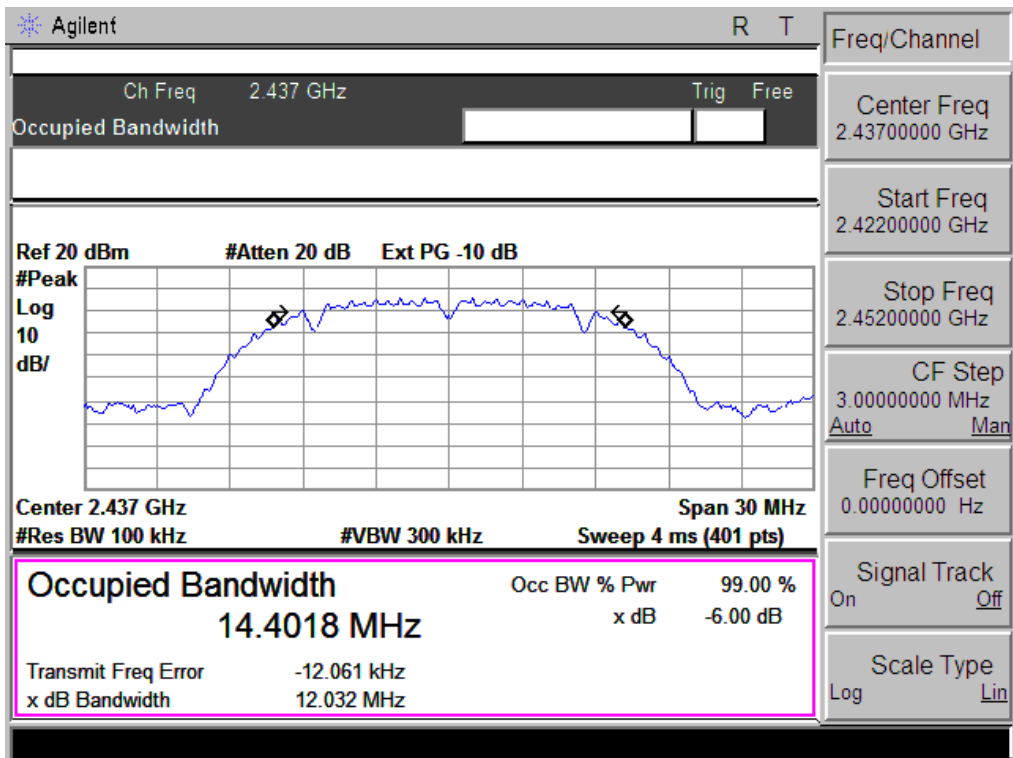
5.1.3 TEST RESULTS

EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX b Mode /CH01, CH06, CH11		

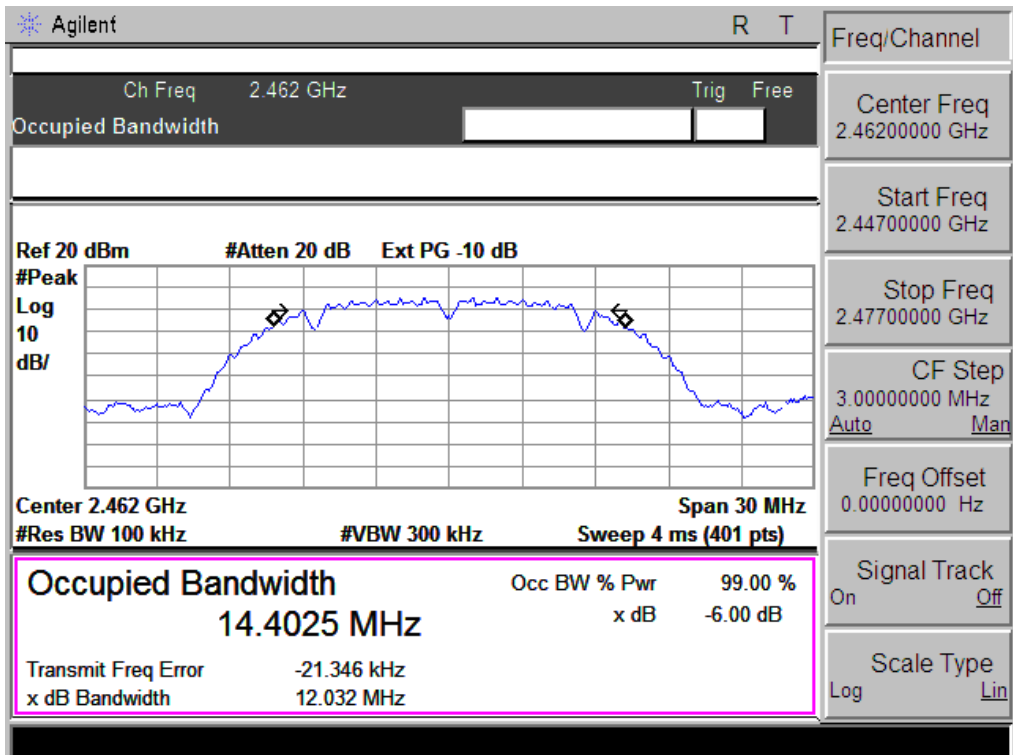
Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	12.03	500	Pass
Middle	2437	12.03	500	Pass
High	2462	12.03	500	Pass



TX CH 06



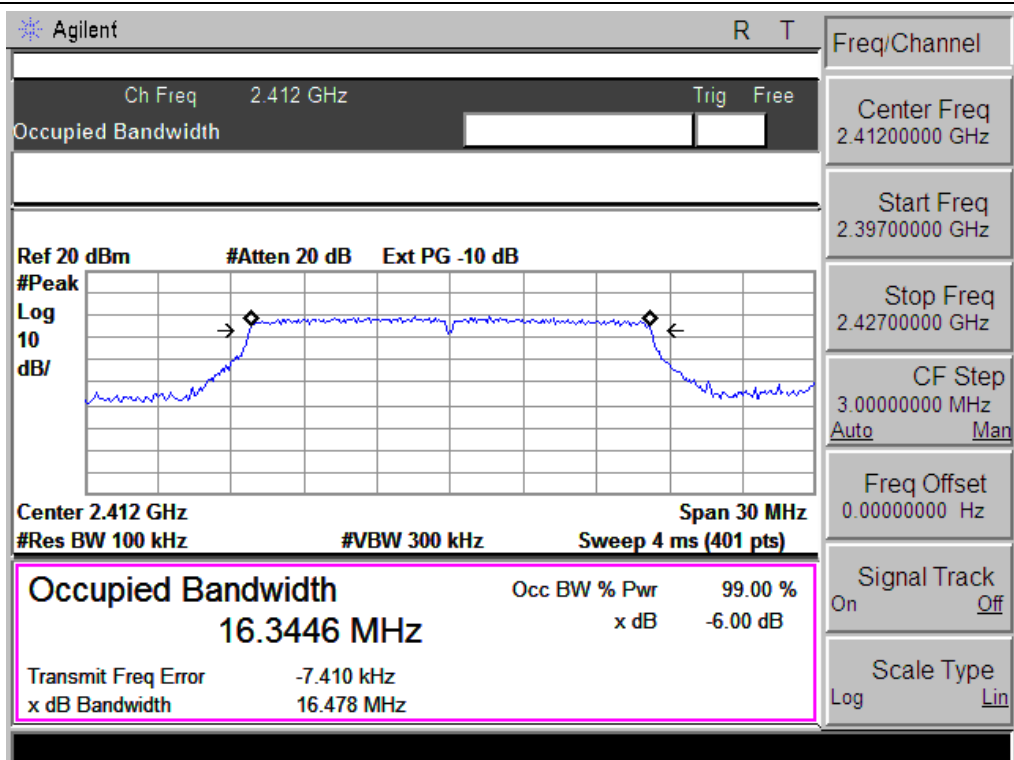
TX CH 11



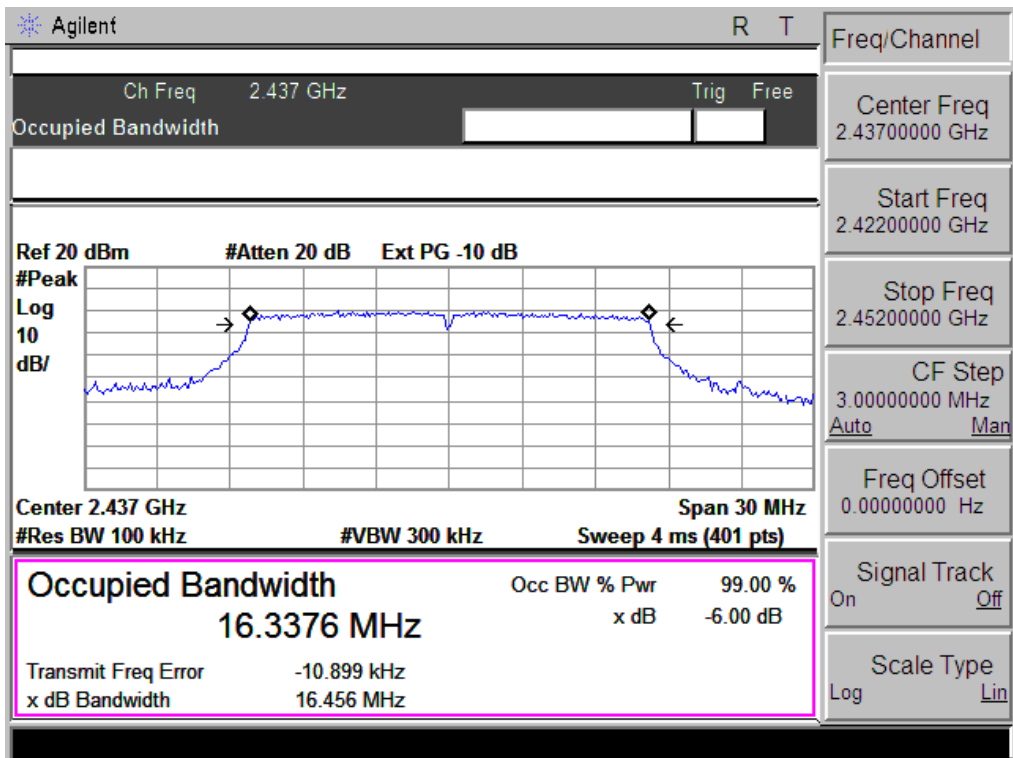
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX g Mode /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.48	500	Pass
Middle	2437	16.46	500	Pass
High	2462	16.48	500	Pass

