

Test specification:	Section 15.107, Conducted emission at AC power port		
Test procedure:	ANSI C63.4, Sections 11.5 and 12.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Sep-24		
Temperature: 22.7 °C	Air Pressure: 1008 hPa	Relative Humidity: 43 %	Power Supply: 110 VAC, 50 Hz
Remarks:			

Table 9.1.2 Conducted emission test results

LINE: AC mains
 LIMIT: Class A
 EUT OPERATING MODE: Stand-by
 EUT SET UP: TABLE-TOP
 TEST SITE: SHIELDED ROOM
 DETECTORS USED: PEAK / QUASI-PEAK / AVERAGE
 FREQUENCY RANGE: 150 KHz - 30 MHz
 RESOLUTION BANDWIDTH: 9 kHz

Frequency, MHz	Peak emission, dB(µV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(µV)	Limit, dB(µV)	Margin, dB*	Measured emission, dB(µV)	Limit, dB(µV)	Margin, dB*		
153.28	54.2	44.6	79.0	-34.4	28.6	66.0	-37.4	L1	Pass
155.84	54.6	42.8	79.0	-36.2	28.6	66.0	-37.4		
150.56	42.8	34.0	79.0	-45.0	25.8	66.0	-40.2	L2	Pass
151.48	43.4	34.1	79.0	-44.9	26.0	66.0	-40.0		
153.77	42.7	34.2	79.0	-44.8	25.9	66.0	-40.1		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

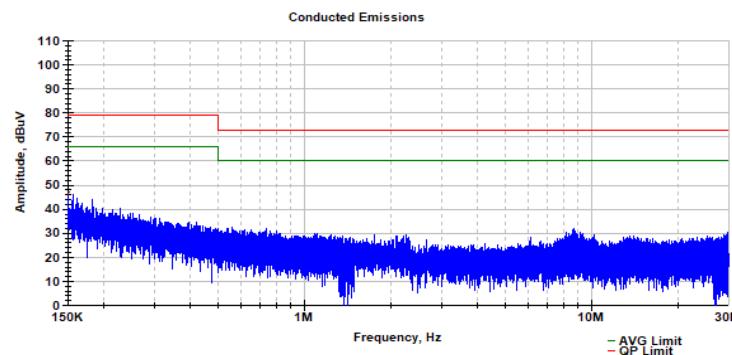
HL 4576	HL 6208	HL 6210	HL 6907	HL 8079			
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Full description is given in Appendix A.

Test specification:	Section 15.107, Conducted emission at AC power port		
Test procedure:	ANSI C63.4, Sections 11.5 and 12.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Sep-24		
Temperature: 22.7 °C	Air Pressure: 1008 hPa	Relative Humidity: 43 %	Power Supply: 110 VAC, 50 Hz
Remarks:			

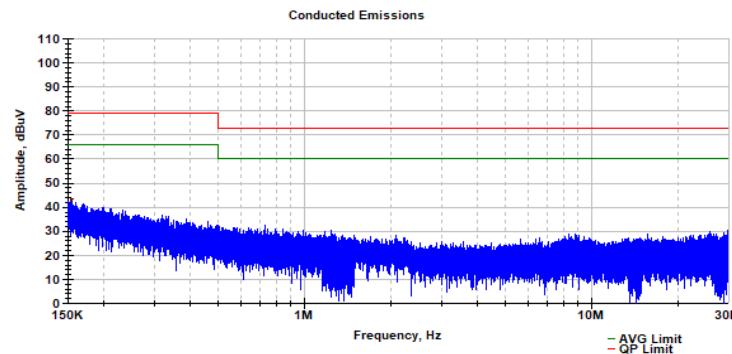
Plot 9.1.1 Conducted emission measurements

LINE: L1
 LIMIT: Class A
 EUT OPERATING MODE: Stand-by
 LIMIT: QUASI-PEAK, AVERAGE
 DETECTOR: PEAK



Plot 9.1.2 Conducted emission measurements

LINE: L2
 LIMIT: Class A
 EUT OPERATING MODE: Stand-by
 LIMIT: QUASI-PEAK, AVERAGE
 DETECTOR: PEAK



Test specification:	Section 15.109, Radiated emission		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	06-Oct-24 - 07-Oct-24		
Temperature: 24 °C	Air Pressure: 1008 hPa	Relative Humidity: 44 %	Power Supply: 120 VAC, 50 Hz
Remarks:			

9.2 Radiated emission measurements

9.2.1 General

This test was performed to measure radiated emissions from the EUT enclosure. Specification test limits are given in Table 9.2.1.

Table 9.2.1 Radiated emission test limits

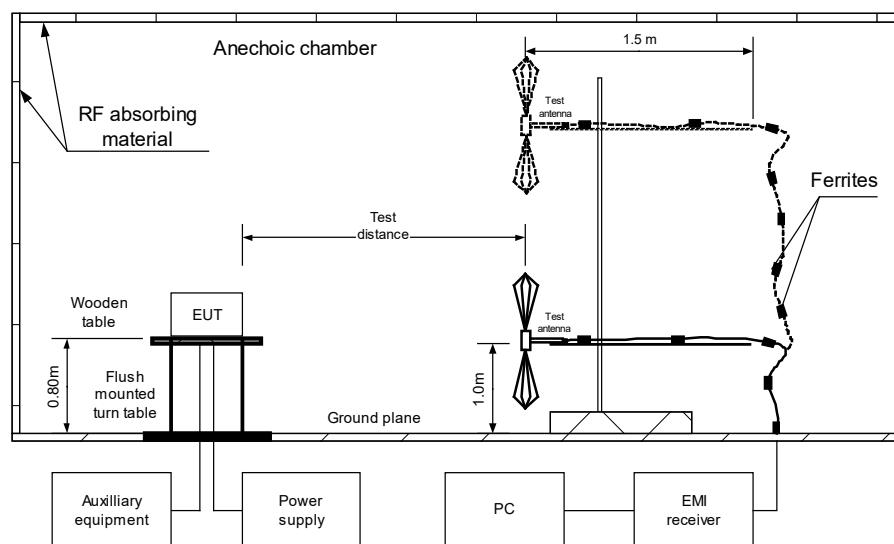
Frequency, MHz	Class B limit, dB(µV/m)		Class A limit, dB(µV/m)	
	10 m distance	3 m distance	10 m distance	3 m distance
30 - 88	29.5*	40.0	39.0	49.5*
88 - 216	33.0*	43.5	43.5	54.0*
216 - 960	35.5*	46.0	46.4	56.9*
Above 960	43.5*	54.0	49.5	60.0*

