

FCC Test Report

Product Name	Speech Generating Device
Model No	TD I-110
FCC ID	2AAOV-TDI110

Applicant	Tobii Dynavox LLC
Address	2100 Wharton Street, Suite 400, Pittsburgh PA 15203 United States

Date of Receipt	Jul. 11, 2021
Issued Date	Oct. 29, 2021
Report No.	2170396R-RFUSWL5V01
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Report

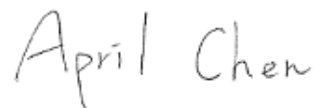
Issued Date: Oct. 29, 2021

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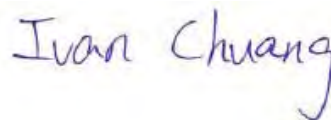
Product Name	Speech Generating Device
Applicant	Tobii Dynavox LLC
Address	2100 Wharton Street, Suite 400, Pittsburgh PA 15203 United States
Manufacturer	Onyx healthcare Inc
Model No.	TD I-110
FCC ID.	2AAOV-TDI110
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	Tobii Dynavox
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E ANSI C63.4: 2014, ANSI C63.10: 2013 KDB Publication 789033
Test Result	Complied

Documented By :



(Senior Project Specialist / April Chen)

Tested By :



(Senior Engineer / Ivan Chuang)

Approved By :



(Senior Engineer / Jack Hsu)

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Revision History

Report No.	Version	Description	Issued Date
2170396R-RFUSWL5V01	V1.0	Initial issue of report.	Oct. 29, 2021

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Speech Generating Device
Trade Name	Tobii Dynavox
FCC ID.	2AAOV-TDI110
Model No.	TD I-110
Frequency Range	802.11a/n-20MHz: 5180-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11n-40MHz: 5190-5310, 5510-5670MHz, 5755-5795MHz 802.11ac-20MHz: 5720, 802.11ac-40MHz: 5710 802.11ac-80MHz: 5210-5290MHz, 5530-5690MHz, 5775MHz
Number of Channels	802.11a/n-20MHz: 24; 802.11n-40MHz: 11 802.11ac-20MHz: 1, 802.11ac-40MHz: 1, 802.11ac-80MHz: 6
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 300Mbps 802.11ac-80MHz: up to 866.7Mbps
Channel Control	Auto
Type of Modulation	802.11a/n/ac: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna type	PIFA Antenna
Antenna Gain	Refer to the table "Antenna List"
Power Adapter	MFR: Adapter Technology, M/N: ATM036T-A150 Input: AC 100-240V~50-60Hz 0.45A Output: DC 15V==2.4A 36W Cable Out: Non-shielded, 1.5m Power Cord: Non-shielded, 0.9m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ARISTOTLE	RFA-25-AP379-70-175 (Main)	PIFA Antenna	3.5dBi for 5 GHz
2	ARISTOTLE	RFA-25-AP379-70B-95 (Aux)	PIFA Antenna	4.9dBi for 5 GHz

Note: The antenna of EUT is conforming to FCC 15.203.

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 120:	5600 MHz	Channel 124:	5620 MHz	Channel 128:	5640 MHz
Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 MHz	Channel 149:	5745 MHz
Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz	Channel 165:	5825 MHz

802.11n-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 54:	5270 MHz	Channel 62:	5310 MHz
Channel 102:	5510 MHz	Channel 110:	5550 MHz	Channel 118:	5590 MHz	Channel 126:	5630 MHz
Channel 134:	5670 MHz	Channel 151:	5755 MHz	Channel 159:	5795 MHz		

802.11ac-20MHz Center Working Frequency of Each Channel:

Channel	Frequency
Channel 144:	5720 MHz

802.11ac-40MHz Center Working Frequency of Each Channel:

Channel	Frequency
Channel 142:	5710 MHz

802.11ac-80MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 42:	5210 MHz	Channel 58:	5290 MHz	Channel 106:	5530 MHz	Channel 122:	5610 MHz
Channel 138:	5690 MHz	Channel 155:	5775 MHz				

Note:

1. This device is an Speech Generating Device with a built-in WLAN (802.11a/b/g/n/ac) with Bluetooth V5.0 、 V2.1+EDR transceiver, this report for 5GHz WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
4. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance of transmitter with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

Test Mode	Mode 1: Transmit (802.11a 6Mbps) Mode 2: Transmit (802.11n-20BW 7.2Mbps) Mode 3: Transmit (802.11n-40BW 15Mbps) Mode 4: Transmit (802.11ac-20BW 7.2Mbps) Mode 5: Transmit (802.11ac-40BW 15Mbps) Mode 6: Transmit (802.11ac-80BW 32.5Mbps)
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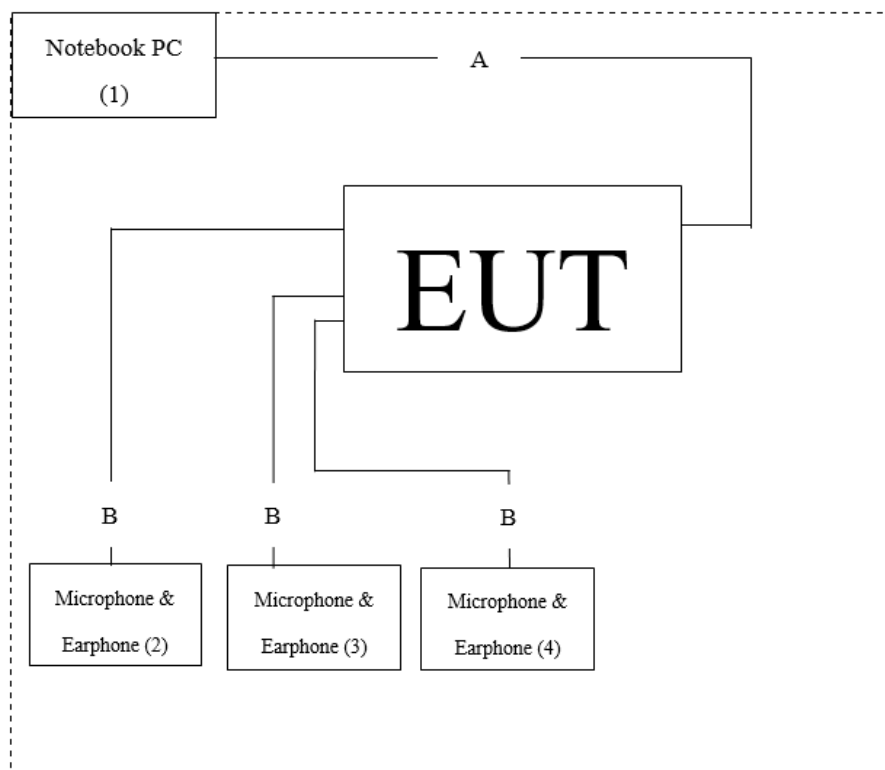
1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Notebook PC	ACER	N16Q2	N/A	N/A
2 Microphone & Earphone	Verbatim	C09024VB	N/A	N/A
3 Microphone & Earphone	Verbatim	C09024VB	N/A	N/A
4 Microphone & Earphone	Verbatim	C09024VB	N/A	N/A

Signal Cable Type	Signal cable Description
A USB Cable	Shielded, 1.8m
B Microphone & Earphone Cable	Non-shielded, 1.2m, three PCS.

1.3. Configuration of tested System



1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software "QRCT Version 4.0.00185.0" on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press "OK" to start the continuous Transmit.
5. Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10~40 °C	25.6°C
	Humidity (%RH)	10~90 %	56.7 %
Radiated Emission	Temperature (°C)	10~40 °C	24.6 °C
	Humidity (%RH)	10~90 %	59.5 %
Conductive	Temperature (°C)	10~40 °C	22 °C
	Humidity (%RH)	10~90 %	55 %

USA : FCC Registration Number: TW0033

Canada : IC Registration Number: 26930

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 5-22, Ruishukeng Linkou District, New Taipei City,
24451, Taiwan

Performed Location : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City
333411, Taiwan, R.O.C.

Phone number : +886-3-275-7255
Fax number : +866-3-327-8031
Email address : info.tw@dekra.com
Website : <http://www.dekra.com.tw>

1.6. List of Test Equipment

For Conduction measurements /SH1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	EMI Test Receiver	R&S	ESR7	101601	2021.06.19	2022.06.18
X	Two-Line V-Network	R&S	ENV216	101306	2021.04.08	2022.04.07
X	Two-Line V-Network	R&S	ENV216	101307	2021.05.04	2022.05.03
X	Coaxial Cable	DEKRA	RG400_BNC	RF001	2021.05.24	2022.05.23

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Testing System V2.0

For Conducted measurements /SH2

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103466	2020.12.28	2021.12.27
X	Peak Power Analyzer	KEYSIGHT	8900B	MY51000539	2021.06.07	2022.06.06
X	Power Sensor	KEYSIGHT	N1923A	MY59240002	2021.05.17	2022.05.16
X	Power Sensor	KEYSIGHT	N1923A	MY59240003	2021.05.17	2022.05.16

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V9.0.5.

For Radiated measurements /966-1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	AMETEK	HLA6121	56736	2021.04.14	2022.04.13
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-678	2021.01.29	2022.01.28
X	Horn Antenna	ETS-Lindgren	3117	00203761	2020.11.23	2021.11.22
X	Horn Antenna	Com-Power	AH-840	101087	2021.06.18	2022.06.17
X	Pre-Amplifier	EMCI	EMC001330	980302	2021.07.26	2022.07.25
X	Pre-Amplifier	EMCI	EMC051835SE	980312	2021.02.24	2022.02.23
X	Pre-Amplifier	EMCI	EMC05820SE	980308	2021.09.23	2022.09.22
X	Pre-Amplifier	EMCI	EMC184045SE	980369	2021.04.27	2022.04.26
	Filter	MICRO TRONICS	BRM50702	G251	2021.09.16	2022.09.15
X	Filter	MICRO TRONICS	BRM50716	G188	2021.09.16	2022.09.15
X	EMI Test Receiver	R&S	ESR	102792	2020.12.15	2021.12.14
X	Spectrum Analyzer	R&S	FSV3044	101113	2021.02.04	2022.02.03
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3380/2	2021.08.30	2022.08.29
X	Coaxial Cable	SGH, EMCI, SUHNER	HA800 , SGH18, SUCOFLEX 106, EMC106	HY2108-003C	2021.03.03	2022.03.02

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : AUDIX e3 V9

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.

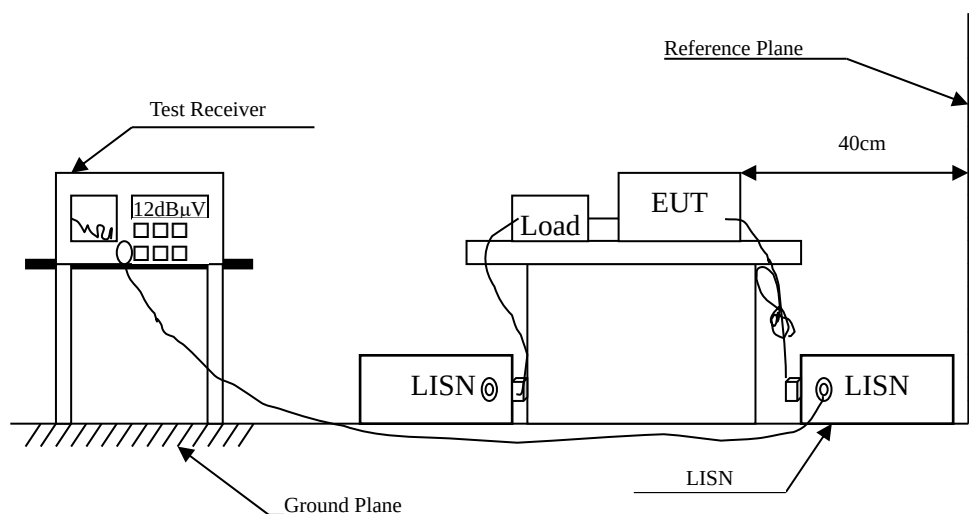
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	Uncertainty	
Conducted Emission	± 3.42 dB	
Maximun conducted output power	Power Meter ± 0.91 dB	Spectrum Analyzer ± 2.53 dB
Peak Power Spectral Density	± 2.53 dB	
Radiated Emission	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
Band Edge	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
Occupied Bandwidth	± 682.83 Hz	
Duty Cycle	± 2.31 ms	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dB μ V) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

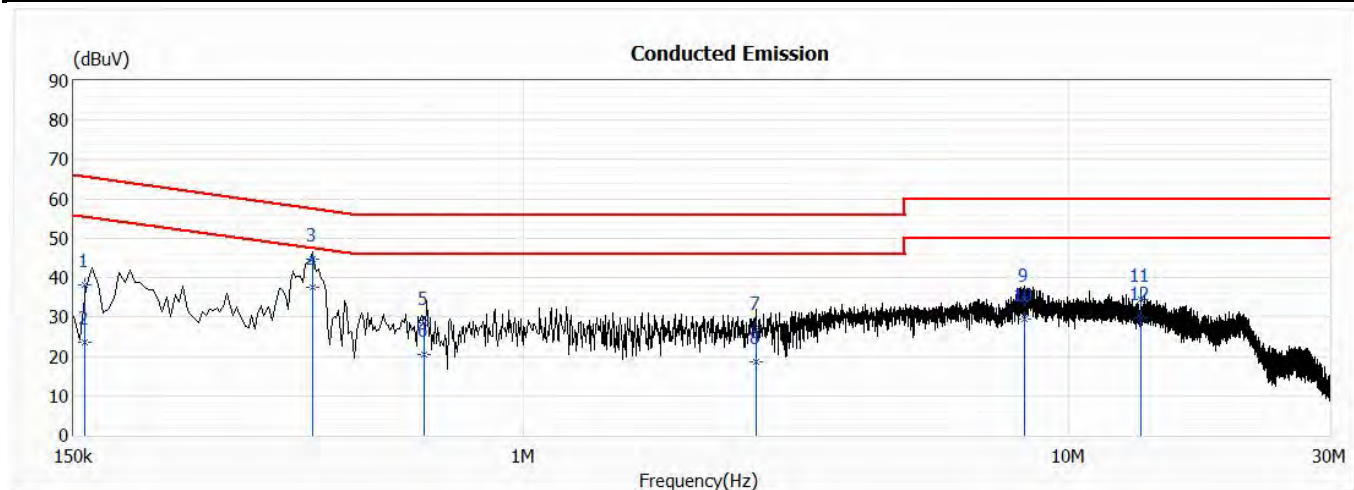
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Test Result of Conducted Emission

Model No	TD I-110	Site	SH1
Test Voltage	AC 120V/60Hz	Test Date	2021/9/28
Test Mode	Mode 1: Transmit	Engineer	Gerry Juang
Phase	L1	Temperature (°C)	25.6
Test Condition	--	Humidity (%RH)	56.7

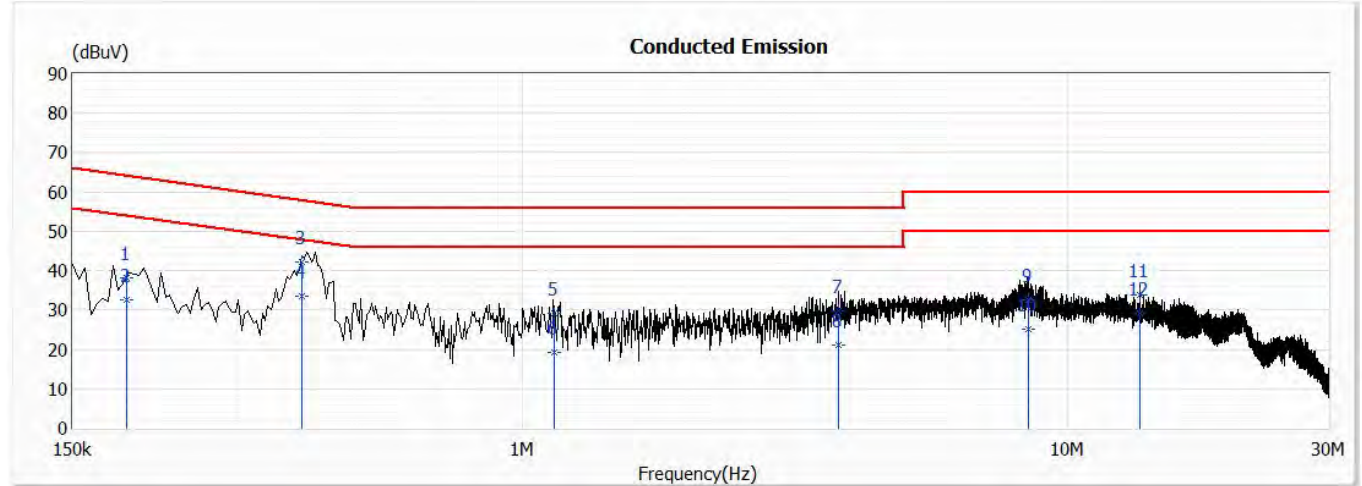


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.157	38.19	65.60	-27.41	28.49	9.70	QP
2	0.157	23.59	55.60	-32.01	13.89	9.70	AV
3	0.411	44.61	57.64	-13.03	34.91	9.70	QP
*4	0.411	37.43	47.64	-10.21	27.73	9.70	AV
5	0.656	28.61	56.00	-27.39	18.90	9.71	QP
6	0.656	20.58	46.00	-25.42	10.87	9.71	AV
7	2.674	27.39	56.00	-28.61	17.34	10.05	QP
8	2.674	18.55	46.00	-27.45	8.50	10.05	AV
9	8.270	34.39	60.00	-25.61	23.56	10.83	QP
10	8.270	29.38	50.00	-20.62	18.55	10.83	AV
11	13.562	34.54	60.00	-25.46	23.70	10.84	QP
12	13.562	29.92	50.00	-20.08	19.08	10.84	AV

Note:

1. “*” means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor.
3. Margin = Emission Level – Limit.
4. Correct Factor = LISN insertion loss + Cable loss.

Model No	TD I-110	Site	SH1
Test Voltage	AC 120V/60Hz	Test Date	2021/9/28
Test Mode	Mode 1: Transmit	Engineer	Gerry Juang
Phase	N	Temperature (°C)	25.6
Test Condition	--	Humidity (%RH)	56.7



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.188	38.29	64.12	-25.83	28.58	9.71	QP
2	0.188	32.59	54.12	-21.53	22.88	9.71	AV
3	0.394	42.19	57.98	-15.79	32.48	9.71	QP
*4	0.394	33.63	47.98	-14.35	23.92	9.71	AV
5	1.146	29.12	56.00	-26.88	19.37	9.75	QP
6	1.146	19.38	46.00	-26.62	9.63	9.75	AV
7	3.797	29.68	56.00	-26.32	19.23	10.45	QP
8	3.797	21.13	46.00	-24.87	10.68	10.45	AV
9	8.451	32.73	60.00	-27.27	21.89	10.84	QP
10	8.451	25.08	50.00	-24.92	14.24	10.84	AV
11	13.562	33.75	60.00	-26.25	22.87	10.88	QP
12	13.562	29.06	50.00	-20.94	18.18	10.88	AV

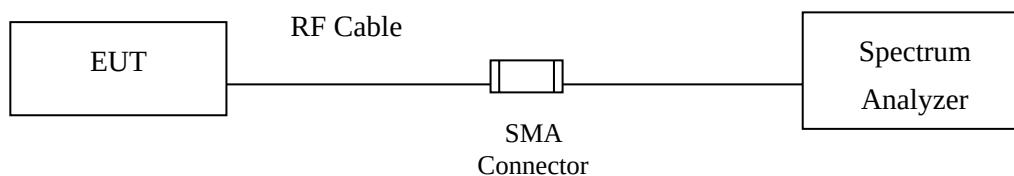
Note:

1. “ * “ means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor.
3. Margin = Emission Level – Limit.
4. Correct Factor = LISN insertion loss + Cable loss.

3. Maximun conducted output power

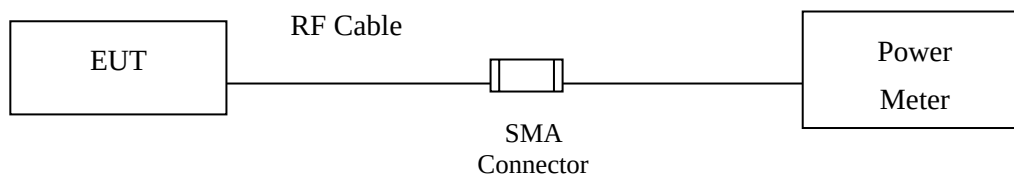
3.1. Test Setup

99% Occupied Bandwidth

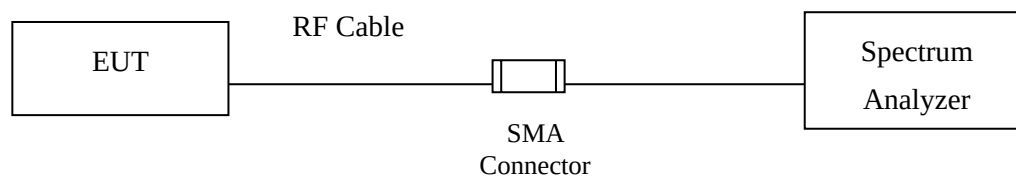


Conduction Power Measurement

Conduction Power Measurement (for 802.11an)



Conduction Power Measurement (for 802.11ac)



3.2. Limits

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 99% emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.3. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater the 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an ($BW \leq 40\text{MHz}$) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac ($BW=80\text{MHz}$) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D03 section D) procedure is used for measurements.

3.4. Test Result of Maximum conducted output power

Product : Speech Generating Device
 Test Item : Maximum conducted output power
 Test Mode : Mode 1: Transmit (802.11a 6Mbps)
 Test Date : 2021/08/19

Chain A

Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
36	5180	13.38	--	--	--	--	--	--	--
44	5220	13.54	13.48	13.45	13.41	13.37	13.31	13.28	13.25
48	5240	13.45	--	--	--	--	--	--	--
52	5260	13.41	--	--	--	--	--	--	--
60	5300	13.48	13.42	13.37	13.32	13.28	13.22	13.15	13.10
64	5320	13.65	--	--	--	--	--	--	--
100	5500	13.45	--	--	--	--	--	--	--
116	5580	13.61	13.55	13.51	13.47	13.42	13.37	13.30	13.25
140	5700	13.38	--	--	--	--	--	--	--
149	5745	4.32	--	--	--	--	--	--	--
157	5785	4.56	4.52	4.47	4.41	4.36	4.31	4.26	4.23
165	5825	4.36	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Chain B

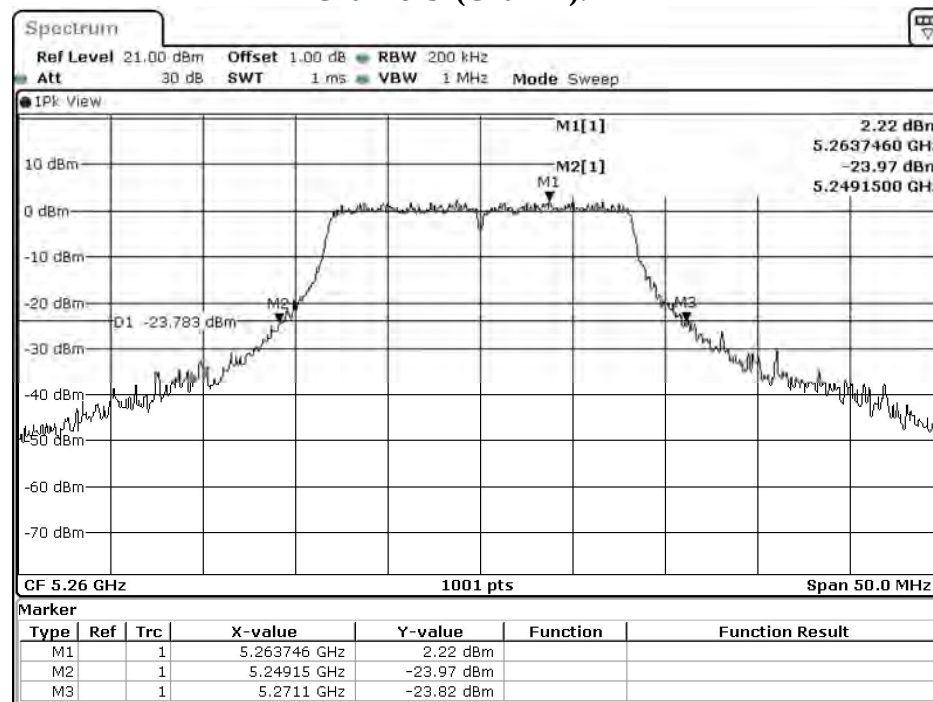
Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
36	5180	12.28	--	--	--	--	--	--	--
44	5220	12.45	12.40	12.35	12.29	12.25	12.20	12.14	12.09
48	5240	12.55	--	--	--	--	--	--	--
52	5260	12.58	--	--	--	--	--	--	--
60	5300	12.62	12.57	12.51	12.46	12.39	12.36	12.31	12.28
64	5320	12.67	--	--	--	--	--	--	--
100	5500	11.49	--	--	--	--	--	--	--
116	5580	12.71	12.67	12.63	12.59	12.54	12.50	12.44	12.41
140	5700	13.85	--	--	--	--	--	--	--
149	5745	4.61	--	--	--	--	--	--	--
157	5785	4.67	4.62	4.58	4.52	4.47	4.43	4.39	4.33
165	5825	4.77	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power Measurement:

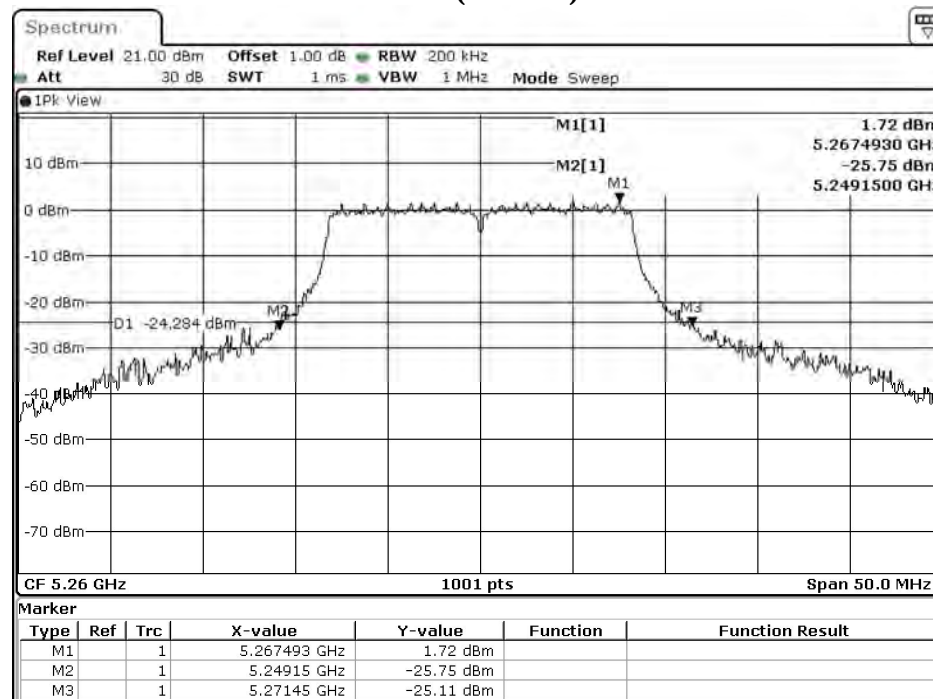
Channel No	Frequency Range	26dB Bandwidth	Chain A Power	Chain B Power	Output Power	Duty factor	Output Power Limit	
	(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dB)	(dBm)	dBm+10log(BW)
36	5180	--	13.38	12.28	15.88	--	24	--
44	5220	--	13.54	12.45	16.04	--	24	--
48	5240	--	13.45	12.55	16.03	--	24	--
52	5260	21.95	13.41	12.58	16.03	--	24	24.41
60	5300	21.70	13.48	12.62	16.08	--	24	24.36
64	5320	21.90	13.65	12.67	16.20	--	24	24.40
100	5500	21.55	13.45	11.49	15.59	--	24	24.33
116	5580	22.45	13.61	12.71	16.19	--	24	24.51
140	5700	21.70	13.38	13.85	16.63	--	24	24.36
149	5745	--	4.32	4.61	7.48	--	30	--
157	5785	--	4.56	4.67	7.63	--	30	--
165	5825	--	4.36	4.77	7.58	--	30	--

26dB Occupied Bandwidth: Channel 52(Chain A):

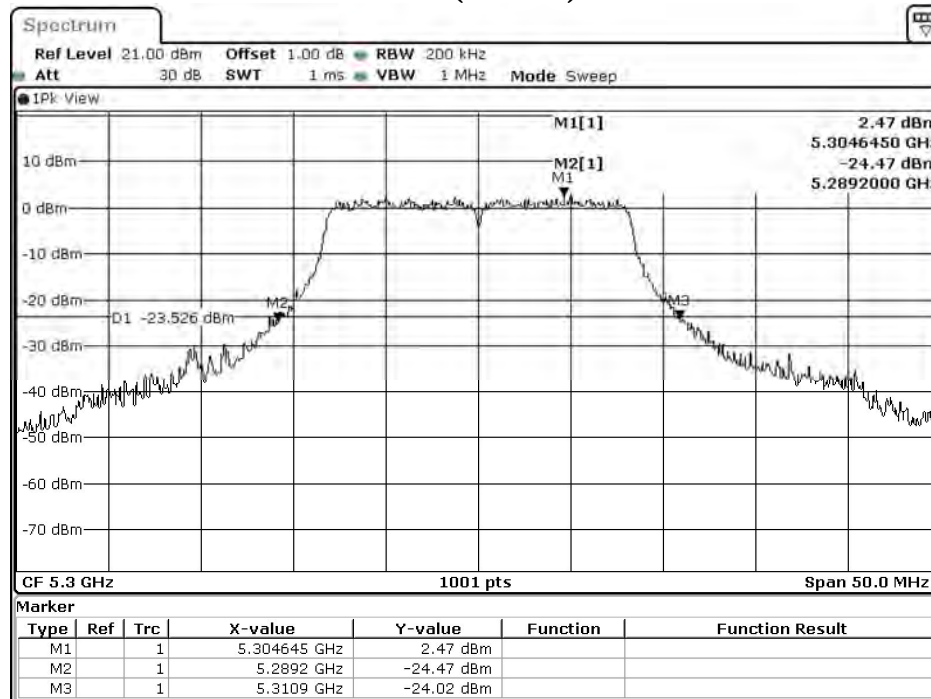


Date: 17.AUG.2021 03:14:59

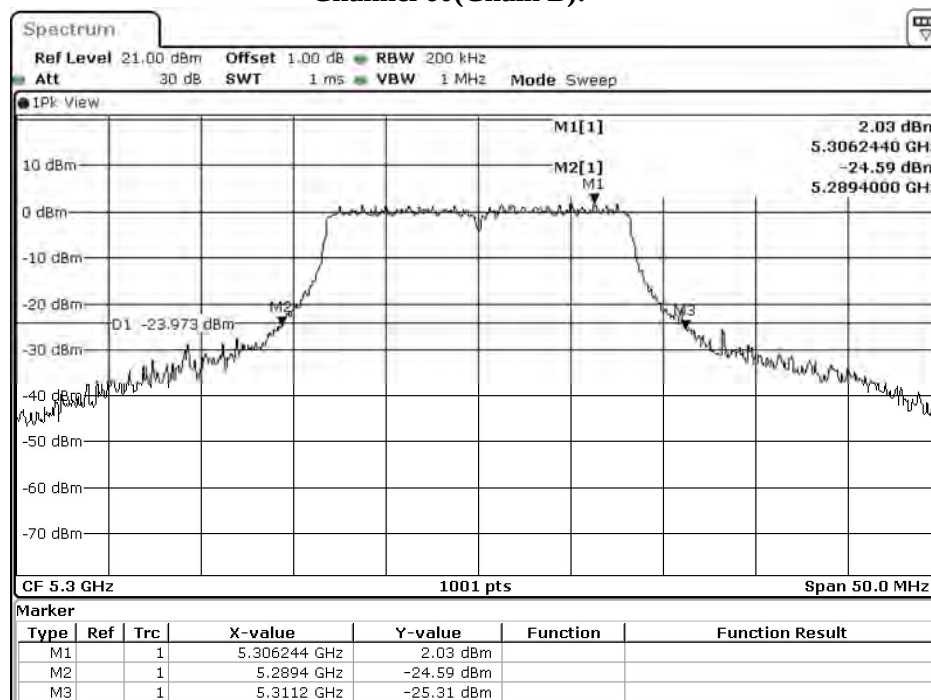
Channel 52(Chain B):



Date: 17.AUG.2021 07:54:57

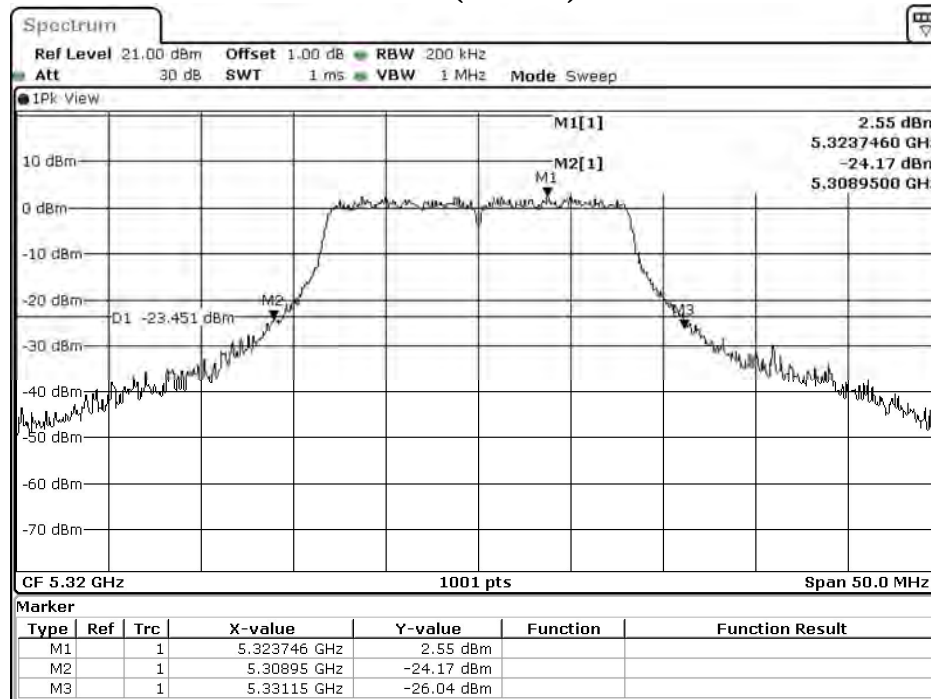
Channel 60(Chain A):

Date: 17.AUG.2021 03:17:39

Channel 60(Chain B):

