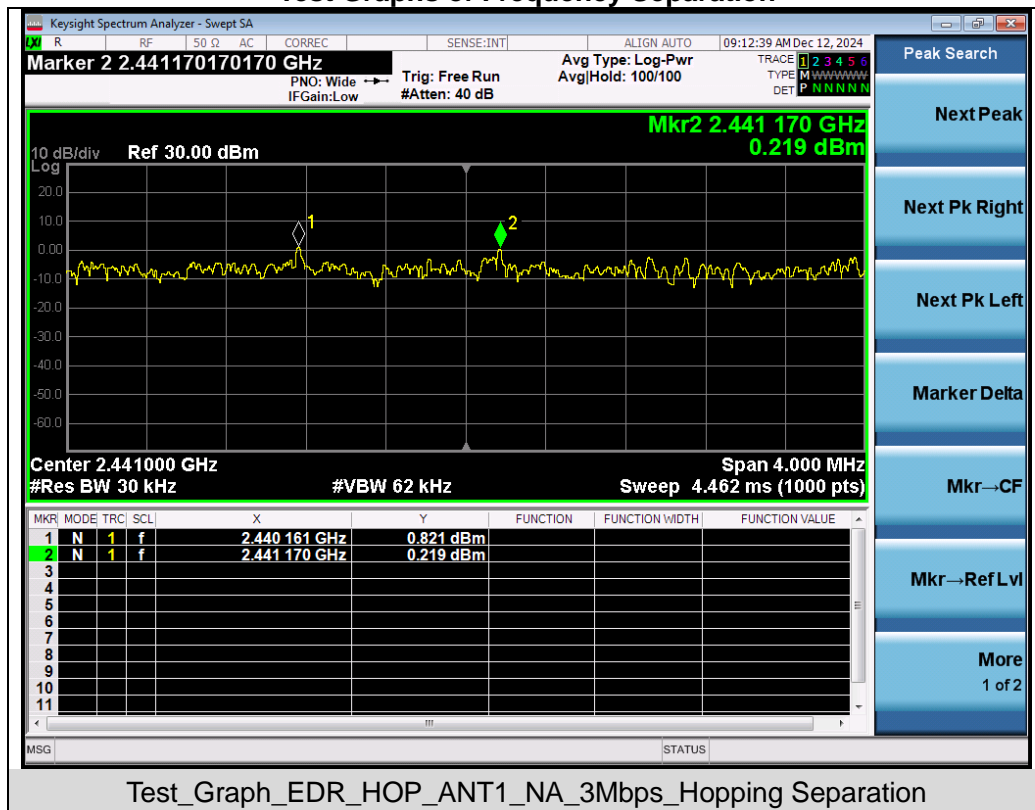


### Test Graphs of Frequency Separation



Note: All mode rates are tested and evaluated, 8DPSK modulated 3DH5 mode is the worst case and documented in the report.

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### 13. AC Power Line Conducted Emission Test

