

FCC CERTIFICATION TEST REPORT

FOR

Applicant	:	Guangzhou Shirui Electronics Co.,Ltd.
Address	:	No.192 Kezhu Road, Science Park, Economic - Technological Development Area, Guangzhou, Guangdong, China
Equipment under Test	:	Sensor Box
Model No.	:	WL10A, WL10B
Trade Mark	:	MAXHUB
FCC ID	:	2AFG6-WL10A
Manufacturer	:	Guangzhou Shirui Electronics Co.,Ltd.
Address	:	No.192 Kezhu Road, Science Park, Economic - Technological Development Area, Guangzhou, Guangdong, China

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, SongshanLakeSci&Tech, IndustryPark, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, **E-mail:** ddt@dgddt.com, <http://www.dgddt.com>

REPORT

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Test Report Declare

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Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C

Test procedure used:

ANSI C63.10:2013

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	DDT-R21112224-1E01		
Date of Receipt:	Nov. 23, 2021	Date of Test:	Nov. 23, 2021 ~ Jan. 12, 2022

Prepared By:

Jacky Huang

Jacky Huang/Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Jan. 14, 2022	

1. Summary of Test Results

Description of Test Item	Standard	Results
20 dB Bandwidth	FCC Part 15: 15.215 ANSI C63.10:2013	Pass
Frequency Tolerance	FCC Part 15:15.225 ANSI C63.10:2013	Pass
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.225 ANSI C63.10:2013	Pass
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.10:2013	Pass
Antenna Requirement	FCC Part 15: 15.203 ANSI C63.10:2013	Pass

2. General Test Information

2.1. Description of EUT

EUT* Name	: Sensor Box
Model Number	: WL10A, WL10B
Difference of models	: The difference between the two models is that the WL10A has one more power module in hardware and one more power socket in appearance than the WL10B. Other hardware and software parts are identical.
EUT function description	: Please reference user manual of this device
Power Supply	: DC 5V powered by Interactive Flat Panel
Operation Frequency	: 13.56 MHz
Antenna Type	: Inductive loop coil antenna
Serial Number	: N/A
Sample Type	: Series production

Note: EUT is the abbreviation of equipment under test.

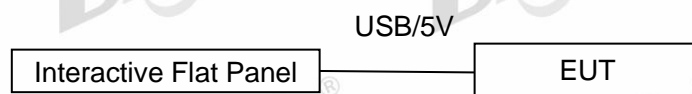
2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Serial No.	Other
N/A	N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number or Type	EMC Compliance	Other
Interactive Flat Panel	N/A	N/A	N/A	N/A
ID Card	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test



2.5. Deviations of test Stand

No deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

/	Normal Conditions	Extreme Conditions
Temperature range:	21-25 °C	0 °C and +40 °C
Humidity range:	40-75%	10-90%
Pressure range:	86-106 kPa	86-106 kPa
Power supply	NV: AC 120V/60Hz	AC 102V 60Hz and AC 138V 60Hz (from 85% to 115% of the rated supply voltage)
Note: The Extreme temperature range and extreme voltages are declared by the manufacturer.		

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2.8. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Radiation Emission test (9 kHz - 30 MHz)	3.32 dB (150 kHz - 30 MHz)
	3.72 dB (9 kHz - 150 kHz)
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz to 18 GHz)	4.10 dB (1-6 GHz)
	4.40 dB (6 GHz - 18 GHz)
Bandwidth	1.1%
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Conducted disturbance at mains terminals	3.34 dB (150 kHz-30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

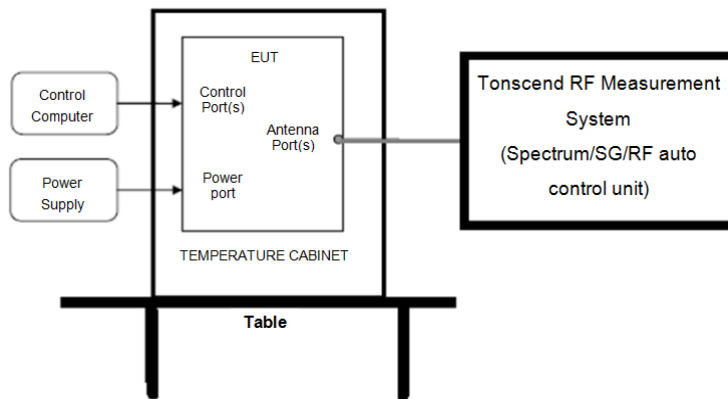
3. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input type="checkbox"/> RF Connected Test (Tonscend RF Measurement System 1#)					
Spectrum analyzer	R&S	FSU26	200071	Sep. 02, 2021	1 Year
Wideband Radio Communication tester	R&S	CMW500	120259	Sep. 02, 2021	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 18, 2021	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jun. 01, 2021	1 Year
RF Control Unit	Tonsend	JS0806-2	DDT-ZC0290	Jun. 01, 2021	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-15 0L	ZX170110-A	Jun. 01, 2021	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
<input checked="" type="checkbox"/> RF Connected Test (Tonscend RF Measurement System 2#)					
Spectrum analyzer	R&S	FSU26	101472	Jun. 01, 2021	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jun. 01, 2021	1 Year
Vector Signal Generator	Agilent	N5182A	MY19060405	Jun. 01, 2021	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180912	Jun. 01, 2021	1 Year
RF Control Unit	Tonsend	JS0806-2	DDT-ZC01449	Jun. 01, 2021	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-15 0L	ZX170110-A	Jun. 01, 2021	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
<input type="checkbox"/> Radiation 1#chamber					
EMI Test Receiver	R&S	ESU8	100316	Sep. 02, 2021	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 01, 2021	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 13, 2021	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 19, 2021	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Sep. 19, 2021	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	May 08, 2021	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Sep. 02, 2021	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Sep. 02, 2021	1 Year
RF Cable	N/A	5m+6m+1m	06270619	Sep. 02, 2021	1 Year
MI Cable	HUBSER	C10-01-01-1 M	1091629	Sep. 02, 2021	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
<input type="checkbox"/> Radiation 2#chamber					
EMI Test Receiver	R&S	ESCI	101364	Sep. 02, 2021	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 01, 2021	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-994	Sep. 27, 2021	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 19, 2021	1 Year

Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 17, 2021	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	May 08, 2021	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	1013 03	Sep. 02, 2021	1 Year
RF Cable	MI Cable	RG214-11	DDT-ZC01497	Jun. 09, 2021	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
☑Radiation 3#chamber					
EMI Test Receiver	R&S	ESU	100472	Jun. 01, 2021	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 19, 2021	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	01429	Aug. 07, 2021	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 17, 2021	1 Year
Pre-amplifier	COM-POWER	PAM-118A	18040084	Sep. 02, 2021	1 Year
RF Cable	N/A	14+1.5m	06270619	Sep. 02, 2021	1 Year
Test software	Audix	E3	V 9	N/A	N/A
☑Power Line Conducted Emissions Test 1#					
EMI Test Receiver	R&S	ESU8	100551	Sep. 02, 2021	1 Year
LISN 1	R&S	ENV216	101109	Sep. 02, 2021	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 02, 2021	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 02, 2021	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 02, 2021	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
☐Power Line Conducted Emissions Test 2#					
Test Receiver	R&S	ESPI	101761	Sep. 02, 2021	1 Year
LISN 1	R&S	ENV216	101170	Sep. 02, 2021	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 02, 2021	1 Year
Pulse Limiter	R&S	KH43101	43101180156 8-12#	Jun. 01, 2021	1 Year
CE Cable 2	HUBSER	N/A	W11.02	Jun. 01, 2021	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4. 20 dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

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.

4.3. Test procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) Set the spectrum analyzer as follows:

RBW:	300 Hz
VBW:	1 kHz
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold
- (3) Allow the trace to stabilize, measure the 20 dB bandwidth of signal.

4.4. Test result

WL10A:

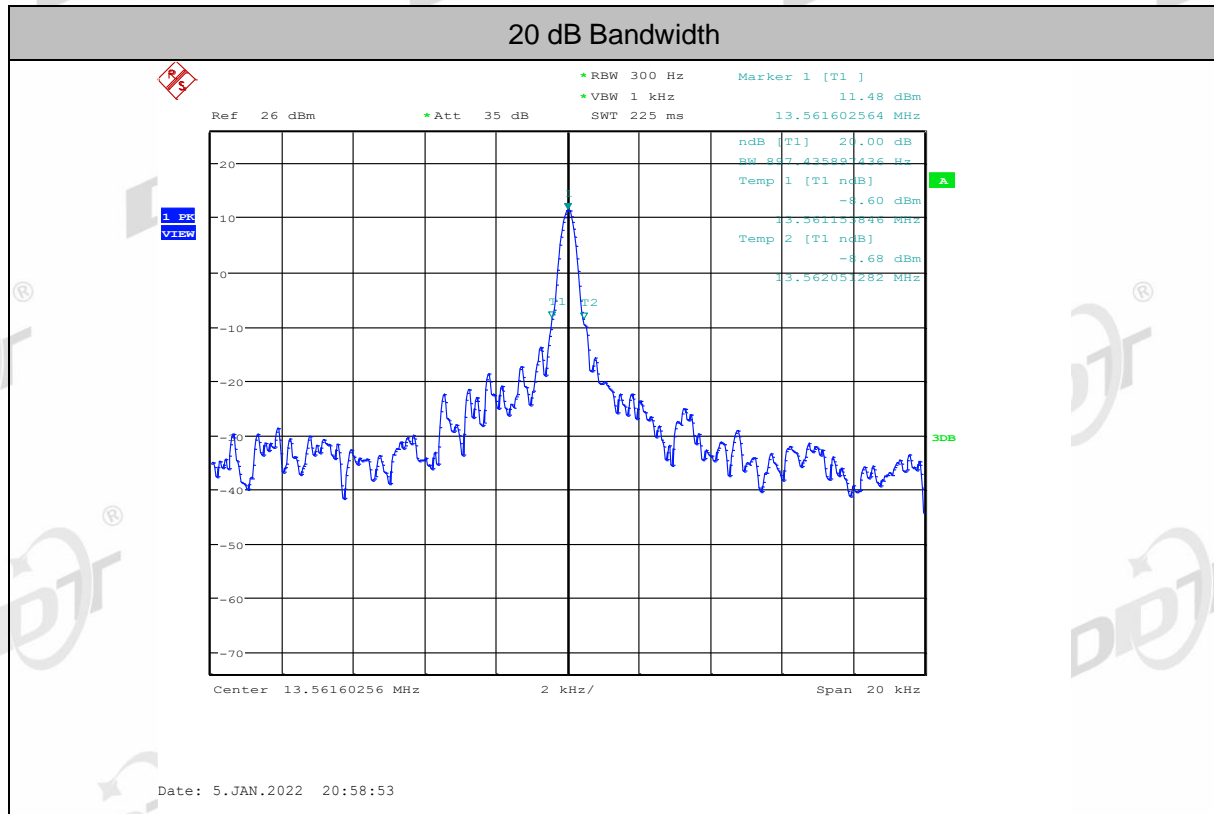
Mode	Freq. (MHz)	20 dB bandwidth Result (Hz)	Conclusion
ASK	13.56	897.436	Pass

WL10B:

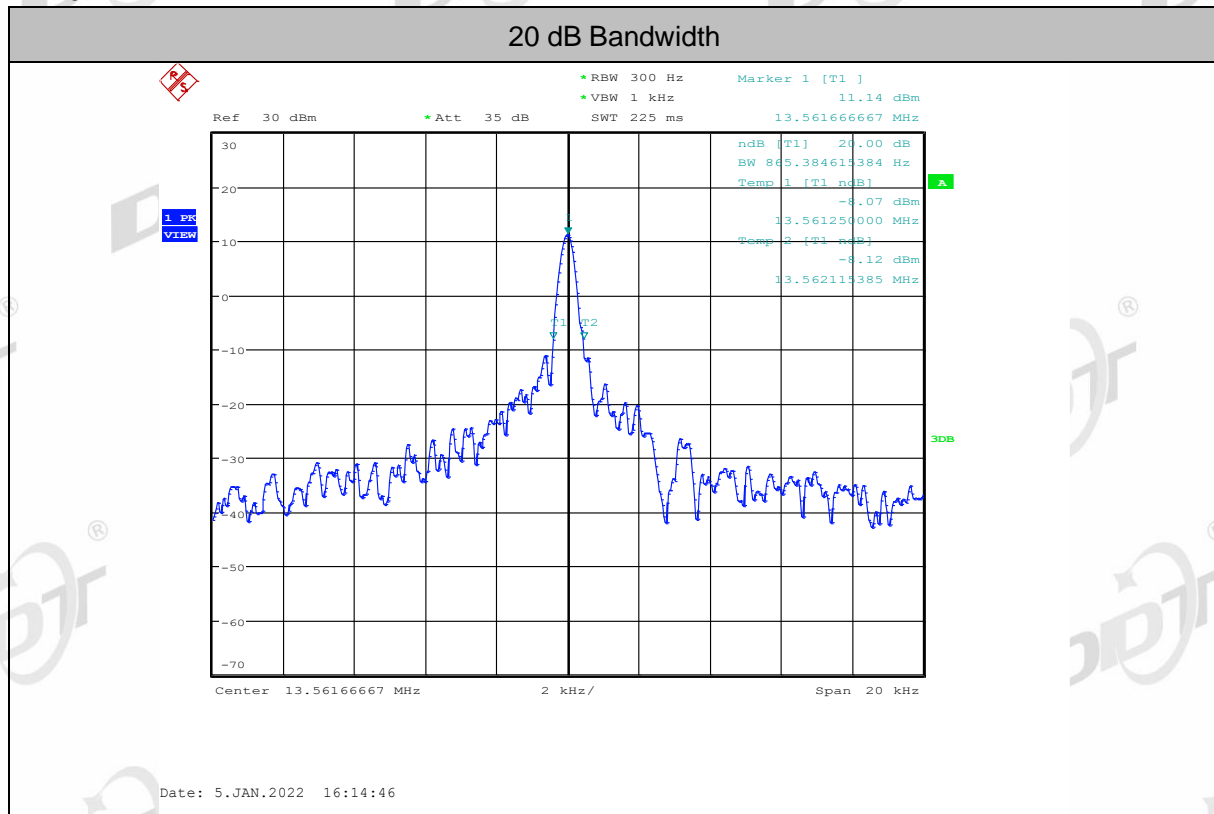
Mode	Freq. (MHz)	20 dB bandwidth Result (Hz)	Conclusion
ASK	13.56	865.385	Pass

4.5. Original test data

WL10A:



WL10B:

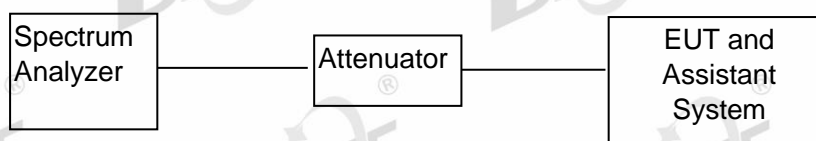


5. Frequency Tolerance

5.1. Limit

As contained in § 15.225 the frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply Voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

5.2. Block diagram of test setup



5.3. Test procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 10 kHz.

Video BW: 10 kHz.

Span: 1 MHz.

Detector: Peak.

Trace Mode: Max Hold.

- (2) When the trace is complete, find the peak value of the power envelope and record the frequency.

5.4. Test result

WL10A:

Mode	Condition		Result			Limit
	Temperature (°C)	Voltage (V)	Measured (MHz)	Tolerance (kHz)	Tolerance (ppm)	ppm
Carrier Tx Mode	NT	NV	13.560	0	0	100
	0	NV	13.560	0	0	100
	40	NV	13.560	0	0	100
	NT	AC 102V	13.560	0	0	100
	NT	AC 138V	13.560	0	0	100
Note: NT: 20 °C, NV: AC 120V/60Hz						

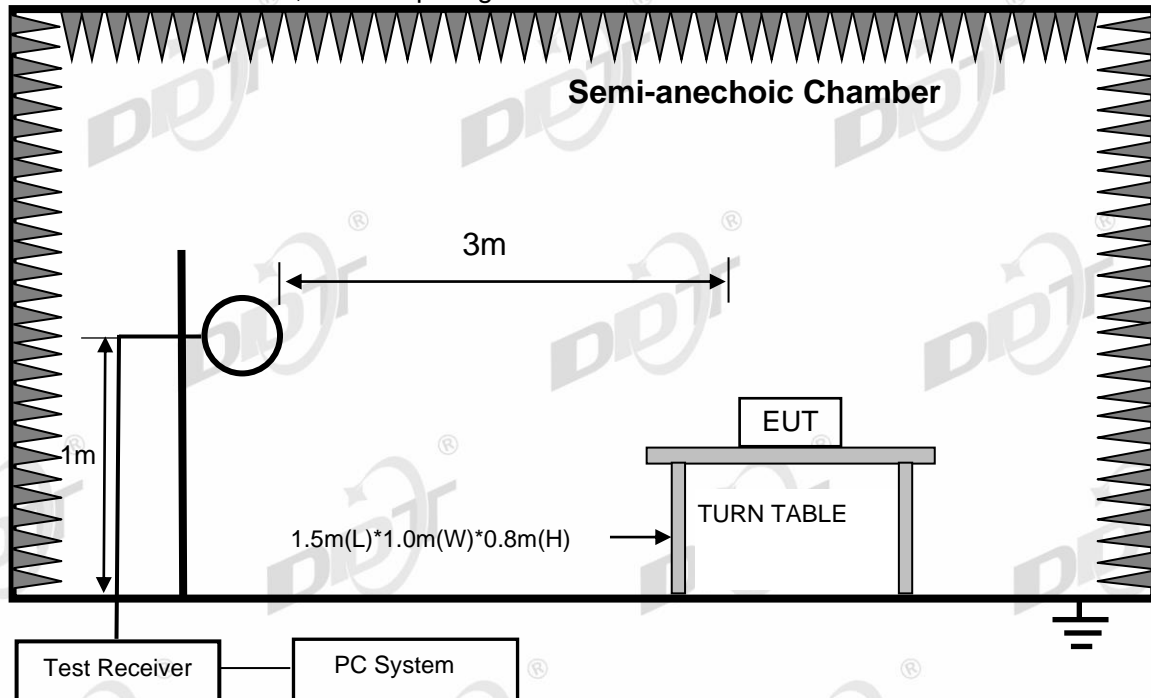
WL10B:

Mode	Condition		Result			Limit
	Temperature (°C)	Voltage (V)	Measured (MHz)	Tolerance (kHz)	Tolerance (ppm)	ppm
Carrier Tx Mode	NT	NV	13.560	0	0	100
	0	NV	13.560	0	0	100
	40	NV	13.560	0	0	100
	NT	AC 102V	13.560	0	0	100
	NT	AC 138V	13.560	0	0	100
Note: NT: 20 °C, NV: AC 120V/60Hz						

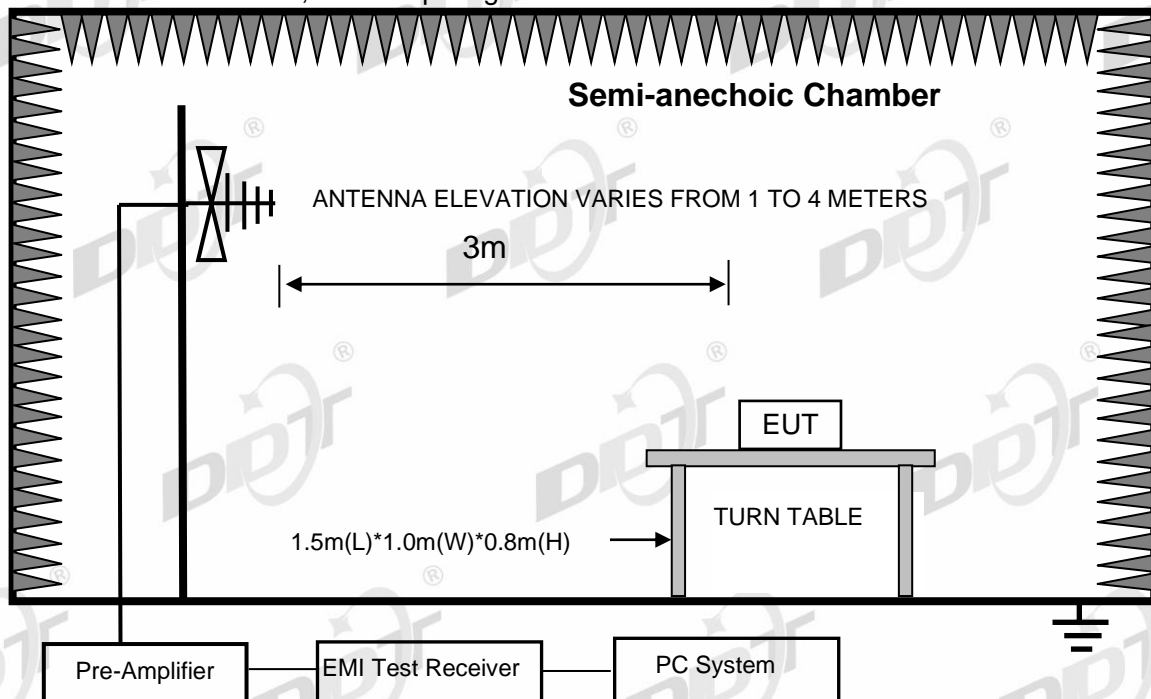
6. Radiated Emission

6.1. Block diagram of test setup

In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



6.2. Limit

Operation within the band 13.110-14.010 MHz as contained in §15.225:

- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- (d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(KHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(KHz)	87.6-20log(F)
1.705 ~ 13.110	30	30	29.54
13.110 ~ 13.410	30	106	40.51
13.410~ 13.553	30	334	50.47
13.553~13.567	30	15848	84.00
13.567~13.710	30	334	50.47
13.710~14.010	30	106	40.51
14.010~30	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Note:

(1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz.

Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3m}(\text{dBuV/m}) = \text{Limit}_{300m}(\text{dBuV/m}) + 40\text{Log}(300m/3m) = \text{Limit}_{300m}(\text{dBuV/m}) + 80$$

$$\text{Limit}_{3m}(\text{dBuV/m}) = \text{Limit}_{30m}(\text{dBuV/m}) + 40\text{Log}(30m/3m) = \text{Limit}_{30m}(\text{dBuV/m}) + 40$$

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT dB(μ V)/m
0.009 ~ 0.490	3	147.6-20log(F)
0.490 ~ 1.705	3	127.6-20log(F)
1.705 ~ 13.110	3	69.54
13.110 ~ 13.410	3	80.51
13.410 ~ 13.553	3	90.47
13.553 ~13.567	3	124.00
13.567 ~13.710	3	90.47
13.710 ~14.010	3	80.51
14.010~30	3	69.54
30 ~88	3	40.00
88 ~216	3	43.50
216 ~960	3	46.00
960 ~ 1000	3	54.00

6.3. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9 kHz - 30 MHz	Active Loop antenna	3 m
30 MHz - 1 GHz	Trilog Broadband Antenna	3 m

According ANSI C63.10:2013 clause 6.4.4.2 and 6.5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also is positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. For measurement above 30 MHz, the Trilog Broadband Antenna or Horn Antenna was located 3 m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 1 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions. Spectrum frequency from 9 kHz to 1 GHz (tenth harmonic of

fundamental frequency) was investigated.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission.

Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
9 kHz - 150 kHz	200 Hz
150 kHz - 30 MHz	9 kHz
30 MHz - 1 GHz	120 kHz

6.4. Test result

Pass. (See below detailed test result)

WL10A:

Frequency (MHz)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Detector	Conclusion
0.09	62.64	128.38	Peak	Pass
0.09	60.05	108.38	Average	Pass
0.12	68.91	126.37	Peak	Pass
0.12	66.11	106.37	Average	Pass
0.81	56.11	69.43	QP	Pass
1.08	53.93	66.93	QP	Pass
1.35	49.89	64.99	QP	Pass
13.110	30.86	80.51	Peak	Pass
13.410	43.98	80.51	Peak	Pass
13.550	66.98	90.47	Peak	Pass
13.560	67.37	124.00	Peak	Pass
13.567	66.98	90.47	Peak	Pass
13.570	49.09	90.47	Peak	Pass
13.710	29.19	80.51	Peak	Pass

WL10B:

Frequency (MHz)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Detector	Conclusion
0.120	71.91	126.37	Peak	Pass
0.120	70.11	106.37	Average	Pass
0.140	71.85	124.96	Peak	Pass
0.140	70.53	104.96	Average	Pass
0.680	51.02	70.95	QP	Pass
0.810	54.00	69.43	QP	Pass
1.080	51.27	66.93	QP	Pass
13.110	31.22	80.51	Peak	Pass
13.410	37.81	80.51	Peak	Pass
13.550	67.41	90.47	Peak	Pass
13.560	67.77	124.00	Peak	Pass
13.567	67.41	90.47	Peak	Pass
13.570	31.84	90.47	Peak	Pass
13.710	31.86	80.51	Peak	Pass

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\2021 report data\Q21112224-1E WL10A,WL10B\FCC
BLOW 1G\FCC BELOW 1G_00001.EMI

Test Date : 2021-12-10

Tested By : James

EUT : Sensor Box

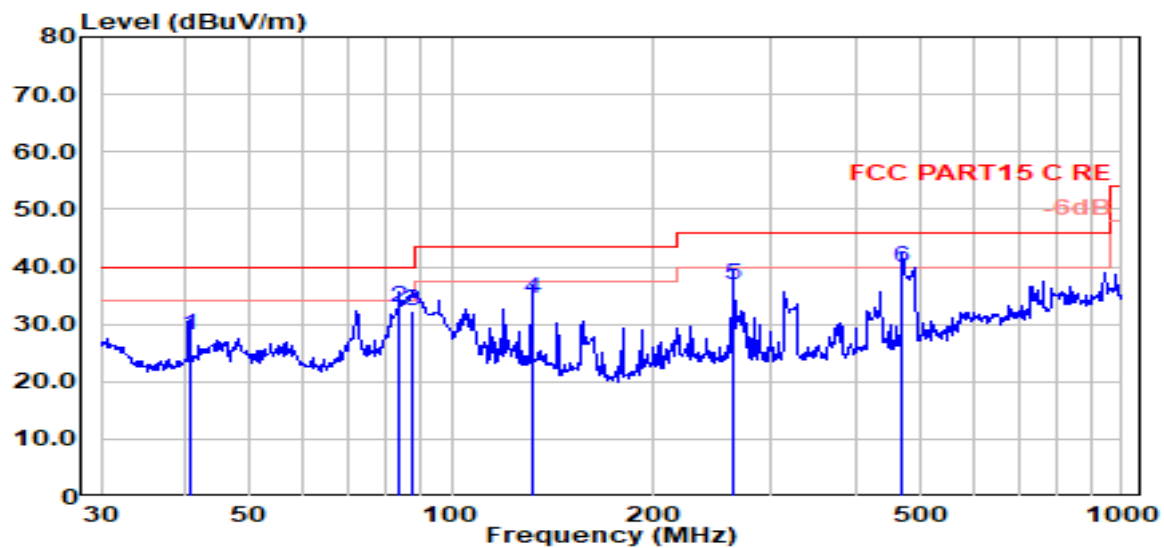
Model Number : WL10A

Power Supply : DC 5V

Test Mode : TX Mode

Condition : Temp:24.5°,Humi:55%,Press:100.1kPa **Antenna/Distance** : VLUB 9163 3#/3m/VERTICAL

Memo : 13.56MHz



Item (Mark)	Freq. (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	40.70	11.44	13.02	3.58	28.04	40.00	-11.96	QP	VERTICAL
2	83.82	19.78	9.18	3.88	32.84	40.00	-7.16	Peak	VERTICAL
3	87.72	19.11	9.30	3.90	32.32	40.00	-7.68	QP	VERTICAL
4	131.76	21.45	8.92	4.13	34.50	43.50	-9.00	QP	VERTICAL
5	263.82	19.44	12.62	4.69	36.75	46.00	-9.25	QP	VERTICAL
6	470.52	18.26	16.12	5.38	39.76	46.00	-6.24	QP	VERTICAL

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\2021 report data\Q21112224-1E WL10A,WL10B\FCC
BLOW 1G\FCC BELOW 1G_00002.EMI

Test Date : 2021-12-10

Tested By : James

EUT : Sensor Box

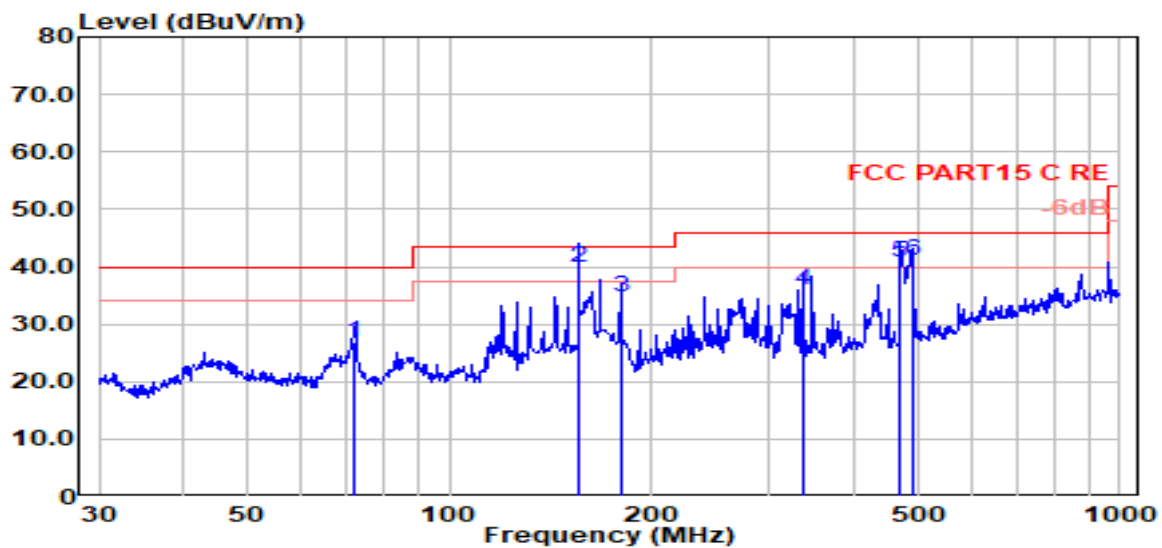
Model Number : WL10A

Power Supply : DC 5V

Test Mode : TX Mode

Condition : Temp:24.5°,Humi:55%,Press:100.1kPa **Antenna/Distance** : VLUB 9163 3#/3m/HORIZONTAL

Memo : 13.56MHz



Item (Mark)	Freq. (MHz)	Read Level (dBUV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Detector	Polarization
1	72.08	14.11	8.89	3.81	26.81	40.00	-13.19	QP	HORIZONTAL
2	155.91	27.40	8.30	4.24	39.94	43.50	-3.56	QP	HORIZONTAL
3	180.02	21.01	9.30	4.36	34.67	43.50	-8.83	QP	HORIZONTAL
4	336.04	16.85	14.26	4.94	36.05	46.00	-9.95	QP	HORIZONTAL
5	470.52	19.40	16.12	5.38	40.90	46.00	-5.10	QP	HORIZONTAL
6	490.74	19.11	16.64	5.45	41.20	46.00	-4.80	QP	HORIZONTAL

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\2021 report data\Q21112224-1E WL10A,WL10B\FCC
BLOW 1G\FCC BELOW 1G_00008.EMI

Test Date : 2022-01-04

Tested By : James

EUT : Sensor Box

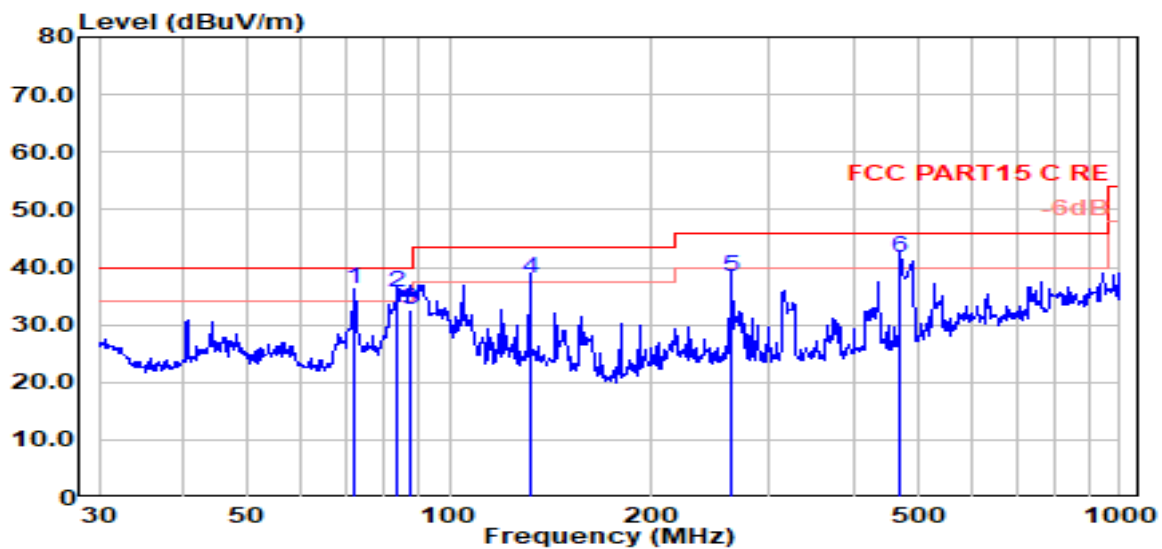
Model Number : WL10B

Power Supply : DC 5V

Test Mode : TX Mode

Condition : Temp:24.5°,Humi:55%,Press:100.1kPa **Antenna/Distance** : VLUB 9163 3#/3m/VERTICAL

Memo : 13.56MHz



Item (Mark)	Freq. (MHz)	Read Level (dBUV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Detector	Polarization
1	72.34	23.70	8.87	3.81	36.37	40.00	-3.63	QP	VERTICAL
2	83.82	22.50	9.18	3.88	35.56	40.00	-4.44	QP	VERTICAL
3	87.72	19.54	9.30	3.90	32.74	40.00	-7.26	QP	VERTICAL
4	131.76	24.86	8.92	4.13	37.92	43.50	-5.58	QP	VERTICAL
5	263.82	21.03	12.62	4.69	38.34	46.00	-7.66	QP	VERTICAL
6	470.52	20.09	16.12	5.38	41.59	46.00	-4.41	QP	VERTICAL

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 3#

D:\2021 report data\Q21112224-1E WL10A,WL10B\FCC
BLOW 1G\FCC BELOW 1G_00009.EMI

Test Date : 2022-01-04

Tested By : James

EUT : Sensor Box

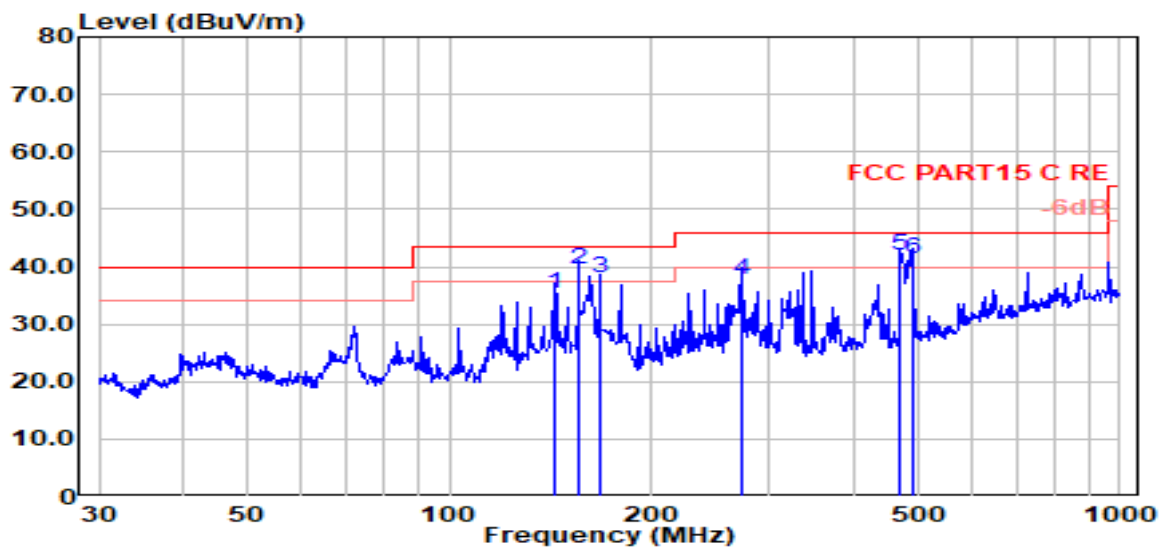
Model Number : WL10B

Power Supply : DC 5V

Test Mode : TX Mode

Condition : Temp:24.5°,Humi:55%,Press:100.1kPa **Antenna/Distance** : VLUB 9163 3#/3m/HORIZONTAL

Memo : 13.56MHz



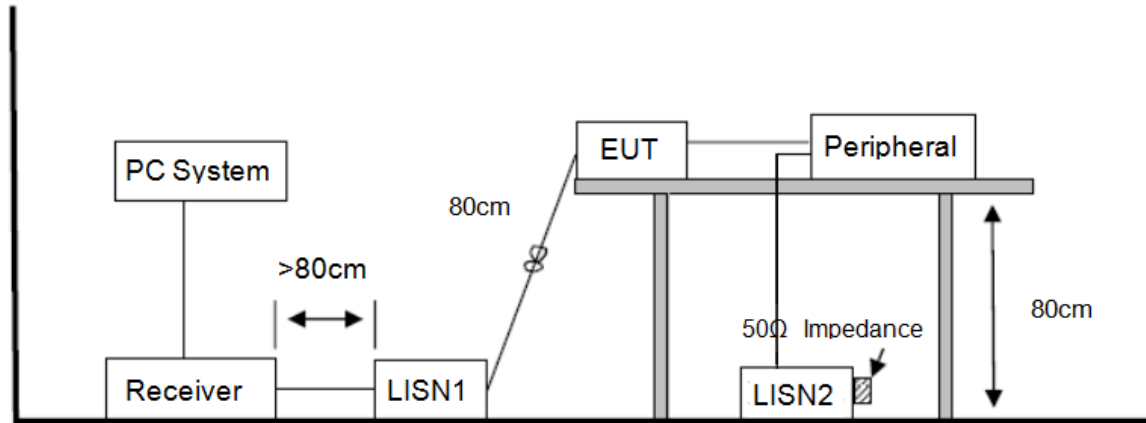
Item (Mark)	Freq. (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	142.88	23.38	7.79	4.18	35.35	43.50	-8.15	QP	HORIZONTAL
2	155.88	27.11	8.30	4.24	39.66	43.50	-3.84	QP	HORIZONTAL
3	167.99	24.88	8.80	4.30	37.98	43.50	-5.52	QP	HORIZONTAL
4	272.78	20.37	12.66	4.72	37.74	46.00	-8.26	QP	HORIZONTAL
5	470.66	20.45	16.13	5.38	41.96	46.00	-4.04	QP	HORIZONTAL
6	490.44	19.21	16.63	5.45	41.29	46.00	-4.71	QP	HORIZONTAL

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

7. Power Line Conducted Emission

7.1. Block diagram of test setup



7.2. Power line conducted emission limits

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

7.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

7.4. Test result

Pass. (See below detailed test result)

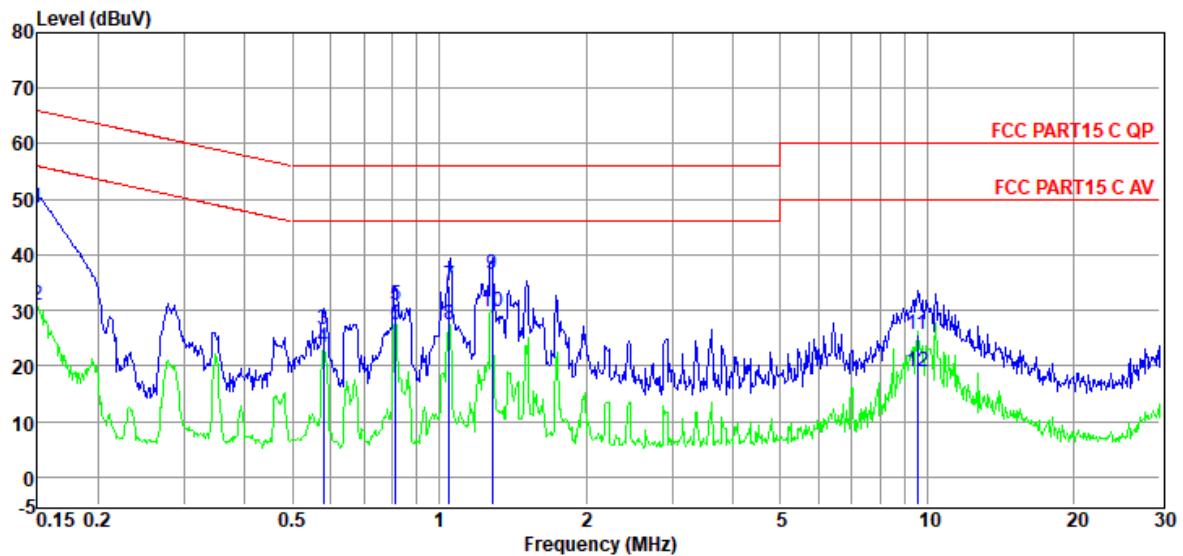
Note1: All emissions not reported below are too low against the prescribed limits.

Note2: "----" means Peak detection; "----" means Average detection

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2021 CE report date\Q21112224-1E\CE.EM6**
Test Date : 2021-12-08 **Tested By** : Chunchieh Huang
EUT : Sensor Box **Model Number** : WL10A
Power Supply : AC 120V/60Hz **Test Mode** : TX mode
Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa **LISN** : 2021 1# ENV216/LINE
Memo : NFC

Data: 2



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	28.86	9.60	0.01	9.92	48.39	66.00	-17.61	QP	LINE
2	0.15	11.50	9.60	0.01	9.92	31.03	56.00	-24.97	Average	LINE
3	0.58	7.19	9.56	0.02	9.91	26.68	56.00	-29.32	QP	LINE
4	0.58	3.91	9.56	0.02	9.91	23.40	46.00	-22.60	Average	LINE
5	0.81	11.54	9.54	0.03	9.90	31.01	56.00	-24.99	QP	LINE
6	0.81	7.86	9.54	0.03	9.90	27.33	46.00	-18.67	Average	LINE
7	1.05	15.01	9.59	0.03	9.89	34.52	56.00	-21.48	QP	LINE
8	1.05	8.04	9.59	0.03	9.89	27.55	46.00	-18.45	Average	LINE
9	1.28	16.99	9.56	0.03	9.89	36.47	56.00	-19.53	QP	LINE
10	1.28	10.31	9.56	0.03	9.89	29.79	46.00	-16.21	Average	LINE
11	9.55	6.19	9.50	0.11	9.94	25.74	60.00	-34.26	QP	LINE
12	9.55	-0.64	9.50	0.11	9.94	18.91	50.00	-31.09	Average	LINE

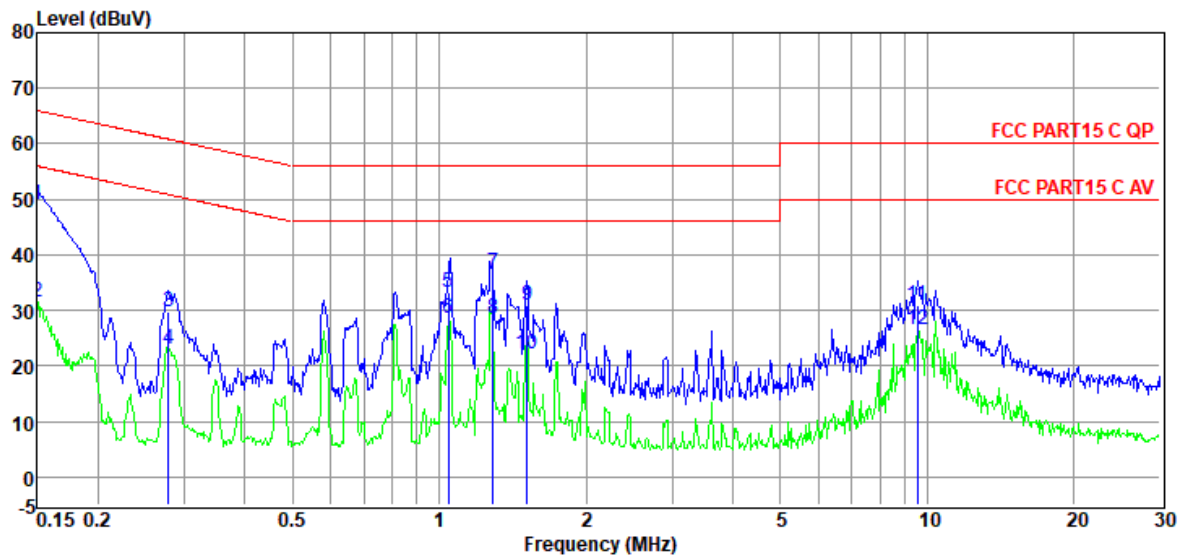
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2021 CE report date\Q21112224-1E\CE.EM6**
Test Date : 2021-12-08 **Tested By** : Chunchieh Huang
EUT : Sensor Box **Model Number** : WL10A
Power Supply : AC 120V/60Hz **Test Mode** : TX MODE
Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa **LISN** : 2021 1# ENV216/NEUTRAL
Memo : NFC

Data: 4



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	29.44	9.80	0.01	9.92	49.17	66.00	-16.83	QP	NEUTRAL
2	0.15	11.66	9.80	0.01	9.92	31.39	56.00	-24.61	Average	NEUTRAL
3	0.28	10.21	9.69	0.02	9.92	29.84	60.85	-31.01	QP	NEUTRAL
4	0.28	3.34	9.69	0.02	9.92	22.97	50.85	-27.88	Average	NEUTRAL
5	1.04	13.59	9.69	0.03	9.89	33.20	56.00	-22.80	QP	NEUTRAL
6	1.04	8.86	9.69	0.03	9.89	28.47	46.00	-17.53	Average	NEUTRAL
7	1.29	17.08	9.66	0.03	9.89	36.66	56.00	-19.34	QP	NEUTRAL
8	1.29	8.87	9.66	0.03	9.89	28.45	46.00	-17.55	Average	NEUTRAL
9	1.51	11.22	9.64	0.04	9.89	30.79	56.00	-25.21	QP	NEUTRAL
10	1.51	2.58	9.64	0.04	9.89	22.15	46.00	-23.85	Average	NEUTRAL
11	9.55	11.03	9.77	0.11	9.94	30.85	60.00	-29.15	QP	NEUTRAL
12	9.55	6.72	9.77	0.11	9.94	26.54	50.00	-23.46	Average	NEUTRAL

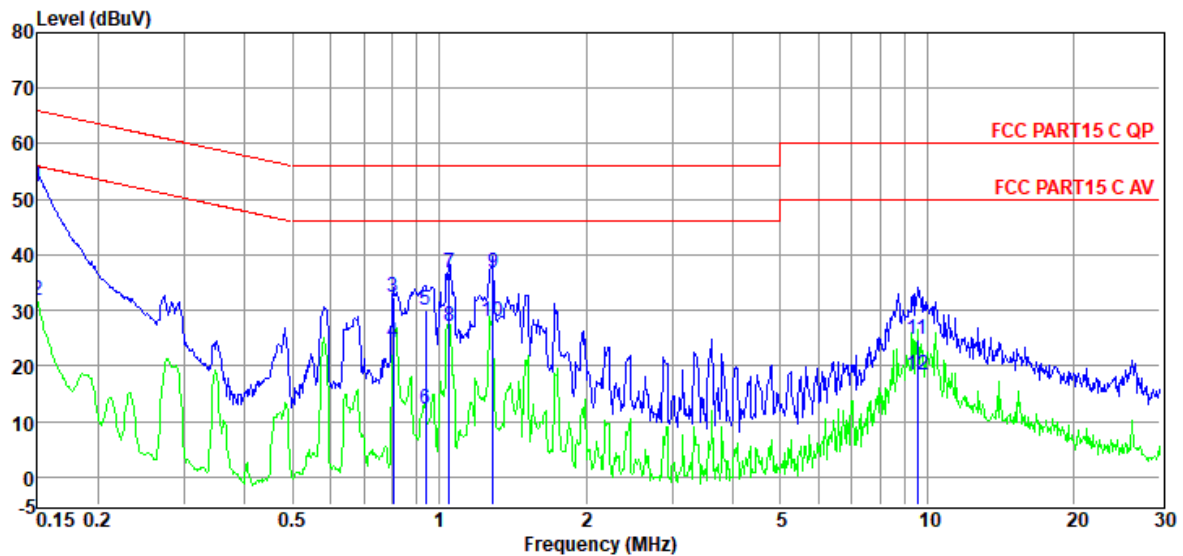
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2021 CE report date\Q21112224-1E\CE.EM6**
Test Date : 2021-12-08 **Tested By** : Chunchieh Huang
EUT : Sensor Box **Model Number** : WL10A
Power Supply : AC 230V/50Hz **Test Mode** : TX MODE
Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa **LISN** : 2021 1# ENV216/NEUTRAL
Memo : NFC

Data: 14



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	32.64	9.80	0.01	9.92	52.37	66.00	-13.63	QP	NEUTRAL
2	0.15	12.14	9.80	0.01	9.92	31.87	56.00	-24.13	Average	NEUTRAL
3	0.80	12.65	9.76	0.03	9.90	32.34	56.00	-23.66	QP	NEUTRAL
4	0.80	4.39	9.76	0.03	9.90	24.08	46.00	-21.92	Average	NEUTRAL
5	0.94	10.43	9.72	0.03	9.89	30.07	56.00	-25.93	QP	NEUTRAL
6	0.94	-7.45	9.72	0.03	9.89	12.19	46.00	-33.81	Average	NEUTRAL
7	1.05	17.05	9.69	0.03	9.89	36.66	56.00	-19.34	QP	NEUTRAL
8	1.05	7.61	9.69	0.03	9.89	27.22	46.00	-18.78	Average	NEUTRAL
9	1.29	17.22	9.66	0.03	9.89	36.80	56.00	-19.20	QP	NEUTRAL
10	1.29	8.38	9.66	0.03	9.89	27.96	46.00	-18.04	Average	NEUTRAL
11	9.55	4.99	9.77	0.11	9.94	24.81	60.00	-35.19	QP	NEUTRAL
12	9.55	-1.40	9.77	0.11	9.94	18.42	50.00	-31.58	Average	NEUTRAL

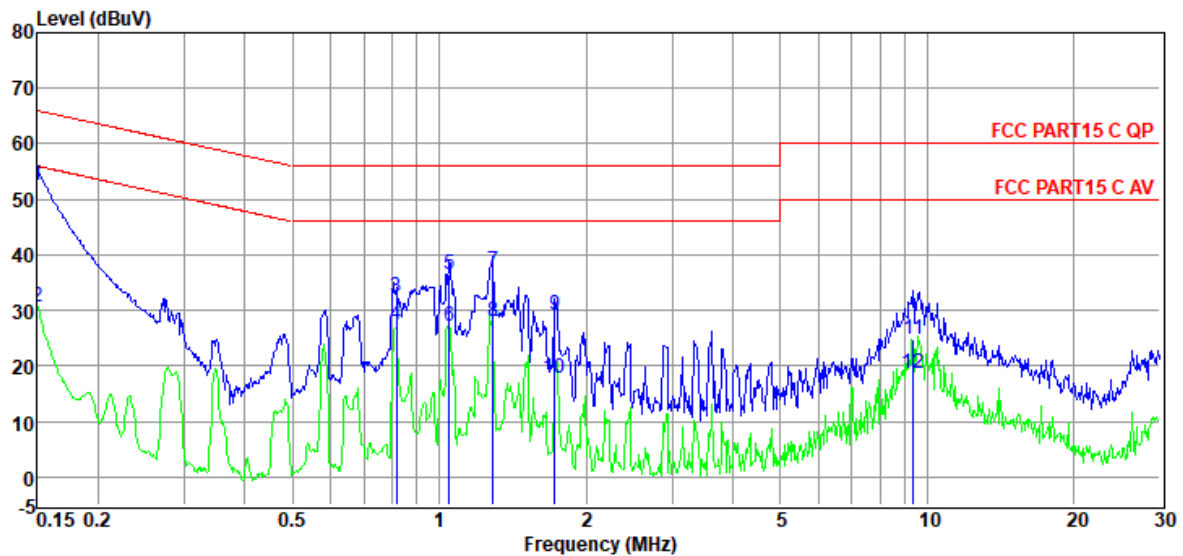
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2021 CE report date\Q21112224-1E\CE.EM6**
Test Date : 2021-12-08 **Tested By** : Chunchieh Huang
EUT : Sensor Box **Model Number** : WL10A
Power Supply : AC 230V/50Hz **Test Mode** : TX MODE
Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa **LISN** : 2021 1# ENV216/LINE
Memo : NFC

Data: 16



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	33.01	9.60	0.01	9.92	52.54	66.00	-13.46	QP	LINE
2	0.15	11.13	9.60	0.01	9.92	30.66	56.00	-25.34	Average	LINE
3	0.82	12.79	9.54	0.03	9.90	32.26	56.00	-23.74	QP	LINE
4	0.82	7.94	9.54	0.03	9.90	27.41	46.00	-18.59	Average	LINE
5	1.05	16.91	9.59	0.03	9.89	36.42	56.00	-19.58	QP	LINE
6	1.05	7.52	9.59	0.03	9.89	27.03	46.00	-18.97	Average	LINE
7	1.29	17.49	9.56	0.03	9.89	36.97	56.00	-19.03	QP	LINE
8	1.29	8.45	9.56	0.03	9.89	27.93	46.00	-18.07	Average	LINE
9	1.73	9.82	9.52	0.04	9.89	29.27	56.00	-26.73	QP	LINE
10	1.73	-1.58	9.52	0.04	9.89	17.87	46.00	-28.13	Average	LINE
11	9.35	5.36	9.50	0.11	9.94	24.91	60.00	-35.09	QP	LINE
12	9.35	-0.88	9.50	0.11	9.94	18.67	50.00	-31.33	Average	LINE

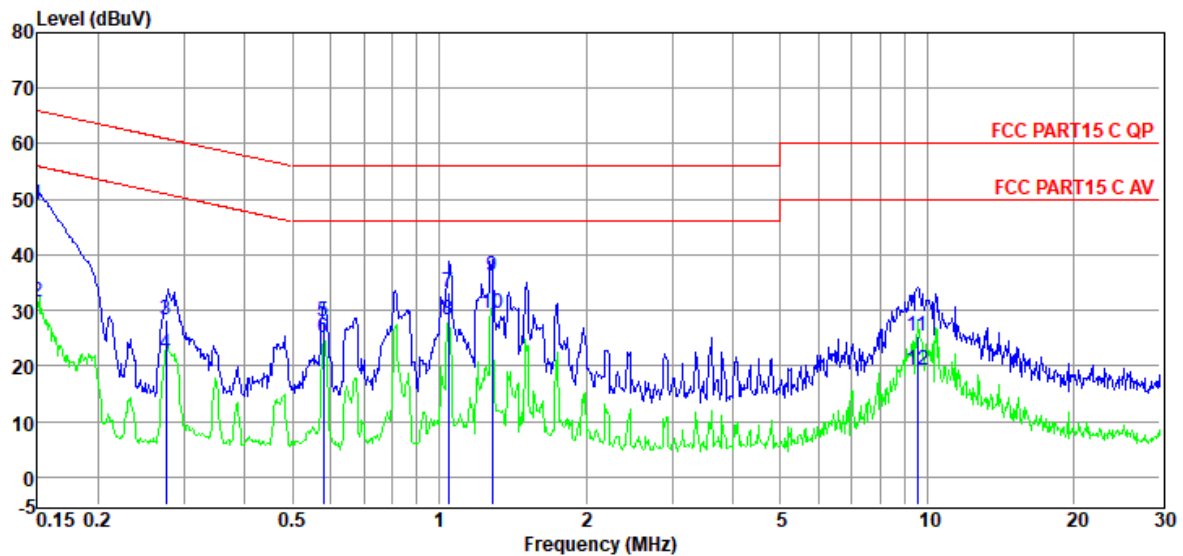
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2021 CE report date\Q21112224-1E\CE.EM6**
Test Date : 2021-12-08 **Tested By** : Chunchieh Huang
EUT : Sensor Box **Model Number** : WL10B
Power Supply : AC 120V/60Hz **Test Mode** : TX MODE
Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa **LISN** : 2021 1# ENV216/NEUTRAL
Memo : NFC

Data: 6



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	29.36	9.80	0.01	9.92	49.09	66.00	-16.91	QP	NEUTRAL
2	0.15	11.68	9.80	0.01	9.92	31.41	56.00	-24.59	Average	NEUTRAL
3	0.28	8.72	9.69	0.02	9.92	28.35	60.94	-32.59	QP	NEUTRAL
4	0.28	2.60	9.69	0.02	9.92	22.23	50.94	-28.71	Average	NEUTRAL
5	0.58	8.45	9.63	0.02	9.91	28.01	56.00	-27.99	QP	NEUTRAL
6	0.58	5.59	9.63	0.02	9.91	25.15	46.00	-20.85	Average	NEUTRAL
7	1.04	13.72	9.69	0.03	9.89	33.33	56.00	-22.67	QP	NEUTRAL
8	1.04	8.81	9.69	0.03	9.89	28.42	46.00	-17.58	Average	NEUTRAL
9	1.28	16.58	9.66	0.03	9.89	36.16	56.00	-19.84	QP	NEUTRAL
10	1.28	10.03	9.66	0.03	9.89	29.61	46.00	-16.39	Average	NEUTRAL
11	9.55	5.59	9.77	0.11	9.94	25.41	60.00	-34.59	QP	NEUTRAL
12	9.55	-0.66	9.77	0.11	9.94	19.16	50.00	-30.84	Average	NEUTRAL

Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room

D:\2021 CE report date\Q21112224-1E\CE.EM6

Test Date : 2021-12-08

Tested By : Chunchieh Huang

EUT : Sensor Box

Model Number : WL10B

Power Supply : AC 120V/60Hz

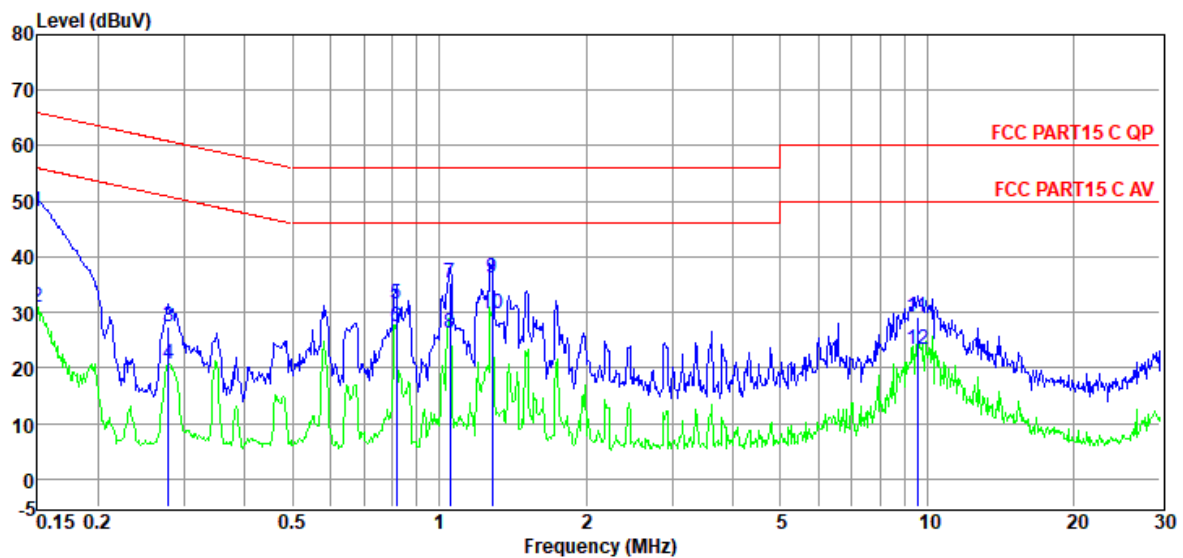
Test Mode : TX MODE

Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa

LISN : 2021 1# ENV216/LINE

Memo : NFC

Data: 8



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	28.66	9.60	0.01	9.92	48.19	66.00	-17.81	QP	LINE
2	0.15	11.49	9.60	0.01	9.92	31.02	56.00	-24.98	Average	LINE
3	0.28	7.83	9.73	0.02	9.92	27.50	60.85	-33.35	QP	LINE
4	0.28	0.93	9.73	0.02	9.92	20.60	50.85	-30.25	Average	LINE
5	0.82	11.96	9.54	0.03	9.90	31.43	56.00	-24.57	QP	LINE
6	0.82	7.91	9.54	0.03	9.90	27.38	46.00	-18.62	Average	LINE
7	1.05	15.70	9.59	0.03	9.89	35.21	56.00	-20.79	QP	LINE
8	1.05	6.82	9.59	0.03	9.89	26.33	46.00	-19.67	Average	LINE
9	1.28	16.84	9.56	0.03	9.89	36.32	56.00	-19.68	QP	LINE
10	1.28	10.26	9.56	0.03	9.89	29.74	46.00	-16.26	Average	LINE
11	9.55	9.76	9.50	0.11	9.94	29.31	60.00	-30.69	QP	LINE
12	9.55	3.71	9.50	0.11	9.94	23.26	50.00	-26.74	Average	LINE

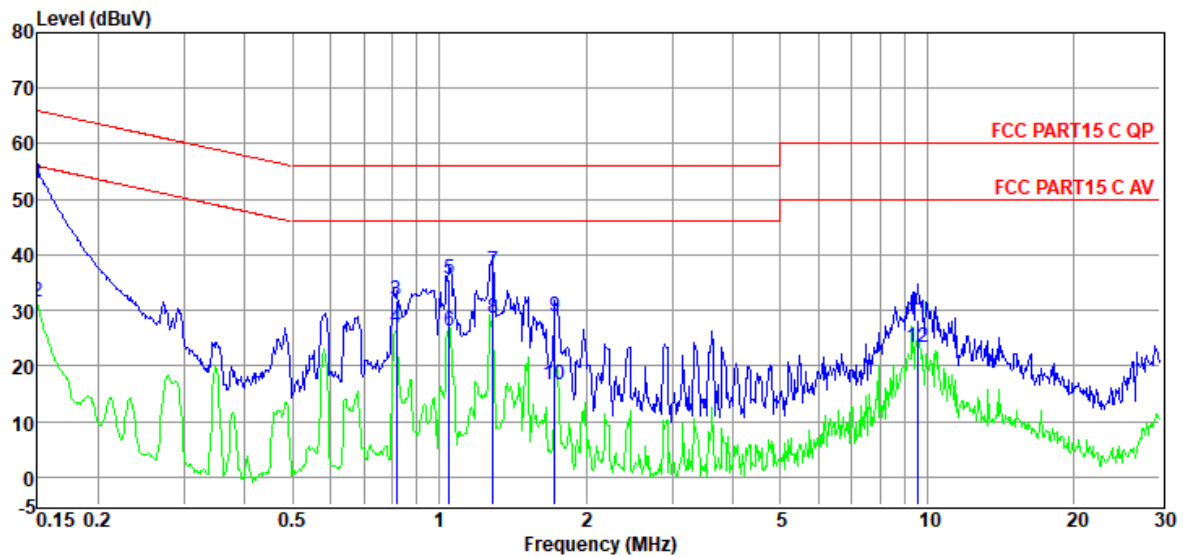
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2021 CE report date\Q21112224-1E\CE.EM6**
Test Date : 2021-12-08 **Tested By** : Chunchieh Huang
EUT : Sensor Box **Model Number** : WL10B
Power Supply : AC 230V/50Hz **Test Mode** : TX MODE
Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa **LISN** : 2021 1# ENV216/LINE
Memo : NFC

Data: 10



Item (Mark)	Freq. (MHz)	Read Level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Detector	Phase
1	0.15	33.27	9.60	0.01	9.92	52.80	66.00	-13.20	QP	LINE
2	0.15	12.01	9.60	0.01	9.92	31.54	56.00	-24.46	Average	LINE
3	0.82	12.24	9.54	0.03	9.90	31.71	56.00	-24.29	QP	LINE
4	0.82	7.42	9.54	0.03	9.90	26.89	46.00	-19.11	Average	LINE
5	1.05	16.12	9.59	0.03	9.89	35.63	56.00	-20.37	QP	LINE
6	1.05	6.79	9.59	0.03	9.89	26.30	46.00	-19.70	Average	LINE
7	1.29	17.46	9.56	0.03	9.89	36.94	56.00	-19.06	QP	LINE
8	1.29	8.98	9.56	0.03	9.89	28.46	46.00	-17.54	Average	LINE
9	1.73	9.56	9.52	0.04	9.89	29.01	56.00	-26.99	QP	LINE
10	1.73	-2.84	9.52	0.04	9.89	16.61	46.00	-29.39	Average	LINE
11	9.55	8.79	9.50	0.11	9.94	28.34	60.00	-31.66	QP	LINE
12	9.55	3.69	9.50	0.11	9.94	23.24	50.00	-26.76	Average	LINE

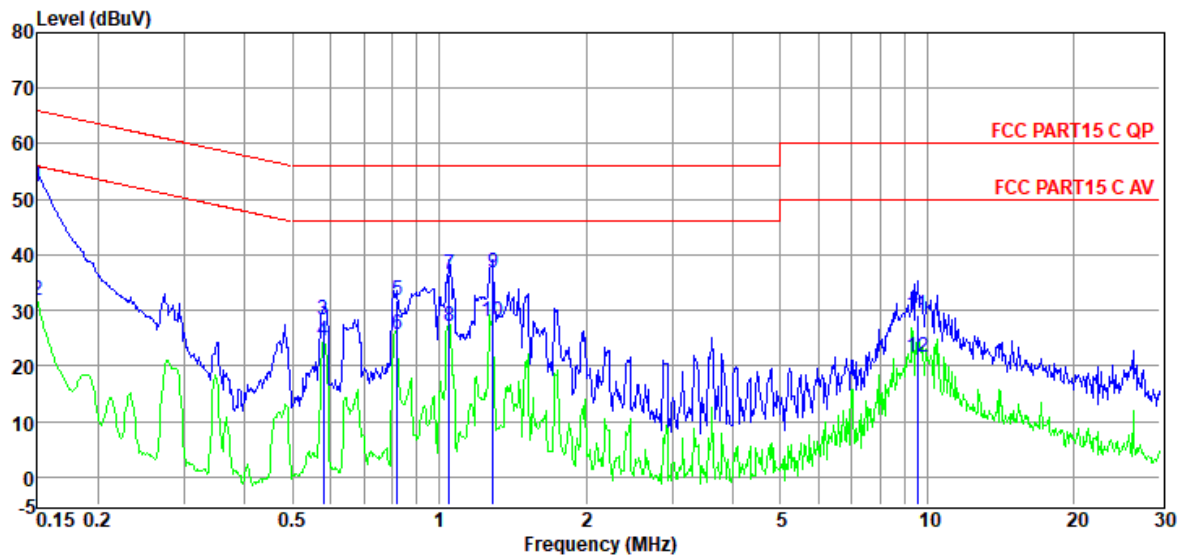
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2021 CE report date\Q21112224-1E\CE.EM6**
Test Date : 2021-12-08 **Tested By** : Chunchieh Huang
EUT : Sensor Box **Model Number** : WL10B
Power Supply : AC 230V/50Hz **Test Mode** : TX MODE
Condition : TEMP:24.8°C, RH:53.8%, BP:101.4kPa **LISN** : 2021 1# ENV216/NEUTRAL
Memo : NFC

Data: 12



Item (Mark)	Freq. (MHz)	Read Level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Detector	Phase
1	0.15	32.59	9.80	0.01	9.92	52.32	66.00	-13.68	QP	NEUTRAL
2	0.15	12.07	9.80	0.01	9.92	31.80	56.00	-24.20	Average	NEUTRAL
3	0.58	8.63	9.63	0.02	9.91	28.19	56.00	-27.81	QP	NEUTRAL
4	0.58	5.02	9.63	0.02	9.91	24.58	46.00	-21.42	Average	NEUTRAL
5	0.82	12.08	9.76	0.03	9.90	31.77	56.00	-24.23	QP	NEUTRAL
6	0.82	6.00	9.76	0.03	9.90	25.69	46.00	-20.31	Average	NEUTRAL
7	1.05	16.79	9.69	0.03	9.89	36.40	56.00	-19.60	QP	NEUTRAL
8	1.05	7.51	9.69	0.03	9.89	27.12	46.00	-18.88	Average	NEUTRAL
9	1.29	17.23	9.66	0.03	9.89	36.81	56.00	-19.19	QP	NEUTRAL
10	1.29	8.56	9.66	0.03	9.89	28.14	46.00	-17.86	Average	NEUTRAL
11	9.55	9.26	9.77	0.11	9.94	29.08	60.00	-30.92	QP	NEUTRAL
12	9.55	1.90	9.77	0.11	9.94	21.72	50.00	-28.28	Average	NEUTRAL

Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

8. Antenna Requirements

For intentional device, according to FCC 47 CFR Section 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 use of a standard antenna jack or electrical connector is prohibited.