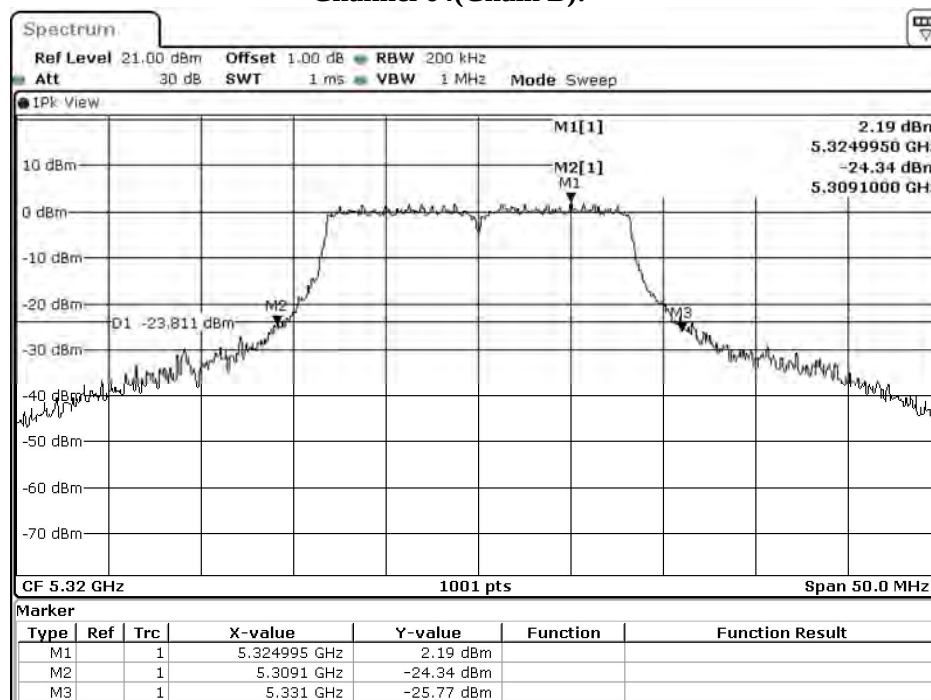
Date: 17.AUG.2021 07:57:38

Channel 64(Chain A):



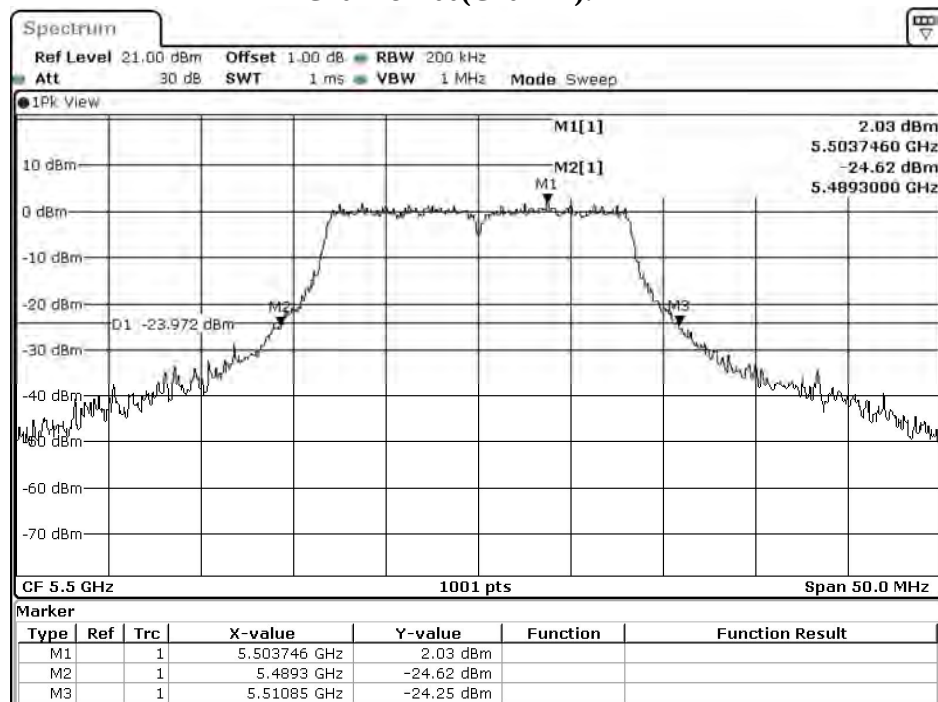
Date: 17.AUG.2021 03:22:35

Channel 64(Chain B):



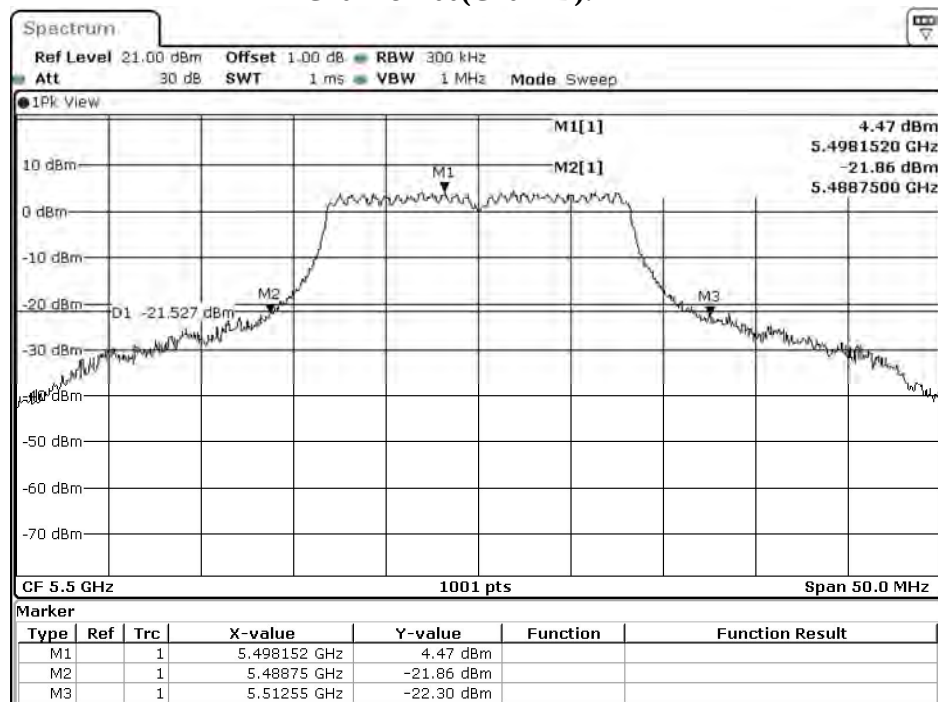
Date: 17.AUG.2021 08:02:34

Channel 100(Chain A):



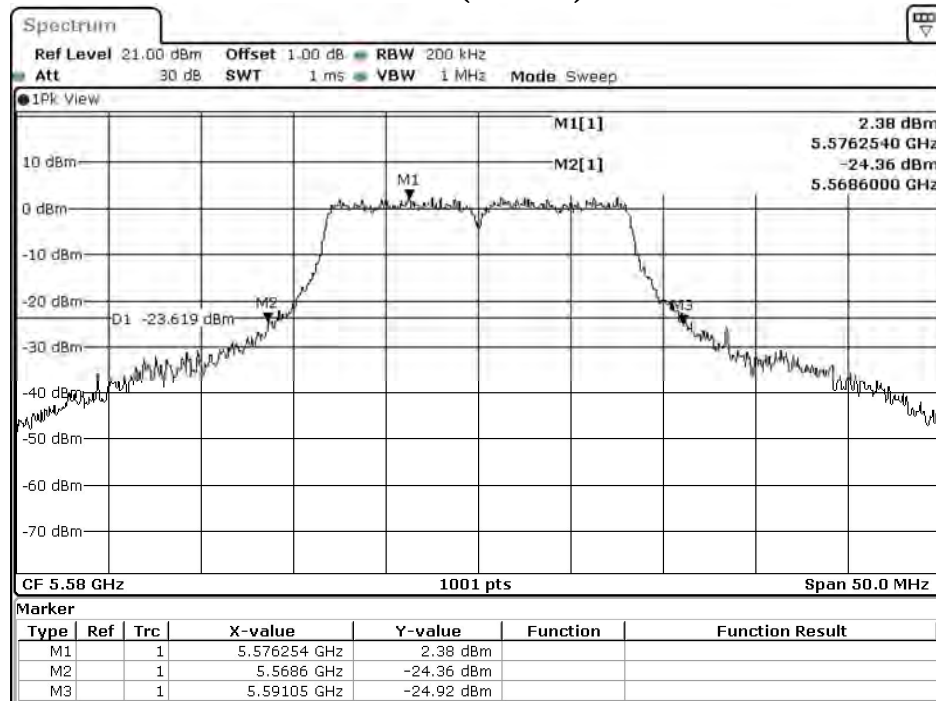
Date: 17.AUG.2021 03:25:40

Channel 100(Chain B):



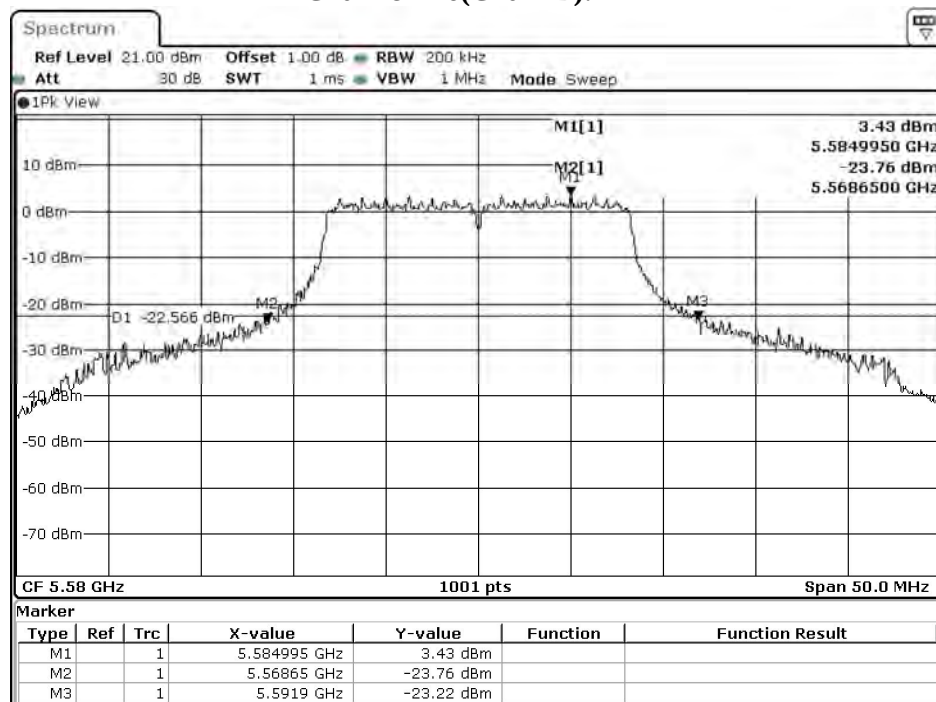
Date: 17.AUG.2021 08:05:38

Channel 116(Chain A):



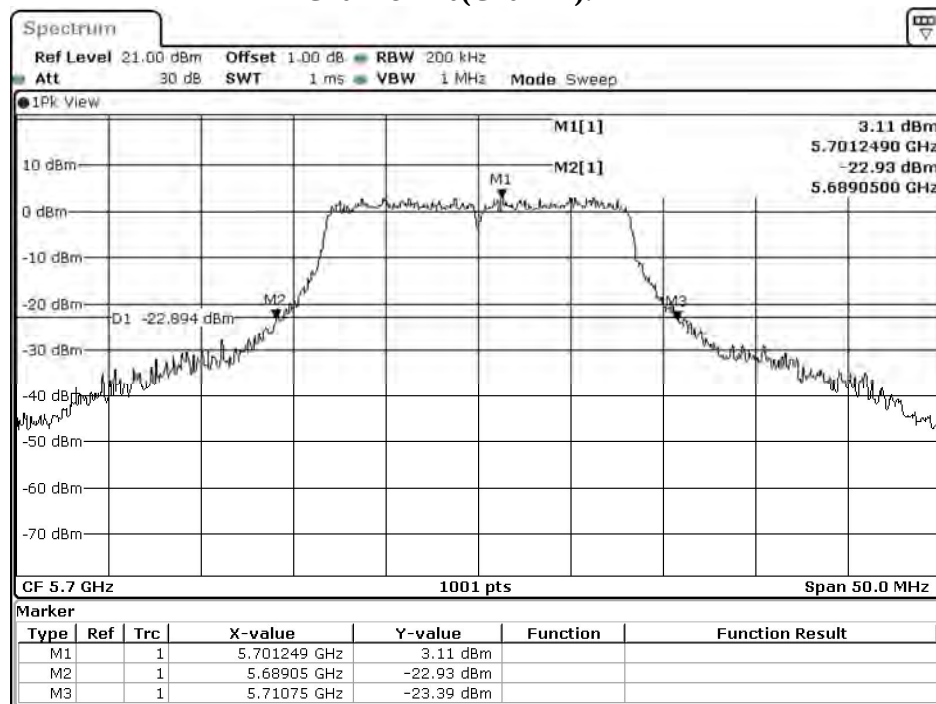
Date: 17.AUG.2021 03:37:27

Channel 116(Chain B):



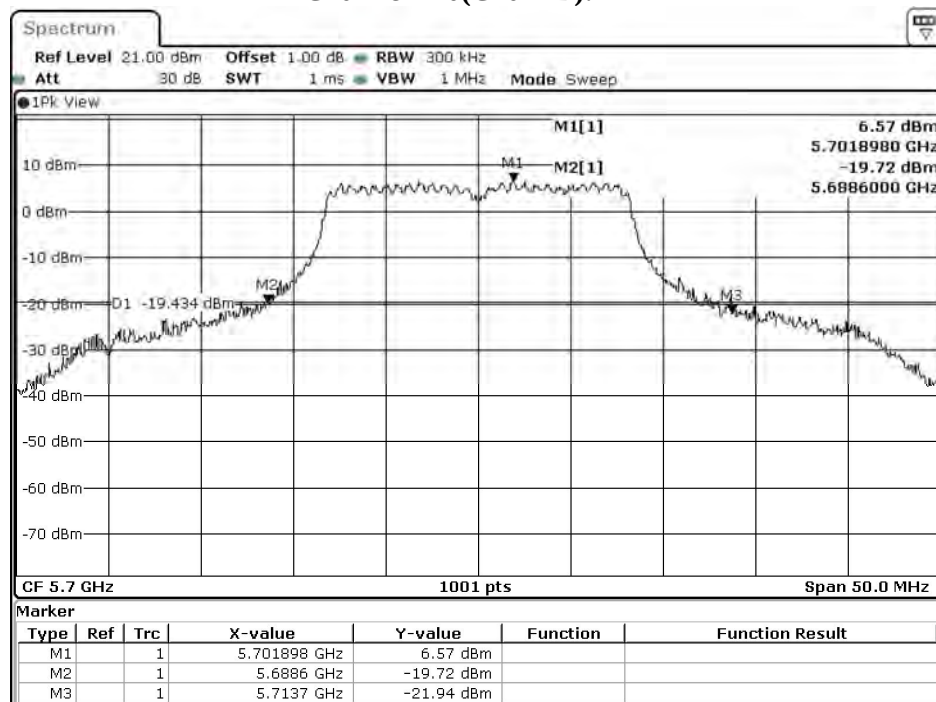
Date: 17.AUG.2021 08:17:25

Channel 140(Chain A):



Date: 17.AUG.2021 03:40:07

Channel 140(Chain B):



Date: 17.AUG.2021 08:20:05

Product : Speech Generating Device
 Test Item : Maximum conducted output power
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)
 Test Date : 2021/08/19

Chain A

Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2
		Measurement Level (dBm)							
36	5180	12.36	--	--	--	--	--	--	--
44	5220	12.42	12.36	12.32	12.29	12.24	12.21	12.17	12.14
48	5240	12.48	--	--	--	--	--	--	--
52	5260	12.37	--	--	--	--	--	--	--
60	5300	12.46	12.41	12.37	12.31	12.24	12.19	12.15	12.10
64	5320	12.49	--	--	--	--	--	--	--
100	5500	12.17	--	--	--	--	--	--	--
116	5580	12.48	12.42	12.37	12.33	12.30	12.25	12.19	12.12
140	5700	12.46	--	--	--	--	--	--	--
149	5745	4.34	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

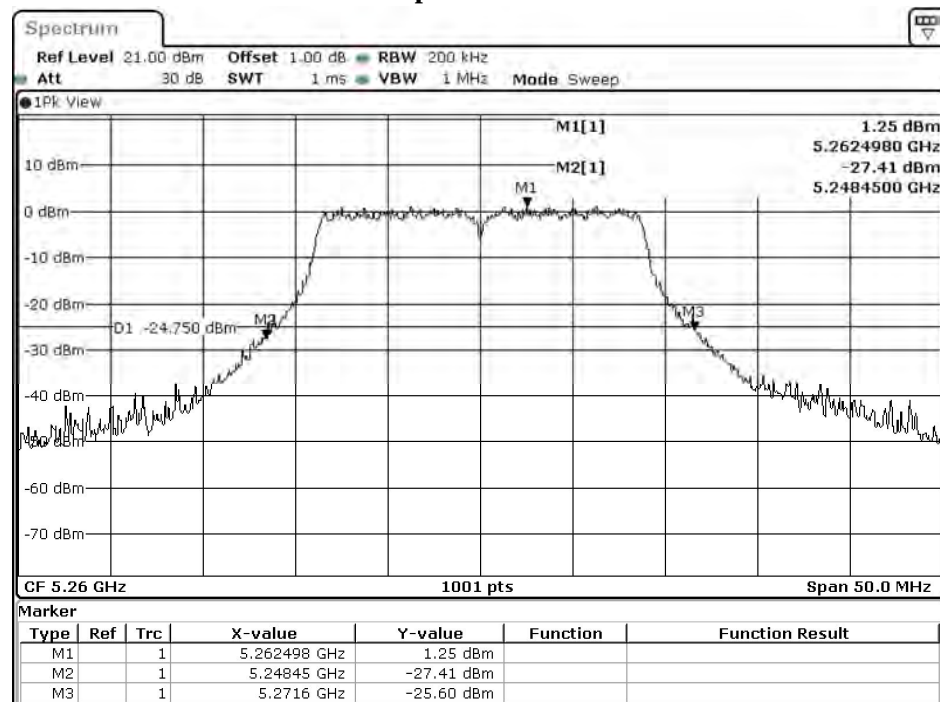
Chain B

Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2
		Measurement Level (dBm)							
36	5180	11.46	--	--	--	--	--	--	--
44	5220	11.56	11.52	11.45	11.42	11.38	11.33	11.29	11.24
48	5240	11.63	--	--	--	--	--	--	--
52	5260	11.68	--	--	--	--	--	--	--
60	5300	11.56	11.51	11.46	11.42	11.39	11.33	11.27	11.20
64	5320	11.72	--	--	--	--	--	--	--
100	5500	10.55	--	--	--	--	--	--	--
116	5580	11.76	11.71	11.66	11.63	11.58	11.51	11.44	11.39
140	5700	12.48	--	--	--	--	--	--	--
149	5745	4.61	--	--	--	--	--	--	--

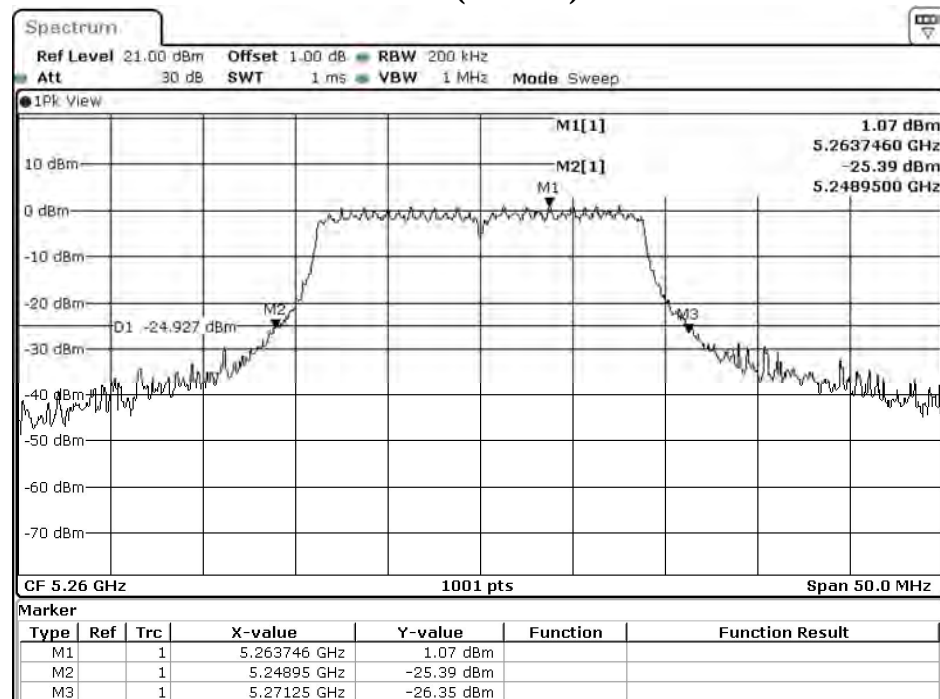
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power Measurement:

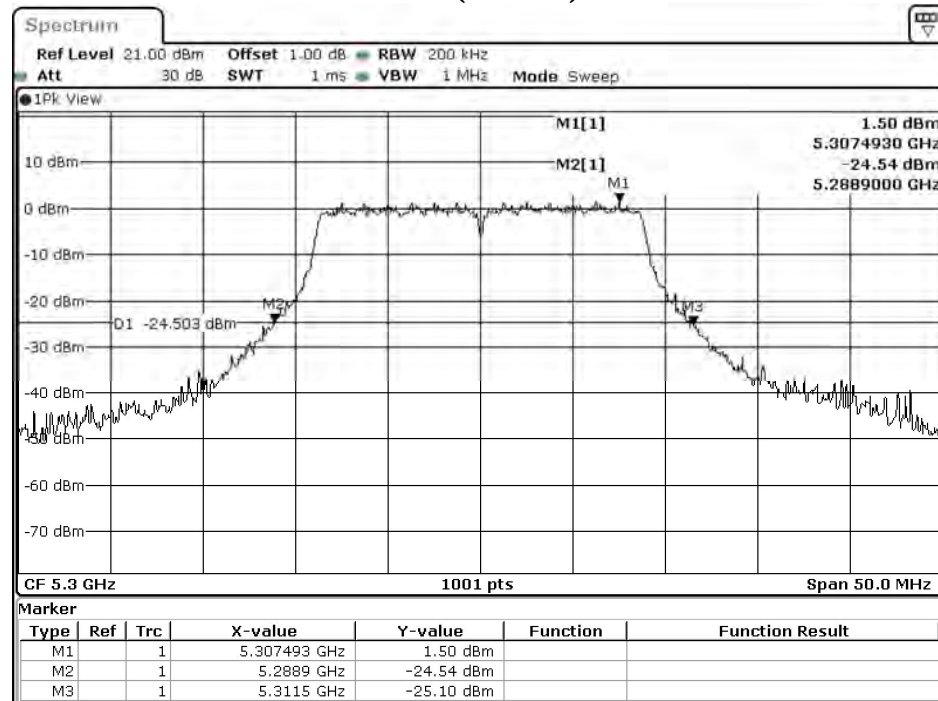
Channel No	Frequency Range	26dB Bandwidth	Chain A Power	Chain B Power	Output Power	Duty factor	Output Power Limit	
	(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dB)	(dBm)	dBm+10log(BW)
36	5180	--	12.36	11.46	14.94	--	24	--
44	5220	--	12.42	11.56	15.02	--	24	--
48	5240	--	12.48	11.63	15.09	--	24	--
52	5260	22.30	12.37	11.68	15.05	--	24	24.48
60	5300	22.30	12.46	11.56	15.04	--	24	24.48
64	5320	22.00	12.49	11.72	15.13	--	24	24.42
100	5500	22.25	12.17	10.55	14.45	--	24	24.47
116	5580	22.65	12.48	11.76	15.15	--	24	24.55
140	5700	22.45	12.46	12.48	15.48	--	24	24.51
149	5745	--	4.34	4.61	7.49	--	30	--
157	5785	--	4.52	4.63	7.59	--	30	--
165	5825	--	4.64	4.75	7.71	--	30	--

26dB Occupied Bandwidth:

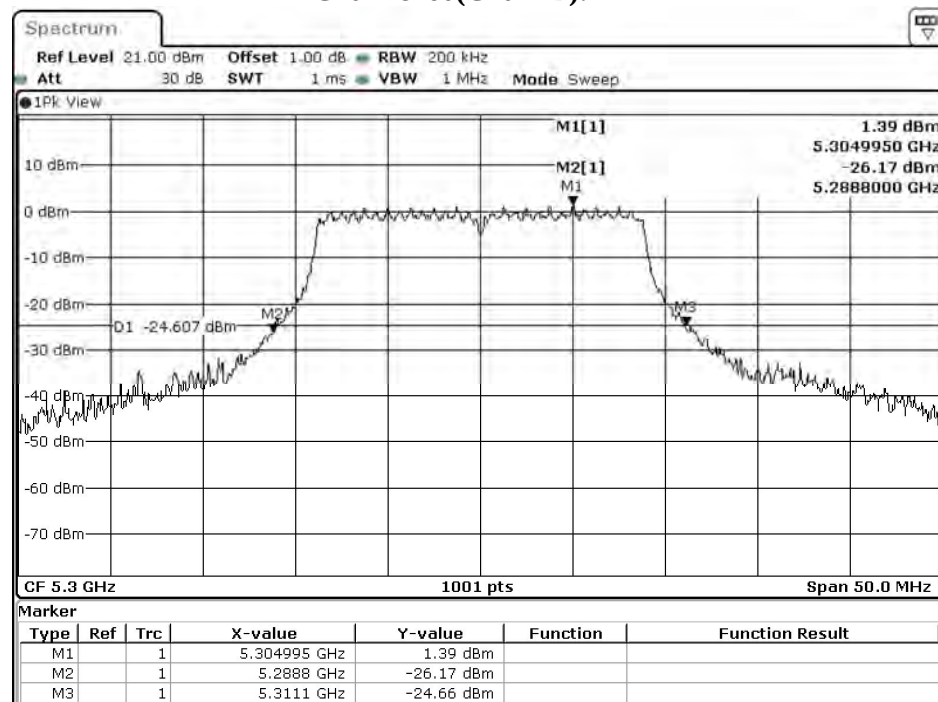
Date: 17.AUG.2021 04:19:38

Channel 52(Chain B):

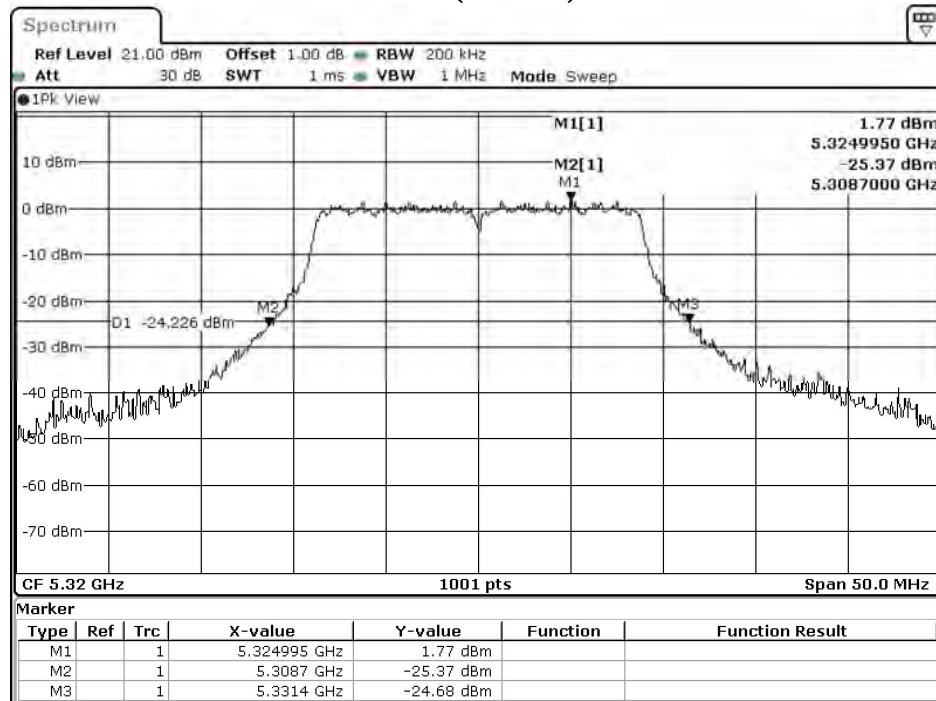
Date: 17.AUG.2021 08:59:37

Channel 60(Chain A):

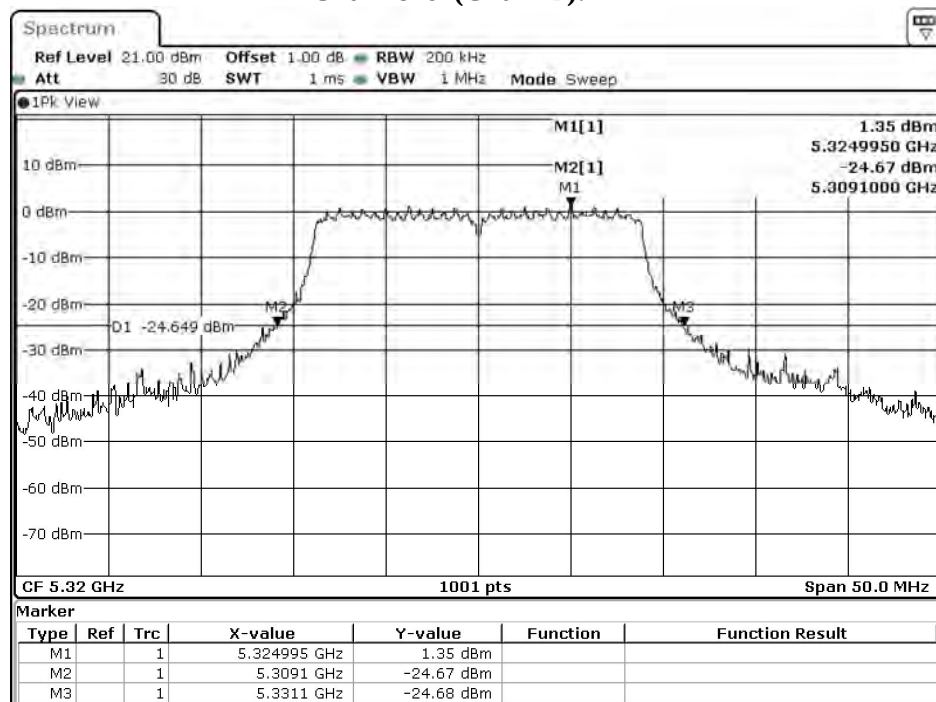
Date: 17.AUG.2021 04:22:10

Channel 60(Chain B):

Date: 17.AUG.2021 09:02:08

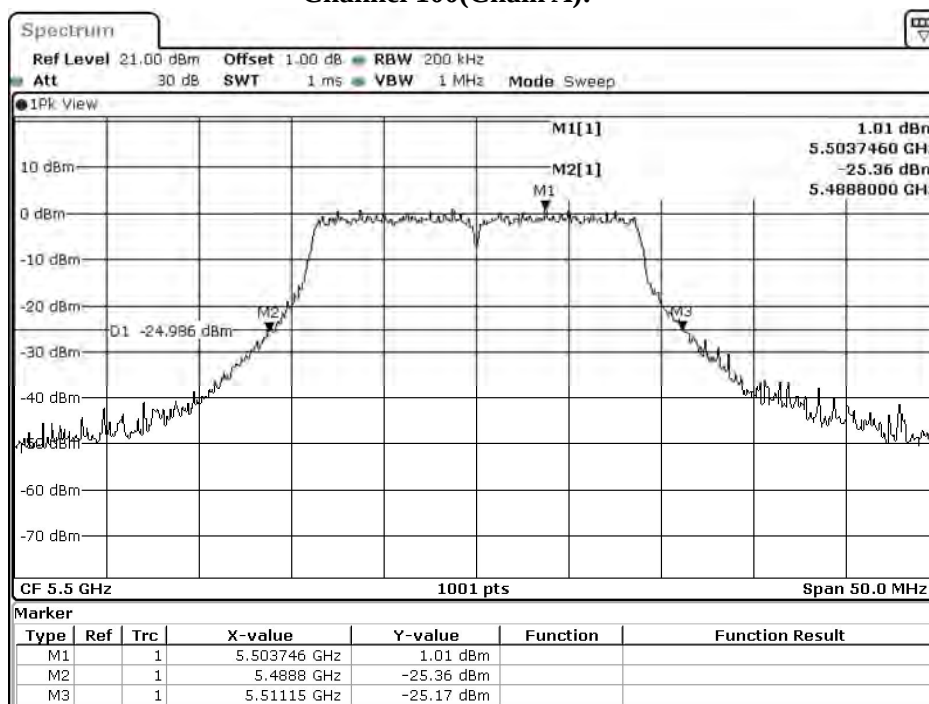
Channel 64(Chain A):

Date: 17.AUG.2021 04:24:55

Channel 64(Chain B):

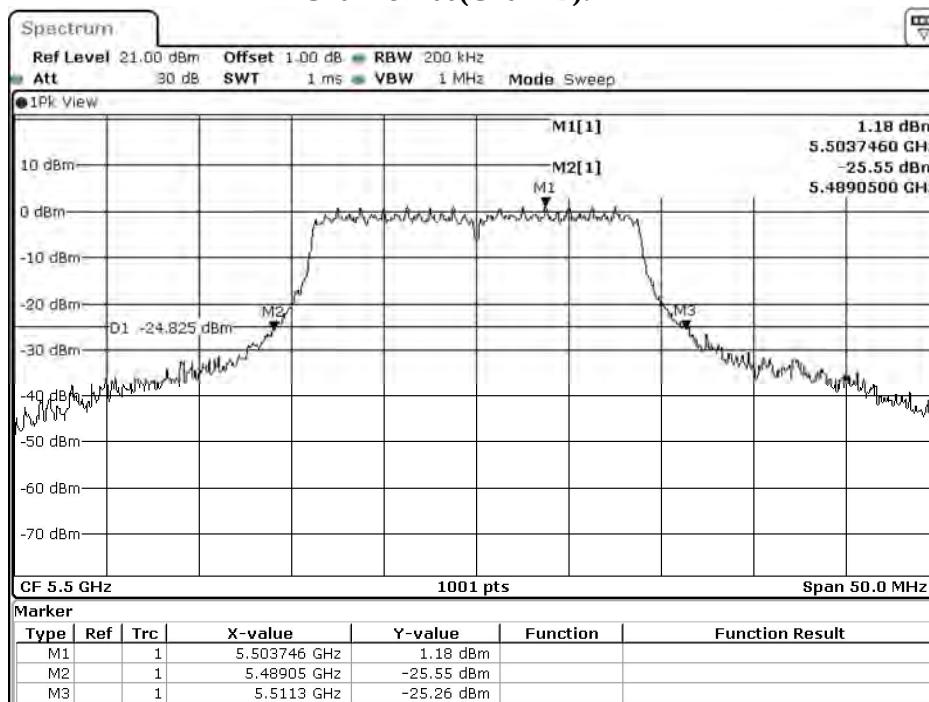
Date: 17.AUG.2021 09:04:54

Channel 100(Chain A):



