

## 14. LINE CONDUCTED EMISSION TEST

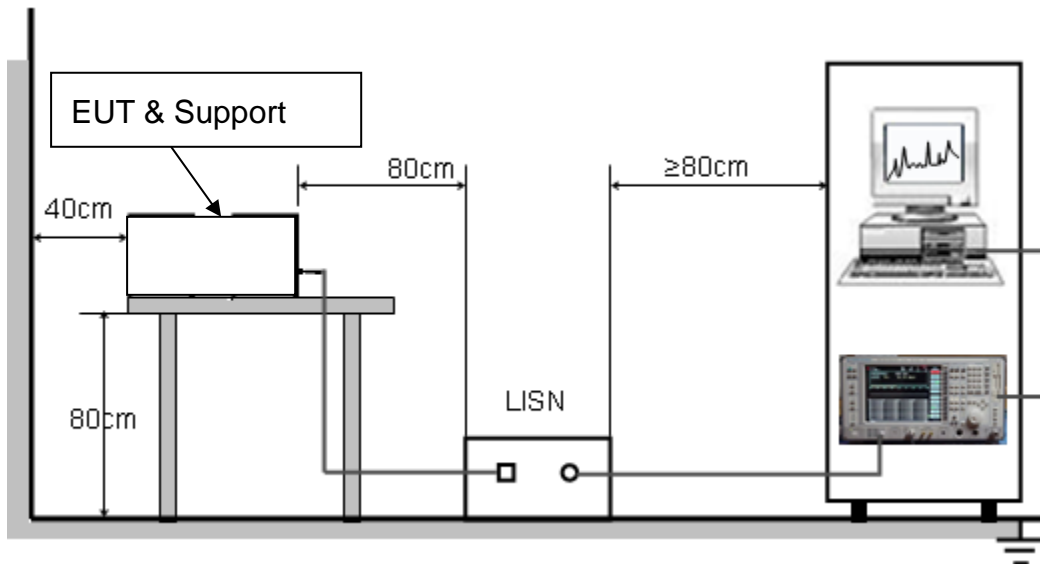
### 14.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P. (dB $\mu$ V)	Average (dB $\mu$ V)
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 or DC 48V power from PoE 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

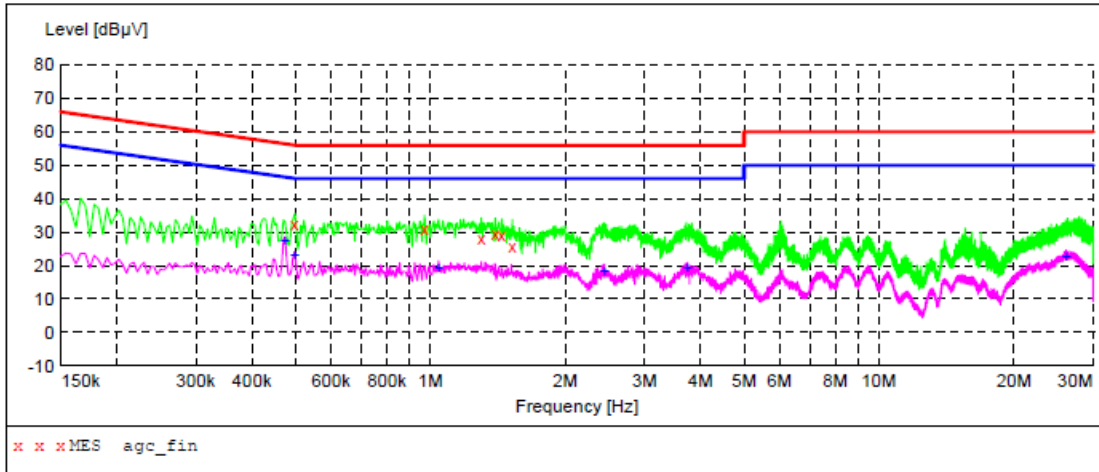
1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used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

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AC POWER LINE CONDUCTED EMISSION TEST

Test Mode	Mode 1 by DC 5V adapter	LISN line	Hot Side
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**MEASUREMENT RESULT: "agc\_fin"**

2023/7/12 13:42

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.498000	32.50	6.1	56	23.5	QP	L1
0.970000	30.90	6.2	56	25.1	QP	L1
1.298000	28.20	6.2	56	27.8	QP	L1
1.394000	29.60	6.2	56	26.4	QP	L1
1.442000	29.00	6.2	56	27.0	QP	L1
1.522000	25.80	6.2	56	30.2	QP	L1

