Test Report

Date : 2020-12-08
No. : HM20020025

Applicant: Vestel Elektronik San ve Tic. A.S.
Organize Sanayi Bölgesi Vestel City, High-End 45030 Manisa, Turkey

Supplier / Manufacturer: Vestel Elektronik San ve Tic. A.S.
Organize Sanayi Bölgesi Vestel City, High-End 45030 Manisa, Turkey

Description of Sample(s): Submitted sample(s) said to be

Product:	Wi-Fi module
Brand Name:	Vestel
Model No.:	17WFM21
FCC ID:	2AVQS-17WFM21

Date Samples Received: 2020-02-17

Date Tested: 2020-02-24 to 2020-03-31

Investigation Requested: Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2019 and ANSI C63.10:2013 for FCC Certification.

Conclusions: The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks: 5GHz Wi-Fi

Dr. LEE Kam Chuen,
Authorized Signatory

Test Report

CONTENT:

1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
Head Office: 10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong
Telephone: 852 2666 1888
Fax: 852 2664 4353

FCC Test Firm Registration Number 723883
Designation Number HK0001

1.2 Equipment Under Test [EUT]

Description of Sample(s)

Product:	Wi-Fi module
Manufacturer:	Vestel Elektronik San ve Tic. A.S. Organize Sanayi Bölgesi Vestel City, High-End 45030 Manisa, Turkey
Brand Name:	Vestel
Model Number:	17WFM21
Rating:	4.75 – 5.25Vd.c

1.2.1 Description of EUT Operation

The Equipment Under Test (EUT) is a wireless module. The tests were conducted under RF Test mode to maintain continuous transmission with Max. duty cycle during test. The transmission signal is digital modulated with channel frequency range 2400 – 2483.5, 5150 -5350 and 5470-5725. The EUT does not supported Ad-Hoc function.

1.3 Date of Order

2020-02-12

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2020-02-24 to 2020-03-31

1.6 Country of Origin

China

1.7 RF Module Details

Module Model Number:	N/A
Module FCC ID:	N/A
Module Transmission Type:	802.11 a/n
Modulation:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Data Rates:	802.11a (6Mbps), 802.11n(MSC0) 300Mbps (Max)
Frequency Range:	5150 -5350 and 5470-5725
Carrier Frequencies:	Refer to channel list below
Antenna Type:	Printed PIFA antennas
Antenna Gain:	Antenna 0: 5150 – 5350 MHz = 3.0 dBi 5470 – 5725 MHz = 3.7 dBi Antenna 1: 5150 – 5350 MHz = 3.7 dBi 5470 – 5725 MHz = 3.7 dBi

1.8 Channel List

802.11a/n (HT20)

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

802.11n (HT40)

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

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2017 Regulations and ANSI C63.10:2013 for FCC Certification.
According FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
The device was realized by test software.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Maximum Peak Output Power	FCC 47CFR 407 (a)	ANSI C63.10: 2013	N/A	☒	☐	☐
Radiated Spurious Emissions	FCC 47CFR 15.205, 15.209	ANSI C63.10: 2013	N/A	☒	☐	☐
Unwanted Emissions	FCC 47CFR 15.407 (b)	ANSI C63.10: 2013	N/A	☒	☐	☐
Power Spectral Density	FCC 47CFR 15.407(a)	ANSI C63.10: 2013	N/A	☒	☐	☐
6dB and 26dB Bandwidth	FCC 47CFR 15.407 (i)	ANSI C63.10: 2013	N/A	☒	☐	☐
AC Mains Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10: 2013	N/A	☒	☐	☐
Antenna requirement	FCC 47CFR 15.203 &407 (a)	N/A	N/A	☒	☐	☐
RF Exposure	FCC 47CFR 2.1093	N/A	N/A	☒	☐	☐

Note: N/A - Not Applicable

2.3 Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate in the table below is the worst case rate with respect to the specific test item.
Investigation has been done on all the possible configurations for searching the worst cases.
The following table is a list of the test modes shown in this test report.

Test Conditions	
Test software	MT7662 QA Tool(V1.0.3.24)
Power level setting	Ant 1: 1B Ant 2: 1D
Type of modulation	802.11a 802.11n HT20 / HT40
EUT firmware	3.4.1

Duty Cycle	
802.11a	≥98%
802.11n (HT20)	≥98%
802.11n (HT40)	≥98%

3.0 Test Results

3.1 Emission

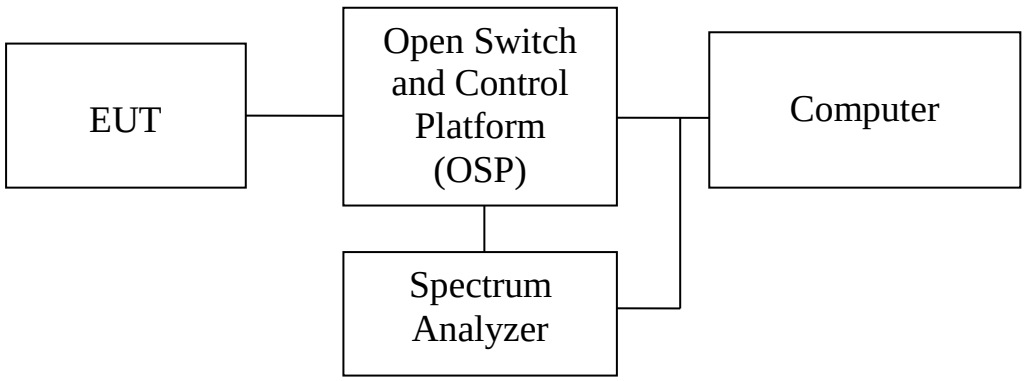
3.1.1 Maximum Peak Output Power

Test Requirement:	FCC 47CFR 15.407(a)
Test Method:	ANSI C63.10: 2013
Test Date:	2020-03-06
Mode of Operation:	Tx mode (802.11a/n)

Test Method:

The RF output of the EUT was connected to the Open Switch and Control Platform (OSP). All the attenuation or cable loss will be added to the measured maximum output power. The results are recorded in dBm.

Test Setup:



Results of Tx Mode: Pass (TX Unit) (802.11a) Maximum conducted output power				
Antenna 1				
Ch.	Frequency (MHz)	Output Power (mW)	Output Power (dBm)	Limit (dBm)
36	5180	11.14	10.47	24.0
40	5200	11.27	10.52	24.0
48	5240	10.07	10.03	24.0
52	5260	9.91	9.96	24.0
56	5280	11.04	10.43	24.0
64	5320	10.45	10.19	24.0
100	5500	10.52	10.22	24.0
120	5600	10.91	10.38	24.0
140	5700	9.95	9.98	24.0

Antenna 2				
Ch.	Frequency (MHz)	Output Power (mW)	Output Power (dBm)	Limit (dBm)
36	5180	10.09	10.04	24.0
40	5200	11.32	10.54	24.0
48	5240	10.47	10.20	24.0
52	5260	11.32	10.54	24.0
56	5280	12.36	10.92	24.0
64	5320	12.74	11.05	24.0
100	5500	9.51	9.78	24.0
120	5600	10.38	10.16	24.0
140	5700	11.17	10.48	24.0

Results of Tx Mode: Pass (TX Unit) (802.11n HT20) Maximum conducted output power				
Antenna 1				
Ch.	Frequency (MHz)	Output Power (mW)	Output Power (dBm)	Limit (dBm)
36	5180	10.84	10.35	24.0
40	5200	10.54	10.23	24.0
48	5240	10.26	10.11	24.0
52	5260	11.27	10.52	24.0
56	5280	11.07	10.44	24.0
64	5320	10.81	10.34	24.0
100	5500	10.42	10.18	24.0
120	5600	11.19	10.49	24.0
140	5700	10.05	10.02	24.0

Antenna 2				
Ch.	Frequency (MHz)	Output Power (mW)	Output Power (dBm)	Limit (dBm)
36	5180	9.71	9.87	24.0
40	5200	10.76	10.32	24.0
48	5240	10.28	10.12	24.0
52	5260	10.94	10.39	24.0
56	5280	12.33	10.91	24.0
64	5320	11.22	10.50	24.0
100	5500	8.63	9.36	24.0
120	5600	10.47	10.20	24.0
140	5700	10.64	10.27	24.0

Results of Tx Mode: Pass (TX Unit) (802.11n HT20 - MIMO) Maximum conducted output power						
Ch.	Frequency (MHz)	Antenna 1 Output Power (mW)	Antenna 2 Output Power (mW)	Total Output Power (mW)	Total Output Power (dBm)	Limit (dBm)
36	5180	10.84	9.71	20.55	13.13	23.6
40	5200	10.54	10.76	21.30	13.28	23.6
48	5240	10.26	10.28	20.54	13.13	23.6
52	5260	11.27	10.94	22.21	13.47	23.6
56	5280	11.07	12.33	23.40	13.69	23.6
64	5320	10.81	11.22	22.03	13.43	23.6
100	5500	10.42	8.63	19.05	12.80	23.3
120	5600	11.19	10.47	21.66	13.36	23.3
140	5700	10.05	10.64	20.69	13.16	23.3

Directional Gain calculation refer to KDB 662911 D01
EUT antenna gain:
5150 – 5350 MHz, Ant 0 = 3.0 dBi, Ant 1= 3.7 dBi
5470 – 5725 MHz, Ant 0 = 3.7 dBi, Ant 1 = 3.7 dBi
Directional Gain , 5150 – 5350 MHz = 6.4 dBi, 5470 – 5725 MHz = 6.7 dBi
Directional Gain ≥ 6.0dB, limit adjusted

Results of Tx Mode: Pass (TX Unit) (802.11n HT40) Maximum conducted output power				
Antenna 1				
Ch.	Frequency (MHz)	Output Power (mW)	Output Power (dBm)	Limit (dBm)
38	5190	10.79	10.33	24.0
46	5230	10.74	10.31	24.0
54	5270	9.79	9.91	24.0
62	5310	10.69	10.29	24.0
102	5510	10.30	10.13	24.0
118	5590	9.86	9.94	24.0
134	5670	10.94	10.39	24.0

Antenna 2				
Ch.	Frequency (MHz)	Output Power (mW)	Output Power (dBm)	Limit (dBm)
38	5190	10.07	10.03	24.0
46	5230	9.82	9.92	24.0
54	5270	10.96	10.40	24.0
62	5310	10.94	10.39	24.0
102	5510	11.51	10.61	24.0
118	5590	10.02	10.01	24.0
134	5670	11.04	10.43	24.0

Results of Tx Mode: Pass (TX Unit) (802.11n HT40 - MIMO) Maximum conducted output power						
Ch.	Frequency (MHz)	Antenna 1 Output Power (mW)	Antenna 2 Output Power (mW)	Total Output Power (mW)	Total Output Power (dBm)	Limit (dBm)
38	5190	10.79	10.07	20.86	13.19	23.6
46	5230	10.74	9.82	20.56	13.13	23.6
54	5270	9.79	10.96	20.75	13.17	23.6
62	5310	10.69	10.94	21.63	13.35	23.6
102	5510	10.30	11.51	21.81	13.39	23.3
118	5590	9.86	10.02	19.88	12.98	23.3
134	5670	10.94	11.04	21.98	13.42	23.3

Directional Gain calculation refer to KDB 662911 D01
EUT antenna gain:
5150 – 5350 MHz, Ant 0 = 3.0 dBi, Ant 1= 3.7 dBi
5470 – 5725 MHz, Ant 0 = 3.7 dBi, Ant 1 = 3.7 dBi
Directional Gain , 5150 – 5350 MHz = 6.4 dBi, 5470 – 5725 MHz = 6.7 dBi
Directional Gain ≥ 6.0dB, limit adjusted

Calculated measurement uncertainty : 30MHz to 1GHz 1.7dB
1GHz to 26GHz 1.7dB

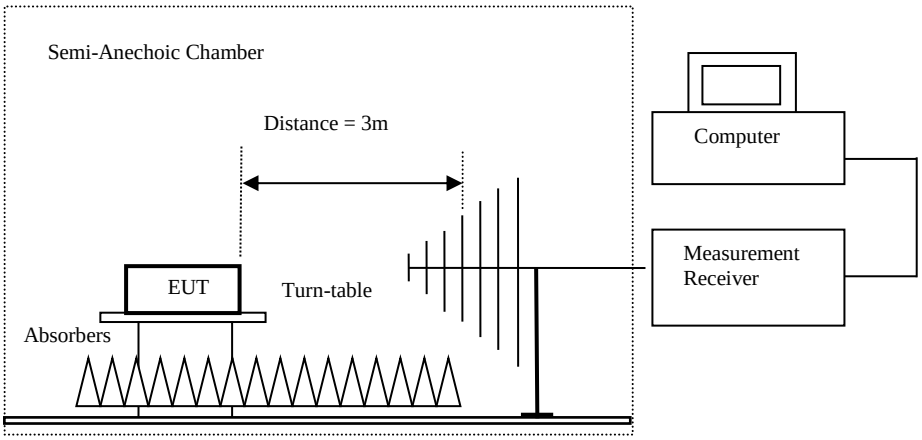
3.1.2 Radiated Emissions

Test Requirement:	FCC 47CFR 15.209 and FCC 47CFR 15.407
Test Method:	ANSI C63.10:2013
Test Date:	2020-03-19 to 2020-03-25
Mode of Operation:	Tx mode (802.11 a/n)

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The measured field strength would be calculated as EIRP.

Test Setup:



Ground Plane

- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used, 9kHz to 30MHz loop antennas are used.
-For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m.

Limits for Radiated Emissions FCC 47 CFR 15.209 Class B:

Frequency Range	Quasi-Peak Limits
[MHz]	[μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Limit for unwanted Emission for out of band emission above 1GHz:

Frequency Range	Peak Limits	Average Limits	Substitution Method (Peak Limits)
[MHz]	[dBμV/m]	[dBμV/m]	[dBm] / [dBμV/m]
Above 1GHz	74.0	54.0	-27 / 68.2

Remarks:
* means restricted bands
Measured Level @3m [dBμV/m] = Reading of test receiver [dBμV] + correction factor
Details refer to Appendix B

Result of Tx mode (802.11a) (5180.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10360.0	V	PK	1	49.7	68.2	-18.5
*15540.0	V	PK	1	56.3	74.0	-17.7
*15540.0	V	AV	1	46.1	54.0	-7.9
*20720.0	V	PK	1	60.1	74.0	-13.9
*20720.0	V	AV	1	49.8	54.0	-4.2
10360.0	H	PK	1	50.1	68.2	-18.1
*15540.0	H	PK	1	57.5	74.0	-16.5
*15540.0	H	AV	1	46.8	54.0	-7.2
*20720.0	H	PK	1	61.0	74.0	-13.0
*20720.0	H	AV	1	50.1	54.0	-3.9

Result of Tx mode (802.11a) (5200.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10400.0	V	PK	1	50.9	68.2	-17.3
*15600.0	V	PK	1	58.1	74.0	-15.9
*15600.0	V	AV	1	47.6	54.0	-6.4
*20800.0	V	PK	1	59.6	74.0	-14.4
*20800.0	V	AV	1	48.6	54.0	-5.4
10400.0	H	PK	1	49.4	68.2	-18.8
*15600.0	H	PK	1	56.0	74.0	-18.0
*15600.0	H	AV	1	45.9	54.0	-8.1
*20800.0	H	PK	1	60.0	74.0	-14.0
*20800.0	H	AV	1	50.3	54.0	-3.7

Result of Tx mode (802.11a) (5240.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10480.0	V	PK	1	51.8	68.2	-16.4
*15720.0	V	PK	1	57.1	74.0	-16.9
*15720.0	V	AV	1	46.8	54.0	-7.2
*20960.0	V	PK	1	59.4	74.0	-14.6
*20960.0	V	AV	1	49.0	54.0	-5.0
10480.0	H	PK	1	50.8	68.2	-17.4
*15720.0	H	PK	1	57.1	74.0	-16.9
*15720.0	H	AV	1	46.8	54.0	-7.2
*20960.0	H	PK	1	58.4	74.0	-15.6
*20960.0	H	AV	1	47.8	54.0	-6.2

Result of Tx mode (802.11a) (5260.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10520.0	V	PK	1	51.7	68.2	-16.5
*15780.0	V	PK	1	57.1	74.0	-16.9
*15780.0	V	AV	1	46.5	54.0	-7.5
*21040.0	V	PK	1	59.7	74.0	-14.3
*21040.0	V	AV	1	49.1	54.0	-4.9
10520.0	H	PK	1	52.5	68.2	-15.7
*15780.0	H	PK	1	56.4	74.0	-17.6
*15780.0	H	AV	1	45.9	54.0	-8.1
*21040.0	H	PK	1	59.5	74.0	-14.5
*21040.0	H	AV	1	49.5	54.0	-4.5

Result of Tx mode (802.11a) (5280.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10560.0	V	PK	1	53.7	68.2	-14.5
*15840.0	V	PK	1	57.0	74.0	-17.0
*15840.0	V	AV	1	47.2	54.0	-6.8
*21120.0	V	PK	1	60.6	74.0	-13.4
*21120.0	V	AV	1	50.1	54.0	-3.9
10560.0	H	PK	1	51.6	68.2	-16.6
*15840.0	H	PK	1	55.7	74.0	-18.3
*15840.0	H	AV	1	45.9	54.0	-8.1
*21120.0	H	PK	1	59.8	74.0	-14.2
*21120.0	H	AV	1	49.6	54.0	-4.4

Result of Tx mode (802.11a) (5320.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10640.0	V	PK	1	54.5	68.2	-13.7
*15960.0	V	PK	1	55.8	74.0	-18.2
*15960.0	V	AV	1	45.6	54.0	-8.4
*21280.0	V	PK	1	60.2	74.0	-13.8
*21280.0	V	AV	1	49.9	54.0	-4.1
10640.0	H	PK	1	53.8	68.2	-14.4
*15960.0	H	PK	1	55.7	74.0	-18.3
*15960.0	H	AV	1	44.9	54.0	-9.1
*21280.0	H	PK	1	59.0	74.0	-15.0
*21280.0	H	AV	1	48.6	54.0	-5.4

Result of Tx mode (802.11a) (5500.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11000.0	V	PK	1	52.1	74.0	-21.9
*11000.0	V	AV	1	PK < AV	54.0	N/A
16500.0	V	PK	1	58.7	68.2	-9.5
22000.0	V	PK	1	62.4	68.2	-5.8
*11000.0	H	PK	1	52.6	74.0	-21.4
*11000.0	H	AV	1	PK < AV	54.0	N/A
16500.0	H	PK	1	58.7	68.2	-9.5
22000.0	H	PK	1	62.3	68.2	-5.9

