中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Snorble, Incorporated.**

Address: 65 Fieldstone Rd, Skillman NEW JERSEY 08558 USA

FCC ID: **2BDTJD**

Product Name: **Snorble Smart Companion**

Standard(s): **47 CFR Part 15, Subpart E(15.407)**
ANSI C63.10-2013
KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR231061281-00D**

Date Of Issue: **2024/1/23**

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR231061281-00D	Original Report	2024/1/23

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

1.1.1 General:

EUT Name:	Snorble Smart Companion
EUT Model:	SN1000
Operation Frequency:	5180-5240 MHz (802.11a/n ht20/ac vht20) 5190-5230 MHz(802.11n ht40/ac vht40) 5210MHz(802.11ac vht80) 5745-5825 MHz (802.11a/n ht20/ac vht20) 5755-5795 MHz(802.11n ht40/ac vht40) 5775MHz(802.11ac vht80)
Maximum Average Output Power (Conducted):	12.78dBm (5150-5250 MHz) 12.12dBm (5725-5850 MHz)
Modulation Type:	OFDM-BPSK, QPSK, 16QAM, 64QAM,256QAM
Rated Input Voltage:	DC7.2V from Battery or DC12V from adapter or DC12V from Charger Base
Serial Number:	2D6B-2(For RF Conducted Test) 2D6B-1(For Radiated Spurious Emissions and AC line conducted emissions Test)
EUT Received Date:	2023/11/7
EUT Received Status:	Good

1.1.2 Operation Frequency Detail:

For 802.11a/n ht20/ac vht20:

5150-5250MHz Band		5725-5850MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
36	5180	149	5745
40	5200	153	5765
44	5220	157	5785
48	5240	161	5805
/	/	165	5825
Per section 15.31(m), the below frequencies were performed the test as below:			
36	5180	149	5745
40	5200	157	5785
48	5240	165	5825

For 802.11n ht40/ac vht40:

5150-5250MHz Band		5725-5850MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
38	5190	151	5755
46	5230	159	5795
Per section 15.31(m), the below frequencies were performed the test as below:			
38	5190	151	5755
46	5230	159	5795

For 802.11ac vht80:

5150-5250MHz Band		5725-5850MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
42	5210	155	5775
Per section 15.31(m), the below frequencies were performed the test as below:			
42	5210	155	5775

1.1.3 Antenna Information Detail▲:

Antenna	Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
Chain 0&1	Snorble, Incorporated.	PCB	50	5150~5250MHz	7 dBi
				5725~5850MHz	7 dBi

The Method of §15.203 Compliance:

☒Antenna was permanently attached to the unit.

☐Antenna use a unique type of connector to attach to the EUT.

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

1.1.4 Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Adapter	Analog Power Electronic Co.,Ltd	BZ065-120500-E2	Input: 100-240V~50/60Hz, 1.5A Output: 12.0V, 5.0A 60.0W

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer. Per BLE report test, test with Powered by Adapter was the worst.
Equipment Modifications:	No
EUT Exercise Software:	CMD

The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:

5150-5250 MHz Band:

Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting	
				Chain 0	Chain 1
802.11a	Lowest	5180	6Mbps	11	12
	Middle	5200	6Mbps	11	12
	Highest	5240	6Mbps	10	12
802.11n ht20	Lowest	5180	MCS8	10	12
	Middle	5200	MCS8	10	12
	Highest	5240	MCS8	10	12
802.11n ht40	Lowest	5190	MCS8	13	15
	Highest	5230	MCS8	13	15
802.11ac vht80	Middle	5210	MCS8	15	15

5725-5850 MHz Band:

Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting	
				Chain 0	Chain 1
802.11a	Lowest	5745	6Mbps	12	17
	Middle	5785	6Mbps	12	17
	Highest	5825	6Mbps	12	17
802.11n ht20	Lowest	5745	MCS8	12	17
	Middle	5785	MCS8	12	17
	Highest	5825	MCS8	12	17
802.11n ht40	Lowest	5755	MCS8	12	17
	Highest	5795	MCS8	12	17
802.11ac vht80	Middle	5775	MCS8	12	17

Note:
1. The system support 802.11a/n ht20/n ht40/ac vht20/ac vht40/ ac vht80, the ac vht20/vht40 were reduced since the identical parameters with 802.11n ht20 and ht40.
2. The above are the worst-case data rates, which are determined for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations.
3. The device supports SISO in all modes, and MIMO 2T2R in 802.11n /ac modes, per pretest, 2T2R mode was the worst mode and reported for 802.11n /ac modes.

1.2.2 Support Equipment List and Details

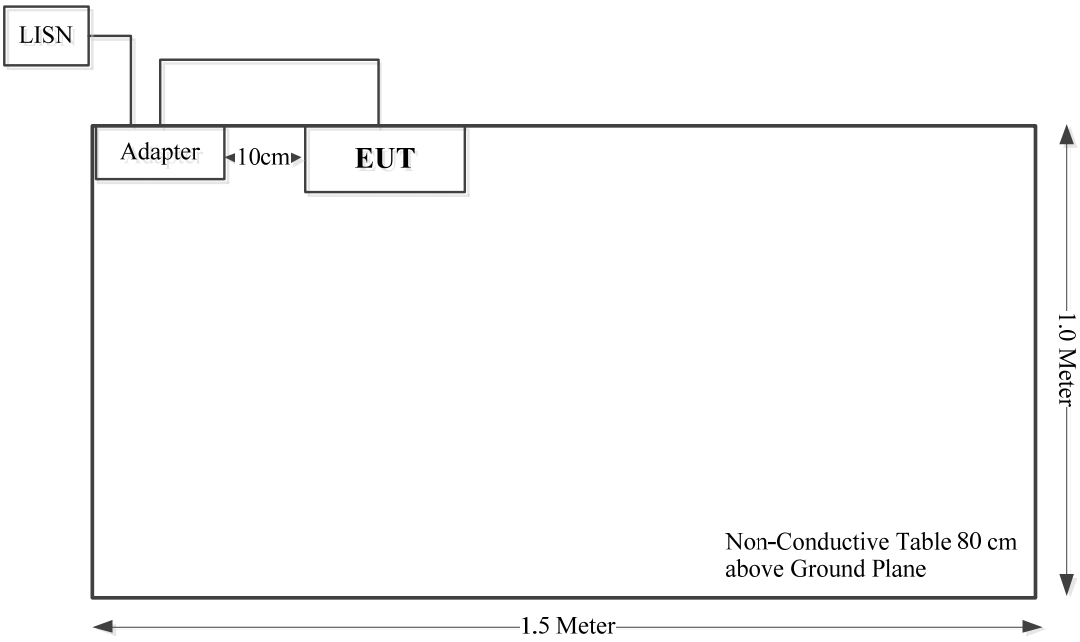
Manufacturer	Description	Model	Serial Number
/	/	/	/

1.2.3 Support Cable List and Details

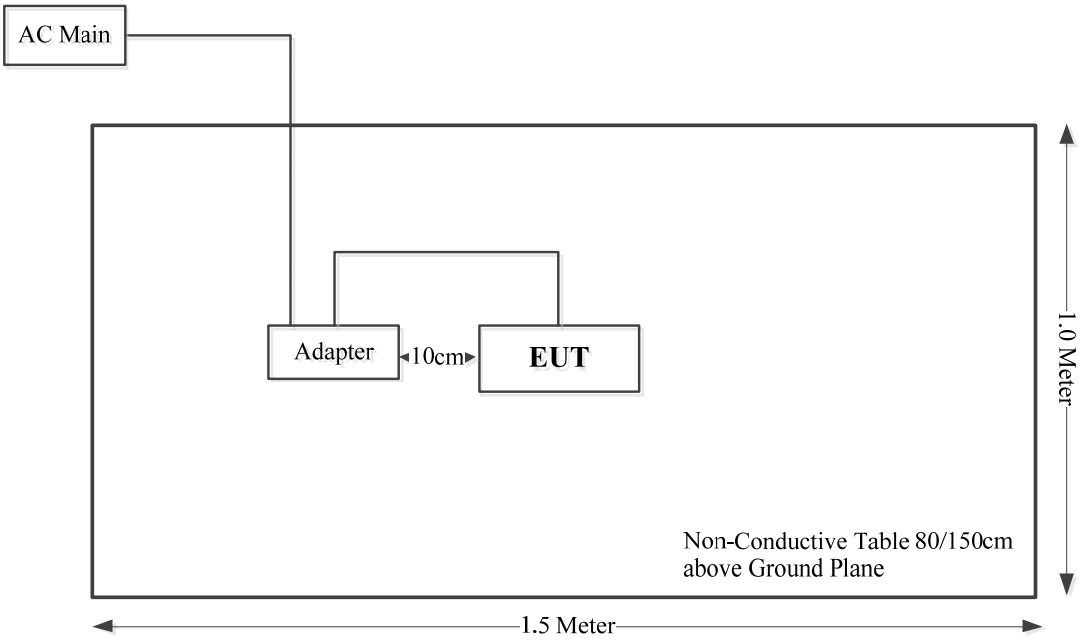
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
DC Cable	No	No	1.2	Adapter	EUT

1.2.4 Block Diagram of Test Setup

AC line conducted emissions:



Radiated Spurious Emissions:



1.3 Measurement Uncertainty

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

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	9kHz~30MHz: 4.12dB, 30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB, 18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.26 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

2. SUMMARY OF TEST RESULTS

Standard(s) Section	Test Items	Result
§15.207(a)	AC line conducted emissions	Compliant
FCC§15.205& §15.209 &§15.407(b)	Radiated Spurious Emissions	Compliant
FCC§15.407(a) (e)	Emission Bandwidth	Compliant
FCC§15.407(a)	Maximum Conducted Output Power	Compliant
FCC§15.407 (a)	Power Spectral Density	Compliant
§15.203	Antenna Requirement	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

	Conducted limit (dBµV)	
Frequency of emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

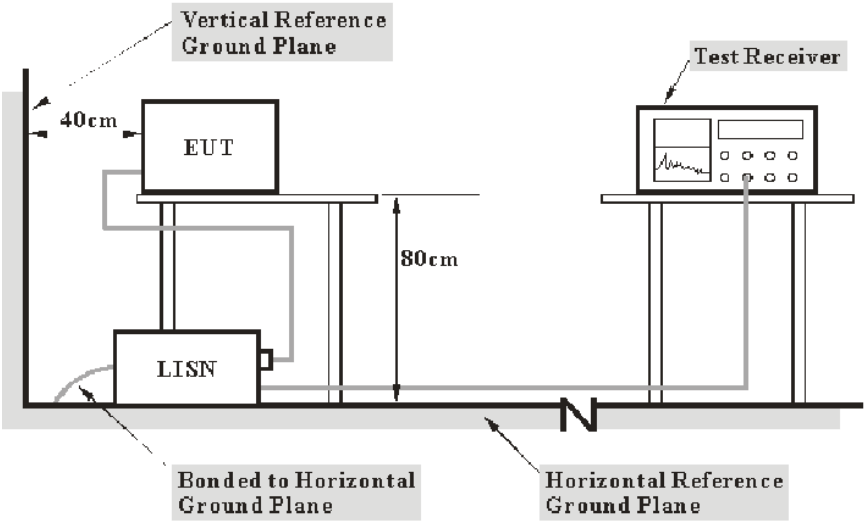
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtainig their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

3.1.2 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.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.3 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

3.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

3.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor = attenuation caused by cable loss + voltage division factor of AMN

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

3.2 Radiation Spurious Emissions

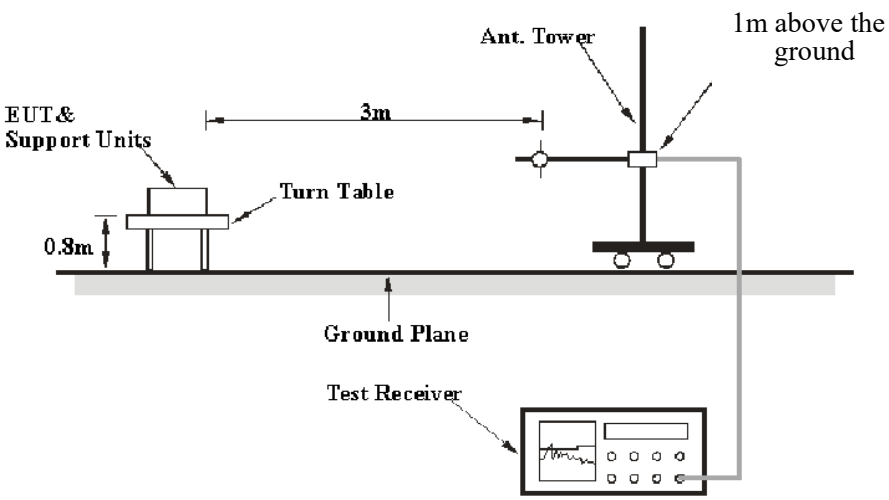
3.2.1 Applicable Standard

FCC §15.407 (b);

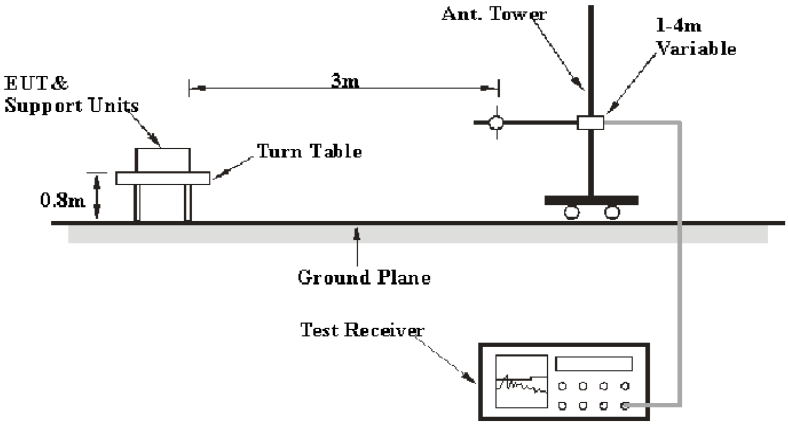
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 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 solely in the 5.725-5.850 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.
(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.
(8) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
(9) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in § 15.207.
(10) The provisions of § 15.205 apply to intentional radiators operating under this section.
(11) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.
(c) The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

3.2.2 EUT Setup

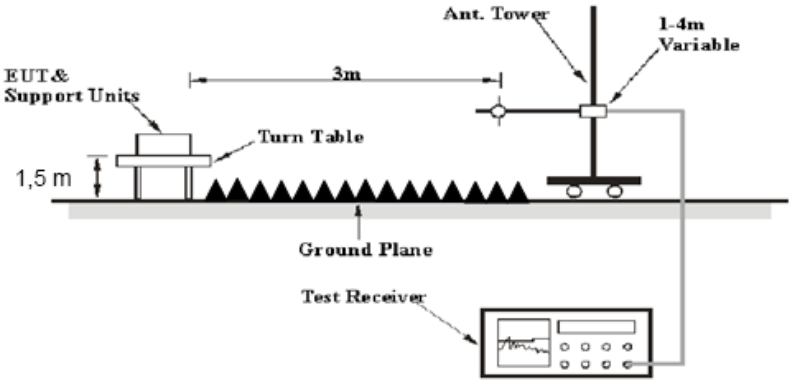
9kHz~30MHz:



30MHz~1GHz:



1~40 GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was FCC 15.209, FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 40 GHz.

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

9 kHz-1000MHz:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
9 kHz – 150 kHz	300 Hz	1 kHz	200 Hz	QP/AV
150 kHz – 30 MHz	10 kHz	30 kHz	9 kHz	QP/AV
30 MHz – 1000 MHz	100 kHz	300 kHz	---	PK
	---	---	120 kHz	QP

1GHz- 40GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
AV	>98%	1MHz	10 Hz
	<98%	1MHz	≥1/T

Note: T is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.4 Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet.

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz-1 GHz except 9 – 90 kHz, 110 – 490 kHz, employing an average detector, peak and Average detection modes for frequencies above 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

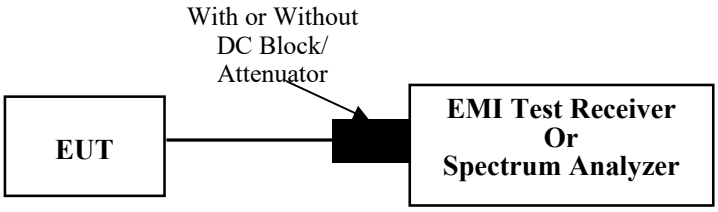
3.3 Emission Bandwidth

3.3.1 Applicable Standard

FCC §15.407 (a),(h)
(h)(2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

FCC §15.407 (e)
Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.3.2 EUT Setup



3.3.3 Test Procedure

26dB Emission Bandwidth:

According to ANSI C63.10-2013 Section 12.4.1

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

6 dB emission bandwidth:

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 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.
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described in this section. For devices that use channel aggregation refer to III.A and III.C for determining emission bandwidth.

99% Occupied Bandwidth:

According to ANSI C63.10-2013 Section 12.4.2&6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.
The following procedure shall be used for measuring 99% power bandwidth:
a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
d) Step a) through step c) might require iteration to adjust within the specified range.
e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

3.4 Maximum Conducted Output Power

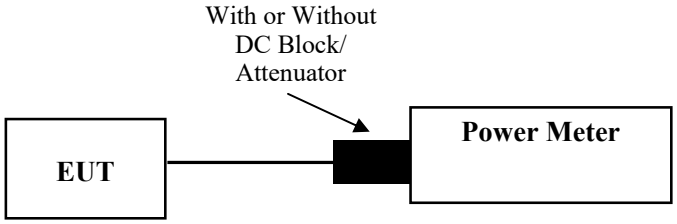
3.4.1 Applicable Standard

FCC §15.407(a) (1)(iv)
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.

FCC §15.407(a) (2)
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 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.

FCC §15.407(a) (3)(i)
For the 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. 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.

3.4.2 EUT Setup



3.4.3 Test Procedure

According to ANSI C63.10-2013 Section 12.3.3.1

Method PM-G is measurement using a gated RF average power meter.
Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.5 Maximum Power Spectral Density

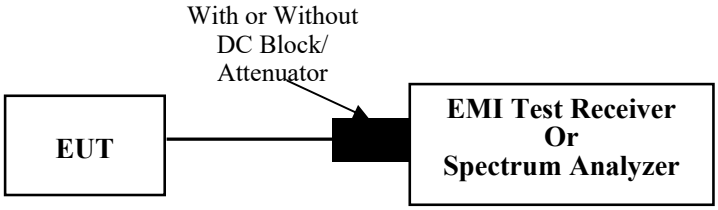
3.5.1 Applicable Standard

FCC §15.407(a) (1)(iv)
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.

FCC §15.407(a) (2)
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 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.

FCC §15.407(a) (3)(i)
For the 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. 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.

3.5.2 EUT Setup



3.5.3 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Duty cycle ⩾98%

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-1 should be applied.

Duty cycle <98%, duty cycle variations are less than ±2%

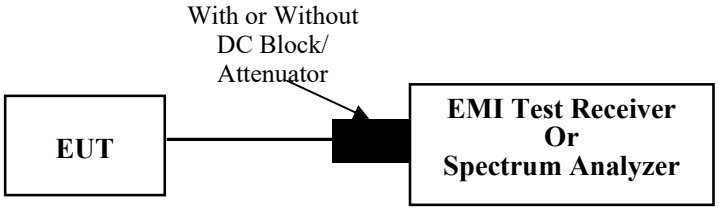
KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-2 should be applied.

