

TEST REPORT

Applicant Name : PCD, LLC
Address : 1500 Tradeport Drive, Suite A, Orlando, Florida, United States
32824
Report Number : SZNS1220811-36586E-RF-00C
FCC ID: 2ALJJT85

Test Standard (s)

FCC PART 15.407

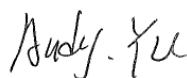
Sample Description

Product Name: TABLET
Model No.: T85
Trade Name: PCD
Date Received: 2022-08-11
Date of Test: 2022-08-26 to 2022-09-01
Report Date: 2022-09-25

Test Result:	PASS*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:



Audy.Yu
EMC Engineer

Approved By:



Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk ★.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	TABLET
Tested Model	T85
Hardware Version	RC-GS717-TC
Software Version	PCD_T85_US_V1.0
Frequency Range	5G Wi-Fi: 5150-5250 MHz; 5725-5850 MHz
Maximum Average Conducted Output Power	5150-5250 MHz: 9.20dBm 5725-5850 MHz: 13.35dBm
Modulation Technique	OFDM
Antenna Specification*	Band1: -1.94 dBi Band4: -3.56 dBi (provided by the applicant)
Voltage Range	DC3.8V from battery or DC5V from adapter
Sample number	SZNS1220811-36586E-RF-S1 (CE&RE Test) SZNS1220811-36586E-RF-S2 (RF Conducted Test) (Assigned by ATC, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	Model: T85 Input: AC 100-240V~50/60Hz, 0.5A Output: DC 5.0V 2000mA

Objective

This type approval report is in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB789033D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter	Uncertainty	
Occupied Channel Bandwidth	5%	
RF output power, conducted	0.73dB	
Unwanted Emission, conducted	1.6dB	
AC Power Lines Conducted Emissions	2.72dB	
Emissions, Radiated	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature	1°C	
Humidity	6%	
Supply voltages	0.4%	

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189.

Accredited by American Association for Laboratory Accreditation (A2LA). The Certificate Number is 4297.01

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016. The Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

The device only supports 5G Wi-Fi 802.11a modes.

For 5150-5250MHz Band, 4 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

Channel 36, 40, 48 were tested;

For 5725-5850MHz Band, 5 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785	/	/

Channel 149, 157, 165 were tested;

EUT Exercise Software

EUT was test in Engineering mode and power level as below:

Frequency Range (MHz)	Mode	Date rate	Power Level*		
			Low Channel	Middle Channel	High Channel
5150-5250	802.11a	6Mbps	Default	Default	Default
5725-5850	802.11a	6Mbps	Default	Default	Default

The worse-case data rates are determined to be as above for each mode based upon investigations by measuring the output power and PSD across all data rates, bandwidths and modulations.

Duty cycle

Please refer to the Appendix.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

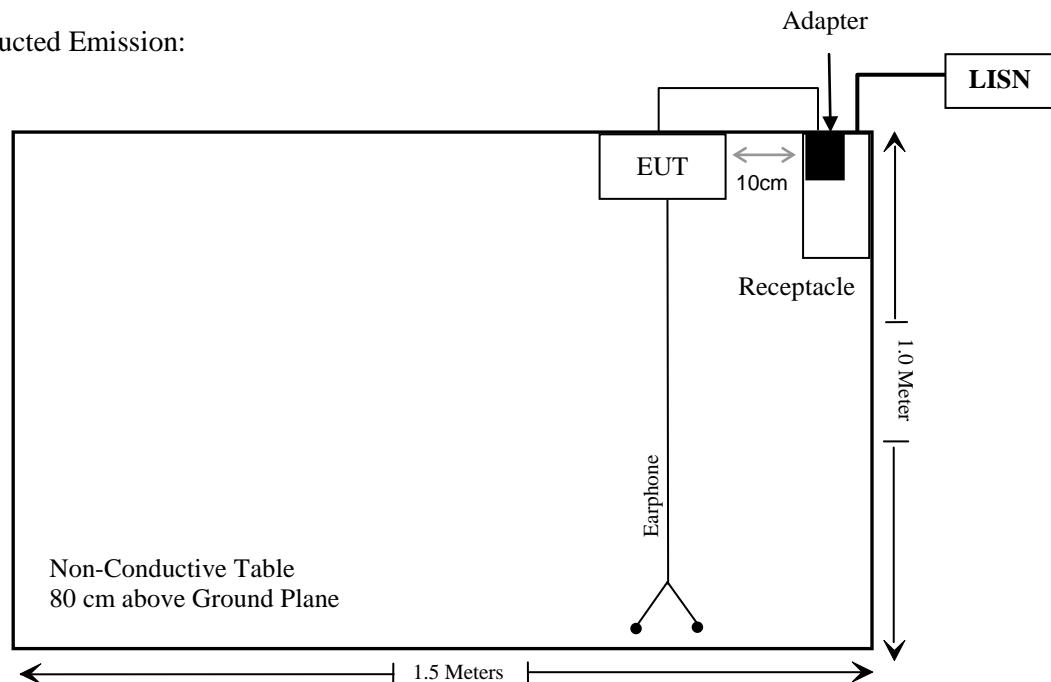
Manufacturer	Description	Model	Serial Number
Unknown	Earphone	Unknown	Earphone

External I/O Cable

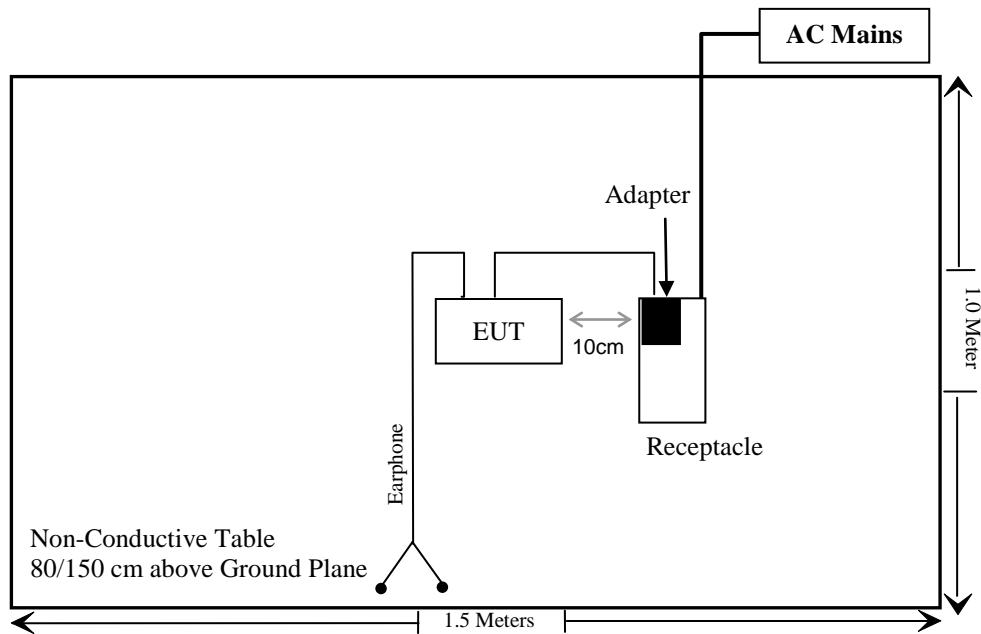
Cable Description	Length (m)	From Port	To
Un-shielding Detachable USB Cable	1.0	EUT	Adapter

Block Diagram of Test Setup

For Conducted Emission:



For Radiated Emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 & §2.1093	RF Exposure(SAR)	Compliant
§15.203	Antenna Requirement	Compliant
§15.407(b)(9) & §15.207(a)	Conducted Emissions	Compliant
§15.205 & §15.209 & §15.407(b)	Undesirable Emission& Restricted Bands	Compliant
§15.407(a) (e)	Bandwidth	Compliant
§15.407(a)	Conducted Transmitter Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.407 (h)	Transmit Power Control (TPC)	Not Applicable
§15.407 (h)	Dynamic Frequency Selection (DFS)	Not Applicable

Not Applicable: the EUT not operating within frequency range of 5250-5350MHz&5470-5725MHz.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12
R & S	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12
Anritsu Corp	50Ω Coaxial Switch	MP59B	6100237248	2021/12/13	2022/12/12
Unknown	RF Coaxial Cable	No.17	N0350	2021/12/14	2022/12/13
Conducted Emission Test Software: e3 19821b(V9)					
Radiated Emissions Test					
Rohde & Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2021/11/11	2022/11/10
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2020/01/05	2023/01/04
CD	Band Reject Filter	BRM-5.15/5.3 5g-45	075	2021/12/14	2022/12/13
CD	Band Reject Filter	BRM-5.725/5. 875G-45	065	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.15	N600	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.16	N650	2021/12/14	2022/12/13
Radiated Emission Test Software: e3 19821b(V9)					

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2021/12/13	2022/12/12
Rohde & Schwarz	Open Switch and Control Unit	OSP120 + OSP-B157	101244 + 100866	2021/12/13	2022/12/12
WEINSCHEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.33	RF-03	Each time	

*** Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307(b)&§2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: SZNS1220811-36586E-SA.

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has one Internal FPC Antenna arrangement, which was used a unique coupling to EUT and the antenna gain of -1.94 dBi(band1) and -3.56 dBi(band4), fulfill the requirement of this section. Please refer to the EUT photos.

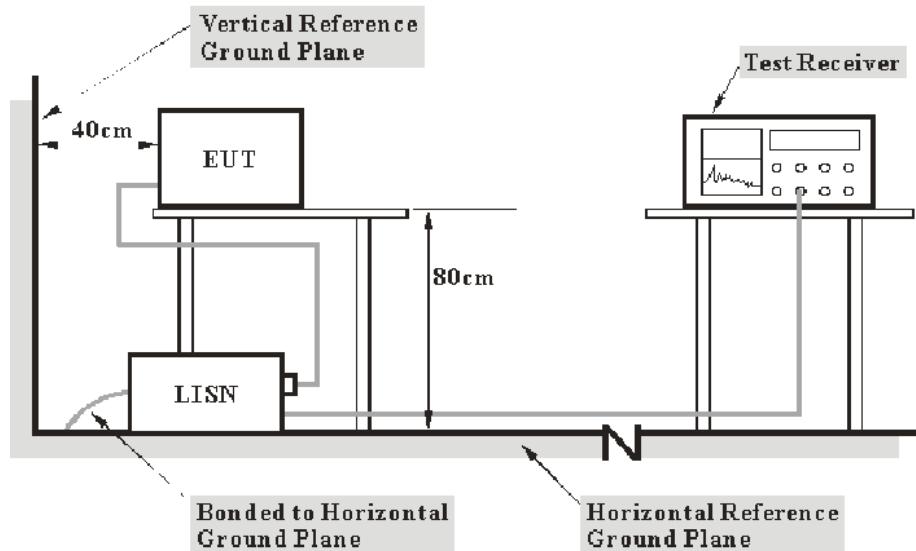
Result: Compliant.

