



# element

## Abbott Laboratories

Remover Module SL

FCC 15.225:2023

RSS-210 Issue 10:2019+A1:2020

RSS-Gen Issue 5:2018+A1:2019+A2:2021

13.56 MHz Radio

Report: ABBO0284.2 Rev. 0, Issue Date: December 5, 2023



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# CERTIFICATE OF TEST



Last Date of Test: October 18, 2023  
Abbott Laboratories  
EUT: Remover Module SL

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.207:2023	ANSI C63.10:2013
FCC 15.225:2023	
RSS-210 Issue 10:2019+A1:2020	
RSS-Gen Issue 5:2018+A1:2019+A2:2021	

### Results

Test Description	Result	FCC Section(s)	RSS Section(s)	ANSI C63.10 Section(s)
Powerline Conducted Emissions	Pass	15.207	RSS-Gen 8.8	6.2
Field Strength of Fundamental	Pass	15.225(a)-(c)	RSS-210 B.6(a)(i-iv)	6.4
Field Strength of Spurious Emissions (Less Than 30 MHz)	Pass	15.225(d), 15.209	RSS-210 B.6(a)(iv)	6.4
Field Strength of Spurious Emissions (Greater Than 30 MHz)	Pass	15.225(d), 15.209	RSS-210 B.6(a)(iv)	6.5
Frequency Stability	Pass	15.225(e), 15.31(e), 15.215(c), 2.1055	RSS-210 B.6(b)	6.8
Emissions Bandwidth (20 dB)	Pass	15.215(c)		6.9.2
Occupied Bandwidth 99%	Pass	N/A	RSS-Gen 6.7	6.9.3

### Deviations From Test Standards

None

### Approved By:

Adam Bruno, Operations Manager

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

# REVISION HISTORY



Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		

# ACCREDITATIONS AND AUTHORIZATIONS



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## 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.

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## 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.

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## European Union

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

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## United Kingdom

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

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## Australia/New Zealand

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

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## Korea

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

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## Japan

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

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## 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.

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## Singapore

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

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## Israel

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

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## Hong Kong

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

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## Vietnam

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

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## SCOPE

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

[California](#)

[Minnesota](#)

[Oregon](#)

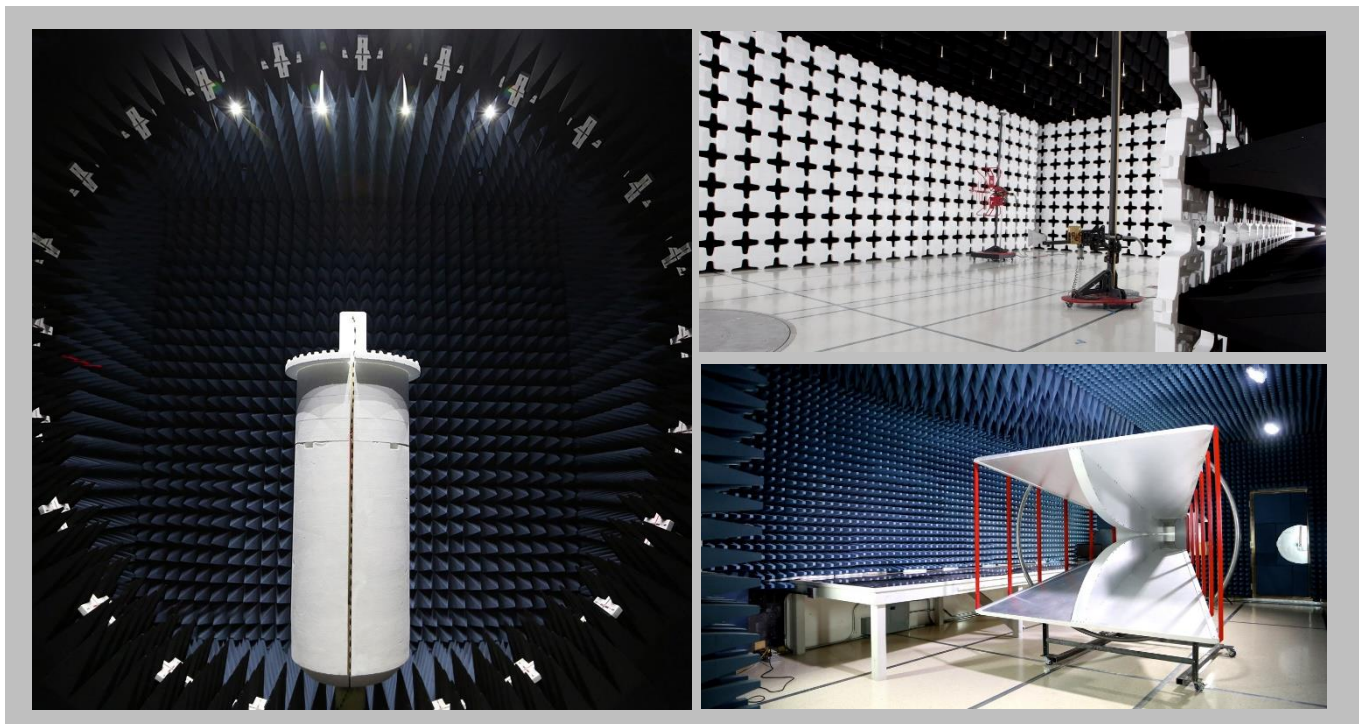
[Texas](#)

[Washington](#)

# FACILITIES



<b>California</b> Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	<b>Minnesota</b> Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612) 638-5136	<b>Oregon</b> Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	<b>Texas</b> Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	<b>Washington</b> Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 98011 (425) 984-6600
<b>A2LA</b>				
Lab Code: 3310.04	Lab Code: 3310.05	Lab Code: 3310.02	Lab Code: 3310.03	Lab Code: 3310.06
<b>Innovation, Science and Economic Development Canada</b>				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
<b>BSMI</b>				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>				
A-0029	A-0109	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA</b>				
US0158	US0175	US0017	US0191	US0157



# MEASUREMENT UNCERTAINTY



## Measurement Uncertainty

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

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

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

Test Location: Texas

Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.1 dB	-5.1 dB
AC Powerline Conducted Emissions (dB)	3.1 dB	-3.1 dB

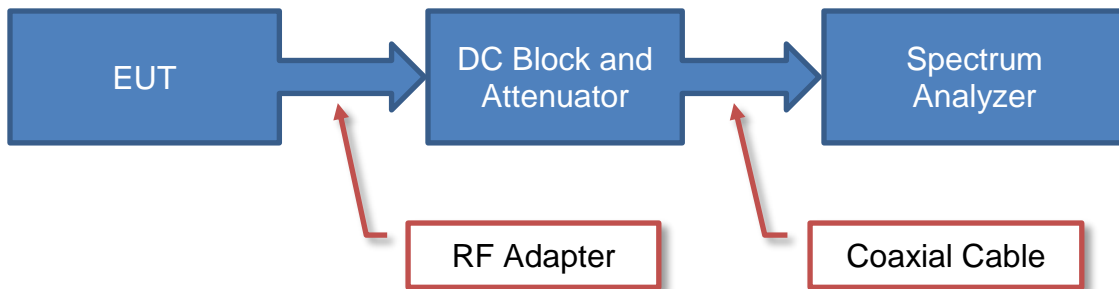
# TEST SETUP BLOCK DIAGRAMS

## Measurement Bandwidths

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

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

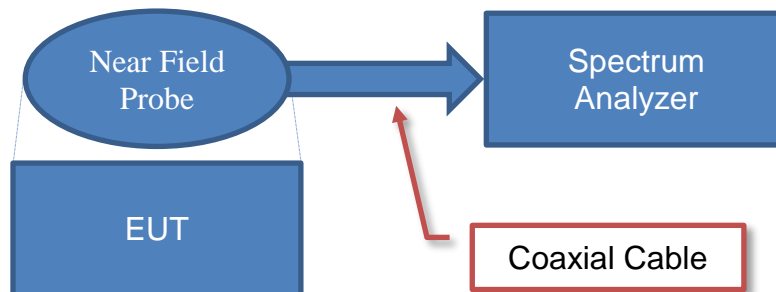
## Antenna Port Conducted Measurements



### Sample Calculation (logarithmic units)

$$\begin{array}{r}
 \text{Measured Value} \\
 71.2
 \end{array}
 =
 \begin{array}{r}
 \text{Measured Level} \\
 42.6
 \end{array}
 +
 \begin{array}{r}
 \text{Reference Level Offset} \\
 28.6
 \end{array}$$

## Near Field Test Fixture Measurements



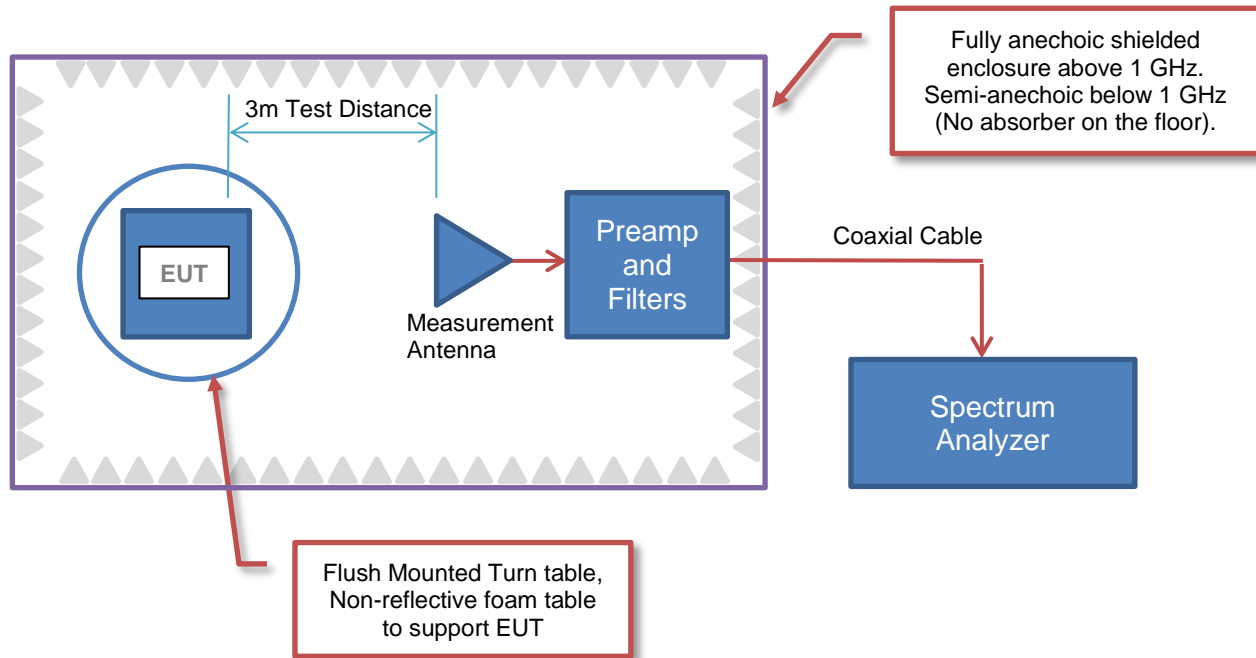
### Sample Calculation (logarithmic units)

$$\begin{array}{r}
 \text{Measured Value} \\
 71.2
 \end{array}
 =
 \begin{array}{r}
 \text{Measured Level} \\
 42.6
 \end{array}
 +
 \begin{array}{r}
 \text{Reference Level Offset} \\
 28.6
 \end{array}$$



# TEST SETUP BLOCK DIAGRAMS

## Emissions Measurements



## Sample Calculation (logarithmic units)

### Radiated Emissions:

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

42.6 + 28.6 + 3.1 - 40.8 + 0.0 + 0.0 = 33.5

### Conducted Emissions:

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

26.7 + 0.3 + 0.1 + 20.0 = 47.1

### Radiated Power (ERP/EIRP) – Substitution Method:

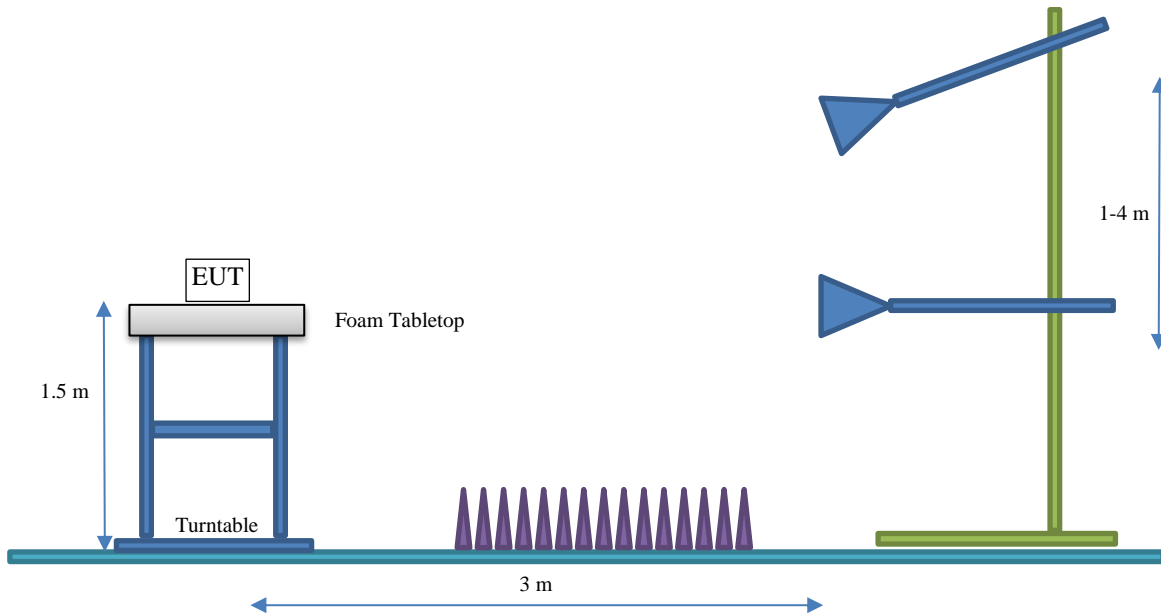
Measured Level into Substitution Antenna (Amplitude dBm)	Substitution Antenna Factor (dBi)	EIRP to ERP (if applicable)	Measured power (dBm ERP/EIRP)
10.0	6.0	2.15	13.9/16.0

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

<b>Company Name:</b>	Abbott Laboratories
<b>Address:</b>	1921 Hurd Drive
<b>City, State, Zip:</b>	Irving, Texas 75038
<b>Test Requested By:</b>	Frank Sun
<b>EUT:</b>	Remover Module SL
<b>First Date of Test:</b>	October 4, 2023
<b>Last Date of Test:</b>	October 18, 2023
<b>Receipt Date of Samples:</b>	October 4, 2023
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage
<b>Purchase Authorization:</b>	Verified

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

This sample preparation module utilizes an internal robotic mechanism to remove conical plastic caps from sample tubes carried to the module via CARs. The CARs are secured in the module while the removing action is performed and released when action is completed. This module contains a total of 4 RFID readers including 2 Access Point (1 RFID reader) and 1 Cross Switch (2 RFID readers)

### Testing Objective:

To demonstrate compliance of the 13.56 MHz radio to FCC 15.225 requirements and RSS-210 Annex B.6 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. The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

## ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Dimensions
Embedded Loop Antenna, 2 Turns	GLP Systems	13.56 MHz	51mm x 35mm

The EUT was tested using the power settings provided by the manufacturer which were based upon:

- Test software settings      Test software/firmware installed on EUT: See Configuration
- Rated power settings

## POWER SETTING

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

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

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

# CONFIGURATIONS



## Configuration ABBO0284-1

Software/Firmware Running During Test	
Description	Version
D000105502 AccessPoint RFID Test Firmware 02-47679 Verification	A
D000105499 CrossSwitch RFID Test Firmware 02-47679 Verification	A

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Remover Module SL (REM)	Abbott Laboratories	06Q11-61	REMSL000019

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Recapper Module SL Double (RM)	Abbott Laboratories	06Q09-91	RMSL000023
Track Section 40	Abbott Laboratories	06Q43-61	None
Track Section 40	Abbott Laboratories	06Q43-61	None
Track Section 40	Abbott Laboratories	06Q43-61	None
Track End	Abbott Laboratories	06Q42-51	None
Track End	Abbott Laboratories	06Q42-51	None
Junction Box Assembly	Abbott Laboratories	06U35-06	None
Raspberry Pi	Raspberry Pi	3 Model B V1.2	None
Portable Battery Pack	Power Core	Power Core 26800	T74155A3
Car #1	Abbott Laboratories	04Z95-51	004 7749
Car #2	Abbott Laboratories	04Z95-51	005 8742

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.2m	No	AC Mains	Junction Box

# CONFIGURATIONS



## Configuration ABBO0284-2

Software/Firmware Running During Test	
Description	Version
D000105502 AccessPoint RFID Test Firmware 02-47679 Verification	A
D000105499 CrossSwitch RFID Test Firmware 02-47679 Verification	A

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Remover Module SL (REM)	Abbott Laboratories	06Q11-61	REMSL00019

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Track Section 40	Abbott Laboratories	06Q43-61	None
Track Section 40	Abbott Laboratories	06Q43-61	None
Track Section 40	Abbott Laboratories	06Q43-61	None
Track End	Abbott Laboratories	06Q42-51	None
Track End	Abbott Laboratories	06Q42-51	None
Junction Box Assembly	Abbott Laboratories	06U35-06	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.2m	No	AC Mains	Junction Box

# CONFIGURATIONS



## Configuration ABBO0284-3

Software/Firmware Running During Test	
Description	Version
D000105502 AccessPoint RFID Test Firmware 02-47679 Verification	A
D000105499 CrossSwitch RFID Test Firmware 02-47679 Verification	A

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Remover Module SL (REM)	Abbott Laboratories	06Q11-61	REMSL00019

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Junction Box Assembly	Abbott Laboratories	06U35-06	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.2m	No	AC Mains	Junction Box

# MODIFICATIONS



## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2023-10-04	Field Strength of Fundamental	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2023-10-04	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.
3	2023-10-04	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.
4	2023-10-10	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	2023-10-10	Emissions Bandwidth (20 Db)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2023-10-12	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.
7	2023-10-18	Powerline Conducted Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.



