MEASUREMENT REPORT

EN 301 893 V2.1.1 WLAN 802.11a/n/ac

Applicant:	Compex Systems Pte Ltd
Address:	No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651
Product:	Wireless Access Point
Model No.:	WPJ428HV
Serial Model:	WPJ428LV, WPJ418LV, WPJ418HV, MMS428LV, MMS428HV, MMS418LV, MMS418HV
Brand Name:	COMPEX
Standards:	EN 301 893 V2.1.1 (2017-05)
Result:	Complies
Test Date:	April 20 ~ June 22, 2017

Reviewed By : Jame Yuan
(Jame Yuan)

Approved By : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
1704RSU00212	Rev. 01	Initial report	06-30-2017	Valid

CONTENTS

1. General Information

1.1. Applicant

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

1.2. Manufacturer

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

1.3. Testing Facility

Test Site

MRT Technology (Suzhou) Co., Ltd

Test Site Location

D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China

- **MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**

1.4. Feature of Equipment under Test

Product Name:	Wireless Access Point
Model No.:	WPJ428HV
Serial Model:	WPJ428LV, WPJ418LV, WPJ418HV, MMS428LV, MMS428HV, MMS418LV, MMS418HV
Brand Name:	COMPEX
Wi-Fi Specification:	802.11a/b/g/n/ac
Components	
POE Adapter	Model No.: PoE35-54A INPUT: 100-240V ~ 50/60Hz 1.0A Max OUTPUT: 54Vdc, 0.65A
Adapter	Model No.: GRT-240100 INPUT: 100-240V ~ 50/60Hz 0.8A Max OUTPUT: 24V, 1.0A

Note: Differences between all models are for different marketing requirement.

1.5. Product Specification Subjective

Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5180~5240 MHz, 5260~5320 MHz, 5500~5700 MHz For 802.11n-HT40/ac-VHT40: 5190~5230 MHz, 5270~5310 MHz, 5510~5670 MHz For 802.11ac-VHT80: 5210 MHz, 5290MHz, 5530MHz, 5610MHz
Channel Number	802.11a/n-HT20/ac-VHT20: 19 802.11n-HT40/ac-VHT40: 9 802.11ac-VHT80: 4
Type of Modulation	802.11g/n: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.6Mbps

Note: For other features of this EUT, test report will be issued separately.

1.6. Operation Frequency / Channel List

802.11a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	--	--	--	--

802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz

802.11ac-VHT80

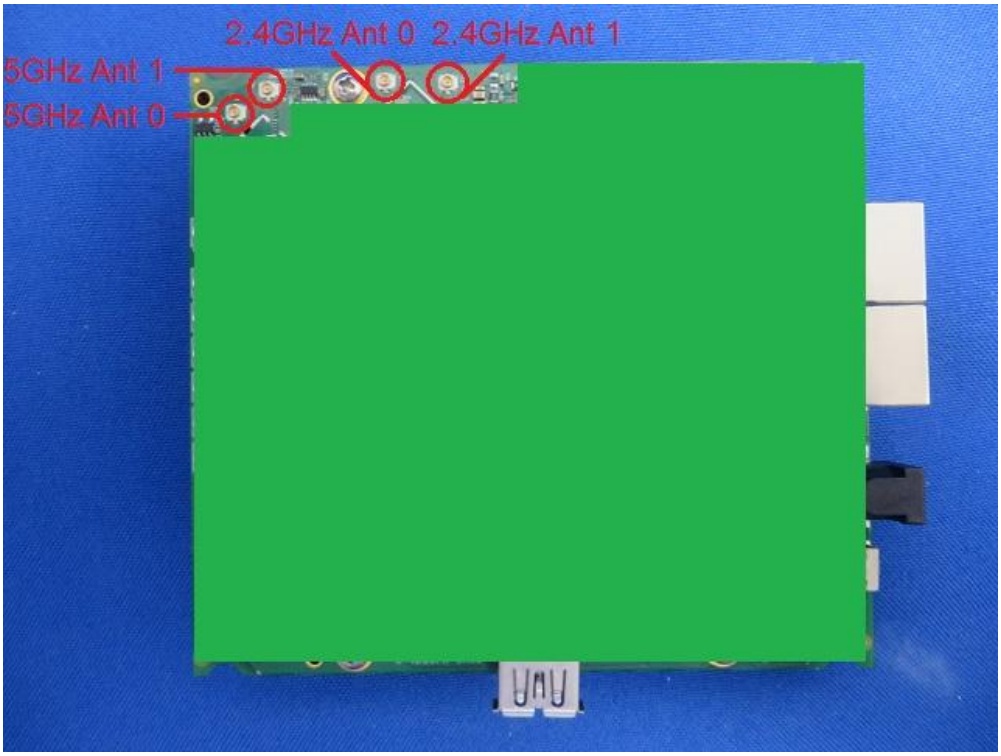
Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530 MHz
122	5610 MHz	--	--	--	--

1.7. Description of Available Antennas

Antenna Type	Frequency Band (MHz)	TX Paths	Max Antenna Gain (dBi)	
			Ant 0	Ant 1
Panel Antenna	2412 ~ 2472	1	7	--
		2	7	7
Dipole Antenna	5150 ~ 5350	1	10	--
		2	10	10
Panel Antenna	5470 ~ 5850	1	17	--
		2	17	17

1.8. Description of Antenna RF Port

Antenna RF Port				
--	2.4GHz RF Port		5GHz RF Port	
Software Control Port for 1Tx	Ant 0	--	Ant 0	--
Software Control Port for 2Tx	Ant 0	Ant 1	Ant 0	Ant 1



1.9. Standards Applicable for Testing

The EUT complies with the requirements of ETSI EN 301 893 V2.1.1.

2. Test Configuration of Equipment under Test

2.1. Description of Test Mode

Test Mode	Mode 1: Transmit by 802.11a
	Mode 2: Transmit by 802.11n-HT20
	Mode 3: Transmit by 802.11n-HT40
	Mode 4: Transmit by 802.11ac-VHT20
	Mode 5: Transmit by 802.11ac-VHT40
	Mode 6: Transmit by 802.11ac-VHT80
	Mode 7: Receive by 802.11a
	Mode 8: Receive by 802.11n-HT20
	Mode 9: Receive by 802.11n-HT40
	Mode 10: Receive by 802.11ac-VHT20
	Mode 11: Receive by 802.11ac-VHT40
	Mode 12: Receive by 802.11ac-VHT80

Test Mode	Duty Cycle
802.11a	96.44%
802.11n-HT20	98.42%
802.11n-HT40	97.01%
802.11ac-VHT20	98.62%
802.11ac-VHT40	97.01%
802.11ac-VHT80	93.38%

2.2. Description of Test Data Rate

Pre-Test RF Output Power at various data rates for Ant 0

Test Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	Data Rate (Mbps)	RF Output Power (dBm)
802.11a	20	36	5180	6	12.24
				24	12.15
				54	12.05
802.11n	20	36	5180	6.5	12.45
				39.0	11.98
				65.0	11.64
802.11n	40	38	5190	13.5	12.68
				81.0	12.34
				135.0	12.04
802.11ac	20	36	5180	6.5	12.42
				39.0	12.14
				78.0	11.84
802.11ac	40	38	5190	13.5	12.56
				81.0	12.23
				180.0	11.92
802.11ac	80	42	5210	29.3	12.37
				175.5	12.04
				390.0	11.78

Note: All modes of operation and data rates were investigated, so all RF test requirements shall be executed at low data rates.

2.3. Description of Test Software

The test utility software used during testing was“QRCT”.

Power Parameter Value for $1T_X$_ Ant 0

Test Mode	Test Frequency (MHz)	Ant 0 Power Parameter Value	Test Mode	Test Frequency (MHz)	Ant 0 Power Parameter Value
802.11a	5180	12.0	802.11ac-VHT20	5180	12.0
802.11a	5320	11.0	802.11ac-VHT20	5320	11.0
802.11a	5500	11.0	802.11ac-VHT20	5500	11.0
802.11a	5700	12.0	802.11ac-VHT20	5700	12.0
802.11n-HT20	5180	12.0	802.11ac-VHT40	5190	12.0
802.11n-HT20	5320	11.0	802.11ac-VHT40	5310	11.0
802.11n-HT20	5500	11.0	802.11ac-VHT40	5510	11.0
802.11n-HT20	5700	12.0	802.11ac-VHT40	5670	11.5
802.11n-HT40	5190	12.0	802.11ac-VHT80	5210	11.5
802.11n-HT40	5310	11.0	802.11ac-VHT80	5290	11.5
802.11n-HT40	5510	11.0	802.11ac-VHT80	5530	11.0
802.11n-HT40	5670	11.5	802.11ac-VHT80	5610	11.0

Power Parameter Value for $2T_X$_ Ant 0 + 1

Test Mode	Test Frequency (MHz)	Ant 0 + 1 Power Parameter Value	Test Mode	Test Frequency (MHz)	Ant 0 + 1 Power Parameter Value
802.11n-HT20	5180	8.0	802.11ac-VHT20	5180	8.0
802.11n-HT20	5320	8.0	802.11ac-VHT20	5320	8.0
802.11n-HT20	5500	8.0	802.11ac-VHT20	5500	8.0
802.11n-HT20	5700	8.0	802.11ac-VHT20	5700	8.0
802.11n-HT40	5190	8.5	802.11ac-VHT40	5190	8.5
802.11n-HT40	5310	8.0	802.11ac-VHT40	5310	8.0
802.11n-HT40	5510	8.0	802.11ac-VHT40	5510	8.0
802.11n-HT40	5670	8.0	802.11ac-VHT40	5670	8.0
---	---	---	802.11ac-VHT80	5210	8.5
---	---	---	802.11ac-VHT80	5290	8.5
---	---	---	802.11ac-VHT80	5530	8.0
---	---	---	802.11ac-VHT80	5610	8.5

2.4. Application Form for Testing

Device Type			
☐	Stand-alone equipment		
☒	Combined (or host) equipment		
☐	Plug-in radio device		
☐	Test Jig		
Operating Conditions			
☒	AC Mains State AC Voltage:100 - 240V	☐	DC State DC Voltage: DC 48V
Type of DC Source	☐ Internal power supply		
	☐ External power supply or AC/DC adapter		
	☐ Battery		
☒	Temperature Range: -20 ~ 55°C		
Antenna Category			
☒	Integral antenna (antenna permanently attached)		
	☒ Permanently RF connector provided (Specific Antenna Connectors)		
	☐ No temporary RF connector provided		
Adaptivity (Channel Access Mechanism)			
☐	Frame Based Equipment		
☒	Load Based Equipment		
With Regards to Adaptivity for Frame Based Equipment			
☐	The Frame Based Equipment equipment operates as an Innitiating Device		
☐	The Frame Based Equipment equipment operates as an Responding Device		
☐	The Frame Based Equipment equipment can operate as an Innitiating Device and as a Responding Device		
With Regards to Adaptivity for Load Based Equipment			
☐	The Load Based Equipment equipment operates as a Supervising Device		
☐	The Load Based Equipment equipment operates as a Supervised Device		
☒	The Load Based Equipment can operate as a Supervising and as a Supervised Device		
☐	The Load Based Equipment equipment makes use of note 1 in table 7 or note 1 in table 8 of ETSI EN 301 893 V2.1.1		
☐	The Load Based Equipment equipment, when operating as a Supervising Device, makes use of note 2 in table 8 of ETSI EN 301 893 V2.1.1		
☐	The Load Based Equipment equipment operates as an Innitiating Device		
☐	The Load Based Equipment equipment operates as an Responding Device		

☒ The Load Based Equipment equipment can operate as an Innitiating Device and as a Responding Device

The Priority Classes implemented by the Load Based Equipment

- When operating as a Supervising Device

☐ Priority Class 4 (Highest priority)
☐ Priority Class 3
☐ Priority Class 2
☒ Priority Class 1 (Lowest priority)

- When operating as a Supervised Device

☐ Priority Class 4 (Highest priority)
☐ Priority Class 3
☐ Priority Class 2
☒ Priority Class 1 (Lowest priority)

With regard to Energy Detection Threshold, the Load Based Equipment has implemented either option 1 of clause 4.2.7.3.2.5 of ETSI EN 301 893 V2.1.1 or option 2 of clause 4.2.7.3.2.5 of ETSI EN 301 893 V2.1.1:

☒ Option 1	☐ Option 2

Geo-location capability supported by the equipment

☐	Yes ☐The geographical location determined by the equipment is not accessible to the user.
☒	No

3. Test Summary

Clause EN301893	Test Parameter	Result (Pass/Fail)	Remark
4.2.1	Carrier Frequencies	Pass	--
4.2.2	Occupied Channel Bandwidth	Pass	--
4.2.3	RF Output Power, Transmit Power Control (TPC) and Power Density	Pass	--
4.2.4	Transmitter unwanted Emissions	Pass	--
4.2.5	Receiver Spurious Emissions	Pass	--
4.2.6	Dynamic Frequency Selection (DFS)	Pass	Refer to DFS report
4.2.7	Adaptivity (Channel Access Mechaism)	Pass	--
4.2.8	Receiver Blocking	Pass	--
4.2.9	User Access Restrictions	Pass	--
4.2.10	Geo-location Capability	N/A	--
Note: For Occupied Channel Bandwidth and Transmitter Unwanted Emissions Within the 5GHz RLAN Bands test, only the worst port was performed in the report.			

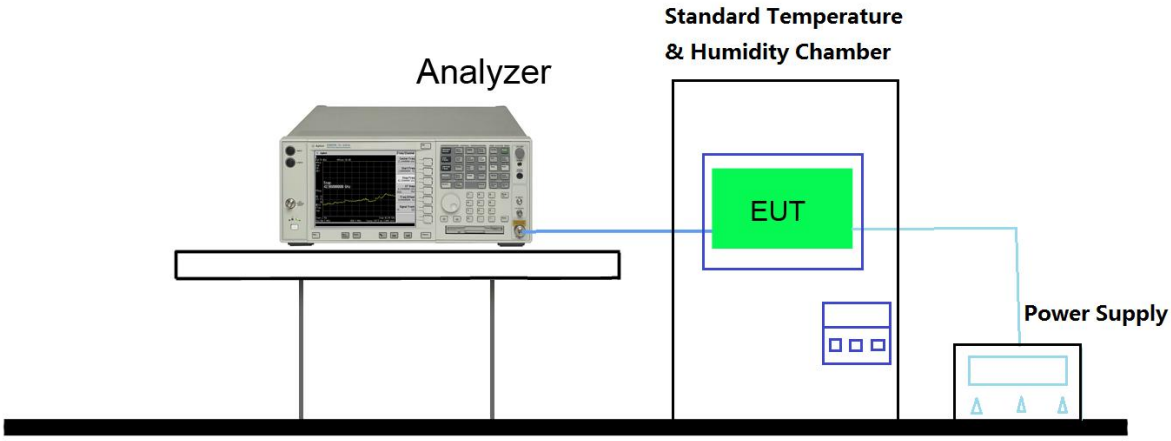
4. Carrier Frequencies

4.1. Limit

The actual centre frequency for any given channel declared by the manufacturer shall be maintained within the range fc ± 20ppm.

4.2. Test Setup

For Conducted Measurement



4.3. Test Procedure

Refer to ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.2.2.1.

4.4. Test Result

Test Engineer	Lewis Huang	Temperature	-20 ~ 55°C
Test Time	2017/06/08	Relative Humidity	54%
Test Mode	Carrier Wave		

Test Conditions	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Limit (ppm)	Result
T_{NOM} (25°C)	5180	5179.921580	-15.14	-20 ~ +20	Pass
	5500	5499.918105	-14.89	-20 ~ +20	Pass
T_{MIN} (-20°C)	5180	5179.921801	-15.10	-20 ~ +20	Pass
	5500	5499.924122	-13.80	-20 ~ +20	Pass
T_{MAX} (55°C)	5180	5179.921857	-15.09	-20 ~ +20	Pass
	5500	5499.919575	-14.62	-20 ~ +20	Pass

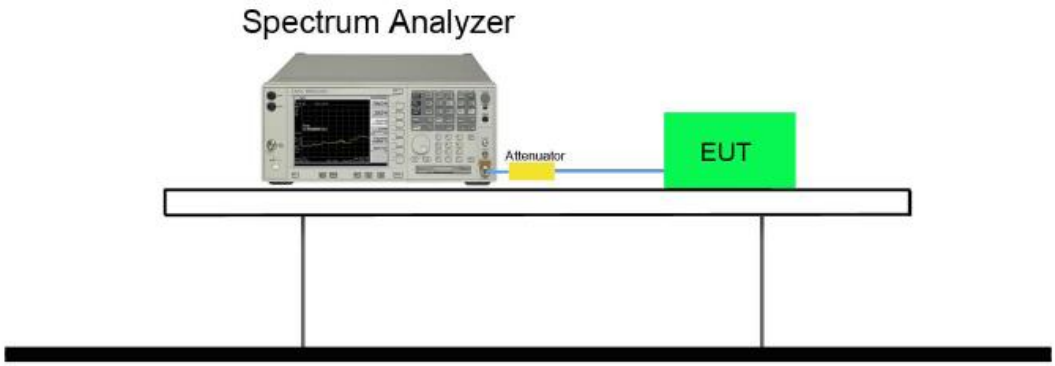
Note: Tolerance (ppm) = {Measured Frequency (MHz) - Declared Frequency (MHz)} / Declared Frequency (MHz) * 10^6 (ppm)

5. Occupied Channel Bandwidth

5.1. Limit

The Nominal Channel Bandwidth for a single Operating Channel shall be 20 MHz.
Alternatively, equipment may implement a lower Nominal Channel Bandwidth with a minimum of 5 MHz, providing they still comply with the Nominal Centre Frequencies defined in clause 4.2.1 (20 MHz raster).
The Occupied Channel Bandwidth shall be between 80 % and 100 % of the Nominal Channel Bandwidth. In case of smart antenna systems (devices with multiple transmit chains) each of the transmit chains shall meet this requirement. The Occupied Channel Bandwidth might change with time/payload.
During a Channel Occupancy Time (COT), equipment may operate temporarily with an Occupied Channel Bandwidth of less than 80 % of its Nominal Channel Bandwidth with a minimum of 2 MHz.

5.2. Test Setup



5.3. Test Procedure

Refer to ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.3.2.1.

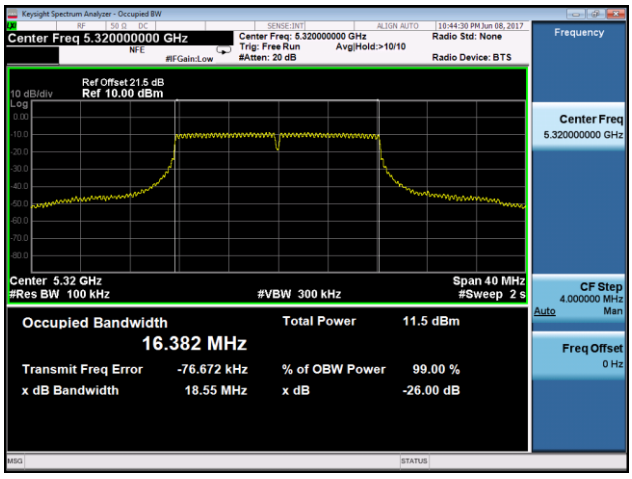
5.4. Test Result

Test Engineer	Lewis Huang	Temperature	25°C
Test Time	2017/06/08	Relative Humidity	54%

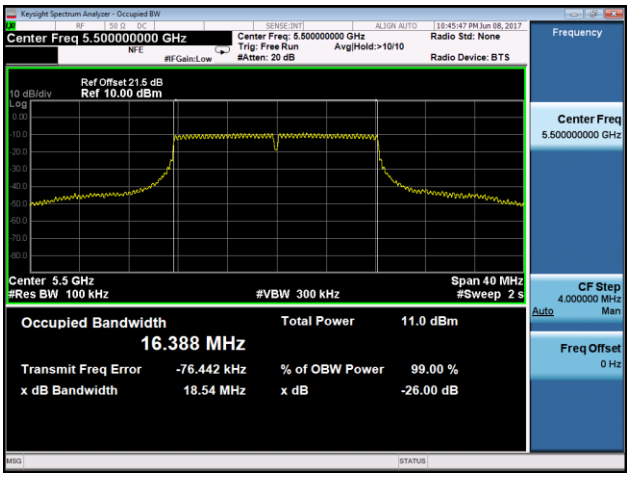
Test Mode	Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Declared Nominal Channel Bandwidth (MHz)	Occupied Bandwidth (%)	Limit (%)	Result
Ant 0							
11a	64	5320	16.38	20	81.90	80 - 100	Pass
11a	100	5500	16.39	20	81.95	80 - 100	Pass
11n-HT20	64	5320	17.61	20	88.05	80 - 100	Pass
11n-HT20	100	5500	17.62	20	88.10	80 - 100	Pass
11n-HT40	62	5310	36.02	40	90.05	80 - 100	Pass
11n-HT40	102	5510	36.05	40	90.13	80 - 100	Pass
11ac-VHT20	64	5320	17.61	20	88.05	80 - 100	Pass
11ac-VHT20	100	5500	17.61	20	88.05	80 - 100	Pass
11ac-VHT40	62	5310	36.02	40	90.05	80 - 100	Pass
11ac-VHT40	102	5510	36.04	40	90.10	80 - 100	Pass
11ac-VHT80	58	5290	75.65	80	94.56	80 - 100	Pass
11ac-VHT80	106	5530	75.70	80	94.63	80 - 100	Pass
Ant 0 / Ant 0+ 1							
11n-HT20	64	5320	17.61	20	88.05	80 - 100	Pass
11n-HT20	100	5500	17.61	20	88.05	80 - 100	Pass
11n-HT40	62	5310	35.99	40	89.98	80 - 100	Pass
11n-HT40	102	5510	36.01	40	90.03	80 - 100	Pass
11ac-VHT20	64	5320	17.61	20	88.05	80 - 100	Pass
11ac-VHT20	100	5500	17.61	20	88.05	80 - 100	Pass
11ac-VHT40	62	5310	36.00	40	90.00	80 - 100	Pass
11ac-VHT40	102	5510	36.01	40	90.03	80 - 100	Pass
11ac-VHT80	58	5290	75.64	80	94.55	80 - 100	Pass
11ac-VHT80	106	5530	75.68	80	94.60	80 - 100	Pass

Occupied Channel Bandwidth - Ant 0

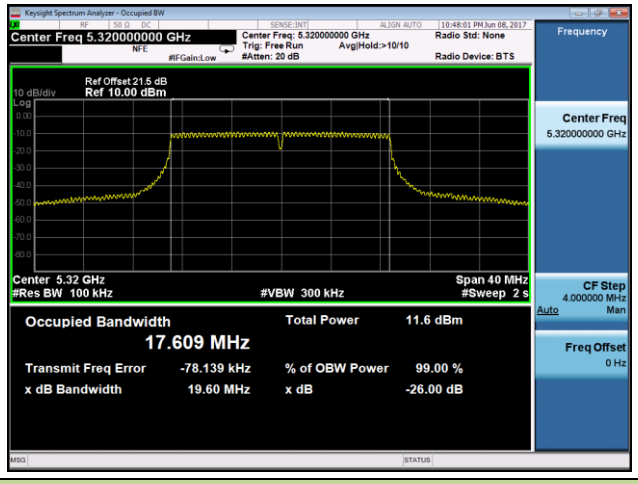
802.11a Channel 64 (5320MHz)



802.11a Channel 100 (5500MHz)

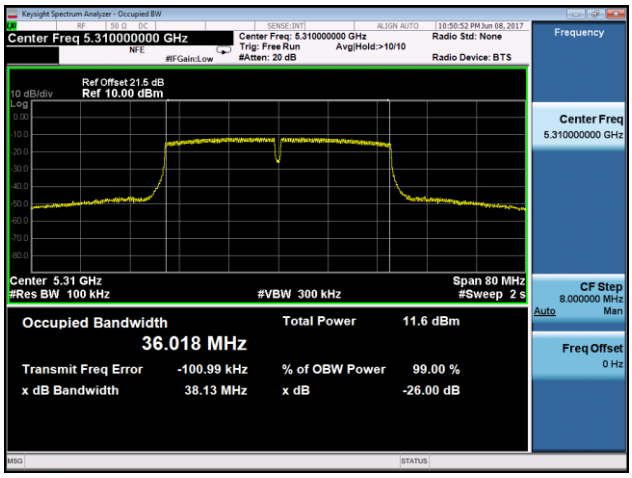


802.11n-HT20 Channel 64 (5320MHz)



802.11n-HT20 Channel 100 (5500MHz)

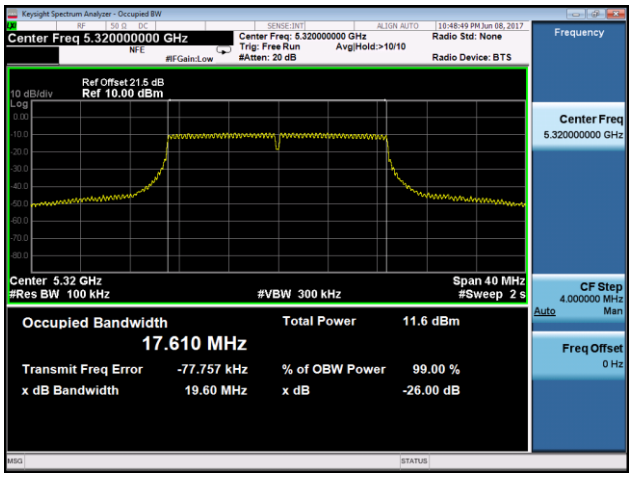
802.11n-HT40 Channel 62 (5310MHz)



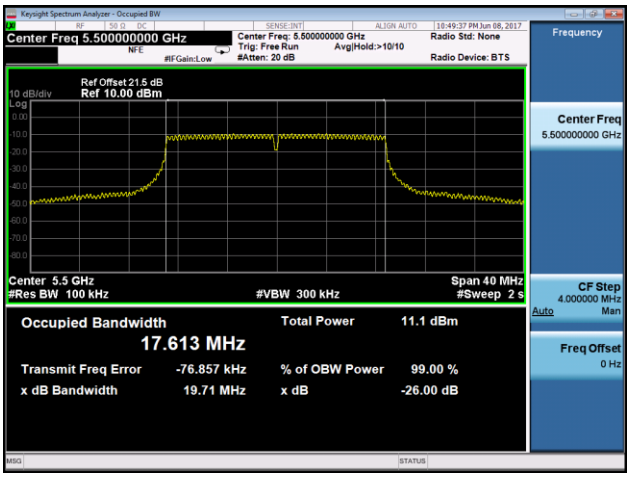
802.11n-HT40 Channel 102 (5510MHz)

