VARIANT RADIO TEST REPORT

(FCC Part 15 Subpart C / IC RSS-210)

Applicant:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States

Manufacturer:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States
Product:	Mobile Computer
Brand Name:	Honeywell
Model Name:	CT45P-L1N-2
FCC ID:	HD5-CT45PL1N2
Date of tests:	Jun. 16, 2021 ~ Aug. 30, 2021

The tests have been carried out according to the requirements of the following standard:

☒ **Part 15 Subpart C §15. 225 / IC RSS-210 issue 10(December 2019)**

☒ **RSS-Gen Issue 5 Amendment 1 (March 2019)**

☒ **ANSI C63.10-2013**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Date: Dec. 23 2021	Luke Lu Date: Dec. 23 2021

Report Revise Record

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21080006RF11	Original release	Aug. 31, 2021
W7L-P21110008RF11	Based on the original report W7L-P21080006RF11 add the band 41C, changing components.	Nov. 15, 2021
W7L-211129W002RF11	Based on the original report W7L-P21110008RF11 Changing components	Dec. 23 2021

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Summary of Test RESULT

FCC Rule	IC Rule	Description	Limit	Result	Remark
-	RSS-Gen 6.7	99% Bandwidth	-	See Note 2	-
15.225(a)(b)(c)	RSS-210 Annex B.6	Field Strength of Fundamental Emissions	15.225(a)(b)(c) RSS-210 Annex B.6	See Note 2	-
15.215	-	20dB Spectrum Bandwidth	15.215	See Note 2	-
15.225(d) 15.209	RSS-210 Annex B.6	Radiated Emission	15.225(d) & 15.209 RSS-210 Annex B.6	See Note 2	Under limit 7.40 dB at 192.96 MHz
15.207	RSS-GEN 8.8	AC Conducted Emission	15.207(a)	See Note 2	Under limit 27.98 dB at 1.602 MHz
15.225(e)	Annex B.6	Frequency Stability	< ±100 ppm	See Note 2	
15.203	RSS-Gen 6.8	Antenna Requirement	N/A	See Note 2	-

NOTE: 1. Per the change notice provide by manufactory, the difference is changing components. All the change no effect any RF parameter. Therefore all the data are reused from the original report. More test details please refer from the original report.

2. Please refer from the original report W7L-P21110008RF11.

1. General Description

1.1 Applicant

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Bailes Road, Fort Mill, SC 29707 United States

1.2 Manufacturer

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Bailes Road, Fort Mill, SC 29707 United States

1.3 General Description Of EUT

Items	Description
Tx/Rx Frequency Range	13.553 ~ 13.567MHz
Channel Number	1
20dBW	2.704 kHz
99%OBW	2.297 kHz
Antenna Type	Loop Antenna
Type of Modulation	ASK

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.225
- ANSI C63.10-2013
- RSS-210 Issue 10
- RSS-Gen Issue 5
-

2. Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	
AC Power Line Conducted Emissions	Field Strength of Fundamental Emissions
20dB Spectrum Bandwidth	Frequency Stability
Radiated Emissions 9kHz~30MHz	Radiated Emissions 30MHz~1GHz

Note:

1. The EUT was programmed to be in continuously transmitting mode.
2. The ancillary equipment, NFC card, is used to make the EUT (NFC) continuously transmit at 13.56MHz and is placed around 3 cm gap to the EUT.
3. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, work in modes and data rates. Selected for the final test as listed below.

Frequency	Work in Modes	Type	Data Rate (Kbps)
13.56 MHz	☐ Card Emulation ☑ Reader/Writer ☐ Peer-to-Peer	☐ A ☐ B ☑ F ☐ V	☐ 106 ☑ 212 ☐ 424 ☐ 848

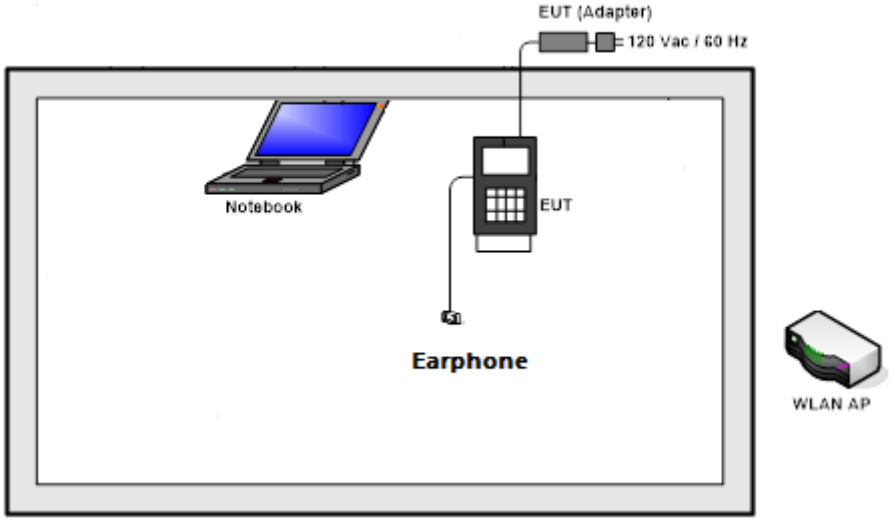
Remark:

The mark"☑" means is chosen for testing;

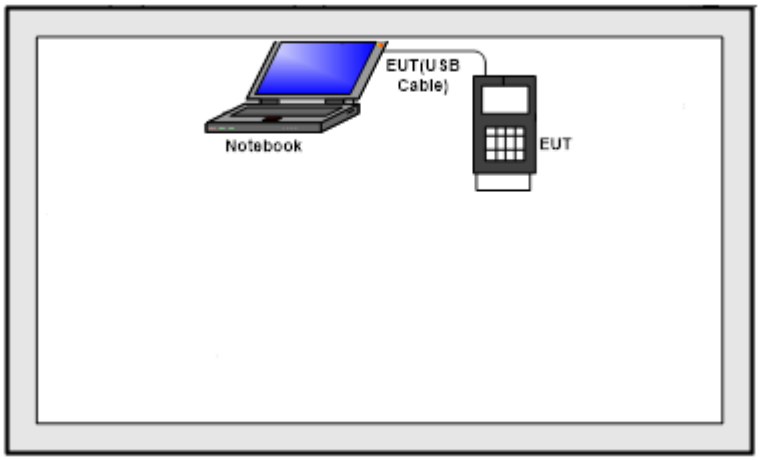
The mark"☐" means is not chosen for testing.

2.2 Test Configurations

<AC Conducted Emissions>



< For Fundamental Emissions and Mask and Radiated Emissions Measurement >



2.3 Support Equipment

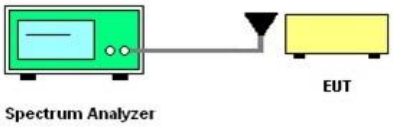
Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	NETGARE	R7800	PY315100319	N/A	unshielded AC I/P cable1.2 m
2.	Notebook	Lenovo	E407C	FCC sDOC	N/A	shielded cable DC O/P 1.8 m unshielded AC I/P cable1.2 m
3.	Adapter	Honeywell	ADS-12B-06 05010E	FCC sDoC	N/A	N/A

2.4 Test Setup

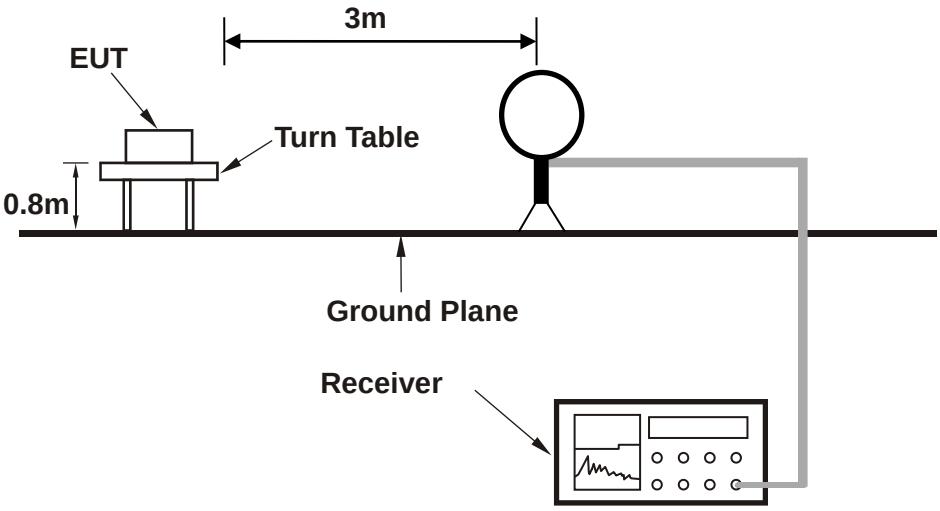
The EUT is continuously communicating during the tests.

EUT was set in the Hidden menu mode to enable NFC communications.

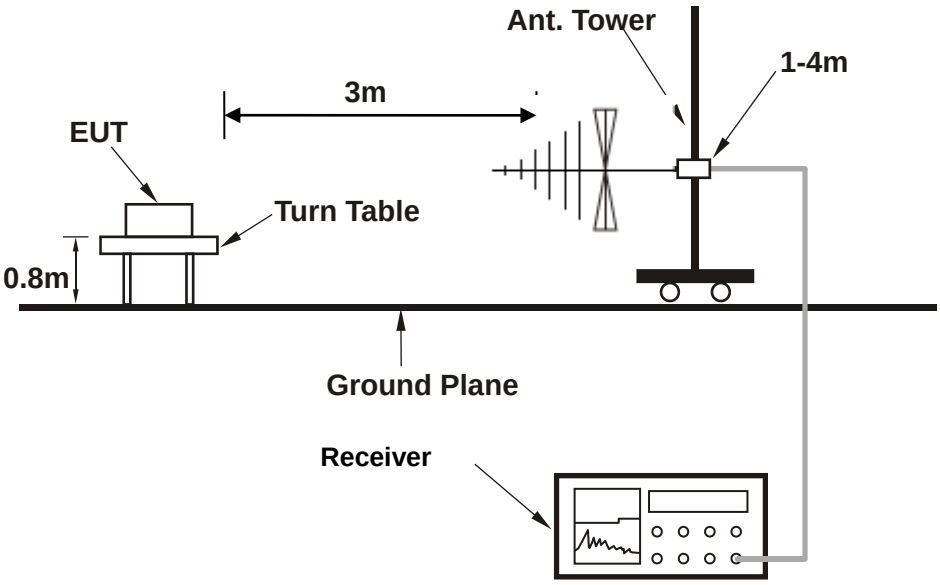
Setup diagram for Conducted Test



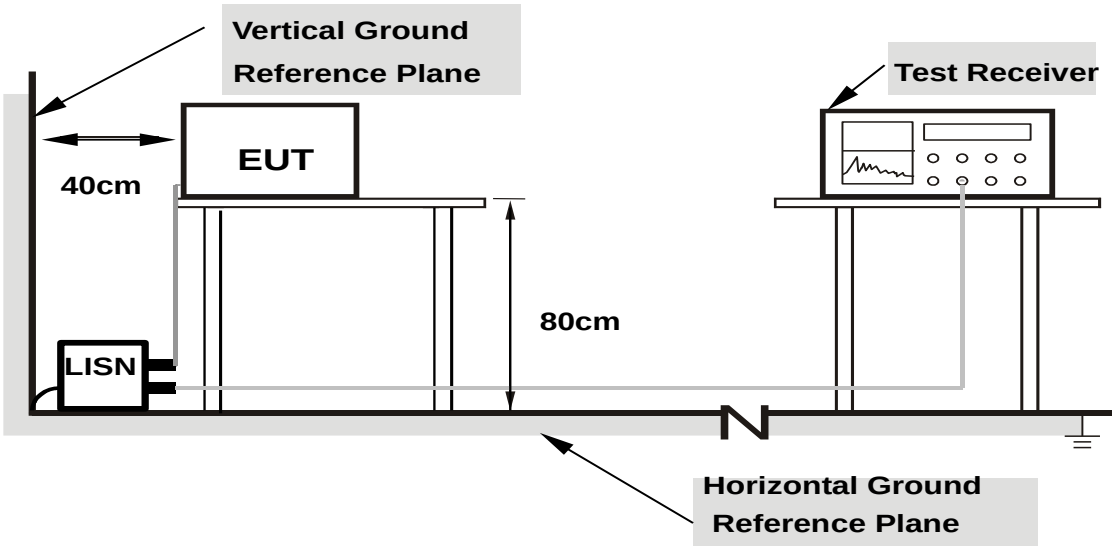
Setup diagram for Radiation(9KHz~30MHz) Test



Setup diagram for Radiation(Below 1G) Test



Setup diagram for AC Conducted Emission Test



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

2.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 5 + 10 = 15 (dB)

3. Test Result

3.1 20dB and 99% Bandwidth Measurement

3.1.1 Limit of 20dB and 99% Bandwidth

Intentional radiators must be designed to ensure that the 20dB and 99% emission bandwidth in the specific band 13.553~13.567MHz.

3.1.2 Test Procedures

1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
2. The resolution bandwidth of 1 kHz and the video bandwidth of 3 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.
4. Measured the 99% OBW.

3.1.3 Test Result of 20dB and 99% Bandwidth

Test Mode :	NFC	**Temperature :**	23~25℃
Test Engineer :	Jack Liu	**Relative Humidity :**	60~63%

Mode	**Frequency**	**20dB Bandwidth [kHz]**	**99% OBW[kHz]**	**Verdict**
NFC Type F_212 Kbps	13.56MHz	2.704	2.297	PASS

20dB Bandwidth & 99% Bandwidth Plot

Graphs	
NFC Type F_212 Kbps	

3.2 Frequency Stability Measurement

3.2.1 Limit of Frequency Stability

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% (100ppm) 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.

3.2.2 Test Procedures

5. The spectrum analyzer connected via a receive antenna placed near the EUT.
6. EUT have transmitted signal and fixed channelize.
7. Set the spectrum analyzer span to view the entire emissions bandwidth.
8. Set RBW = 1 kHz, VBW = 3 kHz with peak detector and maxhold settings.
9. The fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±100ppm.
10. Extreme temperature rule is -20°C~50°C.

3.2.3 Test Result of Frequency Stability

The NFC Type F_212 Kbps is the worst case, Only report worst mode data

NFC Type F_212 Kbps

Voltage vs. Frequency Stability		Temperature vs. Frequency Stability	
Voltage (Vac)	**Measurement Frequency (MHz)**	**Temperature (℃)**	**Measurement Frequency (MHz)**
3.85	13.55998	-20	13.55998
3.3	13.55998	-10	13.55998
4.4	13.55998	0	13.55998
-	-	10	13.55998
-	-	20	13.55998
-	-	30	13.55998
-	-	40	13.55998
-	-	50	13.55998
Max.Deviation (MHz)	-0.00002	**Max.Deviation (MHz)**	-0.00002
Max.Deviation (ppm)	-1.47	**Max.Deviation (ppm)**	-1.47
Limit	**FS < ±100 ppm**	**Limit**	**FS < ±100 ppm**
Test Result	**PASS**	**Test Result**	**PASS**

3.3 Field Strength of Fundamental Emissions and Mask Measurement

3.3.1 Limit of Field Strength of Fundamental Emissions and Mask

Rules and specifications	FCC CFR 47 Part 15 section 15.225 IC RSS-210 B.6			
Description	Compliance with the spectrum mask is tested with RBW set to 9kHz.			
Freq. of Emission (MHz)	Field Strength (μV/m) at 30m	Field Strength (dBμV/m) at 30m	Field Strength (dBμV/m) at 10m	Field Strength (dBμV/m) at 3m
1.705~13.110	30	29.5	48.58	69.5
13.110~13.410	106	40.5	59.58	80.5
13.410~13.553	334	50.5	69.58	90.5
13.553~13.567	15848	84.0	103.08	124.0
13.567~13.710	334	50.5	69.58	90.5
13.710~14.010	106	40.5	59.58	80.5
14.010~30.000	30	29.5	48.58	69.5

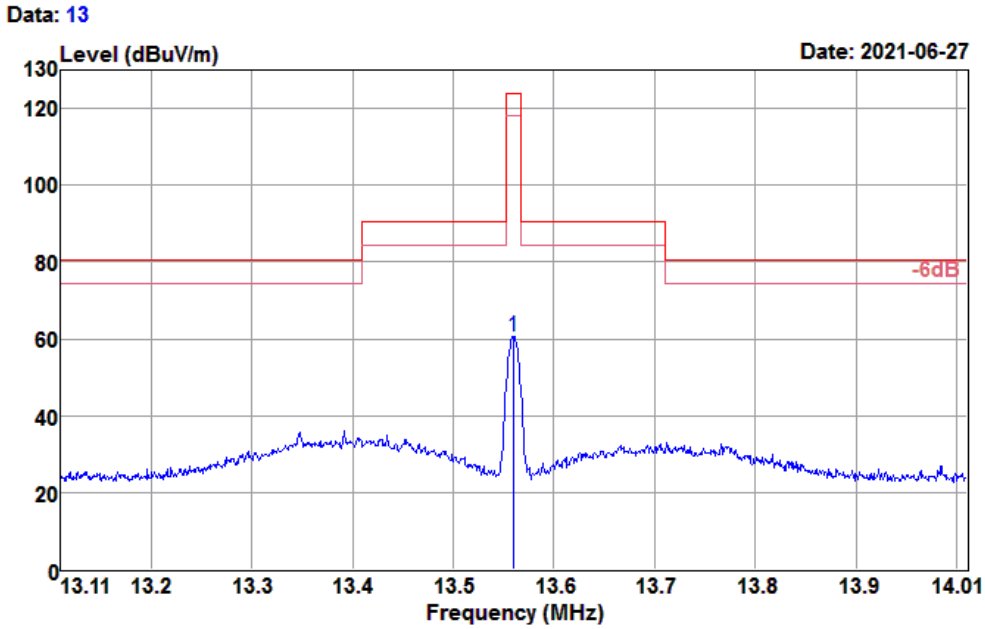
3.3.2 Test Procedures

11. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the turntable.
12. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
13. The height of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
14. For Fundamental emissions, use the receiver to measure QP reading.
15. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
16. Compliance with the spectrum mask is tested with RBW set to 9kHz.

    Note: Emission level (dBμV/m) = 20 log Emission level (μV/m).

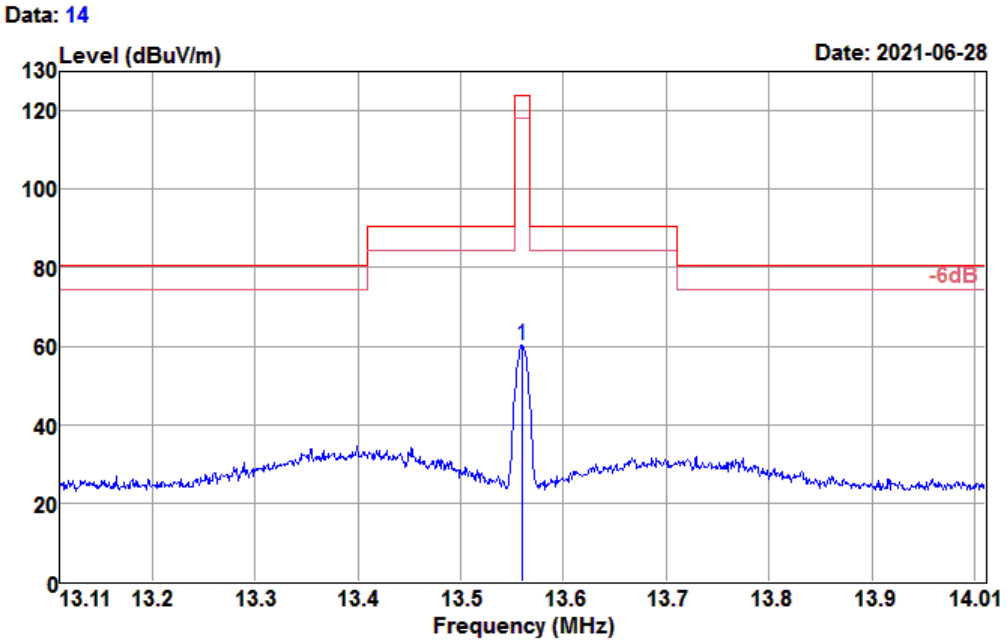
3.3.3 Test Results of Field Strength of Fundamental Emissions and Mask (1.705 MHz ~ 30 MHz)

Test Mode :	NFC (13.56 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	13.11Hz~14.01MHz	Polarization :	Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
13.560	40.62	19.33	0.61	60.56	124.00	-63.44	Peak

Test Mode :	NFC (13.56 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	13.11Hz~14.01MHz	Polarization :	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
13.560	40.19	19.33	0.61	60.13	124.00	-63.87	Peak

3.4 Radiated Emissions Measurement

3.4.1 Limit

The field strength of any emissions which appear outside of 13.110 ~14.010MHz band shall not exceed the general radiated emissions limits.

Frequencies (MHz)	Field Strength (μV/m)	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

3.4.2 Measuring Instrument Setting

The following table is the setting of receiver.

Receiver Parameter	Setting
Attenuation	Auto
Frequency Range: 9kHz~150kHz	RBW 200Hz for QP
Frequency Range: 150kHz~30MHz	RBW 9kHz for QP
Frequency Range: 30MHz~1000MHz	RBW 120kHz for Peak

Note: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

3.4.3 Test Procedures

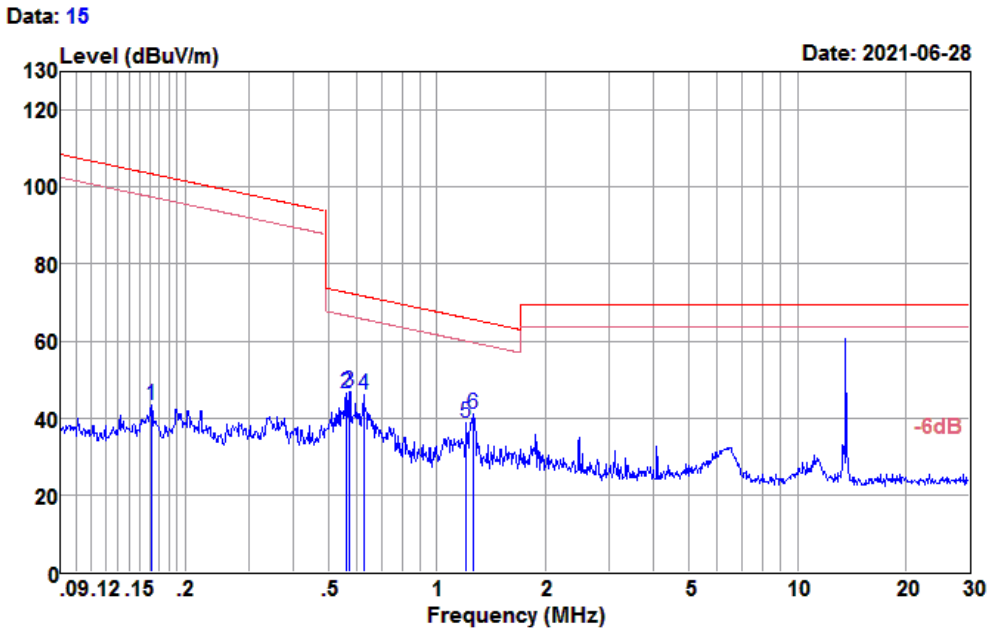
17. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
18. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
19. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
20. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the

turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.

21. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
22. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
23. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver.

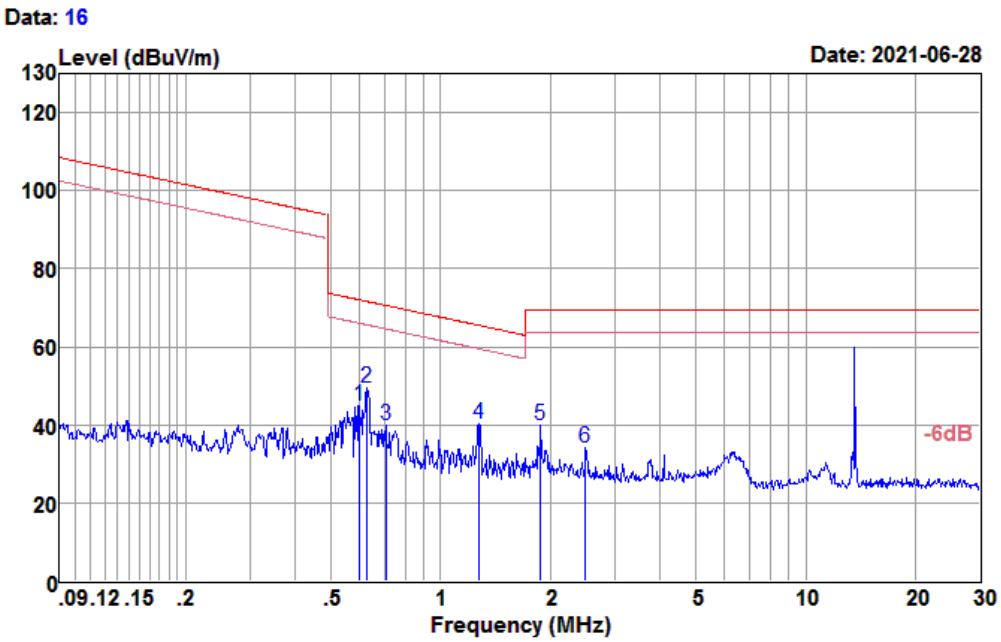
3.4.4 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

Test Mode :	NFC (13.56 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	9 KHz ~ 30 MHz	Polarization :	Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
0.161	23.90	19.24	0.03	43.17	103.47	-60.30	QP
0.561	27.30	19.05	0.09	46.44	72.62	-26.18	QP
0.571	27.80	19.06	0.09	46.95	72.47	-25.52	QP
0.626	26.90	19.10	0.09	46.09	71.67	-25.58	QP
1.208	19.35	19.38	0.13	38.86	65.96	-27.10	QP
1.265	21.52	19.37	0.14	41.03	65.56	-24.53	QP

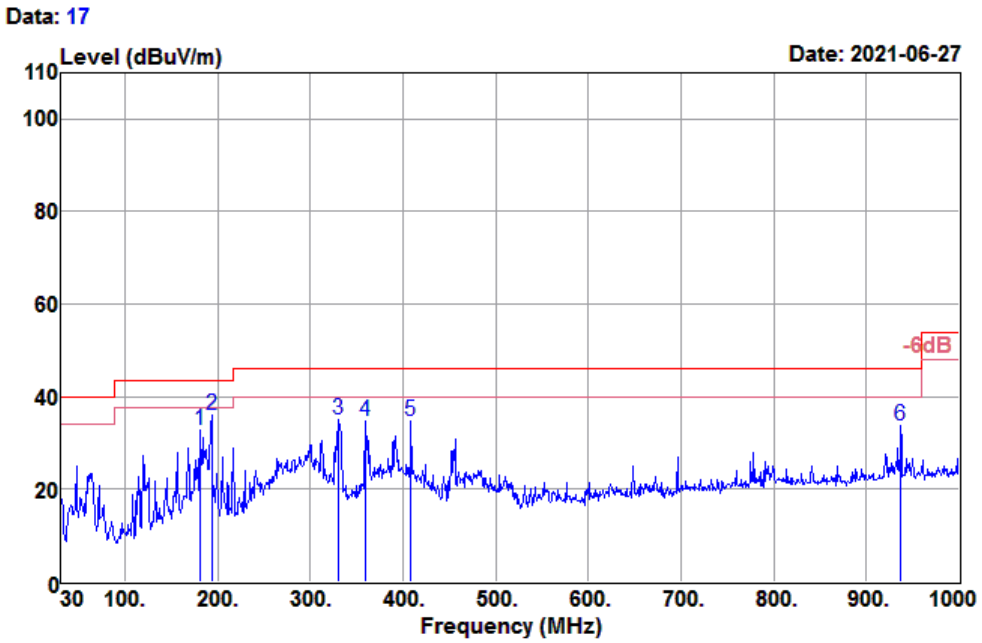
Test Mode :	NFC (13.56 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	9 KHz ~ 30 MHz	Polarization :	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
0.598	25.72	19.08	0.09	44.89	72.07	-27.18	QP
0.630	30.33	19.10	0.09	49.52	71.62	-22.10	QP
0.708	20.45	19.17	0.10	39.72	70.61	-30.89	QP
1.273	20.94	19.37	0.14	40.45	65.51	-25.06	QP
1.878	20.56	19.31	0.18	40.05	69.54	-29.49	QP
2.496	14.57	19.32	0.22	34.11	69.54	-35.43	QP

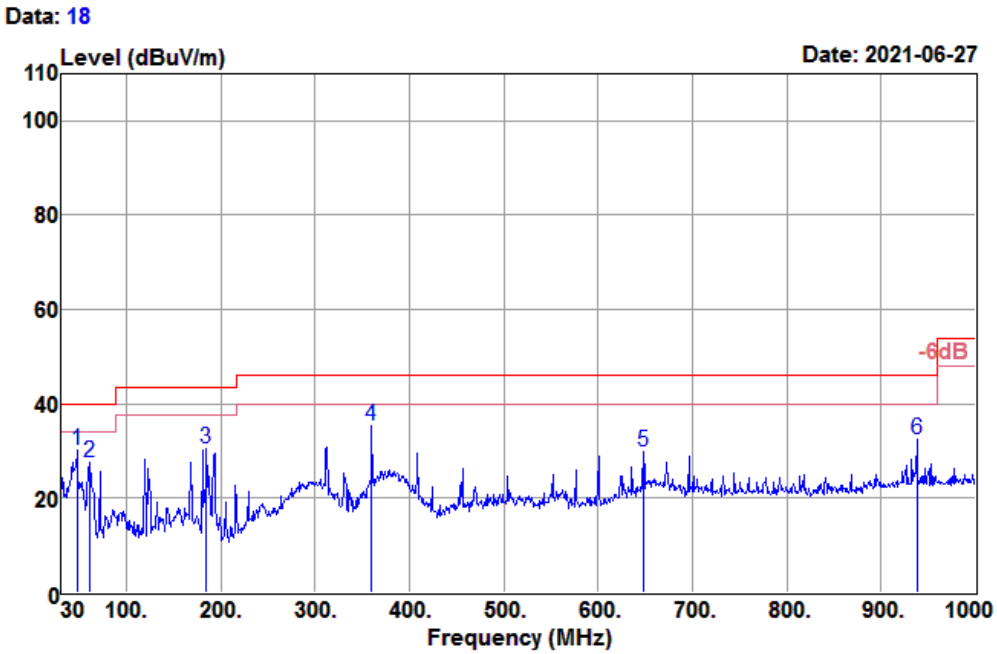
3.4.5 Test Result of Radiated Spurious Emission (30MHz ~ 1GHz)

Test Mode :	NFC (13.56MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	30MHz~1GHz	Polarization :	Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
180.350	50.73	12.23	2.32	32.58	32.70	43.50	-10.80	Peak
192.960	55.59	10.71	2.39	32.59	36.10	43.50	-7.40	Peak
330.700	50.97	13.68	3.17	32.63	35.19	46.00	-10.81	Peak
359.800	49.77	14.24	3.34	32.66	34.69	46.00	-11.31	Peak
408.300	48.81	15.17	3.58	32.71	34.85	46.00	-11.15	Peak
936.950	37.04	22.40	5.75	31.47	33.72	46.00	-12.28	Peak

Test Mode :	NFC (13.56MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	30MHz~1GHz	Polarization :	Vertical



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
47.460	46.87	14.81	1.13	32.60	30.21	40.00	-9.79	Peak
60.070	44.06	14.84	1.29	32.58	27.61	40.00	-12.39	Peak
184.230	48.95	11.73	2.34	32.58	30.44	43.50	-13.06	Peak
359.800	50.32	14.24	3.34	32.66	35.24	46.00	-10.76	Peak
647.890	38.63	19.27	4.59	32.65	29.84	46.00	-16.16	Peak
937.920	35.70	22.41	5.76	31.47	32.40	46.00	-13.60	Peak

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

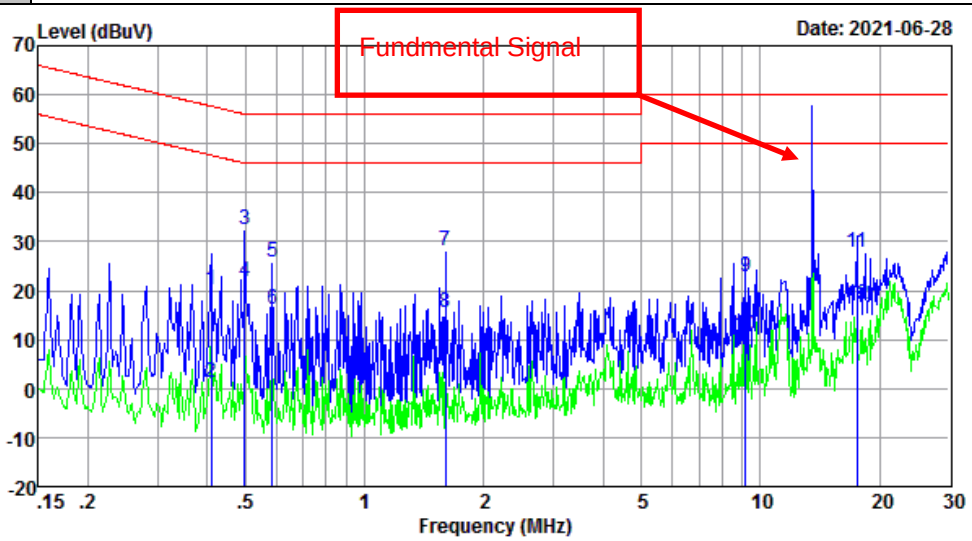
*Decreases with the logarithm of the frequency.

3.5.2 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

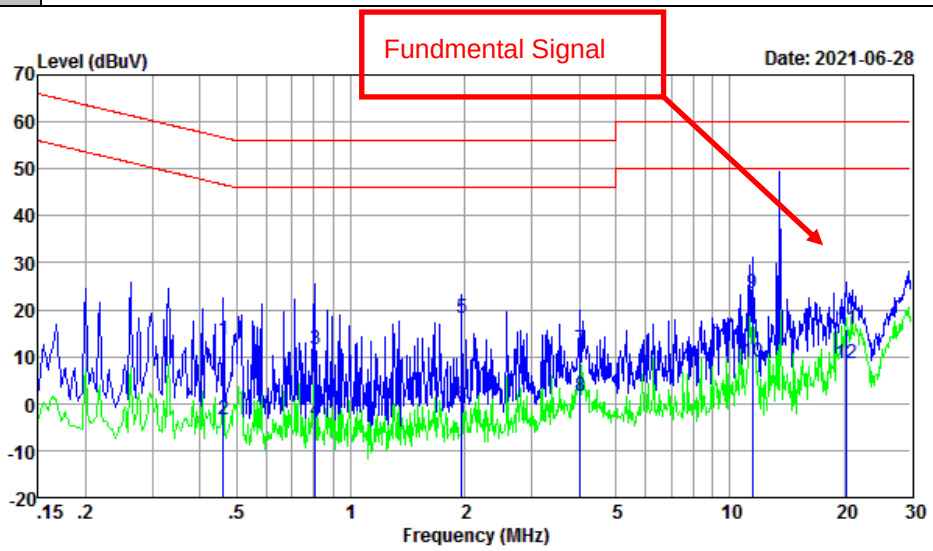
3.5.3 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	26.6℃
Test Engineer :	Jack Liu	Relative Humidity :	47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter)		



Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	Result level dBuV	Limit level dBuV	Over limit dB	Remark
0.410	10.50	9.57	0.01	20.08	57.64	-37.56	QP
0.410	-8.20	9.57	0.01	1.38	47.64	-46.26	Average
0.497	22.90	9.58	0.01	32.49	56.05	-23.56	QP
0.497	12.10	9.58	0.01	21.69	46.05	-24.36	Average
0.585	16.40	9.58	0.01	25.99	56.00	-30.01	QP
0.585	6.60	9.58	0.01	16.19	46.00	-29.81	Average
1.602	18.40	9.59	0.03	28.02	56.00	-27.98	QP
1.602	5.80	9.59	0.03	15.42	46.00	-30.58	Average
9.156	13.01	9.79	0.08	22.88	60.00	-37.12	QP
9.156	1.01	9.79	0.08	10.88	50.00	-39.12	Average
17.568	17.60	10.13	0.11	27.84	60.00	-32.16	QP
17.568	6.80	10.13	0.11	17.04	50.00	-32.96	Average

Test Mode :	Mode 1	Temperature :	26.6℃
Test Engineer :	Jack Liu	Relative Humidity :	47%
Test Voltage :	AC 120V/60Hz	Phase :	Neutral
Function Type :	Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter)		



Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	Result level dBuV	Limit level dBuV	Over limit dB	Remark
0.461	3.90	9.57	0.01	13.48	56.67	-43.19	QP
0.461	-12.90	9.57	0.01	-3.32	46.67	-49.99	Average
0.804	1.90	9.58	0.02	11.50	56.00	-44.50	QP
0.804	-13.30	9.58	0.02	-3.70	46.00	-49.70	Average
1.959	8.60	9.59	0.03	18.22	56.00	-37.78	QP
1.959	-10.10	9.59	0.03	-0.48	46.00	-46.48	Average
4.027	1.80	9.64	0.05	11.49	56.00	-44.51	QP
4.027	-8.00	9.64	0.05	1.69	46.00	-44.31	Average
11.438	13.50	9.88	0.09	23.47	60.00	-36.53	QP
11.438	-1.20	9.88	0.09	8.77	50.00	-41.23	Average
20.270	5.30	10.37	0.12	15.79	60.00	-44.21	QP
20.270	-2.00	10.37	0.12	8.49	50.00	-41.51	Average

3.6 Antenna Requirements

3.6.1 Standard Applicable

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

3.6.2 Antenna Connected Construction

An Loop Antenna design is used.

3.6.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	Keysight	N9010A	MY56070788	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY56510025	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY57030005	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY56510018	2021-01-05	2022-01-04	Conducted
Power Sensor	Keysight	U2021XA	MY56480002	2021-01-05	2022-01-04	Conducted
Thermal Chamber	Howkin	UHL-34	19111801	2021-04-21	2022-04-20	Conducted
Base Station	R&S	CMW 270	101231	2021-01-05	2022-01-04	Conducted
Signal Generator (Interferer)	Keysight	N5182B	MY56200384	2021-01-05	2022-01-04	Conducted
Signal Generator (Blocker)	Keysight	N5171B	MY56200661	2021-01-05	2022-01-04	Conducted

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV 40	101433	2021-01-05	2022-01-04	Radiation
Amplifier	Sonoma	310	363917	2021-01-06	2022-01-05	Radiation
Amplifier	Schwarzbeck	BBV 9718	327	2021-01-06	2022-01-05	Radiation
Amplifier	Narda	TTA1840-35-HG	2034380	2020-11-27	2021-11-26	Radiation
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-051	2020-02-14	2023-02-13	Radiation
Broadband Antenna	Schwarzbeck	VULB 9168	9168-757	2020-09-27	2023-09-26	Radiation
Horn Antenna	Schwarzbeck	BBHA 9120 D	1677	2020-02-14	2023-02-13	Radiation
Horn Antenna	COM-POWER	AH-1840	101117	2020-06-17	2023-06-18A	Radiation
Test Software	Audix	E3	6.111221a	N/A	N/A	Radiation
Filter	Micro-Tronics	BRM 50702	G266	N/A	N/A	Radiation

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
LISN	R&S	ENV216	102125	2021-01-05	2022-01-04	Conducted
LISN	R&S	ENV432	101327	2021-01-06	2022-01-05	Conducted
EMI Test Receiver	R&S	ESR3	102143	2021-01-06	2022-01-05	Conducted
EMI Test Software	Audix	E3	N/A	N/A	N/A	Conducted

N/A: No Calibration Required

NOTE:. 1. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

2. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

4. The IC test Site Registration No. is 21771-1; The CAB Identifier No. is CN0007.

5 Uncertainty of Evaluation

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.42dB
Radiated emission	30MHz ~ 1GMHz	2.50dB
	1GHz ~ 18GHz	3.51dB
	18GHz ~ 40GHz	3.96dB

MEASUREMENT	UNCERTAINTY
Occupied Channel Bandwidth	±196.4Hz
RF output power, conducted	±2.31dB
Power density, conducted	±2.31dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

♦ ----------End of the report----------