

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No. : OT-216-RWD-067

Reception No. : 2104002368

Applicant : LG Electronics USA

Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States

Manufacturer : LG Electronics Inc.

Address : 222 LG-ro, Jinwi-Myeon, Pyeongtaek -Si, Gyeonggi-Do, 451-713, Korea

Type of Equipment : Car Navigation

FCC ID. : BEJ-MIB3OIVR-E

Model Name : MIB3 OI VR-E

Multiple Model Name : N/A

Serial number : N/A

Total page of Report : 162 pages (including this page)

Date of Incoming : June 08, 2021

Date of issue : June 25, 2021

SUMMARY

The equipment complies with the regulation; **FCC PART 15 SUBPART E Section 15.407**

This test report only contains the result of a single test of the sample supplied for the examination.

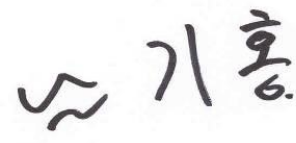
It is not a generally valid assessment of the features of the respective products of the mass-production.



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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-216-RWD-067	June 25, 2021	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : LG Electronics USA

Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, 07632, United States

Contact Person : Dea-Woong Kim / Research Engineer

Telephone No. : +82-31-610-9606

FCC ID : BEJ-MIB3OIVR-E

Model Name : MIB3 OI VR-E

Brand Name : LG, VOLKSWAGEN, SEAT, SKODA, FORD

Serial Number : N/A

Date : June 25, 2021

EQUIPMENT CLASS	Unlicensed National Information infrastructure(UNII)
E.U.T. DESCRIPTION	Car Navigation
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2020
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART E Section 15.407 789033 D02 General UNII Test Procedures New Rules v02r01
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.407(a)	26 dB Bandwidth	PASS
15.407(a)	Maximum Conducted Output Power	Met the Limit / PASS
15.407(a)	Peak Power Spectral Density	Met the Limit / PASS
15.407(e)	6 dB Bandwidth	Met the Limit / PASS
15.407(g)	Frequency Stability	Met the Limit / PASS
15.407(b)	Undesirable Emissions	Met the Limit / PASS
15.205, 15.407(b)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Met the Limit / PASS
15.207	Conducted Limits	N/A (See Note)

Note: This test is not performed because the EUT is operated by DC Power.

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART E Section 15.407

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2020. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-20122/ C-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

3. GENERAL INFORMATION

3.1 Product Description

The LG Electronics USA, Model MIB3 OI VR-E (referred to as the EUT in this report) is a Car Navigation. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Car Navigation	
Temperature Range	-40 °C ~ 70 °C	
OPERATING FREQUENCY	Bluetooth	2 402 MHz ~ 2 480 MHz
	WLAN 2.4 GHz	2 412 MHz ~ 2 462 MHz (802.11b/g/n(HT20))
	5 150 MHz ~ 5 250 MHz Band	5 180 MHz ~ 5 240 MHz (802.11a/n(HT20)/ac(VHT20))
		5 190 MHz ~ 5 230 MHz (802.11n(HT40)/ac(VHT40))
		5 210 MHz (802.11ac(VHT80))
	5 725 MHz ~ 5 850 MHz Band	5 745 MHz ~ 5 825 MHz (802.11a/n(HT20)/ac(VHT20))
		5 755 MHz ~ 5 795 MHz (802.11n(HT40)/ac(VHT40))
		5 775 MHz (802.11ac(VHT80))
MODULATION TYPE	Bluetooth	GFSK for 1 Mbps, $\pi/4$ -DQPSK for 2 Mbps, 8-DPSK for 3 Mbps
	WLAN 2.4 GHz	802.11b: DSSS Modulation(DBPSK/DQPSK/CCK) 802.11g/n(HT20): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)
	WLAN 5 GHz	802.11a/n(HT20)/n(HT40)/ac(VHT80): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)

RF OUTPUT POWER	Bluetooth	1 Mbps	-0.73 dBm
		2 Mbps	-0.19 dBm
		3 Mbps	0.17 dBm
	WLAN 2.4 GHz	13.09 dBm(802.11b) 9.18 dBm(802.11g) 7.57 dBm(802.11n_HT20)	
	5 150 MHz ~ 5 250 MHz Band	Antenna 0	10.26 dBm(802.11a) 10.25 dBm(802.11n_HT20) 7.98 dBm(802.11n_HT40) 6.99 dBm(802.11ac_VHT80)
			10.33 dBm(802.11a) 10.14 dBm(802.11n_HT20) 8.19 dBm(802.11n_HT40) 7.53 dBm(802.11ac_VHT80)
			13.21 dBm(802.11n_HT20) 11.10 dBm(802.11n_HT40) 10.30 dBm(802.11ac_VHT80)
		Antenna 1	10.30 dBm(802.11a) 10.26 dBm(802.11n_HT20) 8.25 dBm(802.11n_HT40) 7.23 dBm(802.11ac_VHT80)
			9.13 dBm(802.11a) 9.08 dBm(802.11n_HT20) 7.42 dBm(802.11n_HT40) 6.40 dBm(802.11ac_VHT80)
	5 725 MHz ~ 5 850 MHz Band	Multiple Antenna	12.72 dBm(802.11n_HT20) 10.87 dBm(802.11n_HT40) 9.85 dBm(802.11ac_VHT80)

ANTENNA TYPE	Bluetooth	PCB Antenna	
	WLAN 2.4 GHz	Chip Antenna	
	WLAN 5 GHz	Antenna 0	PCB Antenna
		Antenna 1	Chip Antenna
ANTENNA GAIN	Bluetooth	2.50 dBi	
	WLAN 2.4 GHz	2.10 dBi	
	5 150 MHz ~ 5 250 MHz Band	Antenna 0	3.80 dBi
		Antenna 1	1.30 dBi
		Multiple Antenna	5.74 dBi
	5 725 MHz ~ 5 850 MHz Band	Antenna 0	5.50 dBi
		Antenna 1	0.90 dBi
		Multiple Antenna	6.79 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)		32.768 kHz, 19 MHz, 19.2 MHz, 20 MHz, 25 MHz, 26 MHz, 28.636 36 MHz, 32 MHz, 40 MHz, 55.466 67 MHz,	

3.2 Alternative type(s)/model(s); also covered by this test report.

-, None

4. EUT MODIFICATIONS

-, None

5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	LG Electronics Inc.	N/A	N/A

5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	Description	Connected to
MIB3 OI VR-E	LG Electronics Inc.	Car Navigation (EUT)	
PWS-3003D	Protek	DC Power Supply (DC 30 V 3 A)	
ProBook 450 G7	HP	NoteBook	EUT

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting mode is programmed.

UNII 1

Modulation	DATA RATE	OUTPUT POWER[dBm]	
		Antenna 0	Antenna 1
802.11 a (Middle Channel)	6 Mbps	9.87	9.88
	9 Mbps	9.49	9.74
	12 Mbps	9.09	9.59
	18 Mbps	9.14	9.27
	24 Mbps	8.78	8.97
	36 Mbps	8.11	8.85
	48 Mbps	8.24	8.68
	54 Mbps	7.83	8.36
HT 20 (Middle Channel)	6.5 Mbps	9.81	9.69
	13 Mbps	9.60	9.43
	19.5 Mbps	9.45	9.17
	26 Mbps	9.22	8.97
	39 Mbps	8.54	8.57
	52 Mbps	8.66	8.32
	58.5 Mbps	8.61	8.21
	65 Mbps	8.23	8.20
HT 40 (Low Channel)	13.5 Mbps	7.98	8.19
	27 Mbps	7.71	7.76
	40.5 Mbps	7.12	7.25
	54 Mbps	6.96	7.22
	81 Mbps	6.43	6.76
	108 Mbps	6.09	6.17
	121.5 Mbps	5.96	6.33
	135 Mbps	5.86	6.30

VHT80 (Middle Channel)	29.3 Mbps	6.99	7.53
	58.5 Mbps	6.40	6.83
	87.8 Mbps	6.02	6.45
	117 Mbps	5.73	6.20
	175.5 Mbps	5.53	5.67
	234 Mbps	4.86	5.50
	263.3 Mbps	4.93	5.29
	292.5 Mbps	4.91	4.99
	351 Mbps	4.68	5.03
	390 Mbps	4.86	5.20

- The worse case data rate for each modulation is determined 6 Mbps(Ant.0/Ant.1) for IEEE 802.11a, 6.5 Mbps(Ant.0/Ant.1) for HT20, 13.5 Mbps(Ant.0/Ant.1) for HT40, 29.3 Mbps(Ant.0/Ant.1) for VHT80.
- To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes and the worst case is "XY" axis.

UNII 3

Modulation	DATA RATE	OUTPUT POWER[dBm]	
		Antenna 0	Antenna 1
802.11 a (Middle Channel)	6 Mbps	10.30	9.13
	9 Mbps	9.92	8.99
	12 Mbps	9.52	8.84
	18 Mbps	9.57	8.52
	24 Mbps	9.21	8.22
	36 Mbps	8.54	8.10
	48 Mbps	8.67	7.93
	54 Mbps	8.26	7.61
HT 20 (Middle Channel)	6.5 Mbps	10.26	9.08
	13 Mbps	10.05	8.82
	19.5 Mbps	9.90	8.56
	26 Mbps	9.67	8.36
	39 Mbps	8.99	7.96
	52 Mbps	9.11	7.71
	58.5 Mbps	9.06	7.60
	65 Mbps	8.68	7.59
HT 40 (Low Channel)	13.5 Mbps	7.83	7.25
	27 Mbps	7.56	6.82
	40.5 Mbps	6.97	6.31
	54 Mbps	6.81	6.28
	81 Mbps	6.28	5.82
	108 Mbps	5.94	5.23
	121.5 Mbps	5.81	5.39
	135 Mbps	5.71	5.36

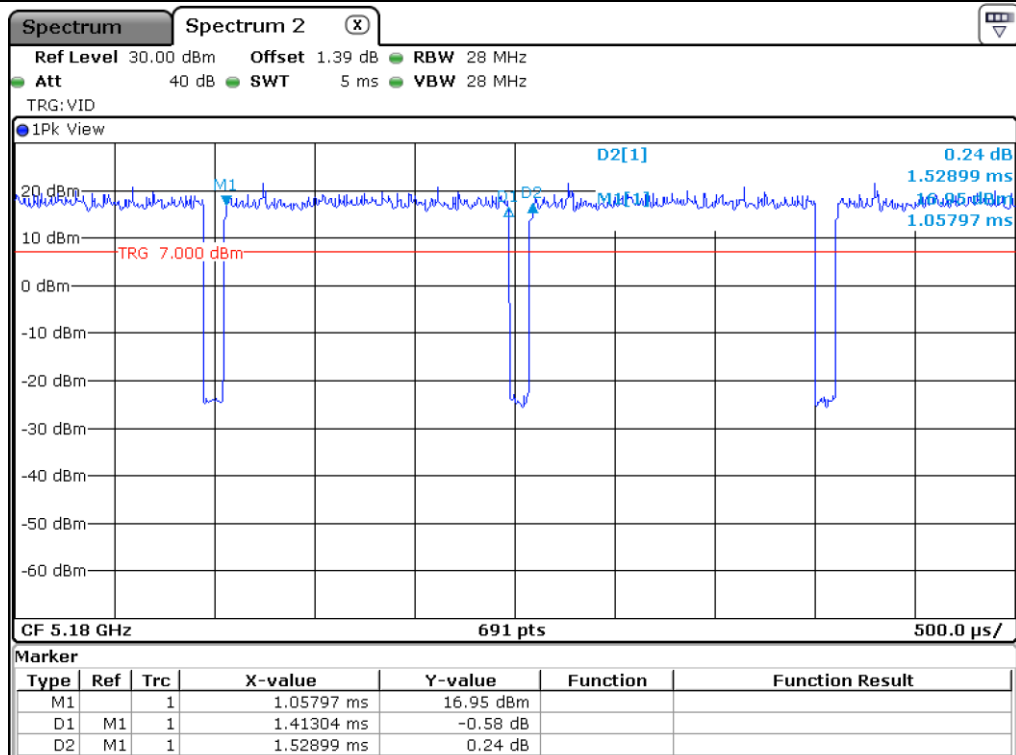
VHT80 (Middle Channel)	29.3 Mbps	7.23	6.40
	58.5 Mbps	6.64	5.70
	87.8 Mbps	6.26	5.32
	117 Mbps	5.97	5.07
	175.5 Mbps	5.77	4.54
	234 Mbps	5.10	4.37
	263.3 Mbps	5.17	4.16
	292.5 Mbps	5.15	3.86
	351 Mbps	4.92	3.90
	390 Mbps	5.10	4.07

- The worse case data rate for each modulation is determined 6 Mbps(Ant.0/Ant.1) for IEEE 802.11a, 6.5 Mbps(Ant.0/Ant.1) for HT20, 13.5 Mbps(Ant.0/Ant.1) for HT40, 29.3 Mbps(Ant.0/Ant.1) for VHT80.
- To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes and the worst case is "XY" axis.

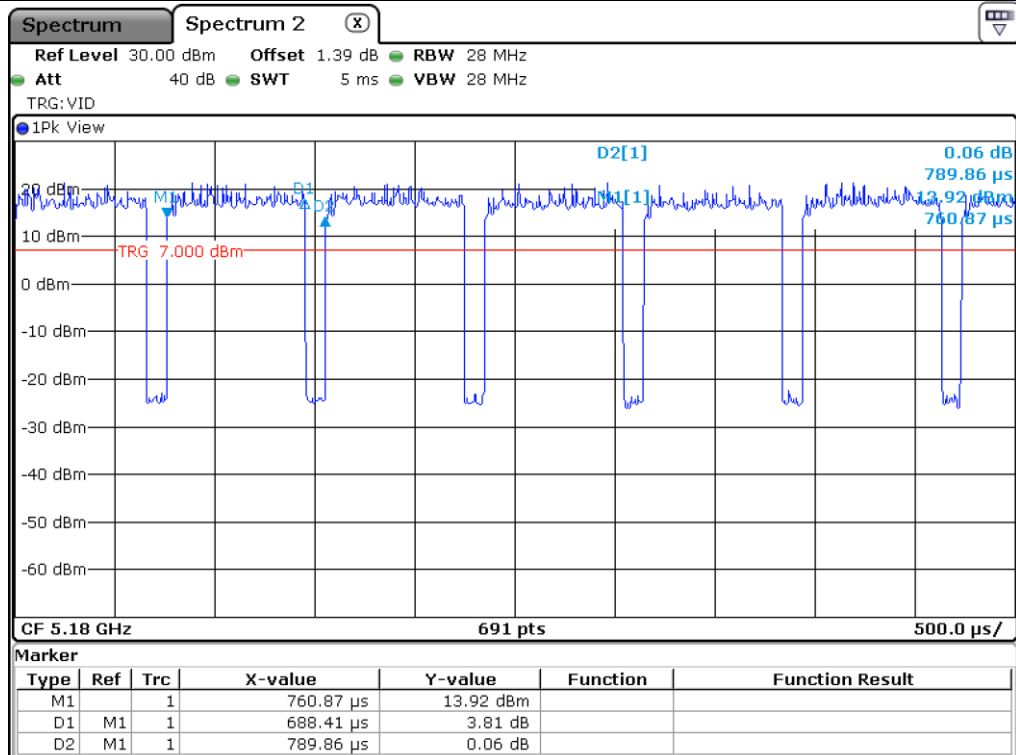
- Duty Cycle

	Band	Mode	Tx On Time [ms]	Tx Off Time [ms]	Duty Cycle [%]	Correction Factor [dB]
Antenna 0	UNII 1	802.11 a	1.413	0.116	92.41	0.34
		802.11 HT 20	0.688	0.101	87.20	0.59
		802.11 HT 40	0.356	0.101	77.90	1.08
		802.11 VHT 80	0.333	0.101	76.73	1.15
	UNII 3	802.11 a	1.405	0.123	91.95	0.36
		802.11 HT 20	0.688	0.101	87.20	0.59
		802.11 HT 40	0.356	0.101	77.90	1.08
		802.11 VHT 80	0.333	0.101	76.73	1.15
Antenna 1	UNII 1	802.11 a	1.413	0.116	92.41	0.34
		802.11 HT 20	0.695	0.102	87.20	0.59
		802.11 HT 40	0.356	0.101	77.90	1.08
		802.11 VHT 80	0.330	0.104	76.04	1.19
	UNII 3	802.11 a	1.405	0.123	91.95	0.36
		802.11 HT 20	0.695	0.102	87.20	0.59
		802.11 HT 40	0.356	0.101	77.90	1.08
		802.11 VHT 80	0.330	0.101	76.57	1.16

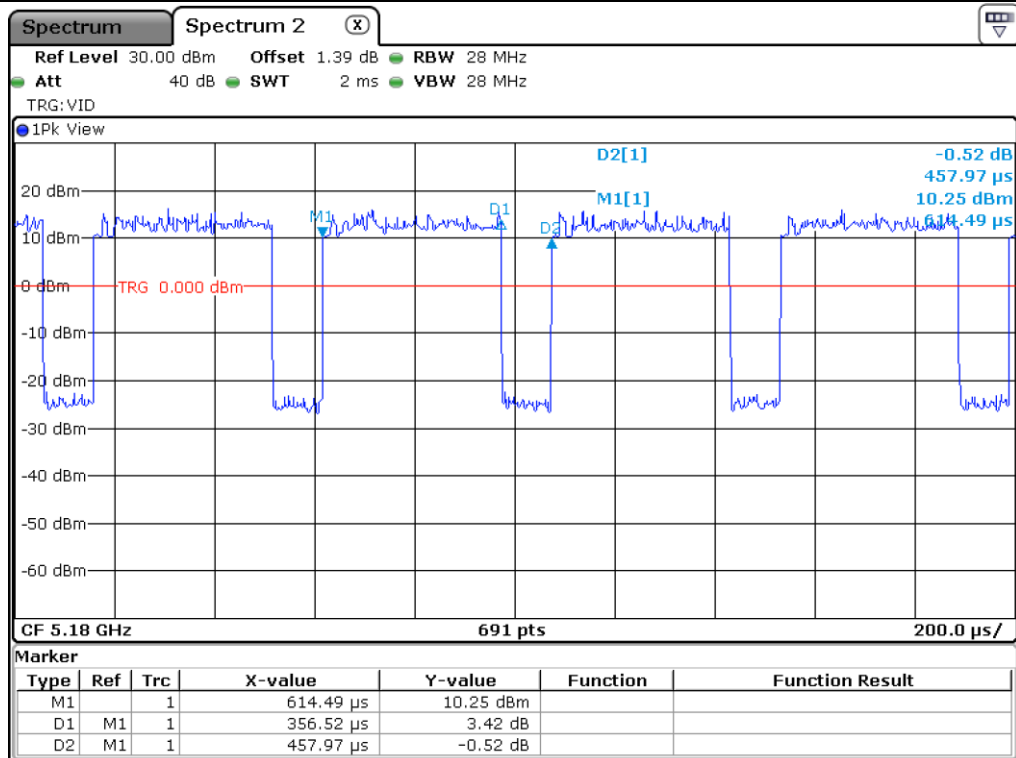
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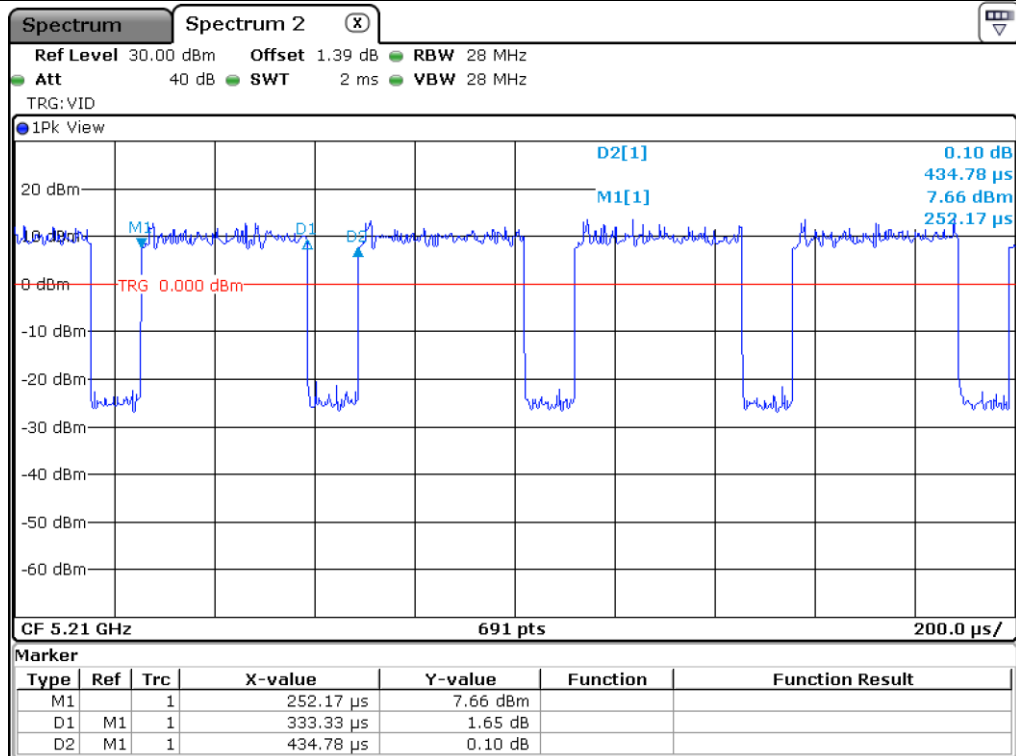
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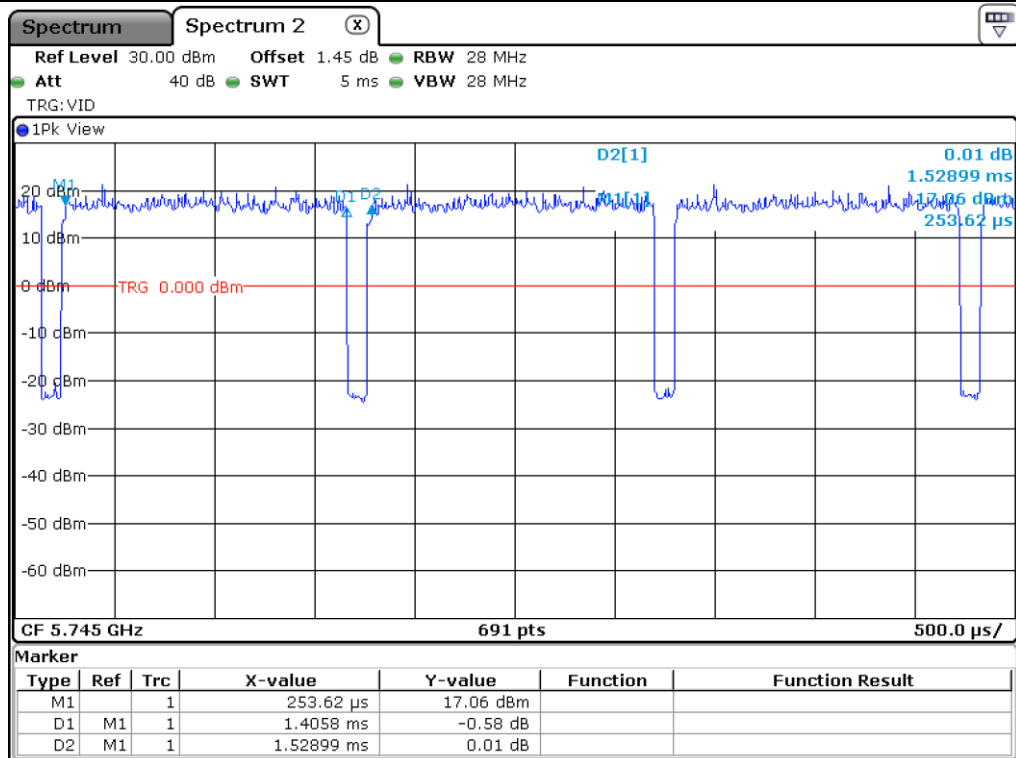
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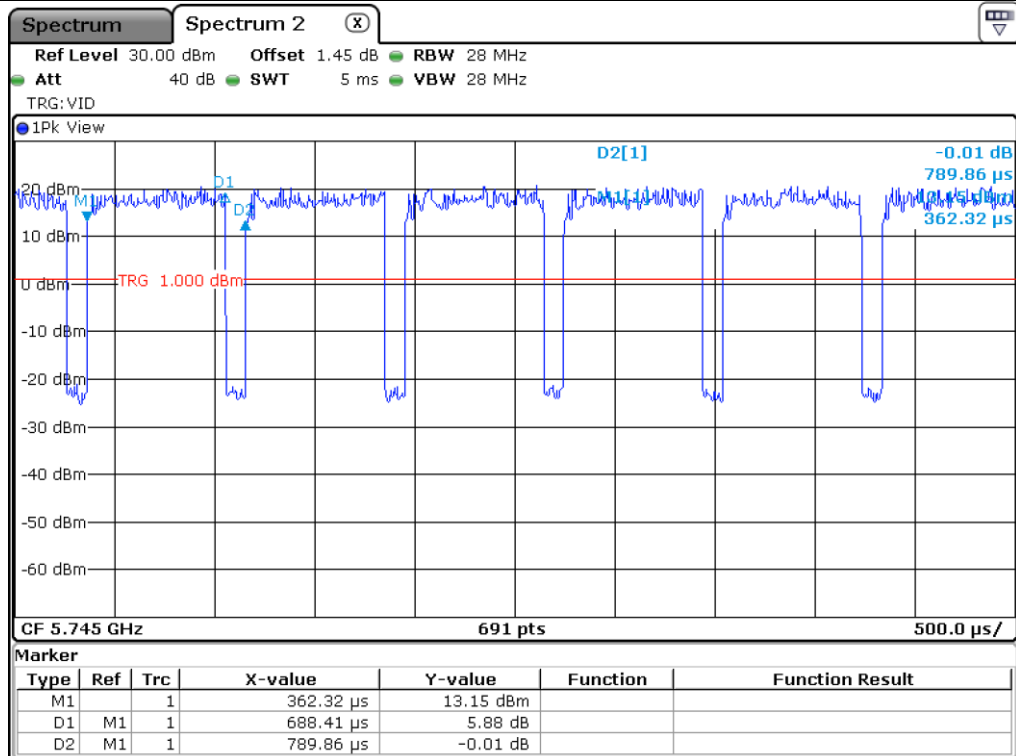
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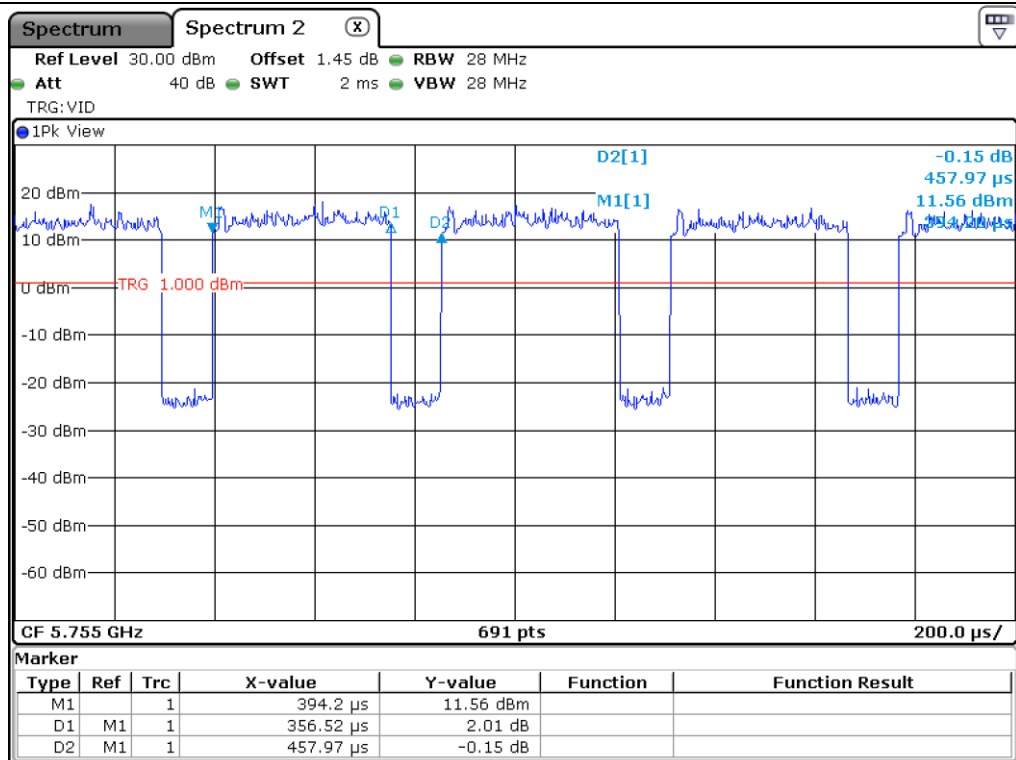
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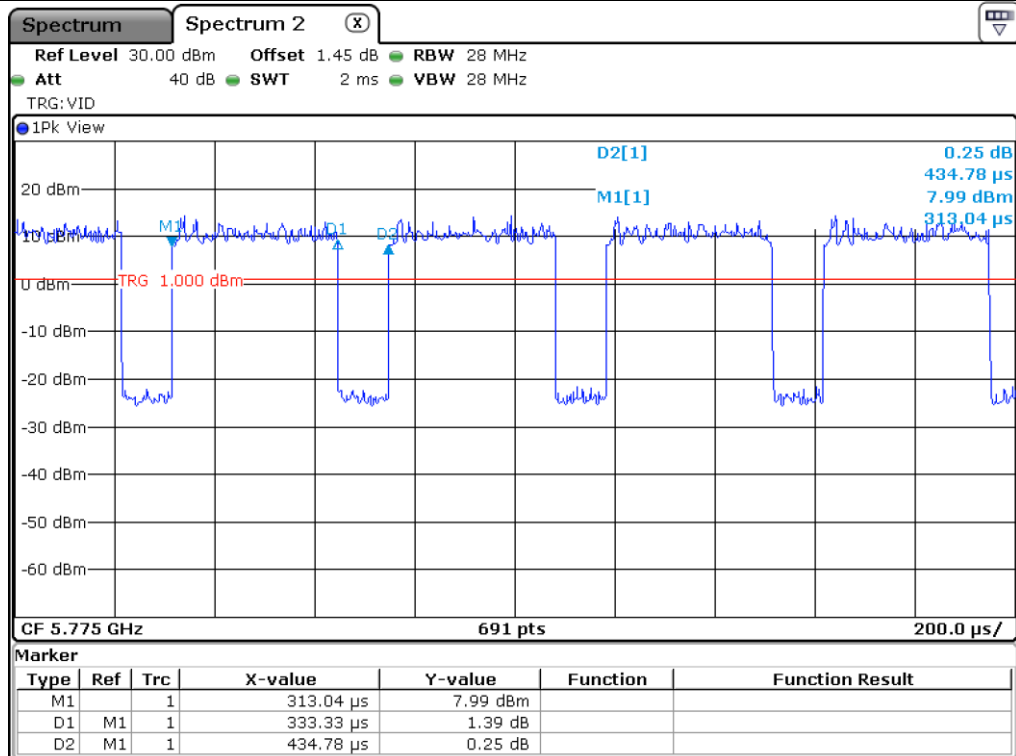
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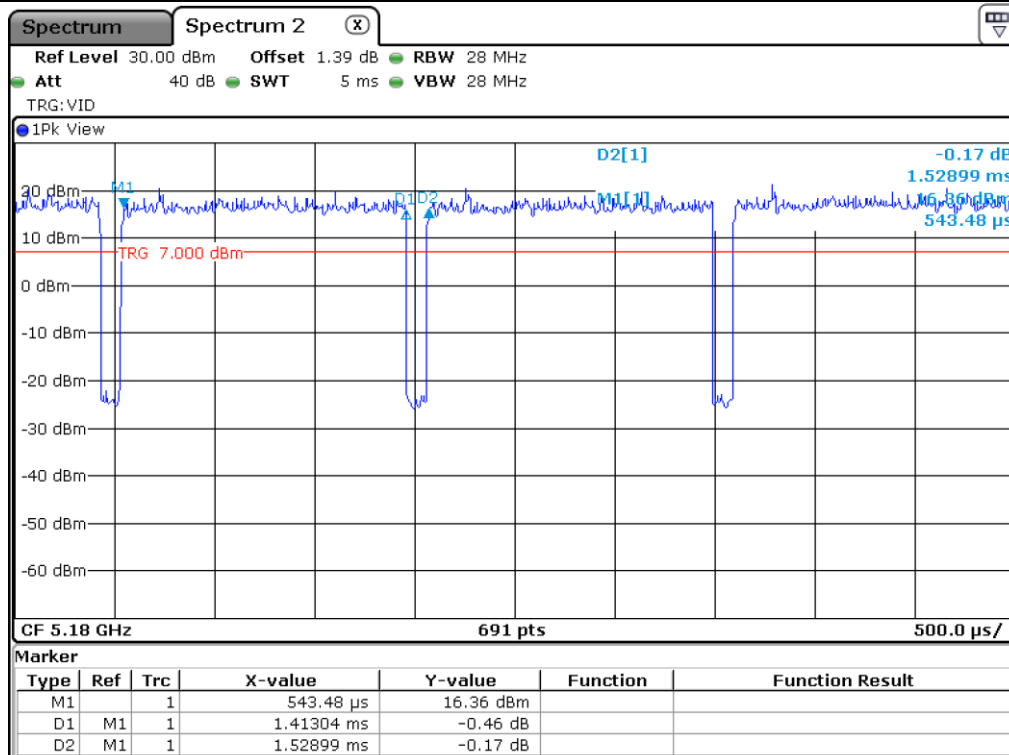


