

TEST REPORT

Report Number	BWTR-2316-NA15C
FCC ID	2BB57-URC01
Applicant	Ficont Industry (Beijing) Co., Ltd.
Product Name	Remote Control
Marketing Name	N/A
Brand Name	3S LIFT 
Model Name	URC01
Serial Number	No.1: TCS23060002 No.2: TCS23060003
Test Standard	FCC 47 CFR Part 15 Subpart C
Tested Date	Aug. 07, 2023 - Aug. 14, 2023

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Revision History

Revision	Description	Issued Date
A	Initial issue of report	2023/08/24
B	Correct the information of FCC ID	2023/08/25

1 Summary of Test Result

Report Section	FCC Section	Description	Result
3.1	15.231 (c)	20dB Bandwidth	Pass
3.2	15.231 (a)(1)	The Max Transmission Time	Pass
3.3	15.231 (b)/15.209 (a)	Radiated Emissions	Pass
3.4	15.207	Conducted Emission	N/A ^{Note}
2.3	15.203	Antenna Requirement	Pass

Note: The test was not performed since the EUT is only powered by battery.

We, Beijing Boomwave Test Service Co. Ltd., would like to declare that the tested sample has been evaluated and in compliance with the requirements of applicable standards.

Prepared by:		2023.08.25 17:34:19 +08'00'
	Reviewed by:	
Approved by:		

Rationale:

The test results in this report apply exclusively to the tested model / sample.

The laboratory shall have no liability to authenticate the information of tested model / sample provided by applicant or manufacturer in the test report. And it should be aware that the information may affect the validity of test results.

The electrical copy of test report is invalid without the signatures. The hard copy is invalid without seal. The test report shall not be modified, republished or copied without the written authorization of the laboratory.

2 General Information

2.1 Applicant

Ficont Industry (Beijing) Co., Ltd.

No. 15, Chuangyi East 2nd Road, Xiji Development Zone, Tongzhou District, Beijing, P.R. China

2.2 Manufacturer

Ficont Industry (Beijing) Co., Ltd.

No. 15, Chuangyi East 2nd Road, Xiji Development Zone, Tongzhou District, Beijing, P.R. China

2.3 Product Feature of Equipment Under Test

Product Name	Remote Control
Marketing Name	N/A
Model Name	URC01
Sample Status	Production
Operating Frequency Range	433.5MHz
Modulation Type	GFSK
Number of Channels	1
Nominal Channel Bandwidth	50KHz
Number of Antenna	1
Antenna Type	Spring Antenna
Antenna Gain	2.15dBi
Hardware Version	TC004 V2.0
Software Version	DLTC999016 B
Power Supply Rating	DC 4.50V (AA Battery × 3)
Sample Received Date	2023/07/27

Note: All the above information except for sample received date are provided by applicant.

2.4 Description of Test Modes

The EUT was flashed by engineering program to work in the mode of continuous transmitting its maximum output power level.

2.5 Duty Cycle of Test Signal

Frequency	Duty Cycle
433.5MHz	8.63%

2.6 Applicable Standards

Standard	Version	Title
FCC 47 CFR Part 15 Subpart C	2022	Requirements for Intentional Radiators
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices - Electromagnetic Compatibility

2.7 Test Facilities

Company Name: Beijing Boomwave Test Service Co. Ltd

Address: EMC Building, No.1 Wang Jing East Road, Chao Yang District Beijing, P.R. China 100102

FCC Test Firm Registration Number: 613197

ISED Canada Registration No.: 24289 (CAB Identifier: CN0010)

VCCI Registration No.: R-20062, G-20063, C-20050, T-20049

Test Site	Description	Dimension	Ground Plane Size
☒ SAC10	10m semi-anechoic chamber	19.5m×12.9m×8.6m	4m×4m
☒ SAC3	3m semi-anechoic chamber	9.6m×6.4m×6.0m	9.6m×6.4m
☐ SR#1	Shielding Room for EMS test	8.1m×4.05m×2.755m	8.1m×4.05m
☒ SR#2	Shielding Room for RF test	8.1m×4.05m×2.755m	---

3 Test Result

3.1 20dB Bandwidth

3.1.1. Limit

FCC 47 CFR Part 15 Subpart C - §15.231 (c)

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz.

3.1.2. Test Setup



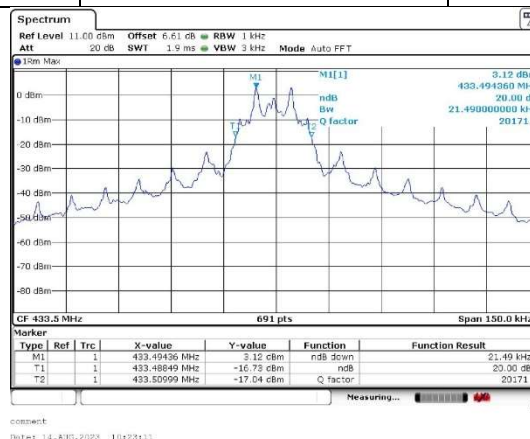
3.1.3. Test Procedures

- 1) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range shall be between two times and five times the OBW.
- 2) The RBW shall be in the range of 1% to 5% of the OBW and VBW shall be approximately three times RBW.
- 3) Set the reference level of the instrument as required.
- 4) Set detection mode to peak and trace mode to max hold.
- 5) Allow the trace to stabilize.
- 6) 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 20dB relative to the maximum level measured in the fundamental emission.

3.1.4. Test Result

Test Engineer	Xu Dongxu	Test Date	2023/08/14
Temperature	25.1°C	Relative Humidity	49.0%
Pressure	105.4kPa	Test Sample Selected	No.1

Frequency (MHz)	20dB Bandwidth (kHz)	Limits (kHz)
433.5	21.49	≤1085



3.1.5. Uncertainty

Frequency (MHz)	U_{lab}	k
433.5	47.53Hz	2

3.2 The Max Transmission Time

3.2.1. Limit

FCC 47 CFR Part 15 Subpart C - §15.231 (a)(1)

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

3.2.2. Test Setup



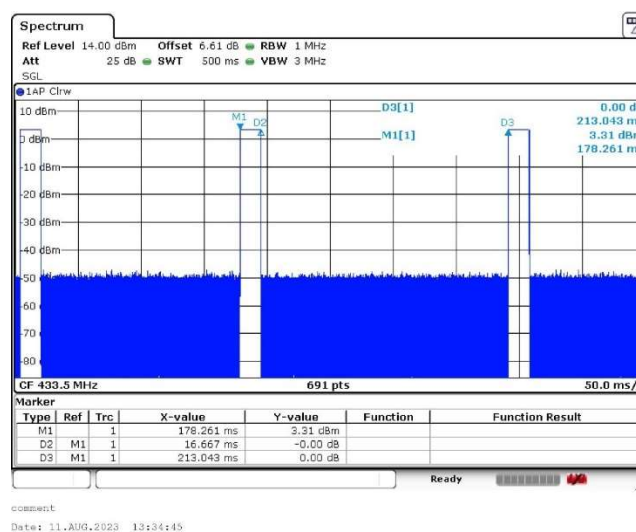
3.2.3. Test Procedures

- 1) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency.
- 2) Set Span to Zero.
- 3) Set EUT as normal operation and press Transmitter button.
- 4) Allow the trace to stabilize.
- 5) Use the function of Delta Mark to mark start and stop time of signal emission.

3.2.4. Test Result

Test Engineer	Xu Dongxu	Test Date	2023/08/11
Temperature	25.6°C	Relative Humidity	63.0%
Pressure	105.6kPa	Test Sample Selected	No.1

Frequency (MHz)	The Max Transmission Time	Limit
433.5	16.67ms	≤5s



3.2.5. Uncertainty

$$U_{lab}=0.05\% (k=2)$$

3.3 Radiated Emissions

3.3.1. Limit

FCC 47 CFR Part 15 Subpart C - § 15.209 (a)

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

FCC 47 CFR Part 15 Subpart C - §15.35 (b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Used conversion factor: Limit (dBμV/m) = 20log (Limit (μV/m)/1μV/m)

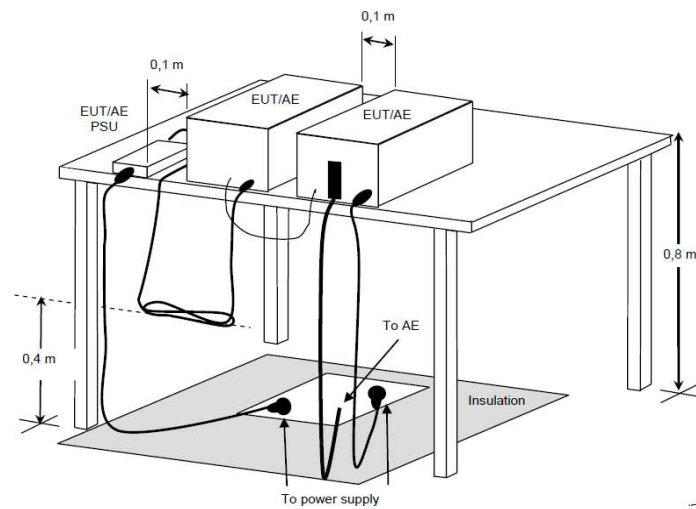
Frequency (MHz)	Detector	Unit (dBμV/m)
30-88	Quasi-Peak	40.0
88-216	Quasi-Peak	43.5
216-960	Quasi-Peak	46.0
960-1000	Quasi-Peak	54.0
1000~5th harmonic of the highest frequency or 40GHz, whichever is lower	Average	54.0
	Peak	74.0

FCC 47 CFR Part 15 Subpart C - §15.231 (b)

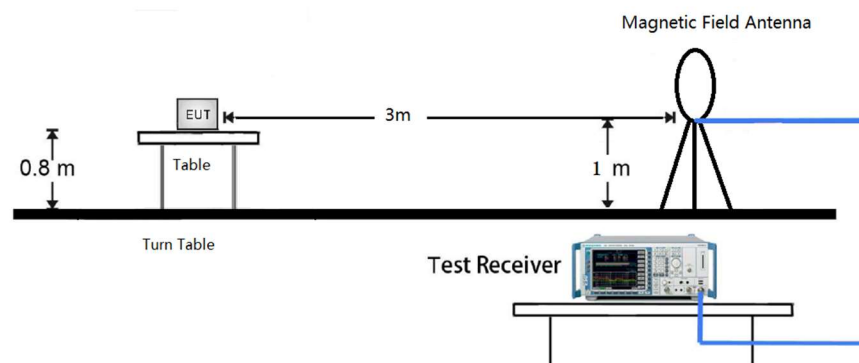
The field strength of emissions from intentional radiators shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.77	2250	225
70-130	1250	125
130-174	1250 to 3750	125 to 375
174-260	3750	375
260-470	3750 to 12500	375 to 1250
Above 470	12500	1250

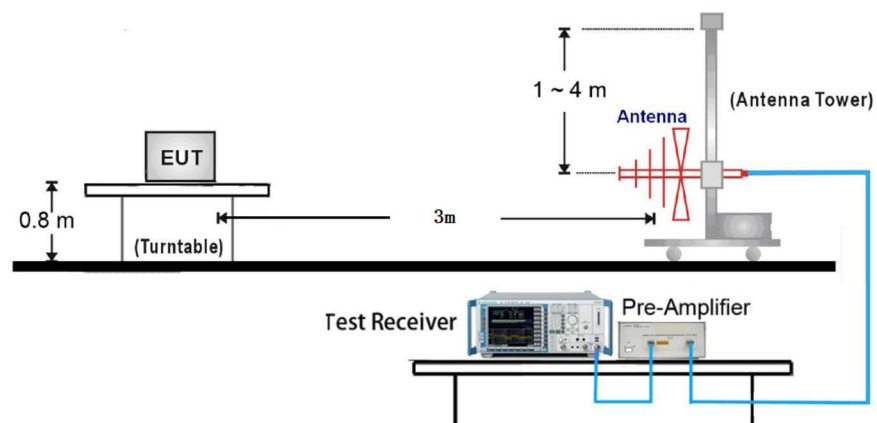
3.3.2. Test Setup



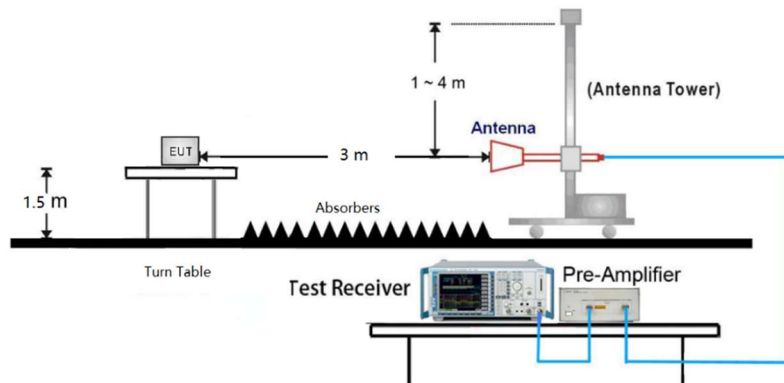
Test Connection Diagram



Below 30MHz Test Setup



30MHz-1GHz Test Setup



Above 1GHz Test Setup

3.3.3. Test Procedures

- 1) The measurement procedure follows ANSI C63.10-2013, clause 6.3, 6.5, 6.6, 6.10.5 and 6.10.6.
- 2) The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.
- 3) EUT is placed on a non-conducting table 80cm above the ground plane for measurement below 1GHz; 1.5m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters.
- 4) For measurements below 30MHz, the resolution bandwidth and video bandwidth is set to 9kHz for quasi-peak detection measurements.

For measurements from 30MHz to 1GHz, the resolution bandwidth is set to 100kHz for peak detection measurements or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1GHz, the resolution bandwidth is set to 1MHz; the video bandwidth is set to 3MHz for peak measurements.

For final scans above 1GHz, the resolution bandwidth is set to 1MHz and video bandwidth is set to 3MHz for peak measurements. And 1MHz resolution bandwidth with 1/T (10Hz) video bandwidth with peak detector for average measurements.

- 5) The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and horizontal positions.
- 6) The spectrum from 1GHz to 18GHz is investigated with the EUT set to transmit at the lowest, middle and highest channels with the highest output power and worst-case modulation type (defined in section 2.6 of this report). Below 1GHz and above 18GHz emissions were performed with the EUT set to transmit at the channel and modulation type with the highest output power as worst-case scenario.

3.3.4. Test Result

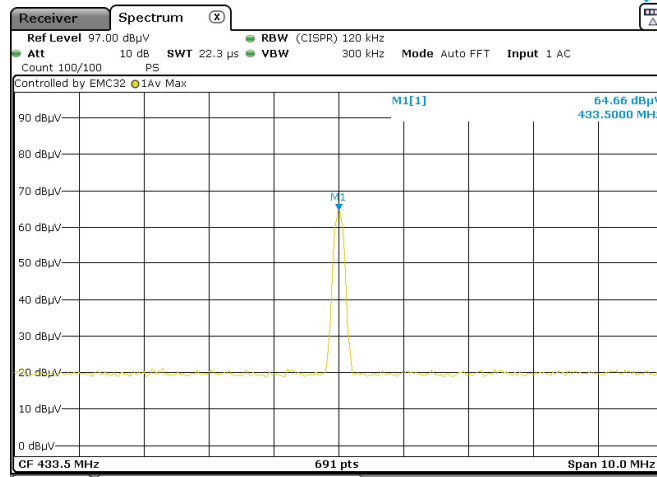
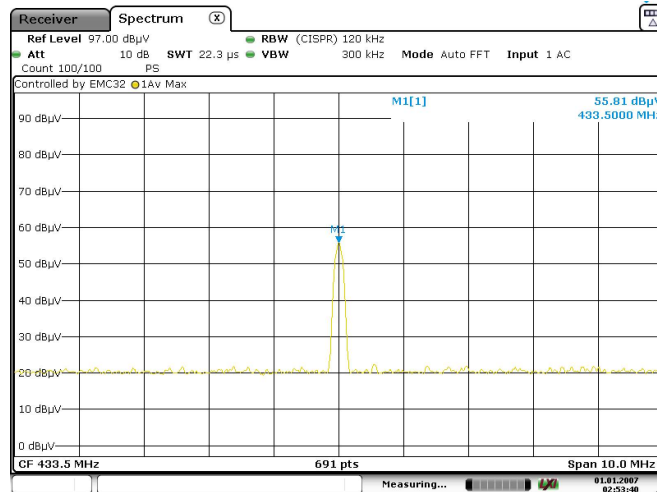
Field strength of fundamental:

Test Engineer	Yang Zijian	Test Date	2023/08/07
Temperature	24.3°C	Relative Humidity	56.0%
Pressure	105.6kPa	Test Sample Selected	No.2

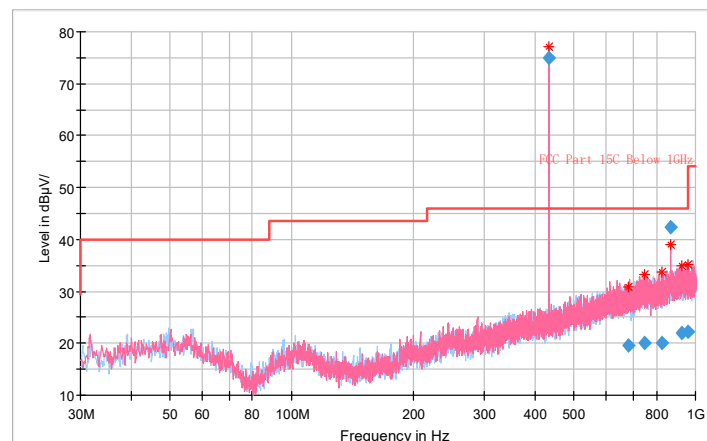
Frequency (MHz)	Receiver Reading (dBuV)	Total Correction Factor except Antenna (dB)	Antenna Factor (dB/m)	Final Result (dBuV/m)	Limit (dBuV/m)	Pol
433.5	64.66	-18.33	15.2	61.53	80.83	V
433.5	55.81	-18.33	15.2	52.68	80.83	H

Note:

- 1) Total Correction Factor except Antenna = Cable Loss + 20 × log (Duty cycle) = -18.33dB
- 2) Final Result = Receiver Reading + Total Correction Factor except Antenna + Antenna Factor

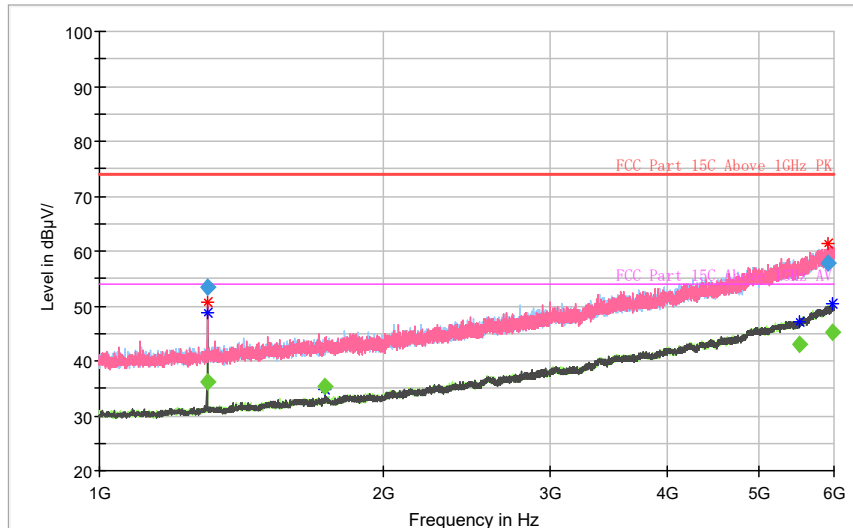
Antenna Vertical:

Antenna Horizontal:

Spurious Radiated Emission
Below 30MHz:

There were no emissions from 9kHz to 30MHz found within 20dB of the limit. Thus, the test result was not reported according to §15.31 (o)

From 30MHz to 1GHz:


Frequency (MHz)	Quasi Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
684.022500	19.49	46.00	26.51	120.00	189.3	V	-6.0	19.0
747.072500	20.09	46.00	25.91	120.00	100.2	H	-6.0	23.1
827.703750	19.98	46.00	26.02	120.00	209.7	V	-9.0	24.6
866.988750	42.40	46.00	3.60	120.00	189.3	V	-4.0	24.9
926.886250	21.95	46.00	24.05	120.00	109.7	V	-6.0	25.5
955.622500	22.23	46.00	23.77	120.00	198.0	V	-1.0	26.3

From 1GHz to 6GHz:



Frequency (MHz)	MaxPeak Reading (dBuV/m)	Average Reading (dBuV/m)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1300.3333	24.96	---	53.56	---	74.00	20.44	99.9	V	347.0	28.6
1300.3333	---	7.52	---	36.12	54.00	17.88	99.9	V	347.0	28.6
1734.0000	---	5.55	---	35.35	54.00	18.65	99.9	V	242.0	29.8
5505.5000	---	3.94	---	43.14	54.00	10.86	200.1	H	69.0	39.2
5911.5000	17.88	---	57.88	---	74.00	16.12	99.9	V	221.0	40.0
5988.5000	---	5.00	---	45.10	54.00	8.90	99.9	V	123.0	40.1

3.3.5. Uncertainty

Frequency	Antenna Polarization	Distance	U_{lab}	k
30MHz-200MHz	Horizontal	3m	4.58	2
	Vertical	3m	4.73	2
200MHz-1GHz	Horizontal	3m	4.90	2
	Vertical	3m	4.93	2
1GHz-6GHz	--	3m	4.66	2

3.4.3. Test Procedures

- 1) The measurement procedure follows ANSI C63.10-2013, clause 6.2;
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50ohm/50uH of coupling impedance for the measuring instrument;
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference;
- 4) The frequency range from 150kHz to 30MHz was searched. Emission levels under limit -20dB were not recorded;
- 5) The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz;
- 6) The EUT shall test under the power AC120V/60Hz.

3.4.4. Test Result

N/A

Note:

This test was not performed since the EUT is only powered by battery.

3.4.5. Uncertainty

$U_{lab}=3.0\text{dB}$, $k=2$ ($U_{Cispr}=3.4\text{dB}$)

Determining compliance with the limits shall be based on the results of the compliance measurements, taking into account the considerations on measurement instrumentation uncertainty.

Because U_{lab} is equal to U_{CISPR} (as specified in CISPR16-4-2), then:

-compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;

-non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit;

4 Test Instruments and Software

4.1 Test Instruments

Description	Model Name	S/N	Manufacturer	Next Cal Date
Spectrum Analyzer	FSV40	101403	R&S	2024/01/09
Hybrid Antenna	VULB9163	01266	SCHWARZBECK	2024/01/10
Double Ridged Broadband Horn Antenna	BBHA 9120D	1276	SCHWARZBECK	2024/01/09
EMI Test Receiver	ESR26	101320	R&S	2024/01/09
Active Loop Antenna	HFH2-Z2	100533	R&S	2024/01/10
Double-Ridged Waveguide Horn Antenna	HF907	100096	R&S	2024/01/09
Digital Display Temperature and Humidity Recorder	TM320	15080	DICKSON	2024/01/09
Aneroid Barometer	DYM3	00868	Shanghai Boji	2024/05/04

4.2 Test Software

Name	Model	Version
Radiated Emission Software	EMC 32	10.01

--- End of Test Report ---