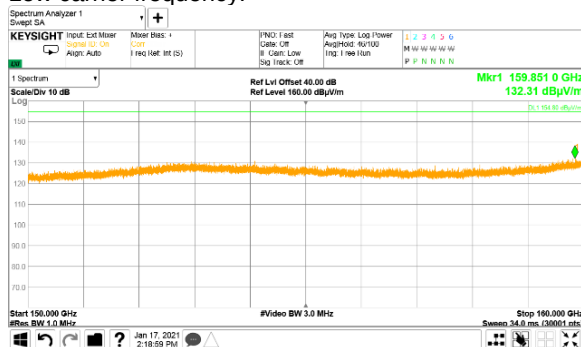


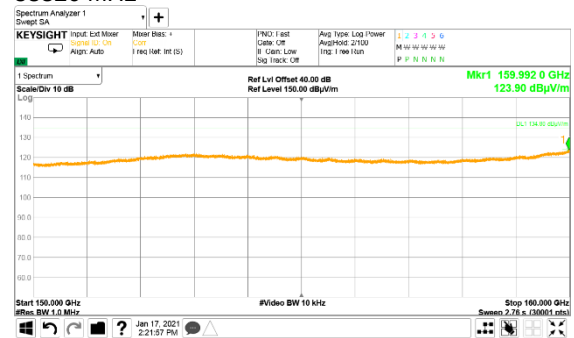
Test specification:		FCC Section 15.255(d)(3), RSS-210 section J.3, Out of band radiated emissions above 40 GHz	
Test procedure:		ANSI C63.10, Sections 9.9, 9.12	
Test mode:		Verdict: PASS	
Date(s):			
18-Jan-21			
Temperature: 20 °C	Relative Humidity: 68 %	Air Pressure: 1015 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.13 Spurious emission measurements in 150 – 160 GHz range

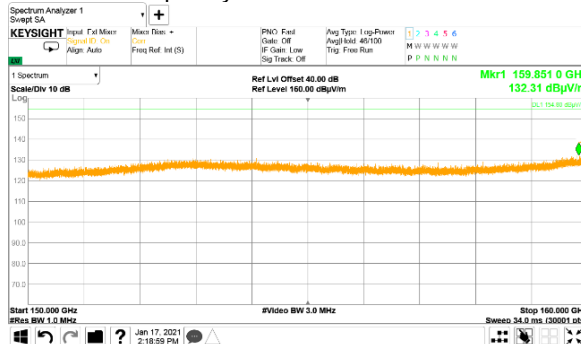
TEST SITE:
TEST DISTANCE:
MODULATION:
ANTENNA POLARIZATION:
DETECTOR: Peak RBW = 1 MHz; VBW = 3 MHz
Low carrier frequency:



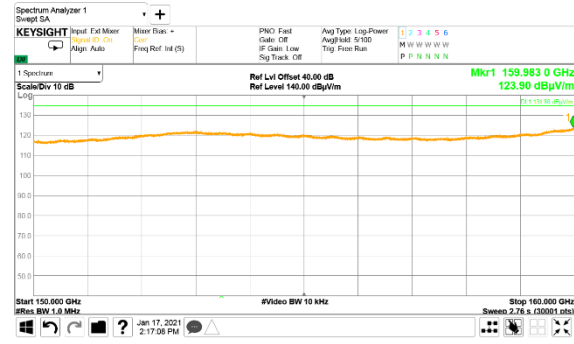
OATS
0.01 m
QPSK
Vertical and Horizontal
DETECTOR: Peak RBW = 1 MHz; VBW = 10 kHz
58320 MHz



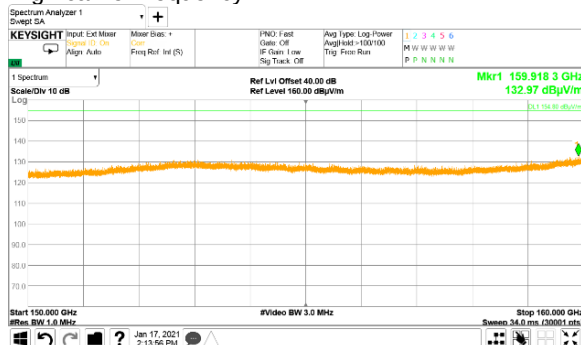
Mid carrier frequency:



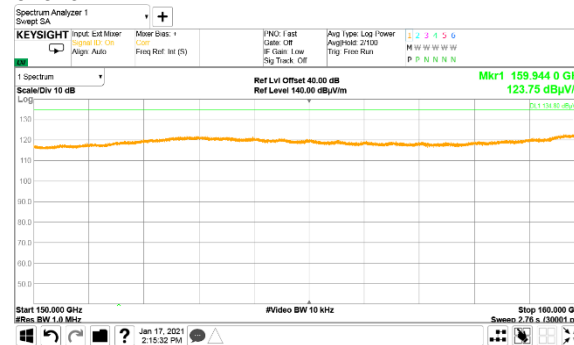
60480 MHz



High carrier frequency:



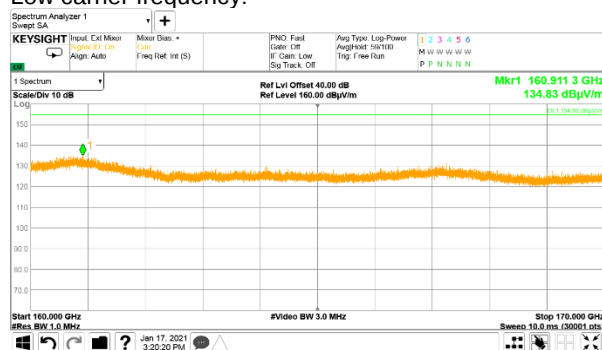
62640 MHz



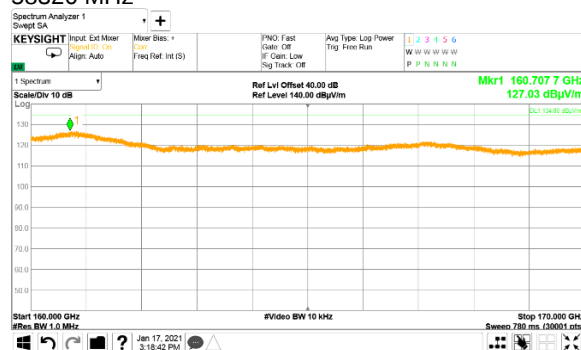
Test specification:		FCC Section 15.255(d)(3), RSS-210 section J.3, Out of band radiated emissions above 40 GHz	
Test procedure:		ANSI C63.10, Sections 9.9, 9.12	
Test mode:		Verdict: PASS	
Date(s):			
18-Jan-21			
Temperature: 20 °C	Relative Humidity: 68 %	Air Pressure: 1015 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.14 Spurious emission measurements in 160 – 170 GHz range

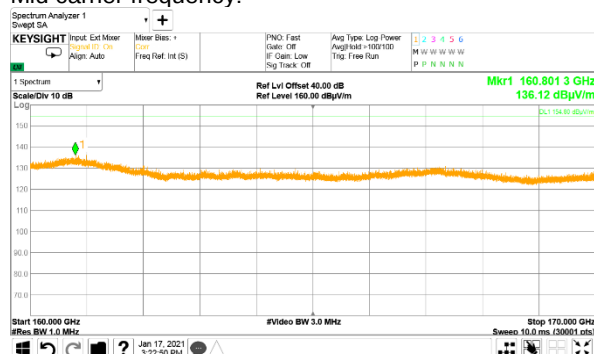
TEST SITE:
TEST DISTANCE:
MODULATION:
ANTENNA POLARIZATION:
DETECTOR: Peak RBW = 1 MHz; VBW = 3 MHz
Low carrier frequency:



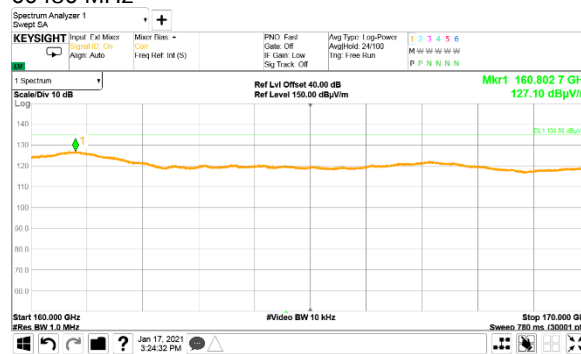
OATS
0.01 m
QPSK
Vertical and Horizontal
DETECTOR: Peak RBW = 1 MHz; VBW = 10 kHz
58320 MHz



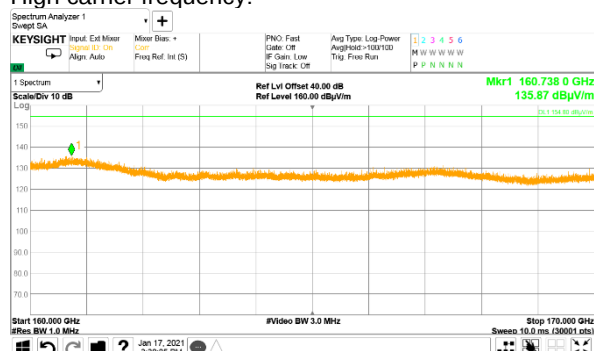
Mid carrier frequency:



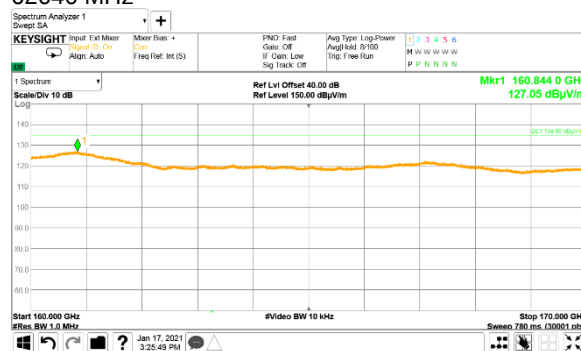
60480 MHz



High carrier frequency:



62640 MHz



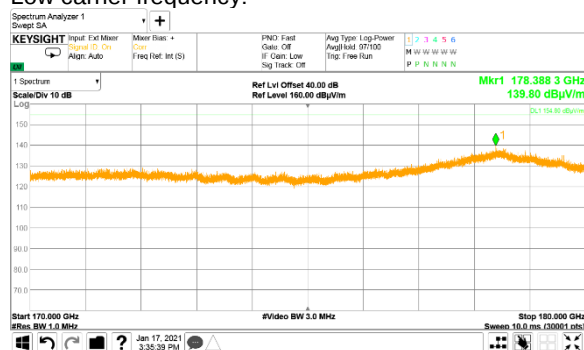


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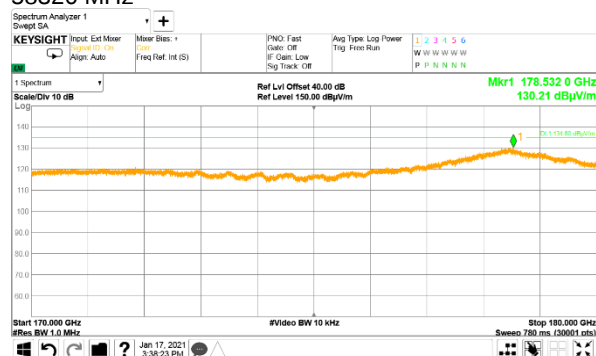
Test specification: FCC Section 15.255(d)(3), RSS-210 section J.3, Out of band radiated emissions above 40 GHz			
Test procedure: ANSI C63.10, Sections 9.9, 9.12			
Test mode: Compliance		Verdict: PASS	
Date(s): 18-Jan-21			
Temperature: 20 °C	Relative Humidity: 68 %	Air Pressure: 1015 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.15 Spurious emission measurements in 170 – 180 GHz range

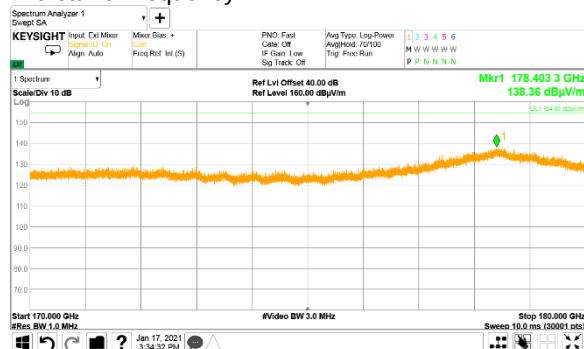
TEST SITE:
TEST DISTANCE:
MODULATION:
ANTENNA POLARIZATION:
DETECTOR: Peak RBW = 1 MHz; VBW = 3 MHz
Low carrier frequency:



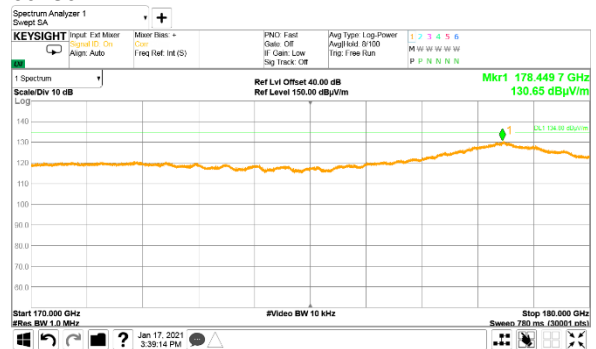
OATS
0.01 m
QPSK
Vertical and Horizontal
DETECTOR: Peak RBW = 1 MHz; VBW = 10 kHz
58320 MHz



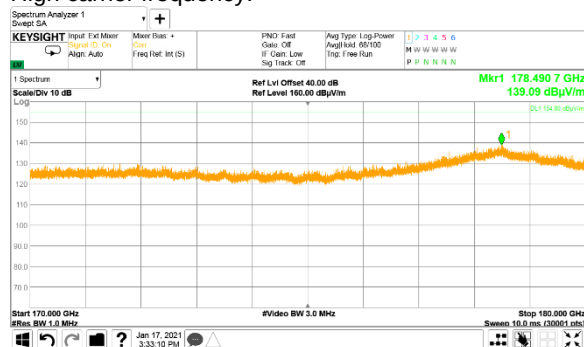
Mid carrier frequency:



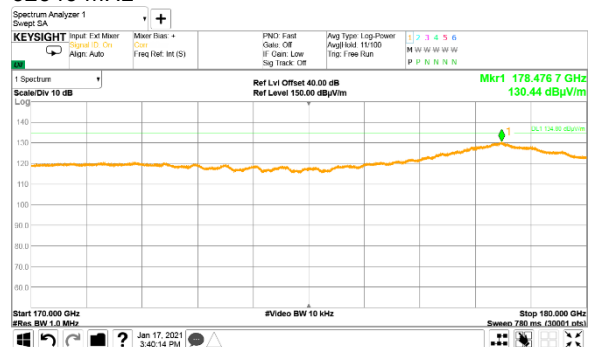
60480 MHz



High carrier frequency:



62640 MHz



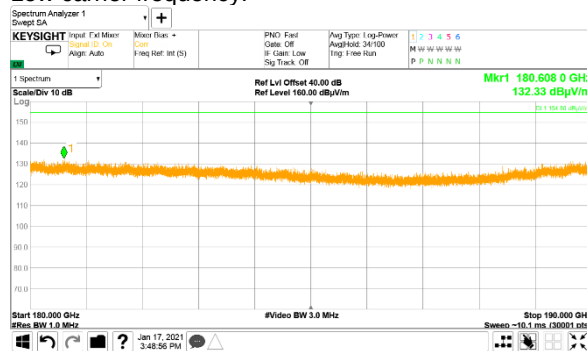


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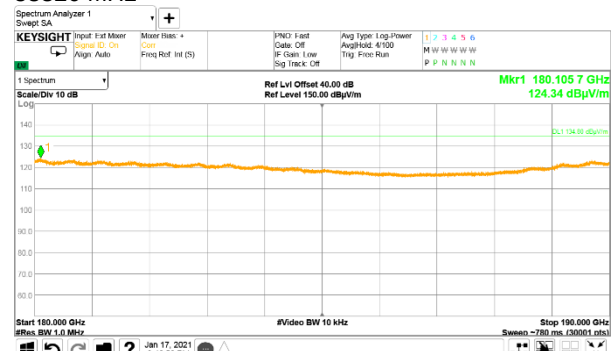
Test specification:		FCC Section 15.255(d)(3), RSS-210 section J.3, Out of band radiated emissions above 40 GHz	
Test procedure:		ANSI C63.10, Sections 9.9, 9.12	
Test mode:		Verdict: PASS	
Date(s):			
18-Jan-21			
Temperature: 20 °C	Relative Humidity: 68 %	Air Pressure: 1015 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.16 Spurious emission measurements in 180 – 190 GHz range

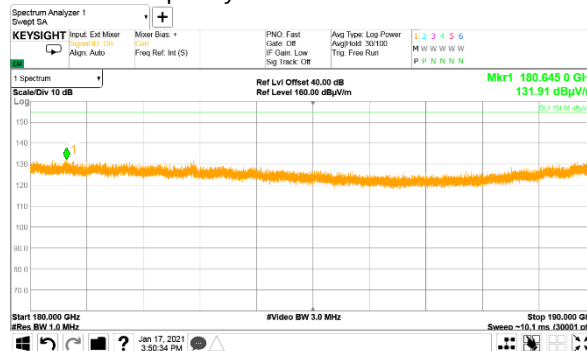
TEST SITE:
TEST DISTANCE:
MODULATION:
ANTENNA POLARIZATION:
DETECTOR: Peak RBW = 1 MHz; VBW = 3 MHz
Low carrier frequency:



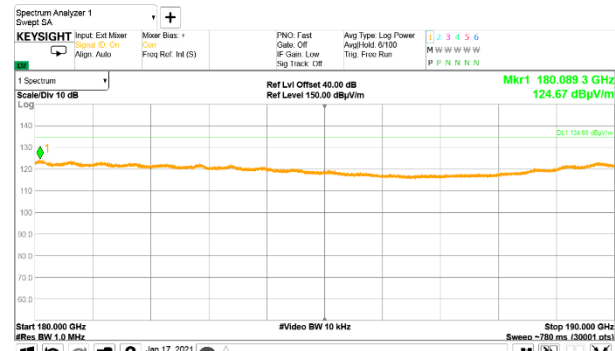
OATS
0.01 m
QPSK
Vertical and Horizontal
DETECTOR: Peak RBW = 1 MHz; VBW = 10 kHz
58320 MHz



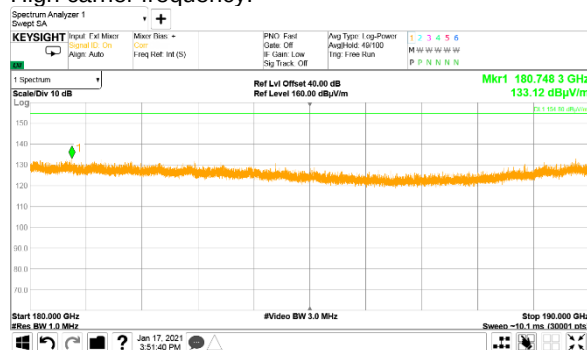
Mid carrier frequency:



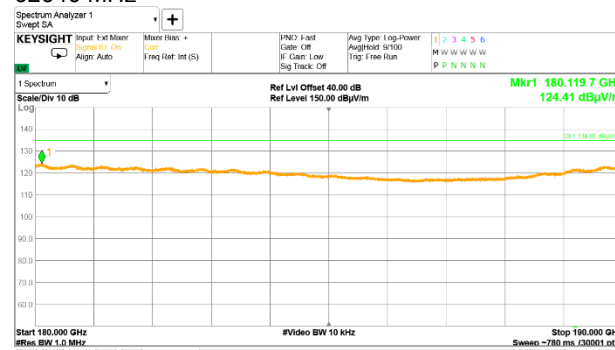
60480 MHz



High carrier frequency:



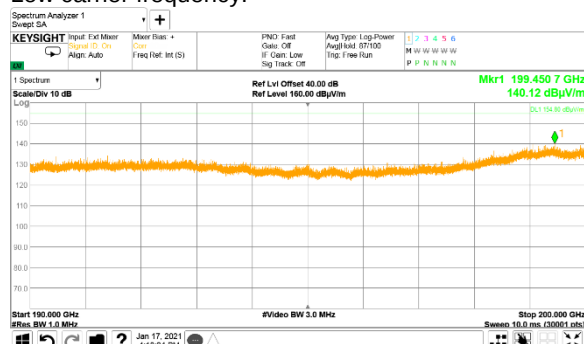
62640 MHz



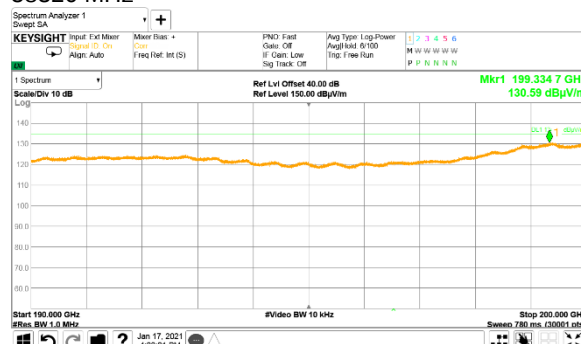
Test specification: FCC Section 15.255(d)(3), RSS-210 section J.3, Out of band radiated emissions above 40 GHz	
Test procedure: ANSI C63.10, Sections 9.9, 9.12	
Test mode: Compliance	Verdict: PASS
Date(s): 18-Jan-21	
Temperature: 20 °C	Relative Humidity: 68 %
Remarks:	
Air Pressure: 1015 hPa	
Power: 48 VDC	

Plot 7.4.17 Spurious emission measurements in 190 – 200 GHz range

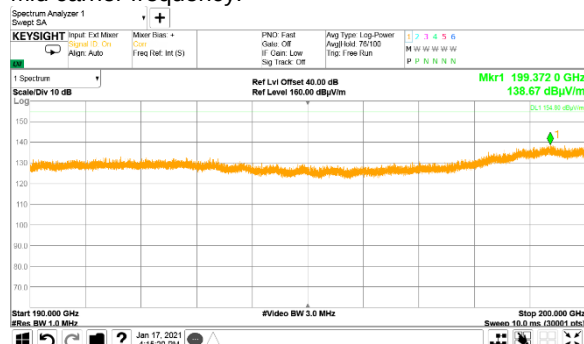
TEST SITE:
TEST DISTANCE:
MODULATION:
ANTENNA POLARIZATION:
DETECTOR: Peak RBW = 1 MHz; VBW = 3 MHz
Low carrier frequency:



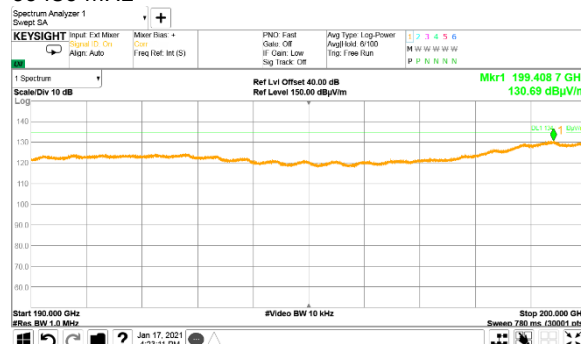
OATS
0.01 m
QPSK
Vertical and Horizontal
DETECTOR: Peak RBW = 1 MHz; VBW = 10 kHz
58320 MHz



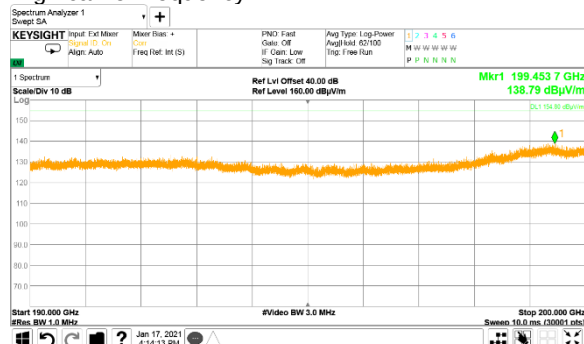
Mid carrier frequency:



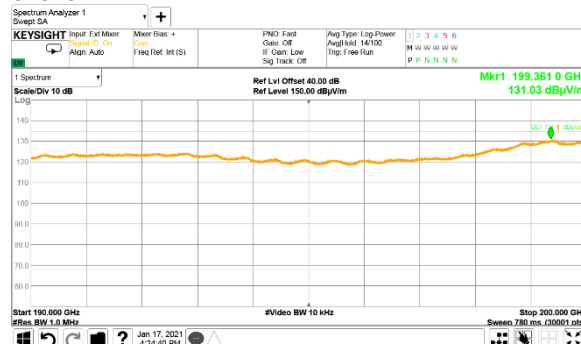
60480 MHz



High carrier frequency:



62640 MHz





Test specification: FCC Section 15.207(a)/RSS-Gen 8.8, Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

7.5 Conducted emissions

7.5.1 General

This test was performed to measure common mode conducted emissions at the power port. Specification test limits are given in Table 7.5.1.

Table 7.5.1 Limits for conducted emissions

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

* The limit decreases linearly with the logarithm of frequency.

7.5.2 Test procedure

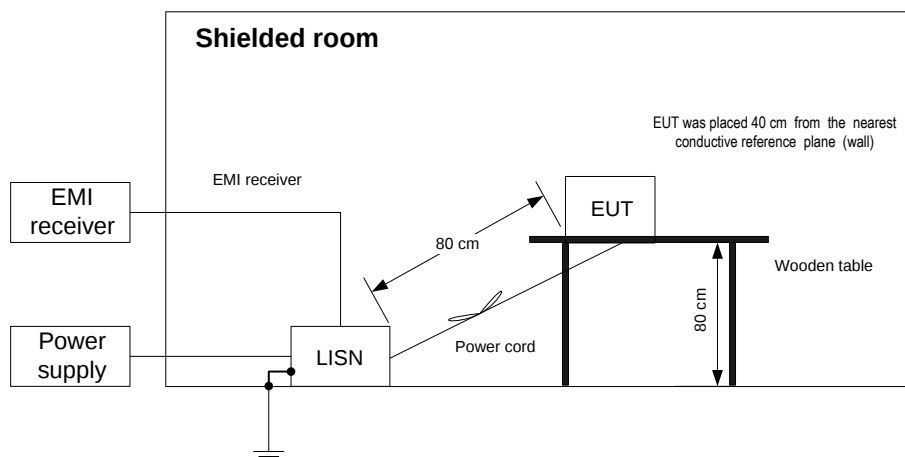
7.5.2.1 The EUT was set up as shown in Figure 7.5.1 and associated photographs, energized and the performance check was conducted.

7.5.2.2 The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 7.5.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

7.5.2.3 The position of the device cables was varied to determine maximum emission level.

7.5.2.4 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

Figure 7.5.1 Setup for conducted emission measurements, table-top equipment





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Test specification: FCC Section 15.207(a)/RSS-Gen 8.8, Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Table 7.5.2 Conducted emission test results

LINE: AC mains
EUT OPERATING MODE: Transmit
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*		
0.563	NA	46.39	56.00	-9.61	39.31	46.00	-6.69	L1	Pass
0.565	NA	46.88	56.00	-9.12	39.75	46.00	-6.25		
0.567	NA	47.20	56.00	-8.80	40.07	46.00	-5.93		
0.569	NA	47.41	56.00	-8.59	40.27	46.00	-5.73		
0.571	NA	47.45	56.00	-8.55	40.44	46.00	-5.56		
0.573	NA	47.36	56.00	-8.64	40.63	46.00	-5.37		
0.575	NA	47.15	56.00	-8.85	40.73	46.00	-5.27		
0.577	NA	46.77	56.00	-9.23	40.56	46.00	-5.44		
0.579	NA	46.19	56.00	-9.81	39.99	46.00	-6.01	L2	Pass
0.561	NA	46.65	56.00	-9.35	39.95	46.00	-6.05		
0.563	NA	47.33	56.00	-8.67	40.40	46.00	-5.60		
0.565	NA	47.80	56.00	-8.20	40.76	46.00	-5.24		
0.567	NA	48.12	56.00	-7.88	41.01	46.00	-4.99		
0.569	NA	48.28	56.00	-7.72	41.09	46.00	-4.91		
0.571	NA	48.30	56.00	-7.70	41.09	46.00	-4.91		
0.573	NA	48.10	56.00	-7.90	41.13	46.00	-4.87		
0.575	NA	47.80	56.00	-8.20	41.12	46.00	-4.88		
0.577	NA	47.33	56.00	-8.67	40.88	46.00	-5.12		
0.579	NA	46.73	56.00	-9.27	40.29	46.00	-5.71		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0787	HL 2888	HL 5476	HL 5707				
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Full description is given in Appendix A.



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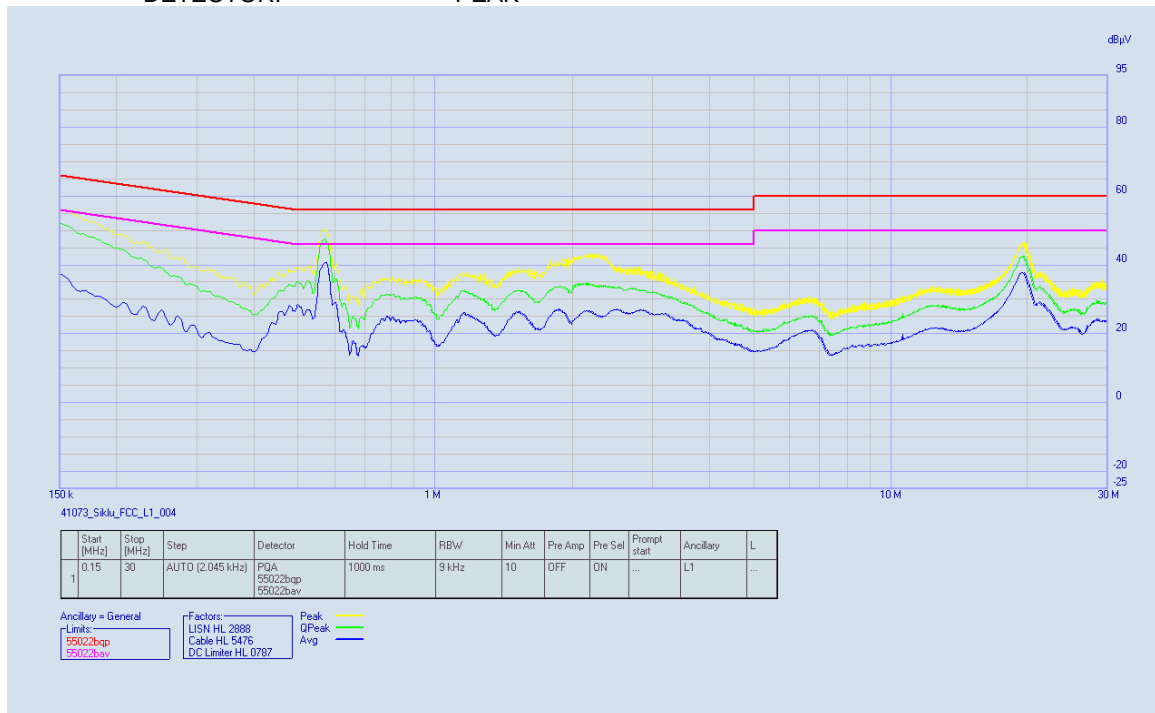
Report ID: SIKRAD_FCC.41073_Rev1

Date of Issue: 11-Mar-21

Test specification: FCC Section 15.207(a)/RSS-Gen 8.8, Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Plot 7.5.1 Conducted emission measurements

LINE: L1
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK





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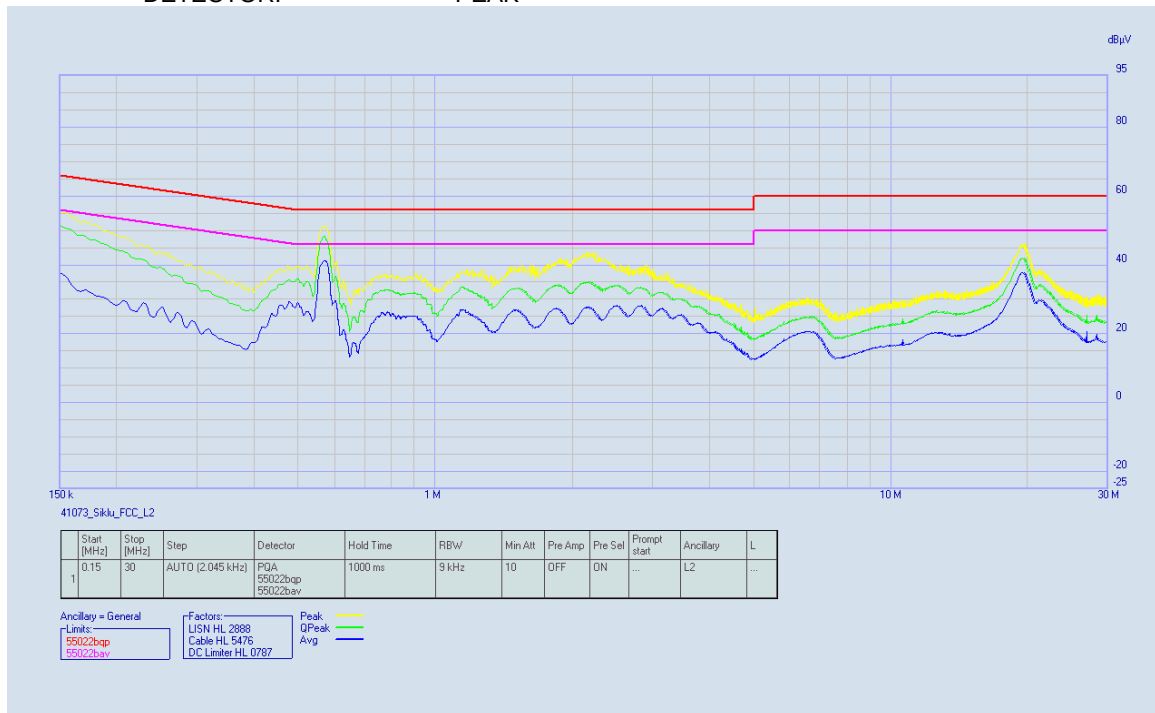
Report ID: SIKRAD_FCC.41073_Rev1

Date of Issue: 11-Mar-21

Test specification: FCC Section 15.207(a)/RSS-Gen 8.8, Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Plot 7.5.2 Conducted emission measurements

LINE: L2
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Test specification: FCC section 15.255(f)/RSS-210 section J.6, Frequency stability			
Test procedure: ANSI C63.10, Section 9.14			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

7.6 Frequency stability test

7.6.1 General

This test was performed to measure frequency stability of transmitter RF carrier. Specification test limits are given in Table 7.6.1

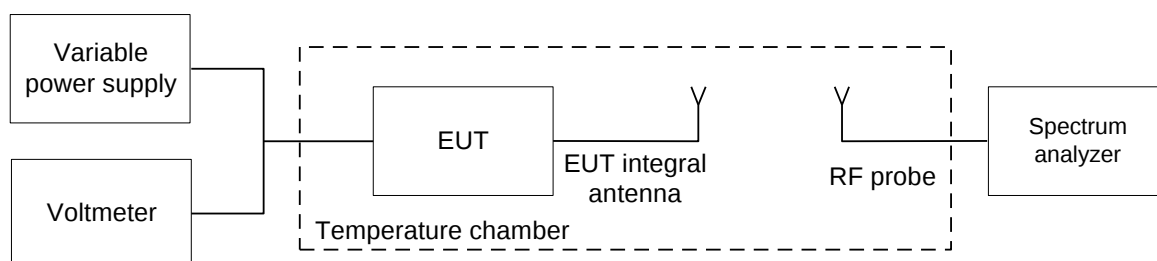
Table 7.6.1 Frequency stability limits

Assigned frequency, MHz	Maximum allowed frequency displacement
58320	NA
60480	NA
62640	NA

7.6.2 Test procedure

- 7.6.2.1 The EUT was set up as shown in Figure 7.6.1, energized and its proper operation was checked.
- 7.6.2.2 The EUT power was turned off. Temperature within test chamber was set to +30°C and a period of time sufficient to stabilize all of the oscillator circuit components was allowed.
- 7.6.2.3 The EUT was powered on and carrier frequency was measured at start up moment +30°C and then every minute until frequency had been stabilized or 10 minutes elapsed whichever reached the last. The EUT was powered off.
- 7.6.2.4 The above procedure was repeated at the rest of the test temperatures and voltages as provided in Table 7.6.2. The EUT was powered off.
- 7.6.2.5 Frequency displacement was calculated and compared with the limit as provided in Table 7.6.2.

Figure 7.6.1 Frequency stability test setup





Test specification: FCC section 15.255(f)/RSS-210 section J.6, Frequency stability			
Test procedure: ANSI C63.10, Section 9.14			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Table 7.6.2 Frequency stability test results

OPERATING FREQUENCY: 57000 – 71000 MHz
 NOMINAL POWER VOLTAGE: 48 V
 TEMPERATURE STABILIZATION PERIOD: 20 min
 POWER DURING TEMPERATURE TRANSITION: Off
 SPECTRUM ANALYZER MODE: Counter
 RESOLUTION BANDWIDTH: 3 kHz
 VIDEO BANDWIDTH: 10 kHz
 MODULATION: Unmodulated

MODULATION.		Unmodulated								
T, °C	Voltage , V	Frequency, MHz							Max frequency drift, Hz	
		Start up	1 st min	2 nd min	3 rd min	4 th min	5 th min	10 th min	Positive	Negative
Low frequency 58320 MHz										
-45	nominal	58318.9576	58318.9551	58318.9348	58318.9308	58318.9448	58318.9499	58318.9509	0	-303250
-40	nominal	58318.9476	58318.949	58318.9298	58318.9409	58318.9559	58318.9507	58318.9809	0	-304250
-30	nominal	58319.4346	58319.4261	58319.4229	58319.4199	58319.4169	58319.4178	58319.4138	200550	0
-20	nominal	58319.5482	58319.5411	58319.5338	58319.5263	58319.5203	58319.515	58319.5122	314770	0
-10	nominal	58319.539	58319.5438	58319.5447	58319.5457	58319.5457	58319.5475	58319.5465	313480	0
0	nominal	58319.4987	58319.499	58319.499	58319.4989	58319.4998	58319.4995	58319.4992	265750	0
10	nominal	58319.3785	58319.3768	58319.3769	58319.3735	58319.3704	58319.3567	58319.3505	144450	0
20	15%	58319.2378	58319.237	58319.2378	58319.2375	58319.238	58319.2381	58319.2387	4690	0
20	nominal	58319.2386	58319.2306	58319.2385	58319.2334	58319.2335	58319.2389	58319.234	4890	-3400
20	-15%	58319.2393	58319.2388	58319.2388	58319.2358	58319.237	58319.232	58319.233	5330	-2010
30	nominal	58319.1801	58319.1804	58319.1832	58319.1817	58319.1865	58319.1823	58319.1845	0	-53920
40	nominal	58319.1106	58319.117	58319.1167	58319.1167	58319.1167	58319.1176	58319.1171	0	-123360
50	nominal	58319.1463	58319.1441	58319.1453	58319.1439	58319.1802	58319.1204	58319.1419	0	-113650
55	nominal	58319.1468	58319.1458	58319.1454	58319.1446	58319.1431	58319.1425	58319.1448	0	-91550
Mid frequency 60480 MHz										
-45	nominal	60478.9222	60478.9222	60478.9340	60478.9290	60478.9270	60478.9109	60478.9119	0	-301440
-40	nominal	60478.9198	60478.9200	60478.9290	60478.9344	60478.9378	60478.9304	60478.9358	0	-292540
-30	nominal	60479.3860	60479.3845	60479.3844	60479.3805	60479.3795	60479.3805	60479.3770	173660	0
-20	nominal	60479.5385	60479.5365	60479.5355	60479.5375	60479.5315	60479.5355	60479.5355	326160	0
-10	nominal	60479.5346	60479.5345	60479.5359	60479.5360	60479.5335	60479.5353	60479.5356	323660	0
0	nominal	60479.7724	60479.7548	60479.7780	60479.4790	60479.4795	60479.4797	60479.4800	565660	0
10	nominal	60479.3591	60479.3611	60479.3628	60479.3650	60479.3655	60479.3650	60479.3671	154820	0
20	15%	60479.2116	60479.2134	60479.2168	60479.2178	60479.2158	60479.2134	60479.2246	12330	-700
20	nominal	60479.2121	60479.2122	60479.2121	60479.2123	60479.2122	60479.2121	60479.2123	0	-206
20	-15%	60479.1264	60479.2123	60479.2146	60479.2450	60479.2167	60479.2184	60479.2190	32660	-85940
30	nominal	60479.1508	60479.1511	60479.1515	60479.1505	60479.1501	60479.1502	60479.1496	0	-62690
40	nominal	60479.0866	60479.0865	60479.0865	60479.0855	60479.0860	60479.0852	60479.0847	0	-127580
50	nominal	60479.0914	60479.0990	60479.0950	60479.0893	60479.0750	60479.0780	60479.0790	0	-137270
55	nominal	60479.0929	60479.0937	60479.0908	60479.0897	60479.0749	60479.0797	60479.0787	0	-137450



Test specification: FCC section 15.255(f)/RSS-210 section J.6, Frequency stability			
Test procedure: ANSI C63.10, Section 9.14			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Table 7.6.2 Frequency stability test results (continued)

OPERATING FREQUENCY: 57000 – 71000 MHz
 NOMINAL POWER VOLTAGE: 48 V
 TEMPERATURE STABILIZATION PERIOD: 20 min
 POWER DURING TEMPERATURE TRANSITION: Off
 SPECTRUM ANALYZER MODE: Counter
 RESOLUTION BANDWIDTH: 3 kHz
 VIDEO BANDWIDTH: 10 kHz
 MODULATION: Unmodulated

High frequency 62640 MHz										
-45	nominal	62638.9474	62638.9258	62638.9268	62638.9318	62638.9168	62638.9052	62638.8771	0	-308113
-40	nominal	62638.9474	62638.9730	62638.9689	62638.9738	62638.9729	62638.9739	62638.9724	0	-237813
-30	nominal	62639.3529	62639.3499	62639.3468	62639.3452	62639.3438	62639.3469	62639.3489	167687	0
-20	nominal	62639.5254	62639.5270	62639.5254	62639.5260	62639.5234	62639.5224	62639.5219	341787	0
-10	nominal	62639.5169	62639.5189	62639.5187	62639.5197	62639.5171	62639.5182	62639.5171	334487	0
0	nominal	62639.4456	62639.4465	62639.4465	62639.4509	62639.4519	62639.4550	62639.4563	271087	0
10	nominal	62639.0349	62639.3519	62639.3510	62639.3523	62639.3541	62639.3526	62639.3534	168887	-150303
20	15%	62639.1843	62639.1845	62639.1839	62639.1838	62639.1840	62639.1841	62639.1839	0	-1343
20	nominal	62639.1853	62639.1853	62639.1851	62639.1853	62639.1853	62639.1853	62639.1852	177	-73
20	-15%	62639.1484	62639.1852	62639.1849	62639.1848	62639.1847	62639.1850	62639.1851	76	-36775
30	nominal	62639.1418	62639.1359	62639.1312	62639.1311	62639.1298	62639.1281	62639.1254	0	-59753
40	nominal	62639.0552	62639.0544	62639.0554	62639.0554	62639.0548	62639.0549	62639.0549	0	-130733
50	nominal	62639.0525	62639.0510	62639.0599	62639.0589	62639.0531	62639.0512	62639.0503	0	-134913
55	nominal	62639.0527	62639.0502	62639.0468	62639.0419	62639.0419	62639.0419	62639.0409	0	-144293

* - Reference frequency

Reference numbers of test equipment used

HL0493	HL 0771	HL 2171	HL 2909	HL 3305	HL 3433	HL3434	
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Full description is given in Appendix A.



Test specification: FCC section 15.203/ RSS-Gen, Section 6.8, Antenna requirement			
Test procedure: Visual inspection / supplier declaration			
Test mode: Compliance		Verdict: PASS	
Date(s): 19-Jan-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1013 hPa	Power: 48 VDC
Remarks:			

7.7 Antenna requirements

The EUT was verified for compliance with antenna requirements. A transmitter shall be designed to ensure that no antenna other than that furnished by the responsible party will be used with the device. It may be either permanently attached or employs a unique antenna connector for every antenna proposed for use with the EUT. This requirement does not apply to professionally installed transmitters.

The rationale for compliance with the above requirements was either visual inspection results or supplier declaration. The summary of results is provided in Table 7.7.1.

Table 7.7.1 Antenna requirements

Requirement	Rationale	Verdict
The transmitter antenna is permanently attached	NA	Comply
The transmitter employs a unique antenna connector	Visual inspection	
The transmitter requires professional installation	NA	



Test specification: FCC 47 CFR, Section 15.107 / ICES-003, Section 6.1, Class B, AC power lines conducted emissions			
Test procedure: ANSI C63.4, Section 7.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

8 Emission tests according to 47CFR part 15 subpart B requirements

8.1 Conducted emissions

8.1.1 General

This test was performed to measure common mode conducted emissions at the mains power port. Specification test limits are given in Table 8.1.1.

Table 8.1.1 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.

8.1.2 Test procedure

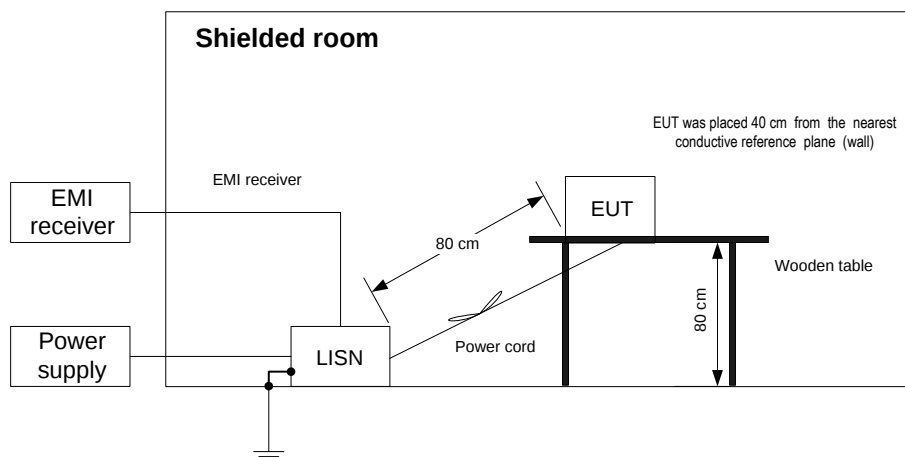
8.1.2.1 The EUT was set up as shown in Figure 8.1.1 and associated photographs, energized and the performance check was conducted.

8.1.2.2 The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 8.1.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

8.1.2.3 The position of the device cables was varied to determine maximum emission level.

8.1.2.4 The worst test results (the lowest margins) were recorded in Table 8.1.2 and shown in the associated plots.

Figure 8.1.1 Setup for conducted emission measurements, table-top equipment





Test specification: FCC 47 CFR, Section 15.107 / ICES-003, Section 6.1, Class B, AC power lines conducted emissions			
Test procedure: ANSI C63.4, Section 7.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Table 8.1.2 Conducted emission test results

LINE: AC mains
 LIMIT: Class B
 EUT OPERATING MODE: Receive
 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*		
0.563	NA	46.39	56.00	-9.61	39.31	46.00	-6.69	L1	Pass
0.565	NA	46.88	56.00	-9.12	39.75	46.00	-6.25		
0.567	NA	47.20	56.00	-8.80	40.07	46.00	-5.93		
0.569	NA	47.41	56.00	-8.59	40.27	46.00	-5.73		
0.571	NA	47.45	56.00	-8.55	40.44	46.00	-5.56		
0.573	NA	47.36	56.00	-8.64	40.63	46.00	-5.37		
0.575	NA	47.15	56.00	-8.85	40.73	46.00	-5.27		
0.577	NA	46.77	56.00	-9.23	40.56	46.00	-5.44		
0.579	NA	46.19	56.00	-9.81	39.99	46.00	-6.01		
0.561	NA	46.65	56.00	-9.35	39.95	46.00	-6.05	L2	Pass
0.563	NA	47.33	56.00	-8.67	40.40	46.00	-5.60		
0.565	NA	47.80	56.00	-8.20	40.76	46.00	-5.24		
0.567	NA	48.12	56.00	-7.88	41.01	46.00	-4.99		
0.569	NA	48.28	56.00	-7.72	41.09	46.00	-4.91		
0.571	NA	48.30	56.00	-7.70	41.09	46.00	-4.91		
0.573	NA	48.10	56.00	-7.90	41.13	46.00	-4.87		
0.575	NA	47.80	56.00	-8.20	41.12	46.00	-4.88		
0.577	NA	47.33	56.00	-8.67	40.88	46.00	-5.12		
0.579	NA	46.73	56.00	-9.27	40.29	46.00	-5.71		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0787	HL 2888	HL 5476	HL 5707				
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Full description is given in Appendix A.



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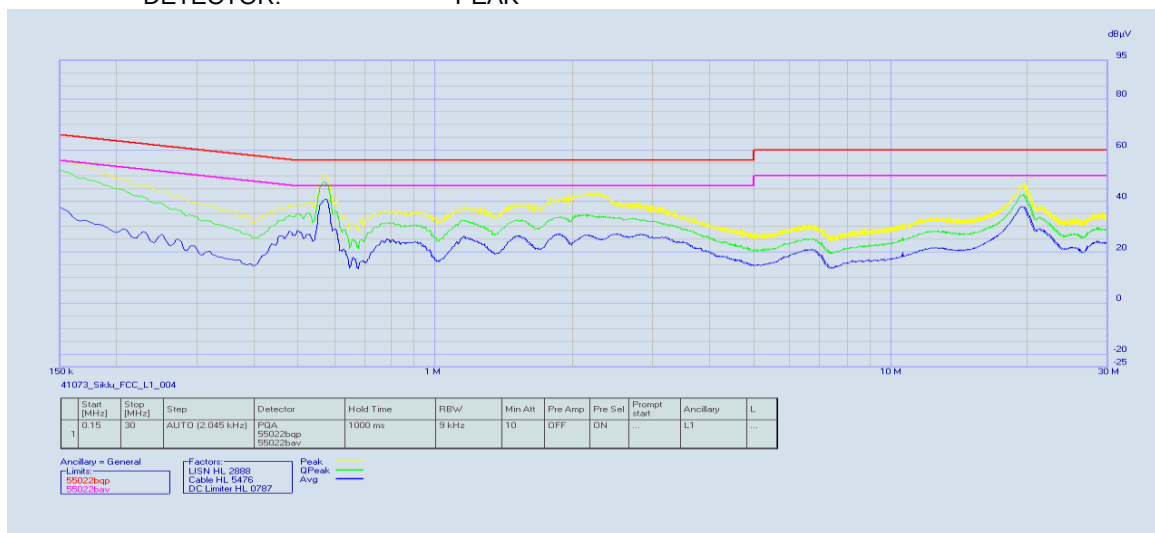
Report ID: SIKRAD_FCC.41073_Rev1

Date of Issue: 11-Mar-21

Test specification:		FCC 47 CFR, Section 15.107 / ICES-003, Section 6.1, Class B, AC power lines conducted emissions	
Test procedure:		ANSI C63.4, Section 7.3	
Test mode:		Verdict: PASS	
Date(s):			
31-Dec-20			
Temperature: 22 °C	Relative Humidity: 36 %	Air Pressure: 1014 hPa	Power: 120 VAC, 60 Hz
Remarks:			

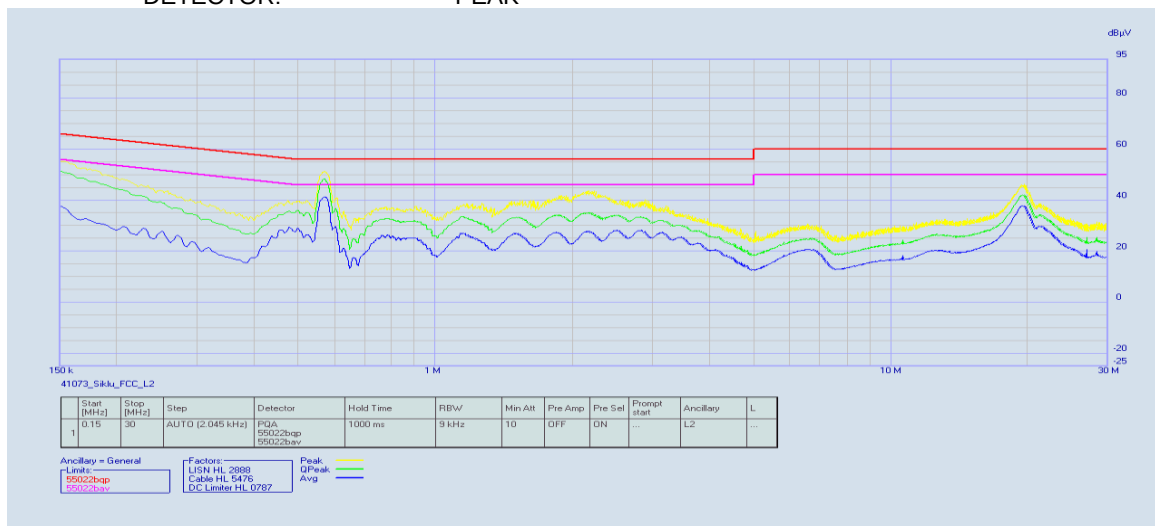
Plot 8.1.1 Conducted emission measurements

LINE: L1
LIMIT: Class B
EUT OPERATING MODE: Receive
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Plot 8.1.2 Conducted emission measurements

LINE: L2
LIMIT: Class B
EUT OPERATING MODE: Receive
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Test specification: FCC 47 CFR, Section 15.109 / ICES-003, Section 6.2, Class B, Radiated emissions			
Test procedure: ANSI C63.4, Section 8.3			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 22 °C	Relative Humidity: 33 %	Air Pressure: 1016 hPa	Power: 48 VDC
Remarks:			

8.2 Radiated emission measurements

8.2.1 General

This test was performed to measure radiated emissions from the EUT enclosure. Specification test limits are given in Table 8.2.1.

Table 8.2.1 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: $Lim_{S2} = Lim_{S1} + 20 \log (S_1/S_2)$, where S_1 and S_2 – standard defined and test distance respectively in meters.

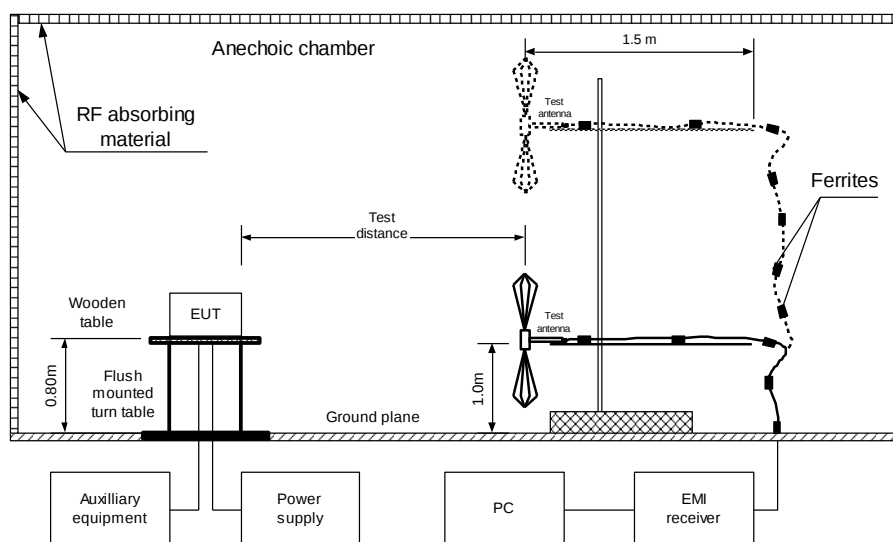
8.2.2 Test procedure for measurements in semi-anechoic chamber

8.2.2.1 The EUT was set up as shown in Figure 8.2.1 and associated photograph/s, energized and the performance check was conducted.

8.2.2.2 The specified frequency range was investigated with biconilog 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.

8.2.2.3 The worst test results (the lowest margins) were recorded in Table 8.2.2 and shown in the associated plots.

Figure 8.2.1 Setup for radiated emission measurements in anechoic chamber, table-top equipment





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Report ID: SIKRAD_FCC.41073_Rev1

Date of Issue: 11-Mar-21

Test specification: FCC 47 CFR, Section 15.109 / ICES-003, Section 6.2, Class B, Radiated emissions			
Test procedure: ANSI C63.4, Section 8.3			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 22 °C	Relative Humidity: 33 %	Air Pressure: 1016 hPa	Power: 48 VDC
Remarks:			

Table 8.2.2 Radiated emission test results

EUT SET UP: TABLE-TOP
LIMIT: Class B
EUT OPERATING MODE: Receive / 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*				
30.342	38.08	33.77	40.0	-6.23	Vertical	1.00	33	Pass
48.473	28.87	25.27	40.0	-14.73	Vertical	2.20	108	
499.998	40.16	38.65	46.0	-7.35	Vertical	1.04	-16	
724.971	39.06	36.11	46.0	-9.89	Horizontal	1.32	-180	
750.003	44.54	42.90	46.0	-3.10	Horizontal	1.00	6	
850.010	41.72	39.56	46.0	-6.44	Vertical	1.32	158	
875.013	44.47	42.63	46.0	-3.37	Vertical	1.32	157	
999.998	47.60	45.96	54.0	-8.04	Vertical	1.02	71	

TEST SITE: SEMI ANECHOIC CHAMBER
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / AVERAGE
FREQUENCY RANGE: 1000 MHz – 40000 MHz
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*				
2666.6	44.4	74	-29.6	40.1	54	-13.9	Vertical	1.0	-20	Pass
4000.0	47.1	74	-26.9	43.2	54	-10.8	Vertical	1.0	-17	
5333.3	45.2	74	-28.8	41.3	54	-12.7	Vertical	1.0	-23	
7290.0	50.1	74	-23.9	49.4	54	-4.6	Vertical	1.0	-20	

*- Margin = Measured emission - specification limit.

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

Reference numbers of test equipment used

HL 3903	HL 4360	HL 4933	HL 5085	HL 5288	HL 5669		
HL 5670	HL 4011	HL 4956	HL 5112	HL 4933	HL 4956		

Full description is given in Appendix A.

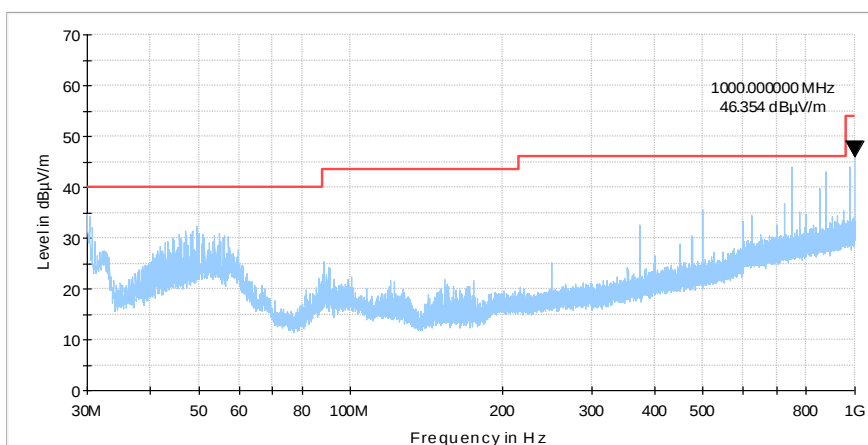


HERMON LABORATORIES

Test specification: FCC 47 CFR, Section 15.109 / ICES-003, Section 6.2, Class B, Radiated emissions			
Test procedure: ANSI C63.4, Section 8.3			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 22 °C	Relative Humidity: 33 %	Air Pressure: 1016 hPa	Power: 48 VDC
Remarks:			

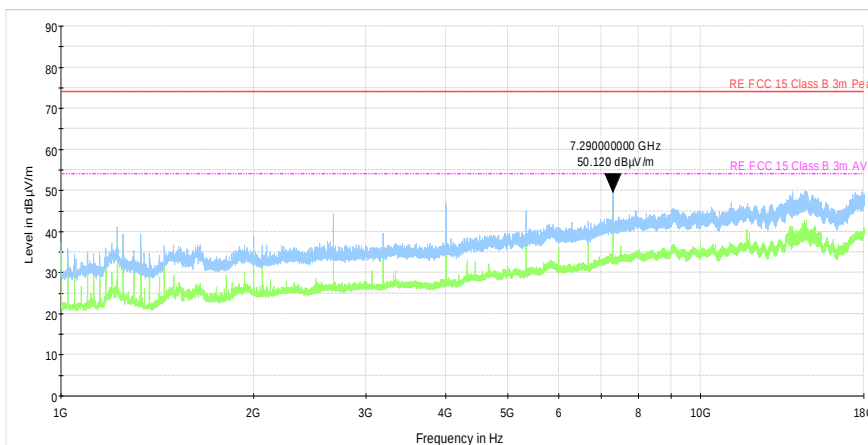
Plot 8.2.1 Radiated emission measurements in 30 - 1000 MHz range, vertical and horizontal antenna polarization

TEST SITE: Semi anechoic chamber
LIMIT: Class B
TEST DISTANCE: 3 m
EUT OPERATING MODE: Receive



Plot 8.2.2 Radiated emission measurements in 1-18 GHz, vertical and horizontal antenna polarization

TEST SITE: Semi anechoic chamber
LIMIT: Class B
TEST DISTANCE: 3 m
EUT OPERATING MODE: Receive





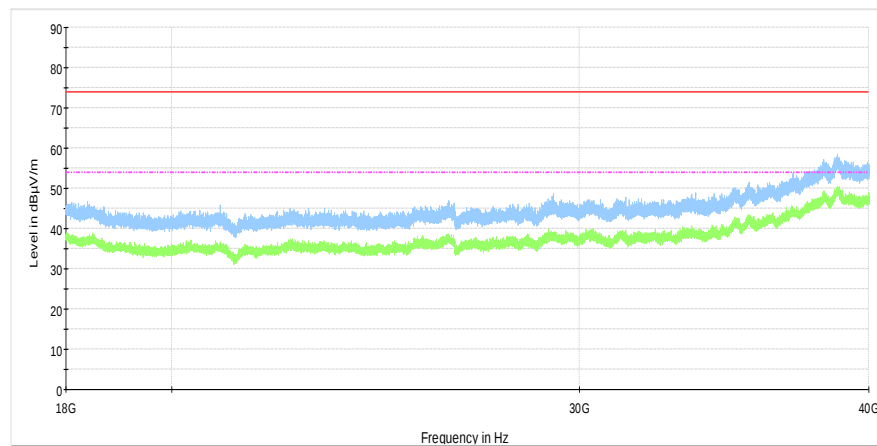
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Report ID: SIKRAD_FCC.41073_Rev1
Date of Issue: 11-Mar-21

Test specification:		FCC 47 CFR, Section 15.109 / ICES-003, Section 6.2, Class B, Radiated emissions	
Test procedure:		ANSI C63.4, Section 8.3	
Test mode:		Verdict:	
Date(s):			
Temperature: 22 °C	Relative Humidity: 33 %	Air Pressure: 1016 hPa	Power: 48 VDC
Remarks:			

Plot 8.2.3 Radiated emission measurements in 18-40 GHz, vertical and horizontal antenna polarization

TEST SITE: Semi anechoic chamber
LIMIT: Class B
TEST DISTANCE: 3 m
EUT OPERATING MODE: Receive



9 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./ Check	Due Cal./ Check
0446	Antenna, Loop, Active, 10 (9) kHz - 30 MHz	EMCO	6502	2857	24-Feb-20	24-Feb-21
0747	Mixer, Millimeter Wave Harmonic 90 - 140 GHz	Oleson Microwave Labs	M08HW	F80429-1	19-May-20	19-May-23
0770	Antenna Standard Gain Horn, 40-60 GHz WR-19, U-band, 24 dB mid-band gain	Quinstar Technology	QWH-1900-AA	118	22-Nov-20	22-Nov-21
0771	Antenna Standard Gain Horn, 60-90 GHz, WR-12, 24 dB mid-band gain	Quinstar Technology	QWH-1200-AA	111	05-Aug-20	05-Aug-21
0772	Antenna Standard Gain Horn, 75-110 GHz, WR-10, 24 dB mid-band gain	Quinstar Technology	QWH-0800-AA	110	22-Nov-20	22-Nov-21
0787	Transient Limiter 9 kHz-200 MHz	Hewlett Packard	11947A	3107A01877	06-Oct-20	06-Oct-21
1312	Mixer Millimeter Wave Harmonic 140-220 GHz	Oleson Microwave Labs	M05HWD	G91112-1	19-May-20	19-May-23
2171	Multimeter	Fluke	177	79960418	15-Jul-20	15-Jul-21
2888	LISN Two-line V-Network 50 Ohm / 50 uH + 5 Ohm, 16A, MIL STD 461E, CISPR 16-1	Rolf Heine	NNB-2/16Z	02/10018	17-Mar-20	17-Mar-21
2909	Spectrum analyzer, ESA-E, 100 Hz to 26.5 GHz	Agilent Technologies	E4407B	MY41444762	05-Apr-20	05-Apr-21
3235	Harmonic mixer 40 to 60 GHz	Agilent Technologies	11970U	MY30030182	30-Jan-20	30-Jan-23
3290	Attenuator, direct reading, 40 to 60 GHz, 0.4 W	Quinstar Technology	QAD-U00000	10381008	24-Sep-19	24-Sep-21
3291	Attenuator, direct reading, 60 to 90 GHz, 0.2 W	Quinstar Technology	QAD-E00000	10381009	24-Sep-19	24-Sep-21
3301	Power Meter, P-series, 50 MHz to 40 GHz	Agilent Technologies	N1911A	MY45101057	16-Apr-20	16-Apr-21
3304	Power Supply, 100-250 V / 50-60 Hz - 12 VDC / 1.5 A	Hermon Laboratories	UPO1811120	3304	30-Mar-20	30-Mar-21
3305	Harmonic mixer 50 to 75 GHz	Agilent Technologies	11970V	MY30030149	29-Jan-20	29-Jan-23
3306	Harmonic mixer 75 to 110 GHz	Agilent Technologies	11970W	MY25210273	30-Jan-20	30-Jan-23
3329	Antenna Standard Gain Horn, 140-220 GHz, WR-5, 24 dB mid-band gain	Quinstar Technology			22-Nov-20	22-Nov-21
3433	Test Cable , DC-18 GHz, 1.5 m, SMA - SMA	Mini-Circuits	CBL-5FT-SMSM+	25679	13-Apr-20	13-Apr-21
3434	Test Cable , DC-18 GHz, 1.5 m, SMA - SMA	Mini-Circuits	CBL-5FT-SMSM+	25683	13-Apr-20	13-Apr-21



HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./ Check	Due Cal./ Check
3536	Antenna Standard Gain Horn, 90-140 GHz, WR-8, 24 dB mid-band gain	Quinstar Technology	QWH-FPRR00	11159004001	22-Nov-20	22-Nov-21
3727	Oscilloscope, 1 GHz, 4 channels	LeCroy Corporation	LC584AL	10449	01-Jul-20	01-Jul-21
3903	Microwave Cable Assembly, 40.0 GHz, 1.5 m, SMA/SMA	Huber-Suhner	SUCOFL EX 102A	1226/2A	06-Apr-20	06-Apr-21
4011	Temp. & Humidity Meter, (-50 - +70) deg, (20 - 99)% RH	Mad Electronics	HTC-1	NA	12-Aug-20	12-Aug-21
4023	Diplexer for use OML mixers with Agilent spectrum analyzer	Oleson Microwave Labs	DPL.26	NA	01-Apr-20	01-Apr-21
4360	EMI Test Receiver, 20 Hz to 40 GHz.	Rohde & Schwarz	ESU40	100322	20-Jan-20	20-Jan-21
4856	Amplifier, solid state, 18 GHz to 40 GHz, 20 dBm output power	Quinstar Technology	QGW-18402023-JO	16779001001	27-May-20	27-May-21
4933	Active Horn Antenna, 1 GHz to 18 GHz	COM-POWER CORPORATION	AHA-118	701046	06-Jan-20	06-Jan-21
4956	Active horn antenna, 18 to 40 GHz	COM-POWER CORPORATION	AHA-840	105004	29-Jan-20	29-Jan-21
5085	Attenuator, 4 dB, DC - 6 GHz, 1 W	Mini-Circuits	UNAT-4+	NA	22-May-20	22-May-21
5112	RF cable, 40 GHz, 5.5 m, K-type	Huber-Suhner	SF102EA/11SK/11SK/5500MM	502494/2EA	19-Apr-20	19-Apr-21
5288	Trilog Antenna, 25 MHz - 8 GHz, 100W	Frankonia	ALX-8000E	00809	08-Feb-19	08-Feb-22
5360	Broadband detector, 55 to 90 GHz	Pacific Millimeter Products, Inc	ED	200	30-Dec -20	30-Dec -21
5369	Digital storage oscilloscope, 350 MHz	Keysight Technologies	DSOX3034T	MY58032630	01-Jun-20	01-Jun-21
5376	EXA Signal Analyzer, 10 Hz - 32 GHz	Keysight Technologies	N9010B	MY57470404	22-Oct -20	22-Oct -22
5377	USB Thermocouple Power Sensor, DC-120 GHz	Keysight Technologies	U8489A	US56430158	21-Oct-20	21-Oct-21
5380	Waveguide Harmonic Mixer 55-90GHz	Keysight Technologies	M1971E	MY56130239	13-Nov-20	13-Nov-22
5476	Cable, BNC/BNC, 10.5 m	Western wire	MIL-C-17G	NA	14-May-20	14-May-21
5669	Cable SF126EA/11N(x2)/3.0M, 18 GHz	Huber-Suhner	SF126EA	506775/126EA	25-Oct-20	25-Oct-21
5670	Cable SF126EA/11N(x2)/3M, 18 GHz	Huber-Suhner	SF126EA	506774/126EA	25-Oct-20	25-Oct-21
5707	EMI receiver	PMM / Narda	PMM 9010F	060WW91101	22-Nov-19	22-Nov-20

**Antenna factor
loop antenna
Model 6502, S/N 2857, HL 0446**

Frequency, MHz	Magnetic antenna factor, dB	Electric antenna factor, dB
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.8
0.750	-41.9	9.7
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.2
4.000	-41.4	10.1
5.000	-41.5	10.1
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field strength in dB(μ V/m).

**Antenna factor
Standard gain horn antenna
Quinstar Technology
Model QWH
Ser.No.112, HL 0768, 0769, 0770, 0771, 0772**

Frequency min, GHz	Frequency max, GHz	Antenna factor, dB(1/m)
18.000	26.500	32.01
26.500	40.000	35.48
40.000	60.000	39.03
60.000	90.000	42.55
90.000	140.000	46.23
140.000	220.000	50.11

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field intensity in dB(μ V/m).

Antenna factor
Trilog antenna
Model ALX-8000E, Frankonia, S/N 00809, HL 5288, 30-1000 MHz

Frequency, MHz	Antenna factor, dB/m		
	Vert Up	Vert Down	Delta
30	-51.19	-51.28	0.09
35	-44.03	-44.12	0.09
40	-43.07	-43.12	0.05
45	-39.61	-39.79	0.18
50	-37.84	-38.14	0.3
60	-34.93	-34.9	0.03
70	-29.76	-29.66	0.1
80	-27.69	-27.82	0.13
90	-29.05	-29.07	0.02
100	-31.19	-31.19	0
120	-31.61	-31.6	0.01
140	-28.13	-28.06	0.07
160	-27.71	-27.75	0.04
180	-26.19	-26.15	0.04
200	-28.2	-28.15	0.05
250	-27.45	-27.47	0.02
300	-29.61	-29.63	0.02
400	-31.77	-31.78	0.01
500	-32.81	-32.81	0
600	-33.64	-33.61	0.03
700	-34.21	-34.21	0
800	-35.66	-35.66	0
900	-36.99	-36.91	0.08
1000	-38	-37.91	0.09

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field intensity in dB(μ V/m).

Antenna factor
Active Horn Antenna,
Com-Power Corporation, model: AHA-118, s/n 701046, HL 4933

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
1000	-16.1
1500	-15.1
2000	-10.9
2500	-11.9
3000	-11.1
3500	-10.6
4000	-8.6
4500	-8.3
5000	-5.9
5500	-5.7
6000	-3.3
6500	-4.0
7000	-2.2
7500	-1.7
8000	1.1
8500	-0.8
9000	-1.5
9500	-0.2

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
10000	1.8
10500	1.0
11000	0.3
11500	-0.5
12000	3.1
12500	1.4
13000	-0.3
13500	-0.4
14000	2.5
14500	2.2
15000	1.9
15500	0.5
16000	2.1
16500	1.2
17000	0.6
17500	3.1
18000	4.2

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ V/m.

Antenna factor
Active Horn Antenna,
Com-Power Corporation, model: AHA-840, s/n 105004, HL 4956

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
18000	2.5
18500	0.5
19000	-1.0
19500	-2.4
20000	-2.5
20500	-2.2
21000	-2.0
21500	-2.7
22000	-3.7
22500	-3.8
23000	-3.7
23500	-5.0
24000	-4.5
24500	-5.0
25000	-4.7
25500	-4.4
26000	-4.3
26500	-5.6
27000	-4.3
27500	-4.9
28000	-5.2
28500	-4.4

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
29000	-2.7
29500	-2.6
30000	-1.4
30500	-1.5
31000	-1.0
31500	-2.6
32000	-3.3
32500	-3.3
33000	-5.1
33500	-5.2
34000	-1.5
34500	-5.4
35000	-3.3
35500	-4.2
36000	-2.8
36500	-2.6
37000	-1.0
38000	1.8
38500	2.8
39000	1.3
39500	1.3
40000	0.3

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ V/m.



Cable loss
Microwave Cable Assembly, Huber-Suhner, 40 GHz, 1.5 m, SMA-SMA, S/N 1226/2A
HL 3903

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	-0.02	9500	1.84	21000	2.98
100	0.15	10000	1.86	22000	3.07
500	0.38	10500	1.93	23000	3.13
1000	0.56	11000	1.99	24000	3.21
1500	0.69	11500	2.04	25000	3.26
2000	0.82	12000	2.10	26000	3.48
2500	0.90	12500	2.15	27000	3.44
3000	0.98	13000	2.21	28000	3.53
3500	1.06	13500	2.25	29000	3.59
4000	1.11	14000	2.29	30000	3.66
4500	1.17	14500	2.34	31000	3.70
5000	1.24	15000	2.36	32000	3.79
5500	1.32	15500	2.40	33000	3.88
6000	1.40	16000	2.45	34000	3.94
6500	1.50	16500	2.48	35000	3.91
7000	1.56	17000	2.56	36000	4.05
7500	1.62	17500	2.58	37000	4.22
8000	1.68	18000	2.60	38000	4.25
8500	1.74	19000	2.84	39000	4.27
9000	1.78	20000	2.88	40000	4.33

Cable loss
Cable, BNC/BNC, 10.5 m MIL-C-17G
Western wire, HL 5476

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
0.01	0.12	270	3.07
10	0.56	280	3.13
20	0.79	290	3.19
30	0.97	300	3.26
40	1.11	310	3.32
50	1.25	320	3.40
60	1.37	330	3.46
70	1.48	340	3.52
80	1.58	350	3.58
90	1.68	360	3.62
100	1.79	370	3.70
110	1.88	380	3.75
120	1.96	390	3.82
130	2.05	400	3.87
140	2.12	410	3.93
150	2.20	420	3.98
160	2.29	430	4.06
170	2.37	440	4.11
180	2.44	450	4.18
190	2.51	460	4.22
200	2.58	470	4.27
210	2.66	480	4.35
220	2.74	490	4.39
230	2.80	500	4.45
240	2.87		
250	2.93		
260	3.01		

10 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Conducted emissions with LISN	9 kHz to 150 kHz: ± 3.9 dB 150 kHz to 30 MHz: ± 3.8 dB
Radiated emissions at 10 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.0 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.1 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 5.5 dB Biconical antenna: ± 5.5 dB Log periodic antenna: ± 5.6 dB Double ridged horn antenna: ± 5.8 dB
Radiated emissions at 3 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

11 APPENDIX C Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, Radio, Safety, Environmental and Telecommunication testing facility.

Hermon Laboratories 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 927748, Designation Number is IL1001; Recognized by Innovation, Science and Economic Development Canada for wireless and terminal testing (ISED), ISED #2186A, CAB identifier is IL1001; Certified by VCCI, Japan (the registration numbers for OATS are R-10808 for RE measurements below 1 GHz, G-20112 for RE measurements above 1 GHz, R-11082 for anechoic chamber for RE measurements below 1 GHz, G-10869 for RE measurements above 1 GHz, C-10845 for conducted emissions site and T-11606 for conducted emissions at telecommunication ports).

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. 839.01, 839.03 and 839.04).

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Telephone: +972 4628 8001
Fax: +972 4628 8277
e-mail: mail@hermonlabs.com
website: www.hermonlabs.com

Person for contact: Mr. Michael Nikishin, EMC&Radio group manager

12 APPENDIX D

Specification references

47CFR part 15: 2019	Radio Frequency 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
ANSI C63.10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
RSS-210 Issue 10: 2019	Licence-Exempt Radio Apparatus:Category I Equipment
RSS-Gen Issue 5 with Am.1: 2019	General Requirements for Compliance of Radio Apparatus

13 APPENDIX E Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μ V)	decibel referred to one microvolt
dB(μ V/m)	decibel referred to one microvolt per meter
dB(μ A)	decibel referred to one microampere
DC	direct current
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μ s	microsecond
NA	not applicable
NB	narrow band
OATS	open area test site
Ω	Ohm
PM	pulse modulation
PS	power supply
ppm	part per million (10^{-6})
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
WB	wideband

14 APPENDIX F Manufacturer's declaration



Declaration of Identity

We, the undersigned,

Company: Siklu Communication Ltd.
Address: 43 Hasivim St. Petach Tikva 49517
Country: Israel
Telephone number: +972 (0)3 9214015
Fax number: +972 (0)3 9214162

declare under our sole responsibility that the following equipment:

Brand/Item	Type/Model	Short Product description
MultiHaul™	MH-B100-CCS-PoE-MWB	MultiHaul™ BU, 90deg, 2 RJ45 & 1 SFP, PoE, White

Is electronically/electrically/mechanically identical to the following equipment (including Software/Hardware version(s)):

Brand/Item	Type/Model	Short Product description
MultiHaul™	MH-T200-CCC-PoE-MWB	MultiHaul™ TU, 90deg, 3x RJ-45, PoE, White
MultiHaul™	MH-T200-CNN-PoE-MWB	MultiHaul™ TU, 90deg, 1 RJ-45, PoE, White
MultiHaul™	MH-T200-CCS-PoE-MWB	MultiHaul™ TU, 90deg, 2x RJ-45 & 1x SFP, PoE, White

The reason for name change is: Differentiation of products for different applications to comply with product pricing strategy, and to allow maximum flexibility of physical networking ports.

Siklu Communication Ltd.
.....
(company stamp)

May 26th 2020
.....
(date)
.....
(signature)

Baruch Schwarz.....
(printed name)

HW and System Director..
(position)

END OF DOCUMENT