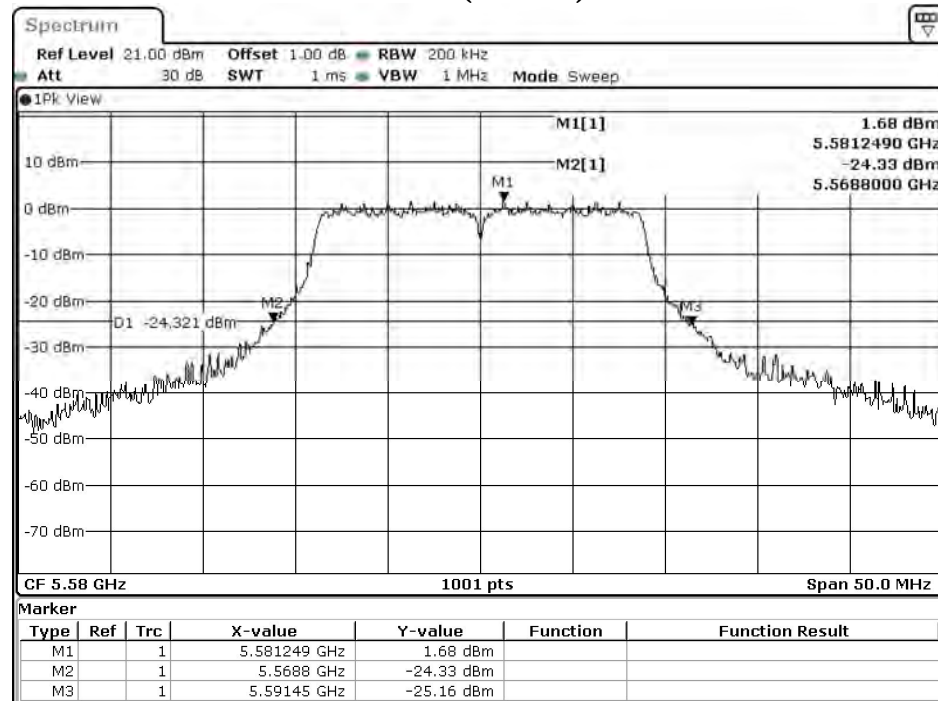
Date: 17.AUG.2021 04:28:32

Channel 100(Chain B):



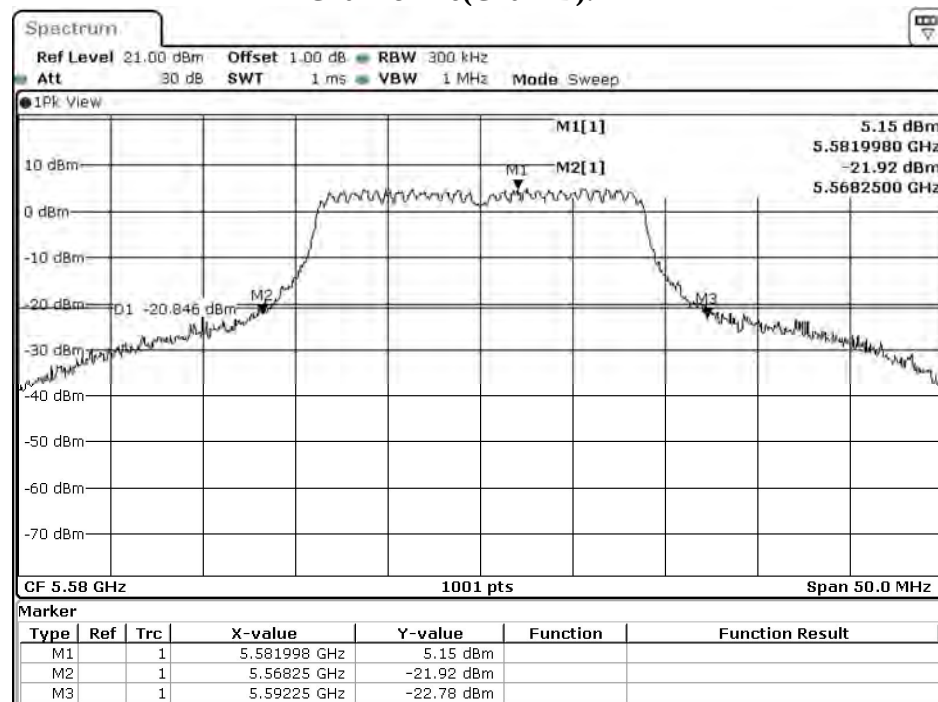
Date: 17.AUG.2021 09:08:30

Channel 116(Chain A):



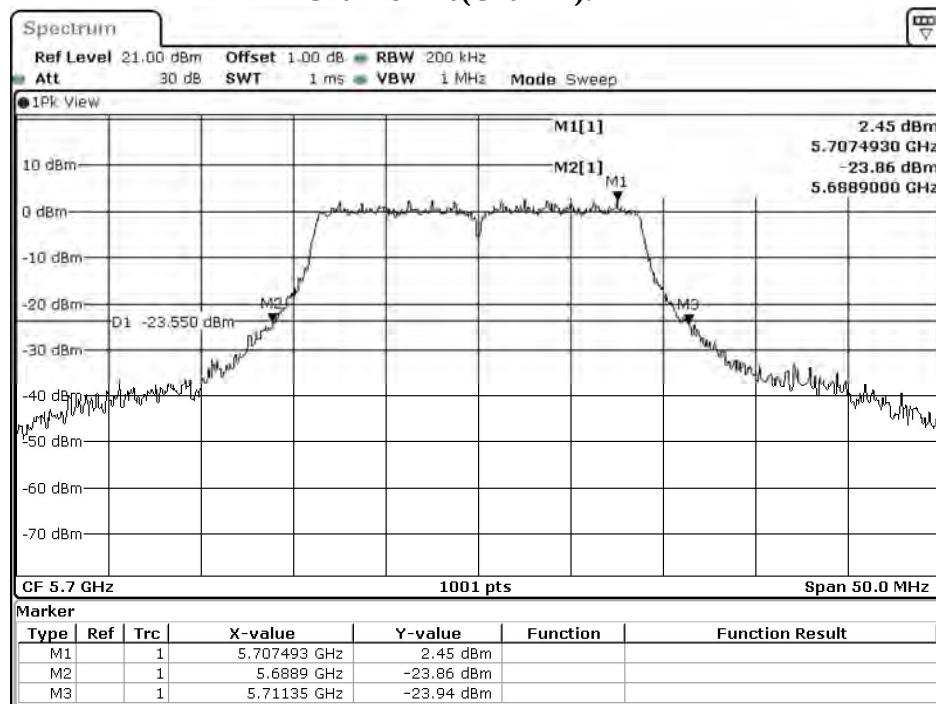
Date: 17.AUG.2021 04:32:12

Channel 116(Chain B):



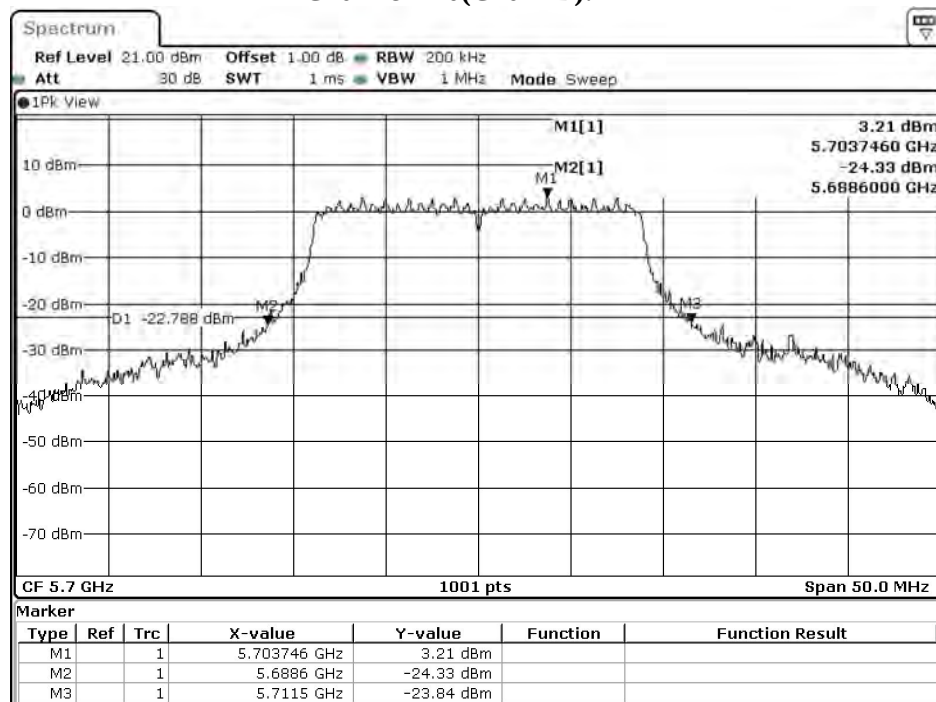
Date: 17.AUG.2021 09:12:10

Channel 140(Chain A):



Date: 17.AUG.2021 04:36:12

Channel 140(Chain B):



Date: 17.AUG.2021 09:16:10

Product : Speech Generating Device
 Test Item : Maximum conducted output power
 Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)
 Test Date : 2021/08/19

Chain A

Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		15	30	45	60	90	120	135	150
		Measurement Level (dBm)							
38	5190	12.45	--	--	--	--	--	--	--
46	5230	12.46	12.41	12.36	12.32	12.26	12.21	12.16	12.10
54	5270	12.37	--	--	--	--	--	--	--
62	5310	12.42	12.38	12.35	12.28	12.22	12.16	12.11	12.04
102	5510	12.23	--	--	--	--	--	--	--
110	5550	12.47	12.41	12.34	12.29	12.22	12.19	12.12	12.08
134	5670	12.46	--	--	--	--	--	--	--
151	5755	4.32	--	--	--	--	--	--	--
159	5795	4.46	4.40	4.34	4.28	4.22	4.18	4.13	4.09

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

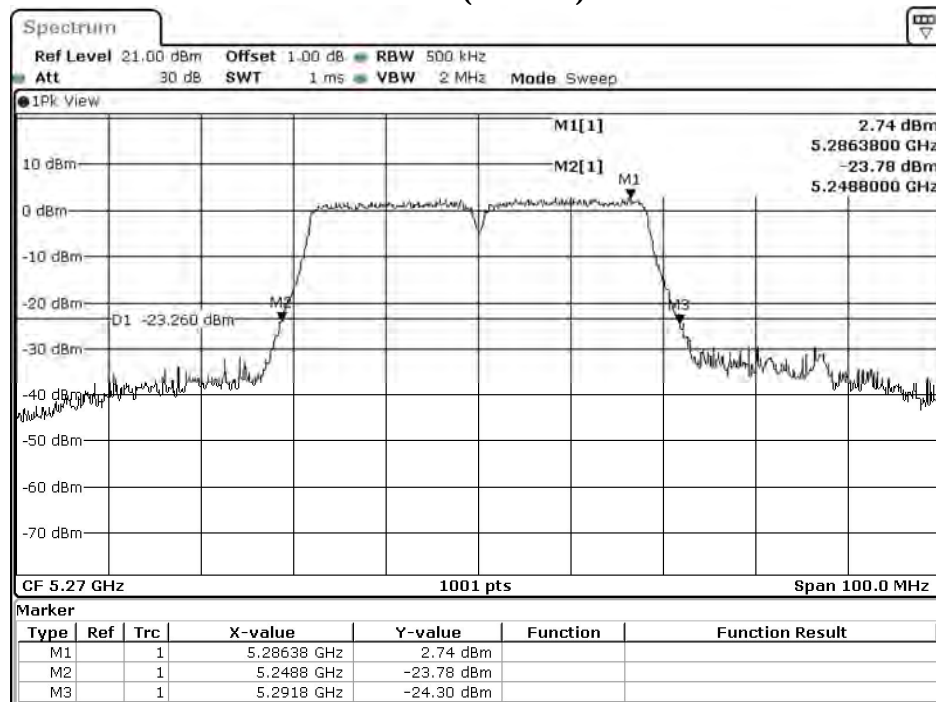
Chain B

Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		15	30	45	60	90	120	135	150
		Measurement Level (dBm)							
38	5190	11.28	--	--	--	--	--	--	--
46	5230	11.65	11.59	11.53	11.50	11.46	11.39	11.32	11.28
54	5270	11.58	--	--	--	--	--	--	--
62	5310	11.59	11.56	11.51	11.47	11.42	11.35	11.31	11.27
102	5510	10.79	--	--	--	--	--	--	--
110	5550	11.67	11.61	11.58	11.51	11.45	11.40	11.36	11.30
134	5670	12.43	--	--	--	--	--	--	--
151	5755	4.53	--	--	--	--	--	--	--
159	5795	4.53	4.47	4.41	4.38	4.33	4.29	4.25	4.20

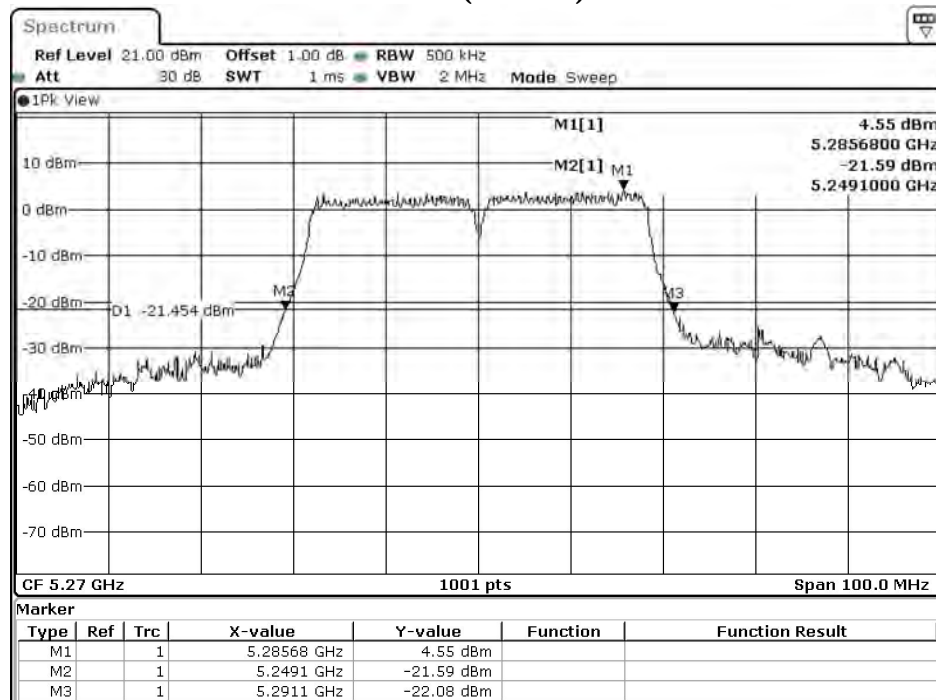
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power Measurement:

Channel No	Frequency Range	26dB Bandwidth	Chain A Power	Chain B Power	Output Power	Duty factor	Output Power Limit	
	(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dB)	(dBm)	dBm+10log(BW)
38	5190	--	12.45	11.28	14.91	--	24	--
46	5230	--	12.46	11.65	15.08	--	24	--
54	5270	42.00	12.37	11.58	15.00	--	24	27.23
62	5310	42.10	12.42	11.59	15.04	--	24	27.24
102	5510	42.40	12.23	10.79	14.58	--	24	27.27
110	5550	42.00	12.47	11.67	15.10	--	24	27.23
134	5670	43.20	12.46	12.43	15.46	--	24	27.35
142F(Band3)	5710	36.30	11.44	12.17	15.13	0.30	24	26.60
142F(Band4)	5710	--	2.06	2.86	5.79	0.30	30	--
151	5755	--	4.32	4.53	7.44	--	30	--
159	5795	--	4.46	4.53	7.51	--	30	--

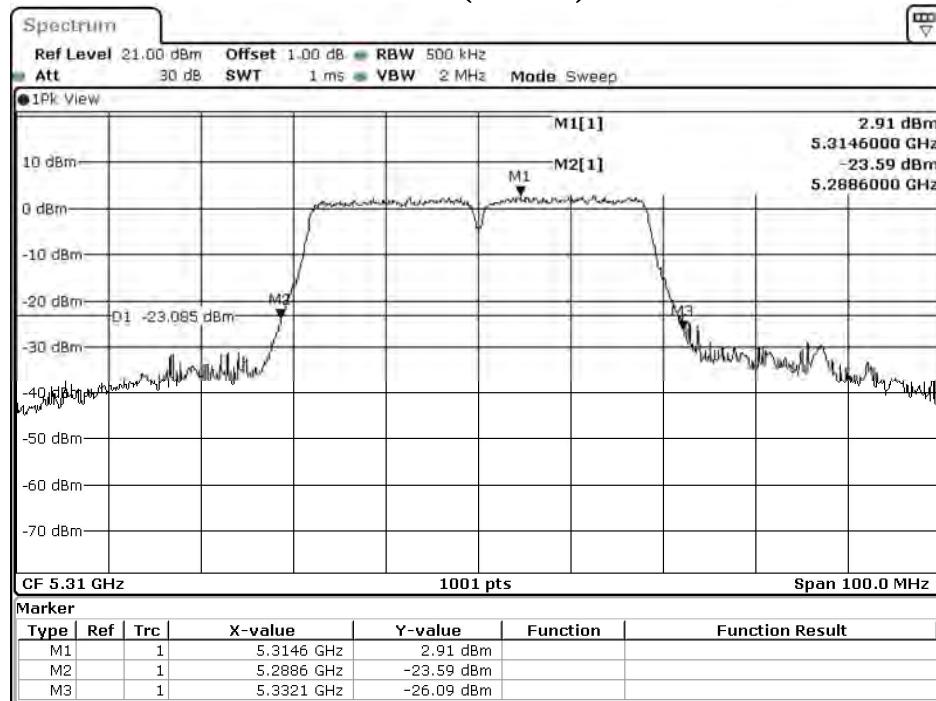
26dB Occupied Bandwidth:**Channel 54 (Chain A)**

Date: 17.AUG.2021 04:46:38

Channel 54 (Chain B)

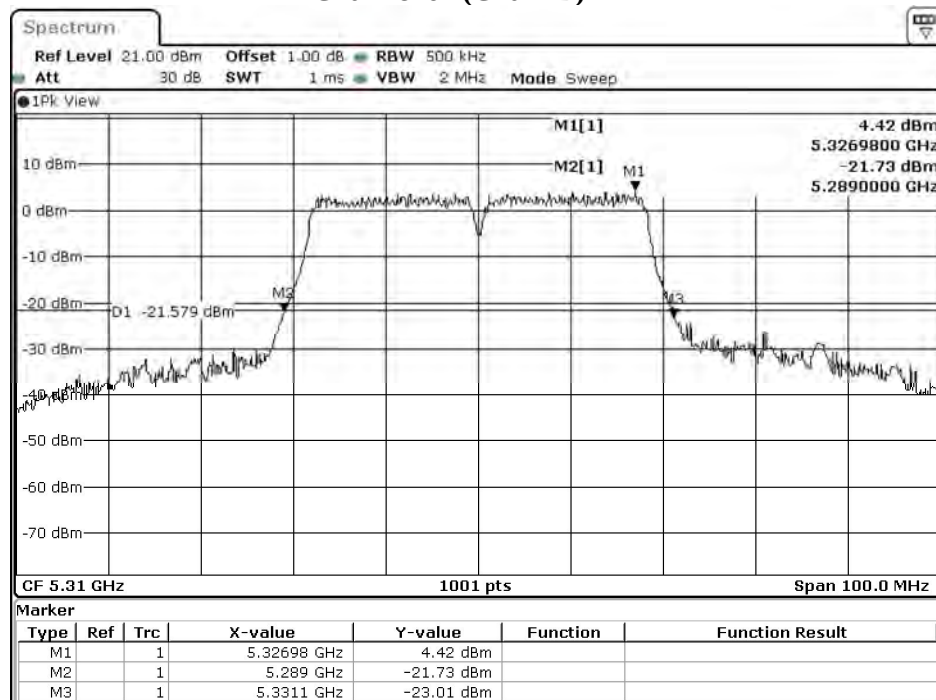
Date: 17.AUG.2021 09:26:37

Channel 62 (Chain A)



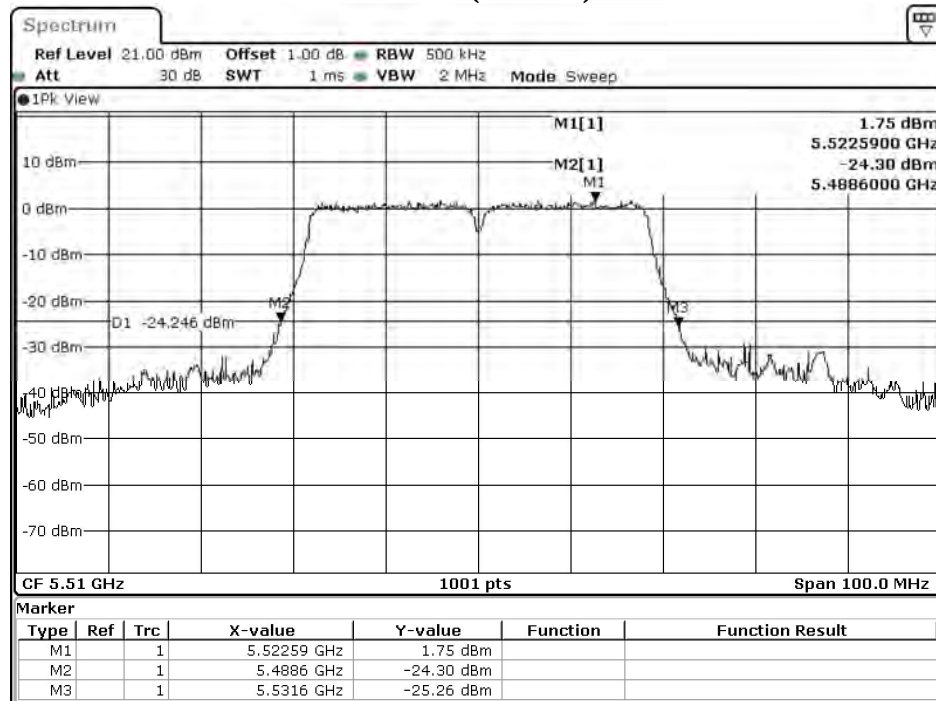
Date: 17.AUG.2021 04:49:02

Channel 62 (Chain B)



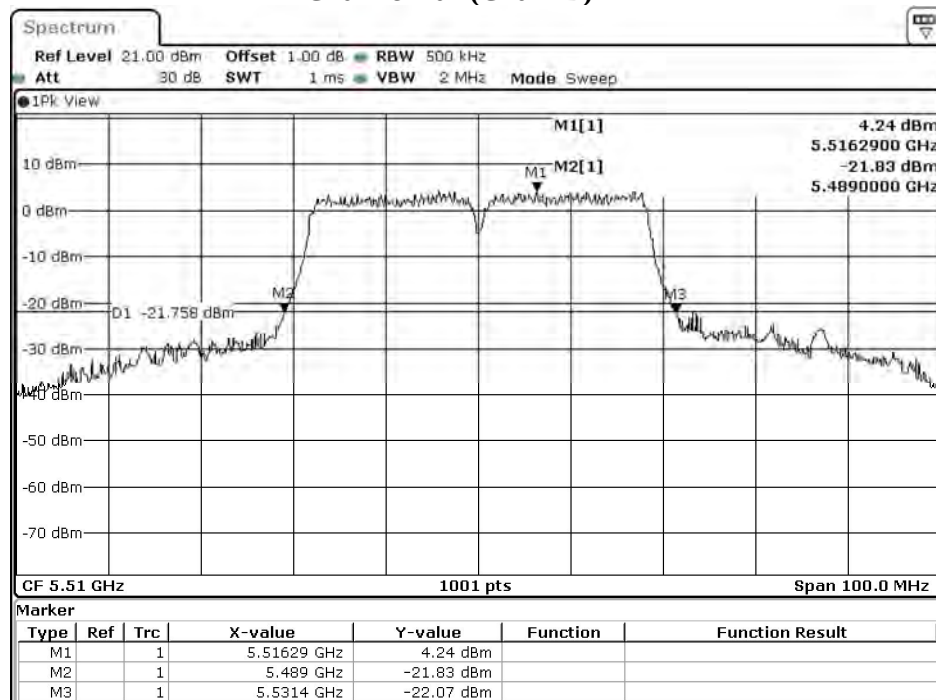
Date: 17.AUG.2021 09:29:01

Channel 102 (Chain A)



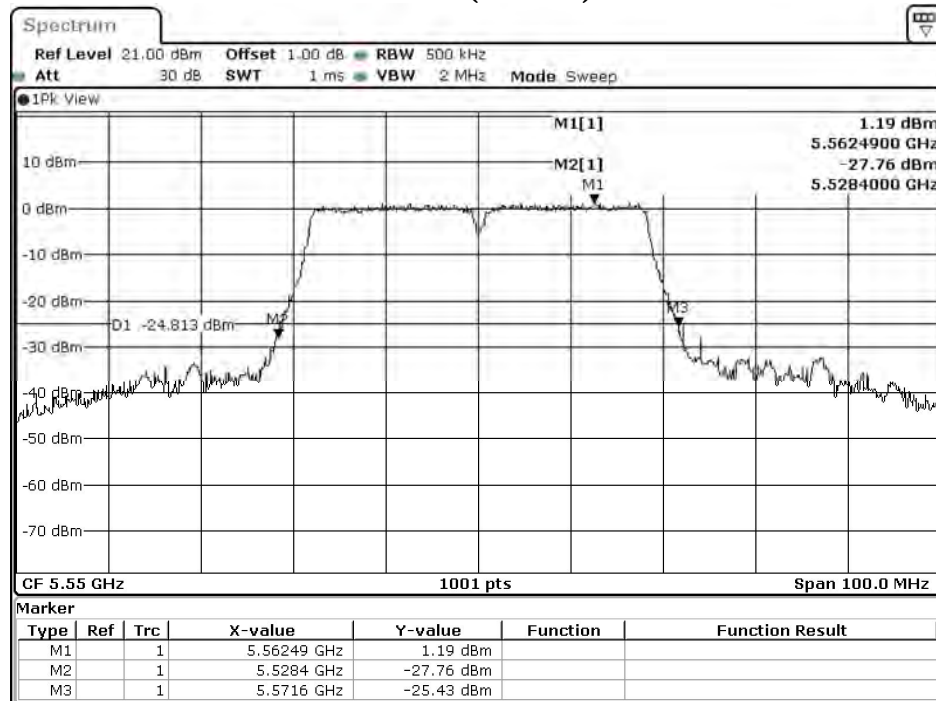
Date: 17.AUG.2021 04:53:19

Channel 102 (Chain B)



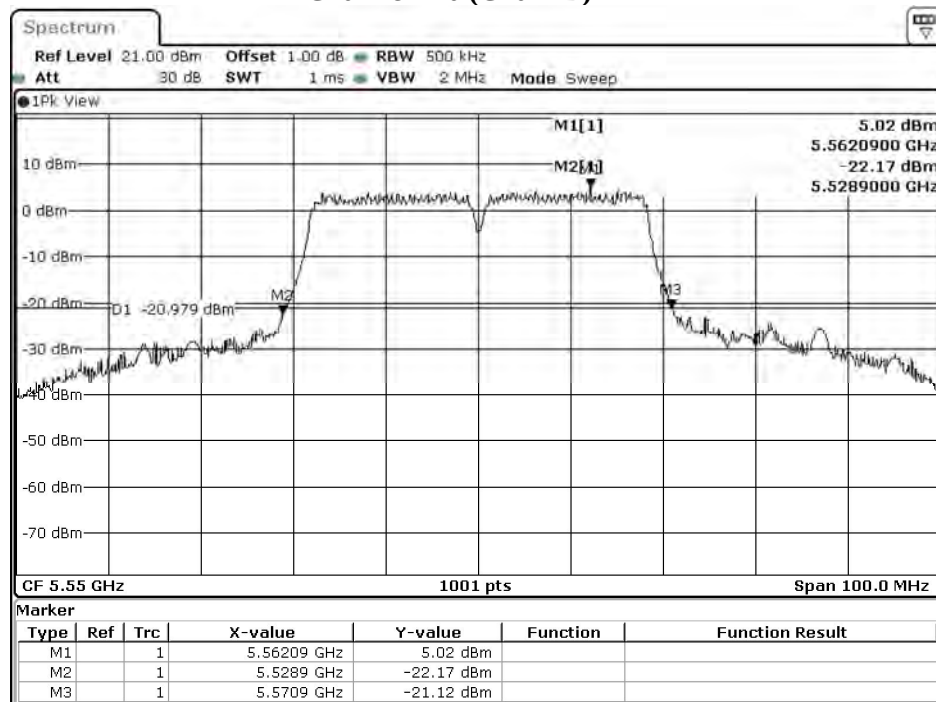
Date: 17.AUG.2021 09:33:17

Channel 110 (Chain A)



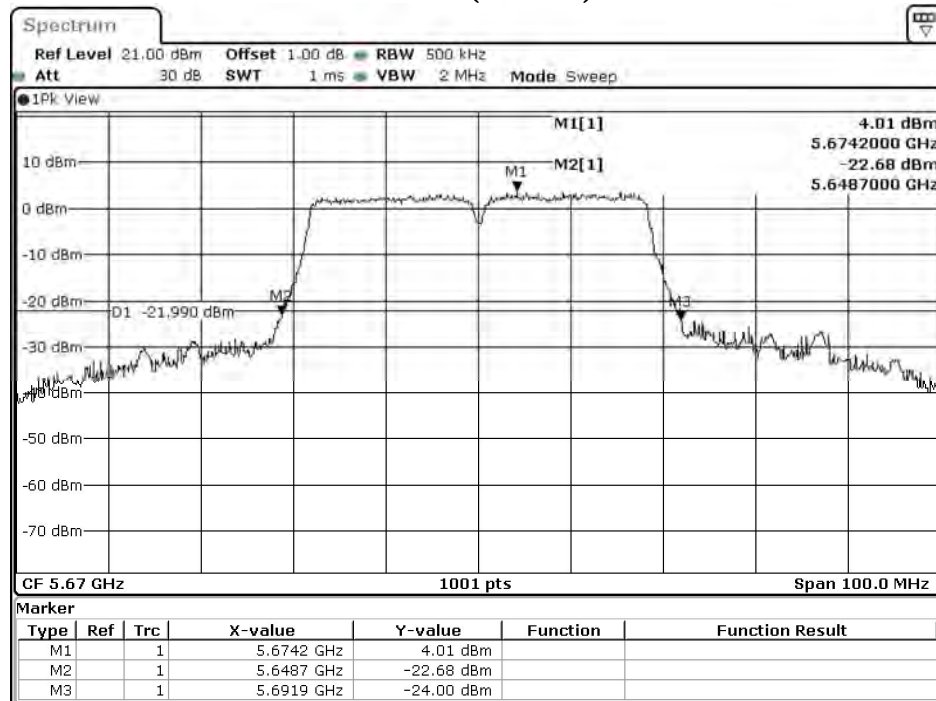
Date: 17.AUG.2021 04:56:16

Channel 110 (Chain B)



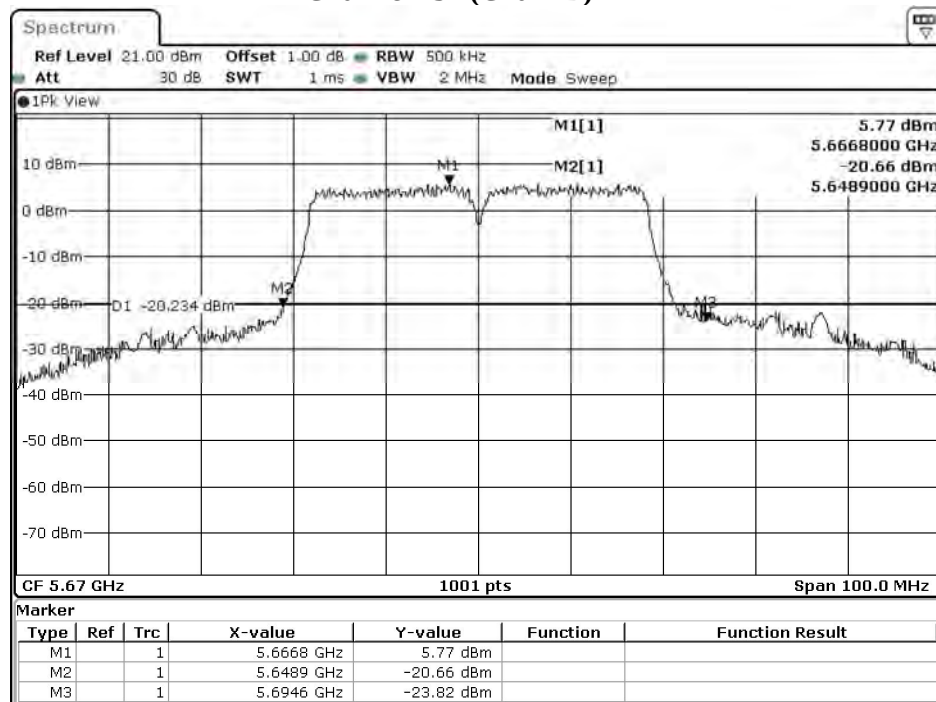
Date: 17.AUG.2021 09:36:14

Channel 134 (Chain A)



Date: 17.AUG.2021 04:59:41

Channel 134 (Chain B)



Date: 17.AUG.2021 09:39:40

Product : Speech Generating Device
 Test Item : Maximum conducted output power
 Test Mode : Mode 4: Transmit (802.11ac-20BW 7.2Mbps)
 Test Date : 2021/08/19

Chain A

Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15
		Measurement Level (dBm)							
144(U-NII-2C)	5720	10.7	10.64	10.60	10.55	10.52	10.47	10.42	10.37
144(U-NII-3)	5720	5.36	5.29	5.25	5.20	5.14	5.09	5.04	5.01

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

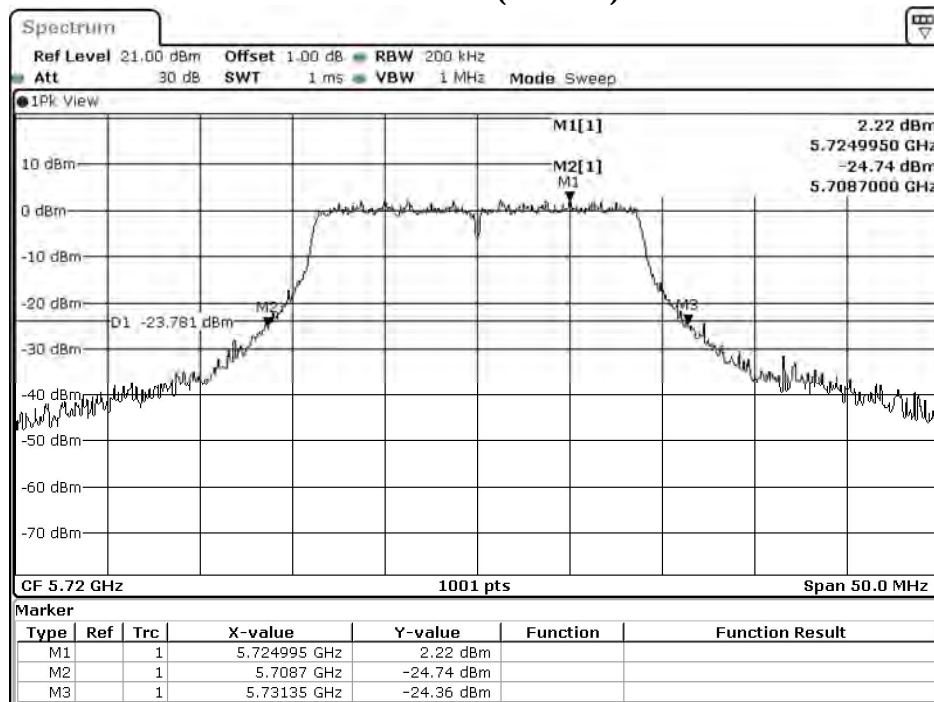
Chain B

Cable loss=3dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15
		Measurement Level (dBm)							
144(U-NII-2C)	5720	11.59	11.52	11.49	11.45	11.38	11.33	11.26	11.20
144(U-NII-3)	5720	6.18	6.14	6.10	6.04	6.00	5.93	5.90	5.83