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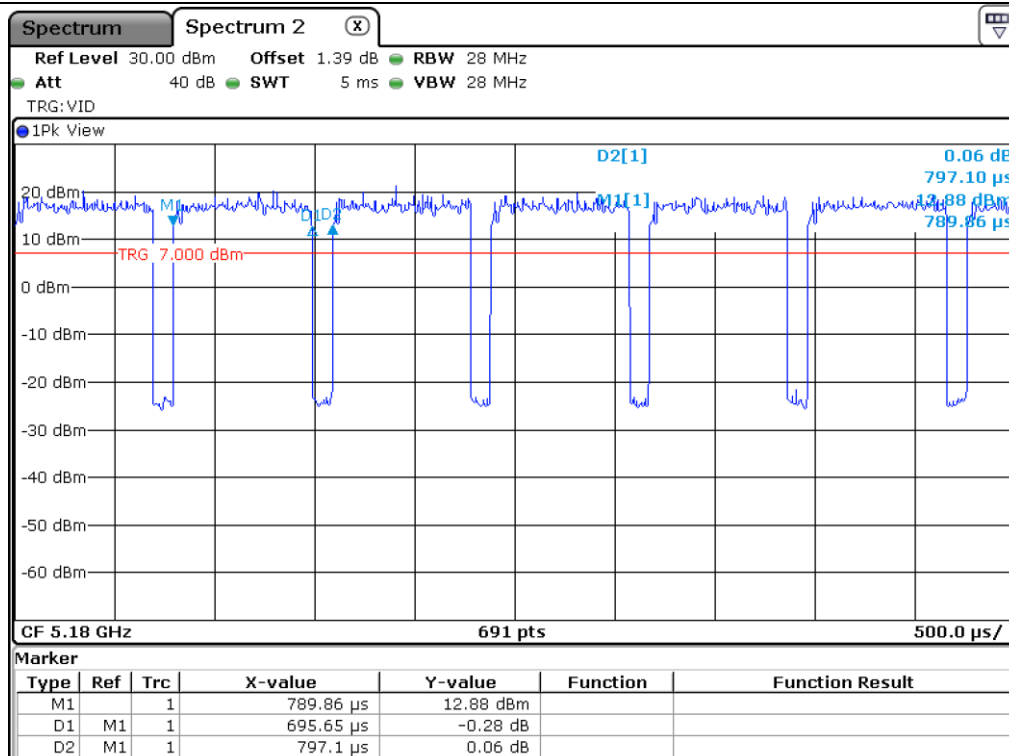


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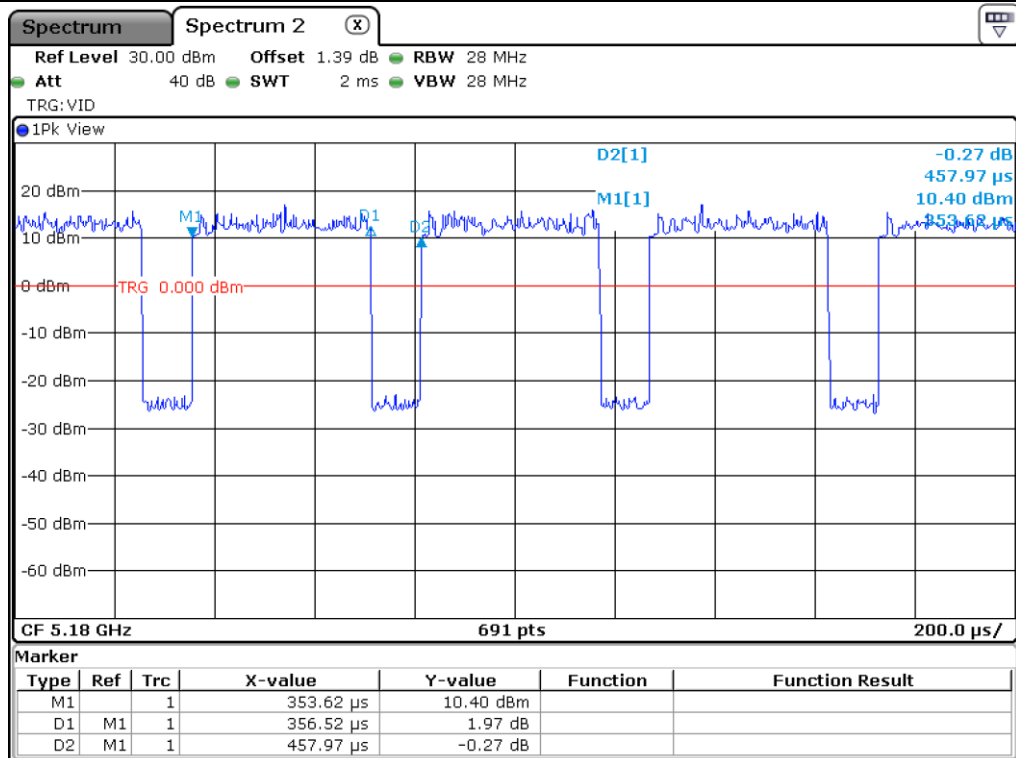
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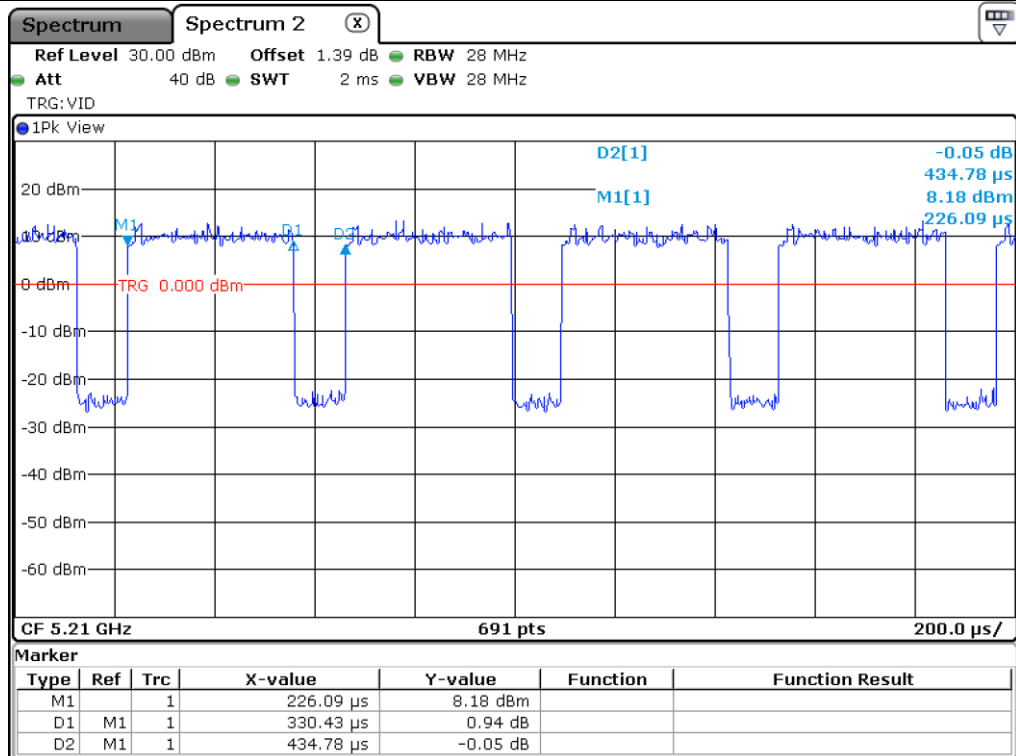
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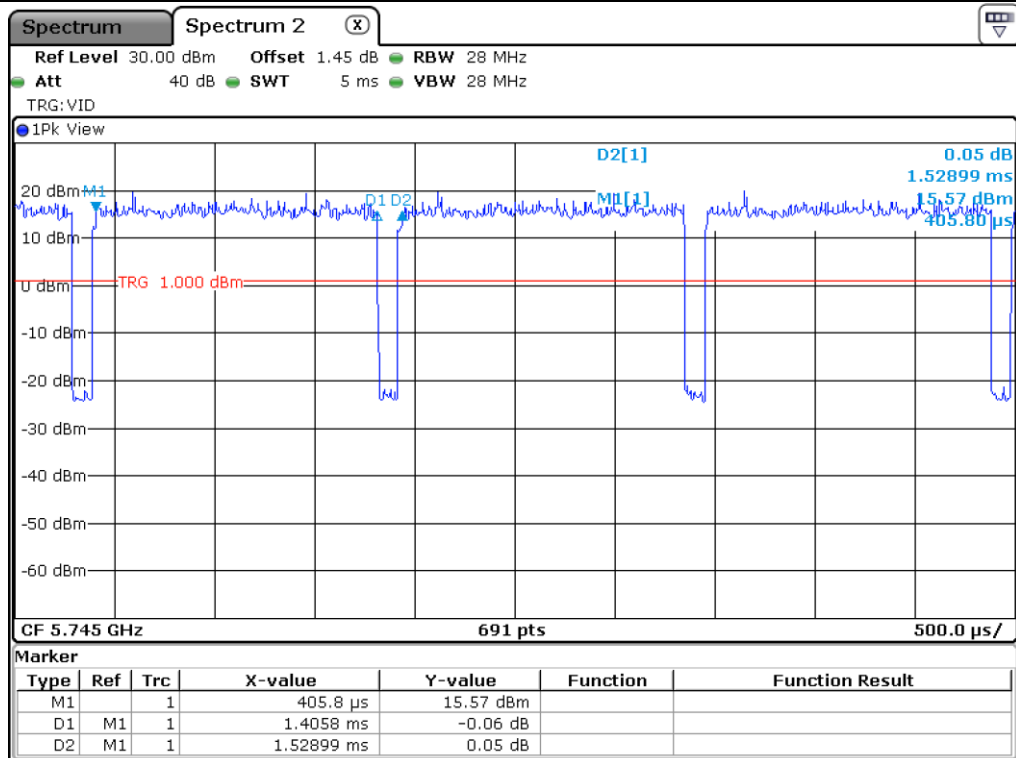
UNII 1_802.11 HT 20



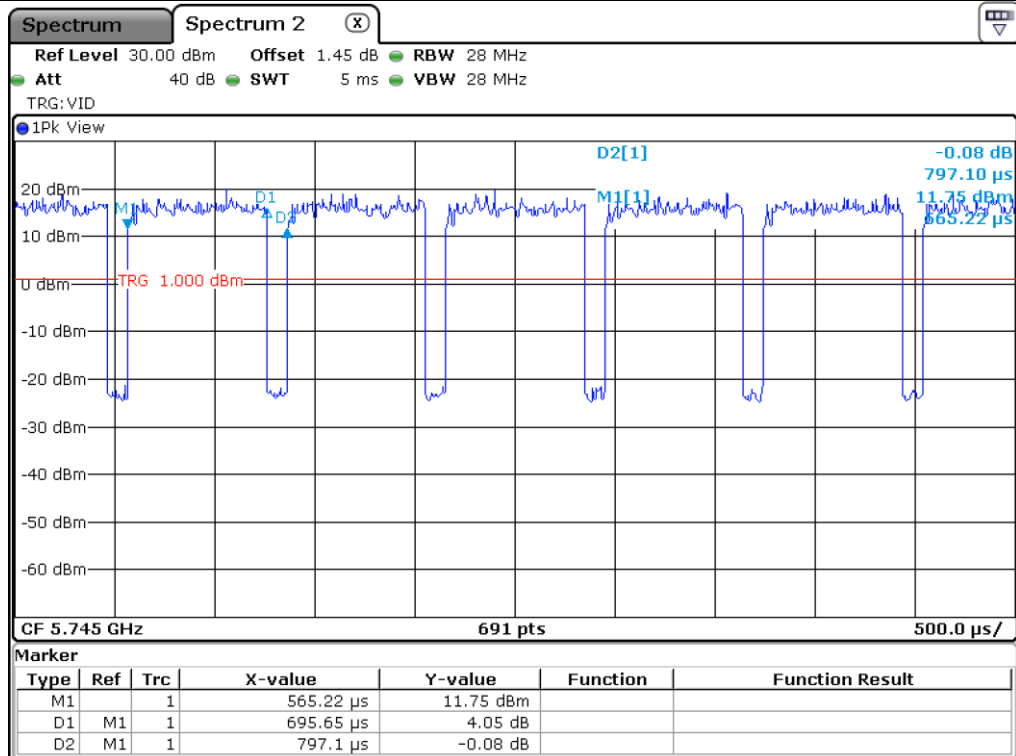
UNII 1_802.11 HT40



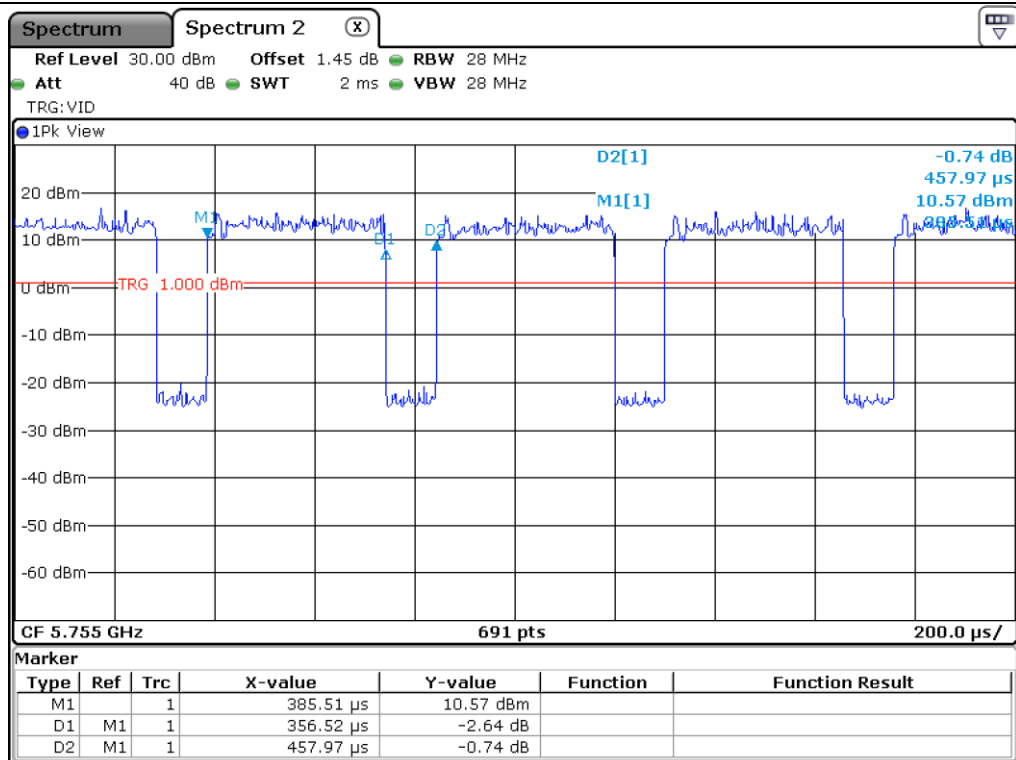
UNII 1_802.11 VHT 80



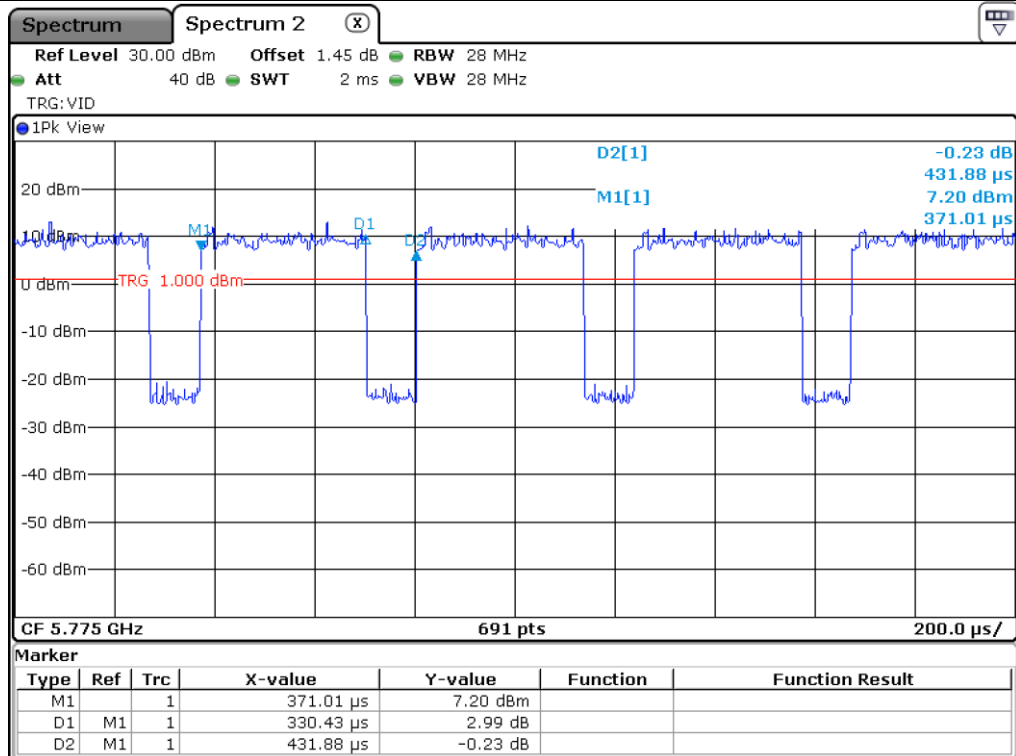
UNII 3_802.11 a



UNII 3_802.11 HT 20



UNII 3_802.11 HT40



UNII 3_802.11 VHT 80

-. Channel List (5 150 MHz ~ 5 250 MHz Band)

802.11a / n_HT20 / ac_VHT20		802.11n_HT40 / ac_VHT40		802.11ac_VHT80	
Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
36	5 180.00	38	5 190.00	42	5 210.00
40	5 200.00	46	5 230.00		
44	5 220.00				
48	5 240.00				

-. Channel List (5 725 MHz ~ 5 850 MHz Band)

802.11a / n_HT20 / ac_VHT20		802.11n_HT40 / ac_VHT40		802.11ac_VHT80	
Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
149	5 745.00	151	5 755.00	155	5 775.00
153	5 765.00	159	5 795.00		
157	5 785.00				
165	5 825.00				

5.4 Configuration of Test System

Line Conducted Test: It is not need to test this requirement, because the EUT shall be operated by DC Power.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2020 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

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

Antenna Construction:

The antenna of the EUT is PCB Antenna for Antenna 0 and Chip Antenna for Antenna 1 on the main board in the EUT, so no consideration of replacement by the user.

