DEKRA Certification, Inc.
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FCC LISTED, REGISTRATION NUMBER: 2764.01

ISED LISTED REGISTRATION NUMBER: 23595-1

Test Report No: 4606ERM.001A1

Test report

USA FCC Part 15.407 (U-NII), 15.209; & CANADA RSS-210, RSS-Gen
Unlicensed National Information Infrastructure Devices. General technical requirements.
Licence-Exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
General Requirements and Information for the Certification of Radio Apparatus.

(*) Identification of item tested	Infotainment Head Unit Android Based
(*) Trademark	HARMAN
(*) Model and /or type reference	TAS700 BRA
Other identification of the product	Model: B-Plat FCC ID: 2AHPN-BE2874
(*) Features	AM/FM receiver, Bluetooth EDR, Wi-Fi 2.4GHz & 5GHz
Manufacturer	Harman da Amazonia. Av. Cupiúba, 401 – Distrito Industrial Manaus, Amazonas, 69075-060, Brasil
Test method requested, standard	USA FCC Part 15.407 (03-08-24): Unlicensed National Information Infrastructure Devices. General technical requirements. USA FCC Part 15.209 (06-28-21): Radiated emission limits; general requirements. CANADA RSS-247 Issue 3 (August 2023). CANADA RSS-Gen Issue 5 (March 2019). 789033 D02 General UNII Test Procedures New Rules v02r01 Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager Digitally signed by Domingo Galvez DN: cn=Domingo Galvez, o=Dekra Certification Inc., ou=Regulatory Lab Manager, email=domingo.galvez@dekra.com, c=US
Date of issue	07-25-2024
Report template No	FDT08_23 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
Avg Power	Maximum Average Conducted Output Power
DC	Duty Cycle
Detector	Detector used
Ebw	Emission Bandwidth
Freq	Frequency
Freq Rng	Frequency Range
Inband Peak Lvl	Inband Peak Level
Lvl	Level
MP	Measurement Point
Max EIRP	Maximum Burst EIRP
Mod	Modulation
Mode	MIMO Mode
Occ Ch BW	Occupied Channel Bandwidth
Operation Band	Operation Band
PSD	Power Spectral Density
Pol	Polarization
Port	Active Port
TPC	TPC
Unwanted Freq	Unwanted Emissions Frequency
Unwanted Lvl	Unwanted Emissions Level

Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Certification internal document PODT000.

Test case	Frequency (MHz)	U (k=2)	Units
RF Power and PSD	5150-5850	0.88	dB
Occupied Bandwidth		1.87	%
Band Edge		0.64	dB
Radiated Spurious Emission	30-180	4.27	dB
	180-1000	3.14	dB
	1000-18000	3.30	dB
	18000-40000	3.49	dB

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").

2. The sample consists of a Receiver Assy, Radio & Display.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	4415/24	Infotainment Unit - BRA B (Conducted)	TAS700	T2869HR039900002	04/04/2024	Element Under Test

Sample S/01 is composed of the following accessories:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	4415/01	Bench setup	TAS700	-	02/23/2024	Accessory

1. SAMPLE S/01 WAS USED FOR THE TEST(S): ALL CONDUCTED TESTS INDICATED IN APPENDIX A AND B.

Sample S/02 is composed of the following elements:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	4415/04	Infotainment Unit - BRA B (Radiated)	TAS700	T2869HR047900008	02/23/2024	Element Under Test

Sample S/02 is composed of the following accessories:

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/02	4415/26	USB C-Type Hub Harness	-	-	04/04/2024	Accessory
S/02	4415/30	USB Cables (Type A)	-	-	04/04/2024	Accessory
S/02	4415/31	HU Power Harness	-	-	04/04/2024	Accessory
S/02	4415/34	AM/FM, GPS Antenna's Cables	--		04/04/2024	Accessory

2. SAMPLE S/02 WAS USED FOR THE TEST(S): ALL RADIATED TESTS INDICATED IN APPENDIX A AND B.

Test sample description

Ports..... :	Port name and description	Cable			
		Specified max length [m]	Attached during test	Shielded	Coupled to patient (3)
	RF_Port 1 = BT/WLAN-5GHz (Module Pin C01)	.....	[X]	[X]	[ ]
	RF_Port 2 = WLAN 2,4GHz (Module Pin K02)	.....	[X]	[X]	[ ]
	No Data Provided	.....	[ ]	[ ]	[ ]
	No Data Provided	.....	[ ]	[ ]	[ ]
	No Data Provided	.....	[ ]	[ ]	[ ]
	No Data Provided	.....	[ ]	[ ]	[ ]

Supplementary information to the ports..... :	No Data Provided						
Rated power supply..... :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[ ]	AC:	[ ]	[ ]	[ ]	[ ]	[ ]
	[ ]	AC:	[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 12 V nominal Car battery, 8V to 16V max					
	[ ]	DC:					
Rated Power..... :	No Data Provided						
Clock frequencies ..... :	No Data Provided						
Other parameters..... :	No Data Provided						
Software version ..... :	R5.2						
Hardware version..... :	C1						
Dimensions in cm (W x H x D)..... :	No Data Provided						
Mounting position..... :	[ ]	Tabletop equipment					
	[ ]	Wall/Ceiling mounted equipment					
	[ ]	Floor standing equipment					
	[ ]	Hand-held equipment					
	[X]	Other:					

Modules/parts ..... :	Module/parts of test item	Type	Manufacturer
	No Data Provided	.....	.....
Accessories (not part of the test item) ..... :	Description	Type	Manufacturer
	Bench Setup + antenna		
	Cable Harness		
Documents as provided by the applicant ..... :	Description	File name	Issue date
	Declaration Equipment Data	FDT30_18 Declaration Equipment Data	04/30/2024

Copy of marking plate:

Identification of the client

Harman International Industries, Inc.
3001 Cabot Drive,
Novi, MI 48377
USA

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	04-28-2024
Date (finish)	05-02-2024

Document history

Report number	Date	Description
4606ERM.001	05-23-2024	First release.
4606ERM.001A1	07-25-2024	Second release. There are some modifications made in the report. This modified report replaces and cancels the report 4606ERM.001.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860mbar Max. = 1060mbar

In the semi anechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860mbar Max. = 1060mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Prudhvi Kothapalli, Assem Hassan and Koji Nishimoto.

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P

Summary

FCC PART 15 PARAGRAPH / RSS-407 Wi-Fi 5GHz) 5.15 GHz -5.25 GHz Band				
15.407 Spec Clause	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
§ 15.407 (a) (1) (iv)	RSS 247 6.2.1.1	Power Limits. Maximum Output Power	P	N/A
§ 15.407 (a) (1) (iv)	RSS-247 6.2.1.1	Maximum Power Spectral Density	P	N/A
§ 15.407 (b) (1), § 15.209 § 15.205	RSS-Gen 8.9 & 8.10	Undesirable radiated emissions (Transmitter)	P	N/A
§ 15.407 (b) (1)	RSS-247 6.2.1.2	Band-edge conducted emissions compliance (Transmitter)	P	N/A
§ 15.403 KDB 789033 D02	RSS 247 6.2.1	26dB Emission Bandwidth & Occupied Bandwidth	P	N/A
§ 15.407 (b) (4) (i)	RSS-Gen 8.8	Emission limitations Conducted (Transmitter)	N/A	N/A
§ 15.407 (g)	RSS-Gen 6.11 & 8.11	Frequency Stability	N/M	Refer 1

Supplementary information and remarks:

The test set-up was made in accordance to the general provisions of ANSI C63.10: 2013 and FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated 12/14/2017

1) The compliance is checked through a description of how this requirement is met that is provided by the applicant.

FCC PART 15 PARAGRAPH / RSS-247 (Wi-Fi 5GHz) 5.725 GHz -5.825 GHz Band				
15.407 Spec Clause	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
§ 15.407 (a)(3)	RSS 247 6.2.4.1	Power Limits. Maximum Output Power	P	N/A
§ 15.407 (a)(3)	RSS-247 6.2.4.1	Maximum Power Spectral Density	P	N/A
§ 15.407 (e)	RSS 247 6.2.4.1	6dB Bandwidth	P	N/A
§ 15.407 (b) (4) (i) § 15.209 § 15.205	RSS-Gen 8.9 & 8.10	Undesirable radiated emissions (Transmitter)	P	N/A
§ 15.407 (b) (4)	RSS-247 6.2.4.2	Band-edge conducted emissions compliance (Transmitter)	P	N/A
§ 15.403 KDB 789033 D02	RSS 247 6.2.4	26dB Emission Bandwidth & Occupied Bandwidth	P	N/A
§ 15.407 (b) (4) (i)	RSS-Gen 8.8	Emission limitations Conducted (Transmitter)	N/A	N/A
§ 15.407 (g)	RSS-Gen 6.11 & 8.11	Frequency Stability	N/M	Refer 1

Supplementary information and remarks:

The test set-up was made in accordance to the general provisions of ANSI C63.10: 2013 and FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated 12/14/2017

1) Acc. To FCC, Manufacturers of UNII devices are responsible for frequency stability compliance.

FCC PART 15 PARAGRAPH / RSS-247 (Wi-Fi 5GHz) Common Requirements for all bands				
15.247 Spec Clause	**RSS Spec Clause**	**Test Description**	**Verdict**	**Remark**
§ 15.407 (c)	--	Transmission in case of absence of information to transmit, or operational failure.	N/M	Refer 1

Supplementary information and remarks:

1) The compliance is checked through a description of how this requirement is met that is provided by the applicant.

List of equipment used during the test

FCC 47 CFR Part 15.407 / RSS-247 / RSS-248

Conducted Measurements

CONTROL NUMBER	DESCRIPTION	Serial No	LAST CALIBRATION	NEXT CALIBRATION
1039	FSV40 SIGNAL ANALYSER 40GHZ	101627	2022-11-01	2024-11-01
1107	ETHERNET SNMP THERMOMETER	60038026952	2022-10-18	2024-10-18
1313	WIRELESS MEASUREMENT SOFTWARE R&S WMS32	-	N/A	N/A

Radiated Measurements

CONTROL NUMBER	DESCRIPTION	Serial No	LAST CALIBRATION	NEXT CALIBRATION
981	LOW NOISE PREAMPLIFIER	1711156B	2024-02-20	2026-02-20
1012	ESR26 EMI TEST RECEIVER	101478	2023-01-18	2025-01-18
1014	FSV40 SIGNAL ANALYZER 40GHZ	101626	2023-01-18	2025-01-18
1056	3116C DOUBLE-RIDGED WAVEGUIDE HORN ANTENNAS	213179	2023-02-23	2026-02-23
1057	3115 DOUBLE-RIDGED WAVEGUIDE HORN ANTENNAS	211373	2023-07-18	2026-07-18
1064	3142E BICONILOG ANTENNA	208600	2021-12-13	2024-12-13
1111	ETHERNET SNMP THERMOMETER	60038026577	2022-10-18	2024-10-18
1179	SEMI-ANECHOIC CHAMBER	F169021	N/A	N/A
1314	WIRELESS MEASUREMENT SOFTWARE R&S EMC32	1040-OT102236	N/A	N/A

Appendix A: Tests results. Wi-Fi 5GHz

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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal:	12 V nominal Car battery, 8V to 16V max V
Type of Power Supply:	

ANTENNA (*):

Type of Antenna:	RELLENAR
Maximum Declared Antenna Gain:	5.75 dBi @Wi-Fi 5GHz.

TEST FREQUENCIES (*):

Technology Tested:	WLAN (IEEE 802.11 a, n, ac) / U-NII-1 &b 3			
Modes:	802.11a20: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps			
	802.11n HT20: MCS0 to MCS7			
	802.11n HT40: MCS0 to MCS7			
	802.11ac VHT20: MCS0 to MCS9			
	802.11ac VHT40: MCS0 to MCS9			
	802.11ac VHT80: MCS0 to MCS9			
Setting of cores / ports:	One port.			
Beamforming:	No.			
Frequency Range:	5150 MHz to 5250 MHz & 5725 MHz to 5825 MHz			
Channel Spacing:	20 MHz			
Transmit Channels	Channel	Channel Frequency (MHz)	Channel	Channel Frequency (MHz)
	Low: 36	5180	Low: 149	5745
	Middle: 40	5200	Middle: 157	5785
	High: 48	5240	High: 165	5825
Channel Spacing:	40 MHz			
Transmit Channels	Channel	Channel Frequency (MHz)	Channel	Channel Frequency (MHz)
	Low: 40	5190	Low: 153	5755
	High: 48	5230	High: 161	5795
Channel Spacing:	80 MHz			
Transmit Channels	Low: 36	5210	Low: 153	5775

The test set-up was made in accordance to the general provisions of FCC Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017.

The EUT was tested in the following operating mode:

- Continuously transmitting with a modulated carrier at maximum power in all required channels using the supported data rates/modulation types.

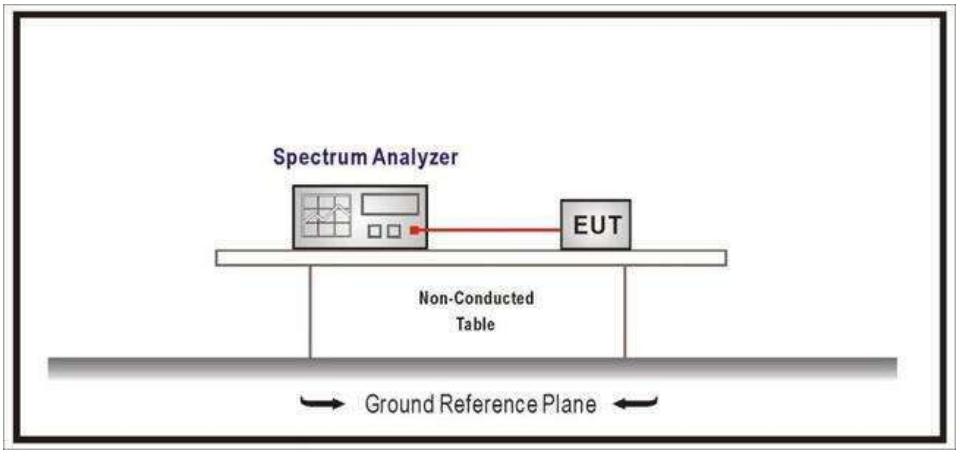
The field strength at the band edges was evaluated for each mode on the lowest and highest channels at the rated power for the channel under test.

For all modes, the EUT was configured in test mode using a software application. The application was used to enable a continuous transmission and to select the test channels as required. The client supplied instructions to configure the EUT. The customer supplied a document containing the setup instructions.

The worst cases for testing were identified for output power and spurious levels at the band edges which were selected based on preliminary testing that correspond to next data rates:

- 802.11 a20: 9 Mbps
- 802.11 n HT20: MCS3
- 802.11 n HT40: MCS3
- 802.11 ac VHT20: MCS3
- 802.11 ac VHT40: MCS4
- 802.11 ac VHT80: MCS4

CONDUCTED MEASUREMENTS:



RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz Double ridge horn antennas, and 1m for the frequency range 18 GHz- 26 GHz Double ridge horn antenna.

For radiated emissions in the range 18 - 26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

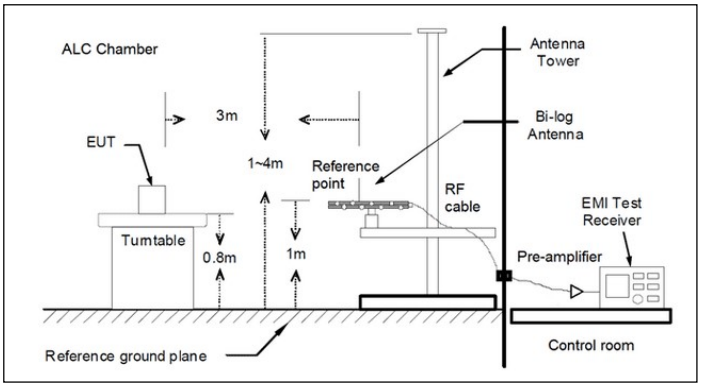


Fig A1: Radiated measurements Setup f < 1 GHz

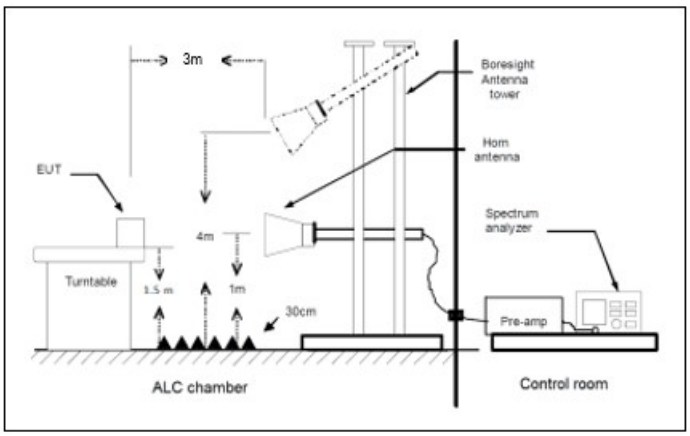


Fig A2: Radiated measurements setup f > 1-18 GHz

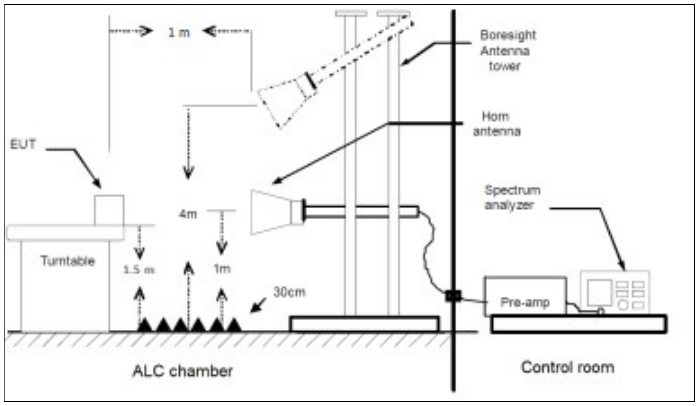


Fig A3: Radiated measurements setup f > 18 GHz

TEST CASES DETAILS

FCC 47 CFR Part 15.407 / RSS-247 / RSS-248

RSS-247 6.2.1.1 / FCC 15.407 (a) (1) [Avcp] Maximum Conducted output power

Limits

FCC 15.407: In 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, 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, both the maximum conducted output power and the maximum power spectral density 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). For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

In band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, 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, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum conducted output power shall not exceed 1 W. The output 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, both the maximum conducted output power and the output 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 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-multipointFootnote3 systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

RSS-247: The maximum conducted output power shall not exceed 1 W.

Antenna Gain: 5.7 dBi

Modulation: 802.11a (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
[5150, 5850]	1	5180.00000	No	7.91	13.66
[5150, 5850]	1	5200.00000	No	7.82	13.57
[5150, 5850]	1	5240.00000	No	8.08	13.83
[5150, 5850]	1	5745.00000	No	7.71	13.46
[5150, 5850]	1	5785.00000	No	7.44	13.19
[5150, 5850]	1	5825.00000	No	7.01	12.76

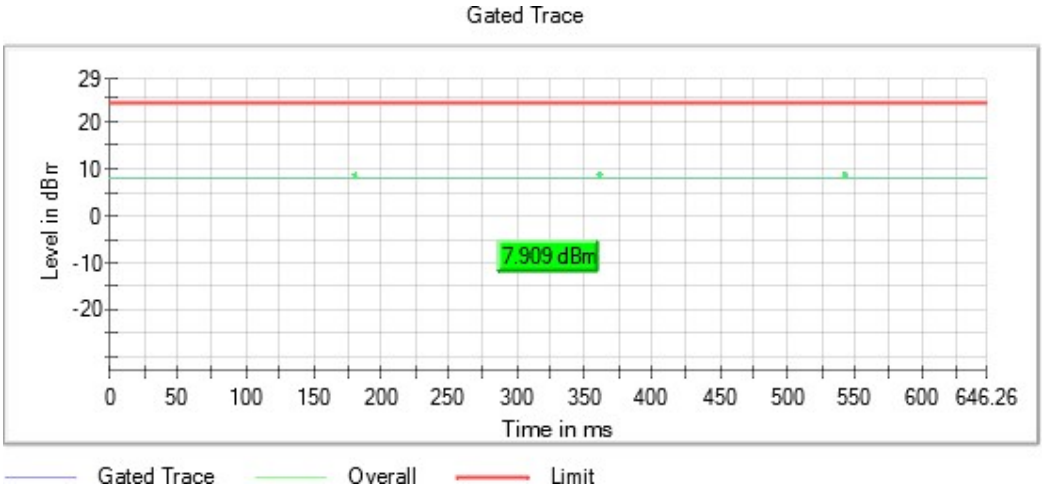
Verdict

Pass

Attachments

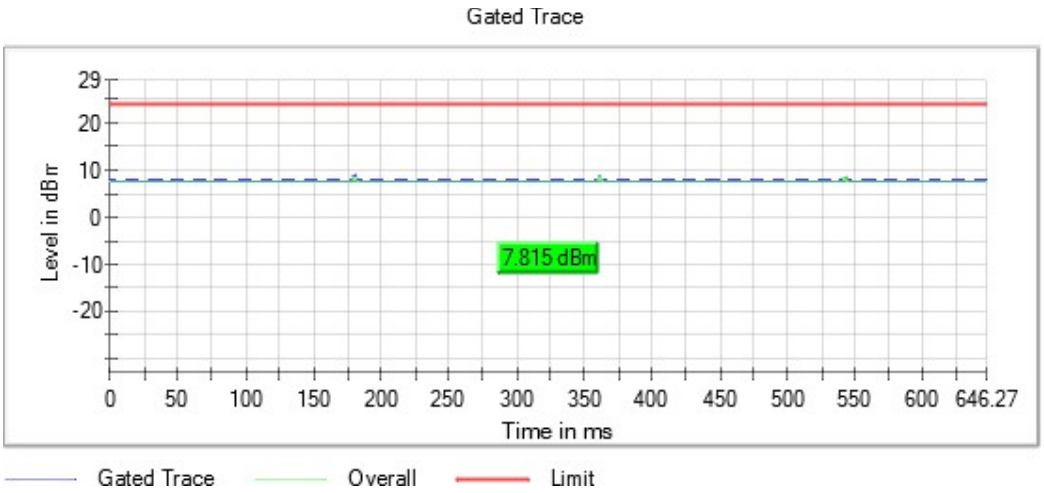
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5180.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:



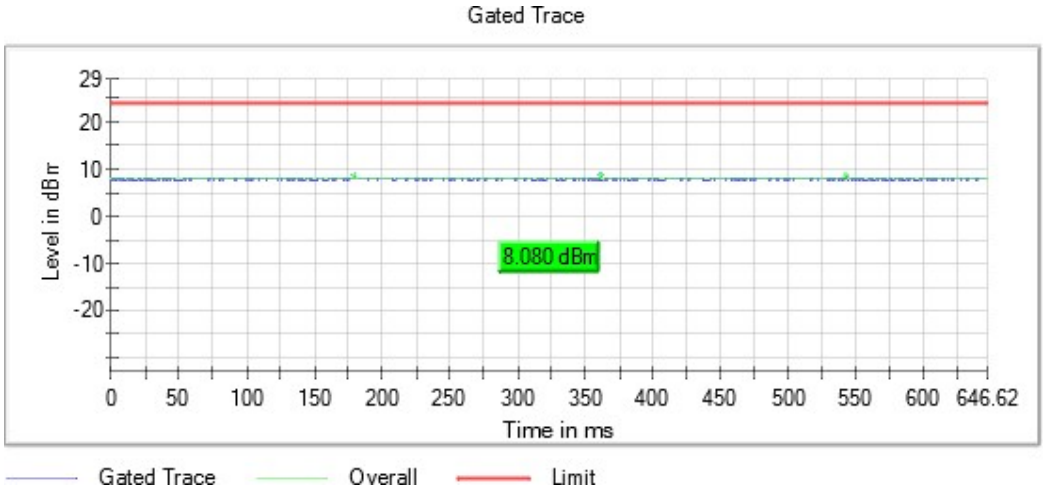
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5200.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:



Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5240.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:

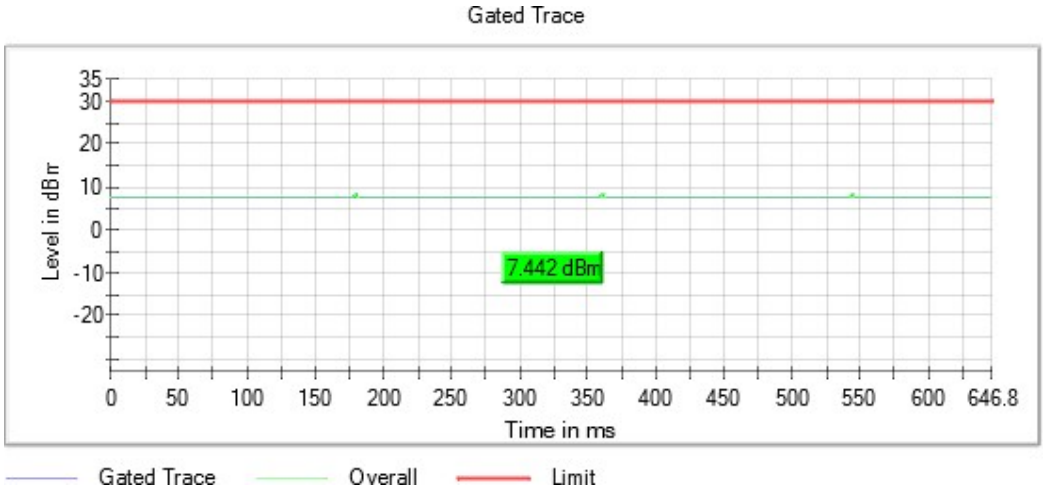


Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5745.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:

