COMPLIANCE WORLDWIDE INC.
TEST REPORT 409-18

In Accordance with the Requirements of

CFR Title 47 FCC Part 15 Subpart B, Class B
ICES-003, Issue 6, Class B
EN 55032:2012 AC:2013 / EN 55032:2015, Class B
AS/NZS CISPR 32:2015, Class B

Issued to

DecaWave Ltd.
Adelaide Chambers, Peter Street
Dublin, Ireland D08 T6YA

For the
DWM1001C

Report Issued on December 07, 2018

Prepared by

Suzanne M. Hayden

Reviewed By

Larry K. Stillings

Table of Contents

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
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1. Scope

This test report certifies that the Decawave DWM1001C, as tested, meets the regulatory agency standards listed on the cover page of this document. The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

2. Product Details

2.1. Manufacturer: DecaWave, Inc.

2.2. Model Number: DWM1001C

2.3. Serial Number: 18230049E4

2.4. Description: The DWM1001C RTLS Module is a full-function real-time location system (or RTLS) subsystem in a compact factor

2.5. Power Source: 120 VAC, 60 Hz; 230 VAC, 50 via 2.8 – 3.6 VDC

2.6. Highest Operating Freq.: 6.5 GHz

2.7. EMC Modifications: None

3. Product Configuration

3.1. Cables

Cable Type	Length	Shield	From	To
USB	2M	Yes	EUT	USB Charger

3.2. Support Equipment

Manufacturer	Model/Part # / Options	Serial Number	Description/Function
Phihong	PSA 05F-050Q	n/a	USB Charger
Dell	Inspirion E1505	5573349937	Laptop for Configuration

3.3. Temperature and Humidity

The test site ambient air temperature is in the range of 10 °C to 40 °C (50 °F to 104 °F), unless the EUT requirements specify testing over a different temperature range. The EUT and the measuring equipment are operated until temperature stabilizes before the testing proceeds. The warm-up time is included along with the measurement results if the ambient conditions are outside of the range stated above, and evidence is given that the measuring equipment is accurate at the temperatures used.

Humidity levels are in the range of 10% to 90% relative humidity unless the EUT operating requirements call for a different level. Unless specifically called out in the EUT requirements there should be no condensation of moisture on the EUT. The ambient temperature and humidity levels are recorded and included in the test report if critical to the test results.

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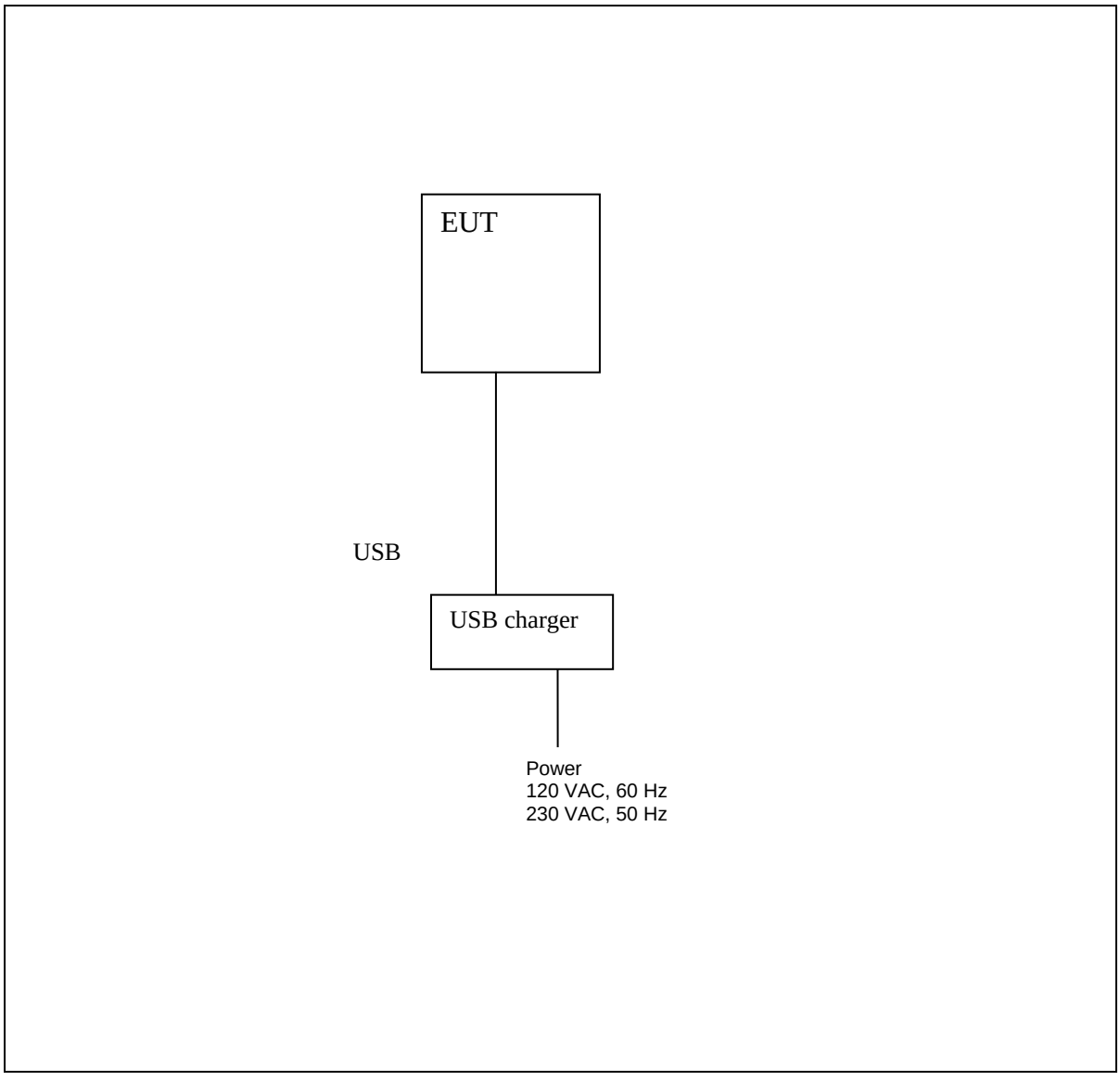
3. Product Configuration (continued)

3.4. Operational Characteristics

The EUT was configured to operate on battery power and via a daughter board that provided USB power. Two units were configured, one as a “tag” and one as an “anchor”. The two devices were configured to provide distance information to the remotely located unit that was attached to a laptop computer.

4. Product Block Diagram



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5. Radiated Emissions (30 MHz to 1 GHz) Test Setup

5.1. Regulatory Limit: EN55032, Class B, Quasi-Peak

Frequency Range (MHz)	Distance (Meters)	Limit (dBµV/m)
30 to 230	10	30
230 to 1000	10	37

5.2. Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due
Biconilog Antenna	Sunol Sciences	JB1	A050913	6/3/2019
EMI Receiver	Hewlett Packard	8546A	3330A00115	9/12/2020
Manufacturer	**Software Description**		**Title/Model #**	**Rev.**
Compliance Worldwide	Test Report Generation Software		Test Report Generator	1.0

5.3. Measurement & Equipment Setup

Test Date:	11/30/2018
Test Engineer:	Caleb Chretien
Site Temperature (°C):	20
Relative Humidity (%RH):	33.7
Frequency Range:	30 MHz to 1 GHz
Measurement Distance:	10 Meters
EMI Receiver IF Bandwidth:	120 kHz
EMI Receiver Avg Bandwidth:	300 kHz
Detector Functions:	Peak and Quasi-Peak.
Antenna Height:	1 to 4 meters

Measurement Uncertainty

Horizontal Polarized Radiated Emissions	± 4.75 dB
Vertical Polarized Radiated Emissions	± 4.87 dB
Frequency Range:	30 MHz to 200 MHz
Measurement Distance:	10 Meters
Horizontal Polarized Radiated Emissions	± 4.88 dB
Vertical Polarized Radiated Emissions	± 4.87 dB
Frequency Range:	200 MHz to 1000 MHz
Measurement Distance:	10 Meters

5.4. Test Procedure

Test measurements were made in accordance with CISPR 32, Annex A.2: Requirements for Radiated Emissions and ANSI C63.4-2014, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

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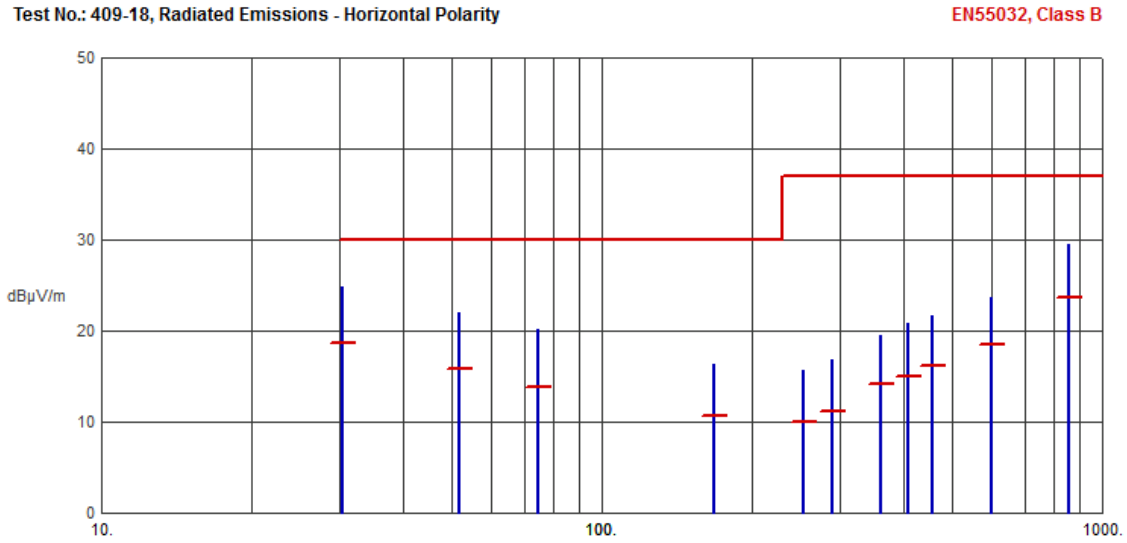
6. Radiated Emissions (30 MHz to 1 GHz) Test Results

6.1. Horizontal Polarity



Frequency (MHz)	Pk Amp (dBµV/m)	QP Amp (dBµV/m)	QP Limit (dBµV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
30.3346	24.83	18.74	30.00	-11.26	N/A	N/A	
52.0146	22.03	15.90	30.00	-14.10	N/A	N/A	
74.6458	20.13	13.80	30.00	-16.20	N/A	N/A	
168.1161	16.34	10.63	30.00	-19.37	N/A	N/A	
252.3329	15.65	9.94	37.00	-27.06	N/A	N/A	
288.2605	16.83	11.21	37.00	-25.79	N/A	N/A	
360.4214	19.46	14.19	37.00	-22.81	N/A	N/A	
410.0351	20.81	15.07	37.00	-21.93	N/A	N/A	
456.1466	21.65	16.18	37.00	-20.82	N/A	N/A	
602.3924	23.68	18.53	37.00	-18.47	N/A	N/A	
858.1174	29.57	23.69	37.00	-13.31	N/A	N/A	

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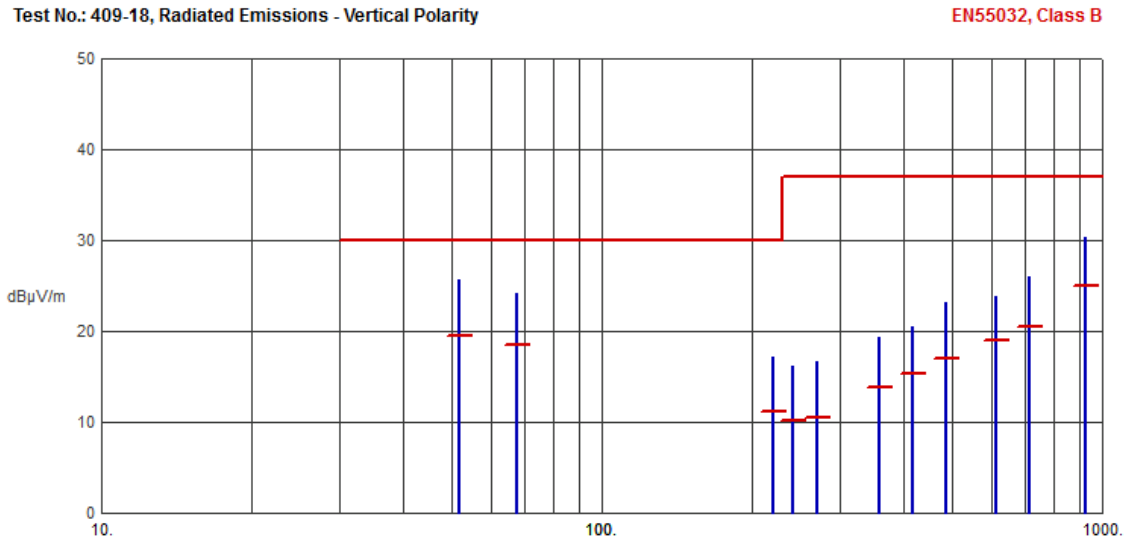
6. Radiated Emissions (30 MHz to 1 GHz) Test Results (continued)

6.2. Vertical Polarity



Frequency (MHz)	Pk Amp (dBµV/m)	QP Amp (dBµV/m)	QP Limit (dBµV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
51.9813	25.60	19.46	30.00	-10.54	N/A	N/A	
67.7629	24.18	18.49	30.00	-11.51	N/A	N/A	
220.2263	17.23	11.16	30.00	-18.84	N/A	N/A	
240.4773	16.22	10.15	37.00	-26.85	N/A	N/A	
269.3756	16.70	10.51	37.00	-26.49	N/A	N/A	
357.4378	19.33	13.85	37.00	-23.15	N/A	N/A	
417.5502	20.48	15.34	37.00	-21.66	N/A	N/A	
487.2612	23.15	16.96	37.00	-20.04	N/A	N/A	
615.6408	23.76	18.92	37.00	-18.08	N/A	N/A	
715.8135	25.95	20.49	37.00	-16.51	N/A	N/A	
926.1969	30.40	24.98	37.00	-12.02	N/A	N/A	

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7. Radiated Emissions (> 1 GHz) Test Setup

7.1. Regulatory Limits

EN 55032, Class B

Frequency Range (GHz)	Distance (Meters)	Average Limit (dBµV/m)	Peak Limit (dBµV/m)
1 to 3	3	50	70
3 to 6	3	54	74
[1] EUT Highest Operating Frequency		Maximum Test Frequency	
108 MHz to 500 MHz		2 GHz	
500 MHz to 1000 MHz		5 GHz	
Above 1000 MHz		5th harmonic of the highest EUT frequency or 6 GHz, whichever is lower.	

FCC Part 15, Class B, Average

Frequency Range (GHz)	Distance (Meters)	Limit (dBµV/m)
1 to 40	3	54
EUT Highest Operating Frequency	Maximum Test Frequency	
108 MHz to 500 MHz	2 GHz	
500 MHz to 1000 MHz	5 GHz	
Above 1000 MHz	5th harmonic of the highest EUT frequency or 40 GHz, whichever is lower.	
The peak value may be no more than 20 dB above the average limit per 15.35(b).		

7.2. Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due	Interval
Spectrum Analyzer 20 Hz – 40 GHz[1]	Rohde & Schwarz	FSV40	100899	9/13/2020	3 Years
Preamplifier, 1 GHz to 26.5 GHz	Hewlett Packard	8449B OPT H02	3008A00329	9/11/2020	3 Years
Horn Antenna, 1 GHz – 18 GHz	ETS-Lindgren	3117	00143292	2/22/2019	3 Years
Horn Antenna, 18 GHz – 40 GHz	Com Power	AH-840	3075	10/11/2018	2 Years
Digital Barometer	Control Company	4195	ID236	4/2/2020	2 Years
2.4 GHz Band Reject Filter	Micro-Tronics	BRM50702	150	1/23/2019	1 Year

[1] FSV40 Firmware revision: V2.30 SP1, Date installed: 10/22/2014, previous V2.30, installed 7/23/2014.

Manufacturer	Software Description	Title/Model #	Rev.
Compliance Worldwide	Test Report Generation Software	Test Report Generator	1.0

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7. Radiated Emissions (> 1 GHz) Test Setup (cont.)

7.3. Measurement & Equipment Setup

Test Date:	11/29/2018
Test Engineers:	Sean Defelice
Site Temperature (°C):	20.7
Relative Humidity (%RH):	37.1
Frequency Range:	Above 1 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	1 MHz
EMI Receiver Avg Bandwidth:	3 MHz
Detector Functions:	Peak and Average
Antenna Height:	1 to 4 meters

7.4. Test Procedure

Test measurements were made in accordance with ANSI C63.4-2014, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz. To determine the antenna beam width in relation to the size of the DUT, reference quality document: Half-Power (-3 dB) Beam Width for Above 1 GHz Site Antennas.

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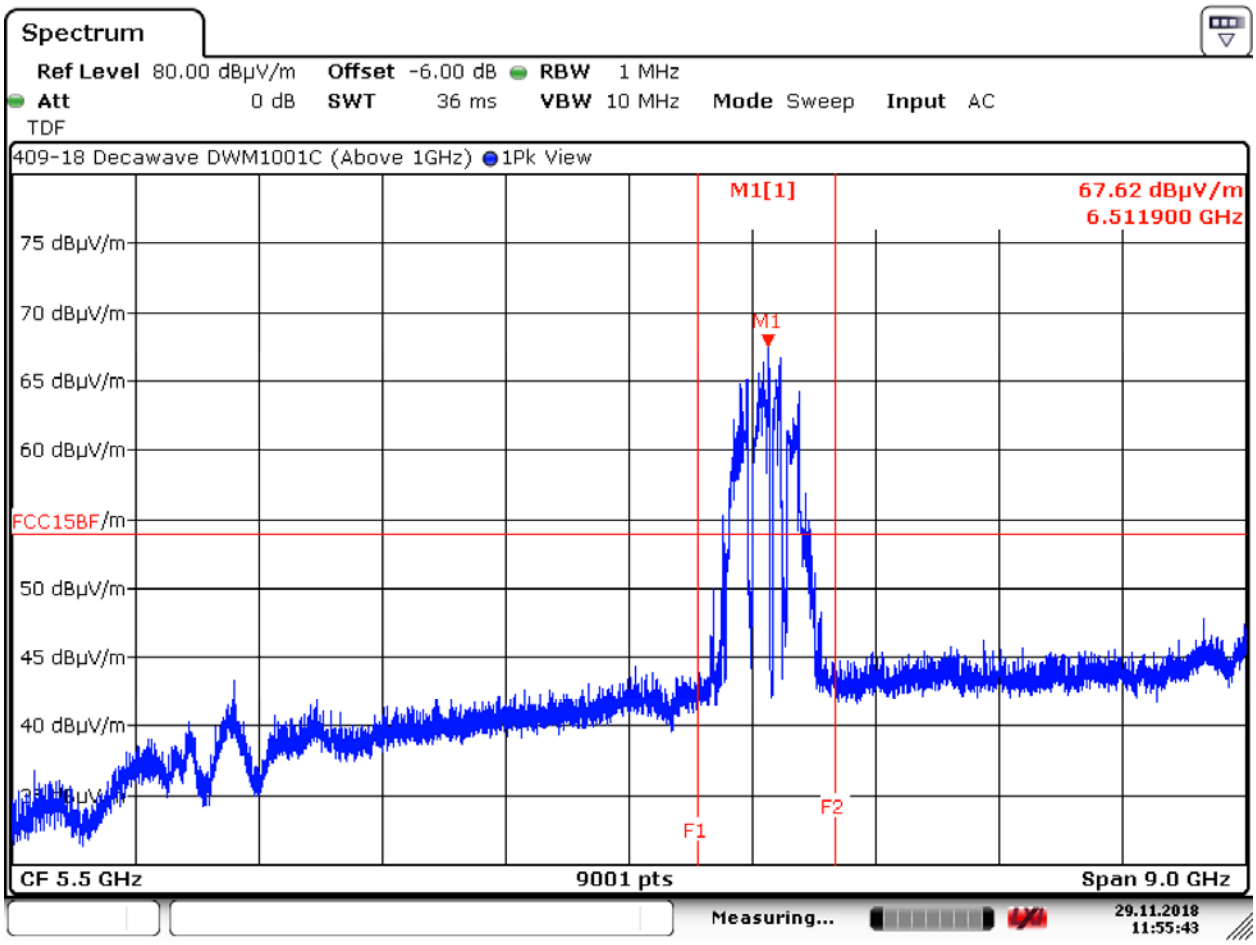
8. Radiated Emissions (> 1 GHz) Test Results

8.1. 1 to 10 GHz Horizontal



Horizontal

Date: 29.NOV.2018 11:55:43

Note: Max Held Peak values are below the average limit.

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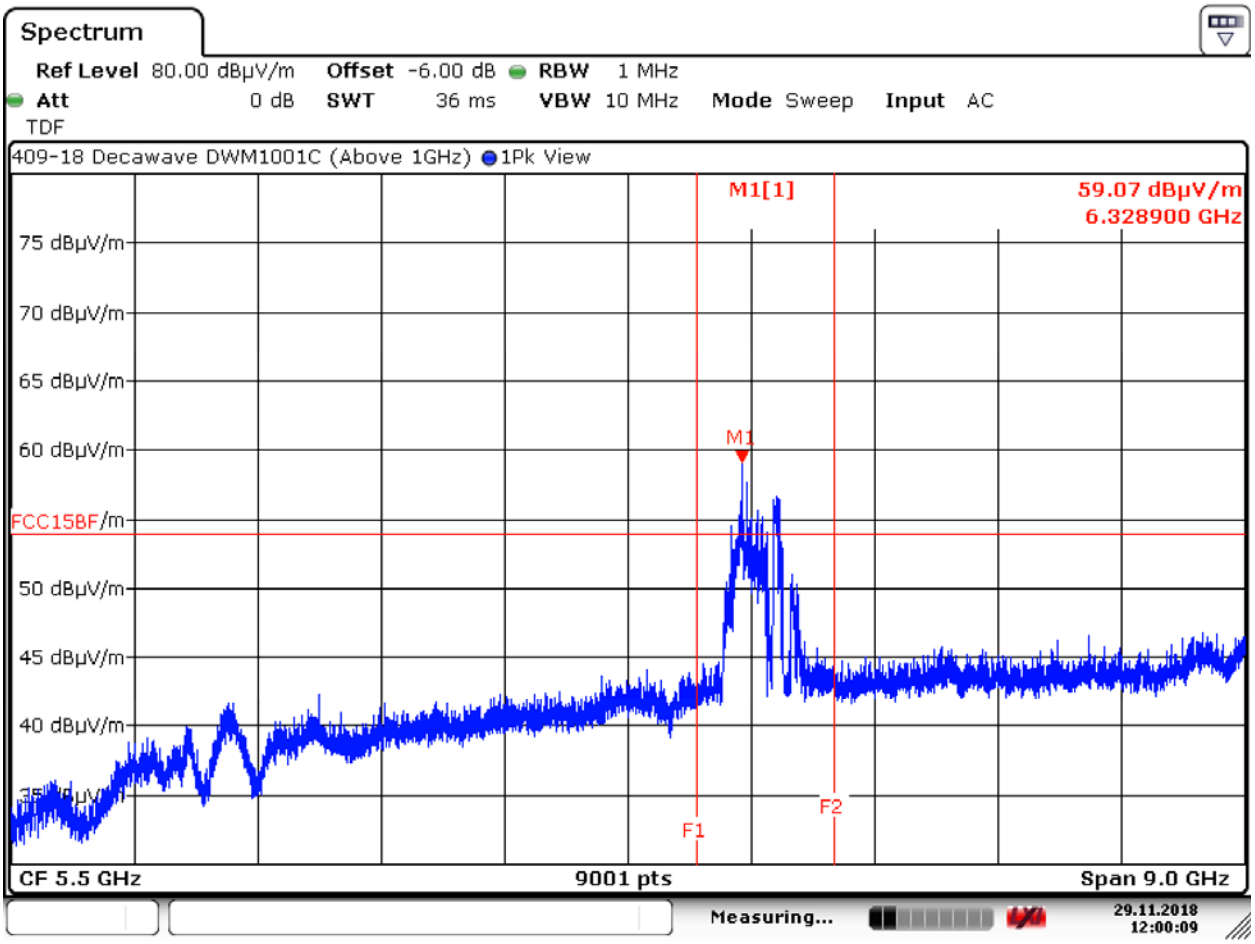
8. Radiated Emissions (> 1 GHz) Test Results (continued)

8.2. 1 to 10 GHz Vertical



Vertical

Date: 29.NOV.2018 12:00:09

Note: Max Held Peak values are below the average limit.

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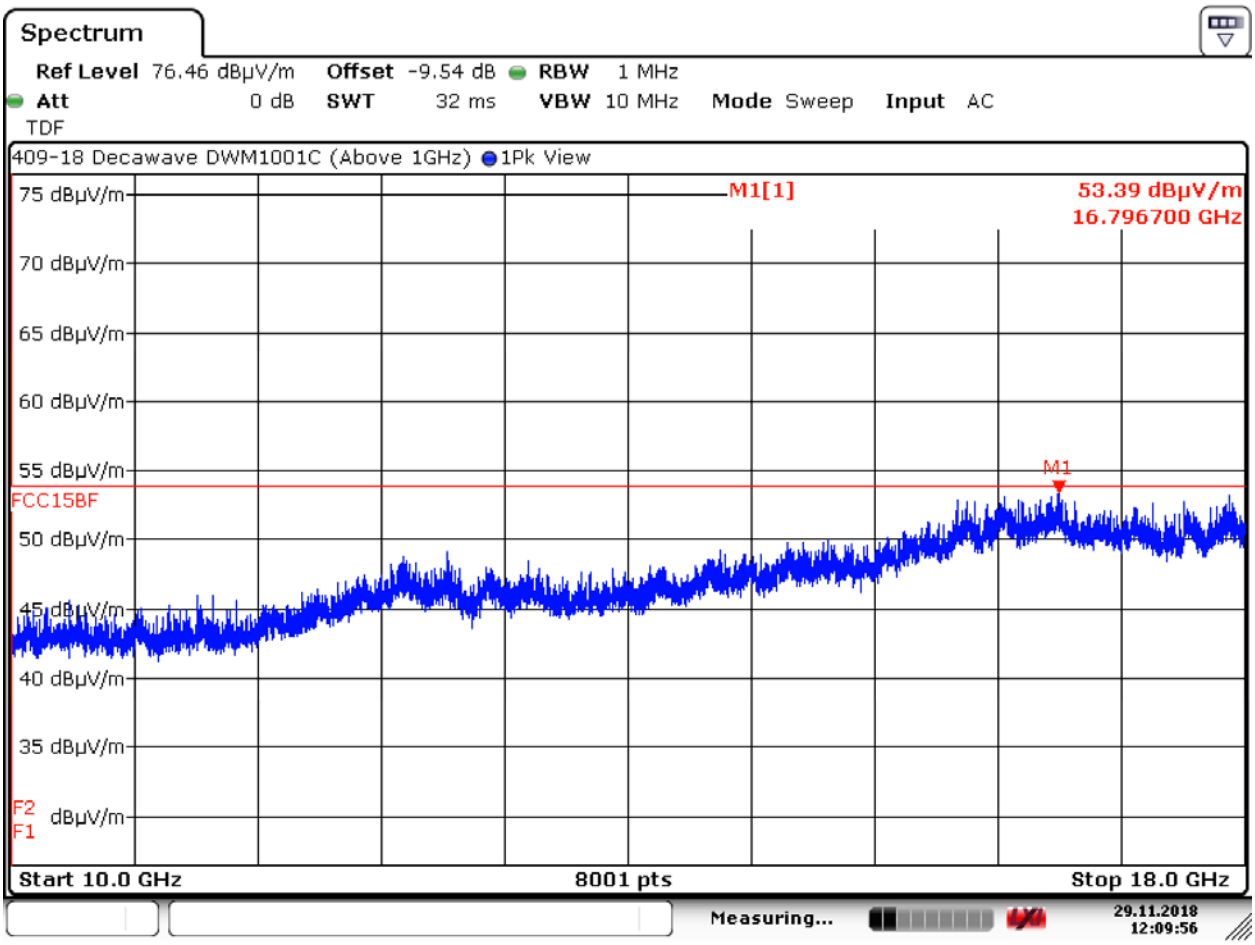
8. Radiated Emissions (> 1 GHz) Test Results (continued)

8.3. 10 to 18 GHz Horizontal



Horizontal

Date: 29.NOV.2018 12:09:56

Note: Max Held Peak values are below the average limit.

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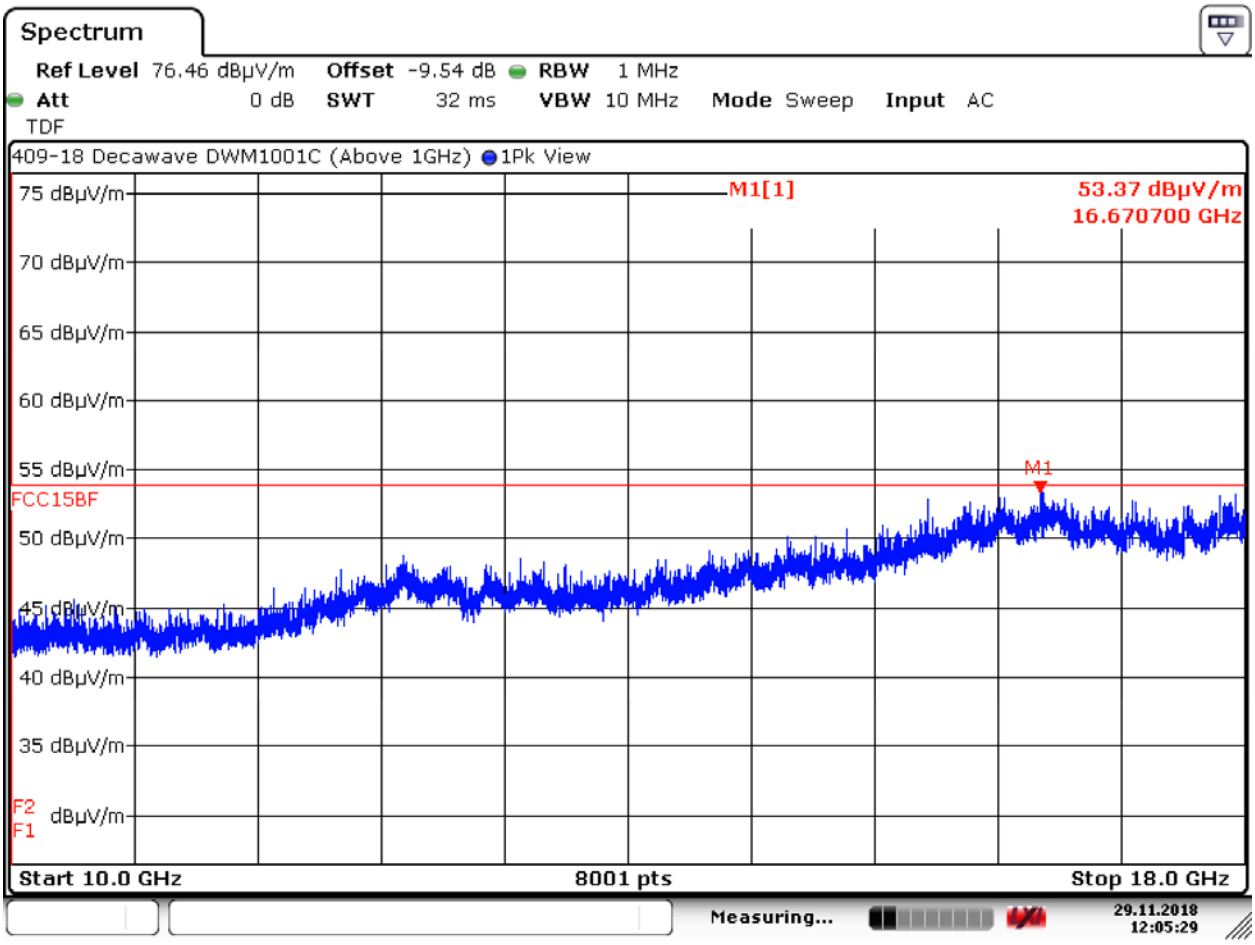
8. Radiated Emissions (> 1 GHz) Test Results (continued)

8.4. 10 to 18 GHz Vertical



Vertical

Date: 29.NOV.2018 12:05:28

Note: Max Held Peak values are below the average limit.

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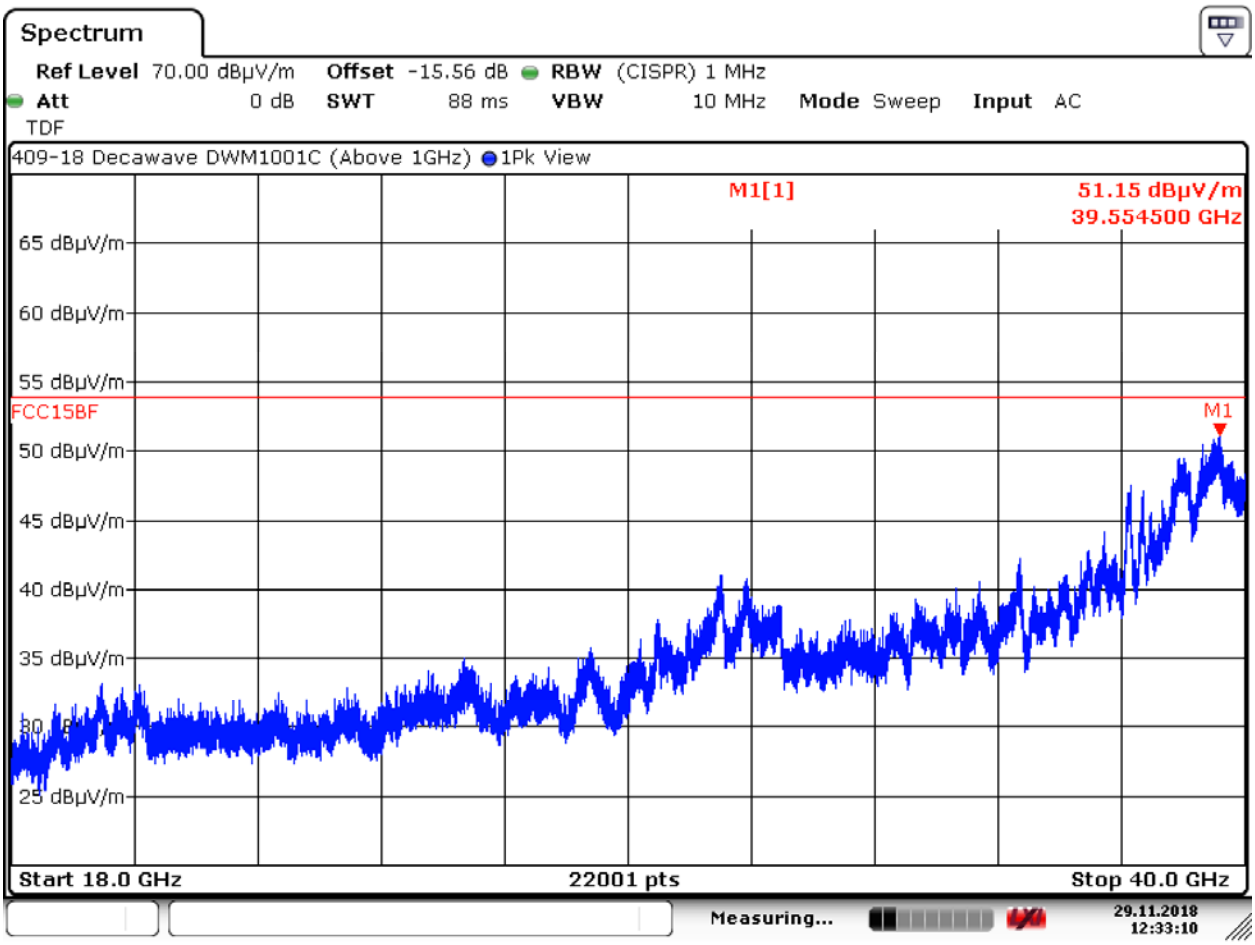
8. Radiated Emissions (> 1 GHz) Test Results (continued)

8.5. 18 to 40 GHz Horizontal



Horizontal

Date: 29.NOV.2018 12:33:09

Note: Max Held Peak values are below the average limit.

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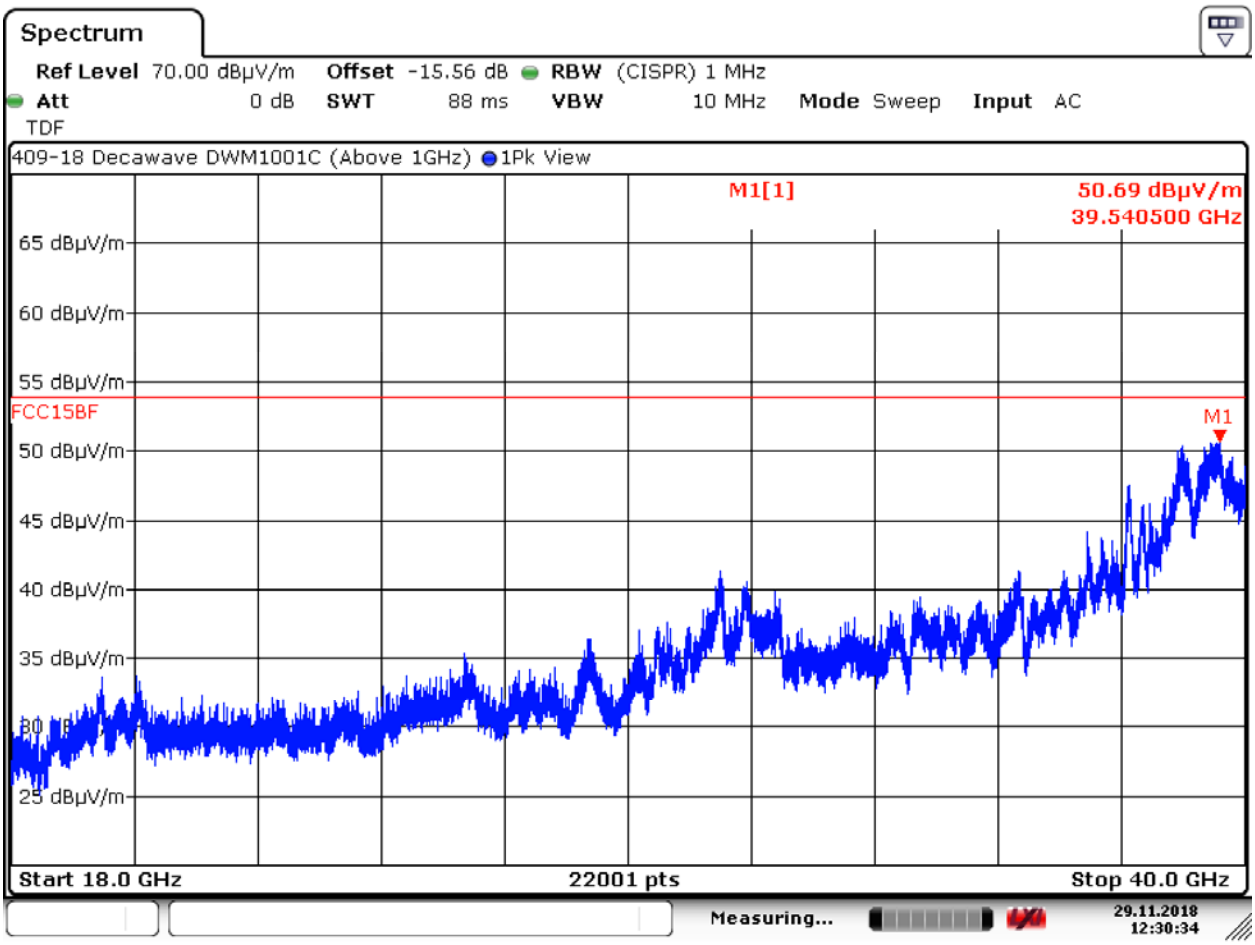
8. Radiated Emissions (> 1 GHz) Test Results (continued)

8.6. 18 to 40 GHz Vertical



Vertical

Date: 29.NOV.2018 12:30:33

Note: Max Held Peak values are below the average limit.

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9. Conducted Emissions Test Setup

9.1. Regulatory Limit: EN55032, Class B

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-Peak	Average
0.15 to 0.50	66 to 56[1]	56 to 46[1]
0.50 to 5.0	56	46
5.0 to 30	60	50
[1] The limit decreases linearly with the logarithm of the frequency.		

9.2. Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due
LISN	EMCO	3825/2	9109-1860	9/10/2019
EMI Receiver	Hewlett Packard	8546A	3330A00115	9/12/2020
EMI Receiver	Rohde & Schwarz	ESR7	101156	9/10/2020
Manufacturer	**Software Description**		**Title/Model #**	**Rev.**
Compliance Worldwide	Test Report Generation Software		Test Report Generator	1.0

9.3. Measurement & Equipment Setup

Test Date:	12/07/2018
Test Engineer:	Caleb Chretien
Site Temperature (°C):	20.0
Relative Humidity (%RH):	33.7.
Frequency Range:	0.15 MHz to 30 MHz
EMI Receiver IF Bandwidth:	9 kHz
EMI Receiver Avg Bandwidth:	30 kHz
Detector Functions:	Peak, Quasi-Peak. & Average

9.4. Test Procedure

Test measurements were made in accordance with CISPR 32, Annex A.3: Requirements for Conducted Emissions and ANSI C63.4-2014, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

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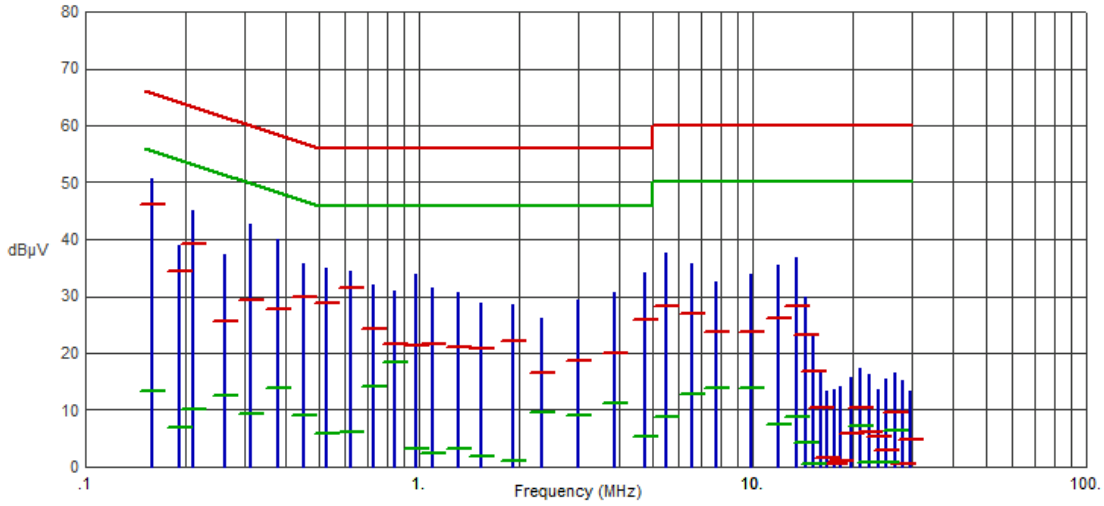
10. Conducted Emissions Test Results

10.1. 120 Volts, 60 Hz Phase

Test No.: 409-18, 120 Volts, 60 Hz Phase EN55032, Class B



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Avg Amp (dBµV)	Avg Limit (dBµV)	Avg Margin (dB)	Comments
.1590	50.70	46.10	65.52	-19.42	13.27	55.52	-42.25	
.1905	38.85	34.39	64.01	-29.62	6.98	54.01	-47.03	
.2108	45.14	39.33	63.17	-23.84	10.06	53.17	-43.11	
.2625	37.38	25.73	61.35	-35.62	12.58	51.35	-38.77	
.3120	42.77	29.25	59.92	-30.67	9.22	49.92	-40.70	
.3773	40.08	27.60	58.34	-30.74	13.99	48.34	-34.35	
.4515	35.76	29.90	56.85	-26.95	9.16	46.85	-37.69	
.5280	35.05	28.89	56.00	-27.11	5.88	46.00	-40.12	
.6248	34.32	31.56	56.00	-24.44	6.13	46.00	-39.87	
.7305	32.11	24.31	56.00	-31.69	14.19	46.00	-31.81	
.8475	31.02	21.49	56.00	-34.51	18.38	46.00	-27.62	
.9758	33.76	21.42	56.00	-34.58	3.28	46.00	-42.72	
1.0945	31.50	21.62	56.00	-34.38	2.50	46.00	-43.50	
1.3173	30.69	21.18	56.00	-34.82	3.32	46.00	-42.68	
1.5423	28.71	20.72	56.00	-35.28	1.90	46.00	-44.10	
1.9045	28.43	22.08	56.00	-33.92	.95	46.00	-45.05	
2.3365	26.05	16.44	56.00	-39.56	9.73	46.00	-36.27	
3.0093	29.36	18.67	56.00	-37.33	9.04	46.00	-36.96	
3.8733	30.63	20.09	56.00	-35.91	11.07	46.00	-34.93	
4.7485	34.25	25.91	56.00	-30.09	5.43	46.00	-40.57	
5.5090	37.54	28.29	60.00	-31.71	8.78	50.00	-41.22	
6.5845	35.79	27.04	60.00	-32.96	12.83	50.00	-37.17	
7.8175	32.44	23.70	60.00	-36.30	13.82	50.00	-36.18	
9.9168	33.84	23.84	60.00	-36.16	13.96	50.00	-36.04	
11.9035	35.53	26.03	60.00	-33.97	7.45	50.00	-42.55	
13.5303	36.70	28.20	60.00	-31.80	8.92	50.00	-41.08	
14.4708	29.89	23.22	60.00	-36.78	4.19	50.00	-45.81	
15.1598	23.59	16.73	60.00	-43.27	.41	50.00	-49.59	
16.0125	17.01	10.37	60.00	-49.63	-2.68	50.00	-52.68	
16.7213	13.34	1.72	60.00	-58.28	-.89	50.00	-50.89	
17.5898	13.65	.49	60.00	-59.51	-2.08	50.00	-52.08	

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10. Conducted Emissions Test Results (continued)

10.1. 120 Volts, 60 Hz Phase (continued)

Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Avg Amp (dBµV)	Avg Limit (dBµV)	Avg Margin (dB)	Comments
18.3818	14.15	1.16	60.00	-58.84	-3.47	50.00	-53.47	
19.7408	15.74	5.76	60.00	-54.24	-2.38	50.00	-52.38	
21.0525	17.29	10.47	60.00	-49.53	7.21	50.00	-42.79	
22.3733	16.38	6.21	60.00	-53.79	.77	50.00	-49.23	
23.9258	13.48	5.39	60.00	-54.61	-.25	50.00	-50.25	
25.2038	15.47	2.86	60.00	-57.14	.86	50.00	-49.14	
26.6100	16.40	9.49	60.00	-50.51	6.47	50.00	-43.53	
28.0770	15.28	.58	60.00	-59.42	-1.40	50.00	-51.40	
29.6318	13.26	4.78	60.00	-55.22	-.85	50.00	-50.85	

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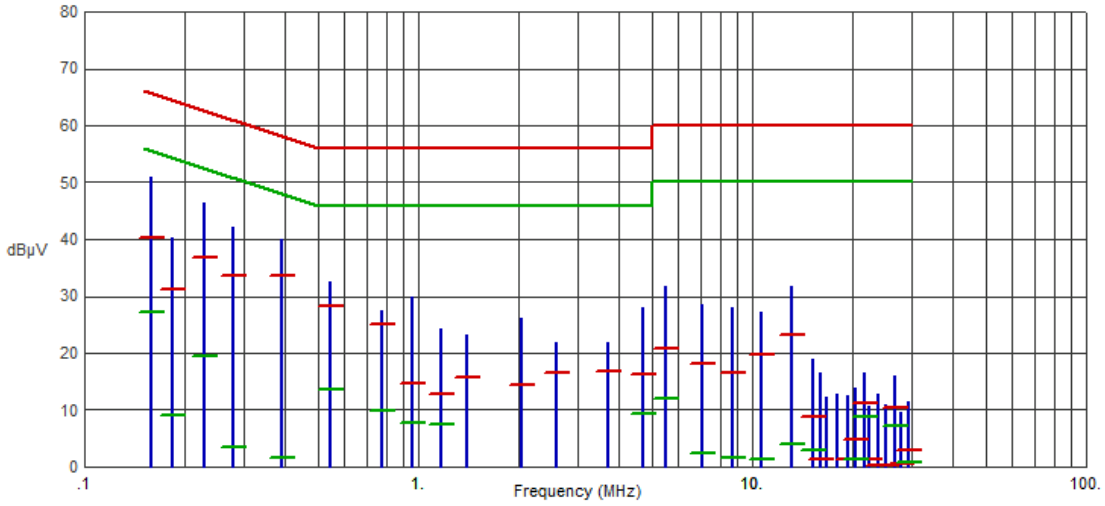
10. Conducted Emissions Test Results (continued)

10.2. 120 Volts, 60 Hz Neutral

Test No.: 409-18, 120 Volts, 60 Hz Neutral EN55032, Class B



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Avg Amp (dBµV)	Avg Limit (dBµV)	Avg Margin (dB)	Comments
.1590	50.92	40.36	65.52	-25.16	27.18	55.52	-28.34	
.1838	40.25	31.09	64.31	-33.22	8.94	54.31	-45.37	
.2288	46.42	36.78	62.49	-25.71	19.51	52.49	-32.98	
.2783	42.26	33.72	60.87	-27.15	3.39	50.87	-47.48	
.3908	40.02	33.51	58.05	-24.54	1.62	48.05	-46.43	
.5438	32.51	28.30	56.00	-27.70	13.64	46.00	-32.36	
.7778	27.55	25.18	56.00	-30.82	9.81	46.00	-36.19	
.9578	29.97	14.72	56.00	-41.28	7.76	46.00	-38.24	
1.1693	24.22	12.74	56.00	-43.26	7.48	46.00	-38.52	
1.4010	23.33	15.68	56.00	-40.32	-1.48	46.00	-47.48	
2.0423	26.23	14.29	56.00	-41.71	-2.22	46.00	-48.22	
2.5913	21.88	16.62	56.00	-39.38	-.54	46.00	-46.54	
3.6825	21.99	16.77	56.00	-39.23	-1.24	46.00	-47.24	
4.6905	28.00	16.24	56.00	-39.76	9.28	46.00	-36.72	
5.4960	31.70	20.92	60.00	-39.08	12.10	50.00	-37.90	
7.0733	28.57	18.08	60.00	-41.92	2.52	50.00	-47.48	
8.7293	27.99	16.61	60.00	-43.39	1.47	50.00	-48.53	
10.6778	27.07	19.69	60.00	-40.31	1.42	50.00	-48.58	
13.1888	31.67	23.33	60.00	-36.67	3.92	50.00	-46.08	
15.2115	19.00	8.70	60.00	-51.30	2.99	50.00	-47.01	
16.0170	16.52	1.38	60.00	-58.62	-.96	50.00	-50.96	
16.7483	12.31	-1.54	60.00	-61.54	-4.02	50.00	-54.02	
18.0150	12.90	-1.90	60.00	-61.90	-3.96	50.00	-53.96	
19.2548	12.47	1.21	60.00	-58.79	-3.21	50.00	-53.21	
20.3235	13.83	4.70	60.00	-55.30	1.36	50.00	-48.64	
21.6645	16.41	11.30	60.00	-48.70	8.84	50.00	-41.16	
22.4430	10.55	1.35	60.00	-58.65	-.08	50.00	-50.08	
23.7773	12.74	.34	60.00	-59.66	-1.49	50.00	-51.49	
25.1520	10.90	.39	60.00	-59.61	-1.35	50.00	-51.35	
26.6100	15.89	10.53	60.00	-49.47	7.12	50.00	-42.88	
27.8498	9.60	.64	60.00	-59.36	-1.68	50.00	-51.68	
29.2358	11.59	2.82	60.00	-57.18	.85	50.00	-49.15	

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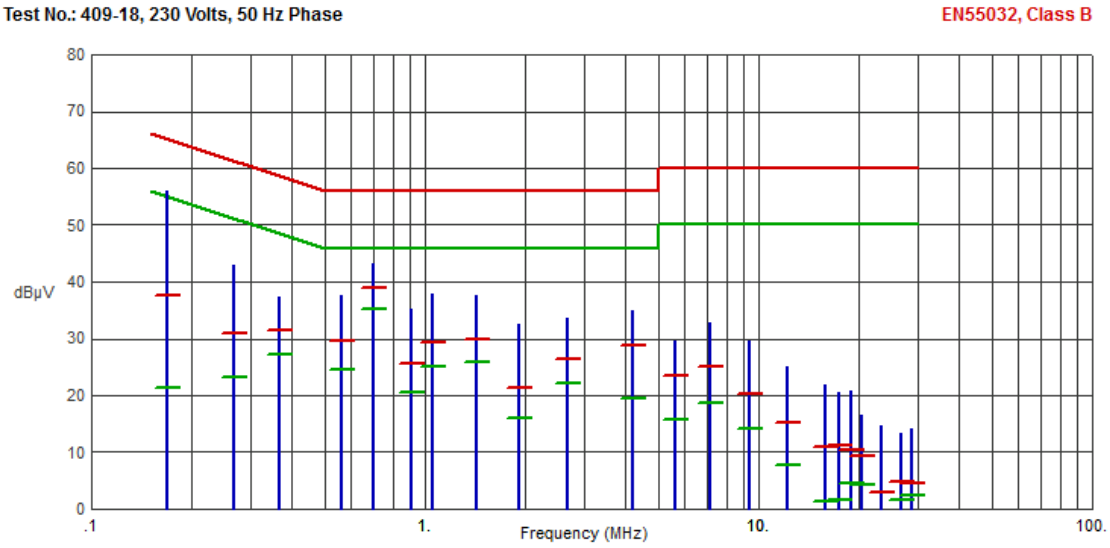
10. Conducted Emissions Test Results (continued)

10.3. 230 Volts, 50 Hz Phase



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Av Amp (dBµV)	Av Limit (dBµV)	Av Margin (dB)	Comments
.1680	55.99	37.61	65.06	-27.45	21.39	55.06	-33.67	
.2670	42.81	30.88	61.21	-30.33	23.27	51.21	-27.94	
.3660	37.23	31.45	58.59	-27.14	27.21	48.59	-21.38	
.5618	37.60	29.59	56.00	-26.41	24.55	46.00	-21.45	
.7013	43.20	38.88	56.00	-17.12	35.16	46.00	-10.84	
.9105	35.27	25.52	56.00	-30.48	20.50	46.00	-25.50	
1.0523	37.89	29.36	56.00	-26.64	24.99	46.00	-21.01	
1.4235	37.63	29.77	56.00	-26.23	25.95	46.00	-20.05	
1.9163	32.56	21.38	56.00	-34.62	15.87	46.00	-30.13	
2.6790	33.71	26.49	56.00	-29.51	22.13	46.00	-23.87	
4.1955	34.84	28.79	56.00	-27.21	19.57	46.00	-26.43	
5.6243	29.54	23.48	60.00	-36.52	15.63	50.00	-34.37	
7.1858	32.93	24.95	60.00	-35.05	18.80	50.00	-31.20	
9.4223	29.50	20.19	60.00	-39.81	14.04	50.00	-35.96	
12.2235	25.19	15.07	60.00	-44.93	7.62	50.00	-42.38	
15.8438	21.78	10.93	60.00	-49.07	1.34	50.00	-48.66	
17.3468	20.62	11.32	60.00	-48.68	1.53	50.00	-48.47	
18.8858	20.68	10.50	60.00	-49.50	4.45	50.00	-45.55	
20.3798	16.61	9.38	60.00	-50.62	4.38	50.00	-45.62	
23.4060	14.59	2.95	60.00	-57.05	-.49	50.00	-50.49	
26.6078	13.43	4.77	60.00	-55.23	1.53	50.00	-48.47	
28.6845	14.17	4.45	60.00	-55.55	2.28	50.00	-47.72	

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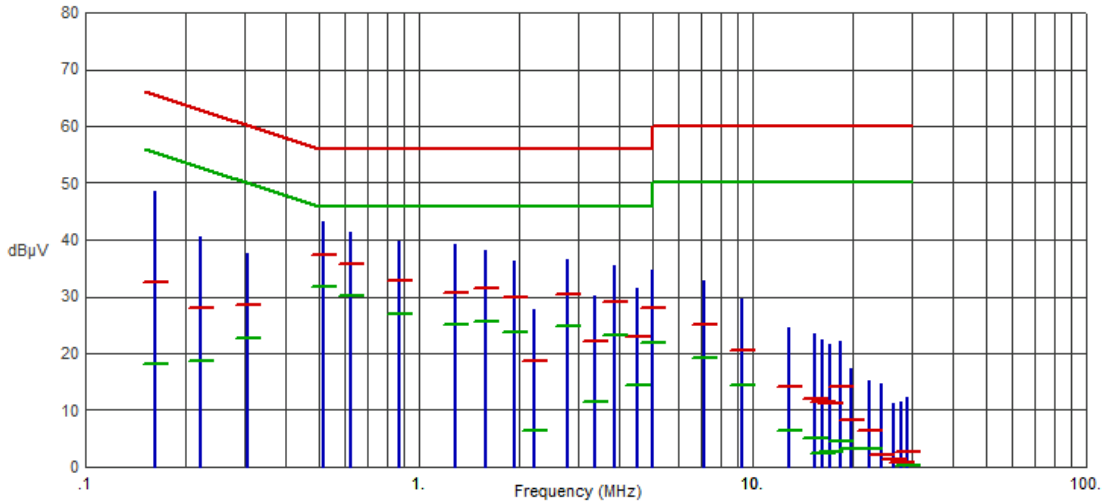
10. Conducted Emissions Test Results (continued)

10.4. 230 Volts, 50 Hz Neutral

Test No.: 409-18, 230 Volts, 50 Hz Neutral EN55032, Class B



Frequency (MHz)	Pk Amp (dBµV)	QP Amp (dBµV)	QP Limit (dBµV)	QP Margin (dB)	Av Amp (dBµV)	Av Limit (dBµV)	Av Margin (dB)	Comments
.1613	48.41	32.59	65.40	-32.81	18.12	55.40	-37.28	
.2220	40.54	28.11	62.74	-34.63	18.74	52.74	-34.00	
.3075	37.68	28.57	60.04	-31.47	22.72	50.04	-27.32	
.5190	43.20	37.25	56.00	-18.75	31.62	46.00	-14.38	
.6248	41.45	35.81	56.00	-20.19	30.22	46.00	-15.78	
.8768	39.82	32.80	56.00	-23.20	26.84	46.00	-19.16	
1.2818	39.15	30.67	56.00	-25.33	25.06	46.00	-20.94	
1.5788	38.20	31.36	56.00	-24.64	25.69	46.00	-20.31	
1.9365	36.34	29.89	56.00	-26.11	23.71	46.00	-22.29	
2.2223	27.86	18.64	56.00	-37.36	6.44	46.00	-39.56	
2.7893	36.54	30.46	56.00	-25.54	24.89	46.00	-21.11	
3.3585	30.06	22.16	56.00	-33.84	11.36	46.00	-34.64	
3.8738	35.55	29.05	56.00	-26.95	23.28	46.00	-22.72	
4.4993	31.38	22.81	56.00	-33.19	14.39	46.00	-31.61	
4.9920	34.56	27.87	56.00	-28.13	21.90	46.00	-24.10	
7.1498	32.78	25.04	60.00	-34.96	19.09	50.00	-30.91	
9.3413	29.65	20.52	60.00	-39.48	14.33	50.00	-35.67	
12.8040	24.66	14.02	60.00	-45.98	6.32	50.00	-43.68	
15.4343	23.35	12.10	60.00	-47.90	5.08	50.00	-44.92	
16.2308	22.45	11.53	60.00	-48.47	2.49	50.00	-47.51	
16.9868	21.68	11.21	60.00	-48.79	2.59	50.00	-47.41	
18.3660	22.24	14.01	60.00	-45.99	4.44	50.00	-45.56	
19.7993	17.27	8.32	60.00	-51.68	3.07	50.00	-46.93	
22.4543	15.10	6.30	60.00	-53.70	3.07	50.00	-46.93	
24.2408	14.64	2.13	60.00	-57.87	-.84	50.00	-50.84	
26.4210	11.07	1.44	60.00	-58.56	-1.22	50.00	-51.22	
27.8138	11.53	.80	60.00	-59.20	-1.18	50.00	-51.18	
29.2335	12.26	2.74	60.00	-57.26	.32	50.00	-49.68	

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11. Test Images

11.1. Radiated Emissions, Front View

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11. Test Images (continued)

11.2. Radiated Emissions, Rear View

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11. Test Images (continued)

11.3. Above 1 GHz Emissions, Front View

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11. Test Images (continued)

11.4. Above 1 GHz Emissions, Front View

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11. Test Images (continued)

11.5. Conducted Emissions, Front View

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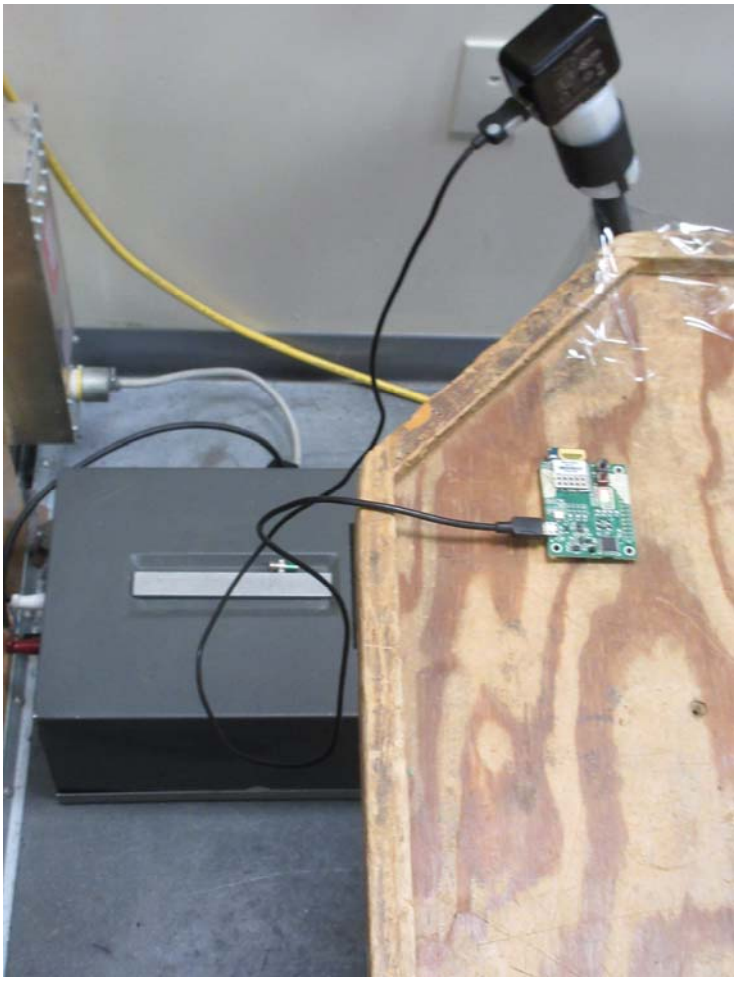
11. Test Images (continued)

11.6. Conducted Emissions, Rear View



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12. Manual Statements and Labels

12.1. FCC Part 15, Class B Manual Statement

The following statement should be conspicuously located in bold letters in the instruction manual:

RADIO AND TELEVISION INTERFERENCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and the receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

You may also find helpful the following booklet, prepared by the FCC: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402.

Changes and Modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commissions rules.

* In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio & television reception.

* NOTE: If shielded cables were used when testing your product you must also add this paragraph to the manual

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12. Manual Statements and Labels (continued)

12.2. FCC Part 15, Class B Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

12.3. ICES-003 Label

CAN ICES-3 (*)/NMB-3(*) = CAN ICES- 3(B)/NMB-3(B)

12.4. EN55022 Class B Label

CE

12.5 Australia / New Zealand AS/NZS "RCM" Marking

A compliance label is a durable and legible label that indicates the product complies with the applicable standard/s.

For all ACMA regulatory arrangements, the compliance label is the Regulatory Compliance Mark (RCM). The RCM replaces the A-Tick and C-Tick compliance marks used under previous regulatory arrangements on March 1, 2016.

This information may take the form of the supplier code number issued by the ACMA, an Australian company number or any other form detailed in the relevant labeling notices.

N ####

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13. Test Site Description

Compliance Worldwide is located at 357 Main Street in Sandown, New Hampshire. The test sites at Compliance Worldwide are used for conducted and radiated emissions testing in accordance with the Federal Communications Commission (FCC) and Industry Canada standards. Through our American Association for Laboratory Accreditation (A2LA) ISO Guide 17025:2005 Accreditation our test sites are designated with the FCC (designation number **US1091**), Industry Canada (file number **IC 3023A-1)** and VCCI (Member number 3168) under registration number A-0274.

Compliance Worldwide is also designated as a Phase 1 CAB under APEC-MRA (US0132) for Australia/New Zealand AS/NZS CISPR 32, Chinese-Taipei (Taiwan) BSMI CNS 13438 and Korea (RRA) KN 11, KN 13, KN 14-1, KN 22, KN 32, KN 61000-6-3, KN 61000-6-4.

The radiated emissions test site is a 3 and 10 meter enclosed open area test site (OATS). Personnel, support equipment and test equipment are located in the basement beneath the OATS ground plane.

The conducted emissions site is part of a 16' x 20' x 12' ferrite tile chamber and uses one of the walls for the vertical ground plane. A second conducted emissions site is also located in the basement of the OATS site with a 2.3 x 2.5 meter ground plane and a 2.4 x 2.4 meter vertical wall.

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14. Test Summary

14.1. Client Information:

- **Name:** DecaWave, LTD
- **Address:** Adelaide Chambers, Peter Street
  Dublin, Ireland D08 T6YA

14.2. Product Information:

- **Product:** DWM1001C
- **Model Number:** DWM1001C
- **Serial Number:** 18230049E4
- **Description:** The DWM1001C RTLS Module is a full-function real-time location system (or RTLS) subsystem in a compact factor
- **Power Requirements:** 120 VAC, 60 Hz; 230 VAC, 50 Hz via USB charger
- **EMC Modifications:** None

14.3. Regulatory Standards:

- **CFR Title 47 FCC Part 15 Subpart B, Class B**
- **ICES-003, Issue 6, Class B**
- **EN 55032:2012 AC:2013 / EN 55032:2015, Class B**
- **ACMA AS/NZS CISPR 32:2015, Class B**

14.4. Test Results (Worst Case Emissions):

- **Radiated Emissions:**
  Frequency (MHz) : 51.9813
  Margin (dB) : -10.54
  Polarity (H/V) : V
  Antenna Ht. (cm) : 100
  Turntable Pos (Deg.) : 254
- **Conducted Emissions:**
  Emissions Scan : 230 Volts, 50 Hz, Phase
  Frequency (MHz) : .7013
  Margin (dB) : -10.84

14.5. Conclusion:

The product sample met the regulatory standards with the following modification(s): None

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Name/Customer: _____ **Issue Date:** _____

We value our customers' opinions. Please let us know what we can do to make your testing experience more beneficial and efficient. Feel free to let us know if your expectations have been met.
Thank you in advance for taking the time to share your thoughts with us.

Please email to sales@complianceworldwide.com

You may answer with: (E) Exceeded Expectation, (S) Satisfactory, (N) Needs Improvement, (P) Poor

Technical Knowledge of Staff as it pertains to your product test:	
Test Facility	
Product Test/Test Report Turnaround	
Quality of Test Report	
Overall experience/Customer Service	
Customer comment or issue:	

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