6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
It is not need to test this requirement, because the power of the EUT is supplied by DC Power.	

6.2 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode	X

7. MINIMUM 26 dB BANDWIDTH

7.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

7.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to approximately 1% of the emission bandwidth, and peak detection was used. The 26 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 26 dB.



7.3 Test Date

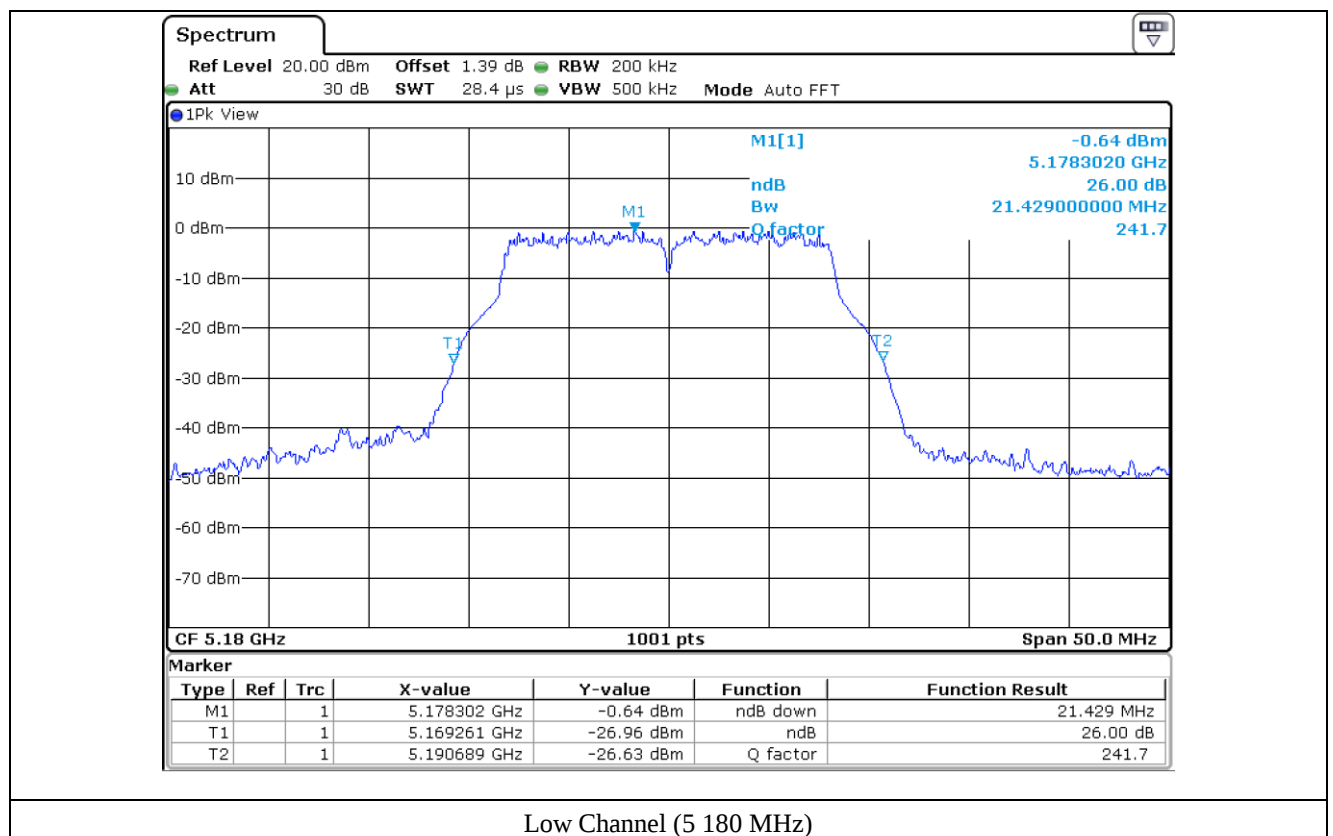
June 08, 2021 ~ June 22, 2021

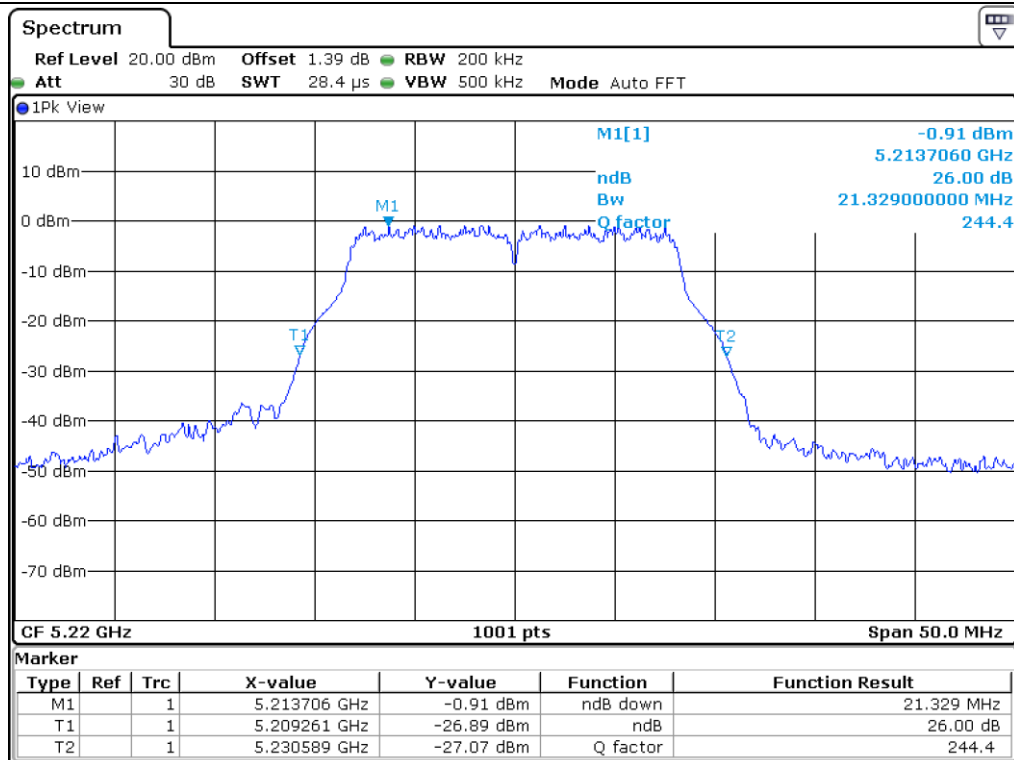
7.4 Test data for 802.11a RLAN Mode

7.4.1 Test data for Antenna 0

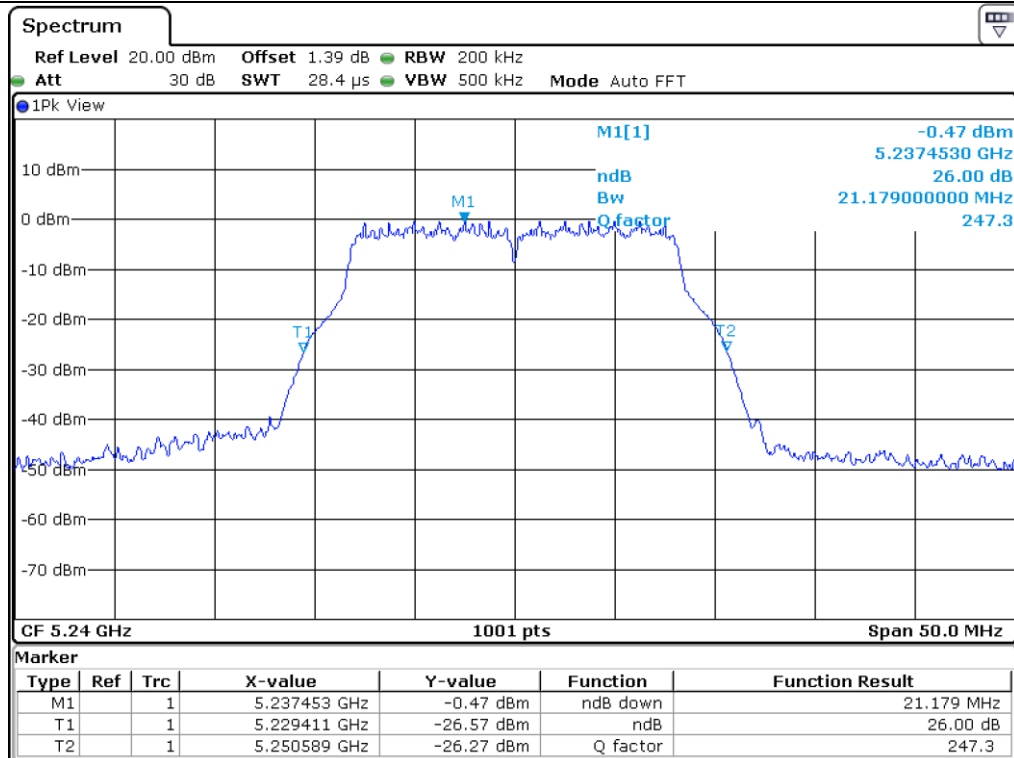
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5 180.00	21.43
	Middle	5 220.00	21.33
	High	5 240.00	21.18
5 725 ~ 5 850	Low	5 745.00	21.43
	Middle	5 785.00	21.33
	High	5 825.00	21.28

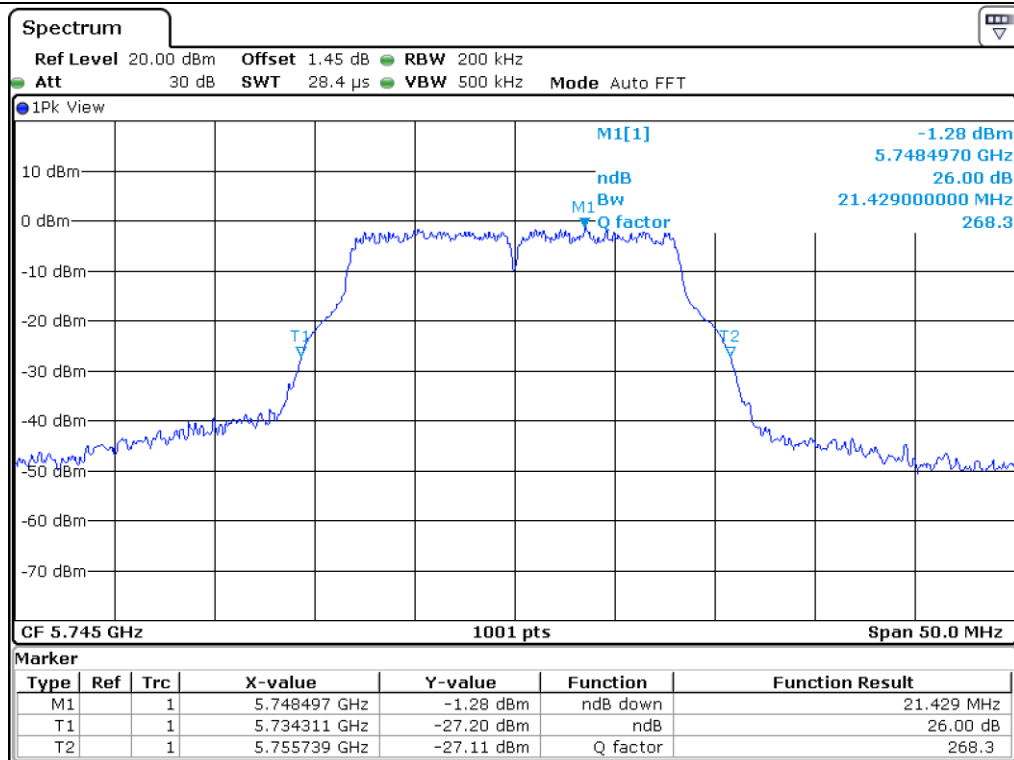




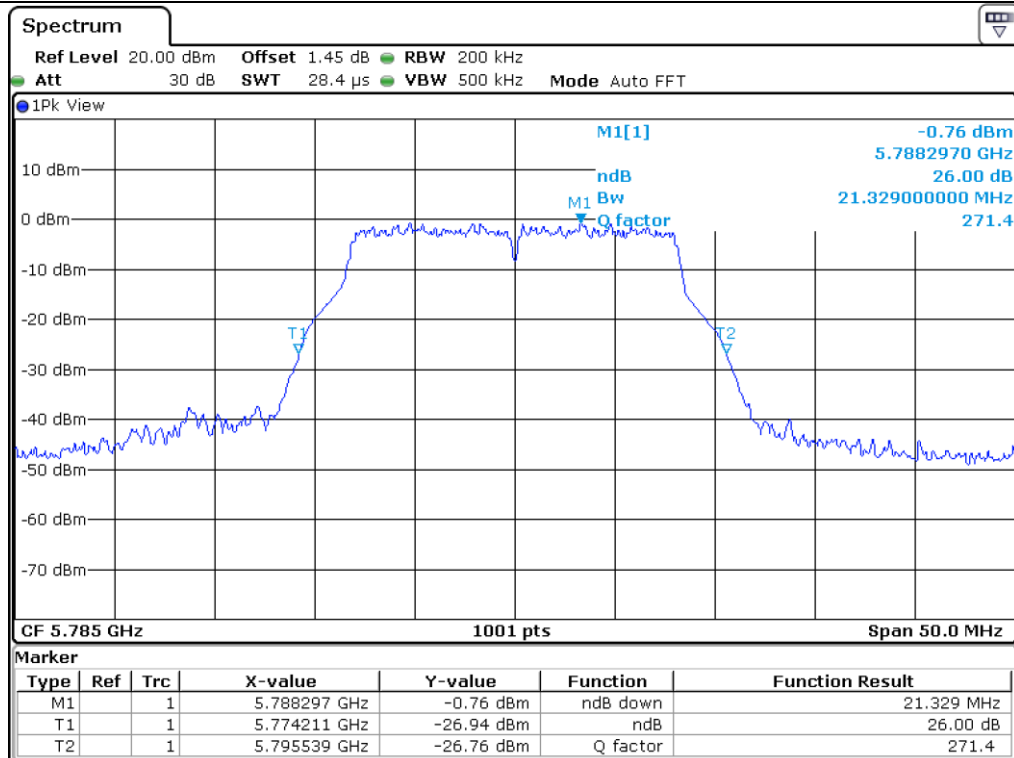
Middle Channel (5 220 MHz)



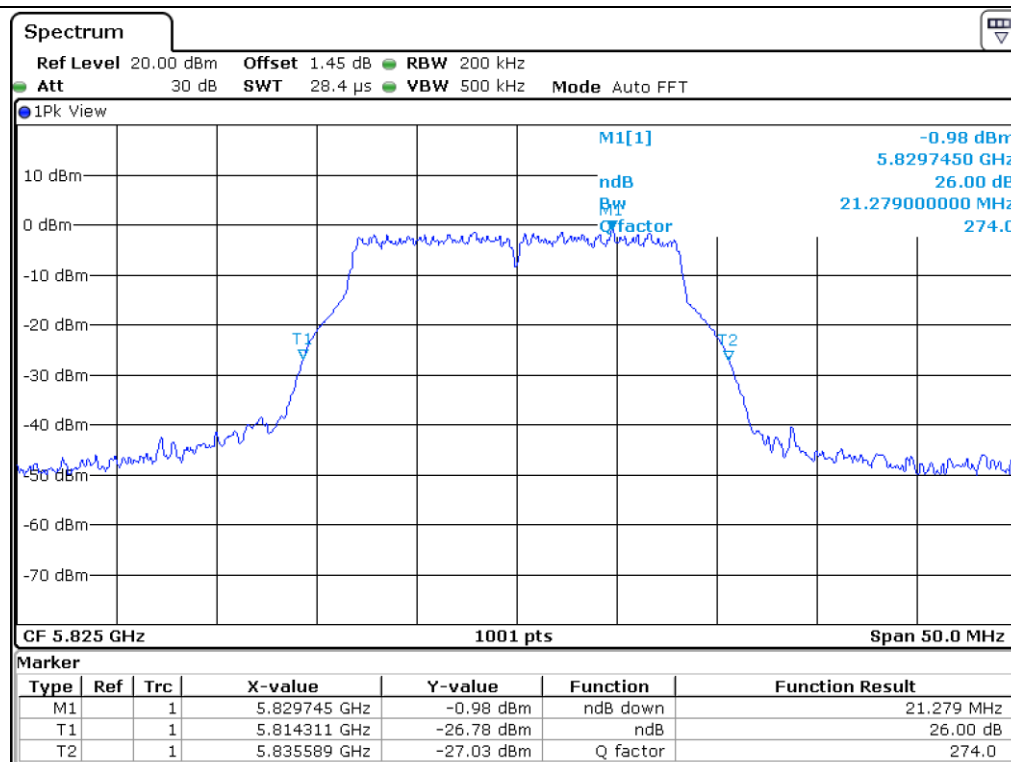
High Channel (5 240 MHz)



Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)

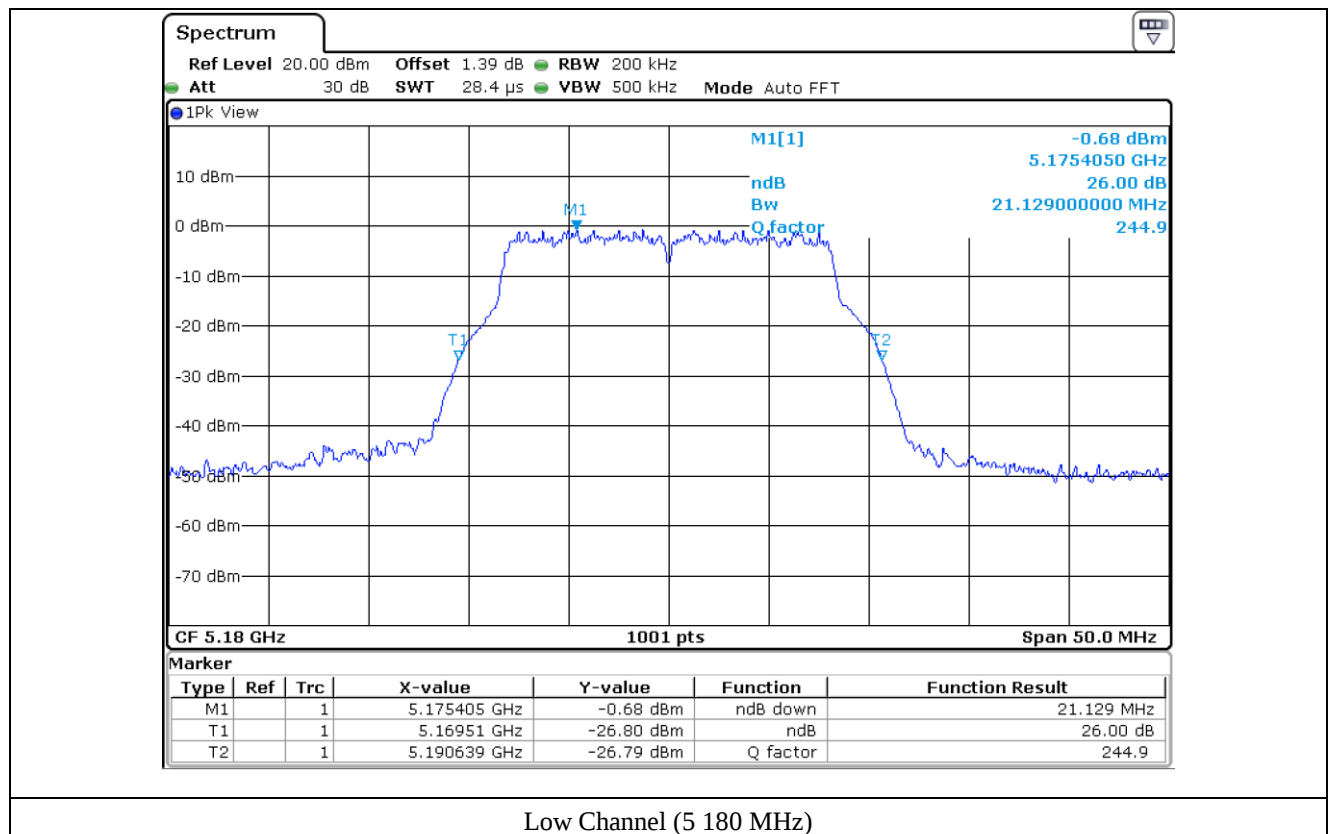


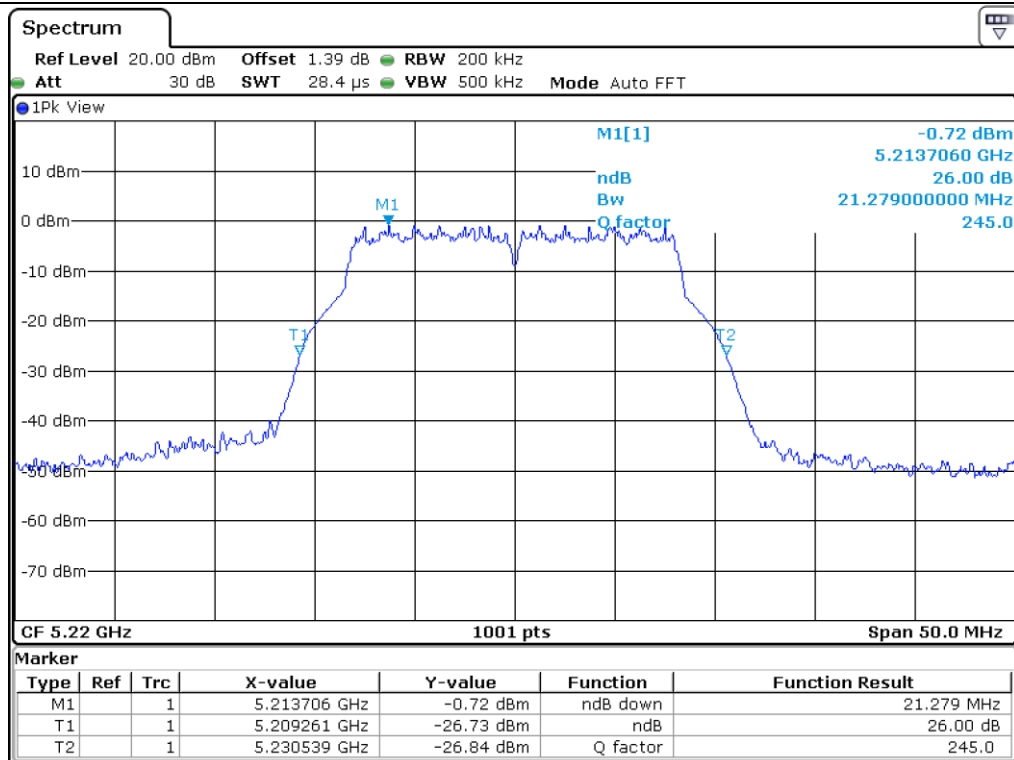
High Channel (5 825 MHz)

7.4.2 Test data for Antenna 1

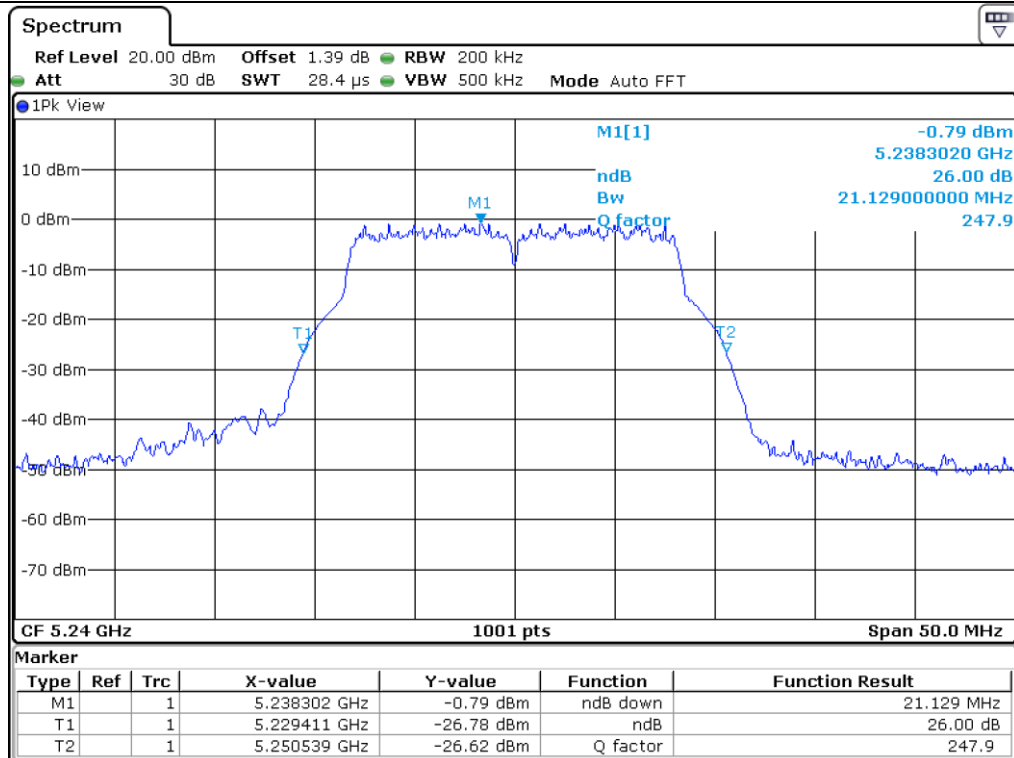
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5180.00	21.13
	Middle	5220.00	21.28
	High	5240.00	21.13
5 725 ~ 5 850	Low	5745.00	21.23
	Middle	5785.00	21.33
	High	5825.00	21.38