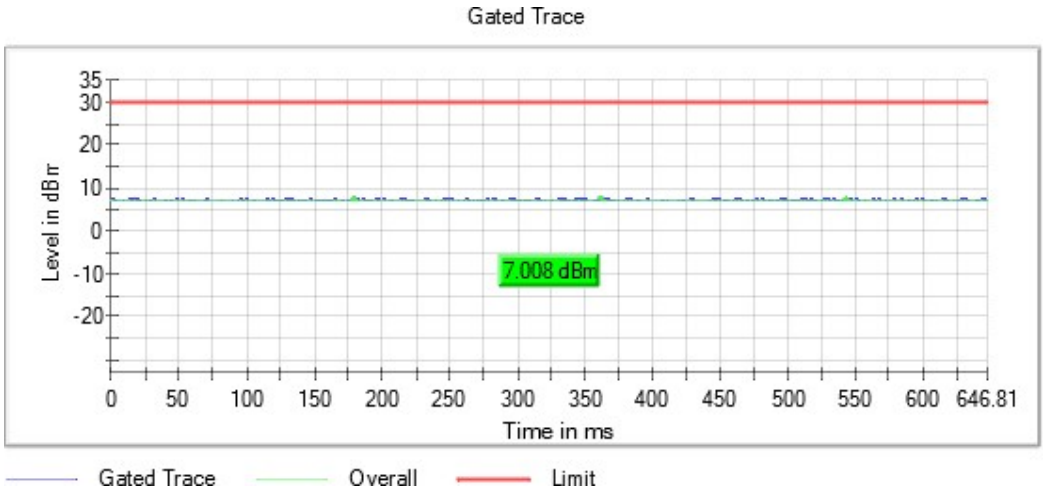
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5785.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:



Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5825.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:



Modulation: 802.11n HT20 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
[5150, 5850]	1	5180.00000	No	8.20	13.95
[5150, 5850]	1	5200.00000	No	7.74	13.49
[5150, 5850]	1	5240.00000	No	8.04	13.79
[5150, 5850]	1	5745.00000	No	7.45	13.20
[5150, 5850]	1	5785.00000	No	7.55	13.30
[5150, 5850]	1	5825.00000	No	7.07	12.82

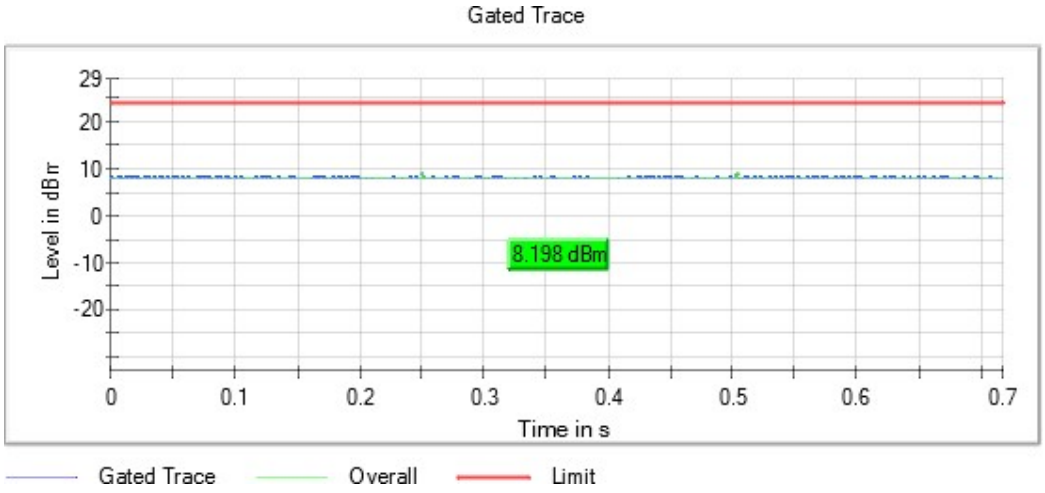
Verdict

Pass

Attachments

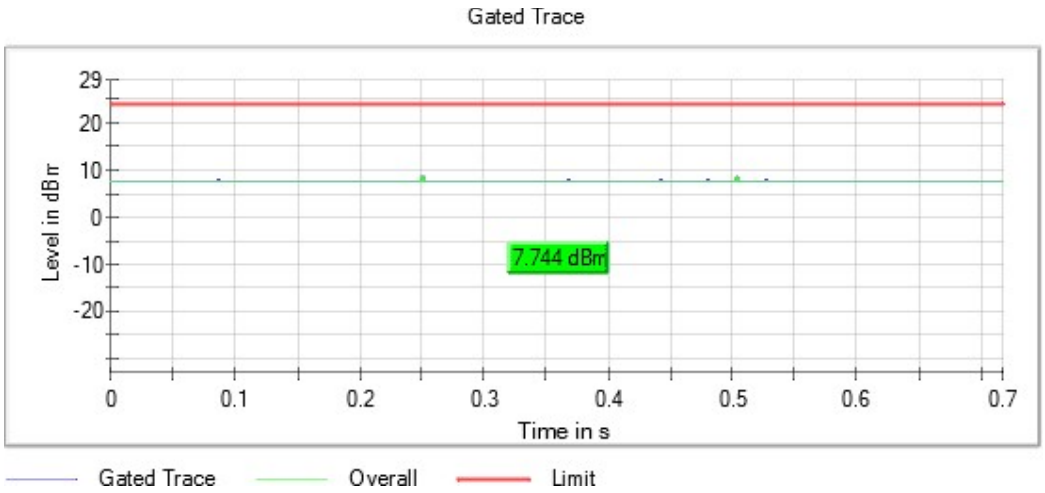
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5180.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



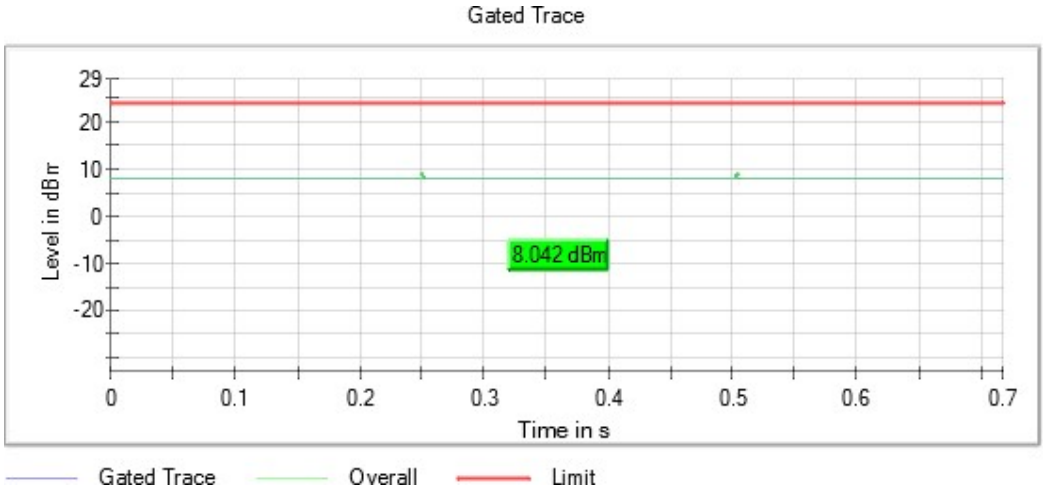
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5200.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



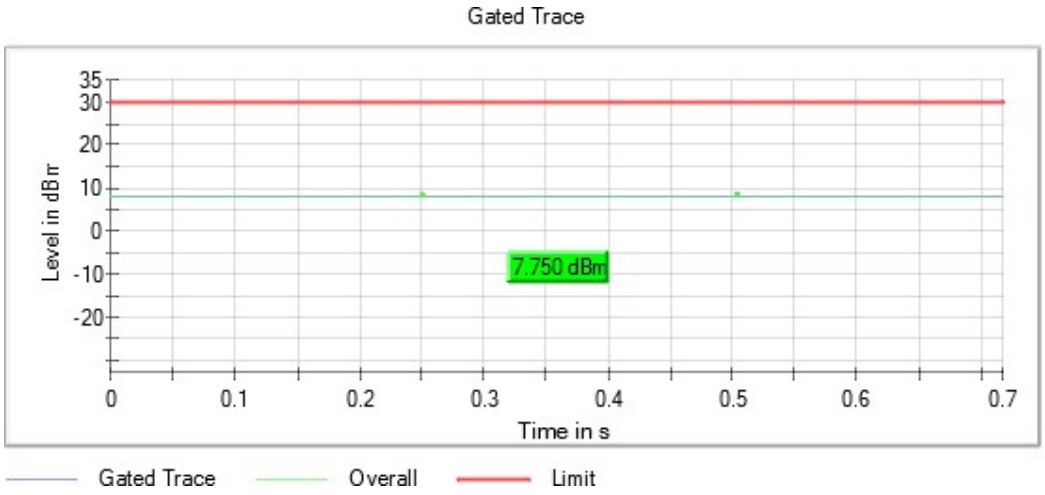
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5240.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



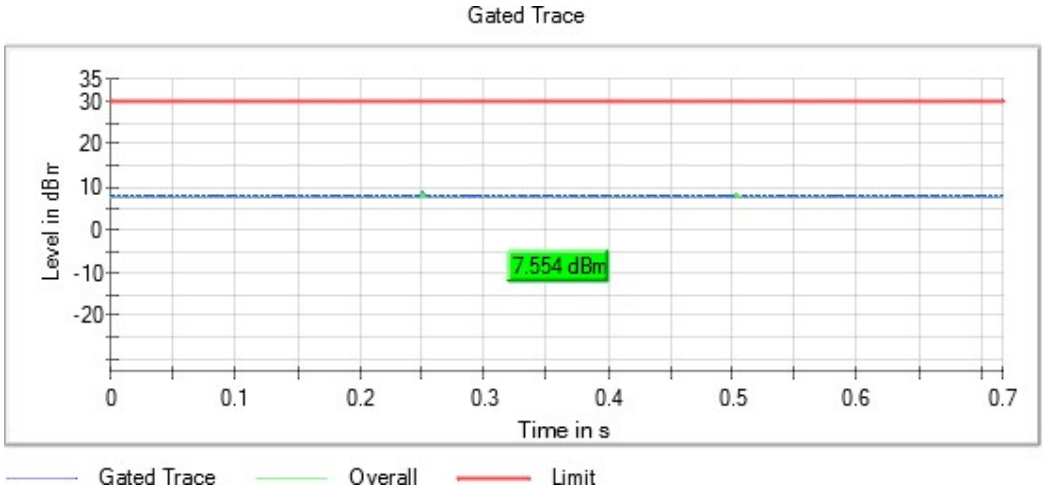
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5745.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



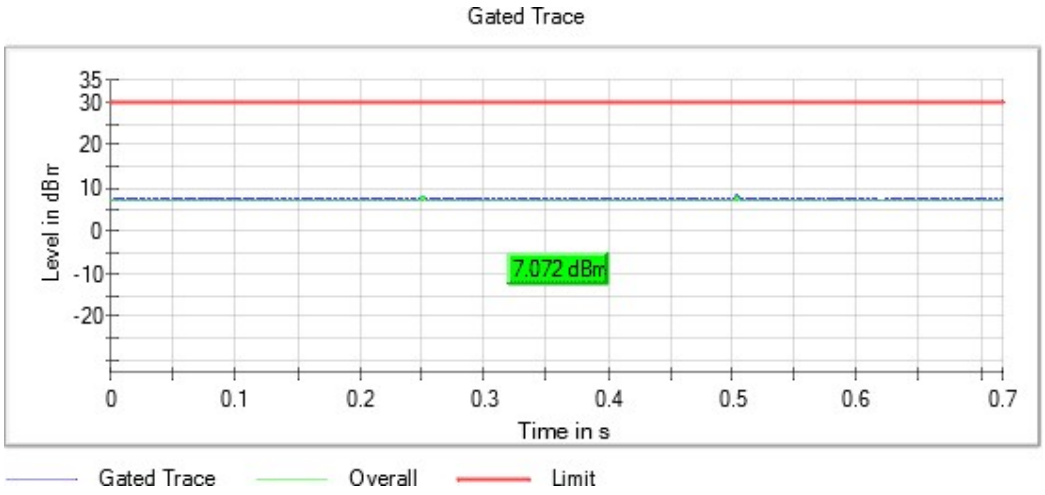
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5785.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5825.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Modulation: 802.11n HT40 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
[5150, 5850]	1	5190.00000	No	7.91	13.66
[5150, 5850]	1	5230.00000	No	8.07	13.82
[5150, 5850]	1	5755.00000	No	8.09	13.84
[5150, 5850]	1	5795.00000	No	7.76	13.51

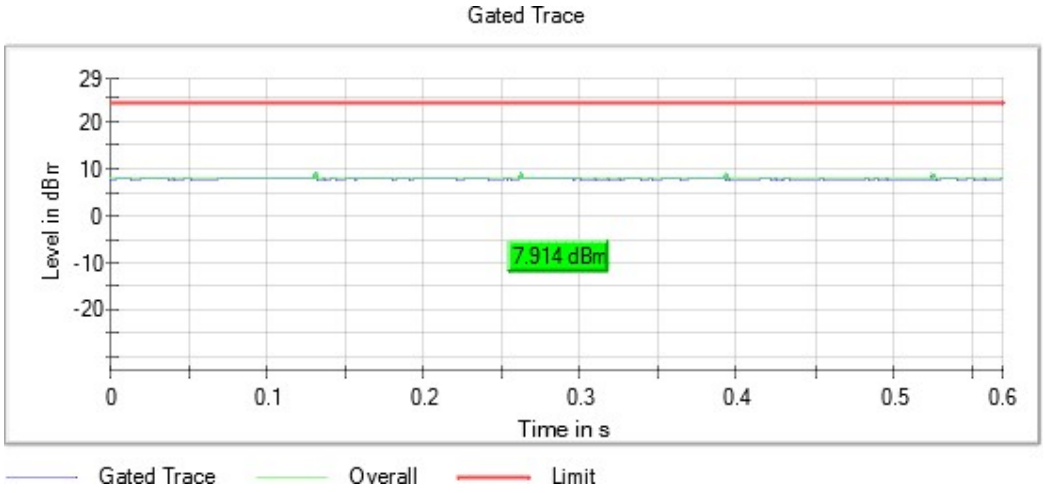
Verdict

Pass

Attachments

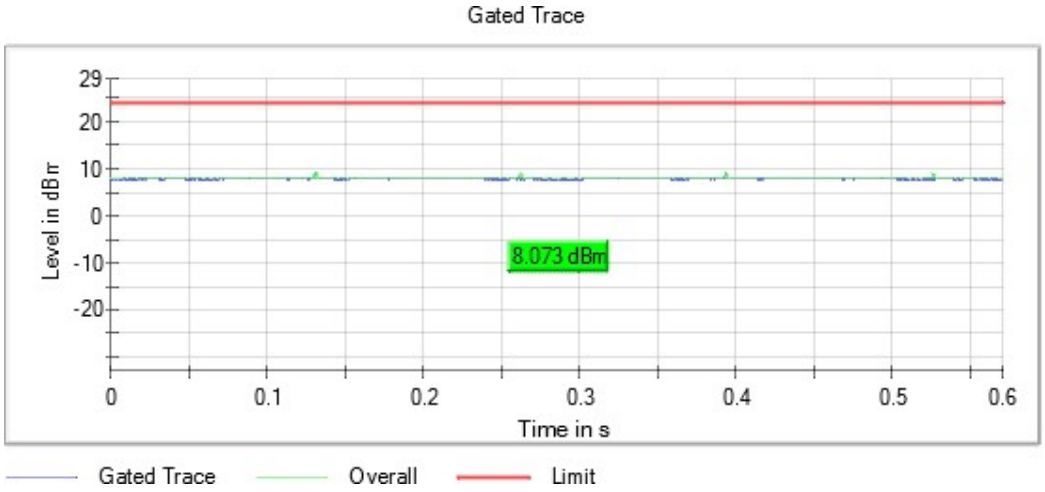
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5190.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



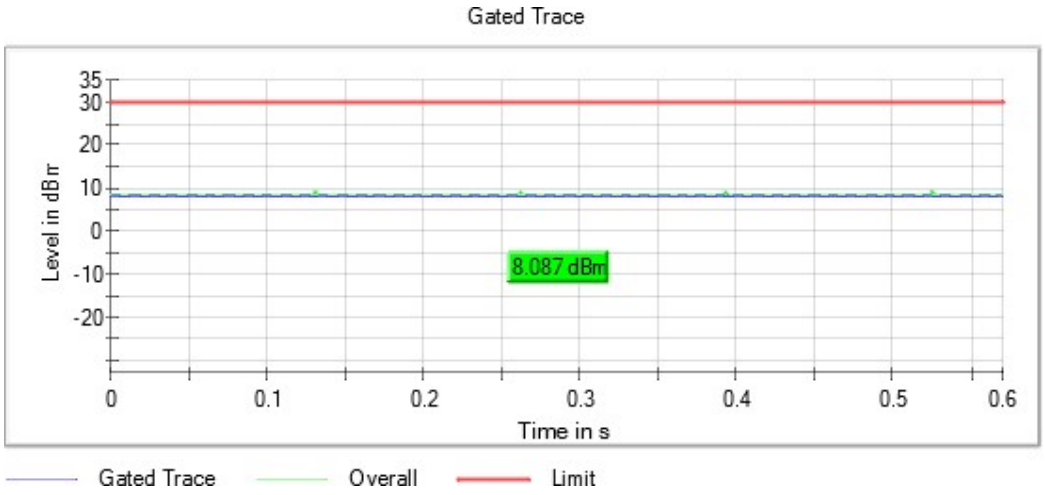
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5230.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



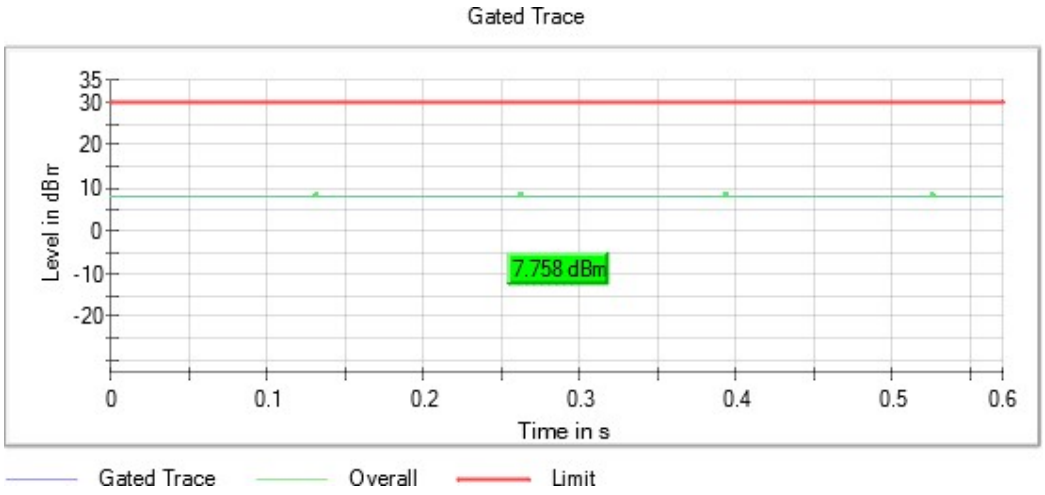
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5755.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5795.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Modulation: 802.11ac VHT20 SS1 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
[5150, 5850]	1	5180.00000	No	7.92	13.67
[5150, 5850]	1	5200.00000	No	7.68	13.43
[5150, 5850]	1	5240.00000	No	7.79	13.54
[5150, 5850]	1	5745.00000	No	7.53	13.28
[5150, 5850]	1	5785.00000	No	7.47	13.22
[5150, 5850]	1	5825.00000	No	7.00	12.75

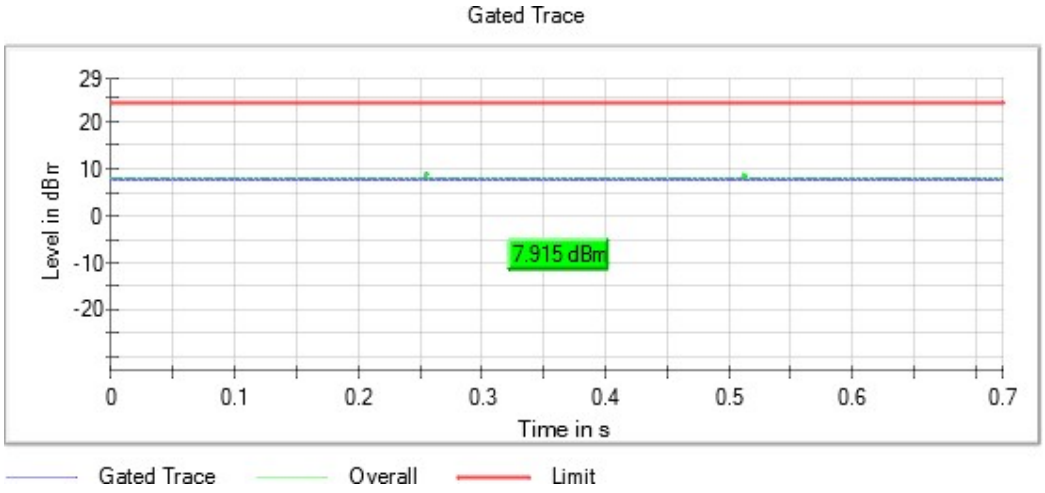
Verdict

Pass

Attachments

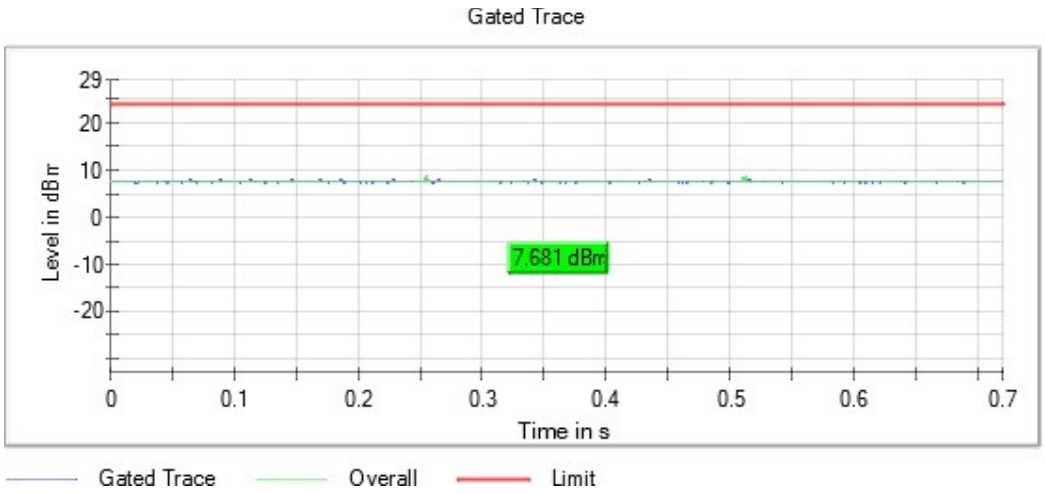
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5180.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



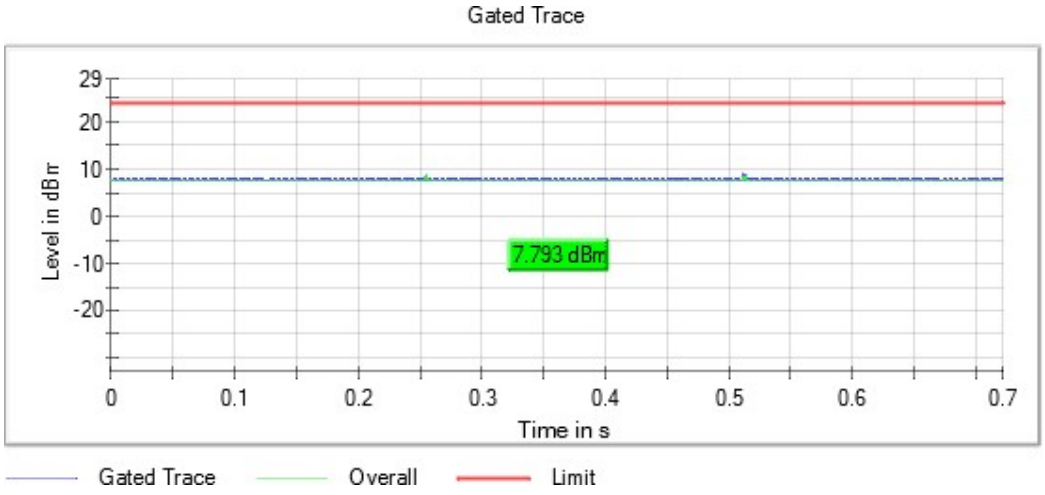
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5200.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



