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

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Shenzhen VanTop Technology & Innovation Co., Ltd.**

Address: 506,BLDG 4,Pingshan minQi Technology Park, No. 65 Lishan Road, Pingshan Community,Taoyuan Street, Nanshan District, Shenzhen, China

FCC ID: **2AQ3A-VT03**

Product Name: **4K UST Triple Laser Projector**

Standard(s): **47 CFR Part 15, Subpart C(15.247)**
ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

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

Report Number: **CR230849138-00C**

Date Of Issue: **2023/10/19**

Reviewed By: **Calvin Chen**
Title: RF Engineer

Approved By: **Sun Zhong**
Title: Manager

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

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.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

This report cannot be reproduced except in full, without prior written approval of the Company.

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk "★".

CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230849138-00C	Original Report	2023/10/19

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	4K UST Triple Laser Projector
EUT Model:	Vista T4
Multiple Models:	WPY016,WPY017,WPY018,WPY019,WPY020,WPY021
Operation Frequency:	2412-2462MHz(802.11b/g/n ht20), 2422-2452MHz(802.11n ht40)
Maximum Peak Output Power (Conducted):	22.04dBm
Modulation Type:	802.11b:DSSS-DBPSK, DQPSK, CCK 802.11g/n:OFDM-BPSK, QPSK, 16QAM, 64QAM
Rated Input Voltage:	AC 120V
Serial Number:	RE/CE: 2AAT-3 RF: 2AAT-1
EUT Received Date:	2023/9/22
EUT Received Status:	Good

Operation Frequency Detail:

For 802.11b/g/n ht20:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

Per section 15.31(m), the below frequencies were performed the test as below:

Test Channel	Frequency (MHz)
Lowest	2412
Middle	2437
Highest	2462

For 802.11n ht40:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437	/	/

Per section 15.31(m), the below frequencies were performed the test as below:

Test Channel	Frequency (MHz)
Lowest	2422
Middle	2437
Highest	2452

Antenna Information Detail▲:

Antenna	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
Chain 0	FPC	50	2.4~2.5GHz	3.06dBi
Chain 1	FPC	50	2.4~2.5GHz	3.03dBi

The Method of §15.203 Compliance:

☒Antenna must be permanently attached to the unit.

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

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

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

For 802.11b/g/n:

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.
Equipment Modifications:	No
EUT Exercise Software:	QATool.exe

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

Mode	Channel	Frequency (MHz)	Data Rate	Power Level Setting	
				Chain 0	Chain 1
802.11b	Lowest	2412	1Mbps	1D	1D
	Middle	2437	1Mbps	1D	1D
	Highest	2462	1Mbps	1D	1D
802.11g	Lowest	2412	6Mbps	15	15
	Middle	2437	6Mbps	15	15
	Highest	2462	6Mbps	15	15
802.11n ht20	Lowest	2412	MCS0	13	13
	Middle	2437	MCS0	13	13
	Highest	2462	MCS0	13	13
802.11n ht40	Lowest	2422	MCS0	0D	0D
	Middle	2437	MCS0	0D	0D
	Highest	2452	MCS0	0D	0D

1. 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.
2. The device supports SISO and MIMO in all modes, per pretest, the MIMO mode was the worst mode for all the modes.

1.2.2 Support Equipment List and Details

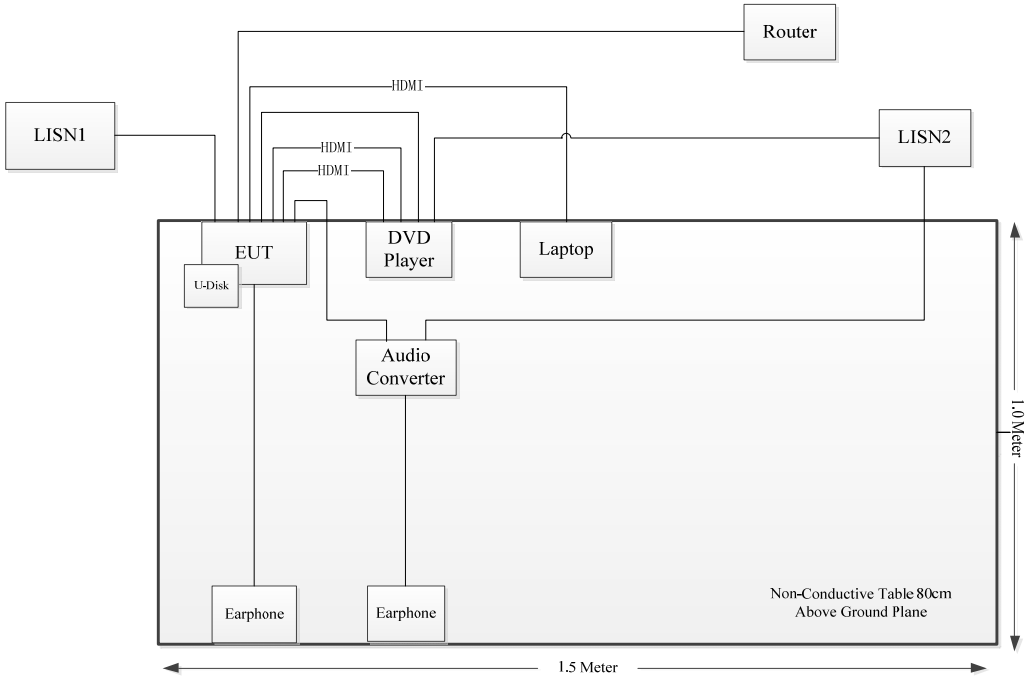
Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	T460S	60PDTEK8
Lenovo	Adapter	ADLX45DLC3A	00HM613
HP	USB Disk	HPFD206W-32	PAA6902271
CLC	Earphone	Whiteview5.0	EP21106054
CLC	Earphone	Whiteview5.0	EP21107125
KAIQI	Audio Converter	Unknown	Unknown
GIEC	DVD Player	BDP-G4350	BD43504KXM2104150932
TOTO LINK	Router	X5000R	X5000RK9T0560

1.2.3 Support Cable List and Details

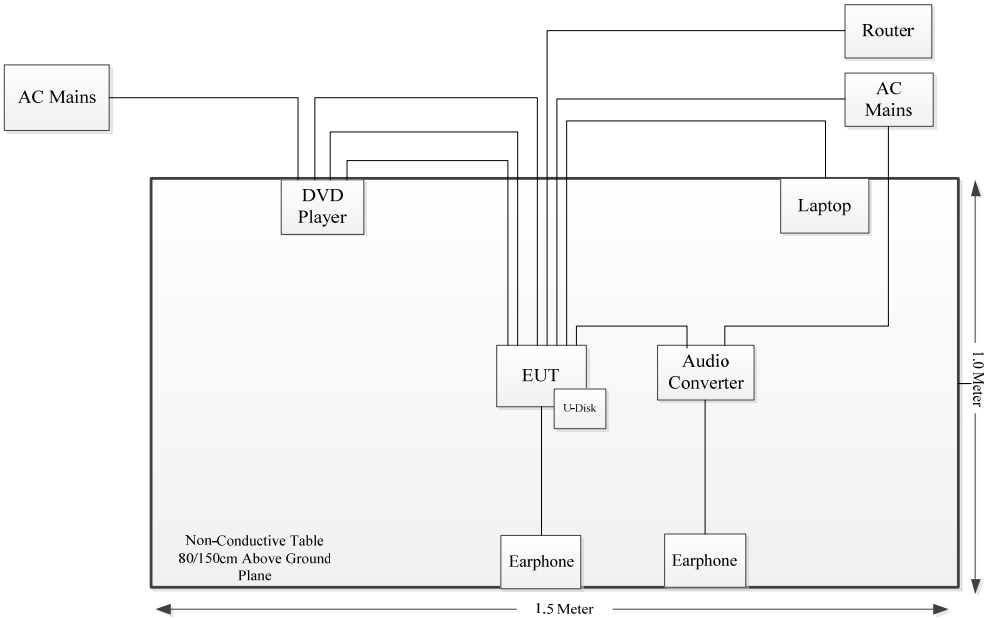
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Power Cable	No	No	1.2	EUT	LISN1
RJ45 Cable	No	No	10	EUT	Router
HDMI Cable	No	No	0.8	EUT	Laptop
HDMI Cable	No	No	0.8	EUT	DVD Player
HDMI Cable	No	No	0.8	EUT	DVD Player
Fiber-Optic Cable	No	No	0.5	Audio Converter	EUT
Power Cable	No	No	1.2	Audio Converter	LISN2
Power Cable	No	No	1.2	DVD Player	LISN2
Earphone Cable	No	No	0.8	EUT	Earphone
Earphone Cable	No	No	0.8	Audio Converter	Earphone
Audio Cable	No	No	0.8	EUT	DVD Player

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	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
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	Minimum 6 dB Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth Of Frequency Band Edge	Compliant
§15.247(e)	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:

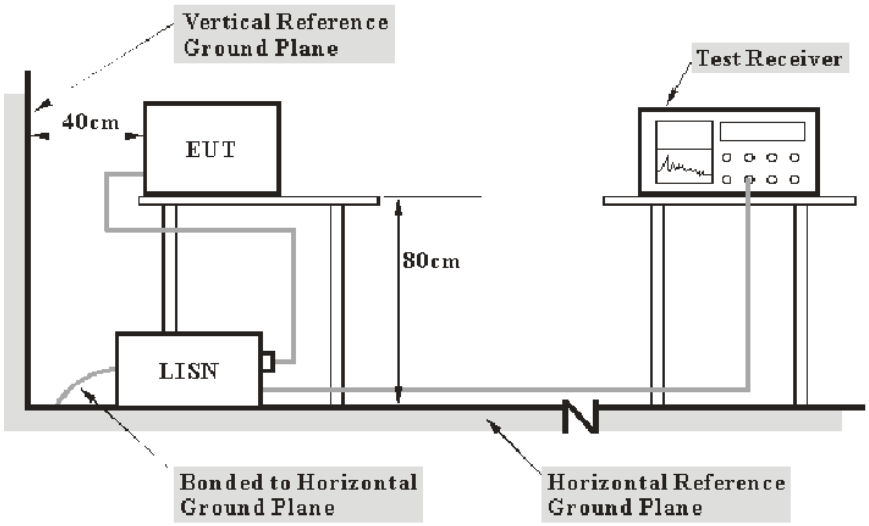
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(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

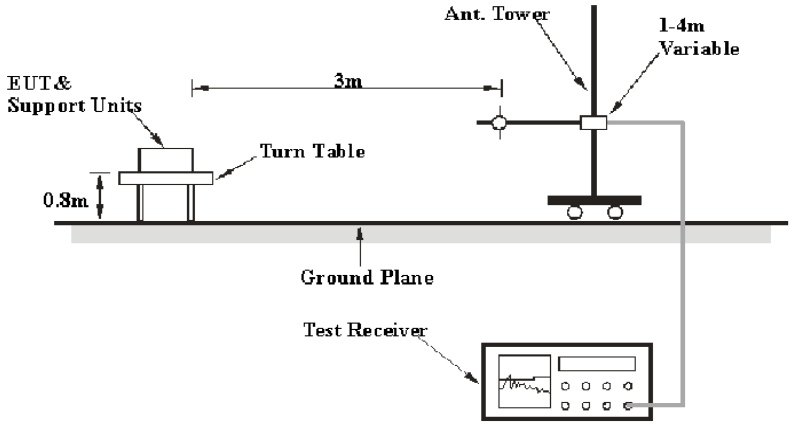
3.2.1 Applicable Standard

FCC §15.247 (d);

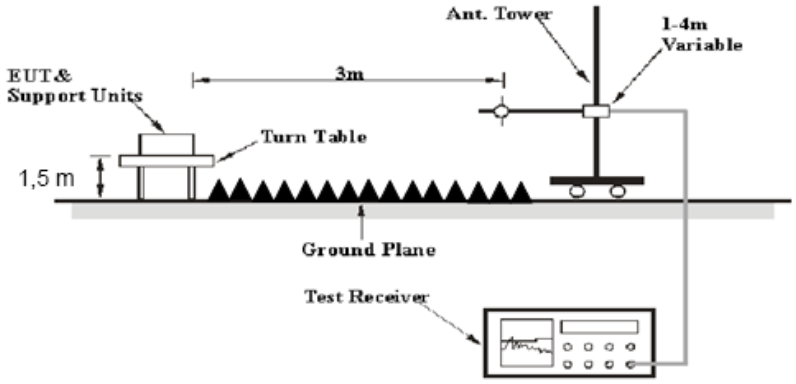
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

3.2.2 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emissions were performed in the 3 meters distance, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 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.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

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

30-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 25GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>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

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

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

3.2.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
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

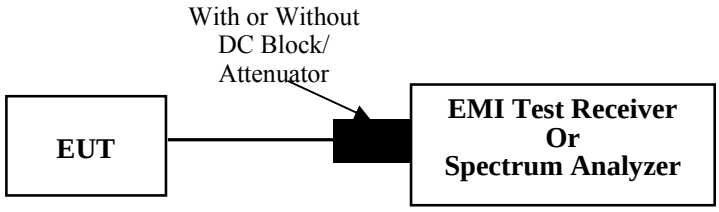
3.3 Minimum 6 dB Emission Bandwidth

3.3.1 Applicable Standard

FCC §15.247 (a)(2)

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

3.3.2 EUT Setup



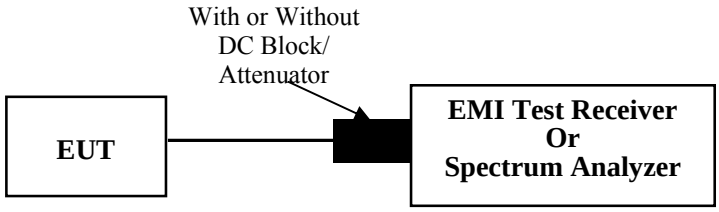
3.3.3 Test Procedure

According to ANSI C63.10-2013 Section 11.8

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.

3.4 99% Occupied Bandwidth

3.4.1 EUT Setup



3.4.2 Test Procedure

According to ANSI C63.10-2013 Section 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).

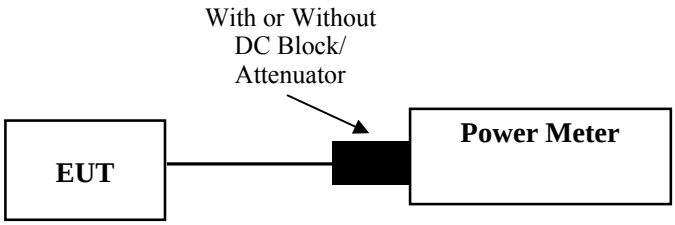
3.5 Maximum Conducted Output Power

3.5.1 Applicable Standard

FCC §15.247 (b)(3)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

3.5.2 EUT Setup



3.5.3 Test Procedure

According to ANSI C63.10-2013 Section 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

a) Set the EUT in transmitting mode.
b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
c) Add a correction factor to the display.
d) Set the power meter to test peak output power, record the result.

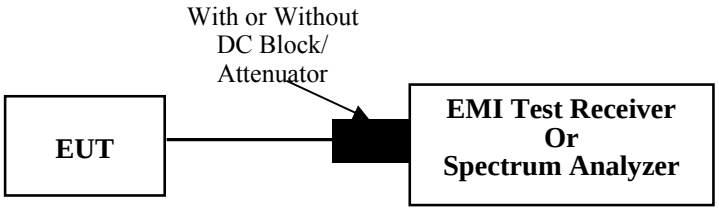
3.6 Maximum Power Spectral Density

3.6.1 Applicable Standard

FCC §15.247 (e)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

3.6.2 EUT Setup



3.6.3 Test Procedure

According to ANSI C63.10-2013 Section 11.10.2

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ [3 · RBW].
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

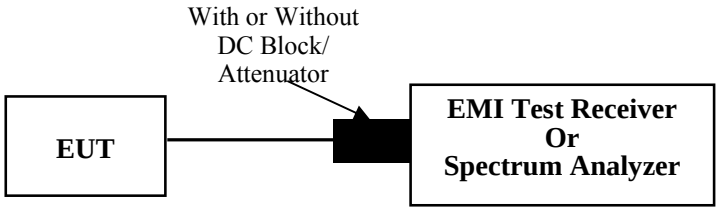
3.7 100 kHz Bandwidth of Frequency Band Edge

3.7.1 Applicable Standard

FCC §15.247 (d);

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

3.7.2 EUT Setup



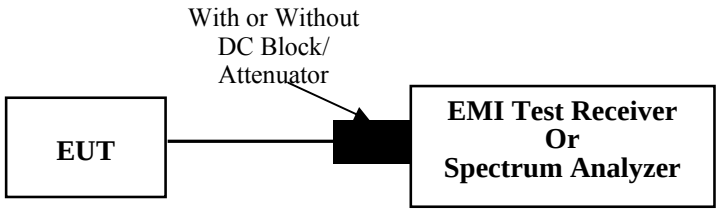
3.7.3 Test Procedure

According to ANSI C63.10-2013 Section 11.11

a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

3.8 Duty Cycle

3.8.1 EUT Setup



3.8.2 Test Procedure

According to ANSI C63.10-2013 Section 11.6

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.)

3.9 Antenna Requirement

3.9.1 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.

3.9.2 Judgment

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

4. Test DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	2AAT-3	Test Date:	2023/9/28
Test Site:	CE	Test Mode:	Transmitting maximum output power mode (802.11 b MIMO, Low channel)
Tester:	David Huang	Test Result:	Pass

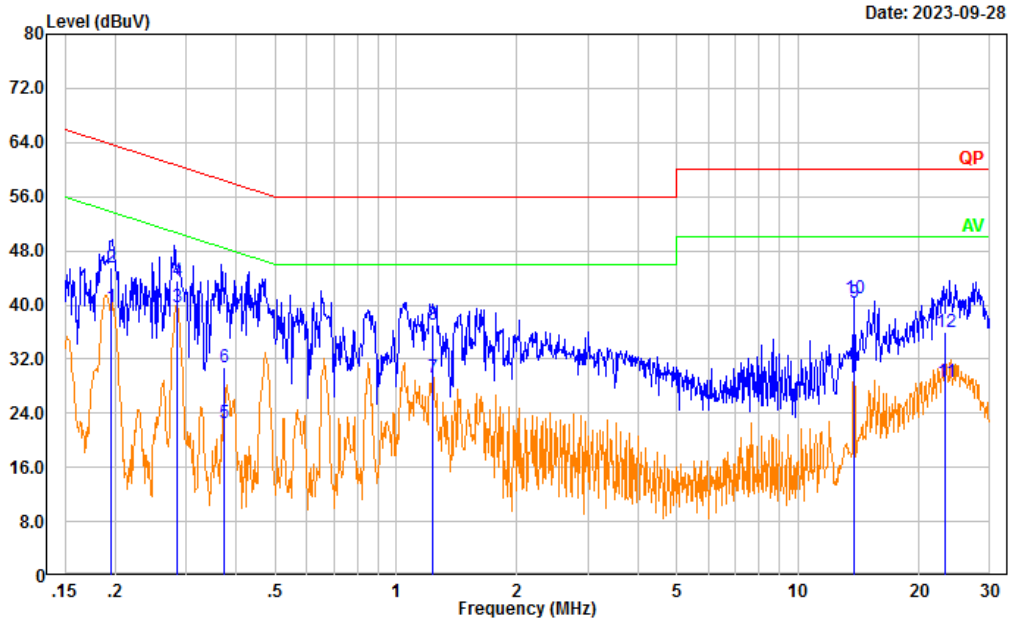
Environmental Conditions:					
Temperature: (℃)	25.1	Relative Humidity: (%)	59	ATM Pressure: (kPa)	101.1

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/03/31	2024/03/30
R&S	EMI Test Receiver	ESR3	102726	2023/03/31	2024/03/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2023/08/06	2024/08/05
Audix	Test Software	E3	190306 (V9)	N/A	N/A

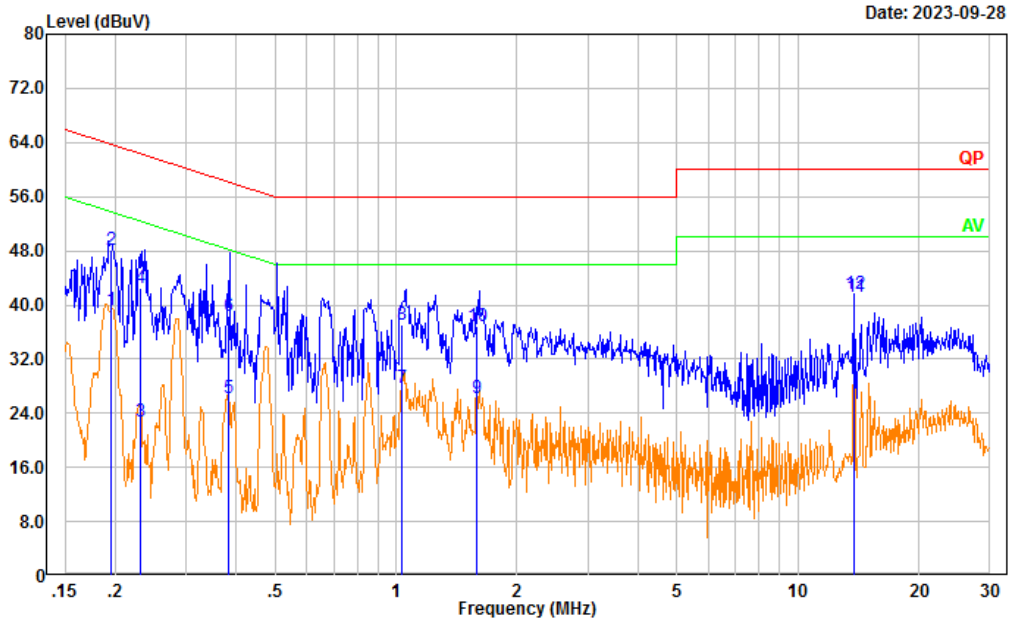
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Project No.: CR230849138-RF
Tester: David Huang
Port: Line
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.195	29.98	9.61	39.59	53.81	14.22	Average
2	0.195	35.96	9.61	45.57	63.81	18.24	QP
3	0.285	30.05	9.61	39.66	50.66	11.00	Average
4	0.285	33.87	9.61	43.48	60.66	17.18	QP
5	0.373	12.83	9.61	22.44	48.44	26.00	Average
6	0.373	21.14	9.61	30.75	58.44	27.69	QP
7	1.230	19.57	9.62	29.19	46.00	16.81	Average
8	1.230	27.44	9.62	37.06	56.00	18.94	QP
9	13.823	30.62	9.68	40.30	50.00	9.70	Average
10	13.823	31.19	9.68	40.87	60.00	19.13	QP
11	23.303	18.71	9.81	28.52	50.00	21.48	Average
12	23.303	26.12	9.81	35.93	60.00	24.07	QP

Project No.: CR230849138-RF
Tester: David Huang
Port: neutral
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.195	29.62	9.61	39.23	53.80	14.57	Average
2	0.195	38.62	9.61	48.23	63.80	15.57	QP
3	0.232	13.19	9.61	22.80	52.39	29.59	Average
4	0.232	32.85	9.61	42.46	62.39	19.93	QP
5	0.383	16.52	9.61	26.13	48.21	22.08	Average
6	0.383	28.79	9.61	38.40	58.21	19.81	QP
7	1.034	18.18	9.62	27.80	46.00	18.20	Average
8	1.034	27.44	9.62	37.06	56.00	18.94	QP
9	1.589	16.59	9.63	26.22	46.00	19.78	Average
10	1.589	27.18	9.63	36.81	56.00	19.19	QP
11	13.824	31.44	9.68	41.12	50.00	8.88	Average
12	13.824	31.89	9.68	41.57	60.00	18.43	QP

4.2 Radiation Spurious Emissions

Serial Number:	2AAT-3	Test Date:	2023/9/28
Test Site:	966-1, 966-2	Test Mode:	Transmitting
Tester:	Vic Du, coco Tian	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.7~26.1	Relative Humidity: (%)	51~55	ATM Pressure: (kPa)	100.2

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
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
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020/10/13	2023/10/12
R&S	Spectrum Analyzer	FSV40	101591	2023/03/31	2024/03/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2023/08/06	2024/08/05
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2023/08/06	2024/08/05
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/09	2023/11/08
PASTERNACK	Horn Antenna	PE9852/2F-20	112002	2021/02/05	2024/02/04
Quinstar	Preamplifier	QLW-18405536-JO	15964001005	2023/09/15	2024/09/14
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2023/08/06	2024/08/05
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2023/08/06	2024/08/05
Mini Circuits	High Pass Filter	VHF-6010+	31119	2023/08/06	2024/08/05

** 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).*

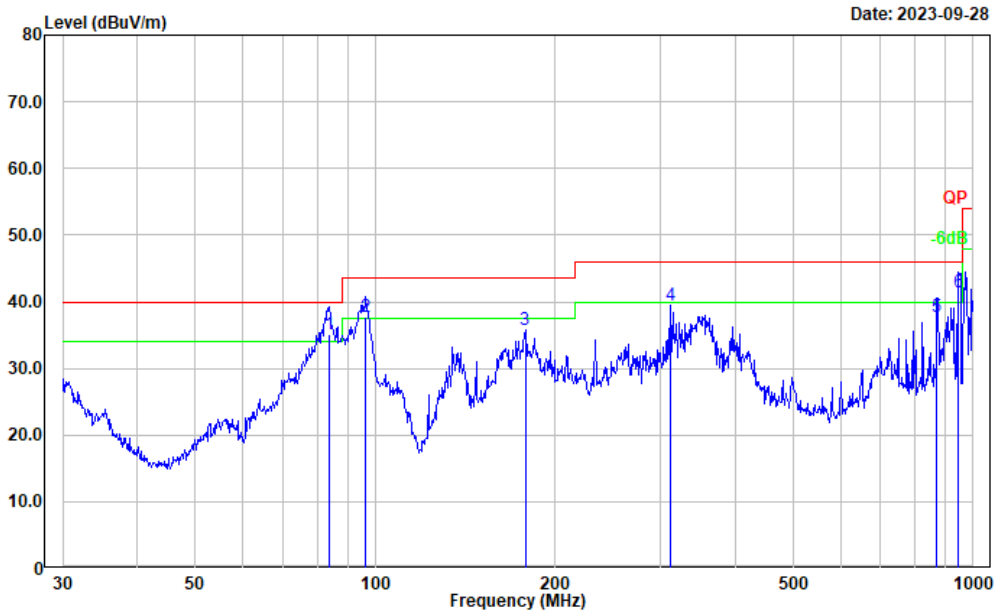
Test Data:

Please refer to the below table and plots.

After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

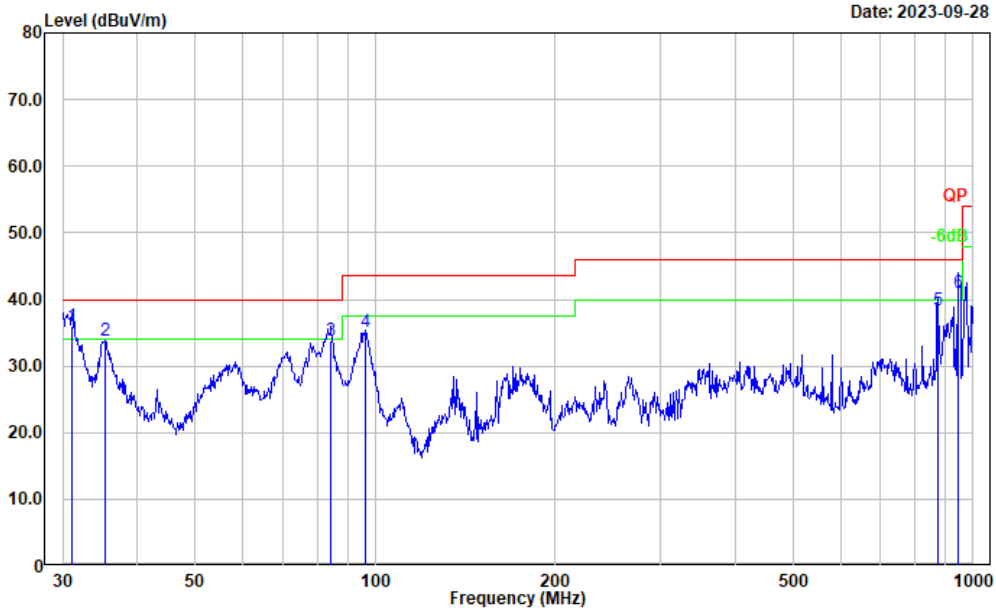
1) 30MHz-1GHz: Maximum output power mode 802.11 b MIMO, Low channel

Project No.: CR230849138-RF
Tester: Vic Du
Polarization: horizontal
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	83.816	52.42	-17.24	35.18	40.00	4.82	QP
2	96.436	52.95	-15.23	37.72	43.50	5.78	QP
3	178.133	49.21	-13.50	35.71	43.50	7.79	Peak
4	311.087	49.97	-10.60	39.37	46.00	6.63	Peak
5	869.130	38.83	-1.21	37.62	46.00	8.38	QP
6	942.131	41.70	-0.34	41.36	46.00	4.64	QP

Project No.: CR230849138-RF
Tester: Vic Du
Polarization: vertical
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	31.071	40.44	-4.43	36.01	40.00	3.99	QP
2	35.375	41.61	-7.76	33.85	40.00	6.15	Peak
3	84.405	51.11	-17.22	33.89	40.00	6.11	QP
4	96.099	50.54	-15.31	35.23	43.50	8.27	Peak
5	875.247	39.61	-1.18	38.43	46.00	7.57	QP
6	942.131	41.30	-0.34	40.96	46.00	5.04	QP

2) 1-25GHz:
802.11b Mode:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
2390.000	26.64	PK	H	31.46	58.10	74.00	15.90
2390.000	13.52	AV	H	31.46	44.98	54.00	9.02
2390.000	26.35	PK	V	31.46	57.81	74.00	16.19
2390.000	13.34	AV	V	31.46	44.80	54.00	9.20
4824.000	39.51	PK	H	10.94	50.45	74.00	23.55
4824.000	26.54	AV	H	10.94	37.48	54.00	16.52
4824.000	38.62	PK	V	10.94	49.56	74.00	24.44
4824.000	25.31	AV	V	10.94	36.25	54.00	17.75
7236.000	33.67	PK	H	14.44	48.11	74.00	25.89
7236.000	20.59	AV	H	14.44	35.03	54.00	18.97
7236.000	32.15	PK	V	14.44	46.59	74.00	27.41
7236.000	20.14	AV	V	14.44	34.58	54.00	19.42
Middle Channel: 2437 MHz							
4874.000	38.84	PK	H	11.05	49.89	74.00	24.11
4874.000	26.17	AV	H	11.05	37.22	54.00	16.78
4874.000	37.46	PK	V	11.05	48.51	74.00	25.49
4874.000	25.01	AV	V	11.05	36.06	54.00	17.94
7311.000	33.63	PK	H	14.80	48.43	74.00	25.57
7311.000	20.51	AV	H	14.80	35.31	54.00	18.69
7311.000	31.26	PK	V	14.80	46.06	74.00	27.94
7311.000	18.76	AV	V	14.80	33.56	54.00	20.44
High Channel: 2462 MHz							
2483.500	26.78	PK	H	31.64	58.42	74.00	15.58
2483.500	14.35	AV	H	31.64	45.99	54.00	8.01
2483.500	26.22	PK	V	31.64	57.86	74.00	16.14
2483.500	14.03	AV	V	31.64	45.67	54.00	8.33
4924.000	38.07	PK	H	11.18	49.25	74.00	24.75
4924.000	25.11	AV	H	11.18	36.29	54.00	17.71
4924.000	37.12	PK	V	11.18	48.30	74.00	25.70
4924.000	24.63	AV	V	11.18	35.81	54.00	18.19
7386.000	33.43	PK	H	14.89	48.32	74.00	25.68
7386.000	20.27	AV	H	14.89	35.16	54.00	18.84
7386.000	31.23	PK	V	14.89	46.12	74.00	27.88
7386.000	19.14	AV	V	14.89	34.03	54.00	19.97

802.11g Mode:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				2412	MHz		
2390.000	30.43	PK	H	31.46	61.89	74.00	12.11
2390.000	15.28	AV	H	31.46	46.74	54.00	7.26
2390.000	27.38	PK	V	31.46	58.84	74.00	15.16
2390.000	14.69	AV	V	31.46	46.15	54.00	7.85
4824.000	35.21	PK	H	10.94	46.15	74.00	27.85
4824.000	22.13	AV	H	10.94	33.07	54.00	20.93
4824.000	34.11	PK	V	10.94	45.05	74.00	28.95
4824.000	21.35	AV	V	10.94	32.29	54.00	21.71
7236.000	34.23	PK	H	14.44	48.67	74.00	25.33
7236.000	21.47	AV	H	14.44	35.91	54.00	18.09
7236.000	33.03	PK	V	14.44	47.47	74.00	26.53
7236.000	20.48	AV	V	14.44	34.92	54.00	19.08
Middle Channel:				2437	MHz		
4874.000	35.16	PK	H	11.05	46.21	74.00	27.79
4874.000	22.00	AV	H	11.05	33.05	54.00	20.95
4874.000	29.36	PK	V	11.05	40.41	74.00	33.59
4874.000	16.63	AV	V	11.05	27.68	54.00	26.32
7311.000	33.48	PK	H	14.80	48.28	74.00	25.72
7311.000	21.46	AV	H	14.80	36.26	54.00	17.74
7311.000	32.47	PK	V	14.8	47.27	74.00	26.73
7311.000	19.95	AV	V	14.8	34.75	54.00	19.25
High Channel:				2462	MHz		
2483.500	37.42	PK	H	31.64	69.06	74.00	4.94
2483.500	20.12	AV	H	31.64	51.76	54.00	2.24
2483.500	30.13	PK	V	31.64	61.77	74.00	12.23
2483.500	15.28	AV	V	31.64	46.92	54.00	7.08
4924.000	35.63	PK	H	11.18	46.81	74.00	27.19
4924.000	22.28	AV	H	11.18	33.46	54.00	20.54
4924.000	34.31	PK	V	11.18	45.49	74.00	28.51
4924.000	23.68	AV	V	11.18	34.86	54.00	19.14
7386.000	33.63	PK	H	14.89	48.52	74.00	25.48
7386.000	20.17	AV	H	14.89	35.06	54.00	18.94
7386.000	32.36	PK	V	14.89	47.25	74.00	26.75
7386.000	19.89	AV	V	14.89	34.78	54.00	19.22

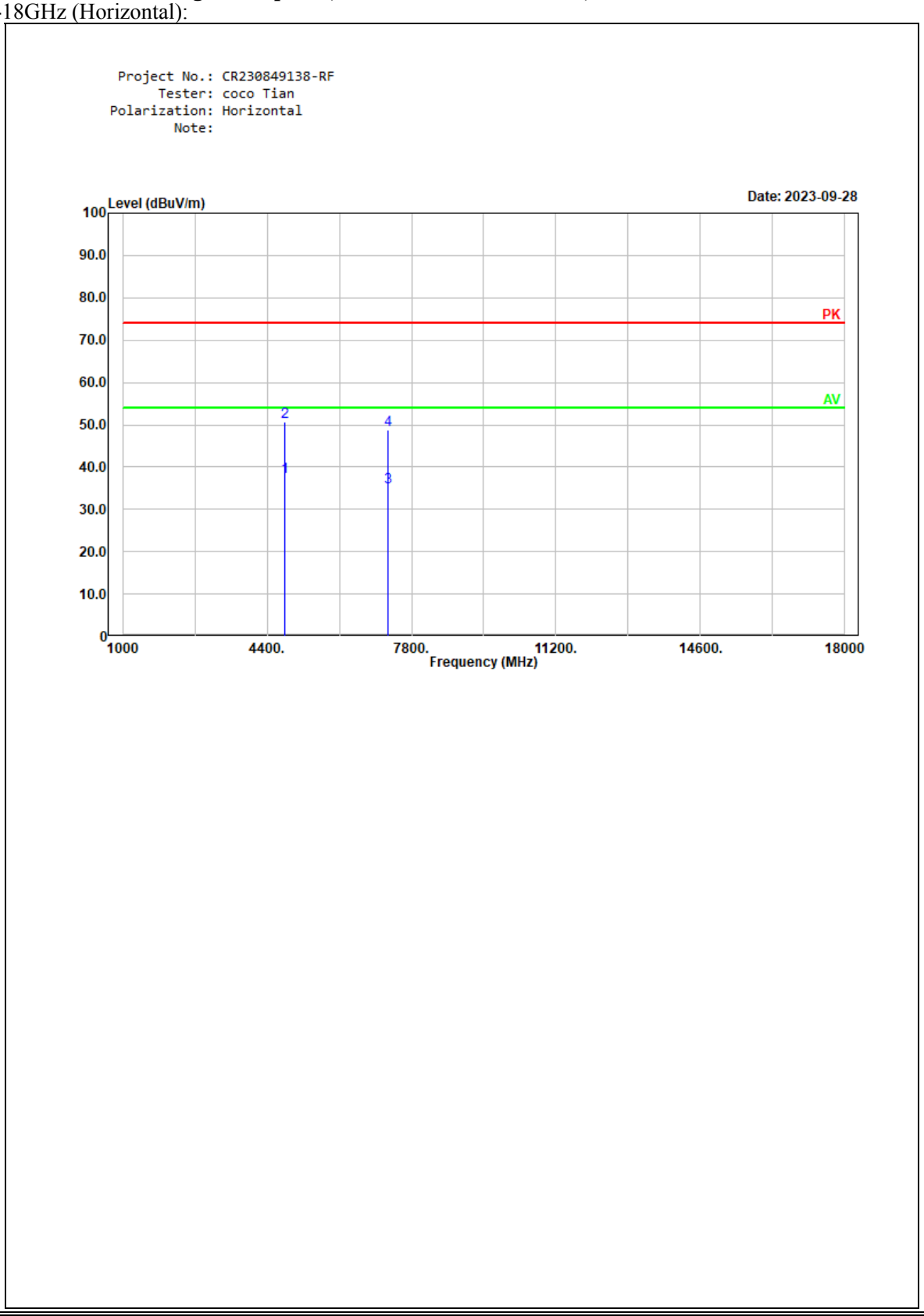
802.11n ht20 Mode:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2412 MHz							
2390.000	29.08	PK	H	31.46	60.54	74.00	13.46
2390.000	14.63	AV	H	31.46	46.09	54.00	7.91
2390.000	27.62	PK	V	31.46	59.08	74.00	14.92
2390.000	14.08	AV	V	31.46	45.54	54.00	8.46
4824.000	35.31	PK	H	10.94	46.25	74.00	27.75
4824.000	22.27	AV	H	10.94	33.21	54.00	20.79
4824.000	34.31	PK	V	10.94	45.25	74.00	28.75
4824.000	21.56	AV	V	10.94	32.50	54.00	21.50
7236.000	33.49	PK	H	14.44	47.93	74.00	26.07
7236.000	20.64	AV	H	14.44	35.08	54.00	18.92
7236.000	31.86	PK	V	14.44	46.30	74.00	27.70
7236.000	19.68	AV	V	14.44	34.12	54.00	19.88
Middle Channel: 2437 MHz							
4874.000	35.36	PK	H	11.05	46.41	74.00	27.59
4874.000	22.49	AV	H	11.05	33.54	54.00	20.46
4874.000	34.30	PK	V	11.05	45.35	74.00	28.65
4874.000	21.56	AV	V	11.05	32.61	54.00	21.39
7311.000	33.74	PK	H	14.80	48.54	74.00	25.46
7311.000	20.59	AV	H	14.80	35.39	54.00	18.61
7311.000	32.48	PK	V	14.80	47.28	74.00	26.72
7311.000	20.19	AV	V	14.80	34.99	54.00	19.01
High Channel: 2462 MHz							
2483.500	32.64	PK	H	31.64	64.28	74.00	9.72
2483.500	18.76	AV	H	31.64	50.40	54.00	3.60
2483.500	27.46	PK	V	31.64	59.10	74.00	14.90
2483.500	14.85	AV	V	31.64	46.49	54.00	7.51
4924.000	35.64	PK	H	11.18	46.82	74.00	27.18
4924.000	22.17	AV	H	11.18	33.35	54.00	20.65
4924.000	34.23	PK	V	11.18	45.41	74.00	28.59
4924.000	21.72	AV	V	11.18	32.90	54.00	21.10
7386.000	33.89	PK	H	14.89	48.78	74.00	25.22
7386.000	20.76	AV	H	14.89	35.65	54.00	18.35
7386.000	32.62	PK	V	14.89	47.51	74.00	26.49
7386.000	20.10	AV	V	14.89	34.99	54.00	19.01

802.11n ht40 Mode:

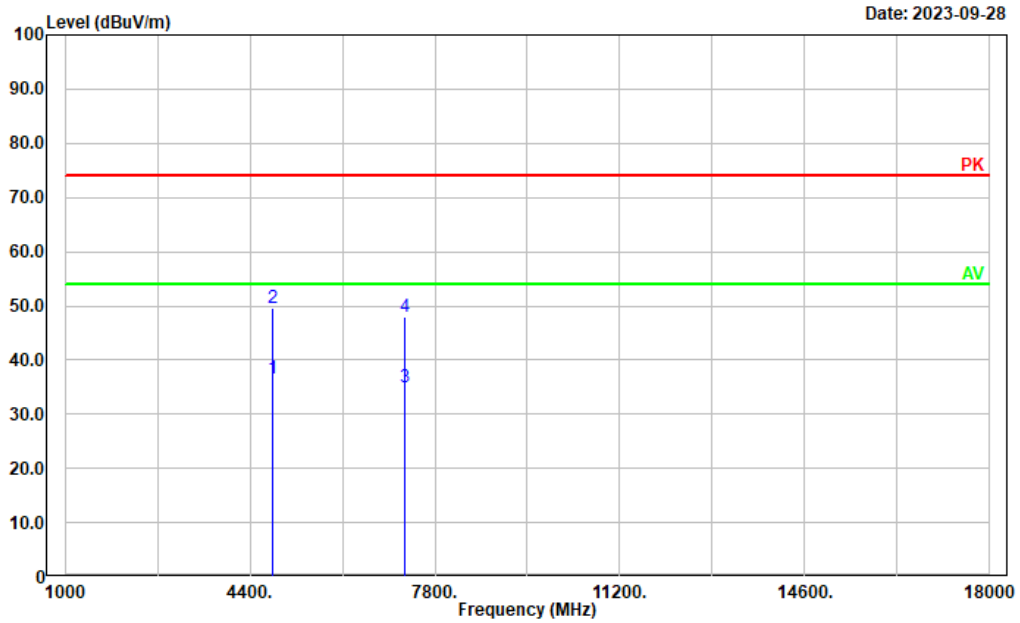
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 2422 MHz							
2390.000	36.34	PK	H	31.46	67.80	74.00	6.20
2390.000	19.18	AV	H	31.46	50.64	54.00	3.36
2390.000	29.67	PK	V	31.46	61.13	74.00	12.87
2390.000	15.14	AV	V	31.46	46.60	54.00	7.40
4844.000	34.67	PK	H	10.96	45.63	74.00	28.37
4844.000	21.69	AV	H	10.96	32.65	54.00	21.35
4844.000	34.67	PK	V	10.96	45.63	74.00	28.37
4844.000	21.69	AV	V	10.96	32.65	54.00	21.35
7266.000	33.63	PK	H	14.63	48.26	74.00	25.74
7266.000	20.43	AV	H	14.63	35.06	54.00	18.94
7266.000	32.03	PK	V	14.63	46.66	74.00	27.34
7266.000	20.13	AV	V	14.63	34.76	54.00	19.24
Middle Channel: 2437 MHz							
4874.000	34.36	PK	H	11.05	45.41	74.00	28.59
4874.000	21.79	AV	H	11.05	32.84	54.00	21.16
4874.000	32.56	PK	V	11.05	43.61	74.00	30.39
4874.000	20.33	AV	V	11.05	31.38	54.00	22.62
7311.000	33.37	PK	H	14.80	48.17	74.00	25.83
7311.000	20.48	AV	H	14.80	35.28	54.00	18.72
7311.000	31.36	PK	V	14.80	46.16	74.00	27.84
7311.000	19.96	AV	V	14.80	34.76	54.00	19.24
High Channel: 2452 MHz							
2483.500	37.43	PK	H	31.64	69.07	74.00	4.93
2483.500	19.16	AV	H	31.64	50.80	54.00	3.20
2483.500	30.48	PK	V	31.64	62.12	74.00	11.88
2483.500	15.55	AV	V	31.64	47.19	54.00	6.81
4904.000	34.61	PK	H	11.14	45.75	74.00	28.25
4904.000	21.44	AV	H	11.14	32.58	54.00	21.42
4904.000	32.39	PK	V	11.14	43.53	74.00	30.47
4904.000	20.81	AV	V	11.14	31.95	54.00	22.05
7356.000	33.55	PK	H	14.80	48.35	74.00	25.65
7356.000	20.71	AV	H	14.80	35.51	54.00	18.49
7356.000	31.85	PK	V	14.80	46.65	74.00	27.35
7356.000	20.14	AV	V	14.80	34.94	54.00	19.06

Worst Harmonic Margin Test plots (802.11b Mode Low channel)
1-18GHz (Horizontal):

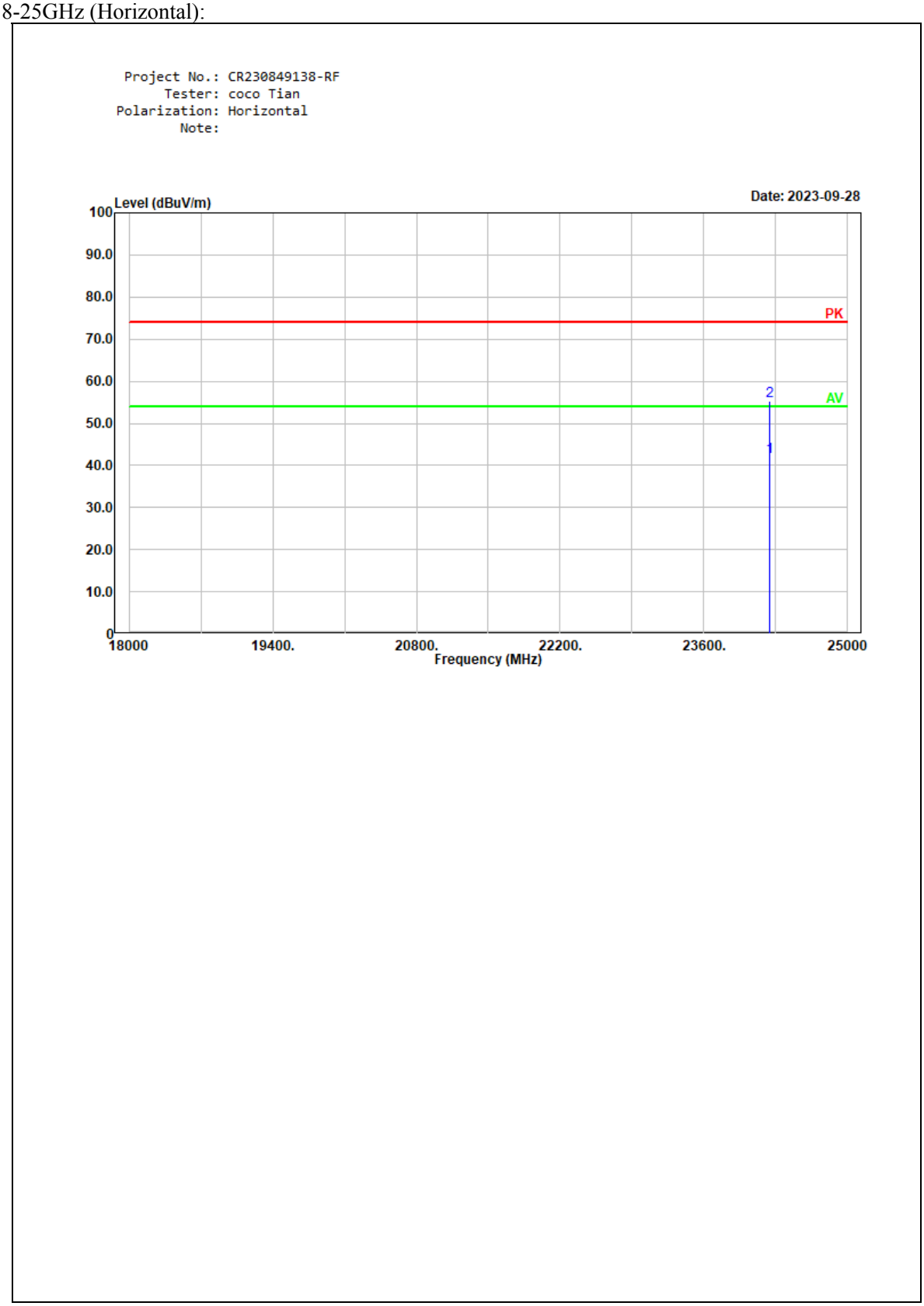


Vertical:

Project No.: CR230849138-RF
Tester: coco Tian
Polarization: vertical
Note:

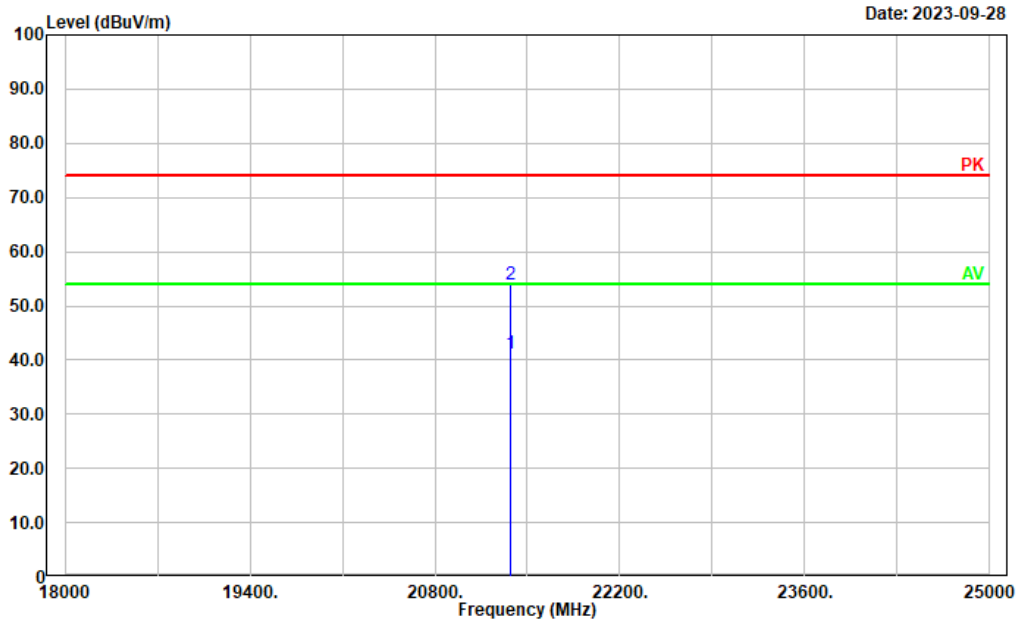


18-25GHz (Horizontal):



Vertical:

Project No.: CR230849138-RF
Tester: coco Tian
Polarization: vertical
Note:



4.3 Minimum 6 dB Emission Bandwidth

Serial Number:	2AAT-1	Test Date:	2023/9/29
Test Site:	RF	Test Mode:	Transmitting
Tester:	Arthur Su	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	26.2	Relative Humidity: (%)	55	ATM Pressure: (kPa)	100.7

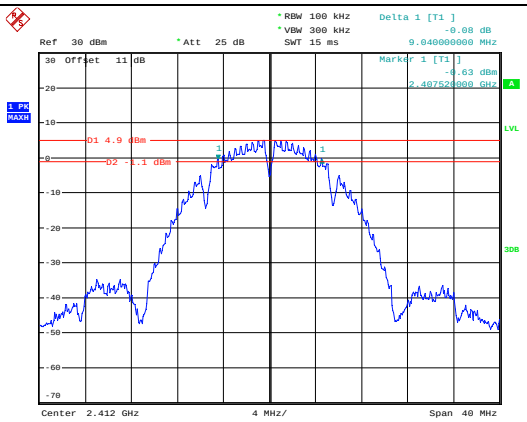
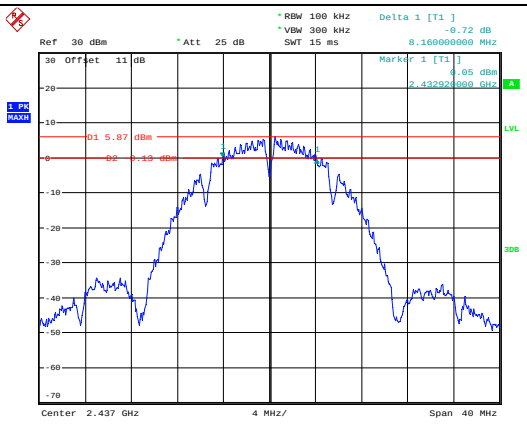
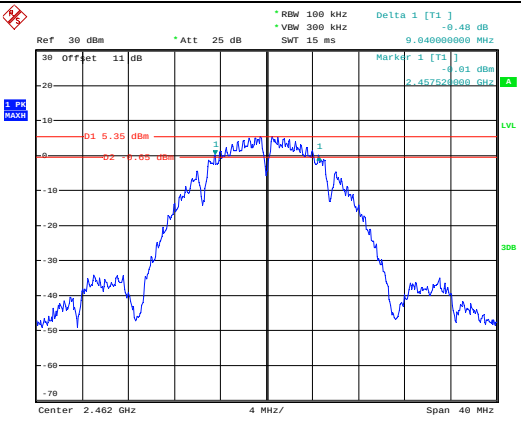
Test Equipment List and Details:

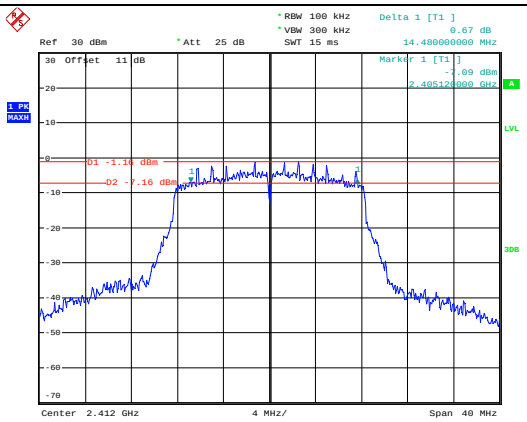
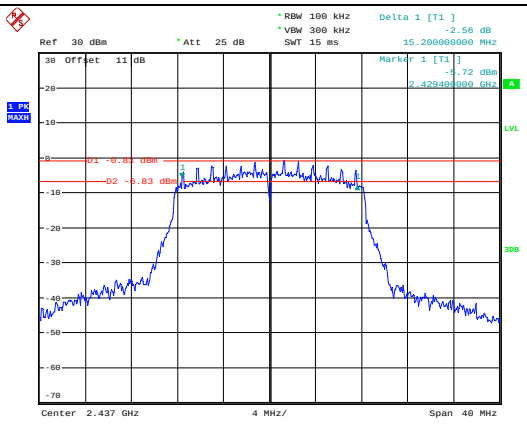
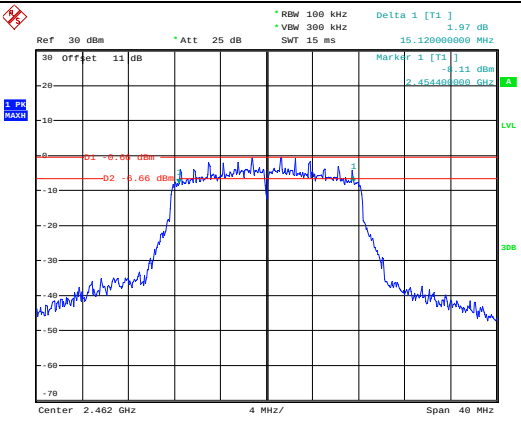
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

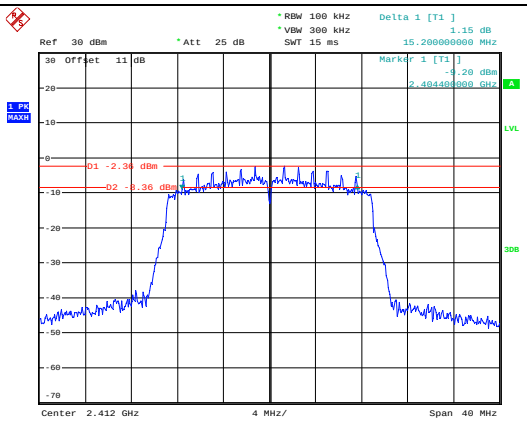
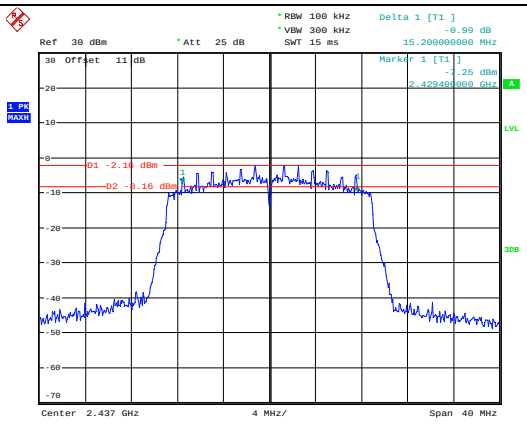
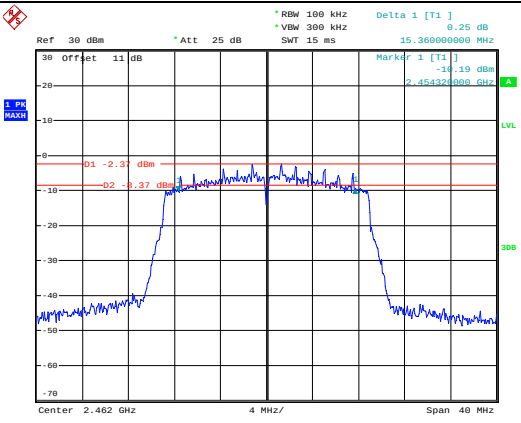
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

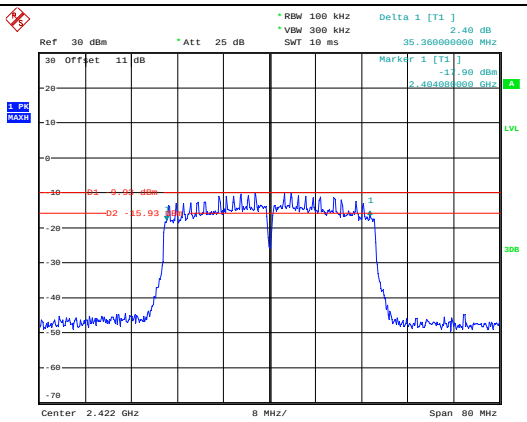
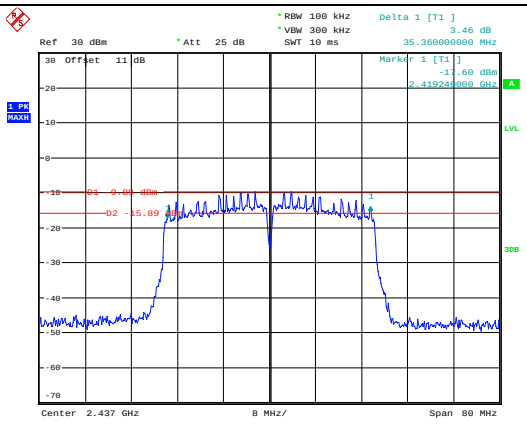
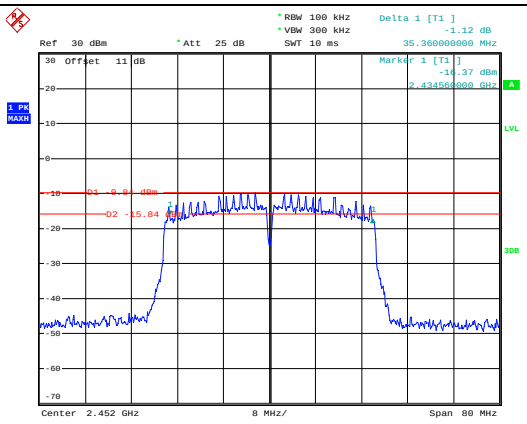
Test Data:

Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
802.11b	2412	9.04	0.5
	2437	8.16	0.5
	2462	9.04	0.5
802.11g	2412	14.48	0.5
	2437	15.2	0.5
	2462	15.12	0.5
802.11n ht20	2412	15.2	0.5
	2437	15.2	0.5
	2462	15.36	0.5
802.11n ht40	2422	35.36	0.5
	2437	35.36	0.5
	2452	35.36	0.5
Note: Test only was performed at Chain 0.			

6dB Emission Bandwidth	
802.11b Lowest Channel	
802.11b Middle Channel	
802.11b Highest Channel	

6dB Emission Bandwidth	
802.11g Lowest Channel	
802.11g Middle Channel	
802.11g Highest Channel	

6dB Emission Bandwidth	
802.11n ht20 Lowest Channel	
802.11n ht20 Middle Channel	
802.11n ht20 Highest Channel	

6dB Emission Bandwidth	
802.11n ht40 Lowest Channel	
802.11n ht40 Middle Channel	
802.11n ht40 Highest Channel	

4.4 99% Occupied Bandwidth

Serial Number:	2AAT-1	Test Date:	2023/9/29
Test Site:	RF	Test Mode:	Transmitting
Tester:	Arthur Su	Test Result:	N/A

Environmental Conditions:					
Temperature: (℃)	26.2	Relative Humidity: (%)	55	ATM Pressure: (kPa)	100.7

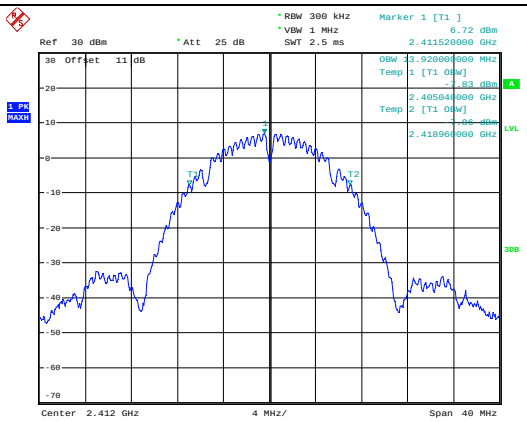
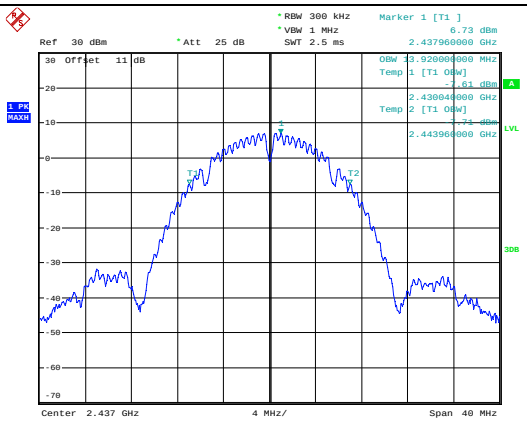
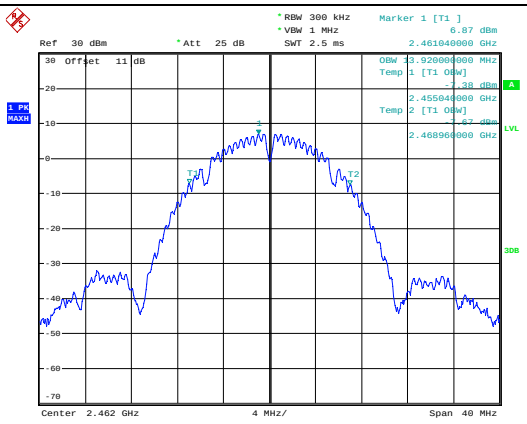
Test Equipment List and Details:

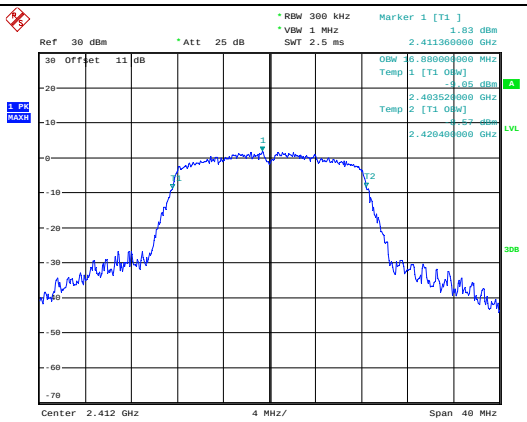
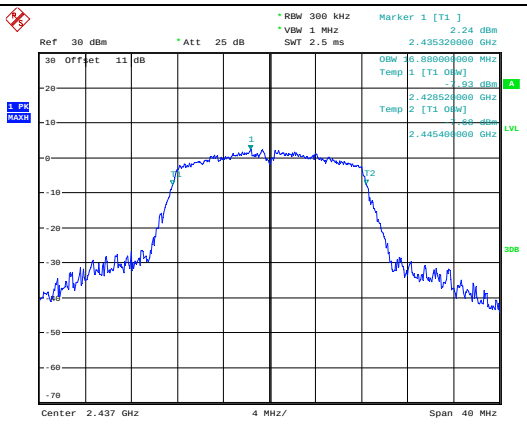
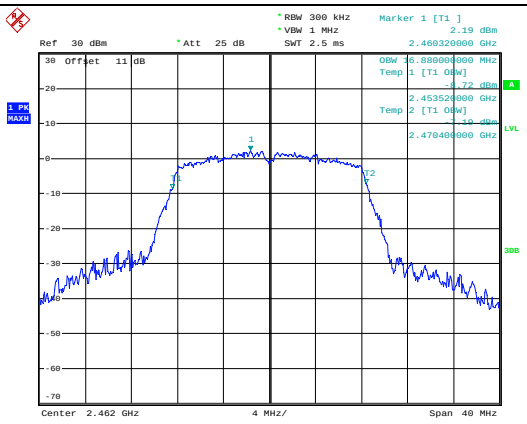
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

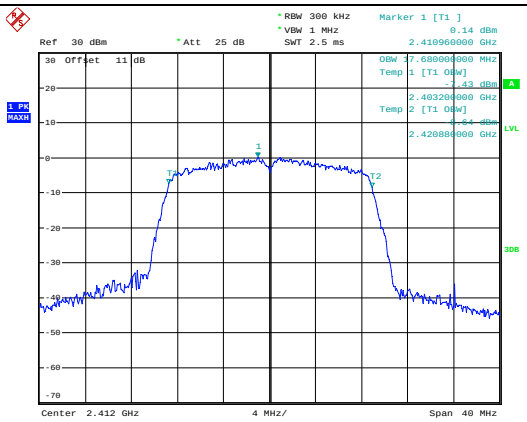
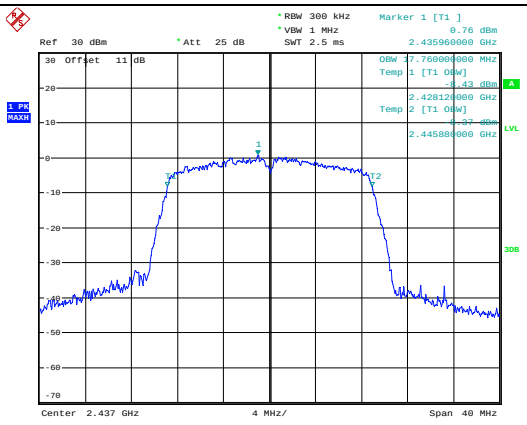
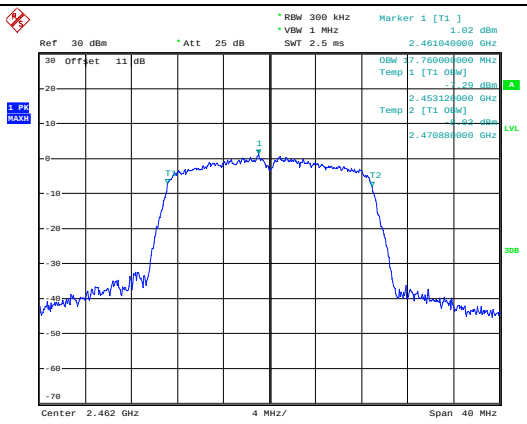
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

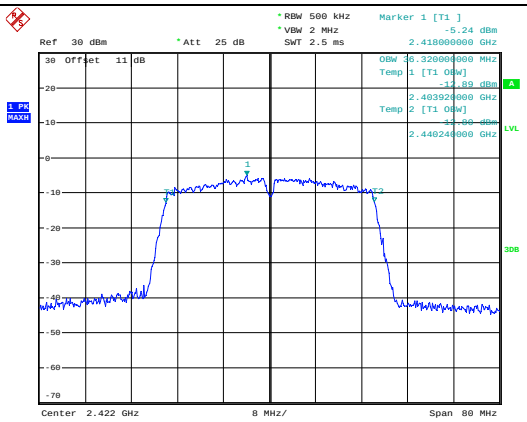
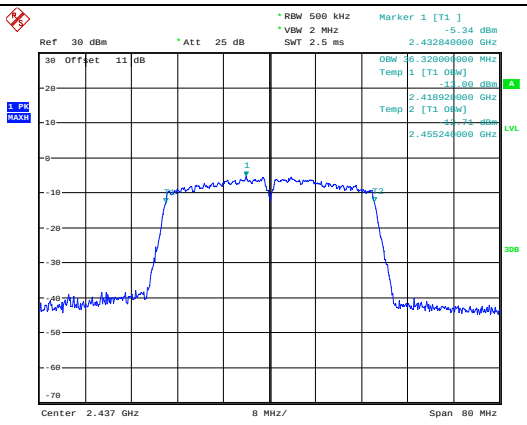
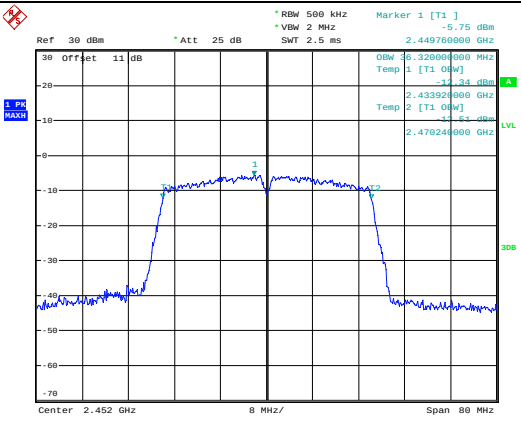
Test Data:

Test Modes	Test Channel	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11b	Lowest	2412	13.92
	Middle	2437	13.92
	Highest	2462	13.92
802.11g	Lowest	2412	16.88
	Middle	2437	16.88
	Highest	2462	16.88
802.11n ht20	Lowest	2412	17.68
	Middle	2437	17.76
	Highest	2462	17.76
802.11n ht40	Lowest	2422	36.32
	Middle	2437	36.16
	Highest	2452	36.32
Note: Test only was performed at Chain 0.			

99% Occupied Bandwidth	
802.11b Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:36:10
802.11b Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:39:37
802.11b Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:41:15

99% Occupied Bandwidth	
802.11g Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:46:39
802.11g Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:45:13
802.11g Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:43:28

99% Occupied Bandwidth	
802.11n ht20 Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:48:26
802.11n ht20 Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:50:19
802.11n ht20 Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:51:37

99% Occupied Bandwidth	
802.11n ht40 Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:53:45
802.11n ht40 Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:55:49
802.11n ht40 Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:57:41

4.5 Maximum Conducted Output Power

Serial Number:	2AAT-1	Test Date:	2023/9/28
Test Site:	RF	Test Mode:	Transmitting
Tester:	Arthur Su	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.8	Relative Humidity: (%)	52	ATM Pressure: (kPa)	100.2

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A
Anritsu	Power Meter	ML2495A	1106009	2023/8/4	2024/8/3
Anritsu	Pulse Power Sensor	MA2411A	10780	2023/8/4	2024/8/3

** 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:

Test Modes	Test Frequency (MHz)	Maximum Conducted Peak Output Power (dBm)			Limit (dBm)
		Chain 0	Chain 1	Total	
802.11b	2412	18.03	19.85	22.04	30
	2437	18.20	19.57	21.95	30
	2462	18.24	19.54	21.95	30
802.11g	2412	17.64	19.25	21.53	30
	2437	17.59	19.37	21.58	30
	2462	17.79	19.46	21.72	30
802.11n ht20	2412	15.87	17.84	19.98	30
	2437	16.06	18.11	20.22	30
	2462	16.18	18.01	20.20	30
802.11n ht40	2422	11.62	13.39	15.60	30
	2437	11.58	13.43	15.61	30
	2452	11.73	13.48	15.70	30
Note: The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices: Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$					

4.6 Maximum Power Spectral Density

Serial Number:	2AAT-1	Test Date:	2023/9/29-2023/10/18
Test Site:	RF	Test Mode:	Transmitting
Tester:	Arthur Su/Claire Liu	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.8-26.1	Relative Humidity: (%)	52-64	ATM Pressure: (kPa)	100.2-101

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

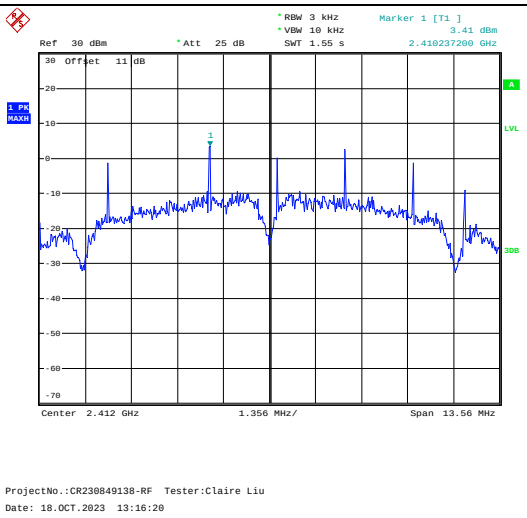
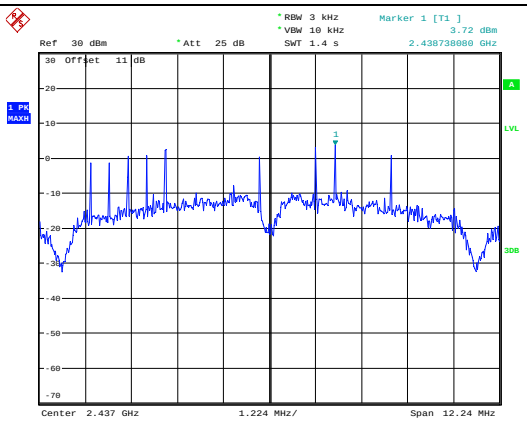
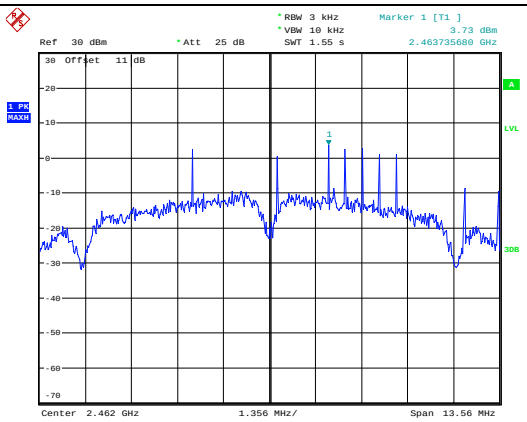
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

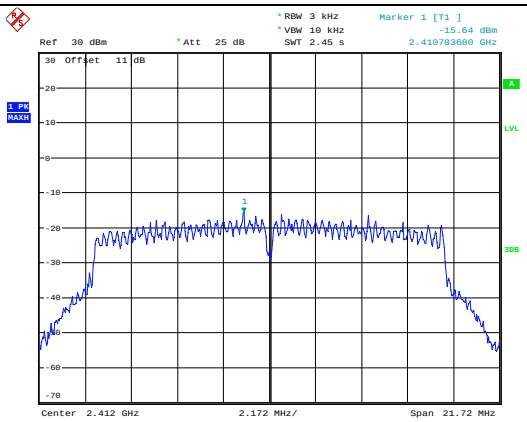
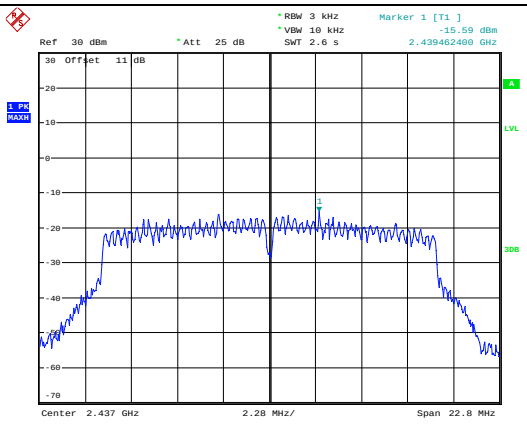
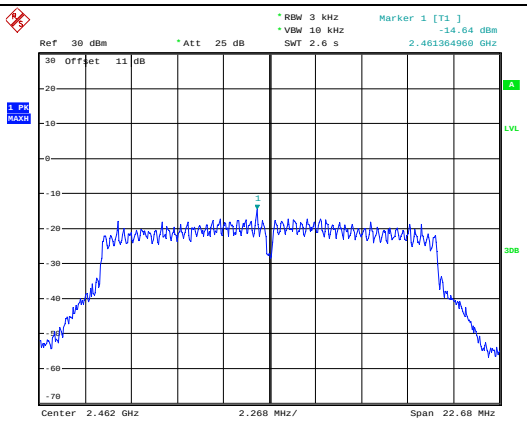
Test Data:

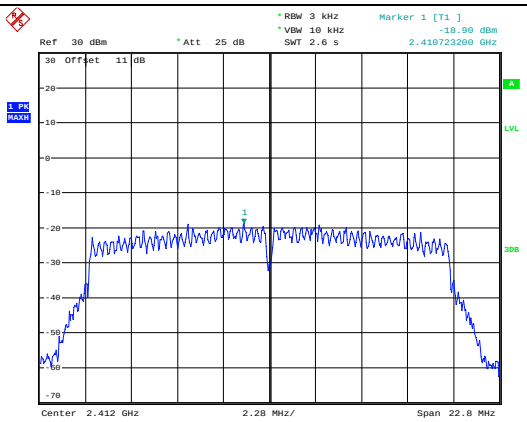
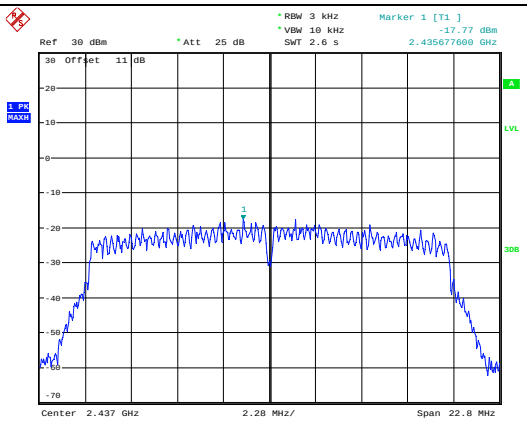
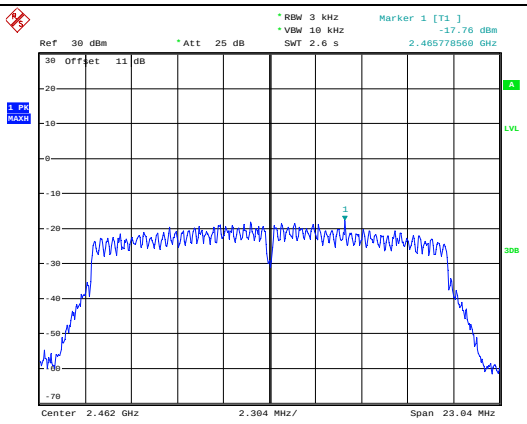
Test Modes	Test Frequency (MHz)	Reading(dBm/3kHz)		Maximum Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
		Chain 0	Chain 1		
802.11b	2412	3.41	5.91	7.85	7.94
	2437	3.72	5.74	7.86	7.94
	2462	3.73	5.14	7.50	7.94
802.11g	2412	-15.64	-15.20	-12.40	7.94
	2437	-15.59	-14.77	-12.15	7.94
	2462	-14.64	-13.41	-10.97	7.94
802.11n ht20	2412	-18.90	-16.65	-14.62	7.94
	2437	-17.77	-17.26	-14.50	7.94
	2462	-17.76	-15.79	-13.65	7.94
802.11n ht40	2422	-25.40	-25.02	-22.20	7.94
	2437	-24.68	-24.81	-21.73	7.94
	2452	-24.92	-25.31	-22.10	7.94

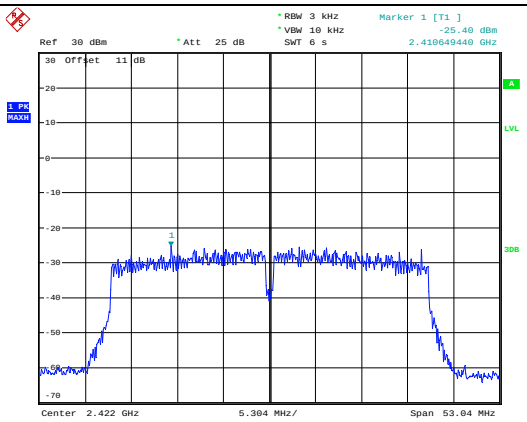
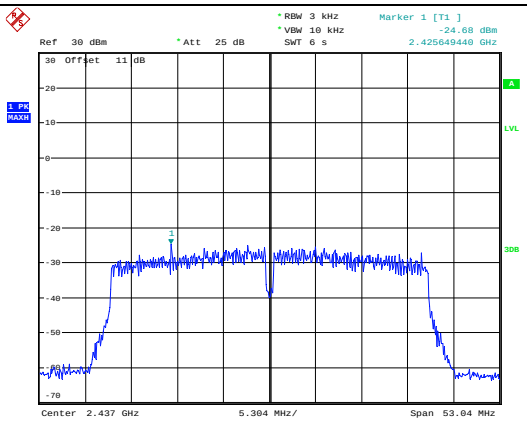
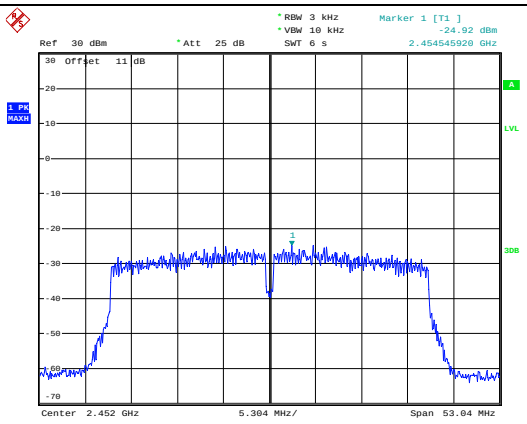
Note: The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices: Array Gain = 10 log(NANT/NSS) dB = 10*log(2/1)=3
So, Directional gain = 3.06dBi+3= 6.06dBi, the worst limit was used in the table.

Chain 0:

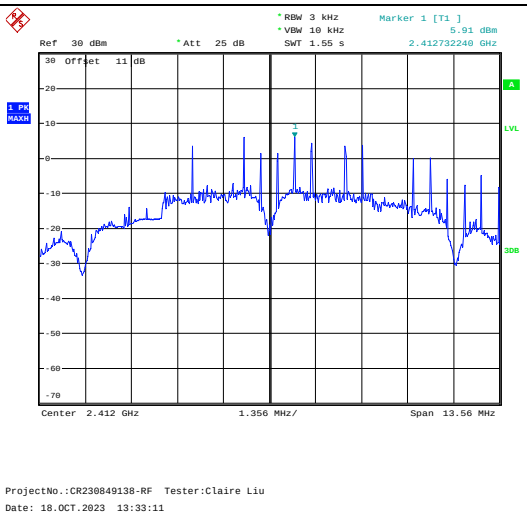
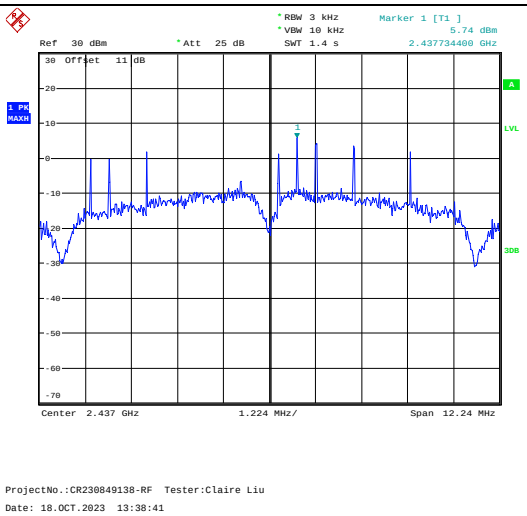
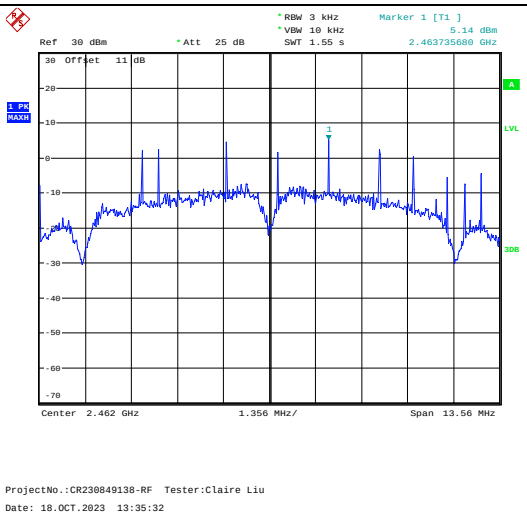
Maximum power spectral density	
802.11b Lowest Channel	
802.11b Middle Channel	
802.11b Highest Channel	

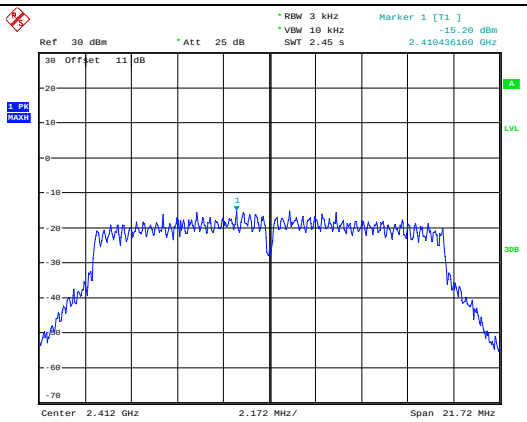
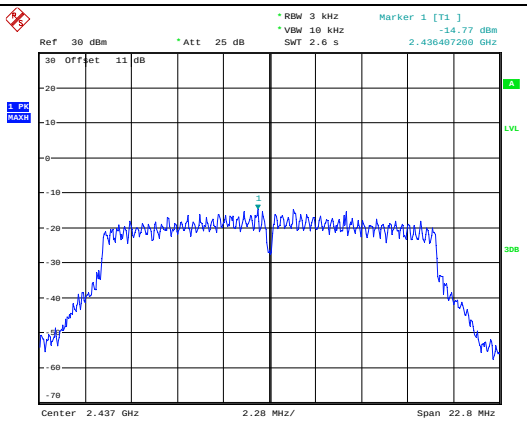
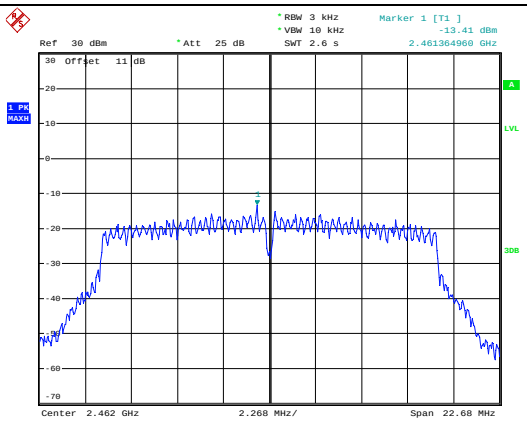
Maximum power spectral density	
802.11g Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:47:10
802.11g Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:45:45
802.11g Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:43:52

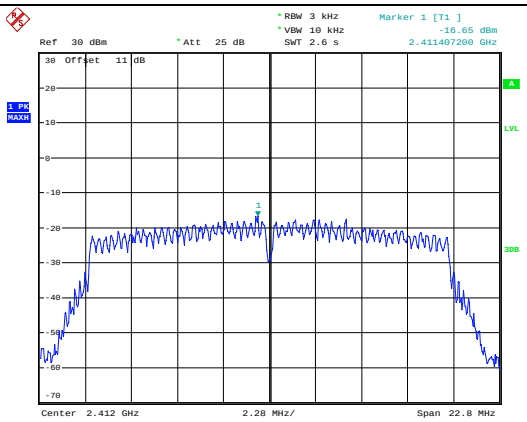
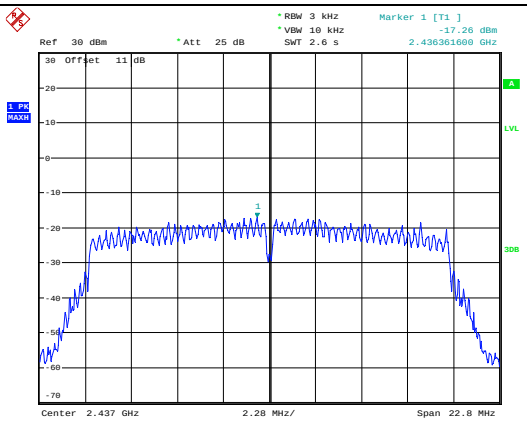
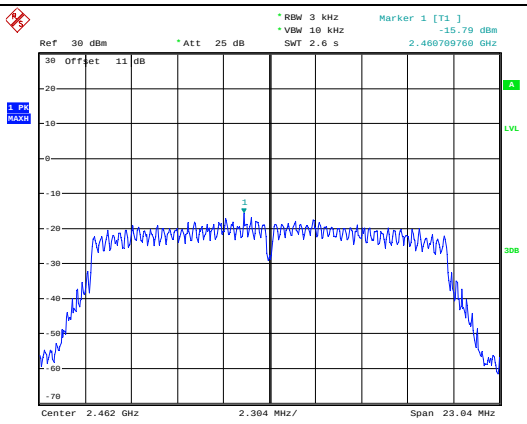
Maximum power spectral density	
802.11n ht20 Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:48:50
802.11n ht20 Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:50:43
802.11n ht20 Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 00:52:09

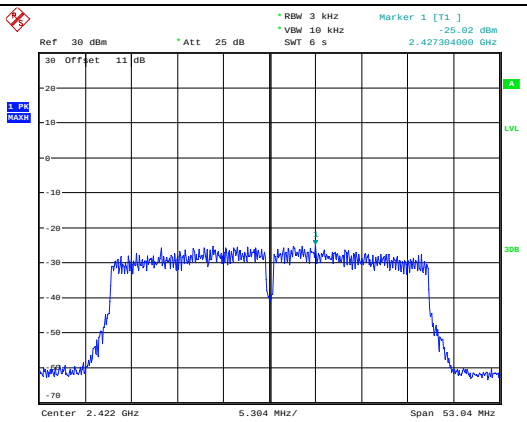
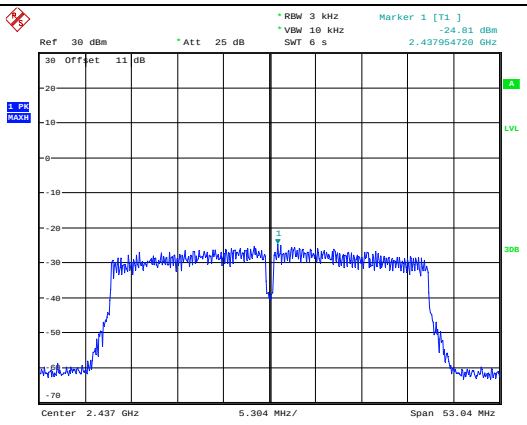
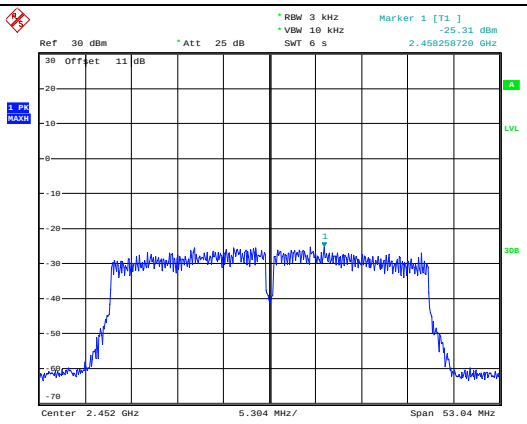
Maximum power spectral density	
802.11n ht40 Lowest Channel	
802.11n ht40 Middle Channel	
802.11n ht40 Highest Channel	

Chain 1:

Maximum power spectral density	
802.11b Lowest Channel	
802.11b Middle Channel	
802.11b Highest Channel	

Maximum power spectral density	
802.11g Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 01:10:05
802.11g Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 01:09:18
802.11g Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 01:08:25

Maximum power spectral density	
802.11n ht20 Lowest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 01:05:15
802.11n ht20 Middle Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 01:06:06
802.11n ht20 Highest Channel	 ProjectNo.:CR230849138-RF Tester:Arthur Su Date: 29.SEP.2023 01:06:54

Maximum power spectral density	
802.11n ht40 Lowest Channel	
802.11n ht40 Middle Channel	
802.11n ht40 Highest Channel	

4.7 100 kHz Bandwidth of Frequency Band Edge:

Serial Number:	2AAT-1	Test Date:	2023/9/29
Test Site:	RF	Test Mode:	Transmitting
Tester:	Arthur Su	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	26.2	Relative Humidity: (%)	55	ATM Pressure: (kPa)	100.7

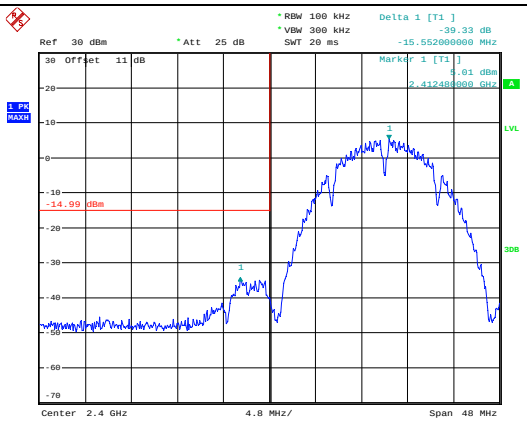
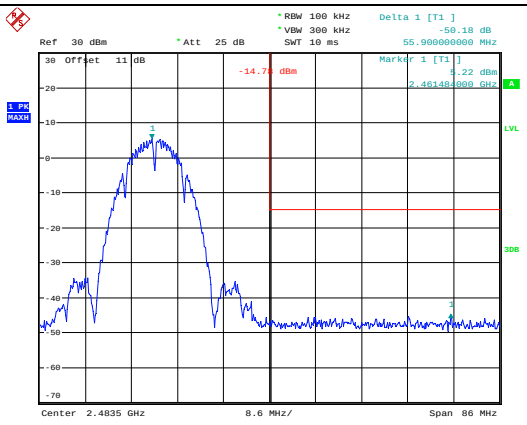
Test Equipment List and Details:

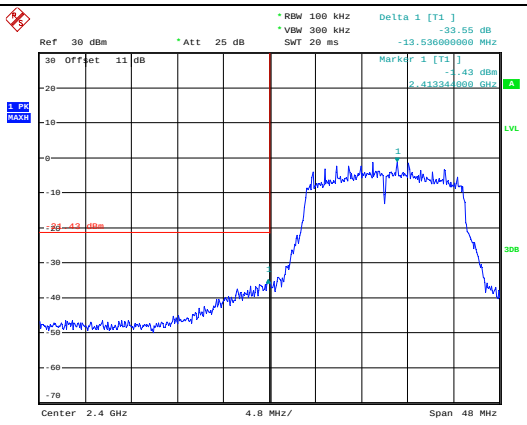
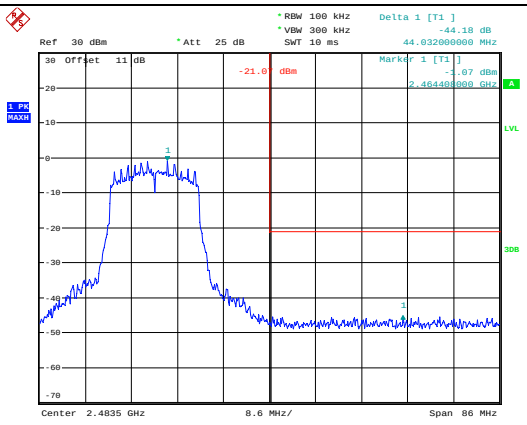
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

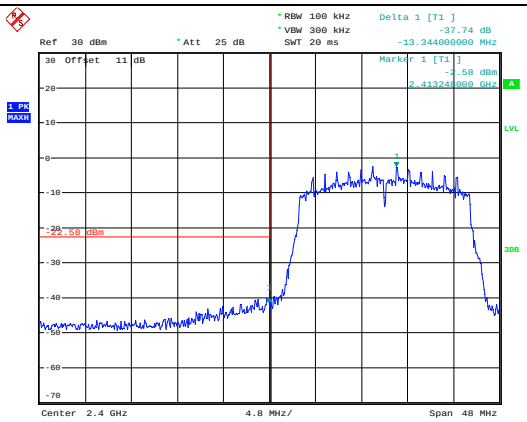
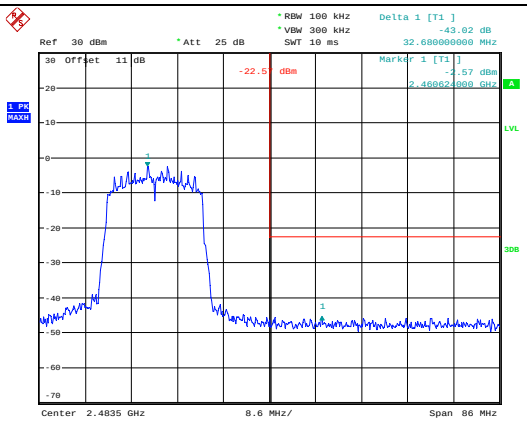
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

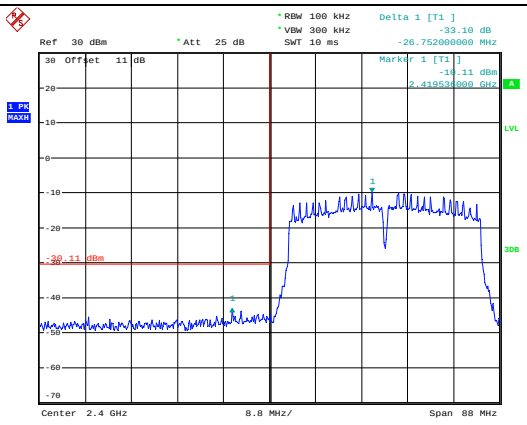
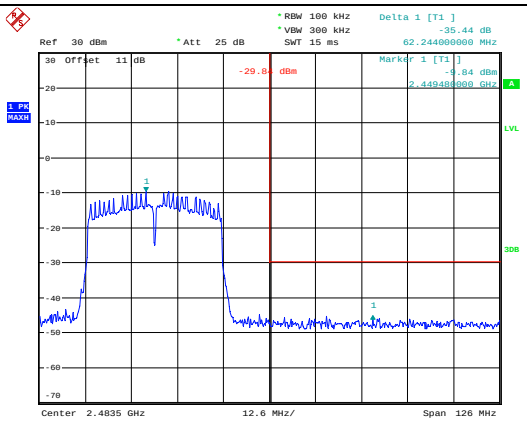
Test Data:

Chain 0:

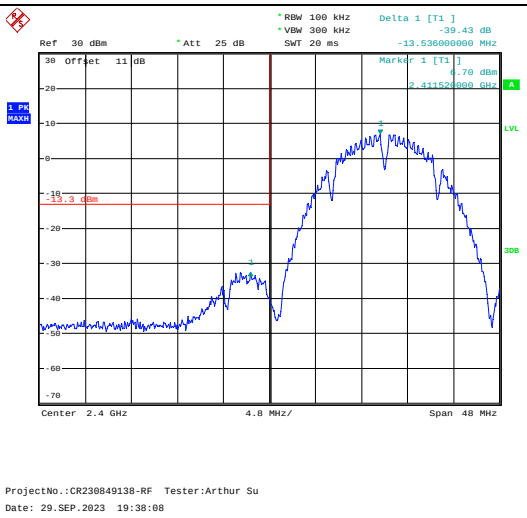
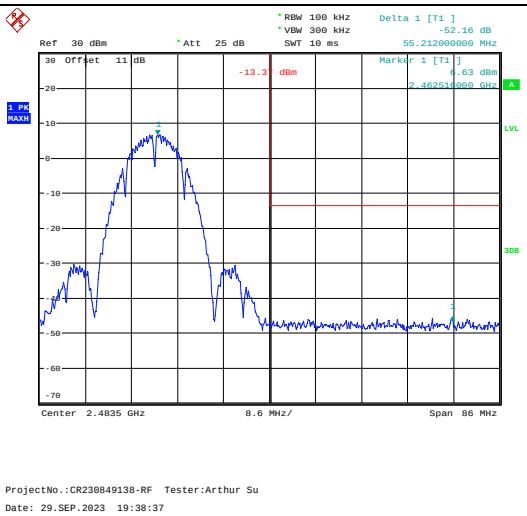
100 kHz Bandwidth of Frequency Band Edge	
802.11b Lowest Band edge	
802.11b Highest Band edge	

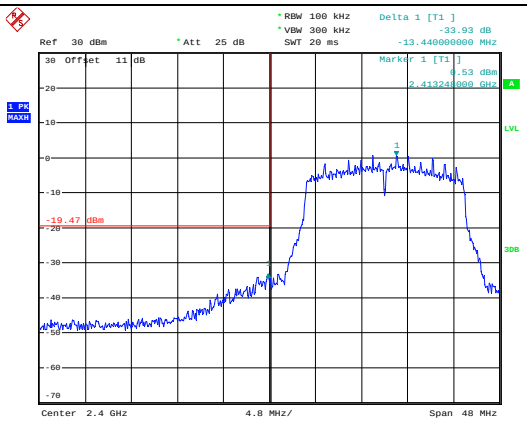
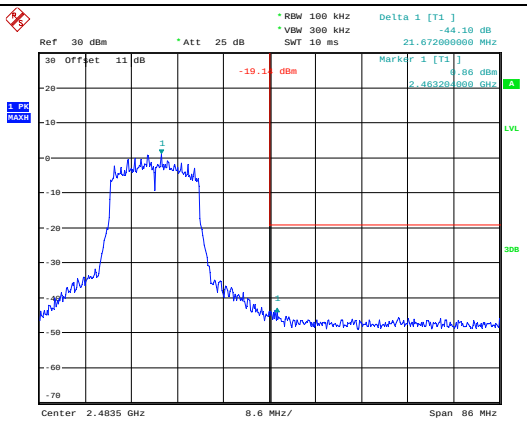
100 kHz Bandwidth of Frequency Band Edge	
802.11g Lowest Band edge	
802.11g Highest Band edge	

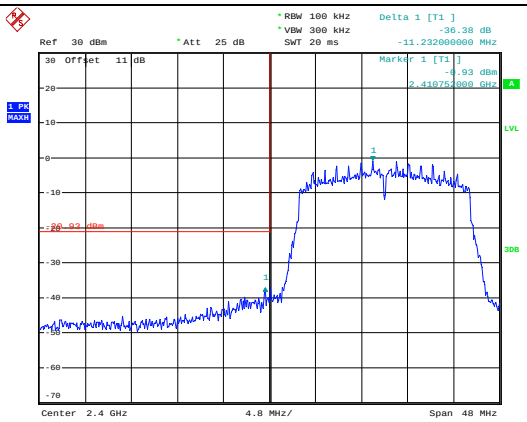
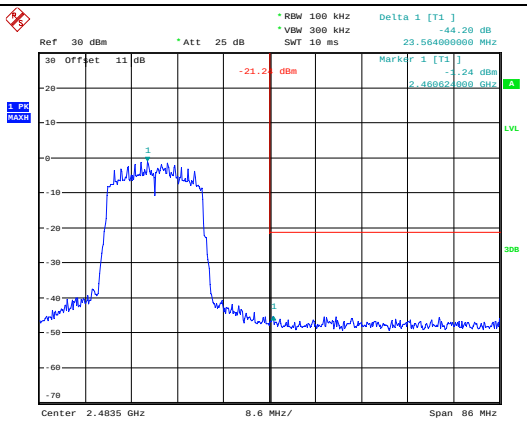
100 kHz Bandwidth of Frequency Band Edge	
802.11n ht20 Lowest Band edge	
802.11n ht20 Highest Band edge	

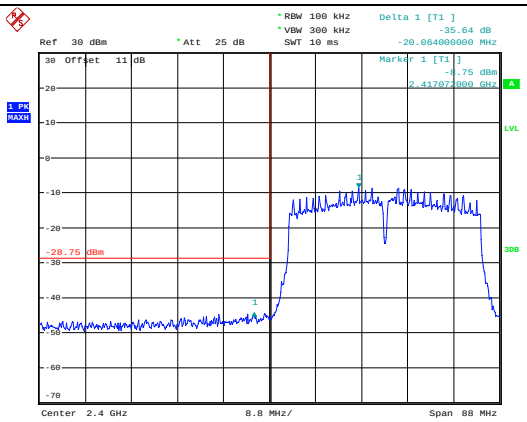
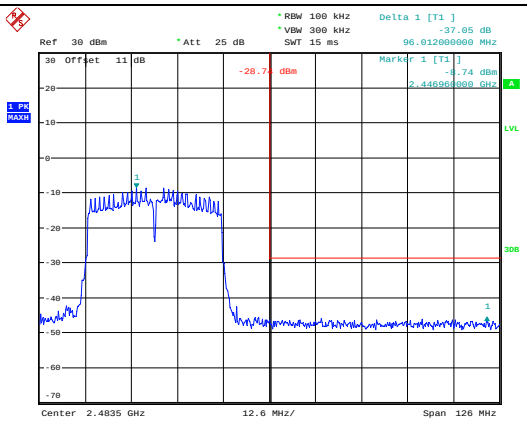
100 kHz Bandwidth of Frequency Band Edge	
802.11n ht40 Lowest Band edge	
802.11n ht40 Highest Band edge	

Chain 1:

100 kHz Bandwidth of Frequency Band Edge	
802.11b Lowest Band edge	
802.11b Highest Band edge	

100 kHz Bandwidth of Frequency Band Edge	
802.11g Lowest Band edge	
802.11g Highest Band edge	

100 kHz Bandwidth of Frequency Band Edge	
802.11n ht20 Lowest Band edge	
802.11n ht20 Highest Band edge	

100 kHz Bandwidth of Frequency Band Edge	
802.11n ht40 Lowest Band edge	
802.11n ht40 Highest Band edge	

4.8 Duty Cycle:

Serial Number:	2AAT-1	Test Date:	2023/10/18
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	N/A

Environmental Conditions:					
Temperature: (℃)	26.1	Relative Humidity: (%)	64	ATM Pressure: (kPa)	101

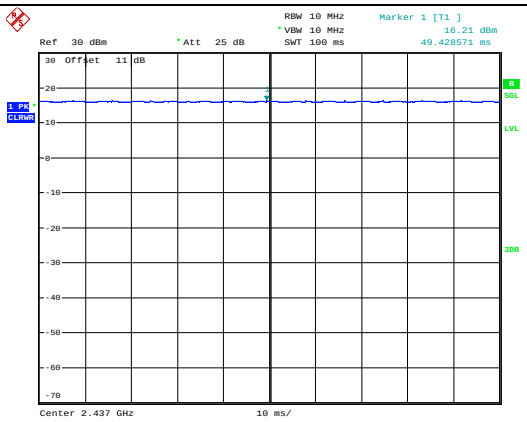
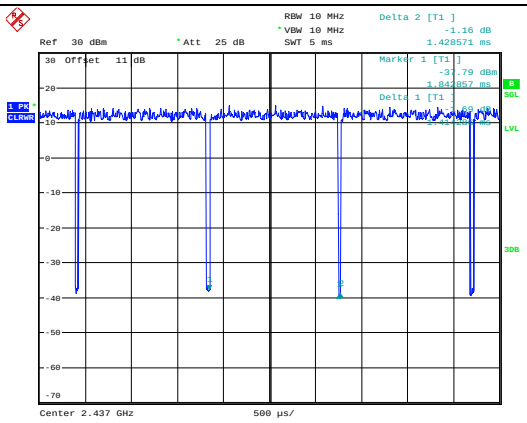
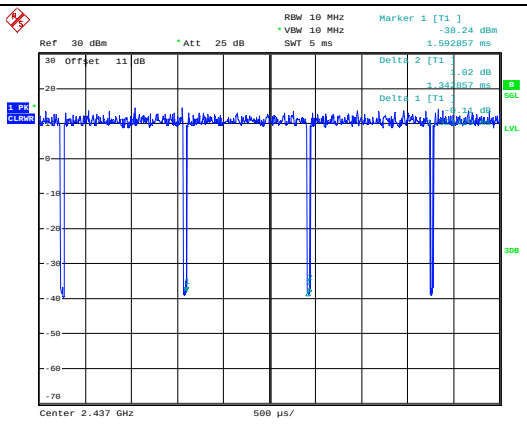
Test Equipment List and Details:

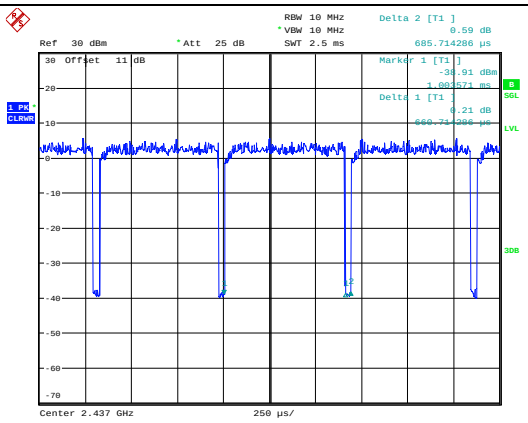
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each 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).*

Test Data:

Test Modes	Ton (ms)	Ton+off (ms)	Duty cycle (%)	1/T (Hz)	VBW Setting (kHz)
802.11b	100	100	100.00	/	0.01
802.11g	1.414	1.429	98.95	/	0.01
802.11n ht20	1.321	1.343	98.36	/	0.01
802.11n ht40	0.661	0.686	96.36	1513	2
Note: Test only was performed at Chain 0.					

Duty Cycle	
802.11b	 ProjectNo.:CR230849138-RF Tester:Claire Liu Date: 18.OCT.2023 11:46:24
802.11g	 ProjectNo.:CR230849138-RF Tester:Claire Liu Date: 18.OCT.2023 11:48:19
802.11n ht20	 ProjectNo.:CR230849138-RF Tester:Claire Liu Date: 18.OCT.2023 11:49:53

802.11n ht40	 RBW 10 MHz VBW 10 MHz SWT 2.5 ms Delta 2 [T1] 0.59 dB 685.714286 µs Ref 30 dBm Att 25 dB 30 Offset 11 dB Marker 1 [T1] -38.91 dBm 1.003571 ms Delta 1 [T1] 0.21 dB 660.714286 µs 1 PK CLRWR B SGL LVL 3DB Center 2.437 GHz 250 µs/ ProjectNo.:CR230849138-RF Tester:Claire Liu Date: 18.OCT.2023 11:51:58

5. EUT PHOTOGRAPHS

Please refer to the attachment CR230849138-EXP EUT EXTERNAL PHOTOGRAPHS and CR230849138-INP EUT INTERNAL PHOTOGRAPHS

6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR230849138-00C-TSP TEST SETUP PHOTOGRAPHS.

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