FCC - TEST REPORT

Report Number	:	**68.950.21.0353.01**	Date of Issue:	**2021-05-21**
Model	:	**CP81-1**		
Product Type	:	Watch Wireless Charger		
Applicant	:	Huawei Technologies Co., Ltd.		
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C		
Manufacturer	:	Huawei Device Co., Ltd.		
Address	:	No.2 of Xincheng Road, Songshan Lake Zone, 523808, Dongguan, Guangdong People's Republic OF CHINA		
Factory 1	:	Lanto Electronic Ltd.		
Address	:	No. 399 Baisheng RD, Jinxi Town, 215300 Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA		
Factory 2	:	ASAP TECHNOLOGY (JIANGX) CO., LTD.		
Address	:	West District industrial Park, Ji'an Town, 343100 Jiangxi, PEOPLE'S REPUBLIC OF CHINA.		
Test Result	:	■ **Positive** ☐ **Negative**		
Total pages including Appendices	:	**19**		

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4.

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2 Details about the Test Laboratory

Details about the Test Laboratory
Test Site 1

Company name:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch Building 12 & 13, Zhiheng Wisdomland Business Park, Nantou Checkpoint Road 2, Nanshan District Shenzhen 518052 P.R. China
Telephone:	86 755 8828 6998
Fax:	86 755 828 5299
FCC Registration No.:	514049

3 Description of the Equipment Under Test

Product:	Watch Wireless Charger
Model no.:	CP81-1
FCC ID:	QISCW010
Rating:	5Vdc 2A Max supplied by an external adapter
RF Transmission Frequency:	110.5-148KHz
Antenna Type:	Litz Wire Coil
Antenna Gain:	0dBi
Description of the EUT:	The Equipment Under Test (EUT) is a wireless charger which operated at 110.5-148kHz.

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4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2019 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to ANSI C63.10 (2013).

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5 Summary of Test Results

Technical Requirements					
FCC Part 15 Subpart C					
Test Condition		Test Site	Test Result		
			Pass	Fail	N/A
§15.207	Conducted emission AC power port	Site 1	☒	☐	☐
§15.215	20dB bandwidth	Site 1	☒	☐	☐
§15.205	Restricted bands of operation	Site 1	☒	☐	☐
§15.209	Radiated emission	Site 1	☒	☐	☐
§15.203	Antenna requirement	See note 1	☒	☐	☐

Note 1: The EUT uses an Integrated coil antenna, which gain is 0dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

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6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: QISCW010, complies with Section 15.207, 15.209, 15.205 of the FCC Part 15, Subpart C rules.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

The Equipment under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Sample Received Date:	2021-05-08
Testing Start Date:	2021-05-10
Testing End Date:	2021-05-20

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

Reviewed by:	Prepared by:	Tested by:
John Zhi	Moon Xiong	Carry Cai
Project Manager	Project Engineer	Test Engineer

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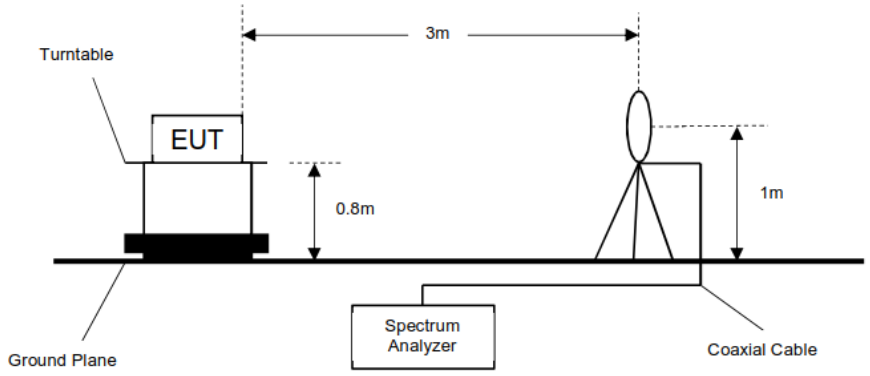
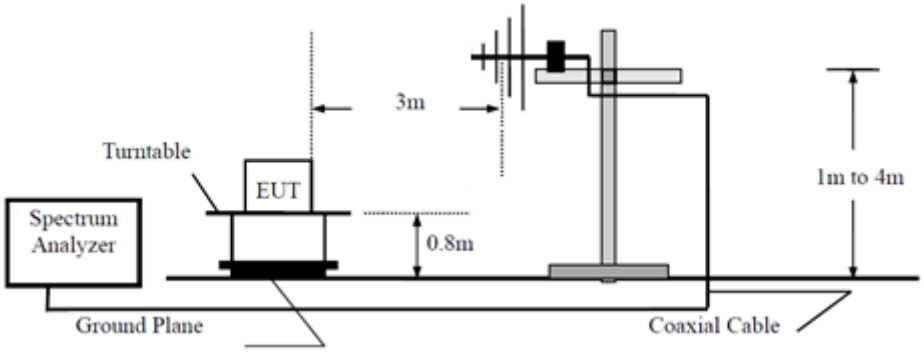
7 Test Setups

