

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E AND INDUSTRY CANADA RSS 247 REQUIREMENT

OF

Product Name: miCoach Elite Base Station
Brand Name: adidas
Model No.: BKC75
Model Difference: N/A
Article Number: AP4326, AP7447, AP7448
FCC ID: ZLGETSYS
IC: 9722A-ETSYS
Report No.: E2/2015/20032
Issue Date: Jan. 14, 2016
FCC Rule Part: §15.407
IC Rule Part: RSS-247 issue 1 May 2015

Prepared for: adidas AG
World of Sports, Adi-Dassler-Strasse 1,
91074 Herzogenaurach, Germany

Prepared by: SGS Taiwan Ltd.
Electronics & Communication Laboratory
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Taoyuan City, Taiwan 333



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VERIFICATION OF COMPLIANCE

Applicant: adidas AG
World of Sports, Adi-Dassler-Strasse 1, 91074 Herzogenaurach,
Germany

Product Name: miCoach Elite Base Station

Brand Name: adidas

Model No.: BKC75

Model Difference: N/A

Article Number: AP4326, AP7447, AP7448

FCC ID: ZLGETSYS

IC: 9722A-ETSYS

File Number: E2/2015/20032

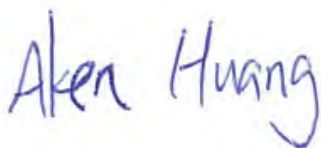
Date of test: Mar. 03, 2015 ~ Jan. 14, 2016

Date of EUT Received: Mar. 03, 2015

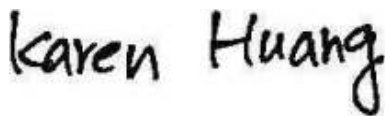
We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

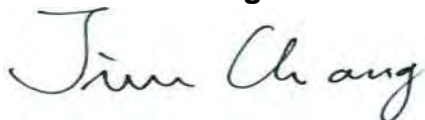
The test results of this report relate only to the tested sample identified in this report.

Test By:**Date:**

Jan. 14, 2016

Aken Huang / Engineer**Prepared By:****Date:**

Jan. 14, 2016

Karen Huang / Clerk**Approved By:****Date:**

Jan. 14, 2016

Jim Chang / Asst. Manager

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Revision History

Report Number	Revision	Description	Issue Date
E2/2015/20032	Rev.00	Initial creation of document	Jan. 14, 2016

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1. GENERAL INFORMATION

1.1 Product Description

General:

Product Name:	miCoach Elite Base Station	
Brand Name:	adidas	
Model No.:	BKC75	
Model Difference:	N/A	
Article Number:	AP4326, AP7447, AP7448	
Product SW/HW version:	N/A / B3.0	
Radio SW/HW version:	N/A / N/A	
Test SW Version:	N/A	
RF power setting in TEST SW:	N/A	
Charger:	Model No.: BKC83, Supplier: adidas	
pCone:	Model No.: N/A, Supplier: adidas	
Power Core:	Model No.: N/A, Supplier: N/A	
USB-Micro Cable:	Model No.: N/A, Supplier: N/A	
USB Cable:	Model No.: N/A, Supplier: N/A	
Charger Cable:	Model No.: N/A, Supplier: N/A	
LAN Cable Cat 5e non-shielding:	Model No.: N/A, Supplier: N/A	
Clothes:	Model No.: N/A, Supplier: adidas	
POD:	Model No.: N/A, Supplier: adidas	
Power Supply:	7.2Vdc form rechargeable battery or 19Vdc from AC/DC adapter.	
	Battery:	Model No.: BT-70651BE; Supplier: Bren-Tronics Inc
	Adapter:	Model No.: ADP-90RD AA; Supplier: Innergie

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WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power (Avg.) / (EIRP)	Modulation Technology
11a	5150~5250	4	14.06 dBm / 19.66 dBm (EIRP)	OFDM
	5250~5350	4	13.91 dBm / 19.81dBm (EIRP)	
	5470~5725	8	15.53 dBm / 20.23dBm (EIRP)	
11n_20M	HT20 5150~5250	4	(MIMO Chain 0+1) 13.87 dBm / 22.48 dBm (EIRP)	OFDM
	HT20 5250~5350	4	(MIMO Chain 0+1) 13.97 dBm / 22.88dBm (EIRP)	
	HT20 5470~5725	8	(MIMO Chain 0+1) 15.16 dBm / 22.87dBm (EIRP)	
11n_40M	HT40 5150~5250	2	(MIMO Chain 0+1) 14.08 dBm / 22.69 dBm (EIRP)	OFDM
	HT40 5250~5350	2	(MIMO Chain 0+1) 13.97dBm / 22.88dBm (EIRP)	
	HT40 5470~5725	2	(MIMO Chain 0+1) 14.84 dBm / 22.55dBm (EIRP)	

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Antenna Designation	<p>PIFA Antenna</p> <p>Main:</p> <p>Part No.: N/A, Supplier: N/A</p> <p>5GHz Gain: 3.5dBi (5150MHz-5250MHz)</p> <p>5GHz Gain: 3.9dBi (5250MHz-5350MHz)</p> <p>5GHz Gain: 4.7dBi (5470MHz-5725MHz)</p> <p>Aux:</p> <p>Part No.: N/A, Supplier: N/A</p> <p>5GHz Gain: 5.6dBi (5150MHz-5250MHz)</p> <p>5GHz Gain: 5.9dBi (5250MHz-5350MHz)</p> <p>5GHz Gain: 4.4dBi (5470MHz-5725MHz)</p>
Modulation type	64QAM, 16QAM, QPSK, BPSK for OFDM
Transition Rate:	<p>802.11 a: 6/9/12/18/24/36/48/54 Mbps</p> <p>802.11 n_20MHz: 6.5 – 144.4Mbps</p> <p>802.11 n_40MHz: 13.5 – 300Mbps</p>

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1.2 Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is supporting Wi-Fi 802.11a/b/g/n and Zigbee features, and below is details of information.

Product Feature	
Product Name:	miCoach Elite Base Station
Brand Name:	adidas
Model No.:	BKC75
Model Difference:	N/A
Article Number:	AP4326, AP7447, AP7448
FCC ID:	ZLGETSYS
IC:	9722A-ETSYS
Wi-Fi Specification	802.11a/b/g/n
2.4GHz:	Zigbee

Note: The above EUT information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

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1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01

FCC KDB 662911 D01 Multiple Transmitter Output

RSS-247 issue 1 May 2015

RSS-Gen issue4 Nov. 2014

ANSI C63.10:2013

Note:

1. All test items have been performed and record as per the above standards.
2. The composite system is compliance with FCC Subpart B is authorized under the certification procedure.

1.4 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd.,
Guishan District, Taoyuan City, Taiwan 333

(TAF code 0513)

FCC Registration Numbers are: 628985

Canada Registration Number: 4620A-5

1.5 Special Accessories

There are no special accessories used while test was conducted.

1.6 Equipment Modifications

There was no modification incorporated into the EUT.

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2. SYSTEM TEST CONFIGURATION

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 which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table 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 max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

SISO mode offset

= RF cable loss (dB)+ attenuation factor(dB)=12.3(dB)

MIMO mode offset

= RF cable loss (dB)+ attenuation factor(dB)+ 10 log(N_{ANT}) dB =15.3(dB)

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2.5 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

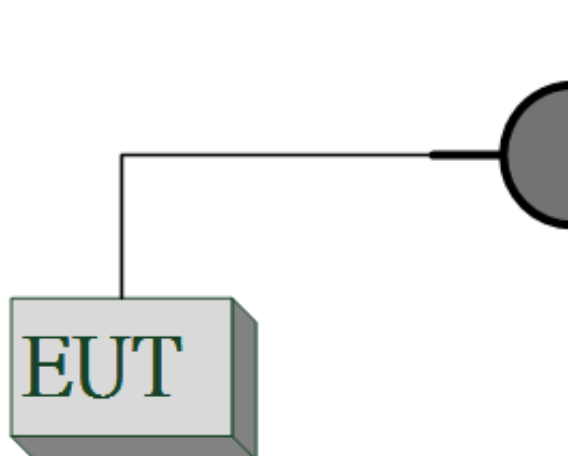


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	DRTU	N/A	N/A	N/A	N/A

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3. SUMMARY OF TEST RESULT

FCC Rules	IC Rules	Description Of Test	Result
§15.207	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	RSS-247 §6.2.1~ 4 (1) RSS-Gen §6.6	26 dB & 6dB & 99% Emission Bandwidth	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Maximum Conducted Output Power	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Power Spectral Density	Compliant
§15.407(b)	RSS-247 §6.2.1~ 4 (2)	Undesirable Radiated Emissions	Compliant
§15.407(c)	RSS-247 §6.4	Transmission in case of Absence of Information	Compliant
§15.407(g)	RSS-Gen §6.11	Frequency Stability	Compliant
§15.203 §15.407(a)	RSS- Gen §6.7 RSS- Gen §8.3	Antenna Requirement	Compliant

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4. DESCRIPTION OF TEST MODES

4.1 Operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

4 channels are provided for 802.11a, 802.11n_HT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n_HT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

Operated band in 5250 MHz ~5350 MHz:

4 channels are provided for 802.11a, 802.11n_HT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n_HT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

Operated band in 5470 MHz ~5725 MHz:

8 channels are provided for 802.11a, 802.11n_HT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	132	5660 MHz
104	5520 MHz	136	5680 MHz
108	5540 MHz	140	5700 MHz
112	5560 MHz		
116	5580 MHz		

2 channels are provided for 802.11n_HT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
110	5550 MHz	134	5670 MHz

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4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case.
4. The given UE is pre-scanned among 802.11n and ac modes, and 802.11ac yields the highest reading that generates the highest emission. Therefore, 802.11ac as the mode of test configuration is chosen to carry out the relevantly mandatory test items.

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36	OFDM	6	MAIN
802.11n_HT40	5190~5230	38 to 46	38	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	60	OFDM	6	MAIN
802.11n_HT40	5270~5310	54 to 62	54	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	116	OFDM	6	MAIN
802.11n_HT40	5550~5670	110 to 134	134	OFDM	MCS8	MIMO
RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5550~5670	110 to 134	110,134	OFDM	MCS8	MIMO

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Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5550~5670	110 to 134	110,134	OFDM	MCS8	MIMO

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5. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
26dB & 6dB Emission Bandwidth	+/- 123.36 Hz
The Maximum Output Power Measurement	+/- 0.96 dB
Peak Power Spectral Density Measurement	+/- 1.67 dB
Frequency Stability	+/- 123.36 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

Radiated Spurious Emission:

Measurement uncertainty (Polarization : Vertical)	9kHz-30MHz: +/-2.87dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : Horizontal)	9kHz-30MHz: +/-2.87dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

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

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6. CONDUCTED EMISSION TEST

6.1. Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

6.2. Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCI 7	100950	12/12/2015	12/11/2016
Coaxial Cables	N/A	N30N30-1042-150 cm	N/A	01/06/2015	01/07/2016
LISN	Schwarzbeck	NSLK 8127	8127-648	06/09/2015	06/08/2016
LISN	Rolf-Heine	NNB-2/16Z	99012	03/04/2015	03/03/2016
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

6.3. EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The LISN was connected with 120Vac/60Hz power source.

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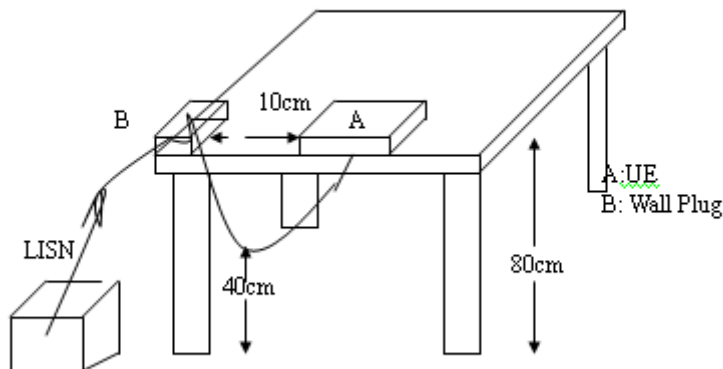
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6.4. Test SET-UP



6.5. Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed.

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6.6. Measurement Result

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation mode			Test Date:	Jan. 04, 2016
Temperature:	22 °C	Humidity:	73 %	Test By:	Aken
Model No.:	Adapter: ADP-90RD AA			Probe:	L1



No.	Mk.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.1780	46.88	0.08	46.96	64.58	-17.62	peak	
2		0.5820	37.45	0.24	37.69	56.00	-18.31	peak	
3		0.7500	36.28	0.33	36.61	56.00	-19.39	peak	
4		2.3620	33.71	0.59	34.30	56.00	-21.70	peak	
5		2.9620	33.02	0.59	33.61	56.00	-22.39	peak	
6		6.3500	20.17	0.64	20.81	60.00	-39.19	peak	

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Operation Mode:	Operation mode			Test Date:	Jan. 04, 2016
Temperature:	22 °C	Humidity:	73 %	Test By:	Aken
Model No.:	Adapter: ADP-90RD AA			Probe:	N



No.	Alt.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1		0.1780	43.91	0.14	44.05	64.58	-20.53	peak	
2		0.5660	36.94	0.30	37.24	56.00	-18.76	peak	
3	*	0.7980	39.46	0.39	39.85	56.00	-16.15	peak	
4		2.4820	34.00	0.64	34.64	56.00	-21.36	peak	
5		3.3980	31.43	0.65	32.08	56.00	-23.92	peak	
6		5.9180	22.94	0.68	23.62	60.00	-36.38	peak	

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7. DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

Formula:

$$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$$

Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

Duty Cycle:

	Duty Cycle	Duty Fator (dB)
802.11a	0.97	0.15
802.11n_HT20	0.97	0.15
802.11n_HT40	0.95	0.22

Duty Cycle Factor: $10 * \log (1/0.97) = 0.15$

Duty Cycle Factor: $10 * \log (1/0.97) = 0.15$

Duty Cycle Factor: $10 * \log (1/0.95) = 0.22$

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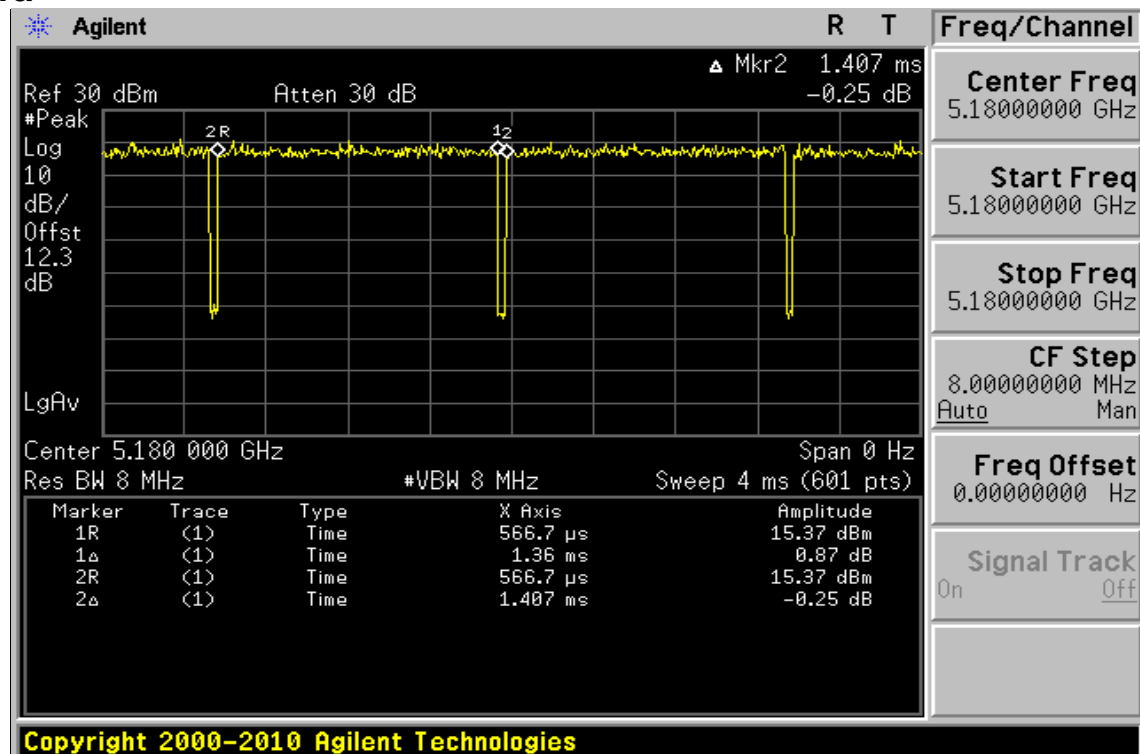
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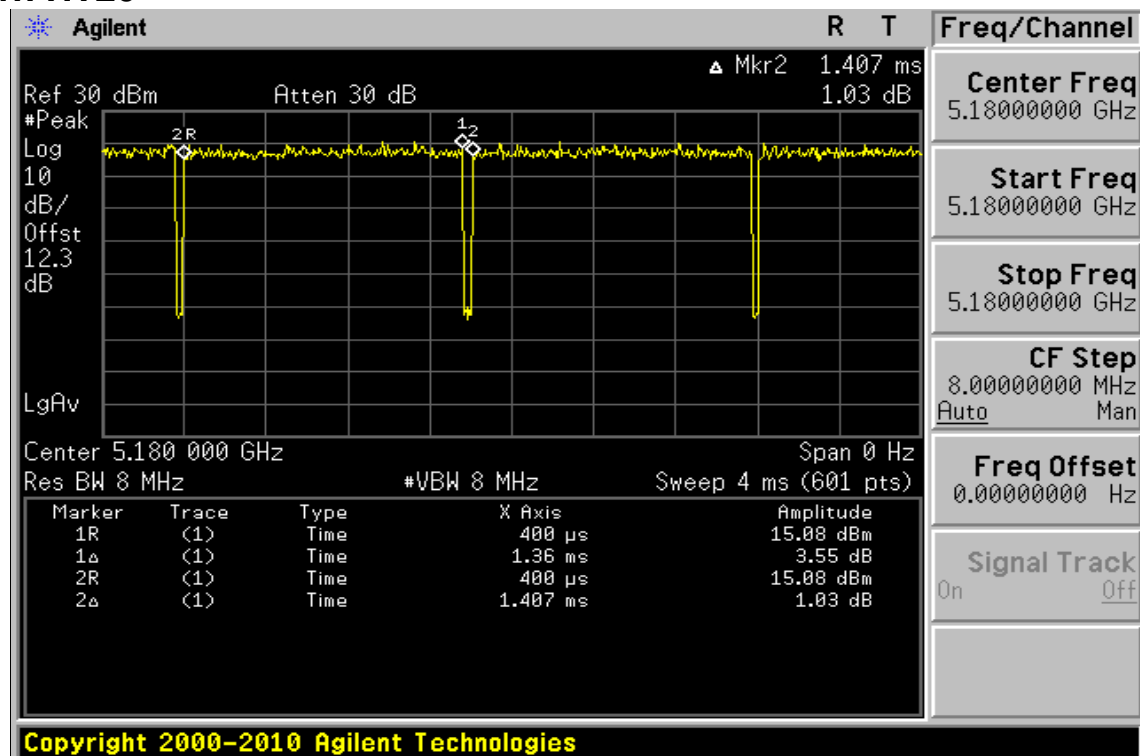
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DUTY CYCLE TEST SIGNAL Measurement Result

802.11a



802.11n HT20



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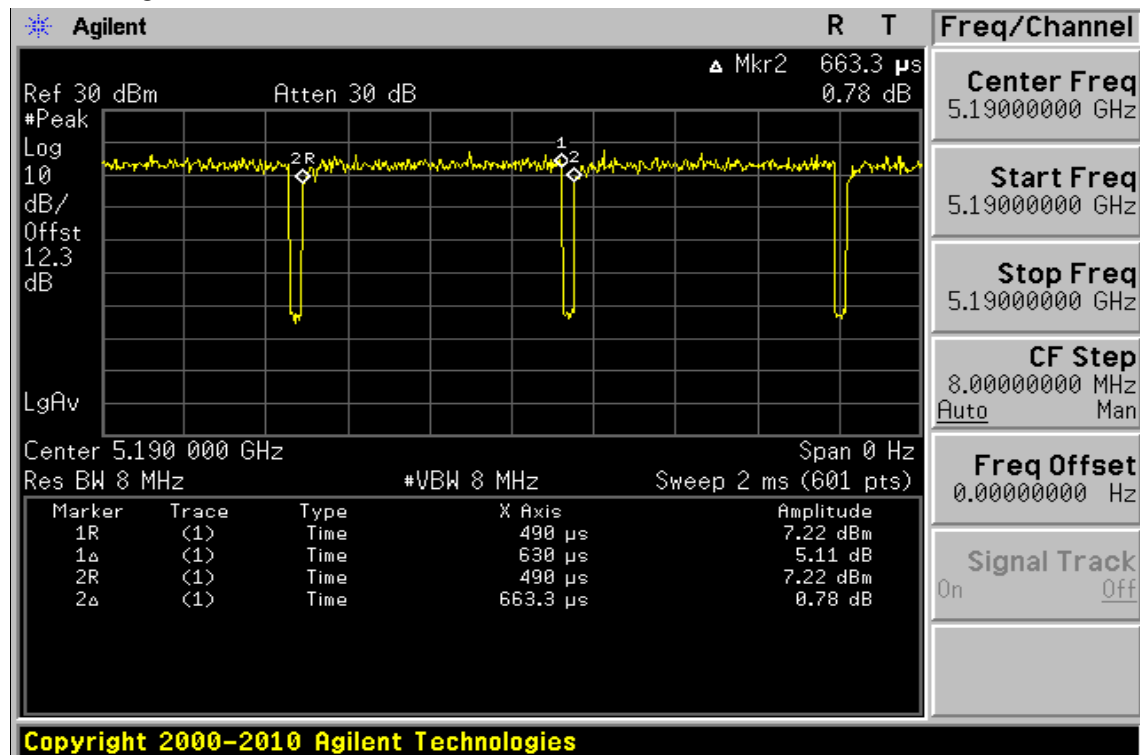
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802.11 n HT 40



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8. 26dB & 6dB EMISSION BANDWIDTH MEASUREMENT

8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

8.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto, Detector = Peak, Trace Mode = Max Hold, Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
 - b. Mark the peak frequency and -26dB (upper and lower) frequency.
4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.
 - a. Set the spectrum analyzer as RBW = 100 kHz, VBW = 3*RBW, Span = 30M/50MHz, Detector=Peak, Sweep=auto
 - b. Mark the peak frequency and -6dB (upper and lower) frequency.
6. Repeat above procedures until all test default channel measured were complete.

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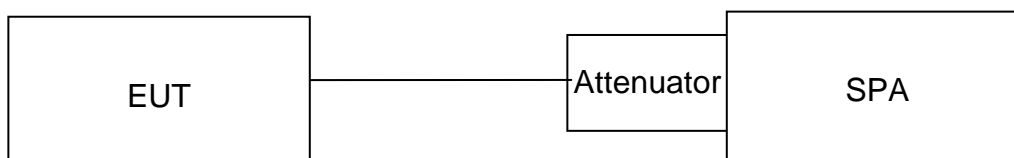
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8.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2015	04/13/2016
Splitter	RF-LAMBAD	RFLT2W1G18G	RF35	12/12/2015	12/11/2016
DC Block	PASTERNAK	PE8210	RF29	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016

8.4 Test Set-up



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8.5 Measurement Result

26dB Bandwidth

802.11a

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	22.39	13.50
5220	22.06	13.44
5240	22.09	13.44
5260	22.03	13.43
5300	22.88	13.59
5320	22.28	13.48
5500	22.28	13.48
5580	22.10	13.44
5700	22.35	13.49

802.11a_HT20 (Main)

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	22.05	13.43
5220	22.41	13.50
5240	22.03	13.43
5260	22.78	13.58
5300	22.30	13.48
5320	22.83	13.59
5500	22.37	13.50
5580	22.05	13.43
5700	22.77	13.57

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802.11a_HT20 (Aux)

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	22.04	13.43
5220	22.09	13.44
5240	22.27	13.48
5260	22.11	13.45
5300	22.85	13.59
5320	22.14	13.45
5500	22.94	13.60
5580	22.57	13.53
5700	22.10	13.44

802.11a_HT40 (Main)

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5190	43.48	16.38
5230	43.18	16.35
5270	43.85	16.42
5310	43.10	16.34
5550	43.70	16.40
5670	43.38	16.37

802.11a_HT40 (Aux)

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5190	43.37	16.37
5230	43.08	16.34
5270	43.20	16.36
5310	43.56	16.39
5550	43.42	16.38
5670	43.21	16.36

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99% Bandwidth

802.11a

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5180	16.676	12.22
5220	16.569	12.19
5240	16.664	12.22
5260	16.591	12.20
5300	16.686	12.22
5320	16.660	12.22
5500	16.704	12.23
5580	16.657	12.22
5700	16.621	12.21

802.11a_HT20 (Main)

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5180	17.701	12.48
5220	17.769	12.50
5240	17.721	12.48
5260	17.714	12.48
5300	17.733	12.49
5320	17.728	12.49
5500	17.719	12.48
5580	17.707	12.48
5700	17.692	12.48

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802.11a_HT20 (Aux)

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5180	17.714	12.48
5220	17.755	12.49
5240	17.695	12.48
5260	17.757	12.49
5300	17.683	12.48
5320	17.709	12.48
5500	17.836	12.51
5580	17.707	12.48
5700	17.712	12.48

802.11a_HT40 (Main)

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5190	36.324	15.60
5230	36.284	15.60
5270	36.263	15.59
5310	36.181	15.58
5550	36.278	15.60
5670	36.273	15.60

802.11a_HT40 (Aux)

Frequency (MHz)	99% Bandwidth (MHz)	10 Log (B) (dB)
5190	36.344	15.60
5230	36.181	15.58
5270	36.235	15.59
5310	36.223	15.59
5550	36.308	15.60
5670	36.321	15.60

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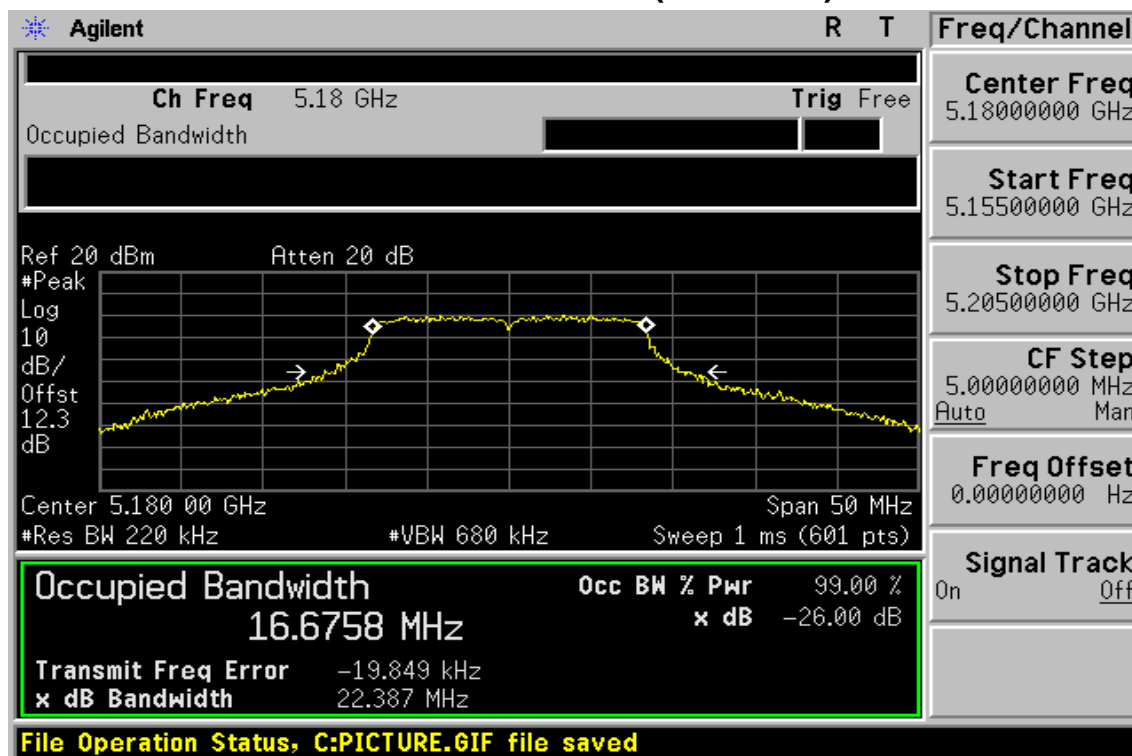
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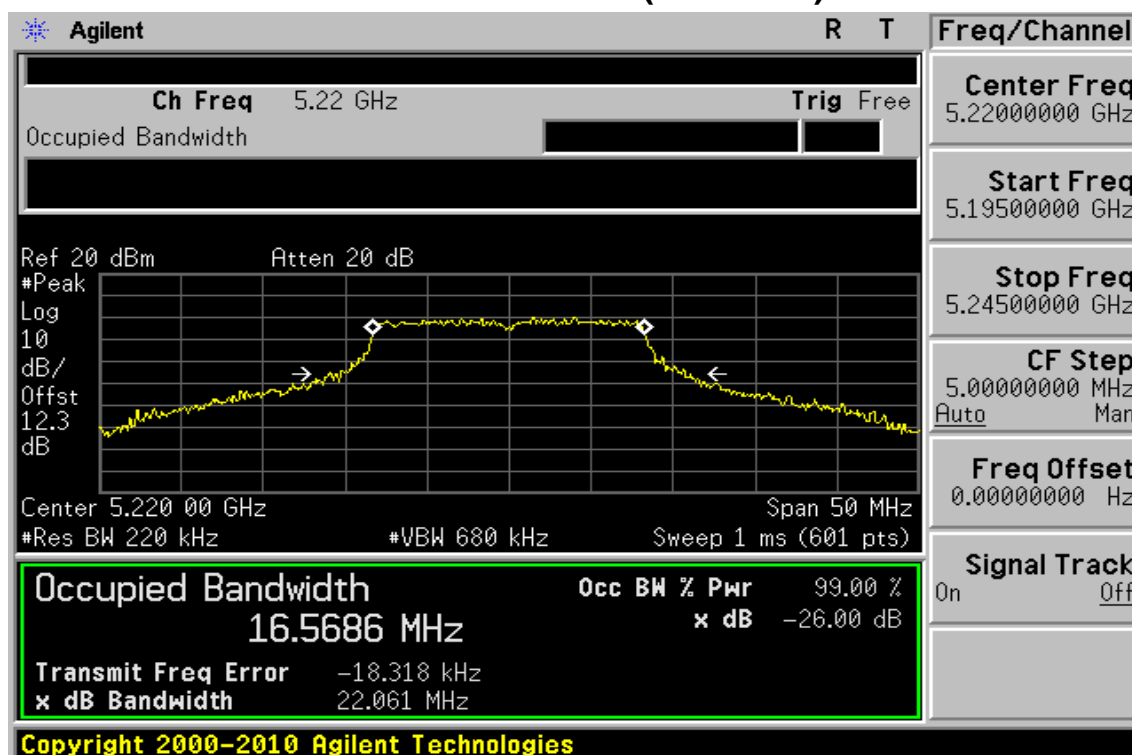
Member of SGS Group

802.11a, 5150~5250 MHz

26dB & 99% Band Width Test Data CH-Low (5180MHz)



26dB & 99% Band Width Test Data CH-Mid (5220MHz)



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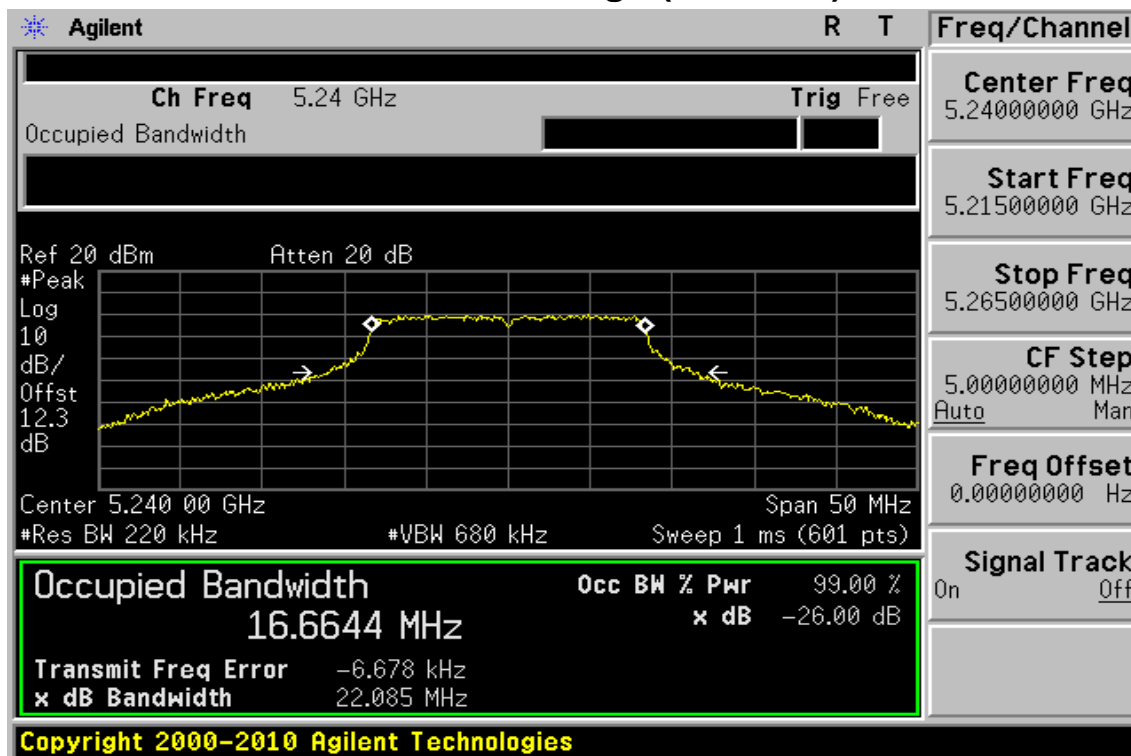
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26dB & 99% Band Width Test Data CH-High (5240MHz)



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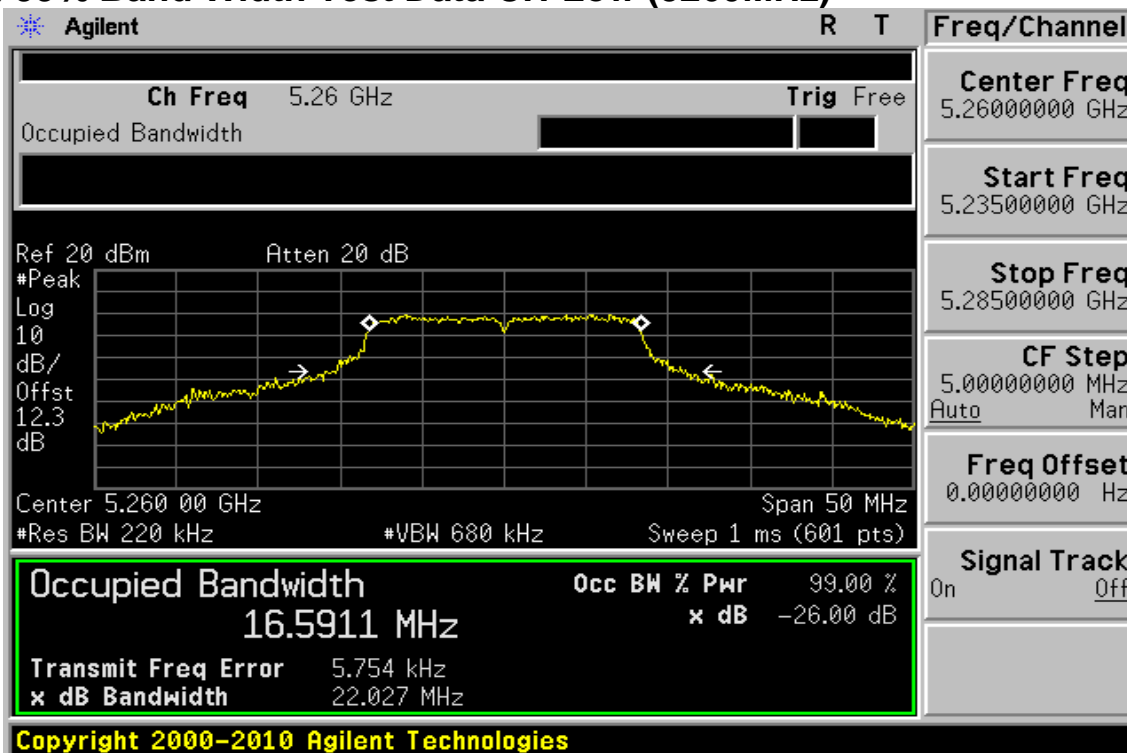
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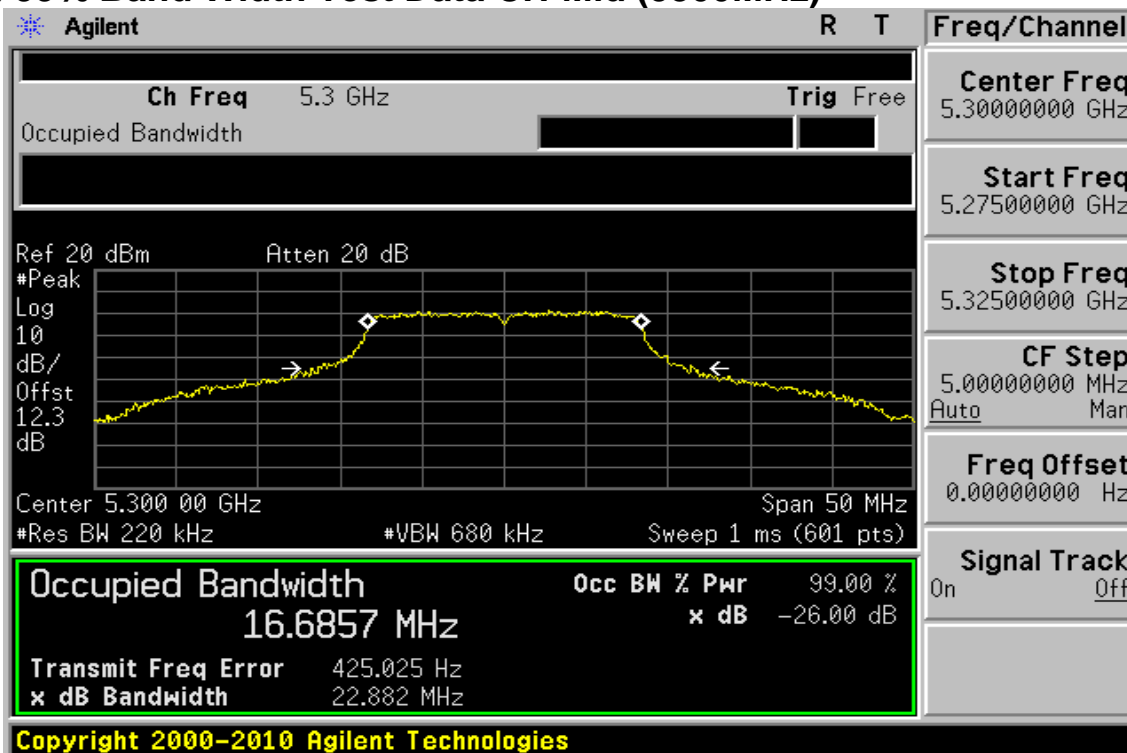
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802.11a, 5250~5350 MHz

26dB & 99% Band Width Test Data CH-Low (5260MHz)



26dB & 99% Band Width Test Data CH-Mid (5300MHz)



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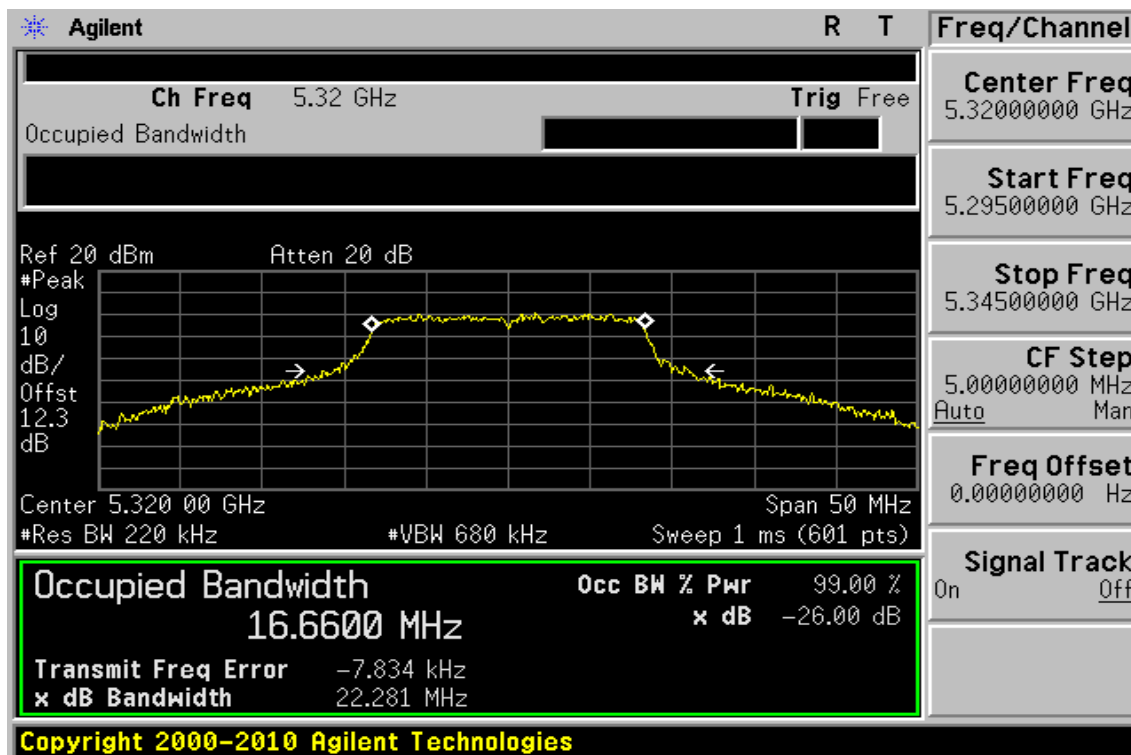
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26dB & 99% Band Width Test Data CH-High (5320MHz)



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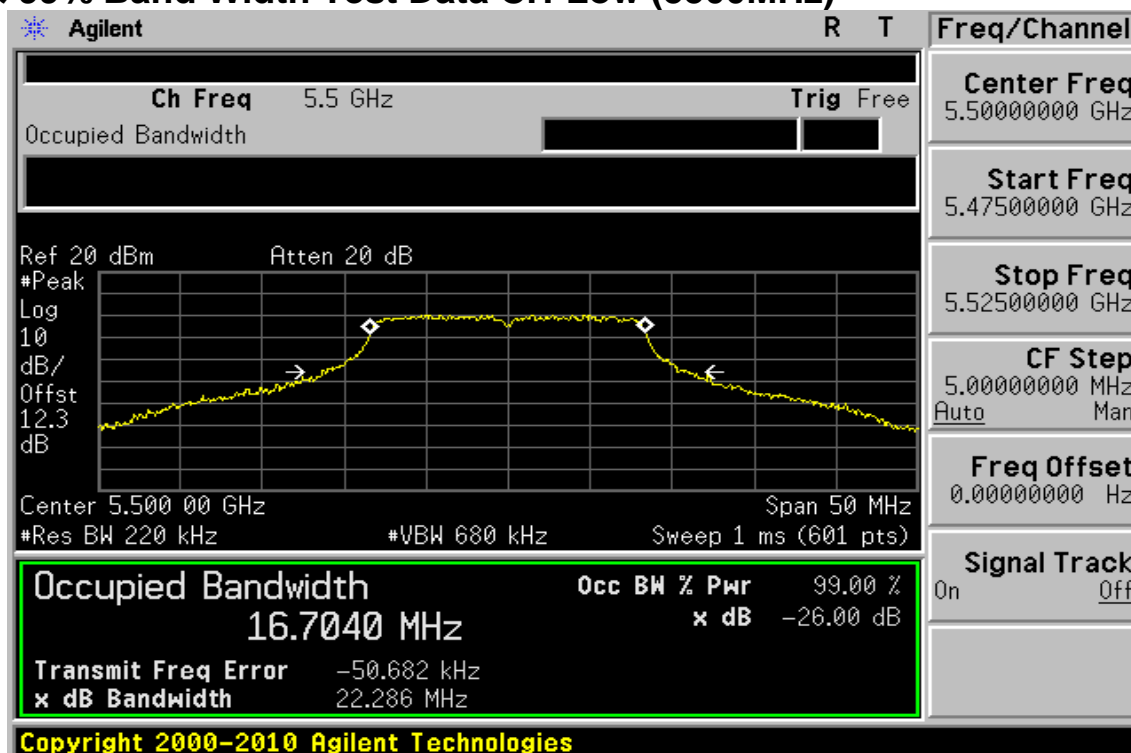
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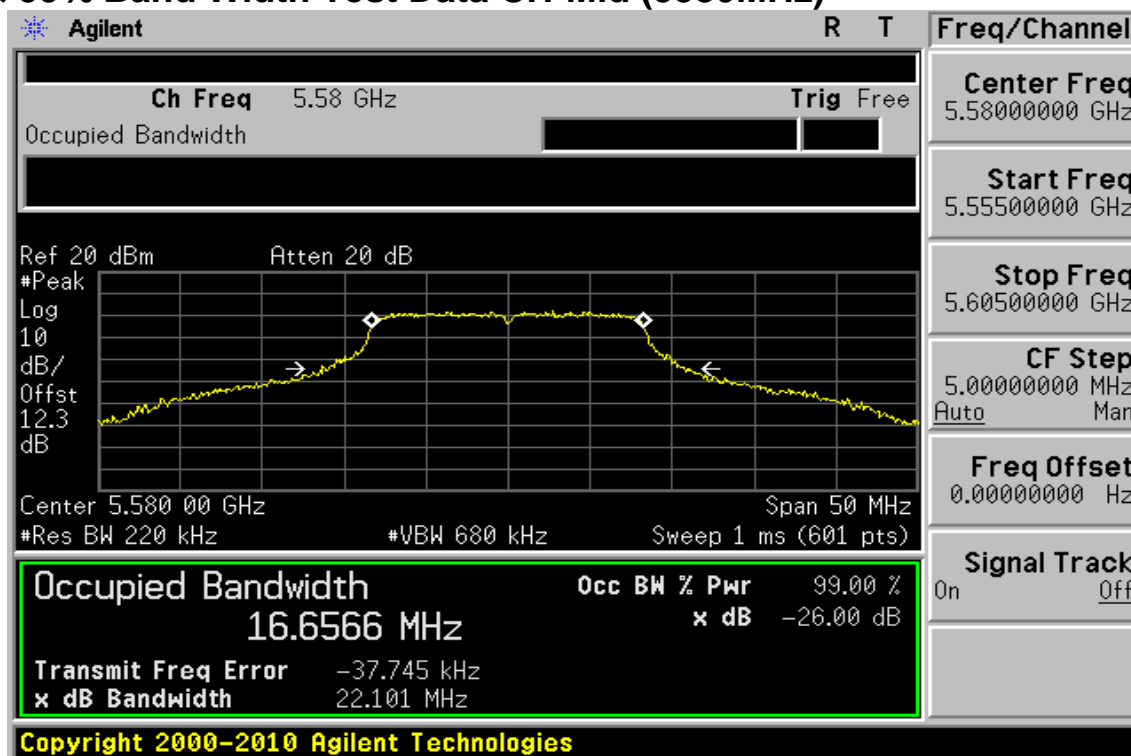
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802.11a, 5470~5725 MHz

26dB & 99% Band Width Test Data CH-Low (5500MHz)



26dB & 99% Band Width Test Data CH-Mid (5580MHz)



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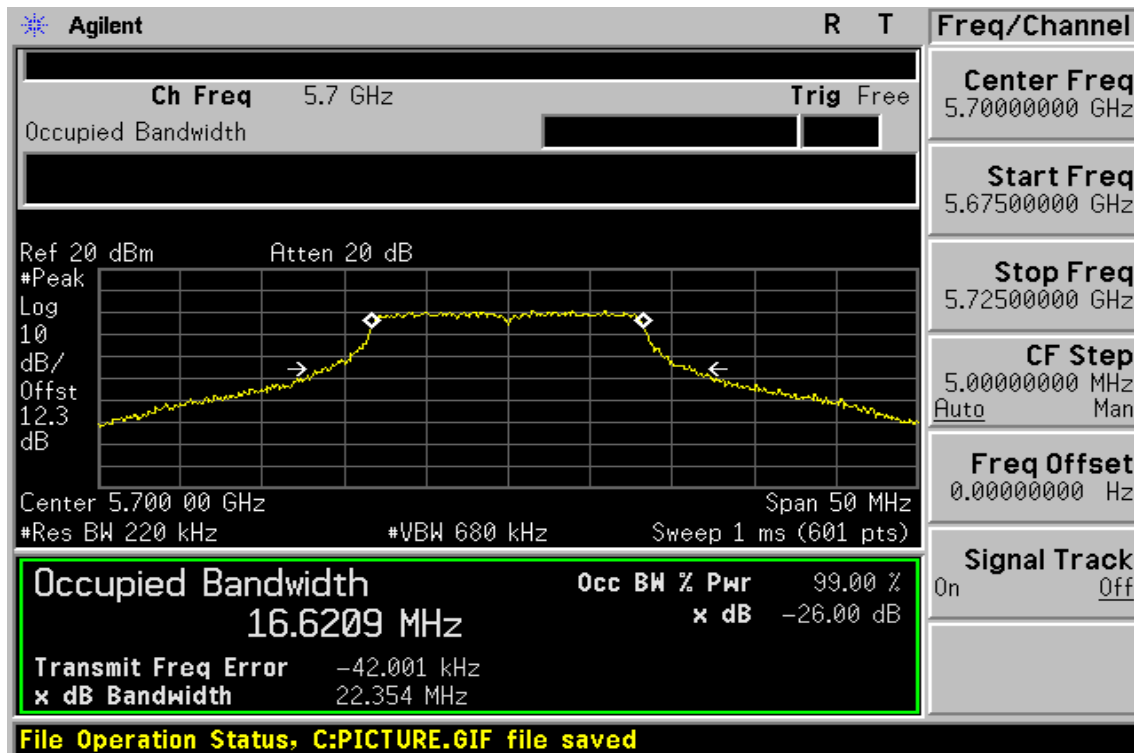
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26dB & 99% Band Width Test Data CH-High (5700MHz)



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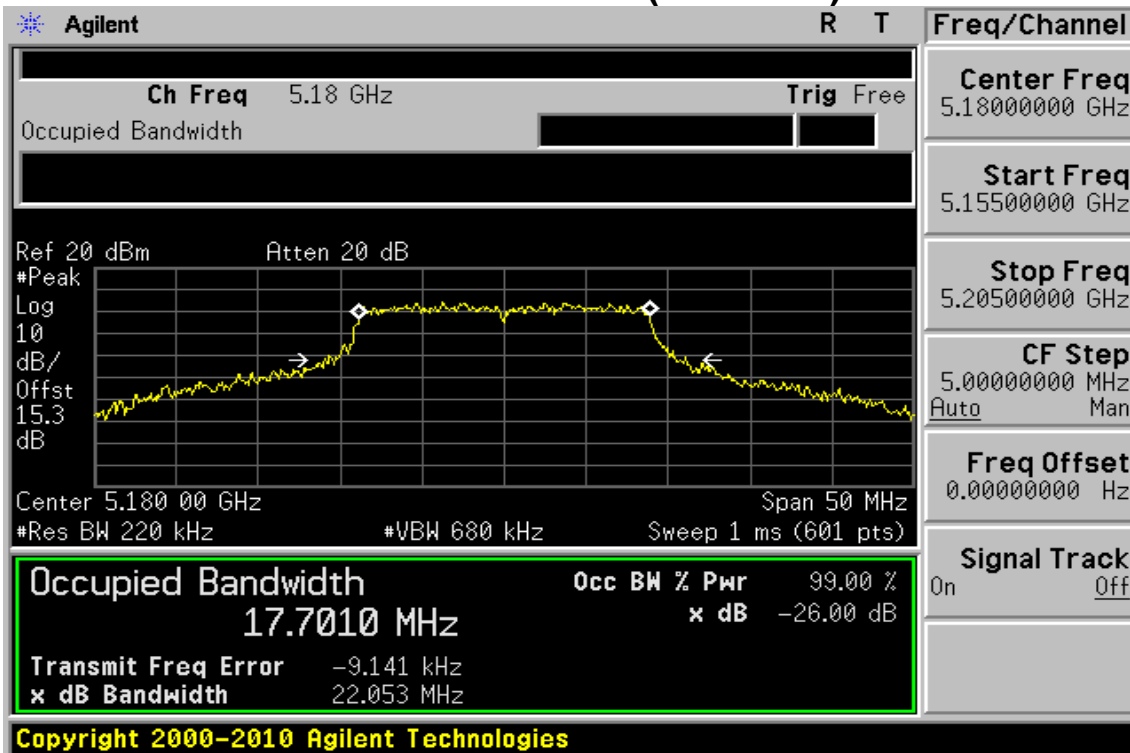
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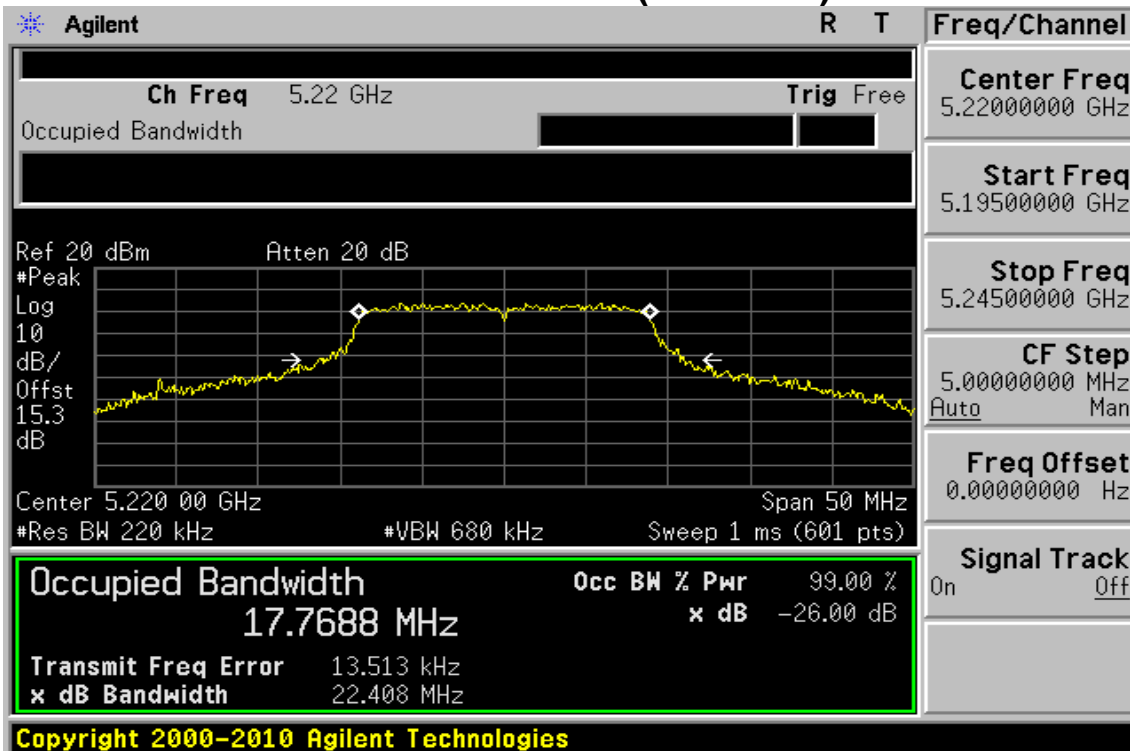
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802.11n HT20, 5150~5250 MHz (Main) 26dB & 99% Band Width Test Data CH-Low (5180 MHz)