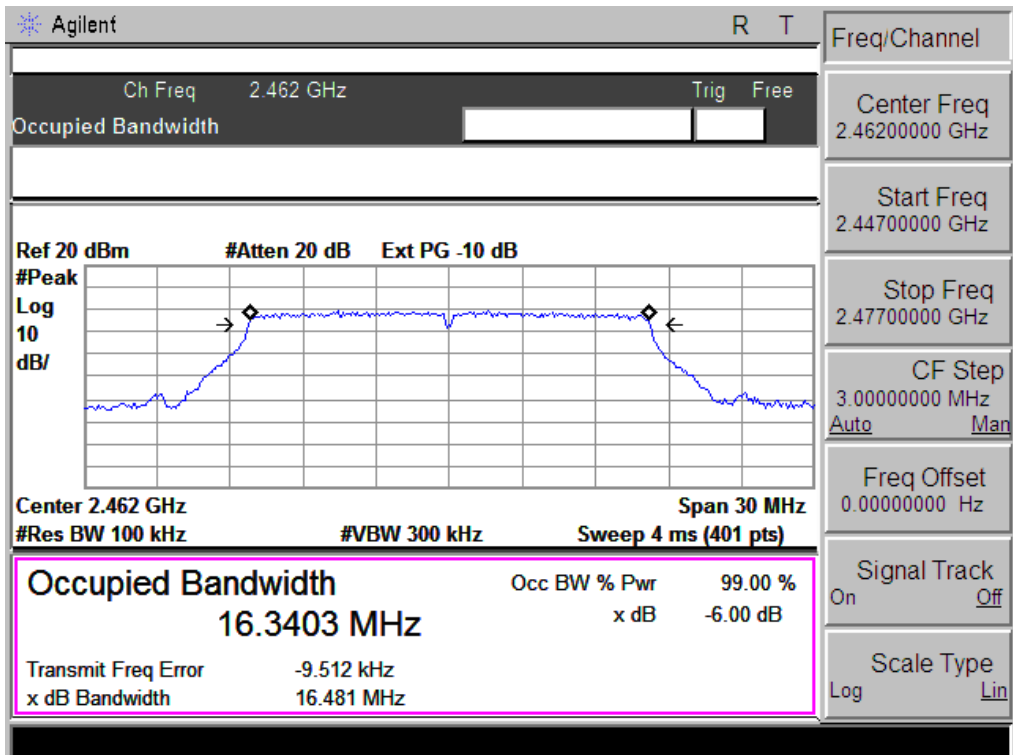
TX CH 01



TX CH 06

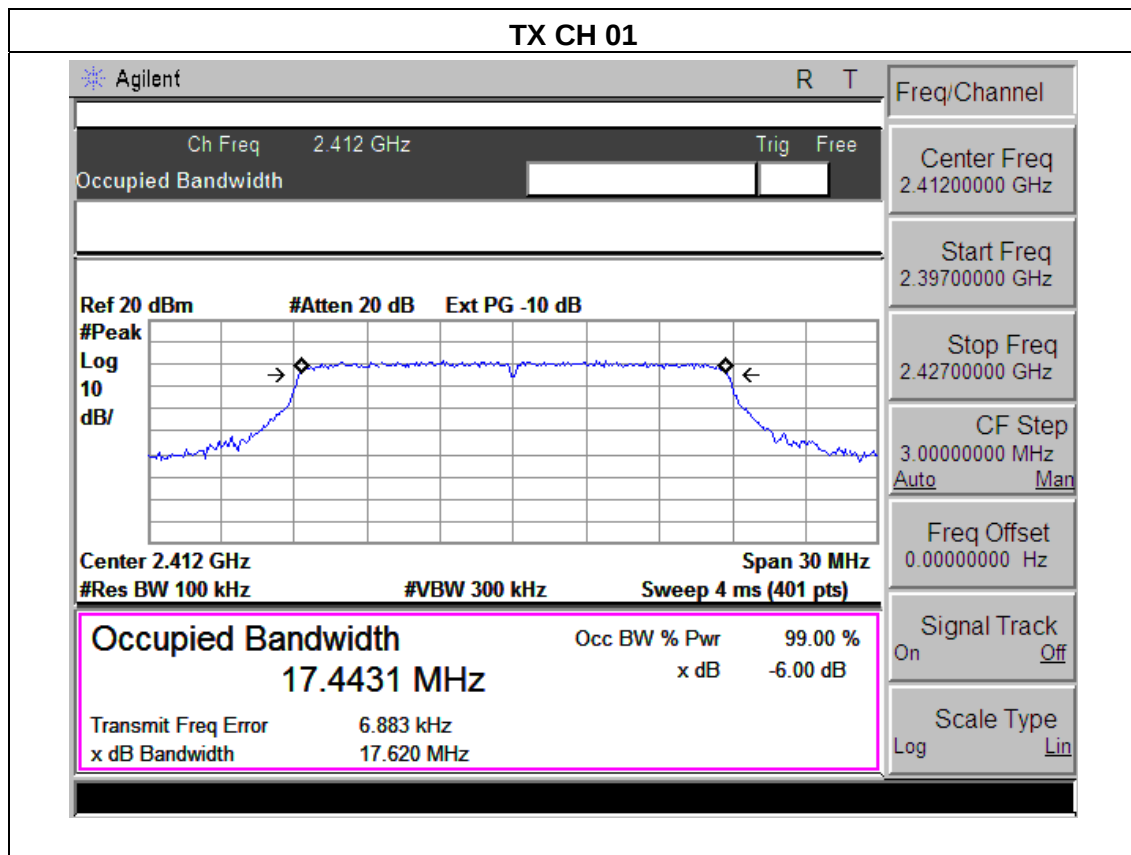


TX CH 11

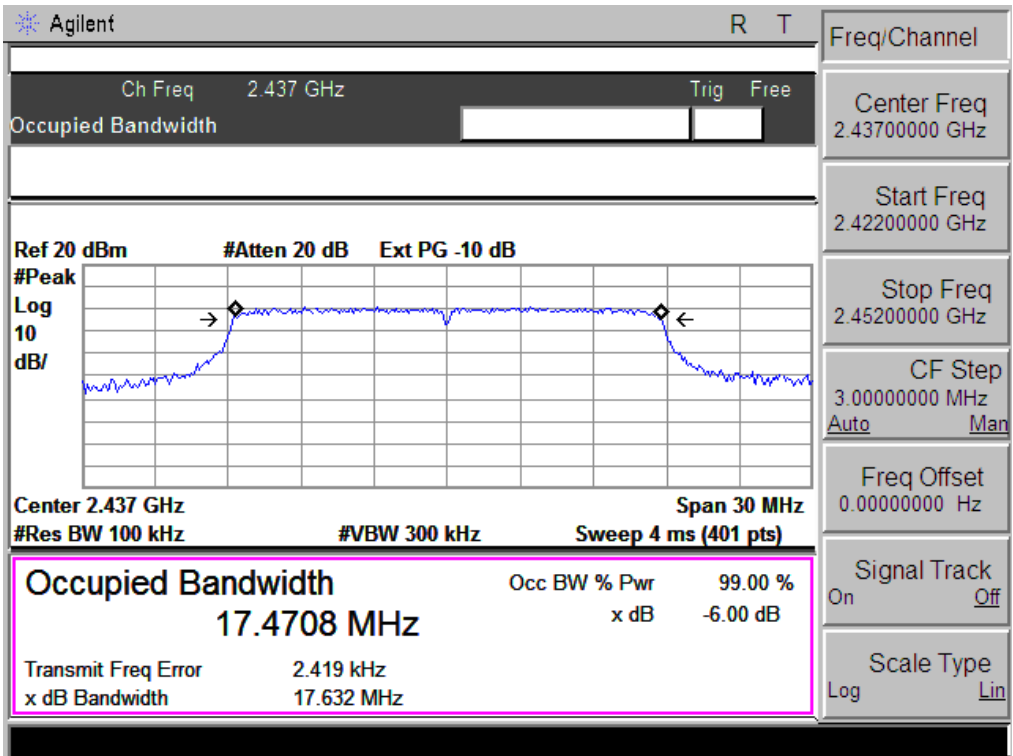


EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n Mode(20M) /CH01, CH06, CH11		

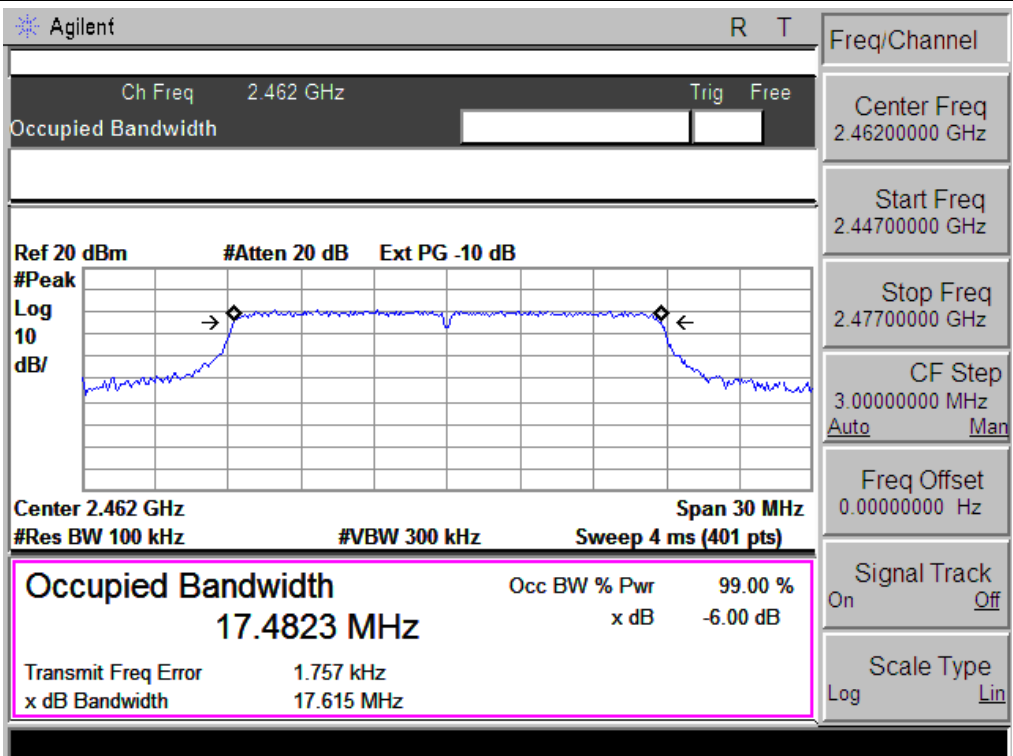
Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.62	500	Pass
Middle	2437	17.63	500	Pass
High	2462	17.62	500	Pass



