

Withings

TEST REPORT

Model:

WPA02

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Radio Spectrum

TEST REPORT

Applicant:	Withings 2 Rue Maurice Hartmann Issy-les-Moulineaux 92130 France
Product:	Withings U-Scan Reader
Model No.:	WPA02
FCC ID:	XNAWPA02
Test Method/ Standard:	47 CFR FCC Part 15.209
Test By:	Intertek Testing Services Taiwan Ltd., Hsinchu Laboratory No. 17, Ln. 246, Niupu S. Rd., Xiangshan Dist, Hsinchu City 300075, Taiwan



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Revision History

Report No.	Issue Date	Revision Summary
241200284THC-001	Mar. 05, 2025	Original report

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Summary of Test Data

Test Requirement	Applicable Rule	Result
Radiated Emission test	15.209	Pass
Conducted Emission test	15.207	Pass
Antenna Requirement	15.203	Pass

Note: Please note that the test results with statement of conformity, the decision rules which are based on: Safety Testing: the specification, standard or IEC Guide 115.

Other Testing: the specification, standard and not taking into account the measurement uncertainty.

1. General Information

1.1 Identification of the EUT

Product:	Withings U-Scan Reader
Model No.:	WPA02
Operating Frequency:	112 ~ 200 kHz
Rating:	1. DC 5V 2. DC 3.8V
Power Cord:	N/A
Sample receiving date:	2025/01/13
Sample condition:	Workable
Test Date(s):	2025/02/05 ~ 2025/02/06

SOP file name and version
RF_EMI_STM32WB_test_procedure_v7

	Mac
RAD	A47EFA3CCA08

1.2 Antenna description

Antenna Type : Planar Spiral Coil
Connector Type : Fixed

2. Test specifications

2.1 Test standard

The EUT was performed according to the requirement in FCC Part 15 Subpart C Section 15.209.

2.2 Operation mode

After the EUT is powered on and connected, the product can transmit continuously for testing.

2.3 Peripherals equipment

Peripherals name	Brand	Model No.	Serial No.
Adapter	LG	MCS-H06WA	5CD8021S9H
Withings U-Scan Station	Withings	SWPA01	N/A

