

## 14. LINE CONDUCTED EMISSION TEST

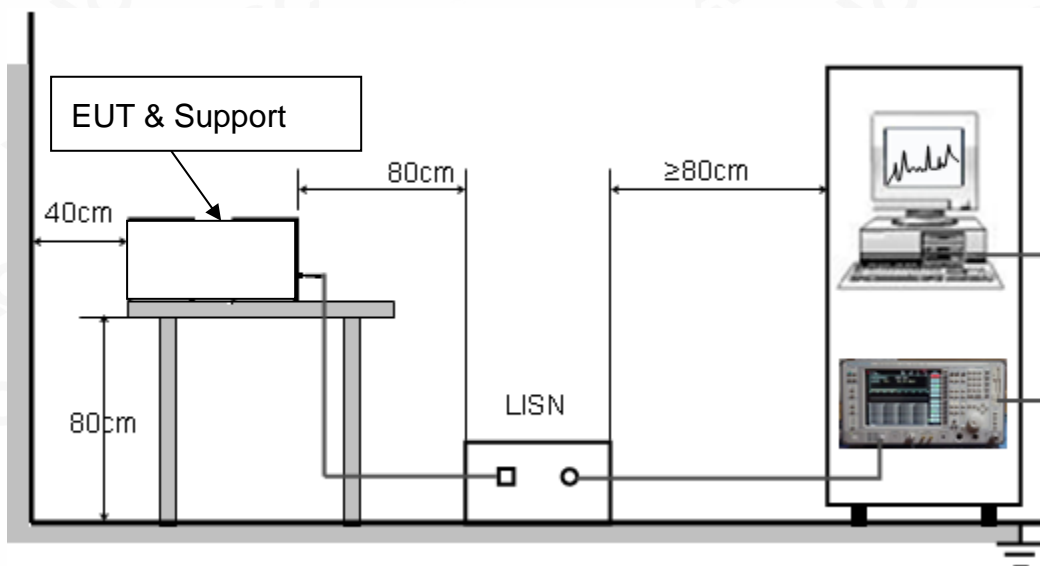
### 14.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P. (dBμV)	Average (dBμV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 14.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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#### 14.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

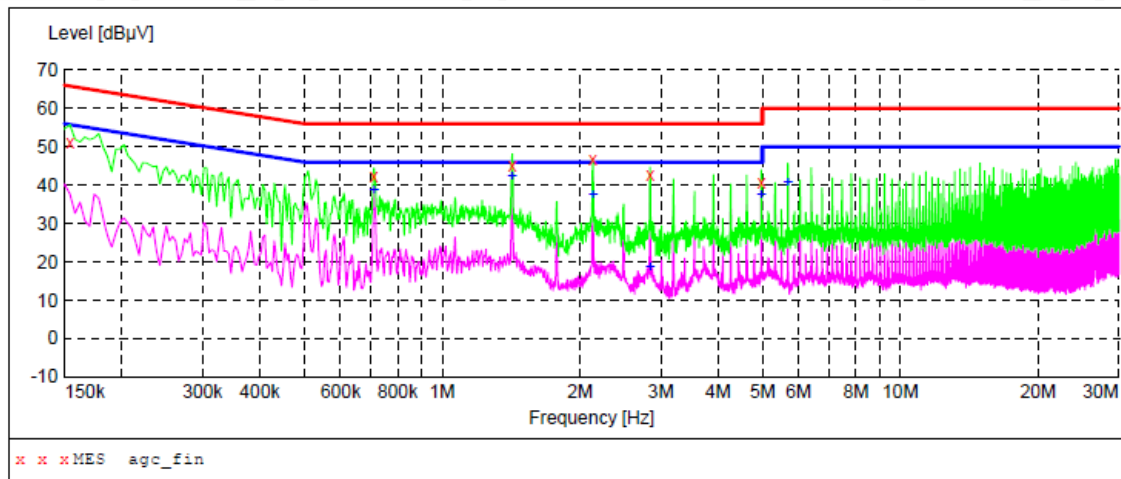
#### 14.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.



