



Report No.: TW2302004E

Applicant: LEADER PREMIUMS LIMITED

Product: Bamboo wireless charger

Model No.: AB0402

Trademark: N/A

Test Standards: FCC Part 15 Subpart C

Test Result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart C, for the evaluation of electromagnetic compatibility

Approved By

A handwritten signature in black ink that reads 'Terry Tang'.

Terry Tang

Manager

Dated: February 06, 2023

**Results appearing herein relate only to the sample tested**

**The technical reports is issued errors and omissions exempt and is subject to withdrawal at**

**SHENZHEN TIMEWAY TESTING LABORATORIES**

**Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West,  
Tong Le Village, Nanshan District, Shenzhen, China**

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



### **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

#### **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 744189**

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

#### **Industry Canada (IC) —Registration No.:5205A**

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

#### **A2LA (Certification Number:5013.01)**

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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Test Report Conclusion

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## 1.0 General Details

### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.  
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China  
Telephone: +86 755 83448688  
Fax: +86 755 83442996  
Site on File with the Federal Communications Commission – United States  
Registration Number: 744189  
For 3m Anechoic Chamber

### 1.2 Applicant Details

Applicant: LEADER PREMIUMS LIMITED  
Address: ROOM 901, HENGFU MANSION, NO.858, FUMINGROAD, NINGBO, CHINA  
Telephone: --  
Fax: --

### 1.3 Description of EUT

Product: Bamboo wireless charger  
Manufacturer: LEADER PREMIUMS LIMITED  
Address: ROOM 901, HENGFU MANSION, NO.858, FUMINGROAD, NINGBO, CHINA  
Trademark: N/A  
Model Number: AB0402  
Additional Model Name: N/A  
Additional Trade Name: N/A  
Rating: Input: DC5V, 2A or 9V, 2A; Wireless Output: DC5V, 1A or DC9V, 1.1A  
Note: DC5V, 1A for charging watch, defined as Coil 1; DC9V, 1.1A for charging phone, defined as Coil 2  
Hardware Version: wirelesscharging- AB0402  
Software Version: leader.2023.03  
Serial No.: AB0402  
Operation Frequency: See below table

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	0.1115	06	0.140	11	0.165	16	0.190

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02	0.120	07	0.145	12	0.170	17	0.195
03	0.125	08	0.150	13	0.175	18	0.200
04	0.130	09	0.155	14	0.180	19	0.205
05	0.135	10	0.160	15	0.185		
Test channel		Frequency (MHz)					
CH13		0.175 MHz					

Modulation Type: MSK  
Antenna Designation Two inductive Loop Antennas with gain 0dBi Max (Declared by the applicant)

1.4 Submitted Sample  
1 Samples

1.5 Test Duration  
2023-02-01 to 2023-02-06

1.6 Test Uncertainty  
Conducted Emissions Uncertainty =3.6dB  
Radiated Emissions below 9kHz-30MHz Uncertainty =4.3dB  
Radiated Emissions below 30MHz-1GHz Uncertainty =4.7dB  
Radiated Emissions above 1GHz Uncertainty =6.0dB  
Conducted Power Uncertainty =6.0dB  
Occupied Channel Bandwidth Uncertainty =5%

1.7 Test Engineer  
The sample tested by Andy Xing

Print Name: Andy Xing



2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2022-06-17	2023-06-16
LISN	R&S	EZH3-Z5	100294	2022-06-17	2023-06-16
LISN	R&S	EZH3-Z5	100253	2022-06-17	2023-06-16
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-06-17	2023-06-16
Loop Antenna	EMCO	6507	00078608	2021-06-18	2024-06-17
Spectrum	R&S	FSIQ26	100292	2022-06-17	2023-06-16
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-06-17	2023-06-16
Horn Antenna	R&S	BBHA 9120D	9120D-631	2021-07-02	2024-07-01
Power meter	Anritsu	ML2487A	6K00003613	2022-06-17	2023-06-16
Power sensor	Anritsu	MA2491A	32263	2022-06-17	2023-06-16
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2021-07-02	2024-07-01
9*6*6 Anechoic	--	--	N/A	2022-07-01	2023-06-30
EMI Test Receiver	RS	ESVB	826156/011	2022-06-17	2023-06-16
EMI Test Receiver	RS	ESH3	860904/006	2022-06-17	2023-06-16
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2022-06-17	2023-06-16
Spectrum	HP/Agilent	E4407B	MY50441392	2022-06-17	2023-06-16
Spectrum	RS	FSP	1164.4391.38	2023-01-04	2024-01-03
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA	--	2022-06-17	2023-06-16
RF Cable	Zhengdi	7m	--	2022-06-17	2023-06-16
RF Switch	EM	EMSW18	060391	2022-06-17	2023-06-16
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-06-17	2023-06-16
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-06-17	2023-06-16
LISN	SCHAFFNER	NNB42	00012	2023-01-04	2024-01-03

## 2.2 Automation Test Software

### For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

### For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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### 3.0 Technical Details

#### 3.1 Summary of test results

The EUT has been tested according to the following specifications:				
Standard	Test Type	Result	Notes	
FCC Part 15, Paragraph 15.203	Antenna requirements	Pass	Compliant	
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Compliant	
FCC Part 15, Paragraph 15.209 (a) (f)	General Requirement	Pass	Compliant	
FCC Part 15, Paragraph 15.215	20dB Bandwidth Testing	Pass	Compliant	

#### 3.2 Test Standards

**FCC Part 15 Subpart C , ANSI C63.4 :2014 and ANSI C63.10 :2013**

#### 4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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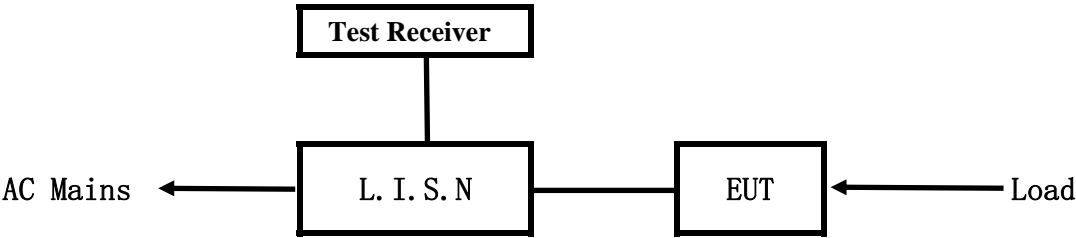
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5. Power Line Conducted Emission Test

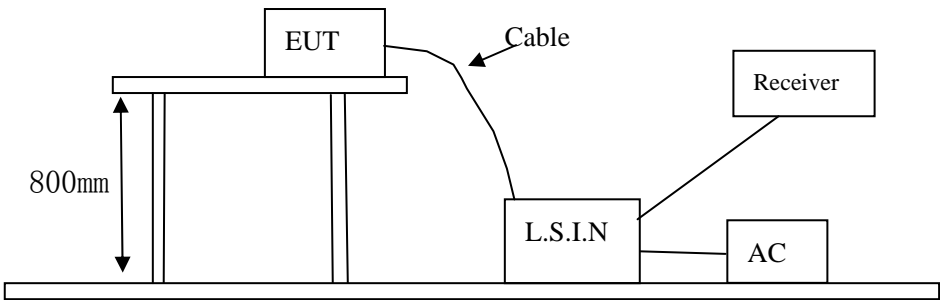
5.1 Schematics of the test



EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10–2013.  
Test Voltage: 120V~, 60Hz  
Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.4-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Bamboo wireless charger	LEADER PREMIUMS LIMITED	AB0402	2APYY-AB0402

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	Chenyang	UP0920	Input: 100-240V~, 50-60Hz, 0.5A; Output: DC5V/3A or DC9V, 2A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz. (The average detector is necessary when the Quasi-peak emission level beyond the average Limit.)

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**A: Conducted Emission on Live Terminal (150kHz to 30MHz)**

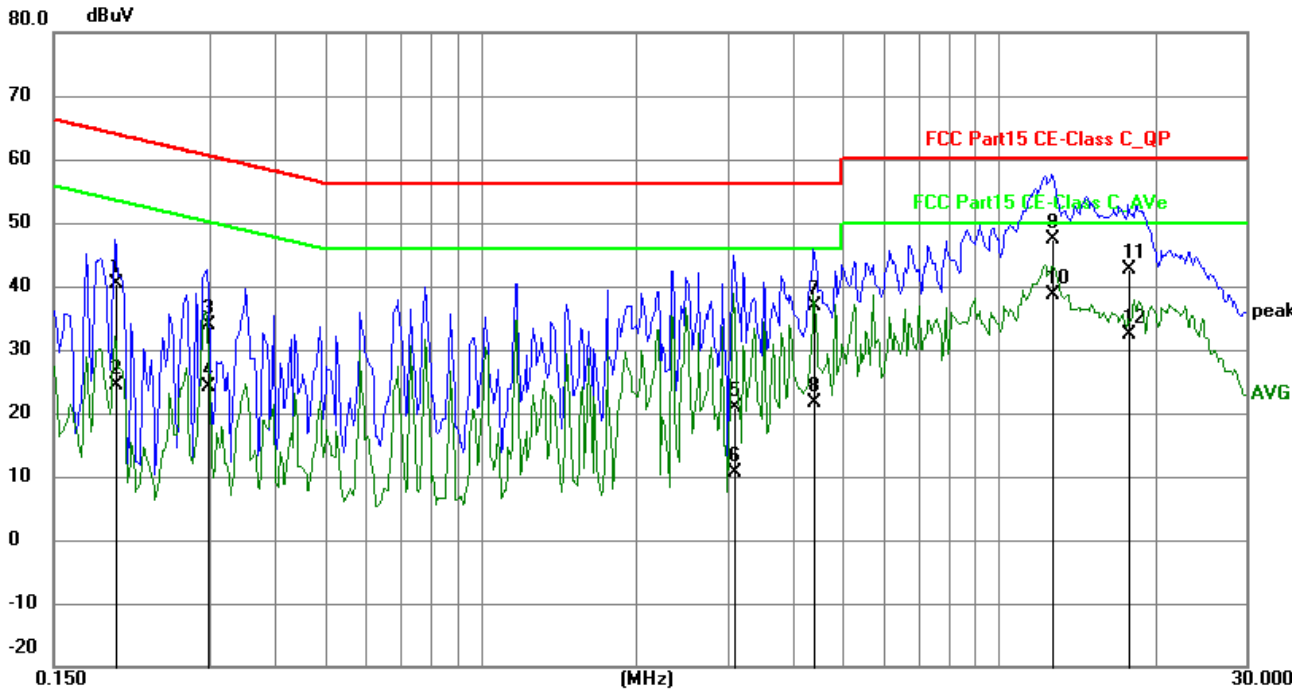
**EUT Operating Environment**

Temperature: 25°C Humidity:75%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting (Coil 1 operation)**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1968	30.64	9.75	40.39	63.74	-23.35	QP	P
2	0.1968	14.68	9.75	24.43	53.74	-29.31	AVG	P
3	0.2982	24.12	9.76	33.88	60.29	-26.41	QP	P
4	0.2982	14.39	9.76	24.15	50.29	-26.14	AVG	P
5	3.0780	10.93	9.85	20.78	56.00	-35.22	QP	P
6	3.0780	0.69	9.85	10.54	46.00	-35.46	AVG	P
7	4.3962	27.02	9.90	36.92	56.00	-19.08	QP	P
8	4.3962	11.84	9.90	21.74	46.00	-24.26	AVG	P
9	12.6954	37.22	10.28	47.50	60.00	-12.50	QP	P
10	12.6954	28.27	10.28	38.55	50.00	-11.45	AVG	P
11	17.7771	32.07	10.55	42.62	60.00	-17.38	QP	P
12	17.7771	21.80	10.55	32.35	50.00	-17.65	AVG	P

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**B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)**

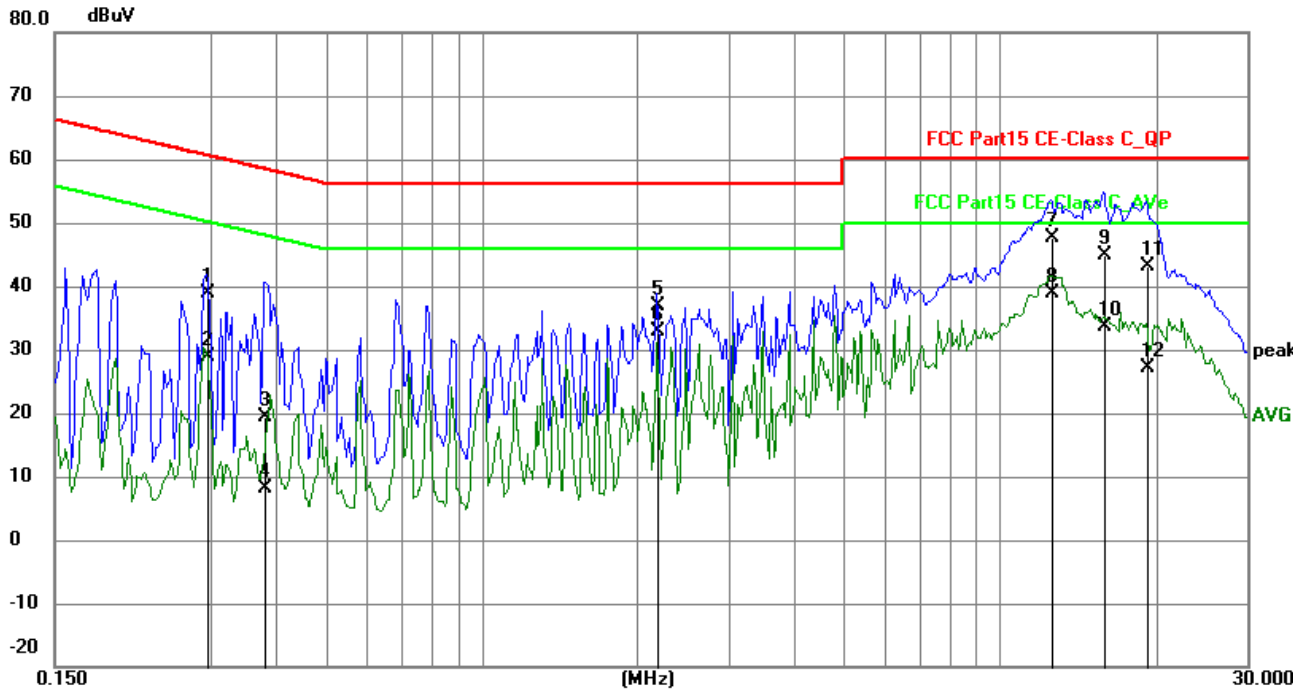
**EUT Operating Environment**

Temperature: 25°C Humidity:75%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting (Coil 1 operation)**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2943	29.06	9.76	38.82	60.40	-21.58	QP	P
2	0.2943	19.21	9.76	28.97	50.40	-21.43	AVG	P
3	0.3800	9.67	9.76	19.43	58.28	-38.85	QP	P
4	0.3800	-1.54	9.76	8.22	48.28	-40.06	AVG	P
5	2.1819	26.97	9.81	36.78	56.00	-19.22	QP	P
6	2.1819	23.04	9.81	32.85	46.00	-13.15	AVG	P
7	12.5589	37.29	10.27	47.56	60.00	-12.44	QP	P
8	12.5589	28.61	10.27	38.88	50.00	-11.12	AVG	P
9	15.8622	34.33	10.43	44.76	60.00	-15.24	QP	P
10	15.8622	23.27	10.43	33.70	50.00	-16.30	AVG	P
11	19.1304	32.51	10.63	43.14	60.00	-16.86	QP	P
12	19.1304	16.53	10.63	27.16	50.00	-22.84	AVG	P

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**C: Conducted Emission on Live Terminal (150kHz to 30MHz)**

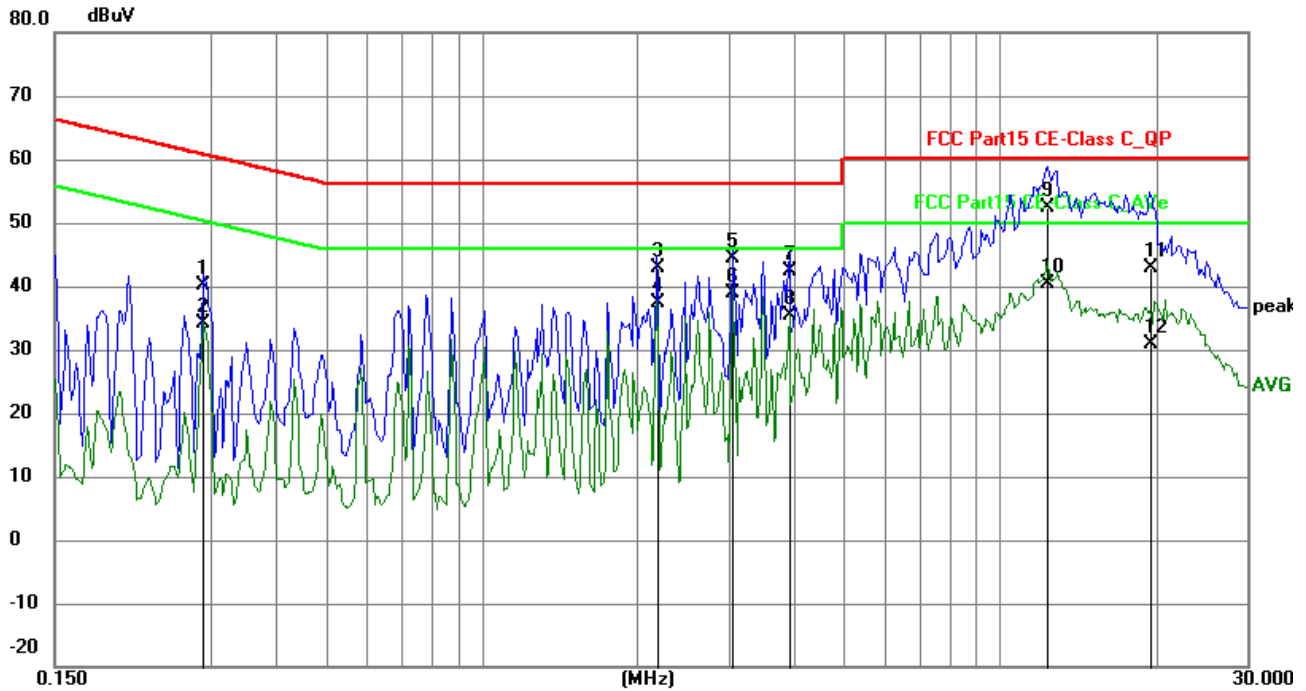
**EUT Operating Environment**

Temperature: 25°C Humidity:75%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting (Coil 2 operation)**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2904	30.33	9.76	40.09	60.51	-20.42	QP	P
2	0.2904	24.27	9.76	34.03	50.51	-16.48	AVG	P
3	2.1819	32.98	9.81	42.79	56.00	-13.21	QP	P
4	2.1819	27.60	9.81	37.41	46.00	-8.59	AVG	P
5	3.0546	34.51	9.85	44.36	56.00	-11.64	QP	P
6	3.0546	28.97	9.85	38.82	46.00	-7.18	AVG	P
7	3.9282	32.51	9.88	42.39	56.00	-13.61	QP	P
8	3.9282	25.47	9.88	35.35	46.00	-10.65	AVG	P
9	12.3561	42.15	10.26	52.41	60.00	-7.59	QP	P
10	12.3561	30.09	10.26	40.35	50.00	-9.65	AVG	P
11	19.4580	32.12	10.65	42.77	60.00	-17.23	QP	P
12	19.4580	20.17	10.65	30.82	50.00	-19.18	AVG	P

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**D: Conducted Emission on Neutral Terminal (150kHz to 30MHz)**

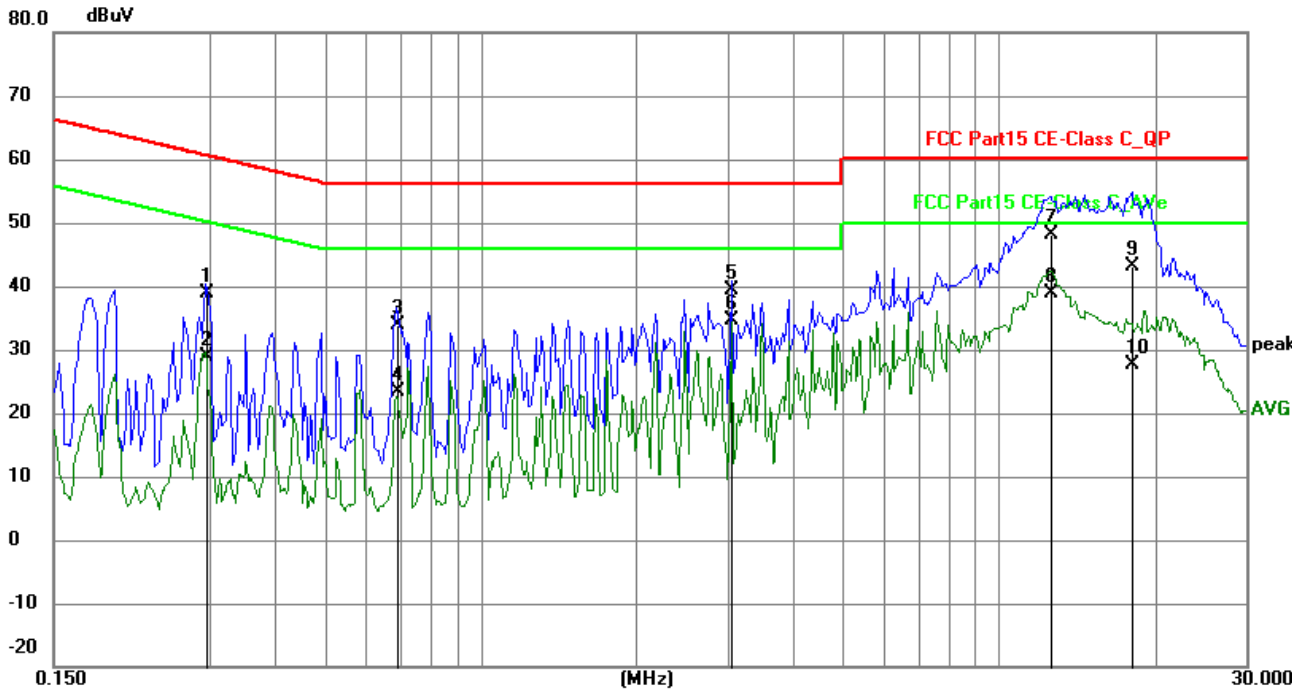
**EUT Operating Environment**

Temperature: 25°C Humidity:75%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting (Coil 2 operation)**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2943	29.18	9.76	38.94	60.40	-21.46	QP	P
2	0.2943	19.13	9.76	28.89	50.40	-21.51	AVG	P
3	0.6882	24.03	9.78	33.81	56.00	-22.19	QP	P
4	0.6882	13.57	9.78	23.35	46.00	-22.65	AVG	P
5	3.0546	29.48	9.85	39.33	56.00	-16.67	QP	P
6	3.0546	24.89	9.85	34.74	46.00	-11.26	AVG	P
7	12.5667	37.93	10.27	48.20	60.00	-11.80	QP	P
8	12.5667	28.69	10.27	38.96	50.00	-11.04	AVG	P
9	18.0774	32.64	10.56	43.20	60.00	-16.80	QP	P
10	18.0774	17.14	10.56	27.70	50.00	-22.30	AVG	P

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**E: Conducted Emission on Live Terminal (150kHz to 30MHz)**

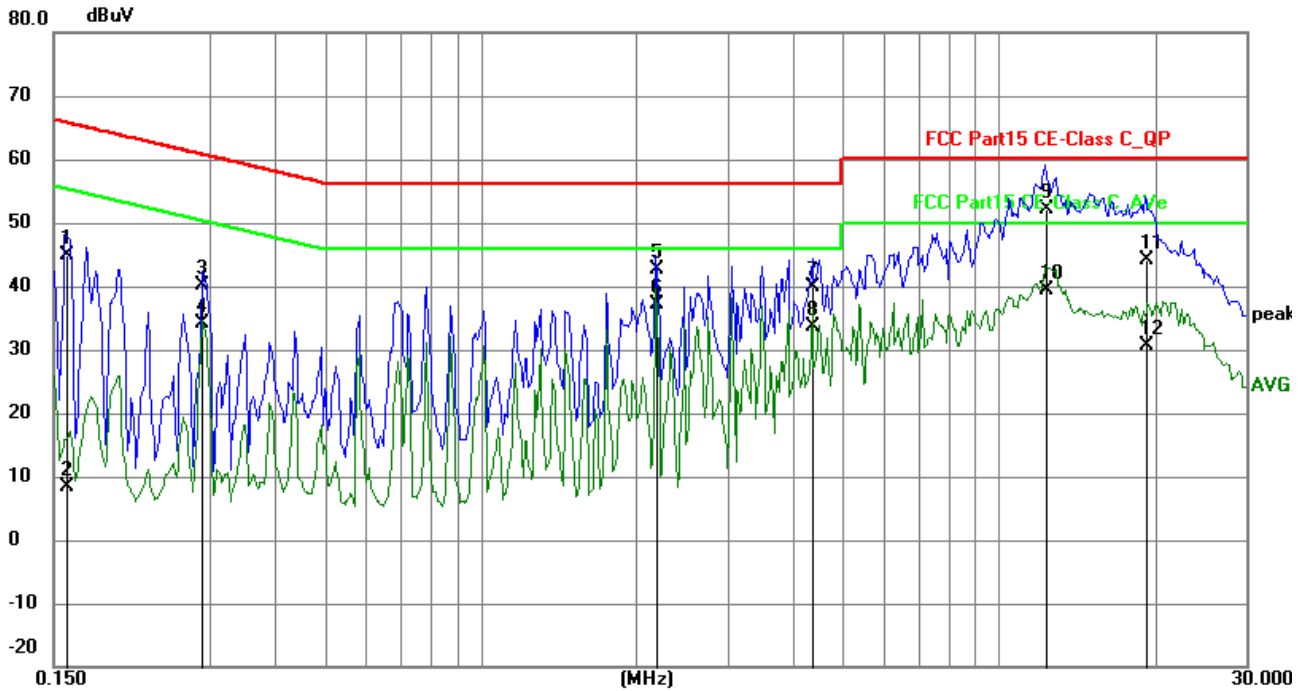
**EUT Operating Environment**

Temperature: 25°C Humidity:75%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting (Coil 1+ Coil 2 operation)**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1590	34.99	9.78	44.77	65.52	-20.75	QP	P
2	0.1590	-1.30	9.78	8.48	55.52	-47.04	AVG	P
3	0.2904	30.25	9.76	40.01	60.51	-20.50	QP	P
4	0.2904	24.34	9.76	34.10	50.51	-16.41	AVG	P
5	2.1819	32.90	9.81	42.71	56.00	-13.29	QP	P
6	2.1819	27.27	9.81	37.08	46.00	-8.92	AVG	P
7	4.3649	30.06	9.90	39.96	56.00	-16.04	QP	P
8	4.3649	23.64	9.90	33.54	46.00	-12.46	AVG	P
9	12.2547	41.84	10.26	52.10	60.00	-7.90	QP	P
10	12.2547	29.04	10.26	39.30	50.00	-10.70	AVG	P
11	19.1382	33.41	10.63	44.04	60.00	-15.96	QP	P
12	19.1382	20.08	10.63	30.71	50.00	-19.29	AVG	P

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**F: Conducted Emission on Neutral Terminal (150kHz to 30MHz)**

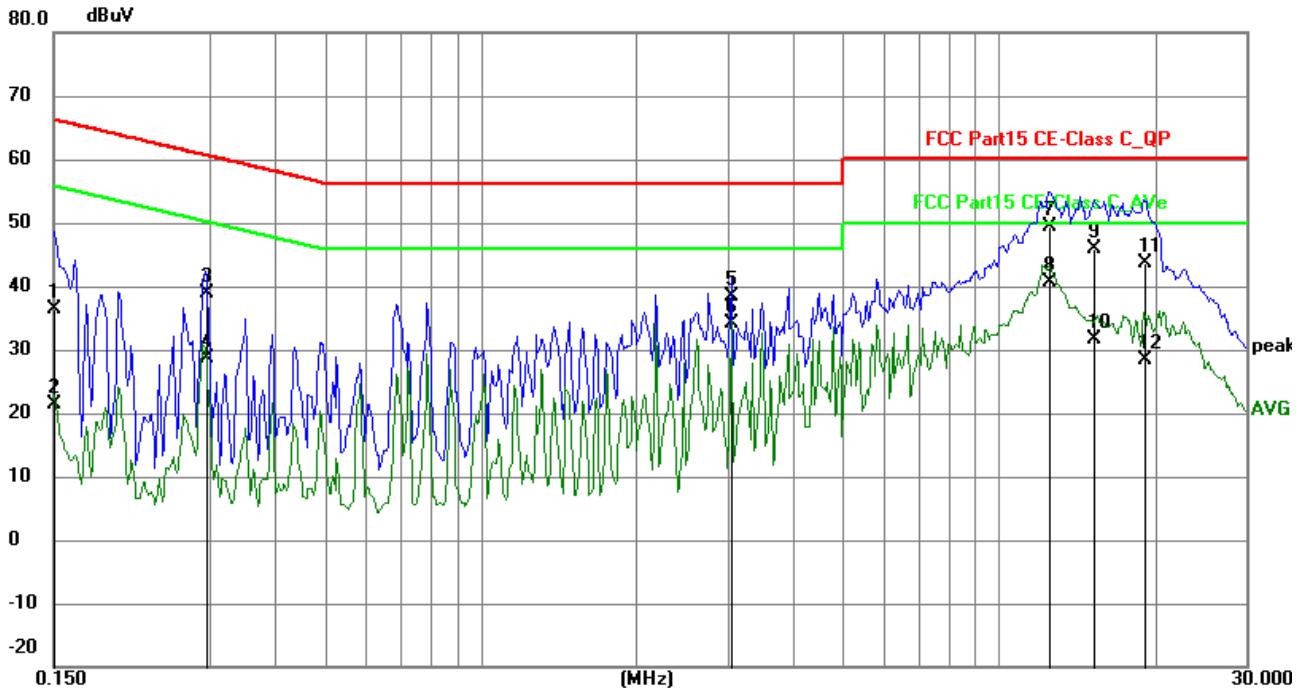
**EUT Operating Environment**

Temperature: 25°C Humidity:75%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting (Coil 1+ Coil 2 operation)**

**Results: Pass**

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	26.62	9.79	36.41	66.00	-29.59	QP	P
2	0.1500	11.57	9.79	21.36	56.00	-34.64	AVG	P
3	0.2943	29.14	9.76	38.90	60.40	-21.50	QP	P
4	0.2943	18.88	9.76	28.64	50.40	-21.76	AVG	P
5	3.0546	28.59	9.85	38.44	56.00	-17.56	QP	P
6	3.0546	24.19	9.85	34.04	46.00	-11.96	AVG	P
7	12.4887	39.00	10.27	49.27	60.00	-10.73	QP	P
8	12.4887	30.32	10.27	40.59	50.00	-9.41	AVG	P
9	15.2733	35.41	10.40	45.81	60.00	-14.19	QP	P
10	15.2733	21.27	10.40	31.67	50.00	-18.33	AVG	P
11	19.0407	33.12	10.62	43.74	60.00	-16.26	QP	P
12	19.0407	17.83	10.62	28.45	50.00	-21.55	AVG	P

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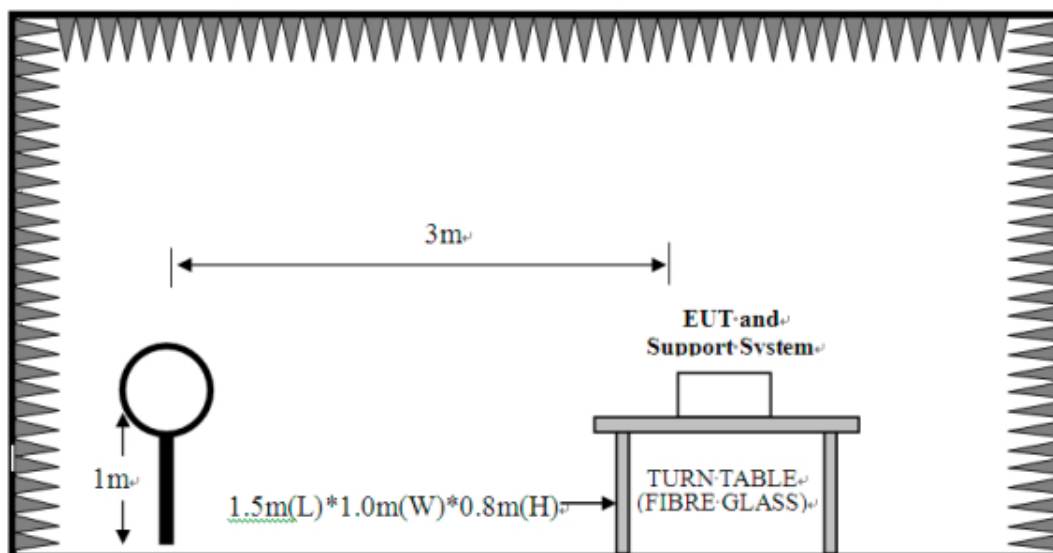
## 6 Radiated Emission Test

### 6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at TIMEWAY EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 9 kHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with RBW=120 kHz/VBW=300 kHz; All readings from 9 kHz to 30 MHz are quasi-peak values with RBW=10 kHz/VBW=30 kHz. For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission test in these three bands are based on measurements employing an average detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

### Block diagram of Test setup

#### 9kHz-30MHz



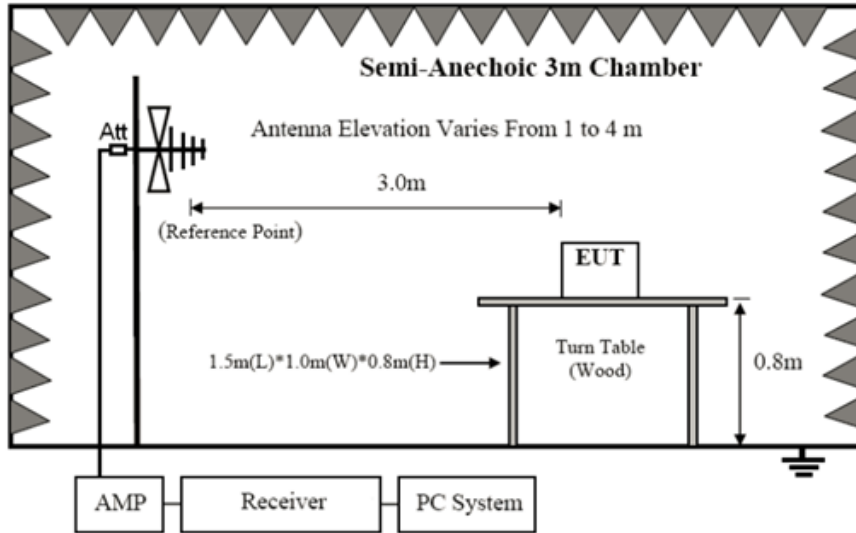
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### 30MHz-1000MHz



#### 6.2 Configuration of the EUT

Same as section 5.3 of this report

#### 6.3 EUT Operating Condition

Same as section 5.4 of this report.

#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

### B. Frequencies in restricted band are compiled to limit on Paragraph 15.209.

#### Limits for frequency below 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (V/m)
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30	30	30

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**Limits for frequency above 30MHz**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage ( $\mu$ V)
  2. In the Above Table, the tighter limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. 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 three bands are based on measurements employing an average detector.

## 6.5 Test result

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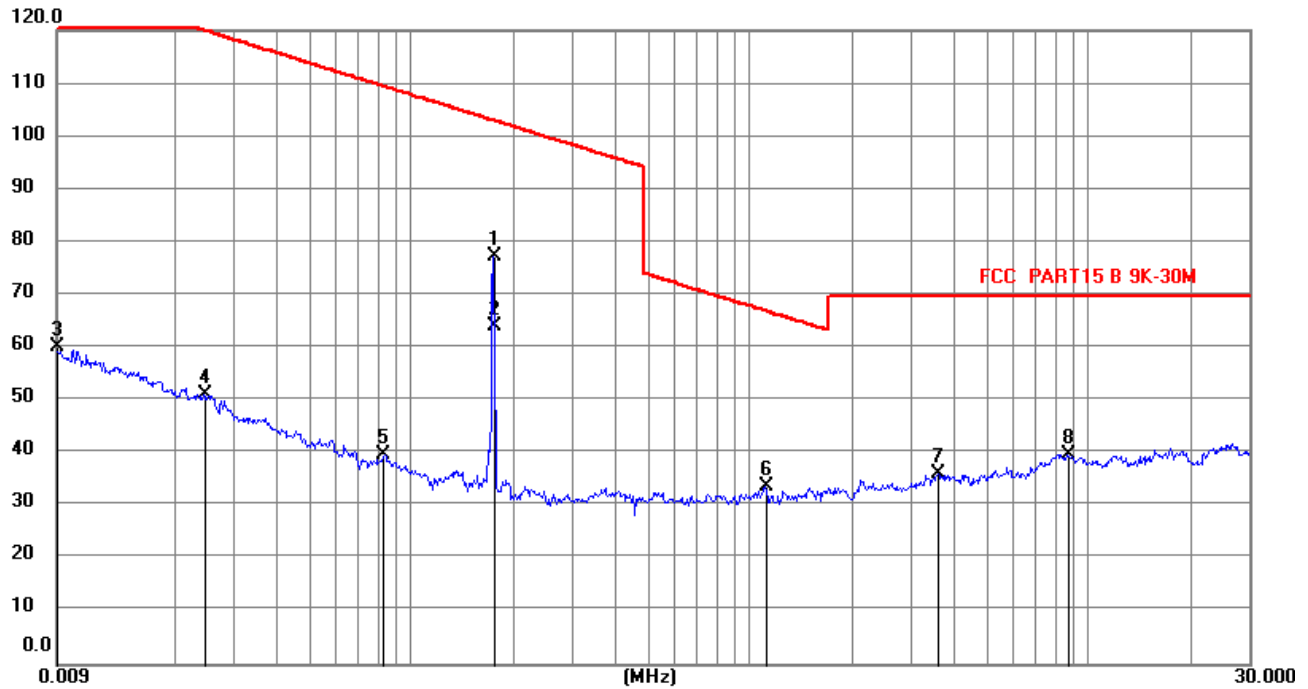


**Measurement data:**

**Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80**

**Limit dBuV/m @3m = Limit dBuV/m @30m + 40**

**9 kHz~30 MHz**



No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	0.1753	67.56	9.77	77.33	102.68	-25.35	peak	P
2	0.1753	54.38	9.77	64.15	102.68	-38.53	AVG	P
3	0.0088	50.11	9.95	60.06	128.52	-68.46	peak	P
4	0.0245	40.92	10.28	51.20	119.68	-68.48	peak	P
5	0.0830	30.04	9.79	39.83	109.14	-69.31	peak	P
6	1.1187	23.82	9.79	33.61	66.65	-33.04	peak	P
7	3.6049	26.32	9.87	36.19	69.53	-33.34	peak	P
8	8.6875	29.66	10.09	39.75	69.56	-29.81	peak	P

**Note: Coil 1 operation**

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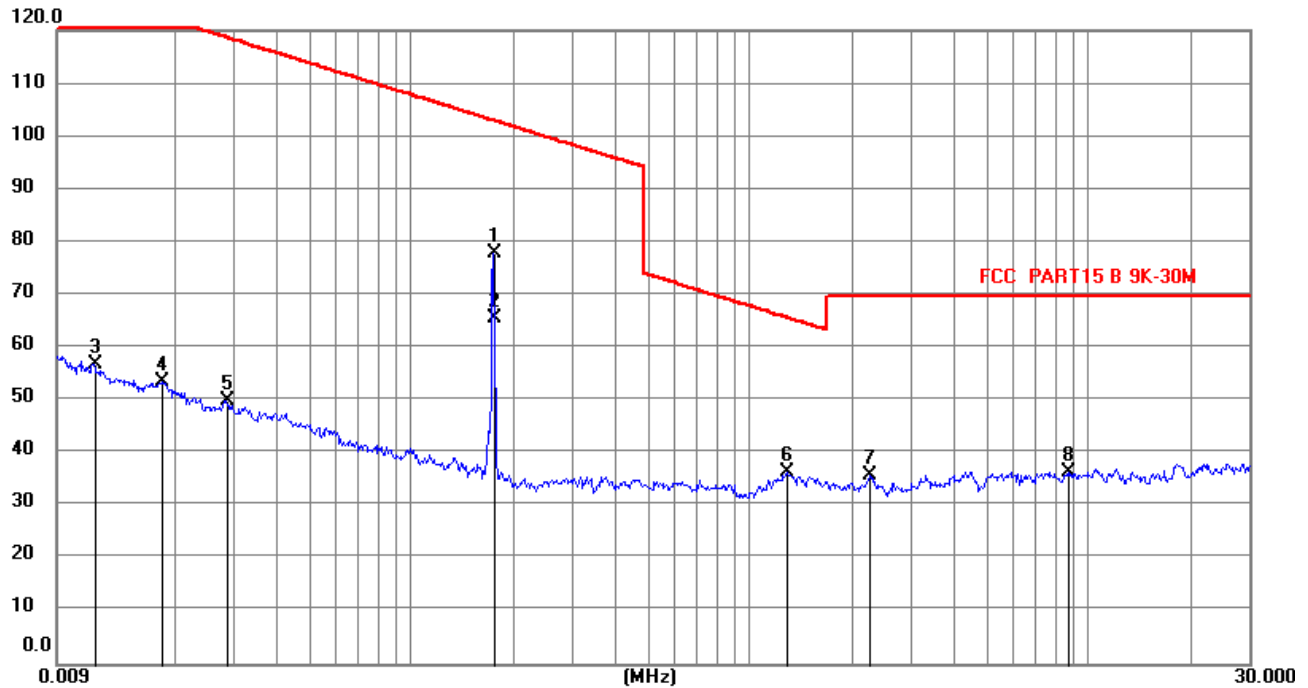


**Measurement data:**

**Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80**

**Limit dBuV/m @3m = Limit dBuV/m @30m + 40**

**9 kHz~30 MHz**



No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	0.1753	68.06	9.77	77.83	102.68	-24.85	peak	P
2	0.1753	55.64	9.77	65.41	102.68	-37.27	AVG	P
3	0.0117	46.83	10.06	56.89	126.06	-69.17	peak	P
4	0.0183	43.37	10.30	53.67	122.20	-68.53	peak	P
5	0.0286	39.80	10.20	50.00	118.34	-68.34	peak	P
6	1.2874	26.57	9.79	36.36	65.43	-29.07	peak	P
7	2.2659	26.08	9.81	35.89	69.51	-33.62	peak	P
8	8.7500	26.37	10.10	36.47	69.56	-33.09	peak	P

**Note: Coil 2 operation**

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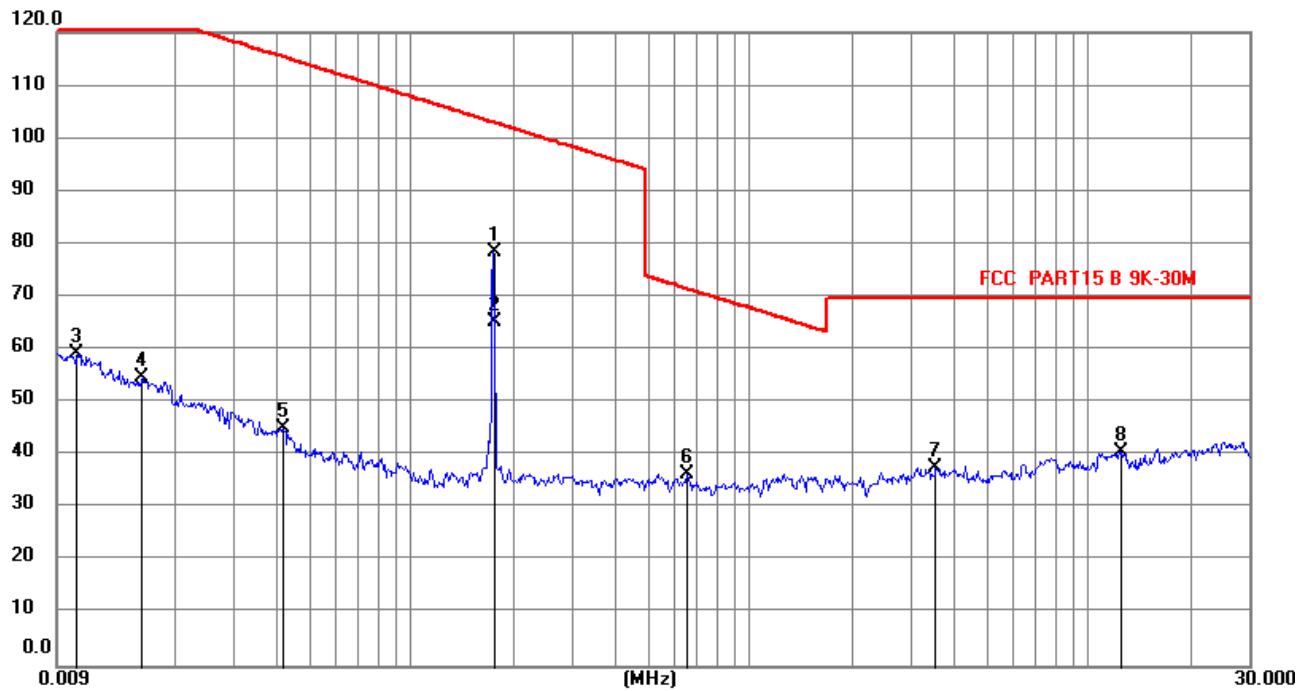


**Measurement data:**

**Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80**

**Limit dBuV/m @3m = Limit dBuV/m @30m + 40**

**9 kHz~30 MHz**



No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	0.1753	68.56	9.77	78.33	102.68	-24.35	peak	P
2	0.1753	55.49	9.77	65.26	102.68	-37.42	AVG	P
3	0.0103	49.19	10.00	59.19	127.16	-67.97	peak	P
4	0.0160	44.66	10.21	54.87	123.36	-68.49	peak	P
5	0.0417	35.21	9.95	45.16	115.08	-69.92	peak	P
6	0.6572	26.67	9.78	36.45	71.26	-34.81	peak	P
7	3.5261	27.71	9.87	37.58	69.53	-31.95	peak	P
8	12.5000	30.29	10.27	40.56	69.57	-29.01	peak	P

**Note: Coil 1+Coil 2 operation**

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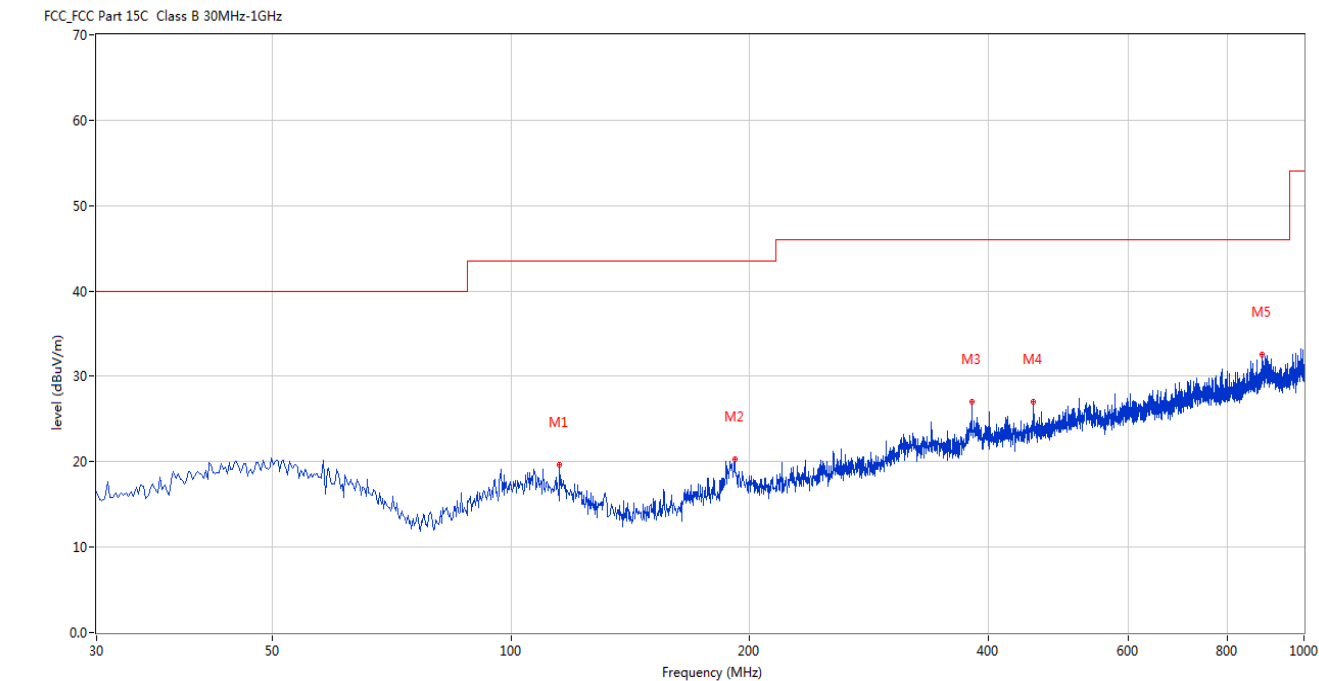
A. General Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	115.096	19.69	-14.44	43.5	-23.81	Peak	101.00	100	Horizontal	Pass
2	191.465	20.31	-14.15	43.5	-23.19	Peak	66.00	100	Horizontal	Pass
3	381.295	27.05	-9.18	46.0	-18.95	Peak	289.00	100	Horizontal	Pass
4	455.966	27.07	-7.95	46.0	-18.93	Peak	145.00	100	Horizontal	Pass
5	885.569	32.59	-2.03	46.0	-13.41	Peak	197.00	100	Horizontal	Pass

Note: Coil 1 operation

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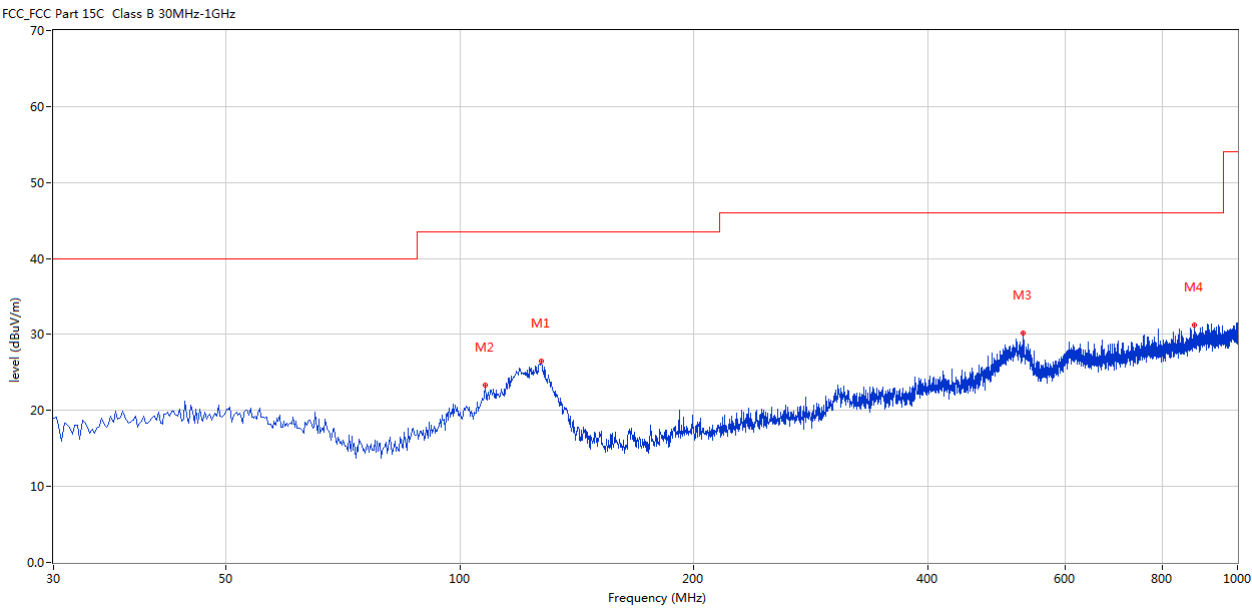
B. General Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	127.218	26.54	-16.62	43.5	-16.96	Peak	175.00	100	Vertical	Pass
2	107.823	23.34	-13.41	43.5	-20.16	Peak	126.00	100	Vertical	Pass
3	530.395	30.19	-6.45	46.0	-15.81	Peak	360.00	100	Vertical	Pass
4	879.750	31.23	-1.96	46.0	-14.77	Peak	358.00	100	Vertical	Pass

Note: Coil 1 operation

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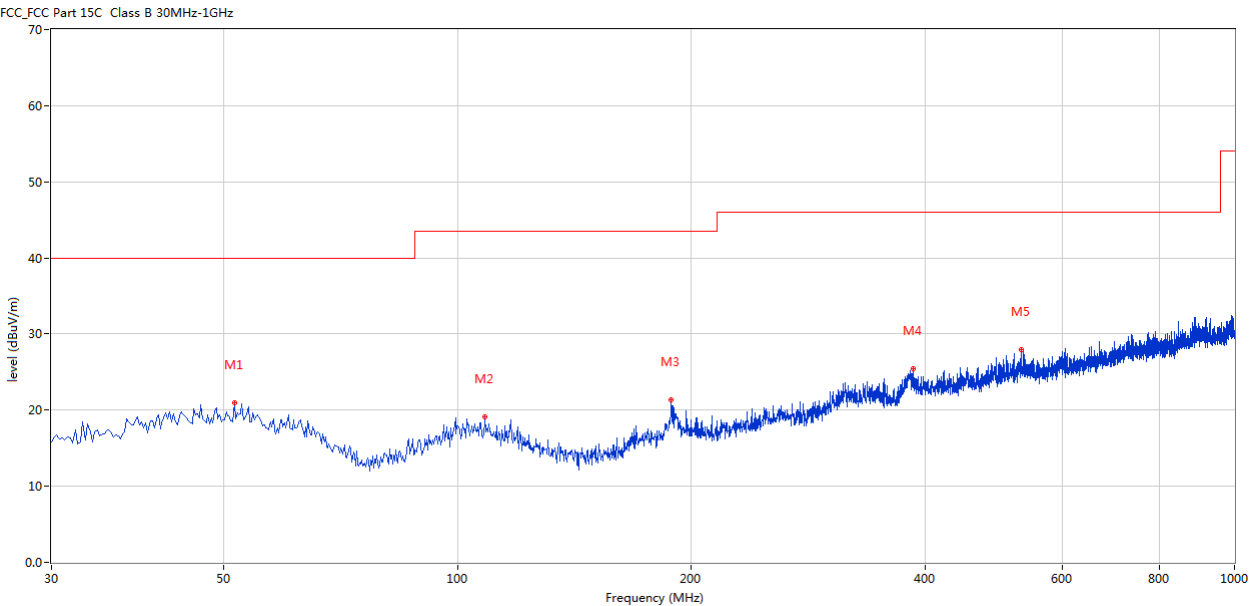
C. General Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	51.577	20.95	-11.41	40.0	-19.05	Peak	108.00	100	Horizontal	Pass
2	108.550	19.16	-13.46	43.5	-24.34	Peak	1.00	100	Horizontal	Pass
3	188.313	21.38	-14.43	43.5	-22.12	Peak	310.00	100	Horizontal	Pass
4	386.143	25.47	-9.10	46.0	-20.53	Peak	174.00	100	Horizontal	Pass
5	531.607	27.96	-6.44	46.0	-18.04	Peak	191.00	100	Horizontal	Pass

Note: Coil 2 operation

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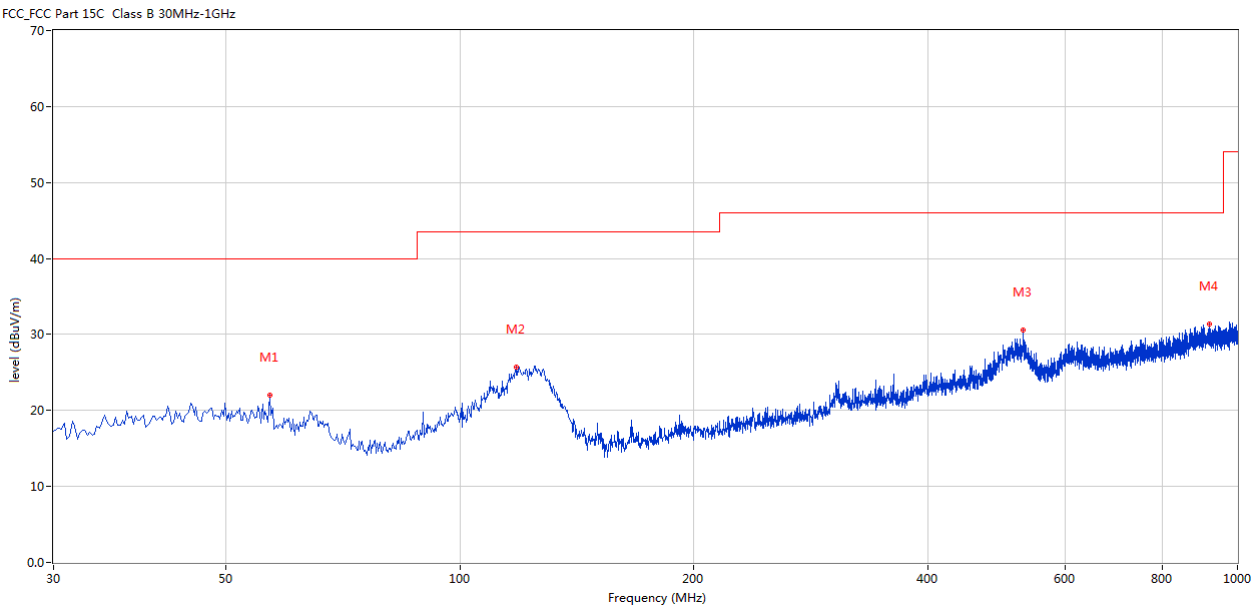
D. General Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	56.911	22.00	-12.30	40.0	-18.00	Peak	217.00	100	Vertical	Pass
2	118.005	25.71	-14.93	43.5	-17.79	Peak	168.00	100	Vertical	Pass
3	530.637	30.65	-6.45	46.0	-15.35	Peak	46.00	100	Vertical	Pass
4	919.753	31.38	-1.80	46.0	-14.62	Peak	140.00	100	Vertical	Pass

Note: Coil 2 operation

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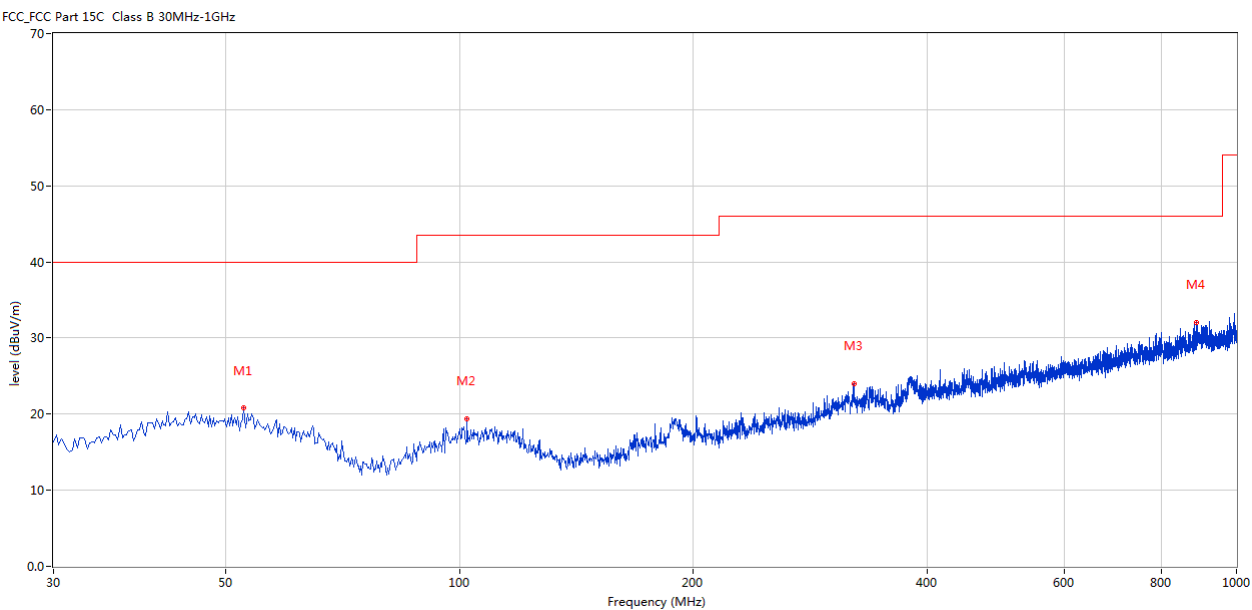
E. General Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	52.789	20.76	-11.48	40.0	-19.24	Peak	140.00	100	Horizontal	Pass
2	102.247	19.36	-13.42	43.5	-24.14	Peak	187.00	100	Horizontal	Pass
3	321.655	23.95	-10.53	46.0	-22.05	Peak	199.00	100	Horizontal	Pass
4	887.508	31.99	-2.04	46.0	-14.01	Peak	182.00	100	Horizontal	Pass

Note: Coil 1+ Coil 2 operation

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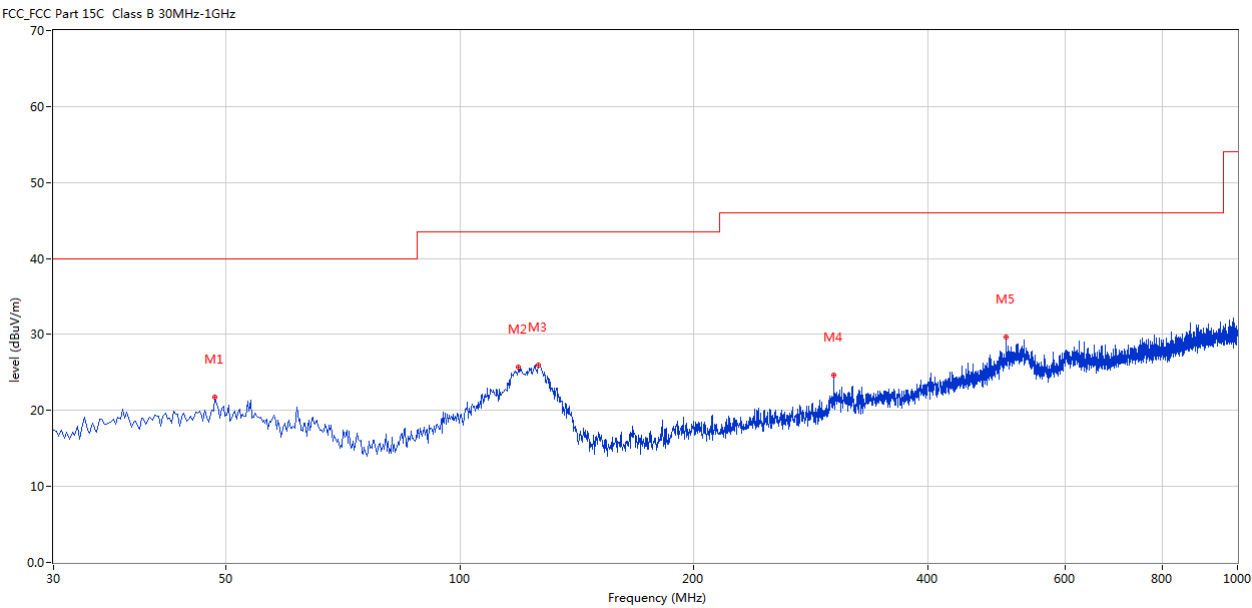
F. General Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	48.425	21.72	-11.22	40.0	-18.28	Peak	87.00	100	Vertical	Pass
2	118.975	25.72	-15.06	43.5	-17.78	Peak	193.00	100	Vertical	Pass
3	126.006	25.95	-16.48	43.5	-17.55	Peak	138.00	100	Vertical	Pass
4	302.744	24.64	-10.98	46.0	-21.36	Peak	19.00	100	Vertical	Pass
5	504.211	29.69	-7.07	46.0	-16.31	Peak	19.00	100	Vertical	Pass

Note: Coil 1+ Coil 2 operation

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7.0 20dB Bandwidth Testing

7.1 Test Procedure

With the EUT’s antenna attached, the EUT’s 20dB Bandwidth was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT’s operation band.

7.3 Test Data

Coil 1 operation

Frequency (MHz)	20dB Bandwidth Emission (kHz)	Limit (kHz)	Result
0.175	3.382	--	Pass

Coil 2 operation

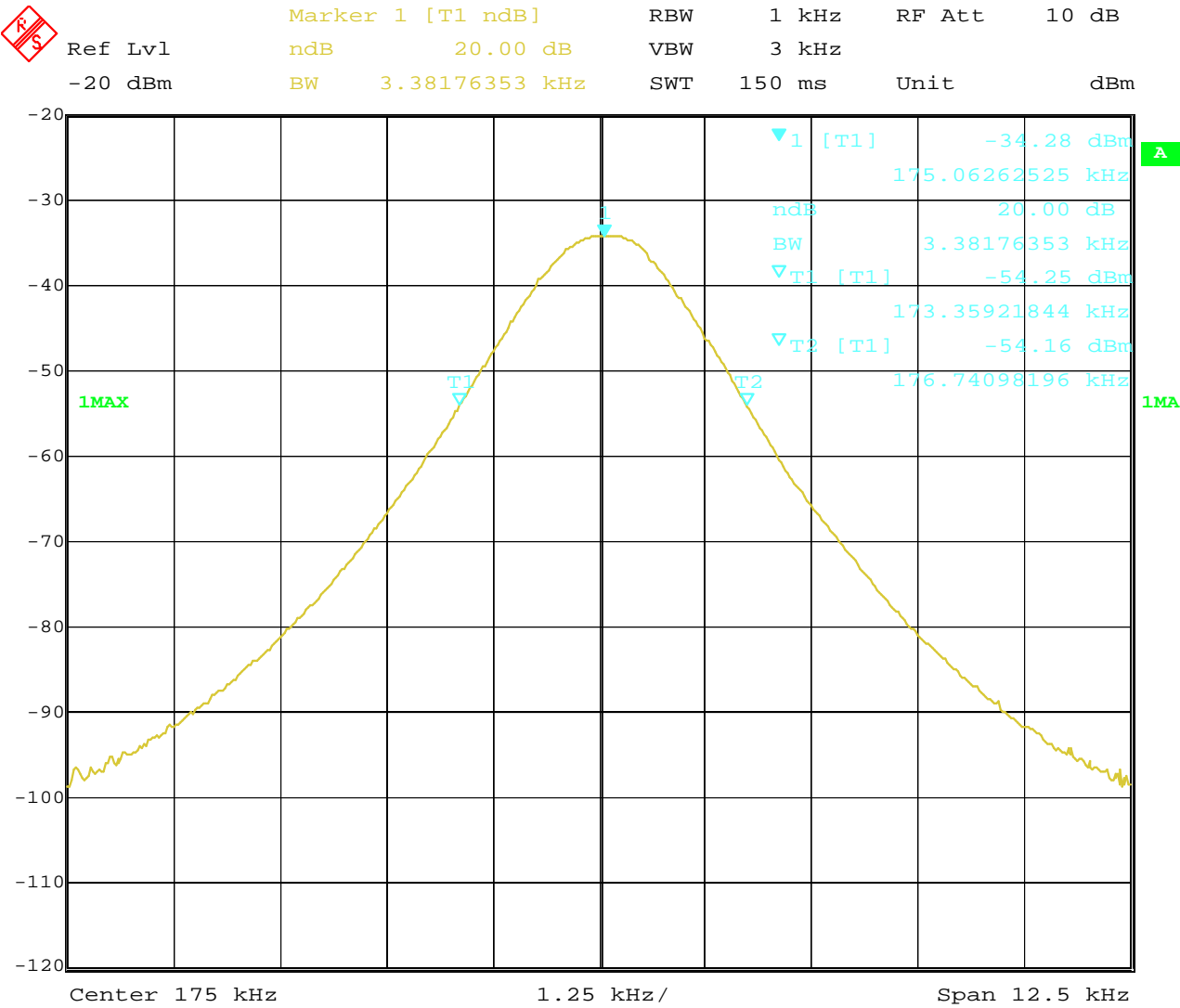
Frequency (MHz)	20dB Bandwidth Emission (kHz)	Limit (kHz)	Result
0.175	3.332	--	Pass

Refer to attached plots:

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20dB Bandwidth  
Coil 1 operation

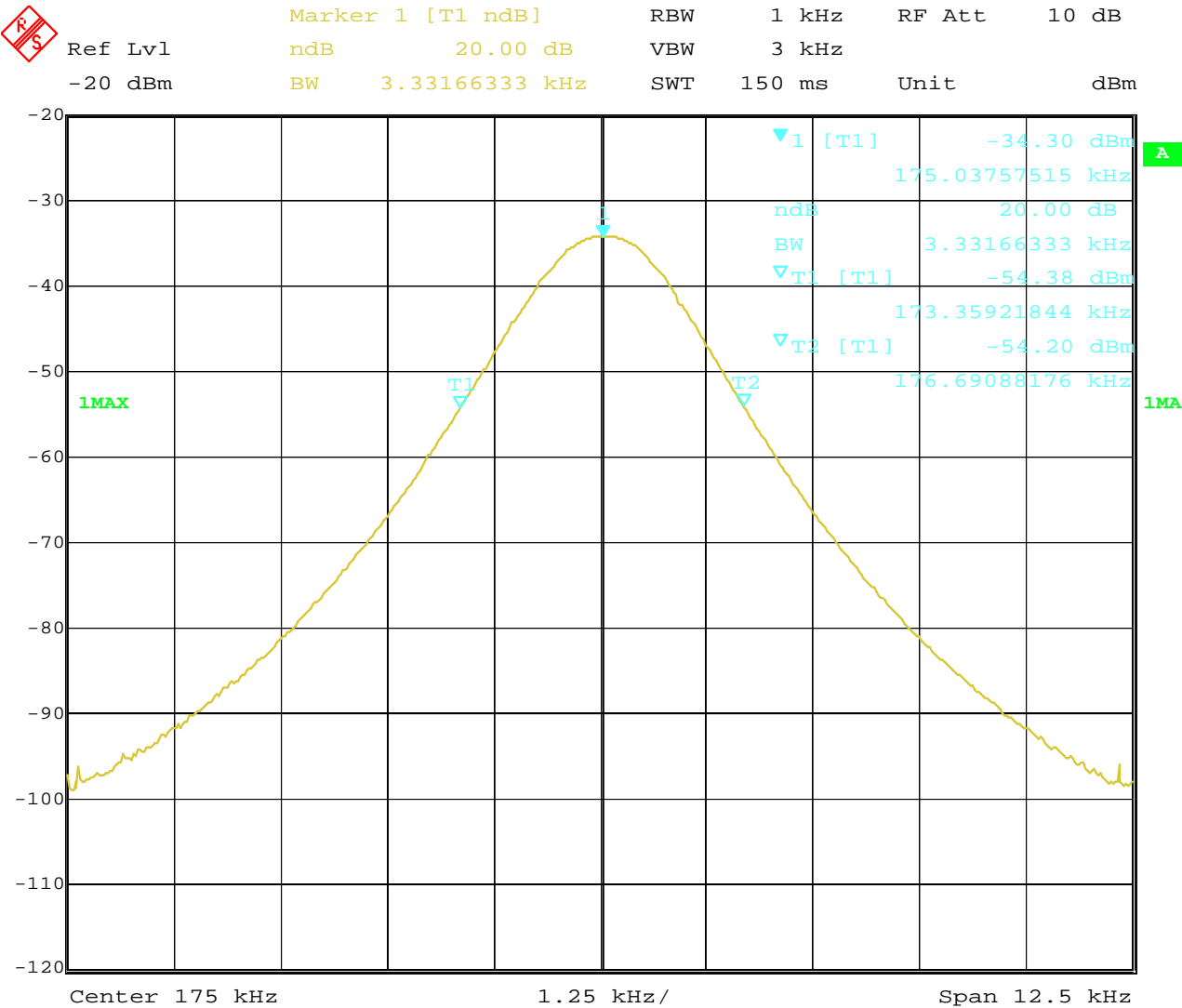


Date: 6.FEB.2023 15:40:42

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20dB Bandwidth  
Coil 2 operation



Date: 6.FEB.2023 15:41:32

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## 8.0 Antenna Requirement

### 8.1 Standard Applicable

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. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

### 8.2 Antenna Connected constructions

The antennas are Inductive Loop Antennas. The antenna gain is 0dBi for each one. So it meets the requirement of 15.203

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## 9.0 FCC ID Label

### FCC ID: 2APYY-AB0402

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and  
(2) this device must accept any interference received, including interference that may cause undesired operation

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### Mark Location:



FCC Label Location

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**10.0. Photo of testing**

**10.1 Conducted test View**



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## 10.2 Radiated emission test view



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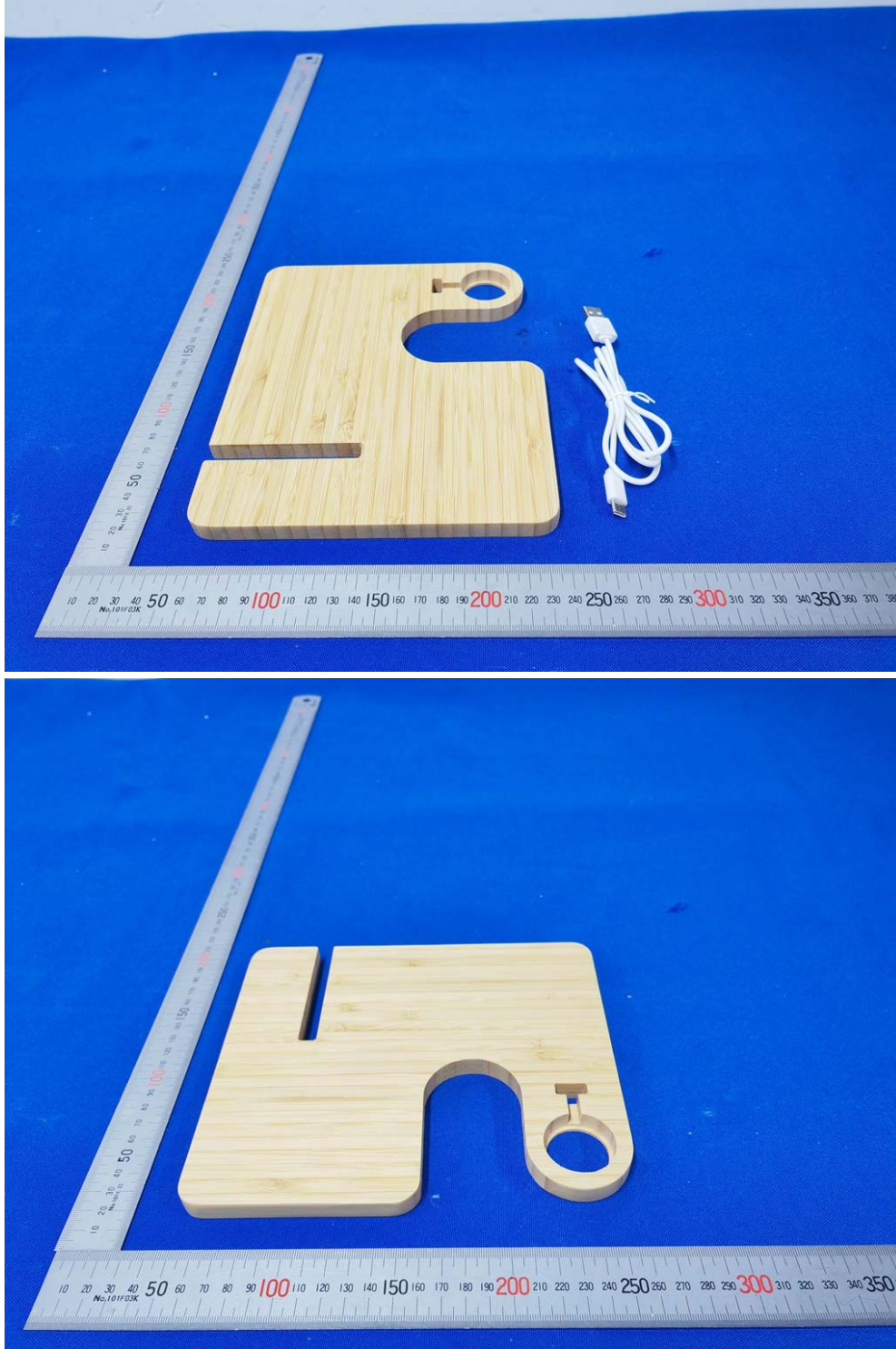
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Photographs – EUT

Outside View



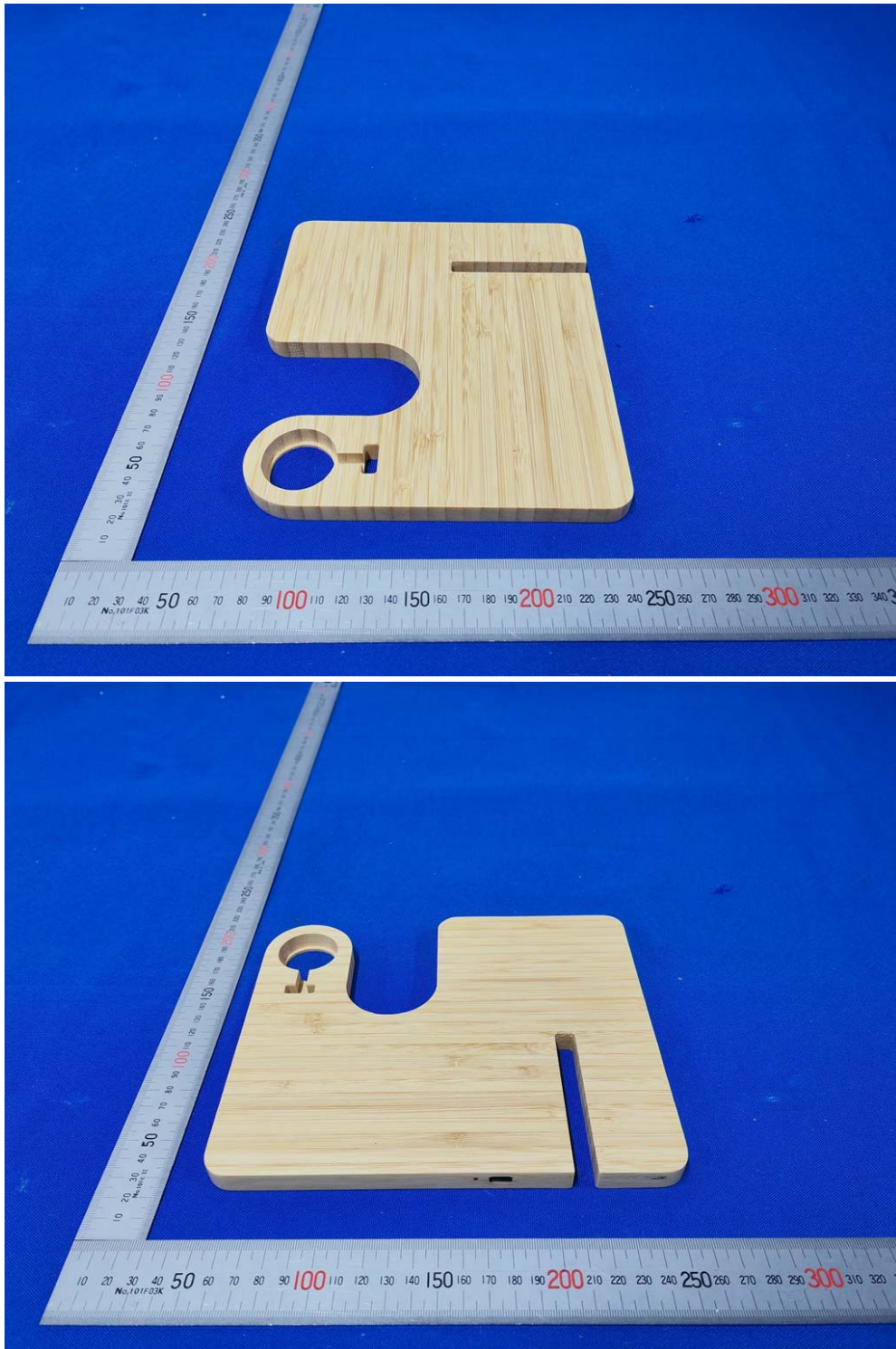
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Outside View



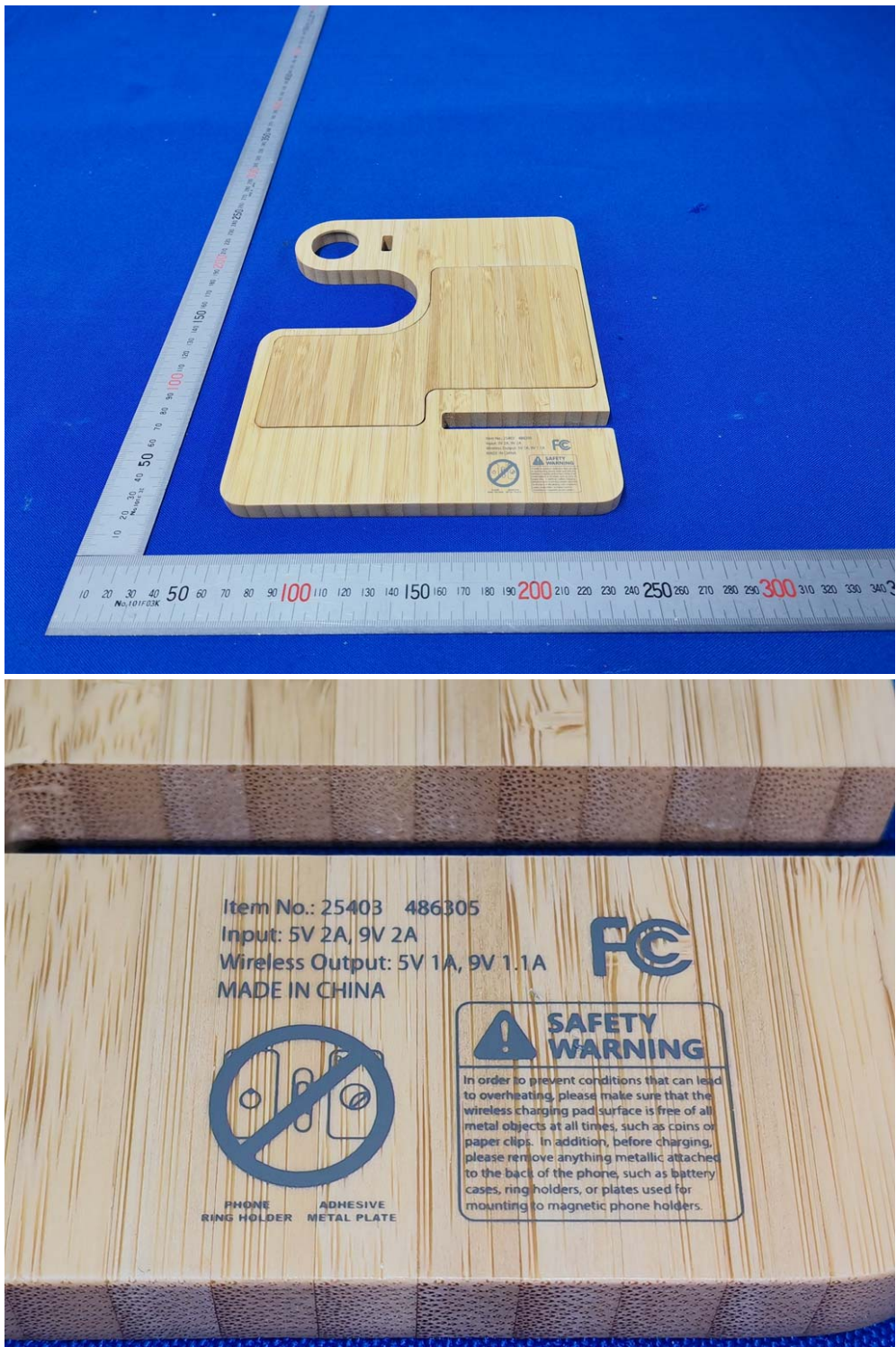
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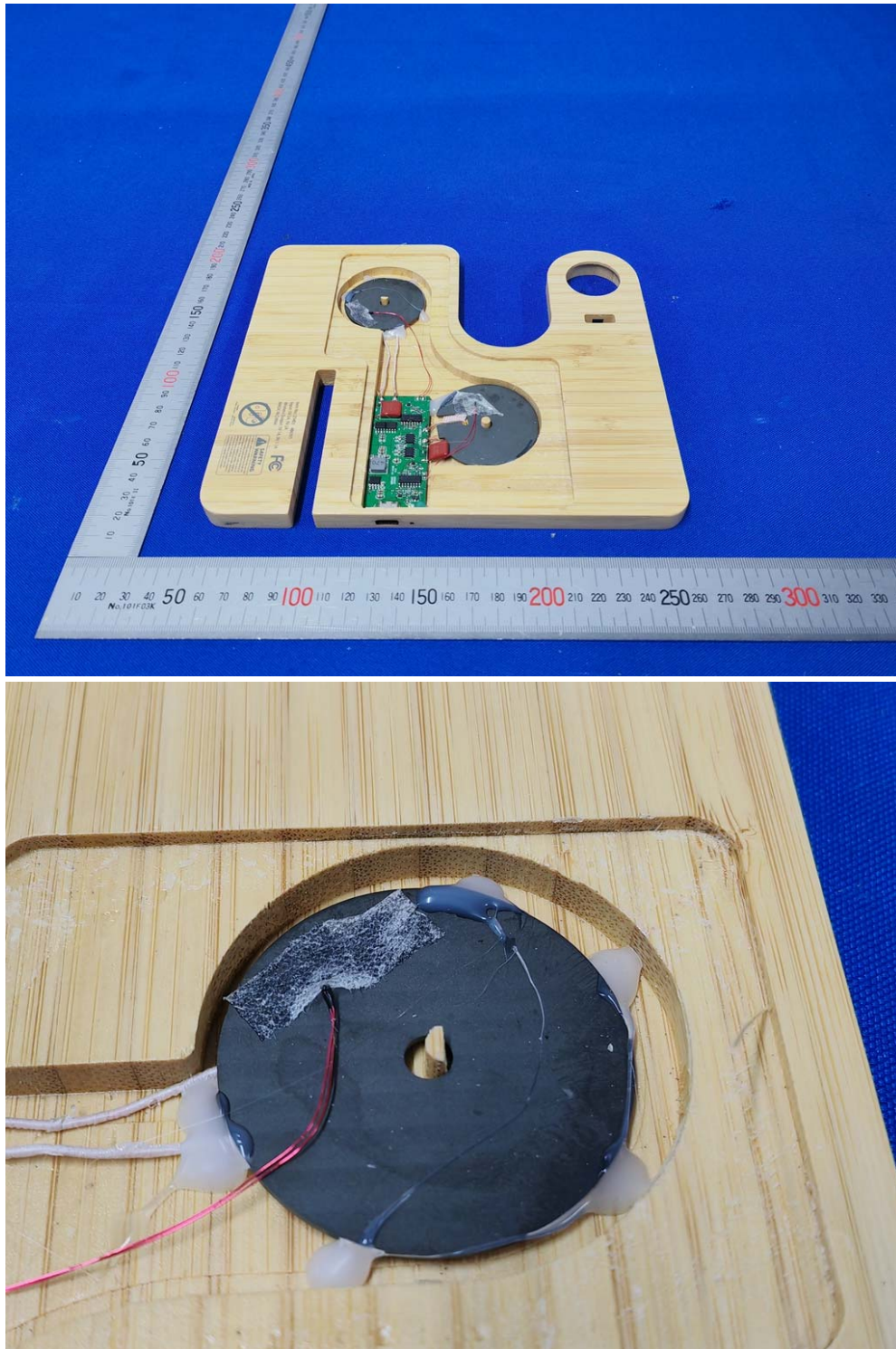
Outside View



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Inside View



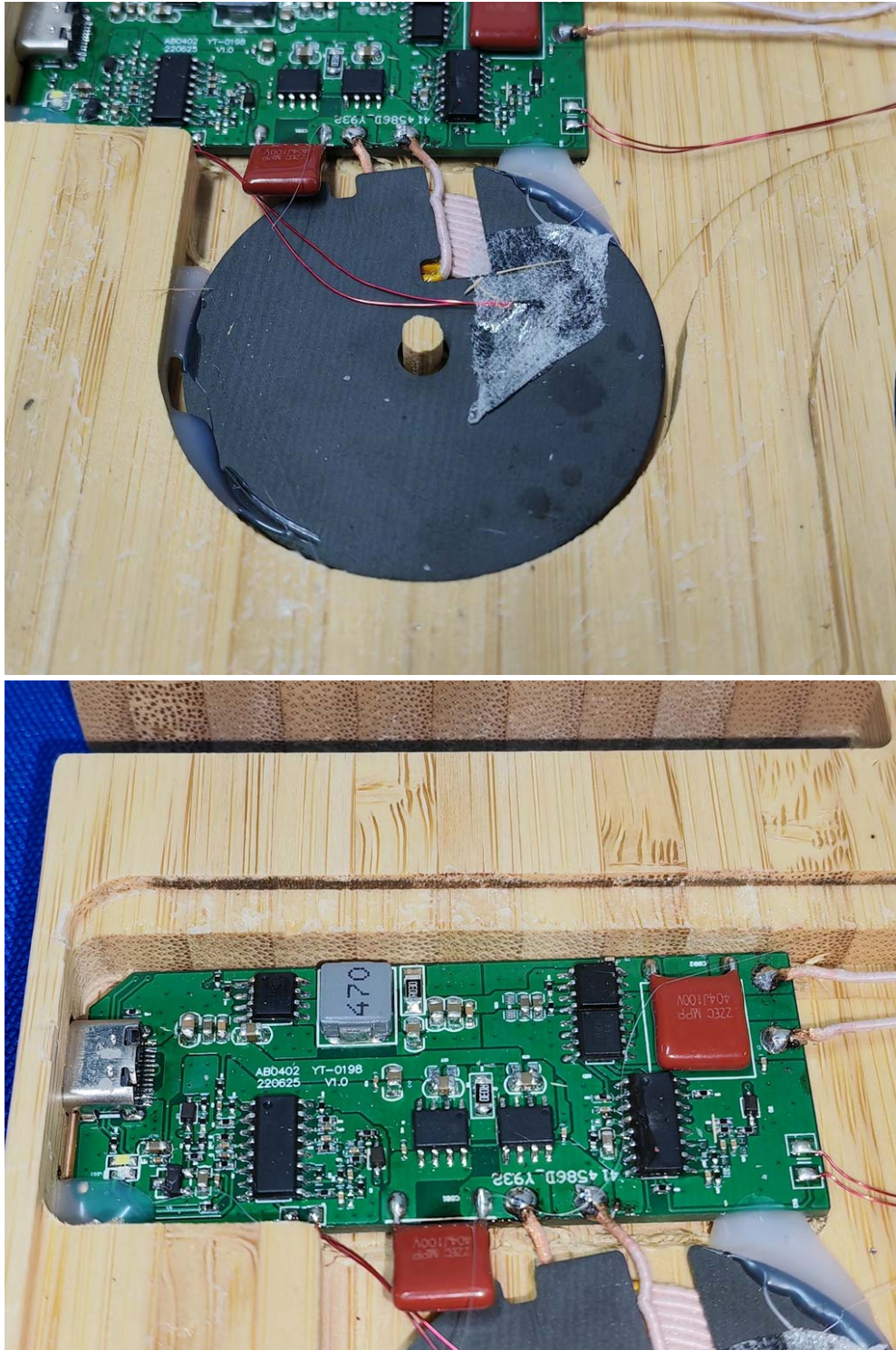
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Inside View



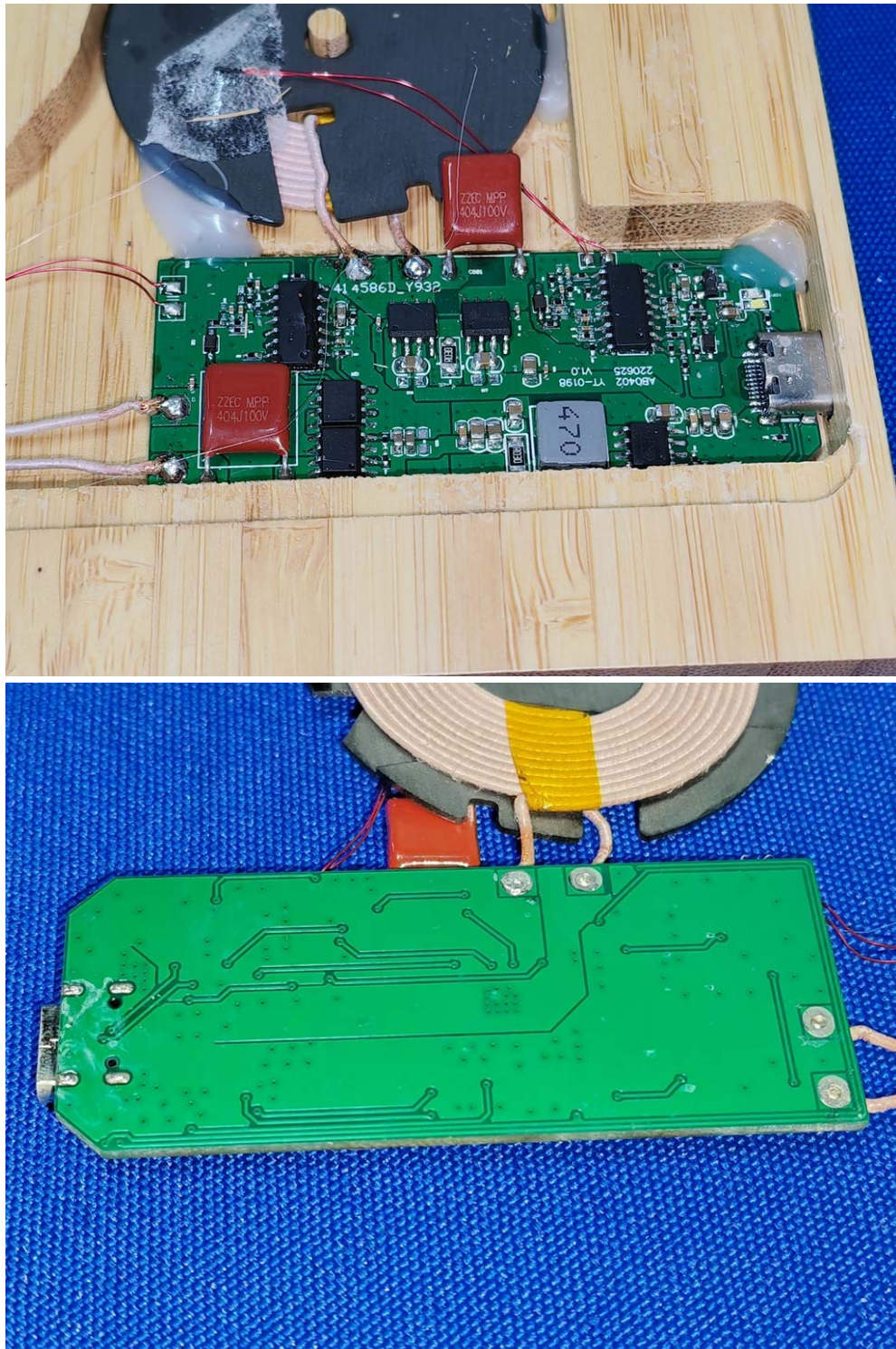
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Inside View



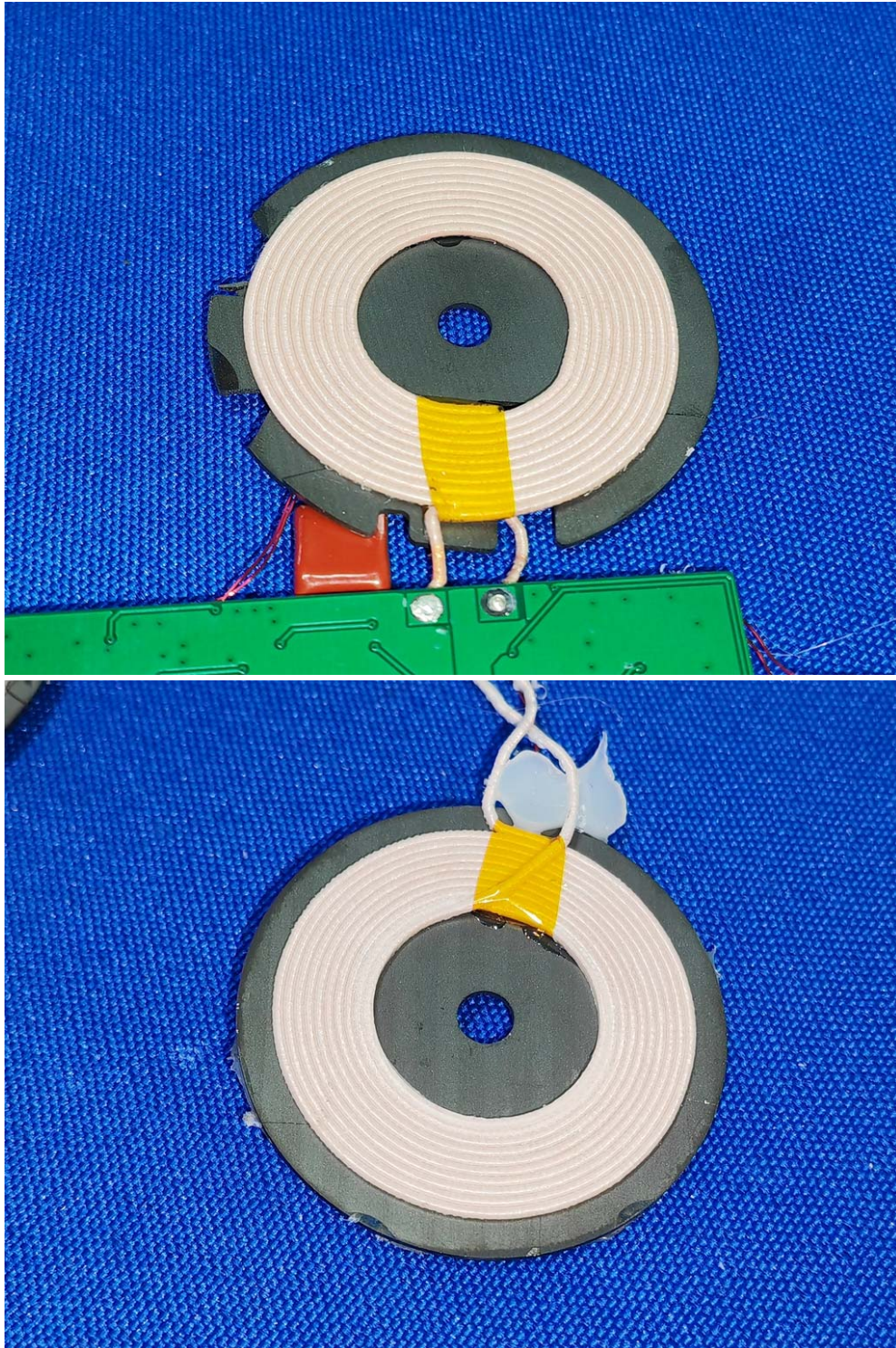
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Inside View



**-End of the report-**

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