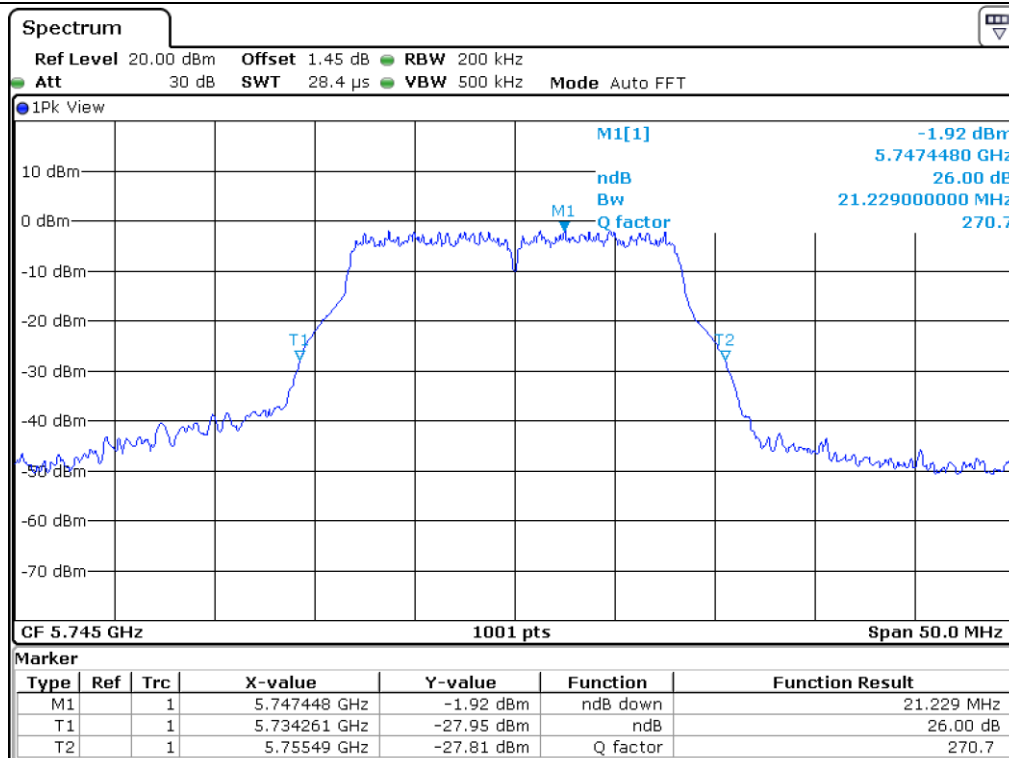




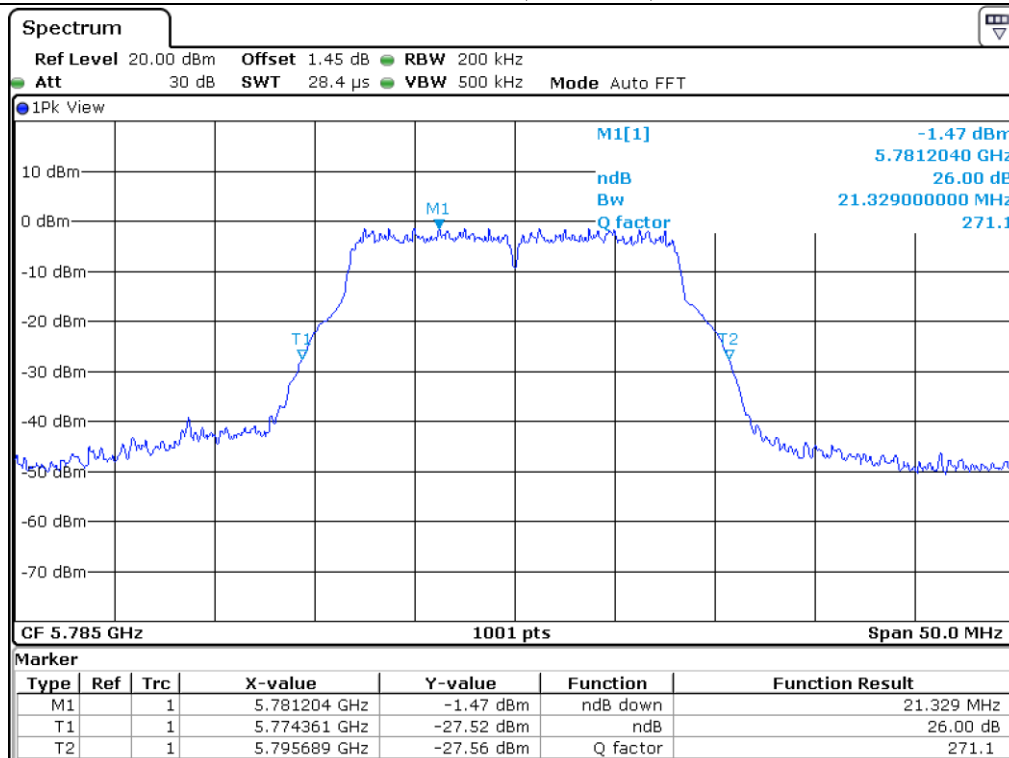
Middle Channel (5 220 MHz)



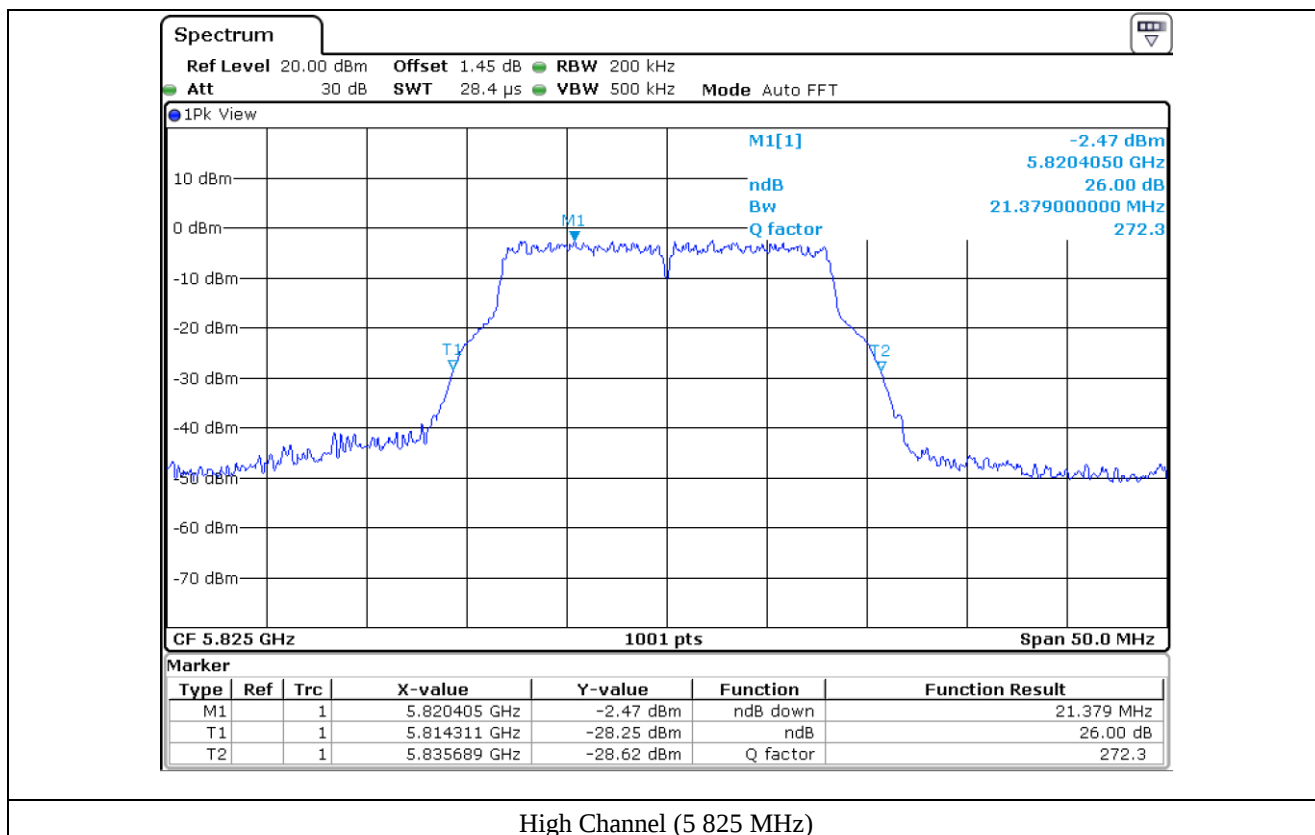
High Channel (5 240 MHz)



Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)

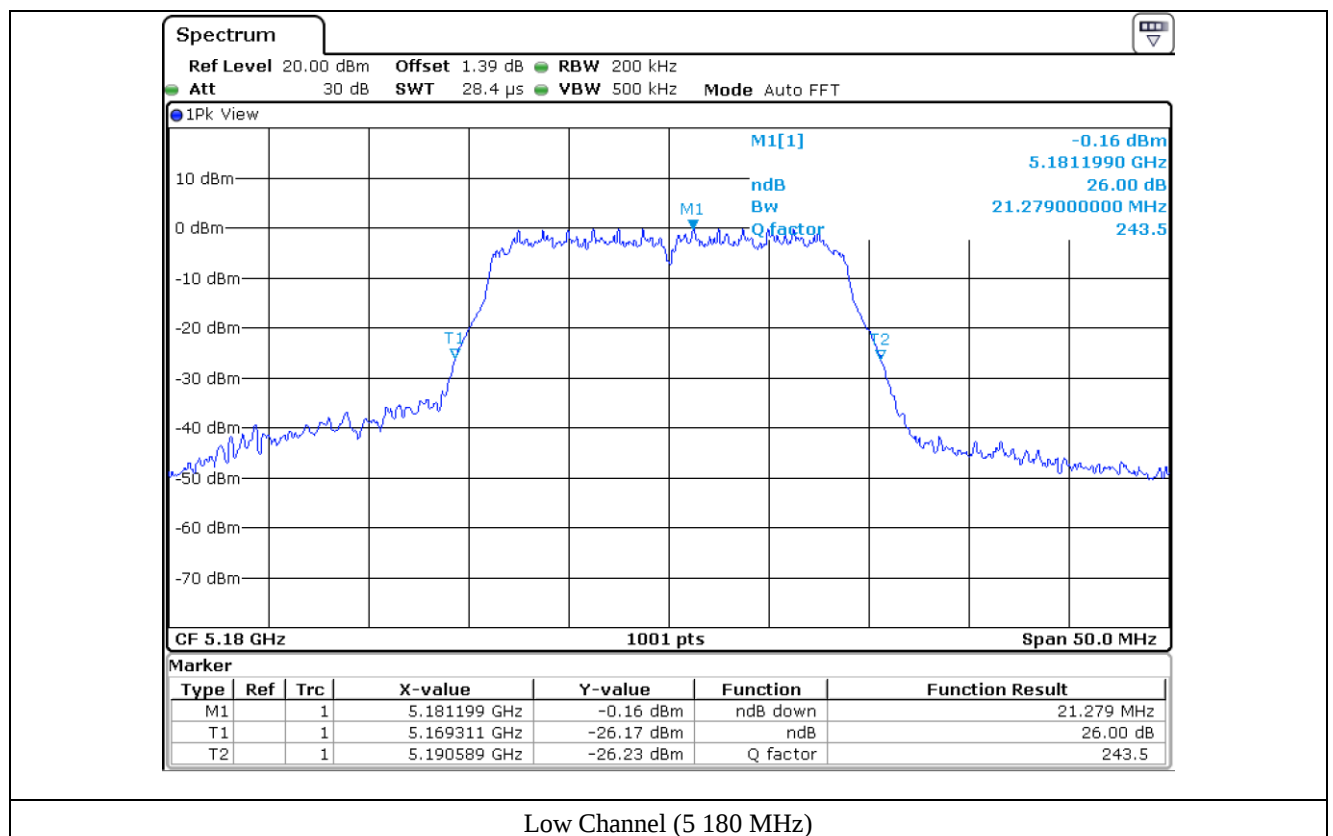


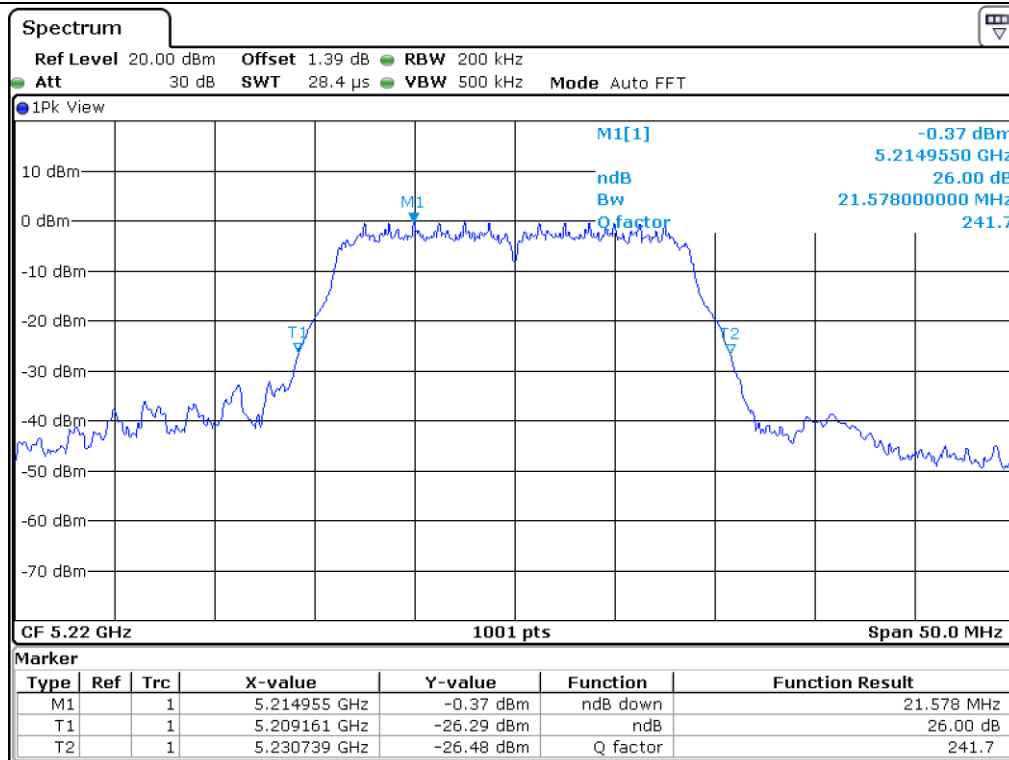
7.5 Test data for 802.11n_HT20 RLAN Mode

7.5.1 Test data for Antenna 0

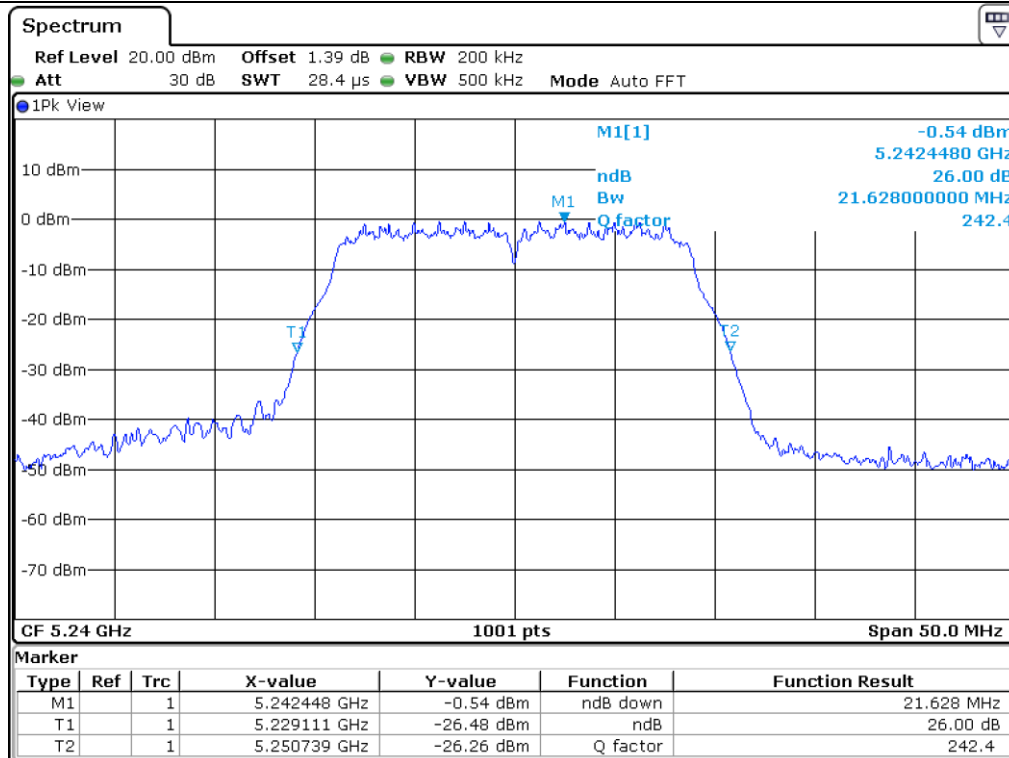
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5 180.00	21.28
	Middle	5 220.00	21.58
	High	5 240.00	21.63
5 725 ~ 5 850	Low	5 745.00	21.58
	Middle	5 785.00	21.53
	High	5 825.00	21.48

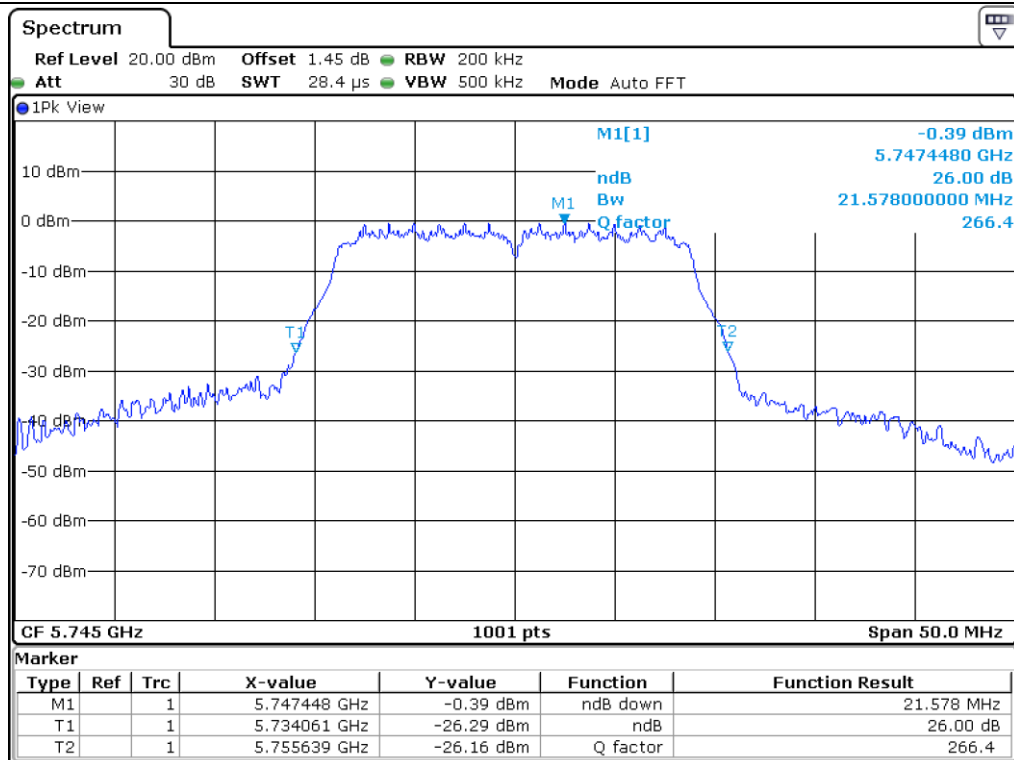




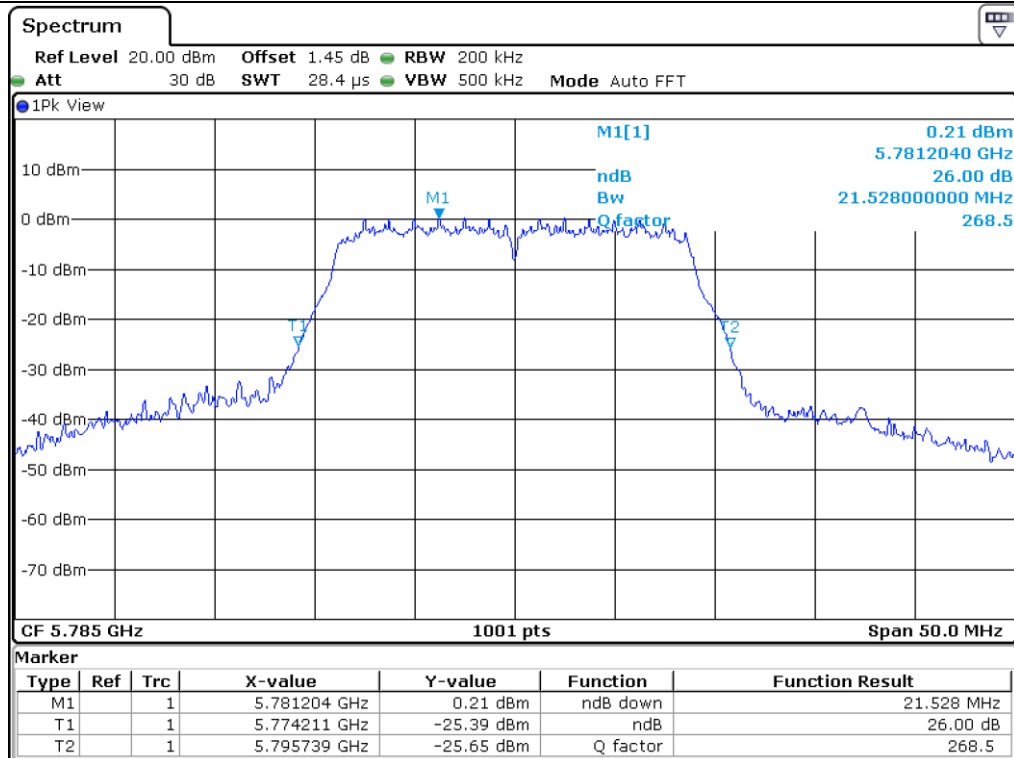
Middle Channel (5 220 MHz)



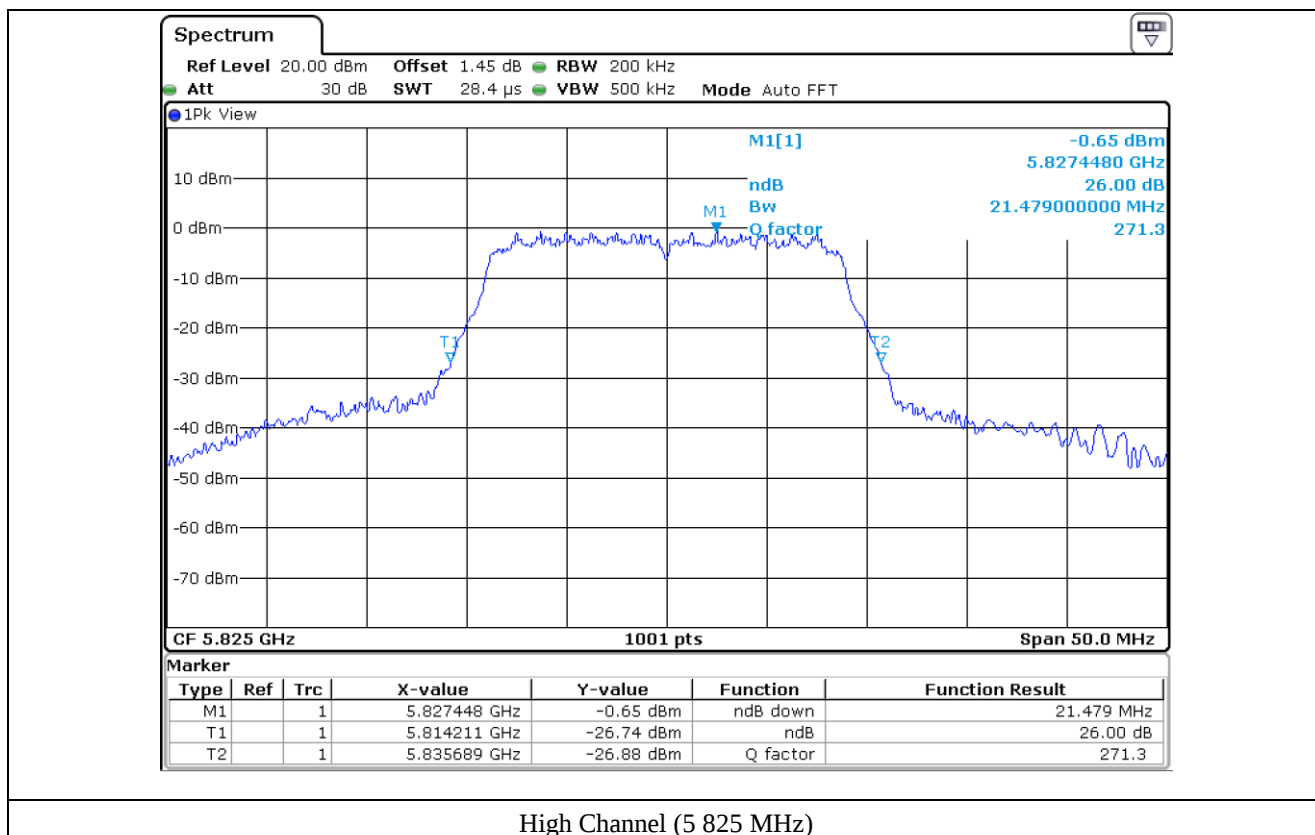
High Channel (5 240 MHz)