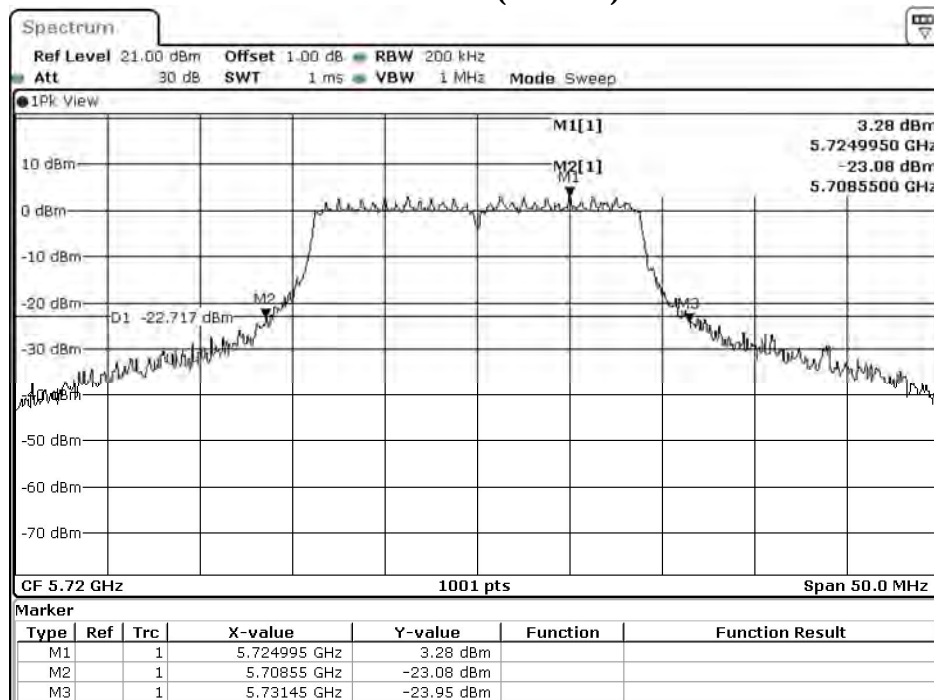
Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

Maximum conducted output power Measurement:

Channel No	Frequency Range	26dB Bandwidth	Chain A Power	Chain B Power	Output Power	Duty factor	Output Power Limit	
	(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dB)	(dBm)	dBm+10log(BW)
144(U-NII-2C)	5720	16.30	10.70	11.59	14.33	0.15	24	23.12
144(U-NII-3)	5720	--	5.36	6.18	8.95	0.15	30	--

26dB Occupied Bandwidth:**Channel 144 (Chain A)**

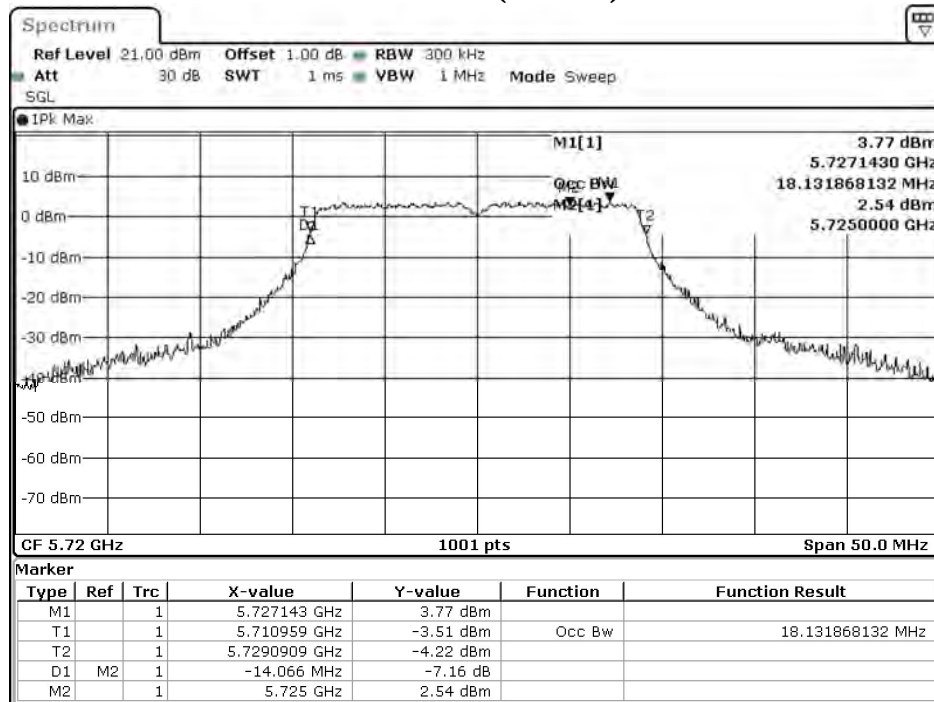
Date: 17.AUG.2021 03:43:11

Channel 144 (Chain B)

Date: 17.AUG.2021 08:23:09

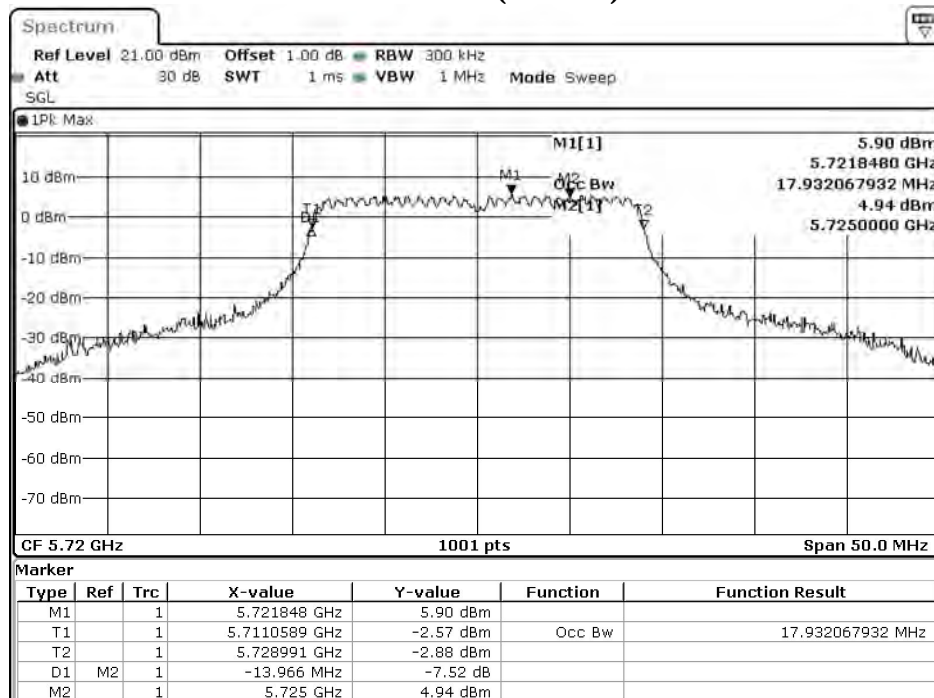
99% Occupied Bandwidth:

Channel 144 (Chain A)

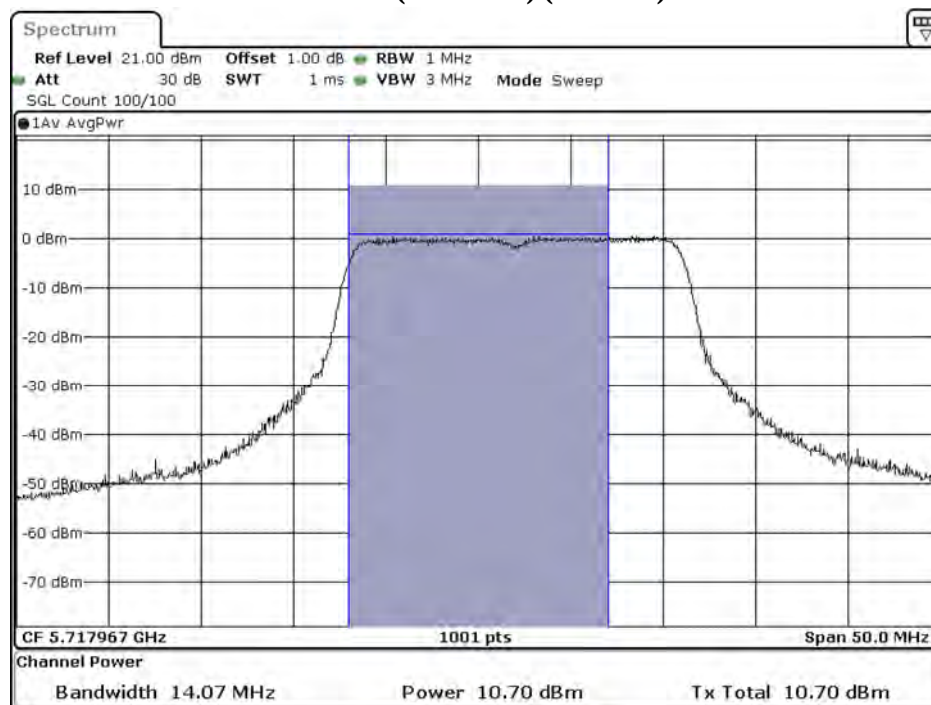


Date: 17.AUG.2021 03:41:55

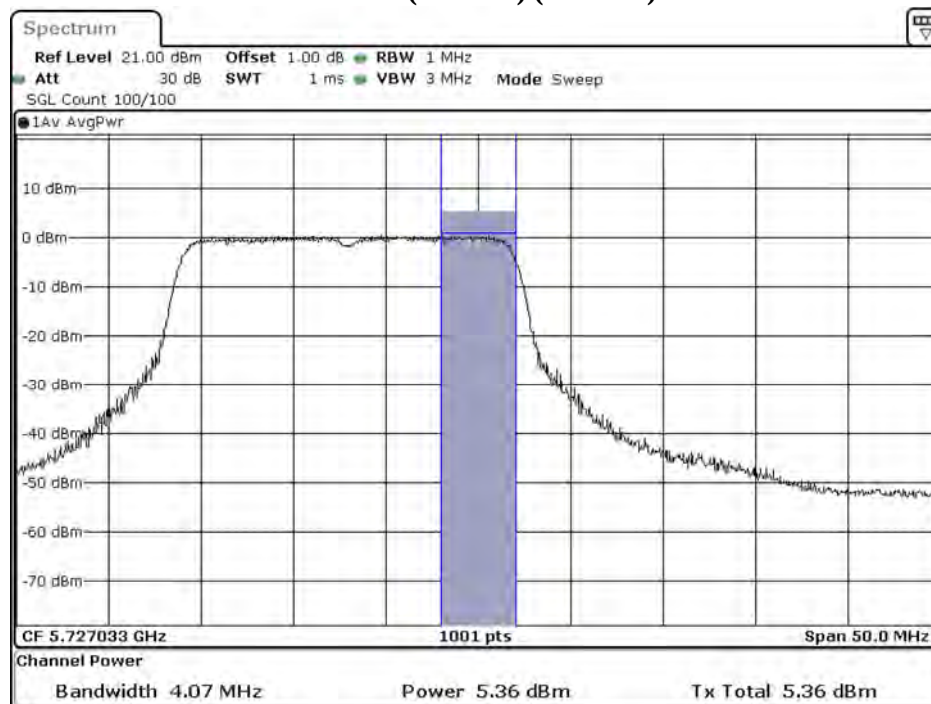
Channel 144 (Chain B)



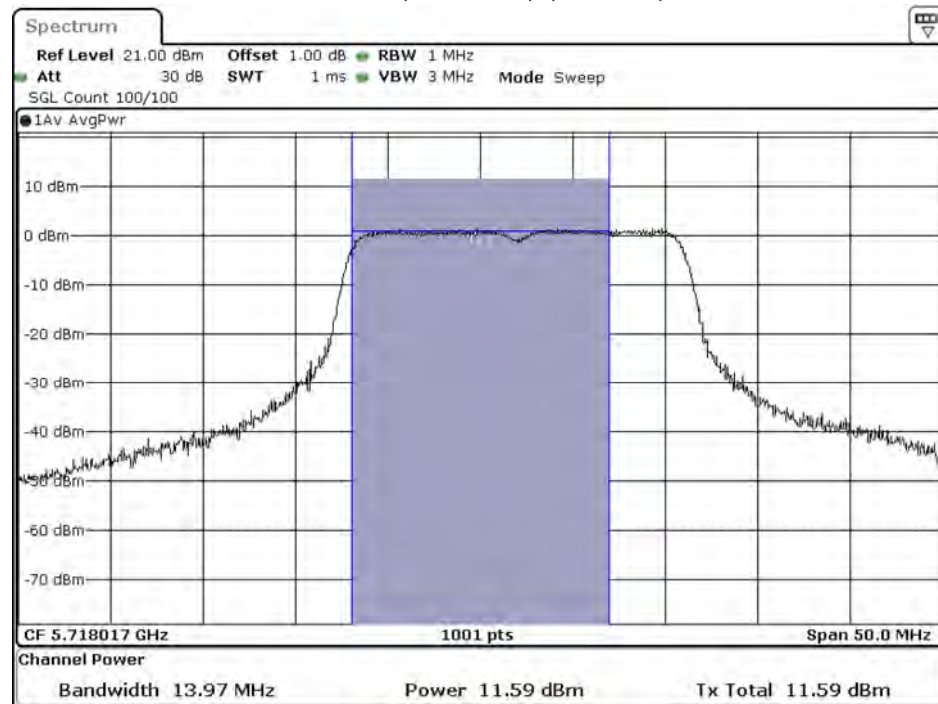
Date: 17.AUG.2021 08:22:29

Maximum conducted output power:**Channel 144 (U-NII-2C) (Chain A)**

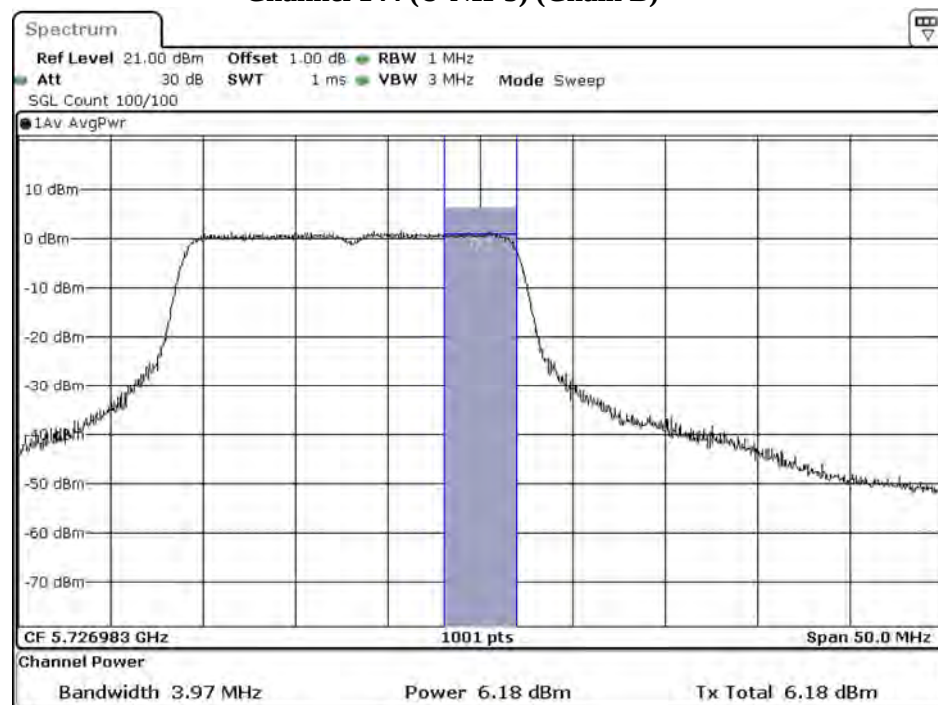
Date: 17-AUG-2021 03:44:40

Channel 144 (U-NII-3) (Chain A)

Date: 17-AUG-2021 03:49:10

Channel 144 (U-NII-2C) (Chain B)

Date: 17 AUG 2021 08:25:22

Channel 144 (U-NII-3) (Chain B)

Date: 17 AUG 2021 08:25:44

Product : Speech Generating Device
 Test Item : Maximum conducted output power
 Test Mode : Mode 5: Transmit (802.11ac-40BW 15Mbps)
 Test Date : 2021/08/19

Chain A

Cable loss=3dB		Maximum conducted output power							
Channel No	Frequency (MHz)	Data Rate (Mbps)							
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15
142(U-NII-2C)	5710	11.44	11.40	11.35	11.28	11.22	11.16	11.11	11.07
142(U-NII-3)	5710	2.06	2.01	1.96	1.90	1.85	1.80	1.75	1.71

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

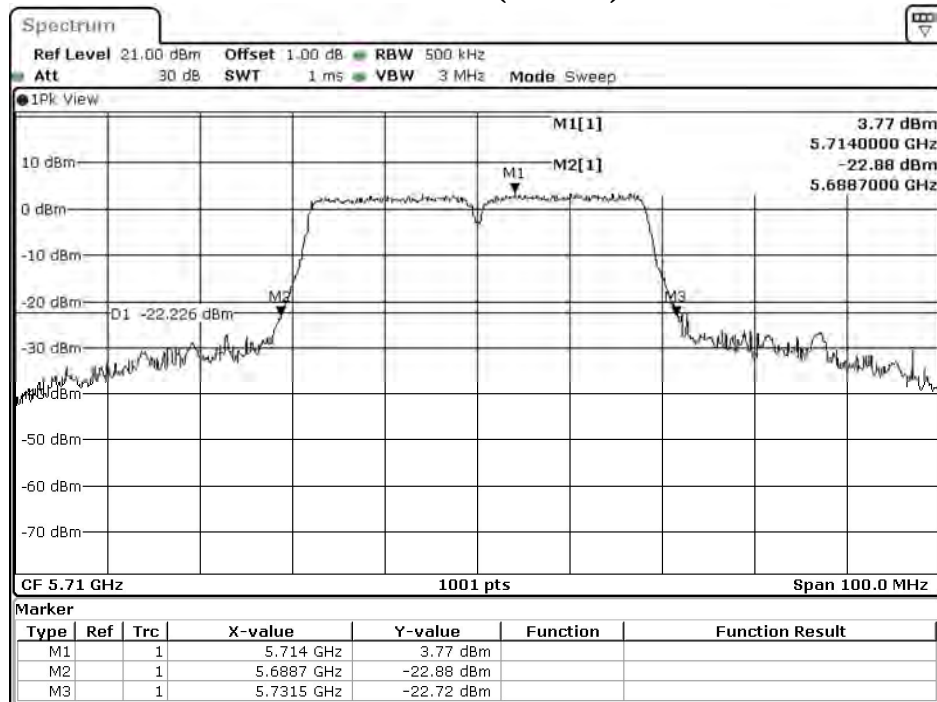
Chain B

Cable loss=3dB		Maximum conducted output power							
Channel No	Frequency (MHz)	Data Rate (Mbps)							
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15
142(U-NII-2C)	5710	12.17	12.12	12.07	12.01	11.95	11.90	11.83	11.79
142(U-NII-3)	5710	2.86	2.80	2.73	2.70	2.66	2.61	2.58	2.54

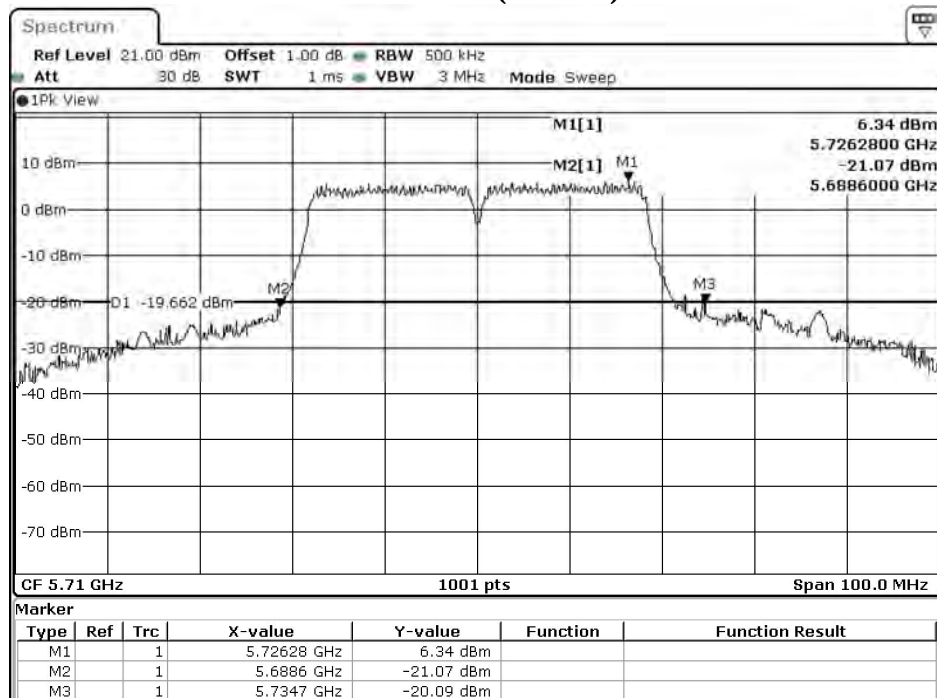
Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

Maximum conducted output power Measurement:

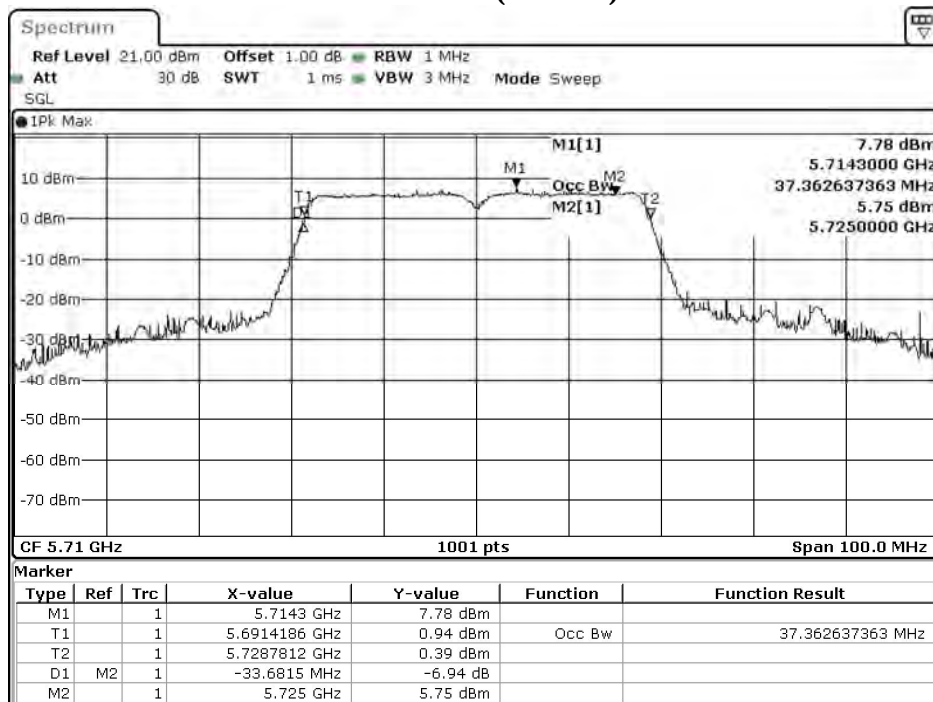
Channel No	Frequency Range	26dB Bandwidth	Chain A Power	Chain B Power	Output Power	Duty factor	Output Power Limit	
	(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dB)	(dBm)	dBm+10log(BW)
142(U-NII-2C)	5710	36.30	11.44	12.17	15.13	0.30	24	26.60
142(U-NII-3)	5710	--	2.06	2.86	5.79	0.30	30	--

26dB Occupied Bandwidth:**Channel 142 (Chain A)**

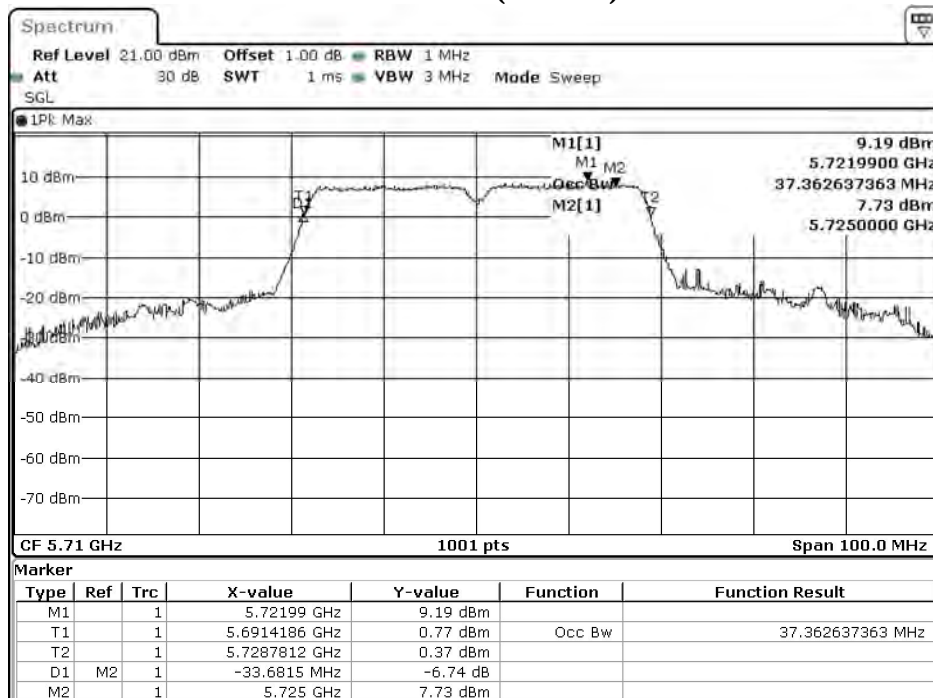
Date: 17.AUG.2021 03:47:42

Channel 142 (Chain B)

Date: 17.AUG.2021 08:27:40

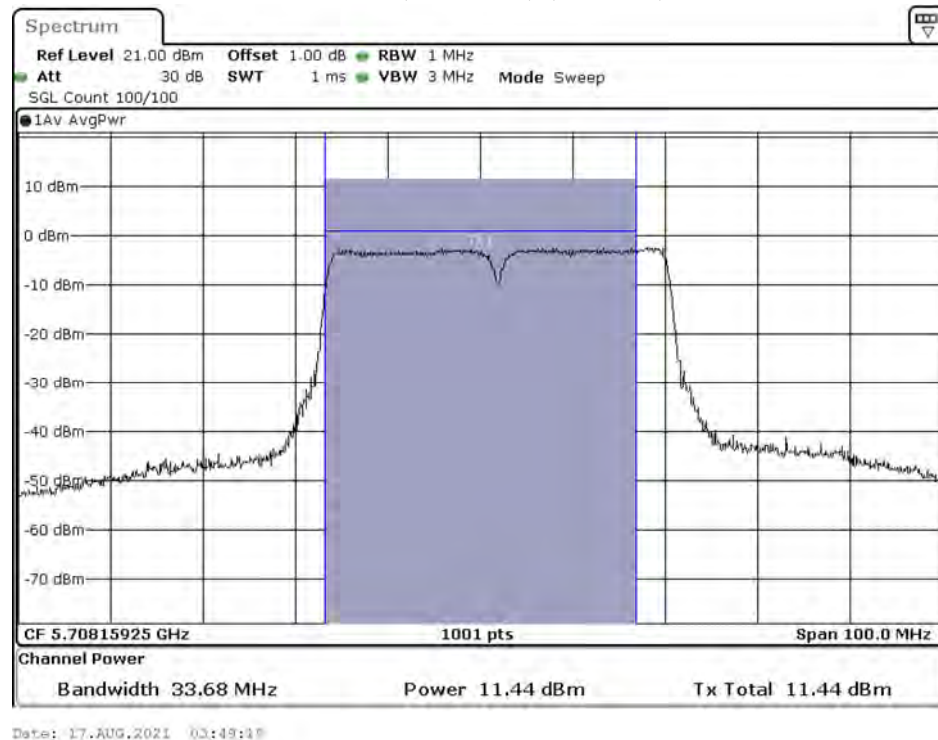
99% Occupied Bandwidth:**Channel 142 (Chain A)**

Date: 17.AUG.2021 03:46:26

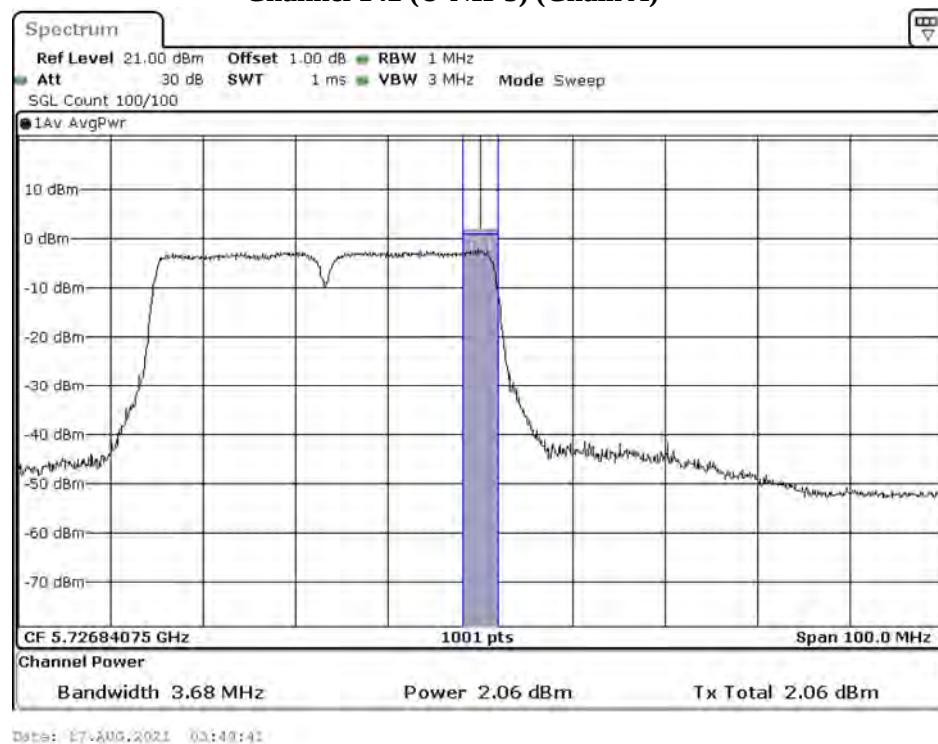
Channel 142 (Chain B)

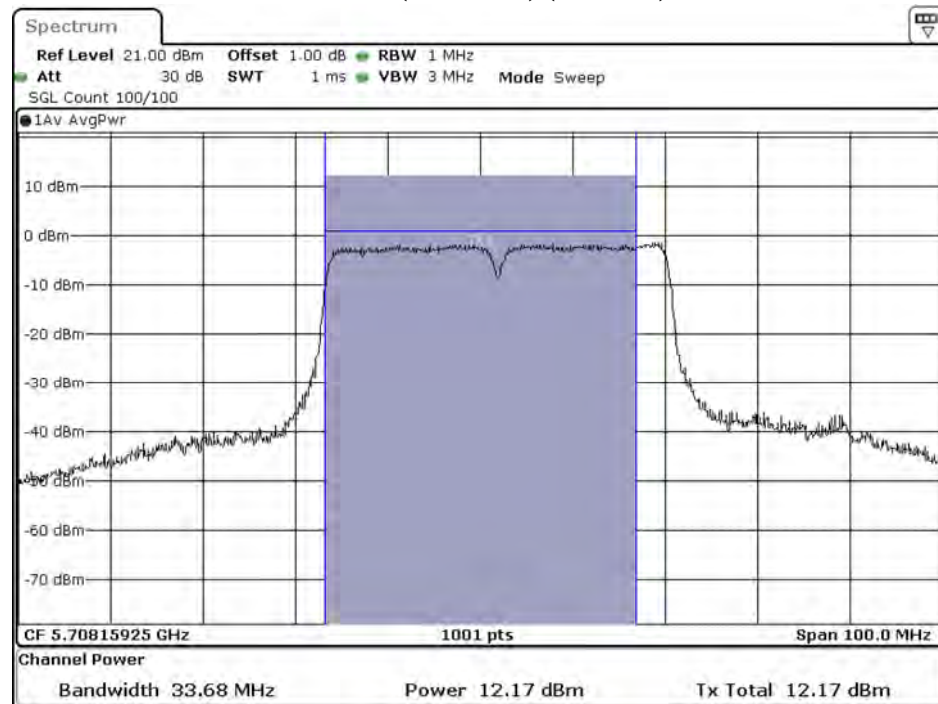
Date: 17.AUG.2021 08:27:00

Maximum conducted output power:
Channel 142 (U-NII-2C) (Chain A)

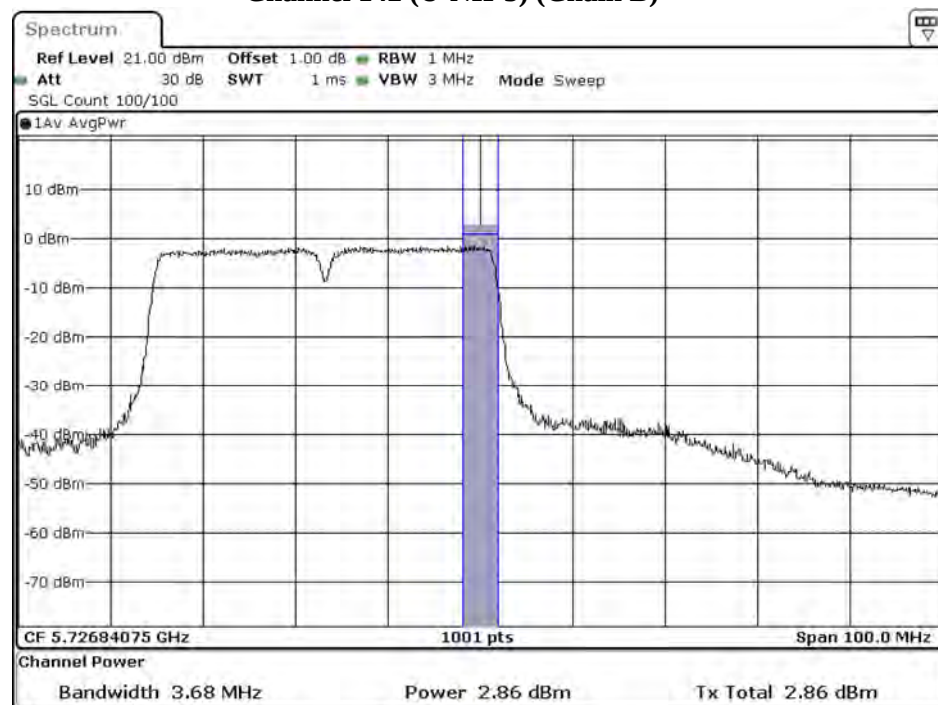


Channel 142 (U-NII-3) (Chain A)



Channel 142 (U-NII-2C) (Chain B)

Date: 17 AUG 2021 08:29:53

Channel 142 (U-NII-3) (Chain B)

Date: 17 AUG 2021 08:30:15

Product : Speech Generating Device
 Test Item : Maximum conducted output power
 Test Mode : Mode 6: Transmit (802.11ac-80BW 32.5Mbps)
 Test Date : 2021/08/19

ChainA

Cable loss=3dB		Maximum conducted output power									
Channel No	Frequency (MHz)	Data Rate (Mbps)									
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9
42	5210	11.55	11.51	11.48	11.44	11.38	11.32	11.25	11.22	11.17	11.14
58	5290	11.29	11.22	11.16	11.10	11.05	11.00	10.97	10.91	10.84	10.80
106	5530	11.74	--	--	--	--	--	--	--	--	--
122	5610	11.53	11.49	11.44	11.40	11.33	11.30	11.23	11.20	11.13	11.06
138(U-NII-2C)	5690	10.33	--	--	--	--	--	--	--	--	--
138(U-NII-3)	5690	-2.56	--	--	--	--	--	--	--	--	--
155	5775	4.85	4.79	4.74	4.68	4.61	4.57	4.51	4.45	4.39	4.35

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

ChainB

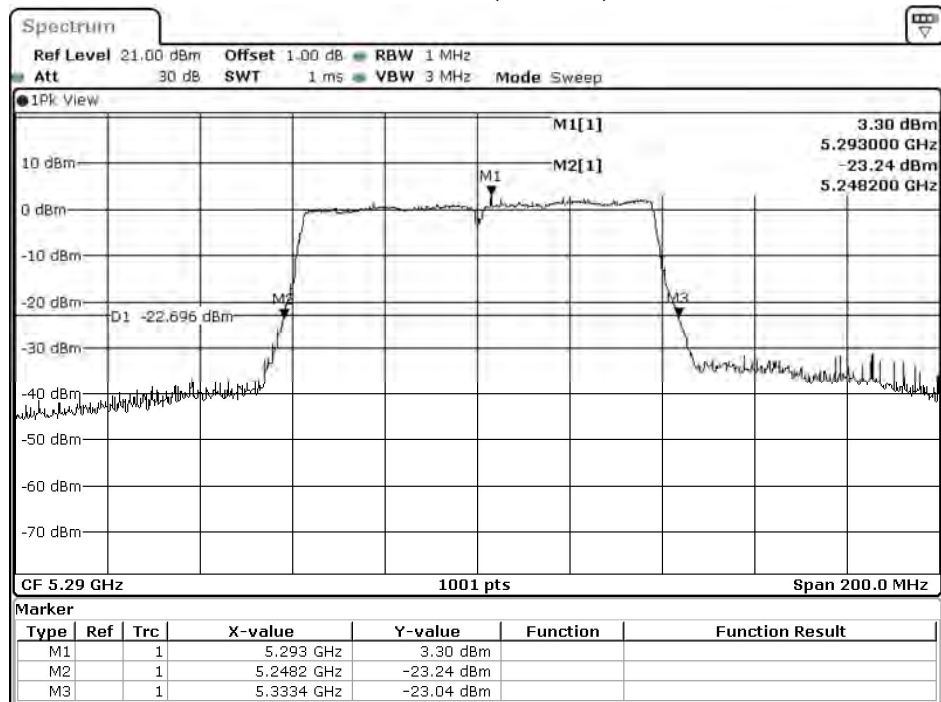
Cable loss=3dB		Maximum conducted output power									
Channel No	Frequency (MHz)	Data Rate (Mbps)									
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9
42	5210	10.54	10.49	10.42	10.38	10.32	10.28	10.25	10.20	10.16	10.12
58	5290	10.65	10.59	10.56	10.53	10.46	10.43	10.36	10.33	10.29	10.24
106	5530	10.79	--	--	--	--	--	--	--	--	--
122	5610	10.82	10.78	10.73	10.68	10.63	10.59	10.54	10.48	10.43	10.38
138(U-NII-2C)	5690	11.33	--	--	--	--	--	--	--	--	--
138(U-NII-3)	5690	-1.73	--	--	--	--	--	--	--	--	--
155	5775	4.62	4.56	4.49	4.45	4.41	4.37	4.31	4.26	4.21	4.16

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

Maximum conducted output power Measurement

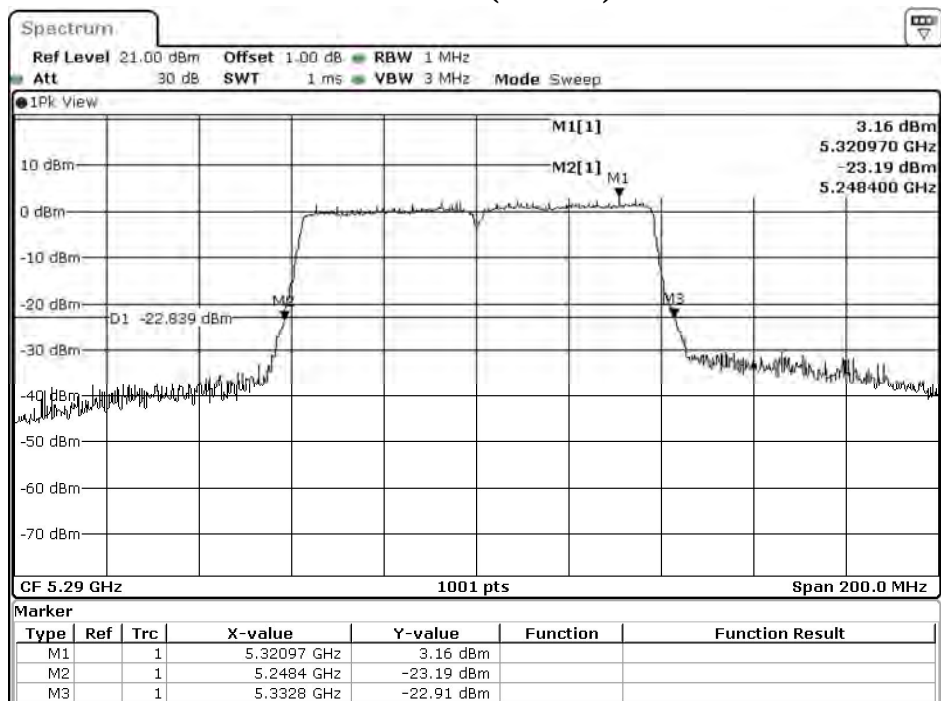
Channel No	Frequency Range	26dB Bandwidth	Chain A Power	Chain B Power	Output Power	Duty factor	Output Power Limit		Result
	(MHz)	(MHz)	(dBm)	(dBm)	(dBm)	(dB)	(dBm)	dBm+10log(BW)	
42	5210	--	11.55	10.54	14.08	--	24	--	Pass
58	5290	84.40	11.29	10.65	13.99	--	24	--	Pass
106	5530	85.20	11.74	10.79	14.30	--	24	30.30	Pass
122	5610	85.00	11.53	10.82	14.20	--	24	30.29	Pass
138(U-NII-2C)	5690	77.00	10.33	11.33	14.23	0.37	24	29.86	Pass
138(U-NII-3)	5690	--	-2.56	-1.73	1.25	0.37	30	--	Pass
155	5775	--	4.85	4.62	7.75	--	30	--	Pass

26dB Occupied Bandwidth:
Channel 58 (Chain A)



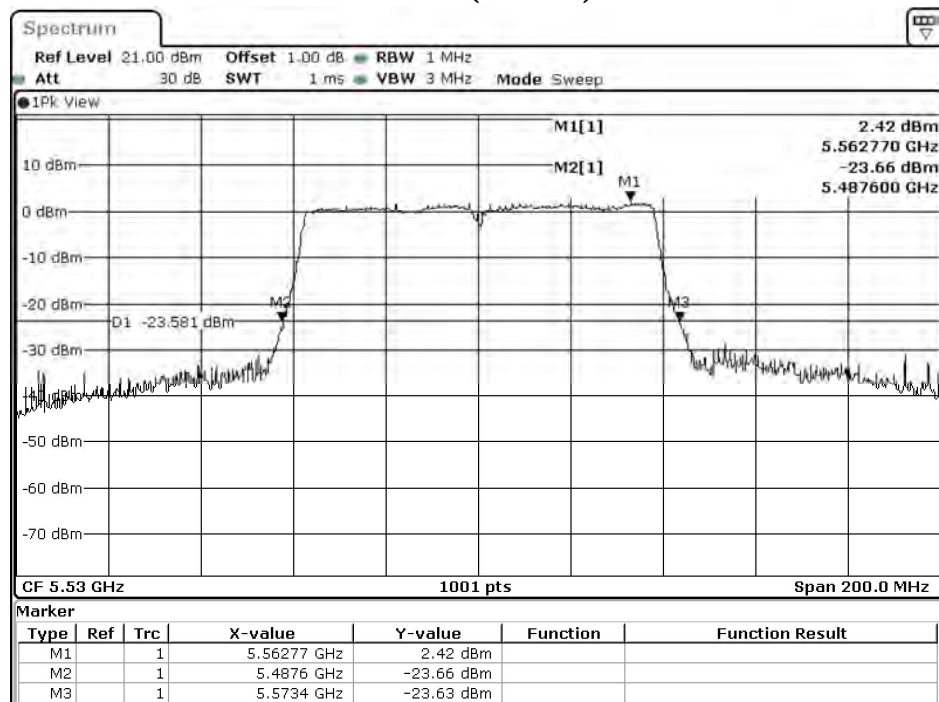
Date: 17.AUG.2021 03:56:06

Channel 58 (Chain B)



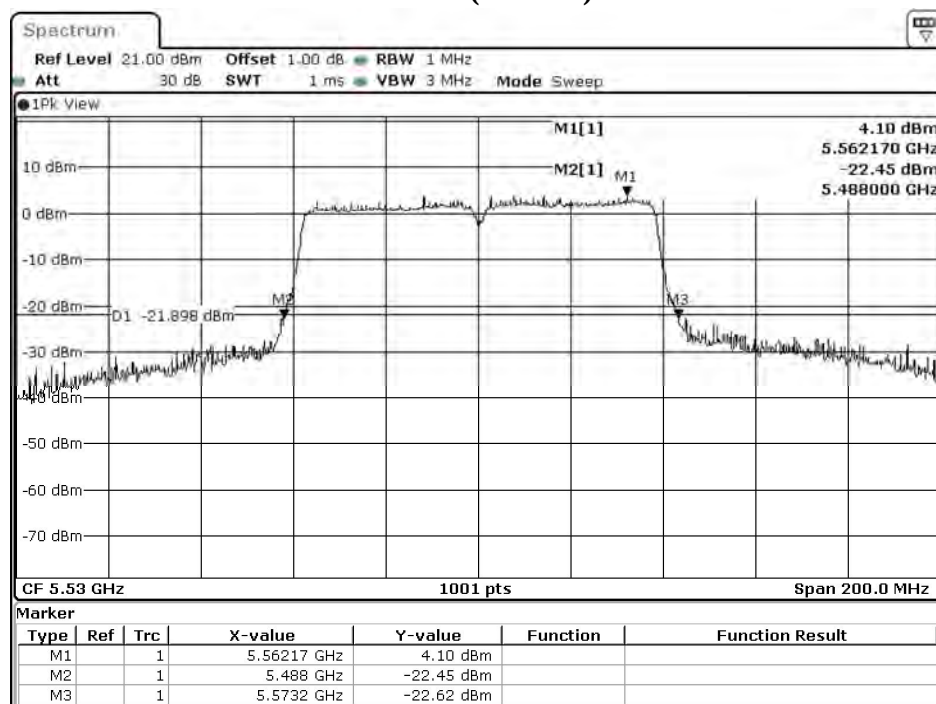
Date: 17.AUG.2021 08:36:04

Channel 106 (Chain A)



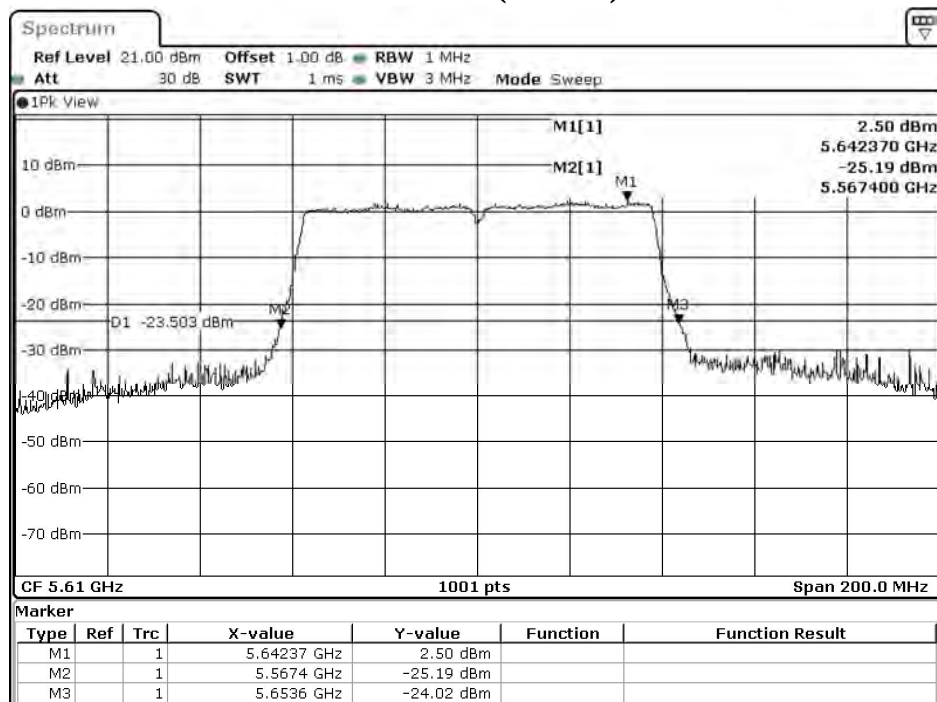
Date: 17.AUG.2021 03:59:36

Channel 106 (Chain B)



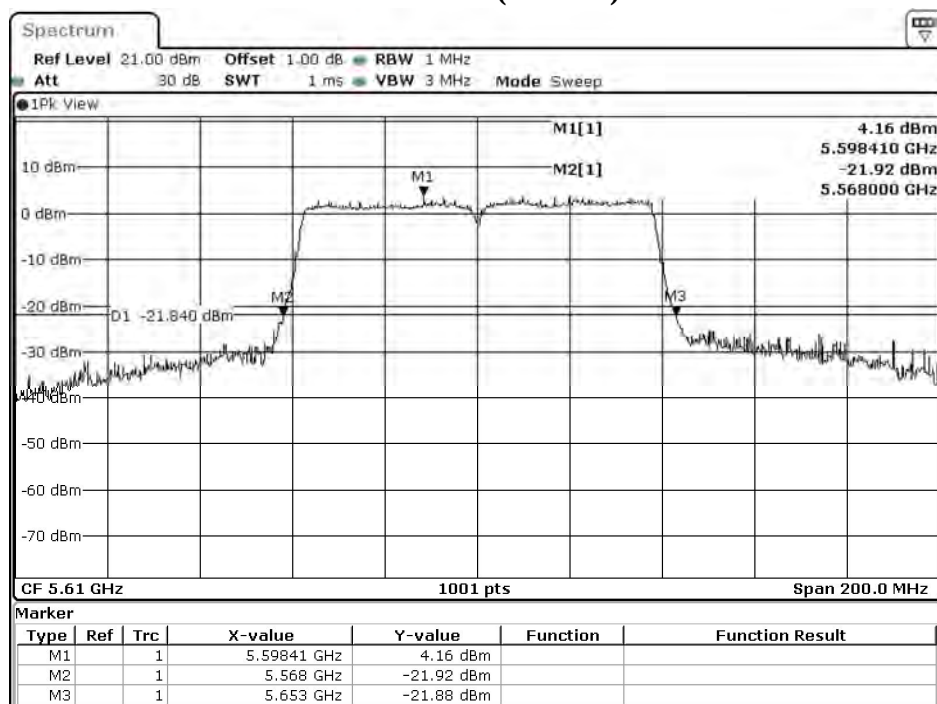
Date: 17.AUG.2021 08:39:34

Channel 122 (Chain A)



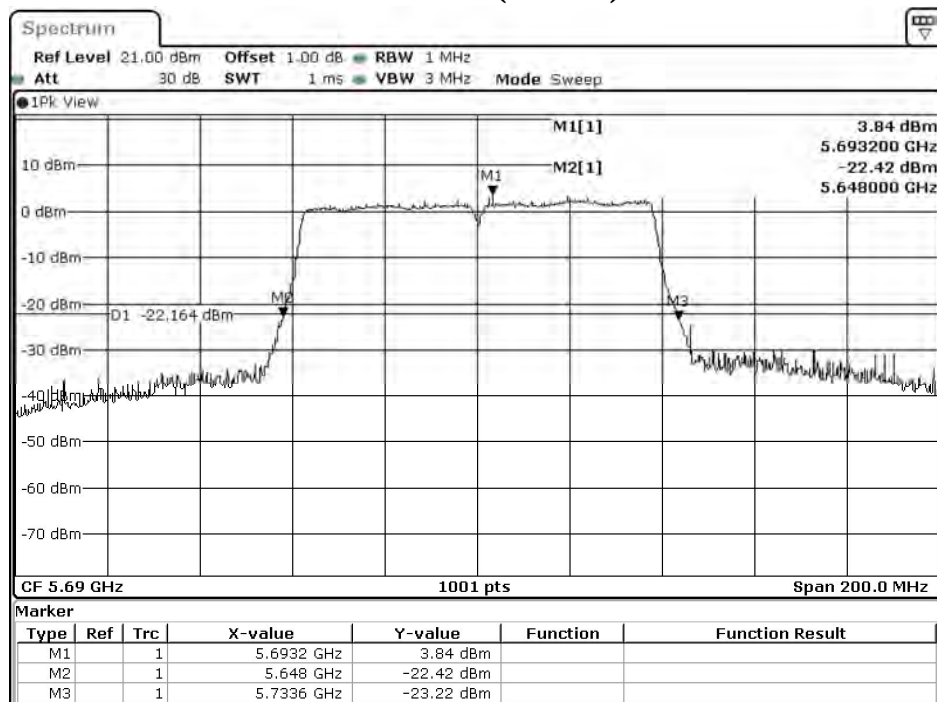
Date: 17.AUG.2021 04:02:09

Channel 122 (Chain B)



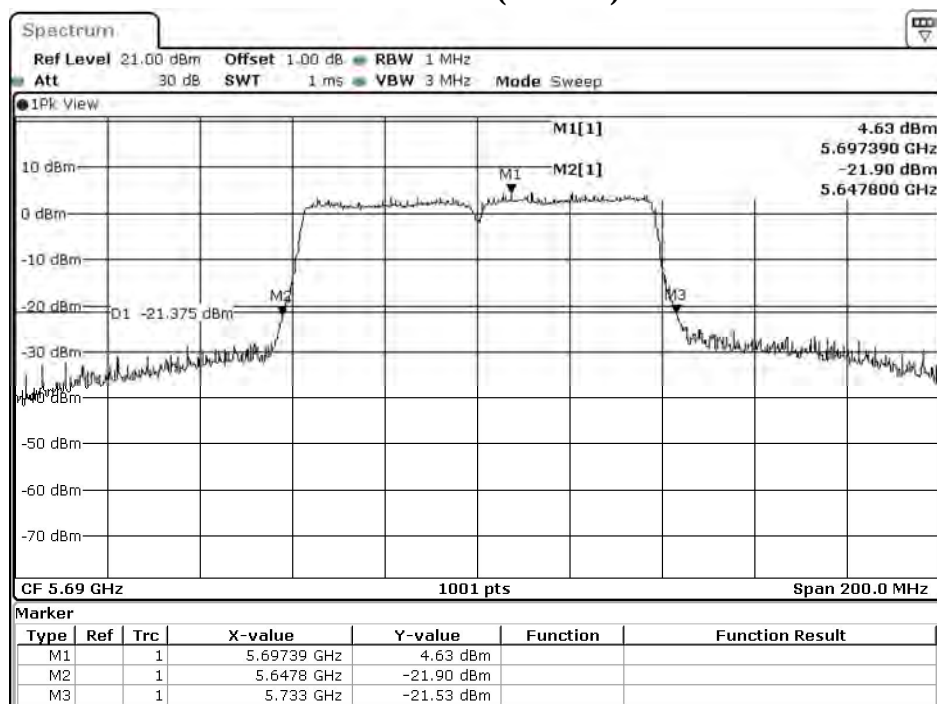
Date: 17.AUG.2021 08:42:07

Channel 138 (Chain A)

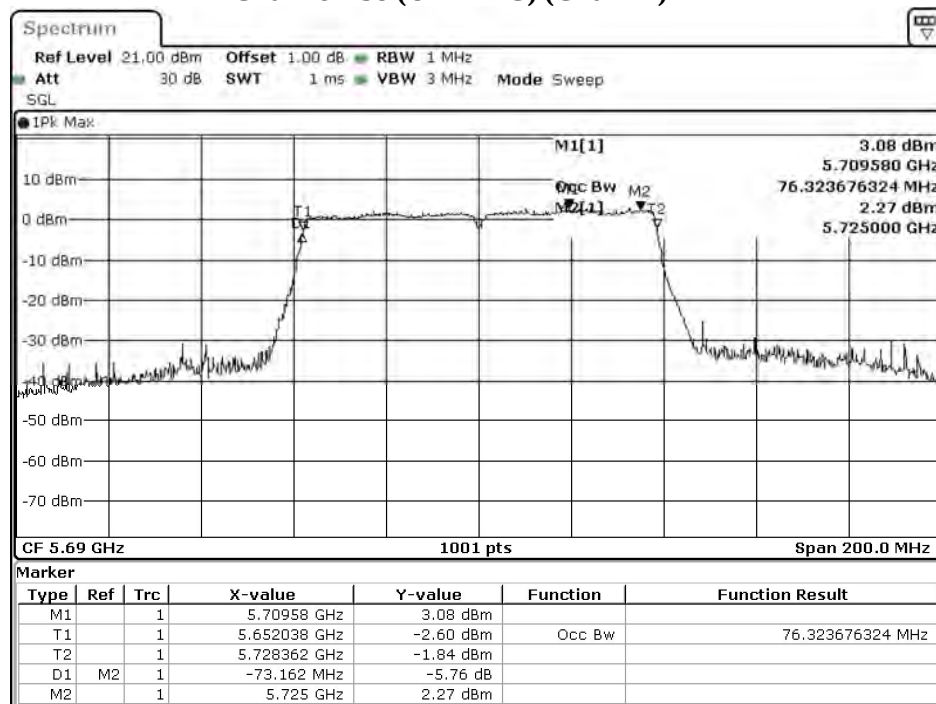


Date: 17.AUG.2021 04:04:53

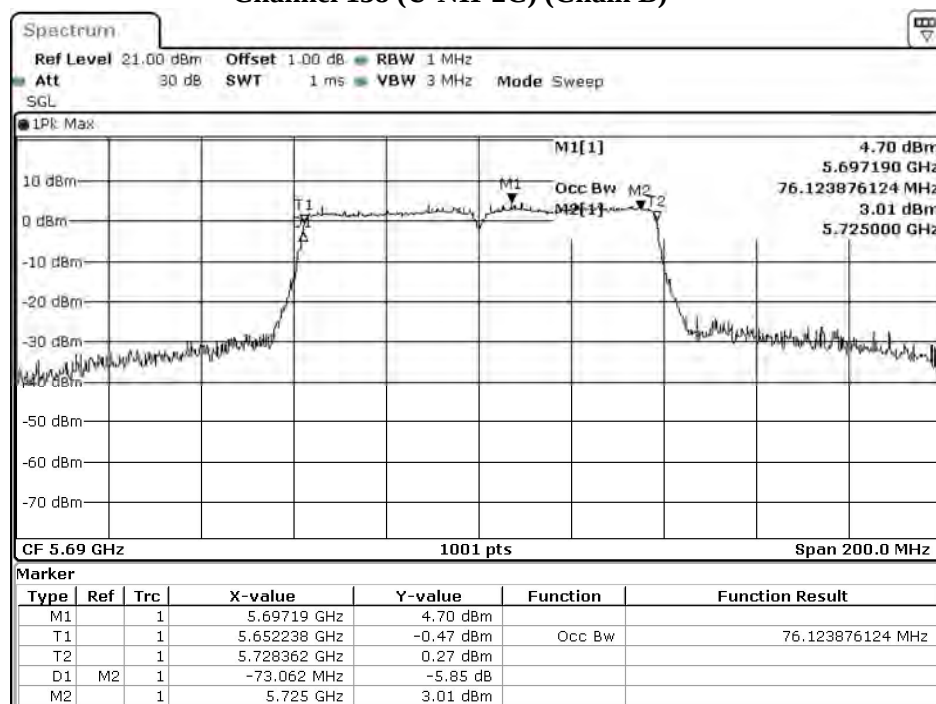
Channel 138 (Chain B)



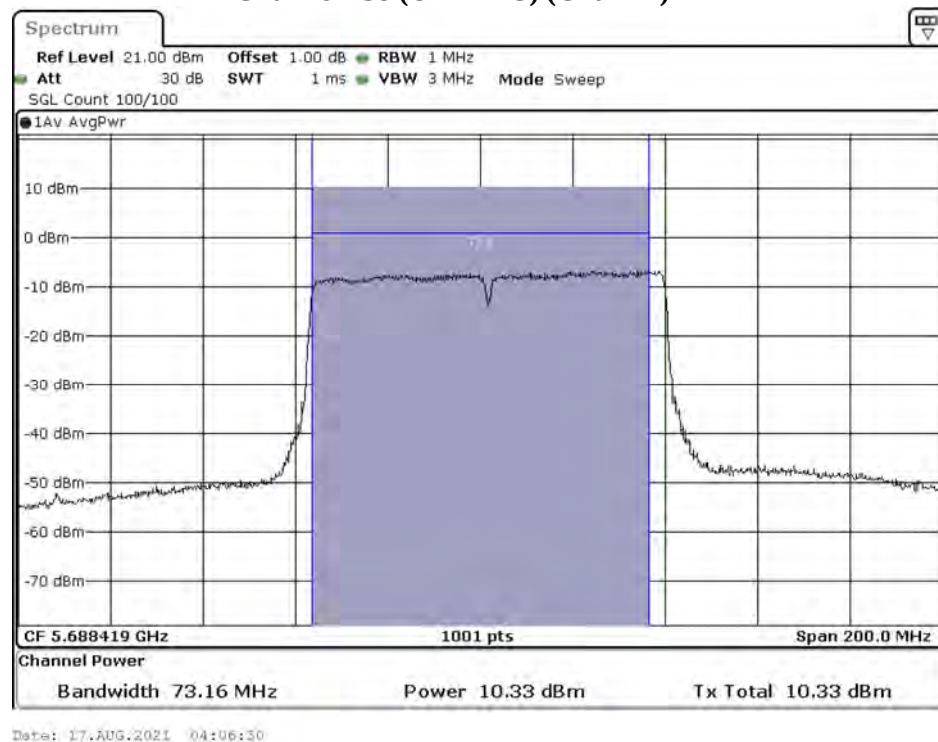
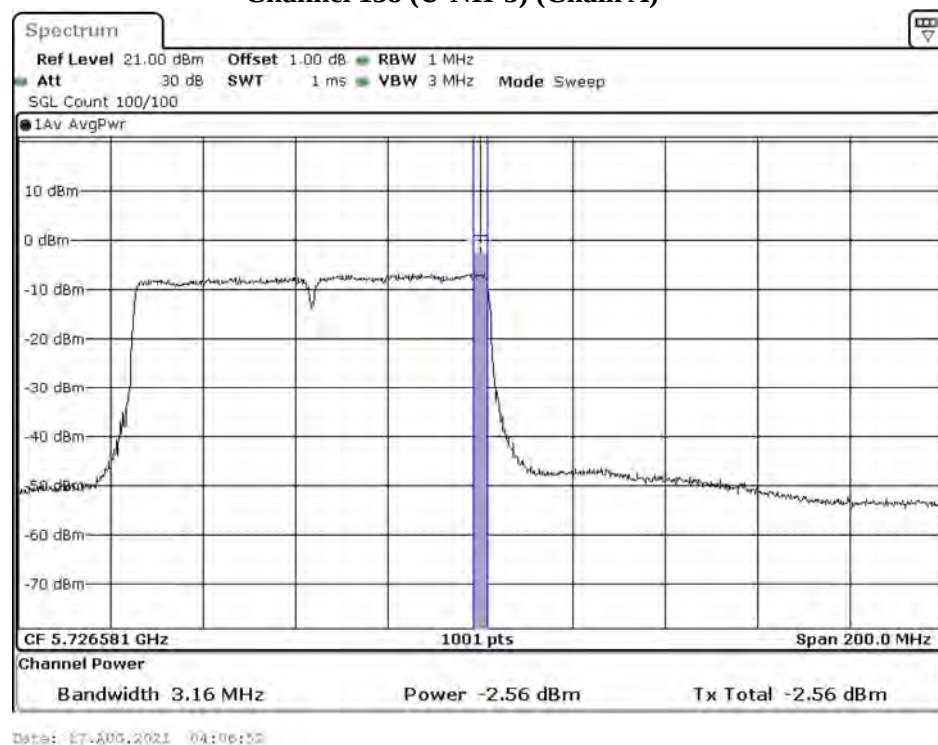
Date: 17.AUG.2021 08:44:51

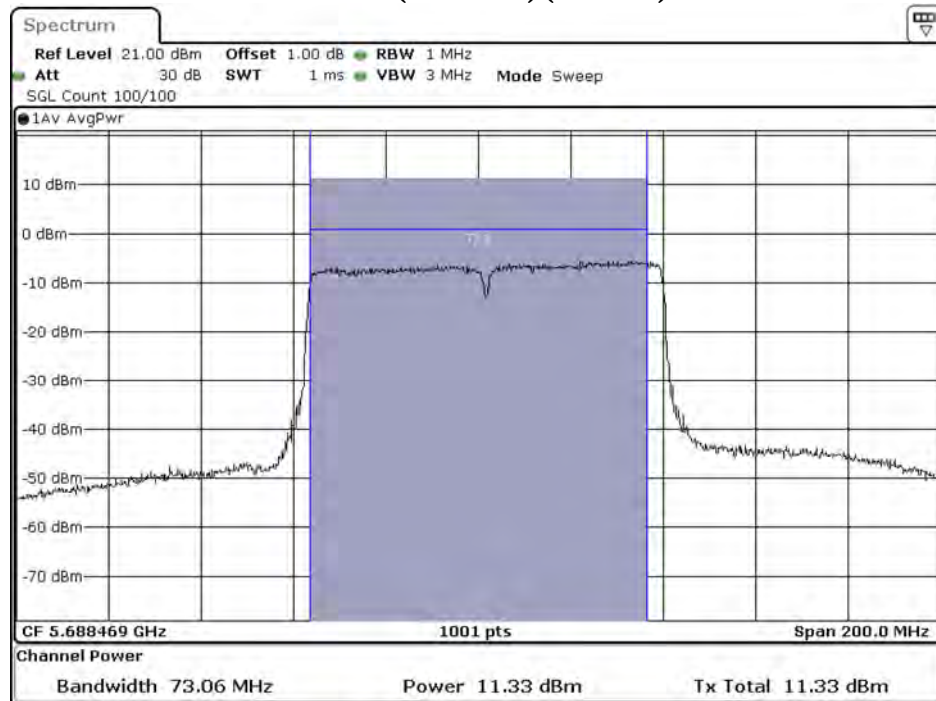
99% Occupied Bandwidth:**Channel 138 (U-NII-2C) (Chain A)**

Date: 17.AUG.2021 04:03:38

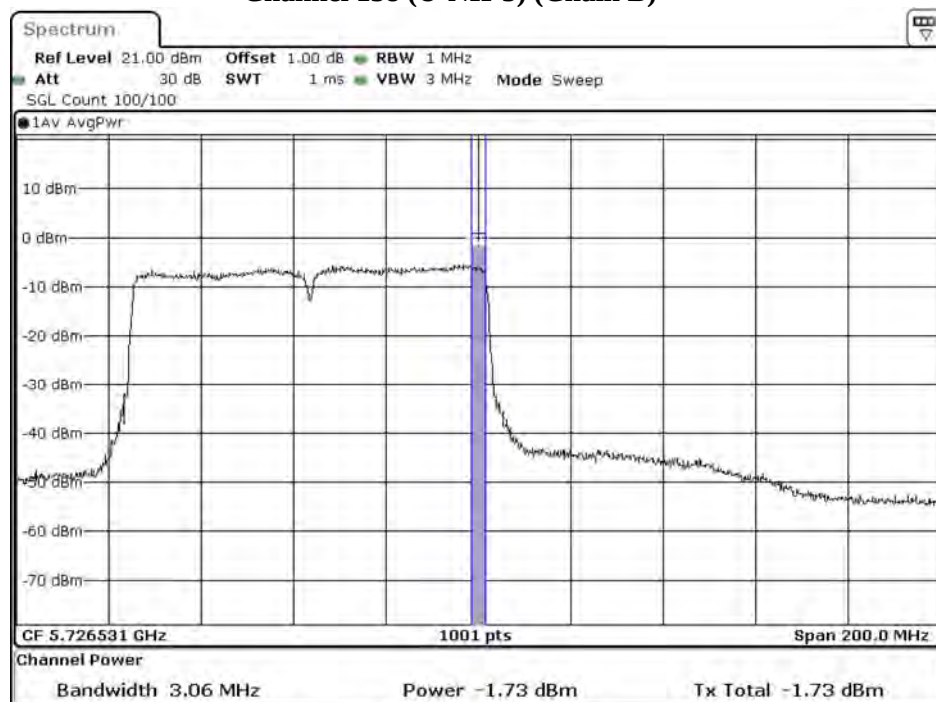
Channel 138 (U-NII-2C) (Chain B)

Date: 17.AUG.2021 08:44:11

Maximum conducted output power:**Channel 138 (U-NII-2C) (Chain A)****Channel 138 (U-NII-3) (Chain A)**

Channel 138 (U-NII-2C) (Chain B)

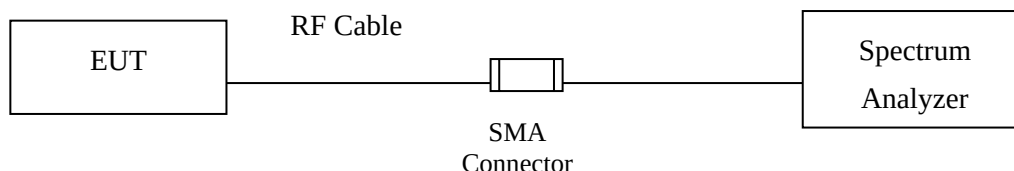
Date: 17.AUG.2021 08:47:04

Channel 138 (U-NII-3) (Chain B)

Date: 17.AUG.2021 08:47:26

4. Peak Power Spectral Density

4.1. Test Setup



4.2. Limits

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.+

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.3. Test Procedure

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.

SA-1 method is selected to run the test.

For the band 5.725-5.85 GHz, Scale the observed power level to an equivalent value in 500 kHz by adjusting (increase) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500\text{ kHz}/100\text{ kHz}) = 6.98\text{ dB}$.

4.4. Test Result of Peak Power Spectral Density

Product : Speech Generating Device
 Test Item : Peak Power Spectral Density
 Test Mode : Mode 1: Transmit (802.11a 6Mbps)
 Test Date : 2021/08/19

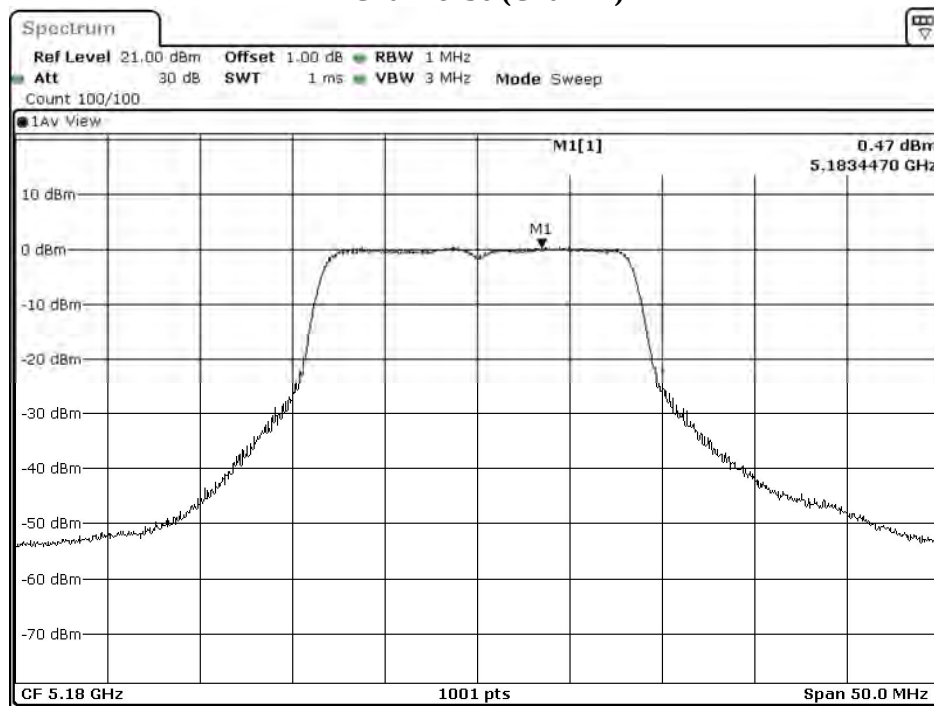
Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD/MHz (dBm)	10*log(2) (dB)	Duty factor (dB)	Total PPSP/MHz (dBm)	Limit (dBm)	Result
36	5180	6	A	0.47	3.01	0.11	3.59	11	Pass
			B	-0.06	3.01	0.11	3.06	11	Pass
44	5220	6	A	0.74	3.01	0.11	3.86	11	Pass
			B	0.19	3.01	0.11	3.31	11	Pass
48	5240	6	A	1.04	3.01	0.11	4.16	11	Pass
			B	0.70	3.01	0.11	3.82	11	Pass
52	5260	6	A	0.87	3.01	0.11	3.99	11	Pass
			B	0.60	3.01	0.11	3.72	11	Pass
60	5300	6	A	1.06	3.01	0.11	4.18	11	Pass
			B	0.64	3.01	0.11	3.76	11	Pass
64	5320	6	A	1.48	3.01	0.11	4.60	11	Pass
			B	0.64	3.01	0.11	3.76	11	Pass
100	5500	6	A	0.42	3.01	0.11	3.54	11	Pass
			B	0.66	3.01	0.11	3.78	11	Pass
116	5580	6	A	0.98	3.01	0.11	4.10	11	Pass
			B	1.72	3.01	0.11	4.84	11	Pass
140	5700	6	A	1.59	3.01	0.11	4.71	11	Pass
			B	2.69	3.01	0.11	5.81	11	Pass

Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD (dBm)	BWCF (dB)	10*log(2) (dB)	Duty factor (dB)	Total PPSP (dBm)	Limit (dBm)	Result
149	5745	6	A	-15.88	6.98	3.01	0.11	-5.78	<30	Pass
			B	-15.00	6.98	3.01	0.11	-4.90		Pass
157	5785	6	A	-15.83	6.98	3.01	0.11	-5.73	<30	Pass
			B	-15.15	6.98	3.01	0.11	-5.05		Pass
165	5825	6	A	-15.97	6.98	3.01	0.11	-5.87	<30	Pass
			B	-14.83	6.98	3.01	0.11	-4.73		Pass

Note:

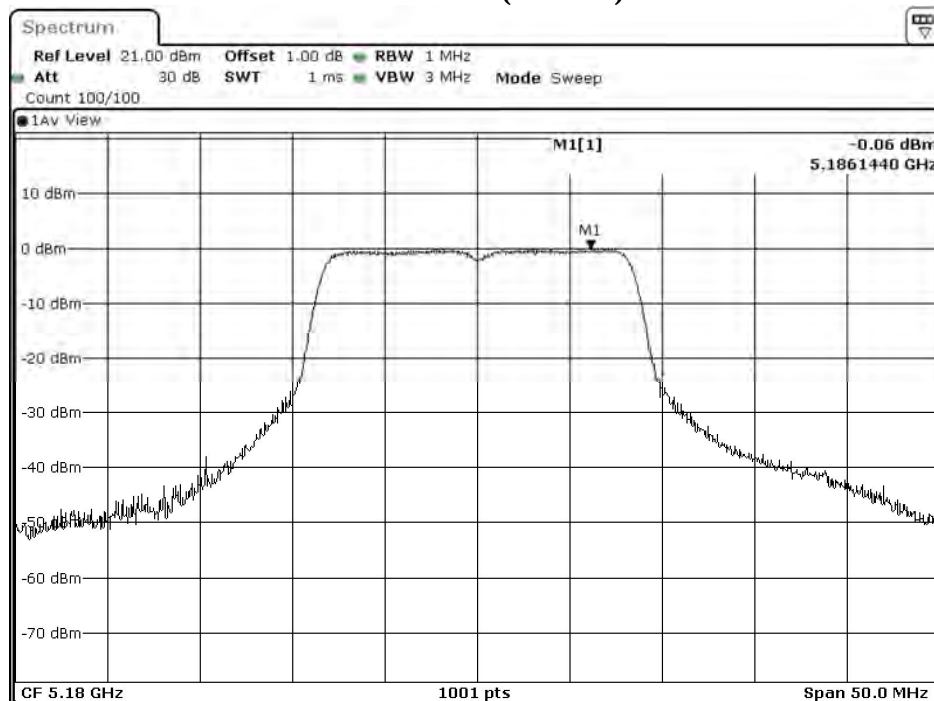
The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel 36 (Chain A)

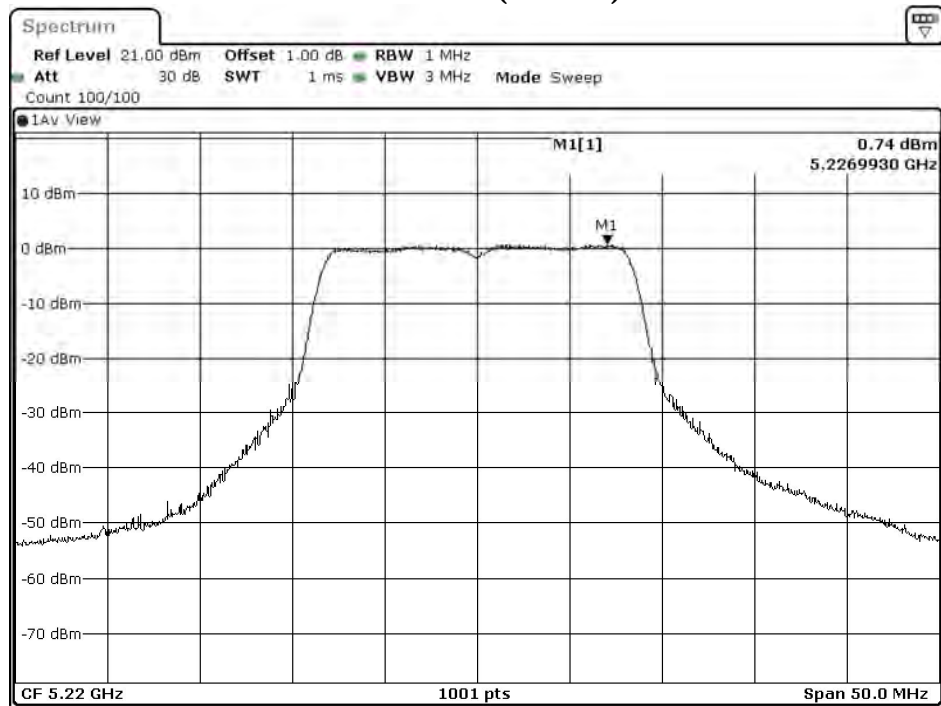


Date: 17.AUG.2021 03:02:12

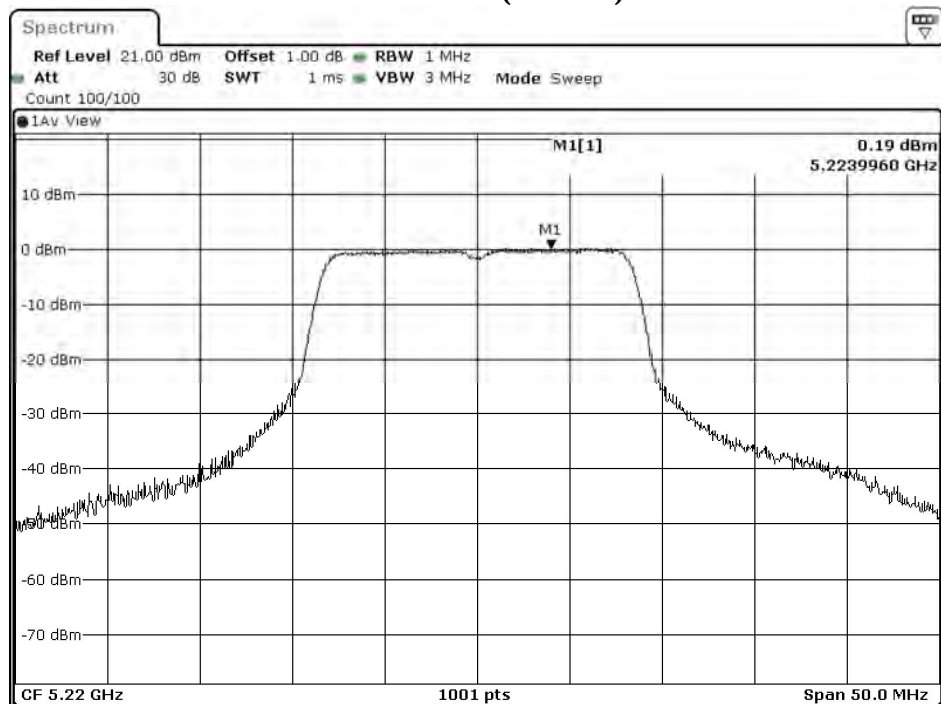
Channel 36 (Chain B)



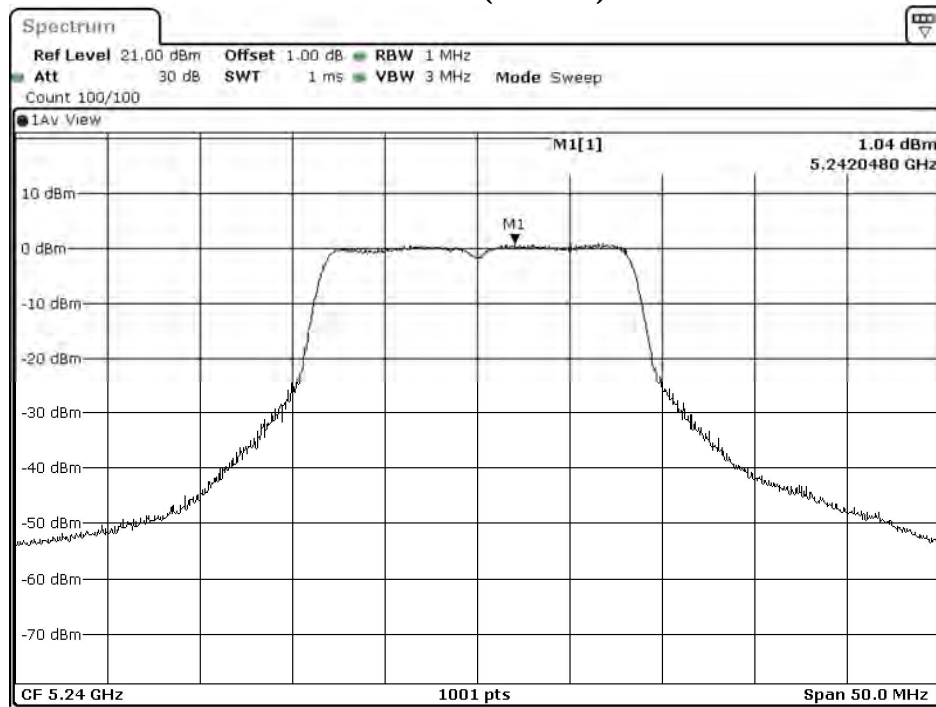
Date: 17.AUG.2021 07:42:46

Channel 44 (Chain A)

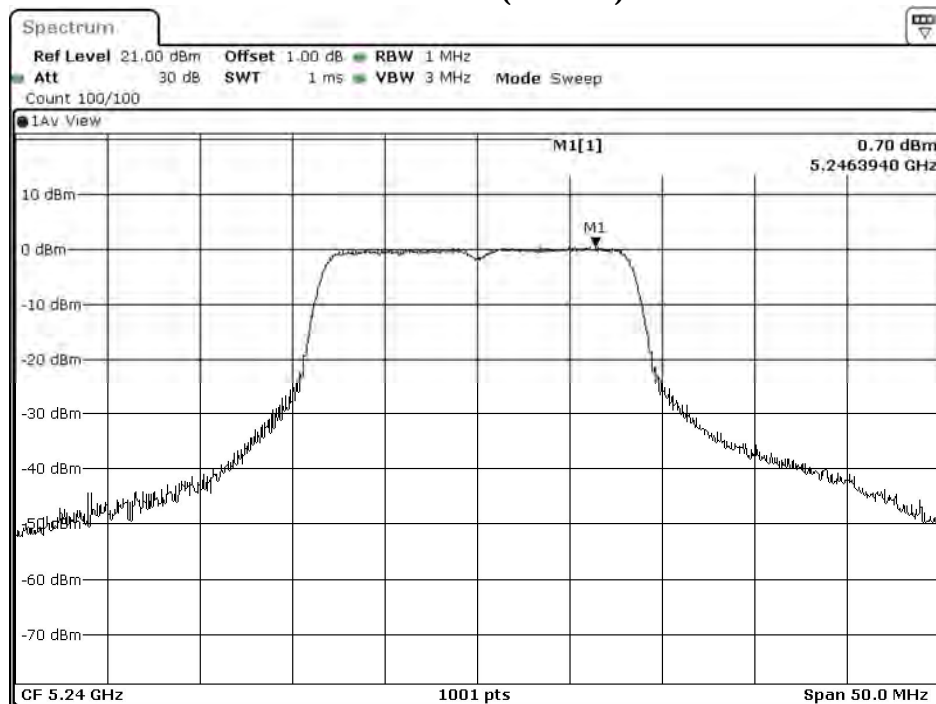
Date: 17.AUG.2021 03:06:33

Channel 44 (Chain B)

Date: 17.AUG.2021 07:47:07

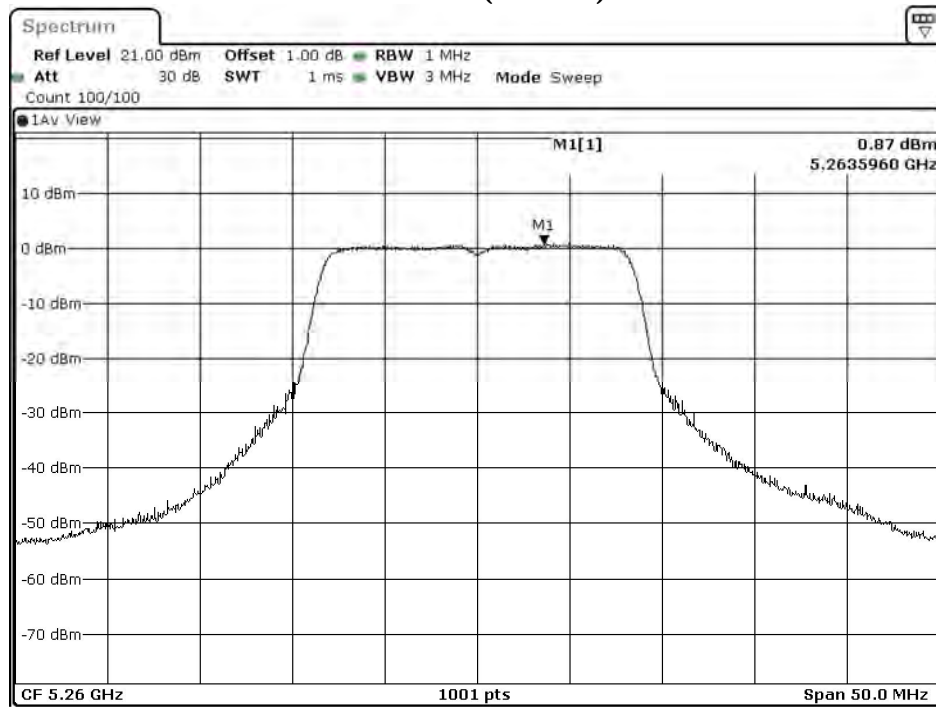
Channel 48 (Chain A)

Date: 17.AUG.2021 03:12:13

Channel 48 (Chain B)

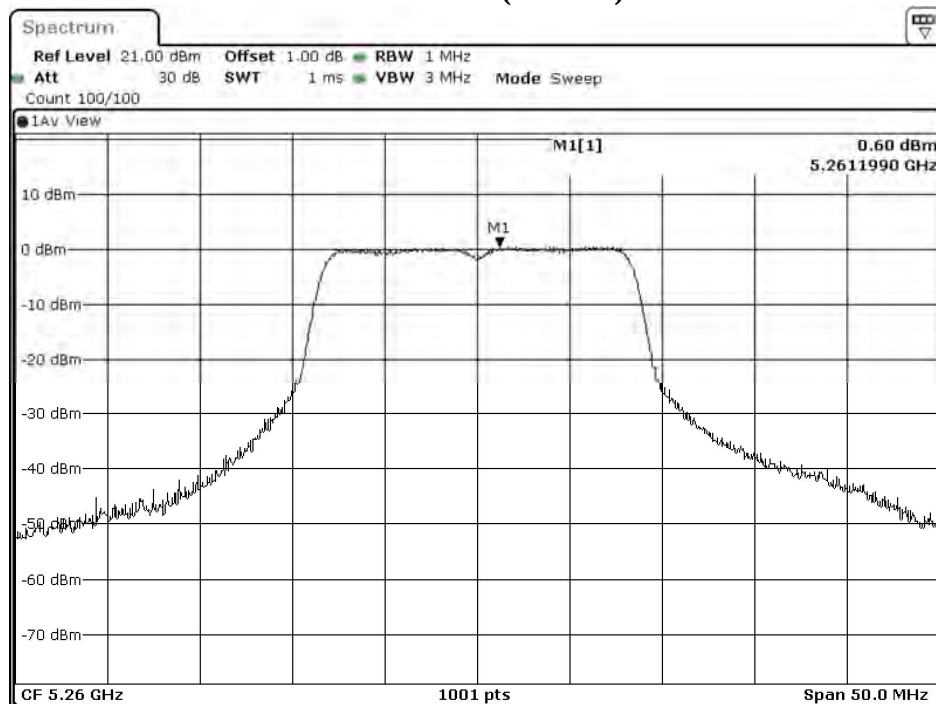
Date: 17.AUG.2021 07:52:47

Channel 52 (Chain A)



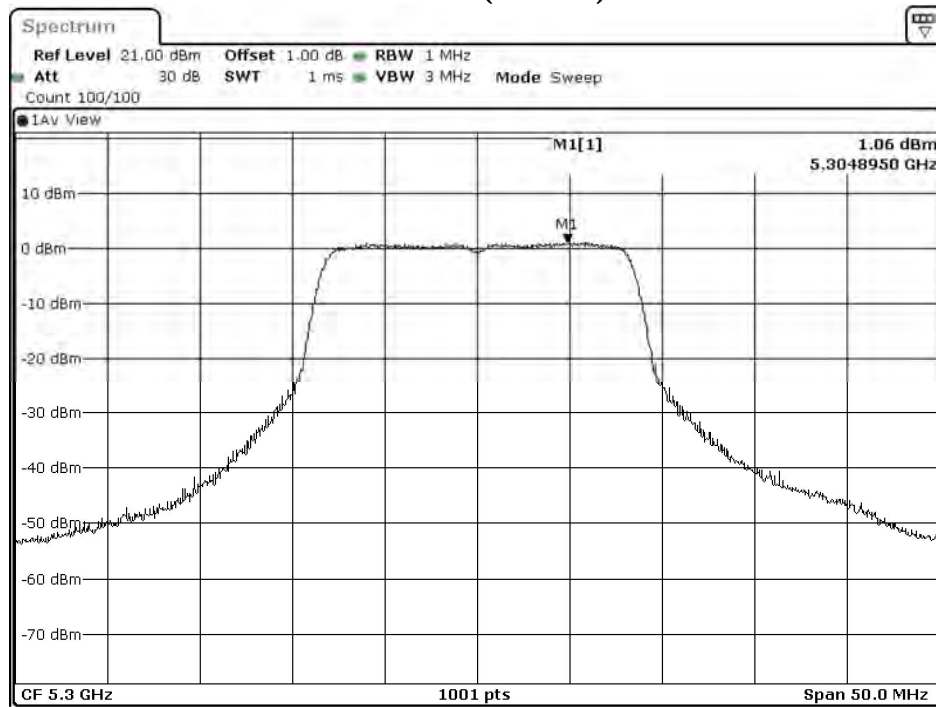
Date: 17.AUG.2021 03:15:21

Channel 52 (Chain B)



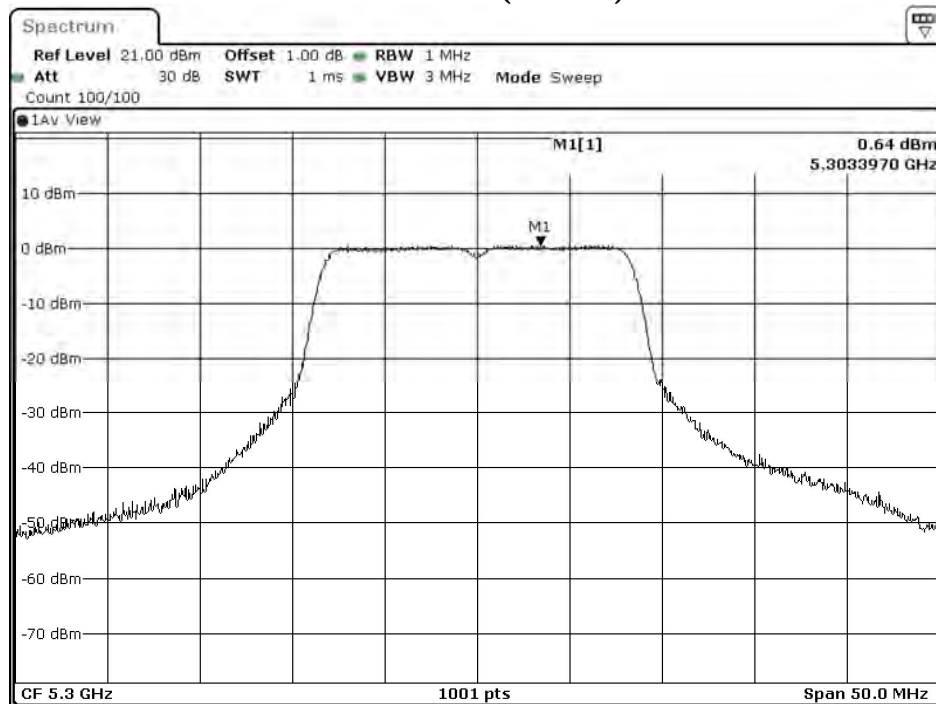
Date: 17.AUG.2021 07:55:54

Channel 60 (Chain A)



Date: 17.AUG.2021 03:18:01

Channel 60 (Chain B)



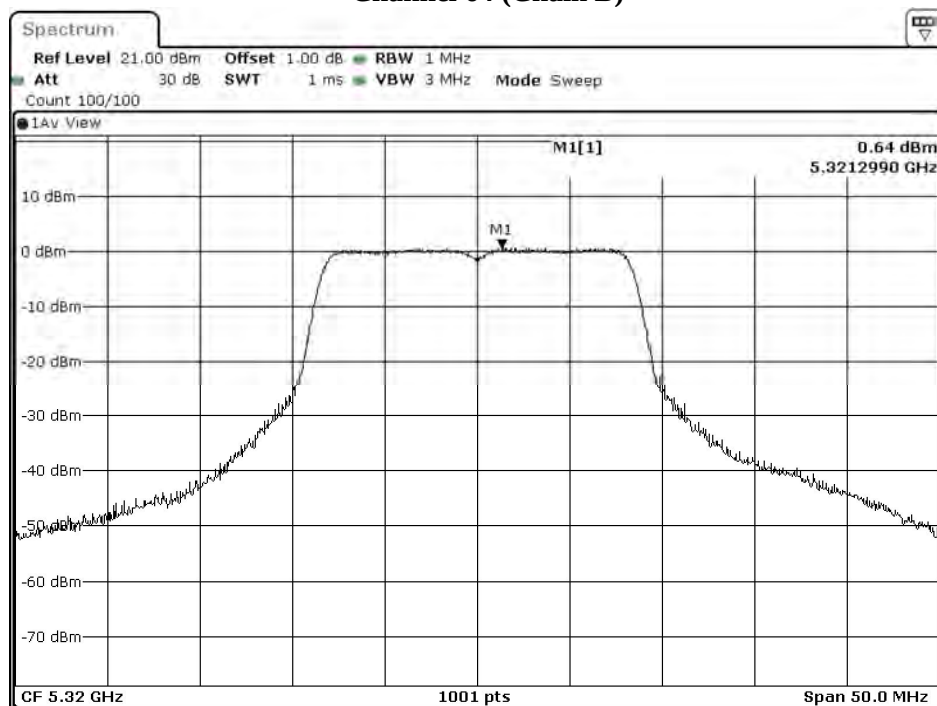
Date: 17.AUG.2021 07:58:35

Channel 64 (Chain A)

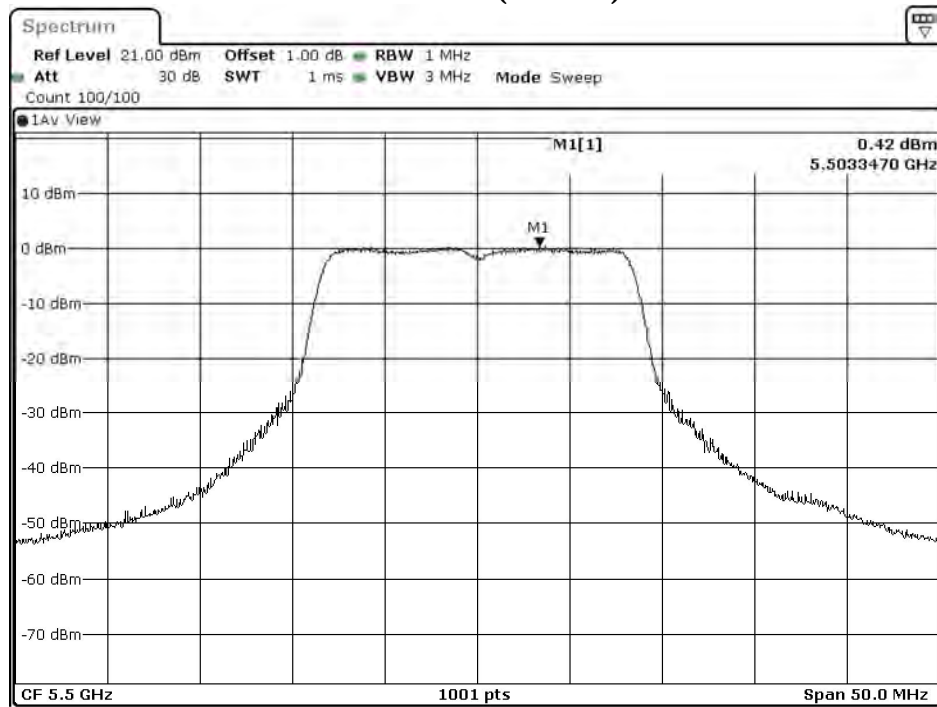


Date: 17.AUG.2021 03:22:57

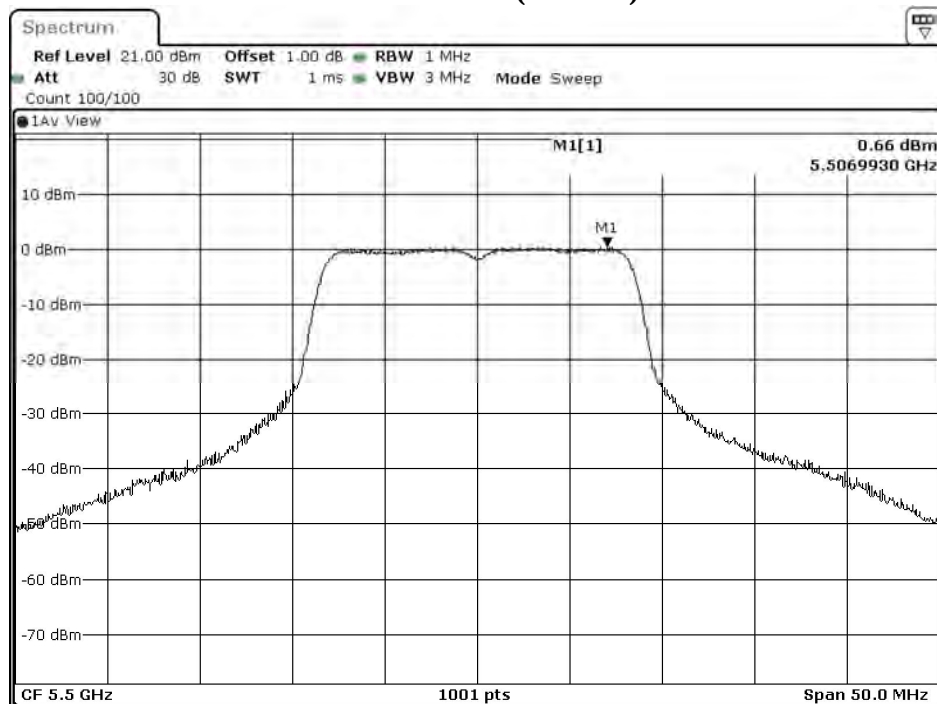
Channel 64 (Chain B)



Date: 17.AUG.2021 08:03:31

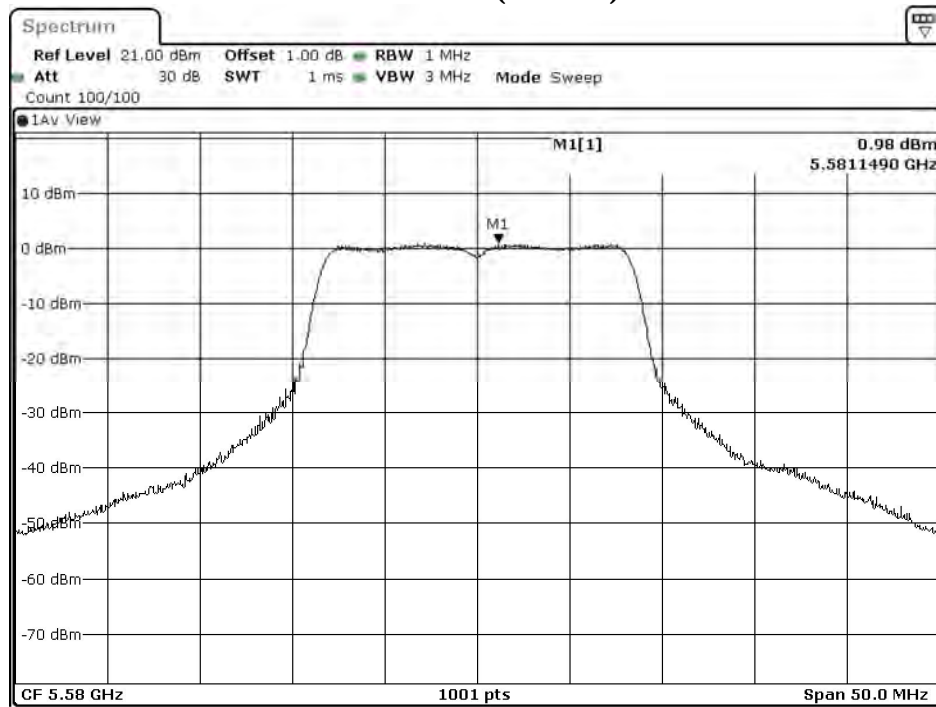
Channel 100 (Chain A)

Date: 17.AUG.2021 03:26:02

Channel 100 (Chain B)

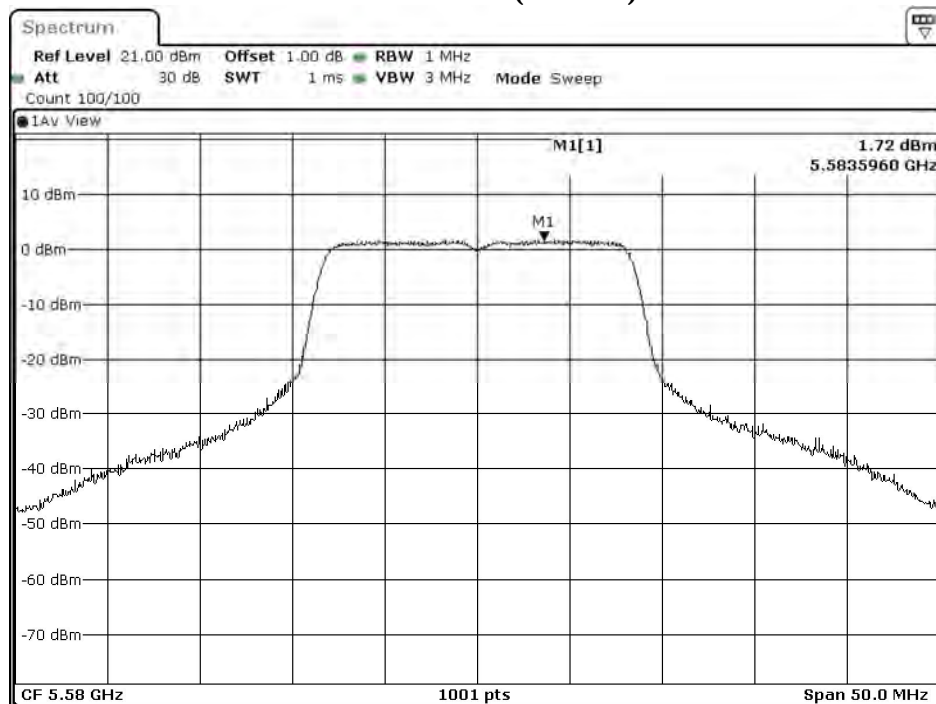
Date: 17.AUG.2021 08:06:36

Channel 116 (Chain A)



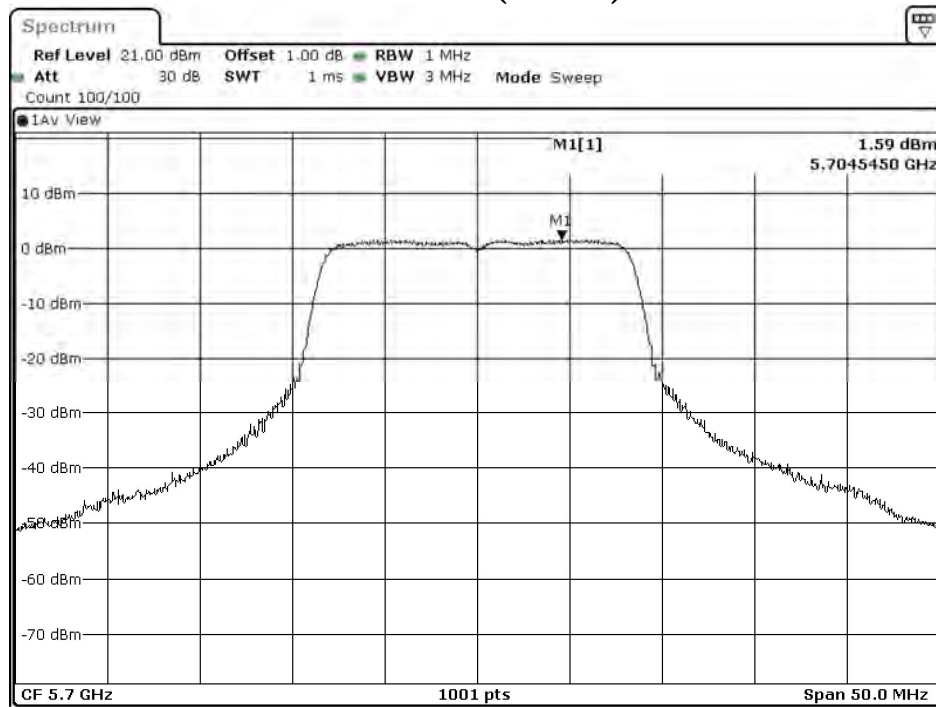
Date: 17.AUG.2021 03:37:49

Channel 116 (Chain B)