Occupied Channel Bandwidth - Ant 0

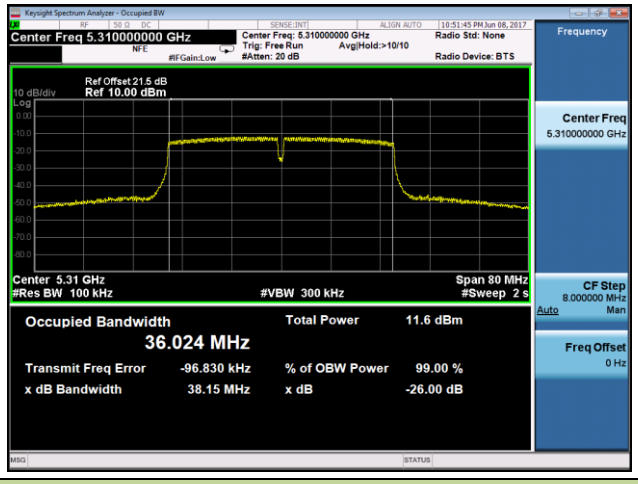
802.11ac-VHT20 Channel 64 (5320MHz)



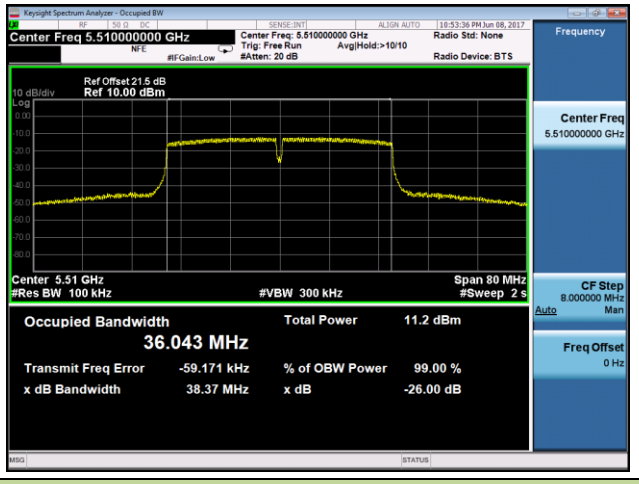
802.11ac-VHT20 Channel 100 (5500MHz)



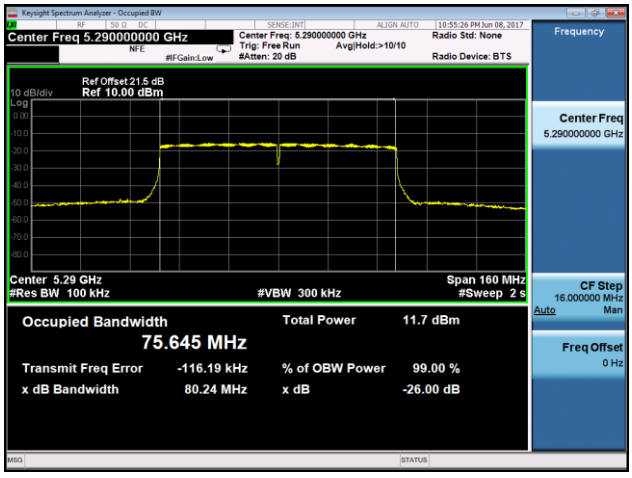
802.11ac-VHT40 Channel 62 (5310MHz)



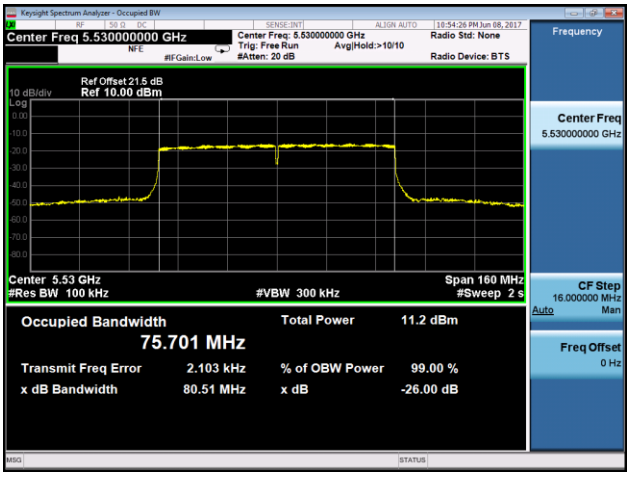
802.11ac-VHT40 Channel 102 (5510MHz)

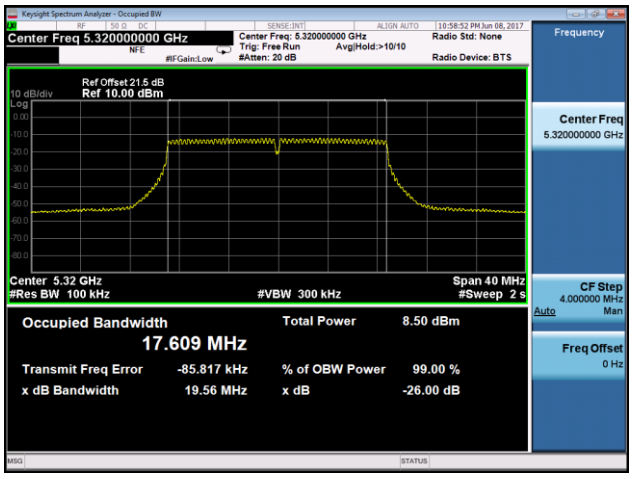
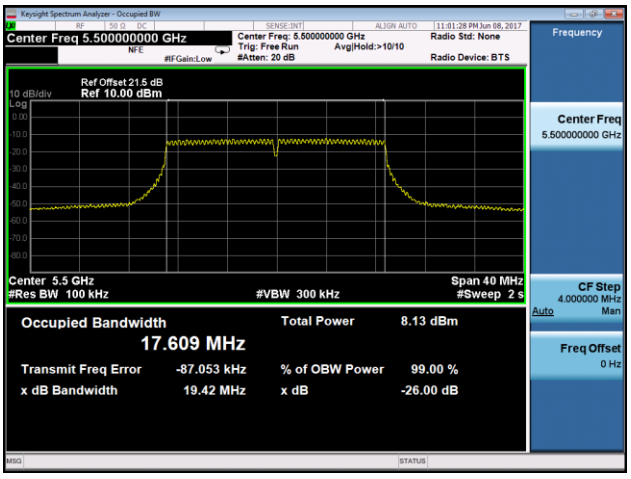
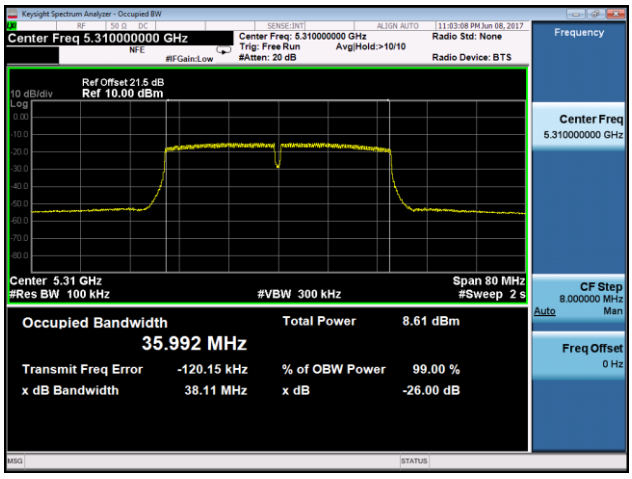
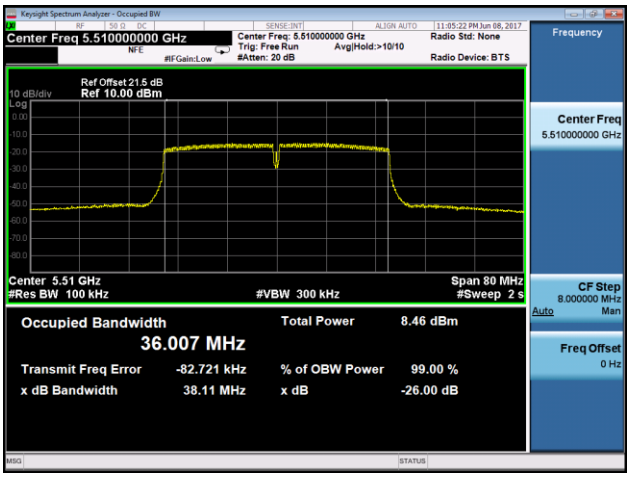


802.11ac-VHT80 Channel 58 (5290MHz)



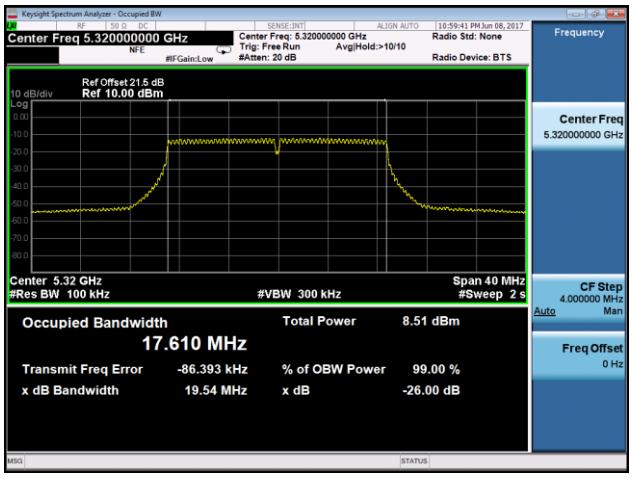
802.11ac-VHT80 Channel 106 (5530MHz)



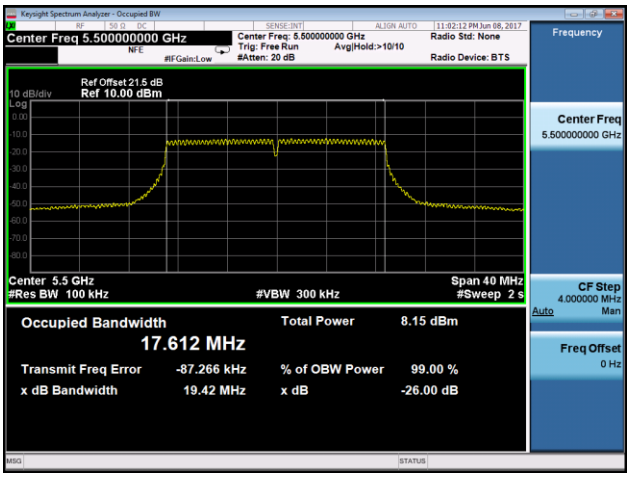
Occupied Channel Bandwidth - Ant 0 / Ant 0 + 1	
802.11n-HT20 Channel 64 (5320MHz)	**802.11n-HT20 Channel 100 (5500MHz)**
	
802.11n-HT40 Channel 62 (5310MHz)	**802.11n-HT40 Channel 102 (5510MHz)**
	

Occupied Channel Bandwidth - Ant 0 / Ant 0 + 1

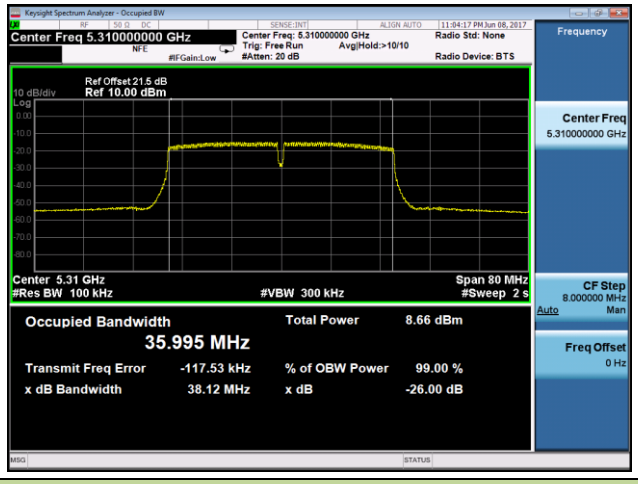
802.11ac-VHT20 Channel 64 (5320MHz)



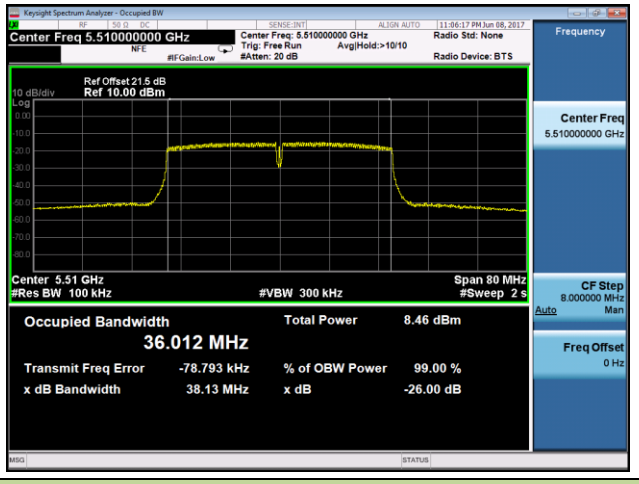
802.11ac-VHT20 Channel 100 (5500MHz)



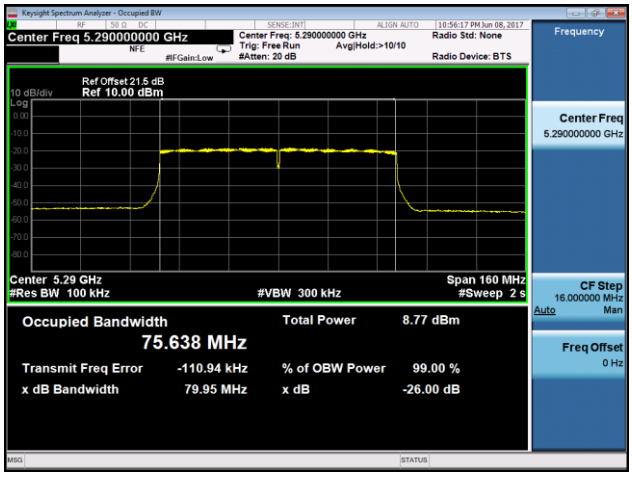
802.11ac-VHT40 Channel 62 (5310MHz)



802.11ac-VHT40 Channel 102 (5510MHz)



802.11ac-VHT80 Channel 58 (5290MHz)



802.11ac-VHT80 Channel 106 (5530MHz)

6. RF Output Power, Transmit Power Control (TPC) and Power Density

6.1. Limit

RF Output Power and Power density at the Highest Power Level

TPC is not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz.

For devices with TPC, the RF output power and the power density when configured to operate at the highest stated power level of the TPC range shall not exceed the levels given in following table.

Devices are allowed to operate without TPC. See table for applicable limits in this case.

Mean EIRP limits for RF Output Power and Power Density at the Highest Power Level				
Frequency Range	Mean EIRP Limit [dBm]		Mean EIRP Density Limit [dBm/MHz]	
	with TPC	without TPC	with TPC	without TPC
5150 MHz to 5350 MHz	23	20/23 (see note 1)	10	7/10 (see note 2)
5470 MHz to 5725 MHz	30 (see note 3)	27 (see note 3)	17 (see note 3)	14 (see note 3)
NOTE 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz, in which case the applicable limit is 23 dBm.				
NOTE 2: The applicable limit is 7 dBm/MHz, except for transmissions whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz, in which case the applicable limit is 10 dBm/MHz.				
NOTE 3: Slave devices without a Radar Interference Detection function shall comply with the limits for the band 5250 MHz to 5350 MHz.				

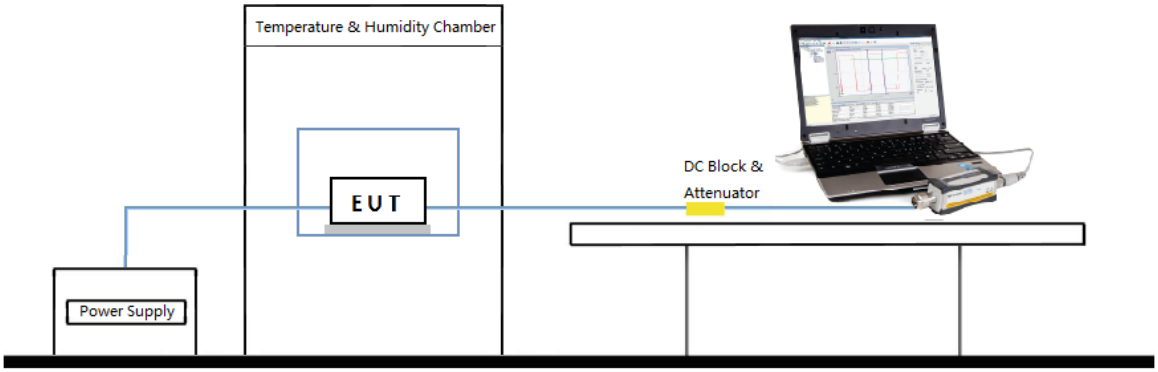
RF Output Power at the Lowest Power Level of the TPC Range

For devices using TPC, the RF output power during a transmission burst when configured to operate at the lowest stated power level of the TPC range shall not exceed the levels given in following table.

For devices without TPC, the limits in table do not apply.

Mean EIRP Limits for RF Output Power at the Lowest Power Level of the TPC Range	
Frequency Range	Mean EIRP [dBm]
5250 MHz to 5350 MHz	17
5470 MHz to 5725 MHz	24 (see note)
Note: Slave devices without a Radar Interference Detection function shall comply with the limits for the band 5250 MHz to 5350 MHz.	

6.2. Test Setup



6.3. Test Procedure

Refer to ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.4.2.1.

6.4. Test Result

Product	Wireless Access Point	Temperature	-20 ~ 55°C
Test Date	2017/06/07	Relative Humidity	47 ~ 56%
Test Site	TR3	Test Item	RF Output Power

Normal Conditions (Temperature 25°C)

1Tx _ Ant 0

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)	EIRP Power (dBm)	Limit (dBm)	Result
11a	36	5180	12.24	22.24	23	Pass
11a	64	5320	12.02	22.02	23	Pass
11a	100	5500	12.28	29.28	30	Pass
11a	140	5700	12.01	29.01	30	Pass
11n-HT20	36	5180	12.45	22.45	23	Pass
11n-HT20	64	5320	12.36	22.36	23	Pass
11n-HT20	100	5500	12.43	29.43	30	Pass
11n-HT20	140	5700	12.05	29.05	30	Pass
11n-HT40	38	5190	12.68	22.68	23	Pass
11n-HT40	62	5310	12.34	22.34	23	Pass
11n-HT40	102	5510	12.77	29.77	30	Pass
11n-HT40	134	5670	12.59	29.59	30	Pass
11ac-VHT20	36	5180	12.42	22.42	23	Pass
11ac-VHT20	64	5320	12.23	22.23	23	Pass
11ac-VHT20	100	5500	12.43	29.43	30	Pass
11ac-VHT20	140	5700	12.32	29.32	30	Pass
11ac-VHT40	38	5190	12.56	22.56	23	Pass
11ac-VHT40	62	5310	12.22	22.22	23	Pass
11ac-VHT40	102	5510	12.65	29.65	30	Pass
11ac-VHT40	134	5670	12.21	29.21	30	Pass
11ac-VHT80	42	5210	12.37	22.37	23	Pass
11ac-VHT80	58	5290	12.51	22.51	23	Pass
11ac-VHT80	106	5530	12.74	29.74	30	Pass
11ac-VHT80	122	5610	12.77	29.77	30	Pass

Note 1: EIRP Power (dBm) = RF Output Power (dBm) + Antenna Gain (dBi).

Note 2: Each RF Output Power (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

2Tx _ Ant 0 + 1

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
11n-HT20	36	5180	9.52	9.50	22.52	23	Pass
11n-HT20	64	5320	9.20	9.16	22.19	23	Pass
11n-HT20	100	5500	9.31	8.97	29.15	30	Pass
11n-HT20	140	5700	9.17	9.39	29.29	30	Pass
11n-HT40	38	5190	9.18	9.06	22.13	23	Pass
11n-HT40	62	5310	8.98	8.96	21.98	23	Pass
11n-HT40	102	5510	9.17	9.50	29.35	30	Pass
11n-HT40	134	5670	9.83	9.38	29.62	30	Pass
11ac-VHT20	36	5180	9.02	9.48	22.27	23	Pass
11ac-VHT20	64	5320	9.33	9.50	22.43	23	Pass
11ac-VHT20	100	5500	9.35	9.27	29.32	30	Pass
11ac-VHT20	140	5700	9.37	8.89	29.15	30	Pass
11ac-VHT40	38	5190	8.96	8.86	21.92	23	Pass
11ac-VHT40	62	5310	8.95	9.52	22.25	23	Pass
11ac-VHT40	102	5510	9.00	9.47	29.25	30	Pass
11ac-VHT40	134	5670	9.19	8.96	29.09	30	Pass
11ac-VHT80	42	5210	9.29	8.91	22.11	23	Pass
11ac-VHT80	58	5290	9.23	9.32	22.29	23	Pass
11ac-VHT80	106	5530	9.47	9.04	29.27	30	Pass
11ac-VHT80	122	5610	8.98	9.37	29.19	30	Pass

Note 1: EIRP Power (dBm) = $10*\log\{10^{\text{Ant 0 RF Output Power }/10}+10^{\text{Ant 1 RF Output Power }/10}\}$ (dBm) + Antenna Gain (dBi).

Note 2: Each RF Output Power (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

Extreme Conditions (Temperature -20°C)

1Tx _ Ant 0

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)	EIRP Power (dBm)	Limit (dBm)	Result
11a	36	5180	12.51	22.51	23	Pass
11a	64	5320	12.52	22.52	23	Pass
11a	100	5500	12.60	29.60	30	Pass
11a	140	5700	12.32	29.32	30	Pass
11n-HT20	36	5180	12.59	22.59	23	Pass
11n-HT20	64	5320	12.27	22.27	23	Pass
11n-HT20	100	5500	12.68	29.68	30	Pass
11n-HT20	140	5700	12.34	29.34	30	Pass
11n-HT40	38	5190	12.77	22.77	23	Pass
11n-HT40	62	5310	12.51	22.51	23	Pass
11n-HT40	102	5510	12.87	29.87	30	Pass
11n-HT40	134	5670	12.64	29.64	30	Pass
11ac-VHT20	36	5180	12.67	22.67	23	Pass
11ac-VHT20	64	5320	12.59	22.59	23	Pass
11ac-VHT20	100	5500	12.82	29.82	30	Pass
11ac-VHT20	140	5700	12.49	29.49	30	Pass
11ac-VHT40	38	5190	12.87	22.87	23	Pass
11ac-VHT40	62	5310	12.61	22.61	23	Pass
11ac-VHT40	102	5510	12.88	29.88	30	Pass
11ac-VHT40	134	5670	12.58	29.58	30	Pass
11ac-VHT80	42	5210	12.53	22.53	23	Pass
11ac-VHT80	58	5290	12.78	22.78	23	Pass
11ac-VHT80	106	5530	12.79	29.79	30	Pass
11ac-VHT80	122	5610	12.80	29.80	30	Pass

Note 1: EIRP Power (dBm) = RF Output Power (dBm) + Antenna Gain (dBi).

Note 2: Each RF Output Power (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

2Tx _ Ant 0 + 1

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
11n-HT20	36	5180	9.76	9.98	22.88	23	Pass
11n-HT20	64	5320	9.56	9.52	22.55	23	Pass
11n-HT20	100	5500	9.67	9.45	29.57	30	Pass
11n-HT20	140	5700	9.77	9.51	29.65	30	Pass
11n-HT40	38	5190	9.66	9.54	22.61	23	Pass
11n-HT40	62	5310	9.46	9.56	22.52	23	Pass
11n-HT40	102	5510	9.53	9.62	29.59	30	Pass
11n-HT40	134	5670	9.95	9.74	29.86	30	Pass
11ac-VHT20	36	5180	9.38	10.08	22.75	23	Pass
11ac-VHT20	64	5320	9.45	9.62	22.55	23	Pass
11ac-VHT20	100	5500	9.59	9.51	29.56	30	Pass
11ac-VHT20	140	5700	9.73	9.49	29.62	30	Pass
11ac-VHT40	38	5190	9.56	9.46	22.52	23	Pass
11ac-VHT40	62	5310	9.55	9.64	22.61	23	Pass
11ac-VHT40	102	5510	9.48	9.71	29.61	30	Pass
11ac-VHT40	134	5670	9.67	9.56	29.63	30	Pass
11ac-VHT80	42	5210	9.53	9.51	22.53	23	Pass
11ac-VHT80	58	5290	9.47	9.68	22.59	23	Pass
11ac-VHT80	106	5530	9.59	9.52	29.57	30	Pass
11ac-VHT80	122	5610	9.34	9.85	29.61	30	Pass

Note 1: EIRP Power (dBm) = $10*\log\{10^{\text{Ant 0 RF Output Power }/10}+10^{\text{Ant 1 RF Output Power }/10}\}$ (dBm) + Antenna Gain (dBi).

Note 2: Each RF Output Power (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

Extreme Conditions (Temperature 55°C)

1Tx _ Ant 0

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)	EIRP Power (dBm)	Limit (dBm)	Result
11a	36	5180	12.23	22.23	23	Pass
11a	64	5320	12.31	22.31	23	Pass
11a	100	5500	12.71	29.71	30	Pass
11a	140	5700	11.89	28.89	30	Pass
11n-HT20	36	5180	12.67	22.67	23	Pass
11n-HT20	64	5320	12.36	22.36	23	Pass
11n-HT20	100	5500	12.45	29.45	30	Pass
11n-HT20	140	5700	12.32	29.32	30	Pass
11n-HT40	38	5190	12.50	22.50	23	Pass
11n-HT40	62	5310	12.24	22.24	23	Pass
11n-HT40	102	5510	12.55	29.55	30	Pass
11n-HT40	134	5670	12.34	29.34	30	Pass
11ac-VHT20	36	5180	12.55	22.55	23	Pass
11ac-VHT20	64	5320	12.45	22.45	23	Pass
11ac-VHT20	100	5500	12.65	29.65	30	Pass
11ac-VHT20	140	5700	12.67	29.67	30	Pass
11ac-VHT40	38	5190	12.45	22.45	23	Pass
11ac-VHT40	62	5310	12.34	22.34	23	Pass
11ac-VHT40	102	5510	12.48	29.48	30	Pass
11ac-VHT40	134	5670	12.41	29.41	30	Pass
11ac-VHT80	42	5210	12.22	22.22	23	Pass
11ac-VHT80	58	5290	12.42	22.42	23	Pass
11ac-VHT80	106	5530	12.54	29.54	30	Pass
11ac-VHT80	122	5610	12.47	29.47	30	Pass

Note 1: EIRP Power (dBm) = RF Output Power (dBm) + Antenna Gain (dBi).