* The limit for test distance other than specified was calculated using the inverse linear distance extrapolation factor as follows: $Lims_2 = Lims_1 + 20 \log(S_1/S_2)$, where S_1 and S_2 – standard defined and test distance respectively in meters.

9.2.2 Test procedure for measurements in semi-anechoic chamber

- 9.2.2.1 The EUT was set up as shown in Figure 9.2.1 and associated photograph/s, energized and the performance check was conducted.
- 9.2.2.2 The specified frequency range was investigated with biconical antenna connected to EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal and the EUT cables position was varied.
- 9.2.2.3 The worst test results (the lowest margins) were recorded in Table 9.2.2 and shown in the associated plots.

Figure 9.2.1 Setup for radiated emission measurements in anechoic chamber, table-top equipment



Test specification:	Section 15.109, Radiated emission		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	06-Oct-24 - 07-Oct-24		
Temperature: 24 °C	Air Pressure: 1008 hPa	Relative Humidity: 44 %	Power Supply: 120 VAC, 50 Hz
Remarks:			

Photograph 9.2.1 Setup for final radiated emission measurements, general view



Test specification:	Section 15.109, Radiated emission		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	06-Oct-24 - 07-Oct-24		
Temperature: 24 °C	Air Pressure: 1008 hPa	Relative Humidity: 44 %	Power Supply: 120 VAC, 50 Hz
Remarks:			

Table 9.2.2 Radiated emission test results

EUT SET UP: TABLE-TOP
 LIMIT: Class A
 EUT OPERATING MODE: Stand-by
 TEST SITE: SEMI ANECHOIC CHAMBER
 TEST DISTANCE: 3 m
 DETECTORS USED: PEAK / QUASI-PEAK
 FREQUENCY RANGE: 30 MHz – 1000 MHz
 RESOLUTION BANDWIDTH: 120 kHz

Frequency, MHz	Peak emission, dB(µV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*				
31.014	36.550	27.025	49.5	-22.47	V	1.18	144	Pass
380.000	31.954	26.300	56.9	-30.60	V	2.47	0	
892.507	37.125	27.504	56.9	-29.40	V	3.17	187	
31.852	33.54	24.27	49.5	-25.23	H	3.69	280	
339.988	37.04	34.55	56.9	-22.35	H	1.00	126	
902.355	38.08	27.59	56.9	-29.31	H	1.93	215	

TEST SITE: SEMI ANECHOIC CHAMBER
 TEST DISTANCE: 3 m
 DETECTORS USED: PEAK / AVERAGE
 FREQUENCY RANGE: 1000 MHz -18000MHz
 RESOLUTION BANDWIDTH: 1000 kHz

Frequency, MHz	Peak			Average			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
	Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*	Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*				
7090.410	50.68	80.00	-29.32	37.11	60.00	-22.89	H	1.00	49	Pass
14722.187	58.63	80.00	-21.37	45.00	60.00	-15.00	H	4.00	280	
17976.522	59.45	80.00	-20.55	44.87	60.00	-15.13	H	3.06	223	
7206.747	50.97	80.00	-29.03	37.21	60.00	-22.79	V	1.00	124	
14801.073	57.88	80.00	-22.12	44.84	60.00	-15.16	V	1.96	314	
17981.719	58.46	80.00	-21.54	44.92	60.00	-15.08	V	1.10	47	

*- Margin = Measured emission - specification limit.

**- EUT front panel refer to 0 degrees position of turntable.

Reference numbers of test equipment used

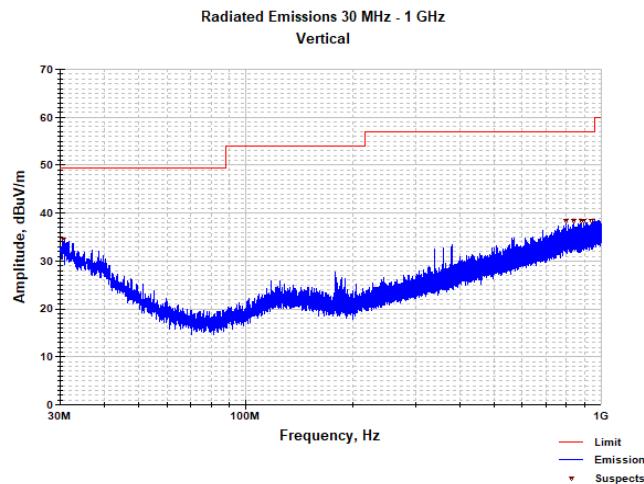
HL 5102	HL 5865	HL 6208	HL 6240	HL 6570	HL 6573	HL 6574	HL 6577
HL 6893	HL 7560	HL 8120					

Full description is given in Appendix A.