Result of Tx mode (802.11a) (5600.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11200.0	V	PK	1	53.2	74.0	-20.8
*11200.0	V	AV	1	PK < AV	54.0	N/A
16800.0	V	PK	1	62.1	68.2	-6.1
*22400.0	V	PK	1	61.5	74.0	-12.5
*22400.0	V	AV	1	51.0	54.0	-3.0
*11200.0	H	PK	1	52.1	74.0	-21.9
*11200.0	H	AV	1	PK < AV	54.0	N/A
16800.0	H	PK	1	59.3	68.2	-8.9
*22400.0	H	PK	1	60.5	74.0	-13.5
*22400.0	H	AV	1	50.0	54.0	-4.0

Result of Tx mode (802.11a) (5700.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11400.0	V	PK	1	53.1	74.0	-20.9
*11400.0	V	AV	1	PK < AV	54.0	N/A
17100.0	V	PK	1	60.4	68.2	-7.8
*22800.0	V	PK	1	61.1	74.0	-12.9
*22800.0	V	AV	1	50.3	54.0	-3.7
*11400.0	H	PK	1	52.6	74.0	-21.4
*11400.0	H	AV	1	PK < AV	54.0	N/A
17100.0	H	PK	1	59.8	68.2	-8.4
*22800.0	H	PK	1	61.4	74.0	-12.6
*22800.0	H	AV	1	50.8	54.0	-3.2

Result of Tx mode (802.11n HT20) (5180.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10360.0	V	PK	1	49.6	68.2	-18.6
*15540.0	V	PK	1	56.8	74.0	-17.2
*15540.0	V	AV	1	46.7	54.0	-7.3
*20720.0	V	PK	1	58.8	74.0	-15.2
*20720.0	V	AV	1	48.6	54.0	-5.4
10360.0	H	PK	1	49.3	68.2	-18.9
*15540.0	H	PK	1	56.2	74.0	-17.8
*15540.0	H	AV	1	45.8	54.0	-8.2
*20720.0	H	PK	1	59.7	74.0	-14.3
*20720.0	H	AV	1	48.9	54.0	-5.1

Result of Tx mode (802.11n HT20) (5200.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10400.0	V	PK	1	48.9	68.2	-19.3
*15600.0	V	PK	1	55.8	74.0	-18.2
*15600.0	V	AV	1	44.9	54.0	-9.1
*20800.0	V	PK	1	58.9	74.0	-15.1
*20800.0	V	AV	1	48.1	54.0	-5.9
10400.0	H	PK	1	49.0	68.2	-19.2
*15600.0	H	PK	1	56.0	74.0	-18.0
*15600.0	H	AV	1	45.7	54.0	-8.3
*20800.0	H	PK	1	59.1	74.0	-14.9
*20800.0	H	AV	1	48.6	54.0	-5.4

Result of Tx mode (802.11n HT20) (5240.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10480.0	V	PK	1	50.7	68.2	-17.5
*15720.0	V	PK	1	55.2	74.0	-18.8
*15720.0	V	AV	1	44.6	54.0	-9.4
*20960.0	V	PK	1	59.0	74.0	-15.0
*20960.0	V	AV	1	49.2	54.0	-4.8
10480.0	H	PK	1	49.7	68.2	-18.5
*15720.0	H	PK	1	55.9	74.0	-18.1
*15720.0	H	AV	1	45.3	54.0	-8.7
*20960.0	H	PK	1	60.3	74.0	-13.7
*20960.0	H	AV	1	49.8	54.0	-4.2

Result of Tx mode (802.11n HT20) (5260.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10520.0	V	PK	1	51.3	68.2	-16.9
*15780.0	V	PK	1	56.6	74.0	-17.4
*15780.0	V	AV	1	45.9	54.0	-8.1
*21040.0	V	PK	1	59.0	74.0	-15
*21040.0	V	AV	1	48.8	54.0	-5.2
10520.0	H	PK	1	50.6	68.2	-17.6
*15780.0	H	PK	1	56.5	74.0	-17.5
*15780.0	H	AV	1	46.4	54.0	-7.6
*21040.0	H	PK	1	59.4	74.0	-14.6
*21040.0	H	AV	1	48.9	54.0	-5.1

Result of Tx mode (802.11n HT20) (5280.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10560.0	V	PK	1	52.8	68.2	-15.4
*15840.0	V	PK	1	55.9	74.0	-18.1
*15840.0	V	AV	1	44.6	54.0	-9.4
*21120.0	V	PK	1	60.2	74.0	-13.8
*21120.0	V	AV	1	49.8	54.0	-4.2
10560.0	H	PK	1	52.8	68.2	-15.4
*15840.0	H	PK	1	55.5	74.0	-18.5
*15840.0	H	AV	1	44.9	54.0	-9.1
*21120.0	H	PK	1	59.9	74.0	-14.1
*21120.0	H	AV	1	48.7	54.0	-5.3

Result of Tx mode (802.11n HT20) (5320.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10640.0	V	PK	1	53.5	68.2	-14.7
*15960.0	V	PK	1	55.6	74.0	-18.4
*15960.0	V	AV	1	44.8	54.0	-9.2
*21280.0	V	PK	1	59.5	74.0	-14.5
*21280.0	V	AV	1	48.9	54.0	-5.1
10640.0	H	PK	1	53.2	68.2	-15
*15960.0	H	PK	1	55.7	74.0	-18.3
*15960.0	H	AV	1	45.5	54.0	-8.5
*21280.0	H	PK	1	59.1	74.0	-14.9
*21280.0	H	AV	1	48.8	54.0	-5.2

Result of Tx mode (802.11n HT20) (5500.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11000.0	V	PK	1	52.6	74.0	-21.4
*11000.0	V	AV	1	PK < AV	54.0	N/A
16500.0	V	PK	1	58.1	68.2	-10.1
22000.0	V	PK	1	62.7	68.2	-5.5
*11000.0	H	PK	1	51.4	74.0	-22.6
*11000.0	H	AV	1	PK < AV	54.0	N/A
16500.0	H	PK	1	58.5	68.2	-9.7
22000.0	H	PK	1	61.5	68.2	-6.7

Result of Tx mode (802.11n HT20) (5600.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11200.0	V	PK	1	53.6	74.0	-20.4
*11200.0	V	AV	1	PK < AV	54.0	N/A
16800.0	V	PK	1	59.9	68.2	-8.3
*22400.0	V	PK	1	62.0	74.0	-12
*22400.0	V	AV	1	51.1	54.0	-2.9
*11200.0	H	PK	1	52.6	74.0	-21.4
*11200.0	H	AV	1	PK < AV	54.0	N/A
16800.0	H	PK	1	59.7	68.2	-8.5
*22400.0	H	PK	1	60.1	74.0	-13.9
*22400.0	H	AV	1	49.8	54.0	-4.2

Result of Tx mode (802.11n HT20) (5700.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11400.0	V	PK	1	53.8	74.0	-20.2
*11400.0	V	AV	1	PK < AV	54.0	N/A
17100.0	V	PK	1	59.8	68.2	-8.4
*22800.0	V	PK	1	60.3	74.0	-13.7
*22800.0	V	AV	1	48.9	54.0	-5.1
*11400.0	H	PK	1	52.0	74.0	-22
*11400.0	H	AV	1	PK < AV	54.0	N/A
17100.0	H	PK	1	59.7	68.2	-8.5
*22800.0	H	PK	1	61.5	74.0	-12.5
*22800.0	H	AV	1	50.8	54.0	-3.2

Result of Tx mode (802.11n HT40) (5190.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10380.0	V	PK	1	49.7	68.2	-18.5
*15570.0	V	PK	1	55.6	74.0	-18.4
*15570.0	V	AV	1	45.8	54.0	-8.2
*20760.0	V	PK	1	59.7	74.0	-14.3
*20760.0	V	AV	1	48.6	54.0	-5.4
10380.0	H	PK	1	48.6	68.2	-19.6
*15570.0	H	PK	1	55.8	74.0	-18.2
*15570.0	H	AV	1	46.0	54.0	-8
*20760.0	H	PK	1	59.1	74.0	-14.9
*20760.0	H	AV	1	48.7	54.0	-5.3

Result of Tx mode (802.11n HT40) (5230.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10460.0	V	PK	1	50.2	68.2	-18.0
*15690.0	V	PK	1	56.6	74.0	-17.4
*15690.0	V	AV	1	45.6	54.0	-8.4
*20920.0	V	PK	1	58.8	74.0	-15.2
*20920.0	V	AV	1	47.5	54.0	-6.5
10460.0	H	PK	1	49.4	68.2	-18.8
*15690.0	H	PK	1	54.6	74.0	-19.4
*15690.0	H	AV	1	44.8	54.0	-9.2
*20920.0	H	PK	1	57.7	74.0	-16.3
*20920.0	H	AV	1	46.9	54.0	-7.1

Result of Tx mode (802.11n HT40) (5270.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
10540.0	V	PK	1	52.4	68.2	-15.8
*15810.0	V	PK	1	56.1	74.0	-17.9
*15810.0	V	AV	1	45.5	54.0	-8.5
*21080.0	V	PK	1	60.2	74.0	-13.8
*21080.0	V	AV	1	48.4	54.0	-5.6
10540.0	H	PK	1	52.3	68.2	-15.9
*15810.0	H	PK	1	54.6	74.0	-19.4
*15810.0	H	AV	1	44.8	54.0	-9.2
*21080.0	H	PK	1	59.3	74.0	-14.7
*21080.0	H	AV	1	48.6	54.0	-5.4

Result of Tx mode (802.11n HT40) (5310.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*10620.0	V	PK	1	53.8	74.0	-20.4
*10620.0	V	AV	1	PK < AV	54.0	N/A
*15930.0	V	PK	1	55.8	74.0	-18.2
*15930.0	V	AV	1	44.7	54.0	-9.3
*21240.0	V	PK	1	58.4	74.0	-15.6
*21240.0	V	AV	1	48.7	54.0	-5.3
*10620.0	H	PK	1	52.5	74.0	-21.5
*10620.0	H	AV	1	PK < AV	54.0	N/A
*15930.0	H	PK	1	55.9	74.0	-18.1
*15930.0	H	AV	1	45.1	54.0	-8.9
*21240.0	H	PK	1	60.4	74.0	-13.6
*21240.0	H	AV	1	49.1	54.0	-4.9

Result of Tx mode (802.11n HT40) (5510.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11020.0	V	PK	1	52.8	74.0	-21.2
*11020.0	V	AV	1	PK < AV	54.0	N/A
16530.0	V	PK	1	59.2	68.2	-9.0
*22040.0	V	PK	1	60.8	74.0	-13.2
*22040.0	V	AV	1	50.1	54.0	-3.9
*11020.0	H	PK	1	52.7	74.0	-21.3
*11020.0	H	AV	1	PK < AV	54.0	N/A
16530.0	H	PK	1	59.1	68.2	-9.1
*22040.0	H	PK	1	59.9	74.0	-14.1
*22040.0	H	AV	1	49.8	54.0	-4.2

Result of Tx mode (802.11n HT40) (5590.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11180.0	V	PK	1	54.3	74.0	-19.7
*11180.0	V	AV	1	44.8	54.0	-9.2
16770.0	V	PK	1	60.7	68.2	-7.5
*22360.0	V	PK	1	61.3	74.0	-12.7
*22360.0	V	AV	1	50.1	54.0	-3.9
*11180.0	H	PK	1	52.8	74.0	-21.2
*11180.0	H	AV	1	PK < AV	54.0	N/A
16770.0	H	PK	1	60.1	68.2	-8.1
*22360.0	H	PK	1	60.6	74.0	-13.4
*22360.0	H	AV	1	49.8	54.0	-4.2

Result of Tx mode (802.11n HT40) (5670.0 MHz) (1GHz to 40GHz): Pass

Frequency (MHz)	Antenna Polarity	Detector	Measuring Bandwidth (MHz)	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
*11340.0	V	PK	1	54.4	74.0	-19.6
*11340.0	V	AV	1	45.5	54.0	-8.5
17010.0	V	PK	1	60.1	68.2	-8.1
*22680.0	V	PK	1	61.3	74.0	-12.7
*22680.0	V	AV	1	50.2	54.0	-3.8
*11340.0	H	PK	1	52.8	74.0	-21.2
*11340.0	H	AV	1	PK < AV	54.0	N/A
17010.0	H	PK	1	59.1	68.2	-9.1
*22680.0	H	PK	1	62.6	74.0	-11.4
*22680.0	H	AV	1	51.1	54.0	-2.9

Limits for Radiated Emissions FCC 47 CFR 15.209 Class B]:

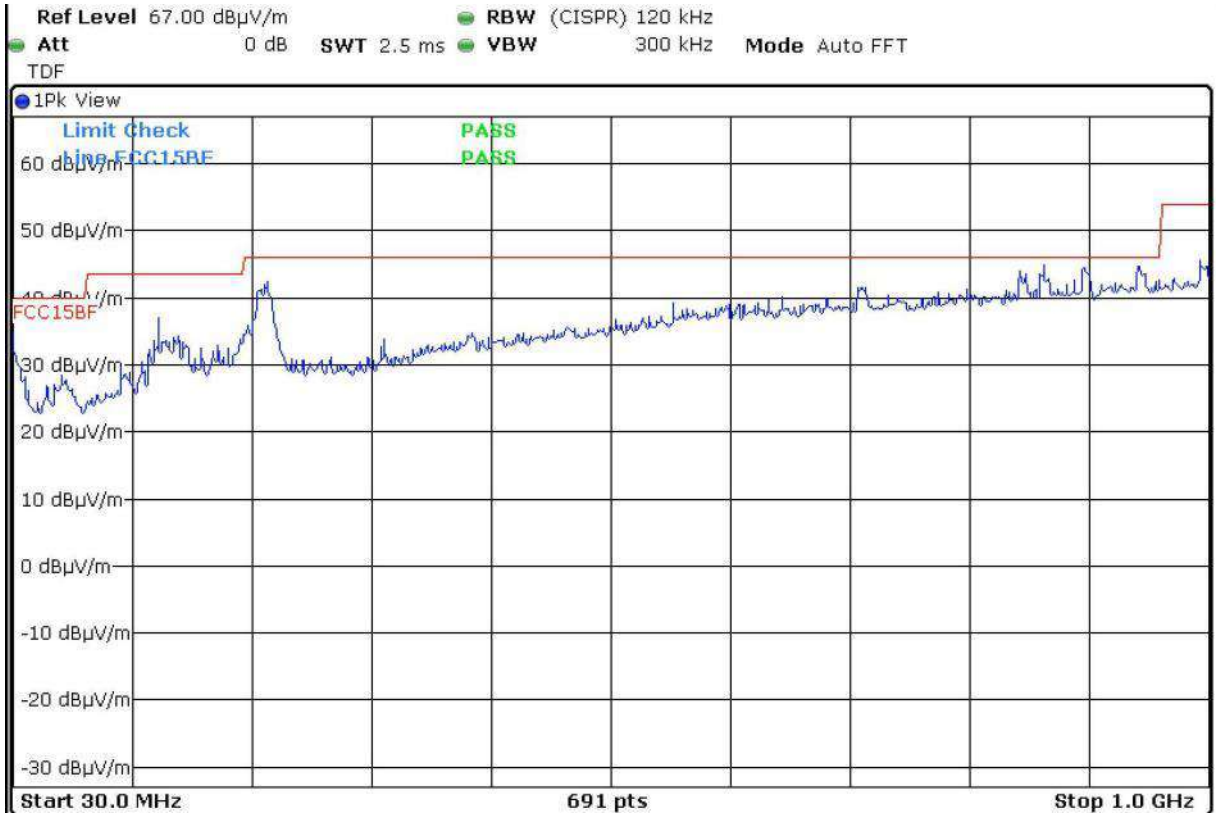
Frequency Range	Quasi-Peak Limits
[MHz]	[μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

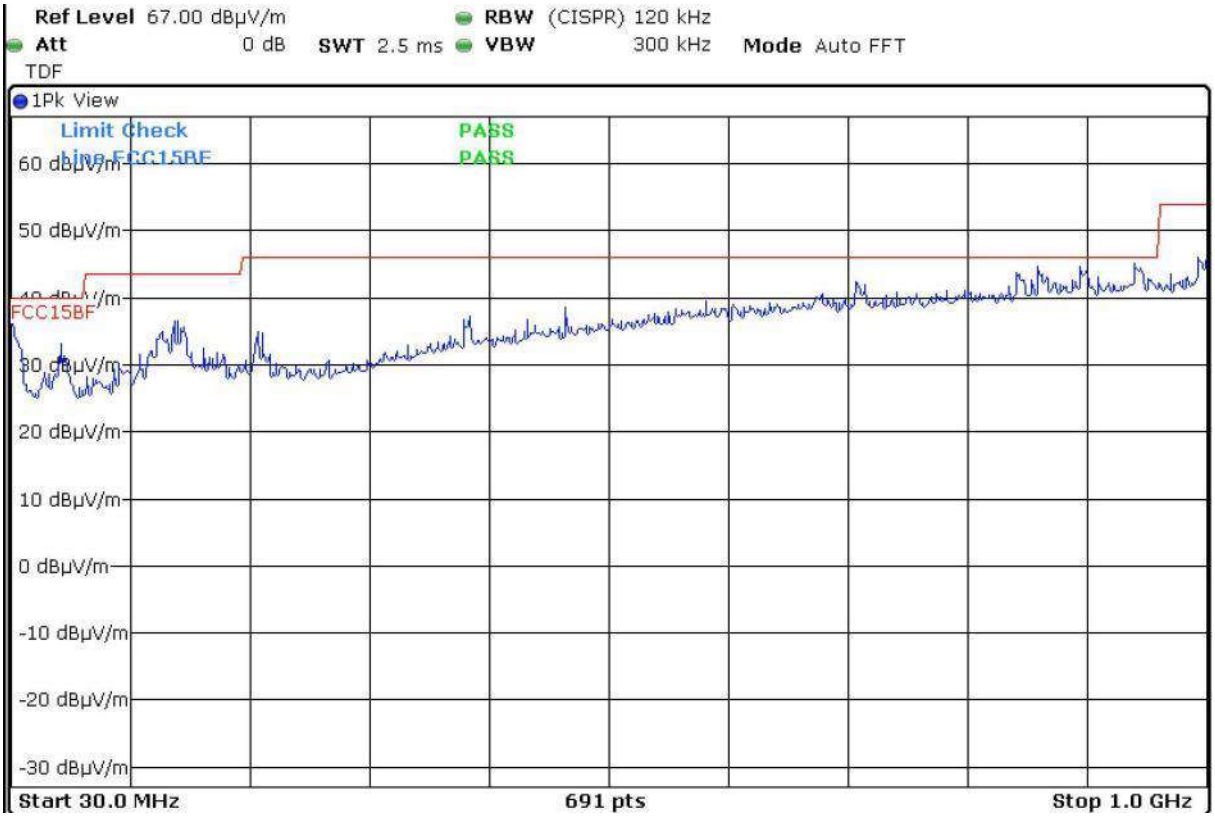
Results of Tx mode (30MHz – 1GHz): Pass

Please refer to the following table for result details(The data is the worst cases)

Horizontal



Vertical



The six highest emissions for each polarization (H/V) in the frequency range 30 MHz – 1000 MHz are as following:

Frequency (MHz)	Antenna Polarity	Detector	Measured Level @3m (dBµV/m)	Limit (dBµV/m)	Margin (dB)
33.19	V	QP	35.3	43.5	-8.2
56.85	V	QP	35.4	43.5	-8.1
63.64	V	QP	32.1	43.5	-11.4
68.50	V	QP	34.7	46.0	-11.3
957.97	V	QP	38.4	46.0	-7.6
939.30	V	QP	38.2	46.0	-7.8
51.59	H	QP	29.2	43.5	-14.3
161.99	H	QP	32.3	43.5	-11.2
216.00	H	QP	35.6	43.5	-7.9
239.99	H	QP	37.9	46.0	-8.1
897.48	H	QP	36.6	46.0	-9.4
954.48	H	QP	37.1	46.0	-8.9

Measured Level @3m [dBµV/m] = Reading of test receiver [dBµV] + correction factor

Result of Tx mode (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured Level	Correction Factor	Field Strength	Field Strength	Limit	E-Field Polarity
MHz	dBuV	dB/m	dBuV/m	uV/m	uV/m	
Emissions detected are more than 20 dB below the Limits						

Remarks:

Calculated measurement uncertainty : 9kHz-30MHz 3.3dB
30MHz -1GHz 4.6dB

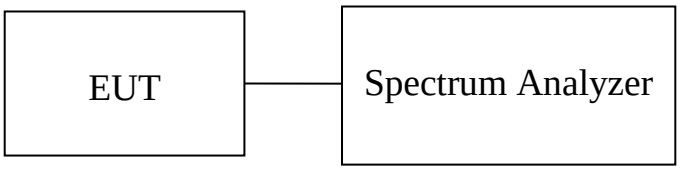
3.1.4 Power Spectral Density

Test Requirement:	FCC 47CFR 15.407(a)
Test Method:	ANSI C63.10:2013
Test Date:	2020-03-26 to 2020-03-27
Mode of Operation:	Tx mode (802.11 a/n)

Test Method:

The RF output of the EUT was connected to the spectrum analyzer. Set the fundamental frequency as the center frequency of the spectral analyzer. Use RBW=500kHz/1MHz , VBW= 1MHz/3MHz , Set the span to 1.5 times the DTS channel bandwidth. Detector = RMS, Sweep time = auto couple, Trace mode = max hold.