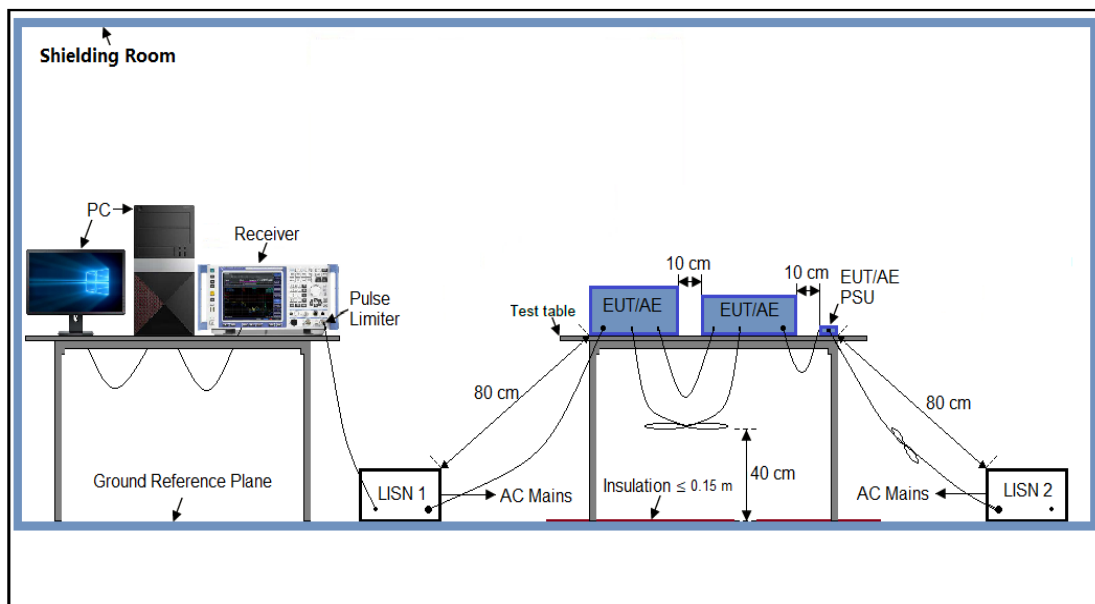
#### 13.1 Measurement Limit

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.

#### 13.2 Measurement Setup (Block Diagram of Configuration)



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### 13.3 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).
7. 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.
8. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
9. During the above scans, the emissions were maximized by cable manipulation.
10. The test mode(s) were scanned during the preliminary test.
11. Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 13.4 Final Procedure of Line Conducted Emission Test

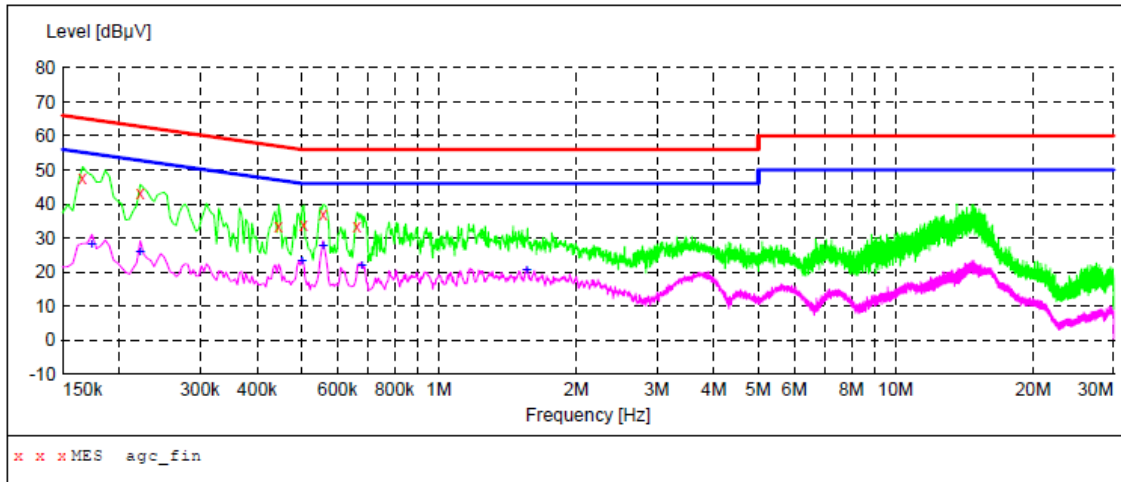
1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
3. 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.
4. The test data of the worst case condition(s) was reported on the Summary Data page.
5. A conducted emission is calculated by the following equation:
  - Measurement Level (dB $\mu$ V) = Receiver reading (dB $\mu$ V) + Transd (dB)
  - Transd (dB) = AMN Factor(dB)+Cable Loss(dB)+Attenuation(dB)
  - Margin = Limit-Level

### 13.5 Measurement Result

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### AC Power Line Conducted Emission Test

Test Mode	Mode 1	LISN Line	Hot Side
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#### MEASUREMENT RESULT: "agc\_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.166000	47.70	6.1	65	17.5	QP	L1
0.222000	43.10	6.1	63	19.6	QP	L1
0.446000	33.50	6.1	57	23.4	QP	L1
0.506000	34.00	6.2	56	22.0	QP	L1
0.558000	36.80	6.2	56	19.2	QP	L1
0.662000	33.40	6.2	56	22.6	QP	L1

