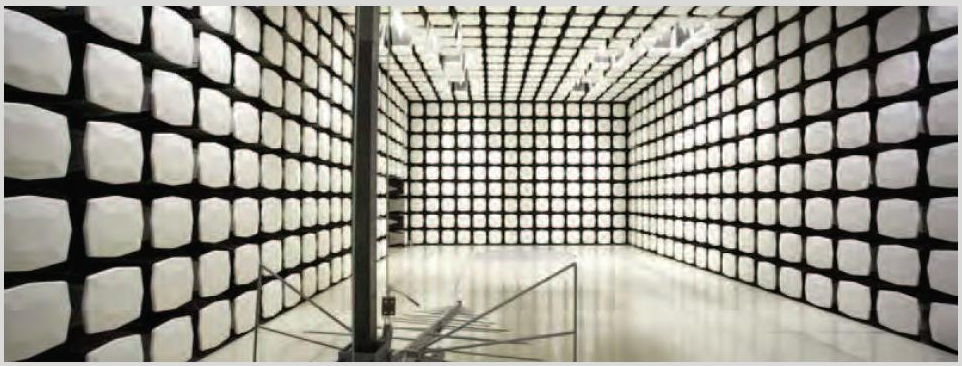
Abbott Laboratories

GLP12179 Roundabout 3-entry

FCC 15.225:2022
13.56 MHz Radio

Report: ABBO0123.3 Rev. 1, Issue Date: August 4, 2023



ACCREDITED
CERT #3310.03

CERTIFICATE OF TEST

Last Date of Test: May 26, 2022
Abbott Laboratories
EUT: GLP12179 Roundabout 3-entry

Radio Equipment Testing

Standards

Specification	Method
FCC 15.225:2022	ANSI C63.10:2013
FCC 15.207:2022	

Results

Method Clause	Test Description	Applied	Results	Comments
15.207//6.2	Powerline Conducted Emissions	Yes	Pass	
15.215(c) //6.9.2	Occupied Bandwidth	Yes	Pass	
15.225(a)-(c)//6.4	Field Strength of Fundamental	Yes	Pass	
15.225(d), 15.209//6.4	Field Strength of Spurious Emissions (Less Than 30 MHz)	Yes	Pass	
15.225(d), 15.209//6.5	Field Strength of Spurious Emissions (Greater Than 30 MHz)	Yes	Pass	
15.225(e), 2.1055//6.8	Frequency Stability	Yes	Pass	

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
01	Updated test description to include intended 20db vs 99% statement.	2023-08-04	55
	Removed EAR statement from cover page.	2023-08-04	1

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

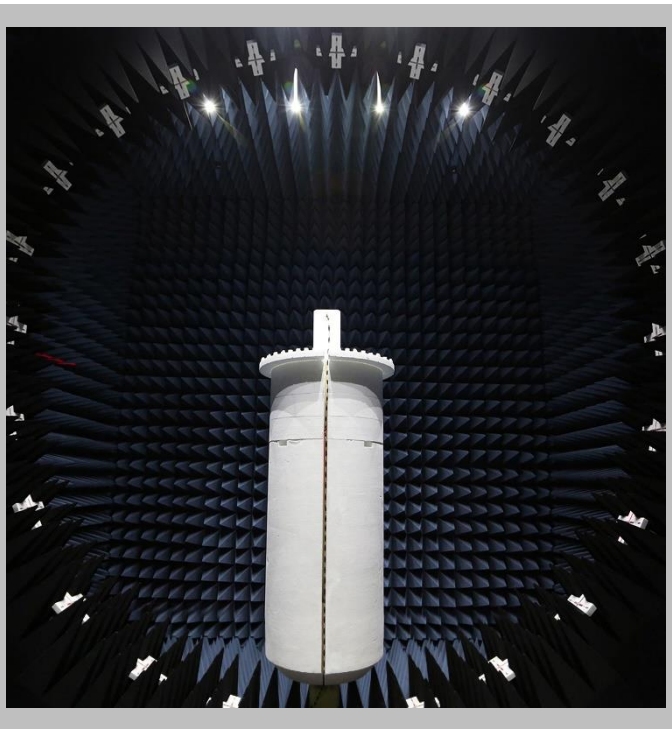
For details on the Scopes of our Accreditations, please visit:

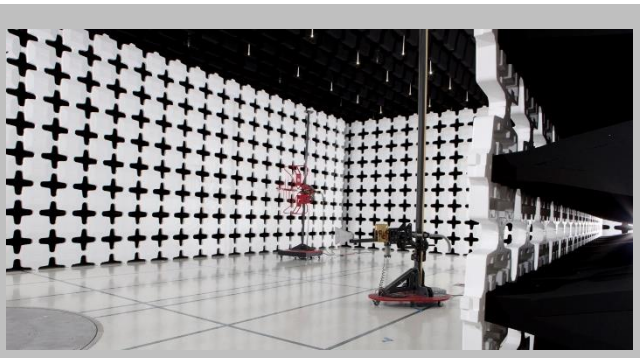
California Minnesota Oregon Texas Washington

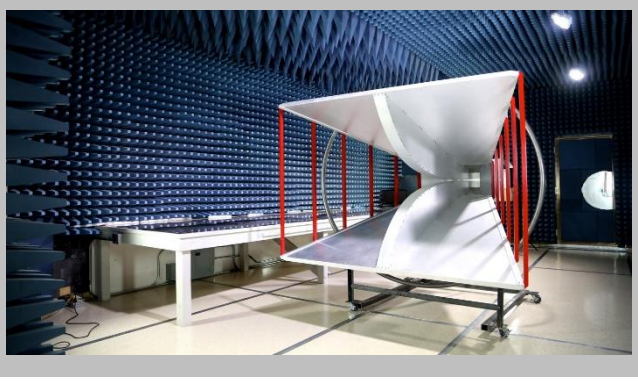
FACILITIES

element
2020.12.15

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

element
TMU.2015.07.10

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

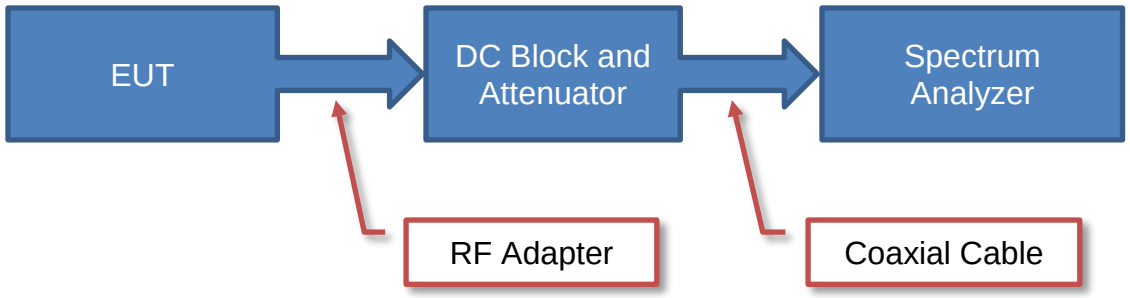
TEST SETUP BLOCK DIAGRAMS

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.

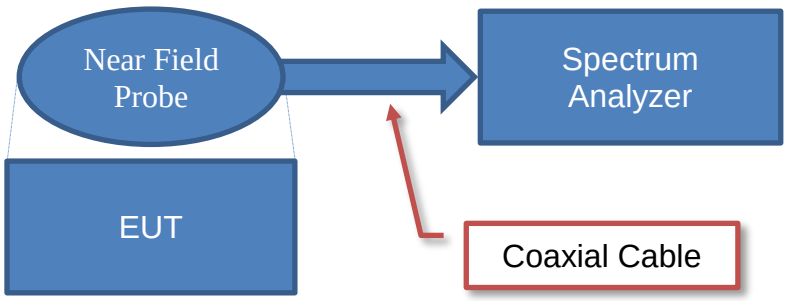
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

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

Near Field Test Fixture Measurements

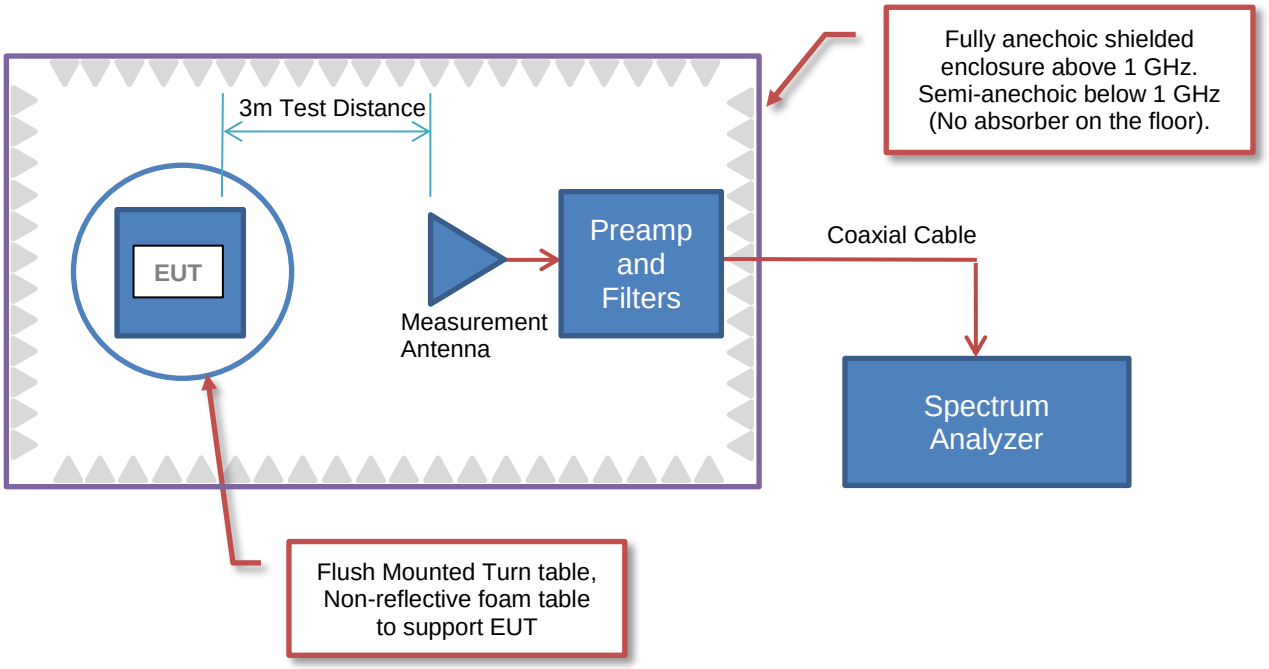


Sample Calculation (logarithmic units)

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: Antenna Factor		Factor: Cable Factor		Factor: Amplifier Gain		Distance Adjustment Factor		External Attenuation		Field Strength
42.6	+	28.6	+	3.1	-	40.8	+	0.0	+	0.0	=	**33.5**

Conducted Emissions:

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

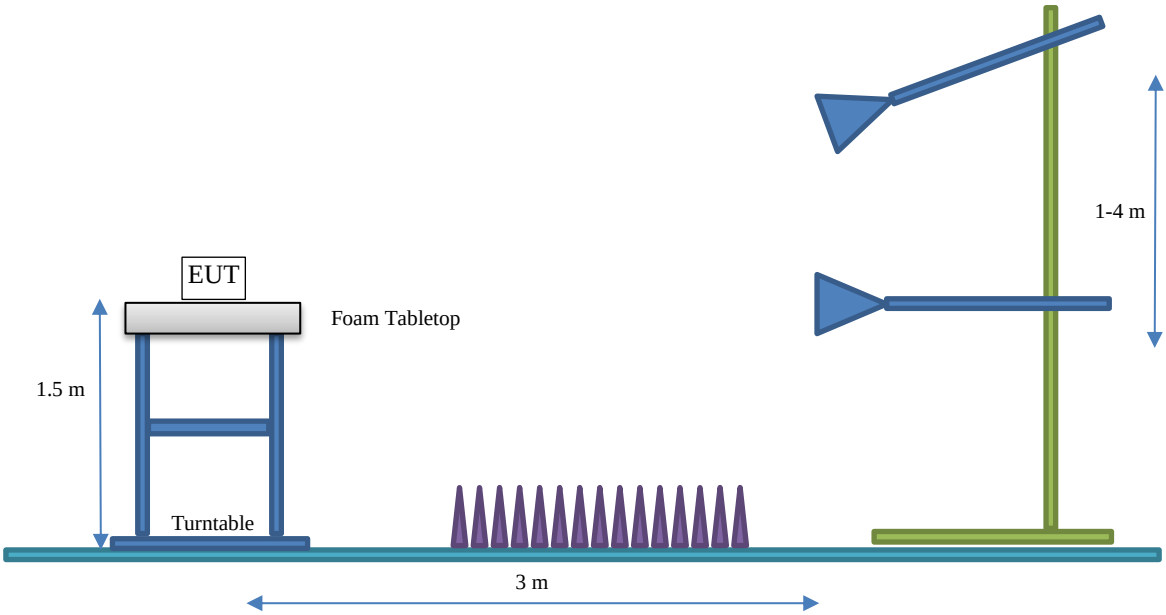
Radiated Power (ERP/EIRP):

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:	Don Mendell
EUT:	GLP12179 Roundabout 3-entry
First Date of Test:	May 13, 2022
Last Date of Test:	May 26, 2022
Receipt Date of Samples:	May 5, 2022
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 GLP systems Track is a modular laboratory automation system used to perform multiple preanalytic and post-analytic steps to automate sample preparation and distribution processes in clinical laboratories. The 3-Way Roundabout is used to connect 3 sections of track together, allowing a CAR to merge onto a section of track by activating a switch to divert to the chosen track. This includes RFID readers to determine the location of each CAR.

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 13693	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 ABBO0123- 2

Software/Firmware Running During Test	
Description	**Version**
D000117957/A-Roundabout Controller RFID Test Firmware 02-50301 Verification	A
D000117956/A-Spiral Controller RFID Test Firmware 02-47709 Verification	A

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Roundabout 3-entry	Abbott Laboratories	GLP12179 (LN06R08-51)	None
SwitchController Roundabout 1	Abbott Laboratories	GLP41277	ENG01-RA
SwitchController Roundabout 2	Abbott Laboratories	GLP41277	ENG02-RA
SwitchController Roundabout 3	Abbott Laboratories	GLP41277	ENG03-RA
SwitchController Roundabout 4	Abbott Laboratories	GLP41277	ENG04-RA

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Spiral Switch	Abbott Laboratories	GLP12203 (LN06R52-01)	ENG01-SP
24V Track Power Supply	Abbott Laboratories	GLP12010	0001098
Track Filter	Abbott Laboratories	GLP12689 (LN06U35-04)	001000
Segment Controller	Abbott Laboratories	GLP12100	C33A002915
Track Section 80	Abbott Laboratories	GLP12120 (LN06Q43-01)	None
Wieland Podis Powerbus Flat Cable 7G4 5m	Abbott Laboratories	LN06U28-01	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	2.7m	No	AC Mains	Track Filter

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2022-05-13	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	2022-05-16	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	2022-05-16	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	2022-05-23	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.
5	2022-05-23	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	2022-05-26	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

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

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
LISN	Solar Electronics	9252-50-R-24-BNC	LJK	2021-08-06	2022-08-06
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Receiver	Gauss Instruments	TDEMI 30M	ARL	2022-03-28	2023-03-28
Cable - Conducted Cable Assembly	Northwest EMC	TXA, HFC, TQU	TXAA	2022-01-24	2023-01-24

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.1 dB	-3.1 dB

CONFIGURATIONS INVESTIGATED

ABBO0123-2

MODES INVESTIGATED

Transmitting 13.56 MHz RFID

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG01-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

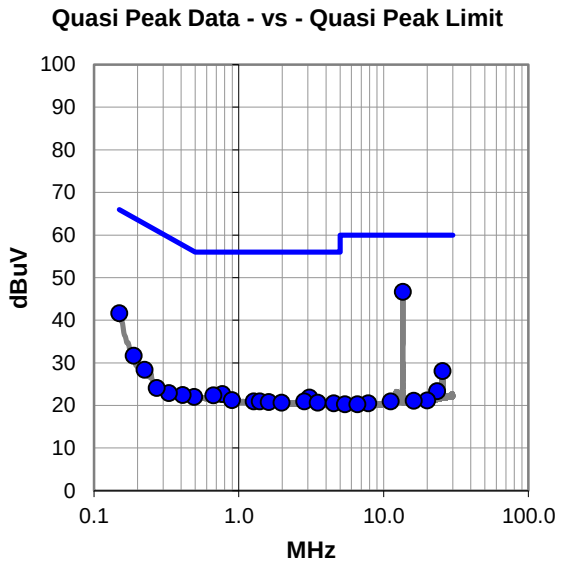
SwitchController Roundabout 1. PCB contains 2 RFID radios. Radio 1 ON.

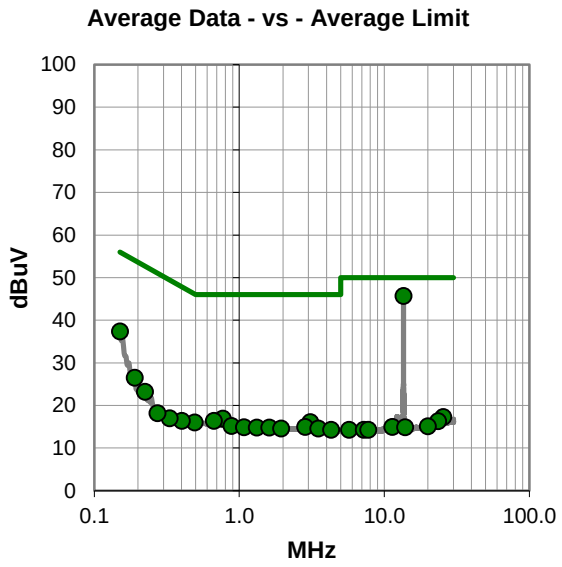
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #3

Quasi Peak Data - vs - Quasi Peak Limit

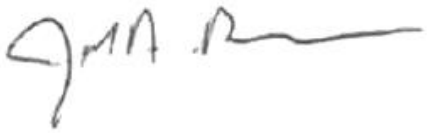
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	25.8	20.9	46.7	60.0	-13.3
0.150	21.1	20.6	41.7	66.0	-24.3
25.513	6.0	22.1	28.1	60.0	-31.9
0.188	11.1	20.6	31.7	64.1	-32.4
0.769	2.5	20.2	22.7	56.0	-33.3
0.667	2.2	20.2	22.4	56.0	-33.6
0.493	1.8	20.2	22.0	56.1	-34.1
3.083	1.7	20.2	21.9	56.0	-34.1
0.223	7.8	20.6	28.4	62.7	-34.3
0.899	1.1	20.2	21.3	56.0	-34.7
1.270	0.9	20.1	21.0	56.0	-35.0
1.398	0.8	20.2	21.0	56.0	-35.0
2.840	0.8	20.2	21.0	56.0	-35.0
0.411	2.2	20.3	22.5	57.6	-35.1
1.609	0.6	20.2	20.8	56.0	-35.2
1.970	0.5	20.2	20.7	56.0	-35.3
3.510	0.5	20.2	20.7	56.0	-35.3
4.528	0.3	20.2	20.5	56.0	-35.5
0.330	2.6	20.3	22.9	59.5	-36.6
23.400	1.6	21.8	23.4	60.0	-36.6
0.272	3.6	20.5	24.1	61.1	-37.0
19.952	-0.2	21.4	21.2	60.0	-38.8
16.169	-0.1	21.2	21.1	60.0	-38.9
11.215	0.3	20.7	21.0	60.0	-39.0
7.846	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	24.8	20.9	45.7	50.0	-4.3
0.150	16.8	20.6	37.4	56.0	-18.6
0.190	5.9	20.6	26.5	54.1	-27.6
0.769	-3.3	20.2	16.9	46.0	-29.1
0.223	2.6	20.6	23.2	52.7	-29.5
0.667	-3.8	20.2	16.4	46.0	-29.6
3.083	-4.1	20.2	16.1	46.0	-29.9
0.492	-4.2	20.2	16.0	46.1	-30.1
0.884	-5.0	20.2	15.2	46.0	-30.8
2.840	-5.2	20.2	15.0	46.0	-31.0
1.078	-5.1	20.0	14.9	46.0	-31.1
1.322	-5.3	20.1	14.8	46.0	-31.2
1.613	-5.4	20.2	14.8	46.0	-31.2
0.402	-3.9	20.3	16.4	47.8	-31.4
1.943	-5.6	20.2	14.6	46.0	-31.4
3.508	-5.6	20.2	14.6	46.0	-31.4
4.291	-5.9	20.2	14.3	46.0	-31.7
0.330	-3.3	20.3	17.0	49.5	-32.5
25.497	-4.8	22.1	17.3	50.0	-32.7
0.272	-2.3	20.5	18.2	51.1	-32.9
23.524	-5.6	21.9	16.3	50.0	-33.7
20.005	-6.3	21.4	15.1	50.0	-34.9
11.380	-5.7	20.7	15.0	50.0	-35.0
13.930	-6.0	20.9	14.9	50.0	-35.1
5.701	-5.9	20.2	14.3	50.0	-35.7

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG01-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

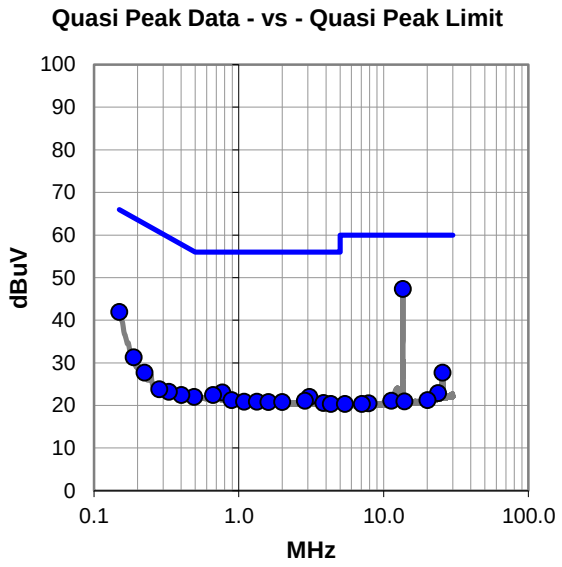
SwitchController Roundabout 1. PCB contains 2 RFID radios. Radio 1 ON.

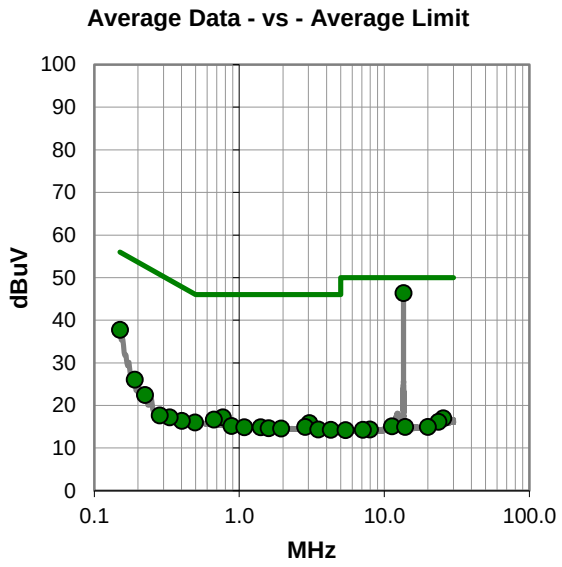
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #4

Quasi Peak Data - vs - Quasi Peak Limit

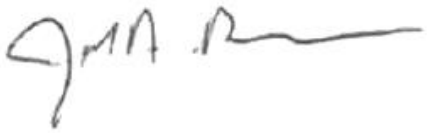
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	26.5	20.9	47.4	60.0	-12.6
0.150	21.4	20.6	42.0	66.0	-24.0
25.488	5.6	22.1	27.7	60.0	-32.3
0.188	10.7	20.6	31.3	64.1	-32.8
0.769	2.9	20.2	23.1	56.0	-32.9
0.666	2.3	20.2	22.5	56.0	-33.5
3.080	1.8	20.2	22.0	56.0	-34.0
0.492	1.8	20.2	22.0	56.1	-34.1
0.893	1.1	20.2	21.3	56.0	-34.7
2.860	0.9	20.2	21.1	56.0	-34.9
0.223	7.1	20.6	27.7	62.7	-35.0
1.091	0.9	20.0	20.9	56.0	-35.1
1.332	0.8	20.1	20.9	56.0	-35.1
1.601	0.6	20.2	20.8	56.0	-35.2
1.993	0.6	20.2	20.8	56.0	-35.2
0.402	2.2	20.3	22.5	57.8	-35.3
3.849	0.4	20.2	20.6	56.0	-35.4
4.325	0.2	20.2	20.4	56.0	-35.6
0.330	2.9	20.3	23.2	59.5	-36.3
0.283	3.3	20.5	23.8	60.7	-36.9
23.827	1.0	21.9	22.9	60.0	-37.1
20.071	-0.1	21.4	21.3	60.0	-38.7
11.299	0.4	20.7	21.1	60.0	-38.9
13.930	0.1	20.9	21.0	60.0	-39.0
7.881	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	25.5	20.9	46.4	50.0	-3.6
0.150	17.2	20.6	37.8	56.0	-18.2
0.190	5.5	20.6	26.1	54.1	-28.0
0.769	-3.0	20.2	17.2	46.0	-28.8
0.667	-3.5	20.2	16.7	46.0	-29.3
0.493	-4.2	20.2	16.0	46.1	-30.1
3.048	-4.3	20.2	15.9	46.0	-30.1
0.223	1.9	20.6	22.5	52.7	-30.2
0.884	-5.0	20.2	15.2	46.0	-30.8
2.851	-5.2	20.2	15.0	46.0	-31.0
1.082	-5.1	20.0	14.9	46.0	-31.1
1.400	-5.3	20.2	14.9	46.0	-31.1
1.596	-5.5	20.2	14.7	46.0	-31.3
0.402	-3.9	20.3	16.4	47.8	-31.4
1.943	-5.6	20.2	14.6	46.0	-31.4
3.508	-5.8	20.2	14.4	46.0	-31.6
4.279	-5.9	20.2	14.3	46.0	-31.7
0.330	-3.1	20.3	17.2	49.5	-32.3
0.283	-2.8	20.5	17.7	50.7	-33.0
25.463	-5.1	22.1	17.0	50.0	-33.0
23.585	-5.7	21.9	16.2	50.0	-33.8
11.298	-5.6	20.7	15.1	50.0	-34.9
13.933	-5.9	20.9	15.0	50.0	-35.0
19.941	-6.4	21.4	15.0	50.0	-35.0
7.968	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG01-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

SwitchController Roundabout 1. PCB contains 2 RFID radios. Radio 2 ON.