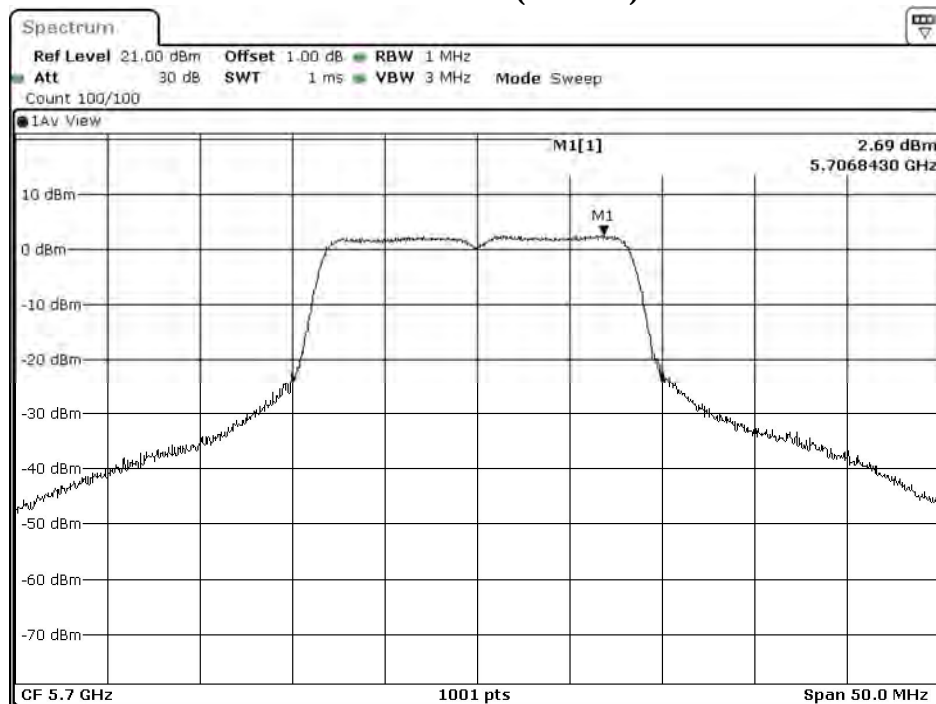
Date: 17.AUG.2021 08:18:22

Channel 140 (Chain A)



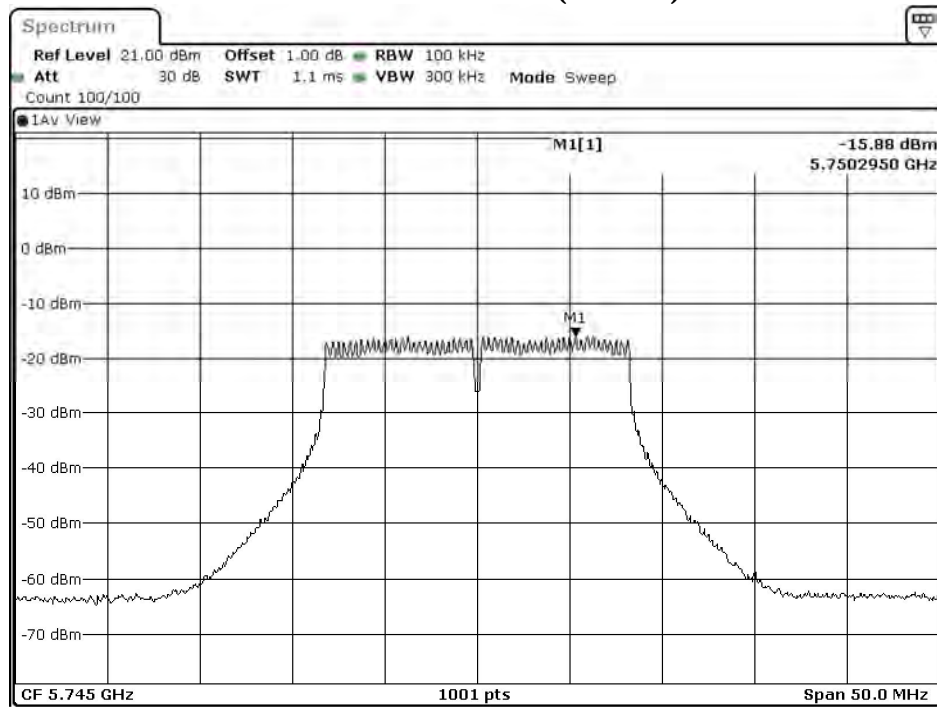
Date: 17.AUG.2021 03:40:29

Channel 140 (Chain B)



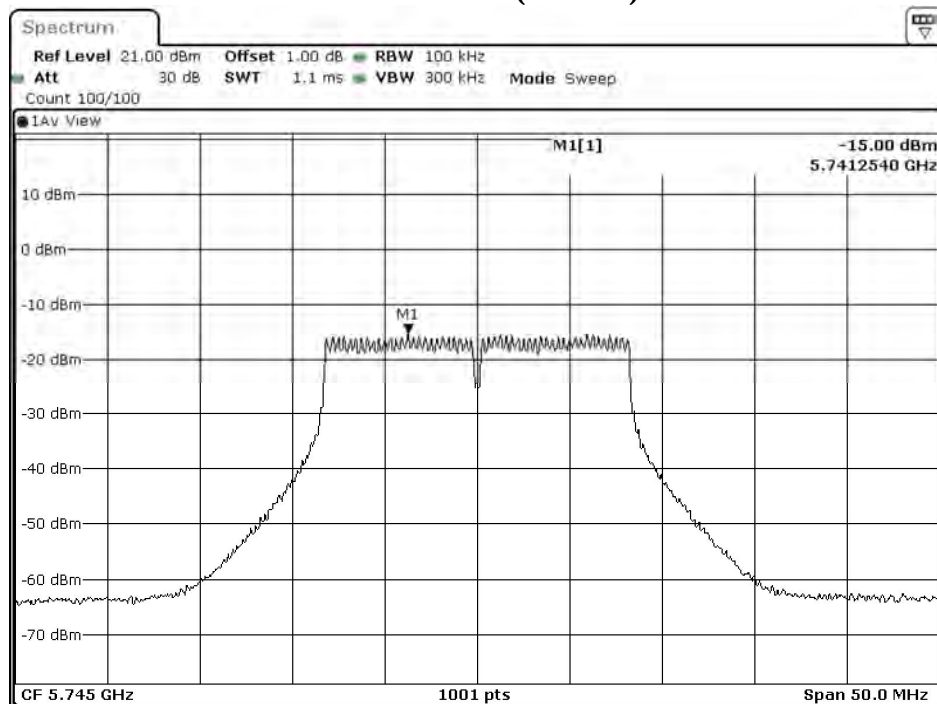
Date: 17.AUG.2021 08:21:03

Channel 149 (Chain A)



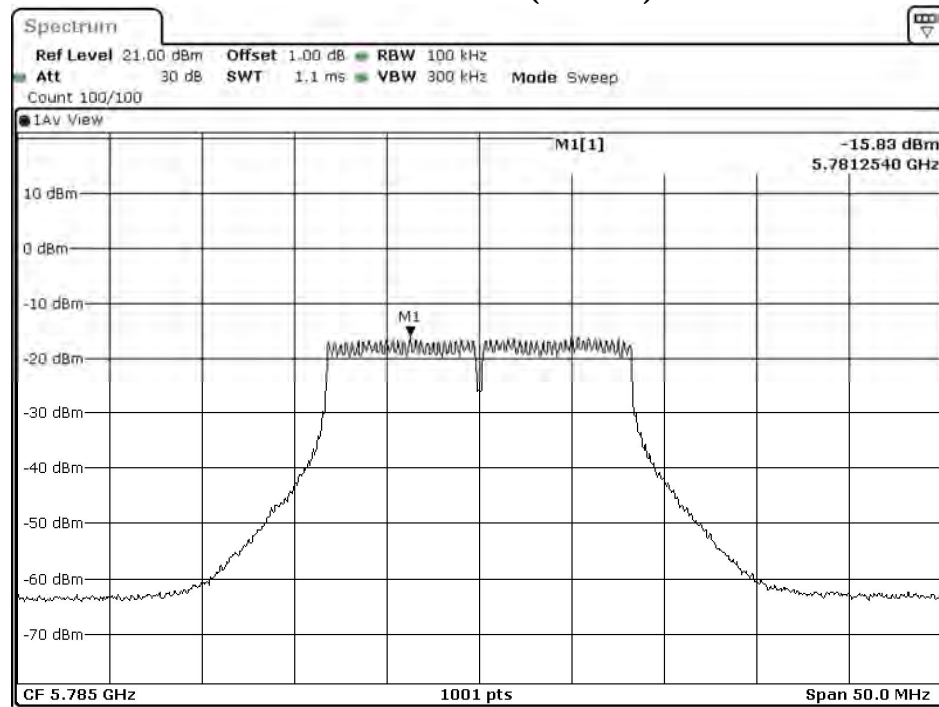
Date: 17.AUG.2021 05:02:17

Channel 149 (Chain B)



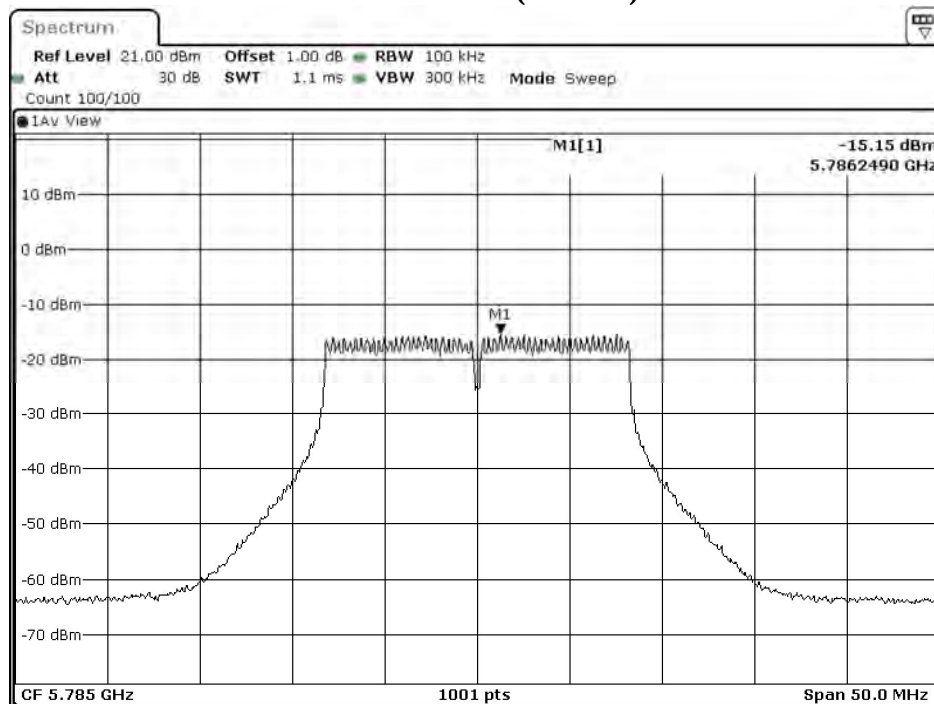
Date: 17.AUG.2021 09:42:50

Channel 157 (Chain A)



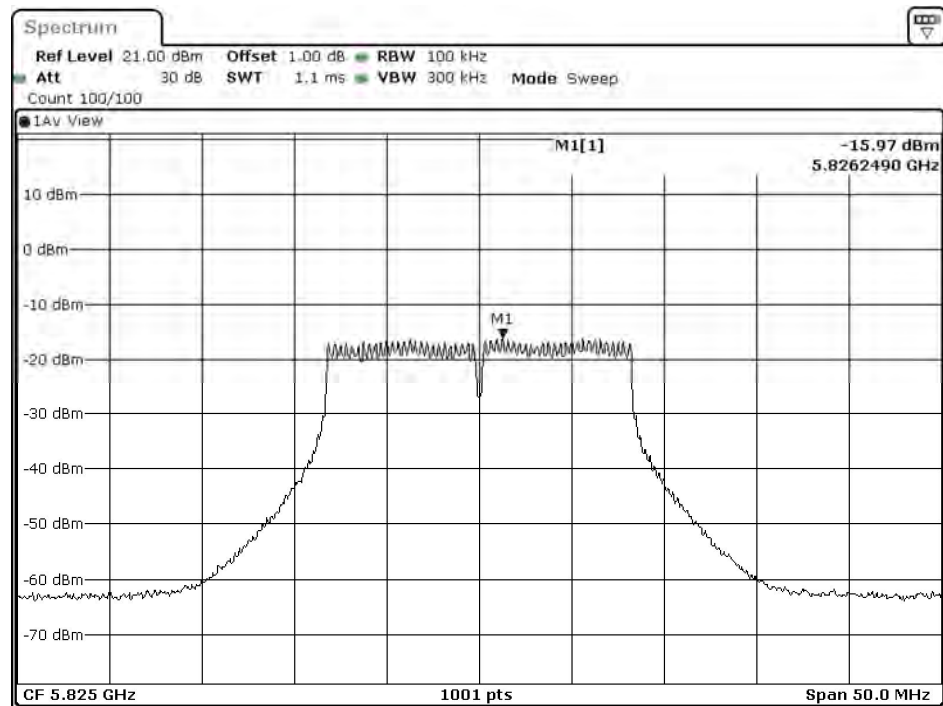
Date: 17.AUG.2021 05:05:02

Channel 157 (Chain B)



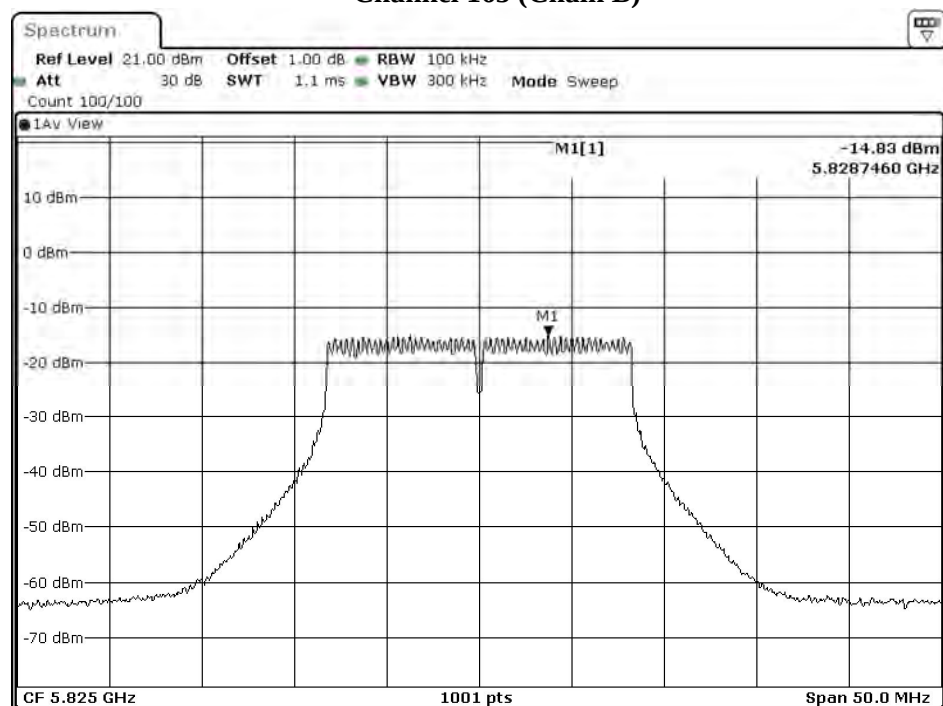
Date: 17.AUG.2021 09:45:36

Channel 165 (Chain A)



Date: 17.AUG.2021 05:07:26

Channel 165 (Chain B)



Date: 17.AUG.2021 09:48:00

Product : Speech Generating Device
 Test Item : Peak Power Spectral Density
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)
 Test Date : 2021/08/19

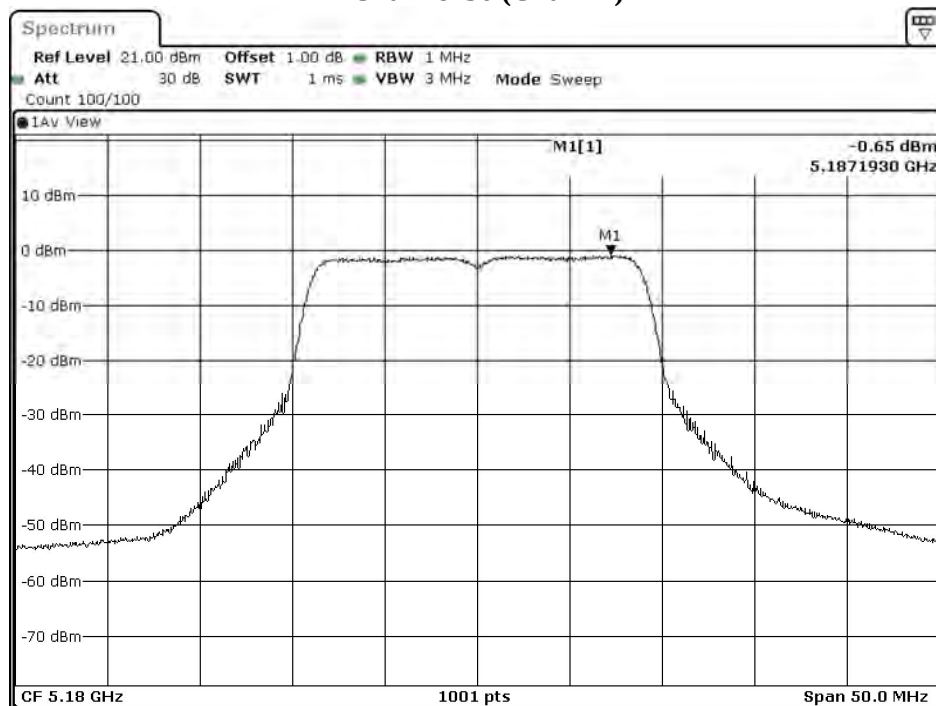
Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD/MHz (dBm)	10*log(2) (dB)	Duty factor (dB)	Total PPSSD/MHz (dBm)	Limit (dBm)	Result
36	5180	HT8	A	-0.65	3.01	0.15	2.51	11	Pass
			B	-1.10	3.01	0.15	2.06	11	Pass
44	5220	HT8	A	-0.57	3.01	0.15	2.59	11	Pass
			B	-0.81	3.01	0.15	2.35	11	Pass
48	5240	HT8	A	-0.60	3.01	0.15	2.56	11	Pass
			B	-0.89	3.01	0.15	2.27	11	Pass
52	5260	HT8	A	-0.42	3.01	0.15	2.74	11	Pass
			B	-0.68	3.01	0.15	2.48	11	Pass
60	5300	HT8	A	-0.30	3.01	0.15	2.86	11	Pass
			B	-0.45	3.01	0.15	2.71	11	Pass
64	5320	HT8	A	-0.13	3.01	0.15	3.03	11	Pass
			B	-0.72	3.01	0.15	2.44	11	Pass
100	5500	HT8	A	-1.20	3.01	0.15	1.96	11	Pass
			B	-0.67	3.01	0.15	2.49	11	Pass
116	5580	HT8	A	-0.53	3.01	0.15	2.63	11	Pass
			B	0.85	3.01	0.15	4.01	11	Pass
140	5700	HT8	A	0.52	3.01	0.15	3.68	11	Pass
			B	1.26	3.01	0.15	4.42	11	Pass

Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD (dBm)	BWCF (dB)	10*log(2) (dB)	Duty factor (dB)	Total PPSSD (dBm)	Limit (dBm)	Result
149	5745	HT8	A	-15.99	6.98	3.01	0.15	-5.85	<30	Pass
			B	-15.23	6.98	3.01	0.15	-5.09		Pass
157	5785	HT8	A	-15.73	6.98	3.01	0.15	-5.59	<30	Pass
			B	-15.50	6.98	3.01	0.15	-5.36		Pass
165	5825	HT8	A	-16.05	6.98	3.01	0.15	-5.91	<30	Pass
			B	-15.27	6.98	3.01	0.15	-5.13		Pass

Note:

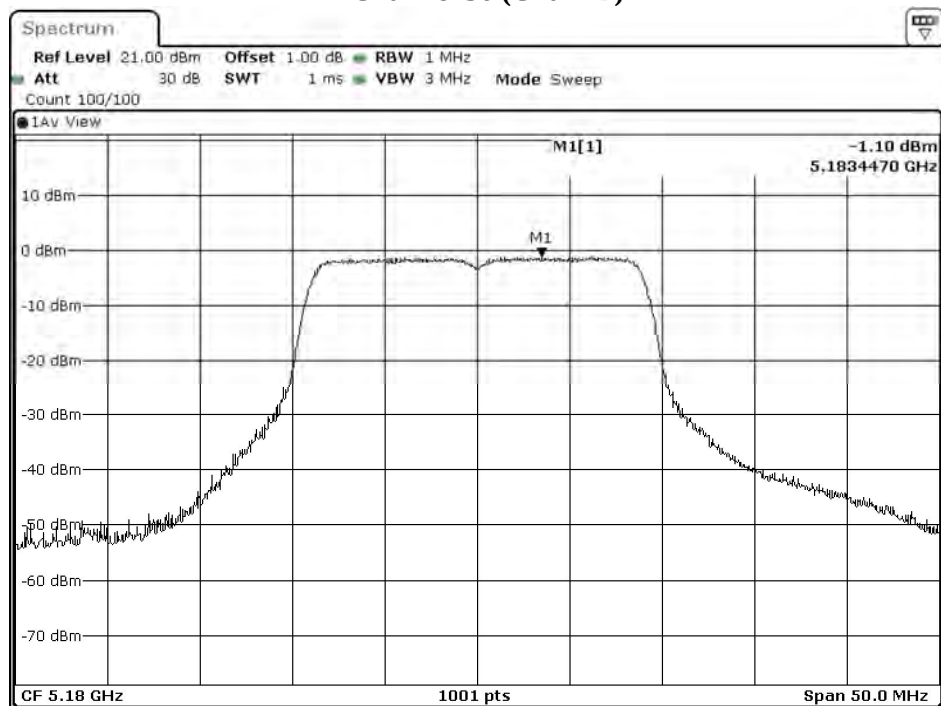
The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel 36 (Chain A)



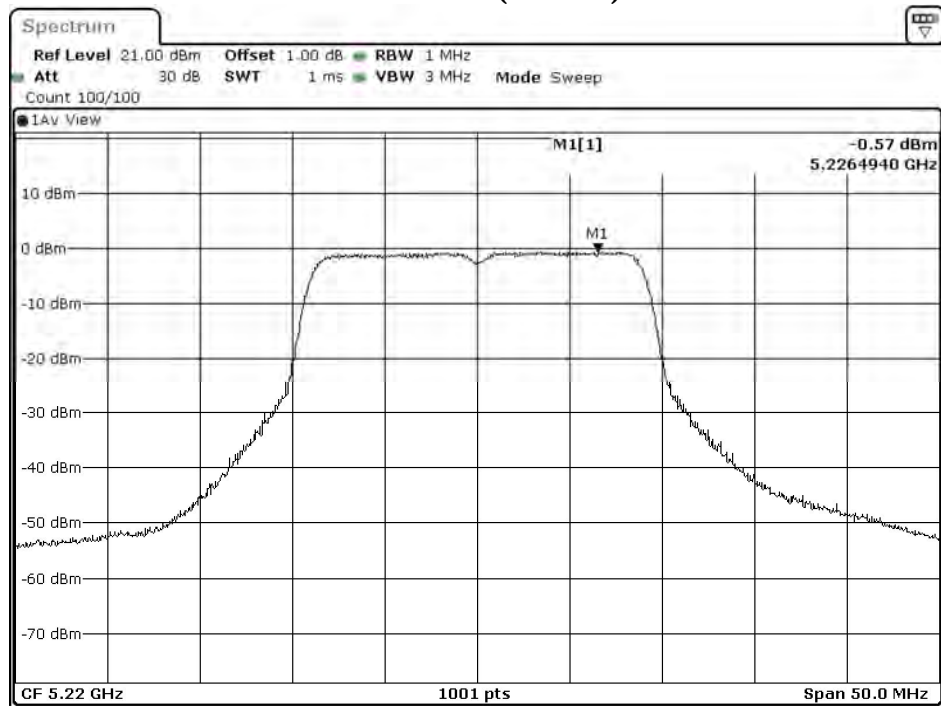
Date: 17.AUG.2021 04:10:43

Channel 36 (Chain B)



Date: 17.AUG.2021 08:51:17

Channel 44 (Chain A)



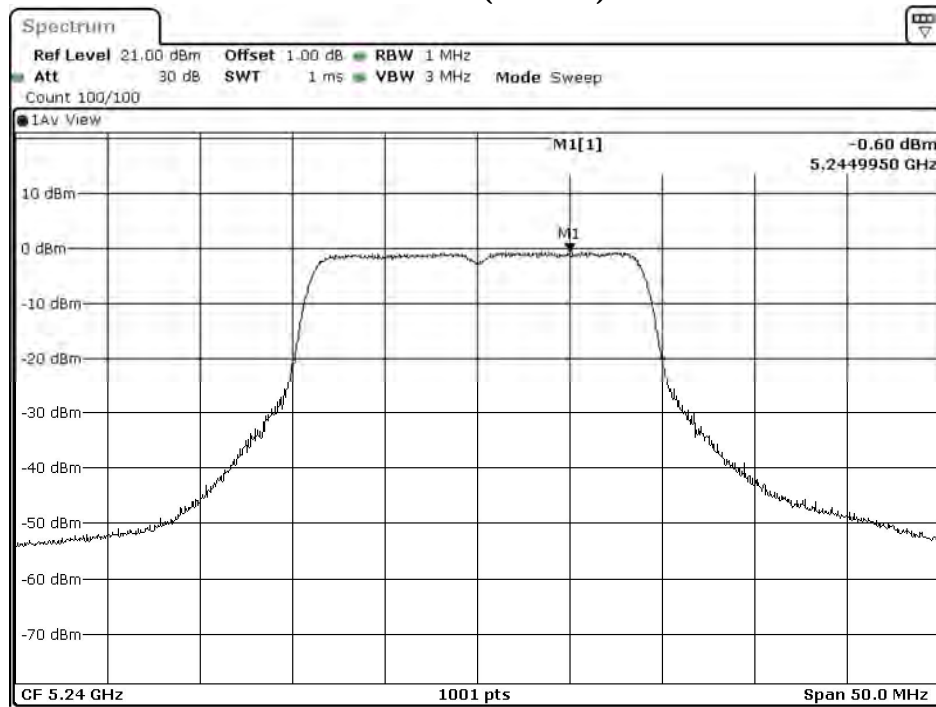
Date: 17.AUG.2021 04:13:05

Channel 44 (Chain B)



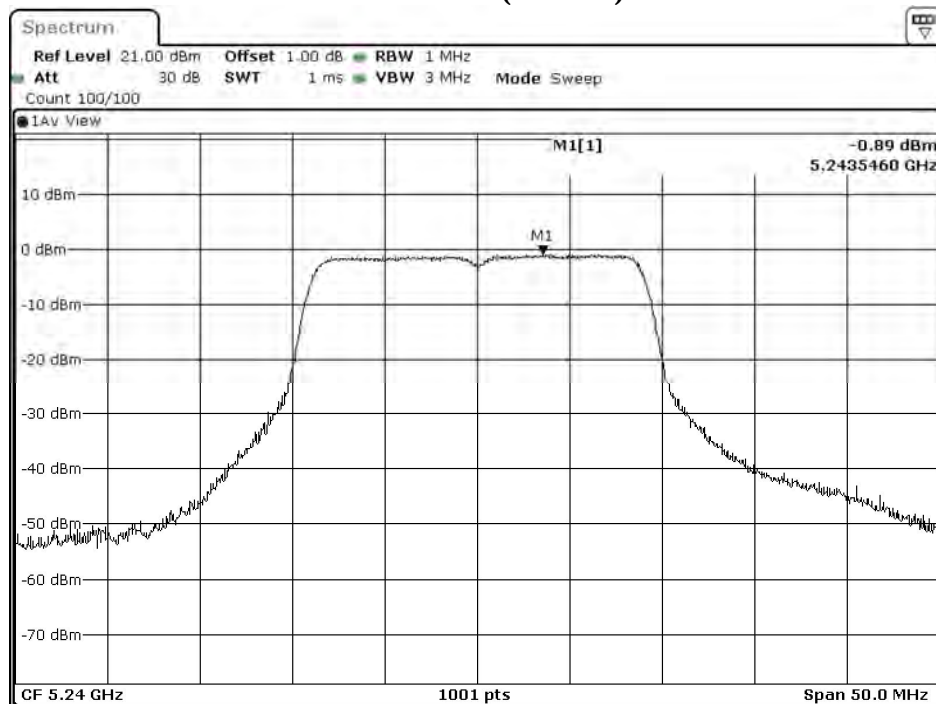
Date: 17.AUG.2021 08:53:39

Channel 48 (Chain A)



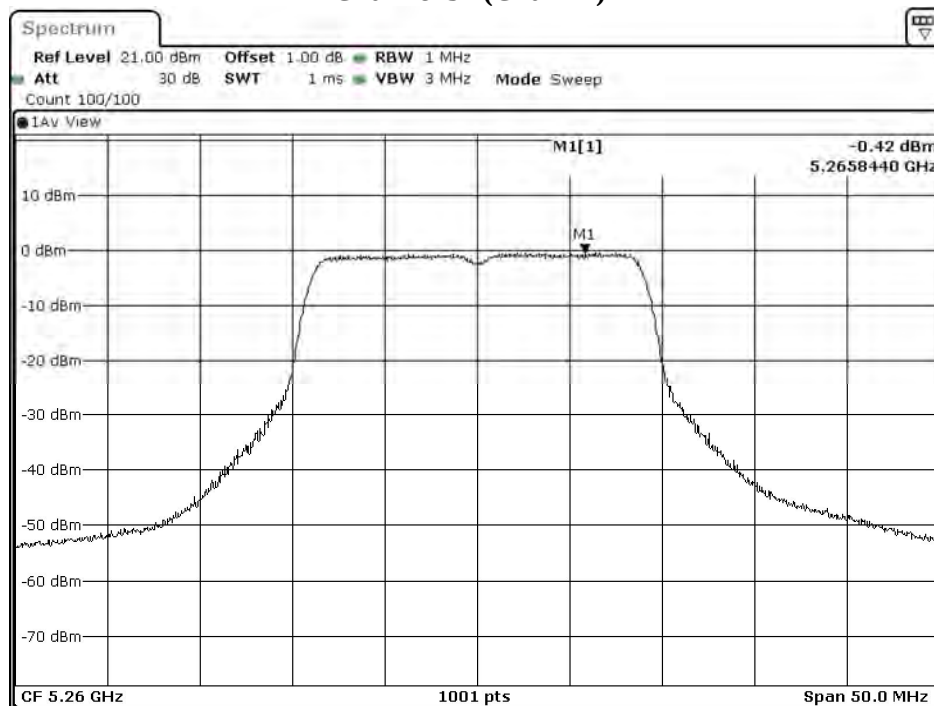
Date: 17.AUG.2021 04:17:03

Channel 48 (Chain B)



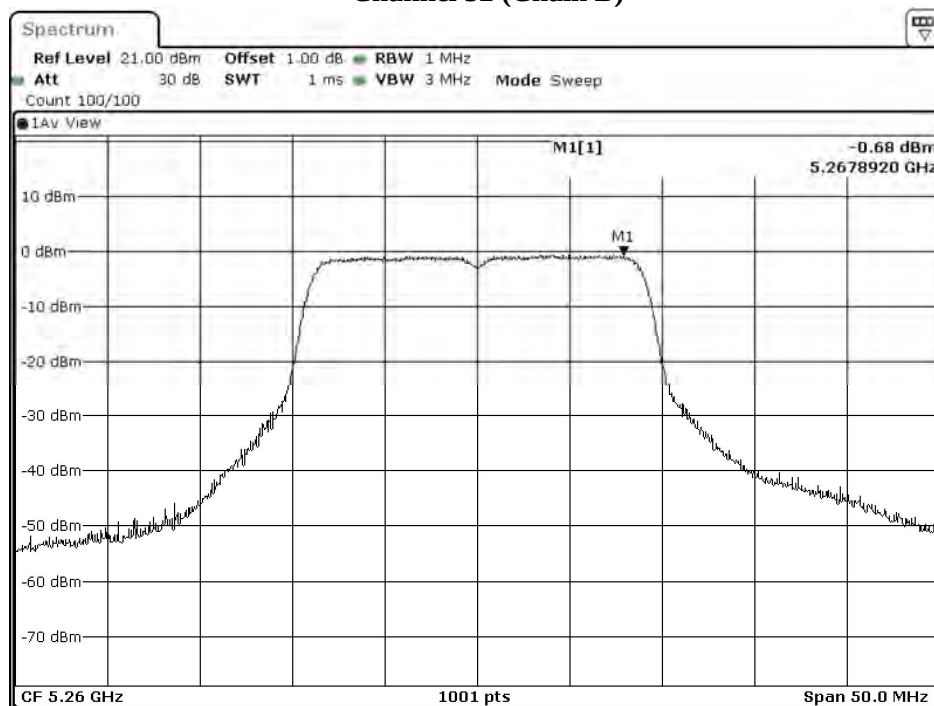
Date: 17.AUG.2021 08:57:37

Channel 52 (Chain A)



Date: 17.AUG.2021 04:20:00

Channel 52 (Chain B)



Date: 17.AUG.2021 09:00:34

Channel 60 (Chain A)



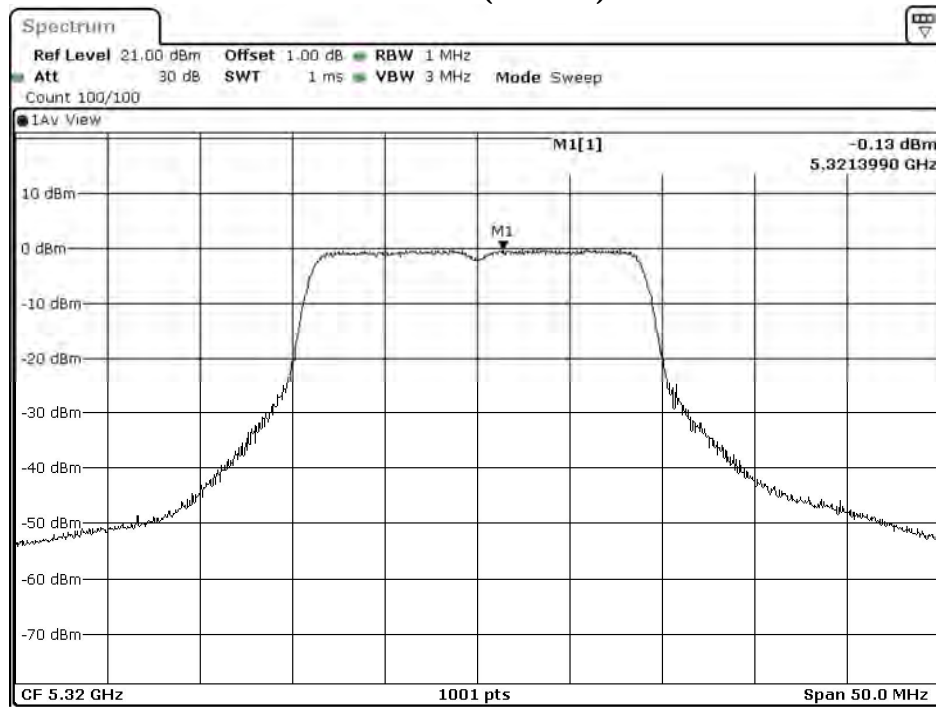
Date: 17.AUG.2021 04:22:32

Channel 60 (Chain B)



