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

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Shenzhen Ai-Thinker Technology Co., Ltd.**

Address: 410,Block C, Huafeng Smart Innovation Port.Gushu 2nd Road,Gushu Community,Xixiang Street,Baoan District,Shenzhen,China

FCC ID: **2ATPO-RD03**

Product Name: **Radar Module**

Model: **Rd-03**

Standard(s): **47 CFR Part 15, Subpart C(15.249)**
ANSI C63.10-2013

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

Report Number: **CR230953054-00**

Date Of Issue: **2023/9/25**

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.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230953054-00	Original Report	2023/9/25

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Radar Module
EUT Model:	Rd-03
Trade Name:	B&T 博安通 安信可科技 Ai-Thinker
Operation Frequency:	24010-24240 MHz
Modulation Type:	FMCW
Rated Input Voltage:	DC 3.3V
Serial Number:	2B2S-1
EUT Received Date:	2023/9/13
EUT Received Status:	Good
Note: The Radar device has two antennas, but only support 1TX1RX.	

Operation Frequency Detail:

Sweep Start Frequency (MHz)	**Sweep Stop Frequency (MHz)**
24010	24240
Per section 15.31(m), the below frequencies were performed the test as below:	
Test Frequency	**Frequency (MHz)**
Lowest	24010
Middle	24175
Highest	24240

Antenna Information Detail▲:

Antenna Type	**input impedance (Ohm)**	**Frequency Range**	**Antenna Gain**
PCB Antenna	50	24~24.25GHz	0.5dBi

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:

No.

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. Transmitting
Equipment Modifications:	No
EUT Exercise Software:	No
Engineering Mode was provided by manufacturer▲. The maximum power was configured default setting.	

1.2.2 Support Equipment List and Details

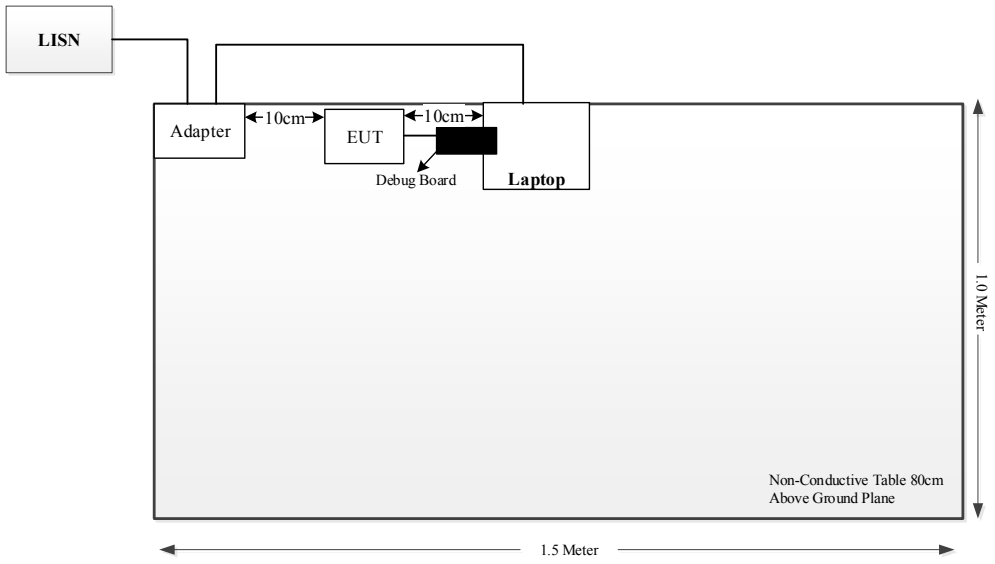
Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	T460S	60PDTEK8
Lenovo	Adapter	ADLX45DLC3A	00HM613
/	Debug Board	/	/

1.2.3 Support Cable List and Details

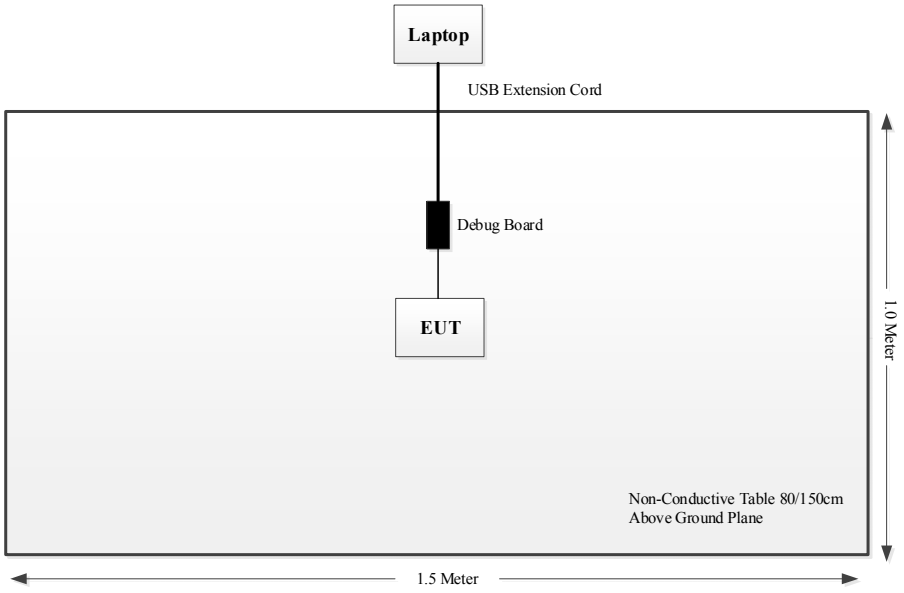
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Power Cable	No	No	1.2	Adapter	LISN
Power Cable	No	Yes	1.2	Adapter	Laptop
Data Cable	No	No	0.15	Debug Board	EUT
USB Extension Cord	Yes	No	10	Laptop	Debug Board

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 %
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
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)/Rule(s)	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conduction Emissions	Compliant
§15.205, §15.209, §15.249	Radiated Emissions	Compliant
§15.215 (c)	20 dB Bandwidth	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:

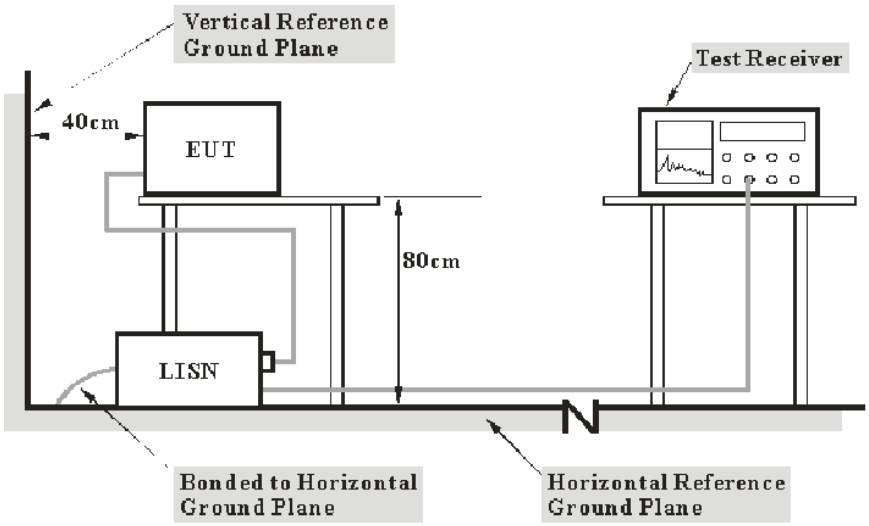
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(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.

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

During the conducted emission test, the EUT was connected to the outlet of the first LISN.

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 Radiated Emissions

3.2.1 Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

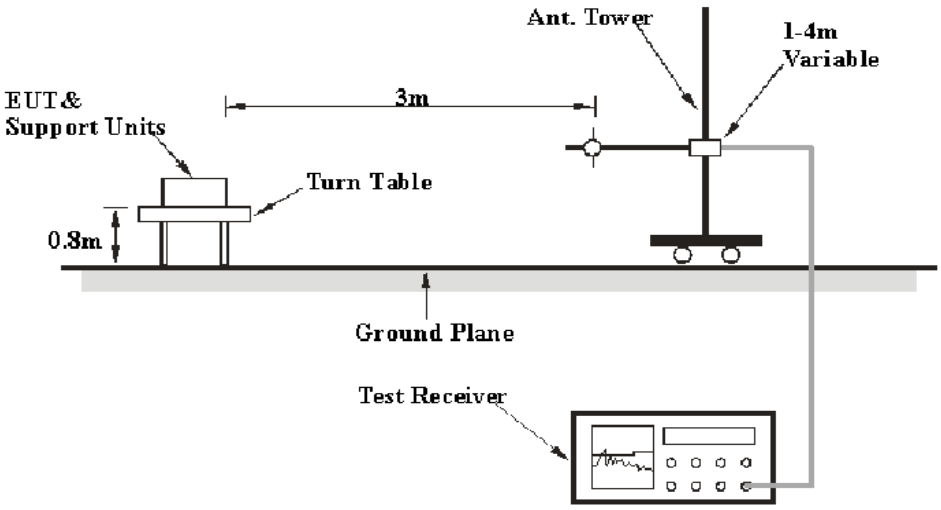
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

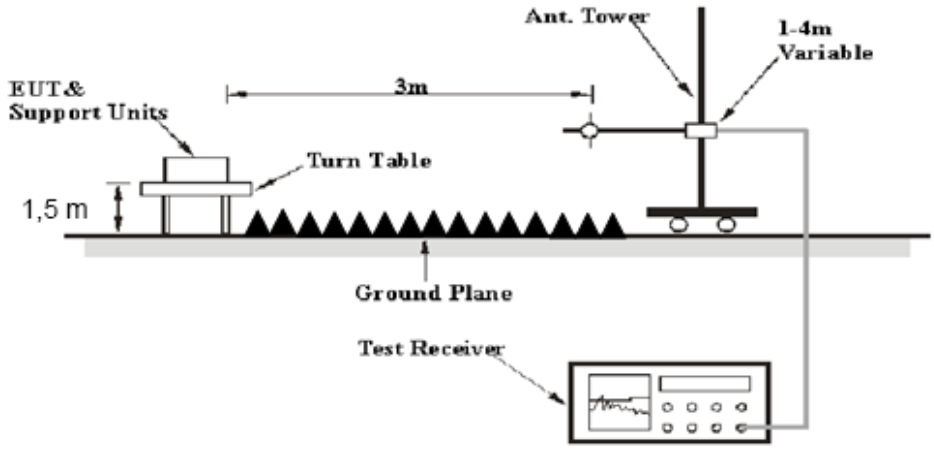
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

3.2.2 EUT Setup

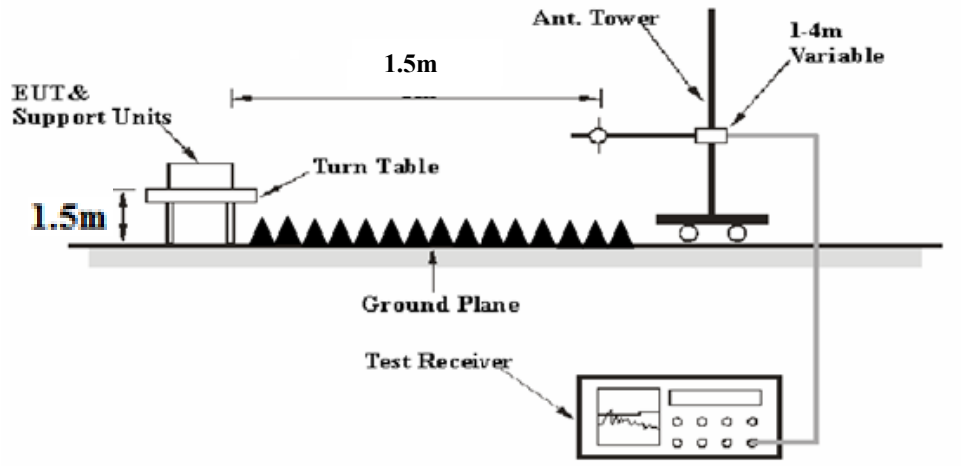
Below 1GHz:



1-26.5 GHz:



26.5-40 GHz:



Above 40GHz:

The antenna is scanned around the entire perimeter surface of the EUT, in both horizontal and vertical polarizations, at the distance of 1.0 m from 40 GHz to 90 GHz, and 0.5 m from 90 GHz to 100 GHz.

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 15.249 limits.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 100 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	AV

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.

According to C63.10, the 26.5-40GHz test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m.

Distance extrapolation factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB.

The 40-90GHz test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1m.

Distance extrapolation factor =20 log (specific distance [3m]/test distance [1m]) dB= 9.54 dB.

The 40-90GHz test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 0.5m.

Distance extrapolation factor =20 log (specific distance [3m]/test distance [0.5m]) dB=15.56 dB.

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

For 30MHz-26.5GHz:
Result = Reading + Factor

For 26.5GHz-100GHz
Result = Reading + Factor-Distance extrapolation Factor

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

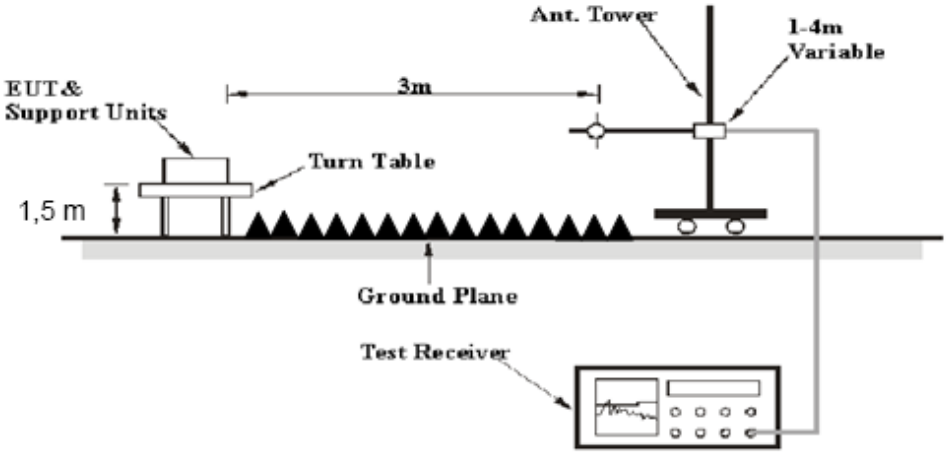
3.3 20 dB Emission Bandwidth:

3.3.1 Applicable Standard

FCC §15.215

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

3.3.2 EUT Setup



3.3.3Test Procedure

1. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
2. Repeat above procedures until all frequencies measured were complete.

3.4 Antenna Requirement

3.4.1 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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

3.4.2 Judgment

Please refer to the Antenna Information detail in Section 1.

4. Test DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	2B2S-1	Test Date:	2023/9/15
Test Site:	CE	Test Mode:	Transmitting (Middle frequency was the worst)
Tester:	David Huang	Test Result:	Pass

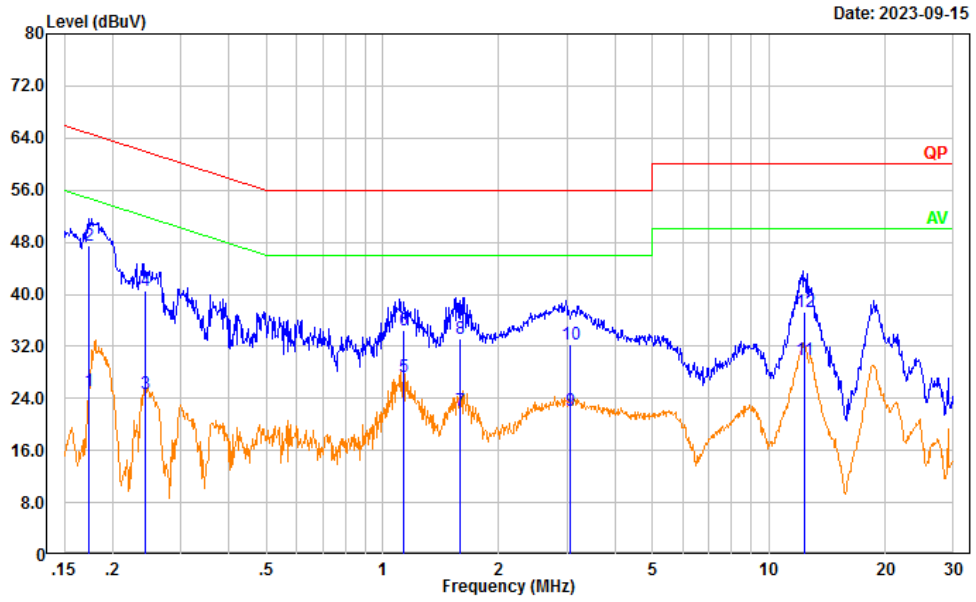
Environmental Conditions:					
Temperature: (℃)	24.8	Relative Humidity: (%)	62	ATM Pressure: (kPa)	99.9

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

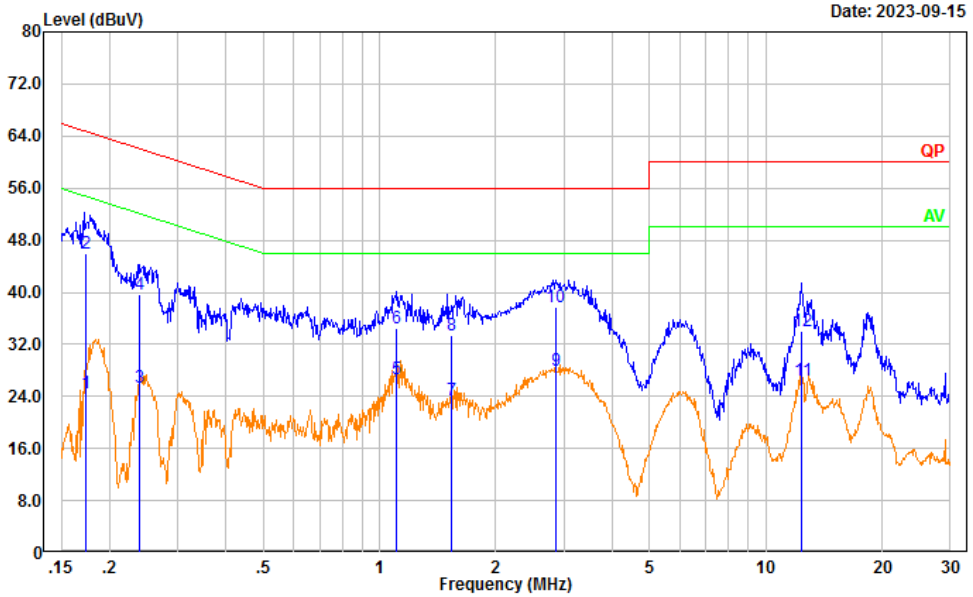
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Project No.: CR230953054-RF
Tester: David Huang
Port: Line
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.173	15.46	9.61	25.07	54.81	29.74	Average
2	0.173	37.87	9.61	47.48	64.81	17.33	QP
3	0.242	15.00	9.61	24.61	52.02	27.41	Average
4	0.242	31.03	9.61	40.64	62.02	21.38	QP
5	1.132	17.74	9.62	27.36	46.00	18.64	Average
6	1.132	24.94	9.62	34.56	56.00	21.44	QP
7	1.584	12.42	9.63	22.05	46.00	23.95	Average
8	1.584	23.49	9.63	33.12	56.00	22.88	QP
9	3.064	12.49	9.65	22.14	46.00	23.86	Average
10	3.064	22.72	9.65	32.37	56.00	23.63	QP
11	12.366	20.29	9.67	29.96	50.00	20.04	Average
12	12.366	27.60	9.67	37.27	60.00	22.73	QP

Project No.: CR230953054-RF
Tester: David Huang
Port: neutral
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.174	14.87	9.61	24.48	54.76	30.28	Average
2	0.174	36.31	9.61	45.92	64.76	18.84	QP
3	0.240	15.85	9.61	25.46	52.10	26.64	Average
4	0.240	30.07	9.61	39.68	62.10	22.42	QP
5	1.109	17.00	9.62	26.62	46.00	19.38	Average
6	1.109	24.82	9.62	34.44	56.00	21.56	QP
7	1.529	13.70	9.63	23.33	46.00	22.67	Average
8	1.529	23.76	9.63	33.39	56.00	22.61	QP
9	2.849	18.37	9.65	28.02	46.00	17.98	Average
10	2.849	28.09	9.65	37.74	56.00	18.26	QP
11	12.382	16.85	9.67	26.52	50.00	23.48	Average
12	12.382	24.29	9.67	33.96	60.00	26.04	QP

4.2 Radiation Spurious Emissions

Serial Number:	2B2S-1	Test Date:	2023/9/15~2023/9/24
Test Site:	966-,966-2	Test Mode:	Transmitting
Tester:	Hugo Huo, coco Tian	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.3~26.3	Relative Humidity: (%)	59~64	ATM Pressure: (kPa)	100.2~100.5

Test Equipment List and Details:

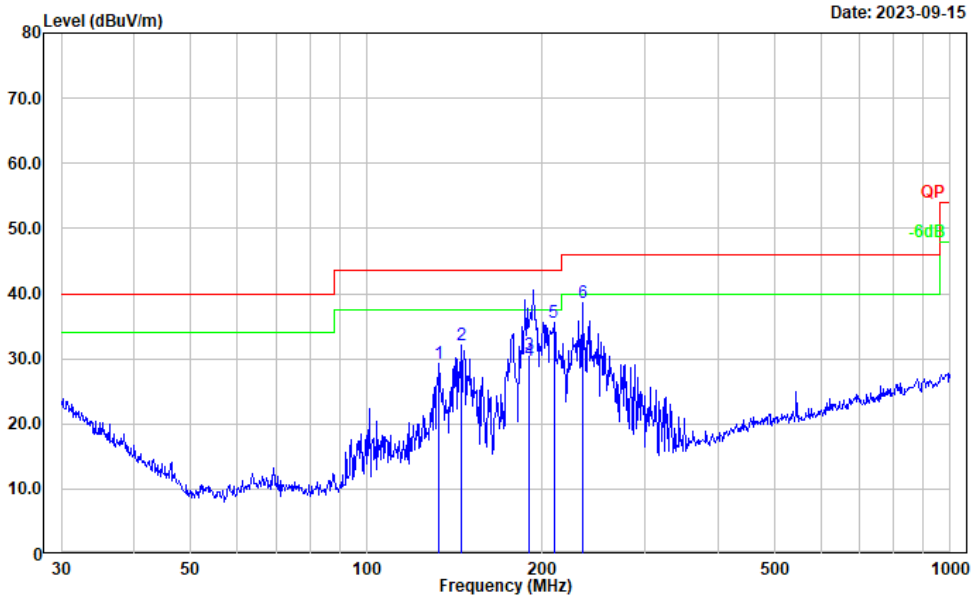
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	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	2023/3/31	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	2022/11/9	2023/11/8
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
PASTERNACK	Horn Antenna	PE9850/2F-20	072001	2021/2/5	2024/2/4
OML	Harmonic Mixer	WR19/M19HWD	U60314-1	2020/10/16	2023/10/15
OML	Horn Antenna	M19RH	11648-03	2020/10/16	2023/10/15
OML	Harmonic Mixer	WR12/M12HWD	E60119-1	2020/10/17	2023/10/16
OML	Horn Antenna	M12RH	E60119-2	2020/10/18	2023/10/17
OML	Harmonic Mixer	WR08/M08HWD	F60315-1	2020/10/22	2023/10/21
OML	Horn Antenna	M08RH	F60315-2	2020/10/24	2023/10/23

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

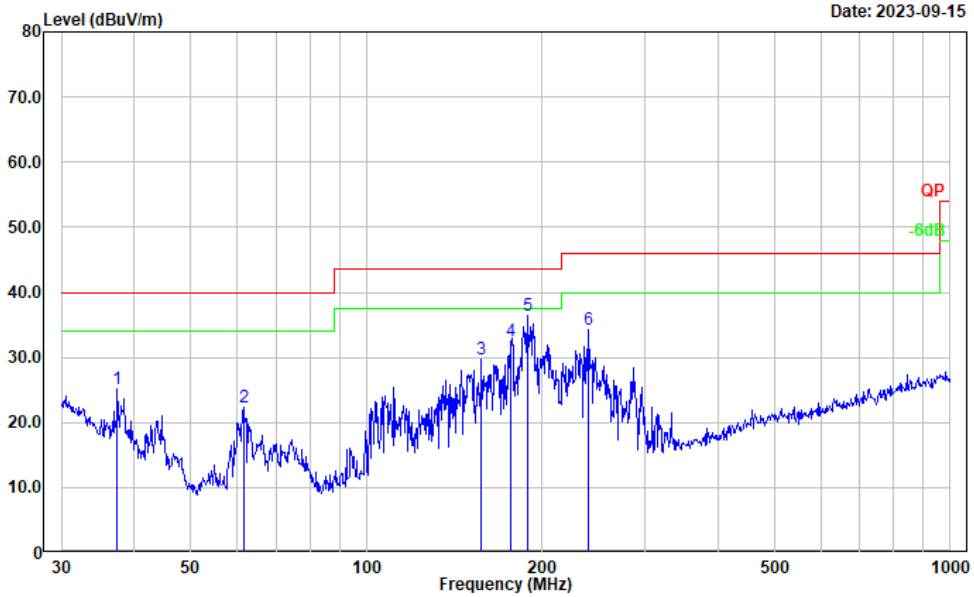
1) 30MHz-1GHz (Middle frequency was the worst):

Project No.: CR230953054-RF
Tester: Hugo Huo
Polarization: horizontal
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	133.151	40.73	-11.52	29.21	43.50	14.29	Peak
2	145.351	43.97	-11.95	32.02	43.50	11.48	Peak
3	190.071	44.08	-13.46	30.62	43.50	12.88	QP
4	190.209	43.14	-13.44	29.70	43.50	13.80	QP
5	209.313	47.96	-12.46	35.50	43.50	8.00	Peak
6	234.168	51.74	-13.06	38.68	46.00	7.32	Peak

Project No.: CR230953054-RF
Tester: Hugo Huo
Polarization: vertical
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	37.416	34.48	-9.31	25.17	40.00	14.83	Peak
2	61.562	39.67	-17.30	22.37	40.00	17.63	Peak
3	157.559	41.66	-12.05	29.61	43.50	13.89	Peak
4	176.269	45.75	-13.31	32.44	43.50	11.06	Peak
5	188.413	50.02	-13.51	36.51	43.50	6.99	Peak
6	239.987	47.27	-13.02	34.25	46.00	11.75	Peak

2) 1GHz-40GHz:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Test Frequency: 24010 MHz							
24010.000	81.99	PK	H	5.53	87.52	127.96	40.44
24010.000	71.76	AV	H	5.53	77.29	107.96	30.67
24010.000	87.64	PK	V	5.53	93.17	127.96	34.79
24010.000	77.54	AV	V	5.53	83.07	107.96	24.89
24000.000	51.46	PK	V	5.52	56.98	74.00	17.02
24000.000	38.75	AV	V	5.52	44.27	54.00	9.73
17731.00	30.64	PK	V	30.50	61.14	74.00	12.86
17731.00	17.85	AV	V	30.50	48.35	54.00	5.65
26276.40	51.23	PK	V	7.09	58.32	74.00	15.68
26276.40	38.74	AV	V	7.09	45.83	54.00	8.17
39125.70	52.19	PK	V	16.57	62.74	74.00	11.26
39125.70	39.07	AV	V	16.57	49.62	54.00	4.38
Test Frequency: 24175MHz							
24175.000	83.03	PK	H	5.72	88.75	127.96	39.21
24175.000	72.87	AV	H	5.72	78.59	107.96	29.37
24175.000	88.74	PK	V	5.72	94.46	127.96	33.50
24175.000	78.51	AV	V	5.72	84.23	107.96	23.73
17748.00	30.92	PK	V	30.58	61.50	74.00	12.50
17748.00	18.02	AV	V	30.58	48.60	54.00	5.40
26278.90	52.64	PK	V	7.09	59.73	74.00	14.27
26278.90	39.73	AV	V	7.09	46.82	54.00	7.18
39139.40	52.63	PK	V	16.55	63.16	74.00	10.84
Test Frequency: 24240 MHz							
24240.000	81.49	PK	H	5.79	87.28	127.96	40.68
24240.000	71.75	AV	H	5.79	77.54	107.96	30.42
24240.000	86.43	PK	V	5.79	92.22	127.96	35.74
24240.000	76.52	AV	V	5.79	82.31	107.96	25.65
24250.000	50.97	PK	V	5.80	56.77	74.00	17.23
24250.000	38.05	AV	V	5.80	43.85	54.00	10.15
17835.40	30.43	PK	V	31.09	61.52	74.00	12.48
17835.40	17.24	AV	V	31.09	48.33	54.00	5.67
26291.30	51.17	PK	V	7.10	58.27	74.00	15.73
26291.30	38.09	AV	V	7.10	45.19	54.00	8.81
39141.80	51.87	PK	V	16.55	62.40	74.00	11.60
39141.80	38.59	AV	V	16.55	49.12	54.00	4.88

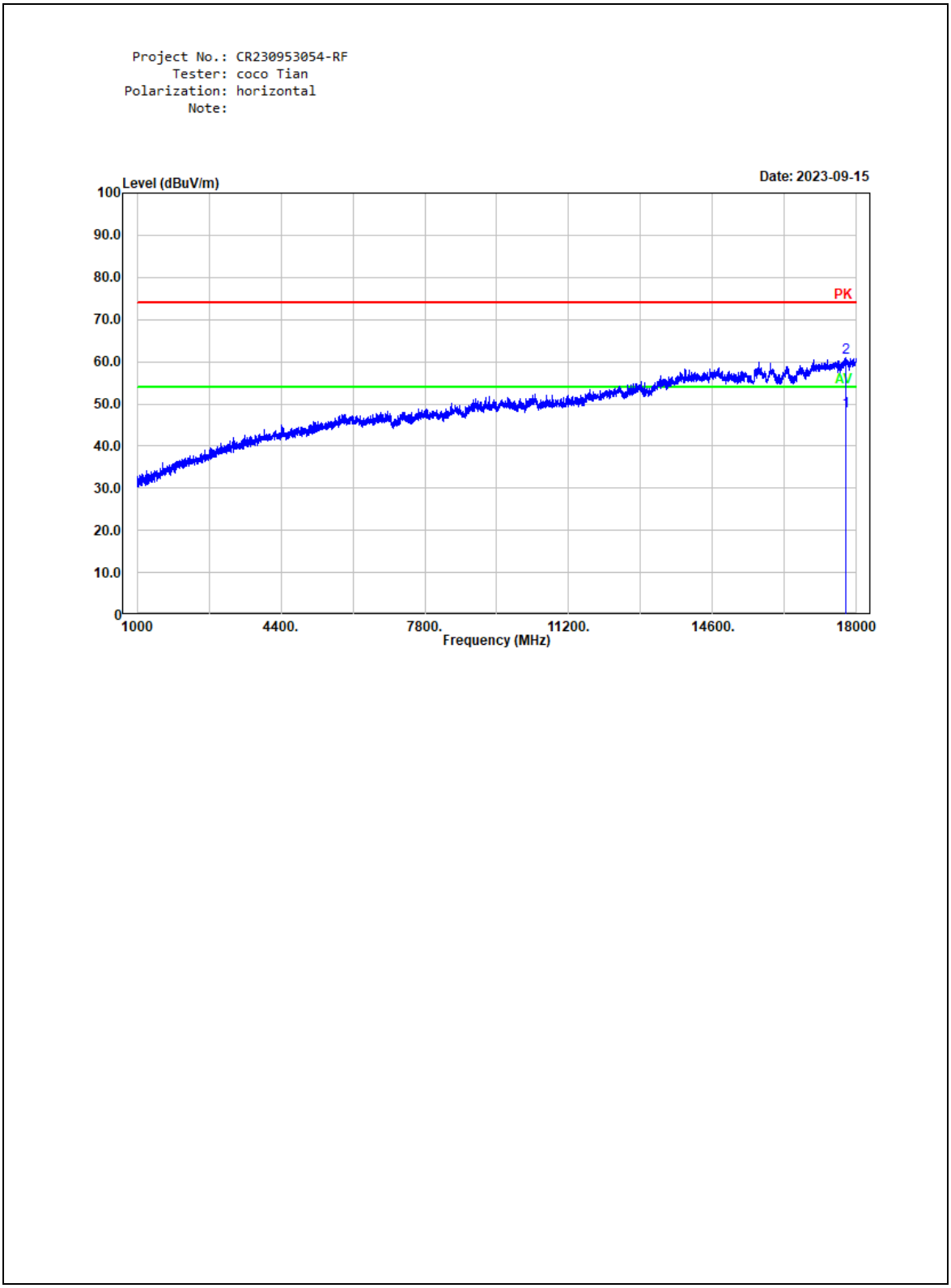
Result = Reading + Factor- Distance extrapolation Factor
For 1-26.5GHz:
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [3m]) dB= 0 dB
For 26.5-40GHz:
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB

3) 40GHz-100GHz:

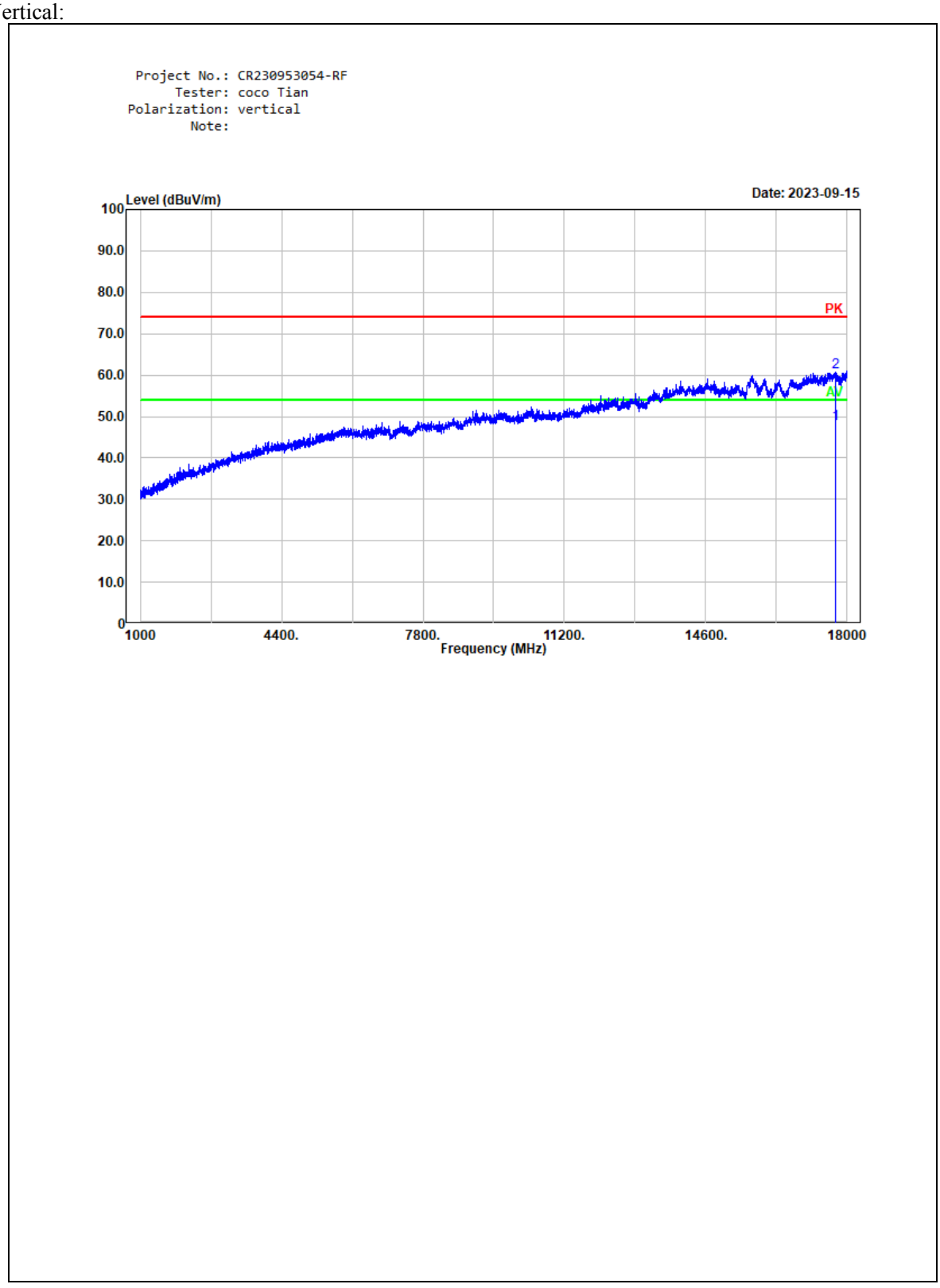
Frequency (GHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Test Frequency: 24.01 GHz							
48.020	47.65	PK	H	40.04	78.15	87.96	9.81
48.020	34.83	AV	H	40.04	65.33	67.96	2.63
48.020	46.73	PK	V	40.04	77.23	87.96	10.73
48.020	33.69	AV	V	40.04	64.19	67.96	3.77
72.030	44.67	PK	H	43.79	78.92	87.96	9.04
72.030	31.54	AV	H	43.79	65.79	67.96	2.17
72.030	44.86	PK	V	43.79	79.11	87.96	8.85
72.030	31.64	AV	V	43.79	65.89	67.96	2.07
96.040	49.19	PK	H	45.85	79.48	87.96	8.48
96.040	35.53	AV	H	45.85	65.82	67.96	2.14
96.040	49.54	PK	V	45.85	79.83	87.96	8.13
96.040	35.45	AV	V	45.85	65.74	67.96	2.22
Test Frequency: 24.175 GHz							
48.350	47.45	PK	H	40.09	78.00	87.96	9.96
48.350	34.51	AV	H	40.09	65.06	67.96	2.90
48.350	47.81	PK	V	40.09	78.36	87.96	9.60
48.350	34.65	AV	V	40.09	65.20	67.96	2.76
72.525	44.38	PK	H	43.86	78.70	87.96	9.26
72.525	31.57	AV	H	43.86	65.89	67.96	2.07
72.525	44.88	PK	V	43.86	79.20	87.96	8.76
72.525	31.79	AV	V	43.86	66.11	67.96	1.85
96.700	49.24	PK	H	45.93	79.61	87.96	8.35
96.700	35.64	AV	H	45.93	66.01	67.96	1.95
96.700	49.41	PK	V	45.93	79.78	87.96	8.18
96.700	35.72	AV	V	45.93	66.09	67.96	1.87
Test Frequency: 24.24 GHz							
48.480	46.35	PK	H	40.11	76.92	87.96	11.04
48.480	33.42	AV	H	40.11	63.99	67.96	3.97
48.480	46.96	PK	V	40.11	77.53	87.96	10.43
48.480	34.02	AV	V	40.11	64.59	67.96	3.37
72.720	44.29	PK	H	43.89	78.64	87.96	9.32
72.720	31.27	AV	H	43.89	65.62	67.96	2.34
72.720	44.70	PK	V	43.89	79.05	87.96	8.91
72.720	31.46	AV	V	43.89	65.81	67.96	2.15
96.960	49.01	PK	H	45.97	79.42	87.96	8.54
96.960	35.26	AV	H	45.97	65.67	67.96	2.29
96.960	49.36	PK	V	45.97	79.77	87.96	8.19
96.960	35.48	AV	V	45.97	65.89	67.96	2.07

Result = Reading + Factor- Distance extrapolation Factor
For 40-90GHz:
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1m]) dB= 9.54 dB
For 90-100GHz:
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [0.5m]) dB= 15.56 dB

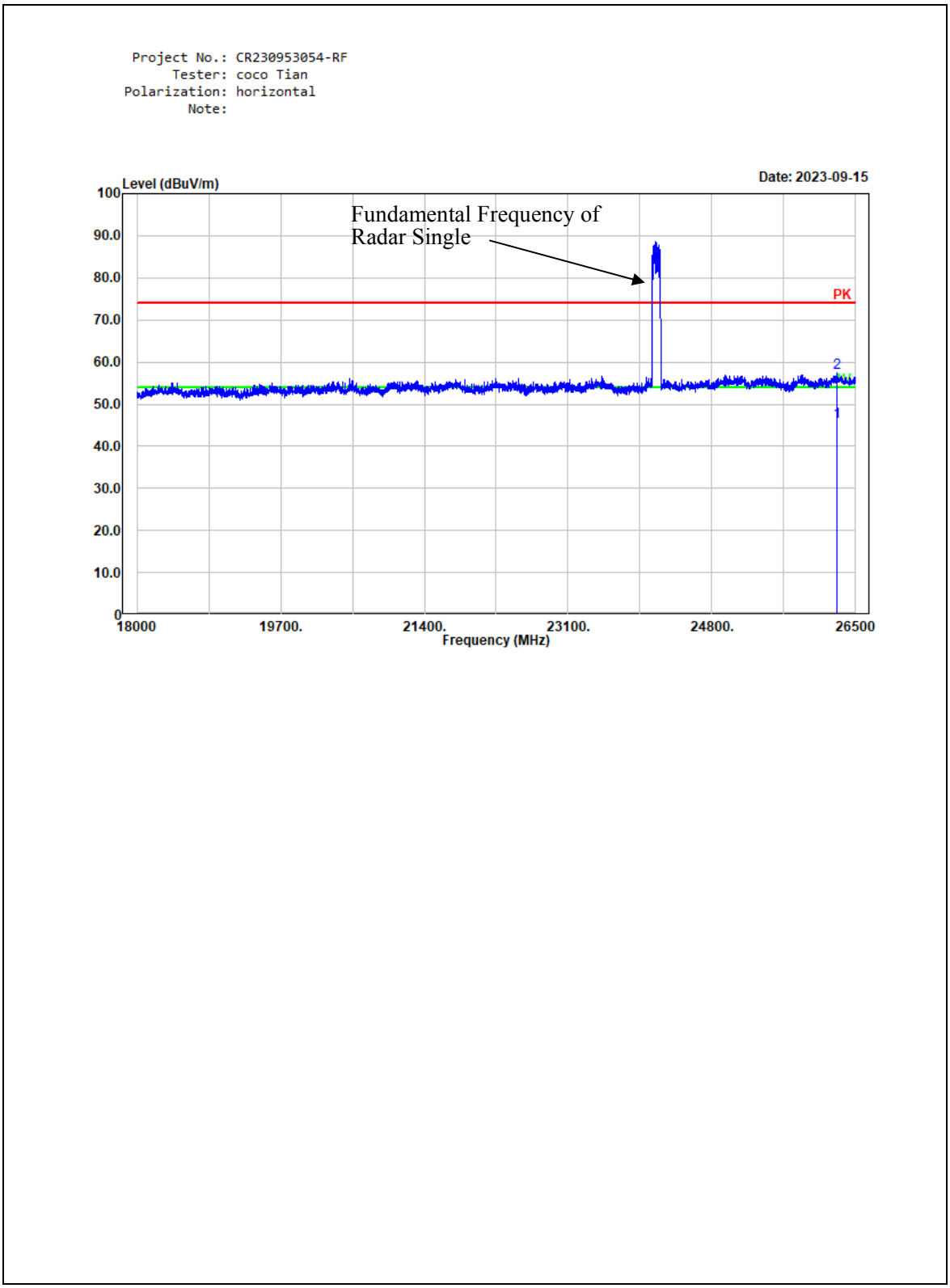
Test Plots (Middle frequency was the worst**)**
1)1-18GHz Horizontal:



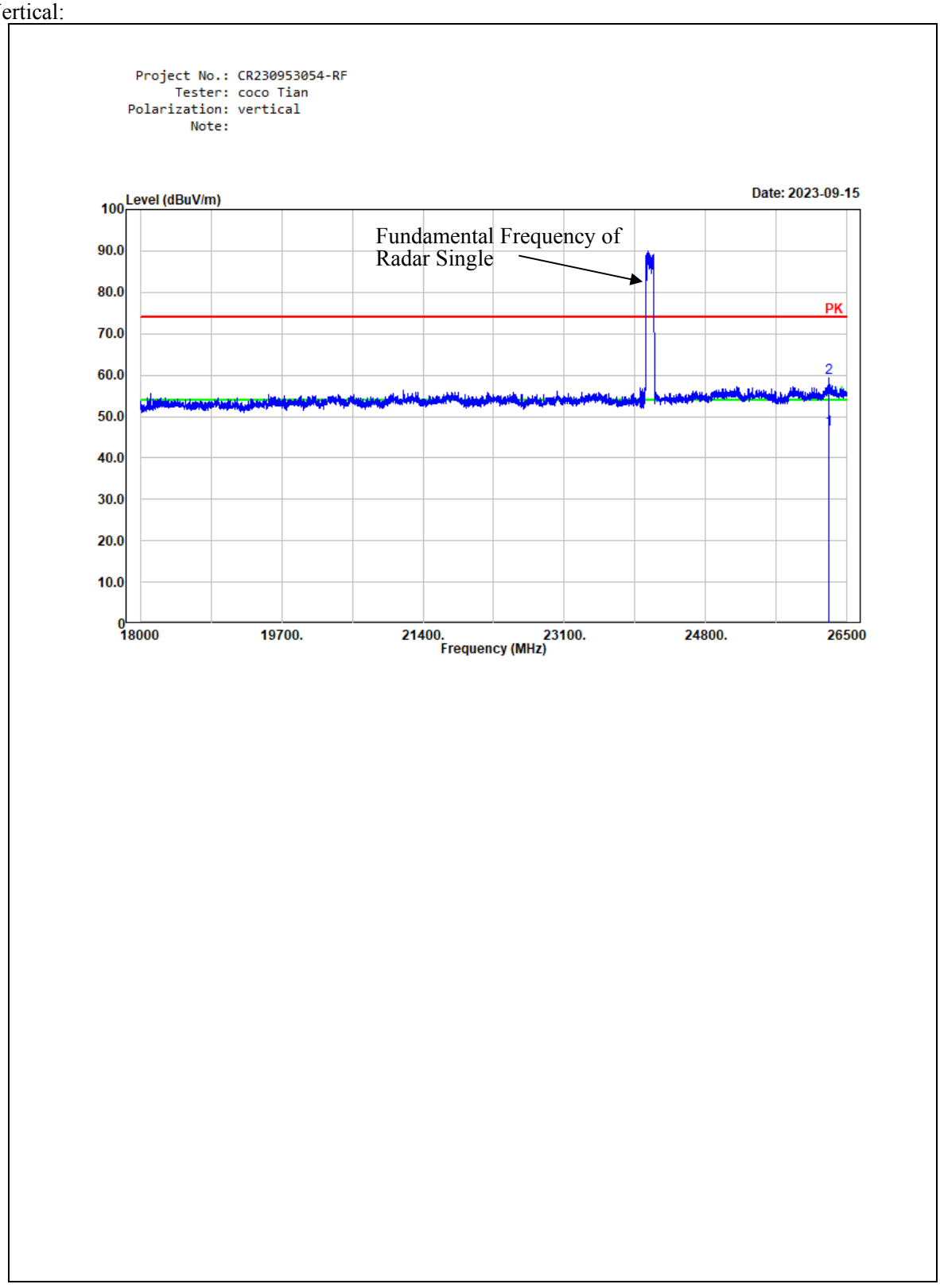
Vertical:


Project No.: CR230953054-RF
Tester: coco Tian
Polarization: vertical
Note:
Level (dBuV/m)
Date: 2023-09-15
100
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
PK
2
AV
1
1000
4400.
7800.
11200.
14600.
18000
Frequency (MHz)

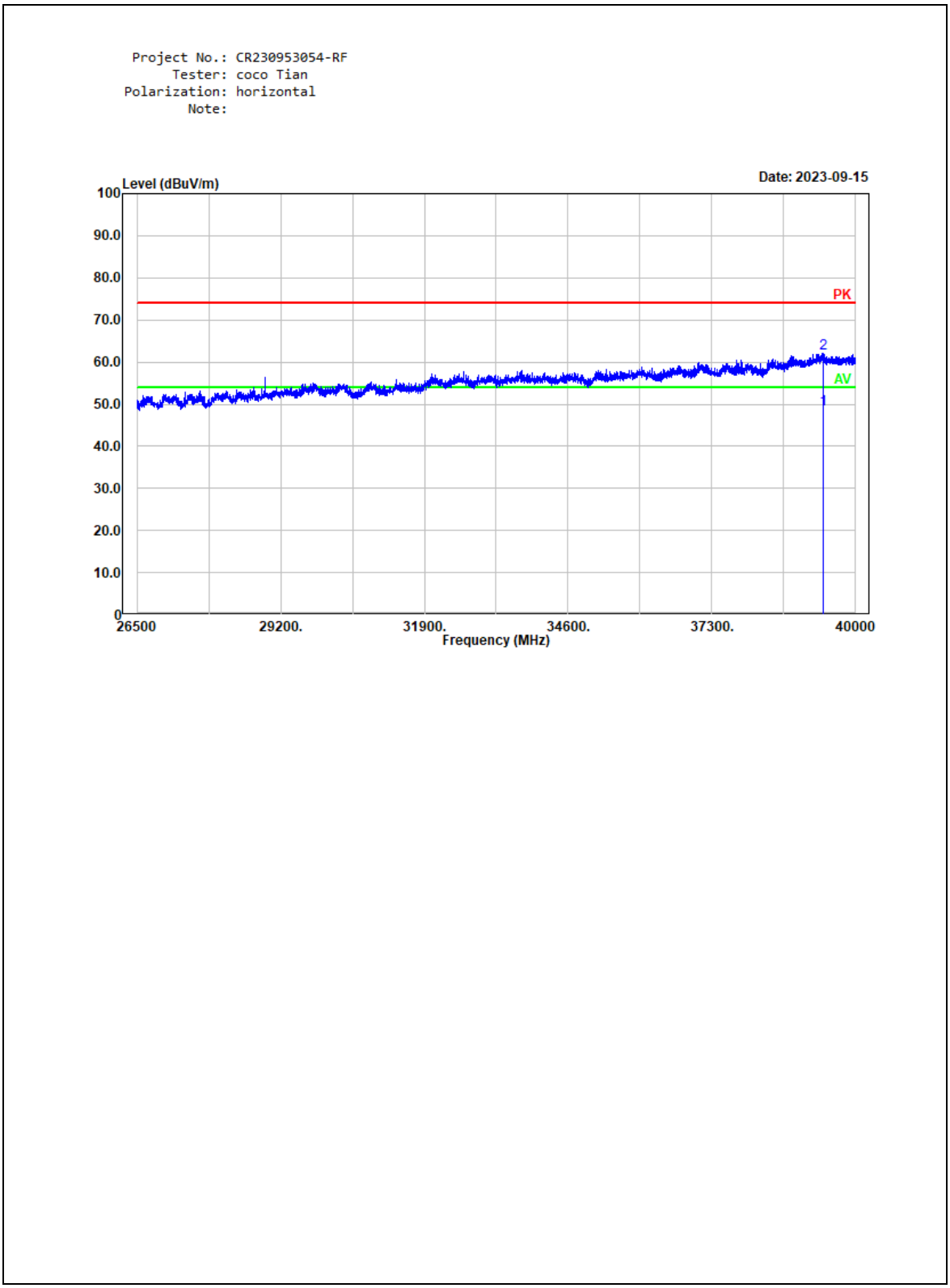
18-26.5GHz Horizontal:



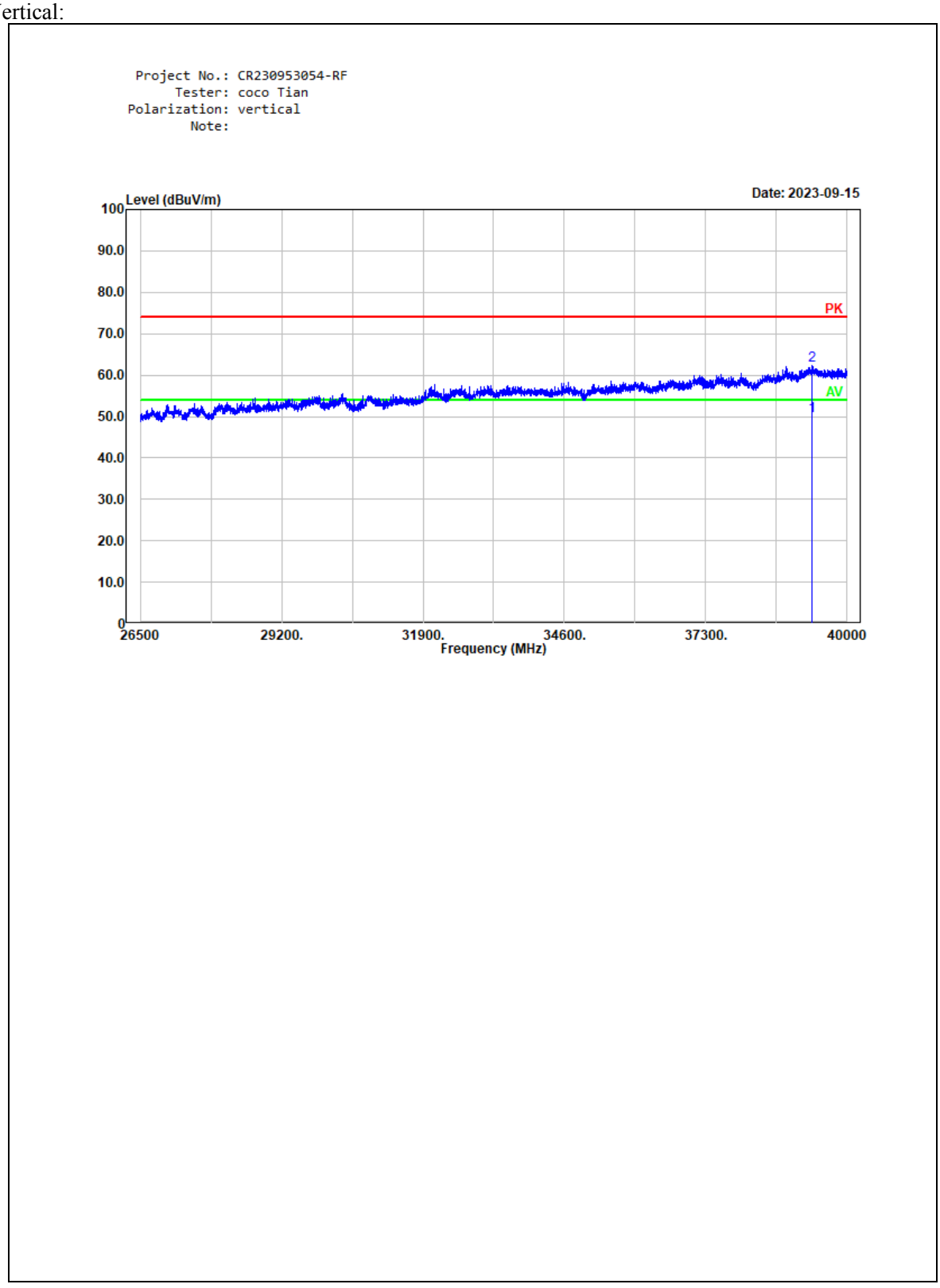
Vertical:


Project No.: CR230953054-RF
Tester: coco Tian
Polarization: vertical
Note:
Level (dBuV/m)
Date: 2023-09-15
100
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
Fundamental Frequency of
Radar Single
PK
2
1
18000
19700.
21400.
23100.
24800.
26500
Frequency (MHz)

26.5-40GHz Horizontal:



Vertical:


Project No.: CR230953054-RF
Tester: coco Tian
Polarization: vertical
Note:
Level (dBuV/m)
Date: 2023-09-15
100
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
PK
AV
2
1
26500
29200.
31900.
34600.
37300.
40000
Frequency (MHz)

4.3 20 dB Emission Bandwidth:

Serial Number:	2B2S-1	Test Date:	2023/9/15~2023/9/24
Test Site:	966-1	Test Mode:	Transmitting
Tester:	coco Tian	Test Result:	N/A

Environmental Conditions:					
Temperature: (℃)	25.3~26.3	Relative Humidity: (%)	59~64	ATM Pressure: (kPa)	100.2~100.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
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

**** 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 Mode	20 dB Bandwidth (MHz)
Sweep Mode	237.340

20dB Emission Bandwidth=237.340MHz

Sweep Mode

5. EUT PHOTOGRAPHS

Please refer to the attachment CR230953054-EXP EUT EXTERNAL PHOTOGRAPHS and CR230953054-INP EUT INTERNAL PHOTOGRAPHS

6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR230953054-00-TSP TEST SETUP PHOTOGRAPHS.

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