Test specification:	Section 15.109, Radiated emission		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	06-Oct-24 - 07-Oct-24		
Temperature: 24 °C	Air Pressure: 1008 hPa	Relative Humidity: 44 %	Power Supply: 120 VAC, 50 Hz
Remarks:			

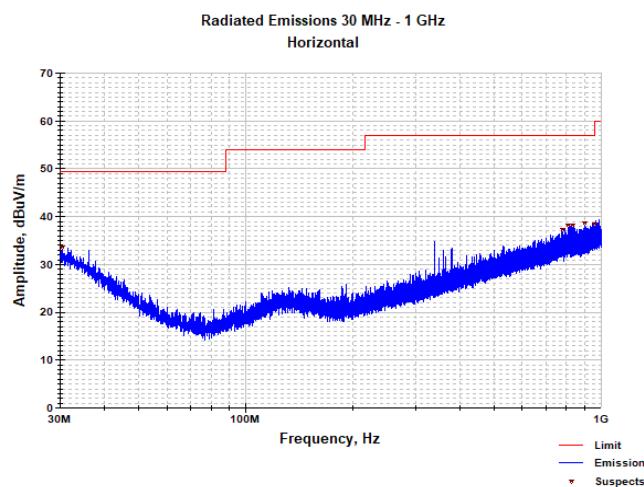
Plot 9.2.1 Radiated emission measurements in 30 - 1000 MHz range, vertical antenna polarization

TEST SITE: Semi anechoic chamber
 LIMIT: Class A
 TEST DISTANCE: 3 m
 EUT OPERATING MODE: Stand-by



Plot 9.2.2 Radiated emission measurements in 30 - 1000 MHz range, horizontal antenna polarization

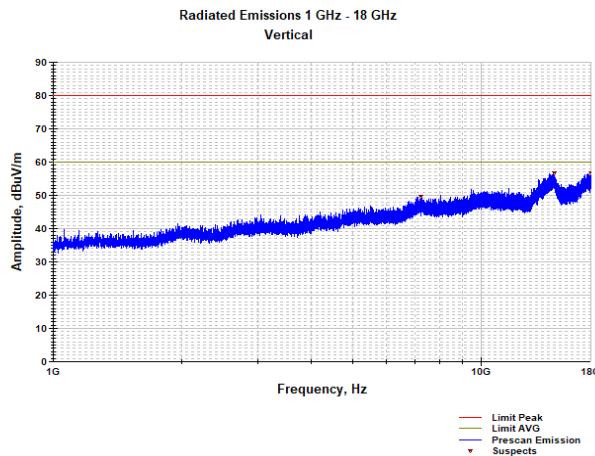
TEST SITE: Semi anechoic chamber
 LIMIT: Class A
 TEST DISTANCE: 3 m
 EUT OPERATING MODE: Stand-by



Test specification:	Section 15.109, Radiated emission		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	06-Oct-24 - 07-Oct-24		
Temperature: 24 °C	Air Pressure: 1008 hPa	Relative Humidity: 44 %	Power Supply: 120 VAC, 50 Hz
Remarks:			

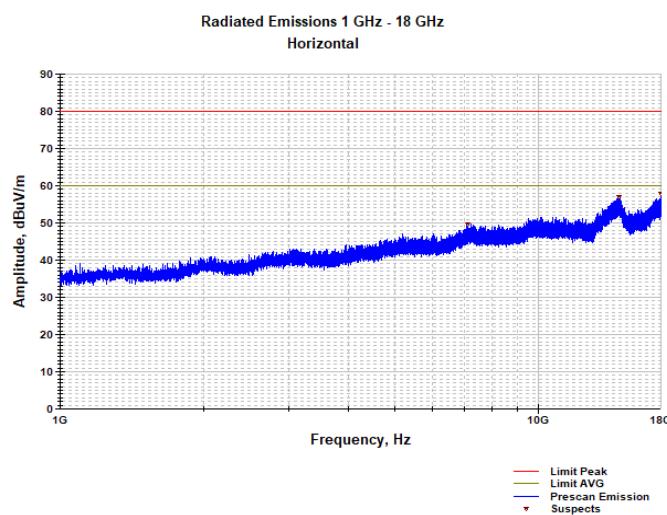
Plot 9.2.3 Radiated emission measurements above 1000 MHz, vertical antenna polarization

TEST SITE: Semi anechoic chamber
 LIMIT: Class A
 TEST DISTANCE: 3 m
 EUT OPERATING MODE: Stand-by



Plot 9.2.4 Radiated emission measurements above 1000 MHz, horizontal antenna polarization

TEST SITE: Semi anechoic chamber
 LIMIT: Class A
 TEST DISTANCE: 3 m
 EUT OPERATING MODE: Stand-by



Test specification:	FCC 47 CFR, Section 15.107 / ICES-003, Section 3.2.1, Class B, AC power lines conducted emissions		
Test procedure:	ANSI C63.4, Section 7.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	26-Nov-24		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

10 Emissions tests according to FCC 47CFR part 15 subpart B and ICES-003 requirements

10.1 Conducted emissions

10.1.1 General

This test was performed to measure the common mode conducted emissions at the EUT power port. The specification test limits are given in Table 10.1.1.

Table 10.1.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(µV)		Class A limit, dB(µV)	
	QP	AVRG	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*	79	66
0.5 - 5.0	56	46	73	60
5.0 - 30	60	50	73	60

* - The limit decreases linearly with the logarithm of frequency.

10.1.2 Test procedure

10.1.2.1 The EUT was set up as shown in Figure 10.1.1 and the associated photographs, energized and the EUT performance was checked.