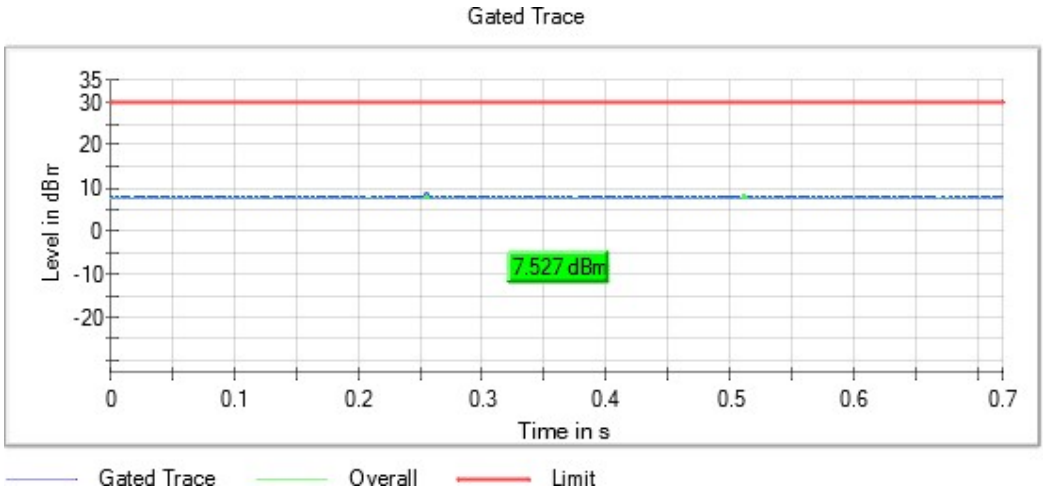
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5240.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



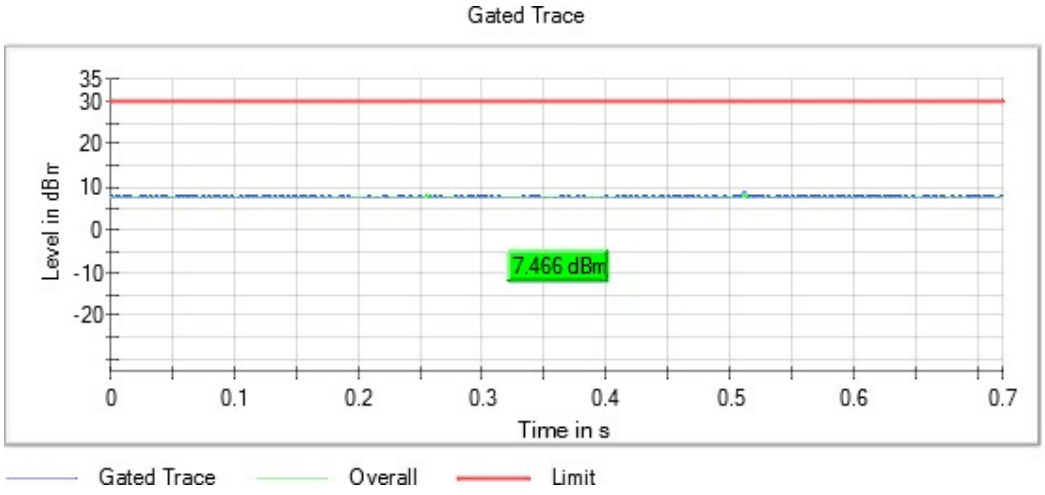
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5745.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



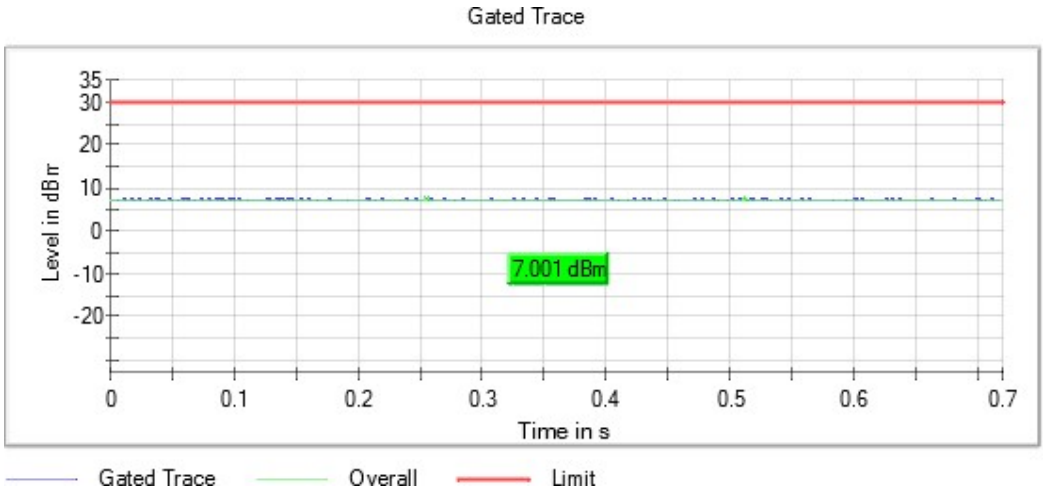
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5785.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5825.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS4)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
[5150, 5850]	1	5190.00000	No	7.94	13.69
[5150, 5850]	1	5230.00000	No	8.04	13.79
[5150, 5850]	1	5755.00000	No	8.01	13.76
[5150, 5850]	1	5795.00000	No	7.75	13.50

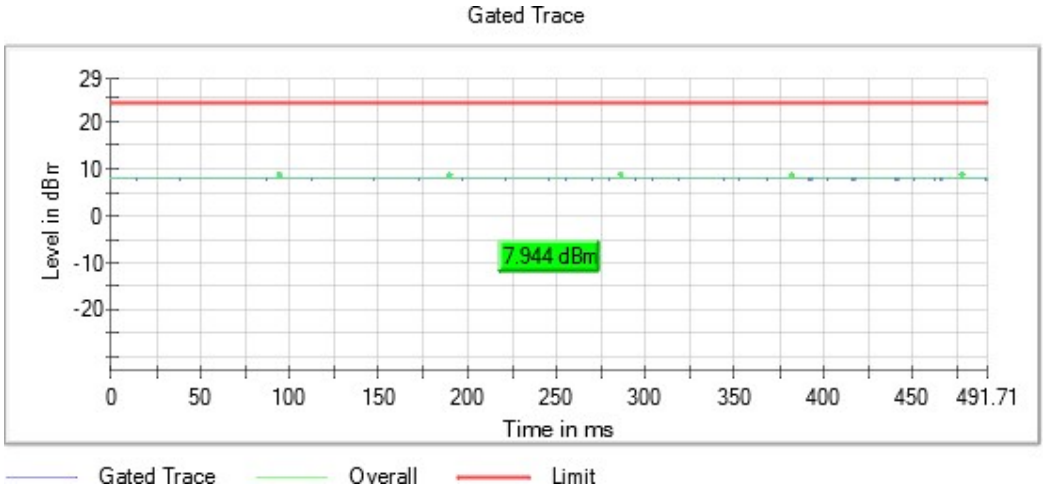
Verdict

Pass

Attachments

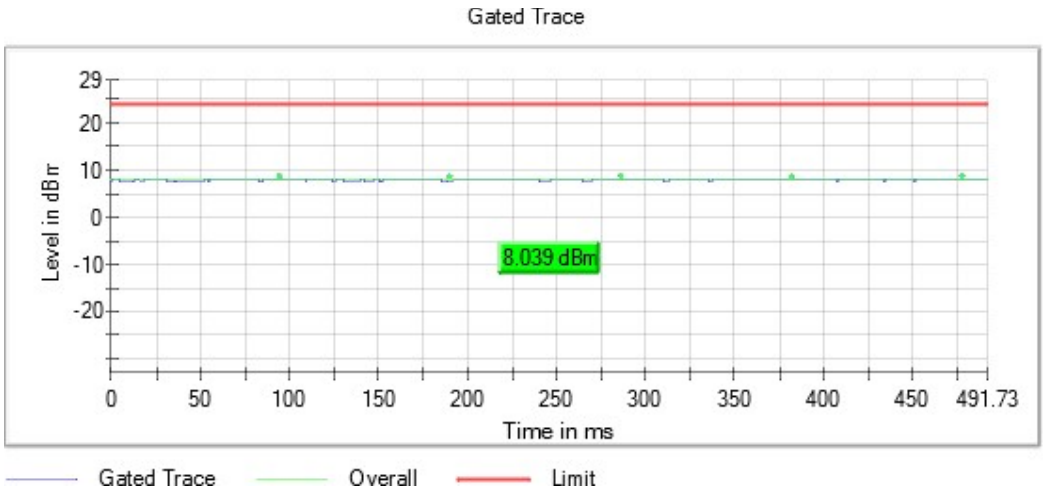
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5190.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:



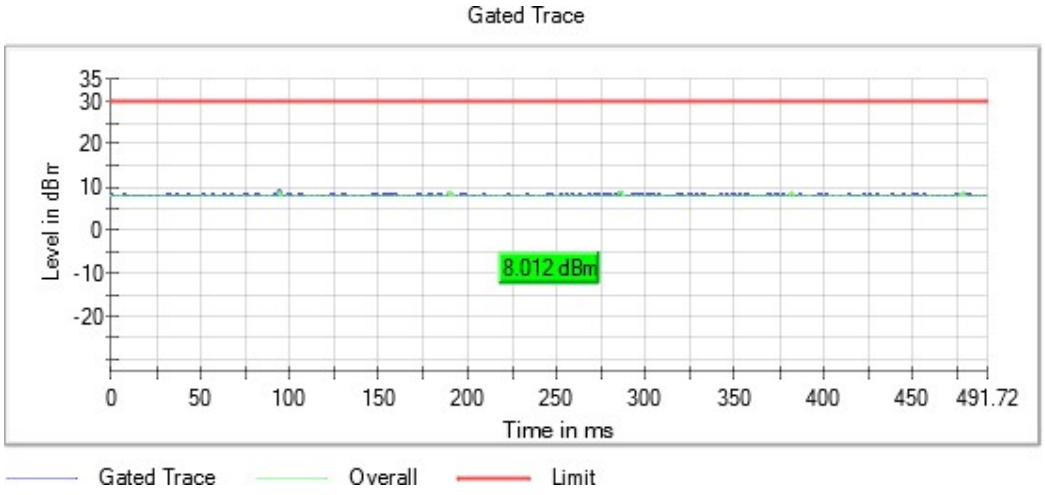
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5230.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:



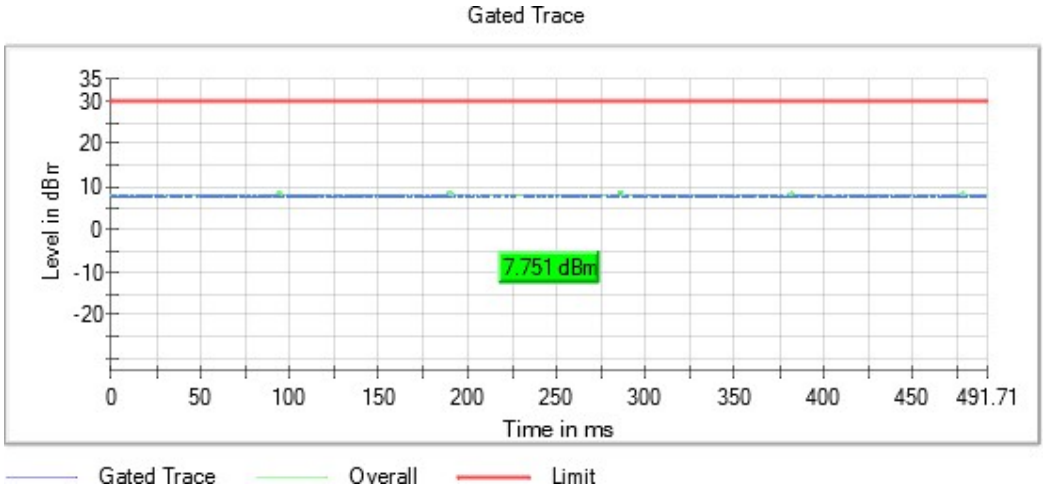
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5755.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:



Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5795.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:



Modulation: 802.11ac VHT80 SS1 (OFDM MCS4)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Avg Power (dBm)	Max EIRP (dBm)
[5150, 5850]	1	5210.00000	No	7.41	13.16
[5150, 5850]	1	5775.00000	No	7.90	13.65

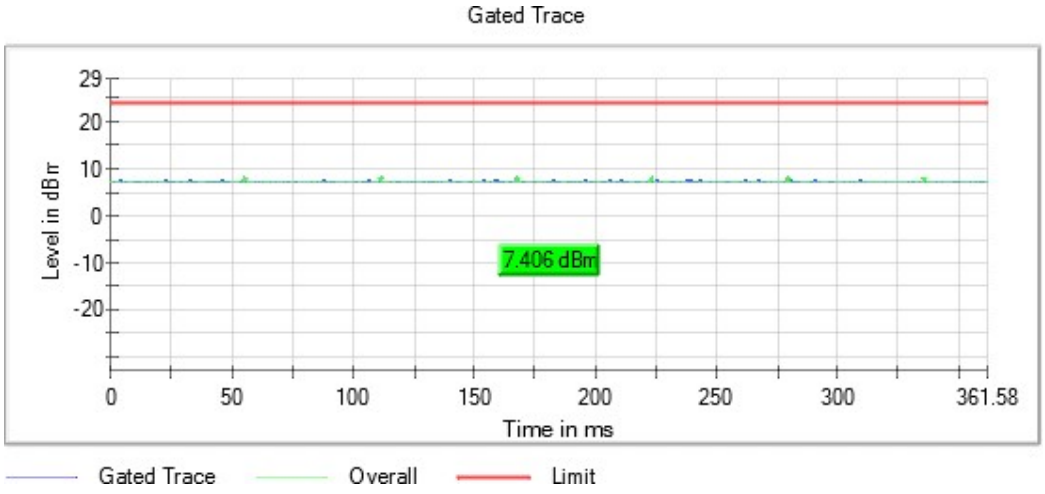
Verdict

Pass

Attachments

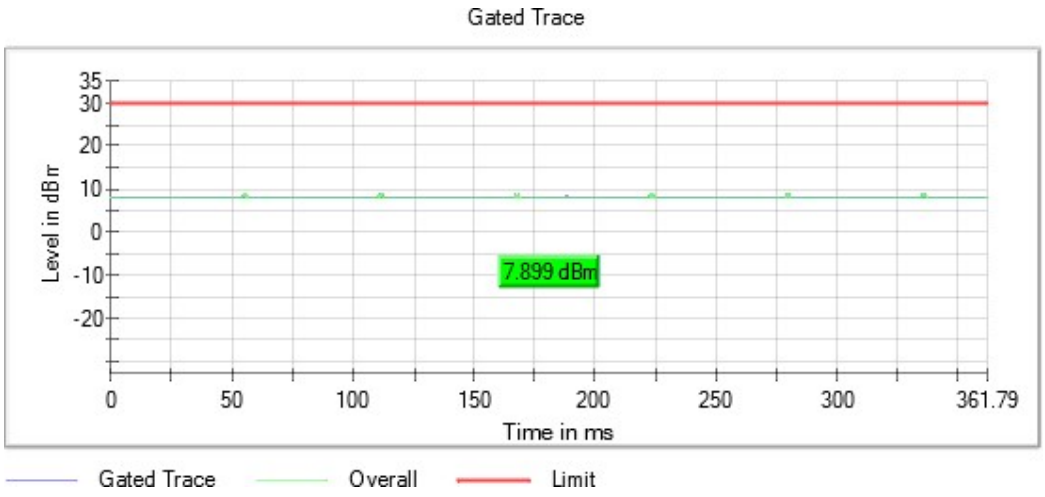
Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5210.00000	Modulation = 802.11ac VHT80 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:



Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5775.00000	Modulation = 802.11ac VHT80 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:



Tables:
Spectrum Analyzer Parameters

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

RSS-247 6.2.1.1 / FCC 15.407 (a) (1) (iv) [Psd] Transmitter Maximum Power Spectral Density

Limits

In band 5.15-5.25 GHz, 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, 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, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RSS-247: In band 5.15-5.25 GHz, the e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the band 5.725-5.850 GHz, the output 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, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Modulation: 802.11a (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
[5150, 5850]	1	5180.00000	No	5175.643564	-2.31
		5200.00000		5195.643564	-2.38
		5240.00000		5235.643564	-2.09
		5745.00000		5746.386139	-4.89
		5785.00000		5781.237624	-4.98
		5825.00000		5826.386139	-5.47

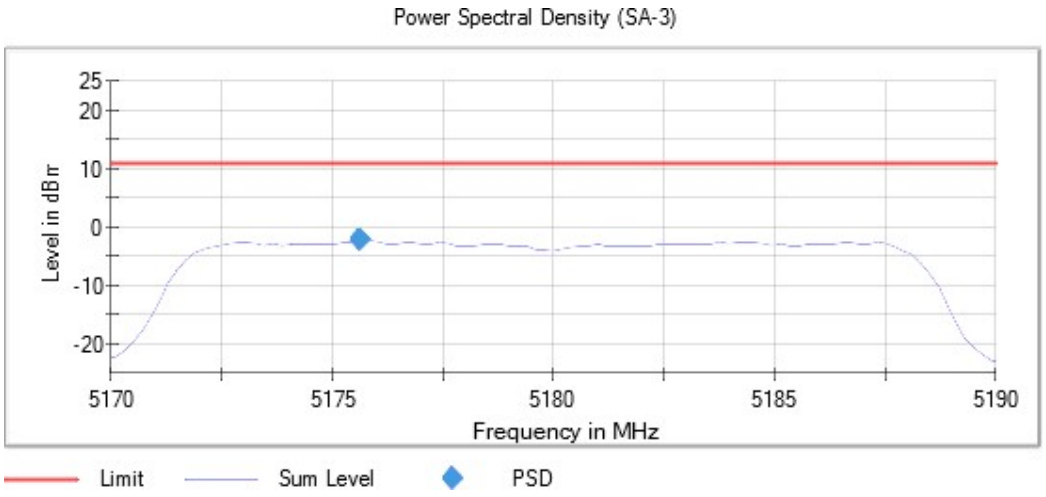
Verdict

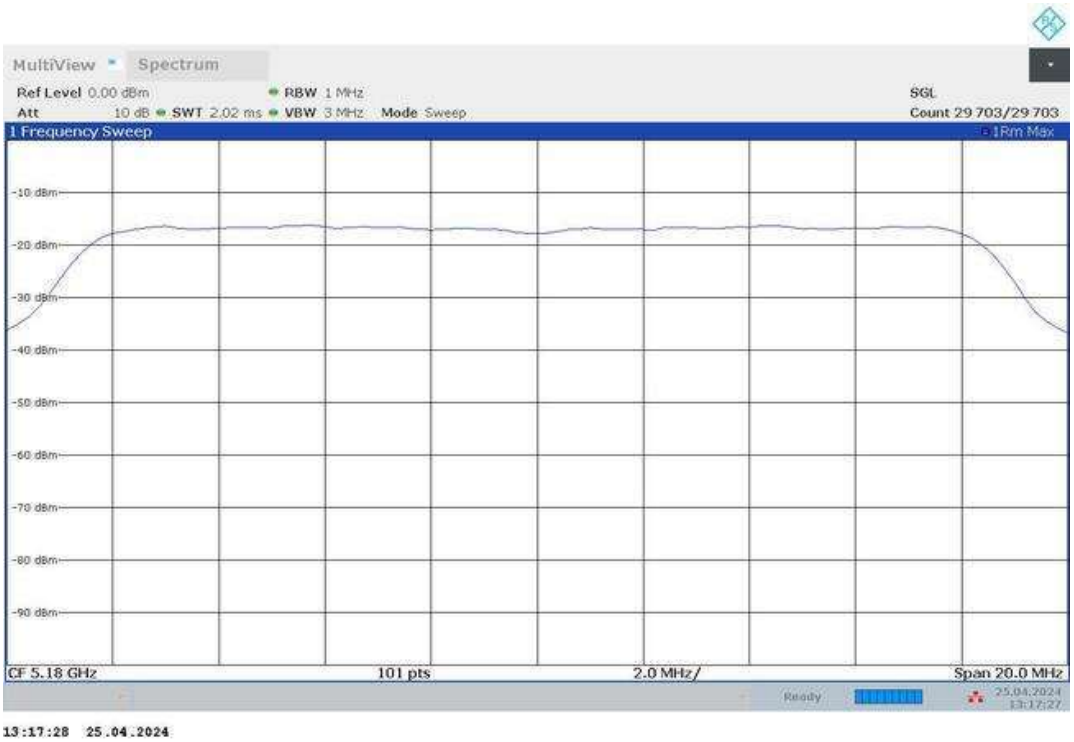
Pass

Attachments

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5180.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:

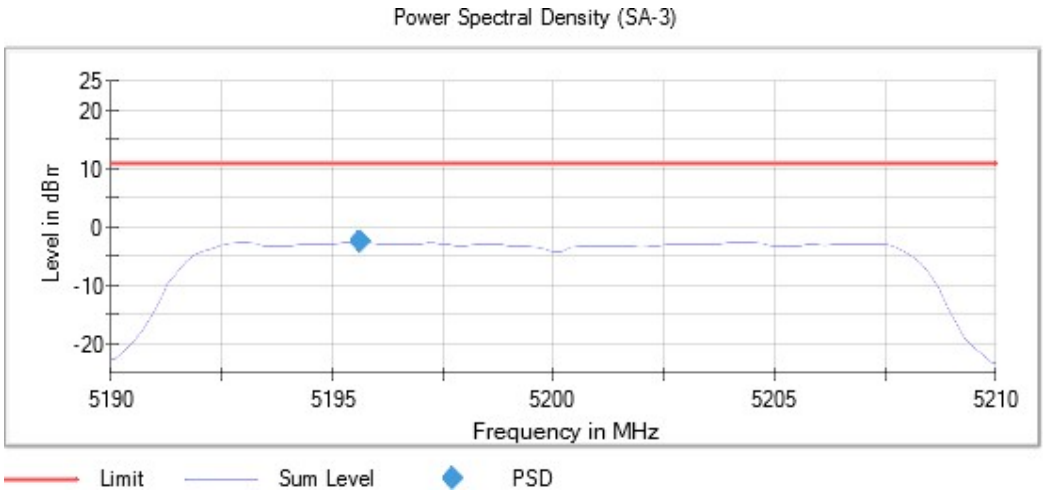


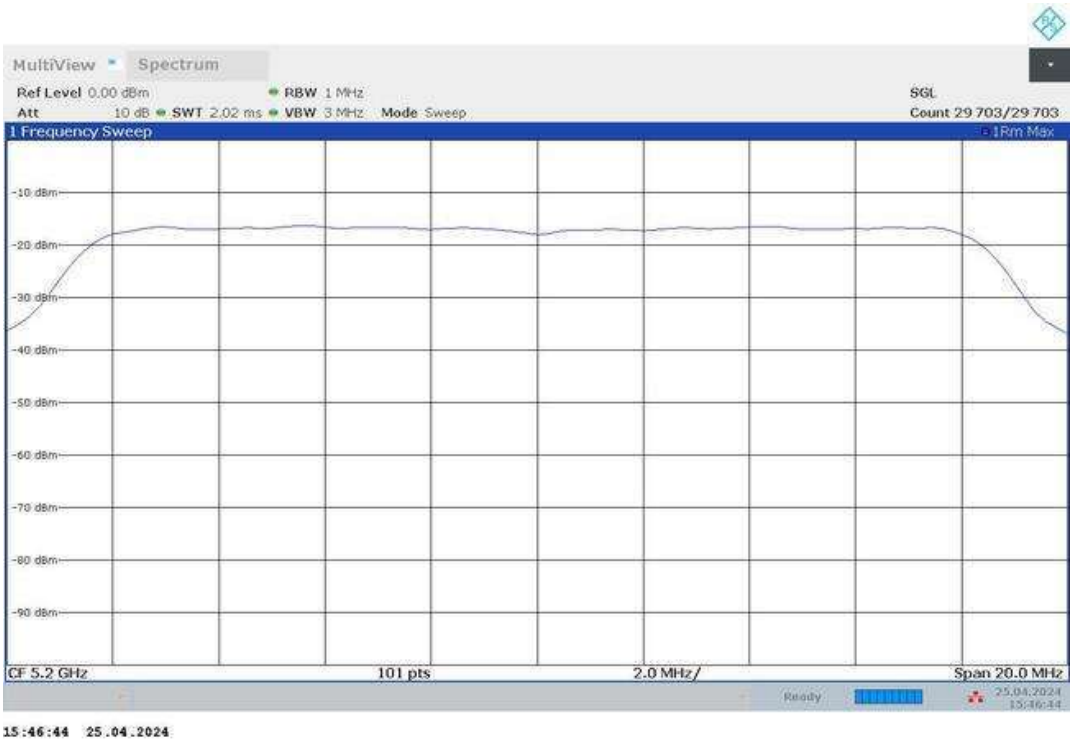


13:17:28 25.04.2024

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5200.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

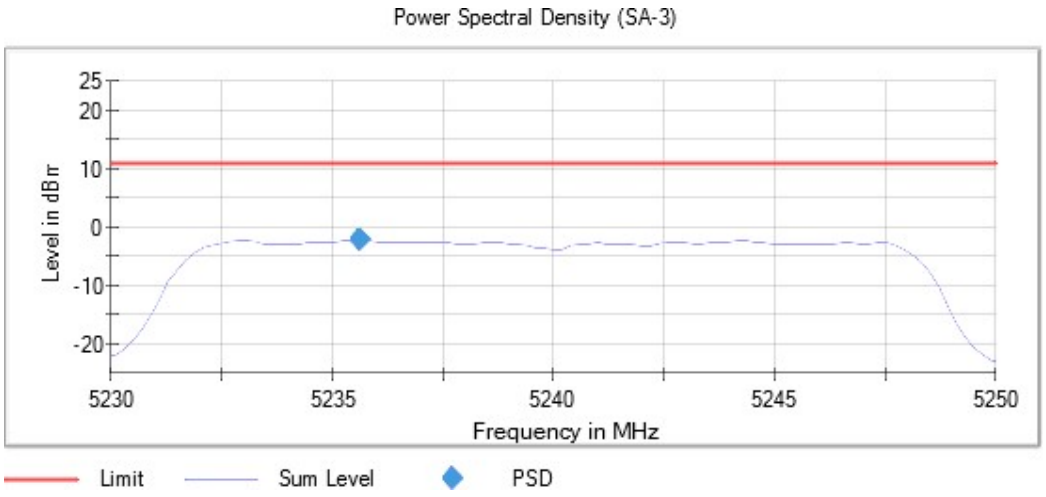
Images:

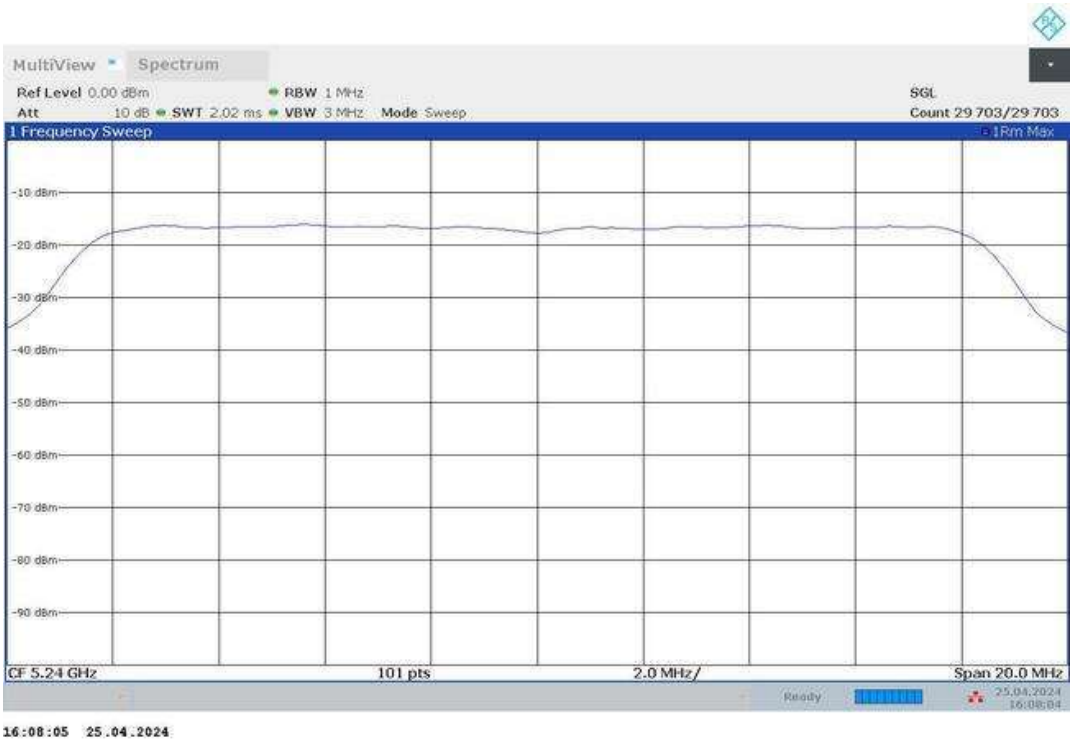




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5240.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

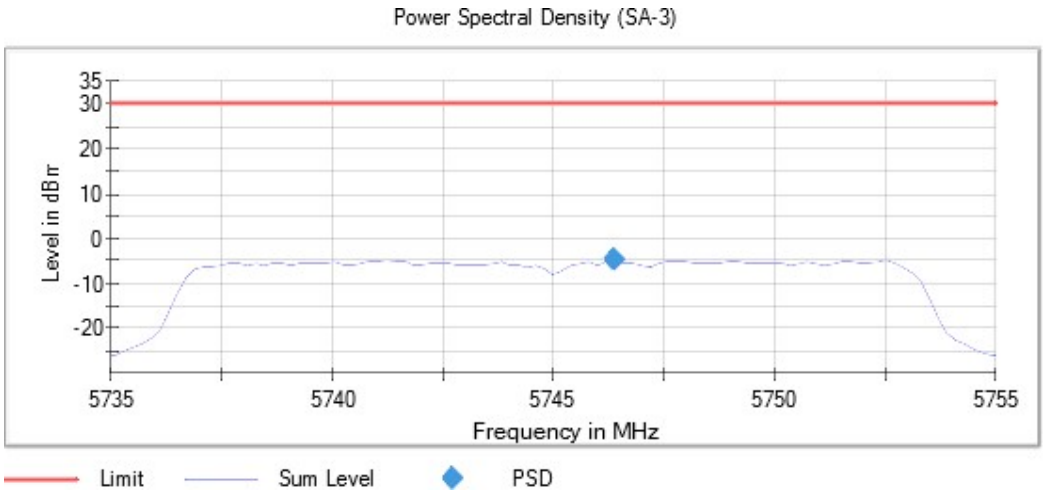
Images:

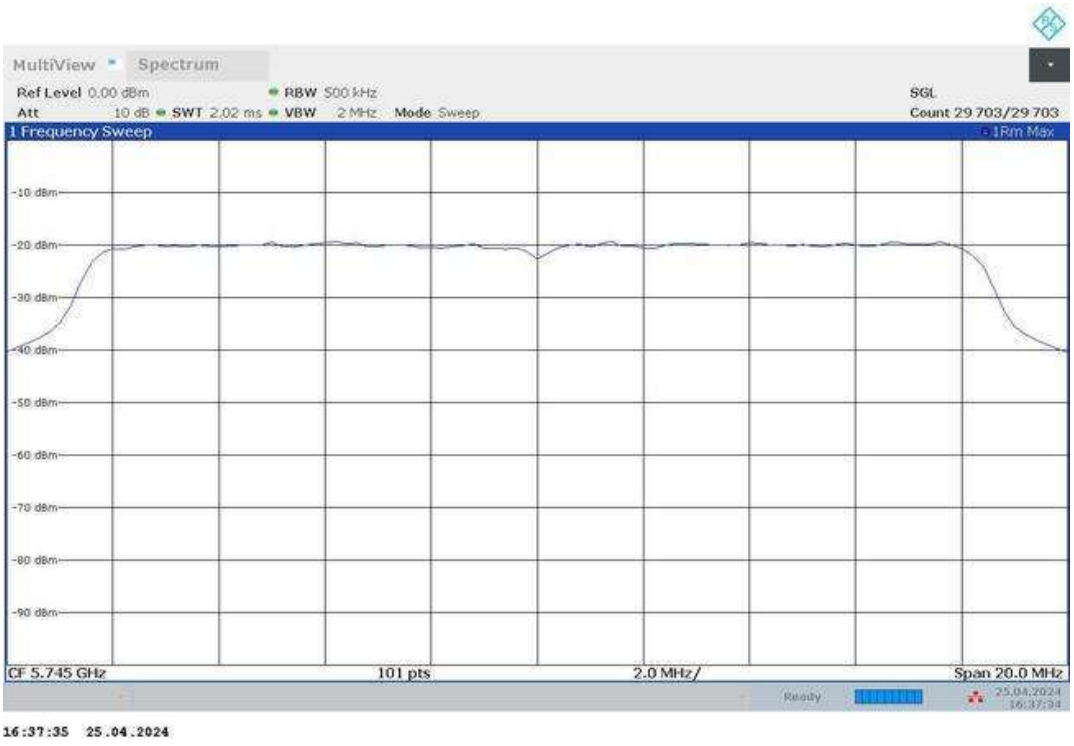




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5745.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

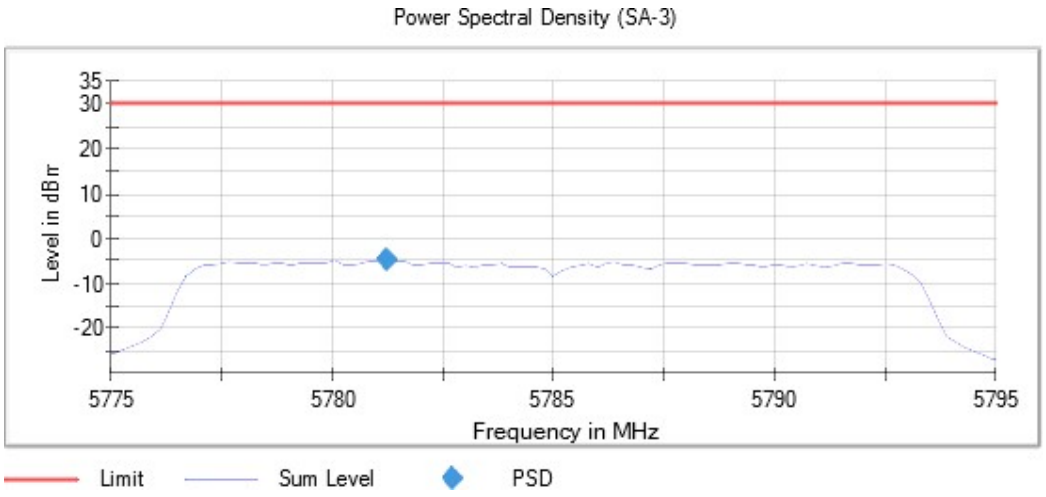
Images:

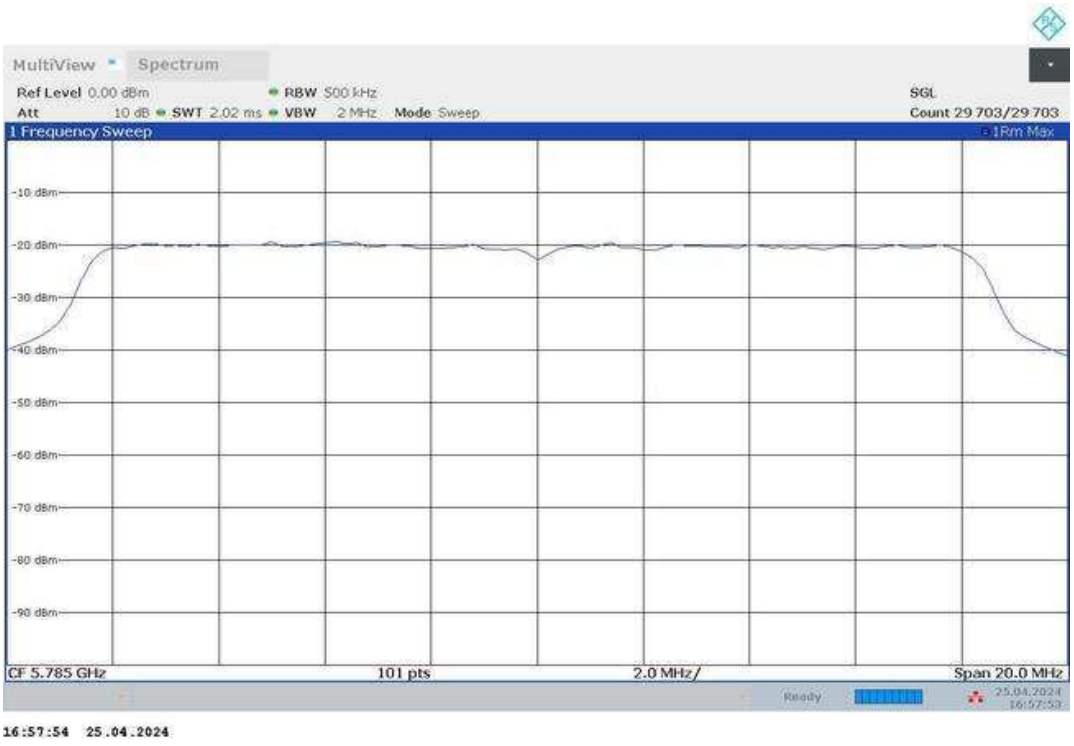




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5785.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

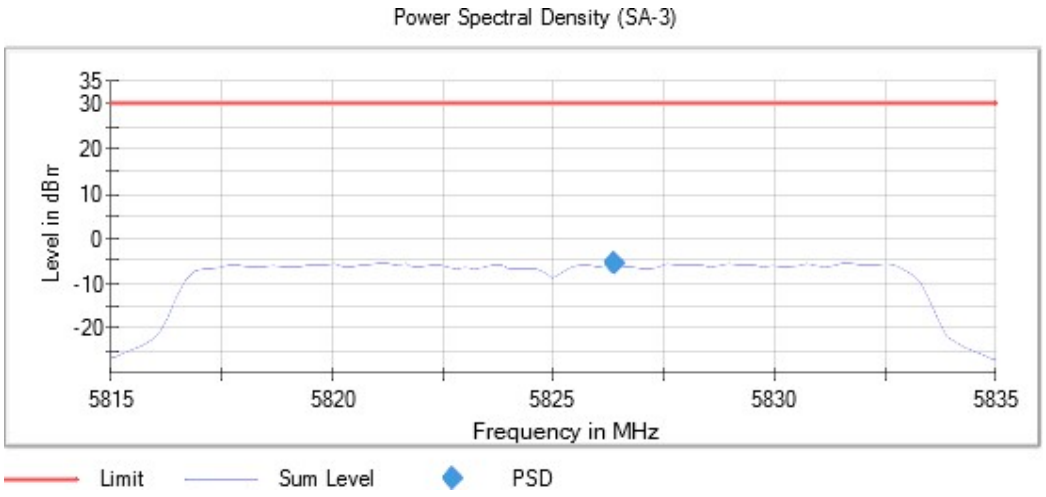
Images:

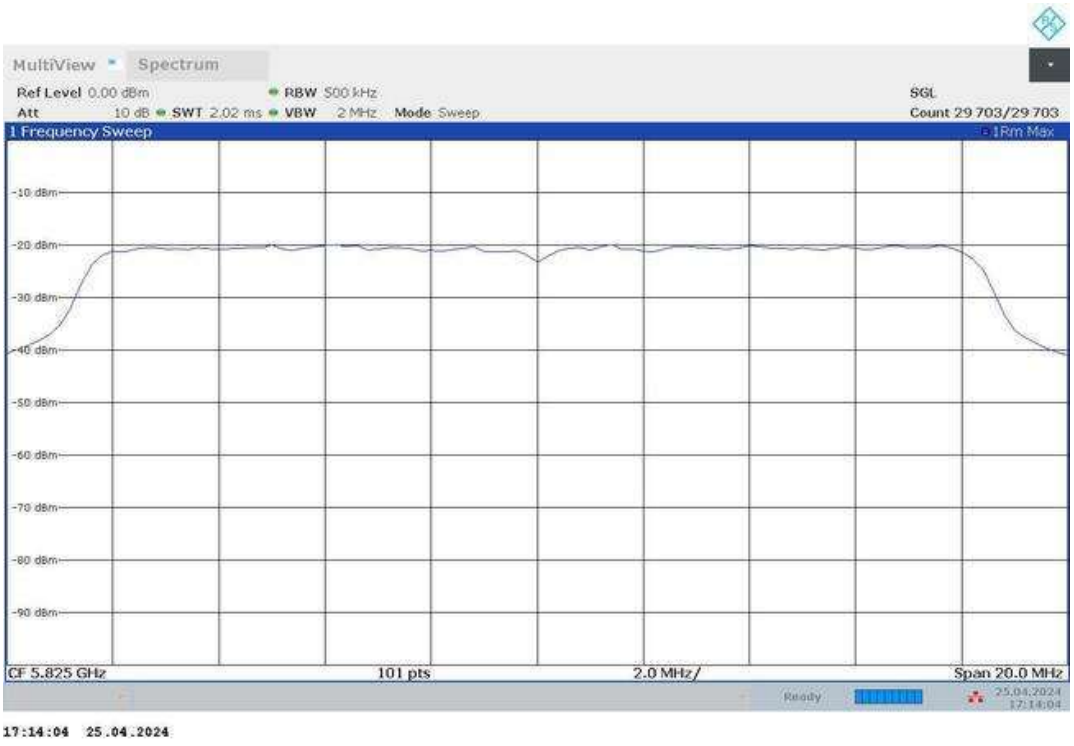




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5825.00000	Modulation = 802.11a (OFDM 9 Mbit/s)
TPC = No	MIMO Mode = SISO

Images:





Modulation: 802.11n HT20 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
[5150, 5850]	1	5180.00000	No	5184.356436	-1.64
		5200.00000		5202.772277	-2.26
		5240.00000		5244.356436	-1.80
		5745.00000		5747.772277	-4.27
		5785.00000		5787.772277	-4.33
		5825.00000		5827.772277	-4.98

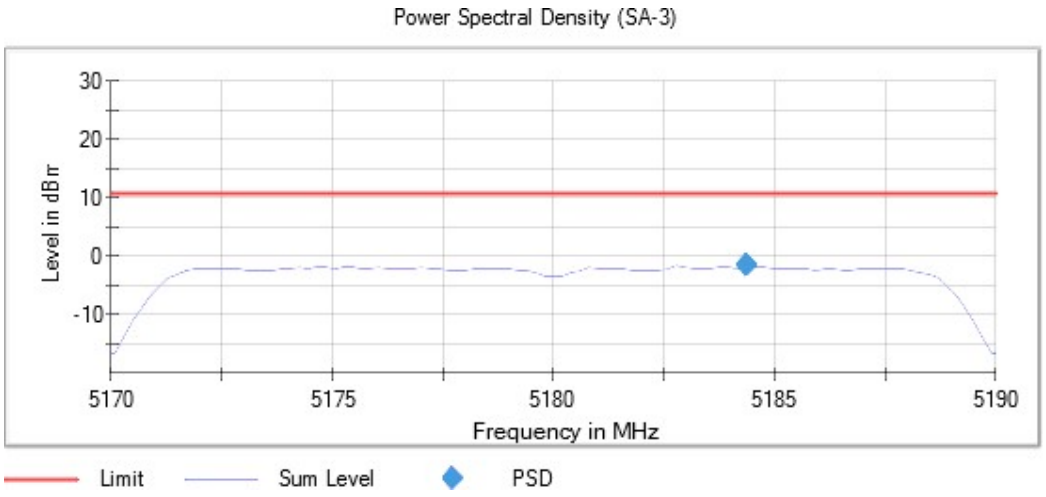
Verdict

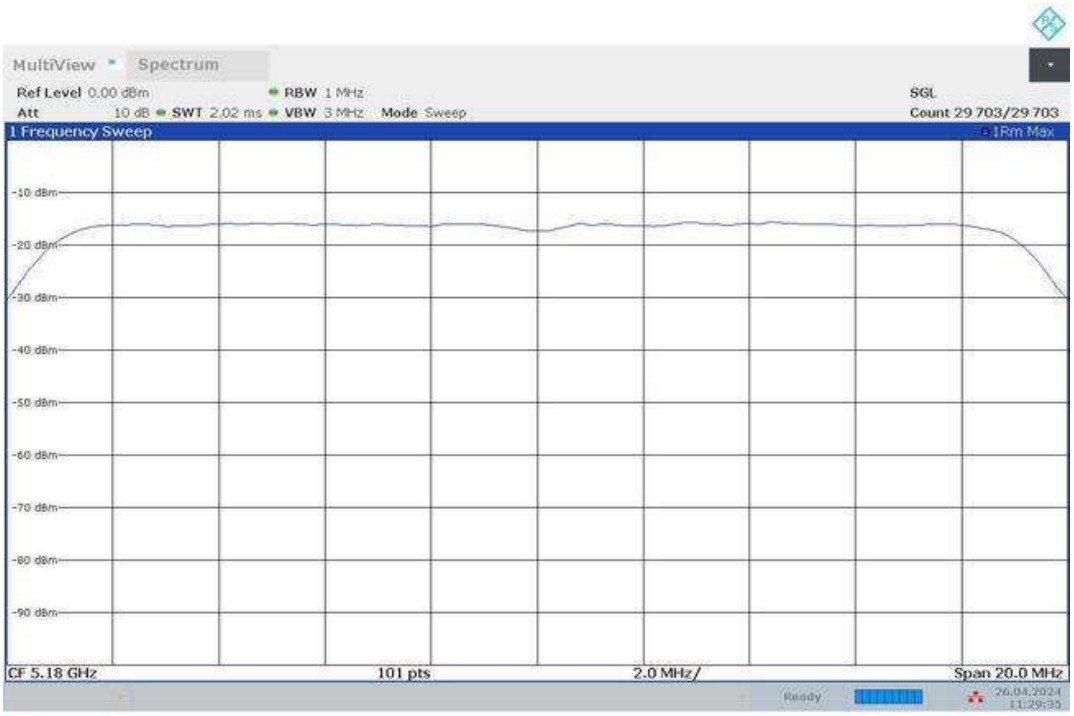
Pass

Attachments

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5180.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:

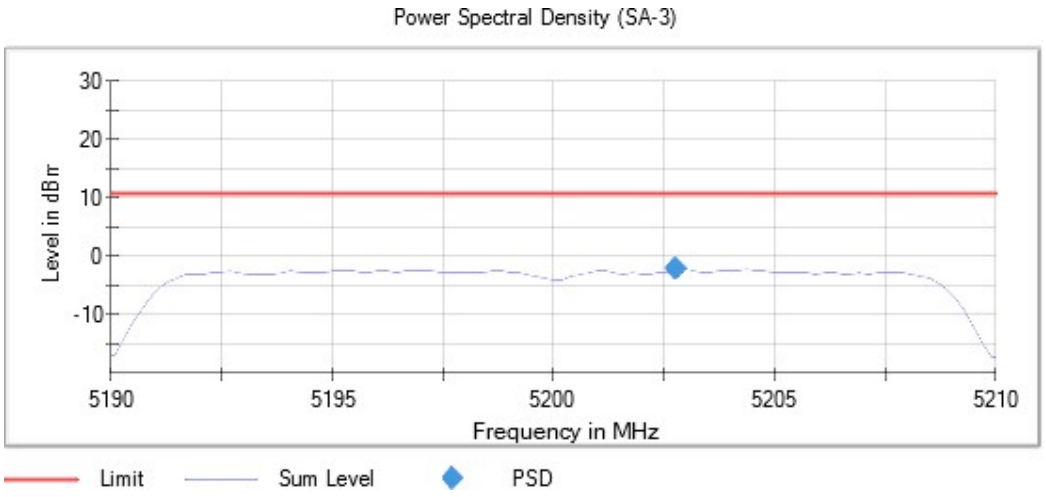


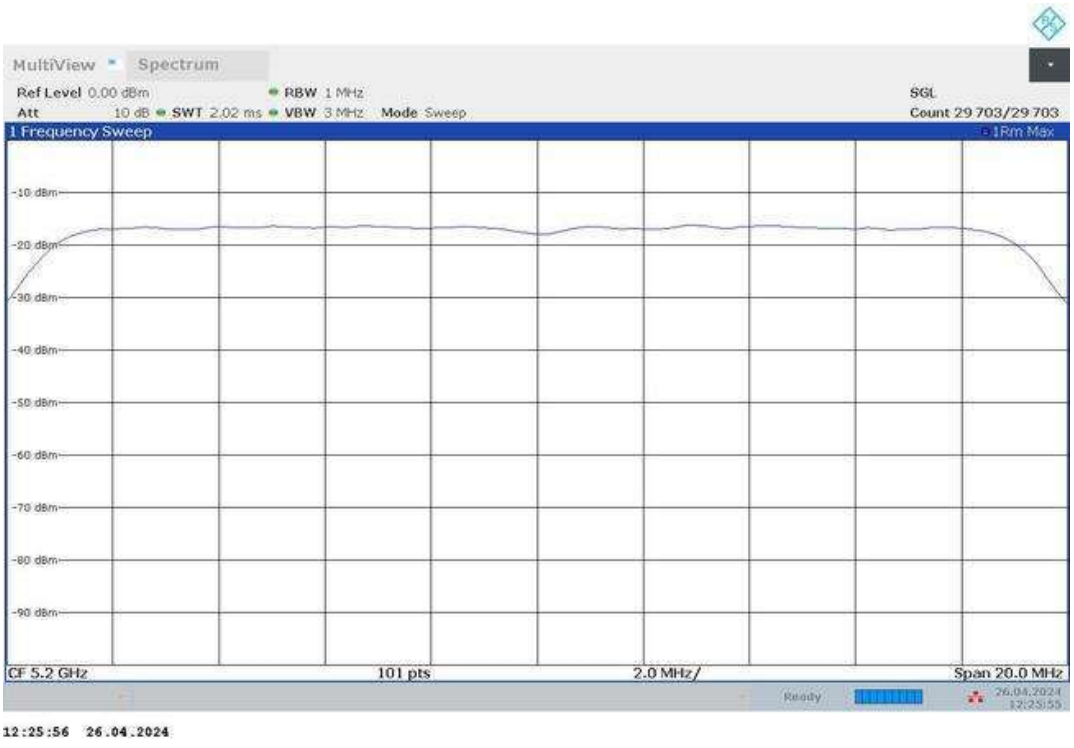


11:29:35 26.04.2024

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5200.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