FCC §15.407 (B) (9) §15.207 (A) – CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207, §15.407(b) (9)

EUT Setup



Note:

1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Factor & Margin Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Over limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

$$\text{Over Limit} = \text{Level} - \text{Limit}$$

$$\text{Level} = \text{Read Level} + \text{Factor}$$

Test Data

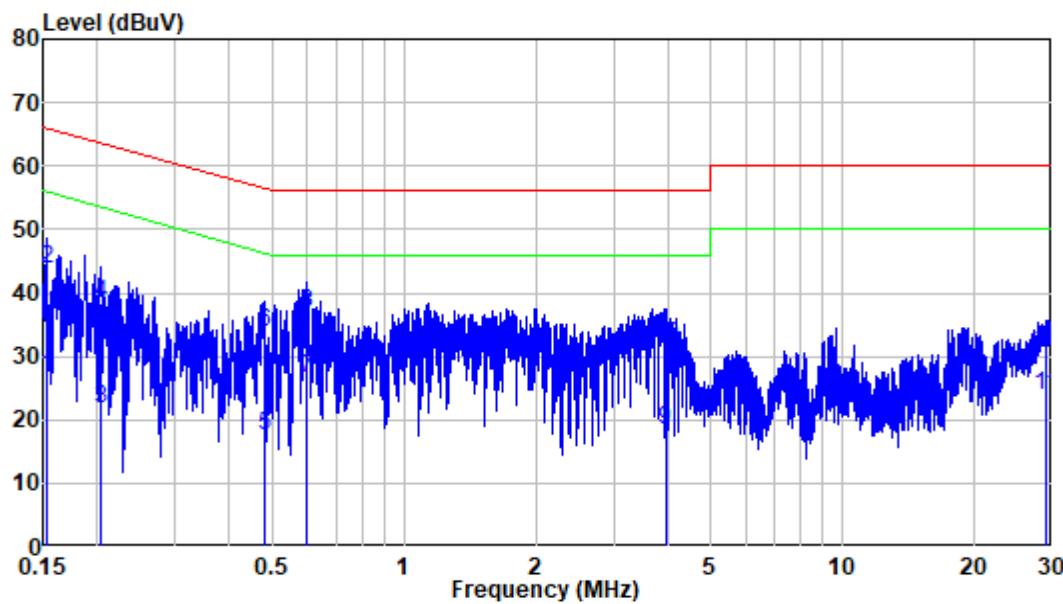
Environmental Conditions

Temperature:	24 °C
Relative Humidity:	42 %
ATM Pressure:	101.0 kPa

The testing was performed by Jason Liu on 2022-08-30.

EUT operation mode: Transmitting (Worst case for 802.11a, 5725MHz)

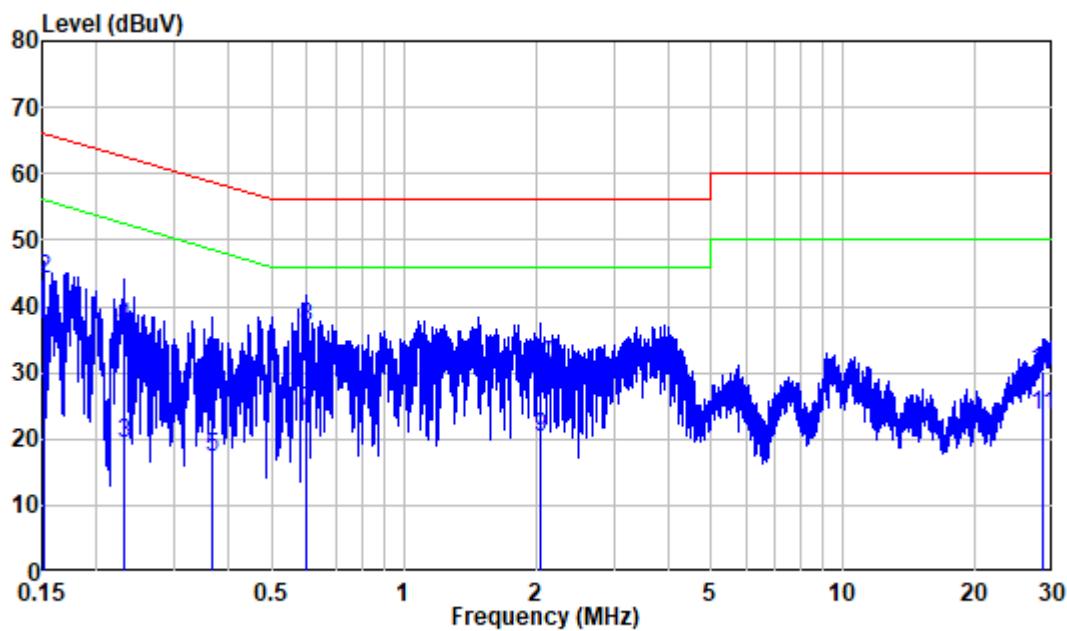
AC 120V/60 Hz, Line



Site : Shielding Room
Condition: Line
Job No. : SZNS1220811-36586E-RF
Mode : Charging + 5G WIFI Transmitting
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz		dB	dBuV	dBuV	dB	
1	0.153	9.80	16.92	26.72	55.81	-29.09	Average
2	0.153	9.80	33.88	43.68	65.81	-22.13	QP
3	0.203	9.80	11.95	21.75	53.49	-31.74	Average
4	0.203	9.80	28.62	38.42	63.49	-25.07	QP
5	0.479	9.80	7.62	17.42	46.35	-28.93	Average
6	0.479	9.80	24.01	33.81	56.35	-22.54	QP
7	0.602	9.81	16.70	26.51	46.00	-19.49	Average
8	0.602	9.81	26.88	36.69	56.00	-19.31	QP
9	3.940	9.84	8.67	18.51	46.00	-27.49	Average
10	3.940	9.84	21.89	31.73	56.00	-24.27	QP
11	28.984	10.09	13.76	23.85	50.00	-26.15	Average
12	28.984	10.09	20.74	30.83	60.00	-29.17	QP

AC 120V/60 Hz, Neutral



Site : Shielding Room
Condition: Neutral
Job No. : SZNS1220811-36586E-RF
Mode : 5G WIFI Transmitting
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.151	9.80	16.73	26.53	55.92	-29.39	Average
2	0.151	9.80	34.19	43.99	65.92	-21.93	QP
3	0.231	9.80	9.38	19.18	52.42	-33.24	Average
4	0.231	9.80	26.90	36.70	62.42	-25.72	QP
5	0.366	9.80	7.55	17.35	48.60	-31.25	Average
6	0.366	9.80	21.60	31.40	58.60	-27.20	QP
7	0.599	9.81	14.33	24.14	46.00	-21.86	Average
8	0.599	9.81	26.88	36.69	56.00	-19.31	QP
9	2.043	9.82	10.54	20.36	46.00	-25.64	Average
10	2.043	9.82	21.17	30.99	56.00	-25.01	QP
11	28.490	10.18	13.25	23.43	50.00	-26.57	Average
12	28.490	10.18	19.93	30.11	60.00	-29.89	QP

§15.205 & §15.209 & §15.407(B) – UNDESIRABLE EMISSION

Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

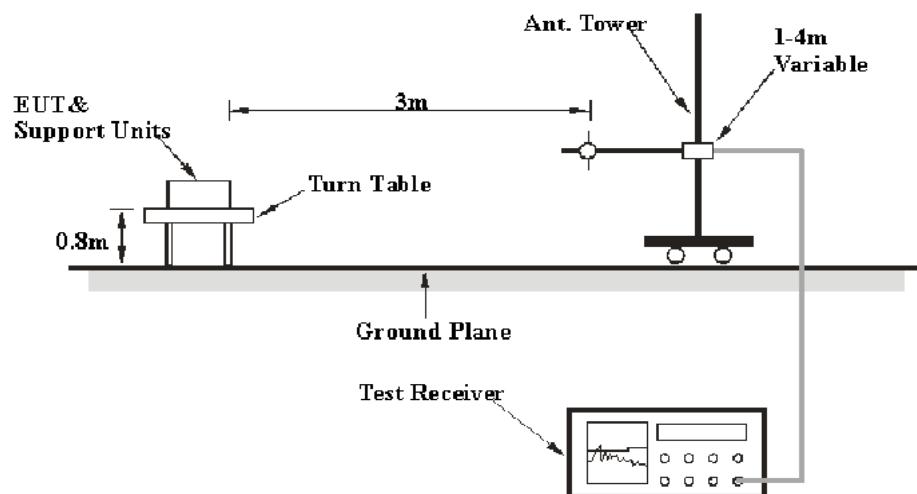
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

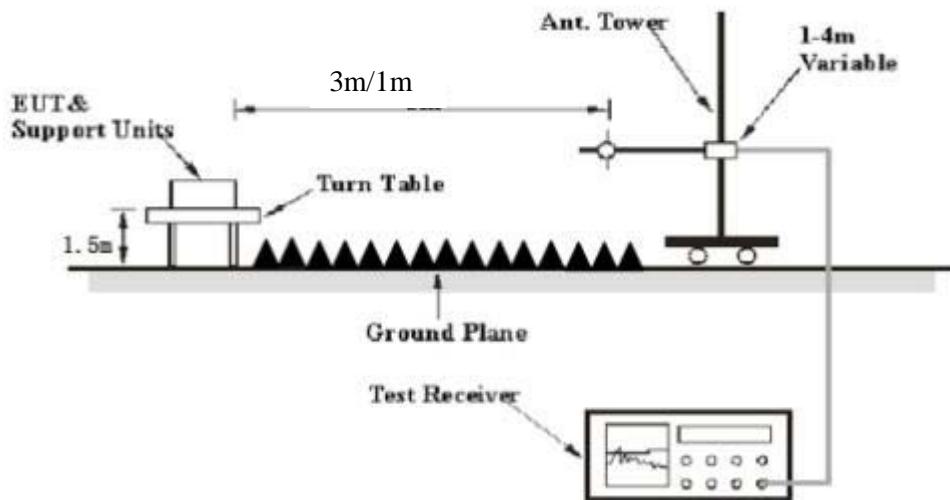
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

EUT Setup

Below 1 GHz:



Above 1 GHz:

Note: 1-18GHz tested @3m, 18-40GHz tested @1m.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 limits.

EMI Test Receiver & Spectrum Analyzer Setup

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1MHz	10 Hz Note 1	/	Average
	1MHz	>1/T Note 2	/	Average

Note 1: when duty cycle is no less than 98%

Note 2: when duty cycle is less than 98%

If the maximized peak measured value complies with the limit, then it is unnecessary to perform QP/Average measurement.

Test Procedure**Radiated Spurious Emission**

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the installation combinations.

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified, extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\text{SpecLimit}} = E_{\text{Meas}} + 20 \log \left(\frac{d_{\text{Meas}}}{d_{\text{SpecLimit}}} \right)$$

where

$E_{\text{SpecLimit}}$ is the field strength of the emission at the distance specified by the limit, in dB μ V/m

E_{Meas} is the field strength of the emission at the measurement distance, in dB μ V/m

d_{Meas} is the measurement distance, in m

$d_{\text{SpecLimit}}$ is the distance specified by the limit, in m

So the extrapolation factor of 1m is $20 \log(1/3) = -9.5$ dB, for 18-40GHz range, the limit of 1m distance was added by 9.5dB from limit of 3m to compared with the result measurement at 1m distance.

Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned} \text{Over Limit/Margin} &= \text{Level} / \text{Corrected Amplitude} - \text{Limit} \\ \text{Level} / \text{Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

Test Data

Environmental Conditions

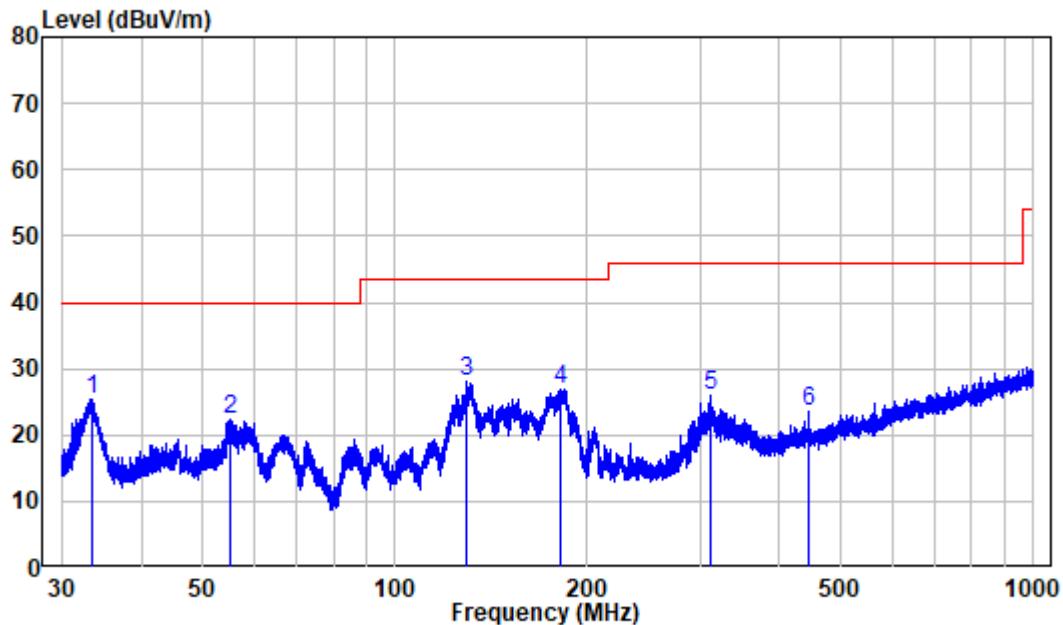
Temperature:	25-28 °C
Relative Humidity:	58-60 %
ATM Pressure:	101.0-101.3 kPa

The testing was performed by Level Li from 2022-08-26 to 2022-08-30

EUT operation mode: 5G WIFI Transmitting (Pre-scan in the X, Y and Z axes of orientation, the worst case as setup photos as below)

30 MHz~1 GHz: (Worst case for 802.11a, 5725MHz)

Horizontal



Site : chamber

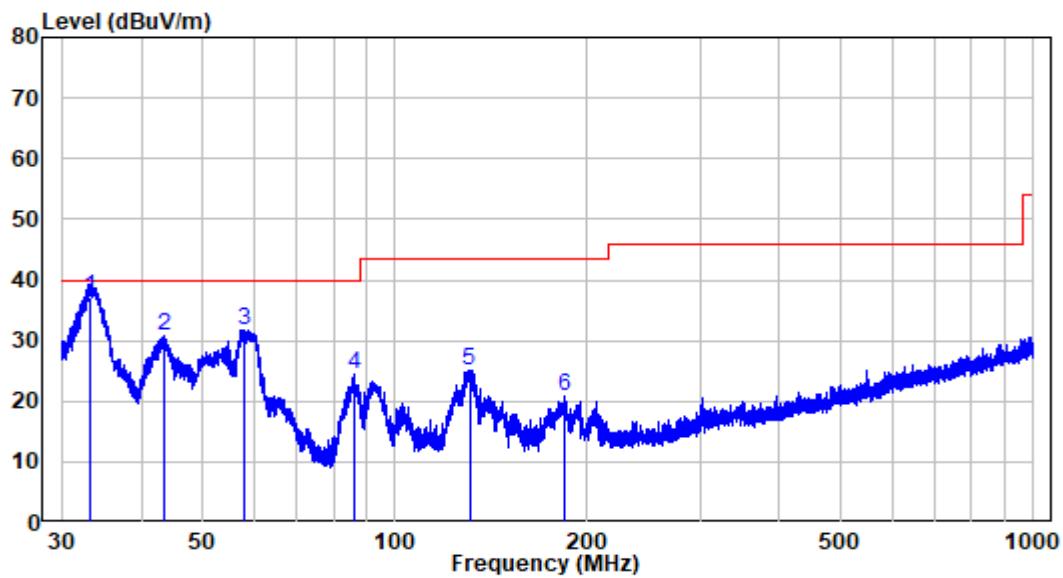
Condition: 3m HORIZONTAL

Job No. : SZNS1220811-36586E-RF

Test Mode: Charging+5G WIFI Transmitting

Freq	Factor	Read		Limit		Over	Remark
		MHz	dB/m	dBuV	dBuV/m	dBuV/m	
1	33.401	-11.95	37.40	25.45	40.00	-14.55	Peak
2	55.124	-10.27	32.64	22.37	40.00	-17.63	Peak
3	129.354	-14.84	42.98	28.14	43.50	-15.36	Peak
4	181.283	-12.62	39.48	26.86	43.50	-16.64	Peak
5	311.496	-8.84	34.69	25.85	46.00	-20.15	Peak
6	444.462	-5.64	29.14	23.50	46.00	-22.50	Peak

Vertical



Site : chamber

Condition: 3m VERTICAL

Job No. : SZNS1220811-36586E-RF

Test Mode: Charging+5G WIFI Transmitting

5G WIFI Transmitting

Freq	Factor	Read	Limit	Over	Remark
		Level	Level	Line	
1	33.340	-11.96	49.10	37.14	40.00 -2.86 QP
2	43.487	-9.93	40.59	30.66	40.00 -9.34 Peak
3	57.923	-9.91	41.70	31.79	40.00 -8.21 Peak
4	86.238	-15.13	39.61	24.48	40.00 -15.52 Peak
5	130.722	-14.92	40.12	25.20	43.50 -18.30 Peak
6	183.764	-12.32	33.08	20.76	43.50 -22.74 Peak

1 ~ 40 GHz:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	PK/QP/AV		Height (m)	Polar (H/V)				
802.11 A, 5180MHz									
4500	55.47	PK	1	1.3	H	-4.72	50.75	74	-23.25
4500	55.21	PK	111	1.4	V	-4.72	50.49	74	-23.51
5150	56.61	PK	176	2.2	H	-2.73	53.88	74	-20.12
5150	56.10	PK	128	1.5	V	-2.73	53.37	74	-20.63
10360	42.50	PK	199	1.4	H	8.12	50.62	68.2	-17.58
10360	42.00	PK	78	1.1	V	8.12	50.12	68.2	-18.08
802.11 A, 5200MHz									
10400	43.19	PK	45	2.0	H	8.24	51.43	68.2	-16.77
10400	42.52	PK	38	1.6	V	8.24	50.76	68.2	-17.44
802.11 A, 5240MHz									
5350	55.70	PK	322	1.6	H	-2.33	53.37	74	-20.63
5350	55.41	PK	215	1.8	V	-2.33	53.08	74	-20.92
5460	55.94	PK	247	1.3	H	-2.26	53.68	74	-20.32
5460	55.80	PK	158	1.2	V	-2.26	53.54	74	-20.46
10480	43.38	PK	301	1.0	H	8.57	51.95	68.2	-16.25
10480	42.80	PK	309	1.6	V	8.57	51.37	68.2	-16.83

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	PK/QP/AV		Height (m)	Polar (H/V)				
802.11 A, 5745MHz									
5650	55.83	PK	246	2.0	H	-1.95	53.88	68.2	-14.32
5650	55.58	PK	264	1.4	V	-1.95	53.63	68.2	-14.57
5700	56.38	PK	152	1.4	H	-2.02	54.36	105.2	-50.84
5700	56.86	PK	250	2.0	V	-2.02	54.84	105.2	-50.36
5720	60.53	PK	236	1.8	H	-1.96	58.57	110.8	-52.23
5720	59.38	PK	259	1.9	V	-1.96	57.42	110.8	-53.38
5725	63.11	PK	326	1.4	H	-1.96	61.15	122.2	-61.05
5725	62.18	PK	199	1.9	V	-1.96	60.22	122.2	-61.98
11490	44.23	PK	338	1.2	H	6.63	50.86	74	-23.14
11490	44.08	PK	202	1.2	V	6.63	50.71	74	-23.29
802.11 A, 5785MHz									
11570	44.62	PK	268	2.0	H	6.59	51.21	74	-22.79
11570	43.42	PK	338	1.8	V	6.59	50.01	74	-23.99
802.11 A, 5825MHz									
5850	58.49	PK	140	1.0	H	-1.81	56.68	122.2	-65.52
5850	55.03	PK	38	2.1	V	-1.81	53.22	122.2	-68.98
5855	58.02	PK	149	1.8	H	-1.82	56.20	110.8	-54.6
5855	56.90	PK	332	1.7	V	-1.82	55.08	110.8	-55.72
5875	57.22	PK	21	1.7	H	-1.84	55.38	105.2	-49.82
5875	56.13	PK	162	1.5	V	-1.84	54.29	105.2	-50.91
5925	55.61	PK	87	1.7	H	-1.83	53.78	68.2	-14.42
5925	56.39	PK	237	2.0	V	-1.83	54.56	68.2	-13.64
11650	44.83	PK	126	2.1	H	6.77	51.60	74	-22.40
11650	44.66	PK	342	1.1	V	6.77	51.43	74	-22.57

Note:

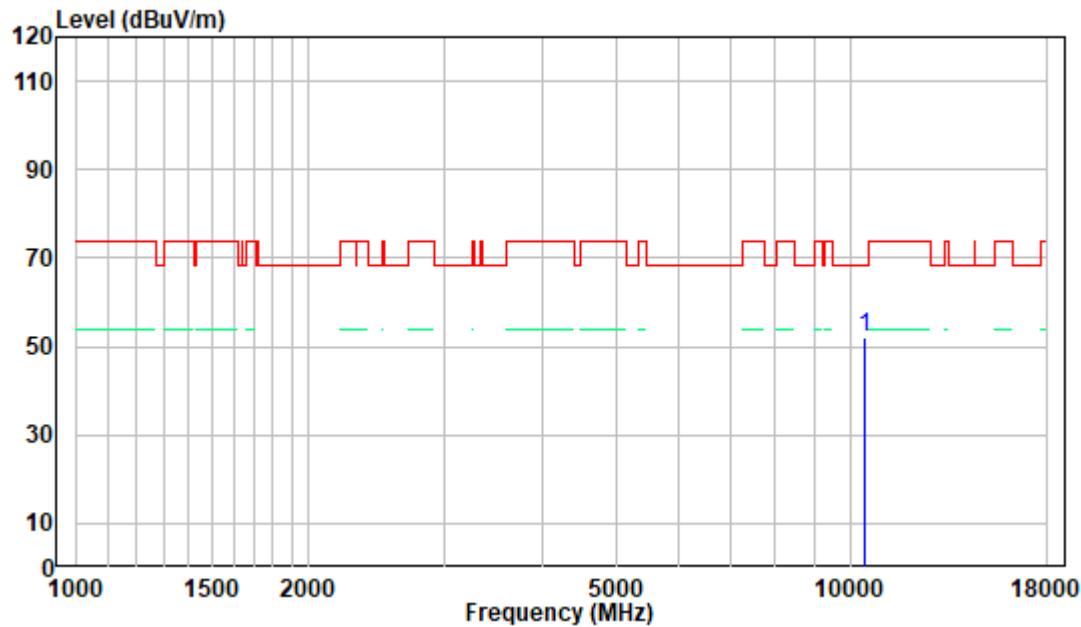
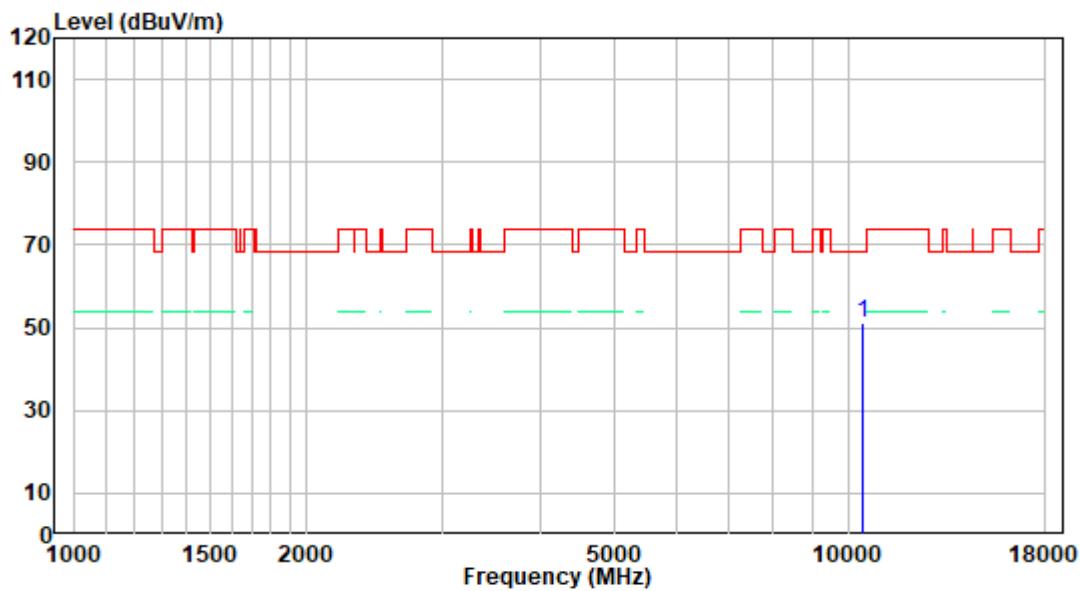
Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