# POWERLINE CONDUCTED EMISSIONS



## TEST DESCRIPTION

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

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

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

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

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

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

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR7	ARI	2023-09-14	2024-09-14
LISN	Solar Electronics	9252-50-R-24-BNC	LJK	2023-07-25	2024-07-25
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Cable - Conducted Cable Assembly	Northwest EMC	TXA, HFC, TQU, VAC	TXAA	2023-04-18	2024-04-18

## MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.1 dB	-3.1 dB

## CONFIGURATIONS INVESTIGATED

ABBO0284-1

## MODES INVESTIGATED

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 1 On  
Continuous Transmit, RFID, 13.56 MHz, AccessPoint 2 On  
Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 1) On  
Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 2) On

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.8°C
Attendees:	Frank Sun	Relative Humidity:	39.7%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

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

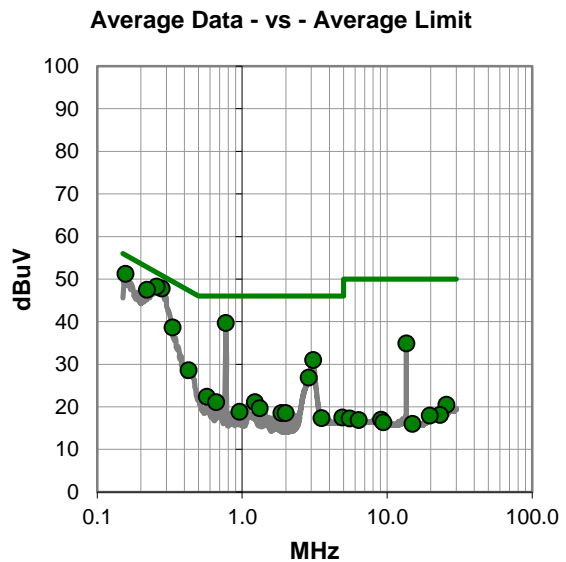
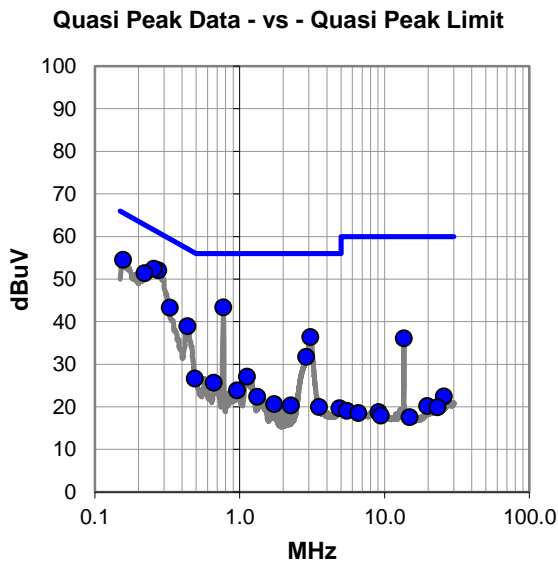
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 1 On

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #14

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.274	31.8	20.3	52.1	61.0	-8.9
0.256	32.0	20.5	52.5	61.6	-9.1
0.157	34.0	20.6	54.6	65.6	-11.0
0.220	30.8	20.6	51.4	62.8	-11.4
0.770	23.2	20.2	43.4	56.0	-12.6
0.330	23.1	20.2	43.3	59.5	-16.2
0.436	18.8	20.2	39.0	57.1	-18.1
3.082	16.1	20.3	36.4	56.0	-19.6
13.560	15.3	20.8	36.1	60.0	-23.9
2.880	11.5	20.3	31.8	56.0	-24.2
1.120	6.9	20.2	27.1	56.0	-28.9
0.490	6.5	20.2	26.7	56.2	-29.5
0.661	5.5	20.2	25.7	56.0	-30.3
0.960	3.7	20.2	23.9	56.0	-32.1
1.322	2.2	20.2	22.4	56.0	-33.6
1.730	0.5	20.2	20.7	56.0	-35.3
2.249	0.1	20.3	20.4	56.0	-35.6
3.530	-0.4	20.4	20.0	56.0	-36.0
4.895	-0.7	20.4	19.7	56.0	-36.3
25.600	0.4	22.1	22.5	60.0	-37.5
19.709	-1.1	21.3	20.2	60.0	-39.8
23.129	-1.7	21.6	19.9	60.0	-40.1
5.503	-1.3	20.4	19.1	60.0	-40.9
9.098	-1.8	20.6	18.8	60.0	-41.2
6.610	-1.8	20.4	18.6	60.0	-41.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.278	27.5	20.3	47.8	50.9	-3.1
0.256	27.8	20.5	48.3	51.6	-3.3
0.157	30.7	20.6	51.3	55.6	-4.3
0.220	26.9	20.6	47.5	52.8	-5.3
0.770	19.5	20.2	39.7	46.0	-6.3
0.330	18.5	20.2	38.7	49.5	-10.8
3.082	10.7	20.3	31.0	46.0	-15.0
13.560	14.1	20.8	34.9	50.0	-15.1
0.427	8.4	20.2	28.6	47.3	-18.7
2.870	6.6	20.3	26.9	46.0	-19.1
0.571	2.2	20.2	22.4	46.0	-23.6
0.661	0.9	20.2	21.1	46.0	-24.9
1.220	0.9	20.2	21.1	46.0	-24.9
1.322	-0.5	20.2	19.7	46.0	-26.3
0.960	-1.3	20.2	18.9	46.0	-27.1
1.862	-1.7	20.3	18.6	46.0	-27.4
1.993	-1.7	20.3	18.6	46.0	-27.4
4.895	-2.9	20.4	17.5	46.0	-28.5
3.530	-3.0	20.4	17.4	46.0	-28.6
25.600	-1.6	22.1	20.5	50.0	-29.5
23.130	-3.5	21.6	18.1	50.0	-31.9
19.709	-3.3	21.3	18.0	50.0	-32.0
5.510	-3.1	20.4	17.3	50.0	-32.7
9.100	-3.6	20.6	17.0	50.0	-33.0
6.360	-3.5	20.4	16.9	50.0	-33.1

## CONCLUSION

Pass

Tested By

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.8°C
Attendees:	Frank Sun	Relative Humidity:	39.7%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

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

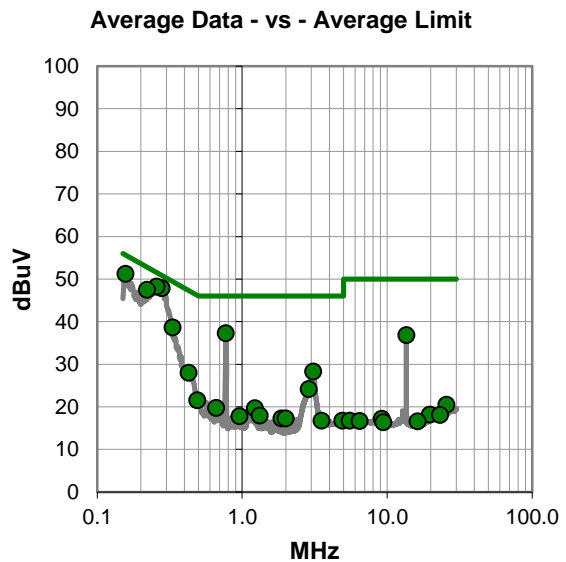
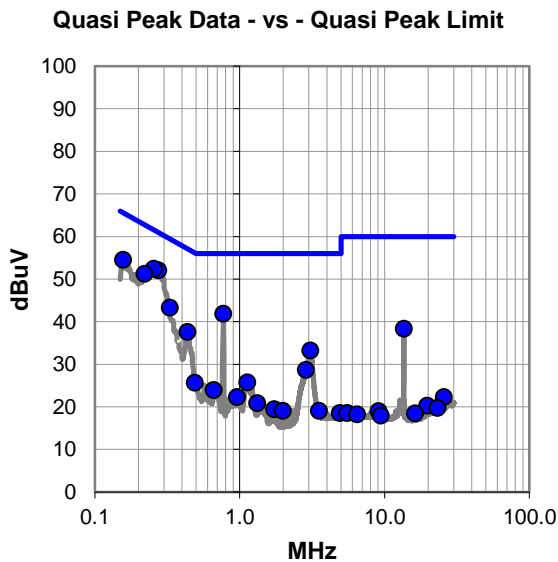
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 1 On

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #15

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.274	31.8	20.3	52.1	61.0	-8.9
0.256	32.0	20.5	52.5	61.6	-9.1
0.157	34.0	20.6	54.6	65.6	-11.0
0.220	30.7	20.6	51.3	62.8	-11.5
0.770	21.7	20.2	41.9	56.0	-14.1
0.330	23.1	20.2	43.3	59.5	-16.2
0.436	17.4	20.2	37.6	57.1	-19.5
13.560	17.6	20.8	38.4	60.0	-21.6
3.082	13.0	20.3	33.3	56.0	-22.7
2.870	8.4	20.3	28.7	56.0	-27.3
1.130	5.6	20.2	25.8	56.0	-30.2
0.490	5.5	20.2	25.7	56.2	-30.5
0.661	3.8	20.2	24.0	56.0	-32.0
0.960	2.1	20.2	22.3	56.0	-33.7
1.320	0.7	20.2	20.9	56.0	-35.1
1.730	-0.7	20.2	19.5	56.0	-36.5
1.990	-1.2	20.3	19.1	56.0	-36.9
3.530	-1.3	20.4	19.1	56.0	-36.9
4.904	-1.8	20.4	18.6	56.0	-37.4
25.600	0.2	22.1	22.3	60.0	-37.7
19.709	-1.0	21.3	20.3	60.0	-39.7
23.129	-1.8	21.6	19.8	60.0	-40.2
9.100	-1.6	20.6	19.0	60.0	-41.0
5.510	-1.8	20.4	18.6	60.0	-41.4
16.230	-2.5	21.0	18.5	60.0	-41.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.278	27.6	20.3	47.9	50.9	-3.0
0.256	27.8	20.5	48.3	51.6	-3.3
0.157	30.7	20.6	51.3	55.6	-4.3
0.220	26.9	20.6	47.5	52.8	-5.3
0.770	17.1	20.2	37.3	46.0	-8.7
0.330	18.5	20.2	38.7	49.5	-10.8
13.560	16.1	20.8	36.9	50.0	-13.1
3.082	8.0	20.3	28.3	46.0	-17.7
0.427	7.8	20.2	28.0	47.3	-19.3
2.870	3.9	20.3	24.2	46.0	-21.8
0.490	1.4	20.2	21.6	46.2	-24.6
0.661	-0.4	20.2	19.8	46.0	-26.2
1.220	-0.5	20.2	19.7	46.0	-26.3
1.320	-2.2	20.2	18.0	46.0	-28.0
0.960	-2.4	20.2	17.8	46.0	-28.2
1.862	-3.0	20.3	17.3	46.0	-28.7
1.990	-3.0	20.3	17.3	46.0	-28.7
3.530	-3.6	20.4	16.8	46.0	-29.2
4.895	-3.6	20.4	16.8	46.0	-29.2
25.600	-1.6	22.1	20.5	50.0	-29.5
19.709	-3.1	21.3	18.2	50.0	-31.8
23.130	-3.5	21.6	18.1	50.0	-31.9
9.161	-3.4	20.6	17.2	50.0	-32.8
5.503	-3.6	20.4	16.8	50.0	-33.2
6.440	-3.7	20.4	16.7	50.0	-33.3

## CONCLUSION

Pass

Tested By

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.8°C
Attendees:	Frank Sun	Relative Humidity:	39.7%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrold Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

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

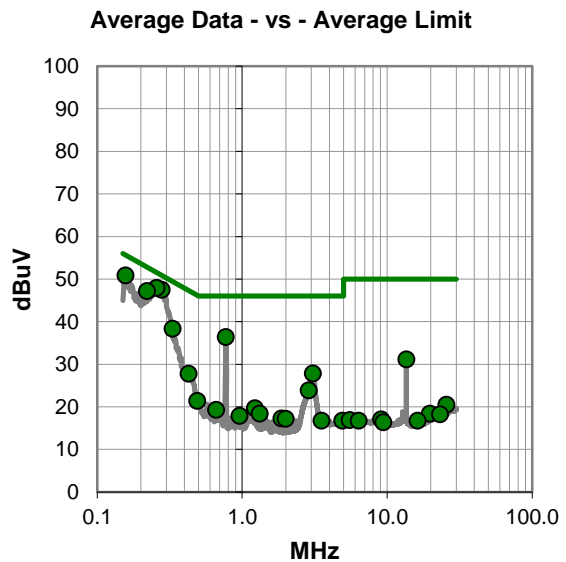
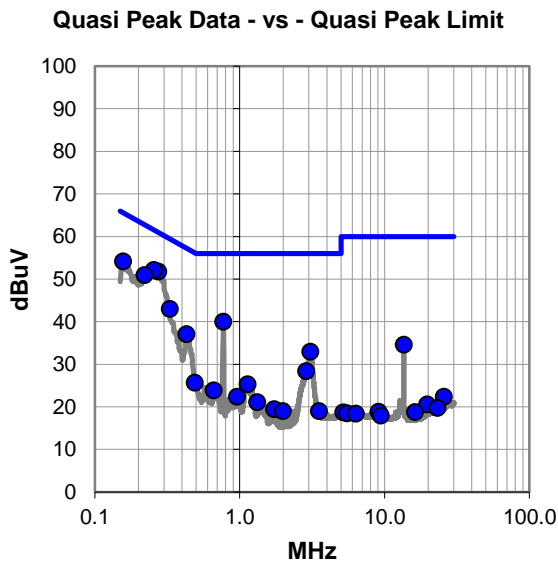
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 2 On

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #16

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.274	31.5	20.3	51.8	61.0	-9.2
0.256	31.7	20.5	52.2	61.6	-9.4
0.157	33.6	20.6	54.2	65.6	-11.4
0.220	30.4	20.6	51.0	62.8	-11.8
0.770	19.8	20.2	40.0	56.0	-16.0
0.330	22.8	20.2	43.0	59.5	-16.5
0.430	16.9	20.2	37.1	57.3	-20.2
3.082	12.7	20.3	33.0	56.0	-23.0
13.560	13.8	20.8	34.6	60.0	-25.4
2.880	8.1	20.3	28.4	56.0	-27.6
0.490	5.5	20.2	25.7	56.2	-30.5
1.133	5.1	20.2	25.3	56.0	-30.7
0.661	3.7	20.2	23.9	56.0	-32.1
0.960	2.2	20.2	22.4	56.0	-33.6
1.320	0.9	20.2	21.1	56.0	-34.9
1.730	-0.7	20.2	19.5	56.0	-36.5
1.990	-1.3	20.3	19.0	56.0	-37.0
3.530	-1.4	20.4	19.0	56.0	-37.0
25.600	0.3	22.1	22.4	60.0	-37.6
19.709	-0.7	21.3	20.6	60.0	-39.4
23.130	-1.8	21.6	19.8	60.0	-40.2
9.100	-1.7	20.6	18.9	60.0	-41.1
16.230	-2.2	21.0	18.8	60.0	-41.2
5.192	-1.7	20.4	18.7	60.0	-41.3
5.510	-1.9	20.4	18.5	60.0	-41.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.278	27.2	20.3	47.5	50.9	-3.4
0.256	27.5	20.5	48.0	51.6	-3.6
0.157	30.3	20.6	50.9	55.6	-4.7
0.220	26.6	20.6	47.2	52.8	-5.6
0.770	16.2	20.2	36.4	46.0	-9.6
0.330	18.2	20.2	38.4	49.5	-11.1
3.064	7.6	20.3	27.9	46.0	-18.1
13.560	10.4	20.8	31.2	50.0	-18.8
0.427	7.6	20.2	27.8	47.3	-19.5
2.870	3.6	20.3	23.9	46.0	-22.1
0.490	1.2	20.2	21.4	46.2	-24.8
1.220	-0.5	20.2	19.7	46.0	-26.3
0.661	-0.9	20.2	19.3	46.0	-26.7
1.320	-1.8	20.2	18.4	46.0	-27.6
0.960	-2.3	20.2	17.9	46.0	-28.1
1.862	-3.0	20.3	17.3	46.0	-28.7
1.990	-3.1	20.3	17.2	46.0	-28.8
3.530	-3.6	20.4	16.8	46.0	-29.2
4.895	-3.6	20.4	16.8	46.0	-29.2
25.600	-1.6	22.1	20.5	50.0	-29.5
19.709	-2.9	21.3	18.4	50.0	-31.6
23.129	-3.3	21.6	18.3	50.0	-31.7
9.100	-3.5	20.6	17.1	50.0	-32.9
5.510	-3.5	20.4	16.9	50.0	-33.1
6.350	-3.6	20.4	16.8	50.0	-33.2

## CONCLUSION

Pass

Tested By

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.4°C
Attendees:	Frank Sun	Relative Humidity:	40.9%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrold Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

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

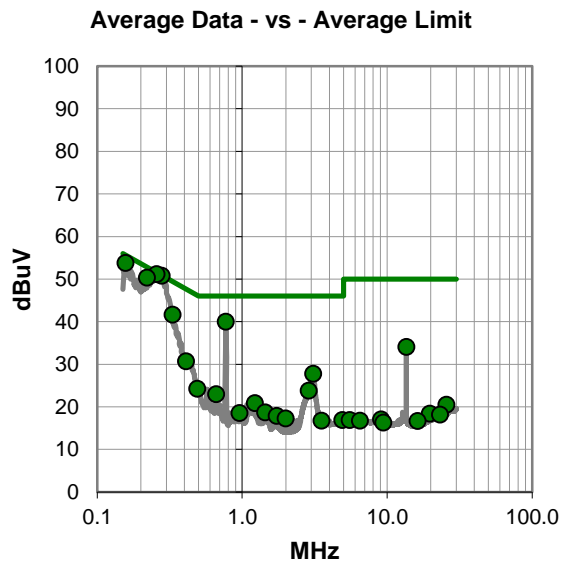
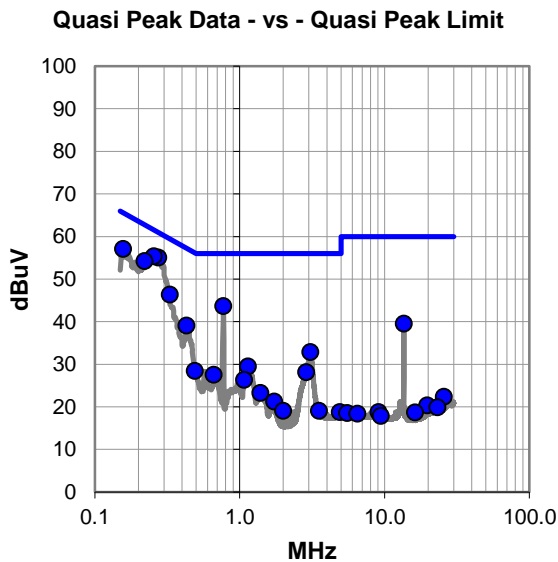
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 2 On

## DEVIATIONS FROM TEST STANDARD

None





# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #17

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.274	34.8	20.3	55.1	61.0	-5.9
0.256	34.9	20.5	55.4	61.6	-6.2
0.157	36.5	20.6	57.1	65.6	-8.5
0.220	33.7	20.6	54.3	62.8	-8.5
0.770	23.5	20.2	43.7	56.0	-12.3
0.330	26.2	20.2	46.4	59.5	-13.1
0.430	18.9	20.2	39.1	57.3	-18.2
13.560	18.8	20.8	39.6	60.0	-20.4
3.082	12.6	20.3	32.9	56.0	-23.1
1.138	9.3	20.2	29.5	56.0	-26.5
0.490	8.3	20.2	28.5	56.2	-27.7
2.880	7.9	20.3	28.2	56.0	-27.8
0.661	7.4	20.2	27.6	56.0	-28.4
1.075	6.2	20.2	26.4	56.0	-29.6
1.390	3.1	20.2	23.3	56.0	-32.7
1.730	1.1	20.2	21.3	56.0	-34.7
1.993	-1.2	20.3	19.1	56.0	-36.9
3.530	-1.3	20.4	19.1	56.0	-36.9
4.900	-1.6	20.4	18.8	56.0	-37.2
25.600	0.3	22.1	22.4	60.0	-37.6
19.709	-0.9	21.3	20.4	60.0	-39.6
23.129	-1.7	21.6	19.9	60.0	-40.1
9.100	-1.8	20.6	18.8	60.0	-41.2
16.230	-2.3	21.0	18.7	60.0	-41.3
5.510	-1.8	20.4	18.6	60.0	-41.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.278	30.5	20.3	50.8	50.9	-0.1
0.256	30.7	20.5	51.2	51.6	-0.4
0.157	33.2	20.6	53.8	55.6	-1.8
0.220	29.8	20.6	50.4	52.8	-2.4
0.770	19.8	20.2	40.0	46.0	-6.0
0.330	21.5	20.2	41.7	49.5	-7.8
13.560	13.3	20.8	34.1	50.0	-15.9
0.409	10.5	20.2	30.7	47.7	-17.0
3.080	7.5	20.3	27.8	46.0	-18.2
0.490	4.1	20.2	24.3	46.2	-21.9
2.870	3.5	20.3	23.8	46.0	-22.2
0.661	2.8	20.2	23.0	46.0	-23.0
1.220	0.7	20.2	20.9	46.0	-25.1
1.439	-1.5	20.2	18.7	46.0	-27.3
0.960	-1.6	20.2	18.6	46.0	-27.4
1.730	-2.3	20.2	17.9	46.0	-28.1
1.990	-3.0	20.3	17.3	46.0	-28.7
4.900	-3.5	20.4	16.9	46.0	-29.1
3.530	-3.6	20.4	16.8	46.0	-29.2
25.600	-1.6	22.1	20.5	50.0	-29.5
19.709	-2.9	21.3	18.4	50.0	-31.6
23.130	-3.4	21.6	18.2	50.0	-31.8
9.100	-3.5	20.6	17.1	50.0	-32.9
5.510	-3.5	20.4	16.9	50.0	-33.1
6.502	-3.6	20.4	16.8	50.0	-33.2