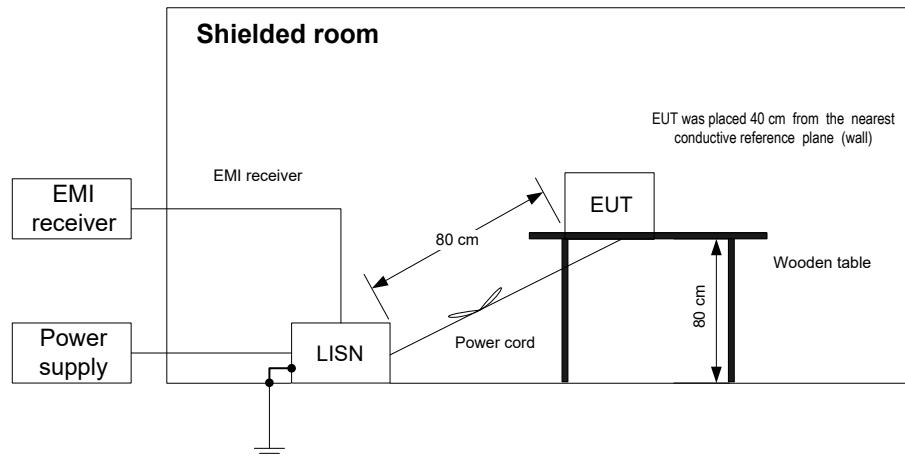
10.1.2.2 The measurements were performed at the EUT power terminals with the LISN connected to the EMI receiver in the frequency range referred to in Table 10.1.2. The unused coaxial connector of the LISN was terminated with 50 Ohm.

10.1.2.3 The position of the EUT cables was varied to find the highest emission.

10.1.2.4 The worst test results with respect to the limits were recorded in Table 10.1.2 and shown in the associated plots.

Test specification:	FCC 47 CFR, Section 15.107 / ICES-003, Section 3.2.1, Class B, AC power lines conducted emissions		
Test procedure:	ANSI C63.4, Section 7.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	26-Nov-24		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

Figure 10.1.1 Setup for conducted emission measurements, table-top EUT



Photograph 10.1.1 Setup for conducted emission measurements



Test specification:	FCC 47 CFR, Section 15.107 / ICES-003, Section 3.2.1, Class B, AC power lines conducted emissions		
Test procedure:	ANSI C63.4, Section 7.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	26-Nov-24		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

Table 10.1.2 Conducted emission test results

LINE:

AC mains

EUT SET UP:

TABLE-TOP

TEST SITE:

SHIELDED ROOM

DETECTORS USED:

PEAK / QUASI-PEAK / AVERAGE

FREQUENCY RANGE:

150 kHz - 30 MHz

RESOLUTION BANDWIDTH:

9 kHz

Frequency, MHz	Peak emission, dB(µV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(µV)	Limit, dB(µV)	Margin, dB*	Measured emission, dB(µV)	Limit, dB(µV)	Margin, dB*		
0.538	43.2	34.6	56.0	-21.4	24.7	46.0	-21.3	L1	Pass
0.551	43.5	36.7	56.0	-19.3	26.5	46.0	-19.5		
0.555	43.8	34.9	56.0	-21.1	24.9	46.0	-21.1		
0.558	44.2	34.4	56.0	-21.6	24.0	46.0	-22.0		
0.560	43.2	34.7	56.0	-21.3	23.4	46.0	-22.6		
0.623	41.7	32.4	56.0	-23.6	22.1	46.0	-23.9		
0.540	44.5	38.8	56.0	-17.2	26.2	46.0	-19.8		
0.549	46.4	39.2	56.0	-16.8	27.2	46.0	-18.8		
0.552	45.2	39.0	56.0	-17.0	26.5	46.0	-19.5		
0.556	45.7	38.2	56.0	-17.8	25.9	46.0	-20.1		
0.561	45.6	37.3	56.0	-18.7	23.7	46.0	-22.3		
0.563	45.3	37.3	56.0	-18.7	23.4	46.0	-22.6		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

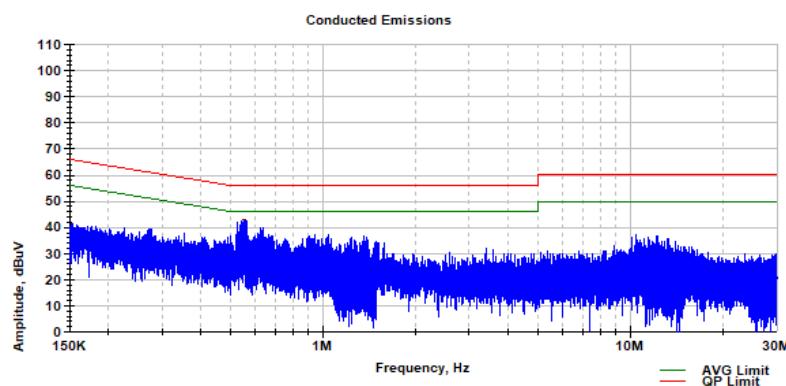
HL 4576	HL 6208	HL 6210	HL 6907	HL 8079			
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Full description is given in Appendix A.