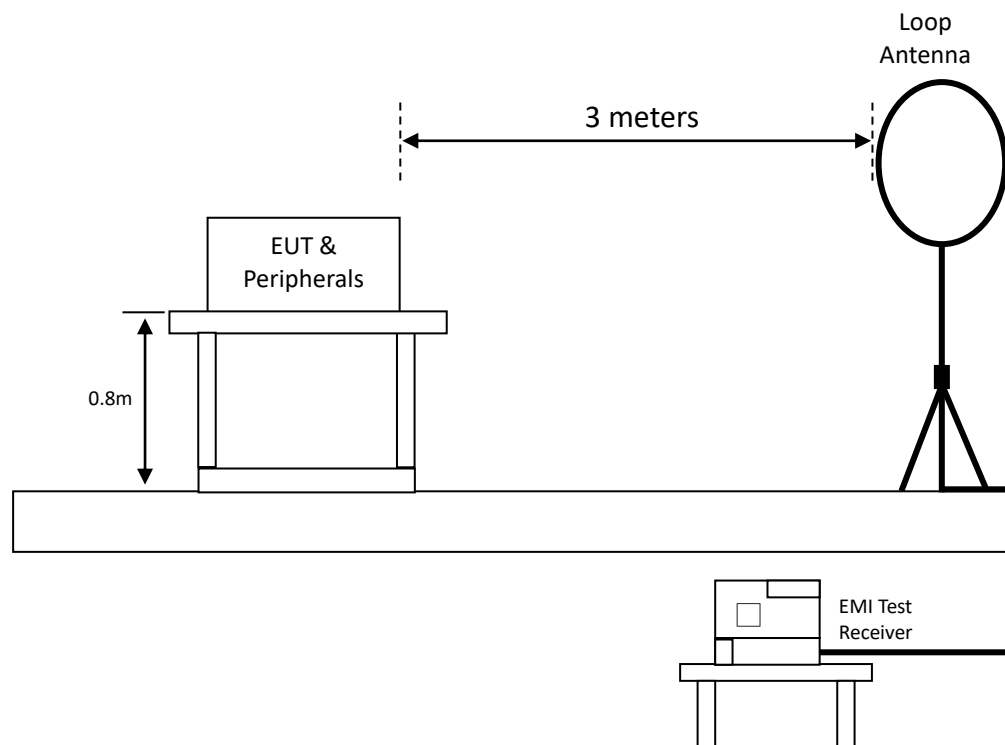
3. Radiated emission test FCC 15.209

3.1 Operating environment

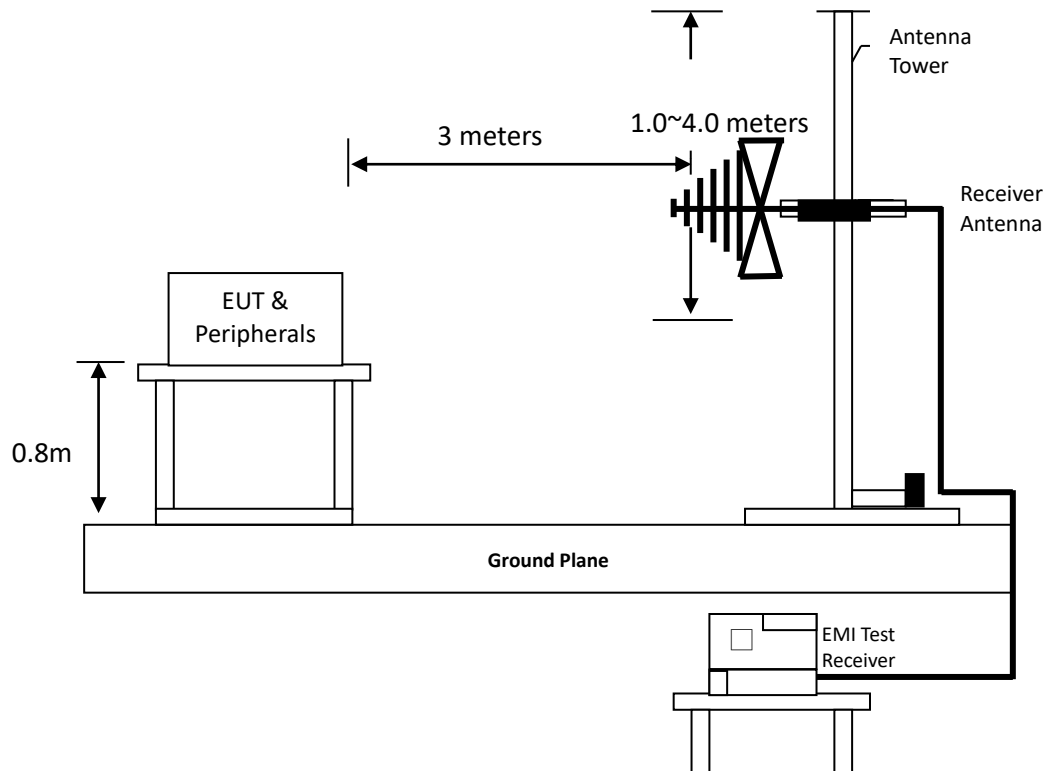
Temperature:	21	°C
Relative Humidity:	48	%
Test date:	2025/02/05	

3.2 Test setup & procedure

Radiated emission from 9kHz to 30MHz uses Loop Antenna:



Radiated emission below 1GHz using Bilog Antenna



Radiated emissions were investigated cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1 MHz RBW/ 3 MHz VBW) recorded also on the report.

The EUT for testing is arranged on a turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

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3.3 Radiated emission limit

3.3.1 General radiated emission limit

The spurious Emission shall test through the 10th harmonic. 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).

Frequency (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	2400/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

3.4 Radiated emission test data FCC 15.209

3.4.1 Measurement results: Fundamental emission

Antenna Polarization	Frequency (MHz)	Spectrum Analyzer Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Perpendicular	0.144	PK	16.72	65.94	82.66	105.16	-22.50
Parallel	0.144	PK	16.72	60.39	77.11	105.16	-28.05
Ground-parallel	0.144	PK	16.72	52.76	69.48	105.16	-35.68

Remark: Corr. Factor = Antenna Factor + Cable Loss

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3.4.2 Measurement results: Frequencies equal to or less than 1 GHz

Test condition : Tx mode

Antenna Polarization	Frequency (MHz)	Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Perpendicular	0.43	PK	17.26	39.93	57.19	94.96	-37.77
Perpendicular	0.70	PK	17.50	30.48	47.98	70.71	-22.73
Perpendicular	1.00	PK	17.50	24.43	41.93	67.61	-25.68
Perpendicular	1.27	PK	17.47	20.37	37.84	65.53	-27.69
Perpendicular	1.57	PK	17.44	17.70	35.14	63.69	-28.55
Perpendicular	18.66	PK	20.85	23.14	43.99	69.54	-25.55