Note 2: Each RF Output Power (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

2Tx _ Ant 0 + 1

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
11n-HT20	36	5180	9.60	9.58	22.60	23	Pass
11n-HT20	64	5320	9.32	9.12	22.23	23	Pass
11n-HT20	100	5500	9.43	8.89	29.18	30	Pass
11n-HT20	140	5700	9.37	9.11	29.25	30	Pass
11n-HT40	38	5190	9.50	9.06	22.30	23	Pass
11n-HT40	62	5310	8.98	9.24	22.12	23	Pass
11n-HT40	102	5510	9.29	9.06	29.19	30	Pass
11n-HT40	134	5670	9.39	9.26	29.34	30	Pass
11ac-VHT20	36	5180	9.22	9.92	22.59	23	Pass
11ac-VHT20	64	5320	9.21	9.22	22.23	23	Pass
11ac-VHT20	100	5500	9.03	9.43	29.24	30	Pass
11ac-VHT20	140	5700	9.65	9.33	29.50	30	Pass
11ac-VHT40	38	5190	9.16	9.38	22.28	23	Pass
11ac-VHT40	62	5310	9.47	9.08	22.29	23	Pass
11ac-VHT40	102	5510	9.00	9.63	29.34	30	Pass
11ac-VHT40	134	5670	9.35	9.24	29.31	30	Pass
11ac-VHT80	42	5210	9.13	9.27	22.21	23	Pass
11ac-VHT80	58	5290	8.99	9.12	22.07	23	Pass
11ac-VHT80	106	5530	9.19	9.44	29.33	30	Pass
11ac-VHT80	122	5610	8.94	9.53	29.26	30	Pass

Note 1: EIRP Power (dBm) = $10*\log\{10^{\text{Ant 0 RF Output Power }/10}+10^{\text{Ant 1 RF Output Power }/10}\}$ (dBm) + Antenna Gain (dBi).

Note 2: Each RF Output Power (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

Product	Wireless Access Point	Temperature	-20 ~ 55°C
Test Date	2017/06/07	Relative Humidity	47 ~ 56%
Test Site	TR3	Test Item	TPC

Normal Conditions (Temperature 25°C)

1Tx _ Ant 0

Mode	Ch. No.	Freq. (MHz)	TPC (dBm)	Final TPC (dBm)	Limit (dBm)	Result
11a	64	5320	6.51	16.51	17	Pass
11a	100	5500	6.46	23.46	24	Pass
11a	140	5700	6.61	23.61	24	Pass
11n-HT20	64	5320	6.54	16.54	17	Pass
11n-HT20	100	5500	6.38	23.38	24	Pass
11n-HT20	140	5700	6.58	23.58	24	Pass
11n-HT40	62	5310	6.63	16.63	17	Pass
11n-HT40	102	5510	6.41	23.41	24	Pass
11n-HT40	134	5670	6.52	23.52	24	Pass
11ac-VHT20	64	5320	6.47	16.47	17	Pass
11ac-VHT20	100	5500	6.38	23.38	24	Pass
11ac-VHT20	140	5700	6.62	23.62	24	Pass
11ac-VHT40	62	5310	6.77	16.77	17	Pass
11ac-VHT40	102	5510	6.50	23.50	24	Pass
11ac-VHT40	134	5670	6.48	23.48	24	Pass
11ac-VHT80	58	5290	6.36	16.36	17	Pass
11ac-VHT80	106	5530	6.41	23.41	24	Pass
11ac-VHT80	122	5610	6.52	23.52	24	Pass

Note 1: Finall TPC (dBm) = TPC (dBm) + Antenna Gain (dBi).

Note 2: Each TPC (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

2Tx _ Ant 0 + 1

Mode	Ch. No.	Freq. (MHz)	TPC (dBm)		Total TPC (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
11n-HT20	64	5320	3.49	3.32	16.42	17	Pass
11n-HT20	100	5500	3.59	3.35	23.48	24	Pass
11n-HT20	140	5700	3.57	3.28	23.44	24	Pass
11n-HT40	62	5310	3.63	3.54	16.60	17	Pass
11n-HT40	102	5510	3.55	3.60	23.59	24	Pass
11n-HT40	134	5670	3.42	3.26	23.35	24	Pass
11ac-VHT20	64	5320	3.44	3.60	16.53	17	Pass
11ac-VHT20	100	5500	3.54	3.61	23.59	24	Pass
11ac-VHT20	140	5700	3.63	3.43	23.54	24	Pass
11ac-VHT40	62	5310	3.51	3.44	16.49	17	Pass
11ac-VHT40	102	5510	3.47	3.68	23.59	24	Pass
11ac-VHT40	134	5670	3.27	3.25	23.27	24	Pass
11ac-VHT80	58	5290	3.71	3.77	16.75	17	Pass
11ac-VHT80	106	5530	3.52	3.35	23.45	24	Pass
11ac-VHT80	122	5610	3.62	3.31	23.48	24	Pass

Note 1: Total TPC (dBm) = $10*\log\{10^{\text{Ant 0 TPC }/10}+10^{\text{Ant 1 TPC }/10}\}$ (dBm) + Antenna Gain (dBi).

Note 2: Each TPC (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

Extreme Conditions (Temperature -20°C)

1Tx _ Ant 0

Mode	Ch. No.	Freq. (MHz)	TPC (dBm)	Final TPC (dBm)	Limit (dBm)	Result
11a	64	5320	6.01	16.01	17	Pass
11a	100	5500	5.66	22.66	24	Pass
11a	140	5700	6.15	23.15	24	Pass
11n-HT20	64	5320	5.69	15.69	17	Pass
11n-HT20	100	5500	6.27	23.27	24	Pass
11n-HT20	140	5700	6.13	23.13	24	Pass
11n-HT40	62	5310	5.96	15.96	17	Pass
11n-HT40	102	5510	6.32	23.32	24	Pass
11n-HT40	134	5670	5.55	22.55	24	Pass
11ac-VHT20	64	5320	6.42	16.42	17	Pass
11ac-VHT20	100	5500	6.16	23.16	24	Pass
11ac-VHT20	140	5700	5.77	22.77	24	Pass
11ac-VHT40	62	5310	6.08	16.08	17	Pass
11ac-VHT40	102	5510	5.73	22.73	24	Pass
11ac-VHT40	134	5670	6.46	23.46	24	Pass
11ac-VHT80	58	5290	6.33	16.33	17	Pass
11ac-VHT80	106	5530	6.09	23.09	24	Pass
11ac-VHT80	122	5610	6.13	23.13	24	Pass

Note 1: Finall TPC (dBm) = TPC (dBm) + Antenna Gain (dBi).

Note 2: Each TPC (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

2Tx _ Ant 0 + 1

Mode	Ch. No.	Freq. (MHz)	TPC (dBm)		Total TPC (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
11n-HT20	64	5320	2.49	2.93	15.73	17	Pass
11n-HT20	100	5500	3.08	3.21	23.16	24	Pass
11n-HT20	140	5700	3.31	3.27	23.30	24	Pass
11n-HT40	62	5310	2.82	2.91	15.88	17	Pass
11n-HT40	102	5510	3.06	3.46	23.27	24	Pass
11n-HT40	134	5670	2.78	2.53	22.67	24	Pass
11ac-VHT20	64	5320	2.99	3.52	16.27	17	Pass
11ac-VHT20	100	5500	3.42	2.68	23.08	24	Pass
11ac-VHT20	140	5700	2.96	2.96	22.97	24	Pass
11ac-VHT40	62	5310	2.88	2.62	15.76	17	Pass
11ac-VHT40	102	5510	2.94	3.46	23.22	24	Pass
11ac-VHT40	134	5670	2.90	2.53	22.73	24	Pass
11ac-VHT80	58	5290	3.53	3.29	16.42	17	Pass
11ac-VHT80	106	5530	2.91	2.88	22.91	24	Pass
11ac-VHT80	122	5610	2.62	3.30	22.98	24	Pass

Note 1: Total TPC (dBm) = $10*\log\{10^{\text{Ant 0 TPC }/10}+10^{\text{Ant 1 TPC }/10}\}$ (dBm) + Antenna Gain (dBi).

Note 2: Each TPC (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

Extreme Conditions (Temperature 55°C)

1Tx _ Ant 0

Mode	Ch. No.	Freq. (MHz)	TPC (dBm)	Final TPC (dBm)	Limit (dBm)	Result
11a	64	5320	6.27	16.27	17	Pass
11a	100	5500	6.35	23.35	24	Pass
11a	140	5700	6.69	23.69	24	Pass
11n-HT20	64	5320	5.71	15.71	17	Pass
11n-HT20	100	5500	6.54	23.54	24	Pass
11n-HT20	140	5700	6.34	23.34	24	Pass
11n-HT40	62	5310	6.07	16.07	17	Pass
11n-HT40	102	5510	6.51	23.51	24	Pass
11n-HT40	134	5670	5.61	22.61	24	Pass
11ac-VHT20	64	5320	6.56	16.56	17	Pass
11ac-VHT20	100	5500	6.17	23.17	24	Pass
11ac-VHT20	140	5700	6.19	23.19	24	Pass
11ac-VHT40	62	5310	6.75	16.75	17	Pass
11ac-VHT40	102	5510	6.15	23.15	24	Pass
11ac-VHT40	134	5670	6.61	23.61	24	Pass
11ac-VHT80	58	5290	6.52	16.52	17	Pass
11ac-VHT80	106	5530	6.55	23.55	24	Pass
11ac-VHT80	122	5610	6.28	23.28	24	Pass

Note 1: Finall TPC (dBm) = TPC (dBm) + Antenna Gain (dBi).

Note 2: Each TPC (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

2Tx _ Ant 0 + 1

Mode	Ch. No.	Freq. (MHz)	TPC (dBm)		Total TPC (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
11n-HT20	64	5320	2.72	2.99	15.87	17	Pass
11n-HT20	100	5500	3.71	3.30	23.52	24	Pass
11n-HT20	140	5700	3.68	3.78	23.74	24	Pass
11n-HT40	62	5310	3.32	3.38	16.36	17	Pass
11n-HT40	102	5510	3.23	3.53	23.39	24	Pass
11n-HT40	134	5670	3.30	2.86	23.10	24	Pass
11ac-VHT20	64	5320	3.48	3.98	16.75	17	Pass
11ac-VHT20	100	5500	3.76	3.30	23.55	24	Pass
11ac-VHT20	140	5700	3.65	3.93	23.80	24	Pass
11ac-VHT40	62	5310	2.94	2.80	15.88	17	Pass
11ac-VHT40	102	5510	3.69	3.85	23.78	24	Pass
11ac-VHT40	134	5670	3.57	3.25	23.42	24	Pass
11ac-VHT80	58	5290	3.65	4.01	16.84	17	Pass
11ac-VHT80	106	5530	3.04	3.07	23.07	24	Pass
11ac-VHT80	122	5610	3.09	3.41	23.26	24	Pass

Note 1: Total TPC (dBm) = $10*\log\{10^{\text{Ant 0 TPC }/10}+10^{\text{Ant 1 TPC }/10}\}$ (dBm) + Antenna Gain (dBi).

Note 2: Each TPC (dBm) = Power Meter Reading Level (dBm) + 10*Log(1/Duty Cycle).

Product	Wireless Access Point	Temperature	25°C
Test Engineer	2017/06/10	Relative Humidity	54%
Test Site	TR3	Test Item	Power Density

1Tx _ Ant 0

Mode	Ch. No.	Freq. (MHz)	Power Density (dBm/MHz)	Final Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
11a	36	5180	-0.76	9.40	10	Pass
11a	64	5320	-0.84	9.32	10	Pass
11a	100	5500	-0.27	16.89	17	Pass
11a	140	5700	-0.43	16.73	17	Pass
11n-HT20	36	5180	-0.81	9.26	10	Pass
11n-HT20	64	5320	-1.01	9.06	10	Pass
11n-HT20	100	5500	-0.29	16.78	17	Pass
11n-HT20	140	5700	-0.45	16.62	17	Pass
11n-HT40	38	5190	-3.29	6.84	10	Pass
11n-HT40	62	5310	-3.93	6.20	10	Pass
11n-HT40	102	5510	-2.81	14.32	17	Pass
11n-HT40	134	5670	-3.03	14.10	17	Pass
11ac-VHT20	36	5180	-0.77	9.29	10	Pass
11ac-VHT20	64	5320	-1.03	9.03	10	Pass
11ac-VHT20	100	5500	-0.21	16.86	17	Pass
11ac-VHT20	140	5700	-0.44	16.62	17	Pass
11ac-VHT40	38	5190	-3.31	6.82	10	Pass
11ac-VHT40	62	5310	-3.89	6.24	10	Pass
11ac-VHT40	102	5510	-2.83	14.30	17	Pass
11ac-VHT40	134	5670	-3.00	14.13	17	Pass
11ac-VHT80	42	5210	-7.37	2.93	10	Pass
11ac-VHT80	58	5290	-7.23	3.07	10	Pass
11ac-VHT80	106	5530	-6.40	10.90	17	Pass
11ac-VHT80	122	5610	-6.15	11.15	17	Pass

Note: Final Power Density (dBm/MHz) = Power Density (dBm/MHz) + Antenna Gain (dBi) + 10*Log(1/Duty Cycle).

2Tx _ Ant 0 + 1

Mode	Ch. No.	Freq. (MHz)	Power Density (dBm/MHz)		Total Power Density (dBm/MHz)	Limit (dBm/ MHz)	Result
			Ant 0	Ant 1			
11n-HT20	36	5180	-3.96	-3.35	9.44	10	Pass
11n-HT20	64	5320	-3.75	-3.67	9.37	10	Pass
11n-HT20	100	5500	-3.24	-3.80	16.57	17	Pass
11n-HT20	140	5700	-3.01	-4.05	16.58	17	Pass
11n-HT40	38	5190	-5.98	-5.79	7.26	10	Pass
11n-HT40	62	5310	-6.46	-6.60	6.61	10	Pass
11n-HT40	102	5510	-5.86	-6.50	13.97	17	Pass
11n-HT40	134	5670	-5.45	-5.99	14.43	17	Pass
11ac-VHT20	36	5180	-3.92	-3.26	9.49	10	Pass
11ac-VHT20	64	5320	-3.71	-3.69	9.37	10	Pass
11ac-VHT20	100	5500	-3.20	-3.80	16.58	17	Pass
11ac-VHT20	140	5700	-3.18	-3.91	16.54	17	Pass
11ac-VHT40	38	5190	-5.99	-5.75	7.27	10	Pass
11ac-VHT40	62	5310	-6.53	-6.50	6.63	10	Pass
11ac-VHT40	102	5510	-5.89	-6.22	14.09	17	Pass
11ac-VHT40	134	5670	-5.45	-6.07	14.39	17	Pass
11ac-VHT80	42	5210	-9.39	-9.52	3.85	10	Pass
11ac-VHT80	58	5290	-9.79	-10.14	3.35	10	Pass
11ac-VHT80	106	5530	-9.44	-9.83	10.68	17	Pass
11ac-VHT80	122	5610	-8.55	-8.21	11.93	17	Pass

Note: Total Power Density (dBm/MHz) = $10*\log\{10^{\text{Ant 0 Power Density }/10}+10^{\text{Ant 1 Power Density }/10}\}$ (dBm/MHz) + Antenna Gain (dBi) + 10*Log(1/Duty Cycle).

7. Transmitter Unwanted Emissions Outside the 5GHz RLAN Bands

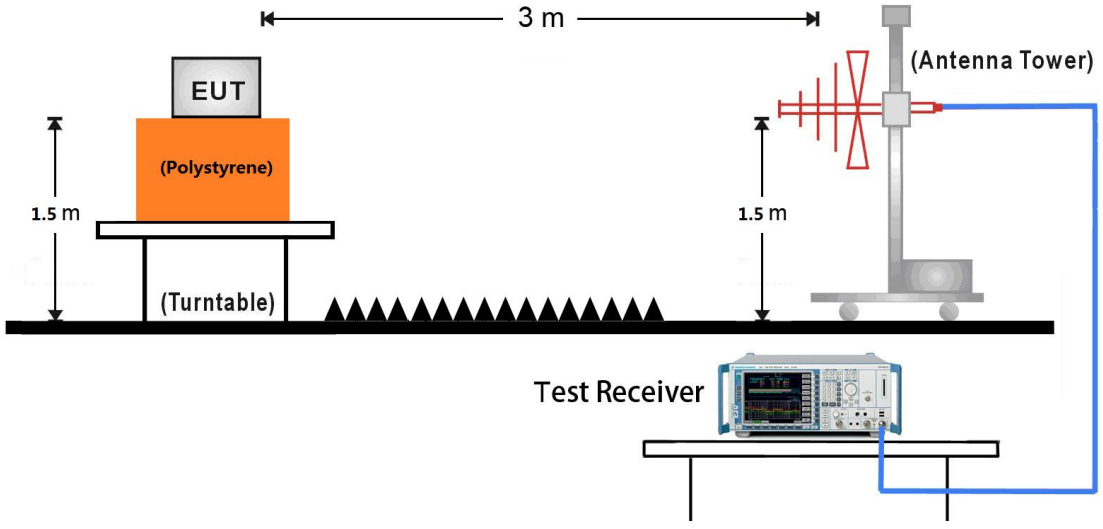
7.1. Limit

Frequency Range	Maximum Power	Bandwidth
30 MHz to 47 MHz	-36dBm	100 kHz
47 MHz to 74 MHz	-54dBm	100 kHz
74 MHz to 87.5 MHz	-36dBm	100 kHz
87.5 MHz to 118 MHz	-54dBm	100 kHz
118 MHz to 174 MHz	-36dBm	100 kHz
174 MHz to 230 MHz	-54dBm	100 kHz
230 MHz to 470 MHz	-36dBm	100 kHz
470 MHz to 862 MHz	-54dBm	100 kHz
862 MHz to 1 GHz	-36dBm	100 kHz
1 GHz to 26 GHz	-30dBm	1 MHz

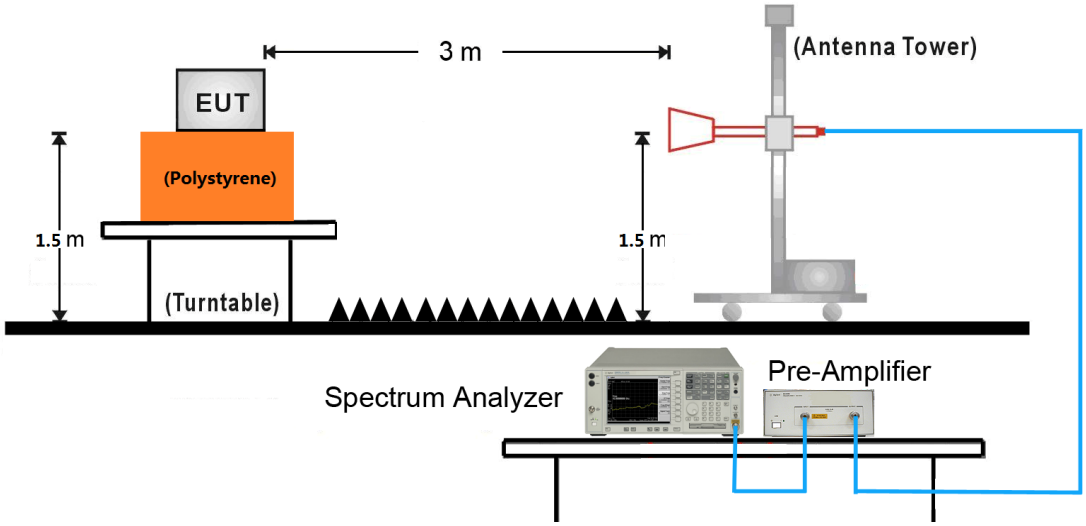
Note: These limits are e.r.p. for emissions up to 1 GHz and as e.i.r.p. for emissions above 1 GHz.

7.2. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.3. Test Procedure

Refer to ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.5.2.2.