Test Setup:



Results of Tx Mode: Pass (TX Unit) (802.11a) Power Spectral Density				
Antenna 1				
Ch.	**Frequency (MHz)**	**PSD (mW)**	**PSD (dBm)**	**Limit (dBm)**
36	5180	0.99	-0.04	11.0
40	5200	0.94	-0.26	11.0
48	5240	0.95	-0.24	11.0
52	5260	0.93	-0.33	11.0
56	5280	0.90	-0.46	11.0
64	5320	1.06	0.24	11.0
100	5500	1.02	0.08	11.0
120	5600	0.89	-0.53	11.0
140	5700	0.89	-0.50	11.0

Antenna 2				
Ch.	**Frequency (MHz)**	**PSD (mW)**	**PSD (dBm)**	**Limit (dBm)**
36	5180	1.06	0.25	11.0
40	5200	1.00	0.00	11.0
48	5240	1.03	0.14	11.0
52	5260	1.04	0.18	11.0
56	5280	0.93	-0.30	11.0
64	5320	0.95	-0.23	11.0
100	5500	0.86	-0.65	11.0
120	5600	0.88	-0.56	11.0
140	5700	0.91	-0.43	11.0

Results of Tx Mode: Pass (TX Unit) (802.11n HT20) Power Spectral Density				
Antenna 1				
Ch.	Frequency (MHz)	PSD (mW)	PSD (dBm)	Limit (dBm)
36	5180	1.04	0.17	11.0
40	5200	1.01	0.04	11.0
48	5240	0.93	-0.33	11.0
52	5260	0.88	-0.54	11.0
56	5280	0.89	-0.51	11.0
64	5320	0.94	-0.26	11.0
100	5500	0.90	-0.47	11.0
120	5600	0.88	-0.57	11.0
140	5700	0.88	-0.54	11.0

Antenna 2				
Ch.	Frequency (MHz)	PSD (mW)	PSD (dBm)	Limit (dBm)
36	5180	0.94	-0.26	11.0
40	5200	0.96	-0.16	11.0
48	5240	1.03	0.13	11.0
52	5260	0.98	-0.07	11.0
56	5280	1.01	0.04	11.0
64	5320	0.96	-0.17	11.0
100	5500	0.84	-0.75	11.0
120	5600	0.96	-0.18	11.0
140	5700	0.97	-0.13	11.0

Results of Tx Mode: Pass (TX Unit) (802.11n HT20 - MIMO) Power Spectral Density						
Ch.	Frequency (MHz)	Antenna 1 PSD (mW)	Antenna 2 PSD (mW)	Total PSD (mW)	Total PSD (dBm)	Limit (dBm)
36	5180	1.04	0.94	1.98	2.97	10.3
40	5200	1.01	0.96	1.97	2.94	10.3
48	5240	0.93	1.03	1.96	2.92	10.3
52	5260	0.88	0.98	1.86	2.70	10.3
56	5280	0.89	1.01	1.90	2.79	10.3
64	5320	0.94	0.96	1.90	2.79	10.3
100	5500	0.90	0.84	1.74	2.41	10.3
120	5600	0.88	0.96	1.84	2.65	10.3
140	5700	0.88	0.97	1.85	2.67	10.3

Remarks:
5150 – 5350 MHz Directional Gain (ANT. Gain + Beamforming Gain = 3.7 + 3= 6.7) ≥ 6.0dB, limit adjusted
5470 - 5725 MHz Directional Gain (ANT. Gain + Beamforming Gain = 3.7 + 3= 6.7) ≥ 6.0dB, limit adjusted

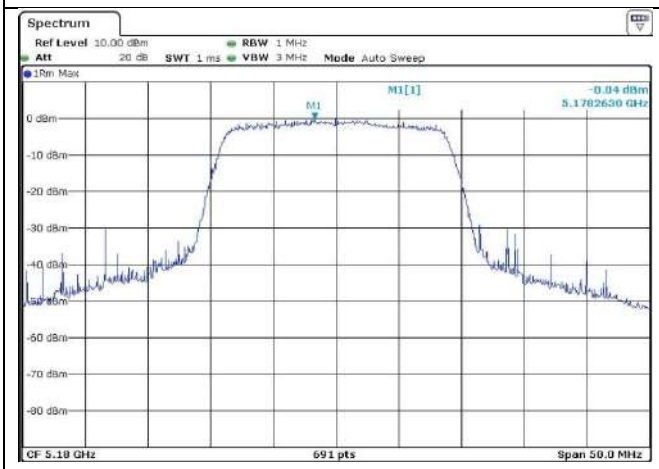
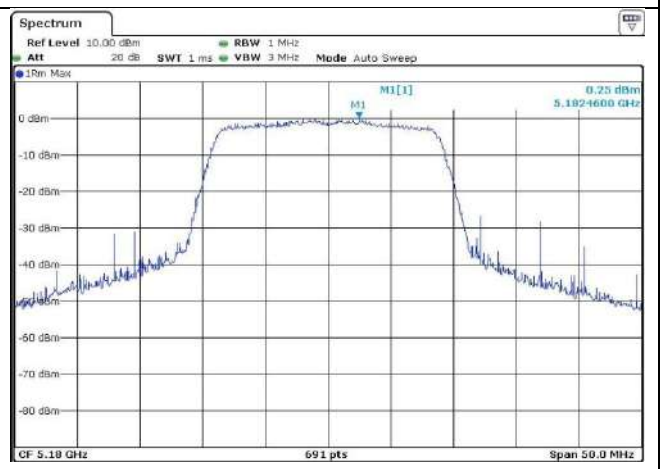
Results of Tx Mode: Pass (TX Unit) (802.11n HT40) Power Spectral Density				
Antenna 1				
Ch.	Frequency (MHz)	PSD (mW)	PSD (dBm)	Limit (dBm)
38	5190	0.71	-1.49	11.0
46	5230	0.77	-1.13	11.0
54	5270	0.80	-0.96	11.0
62	5310	0.82	-0.84	11.0
102	5510	0.90	-0.45	11.0
118	5590	0.83	-0.83	11.0
134	5670	0.81	-0.90	11.0

Antenna 2				
Ch.	Frequency (MHz)	PSD (mW)	PSD (dBm)	Limit (dBm)
38	5190	0.70	-1.58	11.0
46	5230	0.87	-0.60	11.0
54	5270	0.86	-0.64	11.0
62	5310	0.79	-1.01	11.0
102	5510	0.77	-1.14	11.0
118	5590	0.74	-1.28	11.0
134	5670	0.81	-0.93	11.0

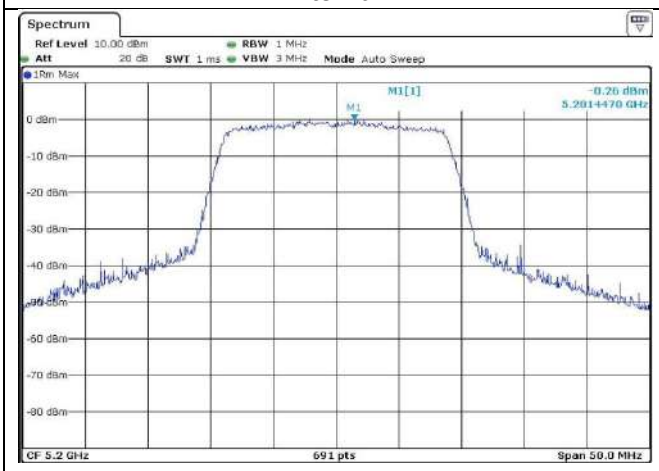
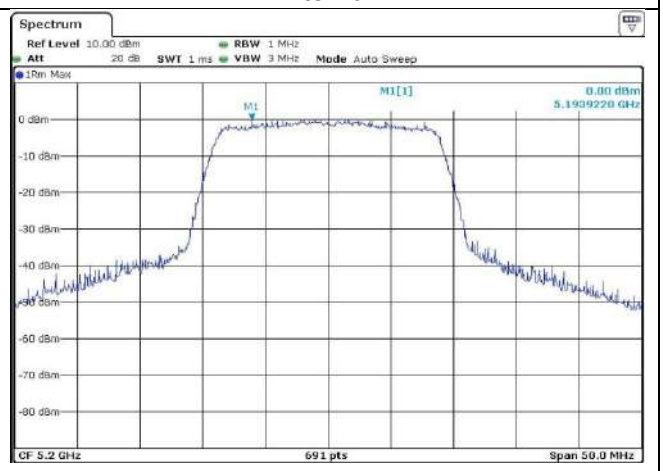
Results of Tx Mode: Pass (TX Unit) (802.11n HT40 - MIMO) Power Spectral Density						
Ch.	Frequency (MHz)	Antenna 1 PSD (mW)	Antenna 2 PSD (mW)	Total PSD (mW)	Total PSD (dBm)	Limit (dBm)
38	5190	0.71	0.70	1.41	1.49	10.3
46	5230	0.77	0.87	1.64	2.15	10.3
54	5270	0.80	0.86	1.66	2.20	10.3
62	5310	0.82	0.79	1.61	2.07	10.3
102	5510	0.90	0.77	1.67	2.23	10.3
118	5590	0.83	0.74	1.57	1.96	10.3
134	5670	0.81	0.81	1.62	2.10	10.3

Remarks:
5150 – 5350 MHz Directional Gain (ANT. Gain + Beamforming Gain = 3.7 + 3= 6.7) ≥ 6.0dB, limit adjusted
5470 - 5725 MHz Directional Gain (ANT. Gain + Beamforming Gain = 3.7 + 3= 6.7) ≥ 6.0dB, limit adjusted

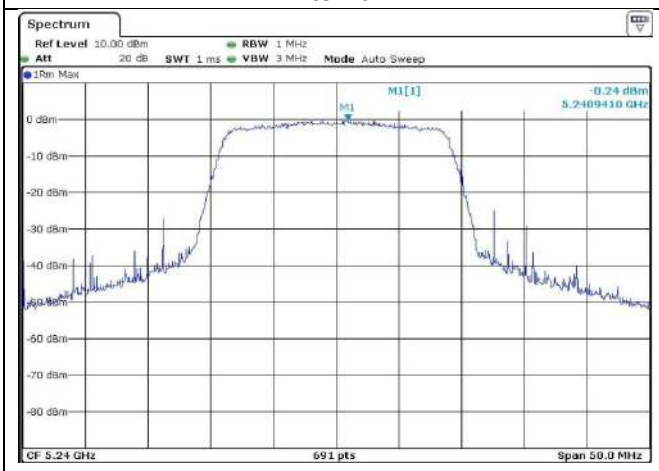
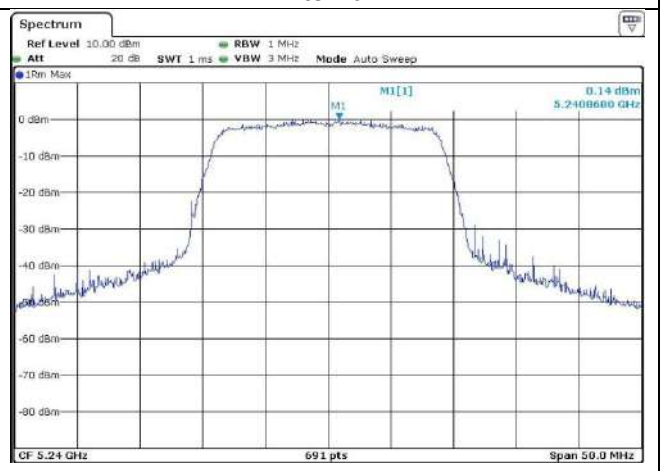
Tx mode (802.11a)
CH 36 (5180 MHz)

Antenna 1	Antenna 2
	

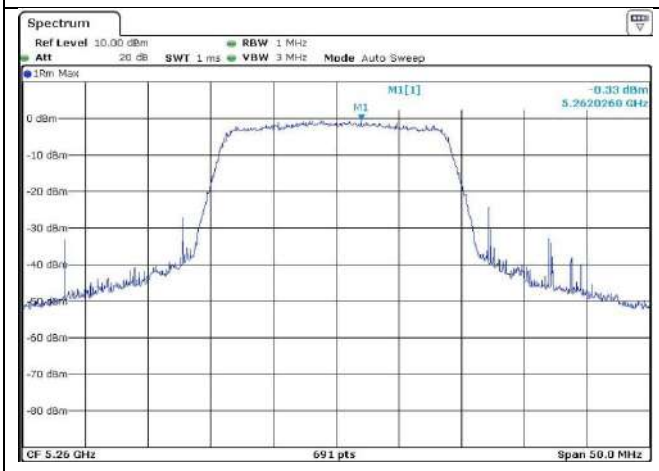
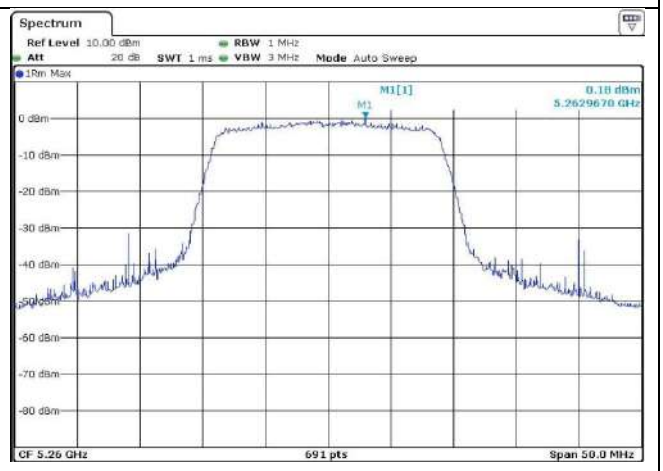
CH40 (5200MHz)

Antenna 1	Antenna 2
	

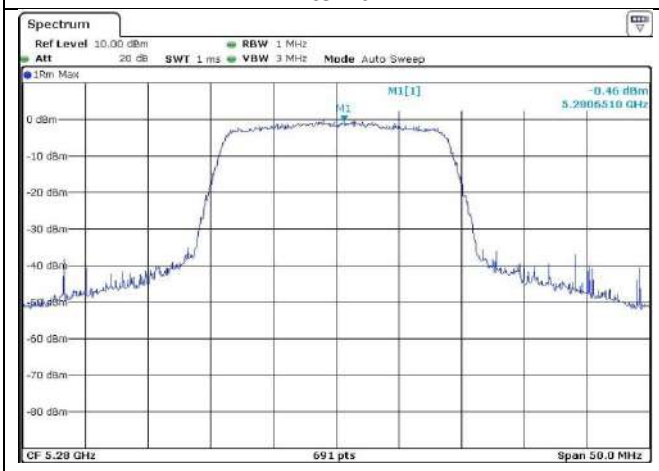
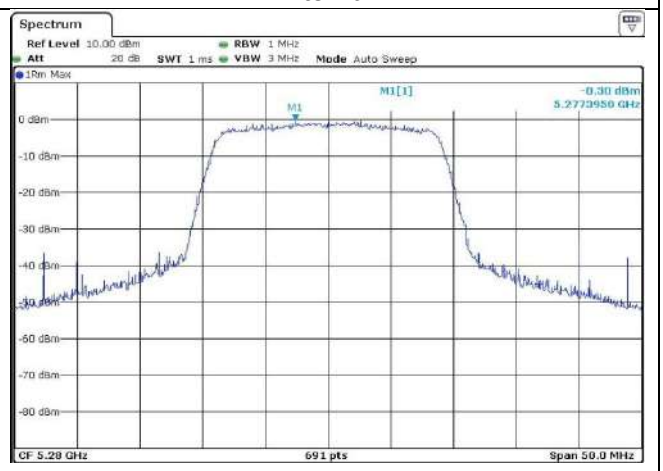
CH 48 (5240 MHz)