Low Channel (5 745 MHz)



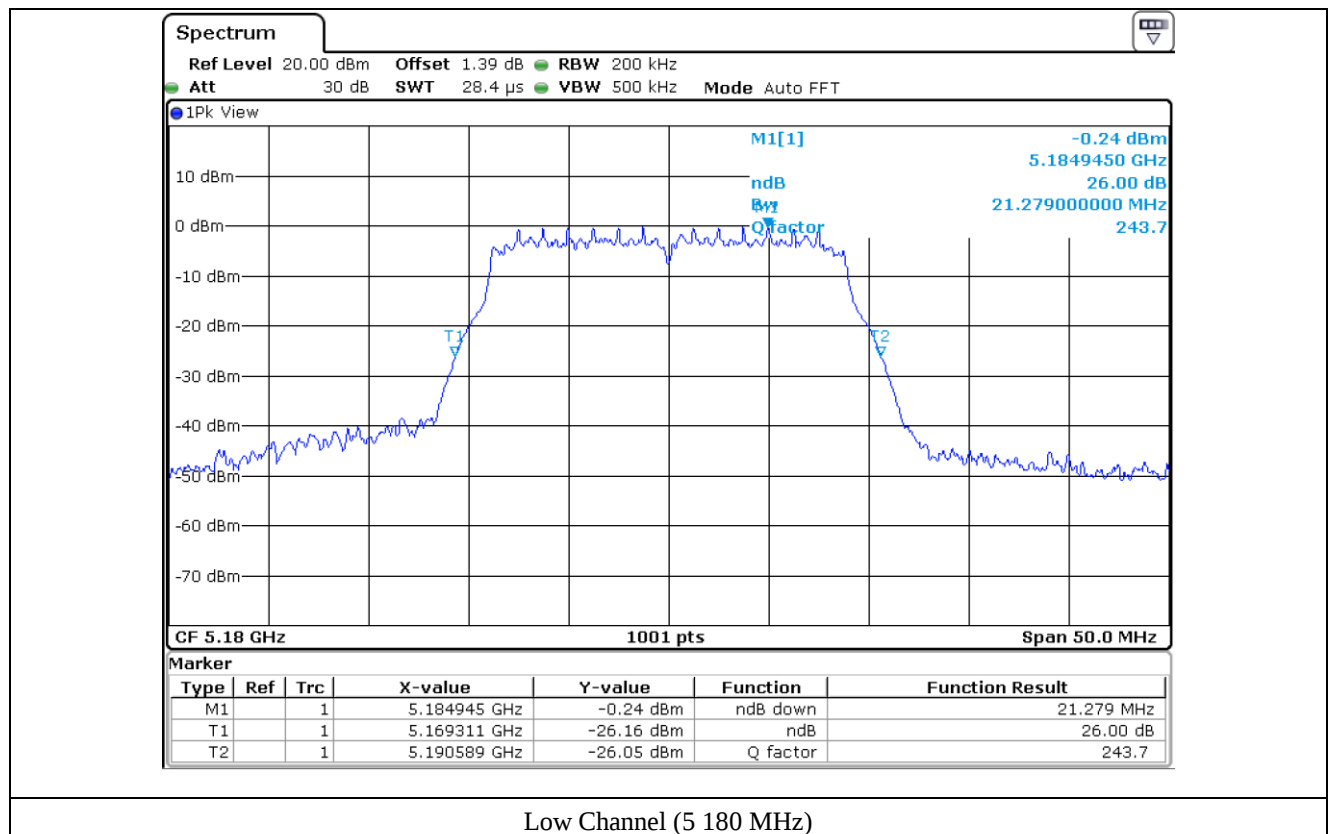
Middle Channel (5 785 MHz)

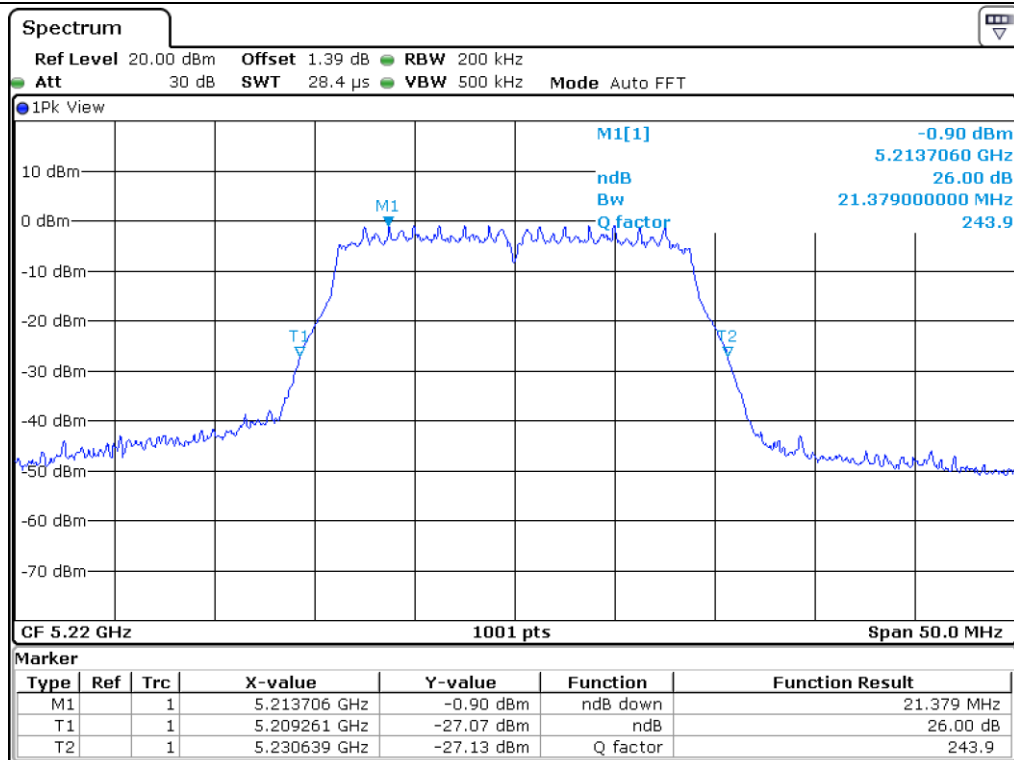


7.5.2 Test data for Antenna1

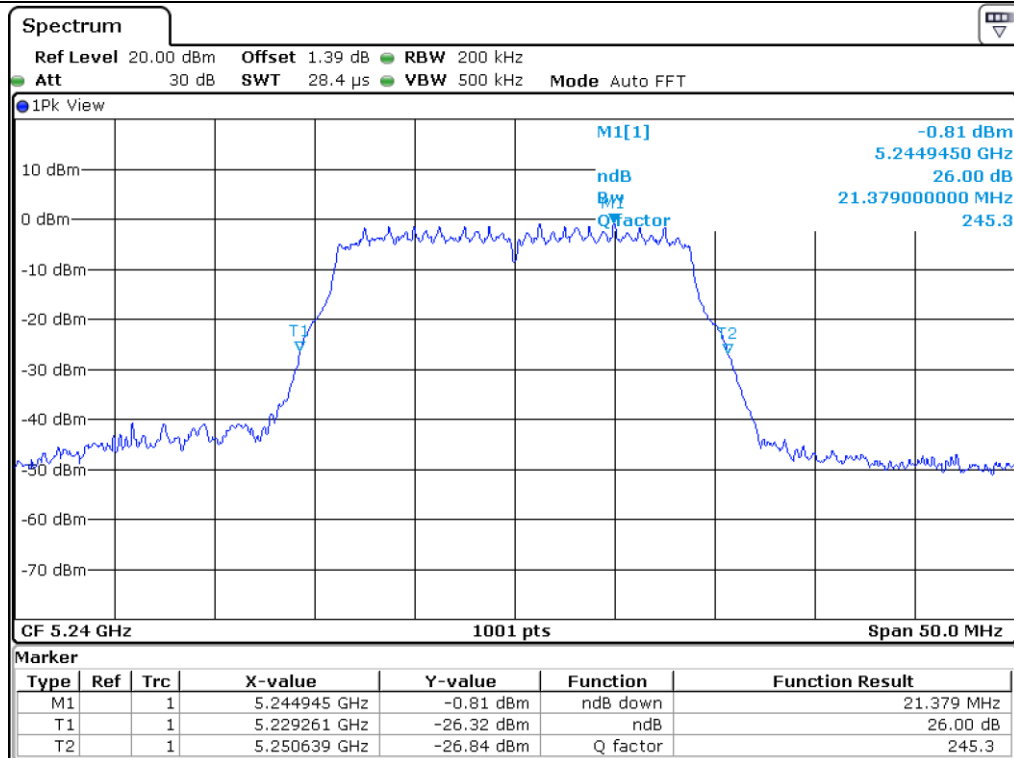
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5180.00	21.28
	Middle	5220.00	21.38
	High	5240.00	21.38
5 725 ~ 5 850	Low	5745.00	21.28
	Middle	5785.00	21.43
	High	5825.00	21.23

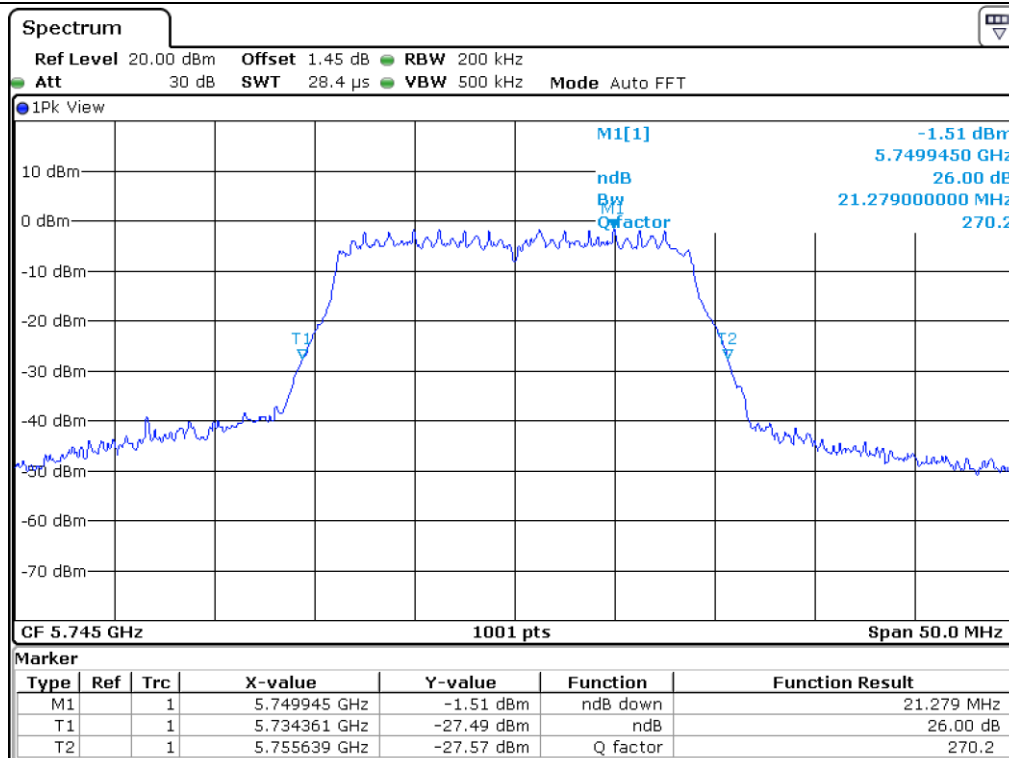




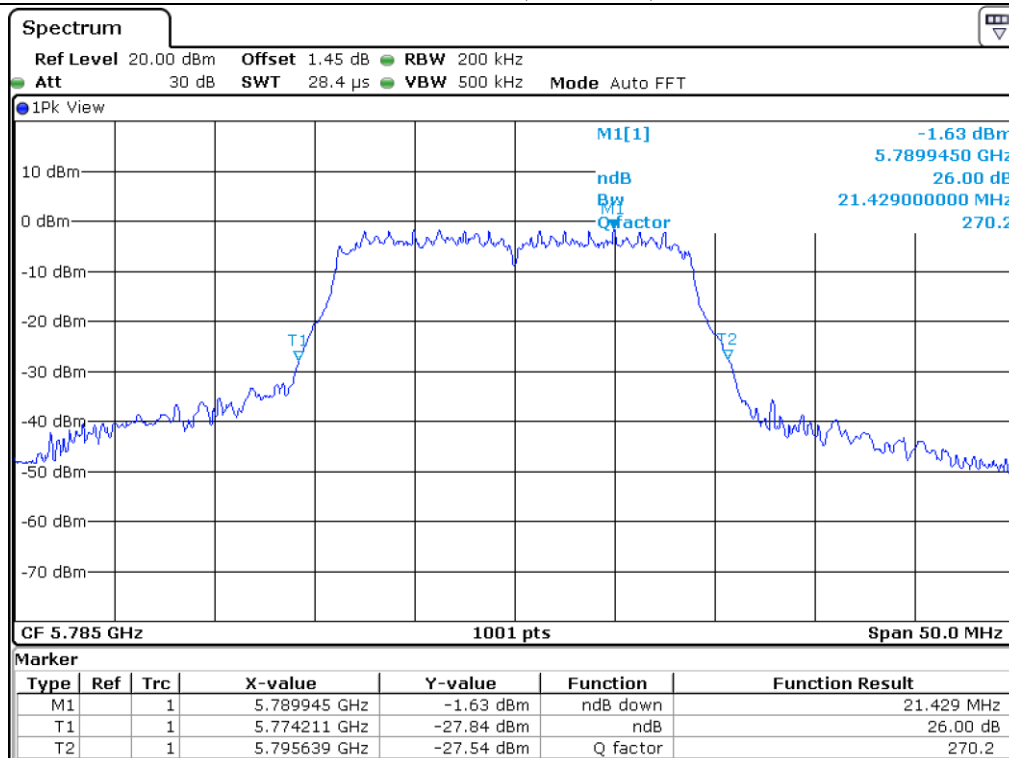
Middle Channel (5 220 MHz)



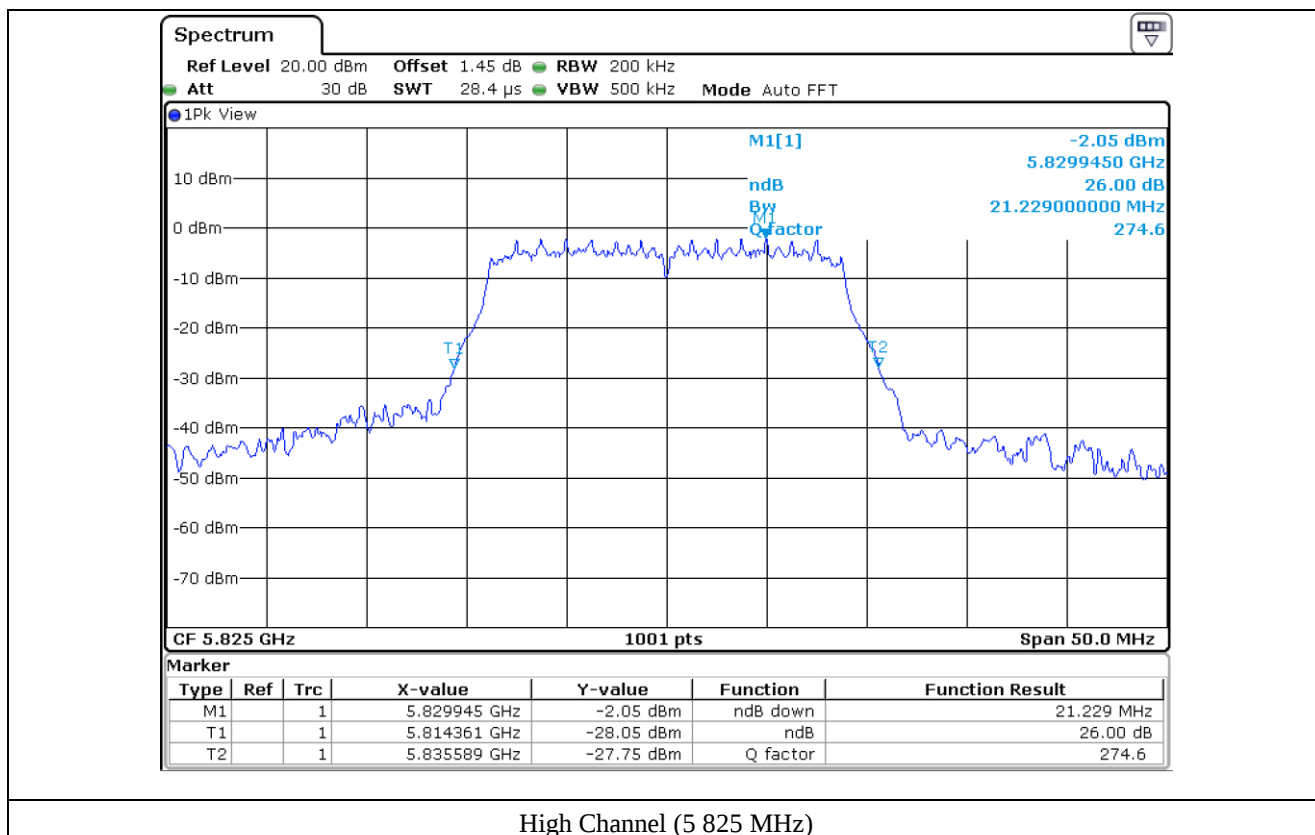
High Channel (5 240 MHz)



Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)



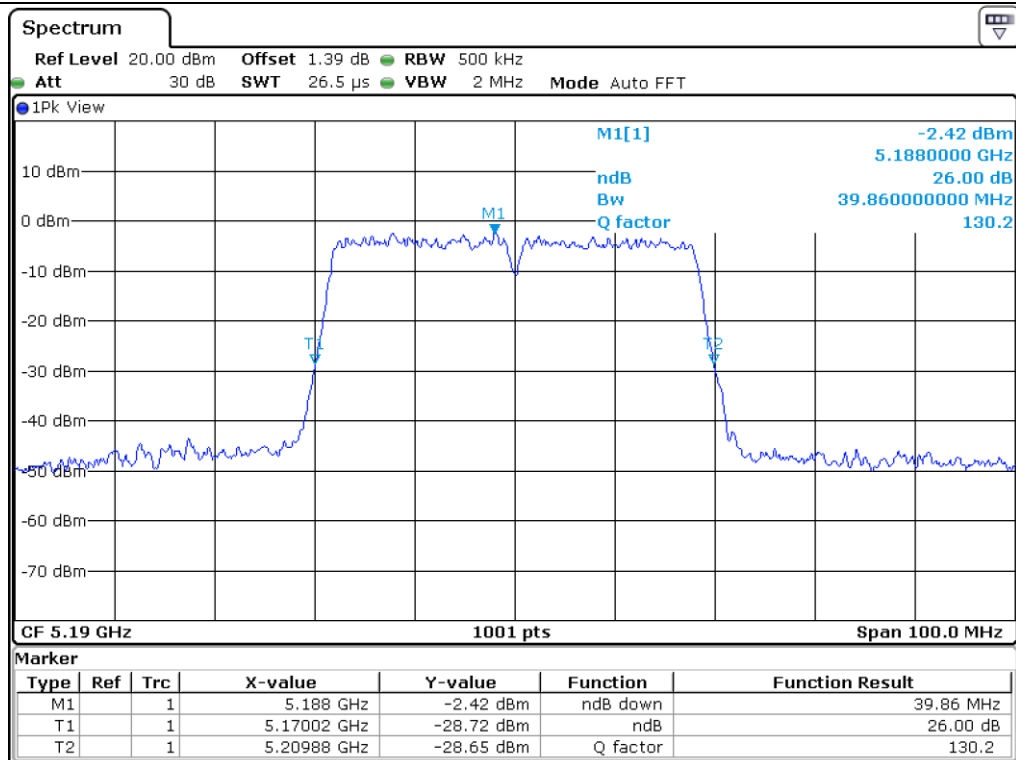
7.6 Test data for 802.11n_HT40 RLAN Mode

7.6.1 Test data for Antenna 0

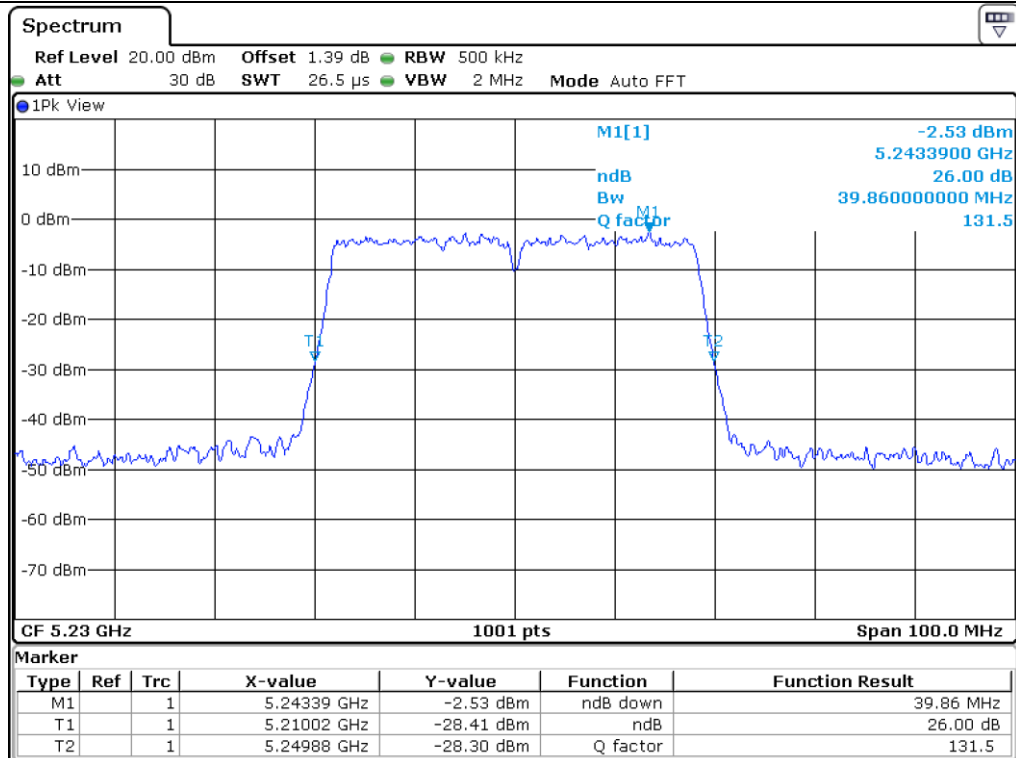
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5 190.00	39.86
	High	5 230.00	39.86
5 725 ~ 5 850	Low	5 755.00	40.06
	High	5 795.00	39.86

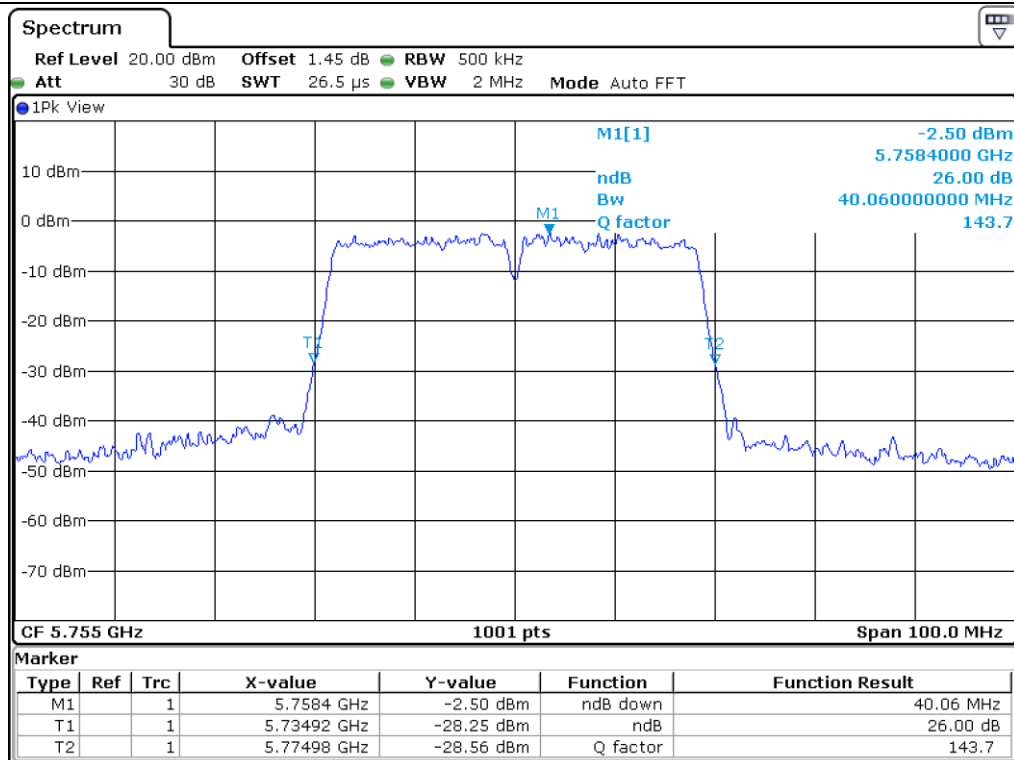
Remark: See next page for measurement data.