7.4. Test Result

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11a - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	211.9	-94.8	23.9	-70.9	-54.0	-16.9	PK	Horizontal
	740.5	-98.4	35.4	-63.0	-54.0	-9.0	PK	Horizontal
	106.6	-96.2	27.1	-69.1	-54.0	-15.1	PK	Vertical
	739.6	-97.4	35.3	-62.1	-54.0	-8.1	PK	Vertical
	7256.0	-71.5	23.8	-47.7	-30.0	-17.7	PK	Horizontal
	11038.5	-70.4	31.5	-38.9	-30.0	-8.9	PK	Horizontal
	7196.5	-71.3	23.9	-47.4	-30.0	-17.4	PK	Vertical
	12203.0	-70.8	31.0	-39.8	-30.0	-9.8	PK	Vertical
100	212.4	-94.4	24.0	-70.4	-54.0	-16.4	PK	Horizontal
	740.0	-98.4	35.4	-63.0	-54.0	-9.0	PK	Horizontal
	110.5	-98.0	29.2	-68.8	-54.0	-14.8	PK	Vertical
	738.1	-97.8	35.2	-62.6	-54.0	-8.6	PK	Vertical
	7196.5	-70.7	23.6	-47.1	-30.0	-17.1	PK	Horizontal
	10996.0	-68.0	31.6	-36.4	-30.0	-6.4	PK	Horizontal
	7120.0	-72.7	24.7	-48.0	-30.0	-18.0	PK	Vertical
	10928.0	-72.7	31.9	-40.8	-30.0	-10.8	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT20 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	105.2	-76.7	15.3	-61.4	-54.0	-7.4	PK	Horizontal
	738.1	-98.2	35.2	-63.0	-54.0	-9.0	PK	Horizontal
	105.2	-89.2	26.8	-62.4	-54.0	-8.4	PK	Vertical
	736.6	-97.5	35.1	-62.4	-54.0	-8.4	PK	Vertical
	7205.0	-70.3	23.8	-46.5	-30.0	-16.5	PK	Horizontal
	10724.0	-72.3	31.5	-40.8	-30.0	-10.8	PK	Horizontal
	7222.0	-70.6	24.1	-46.5	-30.0	-16.5	PK	Vertical
	10928.0	-71.7	31.9	-39.8	-30.0	-9.8	PK	Vertical
100	214.8	-96.4	24.8	-71.6	-54.0	-17.6	PK	Horizontal
	746.3	-98.9	35.5	-63.4	-54.0	-9.4	PK	Horizontal
	104.7	-95.5	26.5	-69.0	-54.0	-15.0	PK	Vertical
	745.4	-97.6	35.4	-62.2	-54.0	-8.2	PK	Vertical
	7213.5	-71.3	23.9	-47.4	-30.0	-17.4	PK	Horizontal
	10996.0	-67.7	31.6	-36.1	-30.0	-6.1	PK	Horizontal
	7375.0	-71.3	24.7	-46.6	-30.0	-16.6	PK	Vertical
	10945.0	-71.6	31.7	-39.9	-30.0	-9.9	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT40 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	105.2	-76.8	15.3	-61.5	-54.0	-7.5	PK	Horizontal
	726.9	-97.5	34.5	-63.0	-54.0	-9.0	PK	Horizontal
	105.2	-89.0	26.8	-62.2	-54.0	-8.2	PK	Vertical
	740.5	-99.1	35.3	-63.8	-54.0	-9.8	PK	Vertical
	7222.0	-71.2	24.1	-47.1	-30.0	-17.1	PK	Horizontal
	10885.5	-72.1	31.8	-40.3	-30.0	-10.3	PK	Horizontal
	7205.0	-70.6	23.8	-46.8	-30.0	-16.8	PK	Vertical
	10809.0	-72.0	31.7	-40.3	-30.0	-10.3	PK	Vertical
102	211.9	-94.8	23.9	-70.9	-54.0	-16.9	PK	Horizontal
	740.5	-98.4	35.4	-63.0	-54.0	-9.0	PK	Horizontal
	106.6	-96.2	27.1	-69.1	-54.0	-15.1	PK	Vertical
	739.6	-97.4	35.3	-62.1	-54.0	-8.1	PK	Vertical
	7256.0	-71.5	23.8	-47.7	-30.0	-17.7	PK	Horizontal
	11038.5	-70.4	31.5	-38.9	-30.0	-8.9	PK	Horizontal
	7196.5	-71.3	23.9	-47.4	-30.0	-17.4	PK	Vertical
	12203.0	-70.8	31.0	-39.8	-30.0	-9.8	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT20 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	105.2	-76.8	15.3	-61.5	-54.0	-7.5	PK	Horizontal
	737.6	-98.8	35.2	-63.6	-54.0	-9.6	PK	Horizontal
	105.2	-88.7	26.8	-61.9	-54.0	-7.9	PK	Vertical
	743.9	-98.1	35.3	-62.8	-54.0	-8.8	PK	Vertical
	7222.0	-71.2	24.1	-47.1	-30.0	-17.1	PK	Horizontal
	11081.0	-71.6	31.1	-40.5	-30.0	-10.5	PK	Horizontal
	7273.0	-71.7	24.7	-47.0	-30.0	-17.0	PK	Vertical
	10868.5	-72.2	31.7	-40.5	-30.0	-10.5	PK	Vertical
100	212.4	-94.4	24.0	-70.4	-54.0	-16.4	PK	Horizontal
	740.0	-98.4	35.4	-63.0	-54.0	-9.0	PK	Horizontal
	110.5	-98.0	29.2	-68.8	-54.0	-14.8	PK	Vertical
	738.1	-97.8	35.2	-62.6	-54.0	-8.6	PK	Vertical
	7196.5	-70.7	23.6	-47.1	-30.0	-17.1	PK	Horizontal
	10996.0	-68.0	31.6	-36.4	-30.0	-6.4	PK	Horizontal
	7120.0	-72.7	24.7	-48.0	-30.0	-18.0	PK	Vertical
	10928.0	-72.7	31.9	-40.8	-30.0	-10.8	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT40 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	105.2	-76.6	15.3	-61.3	-54.0	-7.3	PK	Horizontal
	776.9	-98.7	36.2	-62.5	-54.0	-8.5	PK	Horizontal
	105.2	-89.8	26.8	-63.0	-54.0	-9.0	PK	Vertical
	743.4	-99.6	35.3	-64.3	-54.0	-10.3	PK	Vertical
	7298.5	-71.2	24.1	-47.1	-30.0	-17.1	PK	Horizontal
	10843.0	-72.5	31.8	-40.7	-30.0	-10.7	PK	Horizontal
	8267.5	-70.2	25.5	-44.7	-30.0	-14.7	PK	Vertical
	11514.5	-71.3	31.4	-39.9	-30.0	-9.9	PK	Vertical
102	211.9	-94.7	23.9	-70.8	-54.0	-16.8	PK	Horizontal
	743.4	-98.0	35.4	-62.6	-54.0	-8.6	PK	Horizontal
	104.7	-95.5	26.5	-69.0	-54.0	-15.0	PK	Vertical
	738.1	-96.9	35.2	-61.7	-54.0	-7.7	PK	Vertical
	7120.0	-71.9	23.8	-48.1	-30.0	-18.1	PK	Horizontal
	11013.0	-71.1	31.5	-39.6	-30.0	-9.6	PK	Horizontal
	7213.5	-71.1	24.1	-47.0	-30.0	-17.0	PK	Vertical
	10868.5	-72.7	31.7	-41.0	-30.0	-11.0	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT80 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
58	105.2	-76.9	15.3	-61.6	-54.0	-7.6	PK	Horizontal
	778.4	-98.8	36.2	-62.6	-54.0	-8.6	PK	Horizontal
	105.2	-88.2	26.8	-61.4	-54.0	-7.4	PK	Vertical
	744.4	-98.5	35.4	-63.1	-54.0	-9.1	PK	Vertical
	7205.0	-69.6	23.8	-45.8	-30.0	-15.8	PK	Horizontal
	9746.5	-71.7	30.2	-41.5	-30.0	-11.5	PK	Horizontal
	7230.5	-70.9	24.1	-46.8	-30.0	-16.8	PK	Vertical
	10792.0	-72.2	31.3	-40.9	-30.0	-10.9	PK	Vertical
106	213.3	-95.6	24.3	-71.3	-54.0	-17.3	PK	Horizontal
	750.2	-99.4	35.6	-63.8	-54.0	-9.8	PK	Horizontal
	111.5	-97.2	29.3	-67.9	-54.0	-13.9	PK	Vertical
	739.1	-97.8	35.3	-62.5	-54.0	-8.5	PK	Vertical
	7375.0	-71.1	24.2	-46.9	-30.0	-16.9	PK	Horizontal
	11055.5	-71.2	31.4	-39.8	-30.0	-9.8	PK	Horizontal
	7111.5	-71.7	24.5	-47.2	-30.0	-17.2	PK	Vertical
	10911.0	-72.6	31.7	-40.9	-30.0	-10.9	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT20 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	105.2	-76.6	15.3	-61.3	-54.0	-7.3	PK	Horizontal
	755.6	-99.0	36.0	-63.0	-54.0	-9.0	PK	Horizontal
	105.2	-88.9	26.8	-62.1	-54.0	-8.1	PK	Vertical
	733.7	-99.5	34.9	-64.6	-54.0	-10.6	PK	Vertical
	7315.5	-71.3	24.3	-47.0	-30.0	-17.0	PK	Horizontal
	10885.5	-73.0	31.8	-41.2	-30.0	-11.2	PK	Horizontal
	7094.5	-67.1	24.1	-43.0	-30.0	-13.0	PK	Vertical
	10877.0	-72.6	31.8	-40.8	-30.0	-10.8	PK	Vertical
100	213.3	-96.0	24.3	-71.7	-54.0	-17.7	PK	Horizontal
	740.0	-98.5	35.4	-63.1	-54.0	-9.1	PK	Horizontal
	104.7	-94.3	26.5	-67.8	-54.0	-13.8	PK	Vertical
	745.4	-98.3	35.4	-62.9	-54.0	-8.9	PK	Vertical
	9347.0	-73.0	30.0	-43.0	-30.0	-13.0	PK	Horizontal
	13682.0	-71.0	31.8	-39.2	-30.0	-9.2	PK	Horizontal
	7332.5	-70.0	24.3	-45.7	-30.0	-15.7	PK	Vertical
	10894.0	-73.1	31.9	-41.2	-30.0	-11.2	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT40 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	105.2	-75.9	15.3	-60.6	-54.0	-6.6	PK	Horizontal
	734.2	-98.2	34.9	-63.3	-54.0	-9.3	PK	Horizontal
	105.2	-89.2	26.8	-62.4	-54.0	-8.4	PK	Vertical
	748.3	-98.7	35.3	-63.4	-54.0	-9.4	PK	Vertical
	7171.0	-71.9	24.6	-47.3	-30.0	-17.3	PK	Horizontal
	10792.0	-72.5	31.3	-41.2	-30.0	-11.2	PK	Horizontal
	7077.5	-67.3	23.7	-43.6	-30.0	-13.6	PK	Vertical
	10885.5	-72.9	31.9	-41.0	-30.0	-11.0	PK	Vertical
102	222.5	-97.5	26.2	-71.3	-54.0	-17.3	PK	Horizontal
	749.7	-99.7	35.6	-64.1	-54.0	-10.1	PK	Horizontal
	111.5	-98.7	29.3	-69.4	-54.0	-15.4	PK	Vertical
	738.6	-98.5	35.2	-63.3	-54.0	-9.3	PK	Vertical
	7162.5	-71.7	24.5	-47.2	-30.0	-17.2	PK	Horizontal
	10783.5	-72.0	31.3	-40.7	-30.0	-10.7	PK	Horizontal
	7349.5	-69.8	24.5	-45.3	-30.0	-15.3	PK	Vertical
	12203.0	-70.3	31.0	-39.3	-30.0	-9.3	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT20 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	105.2	-76.4	15.3	-61.1	-54.0	-7.1	PK	Horizontal
	765.3	-98.8	36.3	-62.5	-54.0	-8.5	PK	Horizontal
	105.2	-88.2	26.8	-61.4	-54.0	-7.4	PK	Vertical
	686.2	-98.7	33.9	-64.8	-54.0	-10.8	PK	Vertical
	7247.5	-71.9	23.9	-48.0	-30.0	-18.0	PK	Horizontal
	10724.0	-72.8	31.5	-41.3	-30.0	-11.3	PK	Horizontal
	7094.5	-67.6	24.1	-43.5	-30.0	-13.5	PK	Vertical
	10766.5	-72.3	31.5	-40.8	-30.0	-10.8	PK	Vertical
100	214.8	-96.1	24.8	-71.3	-54.0	-17.3	PK	Horizontal
	741.5	-98.6	35.4	-63.2	-54.0	-9.2	PK	Horizontal
	110.5	-97.8	29.2	-68.6	-54.0	-14.6	PK	Vertical
	743.4	-98.1	35.3	-62.8	-54.0	-8.8	PK	Vertical
	7154.0	-72.0	24.4	-47.6	-30.0	-17.6	PK	Horizontal
	10996.0	-71.0	31.6	-39.4	-30.0	-9.4	PK	Horizontal
	7332.5	-69.9	24.3	-45.6	-30.0	-15.6	PK	Vertical
	10741.0	-72.7	31.5	-41.2	-30.0	-11.2	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT40 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	105.2	-76.8	15.3	-61.5	-54.0	-7.5	PK	Horizontal
	733.3	-98.8	34.9	-63.9	-54.0	-9.9	PK	Horizontal
	105.2	-85.9	26.8	-59.1	-54.0	-5.1	PK	Vertical
	746.3	-98.4	35.4	-63.0	-54.0	-9.0	PK	Vertical
	7077.5	-72.7	23.6	-49.1	-30.0	-19.1	PK	Horizontal
	10690.0	-72.2	31.4	-40.8	-30.0	-10.8	PK	Horizontal
	7077.5	-67.7	23.7	-44.0	-30.0	-14.0	PK	Vertical
	10851.5	-72.4	31.5	-40.9	-30.0	-10.9	PK	Vertical
102	218.7	-96.6	25.9	-70.7	-54.0	-16.7	PK	Horizontal
	766.2	-99.3	36.3	-63.0	-54.0	-9.0	PK	Horizontal
	111.5	-97.9	29.3	-68.6	-54.0	-14.6	PK	Vertical
	742.0	-98.0	35.3	-62.7	-54.0	-8.7	PK	Vertical
	7256.0	-70.7	23.8	-46.9	-30.0	-16.9	PK	Horizontal
	10800.5	-72.8	31.5	-41.3	-30.0	-11.3	PK	Horizontal
	7349.5	-70.6	24.5	-46.1	-30.0	-16.1	PK	Vertical
	10834.5	-73.0	31.3	-41.7	-30.0	-11.7	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT80 - Ant 0 + 1	Test Site	AC1

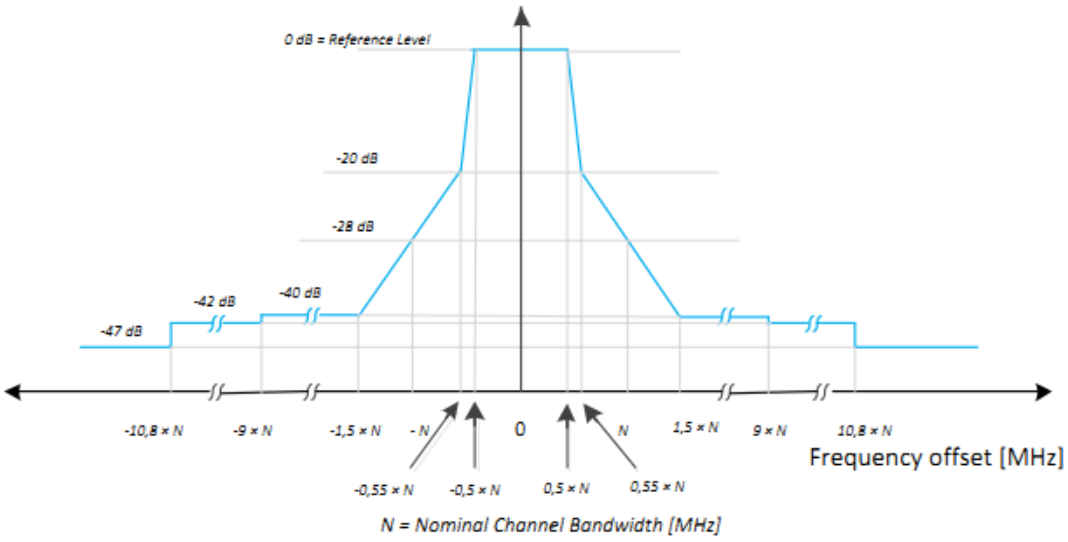
Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
58	105.2	-76.9	15.3	-61.6	-54.0	-7.6	PK	Horizontal
	765.7	-99.2	36.3	-62.9	-54.0	-8.9	PK	Horizontal
	105.2	-89.8	26.8	-63.0	-54.0	-9.0	PK	Vertical
	742.5	-99.5	35.3	-64.2	-54.0	-10.2	PK	Vertical
	7222.0	-70.9	24.1	-46.8	-30.0	-16.8	PK	Horizontal
	10877.0	-73.0	31.9	-41.1	-30.0	-11.1	PK	Horizontal
	7052.0	-67.7	23.6	-44.1	-30.0	-14.1	PK	Vertical
	10885.5	-72.9	31.9	-41.0	-30.0	-11.0	PK	Vertical
106	217.2	-97.5	25.4	-72.1	-54.0	-18.1	PK	Horizontal
	774.5	-99.3	36.2	-63.1	-54.0	-9.1	PK	Horizontal
	108.6	-96.9	28.0	-68.9	-54.0	-14.9	PK	Vertical
	742.0	-97.8	35.3	-62.5	-54.0	-8.5	PK	Vertical
	7009.5	-70.3	23.4	-46.9	-30.0	-16.9	PK	Horizontal
	11055.5	-73.1	31.4	-41.7	-30.0	-11.7	PK	Horizontal
	7375.0	-70.8	24.7	-46.1	-30.0	-16.1	PK	Vertical
	10843.0	-72.8	31.4	-41.4	-30.0	-11.4	PK	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

8. Transmitter Unwanted Emissions Within the 5GHz RLAN Bands

8.1. Limit

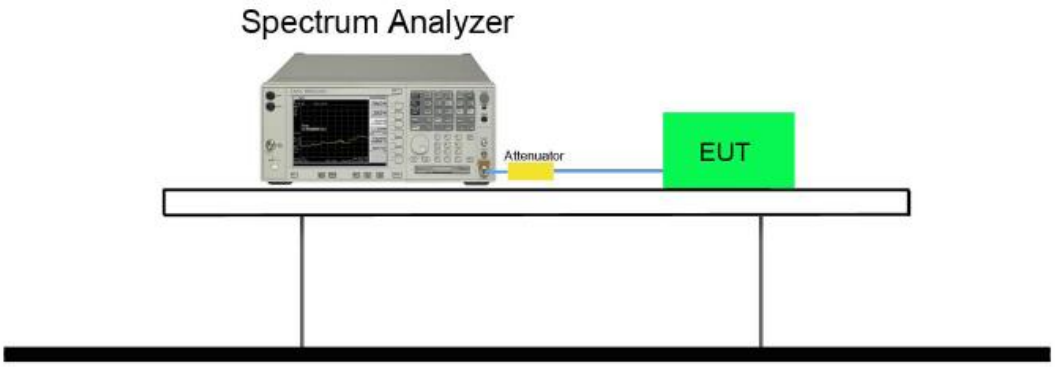


NOTE: dBc is the spectral density relative to the maximum spectral power density of the transmitted signal.

Figure : Transmit spectral power mask

8.2. Test Setup

For conducted measurements



8.3. Test Procedure

Refer to ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.6.2.1.

8.4. Test Result

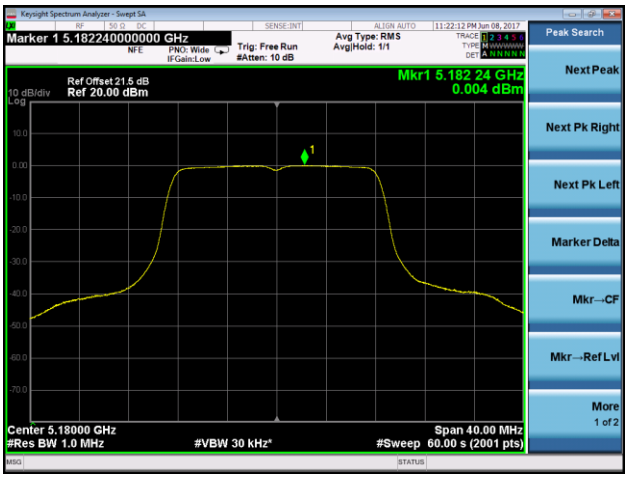
Product	Wireless Access Point	Temperature	25°C
Test Engineer	Lewis Huang	Relative Humidity	54%
Test Site	TR3	Test Date	2017/06/08

Test Mode	Channel No.	Frequency (MHz)	Result
Ant 0			
11a	36	5180	Pass
11a	64	5320	Pass
11a	100	5500	Pass
11a	140	5700	Pass
11n-HT20	36	5180	Pass
11n-HT20	64	5320	Pass
11n-HT20	100	5500	Pass
11n-HT20	140	5700	Pass
11n-HT40	38	5190	Pass
11n-HT40	62	5310	Pass
11n-HT40	102	5510	Pass
11n-HT40	134	5670	Pass
11ac-VHT20	36	5180	Pass
11ac-VHT20	64	5320	Pass
11ac-VHT20	100	5500	Pass
11ac-VHT20	140	5700	Pass
11ac-VHT40	38	5190	Pass
11ac-VHT40	62	5310	Pass
11ac-VHT40	102	5510	Pass
11ac-VHT40	134	5670	Pass
11ac-VHT80	42	5210	Pass
11ac-VHT80	58	5290	Pass
11ac-VHT80	106	5530	Pass
11ac-VHT80	122	5610	Pass

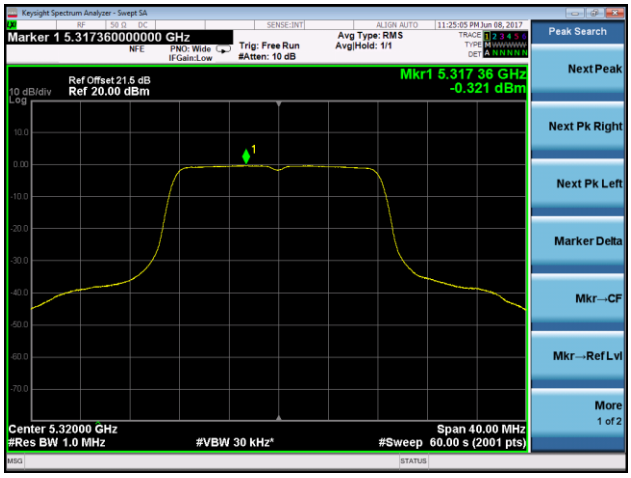
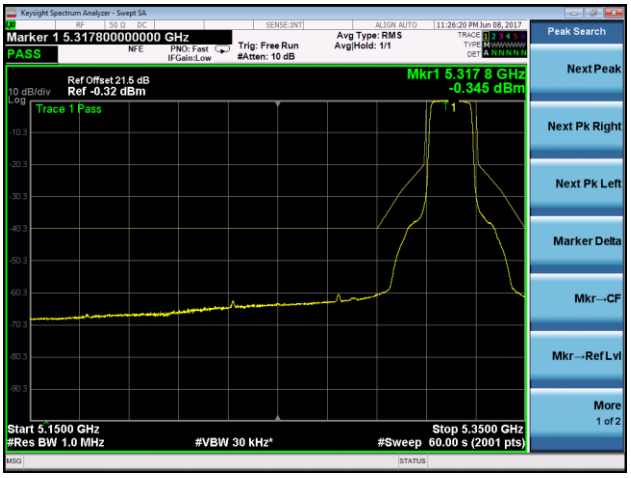
Test Mode	Channel No.	Frequency (MHz)	Result
Ant 0 / Ant 0 + 1			
11n-HT20	36	5180	Pass
11n-HT20	64	5320	Pass
11n-HT20	100	5500	Pass
11n-HT20	140	5700	Pass
11n-HT40	38	5190	Pass
11n-HT40	62	5310	Pass
11n-HT40	102	5510	Pass
11n-HT40	134	5670	Pass
11ac-VHT20	36	5180	Pass
11ac-VHT20	64	5320	Pass
11ac-VHT20	100	5500	Pass
11ac-VHT20	140	5700	Pass
11ac-VHT40	38	5190	Pass
11ac-VHT40	62	5310	Pass
11ac-VHT40	102	5510	Pass
11ac-VHT40	134	5670	Pass
11ac-VHT80	42	5210	Pass
11ac-VHT80	58	5290	Pass
11ac-VHT80	106	5530	Pass
11ac-VHT80	122	5610	Pass

802.11a - Ant 0

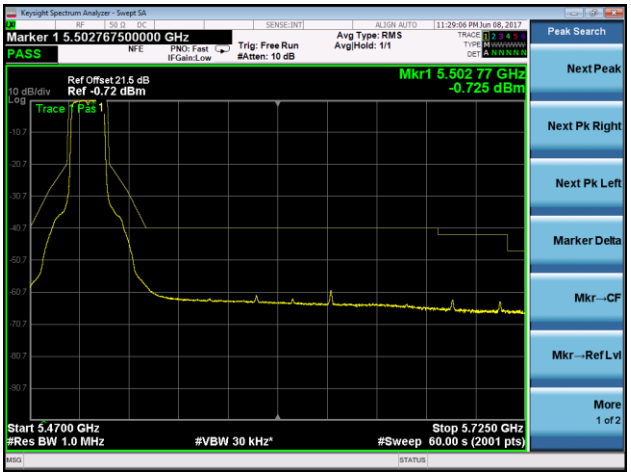
Channel 36 (5180MHz)

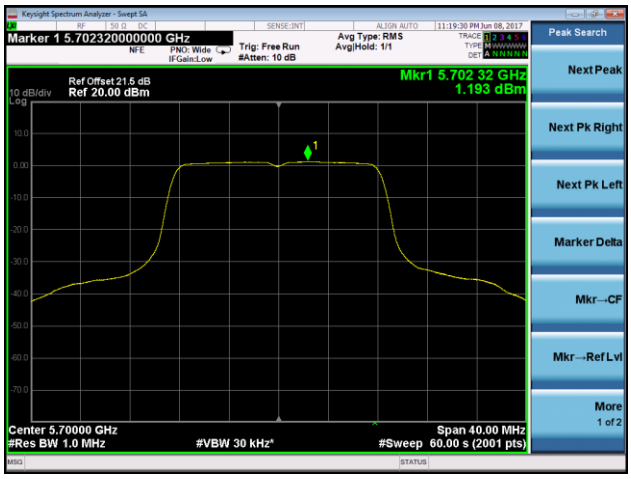
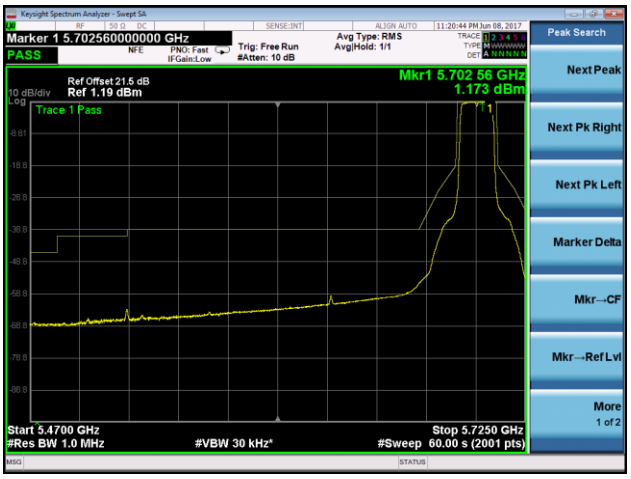
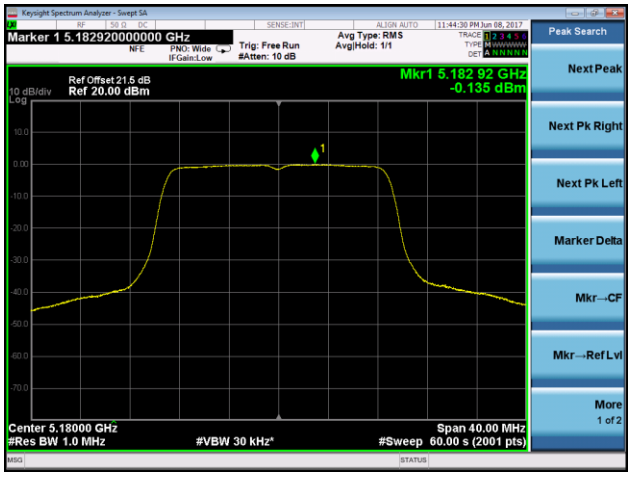
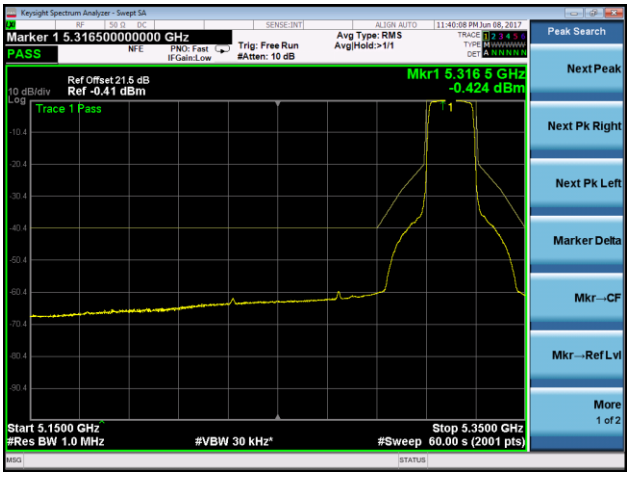
The Reference Level	The Mask Data
	

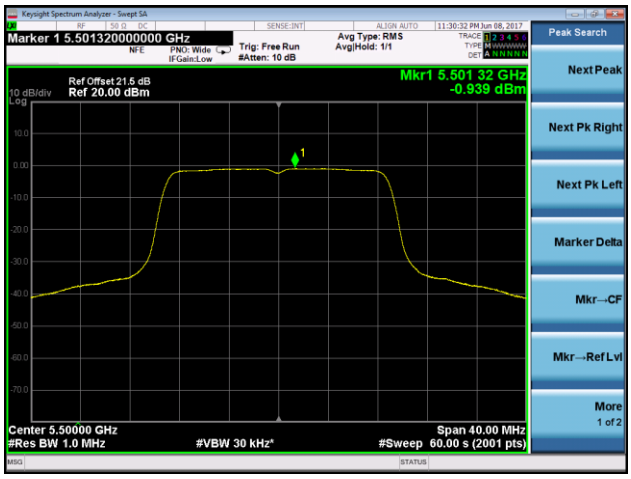
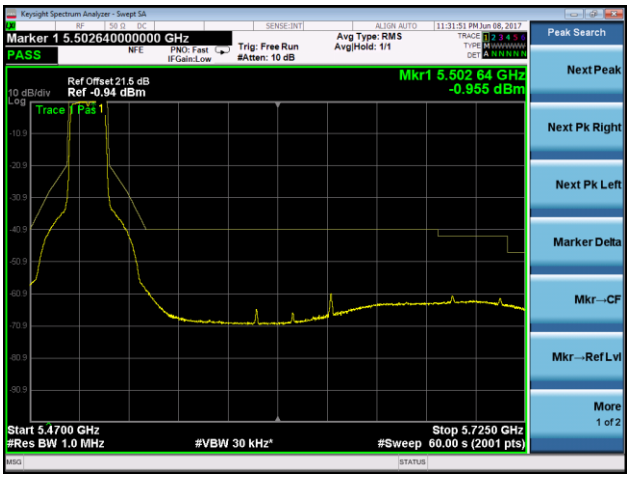
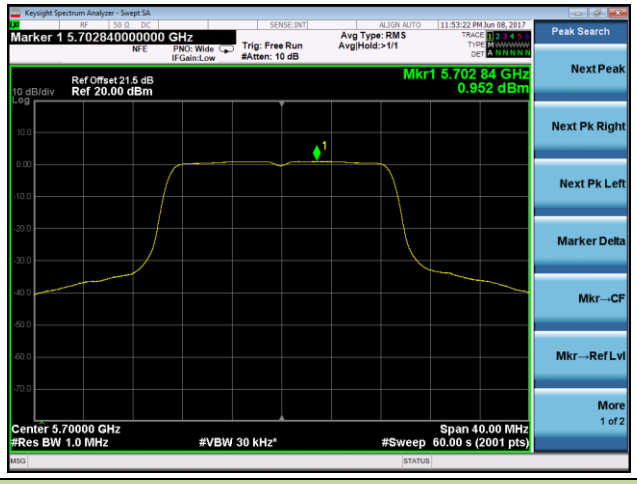
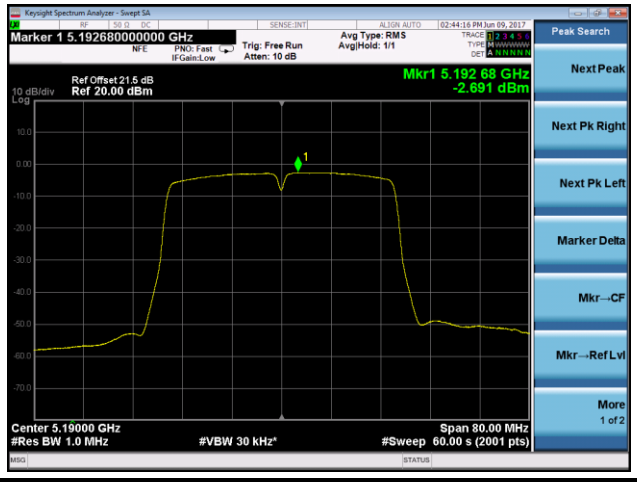
Channel 64 (5320MHz)