Antenna 1	Antenna 2
	

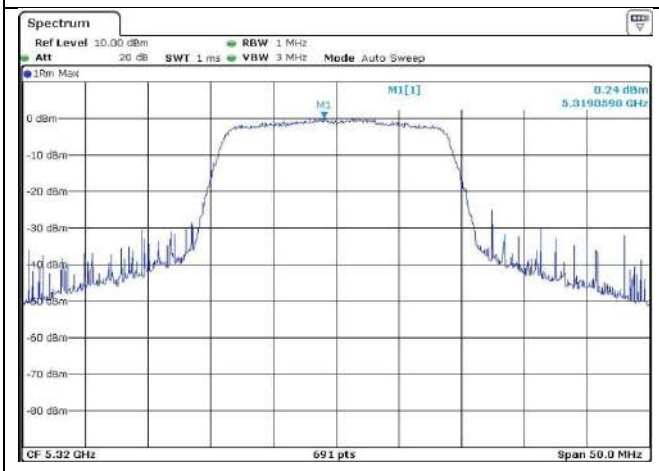
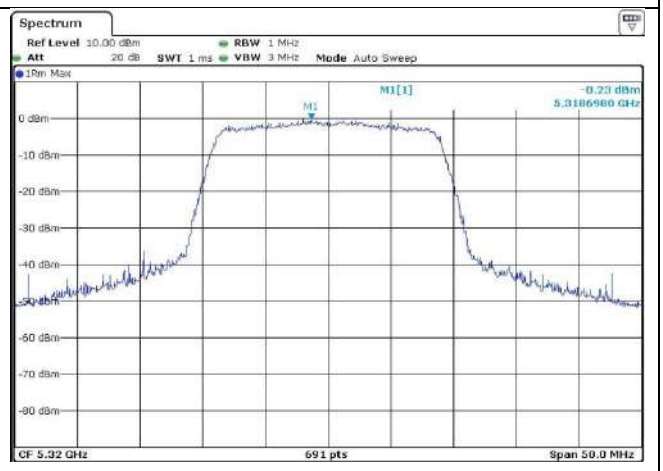
CH 52 (5260 MHz)

Antenna 1	Antenna 2
	

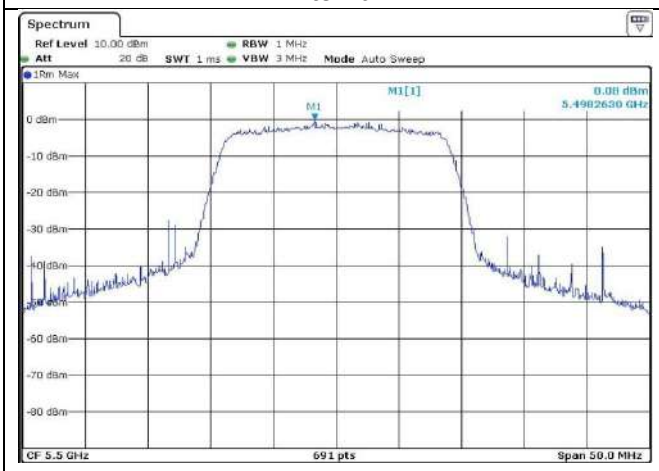
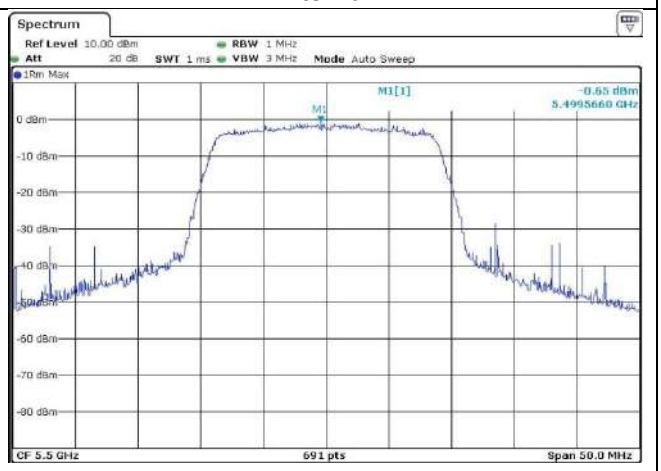
CH 56 (5280MHz)

Antenna 1	Antenna 2
	

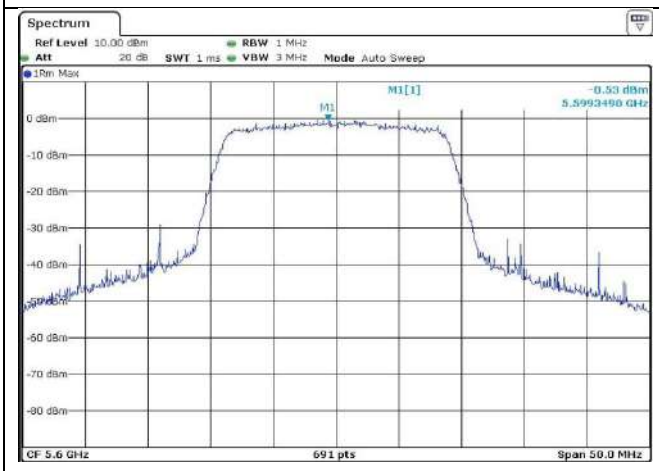
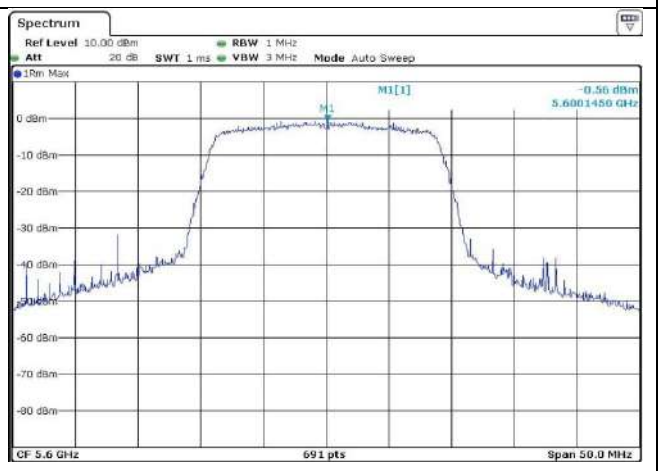
CH 64 (5320 MHz)

Antenna 1	Antenna 2
	

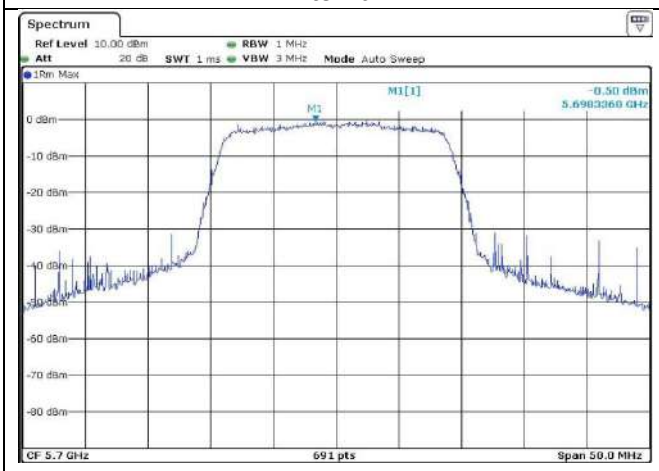
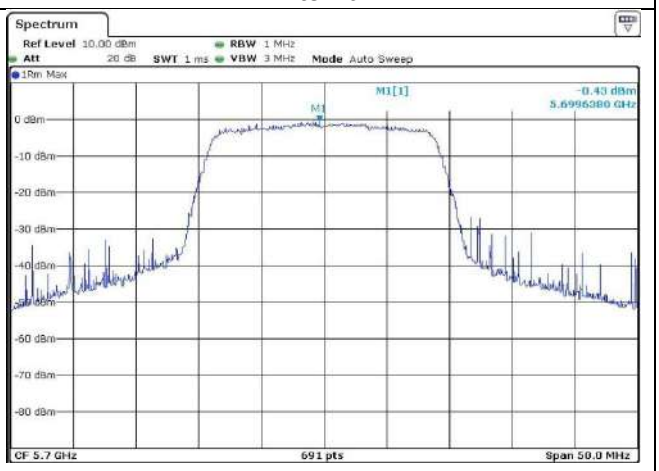
CH 100 (5500 MHz)

Antenna 1	Antenna 2
	

CH 120 (5600MHz)

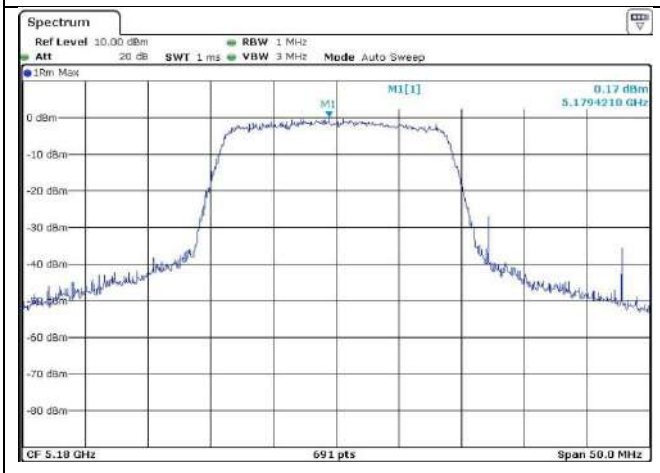
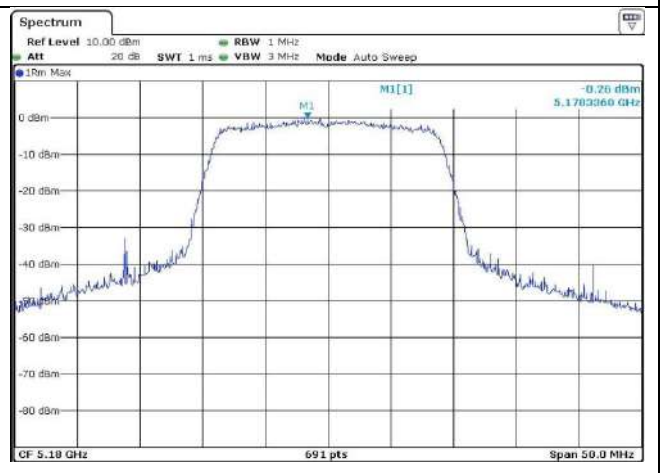
Antenna 1	Antenna 2
	

CH 140 (5700 MHz)

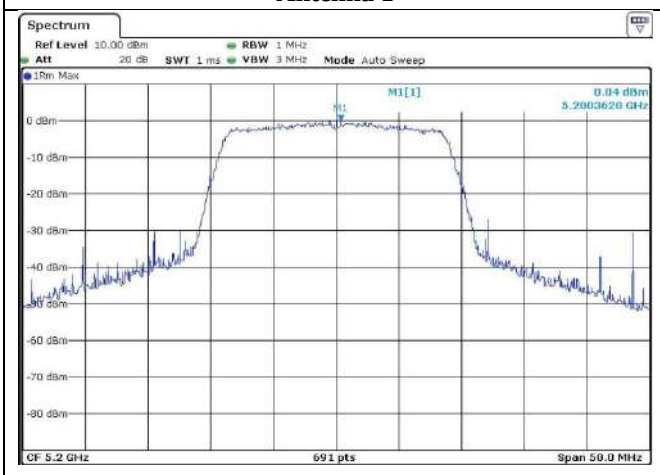
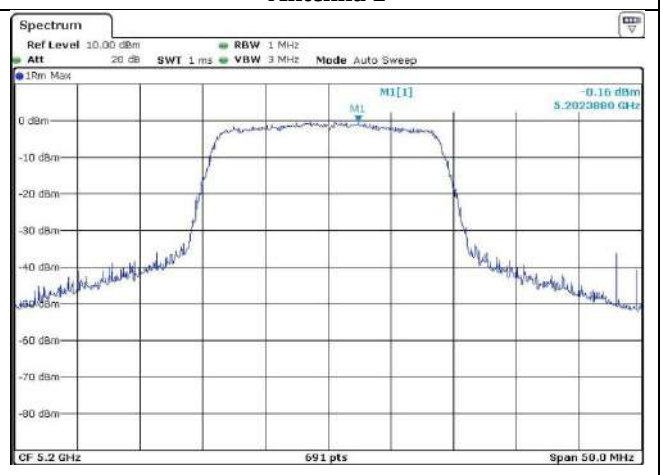
Antenna 1	Antenna 2
	

Tx mode (802.11n HT20)

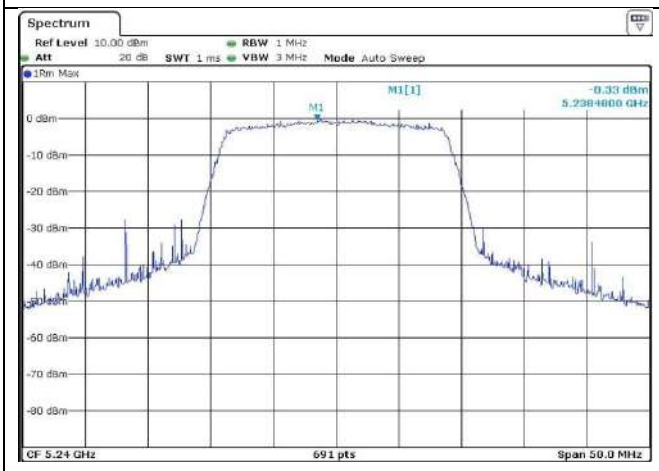
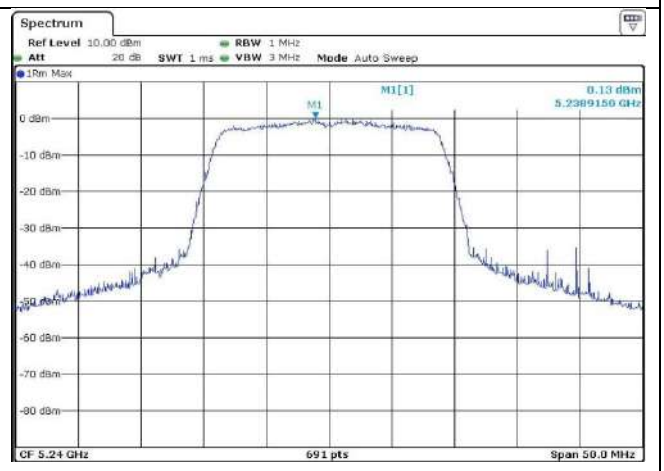
CH 36 (5180 MHz)

Antenna 1	Antenna 2
	

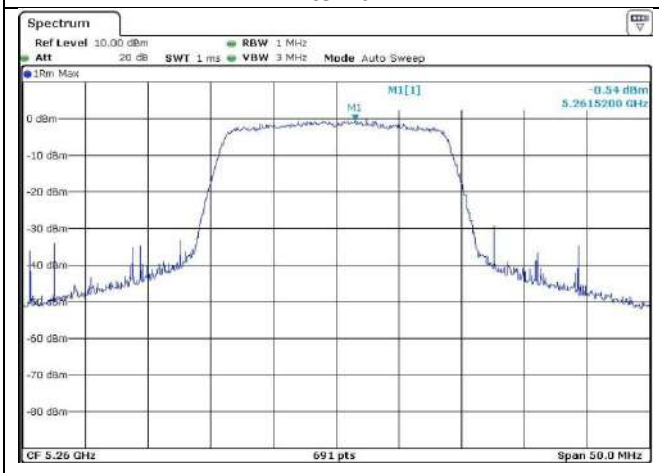
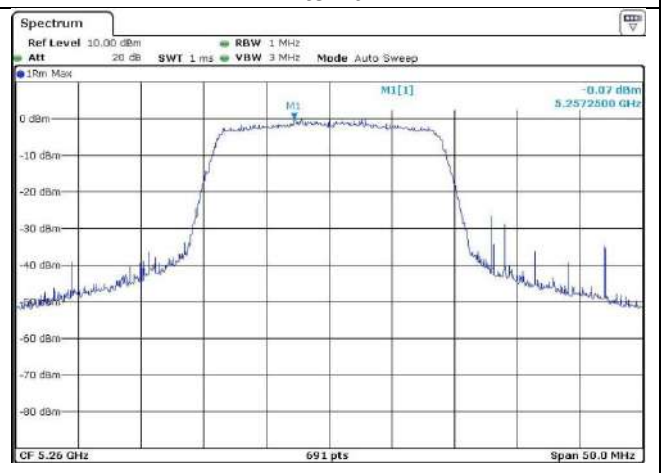
CH 40 (5200 MHz)

Antenna 1	Antenna 2
	

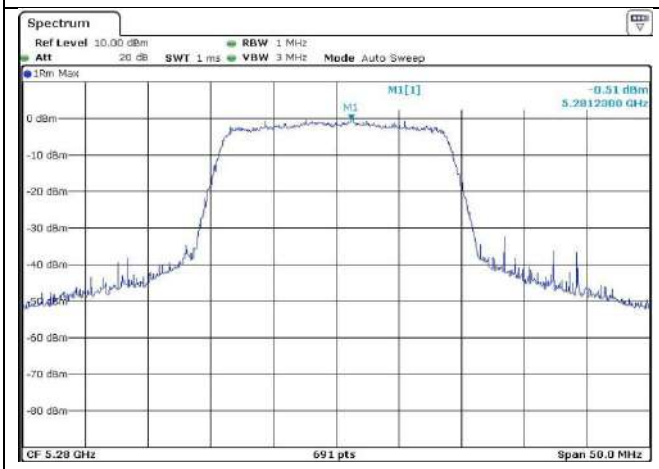
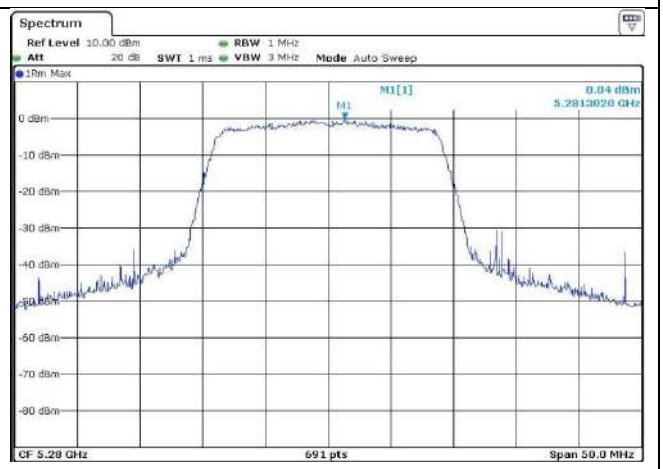
CH 48 (5240 MHz)

Antenna 1	Antenna 2
	

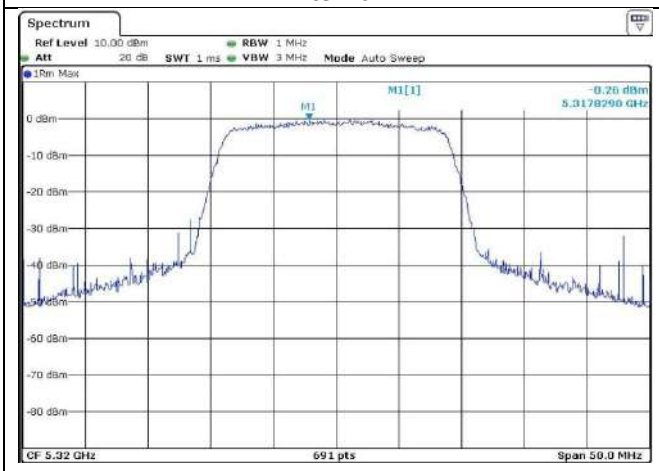
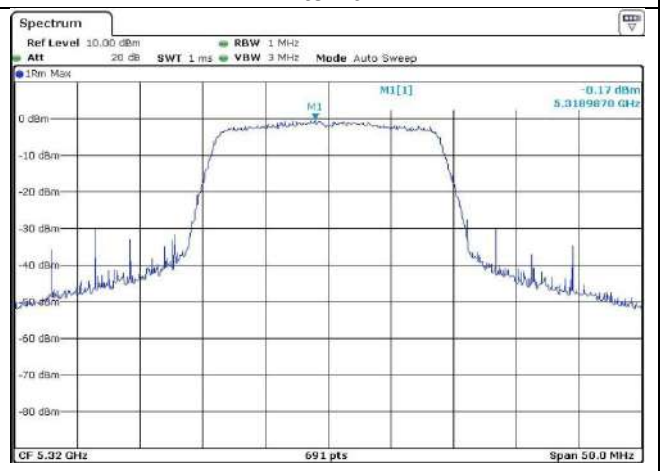
CH 52 (5260 MHz)