26dB & 99% Band Width Test Data CH-Mid (5220 MHz)



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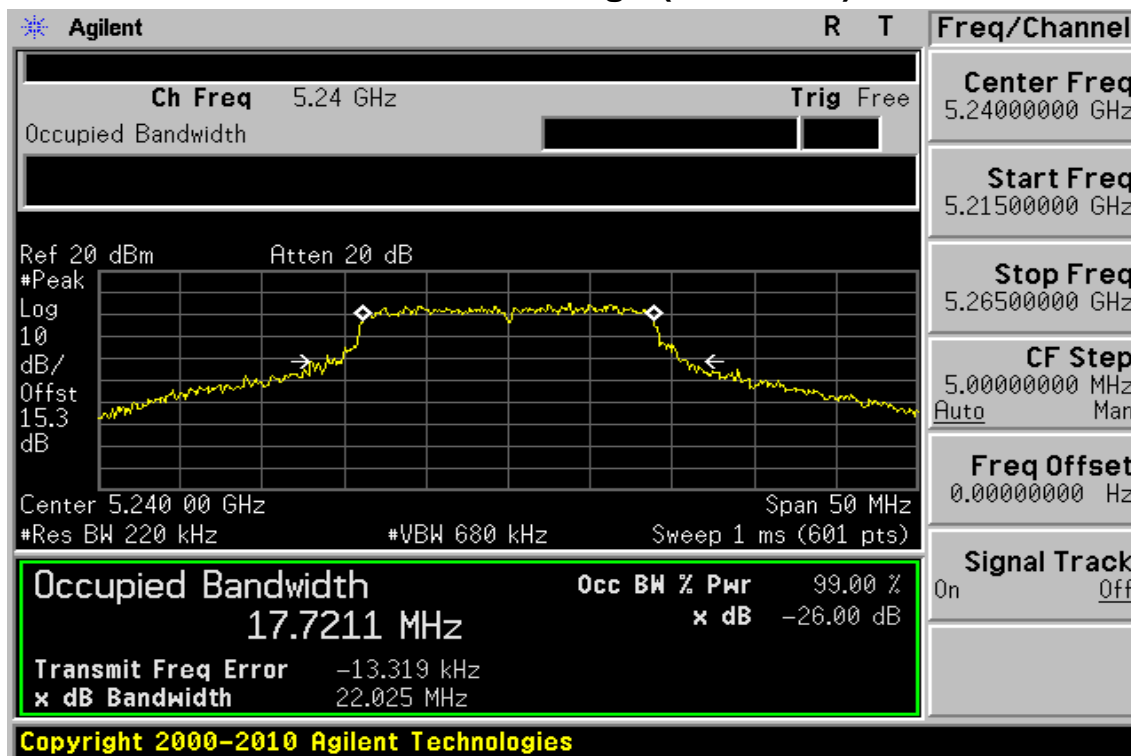
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26dB & 99% Band Width Test Data CH-High (5240 MHz)



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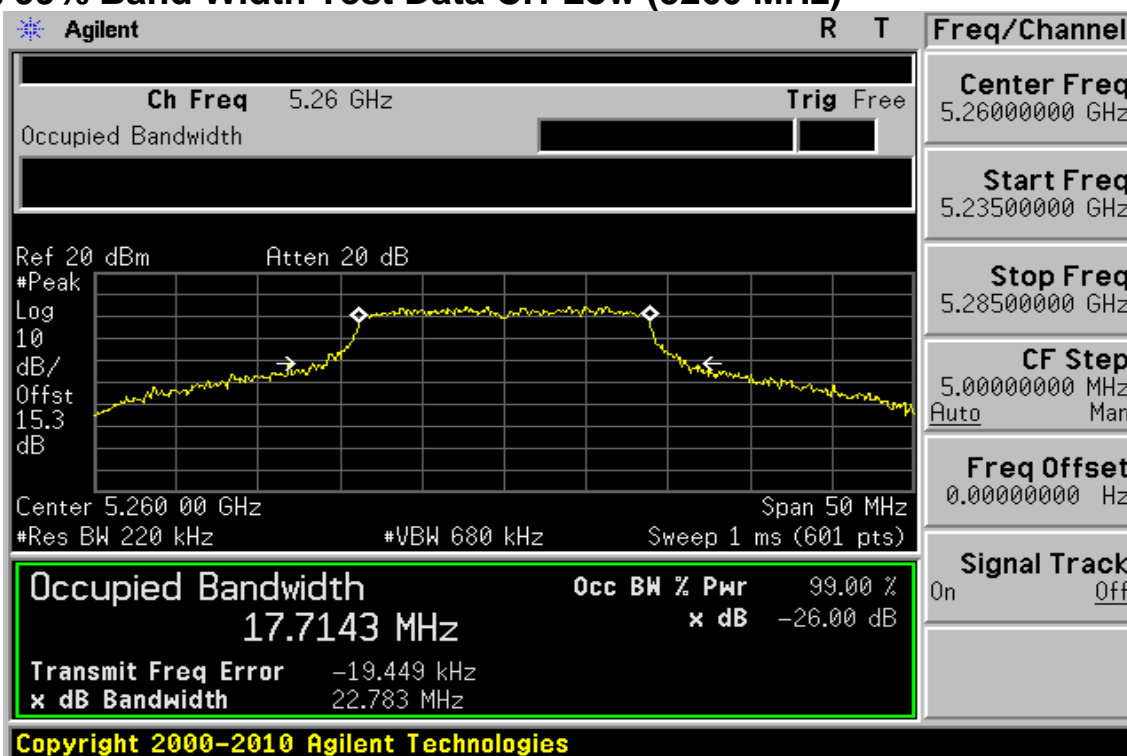
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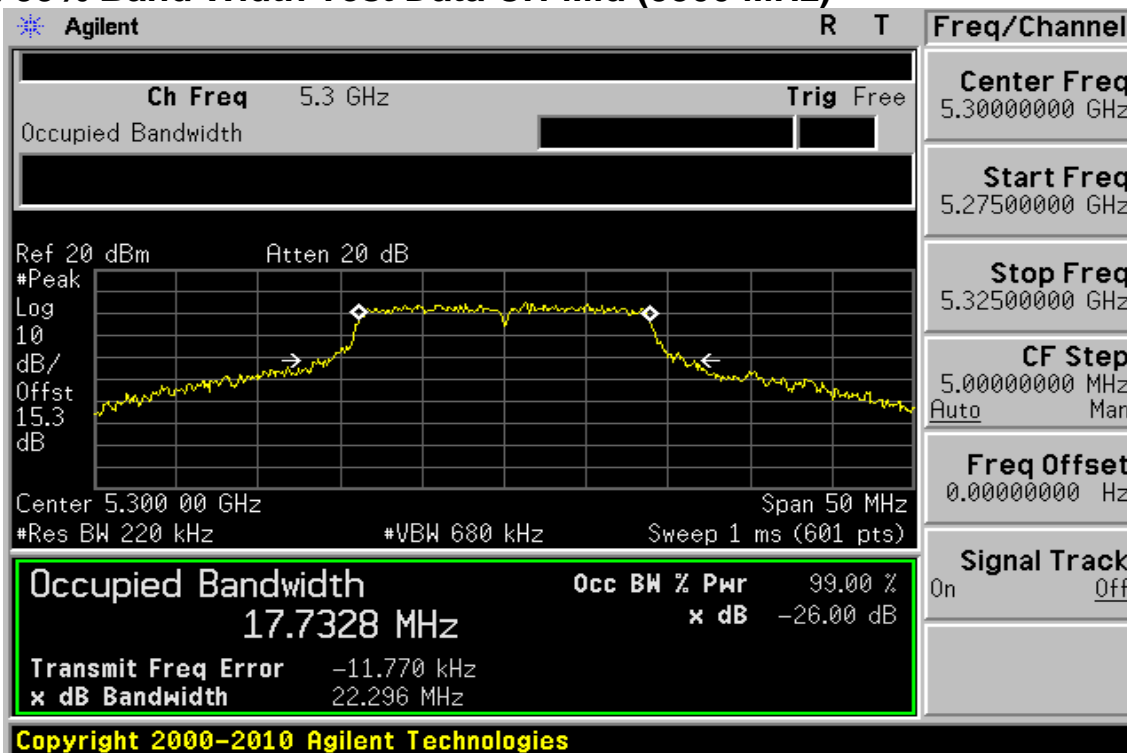
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802.11n HT20, 5250~5350 MHz (Main) 26dB & 99% Band Width Test Data CH-Low (5260 MHz)



26dB & 99% Band Width Test Data CH-Mid (5300 MHz)



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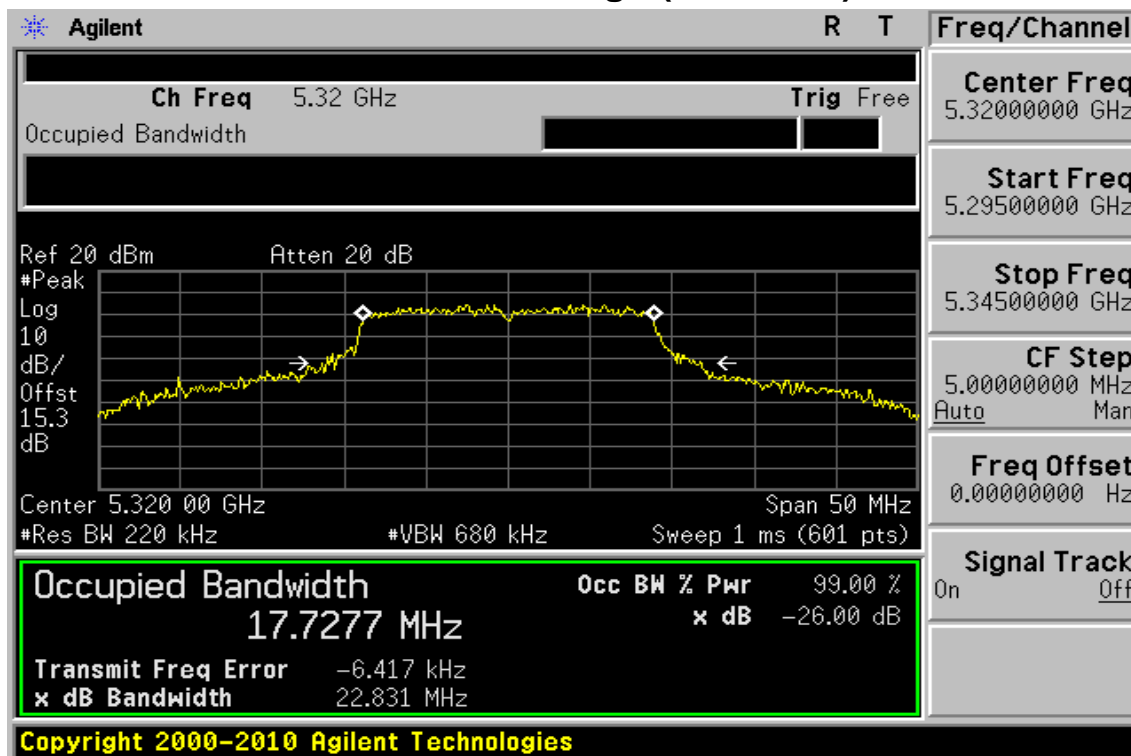
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26dB & 99% Band Width Test Data CH-High (5320 MHz)



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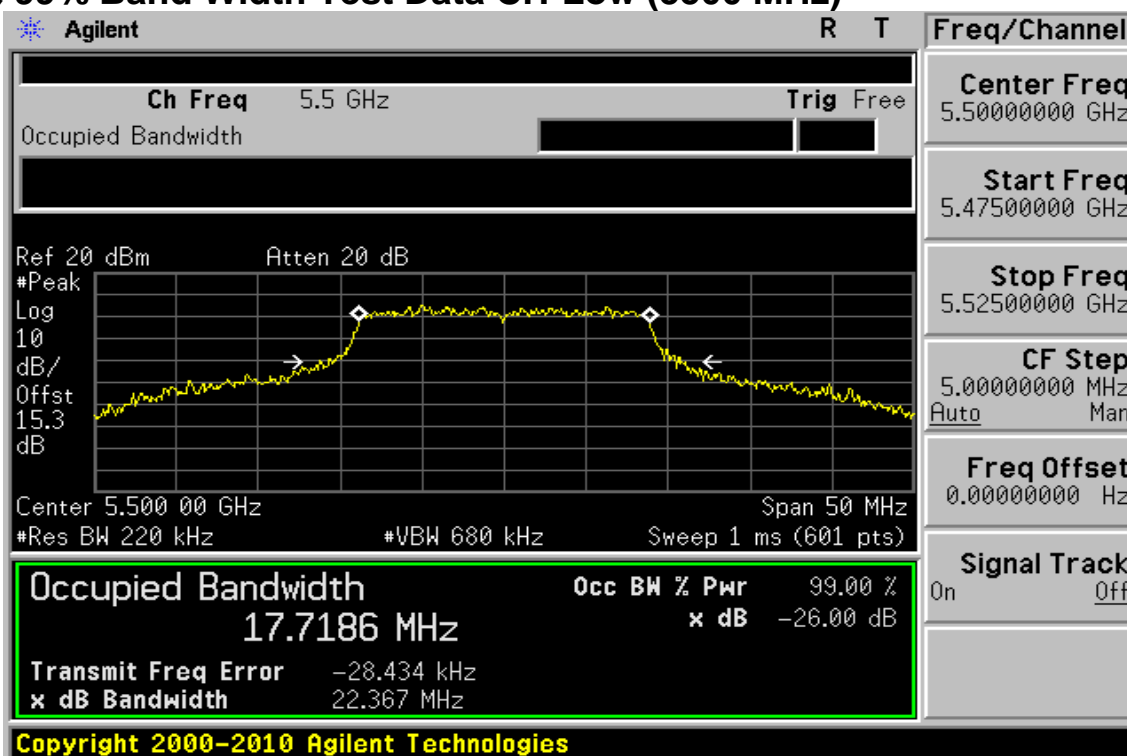
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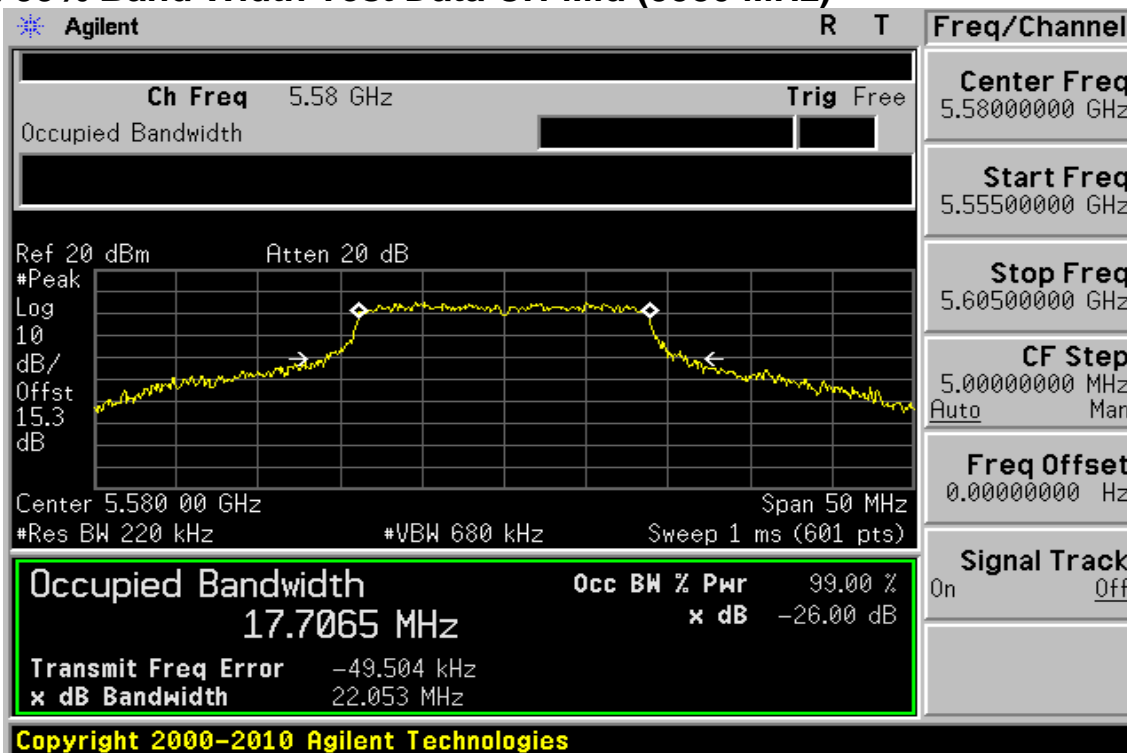
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802.11n HT20, 5470~5725 MHz (Main) 26dB & 99% Band Width Test Data CH-Low (5500 MHz)



26dB & 99% Band Width Test Data CH-Mid (5580 MHz)



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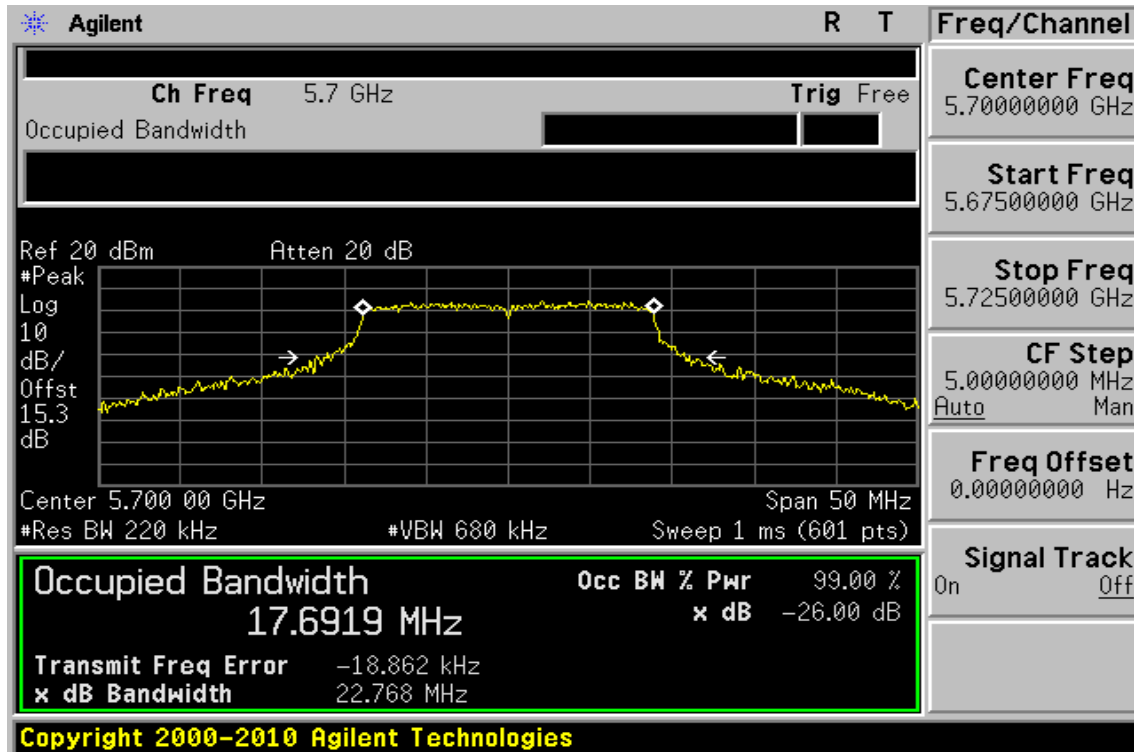
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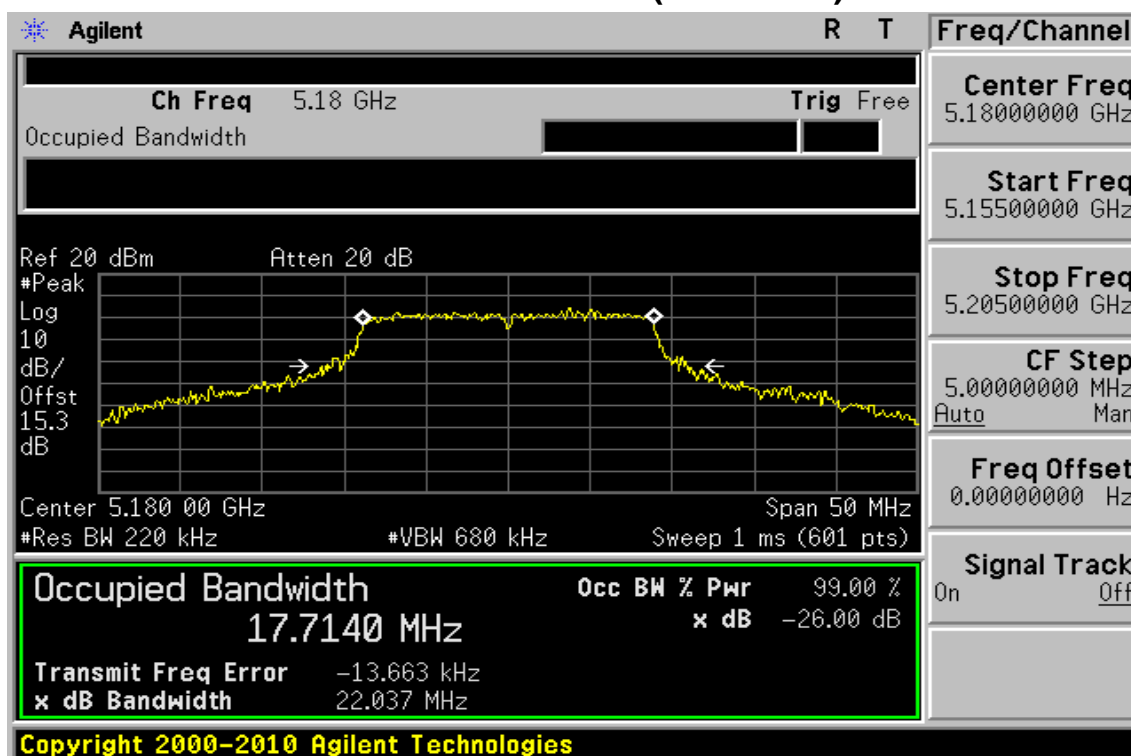
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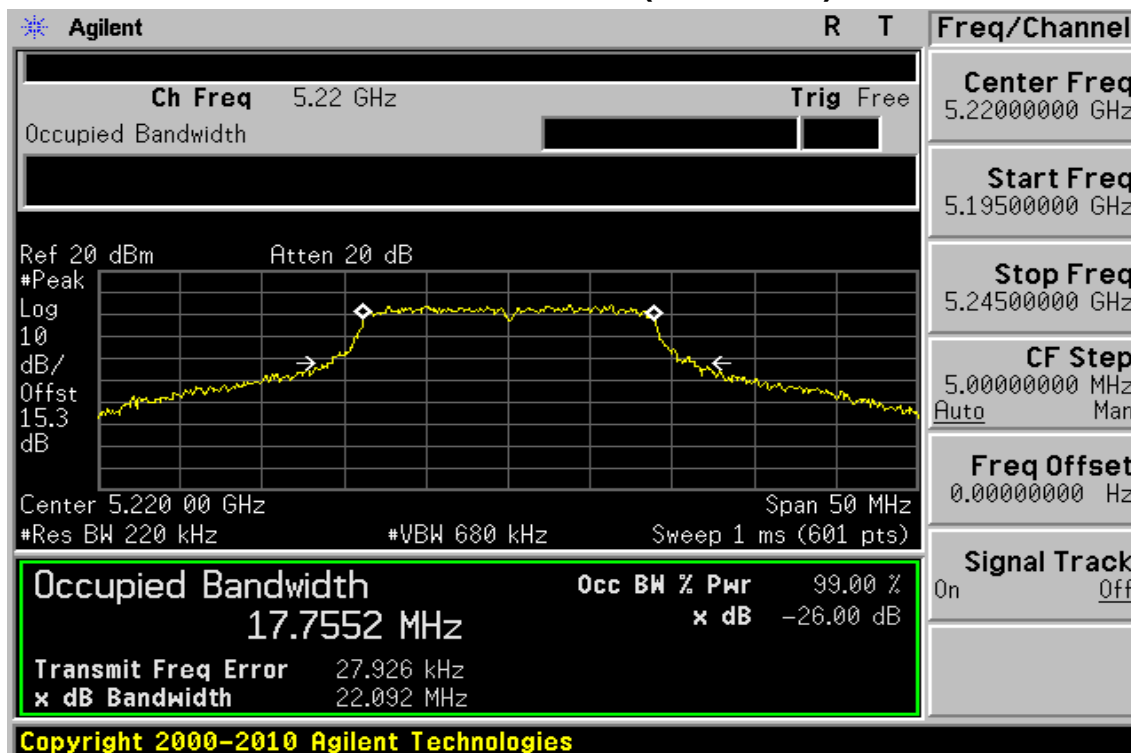
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802.11n HT20, 5150~5250 MHz (Aux) 26dB & 99% Band Width Test Data CH-Low (5180 MHz)



26dB & 99% Band Width Test Data CH-Mid (5220 MHz)



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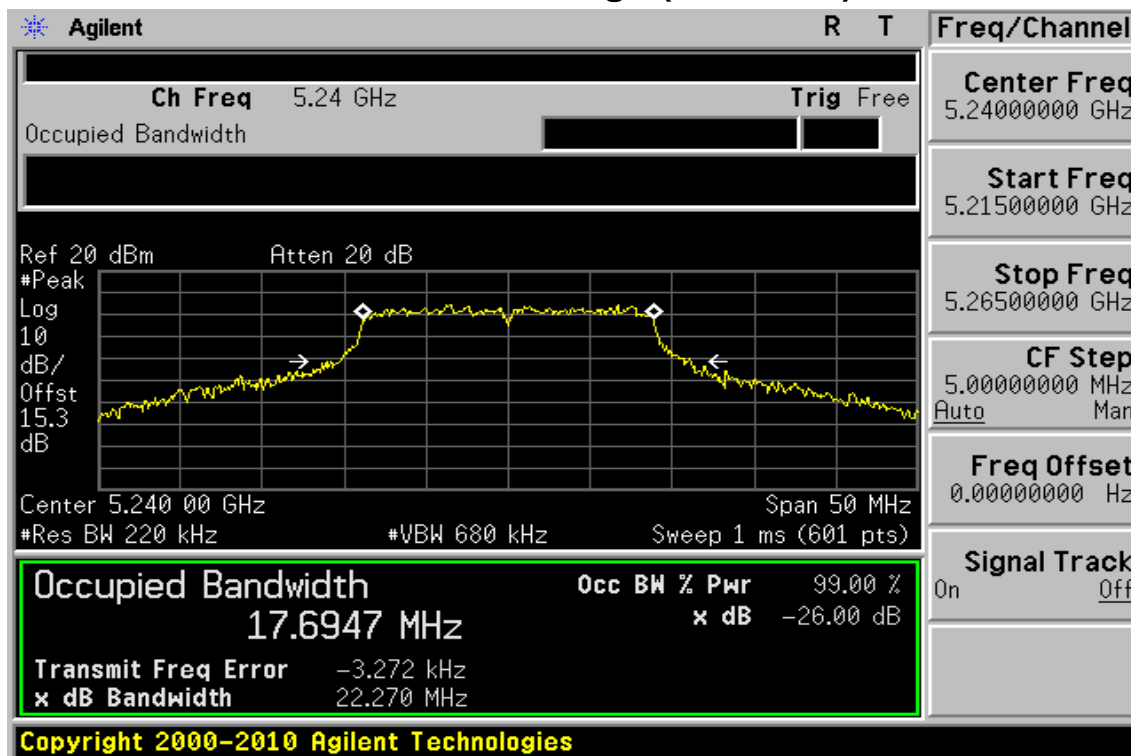
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26dB & 99% Band Width Test Data CH-High (5240 MHz)



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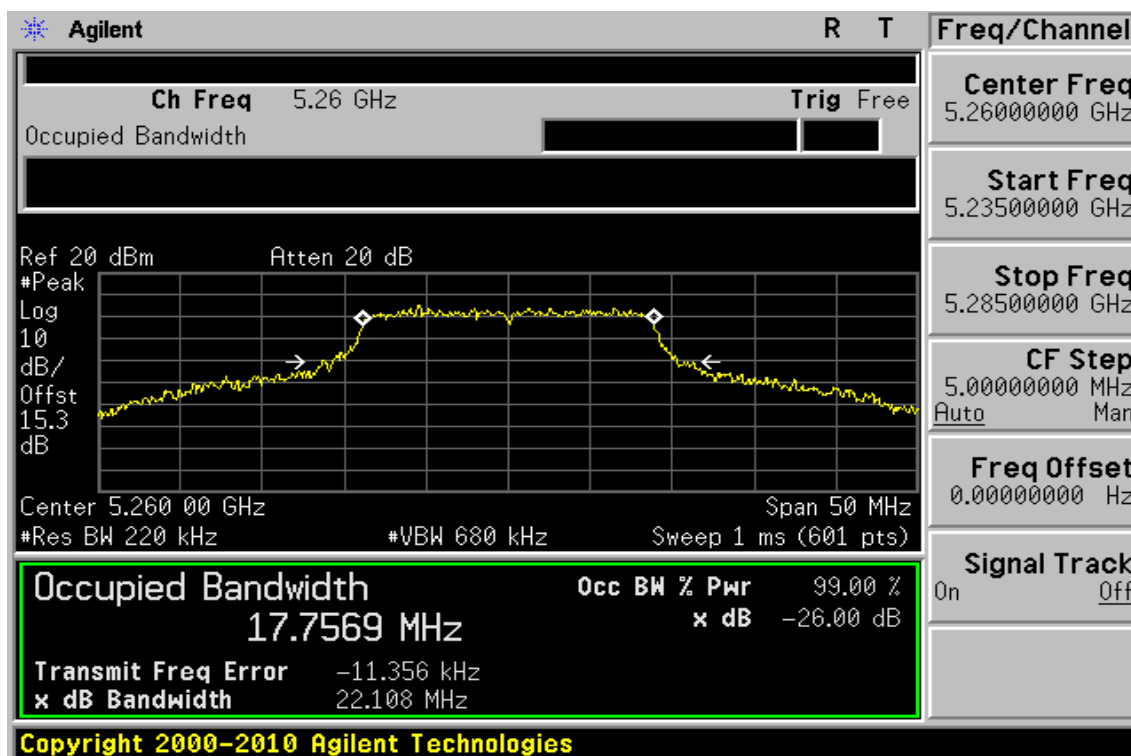
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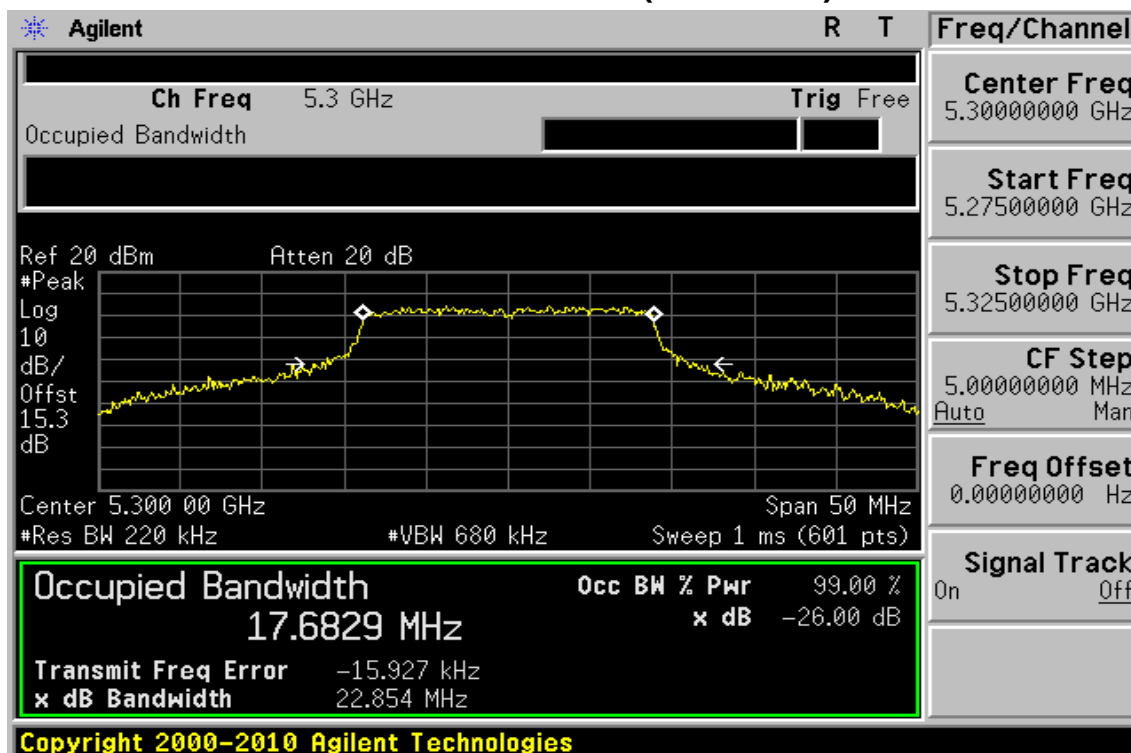
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802.11n HT20, 5250~5350 MHz (Aux) 26dB & 99% Band Width Test Data CH-Low (5260 MHz)



26dB & 99% Band Width Test Data CH-Mid (5300 MHz)



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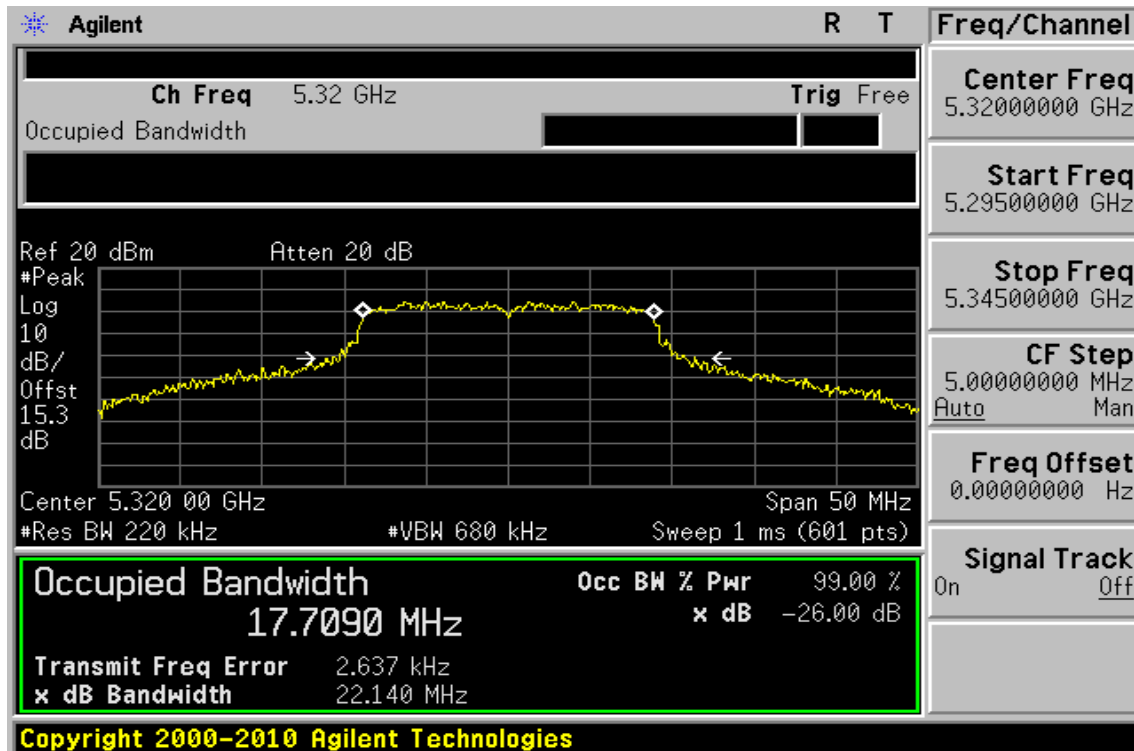
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26dB & 99% Band Width Test Data CH-High (5320 MHz)



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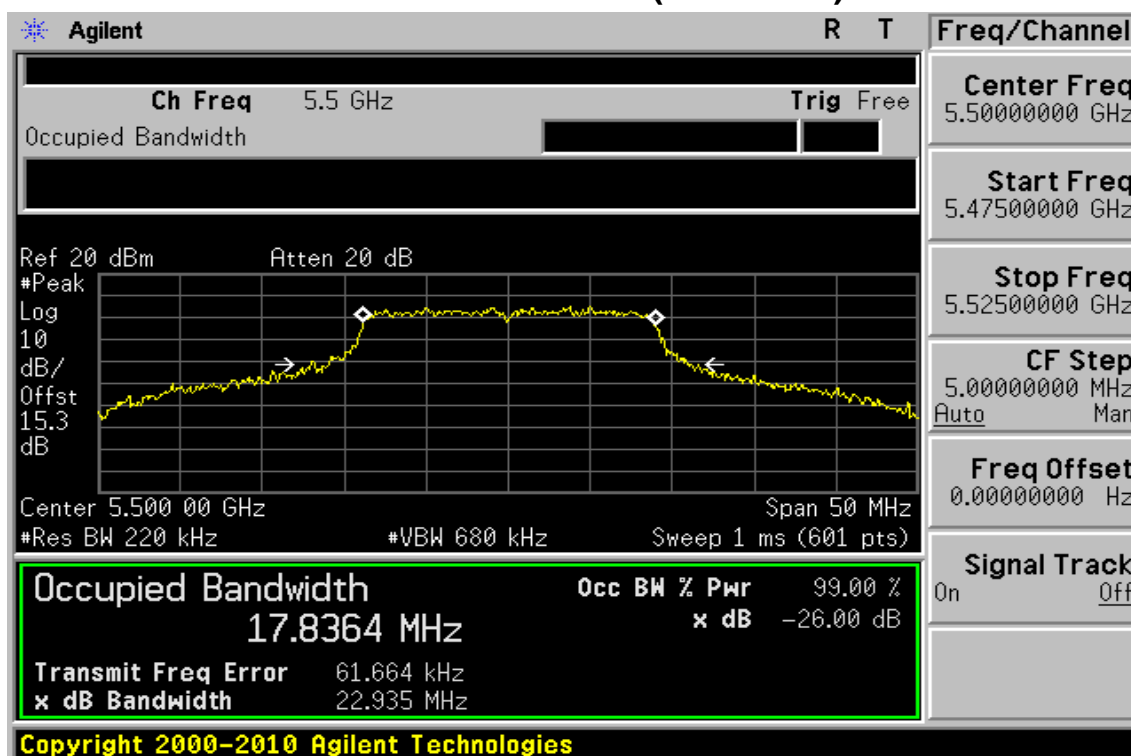
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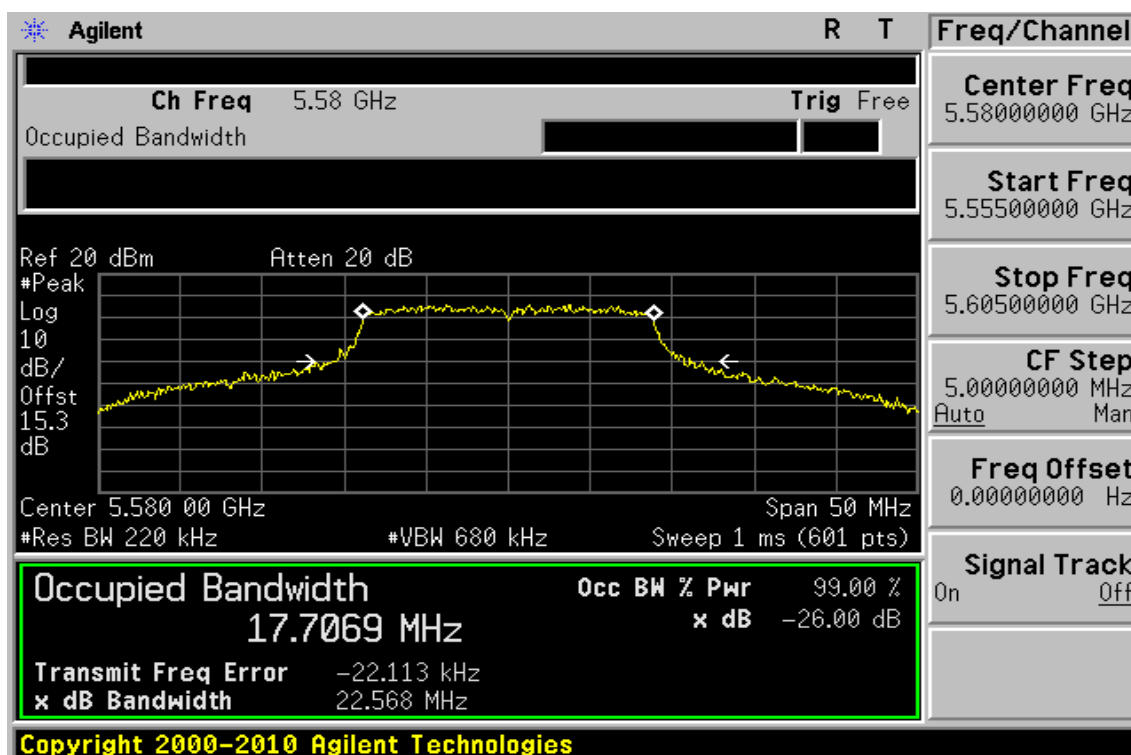
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802.11n HT20, 5470~5725 MHz (Aux) 26dB & 99% Band Width Test Data CH-Low (5500 MHz)



26dB & 99% Band Width Test Data CH-Mid (5580 MHz)



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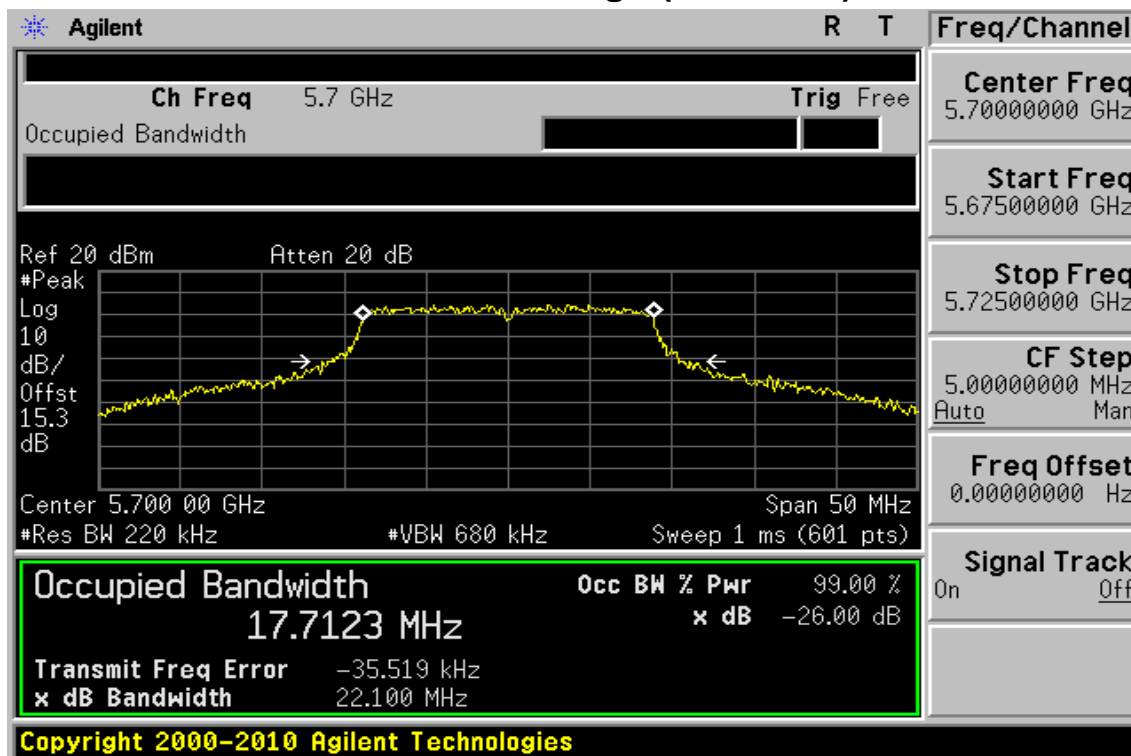
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26dB & 99% Band Width Test Data CH-High (5700 MHz)



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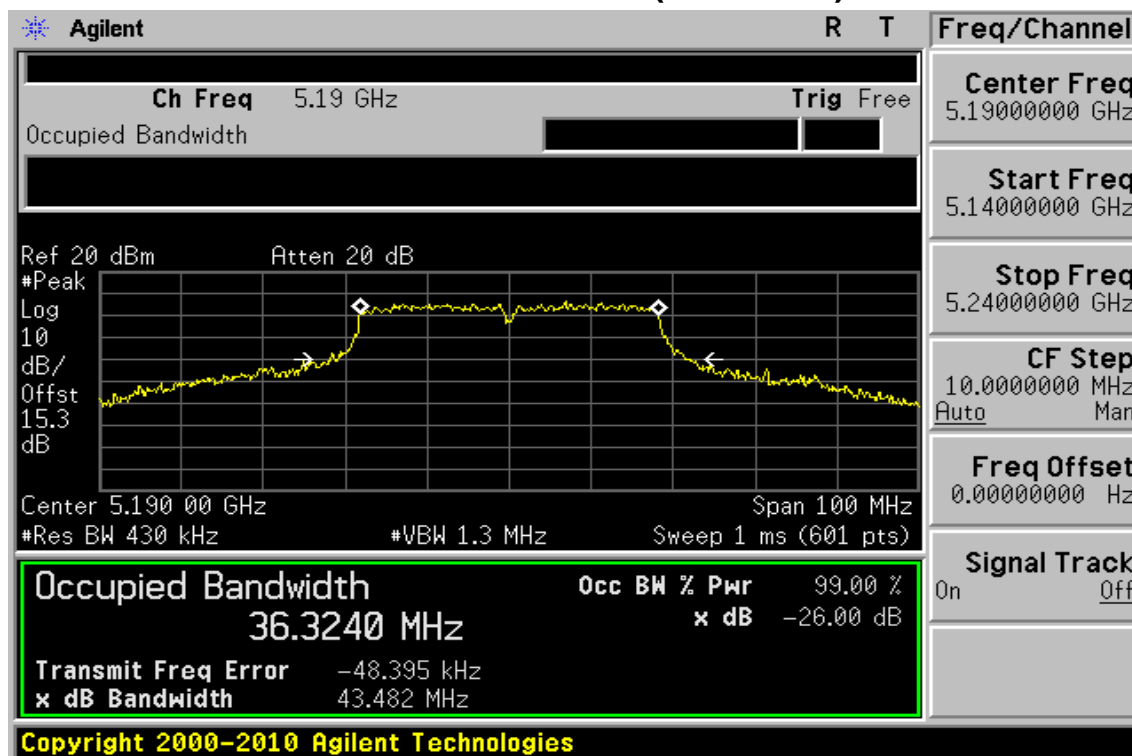
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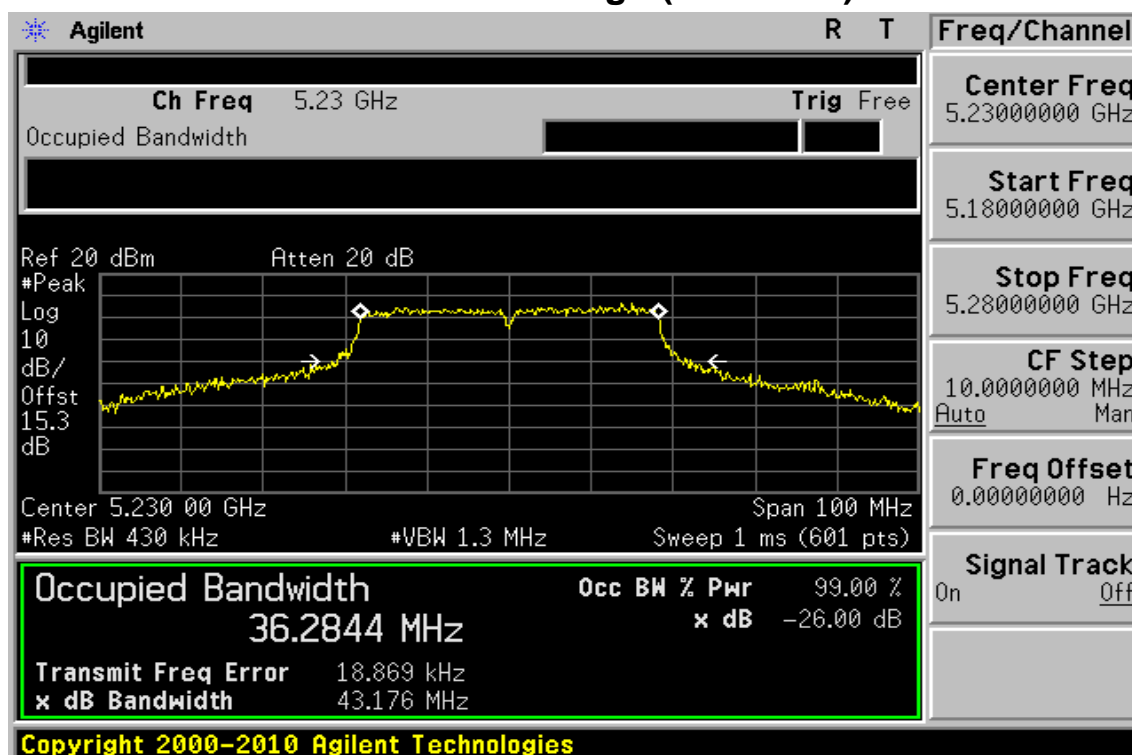
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802.11n HT40, 5150~5250 MHz (Main)

26dB & 99% Band Width Test Data CH-Low (5190 MHz)



26dB & 99% Band Width Test Data CH-High (5230 MHz)



