

TEST REPORT

Verified code: 645218

Report No.:	E202002244903-3	Application No.:	E202002244903
Client:	Winstars Technology Limited		
Address:	1-5F, NO.5, Taisong Industrial Zone, Dalang Community, Dalang Street, Longhua District, Shenzhen China		
Sample Description:	Wireless AC750 Dual-Band Range Extender		
Model:	WS-WN576A2		
Serial Model NO.:	WL-WN576A2, SWV 733 B3 (IAN: 324886)		
Test Location:	Guangzhou GRG Metrology & Test Co., Ltd.		
Test Specification:	ETSI EN 301 893 V2.1.1 (2017-05) Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU		
Issue Date:	2020/05/27		
Test Result:	Pass		
Prepared By: Test Engineer <i>Wu Haoming</i>	Reviewed By: Technical Manager <i>Wu Chengrong</i>	Approved By: Manager <i>Zhu Yan</i>	
Other Aspects:			
Note: /			
Abbreviations: ok / P = passed; fail / F = failed; n.a. / N = not applicable;			
The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.			



DIRECTIONS OF TEST

1. This company carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.
2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

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1. TEST RESULT SUMMARY

Transmitter Part				
Standard	Item	Standard Clause	Limit	Result
EN 301 893 V2.1.1 (2017-05)	Nominal Centre frequencies	4.2.1	± 20 ppm	Complied
	Nominal Channel Bandwidth and Occupied Channel Bandwidth	4.2.2	Clause 4.2.2.2	Complied
	RF output power, Transmit Power Control (TPC) and Power Density	4.2.3	Clause 4.2.3.2	Complied
	Transmitter unwanted emissions outside the 5 GHz RLAN bands	4.2.4.1	EN 301 893 Table 4	Complied
	Transmitter unwanted emissions within the 5 GHz RLAN bands	4.2.4.2	Clause 4.2.4.2.2	Complied
	Dynamic Frequency Selection (DFS)	4.2.6	Clause 4.2.6.2	Note 1
	Adaptivity (Channel Access Mechanism)	4.2.7	Clause 4.2.7.3	Complied

Note1: Detail test data in DFS report (report number E202002244903-4 EN301893 DFS).

Receiver Part				
Standard	Item	Standard Clause	Limit	Result
EN 301 893 V2.1.1 (2017-05)	Receiver spurious emissions	4.2.5	EN 301 893 Table 5	Complied
	Receiver Blocking	4.2.8	EN 301 893 Table 9	Complied

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Winstars Technology Limited
Address: 1-5F, NO.5, Taisong Industrial Zone, Dalang Community, Dalang Street, Longhua District, Shenzhen, China

2.2 MANUFACTURER

Name: Winstars Technology Limited
Address: 1-5F, NO.5, Taisong Industrial Zone, Dalang Community, Dalang Street, Longhua District, Shenzhen, China

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

General Information

Equipment: Wireless AC750 Dual-Band Range Extender
Model No.: WS-WN576A2
Adding Model WL-WN576A2, SWV 733 B3 (IAN: 324886)
Trade Name: /
Power Supply: AC 100-240V;50/60Hz;0.3A
Note: /

Frequency/Channel Information

Frequency Range(MHz)	Ch. Frequency(MHz)	Mode
5150MHz~5350MHz	5180MHz~5320MHz	802.11a; 802.11n(HT20); 802.11ac(VT20)
	5190MHz~5310MHz	802.11n(HT40); 802.11ac(VT40)
	5210MHz~5290MHz	802.11ac(VT80);
5470MHz~5725MHz	5500MHz~5700MHz	802.11a; 802.11n(HT20); 802.11ac(VT20)
	5510MHz~5670MHz	802.11n(HT40); 802.11ac(VT40)
	5530MHz	802.11ac(VT80);

Antenna Information

Antenna type:	PCB antenna
Antenna number:	1
Max Antenna gain:	3 dBi
Note:	/

Adaptive Information

Adaptive equipment		
<input type="checkbox"/>	Frame Based Equipment	
	<input type="checkbox"/> The Frame Based Equipment operates as an Initiating Device	
	<input type="checkbox"/> The Frame Based Equipment operates as an Responding Device	
	<input type="checkbox"/> The Frame Based Equipment can operate as an Initiating Device and as a Responding Device	
<input checked="" type="checkbox"/>	Load Based Equipment	
	<input type="checkbox"/>	The Load Based Equipment operates as a Supervising Device
	<input type="checkbox"/>	The Load Based Equipment operates as a Supervised Device
	<input checked="" type="checkbox"/>	The Load Based Equipment can operate as a Supervising and as a Supervised Device
	<input type="checkbox"/>	The Load Based Equipment makes use of note 1 in table 7 or note 1 in table 8 of ETSI EN 301 893 V2.1.1
	<input type="checkbox"/>	The Load Based Equipment , when operating as a Supervising Device, makes use of note 2 in table 7 of ETSI EN 301 893 V2.1.1
	<input type="checkbox"/>	The Load Based Equipment operates as an Initiating Device
	<input type="checkbox"/>	The Load Based Equipment operates as an Responding Device
	<input checked="" type="checkbox"/>	The Load Based Equipment can operate as an Initiating Device and as a Responding Device
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		
	<input type="checkbox"/>	Option 1
	<input type="checkbox"/>	Priority Class 1
	<input checked="" type="checkbox"/>	Priority Class 2
	<input type="checkbox"/>	Priority Class 3
	<input type="checkbox"/>	Priority Class 4
	<input checked="" type="checkbox"/>	Option 2
	<input checked="" type="checkbox"/>	Manufacturer Declaration(Note 1)

Note1:

Manufacturer Declaration

Test Item	Standard Clause	EN 301 893 V2.1.1 information	Manufacturer Declaration
Device Type	4.2.7.3.2.2	Initiating Device or Responding Device, or both & Supervising Device or Supervised Device, or both	both & both
Multi channel Operation	4.2.7.3.2.3	Option 1 OR Option 2	Option 2
Priority Class	4.2.7.3.2.4	Priority Class 1 Priority Class 2 Priority Class 3 Priority Class 4	Priority Class 2
ED Threshold Level	4.2.7.3.2.5	Option 1 OR Option 2	Option 1
Channel Access Mechanism (Idle Periods)	5.4.9.3.2.4.1 & 5.4.9.3.2.4.2	Option A: Procedure to verify the Channel Access Mechanism OR Option B: Compliance by declaration for the Channel Access Mechanism	Option B
Maximum Channel Occupancy Time(s)	5.4.9.3.2.5.1 & 5.4.9.3.2.5.2	Option A: Procedure to verify the maximum Channel Occupancy Time(s) OR Option B: Compliance by declaration for the maximum Channel Occupancy Time(s)	Option B
Adaptivity	5.4.9.3.2.2 & 5.4.9.3.2.3 -option 1	Single channel-AWGN, OFDM & LTE OR Multi channel-AWGN	Single channel-AWGN, OFDM & LTE OR Multi channel-AWGN

DFS Operation Mode Information

<input checked="" type="checkbox"/>	Master
<input type="checkbox"/>	Slave with radar detection
<input type="checkbox"/>	Slave without radar detection

2.4 TEST CONFIGURATION

Test Antenna

Modulation Mode	Tx/Rx Function	Test Antenna (Worst case)
802.11a	1T/1R	antenna 0
802.11n(HT20)	1T/1R	antenna 0
802.11n(HT40)	1T/1R	antenna 0
802.11ac(VT80)	1T/1R	antenna 0

Test EUT Rate

Modulation Mode	Data Rate/Mcs	Test Data Rate (Worst Case)
802.11a	6-54Mbps	54Mbps
802.11n(HT20)	MCS0-MCS7	MCS7
802.11n(HT40)	MCS0-MCS7	MCS7
802.11ac(VT80)	MCS0-MCS7	MCS7

2.5 LOCAL SUPPORTIVE INSTRUMENTS

Instruments:

Name of Equipment	Manufacturer	Model	Serial Number
Notebook	acer	MS2392	NXMPGCN01550311F8C6600

Note :The notebook is just used to produce fixed frequency transmitting.

Test software:

Software version	Test level
Tara Term	802.11a Mode 5180MHz:37 5320MHz:33 5500MHz:33 5700MHz:33 802.11n HT20 Mode 5180MHz:35 5320MHz:33 5500MHz:30 5700MHz:33 802.11n HT40 Mode 5190MHz:35 5310MHz:30 5510MHz:30 5670MHz:30 802.11ac VHT80 Mode 5210MHz:30 5290MHz:30 5530MHz:30

3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.	
Add. :	No.1301 Guangguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China
P.C. :	518000
Telephone :	0755-61180008
Fax :	0755-61180008

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies.

A2LA	Certificate Number 2861.01
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3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Uncertainty
RF frequency	$\pm 6.0 \times 10^{-6}$
RF power conducted	± 0.78 dB
Occupied channel bandwidth	± 0.4 %
Unwanted emission, conducted	± 0.68 dB
Humidity	± 6 %
Temperature	± 2 °C

Measurement	Frequency		Uncertainty
Radiated emission	Horizontal	30MHz ~ 1000MHz	4.3dB
		1000MHz ~ 26000MHz	5.6dB
	Vertical	30MHz ~ 1000MHz	4.3dB
		1000MHz ~ 26000MHz	5.6dB

This uncertainty represents an expanded uncertainty factor of $k=2$.

3.4 LIST OF USED TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
NOMINAL CENTRE FREQUENCIES & NOMINAL CHANNEL BANDWIDTH AND OCCUPIED CHANNEL BANDWIDTH & RF OUTPUT POWER AND TRANSMIT POWER CONTROL(TPC) & POWER DENSITY & TRANSMITTER UNWANTED EMISSIONS WITHIN 5GHZ BANDS				
MIMO power measurement Test Set	Agilent	MA2411B	1126150	2021-4-13
Simultaneous sampling DAQ	Tonscend	JS0806-2	186060020	2020-11-28
Spectrum Analyzer	Agilent	N9020A	MY50510140	2020-10-24
Vector Signal Generator	Agilent	N5182A	MY50142870	2020-11-28
Signal Generator	Anritsu	MG3694A	#050125	2020-11-22
Temperature & humidity chamber	HOSON	HS01060SDF	1910008401	2020-11-28
Test SW	tonscend	Js1120-2		
TRANSMITTER UNWANTED EMISSIONS OUTSIDE 5GHZ BANDS & RECEIVER SPURIOUS EMISSIONS				
EMI TEST Receiver	ROHDE&SCHWARZ	ESU26	EMC26-G260	2020-07-1
EXA signal analyzer	Agilent	N9010A	MY52221469	2020-11-1
Bilog Antenna	Schwarzbeck	VULB9160	VULB9160-3401	2020-11-27
Horn Antenna	Schwarzbeck	BBHA9120	D286	2020-11-27
Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170-497	2020-11-30
Amplifier	tonscend	TAP0101848	AP19L80604	/
Amplifier	tonscend	TAP0106030	AP20B806055	/

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
High Noise Amplifier	Agilent	8449B	3008A02060	2020-11-18
Test SW	tonscend	Js1120-2		
ADAPTIVITY & RECEIVER BLOCKING (UL)				
Spectrum Analyzer	Agilent	N9020A	MY50510140	2020-10-24
Vector Signal Generator	Agilent	N5182A	MY50142870	2020-11-28
Signal Generator	Anritsu	MG3694A	#050125	2020-11-22
Wideband radio Communication Tester	R&S	CMW500	144611-nC	2020-08-20
Test SW	tonscend	Js1120-2		

4. RADIO TECHNICAL REQUIREMENTS SPECIFICATION IN EN 301 893

4.1 NOMINAL CENTRE FREQUENCIES

4.1.1 LIMITS

The actual centre frequency for any given channel declared by the manufacturer shall be maintained within the range $f_c \pm 20$ ppm

4.1.2 TEST PROCEDURE

Test requirement: EN 301 893 clause 4.2.1

Test Method: EN 301 893 clause 5.4.2.2

EUT Operation: Keep EUT on transmitting mode by the software provided by manufacturer.

Pretest the EUT at different transmission rate and report show the worst case data.

Test condition: These measurements shall be performed under both normal and extreme test conditions (see clause 5.1).

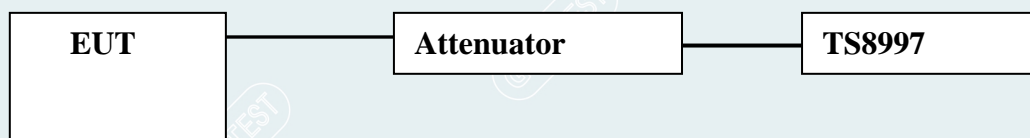
Test condition	Temperature(°C)
Normal condition	+25
Extreme condition	0 +40

Test channel:

Modulation Mode	Test Channel/ Frequency(MHz)	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	5180,5320	5700
802.11n(HT20)	5180,5320	5700
802.11n(HT40)	5190,5310	5670
802.11ac(VT80)	5210,5290	5530

Note: /

4.1.3 TEST SETUP



4.1.4 TEST RESULTS

802.11a 5180MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5179.9892	5180	-2.08	20	Pass
0	5179.9863	5180	-2.64	20	Pass
40	5179.9939	5180	-1.18	20	Pass

802.11a 5320MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5319.9890	5320	-2.07	20	Pass
0	5319.9792	5320	-3.91	20	Pass
40	5320.0047	5320	0.88	20	Pass

802.11a 5700MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5699.9893	5700	-2.07	20	Pass
0	5700.0432	5700	7.58	20	Pass
40	5699.9567	5700	-7.60	20	Pass

802.11n HT20 5180MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5179.9915	5180	-1.64	20	Pass
0	5179.9567	5180	-8.36	20	Pass
40	5179.9855	5180	-2.80	20	Pass

802.11n HT20 5320MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5319.9893	5320	-2.02	20	Pass
0	5319.9921	5320	-1.48	20	Pass
40	5319.9768	5320	-4.36	20	Pass

802.11n HT20 5700MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5699.9921	5700	-1.38	20	Pass
0	5699.9878	5700	-2.14	20	Pass
40	5699.9936	5700	-1.12	20	Pass

802.11n HT40 5190MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5189.9918	5190	-1.58	20	Pass
0	5189.9789	5190	-4.07	20	Pass
40	5189.9885	5190	-2.22	20	Pass

802.11n HT40 5310MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5309.9926	5310	-1.40	20	Pass
0	5309.9752	5310	-4.67	20	Pass
40	5309.9562	5310	-8.25	20	Pass

802.11n HT40 5670MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5669.9925	5670	-1.33	20	Pass
0	5669.9824	5670	-3.10	20	Pass
40	5669.9752	5670	-4.37	20	Pass

802.11ac VT80 5210MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5209.9933	5210	-1.29	20	Pass
0	5209.9856	5210	-2.76	20	Pass
40	5209.9855	5210	-2.78	20	Pass

802.11ac VT80 5290MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5289.9915	5290	-1.61	20	Pass
0	5289.9798	5290	-3.82	20	Pass
40	5289.9937	5290	-1.19	20	Pass

802.11ac VT80 5530MHz:

Temperature (°C)	Frequency (MHz)	EUT Frequency (MHz)	Deviation(ppm)	Limit(ppm)	Result
25	5529.9932	5530	-1.24	20	Pass
0	5529.9863	5530	-2.48	20	Pass
40	5529.9946	5530	-0.98	20	Pass

TEST RESULTS: The unit does meet the requirements.

4.2 NOMINAL CHANNEL BANDWIDTH AND AND OCCUPIED CHANNEL BANDWIDTH

4.2.1 LIMITS

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.

4.2.2 TEST PROCEDURE

Test requirement: EN 301 893 clause 4.2.2

Test Method: EN 301 893 clause 5.4.3.2

EUT Operation: Keep EUT on transmitting mode by the software provided by manufacturer.

Pretest the EUT at different transmission rate and report show the worst case data.

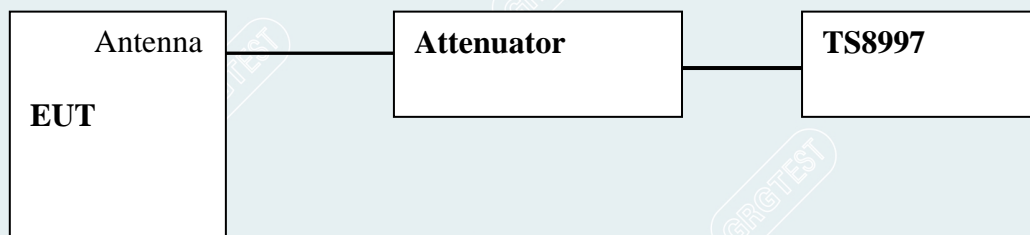
Test condition: These measurements shall be performed under normal test conditions (see clause 5.1.2).

Test channel:

Modulation Mode	Test Channel/ Frequency(MHz)	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	5180,5320	5500,5700
802.11n(HT20)	5180,5320	5500,5700
802.11n(HT40)	5190,5310	5510,5670
802.11ac(VT80)	5210,5290	5530

Note: /

4.2.3 TEST SETUP



4.2.4 TEST RESULTS

802.11a mode

DUT Frequency (MHz)	Nominal Bandwidth (MHz)	DUT Port	Bandwidth (MHz)	Limit (MHz)	Result	Comment
5180.000000	20.000000	1	16.649	>= 16.000000 <= 20.000000	PASS	/
5320.000000	20.000000	1	16.697	>= 16.000000 <= 20.000000	PASS	/
5500.000000	20.000000	1	17.354	>= 16.000000 <= 20.000000	PASS	/
5700.000000	20.000000	1	16.803	>= 16.000000 <= 20.000000	PASS	/

802.11n HT20 mode

DUT Frequency (MHz)	Nominal Bandwidth (MHz)	DUT Port	Bandwidth (MHz)	Limit (MHz)	Result	Comment
5180.000000	20.000000	1	17.708	>= 16.000000 <= 20.000000	PASS	/
5320.000000	20.000000	1	17.745	>= 16.000000 <= 20.000000	PASS	/
5500.000000	20.000000	1	17.633	>= 16.000000 <= 20.000000	PASS	/
5700.000000	20.000000	1	17.794	>= 16.000000 <= 20.000000	PASS	/

802.11n HT40 mode

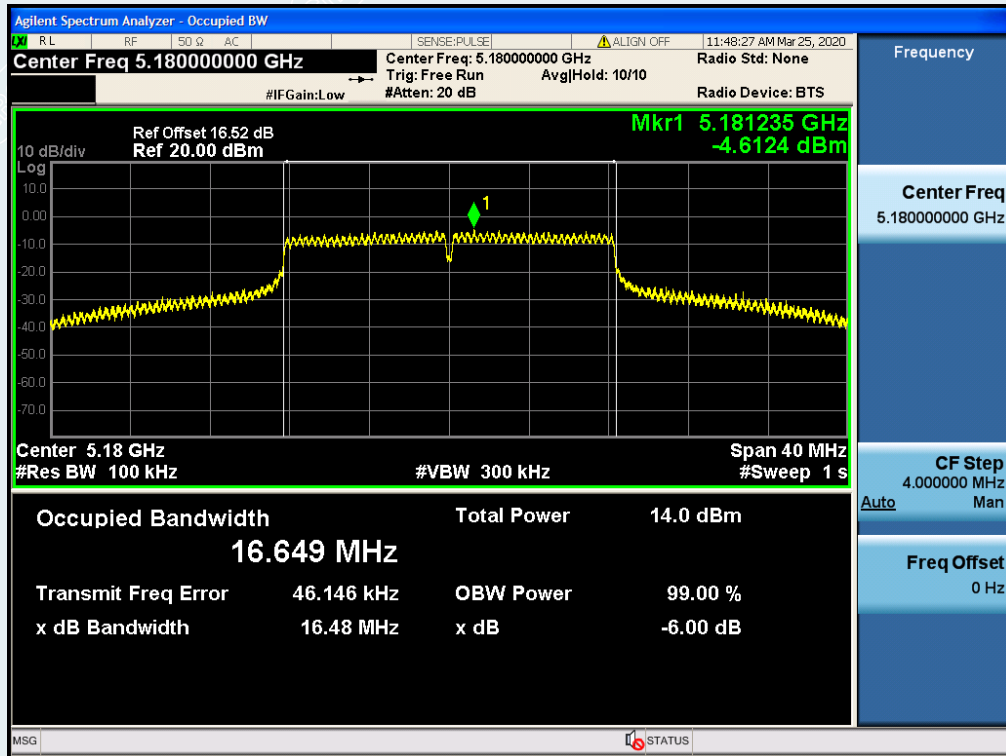
DUT Frequency (MHz)	Nominal Bandwidth (MHz)	DUT Port	Bandwidth (MHz)	Limit (MHz)	Result	Comment
5190.000000	40.000000	1	36.386	>= 32.000000 <= 40.000000	PASS	/
5310.000000	40.000000	1	36.420	>= 32.000000 <= 40.000000	PASS	/
5510.000000	40.000000	1	36.319	>= 32.000000 <= 40.000000	PASS	/
5670.000000	40.000000	1	36.245	>= 32.000000 <= 40.000000	PASS	/

802.11ac VT80 mode

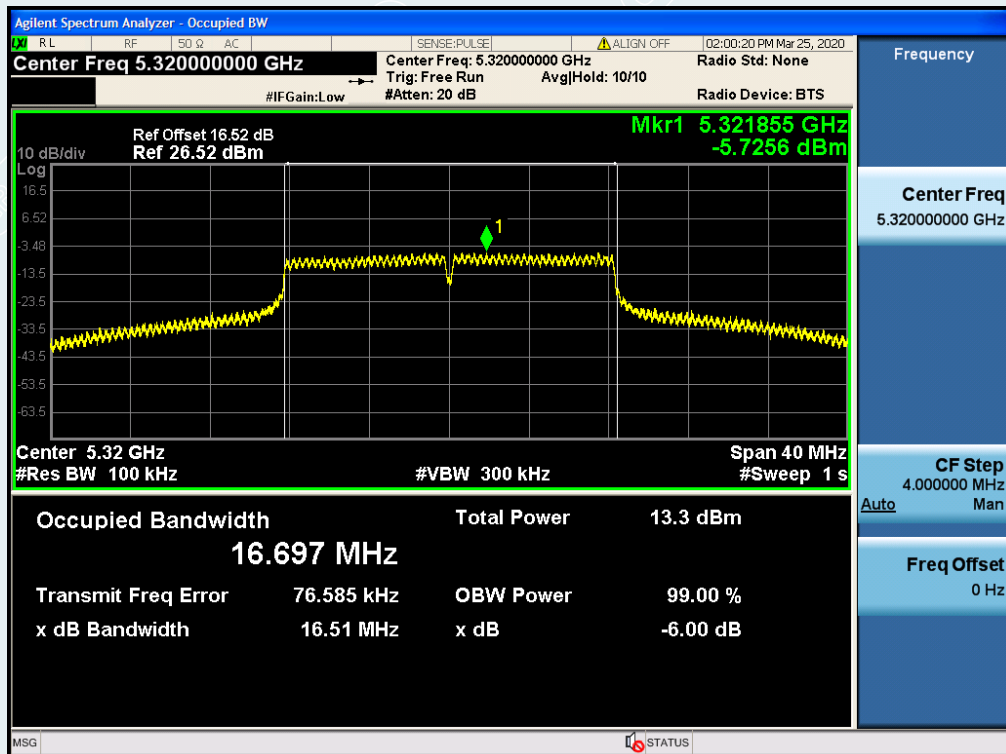
DUT Frequency (MHz)	Nominal Bandwidth (MHz)	DUT Port	Bandwidth (MHz)	Limit (MHz)	Result	Comment
5210.000000	80.000000	1	75.890	>= 64.000000 <= 80.000000	PASS	/
5290.000000	80.000000	1	76.735	>= 64.000000 <= 80.000000	PASS	/
5530.000000	80.000000	1	75.767	>= 64.000000 <= 80.000000	PASS	/

802.11a mode:

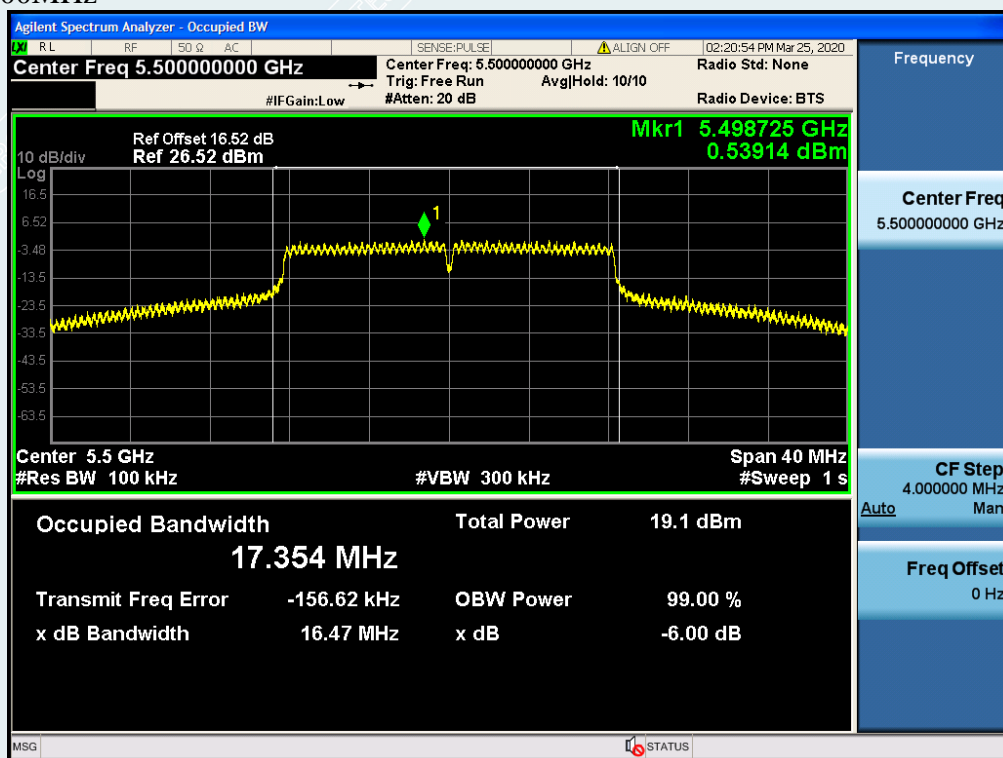
Channel 5180MHz



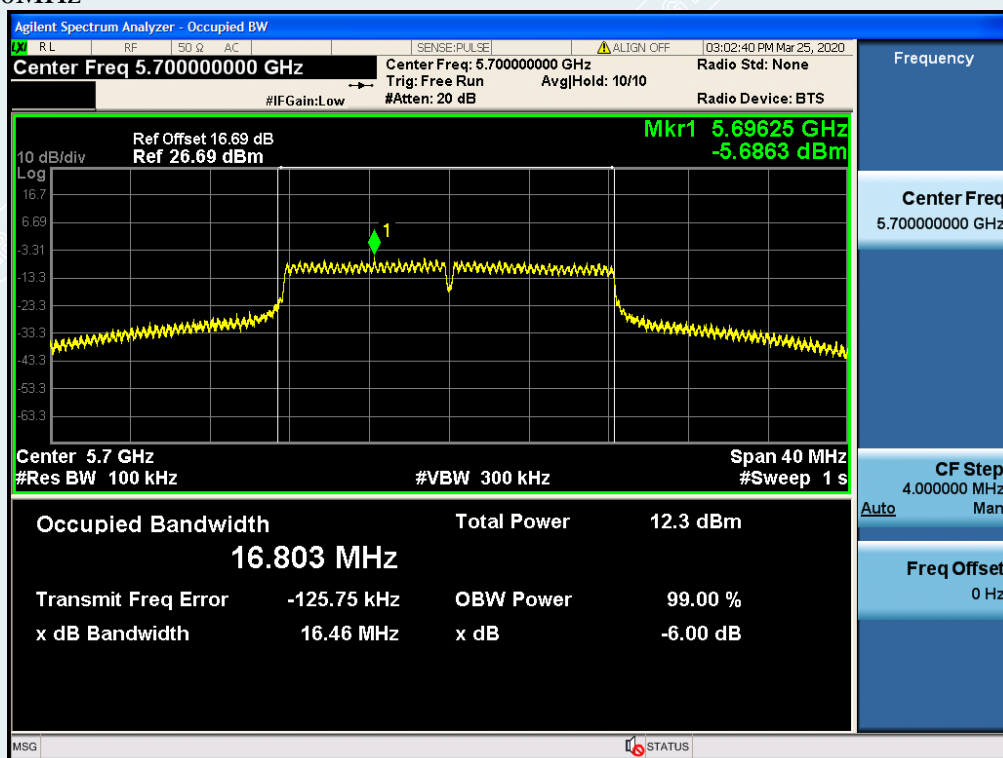
Channel 5320MHz



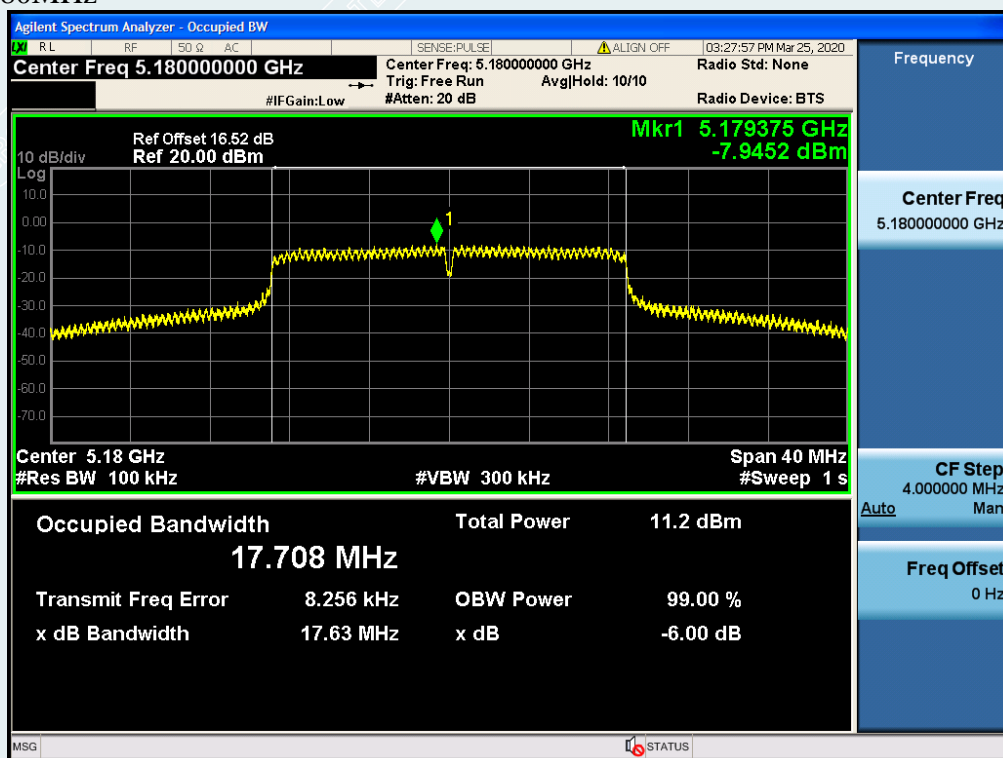
Channel 5500MHz



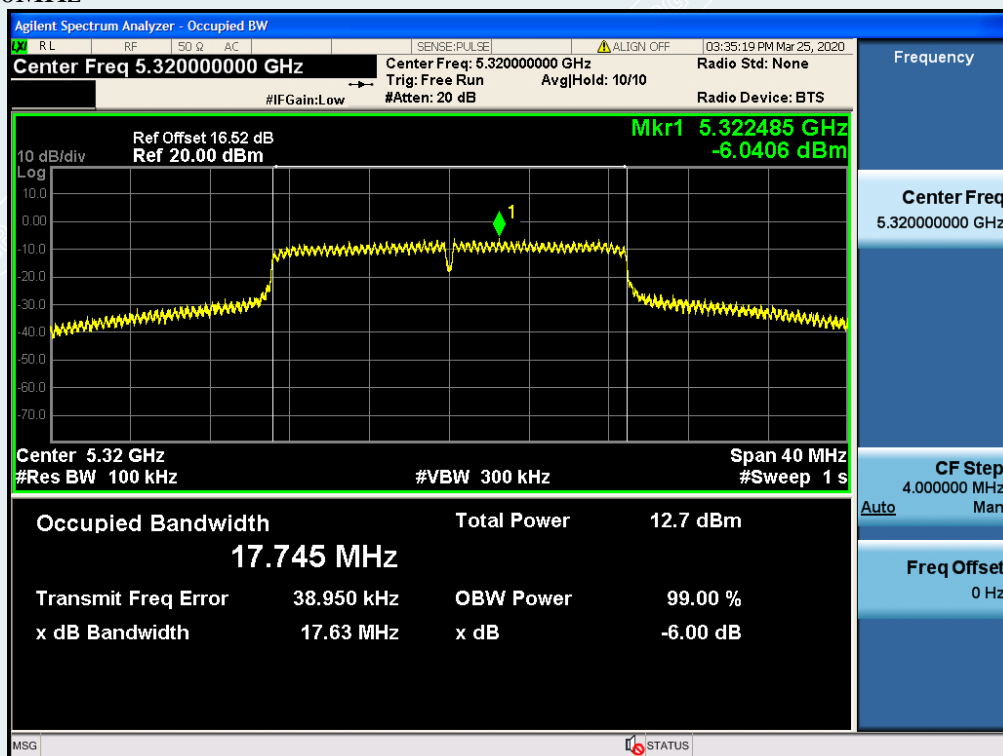
Channel 5700MHz



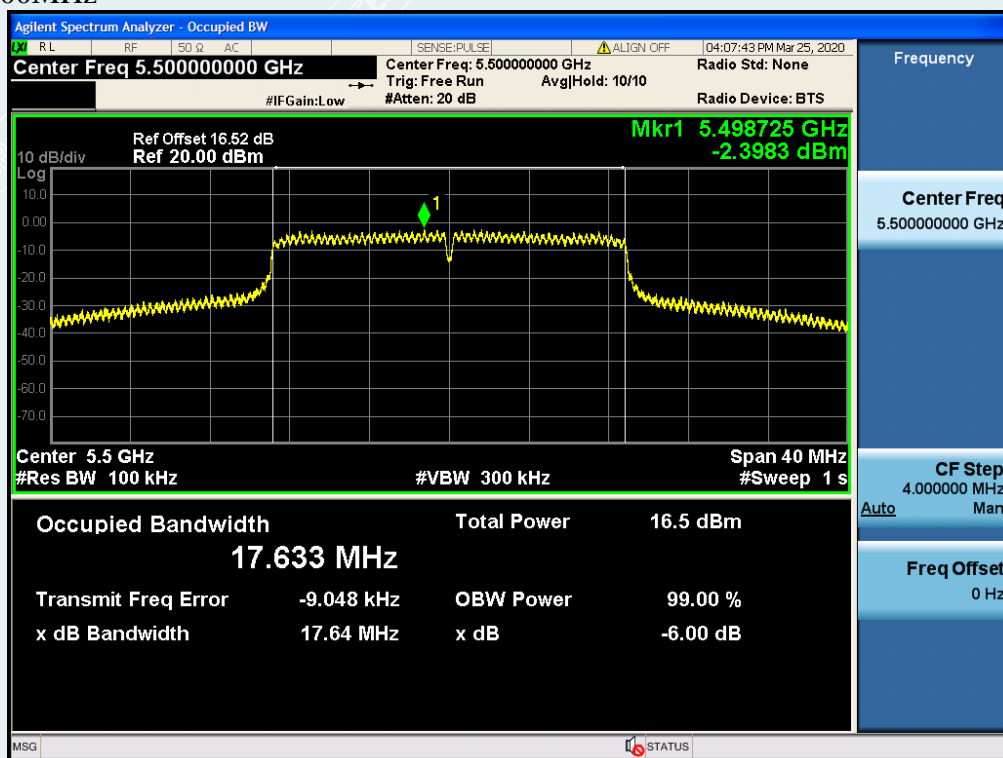
802.11n20 mode:
Channel 5180MHz



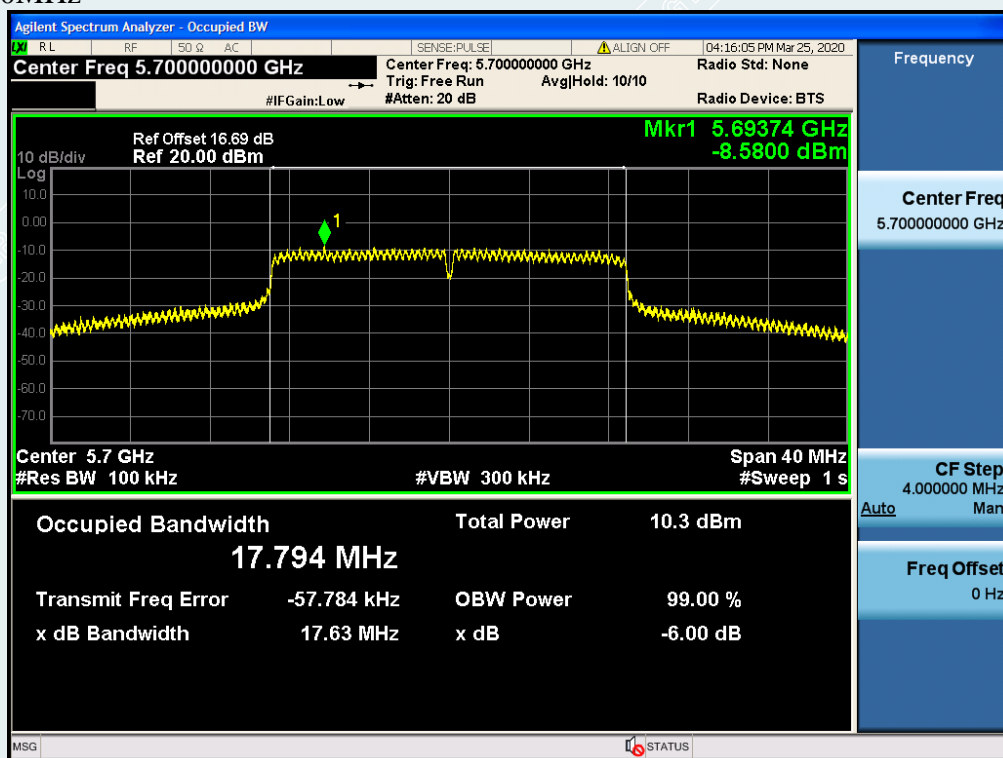
Channel 5320MHz



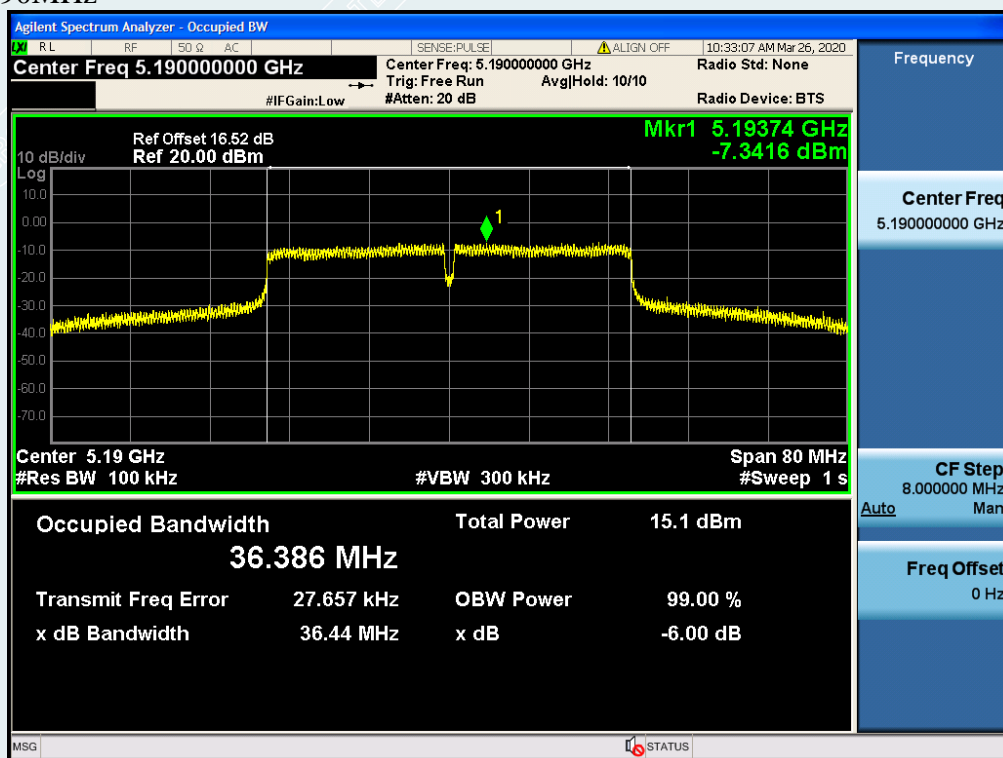
Channel 5500MHz



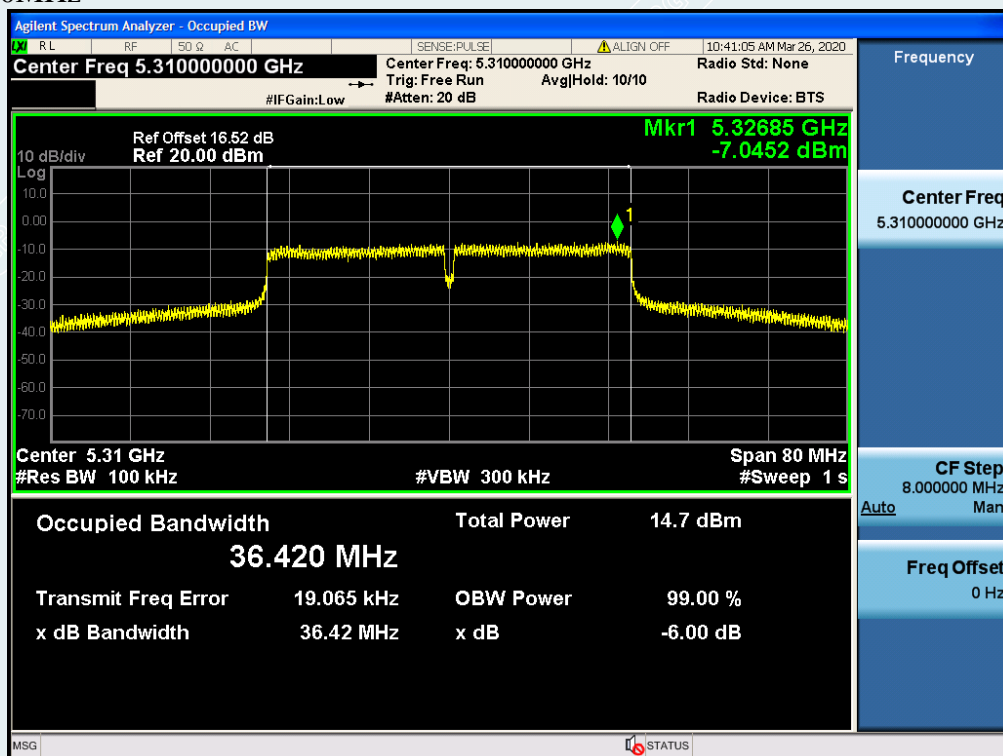
Channel 5700MHz



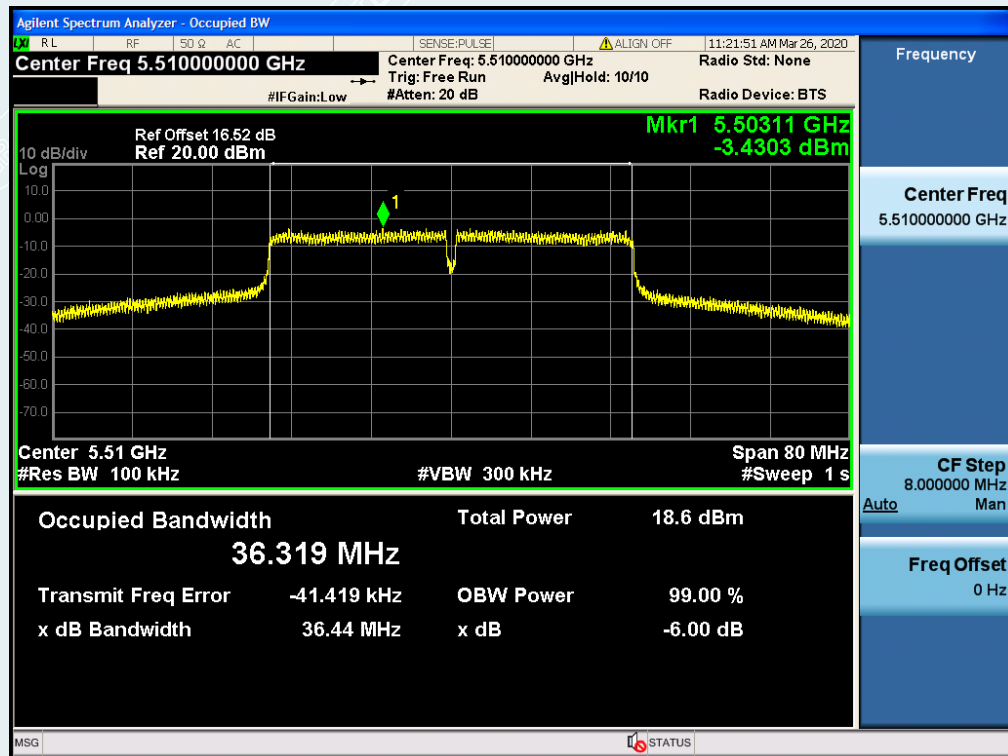
802.11n40 mode:
Channel 5190MHz



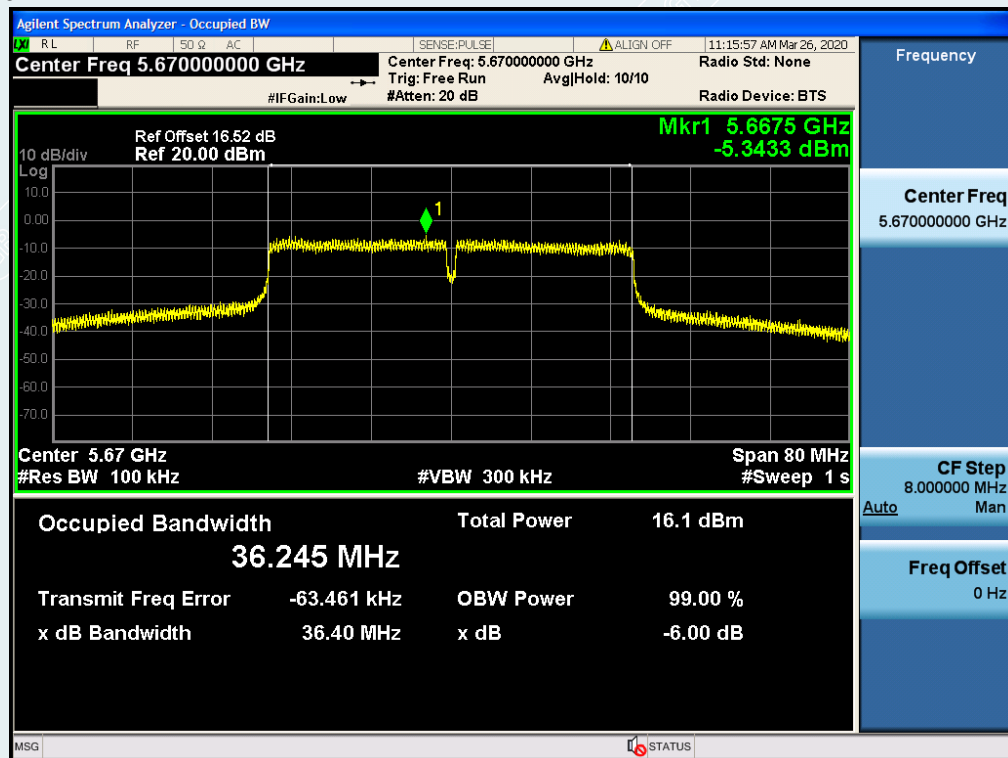
Channel 5310MHz



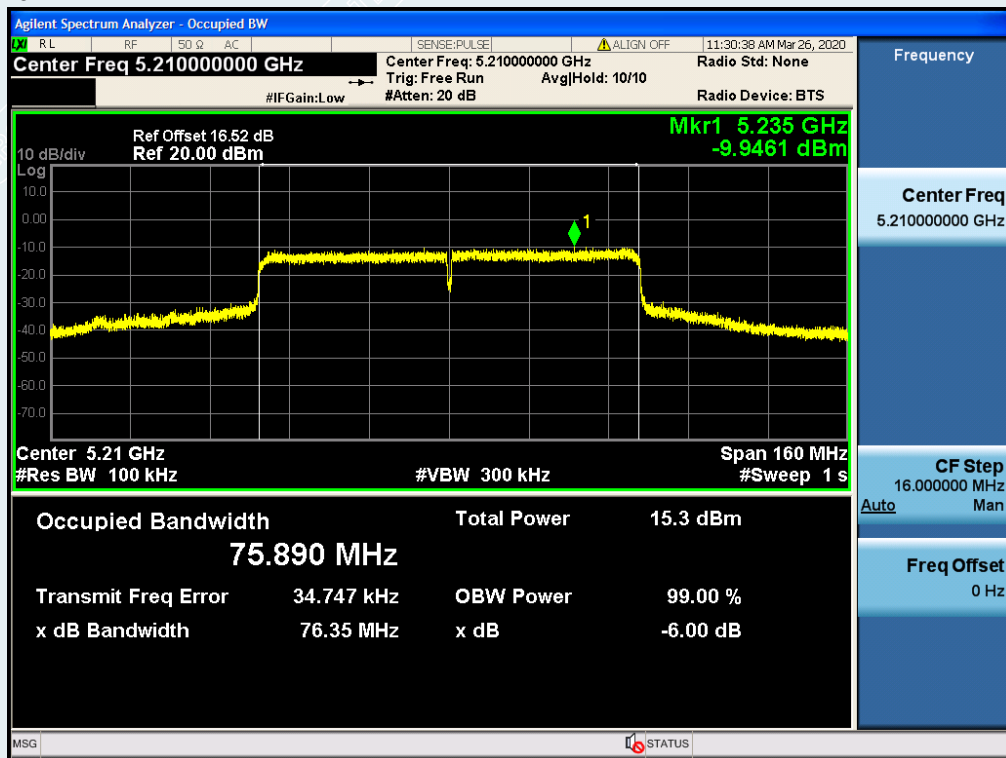
Channel 5510MHz



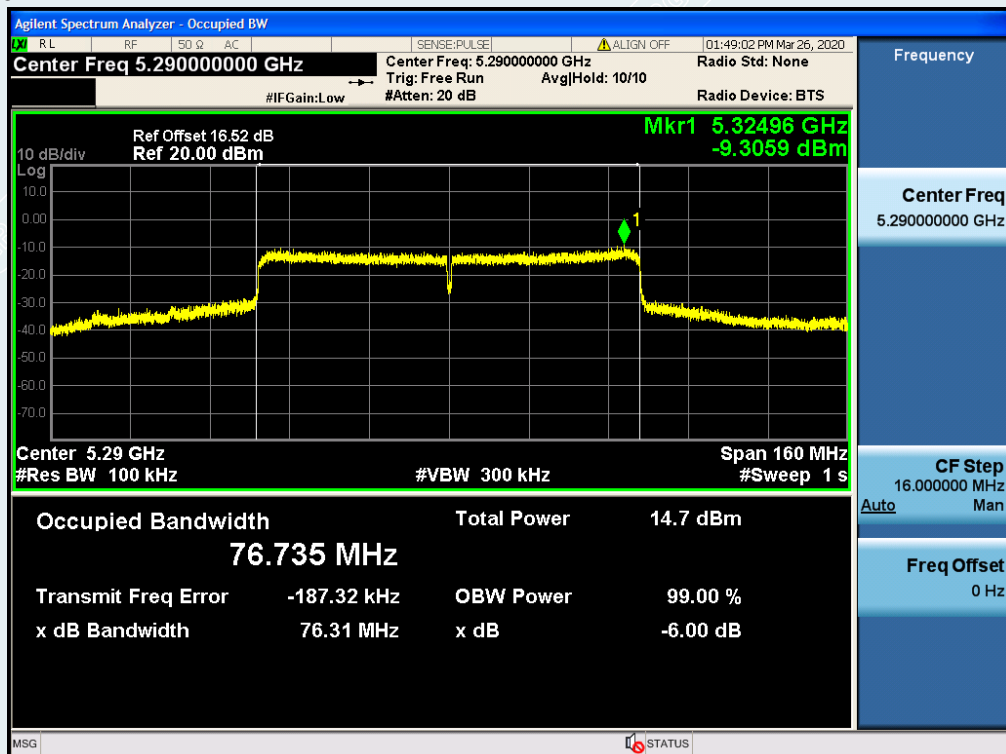
Channel 5670MHz



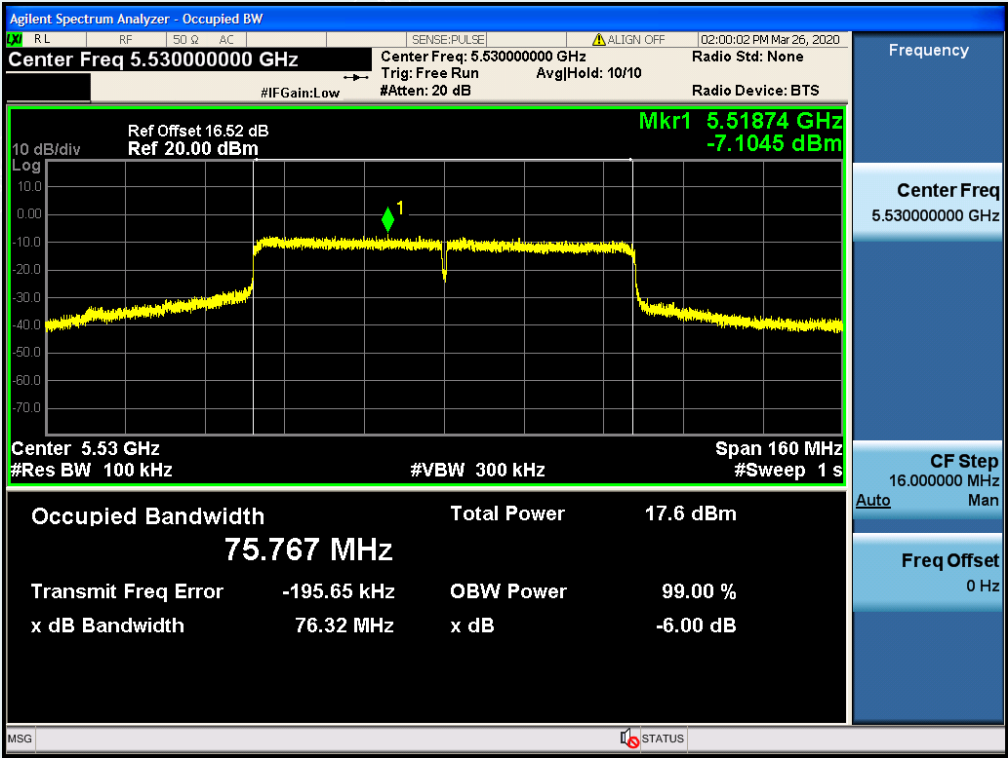
802.11ac80 mode:
Channel 5210MHz



Channel 5290MHz



Channel 5530MHz



TEST RESULTS: The unit does meet the requirements.

4.3 RF OUTPUT POWER AND TRANSMIT POWER CONTROL(TPC)

4.3.1 LIMITS

Table 2: Mean e.i.r.p. limits for RF output power and Power Density at the highest power level (P_H)

Frequency range (MHz)	Mean e.i.r.p. limit for P_H (dBm)		Mean e.i.r.p. density limit (dBm/MHz)	
	with TPC	without TPC	with TPC	without TPC
5 150 to 5 350	23	20/23 (see note 1)	10	7/10 (see note 2)
5 470 to 5 725	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 5 150 MHz to 5 250 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 5 150 MHz to 5 250 MHz, in which case the applicable limit is 10 dBm/MHz.				
NOTE 3: Slave devices without a <i>Radar Interference Detection</i> function shall comply with the limits for the frequency range 5 250 MHz to 5 350 MHz.				

Table 3: Mean e.i.r.p. limits for RF Output Power at the lowest power level of the TPC range

Frequency range	Mean e.i.r.p. (dBm) limit for P_L
5 250 MHz to 5 350 MHz	17
5 470 MHz to 5 725 MHz	24 (see note)
NOTE: Slave devices without a <i>Radar Interference Detection</i> function shall comply with the limits for the band 5 250 MHz to 5 350 MHz.	

4.3.2 TEST PROCEDURE

Test requirement:	EN 301 893 clause 4.2.3
Test Method:	EN 301 893 clause 5.4.4.2
EUT Operation:	Keep EUT on transmitting mode by the software provided by manufacturer. Pretest the EUT at different transmission rate and report show the worst case data.
Test condition:	These measurements shall be performed under both normal and extreme test conditions (see clause 5.1).

Test condition	Temperature(°C)
Normal condition	+25
Extreme condition	0
	+40

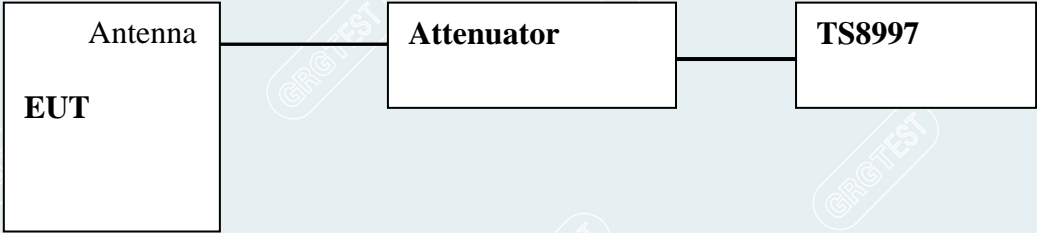
Test channel:

Modulation Mode	Test Channel	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	5180,5320	5500,5700
802.11n(HT20)	5180,5320	5500,5700

802.11n(HT40);	5190,5310	5510,5670
802.11ac(VT80)	5210,5290	5530

Note: This device does not support TPC function.

4.3.3 TEST SETUP



4.3.4 TEST RESULTS

802.11 a mode:

Measurement Conditions	5180MHz e.i.r.p.(dBm)	5320MHz e.i.r.p.(dBm)	Limit (dBm)
Temperature(°C)			
25	16.99	16.48	23/20
0	17.05	16.54	23/20
40	17.01	16.50	23/20
Measurement Conditions	5500MHz e.i.r.p.(dBm)	5700MHz e.i.r.p.(dBm)	Limit (dBm)
Temperature(°C)			
25	20.61	16.29	27
0	20.63	16.33	27
40	20.68	16.36	27

802.11n HT20 mode

Measurement Conditions	5180MHz e.i.r.p.(dBm)	5320MHz e.i.r.p.(dBm)	Limit (dBm)
Temperature(°C)			
25	13.66	15.53	23/20
0	13.71	15.56	23/20
40	13.66	15.53	23/20
Measurement Conditions	5500MHz e.i.r.p.(dBm)	5700MHz e.i.r.p.(dBm)	Limit (dBm)
Temperature(°C)			
25	19.00	14.28	27
0	19.02	14.31	27
40	19.06	14.34	27

802.11n HT40 mode			
Measurement Conditions	5190MHz e.i.r.p.(dBm)	5310MHz e.i.r.p.(dBm)	Limit (dBm)
Temperature(°C)			
25	18.03	18.76	23/20
0	18.04	18.78	23/20
40	18.03	18.77	23/20
Measurement Conditions	5510MHz e.i.r.p.(dBm)	5670MHz e.i.r.p.(dBm)	Limit (dBm)
Temperature(°C)			
25	20.59	19.04	27
0	20.60	19.05	27
40	20.62	19.09	27

802.11ac VHT80 mode			
Measurement Conditions	5210MHz e.i.r.p.(dBm)	5290MHz e.i.r.p.(dBm)	Limit (dBm)
Temperature(°C)			
25	17.39	17.89	23/20
0	17.43	17.94	23/20
40	17.40	17.40	23/20
Measurement Conditions	5530MHz e.i.r.p.(dBm)		Limit (dBm)
Temperature(°C)			
25	19.53		27
0	19.56		27
40	19.57		27

TEST RESULTS: The EUT compliant the requirements.

4.4 POWER DENSITY

4.4.1 LIMITS

Table 2: Mean e.i.r.p. limits for RF output power and Power Density at the highest power level (P_H)

Frequency range (MHz)	Mean e.i.r.p. limit for P_H (dBm)		Mean e.i.r.p. density limit (dBm/MHz)	
	with TPC	without TPC	with TPC	without TPC
5 150 to 5 350	23	20/23 (see note 1)	10	7/10 (see note 2)
5 470 to 5 725	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 5 150 MHz to 5 250 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 5 150 MHz to 5 250 MHz, in which case the applicable limit is 10 dBm/MHz.				
NOTE 3: Slave devices without a <i>Radar Interference Detection</i> function shall comply with the limits for the frequency range 5 250 MHz to 5 350 MHz.				

4.4.2 TEST PROCEDURE

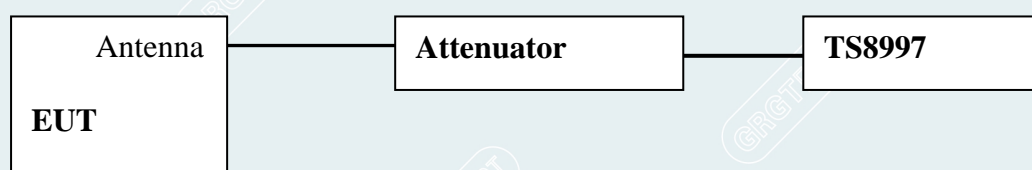
Test requirement:	EN 301 893 clause 4.2.3
Test Method:	EN 301 893 clause 5.4.4.2
EUT Operation:	Keep EUT on transmitting mode by the software provided by manufacturer. Pretest the EUT at different transmission rate and report show the worst case data.
Test condition:	These measurements shall be performed under normal test conditions (see clause 5.1.2).

Modulation Mode	Test Channel	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	5180,5320	5500,5700
802.11n(HT20)	5180,5320	5500,5700
802.11n(HT40)	5190,5310	5510,5670
802.11ac(VT80)	5210,5290	5530

Note:

/

4.4.3 TEST SETUP



4.4.4 TEST RESULTS

802.11a mode

DUT Frequency (MHz)	EIRP Power Density (dBm)	Limit (dBm)	Result	Comment
5180.000000	3.88	<= 10.0	PASS	/
5320.000000	3.39	<= 7.0	PASS	/
5500.000000	8.62	<= 14.0	PASS	/
5700.000000	3.98	<= 14.0	PASS	/

802.11n HT20 mode

DUT Frequency (MHz)	EIRP Power Density (dBm)	Limit (dBm)	Result	Comment
5180.000000	0.42	<= 10.0	PASS	/
5320.000000	2.16	<= 7.0	PASS	/
5500.000000	6.77	<= 14.0	PASS	/
5700.000000	1.95	<= 14.0	PASS	/

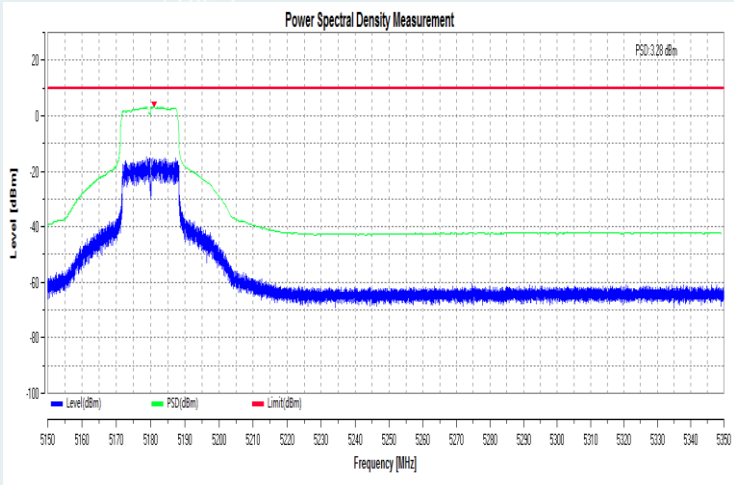
802.11n HT40 mode

DUT Frequency (MHz)	EIRP Power Density (dBm)	Limit (dBm)	Result	Comment
5190.000000	1.75	<= 10.0	PASS	/
5310.000000	2.70	<= 7.0	PASS	/
5510.000000	5.06	<= 14.0	PASS	/
5670.000000	3.90	<= 14.0	PASS	/

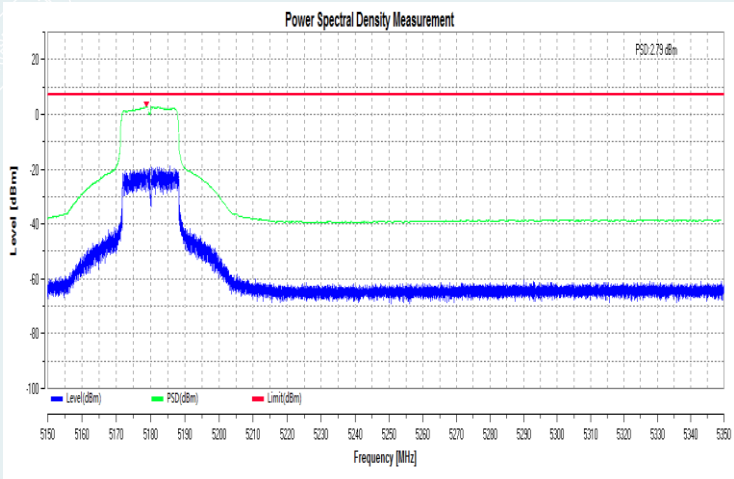
802.11ac VHT80 mode

DUT Frequency (MHz)	EIRP Power Density (dBm)	Limit (dBm)	Result	Comment
5210.000000	-1.72	<= 10.0	PASS	/
5290.000000	-0.89	<= 7.0	PASS	/
5530.000000	1.50	<= 14.0	PASS	/

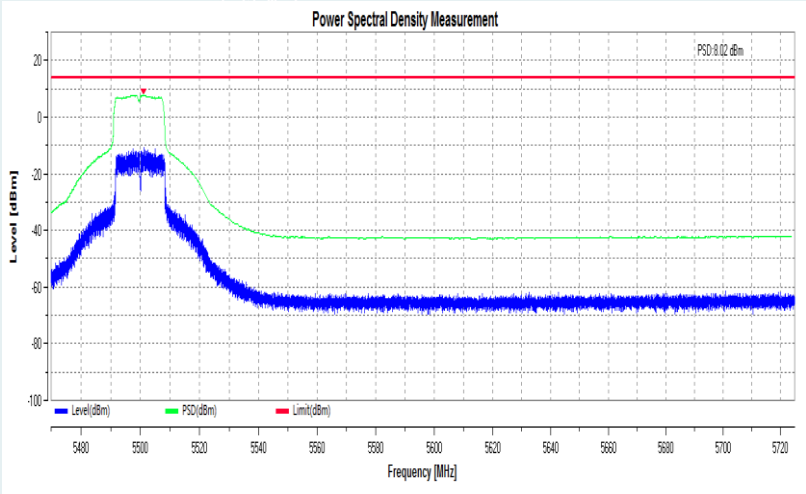
802.11a mode:
Channel 5180MHz



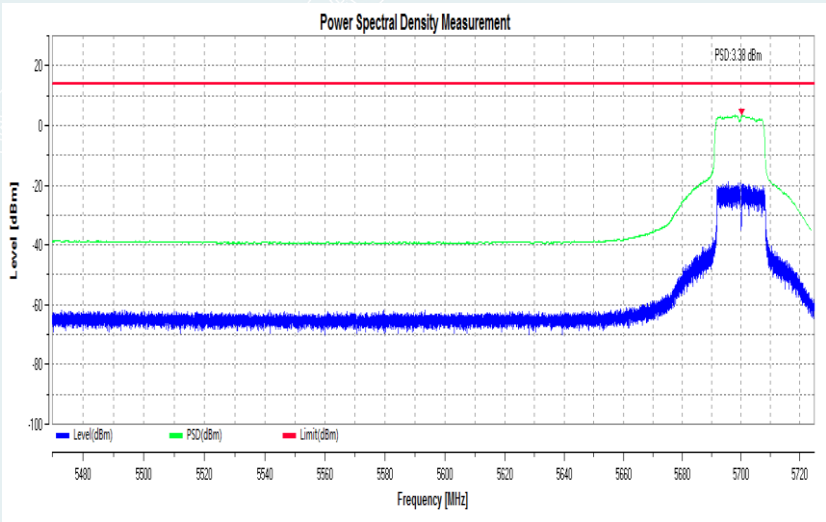
Channel 5320MHz



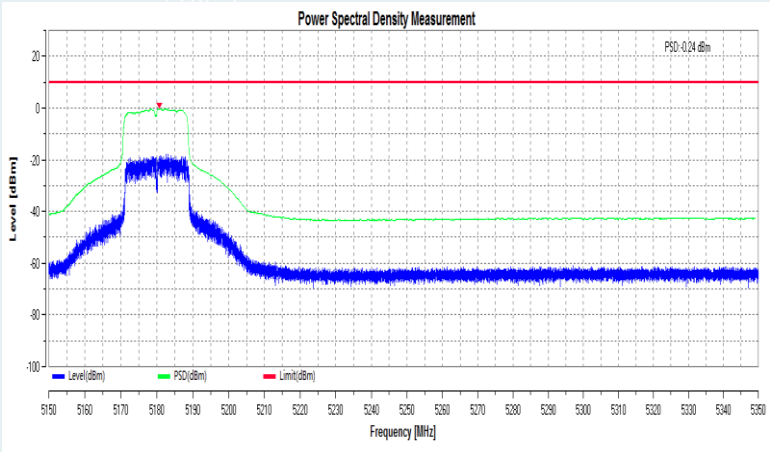
Channel 5500MHz



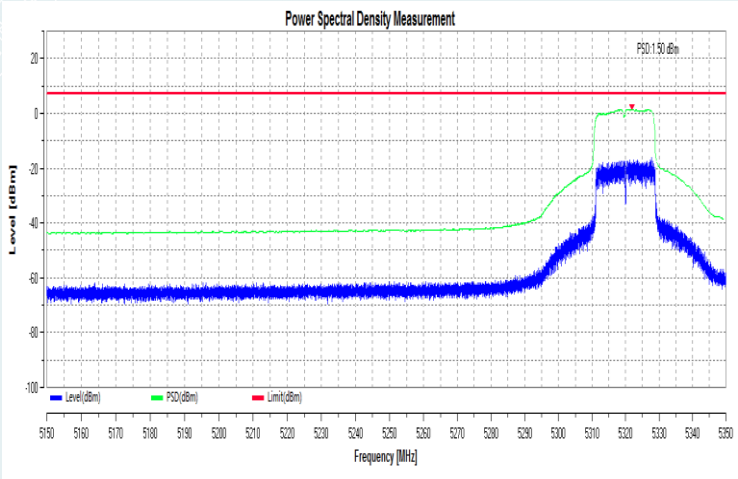
Channel 5700MHz



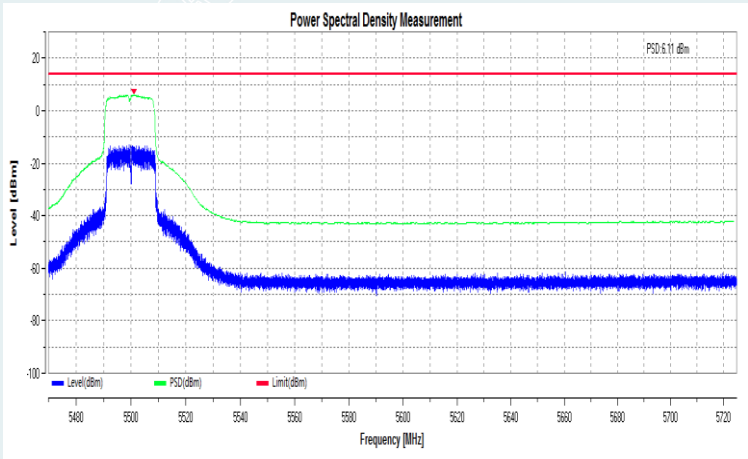
802.11n20 mode:
Channel 5180MHz



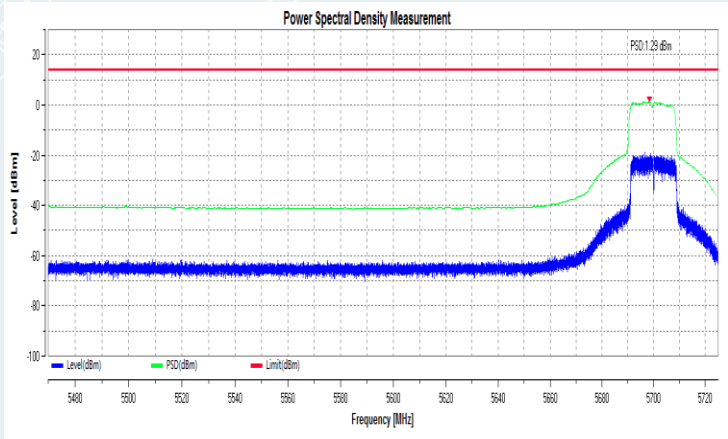
Channel 5320MHz



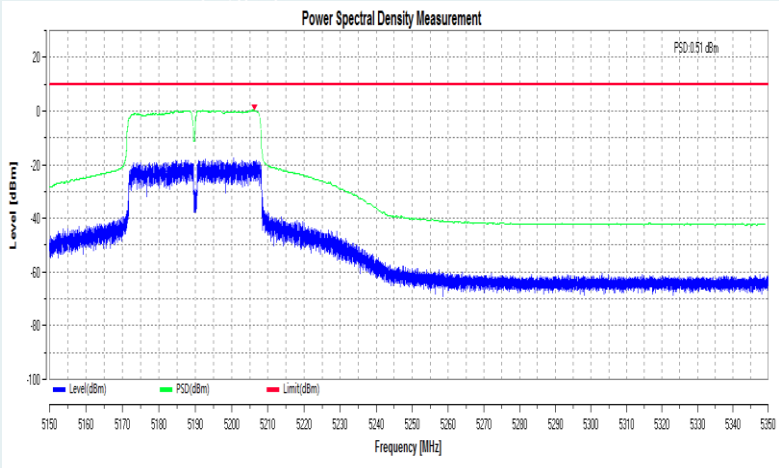
Channel 5500MHz



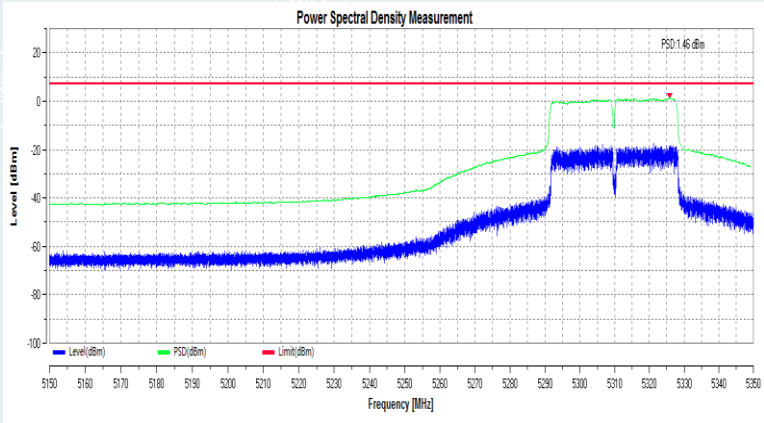
Channel 5700MHz



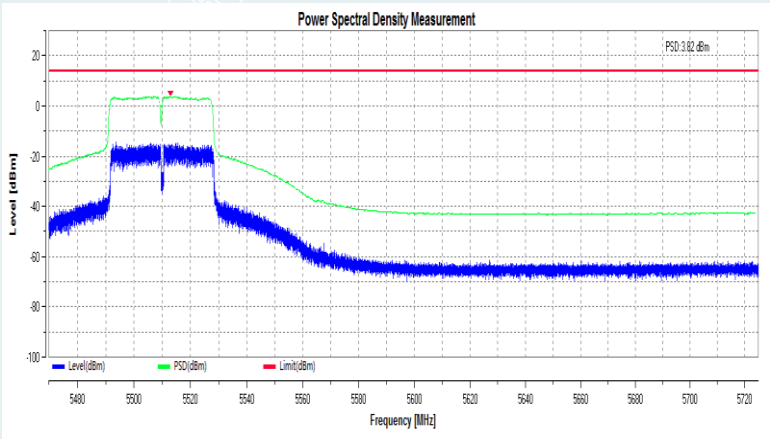
802.11n40 mode:
Channel 5190MHz



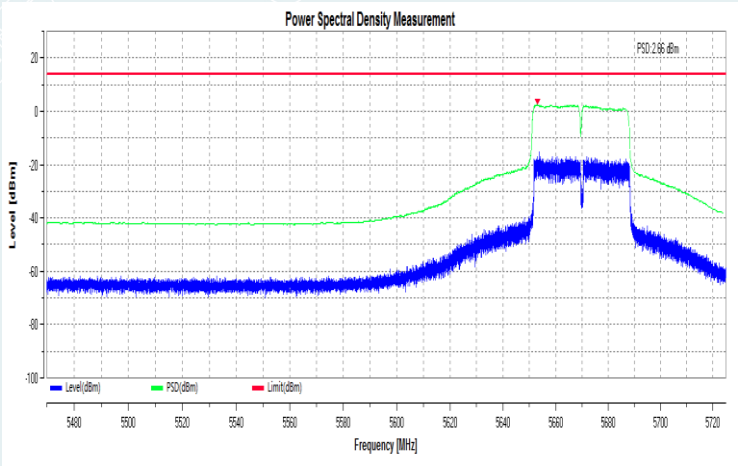
Channel 5310MHz



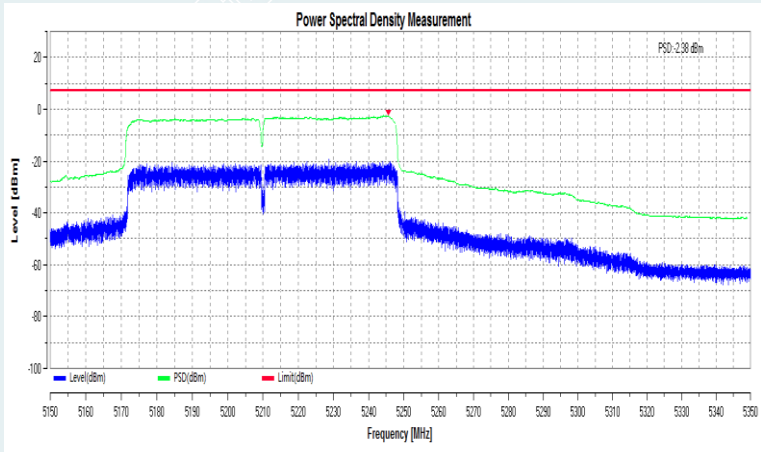
Channel 5510MHz



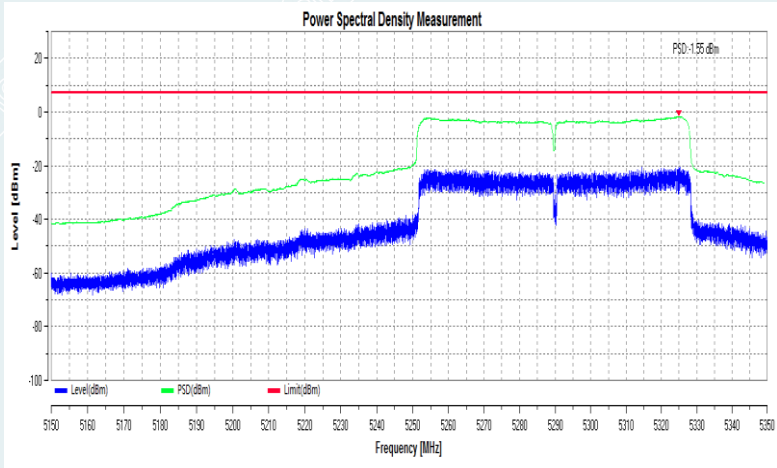
Channel 5670MHz



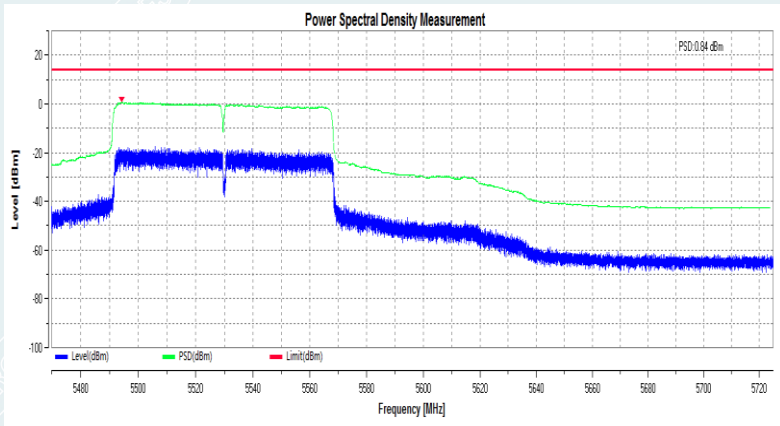
802.11ac80 mode:
Channel 5210MHz



Channel 5290MHz



Channel 5530MHz



TEST RESULTS: The unit does meet the requirements.

4.5 TRANSMITTER UNWANTED EMISSIONS OUTSIDE 5GHZ BANDS

4.5.1 LIMITS

Table 4: Transmitter unwanted emission limits outside the 5 GHz RLAN bands

Frequency range	Maximum power	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 5,15 GHz	-30 dBm	1 MHz
5,35 GHz to 5,47 GHz	-30 dBm	1 MHz
5,725 GHz to 26 GHz	-30 dBm	1 MHz

4.5.2 TEST PROCEDURE

Test requirement: EN 301 893 clause 4.2.4.1

Test Method: EN 301 893 clause 5.4.5.2 and annex B

EUT Operation: Keep EUT on transmitting mode by the software provided by manufacturer. Pretest the EUT at different transmission rate and report show the worst case data.

Test condition: These measurements shall be performed under normal test conditions (see clause 5.1.2).

Test channel:

Modulation Mode	Test Channel	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	5180,5320	5500,5700
802.11n(HT20)	5180,5320	5500,5700
802.11n(HT40);	5190,5310	5510,5670
802.11ac(VT80)	5210,5290	5530

EIRP test method:

1. The EUT shall be performed at the highest power level at which the transmitter is intended to operate. and Interface cables, loads, and devices should be connected to at least one of each type of the interface ports of the EUT and, where practical, each cable shall be terminated in a device typical for its actual use. EUT shall be placed at the 1.5m support on the turntable.
2. The test antenna at a horizontal distance of 3 m .It shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360 ° in the horizontal plane, until the maximum signal level is detected by the measuring receiver. in both the vertical and the horizontal polarization. Record the reading level, antenna position, polarization and turntable position.
3. Remove the transmitter and replace it with a substitution antenna (the

antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. For frequencies of 80 MHz and above, the dipoles should have their arm lengths set for resonance at the frequency of test. Below 80 MHz, shortened arm lengths are recommended. For measurements above 1 000 MHz, a waveguide horn is recommended. The centre of this antenna should coincide with either the phase centre or volume centre.

4. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by a cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

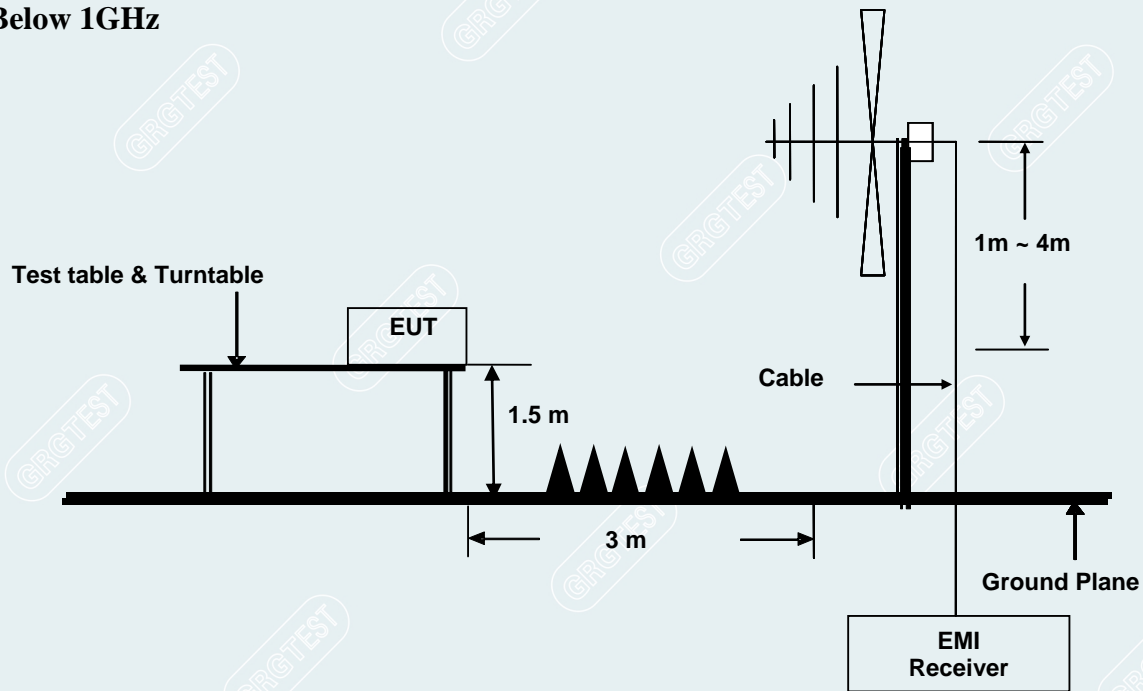
5. $EIRP(dBm) = P_g(dBm) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$

Where: P_g is the generator output power into the substitution antenna

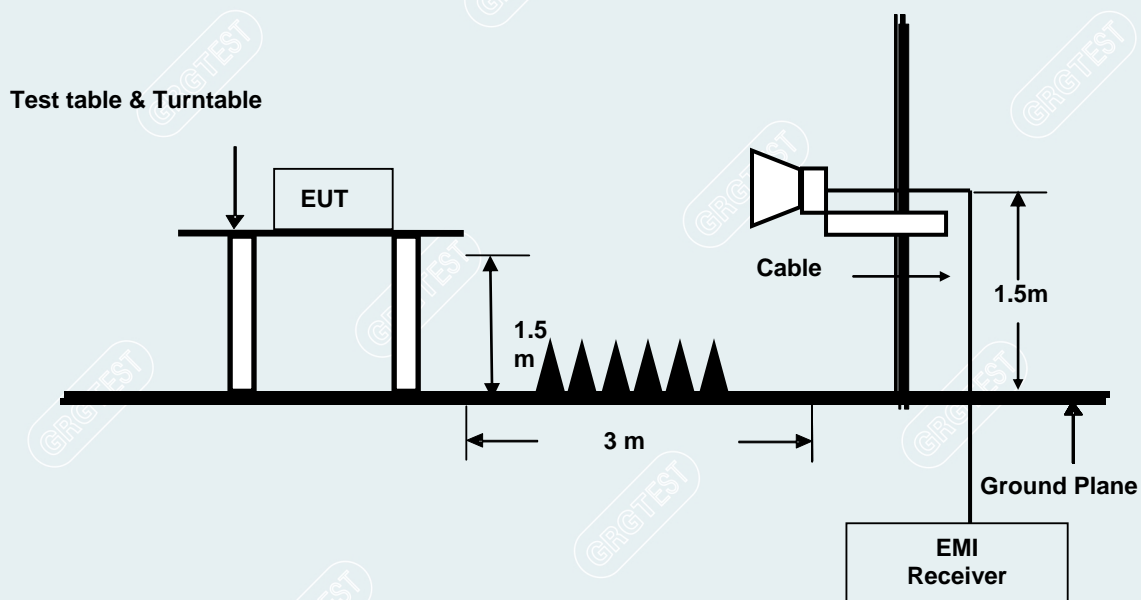
Note:

4.5.3 TEST SETUP

Below 1GHz



Above 1GHz



4.5.4 TEST RESULTS

30MHz-1000MHz

802.11n20 mode:

Channel 5180MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	38.9240	-59.23	-74.55	-36.00	38.55	-15.32	RMS	Horizontal
2	79.2275	-49.13	-69.90	-36.00	33.90	-20.77	RMS	Horizontal
3	88.8305	-47.90	-70.14	-54.00	16.14	-22.24	RMS	Horizontal
4	98.3850	-44.76	-68.25	-54.00	14.25	-23.49	RMS	Horizontal
5	574.4125	-68.76	-75.20	-54.00	21.20	-6.44	RMS	Horizontal
6	966.6805	-61.82	-62.63	-36.00	26.63	-0.81	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	38.9240	-43.35	-65.81	-36.00	29.81	-22.46	RMS	Vertical
2	49.0120	-48.08	-67.15	-54.00	13.15	-19.07	RMS	Vertical
3	54.1530	-50.92	-70.05	-54.00	16.05	-19.13	RMS	Vertical
4	58.7120	-50.71	-70.31	-54.00	16.31	-19.60	RMS	Vertical
5	98.3850	-51.77	-69.82	-54.00	15.82	-18.05	RMS	Vertical
6	959.0660	-66.18	-67.10	-36.00	31.10	-0.92	RMS	Vertical

Channel 5500MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	58.7120	-61.20	-76.01	-54.00	22.01	-14.81	RMS	Horizontal
2	77.1420	-49.10	-69.87	-36.00	33.87	-20.77	RMS	Horizontal
3	88.8305	-49.27	-71.51	-54.00	17.51	-22.24	RMS	Horizontal
4	97.8030	-45.20	-68.62	-54.00	14.62	-23.42	RMS	Horizontal
5	106.6785	-50.73	-73.28	-54.00	19.28	-22.55	RMS	Horizontal
6	640.5180	-70.09	-75.41	-54.00	21.41	-5.32	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	38.9240	-44.46	-66.92	-36.00	30.92	-22.46	RMS	Vertical
2	48.4300	-47.14	-66.44	-54.00	12.44	-19.30	RMS	Vertical
3	54.1530	-50.38	-69.51	-54.00	15.51	-19.13	RMS	Vertical
4	68.2180	-51.96	-71.57	-54.00	17.57	-19.61	RMS	Vertical
5	79.0820	-53.45	-73.29	-36.00	37.29	-19.84	RMS	Vertical
6	98.4820	-53.07	-71.11	-54.00	17.11	-18.04	RMS	Vertical

1GHz-26.5GHz

802.11a mode:

Channel 5180MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1910.520	-40.16	-56.77	-30.00	26.77	-16.61	RMS	Horizontal
2	2126.080	-45.02	-58.76	-30.00	28.76	-13.74	RMS	Horizontal
3	2462.680	-40.30	-53.65	-30.00	23.65	-13.35	RMS	Horizontal
4	2513.000	-46.62	-59.84	-30.00	29.84	-13.22	RMS	Horizontal
5	3599.640	-48.36	-57.22	-30.00	27.22	-8.86	RMS	Horizontal
6	5088.840	-47.91	-51.16	-30.00	21.16	-3.25	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1273.360	-45.48	-61.81	-30.00	31.81	-16.33	RMS	Vertical
2	1353.600	-45.62	-62.62	-30.00	32.62	-17.00	RMS	Vertical
3	1932.960	-41.83	-58.34	-30.00	28.34	-16.51	RMS	Vertical
4	6164.600	-48.88	-51.17	-30.00	21.17	-2.29	RMS	Vertical
5	9836.600	-48.77	-41.98	-30.00	11.98	6.79	RMS	Vertical
6	14996.44	-49.85	-33.56	-30.00	3.56	16.29	RMS	Vertical

Channel 5320MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1825.520	-47.32	-64.36	-30.00	34.36	-17.04	RMS	Horizontal
2	1932.960	-46.68	-63.13	-30.00	33.13	-16.45	RMS	Horizontal
3	2513.000	-46.66	-59.88	-30.00	29.88	-13.22	RMS	Horizontal
4	5147.320	-48.64	-52.09	-30.00	22.09	-3.45	RMS	Horizontal
5	11503.28	-50.13	-38.14	-30.00	8.14	11.99	RMS	Horizontal
6	14117.20	-50.11	-35.01	-30.00	5.01	15.10	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1907.800	-38.31	-55.02	-30.00	25.02	-16.71	RMS	Vertical
2	2513.000	-48.73	-61.88	-30.00	31.88	-13.15	RMS	Vertical
3	3599.640	-48.00	-56.66	-30.00	26.66	-8.66	RMS	Vertical
4	5088.840	-49.07	-51.84	-30.00	21.84	-2.77	RMS	Vertical
5	9980.760	-49.96	-42.16	-30.00	12.16	7.80	RMS	Vertical
6	11801.12	-51.45	-38.93	-30.00	8.93	12.52	RMS	Vertical

Channel 5500MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	2126.760	-48.61	-62.34	-30.00	32.34	-13.73	RMS	Horizontal
2	2513.000	-47.10	-60.32	-30.00	30.32	-13.22	RMS	Horizontal
3	3599.640	-47.52	-56.38	-30.00	26.38	-8.86	RMS	Horizontal
4	5496.840	-47.63	-50.98	-30.00	20.98	-3.35	RMS	Horizontal
5	9026.040	-48.33	-44.13	-30.00	14.13	4.20	RMS	Horizontal
6	15167.12	-50.60	-35.36	-30.00	5.36	15.24	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1932.960	-43.68	-60.19	-30.00	30.19	-16.51	RMS	Vertical
2	2126.760	-47.11	-60.65	-30.00	30.65	-13.54	RMS	Vertical
3	3599.640	-48.06	-56.72	-30.00	26.72	-8.66	RMS	Vertical
4	5493.440	-46.88	-49.55	-30.00	19.55	-2.67	RMS	Vertical
5	11784.12	-51.10	-38.96	-30.00	8.96	12.14	RMS	Vertical
6	15003.92	-51.31	-35.03	-30.00	5.03	16.28	RMS	Vertical

Channel 5700MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1933.640	-42.82	-59.27	-30.00	29.27	-16.45	RMS	Horizontal
2	2126.080	-42.92	-56.66	-30.00	26.66	-13.74	RMS	Horizontal
3	2513.000	-45.22	-58.44	-30.00	28.44	-13.22	RMS	Horizontal
4	2706.800	-48.08	-60.86	-30.00	30.86	-12.78	RMS	Horizontal
5	8101.240	-47.52	-44.48	-30.00	14.48	3.04	RMS	Horizontal
6	15746.48	-49.06	-36.52	-30.00	6.52	12.54	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1352.920	-43.82	-60.81	-30.00	30.81	-16.99	RMS	Vertical
2	1739.840	-44.96	-62.42	-30.00	32.42	-17.46	RMS	Vertical
3	1844.560	-46.79	-63.92	-30.00	33.92	-17.13	RMS	Vertical
4	1933.640	-45.94	-62.44	-30.00	32.44	-16.50	RMS	Vertical
5	3599.640	-47.97	-56.63	-30.00	26.63	-8.66	RMS	Vertical
6	10340.48	-49.00	-41.55	-30.00	11.55	7.45	RMS	Vertical

802.11n20 mode:
Channel 5180MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1910.520	-38.48	-55.09	-30.00	25.09	-16.61	RMS	Horizontal
2	1932.960	-39.02	-55.47	-30.00	25.47	-16.45	RMS	Horizontal
3	2126.080	-45.00	-58.74	-30.00	28.74	-13.74	RMS	Horizontal
4	2513.000	-47.08	-60.30	-30.00	30.30	-13.22	RMS	Horizontal
5	3599.640	-47.36	-56.22	-30.00	26.22	-8.86	RMS	Horizontal
6	10100.44	-49.09	-40.71	-30.00	10.71	8.38	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1739.160	-46.14	-63.60	-30.00	33.60	-17.46	RMS	Vertical
2	1911.880	-39.60	-56.27	-30.00	26.27	-16.67	RMS	Vertical
3	2434.800	-42.05	-55.03	-30.00	25.03	-12.98	RMS	Vertical
4	4659.080	-48.42	-53.38	-30.00	23.38	-4.96	RMS	Vertical
5	6280.200	-48.61	-50.48	-30.00	20.48	-1.87	RMS	Vertical
6	10002.52	-49.55	-41.39	-30.00	11.39	8.16	RMS	Vertical

Channel 5320MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1911.200	-45.02	-61.62	-30.00	31.62	-16.60	RMS	Horizontal
2	2126.760	-47.46	-61.19	-30.00	31.19	-13.73	RMS	Horizontal
3	2513.000	-47.04	-60.26	-30.00	30.26	-13.22	RMS	Horizontal
4	2899.240	-48.55	-59.83	-30.00	29.83	-11.28	RMS	Horizontal
5	5898.040	-49.61	-52.74	-30.00	22.74	-3.13	RMS	Horizontal
6	13510.64	-51.48	-38.00	-30.00	8.00	13.48	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1932.960	-40.59	-57.10	-30.00	27.10	-16.51	RMS	Vertical
2	2126.760	-46.74	-60.28	-30.00	30.28	-13.54	RMS	Vertical
3	2410.320	-43.34	-56.24	-30.00	26.24	-12.90	RMS	Vertical
4	3599.640	-47.61	-56.27	-30.00	26.27	-8.66	RMS	Vertical
5	8103.960	-47.28	-45.07	-30.00	15.07	2.21	RMS	Vertical
6	16496.52	-48.89	-31.22	-30.00	1.22	17.67	RMS	Vertical

Channel 5500MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1933.640	-43.00	-59.45	-30.00	29.45	-16.45	RMS	Horizont
2	2513.000	-46.37	-59.59	-30.00	29.59	-13.22	RMS	Horizont
3	3599.640	-46.81	-55.67	-30.00	25.67	-8.86	RMS	Horizont
4	5492.760	-47.82	-51.19	-30.00	21.19	-3.37	RMS	Horizont
5	11790.24	-51.21	-40.69	-30.00	10.69	10.52	RMS	Horizont
6	16392.48	-48.98	-36.26	-30.00	6.26	12.72	RMS	Horizont

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1908.480	-40.10	-56.80	-30.00	26.80	-16.70	RMS	Vertical
2	2458.600	-42.29	-55.35	-30.00	25.35	-13.06	RMS	Vertical
3	5494.120	-46.22	-48.88	-30.00	18.88	-2.66	RMS	Vertical
4	11620.92	-48.80	-38.11	-30.00	8.11	10.69	RMS	Vertical
5	15003.92	-50.93	-34.65	-30.00	4.65	16.28	RMS	Vertical
6	16514.88	-48.85	-31.27	-30.00	1.27	17.58	RMS	Vertical

Channel 5700MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1739.840	-45.62	-63.36	-30.00	33.36	-17.74	RMS	Horizont
2	1932.960	-42.51	-58.96	-30.00	28.96	-16.45	RMS	Horizont
3	2512.320	-49.33	-62.55	-30.00	32.55	-13.22	RMS	Horizont
4	4738.640	-49.07	-54.02	-30.00	24.02	-4.95	RMS	Horizont
5	5498.200	-48.04	-51.38	-30.00	21.38	-3.34	RMS	Horizont
6	16636.60	-47.95	-34.77	-30.00	4.77	13.18	RMS	Horizont

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1932.960	-46.54	-63.05	-30.00	33.05	-16.51	RMS	Vertical
2	3599.640	-47.47	-56.13	-30.00	26.13	-8.66	RMS	Vertical
3	5492.760	-47.06	-49.73	-30.00	19.73	-2.67	RMS	Vertical
4	8782.600	-48.00	-44.06	-30.00	14.06	3.94	RMS	Vertical
5	9967.840	-48.90	-41.37	-30.00	11.37	7.53	RMS	Vertical
6	11792.28	-51.63	-39.28	-30.00	9.28	12.35	RMS	Vertical

802.11n HT40 mode:
Channel 5190MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1910.520	-40.85	-57.46	-30.00	27.46	-16.61	RMS	Horizontal
2	2513.000	-45.01	-58.23	-30.00	28.23	-13.22	RMS	Horizontal
3	3599.640	-47.89	-56.75	-30.00	26.75	-8.86	RMS	Horizontal
4	10135.12	-48.72	-40.85	-30.00	10.85	7.87	RMS	Horizontal
5	11509.40	-50.57	-38.68	-30.00	8.68	11.89	RMS	Horizontal
6	13524.92	-51.35	-37.95	-30.00	7.95	13.40	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1739.840	-44.98	-62.44	-30.00	32.44	-17.46	RMS	Vertical
2	1932.960	-42.13	-58.64	-30.00	28.64	-16.51	RMS	Vertical
3	3599.640	-46.87	-55.53	-30.00	25.53	-8.66	RMS	Vertical
4	9389.840	-48.77	-43.46	-30.00	13.46	5.31	RMS	Vertical
5	11319.00	-49.50	-39.70	-30.00	9.70	9.80	RMS	Vertical
6	11789.56	-50.96	-38.68	-30.00	8.68	12.28	RMS	Vertical

Channel 5310MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1932.960	-44.58	-61.03	-30.00	31.03	-16.45	RMS	Horizontal
2	2126.080	-45.38	-59.12	-30.00	29.12	-13.74	RMS	Horizontal
3	2513.000	-44.87	-58.09	-30.00	28.09	-13.22	RMS	Horizontal
4	3599.640	-48.24	-57.10	-30.00	27.10	-8.86	RMS	Horizontal
5	6693.640	-48.07	-49.02	-30.00	19.02	-0.95	RMS	Horizontal
6	13524.92	-51.14	-37.74	-30.00	7.74	13.40	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1295.800	-47.10	-63.15	-30.00	33.15	-16.05	RMS	Vertical
2	1908.480	-46.37	-63.07	-30.00	33.07	-16.70	RMS	Vertical
3	5092.920	-48.55	-51.26	-30.00	21.26	-2.71	RMS	Vertical
4	7396.080	-48.00	-46.39	-30.00	16.39	1.61	RMS	Vertical
5	10007.28	-49.39	-41.32	-30.00	11.32	8.07	RMS	Vertical
6	11795.68	-51.11	-38.67	-30.00	8.67	12.44	RMS	Vertical

Channel 5510MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1924.120	-44.40	-60.91	-30.00	30.91	-16.51	RMS	Horizontal
2	2126.760	-48.49	-62.22	-30.00	32.22	-13.73	RMS	Horizontal
3	2513.000	-47.01	-60.23	-30.00	30.23	-13.22	RMS	Horizontal
4	3868.920	-47.95	-55.91	-30.00	25.91	-7.96	RMS	Horizontal
5	10773.64	-49.97	-40.32	-30.00	10.32	9.65	RMS	Horizontal
6	13890.76	-51.74	-36.55	-30.00	6.55	15.19	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1898.960	-41.41	-58.19	-30.00	28.19	-16.78	RMS	Vertical
2	1932.280	-46.06	-62.57	-30.00	32.57	-16.51	RMS	Vertical
3	3897.480	-48.26	-55.65	-30.00	25.65	-7.39	RMS	Vertical
4	5494.800	-48.05	-50.70	-30.00	20.70	-2.65	RMS	Vertical
5	8665.640	-47.72	-44.24	-30.00	14.24	3.48	RMS	Vertical
6	11795.68	-51.41	-38.97	-30.00	8.97	12.44	RMS	Vertical

Channel 5670MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1909.160	-42.95	-59.57	-30.00	29.57	-16.62	RMS	Horizontal
2	2118.600	-48.64	-62.51	-30.00	32.51	-13.87	RMS	Horizontal
3	2513.000	-46.28	-59.50	-30.00	29.50	-13.22	RMS	Horizontal
4	3599.640	-47.68	-56.54	-30.00	26.54	-8.86	RMS	Horizontal
5	6321.680	-48.86	-51.25	-30.00	21.25	-2.39	RMS	Horizontal
6	10358.16	-48.85	-39.48	-30.00	9.48	9.37	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	2419.840	-43.90	-56.83	-30.00	26.83	-12.93	RMS	Vertical
2	2513.000	-45.08	-58.23	-30.00	28.23	-13.15	RMS	Vertical
3	3599.640	-48.56	-57.22	-30.00	27.22	-8.66	RMS	Vertical
4	5090.200	-48.87	-51.62	-30.00	21.62	-2.75	RMS	Vertical
5	7343.040	-48.19	-46.10	-30.00	16.10	2.09	RMS	Vertical
6	11774.60	-50.46	-38.58	-30.00	8.58	11.88	RMS	Vertical

802.11ac VHT80 mode:
Channel 5210MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1892.840	-40.53	-57.25	-30.00	27.25	-16.72	RMS	Horizont
2	2126.080	-44.41	-58.15	-30.00	28.15	-13.74	RMS	Horizont
3	2513.000	-42.46	-55.68	-30.00	25.68	-13.22	RMS	Horizont
4	3599.640	-48.30	-57.16	-30.00	27.16	-8.86	RMS	Horizont
5	7254.640	-48.23	-45.85	-30.00	15.85	2.38	RMS	Horizont
6	10299.00	-48.46	-38.98	-30.00	8.98	9.48	RMS	Horizont

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1933.640	-45.59	-62.09	-30.00	32.09	-16.50	RMS	Vertical
2	2513.000	-47.96	-61.11	-30.00	31.11	-13.15	RMS	Vertical
3	3881.840	-48.48	-56.00	-30.00	26.00	-7.52	RMS	Vertical
4	5527.440	-49.01	-51.85	-30.00	21.85	-2.84	RMS	Vertical
5	9658.440	-48.33	-42.49	-30.00	12.49	5.84	RMS	Vertical
6	11791.60	-51.21	-38.87	-30.00	8.87	12.34	RMS	Vertical

Channel 5290MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1927.520	-43.19	-59.68	-30.00	29.68	-16.49	RMS	Horizont
2	2126.080	-46.58	-60.32	-30.00	30.32	-13.74	RMS	Horizont
3	2513.000	-46.77	-59.99	-30.00	29.99	-13.22	RMS	Horizont
4	3599.640	-47.48	-56.34	-30.00	26.34	-8.86	RMS	Horizont
5	8798.240	-48.16	-43.60	-30.00	13.60	4.56	RMS	Horizont
6	11497.84	-50.44	-38.42	-30.00	8.42	12.02	RMS	Horizont

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1739.160	-45.35	-62.81	-30.00	32.81	-17.46	RMS	Vertical
2	1932.960	-38.37	-54.88	-30.00	24.88	-16.51	RMS	Vertical
3	2513.000	-46.66	-59.81	-30.00	29.81	-13.15	RMS	Vertical
4	3599.640	-48.05	-56.71	-30.00	26.71	-8.66	RMS	Vertical
5	7993.120	-47.17	-45.07	-30.00	15.07	2.10	RMS	Vertical
6	11795.68	-51.07	-38.63	-30.00	8.63	12.44	RMS	Vertical

Channel 5530MHz

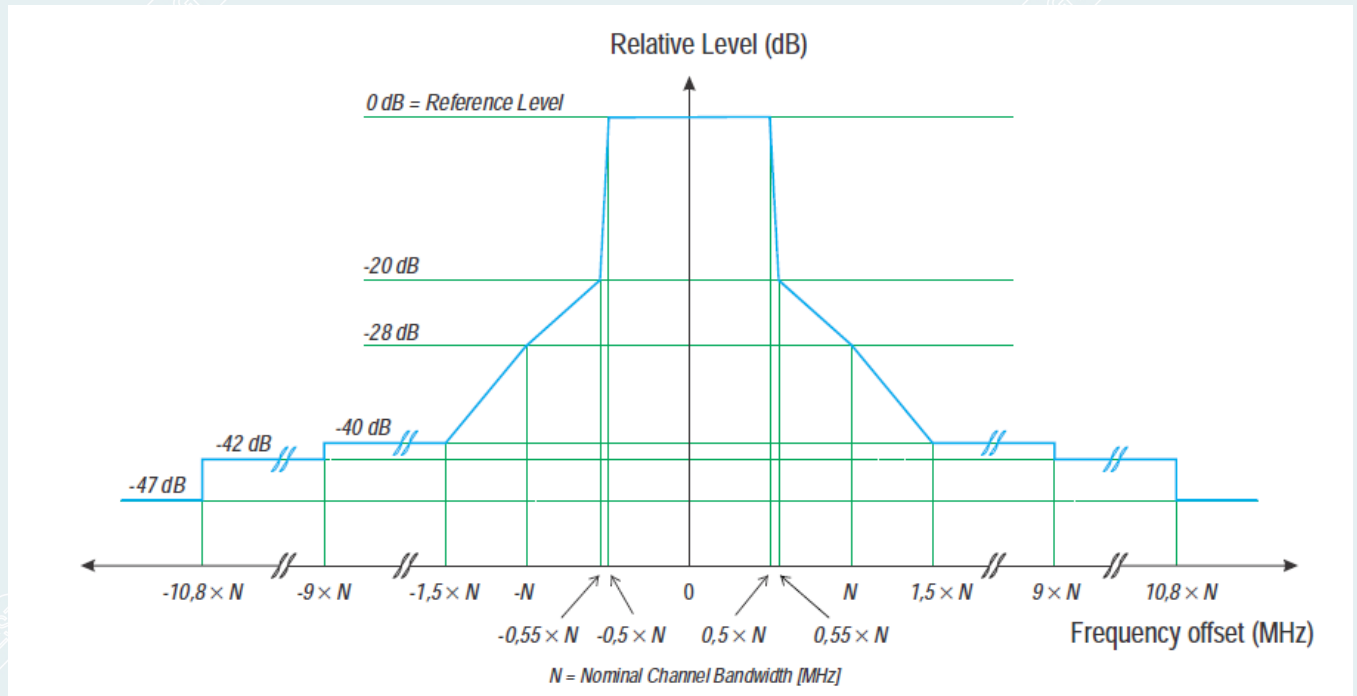
Suspected Data List								
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1	1859.520	-46.51	-63.39	-30.00	33.39	-16.88	RMS	Horizont
2	2126.760	-48.20	-61.93	-30.00	31.93	-13.73	RMS	Horizont
3	2513.000	-46.65	-59.87	-30.00	29.87	-13.22	RMS	Horizont
4	5043.960	-48.60	-52.34	-30.00	22.34	-3.74	RMS	Horizont
5	8777.840	-48.02	-43.65	-30.00	13.65	4.37	RMS	Horizont
6	9680.200	-48.97	-41.83	-30.00	11.83	7.14	RMS	Horizont

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1933.640	-45.46	-61.96	-30.00	31.96	-16.50	RMS	Vertical
2	2513.000	-48.47	-61.62	-30.00	31.62	-13.15	RMS	Vertical
3	3686.680	-47.77	-56.90	-30.00	26.90	-9.13	RMS	Vertical
4	5500.240	-48.92	-51.51	-30.00	21.51	-2.59	RMS	Vertical
5	9389.160	-48.32	-43.02	-30.00	13.02	5.30	RMS	Vertical
6	11788.88	-51.34	-39.08	-30.00	9.08	12.26	RMS	Vertical

TEST RESULTS: The unit does meet the requirements.

4.6 TRANSMITTER UNWANTED EMISSIONS WITHIN 5GHZ BANDS

4.6.1 LIMITS



4.6.2 TEST PROCEDURE

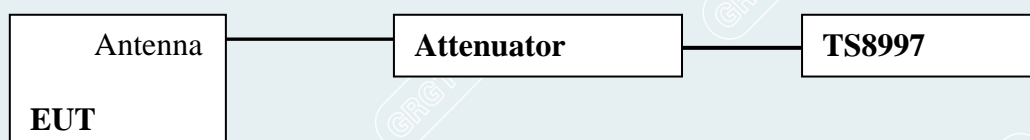
Test requirement:	EN 301 893 clause 4.2.4.2
Test Method:	EN 301 893 clause 5.4.6.2
EUT Operation:	Keep EUT on transmitting mode by the software provided by manufacturer. Pretest the EUT at different transmission rate and report show the worst case data.
Test condition:	These measurements shall be performed under normal test conditions (see clause 5.1.2).

Test channel:

Modulation Mode	Test Channel	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	5180,5320	5500,5700
802.11n(HT20)	5180,5320	5500,5700
802.11n(HT40)	5190,5310	5510,5670
802.11ac(VT80)	5210,5290	5530

Note:

4.6.3 TEST SETUP

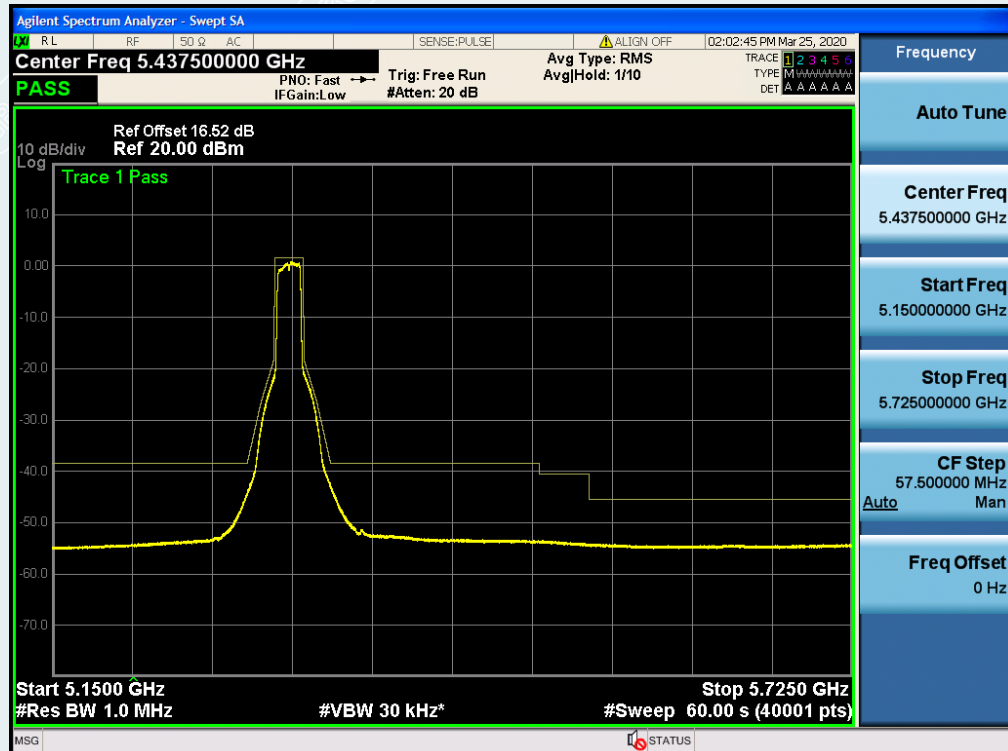


4.6.4 TEST RESULTS

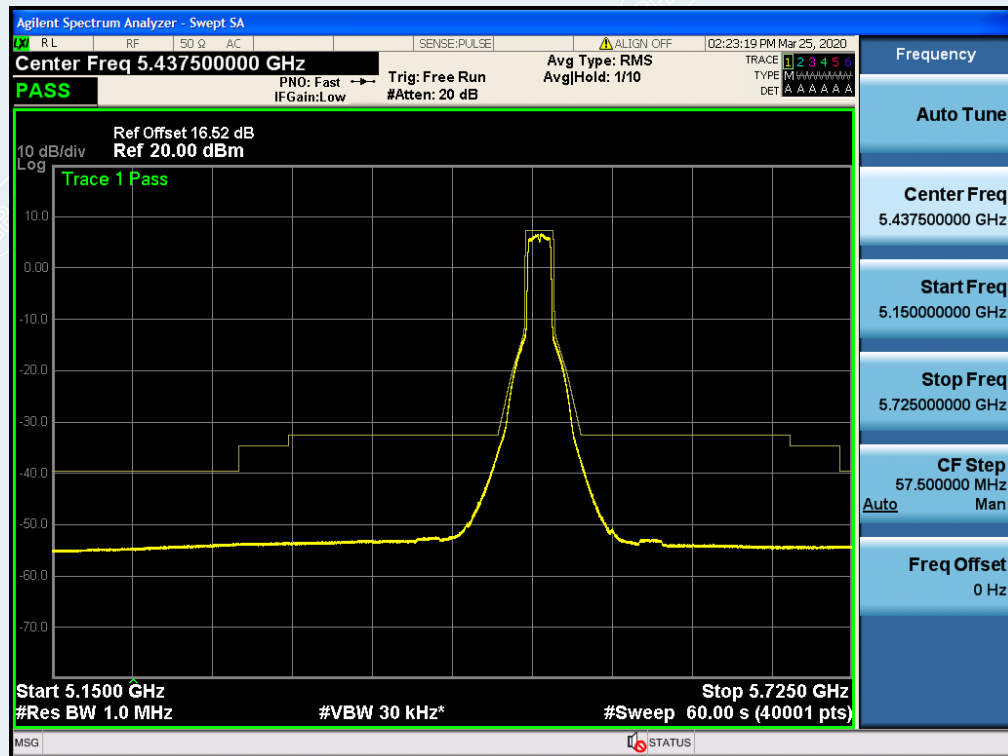
802.11a mode:
channel 5180MHz



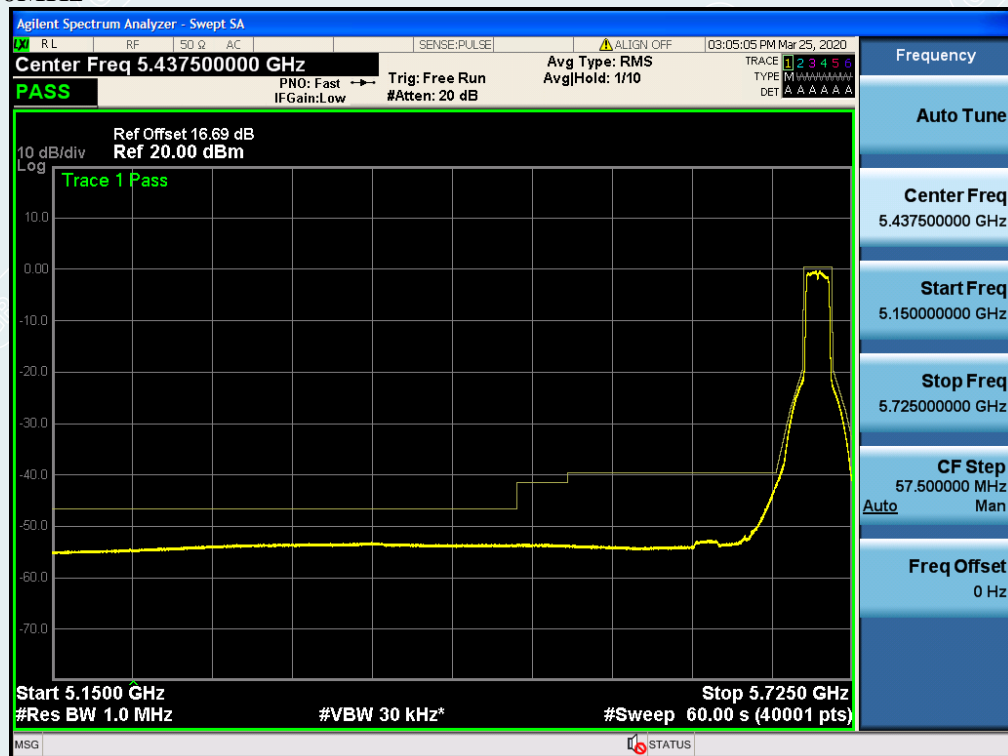
Channel 5320MHz



Channel 5500MHz



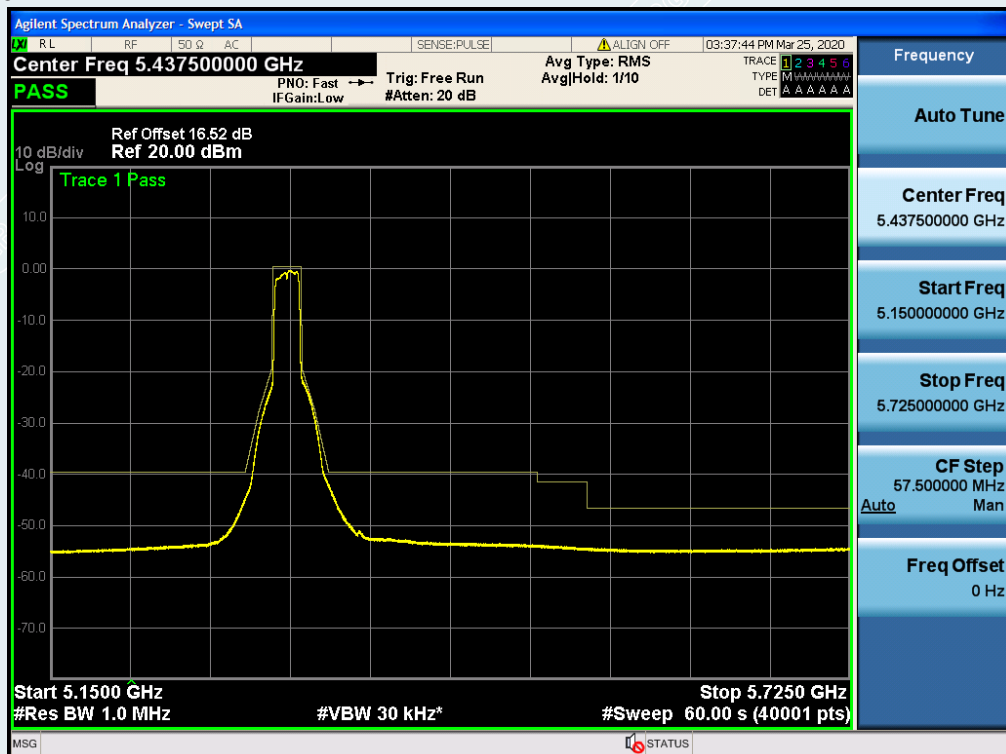
Channel 5700MHz



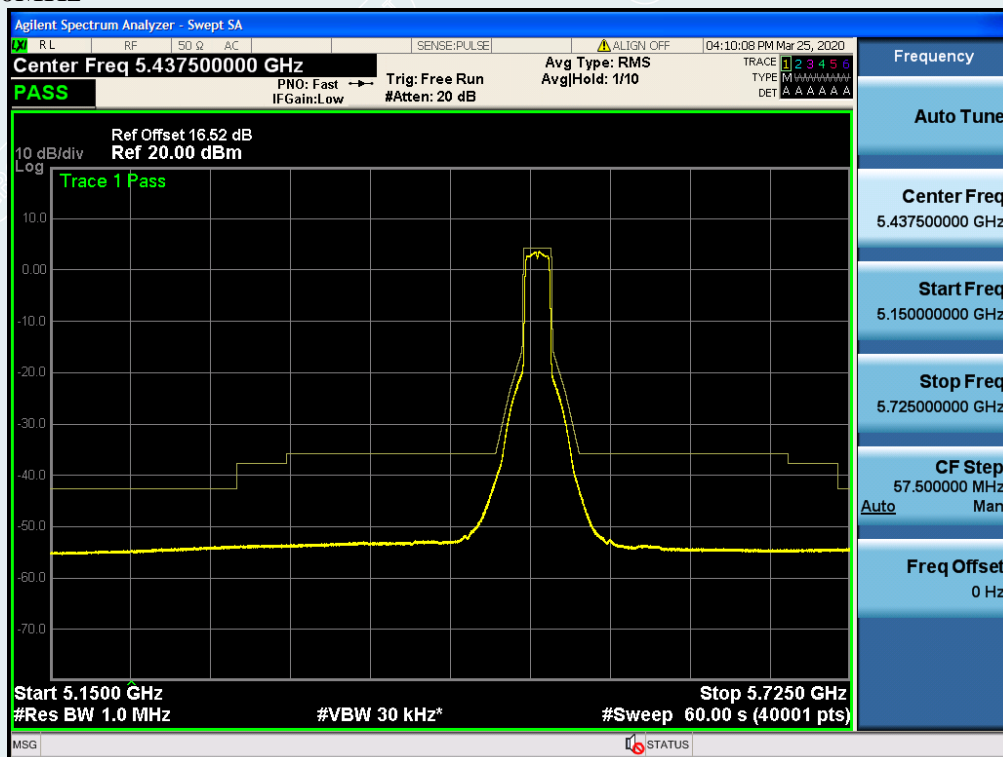
802.11n HT20 mode:
channel 5180MHz



Channel 5320MHz



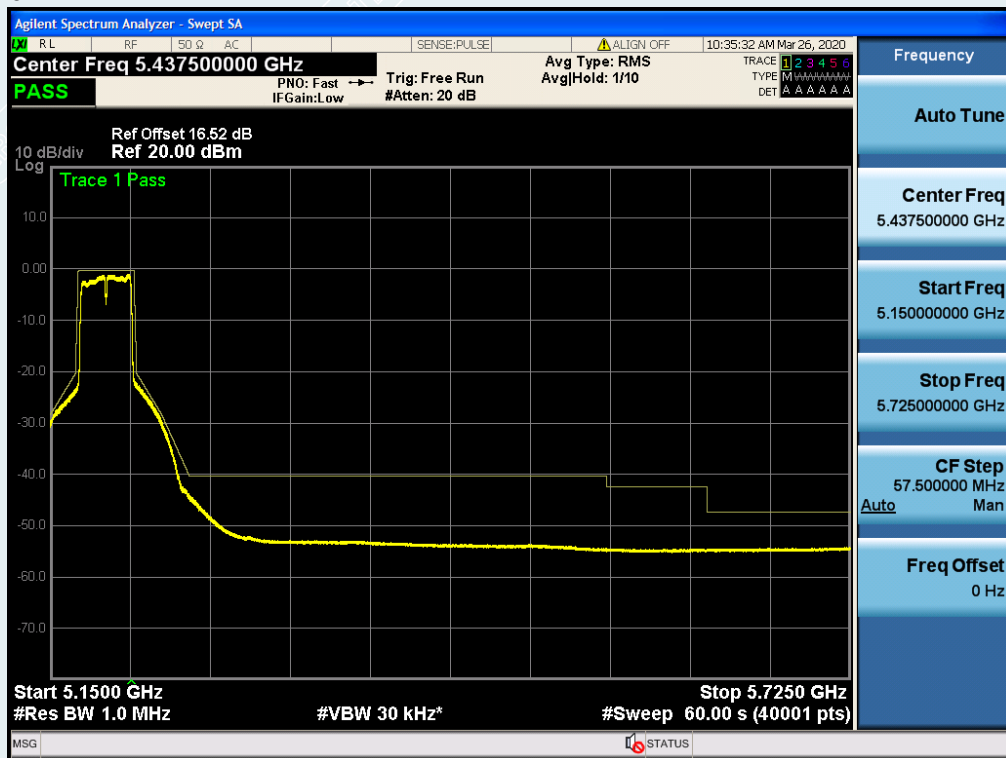
Channel 5500MHz



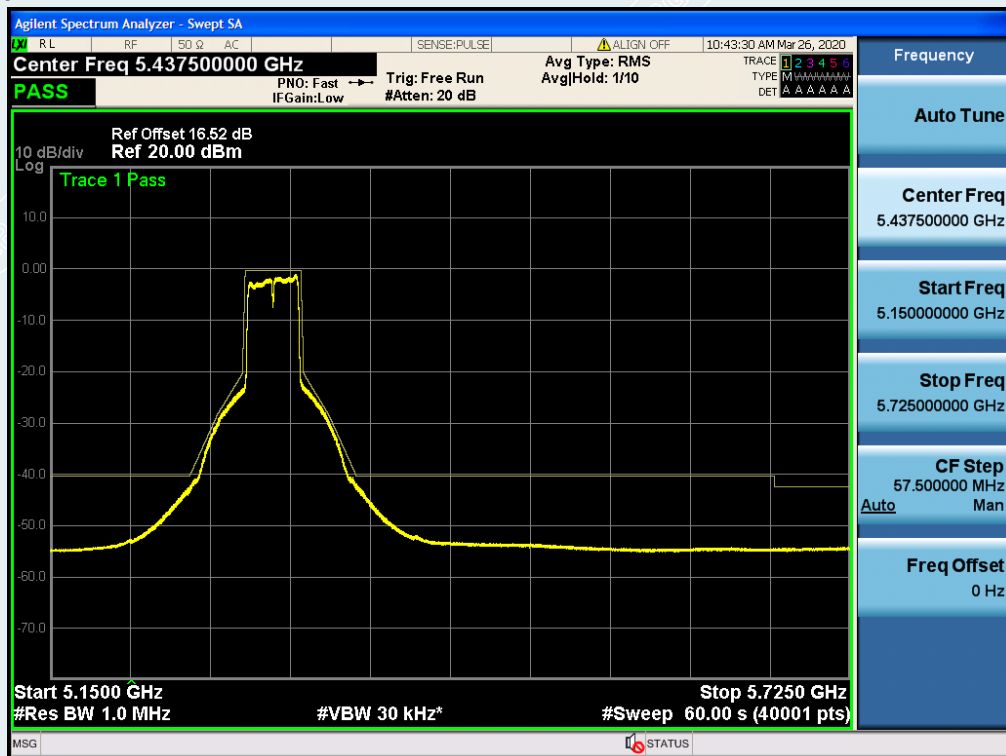
Channel 5700MHz



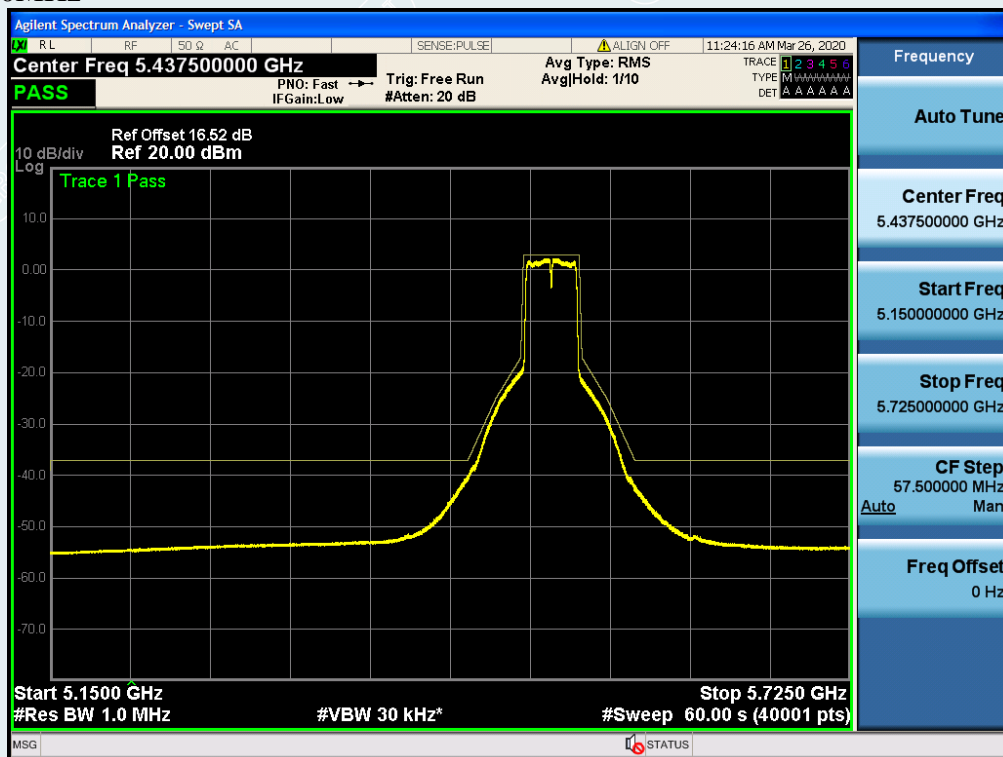
802.11n HT40 mode:
channel 5190MHz



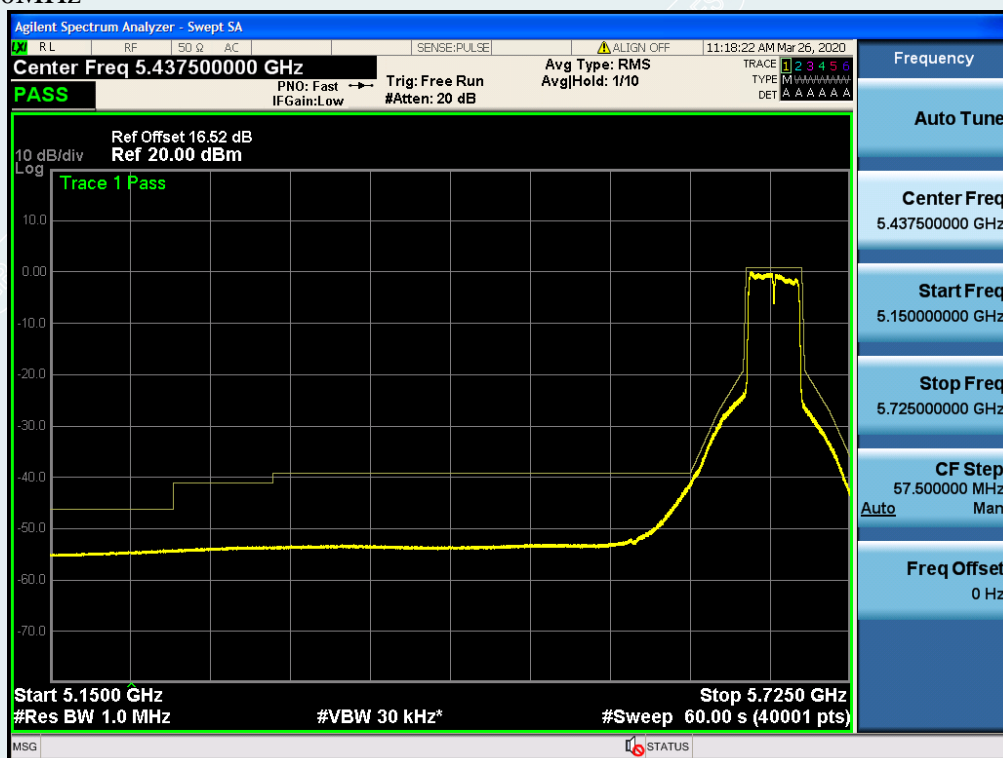
Channel 5310MHz



Channel 5510MHz



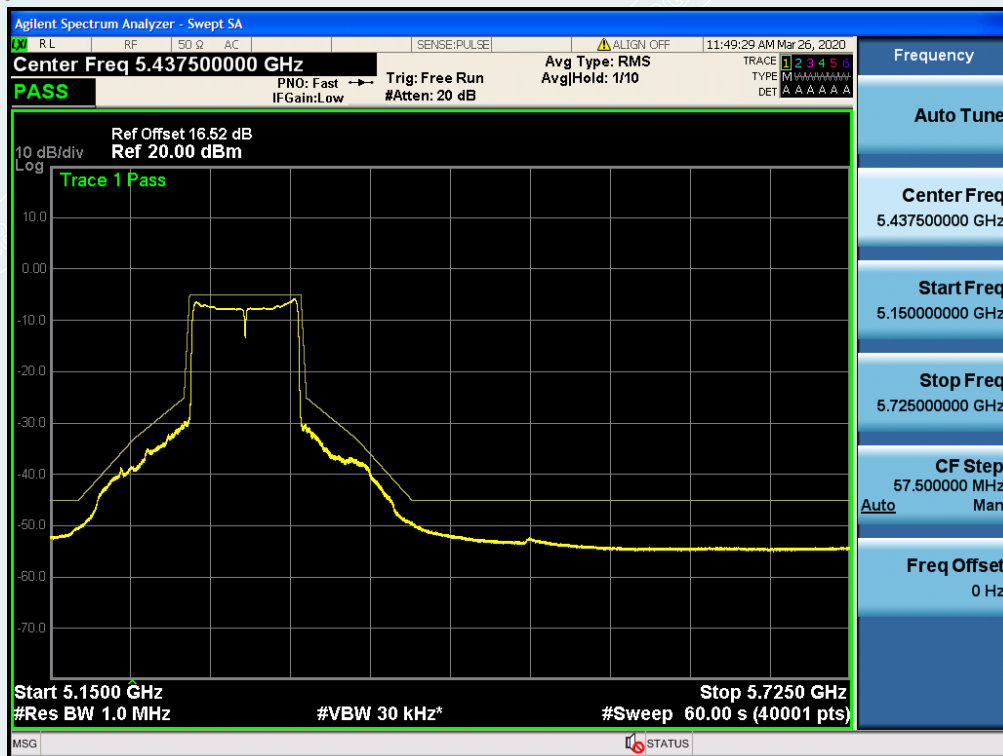
Channel 5670MHz



802.11ac VHT80 mode:
channel 5210MHz



Channel 5290MHz



Channel 5530MHz



4.7 ADAPTIVITY

4.7.1 DEFINITION

Adaptivity (Channel Access Mechanism) is an automatic mechanism by which a device limits its transmissions and gains access to an Operating Channel.

Adaptivity is not intended to be used as an alternative to DFS to detect radar transmissions, but to detect transmissions from other RLAN devices operating in the band.

4.7.2 TEST PROCEDURE

Test requirement:	EN 301 893 clause 4.2.7
Test Method:	EN 301 893 clause 5.4.9.3
EUT Operation:	Keep EUT on transmitting mode by the software provided by manufacturer. Pretest the EUT at different transmission rate and report show the worst case data.
Test condition:	These measurements shall be performed under normal test conditions (see clause 5.1.2).
Test item:	Clause 5.4.9.3.2.3

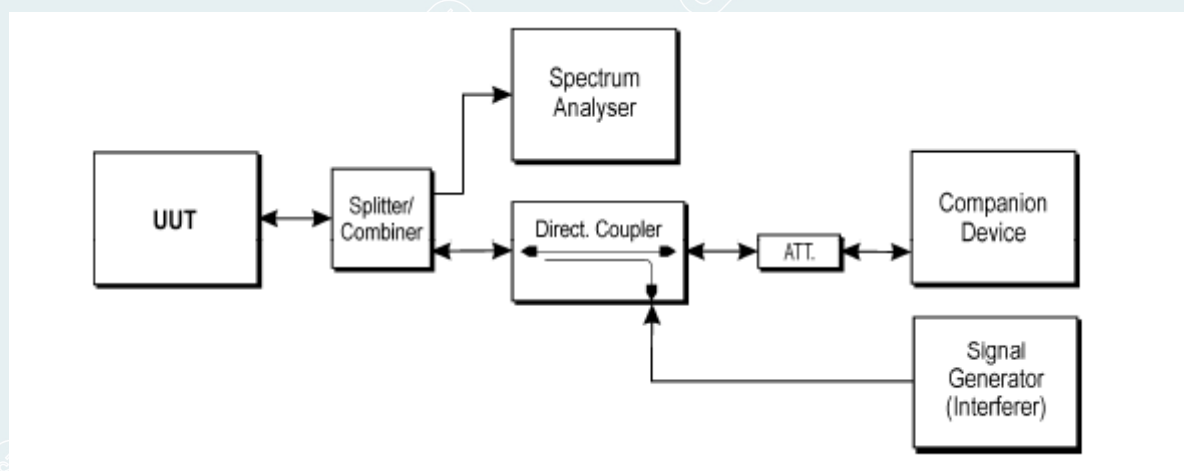
Test channel:

Modulation Mode	Test Channel
	5 150 to 5 725 MHz
802.11a	36 (5180MHz)
802.11n(HT40);	38 (5190MHz)

Note:

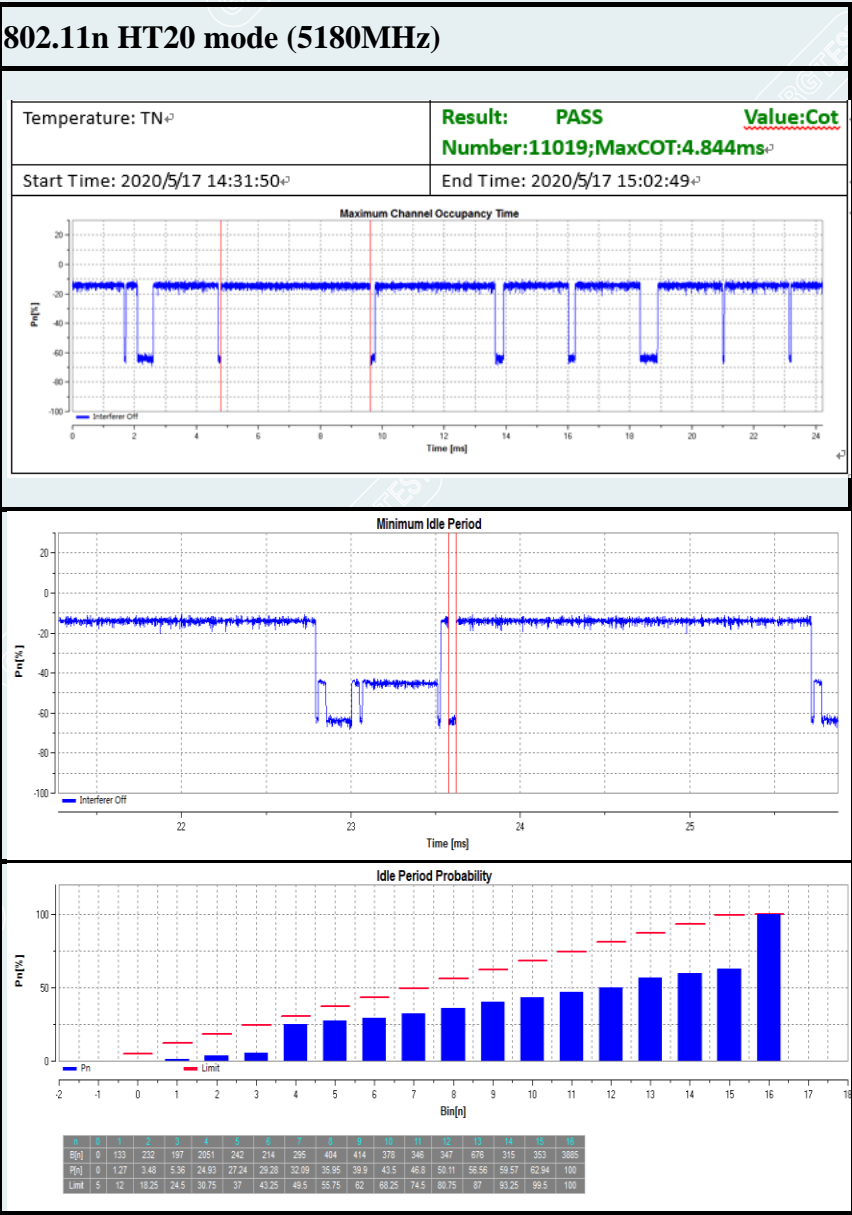
Pre-test Supervising Device mode and Supervised Device mode, found that Supervising Device mode is the worst case.

4.7.3 TEST SETUP



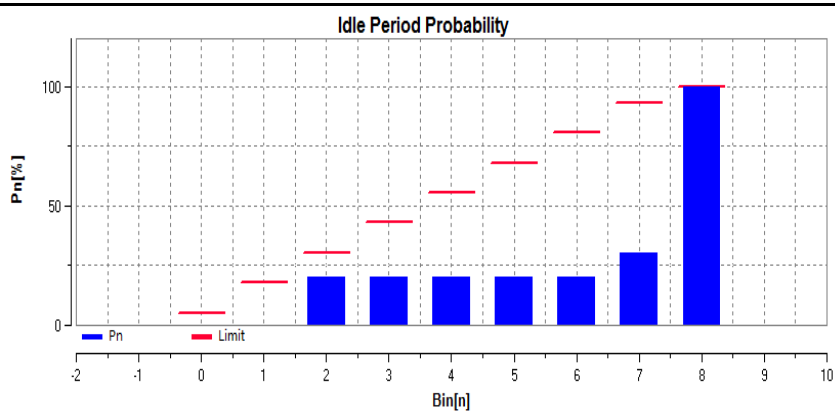
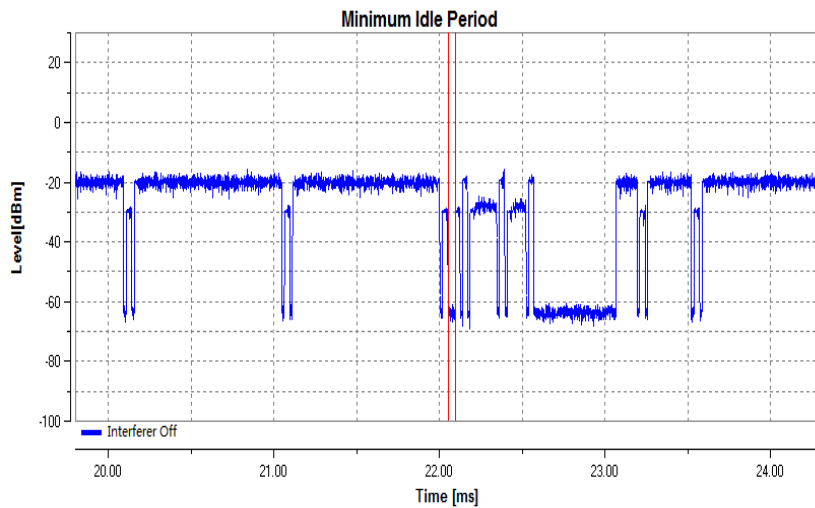
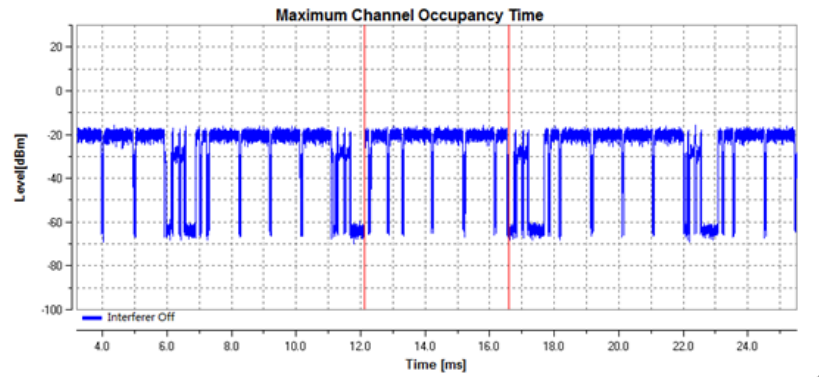
4.7.4 TEST RESULTS

Medium Access Mechanism



802.11n HT40 mode (5190MHz)

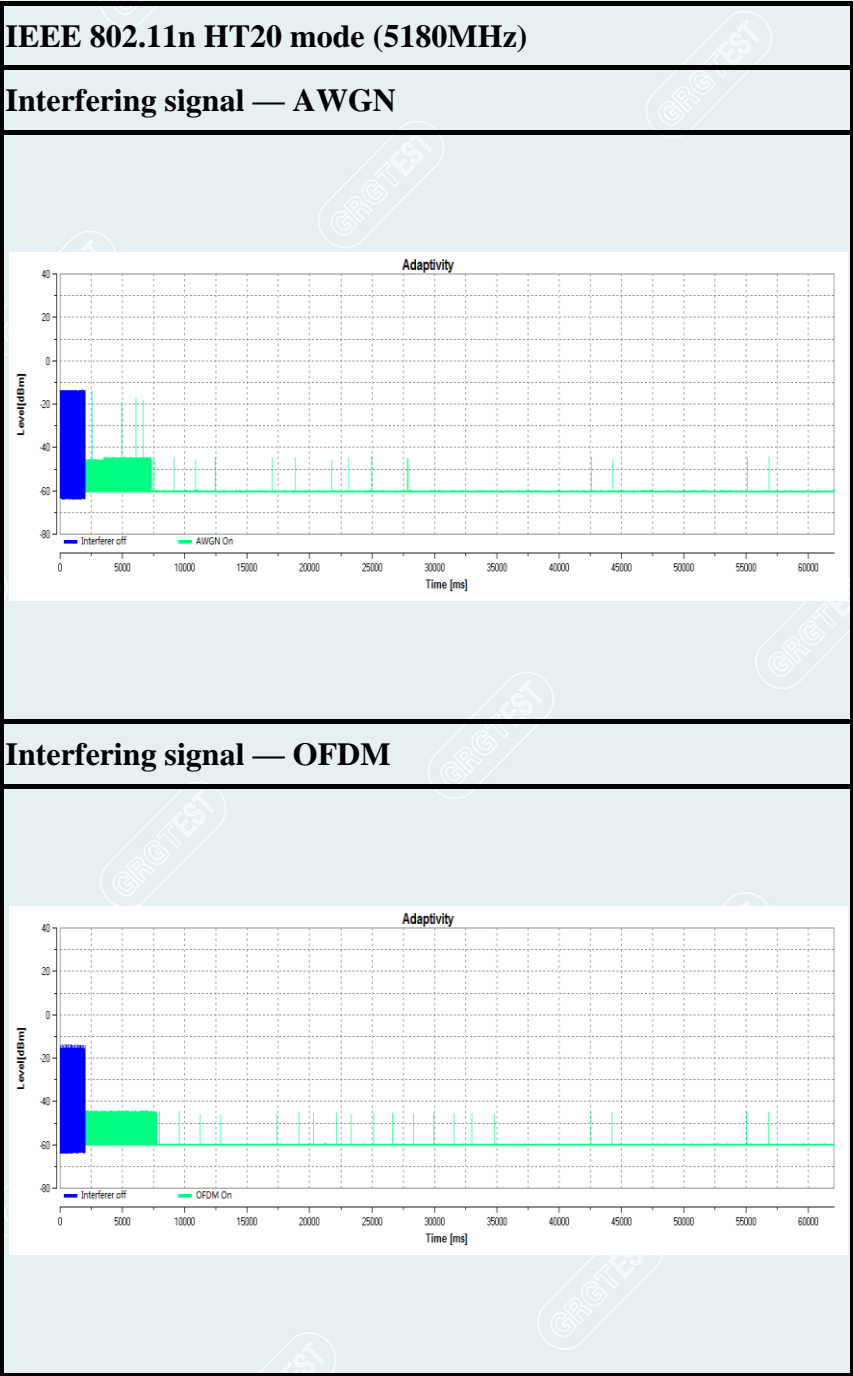
Temperature: TN	Result: PASS Value: COT Number: 12837; MaxCOT: 4.462ms
Start Time: 2020/5/17 21:49:20	End Time: 2020/5/17 21:30:15



n	0	1	2	3	4	5	6	7	8
P[n]	0	0	20	20	20	20	20	30	100
Limit	5	18	30.5	43	55.5	68	80.5	93	100

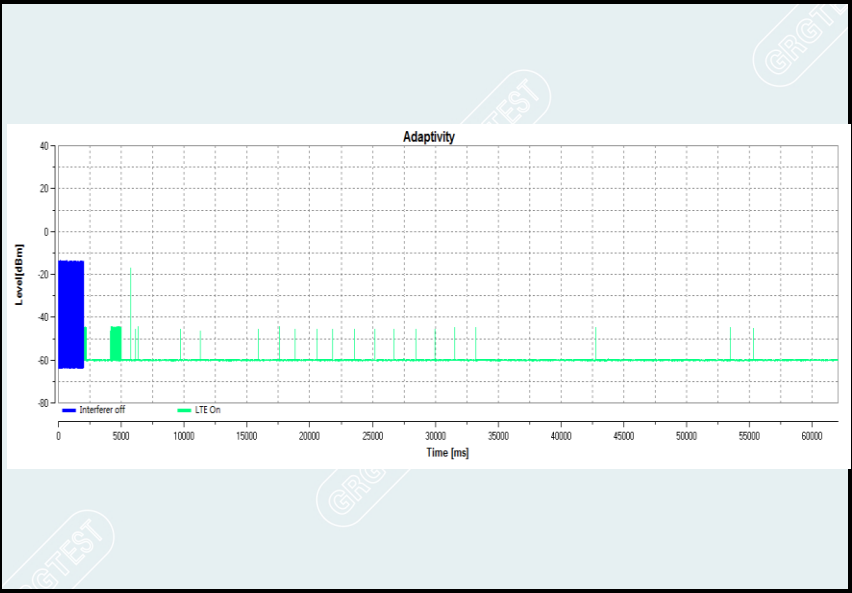
IEEE 802.11n HT20 Mode	Stop time after interfering signal(s)		
	AWGN	OFDM	LTE
5180MHz	Pass	Pass	Pass

IEEE 802.11n HT40 Mode	Stop time after interfering signal(s)	
	AWGN	
5190MHz	Pass	



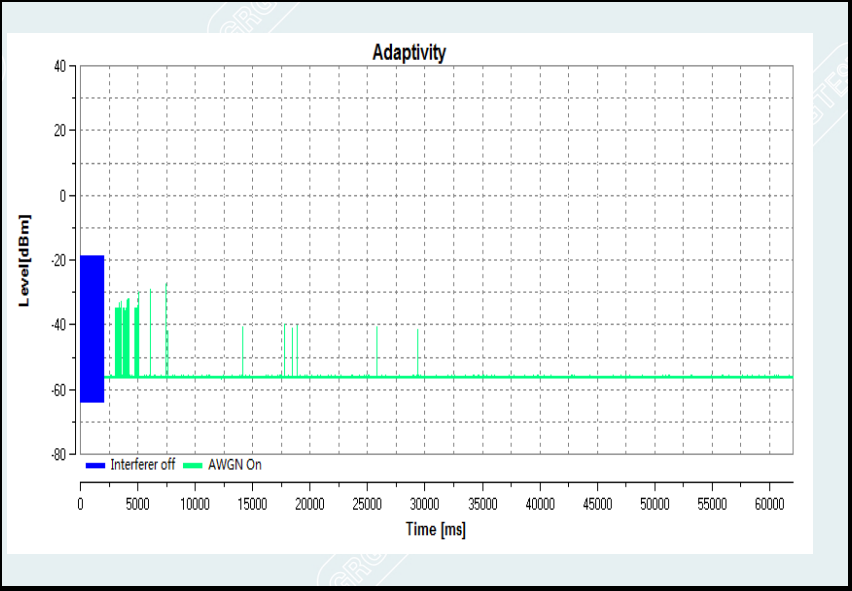
IEEE 802.11n HT20 mode (5180MHz)

Interfering signal — LTE



IEEE 802.11n HT40 mode (5190MHz)

Interfering signal — AWGN



Short Control Signalling Transmissions

Mode		Maximum duty cycle(ms)	Pulse number	Limit(ms)	Limit
		5180MHz			
IEEE 802.11n HT20 mode	AWGN	0.40	1	2.5	50
	OFDM	0.00	0	2.5	50
	LTE	0.10	1	2.5	50

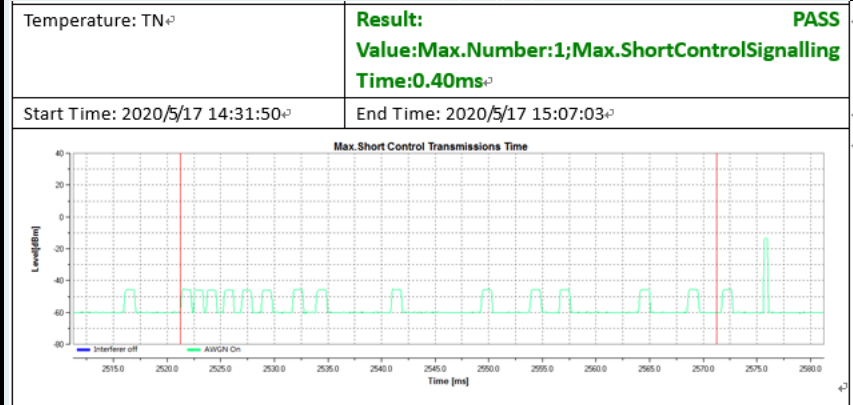
Mode		Maximum duty cycle(ms)	Pulse number	Limit(ms)	Limit
		5190MHz			
IEEE 802.11n HT40 mode	AWGN	1.10	8	2.5	50

Remark: 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

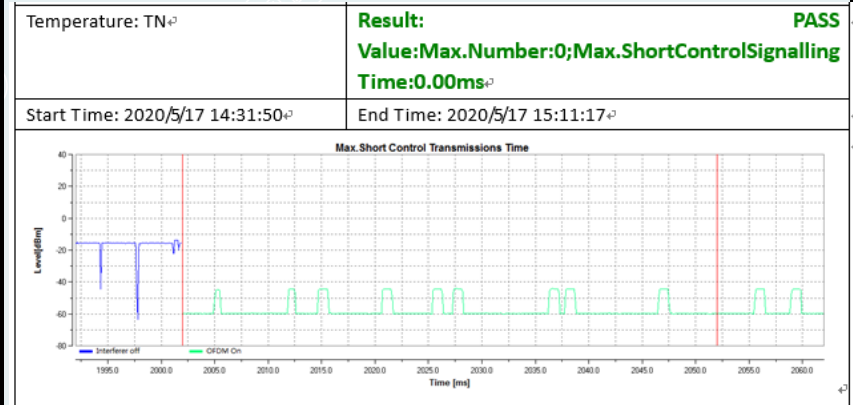
the total duration of the equipment's Short Control Signalling Transmissions shall be less than 2 500 μ s within said observation period.

IEEE 802.11n HT20 mode (5180MHz)

Interfering signal — AWGN

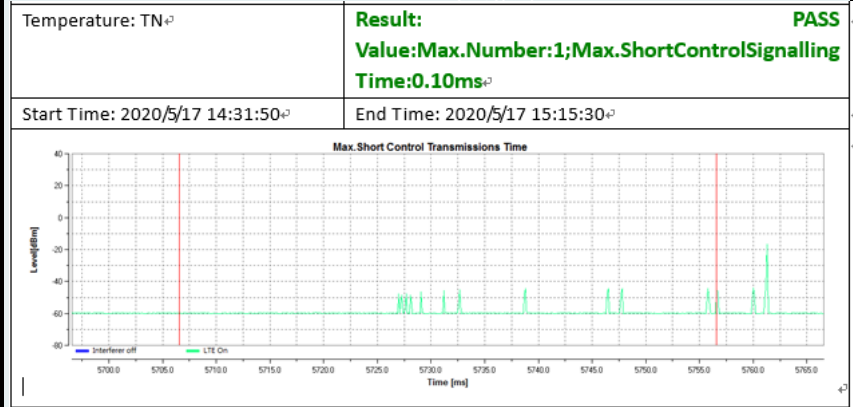


Interfering signal — OFDM



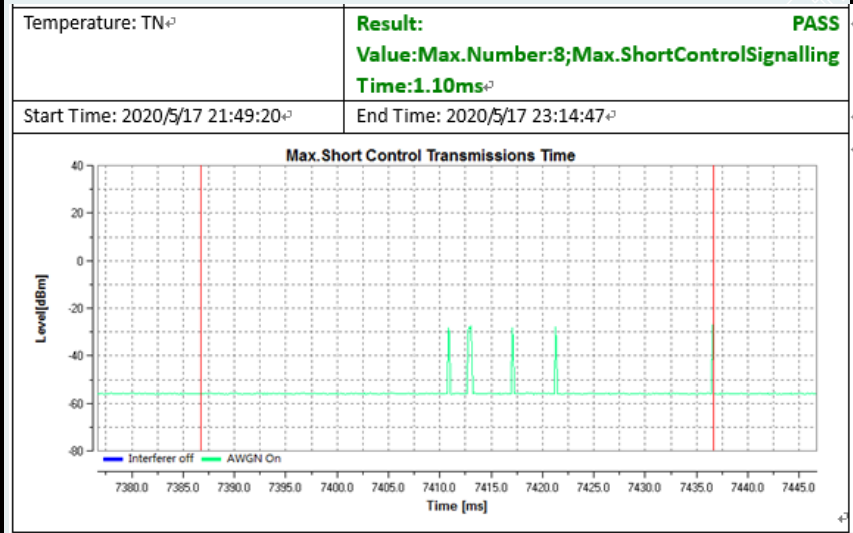
IEEE 802.11n HT20 mode (5180MHz)

Interfering signal — LTE



IEEE 802.11n HT40 mode (5190MHz)

Interfering signal — AWGN



5. RECEIVER REQUIREMENTS

5.1 RECEIVER SPURIOUS EMISSIONS

5.1.1 LIMITS

Frequency range	Limit
30 MHz to 1 GHz	-57 dBm
above 1 GHz to 26 GHz	-47 dBm

5.1.2 TEST PROCEDURE

Test requirement: EN 301 893 clause 4.2.5

Test Method: EN 301 893 clause 5.4.7.2.1 and annex B

EUT Operation: Keep EUT on receiver mode by the software provided by manufacturer.

Test condition: These measurements shall be performed under normal test conditions (see clause 5.1.2).

Test channel:

Modulation Mode	Test Channel	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	5180,5320	5500,5700
802.11n(HT20)	5180,5320	5500,5700
802.11n(HT40);	5190,5310	5510,5670
802.11ac(VT80)	5210,5290	5530

EIRP emission test method

1. The EUT shall be performed at the highest power level at which the transmitter is intended to operate. and Interface cables, loads, and devices should be connected to at least one of each type of the interface ports of the EUT and, where practical, each cable shall be terminated in a device typical for its actual use. EUT shall be placed at the 1.5m support on the turntable.

2. The test antenna at a horizontal distance of 3 m .It shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360 ° in the horizontal plane, until the maximum signal level is detected by the measuring receiver. in both the vertical and the horizontal polarization. Record the reading level, antenna position, polarization and turntable position.

3. Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. For frequencies of 80 MHz and above, the dipoles should have their arm lengths set for resonance at the frequency of test. Below 80 MHz, shortened arm lengths are recommended. For measurements above 1 000 MHz, a waveguide horn is recommended. The centre of this antenna should coincide with either the phase centre or volume centre.

4. Feed the substitution antenna at the transmitter end with a signal

generator connected to the antenna by a cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

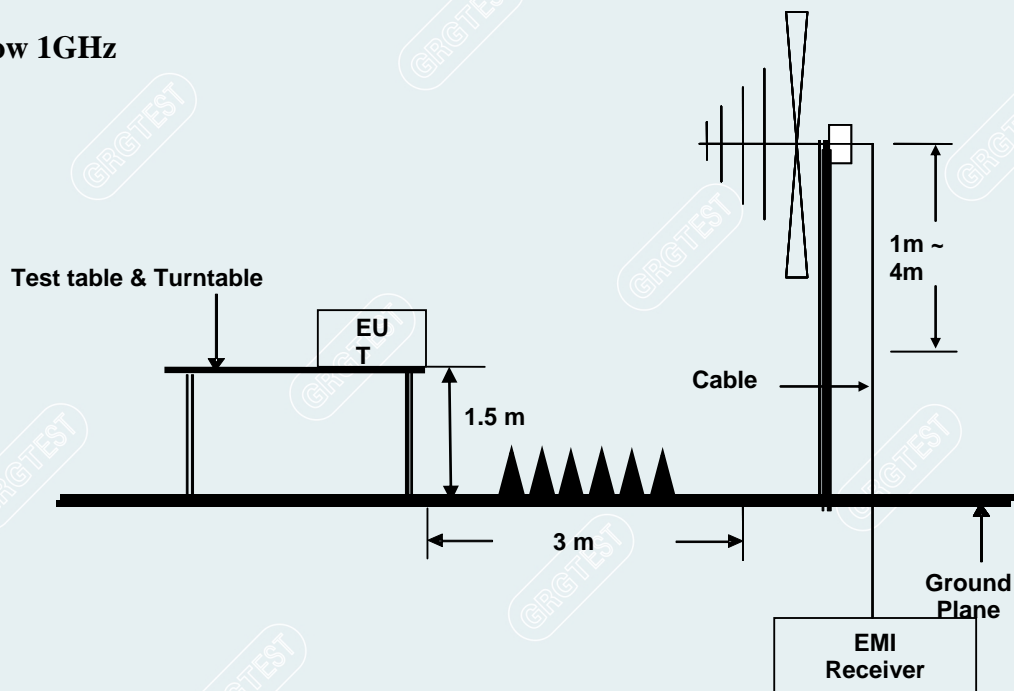
5. $EIRP(dBm) = P_g(dBm) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$

Note:

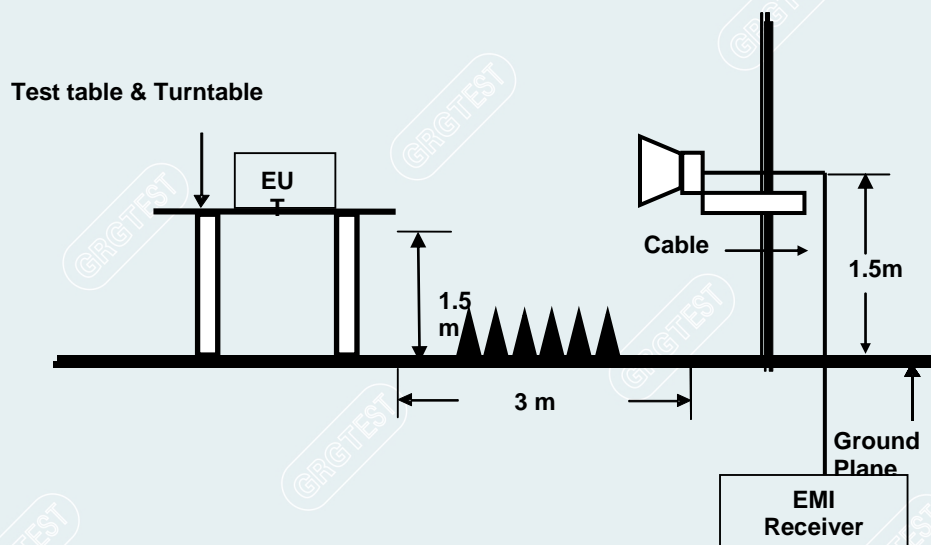
Where: P_g is the generator output power into the substitution antenna
Pre-test the 802.11a, 802.11n(HT20), 802.11n(HT40) and 802.11ac(VHT80) to find 802.11n(HT20) is worst case, so only record 802.11n(HT20) test data.

5.1.3 TEST SETUP

Below 1GHz



Above 1GHz



5.1.4 TEST RESULTS

30MHz-1000MHz

802.11n20 mode:

Channel 5180MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	38.9240	-43.62	-66.08	-57.00	9.08	-22.46	RMS	Horizontal
2	48.4300	-47.61	-66.91	-57.00	9.91	-19.30	RMS	Horizontal
3	54.1530	-50.46	-69.59	-57.00	12.59	-19.13	RMS	Horizontal
4	58.7120	-51.24	-70.84	-57.00	13.84	-19.60	RMS	Horizontal
5	98.3850	-51.87	-69.92	-57.00	12.92	-18.05	RMS	Horizontal
6	580.0385	-58.30	-65.18	-57.00	8.18	-6.88	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	38.9240	-43.62	-66.08	-57.00	9.08	-22.46	RMS	Vertical
2	48.4300	-47.61	-66.91	-57.00	9.91	-19.30	RMS	Vertical
3	54.1530	-50.46	-69.59	-57.00	12.59	-19.13	RMS	Vertical
4	58.7120	-51.24	-70.84	-57.00	13.84	-19.60	RMS	Vertical
5	98.3850	-51.87	-69.92	-57.00	12.92	-18.05	RMS	Vertical
6	580.0385	-58.30	-65.18	-57.00	8.18	-6.88	RMS	Vertical

Channel 5500MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	79.1790	-48.88	-69.65	-57.00	12.65	-20.77	RMS	Horizontal
2	88.8790	-48.79	-71.04	-57.00	14.04	-22.25	RMS	Horizontal
3	98.3850	-45.03	-68.52	-57.00	11.52	-23.49	RMS	Horizontal
4	148.0975	-60.80	-76.60	-57.00	19.60	-15.80	RMS	Horizontal
5	249.9960	-65.08	-78.04	-57.00	21.04	-12.96	RMS	Horizontal
6	580.0300	-65.72	-71.88	-57.00	14.88	-6.16	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	38.9240	-43.27	-65.73	-57.00	8.73	-22.46	RMS	Vertical
2	49.0605	-47.88	-66.93	-57.00	9.93	-19.05	RMS	Vertical
3	54.1530	-49.75	-68.88	-57.00	11.88	-19.13	RMS	Vertical
4	79.2275	-51.90	-71.74	-57.00	14.74	-19.84	RMS	Vertical
5	98.4820	-52.75	-70.79	-57.00	13.79	-18.04	RMS	Vertical
6	966.6805	-67.47	-68.18	-57.00	11.18	-0.71	RMS	Vertical

1GHz-26.5GHz

802.11n HT20 mode:

Channel 5180MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1746.337	-64.02	-64.11	-47.00	17.11	-0.09	RMS	Horizontal
2	1933.346	-63.13	-62.67	-47.00	15.67	0.46	RMS	Horizontal
3	2119.506	-66.14	-63.24	-47.00	16.24	2.90	RMS	Horizontal
4	2513.075	-60.97	-58.29	-47.00	11.29	2.68	RMS	Horizontal
5	2899.845	-66.55	-63.01	-47.00	16.01	3.54	RMS	Horizontal
6	7502.825	-69.57	-55.86	-47.00	8.86	13.71	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1345.117	-66.17	-65.12	-47.00	18.12	1.05	RMS	Vertical
2	1930.796	-64.44	-64.05	-47.00	17.05	0.39	RMS	Vertical
3	2127.156	-64.59	-61.39	-47.00	14.39	3.20	RMS	Vertical
4	2513.075	-62.79	-60.03	-47.00	13.03	2.76	RMS	Vertical
5	4060.153	-67.16	-61.76	-47.00	14.76	5.40	RMS	Vertical
6	7509.625	-70.02	-57.13	-47.00	10.13	12.89	RMS	Vertical

Channel 5500MHz

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1589.079	-66.65	-66.30	-47.00	19.30	0.35	RMS	Horizontal
2	1881.494	-63.68	-63.40	-47.00	16.40	0.28	RMS	Horizontal
3	2126.306	-60.00	-57.01	-47.00	10.01	2.99	RMS	Horizontal
4	2513.075	-61.82	-59.14	-47.00	12.14	2.68	RMS	Horizontal
5	2899.845	-65.52	-61.98	-47.00	14.98	3.54	RMS	Horizontal
6	7494.324	-70.14	-56.46	-47.00	9.46	13.68	RMS	Horizontal
7	9683.184	-69.33	-53.04	-47.00	6.04	16.29	RMS	Horizontal

Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	1280.514	-65.40	-63.83	-47.00	16.83	1.57	RMS	Vertical
2	2513.075	-65.00	-62.24	-47.00	15.24	2.76	RMS	Vertical
3	4060.153	-69.50	-64.10	-47.00	17.10	5.40	RMS	Vertical
4	7310.715	-70.68	-57.17	-47.00	10.17	13.51	RMS	Vertical
5	8570.478	-70.53	-56.76	-47.00	9.76	13.77	RMS	Vertical
6	9705.285	-69.20	-54.06	-47.00	7.06	15.14	RMS	Vertical

TEST RESULTS: The unit does meet the requirements.

5.2 RECEIVER BLOCKING

5.2.1 LIMITS

Table 9: Receiver Blocking parameters

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)		Type of blocking signal
		Master or Slave with radar detection (see table D.2, note 2)	Slave without radar detection (see table D.2, note 2)	
$P_{min} + 6 \text{ dB}$	5 100	-53	-59	Continuous Wave
$P_{min} + 6 \text{ dB}$	4 900 5 000 5 975	-47	-53	Continuous Wave
NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined clause 4.2.8.3 in the absence of any blocking signal.				
NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the same levels should be used at the antenna connector irrespective of antenna gain.				

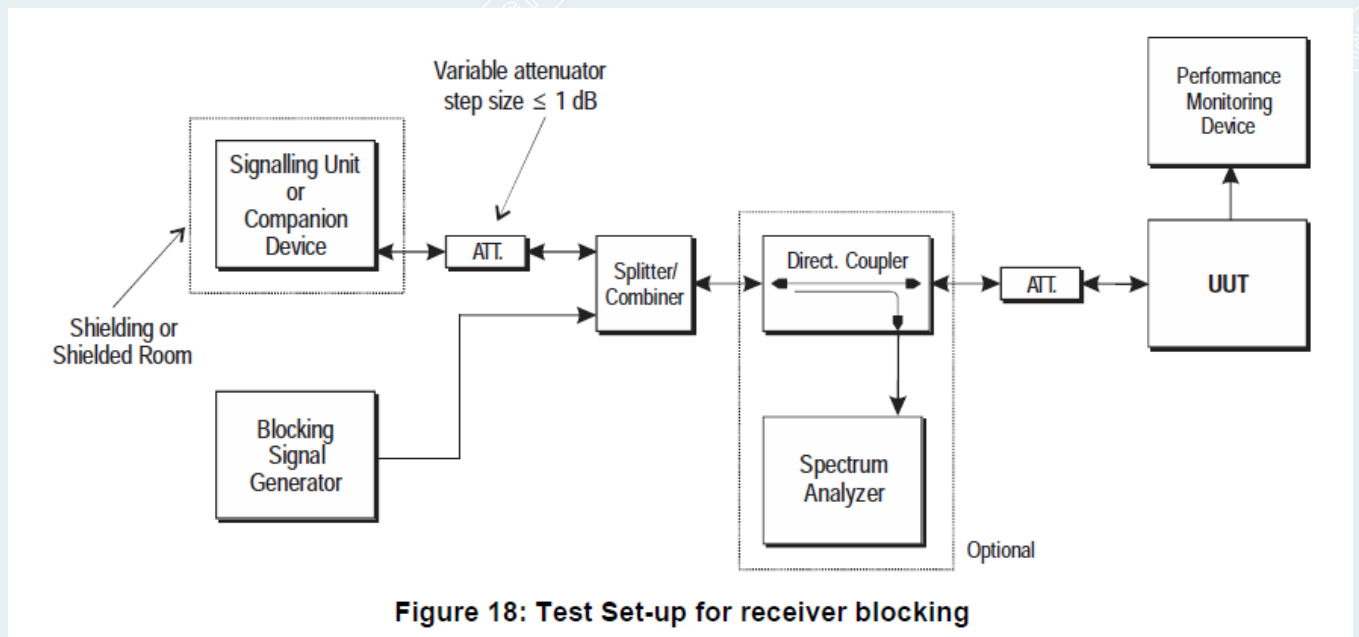
5.2.2 TEST PROCEDURE

Test requirement:	EN 301 893 clause 4.2.8
Test Method:	EN 301 893 clause 5.2.10.2
EUT Operation:	Keep EUT on transmitting mode by the software provided by manufacturer. Pretest the EUT at different transmission rate and report show the worst case data.
Test condition:	These measurements shall be performed under normal test conditions (see clause 5.1.2).

Test channel:	Test Channel	
	Modulation Mode	
	5 150 to 5 350 MHz	5 470 to 5 725 MHz
802.11a	36 (5180MHz)	100 (5500MHz)

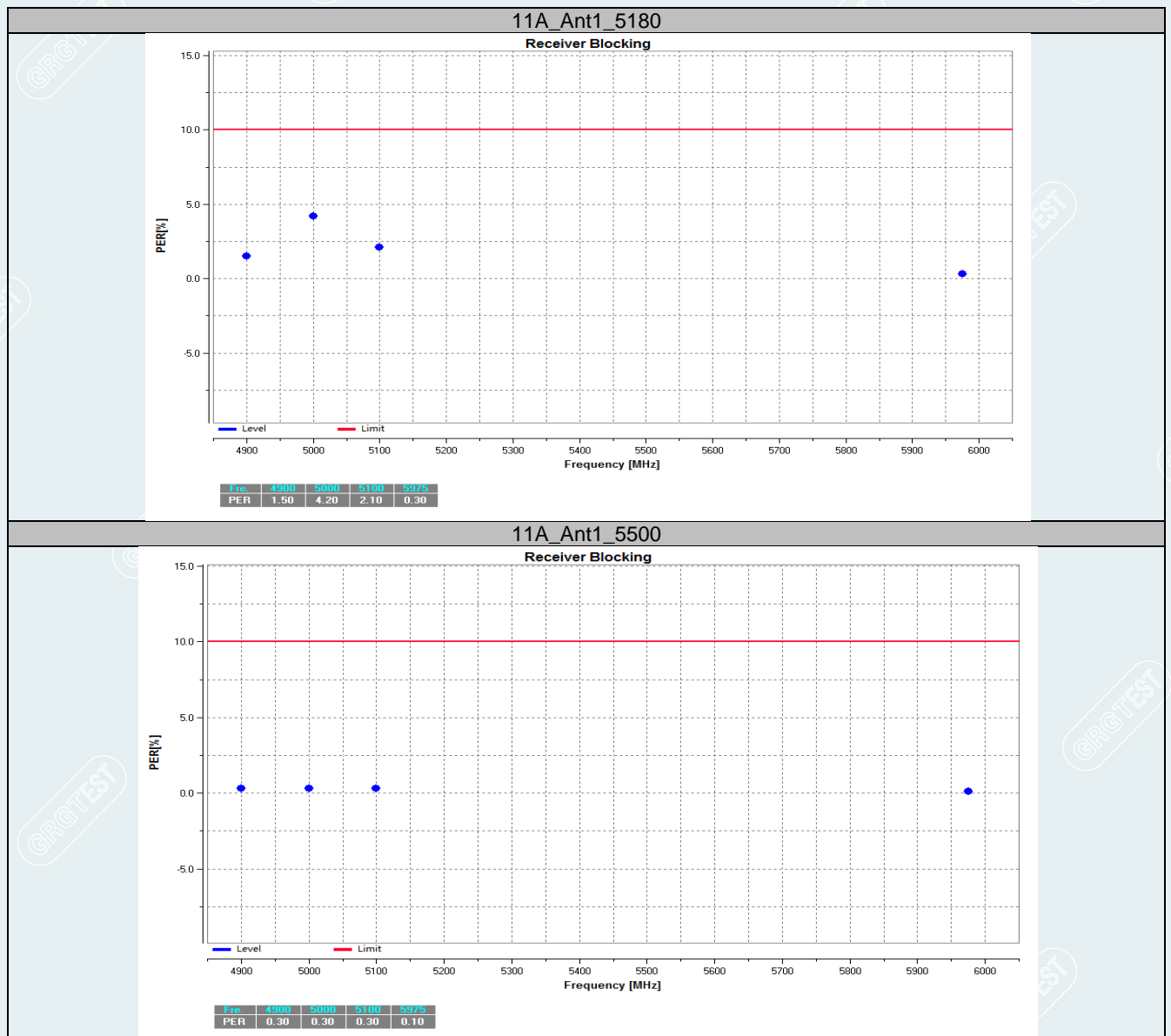
Note: N/A

5.2.3 TEST SETUP



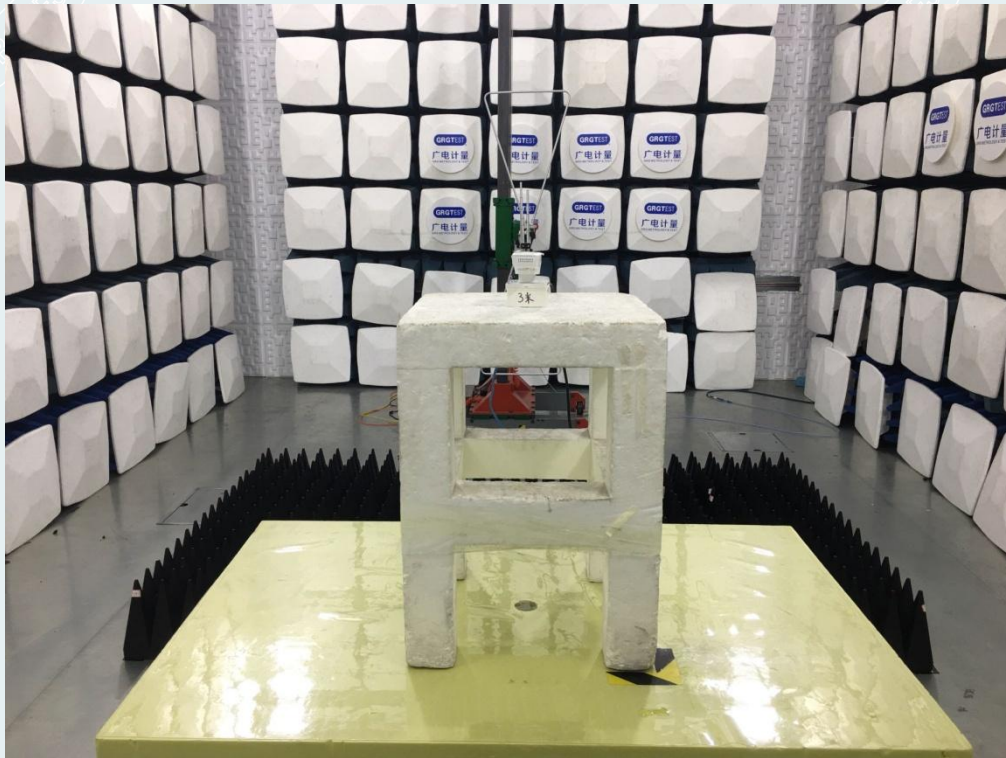
5.2.4 TEST RESULTS

TestMode	Antenna	Channel	Pmin [dBm]	Wanted signal [dBm]	Freq. [MHz]	CW [dBm]	PER [%]	Limit [%]	Verdict
11A	Ant1	5180	-81.66	-75.66	4900	-22	1.50	<=10	PASS
			-81.66	-75.66	5000	-22	4.20	<=10	PASS
			-81.66	-75.66	5100	-27	2.10	<=10	PASS
			-81.66	-75.66	5975	-23	0.30	<= 10	PASS
		5500	-85.87	-79.87	4900	-18	0.30	<=10	PASS
			-85.87	-79.87	5000	-18	0.30	<=10	PASS
			-85.87	-79.87	5100	-16	0.30	<=10	PASS
			-85.87	-79.87	5975	-24	0.10	<= 10	PASS

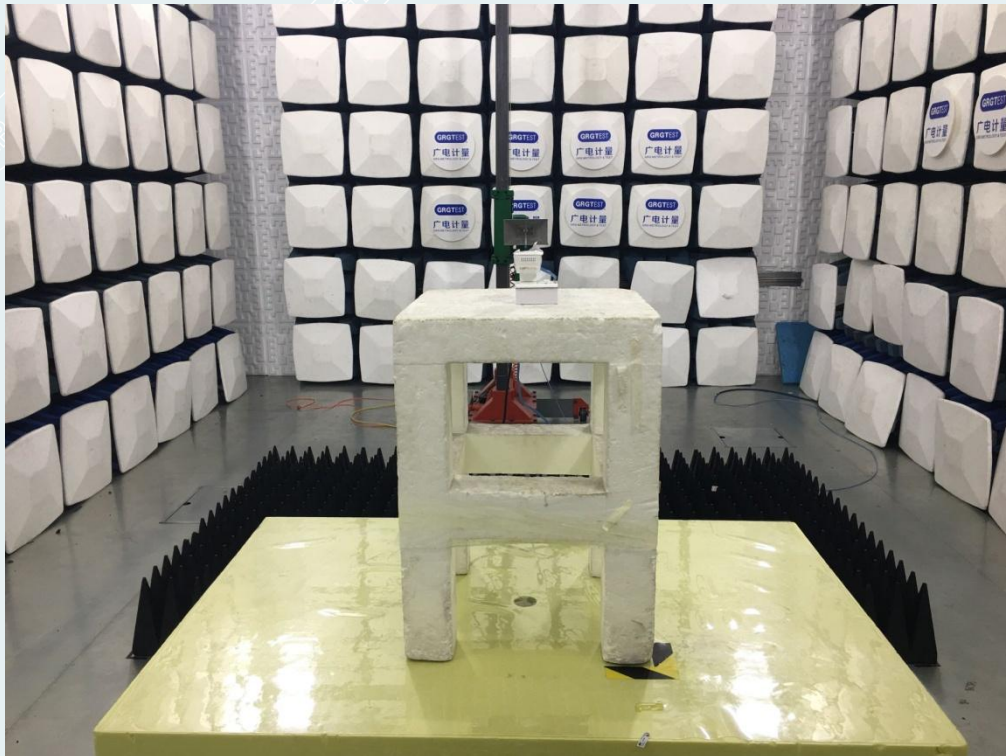


APPENDIX A: PHOTOGRAPH OF THE TEST ARRANGEMENT

Spurious Emission
Below 1GHz:



Above 1GHz:



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