## CONCLUSION

Pass

Tested By

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.4°C
Attendees:	Frank Sun	Relative Humidity:	40.9%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

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

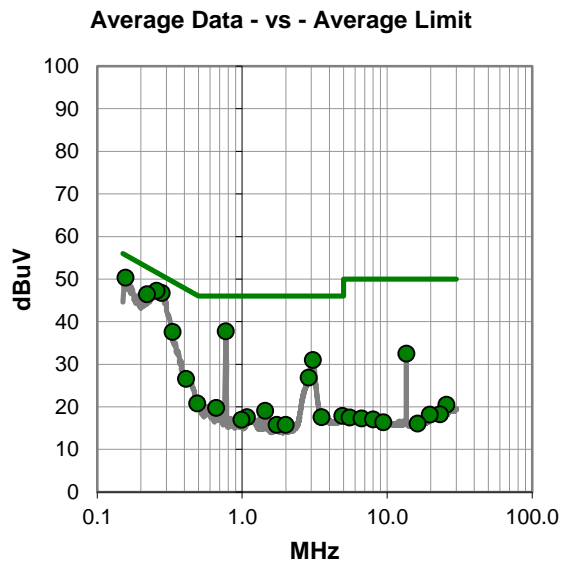
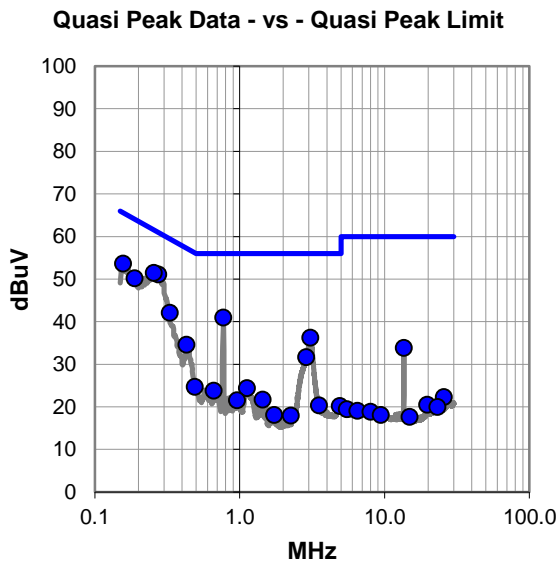
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 1) On

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #18

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.274	30.8	20.3	51.1	61.0	-9.9
0.256	31.0	20.5	51.5	61.6	-10.1
0.157	33.1	20.6	53.7	65.6	-11.9
0.188	29.5	20.7	50.2	64.1	-13.9
0.770	20.8	20.2	41.0	56.0	-15.0
0.330	21.9	20.2	42.1	59.5	-17.4
3.082	16.0	20.3	36.3	56.0	-19.7
0.430	14.4	20.2	34.6	57.3	-22.7
2.880	11.4	20.3	31.7	56.0	-24.3
13.560	13.1	20.8	33.9	60.0	-26.1
0.490	4.5	20.2	24.7	56.2	-31.5
1.124	4.2	20.2	24.4	56.0	-31.6
0.661	3.6	20.2	23.8	56.0	-32.2
1.440	1.5	20.2	21.7	56.0	-34.3
0.960	1.4	20.2	21.6	56.0	-34.4
3.530	0.0	20.4	20.4	56.0	-35.6
4.900	-0.2	20.4	20.2	56.0	-35.8
25.600	0.2	22.1	22.3	60.0	-37.7
1.730	-2.1	20.2	18.1	56.0	-37.9
2.249	-2.3	20.3	18.0	56.0	-38.0
19.709	-0.8	21.3	20.5	60.0	-39.5
23.129	-1.6	21.6	20.0	60.0	-40.0
5.503	-0.9	20.4	19.5	60.0	-40.5
6.506	-1.3	20.4	19.1	60.0	-40.9
8.000	-1.6	20.5	18.9	60.0	-41.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.278	26.5	20.3	46.8	50.9	-4.1
0.256	26.8	20.5	47.3	51.6	-4.3
0.157	29.8	20.6	50.4	55.6	-5.2
0.220	25.9	20.6	46.5	52.8	-6.3
0.770	17.6	20.2	37.8	46.0	-8.2
0.330	17.4	20.2	37.6	49.5	-11.9
3.064	10.7	20.3	31.0	46.0	-15.0
13.560	11.7	20.8	32.5	50.0	-17.5
2.880	6.6	20.3	26.9	46.0	-19.1
0.409	6.4	20.2	26.6	47.7	-21.1
0.490	0.6	20.2	20.8	46.2	-25.4
0.661	-0.4	20.2	19.8	46.0	-26.2
1.440	-1.1	20.2	19.1	46.0	-26.9
4.900	-2.5	20.4	17.9	46.0	-28.1
1.079	-2.6	20.2	17.6	46.0	-28.4
3.530	-2.8	20.4	17.6	46.0	-28.4
0.989	-3.2	20.2	17.0	46.0	-29.0
25.600	-1.6	22.1	20.5	50.0	-29.5
1.730	-4.4	20.2	15.8	46.0	-30.2
1.993	-4.5	20.3	15.8	46.0	-30.2
23.129	-3.3	21.6	18.3	50.0	-31.7
19.709	-3.1	21.3	18.2	50.0	-31.8
5.503	-2.9	20.4	17.5	50.0	-32.5
6.646	-3.1	20.4	17.3	50.0	-32.7
8.000	-3.4	20.5	17.1	50.0	-32.9

## CONCLUSION

Pass

Tested By

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.4°C
Attendees:	Frank Sun	Relative Humidity:	40.9%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	19	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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## COMMENTS

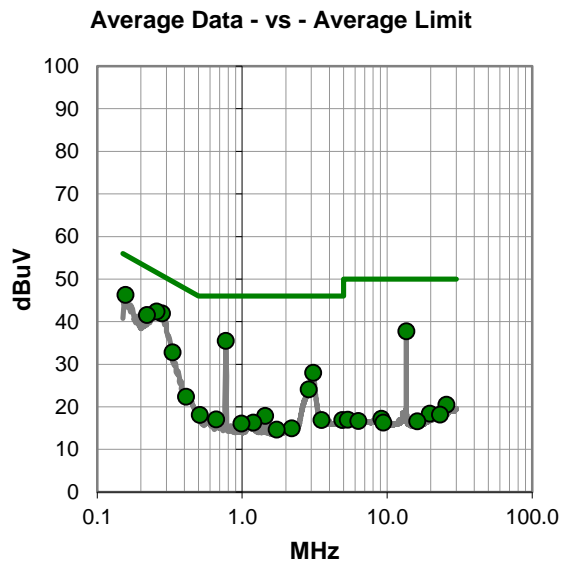
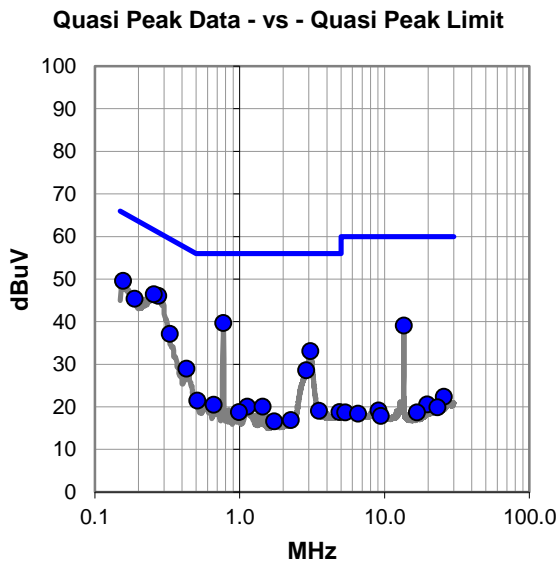
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 1) On

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #19

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.274	25.8	20.3	46.1	61.0	-14.9
0.256	26.0	20.5	46.5	61.6	-15.1
0.157	29.0	20.6	49.6	65.6	-16.0
0.770	19.5	20.2	39.7	56.0	-16.3
0.188	24.7	20.7	45.4	64.1	-18.7
13.560	18.3	20.8	39.1	60.0	-20.9
0.330	17.0	20.2	37.2	59.5	-22.3
3.082	12.8	20.3	33.1	56.0	-22.9
2.880	8.3	20.3	28.6	56.0	-27.4
0.430	8.8	20.2	29.0	57.3	-28.3
0.510	1.3	20.2	21.5	56.0	-34.5
0.661	0.3	20.2	20.5	56.0	-35.5
1.130	-0.1	20.2	20.1	56.0	-35.9
1.440	-0.1	20.2	20.1	56.0	-35.9
3.530	-1.3	20.4	19.1	56.0	-36.9
0.989	-1.4	20.2	18.8	56.0	-37.2
4.895	-1.6	20.4	18.8	56.0	-37.2
25.600	0.3	22.1	22.4	60.0	-37.6
2.249	-3.4	20.3	16.9	56.0	-39.1
1.730	-3.6	20.2	16.6	56.0	-39.4
19.709	-0.7	21.3	20.6	60.0	-39.4
23.130	-1.7	21.6	19.9	60.0	-40.1
9.103	-1.4	20.6	19.2	60.0	-40.8
5.350	-1.7	20.4	18.7	60.0	-41.3
16.720	-2.4	21.1	18.7	60.0	-41.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.280	21.7	20.3	42.0	50.8	-8.8
0.256	21.9	20.5	42.4	51.6	-9.2
0.157	25.7	20.6	46.3	55.6	-9.3
0.770	15.3	20.2	35.5	46.0	-10.5
0.220	21.0	20.6	41.6	52.8	-11.2
13.560	17.0	20.8	37.8	50.0	-12.2
0.330	12.6	20.2	32.8	49.5	-16.7
3.082	7.7	20.3	28.0	46.0	-18.0
2.870	3.8	20.3	24.1	46.0	-21.9
0.410	2.2	20.2	22.4	47.6	-25.2
0.510	-2.1	20.2	18.1	46.0	-27.9
1.440	-2.3	20.2	17.9	46.0	-28.1
0.661	-3.1	20.2	17.1	46.0	-28.9
3.530	-3.5	20.4	16.9	46.0	-29.1
4.895	-3.5	20.4	16.9	46.0	-29.1
25.600	-1.6	22.1	20.5	50.0	-29.5
1.190	-3.9	20.2	16.3	46.0	-29.7
0.989	-4.1	20.2	16.1	46.0	-29.9
2.200	-5.3	20.3	15.0	46.0	-31.0
1.730	-5.5	20.2	14.7	46.0	-31.3
19.709	-2.9	21.3	18.4	50.0	-31.6
23.130	-3.4	21.6	18.2	50.0	-31.8
9.103	-3.4	20.6	17.2	50.0	-32.8
5.350	-3.4	20.4	17.0	50.0	-33.0
6.335	-3.7	20.4	16.7	50.0	-33.3

## CONCLUSION

Pass

Tested By

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.4°C
Attendees:	Frank Sun	Relative Humidity:	40.9%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

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

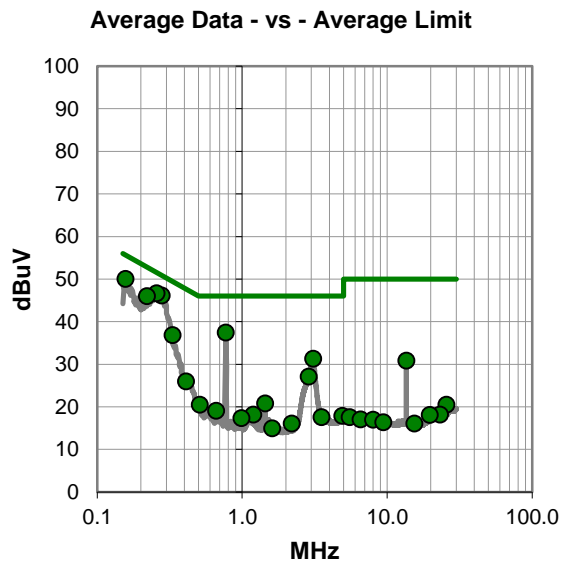
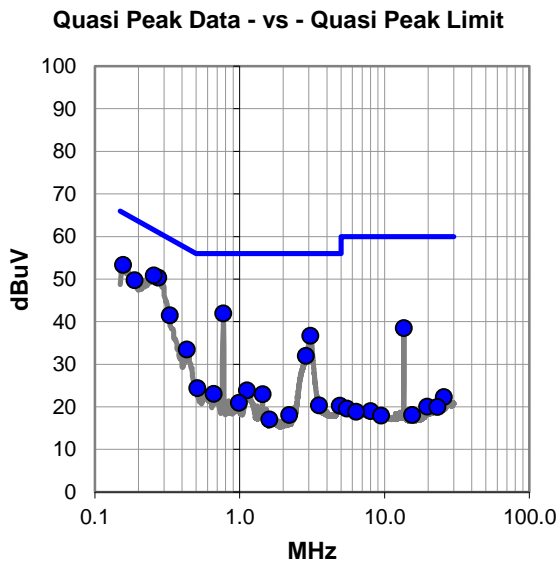
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 2) On

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #20

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.274	30.1	20.3	50.4	61.0	-10.6
0.256	30.4	20.5	50.9	61.6	-10.7
0.157	32.8	20.6	53.4	65.6	-12.2
0.770	21.8	20.2	42.0	56.0	-14.0
0.188	29.1	20.7	49.8	64.1	-14.3
0.330	21.3	20.2	41.5	59.5	-18.0
3.082	16.4	20.3	36.7	56.0	-19.3
13.560	17.7	20.8	38.5	60.0	-21.5
0.431	13.3	20.2	33.5	57.2	-23.7
2.870	11.7	20.3	32.0	56.0	-24.0
0.510	4.2	20.2	24.4	56.0	-31.6
1.124	3.7	20.2	23.9	56.0	-32.1
0.661	2.9	20.2	23.1	56.0	-32.9
1.440	2.8	20.2	23.0	56.0	-33.0
0.989	0.8	20.2	21.0	56.0	-35.0
3.530	0.0	20.4	20.4	56.0	-35.6
4.904	-0.1	20.4	20.3	56.0	-35.7
25.600	0.2	22.1	22.3	60.0	-37.7
2.200	-2.2	20.3	18.1	56.0	-37.9
1.606	-3.1	20.2	17.1	56.0	-38.9
19.709	-1.2	21.3	20.1	60.0	-39.9
23.129	-1.6	21.6	20.0	60.0	-40.0
5.503	-0.8	20.4	19.6	60.0	-40.4
8.000	-1.5	20.5	19.0	60.0	-41.0
6.362	-1.5	20.4	18.9	60.0	-41.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.278	25.9	20.3	46.2	50.9	-4.7
0.256	26.2	20.5	46.7	51.6	-4.9
0.157	29.5	20.6	50.1	55.6	-5.5
0.220	25.4	20.6	46.0	52.8	-6.8
0.770	17.3	20.2	37.5	46.0	-8.5
0.330	16.7	20.2	36.9	49.5	-12.6
3.082	11.0	20.3	31.3	46.0	-14.7
2.870	6.8	20.3	27.1	46.0	-18.9
13.560	10.1	20.8	30.9	50.0	-19.1
0.409	5.8	20.2	26.0	47.7	-21.7
1.440	0.6	20.2	20.8	46.0	-25.2
0.510	0.3	20.2	20.5	46.0	-25.5
0.661	-1.1	20.2	19.1	46.0	-26.9
1.190	-2.0	20.2	18.2	46.0	-27.8
4.895	-2.5	20.4	17.9	46.0	-28.1
3.530	-2.8	20.4	17.6	46.0	-28.4
0.989	-2.8	20.2	17.4	46.0	-28.6
25.600	-1.6	22.1	20.5	50.0	-29.5
2.200	-4.2	20.3	16.1	46.0	-29.9
1.606	-5.2	20.2	15.0	46.0	-31.0
23.129	-3.4	21.6	18.2	50.0	-31.8
19.709	-3.2	21.3	18.1	50.0	-31.9
5.503	-2.8	20.4	17.6	50.0	-32.4
6.569	-3.3	20.4	17.1	50.0	-32.9
8.000	-3.5	20.5	17.0	50.0	-33.0

## CONCLUSION

Pass

Tested By

# POWERLINE CONDUCTED EMISSIONS



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-18
Customer:	Abbott Laboratories	Temperature:	20.4°C
Attendees:	Frank Sun	Relative Humidity:	40.9%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	220VAC/60Hz	Configuration:	ABBO0284-1

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2023	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

## TEST PARAMETERS

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

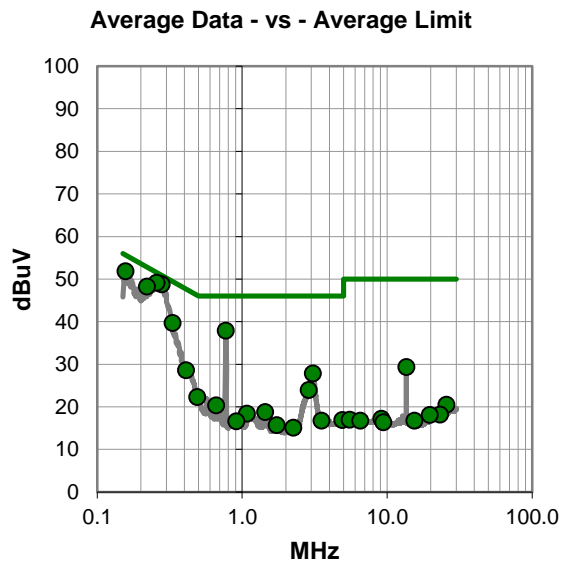
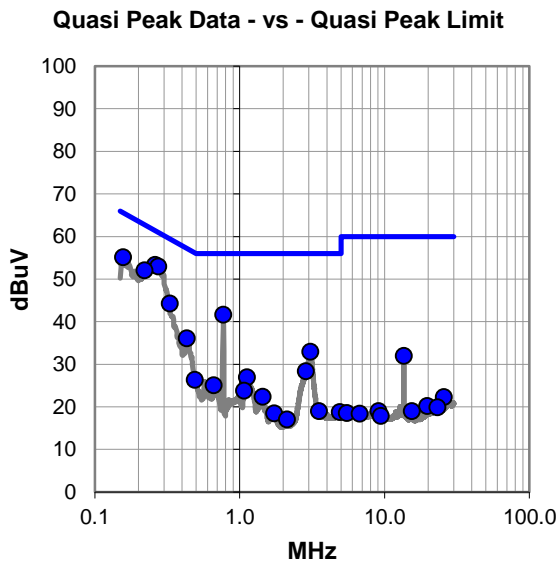
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 2) On