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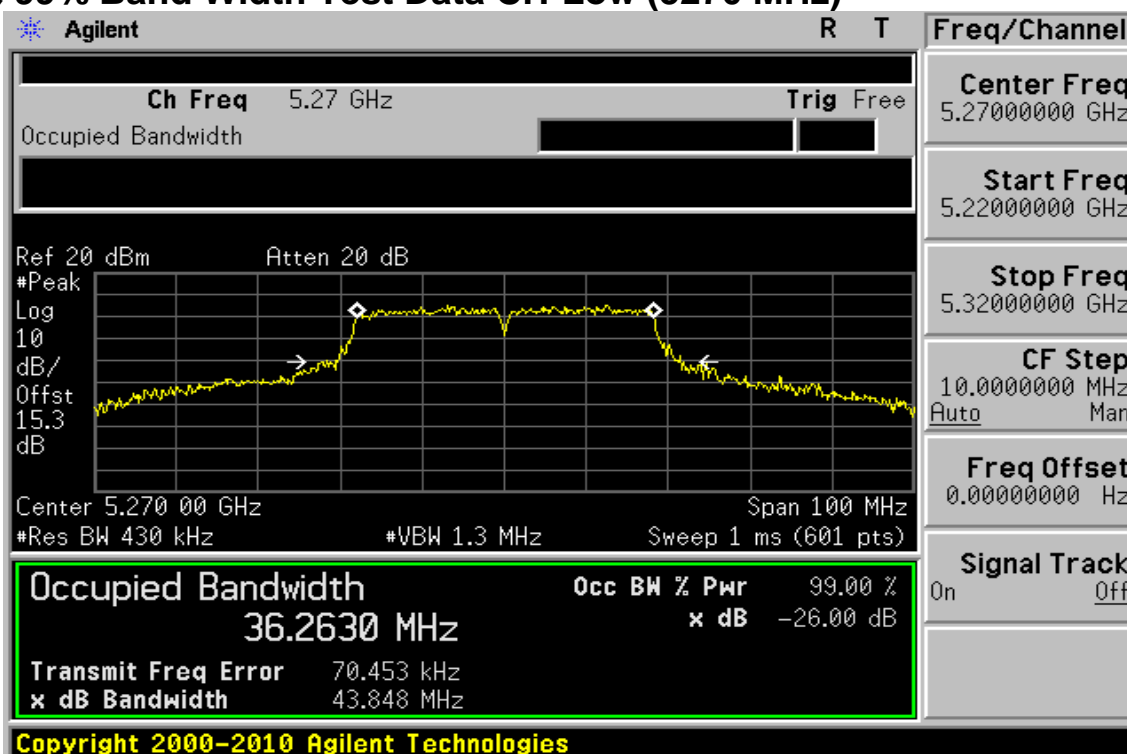
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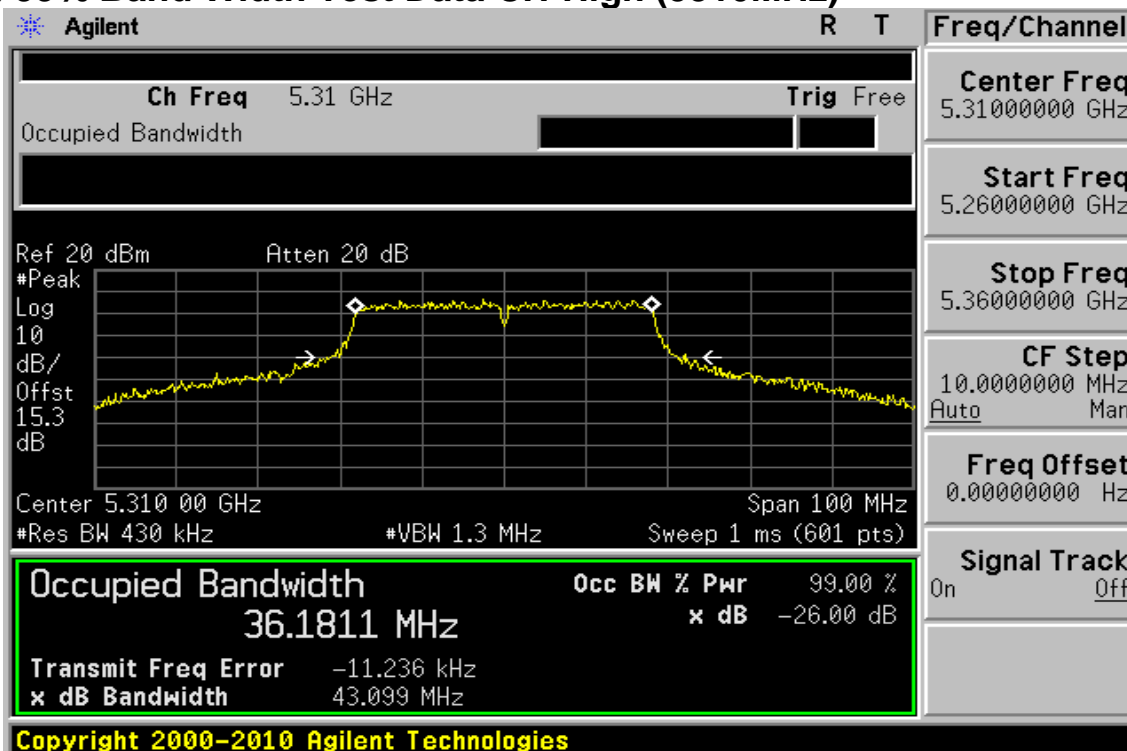
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802.11n HT40, 5250~5350 MHz (Main) 26dB & 99% Band Width Test Data CH-Low (5270 MHz)



26dB & 99% Band Width Test Data CH-High (5310MHz)



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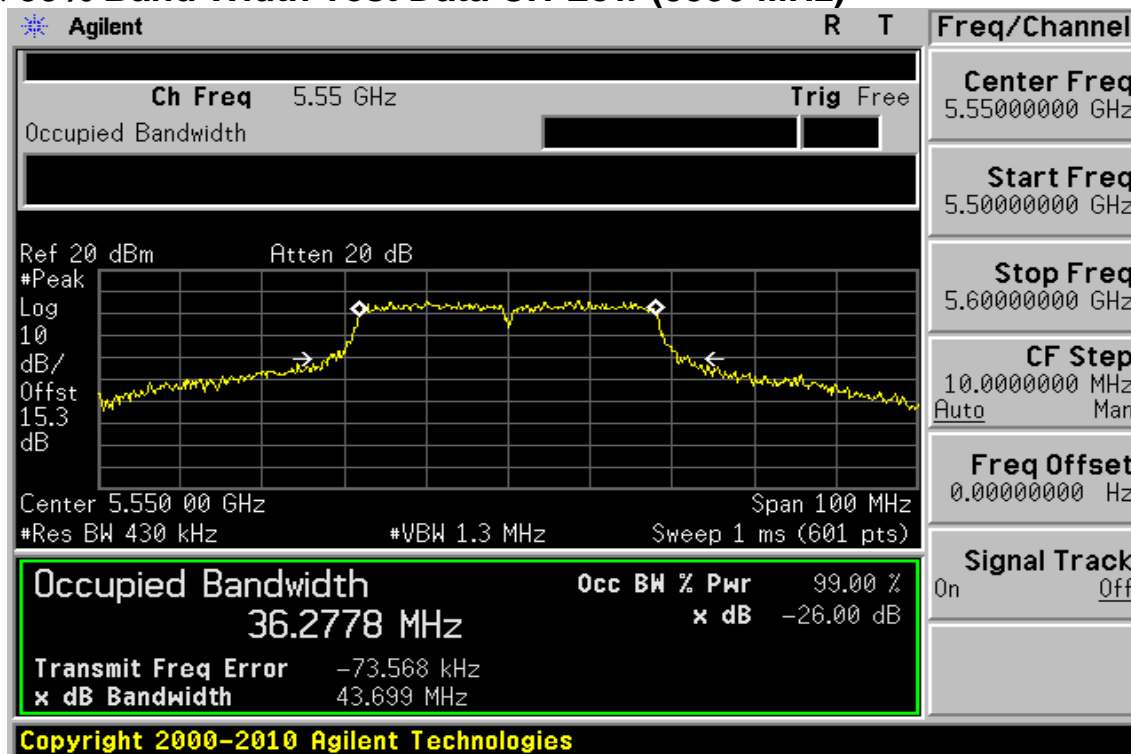
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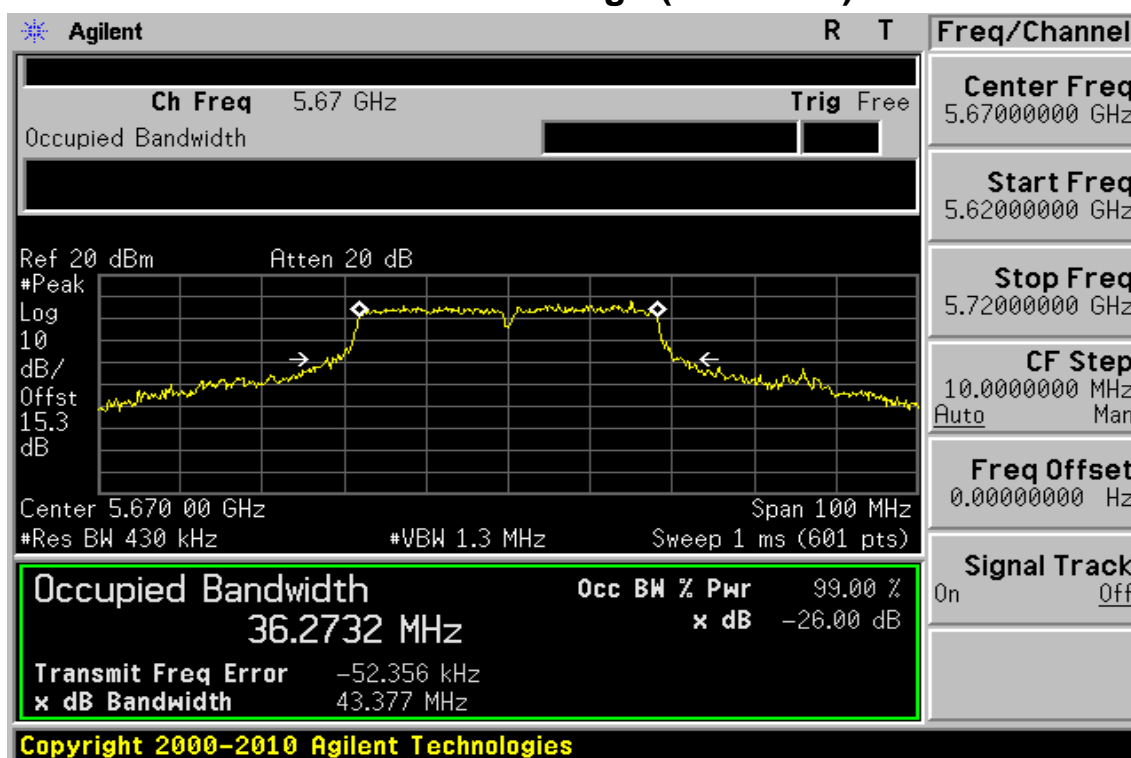
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802.11n HT40, 5470~5725 MHz (Main)

26dB & 99% Band Width Test Data CH-Low (5550 MHz)



26dB & 99% Band Width Test Data CH-High (5670 MHz)



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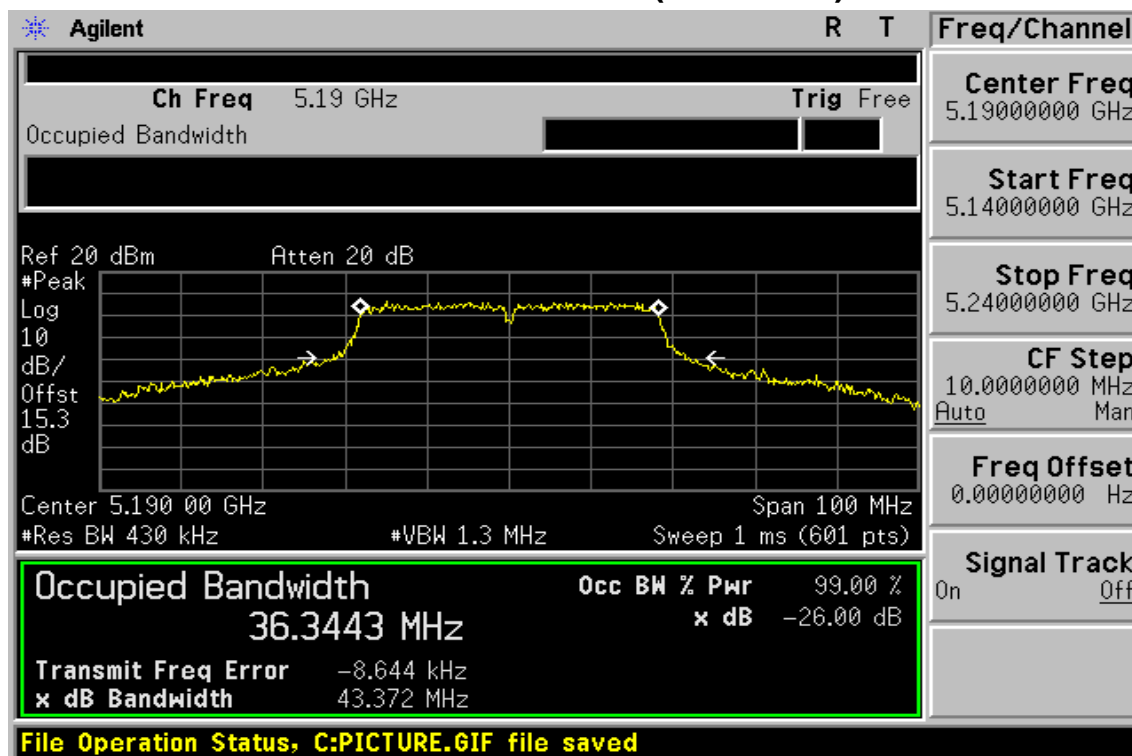
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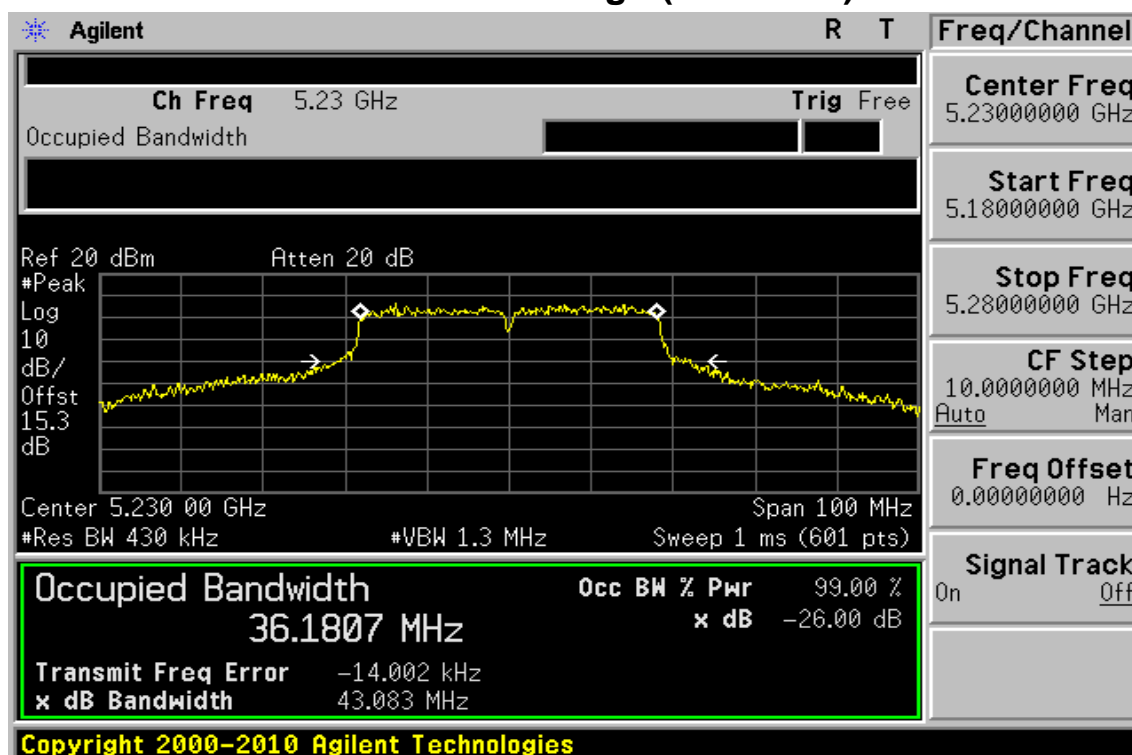
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802.11n HT40, 5150~5250 MHz (Aux)

26dB & 99% Band Width Test Data CH-Low (5190 MHz)



26dB & 99% Band Width Test Data CH-High (5230 MHz)



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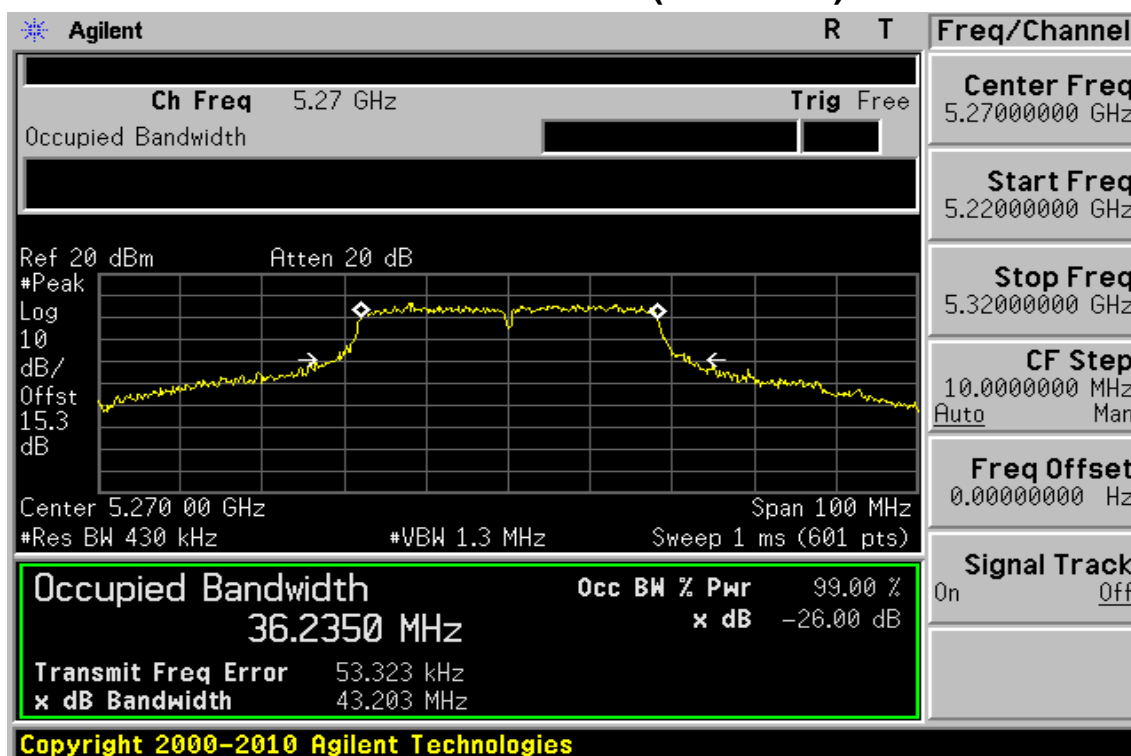
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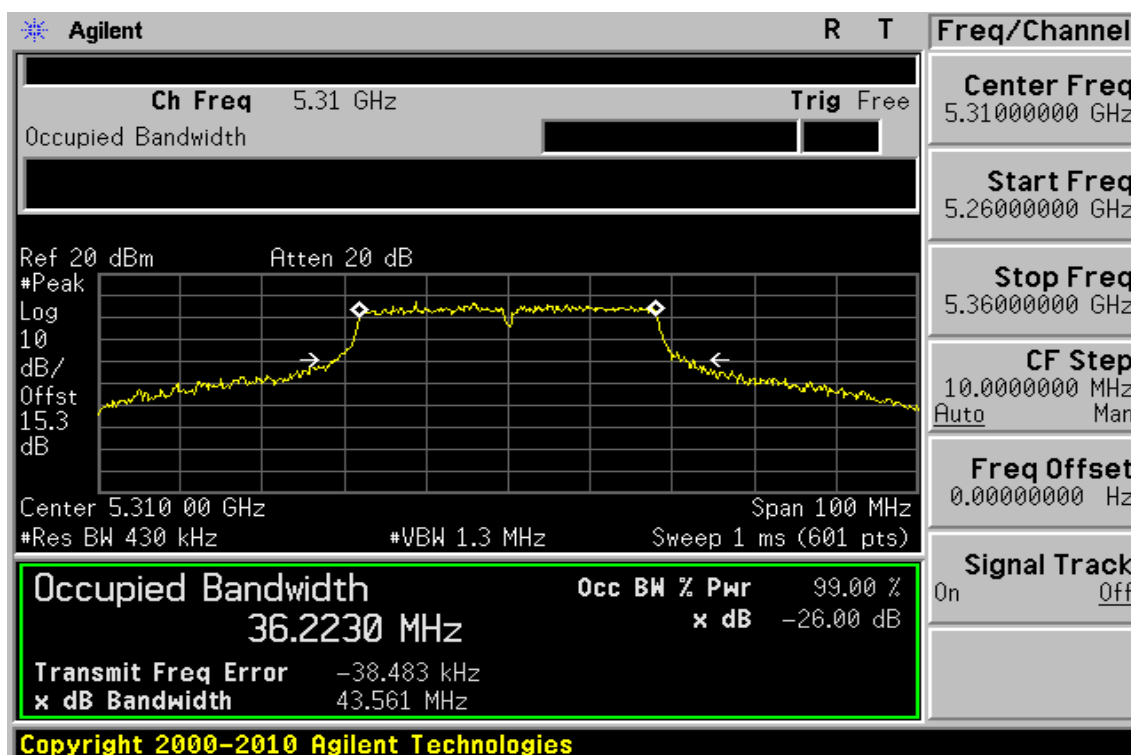
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802.11n HT40, 5250~5350 MHz (Aux) 26dB & 99% Band Width Test Data CH-Low (5270 MHz)



26dB & 99% Band Width Test Data CH-High (5310MHz)



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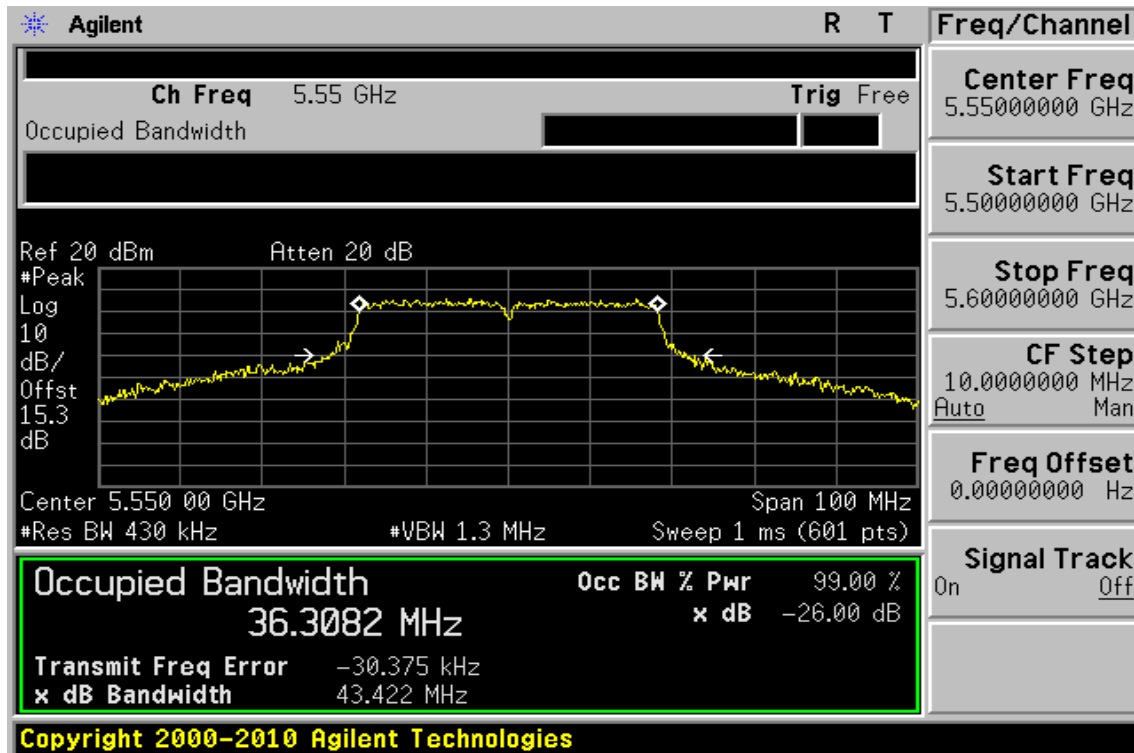
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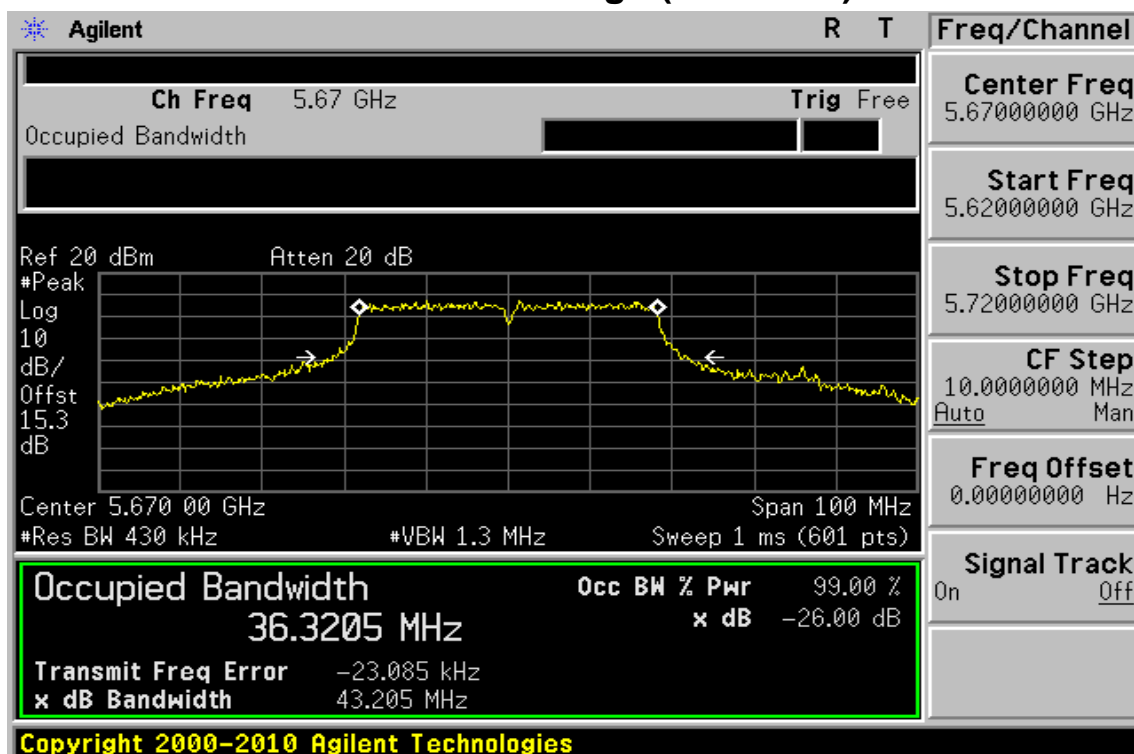
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802.11n HT40, 5470~5725 MHz (Aux) 26dB & 99% Band Width Test Data CH-Low (5550 MHz)



26dB & 99% Band Width Test Data CH-High (5670 MHz)



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9. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

9.1 Standard Applicable

FCC

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device)	1 Watt(30dBm)
		Fixed point-to-point Acess Ponit	1 Watt(30dBm)
	✓	Mobile and portable clinet device	250mW(23.98dBm)
U-NII-2A	✓		250mW(23.98dBm) or 11dBm+10 log B
U-NII-2C	✓		250mW(23.98dBm) or 11dBm+10 log B

IC

OPERZTION FREQUENCY BAND	LIMIT
5150~5250 MHz	EIRP shall not exceed 200 mW or 10 + 10 log ₁₀ B, dBm
5250~5350 MHz	Conducted output power shall not exceed 250 mW or 11 +10 log ₁₀ B EIRP shall not exceed 1.0 W or 17 + 10 log ₁₀ B, dBm
5470-5600 MHz and 5650-5725 MHz	Conducted output power shall not exceed 250 mW or 11 +10 log ₁₀ B EIRP shall not exceed 1.0 W or 17 + 10 log ₁₀ B, dBm

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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The antenna gain is greater than 6 dBi in MIMO mode the limit reduce as below:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

FCC

	Effective Legacy Gain (dBi)	Limit
UNII-1	5.6+3.01=8.61dBi	23.98dBm – (8.61– 6 dBi) = 21.37dBm
UNII-2A	5.9+3.01=8.91dBi	23.98dBm – (8.91– 6 dBi) = 21.07dBm
U-NII-2C	4.7+3.01=7.71dBi	23.98dBm – (7.71– 6 dBi) = 22.27dBm

IC

	Effective Legacy Gain (dBi)	Limit
UNII-2A	5.9+3.01=8.91dBi	23.98dBm – (8.91– 6 dBi) = 21.07dBm
U-NII-2C	4.7+3.01=7.71dBi	23.98dBm – (7.71– 6 dBi) = 22.27dBm

Therefore the limit needs to reduce for the U-NII-2A and U-NII-2C band.

9.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
5. Record the max. reading and add 10 log(1/duty cycle).
6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

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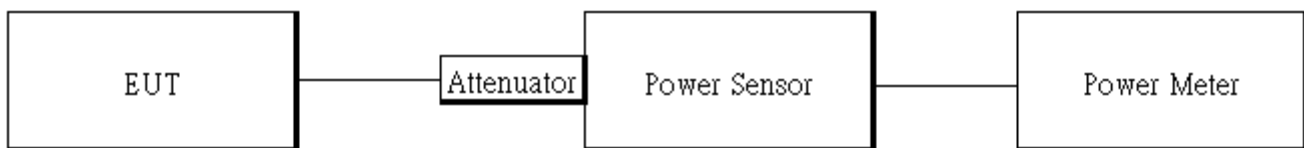
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9.3 Measurement Equipment Used

Refer to section 8.3 for details.

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1326001	06/23/2015	06/22/2016
Power Sensor	Anritsu	MA2411B	1315048	06/23/2015	06/22/2016
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2015	04/13/2016
Splitter	RF-LAMBDA	RFLT2W1G18G	RF35	12/12/2015	12/11/2016
DC Block	PASTERNAK	PE8210	RF29	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF23	12/12/2015	12/11/2016

9.4 Test Set-up



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9.5 Measurement Result

802.11a

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	13.52	22.491	23.98	PASS
44	5220	14.06	25.468	23.98	PASS
48	5240	14.02	25.235	23.98	PASS
52	5260	13.91	24.604	23.98 or $11+10\log(B) = 23.20$	PASS
60	5300	13.57	22.751	23.98 or $11+10\log(B) = 23.22$	PASS
64	5320	13.87	24.378	23.98 or $11+10\log(B) = 23.22$	PASS
100	5500	15.53	35.727	23.98 or $11+10\log(B) = 23.23$	PASS
116	5580	15.23	33.343	23.98 or $11+10\log(B) = 23.22$	PASS
140	5700	14.14	25.942	23.98 or $11+10\log(B) = 23.21$	PASS

802.11n HT20 (MIMO)

CH	Frequency (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
		CHAIN 0	CHAIN 1				
36	5180	9.78	11.7	13.86	24.297	21.37	PASS
44	5220	10.04	11.55	13.87	24.381	21.37	PASS
48	5240	10.07	11.5	13.85	24.288	21.37	PASS
52	5260	10.49	11.38	13.97	24.935	21.07 or $11+10\log(B) = 23.49$	PASS
60	5300	9.64	10.9	13.33	21.507	21.07 or $11+10\log(B) = 23.48$	PASS
64	5320	9.75	11.45	13.69	23.404	21.07 or $11+10\log(B) = 23.48$	PASS
100	5500	10.54	12.03	14.36	27.283	22.27 or $11+10\log(B) = 23.51$	PASS
116	5580	10.21	13.49	15.16	32.831	22.27 or $11+10\log(B) = 23.48$	PASS
140	5700	8.9	13.08	14.48	28.086	22.27 or $11+10\log(B) = 23.48$	PASS

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802.11n HT40 (MIMO)

CH	Frequency (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
		CHAIN 0	CHAIN 1				
38	5190	9.14	12.27	13.99	25.069	21.37	PASS
46	5230	9.6	12.16	14.08	25.564	21.37	PASS
54	5270	9.94	11.79	13.97	24.964	21.07 or $11+10\log(B) = 26.59$	PASS
62	5310	9.11	11.34	13.38	21.761	21.07 or $11+10\log(B) = 26.59$	PASS
110	5550	10.04	13.00	14.78	30.045	22.27 or $11+10\log(B) = 26.60$	PASS
134	5670	8.93	13.55	14.84	30.463	22.27 or $11+10\log(B) = 26.60$	PASS

* Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.

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EIRP Measurement:

802.11a

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	GAIN (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	13.52	22.491	5.60	19.12	23.01 or $10+10\log(B) = 22.22$	PASS
44	5220	14.06	25.468		19.66	23.01 or $10+10\log(B) = 22.19$	PASS
48	5240	14.02	25.235		19.62	23.01 or $10+10\log(B) = 22.22$	PASS
52	5260	13.91	24.604	5.90	19.81	30 or $17+10\log(B) = 29.20$	PASS
60	5300	13.57	22.751		19.47	30 or $17+10\log(B) = 29.22$	PASS
64	5320	13.87	24.378		19.77	30 or $17+10\log(B) = 29.22$	PASS
100	5500	15.53	35.727	4.70	20.23	30 or $17+10\log(B) = 29.23$	PASS
116	5580	15.23	33.343		19.93	30 or $17+10\log(B) = 29.22$	PASS
140	5700	14.14	25.942		18.84	30 or $17+10\log(B) = 29.21$	PASS

802.11n HT20 (MIMO)

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	GAIN (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	13.86	24.322	8.61	22.47	23.01 or $10+10\log(B) = 22.48$	PASS
44	5220	13.87	24.378		22.48	23.01 or $10+10\log(B) = 22.49$	PASS
48	5240	13.85	24.266		22.46	23.01 or $10+10\log(B) = 22.48$	PASS
52	5260	13.97	24.935	8.91	22.88	30 or $17+10\log(B) = 29.48$	PASS
60	5300	13.33	21.507		22.24	30 or $17+10\log(B) = 29.48$	PASS
64	5320	13.69	23.404		22.60	30 or $17+10\log(B) = 29.48$	PASS
100	5500	14.36	27.283	7.71	22.07	30 or $17+10\log(B) = 29.48$	PASS
116	5580	15.16	32.831		22.87	30 or $17+10\log(B) = 29.48$	PASS
140	5700	14.48	28.086		22.19	30 or $17+10\log(B) = 29.48$	PASS

* **Note:** EIRP = Average Power + Gain

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802.11n HT40 (MIMO)

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	GAIN (dBi)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	13.99	25.061	8.61	22.60	23.01 or $10+10\log(B) = 25.60$	PASS
46	5230	14.08	25.586		22.69	23.01 or $10+10\log(B) = 25.58$	PASS
54	5270	13.97	24.946	8.91	22.88	30 or $17+10\log(B) = 32.59$	PASS
62	5310	13.38	21.777		22.29	30 or $17+10\log(B) = 32.58$	PASS
110	5550	14.78	30.061	7.71	22.49	30 or $17+10\log(B) = 32.60$	PASS
134	5670	14.84	30.479		22.55	30 or $17+10\log(B) = 32.60$	PASS

* **Note:** EIRP = Average Power + Gain

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10. PEAK POWER SPECTRAL DENSITY

10.1 Standard Applicable

FCC

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device)	17dBm/ MHz
		Fixed point-to-point Acess Ponit	
	√	Mobile and portable clinet device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz

IC

OPERZTION FREQUENCY BAND	LIMIT
5150~5250 MHz	EIRP spectral density 10 dBm / MHz
5250~5350 MHz	11dBm / MHz
5470-5600 MHz and 5650-5725 MHz	11dBm / MHz

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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The antenna gain is greater than 6 dBi in MIMO mode the limit reduce as below:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

FCC

	Effective Legacy Gain (dBi)	Limit
UNII-1	5.6+3.01=8.61dBi	11dBm – (8.61– 6 dBi) = 8.39dBm
UNII-2A	5.9+3.01=8.91dBi	11dBm – (8.91– 6 dBi) = 8.09dBm
U-NII-2C	4.7+3.01=7.71dBi	11dBm – (7.71– 6 dBi) = 9.29dBm

IC

	Effective Legacy Gain (dBi)	Limit
UNII-2A	5.9+3.01=8.91dBi	11dBm – (8.91– 6 dBi) = 8.09dBm
U-NII-2C	4.7+3.01=7.71dBi	11dBm – (7.71– 6 dBi) = 9.29dBm

Therefore the limit needs to reduce for the UNII-1, U-NII-2A, U-NII-2C and U-NII-3 band.

10.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. **For U-NII1, U-NII-2A, U-NII-2C Band:**
Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
For U-NII-3 Band:
Set RBW=500 kHz, VBW≥ 3RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
5. Use the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).
7. Repeat above procedures until all default test channel (low, middle, and high) was complete.

Note: For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between Main An-

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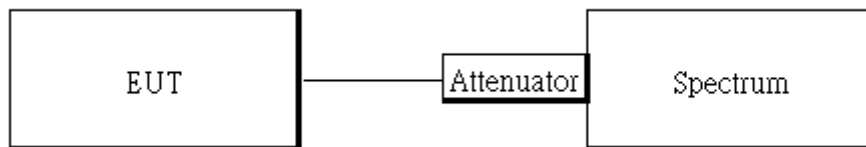
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tenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome

10.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2015	01/01/2016
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016

10.4 Test Set-up



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10.5 Measurement Result

802.11a

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-1.145	11.00	-12.15
5220	-0.561	11.00	-11.56
5240	-1.009	11.00	-12.01
5260	-1.818	11.00	-12.82
5300	-2.133	11.00	-13.13
5320	-1.549	11.00	-12.55
5500	-1.542	11.00	-12.54
5580	-0.441	11.00	-11.44
5700	-1.783	11.00	-12.78

EIRP spectral density

Frequency (MHz)	PPSD (dBm / MHz)	Antenna Gain (dBi)	EIRP spectral density (dBm / MHz)	Limit (dBm / MHz)	Margin (dB)
5180	-1.145	5.60	4.46	10.00	-5.55
5220	-0.561	5.60	5.04	10.00	-4.96
5240	-1.009	5.60	4.59	10.00	-5.41

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802.11n HT20 (MIMO)

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-1.013	8.39	-9.40
5220	-1.566	8.39	-9.96
5240	0.255	8.39	-8.14
5260	-0.124	8.09	-8.21
5300	-1.024	8.09	-9.11
5320	-0.393	8.09	-8.48
5500	0.901	9.29	-8.39
5580	1.322	9.29	-7.97
5700	1.878	9.29	-7.41

EIRP spectral density

Frequency (MHz)	PPSD (dBm / MHz)	Antenna Gain (dBi)	EIRP spectral density (dBm / MHz)	Limit (dBm / MHz)	Margin (dB)
5180	-1.013	8.61	7.60	10.00	-2.40
5220	-1.566	8.61	7.04	10.00	-2.96
5240	0.255	8.61	8.87	10.00	-1.14

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802.11n HT40 (MIMO)

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5190	-4.677	8.39	-13.07
5230	-4.320	8.39	-12.71
5270	-5.447	8.09	-13.54
5310	-4.120	8.09	-12.21
5550	-2.734	9.29	-12.02
5670	-1.909	9.29	-11.20

EIRP spectral density

Frequency (MHz)	PPSD (dBm / MHz)	Antenna Gain (dBi)	EIRP spectral density (dBm / MHz)	Limit (dBm / MHz)	Margin (dB)
5190	-4.677	8.61	3.93	10.00	-6.07
5230	-4.320	8.61	4.29	10.00	-5.71

Note: As cable loss+ Duty cycle factor that offsets on the Spectrum.

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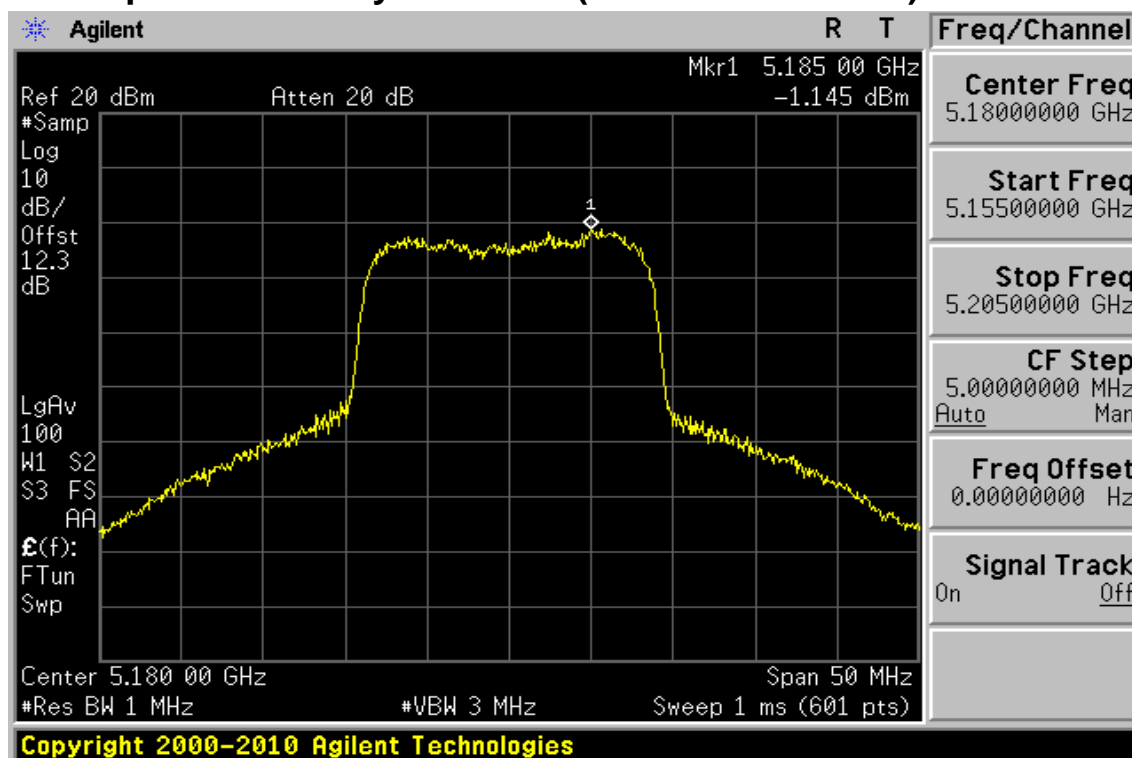
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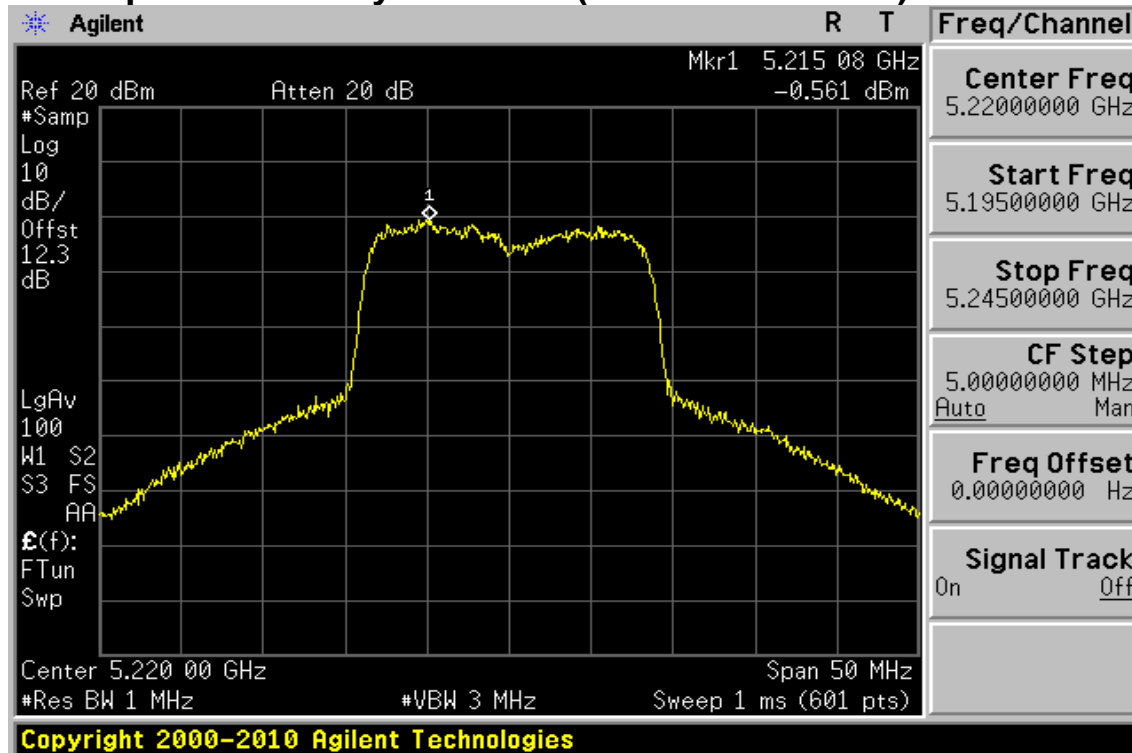
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802.11a 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



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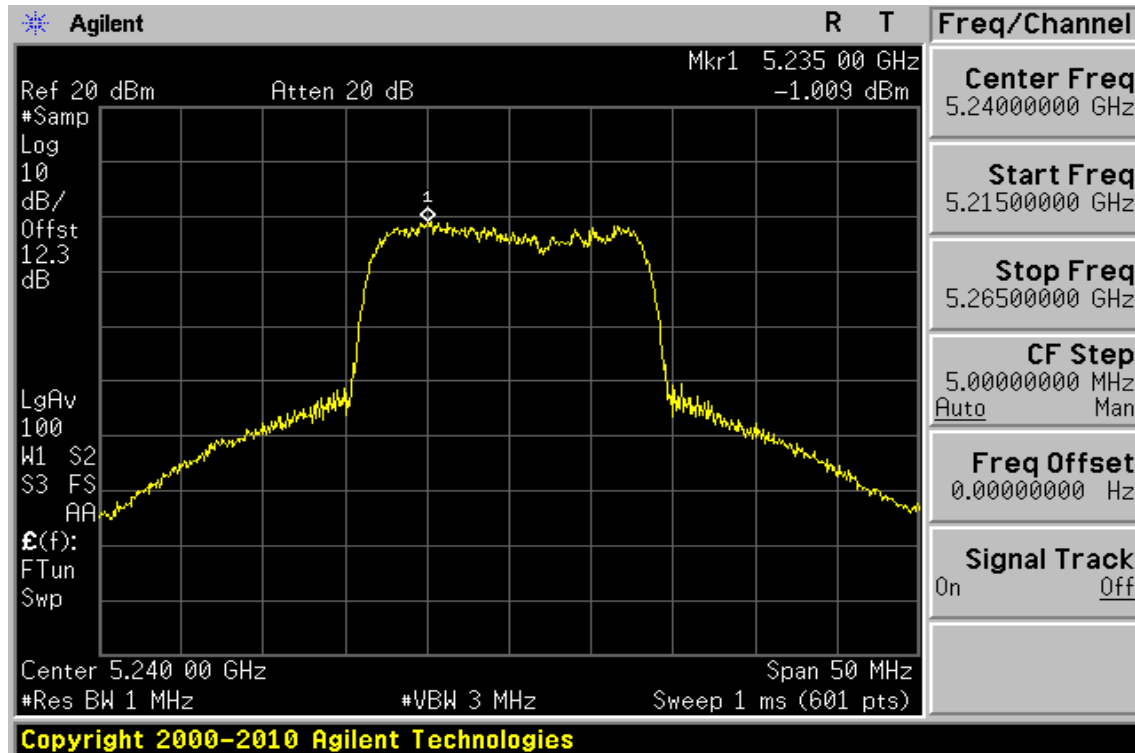
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Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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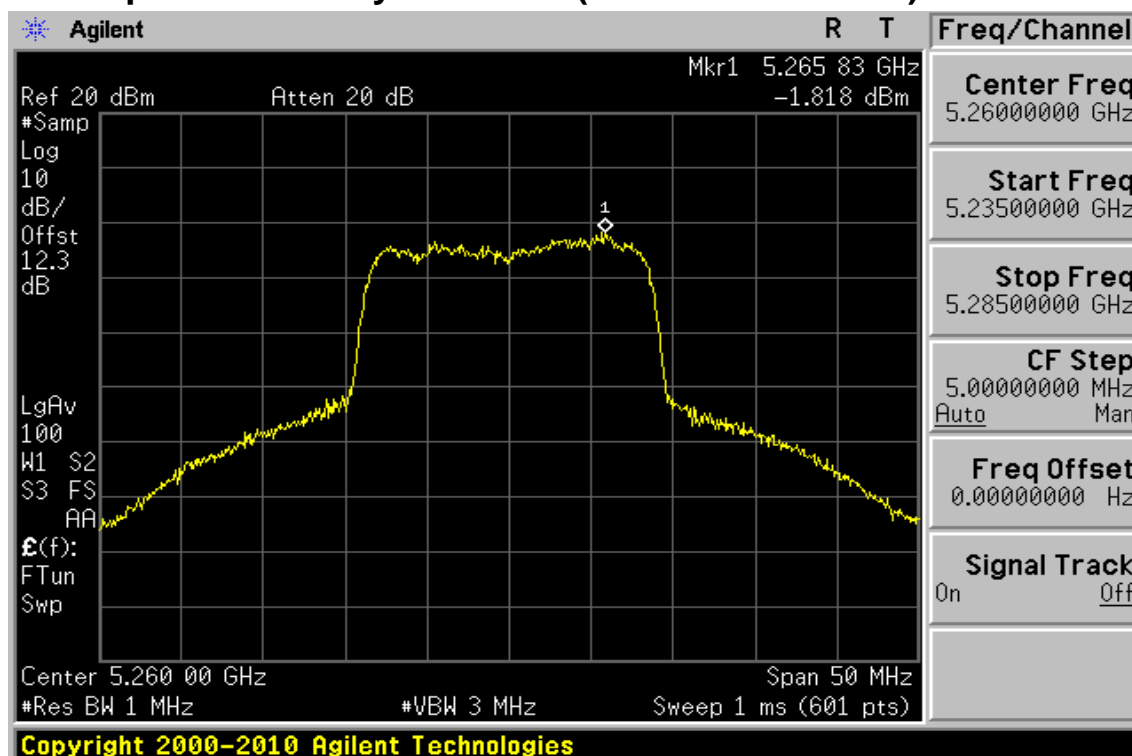
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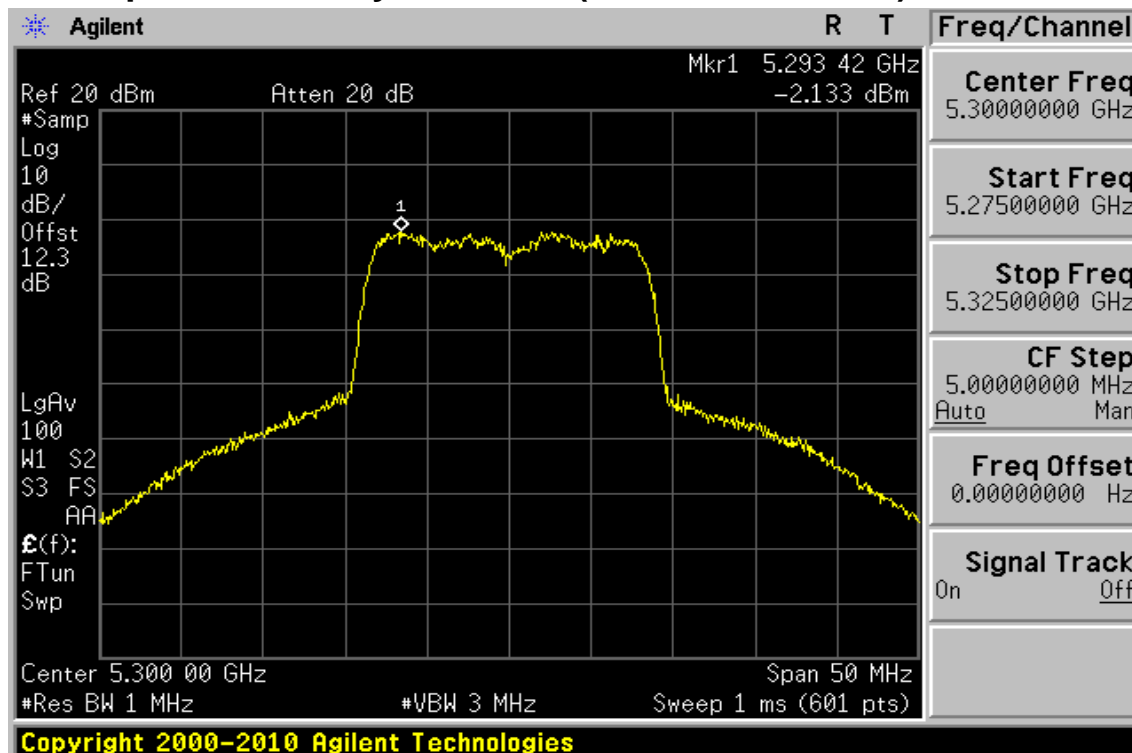
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802.11a 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5260 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



