



Abbott Laboratories

Tube Assessment Center

FCC 15.207:2023, FCC 15.225:2023

13.56 MHz Radio

Report: ABBO0118.4 Rev. 0, Issue Date: July 23, 2023

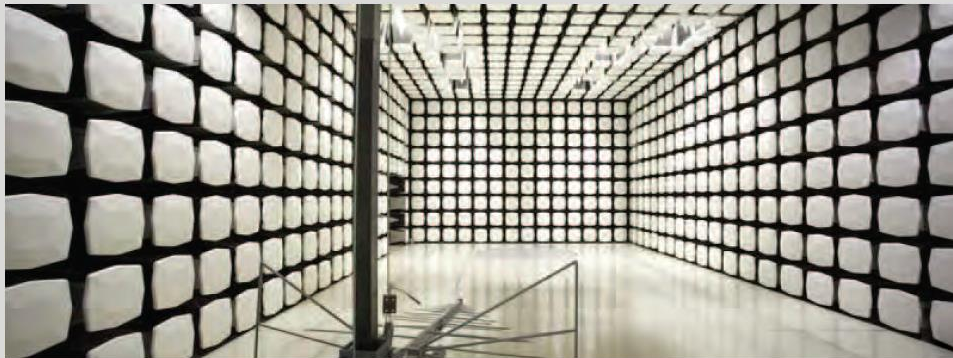


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CERTIFICATE OF TEST

Last Date of Test: June 2, 2023
Abbott Laboratories
EUT: Tube Assessment Center

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2023	ANSI C63.10:2013
FCC 15.225:2023	

Results

Test Description	Result	Specification Section(s)	Method Section(s)	Comments
Powerline Conducted Emissions	Pass	15.207	6.2	
Emissions Bandwidth (20 dB)	Pass	15.215(c)	6.9.2	
Field Strength of Fundamental	Pass	15.225(a)-(c)	6.4	
Field Strength of Spurious Emissions (Less Than 30 MHz)	Pass	15.225(d), 15.209	6.4	
Field Strength of Spurious Emissions (Greater Than 30 MHz)	Pass	15.225(d), 15.209	6.5	
Frequency Stability	Pass	15.225(e), 15.31(e), 15.215(c), 2.1055	6.8	

Deviations From Test Standards

None

Approved By:



Adam Bruno, 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
00	None		

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

BEIS – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

Australia/New Zealand

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

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

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

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

SCOPE

For details on the Scopes of our Accreditations, please visit:

[California](#)

[Minnesota](#)

[Oregon](#)

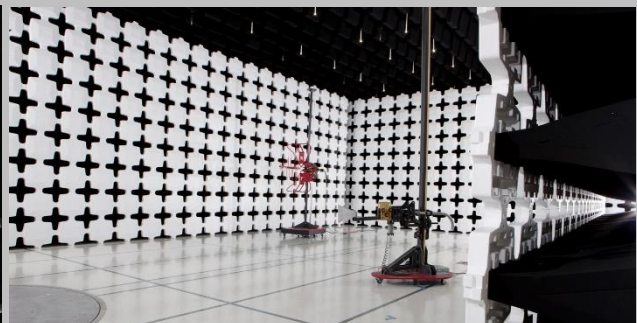
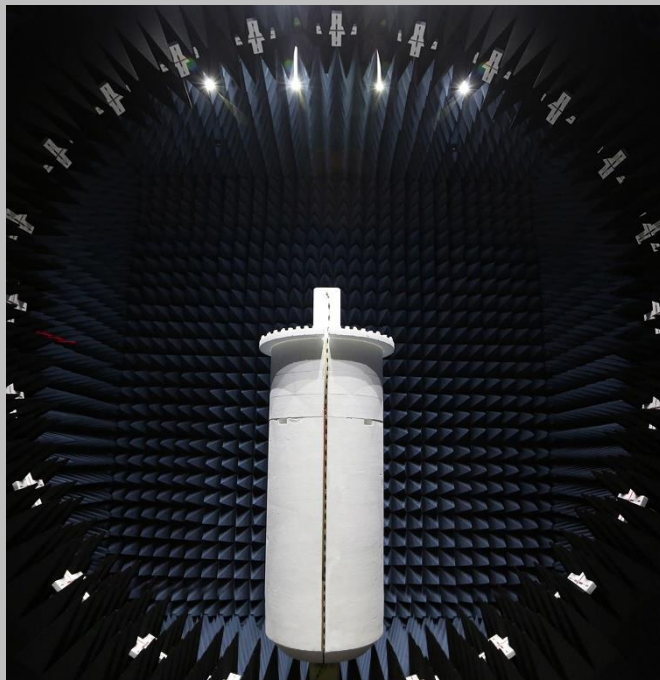
[Texas](#)

[Washington](#)

FACILITIES



California Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612) 638-5136	Oregon Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425) 984-6600
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 Location: Texas

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)	5.1 dB	-5.1 dB
AC Powerline Conducted Emissions (dB)	3.1 dB	-3.1 dB

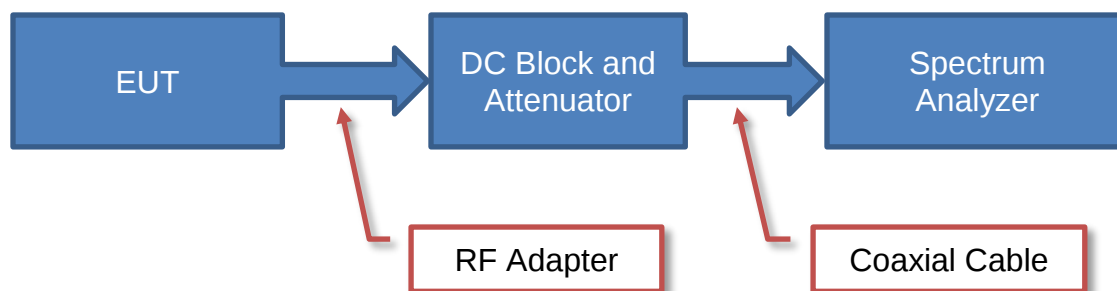
TEST SETUP BLOCK DIAGRAMS

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.

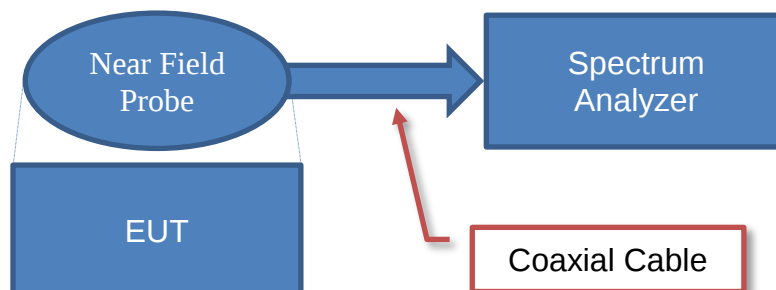
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

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

Near Field Test Fixture Measurements

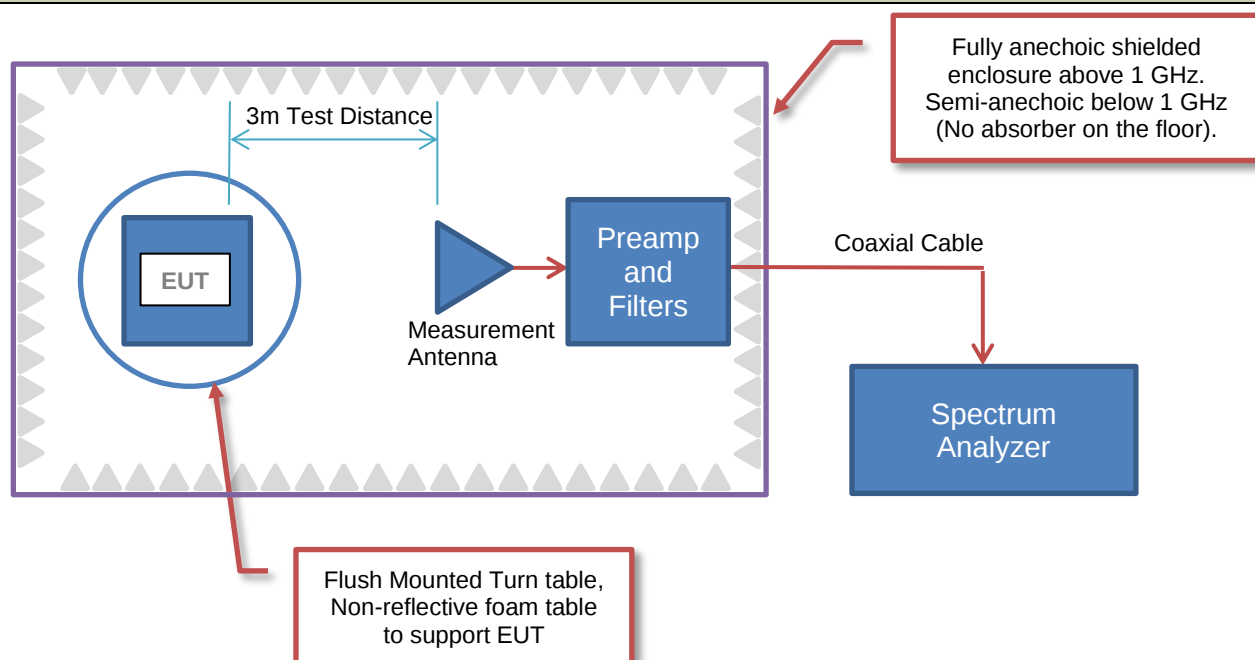


Sample Calculation (logarithmic units)

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

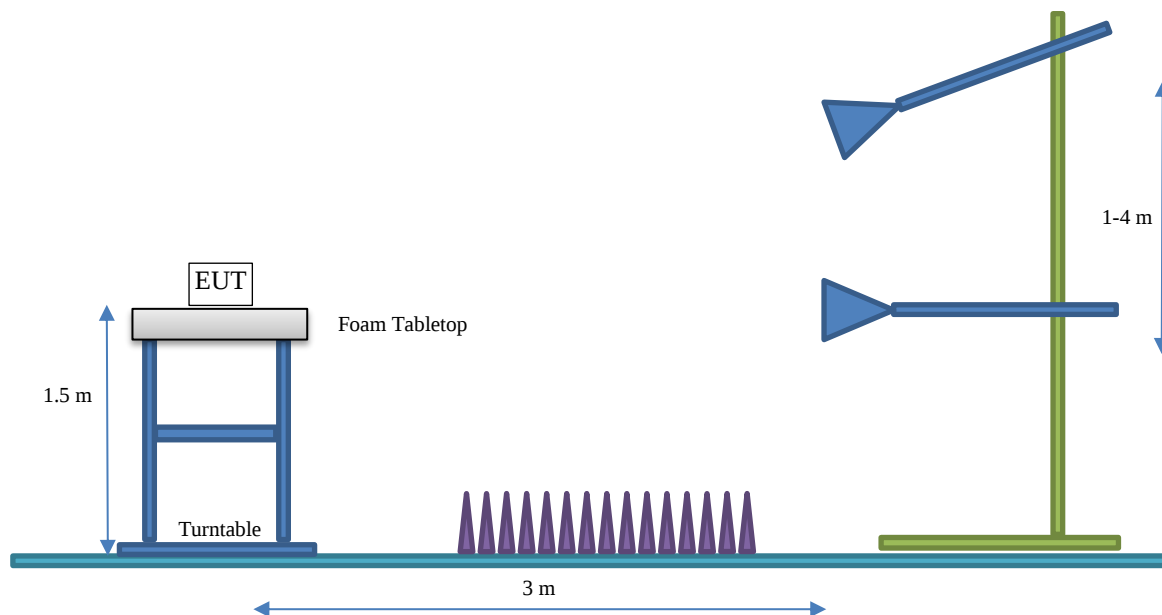
Radiated Power (ERP/EIRP) – Substitution Method:

Measured Level into Substitution Antenna (Amplitude dBm)	Substitution Antenna Factor (dBi)	EIRP to ERP (if applicable)	Measured power (dBm ERP/EIRP)
10.0	6.0	2.15	13.9/16.0

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:	Abbott Laboratories
Address:	1921 Hurd Drive
City, State, Zip:	Irving, TX 75038
Test Requested By:	Frank Sun
EUT:	Tube Assessment Center
First Date of Test:	April 07, 2023
Last Date of Test:	June 2, 2023
Receipt Date of Samples:	April 07, 2023
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

The Tube Assessment Center (TAC), has a camera and a scale, is a stand-alone functional unit available on the track. The camera detects the size and type of sample tubes, and the type and color of the recaps. The scale measures the weight of the sample, which is an optional enhancement data for potential centrifugation. This module contains a total of 2 RFID readers, one at the scale (WIO radio), one at the camera (TAC radio), acting as sensors and triggers for the respective functions. Both RFID radios feature the same antenna and circuit architecture.

Testing Objective:

To demonstrate compliance to FCC Part 15.225 specifications.

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 INFORMATION

Type	Provided by:	Dimensions
Embedded Inductive Loop	GLP Systems	51mm x 35mm

POWER SETTING

Radio	Modulation	Protocol	Data Rate	Frequency	Power Setting (mW)
RFID	OOK	ISO 15693	26.48 kbps	13.56 MHz	200

*Power is set internally through product firmware at the default maximum.

*Antenna information/power setting is identical for each 13.56 MHz radio.

CONFIGURATIONS



Configuration ABBO0118-2

Software/Firmware Running During Test	
Description	Version
D000132610 TAC Controller RFID Test FW Verification	A
D000132617 TSM Simulation Server Script Verification	A
D000132626 Weight Controller RFID Test FW Verification	A

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Tube Assessment Center	Abbott Laboratories	06Q01-51	TAC000084

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Track Kit TAC on Track	Abbott Laboratories	06S34-51	None
Track Section 40	Abbott Laboratories	06Q43-61	None
Track End (left)	Abbott Laboratories	06Q42-51	None
Track End (right)	Abbott Laboratories	06Q42-51	None
Track Junction Box	Abbott Laboratories	06U35-06	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.0m	No	AC Mains	Tube Assessment Center

CONFIGURATIONS



Configuration ABBO0118-3

Software/Firmware Running During Test	
Description	Version
D000132610 TAC Controller RFID Test FW Verification	A
D000132626 Weight Controller RFID Test FW Verification	A

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Tube Assessment Center	Abbott Laboratories	06Q01-51	TAC000084

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
24V Track Power Supply	Abbott Laboratories	06U35-01	C06A002056
Track Filter Unit 3 (3 Phase)	Abbott Laboratories	06U35-04	None
Track Power Bus Board	Abbott Laboratories	20008483	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power Cable A	Yes	0.5m	No	Track Power Bus Board	Track Kit TAC on Track
DC Power Cable B	Yes	1.0m	No	24V Track Power Supply	Track Power Bus Board
AC Power Cable	No	1.0m	No	Track Filter Unit 3 (3 Phase)	24V Track Power Supply
AC Power Cable	No	1.0m	No	AC Mains	Track Filter Unit 3 (3 Phase)

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2023-04-07	Field Strength of Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2023-04-07	Field Strength of Spurious Emissions (Less Than 30 MHz)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2023-04-10	Field Strength of Spurious Emissions (Greater Than 30 MHz)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2023-05-26	Emissions Bandwidth (20dB)	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	2023-05-26	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.
6	2023-06-02	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT.

The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10.

In the event that the operating frequency of 13.56 MHz is causing the product to fail the FCC 15.207 limits, the following guidance can be used:

FCC KDB 174176 D01 AC Conducted FAQ v01r01, June 3, 2015 Section Q5:

For a device with a permanent or detachable antenna operating at or below 30 MHz, the FCC will accept measurements performed with a suitable dummy load in lieu of the antenna under the following conditions:

- (1) perform the AC power-line conducted tests with the antenna connected to determine compliance with Section 15.207 limits outside the transmitter's fundamental emission band;
- (2) retest with a dummy load in lieu of the antenna to determine compliance with Section 15.207 limits within the transmitter's fundamental emission band. For a detachable antenna, remove the antenna and connect a suitable dummy load to the antenna connector. For a permanent antenna, remove the antenna and terminate the RF output with a dummy load or network which simulates the antenna in the fundamental frequency band.

All measurements must be performed as specified in clause 6.2 of ANSI C63.10-2013.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Gauss Instruments	TDEMI 30M	ARL	2022-10-24	2023-10-24
LISN	Solar Electronics	9252-50-R-24-BNC	LJK	2022-08-08	2023-08-08
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Cable - Conducted Cable Assembly	Northwest EMC	TXA, HFC, TQU, VAC	TXAA	2023-04-18	2024-04-18

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.1 dB	-3.1 dB

CONFIGURATIONS INVESTIGATED

ABBO0118-2

MODES INVESTIGATED

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-11
Customer:	Abbott Laboratories	Temperature:	21°C
Attendees:	Frank Sun	Relative Humidity:	46.8%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

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

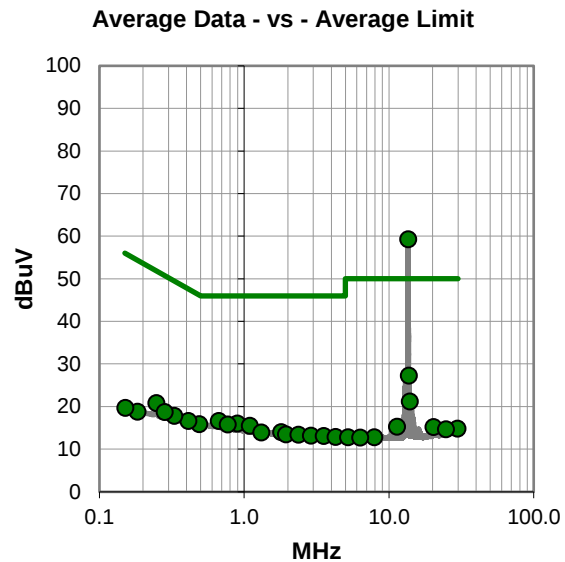
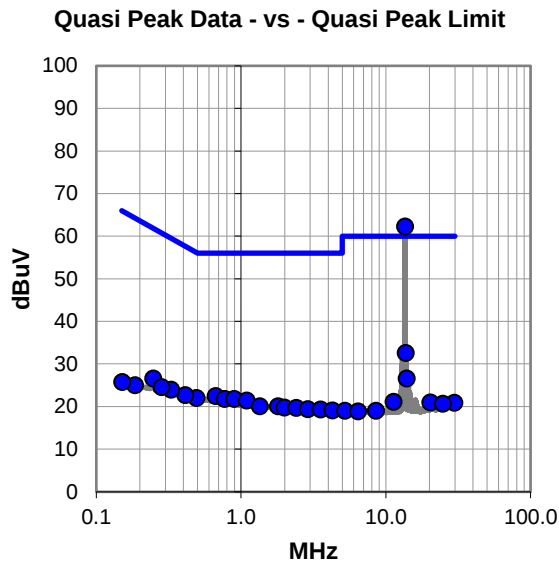
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). Both radios active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

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)
13.560	41.8	20.5	62.3	60.0	2.3
13.719	12.1	20.5	32.6	60.0	-27.4
13.931	6.1	20.5	26.6	60.0	-33.4
0.667	2.3	20.2	22.5	56.0	-33.5
0.492	1.8	20.2	22.0	56.1	-34.1
0.769	1.6	20.2	21.8	56.0	-34.2
0.899	1.7	20.1	21.8	56.0	-34.2
1.091	1.4	20.0	21.4	56.0	-34.6
0.411	2.4	20.3	22.7	57.6	-34.9
0.248	6.0	20.6	26.6	61.8	-35.2
0.330	3.7	20.3	24.0	59.5	-35.5
1.345	0.1	20.0	20.1	56.0	-35.9
1.799	-0.1	20.2	20.1	56.0	-35.9
0.283	4.2	20.4	24.6	60.7	-36.1
1.996	-0.4	20.2	19.8	56.0	-36.2
2.405	-0.5	20.2	19.7	56.0	-36.3
2.892	-0.8	20.2	19.4	56.0	-36.6
3.536	-0.9	20.2	19.3	56.0	-36.7
4.273	-1.1	20.2	19.1	56.0	-36.9
11.299	0.6	20.5	21.1	60.0	-38.9
20.257	0.0	21.0	21.0	60.0	-39.0
29.743	-1.1	22.0	20.9	60.0	-39.1
0.185	4.4	20.6	25.0	64.3	-39.3
24.787	-0.8	21.5	20.7	60.0	-39.3
0.152	5.2	20.6	25.8	65.9	-40.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	38.8	20.5	59.3	50.0	9.3
13.719	6.8	20.5	27.3	50.0	-22.7
13.931	0.7	20.5	21.2	50.0	-28.8
0.667	-3.6	20.2	16.6	46.0	-29.4
0.899	-4.1	20.1	16.0	46.0	-30.0
0.769	-4.4	20.2	15.8	46.0	-30.2
0.490	-4.3	20.2	15.9	46.2	-30.3
1.091	-4.5	20.0	15.5	46.0	-30.5
0.248	0.2	20.6	20.8	51.8	-31.0
0.411	-3.7	20.3	16.6	47.6	-31.0
0.330	-2.5	20.3	17.8	49.5	-31.7
0.283	-1.7	20.4	18.7	50.7	-32.0
1.799	-6.2	20.2	14.0	46.0	-32.0
1.313	-6.1	20.0	13.9	46.0	-32.1
1.943	-6.7	20.2	13.5	46.0	-32.5
2.372	-6.8	20.2	13.4	46.0	-32.6
2.886	-7.0	20.2	13.2	46.0	-32.8
3.551	-7.1	20.2	13.1	46.0	-32.9
4.273	-7.3	20.2	12.9	46.0	-33.1
11.381	-5.2	20.5	15.3	50.0	-34.7
20.259	-5.8	21.0	15.2	50.0	-34.8
29.745	-7.2	22.0	14.8	50.0	-35.2
24.787	-6.8	21.5	14.7	50.0	-35.3
0.184	-1.8	20.6	18.8	54.3	-35.5
0.152	-0.9	20.6	19.7	55.9	-36.2

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-11
Customer:	Abbott Laboratories	Temperature:	21°C
Attendees:	Frank Sun	Relative Humidity:	46.8%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

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

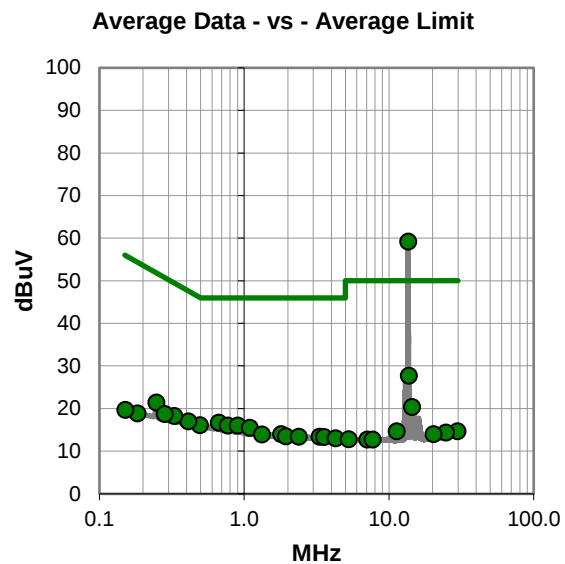
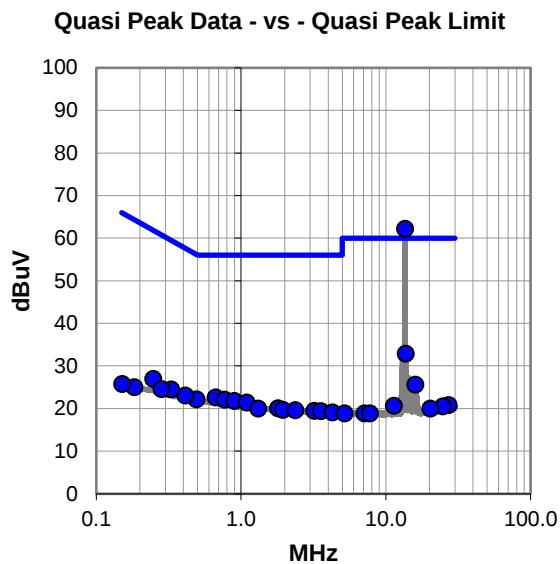
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). Both radios active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

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)
13.560	41.7	20.5	62.2	60.0	2.2
13.719	12.4	20.5	32.9	60.0	-27.1
0.667	2.4	20.2	22.6	56.0	-33.4
0.769	1.9	20.2	22.1	56.0	-33.9
0.493	2.0	20.2	22.2	56.1	-33.9
0.899	1.7	20.1	21.8	56.0	-34.2
15.999	4.9	20.7	25.6	60.0	-34.4
0.412	2.8	20.3	23.1	57.6	-34.5
1.091	1.4	20.0	21.4	56.0	-34.6
0.248	6.4	20.6	27.0	61.8	-34.8
0.330	4.2	20.3	24.5	59.5	-35.0
1.799	-0.1	20.2	20.1	56.0	-35.9
1.311	0.0	20.0	20.0	56.0	-36.0
0.283	4.2	20.4	24.6	60.7	-36.1
1.946	-0.5	20.2	19.7	56.0	-36.3
2.367	-0.6	20.2	19.6	56.0	-36.4
3.200	-0.7	20.2	19.5	56.0	-36.5
3.563	-0.8	20.2	19.4	56.0	-36.6
4.285	-1.1	20.2	19.1	56.0	-36.9
27.160	-1.0	21.8	20.8	60.0	-39.2
0.184	4.4	20.6	25.0	64.3	-39.3
11.381	0.2	20.5	20.7	60.0	-39.3
24.786	-1.0	21.5	20.5	60.0	-39.5
20.257	-1.0	21.0	20.0	60.0	-40.0
0.152	5.2	20.6	25.8	65.9	-40.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	38.7	20.5	59.2	50.0	9.2
13.719	7.2	20.5	27.7	50.0	-22.3
0.667	-3.5	20.2	16.7	46.0	-29.3
14.433	-0.3	20.7	20.4	50.0	-29.6
0.495	-4.1	20.2	16.1	46.1	-30.0
0.769	-4.2	20.2	16.0	46.0	-30.0
0.901	-4.1	20.1	16.0	46.0	-30.0
0.248	0.8	20.6	21.4	51.8	-30.4
1.091	-4.5	20.0	15.5	46.0	-30.5
0.412	-3.3	20.3	17.0	47.6	-30.6
0.330	-2.0	20.3	18.3	49.5	-31.2
0.283	-1.7	20.4	18.7	50.7	-32.0
1.799	-6.2	20.2	14.0	46.0	-32.0
1.326	-6.1	20.0	13.9	46.0	-32.1
1.946	-6.7	20.2	13.5	46.0	-32.5
2.385	-6.8	20.2	13.4	46.0	-32.6
3.321	-6.8	20.2	13.4	46.0	-32.6
3.562	-6.9	20.2	13.3	46.0	-32.7
4.285	-7.2	20.2	13.0	46.0	-33.0
11.299	-5.8	20.5	14.7	50.0	-35.3
29.743	-7.3	22.0	14.7	50.0	-35.3
0.184	-1.7	20.6	18.9	54.3	-35.4
24.786	-7.1	21.5	14.4	50.0	-35.6
20.259	-7.0	21.0	14.0	50.0	-36.0
0.152	-0.9	20.6	19.7	55.9	-36.2

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-06-02
Customer:	Abbott Laboratories	Temperature:	21.2°C
Attendees:	None	Relative Humidity:	52.8%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	13	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

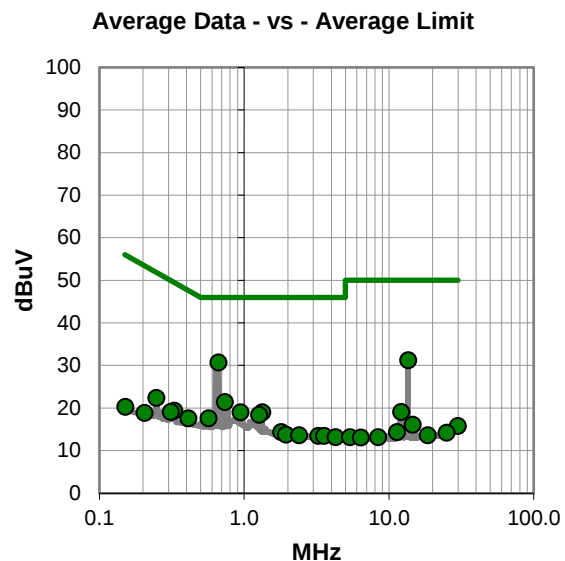
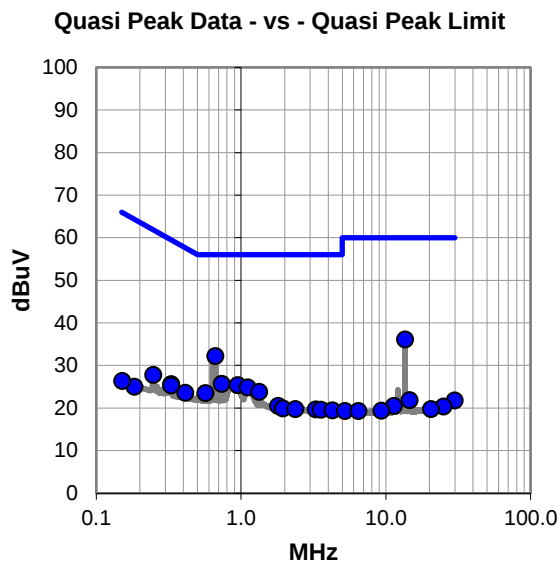
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). Both radios active. Antenna disconnected, terminated with load.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #13

Quasi Peak Data - vs - Quasi Peak Limit

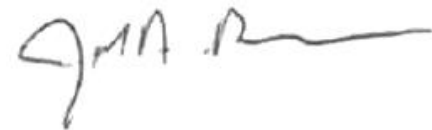
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	12.0	20.2	32.2	56.0	-23.8
13.559	15.3	20.8	36.1	60.0	-23.9
0.734	5.5	20.2	25.7	56.0	-30.3
0.946	5.2	20.2	25.4	56.0	-30.6
1.111	4.7	20.2	24.9	56.0	-31.1
1.332	3.6	20.2	23.8	56.0	-32.2
0.568	3.3	20.2	23.5	56.0	-32.5
0.330	5.4	20.2	25.6	59.5	-33.9
0.248	7.3	20.5	27.8	61.8	-34.0
0.412	3.4	20.2	23.6	57.6	-34.0
0.329	5.1	20.2	25.3	59.5	-34.2
1.799	0.2	20.3	20.5	56.0	-35.5
1.946	-0.4	20.3	19.9	56.0	-36.1
2.372	-0.5	20.3	19.8	56.0	-36.2
3.282	-0.7	20.4	19.7	56.0	-36.3
3.562	-0.8	20.4	19.6	56.0	-36.4
4.285	-0.9	20.4	19.5	56.0	-36.5
14.598	1.0	20.9	21.9	60.0	-38.1
29.854	-0.6	22.4	21.8	60.0	-38.2
0.184	4.3	20.7	25.0	64.3	-39.3
11.381	-0.2	20.7	20.5	60.0	-39.5
0.152	5.8	20.6	26.4	65.9	-39.5
25.001	-1.4	21.8	20.4	60.0	-39.6
20.518	-1.6	21.4	19.8	60.0	-40.2
9.319	-1.2	20.6	19.4	60.0	-40.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	10.5	20.2	30.7	46.0	-15.3
13.559	10.4	20.8	31.2	50.0	-18.8
0.734	1.2	20.2	21.4	46.0	-24.6
0.945	-1.2	20.2	19.0	46.0	-27.0
1.332	-1.2	20.2	19.0	46.0	-27.0
1.268	-1.8	20.2	18.4	46.0	-27.6
0.568	-2.6	20.2	17.6	46.0	-28.4
0.248	1.9	20.5	22.4	51.8	-29.4
0.412	-2.6	20.2	17.6	47.6	-30.0
0.330	-0.8	20.2	19.4	49.5	-30.1
0.312	-1.2	20.3	19.1	49.9	-30.8
12.123	-1.6	20.7	19.1	50.0	-30.9
1.799	-5.9	20.3	14.4	46.0	-31.6
1.943	-6.5	20.3	13.8	46.0	-32.2
2.399	-6.7	20.3	13.6	46.0	-32.4
3.252	-6.9	20.4	13.5	46.0	-32.5
3.559	-6.9	20.4	13.5	46.0	-32.5
4.276	-7.2	20.4	13.2	46.0	-32.8
14.598	-4.8	20.9	16.1	50.0	-33.9
29.854	-6.6	22.4	15.8	50.0	-34.2
0.205	-1.7	20.6	18.9	53.4	-34.5
0.152	-0.3	20.6	20.3	55.9	-35.6
11.381	-6.3	20.7	14.4	50.0	-35.6
24.998	-7.6	21.8	14.2	50.0	-35.8
18.566	-7.7	21.3	13.6	50.0	-36.4

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-06-02
Customer:	Abbott Laboratories	Temperature:	21.2°C
Attendees:	None	Relative Humidity:	52.8%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	14	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

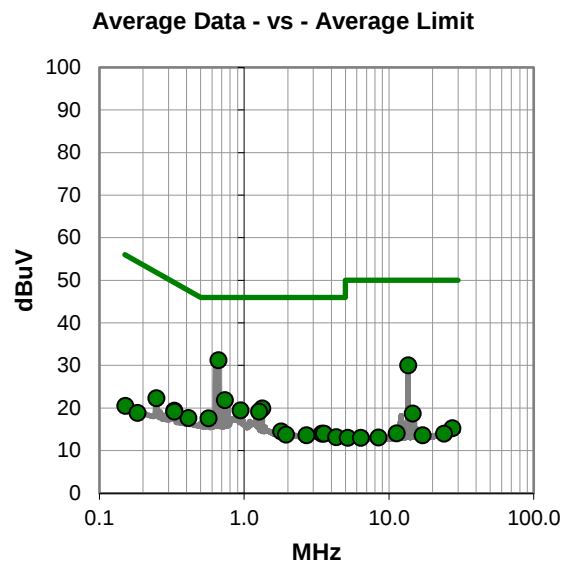
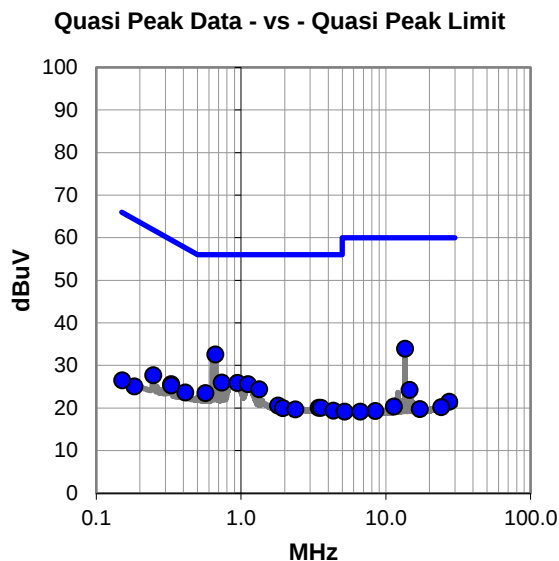
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). Both radios active. Antenna disconnected, terminated with load.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #14

Quasi Peak Data - vs - Quasi Peak Limit

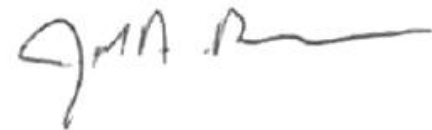
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	12.4	20.2	32.6	56.0	-23.4
13.562	13.1	20.8	33.9	60.0	-26.1
0.734	5.8	20.2	26.0	56.0	-30.0
0.945	5.7	20.2	25.9	56.0	-30.1
1.114	5.4	20.2	25.6	56.0	-30.4
1.332	4.2	20.2	24.4	56.0	-31.6
0.568	3.3	20.2	23.5	56.0	-32.5
0.330	5.4	20.2	25.6	59.5	-33.9
0.412	3.5	20.2	23.7	57.6	-33.9
0.248	7.2	20.5	27.7	61.8	-34.1
0.329	5.1	20.2	25.3	59.5	-34.2
1.801	0.3	20.3	20.6	56.0	-35.4
14.599	3.4	20.9	24.3	60.0	-35.7
3.437	-0.3	20.4	20.1	56.0	-35.9
3.559	-0.3	20.4	20.1	56.0	-35.9
1.943	-0.3	20.3	20.0	56.0	-36.0
2.375	-0.6	20.3	19.7	56.0	-36.3
4.341	-1.0	20.4	19.4	56.0	-36.6
27.338	-1.5	23.0	21.5	60.0	-38.5
0.184	4.4	20.7	25.1	64.3	-39.2
0.152	5.9	20.6	26.5	65.9	-39.4
11.381	-0.3	20.7	20.4	60.0	-39.6
24.145	-1.6	21.8	20.2	60.0	-39.8
17.122	-1.3	21.1	19.8	60.0	-40.2
8.449	-1.3	20.6	19.3	60.0	-40.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	11.0	20.2	31.2	46.0	-14.8
13.560	9.2	20.8	30.0	50.0	-20.0
0.734	1.7	20.2	21.9	46.0	-24.1
1.332	-0.3	20.2	19.9	46.0	-26.1
0.945	-0.7	20.2	19.5	46.0	-26.5
1.268	-1.0	20.2	19.2	46.0	-26.8
0.568	-2.6	20.2	17.6	46.0	-28.4
0.248	1.8	20.5	22.3	51.8	-29.5
0.412	-2.5	20.2	17.7	47.6	-29.9
0.330	-0.8	20.2	19.4	49.5	-30.1
0.329	-1.0	20.2	19.2	49.5	-30.3
14.599	-2.2	20.9	18.7	50.0	-31.3
1.799	-5.8	20.3	14.5	46.0	-31.5
3.437	-6.4	20.4	14.0	46.0	-32.0
3.557	-6.4	20.4	14.0	46.0	-32.0
1.947	-6.5	20.3	13.8	46.0	-32.2
2.698	-6.7	20.3	13.6	46.0	-32.4
4.314	-7.2	20.4	13.2	46.0	-32.8
27.376	-7.7	23.0	15.3	50.0	-34.7
0.152	-0.1	20.6	20.5	55.9	-35.4
0.184	-1.8	20.7	18.9	54.3	-35.4
11.299	-6.6	20.7	14.1	50.0	-35.9
23.957	-7.8	21.8	14.0	50.0	-36.0
17.035	-7.5	21.1	13.6	50.0	-36.4
8.441	-7.5	20.6	13.1	50.0	-36.9

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-11
Customer:	Abbott Laboratories	Temperature:	21°C
Attendees:	Frank Sun	Relative Humidity:	46.8%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

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

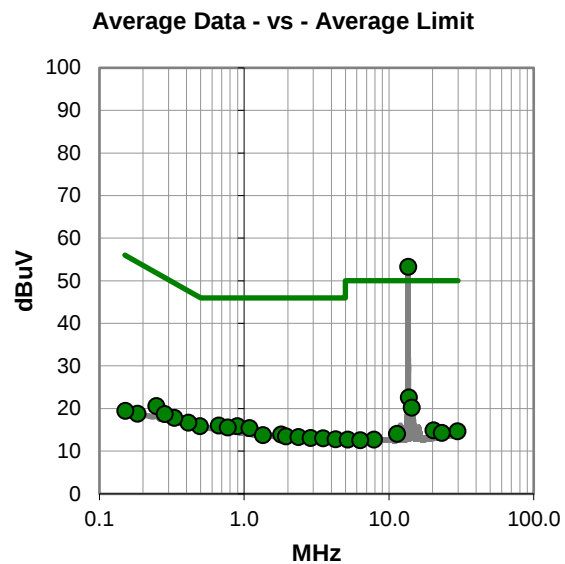
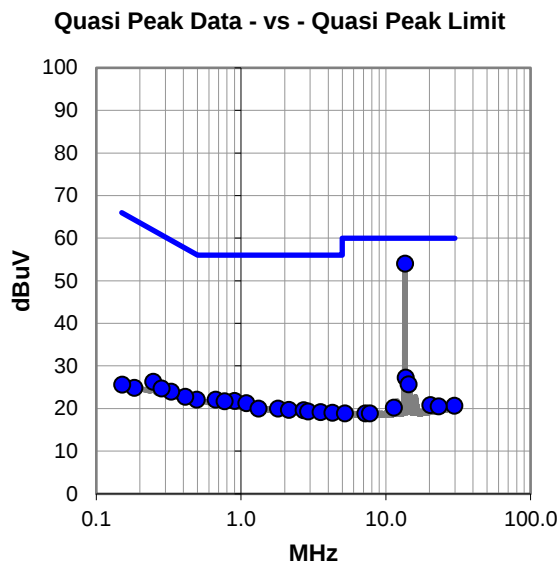
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). WIO radio active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

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)
13.560	33.5	20.5	54.0	60.0	-6.0
13.719	6.8	20.5	27.3	60.0	-32.7
0.667	1.9	20.2	22.1	56.0	-33.9
0.495	1.9	20.2	22.1	56.1	-34.0
0.901	1.7	20.1	21.8	56.0	-34.2
0.769	1.5	20.2	21.7	56.0	-34.3
14.351	5.1	20.6	25.7	60.0	-34.3
1.090	1.3	20.0	21.3	56.0	-34.7
0.412	2.5	20.3	22.8	57.6	-34.8
0.248	5.7	20.6	26.3	61.8	-35.5
0.330	3.7	20.3	24.0	59.5	-35.5
0.283	4.3	20.4	24.7	60.7	-36.0
1.322	0.0	20.0	20.0	56.0	-36.0
1.798	-0.1	20.1	20.0	56.0	-36.0
2.138	-0.5	20.2	19.7	56.0	-36.3
2.700	-0.6	20.2	19.6	56.0	-36.4
2.900	-0.9	20.2	19.3	56.0	-36.7
3.537	-1.0	20.2	19.2	56.0	-36.8
4.273	-1.2	20.2	19.0	56.0	-37.0
20.257	-0.2	21.0	20.8	60.0	-39.2
29.741	-1.3	22.0	20.7	60.0	-39.3
0.184	4.3	20.6	24.9	64.3	-39.4
23.129	-0.8	21.3	20.5	60.0	-39.5
11.381	-0.3	20.5	20.2	60.0	-39.8
0.152	5.0	20.6	25.6	65.9	-40.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	32.8	20.5	53.3	50.0	3.3
13.719	2.1	20.5	22.6	50.0	-27.4
14.351	-0.4	20.6	20.2	50.0	-29.8
0.667	-4.2	20.2	16.0	46.0	-30.0
0.899	-4.2	20.1	15.9	46.0	-30.1
0.495	-4.3	20.2	15.9	46.1	-30.2
0.769	-4.6	20.2	15.6	46.0	-30.4
1.090	-4.6	20.0	15.4	46.0	-30.6
0.412	-3.6	20.3	16.7	47.6	-30.9
0.248	0.0	20.6	20.6	51.8	-31.2
0.330	-2.5	20.3	17.8	49.5	-31.7
0.283	-1.7	20.4	18.7	50.7	-32.0
1.799	-6.3	20.2	13.9	46.0	-32.1
1.349	-6.2	20.0	13.8	46.0	-32.2
1.949	-6.7	20.2	13.5	46.0	-32.5
2.372	-6.9	20.2	13.3	46.0	-32.7
2.883	-7.1	20.2	13.1	46.0	-32.9
3.513	-7.2	20.2	13.0	46.0	-33.0
4.276	-7.4	20.2	12.8	46.0	-33.2
20.259	-6.1	21.0	14.9	50.0	-35.1
29.741	-7.3	22.0	14.7	50.0	-35.3
0.184	-1.8	20.6	18.8	54.3	-35.5
23.130	-7.0	21.3	14.3	50.0	-35.7
11.381	-6.4	20.5	14.1	50.0	-35.9
0.152	-1.1	20.6	19.5	55.9	-36.4

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-11
Customer:	Abbott Laboratories	Temperature:	21°C
Attendees:	Frank Sun	Relative Humidity:	46.8%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

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

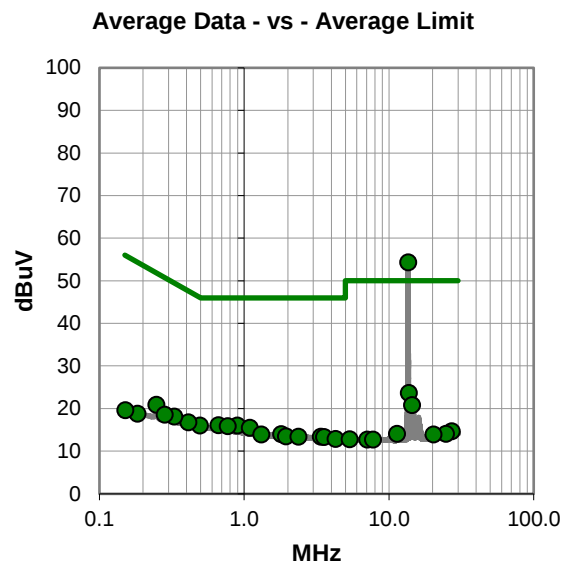
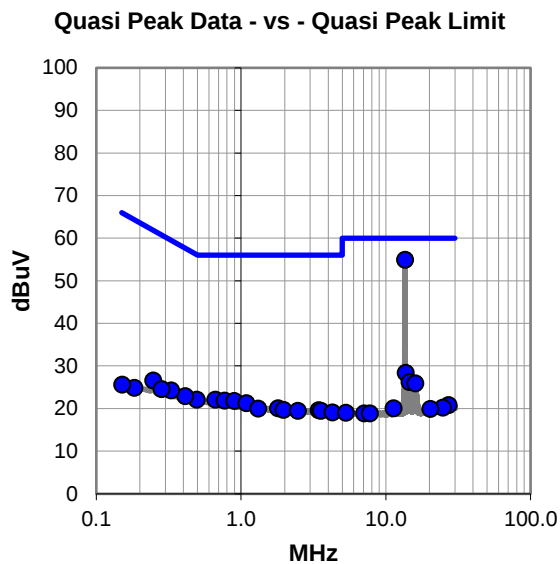
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). WIO radio active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

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)
13.560	34.4	20.5	54.9	60.0	-5.1
13.719	7.9	20.5	28.4	60.0	-31.6
14.598	5.5	20.7	26.2	60.0	-33.8
0.666	1.9	20.2	22.1	56.0	-33.9
0.495	1.9	20.2	22.1	56.1	-34.0
16.000	5.2	20.7	25.9	60.0	-34.1
0.769	1.7	20.2	21.9	56.0	-34.1
0.899	1.7	20.1	21.8	56.0	-34.2
0.411	2.6	20.3	22.9	57.6	-34.7
1.090	1.3	20.0	21.3	56.0	-34.7
0.248	6.0	20.6	26.6	61.8	-35.2
0.330	4.0	20.3	24.3	59.5	-35.2
1.799	-0.1	20.2	20.1	56.0	-35.9
1.313	0.0	20.0	20.0	56.0	-36.0
0.283	4.2	20.4	24.6	60.7	-36.1
1.960	-0.5	20.2	19.7	56.0	-36.3
3.443	-0.6	20.2	19.6	56.0	-36.4
2.472	-0.7	20.2	19.5	56.0	-36.5
3.563	-0.7	20.2	19.5	56.0	-36.5
4.286	-1.1	20.2	19.1	56.0	-36.9
27.160	-1.0	21.8	20.8	60.0	-39.2
0.184	4.3	20.6	24.9	64.3	-39.4
24.784	-1.3	21.5	20.2	60.0	-39.8
11.299	-0.4	20.5	20.1	60.0	-39.9
20.257	-1.1	21.0	19.9	60.0	-40.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	33.8	20.5	54.3	50.0	4.3
13.719	3.2	20.5	23.7	50.0	-26.3
14.433	0.1	20.7	20.8	50.0	-29.2
0.666	-4.1	20.2	16.1	46.0	-29.9
0.899	-4.1	20.1	16.0	46.0	-30.0
0.495	-4.2	20.2	16.0	46.1	-30.1
0.769	-4.3	20.2	15.9	46.0	-30.1
1.091	-4.5	20.0	15.5	46.0	-30.5
0.412	-3.5	20.3	16.8	47.6	-30.8
0.248	0.3	20.6	20.9	51.8	-30.9
0.330	-2.2	20.3	18.1	49.5	-31.4
1.799	-6.2	20.2	14.0	46.0	-32.0
0.283	-1.8	20.4	18.6	50.7	-32.1
1.311	-6.1	20.0	13.9	46.0	-32.1
1.943	-6.7	20.2	13.5	46.0	-32.5
2.370	-6.8	20.2	13.4	46.0	-32.6
3.382	-6.8	20.2	13.4	46.0	-32.6
3.562	-6.9	20.2	13.3	46.0	-32.7
4.279	-7.3	20.2	12.9	46.0	-33.1
27.160	-7.1	21.8	14.7	50.0	-35.3
0.184	-1.8	20.6	18.8	54.3	-35.5
11.381	-6.4	20.5	14.1	50.0	-35.9
24.784	-7.4	21.5	14.1	50.0	-35.9
20.259	-7.1	21.0	13.9	50.0	-36.1
0.152	-1.0	20.6	19.6	55.9	-36.3

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-06-02
Customer:	Abbott Laboratories	Temperature:	21.2°C
Attendees:	None	Relative Humidity:	52.8%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	15	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

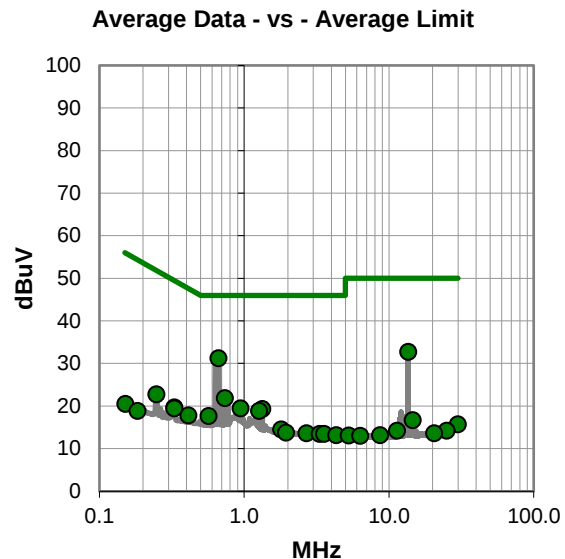
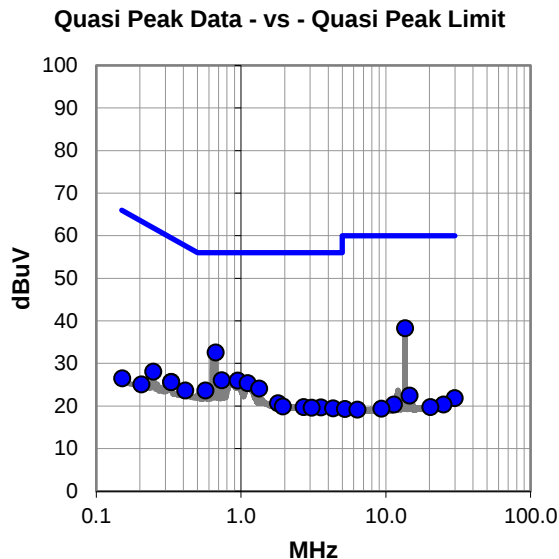
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). WIO radio active. Antenna disconnected, terminated with load.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #15

Quasi Peak Data - vs - Quasi Peak Limit

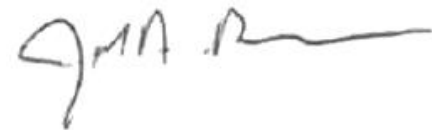
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	17.5	20.8	38.3	60.0	-21.7
0.667	12.4	20.2	32.6	56.0	-23.4
0.734	5.9	20.2	26.1	56.0	-29.9
0.946	5.8	20.2	26.0	56.0	-30.0
1.108	5.2	20.2	25.4	56.0	-30.6
1.332	3.9	20.2	24.1	56.0	-31.9
0.568	3.5	20.2	23.7	56.0	-32.3
0.248	7.6	20.5	28.1	61.8	-33.7
0.330	5.5	20.2	25.7	59.5	-33.8
0.329	5.4	20.2	25.6	59.5	-33.9
0.412	3.5	20.2	23.7	57.6	-33.9
1.799	0.4	20.3	20.7	56.0	-35.3
1.947	-0.4	20.3	19.9	56.0	-36.1
2.700	-0.5	20.3	19.8	56.0	-36.2
3.559	-0.7	20.4	19.7	56.0	-36.3
3.076	-0.7	20.3	19.6	56.0	-36.4
4.317	-0.9	20.4	19.5	56.0	-36.5
14.599	1.6	20.9	22.5	60.0	-37.5
29.938	-0.4	22.3	21.9	60.0	-38.1
0.205	4.5	20.6	25.1	63.4	-38.3
0.152	5.9	20.6	26.5	65.9	-39.4
11.381	-0.3	20.7	20.4	60.0	-39.6
24.999	-1.4	21.8	20.4	60.0	-39.6
20.275	-1.5	21.3	19.8	60.0	-40.2
9.309	-1.2	20.6	19.4	60.0	-40.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	11.0	20.2	31.2	46.0	-14.8
13.560	11.9	20.8	32.7	50.0	-17.3
0.734	1.7	20.2	21.9	46.0	-24.1
0.945	-0.7	20.2	19.5	46.0	-26.5
1.332	-0.9	20.2	19.3	46.0	-26.7
1.268	-1.3	20.2	18.9	46.0	-27.1
0.568	-2.5	20.2	17.7	46.0	-28.3
0.248	2.3	20.5	22.8	51.8	-29.0
0.330	-0.5	20.2	19.7	49.5	-29.8
0.412	-2.4	20.2	17.8	47.6	-29.8
0.329	-0.7	20.2	19.5	49.5	-30.0
1.799	-5.8	20.3	14.5	46.0	-31.5
1.943	-6.5	20.3	13.8	46.0	-32.2
2.698	-6.7	20.3	13.6	46.0	-32.4
3.316	-6.9	20.4	13.5	46.0	-32.5
3.559	-6.9	20.4	13.5	46.0	-32.5
4.331	-7.2	20.4	13.2	46.0	-32.8
14.599	-4.2	20.9	16.7	50.0	-33.3
29.854	-6.7	22.4	15.7	50.0	-34.3
0.152	-0.1	20.6	20.5	55.9	-35.4
0.184	-1.8	20.7	18.9	54.3	-35.4
11.381	-6.5	20.7	14.2	50.0	-35.8
24.999	-7.6	21.8	14.2	50.0	-35.8
20.509	-7.8	21.4	13.6	50.0	-36.4
8.698	-7.4	20.6	13.2	50.0	-36.8

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-06-02
Customer:	Abbott Laboratories	Temperature:	21.2°C
Attendees:	None	Relative Humidity:	52.8%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	16	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

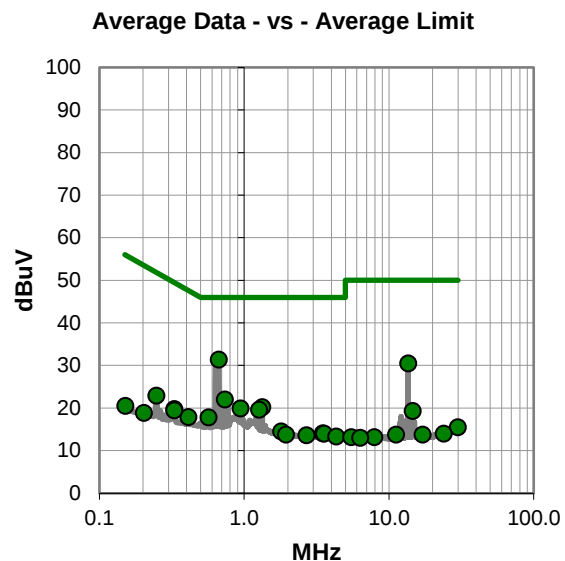
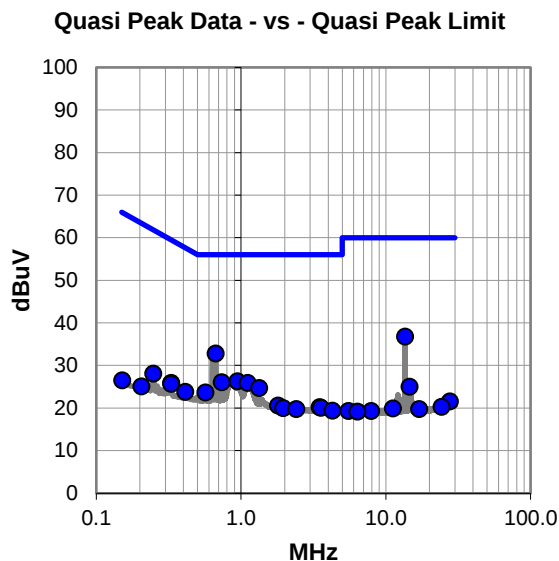
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). WIO radio active. Antenna disconnected, terminated with load.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #16

Quasi Peak Data - vs - Quasi Peak Limit

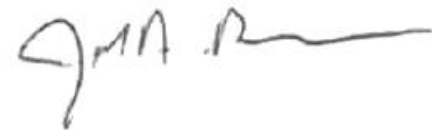
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.667	12.6	20.2	32.8	56.0	-23.2
13.560	16.0	20.8	36.8	60.0	-23.2
0.945	6.1	20.2	26.3	56.0	-29.7
0.734	5.9	20.2	26.1	56.0	-29.9
1.110	5.7	20.2	25.9	56.0	-30.1
1.332	4.5	20.2	24.7	56.0	-31.3
0.568	3.5	20.2	23.7	56.0	-32.3
0.330	5.7	20.2	25.9	59.5	-33.6
0.248	7.6	20.5	28.1	61.8	-33.7
0.329	5.5	20.2	25.7	59.5	-33.8
0.412	3.6	20.2	23.8	57.6	-33.8
14.599	4.1	20.9	25.0	60.0	-35.0
1.799	0.3	20.3	20.6	56.0	-35.4
3.498	-0.2	20.4	20.2	56.0	-35.8
3.557	-0.3	20.4	20.1	56.0	-35.9
1.950	-0.3	20.3	20.0	56.0	-36.0
2.407	-0.5	20.3	19.8	56.0	-36.2
4.285	-1.0	20.4	19.4	56.0	-36.6
0.205	4.5	20.6	25.1	63.4	-38.3
27.618	-1.5	23.1	21.6	60.0	-38.4
0.152	5.9	20.6	26.5	65.9	-39.4
24.250	-1.5	21.8	20.3	60.0	-39.7
11.215	-0.8	20.7	19.9	60.0	-40.1
17.004	-1.3	21.1	19.8	60.0	-40.2
5.524	-1.1	20.4	19.3	60.0	-40.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.667	11.2	20.2	31.4	46.0	-14.6
13.560	9.7	20.8	30.5	50.0	-19.5
0.734	1.8	20.2	22.0	46.0	-24.0
1.332	0.0	20.2	20.2	46.0	-25.8
0.945	-0.3	20.2	19.9	46.0	-26.1
1.268	-0.6	20.2	19.6	46.0	-26.4
0.568	-2.4	20.2	17.8	46.0	-28.2
0.248	2.4	20.5	22.9	51.8	-28.9
0.330	-0.4	20.2	19.8	49.5	-29.7
0.412	-2.3	20.2	17.9	47.6	-29.7
0.329	-0.7	20.2	19.5	49.5	-30.0
14.599	-1.6	20.9	19.3	50.0	-30.7
1.799	-5.8	20.3	14.5	46.0	-31.5
3.498	-6.3	20.4	14.1	46.0	-31.9
3.557	-6.4	20.4	14.0	46.0	-32.0
1.943	-6.5	20.3	13.8	46.0	-32.2
2.698	-6.7	20.3	13.6	46.0	-32.4
4.315	-7.1	20.4	13.3	46.0	-32.7
29.854	-6.9	22.4	15.5	50.0	-34.5
0.203	-1.7	20.6	18.9	53.5	-34.6
0.152	-0.1	20.6	20.5	55.9	-35.4
23.931	-7.8	21.8	14.0	50.0	-36.0
11.217	-6.9	20.7	13.8	50.0	-36.2
17.064	-7.3	21.1	13.8	50.0	-36.2
5.484	-7.2	20.4	13.2	50.0	-36.8

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-11
Customer:	Abbott Laboratories	Temperature:	21°C
Attendees:	Frank Sun	Relative Humidity:	46.8%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

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

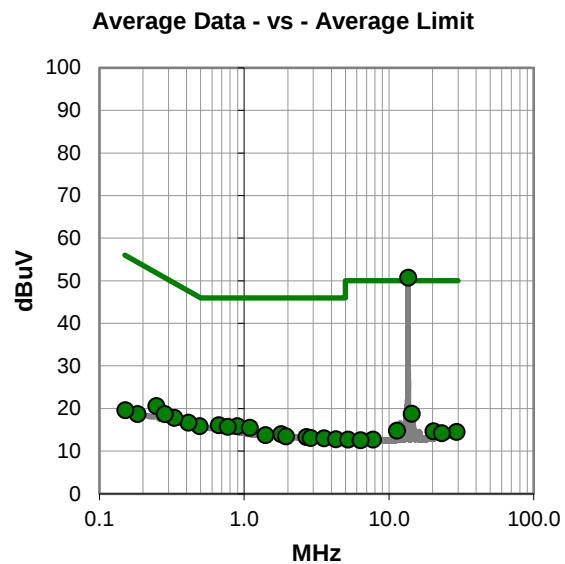
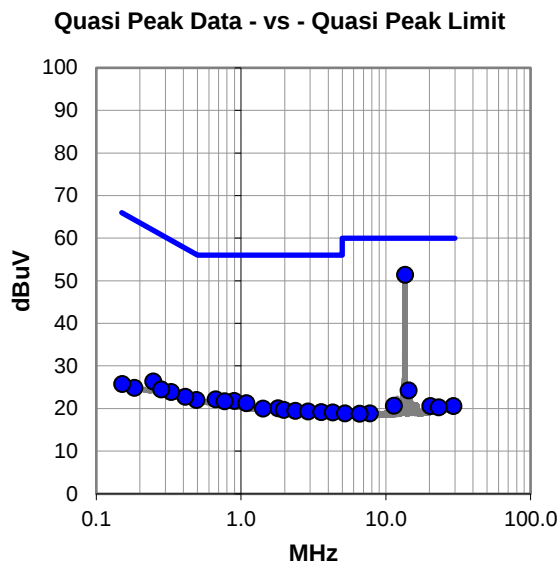
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). TAC radio active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

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)
13.560	30.9	20.5	51.4	60.0	-8.6
0.667	2.0	20.2	22.2	56.0	-33.8
0.493	1.8	20.2	22.0	56.1	-34.1
0.899	1.7	20.1	21.8	56.0	-34.2
0.769	1.5	20.2	21.7	56.0	-34.3
1.090	1.3	20.0	21.3	56.0	-34.7
0.412	2.5	20.3	22.8	57.6	-34.8
0.248	5.8	20.6	26.4	61.8	-35.4
0.330	3.6	20.3	23.9	59.5	-35.6
14.351	3.7	20.6	24.3	60.0	-35.7
1.799	-0.1	20.2	20.1	56.0	-35.9
1.415	-0.1	20.1	20.0	56.0	-36.0
0.281	4.1	20.4	24.5	60.8	-36.3
1.978	-0.5	20.2	19.7	56.0	-36.3
2.376	-0.7	20.2	19.5	56.0	-36.5
2.913	-0.9	20.2	19.3	56.0	-36.7
3.589	-1.0	20.2	19.2	56.0	-36.8
4.306	-1.1	20.2	19.1	56.0	-36.9
11.380	0.2	20.5	20.7	60.0	-39.3
0.184	4.3	20.6	24.9	64.3	-39.4
20.259	-0.4	21.0	20.6	60.0	-39.4
29.235	-1.4	22.0	20.6	60.0	-39.4
23.129	-1.0	21.3	20.3	60.0	-39.7
0.152	5.2	20.6	25.8	65.9	-40.1
5.213	-1.3	20.2	18.9	60.0	-41.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	30.2	20.5	50.7	50.0	0.7
0.667	-4.1	20.2	16.1	46.0	-29.9
0.899	-4.2	20.1	15.9	46.0	-30.1
0.493	-4.3	20.2	15.9	46.1	-30.2
0.769	-4.5	20.2	15.7	46.0	-30.3
1.091	-4.5	20.0	15.5	46.0	-30.5
0.412	-3.6	20.3	16.7	47.6	-30.9
0.248	0.0	20.6	20.6	51.8	-31.2
14.351	-1.8	20.6	18.8	50.0	-31.2
0.330	-2.5	20.3	17.8	49.5	-31.7
0.283	-1.7	20.4	18.7	50.7	-32.0
1.799	-6.2	20.2	14.0	46.0	-32.0
1.404	-6.3	20.1	13.8	46.0	-32.2
1.949	-6.7	20.2	13.5	46.0	-32.5
2.697	-6.9	20.2	13.3	46.0	-32.7
2.881	-7.1	20.2	13.1	46.0	-32.9
3.562	-7.2	20.2	13.0	46.0	-33.0
4.290	-7.4	20.2	12.8	46.0	-33.2
11.381	-5.7	20.5	14.8	50.0	-35.2
20.259	-6.3	21.0	14.7	50.0	-35.3
29.235	-7.5	22.0	14.5	50.0	-35.5
0.184	-1.9	20.6	18.7	54.3	-35.6
23.129	-7.1	21.3	14.2	50.0	-35.8
0.152	-1.0	20.6	19.6	55.9	-36.3
5.208	-7.5	20.2	12.7	50.0	-37.3

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-11
Customer:	Abbott Laboratories	Temperature:	21°C
Attendees:	Frank Sun	Relative Humidity:	46.8%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

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

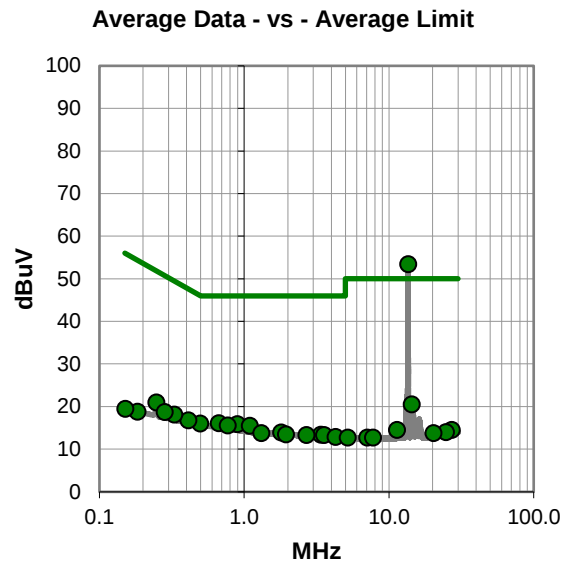
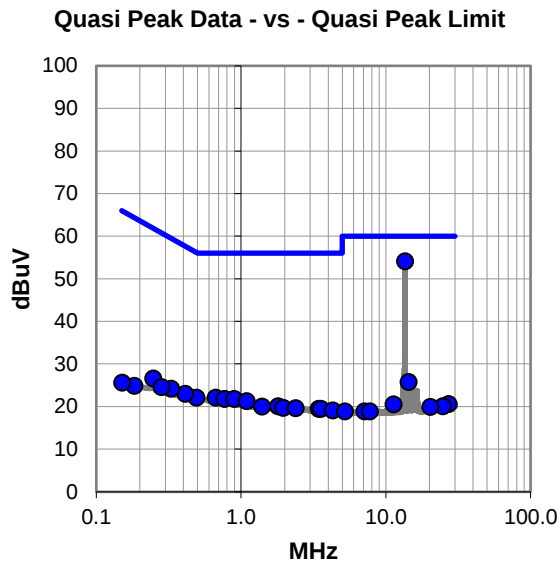
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). TAC radio active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

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)
13.560	33.6	20.5	54.1	60.0	-5.9
0.667	1.9	20.2	22.1	56.0	-33.9
0.493	1.9	20.2	22.1	56.1	-34.0
14.351	5.2	20.6	25.8	60.0	-34.2
0.769	1.6	20.2	21.8	56.0	-34.2
0.899	1.7	20.1	21.8	56.0	-34.2
0.412	2.7	20.3	23.0	57.6	-34.6
1.091	1.3	20.0	21.3	56.0	-34.7
0.248	6.0	20.6	26.6	61.8	-35.2
0.330	3.9	20.3	24.2	59.5	-35.3
1.799	-0.1	20.2	20.1	56.0	-35.9
1.398	-0.1	20.1	20.0	56.0	-36.0
0.283	4.2	20.4	24.6	60.7	-36.1
1.952	-0.5	20.2	19.7	56.0	-36.3
2.382	-0.6	20.2	19.6	56.0	-36.4
3.441	-0.7	20.2	19.5	56.0	-36.5
3.563	-0.7	20.2	19.5	56.0	-36.5
4.291	-1.1	20.2	19.1	56.0	-36.9
0.184	4.3	20.6	24.9	64.3	-39.4
27.157	-1.2	21.8	20.6	60.0	-39.4
11.299	0.0	20.5	20.5	60.0	-39.5
24.783	-1.4	21.5	20.1	60.0	-39.9
20.257	-1.1	21.0	19.9	60.0	-40.1
0.152	5.0	20.6	25.6	65.9	-40.3
5.213	-1.3	20.2	18.9	60.0	-41.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	32.9	20.5	53.4	50.0	3.4
14.351	-0.1	20.6	20.5	50.0	-29.5
0.667	-4.1	20.2	16.1	46.0	-29.9
0.496	-4.2	20.2	16.0	46.1	-30.1
0.899	-4.2	20.1	15.9	46.0	-30.1
0.769	-4.6	20.2	15.6	46.0	-30.4
1.091	-4.5	20.0	15.5	46.0	-30.5
0.248	0.4	20.6	21.0	51.8	-30.8
0.412	-3.5	20.3	16.8	47.6	-30.8
0.330	-2.2	20.3	18.1	49.5	-31.4
0.283	-1.7	20.4	18.7	50.7	-32.0
1.799	-6.3	20.2	13.9	46.0	-32.1
1.313	-6.2	20.0	13.8	46.0	-32.2
1.949	-6.7	20.2	13.5	46.0	-32.5
3.382	-6.8	20.2	13.4	46.0	-32.6
2.698	-6.9	20.2	13.3	46.0	-32.7
3.565	-6.9	20.2	13.3	46.0	-32.7
4.286	-7.3	20.2	12.9	46.0	-33.1
0.184	-1.8	20.6	18.8	54.3	-35.5
11.381	-6.0	20.5	14.5	50.0	-35.5
27.157	-7.3	21.8	14.5	50.0	-35.5
24.781	-7.5	21.5	14.0	50.0	-36.0
20.259	-7.2	21.0	13.8	50.0	-36.2
0.152	-1.1	20.6	19.5	55.9	-36.4
5.202	-7.5	20.2	12.7	50.0	-37.3

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-06-02
Customer:	Abbott Laboratories	Temperature:	21.2°C
Attendees:	None	Relative Humidity:	52.8%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	17	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

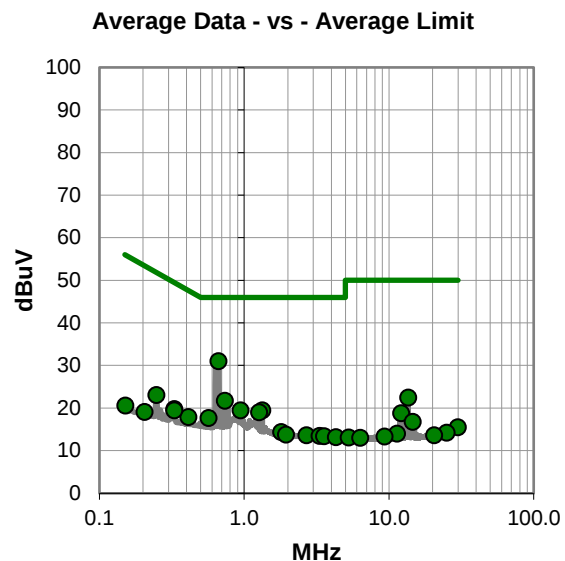
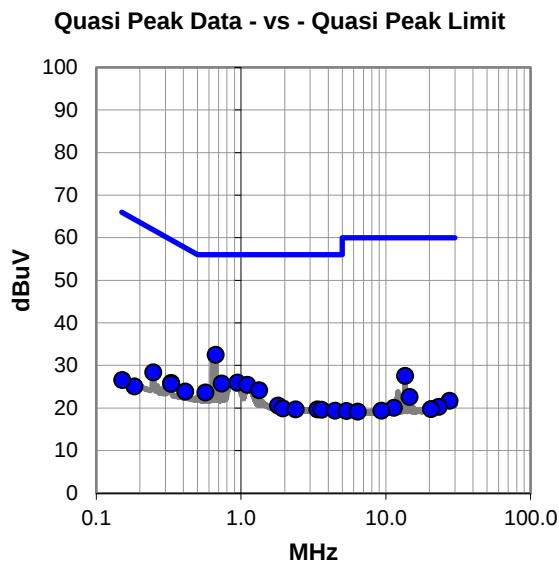
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). TAC radio active. Antenna disconnected, terminated with load.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #17

Quasi Peak Data - vs - Quasi Peak Limit

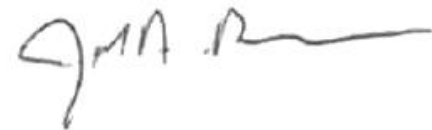
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.667	12.3	20.2	32.5	56.0	-23.5
0.945	5.8	20.2	26.0	56.0	-30.0
0.734	5.6	20.2	25.8	56.0	-30.2
1.105	5.3	20.2	25.5	56.0	-30.5
1.334	4.0	20.2	24.2	56.0	-31.8
0.568	3.5	20.2	23.7	56.0	-32.3
13.559	6.8	20.8	27.6	60.0	-32.4
0.248	7.9	20.5	28.4	61.8	-33.4
0.330	5.7	20.2	25.9	59.5	-33.6
0.412	3.7	20.2	23.9	57.6	-33.7
0.329	5.5	20.2	25.7	59.5	-33.8
1.799	0.3	20.3	20.6	56.0	-35.4
1.944	-0.4	20.3	19.9	56.0	-36.1
2.381	-0.6	20.3	19.7	56.0	-36.3
3.376	-0.7	20.4	19.7	56.0	-36.3
3.594	-0.8	20.4	19.6	56.0	-36.4
4.450	-1.0	20.4	19.4	56.0	-36.6
14.599	1.7	20.9	22.6	60.0	-37.4
27.506	-1.4	23.1	21.7	60.0	-38.3
0.184	4.4	20.7	25.1	64.3	-39.2
0.152	6.0	20.6	26.6	65.9	-39.3
23.130	-1.3	21.6	20.3	60.0	-39.7
11.381	-0.6	20.7	20.1	60.0	-39.9
20.552	-1.6	21.4	19.8	60.0	-40.2
9.320	-1.2	20.6	19.4	60.0	-40.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	10.8	20.2	31.0	46.0	-15.0
0.734	1.5	20.2	21.7	46.0	-24.3
0.945	-0.7	20.2	19.5	46.0	-26.5
1.334	-0.7	20.2	19.5	46.0	-26.5
1.268	-1.2	20.2	19.0	46.0	-27.0
13.559	1.7	20.8	22.5	50.0	-27.5
0.568	-2.5	20.2	17.7	46.0	-28.3
0.248	2.6	20.5	23.1	51.8	-28.7
0.330	-0.4	20.2	19.8	49.5	-29.7
0.412	-2.3	20.2	17.9	47.6	-29.7
0.329	-0.7	20.2	19.5	49.5	-30.0
12.121	-1.9	20.7	18.8	50.0	-31.2
1.799	-5.9	20.3	14.4	46.0	-31.6
1.943	-6.5	20.3	13.8	46.0	-32.2
2.698	-6.7	20.3	13.6	46.0	-32.4
3.315	-6.9	20.4	13.5	46.0	-32.5
3.557	-7.0	20.4	13.4	46.0	-32.6
4.291	-7.2	20.4	13.2	46.0	-32.8
14.599	-4.1	20.9	16.8	50.0	-33.2
0.205	-1.5	20.6	19.1	53.4	-34.3
29.854	-6.9	22.4	15.5	50.0	-34.5
0.152	0.0	20.6	20.6	55.9	-35.3
25.002	-7.6	21.8	14.2	50.0	-35.8
11.381	-6.7	20.7	14.0	50.0	-36.0
20.530	-7.8	21.4	13.6	50.0	-36.4

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-06-02
Customer:	Abbott Laboratories	Temperature:	21.2°C
Attendees:	None	Relative Humidity:	52.8%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	18	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

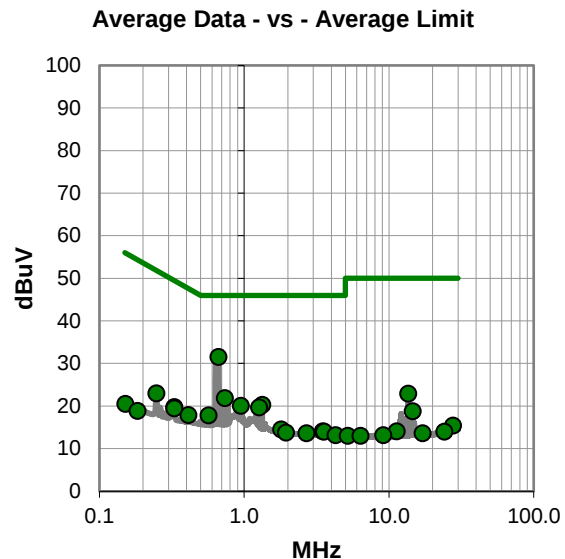
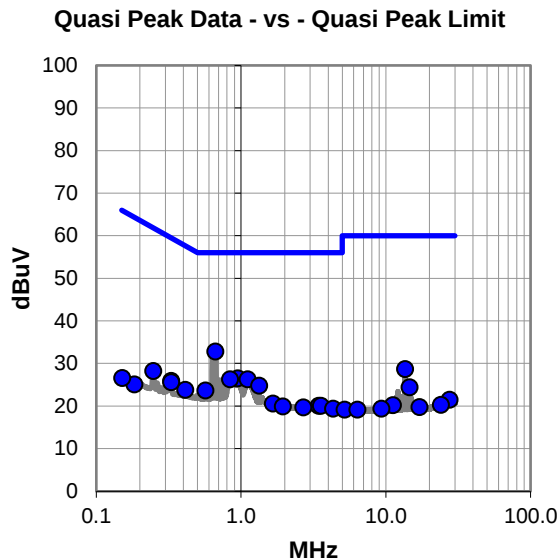
EUT contains two RFID radios/antennas; Weighing IO (WIO) and TAC Controller (TAC). TAC radio active. Antenna disconnected, terminated with load.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #18

Quasi Peak Data - vs - Quasi Peak Limit

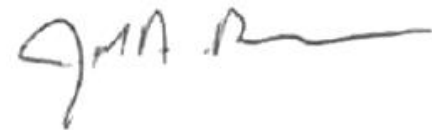
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	12.6	20.2	32.8	56.0	-23.2
0.946	6.3	20.2	26.5	56.0	-29.5
0.838	6.1	20.2	26.3	56.0	-29.7
1.108	6.1	20.2	26.3	56.0	-29.7
1.332	4.6	20.2	24.8	56.0	-31.2
13.560	7.9	20.8	28.7	60.0	-31.3
0.568	3.5	20.2	23.7	56.0	-32.3
0.248	7.7	20.5	28.2	61.8	-33.6
0.330	5.7	20.2	25.9	59.5	-33.6
0.412	3.6	20.2	23.8	57.6	-33.8
0.329	5.4	20.2	25.6	59.5	-33.9
1.657	0.4	20.2	20.6	56.0	-35.4
14.599	3.5	20.9	24.4	60.0	-35.6
3.437	-0.3	20.4	20.1	56.0	-35.9
3.557	-0.3	20.4	20.1	56.0	-35.9
1.943	-0.4	20.3	19.9	56.0	-36.1
2.697	-0.6	20.3	19.7	56.0	-36.3
4.314	-1.0	20.4	19.4	56.0	-36.6
27.529	-1.6	23.1	21.5	60.0	-38.5
0.184	4.4	20.7	25.1	64.3	-39.2
0.152	6.0	20.6	26.6	65.9	-39.3
23.995	-1.5	21.8	20.3	60.0	-39.7
11.215	-0.5	20.7	20.2	60.0	-39.8
17.033	-1.3	21.1	19.8	60.0	-40.2
9.322	-1.2	20.6	19.4	60.0	-40.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.666	11.3	20.2	31.5	46.0	-14.5
0.734	1.7	20.2	21.9	46.0	-24.1
1.332	0.1	20.2	20.3	46.0	-25.7
0.946	-0.1	20.2	20.1	46.0	-25.9
1.268	-0.5	20.2	19.7	46.0	-26.3
13.560	2.1	20.8	22.9	50.0	-27.1
0.568	-2.4	20.2	17.8	46.0	-28.2
0.248	2.5	20.5	23.0	51.8	-28.8
0.330	-0.4	20.2	19.8	49.5	-29.7
0.412	-2.3	20.2	17.9	47.6	-29.7
0.329	-0.7	20.2	19.5	49.5	-30.0
14.599	-2.1	20.9	18.8	50.0	-31.2
1.799	-5.8	20.3	14.5	46.0	-31.5
3.498	-6.3	20.4	14.1	46.0	-31.9
3.557	-6.4	20.4	14.0	46.0	-32.0
1.944	-6.5	20.3	13.8	46.0	-32.2
2.698	-6.7	20.3	13.6	46.0	-32.4
4.279	-7.2	20.4	13.2	46.0	-32.8
27.668	-7.7	23.1	15.4	50.0	-34.6
0.152	-0.1	20.6	20.5	55.9	-35.4
0.184	-1.8	20.7	18.9	54.3	-35.4
11.299	-6.6	20.7	14.1	50.0	-35.9
24.075	-7.8	21.8	14.0	50.0	-36.0
17.032	-7.5	21.1	13.6	50.0	-36.4
9.151	-7.4	20.6	13.2	50.0	-36.8

CONCLUSION

Pass



Tested By

EMISSIONS BANDWIDTH (20 DB)

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
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2023-02-09	2024-02-09
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2022-09-13	2023-09-13
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR

TEST DESCRIPTION

A near-field probe was placed near the transmitter. A low-loss coaxial cable was used to connect the near-field probe to the spectrum analyzer.

As defined in FCC 15.215 Part (c), intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designed in the rule section under which the equipment is operated.

The 20 dB bandwidth must be contained within the band 13.110-14.010 MHz. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

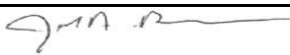
The resolution bandwidth (RBW) of the spectrum analyzer was set to the range of 1% to 5% of the emissions bandwidth (EBW) and video bandwidth (VBW) bandwidth was set to at least 3 times the resolution bandwidth. The analyzer sweep time was set to auto and a peak detector was used.

The spectrum analyzer bandwidth measurement function was used to measure the 20 dB bandwidth.

EMISSIONS BANDWIDTH (20 DB)



TstTx 2022.06.03.0 XMI 2023.02.14.0

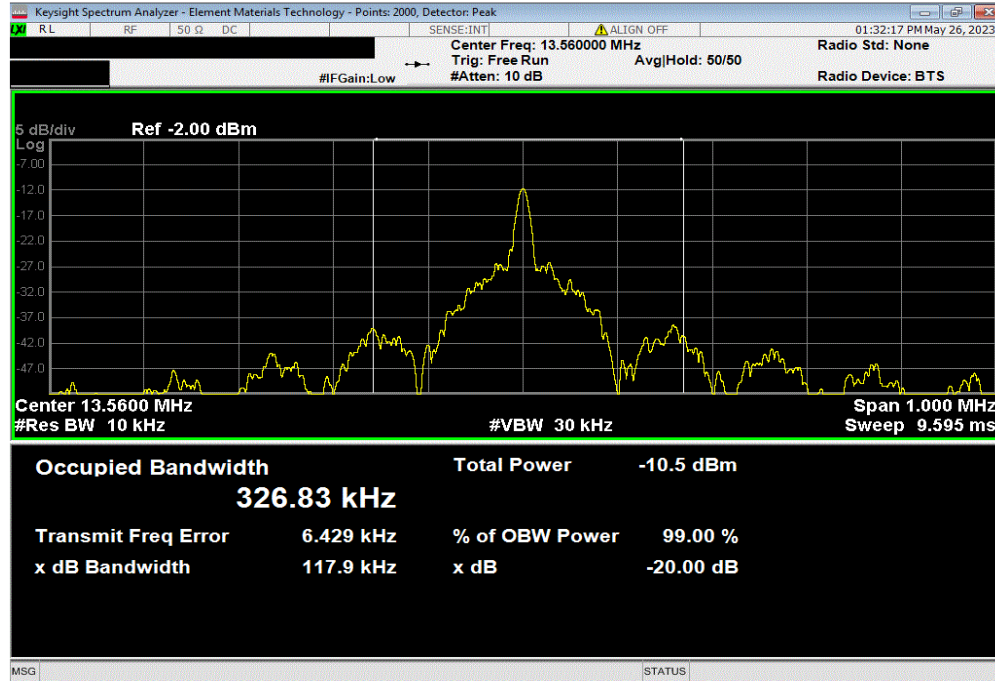
EUT: Tube Assessment Center		Work Order: ABBO0118	
Serial Number: TAC000084		Date: 05/26/2023	
Customer: Abbott Laboratories		Temperature: 21.6°C	
Attendees: None		Humidity: 43.7%	
Project: None		Barometric Pres.: 998 mbar	
Tested by: Jarrod Brenden		Power: 220VAC/60Hz	
		Job Site: TX07	
TEST SPECIFICATIONS		Test Method	
FCC 15.225:2023		ANSI C63.10:2013	
COMMENTS			
Emissions Bandwidth (20 dB) taken with 99% Occupied Bandwidth. This is the worst case as compared with the 20 dB bandwidth called out in FCC 15.215. Band of operation is 900 kHz centered at 13.56 MHz, any measured bandwidth less than 900 kHz is within band.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	ABBO0118-3	Signature 	
		Value	Limit
			13.11 MHz ≤ BW ≤ 14.01 MHz
WIO Radio	Nominal Temperature, 20°C		
	Voltage 100%, 220 VAC	117.854 kHz	Within
			Pass
TAC Radio	Nominal Temperature, 20°C		
	Voltage 100%, 220 VAC	116.619 kHz	Within
			Pass

EMISSIONS BANDWIDTH (20 DB)

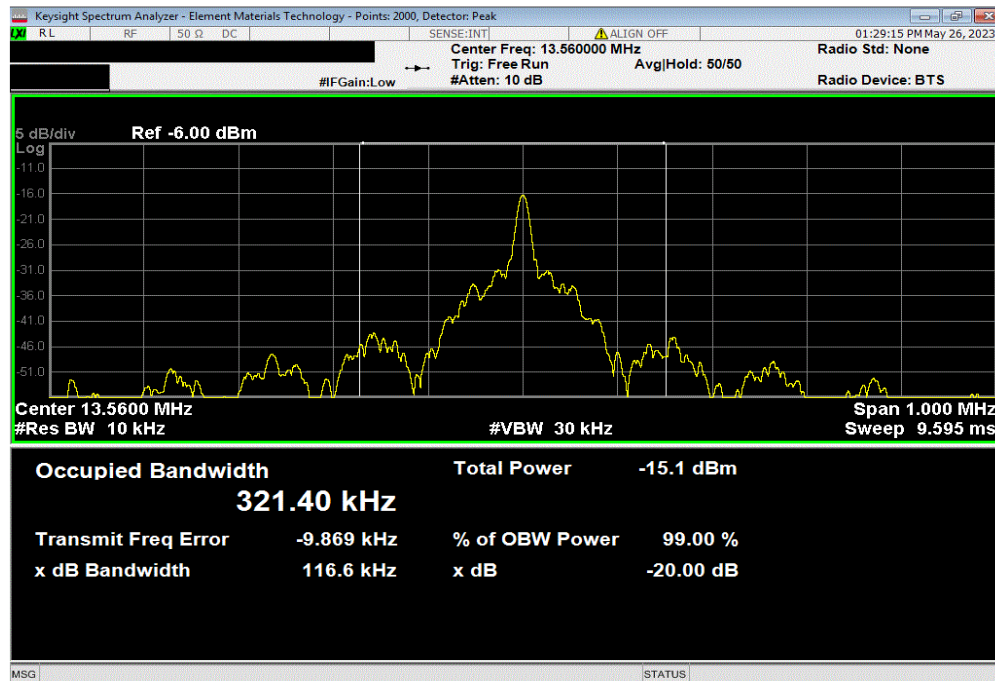


THMx 2022.06.03.0 XMt 2023.02.14.0

WIO Radio, Nominal Temperature, 20°C, Voltage 100%, 220 VAC					Limit	
Value					13.11 MHz ≤ BW ≤ 14.01 MHz	Result
				117.854 kHz	Within	Pass



TAC Radio, Nominal Temperature, 20°C, Voltage 100%, 220 VAC					Limit	
Value					13.11 MHz ≤ BW ≤ 14.01 MHz	Result
				116.619 kHz	Within	Pass



FIELD STRENGTH OF FUNDAMENTAL

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

The fundamental carrier of the EUT was maximized by rotating the EUT on a turntable and adjusting the measurement antenna polarization (per ANSI C63.10). A calibrated active loop antenna was used for this test in order to provide sufficient measurement sensitivity. The reference point of the loop antenna was maintained at 1m above the ground plane during the testing.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector

As outlined in 15.209(e), 15.31(f)(2), and RSS-GEN, 6.5, measurements may be performed at a distance closer than what is specified with the limit. The limit at the specified distance is shown on the data sheet. Measurements are made at a closer distance and the data is adjusted using a distance correction factor of 40dB/decade for comparison to the limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR26	ARQ	2022-05-02	2023-05-02
Antenna - Loop	ETS Lindgren	6502	AZM	2022-07-19	2024-07-19
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-06-10	2023-06-10

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	1.8 dB	-1.8 dB

FREQUENCY RANGE INVESTIGATED

12.06 MHz TO 15.06 MHz

POWER INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0118-2

MODES INVESTIGATED

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

WTD.2023.02.14
EmiR5 2022.07.06
PSA-ESCI 2023.02.14

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-07
Customer:	Abbott Laboratories	Temperature:	23.2°C
Attendees:	Frank Sun	Relative Humidity:	31.8%
Customer Project:	None	Bar. Pressure (PMSL):	1026 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	11	Test Distance (m):	10	Ant. Height(s) (m):	1(m)
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COMMENTS

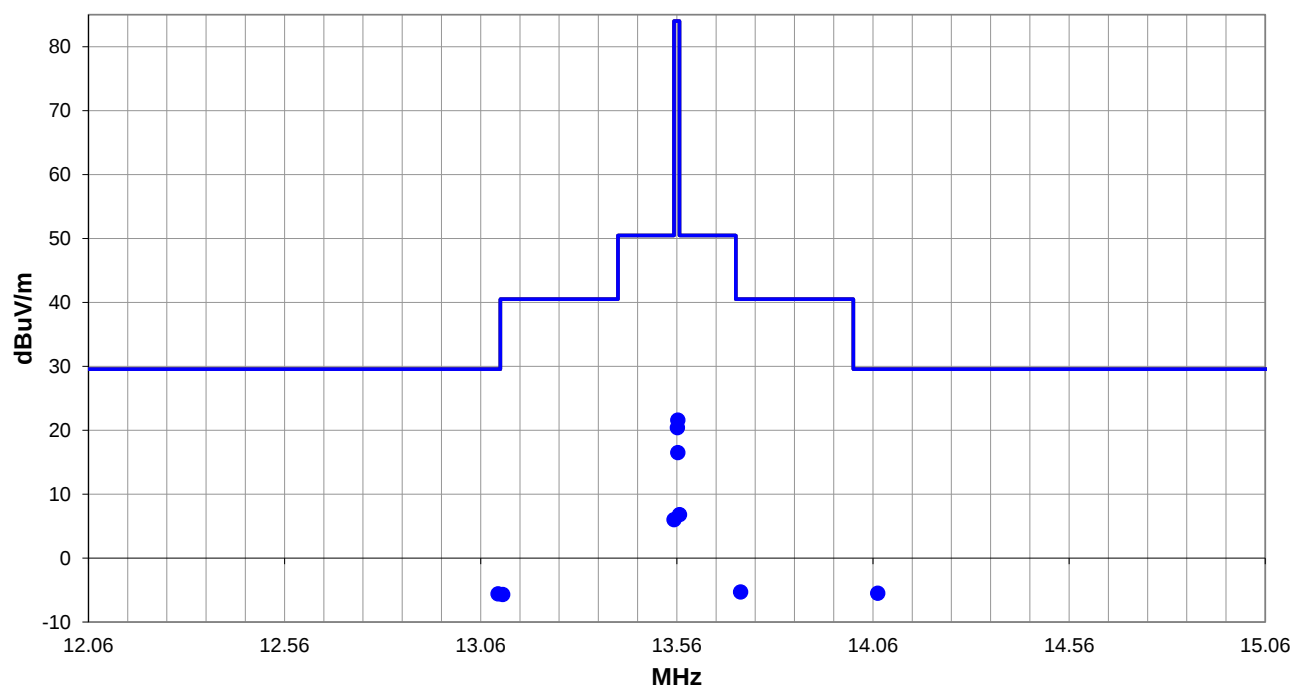
EUT contains two RFID radios/antennas: Weighing IO (WIO) and TAC Controller (TAC). Both radios active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 11

■ PK ◆ AV ● QP

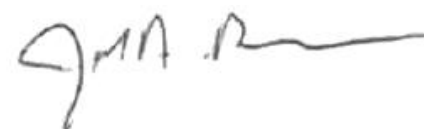
FIELD STRENGTH OF FUNDAMENTAL

RESULTS - Run #11

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
14.072	2.2	11.4	1.0	75.9	10.0	0.0	Perp to EUT	QP	-19.1	-5.5	29.5	-35.0
13.104	2.1	11.4	1.0	187.0	10.0	0.0	Perp to EUT	QP	-19.1	-5.6	29.5	-35.1
13.567	14.5	11.4	1.0	348.0	10.0	0.0	Perp to EUT	QP	-19.1	6.8	50.5	-43.7
13.553	13.7	11.4	1.0	2.0	10.0	0.0	Perp to EUT	QP	-19.1	6.0	50.5	-44.5
13.722	2.4	11.4	1.0	4.9	10.0	0.0	Perp to EUT	QP	-19.1	-5.3	40.5	-45.8
13.116	2.0	11.4	1.0	81.9	10.0	0.0	Perp to EUT	QP	-19.1	-5.7	40.5	-46.2
13.563	29.3	11.4	1.0	39.9	10.0	0.0	Perp to EUT	QP	-19.1	21.6	84.0	-62.4
13.562	28.1	11.4	1.0	0.0	10.0	0.0	Para to GND	QP	-19.1	20.4	84.0	-63.6
13.563	24.2	11.4	1.0	351.9	10.0	0.0	Perp to EUT	QP	-19.1	16.5	84.0	-67.5

CONCLUSION

Pass



Tested By

FIELD STRENGTH OF FUNDAMENTAL

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-07
Customer:	Abbott Laboratories	Temperature:	23.2°C
Attendees:	Frank Sun	Relative Humidity:	31.8%
Customer Project:	None	Bar. Pressure (PMSL):	1026 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	15	Test Distance (m):	10	Ant. Height(s) (m):	1(m)
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COMMENTS

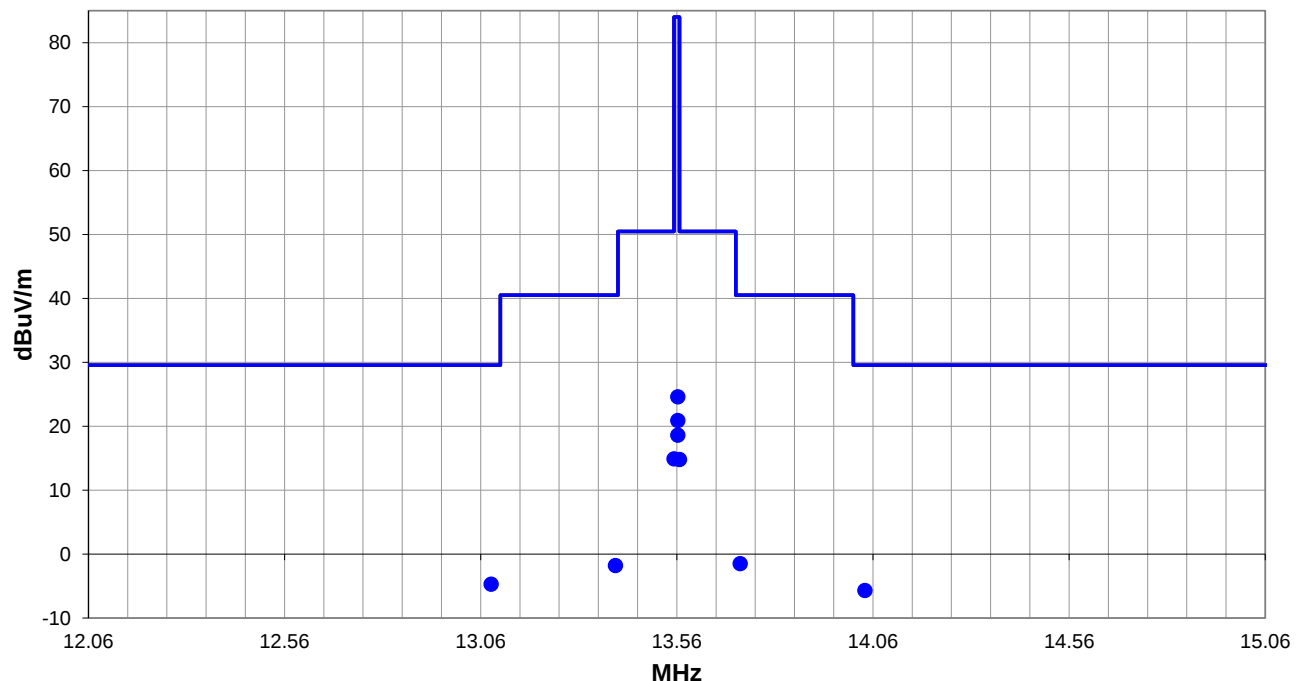
EUT contains two RFID radios/antennas: Weighing IO (WIO) and TAC Controller (TAC). WIO radio active only.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 15

PK AV QP

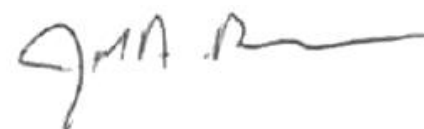
FIELD STRENGTH OF FUNDAMENTAL

RESULTS - Run #15

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.086	3.0	11.4	1.0	4.9	10.0	0.0	Perp to EUT	QP	-19.1	-4.7	29.5	-34.2
14.039	2.0	11.4	1.0	231.9	10.0	0.0	Perp to EUT	QP	-19.1	-5.7	29.5	-35.2
13.553	22.6	11.4	1.0	123.9	10.0	0.0	Perp to EUT	QP	-19.1	14.9	50.5	-35.6
13.567	22.5	11.4	1.0	87.0	10.0	0.0	Perp to EUT	QP	-19.1	14.8	50.5	-35.7
13.722	6.2	11.4	1.0	93.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.5	40.5	-42.0
13.404	5.9	11.4	1.0	25.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.8	40.5	-42.3
13.563	32.3	11.4	1.0	91.0	10.0	0.0	Perp to EUT	QP	-19.1	24.6	84.0	-59.4
13.563	28.6	11.4	1.0	118.9	10.0	0.0	Para to GND	QP	-19.1	20.9	84.0	-63.1
13.563	26.3	11.4	1.0	1.0	10.0	0.0	Para to EUT	QP	-19.1	18.6	84.0	-65.4

CONCLUSION

Pass



Tested By

FIELD STRENGTH OF FUNDAMENTAL

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-07
Customer:	Abbott Laboratories	Temperature:	23.2°C
Attendees:	Frank Sun	Relative Humidity:	31.8%
Customer Project:	None	Bar. Pressure (PMSL):	1026 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	17	Test Distance (m):	10	Ant. Height(s) (m):	1(m)
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COMMENTS

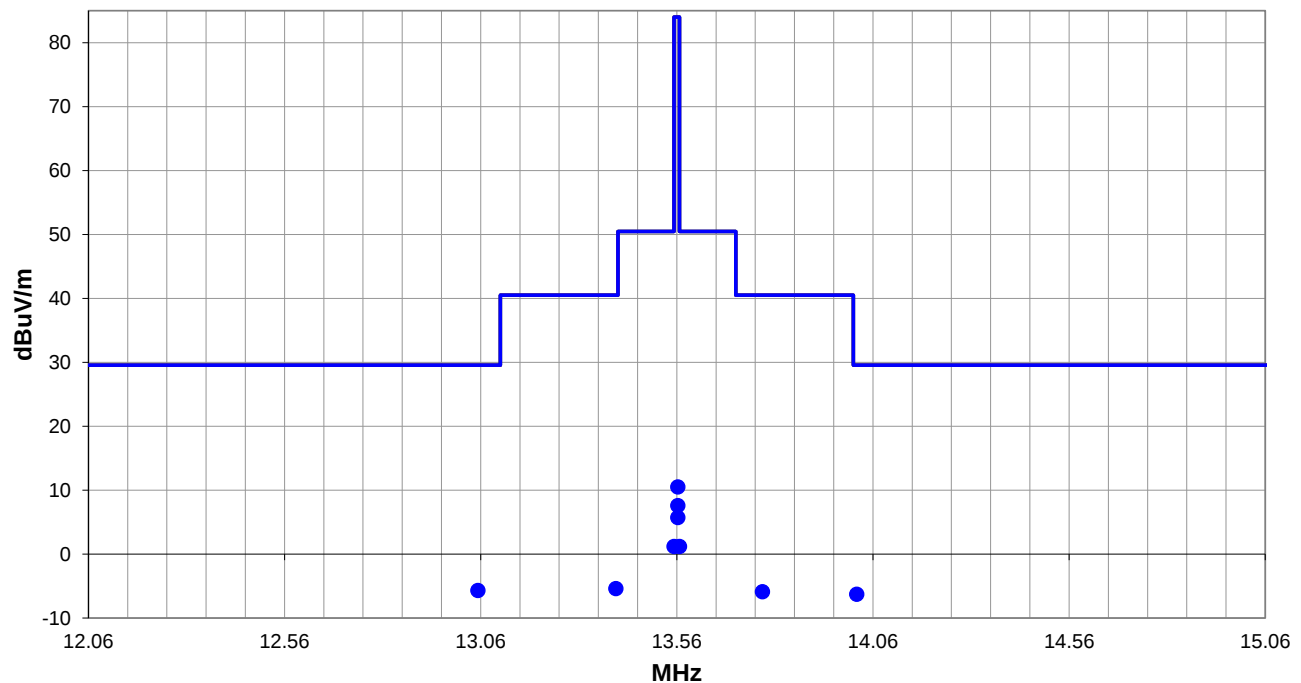
EUT contains two RFID radios/antennas: Weighing IO (WIO) and TAC Controller (TAC). TAC radio active only.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 17

■ PK ◆ AV ● QP

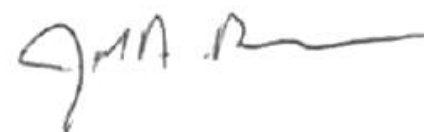
FIELD STRENGTH OF FUNDAMENTAL

RESULTS - Run #17

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.053	2.0	11.4	1.0	169.0	10.0	0.0	Perp to EUT	QP	-19.1	-5.7	29.5	-35.2
14.019	1.4	11.4	1.0	296.0	10.0	0.0	Perp to EUT	QP	-19.1	-6.3	29.5	-35.8
13.404	2.3	11.4	1.0	15.9	10.0	0.0	Perp to EUT	QP	-19.1	-5.4	40.5	-45.9
13.778	1.8	11.4	1.0	310.9	10.0	0.0	Perp to EUT	QP	-19.1	-5.9	40.5	-46.4
13.553	8.9	11.4	1.0	247.0	10.0	0.0	Perp to EUT	QP	-19.1	1.2	50.5	-49.3
13.567	8.9	11.4	1.0	240.0	10.0	0.0	Perp to EUT	QP	-19.1	1.2	50.5	-49.3
13.563	18.2	11.4	1.0	231.9	10.0	0.0	Perp to EUT	QP	-19.1	10.5	84.0	-73.5
13.563	15.3	11.4	1.0	242.0	10.0	0.0	Para to GND	QP	-19.1	7.6	84.0	-76.4
13.562	13.4	11.4	1.0	308.0	10.0	0.0	Para to EUT	QP	-19.1	5.7	84.0	-78.3

CONCLUSION

Pass



Tested By

FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THAN 30 MHz)

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable and adjusting the measurement antenna polarization (per ANSI C63.10). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

As outlined in 15.209(e), 15.31(f)(2), and RSS-GEN, 6.5, measurements may be performed at a distance closer than what is specified with the limit. The limit at the specified distance is shown on the data sheet. Measurements are made at a closer distance and the data is adjusted using a distance correction factor of 40dB/decade for comparison to the limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR26	ARQ	2022-05-02	2023-05-02
Antenna - Loop	ETS Lindgren	6502	AZM	2022-07-19	2024-07-19
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-06-10	2023-06-10

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	1.8 dB	-1.8 dB

FREQUENCY RANGE INVESTIGATED

9 kHz TO 30 MHz

POWER INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0118-2

MODES INVESTIGATED

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THAN 30 MHz)

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-07
Customer:	Abbott Laboratories	Temperature:	23.2°C
Attendees:	Frank Sun	Relative Humidity:	31.8%
Customer Project:	None	Bar. Pressure (PMSL):	1026 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	19	Test Distance (m):	10	Ant. Height(s) (m):	1(m)
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COMMENTS

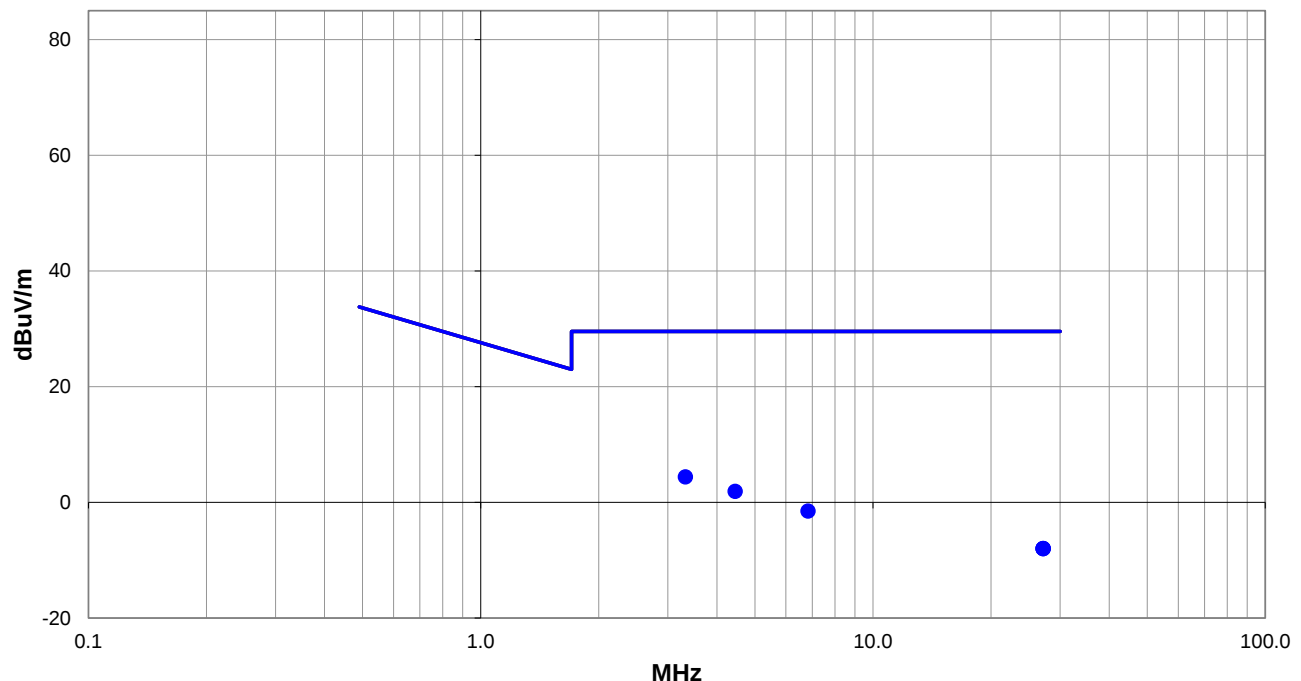
EUT contains two RFID radios/antennas: Weighing IO (WIO) and TAC Controller (TAC). Both radios active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 19

PK AV QP

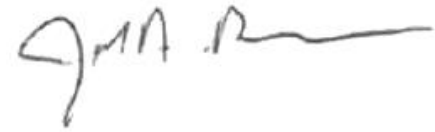
FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THAN 30 MHz)

RESULTS - Run #19

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
3.326	12.1	11.4	1.0	122.0	10.0	0.0	Para to EUT	QP	-19.1	4.4	29.5	-25.1
4.451	9.5	11.5	1.0	346.9	10.0	0.0	Para to EUT	QP	-19.1	1.9	29.5	-27.6
6.829	6.2	11.4	1.0	213.0	10.0	0.0	Para to EUT	QP	-19.1	-1.5	29.5	-31.0
27.168	1.3	9.8	1.0	141.0	10.0	0.0	Para to EUT	QP	-19.1	-8.0	29.5	-37.5
27.132	1.3	9.8	1.0	27.0	10.0	0.0	Perp to EUT	QP	-19.1	-8.0	29.5	-37.5
27.154	1.3	9.8	1.0	108.0	10.0	0.0	Para to GND	QP	-19.1	-8.0	29.5	-37.5

CONCLUSION

Pass



Tested By

FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was transmitting while set at the operating channel.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR26	ARQ	2022-05-02	2023-05-02
Antenna - Biconilog	ETS Lindgren	3143B	AYF	2022-09-02	2024-09-02
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-06-10	2023-06-10
Amplifier - Pre-Amplifier	Fairview Microwave	FMAM63001	PAS	2022-04-19	2023-04-19
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	2022-07-22	2023-07-22

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	4.7 dB	-4.7 dB

FREQUENCY RANGE INVESTIGATED

30 MHz TO 1000 MHz

POWER INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0118-2

MODES INVESTIGATED

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)

EUT:	Tube Assessment Center	Work Order:	ABBO0118
Serial Number:	TAC000084	Date:	2023-04-10
Customer:	Abbott Laboratories	Temperature:	22.4°C
Attendees:	Frank Sun	Relative Humidity:	45.7%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0118-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	34	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

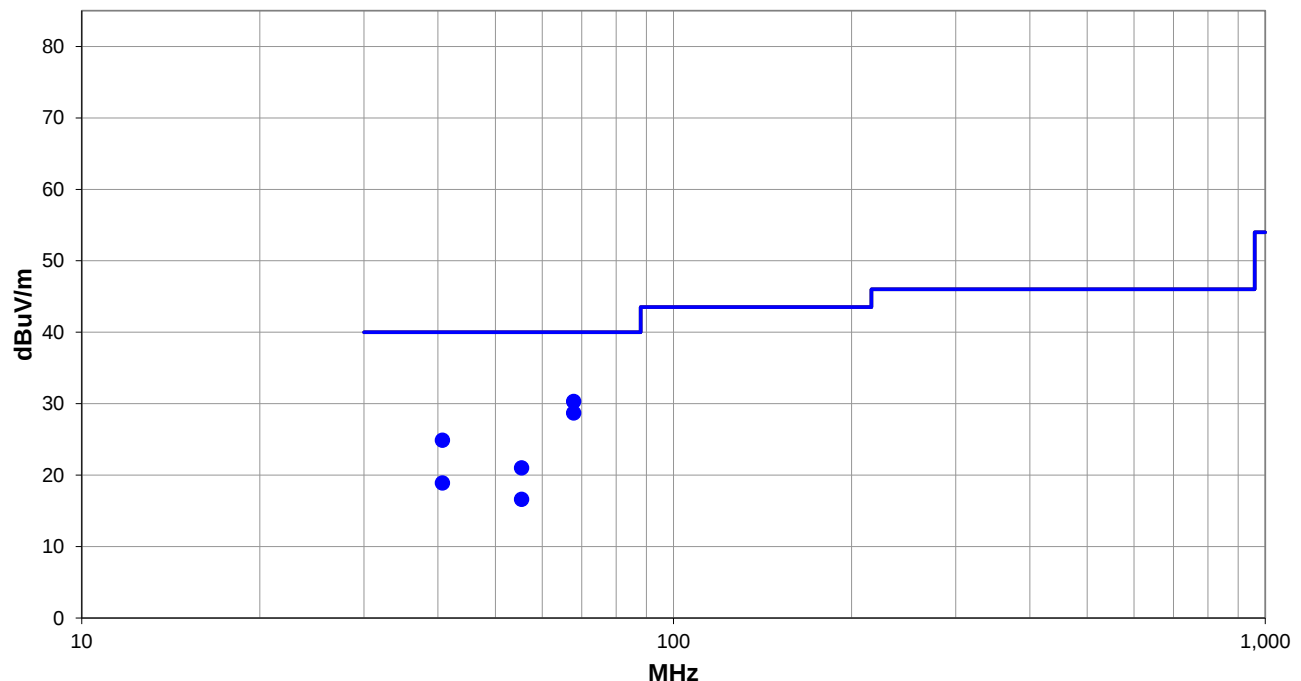
EUT contains two RFID radios/antennas: Weighing IO (WIO) and TAC Controller (TAC). Both radios active.

EUT OPERATING MODES

Transmitting RFID, 13.56 MHz, OOK, 26.48 kbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 34

PK AV QP

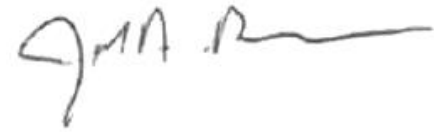
FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)

RESULTS - Run #34

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
67.823	56.2	-25.9	1.0	169.0	3.0	0.0	Vert	QP	0.0	30.3	40.0	-9.7
67.823	54.6	-25.9	2.73	302.0	3.0	0.0	Horz	QP	0.0	28.7	40.0	-11.3
40.704	47.4	-22.5	1.0	24.0	3.0	0.0	Vert	QP	0.0	24.9	40.0	-15.1
55.380	47.6	-26.6	1.0	285.0	3.0	0.0	Vert	QP	0.0	21.0	40.0	-19.0
40.704	41.4	-22.5	3.99	159.0	3.0	0.0	Horz	QP	0.0	18.9	40.0	-21.1
55.378	43.2	-26.6	3.76	313.0	3.0	0.0	Horz	QP	0.0	16.6	40.0	-23.4

CONCLUSION

Pass



Tested By

FREQUENCY STABILITY



XMit 2023.02.14.0

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
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2023-02-09	2024-02-09
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2022-09-13	2023-09-13
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR
Thermometer	Omega Engineering, Inc.	HH311	DUI	2023-03-02	2024-03-02
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR

TEST DESCRIPTION

A near-field probe was placed near the transmitter. A low-loss coaxial cable was used to connect the near-field probe to the spectrum analyzer.

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

Measurements were made on the single transmit frequency as called out on the data sheets. Testing was done while the EUT was continuously polling.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage while at ambient temperature. Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range of -20 ° to +50° C and at 10°C intervals.

The requirement of a frequency tolerance of $\pm 0.01\%$ is equivalent to 100 ppm
The formula to check for compliance is:

$$\text{ppm} = (\text{Measured Frequency} / \text{Measured Nominal Frequency} - 1) * 1,000,000$$

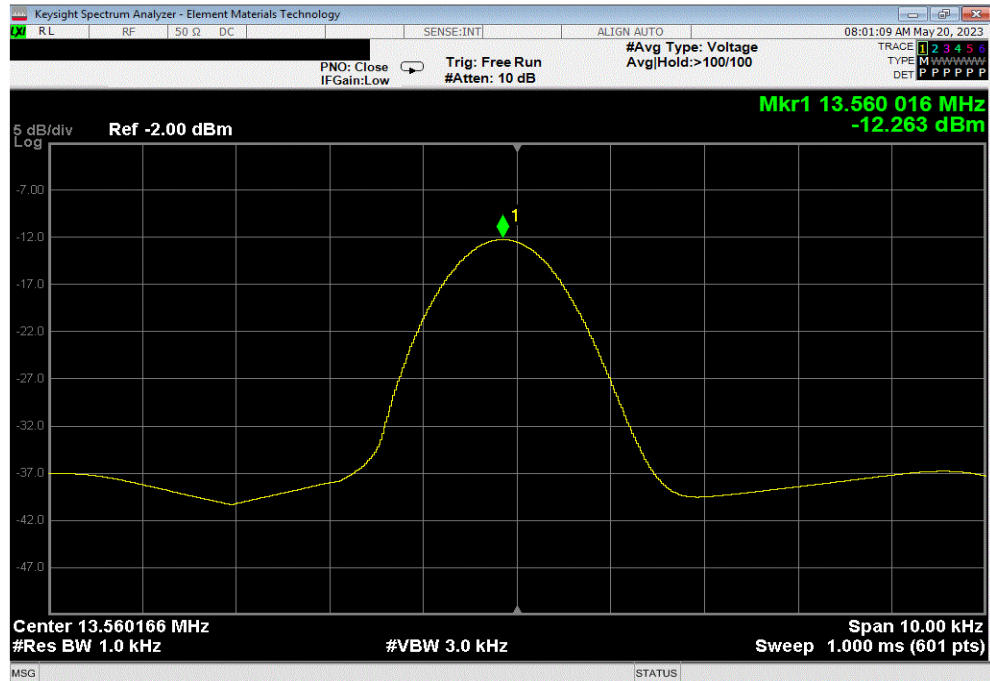
FREQUENCY STABILITY



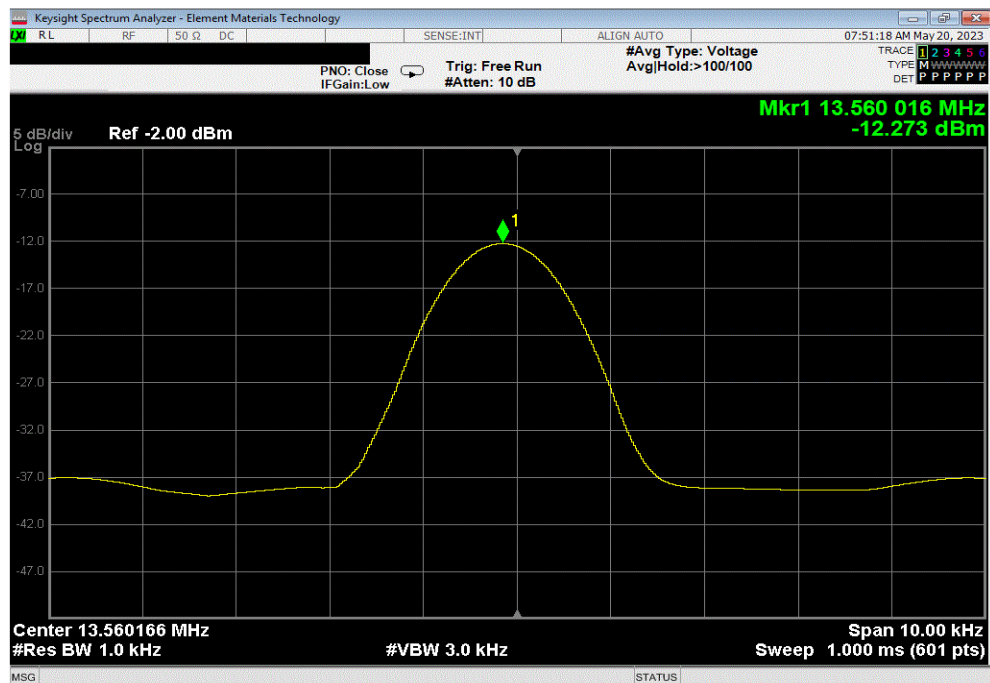
TSTx 2022.06.03.0 XMR 2023.02.14.0

EUT: Tube Assessment Center		Work Order: ABBO0118	
Serial Number: TAC000084		Date: 05/26/2023	
Customer: Abbott Laboratories		Temperature: 21.2°C	
Attendees: None		Humidity: 55.3%	
Project: None		Barometric Pres.: 1018 mbar	
Tested by: Jarrod Brenden		Power: 220VAC/60Hz	
		Job Site: TX07	
TEST SPECIFICATIONS		Test Method	
FCC 15.225:2023		ANSI C63.10:2013	
COMMENTS			
Reference Level Offset adjustment to match the maximum radiated H-Field measurement performed in a 10m chamber.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	ABBO0118-3	Signature 	
		Measured Value (MHz)	Nominal Value (MHz)
		Error (ppm)	Limit (ppm)
			Results
WIO Radio			
Nominal Temp, 20C			
	Voltage 115%, 253 VAC	13.56002	13.56002
	Voltage 100%, 220 VAC	13.56002	13.56002
	Voltage 85%, 187 VAC	13.56002	13.56002
Nominal Voltage, 220 VAC			
	Temperature, +50°C	13.55997	13.56002
	Temperature, +40°C	13.55997	13.56002
	Temperature, +30°C	13.56002	13.56002
	Temperature, +20°C	13.56005	13.56002
	Temperature, +10°C	13.56008	13.56002
	Temperature, 0°C	13.56010	13.56002
	Temperature, -10°C	13.56010	13.56002
	Temperature, -20°C	13.56007	13.56002
	Temperature, -30°C	13.56002	13.56002
TAC Radio			
Nominal Temp, 20C			
	Voltage 115%, 253 VAC	13.55998	13.55998
	Voltage 100%, 220 VAC	13.55998	13.55998
	Voltage 85%, 187 VAC	13.55998	13.55998
Nominal Voltage, 220 VAC			
	Temperature, +50°C	13.55997	13.55998
	Temperature, +40°C	13.55997	13.55998
	Temperature, +30°C	13.56000	13.55998
	Temperature, +20°C	13.56003	13.55998
	Temperature, +10°C	13.56007	13.55998
	Temperature, 0°C	13.56010	13.55998
	Temperature, -10°C	13.56010	13.55998
	Temperature, -20°C	13.56010	13.55998
	Temperature, -30°C	13.56007	13.55998

WIO Radio, Nominal Temp, 20C, Voltage 115%, 253 VAC						
Measured	Nominal	Error	Limit	Results		
Value (MHz)	Value (MHz)	(ppm)	(ppm)			
13.56002	13.56002	0.00	100	Pass		



WIO Radio, Nominal Temp, 20C, Voltage 100%, 220 VAC						
	Measured	Nominal	Error	Limit		
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
	13.56002	13.56002	0.00	100	Pass	



Results

Pas



Pas

ThyTx 2022.06.03.0 YMit 2022.03.14.0

ThyTx 2022.06.03.0 YMit 2022.03.14.0

Keysight Spectrum Analyzer - Element Materials Technology

RL RF 50 Ω DC SENSE:INT ALIGN AUTO 12:05:29 PM May 20, 2023

PNO: Close IFGain:Low Trig: Free Run #Aven: 10 dB #Avg Type: Voltage Avg|Hold:>100/100

TRAC1 1 2 3 4 5 6 TYPE MAAAAAMM DET P P P P P P

5 dB/div Log Ref -2.00 dBm Mkr1 13.560 050 MHz -11.966 dBm

The figure shows a Keysight Spectrum Analyzer display. The main plot area has a black background with a white grid. A yellow trace shows a signal with a prominent peak. The peak is marked with a yellow diamond and the number '1'. The vertical axis (amplitude) is labeled '5 dB/div Log' and ranges from -47.0 to -7.00. The horizontal axis (frequency) is labeled 'Center 13.560333 MHz' and 'Span 10.00 kHz'. The peak is at approximately -12.0 dBm. The reference level is 'Ref -2.00 dBm'. The resolution bandwidth is '#Res BW 3.0 kHz' and the sweep time is 'Sweep 1.000 ms (601 pts)'. The marker frequency is 'Mkr1 13.560 050 MHz' and the marker level is '-11.966 dBm'. The top of the screen shows various settings: 'RL', 'RF', '50 Ω ', 'DC', 'SENSE:INT', 'ALIGN AUTO', and the date/time '12:05:29 PM May 20, 2023'. There are also buttons for 'PNO: Close', 'IFGain:Low', 'Trig: Free Run', '#Aven: 10 dB', '#Avg Type: Voltage', and 'Avg|Hold:>100/100'. The bottom of the screen shows 'MSG' and 'STATUS'.

Center 13.560333 MHz

#Res BW 3.0 kHz

Span 10.00 kHz

Sweep 1.000 ms (601 pts)

Keysight Spectrum Analyzer - Element Materials Technology

RL RF 50 Ω DC SENSE:INT ALIGN AUTO 11:48:55 AM May 20, 2023

PNO: Close Trig: Free Run #Avg Type: Voltage Avg|Hold:>100/100

IFGain:Low #Atten: 10 dB

TRACE 1 2 3 4 5 6 TYPE M W W W W W W W DET P P P P P P

5 dB/div Log Ref -2.00 dBm

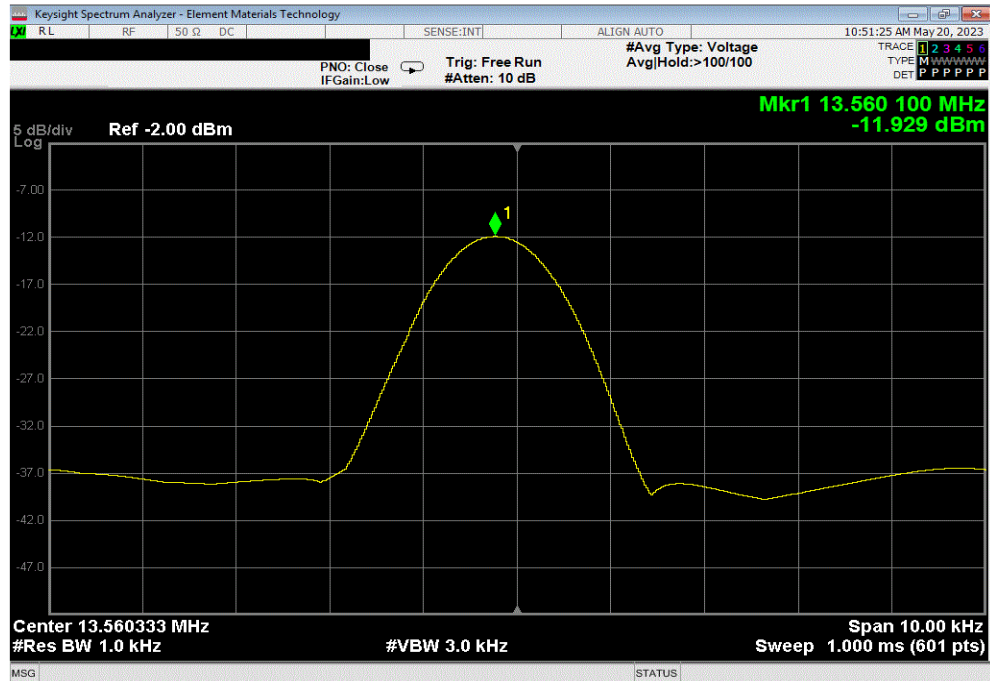
Mkr1 13.560 083 MHz -11.924 dBm

The plot shows a spectrum with a peak at 13.560083 MHz. The y-axis is labeled '5 dB/div Log' and ranges from -7.00 to -47.0. The x-axis is labeled 'Center 13.560166 MHz' and ranges from -47.0 to 47.0. The peak is marked with a green diamond and labeled '1'. The peak value is -11.924 dBm. The span is 10.00 kHz and the sweep is 1.000 ms (601 pts).

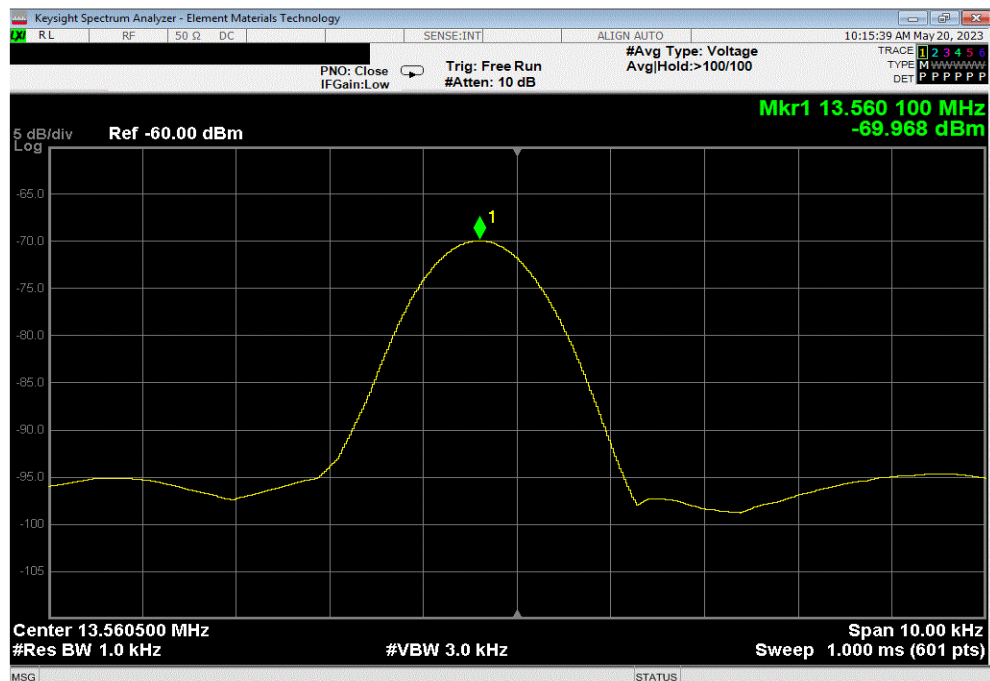
Center 13.560166 MHz #Res BW 1.0 kHz #VBW 3.0 kHz Span 10.00 kHz Sweep 1.000 ms (601 pts)

MSG STATUS

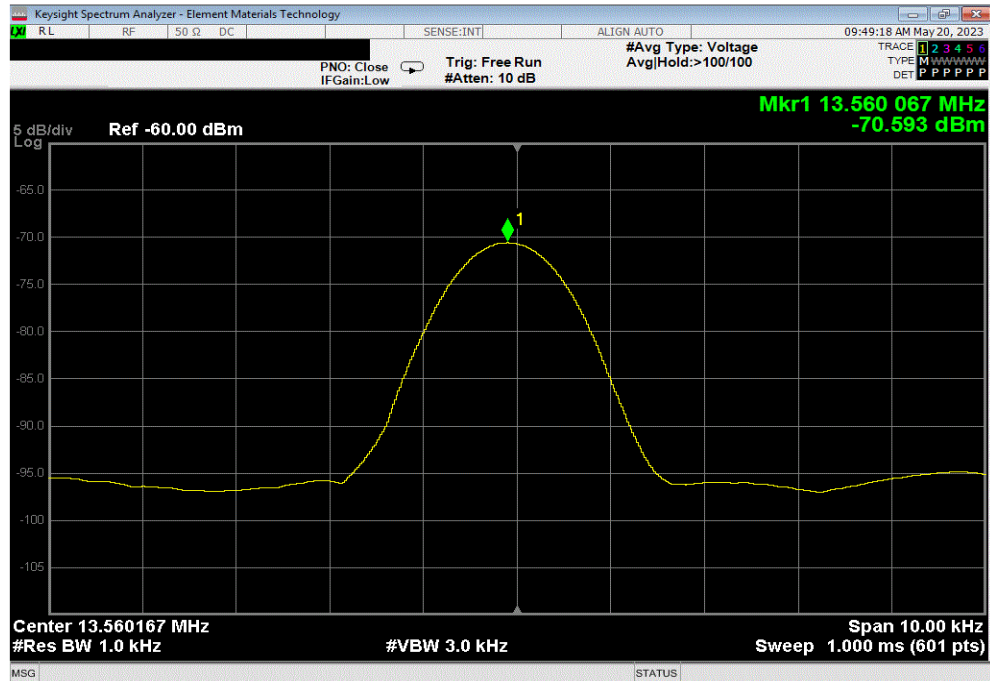
WIO Radio, Nominal Voltage, 220 VAC, Temperature, 0C						
Measured	Nominal	Error	Limit	Results		
Value (MHz)	Value (MHz)	(ppm)	(ppm)			
13.56010	13.56002	6.17	100	Pass		



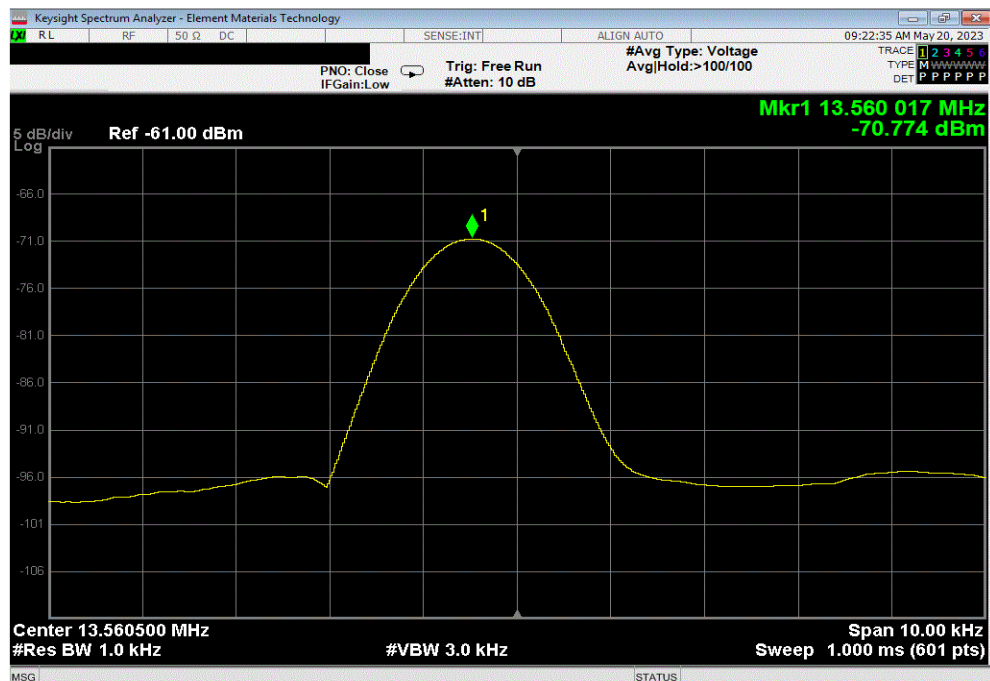
WIO Radio, Nominal Voltage, 220 VAC, Temperature, -10C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	13.56010	13.56002	6.19	100	Pass	



WIO Radio, Nominal Voltage, 220 VAC, Temperature, -20C						
	Measured	Nominal	Error	Limit		
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
	13.56007	13.56002	3.76	100	Pass	



WIO Radio, Nominal Voltage, 220 VAC, Temperature, -30C						
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	13.56002	13.56002	0.049	100	Pass	



ThyTx 2022.06.03.0 YMit 2022.03.14.0

Keysight Spectrum Analyzer - Element Materials Technology

RL RF 50 Ω DC SENSE:INT ALIGN AUTO 07:59:52 AM May 20, 2023

PNO: Close IFGain:Low Trig: Free Run #Atten: 10 dB #Avg Type: Voltage Avg|Hold:>100/100

TRAC1 1 2 3 4 5 6 TYPE MAAAAA DET P P P P P P

5 dB/div Log Ref -7.00 dBm

Mkr1 13.559 983 MHz -17.035 dBm

Center 13.560166 MHz #Res BW 1.0 kHz #VBW 3.0 kHz Span 10.00 kHz Sweep 1.000 ms (601 pts)

MSG STATUS

Keysight Spectrum Analyzer - Element Materials Technology

RL RF 50 Ω DC SENSE:INT ALIGN AUTO 07:48:23 AM May 20, 2023

PNO: Close IFGain:Low Trig: Free Run #Atten: 10 dB #Avg Type: Voltage Avg|Hold:>100/100

TRACE 1 2 3 4 5 6 TYPE M W W W W W W W DET P P P P P P

5 dB/div Log Ref -7.00 dBm

Mkr1 13.559 983 MHz -16.968 dBm

Center 13.560000 MHz #Res BW 1.0 kHz #VBW 3.0 kHz Span 10.00 kHz Sweep 1.000 ms (601 pts)

MSG STATUS

Results

Pass



Pass

ThyTx 2022.06.03.0 YMit 2022.03.14.0

Keysight Spectrum Analyzer - Element Materials Technology

RL RF 50 Ω DC SENSE:INT ALIGN AUTO 01:07:30 PM May 20, 2023

PNO: Close IFGain:Low Trig: Free Run #Atten: 10 dB #Avg Type: Voltage Avg|Hold:>100/100

TRACED 1 2 3 4 5 6 TYPE M I H A M M M M M M DET P P P P P P

5 dB/div Log Ref -6.00 dBm

Mkr1 13.559 966 MHz
-15.691 dBm

The spectrum analyzer displays a single, well-defined peak centered at 13.560166 MHz. The vertical axis represents power level in dBm, ranging from -51.0 to -11.0. The horizontal axis represents frequency, with a center frequency of 13.560166 MHz and a resolution bandwidth (#VBW) of 3.0 kHz. The peak is marked with a yellow diamond cursor labeled '1'. The reference level is set to -6.00 dBm.

Center 13.560166 MHz
#Res BW 1.0 kHz

#VBW 3.0 kHz

Span 10.00 kHz
Sweep 1.000 ms (601 pts)

Keysight Spectrum Analyzer - Element Materials Technology

12:24:57 PM May 20, 2023

RL RF 50 Ω DC SENSE:INT ALIGN AUTO

#Avg Type: Voltage
Avg|Hold:>100/100

TRAC 1 2 3 4 5 6
TYPE M W W W W W W W
DET P P P P P P

PNO: Close PNO: Close
IFGain:Low IFGain:Low

Trig: Free Run
#Atten: 10 dB

5 dB/div
Log

Ref -6.00 dBm

Mkr1 13.560 000 MHz
-15.640 dBm

The plot shows a spectrum with a peak at 13.560333 MHz. The y-axis is labeled '5 dB/div Log' and ranges from -11.0 to -51.0. The x-axis is labeled 'Center 13.560333 MHz' and ranges from 13.550 to 13.570 MHz. The peak is marked with a yellow diamond and labeled '1'. The peak level is -15.640 dBm. The baseline level is -41.0 dBm. The span is 10.00 kHz and the sweep is 1.000 ms (601 pts).

Center 13.560333 MHz
#Res BW 1.0 kHz

#VBW 3.0 kHz

Span 10.00 kHz
Sweep 1.000 ms (601 pts)

MSG STATUS

ThyTx 2022.06.03.0 YMit 2022.03.14.0

Keysight Spectrum Analyzer - Element Materials Technology

12:08:32 PM May 20, 2023

RL RF 50 Ω DC SENSE:INT ALIGN AUTO #Avg Type: Voltage Avg|Hold:>100/100

PNO: Close IFGain:Low Trig: Free Run #Atten: 10 dB

TRACE 1 2 3 4 5 6 TYPE M M M M M M M M DET P P P P P P P

5 dB/div Log Ref -5.00 dBm

Mkr1 13.560 033 MHz -15.518 dBm

The plot shows a spectrum with a peak at 13.560333 MHz. The y-axis is labeled '5 dB/div Log' and ranges from -50.0 to -10.0. The x-axis is labeled 'Center 13.560333 MHz' and ranges from 13.555 to 13.565 MHz. The peak is marked with a yellow diamond and labeled '1'. The peak level is -15.518 dBm. The plot is titled 'Ref -5.00 dBm'.

Center 13.560333 MHz #Res BW 3.0 kHz

Span 10.00 kHz Sweep 1.000 ms (601 pts)

MSG STATUS

Keysight Spectrum Analyzer - Element Materials Technology

RL RF 50 Ω DC SENSE:INT ALIGN AUTO 11:47:11 AM May 20, 2023

#Avg Type: Voltage
Avg|Hold:>100/100

PNO: Close IFGain:Low Trig: Free Run
#Atten: 10 dB

TRACE 1 2 3 4 5 6
TYPE M W W W W W W
DET P P P P P P

5 dB/div Log Ref -6.00 dBm

Mkr1 13.560 066 MHz
-16.562 dBm

The plot shows a spectrum with a prominent peak at 13.560066 MHz. The y-axis is labeled '5 dB/div Log' and ranges from -51.0 to -11.0 dBm. The x-axis is labeled 'Center 13.560166 MHz' and ranges from 13.558166 MHz to 13.562166 MHz. The peak is marked with a green diamond and labeled '1'. The peak level is -16.562 dBm. The plot is titled 'Ref -6.00 dBm'.

Center 13.560166 MHz
#Res BW 1.0 kHz

#VBW 3.0 kHz

Span 10.00 kHz
Sweep 1.000 ms (601 pts)

MSG STATUS

Results

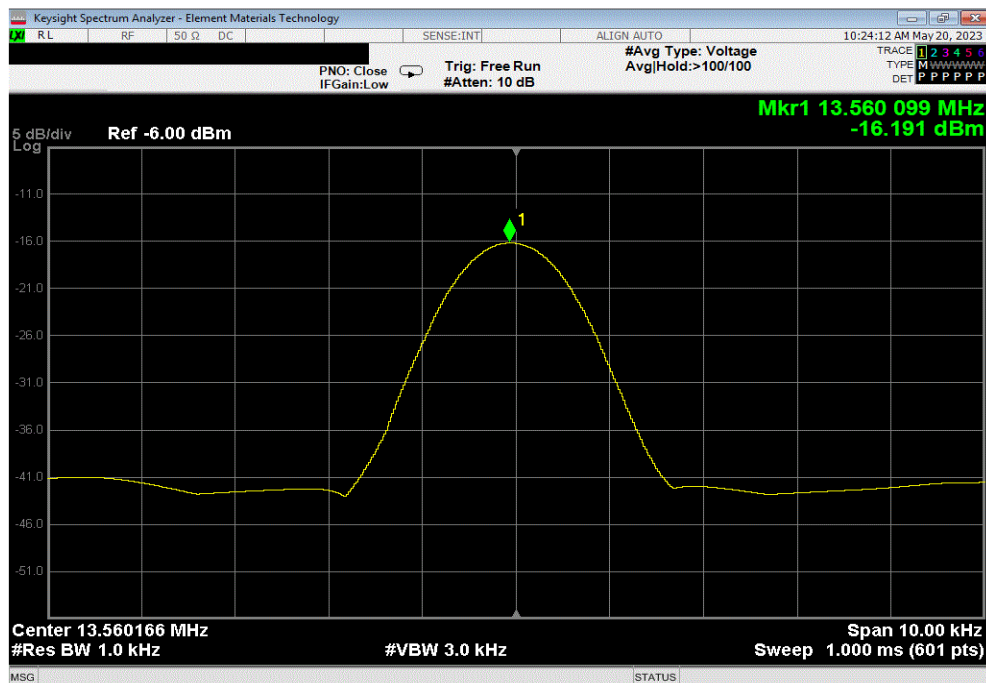
Pass



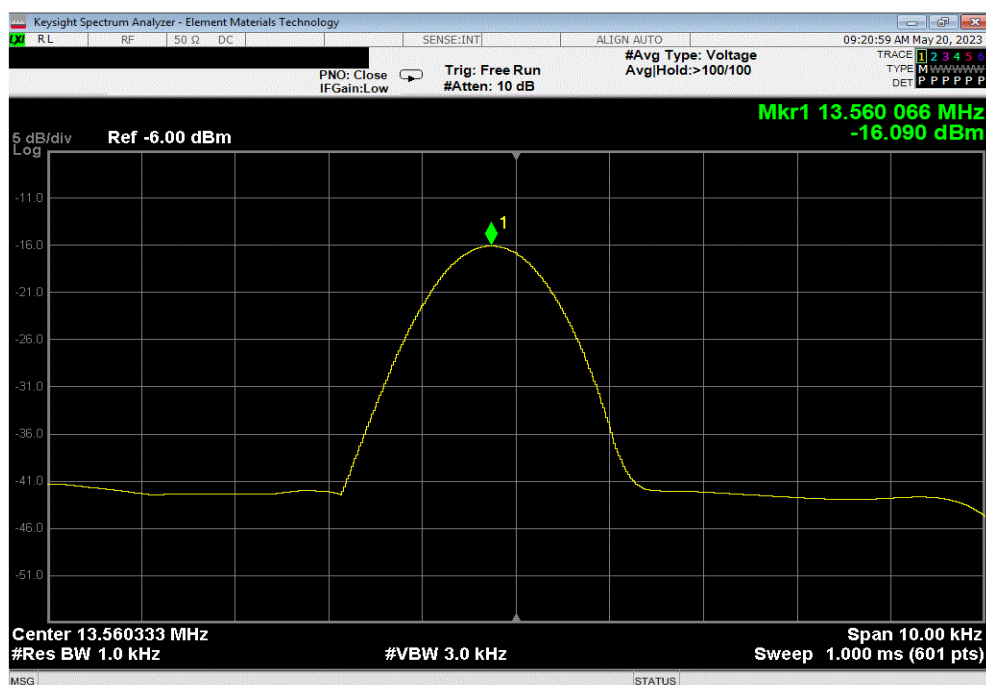
Pass

ThyTx 2022.06.03.0 YMit 2022.03.14.0

TAC Radio, Nominal Voltage, 220 VAC, Temperature, -20C					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.56010	13.55998	8.55	100	Pass



TAC Radio, Nominal Voltage, 220 VAC, Temperature, -30C					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13 56007	13 55998	6 12	100	Pass



End of Test Report