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

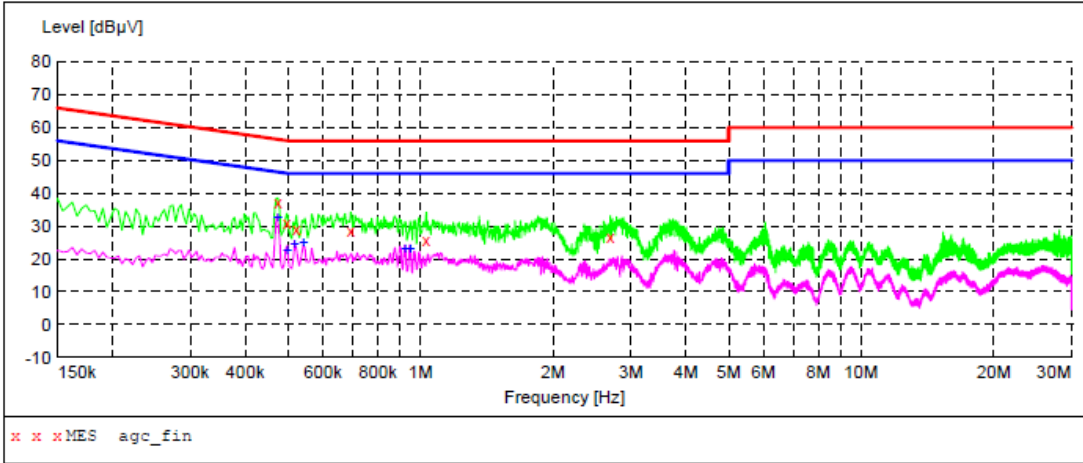
2023/7/12 13:42

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.474000	27.40	6.1	46	19.0	AV	L1
0.498000	23.30	6.1	46	22.7	AV	L1
1.042000	19.40	6.2	46	26.6	AV	L1
2.442000	18.60	6.3	46	27.4	AV	L1
3.742000	19.20	6.3	46	26.8	AV	L1
26.094000	23.00	8.7	50	27.0	AV	L1

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AC POWER LINE CONDUCTED EMISSION TEST

Test Mode	Mode 1 by DC 5V adapter	LISN line	Neutral Side
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**MEASUREMENT RESULT: "agc\_fin"**

2023/7/12 13:39

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.474000	37.20	6.1	56	19.2	QP	N
0.498000	31.00	6.1	56	25.0	QP	N
0.522000	28.90	6.1	56	27.1	QP	N
0.694000	28.70	6.2	56	27.3	QP	N
1.030000	25.80	6.2	56	30.2	QP	N
2.694000	26.80	6.3	56	29.2	QP	N

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

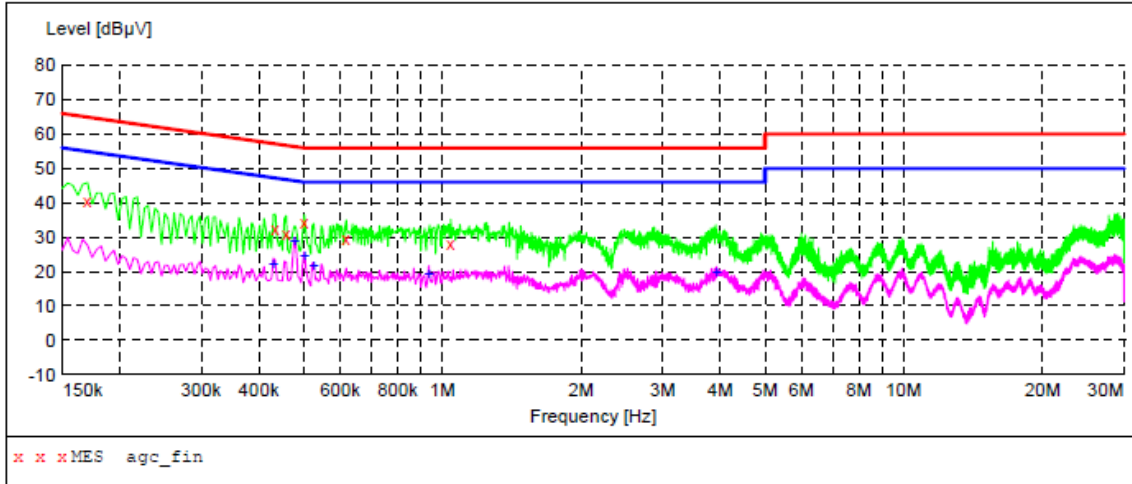
2023/7/12 13:39

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.474000	32.70	6.1	46	13.7	AV	N
0.498000	23.00	6.1	46	23.0	AV	N
0.518000	24.90	6.1	46	21.1	AV	N
0.542000	25.30	6.1	46	20.7	AV	N
0.922000	23.40	6.2	46	22.6	AV	N
0.946000	23.40	6.2	46	22.6	AV	N