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

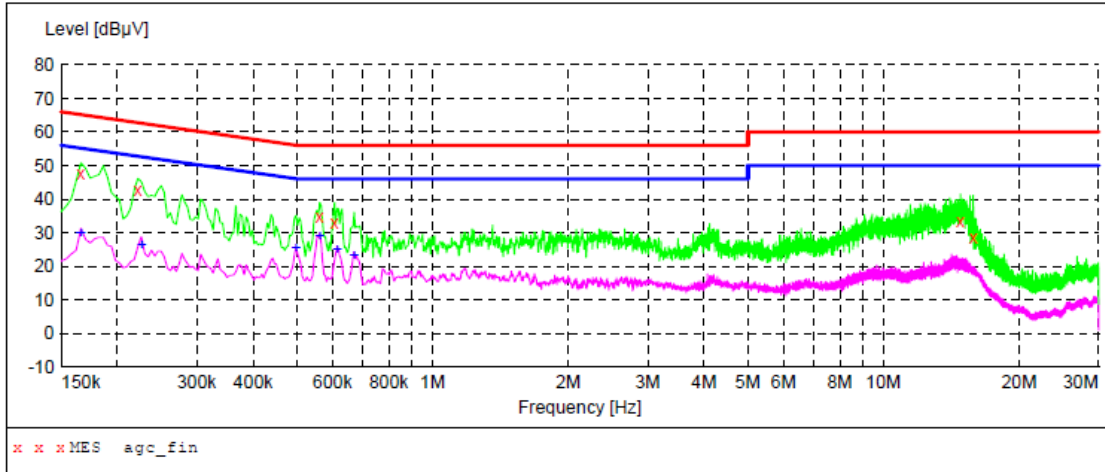
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.174000	28.10	6.1	55	26.7	AV	L1
0.222000	25.90	6.1	53	26.8	AV	L1
0.502000	23.00	6.2	46	23.0	AV	L1
0.558000	27.70	6.2	46	18.3	AV	L1
0.678000	22.00	6.2	46	24.0	AV	L1
1.558000	20.70	6.2	46	25.3	AV	L1

**RESULT: PASS**

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### AC Power Line Conducted Emission Test

Test Mode	Mode 1	LISN Line	Neutral Side
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#### MEASUREMENT RESULT: "agc\_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.166000	47.50	6.1	65	17.7	QP	N
0.222000	42.80	6.1	63	19.9	QP	N
0.562000	34.50	6.2	56	21.5	QP	N
0.606000	32.90	6.2	56	23.1	QP	N
14.814000	33.40	6.8	60	26.6	QP	N
15.806000	28.40	6.9	60	31.6	QP	N

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

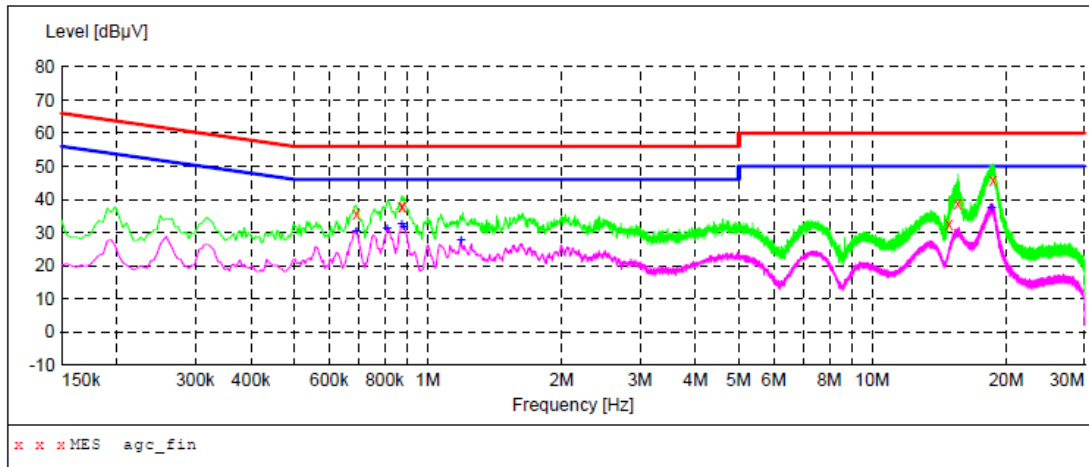
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.166000	29.70	6.1	55	25.5	AV	N
0.226000	26.10	6.1	53	26.5	AV	N
0.498000	25.20	6.1	46	20.8	AV	N
0.562000	28.90	6.2	46	17.1	AV	N
0.614000	25.00	6.2	46	21.0	AV	N
0.670000	23.10	6.2	46	22.9	AV	N

### RESULT: PASS

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### AC Power Line Conducted Emission Test

Test Mode	Mode 2	LISN Line	Hot Side
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#### MEASUREMENT RESULT: "agc\_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.690000	35.50	6.2	56	20.5	QP	L1
0.874000	38.00	6.2	56	18.0	QP	L1
0.878000	37.70	6.2	56	18.3	QP	L1
14.874000	32.50	6.8	60	27.5	QP	L1
15.586000	38.90	6.9	60	21.1	QP	L1
18.658000	45.90	7.0	60	14.1	QP	L1

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

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.690000	30.50	6.2	46	15.5	AV	L1
0.810000	31.30	6.2	46	14.7	AV	L1
0.874000	32.70	6.2	46	13.3	AV	L1
0.882000	31.60	6.2	46	14.4	AV	L1
1.186000	27.50	6.2	46	18.5	AV	L1
18.514000	37.60	7.0	50	12.4	AV	L1

**RESULT: PASS**

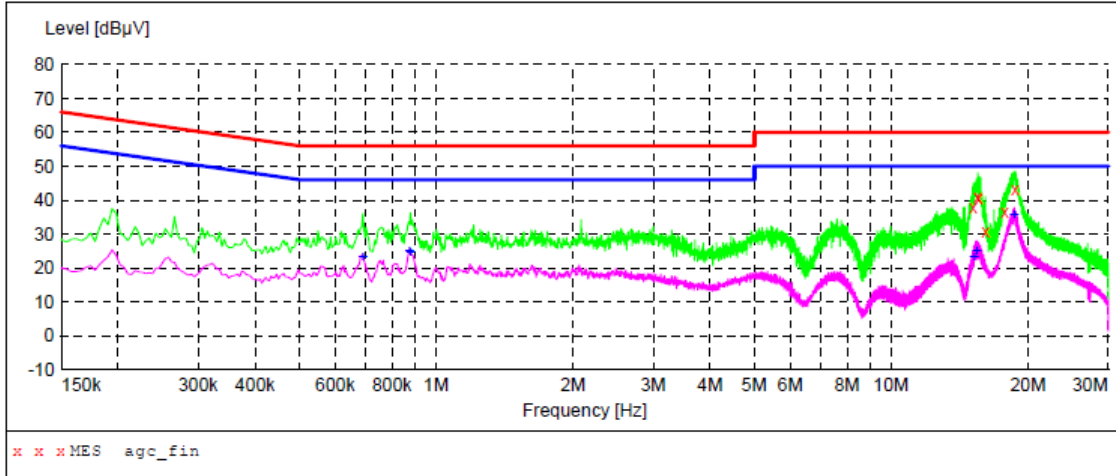
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### AC Power Line Conducted Emission Test

Test Mode	Mode 2	LISN Line	Neutral Side
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#### MEASUREMENT RESULT: "agc\_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
15.146000	38.00	6.9	60	22.0	QP	N
15.498000	41.00	6.9	60	19.0	QP	N
15.586000	40.30	6.9	60	19.7	QP	N
16.118000	30.60	6.9	60	29.4	QP	N
17.742000	36.40	7.0	60	23.6	QP	N
18.758000	43.30	7.0	60	16.7	QP	N

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

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.690000	23.30	6.2	46	22.7	AV	N
0.874000	25.10	6.2	46	20.9	AV	N
0.878000	24.60	6.2	46	21.4	AV	N
15.190000	23.20	6.9	50	26.8	AV	N
15.402000	25.00	6.9	50	25.0	AV	N
18.630000	35.60	7.0	50	14.4	AV	N

### RESULT: PASS

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### **Appendix I: Photographs of Test Setup**

Refer to the Report No.: AGC14499241201AP02

### **Appendix II: Photographs of Test EUT**

Refer to the Report No.: AGC14499241201AP03

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9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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