

EMISSIONS BANDWIDTH (20 DB)

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
Block - DC	Fairview Microwave	SD3379	AMT	2023-08-04	2024-08-04
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2022-12-08	2023-12-08
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2022-09-13	2023-09-13
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR

TEST DESCRIPTION

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

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

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

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

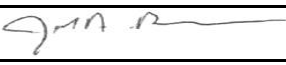
Due to the amplitude of the carrier with respect to the modulated signal, the EUT was unable to meet the 1-5% RBW requirement when based off the 20 dB bandwidth. Therefore the 99% bandwidth was used to determine the RBW settings for the 20 dB bandwidth. This is considered worst case.

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

EMISSIONS BANDWIDTH (20 DB)



TbTx 2022.06.03.0 XMI 2023.02.14.0

EUT: Centrifuge Module		Work Order: ABBO0285	
Serial Number: M05A000263		Date: 08/21/23	
Customer: Abbott Laboratories		Temperature: 21°C	
Attendees: Frank Sun		Humidity: 54.2%	
Project: None		Barometric Pres.: 1014 mbar	
Tested by: Jarrod Brenden		Power: 220VAC/60Hz	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 15.225:2023		ANSI C63.10:2013	
COMMENTS			
Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	ABBO0285-3	Signature 	
		Value	Limit 13.11 MHz ≤ BW ≤ 14.01 MHz
Continuous Transmit, RFID, 13.56 MHz, OOK			
CrossSwitch 1 (Radio 1)			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		114.535 kHz	Within
CrossSwitch 1 (Radio 2)			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		109.829 kHz	Within
AccessPoint 1			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		116.026 kHz	Within
CrossSwitch 2 (Radio 1)			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		120.907 kHz	Within
CrossSwitch 2 (Radio 2)			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		116.545 kHz	Within
AccessPoint 2			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		115.246 kHz	Within
CrossSwitch 3 (Radio 1)			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		123.625 kHz	Within
CrossSwitch 3 (Radio 2)			
Nominal Temp, 20°C			
Voltage, Nominal, 220V		106.025 kHz	Within

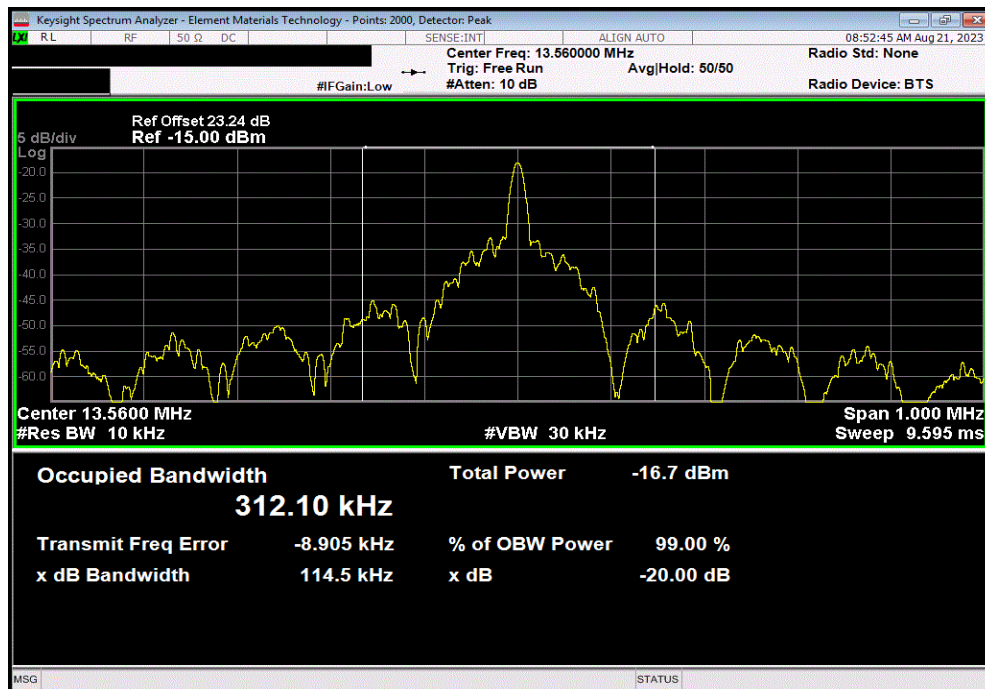
EMISSIONS BANDWIDTH (20 DB)



Txtv 2022.06.03.0 XMit 2023.02.14.0

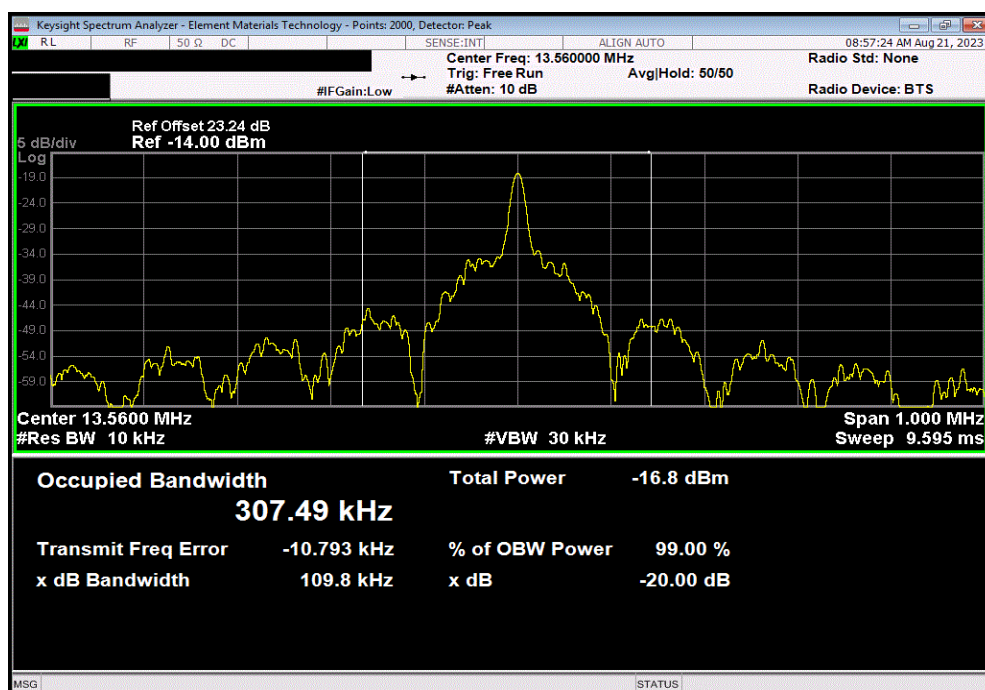
Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 1 (Radio 1), Nominal Temp, 20°C, Voltage, Nominal, 220V

				Limit		
Value				13.11 MHz ≤ BW ≤ 14.01 MHz	Result	
			114.535 kHz	Within	Pass	



Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 1 (Radio 2), Nominal Temp, 20°C, Voltage, Nominal, 220V

				Limit		
Value				13.11 MHz ≤ BW ≤ 14.01 MHz	Result	
			109.829 kHz	Within	Pass	



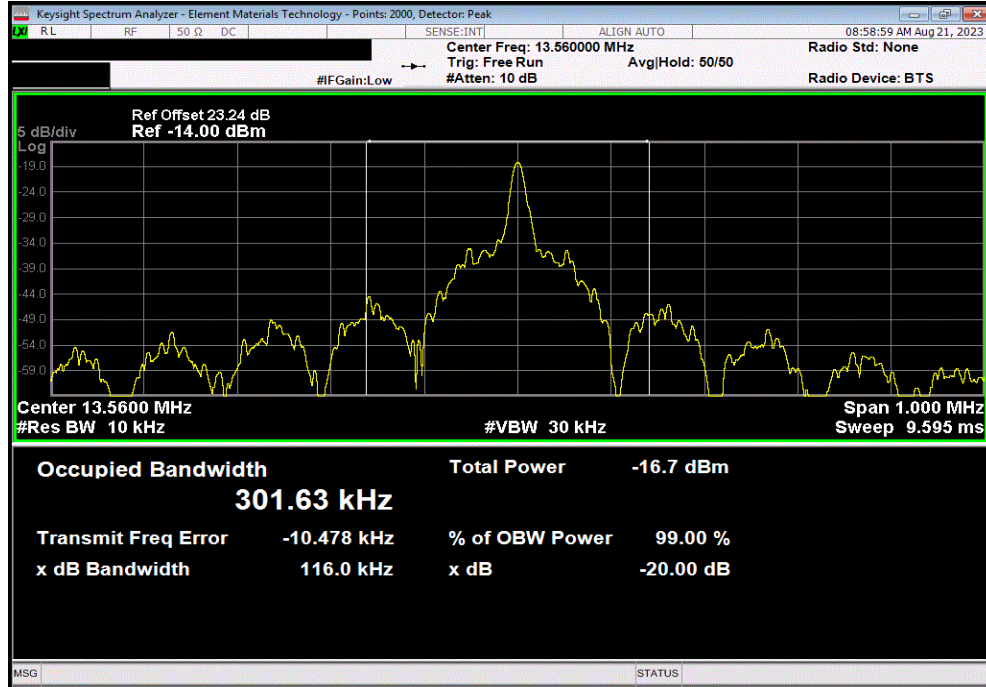
EMISSIONS BANDWIDTH (20 DB)



TbTtx 2022.06.03.0 XMI 2023.02.14.0

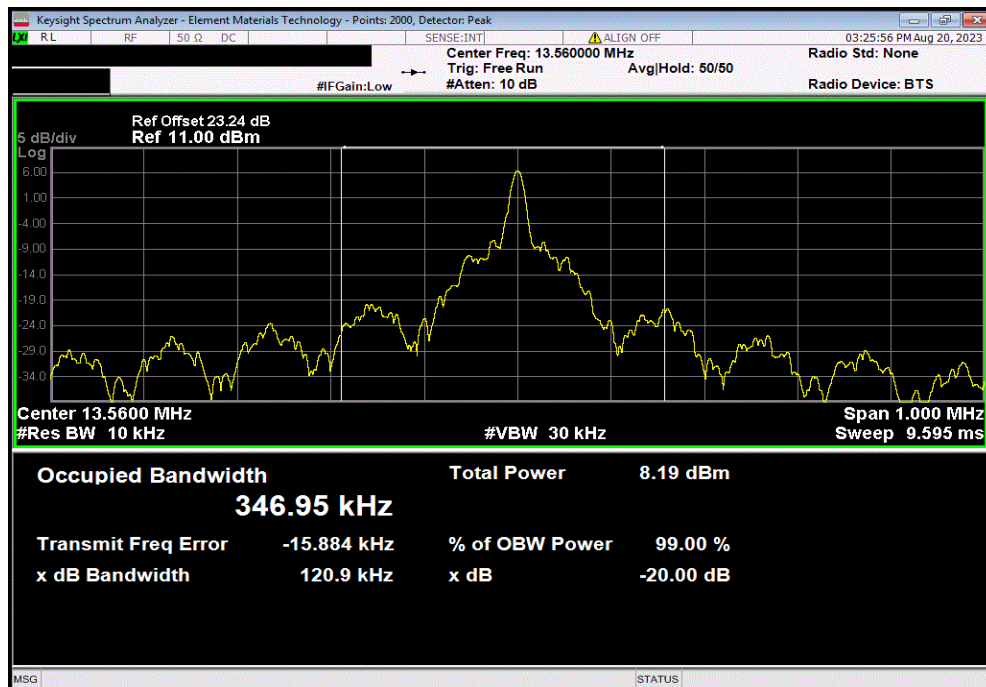
Continuous Transmit, RFID, 13.56 MHz, OOK, AccessPoint 1, Nominal Temp, 20°C, Voltage, Nominal, 220V

Limit		
Value	13.11 MHz ≤ BW ≤ 14.01 MHz	Result
116.026 kHz	Within	Pass



Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 2 (Radio 1), Nominal Temp, 20°C, Voltage, Nominal, 220V

Limit		
Value	13.11 MHz ≤ BW ≤ 14.01 MHz	Result
120.907 kHz	Within	Pass



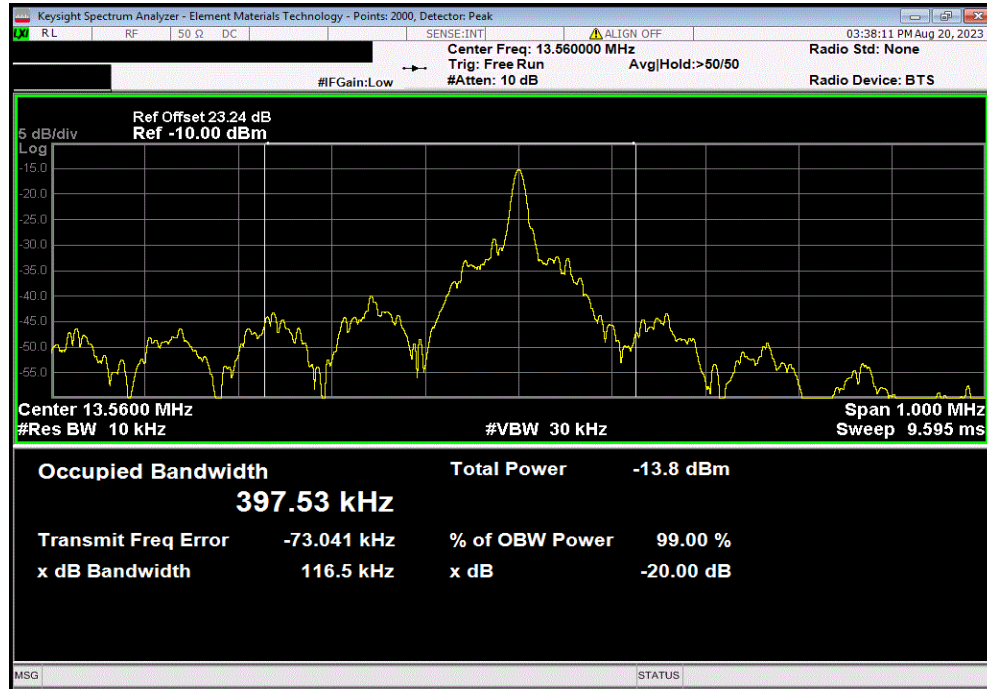
EMISSIONS BANDWIDTH (20 DB)



TbTb 2022.06.03.0 XMI 2023.02.14.0

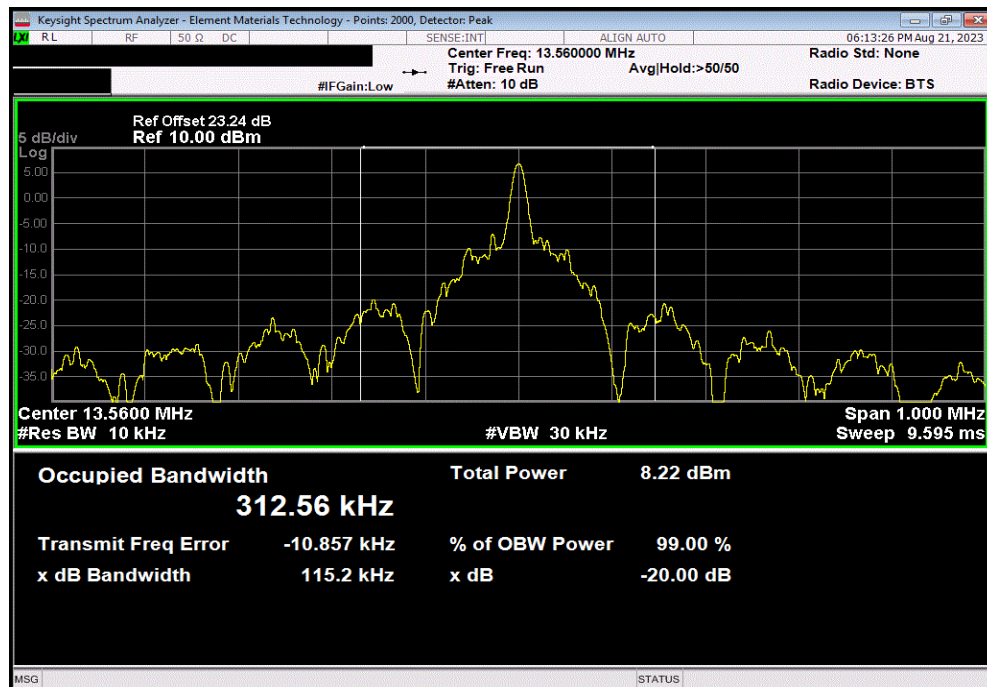
Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 2 (Radio 2), Nominal Temp, 20°C, Voltage, Nominal, 220V