## 14.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

## Line Conducted Emission Test Line 1-L

**MEASUREMENT RESULT: "agc\_fin"**

2021/5/20 14:13

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.154000	50.90	12.4	66	14.9	QP	L1	GND
0.710000	42.50	12.4	56	13.5	QP	L1	GND
1.422000	45.20	12.5	56	10.8	QP	L1	GND
2.130000	46.50	12.5	56	9.5	QP	L1	GND
2.842000	42.80	12.5	56	13.2	QP	L1	GND
4.974000	40.70	12.6	56	15.3	QP	L1	GND

**MEASUREMENT RESULT: "agc\_fin2"**

2021/5/20 14:13

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.710000	38.80	12.4	46	7.2	AV	L1	GND
1.422000	42.40	12.5	46	3.6	AV	L1	GND
2.134000	37.50	12.5	46	8.5	AV	L1	GND
2.842000	18.80	12.5	46	27.2	AV	L1	GND
4.974000	37.40	12.6	46	8.6	AV	L1	GND
5.682000	40.60	12.6	50	9.4	AV	L1	GND

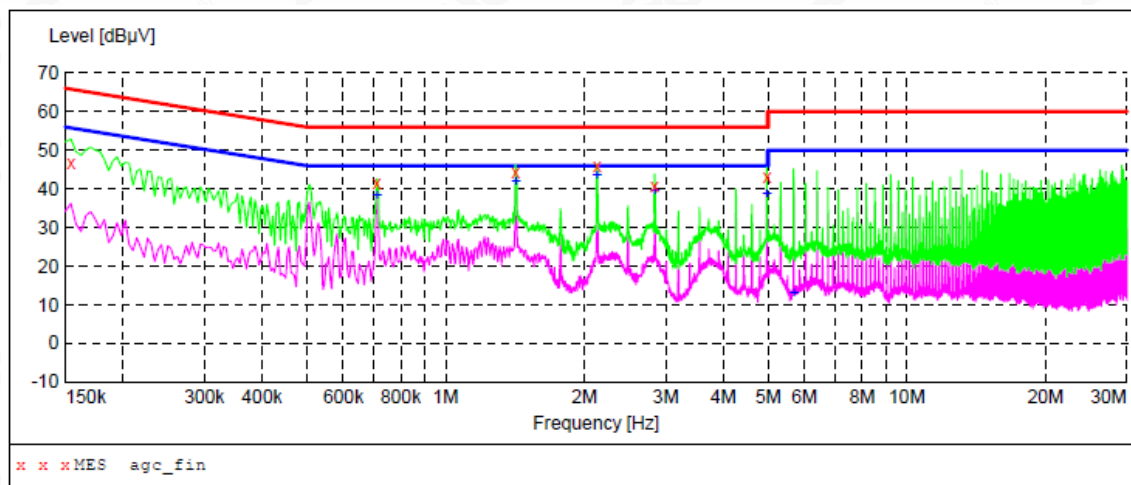
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### Line Conducted Emission Test Line 2-N



#### MEASUREMENT RESULT: "agc\_fin"

2021/5/20 14:16

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.154000	46.70	12.4	66	19.1	QP	N	GND
0.710000	41.30	12.4	56	14.7	QP	N	GND
1.418000	44.20	12.5	56	11.8	QP	N	GND
2.130000	45.80	12.5	56	10.2	QP	N	GND
2.838000	40.70	12.5	56	15.3	QP	N	GND
4.970000	42.90	12.6	56	13.1	QP	N	GND

#### MEASUREMENT RESULT: "agc\_fin2"

2021/5/20 14:16

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.710000	38.40	12.4	46	7.6	AV	N	GND
1.422000	41.90	12.5	46	4.1	AV	N	GND
2.130000	43.50	12.5	46	2.5	AV	N	GND
2.842000	39.30	12.5	46	6.7	AV	N	GND
4.970000	38.60	12.6	46	7.4	AV	N	GND
5.682000	12.90	12.6	50	37.1	AV	N	GND

#### RESULT: PASS

Note: All the test modes had been tested, the mode 6 was the worst case. Only the data of the worst case would be record in this test report.

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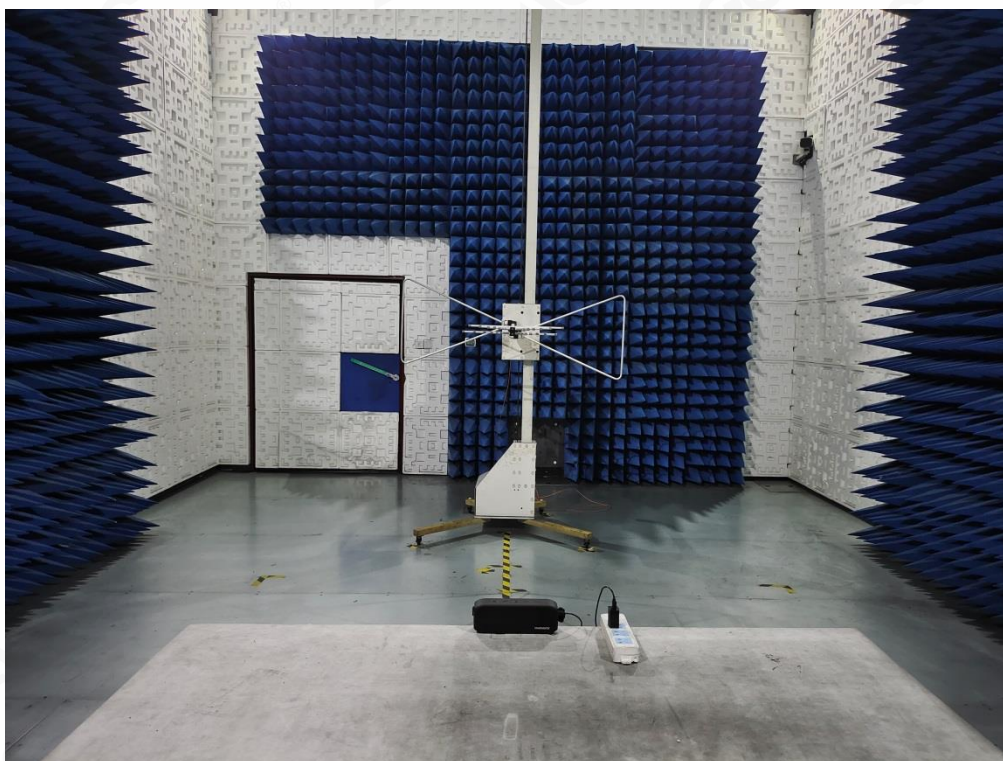
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## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

### RADIATED EMISSION TEST SETUP BELOW 1GHz



### RADIATED EMISSION TEST SETUP ABOVE 1GHz



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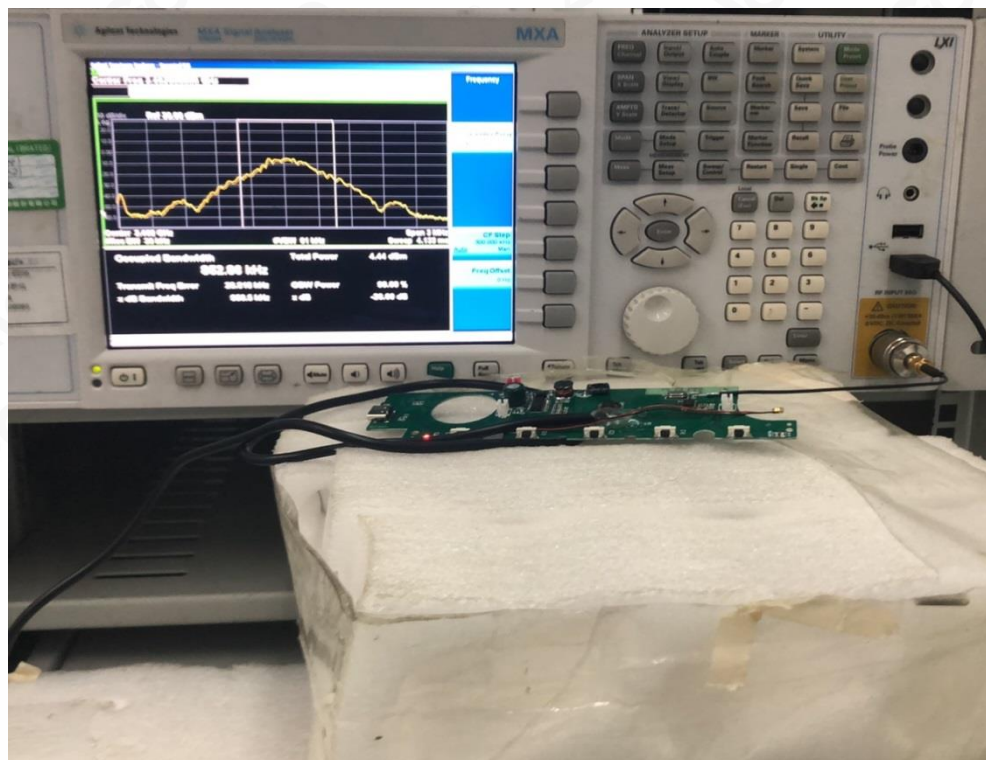




## CONDUCTED EMISSION TEST SETUP



## CONDUCTED TEST SETUP



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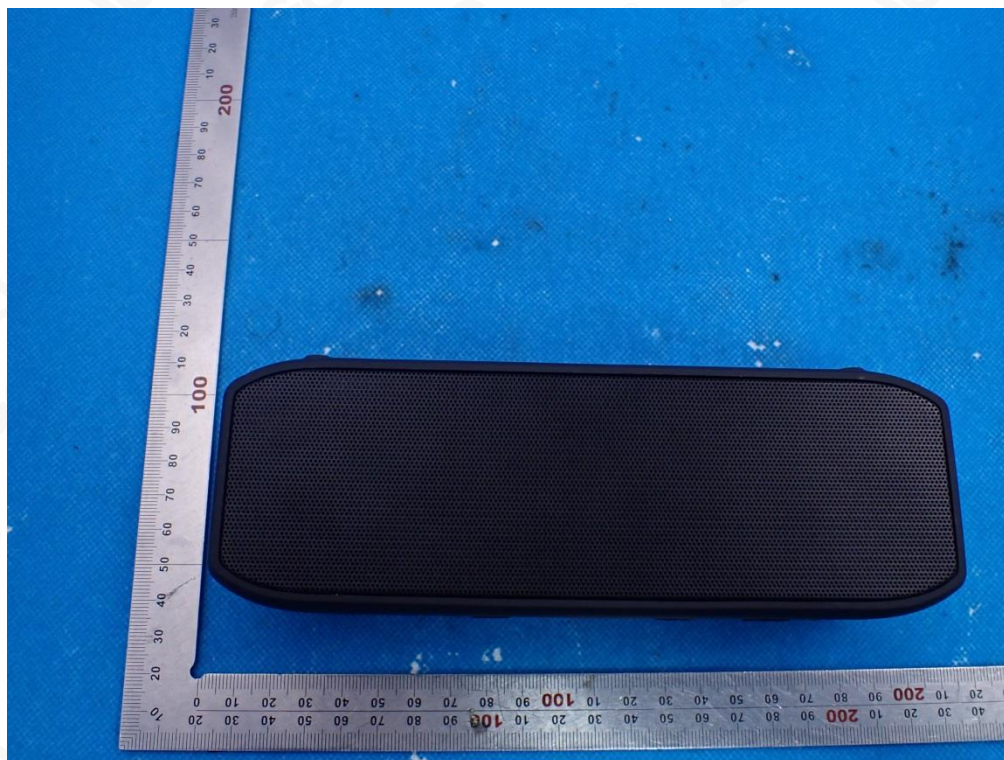


## APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



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FRONT VIEW OF EUT



BACK VIEW OF EUT



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LEFT VIEW OF EUT



RIGHT VIEW OF EUT



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VIEW OF EUT(PORT)



OPEN VIEW OF EUT



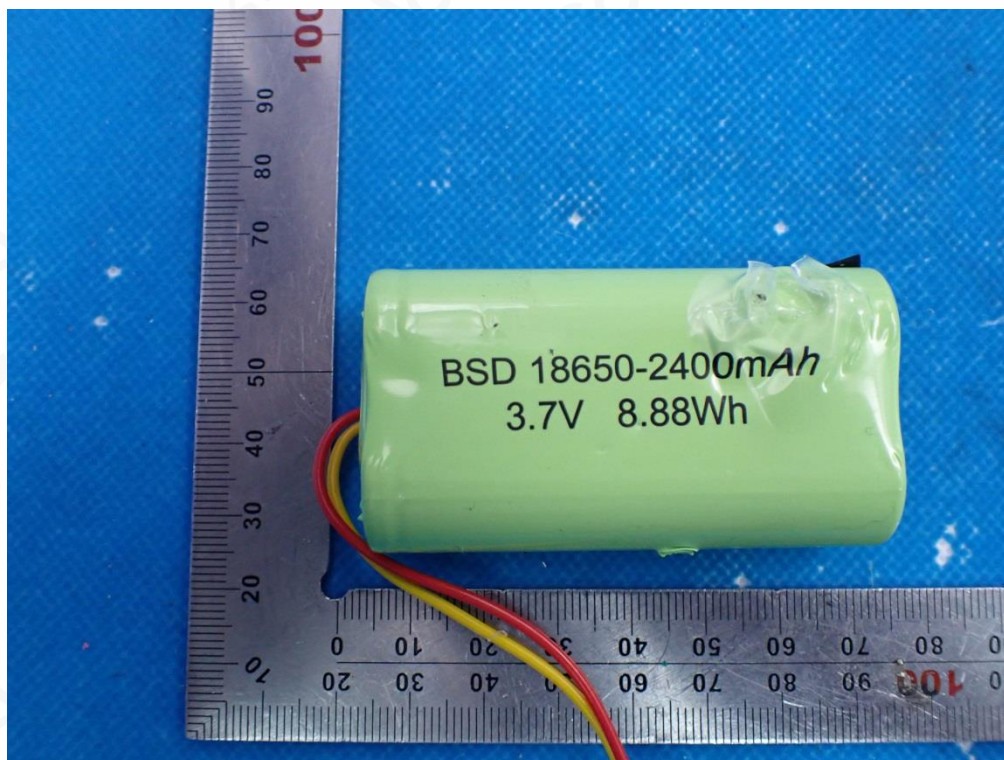
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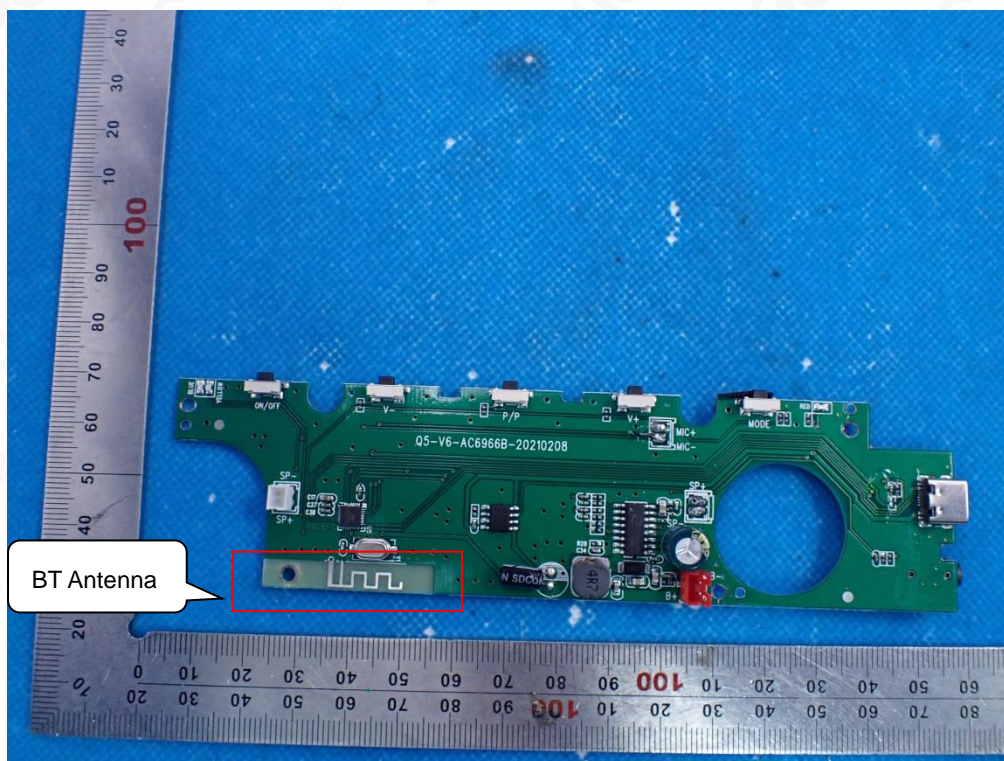




VIEW OF BATTERY



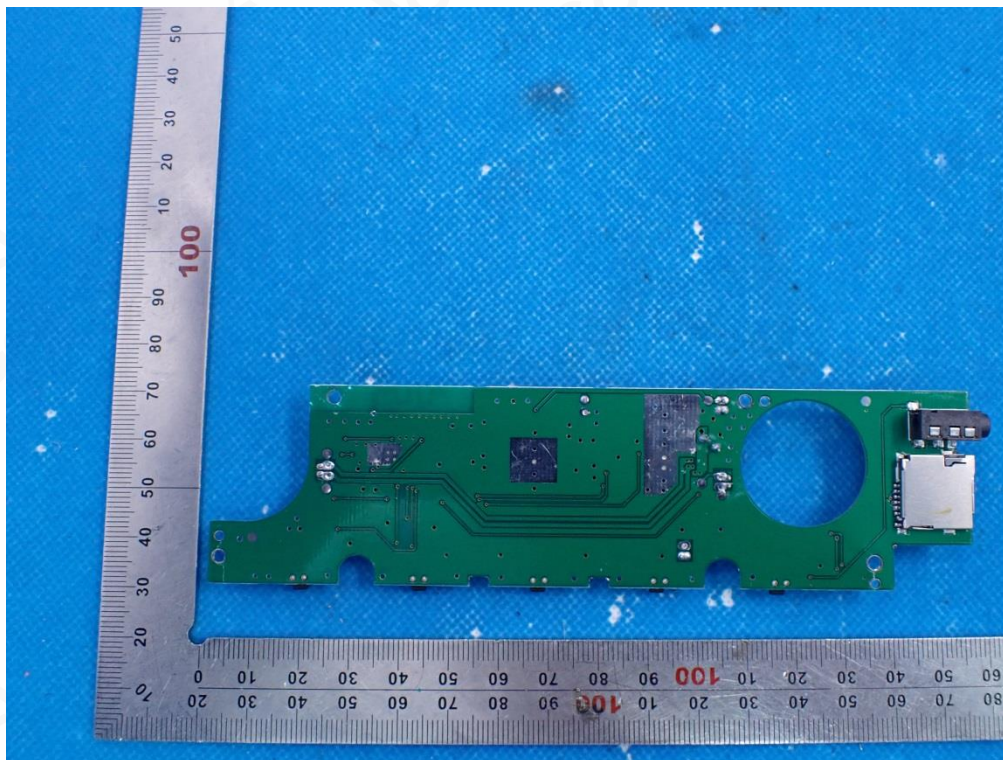
INTERNAL VIEW OF EUT-1



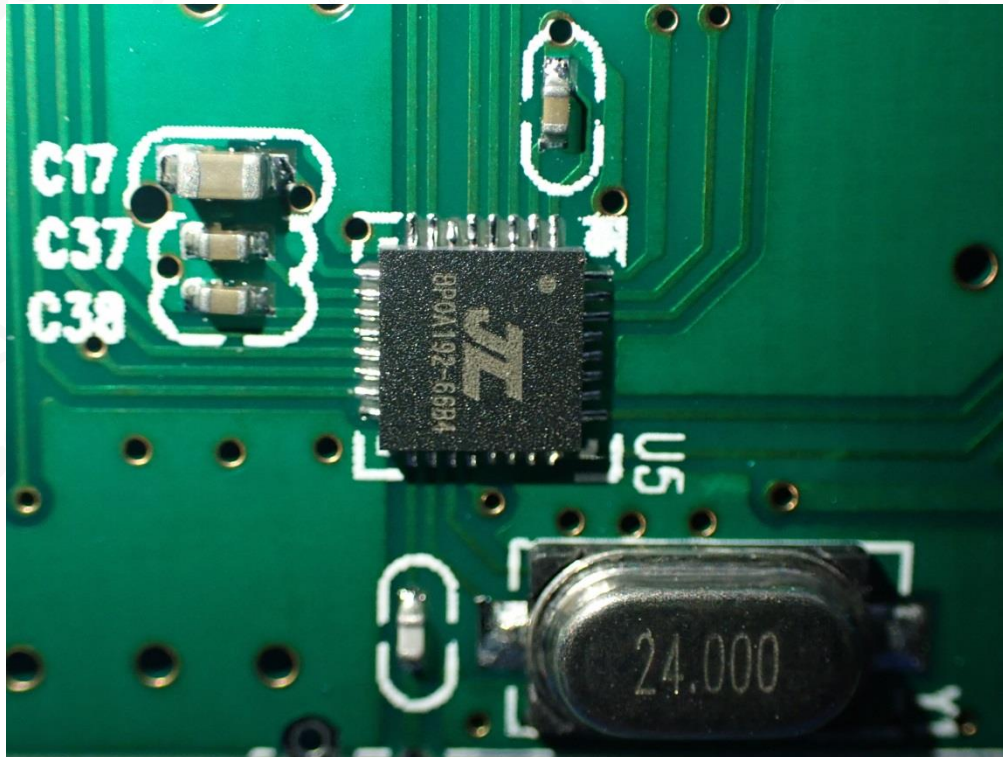
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INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



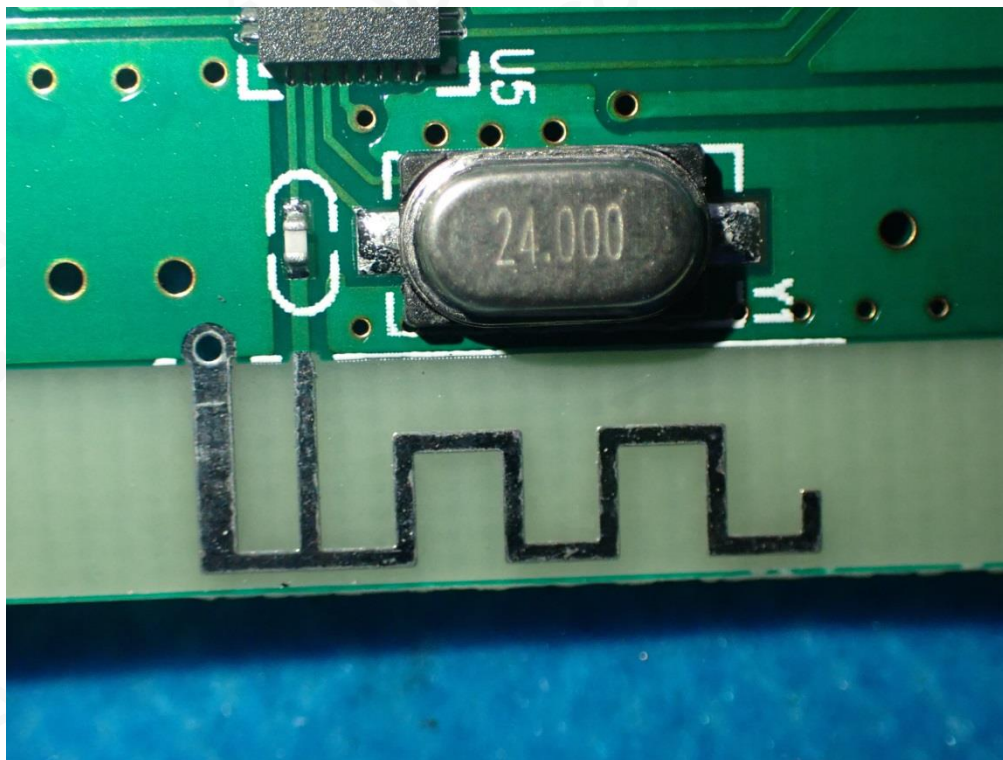
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INTERNAL VIEW OF EUT-4



----END OF REPORT----

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