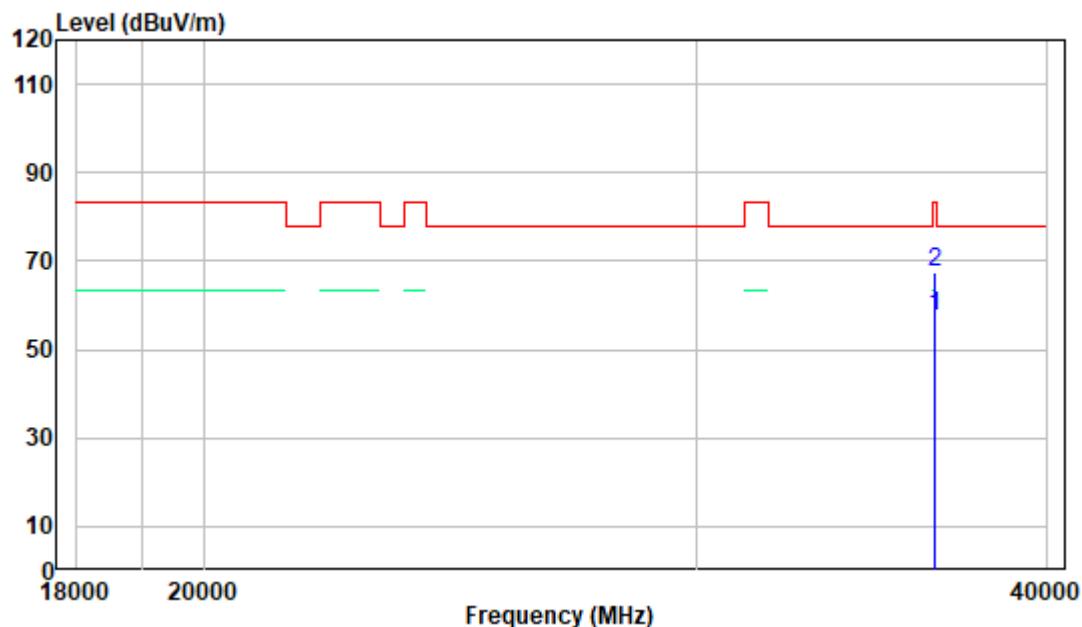
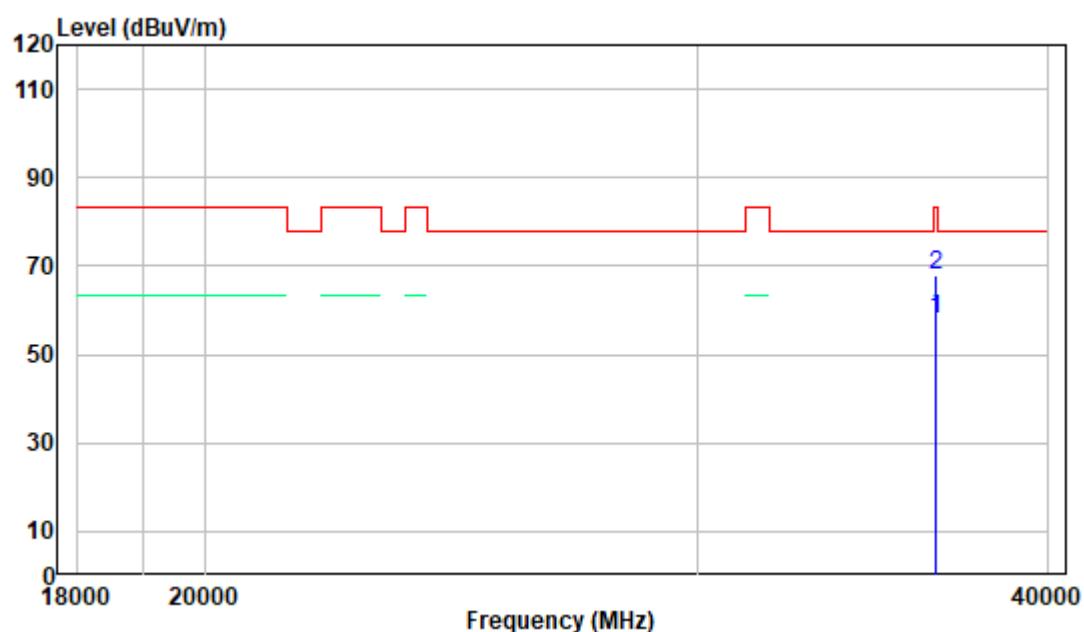
Corrected Amplitude = Corrected Factor + Reading

Margin = Corrected Amplitude – Limit

The other spurious emission which is in the noise floor level was not recorded.

The test result of peak was 20dB below to the limit of peak, which can be compliant to the average limit, so just peak value was recorded.

1-18 GHz:**Pre-scan plots:****802.11a, 5240MHz
Horizontal****Vertical**

18-40 GHz:**Pre-scan plots:****802.11a, 5240MHz
Horizontal****Vertical**

FCC §15.407(a)(e) – BANDWIDTH

Applicable Standard

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

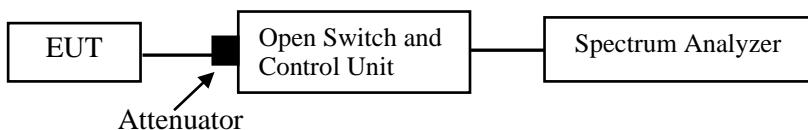
1. Emission Bandwidth (EBW)

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW \geq RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Data**Environmental Conditions**

Temperature:	24 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang on 2022-09-01

EUT operation mode: Transmitting

Test Result: PASS. Please refer to the Appendix.

FCC §15.407(a) – CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

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, 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.

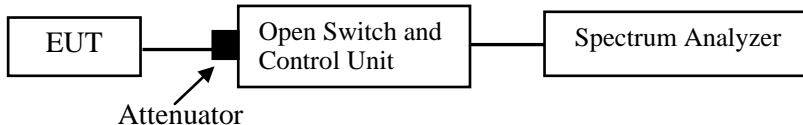
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting 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.

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 26 dB emission bandwidth in megahertz. 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.

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, 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. However, fixed point-to-point U-NII 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.

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



Test Data**Environmental Conditions**

Temperature:	24 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang on 2022-09-01.

EUT operation mode: Transmitting

Test Result: PASS. Please refer to the Appendix.

FCC §15.407(a) - POWER SPECTRAL DENSITY

Applicable Standard

For 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, 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.

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 26 dB emission bandwidth in megahertz. 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.

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, 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. However, fixed point-to-point U-NII 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.

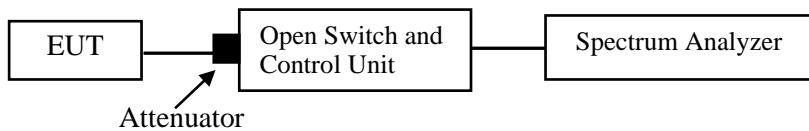
Test Procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5).

For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz.

Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- Set $\text{RBW} \geq 1/T$, where T is defined in section II.B.1.a).
- Set $\text{VBW} \geq 3 \text{ RBW}$.
- If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/\text{RBW})$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.



Test Data

Environmental Conditions

Temperature:	24°C
Relative Humidity:	48%
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang on 2022-09-01.

EUT operation mode: Transmitting

Test Result: PASS. Please refer to the Appendix.

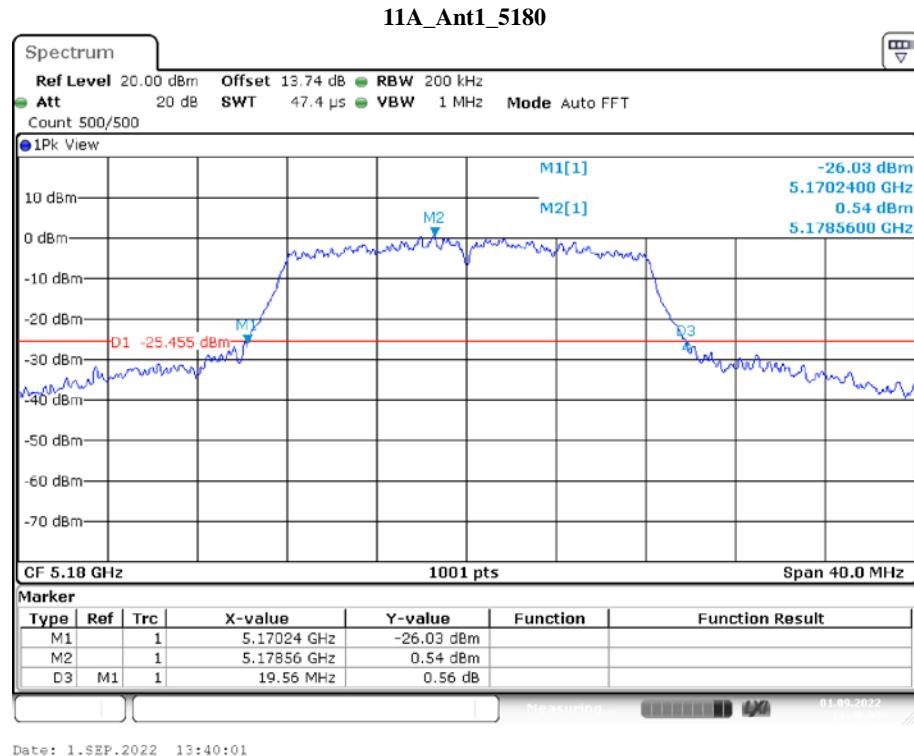
APPENDIX

Appendix A1: Emission Bandwidth

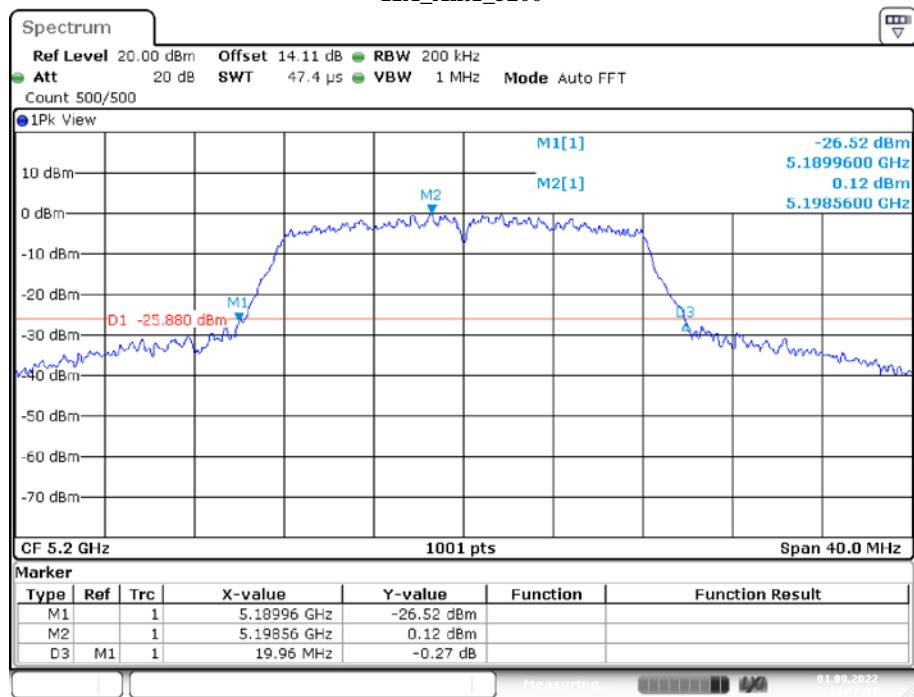
Test Result

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.560	5170.240	5189.800	---	PASS
		5200	19.960	5189.960	5209.920	---	PASS
		5240	20.400	5229.680	5250.080	---	PASS