TX CH 06

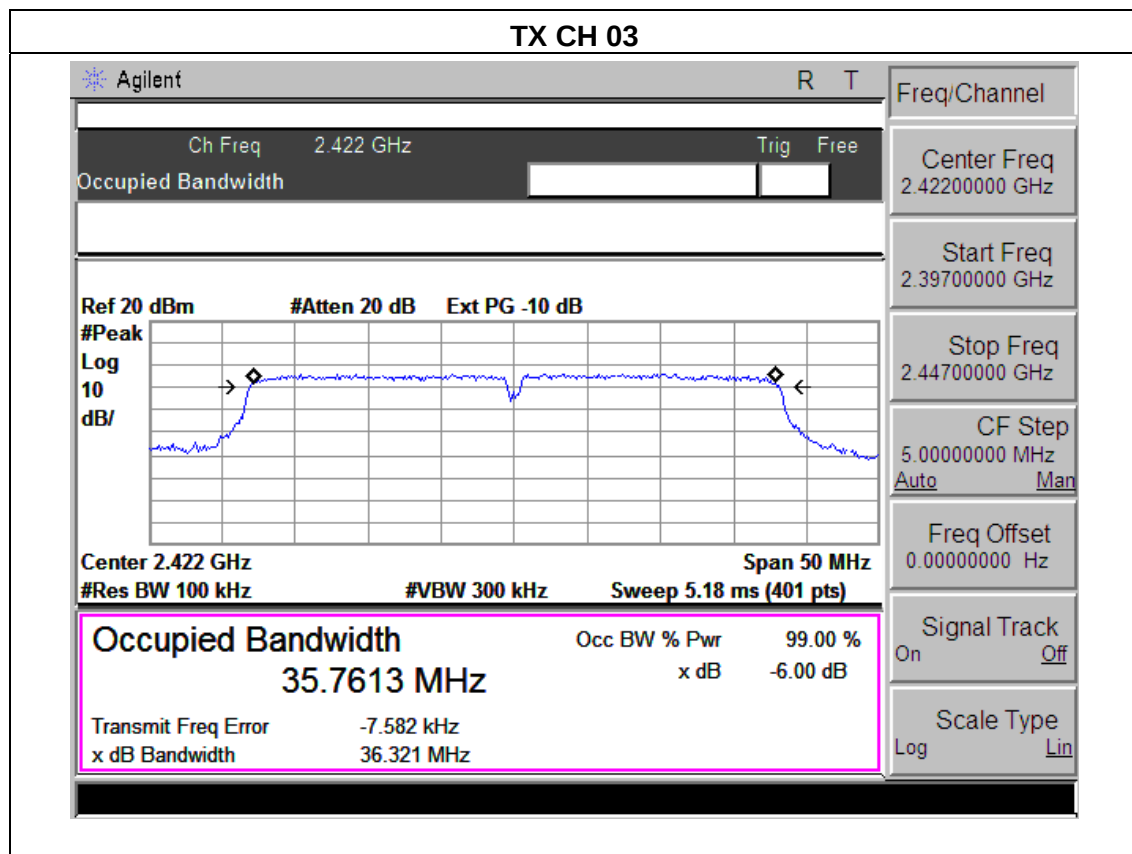


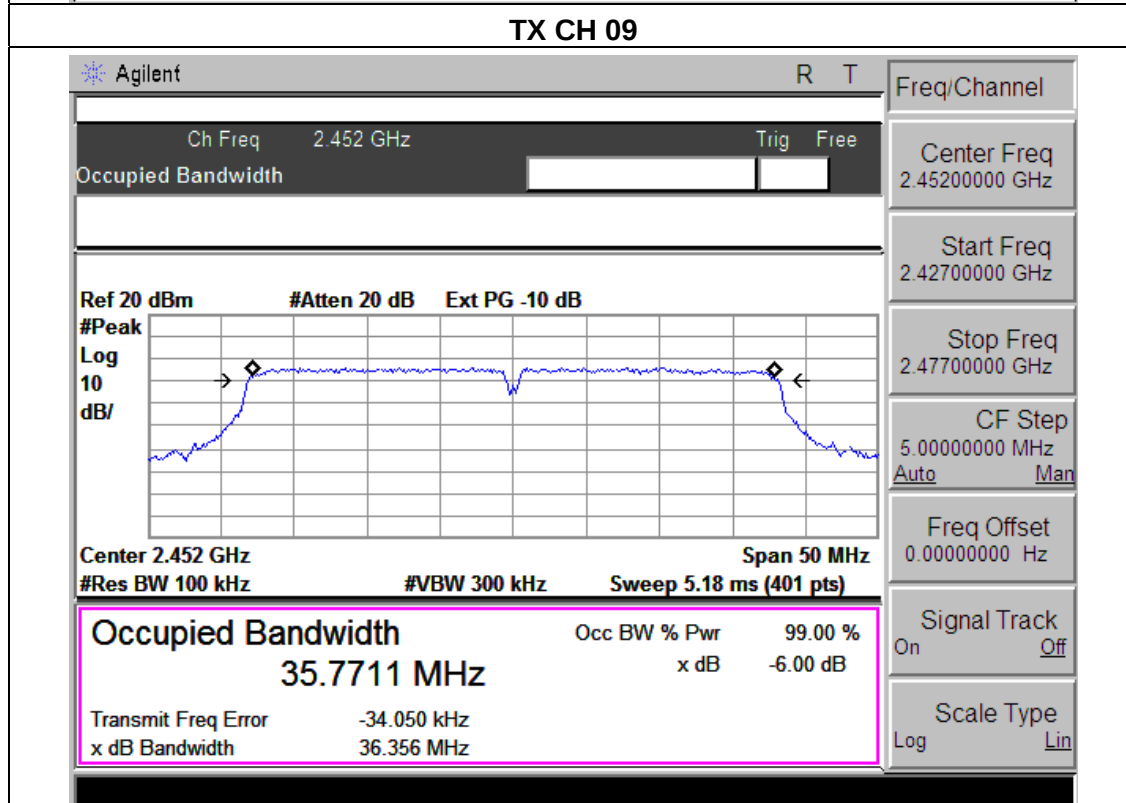
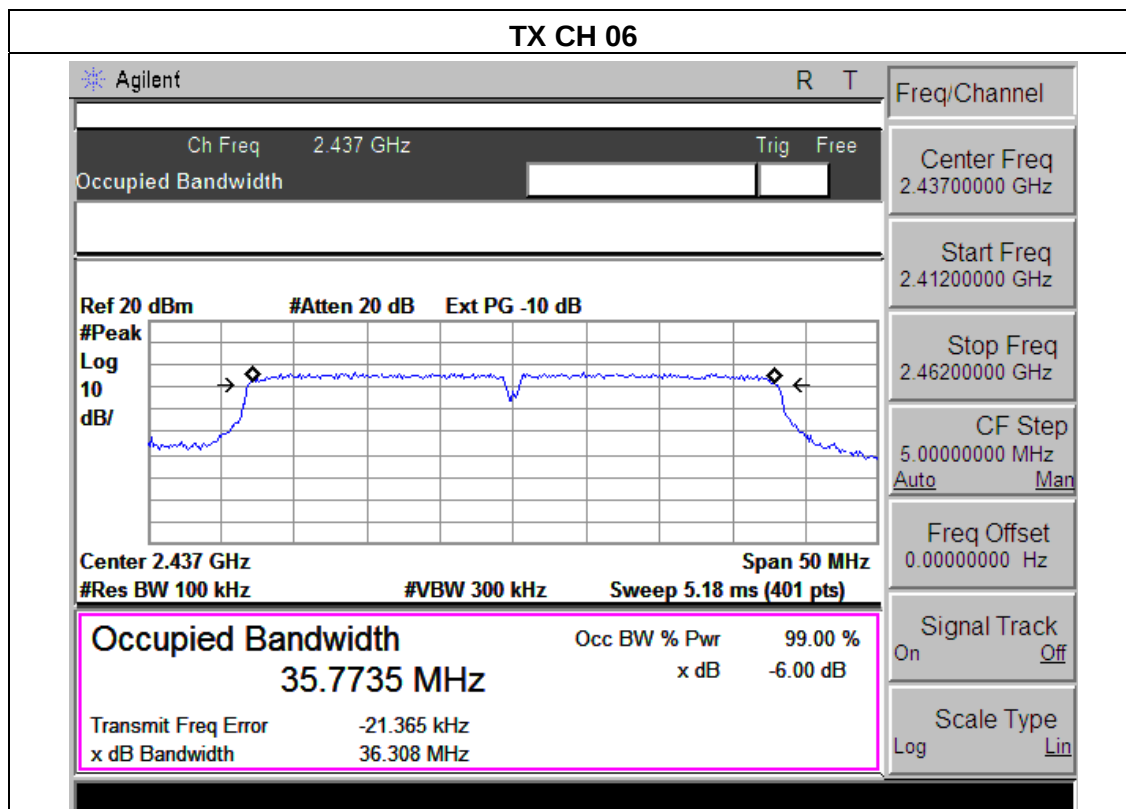
TX CH 11



EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n Mode(40M) /CH03, CH06, CH09		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.32	500	Pass
Middle	2437	36.31	500	Pass
High	2452	36.36	500	Pass

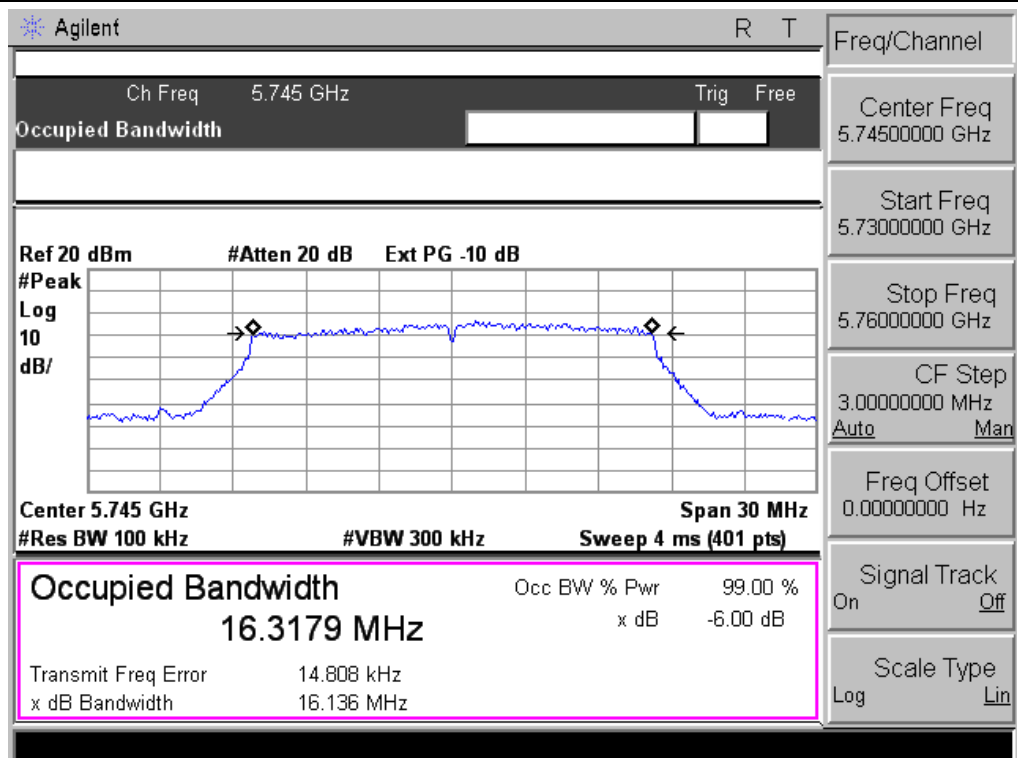




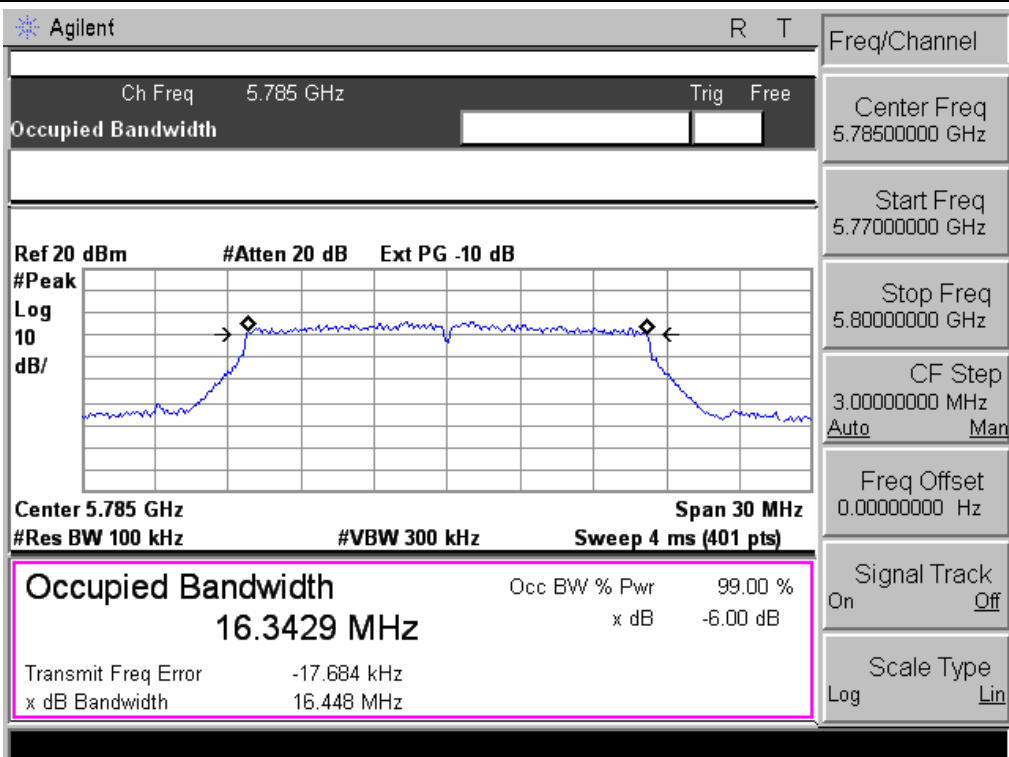
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX a Mode /CH149, CH157, CH165		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.14	500	Pass
Middle	5785	16.45	500	Pass
High	5825	16.45	500	Pass

