



Abbott Laboratories

GLP12191 PassPoint

FCC 15.225:2021

13.56 MHz Radio

Report: ABBO0086 Rev. 2, Issue Date: September 2, 2022



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CERTIFICATE OF TEST

Last Date of Test: September 2, 2021

Abbott Laboratories

EUT: GLP12191 PassPoint

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2021	ANSI C63.10:2013
FCC 15.225:2021	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.4	Field Strength of Fundamental	Yes	Pass	
6.4	Field Strength of Spurious Emissions (Less Than 30 MHz)	Yes	Pass	
6.5	Field Strength of Spurious Emissions (Greater Than 30 MHz)	Yes	Pass	
6.8	Frequency Stability	Yes	Pass	

Deviations From Test Standards

None

Approved By:



Adam Bruno, Operations Manager

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

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Removed track radio data from Field Strength of Fundamental	2021-09-02	20-21
	Changed Powerline CE spec from Class A to FCC 15.209	2021-09-02	16 and 18
02	Updated power settings and antenna information	2022-08-30	11
	Correct equipment calibration	2022-08-30	21, 23, 25
	Update the block diagram	2022-08-30	7
	Revised the test description for powerline CE	2022-08-30	16

ACCREDITATIONS AND AUTHORIZATIONS



United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

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

United Kingdom

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

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

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FACILITIES



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



MEASUREMENT UNCERTAINTY



Measurement Uncertainty

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

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

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

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

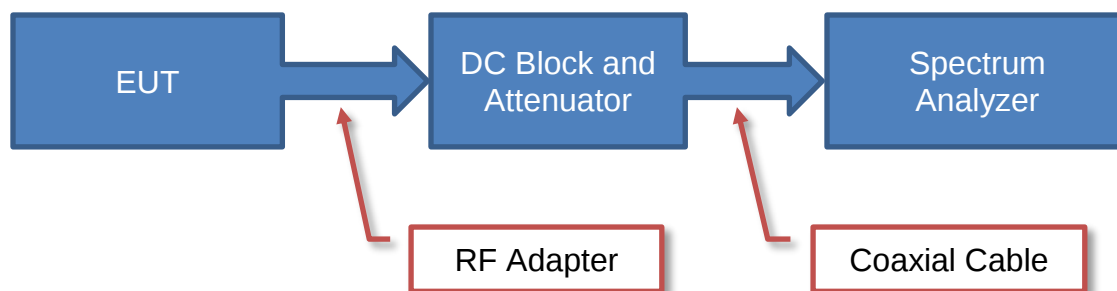
TEST SETUP BLOCK DIAGRAMS

Measurement Bandwidths

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

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

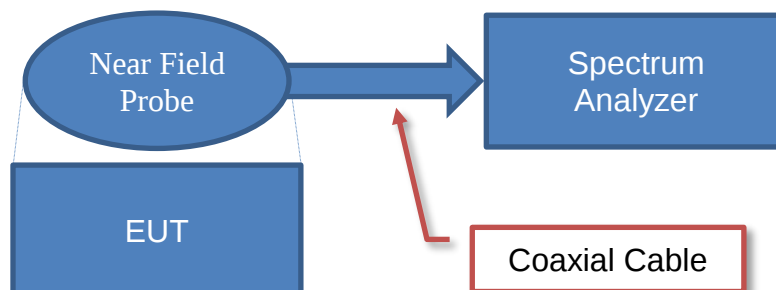
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

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

Near Field Test Fixture Measurements

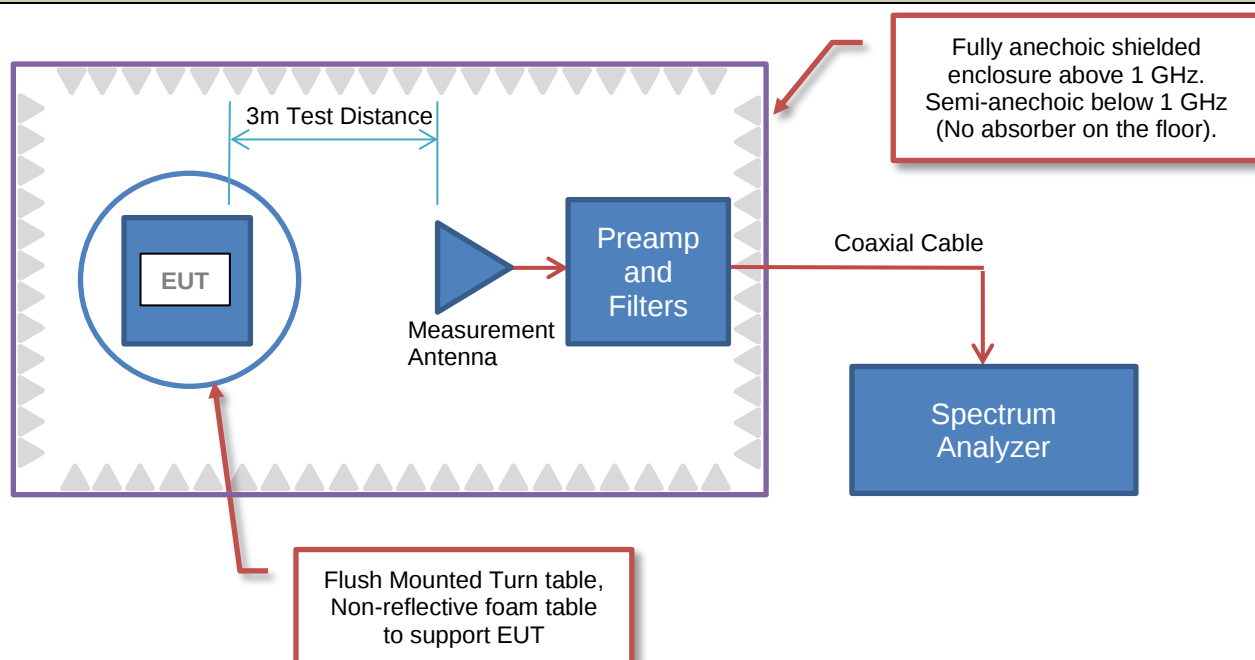


Sample Calculation (logarithmic units)

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

TEST SETUP BLOCK DIAGRAMS

Emissions Measurements



Sample Calculation (logarithmic units)

Radiated Emissions:

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

Conducted Emissions:

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

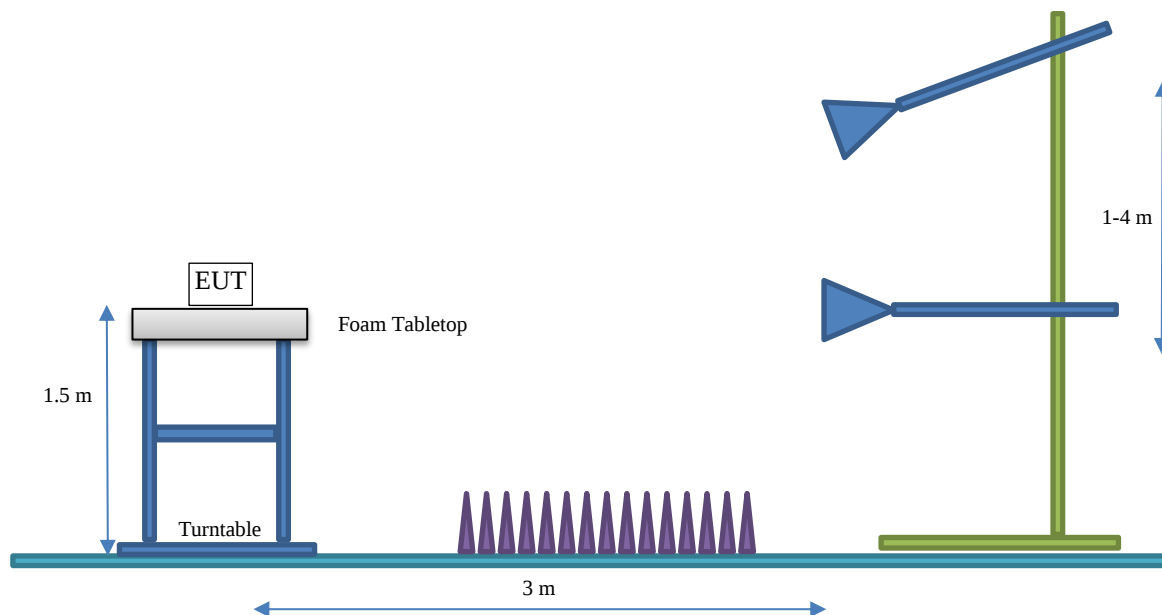
Radiated Power (ERP/EIRP) – Substitution Method:

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

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



PRODUCT DESCRIPTION



Client and Equipment Under Test (EUT) Information

Company Name:	Abbott Laboratories
Address:	1921 Hurd Drive
City, State, Zip:	Irving, TX 75038
Test Requested By:	Don Mendell
EUT:	GLP12191 PassPoint
First Date of Test:	July 7, 2021
Last Date of Test:	September 2, 2021
Receipt Date of Samples:	June 14, 2021
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

Pass Point – this track element reads the passive tag in the CAR and forwards the CAR ID to the control system. It contains one RFID reader.

Testing Objective:

To demonstrate compliance to FCC Part 15.225 specifications.

POWER SETTINGS AND ANTENNAS



The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information.

