



A-dec, Inc.

43.0536.00

FCC 15.407:2022

802.11 radio

Report: A-DE0162.1 Rev. 4, Issue Date: March 11, 2022



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CERTIFICATE OF TEST



Last Date of Test: February 2, 2022

A-dec, Inc.

EUT: 43.0536.00

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2021	ANSI C63.10:2013, KDB 789033, KDB 905462
FCC 15.407:2022	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.8	Frequency Stability	Yes	Pass	
12.2	Duty Cycle	Yes	Pass	
12.3.2.4	Maximum Conducted Output Power	Yes	Pass	
12.3.2.4	Equivalent Isotropic Radiated Power (EIRP)	Yes	Pass	
12.4.1	Emission Bandwidth	Yes	Pass	
12.4.2	Occupied Bandwidth	Yes	Pass	
12.4.2	Band Edge	Yes	Pass	
12.5	Maximum Power Spectral Density	Yes	Pass	
12.7, 6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
KDB 789033 - H	Measurement of Emission at Elevation Angle Higher Than 30 Degrees From Horizon	No	N/A	Not required unless the EUT is a Master device used outdoors.

Deviations From Test Standards

None

Approved By:

Kyle Holgate, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Power settings table updated to properly list modulation and data rates.	2021-11-11	18, 19, 20
	Updated Powerline Conducted Emissions data.	2021-11-11	21-39
	Updated screen capture in Occupied Bandwidth.	2021-11-11	367-379
	Removed extra power settings table, and updated antenna gain to 5.2 dBi.	2021-11-11	18-20
	Updated EIRP antenna gain to 5.2 dBi.	2021-11-11	255, 270, 285, 303
	Added bore sighting block diagram.	2021-11-11	8
	Updated Powerline Conducted Emissions date in modifications and last date of test.	2021-11-11	2, 9, 17
	Updated Frequency Stability header and bookmark.	2021-11-11	40-73
	Set print area to include 80MHz wide MCS9 Duty Cycle data.	2021-11-11	74-190
	Updated the ToC on all 5.8 GHz Band data modules to show the band is 5725 - 5850 MHz.	2021-11-11	74-316, 366-395
	Transmitter bench test profile has been updated to 100 traces in Output Power and EIRP data modules.	2021-11-11	191-316
	Updated Power Spectral Density test description and added comment to data pages.	2021-11-11	396-458
02	Moved test photos to "Photos Only" report.	2021-11-11	N/A
	Updated Spurious Radiated Emissions test description.	2021-11-11	459, 469
02	Added line items for OP and EIRP in modifications	2021-12-07	17
03	Client request to retest all 20 MHz wide data rates in the 5.8 GHz band at a reduced power setting of 9 dBm. The following tests were updated: - Emissions Bandwidth – 5.8 GHz Band - Occupied Bandwidth – 5.8 GHz Band - Output Power – 5.8 GHz Band - Equivalent Radiated Output Power – 5.8 GHz Band - Power Spectral Density – 5.8 GHz Band - Spurious Radiated emissions – 5.3, 5.6, 5.8 GHz Band	2022-02-19	163-190, 239-253, 302-316, 365-394, 459-473, 484-514
	Updated the last date of test.	2022-02-28	2
	Added FCC 15.407:2022 to the standards list	2022-02-28	9
	Updated the last date of test	2022-02-28	9
	Updated Modifications page for retesting efforts on the 5.8 GHz band	2022-02-29	17
	Updated Power Settings and Antennas to show 9 dBm as the power setting for the 20 MHz wide channels in the 5.8 GHz Band	2022-02-29	20
	Updated test descriptions	2022-02-29	191, 206, 221, 254, 269, 284, 317, 332, 347, 411, 426, 441
04	Added new block diagram, and updated years of the standard on the Cover and CoT.	2022-03-11	1, 2, 7

ACCREDITATIONS AND AUTHORIZATIONS



United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

United Kingdom

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ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

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A2LA				
Lab Code: 3310.04	Lab Code: 3310.05	Lab Code: 3310.02	Lab Code: 3310.03	Lab Code: 3310.06
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157



MEASUREMENT UNCERTAINTY

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found in the table below. A lab specific value may also be found in the applicable test description section. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.6 dB	-2.6 dB

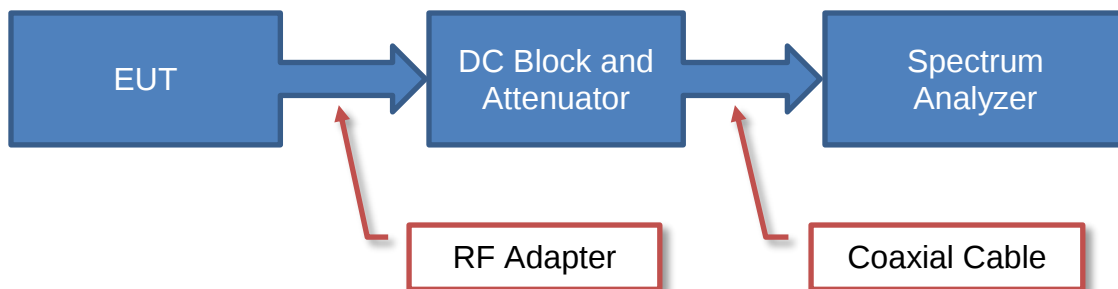
TEST SETUP BLOCK DIAGRAMS

Measurement Bandwidths

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used.

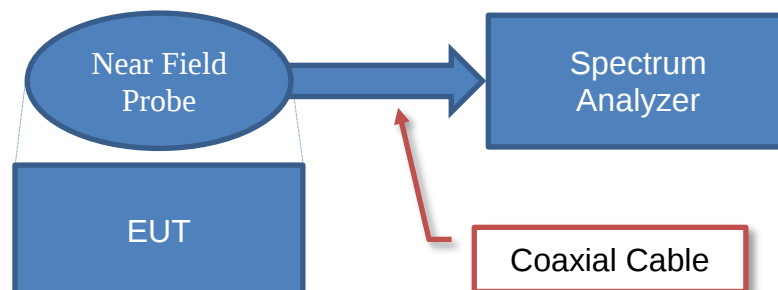
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

Near Field Test Fixture Measurements

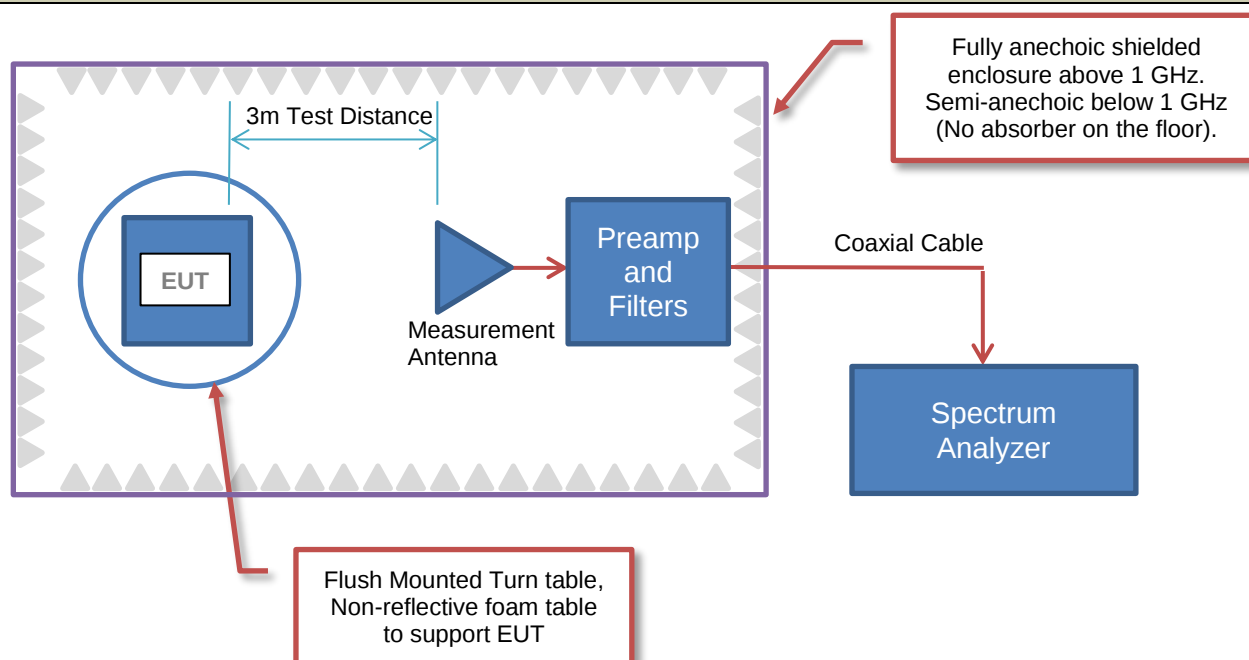


Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

TEST SETUP BLOCK DIAGRAMS

Emissions Measurements



Sample Calculation (logarithmic units)

Radiated Emissions:

Measured Level (Amplitude)	Factor				Distance Adjustment Factor	External Attenuation	Field Strength
	Antenna Factor	Cable Factor	Amplifier Gain				
42.6	28.6	3.1	40.8	+	0.0	0.0	= 33.5

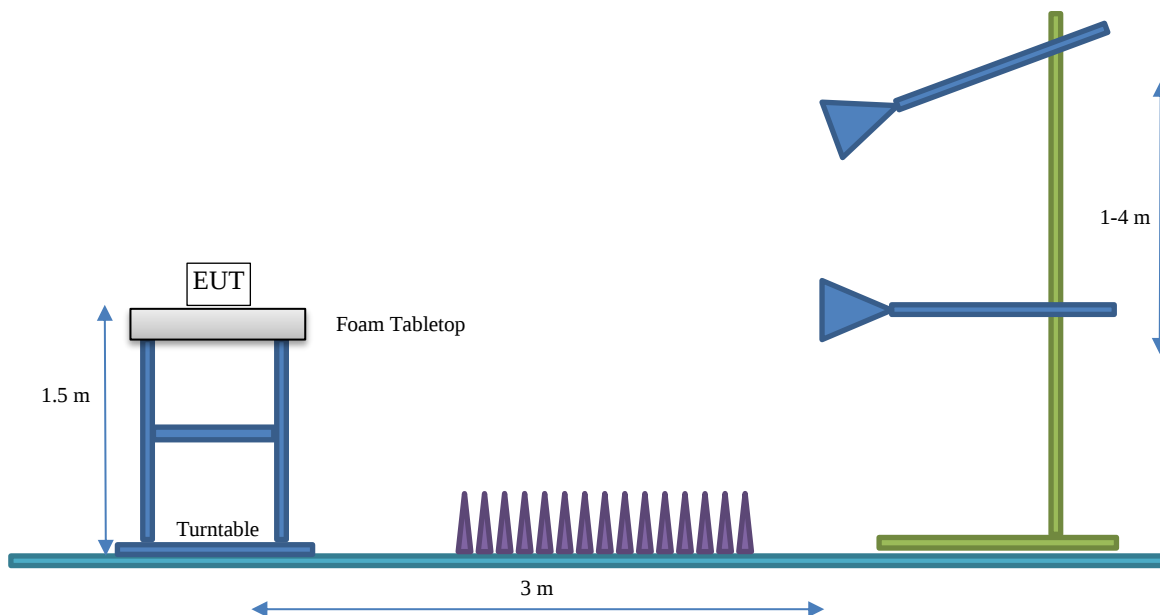
Conducted Emissions:

Measured Level (Amplitude)	Factor			External Attenuation	Adjusted Level
	Transducer Factor	Cable Factor			
26.7	0.3	0.1	+	20.0	= 47.1

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



PRODUCT DESCRIPTION



Client and Equipment Under Test (EUT) Information

Company Name:	A-dec, Inc.
Address:	2601 Crestview Dr Building 4
City, State, Zip:	Newberg, OR 97132-9528
Test Requested By:	Russell Perkins
EUT:	43.0536.00
First Date of Test:	June 28, 2021
Last Date of Test:	February 19, 2022
Receipt Date of Samples:	June 25, 2021
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Bluetooth, Bluetooth LE and 802.11 radio module
Testing Objective:
To demonstrate compliance of the 802.11 radio under FCC 15.407 for operation in the 5.2 GHz, 5.3 GHz, 5.6 GHz and 5.8 GHz band(s).

CONFIGURATIONS



Configuration A-DE0162- 1

Software/Firmware Running during test	
Description	Version
Teraterm	4.105
Murata Test Firmware	None

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Bluetooth and WiFi Module	A-dec, Inc.	43.0536.00	SN001 00003

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Switching Power Supply	Total Power	TMPU130-108 (P00B)	2015017188
Laptop	Dell	Latitude 740	7437666170
Host PCB	A-dec, Inc.	43.0528.00 Rev 2	528P068188

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power	No	0.2	No	Switching Power Supply	Host PCB
AC Power	No	2.0	No	AC Mains	Switching Power Supply
FTDI to USB	No	2.0	No	Laptop	Host PCB

CONFIGURATIONS



Configuration A-DE0162- 2

Software/Firmware Running during test	
Description	Version
Teraterm	4.105
Murata Test Firmware	None

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Bluetooth and WiFi Module	A-dec, Inc.	43.0536.00	SN001 00004

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Switching Power Supply	Total Power	TMPU130-108 (P00B)	2015017188
Host PCB	A-dec, Inc.	43.0528.00 Rev 2	528P068188

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Latitude 740	7437666170

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	AC Mains	Switching Power Supply
FTDI to USB	No	2.0	No	Laptop	Host PCB
DC Power	No	2.7	No	Switching Power Supply	Host PCB

CONFIGURATIONS



Configuration A-DE0162- 3

Software/Firmware Running during test	
Description	Version
Teraterm	4.105
Murata Test Firmware	None

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Bluetooth and WiFi Module	A-dec, Inc.	43.0536.00	SN001 00003

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Switching Power Supply	Total Power	TMPU130-108 (P00B)	2015017188
Laptop	Dell	Latitude 740	7437666170
Host PCB	A-dec, Inc.	43.0528.00 Rev 2	528P068188

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	AC Mains	Switching Power Supply
FTDI to USB	No	2.0	No	Laptop	Host PCB
DC Power	No	2.7	No	Switching Power Supply	Host PCB
DC Power	No	0.1	No	Host PCB	DC Power

CONFIGURATIONS



Configuration A-DE0162- 7

Software/Firmware Running during test	
Description	Version
Teraterm	4.105
Murata Test Firmware	None

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Bluetooth and WiFi Module	A-dec, Inc.	43.0536.00	SN001 00004

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Latitude 740	7437666170
Host PCB	A-dec, Inc.	43.0528.00 Rev 2	528P068188

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
FTDI to USB	No	2.0	No	Laptop	Host PCB
DC Power	No	1.0	No	DC Power	Host PCB
DC Power	No	0.1	No	Host PCB	DC Power

CONFIGURATIONS



Configuration A-DE0170- 1

Software/Firmware Running during test	
Description	Version
Teraterm	4.105
Murata Test Firmware	None

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Bluetooth and WiFi module	A-dec, Inc.	43.0536.00	SN001 00004

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Host PCB	A-dec, Inc.	43.0528.00 Rev 2	528P068198
Switching Power Supply	Total Power	TMPU130-108 (P00B)	2015017141

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Latitude 7490	4LGKMOV2

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	AC Mains	Switching Power Supply
DC Power	No	2.7	No	Switching Power Supply	Host PCB

CONFIGURATIONS



Configuration A-DE0170- 3

Software/Firmware Running during test	
Description	Version
Teraterm	4.105
Murata Test Firmware	None

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Bluetooth and WiFi module	A-dec, Inc.	43.0536.00	SN001 00001

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Host PCB	A-dec, Inc.	43.0528.00 Rev 2	528P068188
Switching Power Supply	Total Power	TMPU130-108 (P00B)	2015017141

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Latitude 740	7437666170

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	AC Mains	Switching Power Supply
FTDI to USB	No	2.0	No	Laptop	Host PCB
DC Power	No	2.7	No	Switching Power Supply	Host PCB
DC Power	No	1.0	No	Host PCB	Linear DC Power Supply

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2021-06-28	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT was taken home by the client before the next scheduled test.
2	2021-06-28	Maximum Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT was taken home by the client before the next scheduled test.
3	2021-06-28	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT was taken home by the client before the next scheduled test.
4	2021-06-28	Emission Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2021-06-28	Band Edge	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2021-06-28	Maximum Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2021-07-07	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2021-07-26	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
9	2021-07-28	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.
10	2021-09-01	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
10	2021-09-14	Emission Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
11	2021-09-15	Maximum Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
12	2021-09-15	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
13	2021-09-15	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
14	2021-09-15	Band Edge	Tested as	No EMI suppression	EUT remained at

MODIFICATIONS

			delivered to Test Station.	devices were added or modified during this test.	Element following the test.
15	2021-09-15	Maximum Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
16	2021-09-16	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
17	2021-09-16	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
18	2021-10-19	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.
19	2021-11-01	Maximum Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
20	2021-11-01	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.
21	2022-02-13	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
22	2022-02-15	Maximum Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
23	2022-02-19	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
24	2022-02-19	Emission Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
25	2022-02-19	Maximum Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
20	2022-02-19	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWER SETTINGS AND ANTENNAS



The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information.

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
Ceramic Chip	Manufacturer	5150 - 5850	5.2

The EUT was tested using the power settings provided by the manufacturer:

SETTINGS FOR ALL TESTS IN THIS REPORT

Band	Modulation Type	Data Rate	Channel Bandwidths	Channel	Position	Frequency (MHz)	Power Setting
5150 – 5250 MHz	802.11a OFDM	6 Mbps	20	36	Low Channel	5180	13
				40	Mid Channel	5200	13
				48	High Channel	5240	13
		36 Mbps	20	36	Low Channel	5180	13
				40	Mid Channel	5200	13
				48	High Channel	5240	13
		54 Mbps	20	36	Low Channel	5180	13
				40	Mid Channel	5200	13
				48	High Channel	5240	13
	802.11n/ac (VHT20) OFDM	MCS0	20	36	Low Channel	5180	13
				40	Mid Channel	5200	13
				48	High Channel	5240	13
		MCS7	20	36	Low Channel	5180	13
				40	Mid Channel	5200	13
				48	High Channel	5240	13
		MCS8 (256-QAM)	20	36	Low Channel	5180	10
				40	Mid Channel	5200	10
				48	High Channel	5240	10
	802.11n/ac (VHT40) OFDM	MCS0	40	36/40	Low Channel	5190	8
				44/48	High Channel	5230	8
		MCS7	40	36/40	Low Channel	5190	8
				44/48	High Channel	5230	8
		MCS9 (256-QAM)	40	36/40	Low Channel	5190	9
				44/48	High Channel	5230	9
	802.11n/ac (VHT80) OFDM	MCS0	80	36-48	Low Channel	5210	7
		MCS9 (256-QAM)	80	36-48	Low Channel	5210	7

POWER SETTINGS AND ANTENNAS



Band	Modulation Type	Data Rate	Channel Bandwidths	Channel	Position	Frequency (MHz)	Power Setting
5250 – 5350 MHz	802.11a OFDM	6 Mbps	20	52	Low Channel	5260	13
				64	High Channel	5320	13
		36 Mbps	20	52	Low Channel	5260	13
				64	High Channel	5320	13
		54 Mbps	20	52	Low Channel	5260	13
				64	High Channel	5320	13
	802.11n/ac (VHT20) OFDM	MCS0	20	52	Low Channel	5260	13
				64	High Channel	5320	13
		MCS7	20	52	Low Channel	5260	13
				64	High Channel	5320	13
		MCS8 (256-QAM)	20	52	Low Channel	5260	10
				64	High Channel	5320	10
	802.11n/ac (VHT40) OFDM	MCS0	40	52/56	Low Channel	5270	8
				60/64	High Channel	5310	8
		MCS7	40	52/56	Low Channel	5270	8
				60/64	High Channel	5310	8
		MCS9 (256-QAM)	40	52/56	Low Channel	5270	9
				60/64	High Channel	5310	9
5470 – 5725 MHz	802.11a OFDM	6 Mbps	20	100	Low Channel	5500	13
				116	Mid Channel	5580	13
				140	High Channel	5700	13
		36 Mbps	20	100	Low Channel	5500	13
				116	Mid Channel	5580	13
				140	High Channel	5700	13
		54 Mbps	20	100	Low Channel	5500	13
				116	Mid Channel	5580	13
				140	High Channel	5700	13
	802.11n/ac (VHT20) OFDM	MCS0	20	100	Low Channel	5500	13
				116	Mid Channel	5580	13
				140	High Channel	5700	13
		MCS7	20	100	Low Channel	5500	13
				116	Mid Channel	5580	13
				140	High Channel	5700	13
		MCS8 (256-QAM)	20	100	Low Channel	5500	10
				116	Mid Channel	5580	10
				140	High Channel	5700	10
	802.11n/ac (VHT40) OFDM	MCS0	40	100/104	Low Channel	5510	8
				116/120	Mid Channel	5590	8
				132/136	High Channel	5670	8
		MCS7	40	100/104	Low Channel	5510	8
				116/120	Mid Channel	5590	8
				132/136	High Channel	5670	8
		MCS9 (256-QAM)	40	100/104	Low Channel	5510	9
				116/120	Mid Channel	5590	9
				132/136	High Channel	5670	9
	802.11n/ac (VHT80) OFDM	MCS0	80	100-112	Low Channel	5530	7
				116-128	High Channel	5610	7
		MCS9 (256-QAM)	80	100-112	Low Channel	5530	7
				116-128	High Channel	5610	7

POWER SETTINGS AND ANTENNAS



Band	Modulation Type	Data Rate	Channel Bandwidths	Channel	Position	Frequency (MHz)	Power Setting
5725 – 5825 MHz	802.11a OFDM	6 Mbps	20	149	Low Channel	5745	9
				157	Mid Channel	5785	9
				165	High Channel	5825	9
		36 Mbps	20	149	Low Channel	5745	9
				157	Mid Channel	5785	9
				165	High Channel	5825	9
		54 Mbps	20	149	Low Channel	5745	9
				157	Mid Channel	5785	9
				165	High Channel	5825	9
	802.11n/ac (VHT20) OFDM	MCS0	20	149	Low Channel	5745	9
				157	Mid Channel	5785	9
				165	High Channel	5825	9
		MCS7	20	149	Low Channel	5745	9
				157	Mid Channel	5785	9
				165	High Channel	5825	9
		MCS8 (256-QAM)	20	149	Low Channel	5745	9
				157	Mid Channel	5785	9
				165	High Channel	5825	9
	802.11n/ac (VHT40) OFDM	MCS0	40	149/153	Low Channel	5755	8
				157/161	High Channel	5795	8
		MCS7	40	149/153	Low Channel	5755	8
				157/161	High Channel	5795	8
		MCS9 (256-QAM)	40	149/153	Low Channel	5755	9
				157/161	High Channel	5795	9
	802.11ac (VHT80) OFDM	MCS0	80	149-161	Low Channel	5775	7
		MCS9 (256-QAM)	80	149-161	Low Channel	5775	7

POWERLINE CONDUCTED EMISSIONS

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Gauss Instruments	TDEMI 30M	ARN	2021-04-06	2022-04-06
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, RKT	EVGA	2021-01-05	2022-01-05
LISN	Solar Electronics	9252-50-R-24-BNC	LIR	2021-09-10	2022-09-10
LISN	Solar Electronics	9252-50-R-24-BNC	LIN	2021-01-08	2022-01-08
Power Supply - DC	Topward	TPS-2000	TPD	NCR	NCR
Power Supply - DC	MPJA	9950 PS	TQA	NCR	NCR

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.2 dB	-3.2 dB

CONFIGURATIONS INVESTIGATED

A-DE0162-7

MODES INVESTIGATED

802.11ac/an, Tx, Ch. 116 = 5580 MHz, 6 Mbps
802.11ac/an, Tx, Ch. 157 = 5785 MHz, 6 Mbps
802.11ac/an, Tx, Ch. 40 = 5200 MHz, 6 Mbps
802.11ac/an, Tx, Ch. 56 = 5280 MHz, 6 Mbps

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	3	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

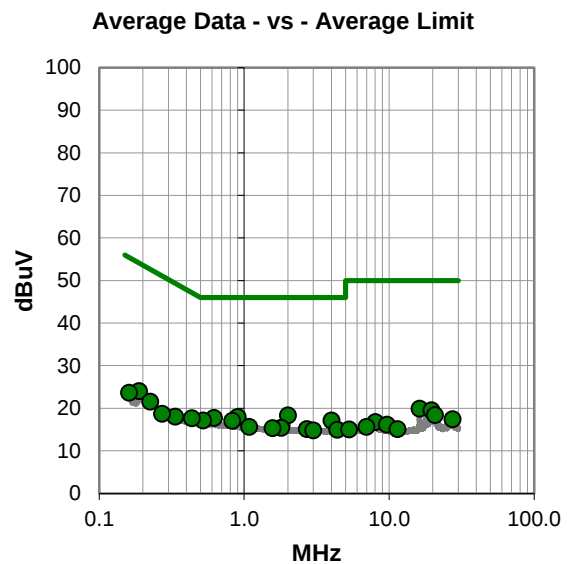
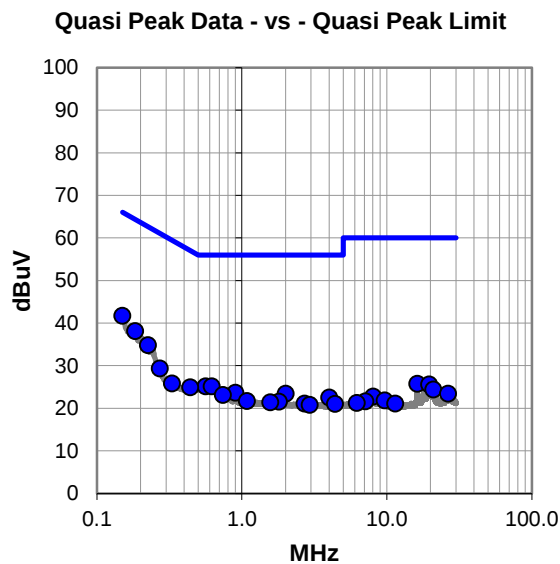
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 40 = 5200 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #3

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	21.6	20.1	41.7	66.0	-24.3
0.184	18.0	20.1	38.1	64.3	-26.2
0.225	14.7	20.1	34.8	62.6	-27.8
0.563	5.1	20.0	25.1	56.0	-30.9
0.618	5.1	20.0	25.1	56.0	-30.9
0.272	9.3	20.0	29.3	61.1	-31.8
0.440	4.9	20.0	24.9	57.1	-32.2
0.902	3.6	20.0	23.6	56.0	-32.4
2.008	3.4	20.0	23.4	56.0	-32.6
0.740	3.1	20.0	23.1	56.0	-32.9
4.018	2.5	20.0	22.5	56.0	-33.5
0.330	5.8	20.0	25.8	59.5	-33.7
1.087	1.7	20.0	21.7	56.0	-34.3
16.227	5.1	20.6	25.7	60.0	-34.3
19.580	4.9	20.7	25.6	60.0	-34.4
1.804	1.5	20.0	21.5	56.0	-34.5
1.571	1.4	20.0	21.4	56.0	-34.6
2.706	1.1	20.0	21.1	56.0	-34.9
4.390	1.0	20.0	21.0	56.0	-35.0
2.936	0.8	20.0	20.8	56.0	-35.2
20.956	3.6	20.8	24.4	60.0	-35.6
26.495	2.3	21.1	23.4	60.0	-36.6
8.045	2.5	20.2	22.7	60.0	-37.3
9.673	1.6	20.2	21.8	60.0	-38.2
7.141	1.4	20.2	21.6	60.0	-38.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.010	-1.7	20.0	18.3	46.0	-27.7
0.902	-2.1	20.0	17.9	46.0	-28.1
0.618	-2.3	20.0	17.7	46.0	-28.3
0.522	-2.9	20.0	17.1	46.0	-28.9
4.021	-2.9	20.0	17.1	46.0	-28.9
0.829	-3.0	20.0	17.0	46.0	-29.0
0.435	-2.4	20.0	17.6	47.2	-29.6
0.188	3.9	20.1	24.0	54.1	-30.1
16.227	-0.7	20.6	19.9	50.0	-30.1
1.087	-4.4	20.0	15.6	46.0	-30.4
19.580	-1.2	20.7	19.5	50.0	-30.5
1.802	-4.6	20.0	15.4	46.0	-30.6
1.571	-4.7	20.0	15.3	46.0	-30.7
2.706	-4.9	20.0	15.1	46.0	-30.9
0.225	1.4	20.1	21.5	52.6	-31.1
4.392	-5.1	20.0	14.9	46.0	-31.1
3.008	-5.2	20.0	14.8	46.0	-31.2
0.335	-2.0	20.0	18.0	49.3	-31.3
20.768	-2.4	20.8	18.4	50.0	-31.6
0.161	3.5	20.1	23.6	55.4	-31.8
0.272	-1.3	20.0	18.7	51.1	-32.4
27.428	-3.7	21.1	17.4	50.0	-32.6
8.043	-3.5	20.2	16.7	50.0	-33.3
9.673	-4.1	20.2	16.1	50.0	-33.9
6.999	-4.6	20.2	15.6	50.0	-34.4

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	4	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

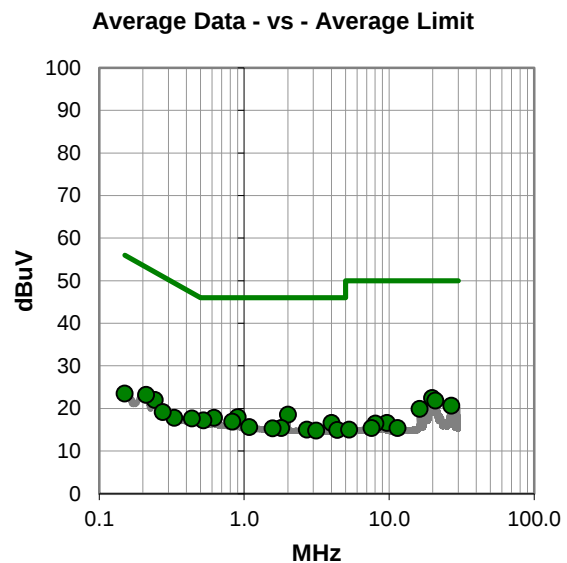
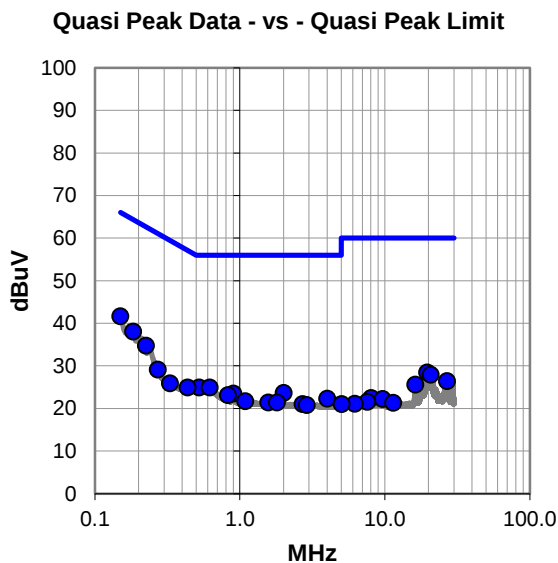
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 40 = 5200 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #4

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	21.5	20.1	41.6	66.0	-24.4
0.184	17.9	20.1	38.0	64.3	-26.3
0.225	14.6	20.1	34.7	62.6	-27.9
0.524	4.9	20.0	24.9	56.0	-31.1
0.618	4.9	20.0	24.9	56.0	-31.1
19.642	7.7	20.7	28.4	60.0	-31.6
0.272	9.1	20.0	29.1	61.1	-32.0
20.706	7.1	20.8	27.9	60.0	-32.1
0.435	4.9	20.0	24.9	57.2	-32.3
2.010	3.6	20.0	23.6	56.0	-32.4
0.902	3.5	20.0	23.5	56.0	-32.5
0.831	3.1	20.0	23.1	56.0	-32.9
0.330	5.9	20.0	25.9	59.5	-33.6
26.957	5.3	21.1	26.4	60.0	-33.6
4.018	2.3	20.0	22.3	56.0	-33.7
1.088	1.7	20.0	21.7	56.0	-34.3
16.229	5.0	20.6	25.6	60.0	-34.4
1.569	1.4	20.0	21.4	56.0	-34.6
1.804	1.4	20.0	21.4	56.0	-34.6
2.704	1.0	20.0	21.0	56.0	-35.0
2.890	0.8	20.0	20.8	56.0	-35.2
8.048	2.2	20.2	22.4	60.0	-37.6
9.677	2.0	20.2	22.2	60.0	-37.8
7.591	1.3	20.2	21.5	60.0	-38.5
11.462	0.9	20.4	21.3	60.0	-38.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.010	-1.5	20.0	18.5	46.0	-27.5
19.830	1.7	20.7	22.4	50.0	-27.6
0.902	-2.1	20.0	17.9	46.0	-28.1
0.620	-2.2	20.0	17.8	46.0	-28.2
20.893	1.0	20.8	21.8	50.0	-28.2
0.524	-2.8	20.0	17.2	46.0	-28.8
0.827	-3.1	20.0	16.9	46.0	-29.1
4.018	-3.4	20.0	16.6	46.0	-29.4
26.957	-0.5	21.1	20.6	50.0	-29.4
0.437	-2.4	20.0	17.6	47.1	-29.5
0.242	1.9	20.1	22.0	52.0	-30.0
0.211	3.1	20.1	23.2	53.2	-30.0
16.229	-0.7	20.6	19.9	50.0	-30.1
1.087	-4.4	20.0	15.6	46.0	-30.4
1.802	-4.6	20.0	15.4	46.0	-30.6
1.569	-4.7	20.0	15.3	46.0	-30.7
2.704	-5.0	20.0	15.0	46.0	-31.0
4.392	-5.1	20.0	14.9	46.0	-31.1
3.144	-5.2	20.0	14.8	46.0	-31.2
0.330	-2.2	20.0	17.8	49.5	-31.7
0.275	-0.9	20.0	19.1	51.0	-31.9
0.150	3.4	20.1	23.5	56.0	-32.5
9.677	-3.6	20.2	16.6	50.0	-33.4
8.048	-3.8	20.2	16.4	50.0	-33.6
7.591	-4.8	20.2	15.4	50.0	-34.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	5	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

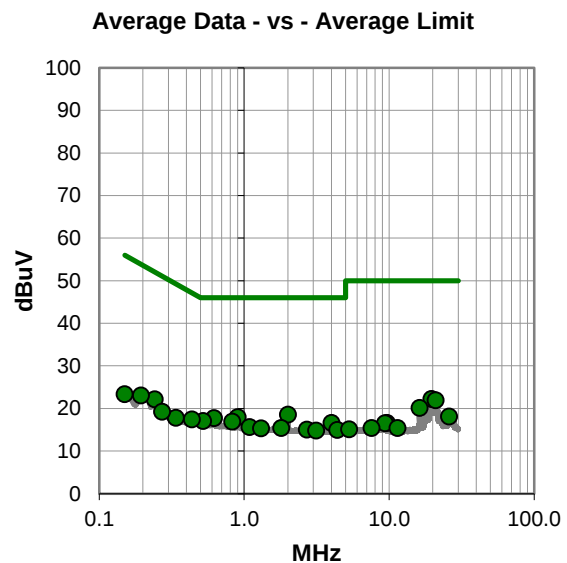
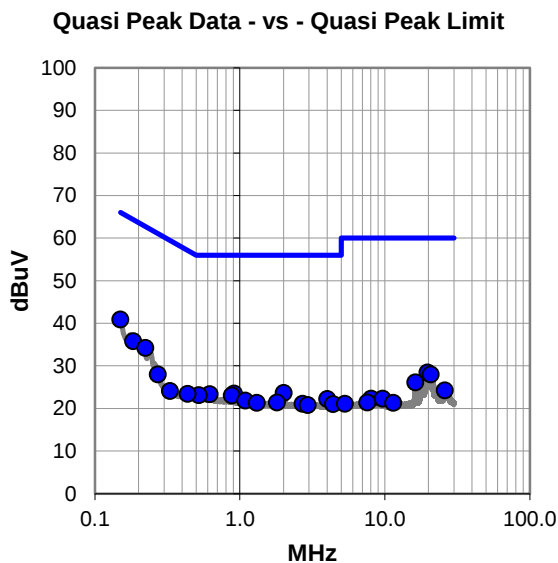
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 116 = 5580 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	20.8	20.1	40.9	66.0	-25.1
0.184	15.7	20.1	35.8	64.3	-28.5
0.223	14.1	20.1	34.2	62.7	-28.5
19.767	7.7	20.7	28.4	60.0	-31.6
20.706	7.2	20.8	28.0	60.0	-32.0
2.010	3.6	20.0	23.6	56.0	-32.4
0.913	3.5	20.0	23.5	56.0	-32.5
0.620	3.3	20.0	23.3	56.0	-32.7
0.522	3.1	20.0	23.1	56.0	-32.9
0.881	3.0	20.0	23.0	56.0	-33.0
0.272	8.0	20.0	28.0	61.1	-33.1
4.019	2.2	20.0	22.2	56.0	-33.8
0.435	3.4	20.0	23.4	57.2	-33.8
16.227	5.5	20.6	26.1	60.0	-33.9
1.090	1.8	20.0	21.8	56.0	-34.2
1.801	1.4	20.0	21.4	56.0	-34.6
1.311	1.3	20.0	21.3	56.0	-34.7
2.704	1.1	20.0	21.1	56.0	-34.9
4.393	1.0	20.0	21.0	56.0	-35.0
2.936	0.8	20.0	20.8	56.0	-35.2
0.330	4.1	20.0	24.1	59.5	-35.4
25.896	3.2	21.0	24.2	60.0	-35.8
8.051	2.1	20.2	22.3	60.0	-37.7
9.679	2.1	20.2	22.3	60.0	-37.7
7.594	1.2	20.2	21.4	60.0	-38.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.010	-1.5	20.0	18.5	46.0	-27.5
19.580	1.5	20.7	22.2	50.0	-27.8
0.902	-2.1	20.0	17.9	46.0	-28.1
20.956	1.1	20.8	21.9	50.0	-28.1
0.620	-2.3	20.0	17.7	46.0	-28.3
0.522	-3.0	20.0	17.0	46.0	-29.0
0.827	-3.1	20.0	16.9	46.0	-29.1
4.021	-3.4	20.0	16.6	46.0	-29.4
0.435	-2.6	20.0	17.4	47.2	-29.8
0.242	2.0	20.1	22.1	52.0	-29.9
16.227	-0.5	20.6	20.1	50.0	-29.9
1.088	-4.4	20.0	15.6	46.0	-30.4
1.802	-4.6	20.0	15.4	46.0	-30.6
1.311	-4.7	20.0	15.3	46.0	-30.7
0.194	2.9	20.1	23.0	53.9	-30.9
2.704	-5.0	20.0	15.0	46.0	-31.0
4.390	-5.1	20.0	14.9	46.0	-31.1
3.142	-5.2	20.0	14.8	46.0	-31.2
0.338	-2.2	20.0	17.8	49.3	-31.5
25.895	-2.9	21.0	18.1	50.0	-31.9
0.272	-0.8	20.0	19.2	51.1	-31.9
0.150	3.2	20.1	23.3	56.0	-32.7
9.679	-3.6	20.2	16.6	50.0	-33.4
9.381	-3.7	20.2	16.5	50.0	-33.5
7.593	-4.8	20.2	15.4	50.0	-34.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	6	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

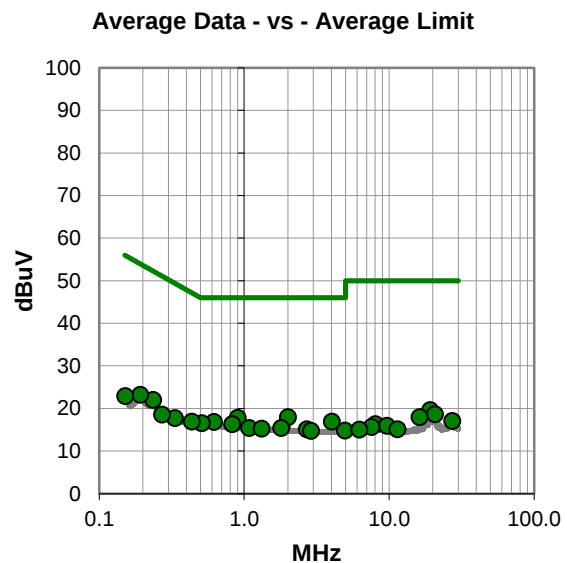
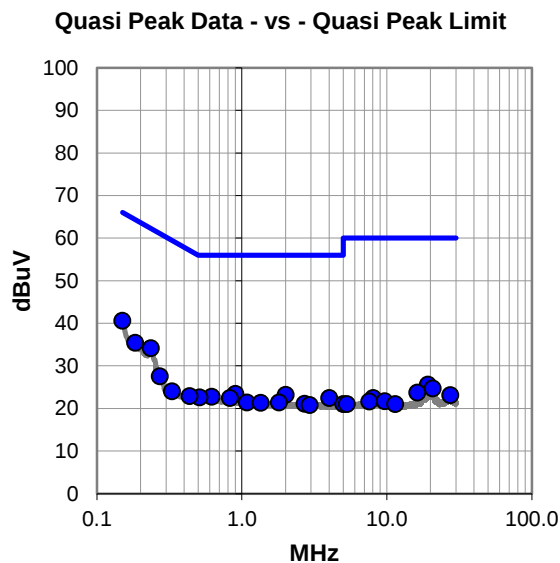
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 116 = 5580 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #6

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	20.5	20.1	40.6	66.0	-25.4
0.235	14.0	20.1	34.1	62.3	-28.2
0.184	15.3	20.1	35.4	64.3	-28.9
0.902	3.4	20.0	23.4	56.0	-32.6
2.010	3.2	20.0	23.2	56.0	-32.8
0.620	2.7	20.0	22.7	56.0	-33.3
0.510	2.6	20.0	22.6	56.0	-33.4
0.272	7.5	20.0	27.5	61.1	-33.6
0.829	2.4	20.0	22.4	56.0	-33.6
4.021	2.4	20.0	22.4	56.0	-33.6
0.437	2.9	20.0	22.9	57.1	-34.2
19.268	5.0	20.6	25.6	60.0	-34.4
1.087	1.4	20.0	21.4	56.0	-34.6
1.802	1.4	20.0	21.4	56.0	-34.6
1.348	1.3	20.0	21.3	56.0	-34.7
2.704	1.1	20.0	21.1	56.0	-34.9
2.945	0.8	20.0	20.8	56.0	-35.2
20.706	3.9	20.8	24.7	60.0	-35.3
0.330	4.0	20.0	24.0	59.5	-35.5
16.229	3.1	20.6	23.7	60.0	-36.3
27.430	2.0	21.1	23.1	60.0	-36.9
8.046	2.2	20.2	22.4	60.0	-37.6
9.680	1.5	20.2	21.7	60.0	-38.3
7.594	1.4	20.2	21.6	60.0	-38.4
5.020	0.8	20.2	21.0	60.0	-39.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.010	-2.1	20.0	17.9	46.0	-28.1
0.902	-2.2	20.0	17.8	46.0	-28.2
4.022	-3.1	20.0	16.9	46.0	-29.1
0.620	-3.2	20.0	16.8	46.0	-29.2
0.510	-3.5	20.0	16.5	46.0	-29.5
0.829	-3.7	20.0	16.3	46.0	-29.7
0.235	1.9	20.1	22.0	52.3	-30.3
0.435	-3.1	20.0	16.9	47.2	-30.3
19.204	-1.0	20.6	19.6	50.0	-30.4
1.085	-4.6	20.0	15.4	46.0	-30.6
1.804	-4.6	20.0	15.4	46.0	-30.6
0.193	3.1	20.1	23.2	53.9	-30.7
1.320	-4.8	20.0	15.2	46.0	-30.8
2.704	-4.9	20.0	15.1	46.0	-30.9
4.975	-5.4	20.2	14.8	46.0	-31.2
2.890	-5.3	20.0	14.7	46.0	-31.3
20.706	-2.2	20.8	18.6	50.0	-31.4
0.333	-2.3	20.0	17.7	49.4	-31.7
16.229	-2.7	20.6	17.9	50.0	-32.1
0.272	-1.5	20.0	18.5	51.1	-32.6
0.152	2.8	20.1	22.9	55.9	-33.0
27.337	-4.1	21.1	17.0	50.0	-33.0
8.038	-3.9	20.2	16.3	50.0	-33.7
9.680	-4.3	20.2	15.9	50.0	-34.1
7.596	-4.6	20.2	15.6	50.0	-34.4

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	7	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

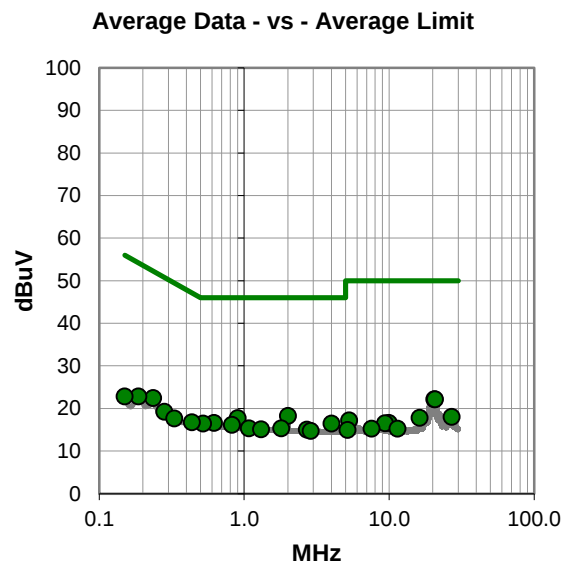
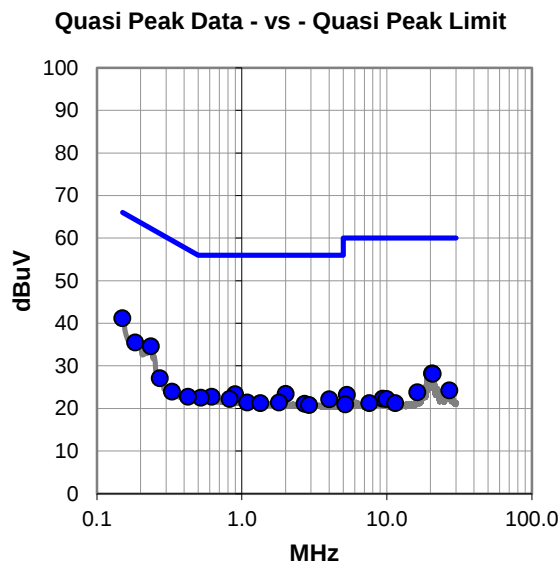
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 157 = 5785 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	21.1	20.1	41.2	66.0	-24.8
0.235	14.5	20.1	34.6	62.3	-27.7
0.184	15.4	20.1	35.5	64.3	-28.8
20.518	7.5	20.7	28.2	60.0	-31.8
20.706	7.3	20.8	28.1	60.0	-31.9
2.010	3.4	20.0	23.4	56.0	-32.6
0.901	3.3	20.0	23.3	56.0	-32.7
0.620	2.7	20.0	22.7	56.0	-33.3
0.522	2.5	20.0	22.5	56.0	-33.5
0.824	2.2	20.0	22.2	56.0	-33.8
4.021	2.1	20.0	22.1	56.0	-33.9
0.272	7.1	20.0	27.1	61.1	-34.0
1.093	1.4	20.0	21.4	56.0	-34.6
1.804	1.4	20.0	21.4	56.0	-34.6
0.425	2.7	20.0	22.7	57.4	-34.7
1.342	1.2	20.0	21.2	56.0	-34.8
2.704	1.1	20.0	21.1	56.0	-34.9
2.910	0.8	20.0	20.8	56.0	-35.2
0.330	3.9	20.0	23.9	59.5	-35.6
26.992	3.1	21.1	24.2	60.0	-35.8
16.229	3.2	20.6	23.8	60.0	-36.2
5.300	3.0	20.2	23.2	60.0	-36.8
9.383	2.1	20.2	22.3	60.0	-37.7
9.976	2.0	20.2	22.2	60.0	-37.8
7.596	1.0	20.2	21.2	60.0	-38.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.010	-1.8	20.0	18.2	46.0	-27.8
20.518	1.4	20.7	22.1	50.0	-27.9
20.706	1.3	20.8	22.1	50.0	-27.9
0.902	-2.3	20.0	17.7	46.0	-28.3
0.620	-3.4	20.0	16.6	46.0	-29.4
0.522	-3.6	20.0	16.4	46.0	-29.6
4.018	-3.6	20.0	16.4	46.0	-29.6
0.235	2.3	20.1	22.4	52.3	-29.9
0.826	-3.9	20.0	16.1	46.0	-29.9
0.435	-3.3	20.0	16.7	47.2	-30.5
1.078	-4.7	20.0	15.3	46.0	-30.7
1.802	-4.7	20.0	15.3	46.0	-30.7
1.311	-4.9	20.0	15.1	46.0	-30.9
2.704	-5.0	20.0	15.0	46.0	-31.0
2.881	-5.3	20.0	14.7	46.0	-31.3
0.187	2.7	20.1	22.8	54.2	-31.4
0.281	-0.8	20.0	19.2	50.8	-31.6
0.330	-2.4	20.0	17.6	49.5	-31.9
26.990	-3.1	21.1	18.0	50.0	-32.0
16.227	-2.8	20.6	17.8	50.0	-32.2
5.300	-3.0	20.2	17.2	50.0	-32.8
0.150	2.7	20.1	22.8	56.0	-33.2
9.978	-3.6	20.2	16.6	50.0	-33.4
9.384	-3.7	20.2	16.5	50.0	-33.5
7.593	-5.0	20.2	15.2	50.0	-34.8

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	8	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

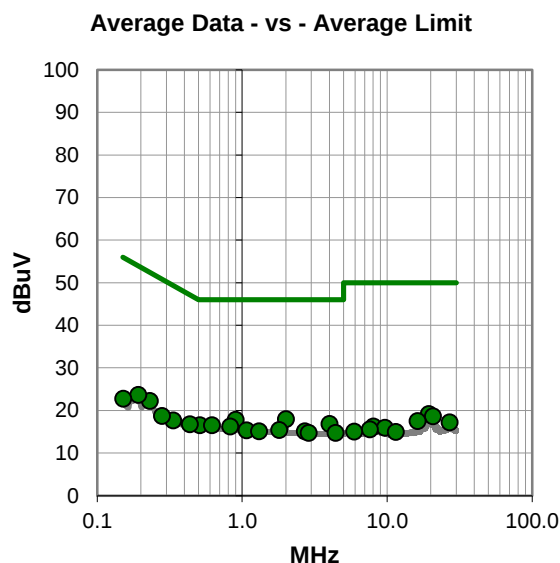
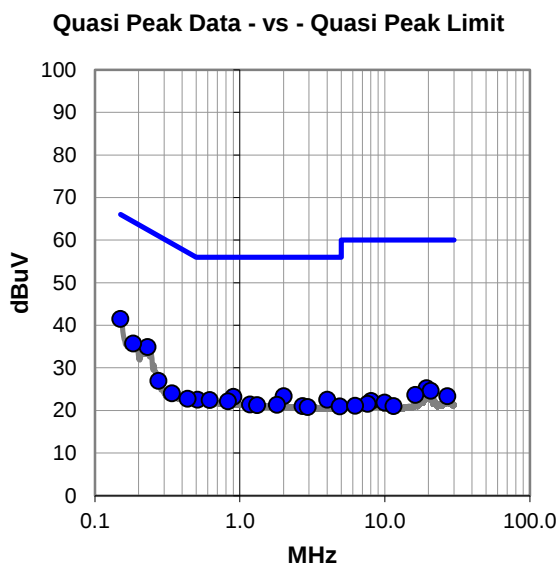
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 157 = 5785 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	21.4	20.1	41.5	66.0	-24.5
0.231	14.8	20.1	34.9	62.4	-27.5
0.184	15.6	20.1	35.7	64.3	-28.6
2.007	3.3	20.0	23.3	56.0	-32.7
0.902	3.2	20.0	23.2	56.0	-32.8
0.510	2.5	20.0	22.5	56.0	-33.5
4.018	2.5	20.0	22.5	56.0	-33.5
0.620	2.4	20.0	22.4	56.0	-33.6
0.827	2.1	20.0	22.1	56.0	-33.9
0.275	6.9	20.0	26.9	61.0	-34.1
0.435	2.7	20.0	22.7	57.2	-34.5
1.175	1.4	20.0	21.4	56.0	-34.6
1.802	1.3	20.0	21.3	56.0	-34.7
1.314	1.2	20.0	21.2	56.0	-34.8
19.454	4.6	20.6	25.2	60.0	-34.8
2.704	1.0	20.0	21.0	56.0	-35.0
4.898	0.7	20.2	20.9	56.0	-35.1
0.341	4.0	20.0	24.0	59.2	-35.2
2.941	0.8	20.0	20.8	56.0	-35.2
20.706	3.8	20.8	24.6	60.0	-35.4
16.227	3.0	20.6	23.6	60.0	-36.4
26.992	2.2	21.1	23.3	60.0	-36.7
8.038	2.0	20.2	22.2	60.0	-37.8
9.984	1.6	20.2	21.8	60.0	-38.2
7.599	1.3	20.2	21.5	60.0	-38.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.008	-2.1	20.0	17.9	46.0	-28.1
0.902	-2.2	20.0	17.8	46.0	-28.2
4.018	-3.2	20.0	16.8	46.0	-29.2
0.510	-3.5	20.0	16.5	46.0	-29.5
0.620	-3.5	20.0	16.5	46.0	-29.5
0.829	-3.8	20.0	16.2	46.0	-29.8
0.231	2.1	20.1	22.2	52.4	-30.2
0.193	3.5	20.1	23.6	53.9	-30.3
0.435	-3.3	20.0	16.7	47.2	-30.5
1.804	-4.6	20.0	15.4	46.0	-30.6
1.076	-4.7	20.0	15.3	46.0	-30.7
1.313	-4.9	20.0	15.1	46.0	-30.9
2.706	-4.9	20.0	15.1	46.0	-30.9
19.454	-1.5	20.6	19.1	50.0	-30.9
2.889	-5.3	20.0	14.7	46.0	-31.3
4.413	-5.4	20.1	14.7	46.0	-31.3
20.706	-2.2	20.8	18.6	50.0	-31.4
0.335	-2.4	20.0	17.6	49.3	-31.7
0.280	-1.3	20.0	18.7	50.8	-32.1
16.227	-3.1	20.6	17.5	50.0	-32.5
26.990	-3.9	21.1	17.2	50.0	-32.8
0.152	2.6	20.1	22.7	55.9	-33.2
8.037	-4.0	20.2	16.2	50.0	-33.8
9.686	-4.3	20.2	15.9	50.0	-34.1
7.599	-4.7	20.2	15.5	50.0	-34.5

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	9	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

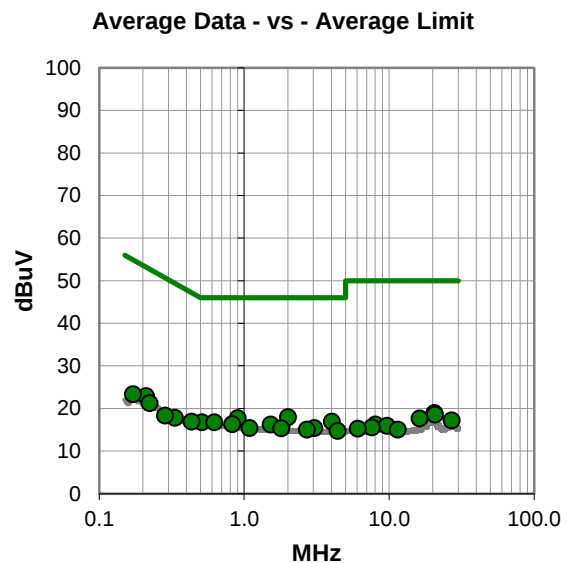
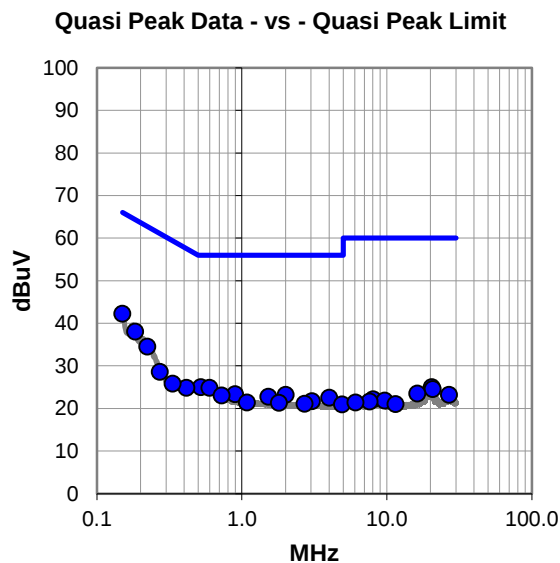
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 56 = 5280 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	22.1	20.1	42.2	66.0	-23.8
0.184	17.9	20.1	38.0	64.3	-26.3
0.223	14.4	20.1	34.5	62.7	-28.2
0.521	5.0	20.0	25.0	56.0	-31.0
0.597	4.8	20.0	24.8	56.0	-31.2
0.272	8.6	20.0	28.6	61.1	-32.5
0.901	3.3	20.0	23.3	56.0	-32.7
0.414	4.8	20.0	24.8	57.6	-32.8
2.013	3.2	20.0	23.2	56.0	-32.8
0.727	3.0	20.0	23.0	56.0	-33.0
1.525	2.7	20.0	22.7	56.0	-33.3
4.018	2.5	20.0	22.5	56.0	-33.5
0.333	5.8	20.0	25.8	59.4	-33.6
3.049	1.7	20.0	21.7	56.0	-34.3
1.085	1.4	20.0	21.4	56.0	-34.6
1.805	1.3	20.0	21.3	56.0	-34.7
2.706	1.1	20.0	21.1	56.0	-34.9
20.393	4.3	20.7	25.0	60.0	-35.0
4.920	0.7	20.2	20.9	56.0	-35.1
20.706	3.7	20.8	24.5	60.0	-35.5
16.229	2.9	20.6	23.5	60.0	-36.5
26.916	2.1	21.1	23.2	60.0	-36.8
8.035	1.9	20.2	22.1	60.0	-37.9
9.689	1.6	20.2	21.8	60.0	-38.2
7.602	1.4	20.2	21.6	60.0	-38.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.010	-2.1	20.0	17.9	46.0	-28.1
0.902	-2.3	20.0	17.7	46.0	-28.3
4.022	-3.1	20.0	16.9	46.0	-29.1
0.512	-3.3	20.0	16.7	46.0	-29.3
0.621	-3.3	20.0	16.7	46.0	-29.3
0.827	-3.7	20.0	16.3	46.0	-29.7
1.525	-3.8	20.0	16.2	46.0	-29.8
0.211	2.8	20.1	22.9	53.2	-30.3
0.434	-3.1	20.0	16.9	47.2	-30.3
1.088	-4.6	20.0	15.4	46.0	-30.6
3.049	-4.6	20.0	15.4	46.0	-30.6
1.802	-4.7	20.0	15.3	46.0	-30.7
2.704	-5.0	20.0	15.0	46.0	-31.0
20.518	-1.8	20.7	18.9	50.0	-31.1
4.410	-5.4	20.1	14.7	46.0	-31.3
20.706	-2.3	20.8	18.5	50.0	-31.5
0.223	1.1	20.1	21.2	52.7	-31.5
0.171	3.2	20.1	23.3	54.9	-31.6
0.333	-2.2	20.0	17.8	49.4	-31.6
16.227	-3.0	20.6	17.6	50.0	-32.4
0.284	-1.7	20.0	18.3	50.7	-32.4
26.992	-3.9	21.1	17.2	50.0	-32.8
8.037	-4.0	20.2	16.2	50.0	-33.8
9.689	-4.3	20.2	15.9	50.0	-34.1
7.602	-4.7	20.2	15.5	50.0	-34.5

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	10	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

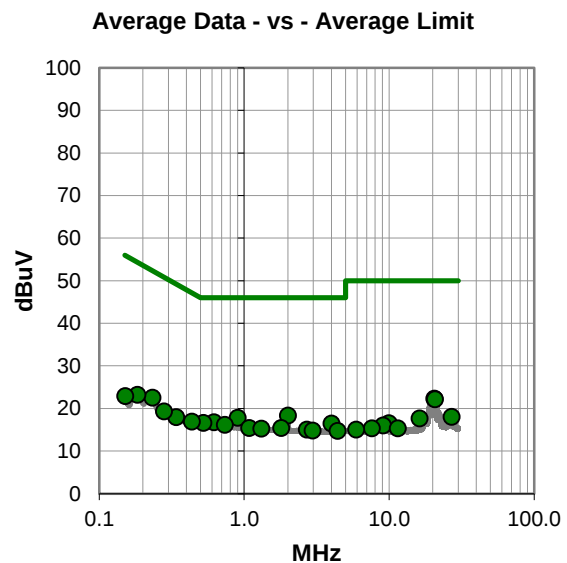
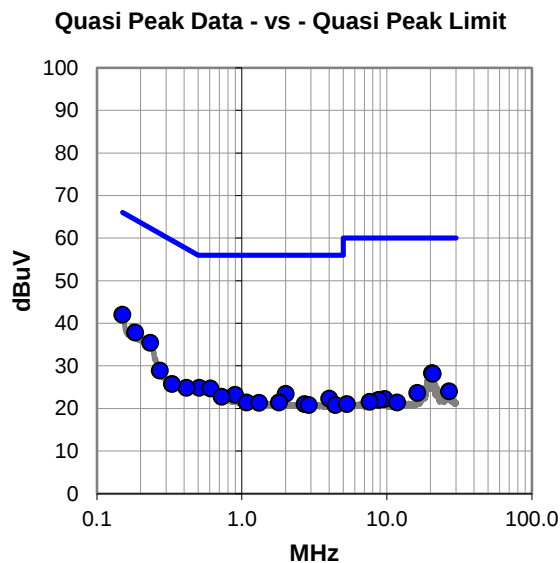
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 56 = 5280 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	21.9	20.1	42.0	66.0	-24.0
0.184	17.7	20.1	37.8	64.3	-26.5
0.234	15.3	20.1	35.4	62.3	-26.9
0.507	4.8	20.0	24.8	56.0	-31.2
0.606	4.7	20.0	24.7	56.0	-31.3
20.518	7.6	20.7	28.3	60.0	-31.7
20.706	7.3	20.8	28.1	60.0	-31.9
0.272	8.9	20.0	28.9	61.1	-32.2
2.011	3.4	20.0	23.4	56.0	-32.6
0.415	4.8	20.0	24.8	57.5	-32.7
0.901	3.2	20.0	23.2	56.0	-32.8
0.727	2.7	20.0	22.7	56.0	-33.3
4.021	2.3	20.0	22.3	56.0	-33.7
0.330	5.7	20.0	25.7	59.5	-33.8
1.081	1.4	20.0	21.4	56.0	-34.6
1.804	1.4	20.0	21.4	56.0	-34.6
1.317	1.3	20.0	21.3	56.0	-34.7
2.706	1.0	20.0	21.0	56.0	-35.0
2.898	0.8	20.0	20.8	56.0	-35.2
4.413	0.7	20.1	20.8	56.0	-35.2
26.900	2.9	21.1	24.0	60.0	-36.0
16.227	3.0	20.6	23.6	60.0	-36.4
9.695	2.0	20.2	22.2	60.0	-37.8
8.798	1.8	20.2	22.0	60.0	-38.0
7.604	1.3	20.2	21.5	60.0	-38.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
20.518	1.6	20.7	22.3	50.0	-27.7
2.011	-1.7	20.0	18.3	46.0	-27.7
20.706	1.3	20.8	22.1	50.0	-27.9
0.902	-2.2	20.0	17.8	46.0	-28.2
0.620	-3.3	20.0	16.7	46.0	-29.3
0.524	-3.4	20.0	16.6	46.0	-29.4
4.021	-3.6	20.0	16.4	46.0	-29.6
0.234	2.4	20.1	22.5	52.3	-29.8
0.737	-3.9	20.0	16.1	46.0	-29.9
0.435	-3.1	20.0	16.9	47.2	-30.3
1.082	-4.6	20.0	15.4	46.0	-30.6
1.804	-4.6	20.0	15.4	46.0	-30.6
1.319	-4.8	20.0	15.2	46.0	-30.8
2.704	-5.0	20.0	15.0	46.0	-31.0
0.184	3.1	20.1	23.2	54.3	-31.1
2.976	-5.2	20.0	14.8	46.0	-31.2
4.413	-5.4	20.1	14.7	46.0	-31.3
0.339	-2.1	20.0	17.9	49.2	-31.3
0.280	-0.7	20.0	19.3	50.8	-31.5
26.990	-3.1	21.1	18.0	50.0	-32.0
16.227	-3.0	20.6	17.6	50.0	-32.4
0.152	2.8	20.1	22.9	55.9	-33.0
9.990	-3.7	20.2	16.5	50.0	-33.5
9.094	-4.2	20.2	16.0	50.0	-34.0
7.604	-4.9	20.2	15.3	50.0	-34.7

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	43.0536.00	Work Order:	A-DE0162
Serial Number:	SN001 00004	Date:	2021-10-19
Customer:	A-dec, Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1013 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	3.3 VDC via 110VAC/60Hz	Configuration:	A-DE0162-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	11	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

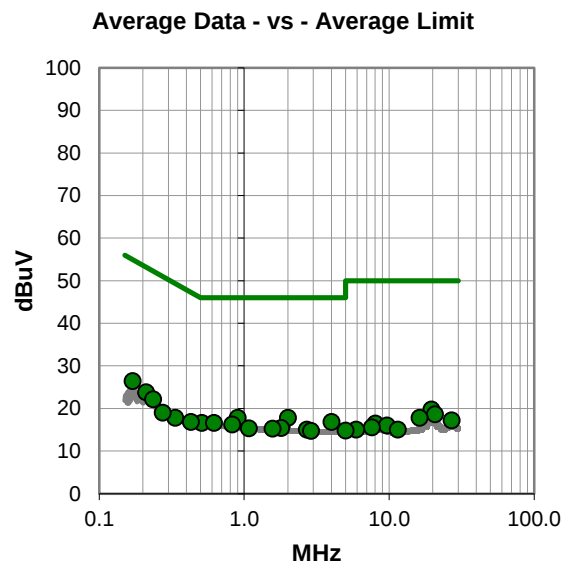
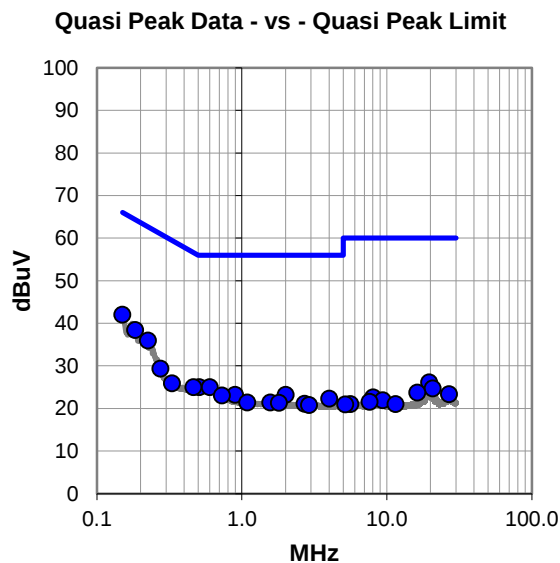
Measuring AC Mains of linear DC lab power supply.

EUT OPERATING MODES

802.11ac/an, Tx, Ch. 56 = 5280 MHz, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	21.9	20.1	42.0	66.0	-24.0
0.184	18.3	20.1	38.4	64.3	-25.9
0.225	15.8	20.1	35.9	62.6	-26.7
0.509	5.0	20.0	25.0	56.0	-31.0
0.600	5.0	20.0	25.0	56.0	-31.0
0.463	5.0	20.0	25.0	56.6	-31.6
0.275	9.3	20.0	29.3	61.0	-31.7
0.901	3.2	20.0	23.2	56.0	-32.8
2.010	3.2	20.0	23.2	56.0	-32.8
0.728	3.0	20.0	23.0	56.0	-33.0
0.330	5.9	20.0	25.9	59.5	-33.6
4.019	2.3	20.0	22.3	56.0	-33.7
19.642	5.4	20.7	26.1	60.0	-33.9
1.093	1.4	20.0	21.4	56.0	-34.6
1.572	1.4	20.0	21.4	56.0	-34.6
1.804	1.3	20.0	21.3	56.0	-34.7
2.706	1.1	20.0	21.1	56.0	-34.9
2.915	0.8	20.0	20.8	56.0	-35.2
20.706	3.9	20.8	24.7	60.0	-35.3
16.227	3.1	20.6	23.7	60.0	-36.3
26.836	2.2	21.1	23.3	60.0	-36.7
8.043	2.4	20.2	22.6	60.0	-37.4
9.396	1.7	20.2	21.9	60.0	-38.1
7.604	1.3	20.2	21.5	60.0	-38.5
5.623	0.8	20.2	21.0	60.0	-39.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	-2.2	20.0	17.8	46.0	-28.2
2.010	-2.2	20.0	17.8	46.0	-28.2
0.170	6.3	20.1	26.4	55.0	-28.6
4.019	-3.2	20.0	16.8	46.0	-29.2
0.510	-3.4	20.0	16.6	46.0	-29.4
0.618	-3.4	20.0	16.6	46.0	-29.4
0.211	3.7	20.1	23.8	53.2	-29.4
0.827	-3.8	20.0	16.2	46.0	-29.8
0.235	2.0	20.1	22.1	52.3	-30.2
19.642	-1.0	20.7	19.7	50.0	-30.3
0.431	-3.2	20.0	16.8	47.2	-30.4
1.804	-4.6	20.0	15.4	46.0	-30.6
1.079	-4.7	20.0	15.3	46.0	-30.7
1.572	-4.8	20.0	15.2	46.0	-30.8
2.704	-5.0	20.0	15.0	46.0	-31.0
2.896	-5.3	20.0	14.7	46.0	-31.3
20.706	-2.2	20.8	18.6	50.0	-31.4
0.335	-2.2	20.0	17.8	49.3	-31.5
0.275	-1.0	20.0	19.0	51.0	-32.0
16.227	-2.8	20.6	17.8	50.0	-32.2
26.992	-3.9	21.1	17.2	50.0	-32.8
8.038	-3.8	20.2	16.4	50.0	-33.6
9.691	-4.2	20.2	16.0	50.0	-34.0
7.604	-4.7	20.2	15.5	50.0	-34.5
5.933	-5.2	20.2	15.0	50.0	-35.0

CONCLUSION

Pass



Tested By

FREQUENCY STABILITY - 5.2 GHz BAND

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBI	NCR	NCR
Thermometer	Omegaette	HH311	DTY	2021-02-04	2024-02-04
Power Supply - DC	Dr. Meter	PS-305DM	TZZ	NCR	NCR
Meter - Multimeter	Tektronix	DMM912	MMH	2019-02-15	2022-02-15
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

TEST DESCRIPTION

The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with an absence of modulation in a CW mode of operation.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30 ° to +50° C) and at 10°C intervals.

Where a ppm limit applies: $\text{ppm} = (\text{Measured Frequency} / \text{Measured Nominal Frequency} - 1) * 1,000,000$

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY - 5.2 GHz BAND



TSTx 2021.03.19.1 XMR 2020.12.30.0

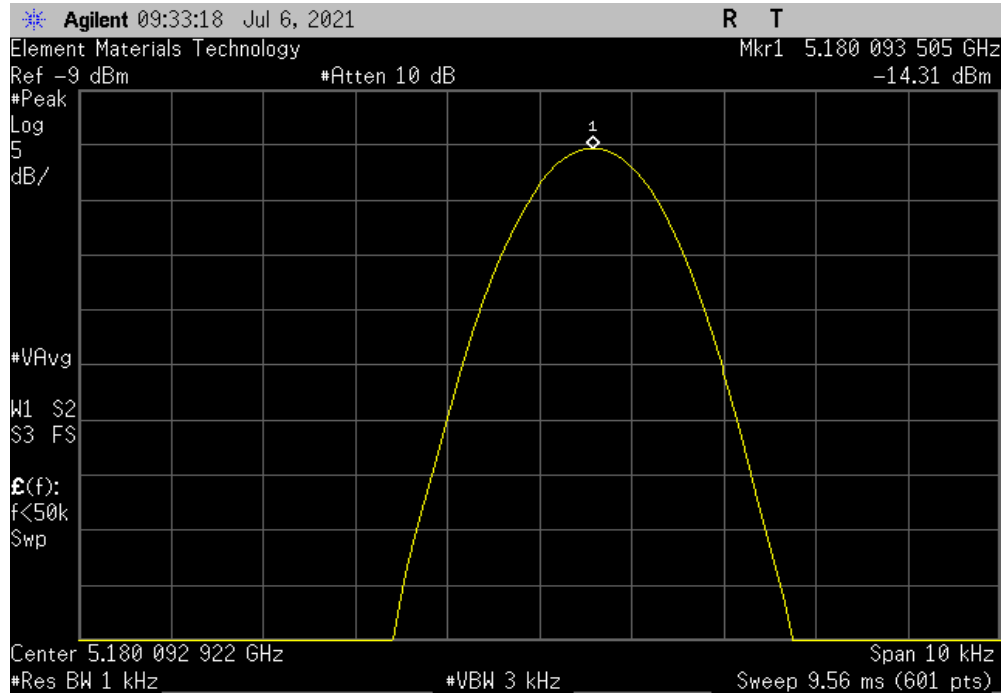
EUT: 43.0536.00		Work Order: A-DE0162				
Serial Number: SN001 00003		Date: 7-Jul-21				
Customer: A-dec, Inc.		Temperature: 23.4 °C				
Attendees: Zach Lyda		Humidity: 47.3% RH				
Project: None		Barometric Pres.: 1021 mbar				
Tested by: Jeff Alcok	Power: 3.3 VDC	Job Site: EV06				
TEST SPECIFICATIONS		Test Method				
FCC 15.407:2021		ANSI C63.10:2013				
COMMENTS						
None						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	3	Signature 				
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
5150 MHz - 5250 MHz - Low Channel, 5180 MHz						
	Voltage: 115%, 3.795 VDC	5180.093505	5180.072244	4	100	Pass
	Voltage: 100%, 3.3 VDC	5180.072244	5180.072244	0	100	Pass
	Voltage: 85%, 2.805 VDC	5180.060976	5180.072244	2	100	Pass
	Temperature: +50°C	5180.073331	5180.072244	0	100	Pass
	Temperature: +40°C	5180.030446	5180.072244	8	100	Pass
	Temperature: +30°C	5179.999545	5180.072244	14	100	Pass
	Temperature: +20°C	5179.992739	5180.072244	15	100	Pass
	Temperature: +10°C	5179.996612	5180.072244	15	100	Pass
	Temperature: 0°C	5180.004866	5180.072244	13	100	Pass
	Temperature: -10°C	5180.014565	5180.072244	11	100	Pass
	Temperature: -20°C	5180.026138	5180.072244	9	100	Pass
	Temperature: -30°C	5180.036923	5180.072244	7	100	Pass

FREQUENCY STABILITY - 5.2 GHz BAND

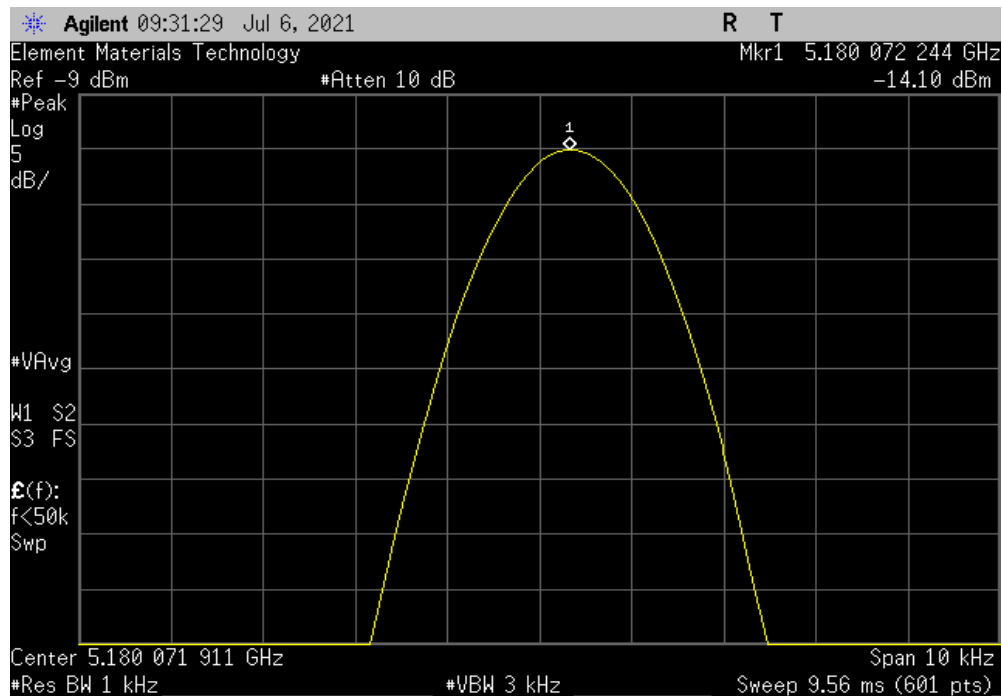


TMTx 2021.03.19.1 XMR 2020.12.30.0

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%, 3.795 VDC						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.093505	5180.072244	4	100	Pass	



5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%, 3.3 VDC						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.072244	5180.072244	0	100	Pass	

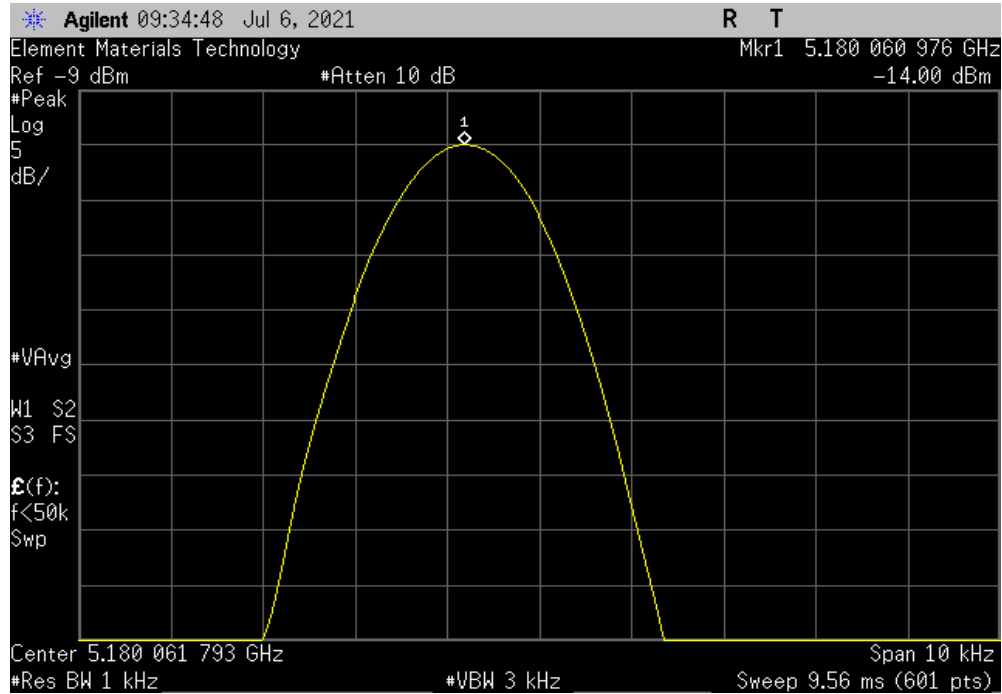


FREQUENCY STABILITY - 5.2 GHz BAND

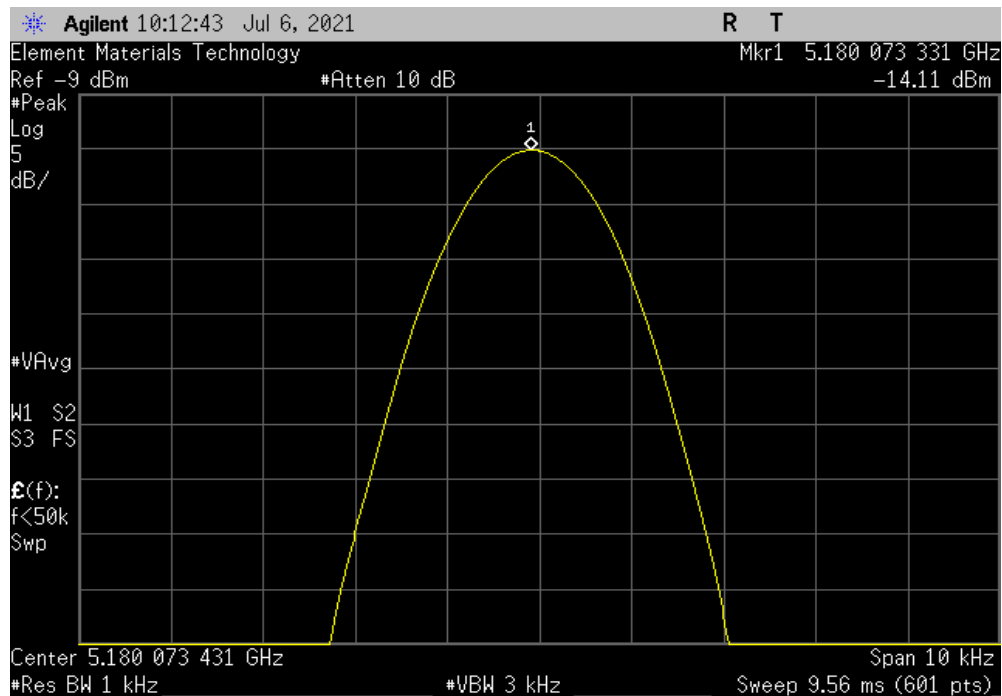


TMTx 2021.03.19.1 XMR 2020.12.30.0

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%, 2.805 VDC						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.060976	5180.072244	2	100	Pass	



5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.073331	5180.072244	0	100	Pass	

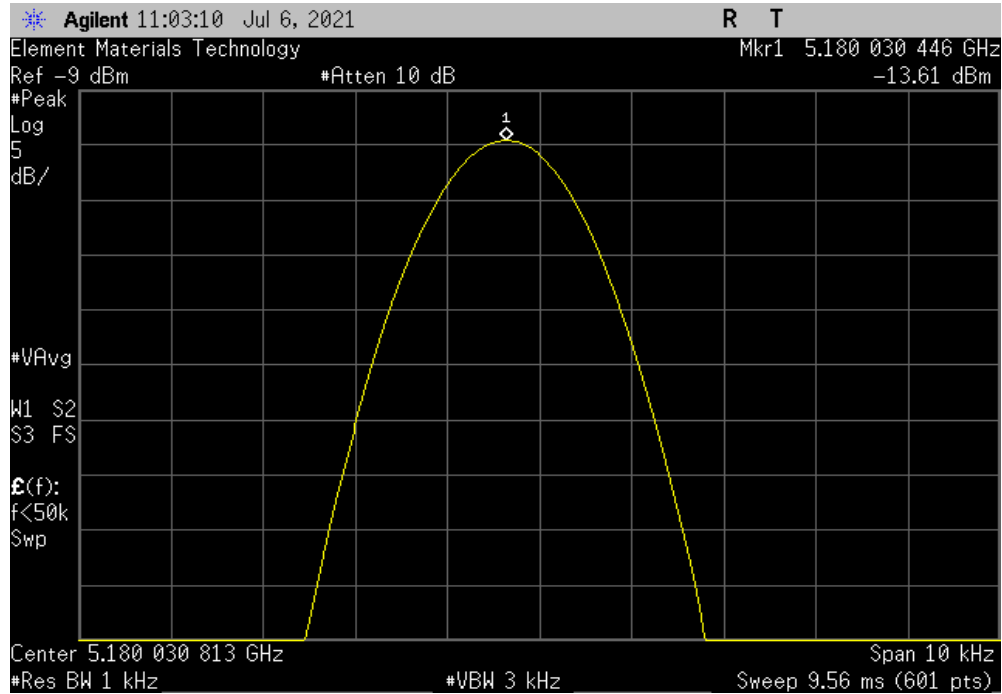


FREQUENCY STABILITY - 5.2 GHz BAND

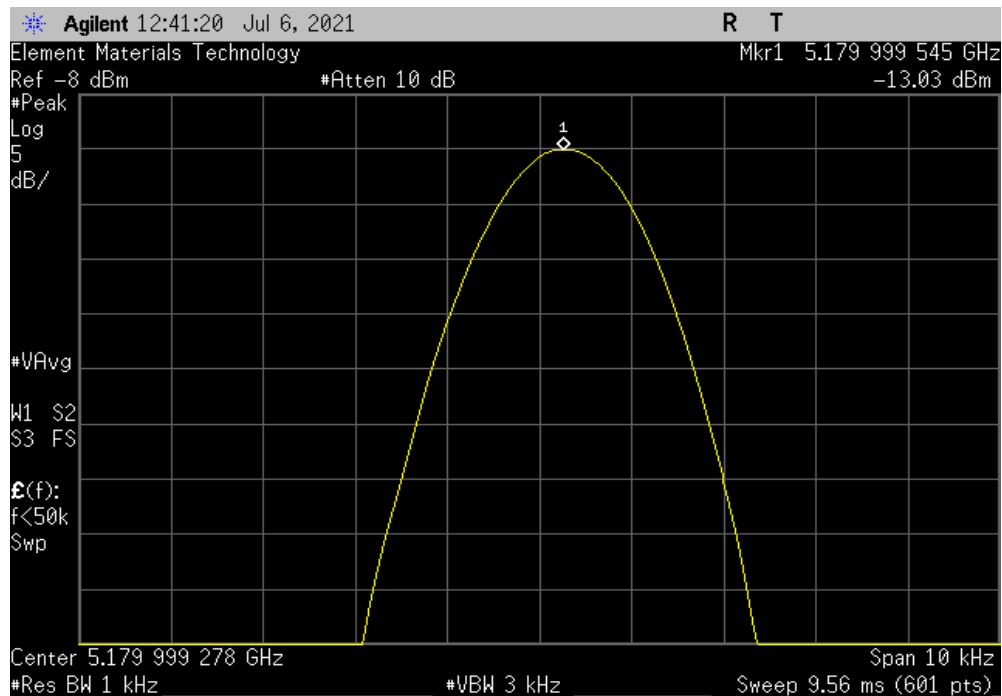


TMTx 2021.03.19.1 XMR 2020.12.30.0

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.030446	5180.072244	8	100	Pass	



5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.999545	5180.072244	14	100	Pass	

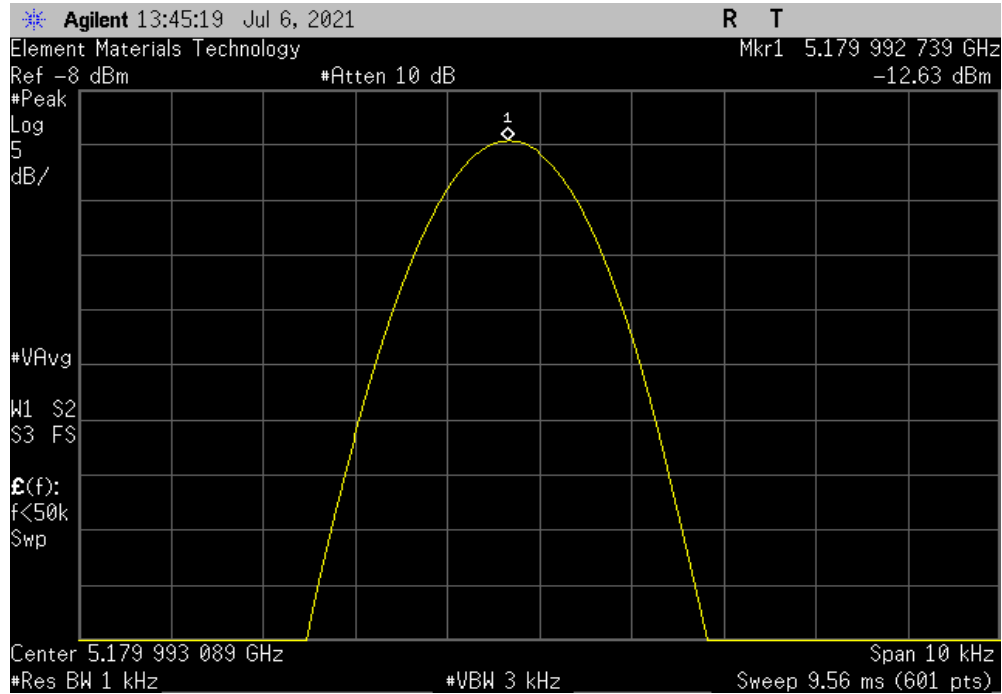


FREQUENCY STABILITY - 5.2 GHz BAND

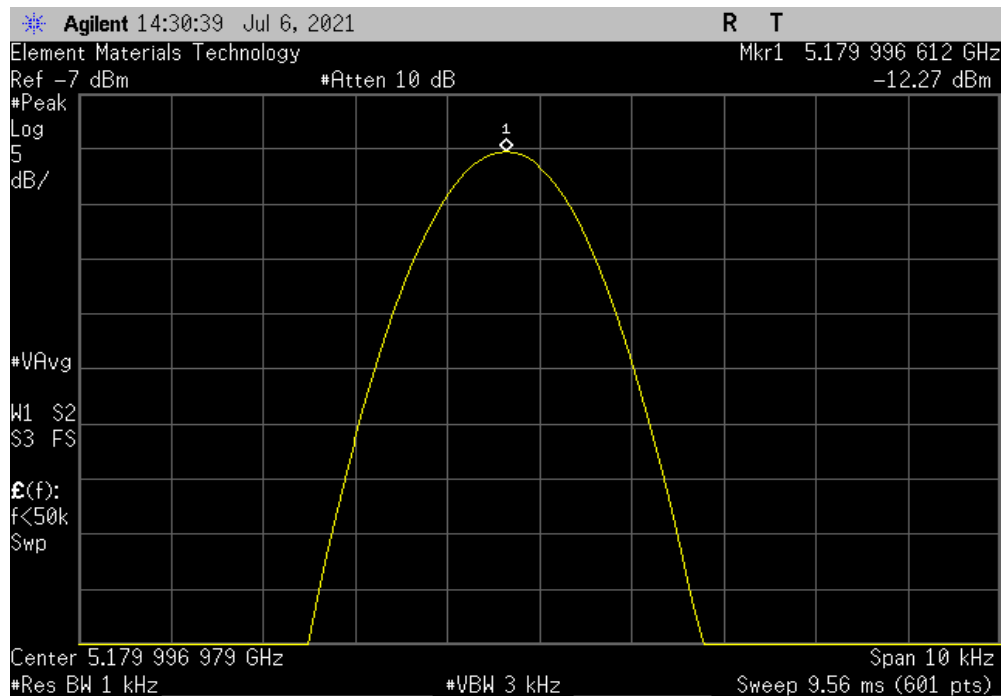


TMTx 2021.03.19.1 XMt 2020.12.30.0

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.992739	5180.072244	15	100	Pass	



5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.996612	5180.072244	15	100	Pass	

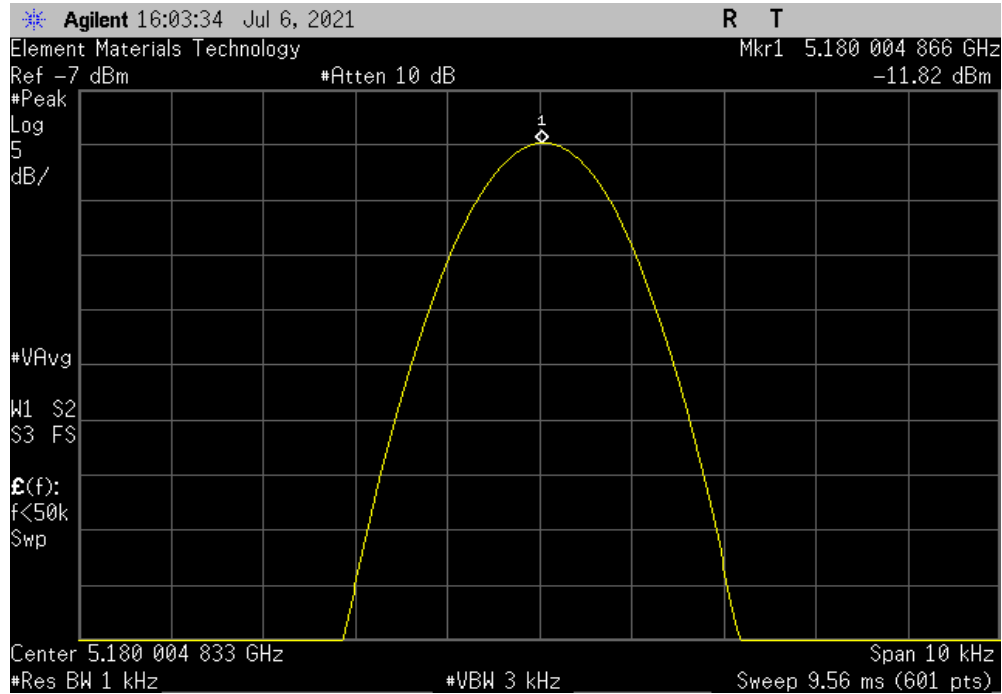


FREQUENCY STABILITY - 5.2 GHz BAND

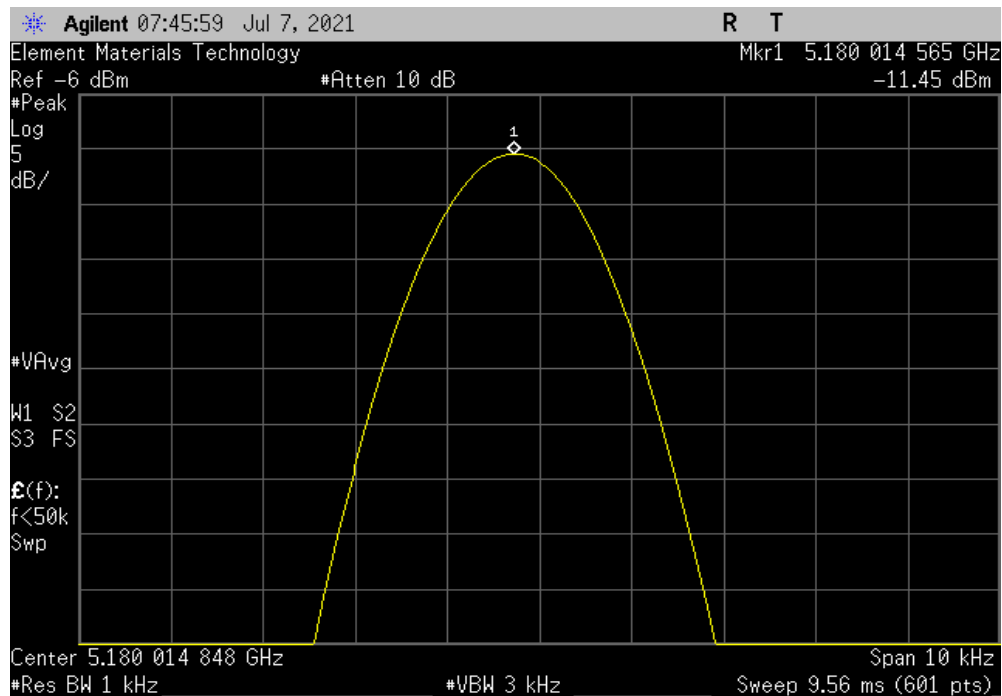


TMTx 2021.03.19.1 XMR 2020.12.30.0

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.004866	5180.072244	13	100	Pass	



5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.014565	5180.072244	11	100	Pass	

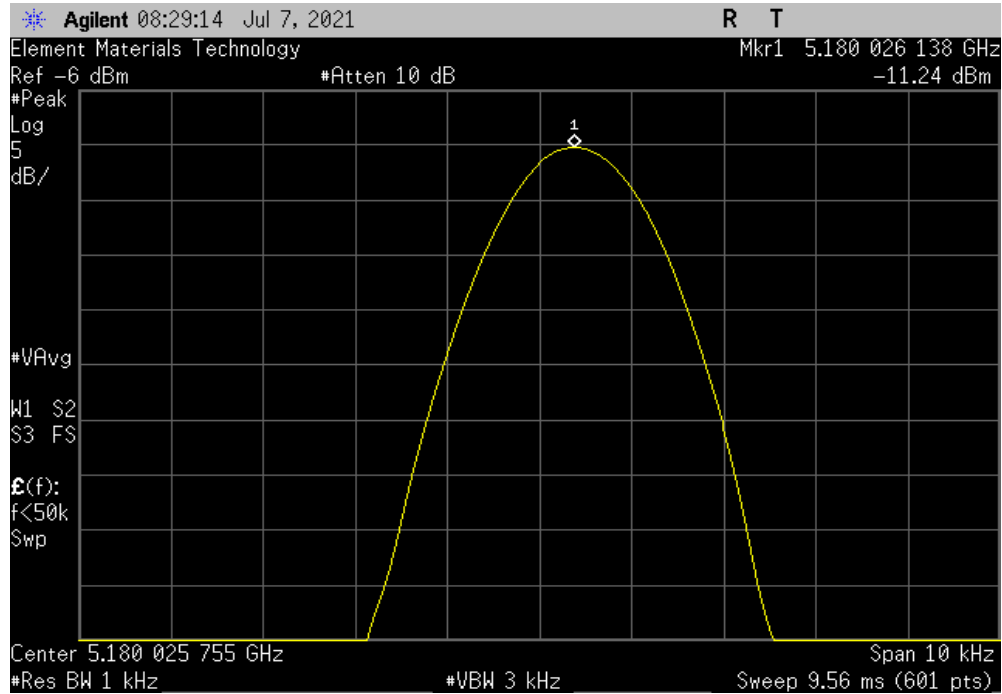


FREQUENCY STABILITY - 5.2 GHz BAND



TMTx 2021.03.19.1 XMR 2020.12.30.0

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.026138	5180.072244	9	100	Pass	



5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.036923	5180.072244	7	100	Pass	