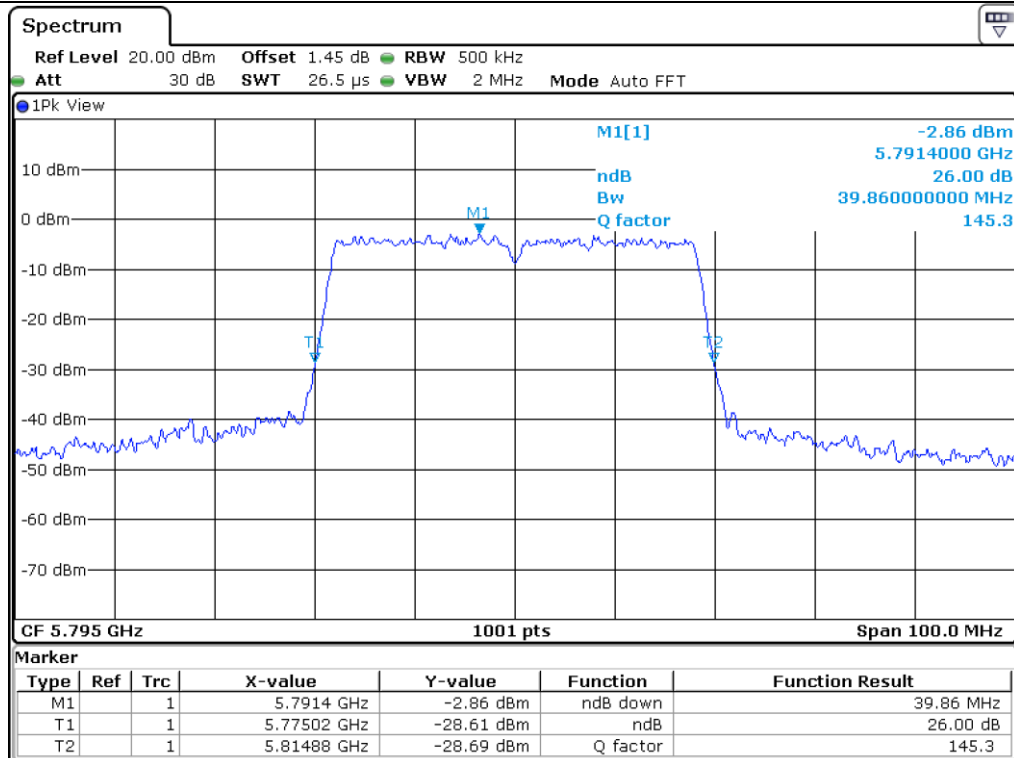
Low Channel (5 190 MHz)



High Channel (5 230 MHz)



Low Channel (5 755 MHz)



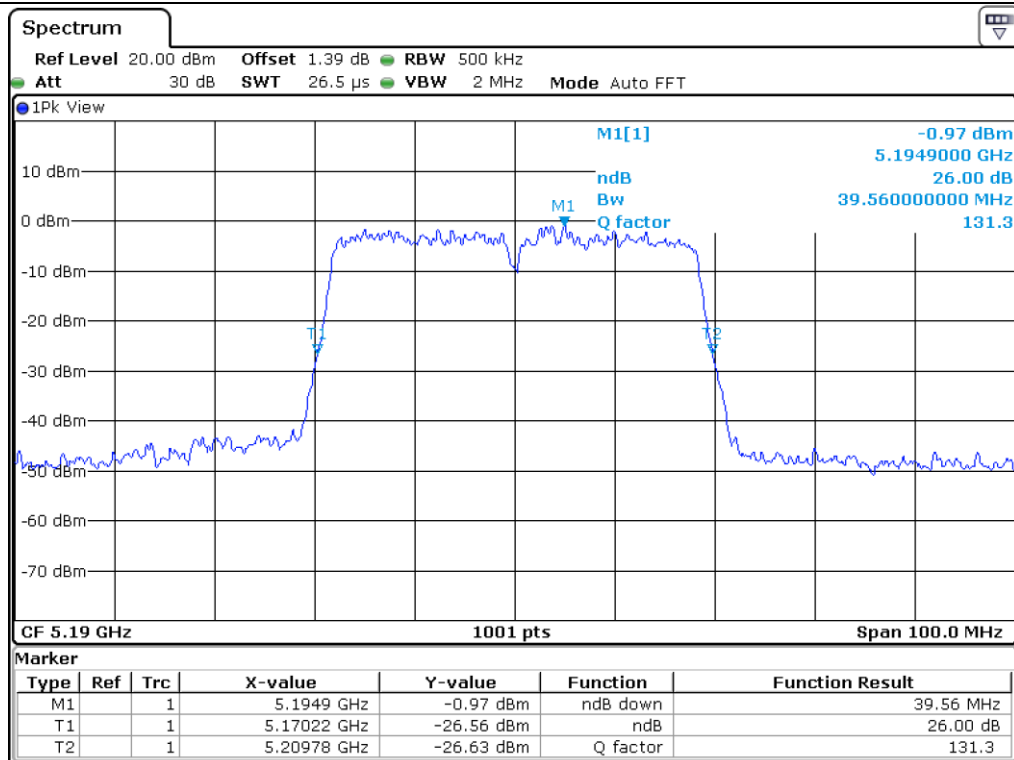
High Channel (5 795 MHz)

7.6.2 Test data for Antenna 1

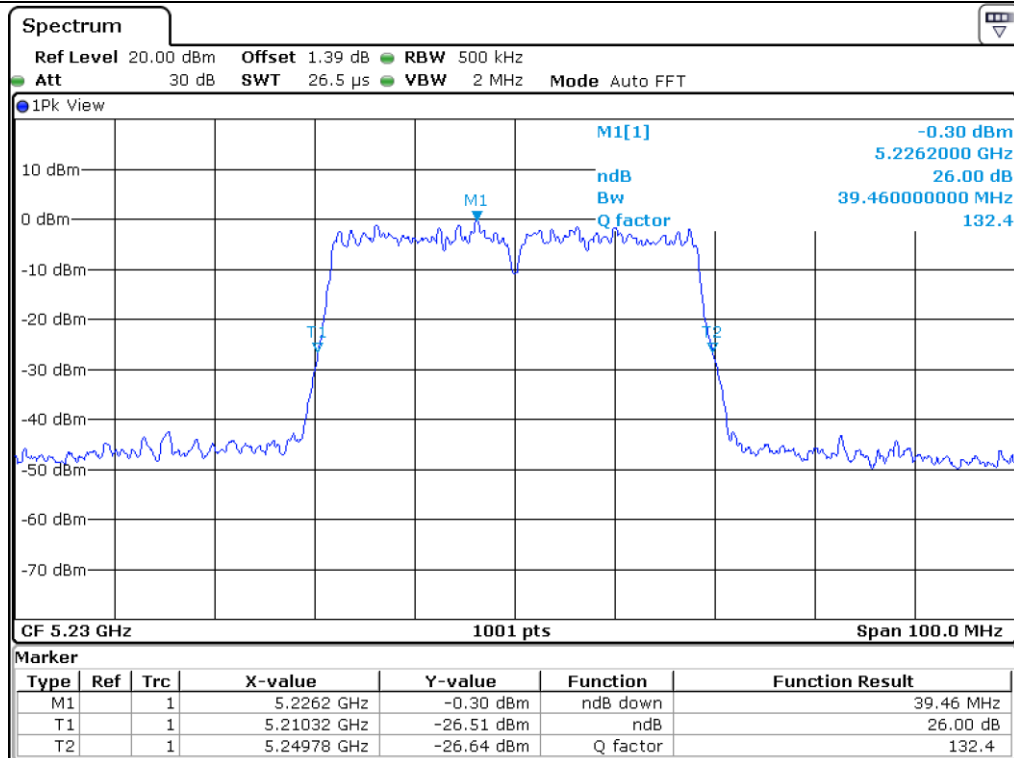
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Low	5 190.00	39.56
	High	5 230.00	39.46
5 725 ~ 5 850	Low	5 755.00	39.66
	High	5 795.00	39.56

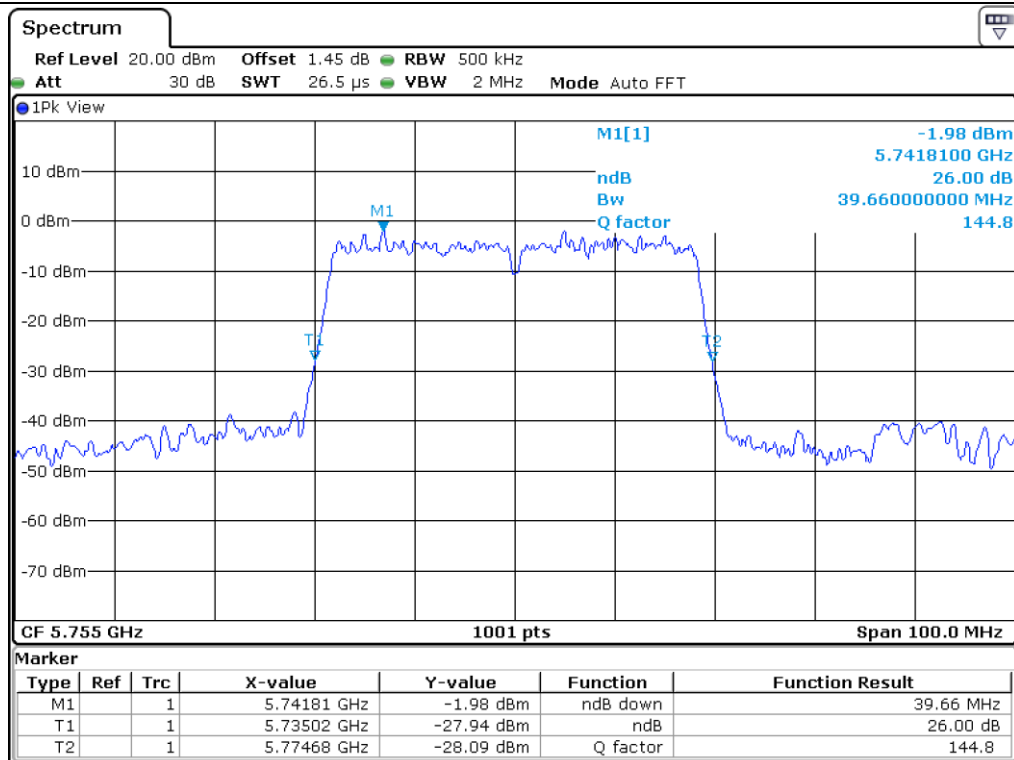
Remark: See next page for measurement data.



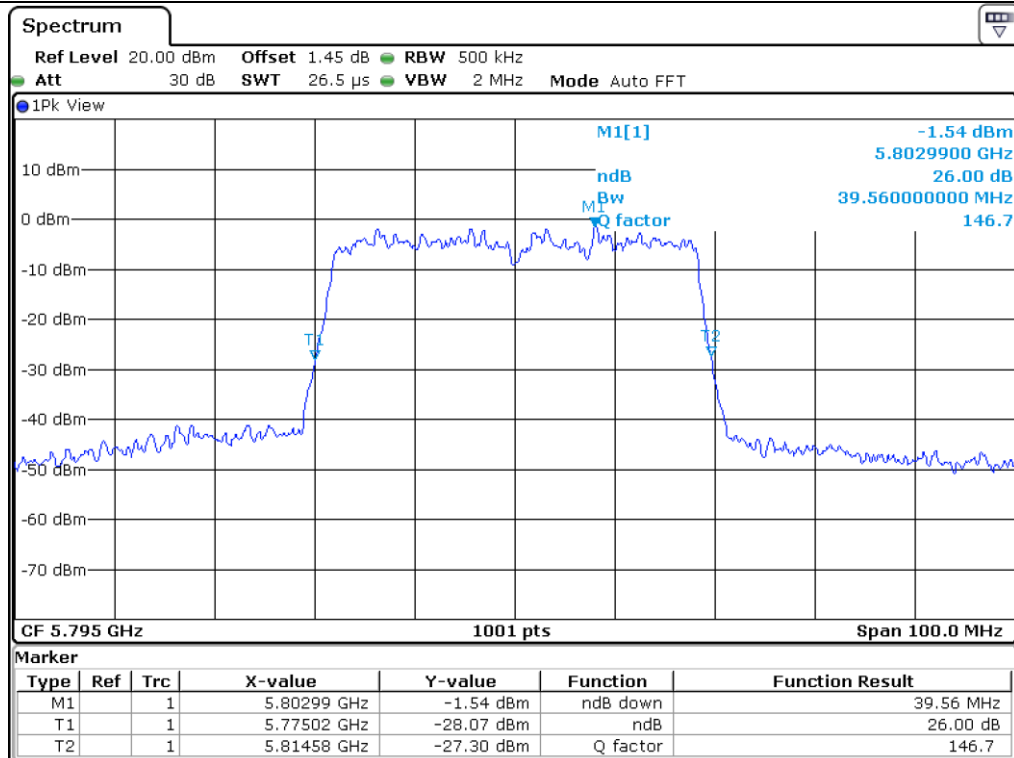
Low Channel (5 190 MHz)



High Channel (5 230 MHz)



Low Channel (5 755 MHz)



High Channel (5 795 MHz)

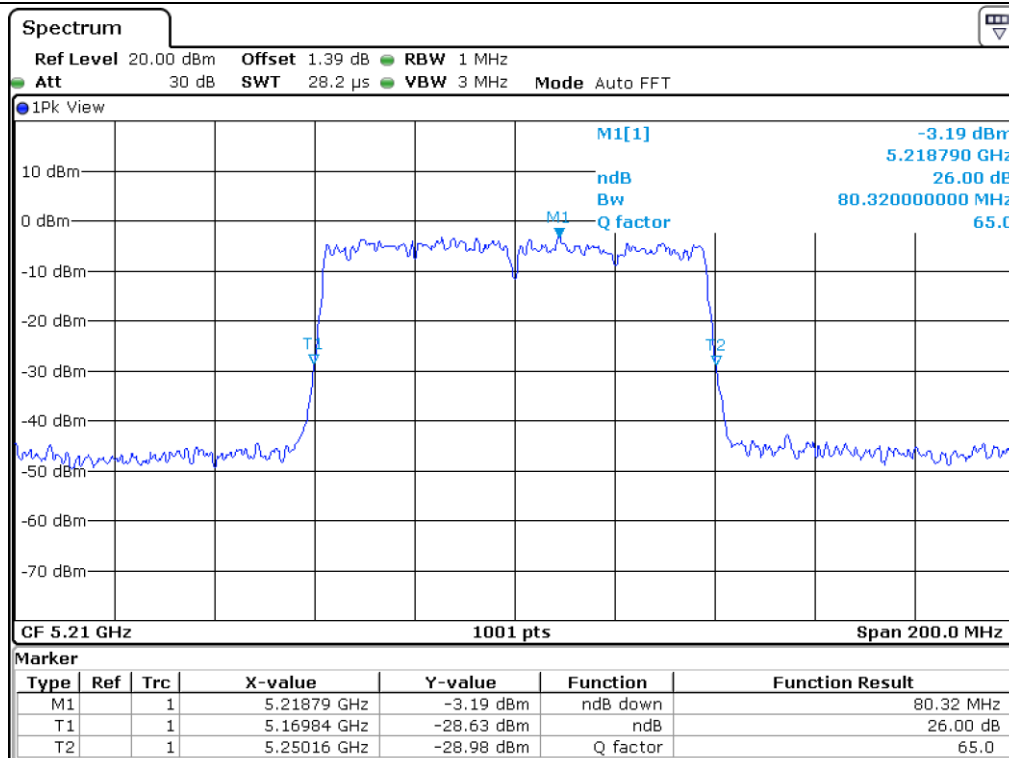
7.7 Test data for 802.11ac_VHT80 RLAN Mode

7.7.1 Test data for Antenna 0

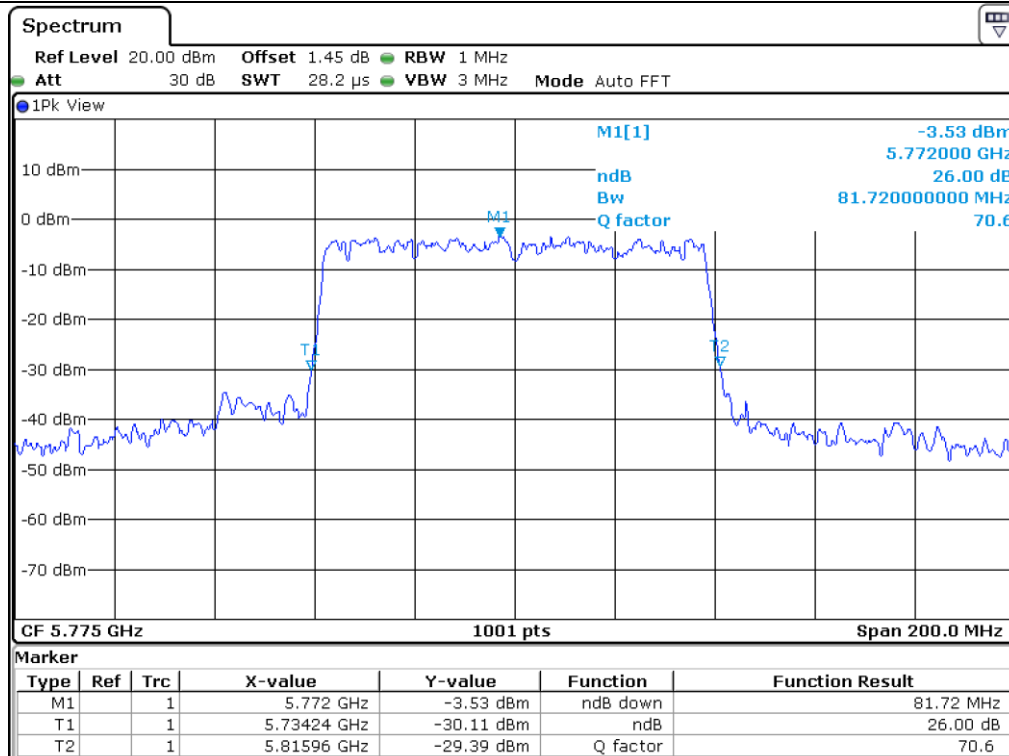
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Middle	5 210.00	80.32
5 725 ~ 5 850	Middle	5 775.00	81.72

Remark: See next page for measurement data.



Middle Channel (5 210 MHz)



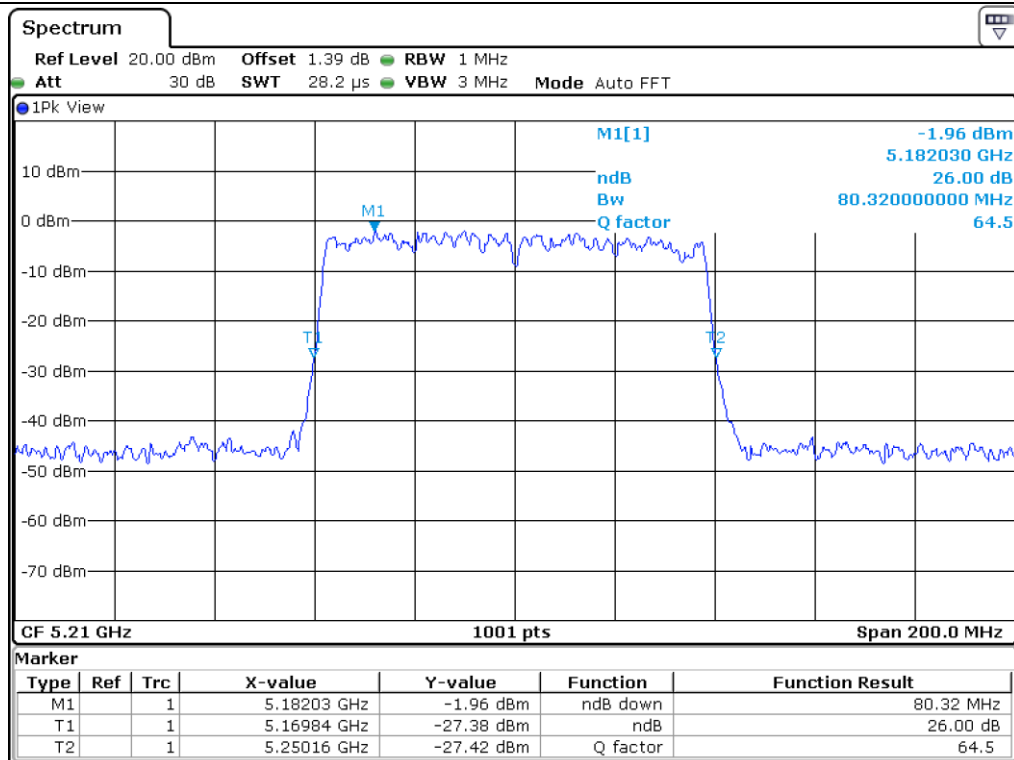
Middle Channel (5 775 MHz)

7.7.2 Test data for Antenna 1

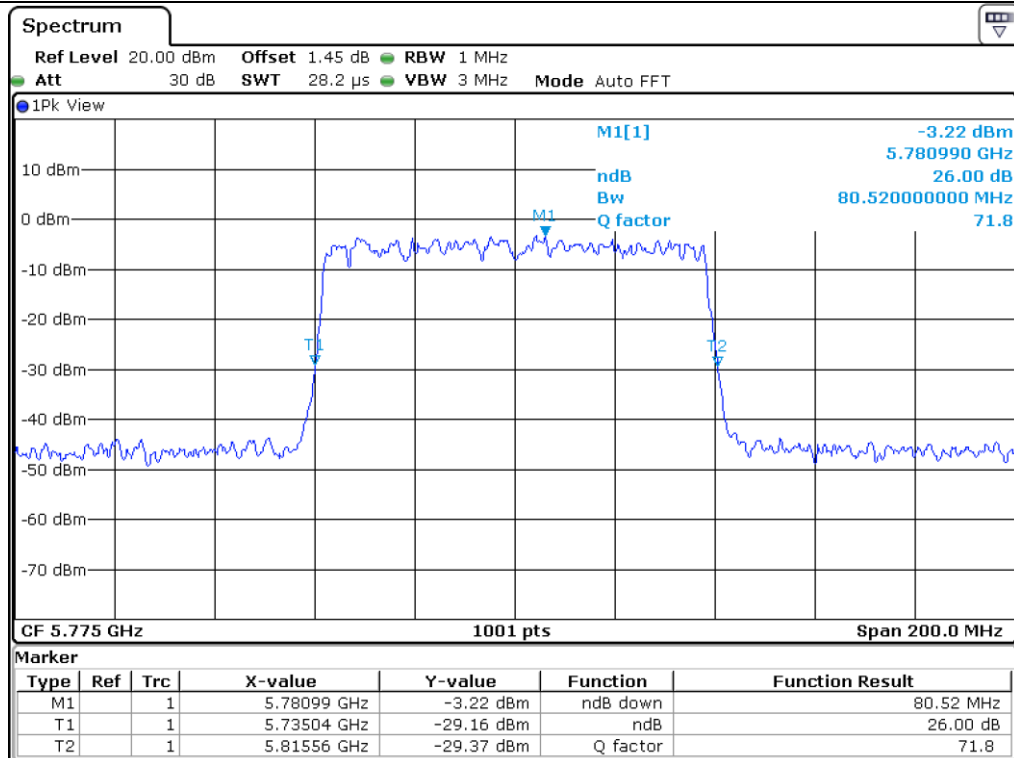
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	26 dB Bandwidth (MHz)
5 150 ~ 5 250	Middle	5 210.00	80.32
5 725 ~ 5 850	Middle	5 775.00	80.52

Remark: See next page for measurement data.



Middle Channel (5 210 MHz)



Middle Channel (5 775 MHz)

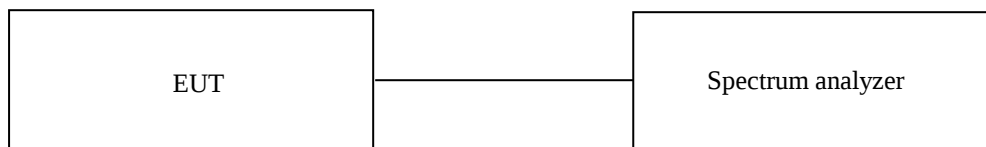
8. 6 dB BANDWIDTH

8.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

8.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.