ANTENNA INFORMATION

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

POWER SETTING

Radio	Modulation	Protocol	Data Rate	Frequency	Power Setting (mW)
RFID	OOK	ISO 13693	26.48 kbps	13.56 MHz	200

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

CONFIGURATIONS



Configuration ABBO0086 - 2

Software/Firmware Running during test	
Description	Version
Firmware	TrackEmvTest_cp_pp_tac_Version_0.0_46817.bin

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
PassPoint Track Radio	GLP Systems	GLP12191	ENG02-PP

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Optiplex XE3	71HQQ72
Power Strip	GLP Systems	GLP12015	None
CAN Bus	GLP Systems	None	None
24V Power Supply	GLP Systems	GLP12010	C06A001511
Power Board	GLP Systems	GLP12014	None
Cross Switch Track Radio	GLP Systems	GLP12152	ENG05-CS
Drawer Reader Radio	GLP Systems	20001805 Rev C (PCB: 20001791 Rev B)	ENG05-DR
ChargeLane M Track Radio	GLP Systems	GLP12553	ENG02-CL M
AccessPoint Track Radio	GLP Systems	GLP12195	ENG02-AP
AC Line Filter	GLP Systems	GLP12013	0001002
Switch 90 Convergent Track Radio	GLP Systems	GLP12154	ENG01-CN
Switch 90 Divergent Track Radio	GLP Systems	GLP12153	ENG01-DV

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	Yes	1.1m	No	AC Mains	AC Line Filter
Auxiliary Bus Line	Yes	1.0m	No	AC Line Filter	24V Power Supply
DC Power Cable	No	0.6m	Yes	Power Board	Switch 90 Divergent
DC Power Cable	No	0.6m	Yes	Power Board	Switch 90 Convergent
DC Power Cable	No	0.6m	Yes	Power Board	ChargeLane
DC Power Cable	No	0.6m	Yes	Power Board	Cross Switch
DC Power Cable	No	0.6m	Yes	Power Board	PassPoint
DC Power Cable	No	0.6m	Yes	Power Board	AccessPoint
DC Power Cable	No	0.6m	Yes	Power Board	Drawer Reader

CONFIGURATIONS



Configuration ABBO0086 - 3

Software/Firmware Running during test	
Description	Version
Firmware	TrackEmvTest_ap_wp_Version_0.0_46817.bin
Firmware	TrackEmvTest_atr_Version_0.0_47120.bin
Firmware	TrackEmvTest_cp_pp_tac_Version_0.0_46817.bin
Firmware	InputOutput_Version_9.1_41972.bin
Firmware	TrackEmvTest_scx_scr_Version_0.0_46817.bin

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
PassPoint Track Radio	GLP Systems	GLP12191	ENG01-PP

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Input/Output Module	GLP Systems	GLP12220	IOM000116
Drawer Reader Radio 1	GLP Systems	20001805 Rev C (PCB: 20001791 Rev B)	ENG01-DR
Drawer Reader Radio 2	GLP Systems	20001805 Rev C (PCB: 20001791 Rev B)	ENG02-DR
Drawer Reader Radio 3	GLP Systems	20001805 Rev C (PCB: 20001791 Rev B)	ENG03-DR
Drawer Reader Radio 4	GLP Systems	20001805 Rev C (PCB: 20001791 Rev B)	ENG04-DR
Module Power Supply	GLP Systems	20027692	0001297
Segment Power Supply	GLP Systems	GLP12100	0001222
5V Power Supply	GLP Systems	GLP12011	0001055
24V Power Supply	GLP Systems	GLP12010	0001098
CrossSwitch Track Radio 1	GLP Systems	GLP12152	ENG01-CS
CrossSwitch Track Radio 2	GLP Systems	GLP12152	ENG02-CS
CrossSwitch Track Radio 3	GLP Systems	GLP12152	ENG03-CS
CrossSwitch Track Radio 4	GLP Systems	GLP12152	ENG04-CS
AccessPoint Track Radio	GLP Systems	GLP12193	ENG01-AP
ChargeLane M Track Radio	GLP Systems	GLP12553	ENG01-CL M
ChargeLane S Track Radio	GLP Systems	GLP12554	ENG01-CL S
Car 1	GLP Systems	GLP12677	004 9823
Car 2	GLP Systems	GLP12677	004 9119
Car 3	GLP Systems	GLP12677	004 9774
Car 4	GLP Systems	GLP12677	004 8858
AC Line Filter	GLP Systems	06Q88-01	C32A001014
Display	GLP Systems	20000140 Rev B	None

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Optiplex XE3	71HQQ72

CONFIGURATIONS



Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	Yes	1.8m	No	AC Main	AC Line Filter

Configuration ABBO0086 - 4

Software/Firmware Running during test	
Description	Version
Firmware	TrackEmvTest_cp_pp_tac_Version_0.0_46817.bin

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
PassPoint Track Radio	GLP Systems	GLP12191	ENG02-PP

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Optiplex XE3	71HQQ72
Power Strip	GLP Systems	GLP12015	None
CAN Bus	GLP Systems	None	None
24V Power Supply	GLP Systems	GLP12010	C06A001511
Power Board	GLP Systems	GLP12014	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	Yes	1.1m	No	AC Mains	AC Line Filter
Auxiliary Bus Line	Yes	1.0m	No	AC Line Filter	24V Power Supply
DC Power Cable	No	0.6m	Yes	Power Board	PassPoint

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2021-06-14	Powerline Conducted Emissions	Tested as delivered to test station.	None	EUT remained at Element following the test.
2	2021-07-24	Frequency Stability	Tested as delivered to test station.	None	EUT remained at Element following the test.
3	2021-07-29	Occupied Bandwidth	Tested as delivered to test station.	None	EUT remained at Element following the test.
4	2021-08-31	Field Strength of Fundamental	Tested as delivered to test station.	None	EUT remained at Element following the test.
5	2021-08-31	Field Strength of Spurious Emissions (Less Than 30 MHz)	Tested as delivered to test station.	None	EUT remained at Element following the test.
6	2021-09-02	Field Strength of Spurious Emissions (Greater Than 30 MHz)	Tested as delivered to test station.	None	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS



PSA-ESCI 2021.03.17.0

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

MODES OF OPERATION

Transmitting RFID 13.56 MHz

POWER SETTINGS INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0086 - 3

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Gauss	TDEMI 30M	ARL	2021-03-23	2022-03-23
Terminator	Fairview Microwave	ST3B-C	RGX	2021-06-04	2022-06-04
Cable - Conducted Cable Assembly	Northwest EMC	TXA, HFC, TQU	TXAA	2021-01-26	2022-01-26
LISN	Solar Electronics	9252-50-R-24-BNC	LJL	2020-08-25	2021-08-25
LISN	Solar Electronics	9252-50-R-24-BNC	LJK	2020-08-25	2021-08-25
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	BW (kHz)
0.15 - 30.0	1.0
30.0 - 400.0	10.0
400.0 - 1000.0	100.0
1000.0 - 6000.0	1000.0

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

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.

POWERLINE CONDUCTED EMISSIONS



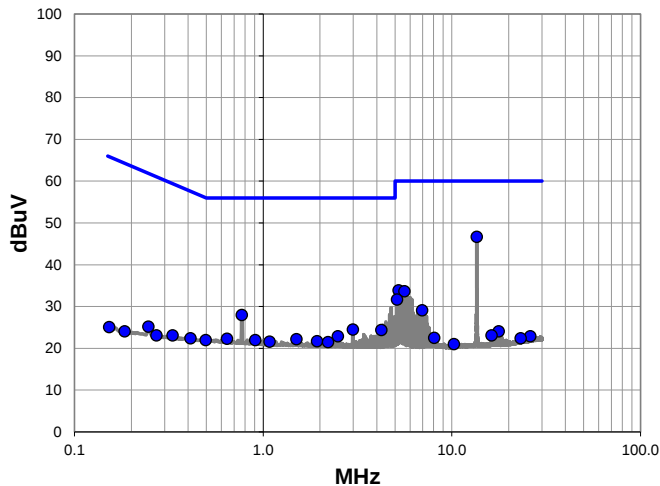
EmiR5 2021.05.14.0

PSA-ESCI 2021.03.17.0

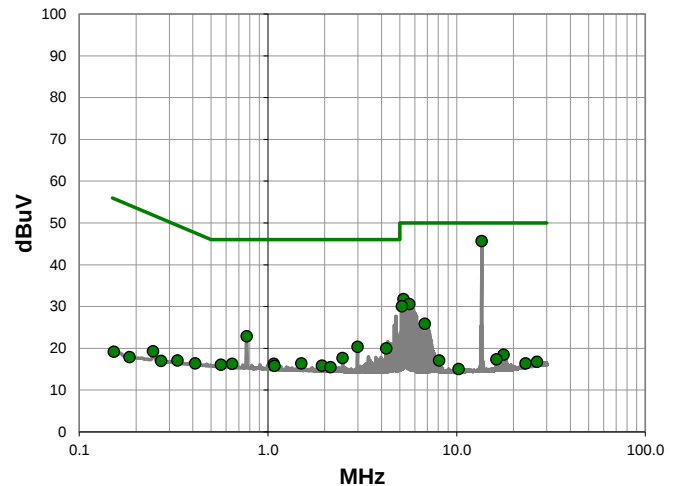
Work Order:	ABBO0086	Date:	2021-06-14	
Project:	None	Temperature:	21.2°C	
Job Site:	TX01	Humidity:	47.3% RH	
Serial Number:	ENG01-PP	Barometric Pres.:	1018 mbar	
EUT:	GLP12191 PassPoint			Tested by: Travis Glasser
Configuration:	3			
Customer:	Abbott Laboratories			
Attendees:	Don Mendell			
EUT Power:	220VAC/60Hz			
Operating Mode:	Transmitting RFID 13.56 MHz			
Deviations:	Performed testing with floor standing EUT 40cm away from VCP. Testing was also performed without a VCP with similar results.			
Comments:	PassPoint track radio. GLP12191 PassPoint within GLP12220 Input/Output Module.			