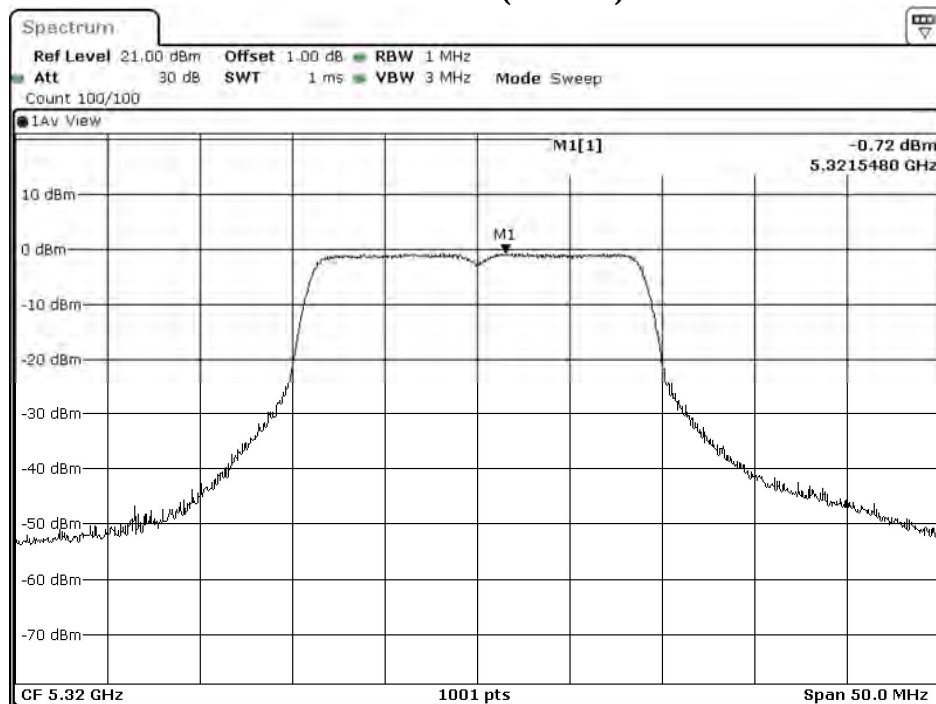
Date: 17.AUG.2021 09:03:05

Channel 64 (Chain A)

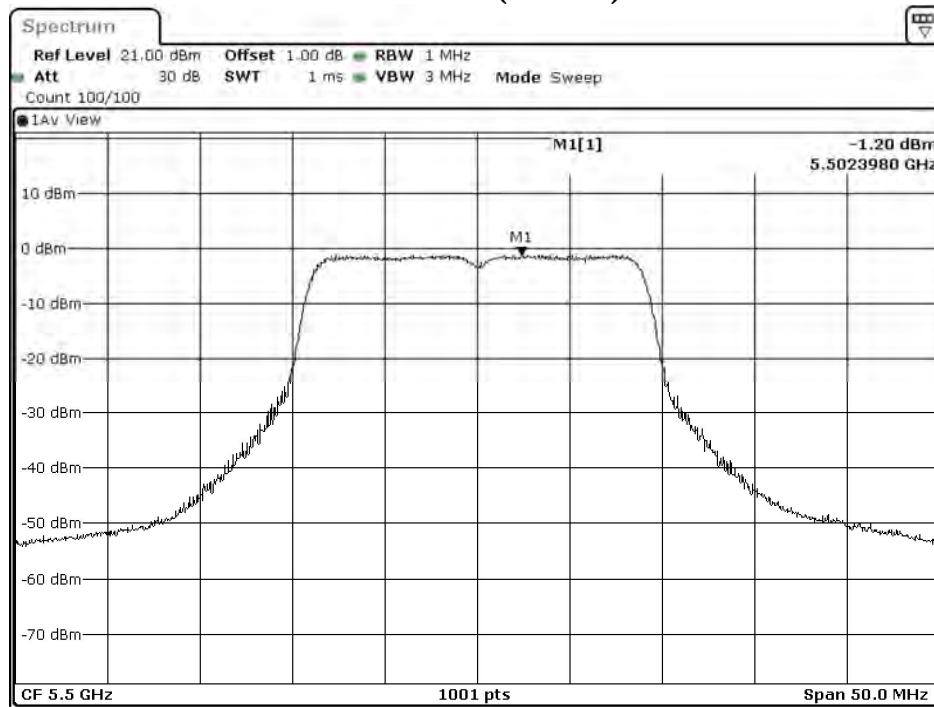


Date: 17.AUG.2021 04:25:17

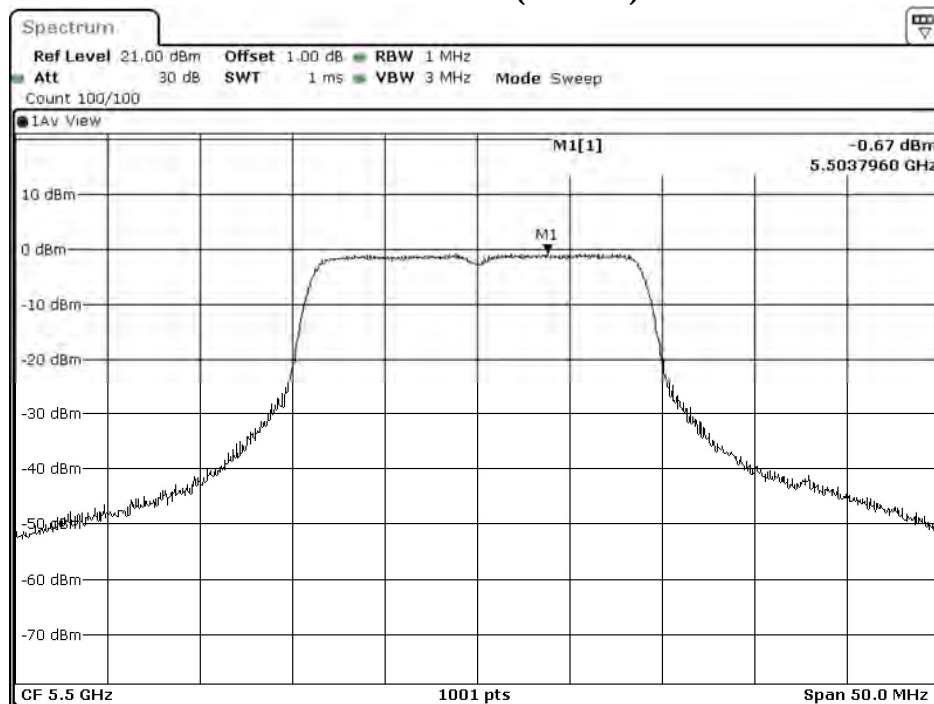
Channel 64 (Chain B)



Date: 17.AUG.2021 09:05:51

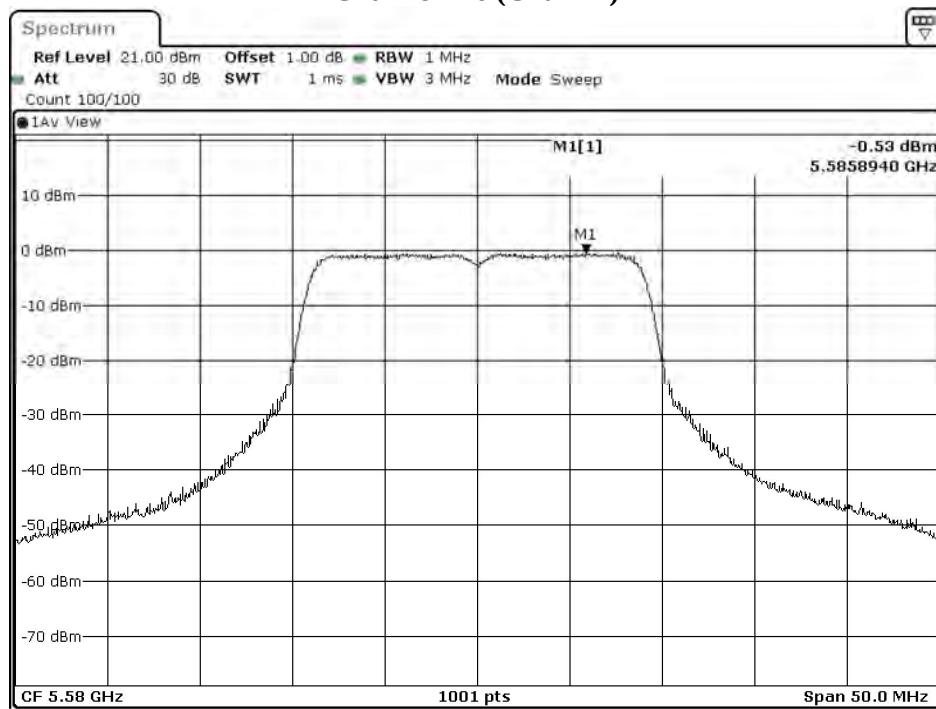
Channel 100 (Chain A)

Date: 17.AUG.2021 04:28:54

Channel 100 (Chain B)

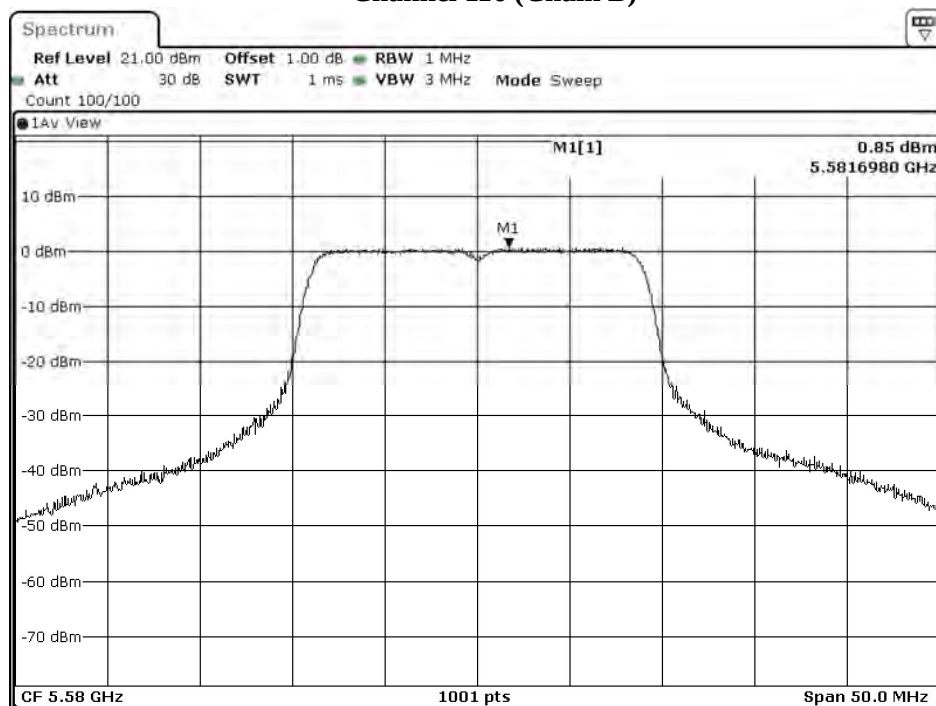
Date: 17.AUG.2021 09:09:28

Channel 116 (Chain A)



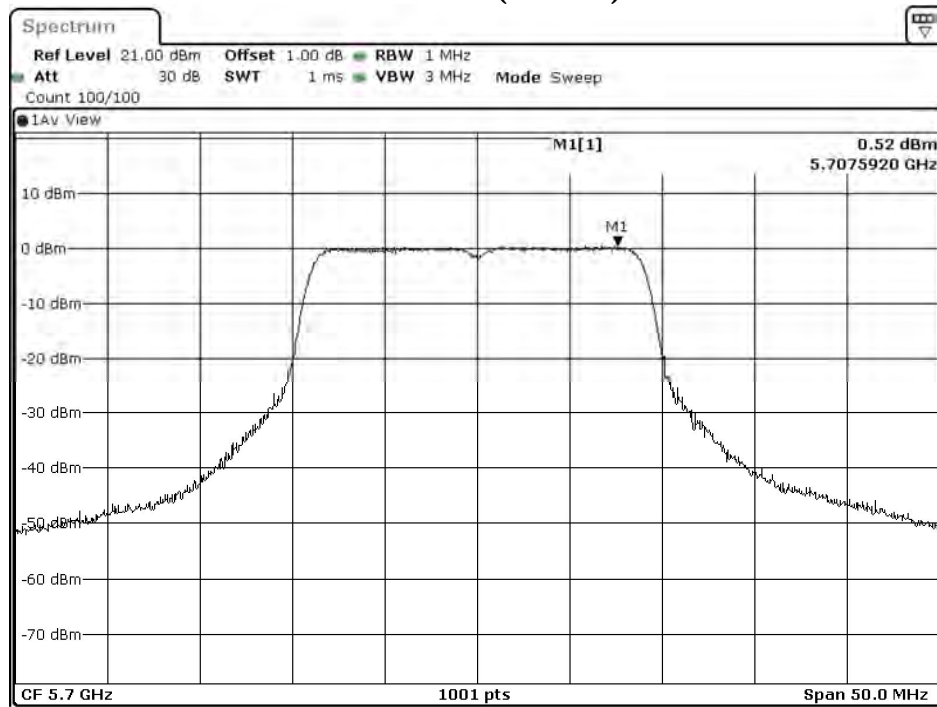
Date: 17.AUG.2021 04:32:34

Channel 116 (Chain B)



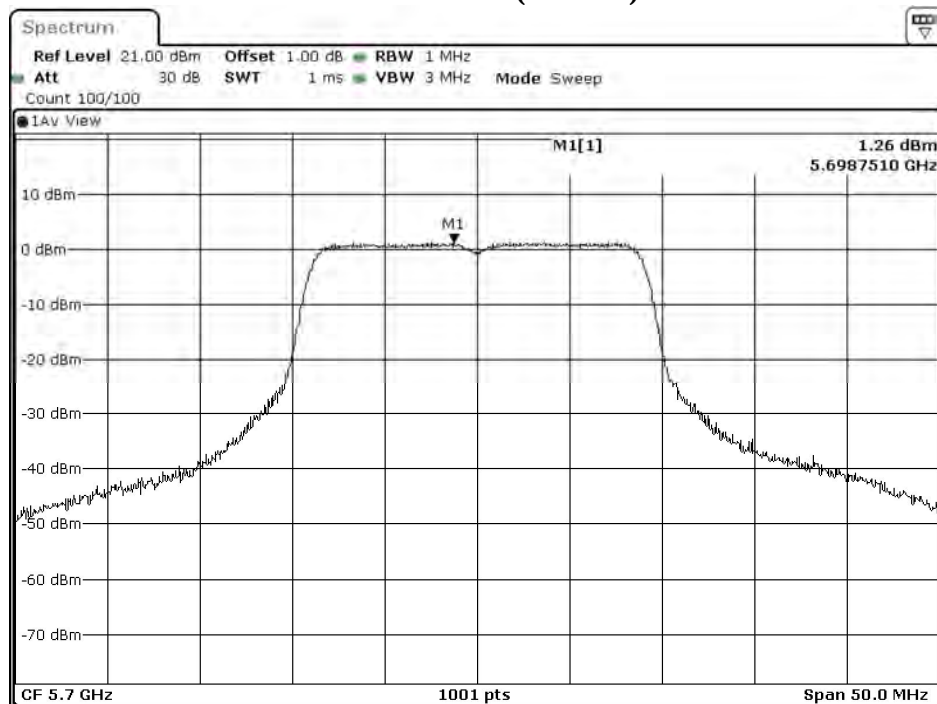
Date: 17.AUG.2021 09:13:08

Channel 140 (Chain A)



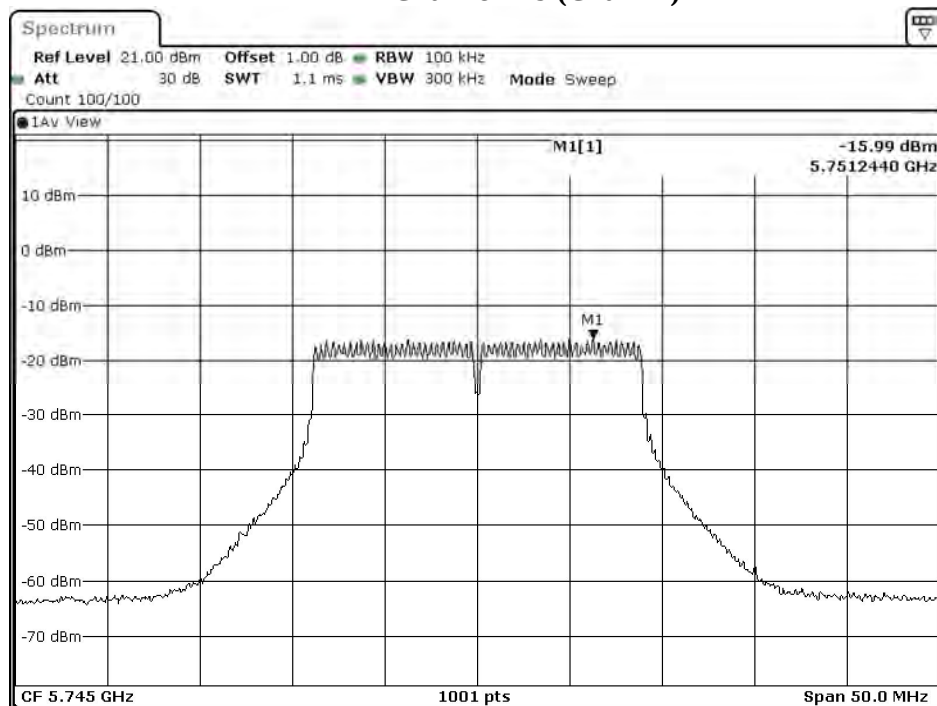
Date: 17.AUG.2021 04:36:34

Channel 140 (Chain B)



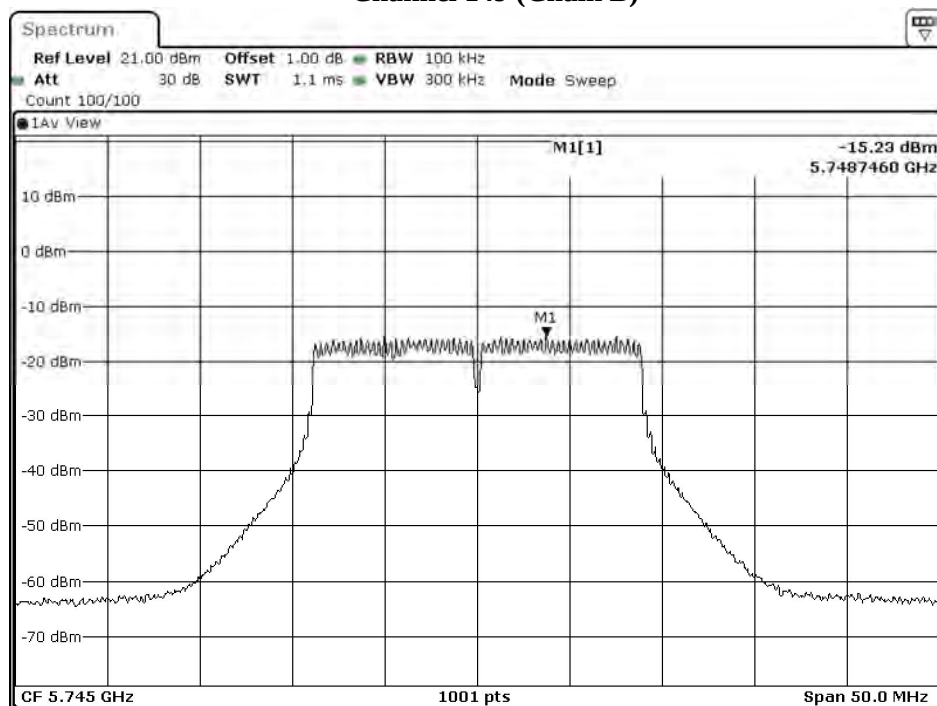
Date: 17.AUG.2021 09:17:08

Channel 149 (Chain A)



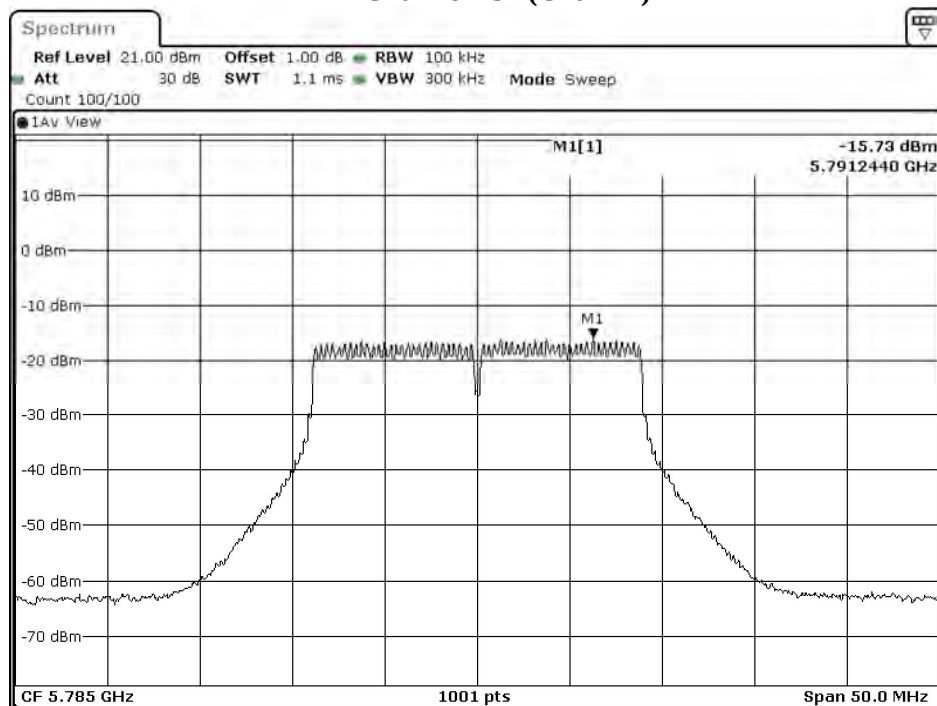
Date: 17.AUG.2021 05:40:36

Channel 149 (Chain B)



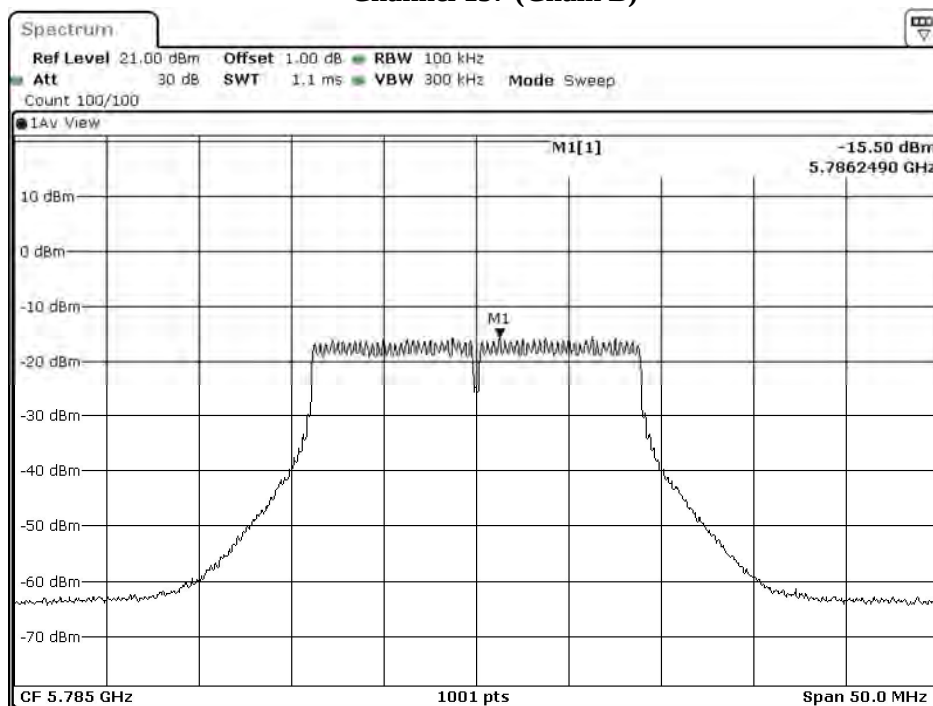
Date: 17.AUG.2021 10:21:09

Channel 157 (Chain A)



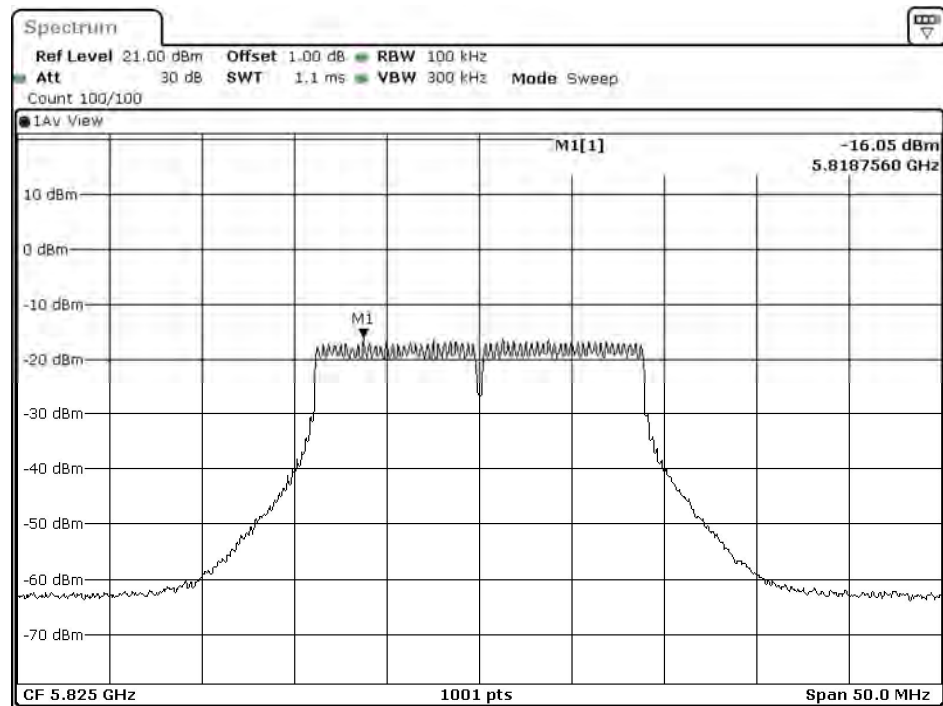
Date: 17.AUG.2021 05:48:05

Channel 157 (Chain B)



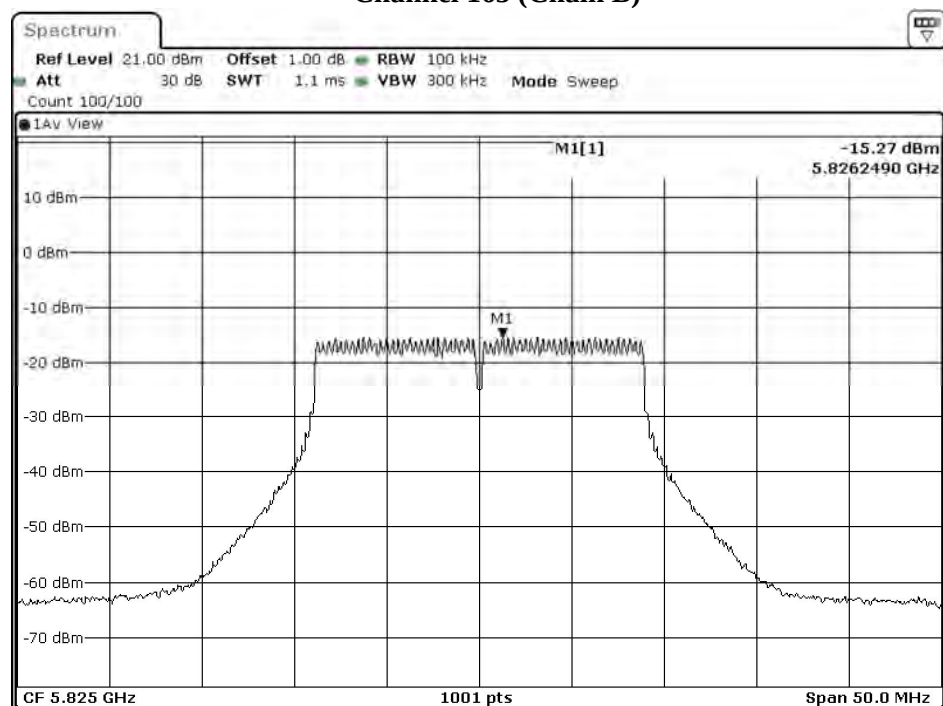
Date: 17.AUG.2021 10:28:39

Channel 165 (Chain A)



Date: 17.AUG.2021 05:53:03

Channel 165 (Chain B)



Date: 17.AUG.2021 10:33:37

Product : Speech Generating Device
 Test Item : Peak Power Spectral Density
 Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)
 Test Date : 2021/08/19

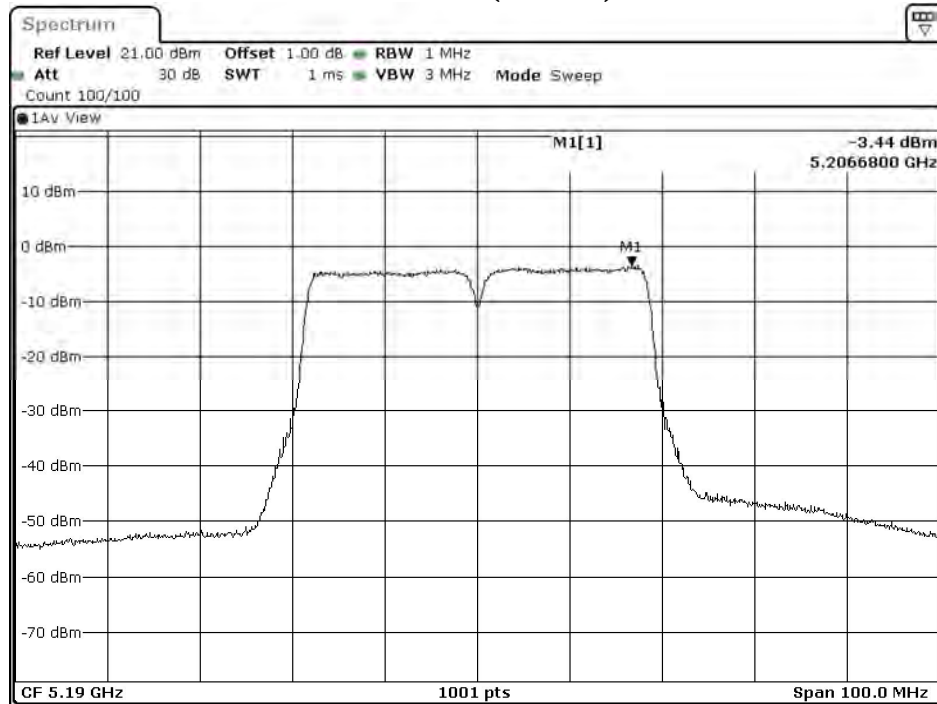
Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD/MHz (dBm)	10*log(2) (dB)	Duty factor (dB)	Total PSD/MHz (dBm)	Limit (dBm)	Result
38	5190	HT8	A	-3.44	3.01	0.30	-0.13	11	Pass
			B	-3.86	3.01	0.30	-0.55	11	Pass
46	5230	HT8	A	-3.36	3.01	0.30	-0.05	11	Pass
			B	-3.42	3.01	0.30	-0.11	11	Pass
54	5270	HT8	A	-3.32	3.01	0.30	-0.01	11	Pass
			B	-3.42	3.01	0.30	-0.11	11	Pass
62	5310	HT8	A	-3.21	3.01	0.30	0.10	11	Pass
			B	-3.57	3.01	0.30	-0.26	11	Pass
102	5510	HT8	A	-4.00	3.01	0.30	-0.69	11	Pass
			B	-3.53	3.01	0.30	-0.22	11	Pass
110	5550	HT8	A	-4.49	3.01	0.30	-1.18	11	Pass
			B	-3.35	3.01	0.30	-0.04	11	Pass
134	5670	HT8	A	-2.47	3.01	0.30	0.84	11	Pass
			B	-1.66	3.01	0.30	1.65	11	Pass

Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD (dBm)	BWCF (dB)	10*log(2) (dB)	Duty factor (dB)	Total PSD (dBm)	Limit (dBm)	Result
151	5755	HT8	A	-18.66	6.98	3.01	0.30	-8.37	<30	Pass
			B	-18.22	6.98	3.01	0.30	-7.93		Pass
159	5795	HT8	A	-18.51	6.98	3.01	0.30	-8.22	<30	Pass
			B	-17.89	6.98	3.01	0.30	-7.60		Pass

Note:

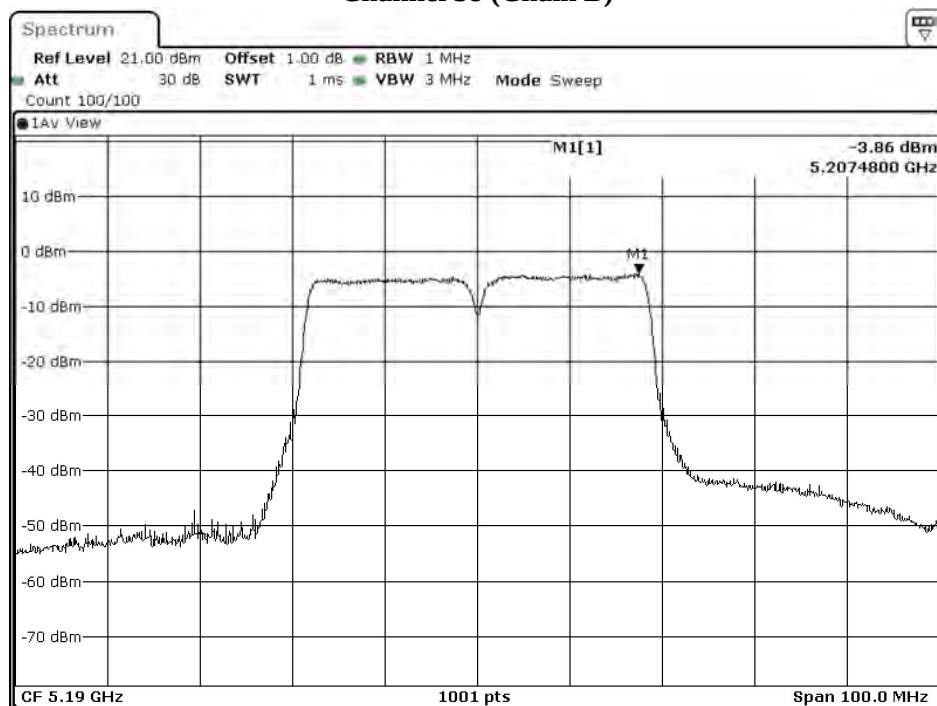
The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel 38 (Chain A)



Date: 17.AUG.2021 04:40:48

Channel 38 (Chain B)



Date: 17.AUG.2021 09:21:21