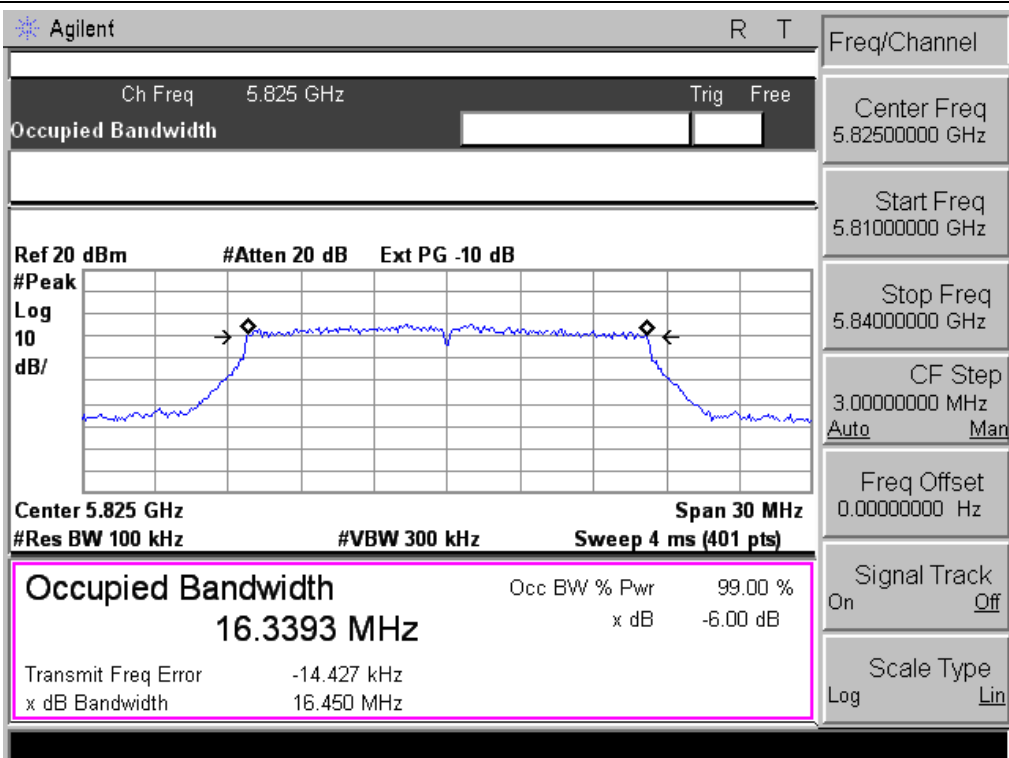
TX CH 149



TX CH 157



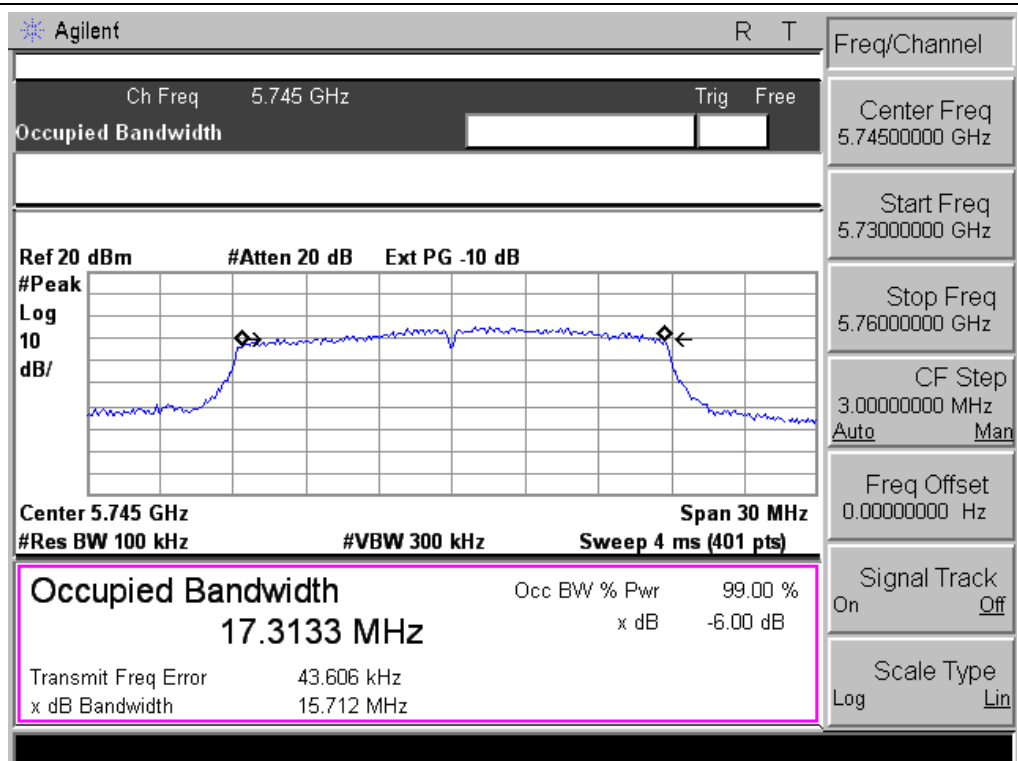
TX CH 165



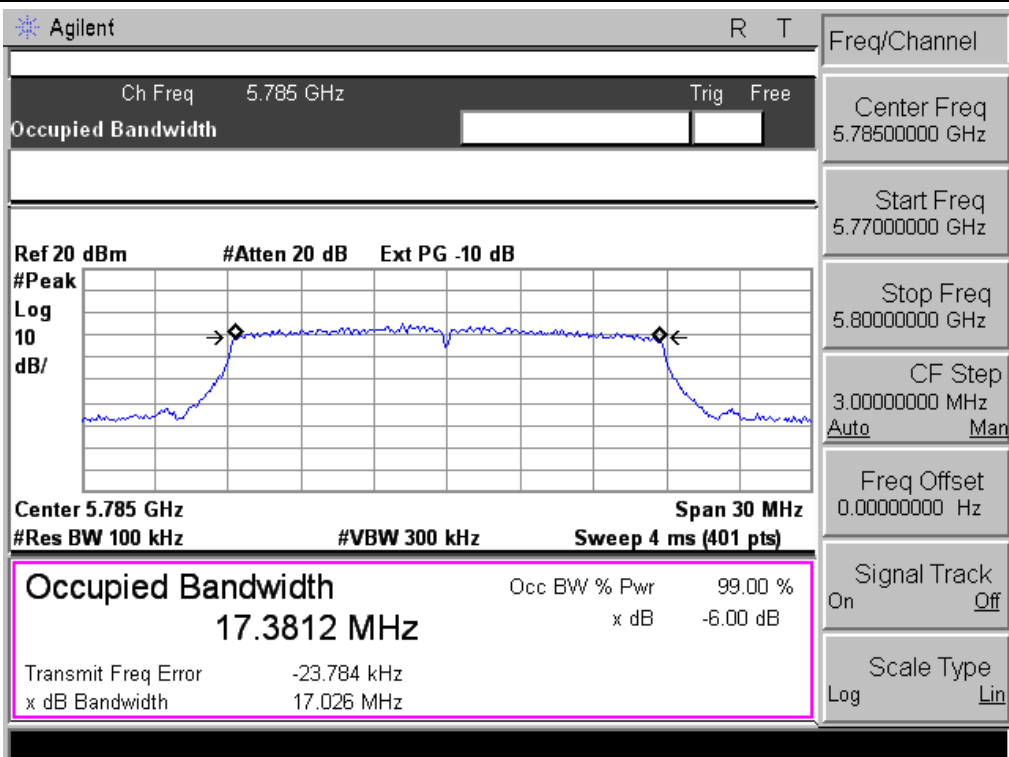
EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n(20) Mode(5G) /CH149, CH157, CH165		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	5745	15.71	500	Pass
Middle	5785	17.03	500	Pass
High	5825	17.03	500	Pass

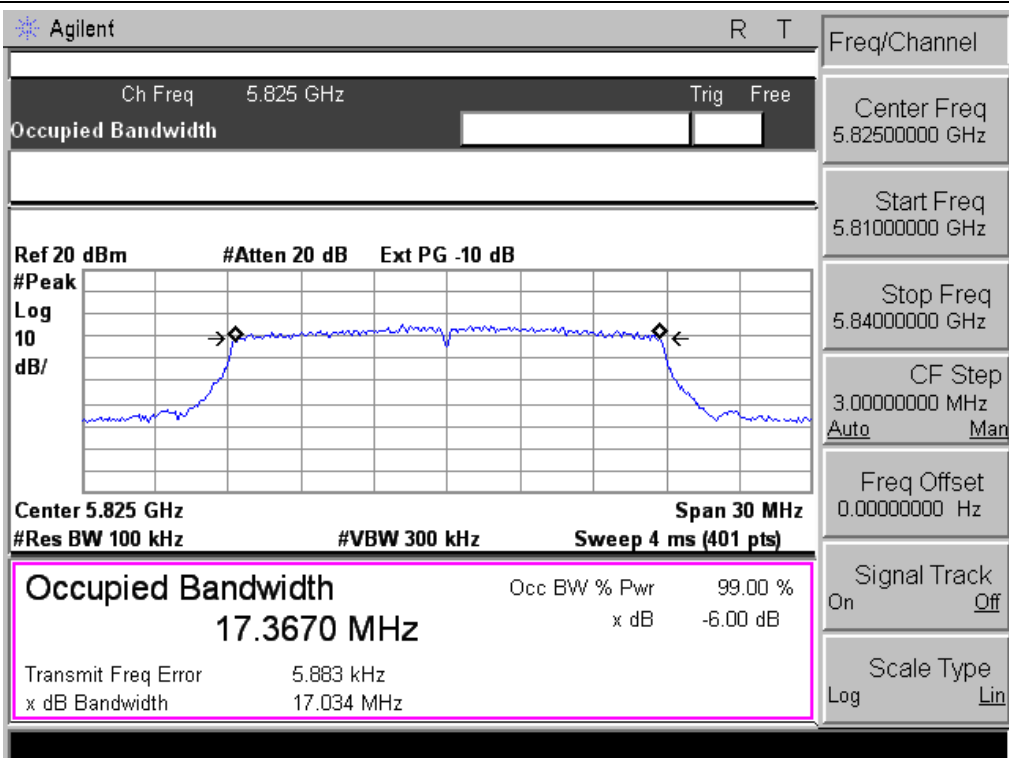
TX CH 149



TX CH 157

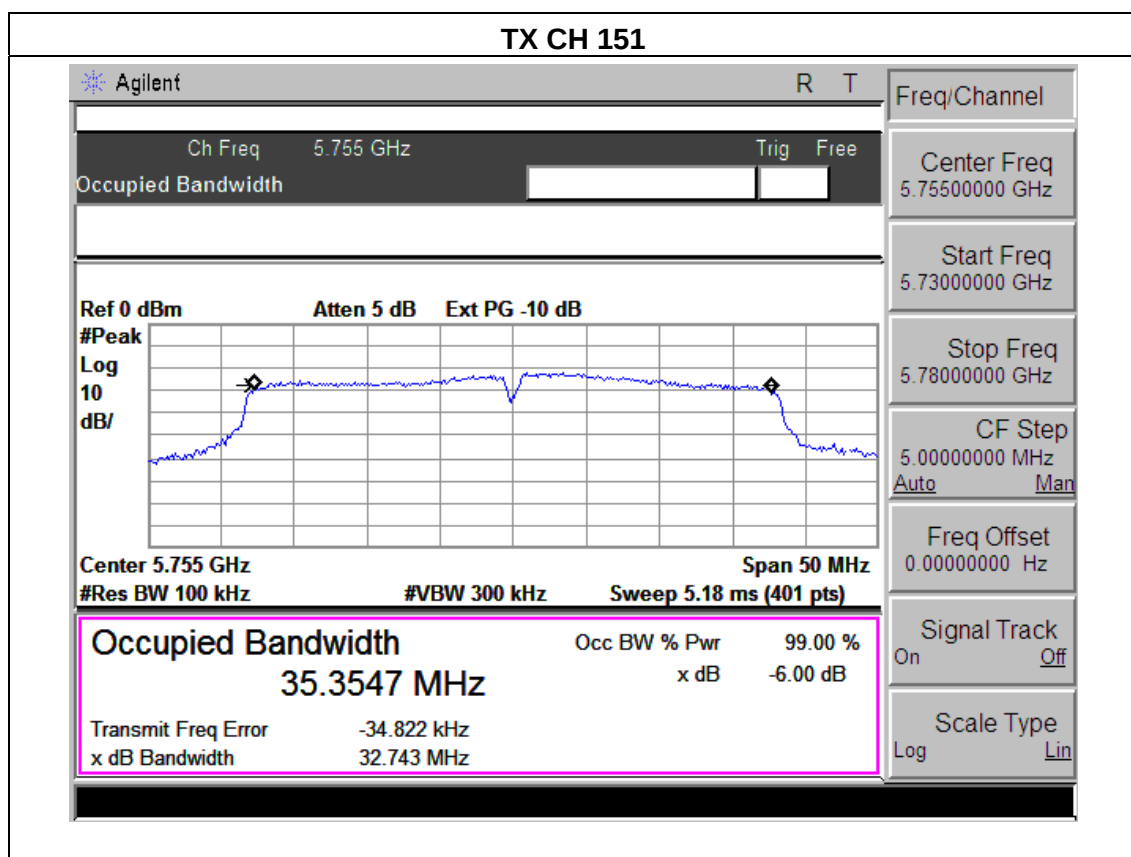


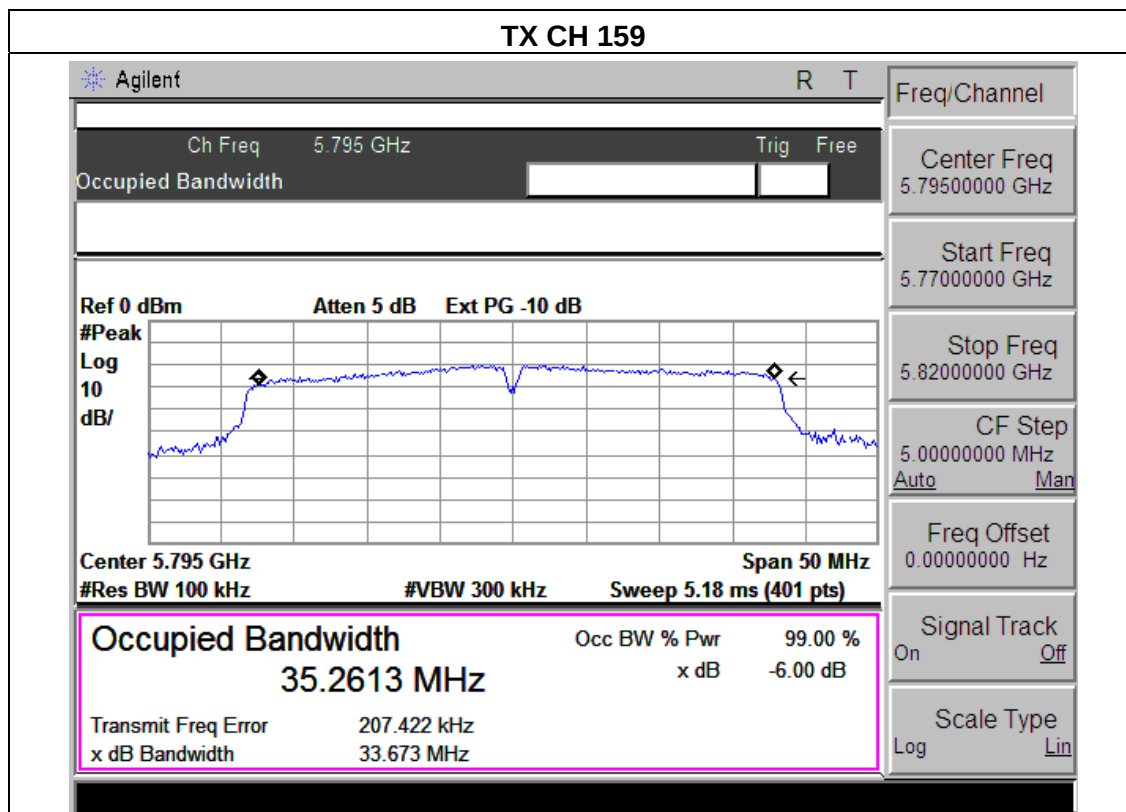
TX CH 165



EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX n40 Mode(5G) /CH151, CH159		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.35	500	Pass
High	5795	35.26	500	Pass