Test Specifications		Test Method	
FCC 15.207:2021		ANSI C63.10:2013	
Run #	17	Line:	High Line
Ext. Attenuation:	0	Results	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
13.560	25.6	21.1	46.7	60.0	-13.3
5.222	13.6	20.3	33.9	60.0	-26.1
5.604	13.3	20.4	33.7	60.0	-26.3
0.770	7.8	20.2	28.0	56.0	-28.0
5.121	11.4	20.3	31.7	60.0	-28.3

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
13.560	24.6	21.1	45.7	50.0	-4.3
5.222	11.5	20.3	31.8	50.0	-18.2
5.602	10.2	20.4	30.6	50.0	-19.4
5.121	9.8	20.3	30.1	50.0	-19.9
0.770	2.7	20.2	22.9	46.0	-23.1

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
6.952	8.7	20.4	29.1	60.0	-30.9
2.983	4.2	20.3	24.5	56.0	-31.5
4.231	4.1	20.3	24.4	56.0	-31.6
2.487	2.6	20.3	22.9	56.0	-33.1
0.642	2.1	20.2	22.3	56.0	-33.7
1.500	1.9	20.3	22.2	56.0	-33.8
0.908	1.7	20.3	22.0	56.0	-34.0
0.496	1.8	20.2	22.0	56.1	-34.1
1.928	1.4	20.3	21.7	56.0	-34.3
1.079	1.4	20.2	21.6	56.0	-34.4
2.205	1.2	20.3	21.5	56.0	-34.5
0.411	2.2	20.2	22.4	57.6	-35.2
17.693	2.7	21.4	24.1	60.0	-35.9
0.331	2.9	20.2	23.1	59.4	-36.3
0.246	4.8	20.4	25.2	61.9	-36.7
16.228	1.7	21.4	23.1	60.0	-36.9
26.040	0.5	22.4	22.9	60.0	-37.1
8.062	1.9	20.6	22.5	60.0	-37.5
23.129	0.5	21.9	22.4	60.0	-37.6
0.271	2.7	20.4	23.1	61.1	-38.0
10.241	0.3	20.7	21.0	60.0	-39.0
0.184	3.7	20.4	24.1	64.3	-40.2
0.152	4.7	20.4	25.1	65.9	-40.8

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
6.776	5.5	20.4	25.9	50.0	-24.1
2.983	0.1	20.3	20.4	46.0	-25.6
4.231	-0.3	20.3	20.0	46.0	-26.0
2.484	-2.6	20.3	17.7	46.0	-28.3
1.500	-3.9	20.3	16.4	46.0	-29.6
0.644	-3.9	20.2	16.3	46.0	-29.7
1.072	-3.9	20.2	16.3	46.0	-29.7
0.562	-4.1	20.2	16.1	46.0	-29.9
1.928	-4.4	20.3	15.9	46.0	-30.1
1.082	-4.4	20.2	15.8	46.0	-30.2
2.143	-4.8	20.3	15.5	46.0	-30.5
0.411	-3.8	20.2	16.4	47.6	-31.2
17.693	-2.9	21.4	18.5	50.0	-31.5
0.331	-3.1	20.2	17.1	49.4	-32.3
0.246	-1.1	20.4	19.3	51.9	-32.6
16.228	-4.0	21.4	17.4	50.0	-32.6
8.062	-3.5	20.6	17.1	50.0	-32.9
26.610	-5.6	22.4	16.8	50.0	-33.2
23.129	-5.5	21.9	16.4	50.0	-33.6
0.271	-3.4	20.4	17.0	51.1	-34.1
10.239	-5.6	20.7	15.1	50.0	-34.9
0.184	-2.5	20.4	17.9	54.3	-36.4
0.152	-1.2	20.4	19.2	55.9	-36.7

POWERLINE CONDUCTED EMISSIONS



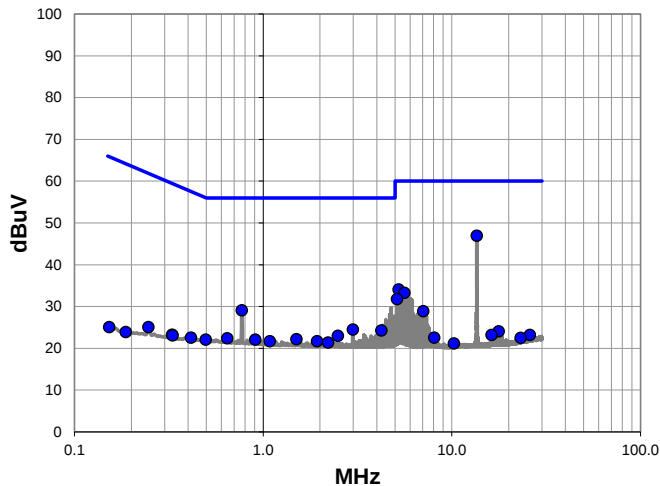
EmiR5 2021.05.14.0

PSA-ESCI 2021.03.17.0

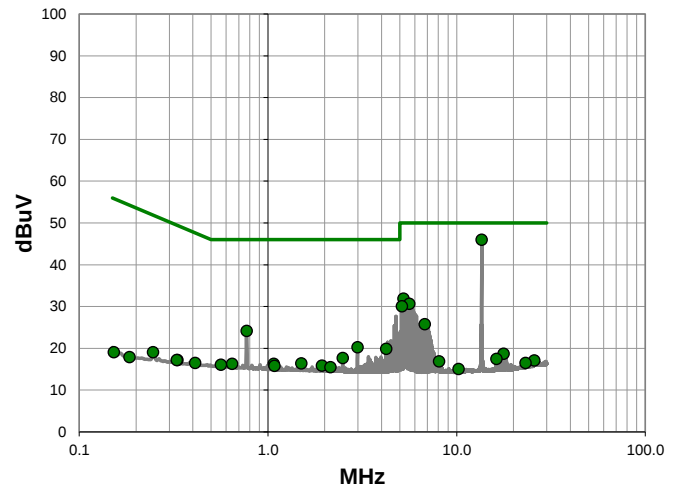
Work Order:	ABBO0086	Date:	2021-06-14	
Project:	None	Temperature:	21.2°C	
Job Site:	TX01	Humidity:	47.3% RH	
Serial Number:	ENG01-PP	Barometric Pres.:	1018 mbar	
EUT:	GLP12191 PassPoint			Tested by: Travis Glasser
Configuration:	3			
Customer:	Abbott Laboratories			
Attendees:	Don Mendell			
EUT Power:	220VAC/60Hz			
Operating Mode:	Transmitting RFID 13.56 MHz			
Deviations:	Performed testing with floor standing EUT 40cm away from VCP. Testing was also performed without a VCP with similar results.			
Comments:	PassPoint track radio. GLP12191 PassPoint within GLP12220 Input/Output Module.			

Test Specifications		Test Method	
FCC 15.207:2021		ANSI C63.10:2013	
Run #	18	Line:	Neutral
Ext. Attenuation:	0	Results	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
13.560	25.9	21.1	47.0	60.0	-13.0
5.222	13.8	20.3	34.1	60.0	-25.9
5.604	12.9	20.4	33.3	60.0	-26.7
0.770	8.9	20.2	29.1	56.0	-26.9
5.121	11.5	20.3	31.8	60.0	-28.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
13.560	24.9	21.1	46.0	50.0	-4.0
5.222	11.6	20.3	31.9	50.0	-18.1
5.602	10.3	20.4	30.7	50.0	-19.3
5.121	9.8	20.3	30.1	50.0	-19.9
0.770	4.0	20.2	24.2	46.0	-21.8

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
7.041	8.5	20.4	28.9	60.0	-31.1
2.983	4.2	20.3	24.5	56.0	-31.5
4.231	4.0	20.3	24.3	56.0	-31.7
2.487	2.7	20.3	23.0	56.0	-33.0
0.644	2.2	20.2	22.4	56.0	-33.6
1.500	1.9	20.3	22.2	56.0	-33.8
0.908	1.8	20.3	22.1	56.0	-33.9
0.496	1.9	20.2	22.1	56.1	-34.0
1.082	1.5	20.2	21.7	56.0	-34.3
1.928	1.4	20.3	21.7	56.0	-34.3
2.205	1.1	20.3	21.4	56.0	-34.6
0.413	2.4	20.2	22.6	57.6	-35.0
17.693	2.7	21.4	24.1	60.0	-35.9
0.329	3.1	20.2	23.3	59.5	-36.2
0.331	2.9	20.2	23.1	59.4	-36.3
0.246	4.7	20.4	25.1	61.9	-36.8
16.228	1.8	21.4	23.2	60.0	-36.8
25.907	0.9	22.3	23.2	60.0	-36.8
8.060	2.0	20.6	22.6	60.0	-37.4
23.129	0.6	21.9	22.5	60.0	-37.5
10.241	0.5	20.7	21.2	60.0	-38.8
0.187	3.5	20.4	23.9	64.2	-40.3
0.152	4.7	20.4	25.1	65.9	-40.8