Antenna 1	Antenna 2
	

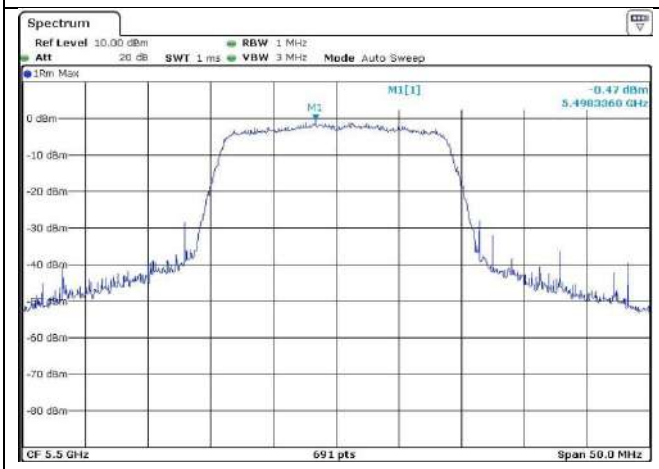
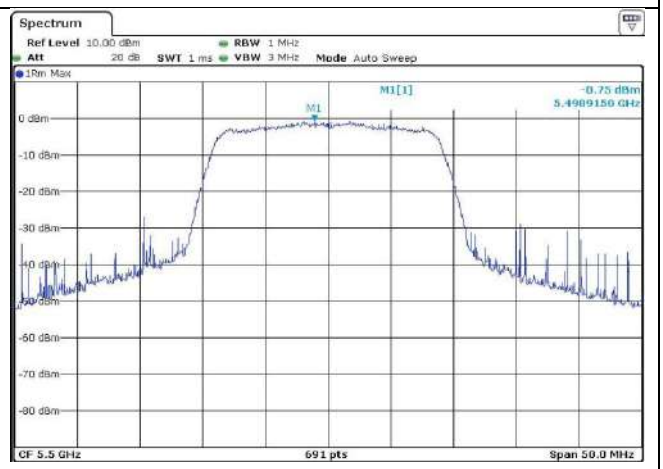
CH 56 (5280 MHz)

Antenna 1	Antenna 2
	

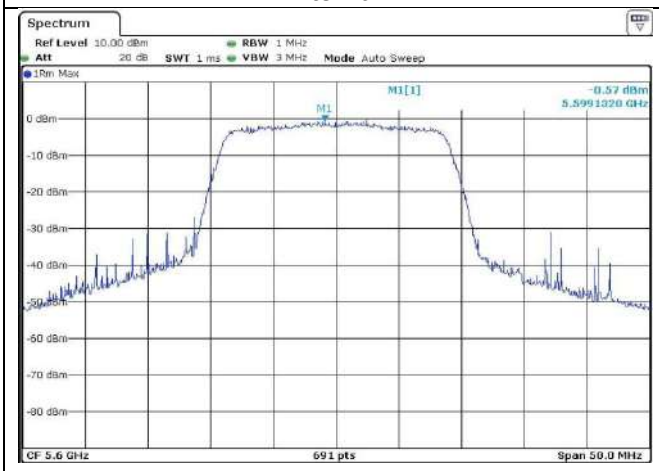
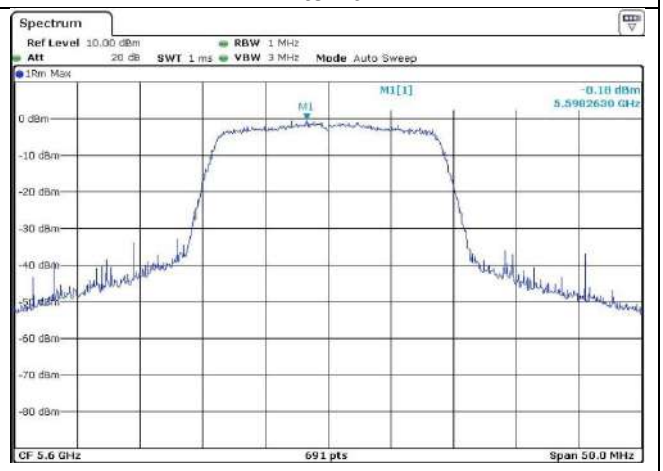
CH 64 (5320 MHz)

Antenna 1	Antenna 2
	

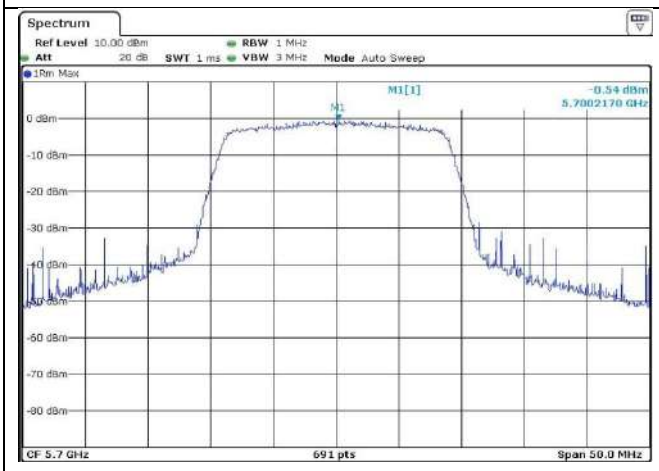
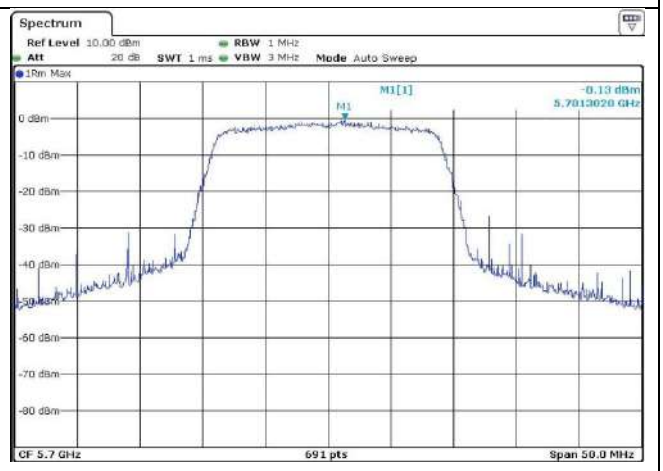
CH 100 (5500 MHz)

Antenna 1	Antenna 2
	

CH 120 (5600 MHz)

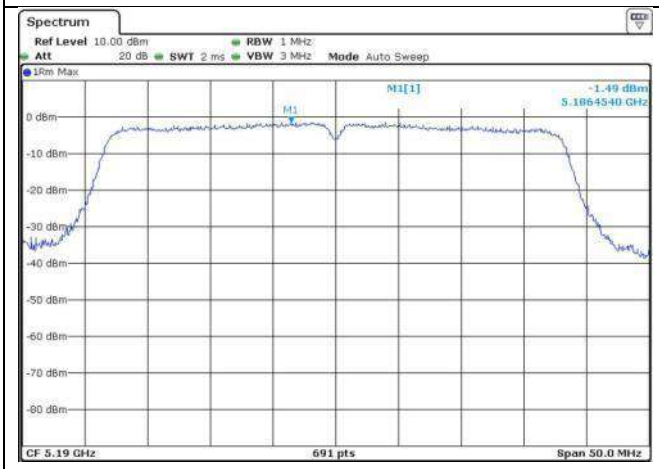
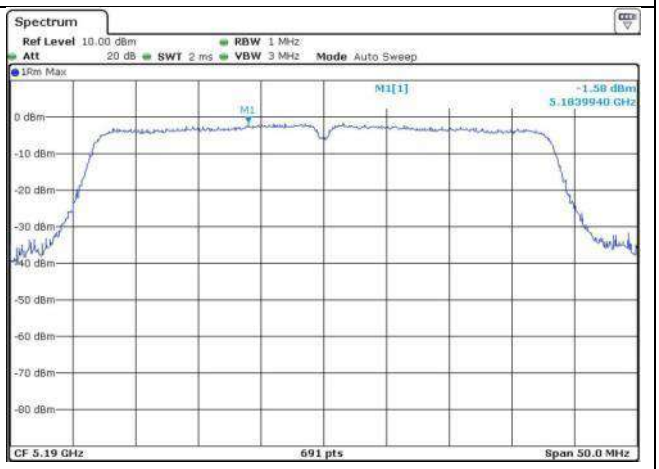
Antenna 1	Antenna 2
	

CH 140 (5700 MHz)

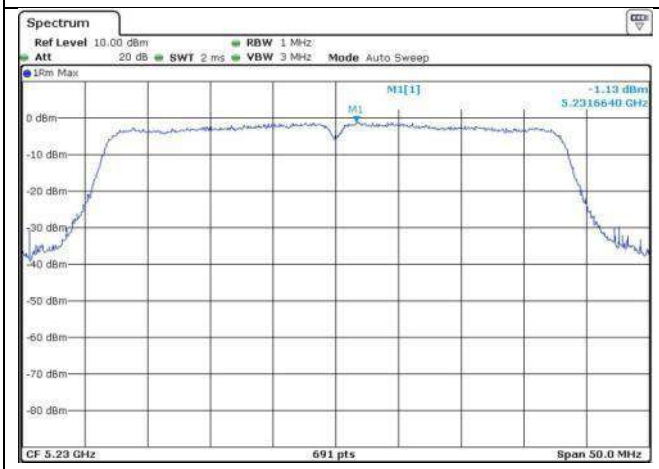
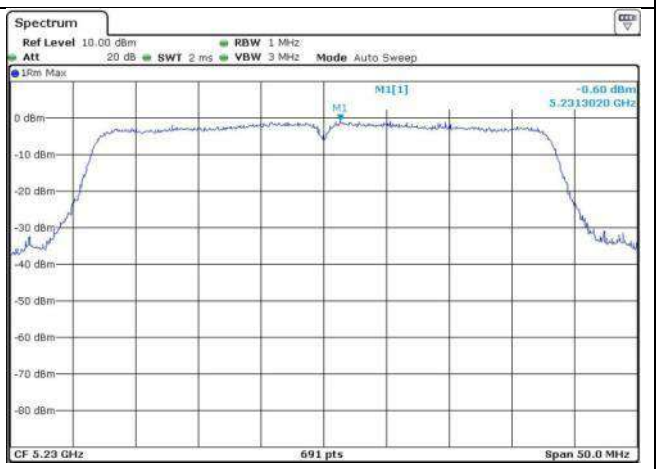
Antenna 1	Antenna 2
	

Tx mode (802.11n HT40)

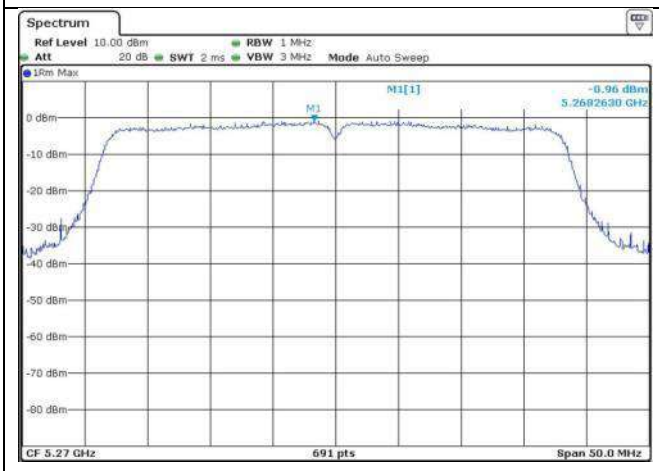
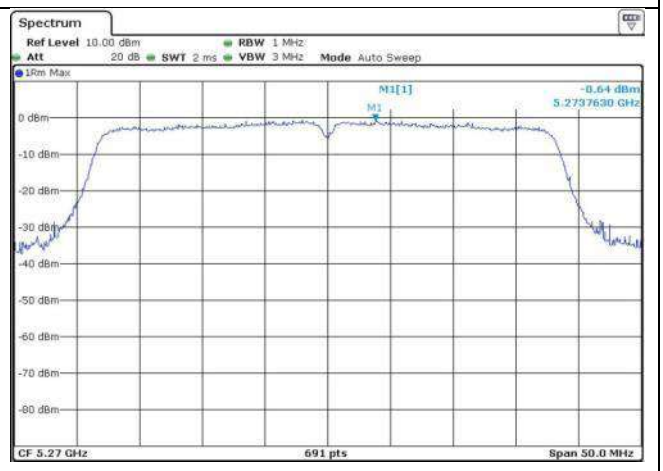
CH 38 (5190 MHz)

Antenna 1	Antenna 2
	

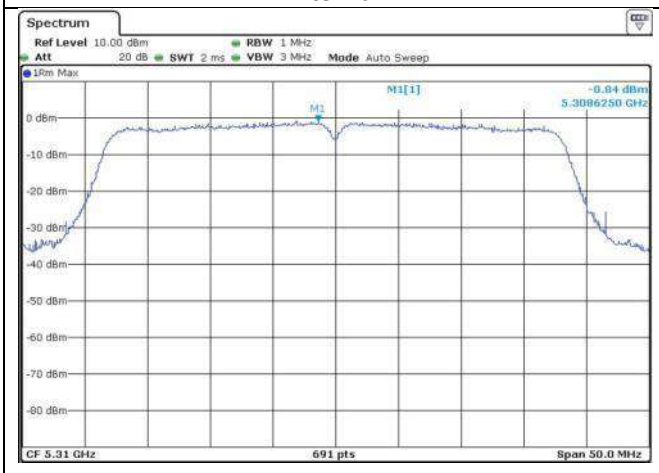
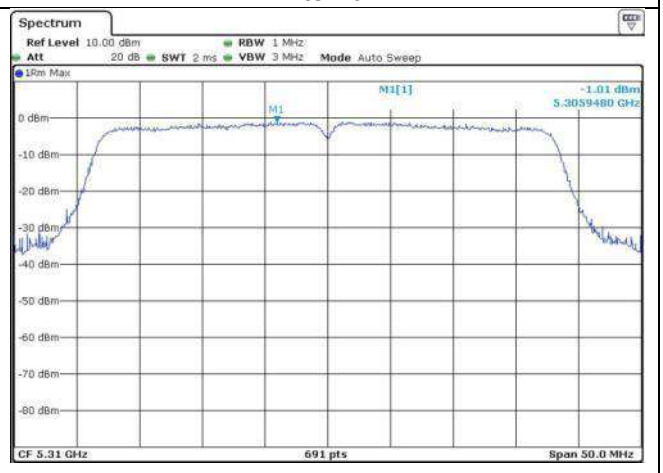
CH 46 (5230 MHz)

Antenna 1	Antenna 2
	

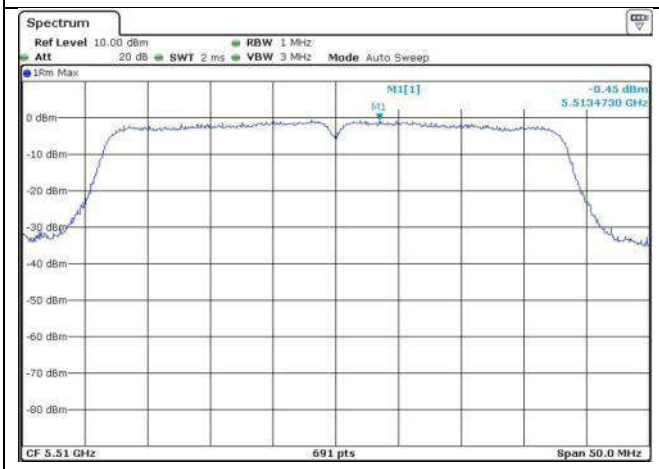
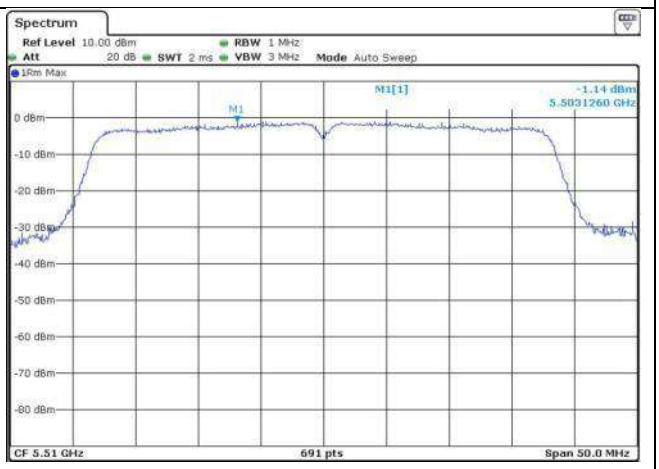
CH 54 (5270 MHz)

Antenna 1	Antenna 2
	

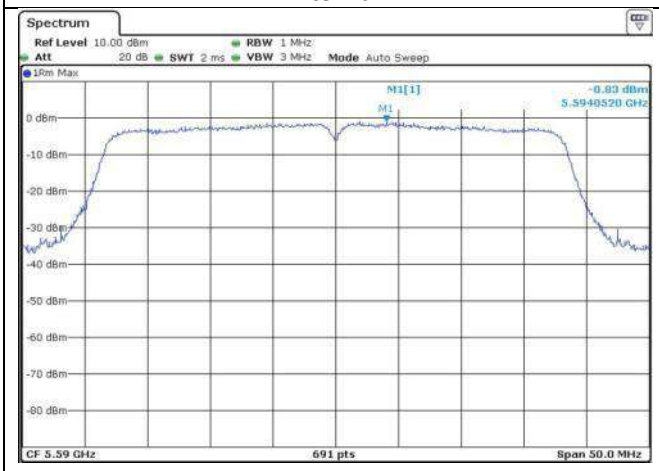
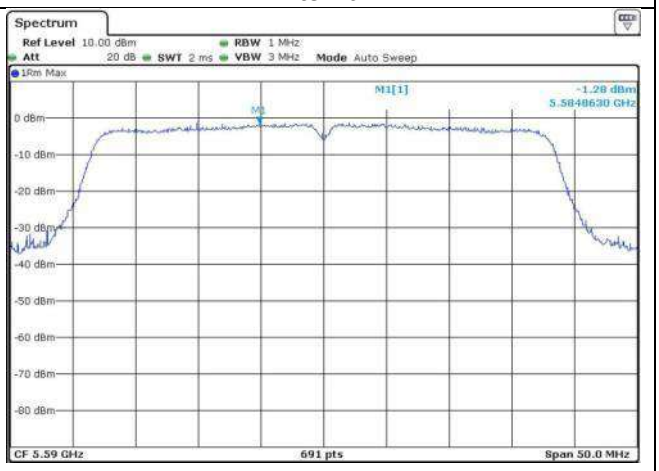
CH 62 (5310 MHz)