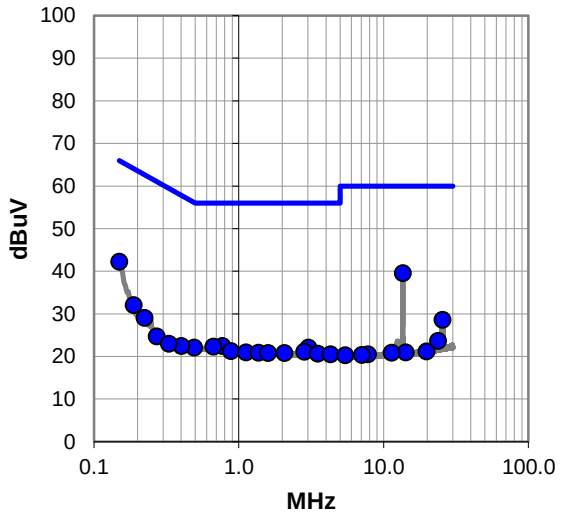
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

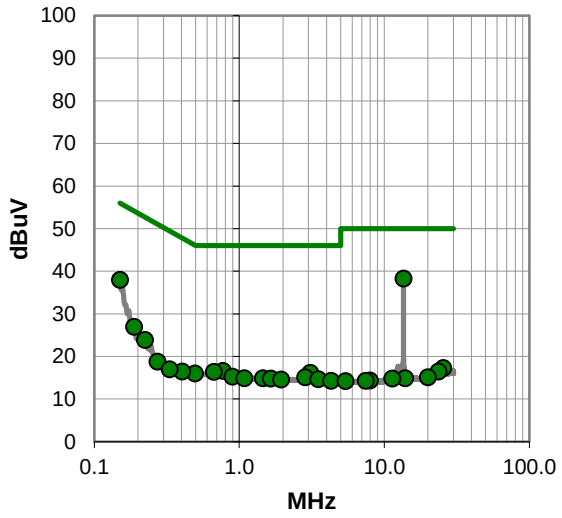
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

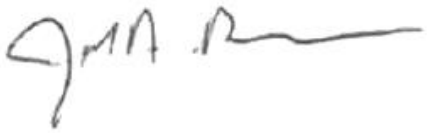
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	18.7	20.9	39.6	60.0	-20.4
0.150	21.7	20.6	42.3	66.0	-23.7
25.468	6.5	22.1	28.6	60.0	-31.4
0.188	11.5	20.6	32.1	64.1	-32.0
0.771	2.3	20.2	22.5	56.0	-33.5
0.223	8.5	20.6	29.1	62.7	-33.6
0.667	2.1	20.2	22.3	56.0	-33.7
3.025	1.9	20.2	22.1	56.0	-33.9
0.493	1.9	20.2	22.1	56.1	-34.0
0.885	1.1	20.2	21.3	56.0	-34.7
2.842	0.9	20.2	21.1	56.0	-34.9
1.122	1.0	20.0	21.0	56.0	-35.0
1.366	0.8	20.1	20.9	56.0	-35.1
1.596	0.6	20.2	20.8	56.0	-35.2
2.066	0.6	20.2	20.8	56.0	-35.2
0.402	2.2	20.3	22.5	57.8	-35.3
3.508	0.5	20.2	20.7	56.0	-35.3
4.309	0.3	20.2	20.5	56.0	-35.5
23.768	1.8	21.9	23.7	60.0	-36.3
0.272	4.2	20.5	24.7	61.1	-36.4
0.330	2.7	20.3	23.0	59.5	-36.5
19.781	-0.1	21.3	21.2	60.0	-38.8
14.251	0.1	20.9	21.0	60.0	-39.0
11.381	0.2	20.7	20.9	60.0	-39.1
7.802	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	17.4	20.9	38.3	50.0	-11.7
0.150	17.4	20.6	38.0	56.0	-18.0
0.188	6.4	20.6	27.0	54.1	-27.1
0.223	3.3	20.6	23.9	52.7	-28.8
0.769	-3.6	20.2	16.6	46.0	-29.4
0.667	-3.8	20.2	16.4	46.0	-29.6
3.084	-4.0	20.2	16.2	46.0	-29.8
0.493	-4.2	20.2	16.0	46.1	-30.1
0.898	-4.9	20.2	15.3	46.0	-30.7
2.843	-5.1	20.2	15.1	46.0	-30.9
1.081	-5.1	20.0	14.9	46.0	-31.1
1.450	-5.3	20.2	14.9	46.0	-31.1
1.650	-5.4	20.2	14.8	46.0	-31.2
0.403	-3.8	20.3	16.5	47.8	-31.3
3.508	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
4.294	-5.9	20.2	14.3	46.0	-31.7
0.272	-1.7	20.5	18.8	51.1	-32.3
0.330	-3.3	20.3	17.0	49.5	-32.5
25.463	-4.8	22.1	17.3	50.0	-32.7
23.586	-5.4	21.9	16.5	50.0	-33.5
19.972	-6.3	21.4	15.1	50.0	-34.9
13.937	-6.0	20.9	14.9	50.0	-35.1
11.381	-5.9	20.7	14.8	50.0	-35.2
7.965	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG01-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

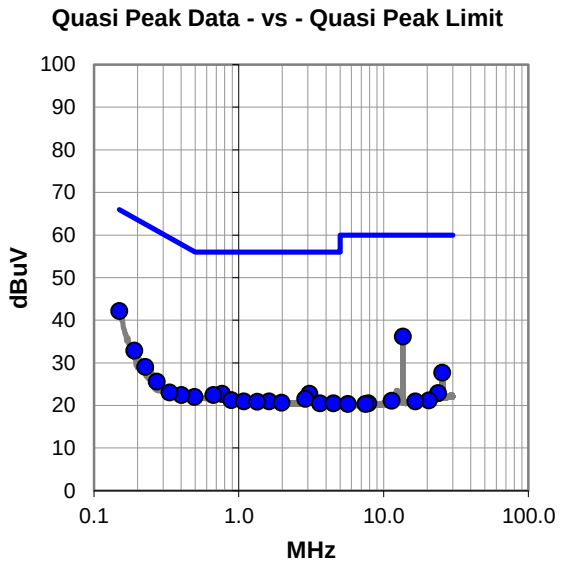
SwitchController Roundabout 1. PCB contains 2 RFID radios. Radio 2 ON.

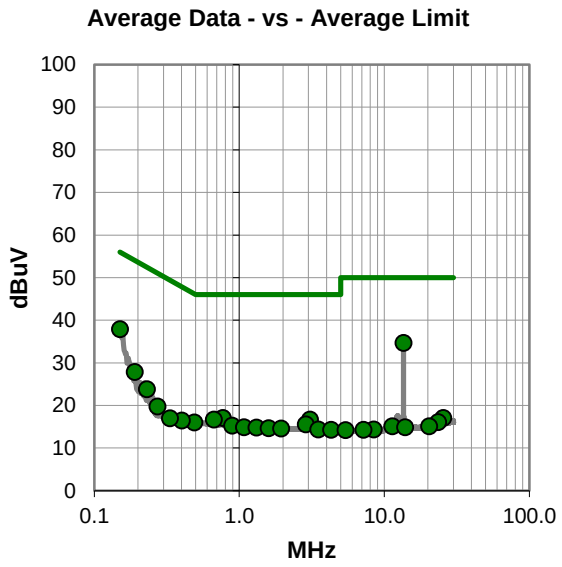
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #6

Quasi Peak Data - vs - Quasi Peak Limit

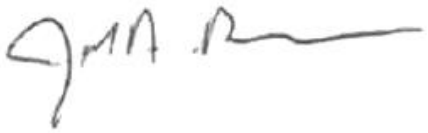
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	21.6	20.6	42.2	66.0	-23.8
13.562	15.3	20.9	36.2	60.0	-23.8
0.190	12.3	20.6	32.9	64.1	-31.2
25.463	5.6	22.1	27.7	60.0	-32.3
0.768	2.6	20.2	22.8	56.0	-33.2
3.073	2.6	20.2	22.8	56.0	-33.2
0.226	8.5	20.6	29.1	62.6	-33.5
0.667	2.3	20.2	22.5	56.0	-33.5
0.495	1.8	20.2	22.0	56.1	-34.1
2.877	1.4	20.2	21.6	56.0	-34.4
0.888	1.1	20.2	21.3	56.0	-34.7
1.084	1.0	20.0	21.0	56.0	-35.0
1.622	0.8	20.2	21.0	56.0	-35.0
1.345	0.8	20.1	20.9	56.0	-35.1
0.402	2.2	20.3	22.5	57.8	-35.3
1.970	0.5	20.2	20.7	56.0	-35.3
0.272	5.1	20.5	25.6	61.1	-35.5
3.635	0.3	20.2	20.5	56.0	-35.5
4.511	0.3	20.2	20.5	56.0	-35.5
0.333	2.8	20.3	23.1	59.4	-36.3
23.780	1.0	21.9	22.9	60.0	-37.1
20.536	-0.2	21.4	21.2	60.0	-38.8
11.381	0.4	20.7	21.1	60.0	-38.9
16.534	-0.2	21.2	21.0	60.0	-39.0
7.852	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.562	13.8	20.9	34.7	50.0	-15.3
0.150	17.3	20.6	37.9	56.0	-18.1
0.190	7.3	20.6	27.9	54.1	-26.2
0.231	3.2	20.6	23.8	52.4	-28.6
0.768	-3.1	20.2	17.1	46.0	-28.9
0.667	-3.5	20.2	16.7	46.0	-29.3
3.064	-3.5	20.2	16.7	46.0	-29.3
0.490	-4.2	20.2	16.0	46.2	-30.2
2.877	-4.6	20.2	15.6	46.0	-30.4
0.892	-4.9	20.2	15.3	46.0	-30.7
1.079	-5.1	20.0	14.9	46.0	-31.1
1.311	-5.3	20.1	14.8	46.0	-31.2
0.402	-3.8	20.3	16.5	47.8	-31.3
0.272	-0.7	20.5	19.8	51.1	-31.3
1.596	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
3.508	-5.8	20.2	14.4	46.0	-31.6
4.288	-5.9	20.2	14.3	46.0	-31.7
0.332	-3.3	20.3	17.0	49.4	-32.4
25.463	-5.0	22.1	17.1	50.0	-32.9
23.527	-5.8	21.9	16.1	50.0	-33.9
11.381	-5.6	20.7	15.1	50.0	-34.9
20.407	-6.3	21.4	15.1	50.0	-34.9
13.936	-6.0	20.9	14.9	50.0	-35.1
8.466	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG02-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

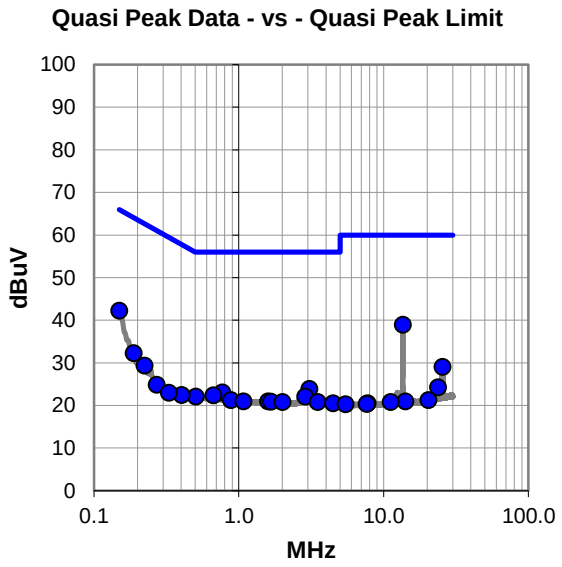
SwitchController Roundabout 2. PCB contains 2 RFID radios. Radio 1 ON.

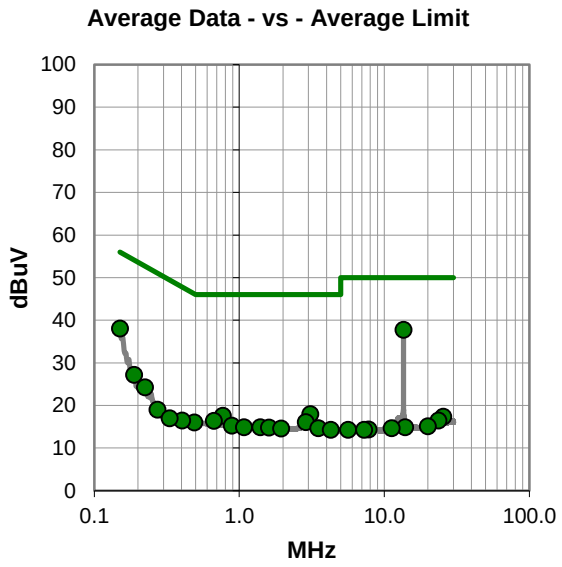
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

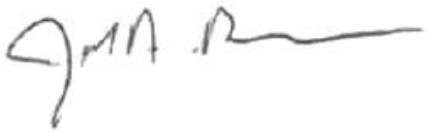
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	18.1	20.9	39.0	60.0	-21.0
0.150	21.7	20.6	42.3	66.0	-23.7
25.484	7.0	22.1	29.1	60.0	-30.9
0.188	11.7	20.6	32.3	64.1	-31.8
3.083	3.7	20.2	23.9	56.0	-32.1
0.769	2.9	20.2	23.1	56.0	-32.9
0.223	8.8	20.6	29.4	62.7	-33.3
0.667	2.2	20.2	22.4	56.0	-33.6
0.506	1.9	20.2	22.1	56.0	-33.9
2.877	1.9	20.2	22.1	56.0	-33.9
0.884	1.1	20.2	21.3	56.0	-34.7
1.076	1.0	20.0	21.0	56.0	-35.0
1.595	0.8	20.2	21.0	56.0	-35.0
1.668	0.7	20.2	20.9	56.0	-35.1
2.001	0.6	20.2	20.8	56.0	-35.2
3.508	0.6	20.2	20.8	56.0	-35.2
0.403	2.2	20.3	22.5	57.8	-35.3
4.476	0.3	20.2	20.5	56.0	-35.5
23.798	2.4	21.9	24.3	60.0	-35.7
0.272	4.4	20.5	24.9	61.1	-36.2
0.330	2.7	20.3	23.0	59.5	-36.5
20.385	-0.1	21.4	21.3	60.0	-38.7
14.137	0.1	20.9	21.0	60.0	-39.0
11.215	0.1	20.7	20.8	60.0	-39.2
7.782	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	16.9	20.9	37.8	50.0	-12.2
0.150	17.5	20.6	38.1	56.0	-17.9
0.188	6.6	20.6	27.2	54.1	-26.9
3.083	-2.2	20.2	18.0	46.0	-28.0
0.769	-2.6	20.2	17.6	46.0	-28.4
0.223	3.7	20.6	24.3	52.7	-28.4
0.667	-3.8	20.2	16.4	46.0	-29.6
2.877	-4.1	20.2	16.1	46.0	-29.9
0.490	-4.2	20.2	16.0	46.2	-30.2
0.888	-4.9	20.2	15.3	46.0	-30.7
1.076	-5.1	20.0	14.9	46.0	-31.1
1.398	-5.3	20.2	14.9	46.0	-31.1
1.604	-5.4	20.2	14.8	46.0	-31.2
0.403	-3.8	20.3	16.5	47.8	-31.3
3.508	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
4.273	-5.9	20.2	14.3	46.0	-31.7
0.272	-1.5	20.5	19.0	51.1	-32.1
0.330	-3.3	20.3	17.0	49.5	-32.5
25.469	-4.7	22.1	17.4	50.0	-32.6
23.585	-5.4	21.9	16.5	50.0	-33.5
19.941	-6.3	21.4	15.1	50.0	-34.9
13.936	-6.0	20.9	14.9	50.0	-35.1
11.215	-6.0	20.7	14.7	50.0	-35.3
7.793	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG02-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

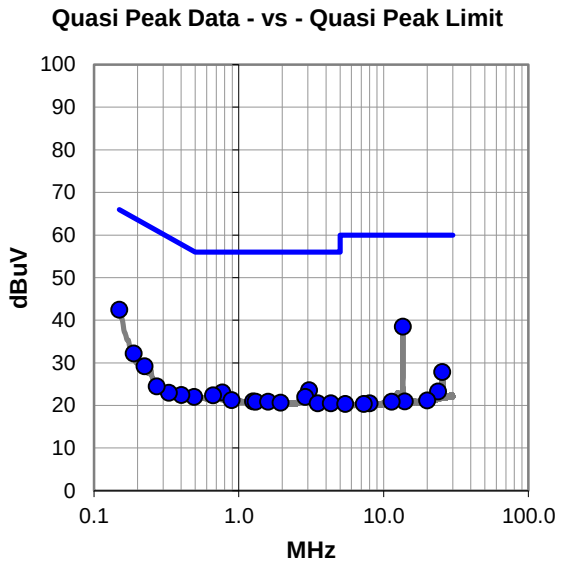
SwitchController Roundabout 2. PCB contains 2 RFID radios. Radio 1 ON.

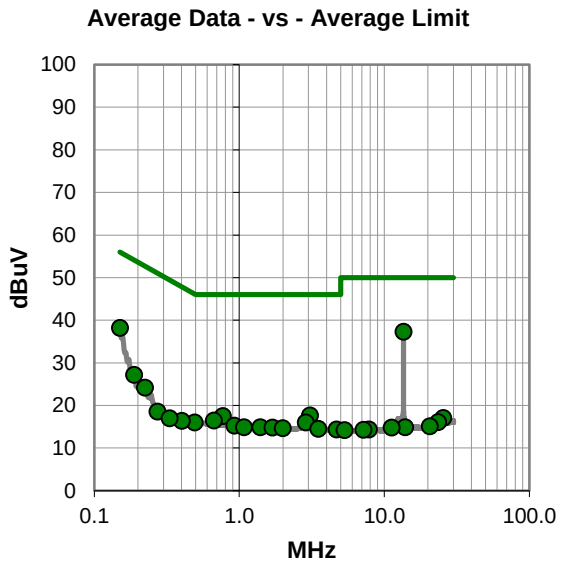
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

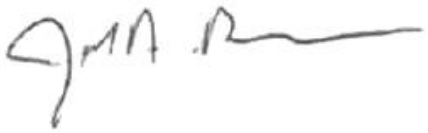
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	17.6	20.9	38.5	60.0	-21.5
0.150	21.9	20.6	42.5	66.0	-23.5
0.188	11.6	20.6	32.2	64.1	-31.9
25.466	5.8	22.1	27.9	60.0	-32.1
3.066	3.4	20.2	23.6	56.0	-32.4
0.769	2.9	20.2	23.1	56.0	-32.9
0.223	8.6	20.6	29.2	62.7	-33.5
0.666	2.2	20.2	22.4	56.0	-33.6
2.875	1.8	20.2	22.0	56.0	-34.0
0.492	1.8	20.2	22.0	56.1	-34.1
0.892	1.1	20.2	21.3	56.0	-34.7
1.258	0.9	20.1	21.0	56.0	-35.0
1.311	0.8	20.1	20.9	56.0	-35.1
1.598	0.7	20.2	20.9	56.0	-35.1
0.402	2.2	20.3	22.5	57.8	-35.3
1.949	0.5	20.2	20.7	56.0	-35.3
3.508	0.3	20.2	20.5	56.0	-35.5
4.322	0.3	20.2	20.5	56.0	-35.5
0.330	2.7	20.3	23.0	59.5	-36.5
0.272	4.0	20.5	24.5	61.1	-36.6
23.774	1.4	21.9	23.3	60.0	-36.7
19.981	-0.2	21.4	21.2	60.0	-38.8
14.020	0.1	20.9	21.0	60.0	-39.0
11.381	0.2	20.7	20.9	60.0	-39.1
8.012	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	16.4	20.9	37.3	50.0	-12.7
0.150	17.6	20.6	38.2	56.0	-17.8
0.188	6.6	20.6	27.2	54.1	-26.9
3.066	-2.5	20.2	17.7	46.0	-28.3
0.769	-2.7	20.2	17.5	46.0	-28.5
0.223	3.6	20.6	24.2	52.7	-28.5
0.667	-3.7	20.2	16.5	46.0	-29.5
2.869	-4.2	20.2	16.0	46.0	-30.0
0.492	-4.2	20.2	16.0	46.1	-30.1
0.922	-4.9	20.2	15.3	46.0	-30.7
1.078	-5.1	20.0	14.9	46.0	-31.1
1.398	-5.3	20.2	14.9	46.0	-31.1
1.691	-5.4	20.2	14.8	46.0	-31.2
1.990	-5.5	20.2	14.7	46.0	-31.3
0.402	-3.9	20.3	16.4	47.8	-31.4
3.508	-5.7	20.2	14.5	46.0	-31.5
4.676	-5.8	20.2	14.4	46.0	-31.6
0.272	-1.9	20.5	18.6	51.1	-32.5
0.330	-3.3	20.3	17.0	49.5	-32.5
25.468	-5.0	22.1	17.1	50.0	-32.9
23.525	-5.8	21.9	16.1	50.0	-33.9
20.622	-6.3	21.4	15.1	50.0	-34.9
13.937	-6.0	20.9	14.9	50.0	-35.1
11.215	-5.9	20.7	14.8	50.0	-35.2
7.823	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG02-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	22	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

SwitchController Roundabout 2. PCB contains 2 RFID radios. Radio 2 ON.

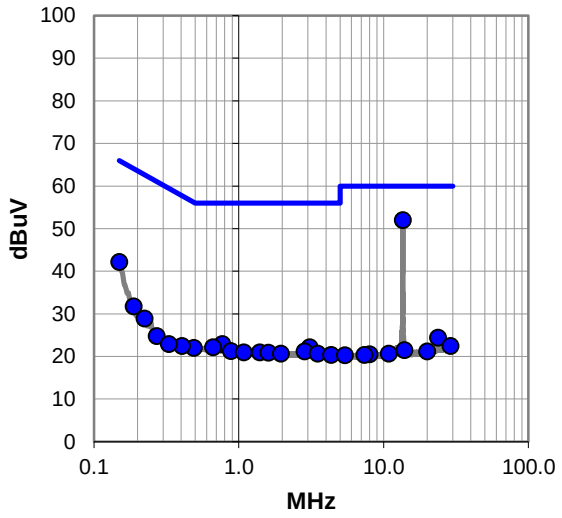
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

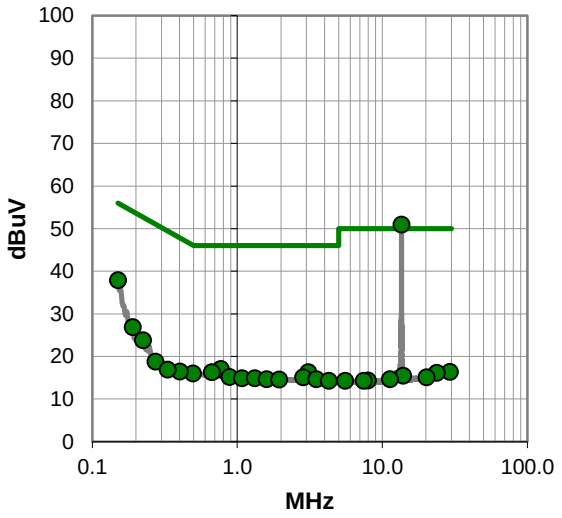
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #22

Quasi Peak Data - vs - Quasi Peak Limit

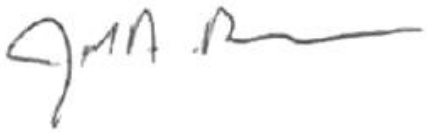
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	31.1	20.9	52.0	60.0	-8.0
0.150	21.6	20.6	42.2	66.0	-23.8
0.188	11.2	20.6	31.8	64.1	-32.3
0.769	2.7	20.2	22.9	56.0	-33.1
0.666	2.0	20.2	22.2	56.0	-33.8
3.086	2.0	20.2	22.2	56.0	-33.8
0.223	8.3	20.6	28.9	62.7	-33.8
0.490	1.8	20.2	22.0	56.2	-34.2
0.885	1.1	20.2	21.3	56.0	-34.7
2.845	1.0	20.2	21.2	56.0	-34.8
1.081	1.0	20.0	21.0	56.0	-35.0
1.400	0.8	20.2	21.0	56.0	-35.0
1.603	0.7	20.2	20.9	56.0	-35.1
0.405	2.2	20.3	22.5	57.8	-35.3
1.955	0.5	20.2	20.7	56.0	-35.3
3.508	0.5	20.2	20.7	56.0	-35.3
4.355	0.2	20.2	20.4	56.0	-35.6
23.719	2.5	21.9	24.4	60.0	-35.6
0.272	4.3	20.5	24.8	61.1	-36.3
0.330	2.6	20.3	22.9	59.5	-36.6
29.046	-0.1	22.6	22.5	60.0	-37.5
13.931	0.6	20.9	21.5	60.0	-38.5
20.011	-0.2	21.4	21.2	60.0	-38.8
10.886	0.1	20.6	20.7	60.0	-39.3
8.006	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	30.1	20.9	51.0	50.0	1.0
0.150	17.3	20.6	37.9	56.0	-18.1
0.190	6.3	20.6	26.9	54.1	-27.2
0.769	-3.1	20.2	17.1	46.0	-28.9
0.223	3.2	20.6	23.8	52.7	-28.9
0.667	-3.9	20.2	16.3	46.0	-29.7
3.087	-3.9	20.2	16.3	46.0	-29.7
0.495	-4.2	20.2	16.0	46.1	-30.1
0.884	-5.0	20.2	15.2	46.0	-30.8
2.843	-5.1	20.2	15.1	46.0	-30.9
1.078	-5.1	20.0	14.9	46.0	-31.1
1.322	-5.2	20.1	14.9	46.0	-31.1
0.402	-3.8	20.3	16.5	47.8	-31.3
1.596	-5.5	20.2	14.7	46.0	-31.3
3.508	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
4.276	-5.9	20.2	14.3	46.0	-31.7
0.272	-1.7	20.5	18.8	51.1	-32.3
0.330	-3.4	20.3	16.9	49.5	-32.6
29.290	-6.2	22.6	16.4	50.0	-33.6
23.716	-5.7	21.9	16.2	50.0	-33.8
13.930	-5.4	20.9	15.5	50.0	-34.5
20.150	-6.3	21.4	15.1	50.0	-34.9
11.299	-6.0	20.7	14.7	50.0	-35.3
7.970	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Evaluation



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG02-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	23	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

SwitchController Roundabout 2. PCB contains 2 RFID radios. Radio 2 ON.

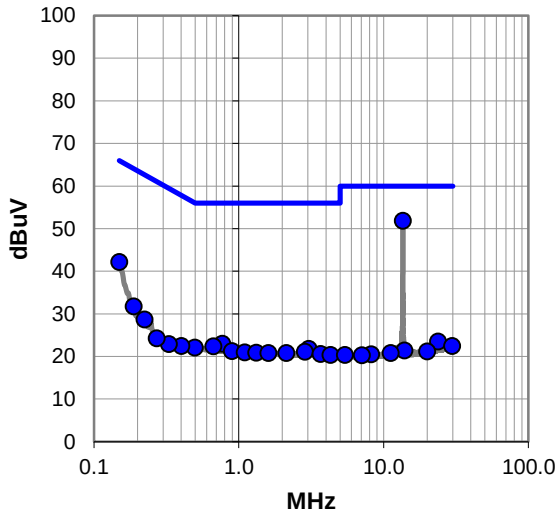
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

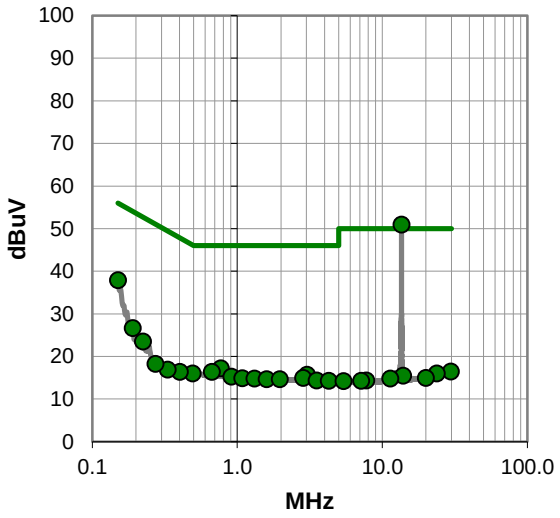
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #23

Quasi Peak Data - vs - Quasi Peak Limit

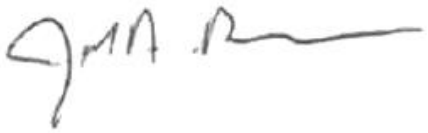
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	31.0	20.9	51.9	60.0	-8.1
0.150	21.6	20.6	42.2	66.0	-23.8
0.188	11.2	20.6	31.8	64.1	-32.3
0.769	2.8	20.2	23.0	56.0	-33.0
0.667	2.2	20.2	22.4	56.0	-33.6
0.223	8.1	20.6	28.7	62.7	-34.0
0.496	1.9	20.2	22.1	56.1	-34.0
3.049	1.6	20.2	21.8	56.0	-34.2
0.899	1.1	20.2	21.3	56.0	-34.7
2.860	0.9	20.2	21.1	56.0	-34.9
1.101	1.0	20.0	21.0	56.0	-35.0
1.322	0.8	20.1	20.9	56.0	-35.1
1.603	0.6	20.2	20.8	56.0	-35.2
2.129	0.6	20.2	20.8	56.0	-35.2
0.402	2.2	20.3	22.5	57.8	-35.3
3.665	0.4	20.2	20.6	56.0	-35.4
4.296	0.2	20.2	20.4	56.0	-35.6
23.745	1.6	21.9	23.5	60.0	-36.5
0.330	2.6	20.3	22.9	59.5	-36.6
0.272	3.8	20.5	24.3	61.1	-36.8
29.772	0.0	22.5	22.5	60.0	-37.5
13.931	0.5	20.9	21.4	60.0	-38.6
19.975	-0.2	21.4	21.2	60.0	-38.8
11.218	0.1	20.7	20.8	60.0	-39.2
8.218	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	30.1	20.9	51.0	50.0	1.0
0.150	17.3	20.6	37.9	56.0	-18.1
0.190	6.1	20.6	26.7	54.1	-27.4
0.769	-3.0	20.2	17.2	46.0	-28.8
0.223	2.9	20.6	23.5	52.7	-29.2
0.667	-3.8	20.2	16.4	46.0	-29.6
0.492	-4.2	20.2	16.0	46.1	-30.1
3.031	-4.5	20.2	15.7	46.0	-30.3
0.910	-4.9	20.2	15.3	46.0	-30.7
2.851	-5.2	20.2	15.0	46.0	-31.0
1.082	-5.1	20.0	14.9	46.0	-31.1
1.311	-5.3	20.1	14.8	46.0	-31.2
1.596	-5.5	20.2	14.7	46.0	-31.3
1.966	-5.5	20.2	14.7	46.0	-31.3
0.402	-3.9	20.3	16.4	47.8	-31.4
3.527	-5.8	20.2	14.4	46.0	-31.6
4.273	-5.9	20.2	14.3	46.0	-31.7
0.330	-3.4	20.3	16.9	49.5	-32.6
0.272	-2.2	20.5	18.3	51.1	-32.8
29.772	-6.0	22.5	16.5	50.0	-33.5
23.716	-5.9	21.9	16.0	50.0	-34.0
13.931	-5.4	20.9	15.5	50.0	-34.5
19.941	-6.4	21.4	15.0	50.0	-35.0
11.380	-5.9	20.7	14.8	50.0	-35.2
7.767	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Evaluation



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG02-RA	Date:	2022-05-26
Customer:	Abbott Laboratories	Temperature:	21.8°C
Attendees:	Frank Sun	Relative Humidity:	45.5%
Customer Project:	None	Bar. Pressure (PMSL):	989 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	24	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

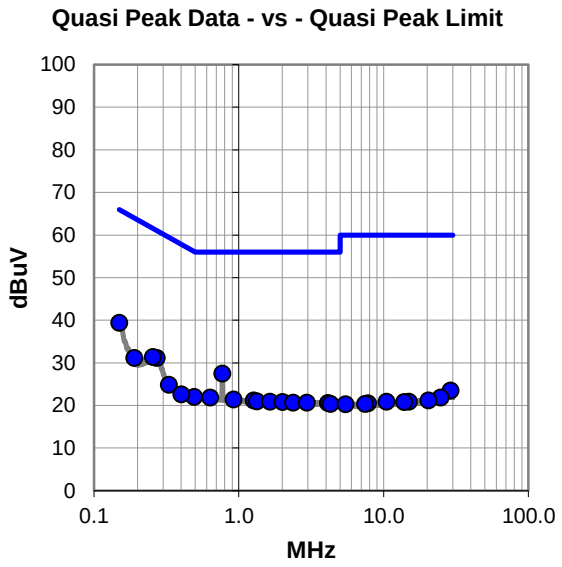
SwitchController Roundabout 2, PCB contains 2 RFID radios. Radio 2 ON. Antenna disconnected and replaced with load.

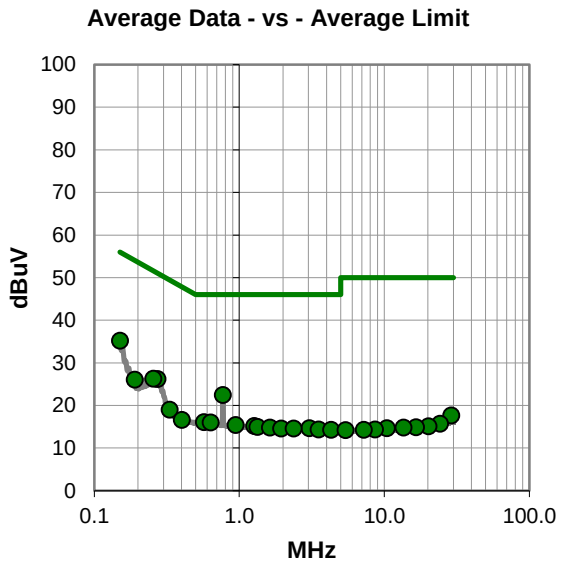
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #24

Quasi Peak Data - vs - Quasi Peak Limit

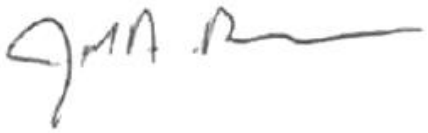
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	18.8	20.6	39.4	66.0	-26.6
0.769	7.3	20.2	27.5	56.0	-28.5
0.272	10.7	20.5	31.2	61.1	-29.9
0.255	10.9	20.5	31.4	61.6	-30.2
0.190	10.6	20.6	31.2	64.1	-32.9
0.493	1.8	20.2	22.0	56.1	-34.1
0.635	1.7	20.2	21.9	56.0	-34.1
0.330	4.6	20.3	24.9	59.5	-34.6
0.922	1.2	20.2	21.4	56.0	-34.6
1.267	1.1	20.1	21.2	56.0	-34.8
1.334	0.9	20.1	21.0	56.0	-35.0
1.642	0.7	20.2	20.9	56.0	-35.1
0.402	2.3	20.3	22.6	57.8	-35.2
2.001	0.6	20.2	20.8	56.0	-35.2
2.375	0.5	20.2	20.7	56.0	-35.3
2.953	0.5	20.2	20.7	56.0	-35.3
4.125	0.4	20.2	20.6	56.0	-35.4
4.294	0.2	20.2	20.4	56.0	-35.6
28.933	0.9	22.6	23.5	60.0	-36.5
24.802	-0.1	22.0	21.9	60.0	-38.1
20.372	-0.2	21.4	21.2	60.0	-38.8
10.475	0.4	20.5	20.9	60.0	-39.1
14.987	-0.1	21.0	20.9	60.0	-39.1
13.853	-0.1	20.9	20.8	60.0	-39.2
7.822	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	14.6	20.6	35.2	56.0	-20.8
0.769	2.3	20.2	22.5	46.0	-23.5
0.272	5.7	20.5	26.2	51.1	-24.9
0.255	5.8	20.5	26.3	51.6	-25.3
0.190	5.5	20.6	26.1	54.1	-28.0
0.570	-4.1	20.2	16.1	46.0	-29.9
0.634	-4.2	20.2	16.0	46.0	-30.0
0.330	-1.3	20.3	19.0	49.5	-30.5
0.945	-4.8	20.2	15.4	46.0	-30.6
1.267	-4.9	20.1	15.2	46.0	-30.8
1.336	-5.1	20.1	15.0	46.0	-31.0
0.402	-3.7	20.3	16.6	47.8	-31.2
1.625	-5.4	20.2	14.8	46.0	-31.2
3.041	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
2.370	-5.6	20.2	14.6	46.0	-31.4
3.524	-5.8	20.2	14.4	46.0	-31.6
4.294	-5.9	20.2	14.3	46.0	-31.7
28.933	-4.9	22.6	17.7	50.0	-32.3
24.180	-6.3	22.0	15.7	50.0	-34.3
20.170	-6.3	21.4	15.1	50.0	-34.9
16.543	-6.3	21.2	14.9	50.0	-35.1
13.559	-6.1	20.9	14.8	50.0	-35.2
10.426	-5.8	20.5	14.7	50.0	-35.3
8.649	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG02-RA	Date:	2022-05-26
Customer:	Abbott Laboratories	Temperature:	21.8°C
Attendees:	Frank Sun	Relative Humidity:	45.5%
Customer Project:	None	Bar. Pressure (PMSL):	989 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	25	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

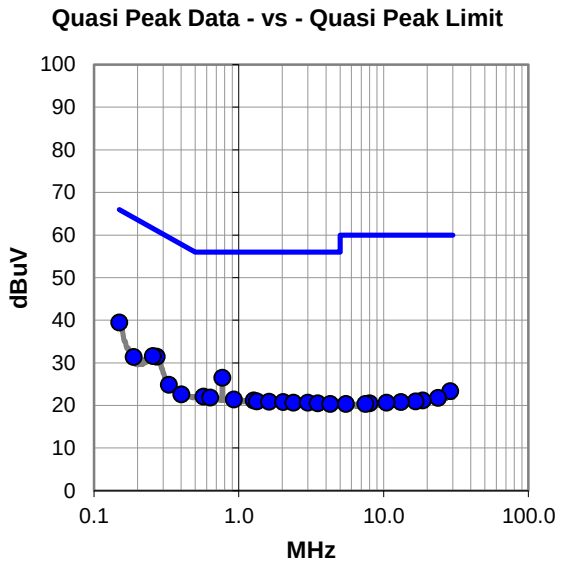
SwitchController Roundabout 2, PCB contains 2 RFID radios. Radio 2 ON. Antenna disconnected and replaced with load.

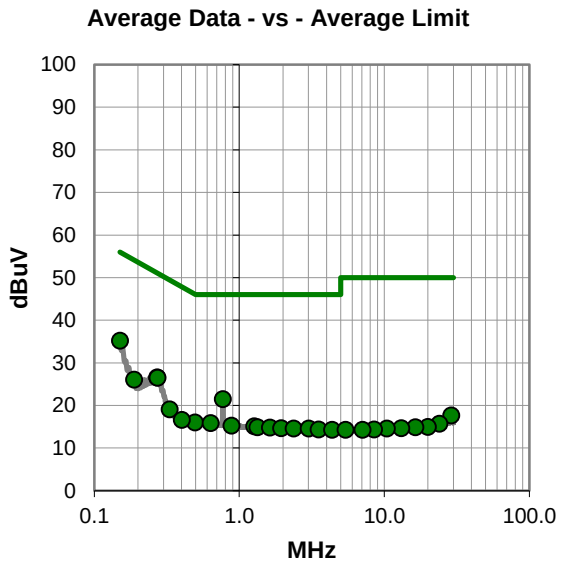
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #25

Quasi Peak Data - vs - Quasi Peak Limit

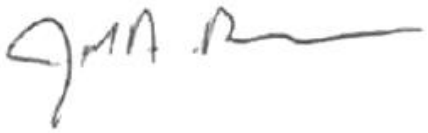
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	18.9	20.6	39.5	66.0	-26.5
0.769	6.3	20.2	26.5	56.0	-29.5
0.272	11.0	20.5	31.5	61.1	-29.6
0.255	11.1	20.5	31.6	61.6	-30.0
0.188	10.8	20.6	31.4	64.1	-32.7
0.570	1.9	20.2	22.1	56.0	-33.9
0.634	1.7	20.2	21.9	56.0	-34.1
0.330	4.6	20.3	24.9	59.5	-34.6
0.927	1.2	20.2	21.4	56.0	-34.6
1.268	1.1	20.1	21.2	56.0	-34.8
1.336	0.9	20.1	21.0	56.0	-35.0
1.621	0.7	20.2	20.9	56.0	-35.1
0.402	2.3	20.3	22.6	57.8	-35.2
2.027	0.6	20.2	20.8	56.0	-35.2
2.379	0.5	20.2	20.7	56.0	-35.3
2.991	0.5	20.2	20.7	56.0	-35.3
3.508	0.3	20.2	20.5	56.0	-35.5
4.280	0.2	20.2	20.4	56.0	-35.6
28.919	0.9	22.5	23.4	60.0	-36.6
23.780	-0.1	21.9	21.8	60.0	-38.2
18.585	-0.1	21.3	21.2	60.0	-38.8
16.649	-0.2	21.2	21.0	60.0	-39.0
13.159	-0.1	20.9	20.8	60.0	-39.2
10.464	0.2	20.5	20.7	60.0	-39.3
8.000	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	14.6	20.6	35.2	56.0	-20.8
0.769	1.3	20.2	21.5	46.0	-24.5
0.271	6.1	20.5	26.6	51.1	-24.5
0.272	6.0	20.5	26.5	51.1	-24.6
0.188	5.5	20.6	26.1	54.1	-28.0
0.495	-4.2	20.2	16.0	46.1	-30.1
0.634	-4.3	20.2	15.9	46.0	-30.1
0.330	-1.2	20.3	19.1	49.5	-30.4
0.884	-4.9	20.2	15.3	46.0	-30.7
1.268	-5.0	20.1	15.1	46.0	-30.9
1.332	-5.2	20.1	14.9	46.0	-31.1
0.402	-3.7	20.3	16.6	47.8	-31.2
1.624	-5.4	20.2	14.8	46.0	-31.2
1.943	-5.5	20.2	14.7	46.0	-31.3
2.373	-5.6	20.2	14.6	46.0	-31.4
3.008	-5.6	20.2	14.6	46.0	-31.4
3.519	-5.8	20.2	14.4	46.0	-31.6
4.370	-5.9	20.2	14.3	46.0	-31.7
28.919	-4.8	22.5	17.7	50.0	-32.3
23.962	-6.2	21.9	15.7	50.0	-34.3
19.947	-6.4	21.4	15.0	50.0	-35.0
16.409	-6.3	21.2	14.9	50.0	-35.1
13.113	-6.2	20.9	14.7	50.0	-35.3
10.428	-5.9	20.5	14.6	50.0	-35.4
8.490	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG03-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

SwitchController Roundabout 3. PCB contains 2 RFID radios. Radio 1 ON.

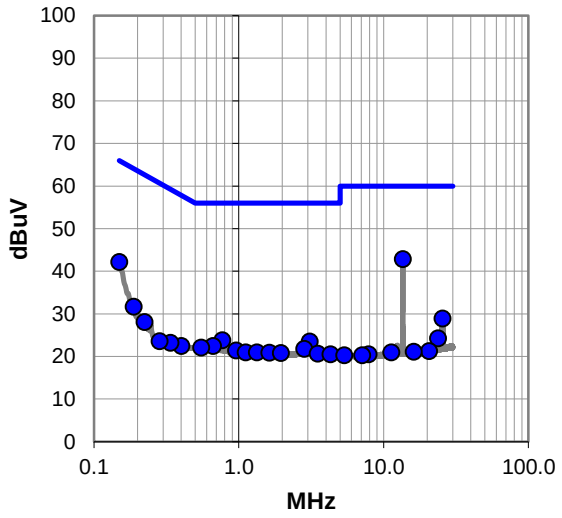
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

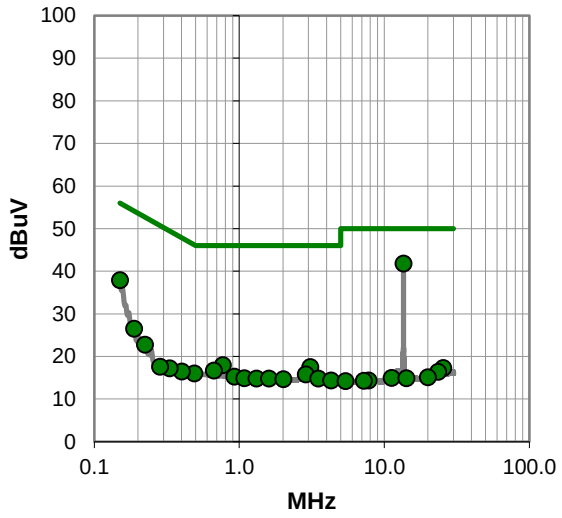
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

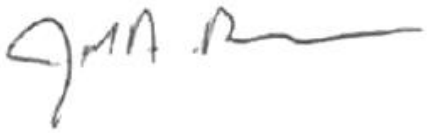
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.559	22.0	20.9	42.9	60.0	-17.1
0.150	21.6	20.6	42.2	66.0	-23.8
25.486	6.8	22.1	28.9	60.0	-31.1
0.771	3.6	20.2	23.8	56.0	-32.2
0.188	11.1	20.6	31.7	64.1	-32.4
3.084	3.3	20.2	23.5	56.0	-32.5
0.666	2.3	20.2	22.5	56.0	-33.5
0.550	1.9	20.2	22.1	56.0	-33.9
2.842	1.6	20.2	21.8	56.0	-34.2
0.223	7.5	20.6	28.1	62.7	-34.6
0.959	1.2	20.2	21.4	56.0	-34.6
1.119	1.0	20.0	21.0	56.0	-35.0
1.336	0.9	20.1	21.0	56.0	-35.0
1.624	0.7	20.2	20.9	56.0	-35.1
1.960	0.6	20.2	20.8	56.0	-35.2
0.402	2.2	20.3	22.5	57.8	-35.3
3.508	0.5	20.2	20.7	56.0	-35.3
4.296	0.3	20.2	20.5	56.0	-35.5
23.760	2.4	21.9	24.3	60.0	-35.7
0.338	2.9	20.3	23.2	59.3	-36.1
0.284	3.1	20.5	23.6	60.7	-37.1
20.639	-0.1	21.4	21.3	60.0	-38.7
16.192	-0.1	21.2	21.1	60.0	-38.9
11.299	0.3	20.7	21.0	60.0	-39.0
7.875	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.559	20.9	20.9	41.8	50.0	-8.2
0.150	17.3	20.6	37.9	56.0	-18.1
0.188	5.9	20.6	26.5	54.1	-27.6
0.769	-2.2	20.2	18.0	46.0	-28.0
3.084	-2.7	20.2	17.5	46.0	-28.5
0.667	-3.5	20.2	16.7	46.0	-29.3
0.223	2.2	20.6	22.8	52.7	-29.9
2.878	-4.4	20.2	15.8	46.0	-30.2
0.490	-4.2	20.2	16.0	46.2	-30.2
0.922	-4.9	20.2	15.3	46.0	-30.7
1.081	-5.1	20.0	14.9	46.0	-31.1
1.311	-5.3	20.1	14.8	46.0	-31.2
1.600	-5.4	20.2	14.8	46.0	-31.2
3.508	-5.4	20.2	14.8	46.0	-31.2
0.402	-3.8	20.3	16.5	47.8	-31.3
2.008	-5.5	20.2	14.7	46.0	-31.3
4.303	-5.8	20.2	14.4	46.0	-31.6
0.330	-3.1	20.3	17.2	49.5	-32.3
25.463	-4.8	22.1	17.3	50.0	-32.7
0.284	-2.9	20.5	17.6	50.7	-33.1
23.528	-5.5	21.9	16.4	50.0	-33.6
19.987	-6.3	21.4	15.1	50.0	-34.9
11.217	-5.7	20.7	15.0	50.0	-35.0
14.195	-6.0	20.9	14.9	50.0	-35.1
7.793	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG03-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	12	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

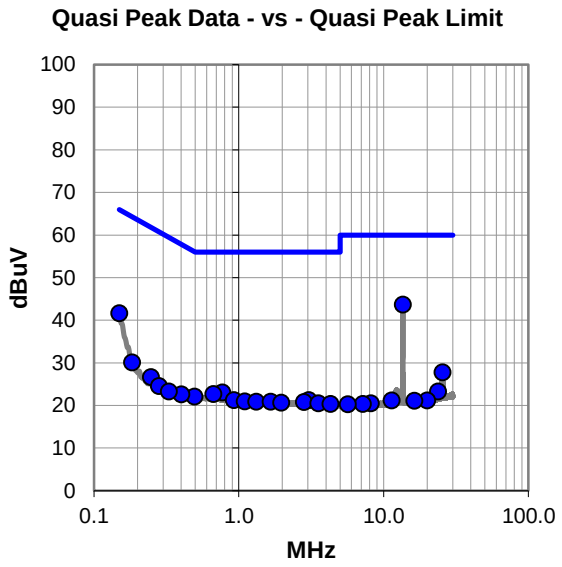
SwitchController Roundabout 3. PCB contains 2 RFID radios. Radio 1 ON.

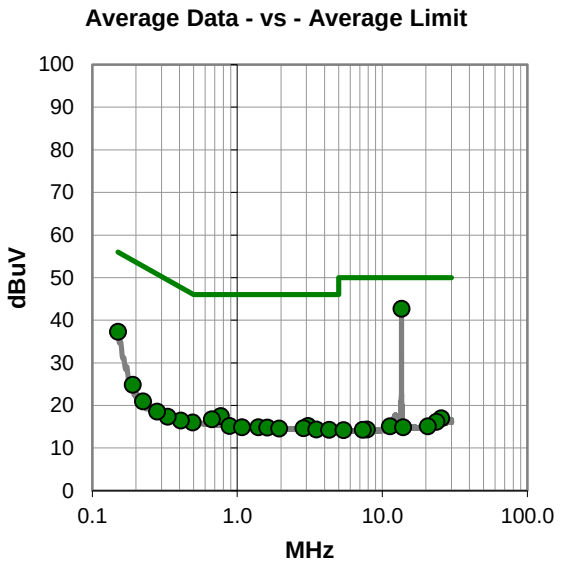
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #12

Quasi Peak Data - vs - Quasi Peak Limit

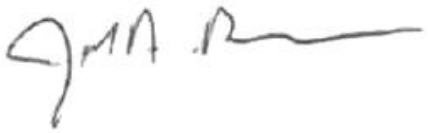
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	22.8	20.9	43.7	60.0	-16.3
0.150	21.1	20.6	41.7	66.0	-24.3
25.477	5.7	22.1	27.8	60.0	-32.2
0.769	2.9	20.2	23.1	56.0	-32.9
0.667	2.5	20.2	22.7	56.0	-33.3
0.495	1.9	20.2	22.1	56.1	-34.0
0.184	9.5	20.6	30.1	64.3	-34.2
0.924	1.1	20.2	21.3	56.0	-34.7
3.041	1.1	20.2	21.3	56.0	-34.7
1.098	1.0	20.0	21.0	56.0	-35.0
0.248	6.1	20.6	26.7	61.8	-35.1
1.320	0.8	20.1	20.9	56.0	-35.1
1.659	0.7	20.2	20.9	56.0	-35.1
0.402	2.3	20.3	22.6	57.8	-35.2
2.822	0.6	20.2	20.8	56.0	-35.2
1.964	0.5	20.2	20.7	56.0	-35.3
3.540	0.3	20.2	20.5	56.0	-35.5
4.300	0.2	20.2	20.4	56.0	-35.6
0.281	4.1	20.5	24.6	60.8	-36.2
0.330	3.0	20.3	23.3	59.5	-36.2
23.762	1.4	21.9	23.3	60.0	-36.7
11.381	0.5	20.7	21.2	60.0	-38.8
20.021	-0.2	21.4	21.2	60.0	-38.8
16.330	-0.1	21.2	21.1	60.0	-38.9
8.170	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	21.8	20.9	42.7	50.0	-7.3
0.150	16.7	20.6	37.3	56.0	-18.7
0.769	-2.7	20.2	17.5	46.0	-28.5
0.667	-3.4	20.2	16.8	46.0	-29.2
0.190	4.3	20.6	24.9	54.1	-29.2
0.492	-4.2	20.2	16.0	46.1	-30.1
0.884	-5.0	20.2	15.2	46.0	-30.8
3.064	-5.0	20.2	15.2	46.0	-30.8
1.076	-5.1	20.0	14.9	46.0	-31.1
1.397	-5.3	20.2	14.9	46.0	-31.1
1.606	-5.4	20.2	14.8	46.0	-31.2
0.406	-3.8	20.3	16.5	47.7	-31.2
2.860	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
3.508	-5.8	20.2	14.4	46.0	-31.6
4.291	-5.9	20.2	14.3	46.0	-31.7
0.223	0.4	20.6	21.0	52.7	-31.7
0.330	-2.9	20.3	17.4	49.5	-32.1
0.280	-1.9	20.5	18.6	50.8	-32.2
25.463	-5.1	22.1	17.0	50.0	-33.0
23.588	-5.7	21.9	16.2	50.0	-33.8
11.299	-5.6	20.7	15.1	50.0	-34.9
20.626	-6.3	21.4	15.1	50.0	-34.9
13.936	-6.0	20.9	14.9	50.0	-35.1
7.848	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG03-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

SwitchController Roundabout 3. PCB contains 2 RFID radios. Radio 2 ON.

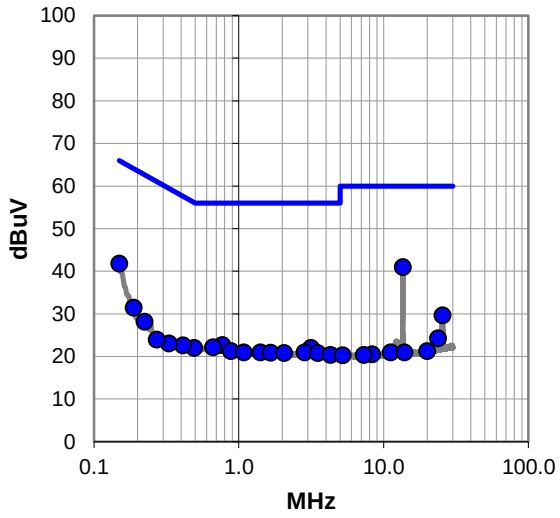
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

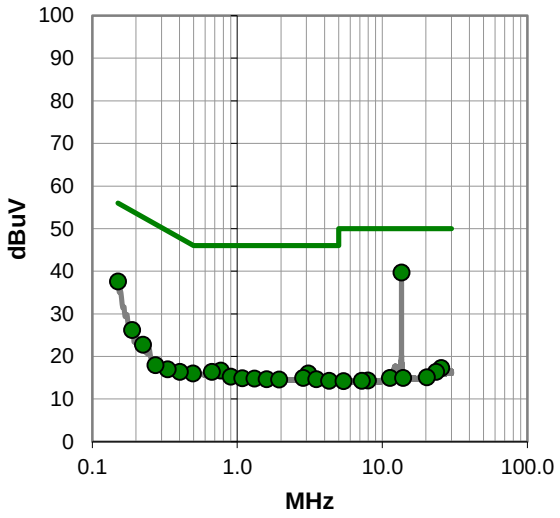
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #13

Quasi Peak Data - vs - Quasi Peak Limit

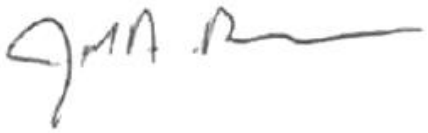
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	20.1	20.9	41.0	60.0	-19.0
0.150	21.2	20.6	41.8	66.0	-24.2
25.538	7.6	22.1	29.7	60.0	-30.3
0.188	10.9	20.6	31.5	64.1	-32.6
0.769	2.5	20.2	22.7	56.0	-33.3
0.666	2.0	20.2	22.2	56.0	-33.8
3.147	1.8	20.2	22.0	56.0	-34.0
0.493	1.8	20.2	22.0	56.1	-34.1
0.223	7.6	20.6	28.2	62.7	-34.5
0.884	1.1	20.2	21.3	56.0	-34.7
0.412	2.3	20.3	22.6	57.6	-35.0
1.082	1.0	20.0	21.0	56.0	-35.0
1.413	0.8	20.2	21.0	56.0	-35.0
2.843	0.8	20.2	21.0	56.0	-35.0
1.664	0.7	20.2	20.9	56.0	-35.1
2.056	0.6	20.2	20.8	56.0	-35.2
3.510	0.6	20.2	20.8	56.0	-35.2
4.305	0.2	20.2	20.4	56.0	-35.6
23.742	2.4	21.9	24.3	60.0	-35.7
0.330	2.8	20.3	23.1	59.5	-36.4
0.272	3.5	20.5	24.0	61.1	-37.1
19.958	-0.1	21.4	21.3	60.0	-38.7
11.217	0.3	20.7	21.0	60.0	-39.0
13.940	0.1	20.9	21.0	60.0	-39.0
8.356	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	18.8	20.9	39.7	50.0	-10.3
0.150	17.0	20.6	37.6	56.0	-18.4
0.188	5.6	20.6	26.2	54.1	-27.9
0.769	-3.5	20.2	16.7	46.0	-29.3
0.667	-3.8	20.2	16.4	46.0	-29.6
0.223	2.2	20.6	22.8	52.7	-29.9
3.086	-4.2	20.2	16.0	46.0	-30.0
0.493	-4.2	20.2	16.0	46.1	-30.1
0.902	-4.9	20.2	15.3	46.0	-30.7
2.843	-5.2	20.2	15.0	46.0	-31.0
1.081	-5.1	20.0	14.9	46.0	-31.1
1.313	-5.3	20.1	14.8	46.0	-31.2
1.596	-5.5	20.2	14.7	46.0	-31.3
3.508	-5.5	20.2	14.7	46.0	-31.3
0.402	-3.9	20.3	16.4	47.8	-31.4
1.943	-5.6	20.2	14.6	46.0	-31.4
4.290	-5.9	20.2	14.3	46.0	-31.7
0.330	-3.3	20.3	17.0	49.5	-32.5
25.463	-4.8	22.1	17.3	50.0	-32.7
0.272	-2.5	20.5	18.0	51.1	-33.1
23.528	-5.5	21.9	16.4	50.0	-33.6
20.277	-6.3	21.4	15.1	50.0	-34.9
11.299	-5.7	20.7	15.0	50.0	-35.0
13.940	-5.9	20.9	15.0	50.0	-35.0
7.970	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG03-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

SwitchController Roundabout 3. PCB contains 2 RFID radios. Radio 2 ON.

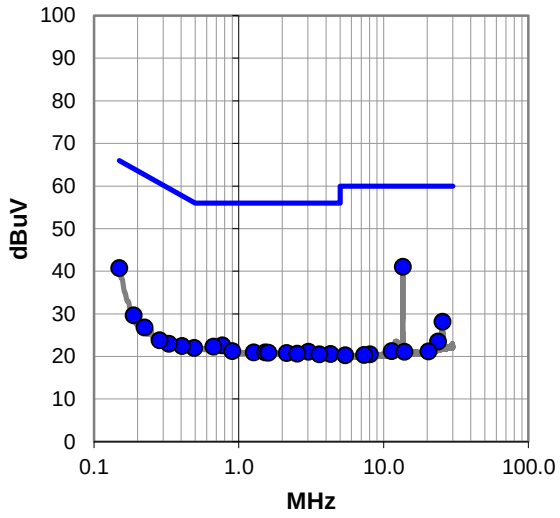
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

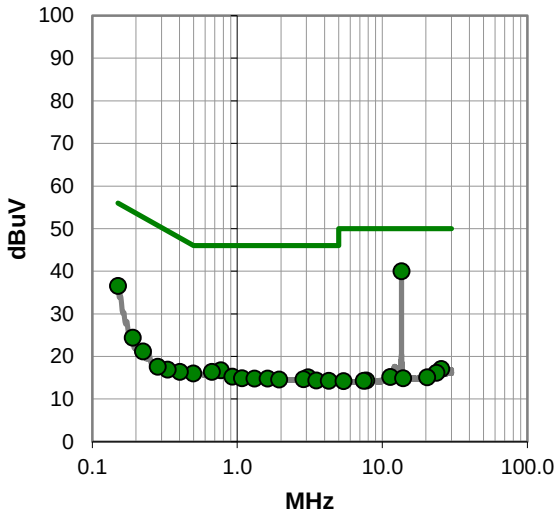
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #14

Quasi Peak Data - vs - Quasi Peak Limit

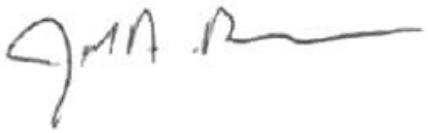
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	20.2	20.9	41.1	60.0	-18.9
0.150	20.2	20.6	40.8	66.0	-25.2
25.468	6.1	22.1	28.2	60.0	-31.8
0.769	2.4	20.2	22.6	56.0	-33.4
0.667	2.1	20.2	22.3	56.0	-33.7
0.493	1.8	20.2	22.0	56.1	-34.1
0.188	9.1	20.6	29.7	64.1	-34.4
0.902	1.1	20.2	21.3	56.0	-34.7
3.023	0.9	20.2	21.1	56.0	-34.9
1.268	0.9	20.1	21.0	56.0	-35.0
1.525	0.8	20.2	21.0	56.0	-35.0
1.601	0.7	20.2	20.9	56.0	-35.1
2.144	0.6	20.2	20.8	56.0	-35.2
0.405	2.2	20.3	22.5	57.8	-35.3
2.535	0.5	20.2	20.7	56.0	-35.3
4.296	0.4	20.2	20.6	56.0	-35.4
3.609	0.3	20.2	20.5	56.0	-35.5
0.223	6.2	20.6	26.8	62.7	-35.9
0.330	2.7	20.3	23.0	59.5	-36.5
23.774	1.6	21.9	23.5	60.0	-36.5
0.284	3.3	20.5	23.8	60.7	-36.9
11.383	0.6	20.7	21.3	60.0	-38.7
20.368	-0.2	21.4	21.2	60.0	-38.8
13.939	0.2	20.9	21.1	60.0	-38.9
8.032	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	19.1	20.9	40.0	50.0	-10.0
0.150	16.0	20.6	36.6	56.0	-19.4
0.769	-3.4	20.2	16.8	46.0	-29.2
0.667	-3.8	20.2	16.4	46.0	-29.6
0.190	3.8	20.6	24.4	54.1	-29.7
0.496	-4.2	20.2	16.0	46.1	-30.1
0.925	-4.9	20.2	15.3	46.0	-30.7
3.064	-5.1	20.2	15.1	46.0	-30.9
1.076	-5.1	20.0	14.9	46.0	-31.1
1.311	-5.3	20.1	14.8	46.0	-31.2
1.618	-5.4	20.2	14.8	46.0	-31.2
2.863	-5.5	20.2	14.7	46.0	-31.3
0.402	-3.9	20.3	16.4	47.8	-31.4
1.944	-5.6	20.2	14.6	46.0	-31.4
0.223	0.6	20.6	21.2	52.7	-31.5
3.508	-5.8	20.2	14.4	46.0	-31.6
4.282	-5.9	20.2	14.3	46.0	-31.7
0.330	-3.4	20.3	16.9	49.5	-32.6
25.468	-5.0	22.1	17.1	50.0	-32.9
0.283	-2.9	20.5	17.6	50.7	-33.1
23.591	-5.7	21.9	16.2	50.0	-33.8
11.381	-5.5	20.7	15.2	50.0	-34.8
20.372	-6.3	21.4	15.1	50.0	-34.9
13.936	-6.0	20.9	14.9	50.0	-35.1
7.750	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG04-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

SwitchController Roundabout 4. PCB contains 2 RFID radios. Radio 1 ON.

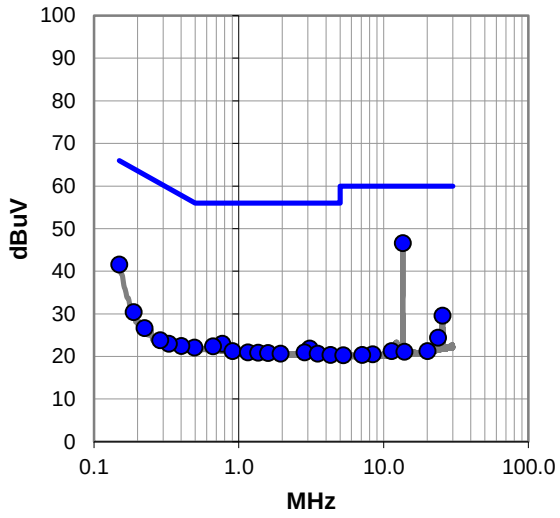
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

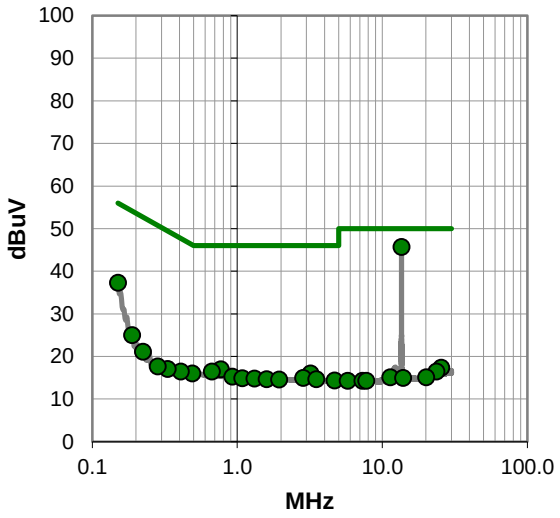
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #15

Quasi Peak Data - vs - Quasi Peak Limit

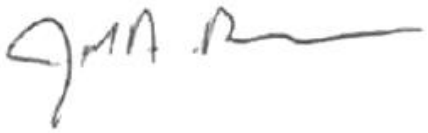
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	25.7	20.9	46.6	60.0	-13.4
0.150	21.0	20.6	41.6	66.0	-24.4
25.503	7.5	22.1	29.6	60.0	-30.4
0.771	2.8	20.2	23.0	56.0	-33.0
0.666	2.2	20.2	22.4	56.0	-33.6
0.188	9.8	20.6	30.4	64.1	-33.7
0.495	1.9	20.2	22.1	56.1	-34.0
3.086	1.7	20.2	21.9	56.0	-34.1
0.907	1.1	20.2	21.3	56.0	-34.7
1.156	1.0	20.0	21.0	56.0	-35.0
2.843	0.8	20.2	21.0	56.0	-35.0
1.363	0.8	20.1	20.9	56.0	-35.1
1.598	0.6	20.2	20.8	56.0	-35.2
0.402	2.2	20.3	22.5	57.8	-35.3
1.946	0.5	20.2	20.7	56.0	-35.3
3.508	0.5	20.2	20.7	56.0	-35.3
4.294	0.2	20.2	20.4	56.0	-35.6
23.757	2.5	21.9	24.4	60.0	-35.6
0.223	6.1	20.6	26.7	62.7	-36.0
0.330	2.7	20.3	23.0	59.5	-36.5
0.287	3.3	20.5	23.8	60.6	-36.8
11.381	0.6	20.7	21.3	60.0	-38.7
20.092	-0.1	21.4	21.3	60.0	-38.7
13.939	0.2	20.9	21.1	60.0	-38.9
8.421	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	24.8	20.9	45.7	50.0	-4.3
0.150	16.7	20.6	37.3	56.0	-18.7
0.769	-3.2	20.2	17.0	46.0	-29.0
0.188	4.4	20.6	25.0	54.1	-29.1
0.667	-3.7	20.2	16.5	46.0	-29.5
3.206	-4.2	20.2	16.0	46.0	-30.0
0.490	-4.2	20.2	16.0	46.2	-30.2
0.924	-4.9	20.2	15.3	46.0	-30.7
2.843	-5.2	20.2	15.0	46.0	-31.0
1.081	-5.1	20.0	14.9	46.0	-31.1
1.311	-5.3	20.1	14.8	46.0	-31.2
0.406	-3.8	20.3	16.5	47.7	-31.2
1.596	-5.5	20.2	14.7	46.0	-31.3
3.508	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
0.223	0.5	20.6	21.1	52.7	-31.6
4.676	-5.8	20.2	14.4	46.0	-31.6
0.330	-3.2	20.3	17.1	49.5	-32.4
25.483	-4.7	22.1	17.4	50.0	-32.6
0.283	-2.8	20.5	17.7	50.7	-33.0
23.589	-5.4	21.9	16.5	50.0	-33.5
11.381	-5.6	20.7	15.1	50.0	-34.9
20.069	-6.3	21.4	15.1	50.0	-34.9
13.930	-5.9	20.9	15.0	50.0	-35.0
5.776	-5.9	20.2	14.3	50.0	-35.7

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG04-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

SwitchController Roundabout 4. PCB contains 2 RFID radios. Radio 1 ON.

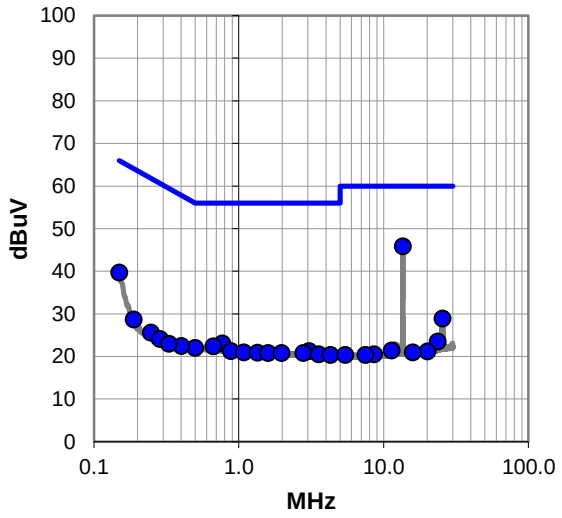
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

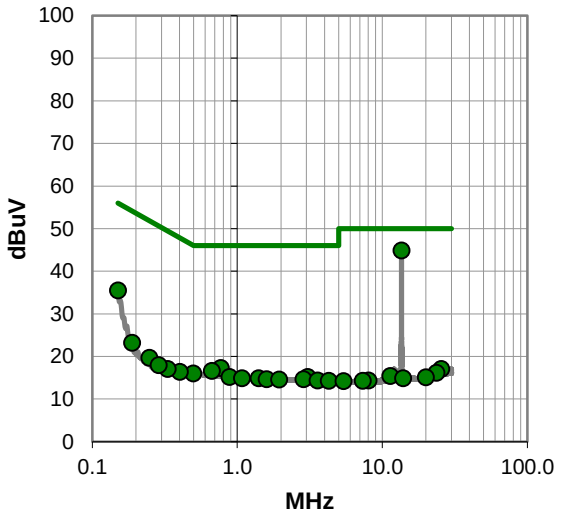
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #16

Quasi Peak Data - vs - Quasi Peak Limit

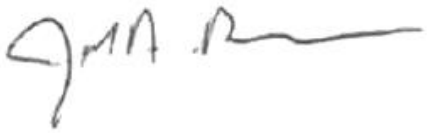
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	25.0	20.9	45.9	60.0	-14.1
0.150	19.1	20.6	39.7	66.0	-26.3
25.501	6.8	22.1	28.9	60.0	-31.1
0.769	2.9	20.2	23.1	56.0	-32.9
0.667	2.2	20.2	22.4	56.0	-33.6
0.499	1.8	20.2	22.0	56.0	-34.0
0.885	1.1	20.2	21.3	56.0	-34.7
3.063	1.1	20.2	21.3	56.0	-34.7
1.082	1.0	20.0	21.0	56.0	-35.0
1.346	0.8	20.1	20.9	56.0	-35.1
1.598	0.6	20.2	20.8	56.0	-35.2
1.972	0.6	20.2	20.8	56.0	-35.2
2.788	0.6	20.2	20.8	56.0	-35.2
0.402	2.2	20.3	22.5	57.8	-35.3
0.188	8.1	20.6	28.7	64.1	-35.4
3.563	0.3	20.2	20.5	56.0	-35.5
4.308	0.2	20.2	20.4	56.0	-35.6
0.248	5.0	20.6	25.6	61.8	-36.2
0.286	3.6	20.5	24.1	60.6	-36.5
0.330	2.7	20.3	23.0	59.5	-36.5
23.711	1.6	21.9	23.5	60.0	-36.5
11.381	0.7	20.7	21.4	60.0	-38.6
20.108	-0.2	21.4	21.2	60.0	-38.8
15.916	-0.1	21.1	21.0	60.0	-39.0
8.598	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	24.0	20.9	44.9	50.0	-5.1
0.150	14.9	20.6	35.5	56.0	-20.5
0.769	-2.9	20.2	17.3	46.0	-28.7
0.667	-3.6	20.2	16.6	46.0	-29.4
0.496	-4.2	20.2	16.0	46.1	-30.1
0.884	-5.0	20.2	15.2	46.0	-30.8
3.058	-5.0	20.2	15.2	46.0	-30.8
0.188	2.6	20.6	23.2	54.1	-30.9
1.076	-5.1	20.0	14.9	46.0	-31.1
1.401	-5.3	20.2	14.9	46.0	-31.1
1.596	-5.5	20.2	14.7	46.0	-31.3
2.861	-5.5	20.2	14.7	46.0	-31.3
0.402	-3.9	20.3	16.4	47.8	-31.4
1.943	-5.6	20.2	14.6	46.0	-31.4
3.577	-5.8	20.2	14.4	46.0	-31.6
4.279	-5.9	20.2	14.3	46.0	-31.7
0.248	-0.9	20.6	19.7	51.8	-32.1
0.330	-3.2	20.3	17.1	49.5	-32.4
0.287	-2.5	20.5	18.0	50.6	-32.6
25.471	-5.0	22.1	17.1	50.0	-32.9
23.592	-5.7	21.9	16.2	50.0	-33.8
11.381	-5.3	20.7	15.4	50.0	-34.6
20.014	-6.3	21.4	15.1	50.0	-34.9
13.930	-6.0	20.9	14.9	50.0	-35.1
8.029	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG04-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	20	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

SwitchController Roundabout 4. PCB contains 2 RFID radios. Radio 2 ON.

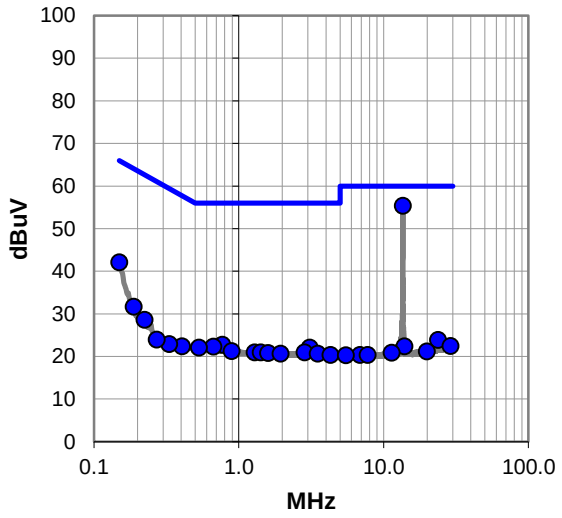
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

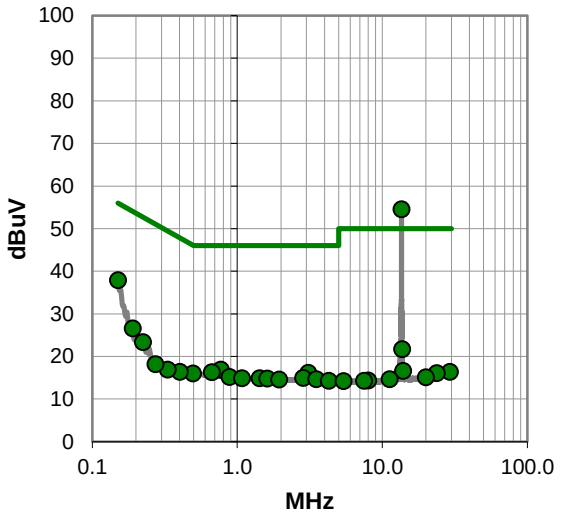
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #20

Quasi Peak Data - vs - Quasi Peak Limit

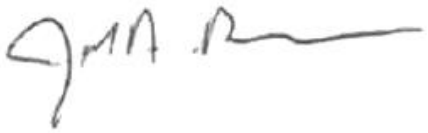
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	34.5	20.9	55.4	60.0	-4.6
0.150	21.5	20.6	42.1	66.0	-23.9
0.188	11.1	20.6	31.7	64.1	-32.4
0.769	2.6	20.2	22.8	56.0	-33.2
0.667	2.1	20.2	22.3	56.0	-33.7
0.531	1.9	20.2	22.1	56.0	-33.9
3.086	1.9	20.2	22.1	56.0	-33.9
0.223	8.0	20.6	28.6	62.7	-34.1
0.892	1.1	20.2	21.3	56.0	-34.7
1.285	0.9	20.1	21.0	56.0	-35.0
1.421	0.8	20.2	21.0	56.0	-35.0
2.843	0.8	20.2	21.0	56.0	-35.0
1.596	0.6	20.2	20.8	56.0	-35.2
1.946	0.5	20.2	20.7	56.0	-35.3
3.510	0.5	20.2	20.7	56.0	-35.3
0.405	2.1	20.3	22.4	57.8	-35.4
4.291	0.2	20.2	20.4	56.0	-35.6
23.724	2.0	21.9	23.9	60.0	-36.1
0.332	2.6	20.3	22.9	59.4	-36.5
0.272	3.5	20.5	24.0	61.1	-37.1
28.953	-0.1	22.6	22.5	60.0	-37.5
13.931	1.5	20.9	22.4	60.0	-37.6
19.943	-0.2	21.4	21.2	60.0	-38.8
11.380	0.2	20.7	20.9	60.0	-39.1
6.856	0.2	20.2	20.4	60.0	-39.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	33.7	20.9	54.6	50.0	4.6
0.150	17.3	20.6	37.9	56.0	-18.1
0.190	6.0	20.6	26.6	54.1	-27.5
13.719	0.8	20.9	21.7	50.0	-28.3
0.768	-3.3	20.2	16.9	46.0	-29.1
0.223	2.8	20.6	23.4	52.7	-29.3
0.667	-3.9	20.2	16.3	46.0	-29.7
3.084	-4.0	20.2	16.2	46.0	-29.8
0.493	-4.2	20.2	16.0	46.1	-30.1
0.884	-5.0	20.2	15.2	46.0	-30.8
2.842	-5.2	20.2	15.0	46.0	-31.0
1.076	-5.1	20.0	14.9	46.0	-31.1
1.421	-5.3	20.2	14.9	46.0	-31.1
1.612	-5.4	20.2	14.8	46.0	-31.2
3.508	-5.5	20.2	14.7	46.0	-31.3
0.402	-3.9	20.3	16.4	47.8	-31.4
1.943	-5.6	20.2	14.6	46.0	-31.4
4.279	-5.9	20.2	14.3	46.0	-31.7
0.330	-3.4	20.3	16.9	49.5	-32.6
0.272	-2.3	20.5	18.2	51.1	-32.9
13.931	-4.3	20.9	16.6	50.0	-33.4
29.244	-6.2	22.6	16.4	50.0	-33.6
23.711	-5.8	21.9	16.1	50.0	-33.9
19.943	-6.3	21.4	15.1	50.0	-34.9
11.217	-6.0	20.7	14.7	50.0	-35.3

CONCLUSION

Evaluation



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG04-RA	Date:	2022-05-19
Customer:	Abbott Laboratories	Temperature:	21.7°C
Attendees:	Frank Sun	Relative Humidity:	53.2%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	21	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

SwitchController Roundabout 4. PCB contains 2 RFID radios. Radio 2 ON.

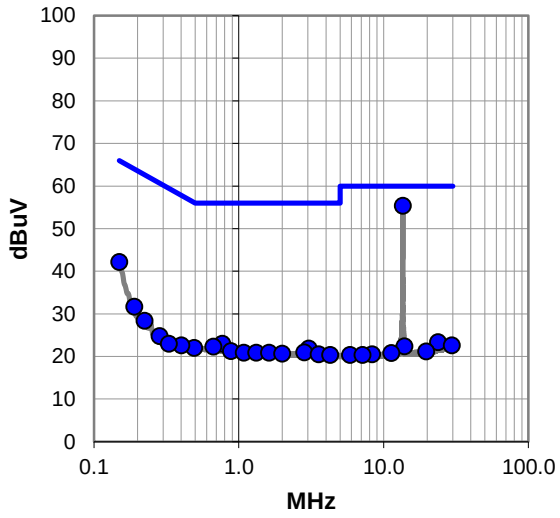
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

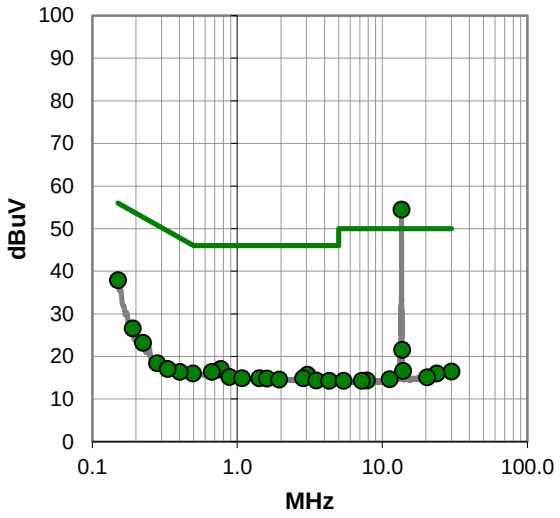
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #21

Quasi Peak Data - vs - Quasi Peak Limit

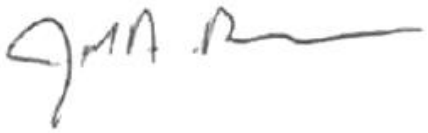
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	34.5	20.9	55.4	60.0	-4.6
0.150	21.6	20.6	42.2	66.0	-23.8
0.190	11.1	20.6	31.7	64.1	-32.4
0.769	2.8	20.2	23.0	56.0	-33.0
0.667	2.1	20.2	22.3	56.0	-33.7
0.493	1.8	20.2	22.0	56.1	-34.1
3.051	1.7	20.2	21.9	56.0	-34.1
0.223	7.8	20.6	28.4	62.7	-34.3
0.885	1.1	20.2	21.3	56.0	-34.7
2.840	0.8	20.2	21.0	56.0	-35.0
1.082	0.9	20.0	20.9	56.0	-35.1
1.323	0.8	20.1	20.9	56.0	-35.1
1.616	0.7	20.2	20.9	56.0	-35.1
0.402	2.3	20.3	22.6	57.8	-35.2
1.996	0.5	20.2	20.7	56.0	-35.3
3.572	0.3	20.2	20.5	56.0	-35.5
4.276	0.2	20.2	20.4	56.0	-35.6
0.284	4.3	20.5	24.8	60.7	-35.9
0.330	2.7	20.3	23.0	59.5	-36.5
23.727	1.5	21.9	23.4	60.0	-36.6
29.606	0.1	22.5	22.6	60.0	-37.4
13.931	1.5	20.9	22.4	60.0	-37.6
19.691	-0.1	21.3	21.2	60.0	-38.8
11.299	0.1	20.7	20.8	60.0	-39.2
8.354	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.560	33.6	20.9	54.5	50.0	4.5
0.150	17.3	20.6	37.9	56.0	-18.1
0.190	6.0	20.6	26.6	54.1	-27.5
13.719	0.7	20.9	21.6	50.0	-28.4
0.769	-3.1	20.2	17.1	46.0	-28.9
0.223	2.6	20.6	23.2	52.7	-29.5
0.667	-3.8	20.2	16.4	46.0	-29.6
0.493	-4.2	20.2	16.0	46.1	-30.1
3.032	-4.5	20.2	15.7	46.0	-30.3
0.884	-5.0	20.2	15.2	46.0	-30.8
1.079	-5.1	20.0	14.9	46.0	-31.1
1.418	-5.3	20.2	14.9	46.0	-31.1
2.840	-5.3	20.2	14.9	46.0	-31.1
1.603	-5.4	20.2	14.8	46.0	-31.2
0.402	-3.9	20.3	16.4	47.8	-31.4
1.943	-5.6	20.2	14.6	46.0	-31.4
3.508	-5.8	20.2	14.4	46.0	-31.6
4.291	-5.9	20.2	14.3	46.0	-31.7
0.280	-2.1	20.5	18.4	50.8	-32.4
0.330	-3.2	20.3	17.1	49.5	-32.4
13.931	-4.3	20.9	16.6	50.0	-33.4
29.938	-5.9	22.4	16.5	50.0	-33.5
23.715	-5.9	21.9	16.0	50.0	-34.0
20.364	-6.3	21.4	15.1	50.0	-34.9
11.215	-6.0	20.7	14.7	50.0	-35.3

CONCLUSION

Evaluation



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG04-RA	Date:	2022-05-26
Customer:	Abbott Laboratories	Temperature:	21.8°C
Attendees:	Frank Sun	Relative Humidity:	45.5%
Customer Project:	None	Bar. Pressure (PMSL):	989 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	26	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

SwitchController Roundabout 4. PCB contains 2 RFID radios. Radio 2 ON. Antenna disconnected and replaced with load.

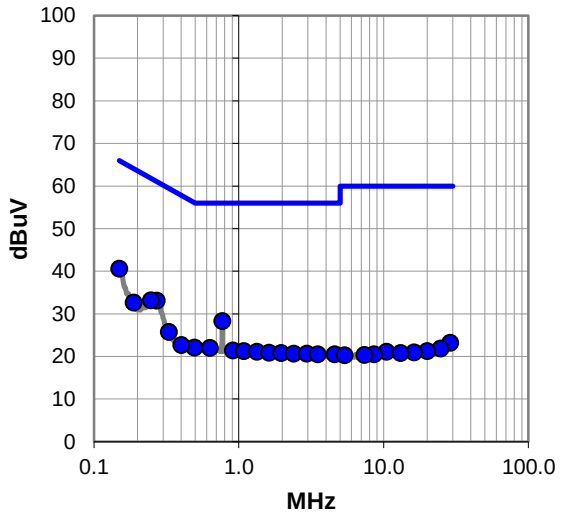
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

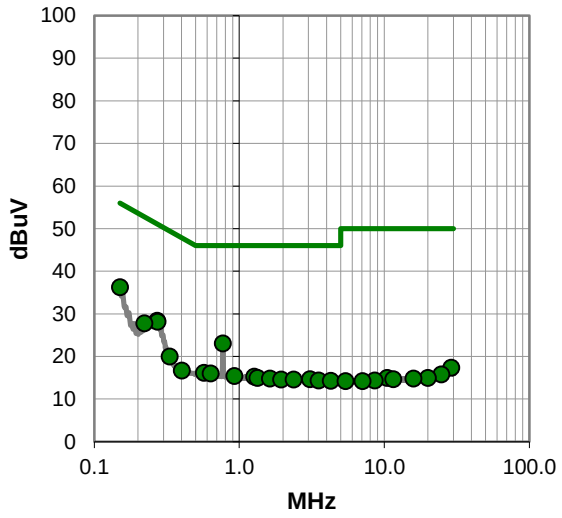
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #26

Quasi Peak Data - vs - Quasi Peak Limit

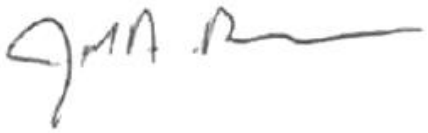
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	20.0	20.6	40.6	66.0	-25.4
0.769	8.1	20.2	28.3	56.0	-27.7
0.272	12.6	20.5	33.1	61.1	-28.0
0.248	12.6	20.6	33.2	61.8	-28.6
0.188	12.1	20.6	32.7	64.1	-31.4
0.330	5.5	20.3	25.8	59.5	-33.7
0.495	1.9	20.2	22.1	56.1	-34.0
0.632	1.8	20.2	22.0	56.0	-34.0
0.911	1.2	20.2	21.4	56.0	-34.6
1.082	1.3	20.0	21.3	56.0	-34.7
1.334	1.0	20.1	21.1	56.0	-34.9
0.402	2.4	20.3	22.7	57.8	-35.1
1.619	0.7	20.2	20.9	56.0	-35.1
1.967	0.6	20.2	20.8	56.0	-35.2
2.401	0.5	20.2	20.7	56.0	-35.3
2.953	0.5	20.2	20.7	56.0	-35.3
3.511	0.3	20.2	20.5	56.0	-35.5
4.589	0.3	20.2	20.5	56.0	-35.5
28.914	0.7	22.5	23.2	60.0	-36.8
24.784	-0.1	22.0	21.9	60.0	-38.1
20.004	-0.1	21.4	21.3	60.0	-38.7
10.461	0.6	20.5	21.1	60.0	-38.9
16.250	-0.2	21.2	21.0	60.0	-39.0
13.112	-0.1	20.9	20.8	60.0	-39.2
8.579	0.1	20.4	20.5	60.0	-39.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	15.7	20.6	36.3	56.0	-19.7
0.271	7.9	20.5	28.4	51.1	-22.7
0.769	2.9	20.2	23.1	46.0	-22.9
0.272	7.7	20.5	28.2	51.1	-22.9
0.222	7.2	20.6	27.8	52.8	-25.0
0.330	-0.3	20.3	20.0	49.5	-29.5
0.570	-4.0	20.2	16.2	46.0	-29.8
0.635	-4.2	20.2	16.0	46.0	-30.0
0.922	-4.8	20.2	15.4	46.0	-30.6
1.268	-4.8	20.1	15.3	46.0	-30.7
1.332	-5.1	20.1	15.0	46.0	-31.0
0.402	-3.6	20.3	16.7	47.8	-31.1
1.622	-5.4	20.2	14.8	46.0	-31.2
3.066	-5.5	20.2	14.7	46.0	-31.3
1.943	-5.6	20.2	14.6	46.0	-31.4
2.373	-5.6	20.2	14.6	46.0	-31.4
3.524	-5.8	20.2	14.4	46.0	-31.6
4.282	-5.9	20.2	14.3	46.0	-31.7
28.914	-5.1	22.5	17.4	50.0	-32.6
24.783	-6.2	22.0	15.8	50.0	-34.2
10.461	-5.5	20.5	15.0	50.0	-35.0
19.947	-6.4	21.4	15.0	50.0	-35.0
15.919	-6.3	21.1	14.8	50.0	-35.2
11.519	-6.0	20.7	14.7	50.0	-35.3
8.585	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	GLP12179 Roundabout 3-entry	Work Order:	ABBO0123
Serial Number:	ENG04-RA	Date:	2022-05-26
Customer:	Abbott Laboratories	Temperature:	21.8°C
Attendees:	Frank Sun	Relative Humidity:	45.5%
Customer Project:	None	Bar. Pressure (PMSL):	989 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0123-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	27	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

SwitchController Roundabout 4. PCB contains 2 RFID radios. Radio 2 ON. Antenna disconnected and replaced with load.

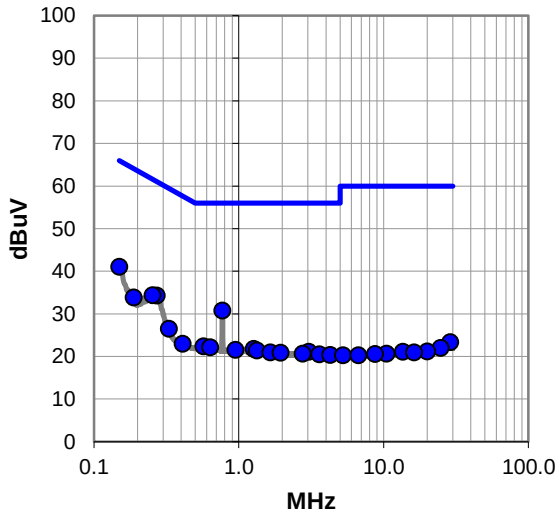
EUT OPERATING MODES

Transmitting 13.56 MHz RFID

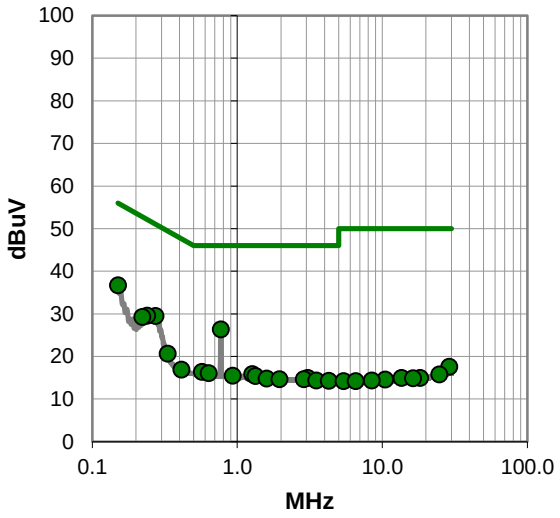
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #27

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	20.5	20.6	41.1	66.0	-24.9
0.769	10.6	20.2	30.8	56.0	-25.2
0.272	13.8	20.5	34.3	61.1	-26.8
0.254	13.9	20.5	34.4	61.6	-27.2
0.188	13.3	20.6	33.9	64.1	-30.2
0.330	6.2	20.3	26.5	59.5	-33.0
0.570	2.2	20.2	22.4	56.0	-33.6
0.635	2.0	20.2	22.2	56.0	-33.8
1.268	1.7	20.1	21.8	56.0	-34.2
0.948	1.4	20.2	21.6	56.0	-34.4
0.411	2.7	20.3	23.0	57.6	-34.6
1.334	1.3	20.1	21.4	56.0	-34.6
3.051	0.9	20.2	21.1	56.0	-34.9
1.651	0.8	20.2	21.0	56.0	-35.0
1.944	0.7	20.2	20.9	56.0	-35.1
2.770	0.5	20.2	20.7	56.0	-35.3
3.595	0.3	20.2	20.5	56.0	-35.5
4.282	0.2	20.2	20.4	56.0	-35.6
28.914	0.9	22.5	23.4	60.0	-36.6
24.783	0.0	22.0	22.0	60.0	-38.0
19.950	-0.2	21.4	21.2	60.0	-38.8
13.560	0.2	20.9	21.1	60.0	-38.9
16.212	-0.2	21.2	21.0	60.0	-39.0
10.460	0.2	20.5	20.7	60.0	-39.3
8.708	0.2	20.4	20.6	60.0	-39.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	16.1	20.6	36.7	56.0	-19.3
0.769	6.2	20.2	26.4	46.0	-19.6
0.272	9.0	20.5	29.5	51.1	-21.6
0.238	9.0	20.6	29.6	52.1	-22.5
0.222	8.7	20.6	29.3	52.8	-23.5
0.330	0.4	20.3	20.7	49.5	-28.8
0.570	-3.8	20.2	16.4	46.0	-29.6
0.634	-4.1	20.2	16.1	46.0	-29.9
1.270	-4.2	20.1	15.9	46.0	-30.1
0.931	-4.7	20.2	15.5	46.0	-30.5
1.334	-4.7	20.1	15.4	46.0	-30.6
0.411	-3.4	20.3	16.9	47.6	-30.7
3.049	-5.2	20.2	15.0	46.0	-31.0
1.596	-5.4	20.2	14.8	46.0	-31.2
1.950	-5.5	20.2	14.7	46.0	-31.3
2.867	-5.5	20.2	14.7	46.0	-31.3
3.508	-5.8	20.2	14.4	46.0	-31.6
4.276	-5.9	20.2	14.3	46.0	-31.7
28.914	-4.9	22.5	17.6	50.0	-32.4
24.781	-6.2	22.0	15.8	50.0	-34.2
13.560	-5.9	20.9	15.0	50.0	-35.0
18.225	-6.3	21.3	15.0	50.0	-35.0
16.290	-6.3	21.2	14.9	50.0	-35.1
10.460	-5.9	20.5	14.6	50.0	-35.4
8.447	-6.0	20.4	14.4	50.0	-35.6

CONCLUSION

Pass

Tested By

OCCUPIED BANDWIDTH

XMit 2022.02.07.0

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	AFN	2022-01-19	2023-01-19
DC Block	Fairview Microwave	SD3379	AMT	2021-09-14	2022-09-14
Attenuator	Fairview Microwave	SA4018-20	TYE	2021-09-15	2022-09-15
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2021-12-10	2022-12-10
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR

TEST DESCRIPTION

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 by 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 emissions bandwidth was measured with the EUT configured for continuous modulated operation.

The resolution bandwidth (RBW) and video bandwidth (VBW) bandwidth was set to at least 3 times the resolution bandwidth. The analyzer sweep time was set to auto to prevent video filtering or averaging. A sample detector was used unless the device was not able to be operated in a continuous transmit mode, in which case a peak detector was used.

The spectrum analyzer occupied bandwidth measurement function was used to sum the power of the transmission in linear terms to obtain the 99% bandwidth.

OCCUPIED BANDWIDTH

TbtTx 2022.05.02.0 XMit 2022.02.07.0

EUT:	GLP12179 Roundabout 3-entry			**Work Order:**	ABBO0123
Serial Number:	ENG02-RA			**Date:**	23-May-22
Customer:	Abbott Laboratories			**Temperature:**	22.6 °C
Attendees:	Frank Sun			**Humidity:**	47.8% RH
Project:	None			**Barometric Pres.:**	1022 mbar
Tested by:	Jarrod Brenden	**Power:**	220VAC/60Hz	**Job Site:**	TX01

TEST SPECIFICATIONS	Test Method
FCC 15.225:2022	ANSI C63.10:2013

COMMENTS

SwitchController Roundabout PCB contains 2 RFID radios. 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.

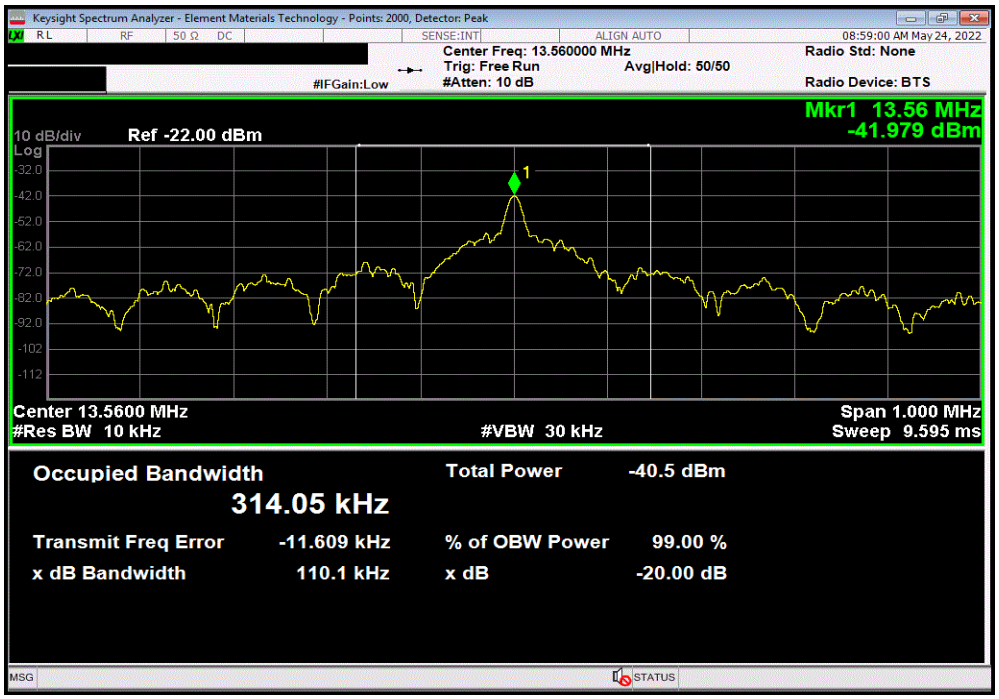
DEVIATIONS FROM TEST STANDARD

None

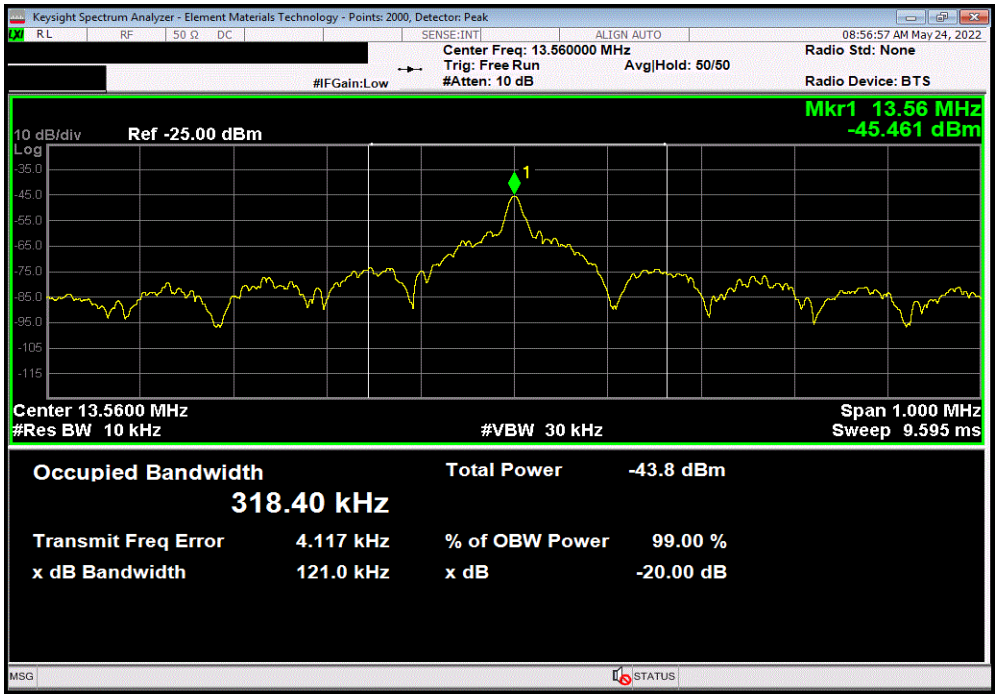
Configuration #	2	Signature

		Value	Limit 13.110 MHz ≤ BW ≥ 14.010 MHz	Result
Radio 1 Antenna				
	Normal Voltage			
	13.56 MHz RFID	110.085 kHz	Within	Pass
Radio 2 Antenna				
	Normal Voltage			
	13.56 MHz RFID	120.99 kHz	Within	Pass

Radio 1 Antenna, Normal Voltage, 13.56 MHz RFID							
					Limit		
				Value	13.110 MHz ≤ BW ≥ 14.010 MHz	Result	
				110.085 kHz	Within	Pass	



Radio 2 Antenna, Normal Voltage, 13.56 MHz RFID							
					Limit		
				Value	13.110 MHz ≤ BW ≥ 14.010 MHz	Result	
				120.99 kHz	Within	Pass	



FIELD STRENGTH OF FUNDAMENTAL

PSA-ESCI 2021.03.17.0

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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting RFID 13.56 MHz

POWER SETTINGS INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0123 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	12.06 MHz	Stop Frequency	15.06 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2022-03-22	2023-03-22
Antenna - Loop	ETS Lindgren	6502	AZM	2020-07-09	2022-07-09
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-04-19	2023-04-19

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 height and 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.

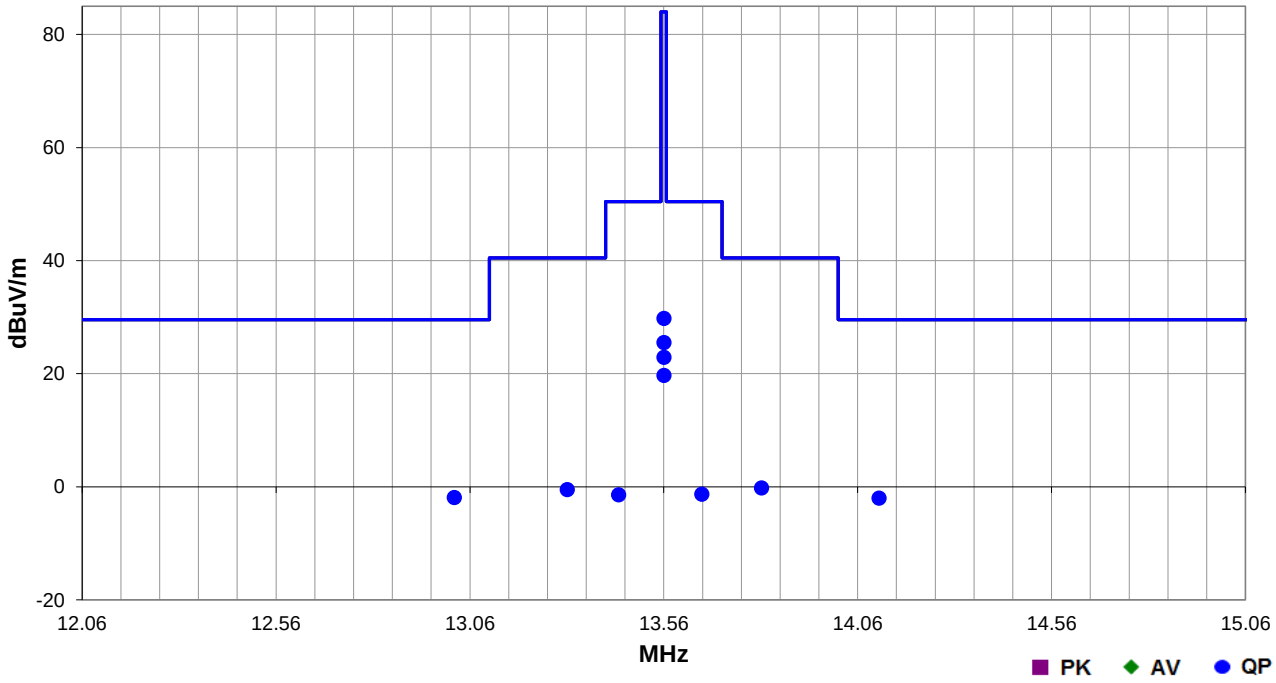
FIELD STRENGTH OF FUNDAMENTAL

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-13		
Project:	None	**Temperature:**	24.4 °C		
Job Site:	TX02	**Humidity:**	47.1% RH		
Serial Number:	ENG01-RA	**Barometric Pres.:**	1016 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 1. PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	22	**Test Distance (m)**	10	**Antenna Height(s)**	1(m)	**Results**	Pass



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)	Comments
13.020	5.7	11.5	1.0	231.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.9	29.5	-31.4	Radio 1
14.115	5.6	11.5	1.0	58.0	10.0	0.0	Perp to EUT	QP	-19.1	-2.0	29.5	-31.5	Radio 1
13.812	7.4	11.5	1.0	0.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.2	40.5	-40.7	Radio 1
13.311	7.1	11.5	1.0	325.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.5	40.5	-41.0	Radio 1
13.658	6.3	11.5	1.0	129.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.3	50.5	-51.8	Radio 1
13.444	6.2	11.5	1.0	130.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.4	50.5	-51.9	Radio 1
13.560	37.4	11.5	1.0	288.0	10.0	0.0	Perp to EUT	QP	-19.1	29.8	84.0	-54.2	Radio 1
13.560	33.1	11.5	1.0	174.0	10.0	0.0	Perp to EUT	QP	-19.1	25.5	84.0	-58.5	Radio 2
13.560	30.5	11.5	1.0	360.0	10.0	0.0	Para to GND	QP	-19.1	22.9	84.0	-61.1	Radio 1
13.560	27.3	11.5	1.0	333.0	10.0	0.0	Para to EUT	QP	-19.1	19.7	84.0	-64.3	Radio 1

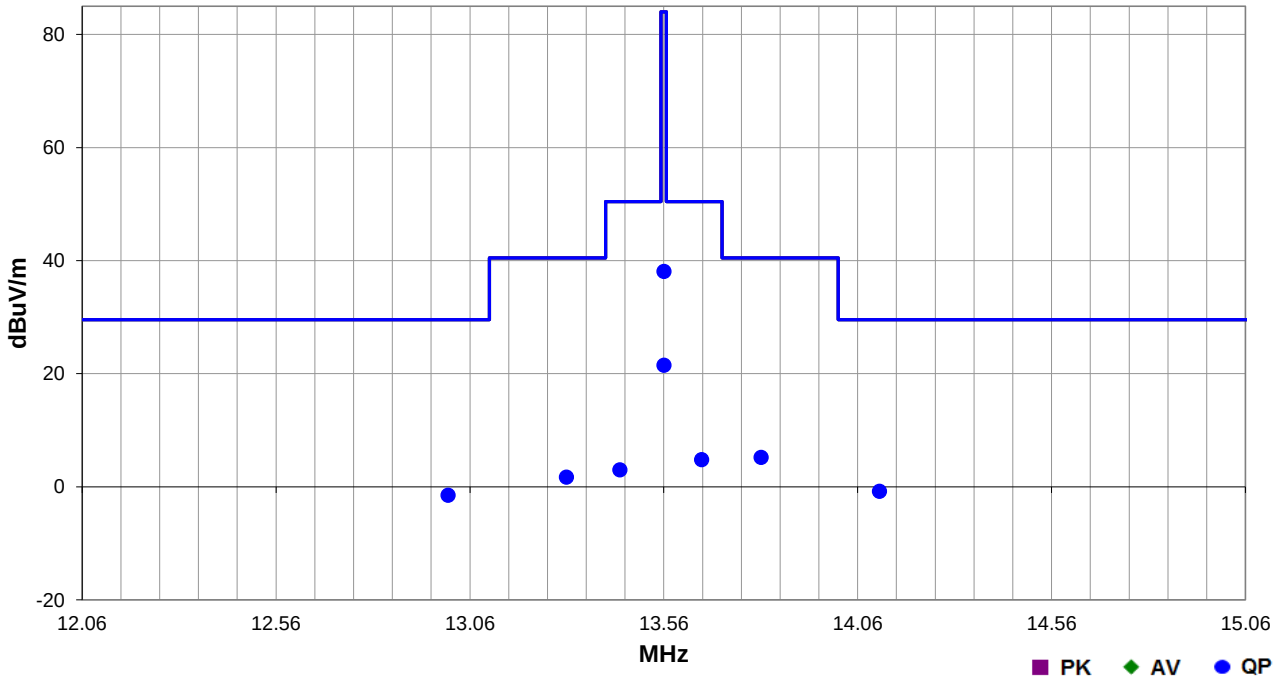
FIELD STRENGTH OF FUNDAMENTAL

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-13		
Project:	None	**Temperature:**	24.4 °C		
Job Site:	TX02	**Humidity:**	47.1% RH		
Serial Number:	ENG02-RA	**Barometric Pres.:**	1016 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 2. PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement. Worst case antenna polarity determined during testing for SwitchController Roundabout 1: Perp to EUT.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	23	**Test Distance (m)**	10	**Antenna Height(s)**	1(m)	**Results**	Pass



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)	Comments
14.116	6.8	11.5	1.0	291.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.8	29.5	-30.3	Radio 2
13.003	6.1	11.5	1.0	2.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.5	29.5	-31.0	Radio 2
13.811	12.8	11.5	1.0	244.0	10.0	0.0	Perp to EUT	QP	-19.1	5.2	40.5	-35.3	Radio 2
13.309	9.3	11.5	1.0	0.0	10.0	0.0	Perp to EUT	QP	-19.1	1.7	40.5	-38.8	Radio 2
13.658	12.4	11.5	1.0	259.0	10.0	0.0	Perp to EUT	QP	-19.1	4.8	50.5	-45.7	Radio 2
13.560	45.7	11.5	1.0	294.0	10.0	0.0	Perp to EUT	QP	-19.1	38.1	84.0	-45.9	Radio 2
13.447	10.6	11.5	1.0	303.0	10.0	0.0	Perp to EUT	QP	-19.1	3.0	50.5	-47.5	Radio 2
13.560	29.1	11.5	1.0	171.0	10.0	0.0	Perp to EUT	QP	-19.1	21.5	84.0	-62.5	Radio 1

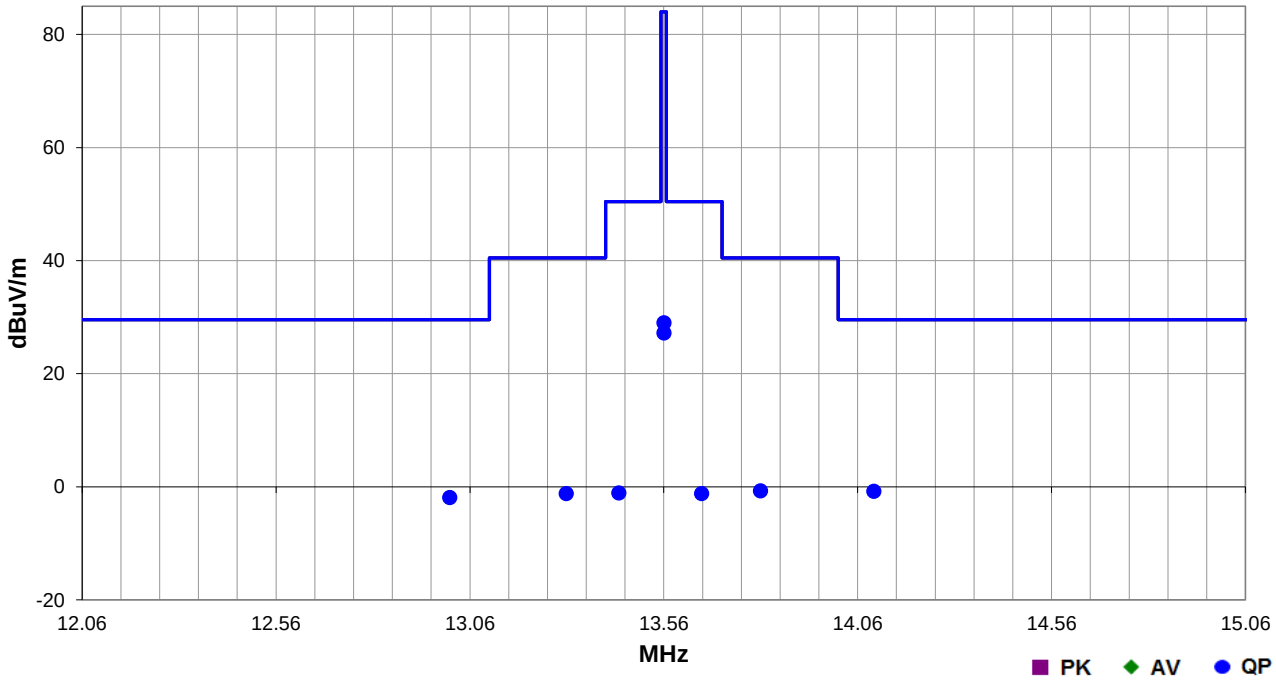
FIELD STRENGTH OF FUNDAMENTAL

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-13		
Project:	None	**Temperature:**	24.4 °C		
Job Site:	TX02	**Humidity:**	47.1% RH		
Serial Number:	ENG03-RA	**Barometric Pres.:**	1016 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 3. PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement. Worst case antenna polarity determined during testing for SwitchController Roundabout 1: Perp to EUT.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	24	**Test Distance (m)**	10	**Antenna Height(s)**	1(m)	**Results**	Pass



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)	Comments
14.102	6.8	11.5	1.0	72.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.8	29.5	-30.3	Radio 2
13.008	5.7	11.5	1.0	107.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.9	29.5	-31.4	Radio 2
13.809	6.9	11.5	1.0	192.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.7	40.5	-41.2	Radio 2
13.308	6.4	11.5	1.0	104.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.2	40.5	-41.7	Radio 2
13.444	6.5	11.5	1.0	184.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.1	50.5	-51.6	Radio 2
13.658	6.4	11.5	1.0	211.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.2	50.5	-51.7	Radio 2
13.560	36.6	11.5	1.0	156.0	10.0	0.0	Perp to EUT	QP	-19.1	29.0	84.0	-55.0	Radio 2
13.560	34.8	11.5	1.0	308.0	10.0	0.0	Perp to EUT	QP	-19.1	27.2	84.0	-56.8	Radio 1

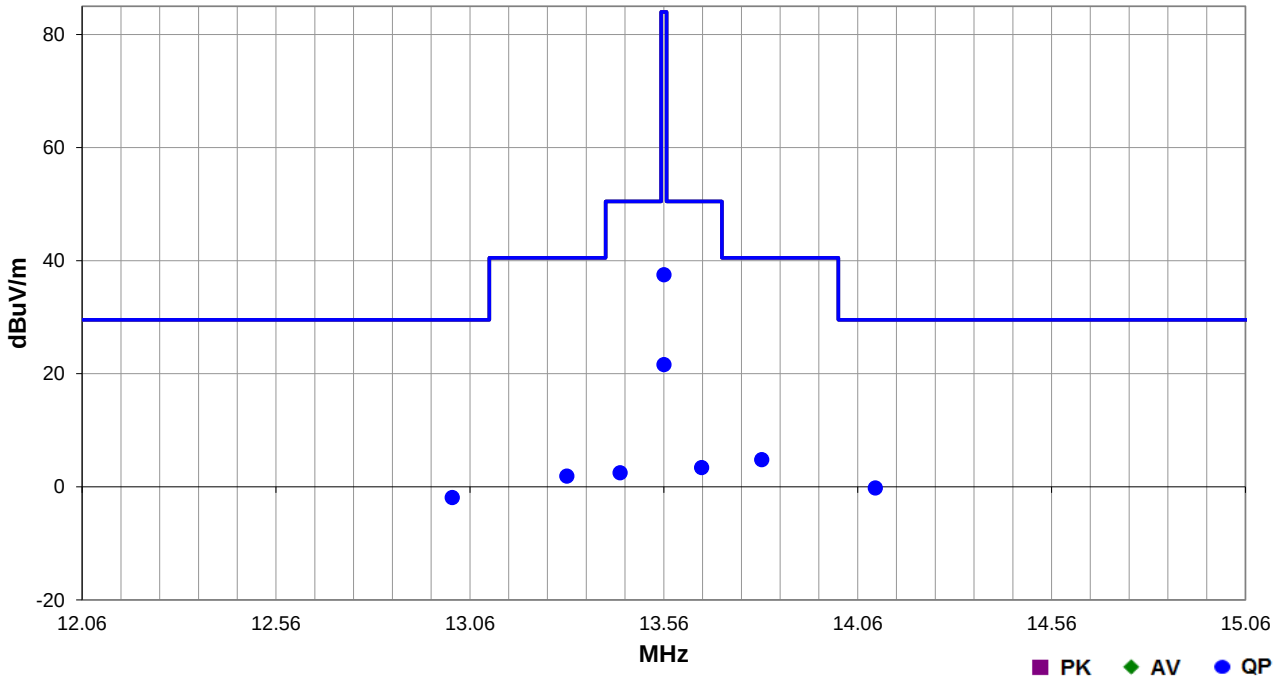
FIELD STRENGTH OF FUNDAMENTAL

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-13		
Project:	None	**Temperature:**	24.4 °C		
Job Site:	TX02	**Humidity:**	47.1% RH		
Serial Number:	ENG04-RA	**Barometric Pres.:**	1016 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 4. PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement. Worst case antenna polarity determined during testing for SwitchController Roundabout 1: Perp to EUT.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	25	**Test Distance (m)**	10	**Antenna Height(s)**	1(m)	**Results**	Pass



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)	Comments
14.106	7.4	11.5	1.0	295.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.2	29.5	-29.7	Radio 2
13.014	5.7	11.5	1.0	200.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.9	29.5	-31.4	Radio 2
13.812	12.4	11.5	1.0	267.0	10.0	0.0	Perp to EUT	QP	-19.1	4.8	40.5	-35.7	Radio 2
13.310	9.5	11.5	1.0	222.0	10.0	0.0	Perp to EUT	QP	-19.1	1.9	40.5	-38.6	Radio 2
13.560	45.1	11.5	1.0	299.0	10.0	0.0	Perp to EUT	QP	-19.1	37.5	84.0	-46.5	Radio 2
13.658	11.0	11.5	1.0	351.0	10.0	0.0	Perp to EUT	QP	-19.1	3.4	50.5	-47.1	Radio 2
13.447	10.1	11.5	1.0	321.0	10.0	0.0	Perp to EUT	QP	-19.1	2.5	50.5	-48.0	Radio 2
13.560	29.2	11.5	1.0	193.0	10.0	0.0	Perp to EUT	QP	-19.1	21.6	84.0	-62.4	Radio 1

FIELD STRENGTH OF SPURIOUS EMISSIONS (BELOW 30 MHz)

PSA-ESCI 2022.1.12.0

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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting 13.56 MHz RFID

POWER SETTINGS INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0123 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	490 kHz	Stop Frequency	30 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2022-03-22	2023-03-22
Antenna - Loop	ETS Lindgren	6502	AZM	2020-07-09	2022-07-09
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-04-19	2023-04-19

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 height and 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
PK = Peak Detector
AV = RMS 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.

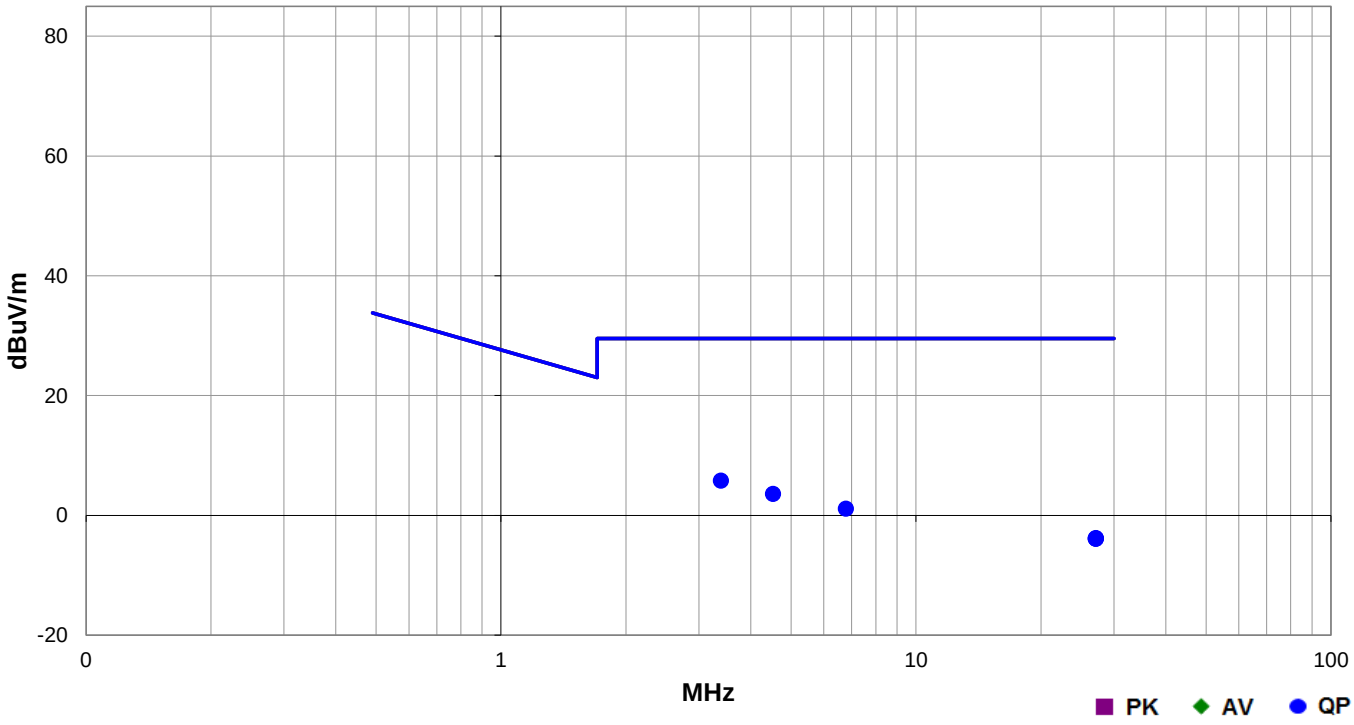
FIELD STRENGTH OF SPURIOUS EMISSIONS (BELOW 30 MHz)

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-16		
Project:	None	**Temperature:**	22.1 °C		
Job Site:	TX02	**Humidity:**	49.7% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	1009 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	All SwitchController Roundabout radios ON. PCB contains 2 RFID radios. Testing with all radios ON is only a test mode and does not represent actual use in a normal operational environment.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	26	**Test Distance (m)**	10	**Antenna Height(s)**	1(m)	**Results**	Pass



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)
3.388	13.4	11.5	1.0	185.0	10.0	0.0	Perp to EUT	QP	-19.1	5.8	29.5	-23.7
4.523	11.1	11.6	1.0	225.0	10.0	0.0	Perp to EUT	QP	-19.1	3.6	29.5	-25.9
6.774	8.6	11.6	1.0	61.0	10.0	0.0	Perp to EUT	QP	-19.1	1.1	29.5	-28.4
27.115	5.4	9.9	1.0	35.0	10.0	0.0	Perp to EUT	QP	-19.1	-3.8	29.5	-33.3
27.116	5.3	9.9	1.0	70.0	10.0	0.0	Para to EUT	QP	-19.1	-3.9	29.5	-33.4
27.121	5.3	9.9	1.0	260.0	10.0	0.0	Para to GND	QP	-19.1	-3.9	29.5	-33.4

FIELD STRENGTH OF SPURIOUS EMISSIONS (ABOVE 30 MHz)

PSA-ESCI 2022.1.12.0

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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting 13.56 MHz RFID

POWER SETTINGS INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0123 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	1000 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Amplifier - Pre-Amplifier	Fairview Microwave	FMAM63001	PAS	2022-04-19	2023-04-19
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-04-19	2023-04-19
Antenna - Biconilog	ETS Lindgren	3143B	AYF	2020-06-25	2022-06-25
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2022-03-22	2023-03-22

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

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
PK = Peak Detector
AV = RMS 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.

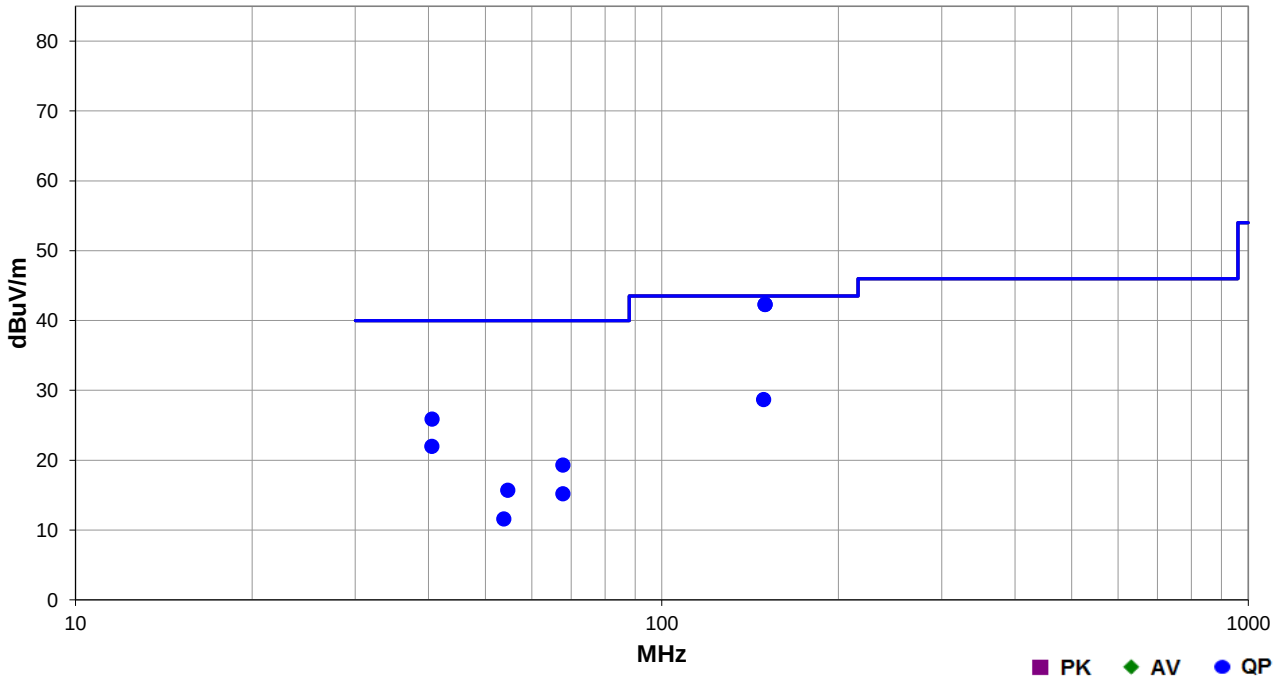
FIELD STRENGTH OF SPURIOUS EMISSIONS (ABOVE 30 MHz)

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-16		
Project:	None	**Temperature:**	22.1 °C		
Job Site:	TX02	**Humidity:**	49.7% RH		
Serial Number:	ENG01-RA	**Barometric Pres.:**	1009 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 1. PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	29	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



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)	Comments
150.004	65.1	-22.8	1.0	262.0	3.0	0.0	Vert	QP	0.0	42.3	43.5	-1.2	Radio 1
150.004	65.1	-22.8	1.0	264.0	3.0	0.0	Vert	QP	0.0	42.3	43.5	-1.2	Radio 2
40.547	49.3	-23.4	1.0	102.0	3.0	0.0	Vert	QP	0.0	25.9	40.0	-14.1	Radio 1
149.165	51.9	-23.2	2.0	197.0	3.0	0.0	Horz	QP	0.0	28.7	43.5	-14.8	Radio 1
40.518	45.3	-23.3	3.89	1.0	3.0	0.0	Horz	QP	0.0	22.0	40.0	-18.0	Radio 1
67.806	45.3	-26.0	1.05	324.0	3.0	0.0	Vert	QP	0.0	19.3	40.0	-20.7	Radio 1
54.581	42.6	-26.9	1.0	28.0	3.0	0.0	Vert	QP	0.0	15.7	40.0	-24.3	Radio 1
67.804	41.2	-26.0	2.66	11.0	3.0	0.0	Horz	QP	0.0	15.2	40.0	-24.8	Radio 1
53.745	38.6	-27.0	3.38	348.0	3.0	0.0	Horz	QP	0.0	11.6	40.0	-28.4	Radio 1

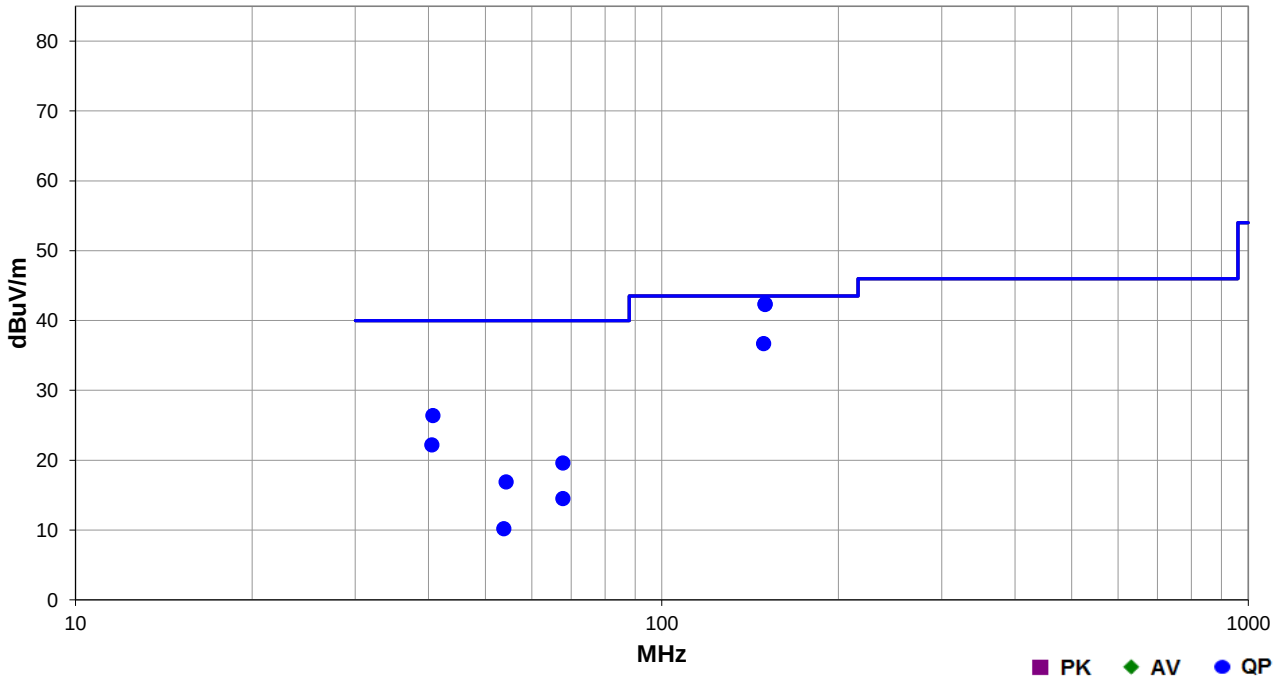
FIELD STRENGTH OF SPURIOUS EMISSIONS (ABOVE 30 MHz)

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-16		
Project:	None	**Temperature:**	22.1 °C		
Job Site:	TX02	**Humidity:**	49.7% RH		
Serial Number:	ENG02-RA	**Barometric Pres.:**	1009 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 2 . PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	28	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



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)	Comments
150.004	65.2	-22.8	1.0	266.0	3.0	0.0	Vert	QP	0.0	42.4	43.5	-1.1	Radio 2
150.004	65.1	-22.8	1.0	264.0	3.0	0.0	Vert	QP	0.0	42.3	43.5	-1.2	Radio 1
149.164	59.9	-23.2	1.33	103.0	3.0	0.0	Horz	QP	0.0	36.7	43.5	-6.8	Radio 2
40.679	49.8	-23.4	1.0	98.0	3.0	0.0	Vert	QP	0.0	26.4	40.0	-13.6	Radio 2
40.513	45.5	-23.3	3.85	360.0	3.0	0.0	Horz	QP	0.0	22.2	40.0	-17.8	Radio 2
67.805	45.6	-26.0	1.0	311.0	3.0	0.0	Vert	QP	0.0	19.6	40.0	-20.4	Radio 2
54.247	43.9	-27.0	1.0	97.0	3.0	0.0	Vert	QP	0.0	16.9	40.0	-23.1	Radio 2
67.806	40.5	-26.0	2.43	225.0	3.0	0.0	Horz	QP	0.0	14.5	40.0	-25.5	Radio 2
53.755	37.2	-27.0	3.9	4.0	3.0	0.0	Horz	QP	0.0	10.2	40.0	-29.8	Radio 2

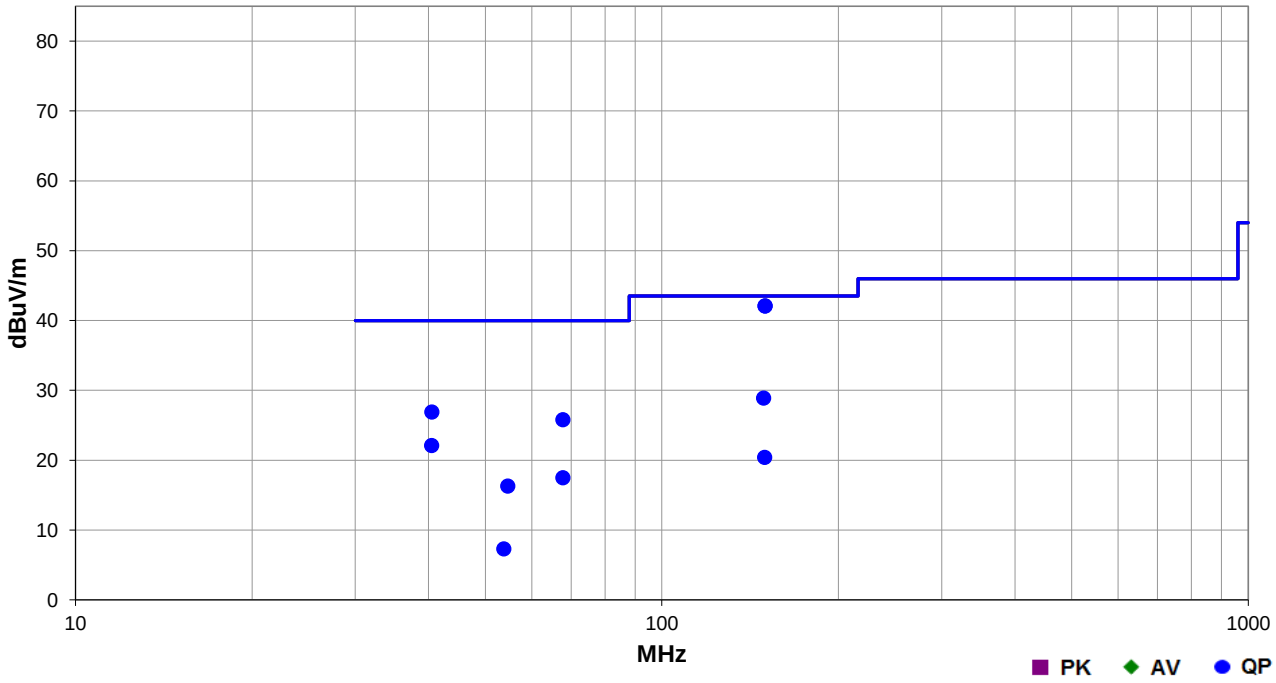
FIELD STRENGTH OF SPURIOUS EMISSIONS (ABOVE 30 MHz)

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-16		
Project:	None	**Temperature:**	22.1 °C		
Job Site:	TX02	**Humidity:**	49.7% RH		
Serial Number:	ENG03-RA	**Barometric Pres.:**	1009 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 3. PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	30	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



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)	Comments
150.004	64.9	-22.8	1.0	267.0	3.0	0.0	Vert	QP	0.0	42.1	43.5	-1.4	Radio 1
150.004	64.9	-22.8	1.0	263.0	3.0	0.0	Vert	QP	0.0	42.1	43.5	-1.4	Radio 2
40.538	50.3	-23.4	1.0	71.0	3.0	0.0	Vert	QP	0.0	26.9	40.0	-13.1	Radio 1
67.804	51.8	-26.0	1.0	50.0	3.0	0.0	Vert	QP	0.0	25.8	40.0	-14.2	Radio 1
149.166	52.1	-23.2	2.0	195.0	3.0	0.0	Horz	QP	0.0	28.9	43.5	-14.6	Radio 1
40.493	45.4	-23.3	3.66	335.0	3.0	0.0	Horz	QP	0.0	22.1	40.0	-17.9	Radio 1
67.805	43.5	-26.0	2.78	240.0	3.0	0.0	Horz	QP	0.0	17.5	40.0	-22.5	Radio 1
149.667	43.4	-23.0	2.0	195.0	3.0	0.0	Horz	QP	0.0	20.4	43.5	-23.1	Radio 1
54.587	43.2	-26.9	1.0	100.0	3.0	0.0	Vert	QP	0.0	16.3	40.0	-23.7	Radio 1
53.754	34.3	-27.0	1.0	355.0	3.0	0.0	Horz	QP	0.0	7.3	40.0	-32.7	Radio 1

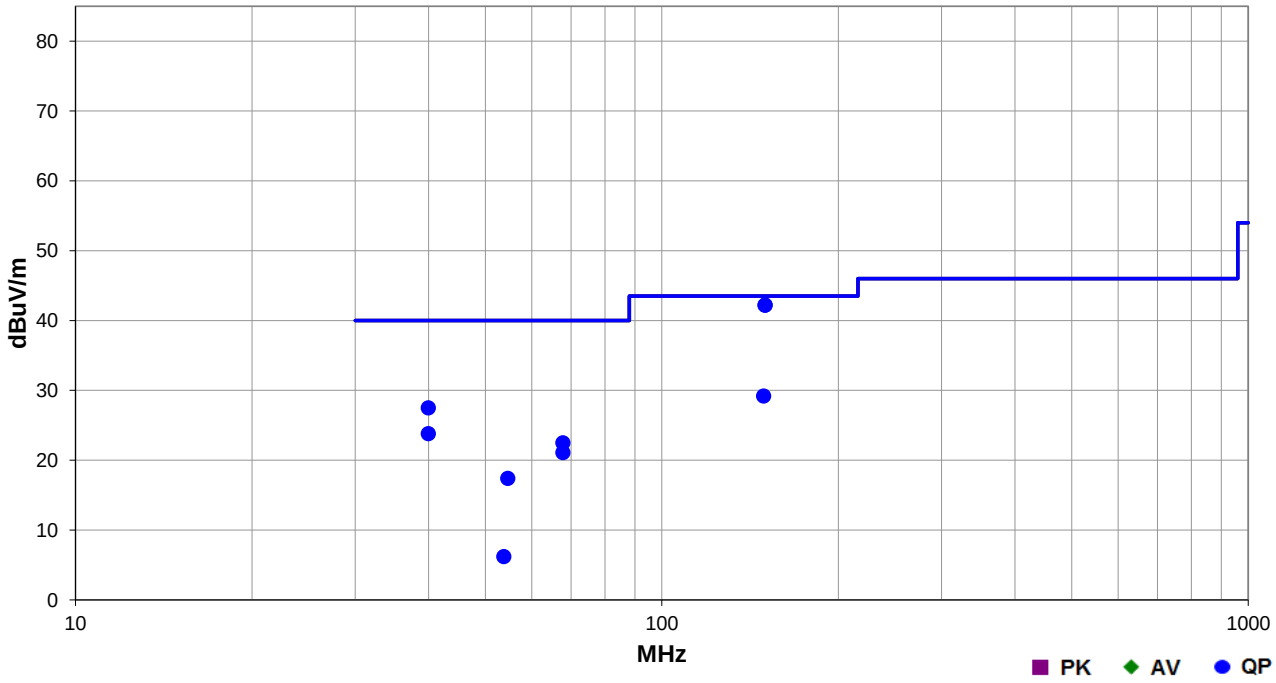
FIELD STRENGTH OF SPURIOUS EMISSIONS (ABOVE 30 MHz)

EmiR5 2022.03.10.0 PSA-ESCI 2022.1.12.0

Work Order:	ABBO0123	**Date:**	2022-05-16		
Project:	None	**Temperature:**	22.1 °C		
Job Site:	TX02	**Humidity:**	49.7% RH		
Serial Number:	ENG04-RA	**Barometric Pres.:**	1009 mbar	**Tested by:**	Mark Baytan
EUT:	GLP12179 Roundabout 3-entry				
Configuration:	2				
Customer:	Abbott Laboratories				
Attendees:	Frank Sun				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting 13.56 MHz RFID				
Deviations:	None				
Comments:	SwitchController Roundabout 4. PCB contains 2 RFID radios. Comments below indicate which radio was active for each measurement.				

Test Specifications	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

Run #	31	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



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)	Comments
150.004	65.0	-22.8	1.0	265.0	3.0	0.0	Vert	QP	0.0	42.2	43.5	-1.3	Radio 1
150.004	65.0	-22.8	1.0	269.0	3.0	0.0	Vert	QP	0.0	42.2	43.5	-1.3	Radio 2
39.948	50.5	-23.0	1.0	71.0	3.0	0.0	Vert	QP	0.0	27.5	40.0	-12.5	Radio 1
149.165	52.4	-23.2	2.23	193.0	3.0	0.0	Horz	QP	0.0	29.2	43.5	-14.3	Radio 1
39.975	46.9	-23.1	2.99	359.0	3.0	0.0	Horz	QP	0.0	23.8	40.0	-16.2	Radio 1
67.804	48.5	-26.0	1.0	17.0	3.0	0.0	Vert	QP	0.0	22.5	40.0	-17.5	Radio 1
67.805	47.1	-26.0	2.56	226.0	3.0	0.0	Horz	QP	0.0	21.1	40.0	-18.9	Radio 1
54.592	44.3	-26.9	1.0	66.0	3.0	0.0	Vert	QP	0.0	17.4	40.0	-22.6	Radio 1
53.756	33.2	-27.0	1.0	123.0	3.0	0.0	Horz	QP	0.0	6.2	40.0	-33.8	Radio 1

FREQUENCY STABILITY

XMit 2022.02.07.0

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
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2021-12-10	2022-12-10
DC Block	Fairview Microwave	SD3379	AMT	2021-09-14	2022-09-14
Attenuator	Fairview Microwave	SA4018-20	TYE	2021-09-15	2022-09-15
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2022-01-19	2023-01-19
Chamber, Temperature/Humidity	Cincinnati Sub Zero	ZPH-8-2-SCT/AC	TBH	2021-05-28	2022-05-28
Thermometer	Omega Engineering, Inc.	HH311	DUI	2021-02-02	2024-02-02

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 0°C to +50°C and at 10°C intervals.

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

ppm = (Measured Frequency / Measured Nominal Frequency - 1) * 1,000,000

FREQUENCY STABILITY

element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

EUT:	**GLP12179 Roundabout 3-entry**			**Work Order:**	**ABBO0123**
Serial Number:	**ENG02-RA**			**Date:**	**23-May-22**
Customer:	**Abbott Laboratories**			**Temperature:**	**22.2 °C**
Attendees:	**Frank Sun**			**Humidity:**	**51.3% RH**
Project:	**None**			**Barometric Pres.:**	**1017 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**220VAC/60Hz**	**Job Site:**	**TX01**

TEST SPECIFICATIONS	**Test Method**
FCC 15.225:2022	ANSI C63.10:2013

COMMENTS

SwitchController Roundabout PCB contains 2 RFID radios.

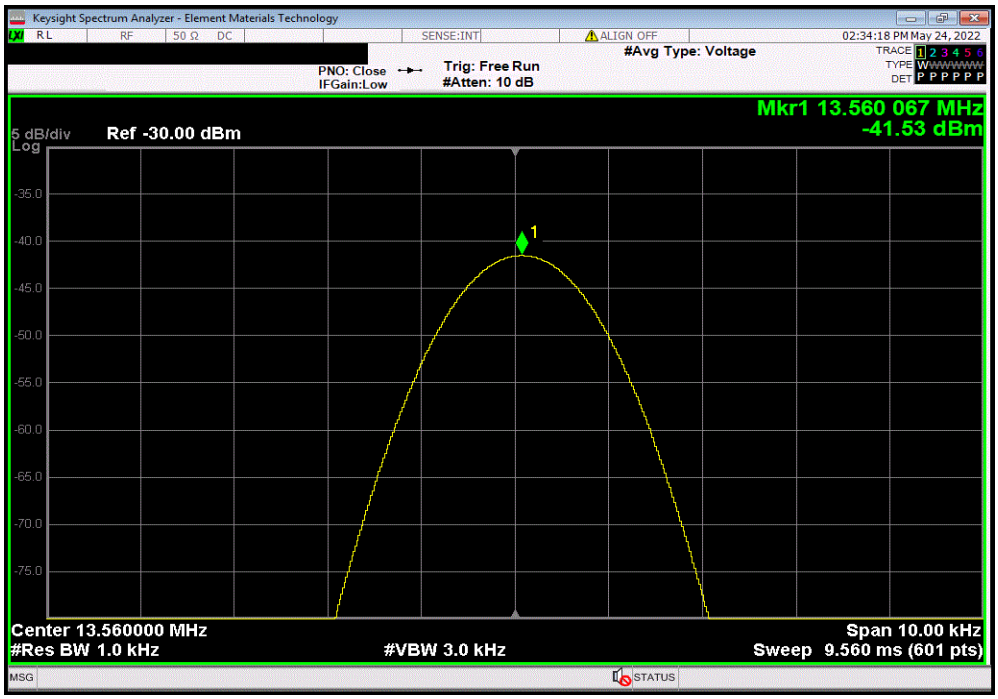
DEVIATIONS FROM TEST STANDARD

None

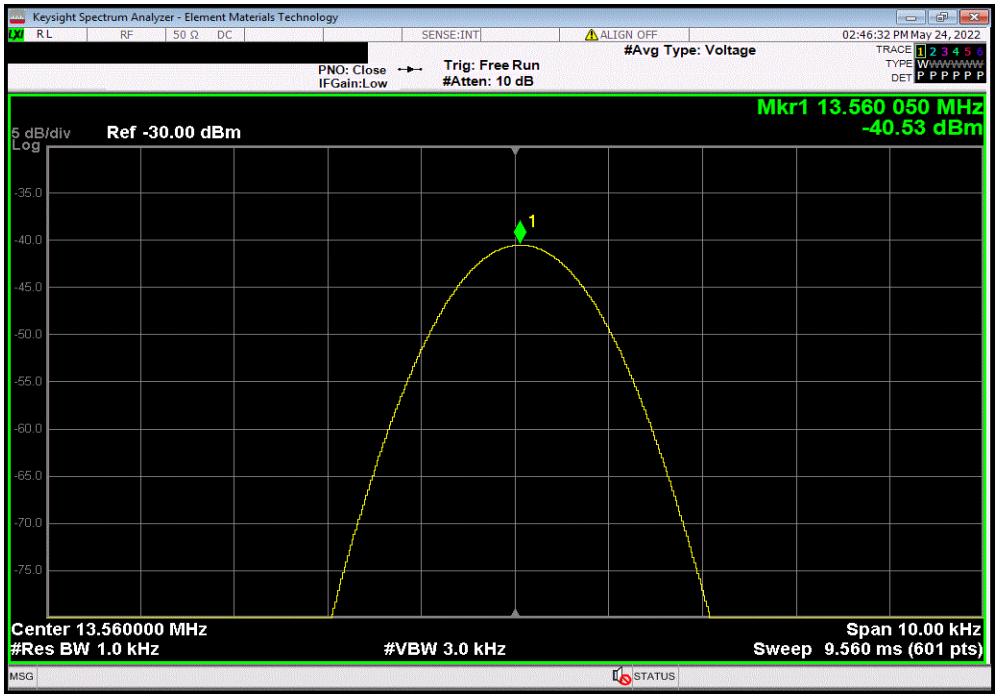
Configuration #	**2**	*Signature*

		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
Radio 1 Antenna						
	Normal Voltage					
	13.56 MHz RFID	13.56006667	13.56006667	0.00	100	Pass
	Extreme Voltage +15%					
	13.56 MHz RFID	13.56005	13.56006667	1.23	100	Pass
	Extreme Voltage -15%					
	13.56 MHz RFID	13.56005	13.56006667	1.23	100	Pass
	Extreme Temperature +50°C					
	13.56 MHz RFID	13.56	13.56006667	4.92	100	Pass
	Extreme Temperature +40°C					
	13.56 MHz RFID	13.56001667	13.56006667	3.69	100	Pass
	Extreme Temperature +30°C					
	13.56 MHz RFID	13.56005	13.56006667	1.23	100	Pass
	Extreme Temperature +20°C					
	13.56 MHz RFID	13.5601	13.56006667	2.46	100	Pass
	Extreme Temperature +10°C					
	13.56 MHz RFID	13.56015	13.56006667	6.15	100	Pass
	Extreme Temperature 0°C					
	13.56 MHz RFID	13.56018333	13.56006667	8.60	100	Pass
Radio 2 Antenna						
	Normal Voltage					
	13.56 MHz RFID	13.56006667	13.56006667	0.00	100	Pass
	Extreme Voltage +15%					
	13.56 MHz RFID	13.56005	13.56006667	1.23	100	Pass
	Extreme Voltage -15%					
	13.56 MHz RFID	13.56005	13.56006667	1.23	100	Pass
	Extreme Temperature +50°C					
	13.56 MHz RFID	13.56	13.56006667	4.92	100	Pass
	Extreme Temperature +40°C					
	13.56 MHz RFID	13.56001667	13.56006667	3.69	100	Pass
	Extreme Temperature +30°C					
	13.56 MHz RFID	13.56005	13.56006667	1.23	100	Pass
	Extreme Temperature +20°C					
	13.56 MHz RFID	13.5601	13.56006667	2.46	100	Pass
	Extreme Temperature +10°C					
	13.56 MHz RFID	13.56013333	13.56006667	4.92	100	Pass
	Extreme Temperature 0°C					
	13.56 MHz RFID	13.56016667	13.56006667	7.37	100	Pass

Radio 1 Antenna, Normal Voltage, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56006667	13.56006667	0	100	Pass



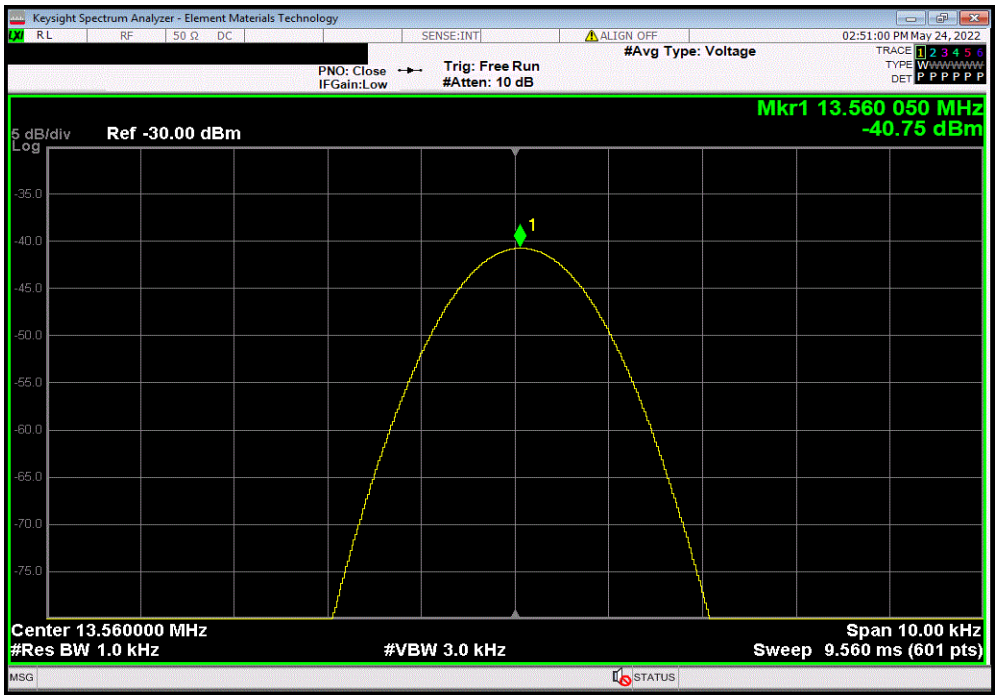
Radio 1 Antenna, Extreme Voltage +15%, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56005	13.56006667	1.23	100	Pass



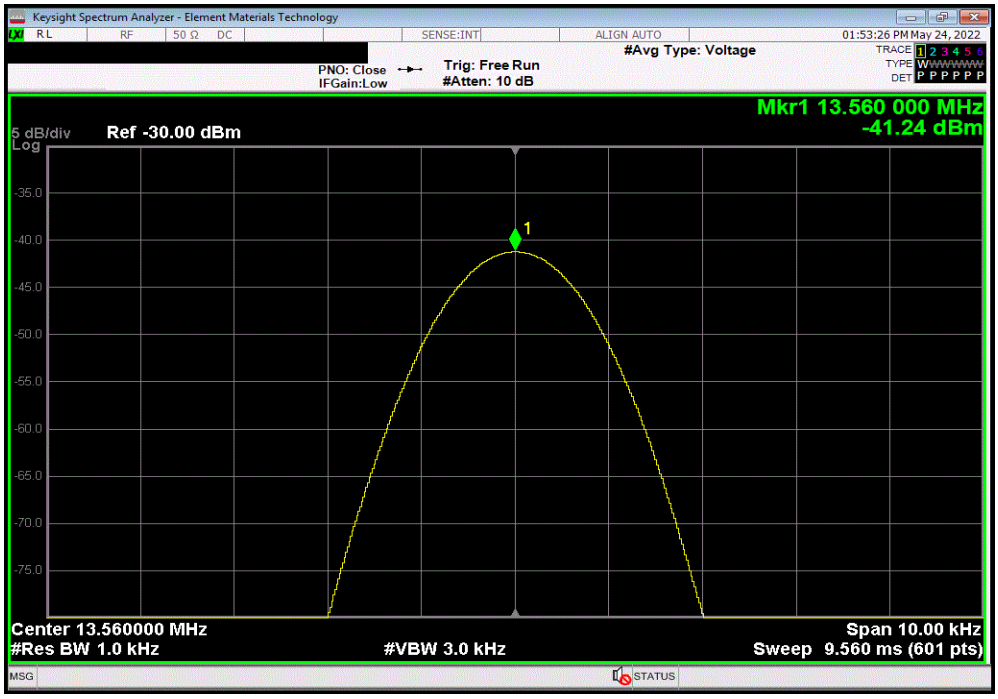
FREQUENCY STABILITY

TbtTx 2022.05.02.0 XMit 2022.02.07.0

Radio 1 Antenna, Extreme Voltage -15%, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56005	13.56006667	1.23	100	Pass

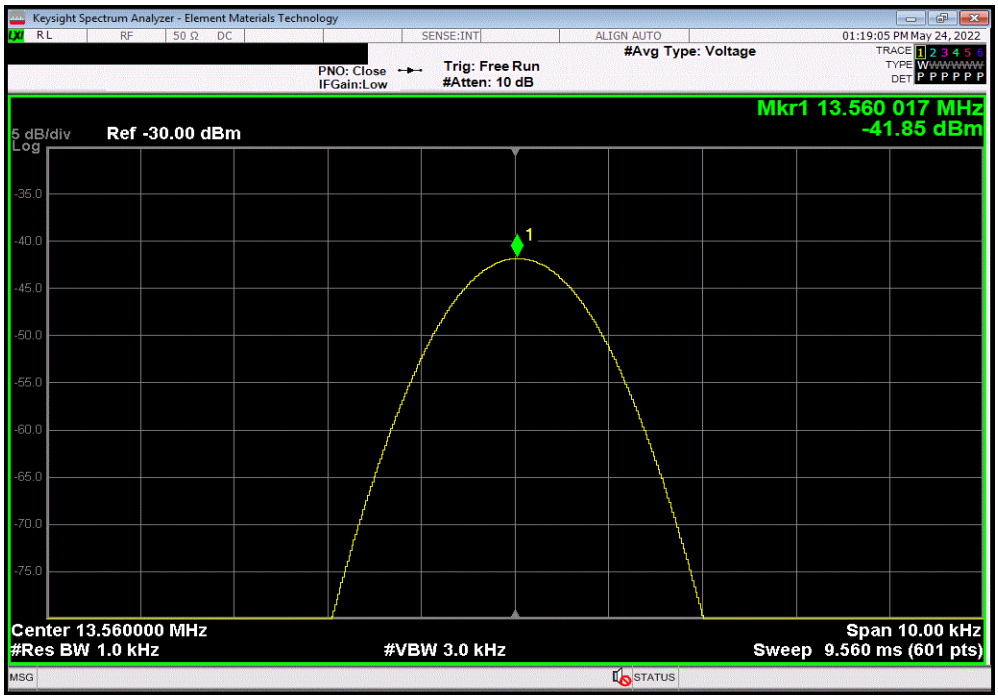


Radio 1 Antenna, Extreme Temperature +50C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56	13.56006667	4.92	100	Pass

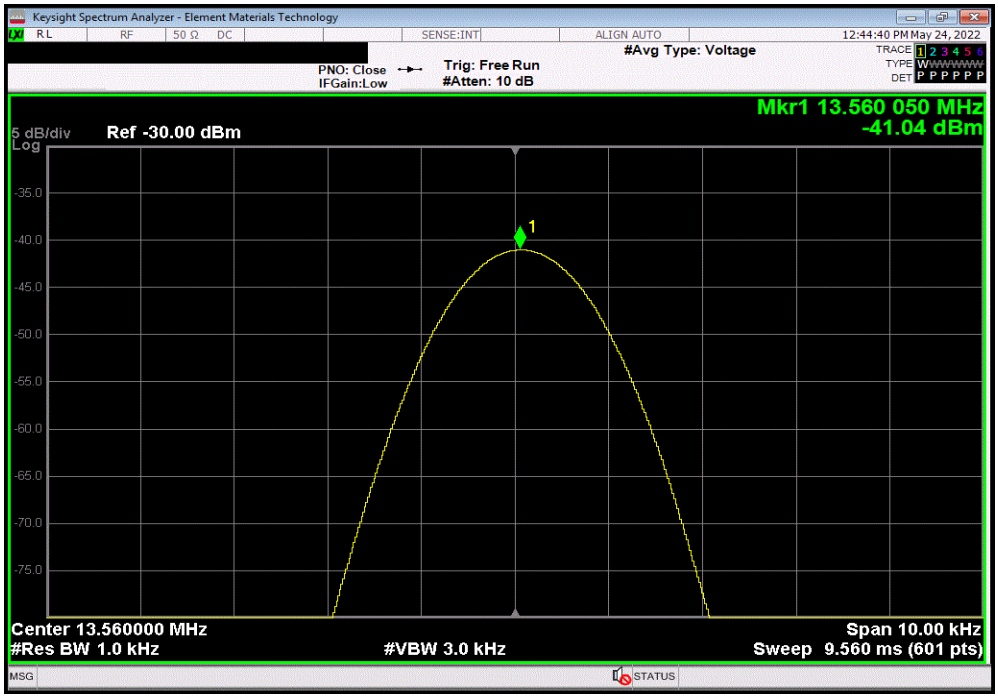


FREQUENCY STABILITY

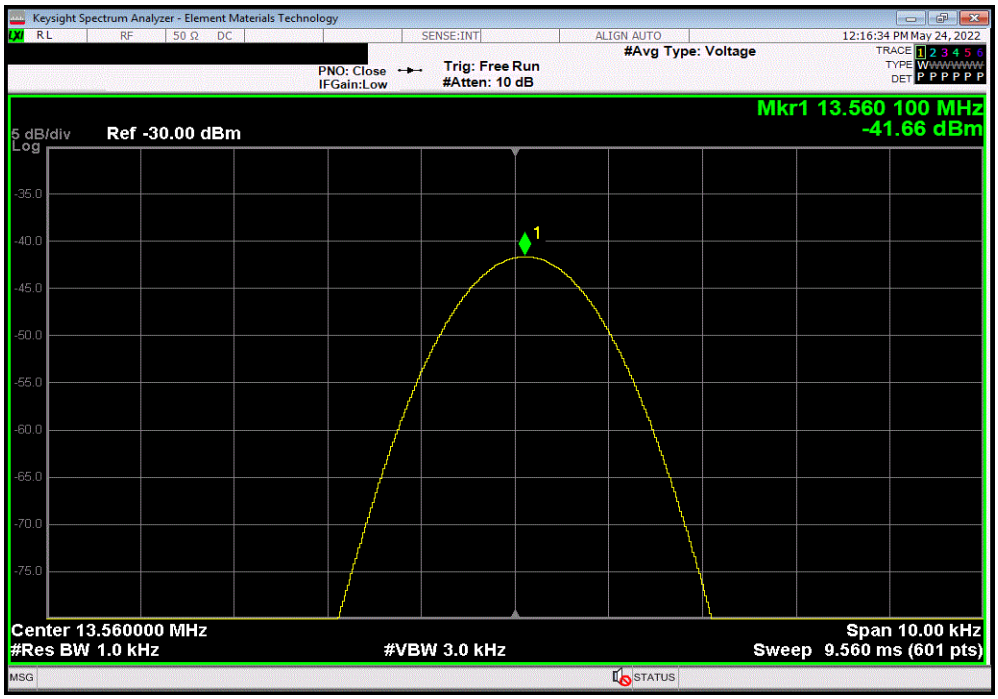
Radio 1 Antenna, Extreme Temperature +40C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56001667	13.56006667	3.69	100	Pass



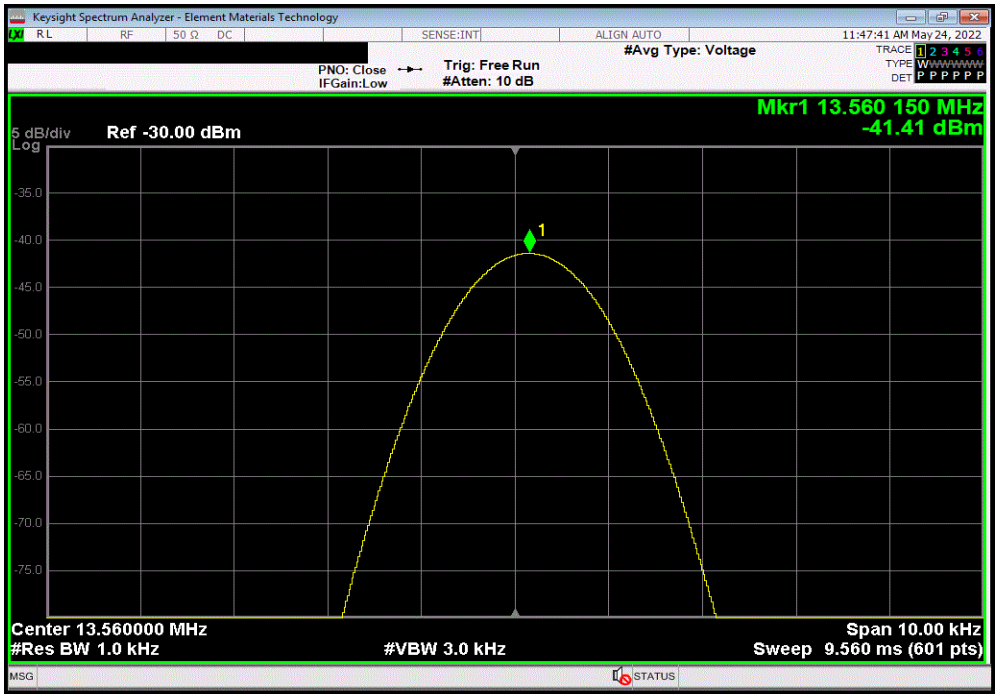
Radio 1 Antenna, Extreme Temperature +30C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56005	13.56006667	1.23	100	Pass



Radio 1 Antenna, Extreme Temperature +20C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.5601	13.56006667	2.46	100	Pass

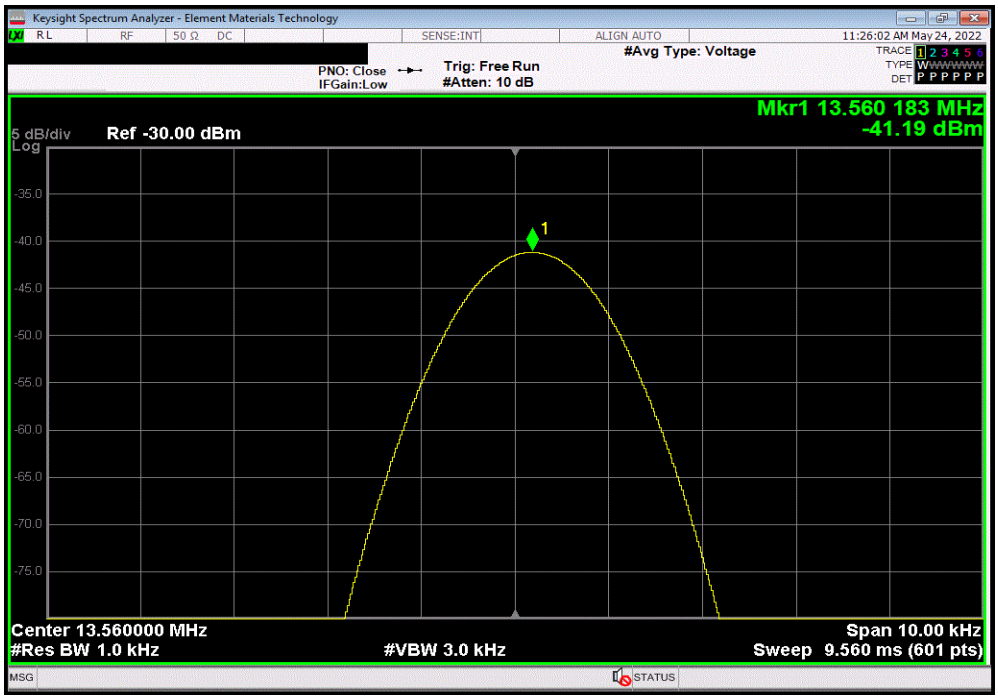


Radio 1 Antenna, Extreme Temperature +10C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56015	13.56006667	6.15	100	Pass

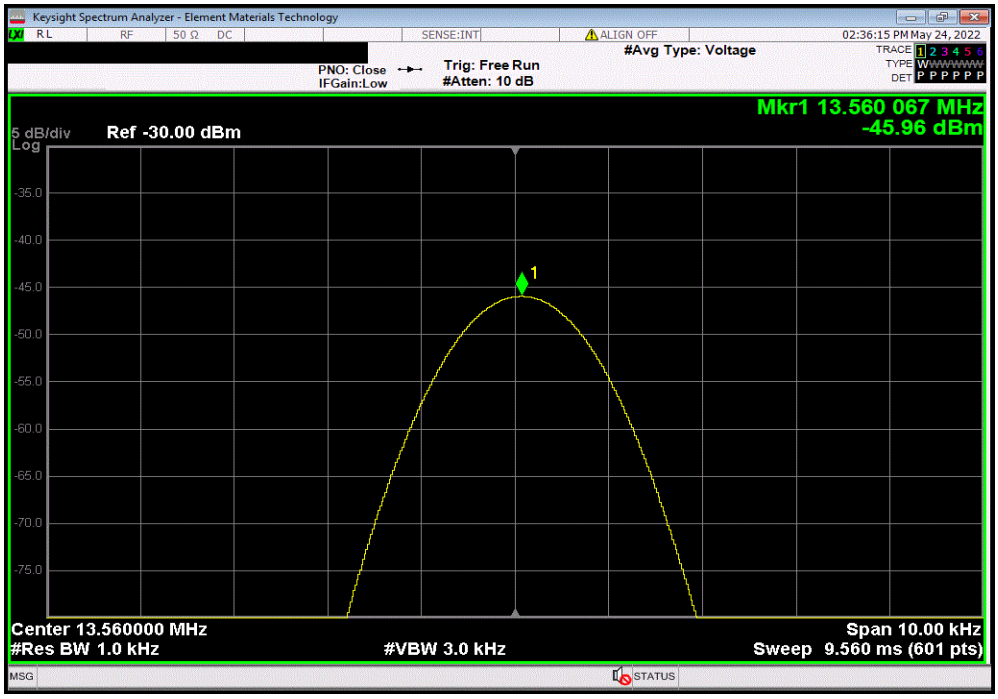


FREQUENCY STABILITY

Radio 1 Antenna, Extreme Temperature 0C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56018333	13.56006667	8.60	100	Pass

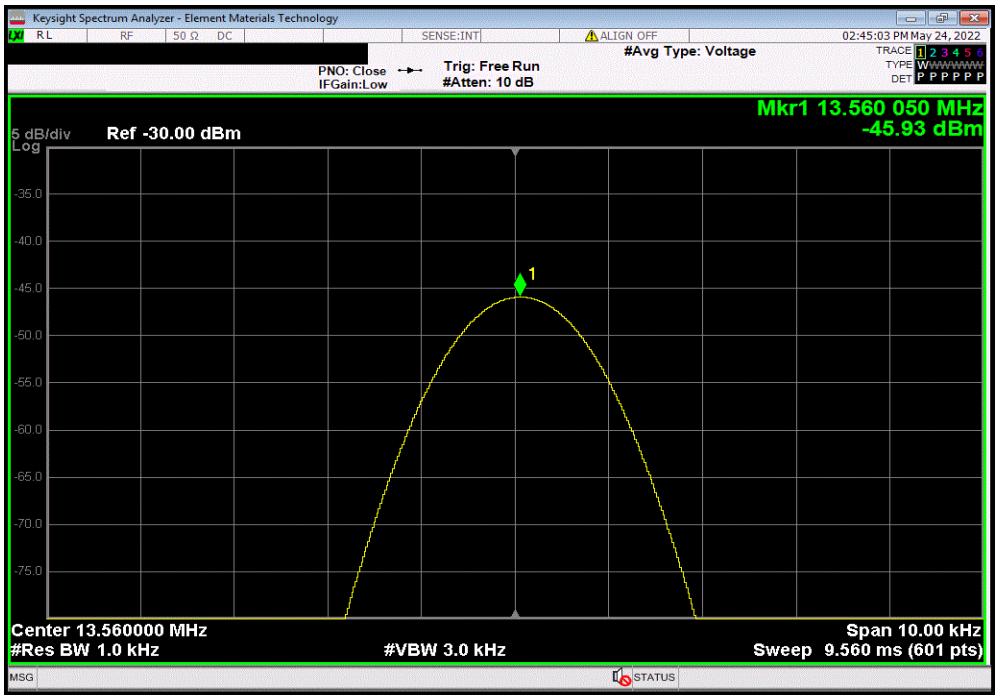


Radio 2 Antenna, Normal Voltage, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56006667	13.56006667	0.00	100	Pass

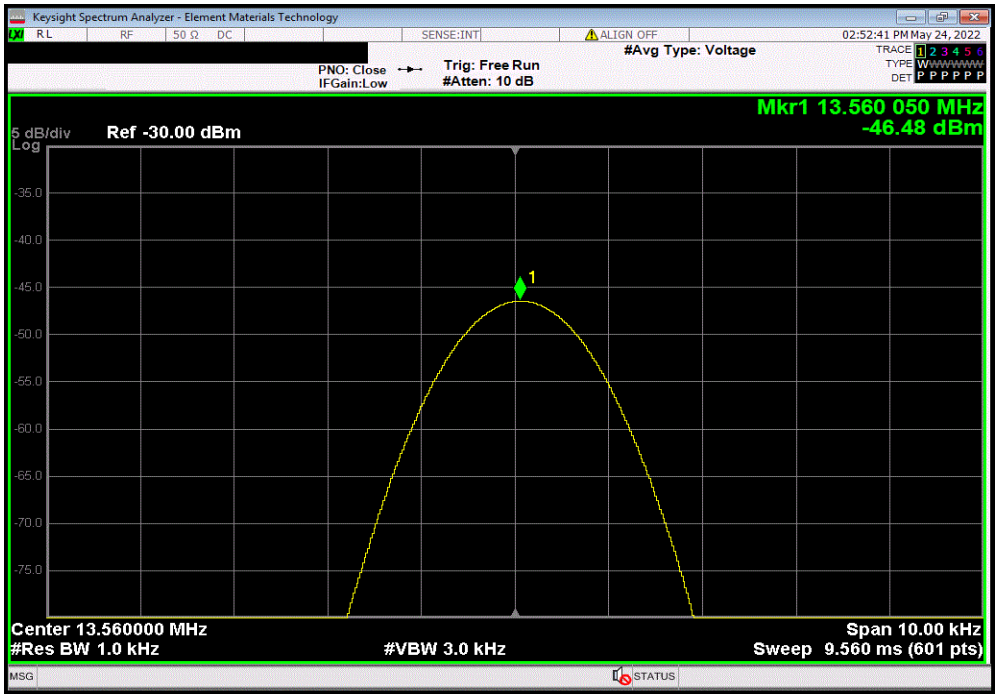


FREQUENCY STABILITY

Radio 2 Antenna, Extreme Voltage +15%, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56005	13.56006667	1.23	100	Pass

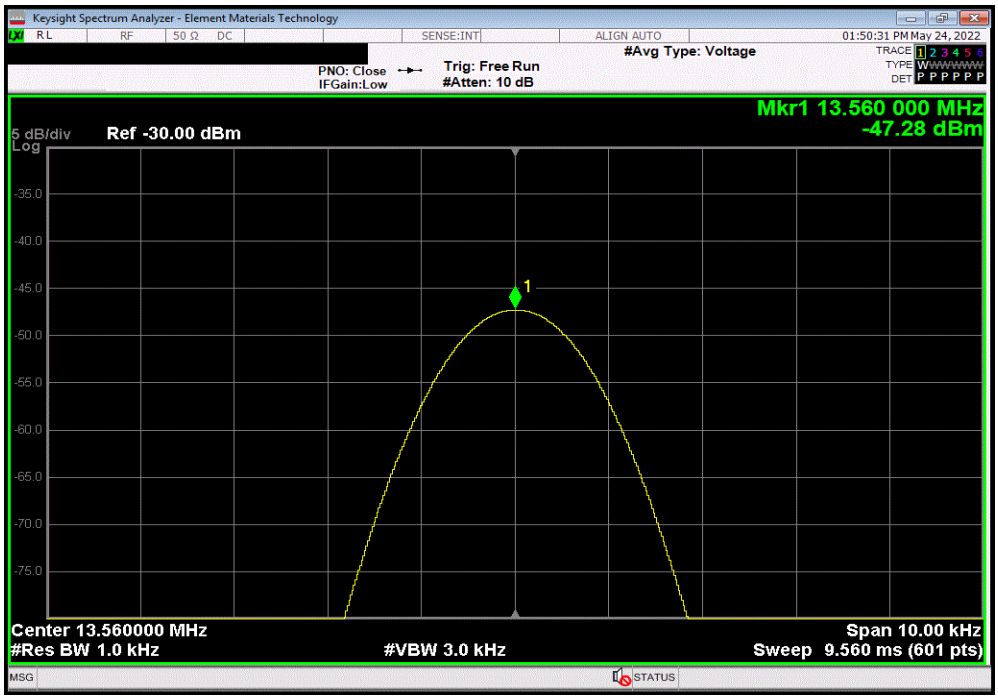


Radio 2 Antenna, Extreme Voltage -15%, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56005	13.56006667	1.23	100	Pass

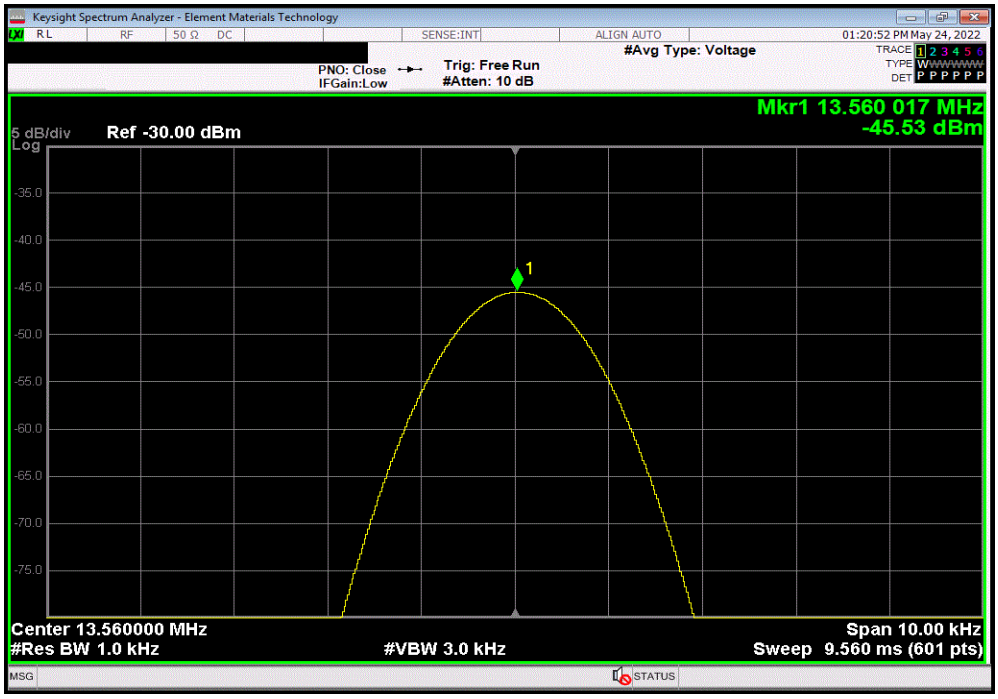


FREQUENCY STABILITY

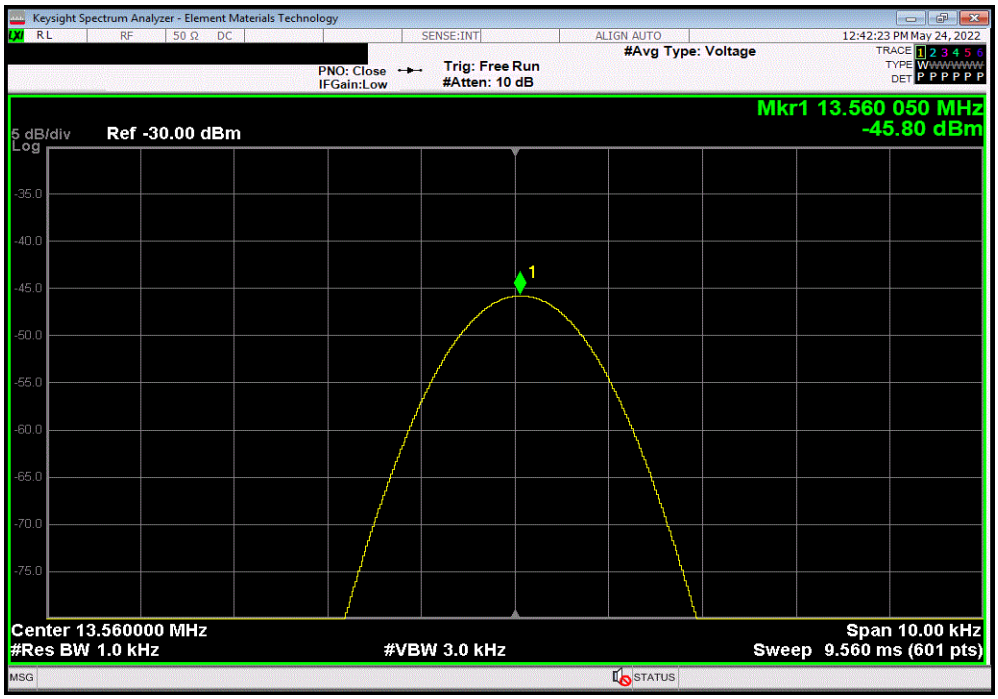
Radio 2 Antenna, Extreme Temperature +50C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56	13.56006667	4.92	100	Pass



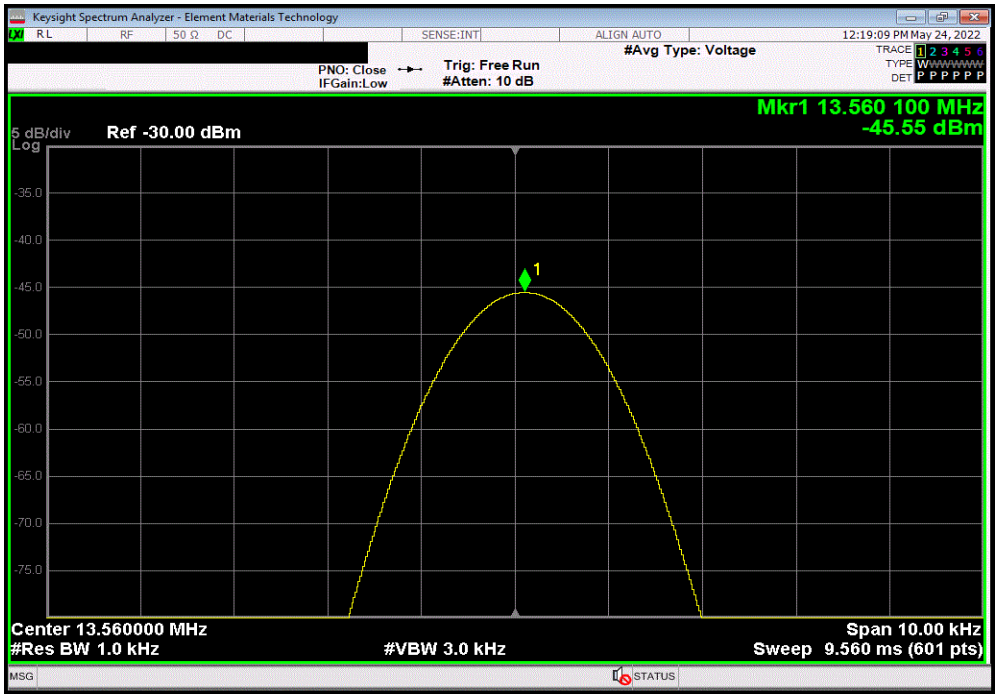
Radio 2 Antenna, Extreme Temperature +40C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56001667	13.56006667	3.69	100	Pass



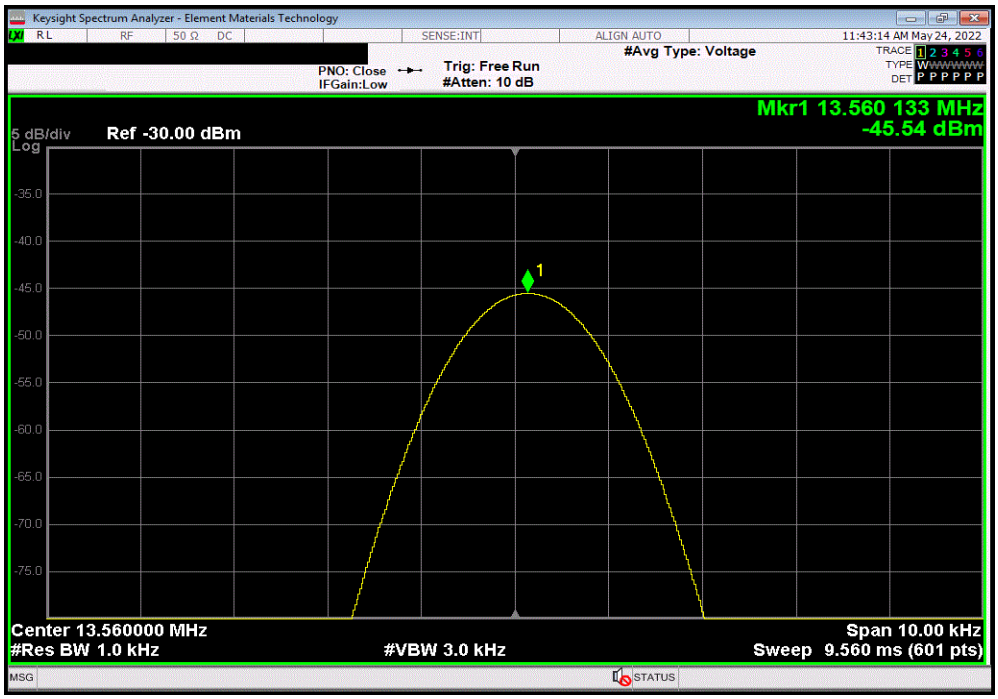
Radio 2 Antenna, Extreme Temperature +30C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56005	13.56006667	1.23	100	Pass



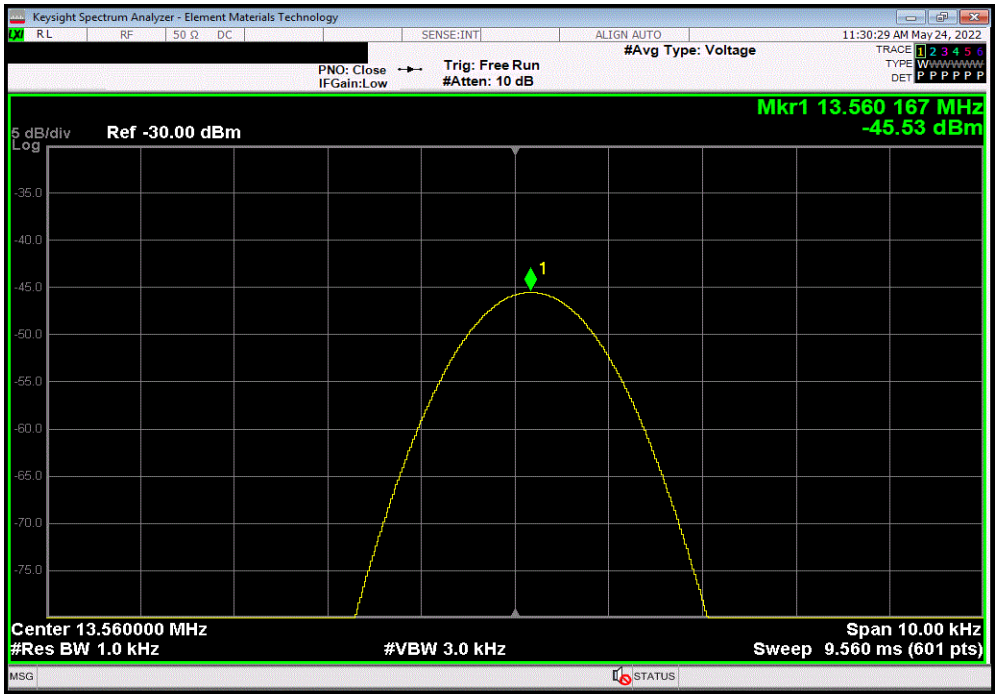
Radio 2 Antenna, Extreme Temperature +20C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.5601	13.56006667	2.46	100	Pass



Radio 2 Antenna, Extreme Temperature +10C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56013333	13.56006667	4.92	100	Pass



Radio 2 Antenna, Extreme Temperature 0C, 13.56 MHz RFID						
		Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
		13.56016667	13.56006667	7.37	100	Pass



End of Test Report