Test Graphs

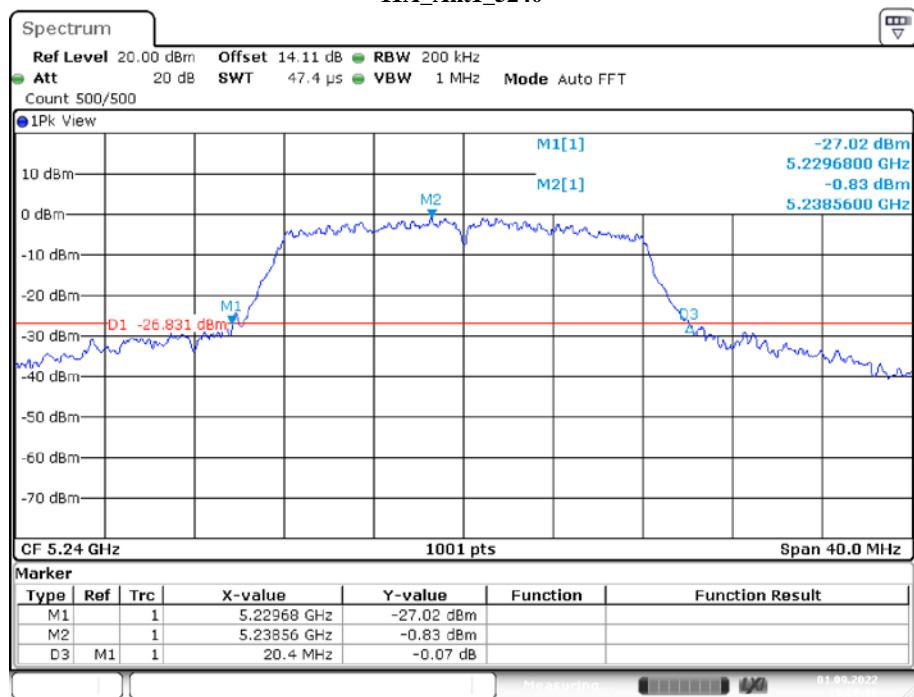


11A_Ant1_5200



Date: 1.SEP.2022 14:57:31

11A_Ant1_5240



Date: 1.SEP.2022 15:00:06

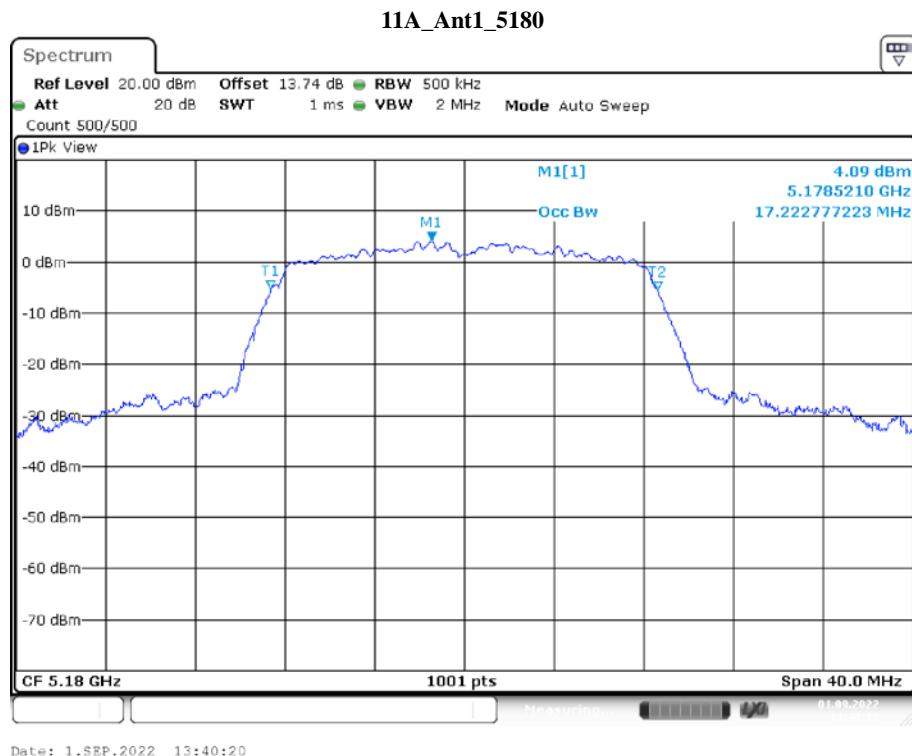
Appendix A2: Occupied channel bandwidth

Test Result

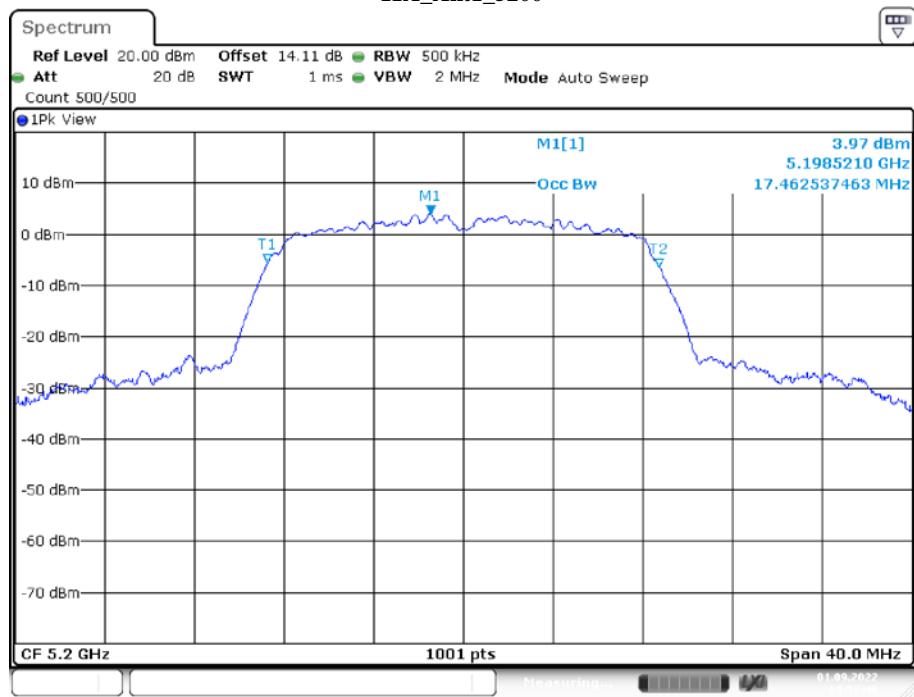
Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.223	5171.369	5188.591	---	PASS
		5200	17.463	5191.249	5208.711	---	PASS
		5240	17.582	5231.089	5248.671	---	PASS
		5745	17.702	5736.089	5753.791	---	PASS
		5785	17.662	5776.089	5793.751	---	PASS
		5825	17.303	5816.289	5833.591	---	PASS

Note: the device not operating with any part of OBW fall within 5250-5350MHz and 5470-5725MHz range.

