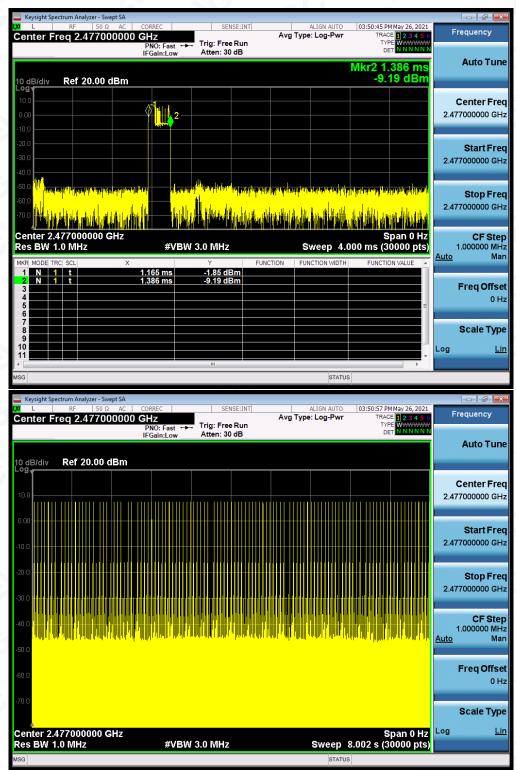


### TEST PLOT OF HIGH CHANNEL



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## 13. FREQUENCY SEPARATION

#### 13.1. MEASUREMENT PROCEDURE

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- 1. Span: Wide enough to capture the peaks of two adjacent channels.
- 2. RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
- 3. Video (or average) bandwidth (VBW) ≥ RBW.
- 4. Sweep: Auto. e) Detector function: Peak. f) Trace: Max hold. g) Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

## 13.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 6.2

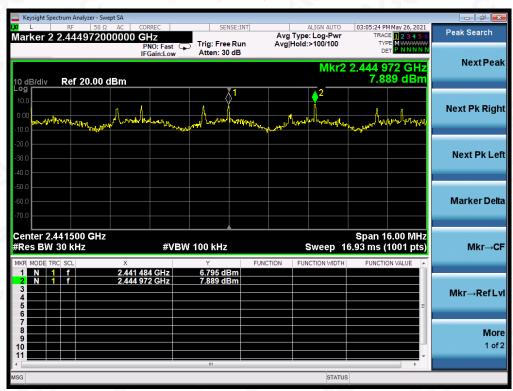
### 13.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.3

#### 13.4. LIMITS AND MEASUREMENT RESULT

TEST MODE	CHANNEL SEPARATION	LIMIT	RESULT		
	MHz		Poor		
Hopping	3.488	≥two-thirds of the 20dB BW	Pass		

### TEST PLOT FOR FREQUENCY SEPARATION



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# 14. LINE CONDUCTED EMISSION TEST

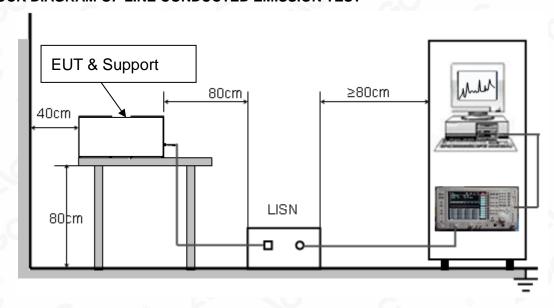
## 14.1. LIMITS OF LINE CONDUCTED EMISSION TEST

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

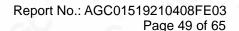
Note: 1. The lower limit shall apply at the transition frequency.

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

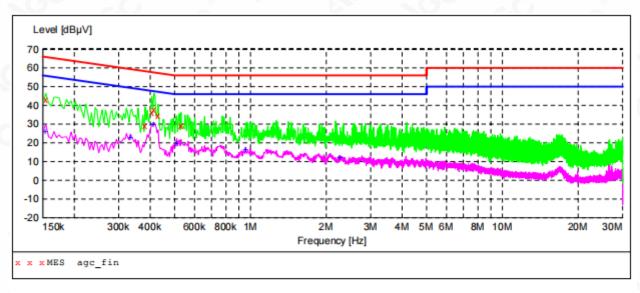
- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were 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 was reported on the Summary Data page.

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## 14.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

Line Conducted Emission Test Line 1-L



# MEASUREMENT RESULT: "agc\_fin"

2021/5/10 9:53 Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	42.90	12.4	66	22.9	QP	L1	GND
0.382000	28.90	12.4	58	29.3	QP	L1	GND
0.406000	36.30	12.4	58	21.4	QP	L1	GND
0.414000	38.00	12.4	58	19.6	QP	L1	GND
0.430000	34.70	12.4	57	22.6	QP	L1	GND
0.530000	29.20	12.4	56	26.8	QP	L1	GND

# MEASUREMENT RESULT: "agc\_fin2"

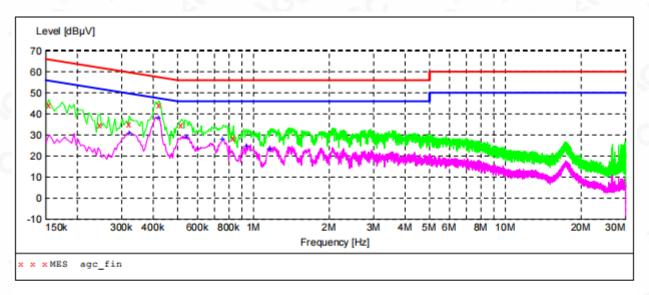
2021/5/10 9: Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	25.90	12.4	56	29.9	AV	L1	GND
0.334000	22.60	12.4	49	26.8	AV	L1	GND
0.414000	29.80	12.4	48	17.8	AV	L1	GND
0.510000	19.30	12.4	46	26.7	AV	L1	GND
0.958000	16.10	12.4	46	29.9	AV	L1	GND
2.270000	12.00	12.5	46	34.0	AV	L1	GND

**RESULT: PASS** 

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## Line Conducted Emission Test Line 2-N



# MEASUREMENT RESULT: "agc\_fin"

Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
44.20	12.4	66	21.6	QP	N	GND
34.50	12.4	62	27.4	QP	N	GND
35.00	12.4	60	24.7	QP	N	GND
44.00	12.4	57	13.4	QP	N	GND
34.40	12.4	56	21.6	QP	N	GND
28.60	12.4	56	27.4	QP	N	GND
	dBμV 44.20 34.50 35.00 44.00 34.40	dBμV dB 44.20 12.4 34.50 12.4 35.00 12.4 44.00 12.4 34.40 12.4	dBμV dB dBμV 44.20 12.4 66 34.50 12.4 62 35.00 12.4 60 44.00 12.4 57 34.40 12.4 56	dBμV dB dBμV dB 44.20 12.4 66 21.6 34.50 12.4 62 27.4 35.00 12.4 60 24.7 44.00 12.4 57 13.4 34.40 12.4 56 21.6	dBμV dB dBμV dB  44.20 12.4 66 21.6 QP  34.50 12.4 62 27.4 QP  35.00 12.4 60 24.7 QP  44.00 12.4 57 13.4 QP  34.40 12.4 56 21.6 QP	dBμV dB dBμV dB  44.20 12.4 66 21.6 QP N  34.50 12.4 62 27.4 QP N  35.00 12.4 60 24.7 QP N  44.00 12.4 57 13.4 QP N  34.40 12.4 56 21.6 QP N

# MEASUREMENT RESULT: "agc\_fin2"

20	Frequen	9:43 cy Hz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
	0.3220 0.4220 0.5420 0.7540 0.9380	00 00 00	30.70 37.90 29.10 27.80 24.50	12.4 12.4 12.4 12.4 12.4	50 47 46 46 46	19.0 9.5 16.9 18.2 21.5	AV AV AV AV	N N N N	GND GND GND GND GND
	1.1620	00	23.40	12.4	46	22.6	AV	N	GND

### **RESULT: PASS**

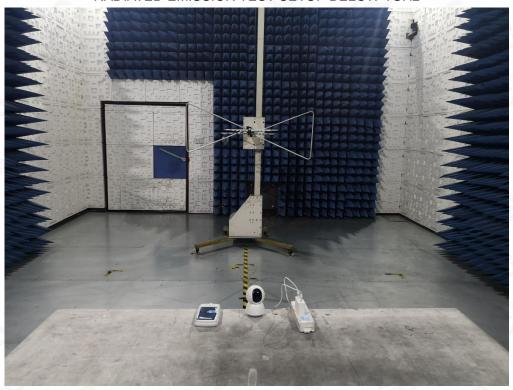
Note: 1. All test modes had been pre-tested. The mode 2 is the worst case and recorded in the report.

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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**

WHOLE VIEW OF EUT-1



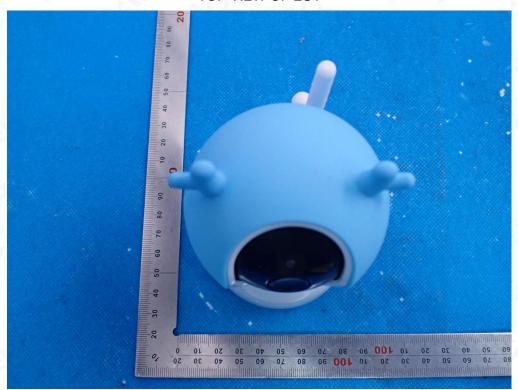
WHOLE VIEW OF EUT-2



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# TOP VIEW OF EUT



## **BOTTOM VIEW OF EUT**



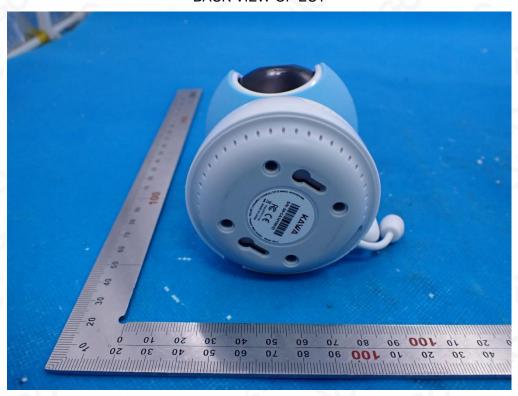
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the specificated resting/inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter pathorization of AGC, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



# FRONT VIEW OF EUT



**BACK VIEW OF EUT** 



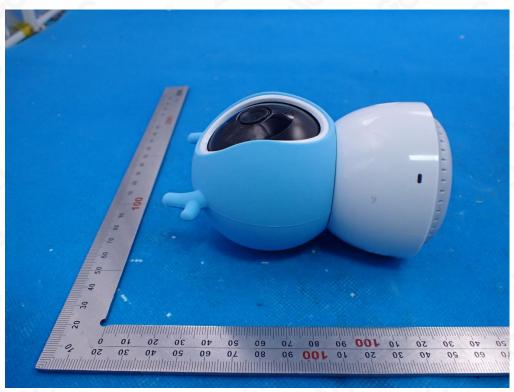
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the condition of stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written permitted without the written permitted without the written permitted in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



# LEFT VIEW OF EUT



RIGHT VIEW OF EUT



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# VIEW OF EUT(PORT)



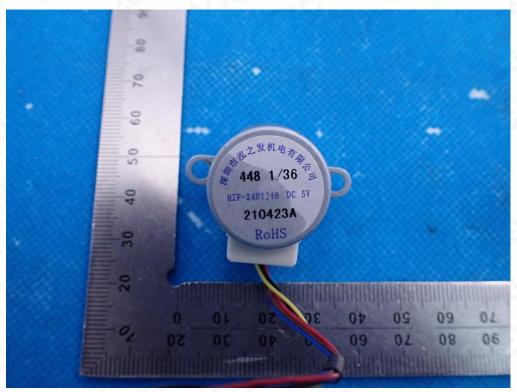
**INTERNAL VIEW-1 OF EUT** 



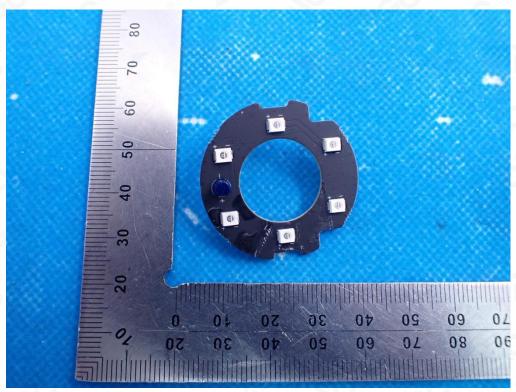
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the specificated resting/inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter pathorization of AGC, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



## **INTERNAL VIEW-2 OF EUT**



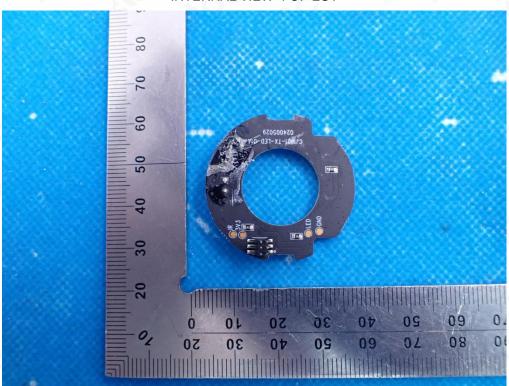
**INTERNAL VIEW-3 OF EUT** 



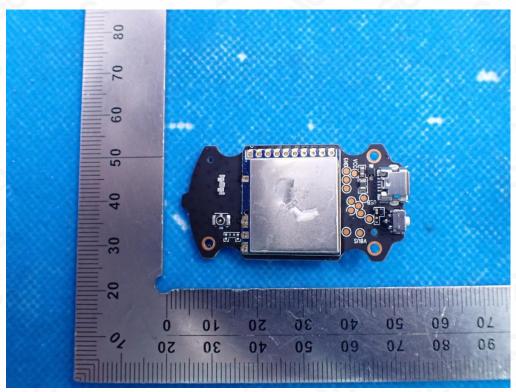
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## **INTERNAL VIEW-4 OF EUT**



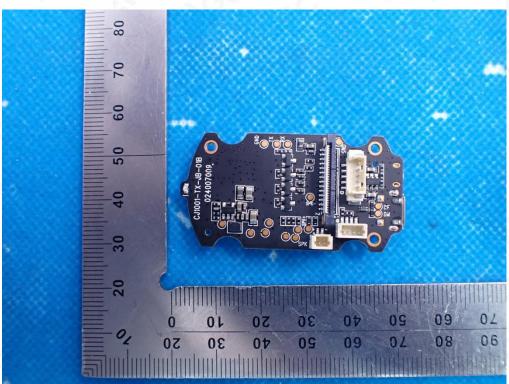
**INTERNAL VIEW-5 OF EUT** 



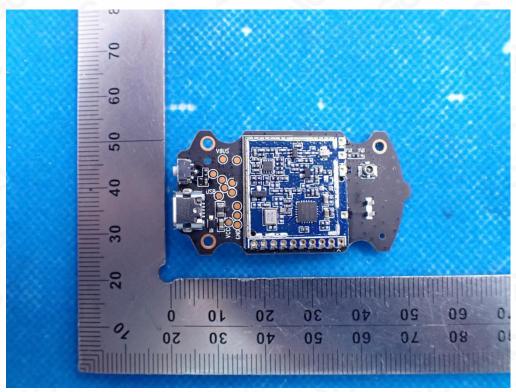
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## **INTERNAL VIEW-6 OF EUT**



INTERNAL VIEW-7 OF EUT



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