8.3 Test Date

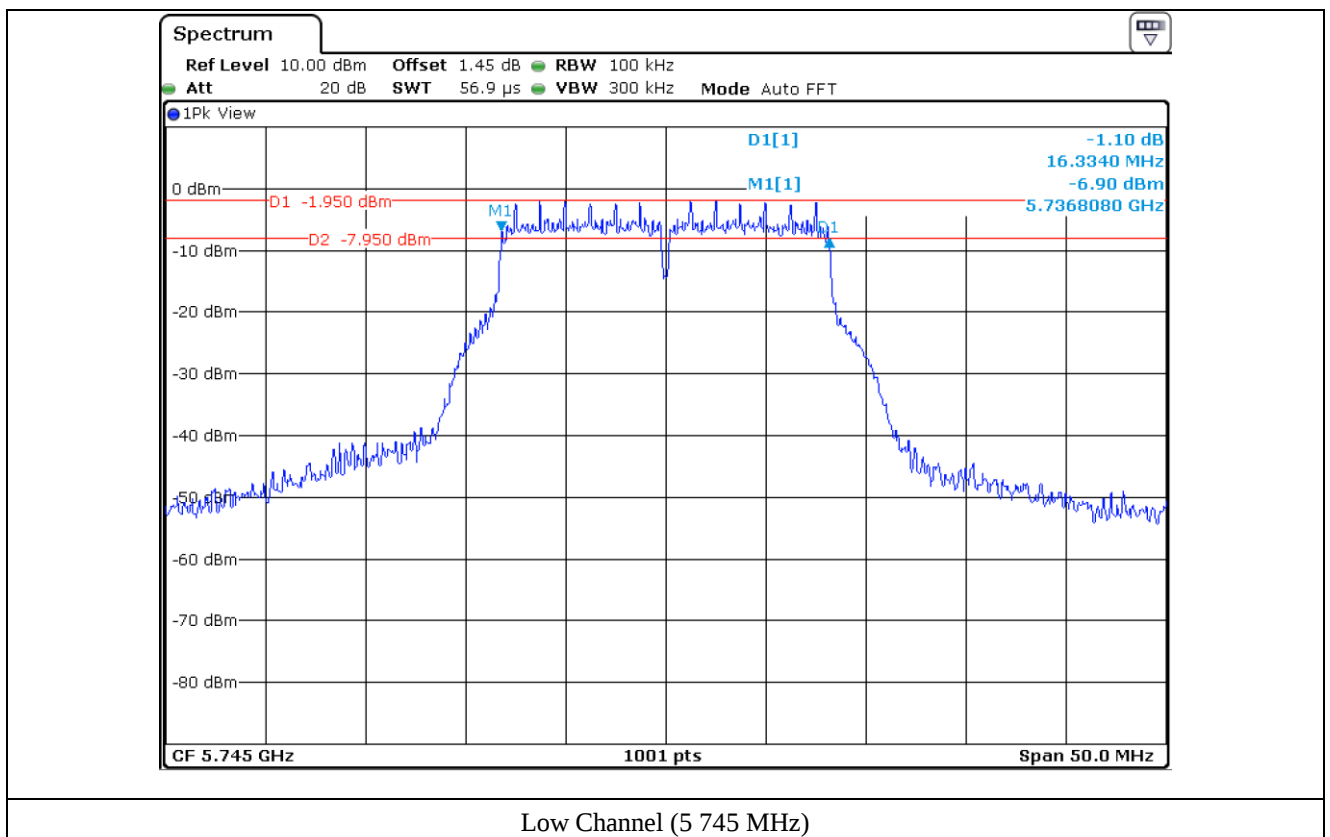
June 08, 2021 ~ June 22, 2021

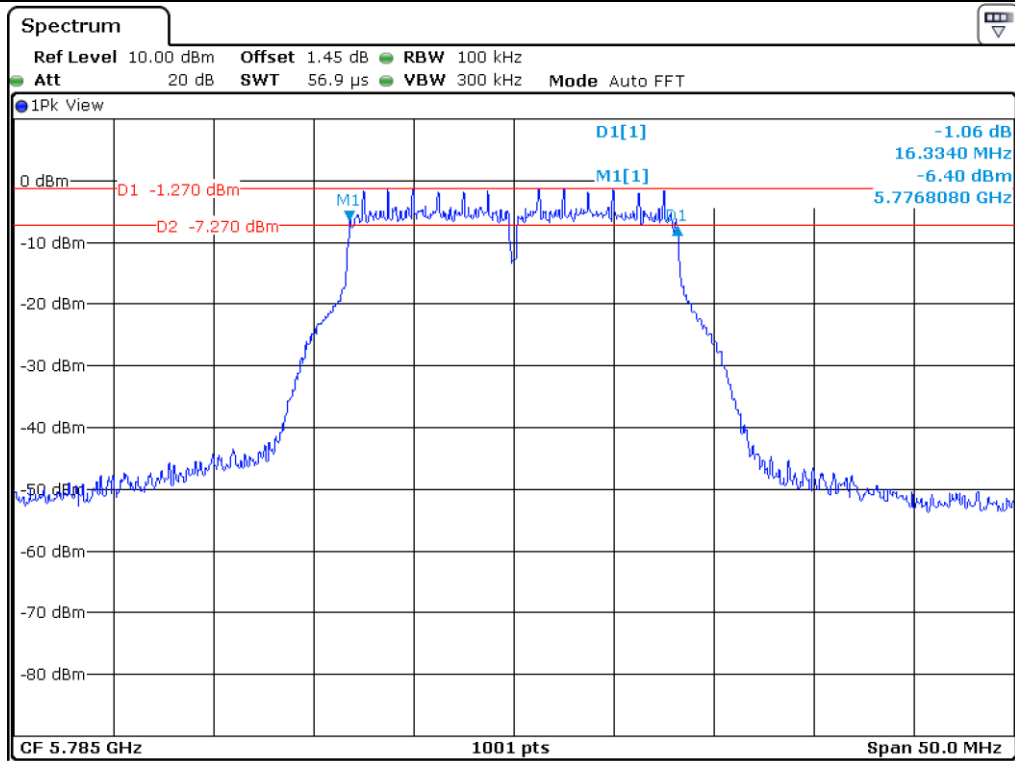
8.4 Test data for 802.11a RLAN Mode

8.4.1 Test data for Antenna 0

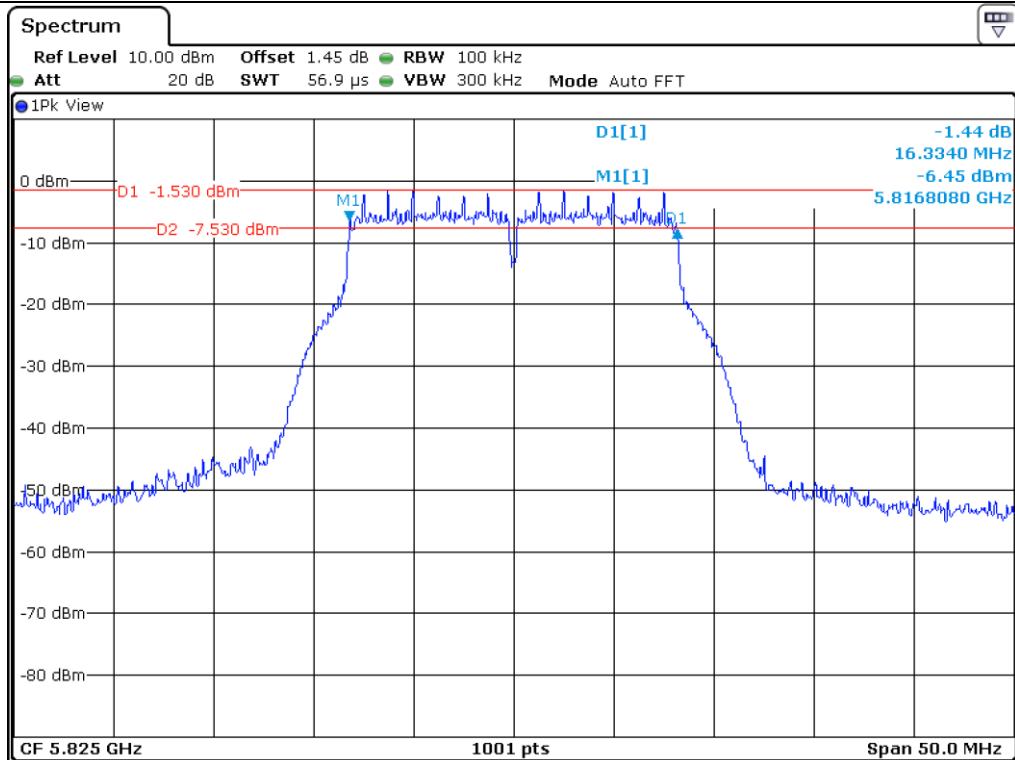
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Low	5 745.00	16.33
	Middle	5 785.00	16.33
	High	5 825.00	16.33





Middle Channel (5 785 MHz)

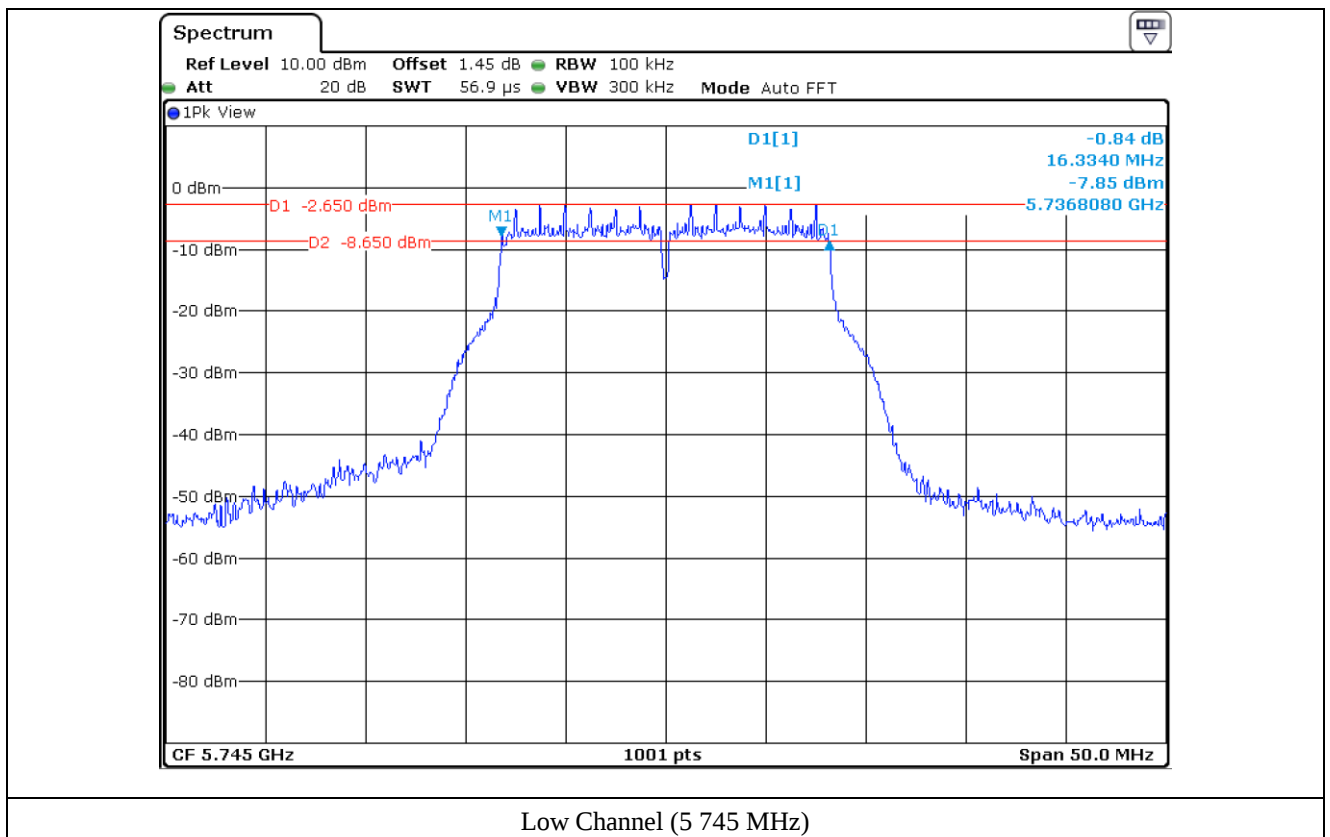


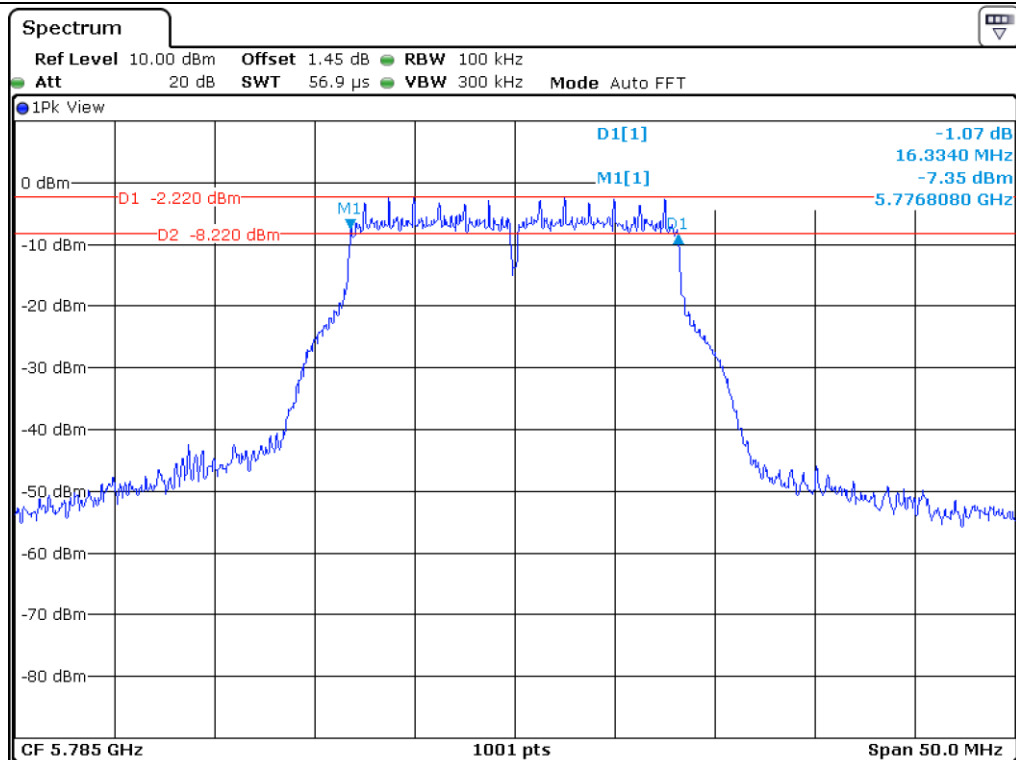
High Channel (5 825 MHz)

8.4.2 Test data for Antenna 1

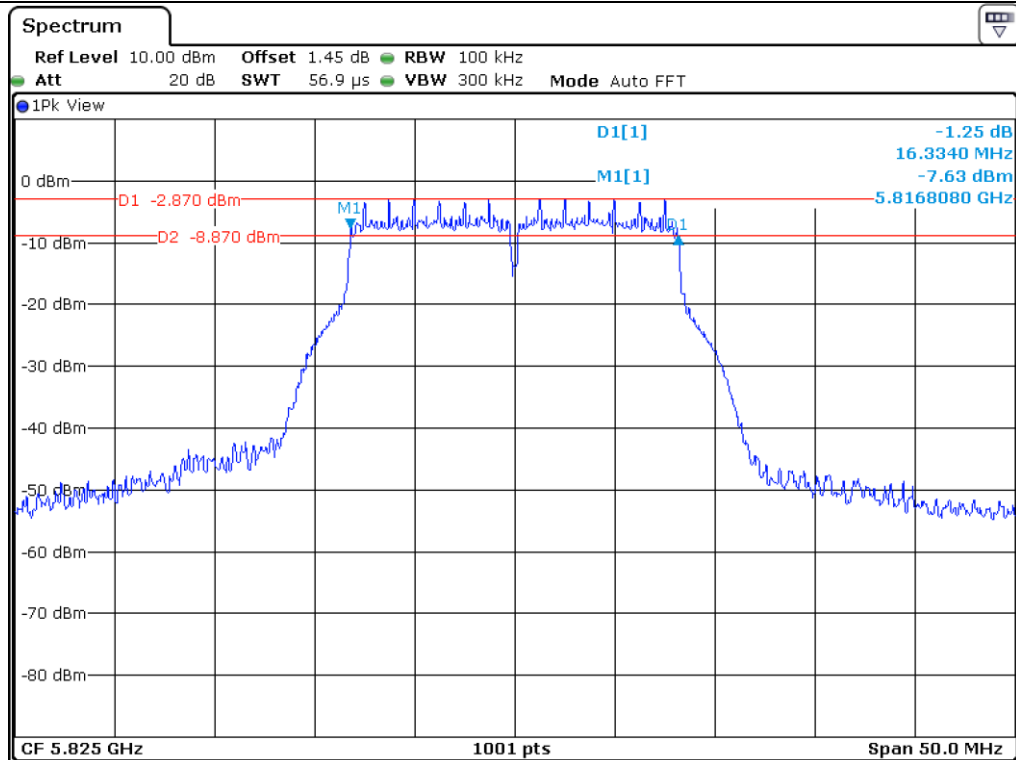
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Low	5 745.00	16.33
	Middle	5 785.00	16.33
	High	5 825.00	16.33





Middle Channel (5 785 MHz)



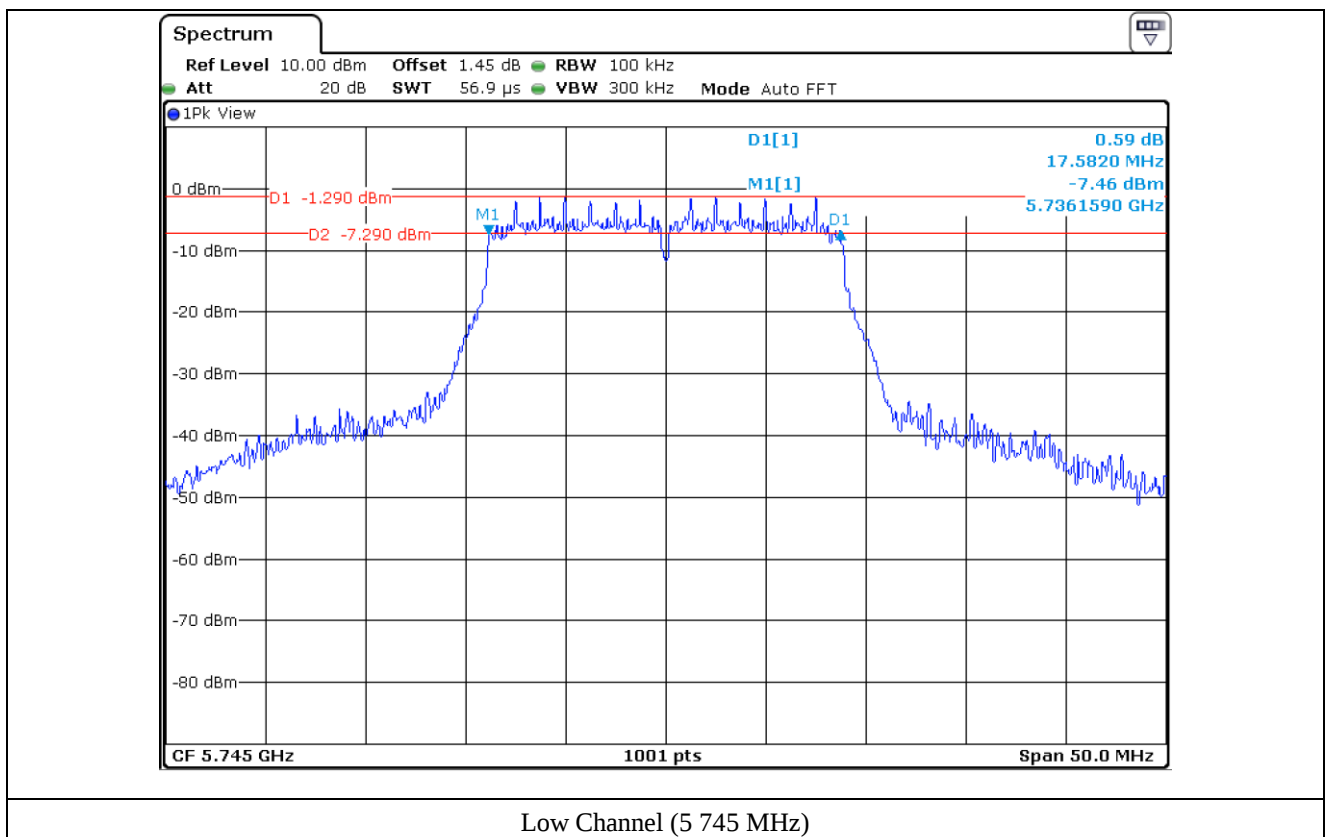
High Channel (5 825 MHz)

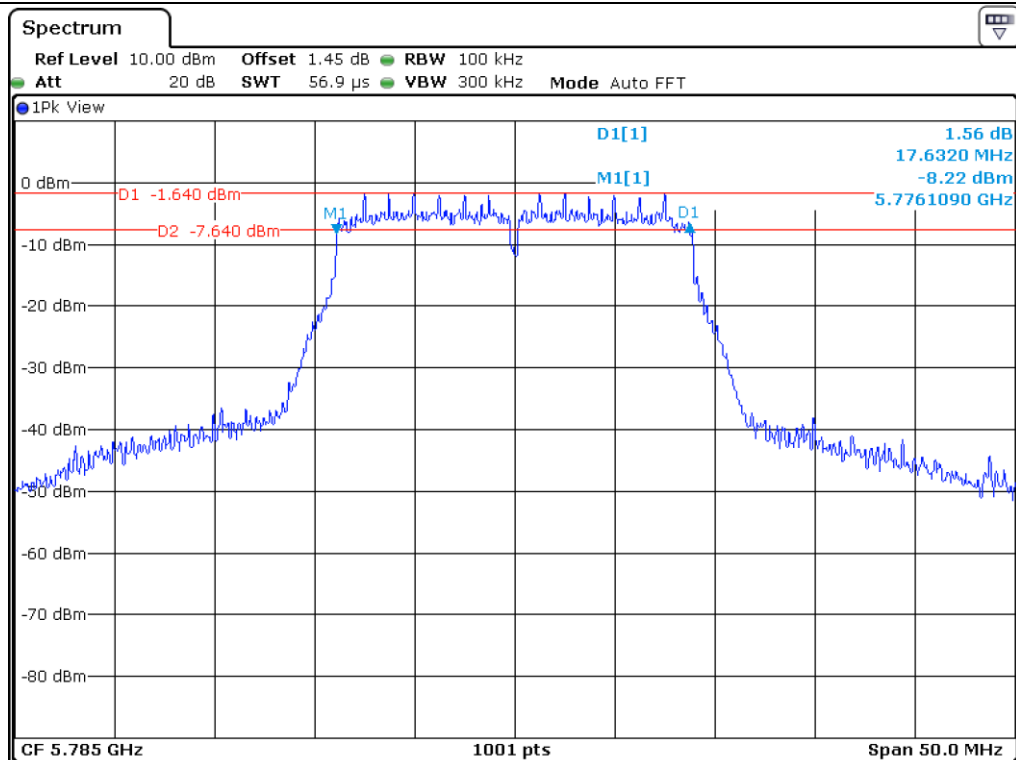
8.5 Test data for 802.11n_HT20 RLAN Mode

8.5.1 Test data for Antenna 0

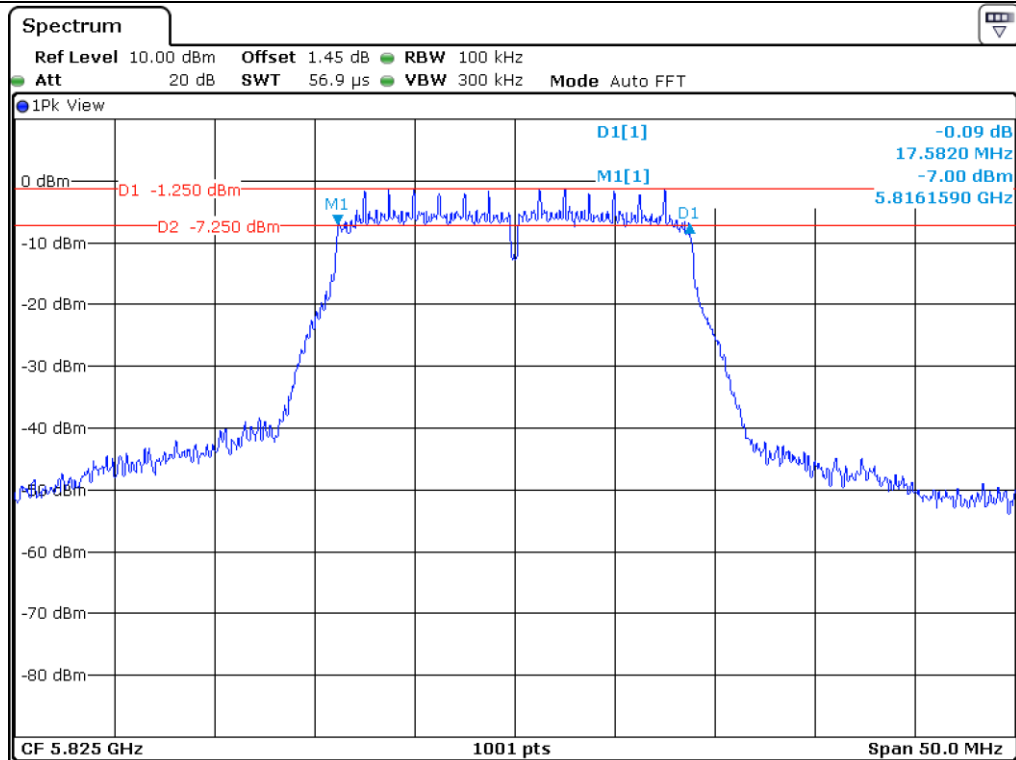
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Low	5 745.00	17.58
	Middle	5 785.00	17.63
	High	5 825.00	17.58





Middle Channel (5 785 MHz)

