ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

Test Report No.	**: OT-216-RED-010**
Reception No.	**: 2104002252**
Applicant	**: LG Electronics USA, Inc.**
Address	**: 111 Sylvan Ave, North Building, Englewood Cliffs, New Jersey, 07632, United States**
Manufacturer	**: LG Electronics Inc.**
Address	**: 222 LG-ro Jinwi-myeon, Pyeongtaek-si,Gyeonggi-do, Korea**
Type of Equipment	**: Bluetooth Earbud**
Model Names	**: TONE-FP8**
Multiple Model Name	**: TONE-FP8W, TONE-FP8B**
Serial number	**: N/A**
Total page of Report	**: 23 pages (including this page)**
Date of Incoming	**: March 31, 2021**
Test Period	**: April 04, 2021 ~ June 03, 2021**
Date of Issuing	**: June 03, 2021**

SUMMARY

The equipment complies with the requirement of

FCC CFR 47 PART 15 SUBPART B, Section 15.101 and IC ICES-003 Issue 7

This test report contains only the results of a single test of the sample supplied for the examination.

Reviewed by:

Seung-Hyun, Park / Manager
EMC Testing Div.
ONETECH Corp.

Approved by:

Gea-Won, Lee / Managing Director
EMC Testing Div.
ONETECH Corp.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

Revision History

Rev. No.	Issued Report No.	Issued Date	Revisions	Section Affected
0	OT-216-RED-010	June 03, 2021	Initial Issue	All

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1. VERIFICATION OF COMPLIANCE

-. Applicant : LG Electronics USA, Inc.

-. Address : 111 Sylvan Ave, North Building, Englewood Cliffs, New Jersey, 07632, United States

-. Manufacturer : LG Electronics Inc.

-. Address : 222 LG-ro Jinwi-myeon, Pyeongtaek-si,Gyeonggi-do, Korea

-. Factory : BLUECOM

-. Address : C5-4, Area CN1, Trang Due Industrial Park, An Duong District, Haiphong City, Vietnam

-. MODEL NAME : TONE-FP8

-. SERIAL NUMBER : N/A

-. BRAND/TRADE NAME : LG Electronics Inc.

-. DATE : June 03, 2021

EQUIPMENT CLASS	Other Class B digital devices & peripherals
E.U.T. DESCRIPTION	Bluetooth Earbud
MEASUREMENT PROCEDURES	Original Grant
TYPE OF EQUIPMENT TESTED	ANSI C63.4: 2014 and ICES-003 ISSUE 7
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Supplier's Declaration of Conformity (SDoC)
STANDARDS	FCC PART 15 (Class B) ICES-003 ISSUE 7 Class B Apparatus
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	None
FINAL TEST WAS CONDUCTED ON	10 m Semi anechoic chamber

ONETECH Corp. tested the above equipment in accordance with the requirements set forth in the above standard. The test results show that equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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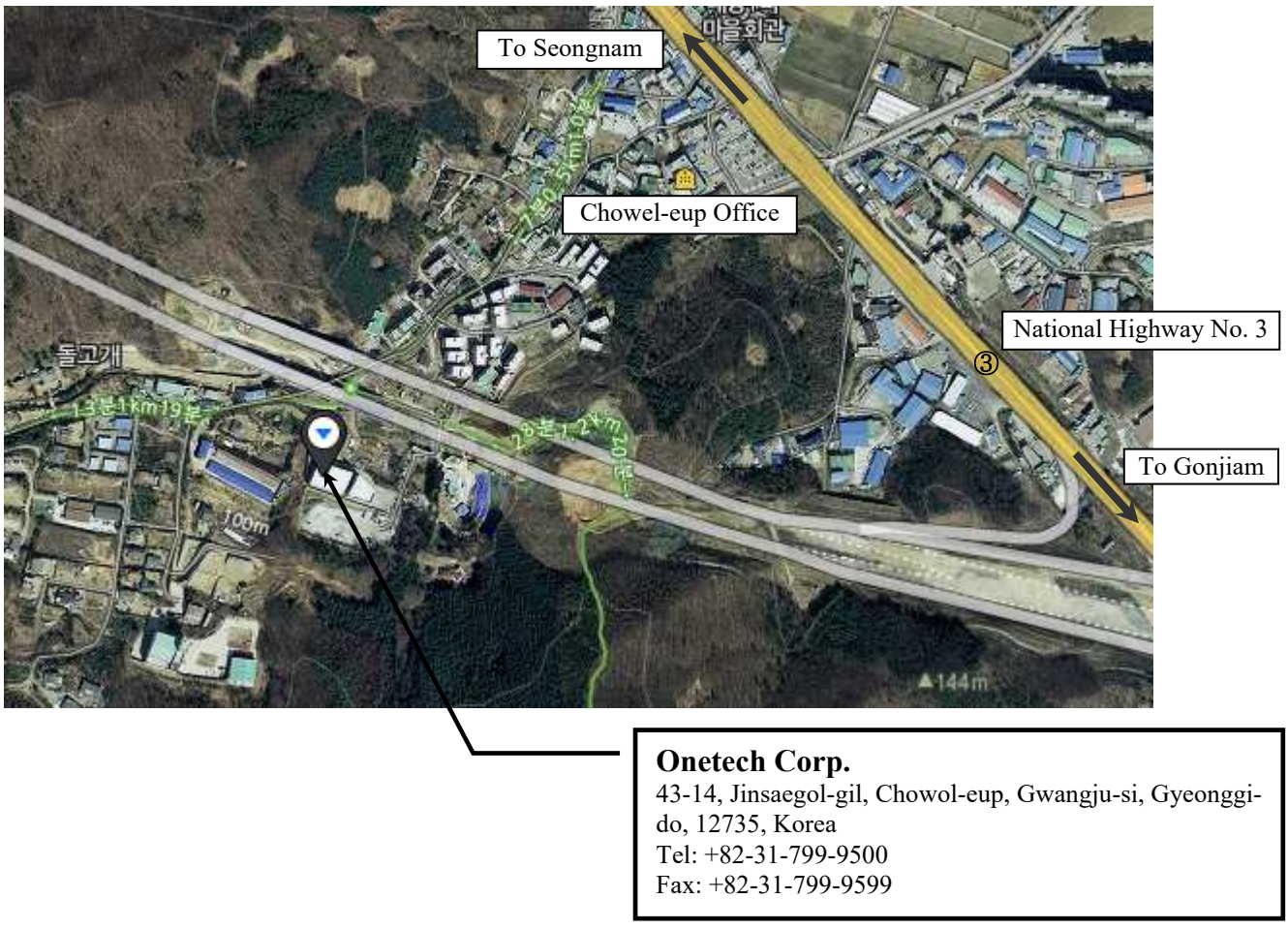
2. TEST FACILITY

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025 by Radio Research Agency as accreditation body. The Onetech Corp. is accredited for measuring devices subject to Declaration of Conformity (DOC) under Parts 15 & 18 as a Conformity Assessment Body (CAB) with designation number KR0013.

These measurement tests were conducted at Onetech Corp.

The 10 m semi anechoic chamber and conducted measurement facilities are located at

1) 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.
2) 12-5, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.



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Tel: +82-31-799-9500
Fax: +82-31-799-9599

3. PRODUCT INFORMATION

3.1 Description of EUT

The LG Electronics USA, Inc., Model TONE-FP8 (referred to as the EUT in this report) is a Bluetooth Earbud.

Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. or CRY. FREQ. (FREQ. >= 1 MHz)	20 MHz
RF FREQ.	2 402 MHz ~ 2 480 MHz
ELECTRICAL RATING	Earbud: DC 5 V, 110 mA Charging case : DC 5 V, 500 mA
NUMBER OF PCB LAYERS	-
EXTERNAL CONNECTOR	Earbud: Charging terminals Charging case : Charging terminals, Charge port(USB Type C)
Temperature Range	0 °C ~ 40 °C

3.2 Model Differences

-. The following lists consist of the added model and their differences.

Model Name	Differences	Tested
TONE-FP8	Basic Model (Charcoal)	☑
TONE-FP8W	This model is identical to a basic model except for the color (White)	☐
TONE-FP8B	This model is identical to a basic model except for the color (Beige)	☐

Note: 1. Applicant consigns only basic model to test. Therefore, this test report just guarantees the units, which have been tested.

2. The Applicant/manufacturer is responsible for the compliance of all variants.

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3.3 Support Equipment

The model numbers for all the equipments that were used in the tested system is:

Description	Model	Manufacturer	Connected to
Bluetooth Earbud (EUT)	TONE-FP8	LG Electronics Inc.	Adapter
Adapter	EP-TA200 001	HAEM VINA Co., Ltd.	EUT
Wireless Charger	N/A	N/A	-

3.4 System Configuration

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Bluetooth Earbud	LG Electronics Inc.	TONE-FP8	ZNFHBSFN7

3.5 Cable Description for the EUT

Cable	Shielded	Ferrite Bead	Metal Shell	Length (m)	Connected to
USB Type C	Y	N	N	1.0	Adapter

3.6 Equipment Modifications

-. None

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4. DESCRIPTION OF TESTS

4.1 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2014.

Radiated testing was performed at a distance of 10 m from EUT to the antenna.

4.2 Test Condition

The test conditions of the noted test mode(s) in this test report are;

1) Test Voltage / Frequency

-. AC 120 V / 60 Hz

2) Test Mode(s)

Test Mode		Operating States
1	Charging	a) The USB Type C port on the EUT was connected to the adapter and then the EUT was charging operate.
2	Wireless Charging *)	a) The EUT was placed on a wireless charger and then the EUT was charging operate.

*) The EUT was wireless charging during the test.

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4.3 Conducted Emission

The EUT was placed on a non-conductive 1.0 m × 1.5 m table, which is 0.8 m in height above the reference ground plane and 0.4 m away from the vertical conducting plane (over 2 m × 2 m) that is bonded to the reference ground plane.

The power of EUT is fed through a 50 Ω/ 50 μH + 5 Ω LISN and all support equipment is powered from another LISN. Powers to the LISN are filtered by high-current high insertion loss power line filter.

Sufficient time for EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.

The RF output of the LISN was connected to the EMI test receiver.

Exploratory measurements were conducted to identify the highest emission by operating the EUT in a range of typical modes of operation, cable positions, system configuration and arrangement.

Based on exploratory measurements, the final measurements were conducted at the worst test conditions.

Exploratory measurements were scanned using Peak mode of EMI Test receiver from 150 kHz to 30 MHz with 20 ms sweep time. The final measurements were measured with Quasi-Peak and CISPR Average mode.

The bandwidth of EMI Test Receiver was set to 9 kHz. Interface cables were connected to the available interface ports of the test unit. Excess cable lengths were bundled at center with 30 cm ~ 40 cm.

4.4 Radiated Emission

Exploratory Radiated measurements were conducted at the 3 m semi anechoic chamber in order to identify the highest emission by operating the EUT in a range of typical modes of operation, cable positions, system configuration and arrangement.

Based on exploratory measurements, the final measurements were conducted at the worst test conditions.

Final measurements were made at 10 m semi anechoic chamber that complies with CISPR 16/ANSI C63.4/ ICES-003.

Exploratory measurements were scanned using Peak mode of EMI Test receiver and final measurements were measured with Quasi-Peak mode (Below 1 GHz) and Peak & CISPR Average mode (Above 1 GHz).

The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

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5. FINAL RESULT OF MEASUREMENT

Exploratory measurement was done in normal operation mode. And the final measurement was selected for the maximized emission level.

5.1 Conducted Emission Test

5.1.1 Operating Environment

Ambient temperature : 20.2 °C
Relative humidity : 36.4 % R.H.

5.1.2 Test Setup

The EUT and other support equipment were placed on a non-conductive table, 0.8 m height above the reference ground plane. The power of EUT was fed through a 50 Ω/ 50 μH + 5 Ω LISN. The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

5.1.3 Measurement uncertainty

Conducted emission, quasi-peak detection : ± 3.9 dB
Conducted emission, CISPR-average detection : ± 3.9 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, k = 2.

5.1.4 Limit

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	CISPR 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		

5.1.5 Test Equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	ESCI	Rohde & Schwarz	Test Receiver	101420	Mar. 23, 2021 (1Y)
■ -	LT32C/10	Afj Instruments	LISN	32032039322	Oct. 22, 2020 (1Y)
□ -	3825/2	EMCO	AMN	9109-1867	Mar. 22, 2021 (1Y)
■ -	11947A	Hewlett Packard	Transient Limiter	3107A02762	Mar. 22, 2021(1Y)

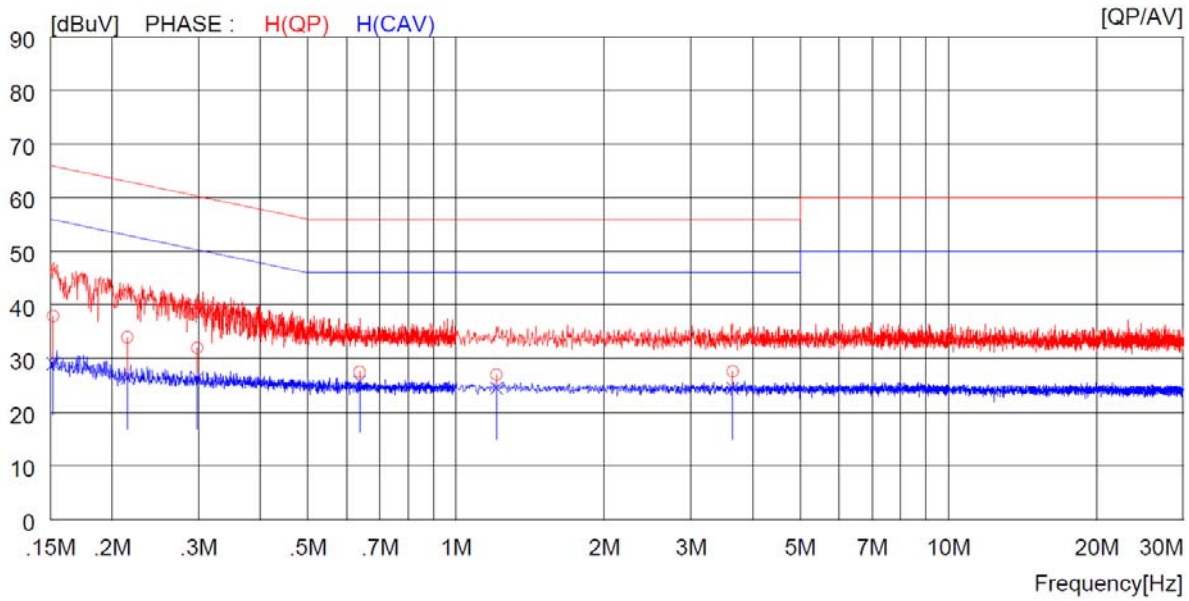
All test equipment used is calibrated on a regular basis.

5.1.6 Test Data

. Test Result : Pass

Tested by: Jae-Yeon, Kim / Engineer

Test Mode 1 (Charging)			
Frequency range	: 0.15 MHz ~ 30 MHz	Test Date	: April 05, 2021
Resolution bandwidth	: 9 kHz	Tested Line	: HOT LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15200	16.4	----	21.5	37.9	----	65.9	----	28.0	----	H(QP)
2	0.21500	12.5	----	21.5	34.0	----	63.0	----	29.0	----	H(QP)
3	0.29800	10.5	----	21.5	32.0	----	60.3	----	28.3	----	H(QP)
4	0.63700	6.0	----	21.5	27.5	----	56.0	----	28.5	----	H(QP)
5	1.20800	5.4	----	21.6	27.0	----	56.0	----	29.0	----	H(QP)
6	3.64400	5.9	----	21.7	27.6	----	56.0	----	28.4	----	H(QP)
7	0.15200	----	7.5	21.5	----	29.0	----	55.9	----	26.9	H(CAV)
8	0.21500	----	4.9	21.5	----	26.4	----	53.0	----	26.6	H(CAV)
9	0.29800	----	4.9	21.5	----	26.4	----	50.3	----	23.9	H(CAV)
10	0.63700	----	4.2	21.5	----	25.7	----	46.0	----	20.3	H(CAV)
11	1.20800	----	2.9	21.6	----	24.5	----	46.0	----	21.5	H(CAV)
12	3.64400	----	2.8	21.7	----	24.5	----	46.0	----	21.5	H(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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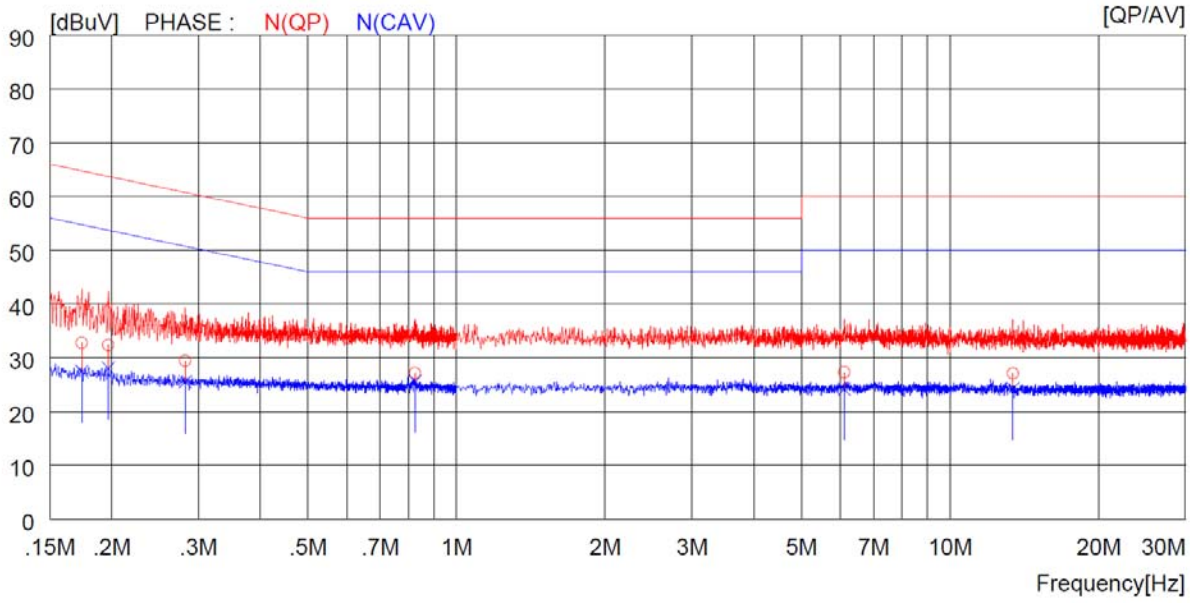
Test Mode 1 (Charging)			
Frequency range	: 0.15 MHz ~ 30 MHz	Test Date	: April 05, 2021
Resolution bandwidth	: 9 kHz	Tested Line	: NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.17400	11.3	----	21.5	32.8	----	64.8	----	32.0	----	N(QP)
2	0.19700	10.9	----	21.5	32.4	----	63.7	----	31.3	----	N(QP)
3	0.28200	8.0	----	21.5	29.5	----	60.8	----	31.3	----	N(QP)
4	0.82400	5.6	----	21.6	27.2	----	56.0	----	28.8	----	N(QP)
5	6.10500	5.6	----	21.7	27.3	----	60.0	----	32.7	----	N(QP)
6	13.40000	5.5	----	21.6	27.1	----	60.0	----	32.9	----	N(QP)
7	0.17400	----	6.0	21.5	----	27.5	----	54.8	----	27.3	N(CAV)
8	0.19700	----	6.6	21.5	----	28.1	----	53.7	----	25.6	N(CAV)
9	0.28200	----	4.0	21.5	----	25.5	----	50.8	----	25.3	N(CAV)
10	0.82400	----	4.0	21.6	----	25.6	----	46.0	----	20.4	N(CAV)
11	6.10500	----	2.5	21.7	----	24.2	----	50.0	----	25.8	N(CAV)
12	13.40000	----	2.7	21.6	----	24.3	----	50.0	----	25.7	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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5.2 Radiated Emission Test

5.2.1 Operating Environment

Ambient temperature : 23.0 / 25 °C
Relative humidity : 40.2 / 54.1 % R.H.

5.2.2 Test Setup

The radiated emissions measurements were on the 10 m, in 10 m semi anechoic chamber. The EUT and all local support equipments were placed on a non-conductive turntable approximately 0.8 m above the ground plane.

The frequency spectrum from 30 MHz to 18 000 MHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

5.2.3 Measurement uncertainty

Radiated emission electric field intensity, 30 MHz ~ 1 000 MHz : ± 4.5 dB
Radiated emission electric field intensity, 1 GHz ~ 18 GHz : ± 5.0 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

5.2.4 Limit

-. FCC Part 15 Subpart B

Frequency of Emission (MHz)	Resolution bandwidth	Field strength @ 3 m (dBμV/m)	
		Quasi-peak	
30 ~ 88	120 kHz	40.0	
88 ~ 216		43.5	
216 ~ 230		46.0	
230 ~ 960		46.0	
960 ~ 1 000		54.0	
		Peak Limit	CISPR Average Limit
> 1 000	1 MHz	74.0	54.0

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-. ICES-003

Frequency of Emission (MHz)	Resolution bandwidth	Field strength @ 3 m (dBµV/m)	Field strength @ 10 m (dBµV/m)
		Quasi-peak	Quasi-peak
30 ~ 88	120 kHz	40.0	30.0
88 ~ 216		43.5	33.1
216 ~ 230		46.0	35.6
230 ~ 960		47.0	37.0
960 ~ 1 000		54.0	43.5
Frequency of Emission (MHz)	Resolution bandwidth	Field strength @ 3 m (dBµV/m)	
		Peak Limit	CISPR Average Limit
> 1 000	1 MHz	74.0	54.0

5.2.5 Test Equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ - ESW	Rohde & Schwarz	Test Receiver	101851	Mar. 23, 2021 (1Y)
■ - ESR	Rohde & Schwarz	Test Receiver	102190	Oct. 16, 2020 (1Y)
■ - 8447D	Hewlett Packard	Amplifier	2944A07777	Mar. 15, 2021 (1Y)
■ - VULB9163	Schwarzbeck	Trilog Broadband Antenna	9163-225	Sep. 14, 2020 (2Y)
■ - 3115	ETS-LINDGREN	Horn Antenna	34823	Aug. 14, 2020 (1Y)
■ - PAM-118A	Com-Power	Amplifier	18040081	Oct. 12, 2020 (1Y)
■ - CO3000	Innco Systems GmbH	Controller	CO3000/1015	N/A
■ - DT5000	Innco Systems GmbH	Turn Table	DT5000/3t	N/A
■ - MA4000-EP	Innco Systems GmbH	Antenna Master	MA4000/508	N/A
■ - MA-4640-XPET	Innco Systems GmbH	Antenna Master	MA4640/592	N/A

All test equipment used is calibrated on a regular basis.

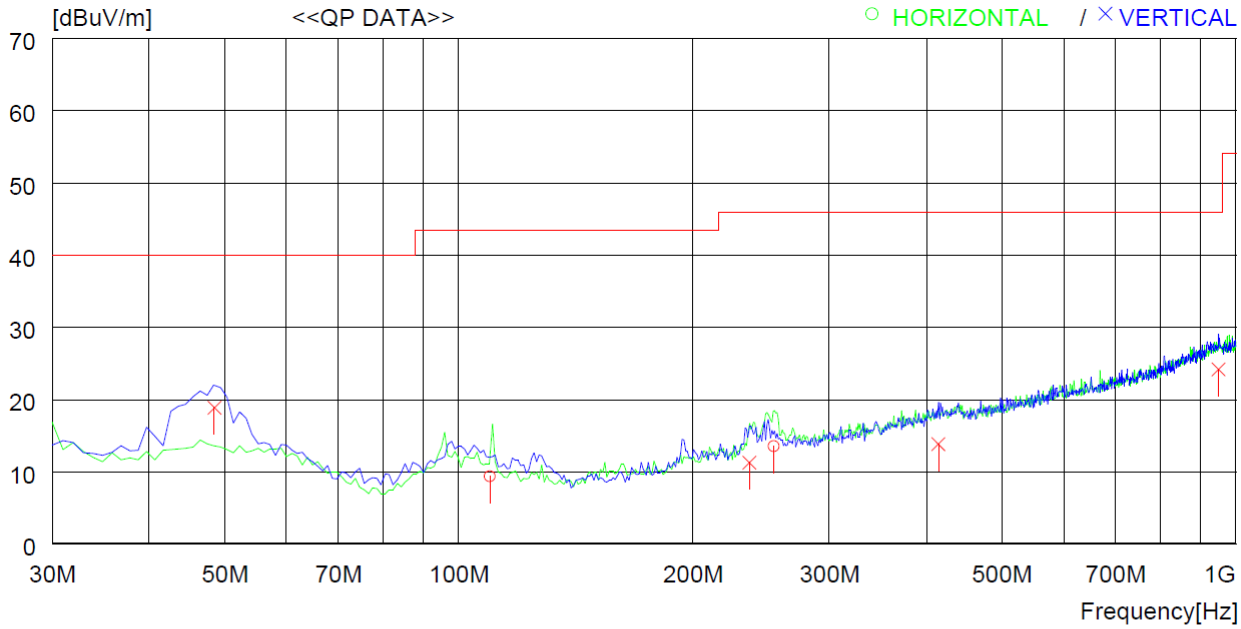
5.2.6 Test Data

. Test Result : Pass

김재연

Tested by: Jae-Yeon, Kim / Engineer

Test Mode 1 (Charging)			
Frequency range	: 30 MHz ~ 1 000 MHz	Applied Standards	: FCC Part 15 Subpart B
Resolution bandwidth	: 120 kHz	Test Date	: June 03, 2021
Detector Mode	: Quasi-Peak	Measurement distance	: 3 m



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	109.740	23.3	10.8	3.4	28.1	9.4	43.5	34.1	400	359
2	254.270	23.1	12.7	5.3	27.6	13.5	46.0	32.5	200	319
----- Vertical ------										
3	48.530	31.0	14.0	2.2	28.3	18.9	40.0	21.1	100	0
4	236.640	21.6	12.1	5.2	27.6	11.3	46.0	34.7	300	100
5	414.121	18.7	15.9	7.5	28.3	13.8	46.0	32.2	100	2
6	949.547	17.2	22.3	12.3	27.6	24.2	46.0	21.8	100	2

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

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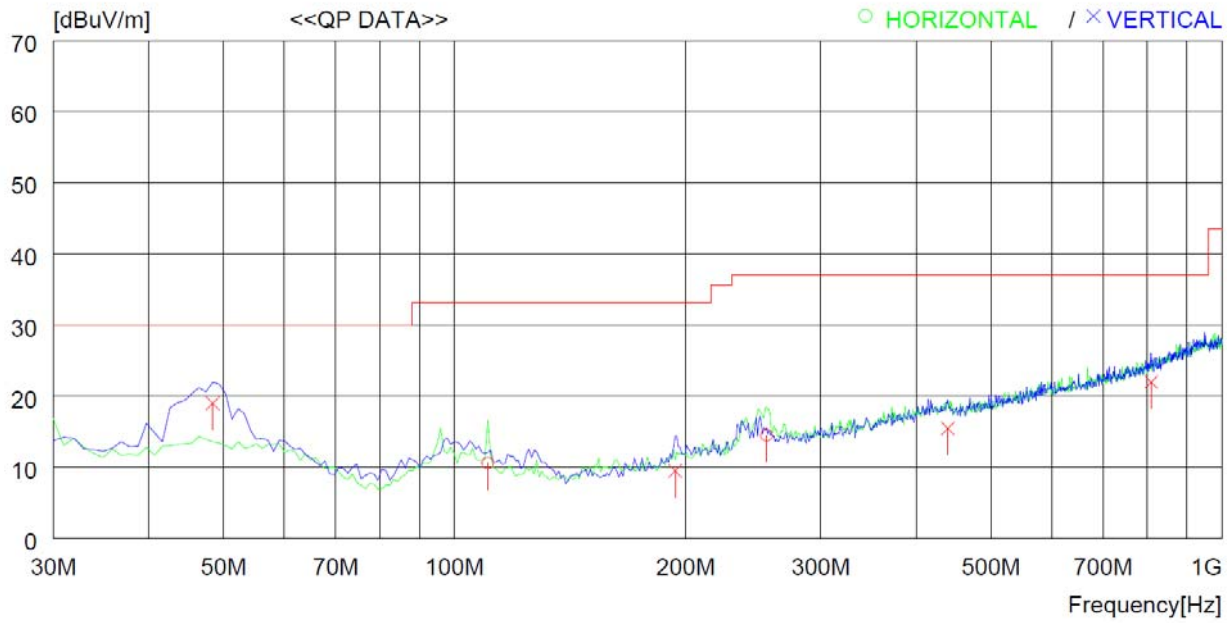
Test Mode 1 (Charging)			
Frequency range	: 30 MHz ~ 1 000 MHz	Applied Standards	: ICES-003 Issue 7
Resolution bandwidth	: 120 kHz	Test Date	: April 04, 2021
Detector Mode	: Quasi-Peak	Measurement distance	: 10 m



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	110.510	24.9	10.7	3.1	28.1	10.6	33.1	22.5	400	359
2	255.040	24.4	12.7	5.0	27.6	14.5	37.0	22.5	400	128
----- Vertical ------										
3	48.430	31.3	14.0	2.0	28.3	19.0	30.0	11.0	100	0
4	193.930	22.7	10.3	4.2	27.7	9.5	33.1	23.6	100	0
5	439.341	20.9	16.3	6.7	28.4	15.5	37.0	21.5	100	141
6	808.902	19.8	20.8	9.6	28.2	22.0	37.0	15.0	300	316

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

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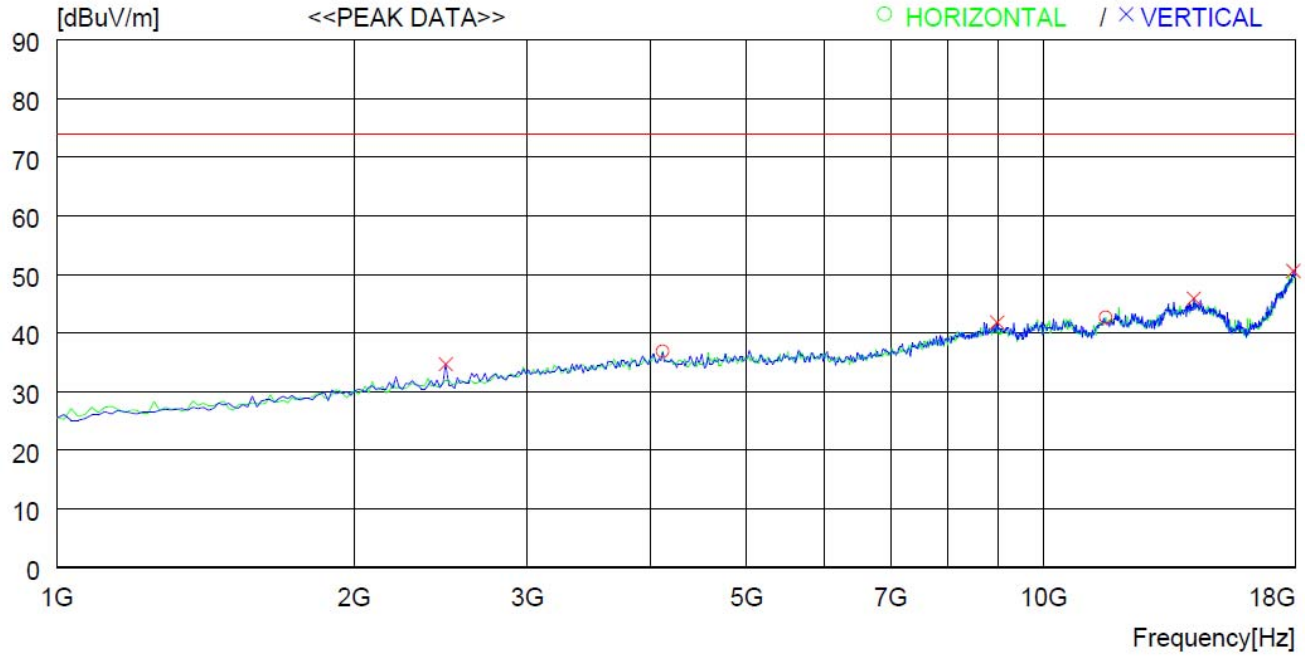
Test Mode 1 (Charging)			
Frequency range	: 1 GHz ~ 18 GHz	Test Date	: June 03, 2021
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: Peak		



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	4111.000	46.2	32.5	4.5	46.3	36.9	74.0	37.1	100	345
2	11557.000	42.6	38.9	7.6	46.4	42.7	74.0	31.3	100	355
----- Vertical ------										
3	2479.000	48.3	28.5	3.4	45.5	34.7	74.0	39.3	100	311
4	8973.000	42.7	38.6	6.7	46.2	41.8	74.0	32.2	100	64
5	14192.000	42.1	41.7	8.6	46.5	45.9	74.0	28.1	100	55
6	17898.000	40.1	46.7	9.7	45.9	50.6	74.0	23.4	100	0

Remark: Margin (dB) = Limit – Result

Result = Reading Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

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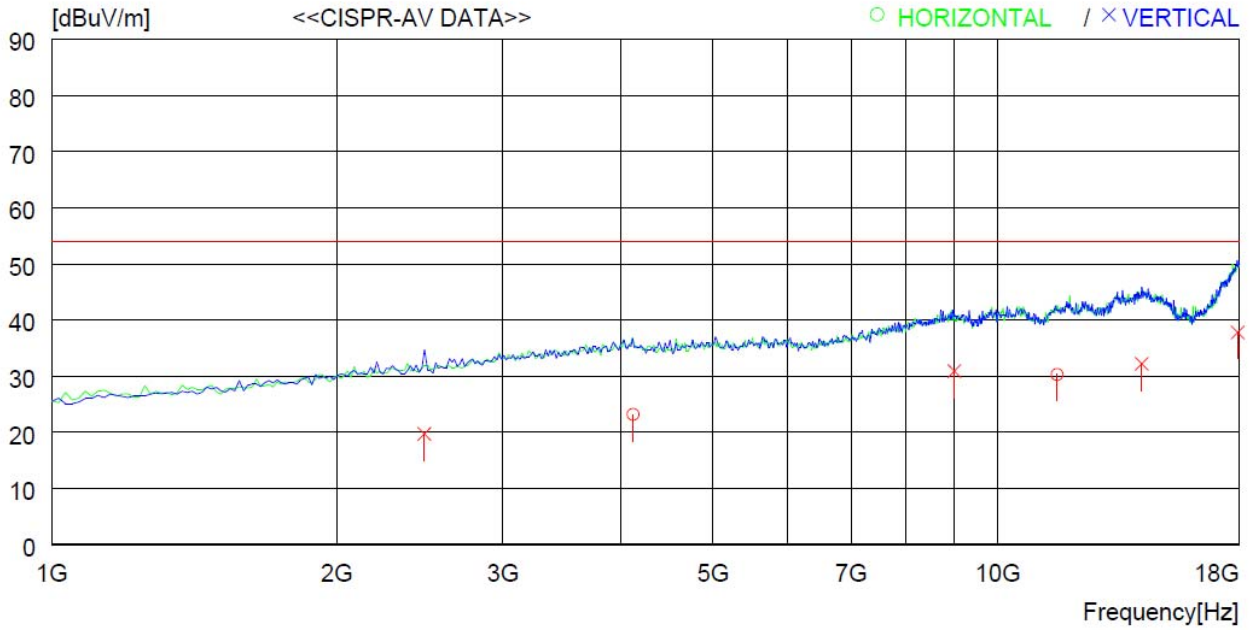
Test Mode 1 (Charging)			
Frequency range	: 1 GHz ~ 18 GHz	Test Date	: June 03, 2021
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: CISPR-Average		



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	4115.963	32.5	32.5	4.5	46.3	23.2	54.0	30.8	100	345
2	11554.700	30.2	38.9	7.6	46.4	30.3	54.0	23.7	100	355
----- Vertical ------										
3	2476.956	33.3	28.5	3.4	45.5	19.7	54.0	34.3	100	311
4	8995.406	31.8	38.6	6.7	46.2	30.9	54.0	23.1	100	64
5	14190.760	28.4	41.7	8.6	46.5	32.2	54.0	21.8	100	55
6	17929.280	27.1	46.9	9.7	45.9	37.8	54.0	16.2	100	0

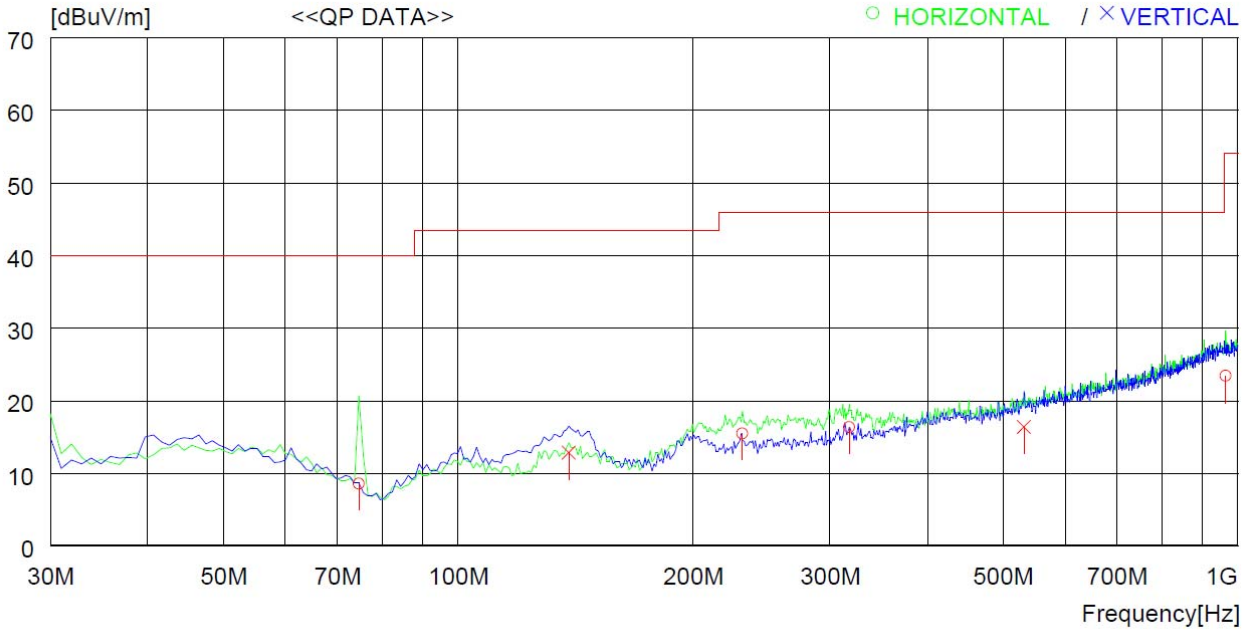
Remark: Margin (dB) = Limit – Result

Result = Reading CISPR-Average + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

Test Mode 2 (Wireless Charging)			
Frequency range	: 30 MHz ~ 1 000 MHz	Applied Standards	: FCC Part 15 Subpart B
Resolution bandwidth	: 120 kHz	Test Date	: June 03, 2021
Detector Mode	: Quasi-Peak	Measurement distance	: 3 m



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	74.570	25.5	8.6	2.7	28.2	8.6	40.0	31.4	400	0
2	231.760	26.0	11.9	5.2	27.6	15.5	46.0	30.5	400	309
3	317.120	24.1	13.7	6.2	27.6	16.4	46.0	29.6	200	359
4	965.067	16.1	22.4	12.5	27.6	23.4	54.0	30.6	200	359
----- Vertical ------										
5	138.640	28.8	8.2	3.9	28.0	12.9	43.5	30.6	100	356
6	531.490	18.6	17.8	8.7	28.7	16.4	46.0	29.6	100	276

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

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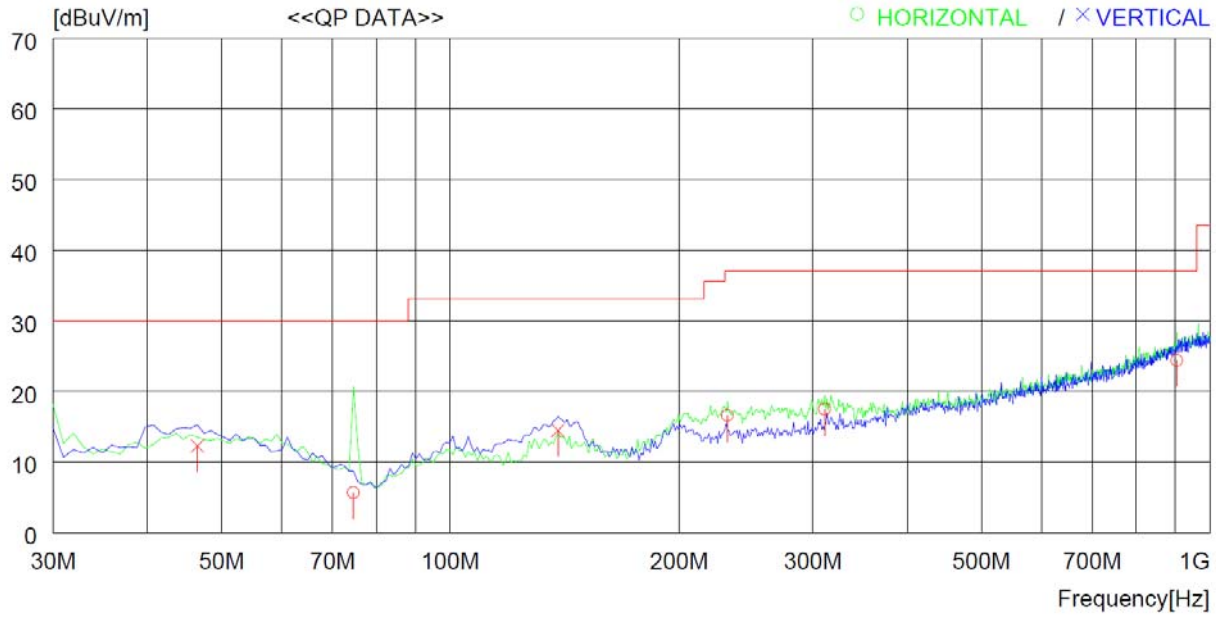
Test Mode 2 (Wireless Charging)			
Frequency range	: 30 MHz ~ 1 000 MHz	Applied Standards	: ICES-003 Issue 7
Resolution bandwidth	: 120 kHz	Test Date	: April 04, 2021
Detector Mode	: Quasi-Peak	Measurement distance	: 10 m



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	74.620	22.7	8.6	2.6	28.2	5.7	30.0	24.3	400	0
2	231.760	27.6	11.9	4.7	27.6	16.6	37.0	20.4	400	309
3	311.300	26.0	13.6	5.5	27.6	17.5	37.0	19.5	400	293
4	904.929	19.9	22.1	10.2	27.8	24.4	37.0	12.6	400	251
----- Vertical ------										
5	46.490	24.5	14.1	2.0	28.3	12.3	30.0	17.7	100	294
6	138.640	30.7	8.2	3.6	28.0	14.5	33.1	18.6	100	356

Remark: Margin (dB) = Limit – Result

Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

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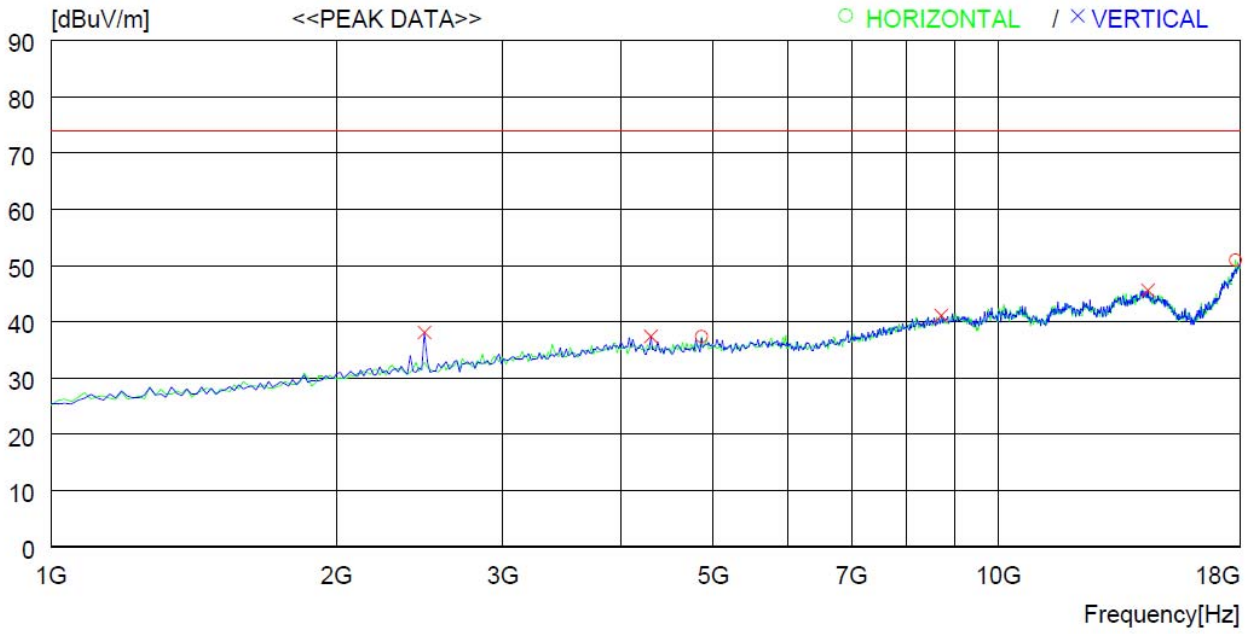
Test Mode 2 (Wireless Charging)			
Frequency range	: 1 GHz ~ 18 GHz	Test Date	: June 03, 2021
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: Peak		



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA TABLE [cm]	[DEG]
----- Horizontal ------										
1	4859.000	45.8	33.1	4.8	46.3	37.4	74.0	36.6	100	72
2	17796.000	41.3	46.1	9.6	46.0	51.0	74.0	23	100	90
----- Vertical ------										
3	2479.000	51.7	28.5	3.4	45.5	38.1	74.0	35.9	100	359
4	4298.000	46.6	32.5	4.6	46.3	37.4	74.0	36.6	100	43
5	8701.000	42.1	38.5	6.6	46.1	41.1	74.0	32.9	100	359
6	14379.000	41.6	41.8	8.6	46.4	45.6	74.0	28.4	100	329

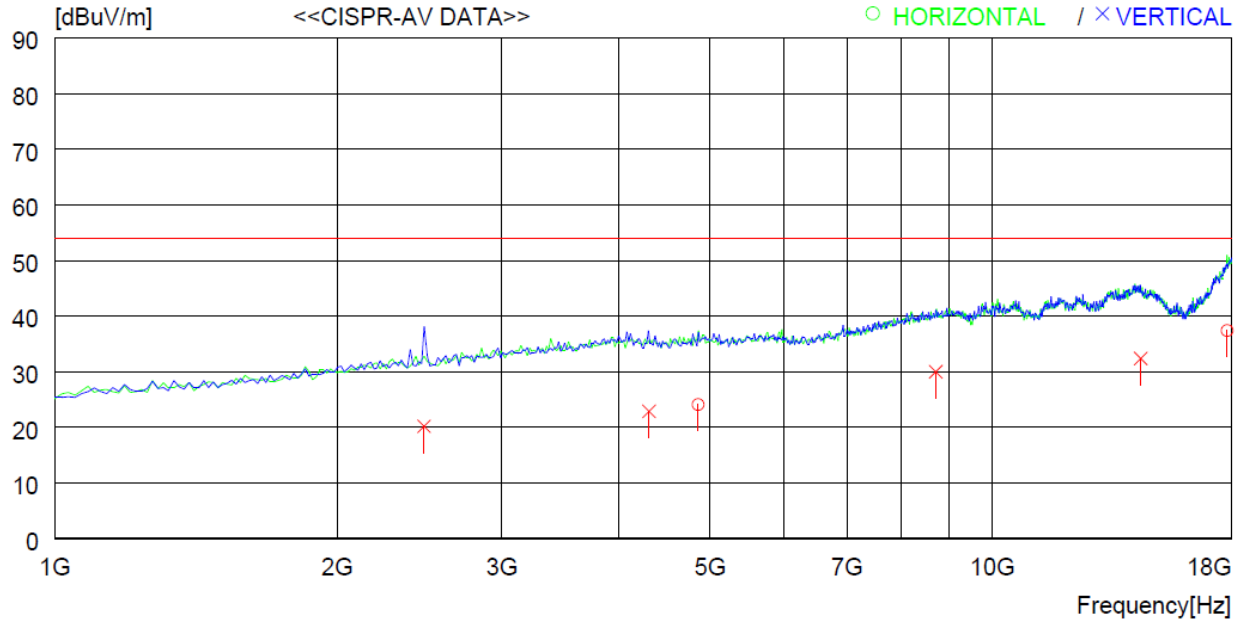
Remark: Margin (dB) = Limit – Result

Result = Reading Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

Test Mode 2 (Wireless Charging)			
Frequency range	: 1 GHz ~ 18 GHz	Test Date	: June 03, 2021
Resolution bandwidth	: 1 MHz	Measurement distance	: 3 m
Detector Mode	: CISPR-Average		



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	4856.009	32.5	33.1	4.8	46.3	24.1	54.0	29.9	100	72
2	17802.680	27.7	46.1	9.6	46.0	37.4	54.0	16.6	100	90
----- Vertical ------										
3	2476.956	33.8	28.5	3.4	45.5	20.2	54.0	33.8	100	359
4	4304.891	32.1	32.5	4.6	46.3	22.9	54.0	31.1	100	43
5	8702.805	31.0	38.5	6.6	46.1	30.0	54.0	24.0	100	359
6	14393.310	28.4	41.8	8.6	46.4	32.4	54.0	21.6	100	329

Remark: Margin (dB) = Limit – Result

Result = Reading CISPR-Average + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

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6. SAMPLE CALCULATIONS

$dB\mu V = 20 \log_{10} (\mu V)$

Margin = Limit - Result

-. Example 1: 0.63700 MHz

Class B Limit	= 46.0 dBμV (Quasi-peak)
Reading	= 4.2 dBμV
Correction Factor	= Cable Loss + Pulse Limiter
	= 21.5 dB
Total	= 25.7 dBμV
Margin	= 46.0 dBμV – 25.7 dBμV
	= 20.3 dB

-. Example 2: 48.430 MHz

Class B Limit	= 30.0 dBμV/m (Quasi-peak)
Reading	= 31.3 dBμV
Correction Factor	= Antenna Factor (14.0 dB/m) + Cable Loss (2.0 dB) - Amp. Gain (28.3 dB)
	= -12.3 dB
Total	= 19.0 dBμV/m
Margin	= 30.0 dBμV/m – 19.0 dBμV/m
	= 11.0 dB

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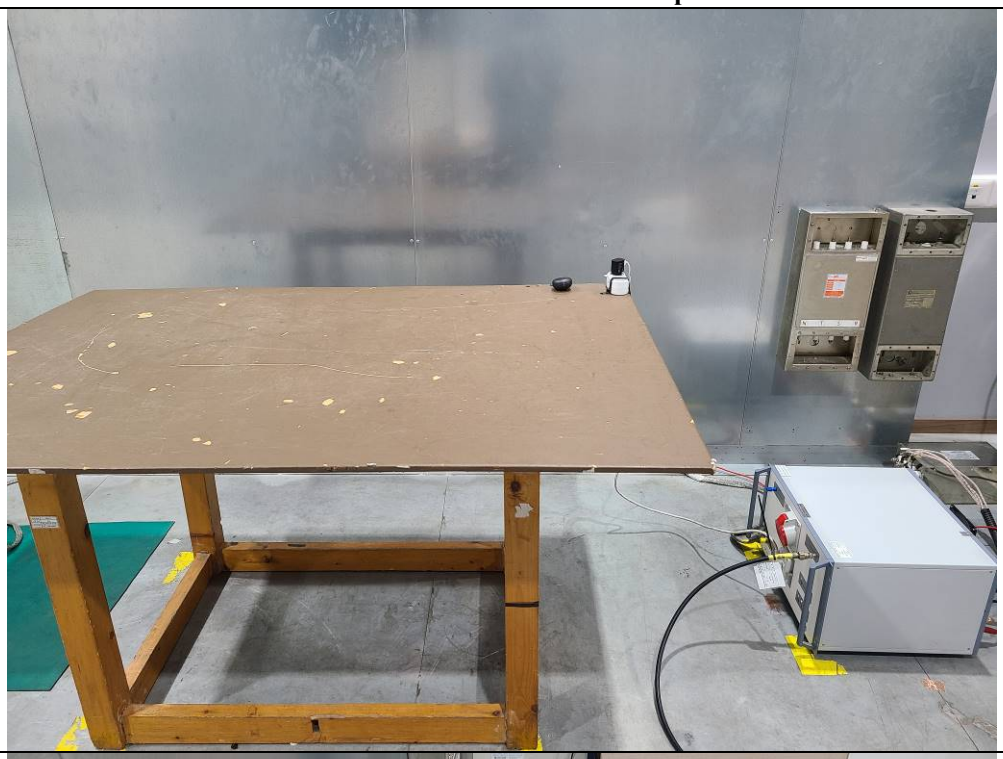
APPENDIX A

[TEST SET UP PHOTOGRAPHS]

Conducted Emission Test Set Up



Test Mode 1 (Charging)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

Radiated Emission Test Set Up (Below 1 GHz)

Test Mode 1 (Charging)

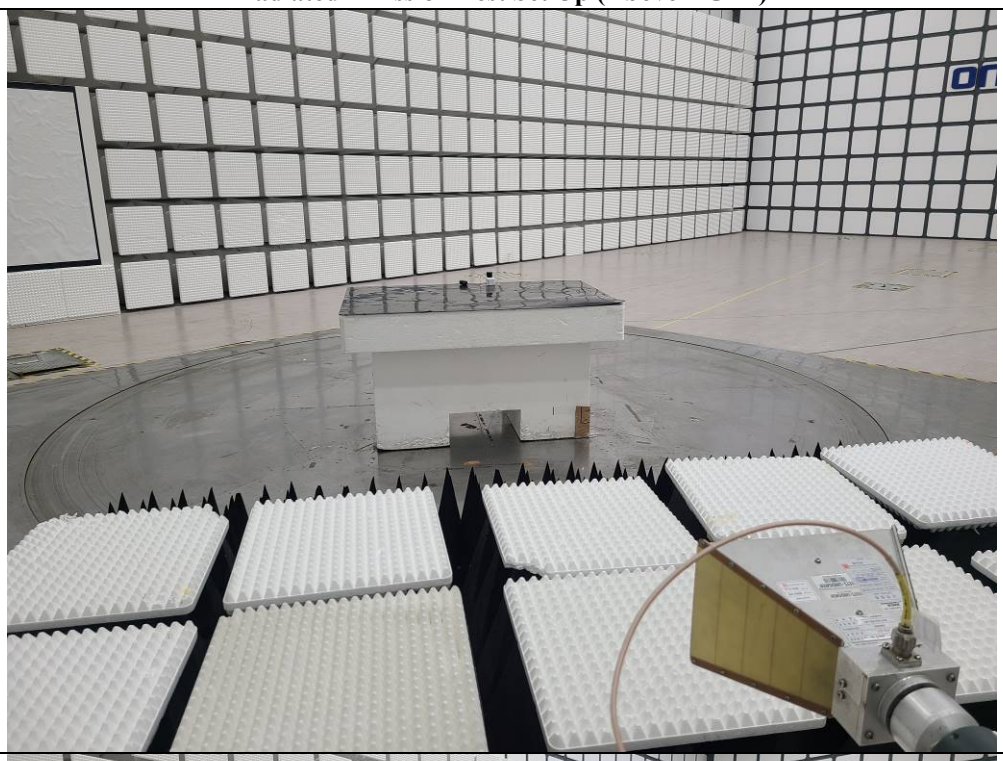
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

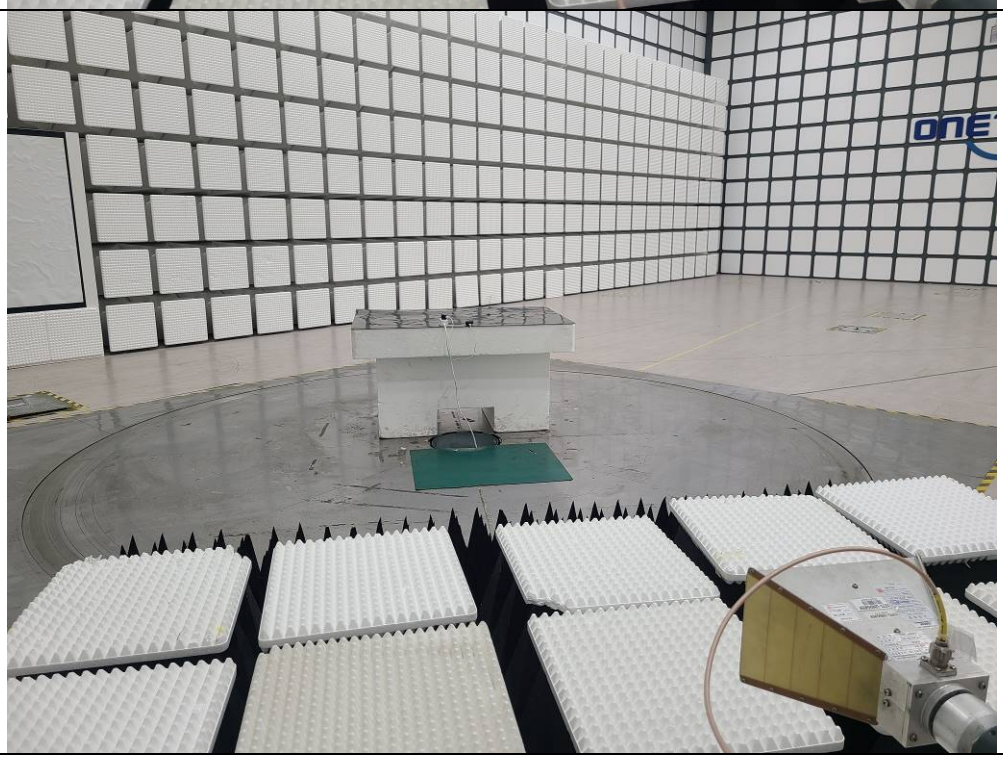
Radiated Emission Test Set Up (Below 1 GHz)

Test Mode 2 (Wireless Charging)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

Radiated Emission Test Set Up (Above 1 GHz)

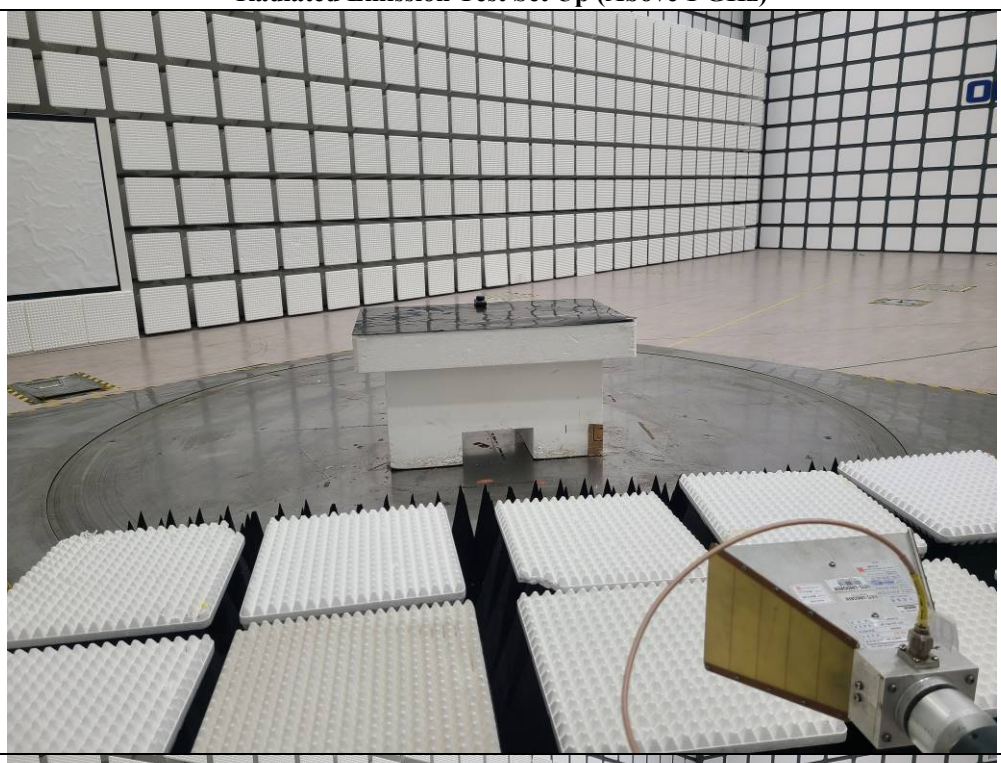


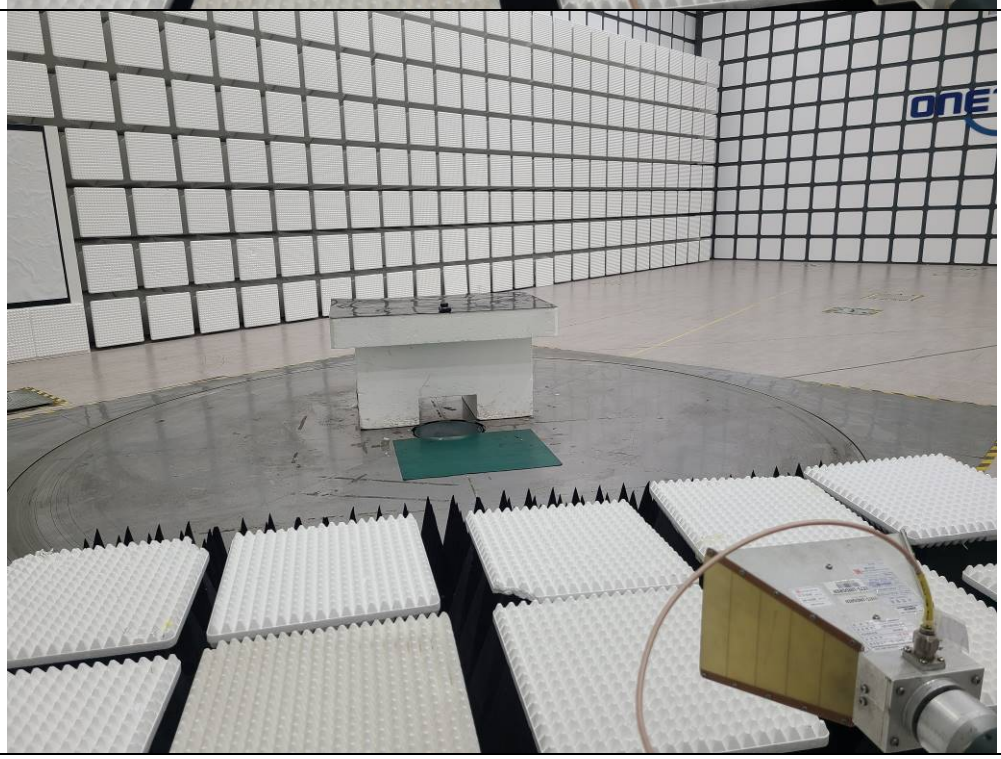


Test Mode 1 (Charging)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

Radiated Emission Test Set Up (Above 1 GHz)





Test Mode 2 (Wireless Charging)