Antenna 1	Antenna 2
	

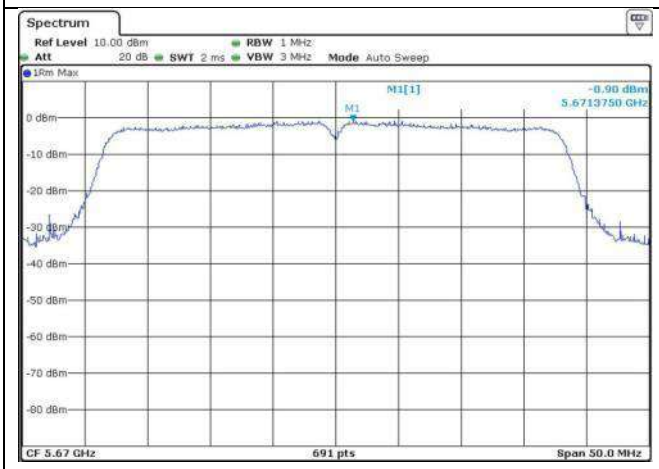
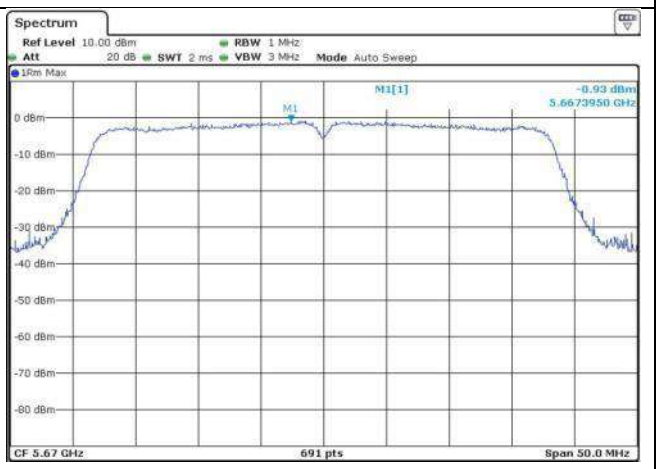
CH 102 (5510 MHz)

Antenna 1	Antenna 2
	

CH 118 (5590 MHz)

Antenna 1	Antenna 2
	

CH 134 (5670 MHz)

Antenna 1	Antenna 2
	

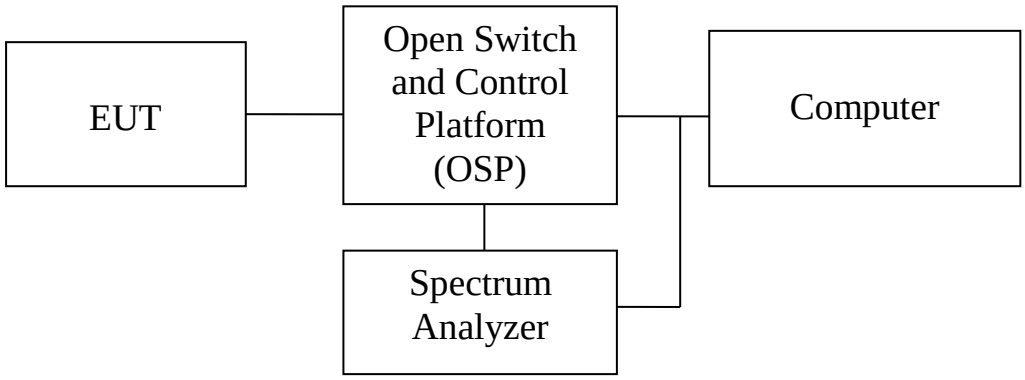
3.1.5 6dB and 26dB Bandwidth Measurement

Test Requirement:	FCC 47CFR 15.407(a)
Test Method:	ANSI C63.10:2013
Test Date:	2020-03-30 to 2020-03-31
Mode of Operation:	Tx mode (802.11 a/n)

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:



Results of Tx Mode (802.11a) : Pass

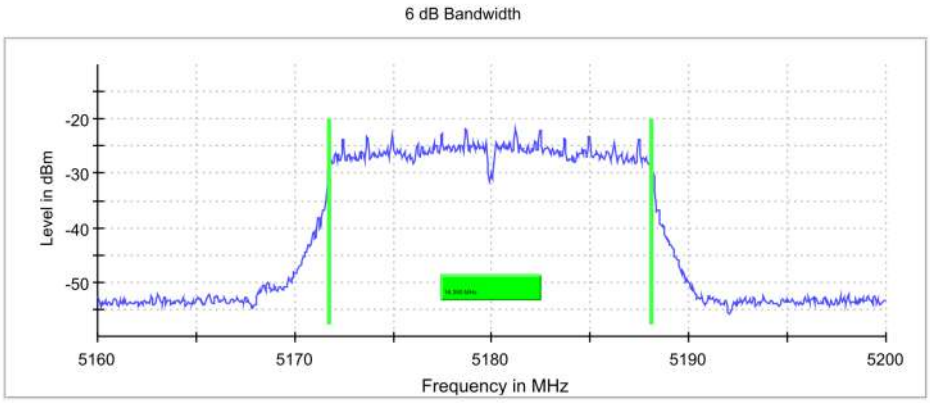
CH 36 (5180 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5180.000000	16.350000	---	---	5171.775000	5188.125000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5180.000000	-21.8	PASS

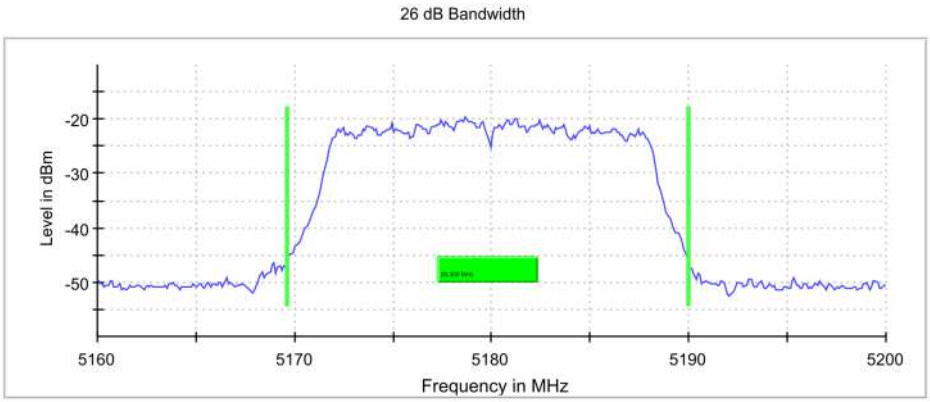


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5180.000000	20.300000	---	---	5169.650000	5189.950000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5180.000000	-19.8	PASS



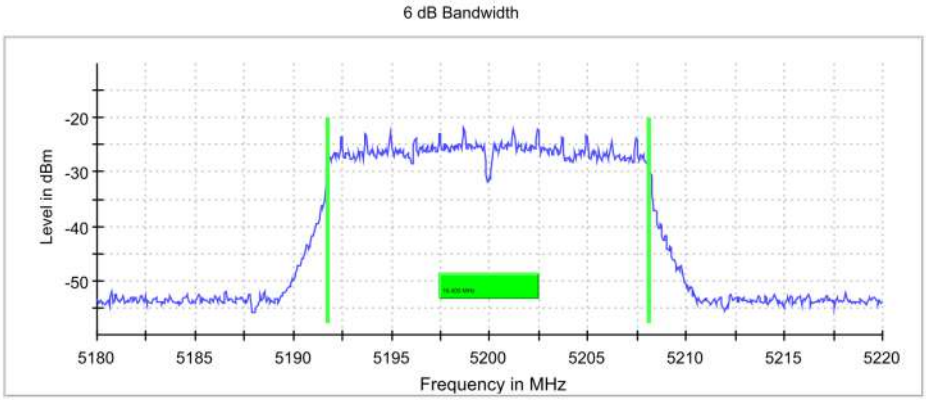
CH40 (5200MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5200.000000	16.400000	---	---	5191.725000	5208.125000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5200.000000	-22.0	PASS

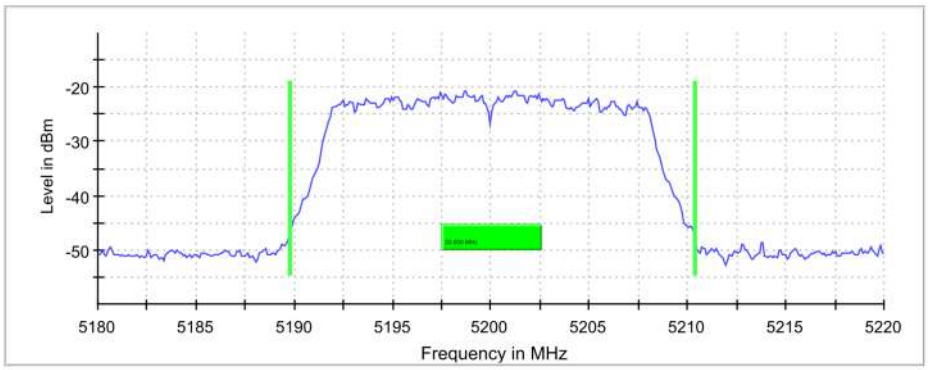


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5200.000000	20.600000	---	---	5189.750000	5210.350000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5200.000000	-20.8	PASS



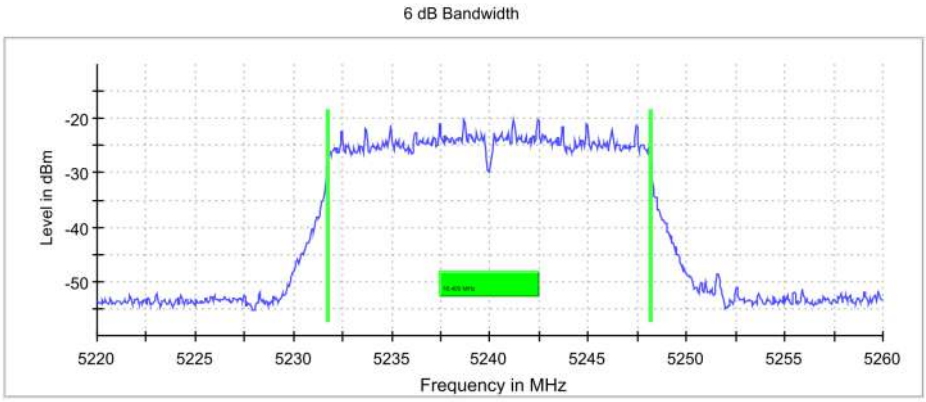
CH48 (5240MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5240.000000	16.400000	---	---	5231.775000	5248.175000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5240.000000	-20.2	PASS

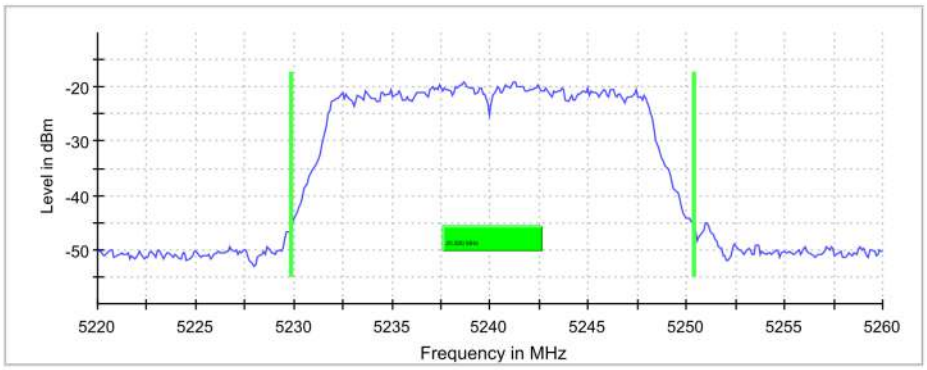


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5240.000000	20.500000	---	---	5229.850000	5250.350000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5240.000000	-19.1	PASS



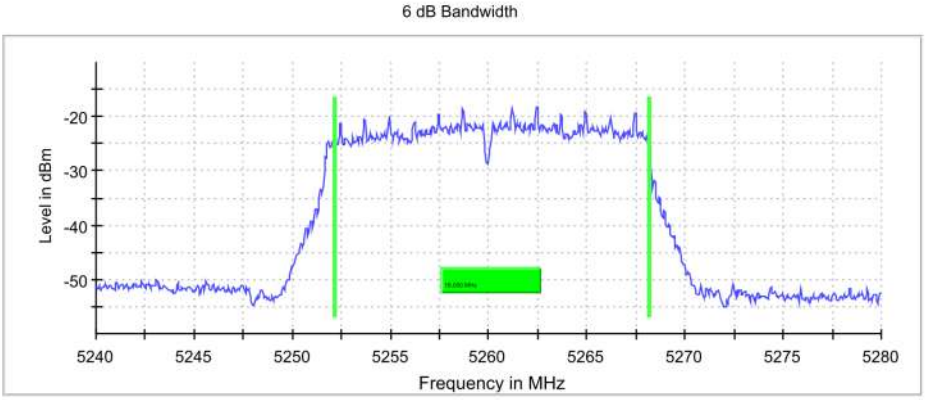
CH52 (5260MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5260.000000	16.050000	---	---	5252.125000	5268.175000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5260.000000	-18.3	PASS

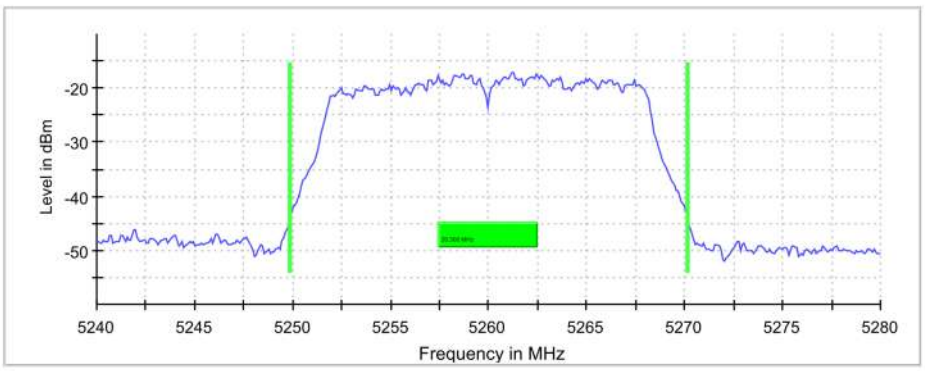


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5260.000000	20.300000	---	---	5249.850000	5270.150000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5260.000000	-17.1	PASS



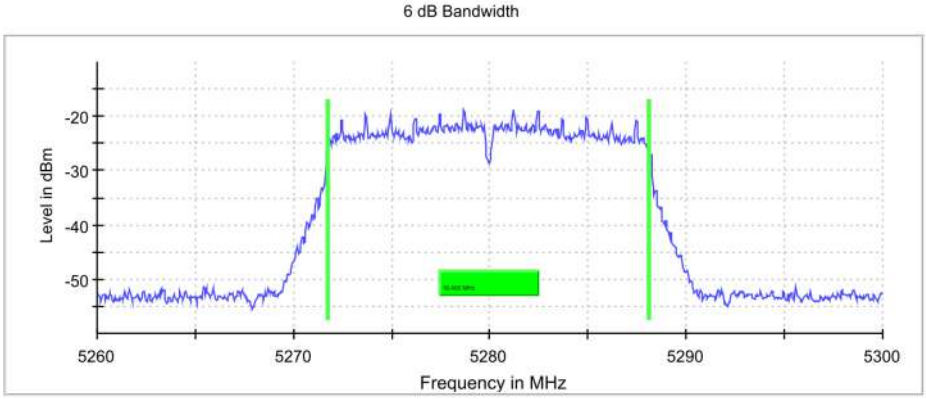
CH 56 (5280MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5280.000000	16.400000	---	---	5271.725000	5288.125000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5280.000000	-18.8	PASS

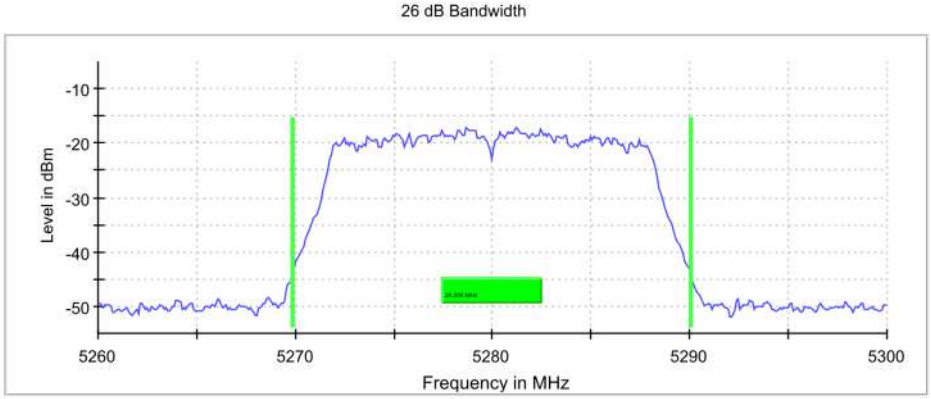


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5280.000000	20.200000	---	---	5269.850000	5290.050000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5280.000000	-17.3	PASS



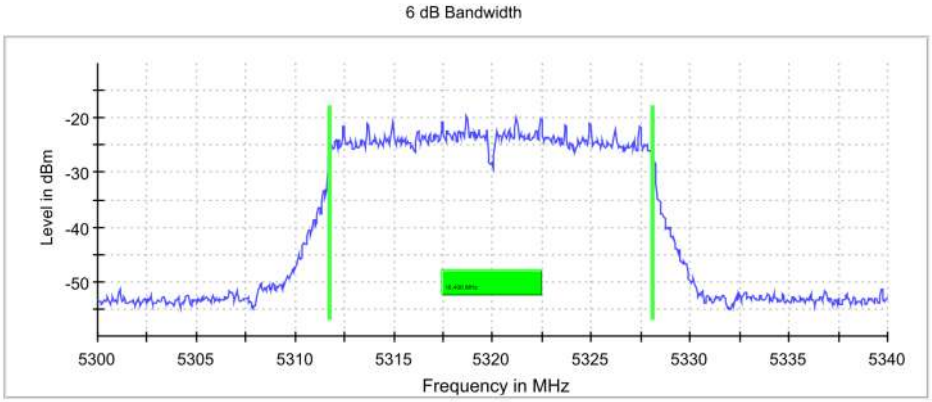
CH 64 (5320 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5320.000000	16.400000	---	---	5311.725000	5328.125000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5320.000000	-19.8	PASS

