

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.

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

ABBO0285-2

MODES INVESTIGATED

Transmitting 13.56 MHz RFID, OOK, AccessPoint 1
Transmitting 13.56 MHz RFID, OOK, AccessPoint 2
Transmitting 13.56 MHz RFID, OOK, All On
Transmitting 13.56 MHz RFID, OOK, CrossSwitch 1 (Radio 1)
Transmitting 13.56 MHz RFID, OOK, CrossSwitch 1 (Radio 2)
Transmitting 13.56 MHz RFID, OOK, CrossSwitch 2 (Radio 1)
Transmitting 13.56 MHz RFID, OOK, CrossSwitch 2 (Radio 2)
Transmitting 13.56 MHz RFID, OOK, CrossSwitch 3 (Radio 1)
Transmitting 13.56 MHz RFID, OOK, CrossSwitch 3 (Radio 2)

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

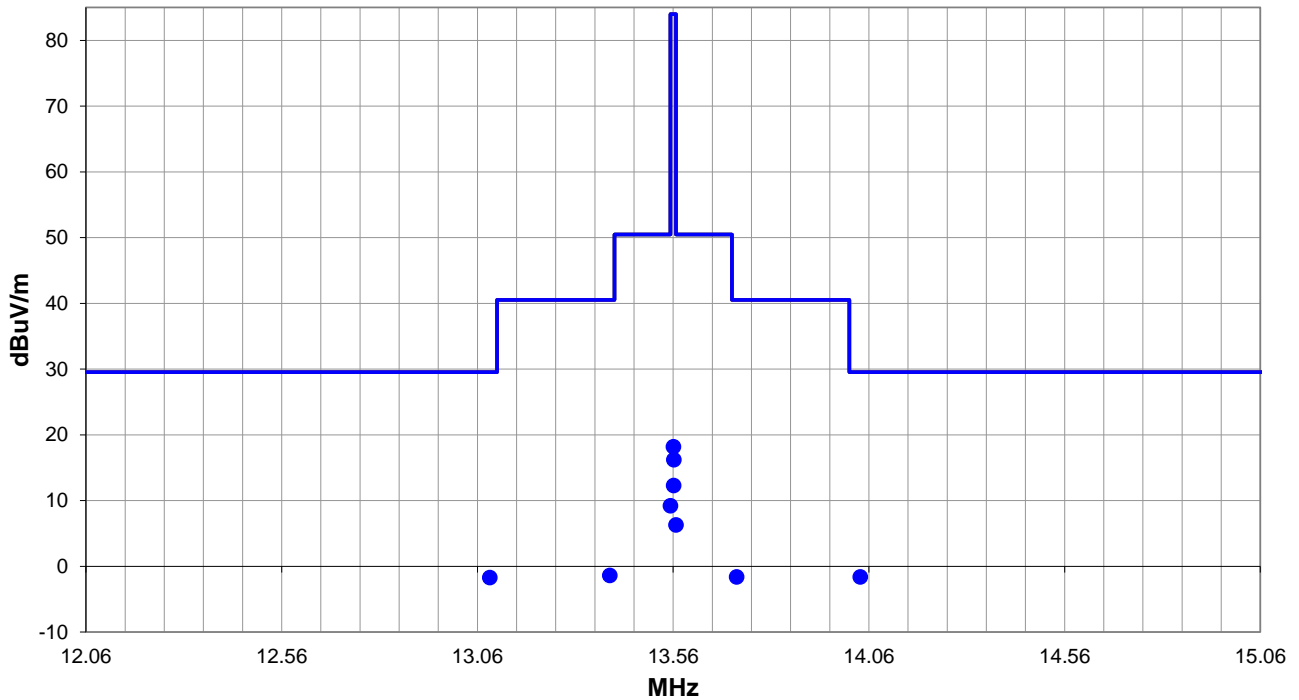
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, All On

DEVIATIONS FROM TEST STANDARD

None



Run #: 33

PK AV QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #33

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
14.038	5.9	11.6	1.0	249.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	29.5	-31.1
13.092	5.8	11.6	1.0	144.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	29.5	-31.2
13.553	16.7	11.6	1.0	1.0	10.0	0.0	Perp to EUT	QP	-19.1	9.2	50.5	-41.3
13.398	6.1	11.6	1.0	165.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.4	40.5	-41.9
13.722	5.9	11.6	1.0	81.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	40.5	-42.1
13.567	13.8	11.6	1.0	184.9	10.0	0.0	Perp to EUT	QP	-19.1	6.3	50.5	-44.2
13.561	25.7	11.6	1.0	171.0	10.0	0.0	Perp to EUT	QP	-19.1	18.2	84.0	-65.8
13.562	23.7	11.6	1.0	8.0	10.0	0.0	Para to EUT	QP	-19.1	16.2	84.0	-67.8
13.561	19.8	11.6	1.0	4.9	10.0	0.0	Para to GND	QP	-19.1	12.3	84.0	-71.7

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

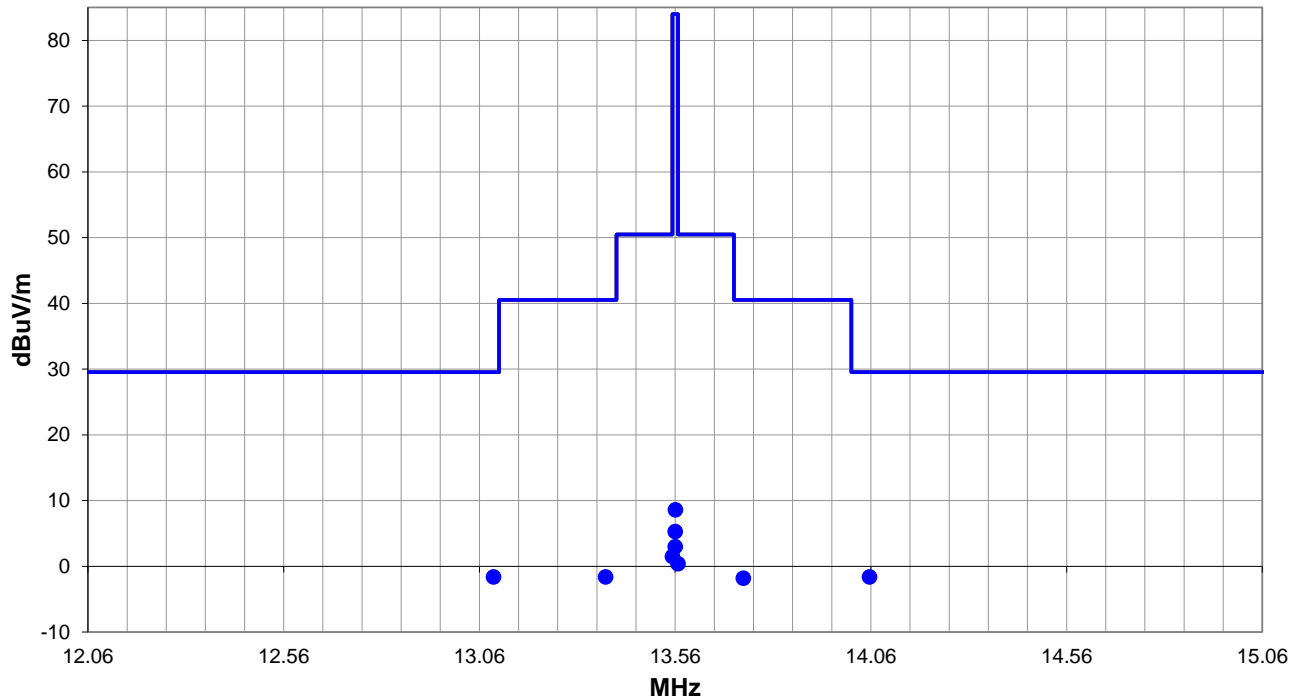
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, CrossSwitch 1 (Radio 1)

DEVIATIONS FROM TEST STANDARD

None



Run #: 34

PK AV QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #34

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
13.096	5.9	11.6	1.0	313.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	29.5	-31.1
14.056	5.9	11.6	1.0	259.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	29.5	-31.1
13.382	5.9	11.6	1.0	153.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	40.5	-42.1
13.734	5.7	11.6	1.0	300.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.8	40.5	-42.3
13.553	9.0	11.6	1.0	145.0	10.0	0.0	Perp to EUT	QP	-19.1	1.5	50.5	-49.0
13.567	7.9	11.6	1.0	214.9	10.0	0.0	Perp to EUT	QP	-19.1	0.4	50.5	-50.1
13.560	16.1	11.6	1.0	194.0	10.0	0.0	Perp to EUT	QP	-19.1	8.6	84.0	-75.4
13.560	12.8	11.6	1.0	243.9	10.0	0.0	Para to EUT	QP	-19.1	5.3	84.0	-78.7
13.560	10.5	11.6	1.0	3.9	10.0	0.0	Para to GND	QP	-19.1	3.0	84.0	-81.0

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

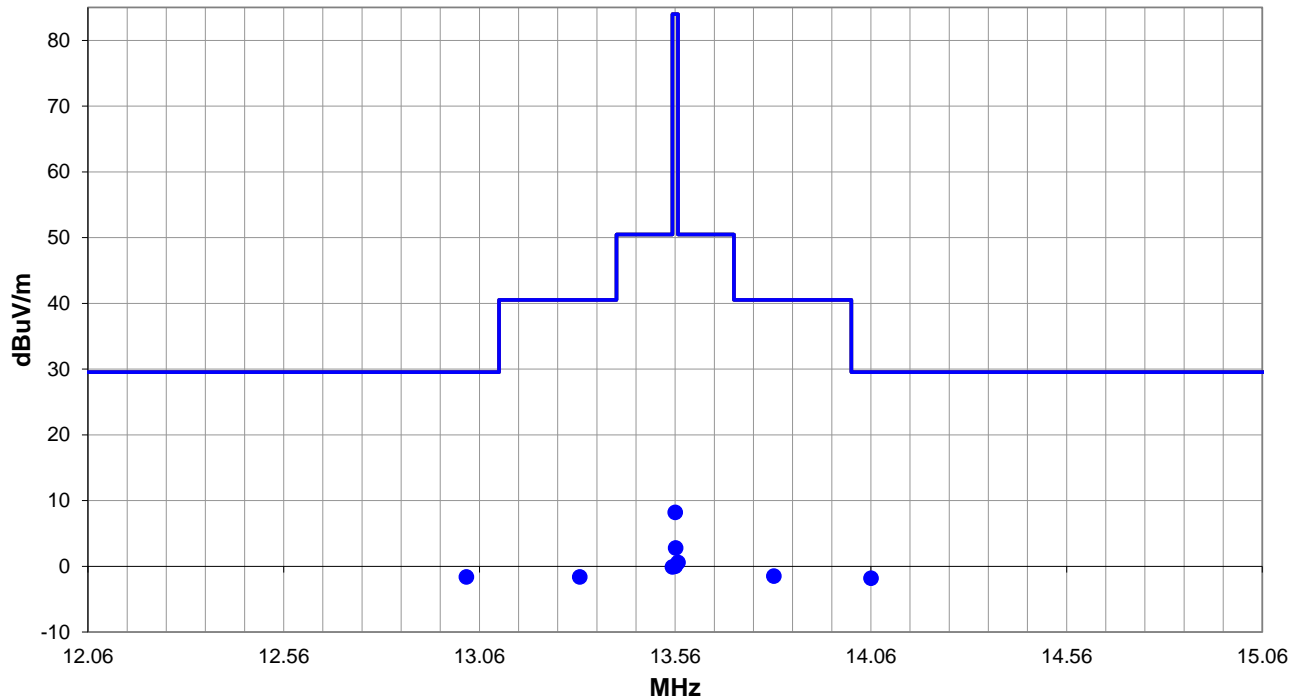
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, CrossSwitch 1 (Radio 2)

DEVIATIONS FROM TEST STANDARD

None



Run #: 35

■ PK ◆ AV ● QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #35

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)
13.027	5.9	11.6	1.0	306.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	29.5	-31.1
14.060	5.7	11.6	1.0	86.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.8	29.5	-31.3
13.812	6.0	11.6	1.0	76.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.5	40.5	-42.0
13.316	5.9	11.6	1.0	204.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	40.5	-42.1
13.567	8.1	11.6	1.0	49.0	10.0	0.0	Perp to EUT	QP	-19.1	0.6	50.5	-49.9
13.553	7.4	11.6	1.0	145.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.1	50.5	-50.6
13.560	15.7	11.6	1.0	51.9	10.0	0.0	Perp to EUT	QP	-19.1	8.2	84.0	-75.8
13.561	10.3	11.6	1.0	158.0	10.0	0.0	Para to EUT	QP	-19.1	2.8	84.0	-81.2
13.560	7.5	11.6	1.0	69.0	10.0	0.0	Para to GND	QP	-19.1	0.0	84.0	-84.0

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

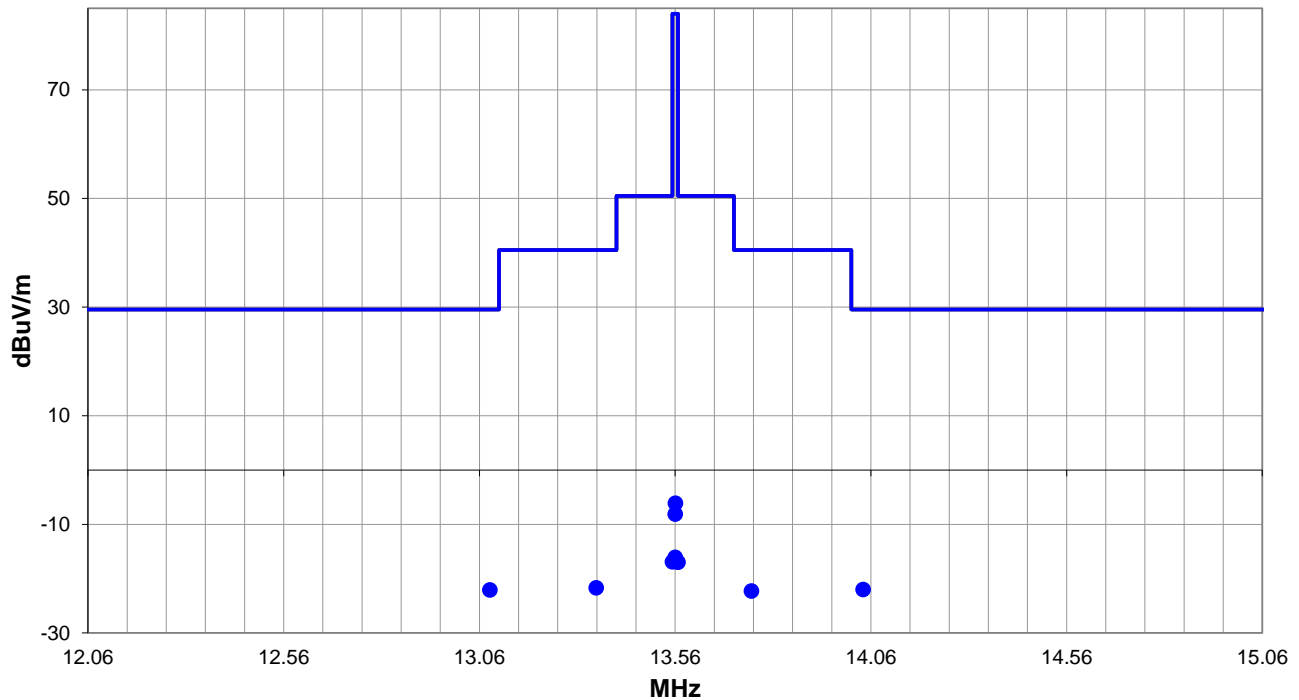
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each). Testing performed at 3m per FCC 15.31(f)(2) when fundamental was less then 6 dB above or indistinguishable from noise floor at 10m.

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, AccessPoint 1

DEVIATIONS FROM TEST STANDARD

None



Run #: 37

PK AV QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #37

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
14.040	6.4	11.6	1.0	134.0	3.0	0.0	Perp to EUT	QP	-40.0	-22.0	29.5	-51.5
13.087	6.3	11.6	1.0	212.0	3.0	0.0	Perp to EUT	QP	-40.0	-22.1	29.5	-51.6
13.358	6.7	11.6	1.0	85.0	3.0	0.0	Perp to EUT	QP	-40.0	-21.7	40.5	-62.2
13.755	6.1	11.6	1.0	127.0	3.0	0.0	Perp to EUT	QP	-40.0	-22.3	40.5	-62.8
13.553	11.5	11.6	1.0	12.0	3.0	0.0	Perp to EUT	QP	-40.0	-16.9	50.5	-67.4
13.567	11.4	11.6	1.0	18.0	3.0	0.0	Perp to EUT	QP	-40.0	-17.0	50.5	-67.5
13.560	22.3	11.6	1.0	3.0	3.0	0.0	Perp to EUT	QP	-40.0	-6.1	84.0	-90.1
13.560	20.3	11.6	1.0	268.9	3.0	0.0	Para to EUT	QP	-40.0	-8.1	84.0	-92.1
13.560	12.3	11.6	1.0	130.9	3.0	0.0	Para to GND	QP	-40.0	-16.1	84.0	-100.1

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

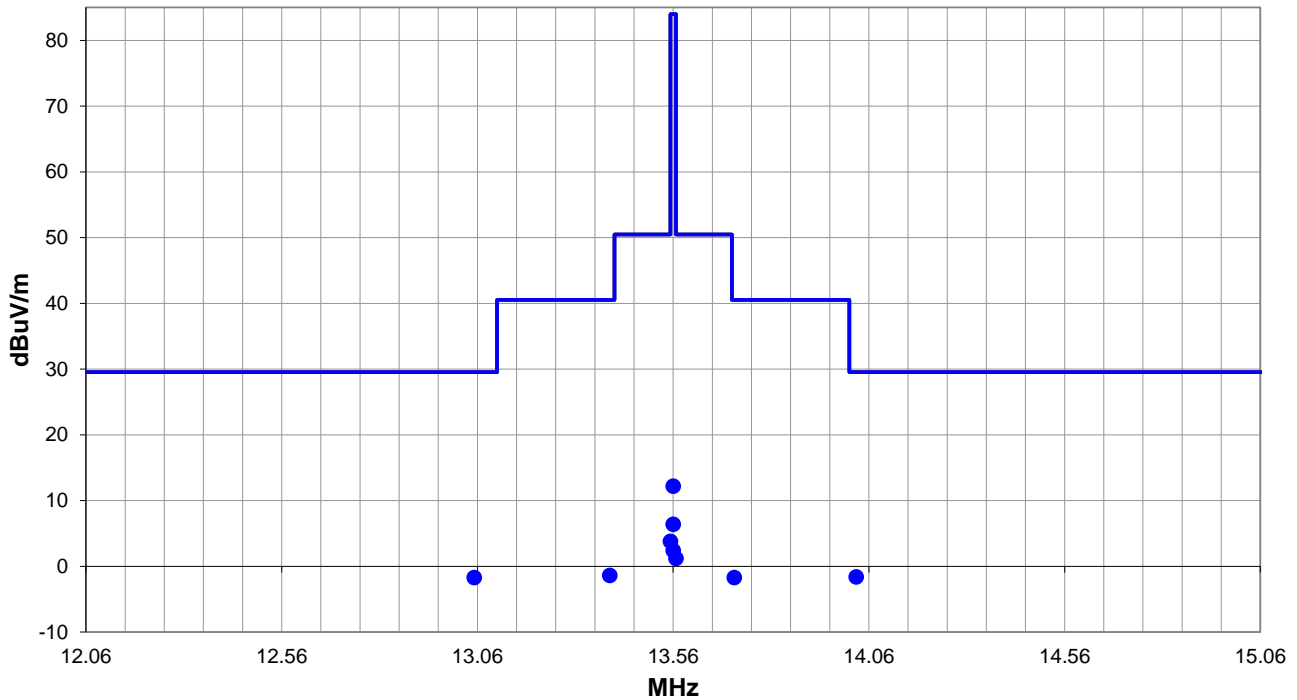
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, CrossSwitch 2 (Radio 1)