Limit		
Value	13.11 MHz ≤ BW ≤ 14.01 MHz	Result
116.545 kHz	Within	Pass



Continuous Transmit, RFID, 13.56 MHz, OOK, AccessPoint 2, Nominal Temp, 20°C, Voltage, Nominal, 220V

Limit		
Value	13.11 MHz ≤ BW ≤ 14.01 MHz	Result
115.246 kHz	Within	Pass



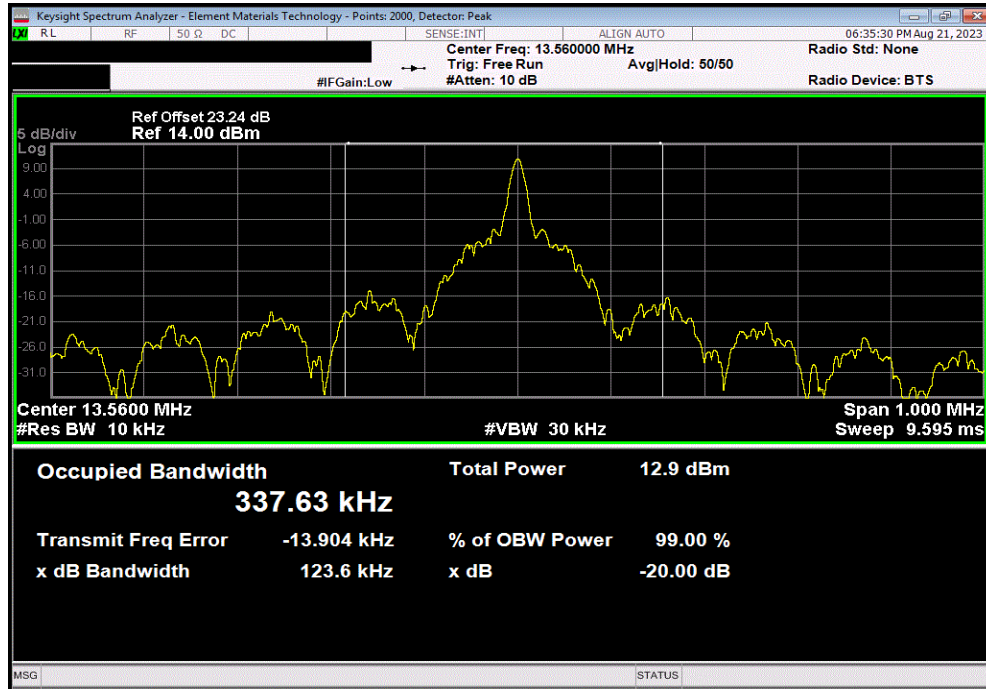
EMISSIONS BANDWIDTH (20 DB)



TbTb 2022.06.03.0 XMI 2023.02.14.0

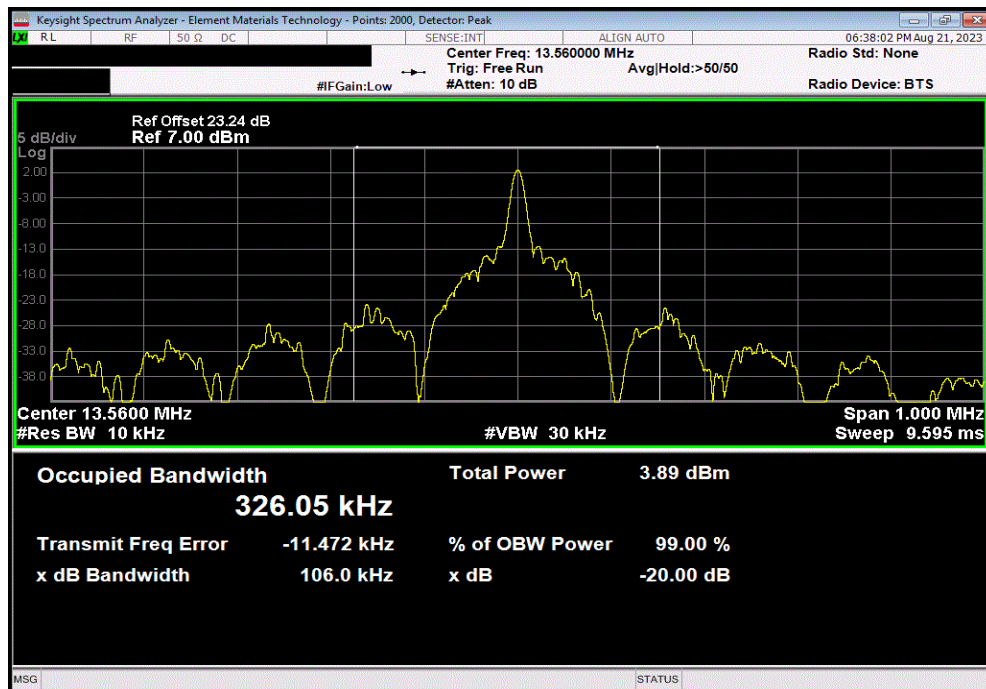
Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 3 (Radio 1), Nominal Temp, 20°C, Voltage, Nominal, 220V

Limit		
Value	13.11 MHz ≤ BW ≤ 14.01 MHz	Result
123.625 kHz	Within	Pass



Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 3 (Radio 2), Nominal Temp, 20°C, Voltage, Nominal, 220V

Limit		
Value	13.11 MHz ≤ BW ≤ 14.01 MHz	Result
106.025 kHz	Within	Pass



OCCUPIED BANDWIDTH (99%)



XMIT 2023.02.14.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
Block - DC	Fairview Microwave	SD3379	AMT	2023-08-04	2024-08-04
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2022-12-08	2023-12-08
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2022-09-13	2023-09-13
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR

TEST DESCRIPTION

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

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.

OCCUPIED BANDWIDTH (99%)



TSTx 2022.06.03.0 XMR 2023.02.14.0

EUT: Centrifuge Module		Work Order: ABBO0285	
Serial Number: M05A000263		Date: 08/21/23	
Customer: Abbott Laboratories		Temperature: 21°C	
Attendees: Frank Sun		Humidity: 54.3%	
Project: None		Barometric Pres.: 1014 mbar	
Tested by: Jarrod Brenden		Power: 220VAC/60Hz	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
RSS-Gen Issue 5:2018+A1:2019+A2:2021		ANSI C63.10:2013	
COMMENTS			
Test protocol D00135168/A. EUT contains 5 PCBs with RFID radios; 2 AccessPoint (1 radio each) and 3 CrossSwitch (2 radios each).			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	ABBO0285-3	Signature 	
		Value	Limit
Continuous Transmit, RFID, 13.56 MHz, OOK			
CrossSwitch 1 (Radio 1)			
Nominal Temp, 20°C			
		326.768 kHz	N/A
Voltage, Nominal, 220V			
CrossSwitch 1 (Radio 2)			
Nominal Temp, 20°C			
		327.418 kHz	N/A
Voltage, Nominal, 220V			
AccessPoint 1			
Nominal Temp, 20°C			
		326.129 kHz	N/A
Voltage, Nominal, 220V			
CrossSwitch 2 (Radio 1)			
Nominal Temp, 20°C			
		327.993 kHz	N/A
Voltage, Nominal, 220V			
CrossSwitch 2 (Radio 2)			
Nominal Temp, 20°C			
		390.483 kHz	N/A
Voltage, Nominal, 220V			
AccessPoint 2			
Nominal Temp, 20°C			
		337.064 kHz	N/A
Voltage, Nominal, 220V			
CrossSwitch 3 (Radio 1)			
Nominal Temp, 20°C			
		345.082 kHz	N/A
Voltage, Nominal, 220V			
CrossSwitch 3 (Radio 2)			
Nominal Temp, 20°C			
		327.469 kHz	N/A
Voltage, Nominal, 220V			

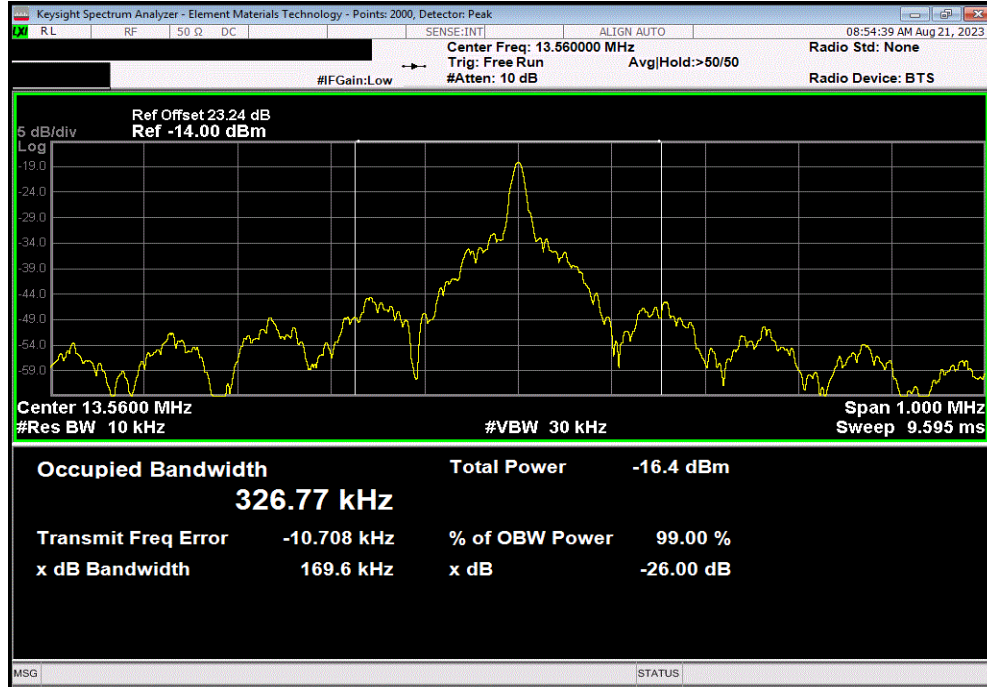
OCCUPIED BANDWIDTH (99%)



TbTx 2022.06.03.0 XbTx 2023.02.14.0

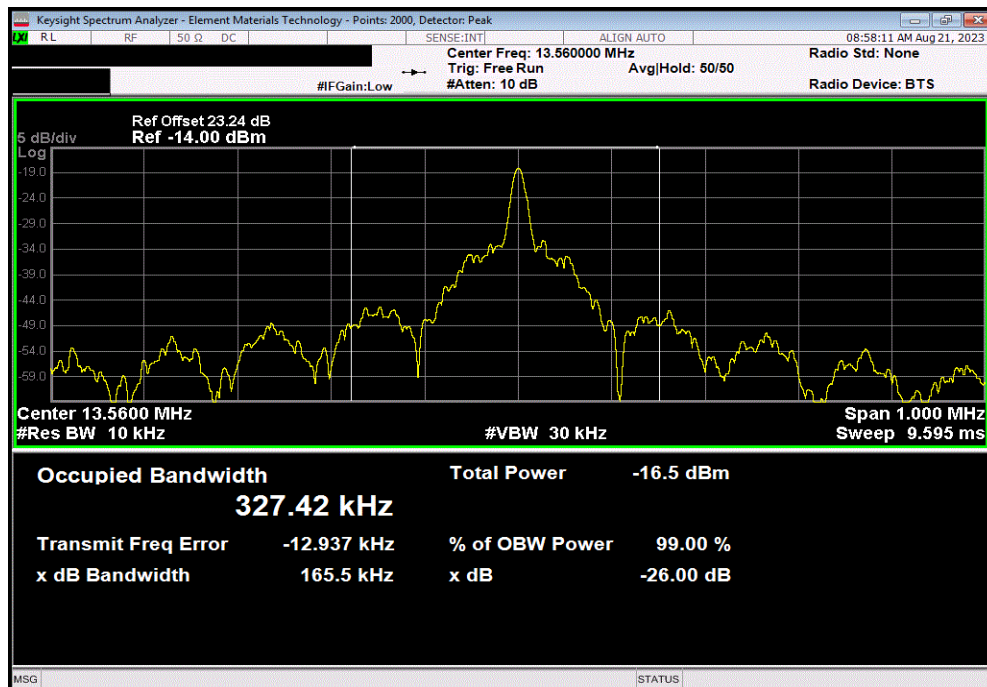
Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 1 (Radio 1), Nominal Temp, 20°C, Voltage, Nominal, 220V

	Value	Limit	Result
	326.768 kHz	N/A	N/A



Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 1 (Radio 2), Nominal Temp, 20°C, Voltage, Nominal, 220V

	Value	Limit	Result
	327.418 kHz	N/A	N/A



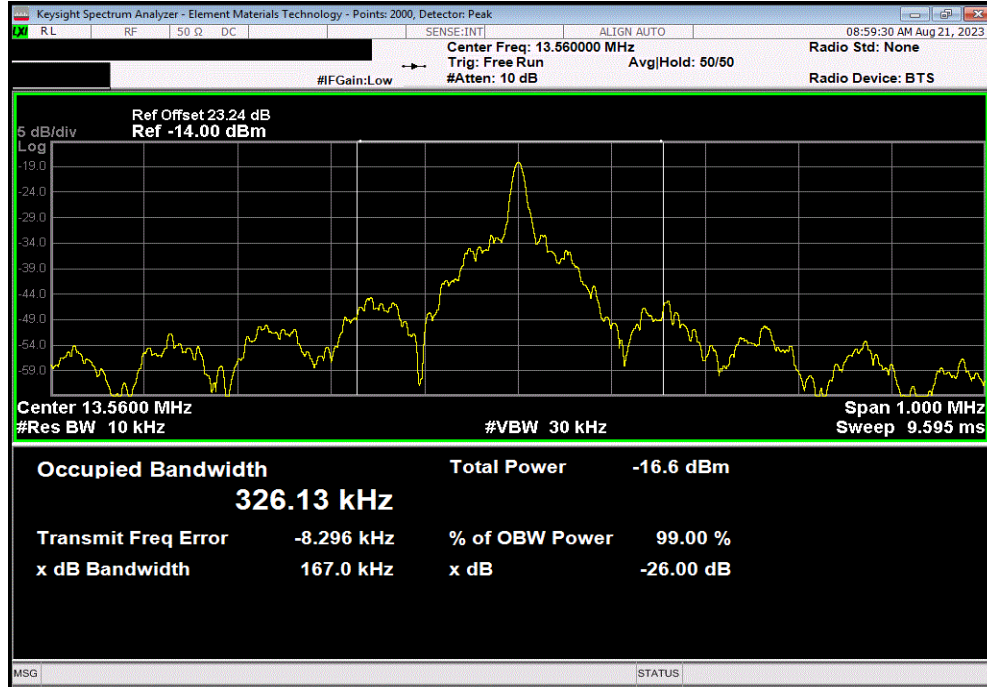
OCCUPIED BANDWIDTH (99%)



TbTx 2022.06.03.0 XbTx 2023.02.14.0

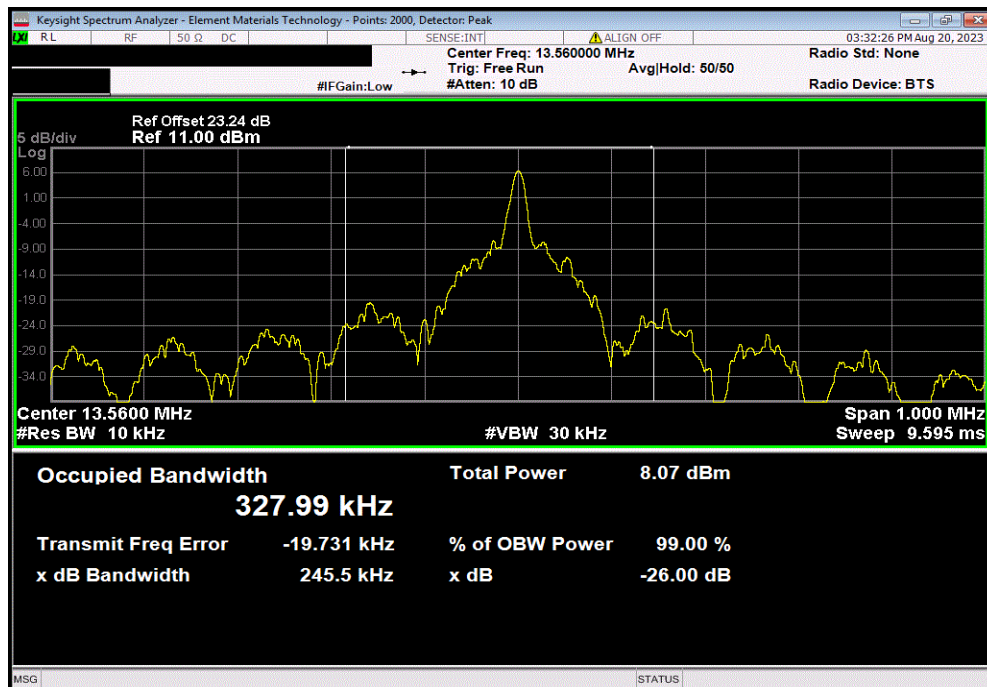
Continuous Transmit, RFID, 13.56 MHz, OOK, AccessPoint 1, Nominal Temp, 20°C, Voltage, Nominal, 220V

	Value	Limit	Result
	326.129 kHz	N/A	N/A



Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 2 (Radio 1), Nominal Temp, 20°C, Voltage, Nominal, 220V

	Value	Limit	Result
	327.993 kHz	N/A	N/A



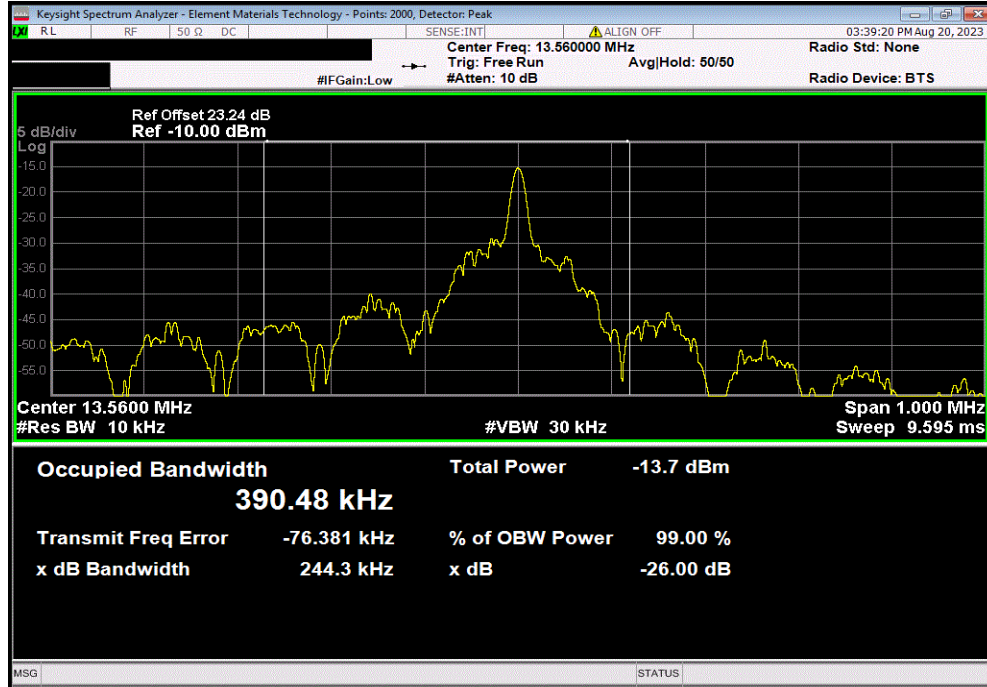
OCCUPIED BANDWIDTH (99%)



TbTtX 2022.06.03.0 XMtX 2023.02.14.0

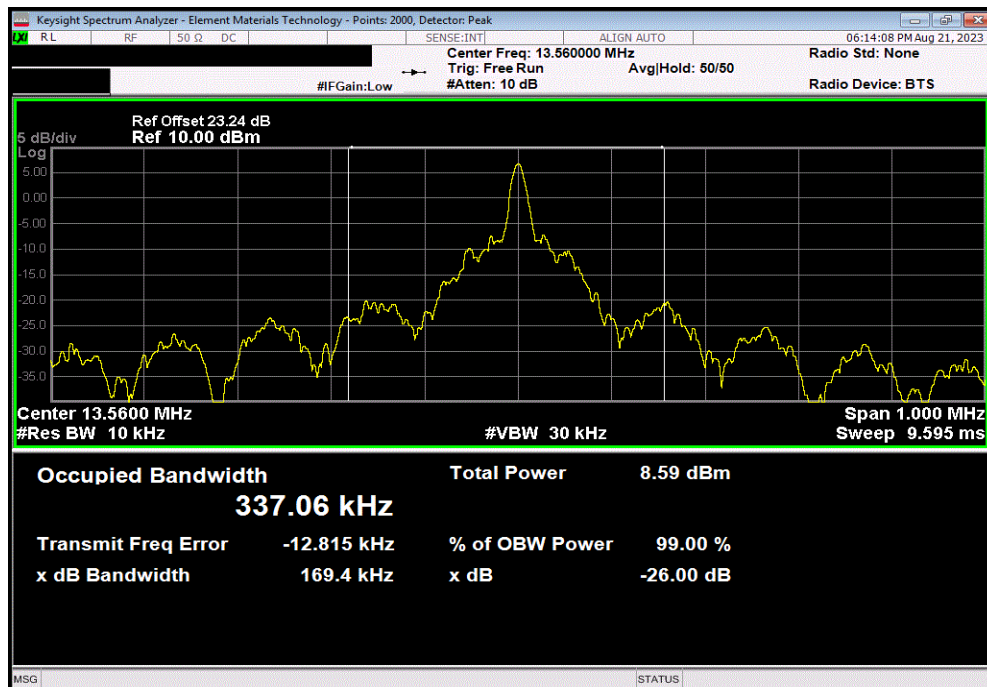
Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 2 (Radio 2), Nominal Temp, 20°C, Voltage, Nominal, 220V

	Value	Limit	Result
	390.483 kHz	N/A	N/A



Continuous Transmit, RFID, 13.56 MHz, OOK, AccessPoint 2, Nominal Temp, 20°C, Voltage, Nominal, 220V

	Value	Limit	Result
	337.064 kHz	N/A	N/A



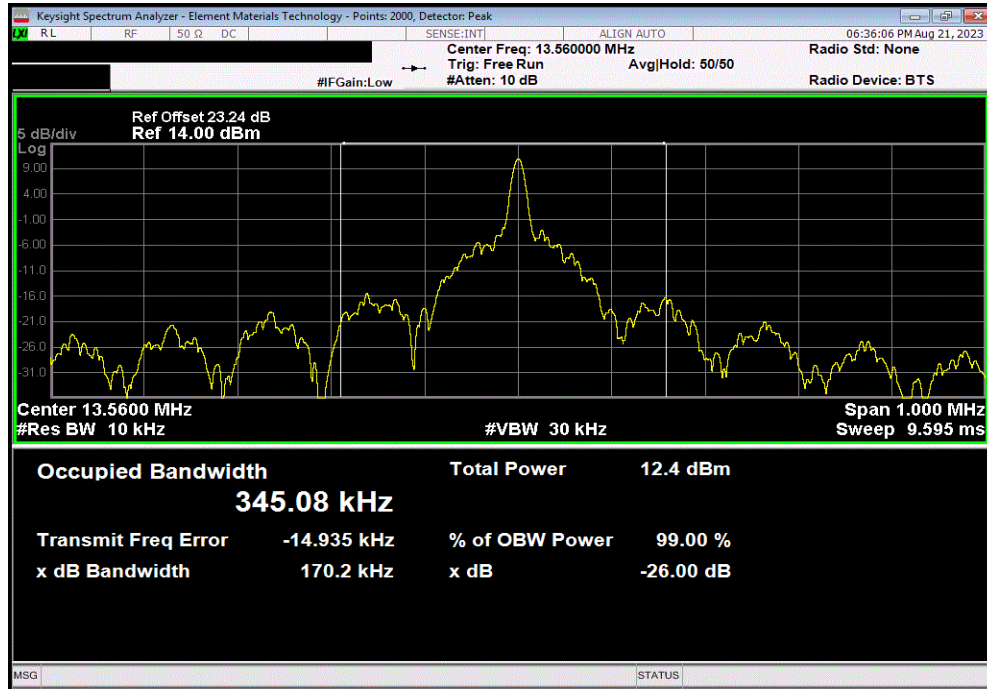
OCCUPIED BANDWIDTH (99%)



TbTx 2022.06.03.0 XMt 2023.02.14.0

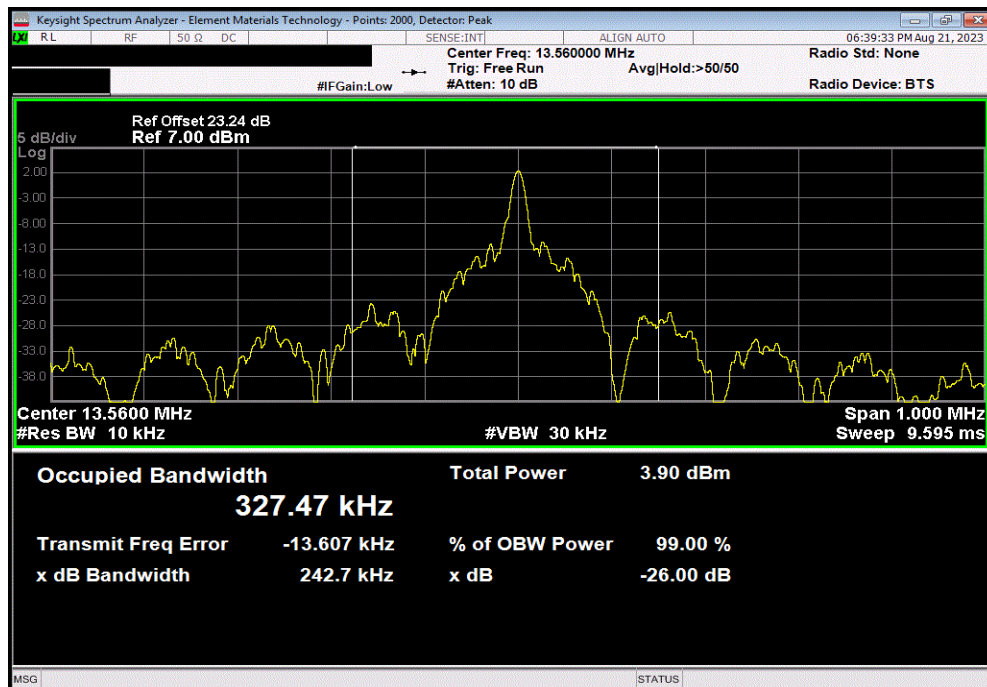
Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 3 (Radio 1), Nominal Temp, 20°C, Voltage, Nominal, 220V

				Value	Limit	Result
				345.082 kHz	N/A	N/A



Continuous Transmit, RFID, 13.56 MHz, OOK, CrossSwitch 3 (Radio 2), Nominal Temp, 20°C, Voltage, Nominal, 220V

				Value	Limit	Result
				327.469 kHz	N/A	N/A



End of Test Report