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AC POWER LINE CONDUCTED EMISSION TEST

Test Mode      Mode 13 by DC 48V PoE      LISN line      Hot Side



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

2023/7/12 16:55

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.170000	40.40	6.1	65	24.6	QP	L1
0.434000	32.50	6.1	57	24.7	QP	L1
0.458000	31.10	6.1	57	25.6	QP	L1
0.502000	34.30	6.1	56	21.7	QP	L1
0.618000	29.60	6.2	56	26.4	QP	L1
1.042000	27.90	6.2	56	28.1	QP	L1

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

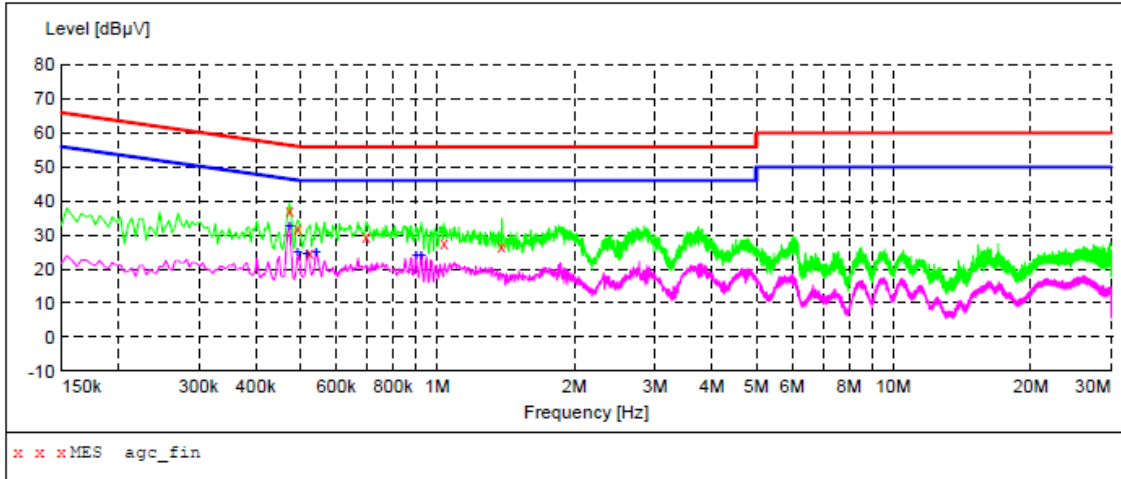
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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.430000	22.40	6.1	47	24.9	AV	L1
0.478000	29.20	6.1	46	17.2	AV	L1
0.502000	24.80	6.1	46	21.2	AV	L1
0.526000	21.60	6.1	46	24.4	AV	L1
0.934000	19.50	6.2	46	26.5	AV	L1
3.926000	19.90	6.3	46	26.1	AV	L1

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**AC POWER LINE CONDUCTED EMISSION TEST**

Test Mode	Mode 13 by DC 48V PoE	LISN line	Neutral Side
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**MEASUREMENT RESULT: "agc\_fin"**

2023/7/12 14:31

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.474000	37.20	6.1	56	19.2	QP	N
0.494000	32.00	6.1	56	24.1	QP	N
0.526000	24.90	6.1	56	31.1	QP	N
0.698000	29.40	6.2	56	26.6	QP	N
1.034000	27.60	6.2	56	28.4	QP	N
1.386000	26.40	6.2	56	29.6	QP	N

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

2023/7/12 14:31

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.474000	33.00	6.1	46	13.4	AV	N
0.494000	25.20	6.1	46	20.9	AV	N
0.518000	24.90	6.1	46	21.1	AV	N
0.542000	25.10	6.1	46	20.9	AV	N
0.898000	24.10	6.2	46	21.9	AV	N
0.922000	24.00	6.2	46	22.0	AV	N

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## **APPENDIX I: PHOTOGRAPHS OF TEST SETUP**

Refer to the Report No.: AGC14499230609AP01

## **APPENDIX II: PHOTOGRAPHS OF EUT**

Refer to the Report No.: AGC14499230609AP02

**----END OF REPORT----**

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