Test specification:	FCC 47 CFR, Section 15.107 / ICES-003, Section 3.2.1, Class B, AC power lines conducted emissions		
Test procedure:	ANSI C63.4, Section 7.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	26-Nov-24		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

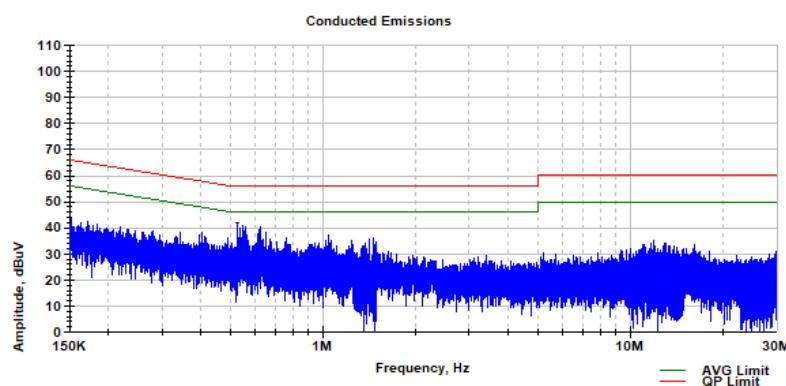
Plot 10.1.1 Conducted emission measurements

LINE: L1
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Plot 10.1.2 Conducted emission measurements

LINE: L2
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Test specification:	FCC 47 CFR, Section 15.109 / ICES-003, Section 3.2.2, Class B, Radiated emissions		
Test procedure:	ANSI C63.4, Section 8.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	26-Nov-24		
Temperature: 22 °C	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

10.2 Radiated emission measurements

10.2.1 General

This test was performed to measure radiated emissions from the EUT enclosure. The specification test limits are given in Table 10.2.1.

Table 10.2.1 Radiated emission test limits

Frequency, MHz	Class B limit, dB(µV/m)		Class A limit, dB(µV/m)	
	10 m distance	3 m distance	10 m distance	3 m distance
FCC 47 CFR, Section 15.109				
30 - 88	29.5*	40.0	39.0	49.5*
88 - 216	33.0*	43.5	43.5	54.0*
216 - 960	35.5*	46.0	46.4	56.9*
Above 960	43.5*	54.0	49.5	60.0*
ICES-003, Section 3.2.2				
30 - 88	30.0	40.0	40.0	50.0
88 - 216	33.1	43.5	43.5	54.0
216 - 230	35.6	46.0	46.4	56.9
230 - 960	37.0	47.0	47.0	57.0
960 - 1000	43.5	54.0	49.5	60.0
1000 - 40000	---	74 (Peak) 54 (AVR)	---	80 (Peak) 60 (AVR)

* - The limit for a test distance other than specified was calculated using the inverse linear distance extrapolation factor as follows: $L_{m2} = L_{m1} + 20 \log(S_1/S_2)$, where S_1 and S_2 – the standard defined and the test distance respectively in meters.

10.2.2 Test procedure for measurements in semi-anechoic chamber

10.2.2.1 30 – 1000 MHz range. The EUT was set up as shown in Figure 10.2.1 and the associated photograph/s, energized and the EUT performance was checked.

10.2.2.2 The measurements were performed in the anechoic chamber at 3 m test distance. The specified frequency range was investigated with the antenna connected to the EMI receiver. To find the highest emission the turntable was rotated 360° and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal polarizations. The EUT cables position was varied to maximize emission.

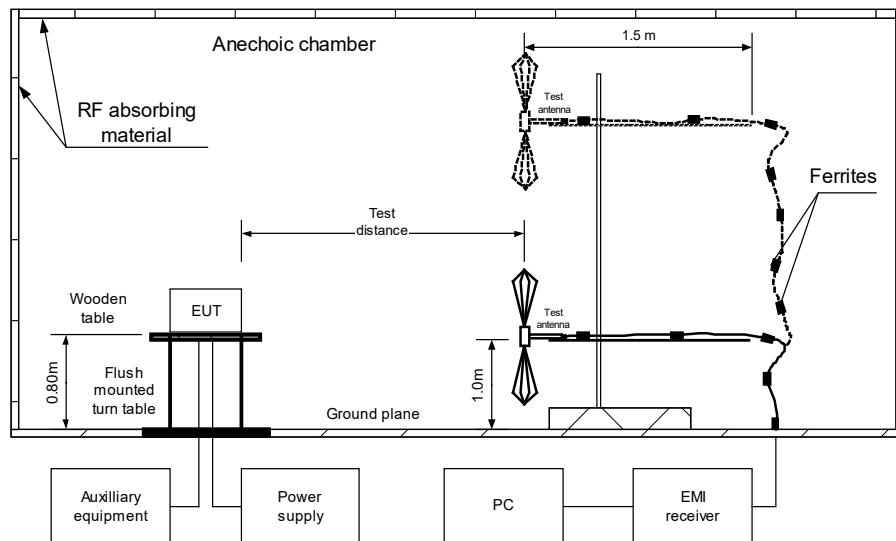
10.2.2.3 1000 – 40000 MHz range. The EUT was set up as shown in Figure 10.2.3 and the associated photograph/s, energized and the EUT performance was checked.

10.2.2.4 The measurements were performed in the semi anechoic chamber at 3 m test distance. The specified frequency range was investigated with the antenna connected to the EMI receiver. To find the highest emission the turntable was rotated 360° and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal polarizations. In order to stay within the 3 dB beamwidth while keeping the antenna height scanned from 1 to 4 m, a few sweeps with different antenna angles over the entire height were performed.