6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

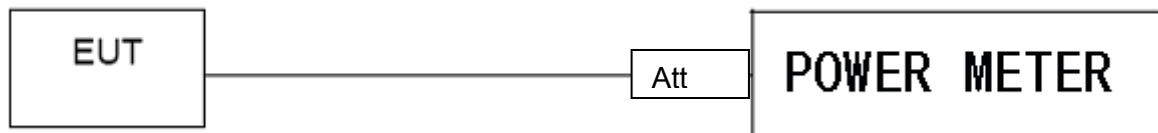
6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX b/g/n(20M, 40M) Mode		

TX 802.11b Mode

Test Channel	Frequency	Peak output power. Antenna A(B) port	Antenna Gain A(B)	EIRP A(B)	Total Power	LIMIT
	(MHz)	(dBm)	dBi	dBm	dBm	dBm
CH01	2412	13.58(12.72)	7.0	20.58(19.72)	23.18	22.98
CH06	2437	13.25(12.35)	7.0	20.25(19.35)	22.83	22.98
CH11	2462	13.50(12.42)	7.0	20.50(19.42)	23.00	22.98

TX 802.11g Mode

CH01	2412	12.86(11.56)	7.0	19.86(18.56)	22.27	22.98
CH06	2437	12.26(11.64)	7.0	19.26(18.64)	21.97	22.98
CH11	2462	12.57(11.38)	7.0	19.57(18.38)	22.03	22.98

TX 802.11n/20M Mode

CH01	2412	11.34(10.68)	7.0	18.34(17.68)	21.03	22.98
CH06	2437	11.05(10.16)	7.0	18.05(17.16)	20.60	22.98
CH11	2462	11.24(10.43)	7.0	18.24(17.43)	20.86	22.98

TX 802.11n/40M Mode

CH03	2422	12.78(11.76)	7.0	19.78(18.76)	22.31	22.98
CH06	2437	12.39(11.45)	7.0	19.39(18.45)	21.96	22.98
CH09	2452	13.02(11.25)	7.0	20.02(18.25)	22.23	22.98

EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz
Test Mode :	TX a/n(5G) Mode		

TX 802.11a Mode

Test Channe	Frequency	Peak output power. Antenna A(C,D) port	Antenna Gain A(C,D)	EIRP A(C,D)	Total Power	LIMIT
	(MHz)	(dBm)	dBi	dBm	dBm	dBm
CH149	5745	12.09(12.01,11.83)	5.0	17.09(17.01,16.83)	21.75	24.98
CH157	5785	12.54(12.35,12.04)	5.0	17.54(17.35,17.04)	22.09	24.98
CH165	5825	11.80(11.56,11.12)	5.0	16.80(16.56,16.12)	21.27	24.98

TX 802.11n20/5G Mode

CH149	5745	11.79(11.48,11.23)	5.0	16.79(16.48,16.23)	21.28	24.98
CH157	5785	11.22(11.03,11.20)	5.0	16.22(16.03,16.20)	20.92	24.98
CH165	5825	11.45(11.25,11.04)	5.0	16.45(16.25,16.04)	21.02	24.98

TX 802.11n40/5G Mode

CH151	5755	10.09(10.42,10.21)	5.0	15.09(15.42,15.21)	20.01	24.98
CH159	5795	9.89(10.12,10.04)	5.0	14.89(15.12,15.04)	19.79	24.98

For 2.4G mode , Limit =30-13.02+6=22.98dBm for output power.

For 5G mode,Limit =30-11.02+6=24.98 dBm for output power

7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

APPLICABLE STANDARD

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

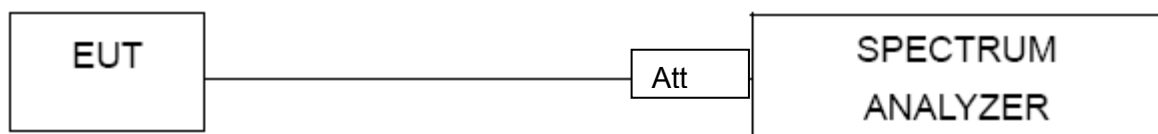
TEST PROCEDURE

- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.

7.1 DEVIATION FROM STANDARD

No deviation.

7.2 TEST SETUP



7.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.4 TEST RESULTS

EUT :	Intelligent Dual Band Gigabit Wireless Router	Model Name :	JHR-N855R
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 12V From Adapter AC120V/60Hz

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
802.11b							
2390	65.64	-13.06	52.58	74	-21.42	peak	Vertical
2390	63.93	-13.06	50.87	74	-23.13	peak	Horizontal
2483.5	61.56	-12.78	48.78	74	-25.22	peak	Vertical
2483.5	64.36	-12.78	51.58	74	-22.42	peak	Horizontal
802.11g							
2390	75.87	-13.06	62.81	74	-11.19	peak	Vertical
2390	57.33	-13.06	44.27	54	-9.73	Av	Vertical
2390	76.54	-13.06	63.48	74	-10.52	peak	Horizontal
2390	54.39	-13.06	41.33	54	-12.67	Av	Horizontal
2483.5	68.35	-12.78	55.57	74	-18.43	peak	Vertical
2483.5	52.77	-12.78	39.99	54	-14.01	Av	Vertical
2483.5	68.11	-12.78	55.33	74	-18.67	peak	Horizontal
2483.5	53.64	-12.78	40.86	54	-13.14	Av	Horizontal
802.11n20							
2390	75.12	-13.06	62.06	74	-11.94	peak	Vertical
2390	56.53	-13.06	43.47	54	-10.53	Av	Vertical
2390	74.82	-13.06	61.76	74	-12.24	peak	Horizontal
2390	53.75	-13.06	40.69	54	-13.31	Av	Horizontal
2483.5	70.03	-12.78	57.25	74	-16.75	peak	Vertical
2483.5	51.53	-12.78	38.75	54	-15.25	Av	Vertical
2483.5	72.58	-12.78	59.8	74	-14.2	peak	Horizontal
2483.5	55.67	-12.78	42.89	54	-11.11	Av	Horizontal
802.11n40							
2390	75.11	-13.06	62.05	74	-11.95	peak	Vertical
2390	54.54	-13.06	41.48	54	-12.52	Av	Vertical
2390	74.05	-13.06	60.99	74	-13.01	peak	Horizontal
2390	50.65	-13.06	37.59	54	-16.41	Av	Horizontal
2483.5	71.29	-12.78	58.51	74	-15.49	peak	Vertical
2483.5	48.86	-12.78	36.08	54	-17.92	Av	Vertical
2483.5	72.88	-12.78	60.1	74	-13.9	peak	Horizontal
2483.5	52.97	-12.78	40.19	54	-13.81	Av	Horizontal
802.11a							
5725	77.12	-13.06	64.06	74	-9.94	peak	Vertical

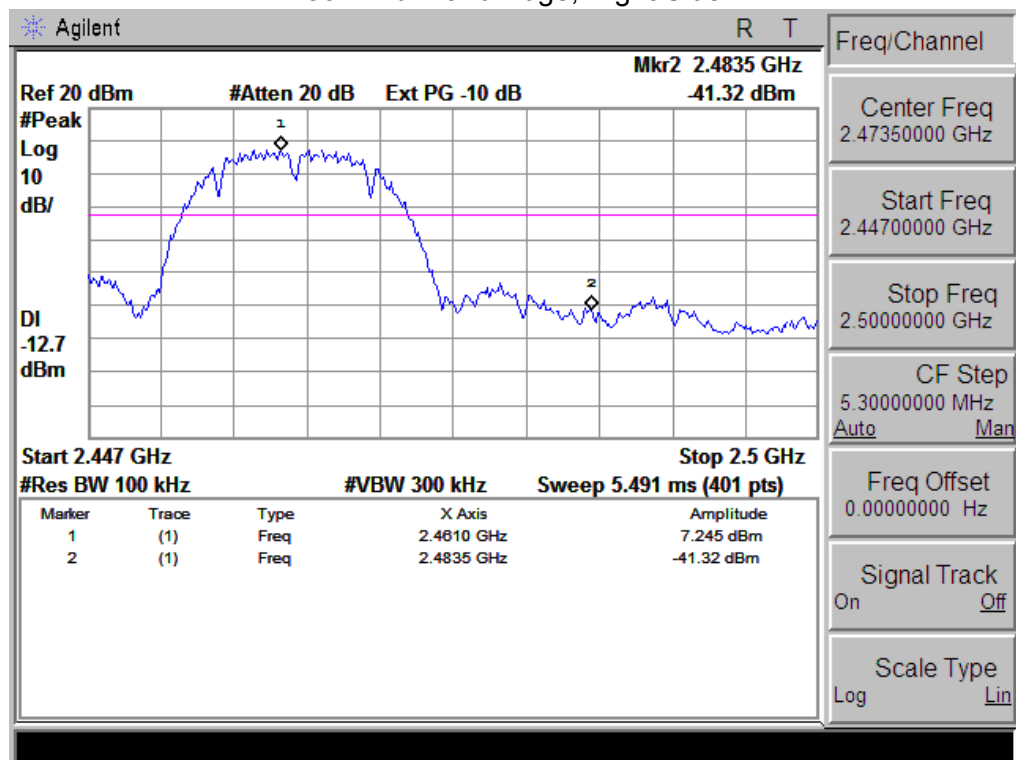
5725	55.53	-13.06	42.47	54	-11.53	Av	Vertical
5725	73.82	-13.06	60.76	74	-13.24	peak	Horizontal
5725	55.68	-13.06	42.62	54	-11.38	Av	Horizontal
5850	70.73	-12.78	57.95	74	-16.05	peak	Vertical
5850	52.13	-12.78	39.35	54	-14.65	Av	Vertical
5850	71.53	-12.78	58.75	74	-15.25	peak	Horizontal
5850	56.55	-12.78	43.77	54	-10.23	Av	Horizontal
802.11n20(5G)							
5725	76.38	-13.06	63.32	74	-10.68	peak	Vertical
5725	54.21	-13.06	41.15	54	-12.85	Av	Vertical
5725	71.05	-13.06	57.99	74	-16.01	peak	Horizontal
5725	54.44	-13.06	41.38	54	-12.62	Av	Horizontal
5850	72.39	-12.78	59.61	74	-14.39	peak	Vertical
5850	51.68	-12.78	38.9	54	-15.1	Av	Vertical
5850	72.66	-12.78	59.88	74	-14.12	peak	Horizontal
5850	56.86	-12.78	44.08	54	-9.92	Av	Horizontal
802.11n40(5G)							
5725	76.78	-13.06	63.72	74	-10.28	peak	Vertical
5725	52.21	-13.06	39.15	54	-14.85	Av	Vertical
5725	71.45	-13.06	58.39	74	-15.61	peak	Horizontal
5725	52.44	-13.06	39.38	54	-14.62	Av	Horizontal
5850	72.39	-12.78	59.61	74	-14.39	peak	Vertical
5850	53.68	-12.78	40.9	54	-13.1	Av	Vertical
5850	72.86	-12.78	60.08	74	-13.92	peak	Horizontal
5850	56.36	-12.78	43.58	54	-10.42	Av	Horizontal

Note: Test method to see chapter 3.2, PK value is lower than the Average value limit, So average didn't record.