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
6.776	5.4	20.4	25.8	50.0	-24.2
2.983	0.0	20.3	20.3	46.0	-25.7
4.231	-0.4	20.3	19.9	46.0	-26.1
2.487	-2.6	20.3	17.7	46.0	-28.3
1.500	-3.9	20.3	16.4	46.0	-29.6
0.644	-3.9	20.2	16.3	46.0	-29.7
1.072	-3.9	20.2	16.3	46.0	-29.7
0.562	-4.1	20.2	16.1	46.0	-29.9
1.928	-4.4	20.3	15.9	46.0	-30.1
1.082	-4.4	20.2	15.8	46.0	-30.2
2.143	-4.8	20.3	15.5	46.0	-30.5
0.411	-3.7	20.2	16.5	47.6	-31.1
17.693	-2.7	21.4	18.7	50.0	-31.3
0.331	-3.0	20.2	17.2	49.4	-32.2
0.329	-3.0	20.2	17.2	49.5	-32.3
16.228	-3.9	21.4	17.5	50.0	-32.5
0.246	-1.3	20.4	19.1	51.9	-32.8
25.765	-5.2	22.3	17.1	50.0	-32.9
8.060	-3.7	20.6	16.9	50.0	-33.1
23.129	-5.4	21.9	16.5	50.0	-33.5
10.239	-5.6	20.7	15.1	50.0	-34.9
0.184	-2.5	20.4	17.9	54.3	-36.4
0.152	-1.3	20.4	19.1	55.9	-36.8

FIELD STRENGTH OF FUNDAMENTAL

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

MODES OF OPERATION

Transmitting RFID 13.56 MHz

POWER SETTINGS INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0086 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	490 kHz	Stop Frequency	30 MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11
Antenna - Loop	ETS Lindgren	6502	AZM	2020-07-09	2022-07-09
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2021-05-24	2022-05-24

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
 PK = Peak Detector
 AV = RMS Detector

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

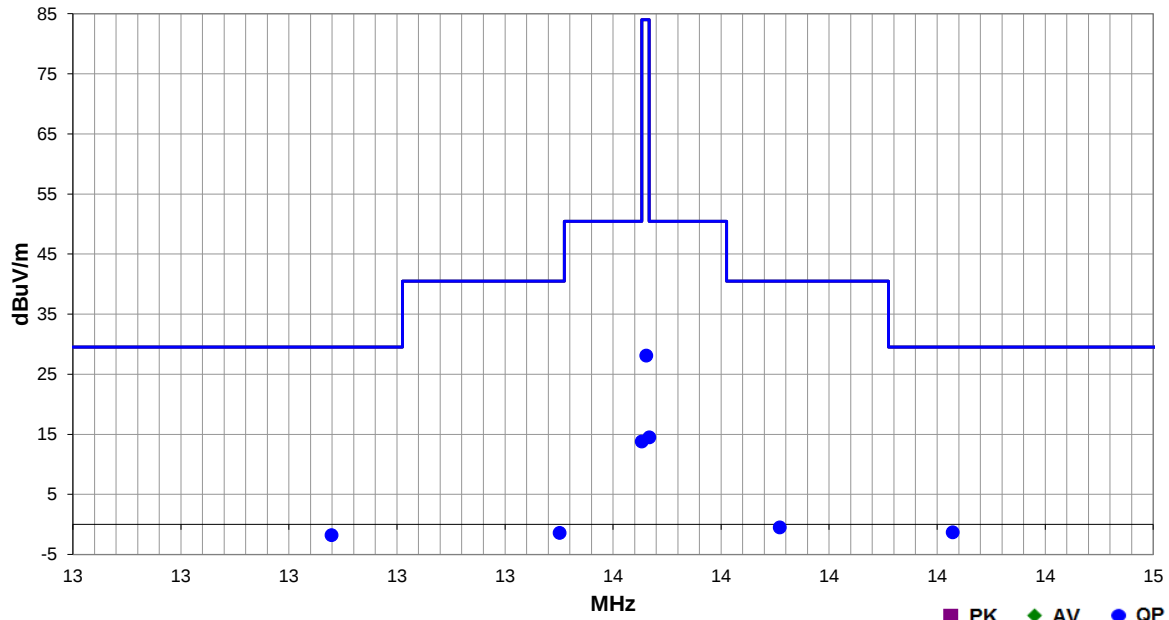
FIELD STRENGTH OF FUNDAMENTAL



Work Order:	ABBO0086	Date:	2021-08-31	
Project:	None	Temperature:	24.8 °C	
Job Site:	TX02	Humidity:	49.6% RH	
Serial Number:	ENG02-PP	Barometric Pres.:	1010 mbar	
EUT:	GLP12191 PassPoint			
Configuration:	4			
Customer:	Abbott Laboratories			
Attendees:	Don Mendell			
EUT Power:	220VAC/60Hz			
Operating Mode:	Transmitting RFID 13.56 MHz			
Deviations:	None			
Comments:	Emissions were greater than 20 dB below the limit.			

Test Specifications	Test Method
FCC 15.225:2021	ANSI C63.10:2013

Run #	1	Test Distance (m)	10	Antenna Height(s)	1(m)	Results	Pass
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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)
14.129	6.2	11.6	1.0	349.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.3	29.5	-30.8
12.979	5.7	11.6	1.0	129.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.8	29.5	-31.3
13.567	22.0	11.6	1.0	262.9	10.0	0.0	Perp to EUT	QP	-19.1	14.5	50.5	-36.0
13.553	21.3	11.6	1.0	292.9	10.0	0.0	Perp to EUT	QP	-19.1	13.8	50.5	-36.7
13.809	7.0	11.6	1.0	176.0	10.0	0.0	Perp to EUT	QP	-19.1	-0.5	40.5	-41.0
13.401	6.1	11.6	1.0	356.0	10.0	0.0	Perp to EUT	QP	-19.1	-1.4	40.5	-41.9
13.562	35.6	11.6	1.0	271.0	10.0	0.0	Perp to EUT	QP	-19.1	28.1	84.0	-55.9

FIELD STRENGTH OF SPURIOUS EMISSIONS (Less Than 30 MHz)



PSA-ESCI 2021.03.17.0

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

MODES OF OPERATION

Transmitting RFID 13.56 MHz

POWER SETTINGS INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0086 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	490 kHz	Stop Frequency	30 MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11
Antenna - Loop	ETS Lindgren	6502	AZM	2020-07-09	2022-07-09
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2021-05-24	2022-05-24

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, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.

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

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

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

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

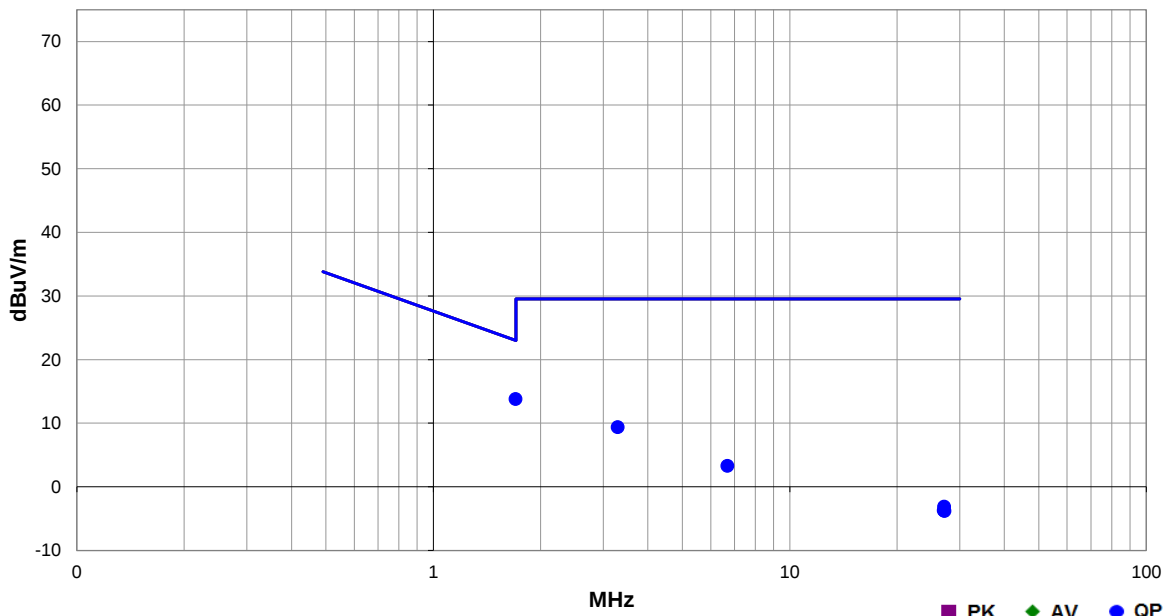
FIELD STRENGTH OF SPURIOUS EMISSIONS (Less Than 30 MHz)



