



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



TEST REPORT

Applicant: Shenzhen FreeYond Technology Co Ltd

Address: Unit 203,Block A,Tengfei Industrial Building,No.6 Taohua Road,
Futian Bonded Area,Shenzhen, Guangdong, PRC

FCC ID: 2A8FE-M5

Product Name: Smart Phone

Model Number: M5

Standard(s): 47 CFR Part 15 Subpart B
ANSI C63.4-2014

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

Report Number: CR22090019-00E

Date Of Issue: 2022-10-19

Reviewed By: Sun Zhong *Sun Zhong*

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)
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Test Facility

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

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

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

Declarations

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

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

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Smart Phone
EUT Model:	M5
Highest Operation Frequency:	5825 MHz
Rated Input Voltage:	DC 3.85V from battery or DC 5/9/12V from adapter
Serial Number:	CR22090019-RF-S1
EUT Received Date:	2022.9.14
EUT Received Status:	Good

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Adapter	SHENZHEN EAST SUN ELECTRONICS CO.,LTD	ES019C- U120150XYF	Input: AC 100-240V~50/60Hz 0.6A Output: 5.0V 3A, 9.0V 2A, 12.0V 1.5A

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode : downloading
Equipment Modifications:	No
EUT Exercise Software:	Winthrax.exe

1.2.2 Support Equipment List and Details

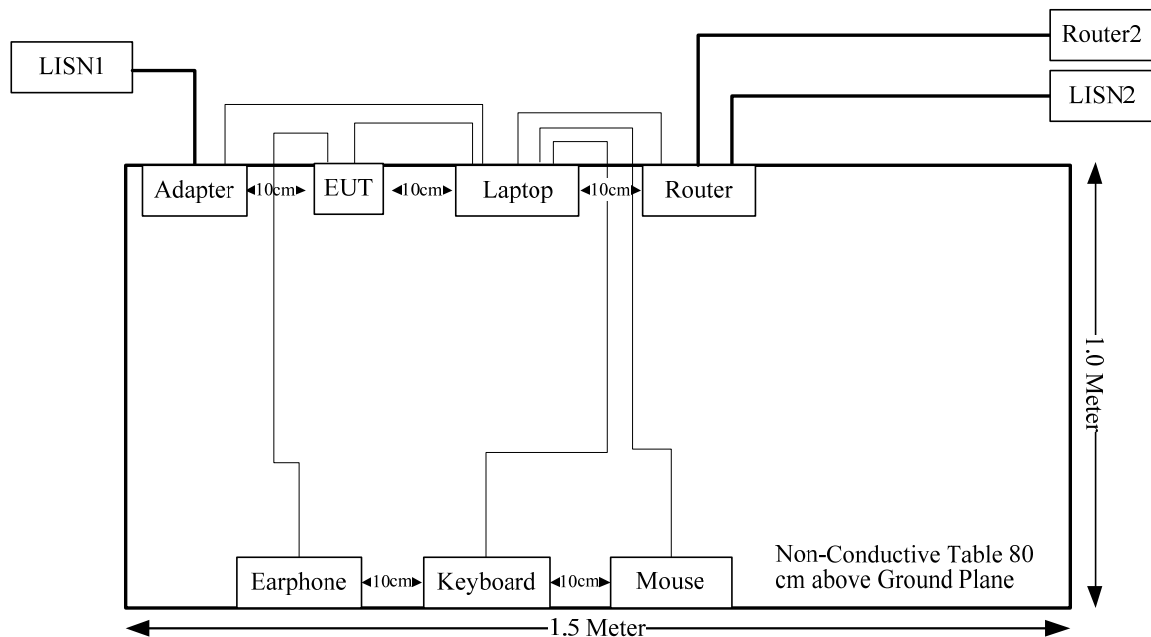
Manufacturer	Description	Model	Serial Number
PHILIPS	Keyboard	SPT6234	K234210510746
PHILIPS	Mouse	SPT6234	C234210506222
TOTO LINK	Router	X5000R	X5000RK9T0560
TOTO LINK	Router2	X5000R	X5000RK9T0587
TOTO LINK	Router Adapter	X5000R	45852255633
Lenovo	Laptop	T460S	60PDTEK8
Lenovo	Laptop Adapter	ADLX65NDC3A	45N0253
IMORE	earphone	1m301	5521427
Kinston	TF Card	4G	TF-Card-1