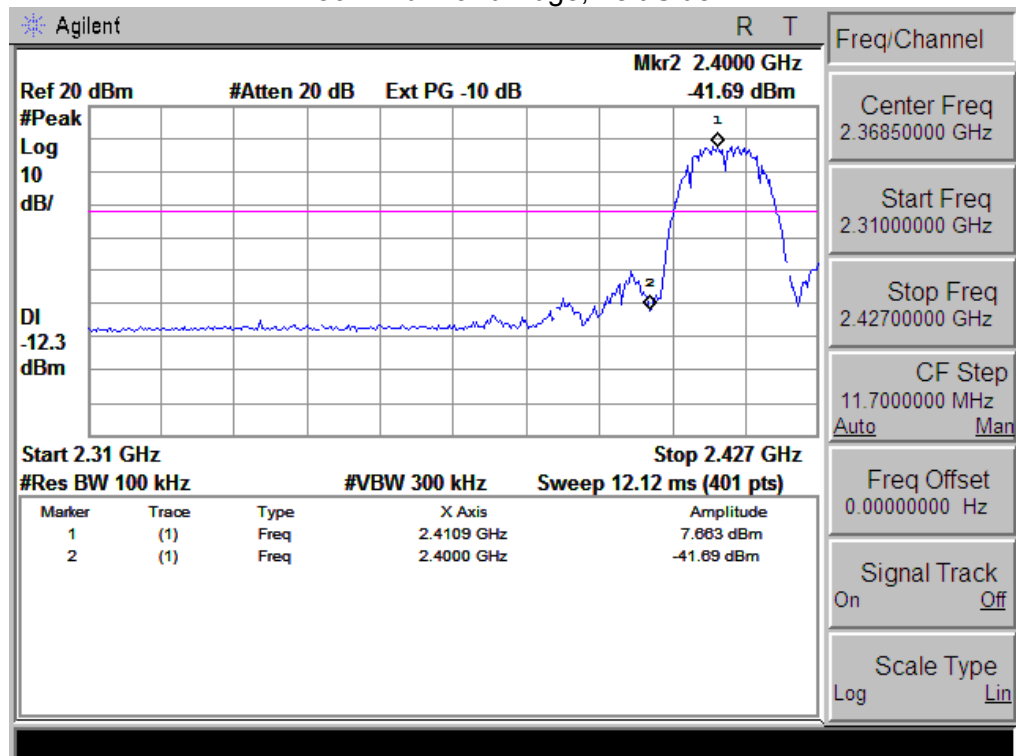
Frequency Band	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
802.11b			
Left-band	49.35	20	Pass
Right-band	48.58	20	Pass
802.11g			
Left-band	32.72	20	Pass
Right-band	45.09	20	Pass
802.11n20			
Left-band	32.53	20	Pass
Right-band	41.11	20	Pass
802.11n40			
Left-band	32.81	20	Pass

Right-band	39.17	20	Pass
802.11a			
Left-band	43.53	20	Pass
Right-band	47.25	20	Pass
802.11n20(5G)			
Left-band	32.81	20	Pass
Right-band	39.17	20	Pass
802.11n40(5G)			
Left-band	40.76	20	Pass
Right-band	40.48	20	Pass

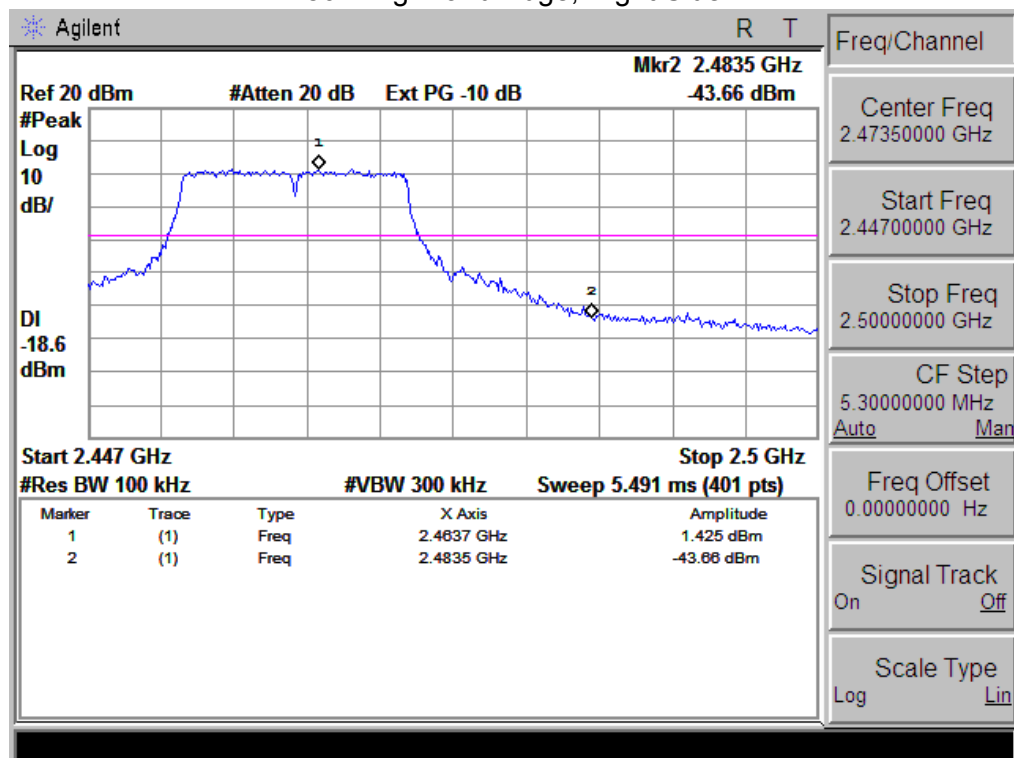
802.11b: Band Edge, Right Side



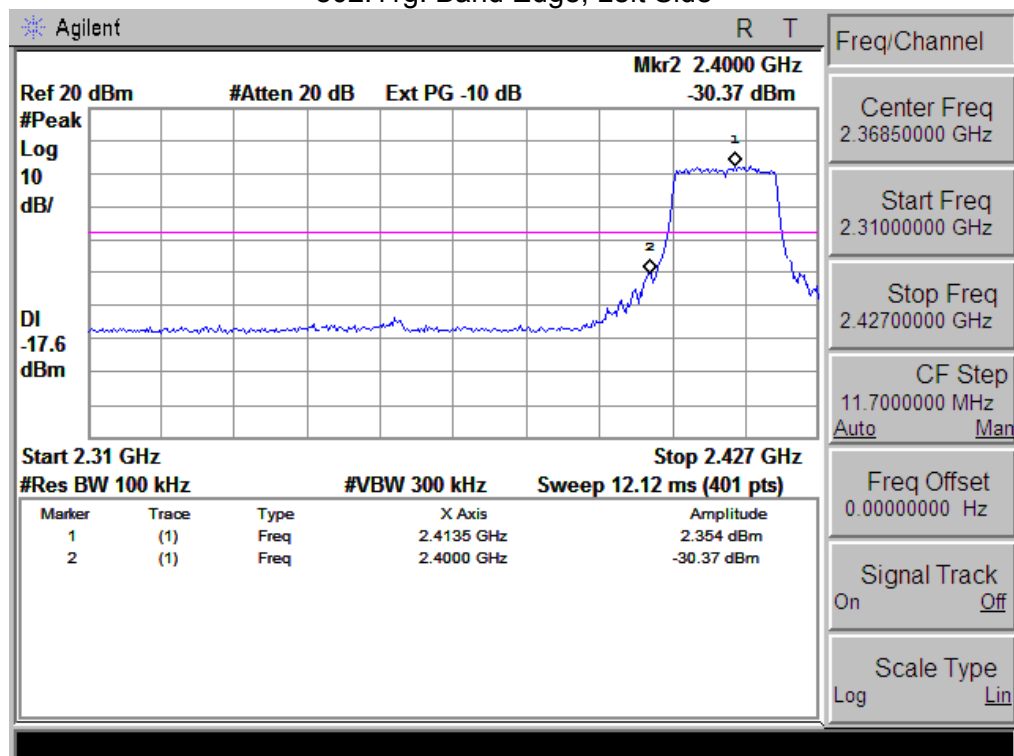
802.11b: Band Edge, Left Side



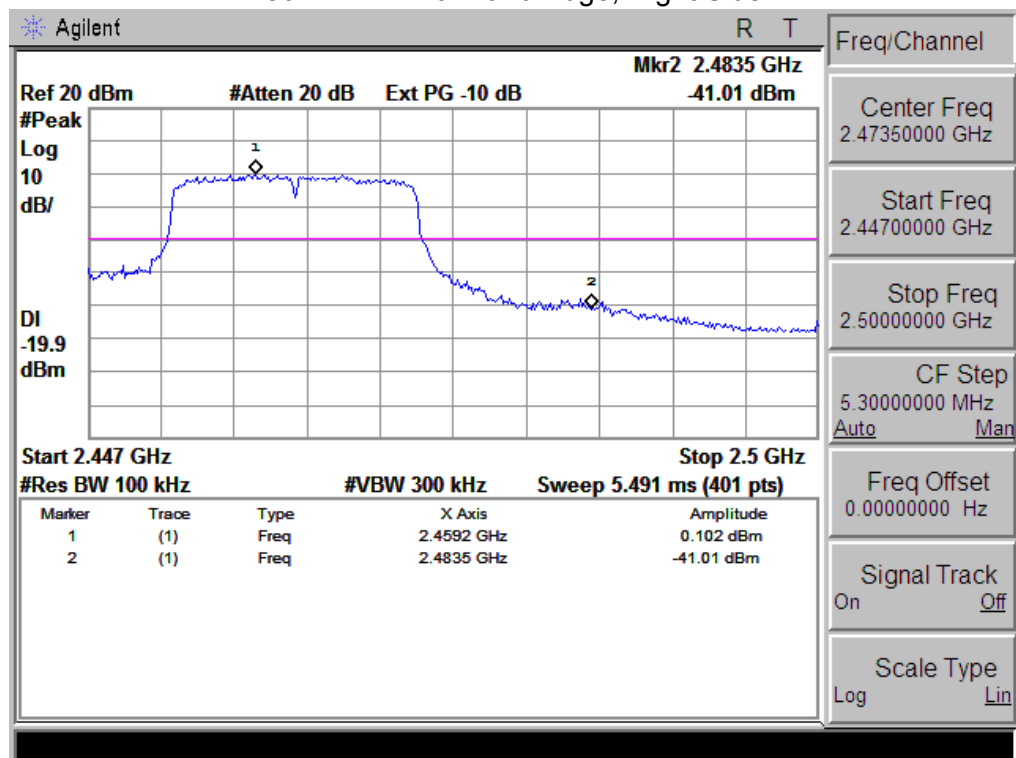
802.11g: Band Edge, Right Side



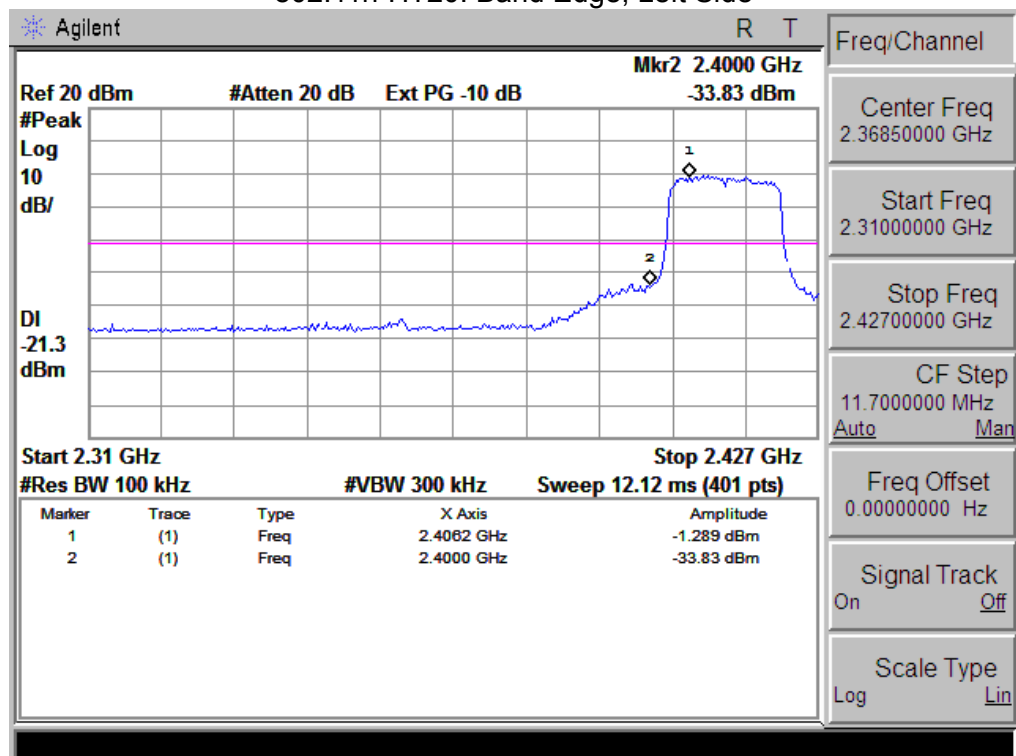
802.11g: Band Edge, Left Side



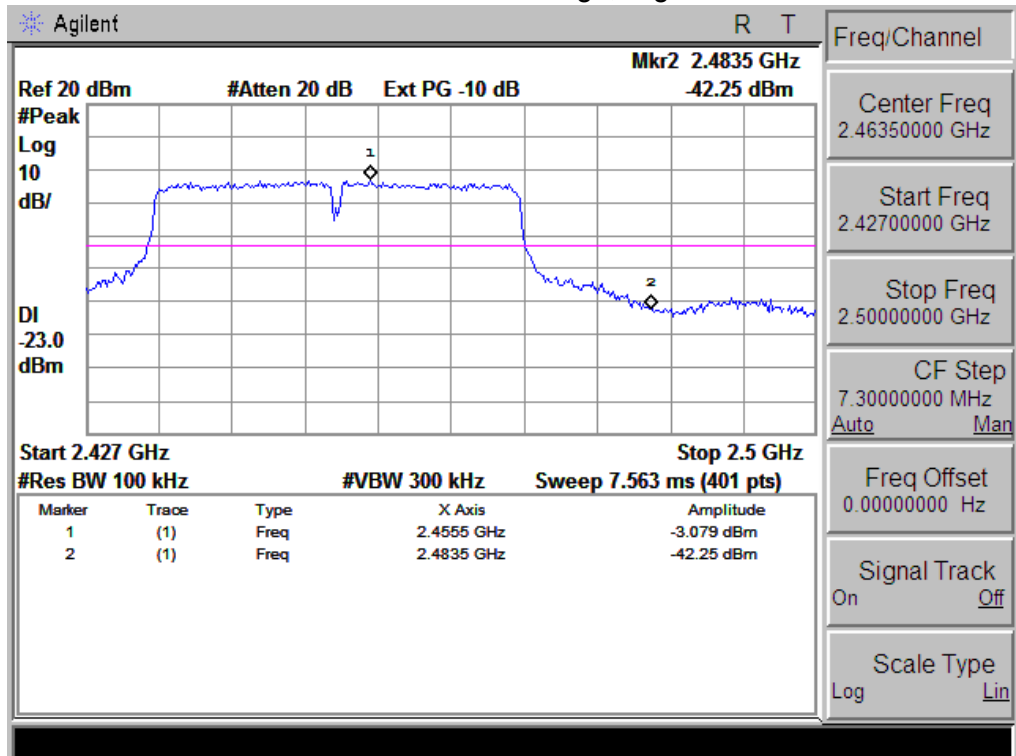
802.11n-HT20: Band Edge, Right Side



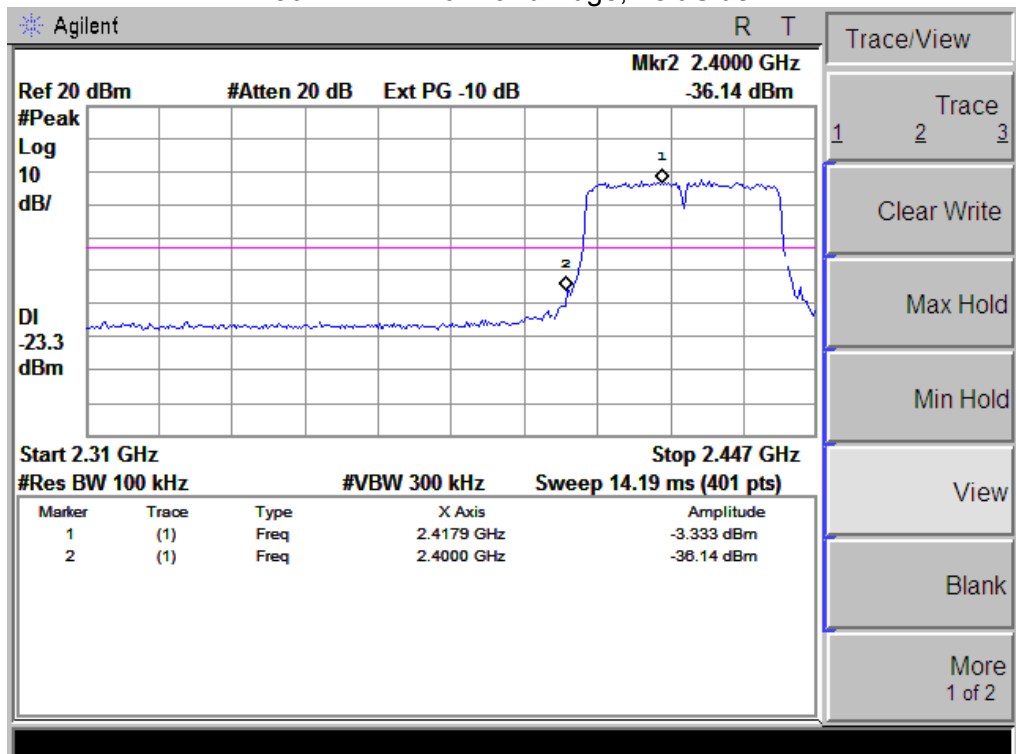
802.11n-HT20: Band Edge, Left Side



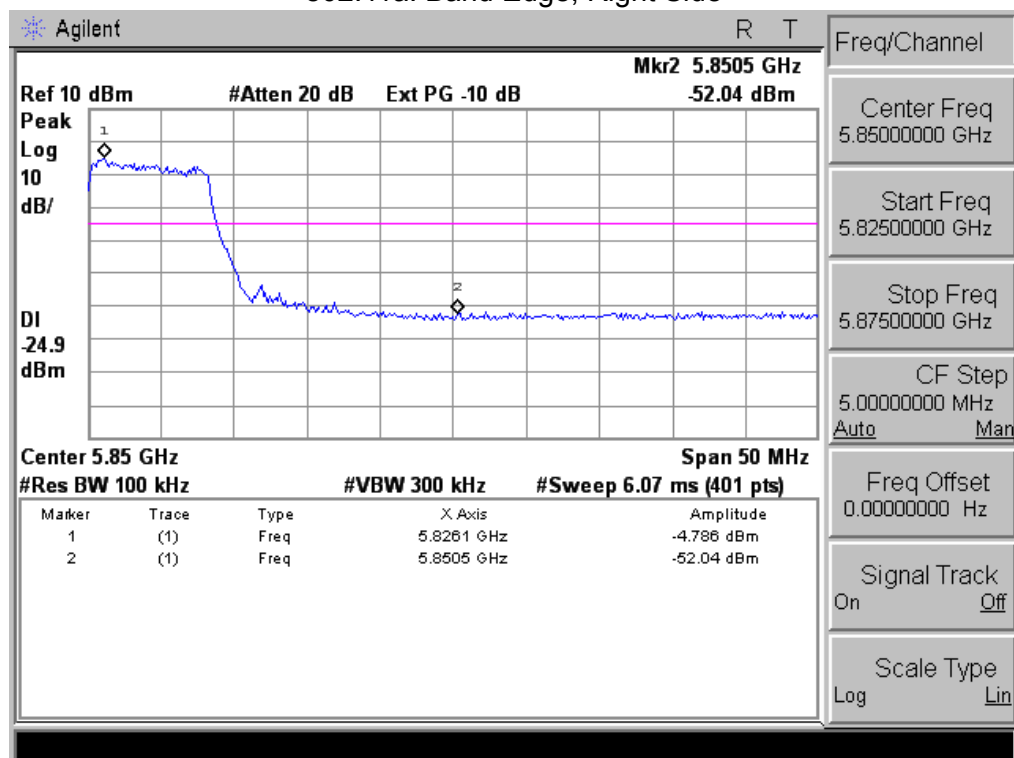
802.11n-HT40: Band Edge, Right Side



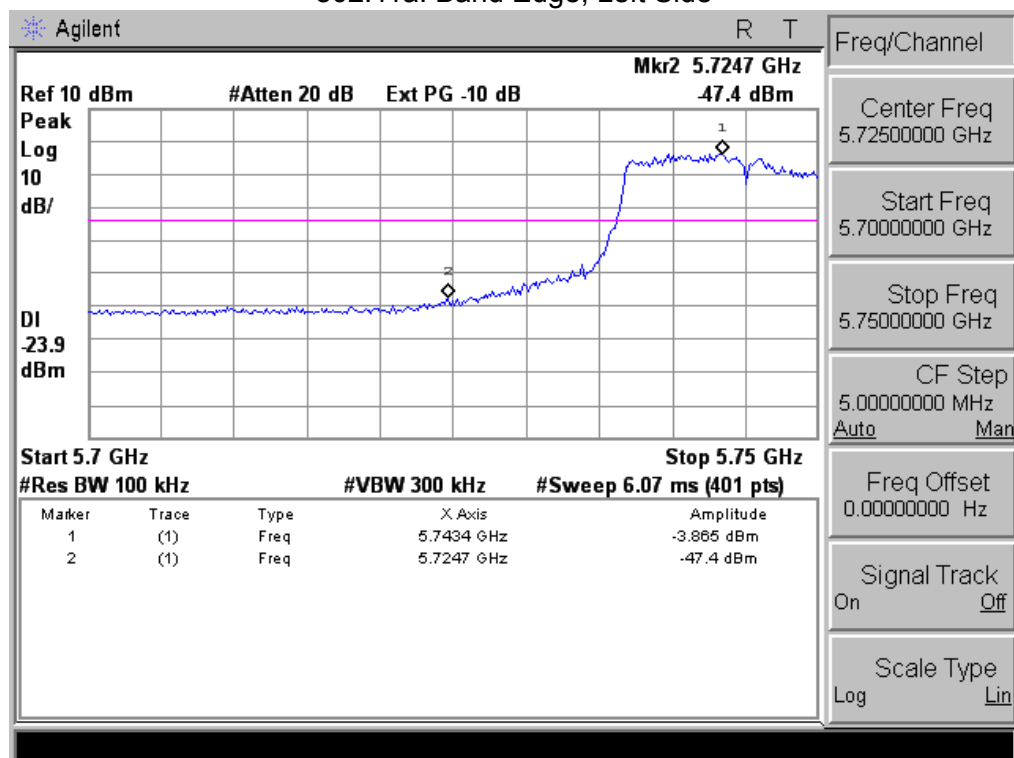
802.11n-HT40: Band Edge, Left Side



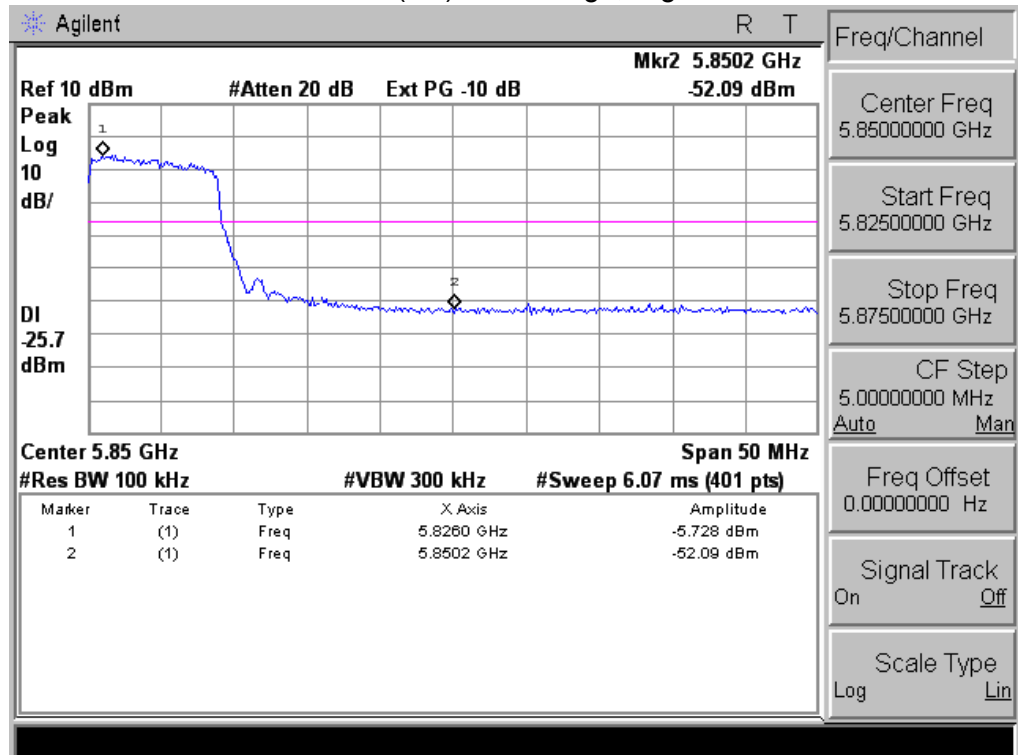
802.11a: Band Edge, Right Side



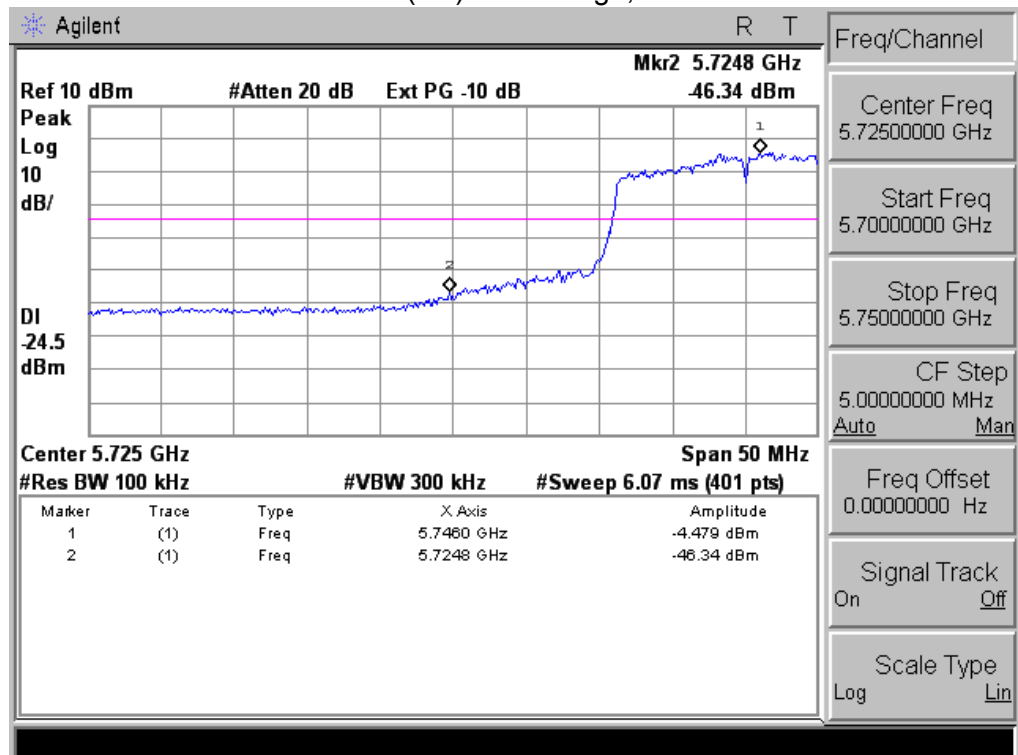
802.11a: Band Edge, Left Side



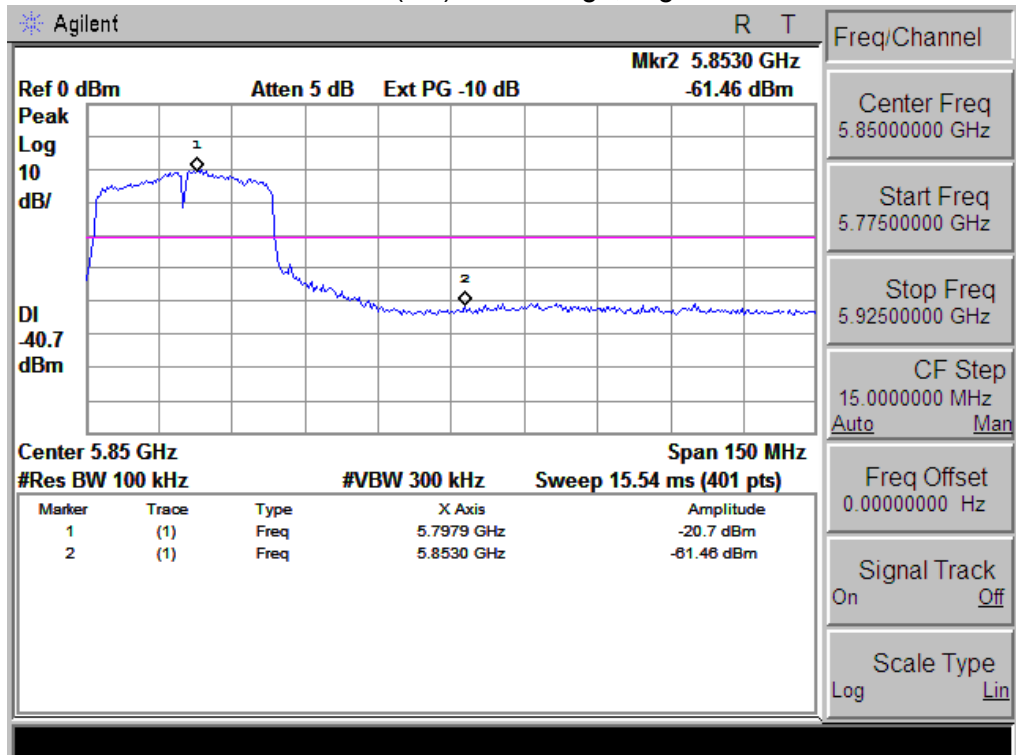
802.11n20(5G): Band Edge, Right Side



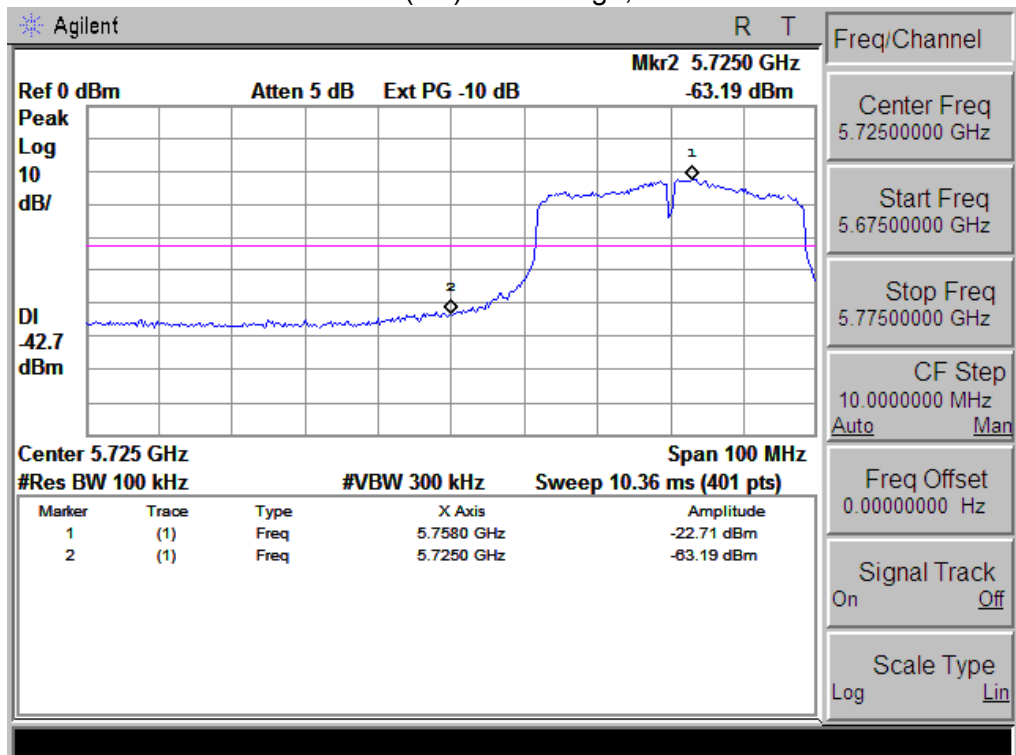
802.11n20(5G): Band Edge, Left Side



802.11n40(5G): Band Edge, Right Side



802.11n40(5G): Band Edge, Left Side



8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

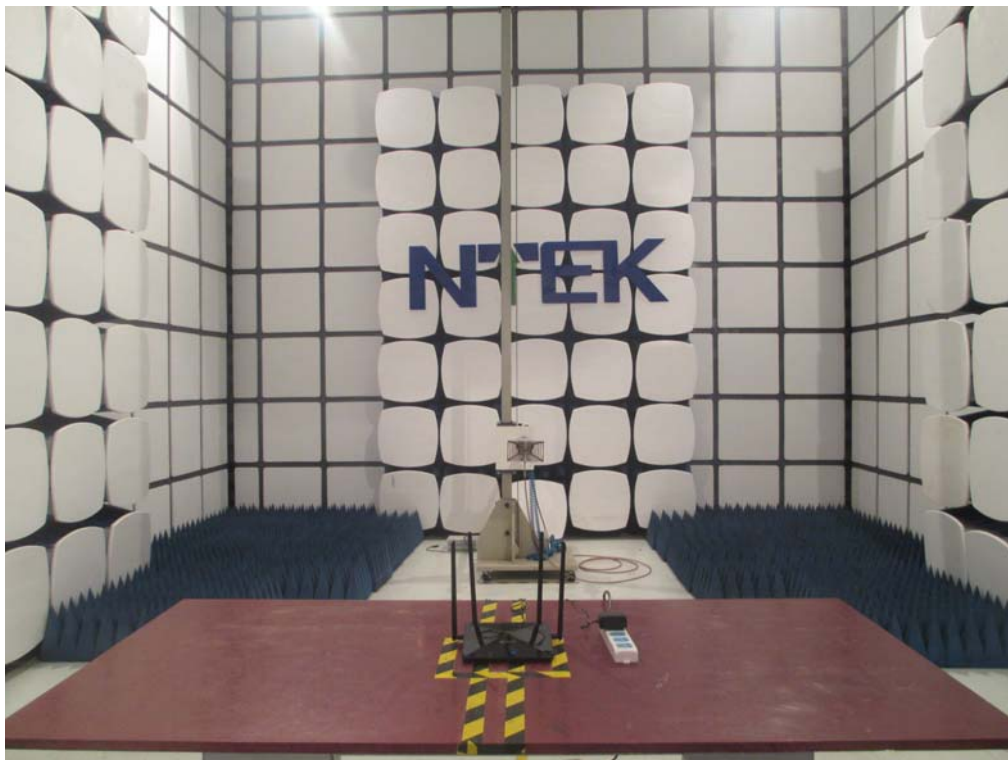
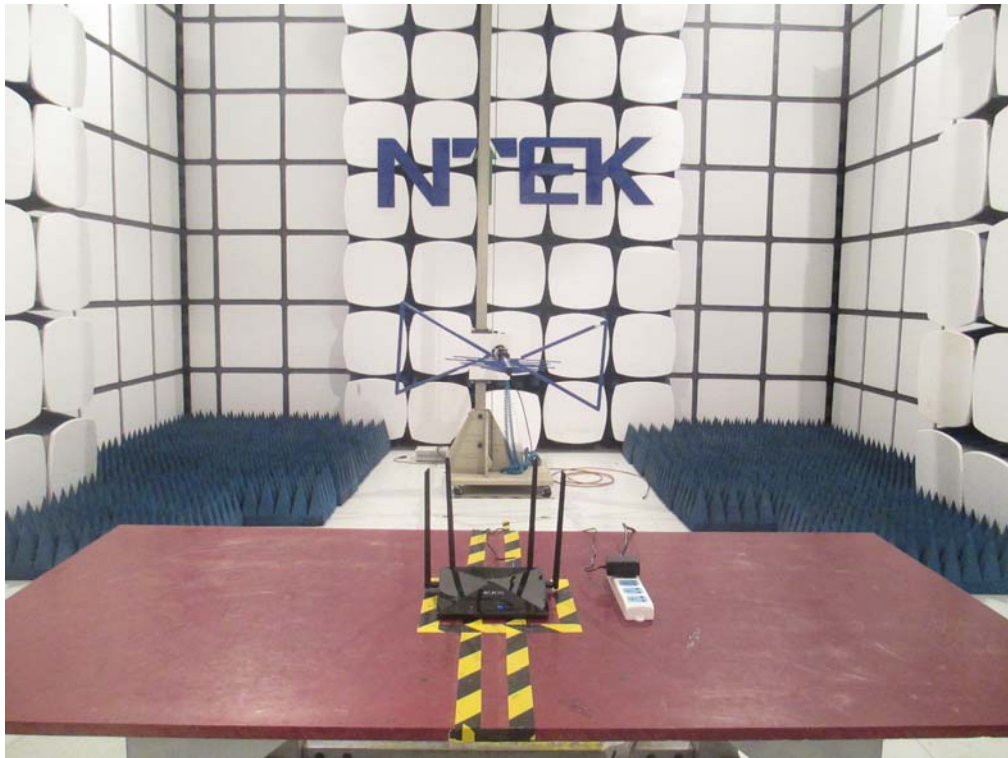
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is Non-removable antenna. It comply with the standard requirement.

9. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos