



## Test Report

Date : 2021-02-03  
No. : HMD21010017

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**Applicant** : Wonder Workshop, Inc.  
116E 25th Ave, Suite C, San Mateo, CA94403 United States

**Supplier / Manufacturer** : Kinpo Electronics (PHILIPPINES) Inc.  
BLK 7 LOT 1 MAIN BLVD LIMA TECHNOLOGY CENTER SPZ  
LIPA CITY BATANGAS 4217

**Description of Sample(s)** : Submitted sample(s) said to be  
Product: Dash  
Brand Name: Wonder Workshoop  
Model No.: DA03  
FCC ID: 2ACRI-PLI0050

**Date Samples Received** : 2021-01-11

**Date Tested** : 2021-01-13 to 2021-01-18

**Investigation Requested** : Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.10: 2013 for FCC Certification.

**Conclusions** : The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

**Remarks** : ---



Dr. LEE Kam Chuen,  
Authorized Signatory



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### **1.0 General Details**

#### **1.1 Equipment Under Test [EUT]**

##### **Description of Sample(s)**

Product:	Dash
Manufacturer:	Kinpo Electronics (PHILIPPINES) Inc. BLK 7 LOT 1 MAIN BLVD LIMA TECHNOLOGY CENTER SPZ LIPA CITY BATANGAS 4217
Brand Name:	Wonder Workshoop
Model Number:	DA03
Rating:	5Vd.c.(power by USB port) / 3.6Vd.c (Li-ion rechargeable battery x1)

#### **1.1.1 Description of EUT Operation**

The Equipment Under Test (EUT) is a Dash. It is a transceiver operating at 2402MHz~2480MHz and the RF signal was modulated by IC.

#### **1.2 RF Module Details**

Module Model Number:	nRF51822
Module FCC ID:	N/A
Modulation:	GFSK
Frequency Range:	2402-2480MHz

#### **1.3 Antenna Details**

Antenna Type:	PCB antenna
Antenna Gain:	-0.27dBi

#### **1.4 Date of Order**

2021-01-11

#### **1.5 Submitted Sample(s):**

1 Sample

#### **1.6 Test Duration**

2021-01-13 to 2021-01-18

#### **1.7 Country of Origin**

Philippines

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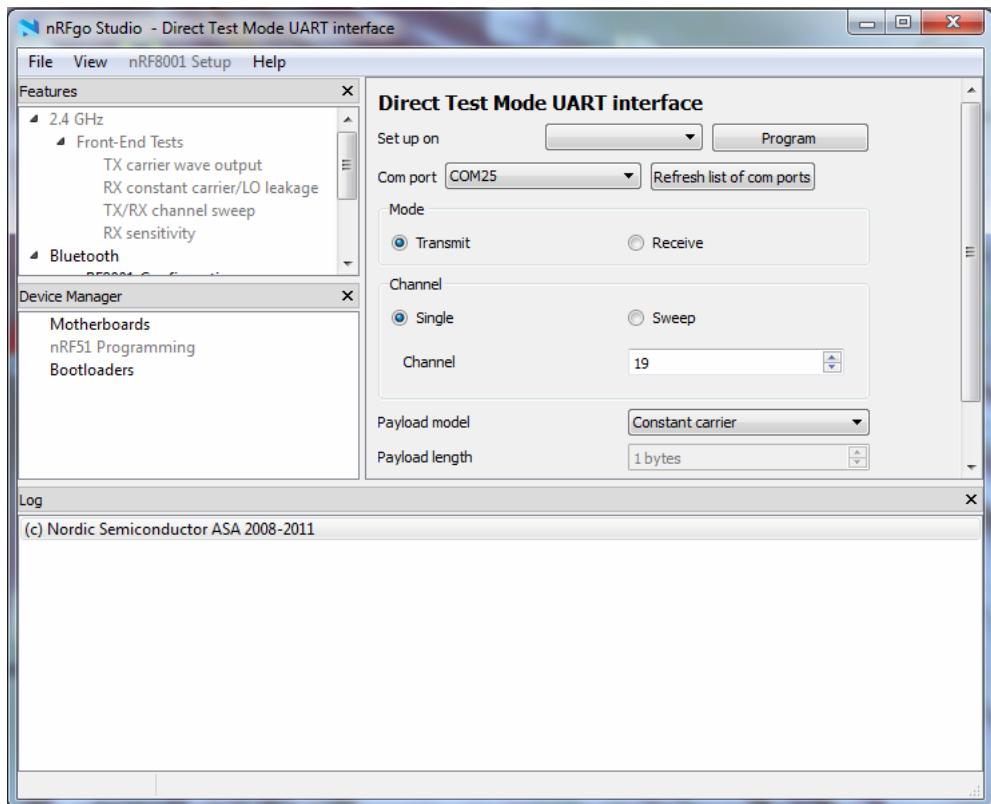
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### 2.0 Technical Details

#### 2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 Regulations and ANSI C63.10: 2013 for FCC Certification. The device was realized by test software, there is no the power level setting.



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### 2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.10: 2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions	FCC 47CFR 15.209 FCC 47CFR 15.205	ANSI C63.10: 2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC Mains Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10: 2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20dB Emission bandwith	FCC 47CFR 15.215(c)	ANSI C63.10: 2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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## 3.0 Test Results

### 3.1 Emission

### 3.1.1 Radiated Emissions

Ambient temperature 25°C

Relative humidity 57%

### Test Requirement:

FCC 47CFR 15.249 & FCC 47CFR 15.209

### Test Method:

ANSI C63.10:2013

Test Date:

2021-01-13 to 2021-01-18

### Mode of Operation:

### Tx mode

### Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber\*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber\*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

\* Semi-Anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

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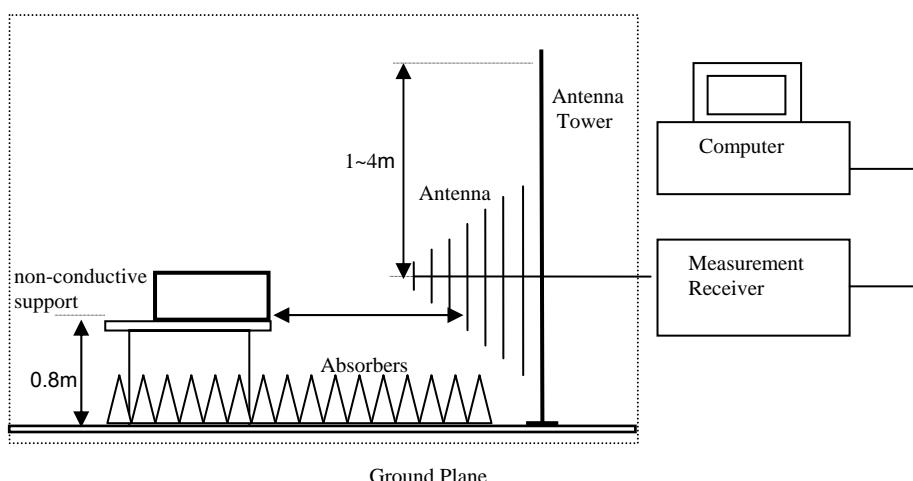
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### Spectrum Analyzer Setting:

9KHz – 30MHz (Pk & Av)	RBW: 10kHz VBW: 30kHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
30MHz – 1GHz (QP)	RBW: 120kHz VBW: 120kHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
Above 1GHz (Pk & Av) (Other than Fundamental Emissions)	RBW: 1MHz VBW: 1MHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold

### Test Setup:



- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used.



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### Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Quasi-Peak]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

#### Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Calculated measurement uncertainty (9kHz-30MHz): 2.0dB

(30MHz -1GHz): 4.9dB

(1GHz -6GHz): 4.02dB

(6GHz -26.5GHz): 4.03dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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### Results of Tx mode (Lowest Frequency Channel-2402 MHz): Pass

Field Strength of Fundamental Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2402.00	56.4	36.8	93.2	45,867.0	500,000	Vertical
2402.00	60.2	36.4	96.6	67,842.2	500,000	Horizontal

Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2402.00	39.6	36.8	76.4	6,637.4	50,000	Vertical
2402.00	46.1	36.4	82.5	13,273.9	50,000	Horizontal

Field Strength of Harmonics Emission						
Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
4804.0	14.7	41.5	56.2	646.4	5,000	Vertical
4804.0	13.5	42.4	55.9	621.6	5,000	Horizontal
7206.0	10.4	45.1	55.5	597.0	5,000	Vertical
7206.0	9.4	46.2	55.6	604.6	5,000	Horizontal
9612.0	7.7	48.0	55.7	612.4	5,000	Vertical
9612.0	6.6	48.8	55.4	588.2	5,000	Horizontal
12010.0	3.38	51.8	55.2	574.1	5,000	Vertical
12010.0	3.7	52.4	56.1	634.6	5,000	Horizontal

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Field Strength of Harmonics Emission						
Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
4804.0	-0.4	41.5	41.1	113.8	500	Vertical
4804.0	-3.0	42.4	39.4	92.9	500	Horizontal
7206.0	-4.0	45.1	41.1	113.1	500	Vertical
7206.0	-6.4	46.2	39.8	97.9	500	Horizontal
9612.0	-8.6	48.0	39.4	93.6	500	Vertical
9612.0	-9.3	48.8	39.5	94.6	500	Horizontal
12010.0	-12.7	51.8	39.1	89.7	500	Vertical
12010.0	-12.2	52.4	40.2	102.4	500	Horizontal

Results of Tx mode (Middle Frequency Channel- 2440MHz): Pass

Field Strength of Fundamental Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2440.00	45.0	36.8	81.8	12,302.7	500,000	Vertical
2440.00	58.3	36.4	94.7	54,325.0	500,000	Horizontal

Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2440.00	35.5	36.8	72.3	4,121.0	50,000	Vertical
2440.00	43.0	36.4	79.4	9,332.5	50,000	Horizontal

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Field Strength of Harmonics Emission Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
4880.0	14.5	41.6	56.1	636.8	5,000	Vertical
4880.0	13.2	42.5	55.7	612.4	5,000	Horizontal
7320.0	2.1	53.2	55.3	578.8	5,000	Vertical
7320.0	9.1	46.3	55.4	588.2	5,000	Horizontal
9760.0	7.5	48.1	55.6	603.3	5,000	Vertical
9760.0	6.5	48.9	55.4	586.1	5,000	Horizontal
12200.0	4.1	51.6	55.7	612.4	5,000	Vertical
12200.0	3.7	52.5	56.2	644.2	5,000	Horizontal

Field Strength of Harmonics Emission Avarage Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
4880.0	-0.5	41.6	41.1	113.0	500	Vertical
4880.0	-3.1	42.5	39.4	93.0	500	Horizontal
7320.0	-6.1	45.2	39.1	90.4	500	Vertical
7320.0	-6.9	46.3	39.4	93.8	500	Horizontal
9760.0	-8.7	48.1	39.4	93.5	500	Vertical
9760.0	-8.6	48.9	40.3	103.3	500	Horizontal
12200.0	-11.5	51.6	40.1	101.3	500	Vertical
12200.0	-12.1	52.5	40.4	104.4	500	Horizontal

Results of Tx mode (Highest Frequency Channel – 2480MHz): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2480.00	53.3	36.8	90.1	32,099.6	500,000	Vertical
2480.00	60.1	36.4	96.5	66,911.4	500,000	Horizontal

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Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2480.00	40.8	36.8	77.6	7,585.8	50,000	Vertical
2480.00	42.3	36.4	78.7	8,609.9	50,000	Horizontal

Field Strength of Harmonics Emission						
Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
4960.0	15.3	41.4	56.7	687.1	5,000	Vertical
4960.0	13.0	42.7	55.7	608.8	5,000	Horizontal
7440.0	9.7	45.6	55.3	580.8	5,000	Vertical
7440.0	8.6	46.5	55.1	568.2	5,000	Horizontal
9920.0	6.6	48.6	55.2	576.8	5,000	Vertical
9920.0	5.6	49.7	55.3	582.8	5,000	Horizontal
12400.0	4.4	51.7	56.1	639.7	5,000	Vertical
12400.0	3.4	52.7	56.1	636.8	5,000	Horizontal

Field Strength of Harmonics Emission						
Avarage Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
4960.0	0.1	41.4	41.5	119.0	500	Vertical
4960.0	-2.3	42.7	40.4	104.4	500	Horizontal
7440.0	-5.5	45.6	40.1	101.4	500	Vertical
7440.0	-7.4	46.5	39.1	90.5	500	Horizontal
9920.0	-8.5	48.6	40.1	100.7	500	Vertical
9920.0	-8.6	49.7	41.1	113.6	500	Horizontal
12400.0	-10.3	51.7	41.4	117.2	500	Vertical
12400.0	-11.5	52.7	41.2	114.7	500	Horizontal

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### Radiated Emissions Measurement:

#### Limit :

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

### Result: RF Radiated Emissions (1GHz-26GHz) (Lowest)

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V	Correction Factor dB/m	Field Strength dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB $\mu$ V/m	E-Field Polarity
2400.0	30.3	36.8	67.1	74.0	6.9	Vertical
2400.0	34.0	36.4	70.4	74.0	3.6	Horizontal
2381.8	19.3	36.8	56.1	74.0	17.9	Vertical
2381.8	14.8	36.4	51.2	74.0	22.8	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V	Correction Factor dB/m	Field Strength dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB $\mu$ V/m	E-Field Polarity
2400.0	8.1	36.8	44.9	54.0	9.1	Vertical
2400.0	13.2	36.4	49.6	54.0	4.5	Horizontal
2381.8	6.8	36.8	43.6	54.0	10.4	Vertical
2381.8	4.6	36.4	41.0	54.0	13.0	Horizontal

### Result: RF Radiated Emissions (1GHz-26GHz) (Highest)

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V	Correction Factor dB/m	Field Strength dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB $\mu$ V/m	E-Field Polarity
2483.5	15.4	36.8	52.2	74.0	21.8	Vertical
2483.5	21.6	36.4	58.0	74.0	16.0	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V	Correction Factor dB/m	Field Strength dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Margin dB $\mu$ V/m	E-Field Polarity
2483.5	6.7	36.8	43.5	54.0	10.5	Vertical
2483.5	11.1	36.4	47.5	54.0	6.5	Horizontal

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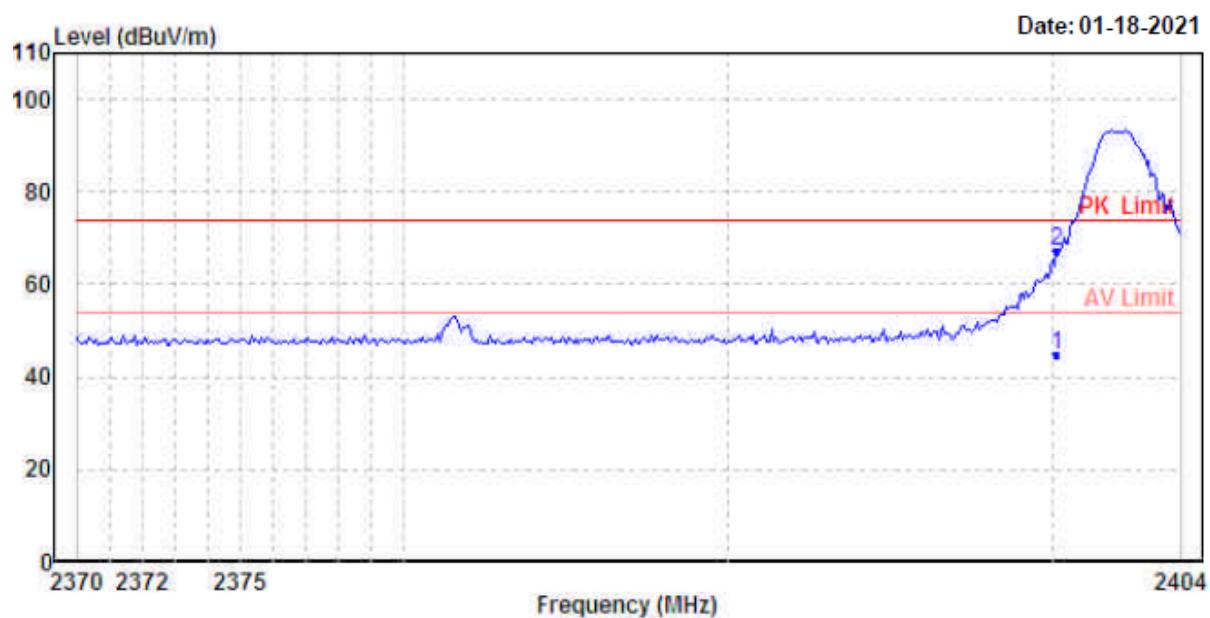
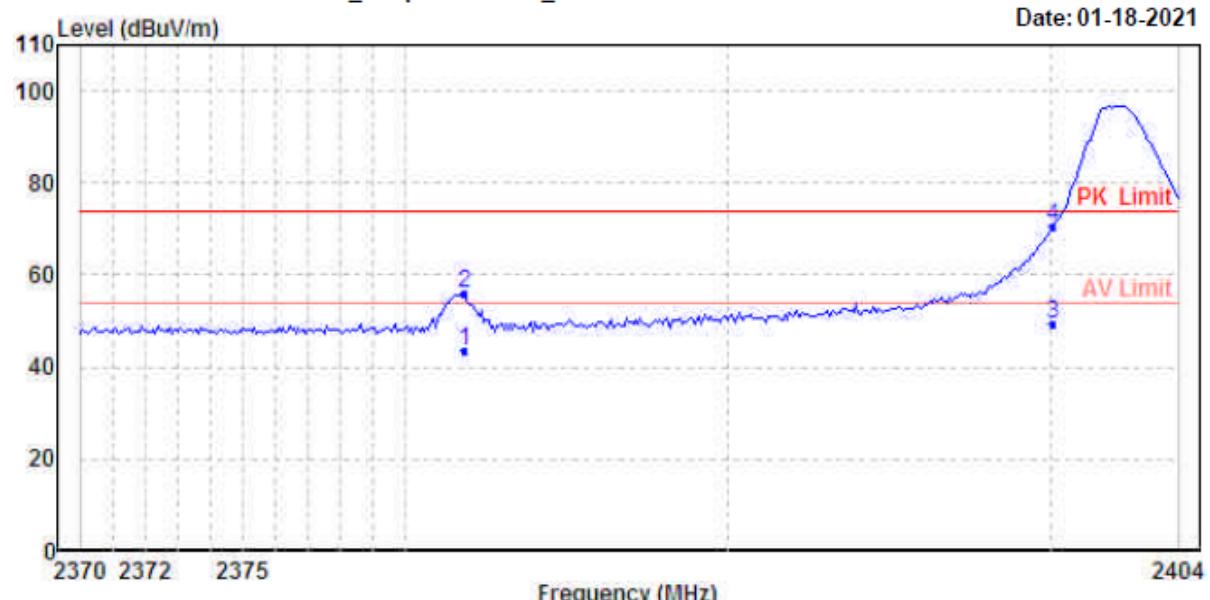
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### Emissions radiated outside of the specified frequency bands (Lowest)



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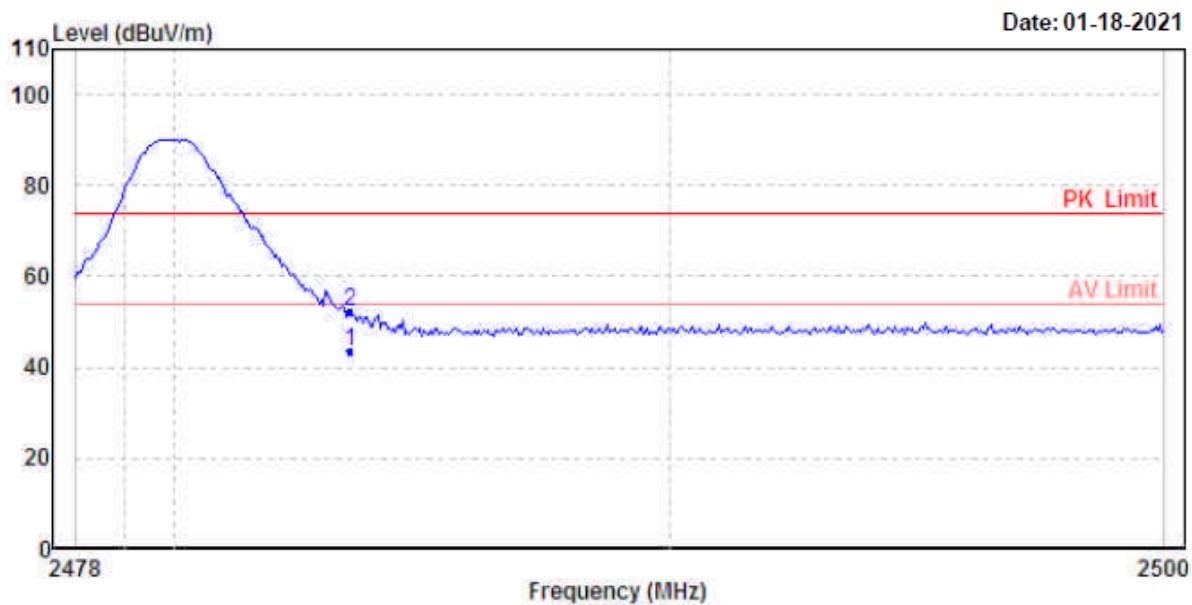
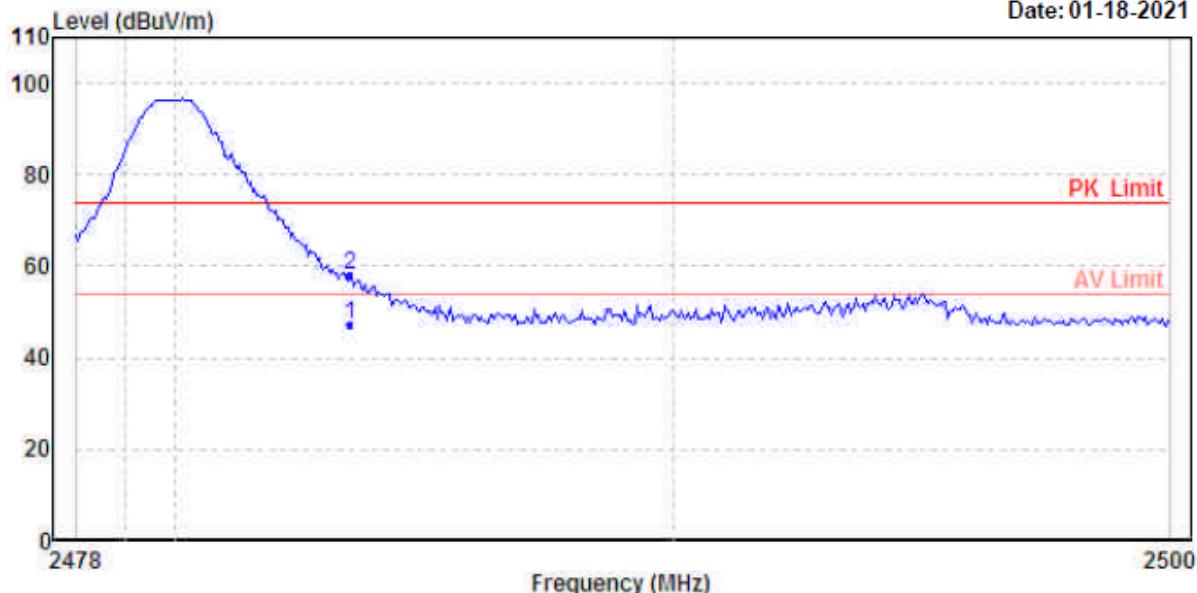
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### Emissions radiated outside of the specified frequency bands (Highest)



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### Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [ $\mu$ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

#### Remarks:

Calculated measurement uncertainty (9kHz-30MHz): 2.0dB / (30MHz – 1GHz): 4.9dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

### Results of TX mode (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

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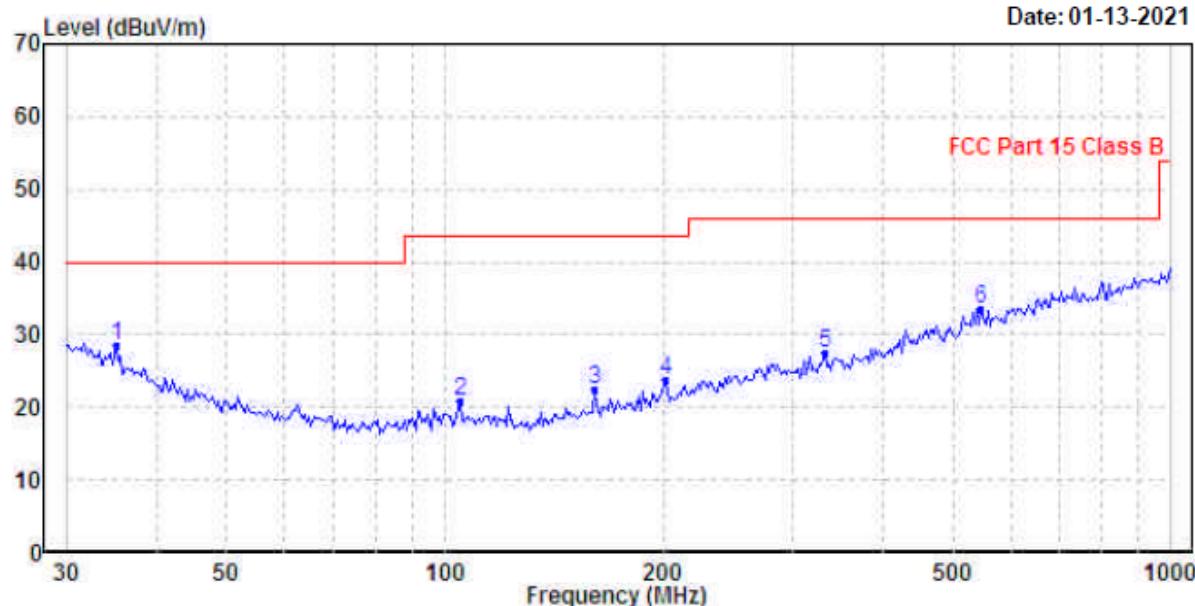


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Results of TX mode (30MHz – 1GHz)(2402MHz worst case): PASS  
Horizontal



Ambient Temperature: 25°C

Relative Humidity : 50%

Freq	Level	Limit	Over	Remark	Pol/Phase	
		Line	Limit			
1	35.251	28.48	40.00	-11.52	Peak	Horizontal
2	104.536	20.96	43.50	-22.54	Peak	Horizontal
3	160.346	22.44	43.50	-21.06	Peak	Horizontal
4	200.688	23.83	43.50	-19.67	Peak	Horizontal
5	332.519	27.47	46.00	-18.53	Peak	Horizontal
6	547.098	33.60	46.00	-12.40	Peak	Horizontal

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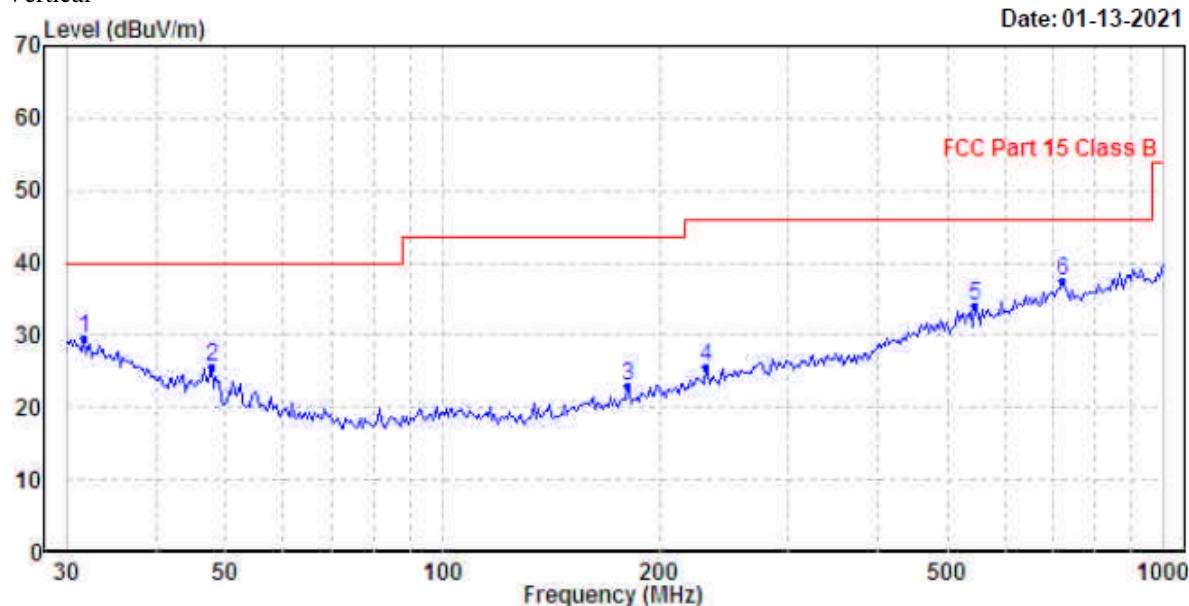


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Results of TX mode (30MHz – 1GHz) (2402MHz worst case): PASS  
Vertical



Ambient Temperature: 25°C  
Relative Humidity : 50%

Freq	Level	Limit	Over	Remark	Pol/Phase	
		Line	Limit			
1	31.731	29.63	40.00	-10.37	Peak	Vertical
2	47.659	25.65	40.00	-14.35	Peak	Vertical
3	180.649	23.07	43.50	-20.43	Peak	Vertical
4	230.907	25.70	46.00	-20.30	Peak	Vertical
5	547.098	34.20	46.00	-11.80	Peak	Vertical
6	724.261	37.43	46.00	-8.57	Peak	Vertical



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### 3.1.2 AC Mains Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: FCC 47CFR 15.207  
Test Method: ANSI C63.10:2013  
Test Date: 2021-01-14  
Mode of Operation: TX mode  
Test Voltage: 120V<sub>a.c.</sub> 60Hz

Ambient Temperature: 25°C      Relative Humidity: 51%      Atmospheric Pressure: 101 kPa

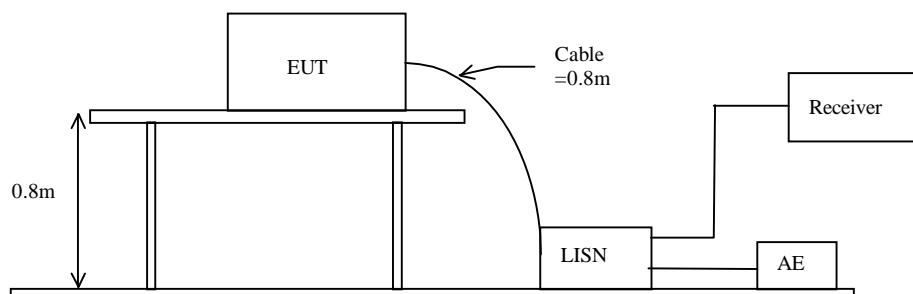
#### Test Method:

The test was performed in accordance with ANSI C63.10:2013, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

#### Receiver Setting:

Bandw. = 9 kHz, Meas. Time= 10.0 ms, Step Width = 5.0kHz  
Detector = MaxPeak and CISPR AV

#### Test Setup:



#### Limits for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dB $\mu$ V]	Average [dB $\mu$ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

\* Decreases with the logarithm of the frequency.

Remarks:

Calculated measurement uncertainty (0.15MHz – 30MHz): 3.25dB

\_\*- Emission(s) that is far below the corresponding limit line.

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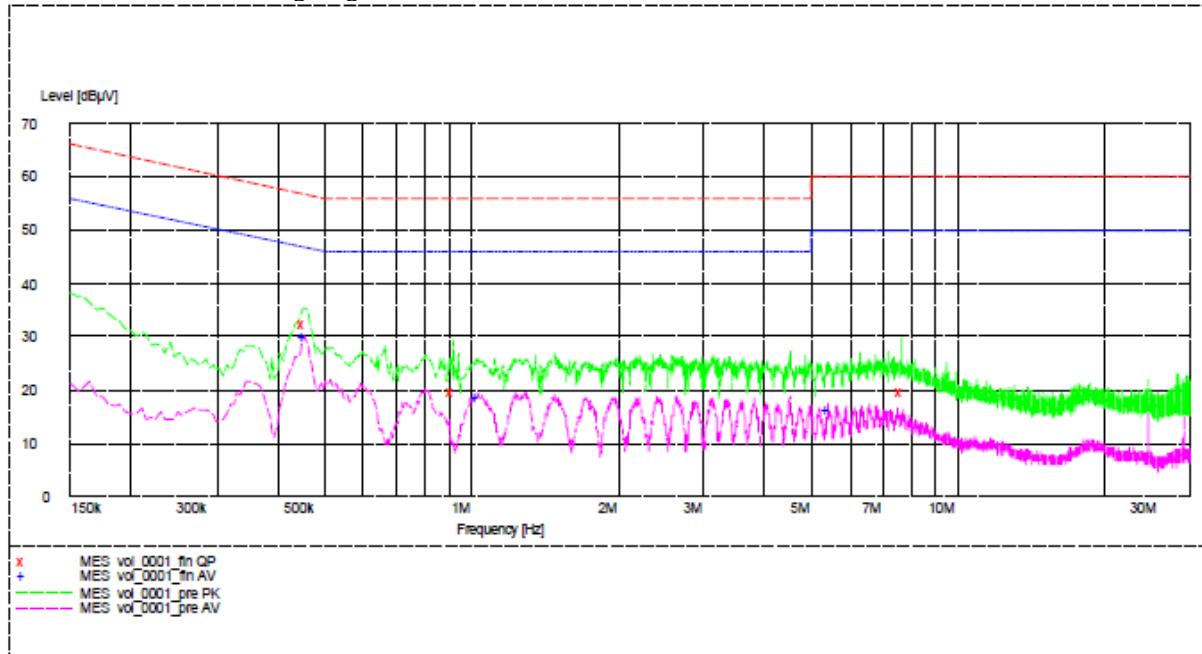
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### Results of TX mode (L): PASS

Please refer to the following diagram for individual results.



**MEASUREMENT RESULT: "vol\_0001\_fin AV"**

1/14/2021 5:21PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Line	PE
0.455000	29.90	9.6	47	16.9	L1	GND
1.035000	18.60	9.6	46	27.4	L1	GND
5.420000	16.30	9.7	50	33.7	L1	GND

**MEASUREMENT RESULT: "vol\_0001\_fin QP"**

1/14/2021 5:21PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Line	PE
0.455000	32.40	9.6	57	24.4	L1	GND
0.920000	19.80	9.6	56	36.2	L1	GND
7.665000	19.90	9.8	60	40.1	L1	GND

## Test Report

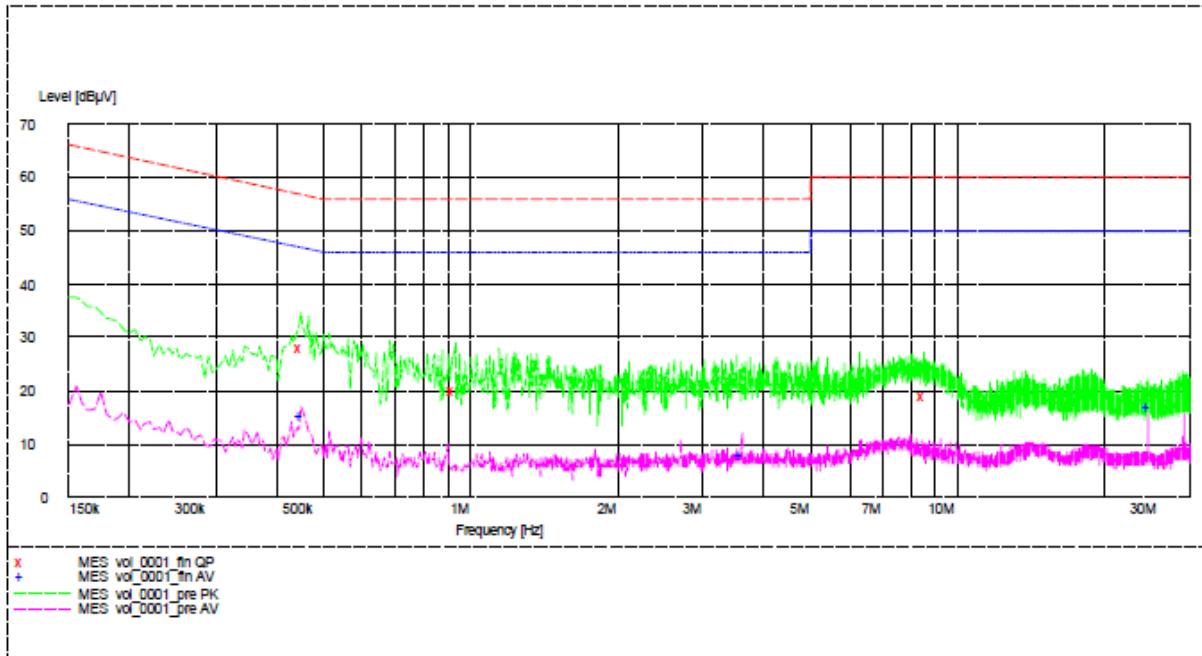
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### Results of TX mode (N): PASS

Please refer to the following diagram for individual results.



#### MEASUREMENT RESULT: "vol\_0001\_fin AV"

1/14/2021 / 5:24PM

Frequency MHz	Level dB <sub>pV</sub>	Transd dB	Limit dB <sub>pV</sub>	Margin dB	Line	PE
0.450000	15.40	9.6	47	31.5	N	GND
3.605000	8.20	9.7	46	37.8	N	GND
24.575000	16.90	10.1	50	33.1	N	GND

#### MEASUREMENT RESULT: "vol\_0001\_fin QP"

1/14/2021 / 5:24PM

Frequency MHz	Level dB <sub>pV</sub>	Transd dB	Limit dB <sub>pV</sub>	Margin dB	Line	PE
0.450000	27.80	9.6	57	29.1	N	GND
0.930000	20.10	9.6	56	35.9	N	GND
8.545000	19.00	9.8	60	41.0	N	GND

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### 3.1.3 Antenna Requirement

Ambient temperature 25°C

Relative humidity 57%

## Test Requirements: § 15.203

## Test Specification:

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.

## Test Results:

This is PCB antenna. There is no external antenna, the antenna gain =-0.27dBi. User is unable to remove or changed the Antenna.



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### 3.1.4 20dB Bandwidth of Fundamental Emission

Ambient temperature 25°C

Relative humidity 57%

Test Requirement: FCC 47 CFR 15.249  
Test Method: ANSI C63.10:2013  
Test Date: 2021-01-13  
Mode of Operation: Tx mode

### Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

The measurement bandwidth settings are

## Test Setup:

As Test Setup of clause 3.1.1 in this test report.



## Test Report

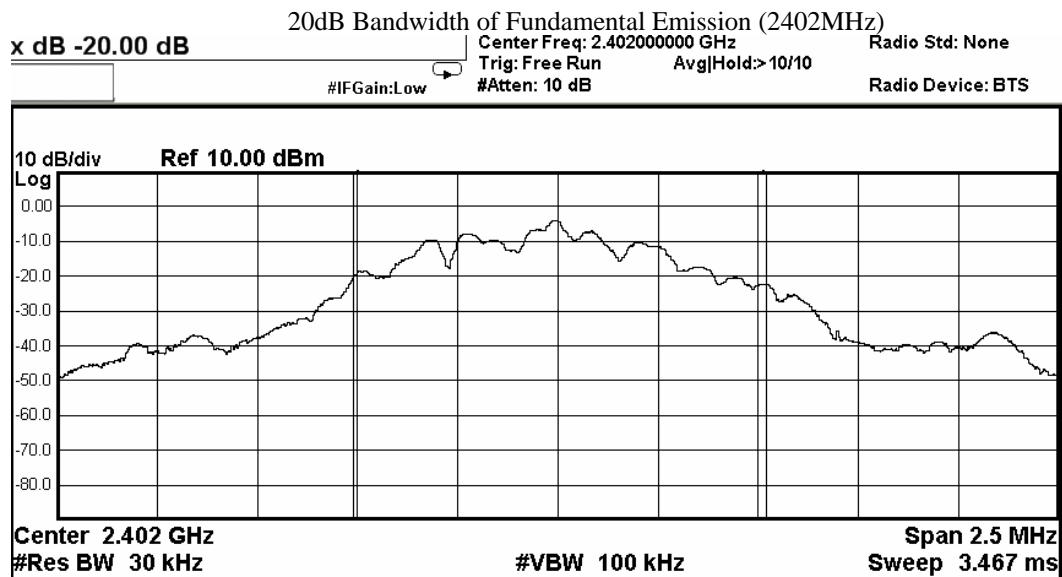
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Limits for 20dB Bandwidth of Fundamental Emission (Low Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2402.0	1.0256



Occupied Bandwidth Total Power 4.05 dBm

1.0256 MHz

Transmit Freq Error 6.104 kHz OBW Power 99.00 %

x dB Bandwidth 1.065 MHz x dB -20.00 dB

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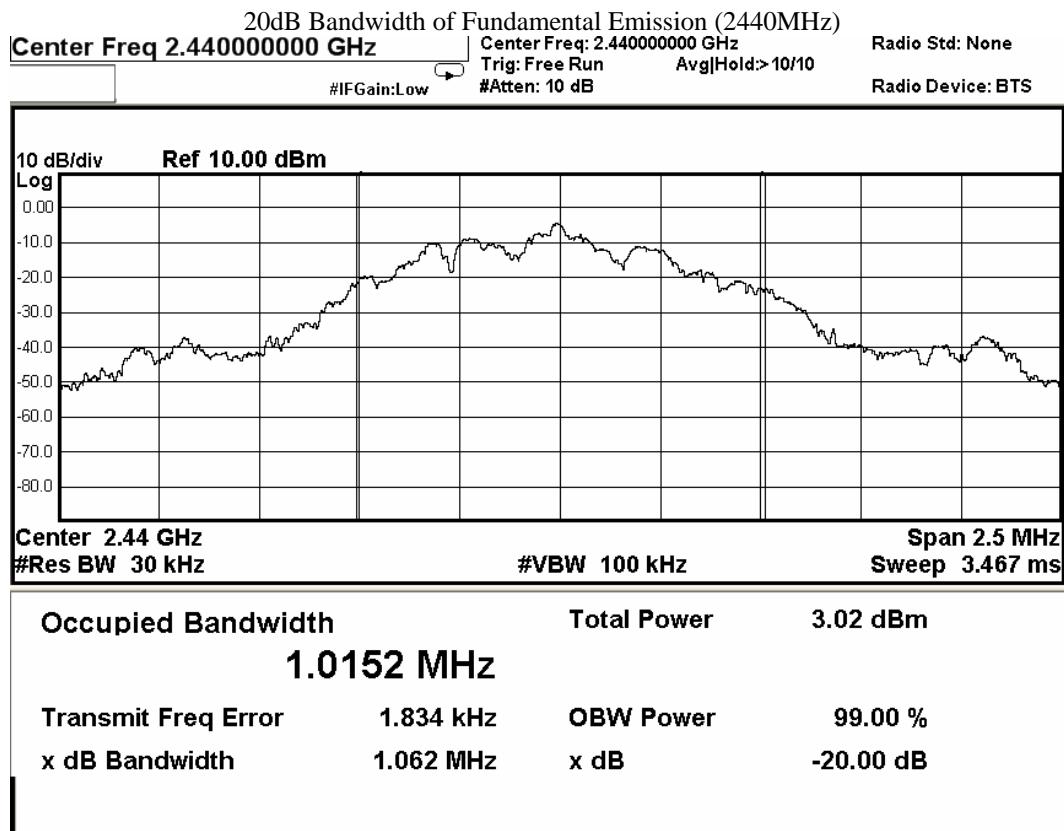
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Limits for 20dB Bandwidth of Fundamental Emission (Middle Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2440.0	1.0152



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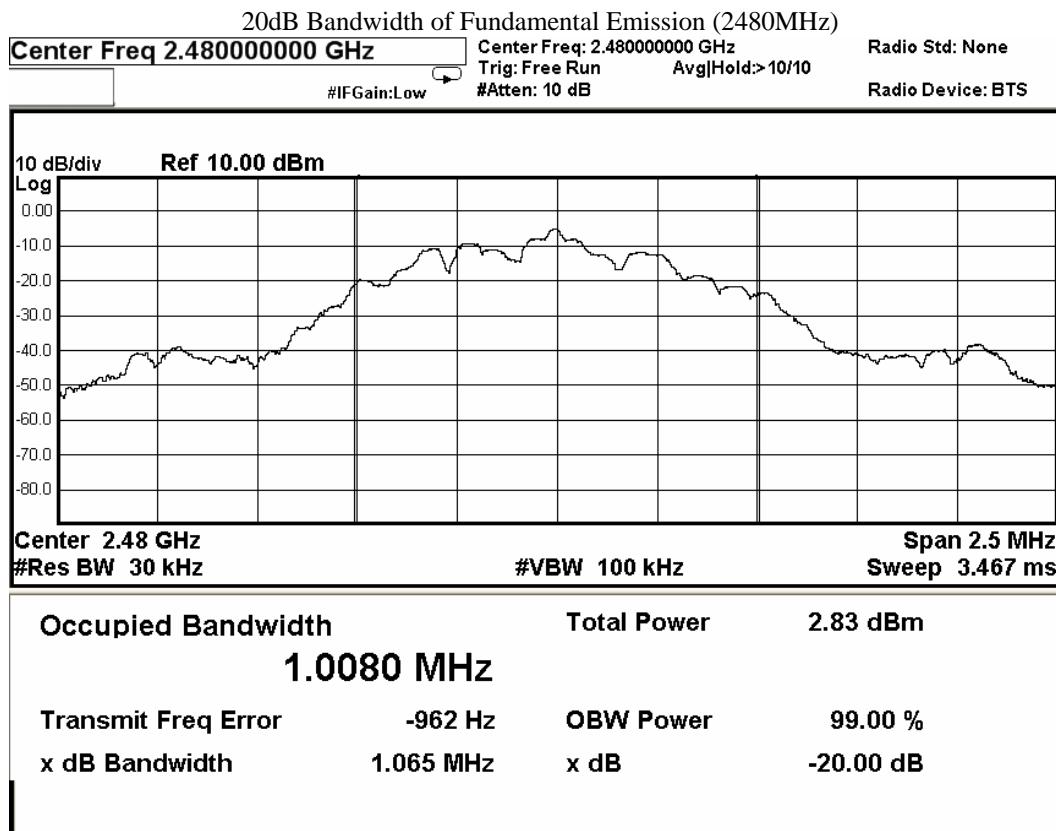
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Limits for 20dB Bandwidth of Fundamental Emission (High Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2480.0	1.008



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### Appendix A

#### List of Measurement Equipment

##### Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2020/04/20	2021/04/20
EM356	ANTENNA POSITIONING TOWER	ETS-LINDGREN	2171B	00150346	N/A	N/A
EM336	PRECISION CONICAL DIPOLE	SEIBERSDORF LABORATORIES	PCD 3100	6236/M	2020/05/30	2022/05/30
EM229	EMI TEST RECEIVER	R&S	ESIB40	100248	2020/05/13	2021/05/13
EM276	BROADBAND HORN ANTENNA	A-INFOMW	JXTXLB-10180-SF	J203109090300	2019/03/20	2021/03/29
EM300	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-09	00130130	2020/04/28	2022/04/28
EM301	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-10	00130988	2020/04/28	2022/04/28
EM022	LOOP ANTENNA	ETS-LINDGREN	6502	00206533	2019/11/30	2021/11/30
EM200	DUAL CHANNEL POWER METER	R & S	NRVD	100592	2019/10/11	2021/10/11
EM012	PRE-AMPLIFIER	HP	HP8448B	3008A00262	2019/11/08	2021/11/08

##### Conducted Emissions

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	DUE CAL
EMD002	EMI Test Receiver	ROHDE & SCHWARZ	ESHS 10	8468601002	2021.04.20
EMD004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ESH3-Z5	100102	2021.04.20
EMD022	EMI Test Receiver	ROHDE & SCHWARZ	ESCS 30	100314	2021.11.26
EMD036	EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	100388	2021.04.20
EMD041	TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	100261	2021.04.20
EMD056	4-WIRE ISN	ROHDE & SCHWARZ	ENY41	100205	2022.12.30
EMD103	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707455	N/A
EMD106	Shielding Room #1	ETS.LINDGREN	RFD-100	3802	2022.11.06
EMD-S03	CE Test software	ROHDE & SCHWARZ	ESIB-K1	V1.20	N/A

#### Remarks:-

N/A Not Applicable or Not Available

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### **Appendix B**

#### **List of Ancillary Equipment**

ITEM NO.	DESCRIPTION	MODEL NO.	REMARK
1	Adapter	HW-059200CHQ	Provided by the laboratory
2	USB Cable	N/A	Provided by the applicant

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### Appendix C

#### Photographs of EUT

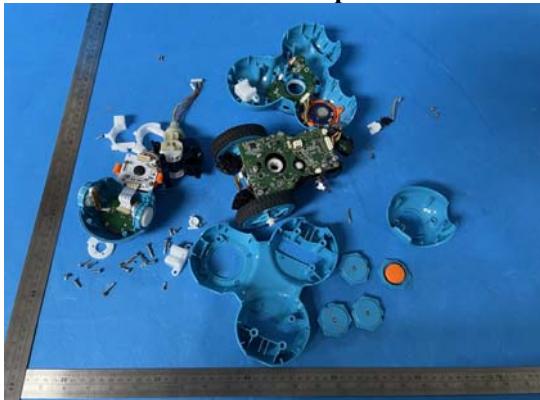
View of the product



View of the product



Inside View of the product



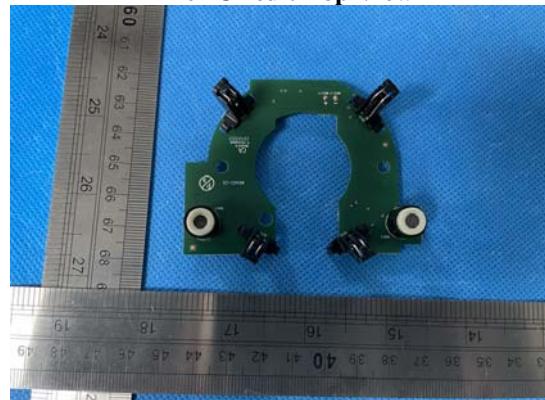
Inner Circuit Top View



Inner Circuit Bottom View



Inner Circuit Top View



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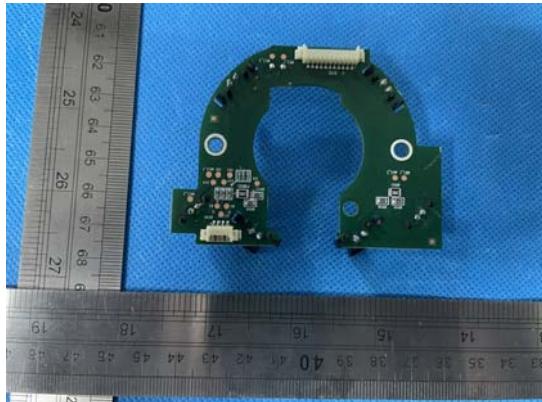
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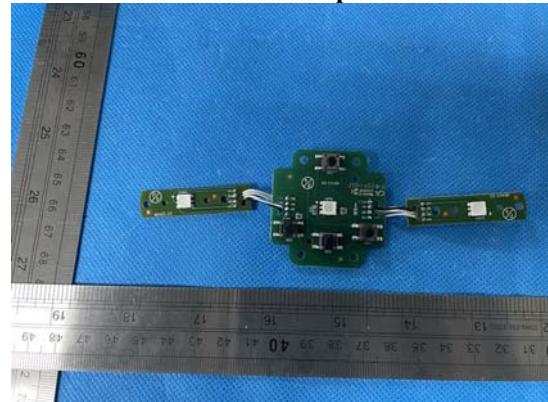
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### Photographs of EUT

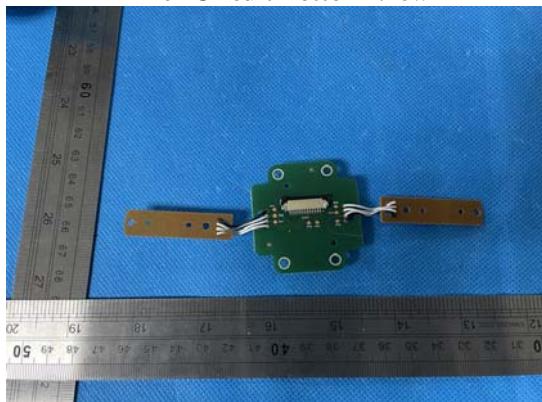
Inner Circuit Bottom View



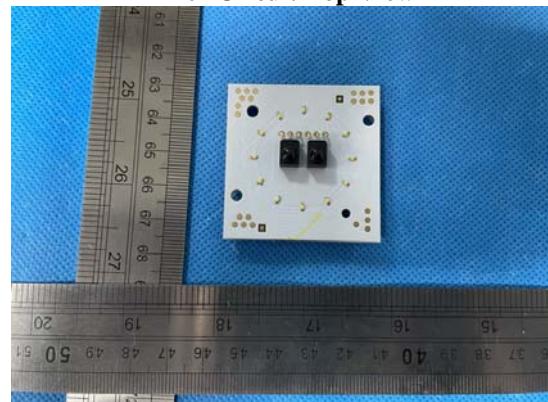
Inner Circuit Top View



Inner Circuit Bottom View



Inner Circuit Top View



Inner Circuit Bottom View



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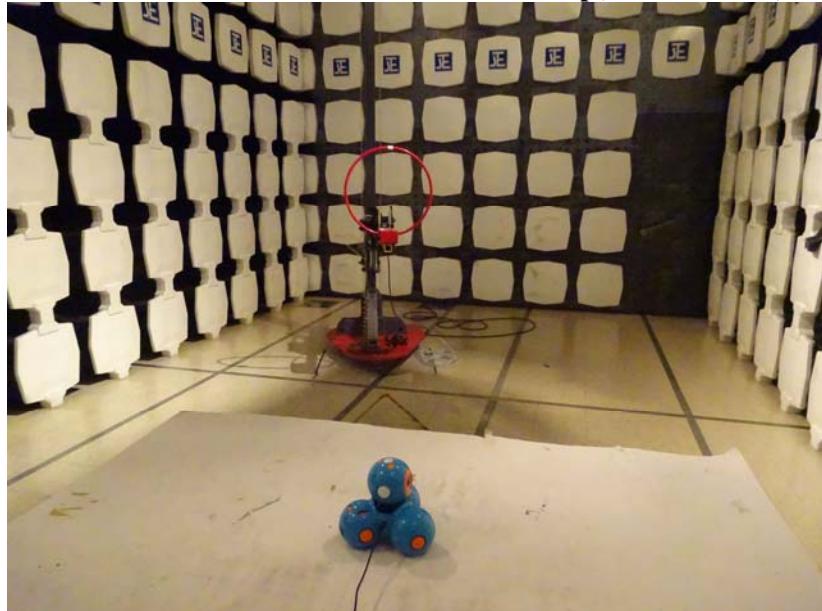
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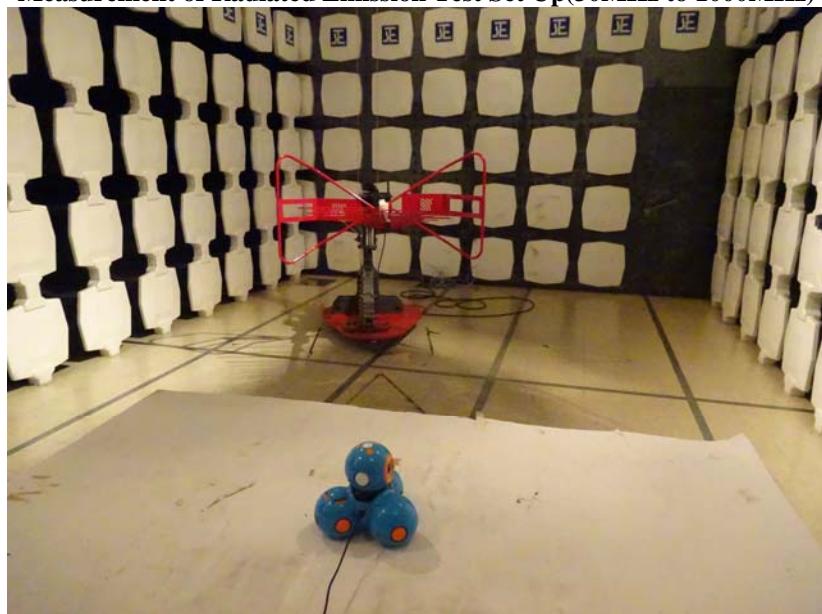
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### Photographs of EUT

**Measurement of Radiated Emission Test Set Up(9kHz – 30MHz)**



**Measurement of Radiated Emission Test Set Up(30MHz to 1000MHz)**



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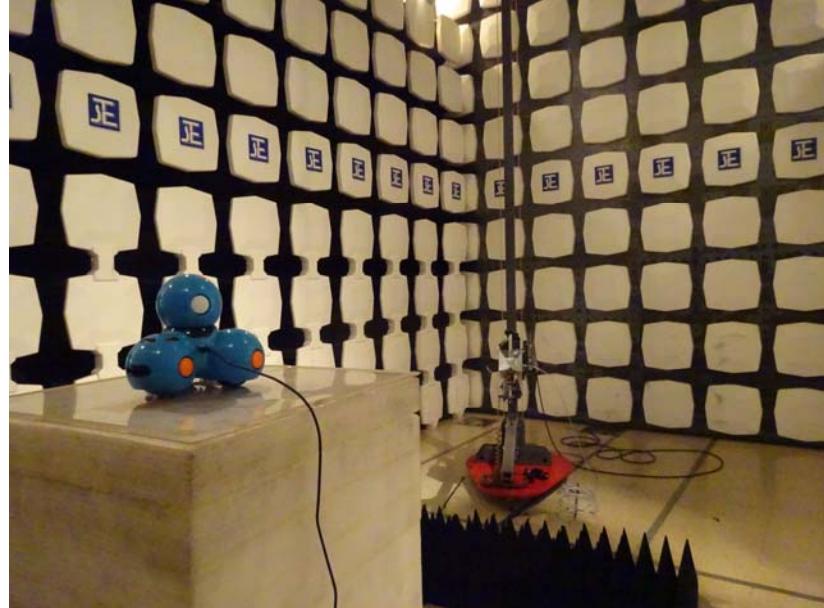
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### Photographs of EUT

Measurement of Radiated Emission Test Set Up(Above 1000MHz)



Measurement of Conducted Emission Test Set Up



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