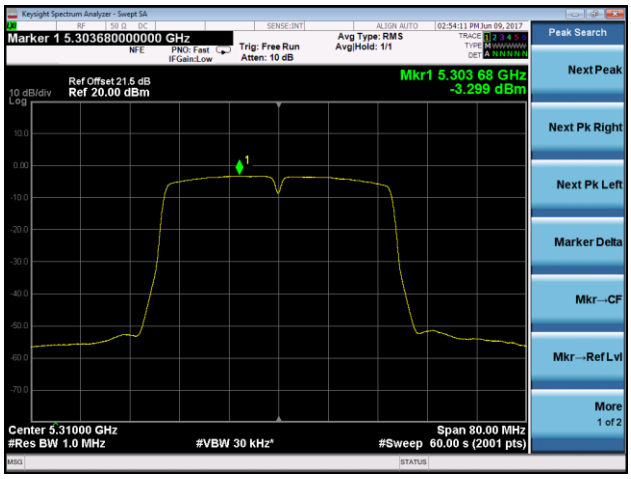
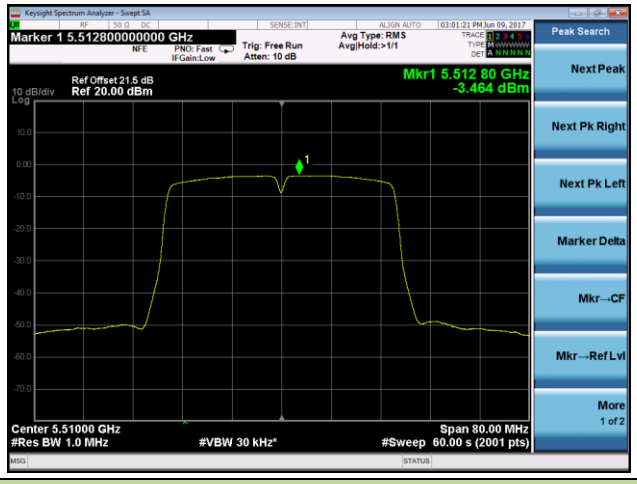
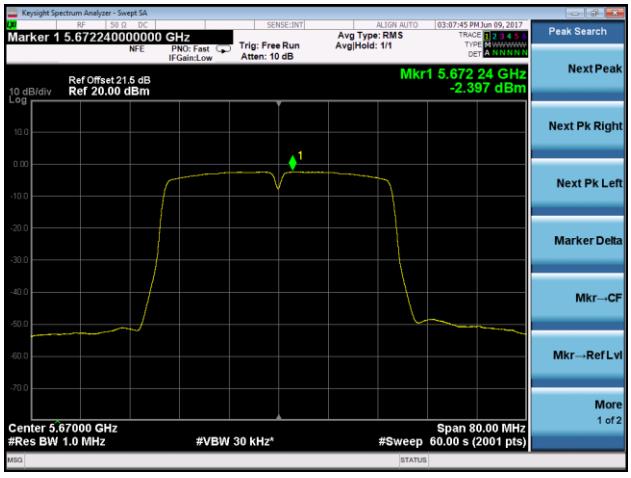
The Reference Level	The Mask Data
	

Channel 100 (5500MHz)

The Reference Level	The Mask Data
	

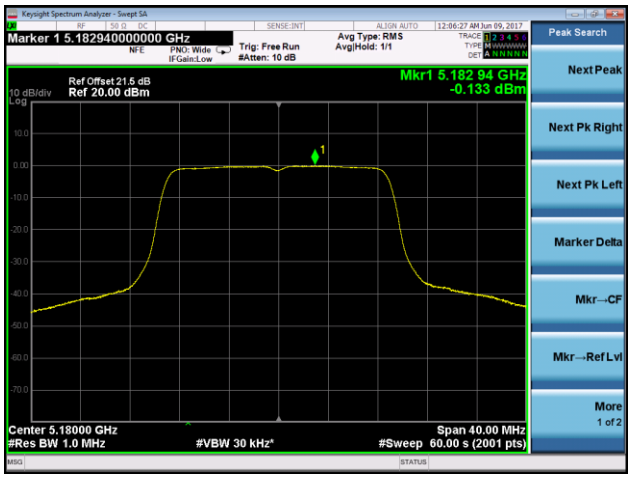
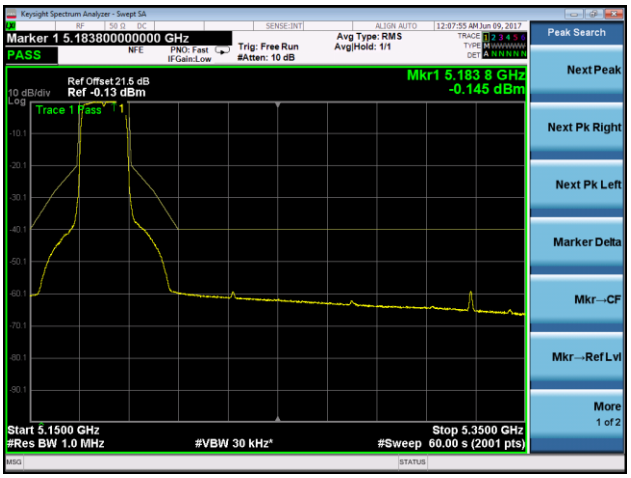
802.11a - Ant 0	
Channel 140 (5700MHz)	
The Reference Level	The Reference Level
	
802.11n-HT20 - Ant 0	
Channel 36 (5180MHz)	
The Reference Level	The Mask Data
	
Channel 64 (5320MHz)	
The Reference Level	The Mask Data
	

802.11n-HT20 - Ant 0	
Channel 100 (5500MHz)	
The Reference Level	The Mask Data
	
Channel 140 (5700MHz)	
The Reference Level	The Reference Level
	
802.11n-HT40 - Ant 0	
Channel 38 (5190MHz)	
The Reference Level	The Mask Data
	

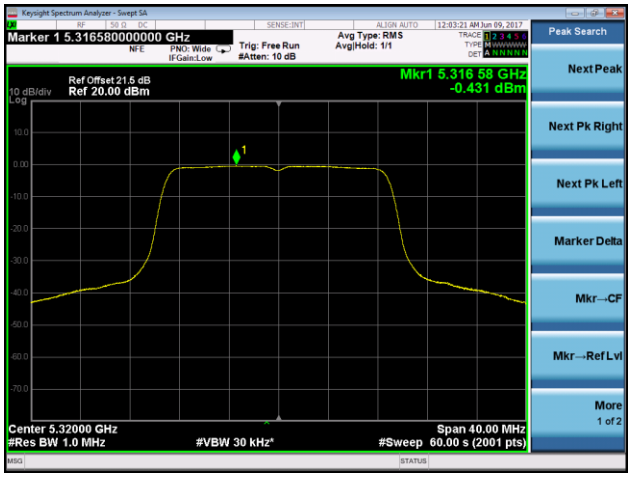
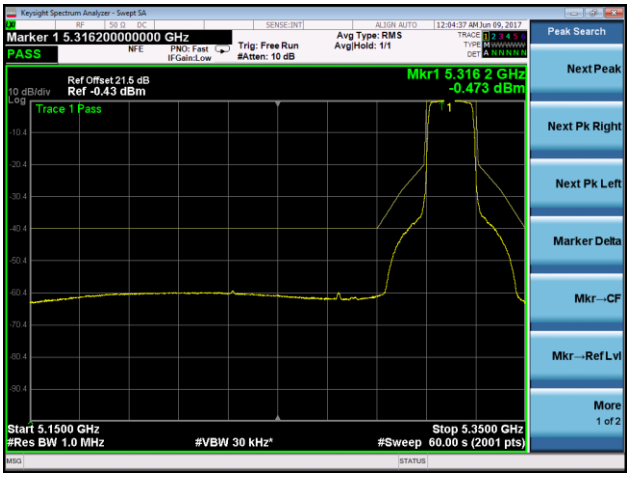
802.11n-HT40 - Ant 0	
Channel 62 (5310MHz)	
The Reference Level	The Mask Data
	
Channel 102 (5510MHz)	
The Reference Level	The Mask Data
	
Channel 134 (5670MHz)	
The Reference Level	The Reference Level
	

802.11ac-VHT20 - Ant 0

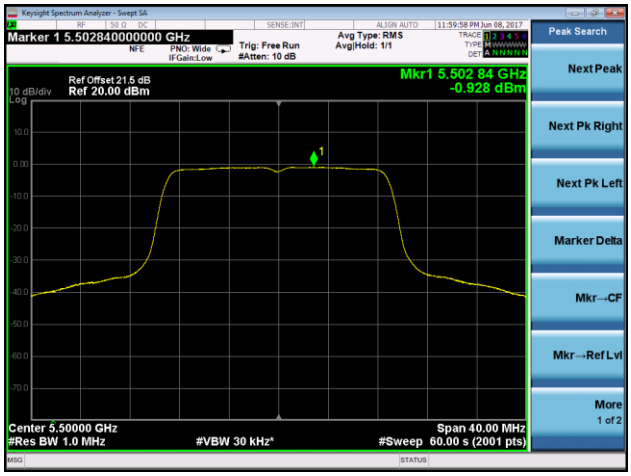
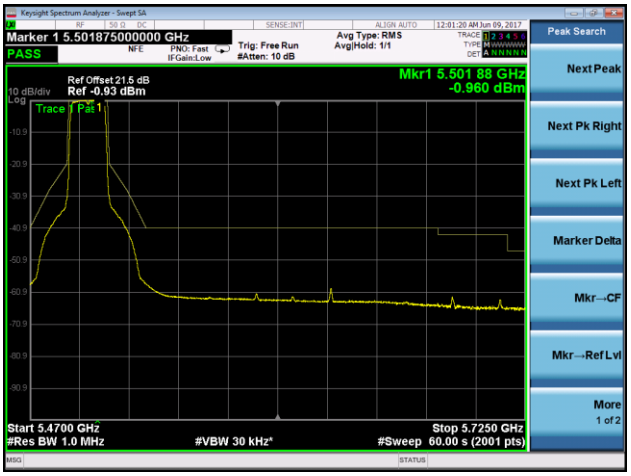
Channel 36 (5180MHz)

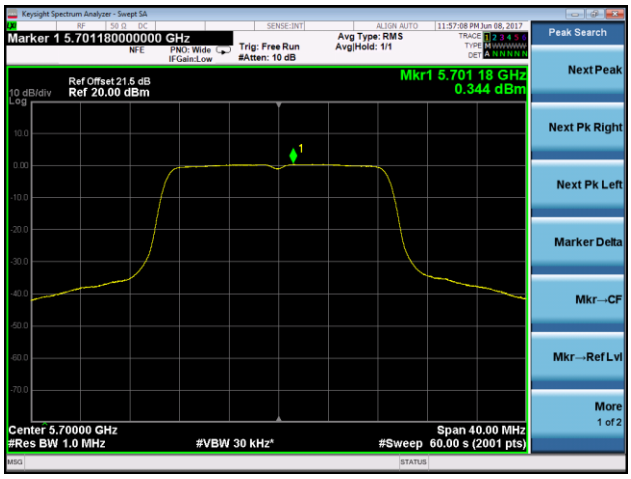
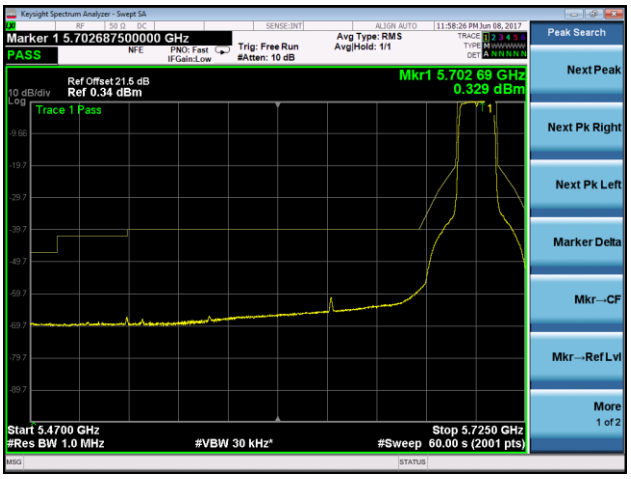
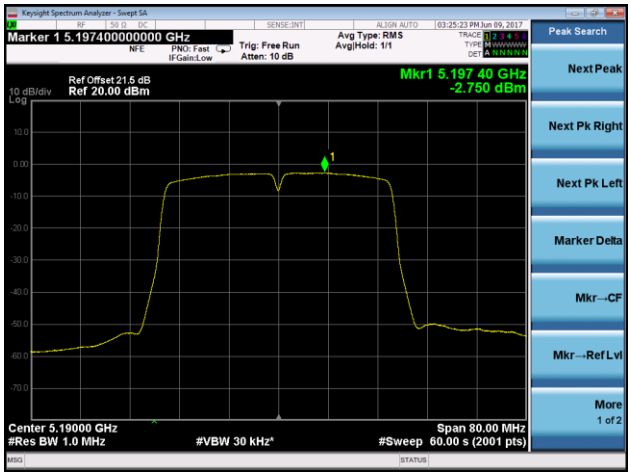
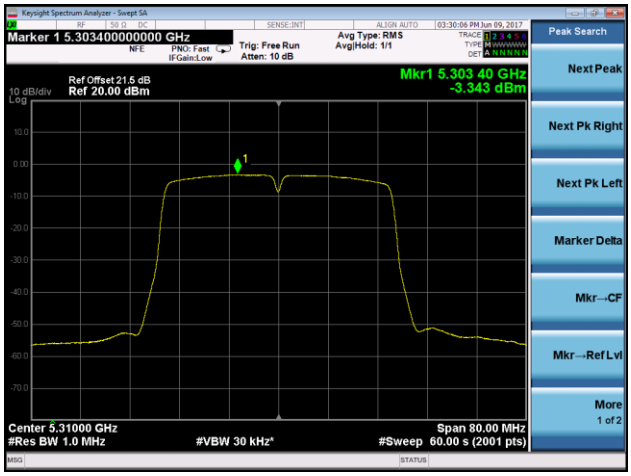
The Reference Level	The Mask Data
	

Channel 64 (5320MHz)

The Reference Level	The Mask Data
	

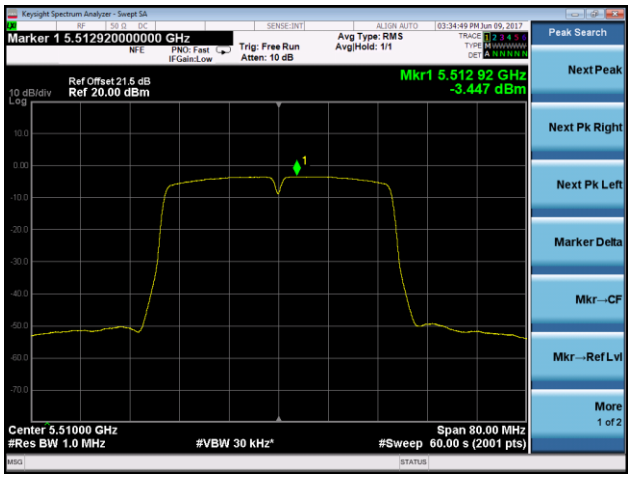
Channel 100 (5500MHz)

The Reference Level	The Mask Data
	

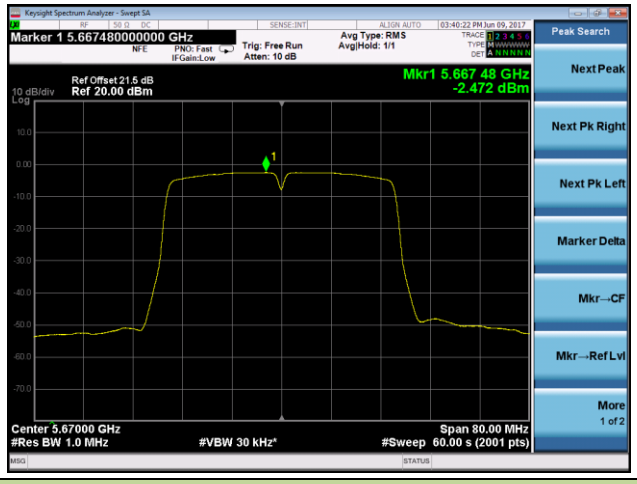
802.11ac-VHT20 - Ant 0	
Channel 140 (5700MHz)	
The Reference Level	The Reference Level
	
802.11ac-VHT40 - Ant 0	
Channel 38 (5190MHz)	
The Reference Level	The Mask Data
	
Channel 62 (5310MHz)	
The Reference Level	The Mask Data
	

802.11ac-VHT40 - Ant 0

Channel 102 (5510MHz)

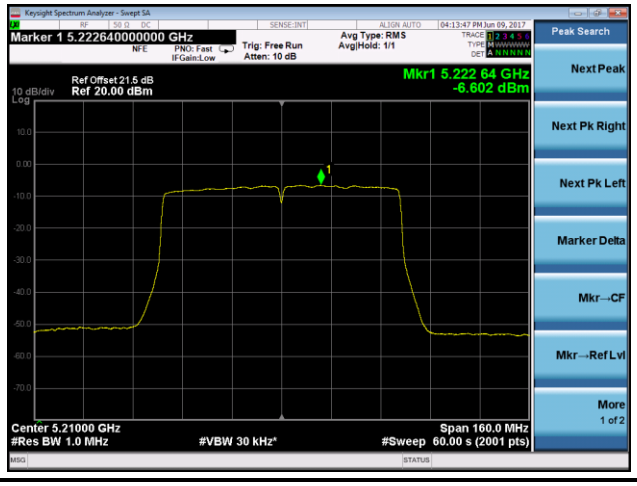
The Reference Level	The Mask Data
	

Channel 134 (5670MHz)

The Reference Level	The Reference Level
	

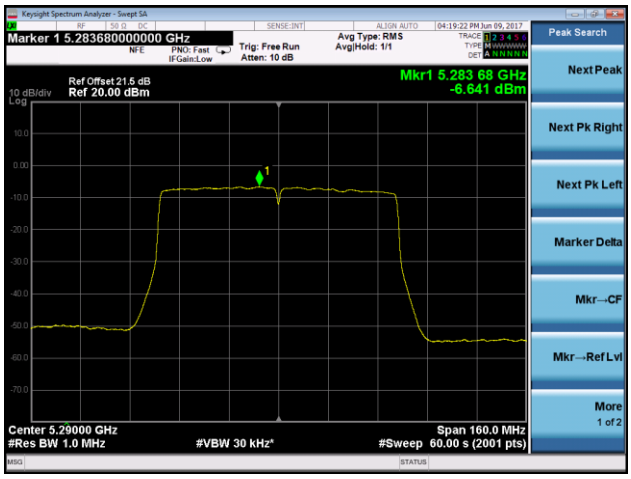
802.11ac-VHT80 - Ant 0

Channel 42 (5210MHz)

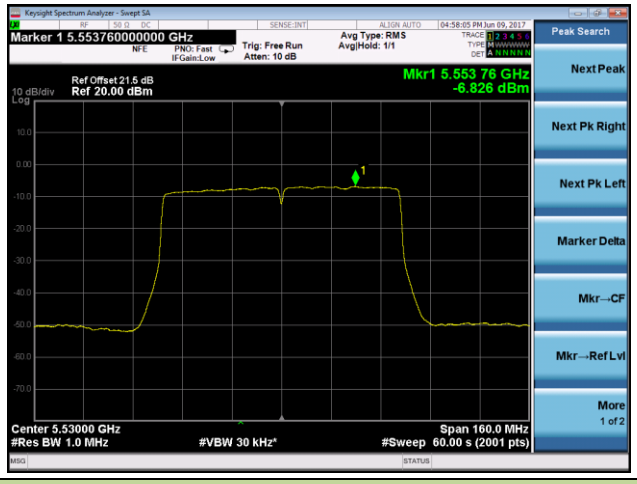
The Reference Level	The Mask Data
	

802.11ac-VHT80 - Ant 0

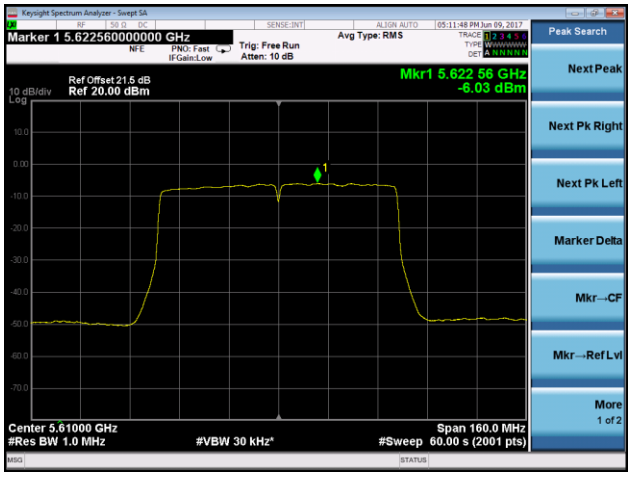
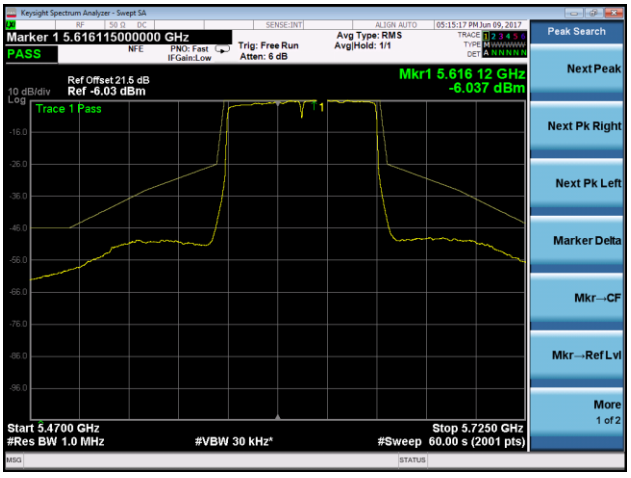
Channel 58 (5290MHz)

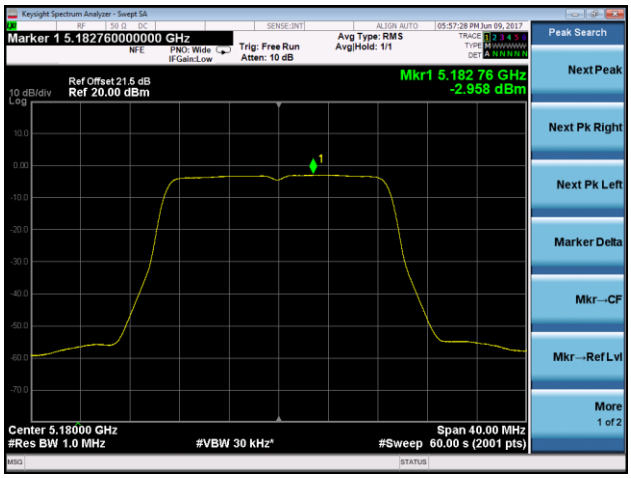
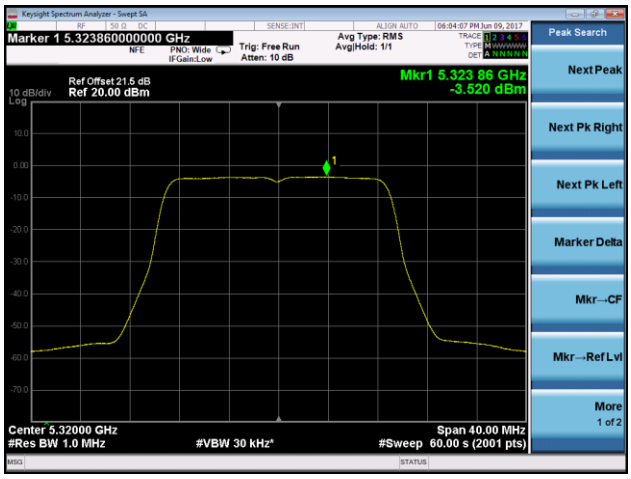
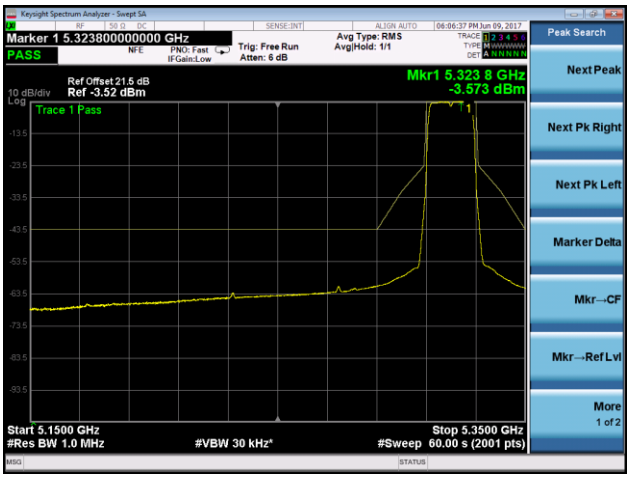
The Reference Level	The Mask Data
	

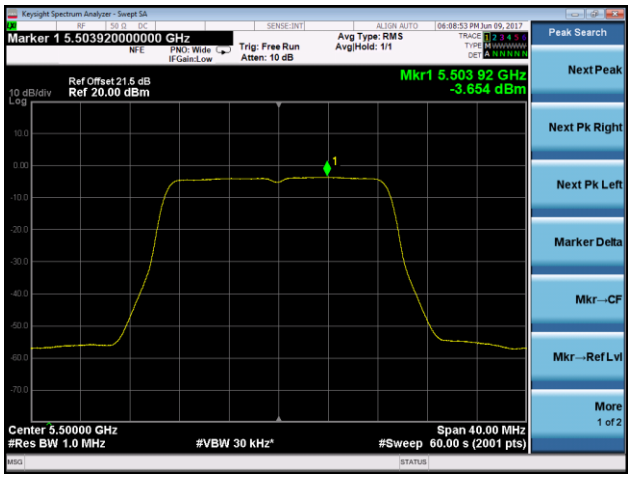
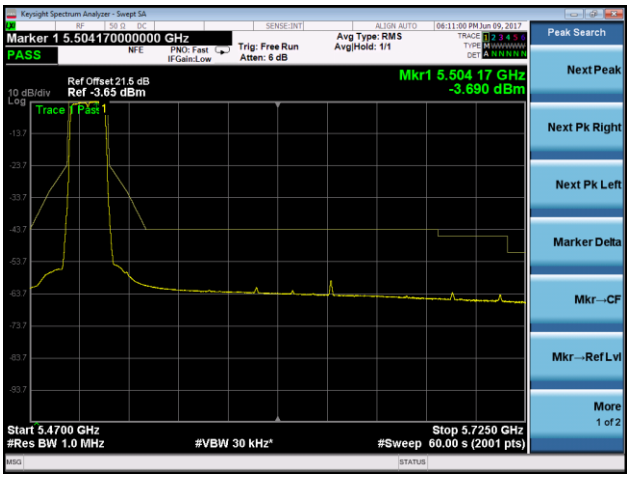
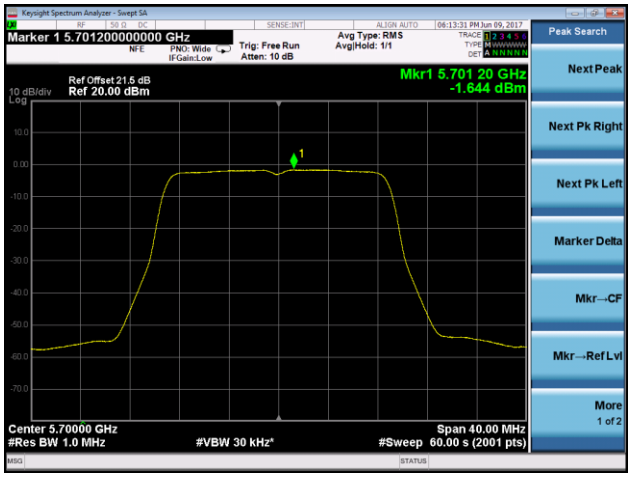
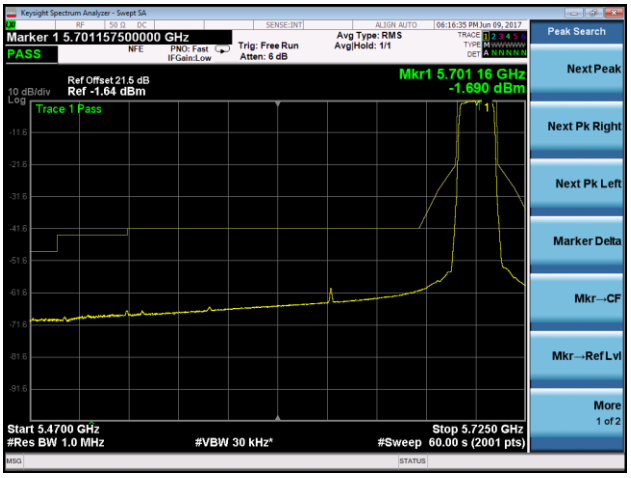
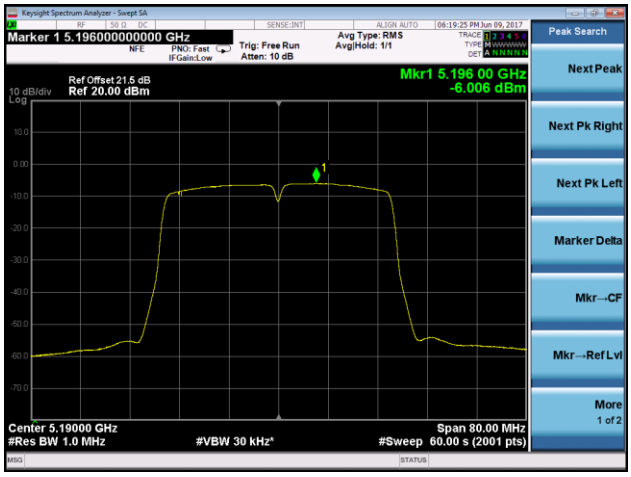
Channel 106 (5530MHz)

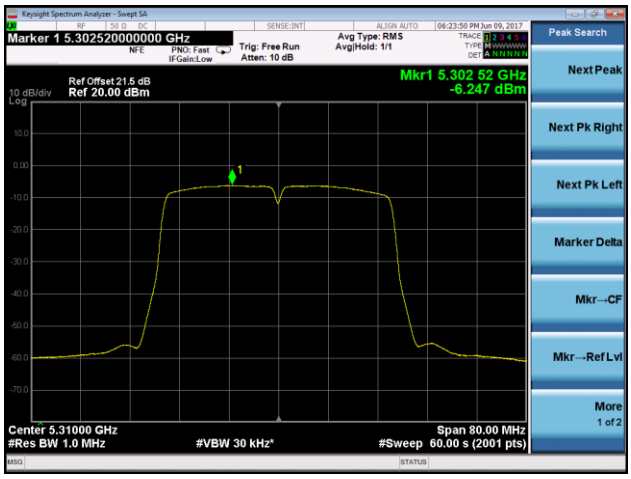
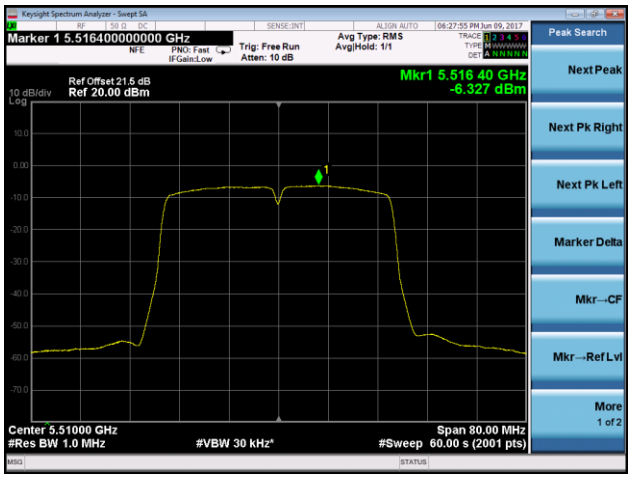
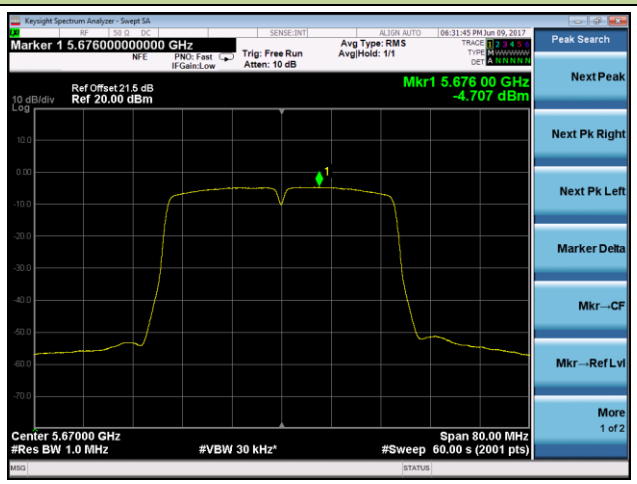
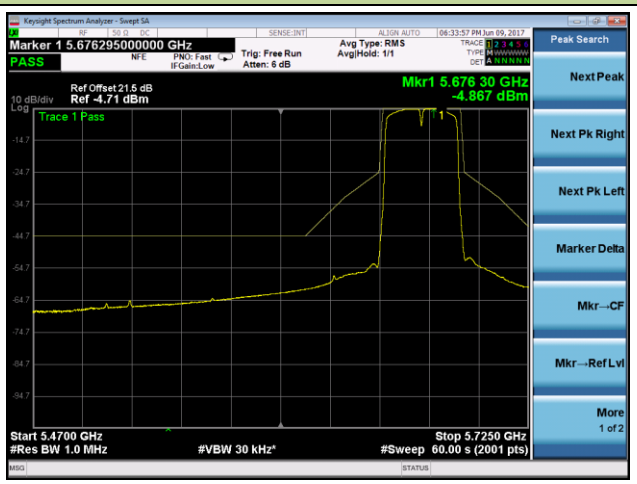
The Reference Level	The Mask Data
	

Channel 122 (5610MHz)

The Reference Level	The Reference Level
	

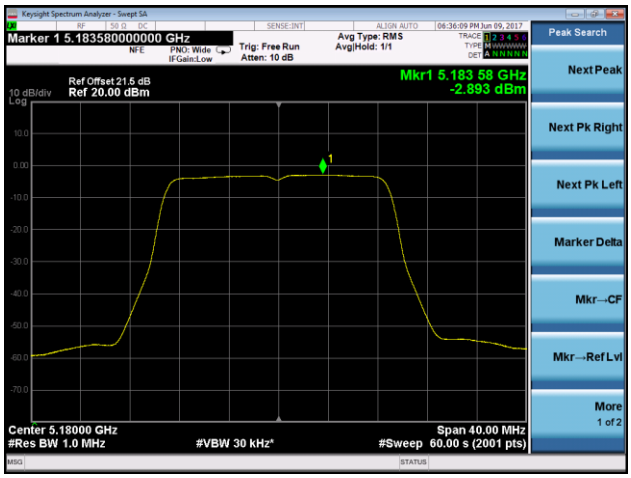
802.11n-HT20 - Ant 0 / Ant 0 + 1	
Channel 36 (5180MHz)	
The Reference Level	**The Mask Data**
	
Channel 64 (5320MHz)	
The Reference Level	**The Mask Data**
	

802.11n-HT20 - Ant 0 / Ant 0 + 1	
Channel 100 (5500MHz)	
The Reference Level	The Mask Data
	
Channel 140 (5700MHz)	
The Reference Level	The Reference Level
	
802.11n-HT40 - Ant 0 / Ant 0 + 1	
Channel 38 (5190MHz)	
The Reference Level	The Mask Data
	

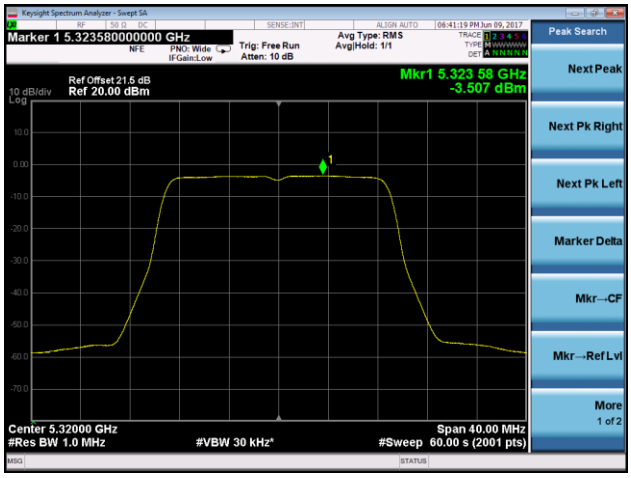
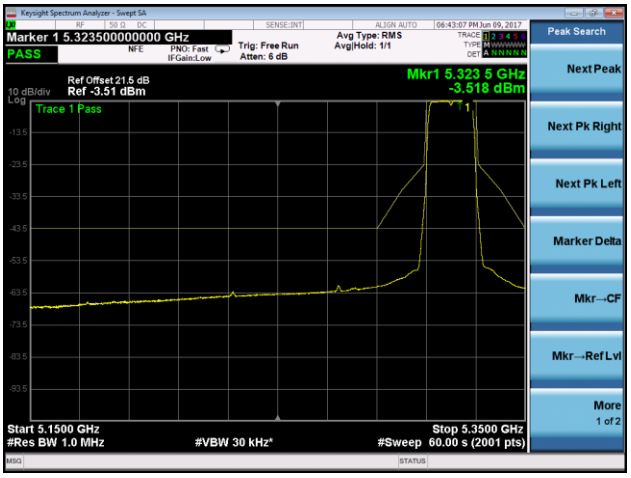
802.11n-HT40 - Ant 0 / Ant 0 + 1	
Channel 62 (5310MHz)	
The Reference Level	**The Mask Data**
	
Channel 102 (5510MHz)	
The Reference Level	**The Mask Data**
	
Channel 134 (5670MHz)	
The Reference Level	**The Reference Level**
	

802.11ac-VHT20 - Ant 0 / Ant 0 + 1

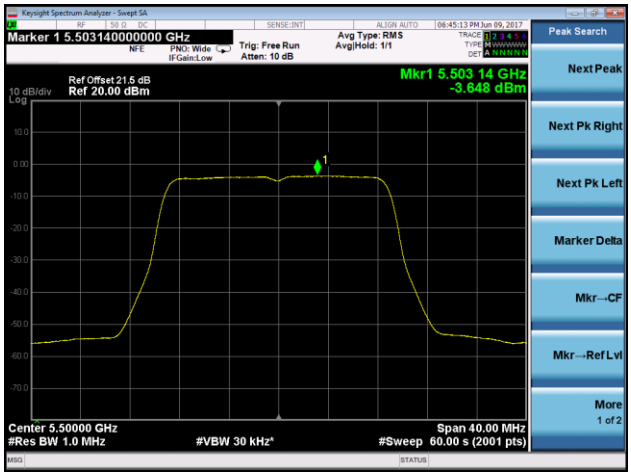
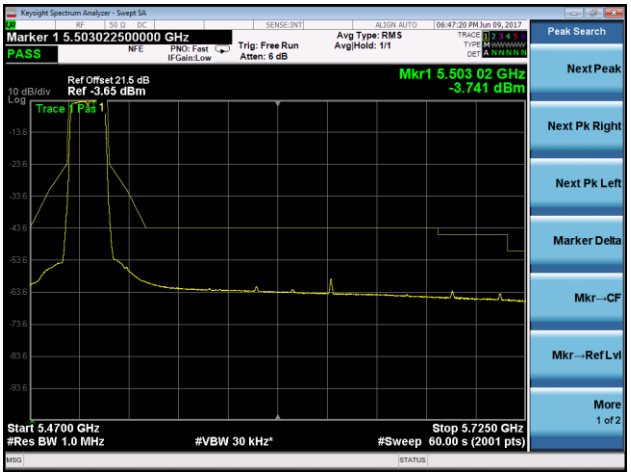
Channel 36 (5180MHz)

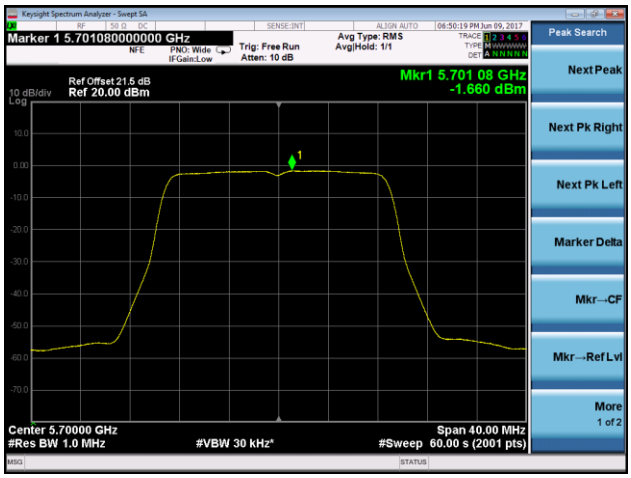
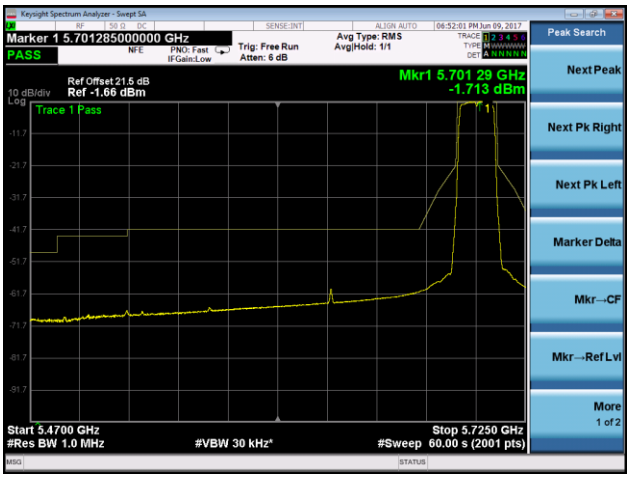
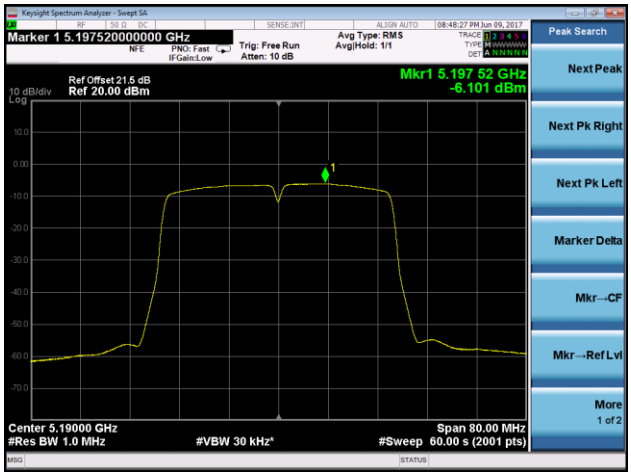
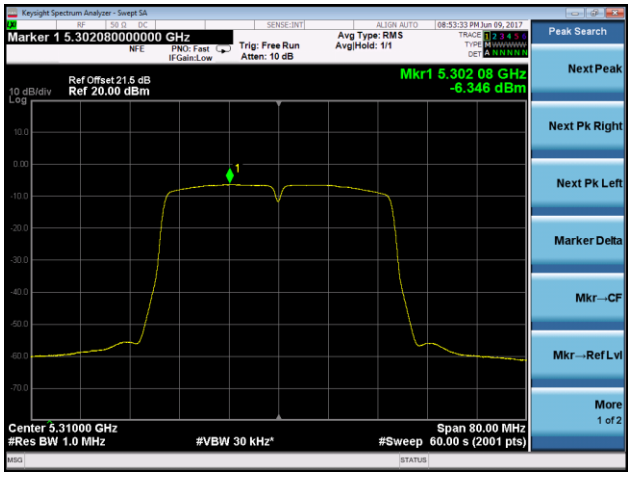
The Reference Level	The Mask Data
	

Channel 64 (5320MHz)

The Reference Level	The Mask Data
	

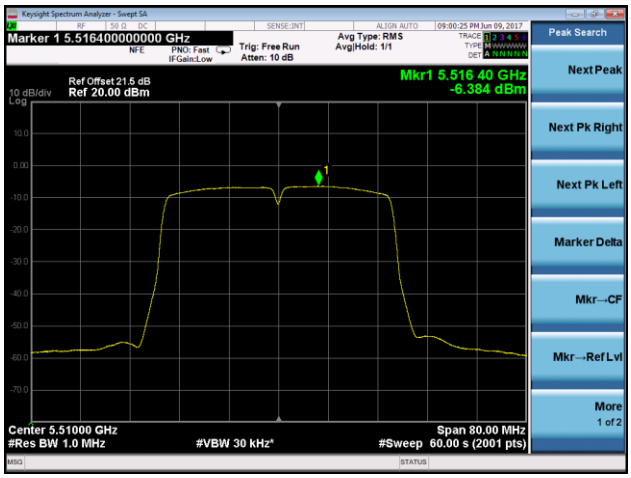
Channel 100 (5500MHz)

The Reference Level	The Mask Data
	

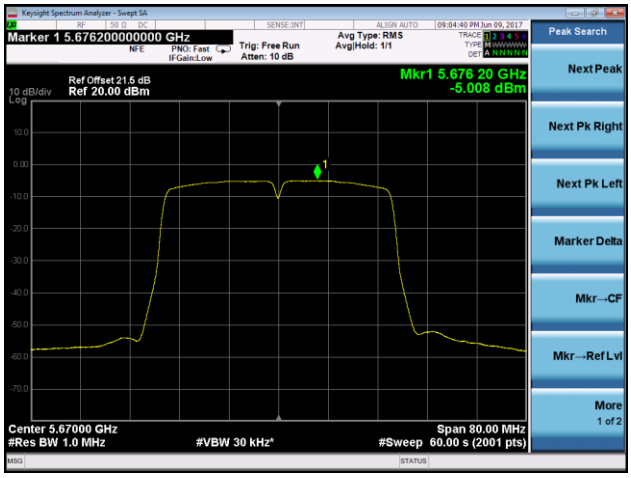
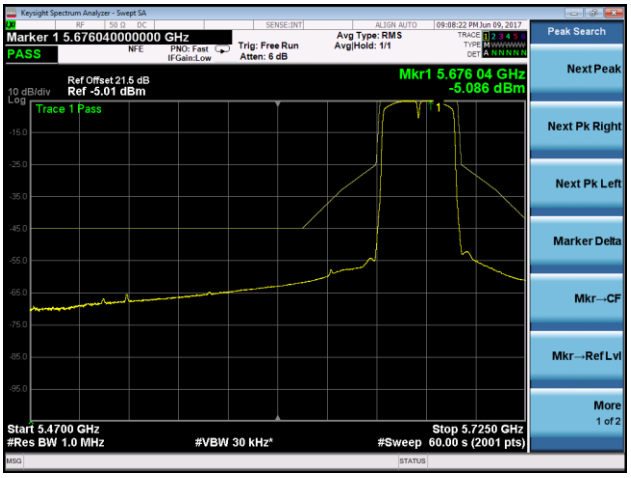
802.11ac-VHT20 - Ant 0 / Ant 0 + 1	
Channel 140 (5700MHz)	
The Reference Level	The Reference Level
	
802.11ac-VHT40 - Ant 0 / Ant 0 + 1	
Channel 38 (5190MHz)	
The Reference Level	The Mask Data
	
Channel 62 (5310MHz)	
The Reference Level	The Mask Data
	

802.11ac-VHT40 - Ant 0 / Ant 0 + 1

Channel 102 (5510MHz)

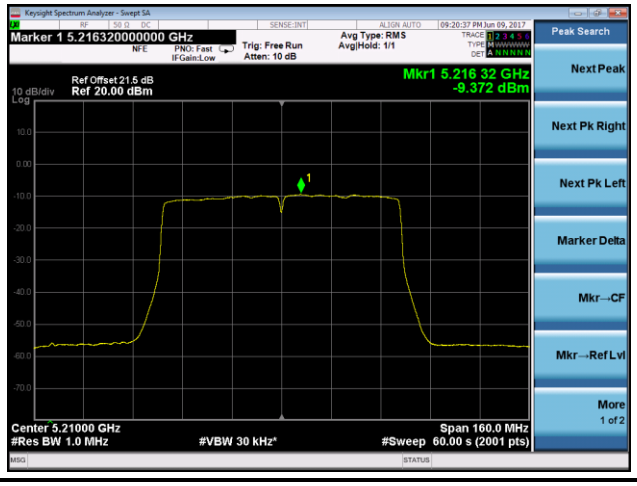
The Reference Level	The Mask Data
	

Channel 134 (5670MHz)

The Reference Level	The Reference Level
	

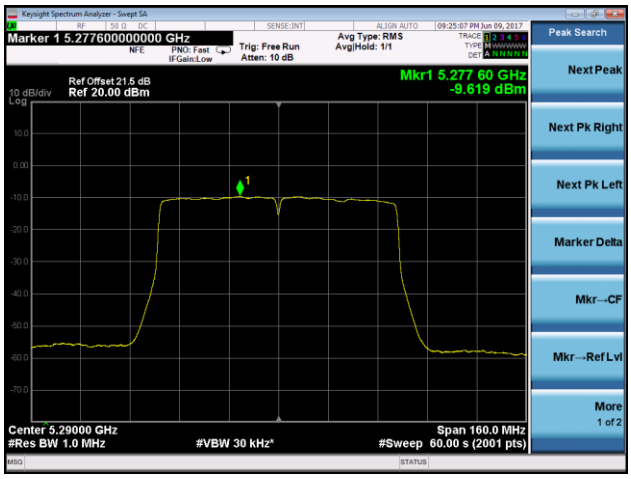
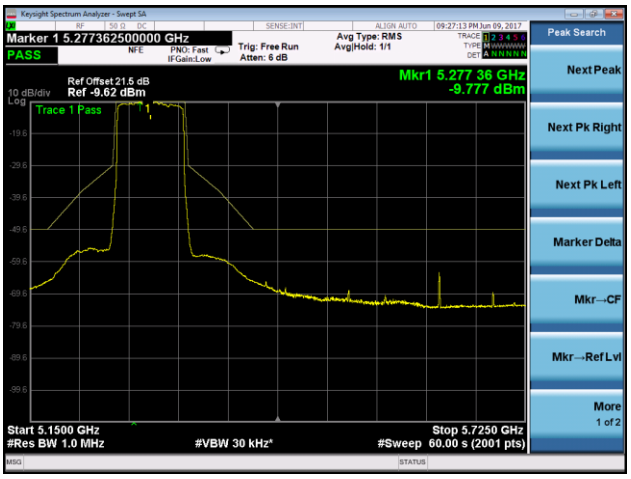
802.11ac-VHT80 - Ant 0 / Ant 0 + 1

Channel 42 (5210MHz)

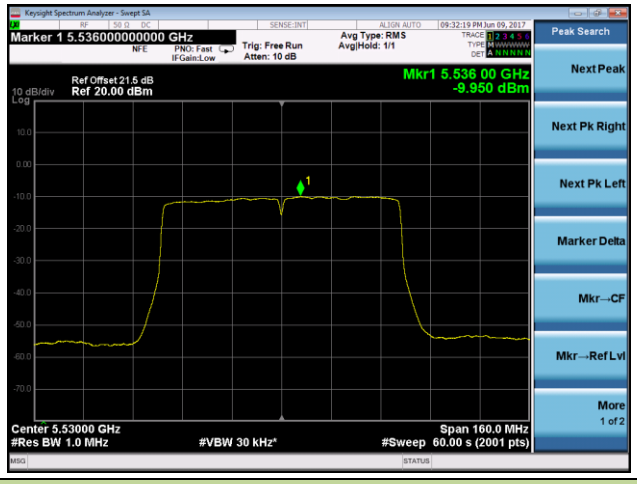
The Reference Level	The Mask Data
	

802.11ac-VHT80 - Ant 0 / Ant 0 + 1

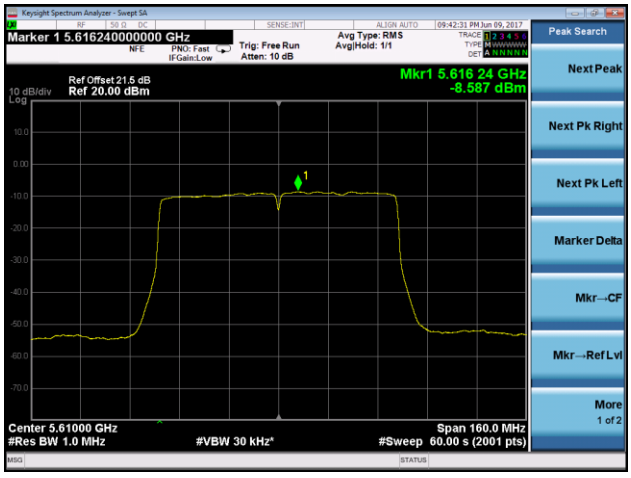
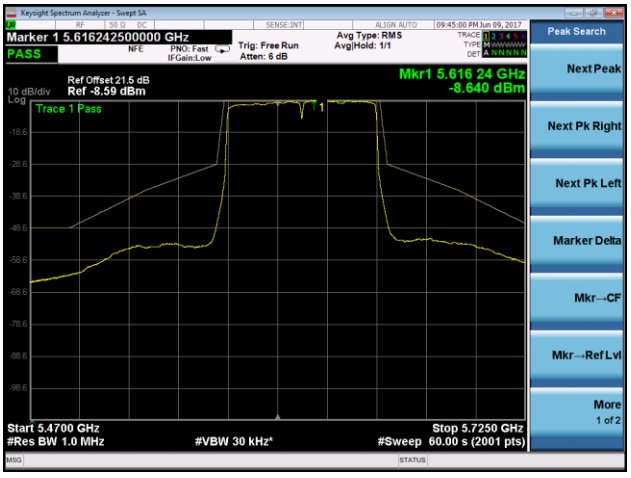
Channel 58 (5290MHz)

The Reference Level	The Mask Data
	

Channel 106 (5530MHz)

The Reference Level	The Mask Data
	

Channel 122 (5610MHz)

The Reference Level	The Reference Level
	

9. Receiver Spurious Emissions

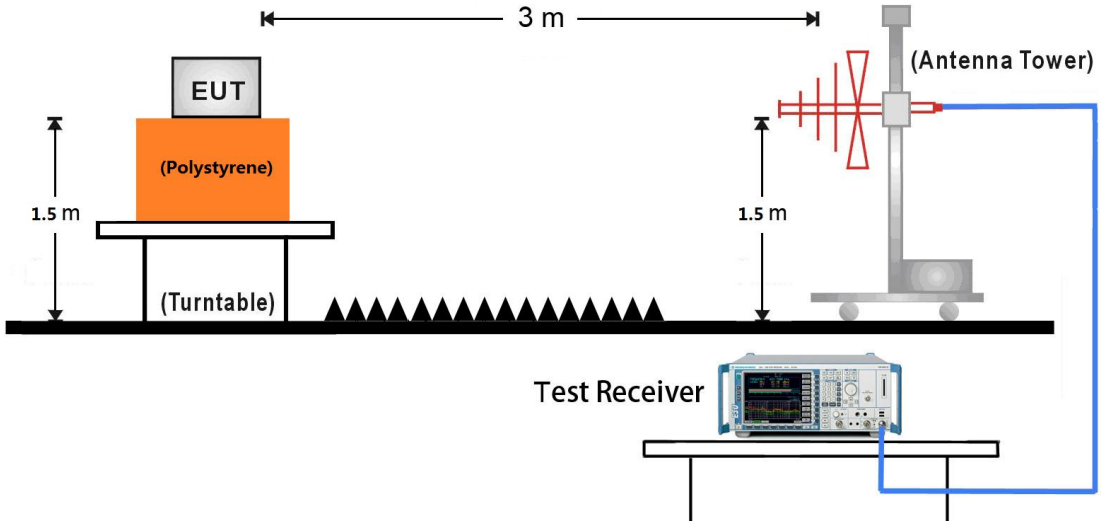
9.1. Limit

Frequency Range	Maximum Power	Bandwidth
30 MHz to 1GHz	-57dBm	100 kHz
1 GHz to 26 GHz	-47dBm	1 MHz

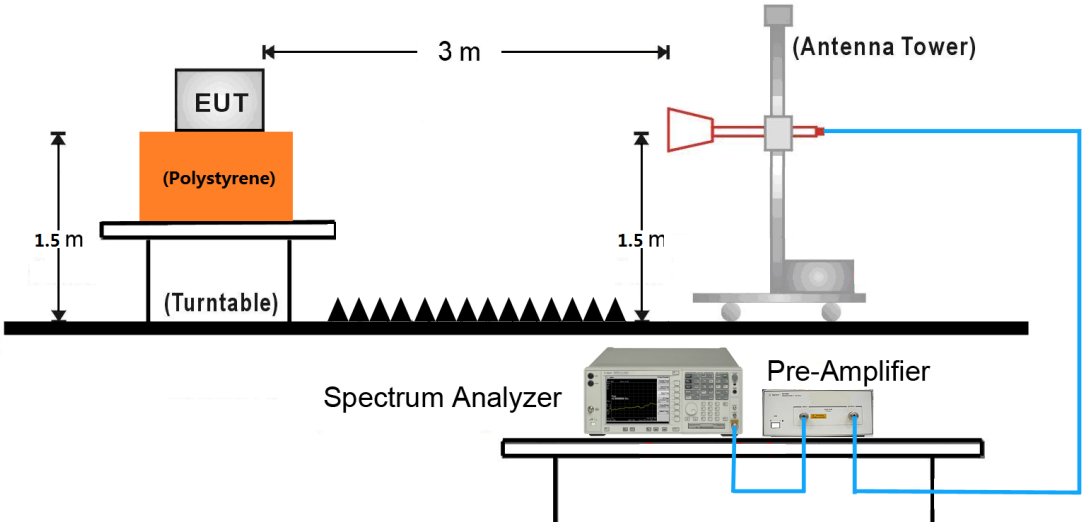
Note: These limits are e.r.p. for emissions up to 1 GHz and as e.i.r.p. for emissions above 1 GHz.

9.2. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



9.3. Test Procedure

Refer to Draft ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.7.2.2.

9.4. Test Result

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11a - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	105.2	-77.6	15.3	-62.3	-57.0	-5.3	RMS	Horizontal
	288.5	-90.8	22.3	-68.5	-57.0	-11.5	PK	Horizontal
	105.2	-89.1	26.8	-62.3	-57.0	-5.3	RMS	Vertical
	290.0	-92.5	24.1	-68.4	-57.0	-11.4	PK	Vertical
	1357.0	-64.1	7.8	-56.3	-47.0	-9.3	PK	Horizontal
	3125.0	-68.4	13.8	-54.6	-47.0	-7.6	PK	Horizontal
	2130.5	-65.5	10.4	-55.1	-47.0	-8.1	PK	Vertical
	6250.0	-72.9	20.6	-52.3	-47.0	-5.3	RMS	Vertical
100	36.8	-94.5	29.8	-64.7	-57.0	-7.7	PK	Horizontal
	744.9	-98.7	35.5	-63.2	-57.0	-6.2	PK	Horizontal
	31.5	-86.1	17.8	-68.3	-57.0	-11.3	PK	Vertical
	111.5	-98.2	29.3	-68.9	-57.0	-11.9	PK	Vertical
	1340.0	-64.7	6.6	-58.1	-47.0	-11.1	PK	Horizontal
	3762.5	-70.7	15.7	-55.0	-47.0	-8.0	PK	Horizontal
	3669.0	-66.9	15.6	-51.3	-47.0	-4.3	RMS	Vertical
	6253.0	-72.6	20.6	-52.0	-47.0	-5.0	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT20 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	37.3	-96.4	30.1	-66.3	-57.0	-9.3	PK	Horizontal
	288.5	-91.2	22.3	-68.9	-57.0	-11.9	PK	Horizontal
	105.2	-89.7	26.8	-62.9	-57.0	-5.9	RMS	Vertical
	288.5	-92.1	23.9	-68.2	-57.0	-11.2	PK	Vertical
	1246.5	-63.7	6.3	-57.4	-47.0	-10.4	PK	Horizontal
	3244.0	-70.0	14.2	-55.8	-47.0	-8.8	PK	Horizontal
	1238.0	-63.0	7.1	-55.9	-47.0	-8.9	PK	Vertical
	6253.0	-72.5	20.6	-51.9	-47.0	-4.9	RMS	Vertical
100	36.3	-95.5	29.7	-65.8	-57.0	-8.8	PK	Horizontal
	747.8	-98.4	35.5	-62.9	-57.0	-5.9	RMS	Horizontal
	31.5	-86.3	17.8	-68.5	-57.0	-11.5	PK	Vertical
	302.6	-96.9	25.0	-71.9	-57.0	-14.9	PK	Vertical
	2241.0	-68.9	11.7	-57.2	-47.0	-10.2	PK	Horizontal
	3762.5	-70.3	15.7	-54.6	-47.0	-7.6	RMS	Horizontal
	3669.0	-70.2	15.6	-54.6	-47.0	-7.6	PK	Vertical
	6253.0	-72.5	20.6	-51.9	-47.0	-4.9	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT40 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	35.8	-95.6	29.8	-65.8	-57.0	-8.8	PK	Horizontal
	288.5	-90.7	22.3	-68.4	-57.0	-11.4	PK	Horizontal
	105.2	-89.1	26.8	-62.3	-57.0	-5.3	RMS	Vertical
	288.5	-92.3	23.9	-68.4	-57.0	-11.4	PK	Vertical
	1323.0	-63.6	7.6	-56.0	-47.0	-9.0	PK	Horizontal
	3813.5	-70.5	15.9	-54.6	-47.0	-7.6	PK	Horizontal
	2130.5	-66.9	10.4	-56.5	-47.0	-9.5	PK	Vertical
	6253.0	-72.5	20.6	-51.9	-47.0	-4.9	RMS	Vertical
102	30.5	-94.8	30.0	-64.8	-57.0	-7.8	PK	Horizontal
	757.5	-99.3	36.1	-63.2	-57.0	-6.2	PK	Horizontal
	31.0	-86.2	18.1	-68.1	-57.0	-11.1	PK	Vertical
	110.5	-97.5	29.2	-68.3	-57.0	-11.3	PK	Vertical
	1034.0	-61.7	4.4	-57.3	-47.0	-10.3	PK	Horizontal
	3652.0	-70.3	15.2	-55.1	-47.0	-8.1	PK	Horizontal
	3677.0	-70.6	15.5	-55.1	-47.0	-8.1	RMS	Vertical
	6253.0	-72.9	20.6	-52.3	-47.0	-5.3	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT20 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	36.8	-95.3	29.8	-65.5	-57.0	-8.5	PK	Horizontal
	290.0	-90.7	22.3	-68.4	-57.0	-11.4	PK	Horizontal
	105.2	-89.6	26.8	-62.8	-57.0	-5.8	RMS	Vertical
	288.5	-91.3	23.9	-67.4	-57.0	-10.4	PK	Vertical
	1331.5	-64.3	7.1	-57.2	-47.0	-10.2	PK	Horizontal
	2938.0	-69.0	12.8	-56.2	-47.0	-9.2	PK	Horizontal
	2130.5	-66.0	10.4	-55.6	-47.0	-8.6	PK	Vertical
	6253.0	-72.8	20.6	-52.2	-47.0	-5.2	RMS	Vertical
100	30.5	-94.3	30.0	-64.3	-57.0	-7.3	PK	Horizontal
	304.0	-93.3	23.8	-69.5	-57.0	-12.5	PK	Horizontal
	30.5	-86.1	18.2	-67.9	-57.0	-10.9	PK	Vertical
	110.5	-98.5	29.2	-69.3	-57.0	-12.3	PK	Vertical
	1246.5	-63.9	6.3	-57.6	-47.0	-10.6	PK	Horizontal
	2130.5	-66.4	10.3	-56.1	-47.0	-9.1	RMS	Horizontal
	3669.0	-70.6	15.6	-55.0	-47.0	-8.0	PK	Vertical
	6253.0	-72.1	20.6	-51.5	-47.0	-4.5	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT40 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	36.8	-95.5	29.8	-65.7	-57.0	-8.7	PK	Horizontal
	305.5	-92.6	23.8	-68.8	-57.0	-11.8	PK	Horizontal
	105.2	-89.7	26.8	-62.9	-57.0	-5.9	RMS	Vertical
	287.5	-92.2	23.8	-68.4	-57.0	-11.4	PK	Vertical
	1238.0	-64.0	6.2	-57.8	-47.0	-10.8	PK	Horizontal
	3643.5	-69.5	15.0	-54.5	-47.0	-7.5	PK	Horizontal
	2130.5	-65.0	10.4	-54.6	-47.0	-7.6	PK	Vertical
	6253.0	-72.6	20.6	-52.0	-47.0	-5.0	RMS	Vertical
102	34.9	-95.6	30.0	-65.6	-57.0	-8.6	PK	Horizontal
	262.8	-96.4	25.8	-70.6	-57.0	-13.6	PK	Horizontal
	31.5	-86.2	17.8	-68.4	-57.0	-11.4	PK	Vertical
	111.5	-97.9	29.3	-68.6	-57.0	-11.6	PK	Vertical
	2292.0	-68.0	11.2	-56.8	-47.0	-9.8	PK	Horizontal
	4740.0	-71.5	17.9	-53.6	-47.0	-6.6	PK	Horizontal
	3677.0	-71.0	15.5	-55.5	-47.0	-8.5	RMS	Vertical
	6253.0	-72.6	20.6	-52.0	-47.0	-5.0	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT80 - Ant 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
58	31.0	-94.4	29.8	-64.6	-57.0	-7.6	PK	Horizontal
	287.5	-90.4	22.3	-68.1	-57.0	-11.1	PK	Horizontal
	105.2	-89.7	26.8	-62.9	-57.0	-5.9	RMS	Vertical
	288.5	-91.1	23.9	-67.2	-57.0	-10.2	PK	Vertical
	1255.0	-64.4	6.5	-57.9	-47.0	-10.9	PK	Horizontal
	3805.0	-70.5	15.9	-54.6	-47.0	-7.6	PK	Horizontal
	1238.0	-64.6	7.1	-57.5	-47.0	-10.5	PK	Vertical
	6253.0	-72.9	20.6	-52.3	-47.0	-5.3	RMS	Vertical
106	35.8	-95.0	29.8	-65.2	-57.0	-8.2	PK	Horizontal
	304.0	-93.6	23.8	-69.8	-57.0	-12.8	PK	Horizontal
	31.0	-85.8	18.1	-67.7	-57.0	-10.7	PK	Vertical
	105.2	-96.1	26.8	-69.3	-57.0	-12.3	PK	Vertical
	2130.5	-66.8	10.3	-56.5	-47.0	-9.5	PK	Horizontal
	3686.0	-70.3	15.3	-55.0	-47.0	-8.0	RMS	Horizontal
	3686.0	-70.9	15.5	-55.4	-47.0	-8.4	PK	Vertical
	6253.0	-72.4	20.6	-51.8	-47.0	-4.8	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT20 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	31.0	-94.5	29.8	-64.7	-57.0	-7.7	PK	Horizontal
	142.0	-92.2	21.8	-70.4	-57.0	-13.4	PK	Horizontal
	105.2	-89.7	26.8	-62.9	-57.0	-5.9	RMS	Vertical
	288.5	-91.4	23.9	-67.5	-57.0	-10.5	PK	Vertical
	2258.0	-69.8	11.6	-58.2	-47.0	-11.2	PK	Horizontal
	4153.5	-70.9	16.1	-54.8	-47.0	-7.8	PK	Horizontal
	3550.0	-70.6	15.3	-55.3	-47.0	-8.3	RMS	Vertical
	6253.0	-73.0	20.6	-52.4	-47.0	-5.4	RMS	Vertical
100	31.0	-94.2	29.8	-64.4	-57.0	-7.4	PK	Horizontal
	264.7	-95.9	25.6	-70.3	-57.0	-13.3	PK	Horizontal
	31.0	-86.1	18.1	-68.0	-57.0	-11.0	PK	Vertical
	111.5	-97.1	29.3	-67.8	-57.0	-10.8	PK	Vertical
	1229.5	-64.3	5.7	-58.6	-47.0	-11.6	PK	Horizontal
	2258.0	-68.7	11.6	-57.1	-47.0	-10.1	PK	Horizontal
	3669.0	-70.9	15.6	-55.3	-47.0	-8.3	RMS	Vertical
	6253.0	-72.1	20.6	-51.5	-47.0	-4.5	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11n-HT40 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	36.3	-94.6	29.7	-64.9	-57.0	-7.9	PK	Horizontal
	288.5	-90.1	22.3	-67.8	-57.0	-10.8	PK	Horizontal
	105.2	-89.8	26.8	-63.0	-57.0	-6.0	PK	Vertical
	290.0	-92.5	24.1	-68.4	-57.0	-11.4	PK	Vertical
	1051.0	-61.7	4.3	-57.4	-47.0	-10.4	PK	Horizontal
	2232.5	-68.3	11.6	-56.7	-47.0	-9.7	PK	Horizontal
	3541.0	-68.2	15.2	-53.0	-47.0	-6.0	RMS	Vertical
	6253.0	-72.5	20.6	-51.9	-47.0	-4.9	RMS	Vertical
102	34.9	-95.6	30.0	-65.6	-57.0	-8.6	PK	Horizontal
	259.9	-96.4	25.5	-70.9	-57.0	-13.9	PK	Horizontal
	31.5	-85.3	17.8	-67.5	-57.0	-10.5	PK	Vertical
	108.6	-96.6	28.0	-68.6	-57.0	-11.6	PK	Vertical
	1348.5	-63.7	7.2	-56.5	-47.0	-9.5	PK	Horizontal
	3669.0	-69.6	15.2	-54.4	-47.0	-7.4	PK	Horizontal
	3669.0	-70.5	15.6	-54.9	-47.0	-7.9	RMS	Vertical
	6253.0	-72.8	20.6	-52.2	-47.0	-5.2	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT20 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
64	142.0	-91.4	21.8	-69.6	-57.0	-12.6	PK	Horizontal
	290.0	-90.5	22.3	-68.2	-57.0	-11.2	PK	Horizontal
	105.2	-89.8	26.8	-63.0	-57.0	-6.0	PK	Vertical
	288.5	-91.7	23.9	-67.8	-57.0	-10.8	PK	Vertical
	1901.0	-62.7	7.7	-55.0	-47.0	-8.0	PK	Horizontal
	3550.0	-69.6	15.1	-54.5	-47.0	-7.5	PK	Horizontal
	3550.0	-68.3	15.3	-53.0	-47.0	-6.0	RMS	Vertical
	6253.0	-72.6	20.6	-52.0	-47.0	-5.0	RMS	Vertical
100	35.8	-95.0	29.8	-65.2	-57.0	-8.2	PK	Horizontal
	302.6	-93.2	23.8	-69.4	-57.0	-12.4	PK	Horizontal
	31.0	-86.1	18.1	-68.0	-57.0	-11.0	PK	Vertical
	111.5	-98.9	29.3	-69.6	-57.0	-12.6	PK	Vertical
	1552.5	-65.2	7.1	-58.1	-47.0	-11.1	PK	Horizontal
	3669.0	-69.8	15.2	-54.6	-47.0	-7.6	PK	Horizontal
	3669.0	-70.7	15.6	-55.1	-47.0	-8.1	RMS	Vertical
	6253.0	-72.4	20.6	-51.8	-47.0	-4.8	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT40 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
62	36.8	-95.7	29.8	-65.9	-57.0	-8.9	PK	Horizontal
	288.5	-90.7	22.3	-68.4	-57.0	-11.4	PK	Horizontal
	31.5	-85.6	17.8	-67.8	-57.0	-10.8	PK	Vertical
	290.0	-92.0	24.1	-67.9	-57.0	-10.9	PK	Vertical
	2232.5	-68.3	11.6	-56.7	-47.0	-9.7	PK	Horizontal
	3966.5	-70.0	16.1	-53.9	-47.0	-6.9	PK	Horizontal
	3541.0	-68.5	15.2	-53.3	-47.0	-6.3	RMS	Vertical
	6253.0	-72.5	20.6	-51.9	-47.0	-4.9	RMS	Vertical
102	31.0	-95.1	29.8	-65.3	-57.0	-8.3	PK	Horizontal
	232.7	-98.8	28.3	-70.5	-57.0	-13.5	PK	Horizontal
	31.5	-85.9	17.8	-68.1	-57.0	-11.1	PK	Vertical
	110.5	-98.5	29.2	-69.3	-57.0	-12.3	PK	Vertical
	1255.0	-64.4	6.5	-57.9	-47.0	-10.9	PK	Horizontal
	3762.5	-69.8	15.7	-54.1	-47.0	-7.1	PK	Horizontal
	3669.0	-70.8	15.6	-55.2	-47.0	-8.2	RMS	Vertical
	6253.0	-72.7	20.6	-52.1	-47.0	-5.1	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Jone Zhang	Temperature	20°C
Test Time	2017/06/10	Relative Humidity	52%
Test Mode	802.11ac-VHT80 - Ant 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
58	37.3	-95.3	30.1	-65.2	-57.0	-8.2	PK	Horizontal
	287.1	-89.7	22.3	-67.4	-57.0	-10.4	PK	Horizontal
	31.5	-85.9	17.8	-68.1	-57.0	-11.1	PK	Vertical
	288.5	-91.7	23.9	-67.8	-57.0	-10.8	PK	Vertical
	1034.0	-61.9	4.4	-57.5	-47.0	-10.5	PK	Horizontal
	3737.0	-69.8	15.6	-54.2	-47.0	-7.2	PK	Horizontal
	3524.0	-68.8	15.0	-53.8	-47.0	-6.8	RMS	Vertical
	6253.0	-72.2	20.6	-51.6	-47.0	-4.6	RMS	Vertical
106	36.3	-94.5	29.7	-64.8	-57.0	-7.8	PK	Horizontal
	262.3	-96.1	25.7	-70.4	-57.0	-13.4	PK	Horizontal
	31.0	-85.7	18.1	-67.6	-57.0	-10.6	PK	Vertical
	111.0	-98.6	29.3	-69.3	-57.0	-12.3	PK	Vertical
	1442.0	-63.6	6.9	-56.7	-47.0	-9.7	PK	Horizontal
	3669.0	-69.8	15.2	-54.6	-47.0	-7.6	PK	Horizontal
	3669.0	-71.0	15.6	-55.4	-47.0	-8.4	RMS	Vertical
	6253.0	-73.0	20.6	-52.4	-47.0	-5.4	RMS	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

10. Adaptivity (Channel Access Mechanism)

10.1. Limit

This device define to Load Based Equipment.

Priority Class dependent Channel Access parameters for Supervised Devices				
Class #	p_0	CW_{min}	CW_{max}	Maximum Channel Occupancy Time (COT)
4	2	3	7	2ms
3	2	7	15	4ms
2	3	15	1023	6ms (note 1)
1	7	15	1023	6ms (note 1)
Note 1: The maximum Channel Occupancy Time (COT) of 6ms may be increased to 8ms by inserting one or more pauses. The minimum duration of a pause shall be 100μs. The maximum duration (Channel Occupancy) before including any such pause shall be 6ms. Pause duration is not included in the channel occupancy time. Note 2: The values for p0, CW_{min}, CW_{max} are minimum values. Greater values are allowed.				

Priority Class dependent Channel Access parameters for Supervising Devices				
Class #	p_0	CW_{min}	CW_{max}	Maximum Channel Occupancy Time (COT)
4	1	3	7	2ms
3	1	7	15	4ms
2	3	15	1023	6ms (note 1)
1	7	15	1023	6ms (note 1)
Note 1: The maximum Channel Occupancy Time (COT) of 6 ms may be increased to 8 ms by inserting one or more pauses. The minimum duration of a pause shall be 100 μs. The maximum duration (Channel Occupancy) before including any such pause shall be 6ms. Pause duration is not included in the channel occupancy time. Note 2: The maximum Channel Occupancy Time (COT) of 6 ms may be increased to 10 ms by extending CW to CW × 2 + 1 when selecting the random number q for any backoff(s) that precede the Channel Occupancy that may exceed 6 ms or which follow the Channel Occupancy that exceeded 6ms. The choice between preceding or following a Channel Occupancy shall remain unchanged during the operation time of the device. Note 3: The values for p_0, CW_{min}, CW_{max} are minimum values. Greater values are allowed.				

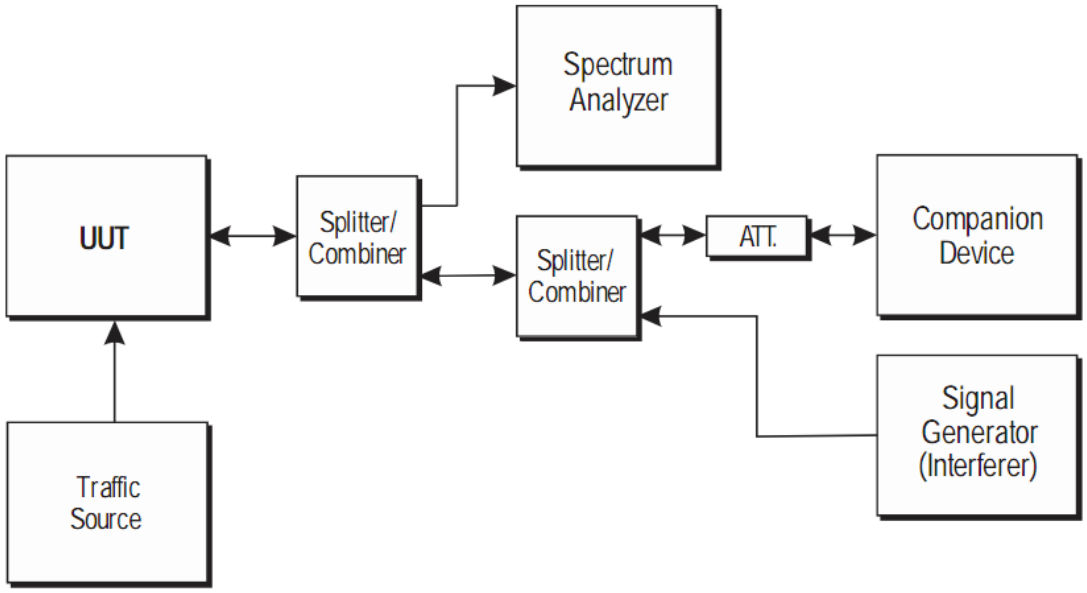
For equipment that for its operation in the 5 GHz bands is conforming to IEEE 802.11™ac-2013 [10], clause 22, or to IEEE 802.11™-2012 [9], clause 18 or clause 20, or any combination of these clauses, the Energy Detect Threshold (ED Threshold) is independent of the equipment's maximum transmit power (PH). The Energy Detect Threshold (ED Threshold) shall be: TL = -75 dBm/MHz

Short Control Signalling Transmissions Limit

The use of Short Control Signalling Transmissions is constrained as follows:

- within an observation period of 50 ms, the number of Short Control Signalling Transmissions by the equipment shall be equal to or less than 50; and
- the total duration of the equipment's Short Control Signalling Transmissions shall be less than 2 500 µs within said observation period.

10.2. Test Setup

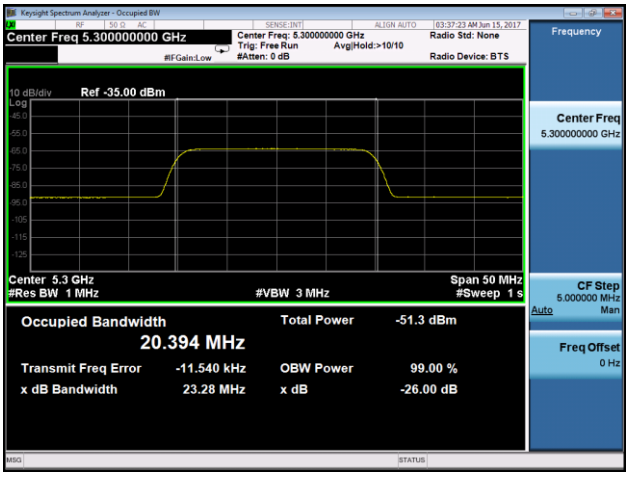
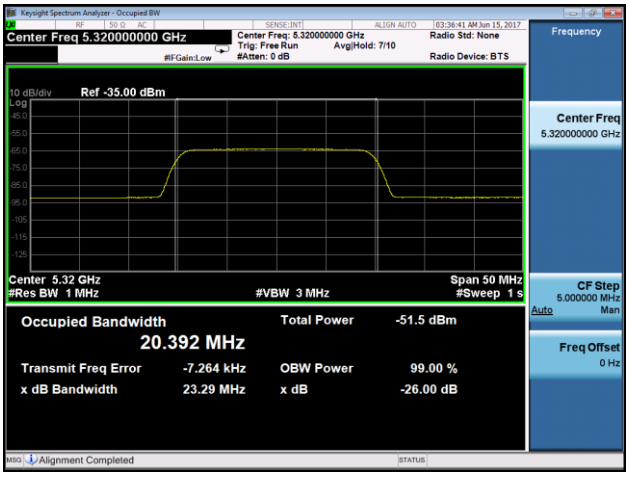


10.3. Test Procedure

Refer to Draft ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.9.3.2.3.2

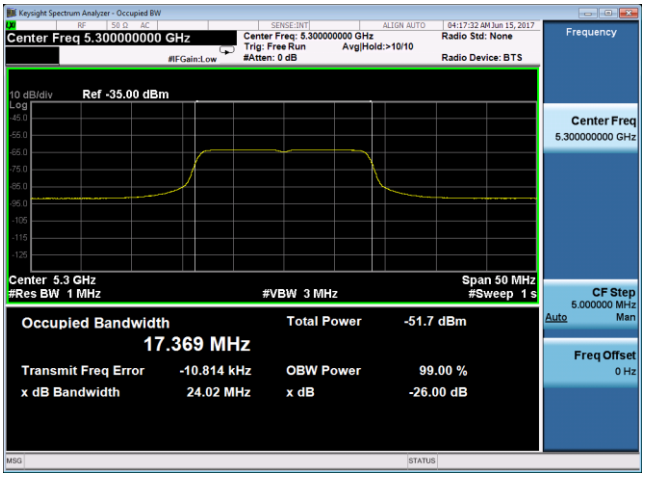
10.4. Test Result

Product	Wireless Access Point	Temperature	26°C
Test Engineer	Andy Zhu	Relative Humidity	54%
Test Site	TR4	Test Date	2017/06/13

AWGN Interference Signal Calibration - 5300MHz	
Step 1 - Occupied Channel bandwidth	**Step 2 - Interference Signal Level**
	
AWGN Interference Signal Calibration - 5300MHz	
Step 1 - Occupied Channel bandwidth	**Step 2 - Interference Signal Level**
	

OFDM Interference Signal Calibration

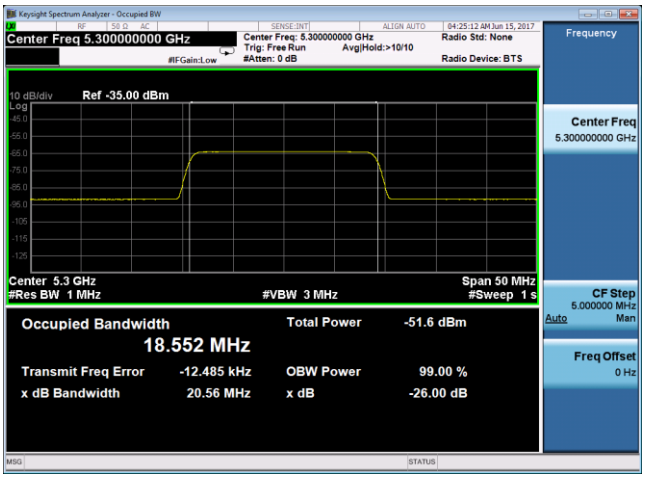
Step 1 - Occupied Channel bandwidth



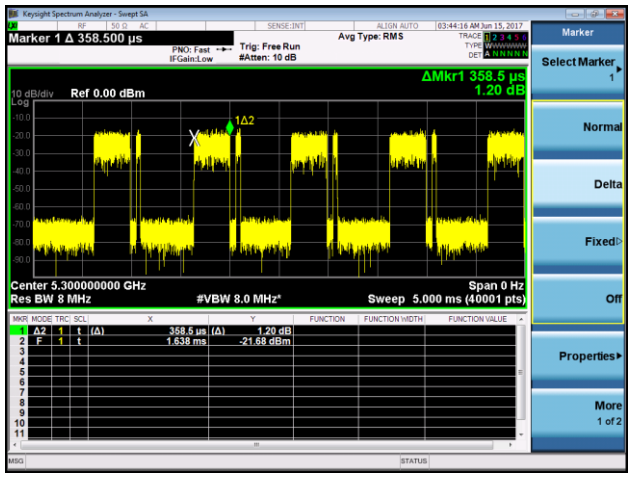
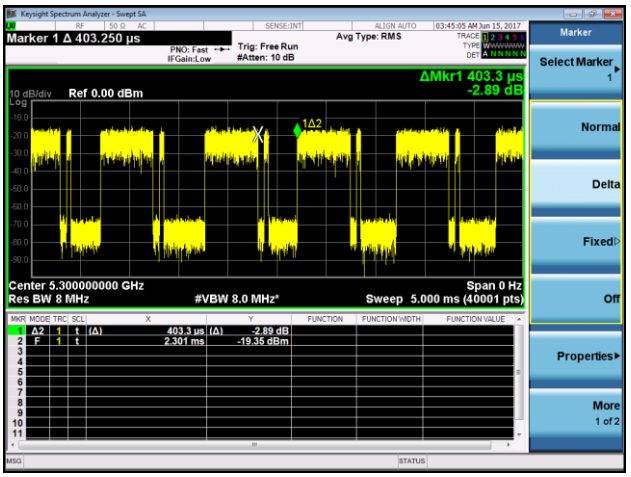
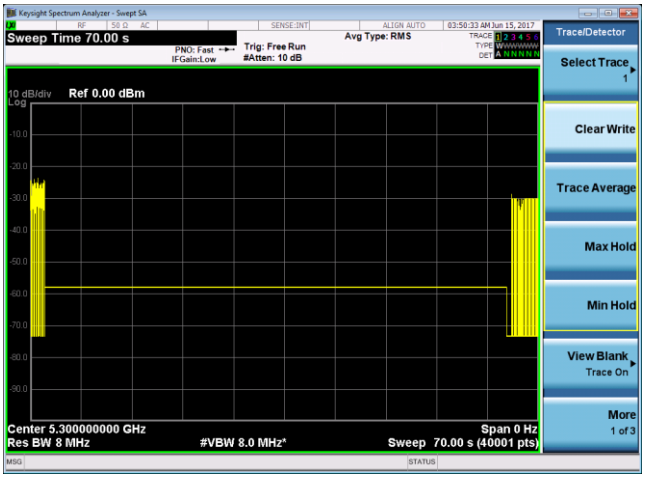
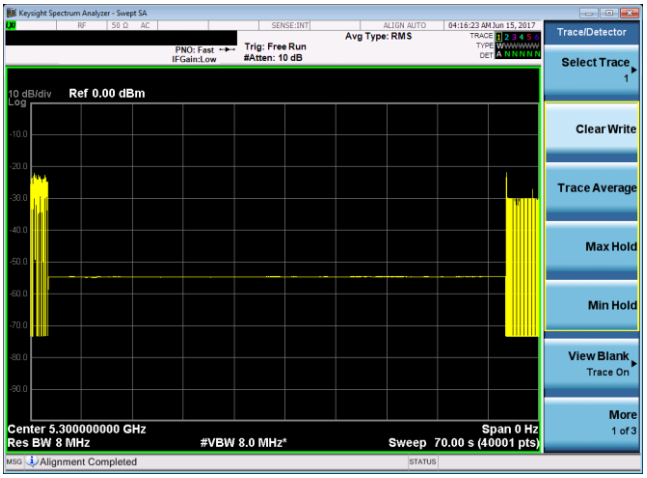
Step 2 - Interference Signal Level

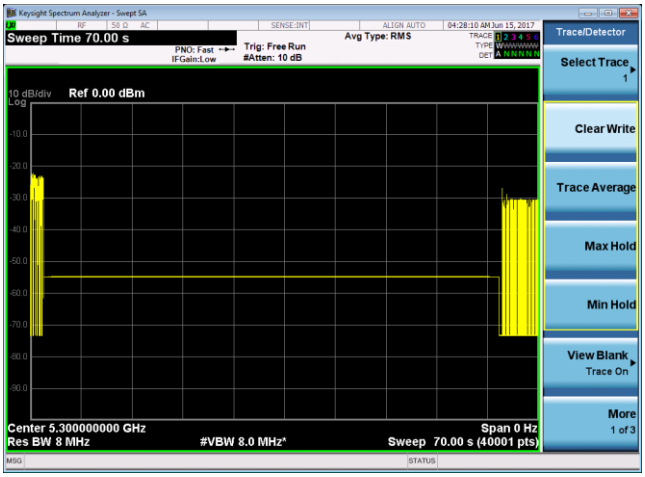
LTE Interference Signal Calibration

Step 1 - Occupied Channel bandwidth



Step 2 - Interference Signal Level

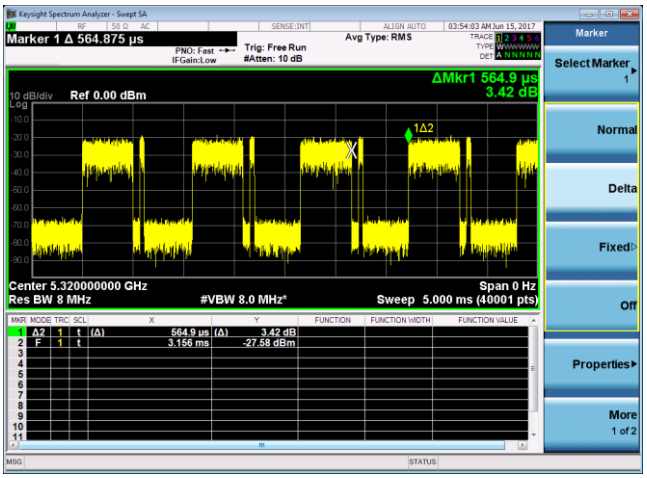
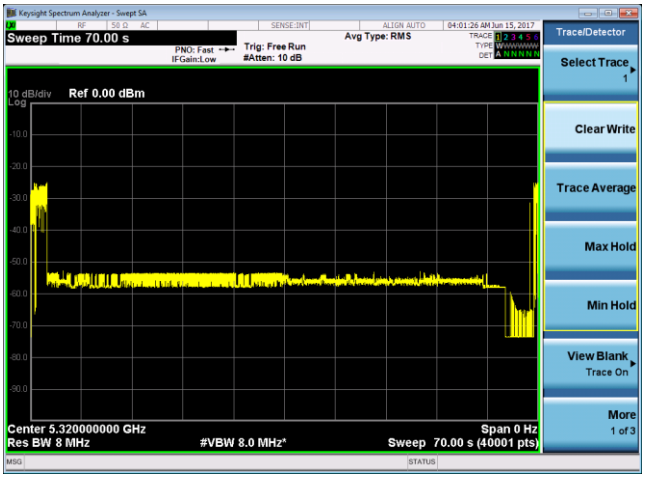
802.1a - 5300MHz	
Maximum Channel Occupancy Time = 358.5us	**Minimum Idle Period = 403.3us**
	
Transmission stopped after AWGN interference added	**Transmission stopped after OFDM interference added**
	

Transmission stopped after LTE interference added	
	

Note 1: Detection Level = -75 dBm/MHz.

Note 2: The manufacturer is allowed to declare compliance with the Medium Access Mechanism requirements contained in EN 301 893 V2.1.0 clause 4.2.7.3.2.6 and clause 4.2.7.3.2.7

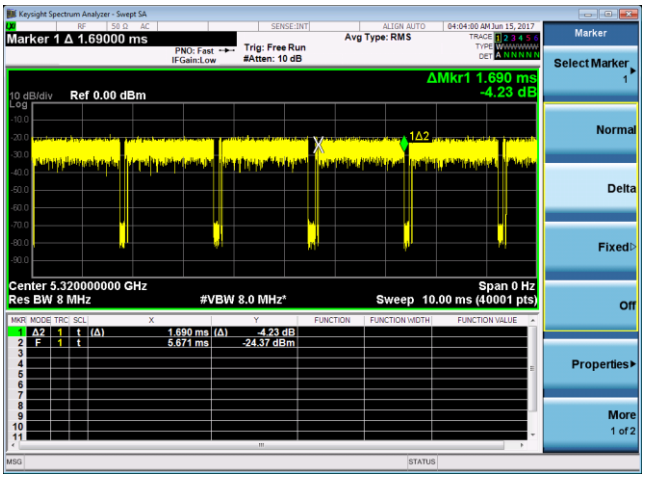
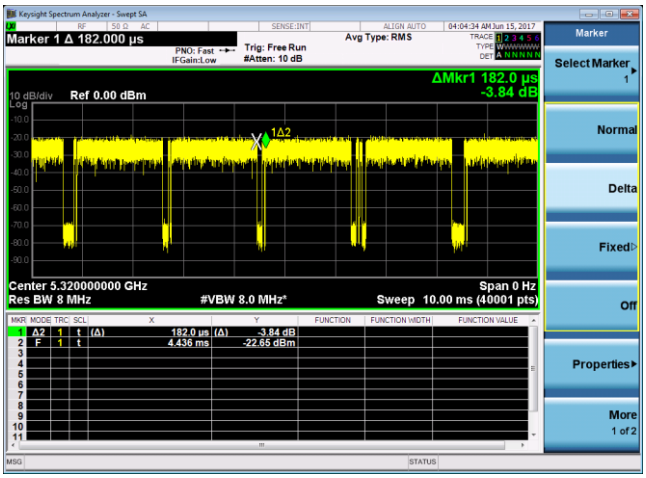
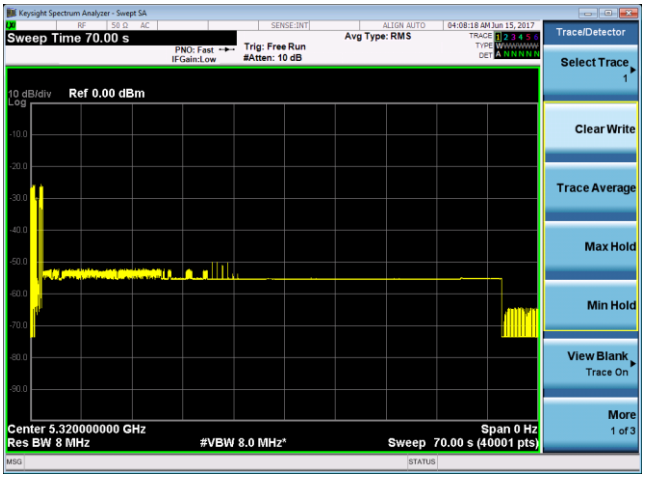
Test Result:	Pass

802.11n-HT40 - 5320MHz (Non-Primary Operating Channel)	
Maximum Channel Occupancy Time = 501.4us	**Minimum Idle Period = 564.9us**
	
Transmission stopped after AWGN interference added	**The total short control signaling less than 2.5ms within observation period**
	

Note 1: Detection Level = -75 dBm/MHz.

Note 2: The manufacturer is allowed to declare compliance with the Medium Access Mechanism requirements contained in EN 301 893 V2.1.0 clause 4.2.7.3.2.6 and clause 4.2.7.3.2.7

Test Result:	Pass

802.11ac-VHT40 - 5320MHz (Non-Primary Operating Channel)	
Maximum Channel Occupancy Time = 1.690ms	**Minimum Idle Period = 182.0us**
	
Transmission stopped after AWGN interference added	**The total short control signaling less than 2.5ms within observation period**
	

Note 1: Detection Level = -75 dBm/MHz.

Note 2: The manufacturer is allowed to declare compliance with the Medium Access Mechanism requirements contained in EN 301 893 V2.1.0 clause 4.2.7.3.2.6 and clause 4.2.7.3.2.7

Test Result:	Pass

11. Receiver Blocking

11.1. Limit

The minimum performance criterion shall be a PER less than or equal to 10 %. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment.

11.2. Test Setup

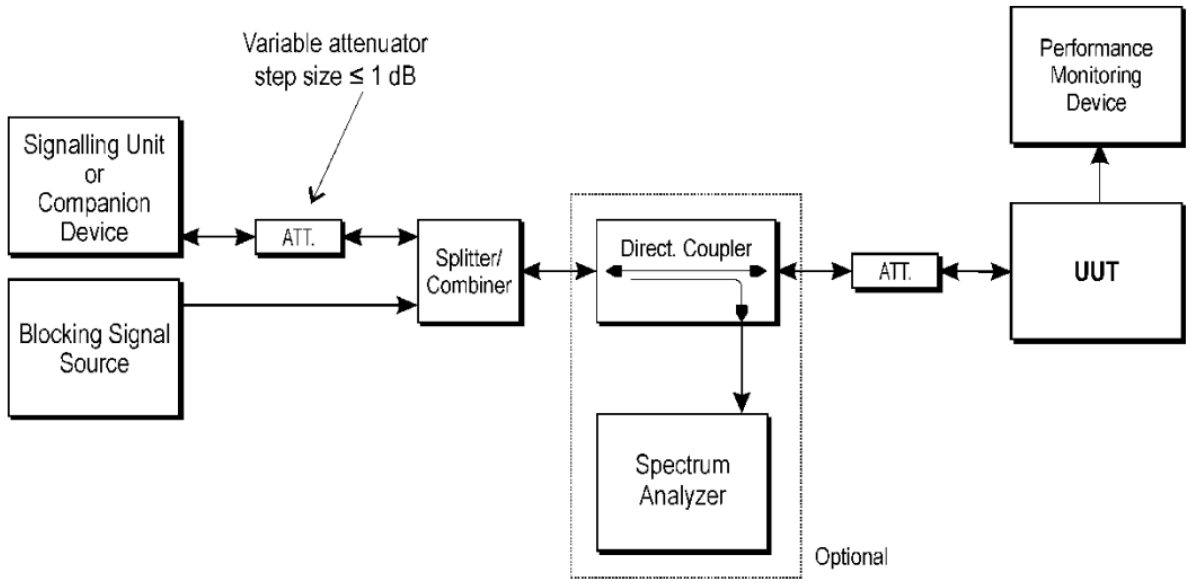
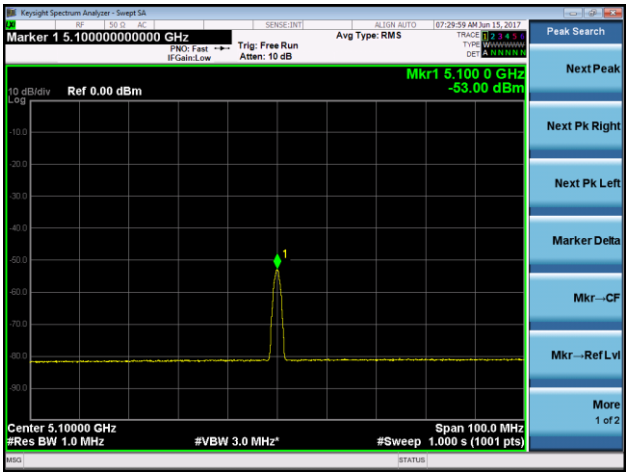
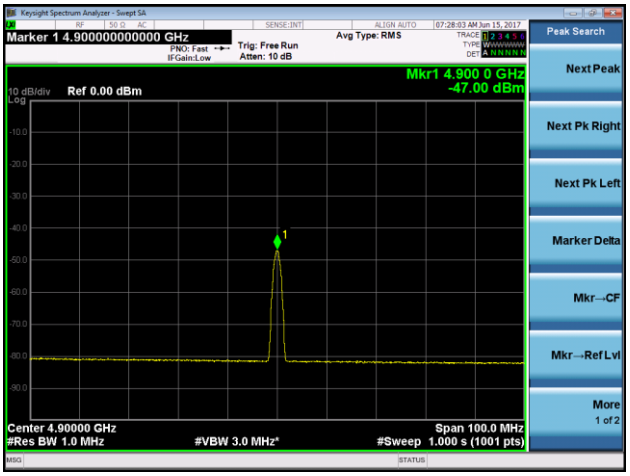
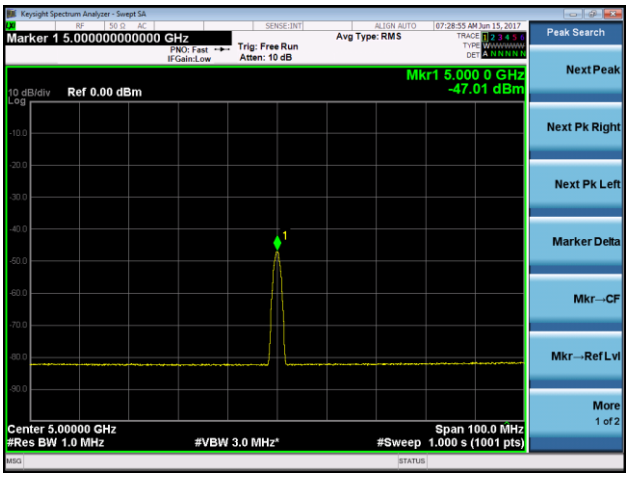
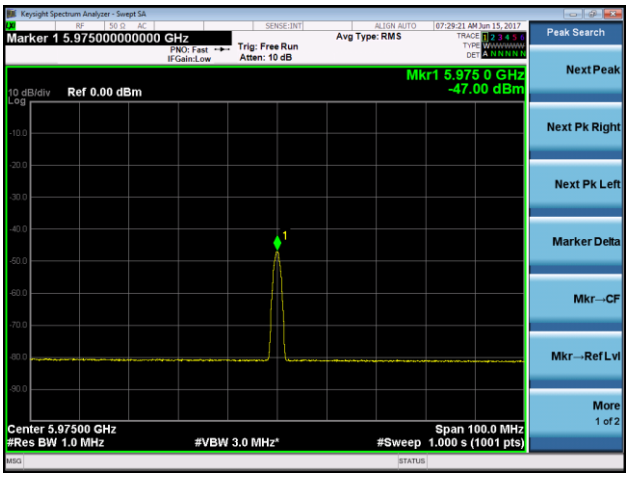


Figure 6: Test Set-up for receiver blocking

11.3. Test Procedure

Refer to ETSI EN 301 893 V2.1.1 (2017-11) Clause 5.4.10.2.1.

11.4. Test Result

<table>
<tr><th colspan="2">Blocking Signal Calibration Plots</th></tr>
<tr><td>5100MHz</td><td>4900MHz</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>5000MHz</td><td>5975MHz</td></tr>
<tr><td> 
</td><td> 
</td></tr>
</table>

Product	Wireless Access Point	Temperature	26°C
Test Engineer	Andy Zhu	Relative Humidity	54%
Test Site	TR4	Test Data	2017/06/15
Test Mode	802.11a		

Channel	Wanted Signal Mean Power from Companion Device (dBm)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm)	Type of Blocking Signal	PER Test Result	Limit (PER)	Test Result
64	P_{min} + 6 dB	4900	-47	CW	0.0	< 10%	Pass
		5000	-47		0.0		Pass
		5100	-53		0.1		Pass
		5975	-47		0.0		Pass
Note 1: the P_{min} of channel 64 is -87dBm.							
100	P_{min} + 6 dB	4900	-47	CW	0.0	< 10%	Pass
		5000	-47		0.0		Pass
		5100	-53		0.0		Pass
		5975	-47		0.0		Pass
Note 2: the P_{min} of channel 100 is -87dBm.							

12. User Access Restrictions

12.1. Requirement

The equipment shall be so constructed that settings (hardware and/or software) related to DFS shall not be accessible to the user if changing those settings result in the equipment no longer being compliant with the DFS requirements.

12.2. Test Result

The user can not change the country code of operation which is locked by the manufacturer. All RF parameters are limited by the country code.
So the equipment can satisfy the user access restrictions requirement.

13. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	±10 ppm
RF output power, conducted	±1.5 dB
Power Spectral Density, conducted	±3 dB
Spurious Emissions, radiated	±6 dB
Temperature	±2 °C
Humidity	±5 %
Time	±10 %

14. List of Measuring Instrument

Carrier Frequencies - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2018/04/25
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	MRTSUE06051	1 year	2017/12/08
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2017/12/20

Occupied Channel Bandwidth - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2018/04/25
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2017/12/20

RF Output Power, Transmit Power Control (TPC) and Power Density - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2017/12/08
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	MRTSUE06051	1 year	2017/12/08
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2017/12/20

Transmitter Unwanted Emissions Within the 5GHz RLAN Bands - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2018/04/25
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2017/12/20

Transmitter Spurious Emissions and Receiver Spurious Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2018/04/25
Spectrum Analyzer	Agilent	N9010A	MRTSUE06195	1 year	2018/04/19
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2018/03/28
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2017/12/10
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2017/12/10
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2018/01/04
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06183	1 year	2017/12/20
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2018/05/10

Adaptivity (Channel Access Mechanism) - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2018/04/25
Vector Signal Generator	Agilent	E4438C	MRTSUE06026	1 year	2017/12/08
Directional Coupler	Narda	4216-20	MRTSUE06065	1 year	2018/03/28
Power Splitter	Mini-Circuits	ZFRSC-123-S+	MRTSUE06122	N/A	N/A
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2017/12/20

Receiver Blocking - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Vector Signal Generator	Agilent	E4438C	MRTSUE06026	1 year	2017/12/06
4 Ch. Simultaneous Sampling 14	Agilent	U2531A	MRTSUE06247	N/A	N/A
4 Ch. Simultaneous Sampling 14	Agilent	U2531A	MRTSUE06248	N/A	N/A
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06108	1 year	2017/11/10
Directional Coupler	Narda	4216-20	MRTSUE06065	1 year	2018/03/28
Power Splitter	Mini-Circuits	ZFRSC-123-S+	MRTSUE06122	N/A	N/A
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2017/12/20

Software	Version	Function
e3	V8.3.5	EMI Test Software

The End