Work Order:	ABBO0086	Date:	2021-08-31		
Project:	None	Temperature:	24.8 °C		
Job Site:	TX02	Humidity:	49.6% RH		
Serial Number:	ENG02-PP	Barometric Pres.:	1010 mbar	Tested by:	Jarrod Brenden
EUT:	GLP12191 PassPoint				
Configuration:	4				
Customer:	Abbott Laboratories				
Attendees:	Don Mendell				
EUT Power:	220VAC/60Hz				
Operating Mode:	Transmitting RFID 13.56 MHz				
Deviations:	None				
Comments:	None				

Test Specifications	Test Method
FCC 15.225:2021	ANSI C63.10:2013

Run #	2	Test Distance (m)	10	Antenna Height(s)	1(m)	Results	Pass
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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)
1.701	21.4	11.5	1.0	225.0	10.0	0.0	Perp to EUT	QP	-19.1	13.8	23.0	-9.2
3.290	16.9	11.6	1.0	272.0	10.0	0.0	Perp to EUT	QP	-19.1	9.4	29.5	-20.1
6.683	10.8	11.6	1.0	172.9	10.0	0.0	Perp to EUT	QP	-19.1	3.3	29.5	-26.2
27.115	6.0	10.0	1.0	188.0	10.0	0.0	Perp to EUT	QP	-19.1	-3.1	29.5	-32.6
27.035	5.4	10.0	1.0	90.0	10.0	0.0	Para to GND	QP	-19.1	-3.7	29.5	-33.2
27.177	5.3	10.0	1.0	110.0	10.0	0.0	Para to EUT	QP	-19.1	-3.8	29.5	-33.3

FIELD STRENGTH OF SPURIOUS EMISSIONS (Greater than 30 MHz)



PSA-ESCI 2021.03.17.0

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

MODES OF OPERATION

Transmitting RFID 13.56 MHz

POWER SETTINGS INVESTIGATED

220VAC/60Hz

CONFIGURATIONS INVESTIGATED

ABBO0086 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	18000 MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2021-05-24	2022-05-24
Cable	Northwest EMC	1-8.2 GHz	TXC	2021-05-24	2022-05-24
Cable	Northwest EMC	8-18 GHz	TXD	2021-04-30	2022-04-30
Amplifier - Pre-Amplifier	Fairview Microwave	FMAM63001	PAS	2021-05-24	2022-05-24
Amplifier - Pre-Amplifier	Miteq	AMF-3D-	PAJ	2021-05-24	2022-05-24
Amplifier - Pre-Amplifier	Miteq	AMF-6F-	PAL	2020-09-17	2021-09-17
Amplifier - Pre-Amplifier	Cernex	FMAM63001	PAX	2021-02-23	2022-02-23
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	2021-07-27	2022-07-27
Antenna - Biconilog	ETS Lindgren	3143B	AYF	2020-06-25	2022-06-25
Antenna - Standard Gain	ETS Lindgren	3160-07	AJF	NCR	NCR
Antenna - Standard Gain	ETS Lindgren	3160-08	AJG	NCR	NCR
Antenna - Double Ridge	ETS Lindgren	3115	AJL	2020-10-20	2021-10-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2020-07-30	2021-07-30

TEST DESCRIPTION

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

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

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

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

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

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

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

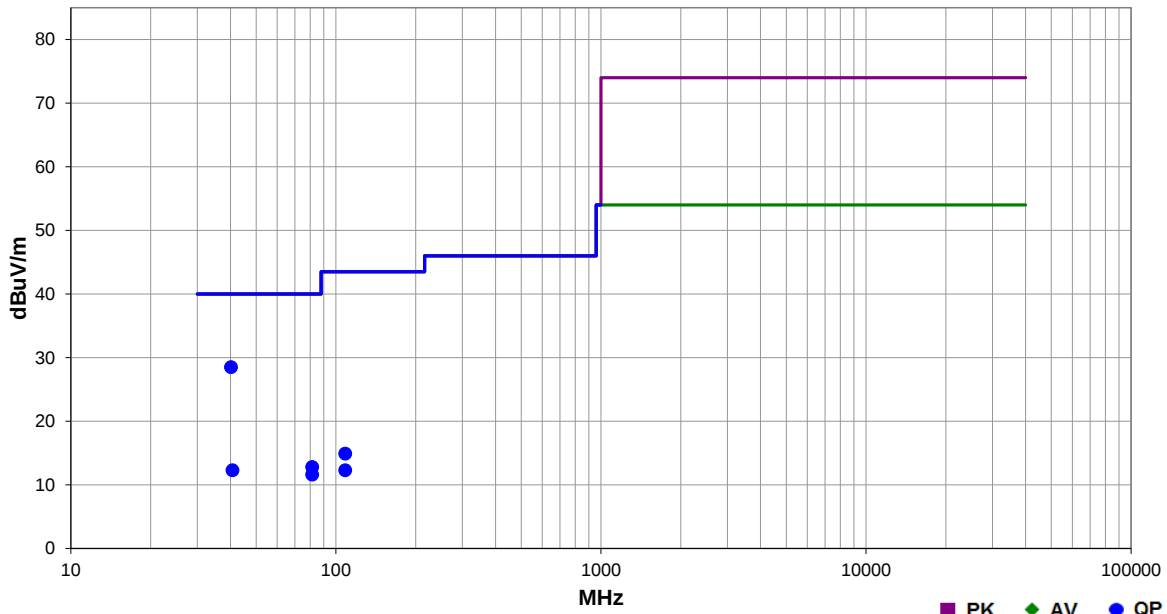
FIELD STRENGTH OF SPURIOUS EMISSIONS (Greater than 30 MHz)



Work Order:	ABBO0086	Date:	2021-09-02	
Project:	None	Temperature:	20.7 °C	
Job Site:	TX02	Humidity:	60.4% RH	
Serial Number:	ENG02-PP	Barometric Pres.:	1016 mbar	Tested by: Jarrod Brenden
EUT:	GLP12191 PassPoint			
Configuration:	4			
Customer:	Abbott Laboratories			
Attendees:	Don Mendell			
EUT Power:	220VAC/60Hz			
Operating Mode:	Transmitting RFID 13.56 MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.225:2021	ANSI C63.10:2013

Run #	4	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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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)
40.185	51.5	-23.0	1.0	348.0	3.0	0.0	Vert	QP	0.0	28.5	40.0	-11.5
81.378	38.2	-25.4	3.72	186.0	3.0	0.0	Horz	QP	0.0	12.8	40.0	-27.2
40.695	35.5	-23.2	2.93	50.0	3.0	0.0	Horz	QP	0.0	12.3	40.0	-27.7
81.385	37.0	-25.4	3.33	295.0	3.0	0.0	Vert	QP	0.0	11.6	40.0	-28.4
108.487	39.1	-24.2	1.0	236.0	3.0	0.0	Vert	QP	0.0	14.9	43.5	-28.6
108.492	36.5	-24.2	3.17	50.0	3.0	0.0	Horz	QP	0.0	12.3	43.5	-31.2

FREQUENCY STABILITY



XMH 2020.12.30.0

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
Meter - Multimeter	Fluke	77-IV	MLT	2020-10-15	2023-10-15
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR
Transformer	Staco Energy Products Co.	3PN2520B	XFZ	NCR	NCR
Thermometer	Omega Engineering, Inc.	HH311	DUI	2021-02-02	2024-02-02
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2020-09-22	2021-09-22
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2021-01-06	2022-01-06

TEST DESCRIPTION

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

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

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

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

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

FREQUENCY STABILITY



TMTx 2021.03.19.1 XMR 2020.12.30.0

EUT: GLP12191 PassPoint		Work Order: ABBO0086	
Serial Number: ENG02-PP		Date: 24-Jul-21	
Customer: Abbott Laboratories		Temperature: 25.1 °C	
Attendees: Don Mendell		Humidity: 48.4% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Mark Baytan		Power: 220VAC/60Hz	
TEST SPECIFICATIONS		Job Site: TX05	
FCC 15.225:2021		Test Method	
		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Measured Value (MHz)	Nominal Value (MHz)
		Error (ppm)	Limit (ppm)
			Results
Normal Voltage			
	Mid Channel, 13.56 MHz	13.56009967	13.56009967
		0	100
			Pass
Extreme Voltage +15%			
	Mid Channel, 13.56 MHz	13.56009967	13.56009967
		0	100
			Pass
Extreme Voltage -15%			
	Mid Channel, 13.56 MHz	13.5601	13.56009967
		0	100
			Pass
Extreme Temperature +50°C			
	Mid Channel, 13.56 MHz	13.560083	13.56009967
		1.2	100
			Pass
Extreme Temperature +40°C			
	Mid Channel, 13.56 MHz	13.56008267	13.56009967
		1.3	100
			Pass
Extreme Temperature +30°C			
	Mid Channel, 13.56 MHz	13.56009933	13.56009967
		0	100
			Pass
Extreme Temperature +20°C			
	Mid Channel, 13.56 MHz	13.56009967	13.56009967
		0	100
			Pass
Extreme Temperature +10°C			
	Mid Channel, 13.56 MHz	13.560133	13.56009967
		2.5	100
			Pass
Extreme Temperature 0°C			
	Mid Channel, 13.56 MHz	13.560133	13.56009967
		2.5	100
			Pass
Extreme Temperature -10°C			
	Mid Channel, 13.56 MHz	13.560133	13.56009967
		2.5	100
			Pass
Extreme Temperature -20°C			
	Mid Channel, 13.56 MHz	13.56009933	13.56009967
		0	100
			Pass

ThyTx 2021.02.19.1 YMit 2020.12.30.4

Keysight Spectrum Analyzer - Element Materials Technology

05:42:57 PM Jul 23, 2021

RL RF 50 Ω DC SENSE:INT ALIGN AUTO #Avg Type: Voltage

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

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

5 dB/div Ref -13.00 dBm
Log

Mkr1 13.560 100 MHz
-17.73 dBm

Center 13.560333 MHz
#Res BW 1.0 kHz
#VBW 3.0 kHz
Span 10.00 pts
Sweep 9.560 ms (601 pts)

MSG STATUS

The screenshot displays a spectrum analyzer interface with a black background. A yellow trace shows a single peak at 13.560333 MHz. The peak is marked with a green diamond and the number '1'. The vertical axis is labeled '5 dB/div' and 'Log', with a reference level of 'Ref -13.00 dBm'. The horizontal axis is labeled 'Center 13.560333 MHz', '#Res BW 1.0 kHz', '#VBW 3.0 kHz', 'Span 10.00 pts', and 'Sweep 9.560 ms (601 pts)'. The top of the screen shows the device name 'Keysight Spectrum Analyzer - Element Materials Technology' and the time '05:42:57 PM Jul 23, 2021'. The bottom of the screen has a status bar with 'MSG' and 'STATUS' indicators.

Keysight Spectrum Analyzer - Element Materials Technology

05:44:39 PM Jul 23, 2021

RF 50 Ω DC SENSE:INT ALIGN AUTO #Avg Type: Voltage

PNO: Close IF Gain: Low Trig: Free Run #Atten: 10 dB

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

5 dB/div Log Ref -13.00 dBm

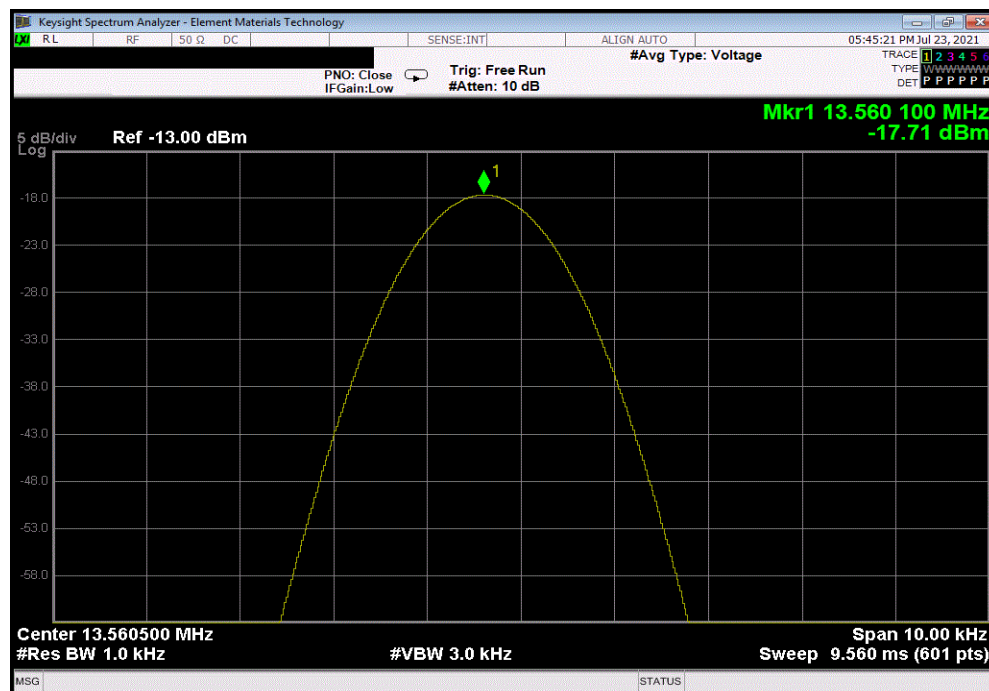
Mkr1 13.560 100 MHz
-17.71 dBm

The plot shows a single, symmetric peak centered at 13.560 MHz. The peak is marked with a green diamond and the number '1'. The vertical axis represents power in dBm, ranging from -58.0 to -13.0. The horizontal axis represents frequency in MHz, ranging from 13.550 to 13.570. The peak height is approximately -17.71 dBm. The plot is labeled with '5 dB/div Log' and 'Ref -13.00 dBm'. The center frequency is 13.560333 MHz, the resolution bandwidth is 3.0 kHz, the span is 10.00 kHz, and the sweep time is 9.560 ms (601 pts).

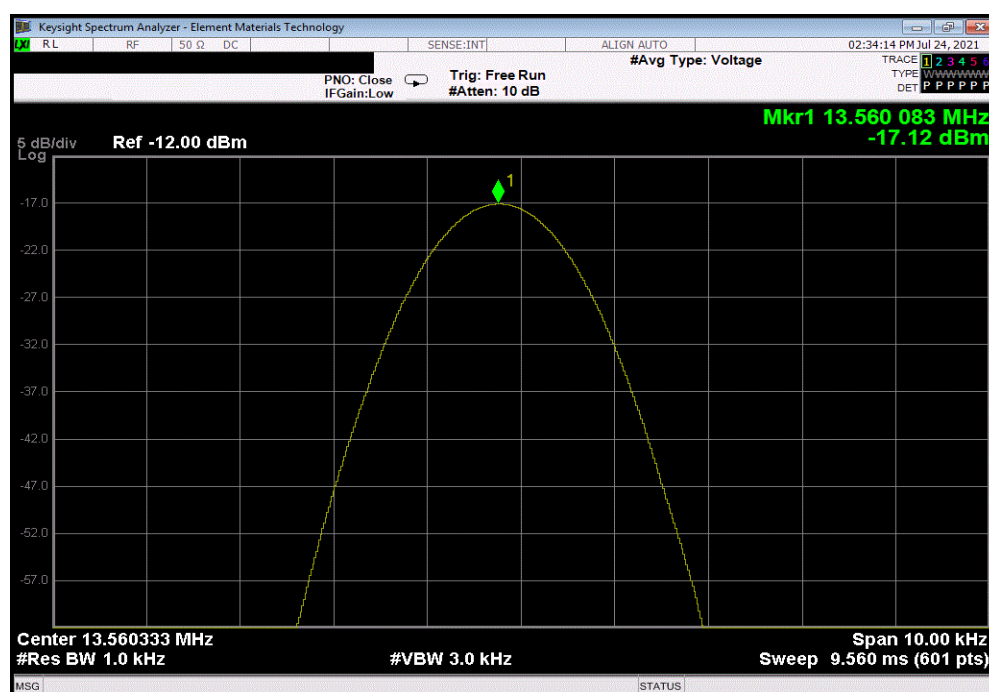
Center 13.560333 MHz
#Res BW 1.0 kHz #VBW 3.0 kHz Span 10.00 kHz
Sweep 9.560 ms (601 pts)

ThyTx 2021.02.19.1 YMit 2020.12.30.4

Extreme Voltage -15%, Mid Channel, 13.56 MHz						
Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results		
13.5601	13.56009967	0	100	Pass		



Extreme Temperature +50°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13 560083	13 5600967	1 2	100	Pass

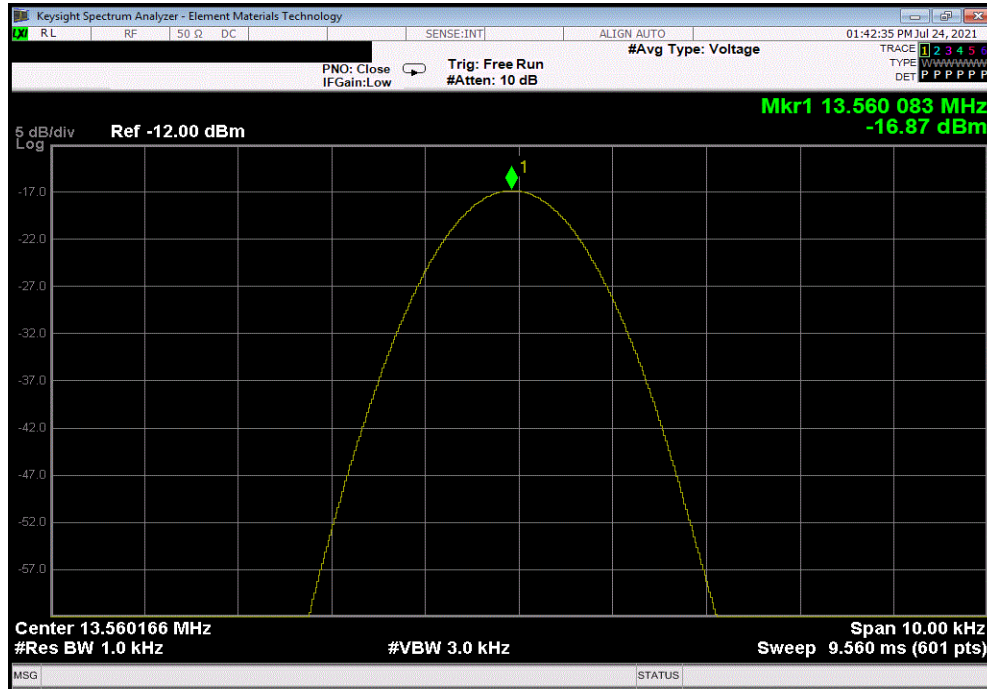


FREQUENCY STABILITY

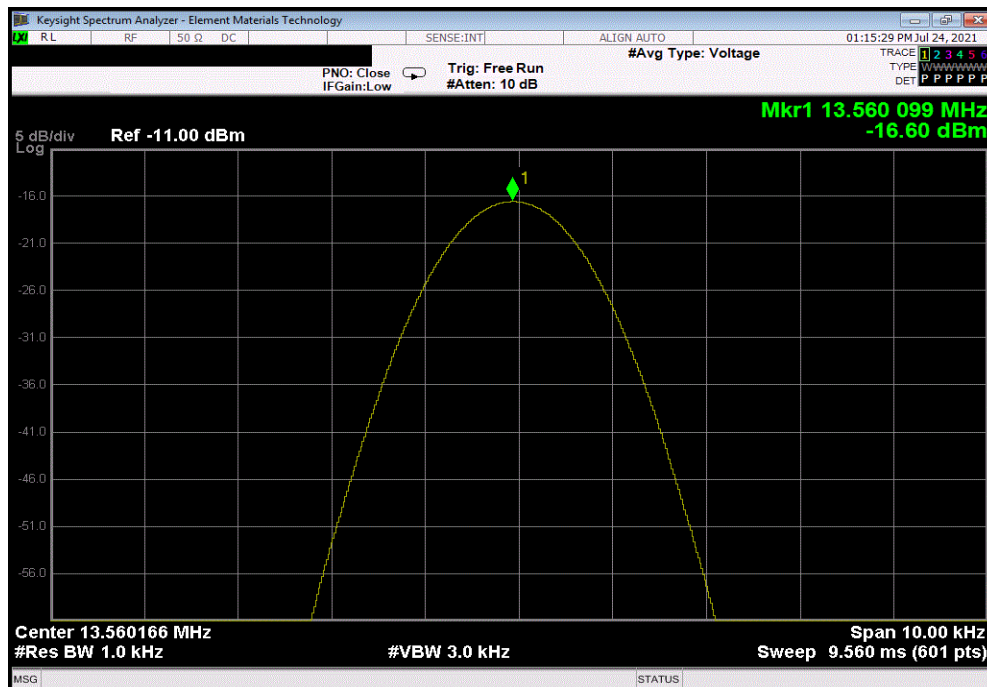


TbTtX 2021.03.19.1 XMt 2020.12.30.0

Extreme Temperature +40°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.56008267	13.56009967	1.3	100	Pass



Extreme Temperature +30°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.56009933	13.56009967	0	100	Pass

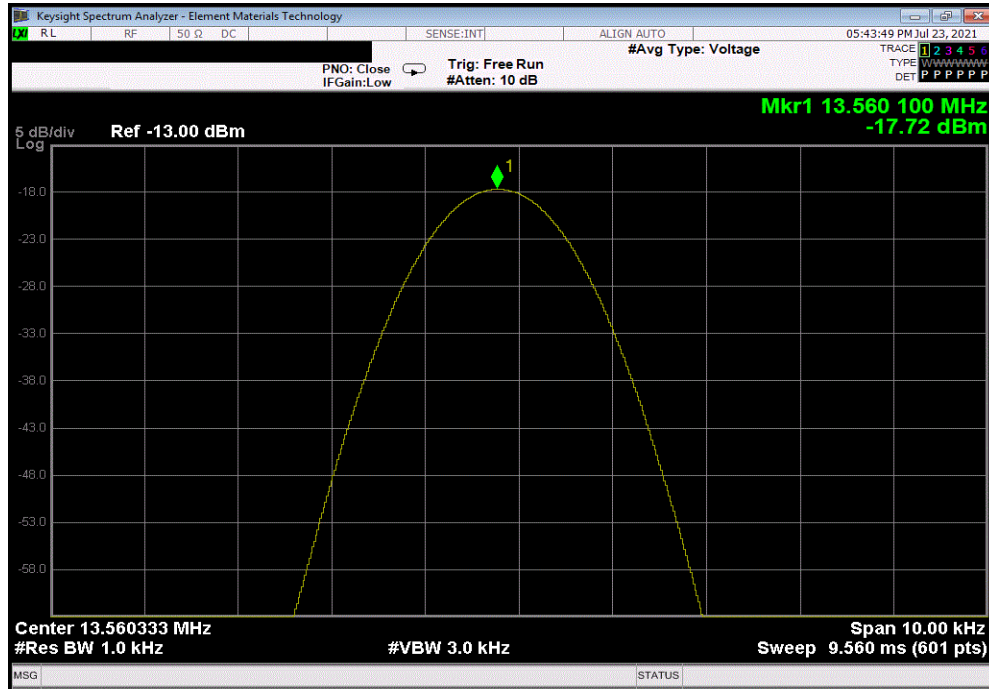


FREQUENCY STABILITY

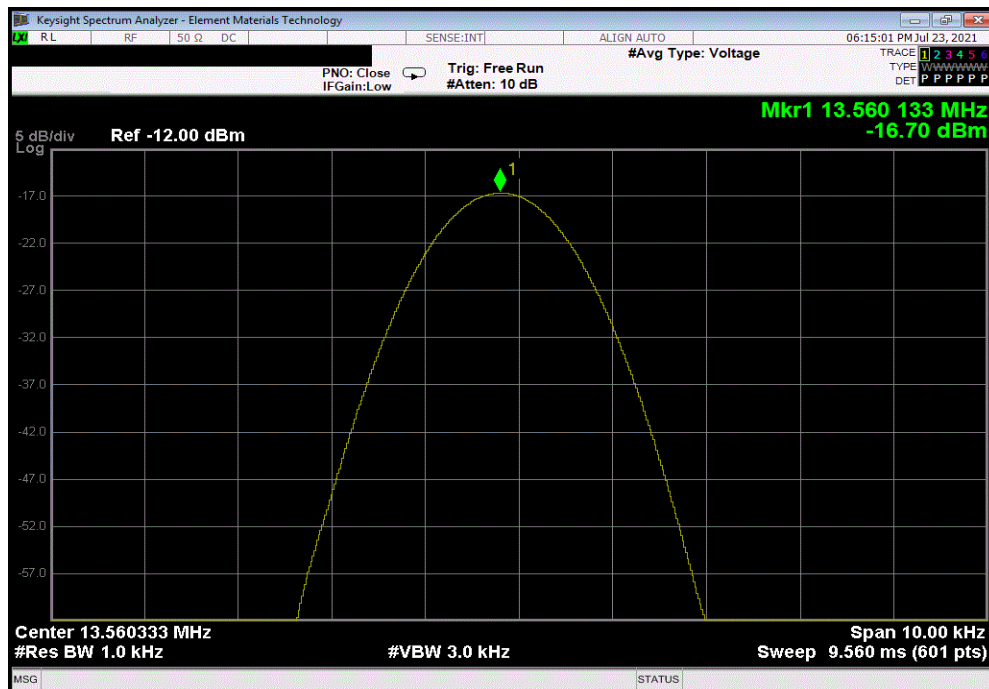


TbTx 2021.03.19.1 XMt 2020.12.30.0

Extreme Temperature +20°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.56009967	13.56009967	0	100	Pass



Extreme Temperature +10°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.560133	13.56009967	2.5	100	Pass

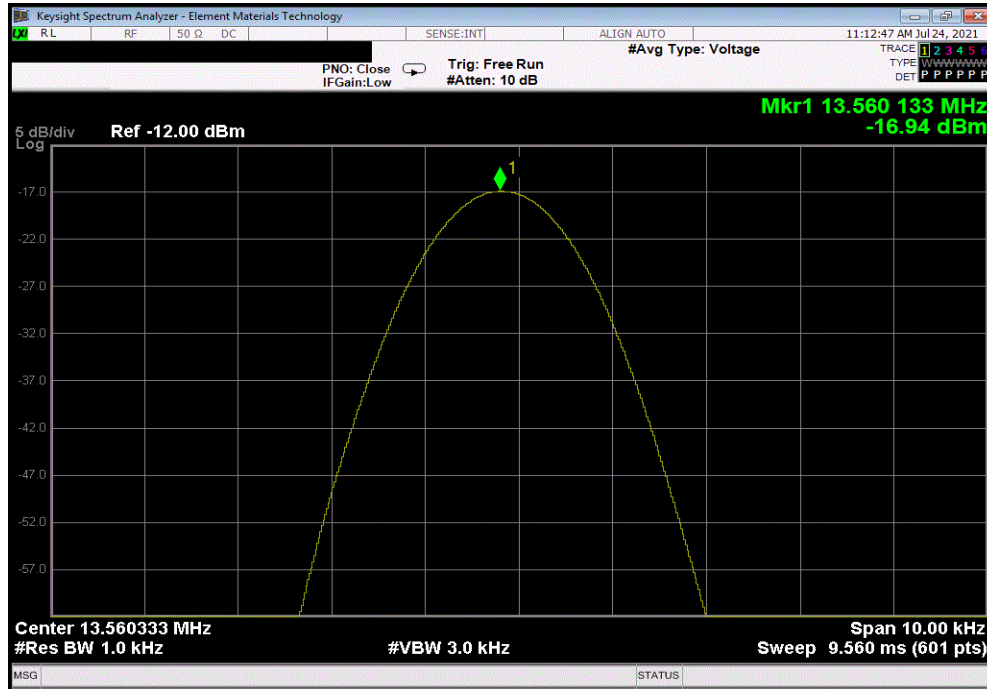


FREQUENCY STABILITY

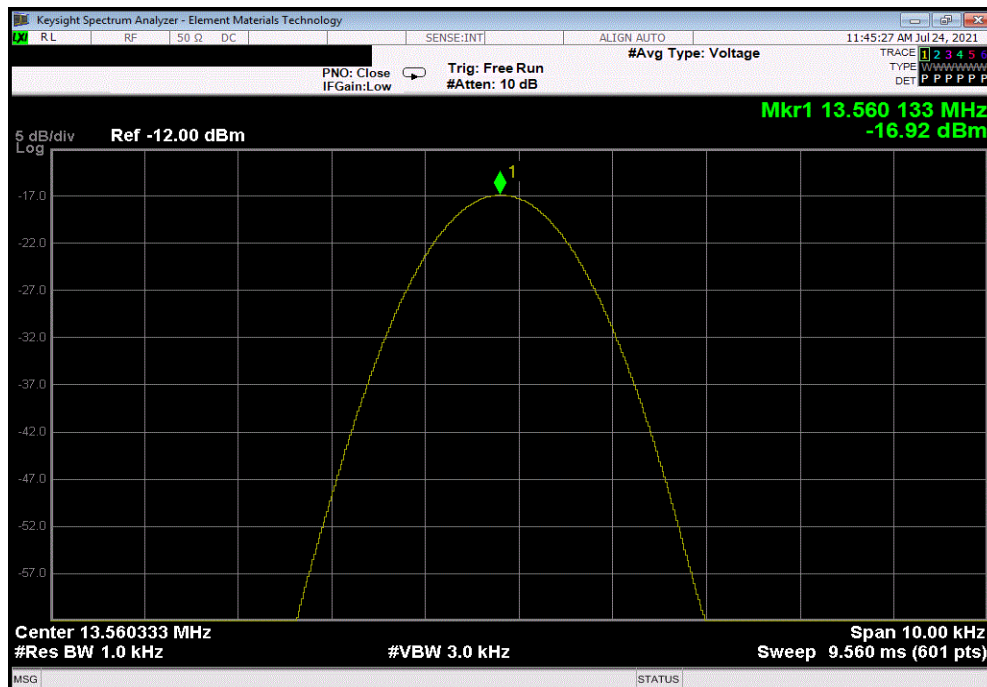


TbTtx 2021.03.19.1 XMt 2020.12.30.0

Extreme Temperature 0°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.560133	13.56009967	2.5	100	Pass



Extreme Temperature -10°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.560133	13.56009967	2.5	100	Pass

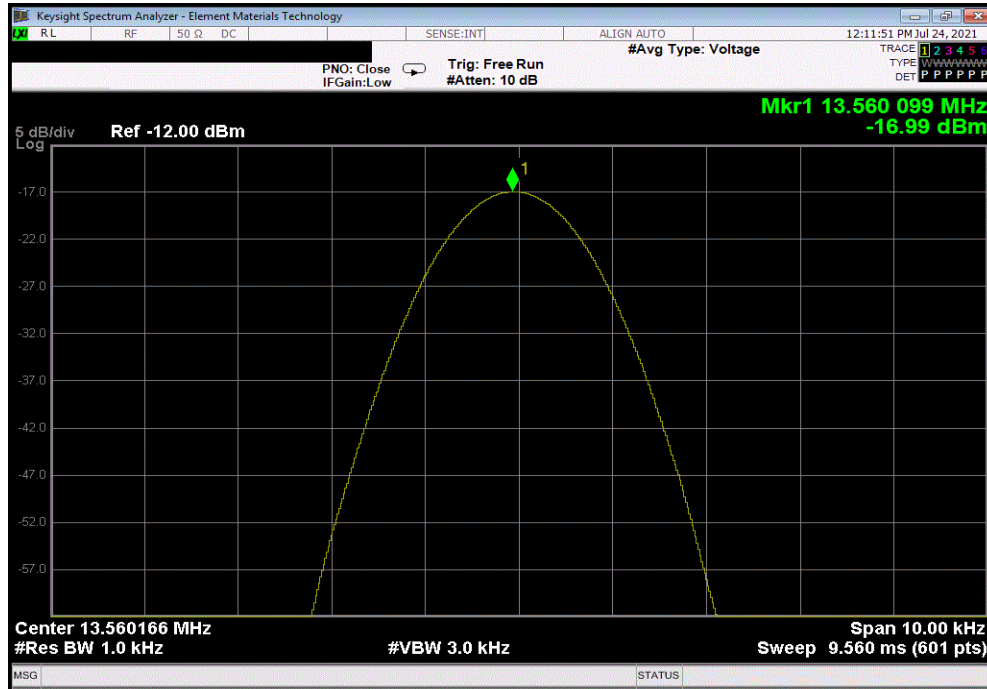


FREQUENCY STABILITY



TbTx 2021.03.19.1 XMt 2020.12.30.0

Extreme Temperature -20°C, Mid Channel, 13.56 MHz					
	Measured Value (MHz)	Nominal Value (MHz)	Error (ppm)	Limit (ppm)	Results
	13.56009933	13.56009967	0	100	Pass



OCCUPIED BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2020-09-22	2021-09-22
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2021-01-06	2022-01-06

TEST DESCRIPTION

As defined in FCC 15.215 Part (c), intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise 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 operating.

The 20 dB bandwidth must be contained within the band 13.110-14.010 MHz.

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

The 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 sample detector was used unless the device was not able to be operated in a continuous transmit mode, in which case a peak detector was used.

The spectrum analyzer occupied bandwidth measurement function was used to find the emissions bandwidth.

OCCUPIED BANDWIDTH



TestX 2021.03.19.1 XMI 2020.12.30.0

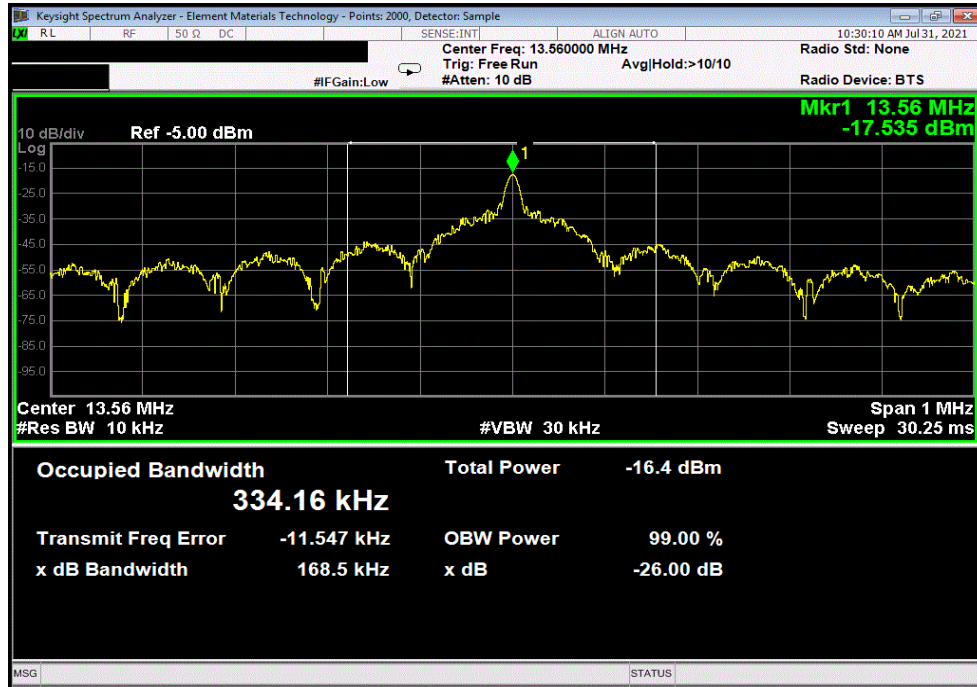
EUT: GLP12191 PassPoint		Work Order: ABBO0086	
Serial Number: ENG02-PP		Date: 29-Jul-21	
Customer: Abbott Laboratories		Temperature: 21 °C	
Attendees: Don Mendell		Humidity: 58% RH	
Project: None		Barometric Pres.: 1021 mbar	
Tested by: Mark Baytan		Job Site: TX02	
Power: 220VAC/60Hz			
TEST SPECIFICATIONS		Test Method	
FCC 15.225:2021		ANSI C63.10:2013	
COMMENTS			
Emissions bandwidth taken with a 26 dB bandwidth. This is worst case as compared with the 20 dB bandwidth called out in FCC 15.215.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature	
		Value	Limit
Normal Voltage		13.110 MHz $\geq$ BW $\leq$ 14.010 MHz	Result
Mid Channel, 13.56 MHz		168.5 kHz	Within Pass

OCCUPIED BANDWIDTH



TSTv 2021.03.19.1 XMII 2020.12.30.0

Normal Voltage, Mid Channel, 13.56 MHz						
				Value	Limit	Result
				168.5 kHz	13.110 MHz $\geq$ BW $\leq$ 14.010 MHz Within	Pass



End of Test Report