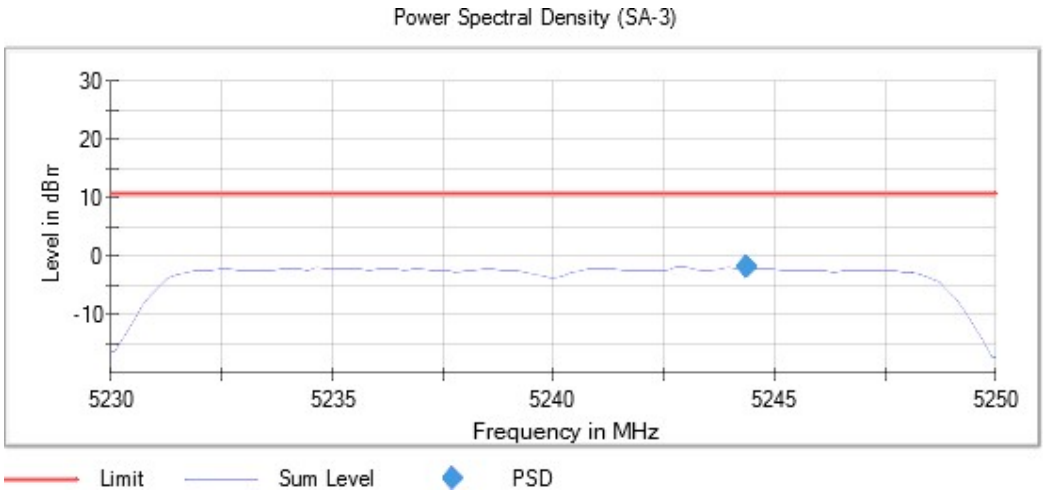
Images:

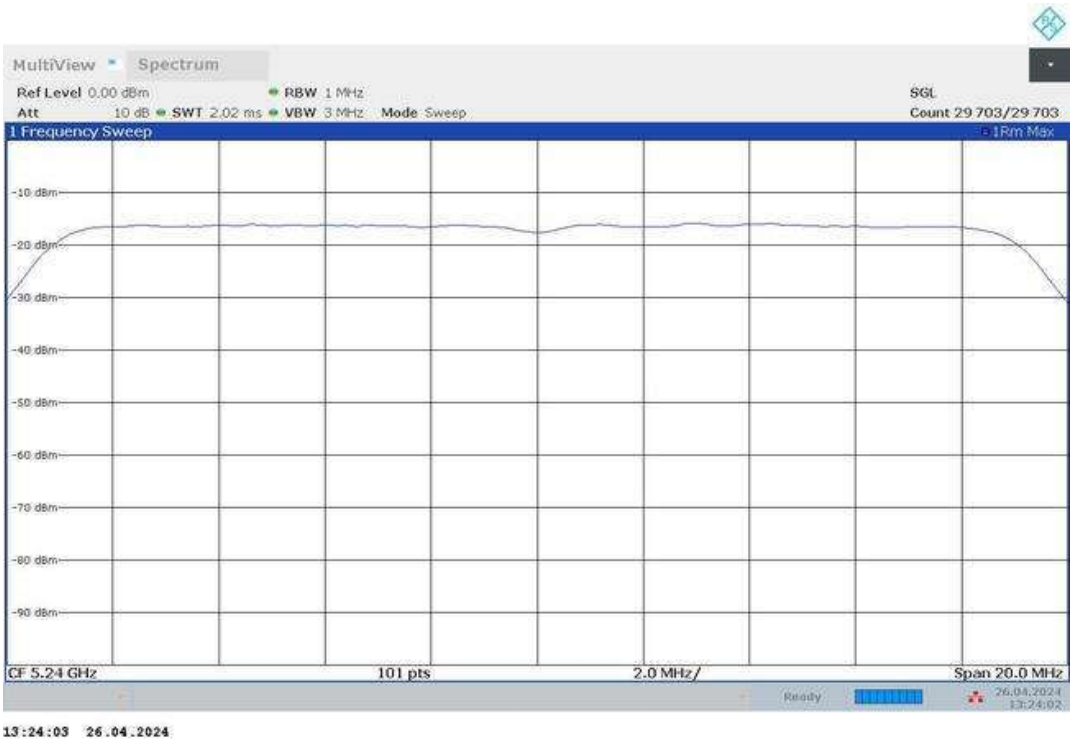




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5240.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

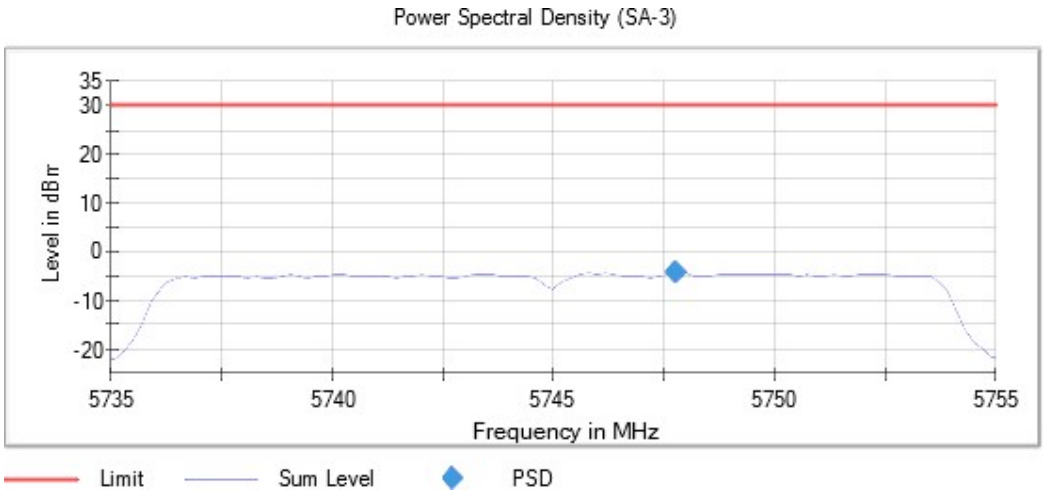
Images:

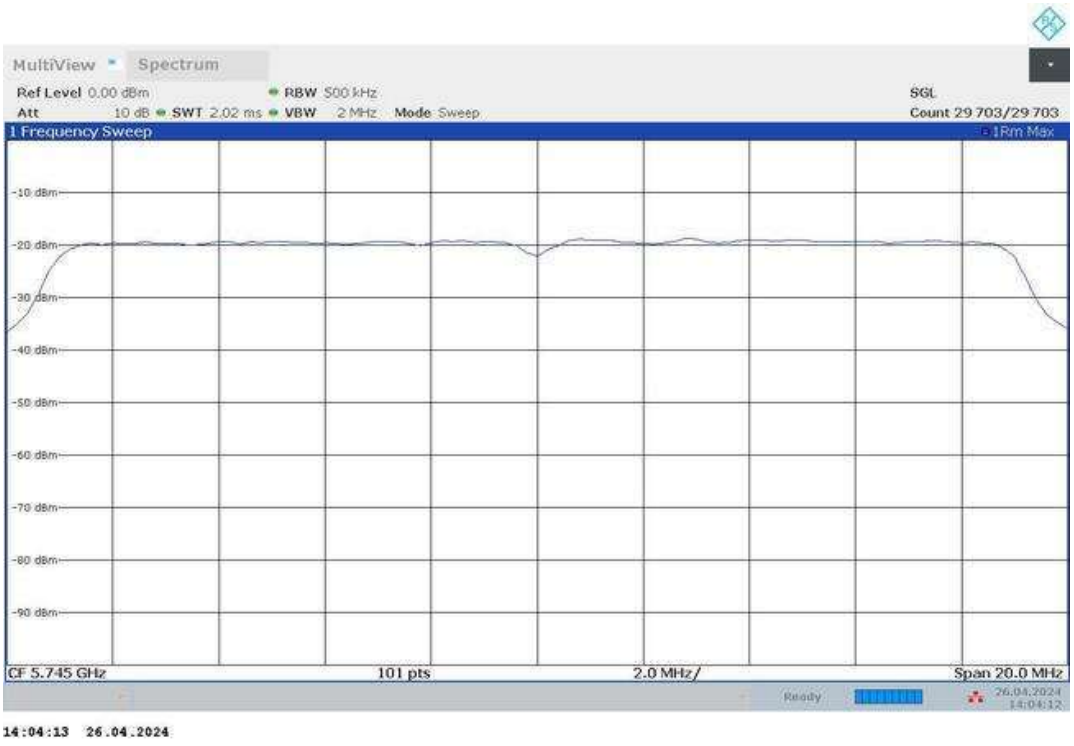




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5745.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

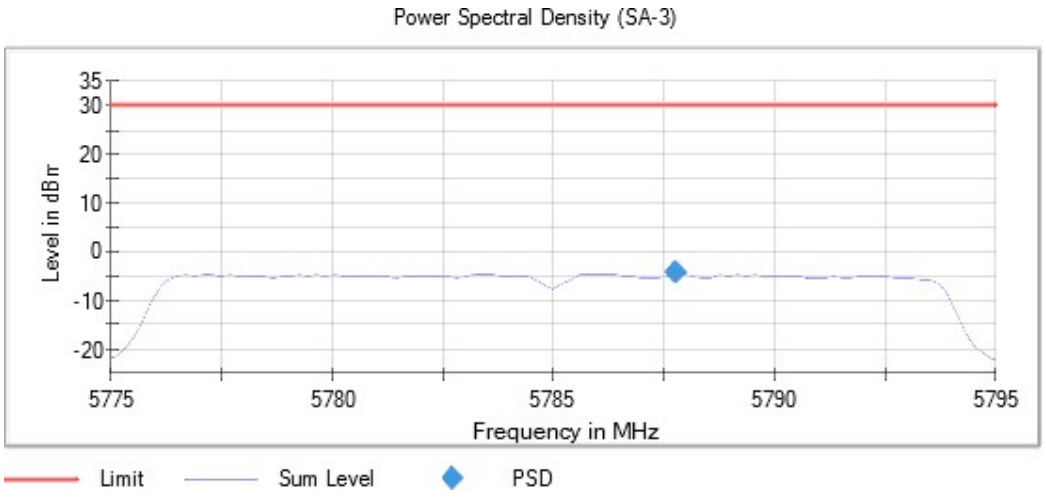
Images:

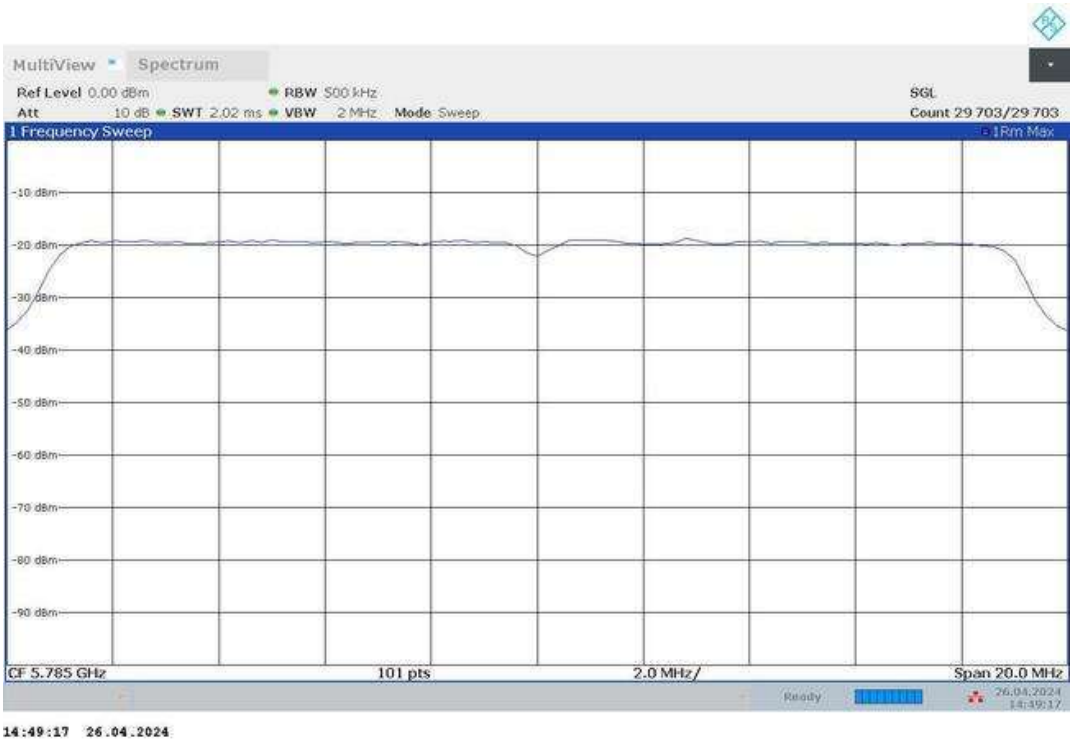




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5785.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

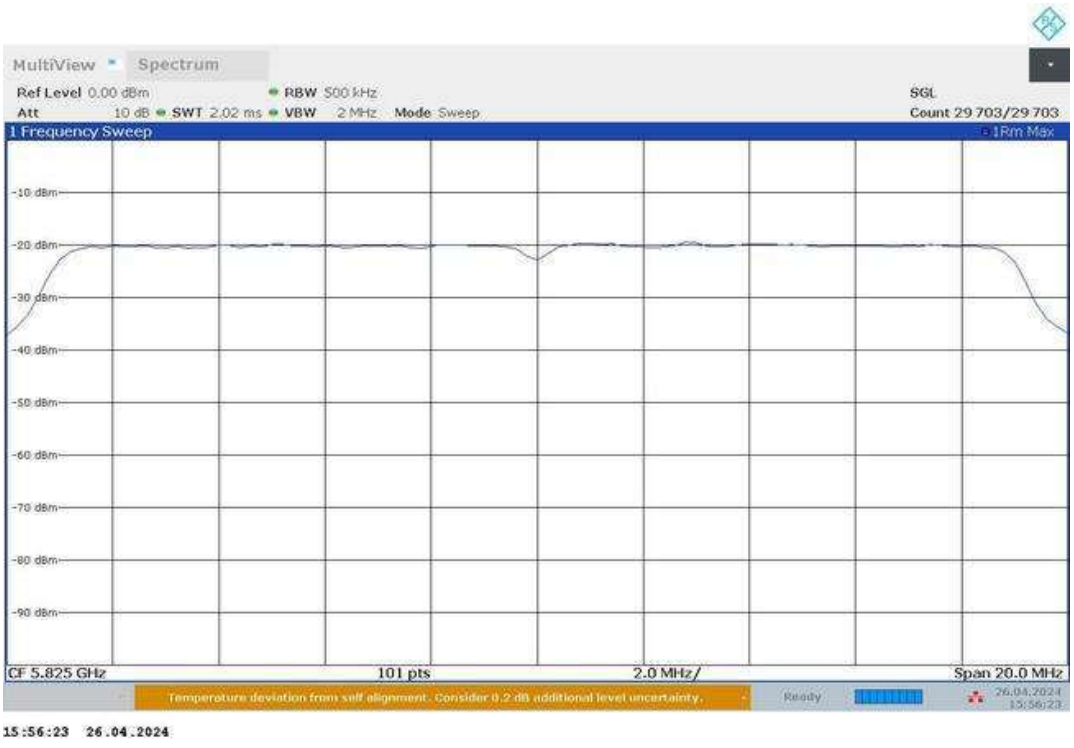
Images:





Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5825.00000	Modulation = 802.11n HT20 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Modulation: 802.11n HT40 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
[5150, 5850]	1	5190.00000	No	5194.752475	-5.01
		5230.00000		5226.039604	-4.76
		5755.00000		5759.625000	-6.56
		5795.00000		5799.625000	-7.15

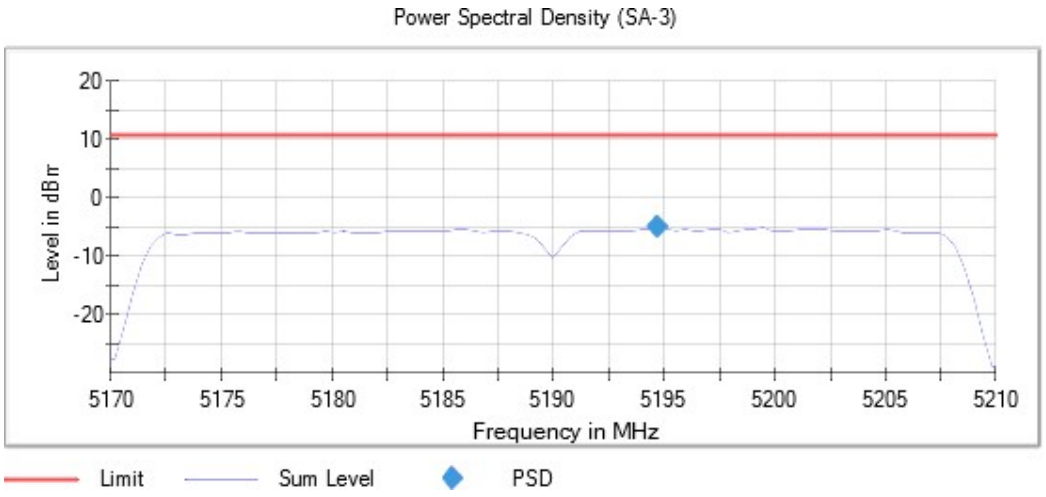
Verdict

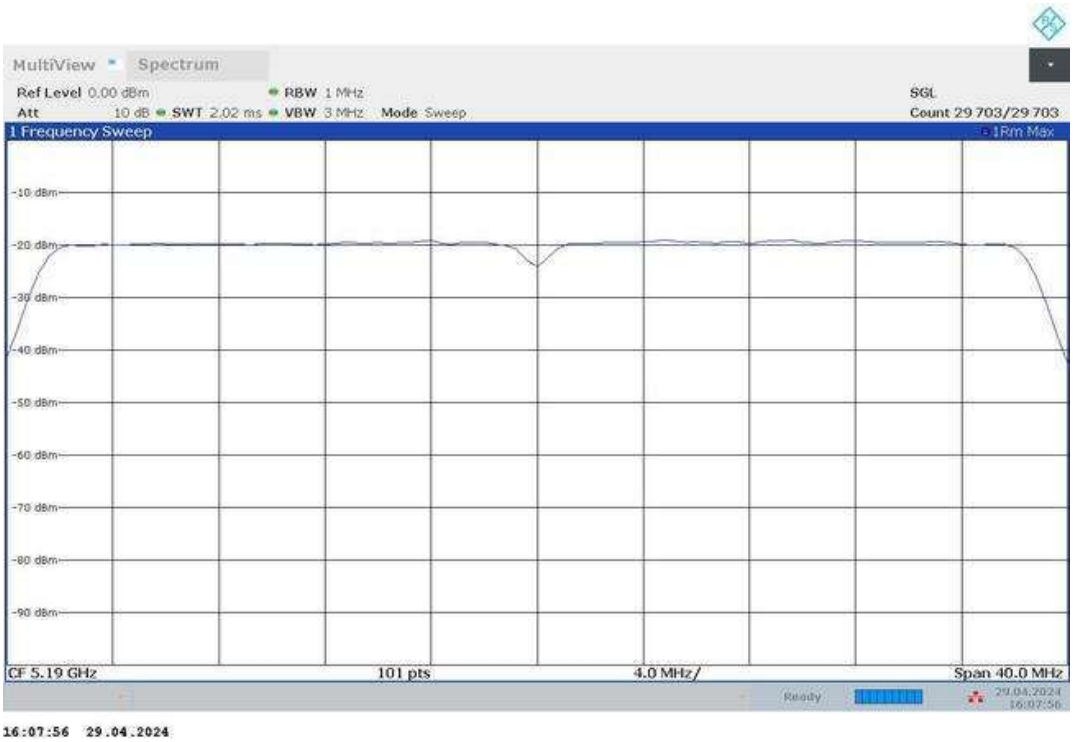
Pass

Attachments

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5190.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:

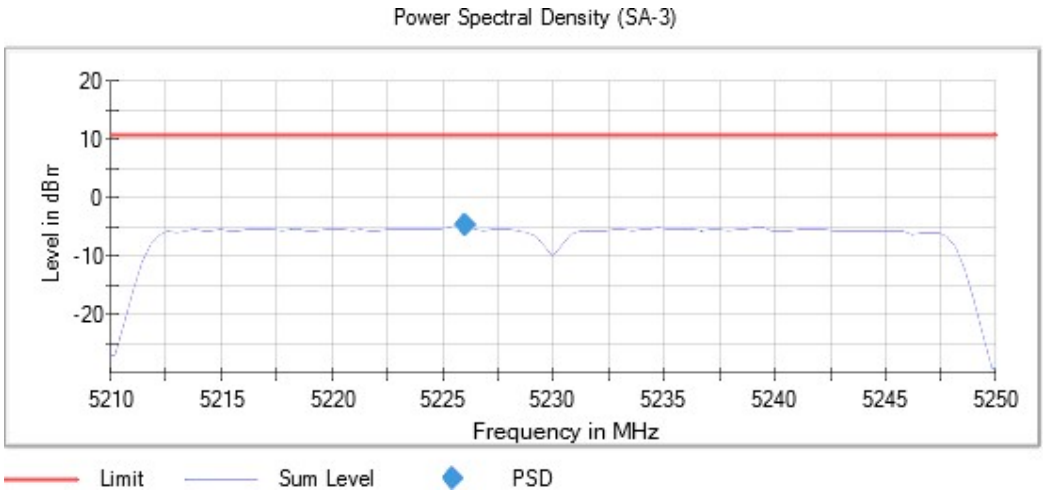


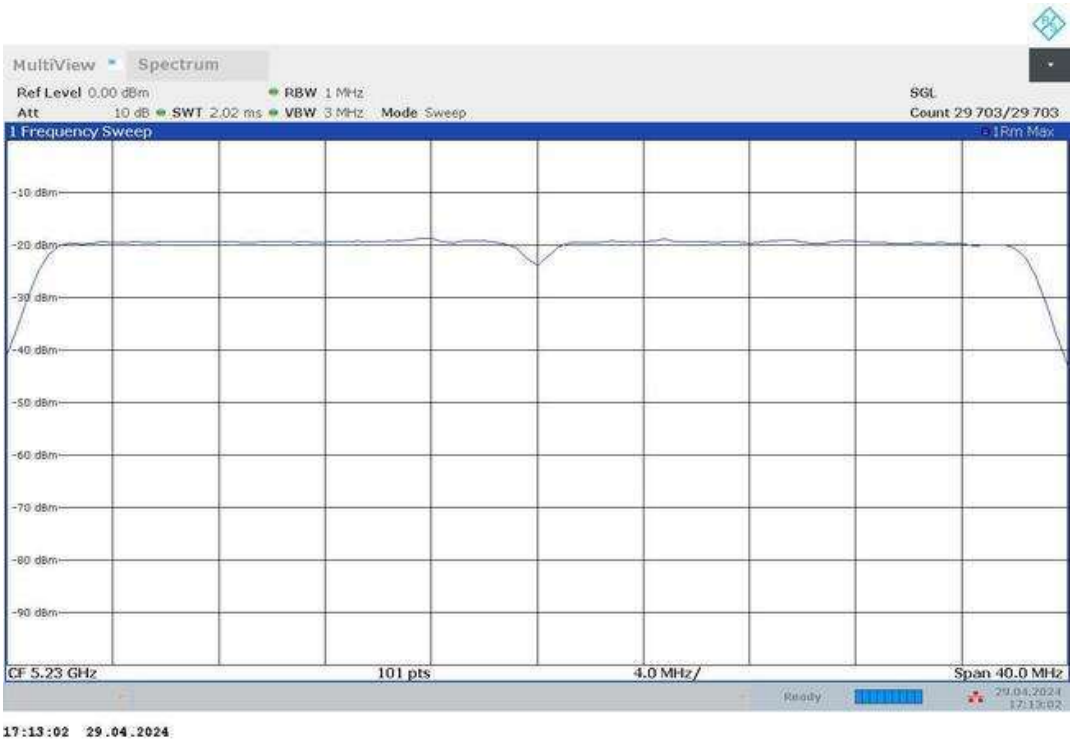


16:07:56 29.04.2024

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5230.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

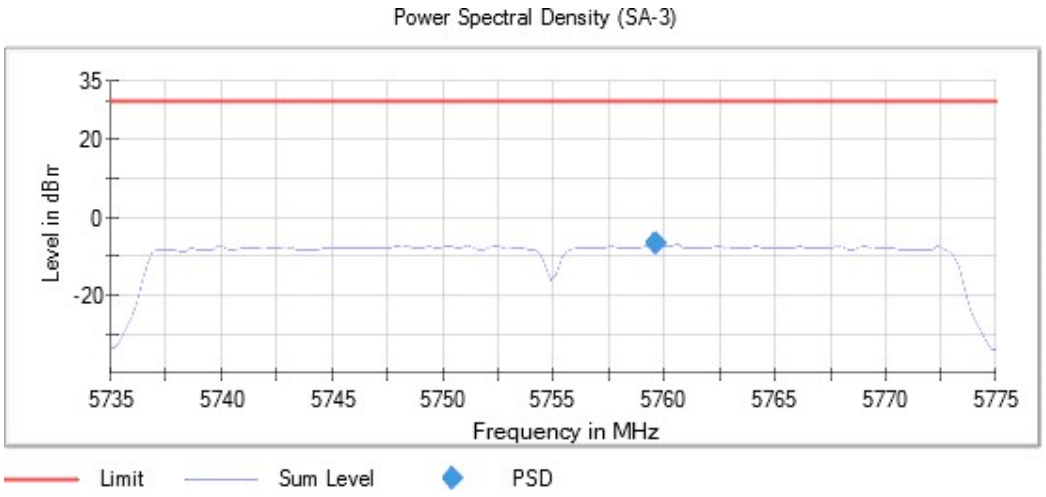
Images:

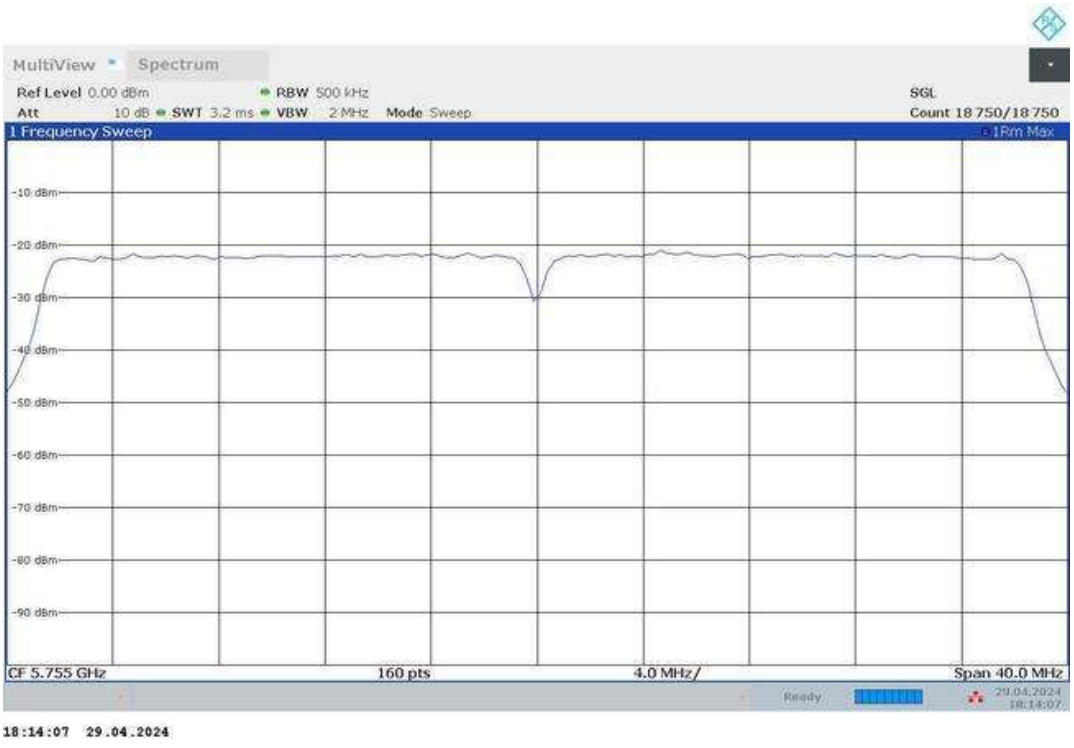




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5755.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

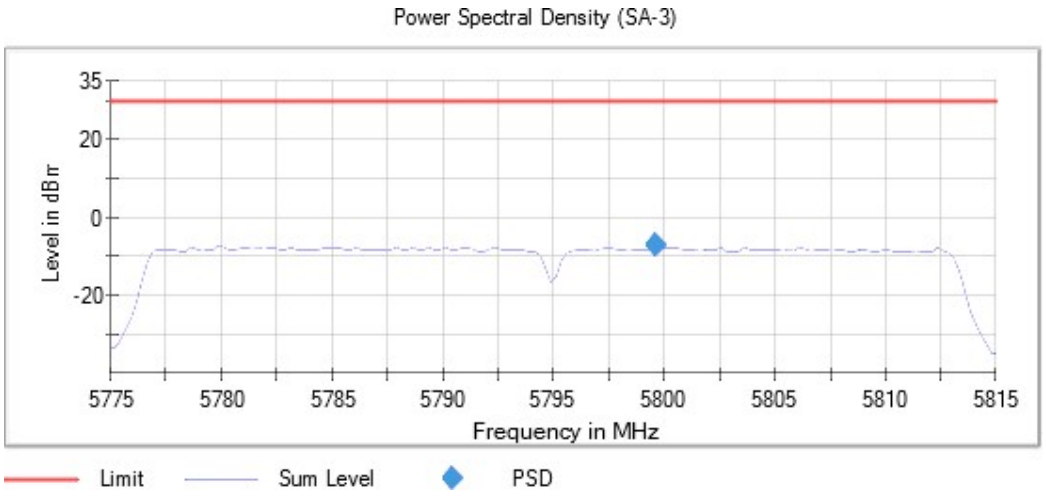
Images:

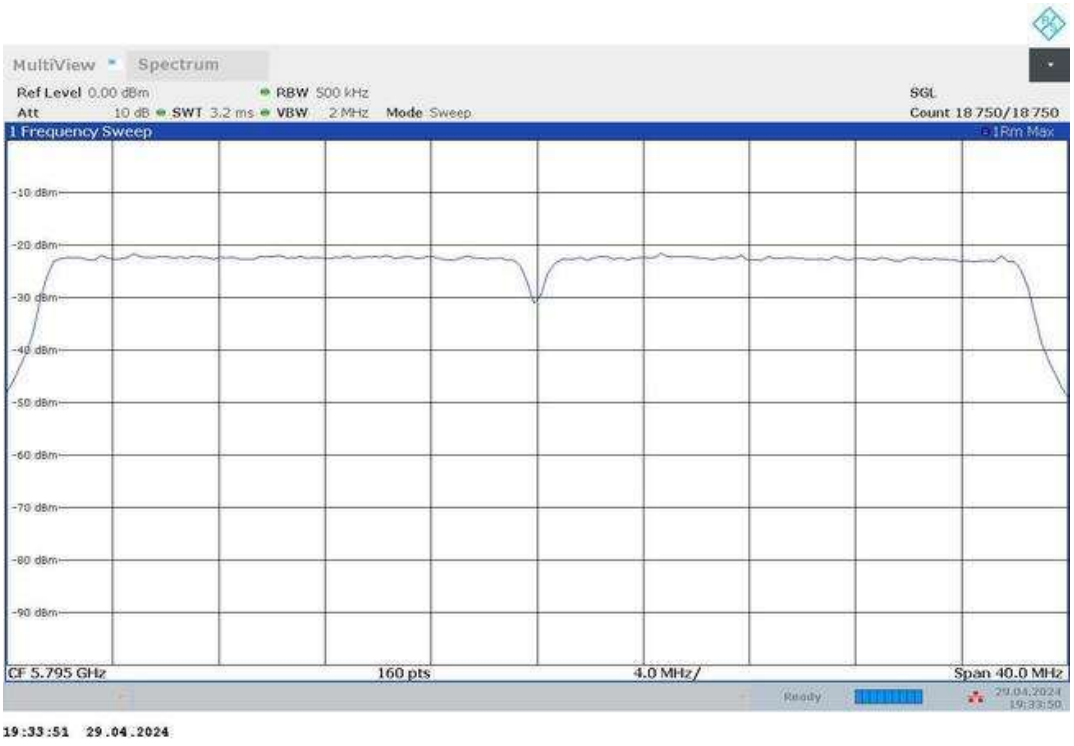




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5795.00000	Modulation = 802.11n HT40 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT20 SS1 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
[5150, 5850]	1	5180.00000	No	5182.772277	-2.04
		5200.00000		5194.653465	-2.42
		5240.00000		5234.653465	-2.34
		5745.00000		5747.772277	-4.66
		5785.00000		5779.653465	-4.52
		5825.00000		5826.386139	-5.02

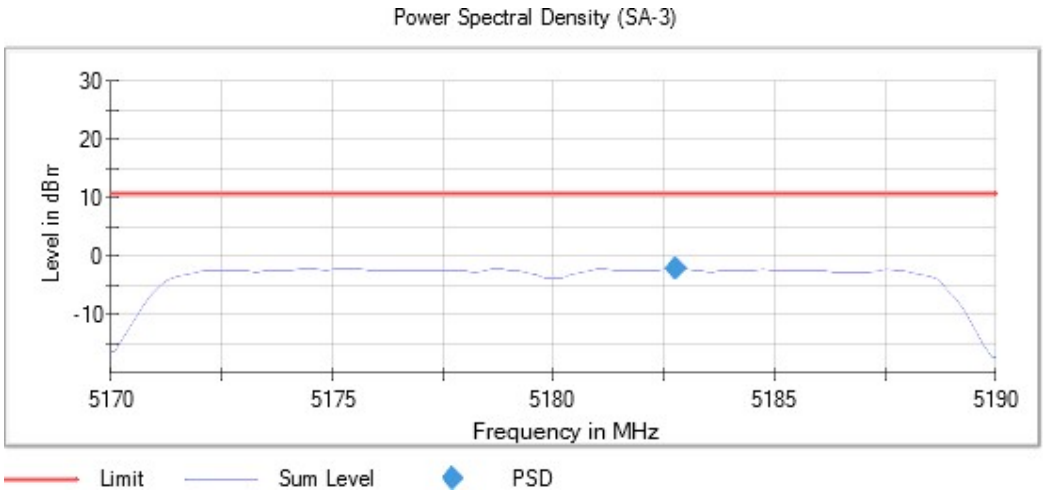
Verdict

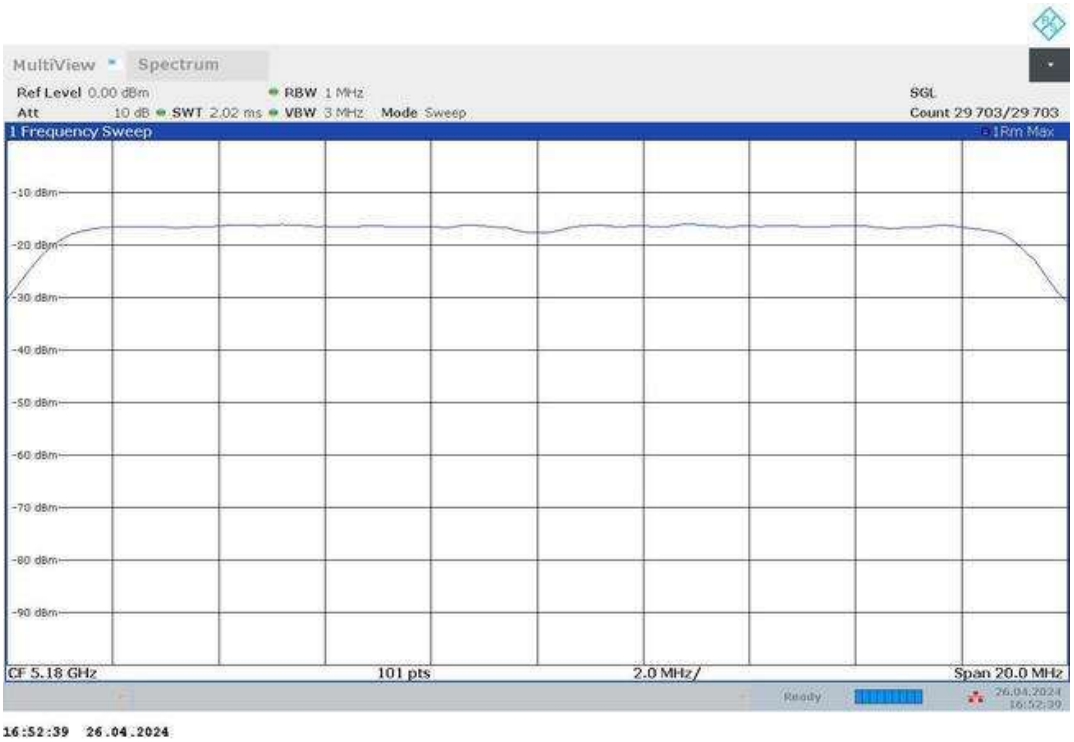
Pass

Attachments

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5180.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:

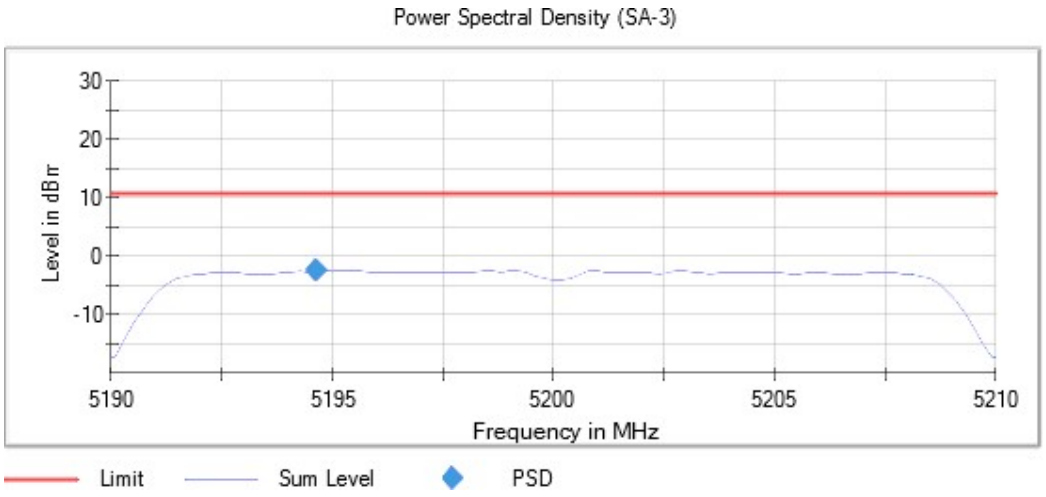


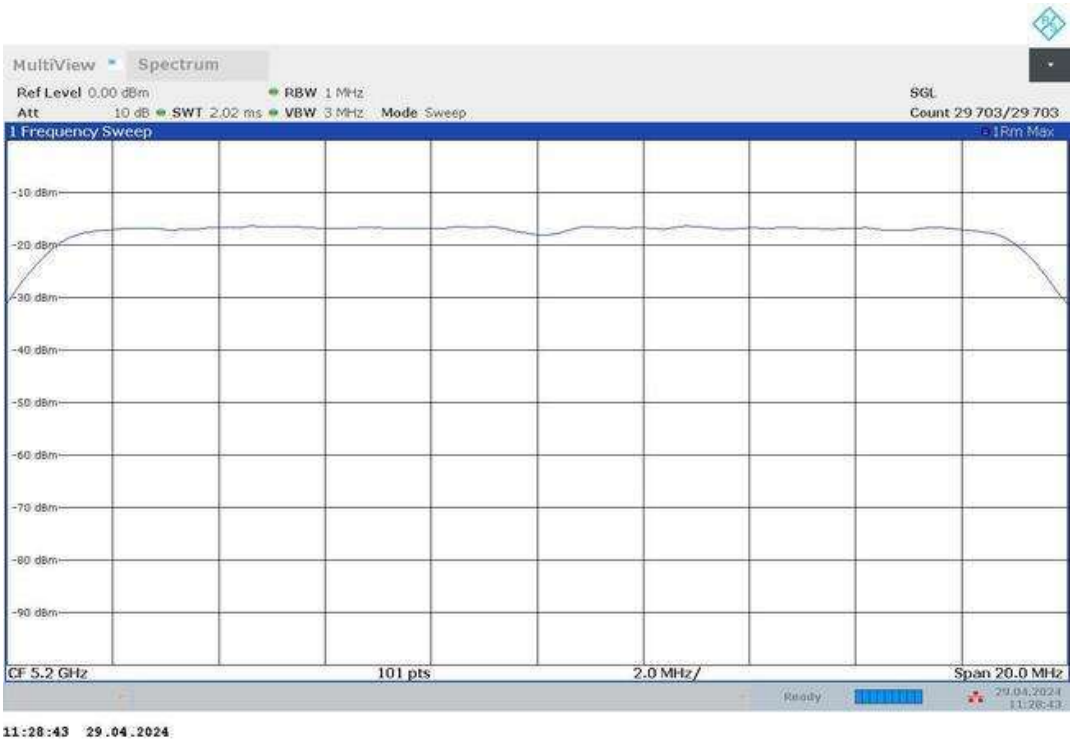


16:52:39 26.04.2024

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5200.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

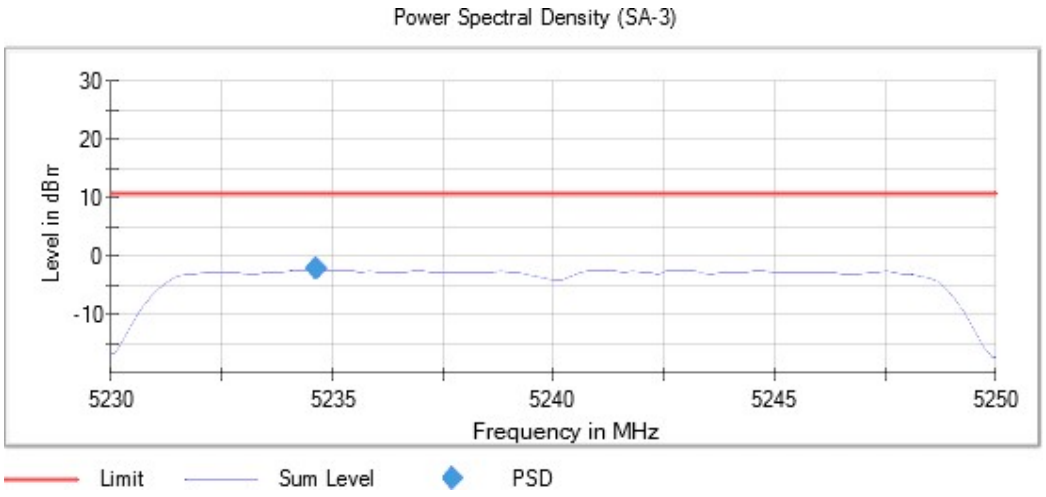
Images:

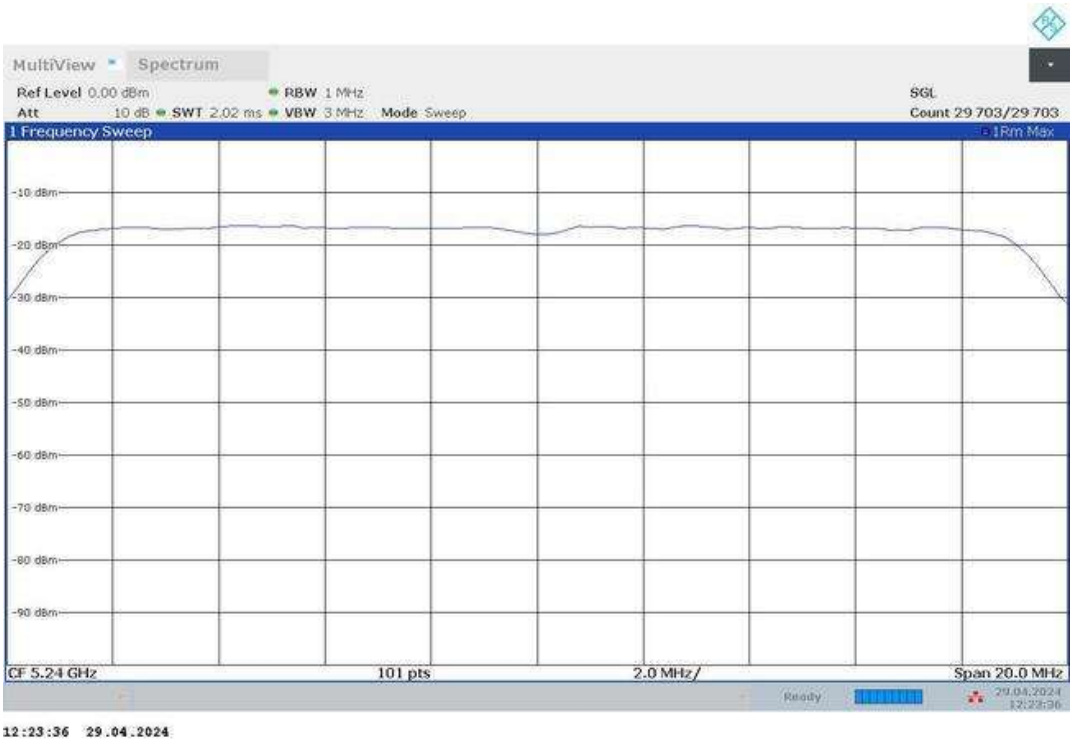




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5240.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

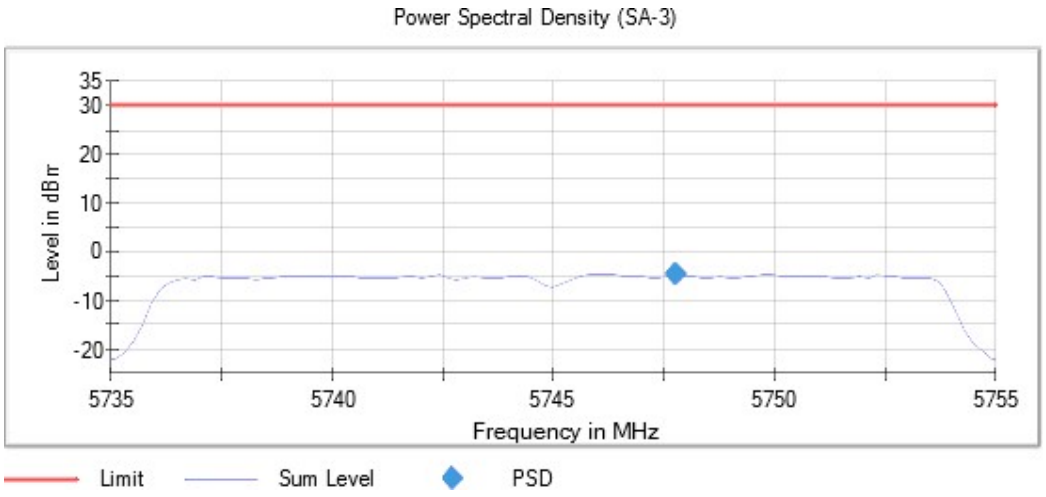
Images:

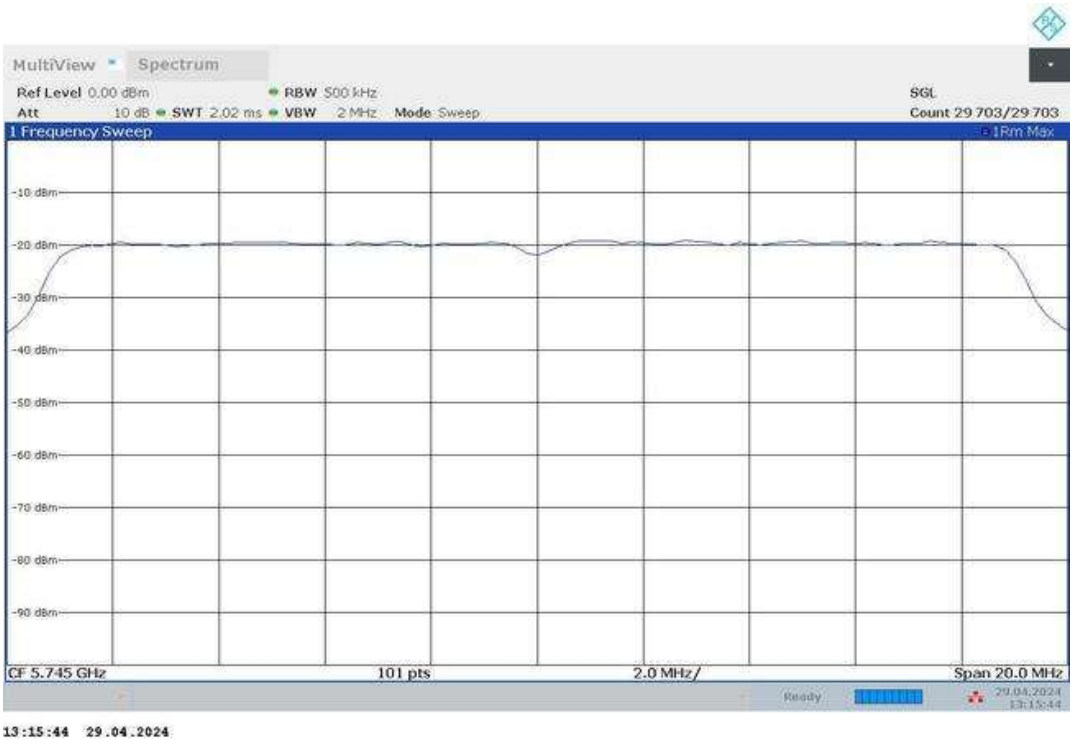




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5745.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

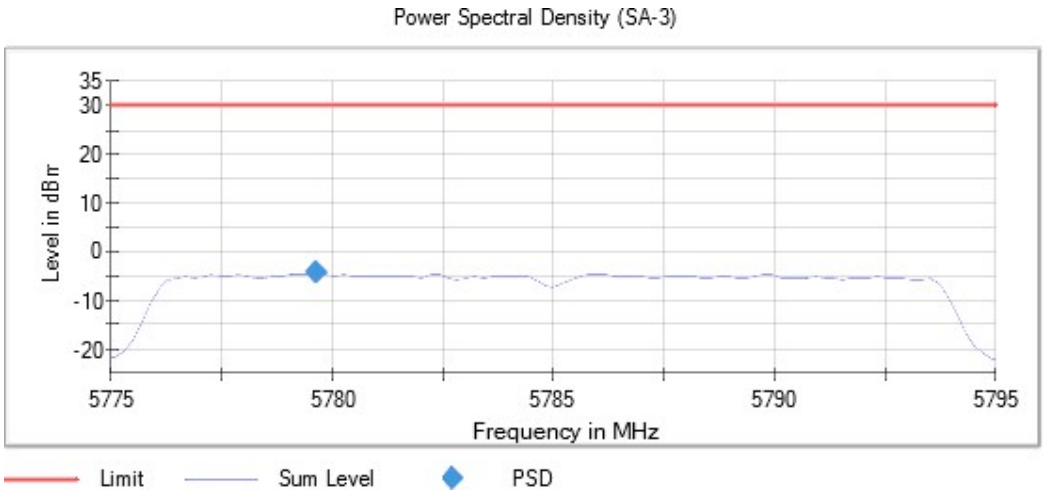
Images:

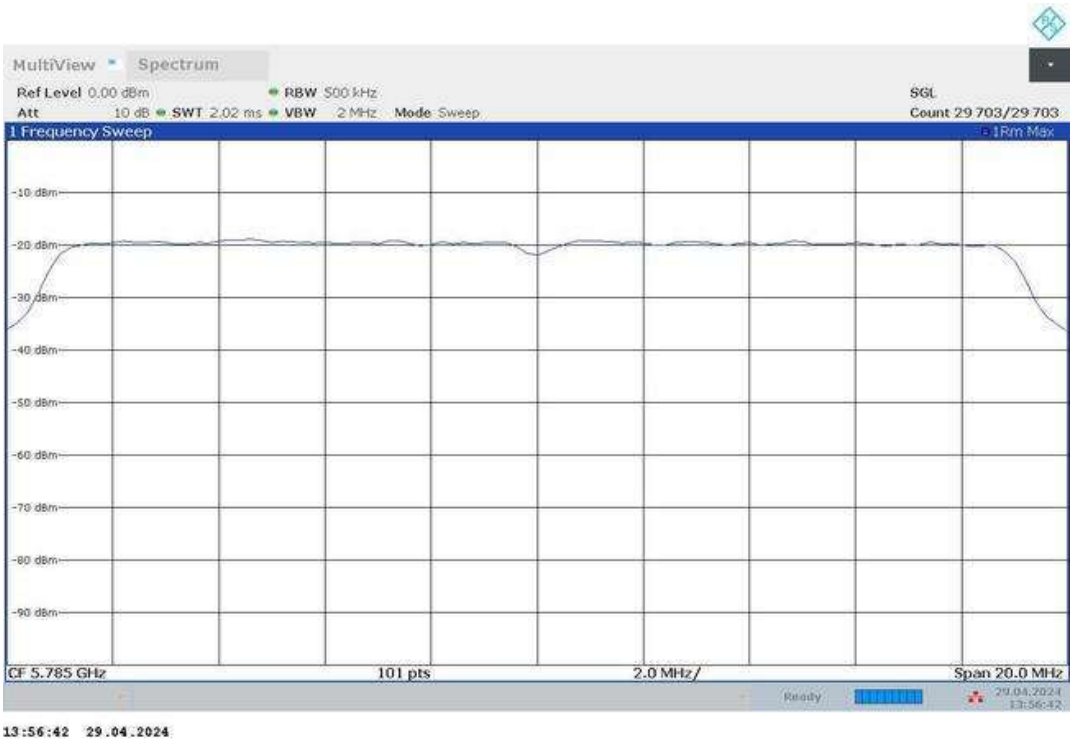




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5785.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

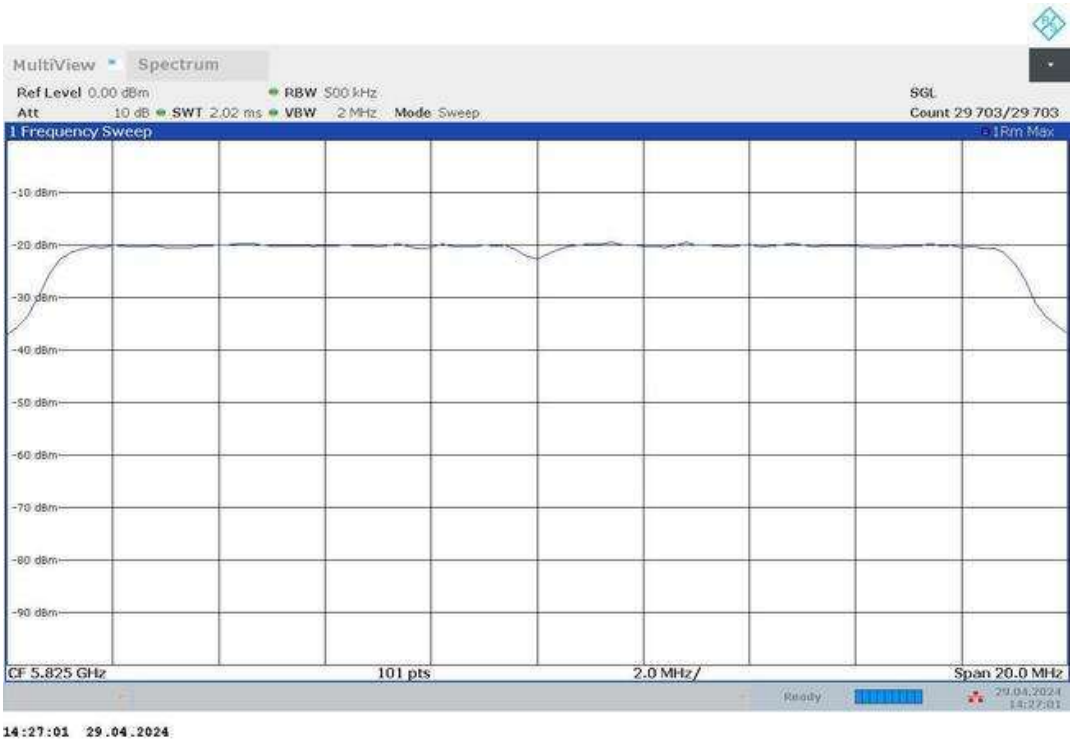
Images:





Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5825.00000	Modulation = 802.11ac VHT20 SS1 (OFDM MCS3)
TPC = No	MIMO Mode = SISO

Images:



Modulation: 802.11ac VHT40 SS1 (OFDM MCS4)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
[5150, 5850]	1	5190.00000	No	5199.108911	-5.13
		5230.00000		5225.247525	-4.99
		5755.00000		5751.125000	-7.29
		5795.00000		5786.625000	-7.19

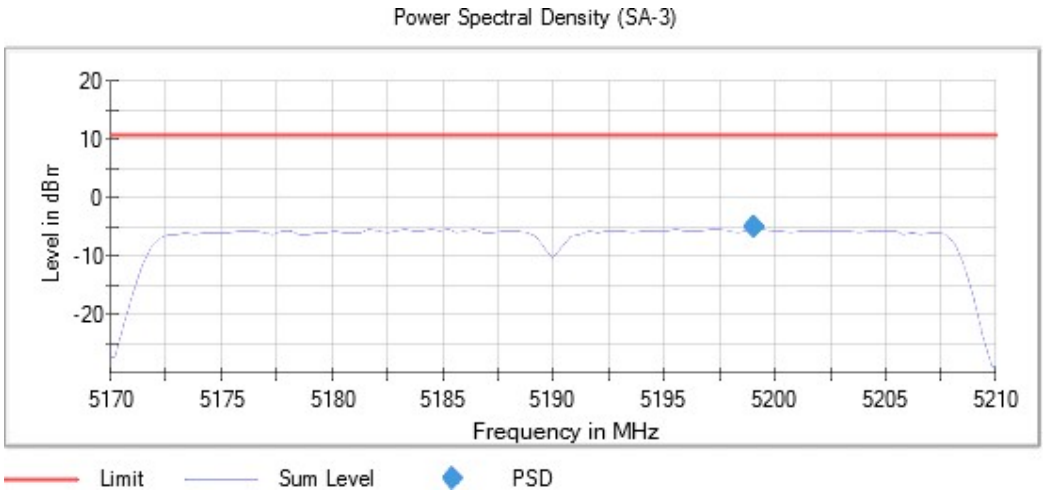
Verdict

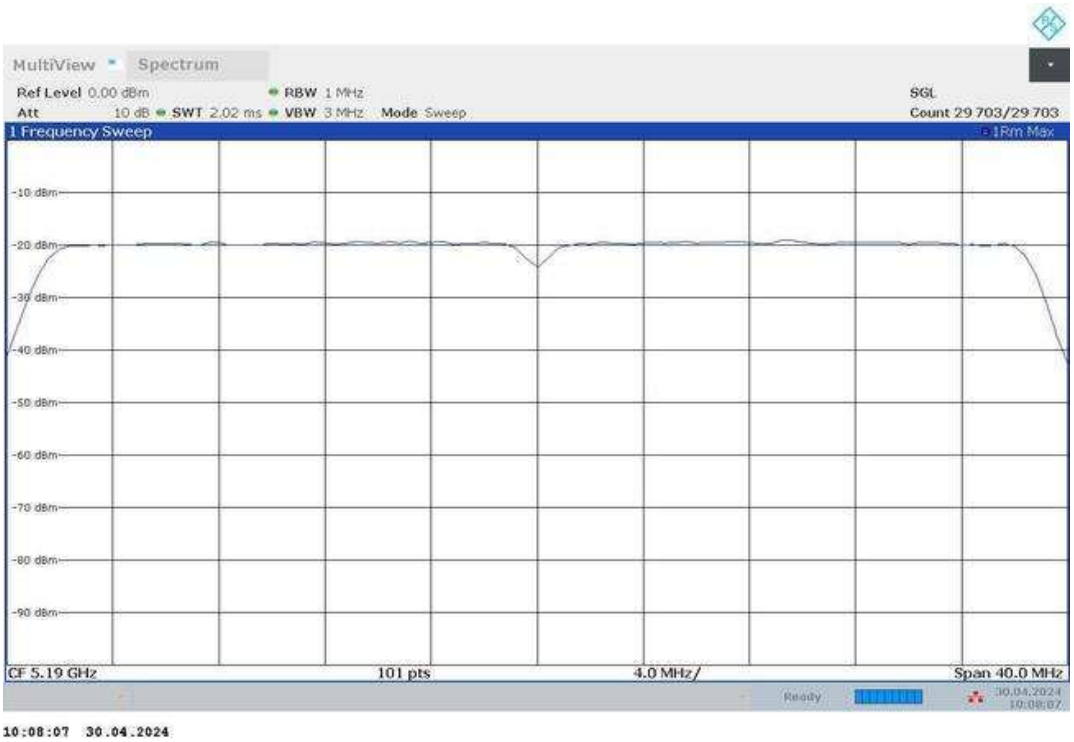
Pass

Attachments

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5190.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

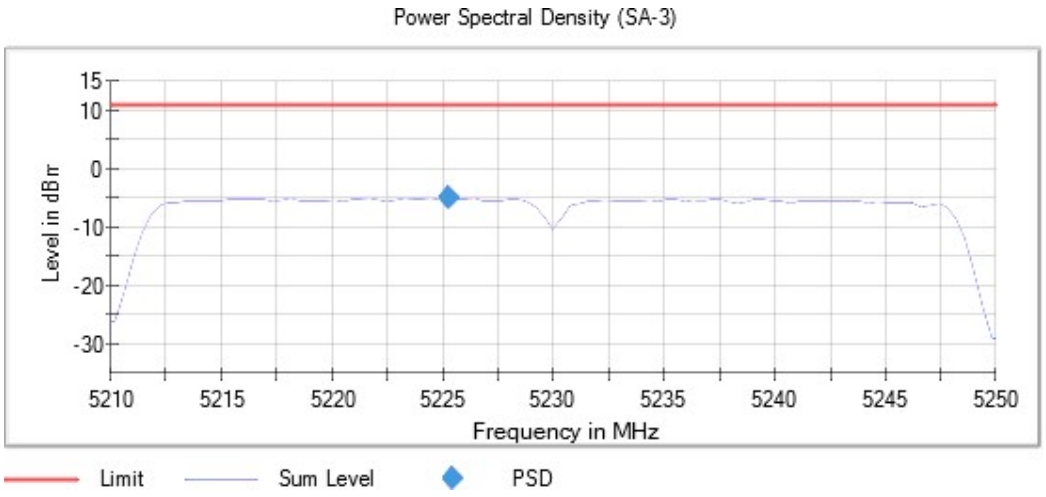
Images:

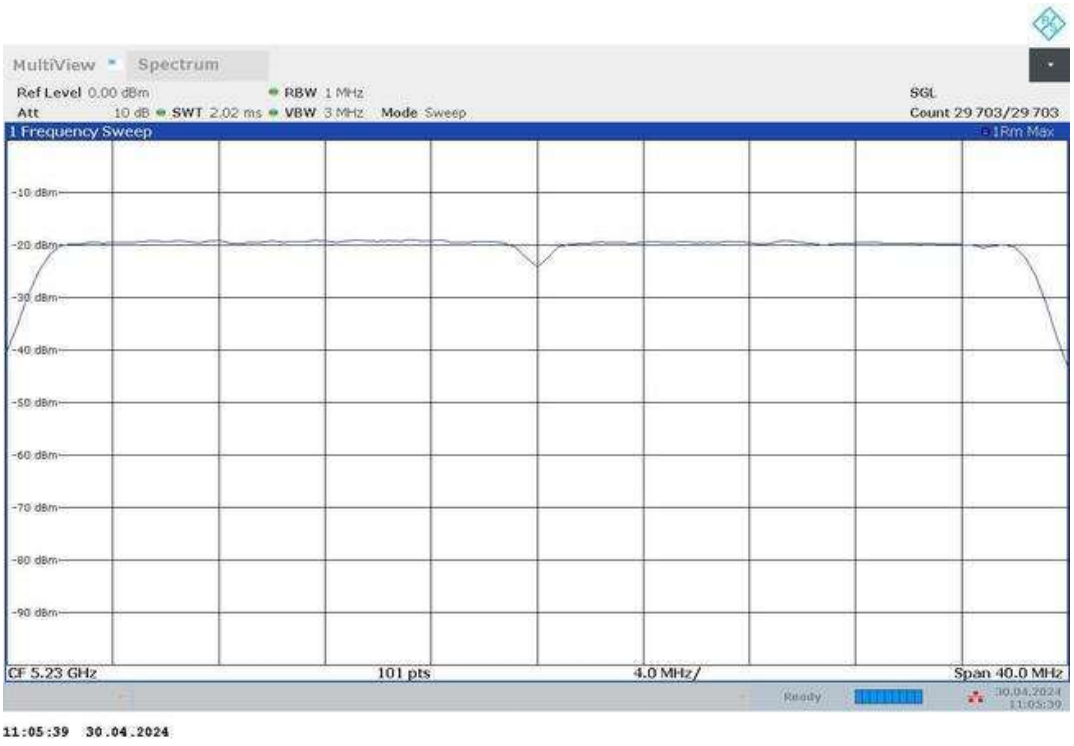




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5230.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

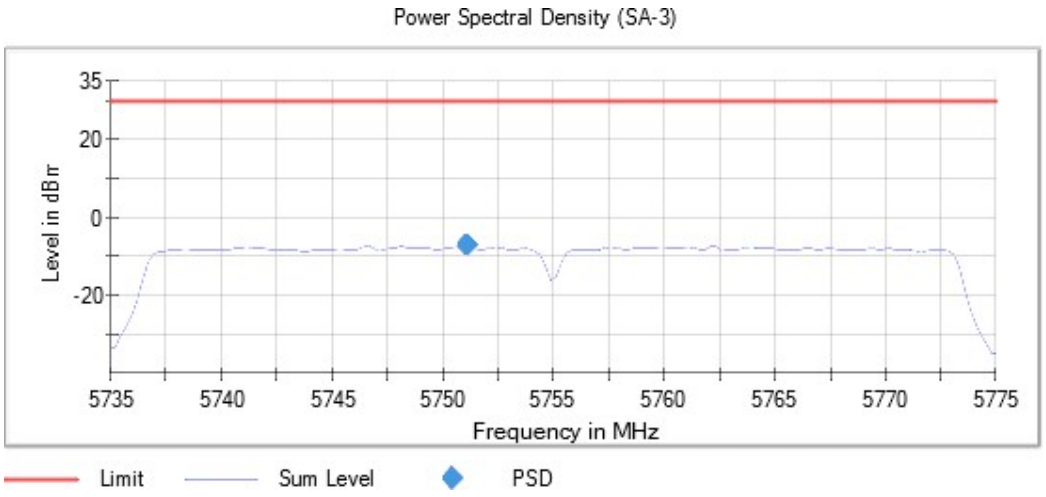
Images:

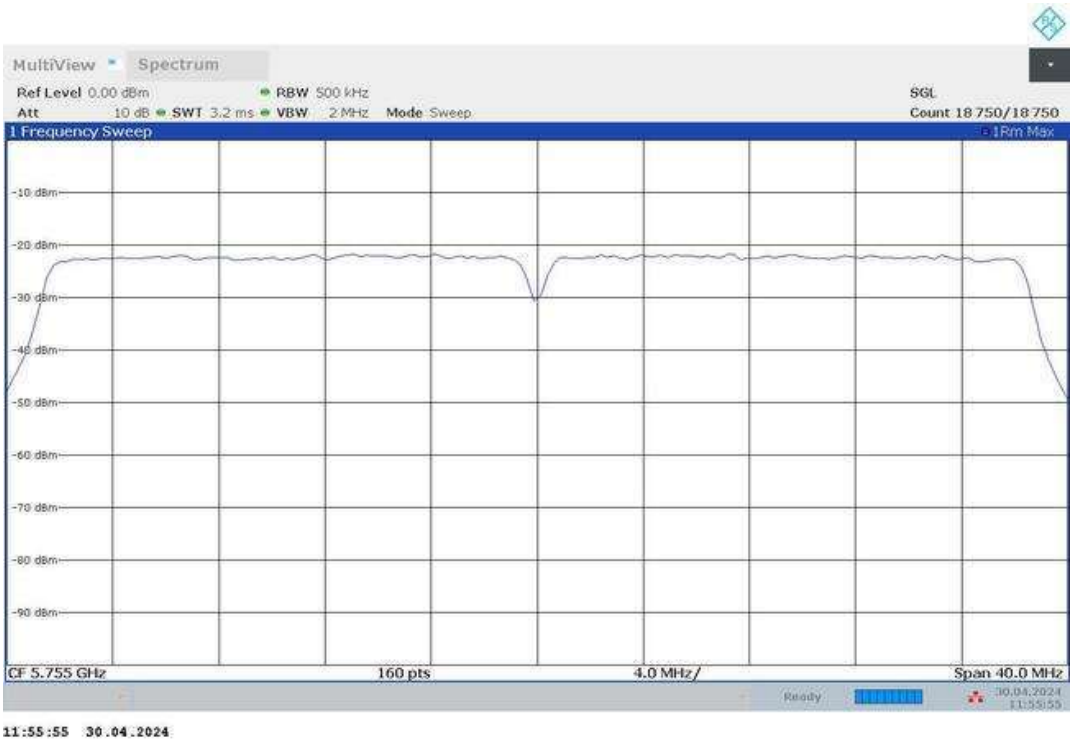




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5755.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

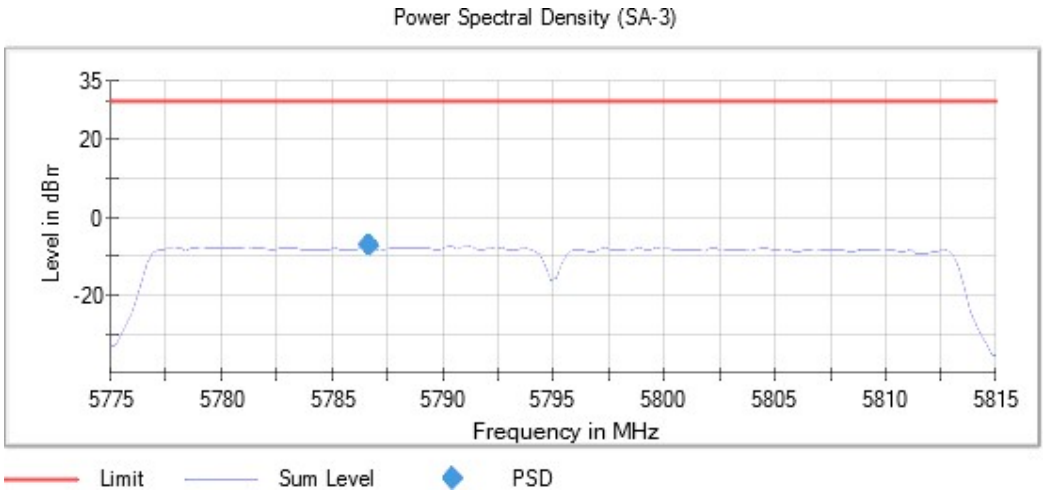
Images:

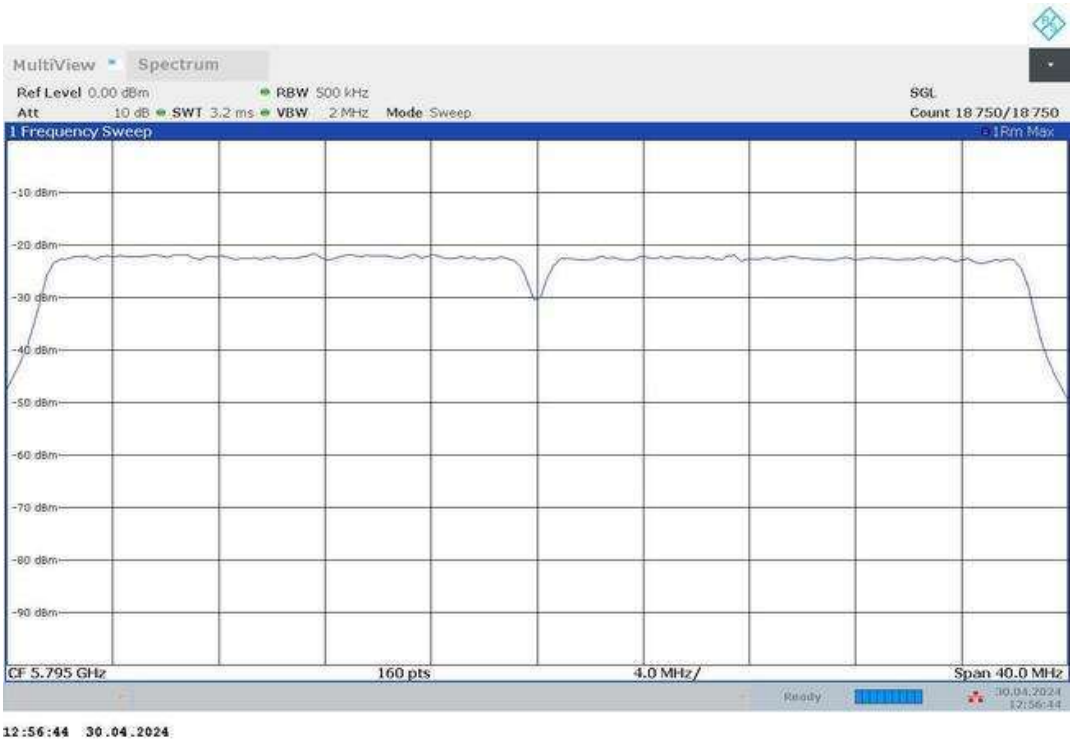




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5795.00000	Modulation = 802.11ac VHT40 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:





Modulation: 802.11ac VHT80 SS1 (OFDM MCS4)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	TPC	Freq (MHz)	PSD (dBm)
[5150, 5850]	1	5210.00000	No	5219.750000	-8.34
		5775.00000		5768.375000	-10.06

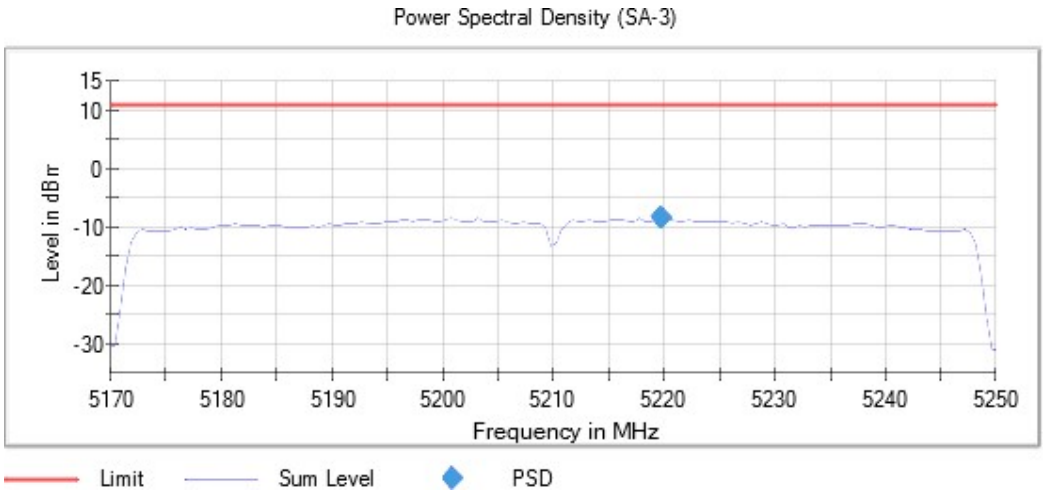
Verdict

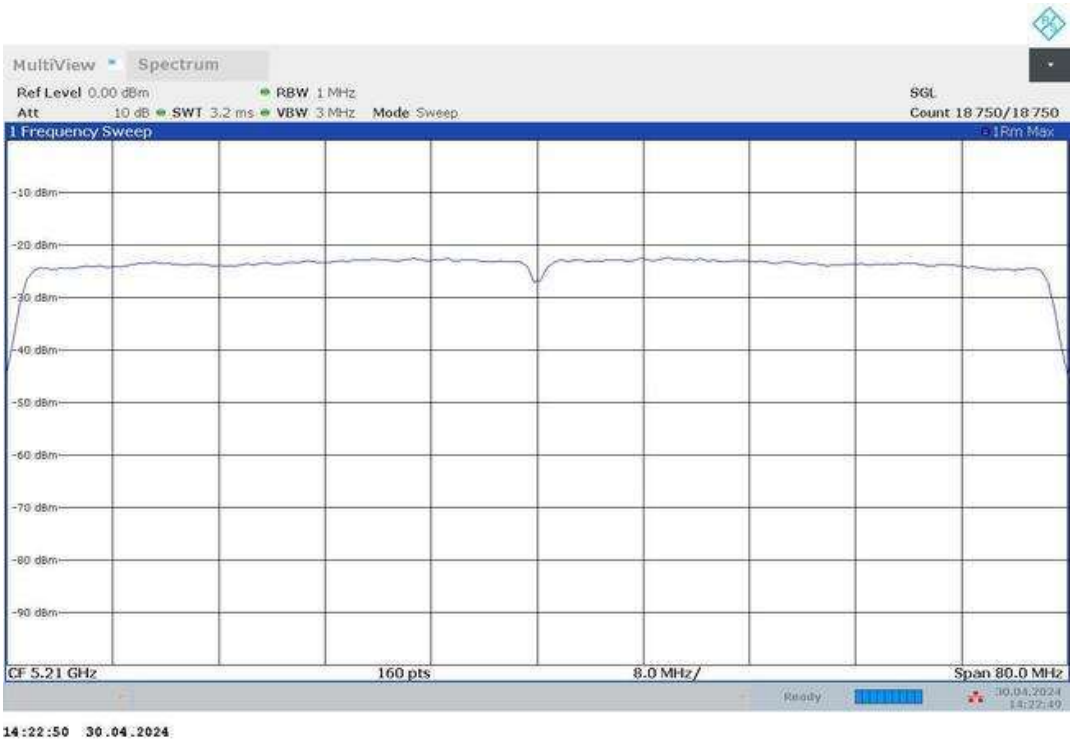
Pass

Attachments

Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5210.00000	Modulation = 802.11ac VHT80 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

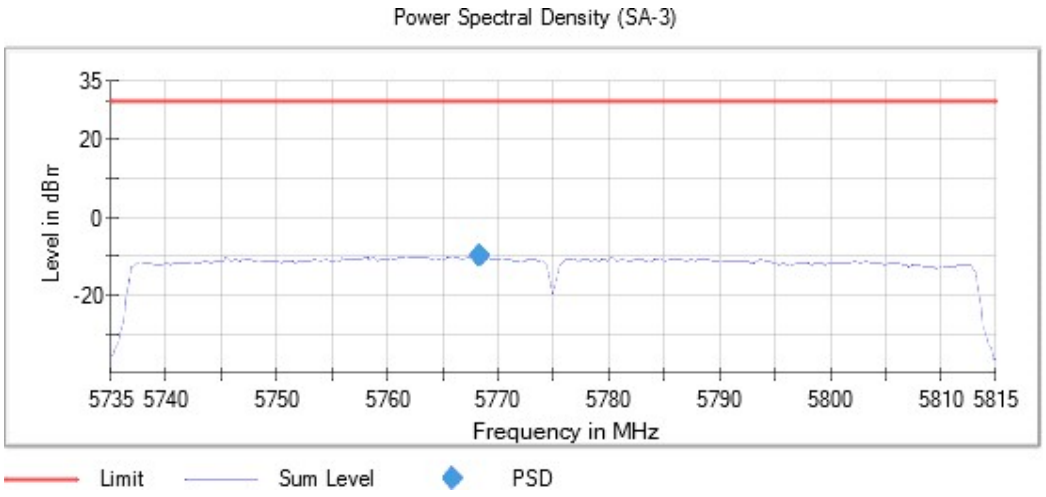
Images:

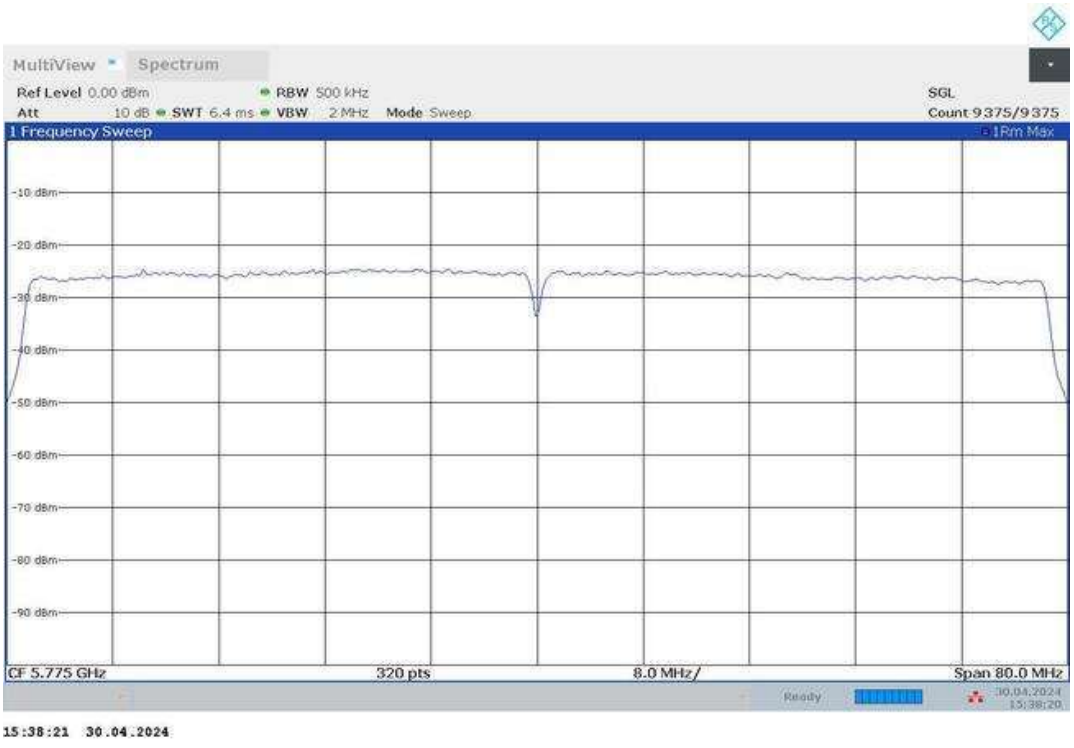




Operation Band MHz = [5150, 5850]	Active Port = 1
Frequency MHz = 5775.00000	Modulation = 802.11ac VHT80 SS1 (OFDM MCS4)
TPC = No	MIMO Mode = SISO

Images:





RSS-247 6.2.4.1 / FCC 15.407 (e) [6dBw] 6 dB Emission Bandwidth

Limits

For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

Modulation: 802.11a (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	Ebw (MHz)
[5725, 5850]	1	5745.00000	16.500
		5785.00000	16.500
		5825.00000	16.500

Verdict

Pass

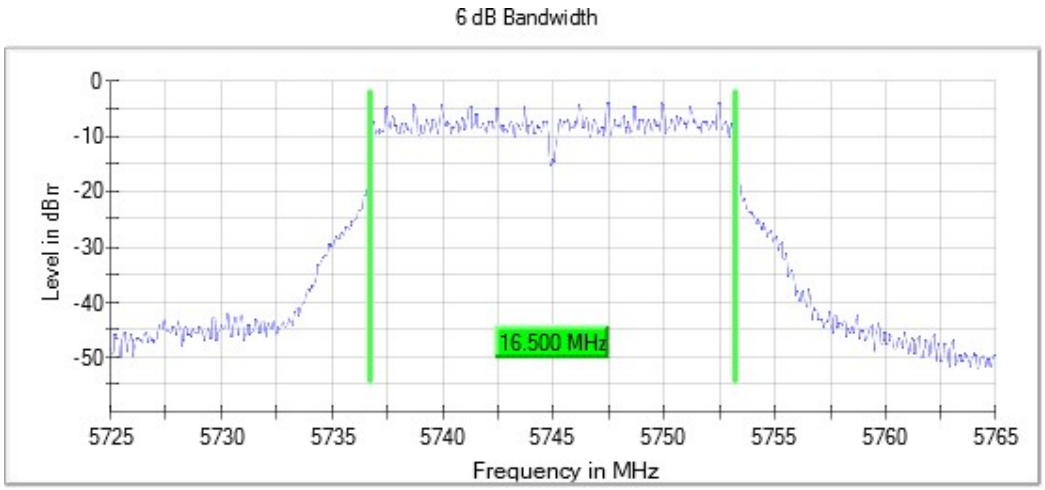
Attachments

Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5745.00000 Modulation = 802.11a (OFDM 9 Mbit/s)

MIMO Mode = SISO

Images:



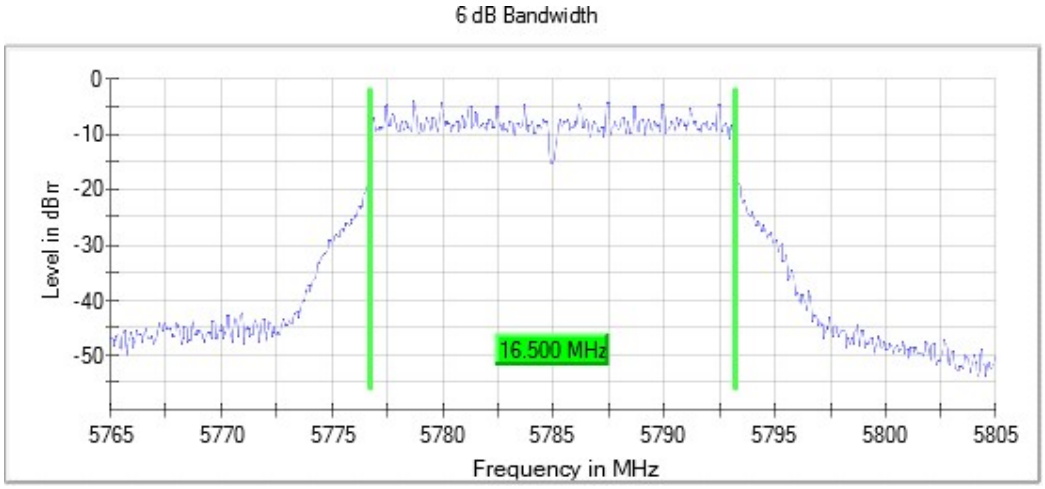
16:38:20 25.04.2024

Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5785.00000 Modulation = 802.11a (OFDM 9 Mbit/s)

MIMO Mode = SISO

Images:

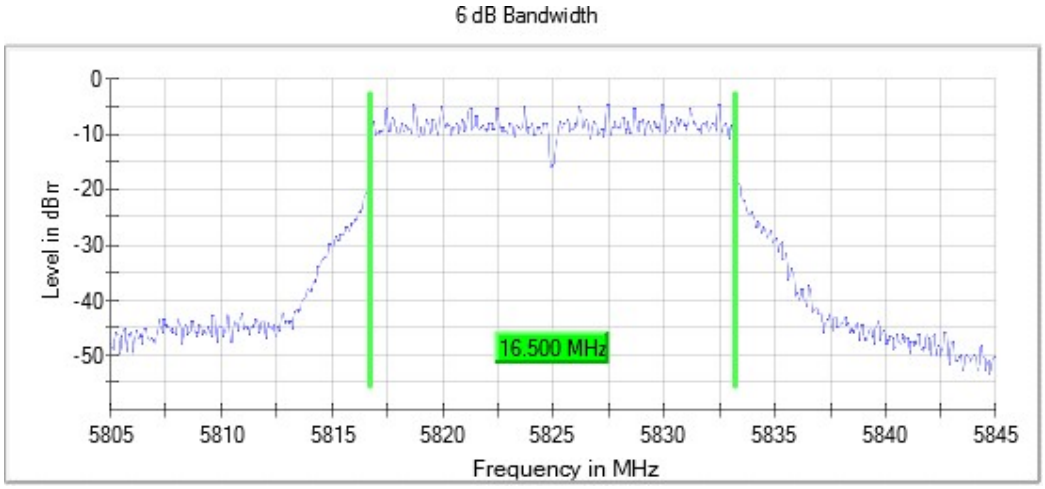


Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5825.00000 Modulation = 802.11a (OFDM 9 Mbit/s)

MIMO Mode = SISO

Images:



Modulation: 802.11n HT20 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	Ebw (MHz)
[5725, 5850]	1	5745.00000	17.850
		5785.00000	17.850
		5825.00000	17.850

Verdict

Pass

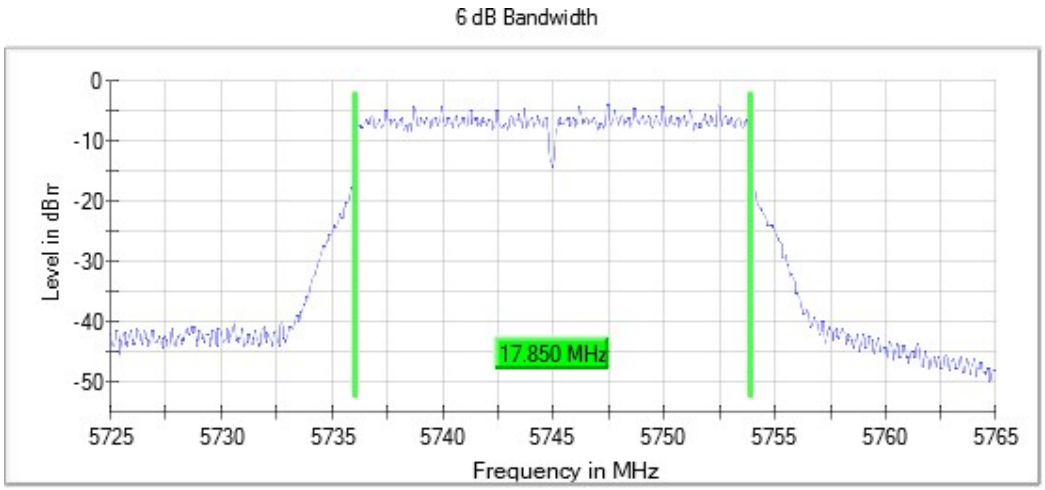
Attachments

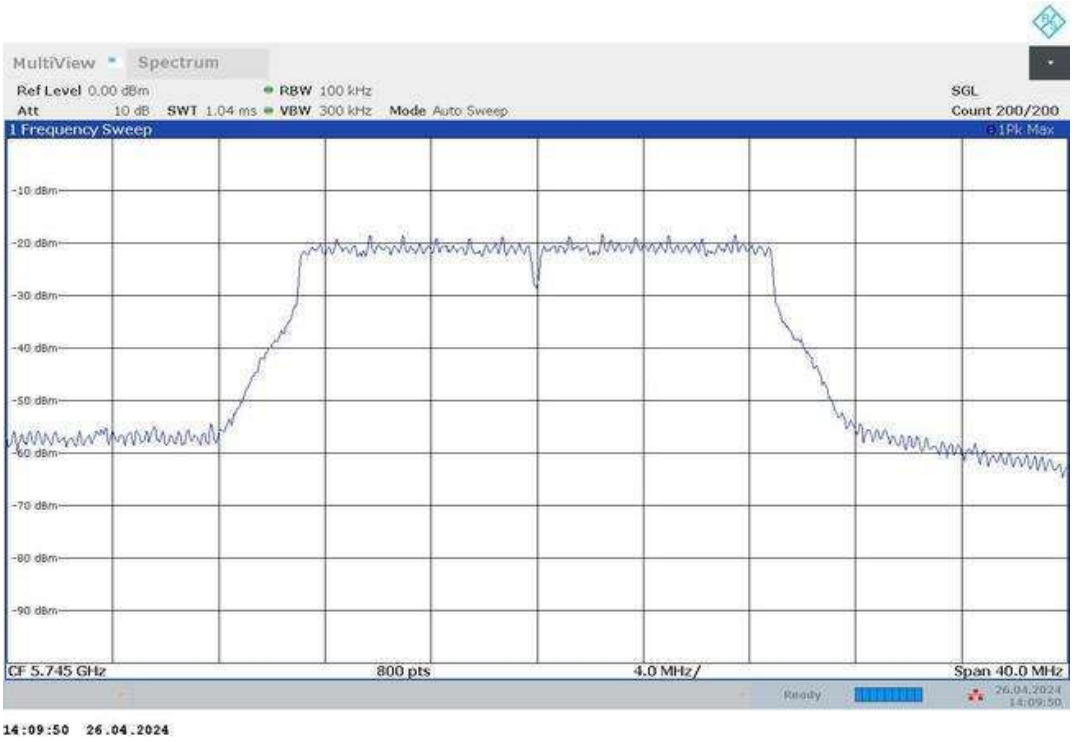
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5745.00000 Modulation = 802.11n HT20 (OFDM MCS3)

MIMO Mode = SISO

Images:





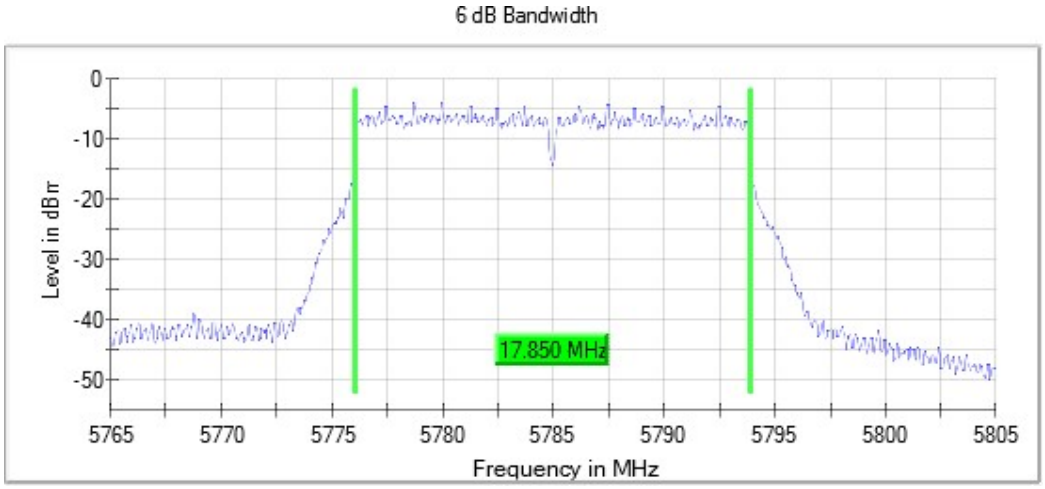
14:09:50 26.04.2024

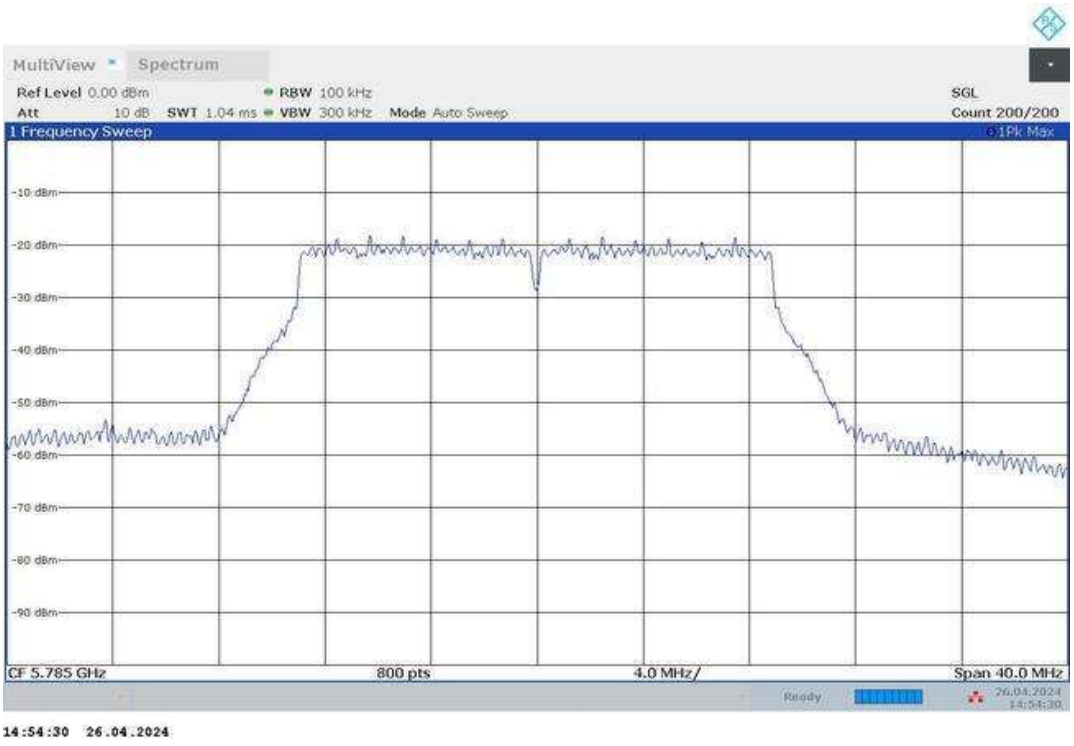
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5785.00000 Modulation = 802.11n HT20 (OFDM MCS3)

MIMO Mode = SISO

Images:



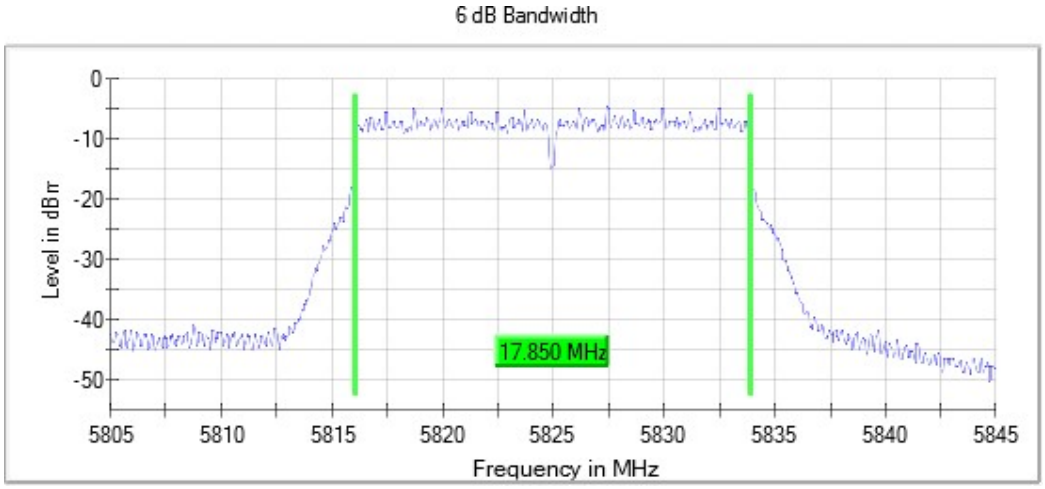


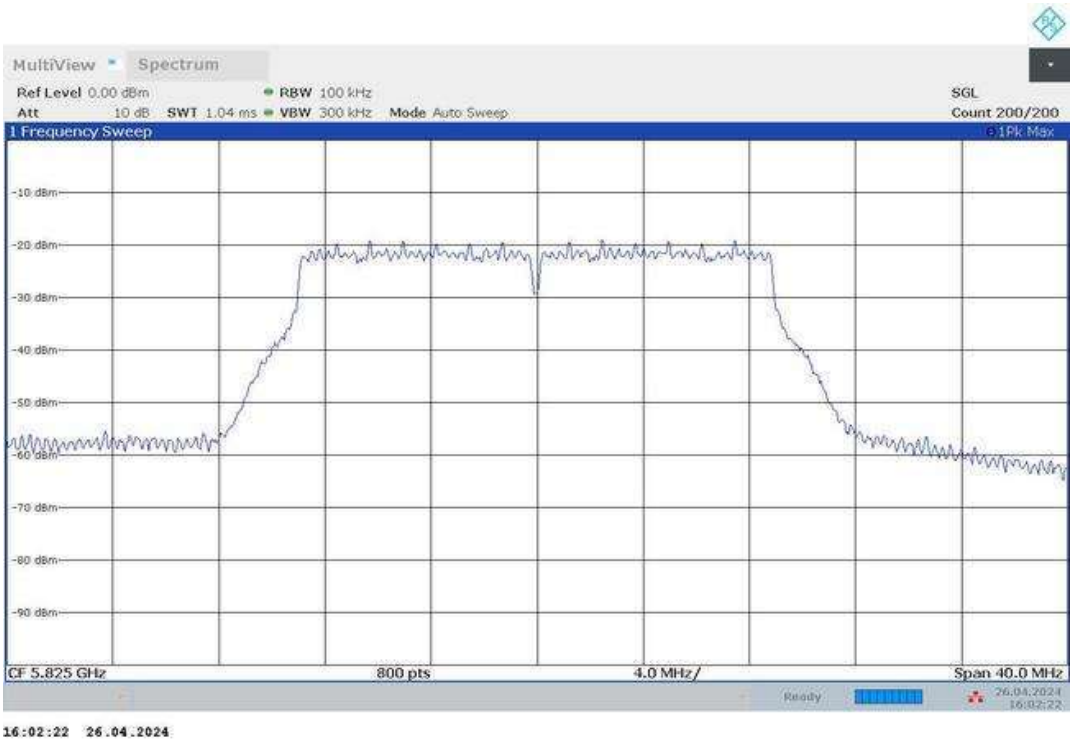
Operation Band MHz = [5725, 5850] Active Port = 1

Frequency MHz = 5825.00000 Modulation = 802.11n HT20 (OFDM MCS3)

MIMO Mode = SISO

Images:





Modulation: 802.11n HT40 (OFDM MCS3)

MIMO Mode: SISO

Results

Operation Band (MHz)	Port	Freq (MHz)	Ebw (MHz)
[5725, 5850]	1	5755.00000	36.550
		5795.00000	36.550

Verdict

Pass