Remark: Corr. Factor = Antenna Factor + Cable Loss

Antenna Polarization	Frequency (MHz)	Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Parallel	0.43	PK	17.26	34.38	51.64	94.96	-43.32
Parallel	0.70	PK	17.50	25.35	42.85	70.71	-27.86
Parallel	1.00	PK	17.50	20.19	37.69	67.61	-29.92
Parallel	1.27	PK	17.47	16.70	34.17	65.53	-31.36
Parallel	1.57	PK	17.44	12.24	29.68	63.69	-34.01
Parallel	18.93	PK	20.92	22.94	43.86	69.54	-25.68

Remark: Corr. Factor = Antenna Factor + Cable Loss

Antenna Polarization	Frequency (MHz)	Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Ground-parallel	0.28	PK	17.08	19.12	36.20	98.69	-62.49
Ground-parallel	0.43	PK	17.26	27.13	44.39	94.96	-50.57
Ground-parallel	0.52	PK	17.42	13.31	30.73	73.30	-42.57
Ground-parallel	0.70	PK	17.50	19.32	36.82	70.71	-33.89
Ground-parallel	1.00	PK	17.50	13.74	31.24	67.61	-36.37
Ground-parallel	1.27	PK	17.47	10.99	28.46	65.53	-37.07

Remark: Corr. Factor = Antenna Factor + Cable Loss

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Test condition : Tx mode

Antenna Polarization	Frequency (MHz)	Spectrum Analyzer Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Horizontal	85.29	PK	14.91	15.53	30.44	40.00	-9.56
Horizontal	118.27	PK	17.71	12.94	30.65	43.50	-12.85
Horizontal	154.16	PK	20.71	8.76	29.47	43.50	-14.03
Horizontal	168.71	PK	20.47	8.89	29.36	43.50	-14.14
Horizontal	249.22	PK	20.46	13.07	33.53	46.00	-12.47
Horizontal	288.02	PK	21.41	8.94	30.35	46.00	-15.65

Remark: Corr. Factor = Antenna Factor + Cable Loss

Antenna Polarization	Frequency (MHz)	Spectrum Analyzer Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Vertical	47.46	PK	20.48	18.13	38.61	40.00	-1.39
Vertical	107.60	PK	16.97	15.10	32.07	43.50	-11.43
Vertical	168.71	PK	20.47	10.84	31.31	43.50	-12.19
Vertical	193.93	PK	18.11	13.15	31.26	43.50	-12.24
Vertical	203.63	PK	18.14	12.61	30.75	43.50	-12.75
Vertical	288.02	PK	21.41	8.25	29.66	46.00	-16.34

Remark: Corr. Factor = Antenna Factor + Cable Loss

4. Conducted emission FCC 15.207

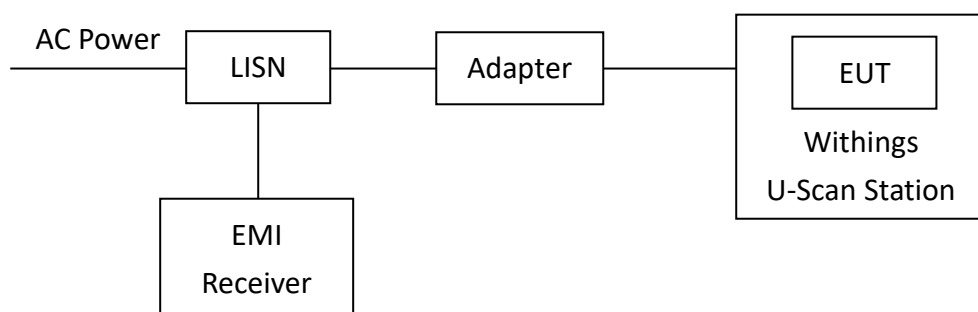
4.1 Measuring instrument setting

Receiver Function	Setting
Detector	QP
Start frequency	0.15MHz
Stop frequency	30MHz
IF bandwidth	9 kHz
Attenuation	10dB

4.2 Test Procedure

Step 1	Configure the EUT according to ANSI C63.10:2013. The EUT or host of EHT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
Step 2	Connect EUT or host of EUT to the power mains through a line impedance stabilization network.
Step 3	All the companion devices are connected to the other LISN. The LISN should provide 50Uh/50ohms coupling impedance.
Step 4	The frequency range from 150 kHz to 30MHz was searched.
Step 5	Set the test-receiver system to peak detector and specified bandwidth with maximum hold mode.
Step 6	The measurement has to be done between each power line and ground at the power terminal.