Duty cycle <98%, duty cycle variations exceed ±2%

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-3 should be applied.

3.7 Duty Cycle

3.7.1 EUT Setup



3.7.2 Test Procedure

According to ANSI C63.10-2013 Section 12.2

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ RBW. Set detector = peak or average.
4) The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if T ≤ 16.7 μs.)

3.8 Antenna Requirement

3.8.1 Applicable Standard

FCC §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 use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

3.8.2 Judgment

Result: Compliant. Please refer to the Antenna Information detail in Section 1.

4. Test DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	2D6B-1	Test Date:	2023/12/8
Test Site:	CE	Test Mode:	Transmitting(maximum output power mode(802.11ac vht80 Middle) was tested)
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:

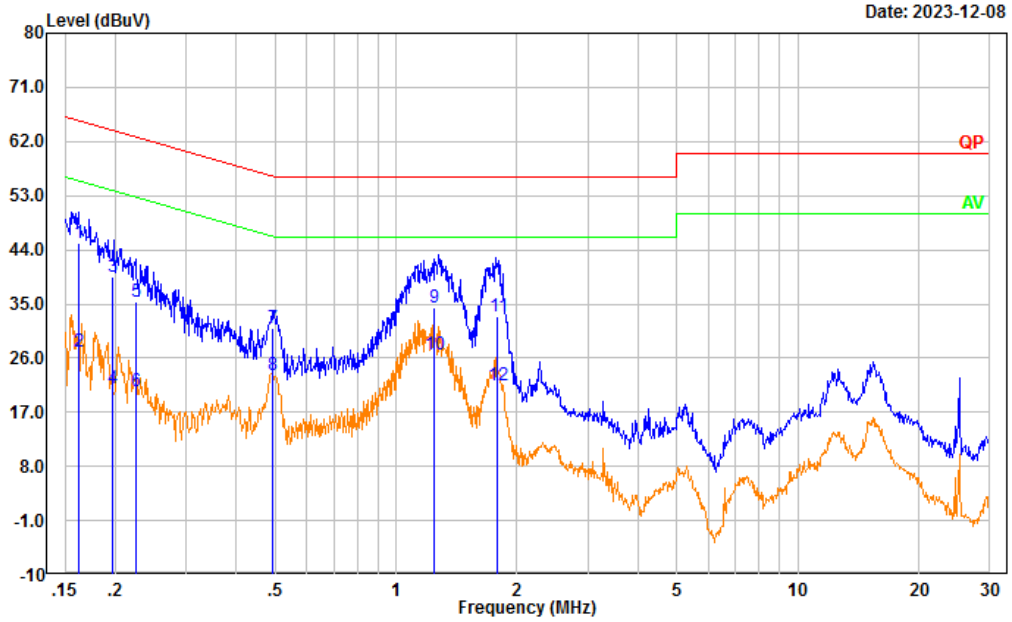
Temperature: (℃)	25.9	Relative Humidity: (%)	42	ATM Pressure: (kPa)	101.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/3/31	2024/3/30
R&S	EMI Test Receiver	ESR3	102726	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2023/8/6	2024/8/5
Audix	Test Software	E3	190306 (V9)	N/A	N/A

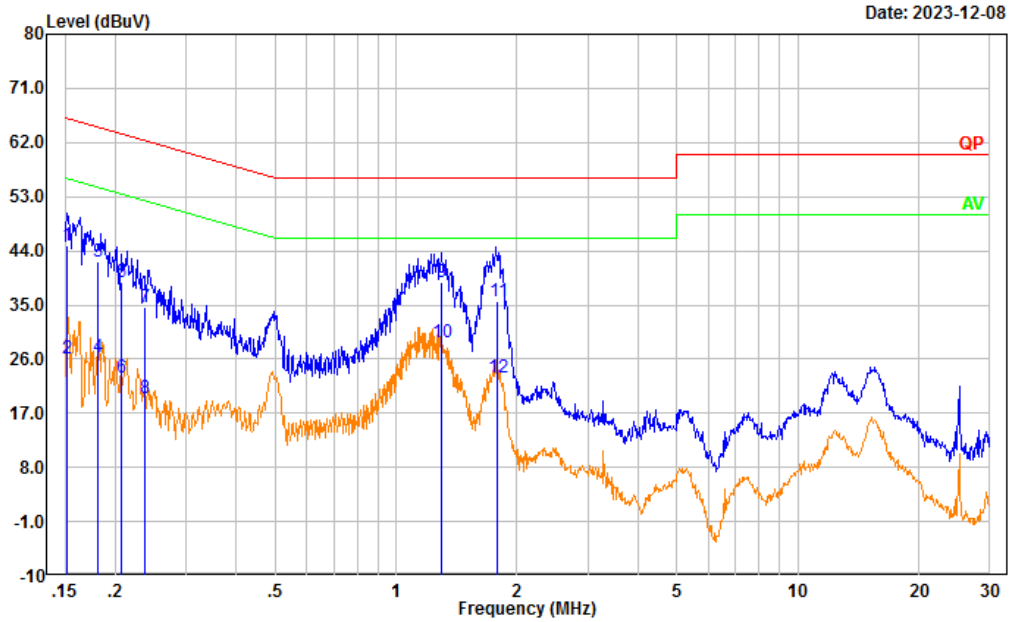
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Project No.: CR231061281-RF
Tester: David Huang
Port: Line
Note: Transmitting(5G WIFI)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.162	35.57	9.61	45.18	65.37	20.19	QP
2	0.162	17.41	9.61	27.02	55.37	28.35	Average
3	0.196	29.82	9.61	39.43	63.76	24.33	QP
4	0.196	11.43	9.61	21.04	53.76	32.72	Average
5	0.225	25.82	9.61	35.43	62.64	27.21	QP
6	0.225	10.91	9.61	20.52	52.64	32.12	Average
7	0.493	21.26	9.61	30.87	56.12	25.25	QP
8	0.493	13.65	9.61	23.26	46.12	22.86	Average
9	1.247	24.76	9.62	34.38	56.00	21.62	QP
10	1.247	16.93	9.62	26.55	46.00	19.45	Average
11	1.792	23.41	9.63	33.04	56.00	22.96	QP
12	1.792	11.87	9.63	21.50	46.00	24.50	Average

Project No.: CR231061281-RF
Tester: David Huang
Port: neutral
Note: Transmitting(5G WIFI)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.152	35.37	9.61	44.98	65.91	20.93	QP
2	0.152	16.39	9.61	26.00	55.91	29.91	Average
3	0.181	32.65	9.61	42.26	64.44	22.18	QP
4	0.181	16.75	9.61	26.36	54.44	28.08	Average
5	0.208	29.19	9.61	38.80	63.29	24.49	QP
6	0.208	13.36	9.61	22.97	53.29	30.32	Average
7	0.238	25.01	9.61	34.62	62.18	27.56	QP
8	0.238	9.80	9.61	19.41	52.18	32.77	Average
9	1.298	29.27	9.62	38.89	56.00	17.11	QP
10	1.298	19.13	9.62	28.75	46.00	17.25	Average
11	1.790	26.08	9.63	35.71	56.00	20.29	QP
12	1.790	13.37	9.63	23.00	46.00	23.00	Average

4.2 Radiation Spurious Emissions

Serial Number:	2D6B-1	Test Date:	2023/12/13~2024/1/9
Test Site:	966-1/966-2	Test Mode:	Transmitting
Tester:	Mack Huang, Jeff Luo	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.6~26	Relative Humidity: (%)	45~58	ATM Pressure: (kPa)	101.2~101.3

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2023/12/1	2026/11/30
BACL	Loop Antenna	1313-1P	3092721	2023/10/20	2026/10/19
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A
AH	Double Ridge Guide Horn Antenna	SAS-571	1394	2023/2/22	2026/2/21
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2023/8/6	2024/8/5
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2023/8/6	2024/8/5
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2023/11/8	2024/11/7
Audix	Test Software	E3	201021 (V9)	N/A	N/A
PASTERNACK	Horn Antenna	PE9852/2F-20	112002	2021/2/5	2024/2/4
Quinstar	Preamplifier	QLW-18405536-JO	15964001005	2023/9/15	2024/9/14
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2023/8/6	2024/8/5
E-Microwave	Band Rejection Filter	5150-5850MHz	OE01902423	2023/8/6	2024/8/5
Mini Circuits	High Pass Filter	VHF-6010+	31119	2023/8/6	2024/8/5
PASTERNACK	Horn Antenna	PE9850/2F-20	072001	2021/2/5	2024/2/4

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

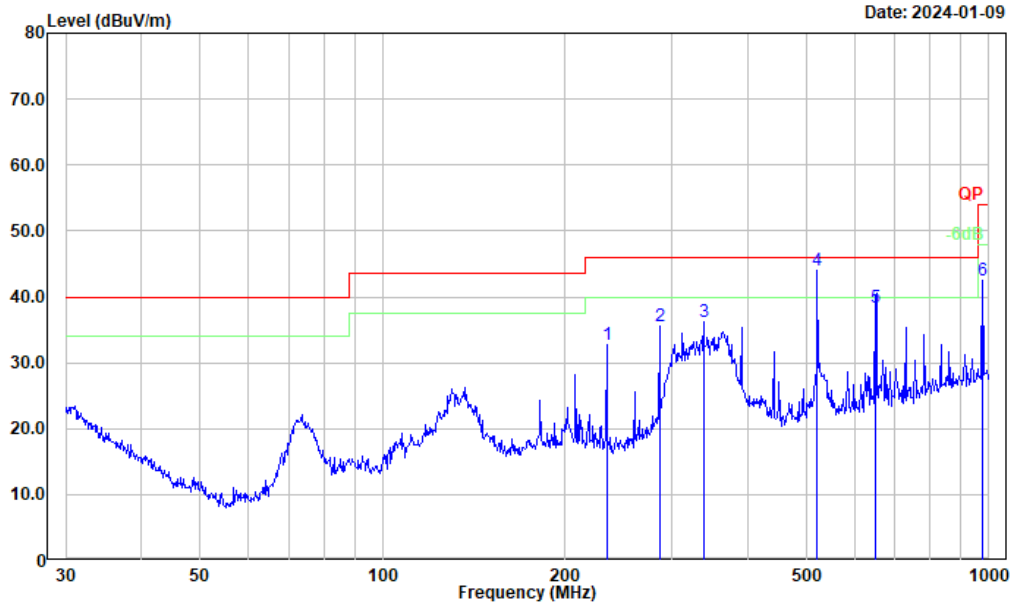
Please refer to the below table and plots.

1) 9kHz~30MHz

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

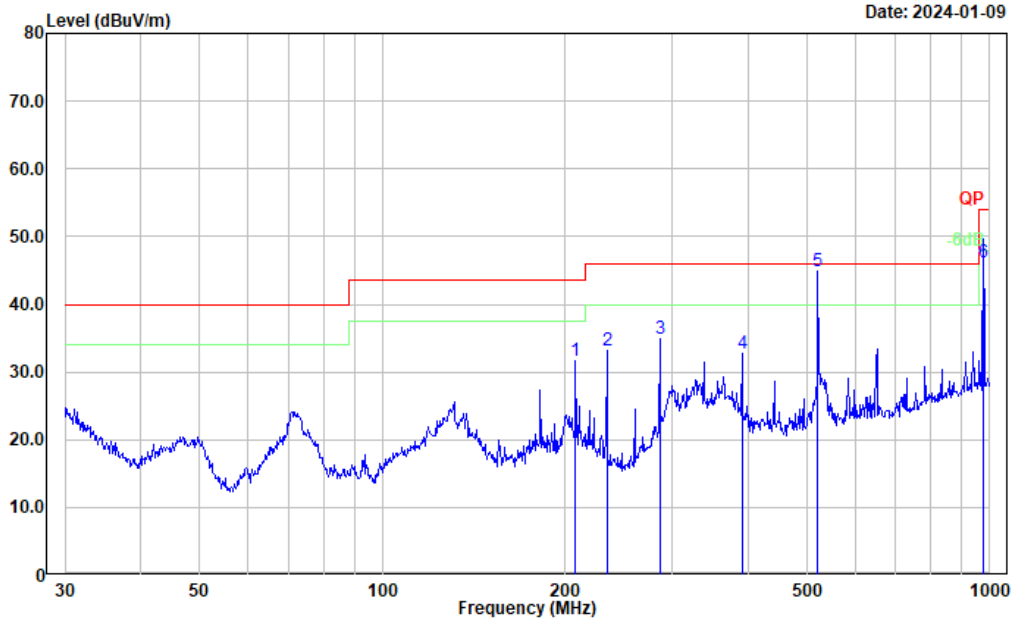
2) 30MHz-1GHz: maximum output power mode was tested
5150-5250MHz 802.11ac vht80 Middle channel:

Project No.: CR231061281-RF
Tester: Jeff Luo
Polarization: horizontal
Note: Transmitting(5G WIFI(Robot 5150-5250 MHz) 802.11ac vht80 Mode)



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	234.168	45.80	-13.05	32.75	46.00	13.25	Peak
2	285.978	46.21	-10.57	35.64	46.00	10.36	Peak
3	338.400	45.86	-9.71	36.15	46.00	9.85	Peak
4	519.972	49.58	-5.55	44.03	46.00	1.97	QP
5	649.936	42.02	-3.72	38.30	46.00	7.70	QP
6	975.753	41.09	1.38	42.47	54.00	11.53	Peak

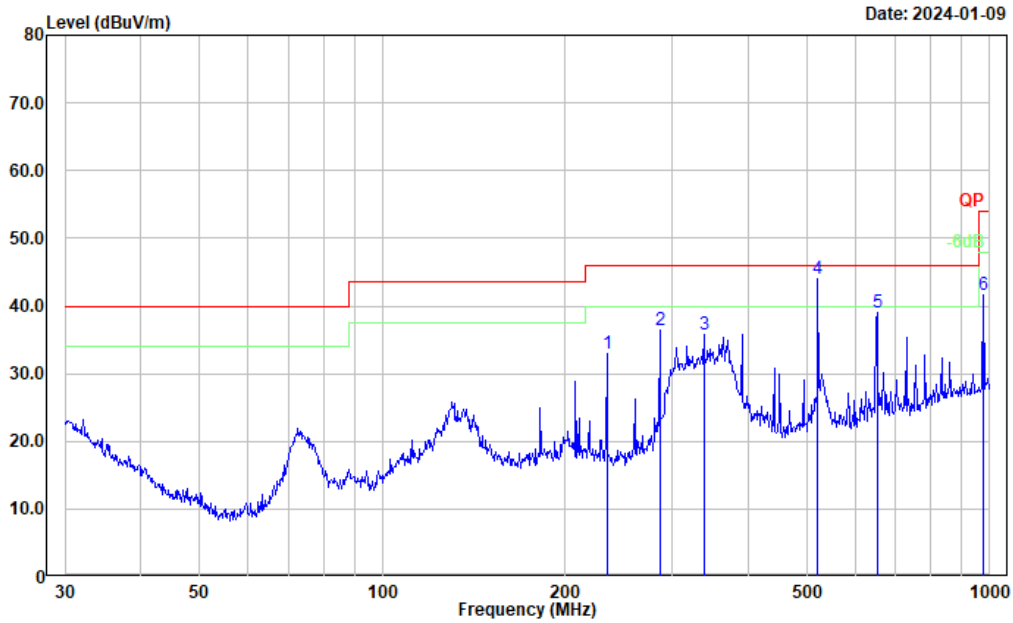
Project No.: CR231061281-RF
Tester: Jeff Luo
Polarization: vertical
Note: Transmitting(5G WIFI(Robot 5150-5250 MHz) 802.11ac vht80 Mode)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	207.850	45.36	-13.70	31.66	43.50	11.84	Peak
2	234.168	46.31	-13.05	33.26	46.00	12.74	Peak
3	285.978	45.49	-10.57	34.92	46.00	11.08	Peak
4	390.723	41.19	-8.43	32.76	46.00	13.24	Peak
5	519.993	50.51	-5.55	44.96	46.00	1.04	QP
6	974.973	44.71	1.39	46.10	54.00	7.90	QP

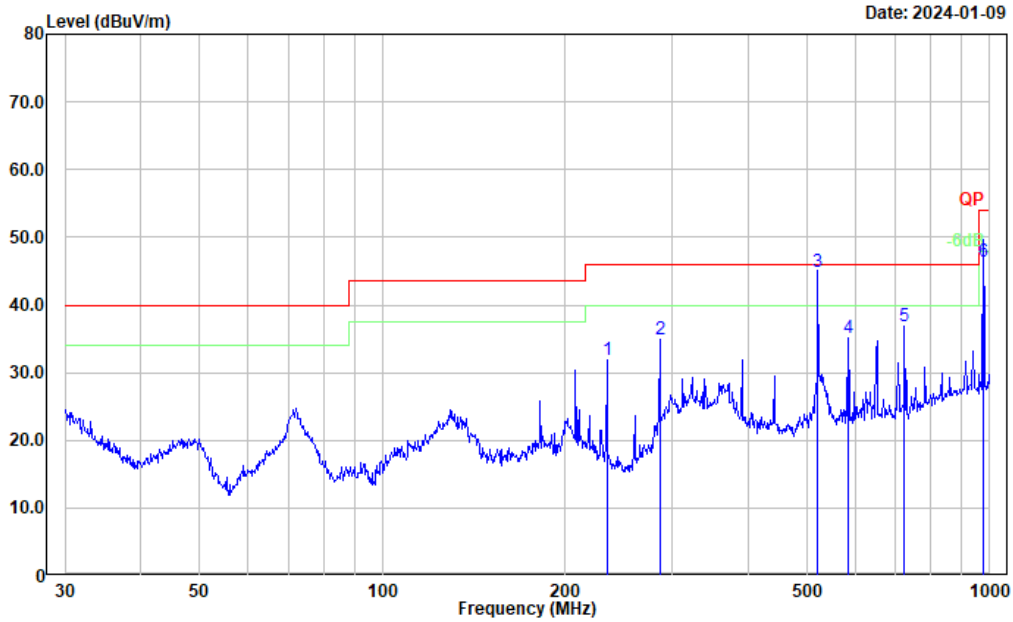
5725-5850MHz 802.11n ht20 Low channel:

Project No.: CR231061281-RF
Tester: Jeff Luo
Polarization: horizontal
Note: Transmitting(5G WIFI(Robot 5725-5850 MHz)802.11n ht20 Mode)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	234.168	45.91	-13.05	32.86	46.00	13.14	Peak
2	285.978	46.96	-10.57	36.39	46.00	9.61	Peak
3	338.400	45.51	-9.71	35.80	46.00	10.20	Peak
4	519.972	49.51	-5.55	43.96	46.00	2.04	QP
5	651.942	42.77	-3.66	39.11	46.00	6.89	Peak
6	975.753	40.34	1.38	41.72	54.00	12.28	Peak

Project No.: CR231061281-RF
Tester: Jeff Luo
Polarization: vertical
Note: Transmitting(5G WIFI(Robot 5725-5850 MHz) 802.11n ht20 Mode)



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	234.168	44.87	-13.05	31.82	46.00	14.18	Peak
2	285.978	45.48	-10.57	34.91	46.00	11.09	Peak
3	519.972	50.37	-5.55	44.82	46.00	1.18	QP
4	584.790	39.61	-4.50	35.11	46.00	10.89	Peak
5	724.261	39.59	-2.75	36.84	46.00	9.16	Peak
6	974.973	44.94	1.39	46.33	54.00	7.67	QP

3) 1GHz-40GHz:
5150-5250MHz
802.11a: Chain 0

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector					
Low Channel: 5180 MHz							
5150.000	58.02	PK	H	11.67	69.69	74.00	4.31
5150.000	40.67	AV	H	11.67	52.34	54.00	1.66
5150.000	56.98	PK	V	11.67	68.65	74.00	5.35
5150.000	41.11	AV	V	11.67	52.78	54.00	1.22
10360.000	36.10	PK	H	20.47	56.57	68.20	11.63
10360.000	35.90	PK	V	20.47	56.37	68.20	11.83
15540.000	34.94	PK	H	24.62	59.56	74.00	14.44
15540.000	22.56	AV	H	24.62	47.18	54.00	6.82
15540.000	35.18	PK	V	24.62	59.80	74.00	14.20
15540.000	23.35	AV	V	24.62	47.97	54.00	6.03
Middle Channel: 5200 MHz							
10400.000	34.45	PK	H	20.54	54.99	68.20	13.21
10400.000	35.22	PK	V	20.54	55.76	68.20	12.44
15600.000	36.41	PK	H	24.71	61.12	74.00	12.88
15600.000	24.58	AV	H	24.71	49.29	54.00	4.71
15600.000	36.52	PK	V	24.71	61.23	74.00	12.77
15600.000	24.33	AV	V	24.71	49.04	54.00	4.96
High Channel: 5240 MHz							
5350.000	44.12	PK	H	11.94	56.06	74.00	17.94
5350.000	30.24	AV	H	11.94	42.18	54.00	11.82
5350.000	44.91	PK	V	11.94	56.85	74.00	17.15
5350.000	30.92	AV	V	11.94	42.86	54.00	11.14
10480.000	42.97	PK	H	20.42	63.39	68.20	4.81
10480.000	45.74	PK	V	20.42	66.16	68.20	2.04
15720.000	39.14	PK	H	24.82	63.96	74.00	10.04
15720.000	27.44	AV	H	24.82	52.26	54.00	**1.74**
15720.000	38.23	PK	V	24.82	63.05	74.00	10.95
15720.000	26.33	AV	V	24.82	51.15	54.00	2.85

Chain 1

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5180 MHz							
5150.000	51.44	PK	H	11.67	63.11	74.00	10.89
5150.000	34.28	AV	H	11.67	45.95	54.00	8.05
5150.000	52.67	PK	V	11.67	64.34	74.00	9.66
5150.000	35.94	AV	V	11.67	47.61	54.00	6.39
10360.000	35.11	PK	H	20.47	55.58	68.20	12.62
10360.000	34.26	PK	V	20.47	54.73	68.20	13.47
15540.000	35.84	PK	H	24.62	60.46	74.00	13.54
15540.000	23.35	AV	H	24.62	47.97	54.00	6.03
15540.000	35.66	PK	V	24.62	60.28	74.00	13.72
15540.000	23.07	AV	V	24.62	47.69	54.00	6.31
Middle Channel: 5200 MHz							
10400.000	34.48	PK	H	14.52	49.00	68.20	19.20
10400.000	34.69	PK	V	20.54	55.23	68.20	12.97
15600.000	37.41	PK	H	24.71	62.12	74.00	11.88
15600.000	25.29	AV	H	24.71	50.00	54.00	4.00
15600.000	37.59	PK	V	24.71	62.30	74.00	11.70
15600.000	25.44	AV	V	24.71	50.15	54.00	3.85
High Channel: 5240 MHz							
5350.000	44.32	PK	H	11.94	56.26	74.00	17.74
5350.000	30.58	AV	H	11.94	42.52	54.00	11.48
5350.000	44.21	PK	V	11.94	56.15	74.00	17.85
5350.000	30.17	AV	V	11.94	42.11	54.00	11.89
10480.000	35.41	PK	H	20.42	55.83	68.20	12.37
10480.000	34.11	PK	V	20.42	54.53	68.20	13.67
15720.000	38.89	PK	H	24.82	63.71	74.00	10.29
15720.000	26.67	AV	H	24.82	51.49	54.00	2.51
15720.000	38.41	PK	V	24.82	63.23	74.00	10.77
15720.000	26.33	AV	V	24.82	51.15	54.00	2.85

802.11n ht20(MIMO):

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5180MHz							
5150.000	47.33	PK	H	11.67	59.00	74.00	15.00
5150.000	32.01	AV	H	11.67	43.68	54.00	10.32
5150.000	49.75	PK	V	11.67	61.42	74.00	12.58
5150.000	33.71	AV	V	11.67	45.38	54.00	8.62
10360.000	35.44	PK	H	20.47	55.91	68.20	12.29
10360.000	35.10	PK	V	20.47	55.57	68.20	12.63
15540.000	35.46	PK	H	24.62	60.08	74.00	13.92
15540.000	23.69	AV	H	24.62	48.31	54.00	5.69
15540.000	35.44	PK	V	24.62	60.06	74.00	13.94
15540.000	23.01	AV	V	24.62	47.63	54.00	6.37
Middle Channel: 5200 MHz							
10400.000	34.85	PK	H	20.54	55.39	68.20	12.81
10400.000	35.02	PK	V	20.54	55.56	68.20	12.64
15600.000	36.55	PK	H	24.71	61.26	74.00	12.74
15600.000	24.37	AV	H	24.71	49.08	54.00	4.92
15600.000	36.49	PK	V	24.71	61.20	74.00	12.80
15600.000	24.41	AV	V	24.71	49.12	54.00	4.88
High Channel: 5240 MHz							
5350.000	44.24	PK	H	11.94	56.18	74.00	17.82
5350.000	31.02	AV	H	11.94	42.96	54.00	11.04
5350.000	44.45	PK	V	11.94	56.39	74.00	17.61
5350.000	30.25	AV	V	11.94	42.19	54.00	11.81
10480.000	40.16	PK	H	20.42	60.58	68.20	7.62
10480.000	39.65	PK	V	20.42	60.07	68.20	8.13
15720.000	38.75	PK	H	24.82	63.57	74.00	10.43
15720.000	26.11	AV	H	24.82	50.93	54.00	3.07
15720.000	37.70	PK	V	24.82	62.52	74.00	11.48
15720.000	25.34	AV	V	24.82	50.16	54.00	3.84

802.11n ht40(MIMO):

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5190 MHz							
5150.000	48.56	PK	H	11.67	60.23	74.00	13.77
5150.000	34.11	AV	H	11.67	45.78	54.00	8.22
5150.000	52.72	PK	V	11.67	64.39	74.00	9.61
5150.000	38.83	AV	V	11.67	50.50	54.00	3.50
10380.000	34.56	PK	H	20.51	55.07	68.20	13.13
10380.000	34.79	PK	V	20.51	55.30	68.20	12.90
15570.000	35.74	PK	H	24.67	60.41	74.00	13.59
15570.000	23.44	AV	H	24.67	48.11	54.00	5.89
15570.000	35.82	PK	V	24.67	60.49	74.00	13.51
15570.000	23.36	AV	V	24.67	48.03	54.00	5.97
High Channel: 5230 MHz							
5350.000	44.78	PK	H	11.94	56.72	74.00	17.28
5350.000	31.54	AV	H	11.94	43.48	54.00	10.52
5350.000	44.26	PK	V	11.94	56.20	74.00	17.80
5350.000	31.16	AV	V	11.94	43.10	54.00	10.90
10460.000	35.12	PK	H	20.45	55.57	68.20	12.63
10460.000	34.41	PK	V	20.45	54.86	68.20	13.34
15690.000	37.24	PK	H	24.77	62.01	74.00	11.99
15690.000	25.63	AV	H	24.77	50.40	54.00	3.60
15690.000	38.45	PK	V	24.77	63.22	74.00	10.78
15690.000	26.44	AV	V	24.77	51.21	54.00	2.79

802.11 ac vht80(MIMO):

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Middle Channel: 5210 MHz							
5150.000	49.24	PK	H	11.67	60.91	74.00	13.09
5150.000	32.78	AV	H	11.67	44.45	54.00	9.55
5150.000	53.64	PK	V	11.67	65.31	74.00	8.69
5150.000	36.66	AV	V	11.67	48.33	54.00	5.67
5350.000	44.55	PK	H	11.94	56.49	74.00	17.51
5350.000	30.85	AV	H	11.94	42.79	54.00	11.21
5350.000	44.68	PK	V	11.94	56.62	74.00	17.38
5350.000	31.17	AV	V	11.94	43.11	54.00	10.89
10420.000	34.10	PK	H	20.51	54.61	68.20	13.59
10420.000	33.61	PK	V	20.51	54.12	68.20	14.08
15630.000	37.33	PK	H	24.73	62.06	74.00	11.94
15630.000	25.46	AV	H	24.73	50.19	54.00	3.81
15630.000	37.27	PK	V	24.73	62.00	74.00	12.00
15630.000	25.41	AV	V	24.73	50.14	54.00	3.86

5725-5850MHz:
802.11a: Chain 0

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5745MHz							
11490.000	41.30	PK	H	21.49	62.79	74.00	11.21
11490.000	29.35	AV	H	21.49	50.84	54.00	3.16
11490.000	42.33	PK	V	21.49	63.82	74.00	10.18
11490.000	30.28	AV	V	21.49	51.77	54.00	2.23
17235.000	34.45	PK	H	28.71	63.16	68.20	5.04
17235.000	34.33	PK	V	28.71	63.04	68.20	5.16
Middle Channel: 5785 MHz							
11570.000	39.27	PK	H	21.71	60.98	74.00	13.02
11570.000	27.42	AV	H	21.71	49.13	54.00	4.87
11570.000	39.88	PK	V	21.71	61.59	74.00	12.41
11570.000	27.45	AV	V	21.71	49.16	54.00	4.84
17355.000	35.14	PK	H	29.35	64.49	68.20	3.71
17355.000	34.56	PK	V	29.35	63.91	68.20	4.29
High Channel: 5825 MHz							
11650.000	36.44	PK	H	22.04	58.48	74.00	15.52
11650.000	24.58	AV	H	22.04	46.62	54.00	7.38
11650.000	35.98	PK	V	22.04	58.02	74.00	15.98
11650.000	23.45	AV	V	22.04	45.49	54.00	8.51
17475.000	34.23	PK	H	29.89	64.12	68.20	4.08
17475.000	34.96	PK	V	29.89	64.85	68.20	3.35

Chain 1

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5745MHz							
11490.000	38.11	PK	H	21.49	59.60	74.00	14.40
11490.000	26.14	AV	H	21.49	47.63	54.00	6.37
11490.000	38.95	PK	V	21.49	60.44	74.00	13.56
11490.000	26.37	AV	V	21.49	47.86	54.00	6.14
17235.000	34.20	PK	H	28.71	62.91	68.20	5.29
17235.000	34.85	PK	V	28.71	63.56	68.20	4.64
Middle Channel: 5785 MHz							
11570.000	37.43	PK	H	21.71	59.14	74.00	14.86
11570.000	25.25	AV	H	21.71	46.96	54.00	7.04
11570.000	37.97	PK	V	21.71	59.68	74.00	14.32
11570.000	25.12	AV	V	21.71	46.83	54.00	7.17
17355.000	33.56	PK	H	29.35	62.91	68.20	5.29
17355.000	33.47	PK	V	29.35	62.82	68.20	5.38
High Channel: 5825 MHz							
11650.000	37.89	PK	H	22.04	59.93	74.00	14.07
11650.000	25.88	AV	H	22.04	47.92	54.00	6.08
11650.000	40.89	PK	V	22.04	62.93	74.00	11.07
11650.000	28.44	AV	V	22.04	50.48	54.00	3.52
17475.000	35.13	PK	H	29.89	65.02	68.20	3.18
17475.000	34.29	PK	V	29.89	64.18	68.20	4.02

802.11n ht20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5745MHz							
11490.000	40.79	PK	H	21.49	62.28	74.00	11.72
11490.000	28.37	AV	H	21.49	49.86	54.00	4.14
11490.000	41.83	PK	V	21.49	63.32	74.00	10.68
11490.000	29.45	AV	V	21.49	50.94	54.00	3.06
17235.000	34.27	PK	H	28.71	62.98	68.20	5.22
17235.000	35.11	PK	V	28.71	63.82	68.20	4.38
Middle Channel: 5785 MHz							
11570.000	38.78	PK	H	21.71	60.49	74.00	13.51
11570.000	26.33	AV	H	21.71	48.04	54.00	5.96
11570.000	39.37	PK	V	21.71	61.08	74.00	12.92
11570.000	27.41	AV	V	21.71	49.12	54.00	4.88
17355.000	33.97	PK	H	29.35	63.32	68.20	4.88
17355.000	34.21	PK	V	29.35	63.56	68.20	4.64
High Channel: 5825 MHz							
11650.000	39.05	PK	H	22.04	61.09	74.00	12.91
11650.000	27.36	AV	H	22.04	49.40	54.00	4.60
11650.000	39.06	PK	V	22.04	61.10	74.00	12.90
11650.000	27.45	AV	V	22.04	49.49	54.00	4.51
17475.000	34.44	PK	H	29.89	64.33	68.20	3.87
17475.000	35.11	PK	V	29.89	65.00	68.20	3.20

802.11n ht40:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5755 MHz							
11510.000	39.46	PK	H	21.48	60.94	74.00	13.06
11510.000	27.55	AV	H	21.48	49.03	54.00	4.97
11510.000	39.04	PK	V	21.48	60.52	74.00	13.48
11510.000	27.39	AV	V	21.48	48.87	54.00	5.13
17265.000	34.11	PK	H	28.79	62.90	68.20	5.30
17265.000	33.52	PK	V	28.79	62.31	68.20	5.89
High Channel: 5795 MHz							
11590.000	38.30	PK	H	21.78	60.08	74.00	13.92
11590.000	26.38	AV	H	21.78	48.16	54.00	5.84
11590.000	38.61	PK	V	21.78	60.39	74.00	13.61
11590.000	26.69	AV	V	21.78	48.47	54.00	5.53
17385.000	33.66	PK	H	29.59	63.25	68.20	4.95
17385.000	33.74	PK	V	29.59	63.33	68.20	4.87

802.11 ac vht80:

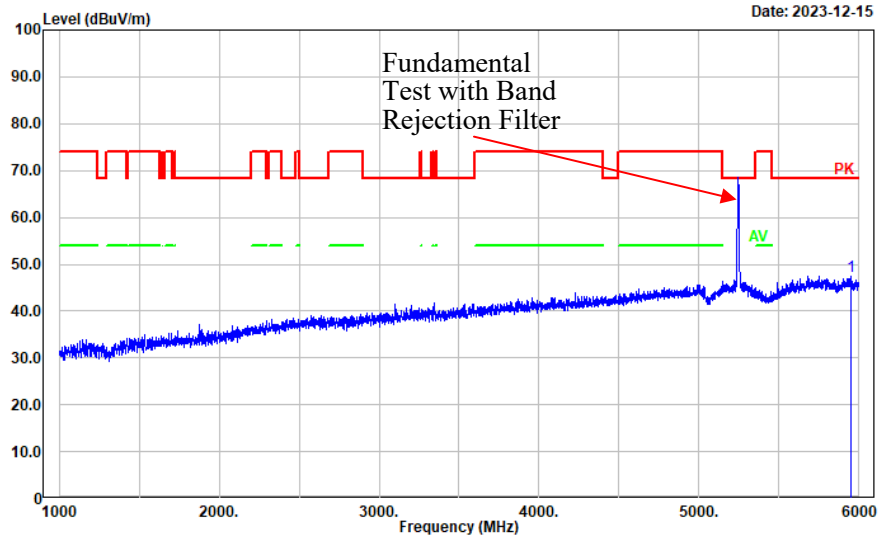
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Middle Channel: 5775 MHz							
11550.000	36.12	PK	H	21.63	57.75	74.00	16.25
11550.000	24.11	AV	H	21.63	45.74	54.00	8.26
11550.000	36.25	PK	V	21.63	57.88	74.00	16.12
11550.000	24.37	AV	V	21.63	46.00	54.00	8.00
17325.000	35.11	PK	H	29.11	64.22	68.20	3.98
17325.000	35.86	PK	V	29.11	64.97	68.20	3.23

Worst Test plots(802.11a Chain 0 5240MHz)

Horizontal

1-6GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: horizontal
Note: 802.11a Mode Chain 0 High Channel

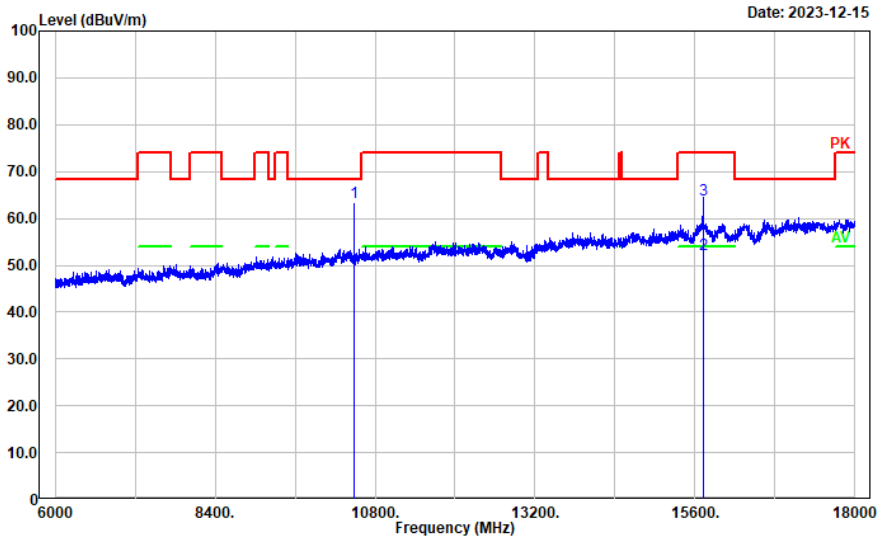


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5948.990	34.43	13.03	47.46	68.20	20.74	Peak

Horizontal

6-18GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: horizontal
Note: 802.11a Mode Chain 0 High Channel

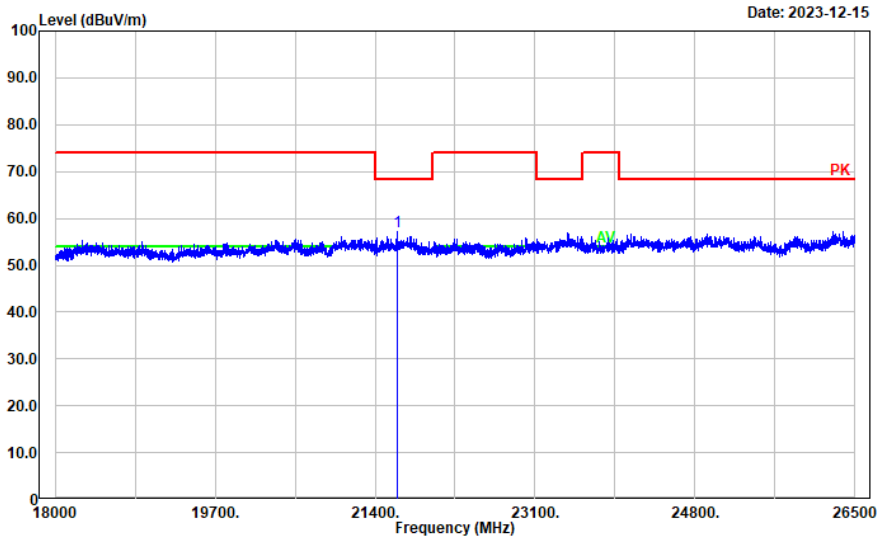


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	10480.000	42.97	20.42	63.39	68.20	4.81	Peak
2	15720.000	27.44	24.82	52.26	54.00	1.74	Average
3	15720.000	39.14	24.82	63.96	74.00	10.04	Peak

Horizontal

18-26.5GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11a Mode Chain 0 High Channel

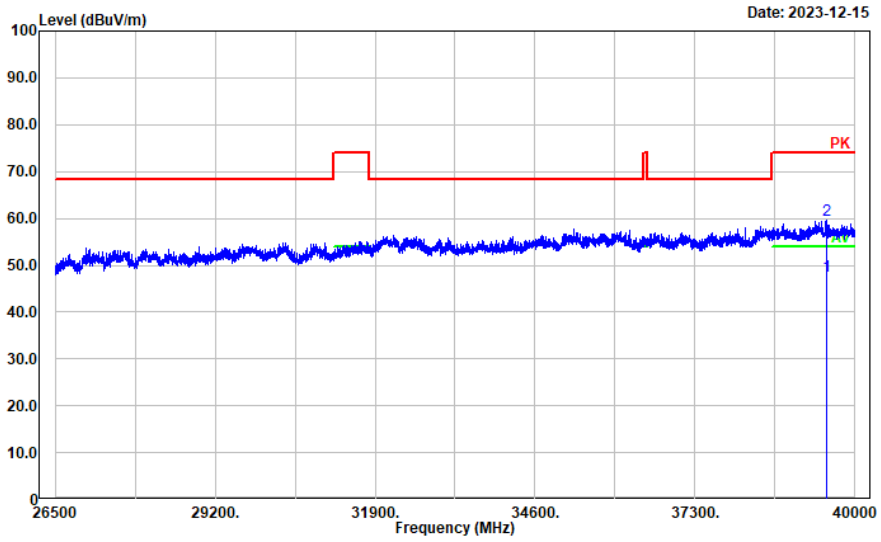


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	21631.930	52.31	4.74	57.05	68.20	11.15	Peak

Horizontal

26.5-40GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11a Mode Chain 0 High Channel

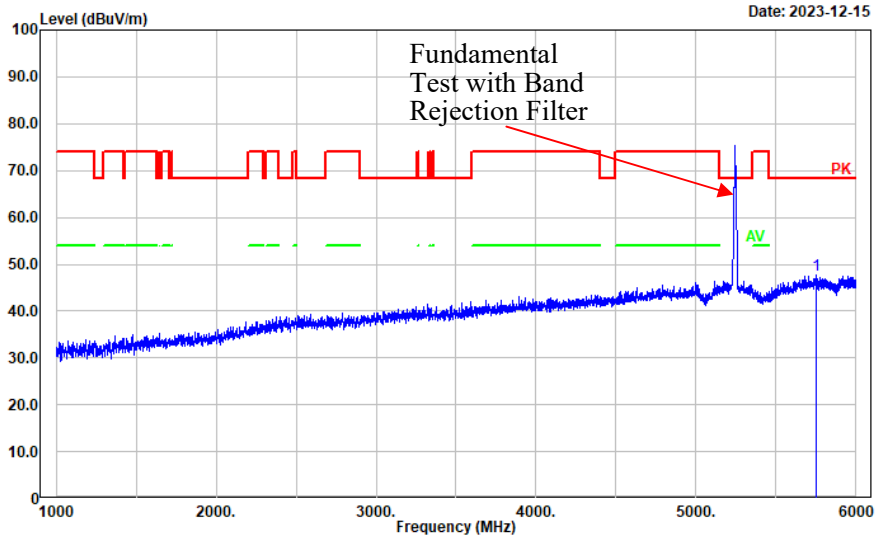


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	39511.200	37.56	10.12	47.68	54.00	6.32	Average
2	39511.200	49.52	10.12	59.64	74.00	14.36	Peak

Vertical

1-6GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11a Mode Chain 0 High Channel

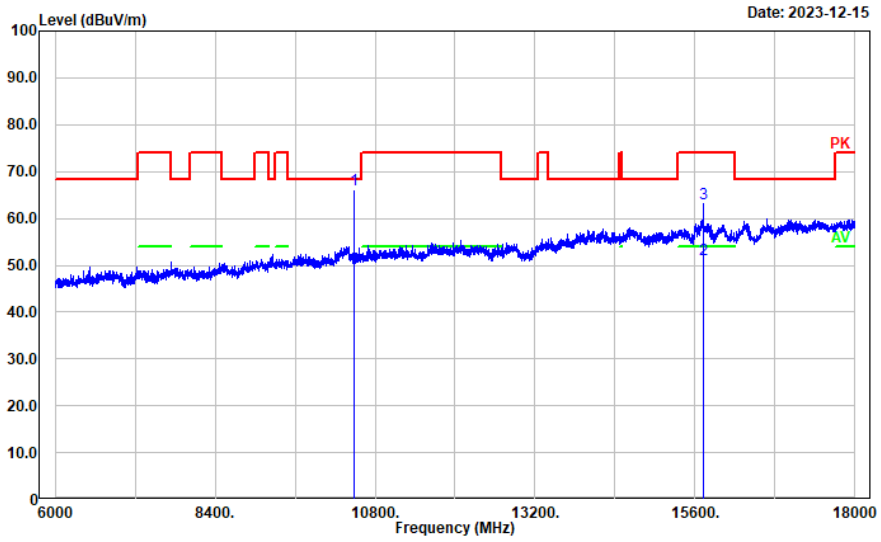


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5747.950	35.07	12.59	47.66	68.20	20.54	Peak

Vertical

6-18GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11a Mode Chain 0 High Channel

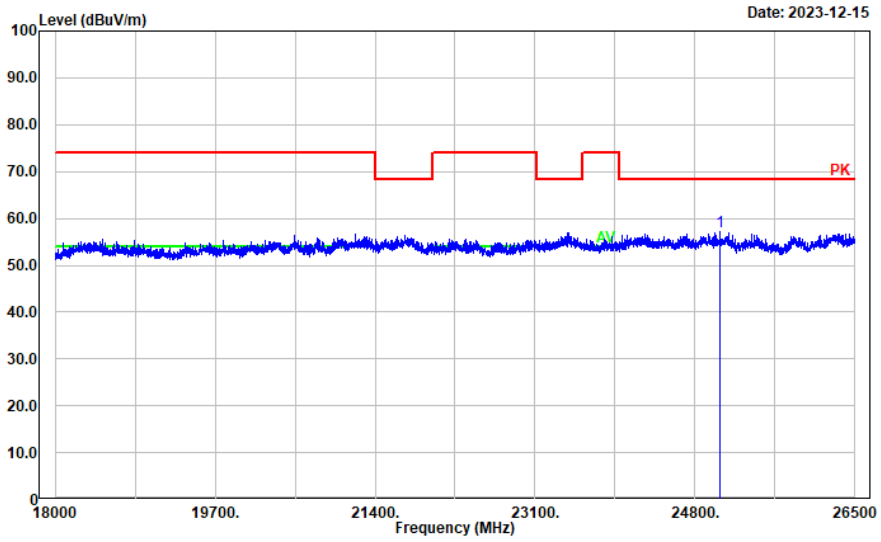


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	10480.000	45.74	20.42	66.16	68.20	2.04	Peak
2	15720.000	26.33	24.82	51.15	54.00	2.85	Average
3	15720.000	38.23	24.82	63.05	74.00	10.95	Peak

Vertical

18-26.5GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11a Mode Chain 0 High Channel

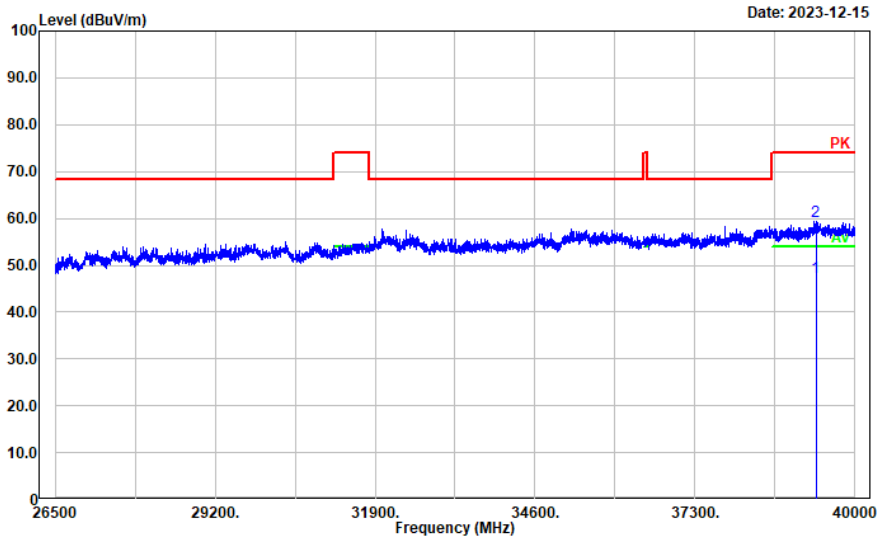


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	25061.510	50.32	6.83	57.15	68.20	11.05	Peak

Vertical

26.5-40GHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11a Mode Chain 0 High Channel



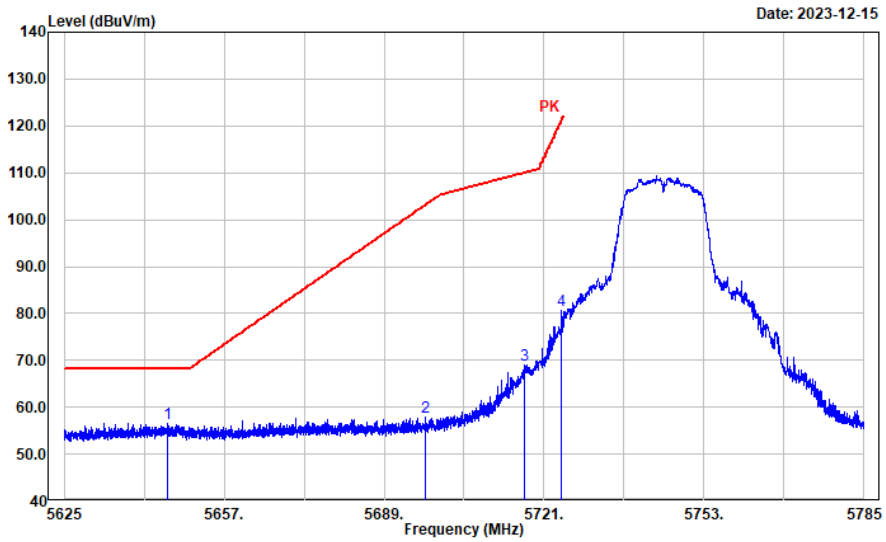
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	39338.370	37.36	10.18	47.54	54.00	6.46	Average
2	39338.370	49.08	10.18	59.26	74.00	14.74	Peak

Worst Band edge Test plots

802.11 a- Chain 0

Horizontal	
5745MHz	

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11a Mode Chain 0 Low Channel

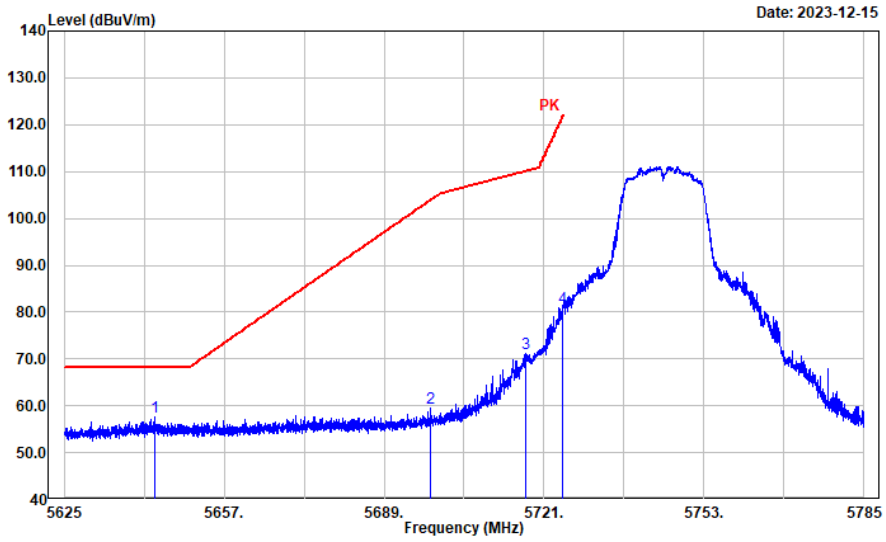


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5645.644	44.26	12.29	56.55	68.20	11.65	Peak
2	5697.334	45.31	12.54	57.85	103.24	45.39	Peak
3	5717.050	56.43	12.57	69.00	109.98	40.98	Peak
4	5724.348	68.19	12.57	80.76	120.71	39.95	Peak

Vertical

5745MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: vertical
Note: 802.11a Mode Chain 0 Low Channel

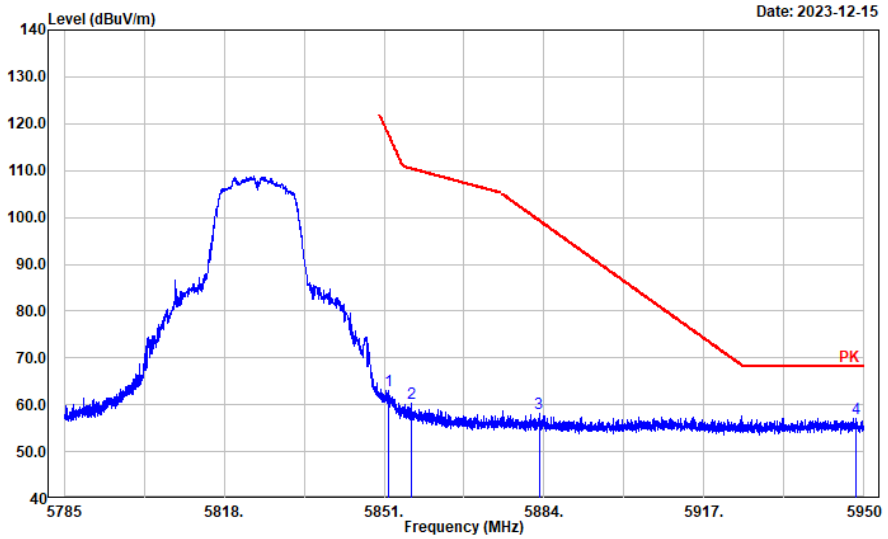


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5643.116	45.25	12.29	57.54	68.20	10.66	Peak
2	5698.230	46.89	12.54	59.43	103.90	44.47	Peak
3	5717.402	58.59	12.57	71.16	110.07	38.91	Peak
4	5724.668	68.40	12.57	80.97	121.44	40.47	Peak

Horizontal

5825MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11a Mode Chain 0 High Channel

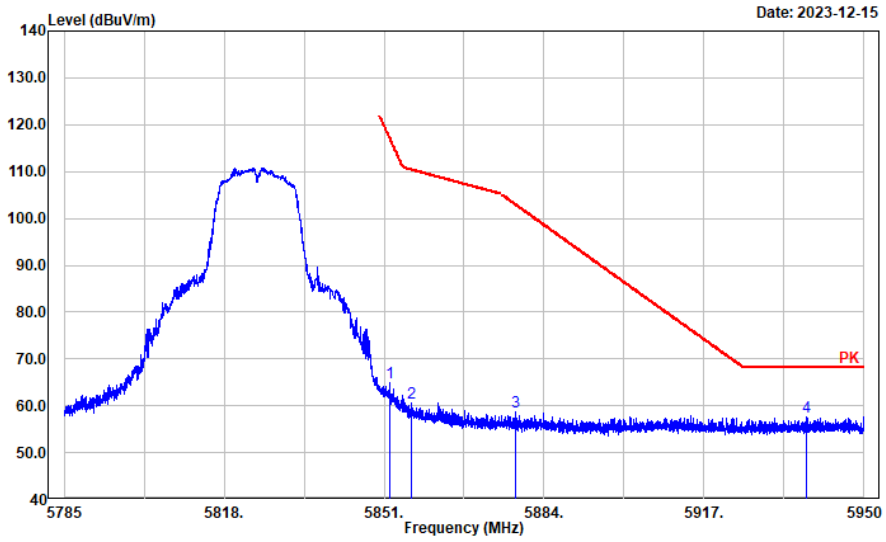


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5851.805	50.24	12.78	63.02	118.08	55.06	Peak
2	5856.690	47.44	12.81	60.25	110.33	50.08	Peak
3	5882.963	45.33	12.93	58.26	99.29	41.03	Peak
4	5948.449	44.06	13.03	57.09	68.20	11.11	Peak

Vertical

5825MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11a Mode Chain 0 High Channel



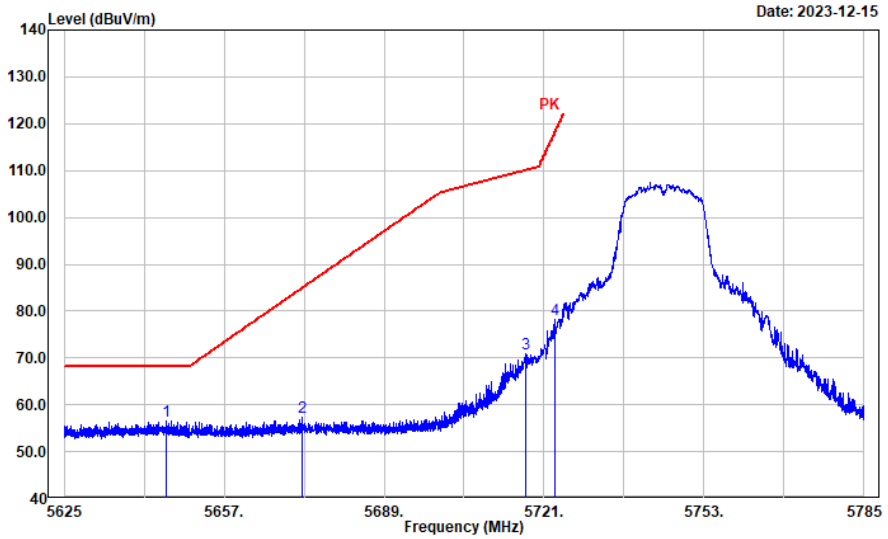
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5852.103	52.27	12.78	65.05	117.41	52.36	Peak
2	5856.558	47.82	12.81	60.63	110.36	49.73	Peak
3	5878.210	45.70	12.91	58.61	102.81	44.20	Peak
4	5937.986	44.51	13.03	57.54	68.20	10.66	Peak

802.11 a- Chain 1

Horizontal

5745MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11a Mode Chain 1 Low Channel

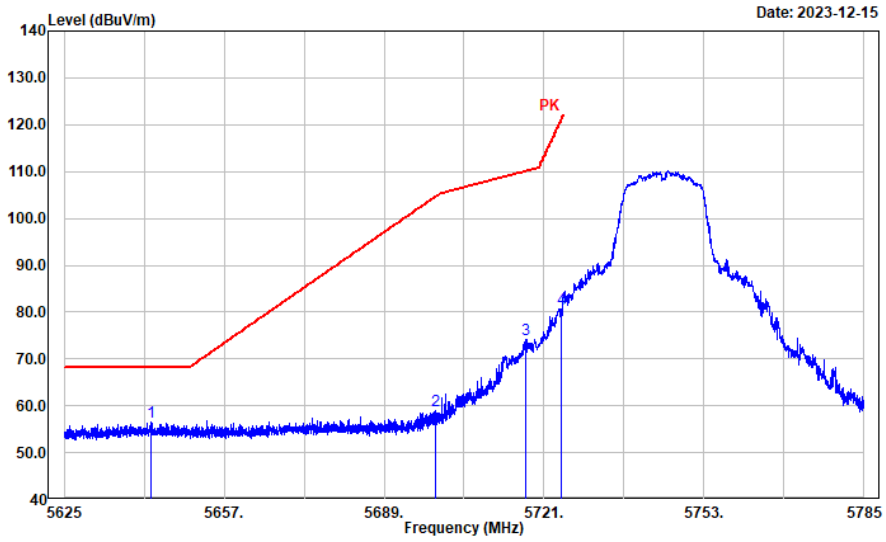


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5645.324	44.21	12.29	56.50	68.20	11.70	Peak
2	5672.722	45.00	12.43	57.43	85.05	27.62	Peak
3	5717.307	58.30	12.57	70.87	110.05	39.18	Peak
4	5723.196	65.68	12.57	78.25	118.09	39.84	Peak

Vertical

5745MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11a Mode Chain 1 Low Channel

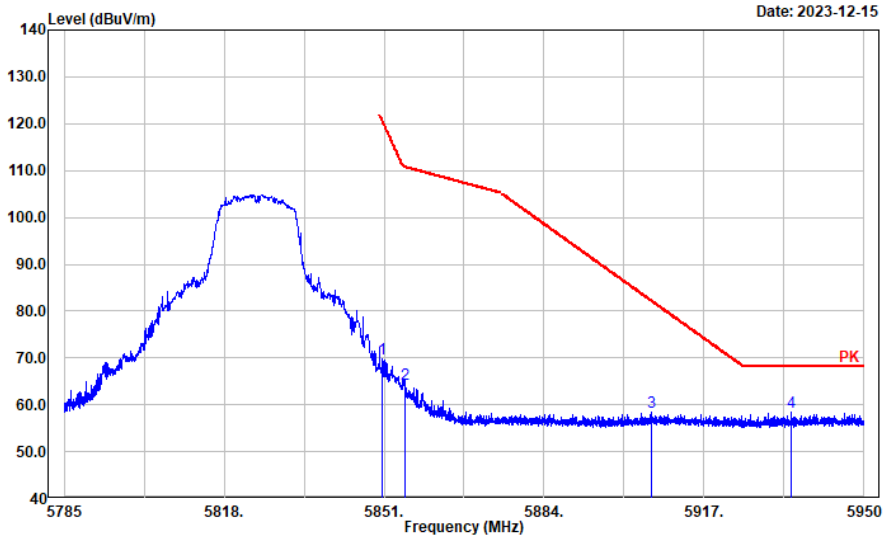


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5642.315	44.18	12.28	56.46	68.20	11.74	Peak
2	5699.255	46.50	12.55	59.05	104.65	45.60	Peak
3	5717.338	61.65	12.57	74.22	110.06	35.84	Peak
4	5724.348	68.16	12.57	80.73	120.71	39.98	Peak

Horizontal

5825MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11a Mode Chain 1 High Channel

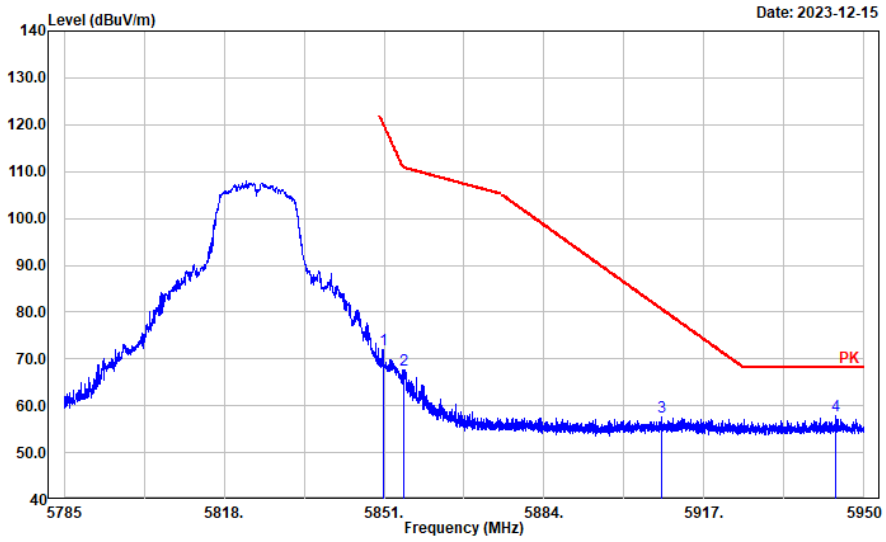


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5850.518	57.06	12.77	69.83	121.02	51.19	Peak
2	5855.403	51.49	12.80	64.29	110.69	46.40	Peak
3	5906.200	45.31	13.02	58.33	82.08	23.75	Peak
4	5935.081	45.37	13.04	58.41	68.20	9.79	Peak

Vertical

5825MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11a Mode Chain 1 High Channel



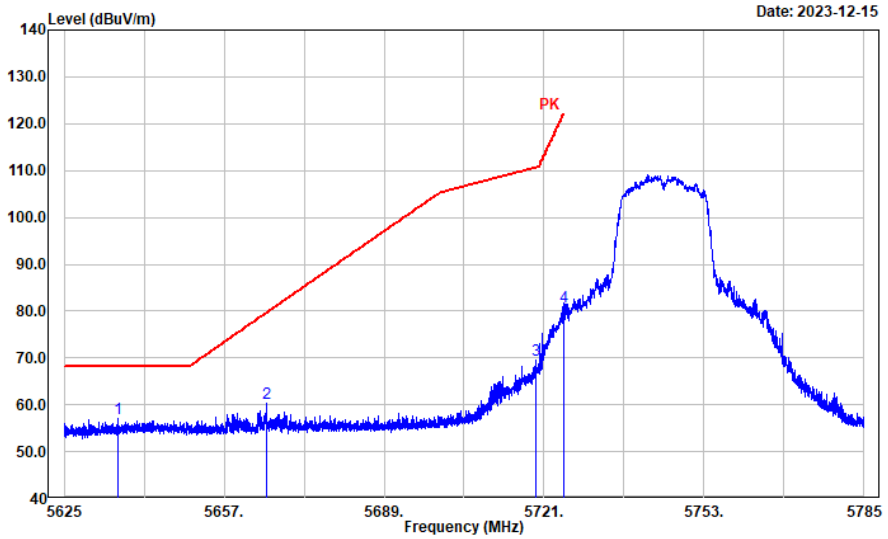
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5850.815	59.11	12.77	71.88	120.34	48.46	Peak
2	5855.139	54.85	12.80	67.65	110.76	43.11	Peak
3	5908.147	44.56	13.02	57.58	80.64	23.06	Peak
4	5944.191	44.86	13.03	57.89	68.20	10.31	Peak

802.11n20

Horizontal

5745MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11n ht20 Mode Low Channel

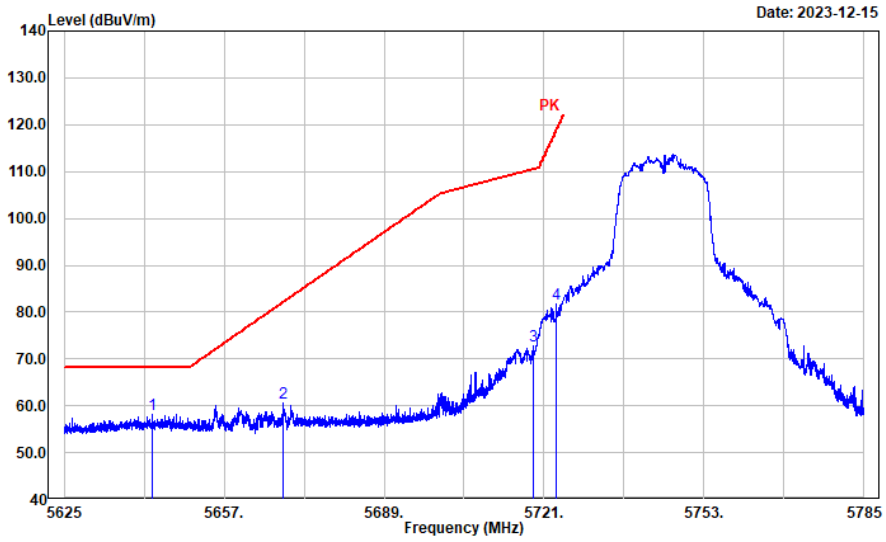


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5635.850	44.83	12.24	57.07	68.20	11.13	Peak
2	5665.424	48.03	12.39	60.42	79.65	19.23	Peak
3	5719.387	56.95	12.57	69.52	110.63	41.11	Peak
4	5724.828	68.44	12.57	81.01	121.81	40.80	Peak

Vertical

5745MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11n ht20 Mode Low Channel

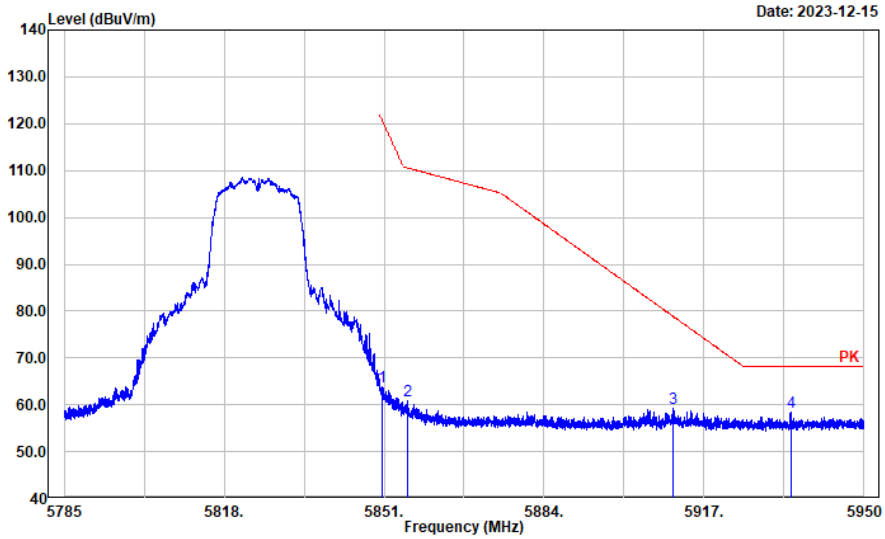


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5642.540	45.77	12.28	58.05	68.20	10.15	Peak
2	5668.913	48.26	12.41	60.67	82.23	21.56	Peak
3	5718.811	60.16	12.57	72.73	110.47	37.74	Peak
4	5723.516	69.12	12.57	81.69	118.82	37.13	Peak

Horizontal

5825MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11n ht20 Mode High Channel

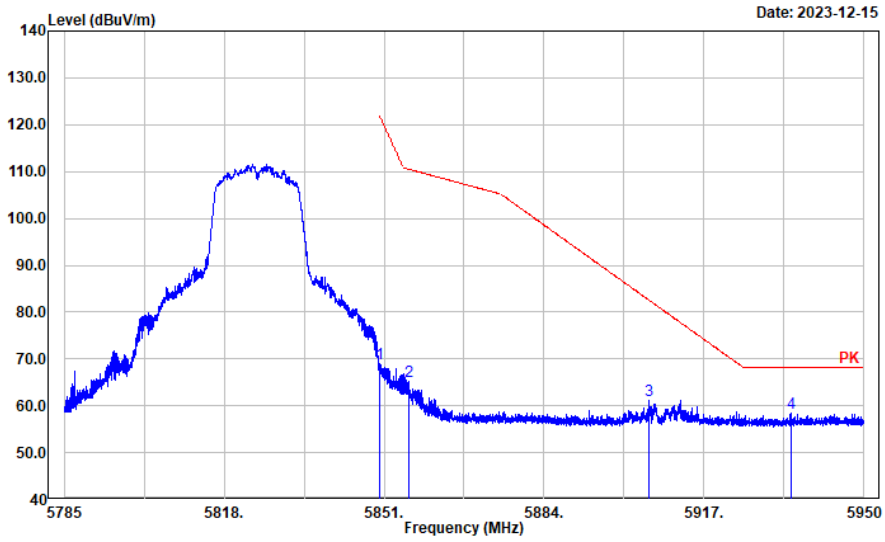


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5850.617	51.10	12.77	63.87	120.79	56.92	Peak
2	5855.733	47.98	12.80	60.78	110.59	49.81	Peak
3	5910.722	46.27	13.03	59.30	78.73	19.43	Peak
4	5934.883	45.46	13.04	58.50	68.20	9.70	Peak

Vertical

5825MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11n ht20 Mode High Channel



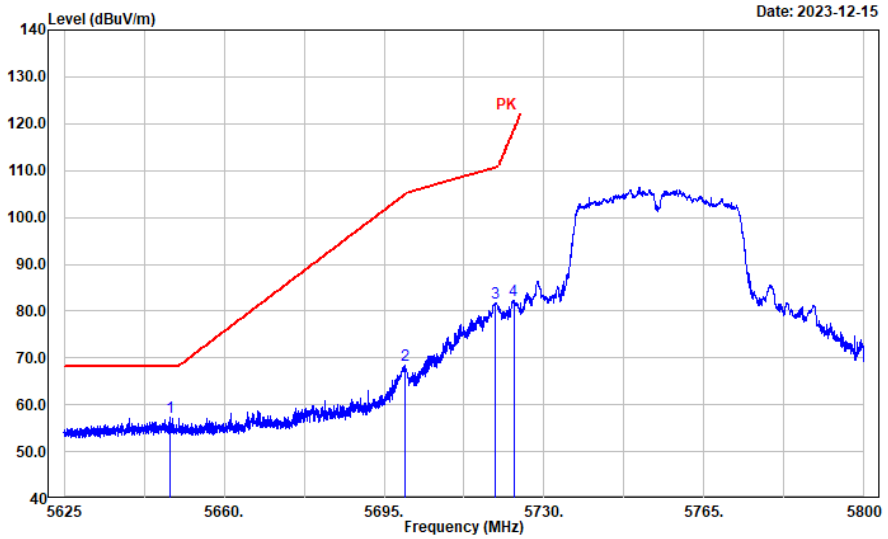
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5850.188	56.26	12.77	69.03	121.77	52.74	Peak
2	5855.997	52.37	12.80	65.17	110.52	45.35	Peak
3	5905.738	48.25	13.02	61.27	82.42	21.15	Peak
4	5934.883	45.46	13.04	58.50	68.20	9.70	Peak

802.11n40

Horizontal

5755MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11n ht40 Mode Low Channel

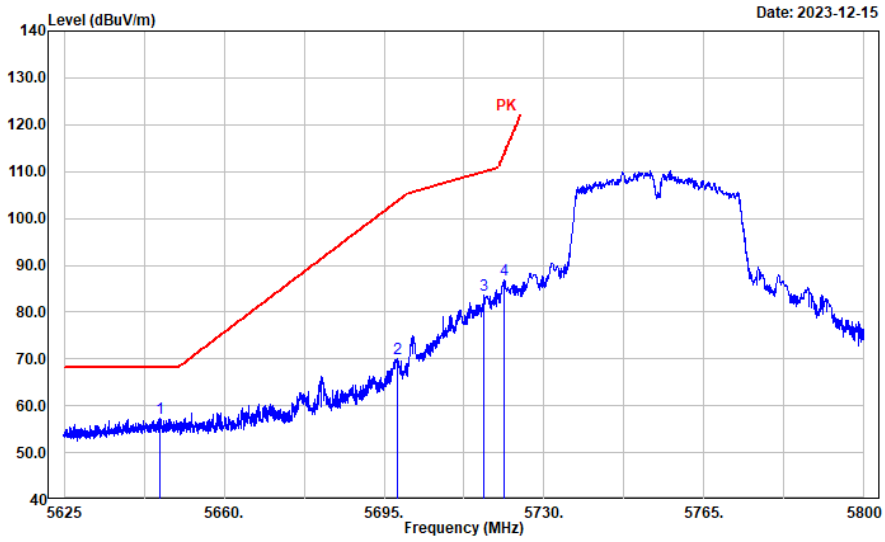


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5648.169	45.16	12.32	57.48	68.20	10.72	Peak
2	5699.460	55.96	12.55	68.51	104.80	36.29	Peak
3	5719.184	69.06	12.57	81.63	110.57	28.94	Peak
4	5723.345	69.66	12.57	82.23	118.43	36.20	Peak

Vertical

5755MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11n ht40 Mode Low Channel

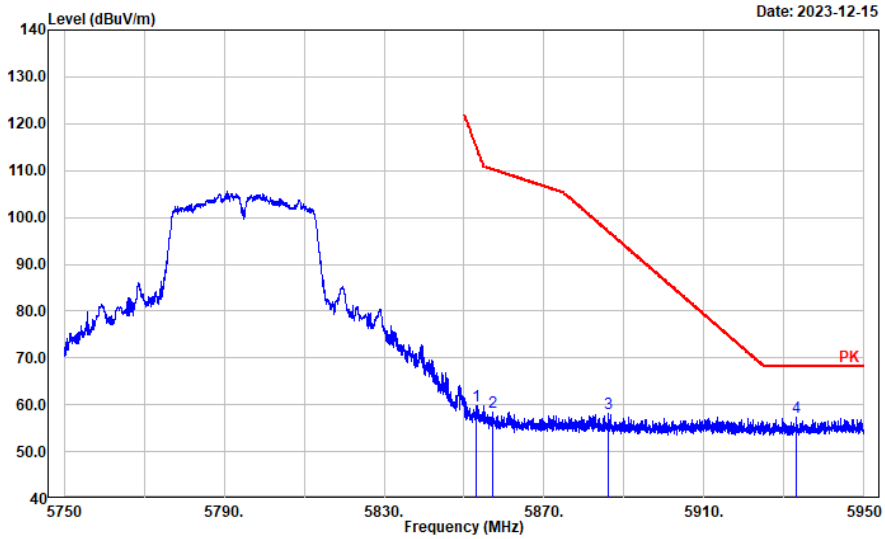


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5645.889	44.96	12.30	57.26	68.20	10.94	Peak
2	5697.819	57.48	12.54	70.02	103.59	33.57	Peak
3	5716.903	71.02	12.57	83.59	109.93	26.34	Peak
4	5721.224	74.24	12.57	86.81	113.59	26.78	Peak

Horizontal

5795MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11n ht40 Mode High Channel