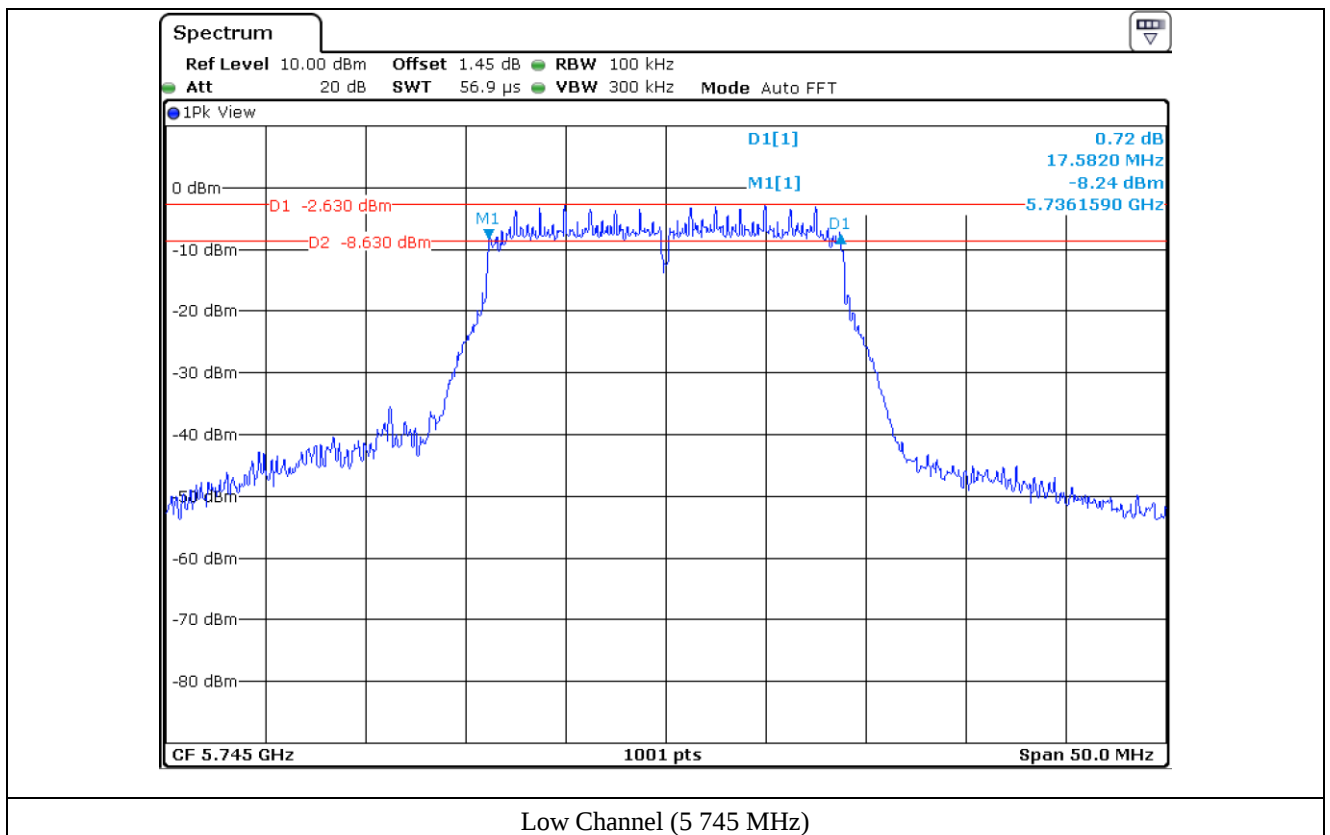


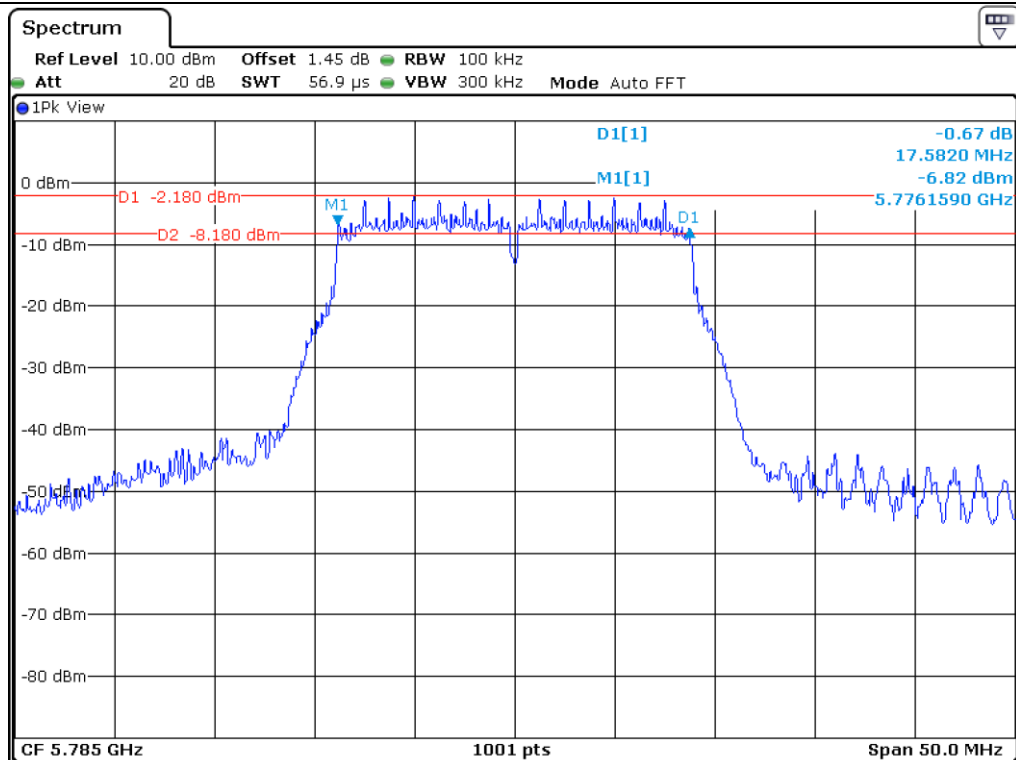
High Channel (5 825 MHz)

8.5.2 Test data for Antenna 1

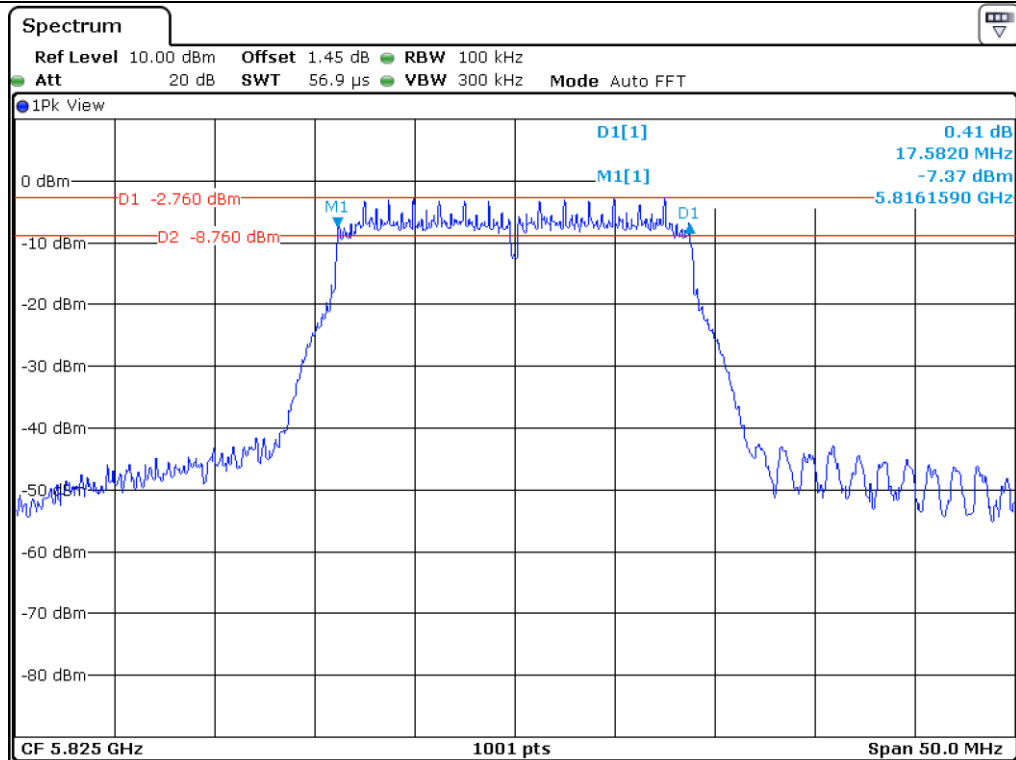
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Low	5 745.00	17.58
	Middle	5 785.00	17.58
	High	5 825.00	17.58





Middle Channel (5 785 MHz)



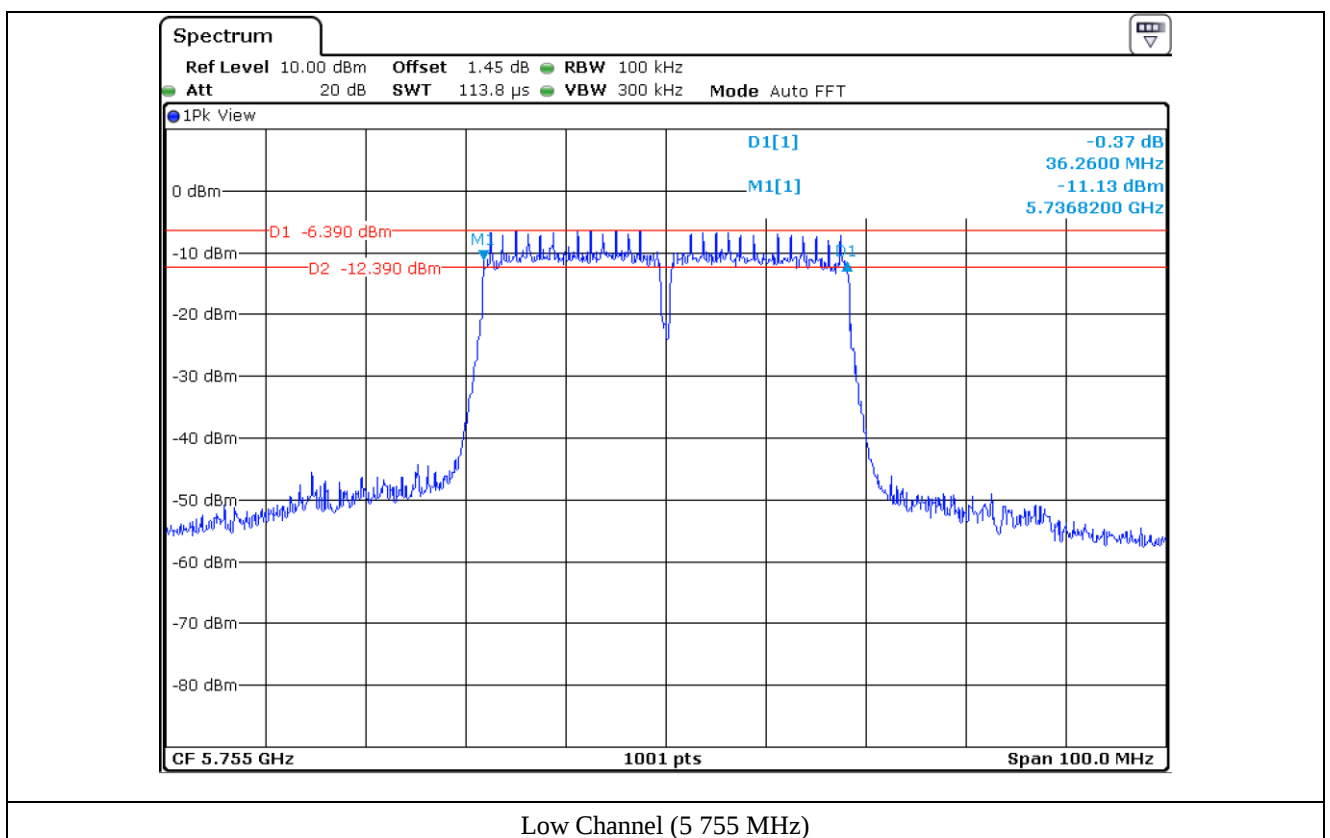
High Channel (5 825 MHz)

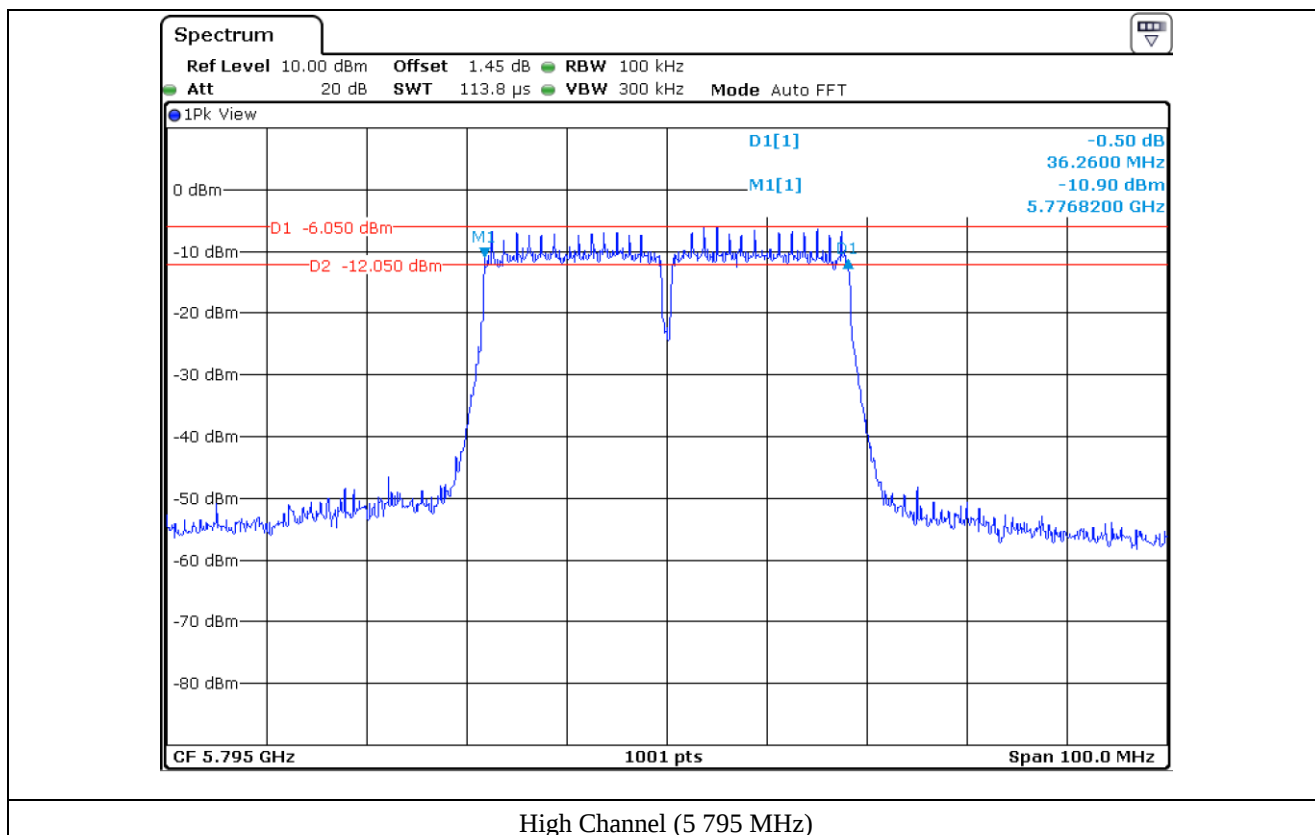
8.6 Test data for 802.11n_HT40 RLAN Mode

8.6.1 Test data for Antenna 0

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Low	5 755.00	36.26
	High	5 795.00	36.26

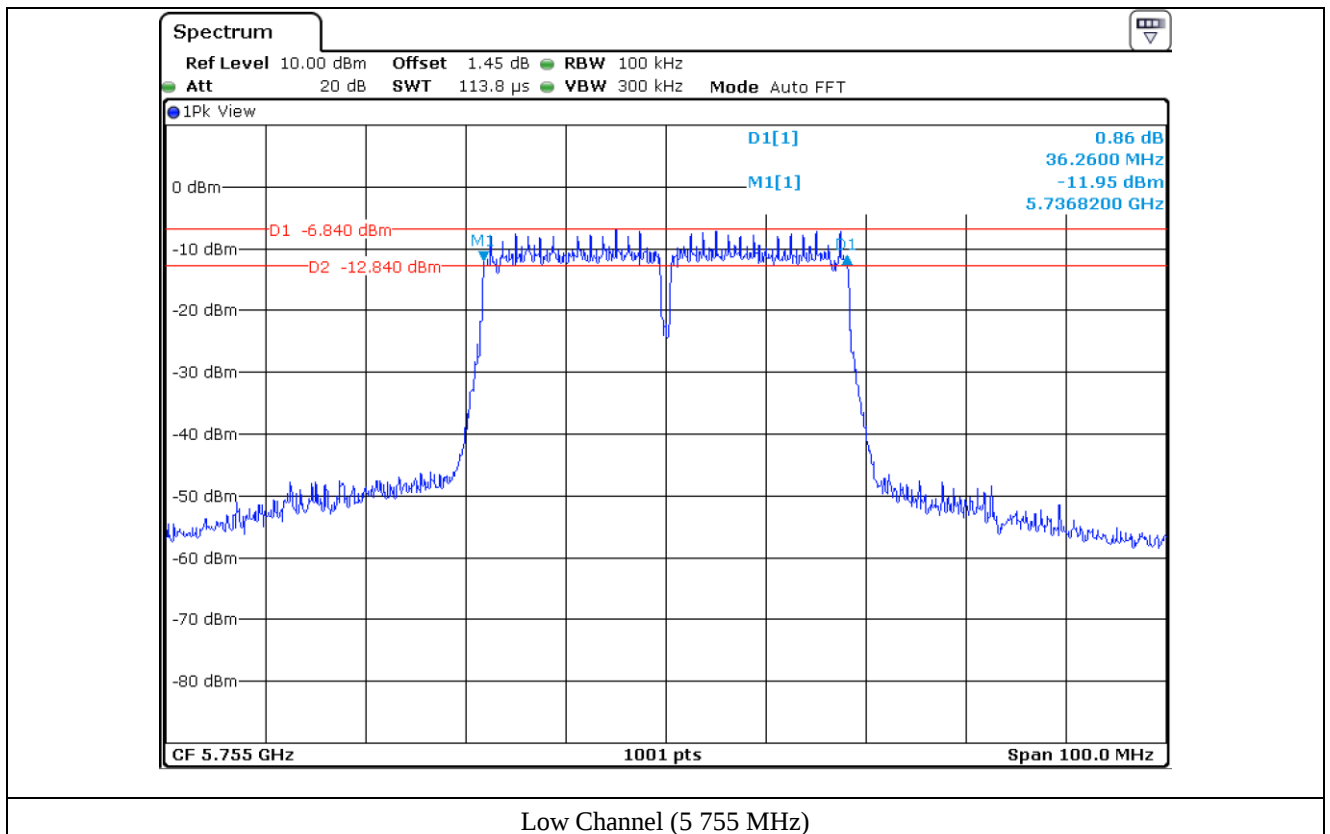


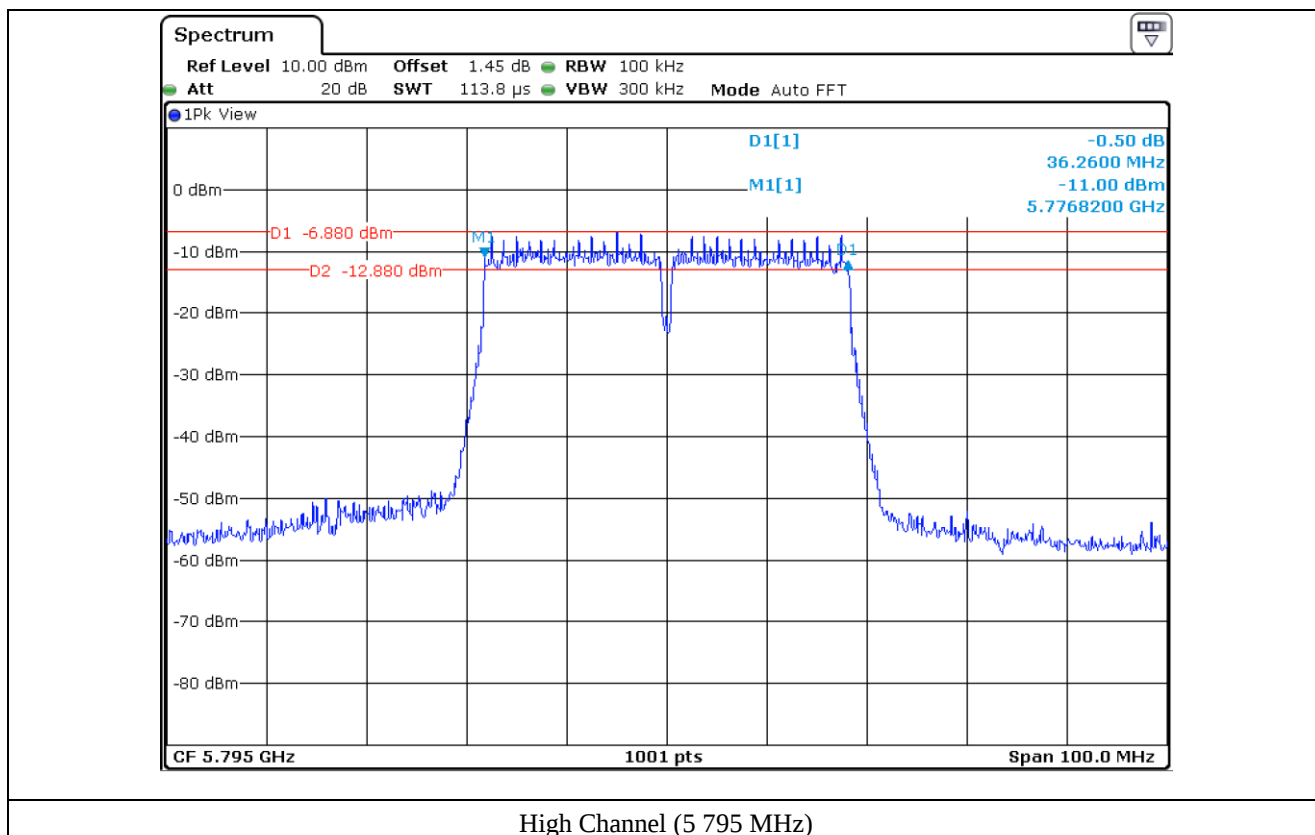


8.6.2 Test data for Antenna 1

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Low	5 755.00	36.26
	High	5 795.00	36.26



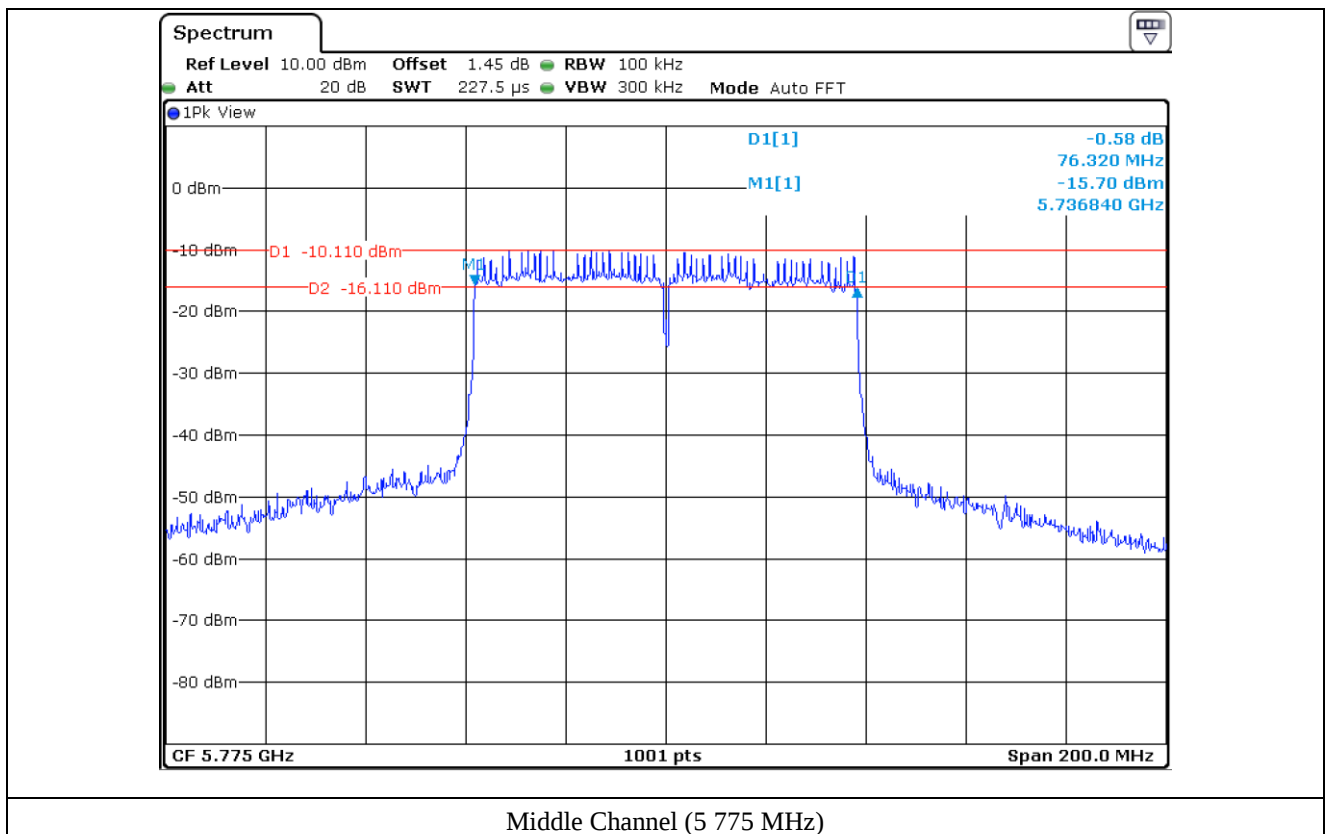


8.7 Test data for 802.11ac_VHT80 RLAN Mode

8.7.1 Test data for Antenna 0

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Middle	5 775.00	76.32



8.7.2 Test data for Antenna 1

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	6 dB Bandwidth (MHz)
5 725 ~ 5 850	Middle	5 775.00	76.32