4.3 Test Diagram

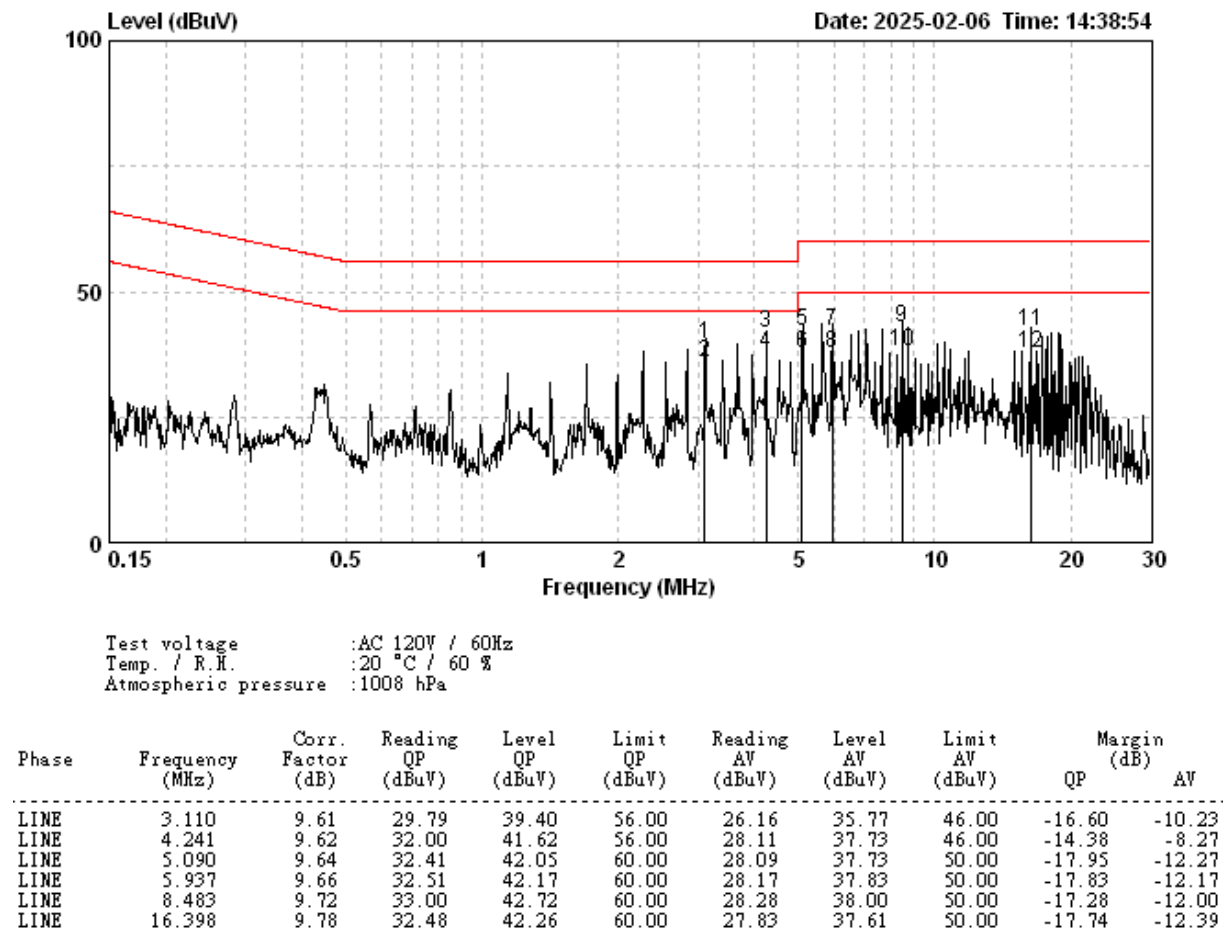


4.4 Limit

Frequency (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56	56 – 46
0.50~5.00	56	46
5.00~30.0	60	50

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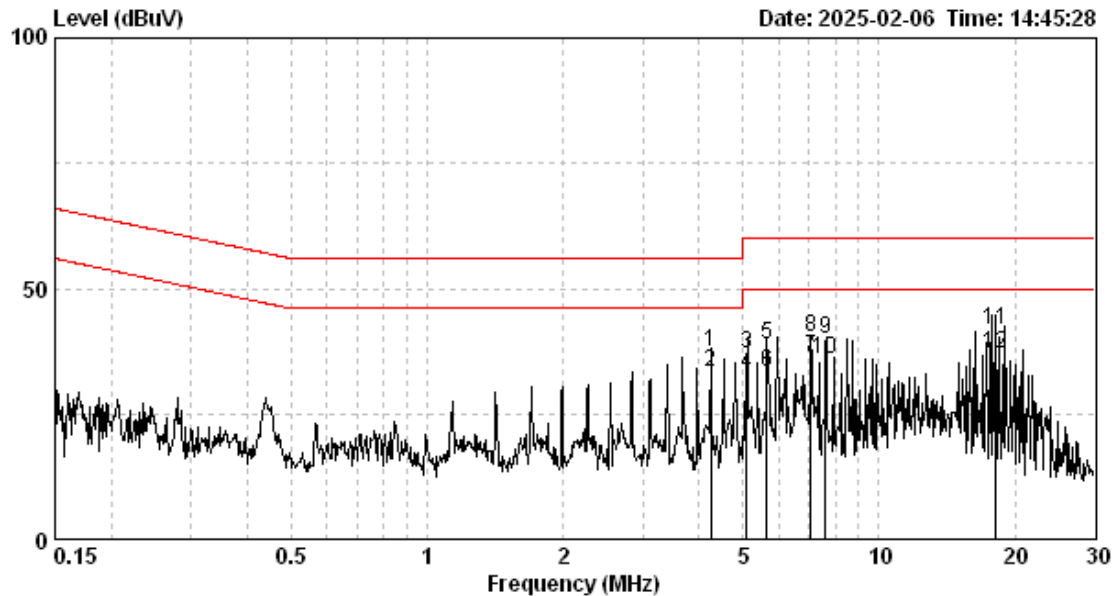
4.5 Test Results



Remark:

1. Corr. Factor (dB) = AMN Factor (dB) + Cable Loss (dB)
2. Level (dBUV) = Corr. Factor (dB) + Reading (dBUV)
3. Margin (dB) = Level (dBUV) – Limit (dBUV)

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Test voltage : AC 120V / 60Hz
 Temp. / R.H. : 20 °C / 60 %
 Atmospheric pressure : 1008 hPa

Phase	Frequency (MHz)	Corr. Factor (dB)	Reading QP (dBuV)	Level QP (dBuV)	Limit QP (dBuV)	Reading AV (dBuV)	Level AV (dBuV)	Limit AV (dBuV)	Margin (dB)	
									QP	AV
NEUTRAL	4.239	9.63	27.55	37.18	56.00	23.57	33.20	46.00	-18.82	-12.80
NEUTRAL	5.090	9.65	27.18	36.83	60.00	23.32	32.97	50.00	-23.17	-17.03
NEUTRAL	5.655	9.66	29.26	38.93	60.00	23.54	33.21	50.00	-21.07	-16.79
NEUTRAL	7.067	9.69	30.52	40.22	60.00	26.52	36.21	50.00	-19.78	-13.79
NEUTRAL	7.631	9.70	30.05	39.75	60.00	26.08	35.78	50.00	-20.25	-14.22
NEUTRAL	18.097	9.81	31.83	41.64	60.00	27.00	36.82	50.00	-18.36	-13.18

Remark:

1. Corr. Factor (dB) = AMN Factor (dB) + Cable Loss (dB)
2. Level (dBuV) = Corr. Factor (dB) + Reading (dBuV)
3. Margin (dB) = Level (dBuV) – Limit (dBuV)

Appendix A: Test equipment list

Test Equipment/ Test site	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
EMI Test Receiver	KEYSIGHT	N9038B	MY63060107	2024/03/06	2025/03/05
Bilog Antenna with 6dB Attenuator	SCHWARZBECK	VULB 9168 & N-6-06	1382 & AT-06012	2024/11/29	2025/11/28
Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-067	2024/12/11	2025/12/10
966-2(Cable	SUHNER	SUCOFLEX 104	295105/4	2024/03/02	2025/03/02
966-2 Cable	SUHNER	SUCOFLEX 104P	CB0005	2024/03/02	2025/03/02
966-2_3m Semi-Anechoic Chamber	CHANCE MOST	CEM-966_2	N/A	2024/07/30	2025/07/29
Test software	Audix	e3	V9	NCR	NCR
EMI Test Receiver	R&S	ESCI	100018	2024/07/23	2025/07/22
LISN	R&S	ENV216	101160	2024/06/26	2025/06/25
Cable	SUHNER	EMCCFD300-BM -NM-6000	170502	2024/06/25	2025/06/24
Test software	Audix	e3	V4.20040112L	NCR	NCR
Test site	Intertek	Con-2	N/A	NCR	NCR

Note: No Calibration Required (NCR).

Appendix B: Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2.0$.

Item	Uncertainty
Radiated disturbances from 9kHz~30MHz in a semi-anechoic chamber at a distance of 3m	2.73 dB
Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	3.91 dB
Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	3.49 dB
Conducted Measurement	0.69 dB
AC Conducted Emission	1.31 dB