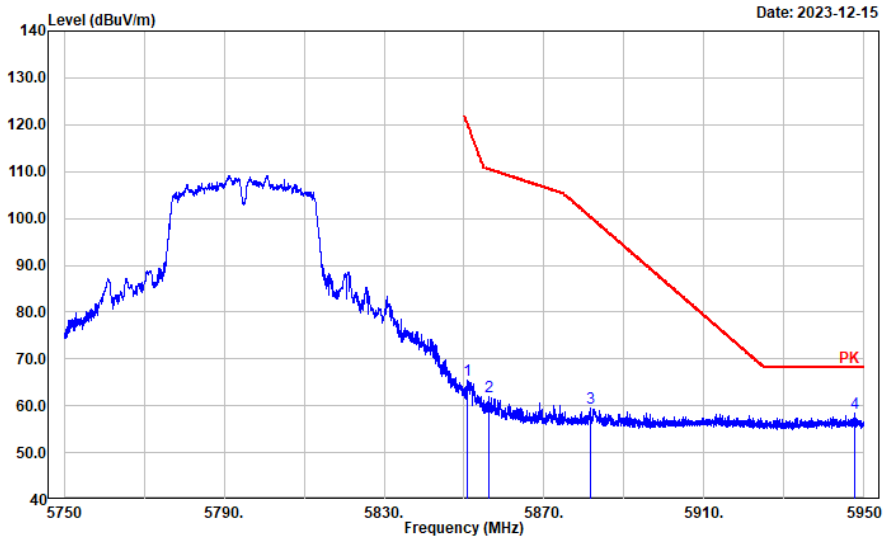


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5852.980	47.01	12.78	59.79	115.40	55.61	Peak
2	5857.182	45.66	12.81	58.47	110.19	51.72	Peak
3	5886.187	45.30	12.95	58.25	96.89	38.64	Peak
4	5933.037	44.19	13.03	57.22	68.20	10.98	Peak

Vertical

5795MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11n ht40 Mode High Channel



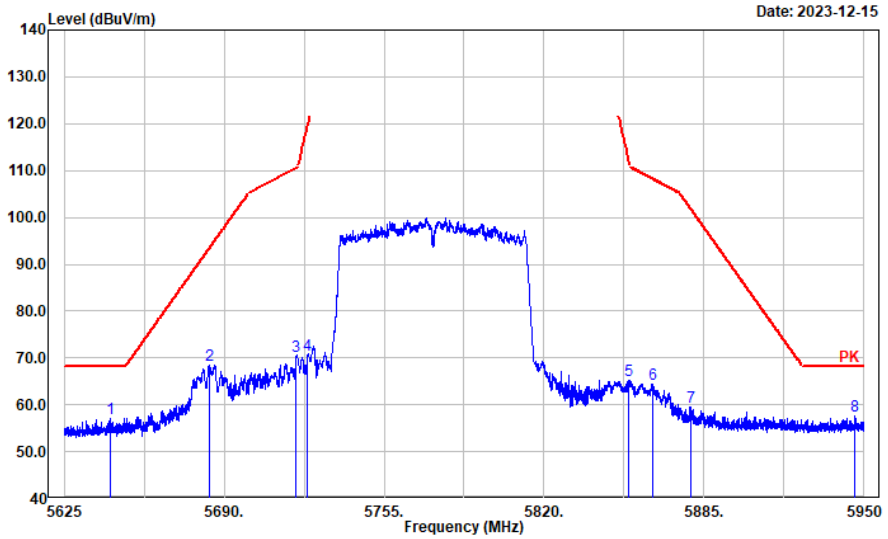
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5850.940	52.59	12.77	65.36	120.06	54.70	Peak
2	5856.341	49.18	12.81	61.99	110.42	48.43	Peak
3	5881.466	46.61	12.93	59.54	100.40	40.86	Peak
4	5947.520	45.32	13.03	58.35	68.20	9.85	Peak

802.11 ac80

Horizontal

5775MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Horizontal
Note: 802.11ac80 Mode Middle Channel

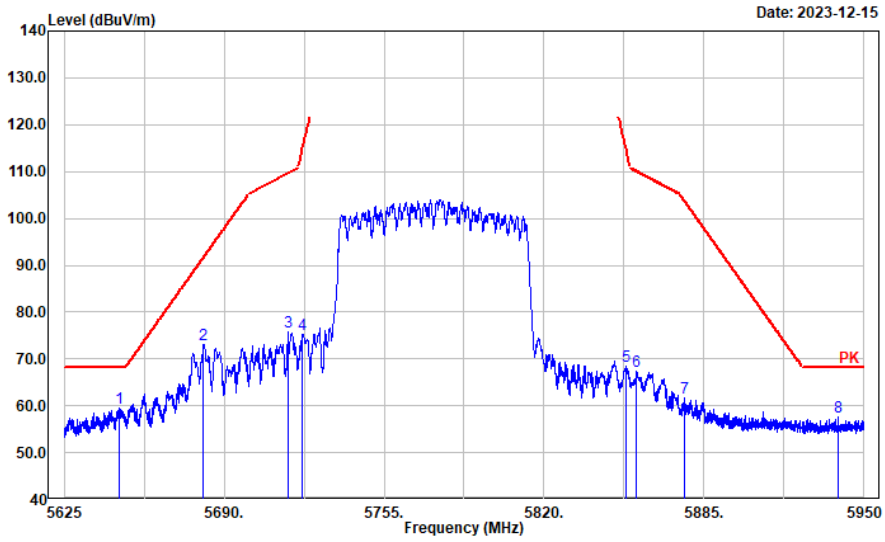


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5643.594	44.83	12.29	57.12	68.20	11.08	Peak
2	5683.967	56.11	12.47	68.58	93.37	24.79	Peak
3	5719.334	57.77	12.57	70.34	110.61	40.27	Peak
4	5724.015	58.11	12.57	70.68	119.95	49.27	Peak
5	5854.106	52.43	12.80	65.23	112.84	47.61	Peak
6	5864.248	51.60	12.84	64.44	108.21	43.77	Peak
7	5879.461	46.71	12.92	59.63	101.89	42.26	Peak
8	5946.294	44.68	13.03	57.71	68.20	10.49	Peak

Vertical

5775MHz

Project No.: CR231061281-RF
Tester: Mack Huang
Polarization: Vertical
Note: 802.11ac80 Mode Middle Channel



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	5647.495	47.33	12.32	59.65	68.20	8.55	Peak
2	5681.691	60.66	12.47	73.13	91.69	18.56	Peak
3	5715.888	63.19	12.56	75.75	109.65	33.90	Peak
4	5721.869	62.70	12.57	75.27	115.06	39.79	Peak
5	5853.391	55.69	12.79	68.48	114.47	45.99	Peak
6	5857.617	54.47	12.81	67.28	110.07	42.79	Peak
7	5876.925	48.89	12.90	61.79	103.77	41.98	Peak
8	5939.533	44.62	13.03	57.65	68.20	10.55	Peak

4.3 Emission Bandwidth:

Serial No.:	2D6B-2	**Test Date:**	2024/1/2 ~2024/01/18
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Lingling Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (℃)	25.1-25.8	**Relative Humidity: (%)**	57-60	**ATM Pressure: (kPa)**	101.2-101.3

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

26dB Emission Bandwidth:5.2G

Mode	Value (MHz)	Result
a_5180MHz_Chain 0	20.384	Pass
a_5200MHz_Chain 0	20.624	Pass
a_5240MHz_Chain 0	20.464	Pass
ac80_5210MHz_Chain 0	82.014	Pass
n20_5180MHz_Chain 0	20.064	Pass
n20_5200MHz_Chain 0	20.144	Pass
n20_5240MHz_Chain 0	20.104	Pass
n40_5190MHz_Chain 0	40.847	Pass
n40_5230MHz_Chain 0	42.206	Pass
Note: Test only was performed at Chain 0.		

6dB Emission Bandwidth :5.8G

Mode	Value (MHz)	Limit (MHz)	Result
a_5745MHz_Chain 0	15.188	0.500	Pass
a_5785MHz_Chain 0	15.220	0.500	Pass
a_5825MHz_Chain 0	15.220	0.500	Pass
ac80_5775MHz_Chain 0	75.971	0.500	Pass
n20_5745MHz_Chain 0	16.851	0.500	Pass
n20_5785MHz_Chain 0	16.851	0.500	Pass
n20_5825MHz_Chain 0	16.882	0.500	Pass
n40_5755MHz_Chain 0	35.364	0.500	Pass
n40_5795MHz_Chain 0	35.364	0.500	Pass
Note: Test only was performed at Chain 0.			

5.2G

Mode	99% OBW (MHz)
a_5180MHz_Chain 0	16.576
a_5200MHz_Chain 0	16.704
a_5240MHz_Chain 0	16.608
ac80_5210MHz_Chain 0	75.648
n20_5180MHz_Chain 0	17.568
n20_5200MHz_Chain 0	17.568
n20_5240MHz_Chain 0	17.568
n40_5190MHz_Chain 0	36.096
n40_5230MHz_Chain 0	36.096

Note:
Test only was performed at Chain 0.
The 99% Occupied Bandwidth have not fall into the band 5250-5350MHz, please refer to the test plots of 99% Occupied Bandwidth.

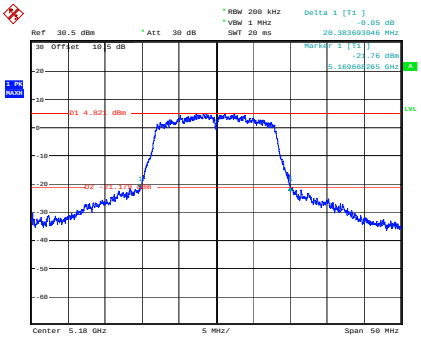
5.8G

Mode	99% OBW (MHz)
a_5745MHz_Chain 0	16.608
a_5785MHz_Chain 0	16.608
a_5825MHz_Chain 0	16.608
ac80_5775MHz_Chain 0	75.776
n20_5745MHz_Chain 0	17.536
n20_5785MHz_Chain 0	17.568
n20_5825MHz_Chain 0	17.568
n40_5755MHz_Chain 0	36.160
n40_5795MHz_Chain 0	36.160

Note:
Test only was performed at Chain 0.
The 99% Occupied Bandwidth have not fall into the band 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.

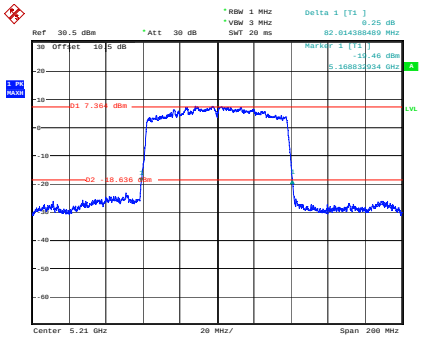
5.2G

a_5180MHz_Chain 0 20.384 MHz



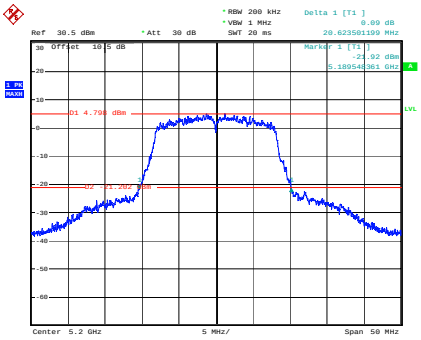
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:31:50

ac80_5210MHz_Chain 0 82.014 MHz



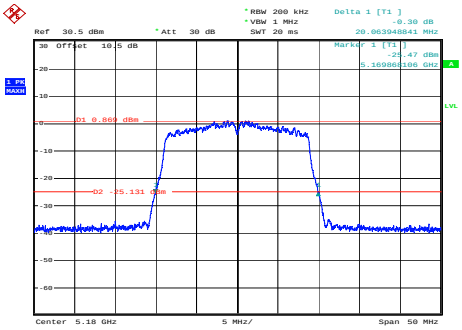
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:42:43

a_5200MHz_Chain 0 20.624 MHz



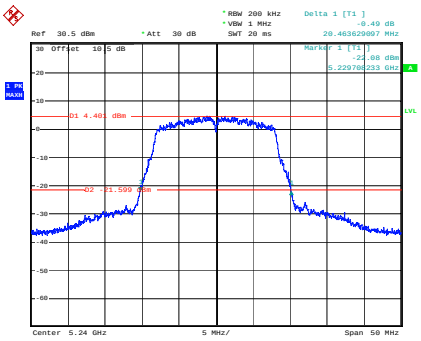
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:32:54

n20_5180MHz_Chain 0 20.064 MHz



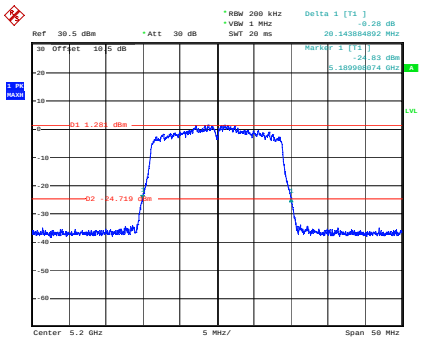
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 18.JAN.2024 17:25:46

a_5240MHz_Chain 0 20.464 MHz



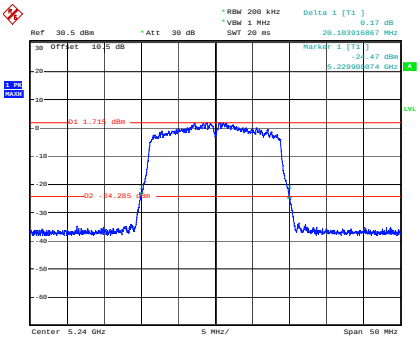
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:38:06

n20_5200MHz_Chain 0 20.144 MHz



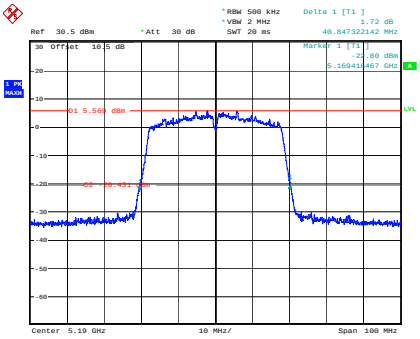
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:49:00

n20_5240MHz_Chain 0 20.104 MHz



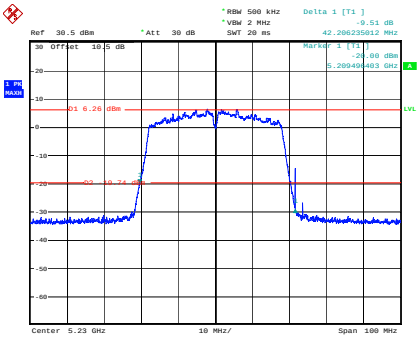
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:51:22

n40_5190MHz_Chain 0 40.847 MHz



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:52:43

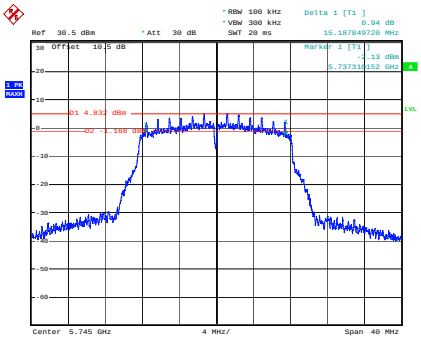
n40_5230MHz_Chain 0 42.206 MHz



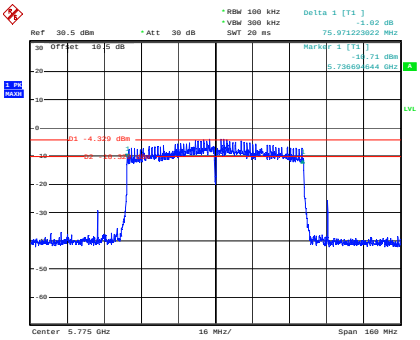
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:59:44

5.8G

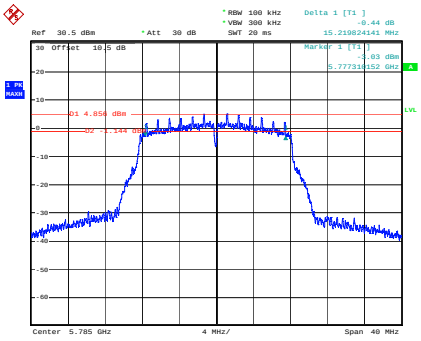
a_5745MHz_Chain 0 15.188 MHz



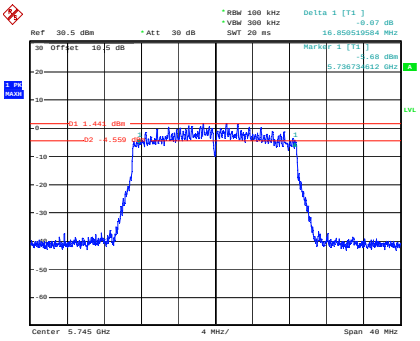
ac80_5775MHz_Chain 0 75.971 MHz



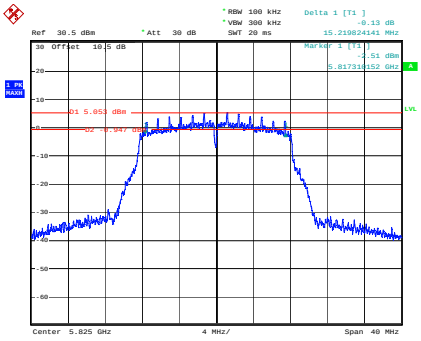
a_5785MHz_Chain 0 15.220 MHz



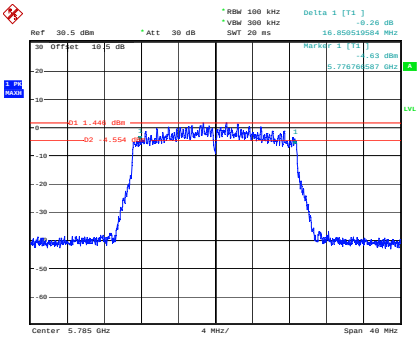
n20_5745MHz_Chain 0 16.851 MHz



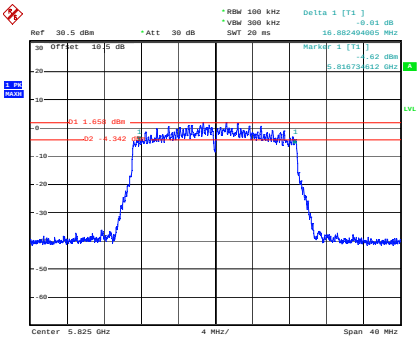
a_5825MHz_Chain 0 15.220 MHz



n20_5785MHz_Chain 0 16.851 MHz

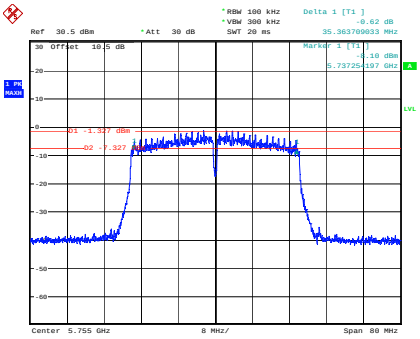


n20_5825MHz_Chain 0 16.882 MHz



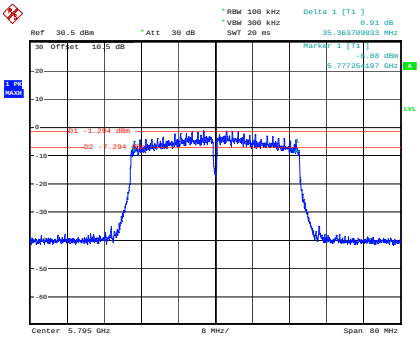
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:15:40

n40_5755MHz_Chain 0 35.364 MHz



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:17:21

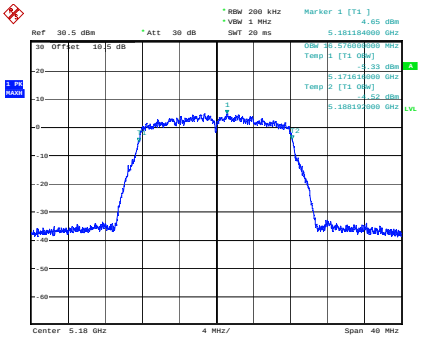
n40_5795MHz_Chain 0 35.364 MHz



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:19:51

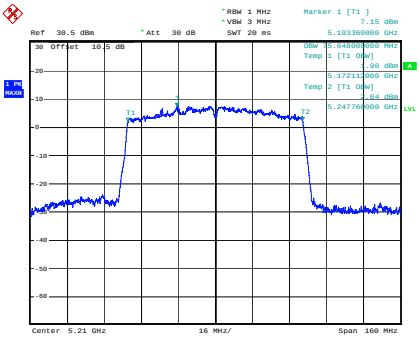
5.2G

a_5180MHz_Chain 0 16.576 MHz



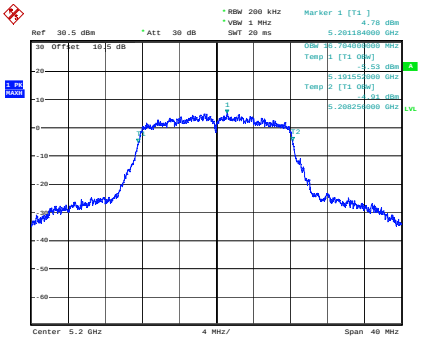
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:25:46

ac80_5210MHz_Chain 0 75.648 MHz



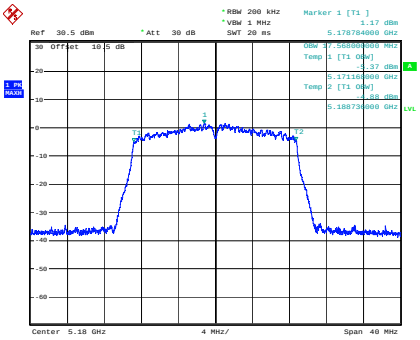
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:39:01

a_5200MHz_Chain 0 16.704 MHz



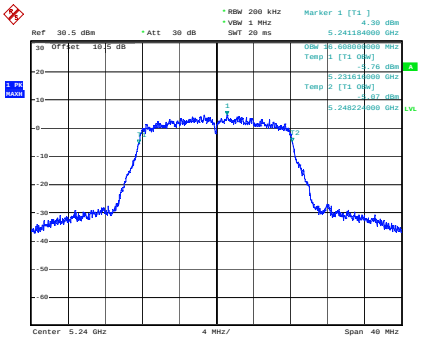
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:32:17

n20_5180MHz_Chain 0 17.568 MHz



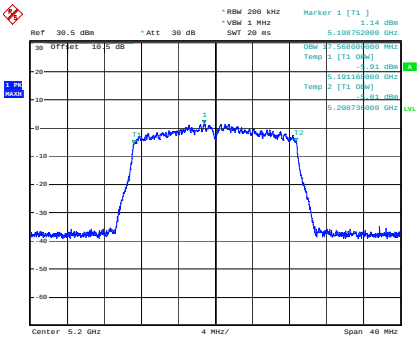
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:43:51

a_5240MHz_Chain 0 16.608 MHz



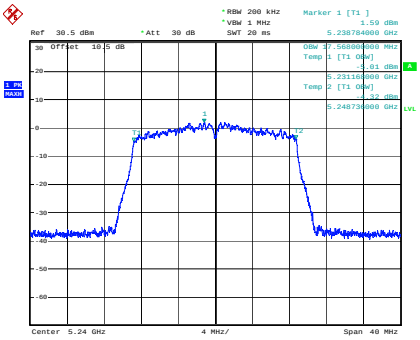
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:33:26

n20_5200MHz_Chain 0 17.568 MHz



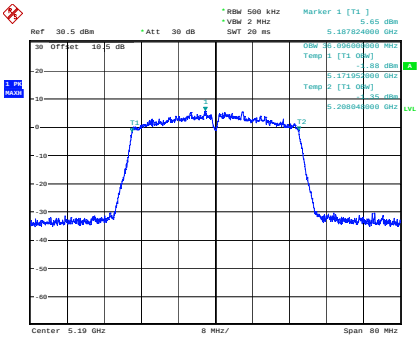
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:46:46

n20_5240MHz_Chain 0 17.568 MHz



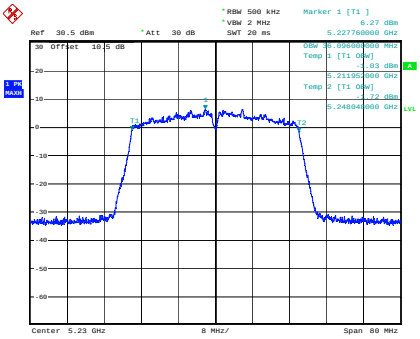
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:49:38

n40_5190MHz_Chain 0 36.096 MHz



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:51:58

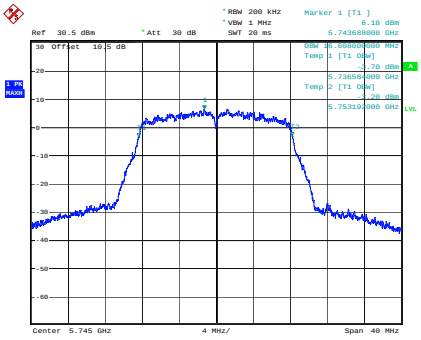
n40_5230MHz_Chain 0 36.096 MHz



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 15:54:02

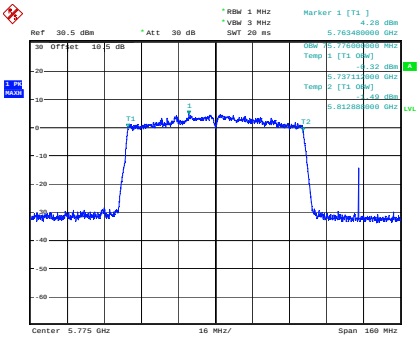
5.8G

a_5745MHz_Chain 0 16.608 MHz



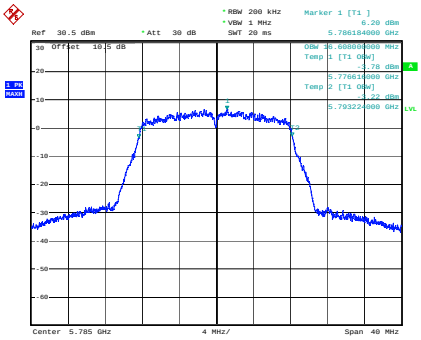
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:02:53

ac80_5775MHz_Chain 0 75.776 MHz



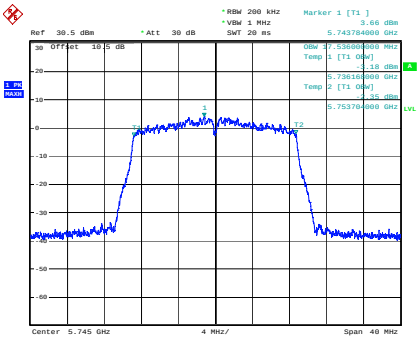
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:20:25

a_5785MHz_Chain 0 16.608 MHz



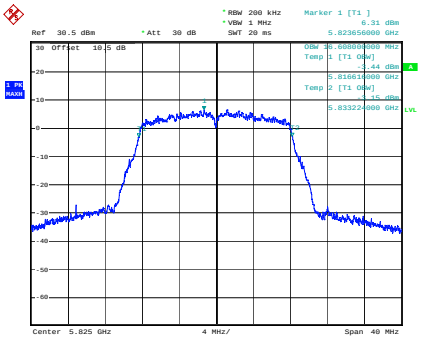
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:04:23

n20_5745MHz_Chain 0 17.536 MHz



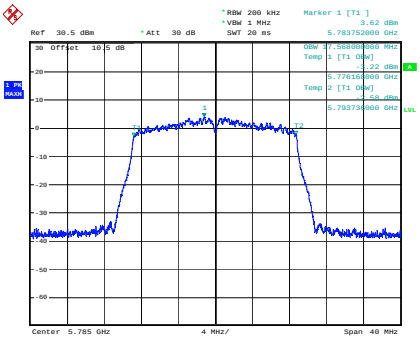
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:10:37

a_5825MHz_Chain 0 16.608 MHz



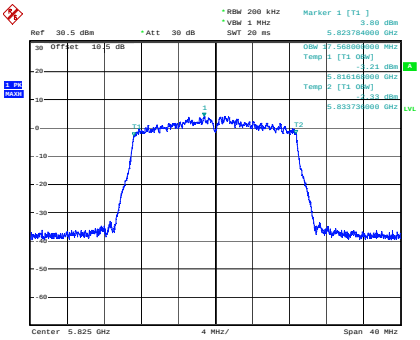
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:08:32

n20_5785MHz_Chain 0 17.568 MHz



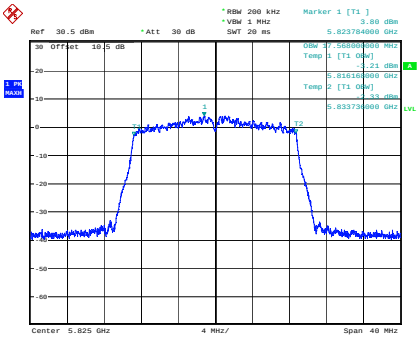
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:11:47

n20_5825MHz_Chain 0 17.568 MHz



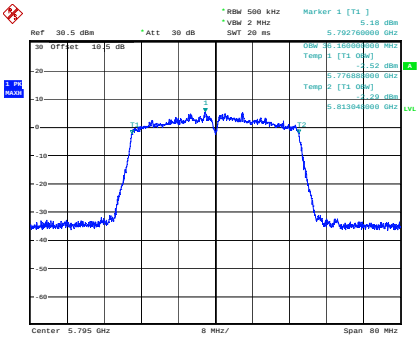
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:12:42

n40_5755MHz_Chain 0 36.160 MHz



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:12:42

n40_5795MHz_Chain 0 36.160 MHz



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 16:18:31

4.4 Maximum Conducted Output Power:

Serial Number:	2D6B-2	Test Date:	2023-12-30
Test Site:	RF	Test Mode:	Transmitting
Tester:	LingLing Li	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.1	Relative Humidity: (%)	58	ATM Pressure: (kPa)	101.1

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Anritsu	Power Meter	ML2495A	1106009	2023/8/4	2024/8/3
Anritsu	Pulse Power Sensor	MA2411A	10780	2023/8/4	2024/8/3
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power (dBm)			
		Chain 0	Chain 1	Total	Limit
802.11a	5180	10.21	9.4	/	23
	5200	9.89	9.02	/	23
	5240	9.33	8.53	/	23
802.11n ht20	5180	5.71	6.13	8.94	23
	5200	5.8	5.76	8.79	23
	5240	6.19	5.48	8.86	23
802.11n ht40	5190	8.78	8.84	11.82	23
	5230	8.67	8.47	11.58	23
802.11ac vht80	5210	10.79	8.44	**12.78**	23
Note: The device is a client device.					
Antenna Gain:	7	dBi	Directional gain:	7.00	dBi

5725-5850 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power(dBm)			
		Chain 0	Chain 1	Total	Limit
802.11a	5745	11.44	12.2	/	29
	5785	11.34	11.86	/	29
	5825	11.56	11.66	/	29
802.11n ht20	5745	8.72	9.47	**12.12**	29
	5785	8.7	9.07	11.90	29
	5825	8.71	8.89	11.81	29
802.11n ht40	5755	8.61	9.24	11.95	29
	5795	8.68	8.93	11.82	29
802.11ac vht80	5775	8.57	8.99	11.80	29
Antenna Gain:	7	dBi	Directional gain:	7.00	dBi

4.5 Maximum power spectral density:

Serial No.:	2D6B-2	**Test Date:**	2023-12-30~2024-01-03
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Lingling Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (℃)	25.1-25.7	**Relative Humidity: (%)**	58-62	**ATM Pressure: (kPa)**	101.1-101.4

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

5.2G

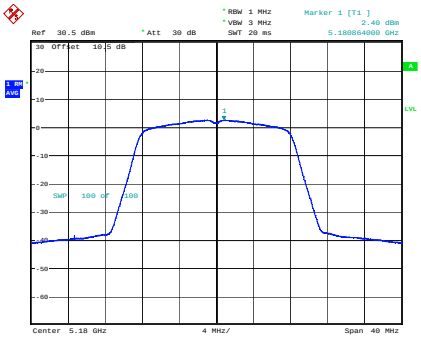
Mode	Value (dBm)		Duty Cycle Factor (dB)	Total (dBm)	Limit (dBm)	Result
	Chain 0	Chain 1				
a_5180MHz	2.4	2.71	0.12	2.83	10.00	Pass
a_5200MHz	2.36	2.15	0.12	2.48	10.00	Pass
a_5240MHz	2.16	1.78	0.12	2.28	10.00	Pass
ac80_5210MHz	-4.44	-6.4	2.22	-0.08	10.00	Pass
n20_5180MHz	-2.7	-1.99	1.16	1.84	10.00	Pass
n20_5200MHz	-2.6	-2.02	1.16	1.87	10.00	Pass
n20_5240MHz	-2.12	-2.37	1.16	1.93	10.00	Pass
n40_5190MHz	-3.63	-2.38	1.78	1.83	10.00	Pass
n40_5230MHz	-2.53	-2.75	1.78	2.15	10.00	Pass
Note: The device is a client device.						

5.8G

Mode	Value (dBm)		Duty Cycle Factor (dB)	Total (dBm)	Limit (dBm)	Result
	Chain 0	Chain 1				
a_5745MHz	1.52	1.38	0.12	1.64	29.00	Pass
a_5785MHz_Chain 0	1.62	0.85	0.12	1.74	29.00	Pass
a_5825MHz_Chain 0	1.65	1.04	0.12	1.77	29.00	Pass
ac80_5775MHz_Chain 0	-8.67	-8.33	2.22	-3.27	29.00	Pass
n20_5745MHz_Chain 0	-2.28	-2.4	1.16	1.83	29.00	Pass
n20_5785MHz_Chain 0	-2.89	-2.91	1.16	1.27	29.00	Pass
n20_5825MHz_Chain 0	-2.27	-2.79	1.16	1.65	29.00	Pass
n40_5755MHz_Chain 0	-6.31	-6.01	1.78	-1.37	29.00	Pass
n40_5795MHz_Chain 0	-5.68	-6.27	1.78	-1.17	29.00	Pass

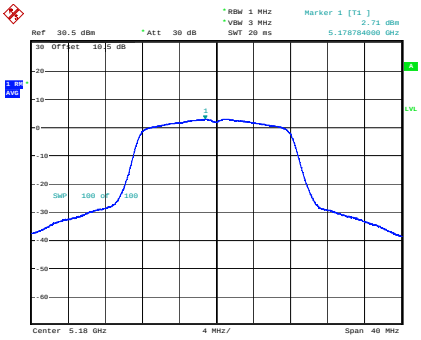
5.2G

a_5180MHz_Chain 0 2.40 dBm



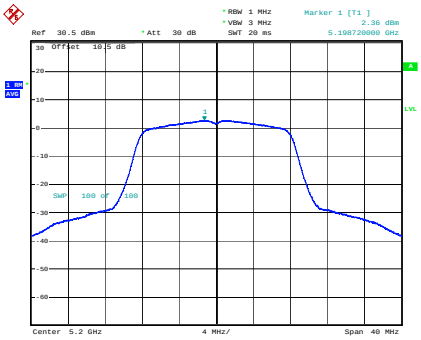
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 15:49:12

a_5180MHz_Chain 1 2.71 dBm



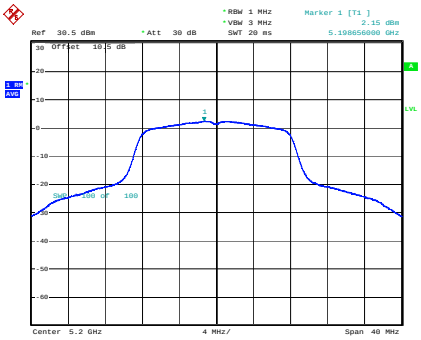
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 10:36:17

a_5200MHz_Chain 0 2.36 dBm



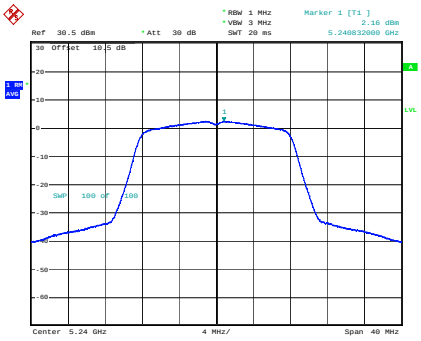
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 15:50:48

a_5200MHz_Chain 1 2.15 dBm



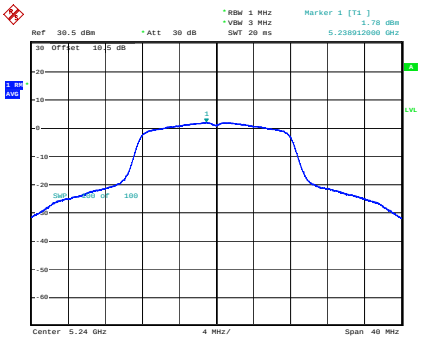
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:34:00

a_5240MHz_Chain 0 2.16 dBm



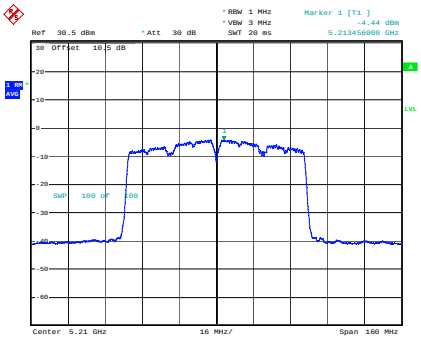
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 15:52:26

a_5240MHz_Chain 1 1.78 dBm



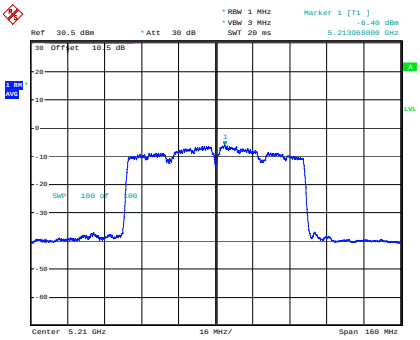
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:34:43

ac80_5210MHz_Chain 0 -4.44 dBm



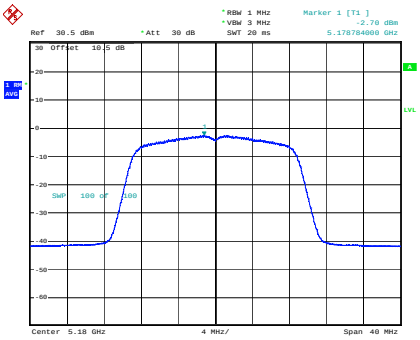
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 15:53:28

ac80_5210MHz_Chain 1 -6.40 dBm



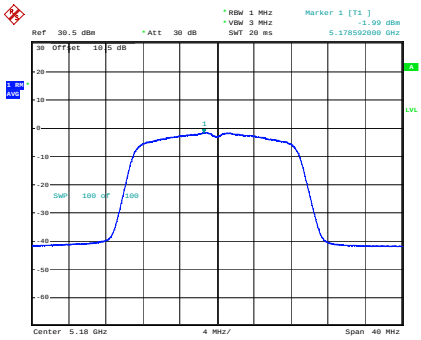
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:46:51

n20_5180MHz_Chain 0 -2.70 dBm



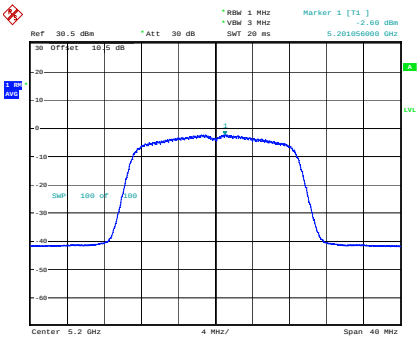
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:02:16

n20_5180MHz_Chain 1 -1.99 dBm



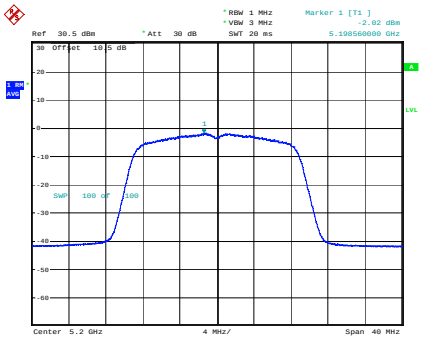
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 10:44:08

n20_5200MHz_Chain 0 -2.60 dBm



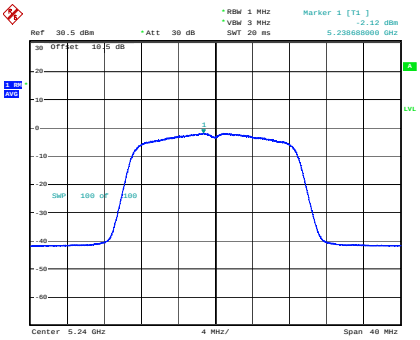
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:02:37

n20_5200MHz_Chain 1 -2.02 dBm



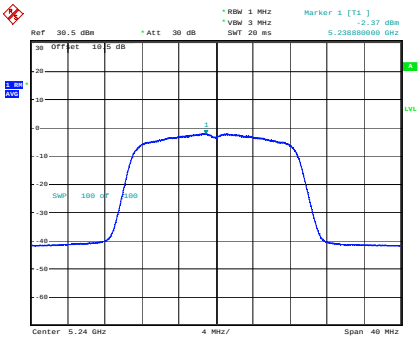
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 10:51:56

n20_5240MHz_Chain 0 -2.12 dBm



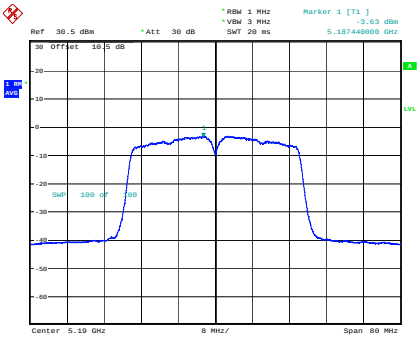
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:03:57

n20_5240MHz_Chain 1 -2.37 dBm



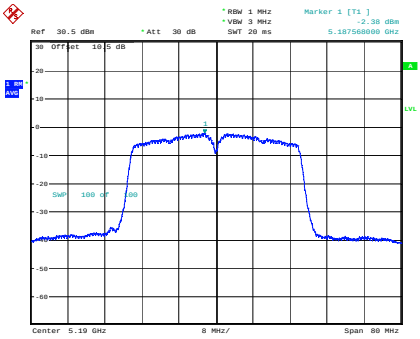
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 10:52:54

n40_5190MHz_Chain 0 -3.63 dBm



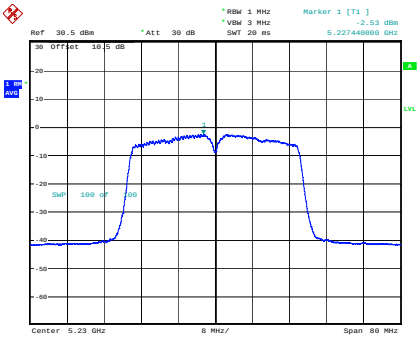
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:04:33

n40_5190MHz_Chain 1 -2.38 dBm



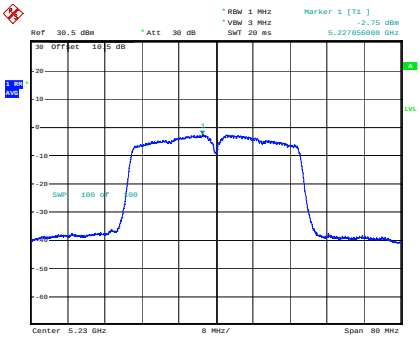
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 10:59:14

n40_5230MHz_Chain 0 -2.53 dBm



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:05:01

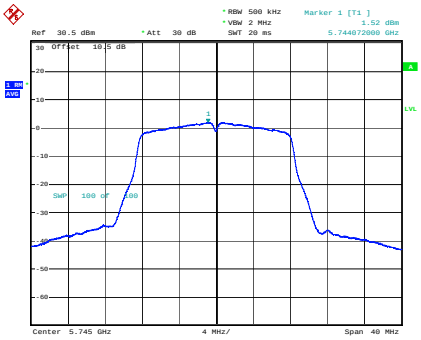
n40_5230MHz_Chain 1 -2.75 dBm



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 2.JAN.2024 11:07:22

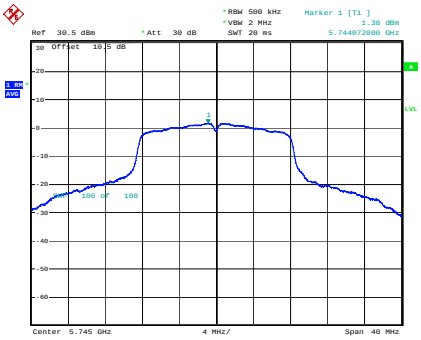
5.8G

a_5745MHz_Chain 0 1.52 dBm



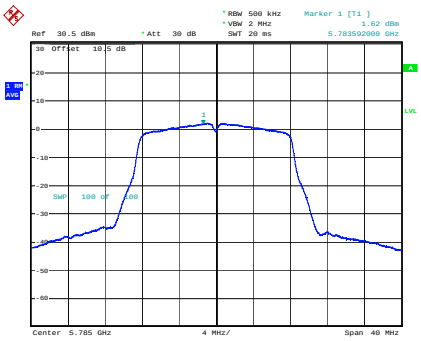
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:34:14

a_5745MHz_Chain 1 1.38 dBm



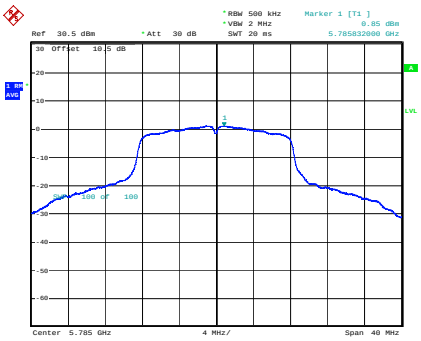
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:47:21

a_5785MHz_Chain 0 1.62 dBm



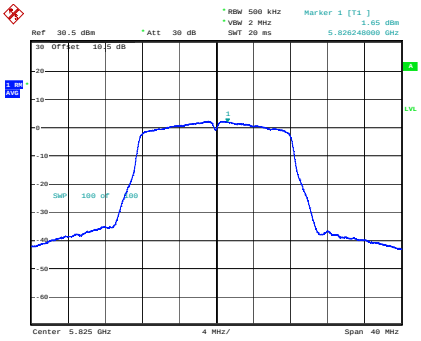
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:34:51

a_5785MHz_Chain 1 0.85 dBm



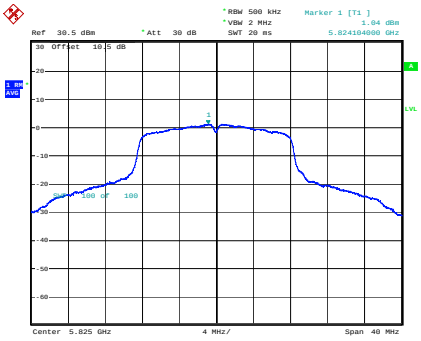
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:47:57

a_5825MHz_Chain 0 1.65 dBm



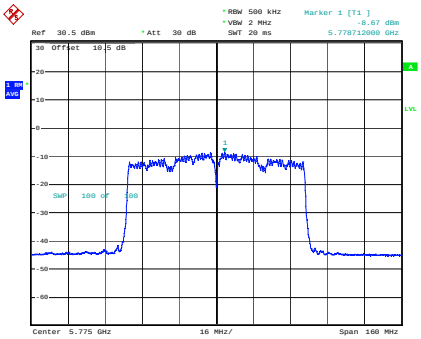
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:35:40

a_5825MHz_Chain 1 1.04 dBm



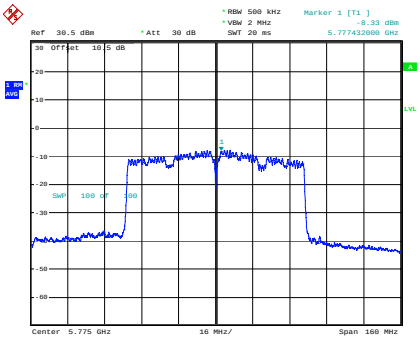
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:38:11

ac80_5775MHz_Chain 0 -8.67 dBm



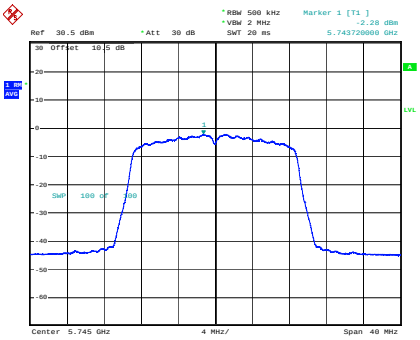
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:40:01

ac80_5775MHz_Chain 1 -8.33 dBm



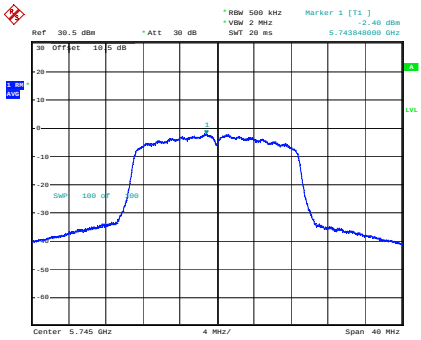
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 15:17:08

n20_5745MHz_Chain 0 -2.28 dBm



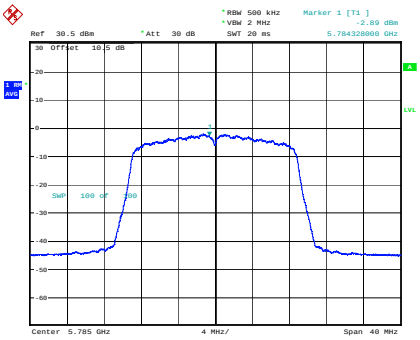
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:36:09

n20_5745MHz_Chain 1 -2.40 dBm



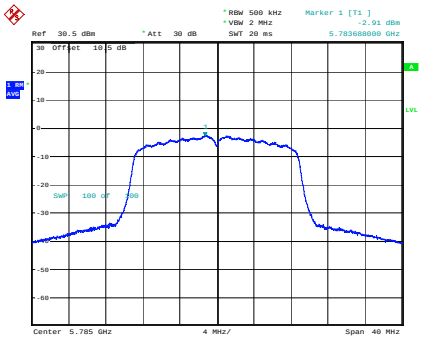
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:38:48

n20_5785MHz_Chain 0 -2.89 dBm



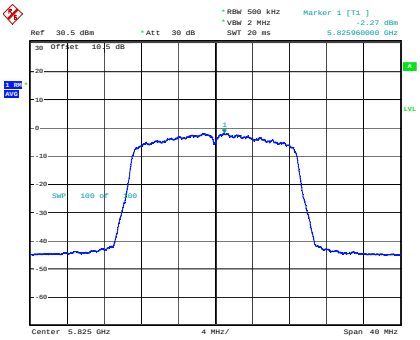
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:36:38

n20_5785MHz_Chain 1 -2.91 dBm



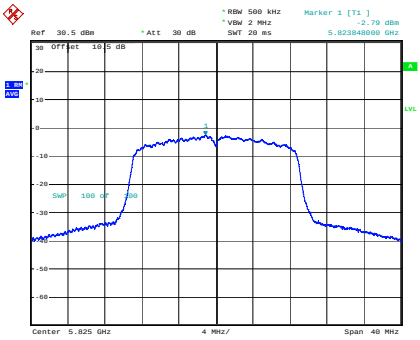
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:48:36

n20_5825MHz_Chain 0 -2.27 dBm



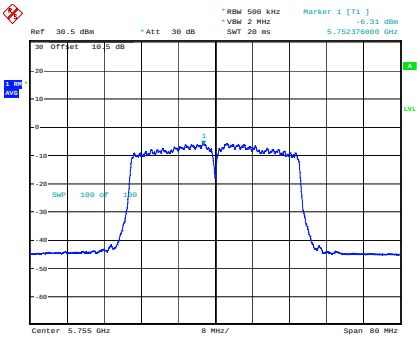
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:37:56

n20_5825MHz_Chain 1 -2.79 dBm



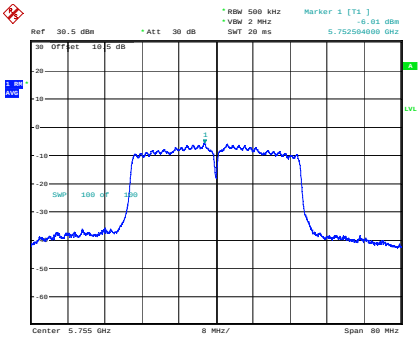
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:39:57

n40_5755MHz_Chain 0 -6.31 dBm



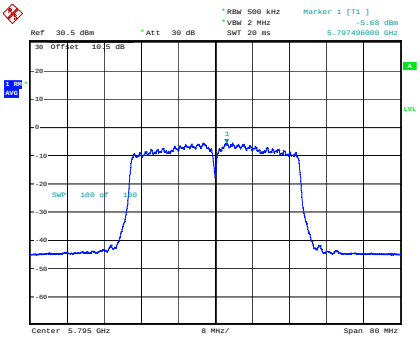
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:38:57

n40_5755MHz_Chain 1 -6.01 dBm



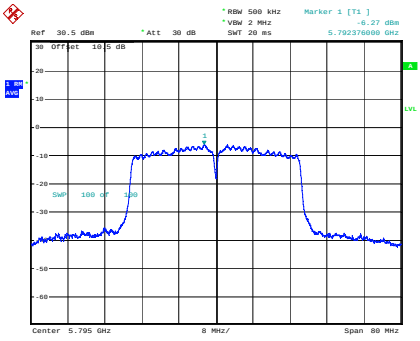
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:40:24

n40_5795MHz_Chain 0 -5.68 dBm



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 3.JAN.2024 14:39:25

n40_5795MHz_Chain 1 -6.27 dBm



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:40:59

4.6 Duty Cycle:

Serial No.:	2D6B-2	**Test Date:**	2023/12/30
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Lingling Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (℃)	25.1	**Relative Humidity: (%)**	58	**ATM Pressure: (kPa)**	101.1

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

5.2G

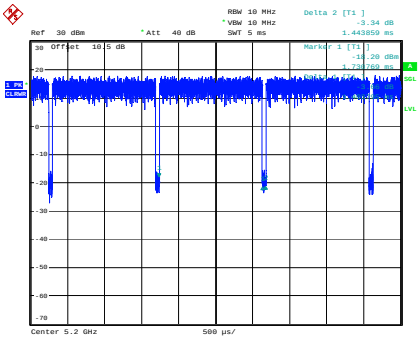
Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	1/T (Hz)	VBW Setting (kHz)	Duty Cycle Factor (dB)	Result
a_5200MHz_Chain 0	1.404	1.444	97.230	712	1	0.12	Pass
ac80_5210MHz_Chain 0	0.075	0.125	60.000	13333	20	2.22	Pass
n20_5200MHz_Chain 0	0.167	0.218	76.606	5988	10	1.16	Pass
n40_5190MHz_Chain 0	0.101	0.152	66.447	9901	10	1.78	Pass

Duty Cycle = Ton/(Ton+Toff)*100%

Note: Test only was performed at Chain 0.

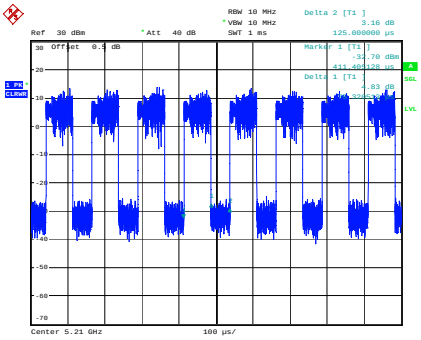
5.2G

a_5200MHz_Chain 0
1.404 ms,1.444 ms



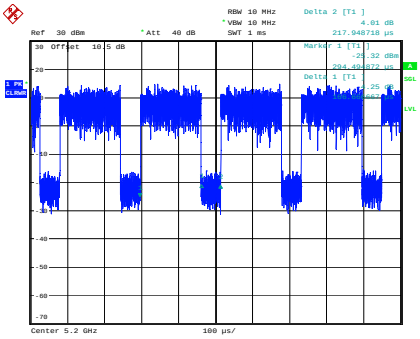
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:22:17

ac80_5210MHz_Chain 0
0.075 ms,0.125 ms



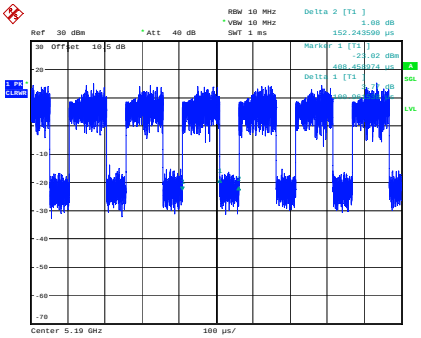
Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 14:57:45

n20_5200MHz_Chain 0
0.167 ms,0.218 ms



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:24:27

n40_5190MHz_Chain 0
0.101 ms,0.152 ms



Comment: ProjectNo.:CR231061281-RF Tester:Lingling Li
Date: 30.DEC.2023 16:25:11

5. EUT PHOTOGRAPHS

Please refer to the attachment CR231061281-EXP EUT EXTERNAL PHOTOGRAPHS and CR231061281-INP EUT INTERNAL PHOTOGRAPHS

6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR231061281-00D-TSP TEST SETUP PHOTOGRAPHS.

===== END OF REPORT =====