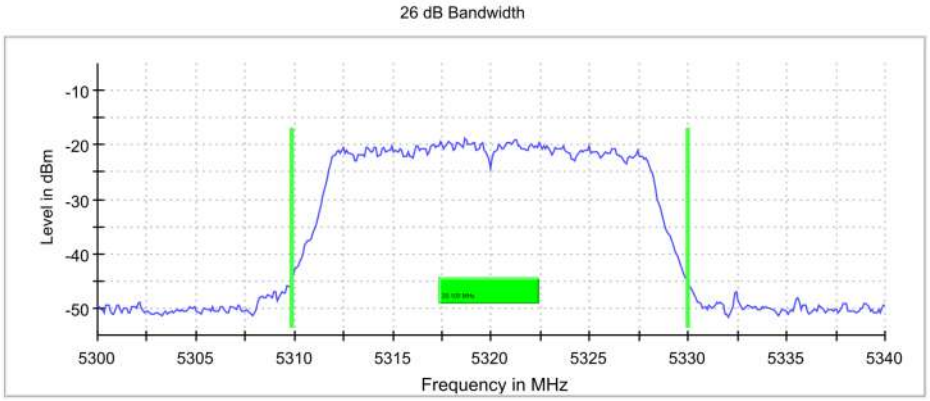


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5320.000000	20.100000	---	---	5309.850000	5329.950000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5320.000000	-18.8	PASS



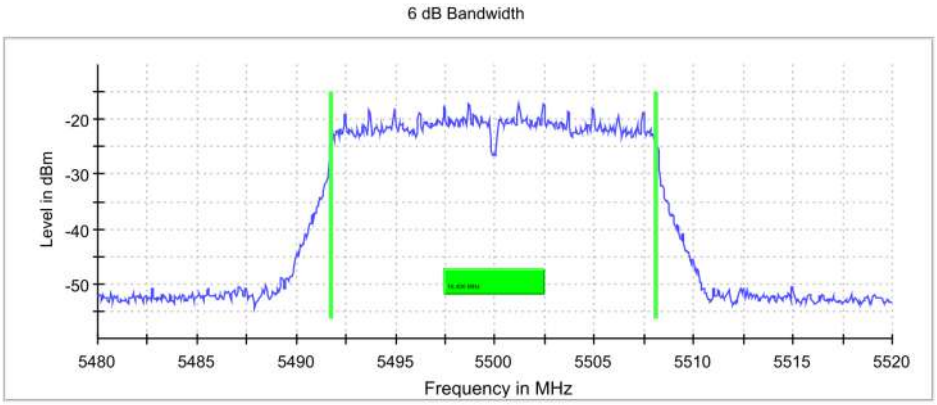
CH 100 (5500 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5500.000000	16.400000	---	---	5491.725000	5508.125000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5500.000000	-17.1	PASS

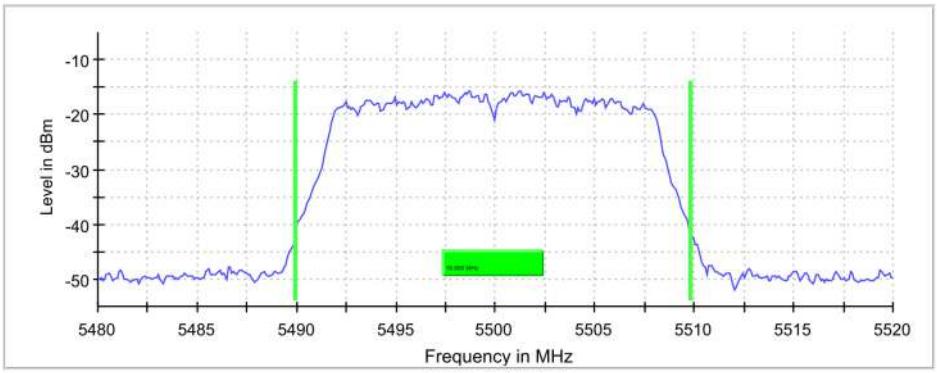


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5500.000000	19.900000	---	---	5489.950000	5509.850000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5500.000000	-15.7	PASS



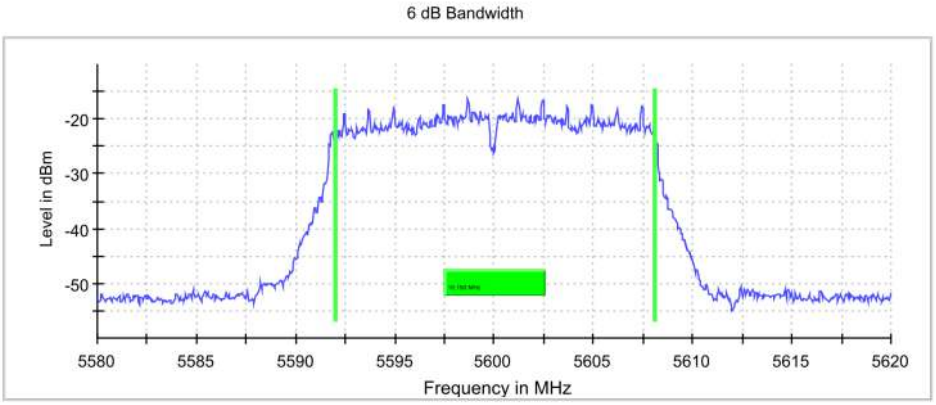
CH 120 (5600MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5600.000000	16.150000	---	---	5591.975000	5608.125000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5600.000000	-16.4	PASS

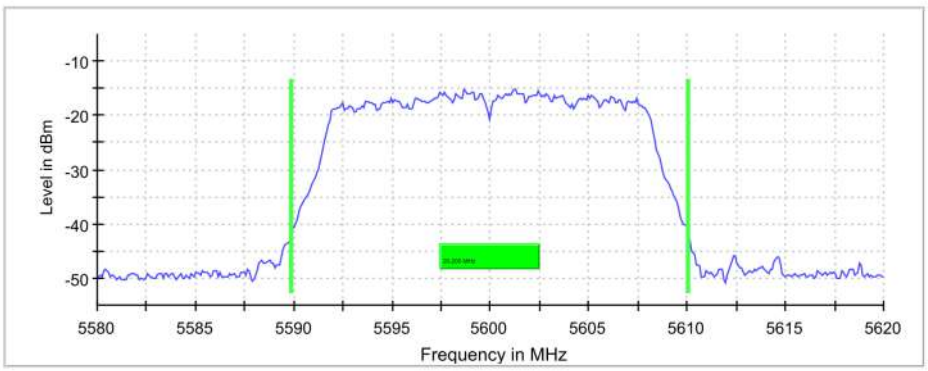


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5600.000000	20.200000	---	---	5589.850000	5610.050000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5600.000000	-15.2	PASS



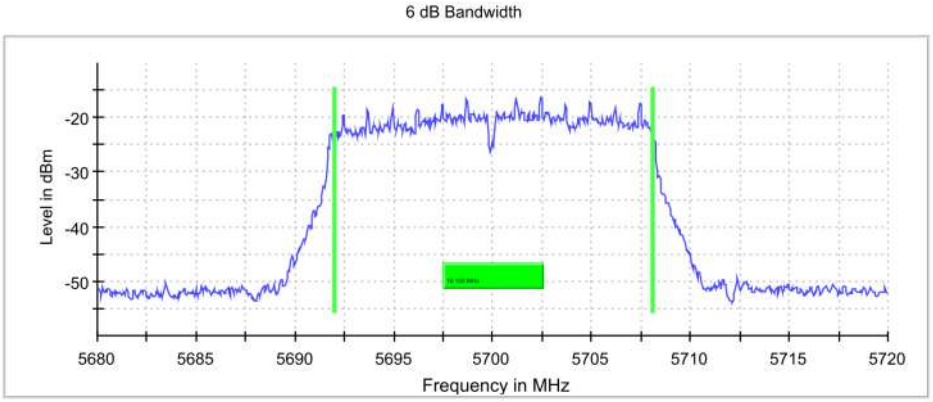
CH 140 (5700 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5700.000000	16.100000	---	---	5692.025000	5708.125000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5700.000000	-16.5	PASS

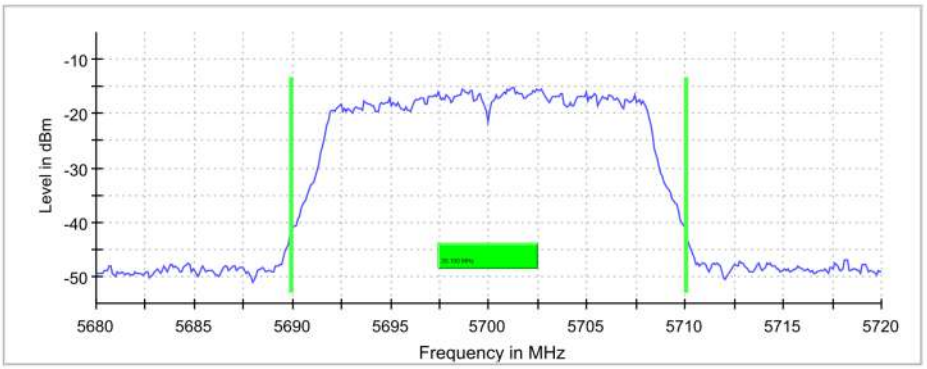


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5700.000000	20.100000	---	---	5689.950000	5710.050000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5700.000000	-15.2	PASS



Results of Tx Mode (802.11n HT20) : Pass

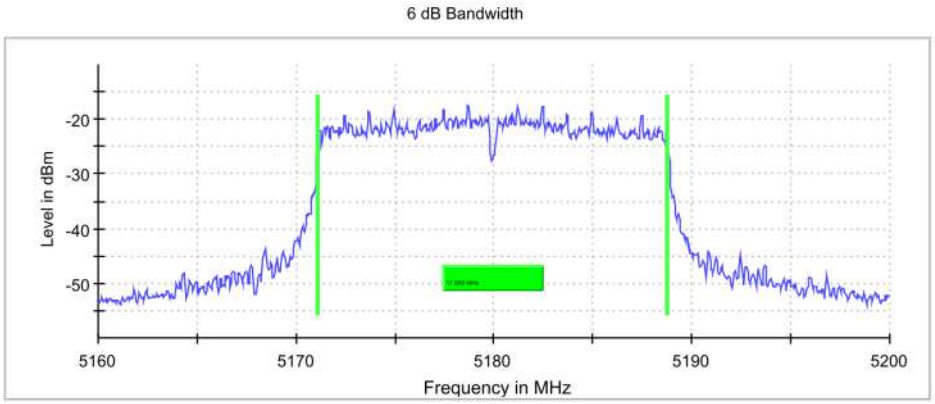
CH 36 (5180 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5180.000000	17.650000	---	---	5171.125000	5188.775000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5180.000000	-17.4	PASS

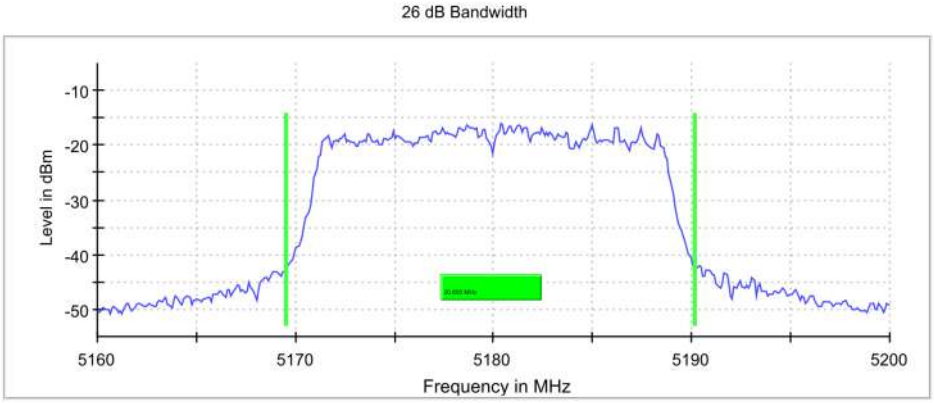


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5180.000000	20.600000	---	---	5169.550000	5190.150000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5180.000000	-16.1	PASS



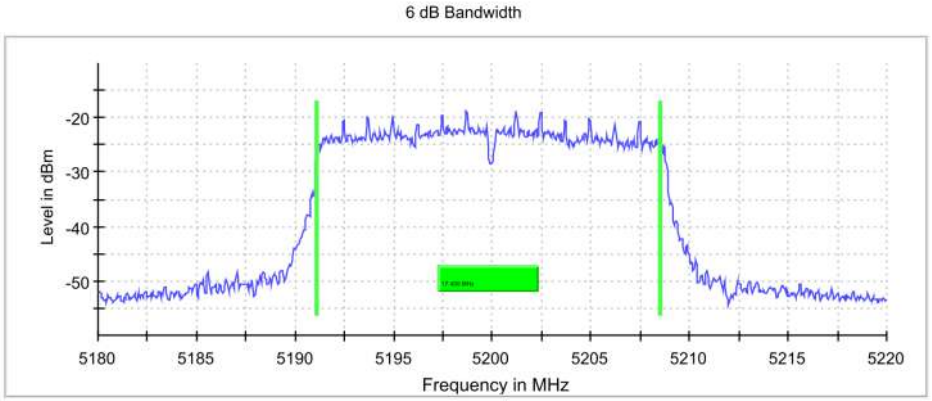
CH 40 (5200 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5200.000000	17.400000	---	---	5191.125000	5208.525000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5200.000000	-18.8	PASS

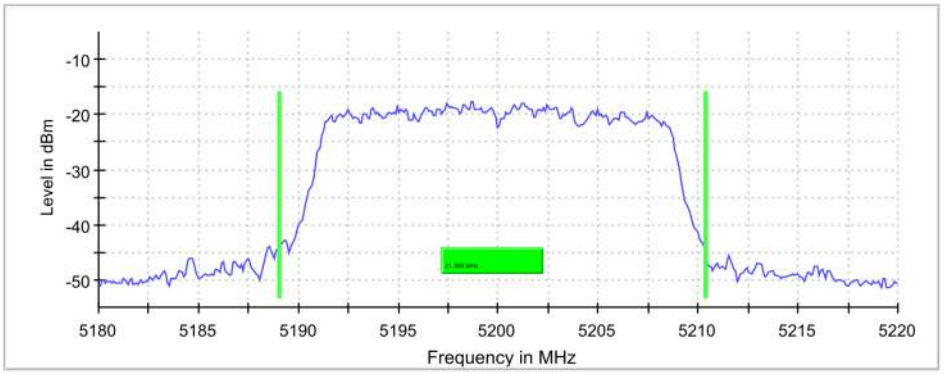


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5200.000000	21.300000	---	---	5189.050000	5210.350000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5200.000000	-17.7	PASS



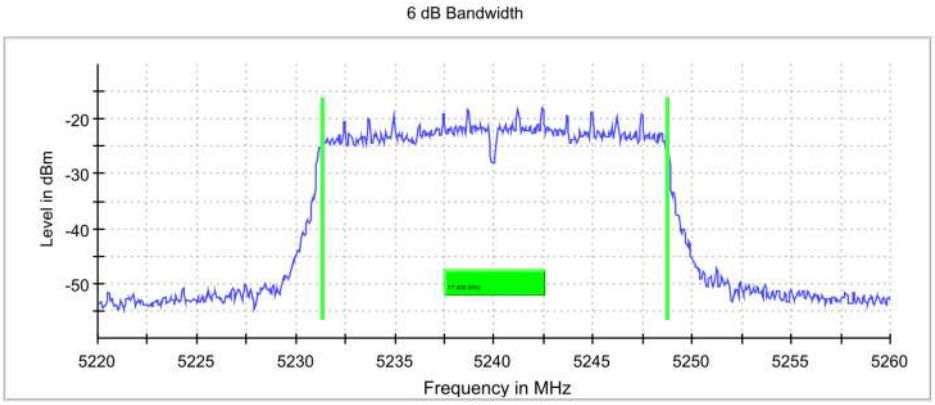
CH 48 (5240 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5240.000000	17.400000	---	---	5231.375000	5248.775000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5240.000000	-18.1	PASS

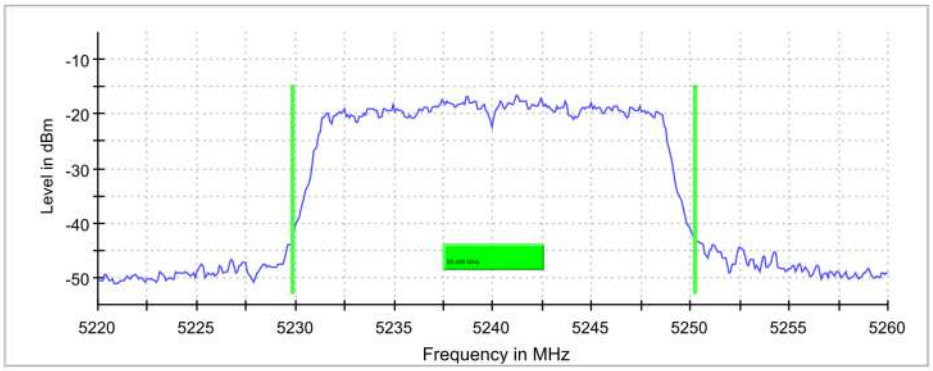


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5240.000000	20.400000	---	---	5229.850000	5250.250000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5240.000000	-16.7	PASS



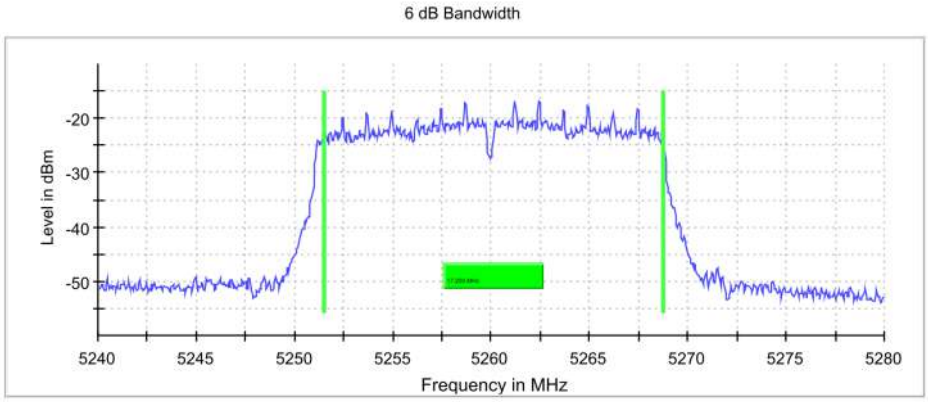
CH 52 (5260 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5260.000000	17.200000	---	---	5251.525000	5268.725000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5260.000000	-17.0	PASS