## DEVIATIONS FROM TEST STANDARD

None





# POWERLINE CONDUCTED EMISSIONS



## RESULTS - Run #21

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.260	33.0	20.4	53.4	61.4	-8.0
0.274	32.7	20.3	53.0	61.0	-8.0
0.157	34.6	20.6	55.2	65.6	-10.4
0.220	31.5	20.6	52.1	62.8	-10.7
0.770	21.5	20.2	41.7	56.0	-14.3
0.330	24.1	20.2	44.3	59.5	-15.2
0.431	15.9	20.2	36.1	57.2	-21.1
3.082	12.7	20.3	33.0	56.0	-23.0
2.870	8.1	20.3	28.4	56.0	-27.6
13.560	11.2	20.8	32.0	60.0	-28.0
1.120	6.8	20.2	27.0	56.0	-29.0
0.490	6.2	20.2	26.4	56.2	-29.8
0.661	4.9	20.2	25.1	56.0	-30.9
1.070	3.6	20.2	23.8	56.0	-32.2
1.440	2.2	20.2	22.4	56.0	-33.6
3.530	-1.4	20.4	19.0	56.0	-37.0
4.900	-1.6	20.4	18.8	56.0	-37.2
1.730	-1.7	20.2	18.5	56.0	-37.5
25.600	0.2	22.1	22.3	60.0	-37.7
2.120	-3.2	20.3	17.1	56.0	-38.9
19.709	-1.1	21.3	20.2	60.0	-39.8
23.129	-1.7	21.6	19.9	60.0	-40.1
9.103	-1.6	20.6	19.0	60.0	-41.0
15.434	-1.9	20.9	19.0	60.0	-41.0
5.503	-1.8	20.4	18.6	60.0	-41.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.278	28.5	20.3	48.8	50.9	-2.1
0.256	28.7	20.5	49.2	51.6	-2.4
0.157	31.3	20.6	51.9	55.6	-3.7
0.220	27.7	20.6	48.3	52.8	-4.5
0.770	17.7	20.2	37.9	46.0	-8.1
0.330	19.5	20.2	39.7	49.5	-9.8
3.070	7.6	20.3	27.9	46.0	-18.1
0.409	8.4	20.2	28.6	47.7	-19.1
13.560	8.6	20.8	29.4	50.0	-20.6
2.870	3.7	20.3	24.0	46.0	-22.0
0.490	2.1	20.2	22.3	46.2	-23.9
0.661	0.2	20.2	20.4	46.0	-25.6
1.440	-1.4	20.2	18.8	46.0	-27.2
1.079	-1.8	20.2	18.4	46.0	-27.6
4.900	-3.5	20.4	16.9	46.0	-29.1
3.530	-3.6	20.4	16.8	46.0	-29.2
0.910	-3.6	20.2	16.6	46.0	-29.4
25.600	-1.6	22.1	20.5	50.0	-29.5
1.730	-4.5	20.2	15.7	46.0	-30.3
2.249	-5.2	20.3	15.1	46.0	-30.9
23.130	-3.4	21.6	18.2	50.0	-31.8
19.709	-3.2	21.3	18.1	50.0	-31.9
9.110	-3.4	20.6	17.2	50.0	-32.8
5.510	-3.4	20.4	17.0	50.0	-33.0
6.510	-3.6	20.4	16.8	50.0	-33.2

## CONCLUSION

Pass

Tested By

# FIELD STRENGTH OF FUNDAMENTAL

## TEST DESCRIPTION

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

The fundamental carrier of the EUT was maximized by rotating the EUT on a turntable and adjusting the measurement antenna 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.

The limits in CFR 47, Part 15C 15.209(a) are identical to those in RSS-Gen section 8.9 Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohms. For example, an E-Field measurement in dBuV/m can be converted to dBuA/m via the following formula:  $\text{dBuV/m} - 51.5 \text{ dB} = \text{dBuA/m}$ . E-Field measurements have the same margin in dB to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limits

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Loop	ETS Lindgren	6502	AZM	2022-07-19	2024-07-19
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2023-05-25	2024-05-25
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

## MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	1.8 dB	-1.8 dB

## FREQUENCY RANGE INVESTIGATED

12.06 MHz TO 15.06 MHz

## POWER INVESTIGATED

220VAC/60Hz

## CONFIGURATIONS INVESTIGATED

ABBO0284-2

## MODES INVESTIGATED

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 1 On  
Continuous Transmit, RFID, 13.56 MHz, AccessPoint 2 On  
Continuous Transmit, RFID, 13.56 MHz, All Radios On  
Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 1) On  
Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 2) On

# FIELD STRENGTH OF FUNDAMENTAL



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-04
Customer:	Abbott Laboratories	Temperature:	20.9°C
Attendees:	Frank Sun	Relative Humidity:	58.6%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0284-2

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019 +A1:2020	ANSI C63.10:2013

## TEST PARAMETERS

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

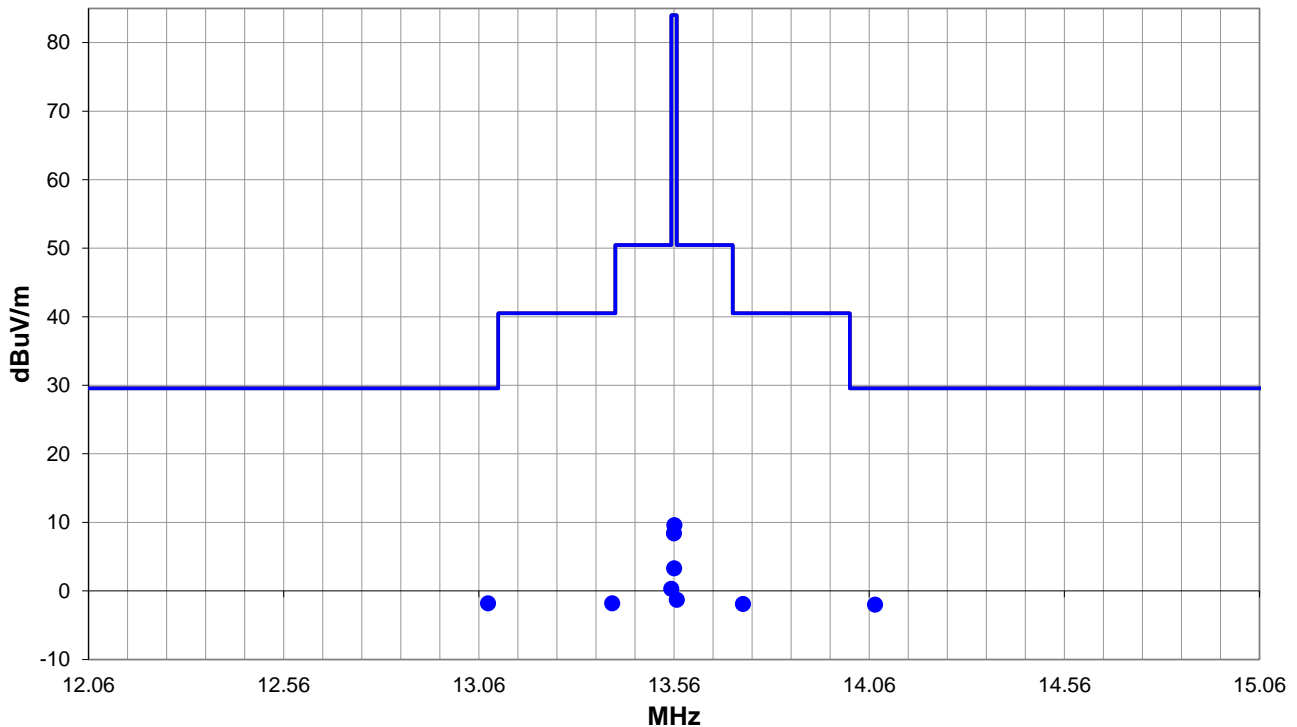
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, All Radios On

## DEVIATIONS FROM TEST STANDARD

None



Run #: 15

PK AV QP

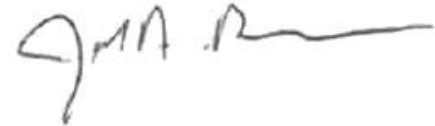
# FIELD STRENGTH OF FUNDAMENTAL

## RESULTS - Run #15

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.084	5.7	11.6	1.0	202.9	10.0	0.0	Para to GND	QP	-19.1	-1.8	29.5	-31.3
14.075	5.5	11.6	1.0	27.9	10.0	0.0	Para to GND	QP	-19.1	-2.0	29.5	-31.5
13.402	5.7	11.6	1.0	286.9	10.0	0.0	Para to GND	QP	-19.1	-1.8	40.5	-42.3
13.736	5.6	11.6	1.0	234.0	10.0	0.0	Para to GND	QP	-19.1	-1.9	40.5	-42.4
13.553	7.8	11.6	1.0	114.0	10.0	0.0	Para to GND	QP	-19.1	0.3	50.5	-50.2
13.567	6.2	11.6	1.0	39.9	10.0	0.0	Para to GND	QP	-19.1	-1.3	50.5	-51.8
13.561	17.1	11.6	1.0	192.0	10.0	0.0	Para to GND	QP	-19.1	9.6	84.0	-74.4
13.560	15.9	11.6	1.0	0.0	10.0	0.0	Perp to EUT	QP	-19.1	8.4	84.0	-75.6
13.560	10.8	11.6	1.0	171.9	10.0	0.0	Para to EUT	QP	-19.1	3.3	84.0	-80.7

## CONCLUSION

Pass



Tested By

# FIELD STRENGTH OF FUNDAMENTAL



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-04
Customer:	Abbott Laboratories	Temperature:	20.9°C
Attendees:	Frank Sun	Relative Humidity:	58.6%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0284-2

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019 +A1:2020	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	21	Test Distance (m):	3	Ant. Height(s) (m):	1(m)
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## COMMENTS

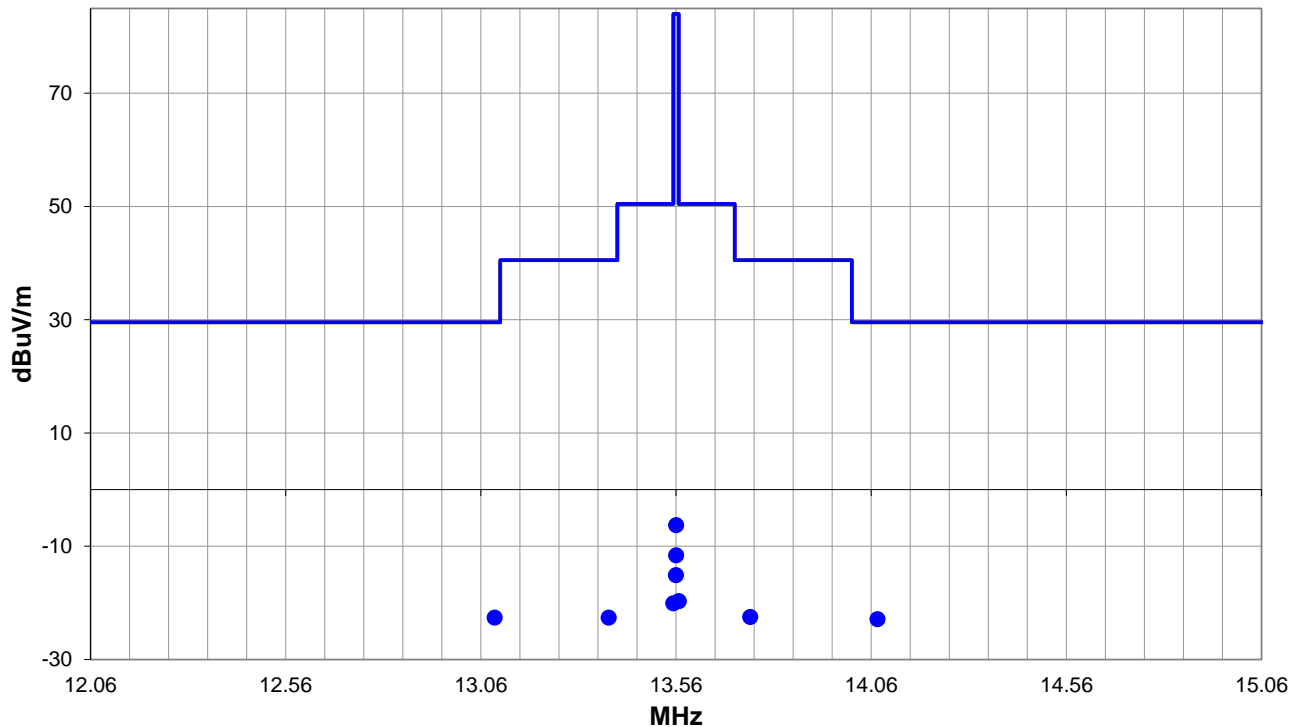
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each). Measurements take at 3m when fundamental was indistinguishable from noise floor at 10m.

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 1 On

## DEVIATIONS FROM TEST STANDARD

None



Run #: 21

PK AV QP

# FIELD STRENGTH OF FUNDAMENTAL



## RESULTS - Run #21

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.095	5.8	11.6	1.0	138.0	3.0	0.0	Perp to EUT	QP	-40.0	-22.6	29.5	-52.1
14.076	5.5	11.6	1.0	69.0	3.0	0.0	Perp to EUT	QP	-40.0	-22.9	29.5	-52.4
13.750	5.9	11.6	1.0	298.9	3.0	0.0	Perp to EUT	QP	-40.0	-22.5	40.5	-63.0
13.387	5.8	11.6	1.0	171.0	3.0	0.0	Perp to EUT	QP	-40.0	-22.6	40.5	-63.1
13.567	8.7	11.6	1.0	135.0	3.0	0.0	Perp to EUT	QP	-40.0	-19.7	50.5	-70.2
13.553	8.3	11.6	1.0	0.0	3.0	0.0	Perp to EUT	QP	-40.0	-20.1	50.5	-70.6
13.560	22.1	11.6	1.0	0.0	3.0	0.0	Perp to EUT	QP	-40.0	-6.3	84.0	-90.3
13.561	16.8	11.6	1.0	74.0	3.0	0.0	Para to EUT	QP	-40.0	-11.6	84.0	-95.6
13.560	13.3	11.6	1.0	0.0	3.0	0.0	Para to GND	QP	-40.0	-15.1	84.0	-99.1

## CONCLUSION

Pass

Tested By

# FIELD STRENGTH OF FUNDAMENTAL



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-04
Customer:	Abbott Laboratories	Temperature:	20.9°C
Attendees:	Frank Sun	Relative Humidity:	58.6%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0284-2

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019 +A1:2020	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	22	Test Distance (m):	3	Ant. Height(s) (m):	1(m)
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## COMMENTS

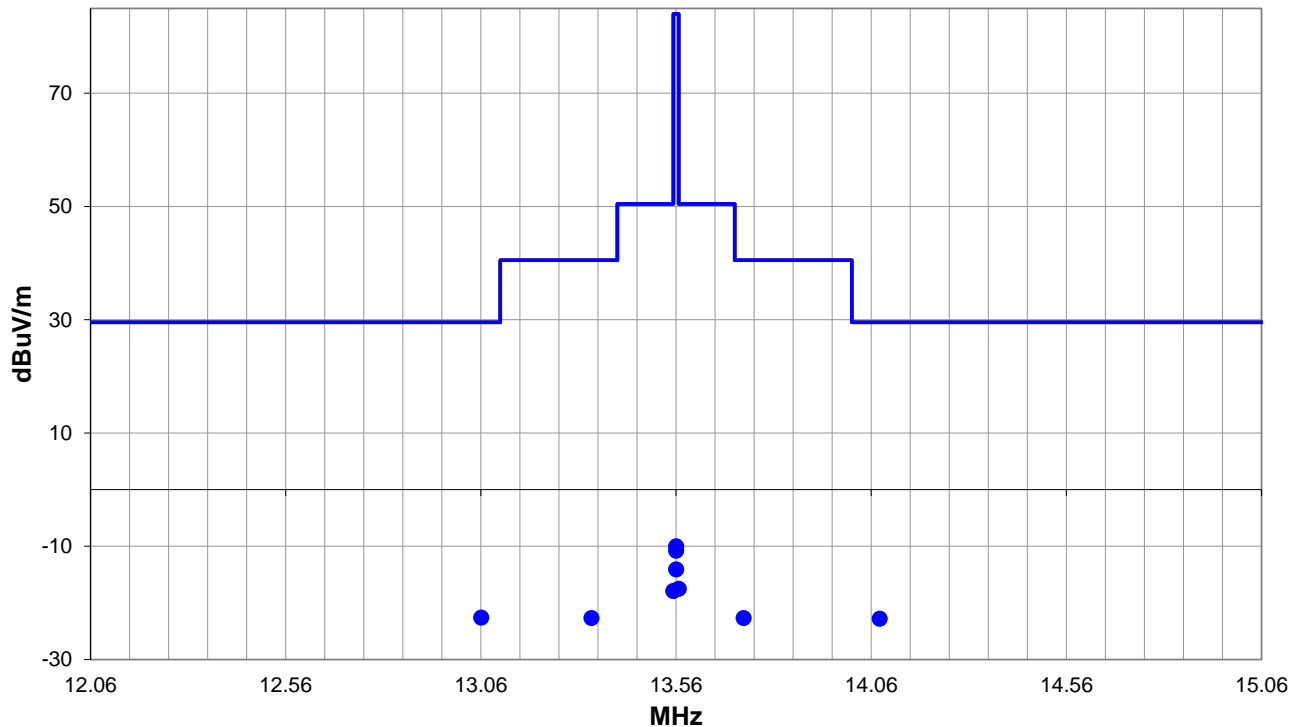
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each). Measurements take at 3m when fundamental was indistinguishable from noise floor at 10m.

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, AccessPoint 2 On

## DEVIATIONS FROM TEST STANDARD

None



Run #: 22

PK AV QP

# FIELD STRENGTH OF FUNDAMENTAL



## RESULTS - Run #22

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.061	5.8	11.6	1.0	7.0	3.0	0.0	Para to EUT	QP	-40.0	-22.6	29.5	-52.1
14.082	5.6	11.6	1.0	291.9	3.0	0.0	Para to EUT	QP	-40.0	-22.8	29.5	-52.3
13.343	5.7	11.6	1.0	0.0	3.0	0.0	Para to EUT	QP	-40.0	-22.7	40.5	-63.2
13.733	5.7	11.6	1.0	333.9	3.0	0.0	Para to EUT	QP	-40.0	-22.7	40.5	-63.2
13.567	10.9	11.6	1.0	62.0	3.0	0.0	Para to EUT	QP	-40.0	-17.5	50.5	-68.0
13.553	10.5	11.6	1.0	70.9	3.0	0.0	Para to EUT	QP	-40.0	-17.9	50.5	-68.4
13.560	18.4	11.6	1.0	49.0	3.0	0.0	Para to EUT	QP	-40.0	-10.0	84.0	-94.0
13.561	17.6	11.6	1.0	218.0	3.0	0.0	Perp to EUT	QP	-40.0	-10.8	84.0	-94.8
13.560	14.3	11.6	1.0	360.0	3.0	0.0	Para to GND	QP	-40.0	-14.1	84.0	-98.1

## CONCLUSION

Pass

Tested By



# FIELD STRENGTH OF FUNDAMENTAL



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-04
Customer:	Abbott Laboratories	Temperature:	20.9°C
Attendees:	Frank Sun	Relative Humidity:	58.6%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0284-2

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019 +A1:2020	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	23	Test Distance (m):	3	Ant. Height(s) (m):	1(m)
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## COMMENTS

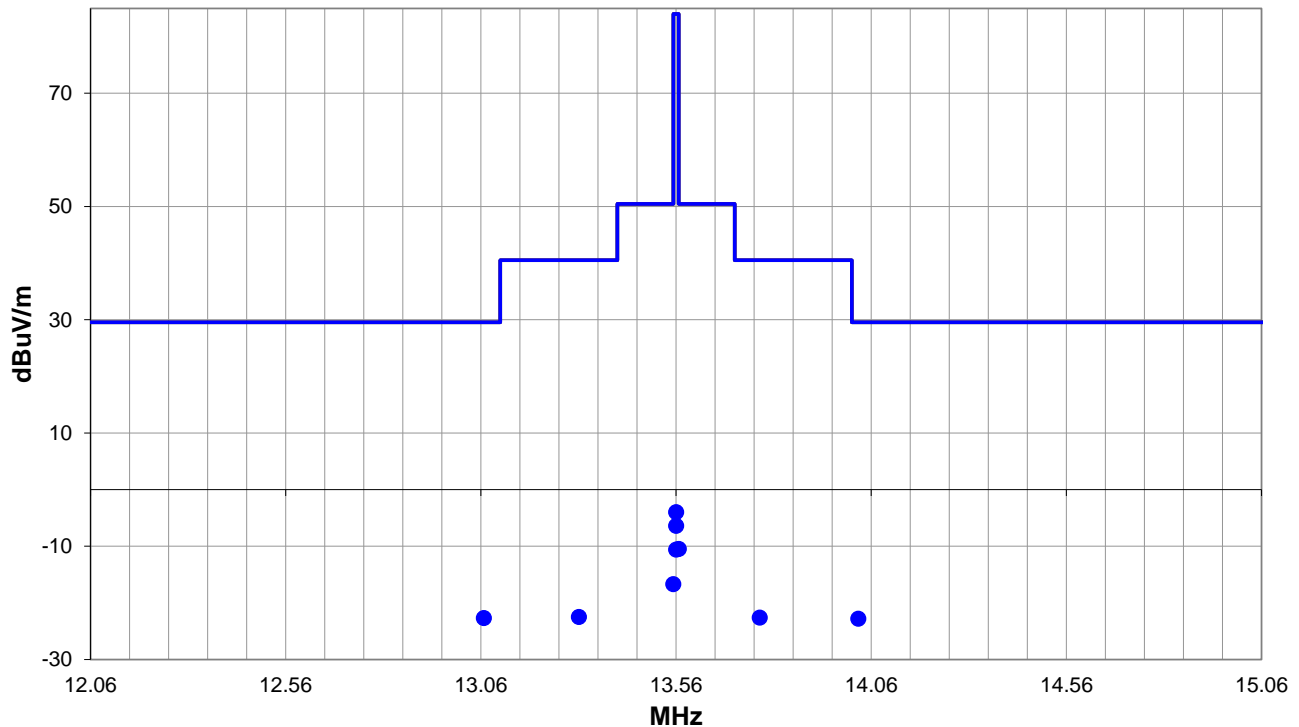
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each). Measurements take at 3m when fundamental was indistinguishable from noise floor at 10m.

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 1) On

## DEVIATIONS FROM TEST STANDARD

None



Run #: 23

PK AV QP

# FIELD STRENGTH OF FUNDAMENTAL



## RESULTS - Run #23

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.068	5.7	11.6	1.0	189.0	3.0	0.0	Para to EUT	QP	-40.0	-22.7	29.5	-52.2
14.027	5.6	11.6	1.0	192.0	3.0	0.0	Para to EUT	QP	-40.0	-22.8	29.5	-52.3
13.567	17.9	11.6	1.0	279.0	3.0	0.0	Para to EUT	QP	-40.0	-10.5	50.5	-61.0
13.311	5.9	11.6	1.0	266.0	3.0	0.0	Para to EUT	QP	-40.0	-22.5	40.5	-63.0
13.774	5.8	11.6	1.0	291.0	3.0	0.0	Para to EUT	QP	-40.0	-22.6	40.5	-63.1
13.553	11.7	11.6	1.0	282.0	3.0	0.0	Para to EUT	QP	-40.0	-16.7	50.5	-67.2
13.561	24.4	11.6	1.0	192.0	3.0	0.0	Para to EUT	QP	-40.0	-4.0	84.0	-88.0
13.560	22.0	11.6	1.0	360.0	3.0	0.0	Perp to EUT	QP	-40.0	-6.4	84.0	-90.4
13.560	17.8	11.6	1.0	360.0	3.0	0.0	Para to GND	QP	-40.0	-10.6	84.0	-94.6

## CONCLUSION

Pass

Tested By

# FIELD STRENGTH OF FUNDAMENTAL



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-04
Customer:	Abbott Laboratories	Temperature:	20.9°C
Attendees:	Frank Sun	Relative Humidity:	58.6%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0284-2

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019 +A1:2020	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	24	Test Distance (m):	3	Ant. Height(s) (m):	1(m)
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## COMMENTS

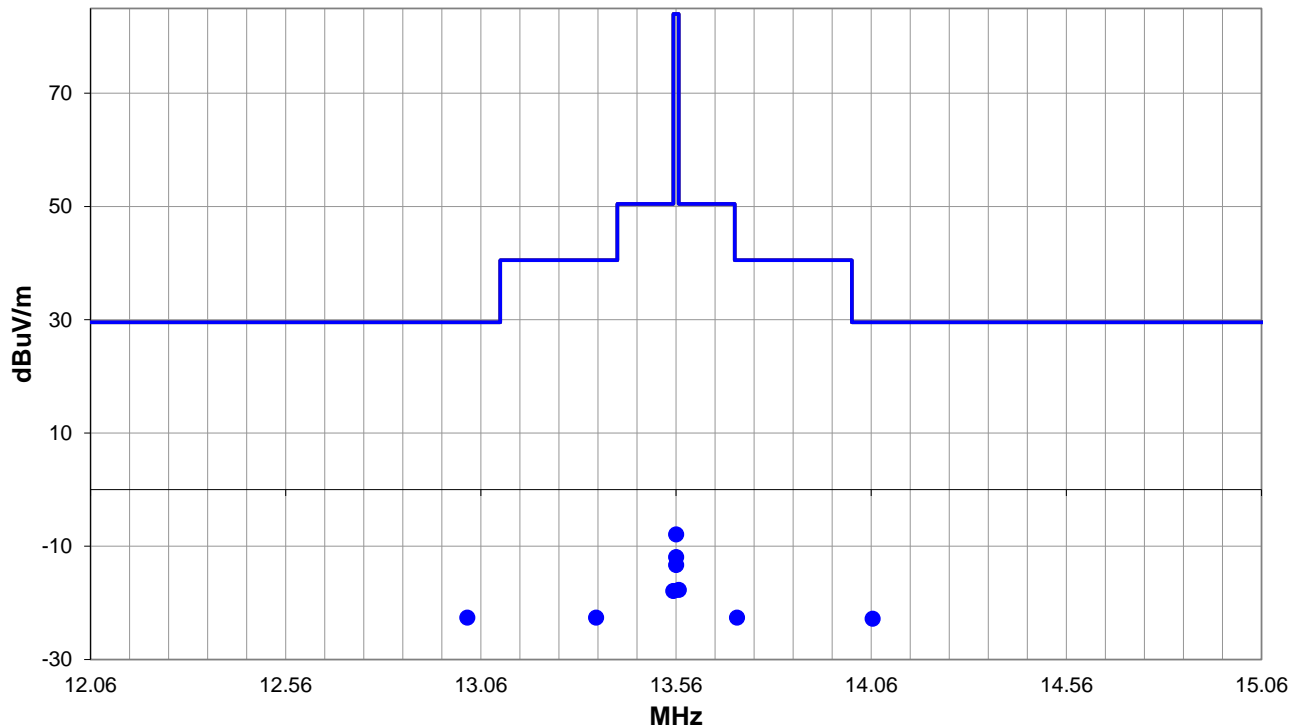
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each). Measurements take at 3m when fundamental was indistinguishable from noise floor at 10m.

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, CrossSwitch (Radio 2) On

## DEVIATIONS FROM TEST STANDARD

None



Run #: 24

PK AV QP

# FIELD STRENGTH OF FUNDAMENTAL



## RESULTS - Run #24

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.025	5.8	11.6	1.0	62.0	3.0	0.0	Perp to EUT	QP	-40.0	-22.6	29.5	-52.1
14.064	5.6	11.6	1.0	208.9	3.0	0.0	Perp to EUT	QP	-40.0	-22.8	29.5	-52.3
13.355	5.8	11.6	1.0	345.9	3.0	0.0	Perp to EUT	QP	-40.0	-22.6	40.5	-63.1
13.716	5.8	11.6	1.0	100.9	3.0	0.0	Perp to EUT	QP	-40.0	-22.6	40.5	-63.1
13.567	10.7	11.6	1.0	128.0	3.0	0.0	Perp to EUT	QP	-40.0	-17.7	50.5	-68.2
13.553	10.5	11.6	1.0	111.0	3.0	0.0	Perp to EUT	QP	-40.0	-17.9	50.5	-68.4
13.560	20.5	11.6	1.0	135.0	3.0	0.0	Perp to EUT	QP	-40.0	-7.9	84.0	-91.9
13.560	16.5	11.6	1.0	22.9	3.0	0.0	Para to EUT	QP	-40.0	-11.9	84.0	-95.9
13.561	15.1	11.6	1.0	64.9	3.0	0.0	Para to GND	QP	-40.0	-13.3	84.0	-97.3

## CONCLUSION

Pass

Tested By

# FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THAN 30 MHz)



## TEST DESCRIPTION

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

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

The individual emissions from the EUT were maximized by rotating the EUT on a turntable and adjusting the measurement antenna 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

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.

The limits in CFR 47, Part 15C 15.209(a) are identical to those in RSS-Gen section 8.9 Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohms. For example, an E-Field measurement in dBuV/m can be converted to dBuA/m via the following formula:  $\text{dBuV/m} - 51.5 \text{ dB} = \text{dBuA/m}$ . E-Field measurements have the same margin in dB to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limits.

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Loop	ETS Lindgren	6502	AZM	2022-07-19	2024-07-19
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2023-05-25	2024-05-25
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

## MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	1.8 dB	-1.8 dB

## FREQUENCY RANGE INVESTIGATED

9 kHz TO 30 MHz

## POWER INVESTIGATED

220VAC/60Hz

## CONFIGURATIONS INVESTIGATED

ABBO0284-2

## MODES INVESTIGATED

Continuous Transmit, RFID, 13.56 MHz, All Radios On

# FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THAN 30 MHz)



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-04
Customer:	Abbott Laboratories	Temperature:	20.8°C
Attendees:	Frank Sun	Relative Humidity:	60.3%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0284-2

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019 +A1:2020	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	26	Test Distance (m):	3	Ant. Height(s) (m):	1(m)
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## COMMENTS

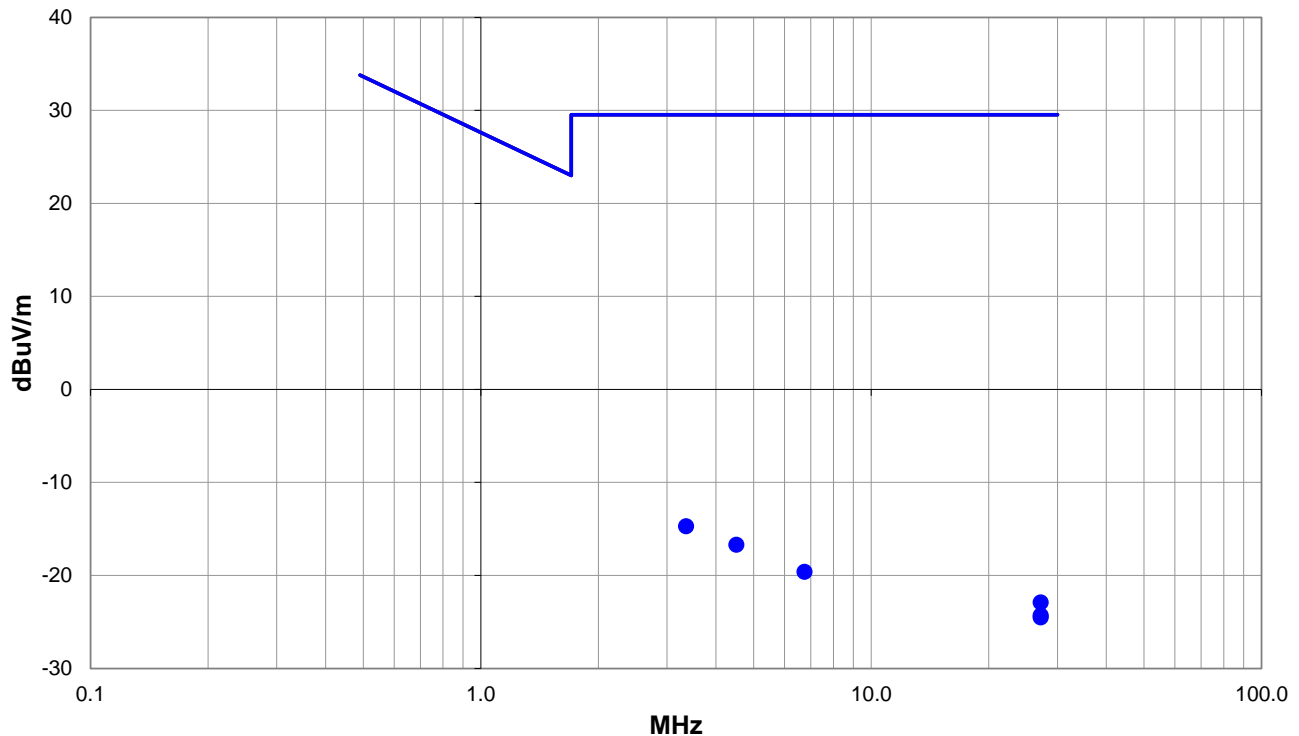
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each). Measurements take at 3m when fundamental was indistinguishable from noise floor at 10m.

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, All Radios On

## DEVIATIONS FROM TEST STANDARD

None



Run #: 26

■ PK    ◆ AV    ● QP

# FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THAN 30 MHz)



## RESULTS - Run #26

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)
3.353	13.7	11.6	1.0	88.9	3.0	0.0	Perp to EUT	QP	-40.0	-14.7	29.5	-44.2
4.511	11.5	11.8	1.0	321.0	3.0	0.0	Perp to EUT	QP	-40.0	-16.7	29.5	-46.2
6.750	8.7	11.7	1.0	96.0	3.0	0.0	Perp to EUT	QP	-40.0	-19.6	29.5	-49.1
27.161	7.1	10.0	1.0	118.9	3.0	0.0	Perp to EUT	QP	-40.0	-22.9	29.5	-52.4
27.158	5.7	10.0	1.0	187.0	3.0	0.0	Para to GND	QP	-40.0	-24.3	29.5	-53.8
27.162	5.5	10.0	1.0	199.0	3.0	0.0	Para to EUT	QP	-40.0	-24.5	29.5	-54.0

## CONCLUSION

Pass

Tested By

# FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)



## TEST DESCRIPTION

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

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

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

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

QP = Quasi-Peak Detector

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

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Biconilog	ETS Lindgren	3143B	AYF	2023-05-03	2025-05-03
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2023-05-25	2024-05-25
Amplifier - Pre-Amplifier	Fairview Microwave	FMAM63001	PAS	2023-04-11	2024-04-11
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	2023-07-21	2024-07-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

## MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	4.7 dB	-4.7 dB

## FREQUENCY RANGE INVESTIGATED

30 MHz TO 1000 MHz

## POWER INVESTIGATED

220VAC/60Hz

## CONFIGURATIONS INVESTIGATED

ABBO0284-2

## MODES INVESTIGATED

Continuous Transmit, RFID, 13.56 MHz, All Radios On



# FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-04
Customer:	Abbott Laboratories	Temperature:	20.8°C
Attendees:	Frank Sun	Relative Humidity:	60.3%
Customer Project:	None	Bar. Pressure (PMSL):	1013 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0284-2

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019 +A1:2020	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	28	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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## COMMENTS

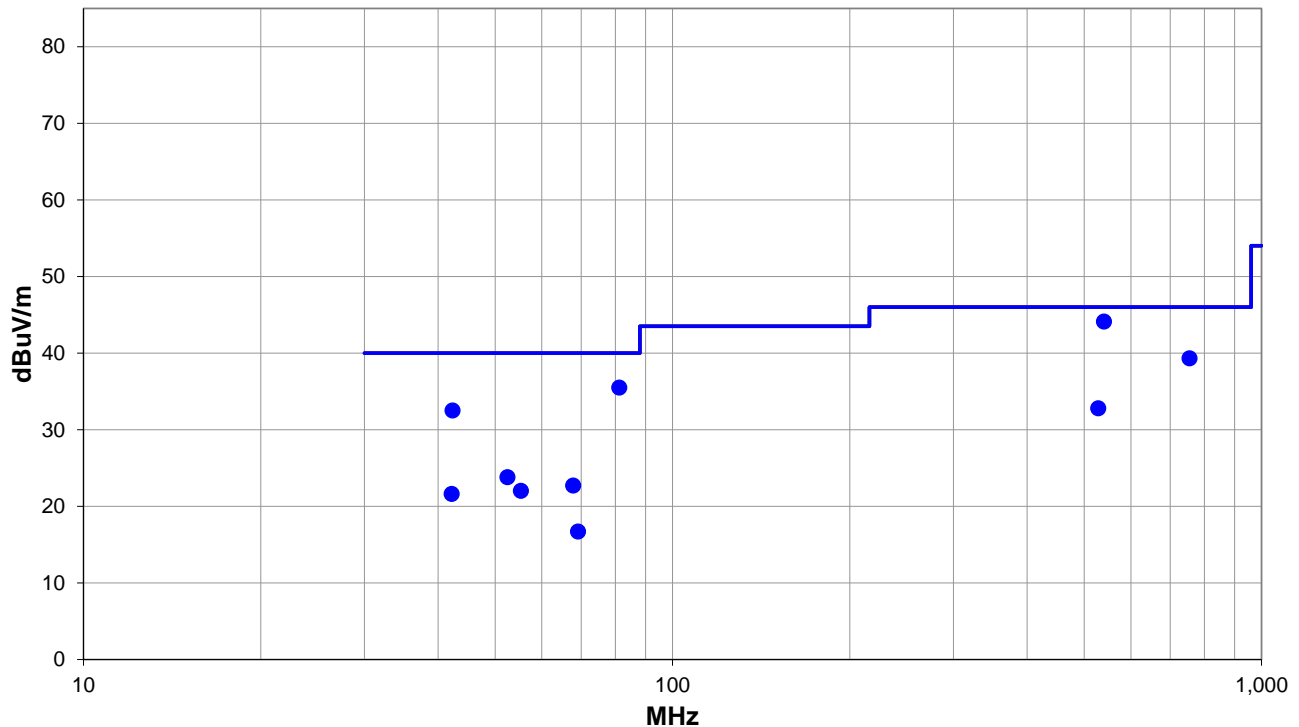
Floor Standing Unit. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

## EUT OPERATING MODES

Continuous Transmit, RFID, 13.56 MHz, All Radios On

## DEVIATIONS FROM TEST STANDARD

None



Run #: 28

PK AV QP

# FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)



## RESULTS - Run #28

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)
540.010	52.2	-8.1	1.6	176.0	3.0	0.0	Vert	QP	0.0	44.1	46.0	-1.9
81.213	61.5	-26.0	1.0	338.0	3.0	0.0	Vert	QP	0.0	35.5	40.0	-4.5
754.672	44.4	-5.1	1.0	201.9	3.0	0.0	Horz	QP	0.0	39.3	46.0	-6.7
42.337	56.6	-24.1	1.0	85.0	3.0	0.0	Vert	QP	0.0	32.5	40.0	-7.5
527.925	41.2	-8.4	1.0	346.9	3.0	0.0	Vert	QP	0.0	32.8	46.0	-13.2
52.432	50.8	-27.0	1.0	360.0	3.0	0.0	Vert	QP	0.0	23.8	40.0	-16.2
67.805	48.7	-26.0	1.0	231.9	3.0	0.0	Vert	QP	0.0	22.7	40.0	-17.3
55.297	48.9	-26.9	3.9	216.0	3.0	0.0	Horz	QP	0.0	22.0	40.0	-18.0
42.160	45.6	-24.0	3.8	283.0	3.0	0.0	Horz	QP	0.0	21.6	40.0	-18.4
69.135	42.6	-25.9	2.6	88.9	3.0	0.0	Horz	QP	0.0	16.7	40.0	-23.3

## CONCLUSION

Pass

Tested By

# FREQUENCY STABILITY



## TEST DESCRIPTION

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.

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

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

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

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

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

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Attenuator	Fairview Microwave	SA18E 1648	TZW	2023-08-31	2024-08-31
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07
Thermometer	Omega Engineering, Inc.	HH311	DUI	2023-03-02	2024-03-02
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Cable	Micro-Coax	UFD150A-1-7020-200200	TXG	2022-12-08	2023-12-08
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2023-08-30	2024-08-30
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2023-08-30	2024-08-30

# FREQUENCY STABILITY



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-12
Customer:	Abbott Laboratories	Temperature:	20.9°C
Attendees:	Frank Sun	Relative Humidity:	58.8%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mbar
Tested By:	Jarrod Brenden	Job Site:	TX07
Power:	220VAC/60Hz	Configuration:	ABBO0284-3
Signature:			

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.225:2023	ANSI C63.10:2013
RSS-210 Issue 10:2019+A1:2020	ANSI C63.10:2013

## COMMENTS

All losses in measurement path were accounted for: DC blocks, cables, and attenuators where used. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each). RFID radios operate with modulation OOK, 100%, ISO 15693 at full rated power.

## DEVIATIONS FROM TEST STANDARD

None

## TEST RESULTS

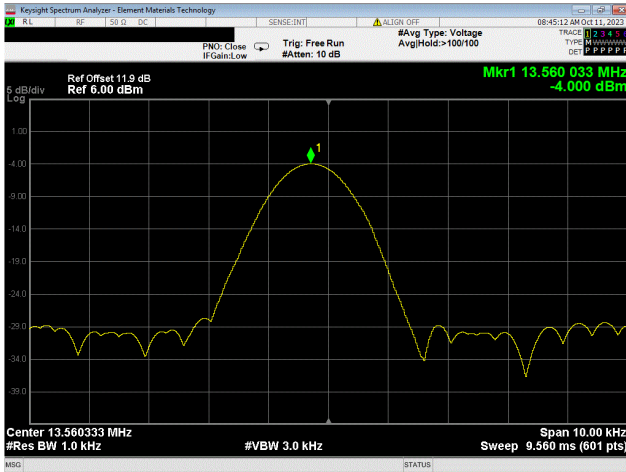
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
RFID, 13.56 MHz					
AccessPoint 1					
Nominal Temperature, 20°C					
Voltage, 115%, 253V	13.56003	13.56003	0.00	100	Pass
Voltage, Nominal, 220V	13.56003	13.56003	0.00	100	Pass
Voltage, 85%, 187V	13.56003	13.56003	0.02	100	Pass
Nominal AC Voltage, 220V					
Temp, 50°C	13.55992	13.56003	8.63	100	Pass
Temp, 40°C	13.55995	13.56003	6.17	100	Pass
Temp, 30°C	13.56000	13.56003	2.48	100	Pass
Temp, 20°C	13.56003	13.56003	0.02	100	Pass
Temp, 10°C	13.56008	13.56003	3.69	100	Pass
Temp, 0°C	13.56013	13.56003	7.40	100	Pass
Temp, -10°C	13.56015	13.56003	8.60	100	Pass
Temp, -20°C	13.56015	13.56003	8.63	100	Pass
AccessPoint 2					
Nominal Temperature, 20°C					
Voltage, 115%, 253V	13.56012	13.56012	0.00	100	Pass
Voltage, Nominal, 220V	13.56012	13.56012	0.00	100	Pass
Voltage, 85%, 187V	13.56012	13.56012	0.00	100	Pass
Nominal AC Voltage, 220V					
Temp, 50°C	13.56015	13.56012	2.43	100	Pass
Temp, 40°C	13.56012	13.56012	0.00	100	Pass
Temp, 30°C	13.56012	13.56012	0.02	100	Pass

# FREQUENCY STABILITY

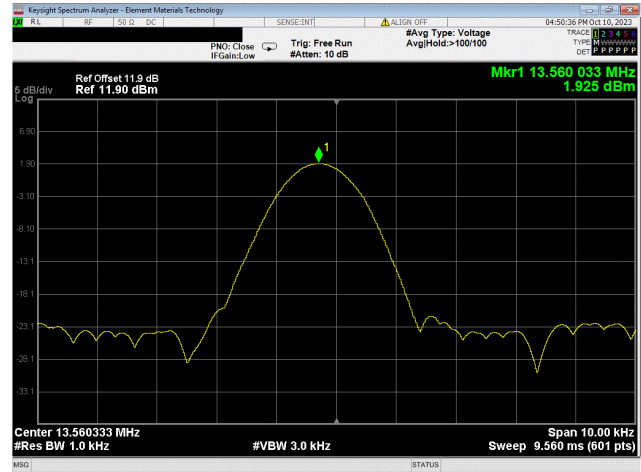


	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
Temp, 20°C	13.56012	13.56012	0.02	100	Pass
Temp, 10°C	13.56012	13.56012	0.02	100	Pass
Temp, 0°C	13.56012	13.56012	0.02	100	Pass
Temp, -10°C	13.56012	13.56012	0.02	100	Pass
Temp, -20°C	13.56005	13.56012	4.89	100	Pass
<b>CrossSwitch (Radio 1)</b>					
<b>Nominal Temperature, 20°C</b>					
Voltage, 115%, 253V	13.56015	13.56013	1.20	100	Pass
Voltage, Nominal, 220V	13.56013	13.56013	0.00	100	Pass
Voltage, 85%, 187V	13.56015	13.56013	1.20	100	Pass
<b>Nominal AC Voltage, 220V</b>					
Temp, 50°C	13.56002	13.56013	8.63	100	Pass
Temp, 40°C	13.56005	13.56013	6.17	100	Pass
Temp, 30°C	13.56010	13.56013	2.48	100	Pass
Temp, 20°C	13.56013	13.56013	0.00	100	Pass
Temp, 10°C	13.56018	13.56013	3.69	100	Pass
Temp, 0°C	13.56023	13.56013	7.37	100	Pass
Temp, -10°C	13.56025	13.56013	8.60	100	Pass
Temp, -20°C	13.56023	13.56013	7.33	100	Pass
<b>CrossSwitch (Radio 2)</b>					
<b>Nominal Temperature, 20°C</b>					
Voltage, 115%, 253V	13.56013	13.56013	0.02	100	Pass
Voltage, Nominal, 220V	13.56013	13.56013	0.00	100	Pass
Voltage, 85%, 187V	13.56013	13.56013	0.02	100	Pass
<b>Nominal AC Voltage, 220V</b>					
Temp, 50°C	13.56003	13.56013	7.42	100	Pass
Temp, 40°C	13.56005	13.56013	6.17	100	Pass
Temp, 30°C	13.56008	13.56013	3.71	100	Pass
Temp, 20°C	13.56013	13.56013	0.02	100	Pass
Temp, 10°C	13.56018	13.56013	3.66	100	Pass
Temp, 0°C	13.56020	13.56013	4.92	100	Pass
Temp, -10°C	13.56022	13.56013	6.12	100	Pass
Temp, -20°C	13.56022	13.56013	6.15	100	Pass

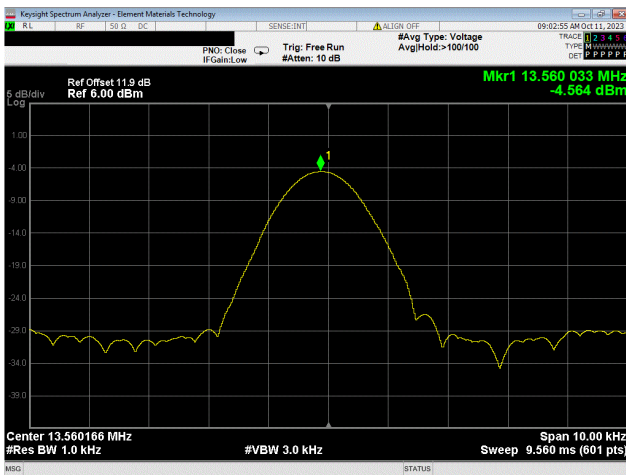
# FREQUENCY STABILITY



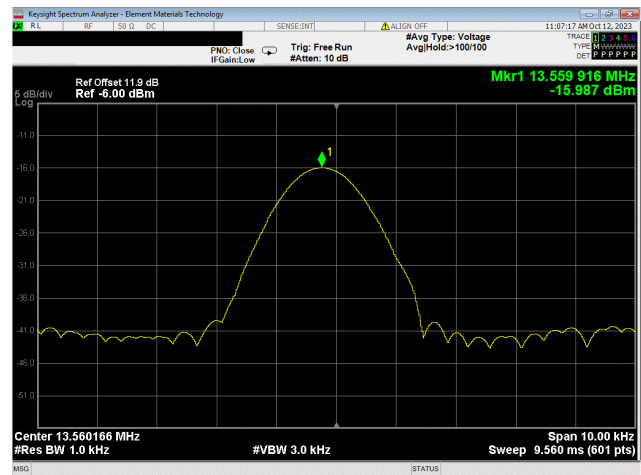
**RFID, 13.56 MHz  
AccessPoint 1  
Nominal Temperature, 20°C  
Voltage, 115%, 253V**



**RFID, 13.56 MHz  
AccessPoint 1  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**

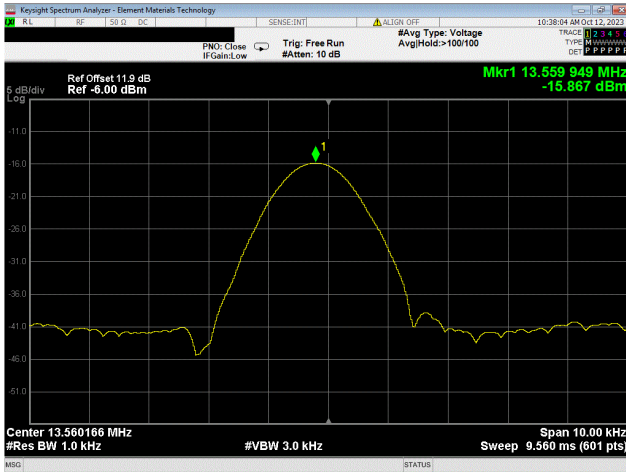


**RFID, 13.56 MHz  
AccessPoint 1  
Nominal Temperature, 20°C  
Voltage, 85%, 187V**

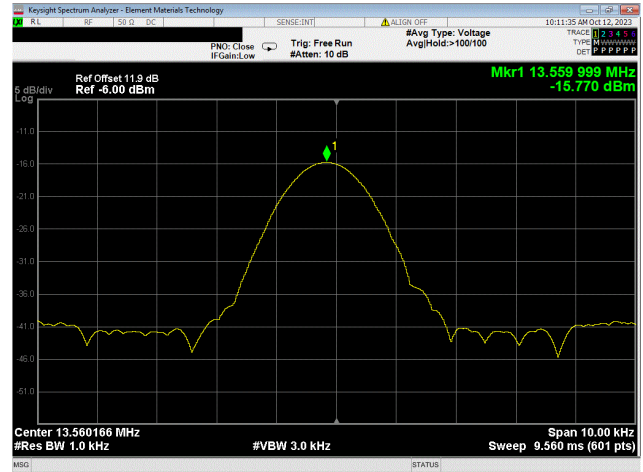


**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, 50°C**

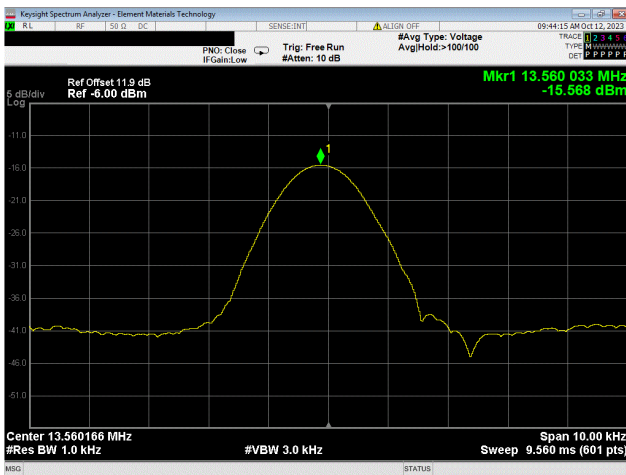
# FREQUENCY STABILITY



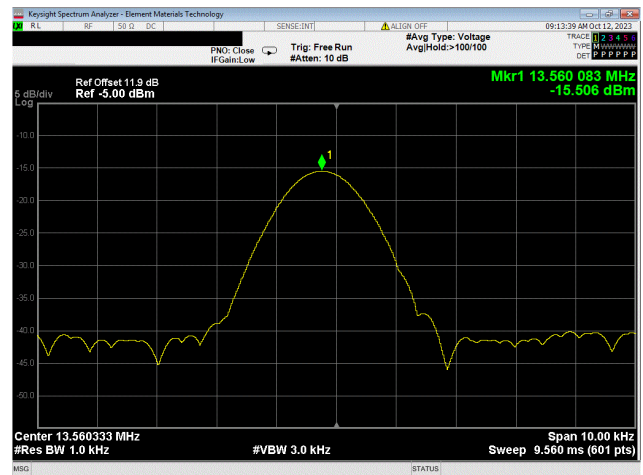
**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, 40°C**



**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, 30°C**

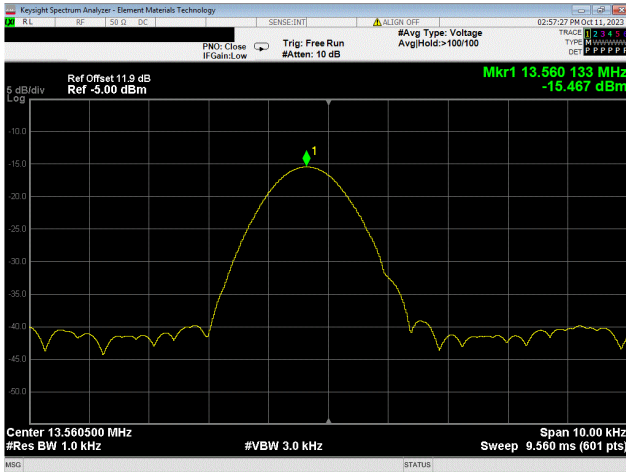


**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, 20°C**

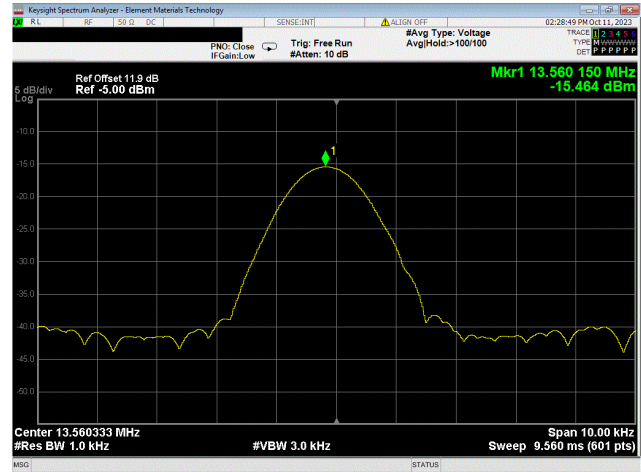


**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, 10°C**

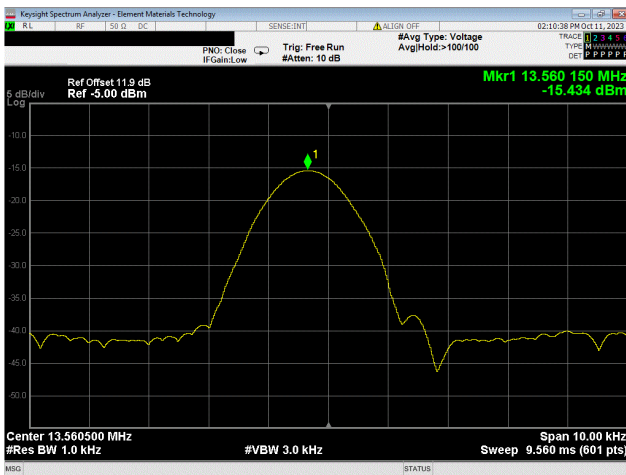
# FREQUENCY STABILITY



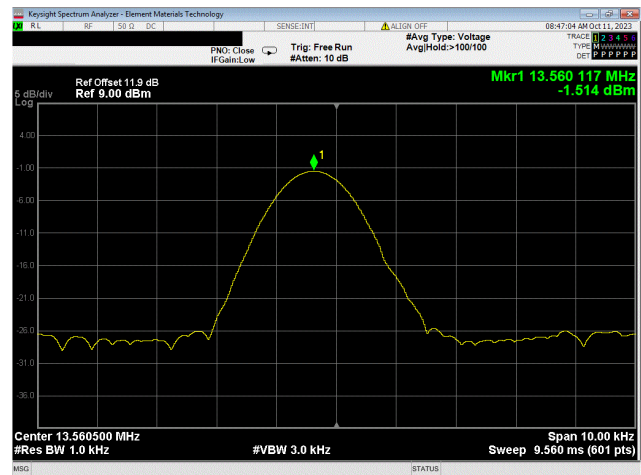
**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, 0°C**



**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, -10°C**



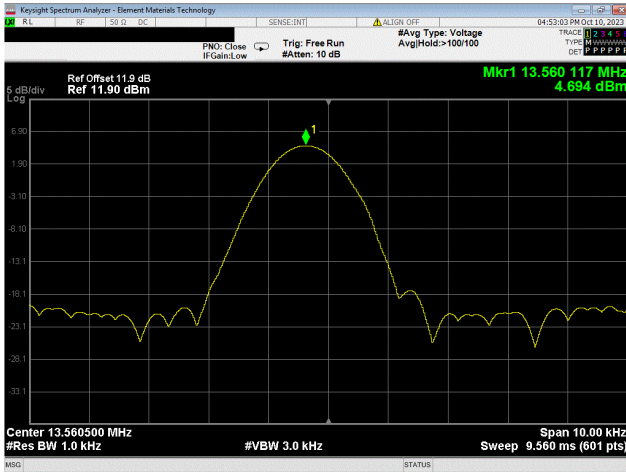
**RFID, 13.56 MHz  
AccessPoint 1  
Nominal AC Voltage, 220V  
Temp, -20°C**



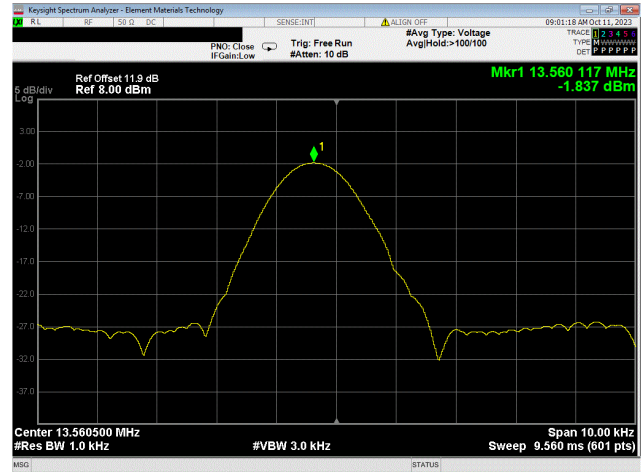
**RFID, 13.56 MHz  
AccessPoint 2  
Nominal Temperature, 20°C  
Voltage, 115%, 253V**



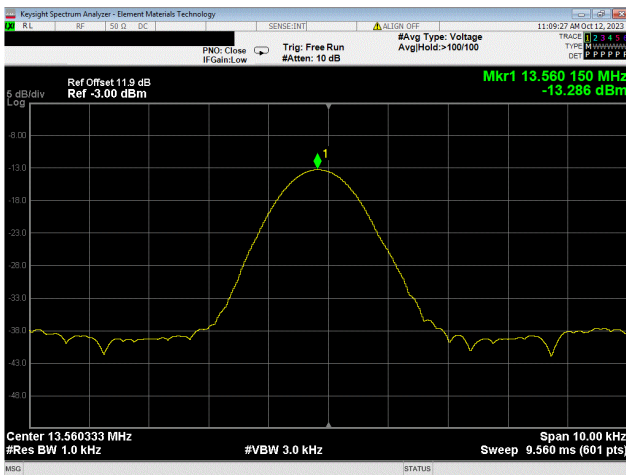
# FREQUENCY STABILITY



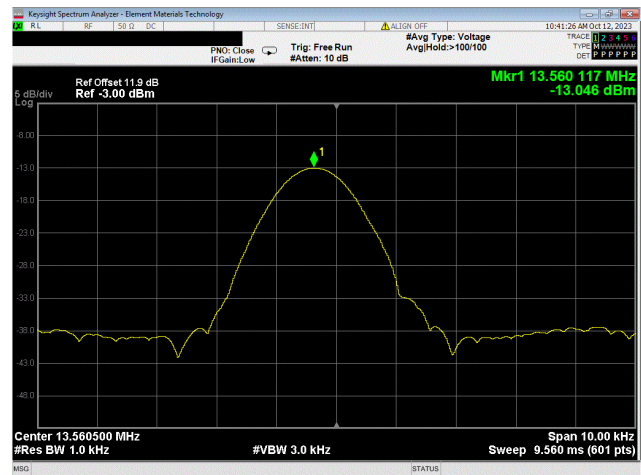
**RFID, 13.56 MHz  
AccessPoint 2  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**



**RFID, 13.56 MHz  
AccessPoint 2  
Nominal Temperature, 20°C  
Voltage, 85%, 187V**

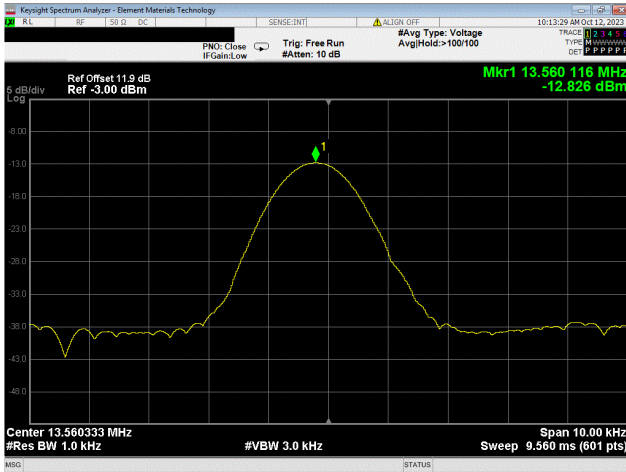


**RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, 50°C**

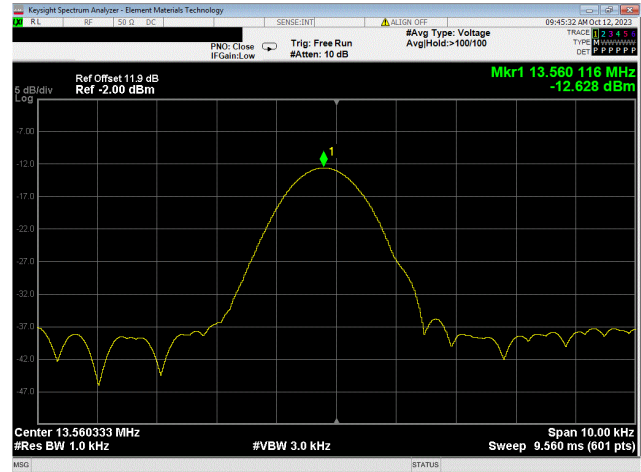


**RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, 40°C**

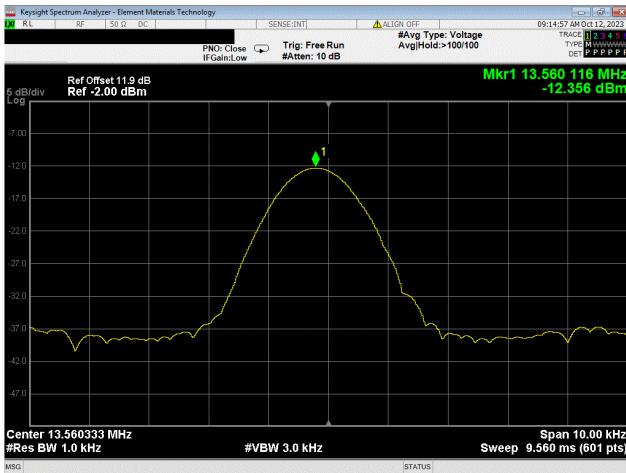
# FREQUENCY STABILITY



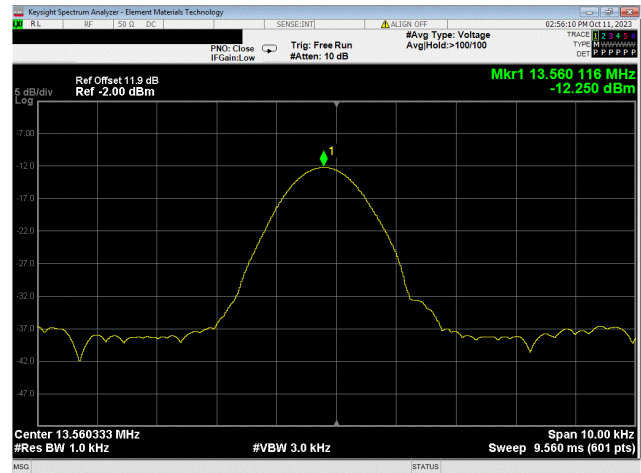
RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, 30°C



RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, 20°C

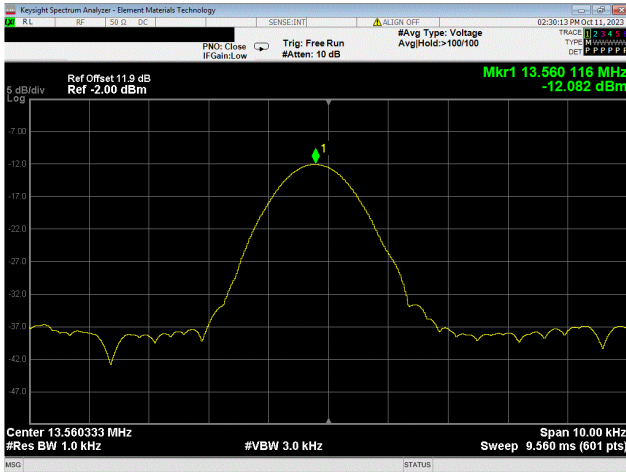


RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, 10°C

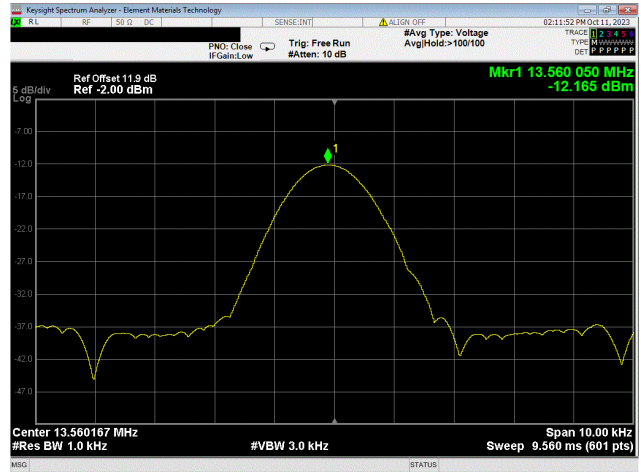


RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, 0°C

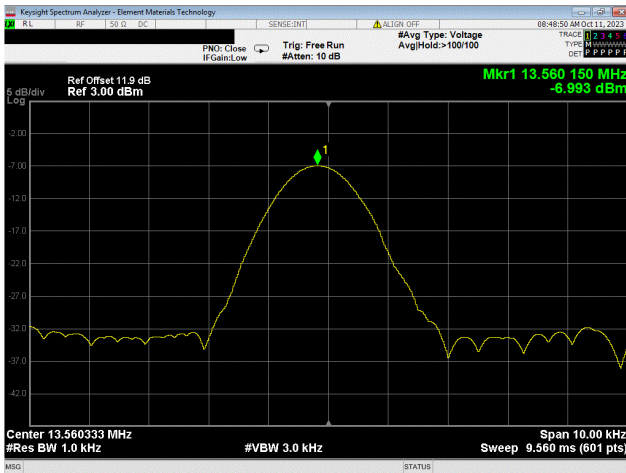
# FREQUENCY STABILITY



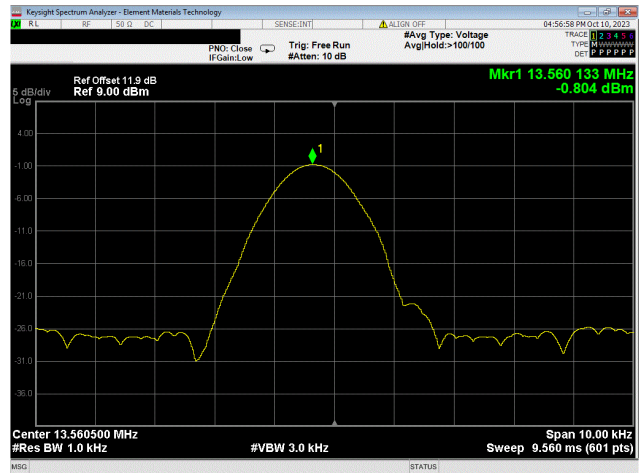
**RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, -10°C**



**RFID, 13.56 MHz  
AccessPoint 2  
Nominal AC Voltage, 220V  
Temp, -20°C**

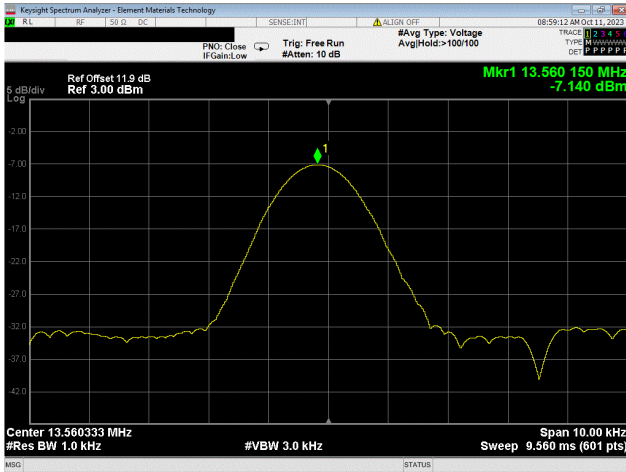


**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal Temperature, 20°C  
Voltage, 115%, 253V**

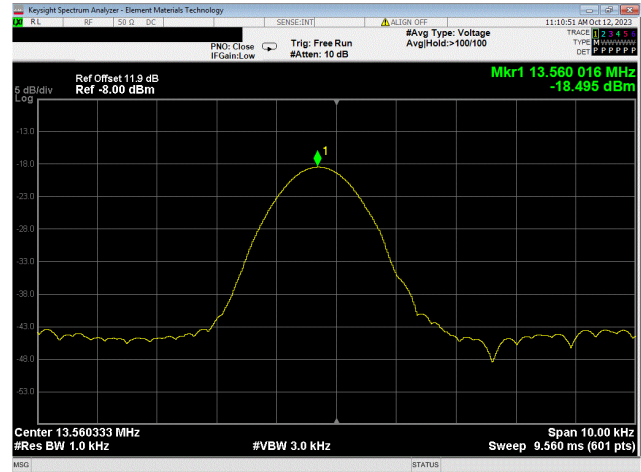


**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**

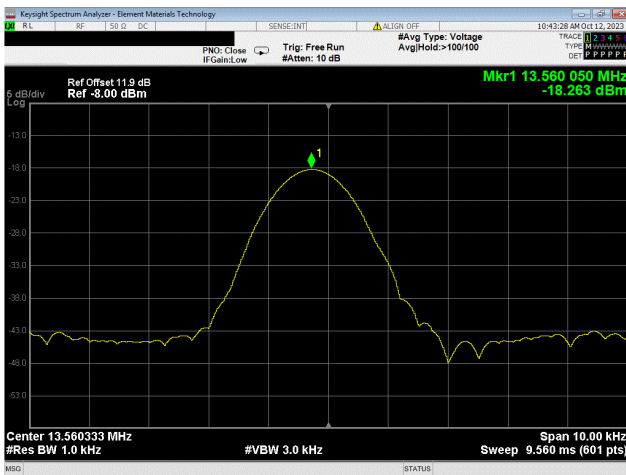
# FREQUENCY STABILITY



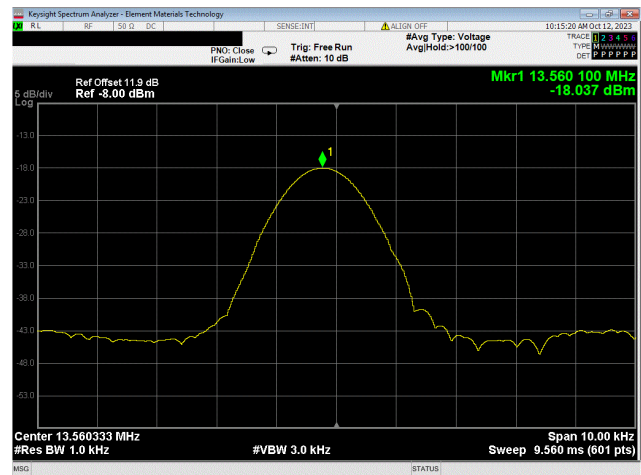
**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal Temperature, 20°C  
Voltage, 85%, 187V**



**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal AC Voltage, 220V  
Temp, 50°C**



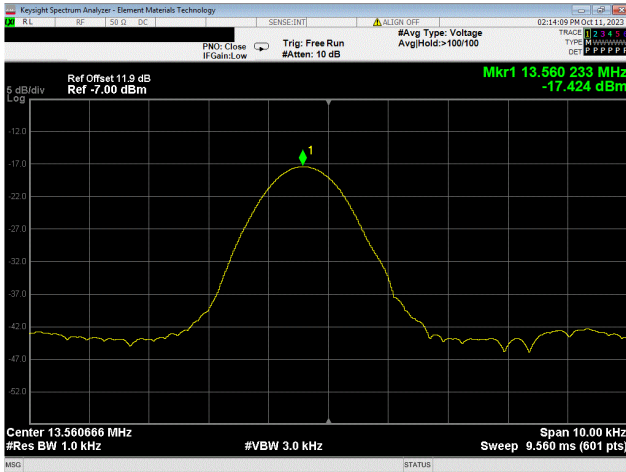
**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal AC Voltage, 220V  
Temp, 40°C**



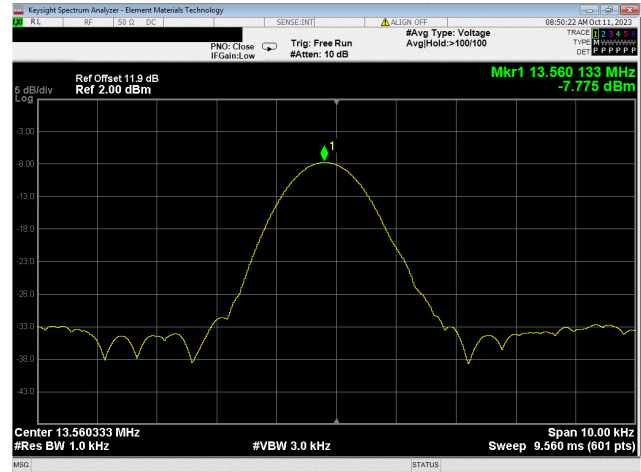
**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal AC Voltage, 220V  
Temp, 30°C**



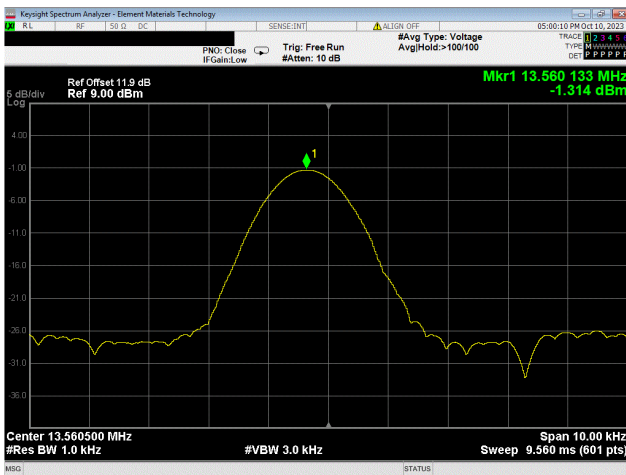
# FREQUENCY STABILITY



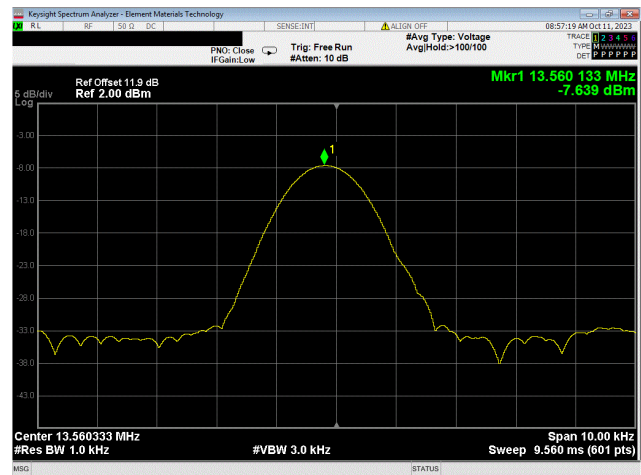
**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal AC Voltage, 220V  
Temp, -20°C**



**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal Temperature, 20°C  
Voltage, 115%, 253V**

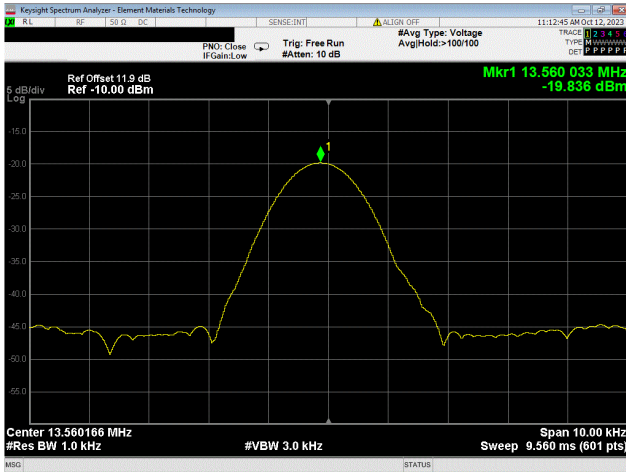


**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**

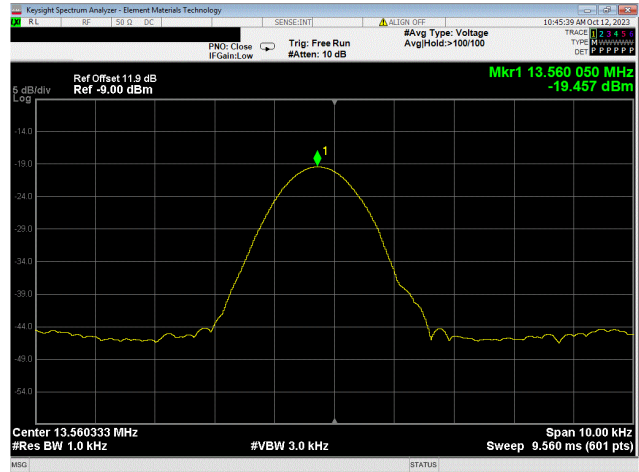


**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal Temperature, 20°C  
Voltage, 85%, 187V**

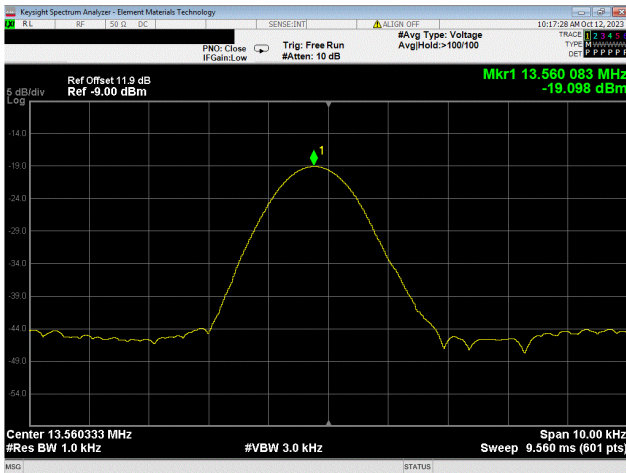
# FREQUENCY STABILITY



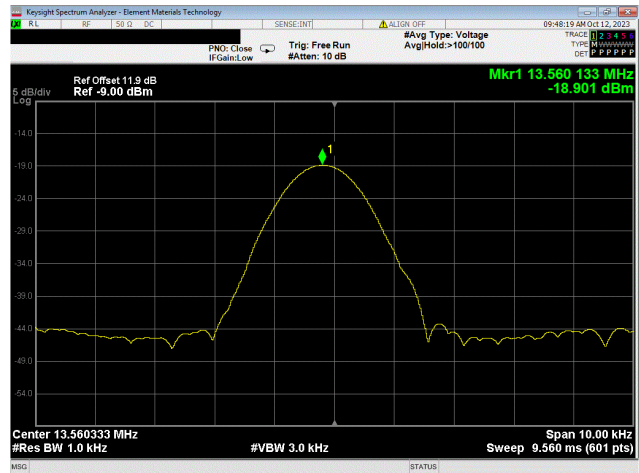
**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, 50°C**



**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, 40°C**

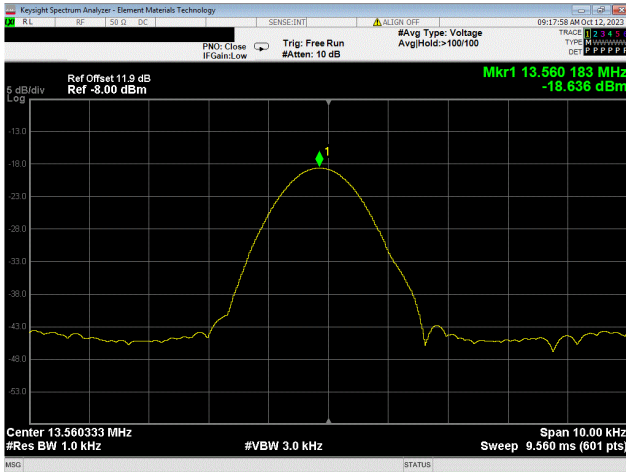


**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, 30°C**

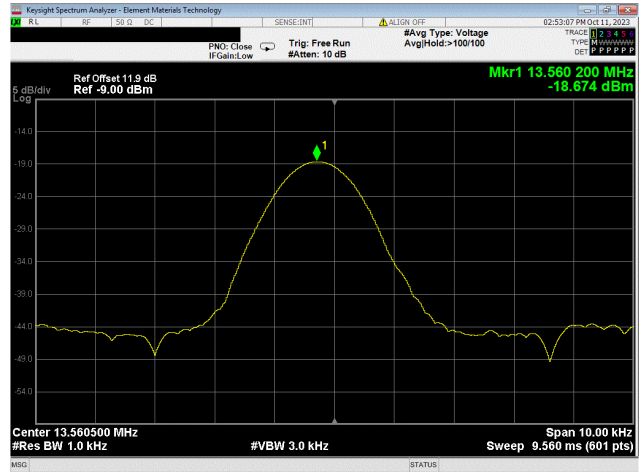


**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, 20°C**

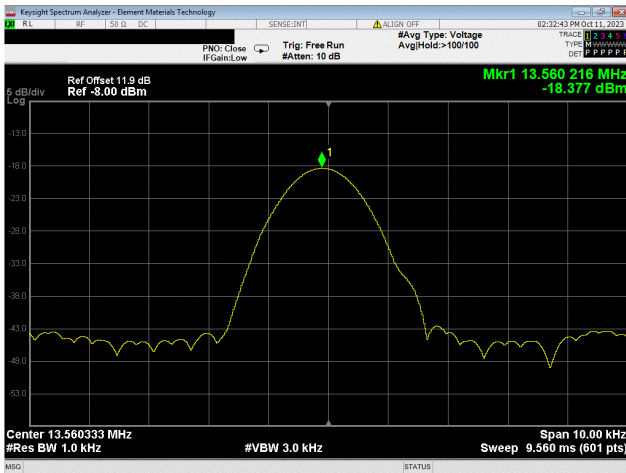
# FREQUENCY STABILITY



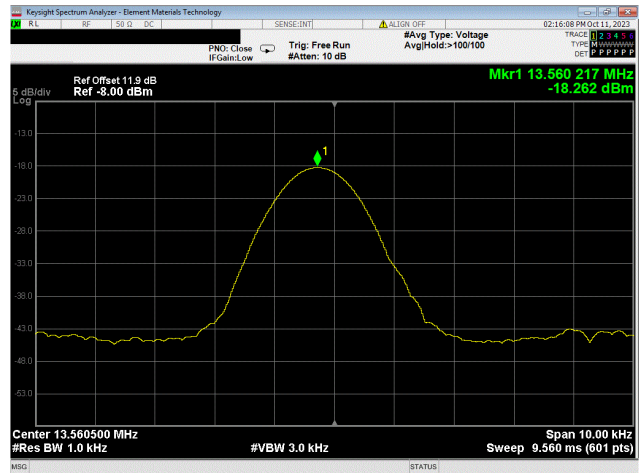
**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, 10°C**



**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, 0°C**



**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, -10°C**



**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal AC Voltage, 220V  
Temp, -20°C**



# EMISSIONS BANDWIDTH (20 DB)



## TEST DESCRIPTION

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.

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

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

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

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

Due to the amplitude of the carrier with respect to the modulated signal, the EUT was unable to meet the 1-5% RBW requirement when based off the 20 dB Bandwidth. Therefore the 99% Bandwidth was used to determine the RBW setting for the 20 dB Bandwidth. This is considered worst case.

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Attenuator	Fairview Microwave	SA18E 1648	TZW	2023-08-31	2024-08-31
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07
Thermometer	Omega Engineering, Inc.	HH311	DUI	2023-03-02	2024-03-02
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Cable	Micro-Coax	UFD150A-1-7020-200200	TXG	2022-12-08	2023-12-08
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2023-08-30	2024-08-30
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2023-08-30	2024-08-30

# EMISSIONS BANDWIDTH (20 DB)



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-10
Customer:	Abbott Laboratories	Temperature:	20.4°C
Attendees:	Frank Sun	Relative Humidity:	50.8%
Customer Project:	None	Bar. Pressure (PMSL):	1008 mbar
Tested By:	Jarrod Brenden	Job Site:	TX07
Power:	220VAC/60Hz	Configuration:	ABBO0284-3
Signature:			

## TEST SPECIFICATIONS

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

## COMMENTS

All losses in measurement path were accounted for: DC blocks, cables, and attenuators where used. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

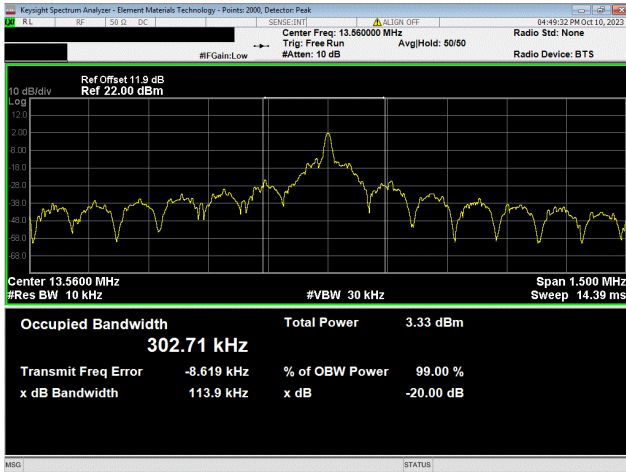
## DEVIATIONS FROM TEST STANDARD

None

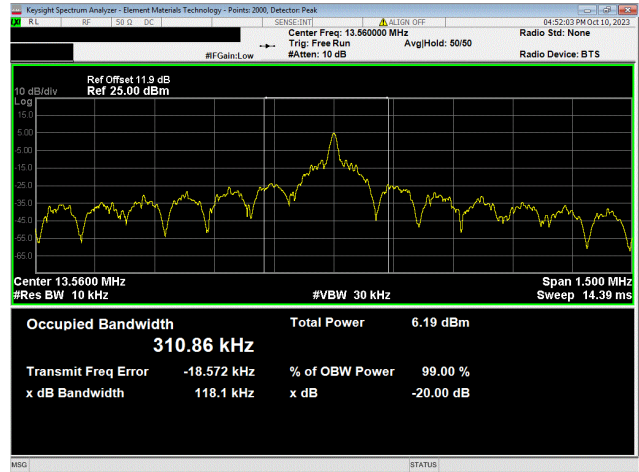
## TEST RESULTS

	Value	Limit	Result
RFID, 13.56 MHz			
AccessPoint 1			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	113.866 kHz	Within	Pass
AccessPoint 2			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	118.131 kHz	Within	Pass
CrossSwitch (Radio 1)			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	96.97 kHz	Within	Pass
CrossSwitch (Radio 2)			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	92.092 kHz	Within	Pass

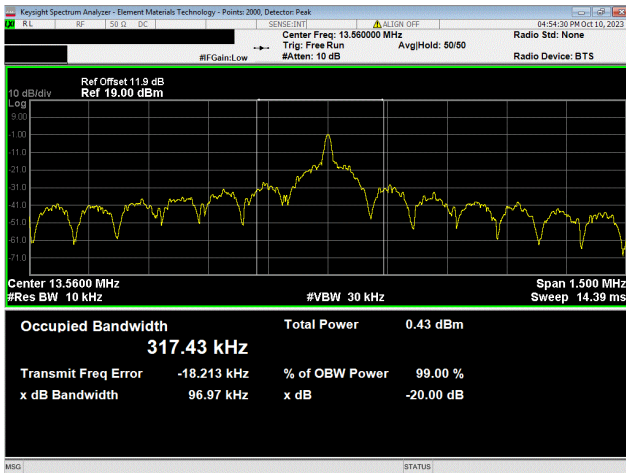
# EMISSIONS BANDWIDTH (20 DB)



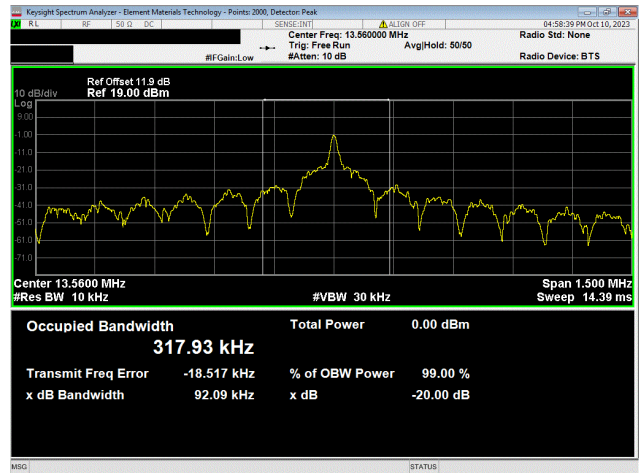
RFID, 13.56 MHz  
AccessPoint 1  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V



RFID, 13.56 MHz  
AccessPoint 2  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V



RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V



RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V

# OCCUPIED BANDWIDTH



## TEST DESCRIPTION

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.

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.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth as defined in RSS-Gen.

The 99% occupied bandwidth was measured with the EUT configured for continuous modulated operation.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) of the spectrum analyzer was set to the range of 1% to 5% of the occupied bandwidth (OBW) 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 Peak detector with max hold mode was used until the trace stabilized.

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Attenuator	Fairview Microwave	SA18E 1648	TZW	2023-08-31	2024-08-31
Generator - Signal	Agilent	N5173B	TIW	2023-08-07	2026-08-07
Thermometer	Omega Engineering, Inc.	HH311	DUI	2023-03-02	2024-03-02
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Cable	Micro-Coax	UFD150A-1-7020-200200	TXG	2022-12-08	2023-12-08
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	23023-08-30	2024-08-30
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	23023-08-30	2024-08-30

# OCCUPIED BANDWIDTH



EUT:	Remover Module SL	Work Order:	ABBO0284
Serial Number:	REMSL00019	Date:	2023-10-10
Customer:	Abbott Laboratories	Temperature:	20.9°C
Attendees:	Frank Sun	Relative Humidity:	49.9%
Customer Project:	None	Bar. Pressure (PMSL):	1008 mbar
Tested By:	Jarrold Brenden	Job Site:	TX07
Power:	220VAC/60Hz	Configuration:	ABBO0284-3
Signature:			

## TEST SPECIFICATIONS

Specification:	Method:
RSS-210 Issue 10:2019+A1:2020	ANSI C63.10:2013

## COMMENTS

All losses in measurement path were accounted for: DC blocks, cables, and attenuators where used. Test protocol D000132788/A. EUT contains 3 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 1 CrossSwitch (2 radios each).

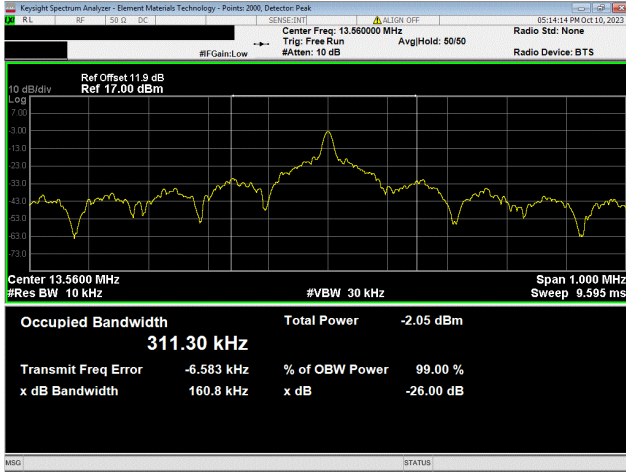
## DEVIATIONS FROM TEST STANDARD

None

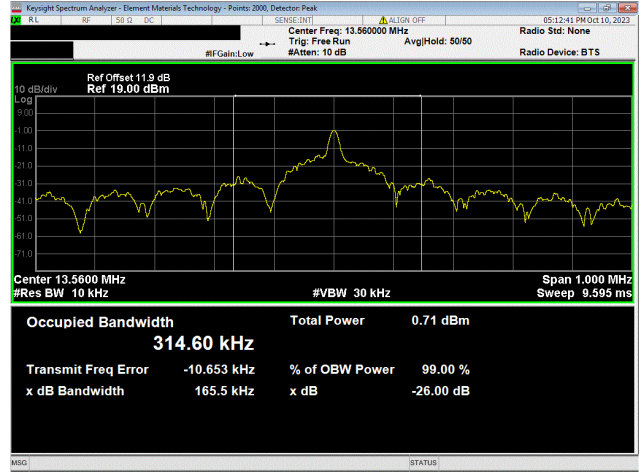
## TEST RESULTS

	Value	Limit	Result
RFID, 13.56 MHz			
AccessPoint 1			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	311.301 kHz	N/A	N/A
AccessPoint 2			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	314.596 kHz	N/A	N/A
CrossSwitch (Radio 1)			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	315.658 kHz	N/A	N/A
CrossSwitch (Radio 2)			
Nominal Temperature, 20°C			
Voltage, Nominal, 220V	315.429 kHz	N/A	N/A

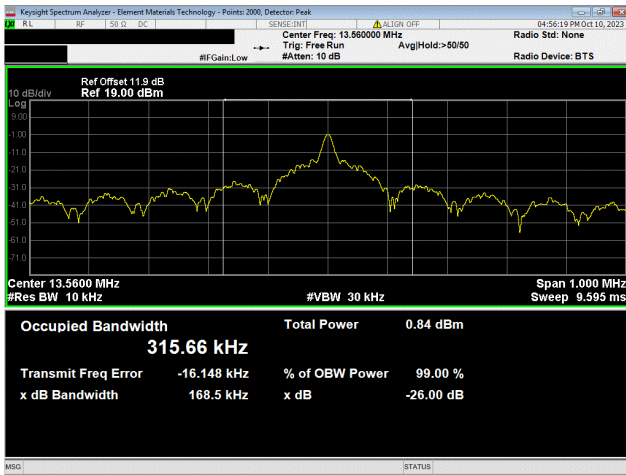
# OCCUPIED BANDWIDTH



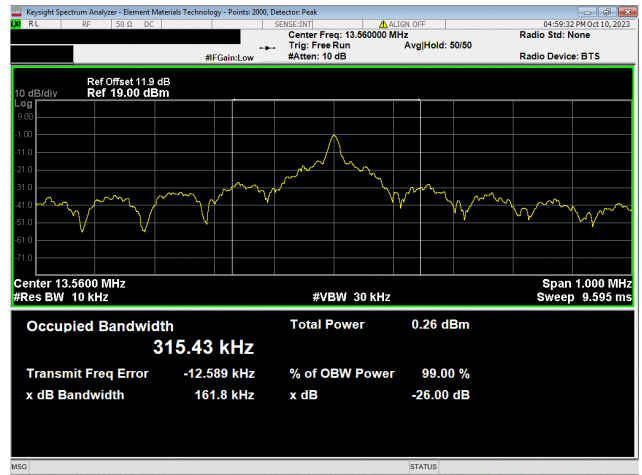
**RFID, 13.56 MHz  
AccessPoint 1  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**



**RFID, 13.56 MHz  
AccessPoint 2  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**



**RFID, 13.56 MHz  
CrossSwitch (Radio 1)  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**



**RFID, 13.56 MHz  
CrossSwitch (Radio 2)  
Nominal Temperature, 20°C  
Voltage, Nominal, 220V**

End of Test Report