DEVIATIONS FROM TEST STANDARD

None



Run #: 38

PK AV QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #38

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
14.028	5.9	11.6	1.0	195.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	29.5	-31.1
13.052	5.8	11.6	1.0	207.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	29.5	-31.2
13.398	6.1	11.6	1.0	357.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.4	40.5	-41.9
13.716	5.8	11.6	1.0	10.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	40.5	-42.2
13.553	11.3	11.6	1.0	289.0	10.0	0.0	Perp to EUT	QP	-19.1	3.8	50.5	-46.7
13.567	8.7	11.6	1.0	312.0	10.0	0.0	Perp to EUT	QP	-19.1	1.2	50.5	-49.3
13.560	19.7	11.6	1.0	0.0	10.0	0.0	Perp to EUT	QP	-19.1	12.2	84.0	-71.8
13.560	13.9	11.6	1.0	256.9	10.0	0.0	Para to EUT	QP	-19.1	6.4	84.0	-77.6
13.560	9.9	11.6	1.0	141.0	10.0	0.0	Para to GND	QP	-19.1	2.4	84.0	-81.6

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

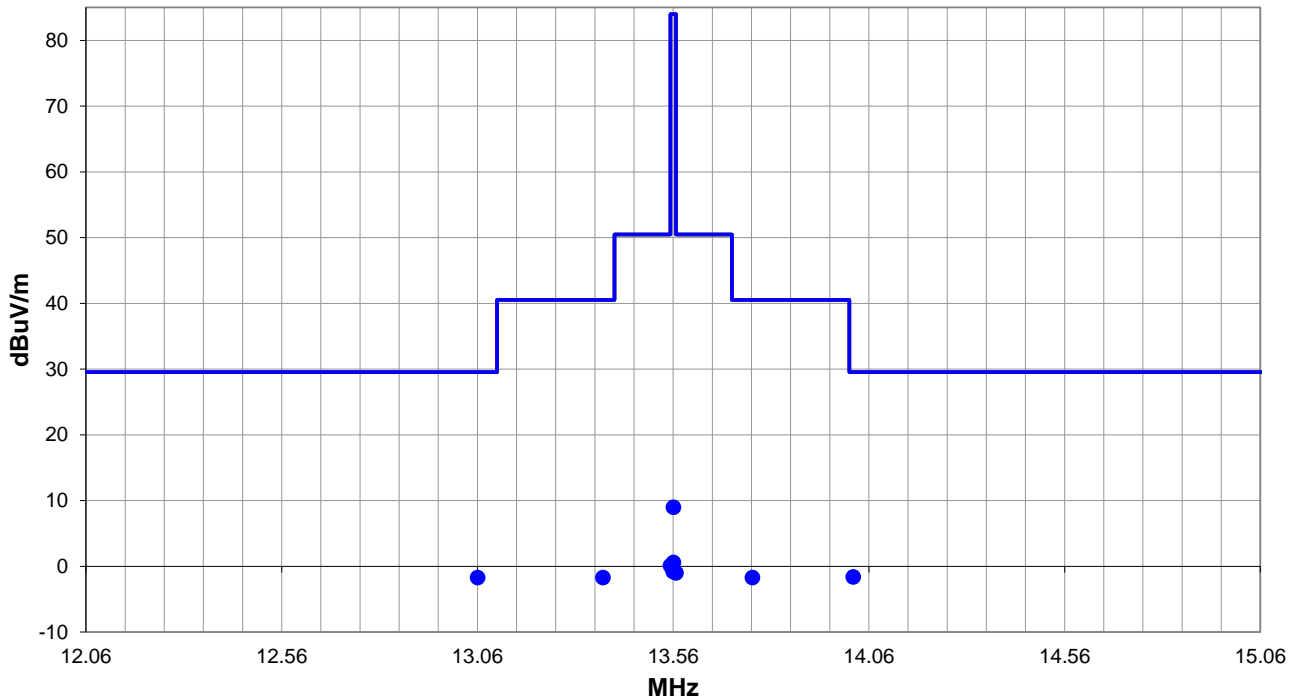
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, CrossSwitch 2 (Radio 2)

DEVIATIONS FROM TEST STANDARD

None



Run #: 40

PK AV QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #40

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
14.020	5.9	11.6	1.0	214.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	29.5	-31.1
13.061	5.8	11.6	1.0	135.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	29.5	-31.2
13.381	5.8	11.6	1.0	184.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	40.5	-42.2
13.763	5.8	11.6	1.0	346.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	40.5	-42.2
13.553	7.6	11.6	1.0	121.0	10.0	0.0	Perp to EUT	QP	-19.1	0.1	50.5	-50.4
13.567	6.5	11.6	1.0	166.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.0	50.5	-51.5
13.560	16.5	11.6	1.0	115.0	10.0	0.0	Perp to EUT	QP	-19.1	9.0	84.0	-75.0
13.560	8.1	11.6	1.0	284.0	10.0	0.0	Para to EUT	QP	-19.1	0.6	84.0	-83.4
13.560	6.7	11.6	1.0	51.9	10.0	0.0	Para to GND	QP	-19.1	-0.8	84.0	-84.8

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

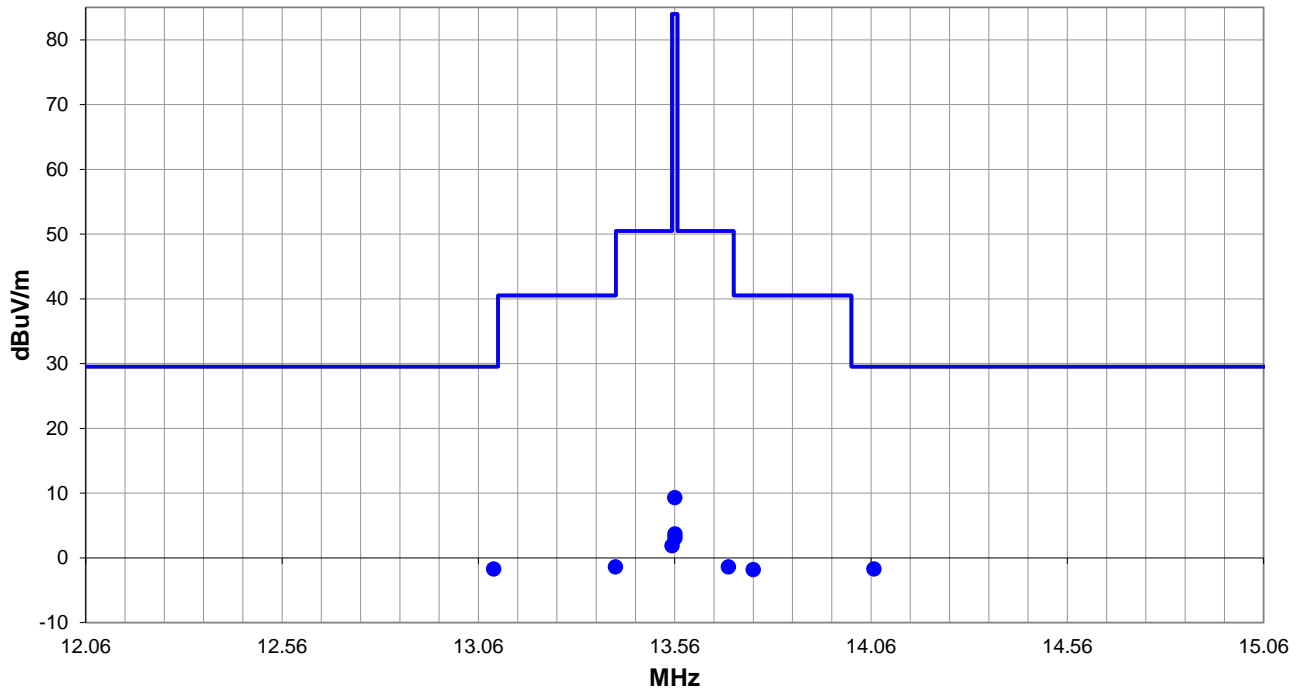
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, AccessPoint 2

DEVIATIONS FROM TEST STANDARD

None



Run #: 41

■ PK ◆ AV ● QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #41

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)
13.099	5.8	11.6	1.0	338.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	29.5	-31.2
14.067	5.8	11.6	1.0	93.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	29.5	-31.2
13.409	6.1	11.6	1.0	292.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.4	40.5	-41.9
13.760	5.7	11.6	1.0	273.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.8	40.5	-42.3
13.553	9.4	11.6	1.0	0.0	10.0	0.0	Perp to EUT	QP	-19.1	1.9	50.5	-48.6
13.697	6.1	11.6	1.0	229.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.4	50.5	-51.9
13.560	16.8	11.6	1.0	314.0	10.0	0.0	Perp to EUT	QP	-19.1	9.3	84.0	-74.7
13.561	11.2	11.6	1.0	301.0	10.0	0.0	Para to GND	QP	-19.1	3.7	84.0	-80.3
13.560	10.6	11.6	1.0	97.0	10.0	0.0	Para to EUT	QP	-19.1	3.1	84.0	-80.9

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

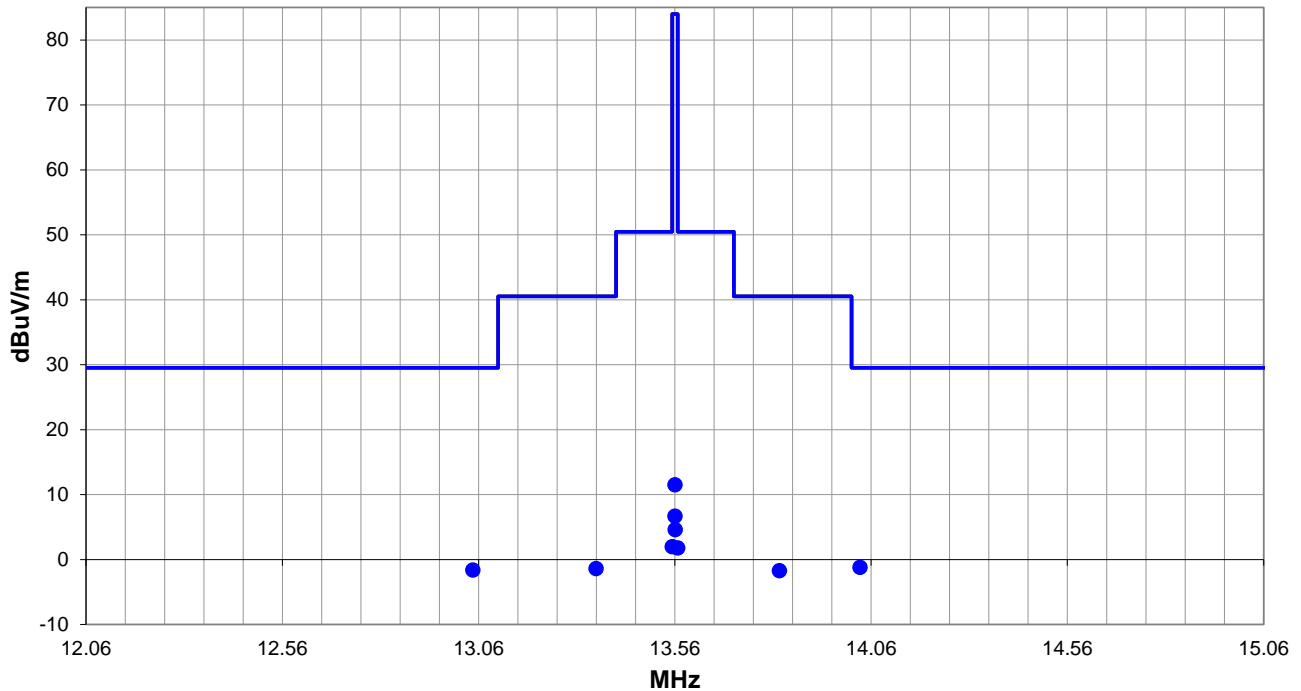
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, CrossSwitch 3 (Radio 1)

DEVIATIONS FROM TEST STANDARD

None



Run #: 42

PK AV QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #42

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
14.032	6.3	11.6	1.0	100.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.2	29.5	-30.7
13.045	5.9	11.6	1.0	345.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	29.5	-31.1
13.359	6.1	11.6	1.0	298.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.4	40.5	-41.9
13.826	5.8	11.6	1.0	327.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.7	40.5	-42.2
13.553	9.5	11.6	1.0	303.9	10.0	0.0	Perp to EUT	QP	-19.1	2.0	50.5	-48.5
13.567	9.3	11.6	1.0	303.9	10.0	0.0	Perp to EUT	QP	-19.1	1.8	50.5	-48.7
13.560	19.0	11.6	1.0	296.0	10.0	0.0	Perp to EUT	QP	-19.1	11.5	84.0	-72.5
13.560	14.2	11.6	1.0	303.0	10.0	0.0	Para to GND	QP	-19.1	6.7	84.0	-77.3
13.561	12.1	11.6	1.0	7.0	10.0	0.0	Para to EUT	QP	-19.1	4.6	84.0	-79.4

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF FUNDAMENTAL



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

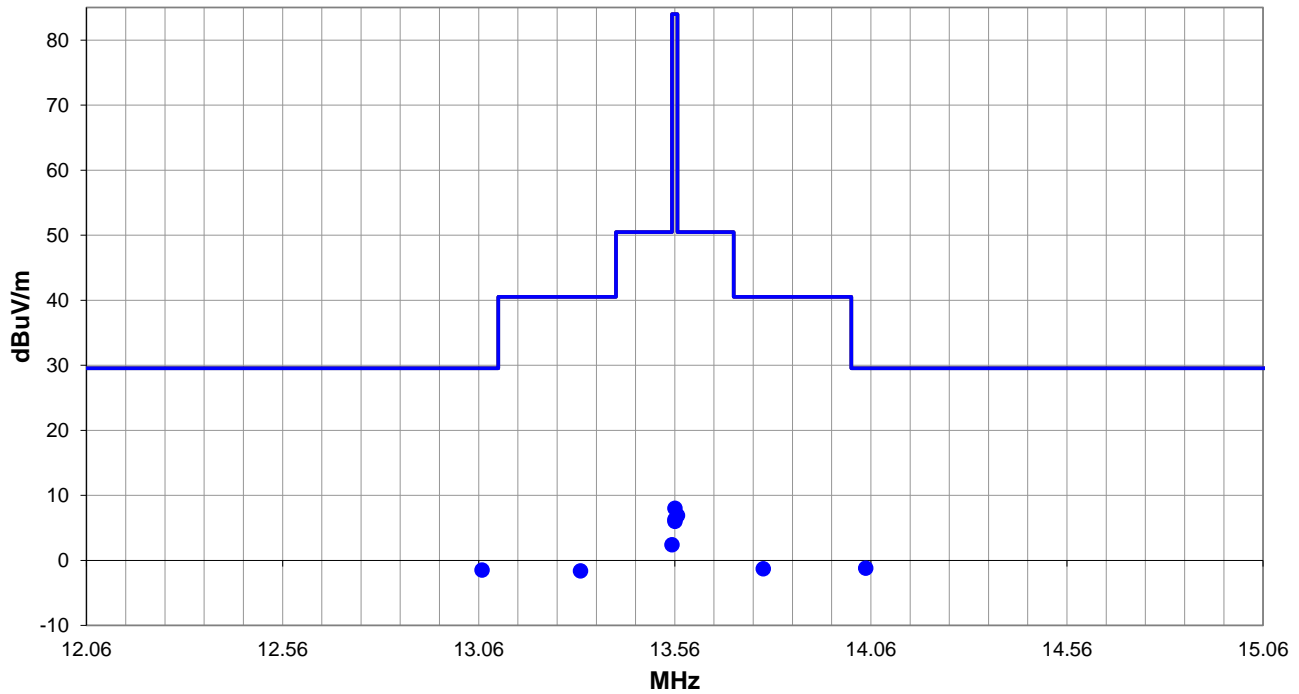
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, CrossSwitch 3 (Radio 2)

DEVIATIONS FROM TEST STANDARD

None



Run #: 44

PK AV QP

FIELD STRENGTH OF FUNDAMENTAL



RESULTS - Run #44

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
14.047	6.3	11.6	1.0	148.9	10.0	0.0	Perp to EUT	QP	-19.1	-1.2	29.5	-30.7
13.068	6.0	11.6	1.0	255.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.5	29.5	-31.0
13.786	6.2	11.6	1.0	228.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.3	40.5	-41.8
13.320	5.9	11.6	1.0	183.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.6	40.5	-42.1
13.567	14.4	11.6	1.0	0.0	10.0	0.0	Perp to EUT	QP	-19.1	6.9	50.5	-43.6
13.553	9.9	11.6	1.0	312.0	10.0	0.0	Perp to EUT	QP	-19.1	2.4	50.5	-48.1
13.560	15.5	11.6	1.0	189.0	10.0	0.0	Perp to EUT	QP	-19.1	8.0	84.0	-76.0
13.560	13.8	11.6	1.0	0.0	10.0	0.0	Para to EUT	QP	-19.1	6.3	84.0	-77.7
13.560	13.5	11.6	1.0	309.0	10.0	0.0	Para to GND	QP	-19.1	6.0	84.0	-78.0

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THEN 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
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2023-05-25	2024-05-25
Antenna - Loop	ETS Lindgren	6502	AZM	2022-07-19	2024-07-19

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

ABBO0285-2

MODES INVESTIGATED

Transmitting 13.56 MHz RFID, OOK, All Radios ON

FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THEN 30 MHz)



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	45	Test Distance (m):	10	Ant. Height(s) (m):	1(m)
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COMMENTS

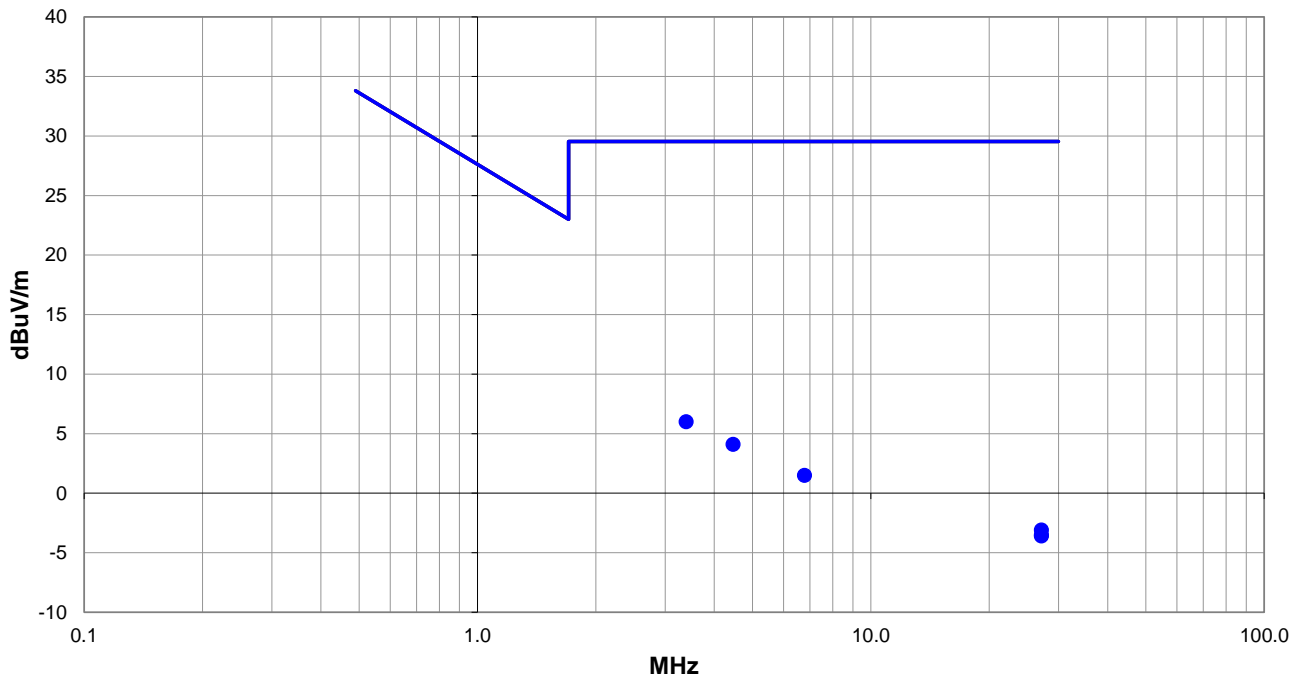
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, All Radios ON

DEVIATIONS FROM TEST STANDARD

None



Run #: 45

■ PK ◆ AV ● QP

FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THEN 30 MHz)



RESULTS - Run #45

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)
3.390	13.5	11.6	1.0	195.9	10.0	0.0	Perp to EUT	QP	-19.1	6.0	29.5	-23.5
4.464	11.4	11.8	1.0	69.0	10.0	0.0	Perp to EUT	QP	-19.1	4.1	29.5	-25.4
6.780	8.9	11.7	1.0	237.9	10.0	0.0	Perp to EUT	QP	-19.1	1.5	29.5	-28.0
27.120	6.0	10.0	1.0	297.9	10.0	0.0	Perp to EUT	QP	-19.1	-3.1	29.5	-32.6
27.120	5.6	10.0	1.0	336.0	10.0	0.0	Para to GND	QP	-19.1	-3.5	29.5	-33.0
27.120	5.5	10.0	1.0	355.0	10.0	0.0	Para to EUT	QP	-19.1	-3.6	29.5	-33.1

CONCLUSION

Pass

Tested By

FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THEN 30 MHz)



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-10
Customer:	Abbott Laboratories	Temperature:	20.7°C
Attendees:	Frank Sun	Relative Humidity:	57.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	45	Test Distance (m):	10	Ant. Height(s) (m):	1(m)
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COMMENTS

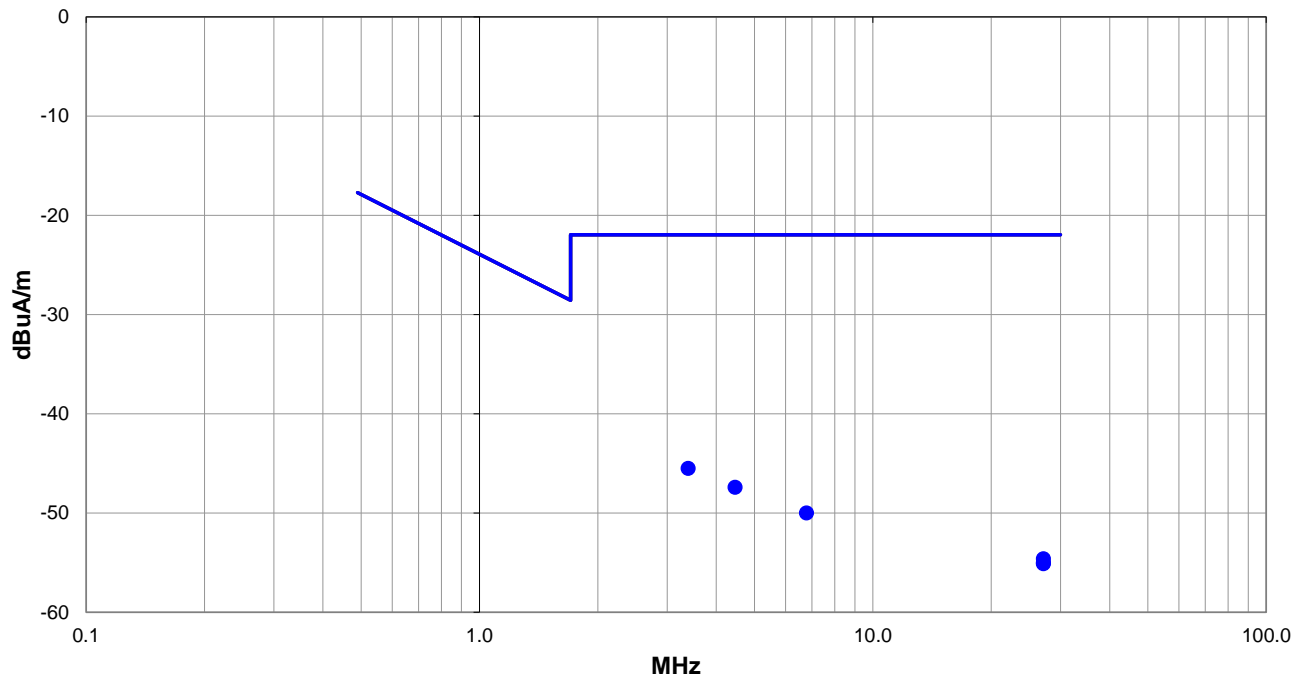
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, All Radios ON

DEVIATIONS FROM TEST STANDARD

None



Run #: 45

■ PK ◆ AV ● QP

FIELD STRENGTH OF SPURIOUS EMISSIONS (LESS THEN 30 MHz)



RESULTS - Run #45

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 (dBuA/m)	Spec. Limit (dBuA/m)	Compared to Spec. (dB)
3.390	13.5	-39.9	1.0	195.9	10.0	0.0	Perp to EUT	QP	-19.1	-45.5	-22.0	-23.5
4.464	11.4	-39.7	1.0	69.0	10.0	0.0	Perp to EUT	QP	-19.1	-47.4	-22.0	-25.4
6.780	8.9	-39.8	1.0	237.9	10.0	0.0	Perp to EUT	QP	-19.1	-50.0	-22.0	-28.0
27.120	6.0	-41.5	1.0	297.9	10.0	0.0	Perp to EUT	QP	-19.1	-54.6	-22.0	-32.6
27.120	5.6	-41.5	1.0	336.0	10.0	0.0	Para to GND	QP	-19.1	-55.0	-22.0	-33.0
27.120	5.5	-41.5	1.0	355.0	10.0	0.0	Para to EUT	QP	-19.1	-55.1	-22.0	-33.1

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, adjusting the position of the EUT and EUT antenna in three orthogonal axis, 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
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
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
Antenna - Biconilog	ETS Lindgren	3143B	AYF	2023-05-03	2025-05-03

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

ABBO0285-2

MODES INVESTIGATED

Transmitting 13.56 MHz RFID, OOK, All Radios On

FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)



EUT:	Centrifuge Module	Work Order:	ABBO0285
Serial Number:	M05A000263	Date:	2023-08-11
Customer:	Abbott Laboratories	Temperature:	21.9°C
Attendees:	Frank Sun	Relative Humidity:	54.4%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	220VAC/60Hz	Configuration:	ABBO0285-2

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

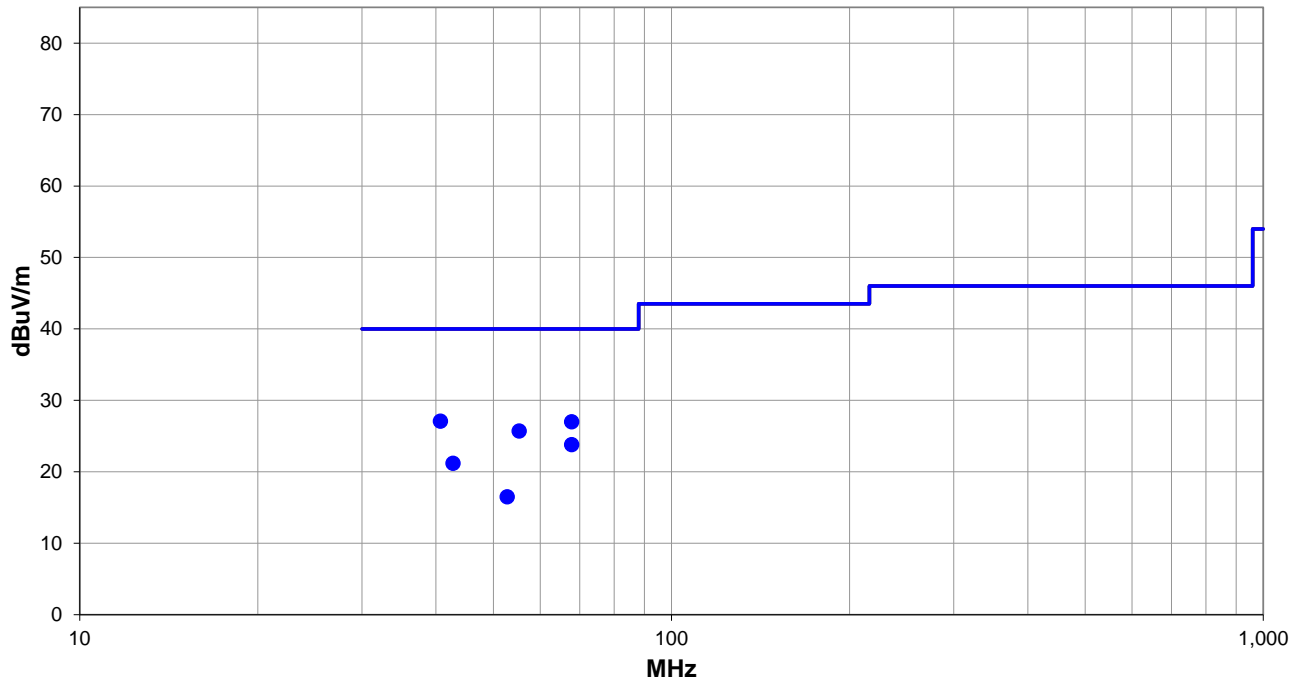
Floor Standing Unit. Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).

EUT OPERATING MODES

Transmitting 13.56 MHz RFID, OOK, All Radios On

DEVIATIONS FROM TEST STANDARD

None



Run #: 51

PK AV QP

FIELD STRENGTH OF SPURIOUS EMISSIONS (GREATER THAN 30 MHz)



RESULTS - Run #51

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)
40.689	50.4	-23.3	1.0	321.0	3.0	0.0	Vert	QP	0.0	27.1	40.0	-12.9
67.810	53.0	-26.0	1.83	0.0	3.0	0.0	Vert	QP	0.0	27.0	40.0	-13.0
55.285	52.6	-26.9	1.0	188.0	3.0	0.0	Vert	QP	0.0	25.7	40.0	-14.3
67.814	49.8	-26.0	2.46	212.0	3.0	0.0	Horz	QP	0.0	23.8	40.0	-16.2
42.749	45.5	-24.3	3.32	309.0	3.0	0.0	Horz	QP	0.0	21.2	40.0	-18.8
52.763	43.5	-27.0	2.4	332.0	3.0	0.0	Horz	QP	0.0	16.5	40.0	-23.5

CONCLUSION

Pass

Tested By