1.2.3 Support Cable List and Details

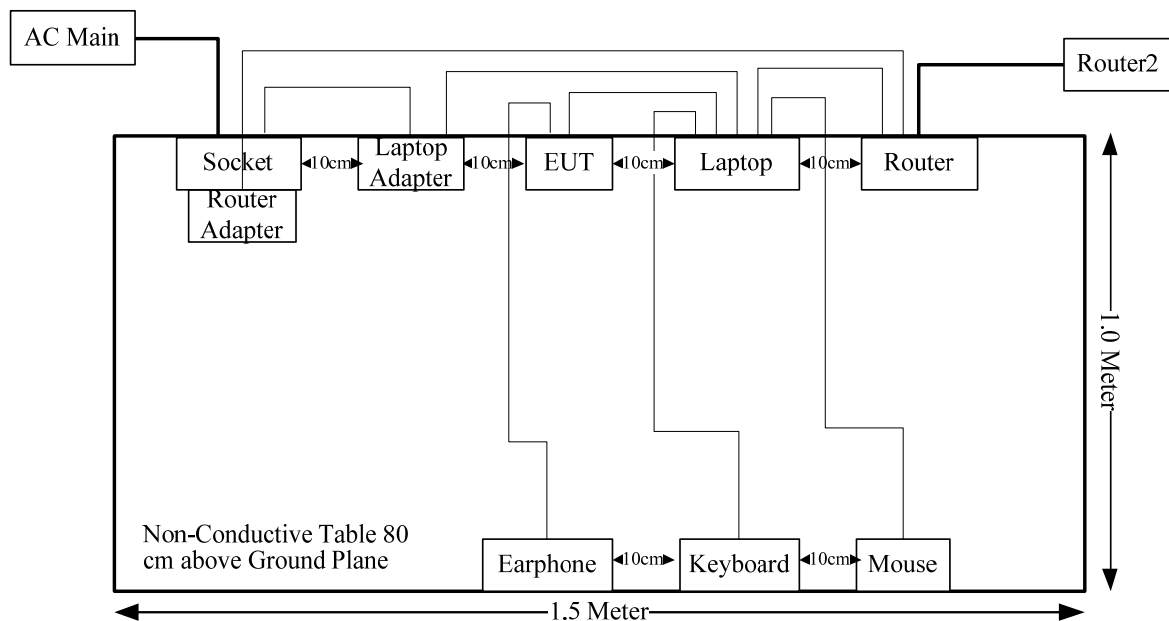
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	0.8	Laptop	EUT
Keyboard Cable	No	No	1.2	Keyboard	Laptop
Mouse Cable	No	No	1.2	Mouse	Laptop
RJ45 Cable	No	No	1.8	Router	Laptop
RJ45 Cable	No	No	10	Router	Router2
Laptop Adapter Cable	No	No	1.2	adapter	Laptop
Router Adapter Cable	No	No	1.2	adapter	Router
Earphone Cable	No	No	1.2	EUT	Earphone

1.2.4 Block Diagram of Test Setup

Conducted emissions:



Radiated 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
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	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

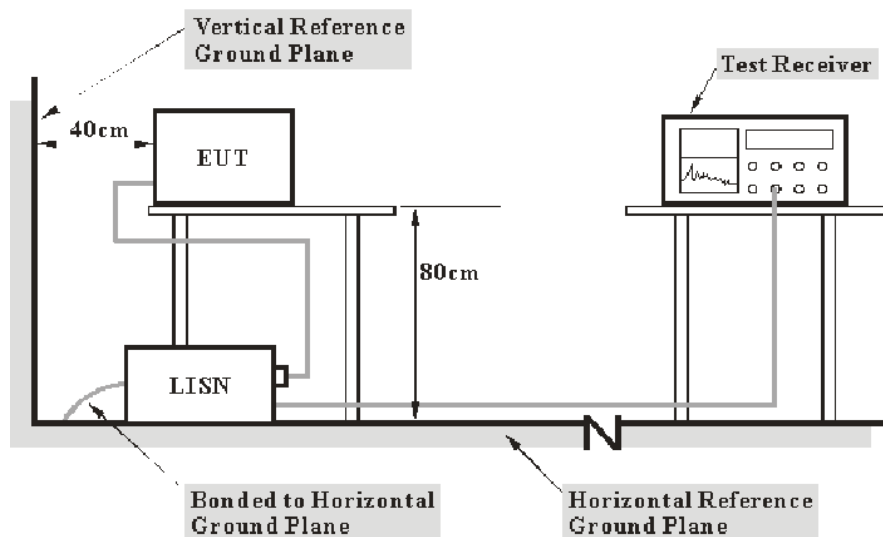
2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
§15.107	Conducted emissions	Compliant
§15.109	Radiated emissions	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 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 C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B 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 adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.2 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

3.1.3 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT, the report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

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

The report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

3.1.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

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

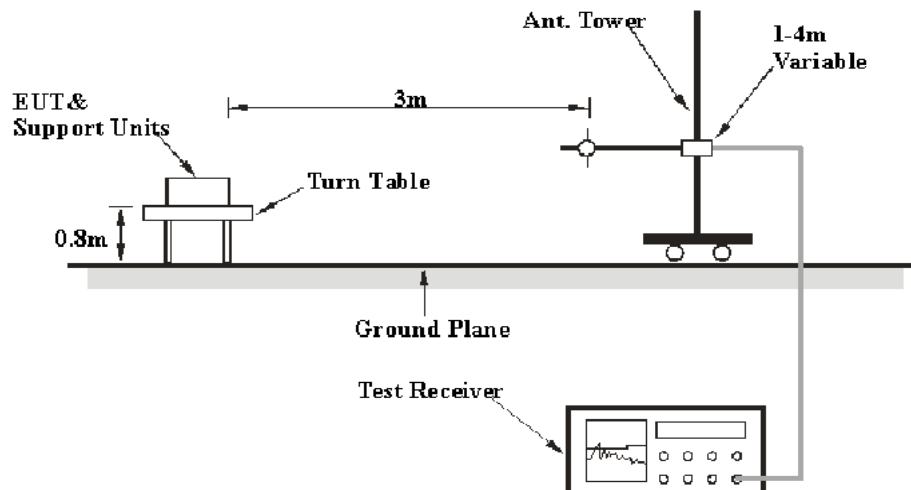
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