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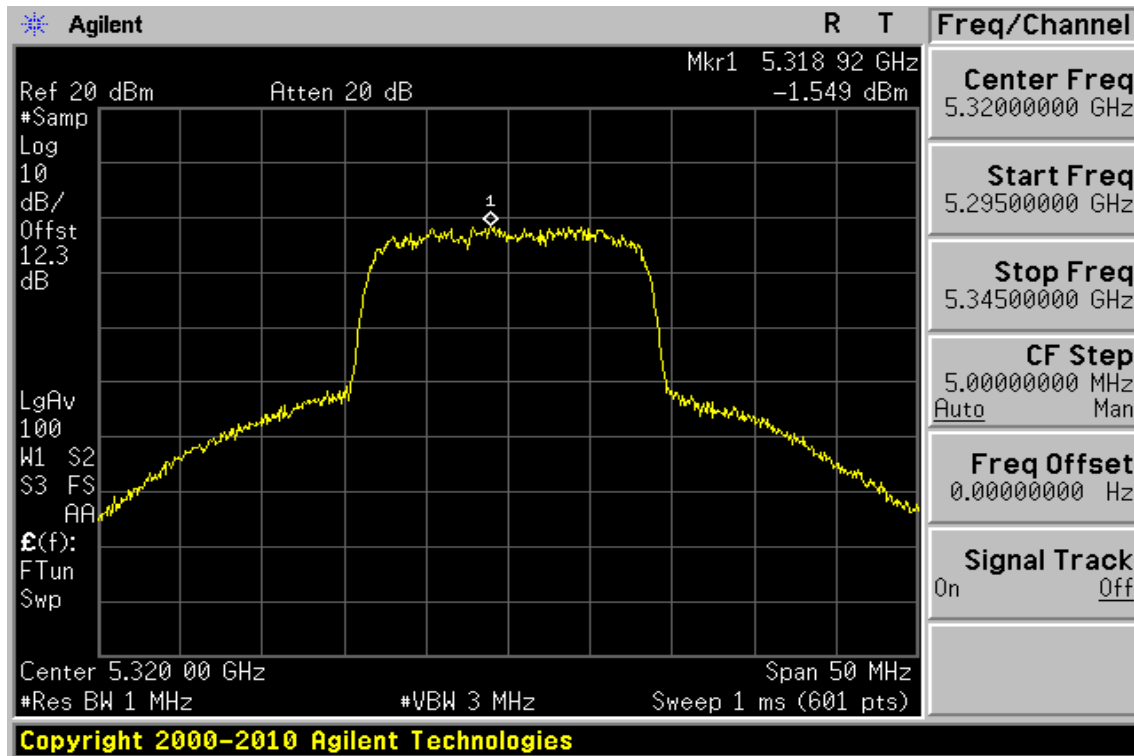
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Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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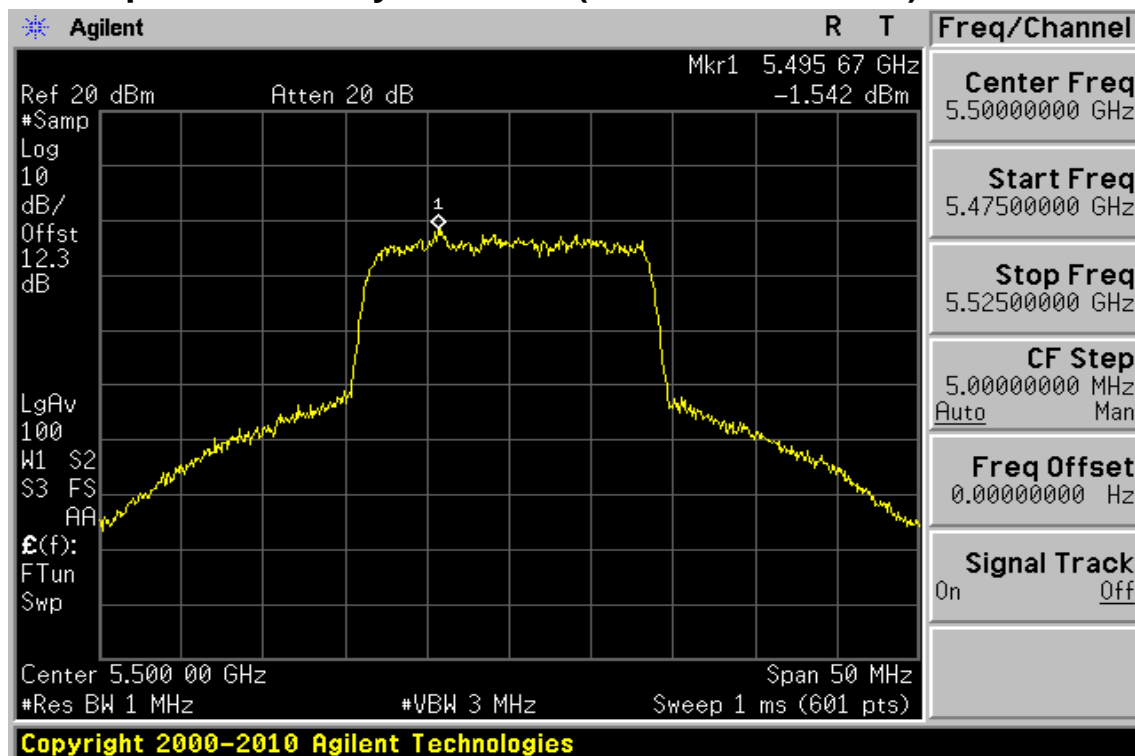
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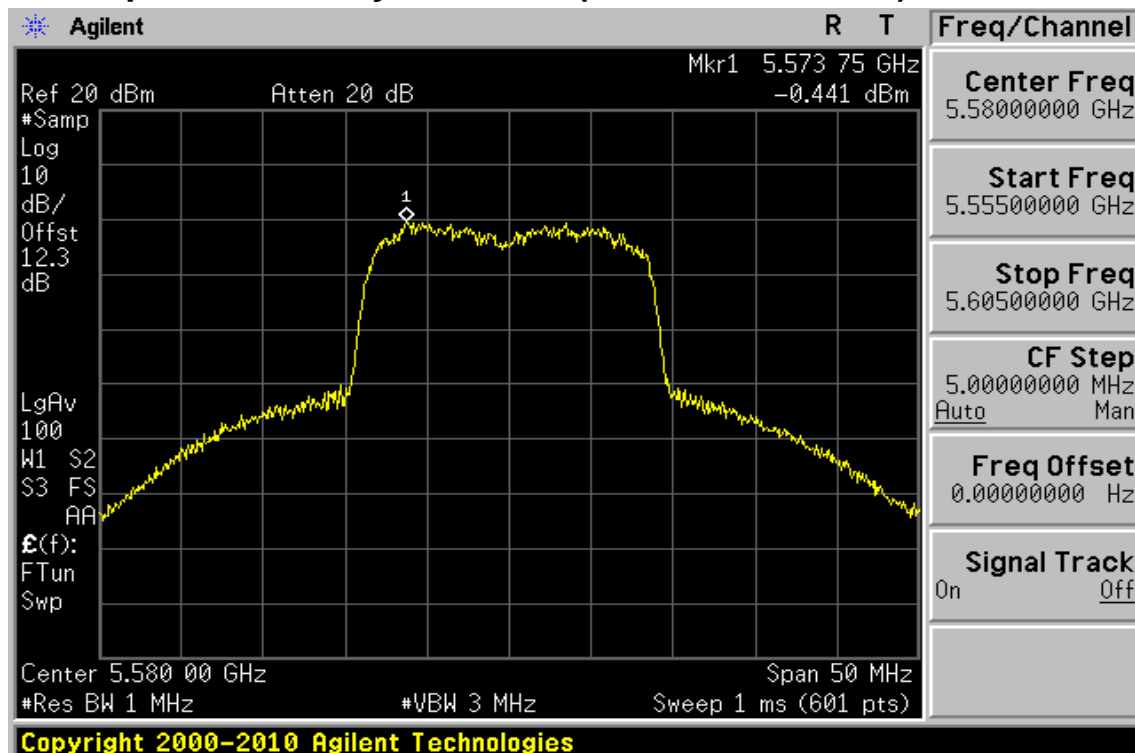
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802.11a 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5580 MHz)



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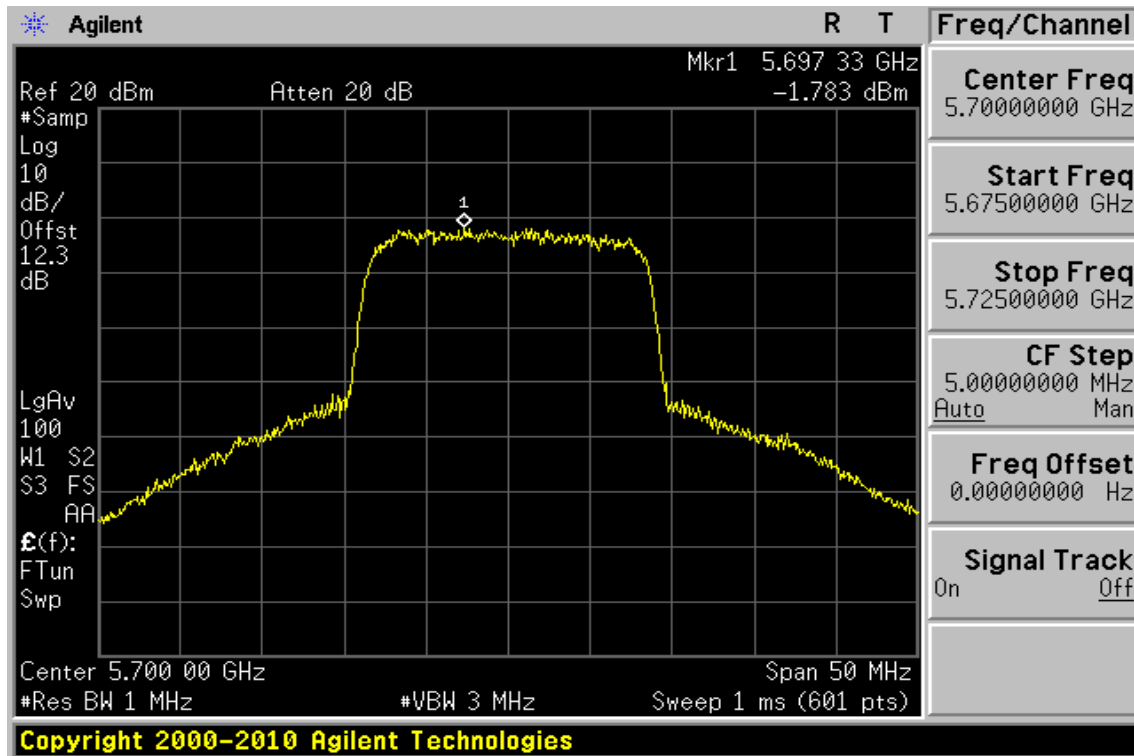
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Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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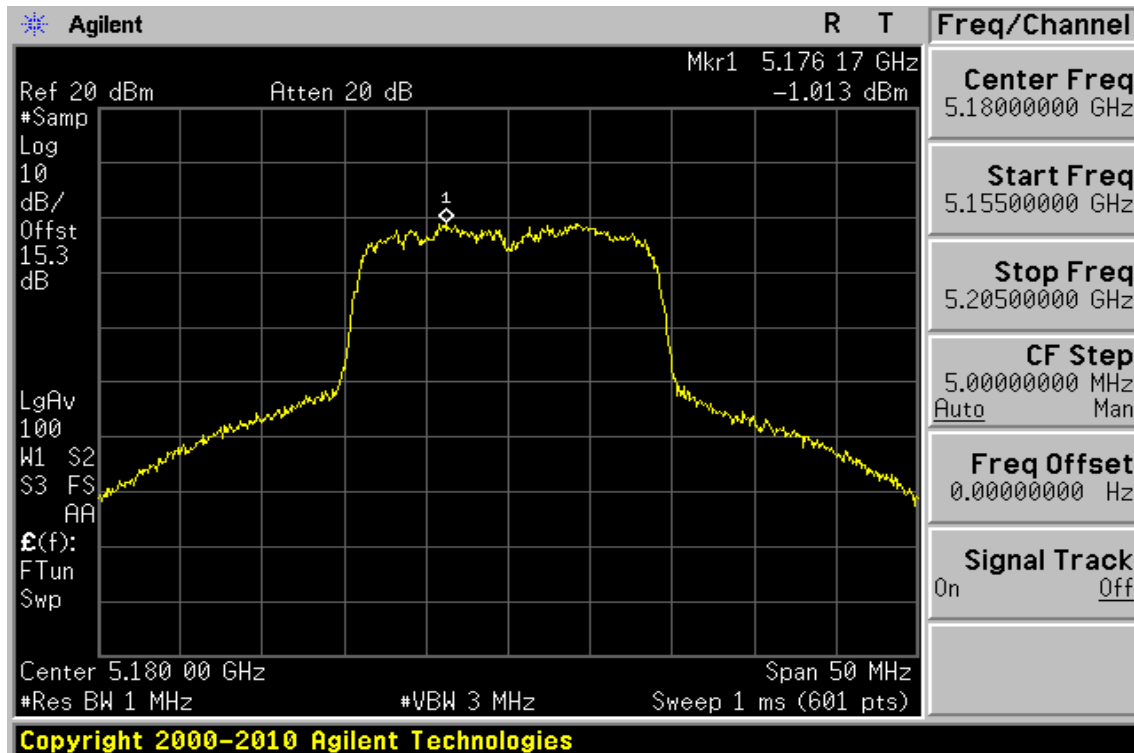
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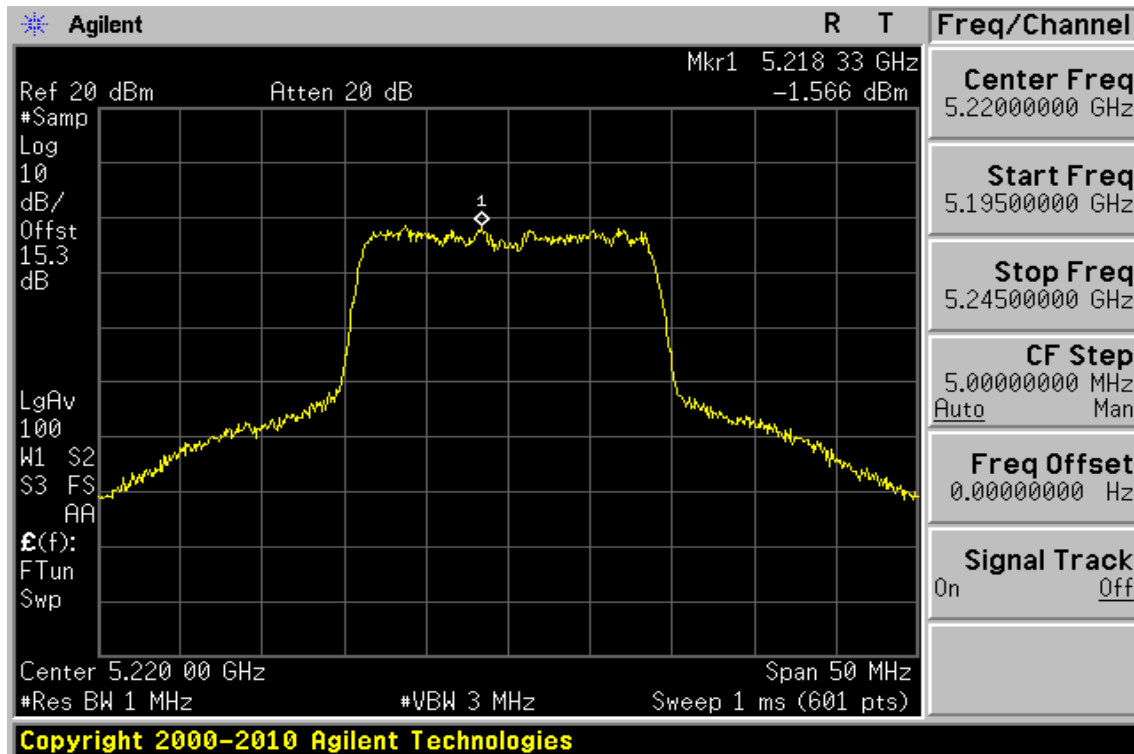
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802.11n HT20, 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



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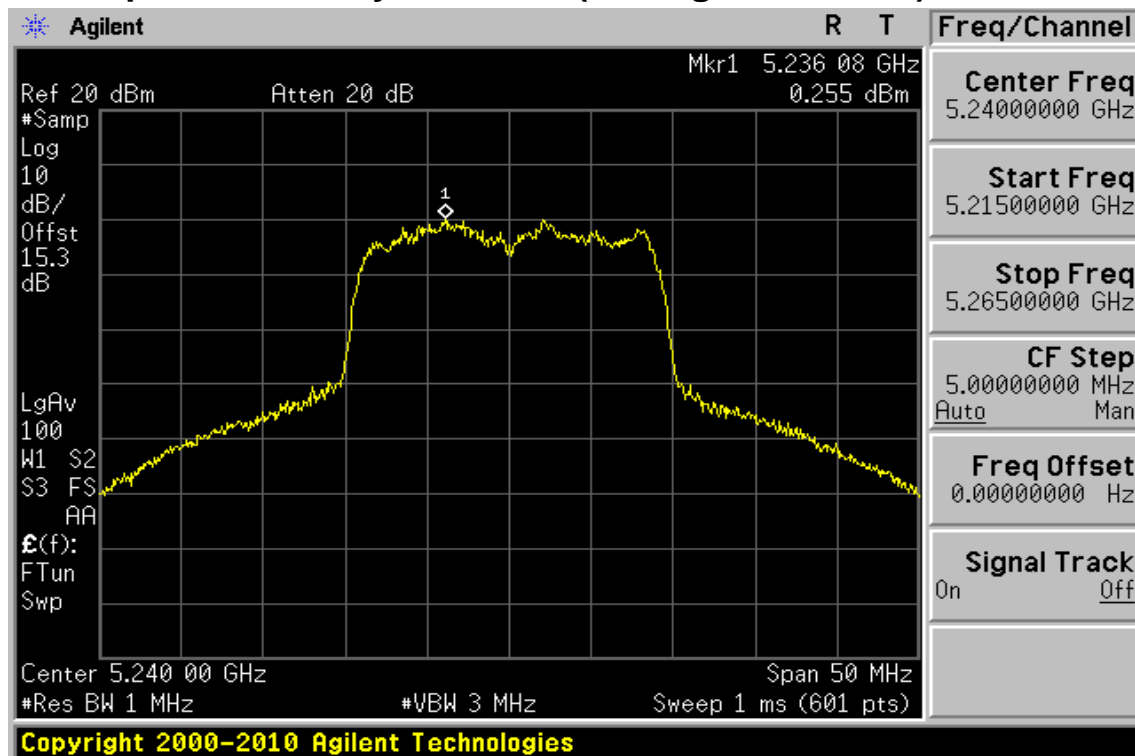
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Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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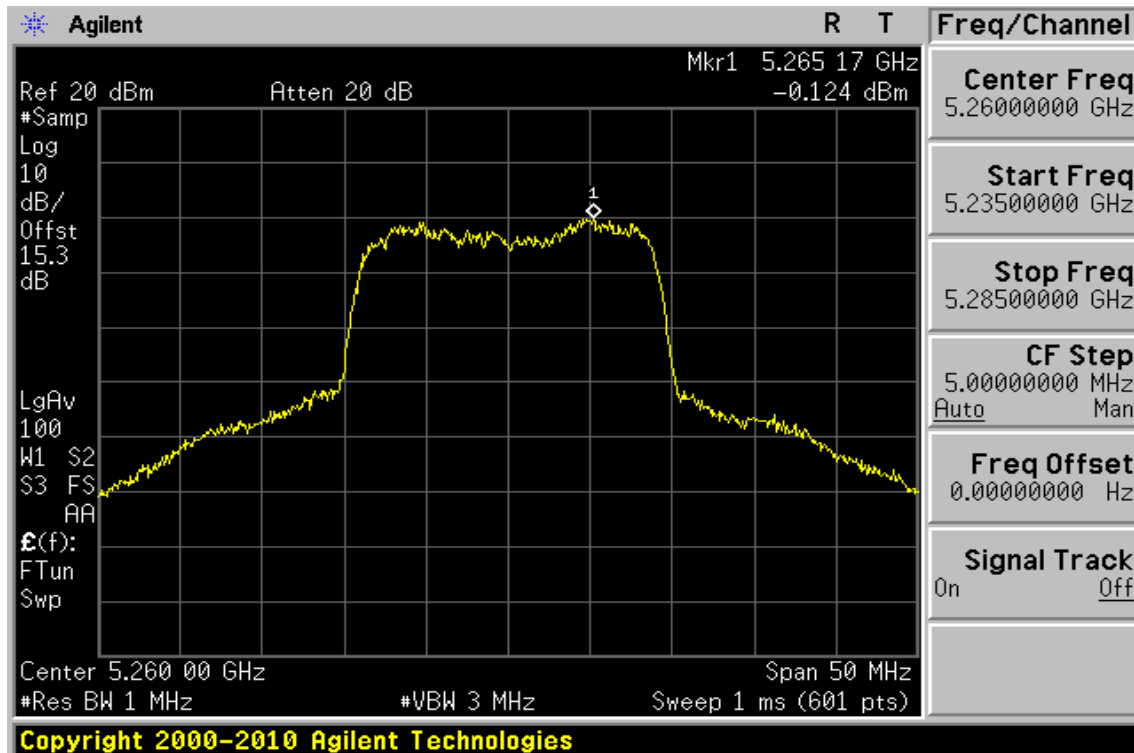
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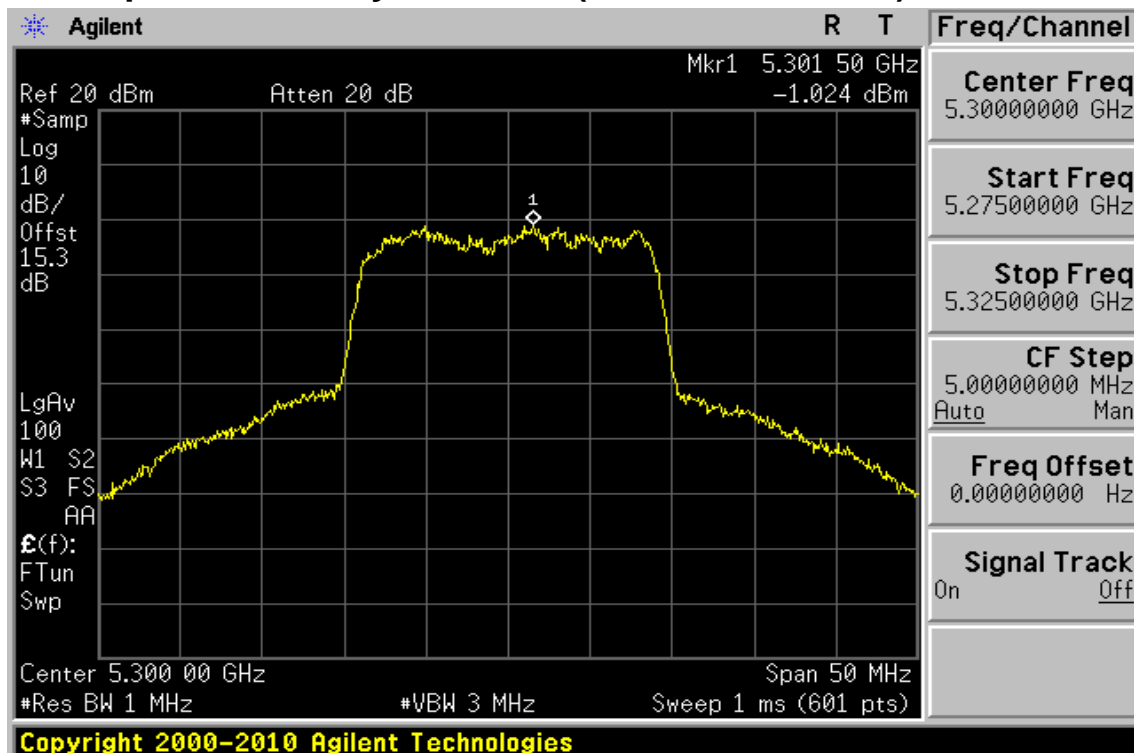
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802.11n HT20, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5260MHz)



Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



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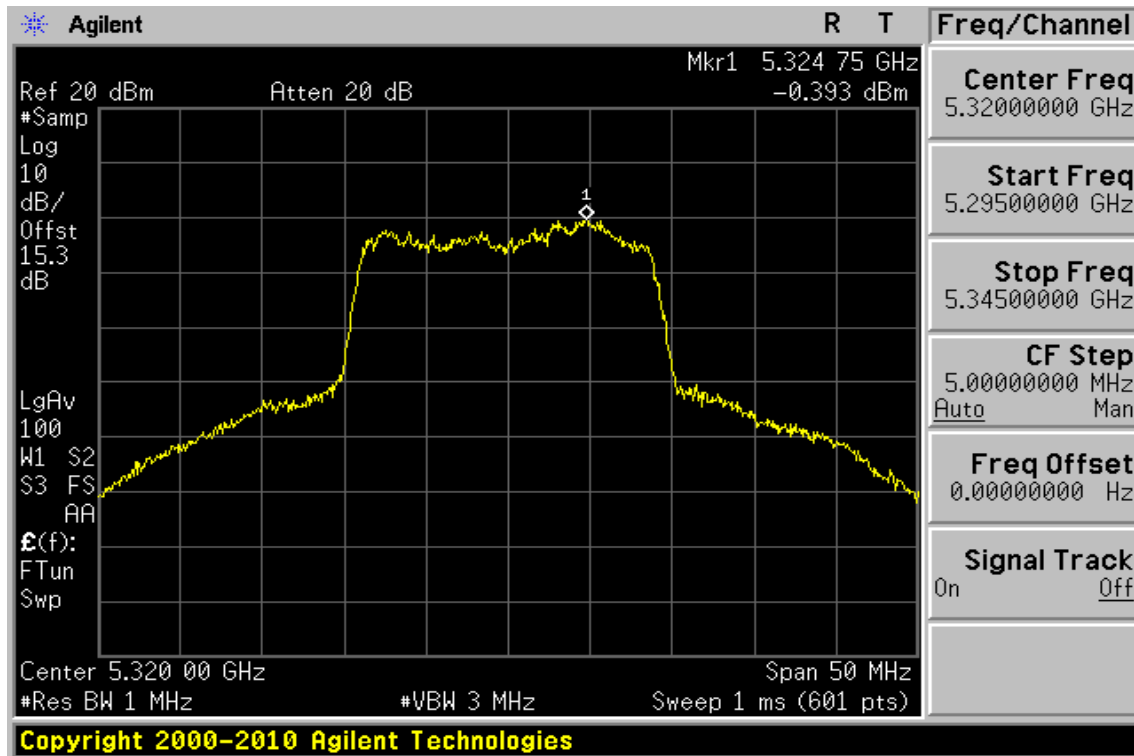
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Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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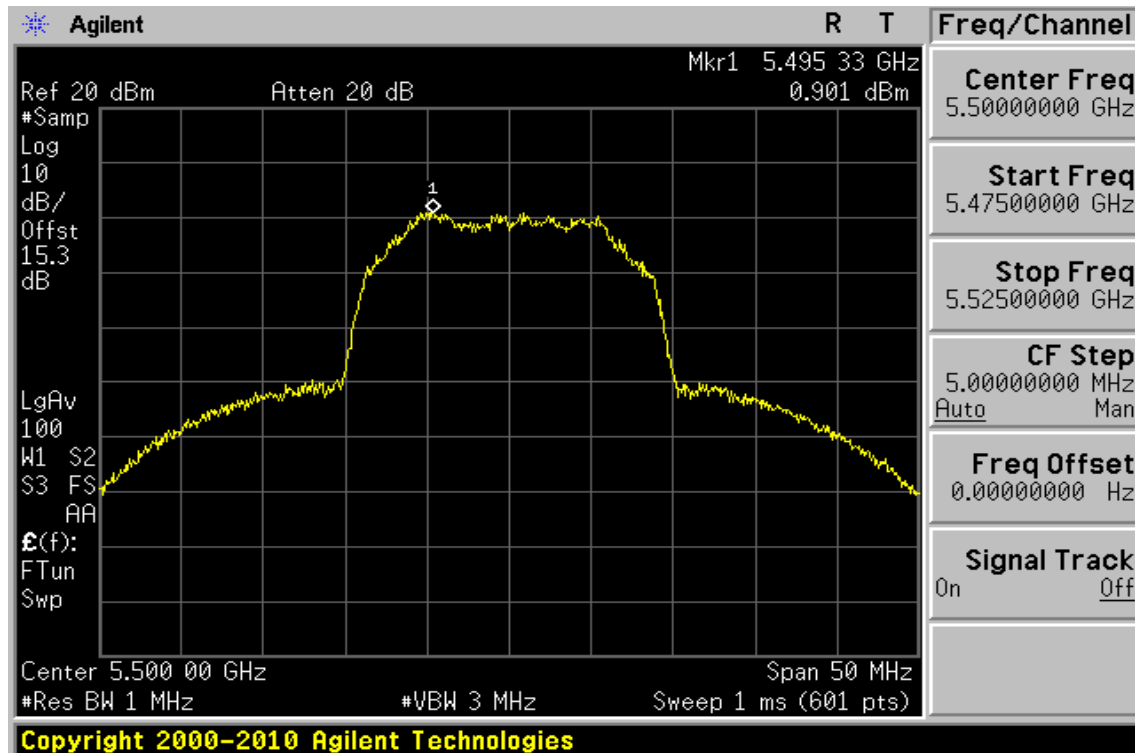
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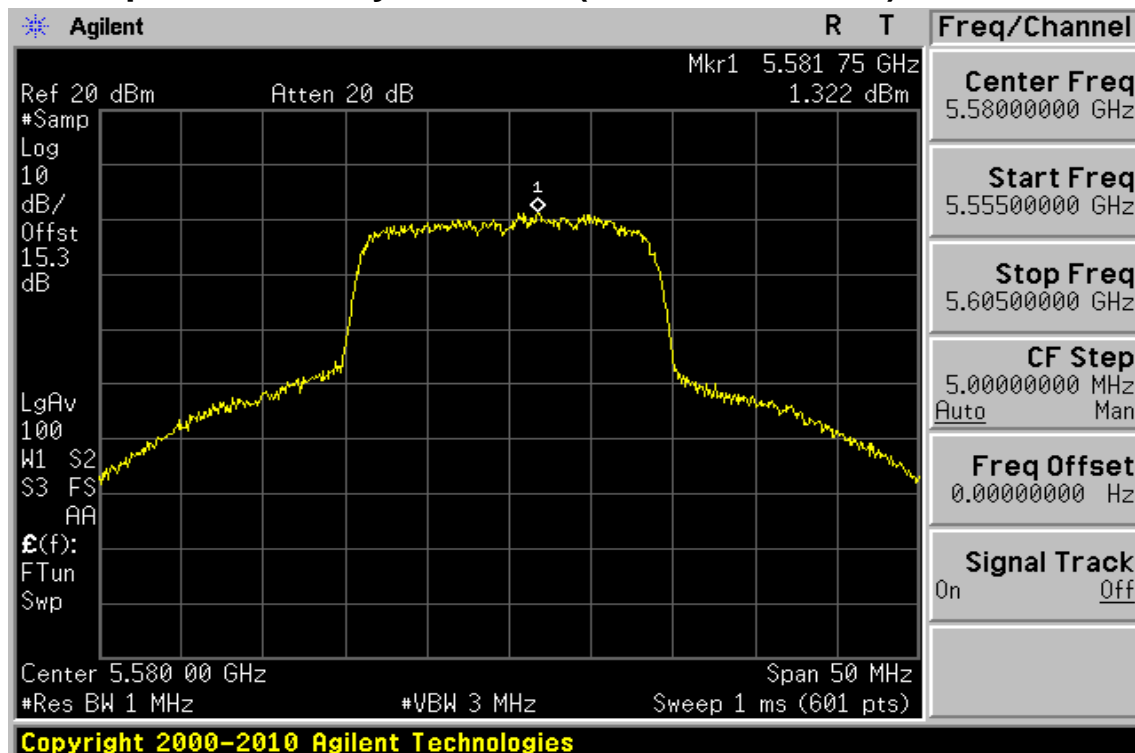
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802.11n HT20, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5580MHz)



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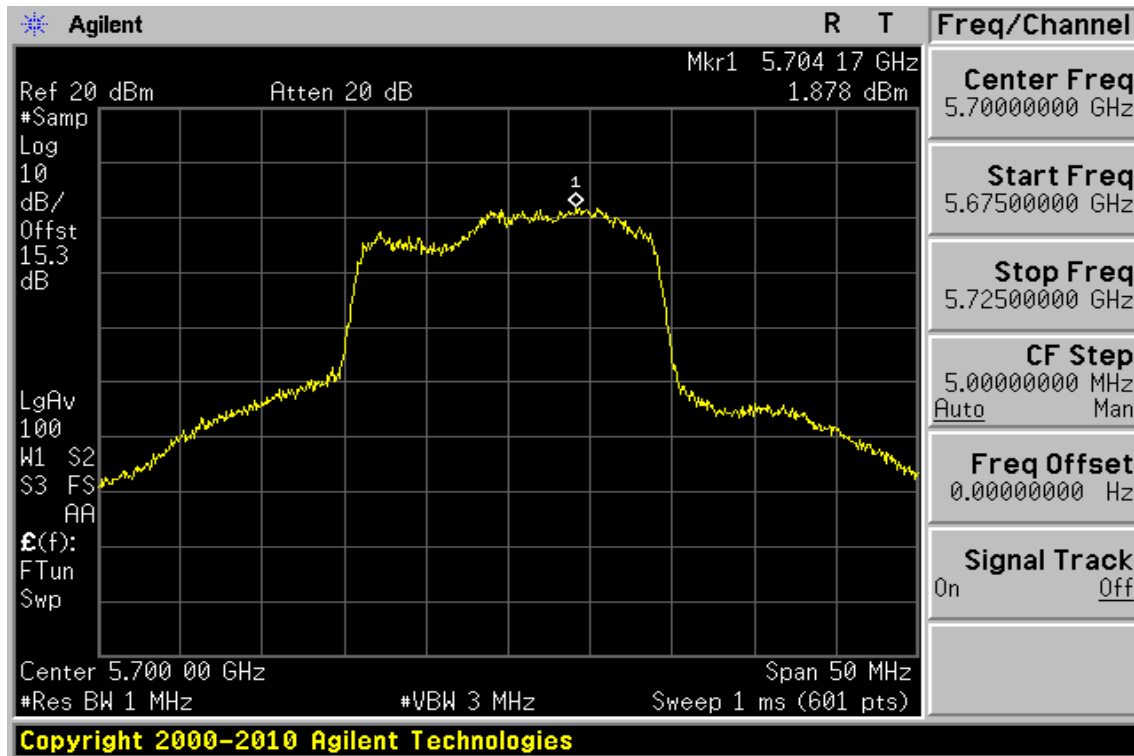
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Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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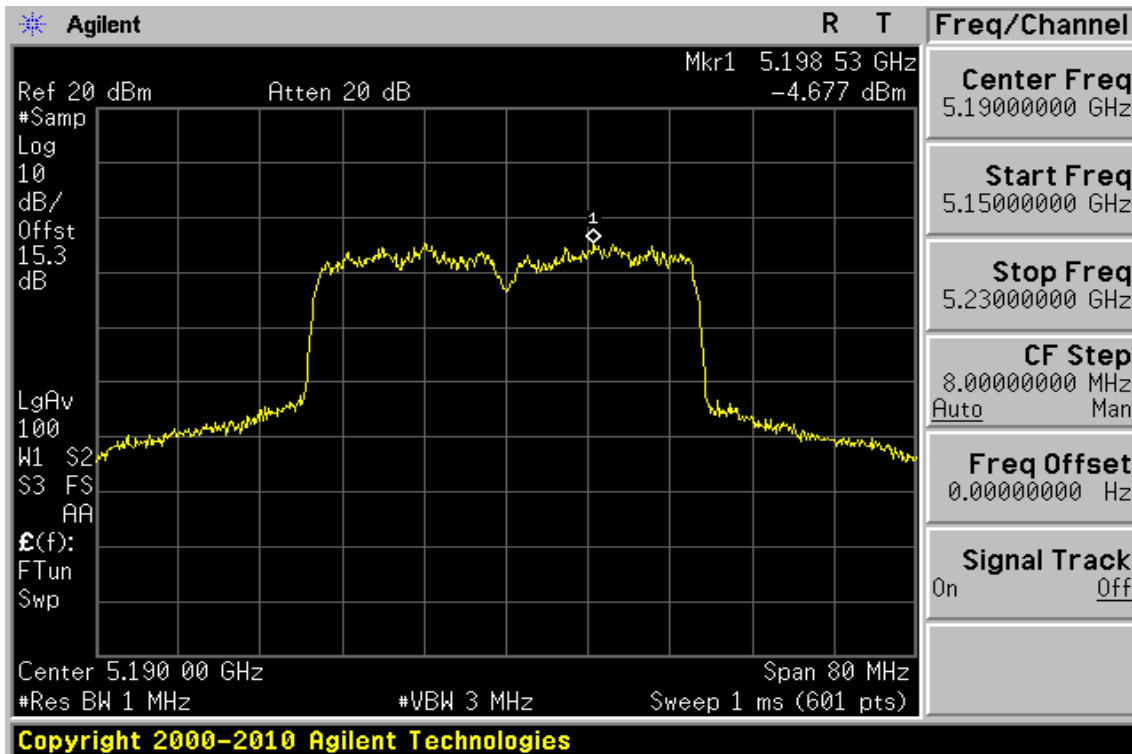
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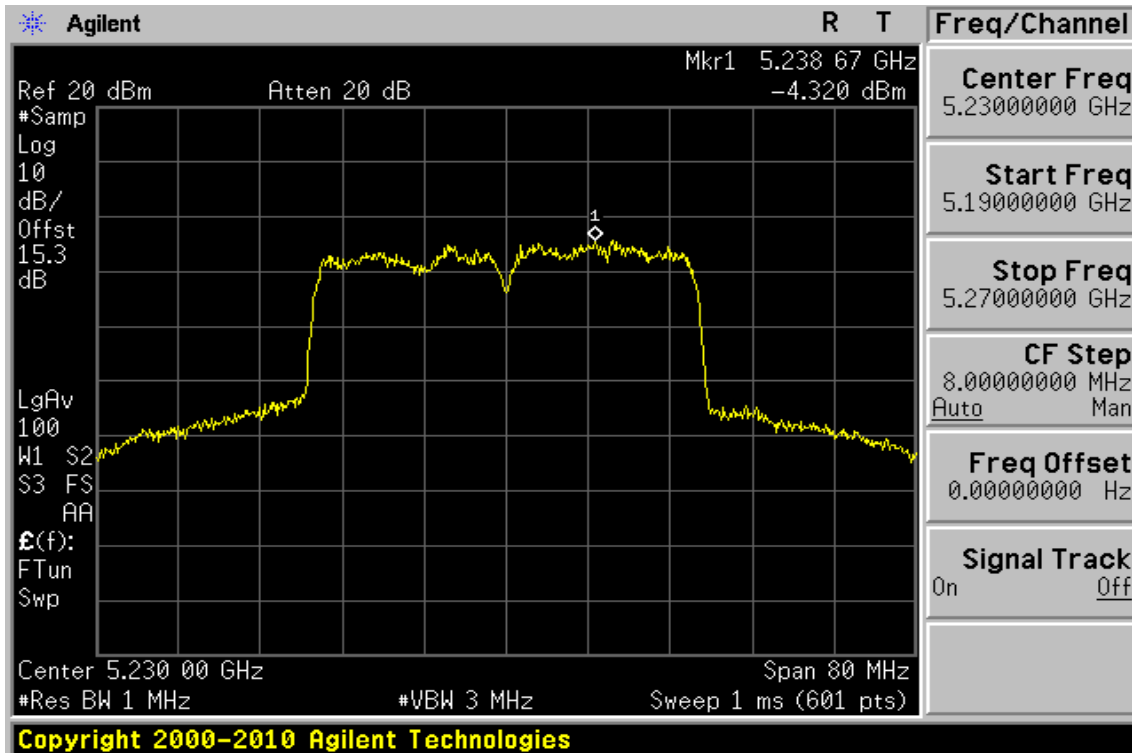
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802.11n HT40, 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5190 MHz)



Peak Power Spectral Density Data Plot (CH High 5230 MHz)



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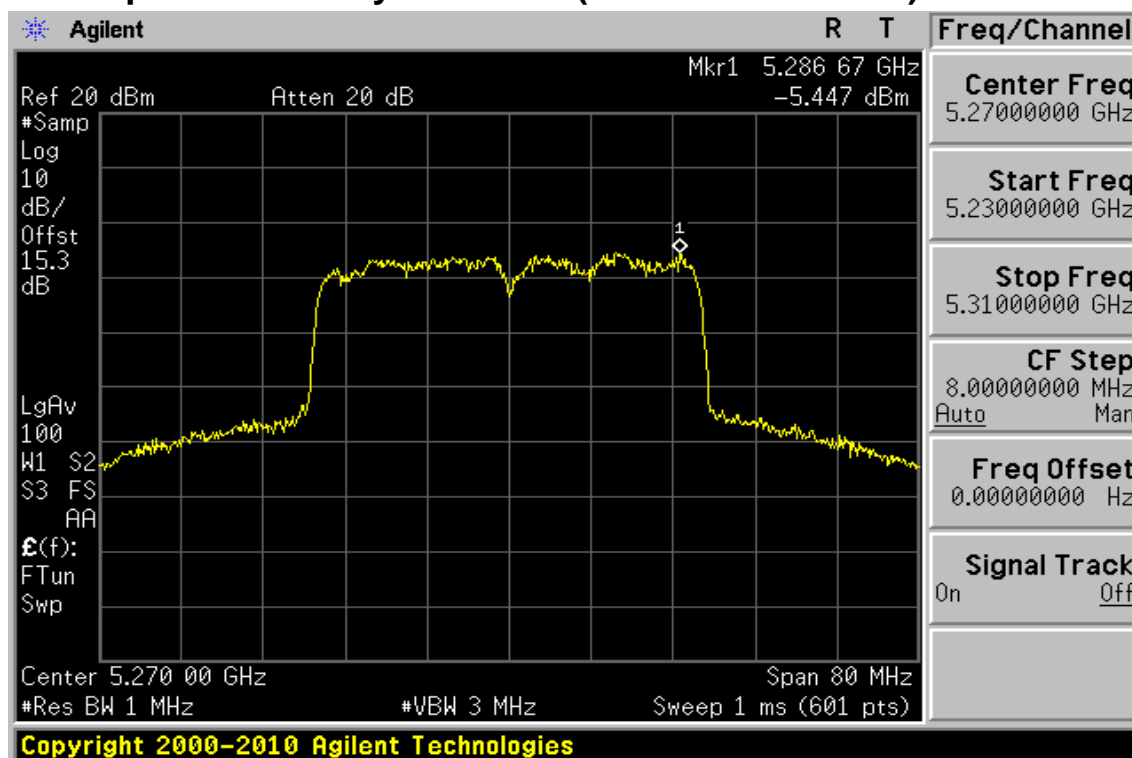
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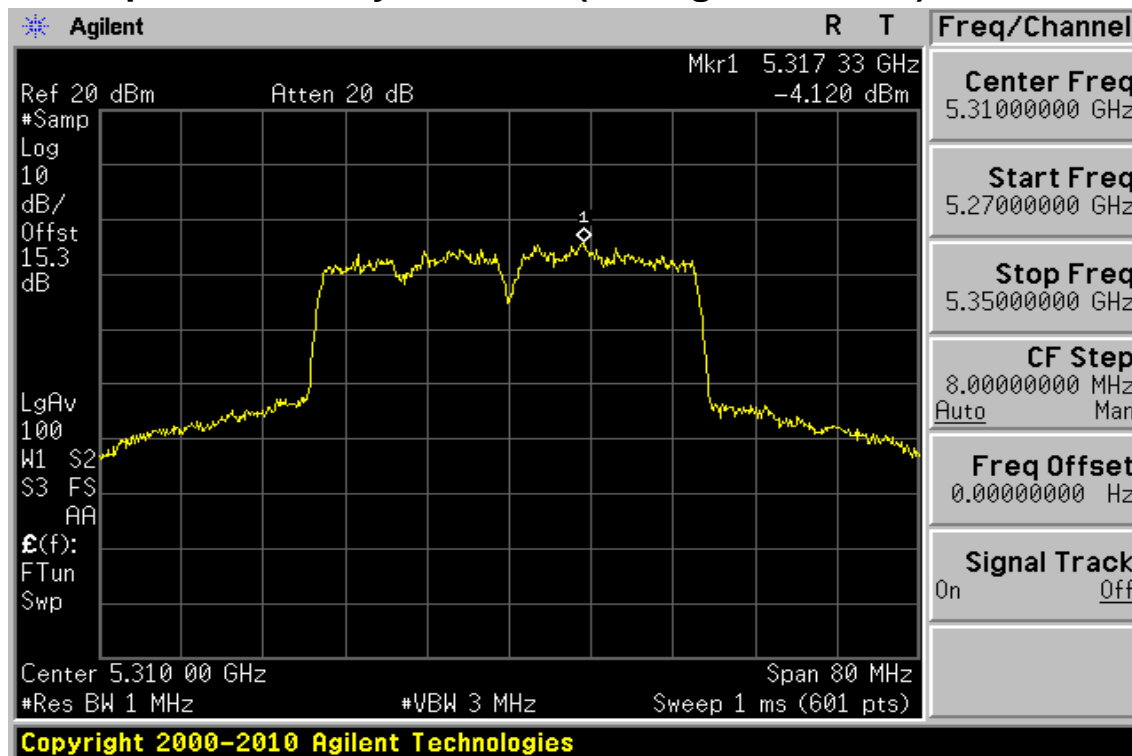
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802.11n HT40, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5270 MHz)



Peak Power Spectral Density Data Plot (CH High 5310 MHz)



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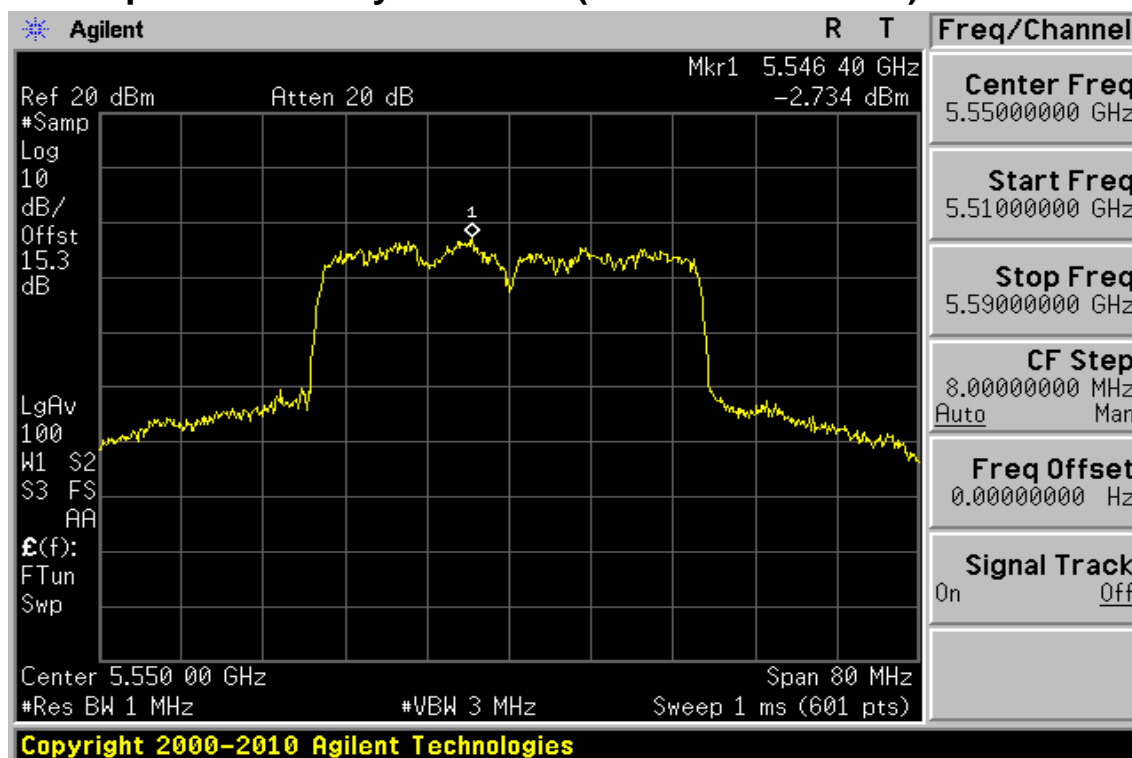
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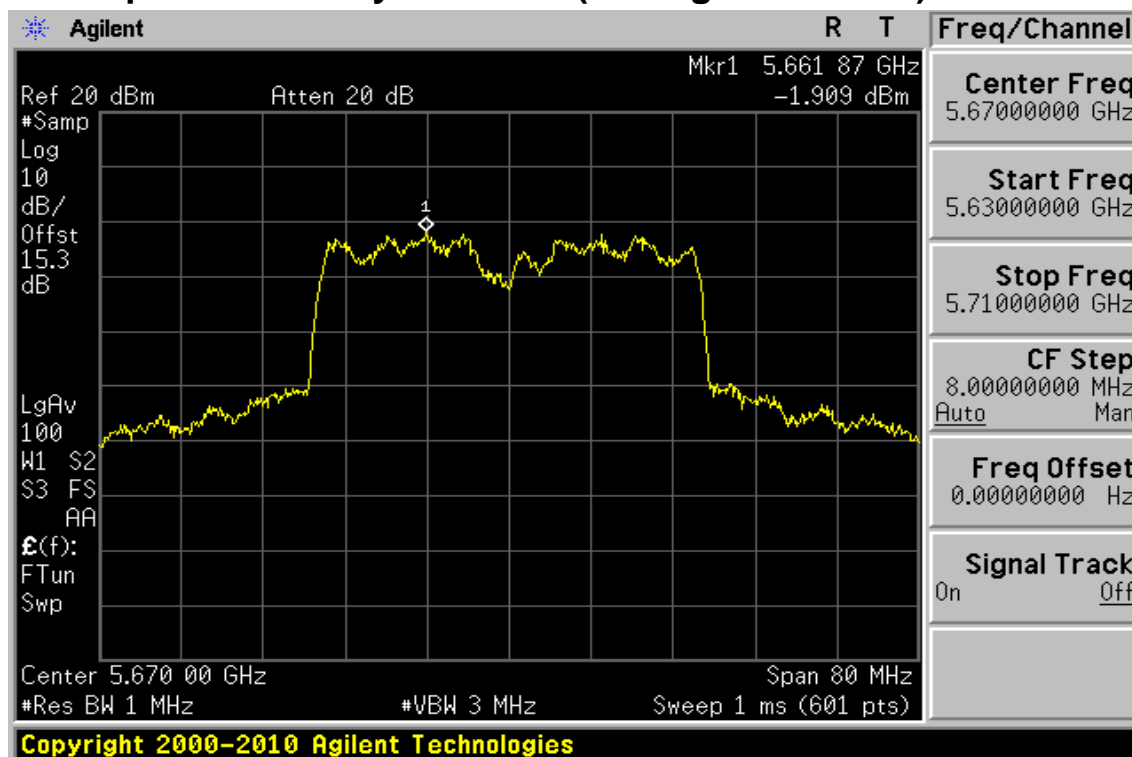
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802.11n HT40, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5550 MHz)



Peak Power Spectral Density Data Plot (CH High 5670 MHz)



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11. UNDESIRABLE RADIATED EMISSION MEASUREMENT1

11.1 Standard Applicable

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
2. For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
3. For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
4. For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

APPLICABLE TO		LIMIT	
FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01		FIELD STRENGTH AT 3m	
		PK: 74 (dBμV/m)	AV 54 (dBμV/m)
APPLICABLE TO		EIRP LIMIT	FIELD STRENGTH AT 3m
15.407(b)(1)	RSS-247 §6.2.1 (2)	PK: -27 (dBm/MHz)	PK: 68.3 (dBμV/m)
15.407(b)(2)	RSS-247 §6.2.2 (2)		
15.407(b)(3)	RSS-247 §6.2.3 (2)		
15.407(b)(4)	RSS-247 §6.2.4 (4)	PK: -27 (dBm/MHz) PK: -17 (dBm/MHz)	PK: 68.3 (dBμV/m) PK: 78.2 (dBμV/m)

$EIRP = (E \cdot d)^2 / 30$, where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

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Unwanted spurious emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/F(KHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB μ V/m) = 20 log Emission level (dB μ V/m)

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11.2 Measurement Equipment Used

SGS 966 Chamber No.C					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESU 40	100363	04/09/2015	04/08/2016
Loop Antenna	ETS-Lindgren	6502	00143303	12/09/2015	12/08/2016
Broadband Antenna	TESEQ	CBL 6112D	35240	10/28/2015	10/27/2016
Horn Antenna	ETS-Lindgren	3117	00143272	12/08/2015	12/07/2016
Horn Antenna	Schwarzbeck	BBHA9170	185	07/25/2015	07/24/2016
Pre Amplifier	EMC Instruments	EMC330	980096	12/12/2015	12/11/2016
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/12/2015	12/11/2016
Pre Amplifier	R&S	SCU-18	10204	12/12/2015	12/11/2016
Pre Amplifier	R&S	SCU-26	100780	12/12/2015	12/11/2016
Pre Amplifier	R&S	SCU-40	100356	12/12/2015	12/11/2016
Pre Amplifier	EMC Instruments	EMC184045B	980135	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	966Rx 18G-40G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/12/2015	12/11/2016
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/12/2015	12/11/2016
Attenuator	WOKEN	218FS-10	RF27	12/12/2015	12/11/2016
Site NSA	SGS	966 Chamber C	SAC-C	03/04/2015	03/03/2016
Site VSWR	SGS	966 Chamber C	SAC-C	03/04/2015	03/03/2016
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2015	05/03/2016
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.

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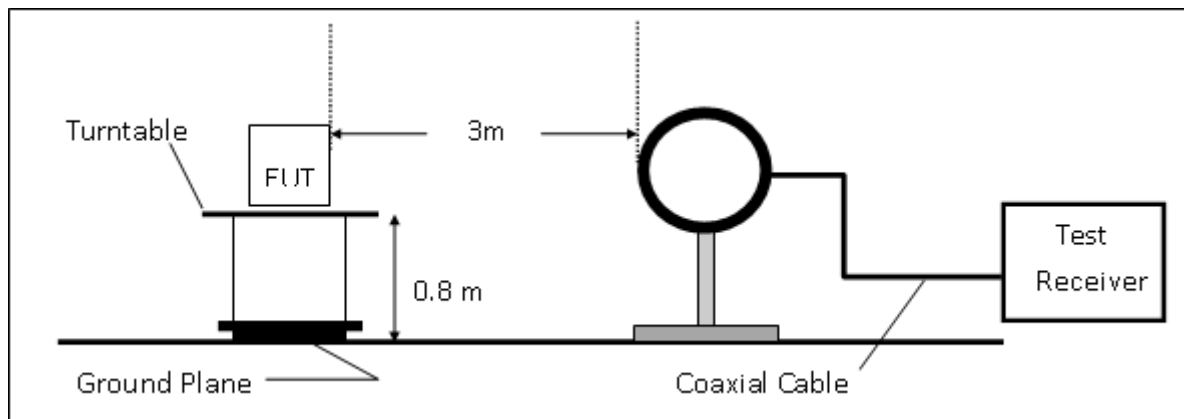
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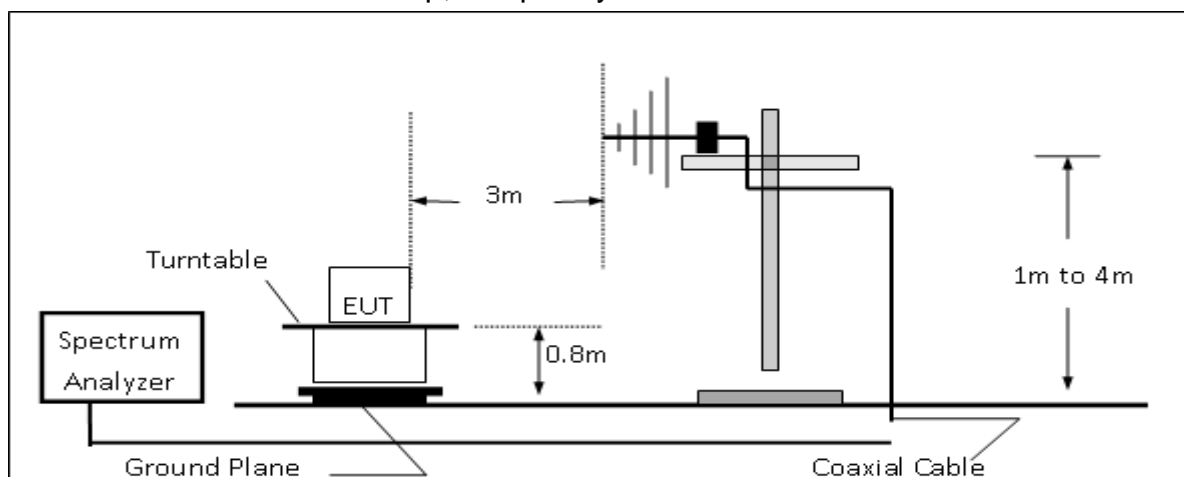
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11.3 Test SET-UP

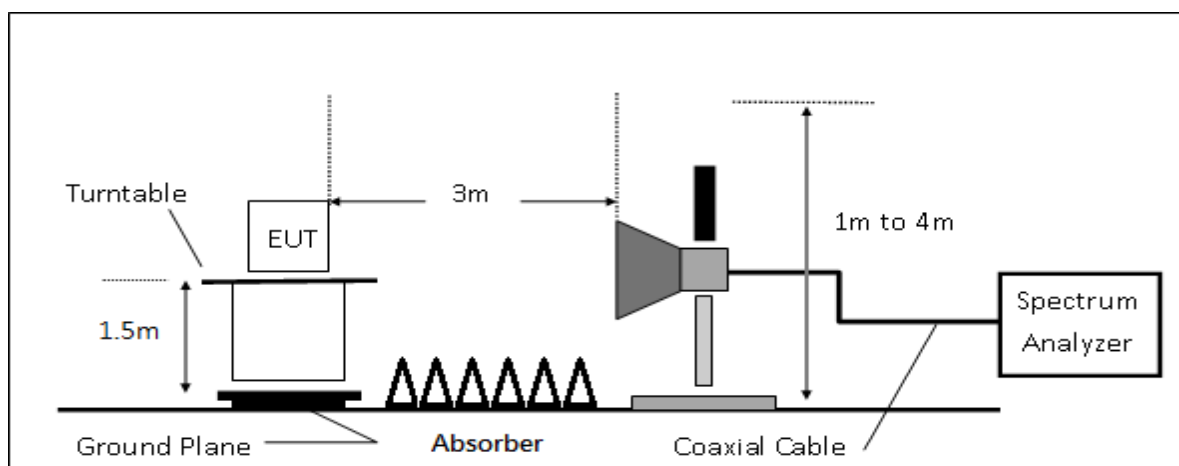
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-UP, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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11.4 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r01.
3. The EUT was placed on a turn table with 0.8m for frequency < 1GHz and 1.5m for frequency > 1GHz above ground plane.
4. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
5. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
11. Repeat above procedures until all frequency measured were complete.

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11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

Note :

“F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

11.6 Test Results of Radiated Spurious Emissions form 9 KHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

11.7 Measurement Result

Refer to attach tabular data sheets.

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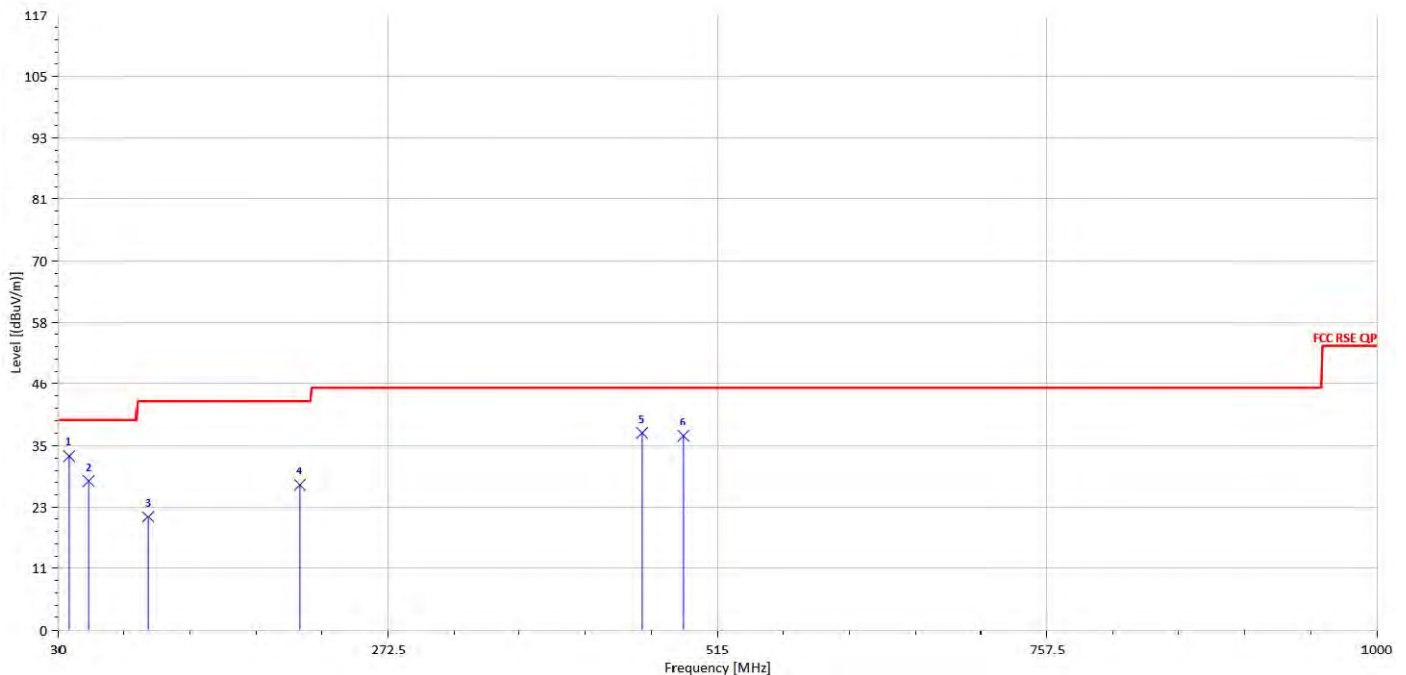
Radiated Spurious Emission Measurement Result

Below 1GHz Worst-Case Data:

802.11a 5150~5250 MHz

Operation Band :802.11 a
Fundamental Frequency :5220 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
37.76	S	Peak	50.66	-17.57	33.09	40	-6.91
52.31	S	Peak	54.52	-26.23	28.29	40	-11.71
95.96	S	Peak	46.08	-24.54	21.54	43.5	-21.96
207.51	S	Peak	50.55	-22.98	27.57	43.5	-15.93
459.71	S	Peak	52.04	-14.62	37.42	46	-8.58
489.78	S	Peak	50.99	-14.10	36.89	46	-9.11

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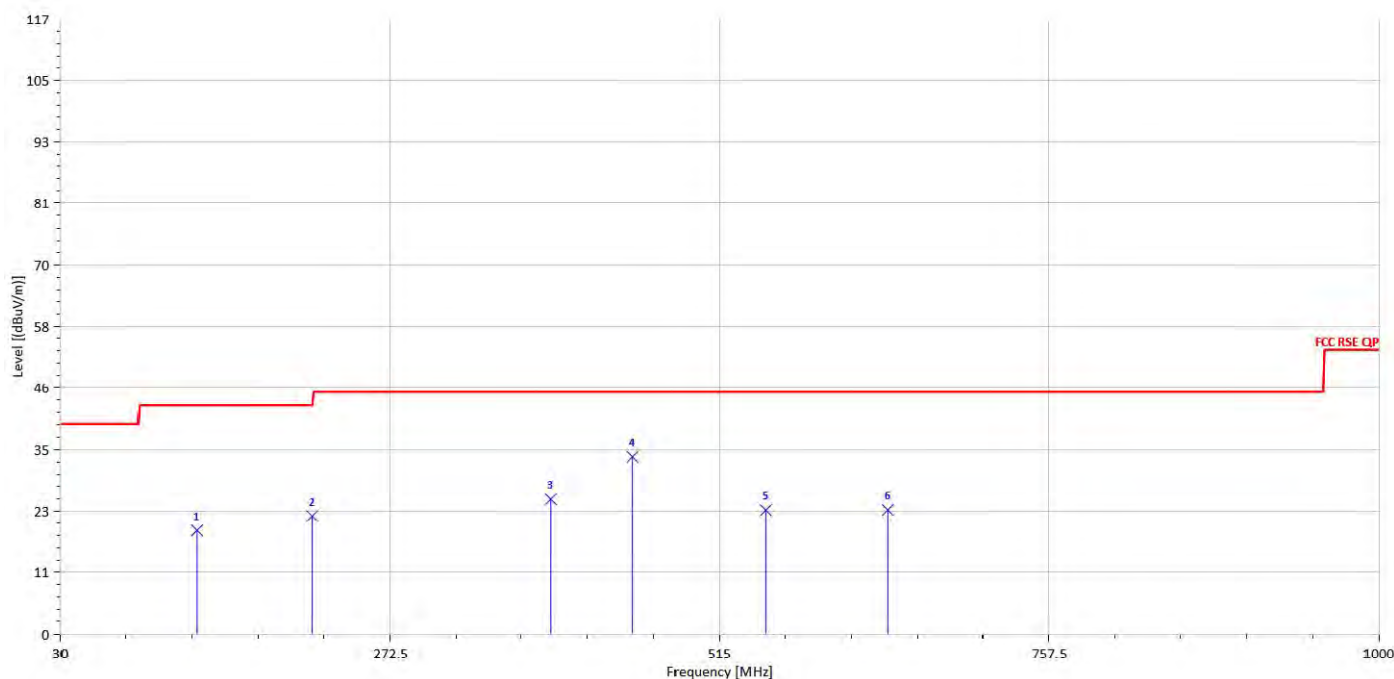
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Operation Band :802.11 a
Fundamental Frequency :5220 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
130.88	S	Peak	41.04	-21.37	19.68	43.5	-23.82
215.27	S	Peak	45.41	-22.95	22.46	43.5	-21.04
390.84	S	Peak	41.85	-16.20	25.65	46	-20.35
450.98	S	Peak	48.64	-14.92	33.72	46	-12.28
548.95	S	Peak	36.89	-13.29	23.59	46	-22.41
639.16	S	Peak	34.99	-11.37	23.62	46	-22.38

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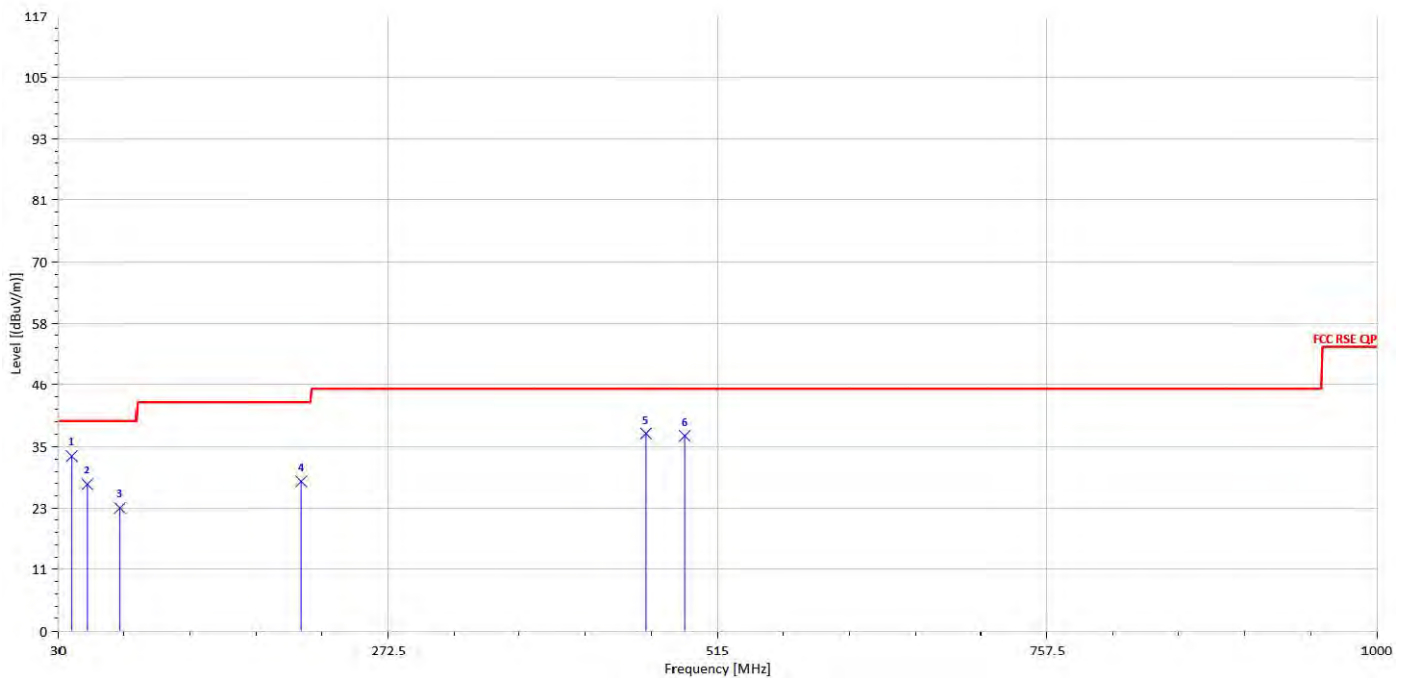
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802.11a 5250~5350 MHz

Operation Band :802.11 a
Fundamental Frequency :5300 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
39.70	S	Peak	52.08	-18.79	33.29	40	-6.71
51.34	S	Peak	53.81	-25.94	27.87	40	-12.13
75.59	S	Peak	50.73	-27.28	23.45	40	-16.55
208.48	S	Peak	51.36	-22.96	28.40	43.5	-15.10
462.62	S	Peak	52.05	-14.54	37.51	46	-8.49
490.75	S	Peak	51.16	-14.09	37.06	46	-8.94

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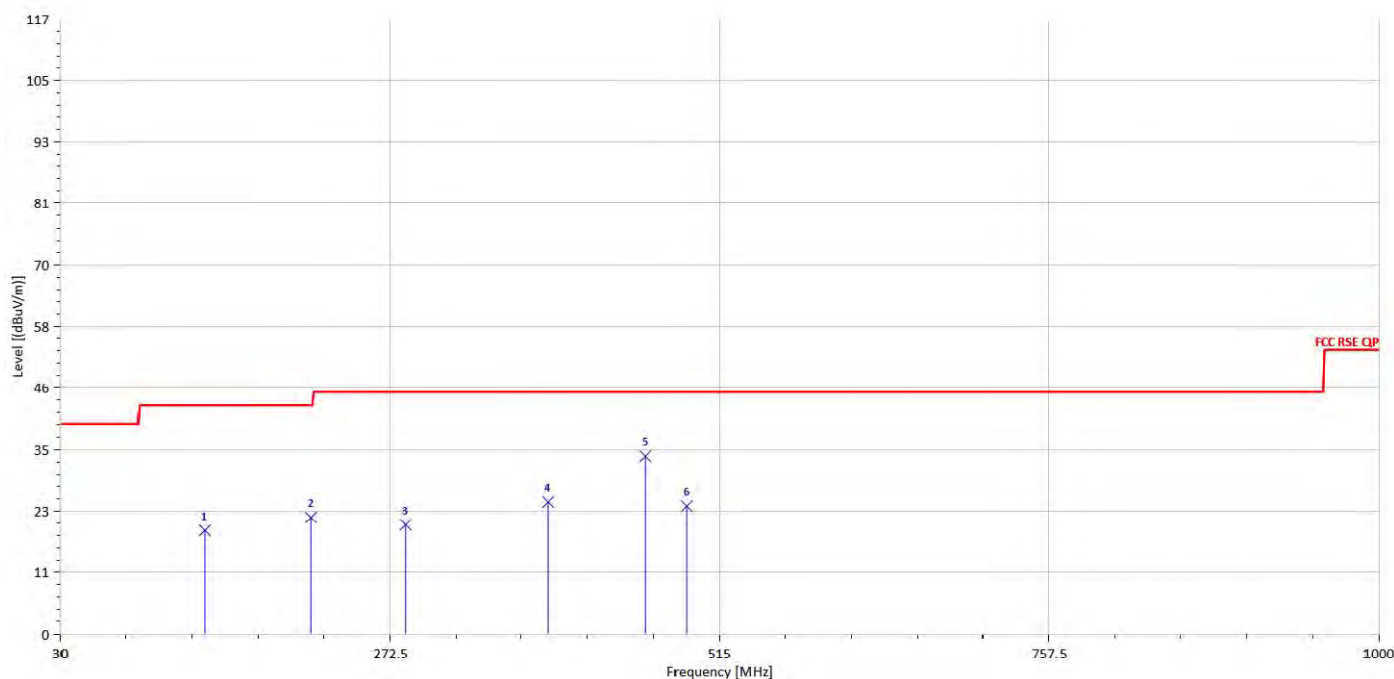
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Operation Band :802.11 a
Fundamental Frequency :5300 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
136.70	S	Peak	41.23	-21.55	19.68	43.5	-23.82
214.30	S	Peak	45.10	-22.94	22.16	43.5	-21.34
284.14	S	Peak	40.34	-19.56	20.78	46	-25.22
388.90	S	Peak	41.35	-16.23	25.12	46	-20.88
460.68	S	Peak	48.40	-14.59	33.81	46	-12.19
490.75	S	Peak	38.44	-14.09	24.35	46	-21.65

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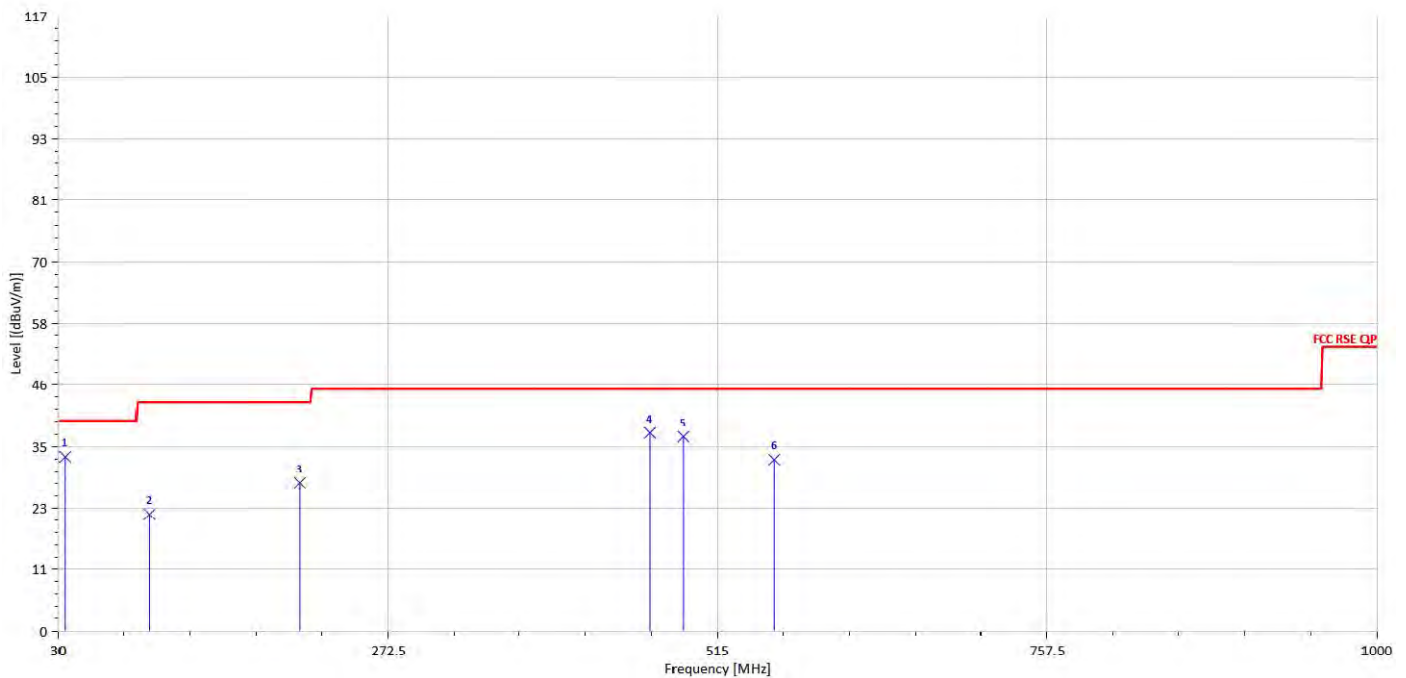
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802.11a, 5470~5725 MHz

Operation Band :802.11 a
Fundamental Frequency :5580 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
34.85	S	Peak	48.87	-15.75	33.12	40	-6.88
96.93	S	Peak	46.56	-24.36	22.19	43.5	-21.31
207.51	S	Peak	51.13	-22.98	28.15	43.5	-15.35
465.53	S	Peak	52.10	-14.43	37.67	46	-8.33
489.78	S	Peak	51.04	-14.10	36.94	46	-9.06
556.71	S	Peak	45.51	-12.89	32.62	46	-13.38

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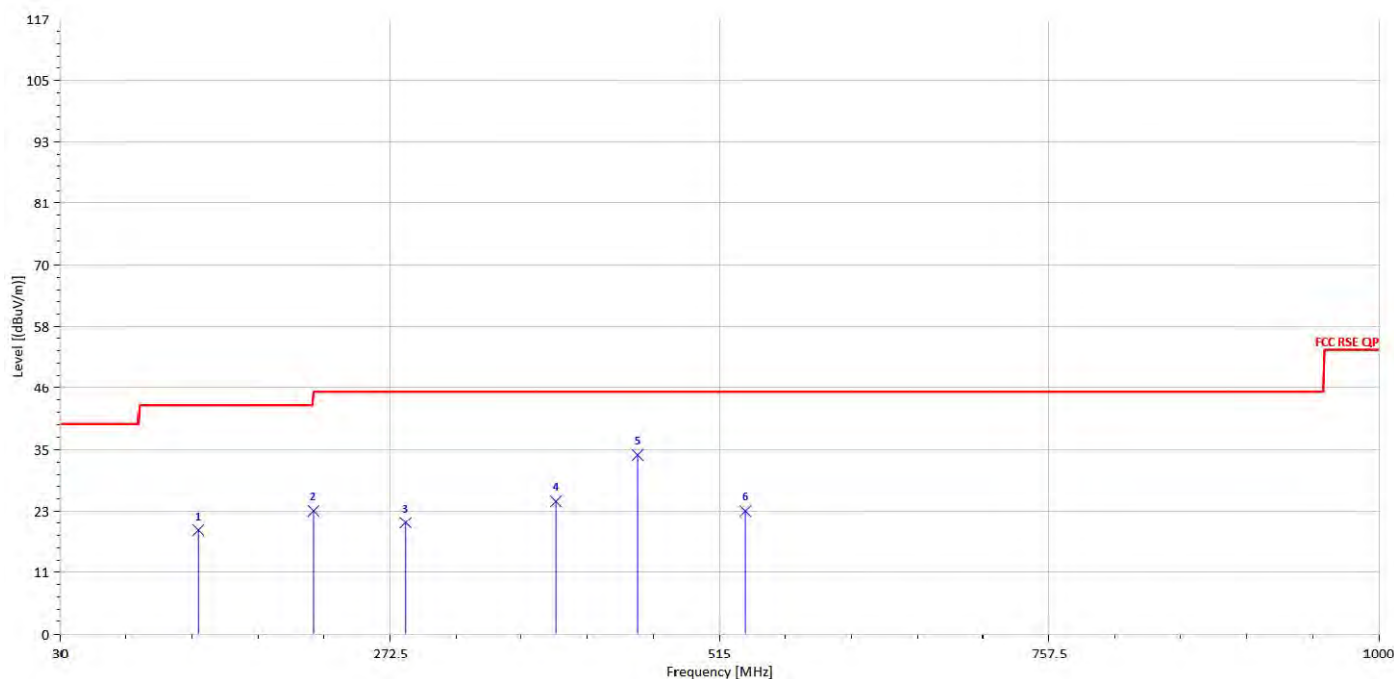
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Operation Band :802.11 a
Fundamental Frequency :5580 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
131.85	S	Peak	41.10	-21.38	19.72	43.5	-23.78
216.24	S	Peak	46.41	-22.96	23.45	46	-22.55
284.14	S	Peak	40.74	-19.56	21.18	46	-24.82
394.72	S	Peak	41.27	-16.04	25.23	46	-20.77
454.86	S	Peak	48.84	-14.77	34.06	46	-11.94
534.40	S	Peak	36.59	-13.16	23.43	46	-22.57

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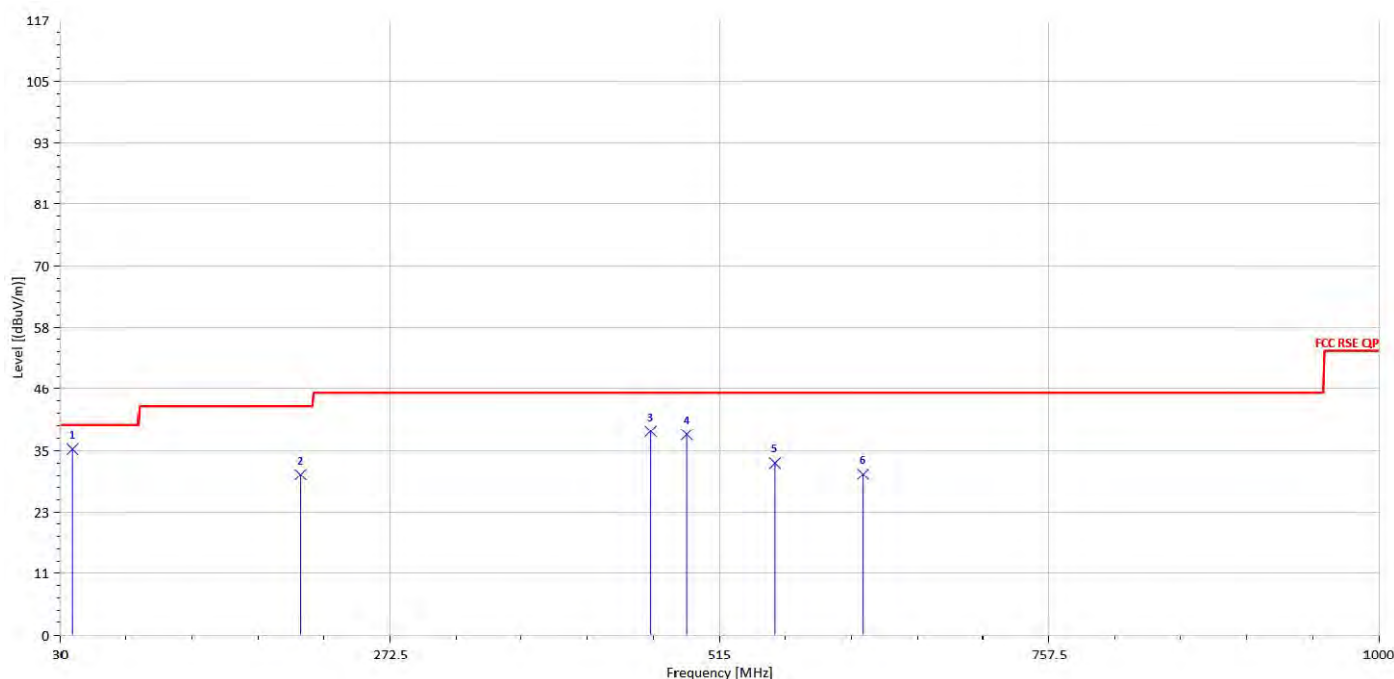
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802.11n_HT40 5150~5250 MHz

Operation Band :802.11 n_HT40
Fundamental Frequency :5190 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
38.73	S	Peak	53.51	-18.19	35.32	40	-4.68
206.54	S	Peak	53.50	-23.01	30.49	43.5	-13.01
464.56	S	Peak	53.24	-14.47	38.77	46	-7.23
490.75	S	Peak	52.20	-14.09	38.11	46	-7.89
555.74	S	Peak	45.58	-12.85	32.73	46	-13.27
620.73	S	Peak	42.75	-12.17	30.58	46	-15.42

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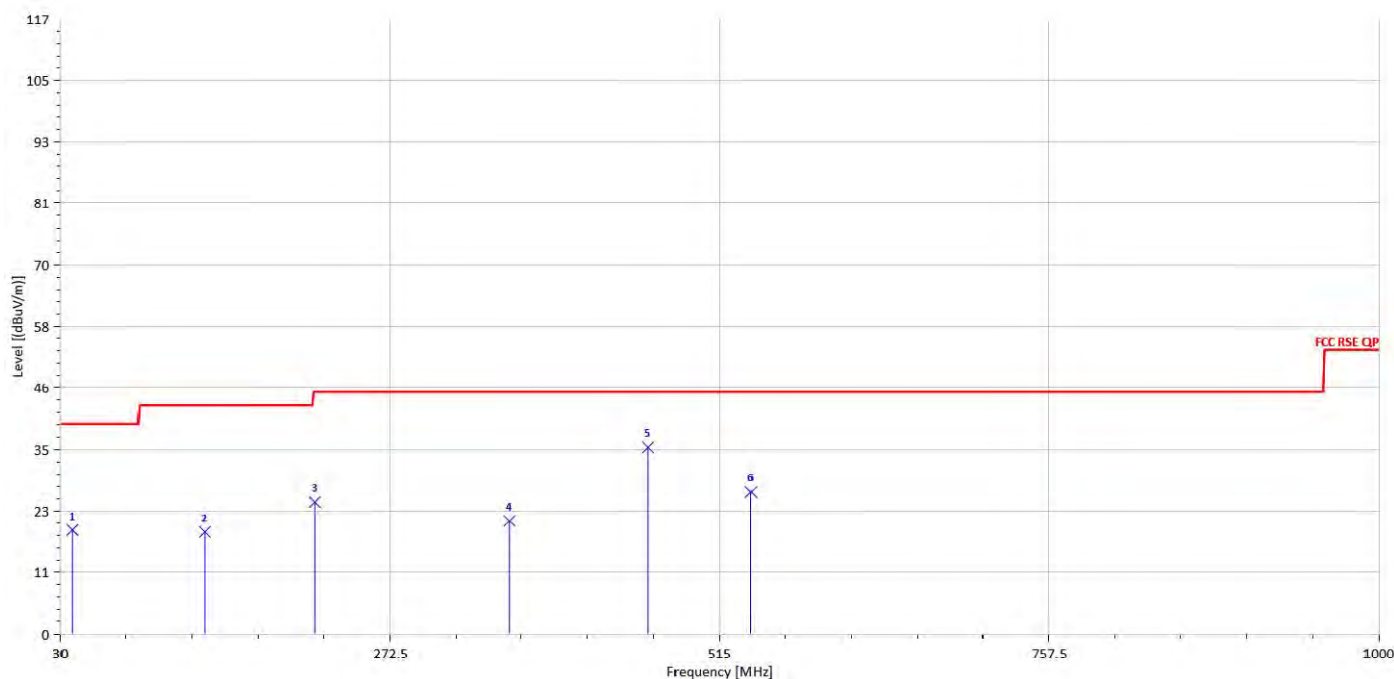
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Operation Band :802.11 n_HT40
Fundamental Frequency :5190 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
38.73	S	Peak	37.96	-18.19	19.77	40	-20.23
136.70	S	Peak	40.94	-21.55	19.39	43.5	-24.11
217.21	S	Peak	48.05	-22.97	25.09	46	-20.91
360.77	S	Peak	38.66	-17.14	21.52	46	-24.49
462.62	S	Peak	50.02	-14.54	35.48	46	-10.52
538.28	S	Peak	40.32	-13.34	26.98	46	-19.02

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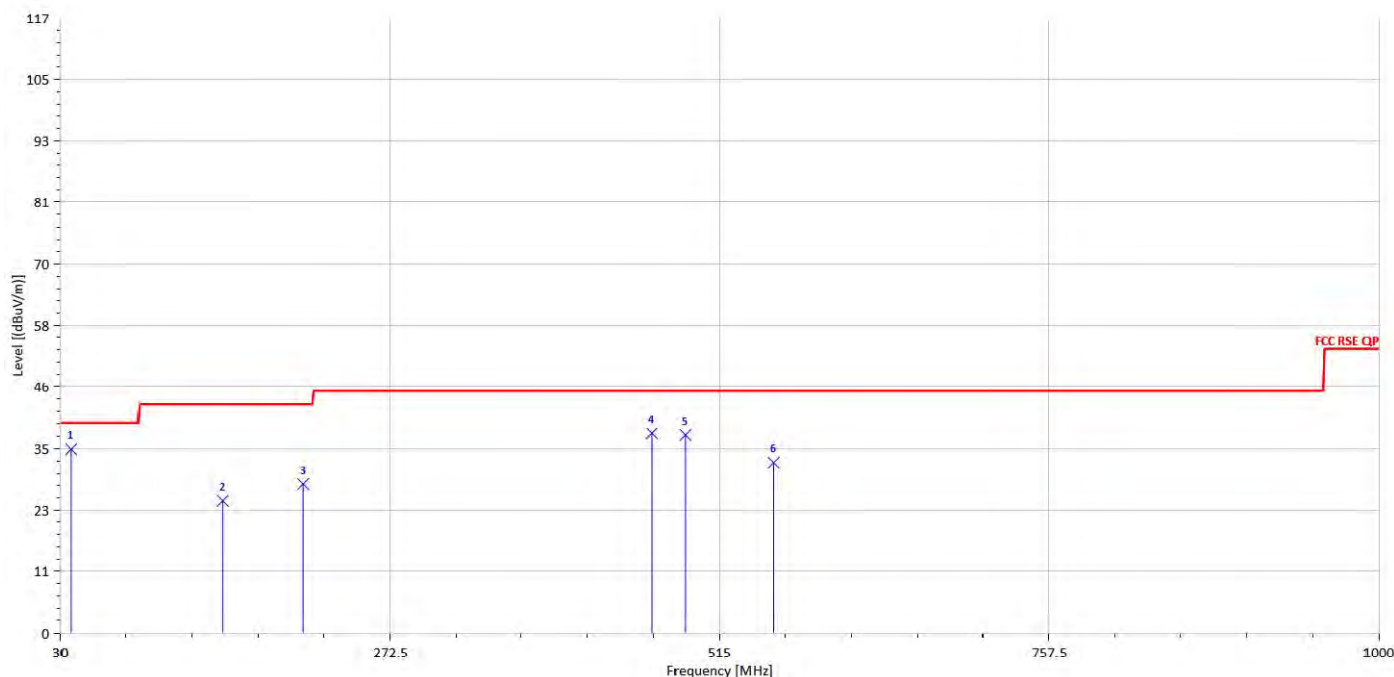
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802.11n_HT40 5250~5350 MHz

Operation Band :802.11 n_HT40
Fundamental Frequency :5270 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
37.76	S	Peak	52.49	-17.57	34.92	40	-5.08
149.31	S	Peak	47.76	-22.61	25.15	43.5	-18.35
208.48	S	Peak	51.23	-22.96	28.28	43.5	-15.22
465.53	S	Peak	52.37	-14.43	37.94	46	-8.06
489.78	S	Peak	51.69	-14.10	37.60	46	-8.40
554.77	S	Peak	45.40	-12.96	32.44	46	-13.56

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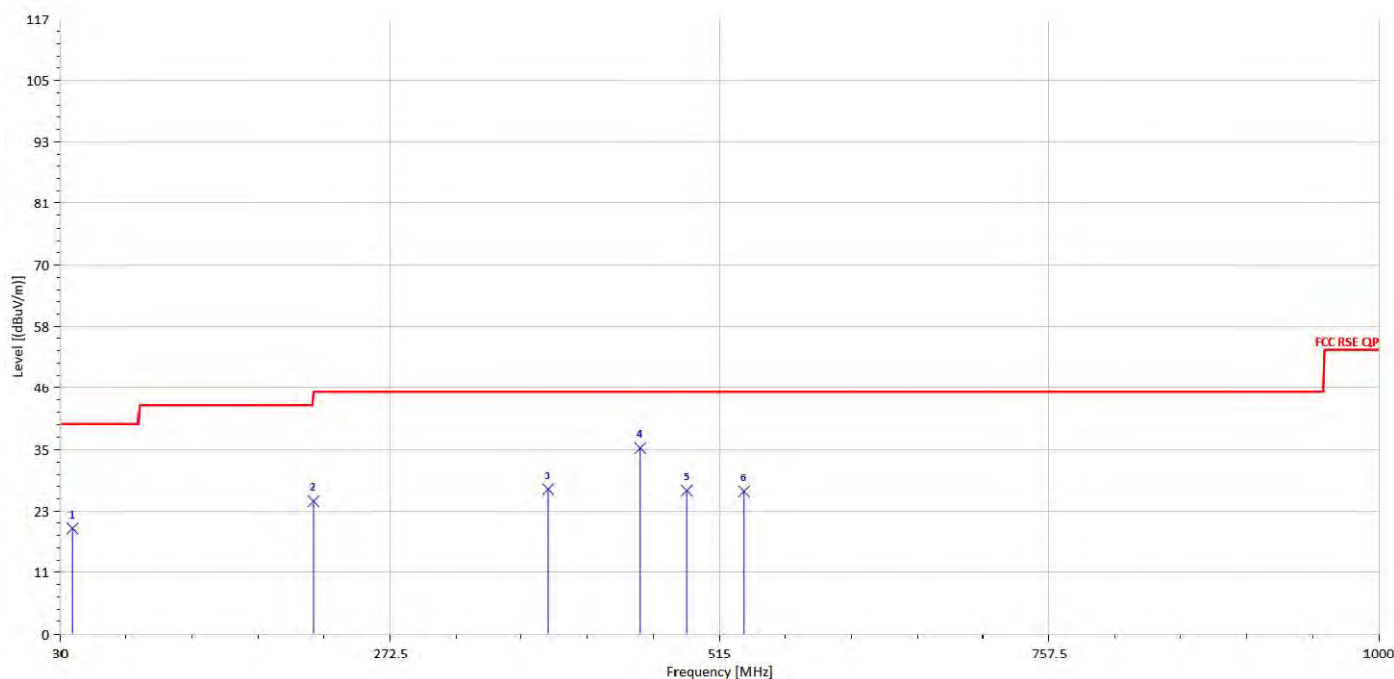
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Member of SGS Group

Operation Band :802.11 n_HT40
Fundamental Frequency :5270 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
38.73	S	Peak	38.22	-18.19	20.03	40	-19.97
216.24	S	Peak	48.21	-22.96	25.25	46	-20.75
388.90	S	Peak	43.74	-16.23	27.50	46	-18.50
456.80	S	Peak	50.05	-14.72	35.34	46	-10.66
490.75	S	Peak	41.35	-14.09	27.26	46	-18.74
533.43	S	Peak	40.33	-13.22	27.11	46	-18.89

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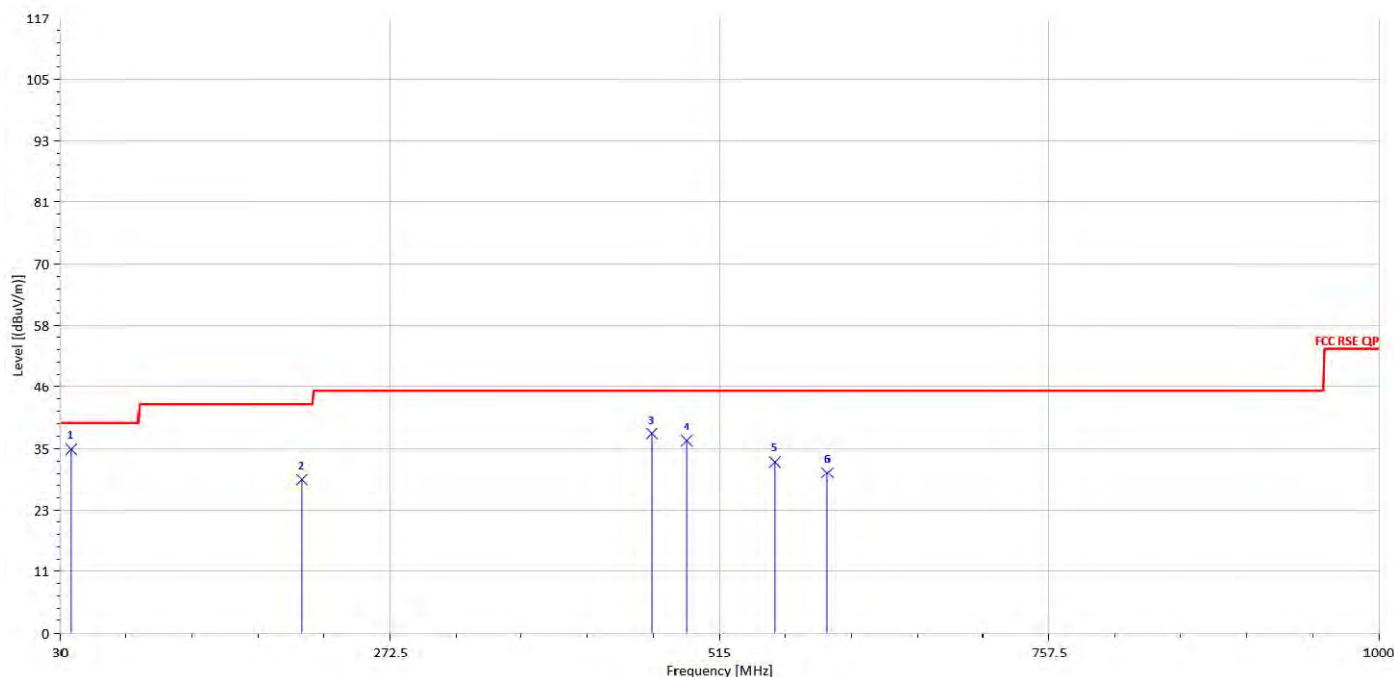
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Member of SGS Group

802.11n_HT40, 5470~5725 MHz

Operation Band :802.11 n_HT40
Fundamental Frequency :5550 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



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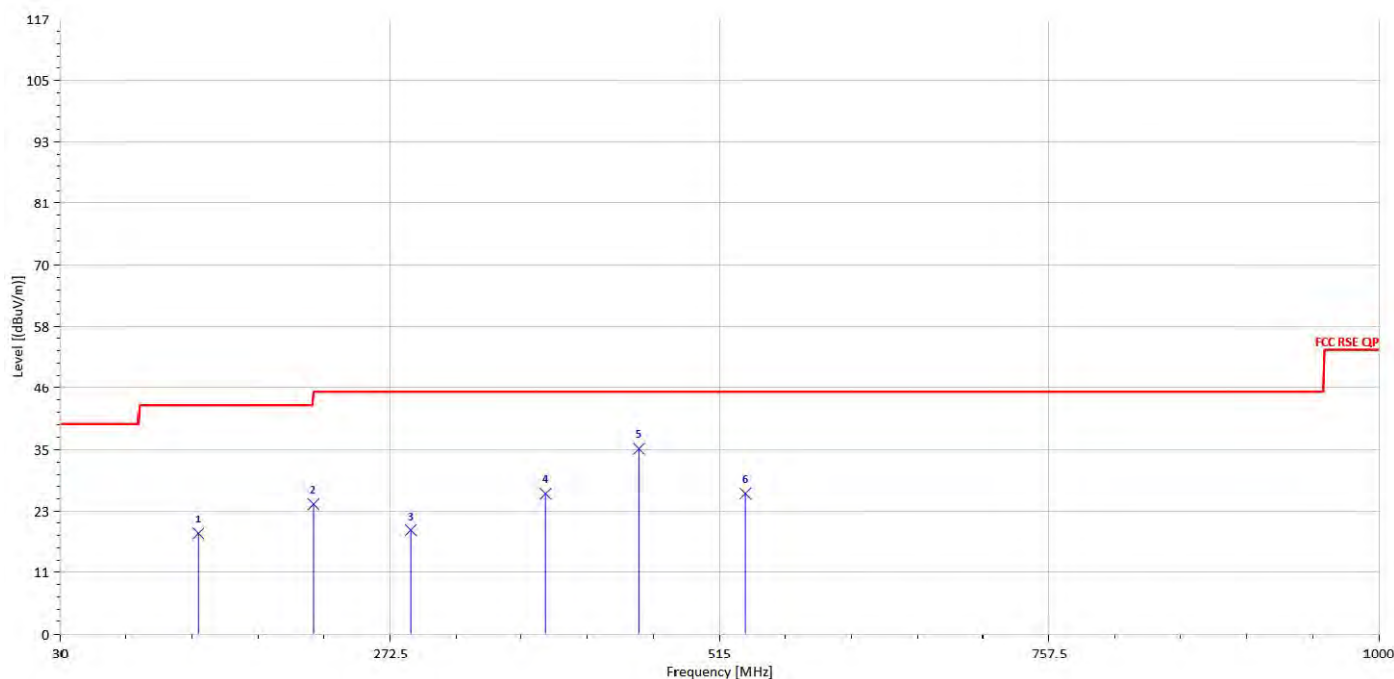
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Operation Band :802.11 n_HT40
Fundamental Frequency :5550 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
131.85	S	Peak	40.48	-21.38	19.10	43.5	-24.40
216.24	S	Peak	47.67	-22.96	24.71	46	-21.29
288.02	S	Peak	39.17	-19.45	19.72	46	-26.28
386.96	S	Peak	42.98	-16.32	26.67	46	-19.33
455.83	S	Peak	49.96	-14.75	35.21	46	-10.79
534.40	S	Peak	39.86	-13.16	26.70	46	-19.30

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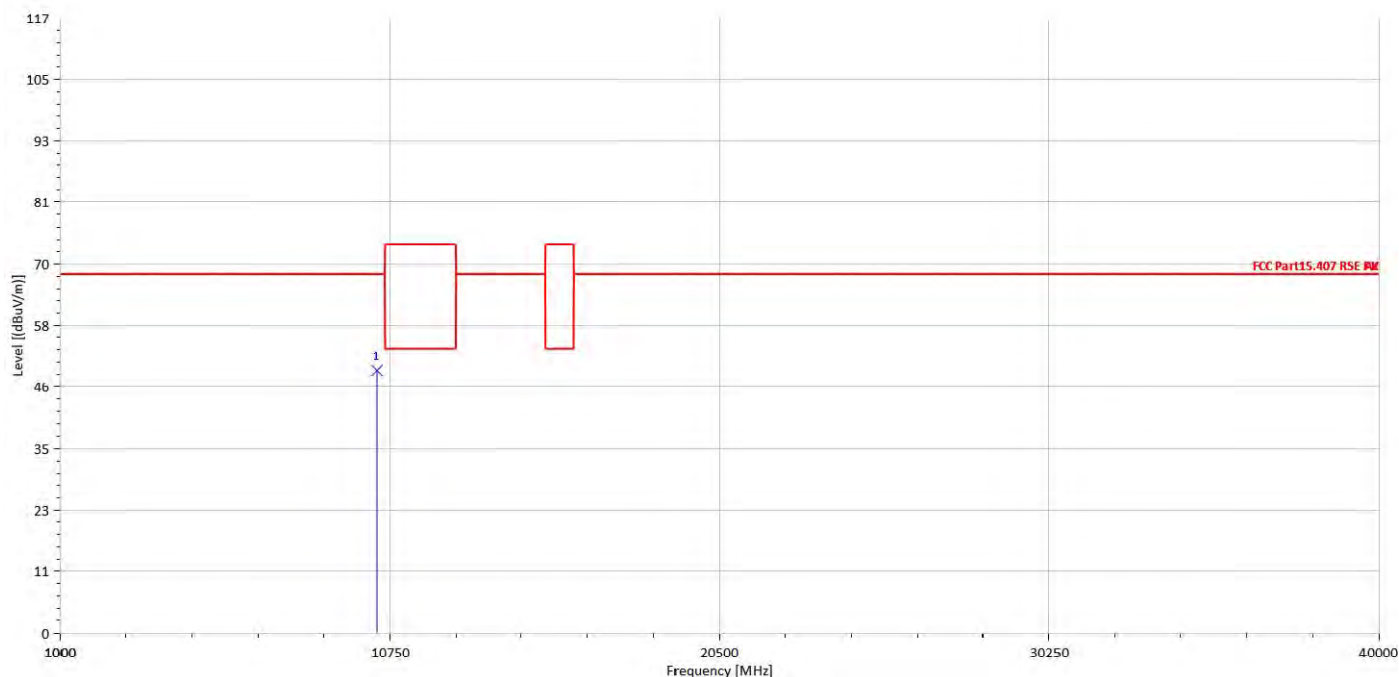
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Above 1GHz Worst-Case Data:

802.11a, 5150~5250 MHz

Operation Band :802.11 a
Fundamental Frequency :5180 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10360.00	H	Peak	31.02	18.94	49.96	68.3	-18.34

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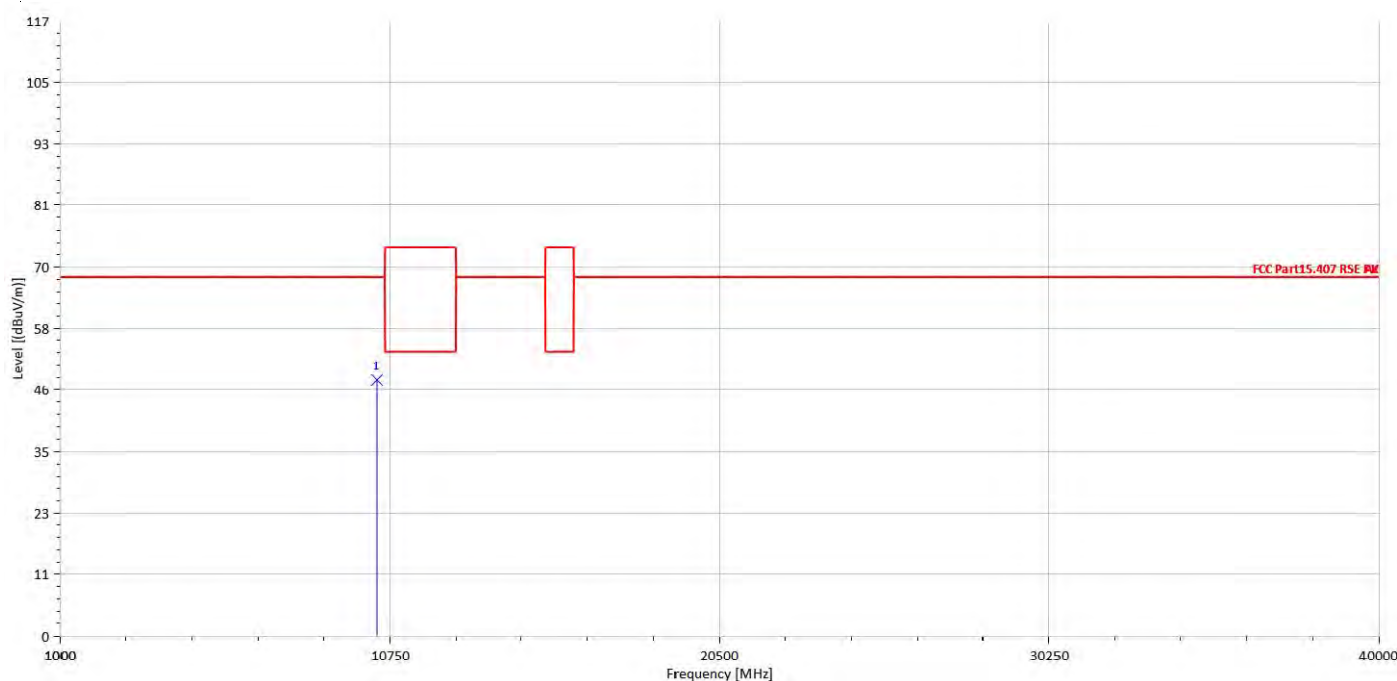
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Operation Band :802.11 a
Fundamental Frequency :5180 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
10360.00	H	Peak	29.83	18.94	48.77	68.3	-19.53

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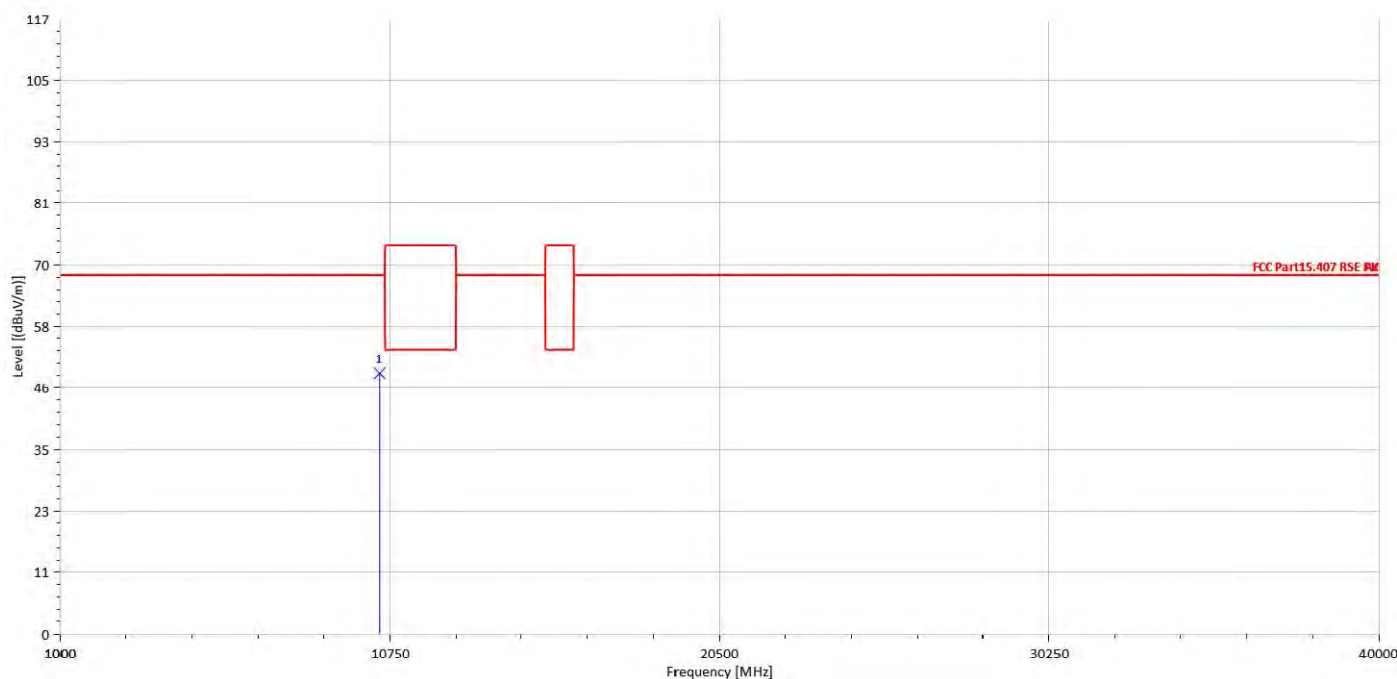
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Operation Band :802.11 a
Fundamental Frequency :5220 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10440.00	H	Peak	30.58	19.03	49.61	68.3	-18.69
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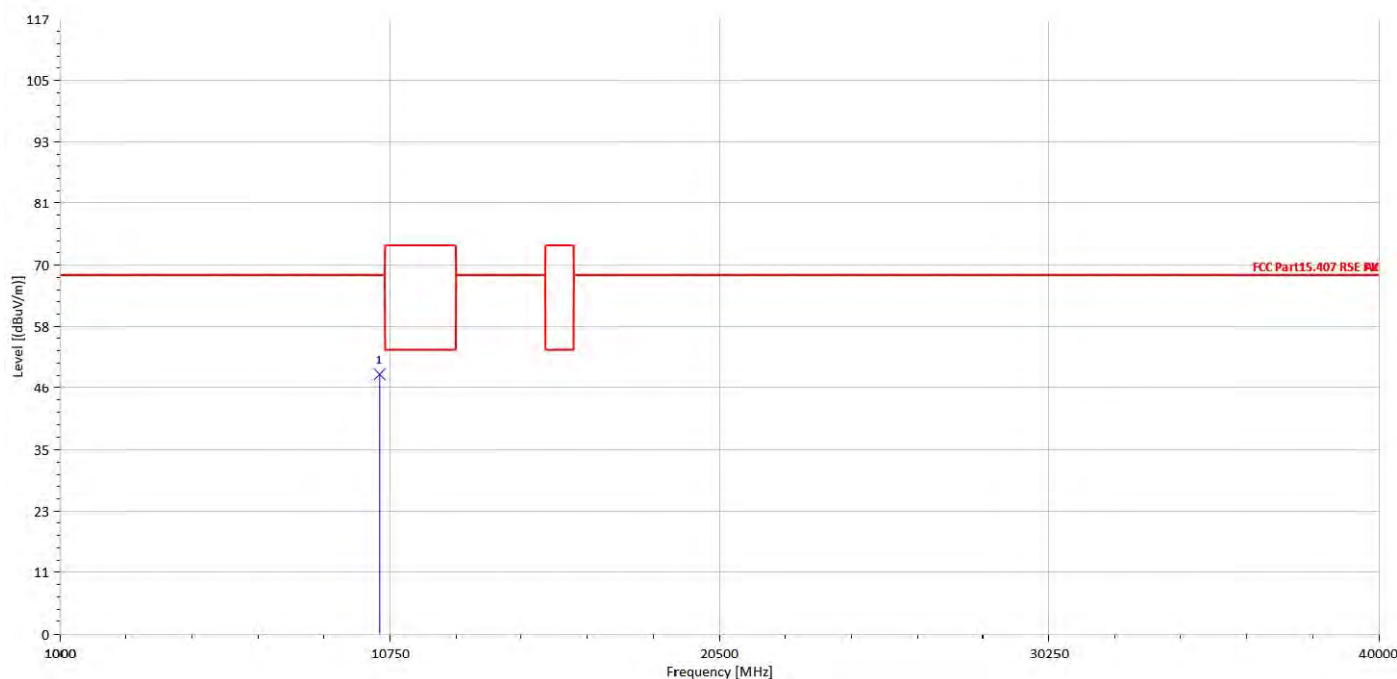
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Operation Band :802.11 a
Fundamental Frequency :5220 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB

10440.00	H	Peak	30.41	19.03	49.44	68.3	-18.86
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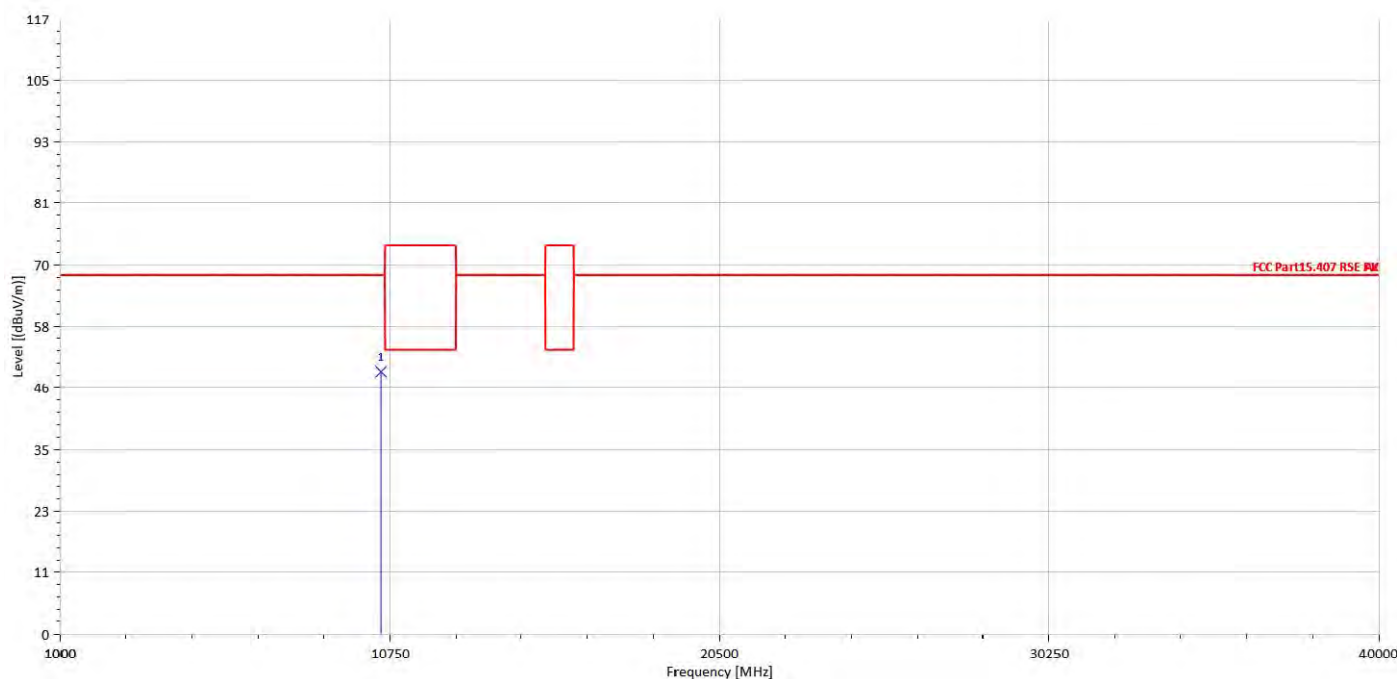
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Operation Band :802.11 a
Fundamental Frequency :5240 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
10480.00	H	Peak	30.78	19.13	49.91	68.3	-18.39

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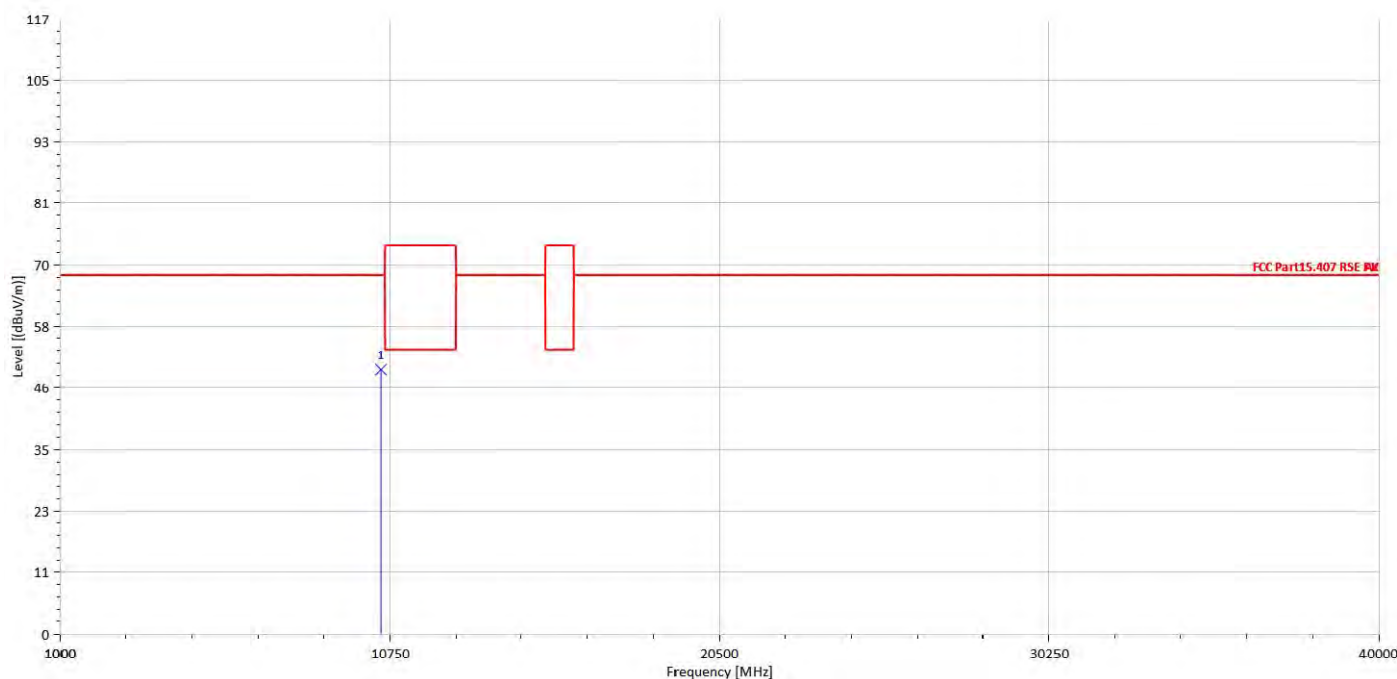
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Operation Band :802.11 a
Fundamental Frequency :5240 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10480.00	H	Peak	31.19	19.13	50.32	68.3	-17.98
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Band edge falling to restricted band

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5180 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Peak	43.00	11.14	54.14	74	-19.86
5150.00	E	Average	31.86	11.14	43.00	54	-11.00

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5180 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Peak	42.16	11.14	53.30	74	-20.70
5150.00	E	Average	31.63	11.14	42.77	54	-11.23

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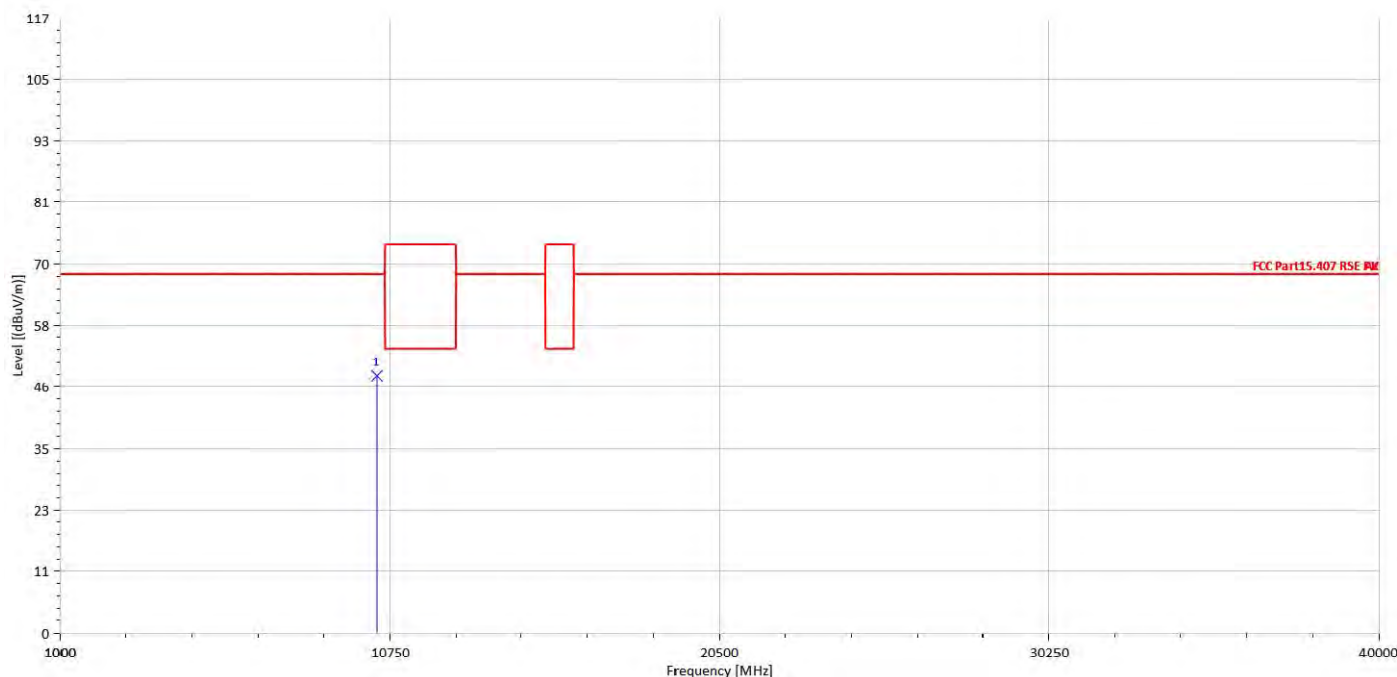
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5150~5250 MHz

Operation Band :802.11 n20M
Fundamental Frequency :5180 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
10360.00	H	Peak	30.04	18.94	48.98	68.3	-19.32

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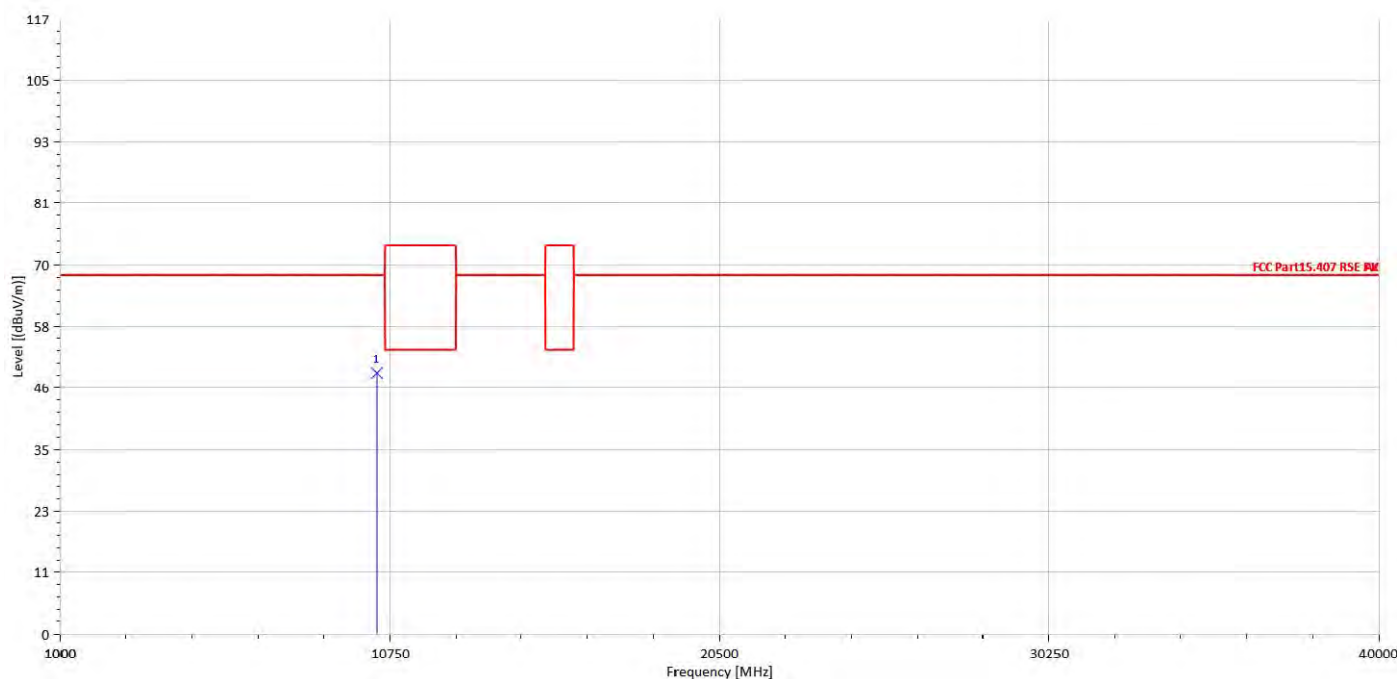
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Operation Band	:802.11 n20M	Test Date	:2015-12-17
Fundamental Frequency	:5180 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
10360.00	H	Peak	30.74	18.94	49.68	68.3	-18.62

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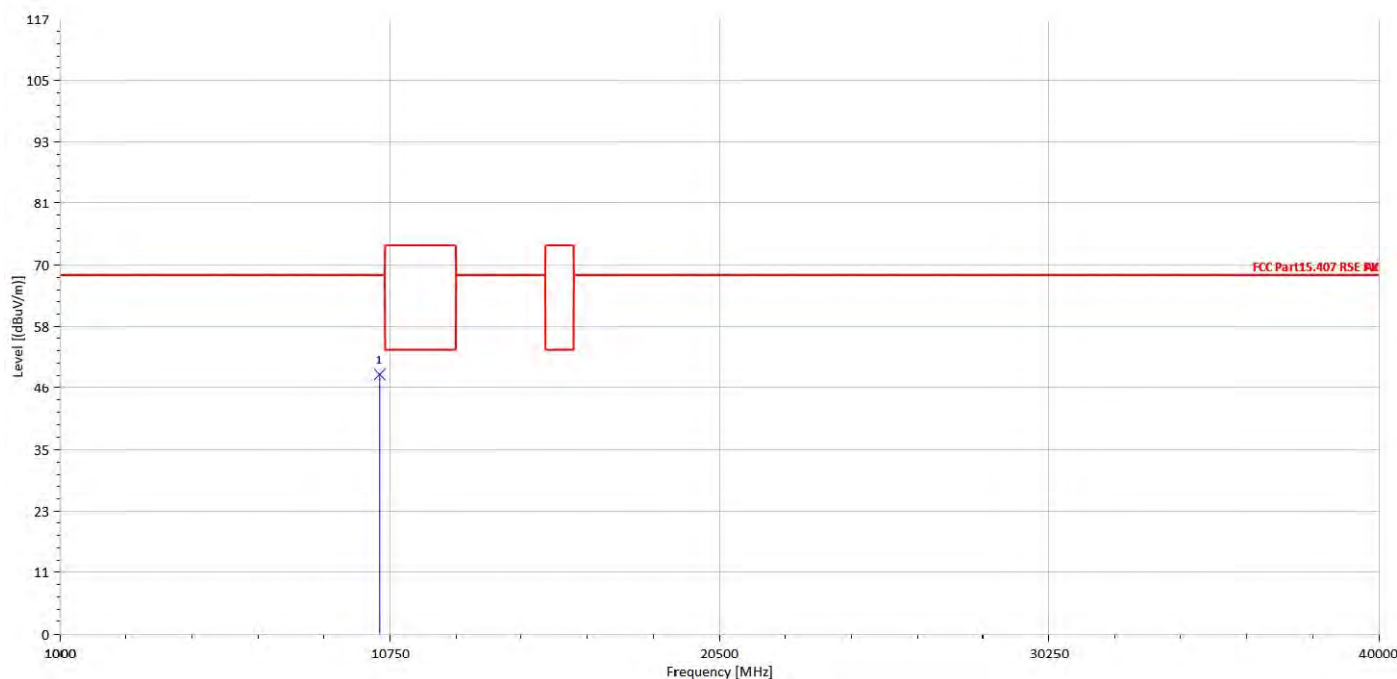
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Operation Band :802.11 n20M
Fundamental Frequency :5220 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10440.00	H	Peak	30.39	19.03	49.42	68.3	-18.88
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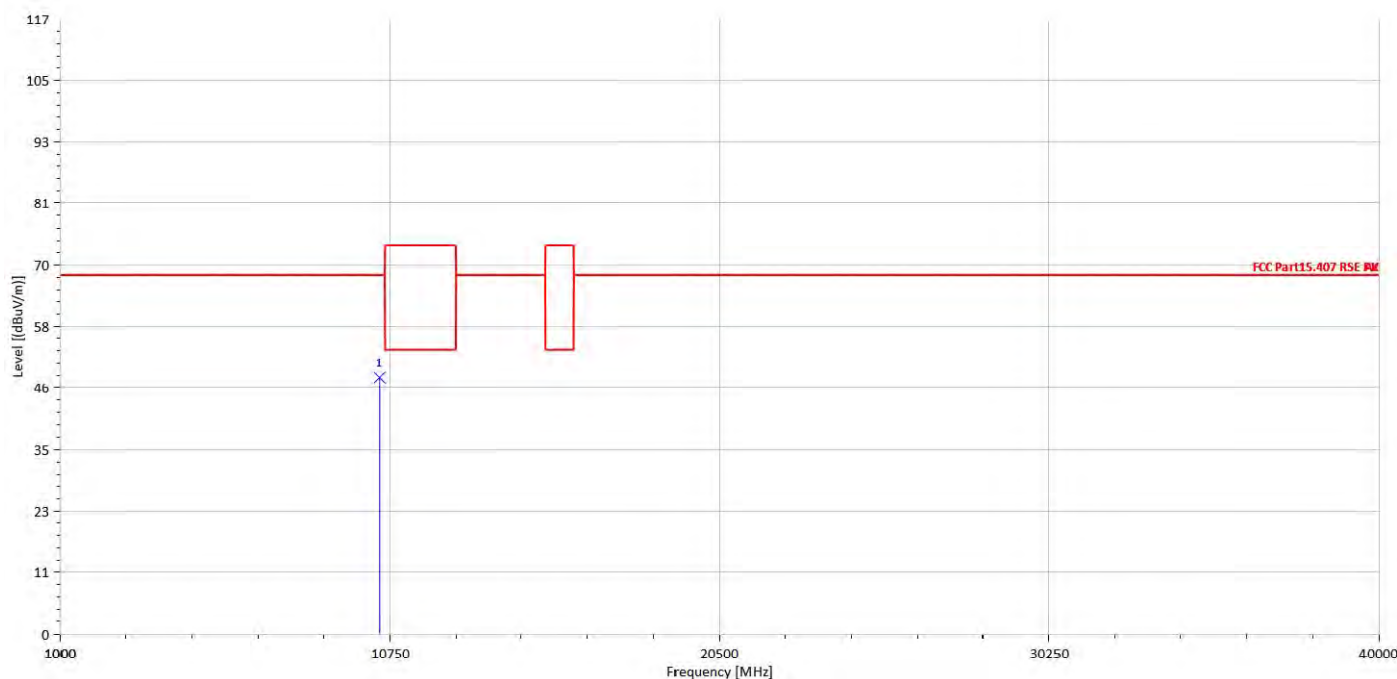
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Operation Band :802.11 n20M
Fundamental Frequency :5220 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
10440.00	H	Peak	29.82	19.03	48.84	68.3	-19.46

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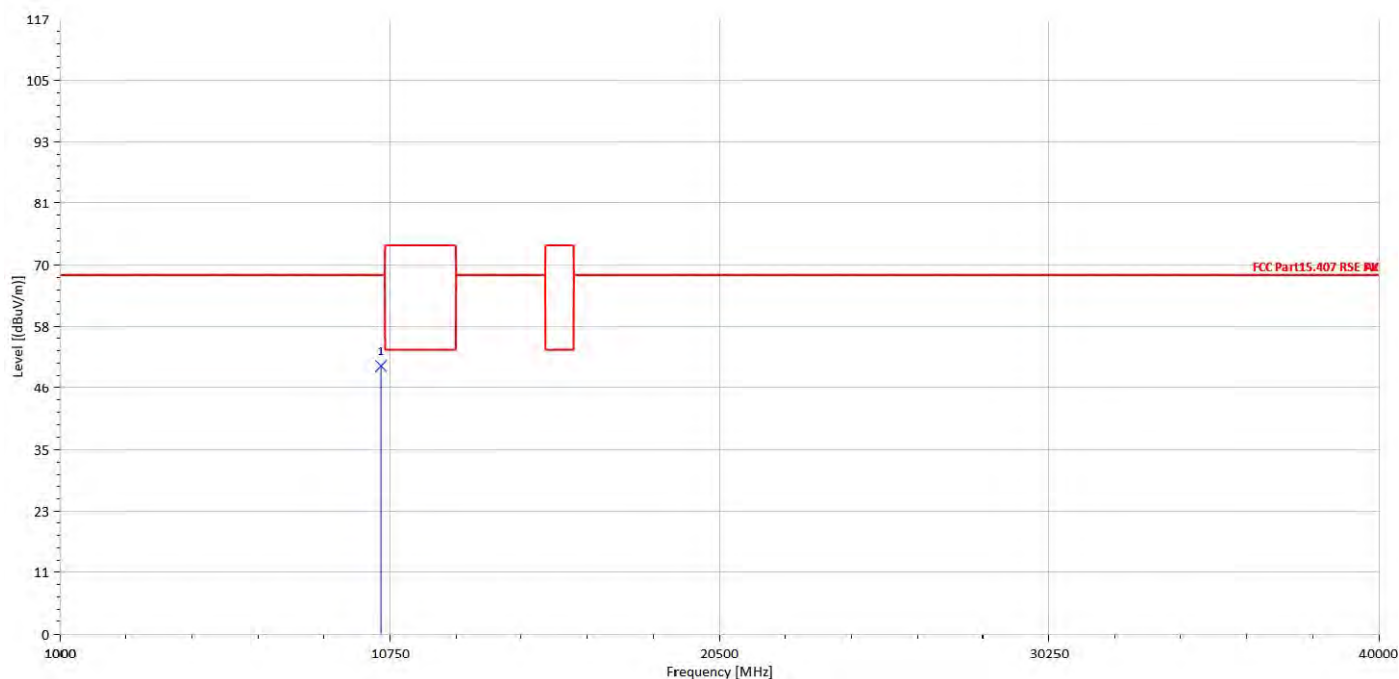
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Operation Band	:802.11 n20M	Test Date	:2015-12-17
Fundamental Frequency	:5240 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10480.00	H	Peak	31.88	19.13	51.00	68.3	-17.30
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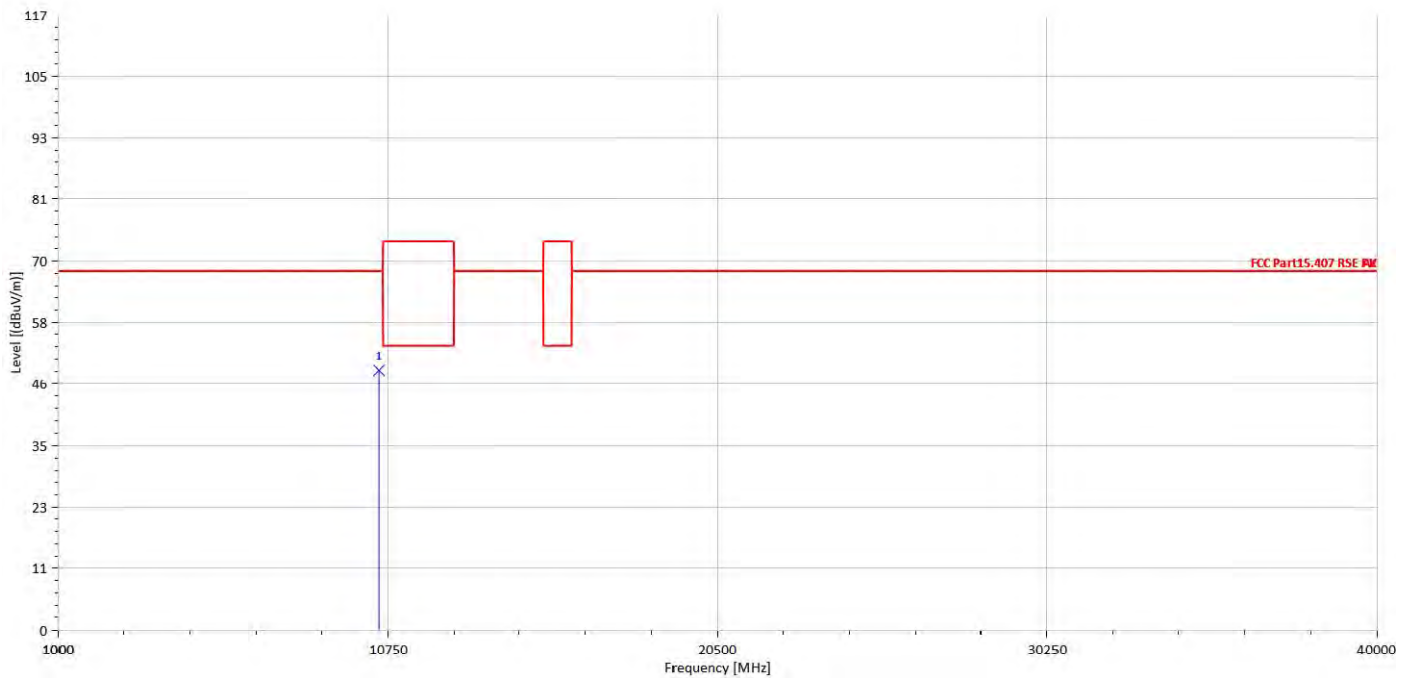
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Operation Band	:802.11 n20M	Test Date	:2015-12-17
Fundamental Frequency	:5240 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
10480.00	H	Peak	30.29	19.13	49.42	68.3	-18.88

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Band edge falling to restricted band

Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5180 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5149.36	S	Peak	44.77	11.14	55.92	74	-18.08
5149.36	S	Average	32.24	11.14	43.38	54	-10.62
5150.00	E	Peak	43.51	11.14	54.65	74	-19.35
5150.00	E	Average	32.26	11.14	43.40	54	-10.60

Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5180 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Peak	43.86	11.14	55.00	74	-19.00
5150.00	E	Average	32.12	11.14	43.26	54	-10.74

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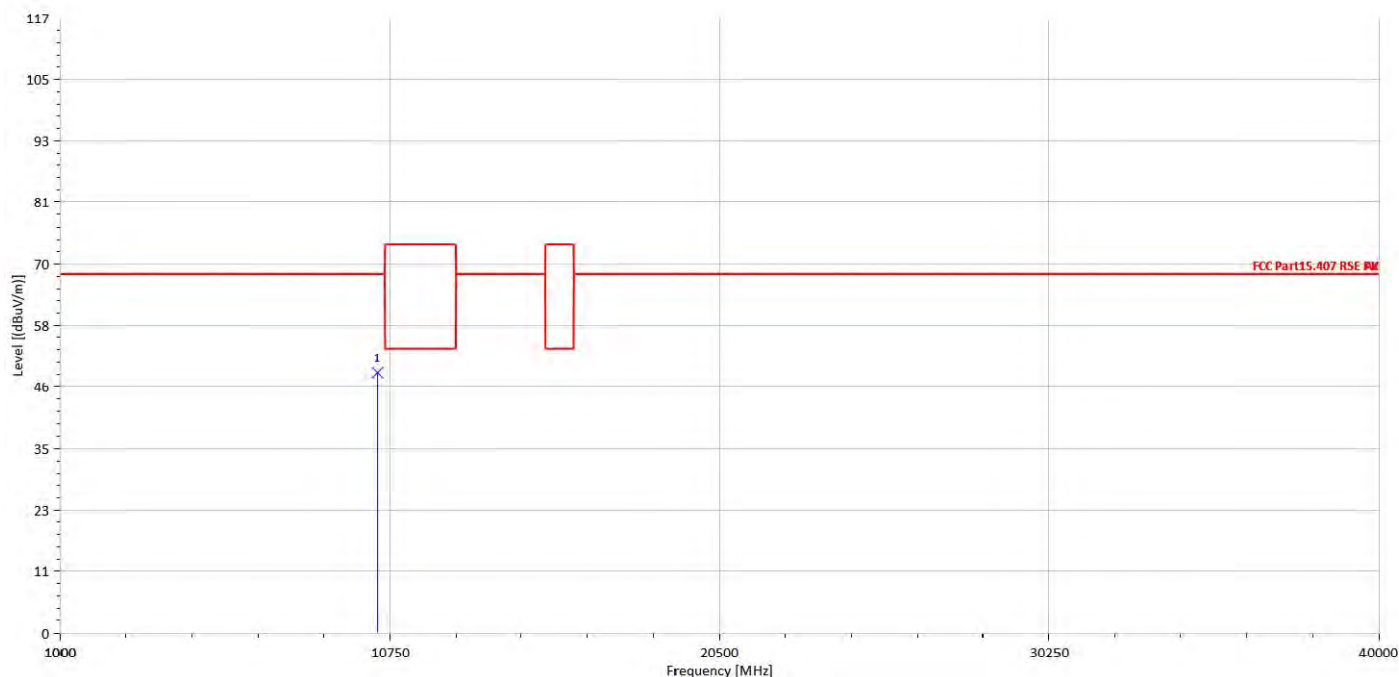
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5150~5250 MHz

Operation Band :802.11 n40M
Fundamental Frequency :5190 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10380.00	H	Peak	30.55	19.01	49.56	68.3	-18.74

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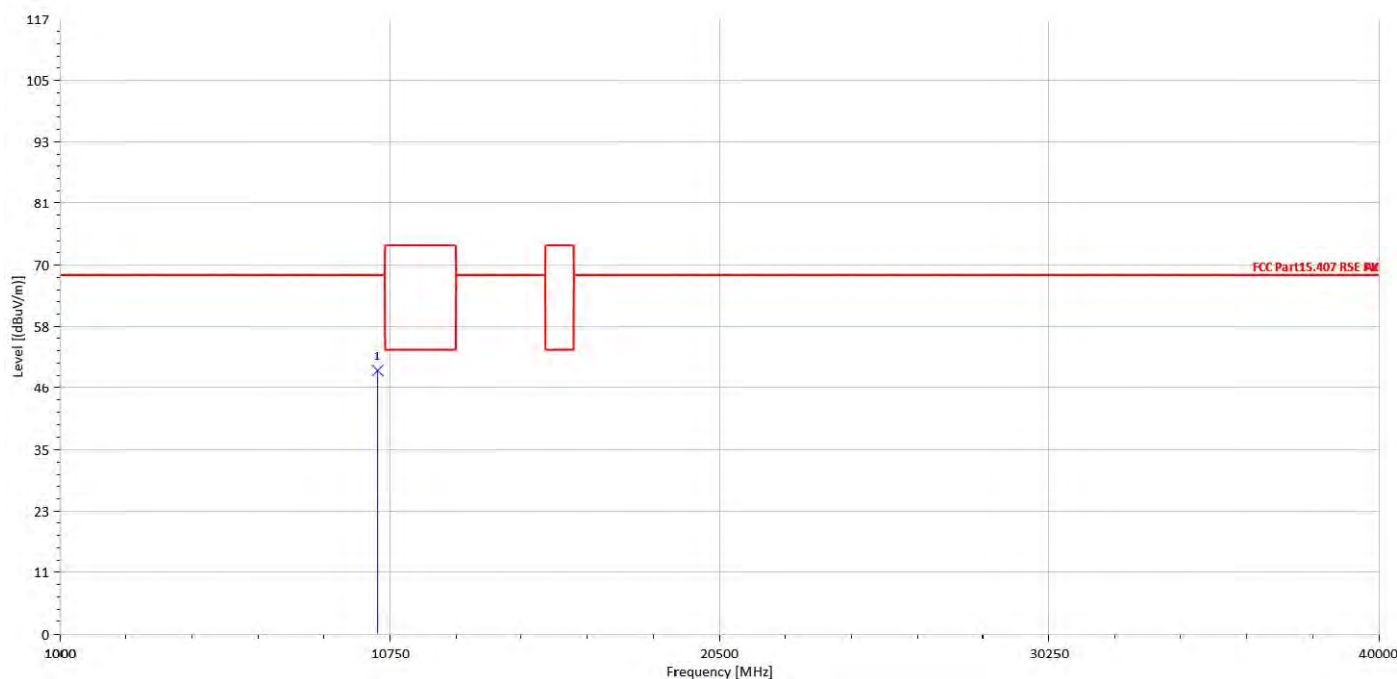
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Operation Band :802.11 n40M
Fundamental Frequency :5190 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10380.00	H	Peak	31.13	19.01	50.15	68.3	-18.15
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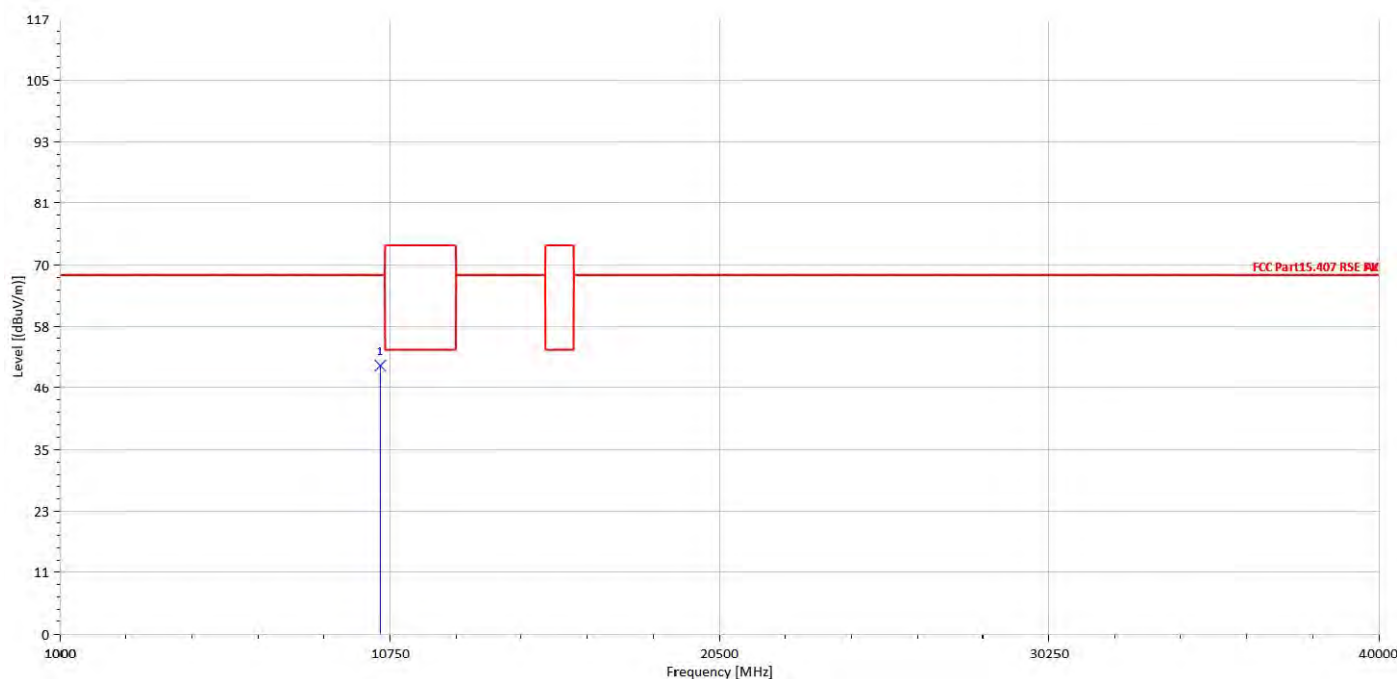
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Operation Band :802.11 n40M
Fundamental Frequency :5230 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10460.00	H	Peak	31.94	19.11	51.06	68.3	-17.24
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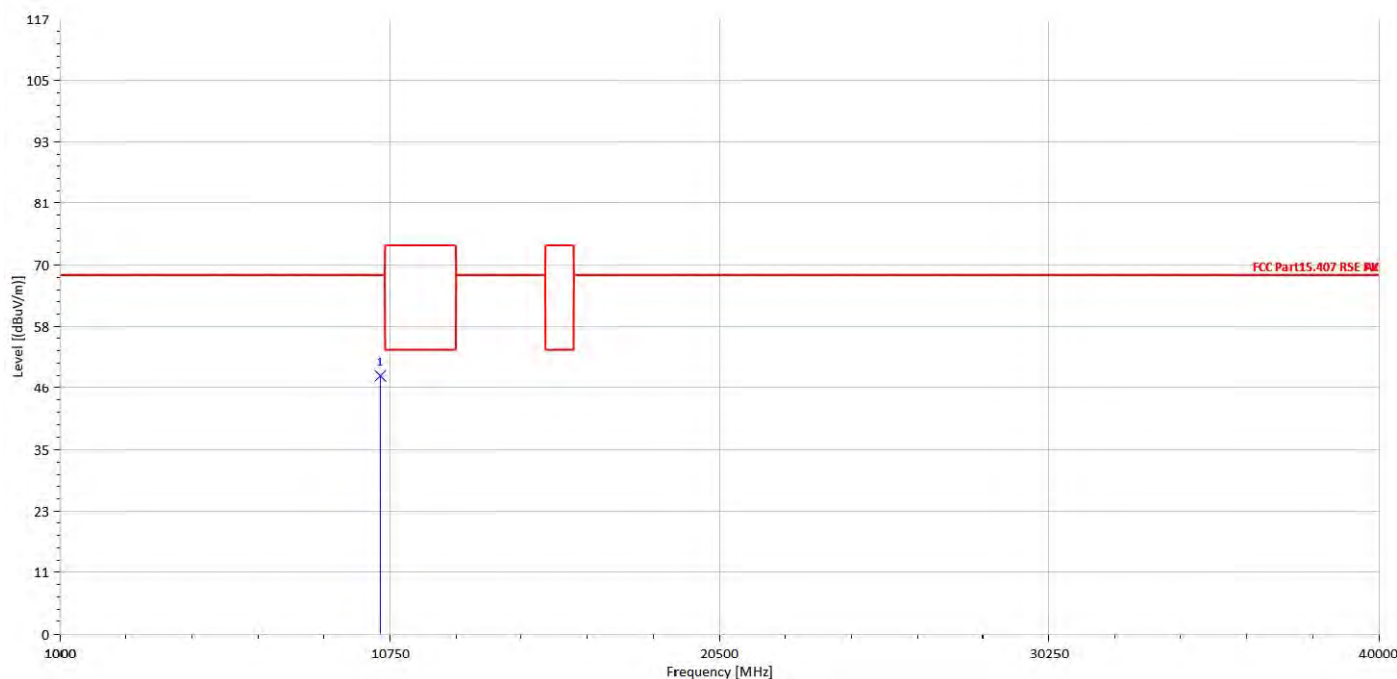
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Operation Band	:802.11 n40M	Test Date	:2015-12-17
Fundamental Frequency	:5230 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB

10460.00	H	Peak	30.05	19.11	49.16	68.3	-19.14
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Band edge falling to restricted band

Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5190 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Peak	56.46	11.14	67.60	74	-6.40
5150.00	E	Average	37.47	11.14	48.61	54	-5.39

Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5190 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5148.76	S	Peak	55.89	11.15	67.04	74	-6.96
5148.76	S	Average	36.13	11.15	47.28	54	-6.72
5150.00	E	Peak	54.37	11.14	65.51	74	-8.49
5150.00	E	Average	36.67	11.14	47.81	54	-6.19

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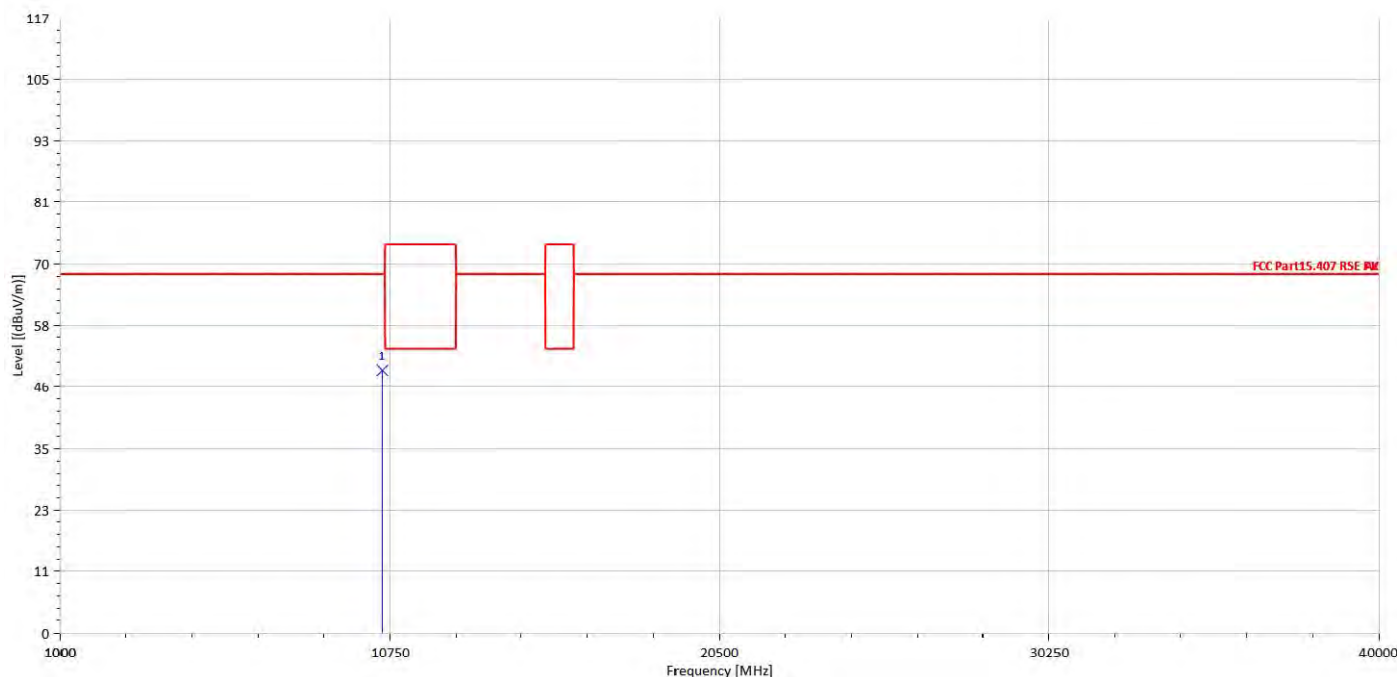
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Radiated Spurious Emission Measurement Result 802.11a, 5250MHz-5350MHz

Operation Band :802.11 a
Fundamental Frequency :5260 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10520.00	H	Peak	30.73	19.25	49.98	68.3	-18.32

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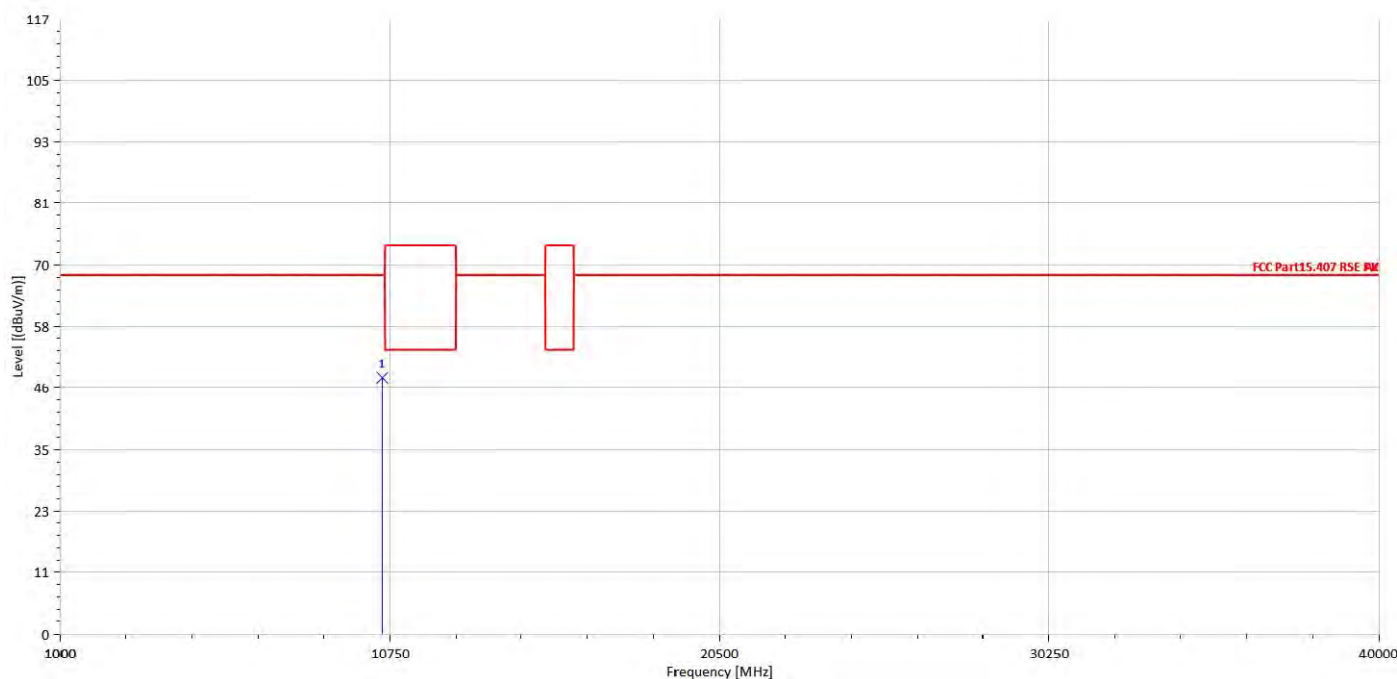
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Operation Band :802.11 a
Fundamental Frequency :5260 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10520.00	H	Peak	29.55	19.25	48.80	68.3	-19.50
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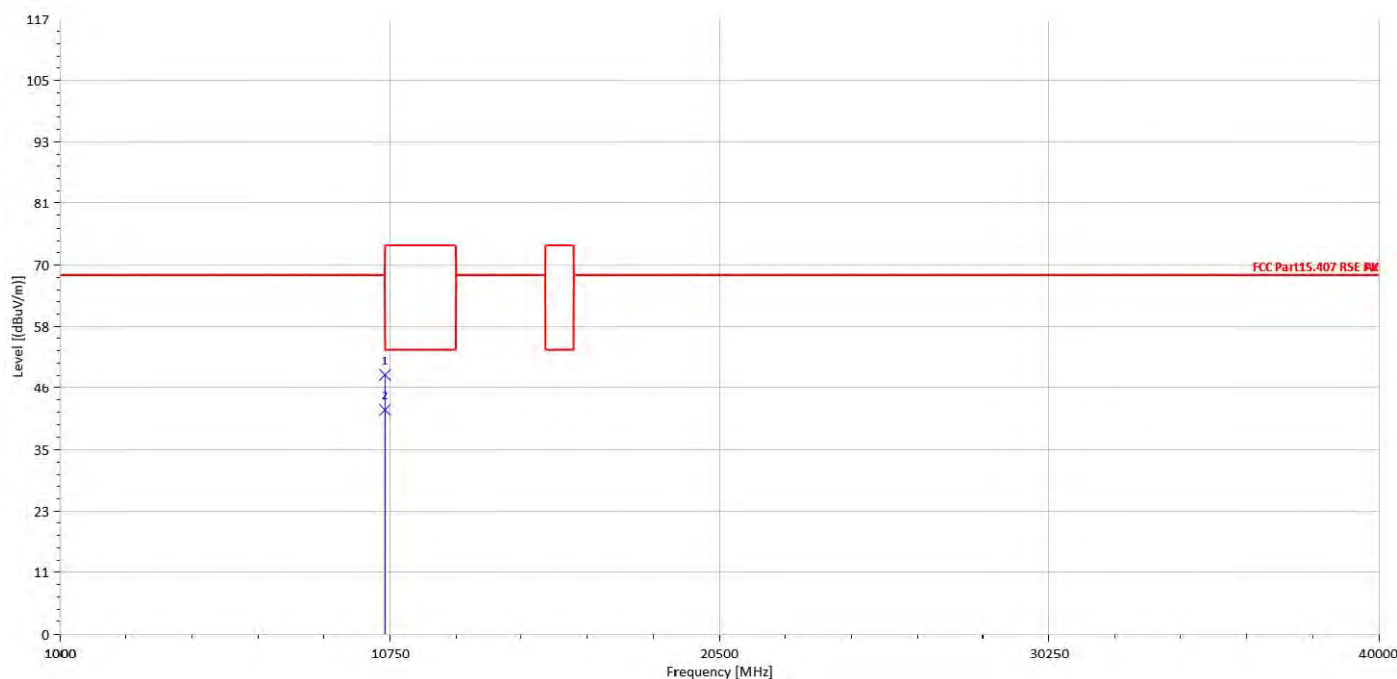
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Operation Band :802.11 a
Fundamental Frequency :5300 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	Margin
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
10600.00	H	Peak	29.96	19.38	49.33	74	-24.67
10600.00	H	Average	23.26	19.38	42.64	54	-11.36

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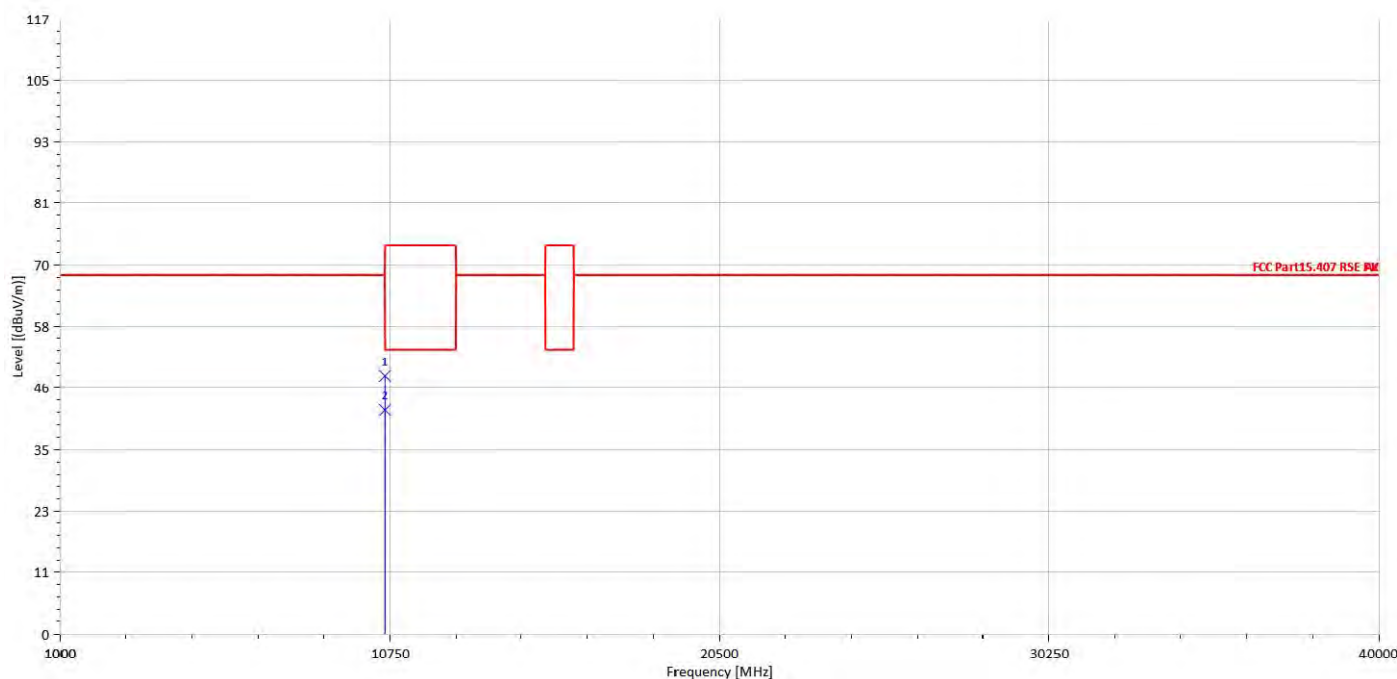
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Operation Band :802.11 a
Fundamental Frequency :5300 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
10600.00	H	Peak	29.76	19.38	49.14	74	-24.86
10600.00	H	Average	23.25	19.38	42.63	54	-11.37

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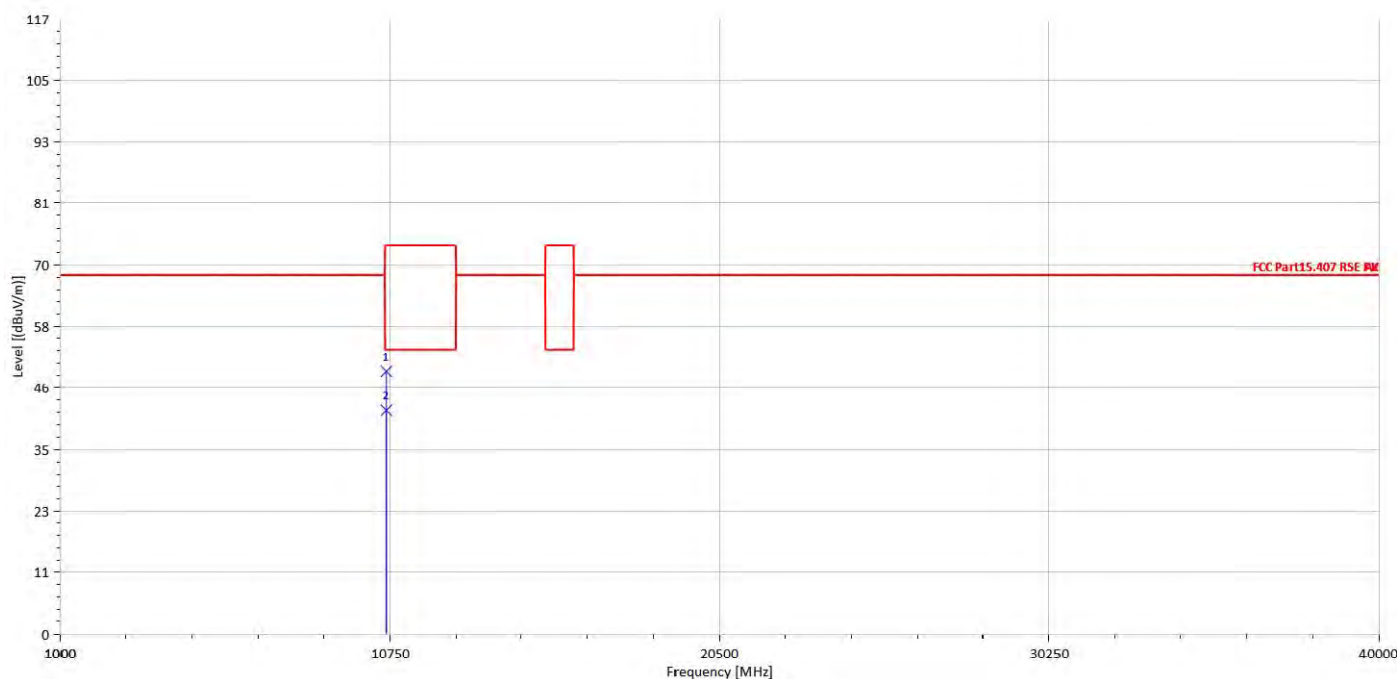
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Operation Band :802.11 a
Fundamental Frequency :5320 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	Margin
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
10640.00	H	Peak	30.70	19.28	49.98	74	-24.02
10640.00	H	Average	23.29	19.28	42.57	54	-11.43

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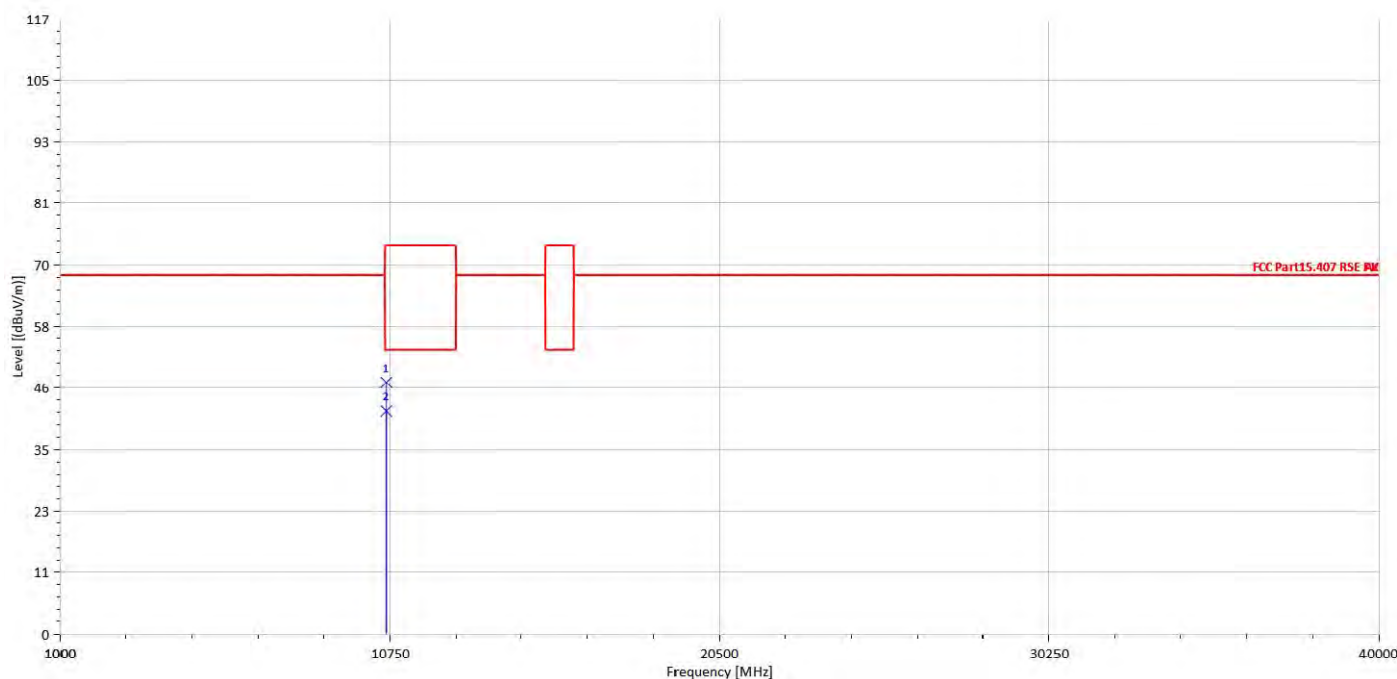
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Operation Band :802.11 a
Fundamental Frequency :5320 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
10640.00	H	Peak	28.59	19.28	47.87	74	-26.13
10640.00	H	Average	23.17	19.28	42.45	54	-11.55

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Band edge falling to restricted band

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5320 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	42.82	11.30	54.12	74	-19.88
5350.00	E	Average	31.98	11.30	43.28	54	-10.72

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5320 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	43.27	11.30	54.57	74	-19.43
5350.00	E	Average	31.97	11.30	43.27	54	-10.73

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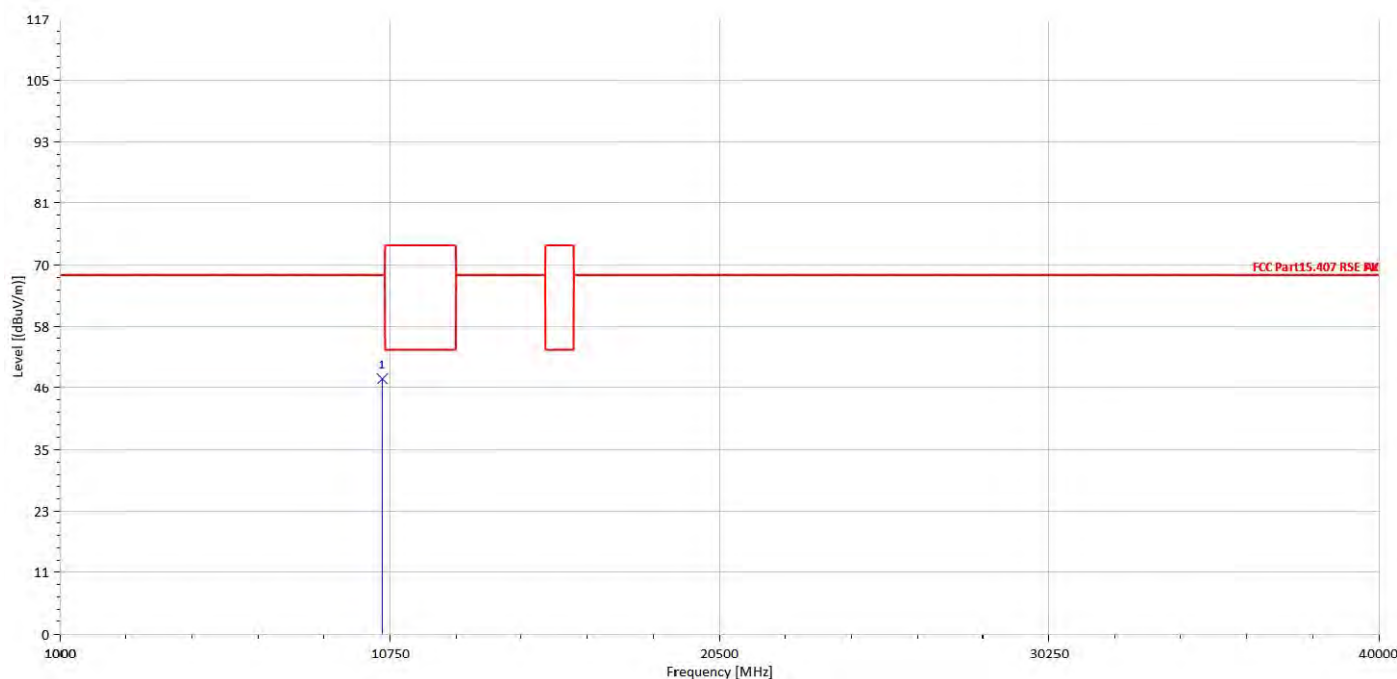
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5250~5350 MHz

Operation Band	:802.11 n20M	Test Date	:2015-12-17
Fundamental Frequency	:5260 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10520.00	H	Peak	29.32	19.25	48.57	68.3	-19.73
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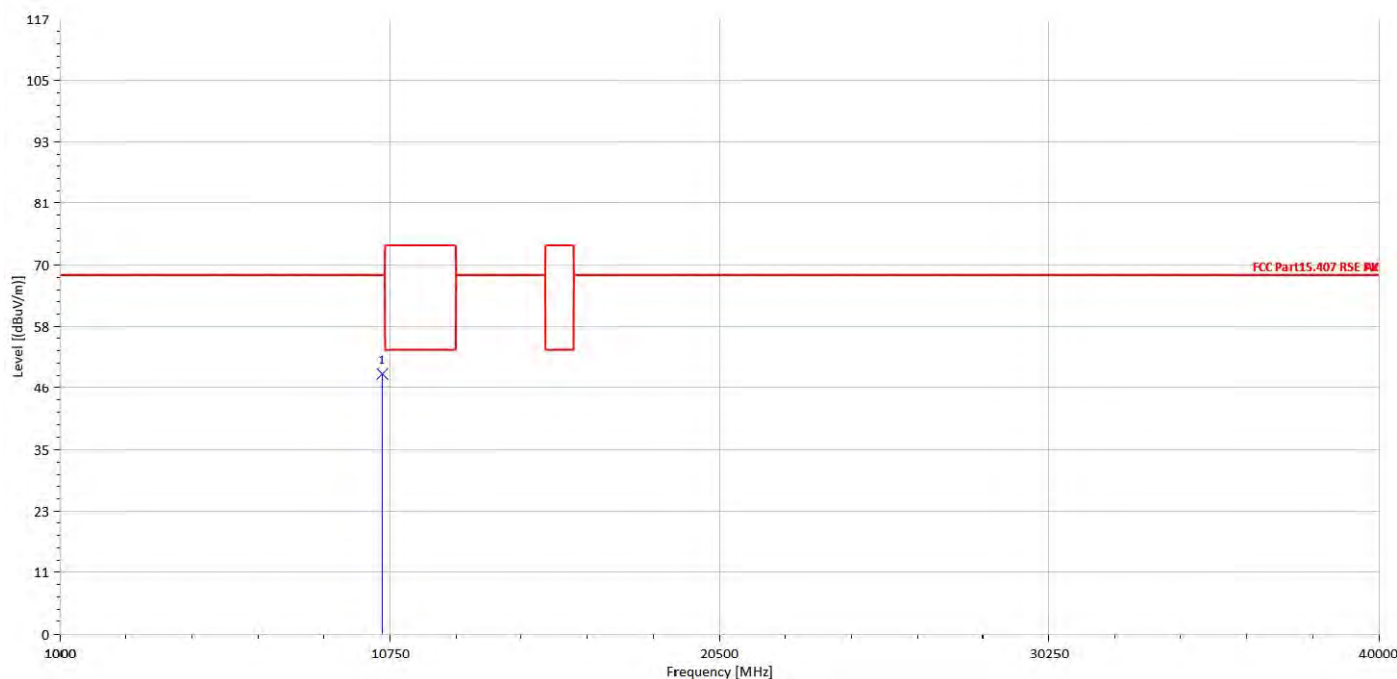
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Operation Band :802.11 n20M
Fundamental Frequency :5260 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB

10520.00	H	Peak	30.27	19.25	49.52	68.3	-18.78
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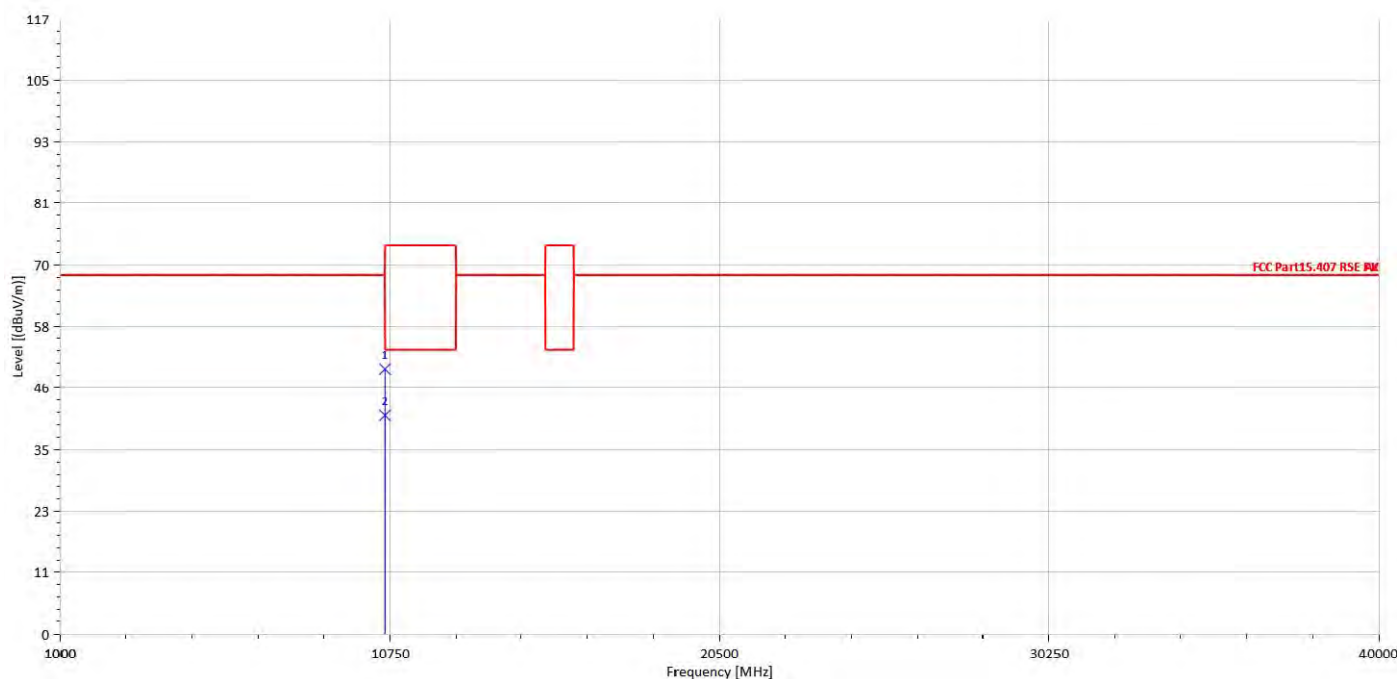
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Operation Band :802.11 n20M
Fundamental Frequency :5300 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
10600.00	H	Peak	31.03	19.38	50.41	74	-23.59
10600.00	H	Average	22.26	19.38	41.64	54	-12.36

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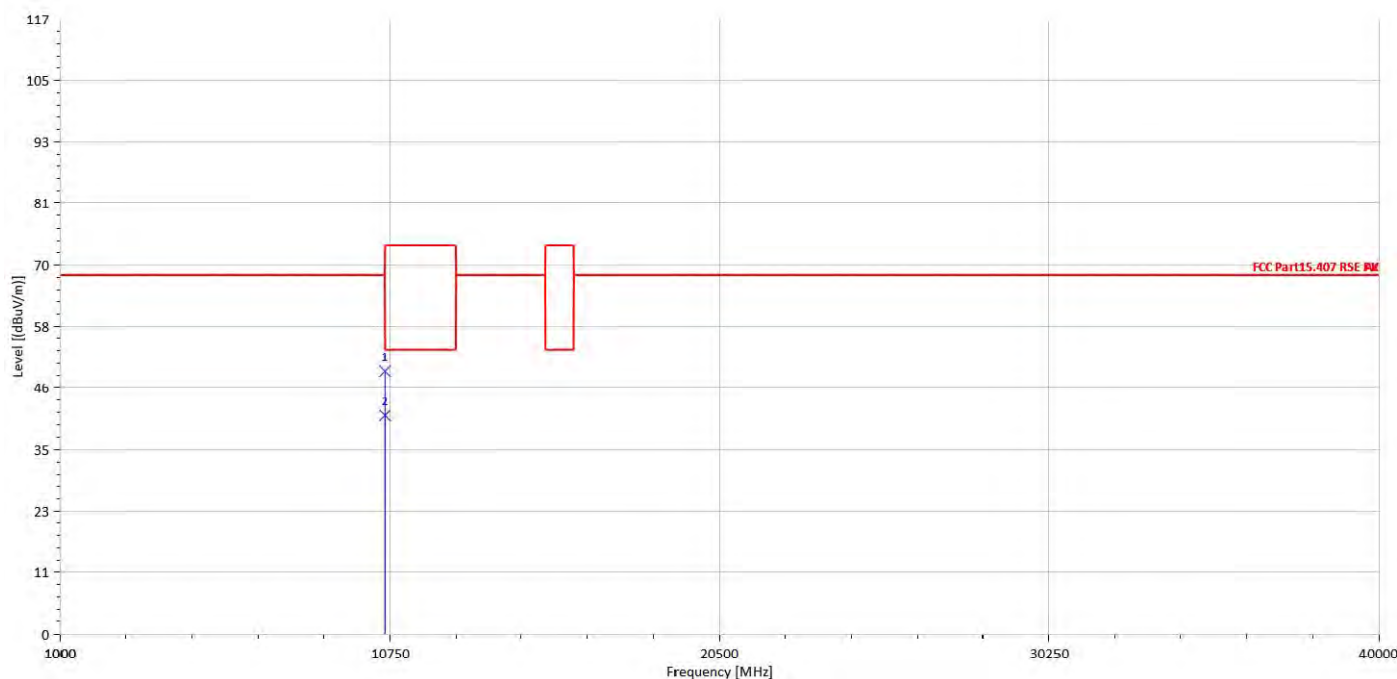
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Operation Band :802.11 n20M
Fundamental Frequency :5300 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
10600.00	H	Peak	30.63	19.38	50.01	74	-23.99
10600.00	H	Average	22.25	19.38	41.63	54	-12.37

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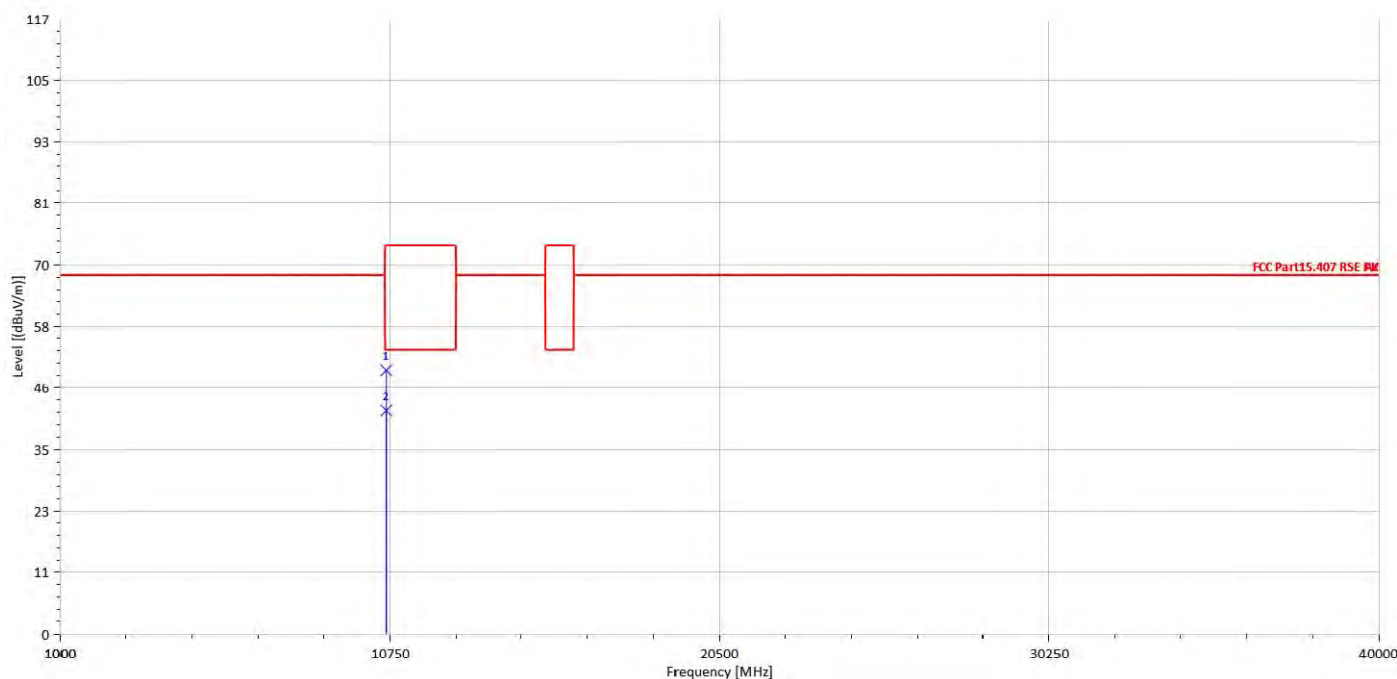
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Operation Band :802.11 n20M
Fundamental Frequency :5320 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
10640.00	H	Peak	30.90	19.28	50.18	74	-23.82
10640.00	H	Average	23.25	19.28	42.53	54	-11.47

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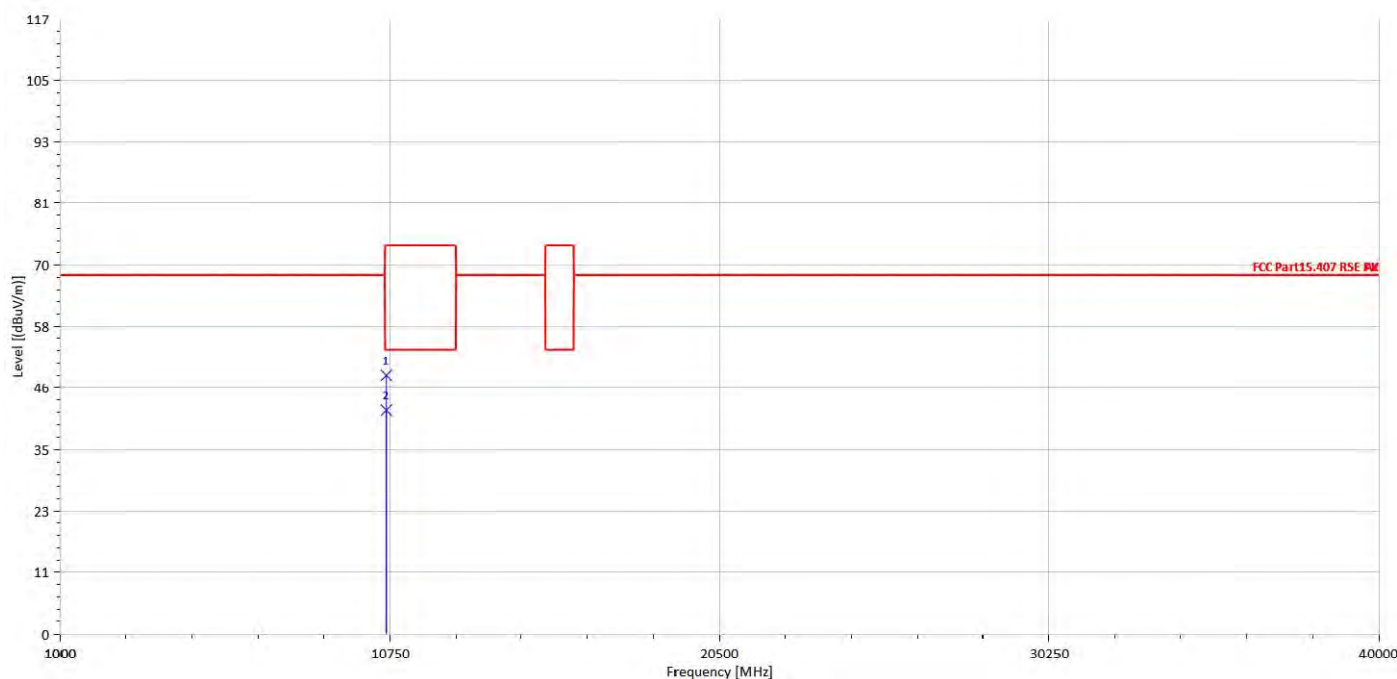
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Operation Band :802.11 n20M
Fundamental Frequency :5320 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
10640.00	H	Peak	29.96	19.28	49.24	74	-24.76
10640.00	H	Average	23.30	19.28	42.58	54	-11.42

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Band edge falling to restricted band

Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5320 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	47.56	11.30	58.86	74	-15.14
5350.00	E	Average	33.11	11.30	44.41	54	-9.59

Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5320 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	44.84	11.30	56.14	74	-17.86
5350.00	E	Average	32.82	11.30	44.12	54	-9.88
5352.96	S	Peak	46.56	11.32	57.88	74	-16.12
5352.96	S	Average	32.48	11.32	43.80	54	-10.20

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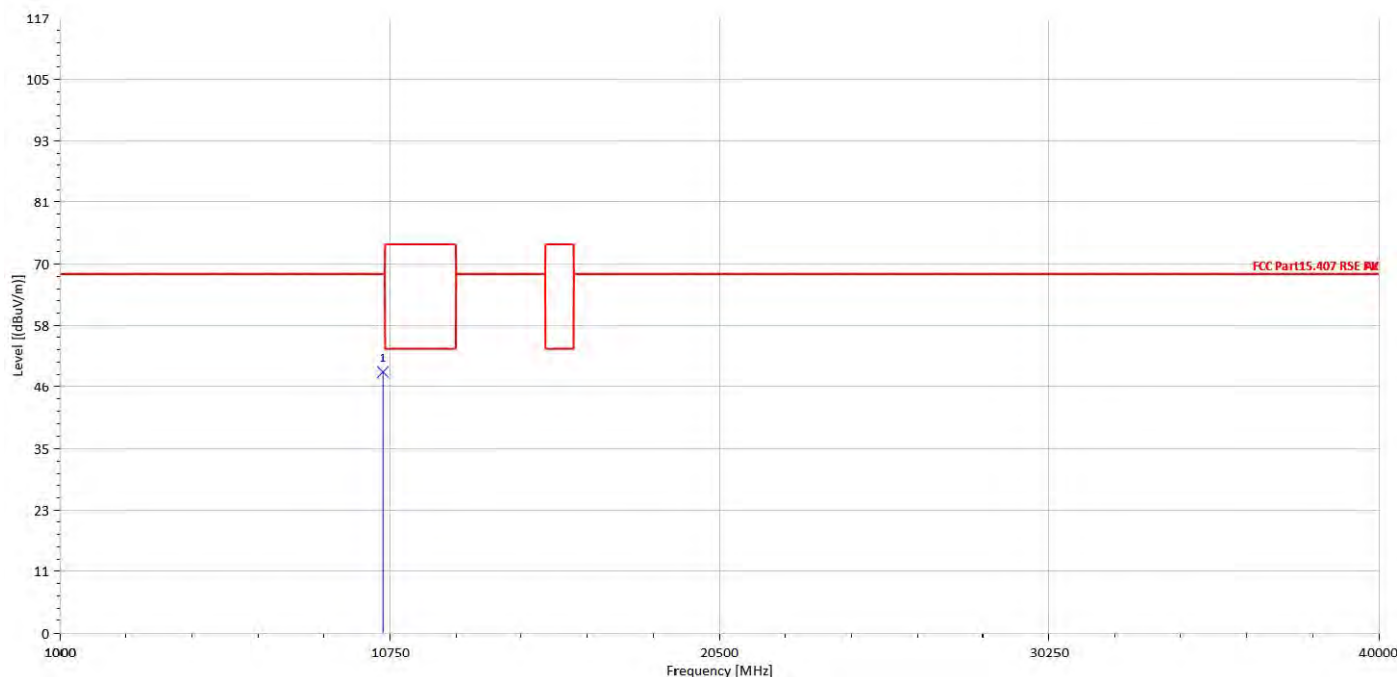
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5250~5350 MHz

Operation Band :802.11 n40M
Fundamental Frequency :5270 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Safe Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
10540.00	H	Peak	30.55	19.13	49.68	68.3	-18.62

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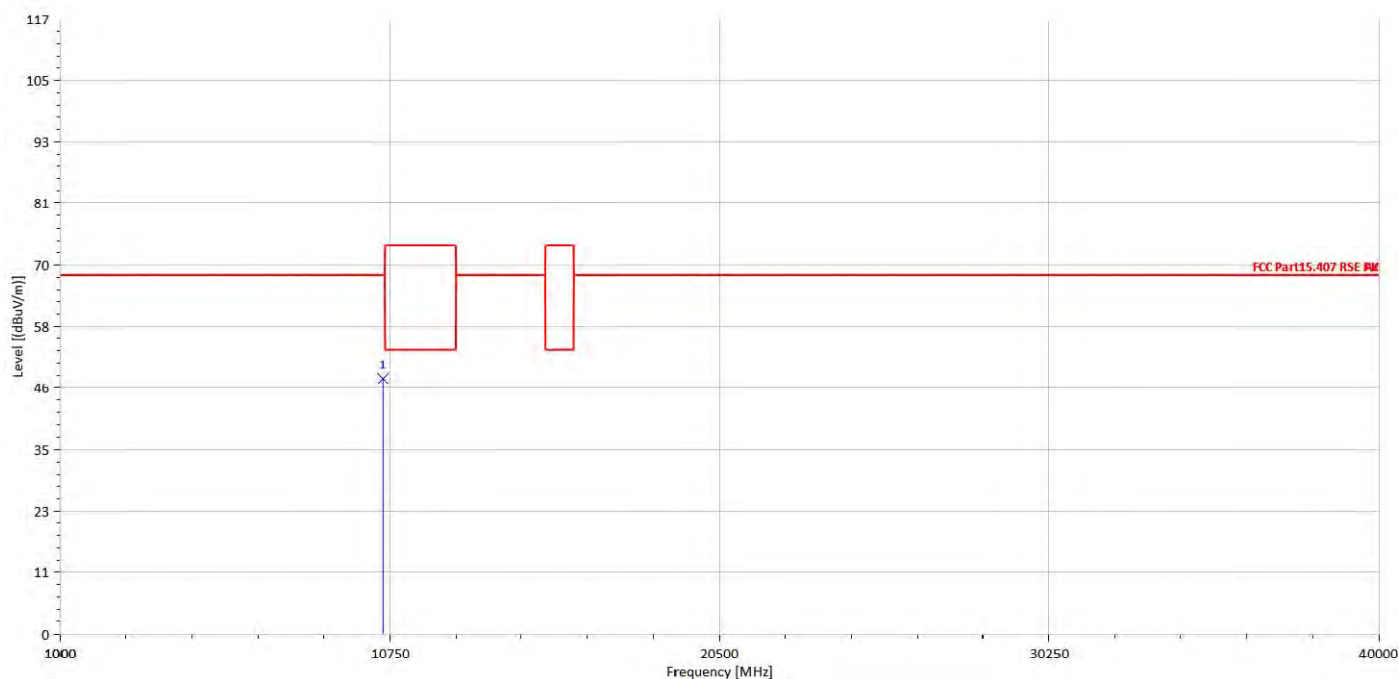
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Operation Band	:802.11 n40M	Test Date	:2015-12-17
Fundamental Frequency	:5270 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB

10540.00	H	Peak	29.48	19.13	48.61	68.3	-19.69
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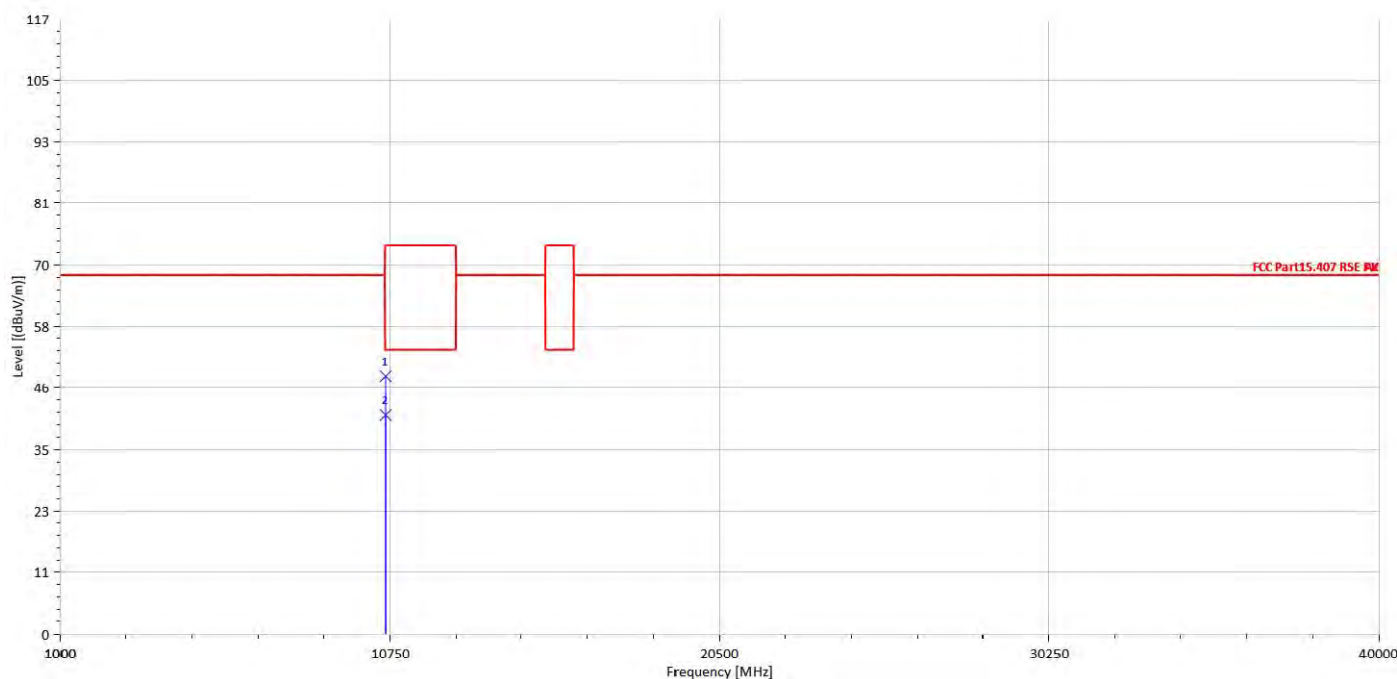
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Operation Band :802.11 n40M
Fundamental Frequency :5310 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
10620.00	H	Peak	29.70	19.38	49.08	74	-24.92
10620.00	H	Average	22.31	19.38	41.69	54	-12.31

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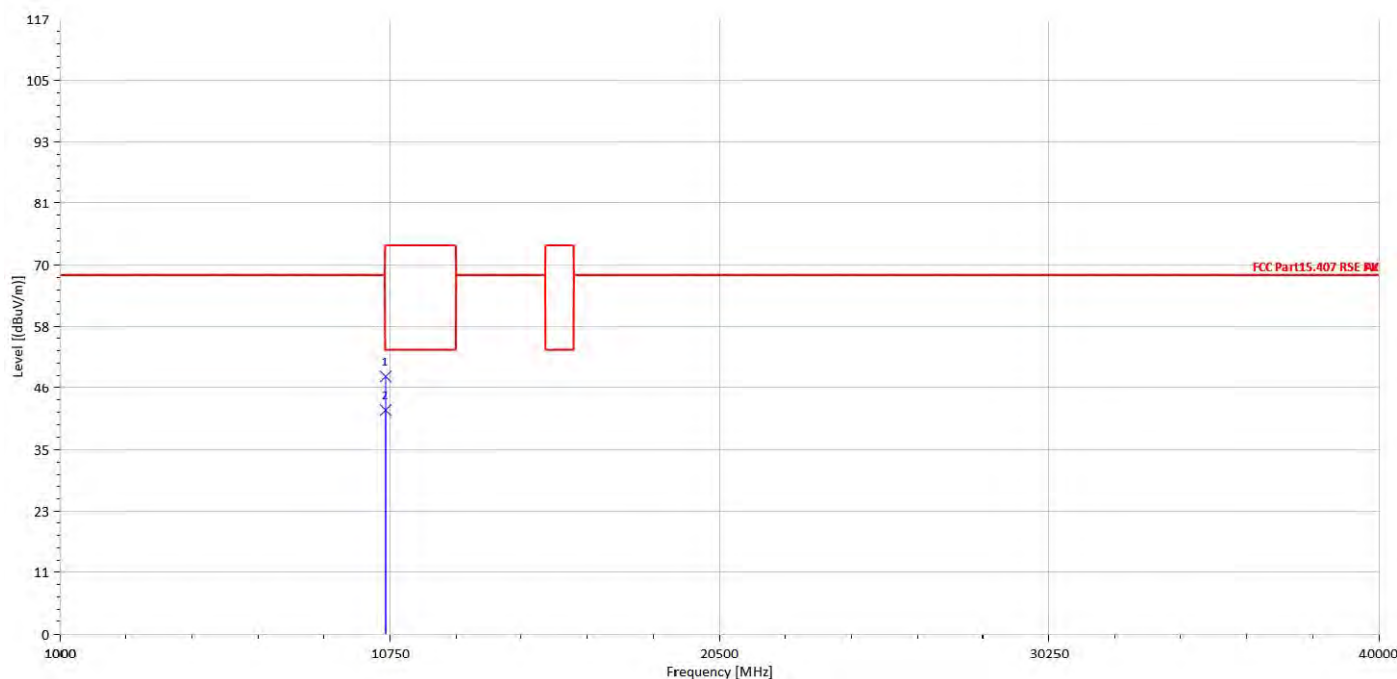
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Operation Band :802.11 n40M
Fundamental Frequency :5310 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	Margin
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
10620.00	H	Peak	29.66	19.38	49.04	74	-24.96
10620.00	H	Average	23.21	19.38	42.59	54	-11.41

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Band edge falling to restricted band

Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5310 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	57.59	11.30	68.89	74	-5.11
5350.00	E	Average	39.99	11.30	51.29	54	-2.71
5351.36	S	Peak	60.08	11.32	71.40	74	-2.60
5351.36	S	Average	39.06	11.32	50.38	54	-3.62

Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5310 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Peak	55.30	11.30	66.60	74	-7.40
5350.00	E	Average	39.20	11.30	50.50	54	-3.50
5351.84	S	Peak	58.24	11.32	69.56	74	-4.44
5351.84	S	Average	38.27	11.32	49.59	54	-4.41

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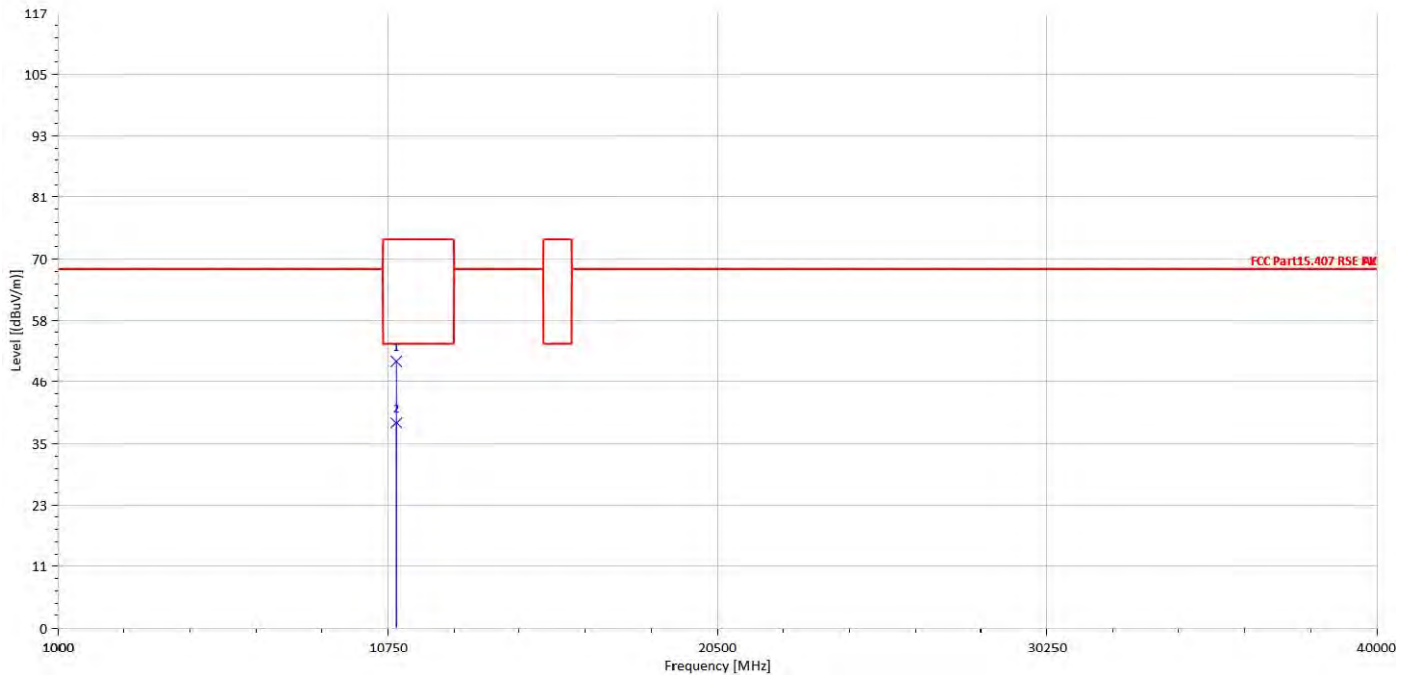
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Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5500 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11000.00	H	Peak	30.72	20.02	50.74	74	-23.26
11000.00	H	Average	18.99	20.02	39.01	54	-14.99

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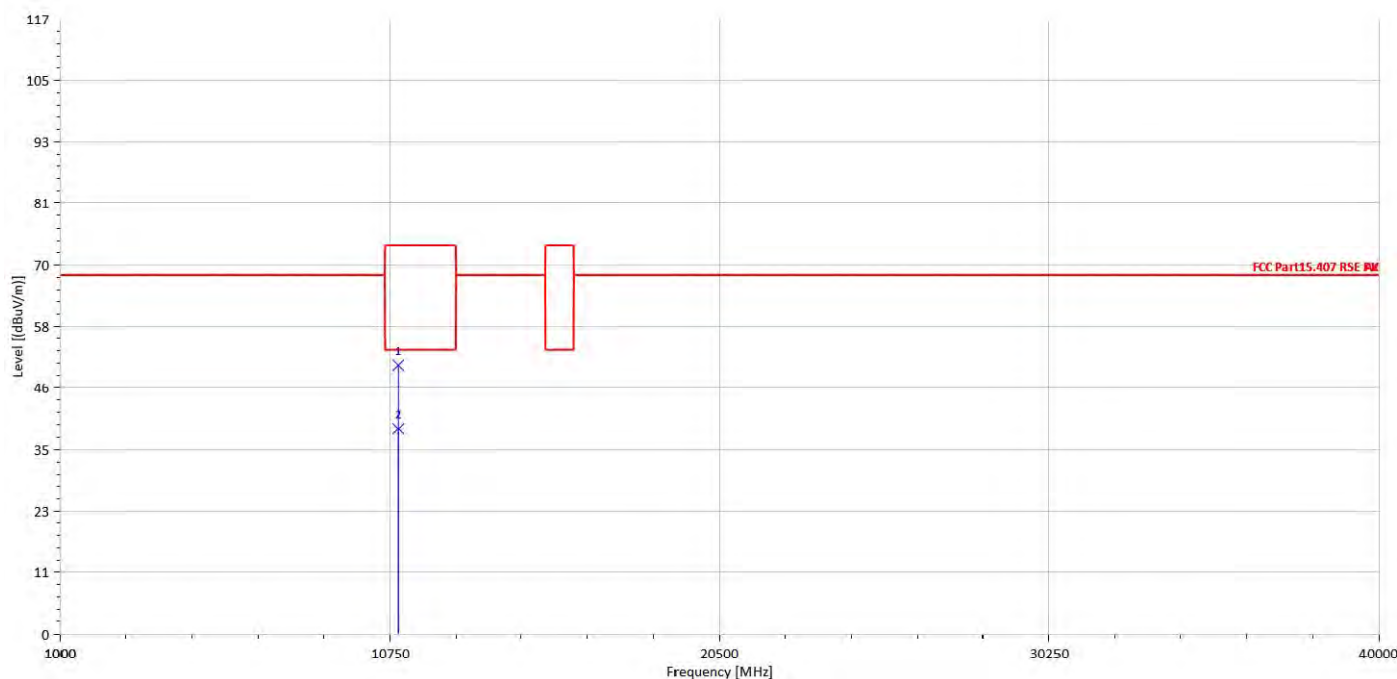
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Operation Band :802.11 a
Fundamental Frequency :5500 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11000.00	H	Peak	31.11	20.02	51.13	74	-22.87
11000.00	H	Average	19.01	20.02	39.03	54	-14.97

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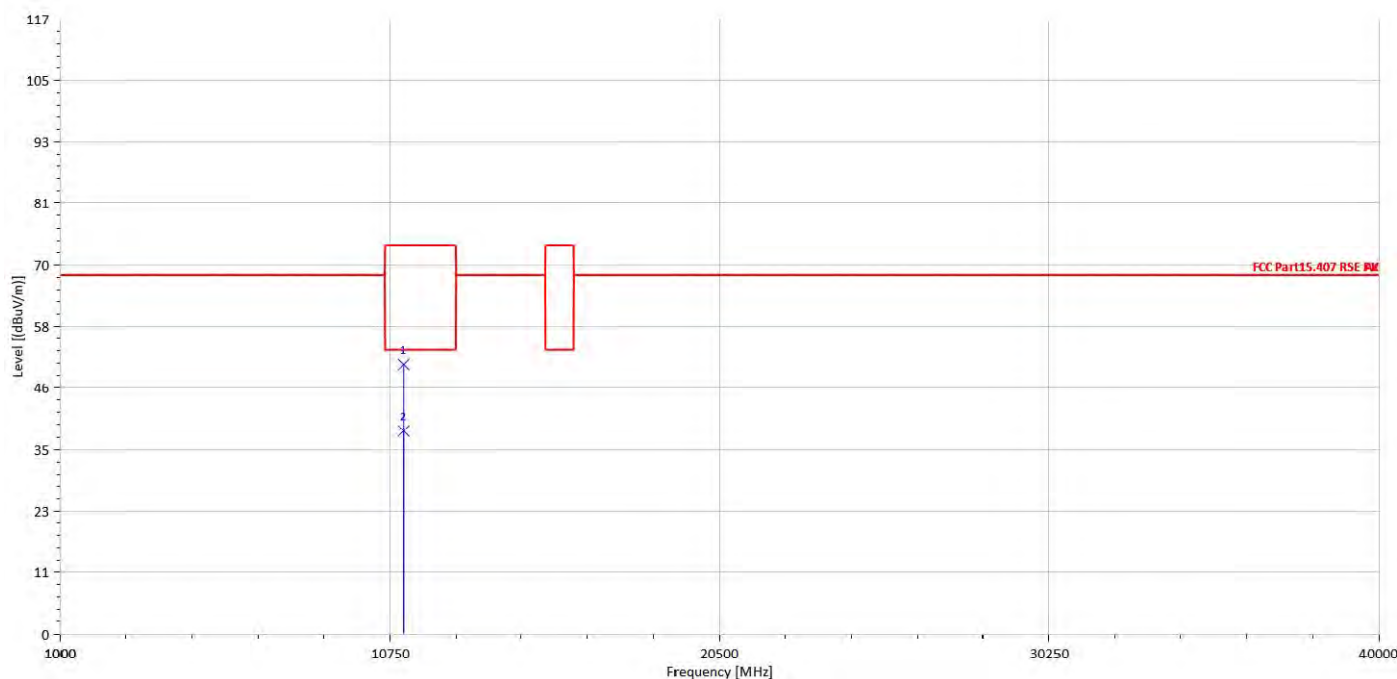
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Operation Band :802.11 a
Fundamental Frequency :5580 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	Margin
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
11160.00	H	Peak	30.91	20.38	51.29	74	-22.71
11160.00	H	Average	18.24	20.38	38.62	54	-15.38

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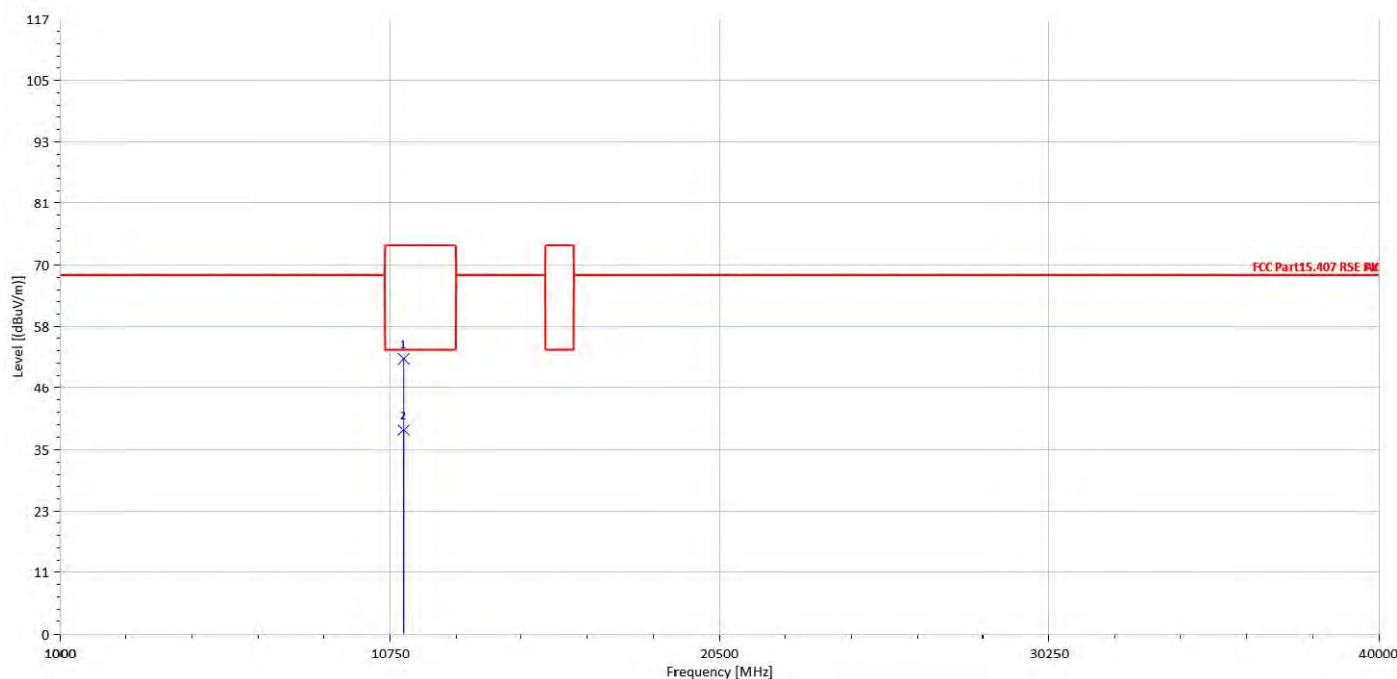
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Operation Band :802.11 a
Fundamental Frequency :5580 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11160.00	H	Peak	31.97	20.38	52.35	74	-21.65
11160.00	H	Average	18.42	20.38	38.80	54	-15.20

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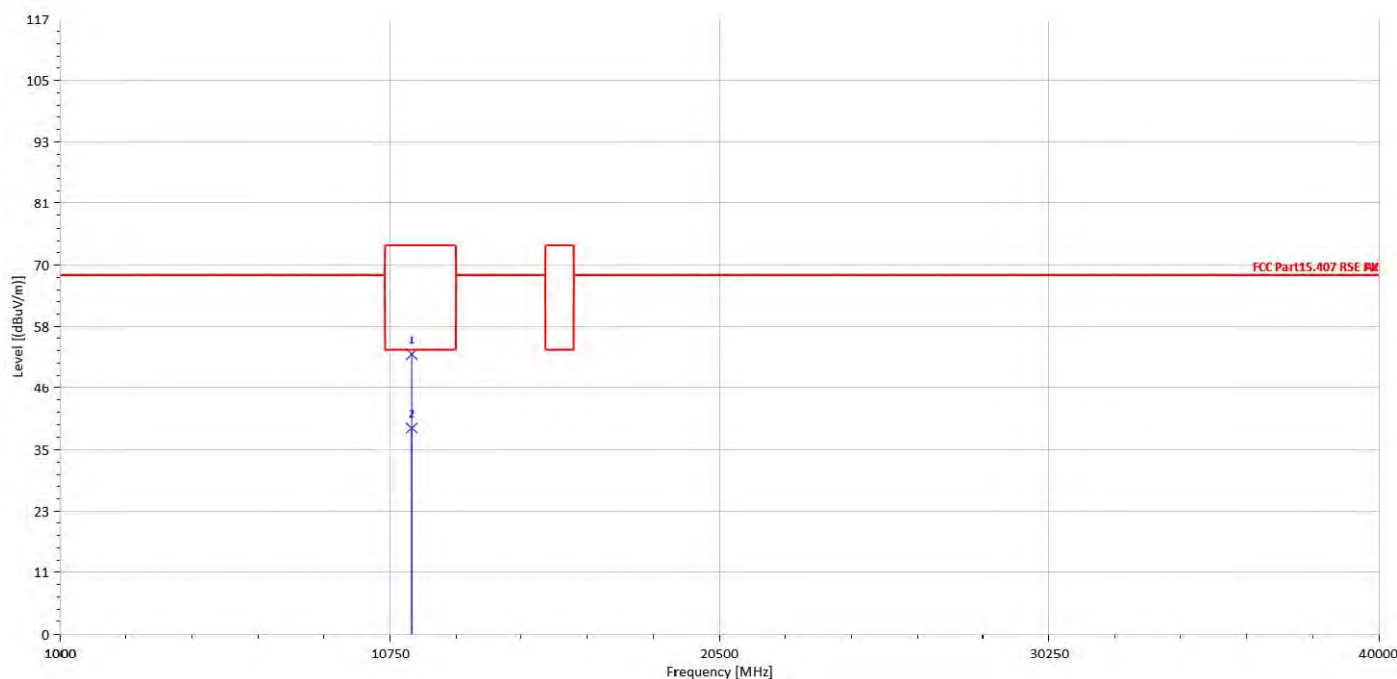
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Operation Band :802.11 a
Fundamental Frequency :5700 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11400.00	H	Peak	32.38	20.81	53.19	74	-20.81
11400.00	H	Average	18.37	20.81	39.18	54	-14.82

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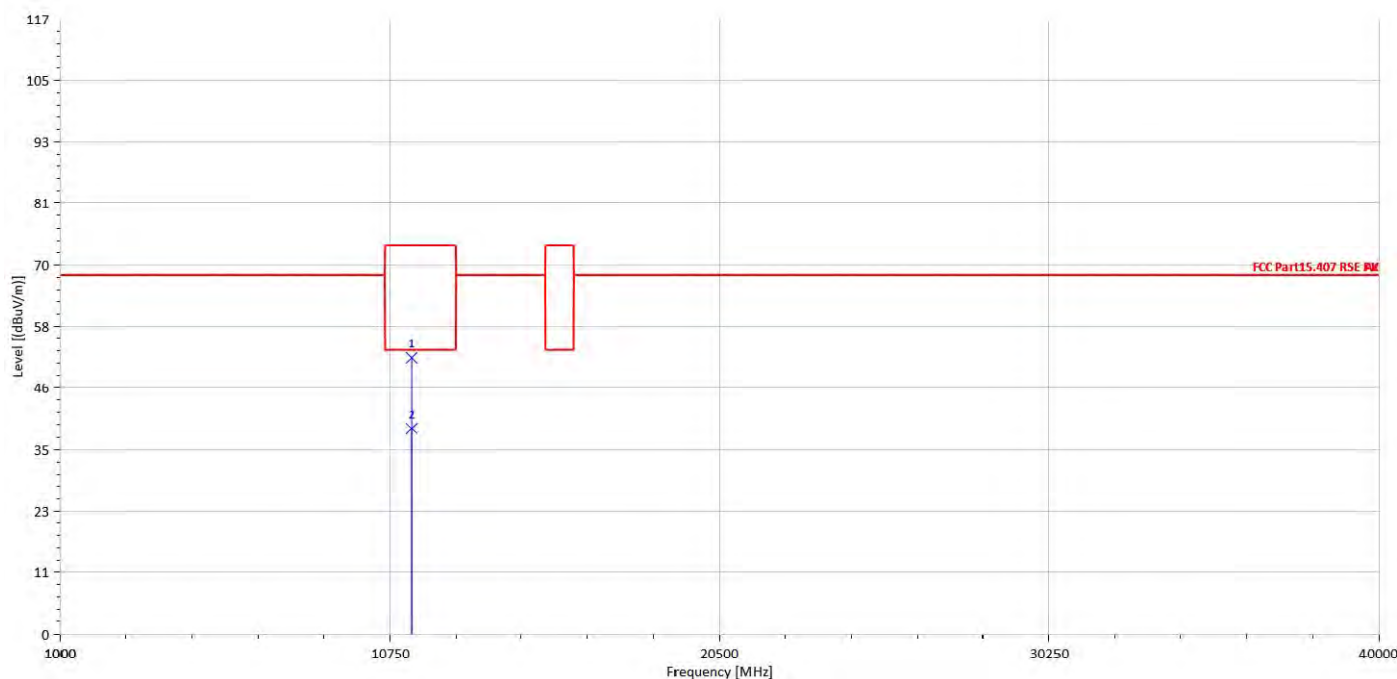
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Operation Band :802.11 a
Fundamental Frequency :5700 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11400.00	H	Peak	31.71	20.81	52.52	74	-21.48
11400.00	H	Average	18.27	20.81	39.08	54	-14.92

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Band edge falling to restricted band

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5500 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5459.72	S	Peak	52.01	11.46	63.47	74	-10.53
5459.72	S	Average	34.30	11.46	45.76	54	-8.24
5460.00	E	Peak	50.56	11.46	62.02	74	-11.98
5460.00	E	Average	34.35	11.46	45.81	54	-8.19
5470.00	E	Peak	55.72	11.46	67.18	68.3	-1.12

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5500 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5460.00	E	Peak	46.16	11.46	57.62	74	-16.38
5460.00	E	Average	32.89	11.46	44.35	54	-9.65
5470.00	E	Peak	52.01	11.46	63.46	68.3	-4.84

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Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5700 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	53.01	12.27	65.28	68.3	-3.02

Operation Band	:802.11 a	Test Date	:2015-12-17
Fundamental Frequency	:5700 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	48.34	12.27	60.61	68.3	-7.69

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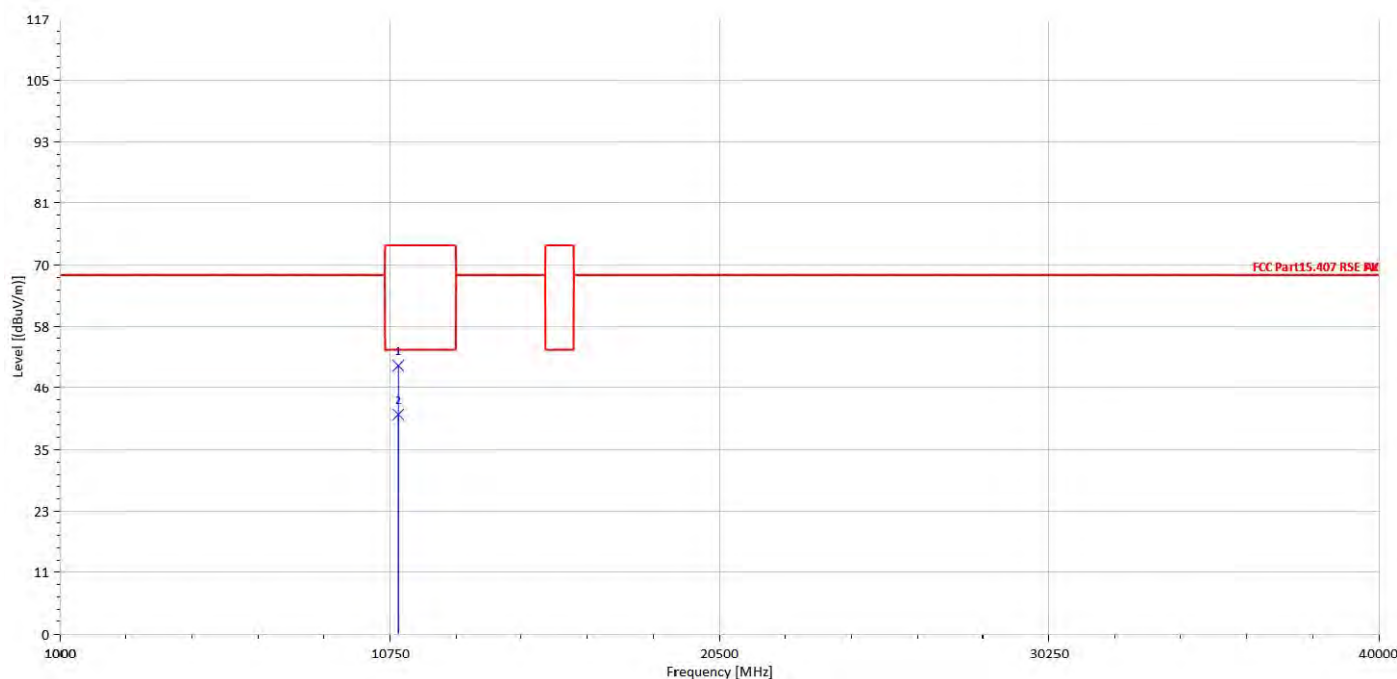
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5470~5725 MHz

Operation Band	:802.11 n20M	Test Date	:2015-12-17
Fundamental Frequency	:5500 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11000.00	H	Peak	31.05	20.02	51.06	74	-22.94
11000.00	H	Average	21.77	20.02	41.79	54	-12.21

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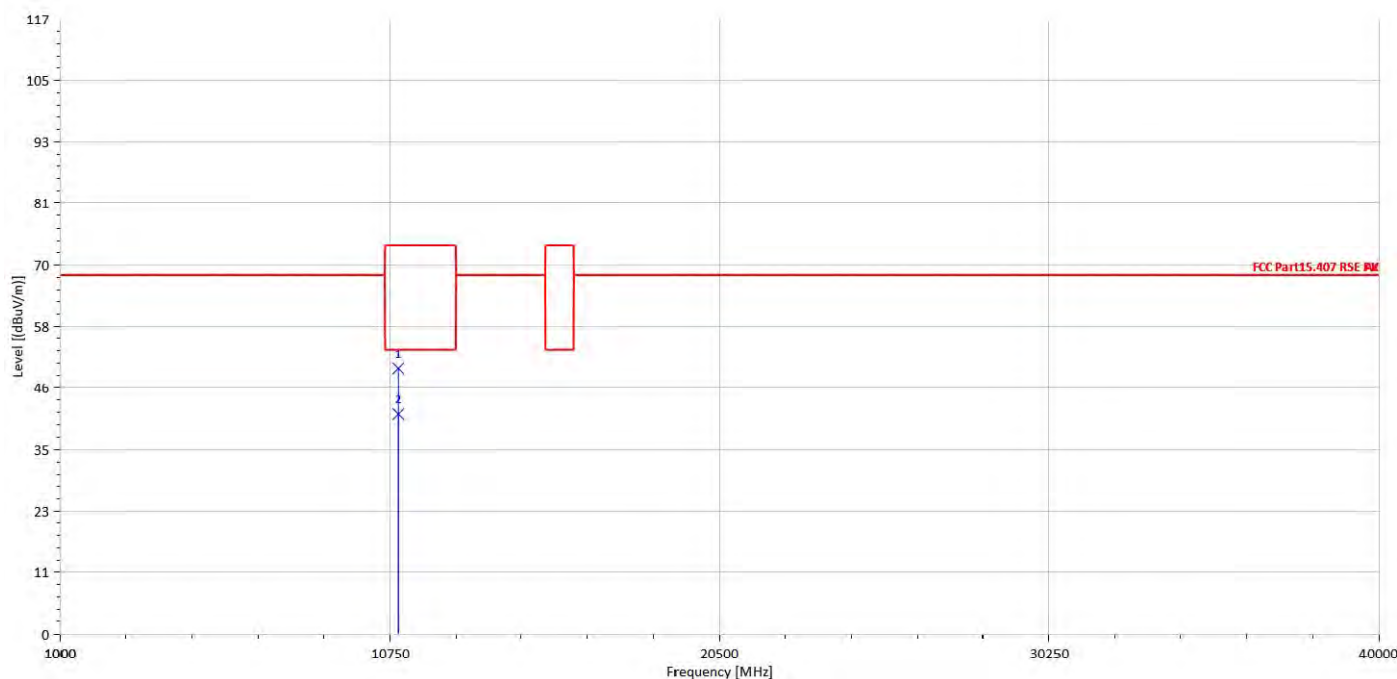
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Operation Band :802.11 n20M
Fundamental Frequency :5500 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
11000.00	H	Peak	30.52	20.02	50.54	74	-23.46
11000.00	H	Average	21.85	20.02	41.87	54	-12.13

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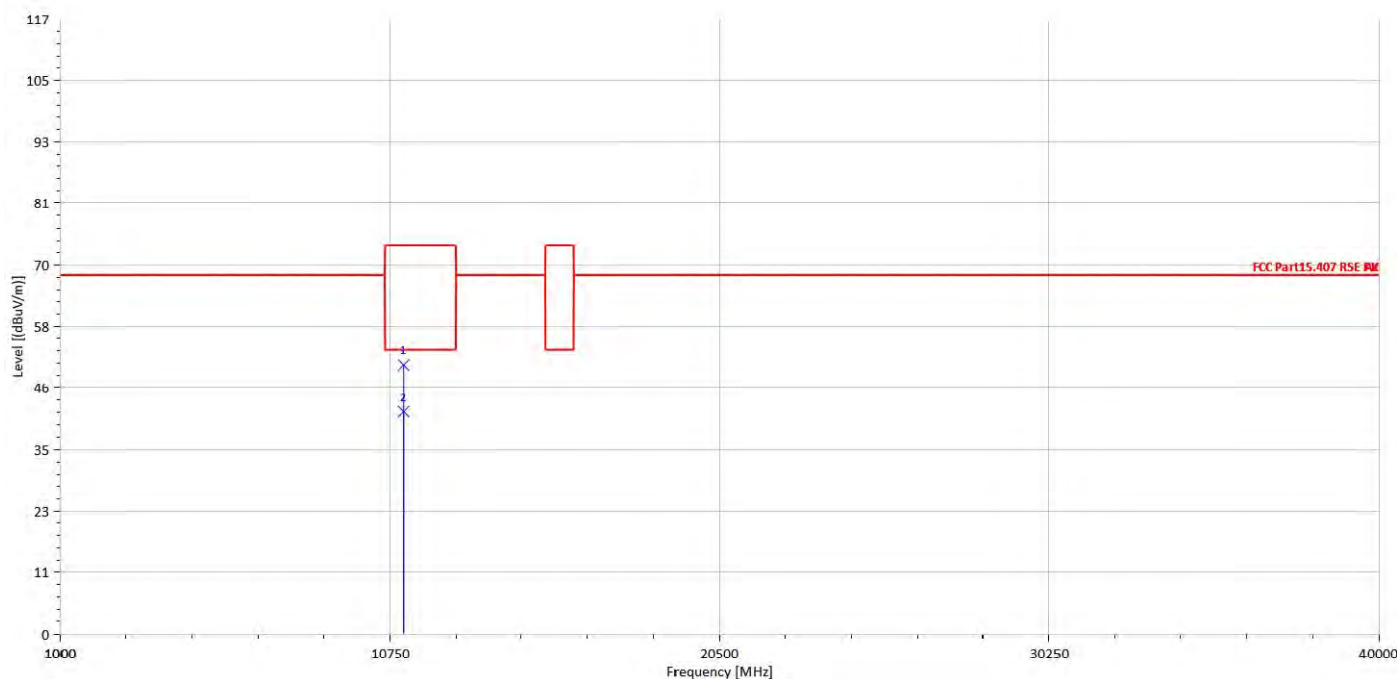
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Member of SGS Group

Operation Band :802.11 n20M
Fundamental Frequency :5580 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBμV		dBμV/m	dBμV/m	dB
11160.00	H	Peak	30.78	20.38	51.16	74	-22.84
11160.00	H	Average	21.97	20.38	42.35	54	-11.65

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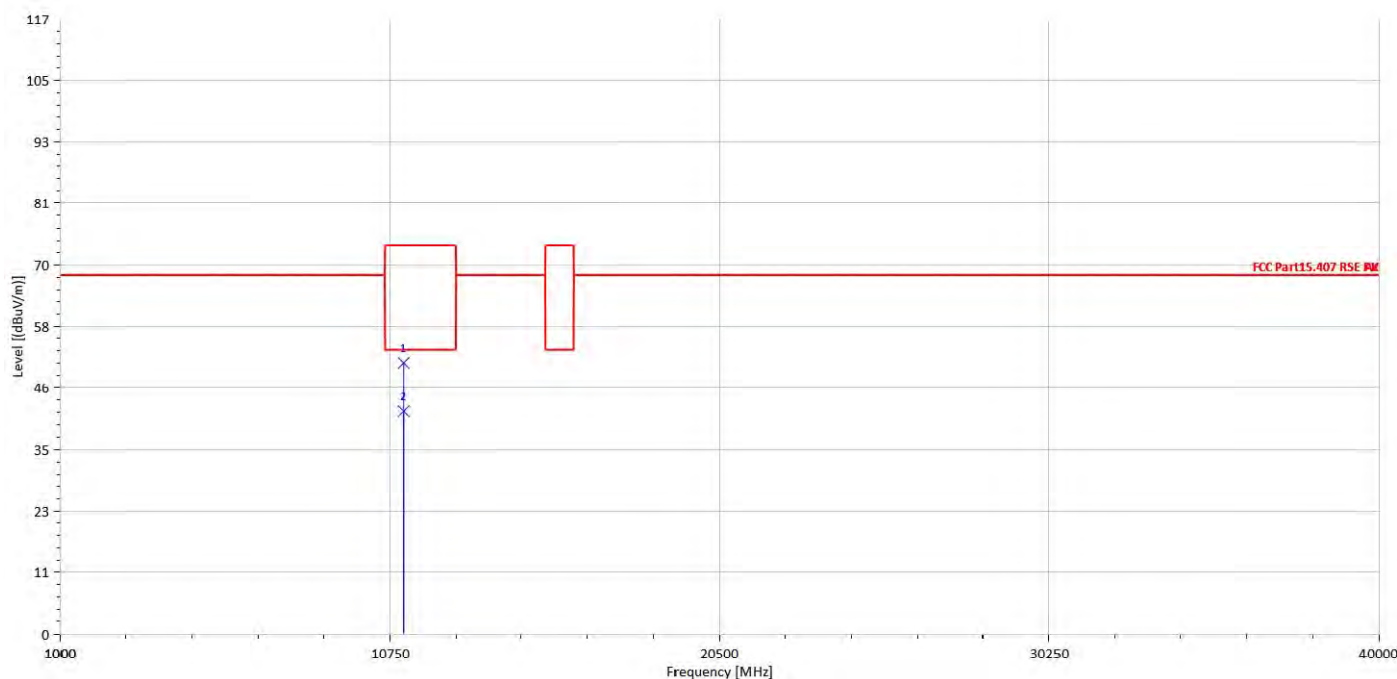
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Operation Band :802.11 n20M
Fundamental Frequency :5580 MHz
Operation Mode :TX MID
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11160.00	H	Peak	31.18	20.38	51.56	74	-22.44
11160.00	H	Average	22.03	20.38	42.41	54	-11.59

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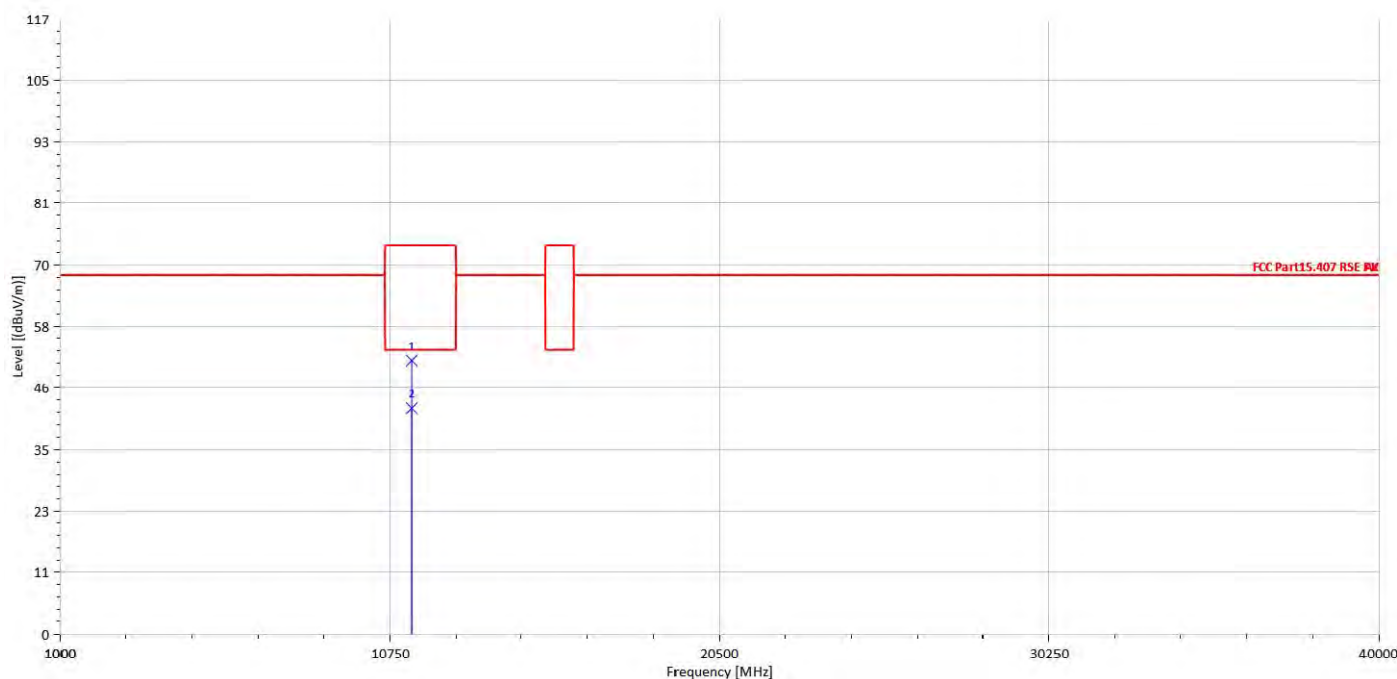
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Operation Band :802.11 n20M
Fundamental Frequency :5700 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	Margin
		PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
11400.00	H	Peak	31.19	20.81	52.00	74	-22.00
11400.00	H	Average	22.14	20.81	42.95	54	-11.05

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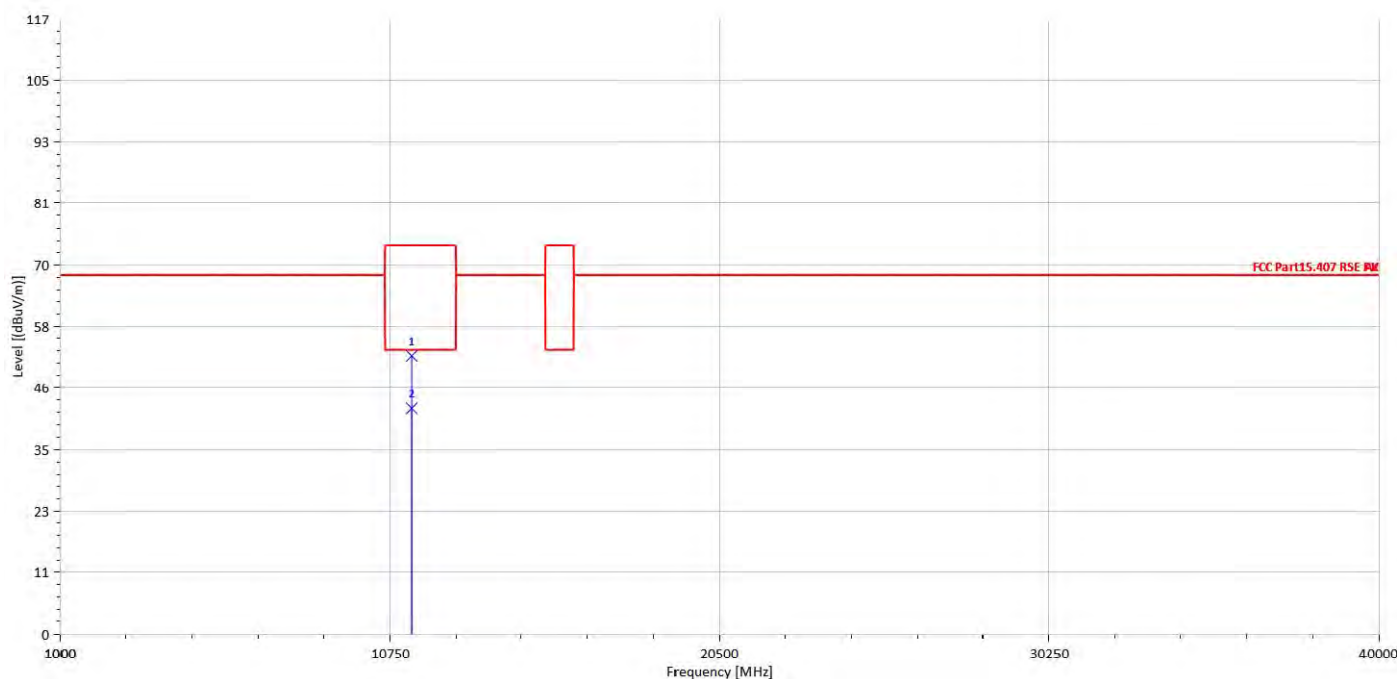
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Operation Band :802.11 n20M
Fundamental Frequency :5700 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11400.00	H	Peak	32.07	20.81	52.88	74	-21.12
11400.00	H	Average	22.12	20.81	42.93	54	-11.07

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Band edge falling to restricted band

Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5500 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5460.00	E	Peak	46.13	11.46	57.59	74	-16.41
5460.00	E	Average	33.19	11.46	44.65	54	-9.35
5470.00	E	Peak	51.98	11.46	63.43	68.3	-4.87

Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5500 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5460.00	E	Peak	45.27	11.46	56.73	74	-17.27
5460.00	E	Average	32.66	11.46	44.12	54	-9.88
5470.00	E	Peak	49.62	11.46	61.08	68.3	-7.22

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Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5700 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	53.97	12.27	66.24	68.3	-2.06

Operation Band	:802.11 n20	Test Date	:2015-12-17
Fundamental Frequency	:5700 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	51.33	12.27	63.60	68.3	-4.70

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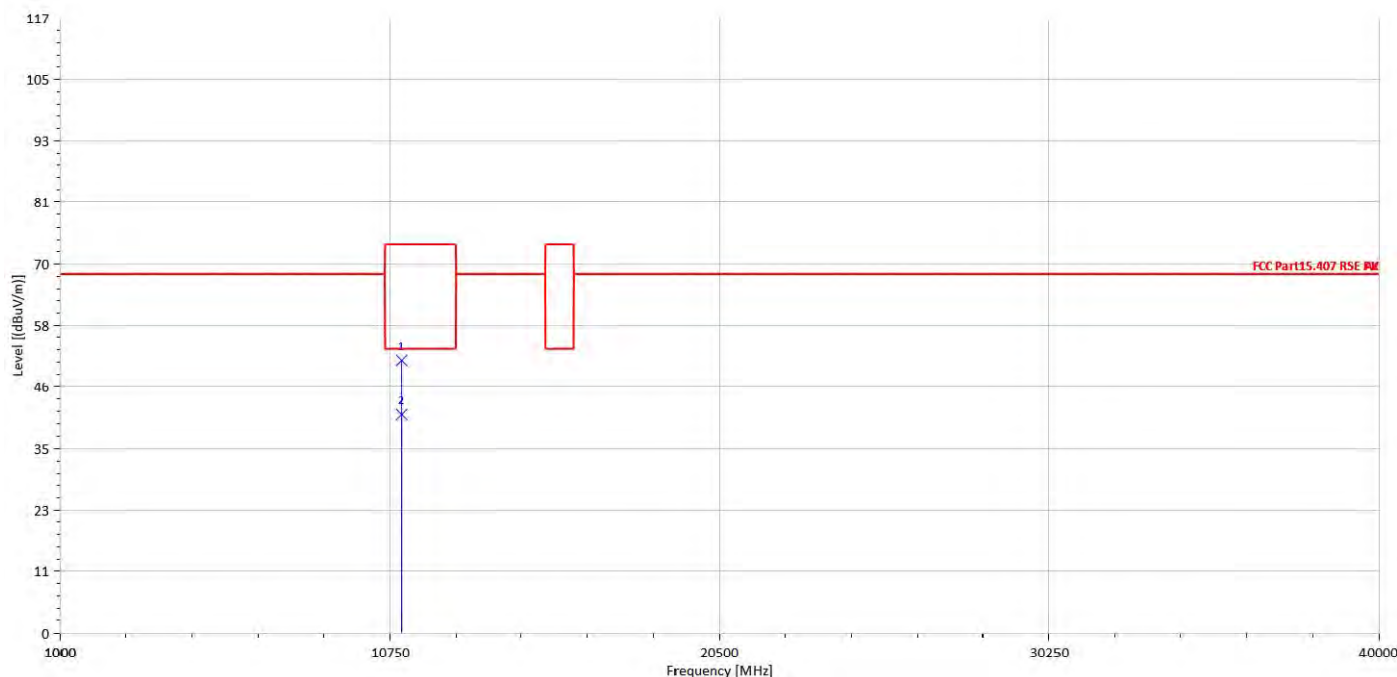
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5470~5725 MHz

Operation Band	:802.11 n40M	Test Date	:2015-12-17
Fundamental Frequency	:5550 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX LOW	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11100.00	H	Peak	31.64	20.21	51.85	74	-22.15
11100.00	H	Average	21.38	20.21	41.59	54	-12.41

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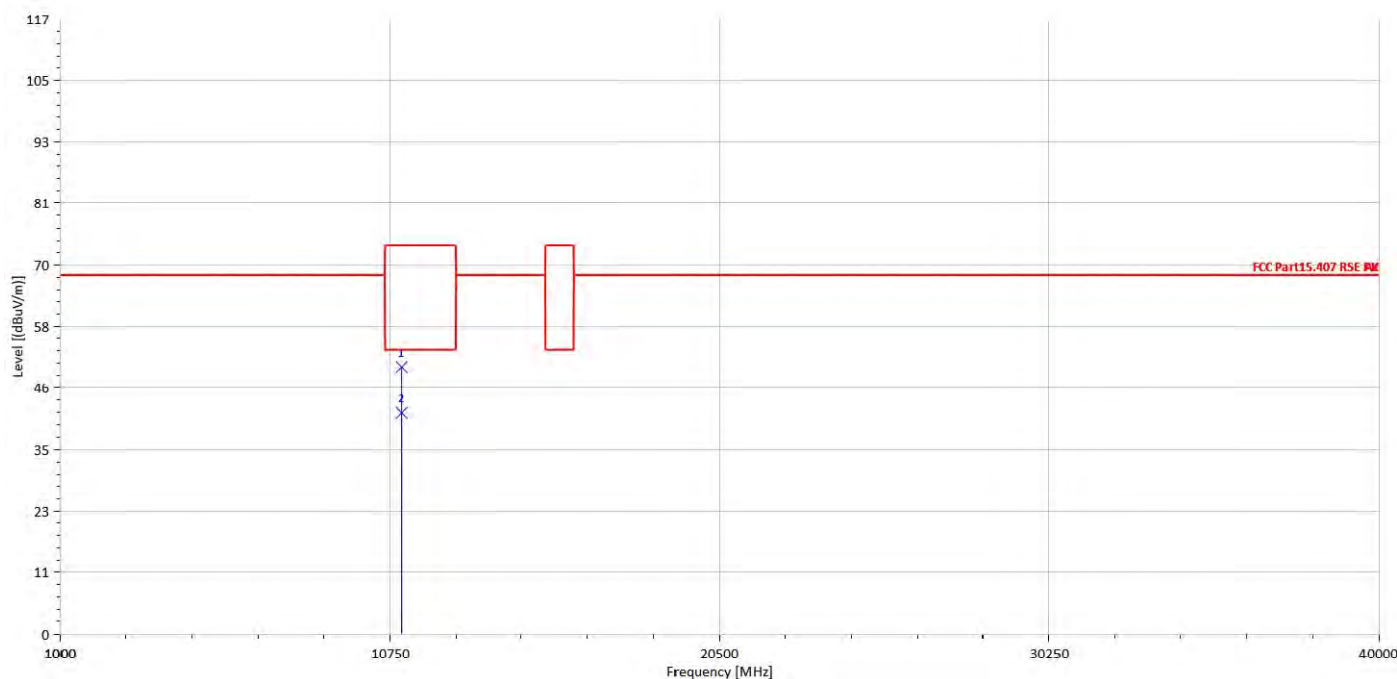
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Operation Band :802.11 n40M
Fundamental Frequency :5550 MHz
Operation Mode :TX LOW
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
11100.00	H	Peak	30.57	20.21	50.78	74	-23.22
11100.00	H	Average	21.89	20.21	42.10	54	-11.90

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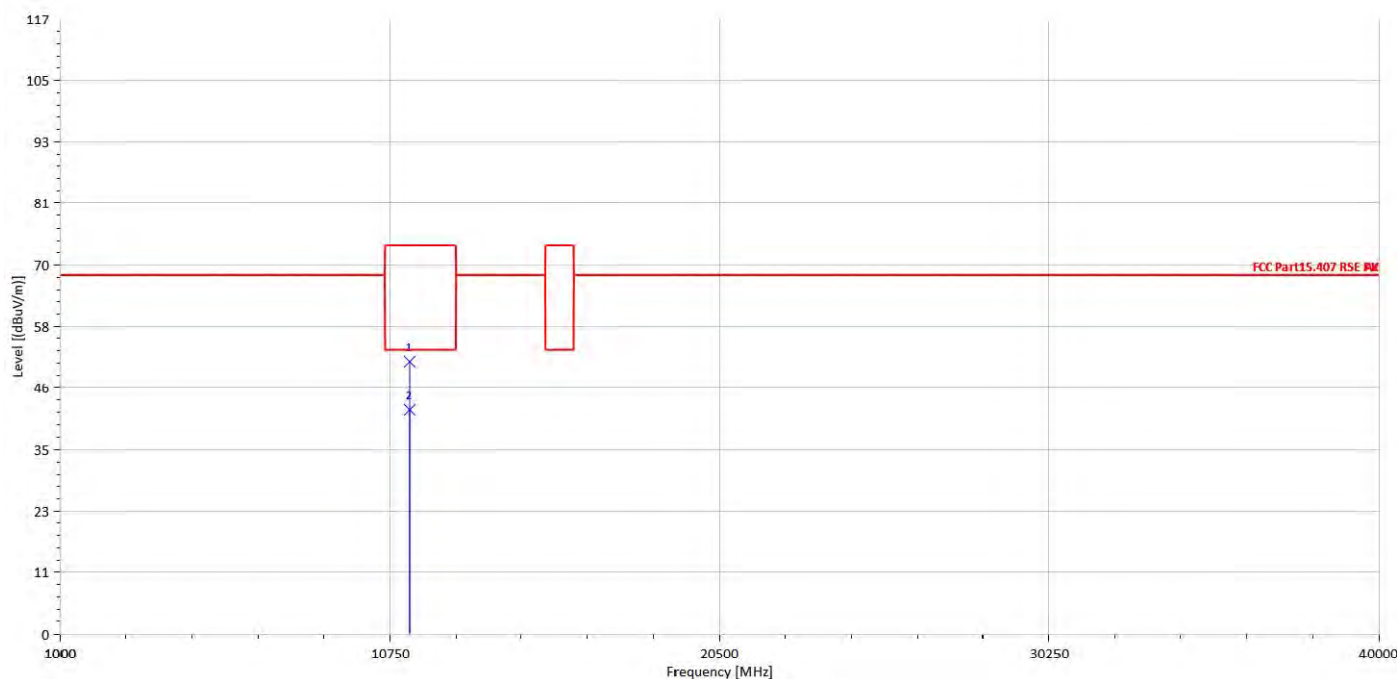
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Operation Band	:802.11 n40M	Test Date	:2015-12-17
Fundamental Frequency	:5670 MHz	Temp./Humi.	:26.5 deg_C / 50 RH
Operation Mode	:TX HIGH	Engineer	:Vito
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level	dB	FS	@3m	Margin
		PK/QP/AV	dBuV		dBuV/m	dBuV/m	dB
11340.00	H	Peak	31.18	20.61	51.79	74	-22.21
11340.00	H	Average	22.04	20.61	42.65	54	-11.35

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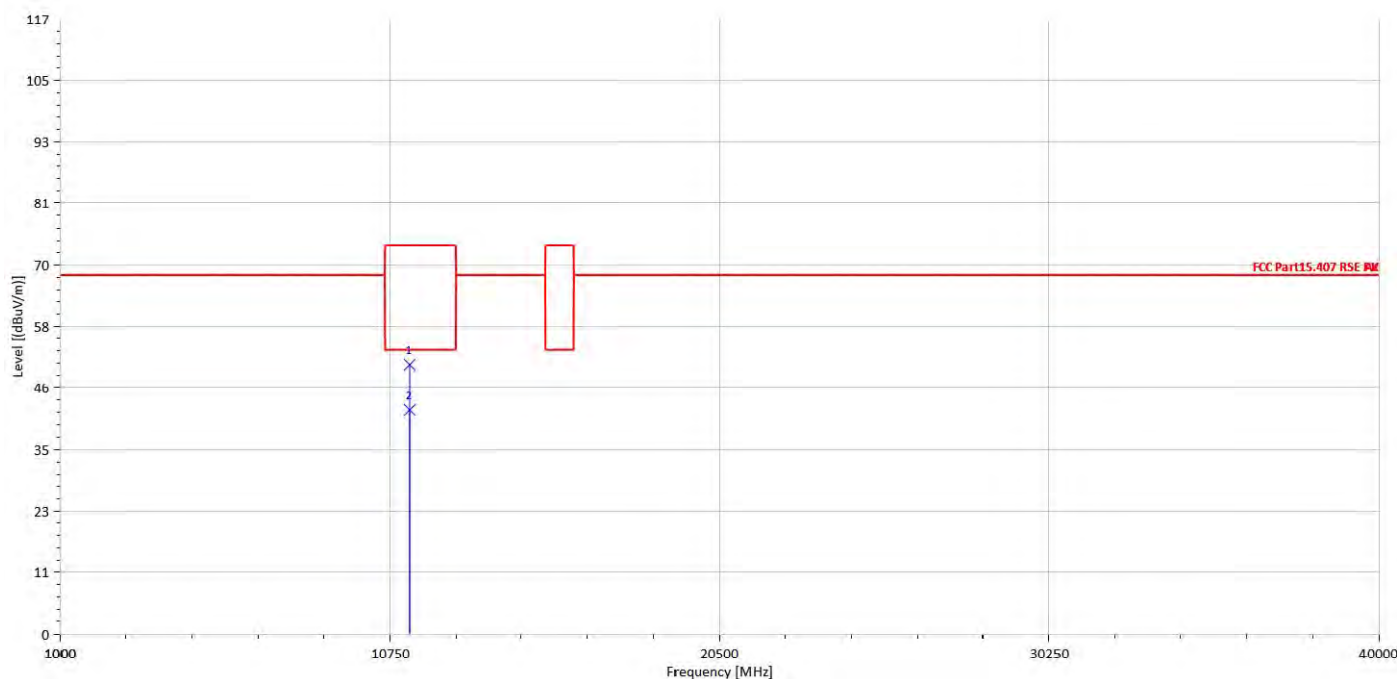
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Operation Band :802.11 n40M
Fundamental Frequency :5670 MHz
Operation Mode :TX HIGH
EUT Pol. :H Plan

Test Date :2015-12-17
Temp./Humi. :26.5 deg_C / 50 RH
Engineer :Vito
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
MHz	F/H/E/S	Mode	Reading Level		FS	@3m	Margin
		PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
11340.00	H	Peak	30.62	20.61	51.23	74	-22.77
11340.00	H	Average	22.03	20.61	42.64	54	-11.36

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Band edge falling to restricted band

Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5550 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5460.00	E	Peak	46.16	11.46	57.63	74	-16.37
5460.00	E	Average	33.76	11.46	45.22	54	-8.78
5470.00	E	Peak	50.12	11.46	61.58	68.3	-6.72

Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5550 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge LOW	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5460.00	E	Peak	45.84	11.46	57.30	74	-16.70
5460.00	E	Average	33.12	11.46	44.58	54	-9.42
5469.60	S	Peak	46.89	11.46	58.35	68.3	-9.95
5470.00	E	Peak	45.58	11.46	57.04	68.3	-11.26

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Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5670 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	48.06	12.27	60.33	68.3	-7.97
5726.24	S	Peak	49.02	12.27	61.28	68.3	-7.02

Operation Band	:802.11 n40	Test Date	:2015-12-17
Fundamental Frequency	:5670 MHz	Temp./Humi.	:24 deg_C / 61 RH
Operation Mode	:Band Edge HIGH	Engineer	:Burly
EUT Pol.	:H Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	46.51	12.27	58.78	68.3	-9.52

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12. TRANSMISSION IN THE ABSENCE OF DATA

12.1 Standard Applicable

According to §15.407(c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

12.2 Result

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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13. FREQUENCY STABILITY

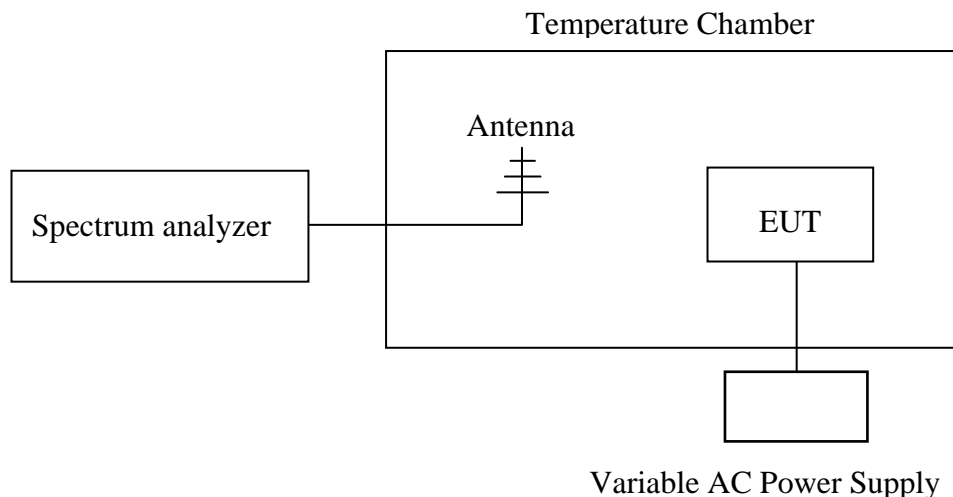
13.1 Standard Applicable

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

13.2 Measurement Procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

13.3 Test SET-UP



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13.4 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	04/14/2015	04/13/2016
Temperature Chamber	TERCHY	MHK-120LK	1020582	06/18/2015	06/17/2016
DC Power Supply	Agilent	E3640A	MY53140006	05/04/2015	05/03/2016

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13.5 Measurement Result

Operation Mode	TX	Test Date	2015.06.20
Temperature	25 °C	Test By	Wayne
Humidity	62 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	16.15V	36	5180.0000	5,179.967102	0.0329
		44	5220.0000	5,219.966654	0.0333
		48	5240.0000	5,239.966156	0.0338
		52	5260.0000	5,259.965547	0.0345
		60	5300.0000	5,299.965845	0.0342
		64	5320.0000	5,319.965360	0.0346
		100	5500.0000	5,499.964131	0.0359
		116	5580.0000	5,579.964317	0.0357
		140	5700.0000	5,699.963870	0.0361
25°C	19V	36	5180.0000	5,179.967102	0.0329
		44	5220.0000	5,219.966654	0.0333
		48	5240.0000	5,239.966156	0.0338
		52	5260.0000	5,259.965547	0.0345
		60	5300.0000	5,299.965845	0.0342
		64	5320.0000	5,319.965360	0.0346
		100	5500.0000	5,499.964131	0.0359
		116	5580.0000	5,579.964317	0.0357
		140	5700.0000	5,699.963870	0.0361

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55℃	16.15V	36	5180.0000	5,179.967102	0.0329
		44	5220.0000	5,219.966654	0.0333
		48	5240.0000	5,239.966156	0.0338
		52	5260.0000	5,259.965547	0.0345
		60	5300.0000	5,299.965845	0.0342
		64	5320.0000	5,319.965360	0.0346
		100	5500.0000	5,499.964131	0.0359
		116	5580.0000	5,579.964317	0.0357
		140	5700.0000	5,699.963870	0.0361
-10℃	22.8V	36	5180.0000	5,179.967102	0.0329
		44	5220.0000	5,219.966654	0.0333
		48	5240.0000	5,239.966156	0.0338
		52	5260.0000	5,259.965547	0.0345
		60	5300.0000	5,299.965845	0.0342
		64	5320.0000	5,319.965360	0.0346
		100	5500.0000	5,499.964131	0.0359
		116	5580.0000	5,579.964317	0.0357
		140	5700.0000	5,699.963870	0.0361
55℃	22.8V	36	5180.0000	5,179.967102	0.0329
		44	5220.0000	5,219.966654	0.0333
		48	5240.0000	5,239.966156	0.0338
		52	5260.0000	5,259.965547	0.0345
		60	5300.0000	5,299.965845	0.0342
		64	5320.0000	5,319.965360	0.0346
		100	5500.0000	5,499.964131	0.0359
		116	5580.0000	5,579.964317	0.0357
		140	5700.0000	5,699.963870	0.0361

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Operation Mode	TX	Test Date	2015.06.20
Temperature	25 °C	Test By	Wayne
Humidity	62 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	16.15V	38	5190.0000	5,189.996544	0.0035
		46	5230.0000	5,229.991253	0.0087
		54	5270.0000	5,269.992394	0.0076
		62	5310.0000	5,309.992431	0.0076
		110	5550.0000	5,549.992422	0.0076
		134	5670.0000	5,669.992513	0.0075
25 °C	19V	38	5190.0000	5,189.996544	0.0035
		46	5230.0000	5,229.991253	0.0087
		54	5270.0000	5,269.992394	0.0076
		62	5310.0000	5,309.992431	0.0076
		110	5550.0000	5,549.992422	0.0076
		134	5670.0000	5,669.992513	0.0075
55 °C	16.15V	38	5190.0000	5,189.996544	0.0035
		46	5230.0000	5,229.991253	0.0087
		54	5270.0000	5,269.992394	0.0076
		62	5310.0000	5,309.992431	0.0076
		110	5550.0000	5,549.992422	0.0076
		134	5670.0000	5,669.992513	0.0075

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-10 °C	22.8V	38	5190.0000	5,189.996544	0.0035
		46	5230.0000	5,229.991253	0.0087
		54	5270.0000	5,269.992394	0.0076
		62	5310.0000	5,309.992431	0.0076
		110	5550.0000	5,549.992422	0.0076
		134	5670.0000	5,669.992513	0.0075
55 °C	22.8V	38	5190.0000	5,189.996544	0.0035
		46	5230.0000	5,229.991253	0.0087
		54	5270.0000	5,269.992394	0.0076
		62	5310.0000	5,309.992431	0.0076
		110	5550.0000	5,549.992422	0.0076
		134	5670.0000	5,669.992513	0.0075

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14. ANTENNA REQUIREMENT

14.1 Standard Applicable

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

According to §15.407, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

14.2 Antenna Connected Construction

An embedded-in antenna design is used.

Please see EUT photo and antenna spec. for details.

The antenna gain is less than 6dBi. Therefore, it is not necessary to reduce maximum output power limit.

~ End of Report ~

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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