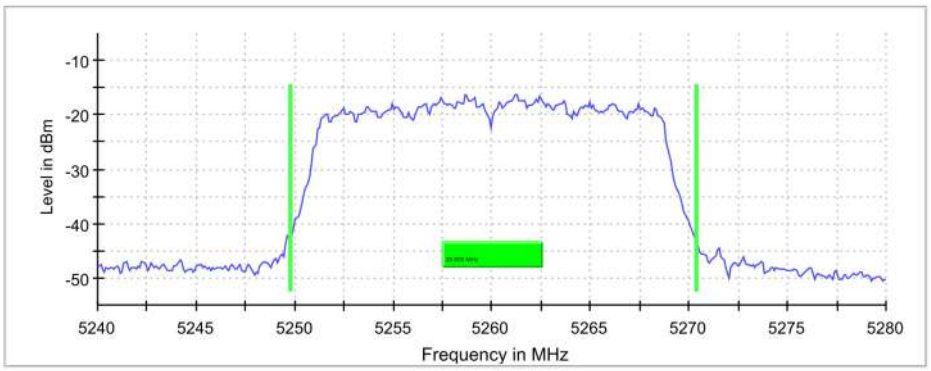


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5260.000000	20.600000	---	---	5249.750000	5270.350000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5260.000000	-16.3	PASS



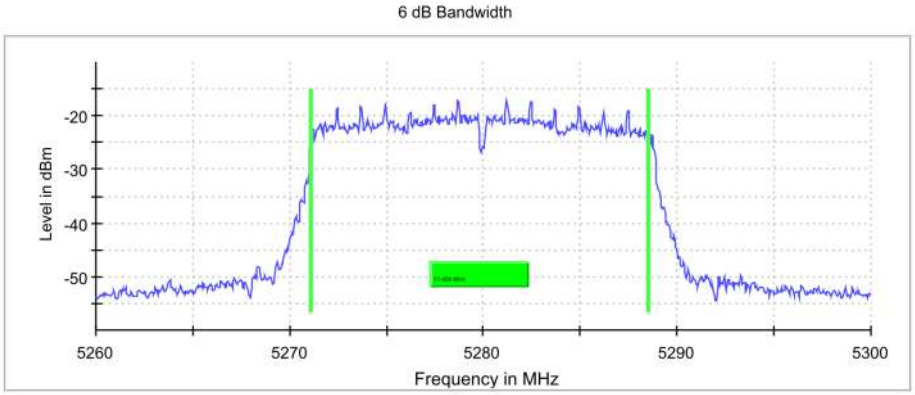
CH 56 (5280 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5280.000000	17.400000	---	---	5271.125000	5288.525000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5280.000000	-17.1	PASS

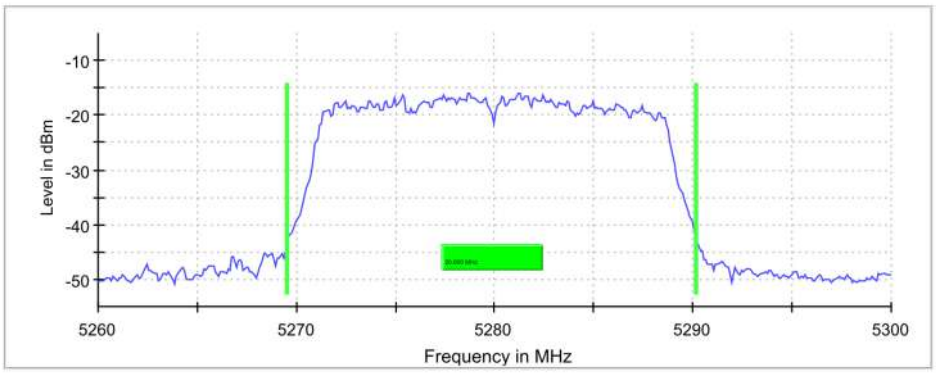


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5280.000000	20.600000	---	---	5269.550000	5290.150000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5280.000000	-16.0	PASS



CH 64 (5320 MHz)

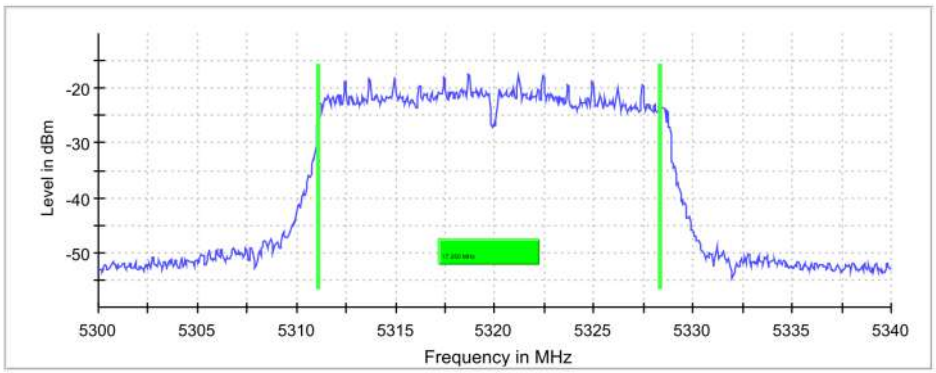
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5320.000000	17.250000	---	---	5311.125000	5328.375000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5320.000000	-17.4	PASS

6 dB Bandwidth



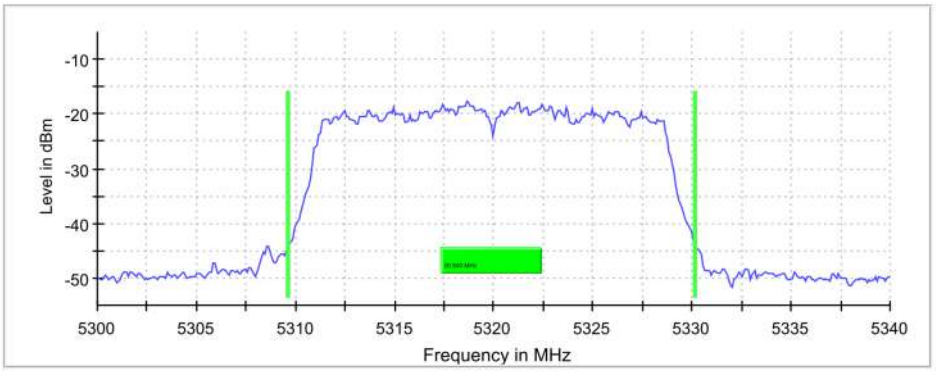
26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5320.000000	20.500000	---	---	5309.650000	5330.150000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5320.000000	-17.8	PASS

26 dB Bandwidth



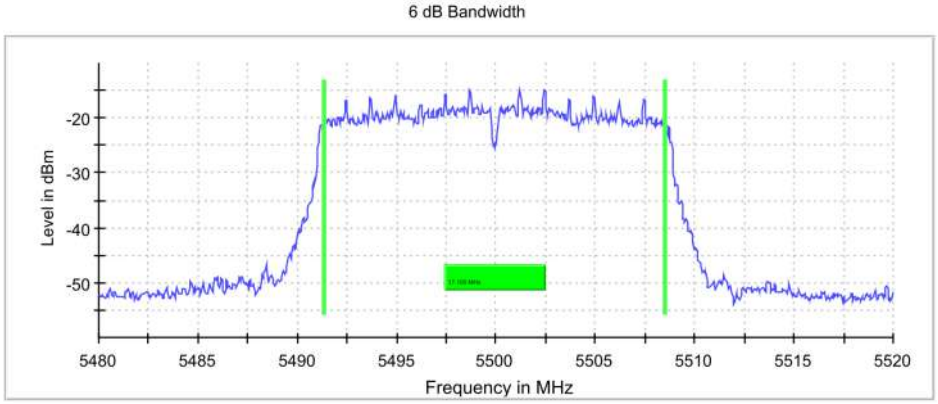
CH 100 (5500 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5500.000000	17.100000	---	---	5491.375000	5508.475000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5500.000000	-15.0	PASS

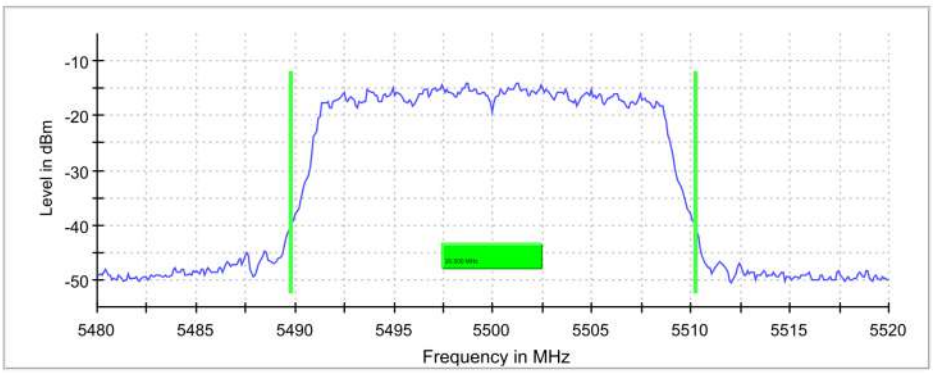


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5500.000000	20.500000	---	---	5489.750000	5510.250000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5500.000000	-14.0	PASS



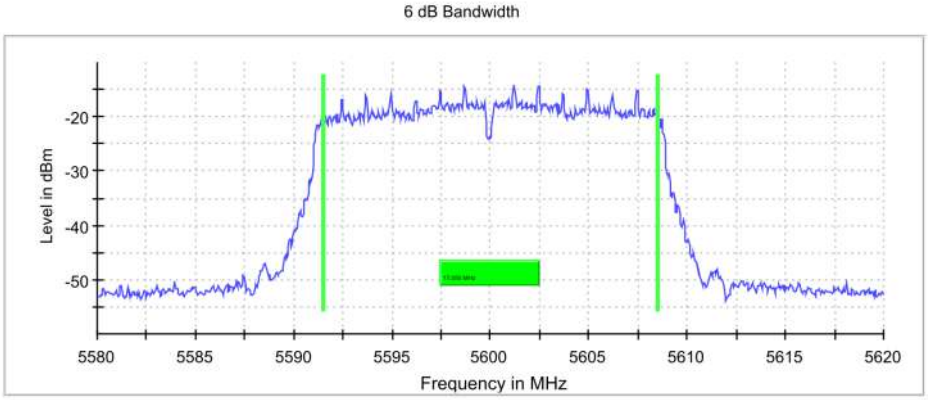
CH 120 (5600 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5600.000000	17.050000	---	---	5591.475000	5608.525000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5600.000000	-14.3	PASS

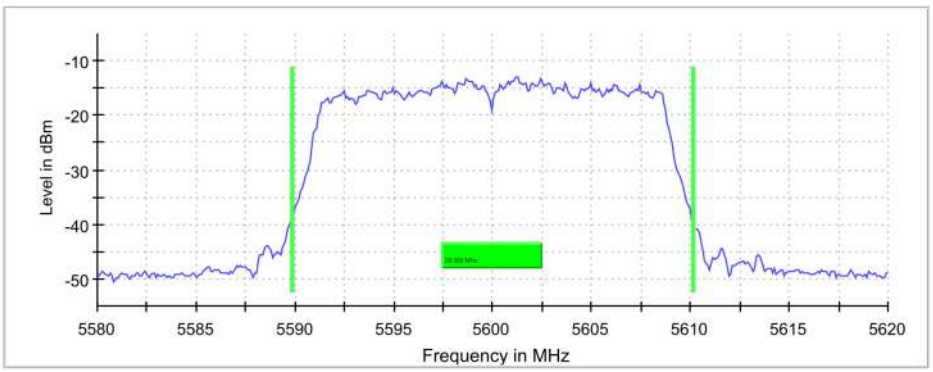


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5600.000000	20.300000	---	---	5589.850000	5610.150000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5600.000000	-13.1	PASS



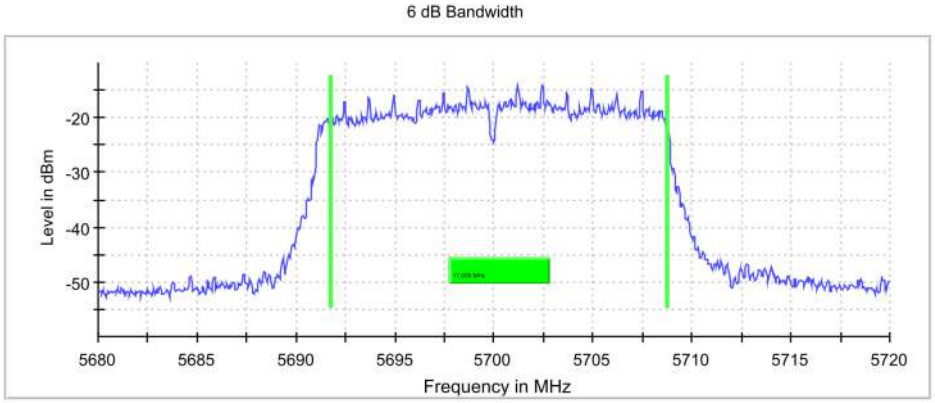
CH 140 (5700 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5700.000000	17.000000	---	---	5691.775000	5708.775000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5700.000000	-14.2	PASS

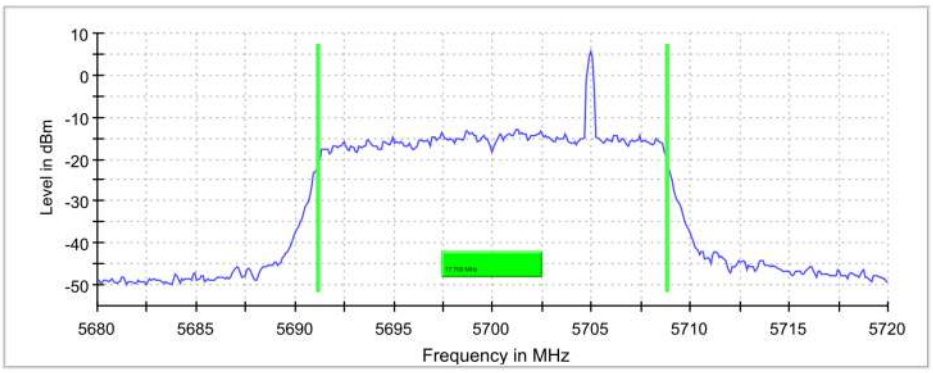


26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5700.000000	17.700000	---	---	5691.150000	5708.850000

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5700.000000	5.5	PASS



Results of Tx Mode (802.11n HT40) : Pass

CH 38 (5190 MHz)

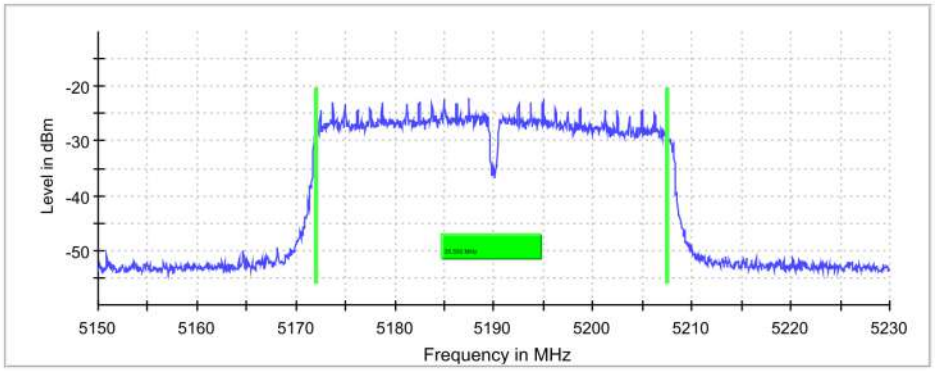
6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5190.000000	35.550000	---	---	5172.025000	5207.575000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5190.000000	-22.3	PASS

6 dB Bandwidth



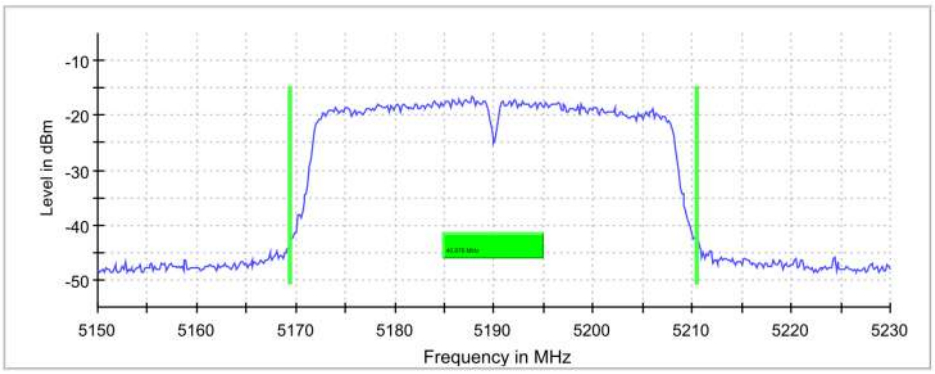
26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5190.000000	40.975610	---	---	5169.437148	5210.412758

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5190.000000	-16.7	PASS

26 dB Bandwidth



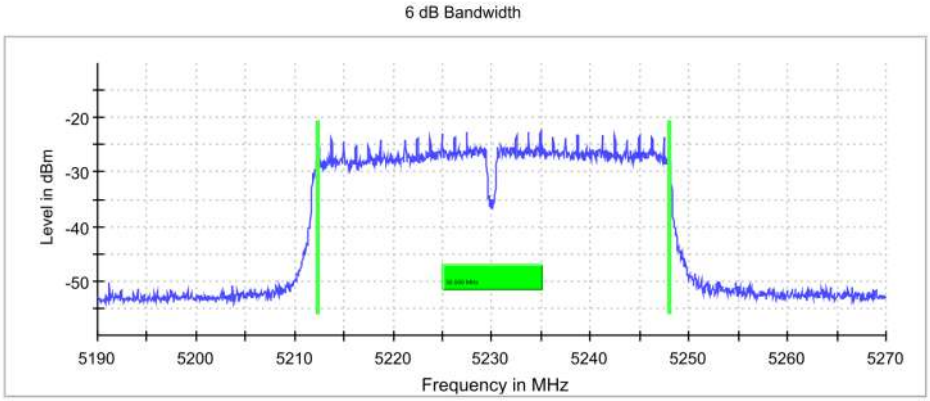
CH 46 (5230 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5230.000000	35.550000	---	---	5212.375000	5247.925000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5230.000000	-22.4	PASS



26 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
5230.000000	44.127580	---	---	5208.986867	5253.114447

(continuation of the "26 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
5230.000000	-19.8	PASS