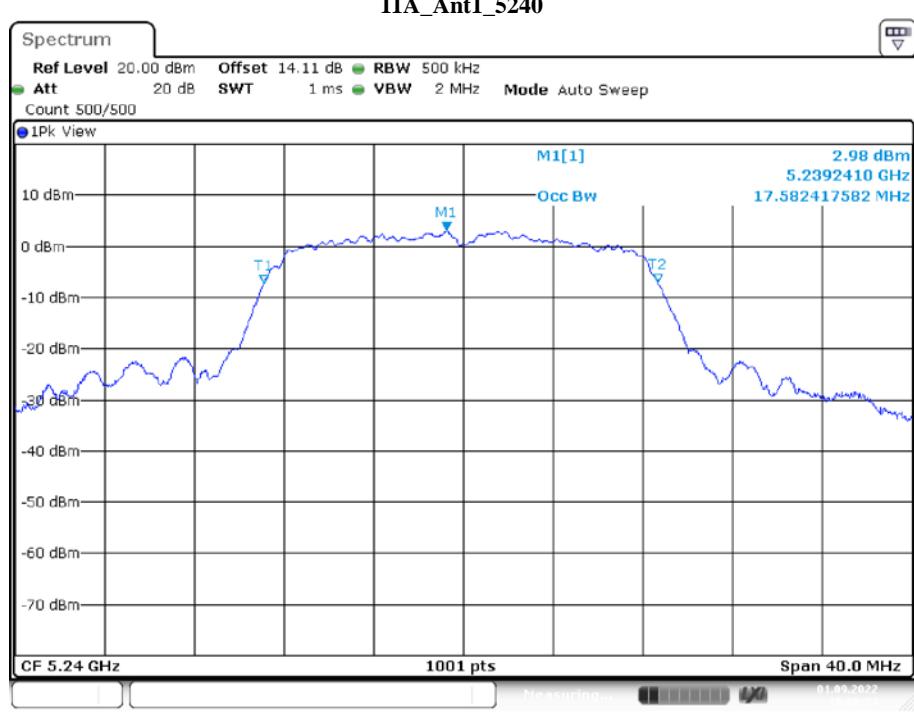
Test Graphs



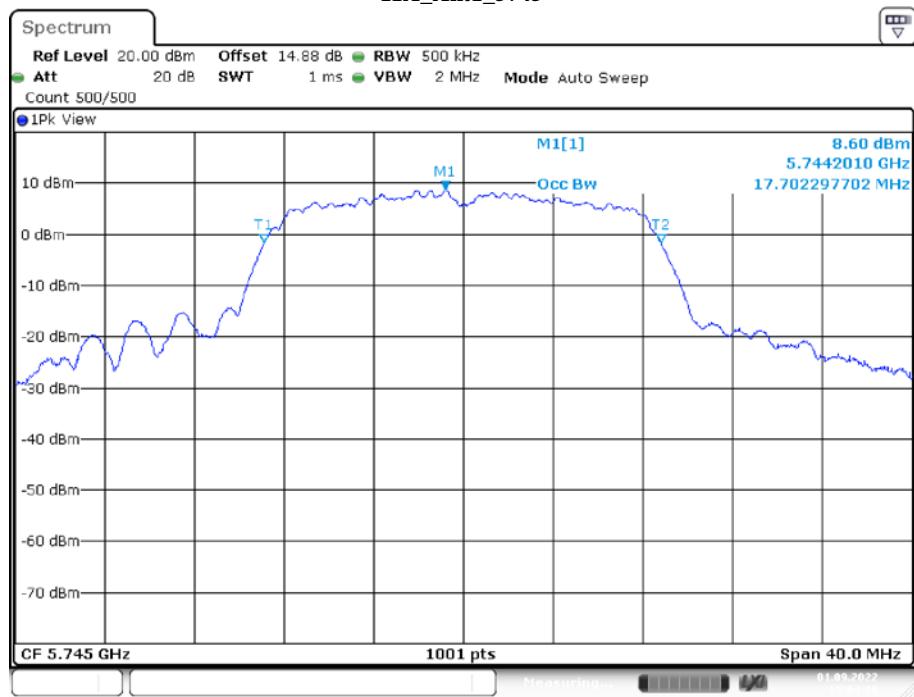
11A_Ant1_5200



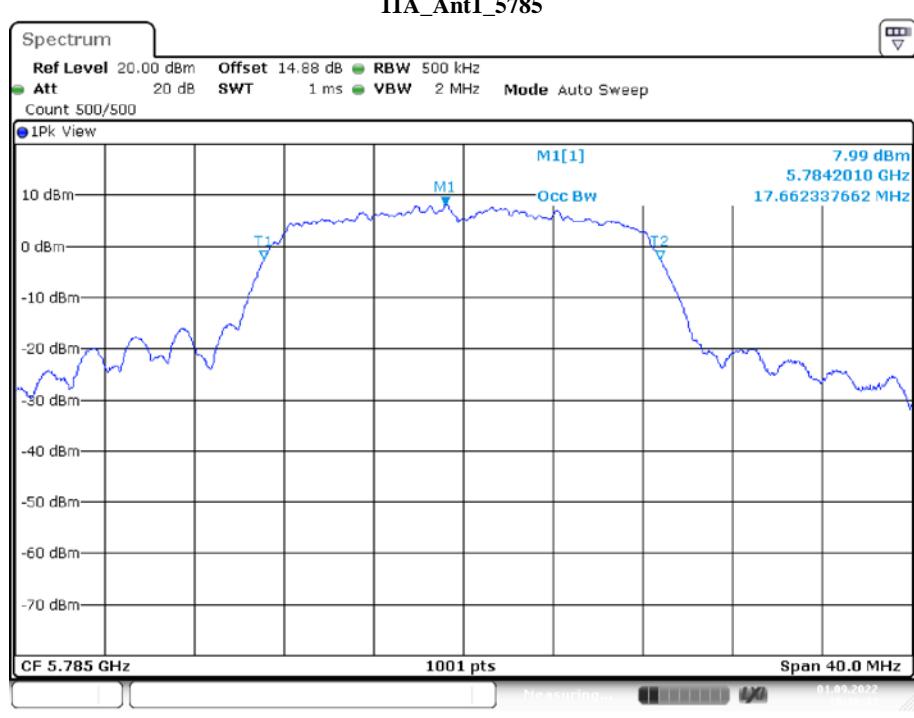
11A_Ant1_5240

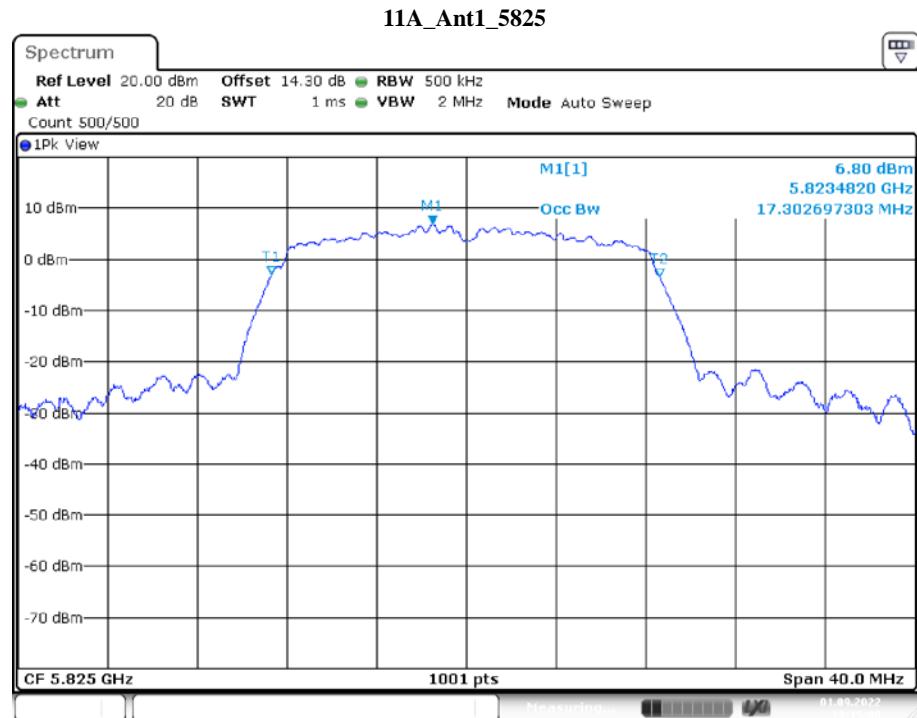


11A_Ant1_5745



11A_Ant1_5785



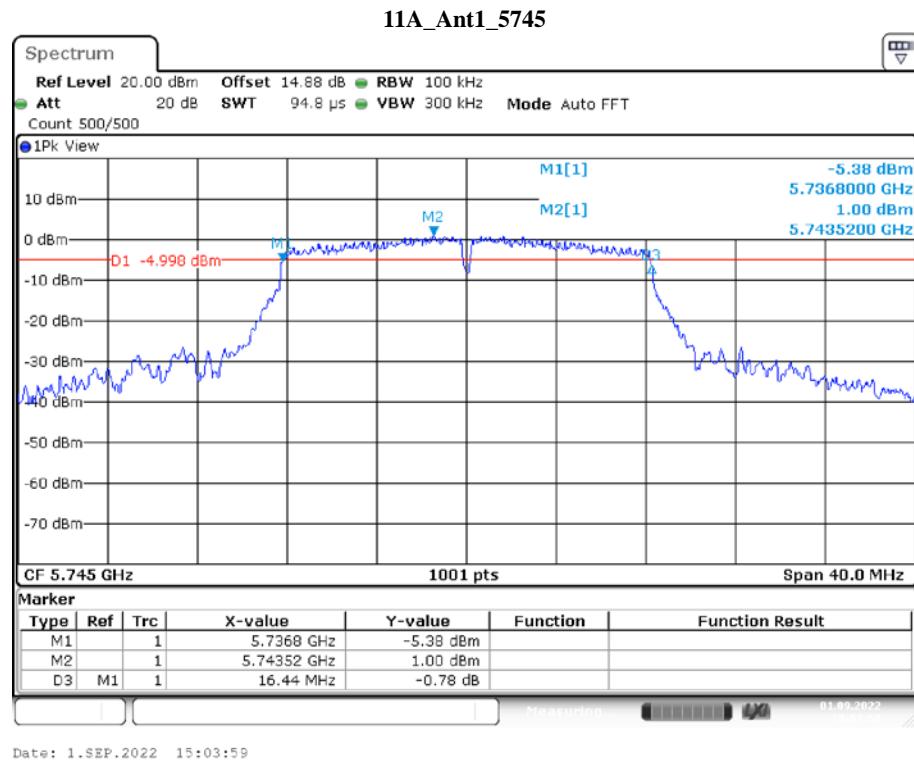


Appendix A3: Min emission bandwidth

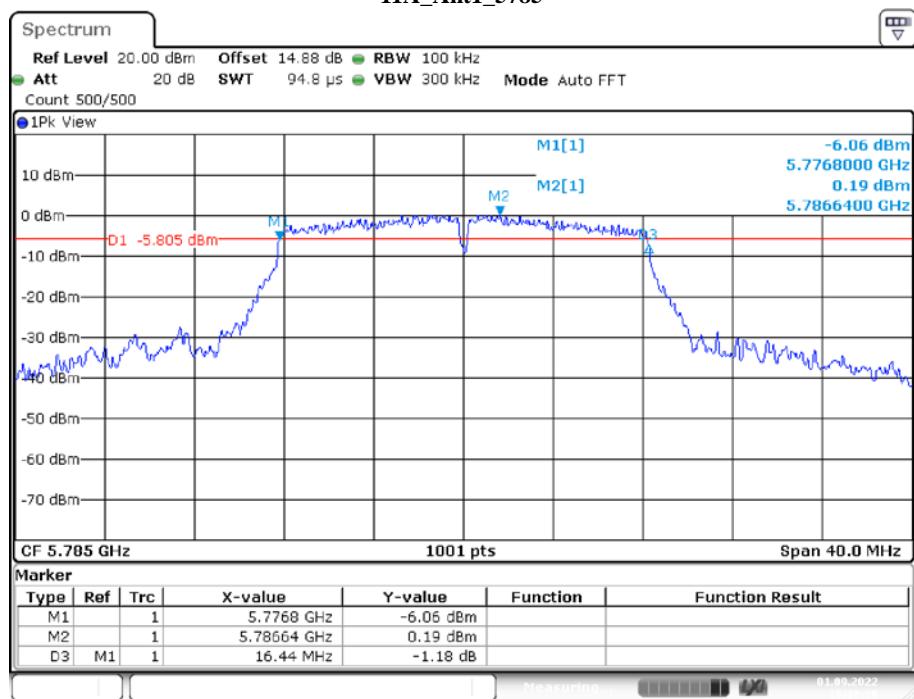
Test Result

Test Mode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.440	5736.800	5753.240	0.5	PASS
		5785	16.440	5776.800	5793.240	0.5	PASS
		5825	16.400	5816.800	5833.200	0.5	PASS

Test Graphs

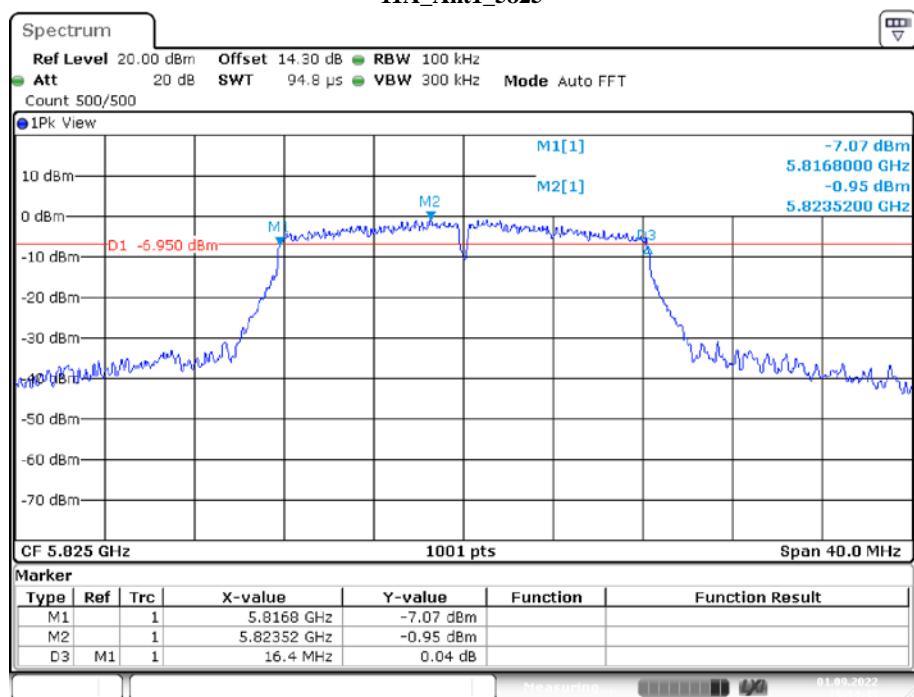


11A_Ant1_5785



Date: 1.SEP.2022 15:10:26

11A_Ant1_5825



Date: 1.SEP.2022 15:14:43

Appendix B: Maximum conducted Average output power**Test Result**

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	8.60	<=23.98	PASS
		5200	9.20	<=23.98	PASS
		5240	8.00	<=23.98	PASS
		5745	13.35	<=30	PASS
		5785	12.57	<=30	PASS
		5825	11.29	<=30	PASS

Note: The Duty Cycle Factor is compensated in the result.

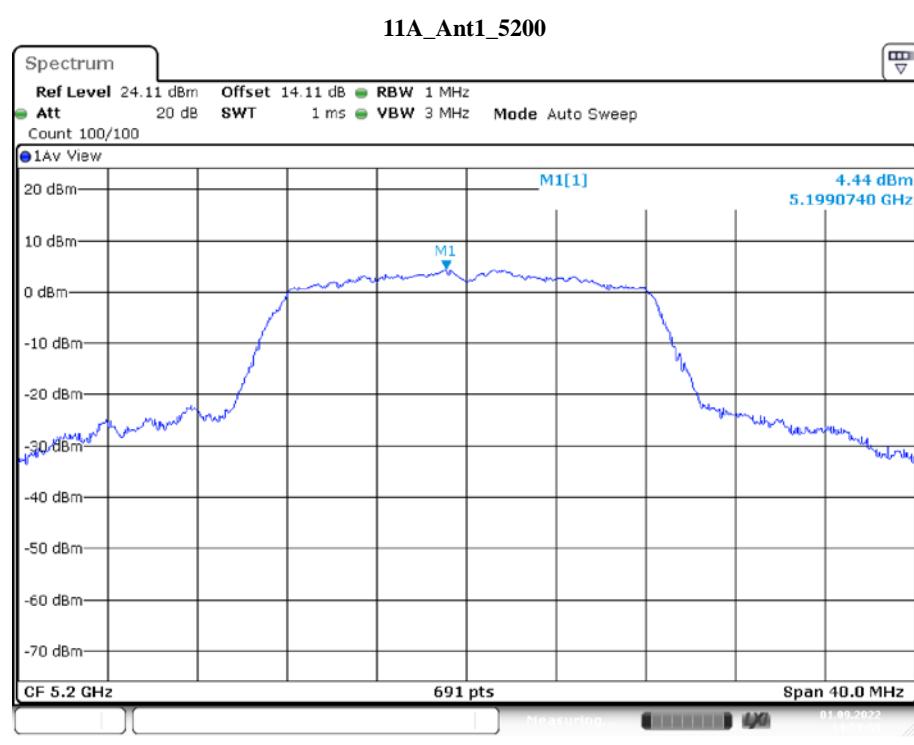
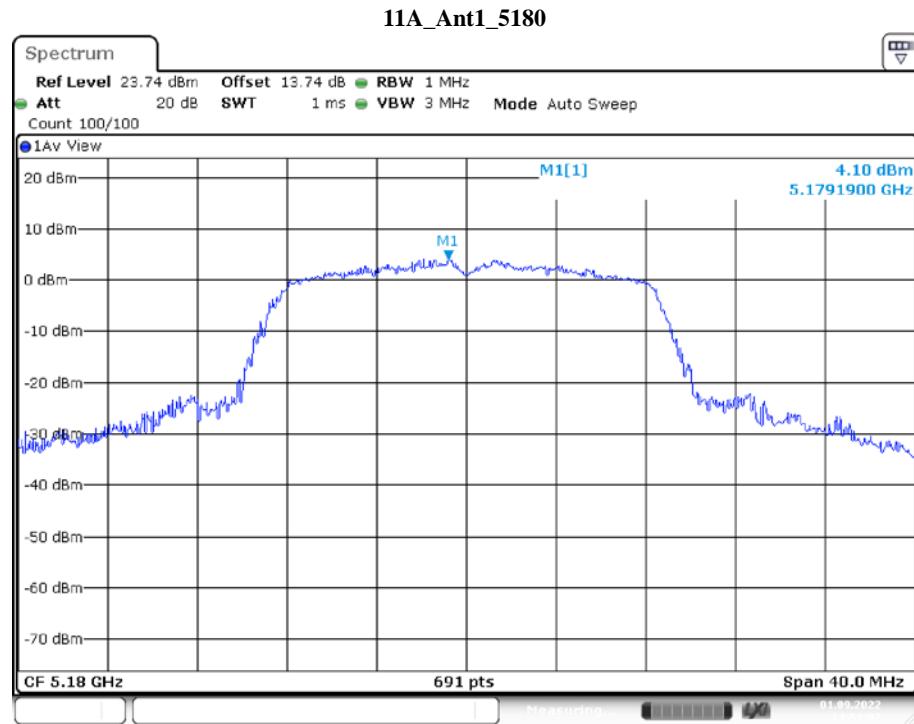
Appendix C: Maximum power spectral density

Test Result

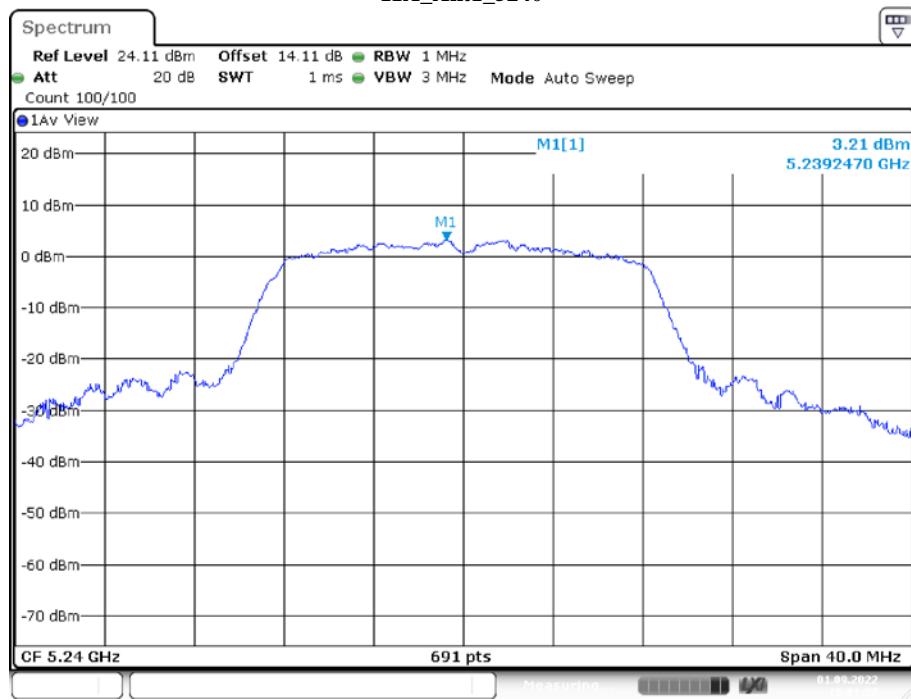
Test Mode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	4.1	<=11	PASS
		5200	4.44	<=11	PASS
		5240	3.21	<=11	PASS
		5745	7.89	<=30	PASS
		5785	7.07	<=30	PASS
		5825	6.23	<=30	PASS

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725-5.85 GHz.
2.The Duty Cycle Factor is compensated in the graph.

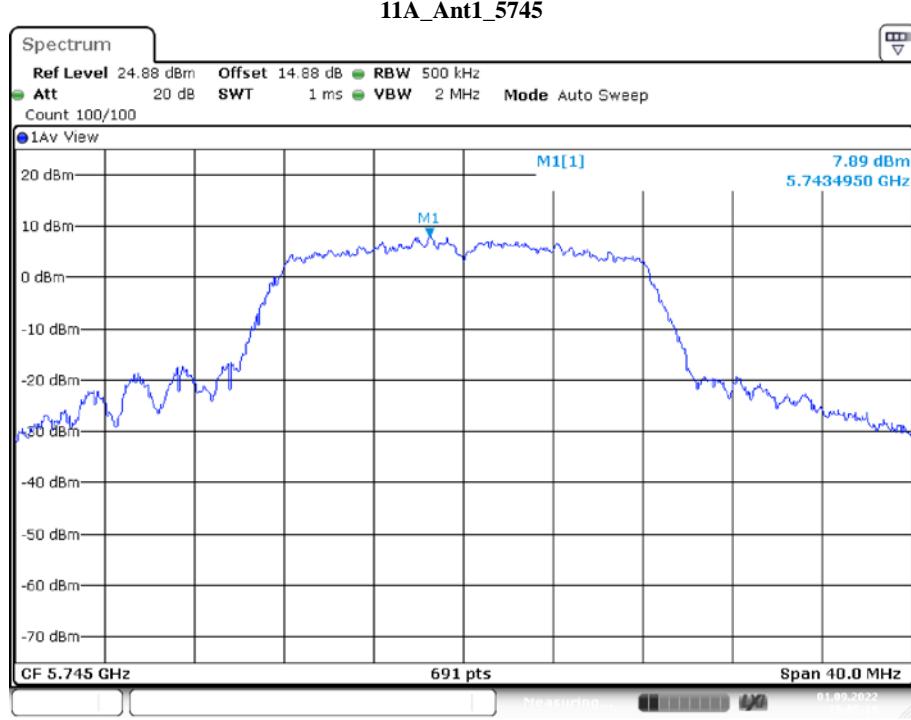
Test Graphs



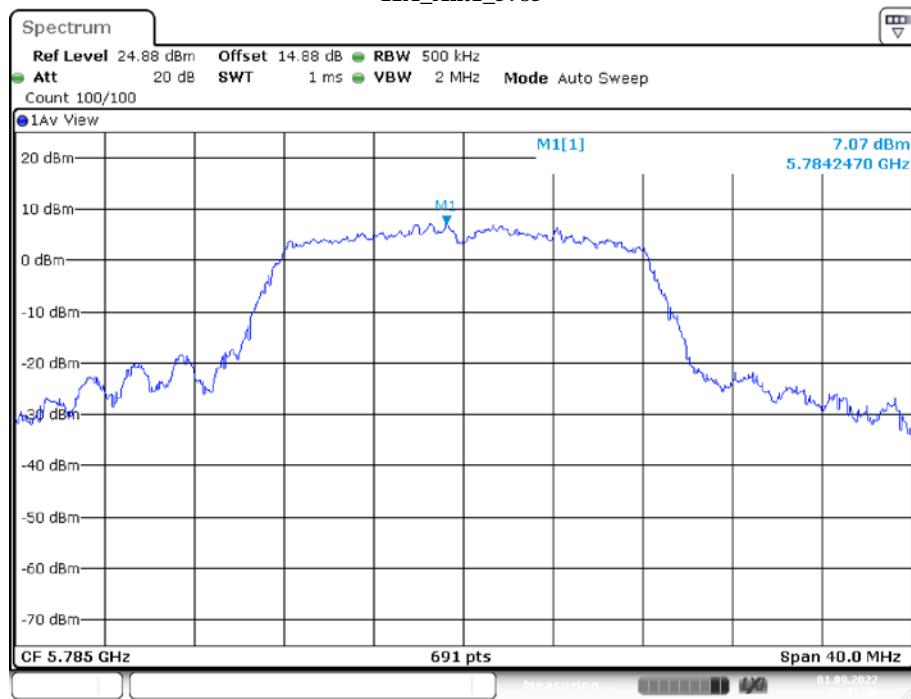
11A_Ant1_5240



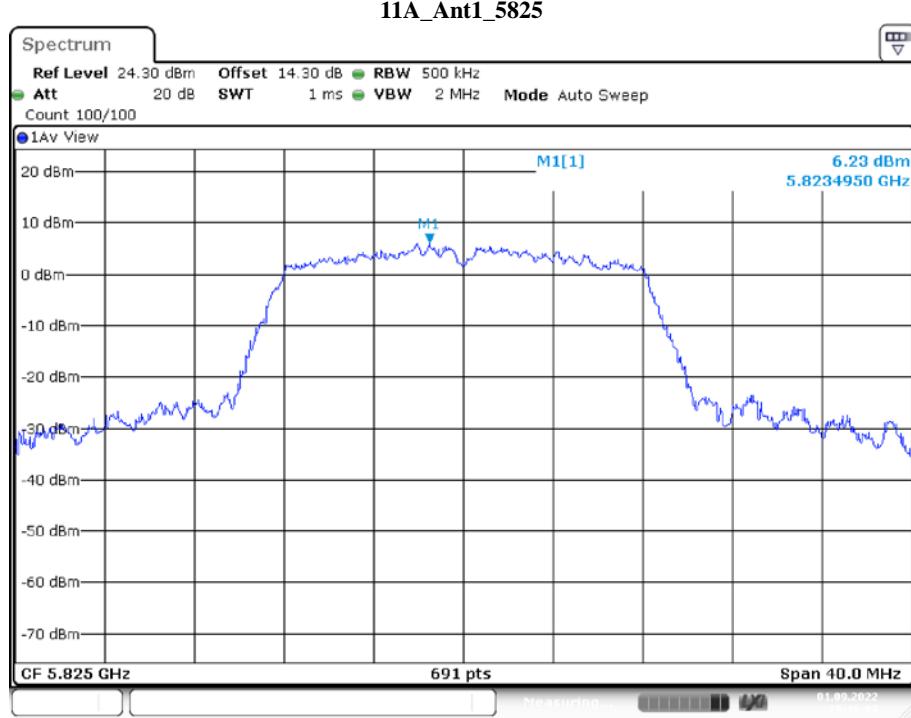
11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



Appendix D: Duty Cycle

Test Data

Environmental Conditions

Temperature:	24°C
Relative Humidity:	48%
ATM Pressure:	101.0 kPa

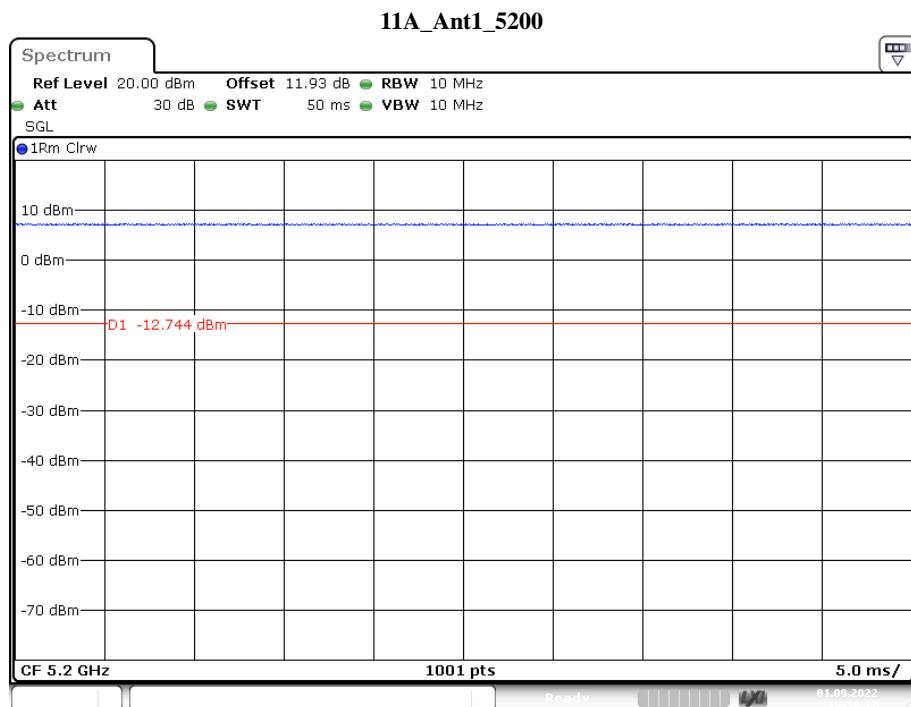
The testing was performed by Glenn Jiang on 2022-09-01.

EUT operation mode: Transmitting

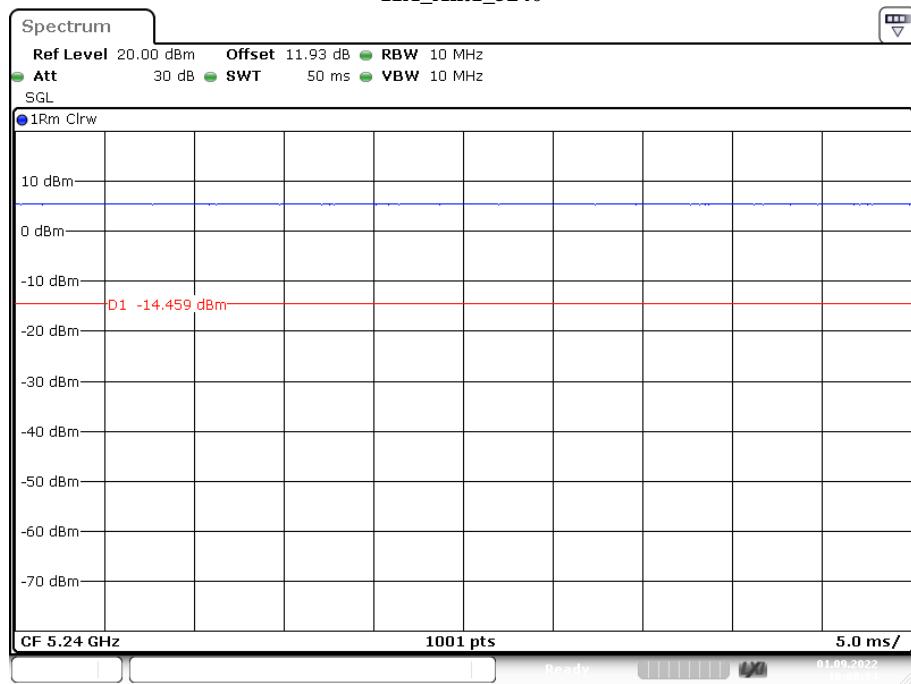
Test Result

Test Mode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant1	5180	30.00	30.00	100.00
		5200	30.00	30.00	100.00
		5240	30.00	30.00	100.00
		5745	30.00	30.00	100.00
		5785	30.00	30.00	100.00
		5825	30.00	30.00	100.00

Test Graphs

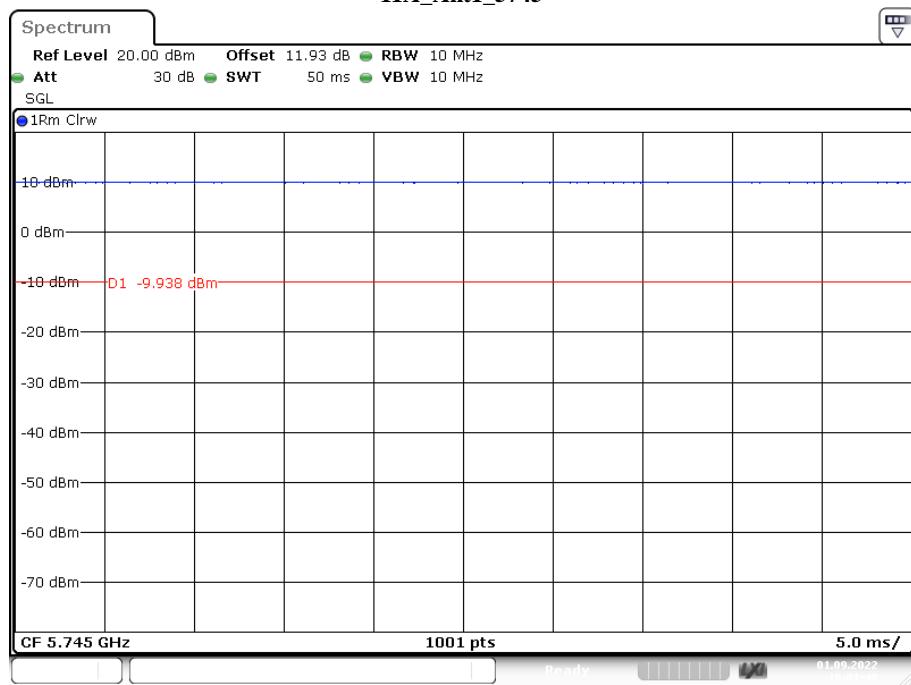


11A_Ant1_5240

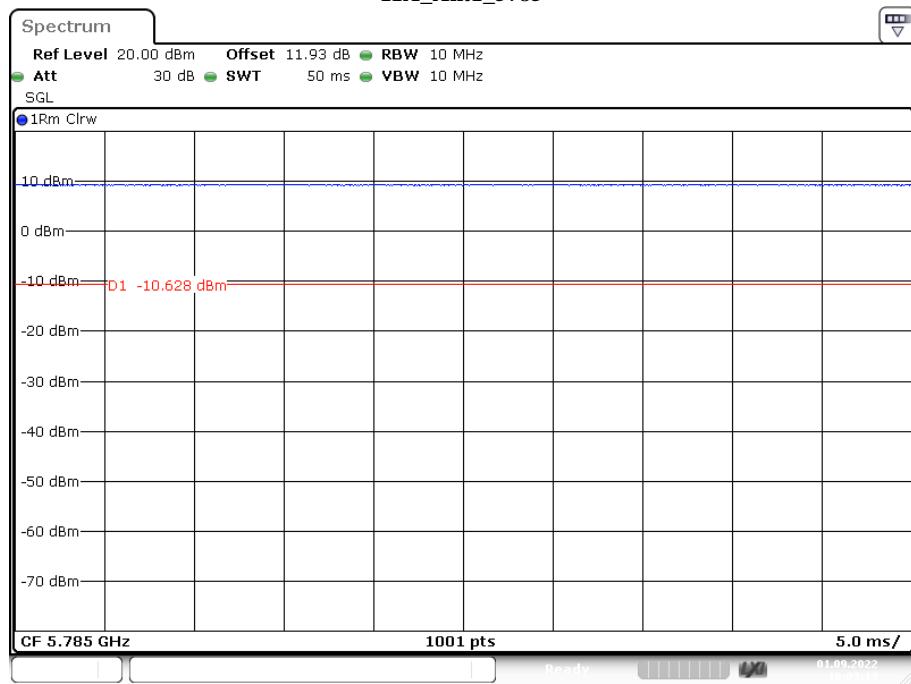


Date: 1.SEP.2022 16:00:34

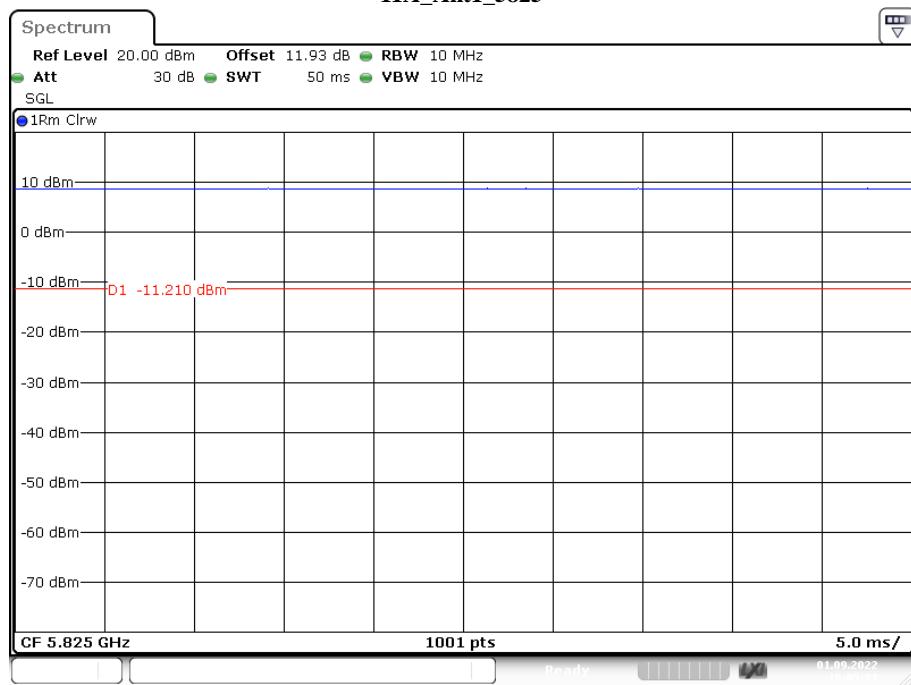
11A_Ant1_5745



Date: 1.SEP.2022 16:01:40

11A_Ant1_5785

Date: 1.SEP.2022 16:03:13

11A_Ant1_5825

Date: 1.SEP.2022 16:05:31

******* END OF REPORT *******