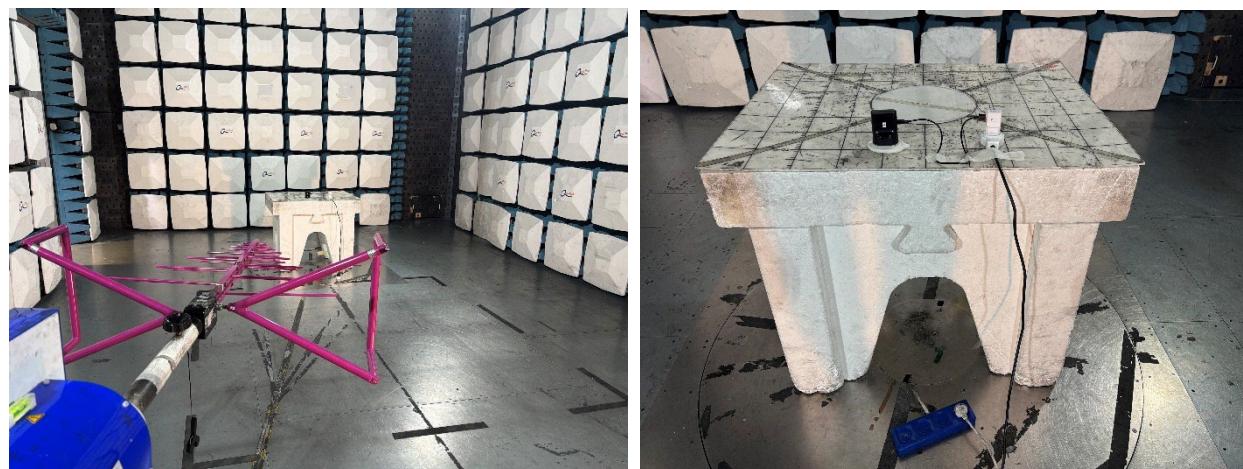
10.2.2.5 The worst test results with respect to the limits were recorded in Table 10.2.2 and shown in the associated plots.

Test specification:	FCC 47 CFR, Section 15.109 / ICES-003, Section 3.2.2, Class B, Radiated emissions		
Test procedure:	ANSI C63.4, Section 8.3		
Test mode:	Compliance	Verdict:	
Date & Time:	26-Nov-24	PASS	
Temperature: 22 °C	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

Figure 10.2.1 Setup for radiated emission measurements in anechoic chamber in 30 – 1000 MHz range, table-top EUT



Photograph 10.2.1 Setup for preliminary radiated emission measurements



Test specification:	FCC 47 CFR, Section 15.109 / ICES-003, Section 3.2.2, Class B, Radiated emissions		
Test procedure:	ANSI C63.4, Section 8.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	26-Nov-24		
Temperature: 22 °C	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

Figure 10.2.2 Setup for radiated emission measurements at SAC in 30 – 1000 MHz range, table-top EUT

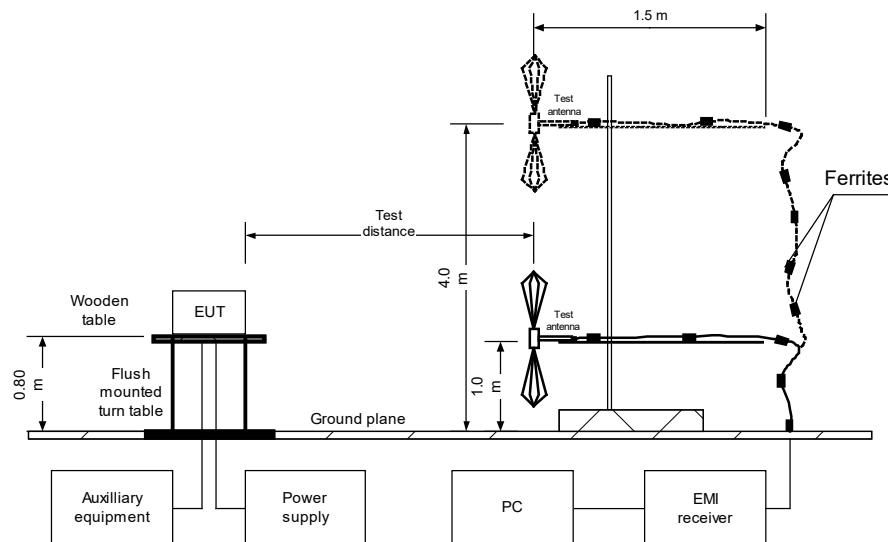


Table 10.2.2 Radiated emission test results

EUT SET UP:

TEST SITE:

TEST DISTANCE:

DETECTORS USED:

FREQUENCY RANGE:

RESOLUTION BANDWIDTH:

TABLE-TOP
SEMI ANECHOIC CHAMBER

3 m

PEAK / QUASI-PEAK

30 MHz – 1000 MHz

120 kHz

Frequency, MHz	Peak emission, dB(µV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*				
299.978	39.377	37.607	56.90	-19.29	V	100.000	356.000	Pass
796.433	36.748	27.843	56.90	-29.06	V	163.000	164.000	
997.140	39.173	29.652	60.00	-30.35	V	156.000	147.000	
300.000	39.82	37.72	56.90	-19.18	H	131.000	300.000	
870.556	38.22	28.26	56.90	-28.64	H	384.000	130.000	
958.209	39.00	29.12	56.90	-27.78	H	100.000	360.000	

*- Margin = Measured emission - specification limit.