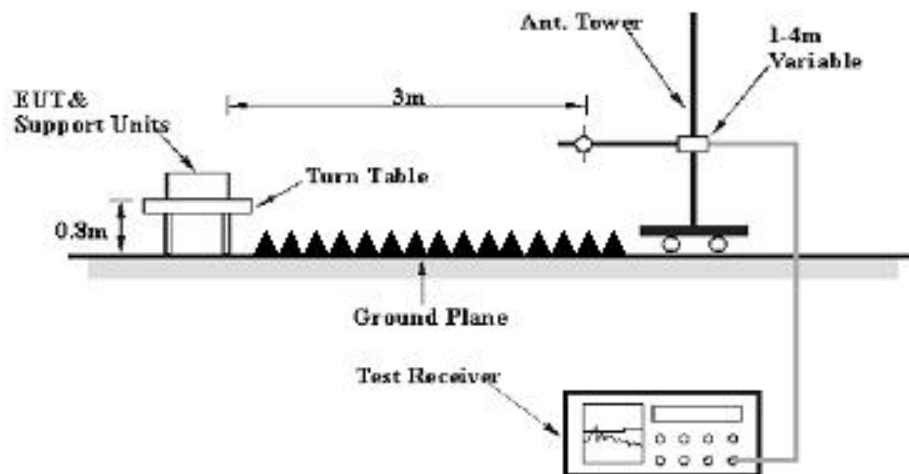
3.2 Radiation Spurious Emissions

3.2.1 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B Class B limits.

3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 30 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.

3.2.3 Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

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

The data was recorded in the Quasi-peak detection mode for below 1 GHz.

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

3.2.4 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

4. TEST DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	CR22090019-RF-S1	Test Date:	2022-09-16
Test Site:	CE	Test Mode:	Downloading
Tester:	Vic Du	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	27	Relative Humidity: (%)	45	ATM Pressure: (kPa)	100
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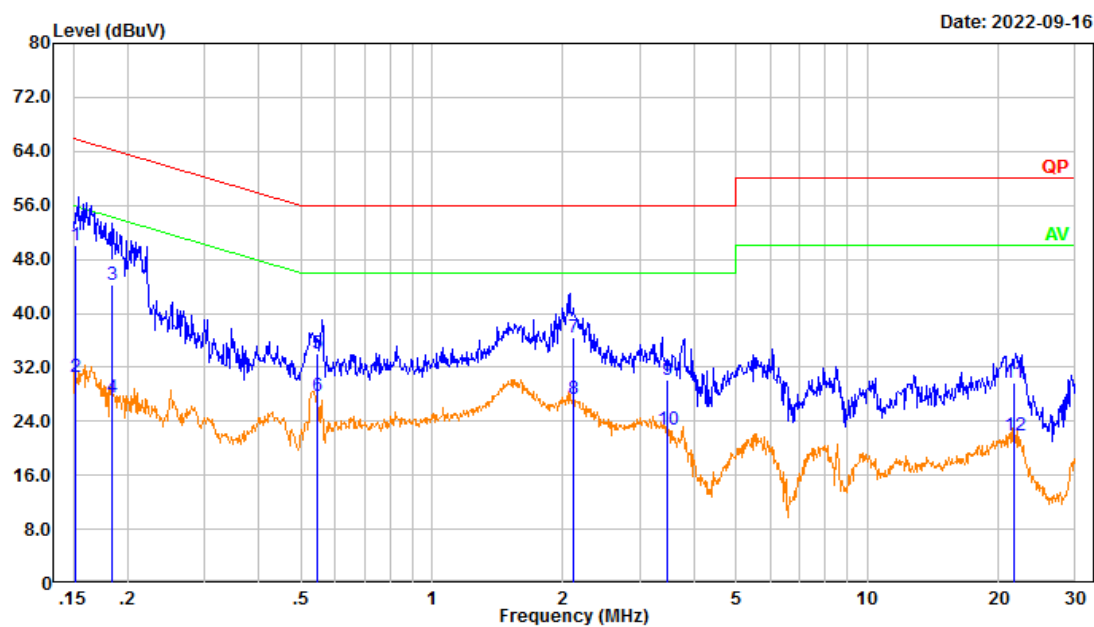
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2022-04-01	2023-03-31
R&S	LISN	ENV216	101132	2022-04-01	2023-03-31
R&S	EMI Test Receiver	ESR3	102726	2022-07-15	2023-07-14
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2022-08-07	2023-08-06
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).

Line:

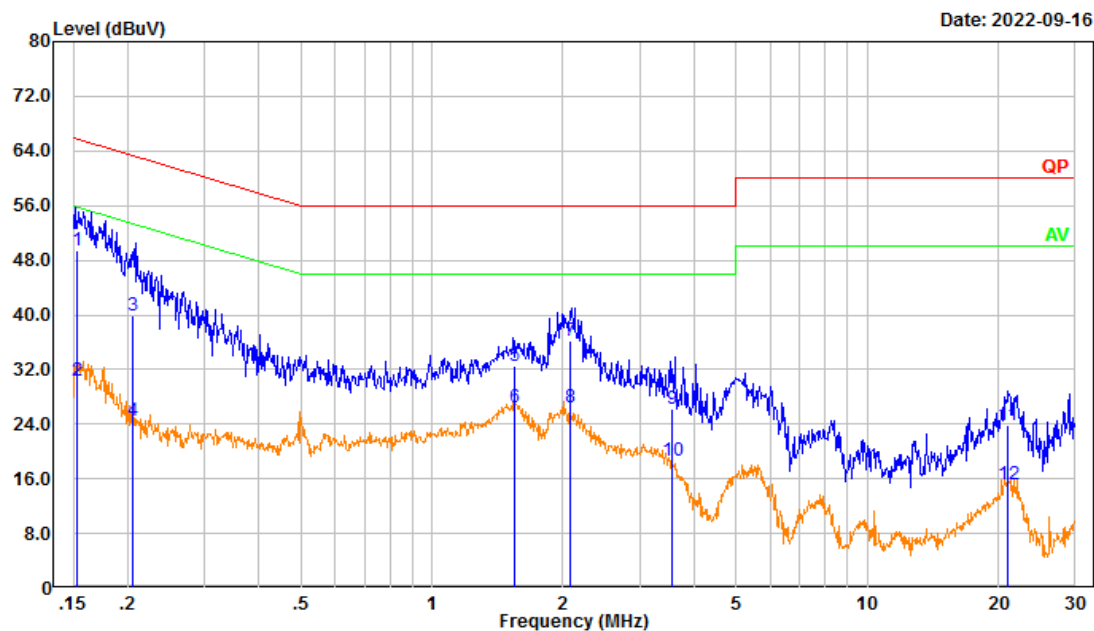
Test Mode: downloading
Power Source: AC 120V/60Hz
Port: Line
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dBμV)	Detector
1	0.152	40.40	9.61	50.01	65.89	15.88	QP
2	0.152	21.05	9.61	30.66	55.89	25.23	Average
3	0.184	34.58	9.61	44.19	64.32	20.13	QP
4	0.184	17.88	9.61	27.49	54.32	26.83	Average
5	0.545	24.44	9.61	34.05	56.00	21.95	QP
6	0.545	18.04	9.61	27.65	46.00	18.35	Average
7	2.114	26.85	9.63	36.48	56.00	19.52	QP
8	2.114	17.69	9.63	27.32	46.00	18.68	Average
9	3.474	20.55	9.65	30.20	56.00	25.80	QP
10	3.474	13.07	9.65	22.72	46.00	23.28	Average
11	21.707	19.95	9.81	29.76	60.00	30.24	QP
12	21.707	12.14	9.81	21.95	50.00	28.05	Average

Neutral:

Test Mode: downloading
Power Source: AC 120V/60Hz
Port: neutral
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dBμV)	Detector
1	0.153	39.83	9.61	49.44	65.86	16.42	QP
2	0.153	20.81	9.61	30.42	55.86	25.44	Average
3	0.206	30.22	9.61	39.83	63.35	23.52	QP
4	0.206	14.88	9.61	24.49	53.35	28.86	Average
5	1.549	22.98	9.63	32.61	56.00	23.39	QP
6	1.549	16.87	9.63	26.50	46.00	19.50	Average
7	2.084	26.54	9.63	36.17	56.00	19.83	QP
8	2.084	16.73	9.63	26.36	46.00	19.64	Average
9	3.549	16.52	9.65	26.17	56.00	29.83	QP
10	3.549	9.06	9.65	18.71	46.00	27.29	Average
11	21.018	14.05	9.71	23.76	60.00	36.24	QP
12	21.018	5.50	9.71	15.21	50.00	34.79	Average

4.2 Radiation Spurious Emissions

Serial Number:	CR22090019-RF-S1	Test Date:	2022-09-16(Below 1GHz) 2022-09-26(Above 1GHz)
Test Site:	966-2, 966-1	Test Mode:	Downloading
Tester:	Carl Xue ,coco Tian	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	26.9~27	Relative Humidity: (%)	56~59	ATM Pressure: (kPa)	100~101.1
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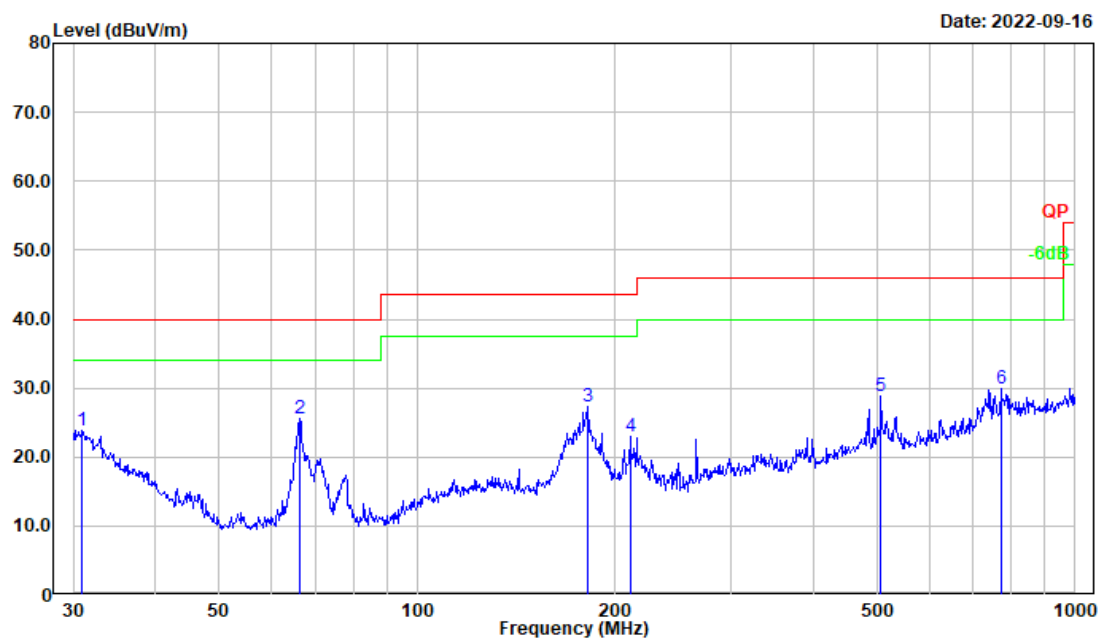
Test Equipment List and Details:

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	2022-07-15	2023-07-14
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2022-07-17	2023-07-16
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2022-07-17	2023-07-16
Sonoma	Amplifier	310N	186165	2022-07-17	2023-07-16
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	2022-07-15	2023-07-14
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2022-08-07	2023-08-06
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2022-08-07	2023-08-06
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2021-11-10	2022-11-09
PASTERNAK	Horn Antenna	PE9852/2F-20	112002	2021-02-05	2024-02-04
AH	Preamplifier	PAM-1840VH	190	2021-11-19	2022-11-18
PASTERNAK	Horn Antenna	PE9850/2F-20	072001	2021-02-05	2024-02-04

* 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).

1) 30MHz-1GHz:**Horizontal:**

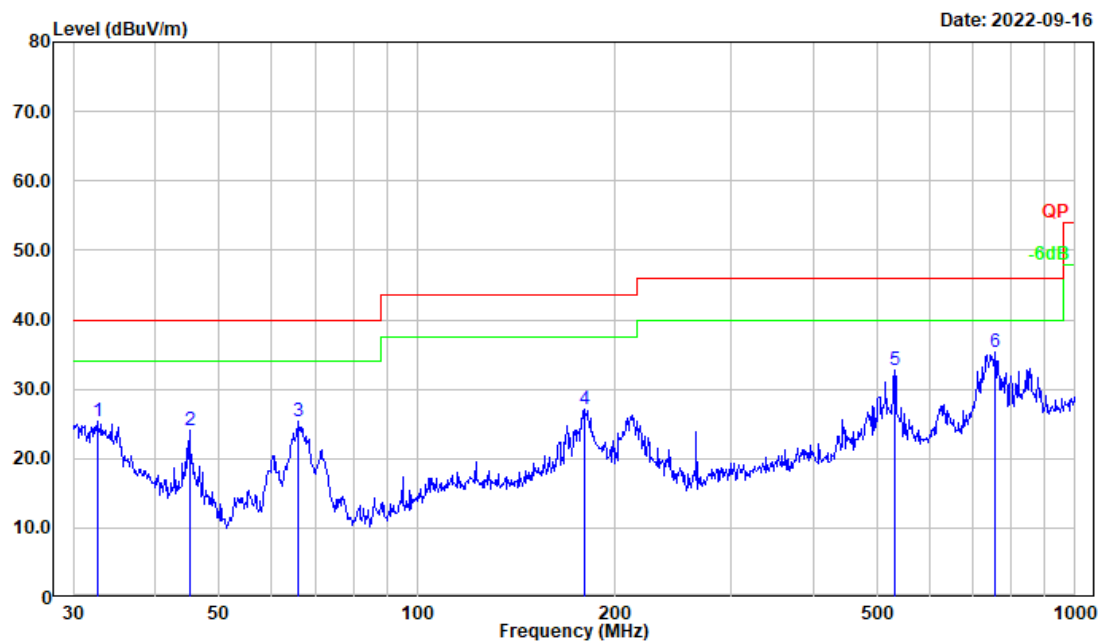
Test Mode: downloading
Power Source: AC 120V/60Hz
Polarization: horizontal
Note:



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	30.962	28.21	-4.34	23.87	40.00	16.13	Peak
2	66.266	42.45	-16.84	25.61	40.00	14.39	Peak
3	181.920	40.92	-13.62	27.30	43.50	16.20	Peak
4	210.786	35.38	-12.49	22.89	43.50	20.61	Peak
5	506.479	34.80	-5.91	28.89	46.00	17.11	Peak
6	771.449	32.35	-2.52	29.83	46.00	16.17	Peak

Vertical:

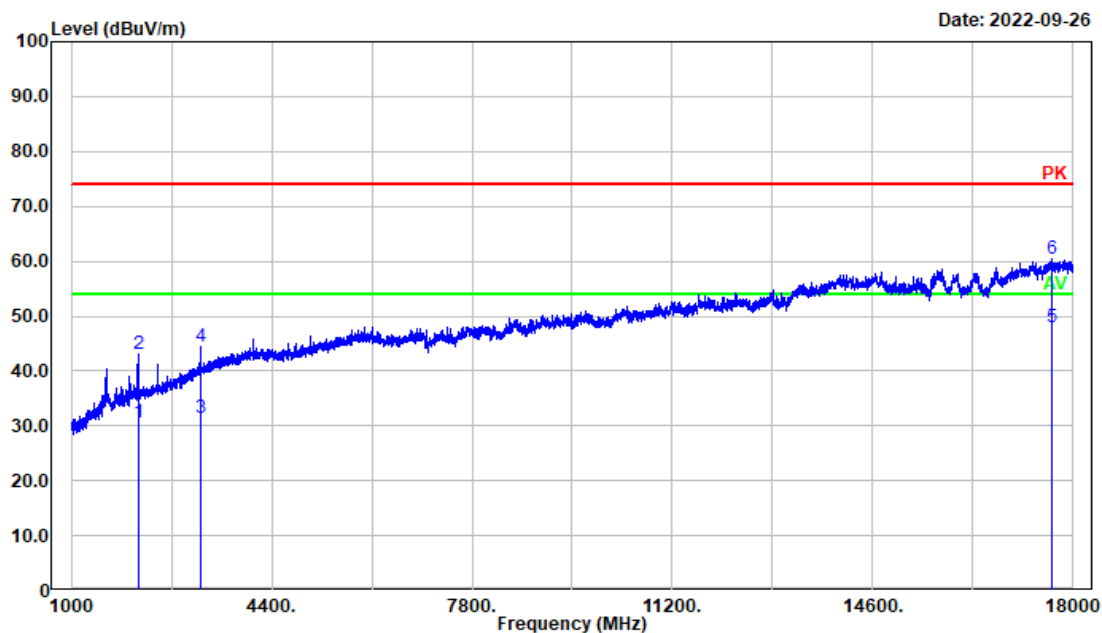
Test Mode: downloading
Power Source: AC 120V/60Hz
Polarization: vertical
Note:



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	32.634	30.93	-5.62	25.31	40.00	14.69	Peak
2	45.058	38.22	-14.25	23.97	40.00	16.03	Peak
3	65.803	42.19	-16.88	25.31	40.00	14.69	Peak
4	180.017	40.72	-13.63	27.09	43.50	16.41	Peak
5	531.964	38.68	-5.99	32.69	46.00	13.31	Peak
6	755.387	38.38	-3.00	35.38	46.00	10.62	Peak

2) Above 1GHz:**Horizontal:**

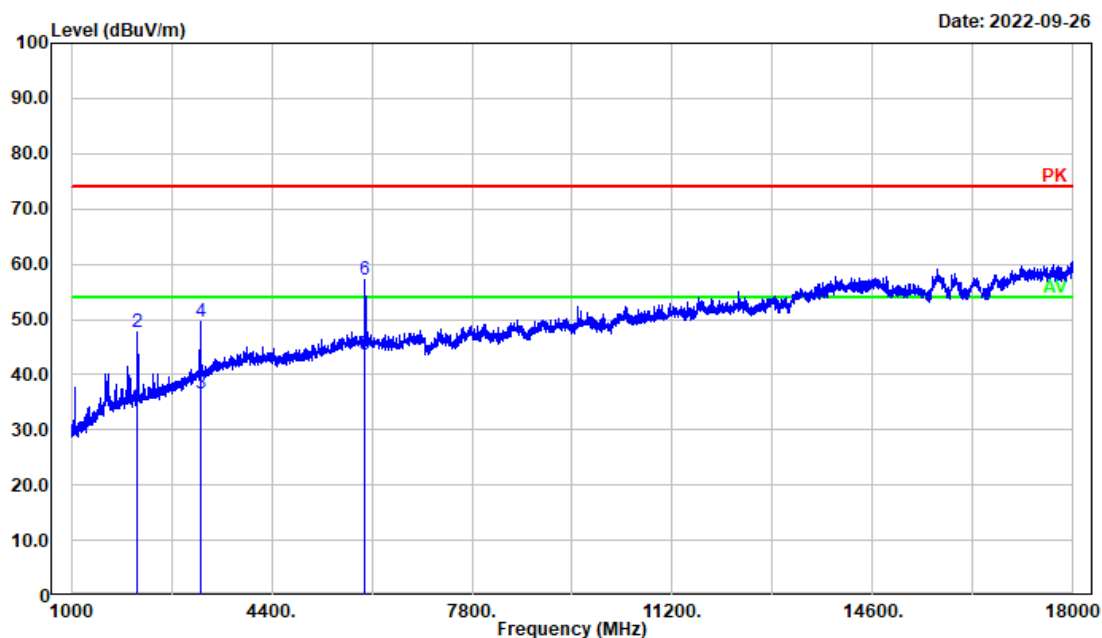
Test Mode: downloading
Polarization: horizontal
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2132.427	27.86	2.82	30.68	54.00	23.32	Average
2	2132.427	40.38	2.82	43.20	74.00	30.80	Peak
3	3190.038	24.35	7.16	31.51	54.00	22.49	Average
4	3190.038	37.26	7.16	44.42	74.00	29.58	Peak
5	17625.930	19.68	28.40	48.08	54.00	5.92	Average
6	17625.930	31.95	28.40	60.35	74.00	13.65	Peak

Vertical:

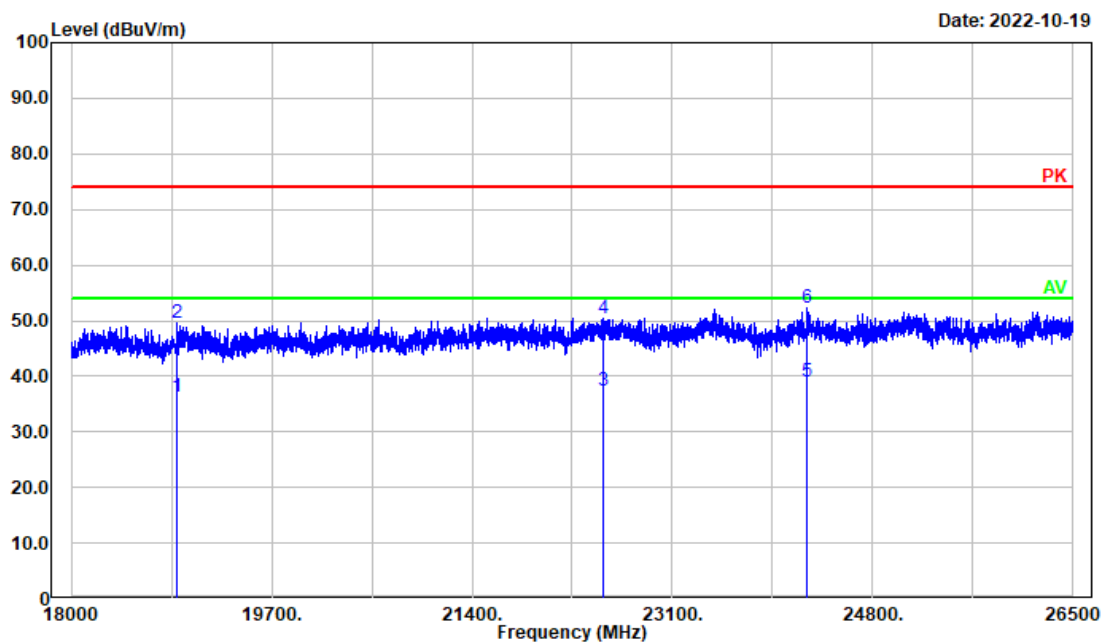
Test Mode: downloading
Polarization: vertical
Note:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2129.026	31.67	2.81	34.48	54.00	19.52	Average
2	2129.026	44.97	2.81	47.78	74.00	26.22	Peak
3	3190.038	29.34	7.16	36.50	54.00	17.50	Average
4	3190.038	42.33	7.16	49.49	74.00	24.51	Peak
5	5971.794	30.17	13.39	43.56	54.00	10.44	Average
6	5971.794	43.82	13.39	57.21	74.00	16.79	Peak

Horizontal:

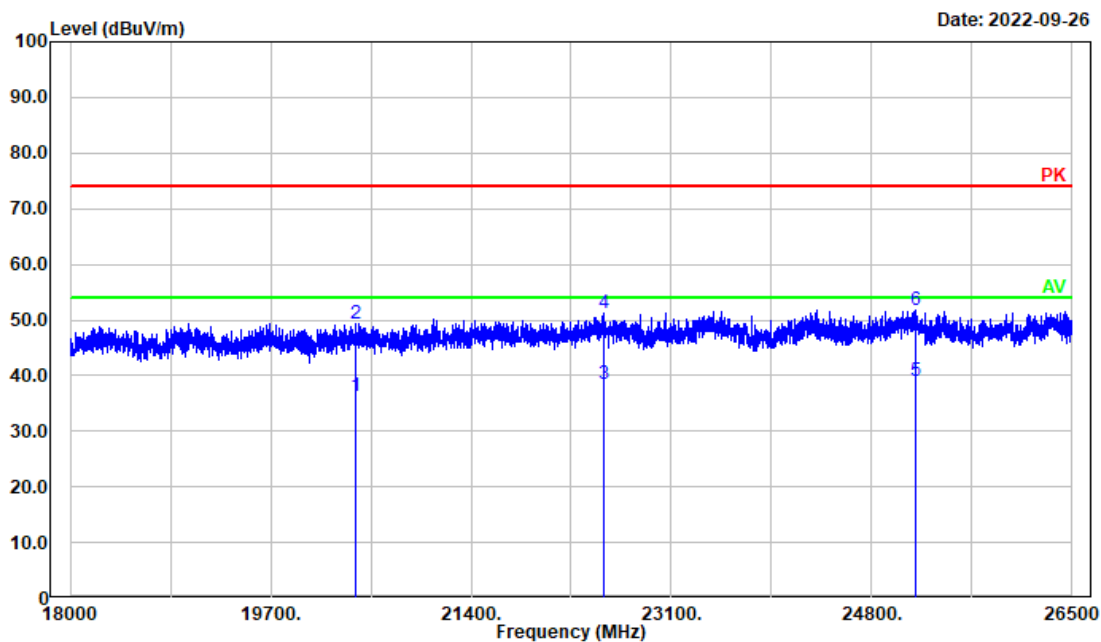
Test Mode: downloading
Polarization: horizontal
Note:



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	18896.080	30.75	5.55	36.30	54.00	17.70	Average
2	18896.080	43.94	5.55	49.49	74.00	24.51	Peak
3	22519.500	26.38	11.11	37.49	54.00	16.51	Average
4	22519.500	39.34	11.11	50.45	74.00	23.55	Peak
5	24241.950	27.64	11.32	38.96	54.00	15.04	Average
6	24241.950	40.90	11.32	52.22	74.00	21.78	Peak

Vertical:

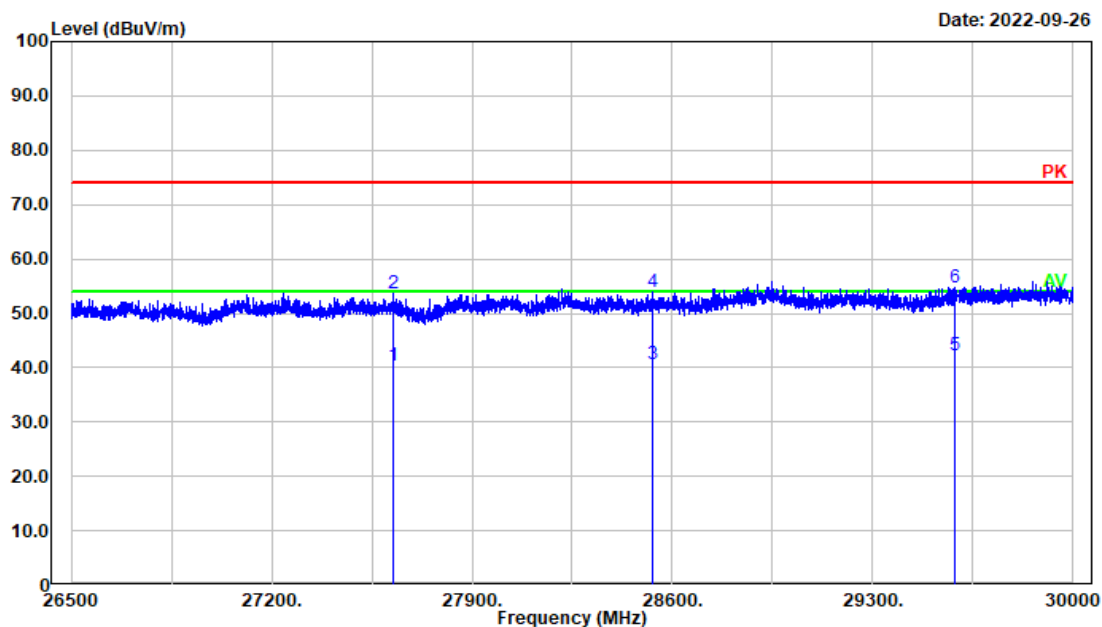
Test Mode: downloading
Polarization: Vertical
Note:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	20426.380	29.67	6.56	36.23	54.00	17.77	Average
2	20426.380	42.89	6.56	49.45	74.00	24.55	Peak
3	22522.900	27.50	11.09	38.59	54.00	15.41	Average
4	22522.900	40.22	11.09	51.31	74.00	22.69	Peak
5	25170.330	25.68	13.24	38.92	54.00	15.08	Average
6	25170.330	38.40	13.24	51.64	74.00	22.36	Peak

Horizontal:

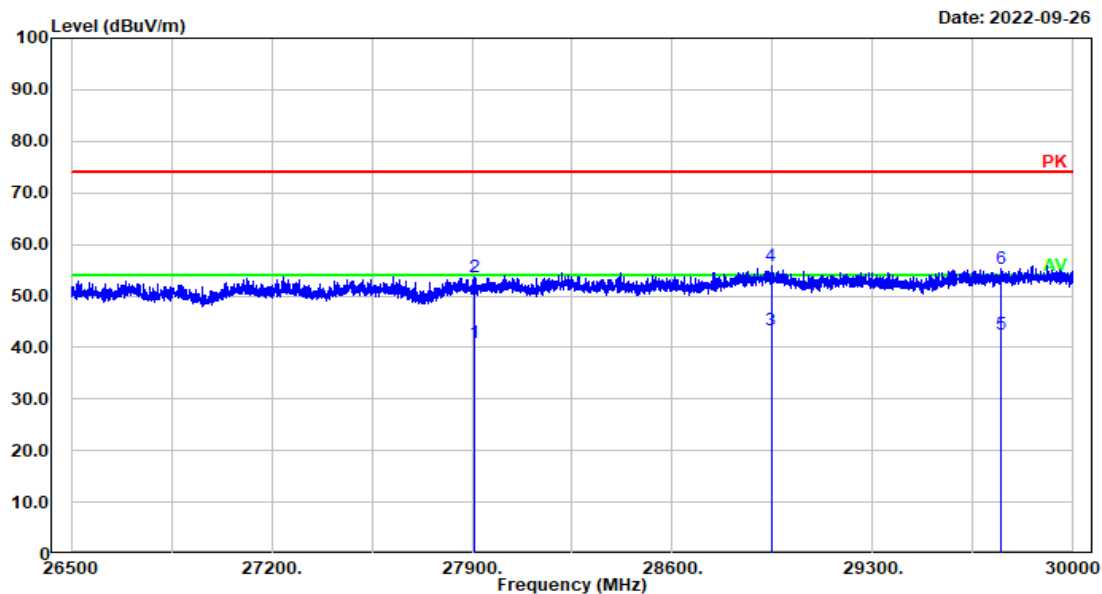
Test Mode: downloading
Polarization: Horizontal
Note: :



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	27622.320	26.59	13.79	40.38	54.00	13.62	Average
2	27622.320	39.76	13.79	53.55	74.00	20.45	Peak
3	28528.300	26.36	14.22	40.58	54.00	13.42	Average
4	28528.300	39.61	14.22	53.83	74.00	20.17	Peak
5	29586.220	27.67	14.65	42.32	54.00	11.68	Average
6	29586.220	40.07	14.65	54.72	74.00	19.28	Peak

Vertical:

Test Mode: downloading
Polarization: Vertical
Note:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	27907.980	26.38	14.57	40.95	54.00	13.05	Average
2	27907.980	39.05	14.57	53.62	74.00	20.38	Peak
3	28944.890	28.64	14.70	43.34	54.00	10.66	Average
4	28944.890	41.22	14.70	55.92	74.00	18.08	Peak
5	29745.850	27.34	15.10	42.44	54.00	11.56	Average
6	29745.850	40.13	15.10	55.23	74.00	18.77	Peak

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