7.1 Radiated test setups

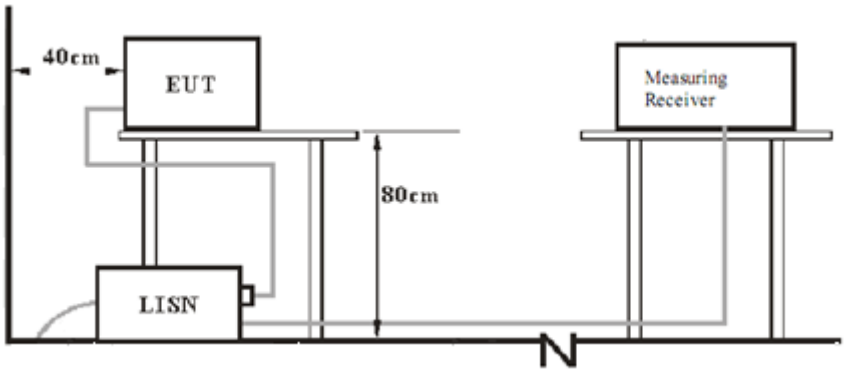
Below 30MHz



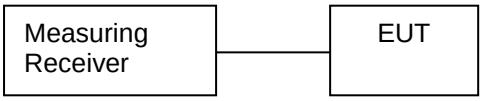
30MHz-1GHz



7.2 AC Power Line Conducted Emission test setups



7.3 Conducted RF test setups



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8 Systems test configuration

Auxiliary Equipment Used during Test:

Description	Manufacturer	Model NO.	S/N
Wireless Watch	HUAWEI	HW-001	---
Adapter	HUAWEI	HW-050200C02	---

9 Technical Requirement

9.1 Conducted Emission Test

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

Limit

According to §15.207, conducted emissions limit as below:

Frequency MHz	QP Limit dBµV	AV Limit dBµV
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

*Decreasing linearly with logarithm of the frequency

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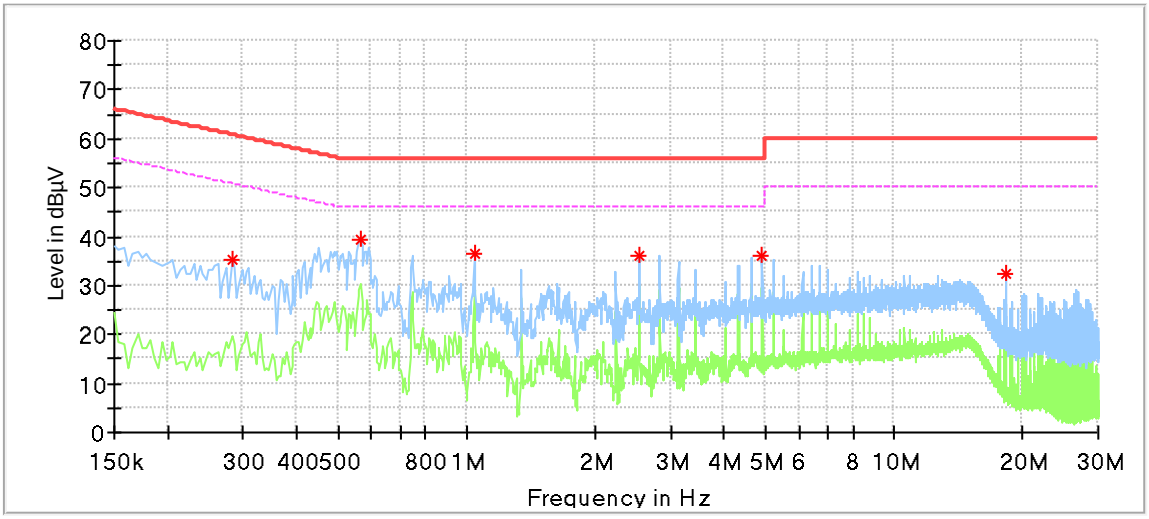
Conducted Emission

Product Type	:	Watch Wireless Charger
M/N	:	CP81-1
Operating Condition	:	Charging Mode
Test Specification	:	Line



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.282000	35.16	---	60.76	25.60	L1	9.64
0.566000	39.35	---	56.00	16.65	L1	9.65
1.042000	36.45	---	56.00	19.55	L1	9.66
2.534000	35.98	---	56.00	20.02	L1	9.70
4.918000	36.27	---	56.00	19.73	L1	9.76
18.222000	32.21	---	60.00	27.79	L1	9.97

Remark:

Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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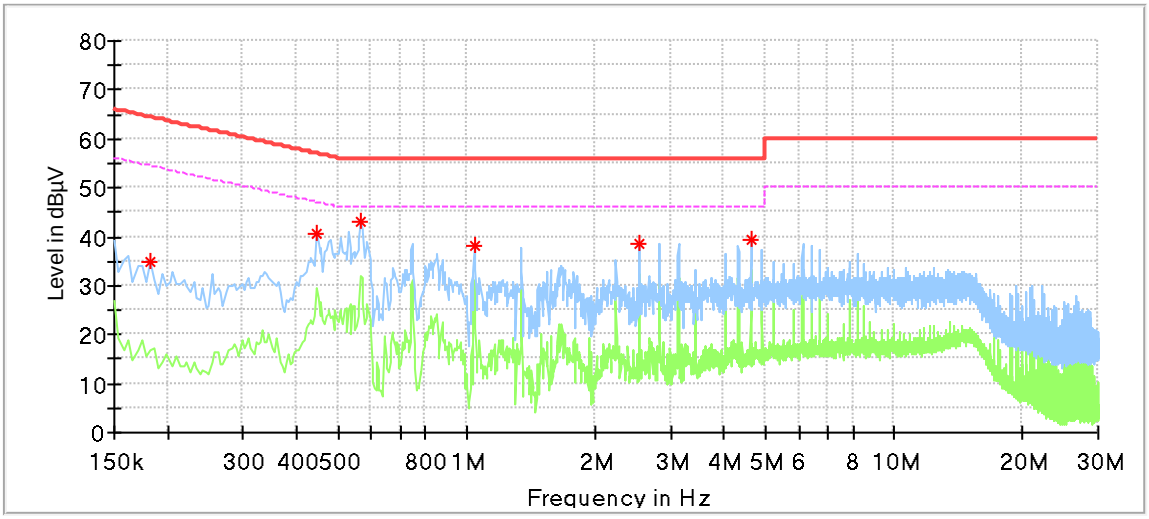
Conducted Emission

Product Type	:	Watch Wireless Charger
M/N	:	CP81-1
Operating Condition	:	Charging Mode
Test Specification	:	Neutral



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.182000	34.70	---	64.39	29.69	N	9.62
0.446000	40.44	---	56.95	16.51	N	9.64
0.566000	43.18	---	56.00	12.82	N	9.65
1.046000	38.26	---	56.00	17.74	N	9.65
2.534000	38.46	---	56.00	17.54	N	9.70
4.618000	39.25	---	56.00	16.75	N	9.75

Remark:

Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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9.2 20 dB Bandwidth

Test Method

1. Use the following spectrum analyzer settings:
RBW=200Hz, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. Use the automatic bandwidth measurement capability of an instrument, may be employed using the X dB bandwidth mode with X set to 20 dB, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 20 dB.
3. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

Limit [kHz]
No Limit

Test result

Frequency	20dB bandwidth	Result		Result
KHz	KHz	F_L (KHz)	F_H (KHz)	
111.5KHz	0.651	111.2869	--	Pass
121KHz	0.654	--	121.381	Pass

The fundamental frequency is outside the restricted bands of 15.205 section.

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9.3 Radiated Emission Test

Test Method

1: The EUT was place on a turn table which is 0.8m above ground for below 1GHz at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2: The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3: The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4: For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5: Use the following spectrum analyzer settings According to C63.10:

Limit

the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency MHz	Field Strength µ V/m	Field Strength dBµV/m	Detector	Measurement distance meters
0.009-0.490	2400/F(kHz)	48.5-13.8	QP	300
0.490-1.705	24000/F(kHz)	33.8-23.0	QP	30
1.705-30	30	29.5	QP	30
30-88	100	40	QP	3
88-216	150	43.5	QP	3
216-960	200	46	QP	3
960-1000	500	54	QP	3
Above 1000	500	54	AV	3
Above 1000	5000	74	PK	3

Note 1: Limit 3m(dBµV/m)=Limit 300m(dBµV/m)+40Log(300m/3m) (Below 30MHz)
Note 2: Limit 3m(dBµV/m)=Limit 30m(dBµV/m)+40Log(30m/3m) (Below 30MHz)
Note 3: The highest working frequency of EUT didn't exceed 108MHz, so no need to test radiated emission above 1GHz.

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Radiated emissions test (9KHz-30MHz)

Frequency Band	Frequency	Emission Level	Polarization	Limit	Detector	Margin	Correct factor	Result
	MHz	dBµV/m		dBµV/m		dB	(dB)	
9KHz-30MHz	0.071980	50.25	H	110.46	QP	60.21	19.71	Pass
	0.088007	48.40	H	108.71	QP	60.31	19.71	Pass
	0.119967*	45.85	H	106.02	QP	60.17	19.70	Pass
	0.147872*	62.21	H	104.21	QP	42.00	19.68	Pass
	0.150000	61.75	H	104.08	QP	42.33	19.72	Pass
	0.443525	41.65	H	94.67	QP	53.02	19.73	Pass
	0.503225	34.53	H	93.57	QP	59.04	19.73	Pass
	1.125100	31.36	H	86.58	QP	55.22	19.81	Pass
	Other frequency	--	H	--	QP		--	Pass
	0.056000	48.40	V	112.64	QP	64.24	19.72	Pass
	0.150000	54.10	V	104.08	QP	49.98	19.72	Pass
	0.147419*	54.09	V	104.23	QP	50.14	19.68	Pass
	3.075300	33.60	V	77.85	QP	44.25	19.88	Pass
	1.090275	32.37	V	86.85	QP	54.48	19.81	Pass
	7.234400	32.13	V	70.42	QP	38.29	20.04	Pass
	0.503225	32.79	V	93.57	QP	60.78	19.73	Pass

Remark:

(1) "*" means the emission(s) appear within the working band 110.5-148KHz.

(2) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss

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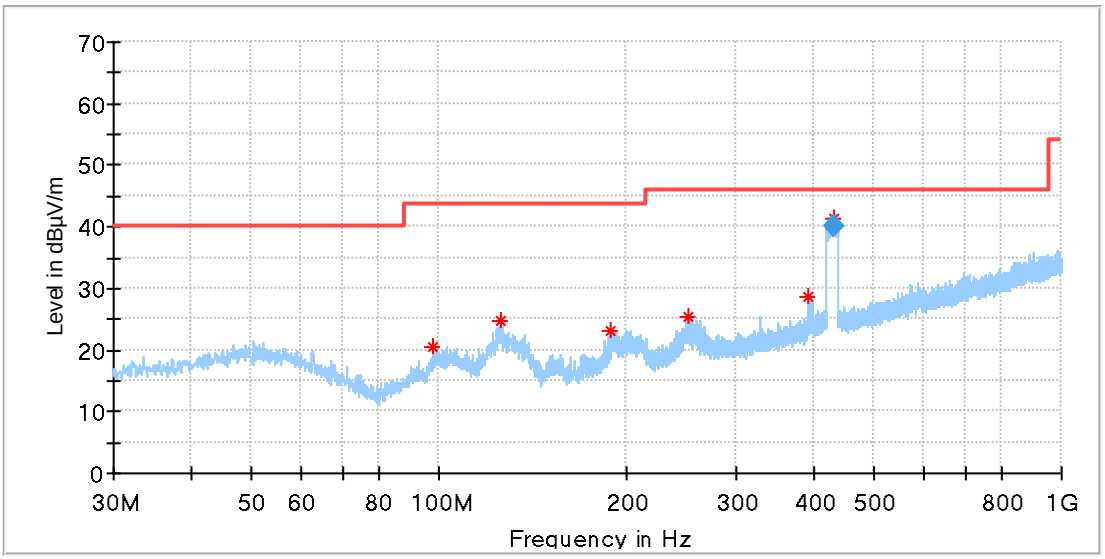
Radiated emissions test (30MHz-1000MHz)

Model:	CP81-1
Test Mode:	Charging Mode
Test Voltage:	AC 120V/60Hz



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
98.021250	20.51	43.50	22.99	100.0	H	355.0	15.91
126.090625	24.77	43.50	18.73	100.0	H	0.0	13.66
189.080000	23.04	43.50	20.46	100.0	H	245.0	15.33
251.281250	25.45	46.00	20.55	100.0	H	282.0	17.48
392.476875	28.55	46.00	17.45	100.0	H	71.0	21.25
429.579375	41.21	46.00	4.79	100.0	H	264.0	22.06

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
429.579375	40.08	46.00	5.92	100.0	H	264.0	22.06

Remark:

Level=Reading Level + Correction Factor
Correction Factor=Antenna Factor + Cable Loss
(The Reading Level is recorded by software which is not shown in the sheet)

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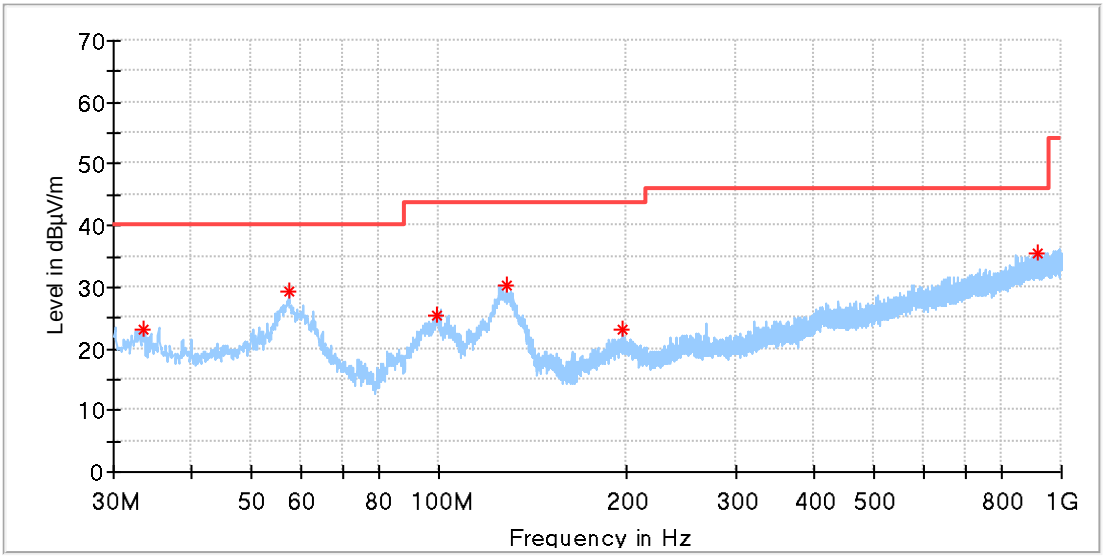
Model:	CP81-1
Test Mode:	Charging Mode
Test Voltage:	AC 120V/60Hz



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
33.455625	23.24	40.00	16.76	100.0	V	224.0	15.28
57.341875	29.23	40.00	10.77	100.0	V	104.0	17.69
99.415625	25.34	43.50	18.16	100.0	V	279.0	16.15
128.515625	30.37	43.50	13.13	100.0	V	76.0	13.49
196.718750	23.05	43.50	20.45	100.0	V	5.0	16.10
917.974375	35.59	46.00	10.41	100.0	V	358.0	30.06

Remark:

Level=Reading Level + Correction Factor
Correction Factor=Antenna Factor + Cable Loss
(The Reading Level is recorded by software which is not shown in the sheet)

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10 Test Equipment List

List of Test Instruments

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	1	2021-6-29
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	1	2021-8-4
Horn Antenna	Rohde & Schwarz	HF907	102294	1	2021-7-14
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100398		2021-9-2
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	1	2021-6-21
Attenuator	Agilent	8491A	MY39264334	1	2021-6-21
3m Semi-anechoic chamber	TDK	9X6X6	----	3	2022-10-28
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A	N/A

Conducted Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	1	2021-6-29
LISN	Rohde & Schwarz	ENV4200	100249	1	2021-6-12
LISN	Rohde & Schwarz	ENV432	101318	1	2021-6-12
LISN	Rohde & Schwarz	ENV216	100326	1	2021-6-12
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	1	2021-6-21
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A	N/A

RF Conducted Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101030	1	2021-6-21

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11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Items	**Extended Uncertainty**
Uncertainty for Conducted Emission 150kHz-30MHz	3.62dB
Uncertainty for Radiated Emission in 3m chamber 9KHz-30MHz	4.60 dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.63dB; Vertical: 4.61dB;

---THE END OF REPORT---

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