**- EUT front panel refers to 0 degrees position of turntable.

Reference numbers of test equipment used

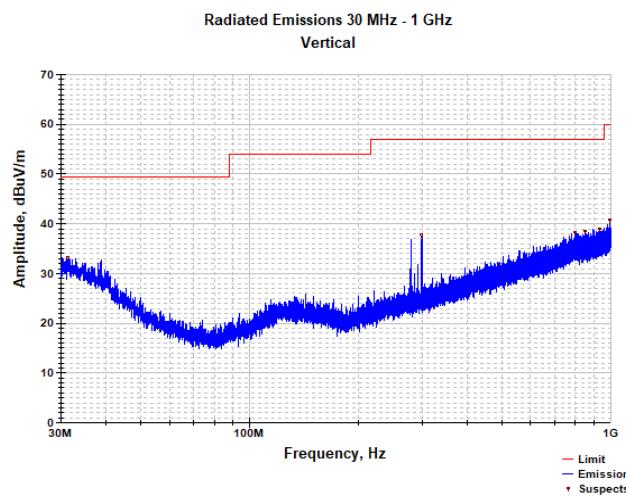
HL 5102	HL 5865	HL 6208	HL 6240	HL 6570	HL 6573	HL 6574	HL 6577
HL 6893	HL 7560	HL 8120					

Full description is given in Appendix A.

Test specification:	FCC 47 CFR, Section 15.109 / ICES-003, Section 3.2.2, Class B, Radiated emissions		
Test procedure:	ANSI C63.4, Section 8.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	26-Nov-24		
Temperature: 22 °C	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply:
Remarks: Per customer's request, additional test performed on a short USB cable <0.5m which is required to be added to the EUT			

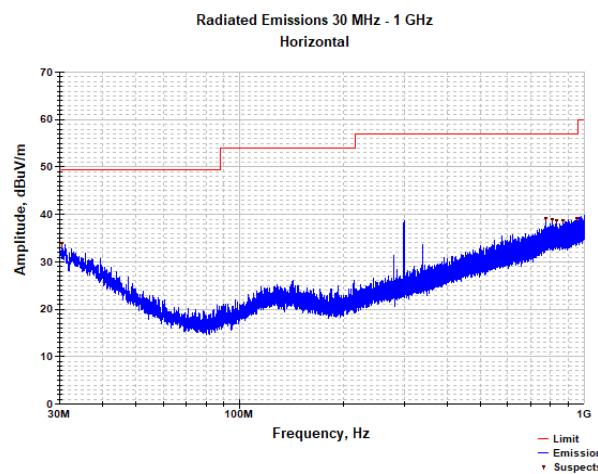
Plot 10.2.1 Radiated emission measurements in 30 - 1000 MHz range, vertical antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m



Plot 10.2.2 Radiated emission measurements in 30 - 1000 MHz range, horizontal antenna polarization

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m



Test specification:	EUT photographs		
Test procedure:	To delete		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Nov-24		
Temperature: 22.1 °C	Air Pressure: 1016 hPa	Relative Humidity: 45 %	Power Supply: 5 VDC
Remarks:			

11 Transmitter photographs

11.1 External

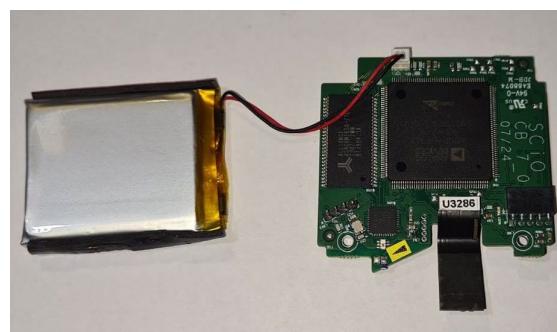
Photograph 11.1.1 Front view



Photograph 11.1.2 side view



Photograph 11.1.3 Antenna assembly



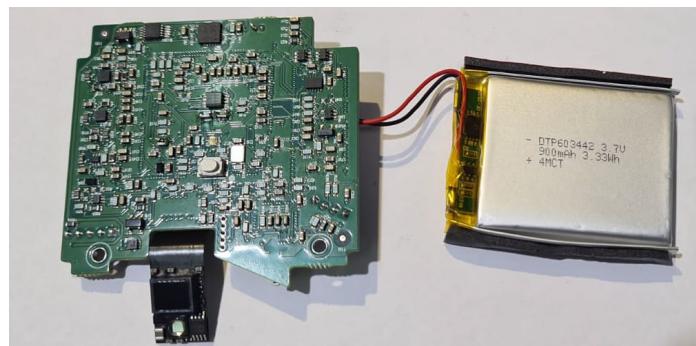
Test specification:	EUT photographs		
Test procedure:	To delete		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Nov-24		
Temperature: 22.1 °C	Air Pressure: 1016 hPa	Relative Humidity: 45 %	Power Supply: 5 VDC
Remarks:			

11.2 Internal

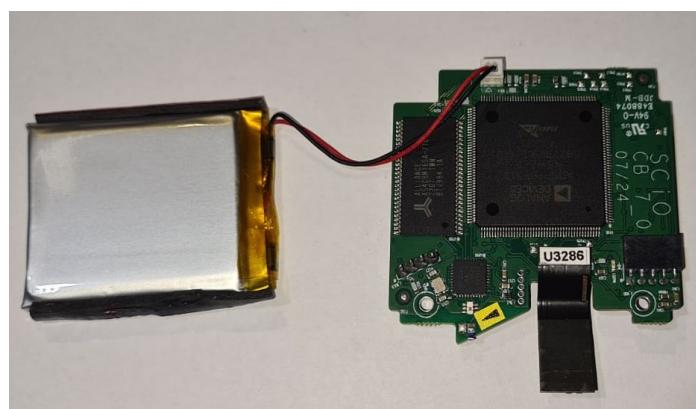
Photograph 11.2.1 Internal view



Photograph 11.2.2 Component side of the RF PCB



Photograph 11.2.3 Print side of the RF PCB



12 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
4576	LISN Two-line V-Network 50 Ohm / 50 uH + 5 Ohm, 16A, MIL STD 461E, CISPR 16-1	Fischer Custom Communications. INC.	FCC-Lisn_50/250-16--2-07	2004	09-Oct-23	09-Oct-24
5102	RF cable, 18 GHz, 6 m, N-type	Huber+Suhner	SF106A/11N/11N/6000MM	500848/6A	12-Nov-23	12-Nov-24
5865	Attenuator, 4 dB, DC - 6 GHz, 1 W	Mini-Circuits	UNAT-4+	NA	05-Jan-22	05-Jan-25
6208	MXE EMI Receiver, 3 Hz to 44 GHz	Keysight Technologies	N9038A	MY56400070	25-Feb-24	25-Feb-25
6210	Transient limiter, 10 kHz to 200 MHz	Agilent Technologies	11947A	3107A04119	25-Feb-24	25-Feb-25
6238	Antenna, broadband horn, 14 GHz to 40 GHz	Schwarzbeck Mess-Electronik	BBHA 9170	BBHA9170214	14-Mar-24	14-Mar-25
6240	Low Noise Amplifier (LNA), 1-18 GHz	Miteq	AMF-6D-010180-30-10P-6V	618553	19-Nov-23	19-Dec-24
6570	Controller Camera	PONTIS WebTechnic GmbH	ACL150	311-7052	18-Jul-24	18-Jul-25
6573	Antenna Biconilog, 30 -1000 MHz	Chase	CBL6141	4025	06-Jan-22	06-Jan-25
6574	Antenna, double ridged waveguide horn, 1 to 18 GHz	ARA Inc	DRG-118/A	17188	12-Oct-23	12-Oct-24
6577	Antenna Mast	MATURO	BAM 4.0-P	Unknown	18-Jul-24	18-Jul-25
6679	Antenna, Loop, Active, 10 (9) kHz - 30 MHz	EMCO	6502	3424	29-Feb-24	28-Feb-25
6892	EMI Receiver, 3 Hz to 44 GHz	Keysight Technologies	N9038A-MXE 40 GHz	MY55420200	16-Jun-24	16-Jun-25
6893	Controller Antenna Mast	MATURO	NCD/350/227 9.01	NA	18-Jul-24	18-Jul-25
6907	Variable Transformer	Unknown	Unknown	NA	18-Jul-24	18-Jul-25
6934	High Pass Filter, 3000-18000 MHz	Wainwright Instruments	WHKX12-2805-3000-18000-40EF	1	06-Nov-23	06-Jun-25
7560					30-Dec-99	30-Dec-99
7737	Low-Noise Amplifier 18.0-26.5GHz	Spacek Labs	AMF-5F-18002650-30-10P	NA	13-Feb-24	13-Feb-25
8079	Cable CI tests, 18 m, BNC-BNC	Hermon Laboratories	M17128-RG400	001	30-Jan-24	30-Jan-25
8090	RF coaxial cable 5.5m, 40 GHz, K-m to K-m	Neoflex	NA	405	17-Jan-24	17-Jan-25
8120	RF cable, 18 GHz, 10 m, N-N	Huber+Suhner	Sucoflex 118	503311/118	07-May-24	07-May-25

13 APPENDIX B Test laboratory description

Tests were performed at QualiTech – subdivision of Hermon Laboratories, which is a fully independent, private, EMC, Radio, Safety, and Environmental testing facility.

QualiTech is recognized and accredited by the Federal Communications Commission (USA) for relevant parts of Code of Federal Regulations 47 (CFR 47), Test Firm Registration Number is 488238, Designation Number is IL1006; Recognized by Innovation, Science and Economic Development Canada for wireless and terminal testing (ISED), CAB identifier is IL1006, ISED# number 4808A; Certified by VCCI, Japan (the registration numbers are C-13775, G-20167, R-13404, T-20046). The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing, environmental simulation and calibration (for exact scope please refer to Certificate No. 1633.01 and 1633.02).

Address: 43 Hasivim St., Petah-Tikva 4959388, Israel
Telephone: +972 4 626 8494
Fax: +972 4 628 8277
e-mail: mail@hermonlabs.com
website: www.hermonlabs.com

Person for contact: Mr. M. Nikishin, Head of Department, EMC and Radio

14 APPENDIX C Abbreviations and acronyms

A	ampere	LISN	line impedance stabilization network
AC	alternating current	m	meter
A/m	ampere per meter	MHz	megahertz
AM	amplitude modulation	MIL	military
ASSL	abnormal steady state limits	mm	millimeter
ATP	acceptance test procedure	ms	millisecond
AVRG	average (detector)	μ F	microfarad
BB	broad band	μ s	microsecond
cm	centimeter	NA	not applicable
dB	decibel	NB	narrow band
dBm	decibel referred to one milliwatt	NP	normal performance
dB(μ A)	decibel referred to one microampere	NSSL	normal steady state limits
dB μ V	decibel referred to one microvolt	NT	not tested
dB μ V/m	decibel referred to one microvolt per meter	OATS	open area test site
DC	direct current	Ω	Ohm
EMI	electromagnetic interference	QP	quasi-peak
ESS	environmental stress screening	PBIT	periodic built in test
ESSL	emergency steady state limits	PM	pulse modulation
EUT	equipment under test	PS	power supply
FTE	functional test equipment	RE	radiated emission
GHz	gigahertz	RF	radio frequency
GND	ground	rms	root mean square
H	height	s	second
HL	Hermon laboratories	STD	standard
Hz	hertz	TBD	to be defined
k	kilo	V	volt
kHz	kilohertz	VA	volt-ampere
kV	kilovolt	W	width
L	length	W	watt

15 APPENDIX D Specification references

FCC 47CFR part 15: 2019	Radio Frequency Devices
ANSI C63.10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
ANSI C63.4: 2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz