



SHURE

ELECTROMAGNETIC COMPATIBILITY LABORATORY

TEST REPORT

TEST REPORT TITLE: Electromagnetic Compatibility Tests of the Shure P9T Wireless Personal Monitor Transmitter in the H21 Band (542MHz to 578MHz)

TEST ITEM DESCRIPTION:

The Shure P9T is a wireless Personal Monitor transmitter.

For: Shure Incorporated
5800 West Touhy Avenue
Niles, IL 60714

Project ID Number: RFTM183 P9T H21 FCC74H

Date Tested: January 13 thru March 5, 2021

Test Personnel: Frank Salmeron, Sharjeel Sohail

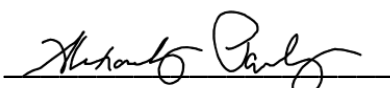
Test Specification:

FCC Part 74, Subpart H – Low Power Auxiliary Stations
IC RSS-GEN – General Requirements and Information for the Certification of Radio Apparatus
IC RSS-210 - License-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

TEST REPORT BY: Craig Kozokar

Global Compliance Engineer

March 9, 2021

APPROVED BY: 
Signature

Manager, Compliance Lab
Position

March 9, 2021
Date

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LIST OF APPENDICIES

APPENDIX	TEST DESCRIPTION
A	Operating Bandwidth, 99% bandwidth
B	Spurious Emissions
C	Maximum Rated Power
D	Frequency Tolerance



REPORT REVISION HISTORY

Revision	Date	Description
0	March 9, 2021	Initial release

1. INTRODUCTION

1.1. Scope of Tests

This report presents the results of testing per FCC Part 74H, Section 74.861(e)(1)(ii), Section 74.861(e)(4), Section 74.861(e)(5), Section 74.861(e)(7), RSS-Gen, and RSS-210. The following data was taken following the measurement method as described in the document section(s) listed on page 1 of this document. Provided is the data for the test sample. Also included is a summary of the measurements made and a description of the measurement setup. The test samples meet the requirements of the above standards. The equipment under test (EUT) contained a transmitter that was designed to transmit in the UHF TV frequency bands shown in Table 1.

Model	Band	Frequency (MHz)	Output Power (mW)
P9T	H21	542 to 578	10, 50, 100

Table 1. EUT Frequencies and Power Levels

1.2. Purpose

This series of testing was performed to determine if the test item would meet the requirements of FCC Part 74H, Section 74.861(e)(1)(ii), Section 74.861(e)(4), Section 74.861(e)(5), Section 74.861(e)(7), RSS-Gen, and RSS-210.

1.3 Deviations, Additions and Exclusions

None

1.4 EMC Laboratory Identification

The electromagnetic compatibility tests were performed at the Shure Electromagnetic Laboratory, Shure Incorporated, 5800 West Touhy Ave, Niles, Illinois 60714-4608. This laboratory is registered with Industry Canada as Site # 616A-1. The Shure Electromagnetic Laboratory is accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP).

The NVLAP Lab Code is: 200946-0.

1.5 Summary of Tests Performed

The following electromagnetic compatibility tests (Table 2) were performed on the test item in accordance with ETSI specifications.

Table 2. Summary of tests performed

FCC Part 74H Test Spec	Description	EUT Firmware	Tested Frequency in MHz	Appendix	Test Results
74.861(e)(5), RSS-Gen 6.7	Operation Bandwidth, 99% Emissions Bandwidth	1.2.2	542.000, 560.000, 578.000	A	Pass
74.861(e)(7)	Spurious Emissions	1.2.2	542.000, 560.000, 578.000	B	Pass
74.861(e)(1)(ii)	Maximum Rated Power	1.2.2	542.000, 560.000, 578.000	C	Pass
74.861(e)(4)	Frequency Tolerance	1.2.2	542.000, 560.000, 578.000	D	Pass

2 APPLICABLE DOCUMENTS

The following documents of the exact issue designated form part of this document to the extent specified herein:

FCC Part 74H, Section 74.861(e)(1)(ii)

FCC Part 74H, Section 74.861(e)(4)

FCC Part 74H, Section 74.861(e)(5)

FCC Part 74H, Section 74.861(e)(7)

FCC Title 47, Chapter I, Subchapter A, Part 2 – Frequency Allocations and Radio Treaty Matters, General Rules and Regulations, Subpart J – Equipment Authorization Procedures

EN 300 422-1 V1.4.2 (2011-08), “Electromagnetic compatibility and Radio spectrum Matters (ERMM); Wireless Microphones in the 25 MHz to 3 GHz frequency range; Part 1: technical characteristics and methods of measurement”

RSS-Gen Issue 5, “General Requirements for Compliance of Radio Apparatus”

RSS-210 Issue 9, “Licence-Exempt Radio Apparatus: Category I Equipment”

3 EUT SET-UP AND OPERATION

3.1. General Description

The test sample used was a Shure P9T wireless personal monitor transmitter. The EUT was arranged and tested per individual Appendices.

3.2 Test Sample

The following product sample was tested:

Table 3: Shure P9T Sample

Band	Serial Numbers
H21	Test Unit # 1

3.3 Operational Mode

The transmit frequency and output power modes shown in the individual appendices.

4. Test Instrumentation

A list of the test equipment used can be found in Table 10-1. All equipment used was within calibration during and throughout the duration of the tests. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

5. Procedure

The specific test procedures are presented in the individual appendices.

6. Other Test Conditions:

6.1. Test Personnel

All EMC tests were performed by qualified personnel from the Shure EMC Laboratory.

6.2. Disposition of the EUT

The EUTs and all associated equipment were returned to Shure Incorporated upon completion of the tests.

7. Results of Tests:

The results are presented in Appendices. It was found that the EUT meets the requirements of FCC Part 74H, Section 74.861(e)(1)(ii), Section 74.861(e)(4), Section 74.861(e)(5), Section 74.861(e)(7), RSS-Gen, and RSS-210.



8. Conclusions:

It was determined that the Shure ULXD1 Digital Wireless Microphone Transmitter did fully comply with the requirements of FCC Part 74H, Section 74.861(e)(1)(ii), Section 74.861(e)(4), Section 74.861(e)(5), RSS-Gen, and RSS-210.

9. Certification:

Shure EMC Laboratory certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specifications.

The data presented in this test report pertains to the EUTs at the test date. Any electrical or mechanical modification made to the EUTs subsequent to the specified test date will serve to invalidate the data and void this certification.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

10. Equipment List

Table 10-1 Test Equipment

L# or ID	Description	Manufacturer	Model #	Serial #	Frequency Range	Cal Date	Due Date
L23-011-01	3 meter RF Chamber	ETS Lindgren	FACT-3	AJ640	25MHz - 18GHz	12/31/2020	12/31/2021
L23-011-02	Electric Powered Turntable	ETS Lindgren	2088	N/A	N/A	N/A	N/A
L23-011-08	Controller	EMCO	2090	29799	N/A	N/A	N/A
L23-011-09	Antenna Positioner	ETS Lindgren	2071-2	35500	N/A	N/A	N/A
L23-011-15	BiConiLog Antenna	ETS Lindgren	3142C	34790	25MHz-1GHz	7/16/2019	7/16/2021
L23-011-54	EMI Test Receiver	Rohde & Schwarz	ESR26	100220	9kHz-26GHz	11/18/2019	11/18/2021
L23-011-31	EMI/EMS Test Software	Rohde & Schwarz	EMC32	V 9.21.00	N/A	N/A	N/A
L23-011-53	Horn antenna with pre-amplifier	ETS Lindgren	3117-PA	200363	1GHz to 18 GHz	9/17/2019	9/17/2021
L23-011-41	Horn Antenna	ETS Lindgren	3117	123511	1GHz to 18 GHz	1/23/2019	1/23/2021
L23-011-56	High Pass Filter	K&L	11SH10-940/X10000-0/0	2	940MHz – 10GHz	3/3/2020	3/3/2022
L23-022-02	Spectrum Analyzer	Rohde & Schwarz	FSW26	103788	9kHz-26GHz	3/4/2020	3/4/2022
L23-022-01	Spectrum Analyzer	Rohde & Schwarz	FSU26	201043	9kHz-26GHz	8/14/2019	8/14/2021
L23-034-02	Temperature Hygrometer	Extech	445703	48254-65	N/A	4/3/2020	4/3/2022
L23-034-12	Temperature Hygrometer	Extech	445703	48254-13	N/A	10/13/2020	10/13/2022
L23-040-03	20dB Attenuator	MCL	BW-N20W5+	N/A	20MHz to 18GHz	3/2/2020	3/2/2022
L23-045-36	RF Power Sensor	ETS-Lindgren	7002-006	151071	10MHz to 6GHz	1/10/2020	1/10/2020
L23-024-01	Frequency Counter	Agilent	53220A	MY50006485	DC to 6GHz	7/28/2020	7/28/2022
L23-034-08	Thermometer	Extech	TM100	13018733	N/A	3/3/2020	3/3/2022
L19-00010	Temperature Chamber	ESPEC	BTZ133	0641489	N/A	7/20/2020	7/20/2021
L23-023-01	RF Signal Generator	Rohde & Schwarz	SMF100A	101553	20Hz to 26.5GHz	8/14/2019	8/14/2021

Appendix A

OPERATING BANDWIDTH, 99% Emissions Bandwidth

PURPOSE

This test was performed to determine if the EUT meets the operating bandwidth requirements of FCC Part 74 Section 74.861(e)(5) and EN 300 422-1, section 8.3.2., with the EUT operating at 542.000MHz, 560.000MHz, and 578.000MHz. This test was performed to determine if the EUT meets the Emissions Bandwidth of RSS-Gen 6.7.

The testing results show the EUT meets FCC 74H Section 74.861(e)(5) and RSS-210, operating bandwidth does not exceed 200kHz.

REQUIREMENTS

As stated in FCC 74H Section 74.861(e)(5), operating bandwidth shall not exceed 200kHz, and EN 300 422-1, section 8.3.2, the emission mask given in section 8.3.2.2 shall not be exceeded. As stated in RSS-Gen 6.7 measurement of 99% Emissions bandwidth.

TEST SETUP AND INSTRUMENTATION

A photograph of the test setup is shown in Figure A-1. The test instrumentation can be determined from Table 10-1.

MEASUREMENT UNCERTAINTY

All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system. Values of Expanded Measurement Uncertainty (95% Confidence):

Measurement Type	U_{LAB}
Operating Bandwidth	$\pm 0.130 \%$

U_{lab} = Determined for Shure EMC Laboratory

Since U_{LAB} is less than or equal to U_{ETSI} :

- Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- Non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

EUT OPERATION

The EUT was powered up and the transmit frequency and power output of the EUT were selected. The EUT was checked for proper operation after it was setup for the test. Testing was conducted with the EUT set to transmit at 542.000MHz, 560.000MHz, and 578.000MHz, at an output power level of 10mW, 50mW, and 100mW. The transmitter was modulated per EN300422-1 V1.4.2 (2011-08), clause 7.1.2.

Appendix A**TEST PROCEDURE**

The test procedure followed is shown in EN300422-1 V1.4.2 (2011-08), section 8.3.1.

RESULTS

The necessary bandwidth data is presented on pages 12 and 20. The figure shows the maximum relative level within the emission mask with modulation. As shown by the test data, the necessary bandwidth of the EUT meets the requirements of EN 300 422-1, section 8.3.1. The RSS-Gen maximum 99% emissions bandwidth measurement was less than 200kHz.

The temperature during the testing was 74 degrees F, with relative humidity of 17%.

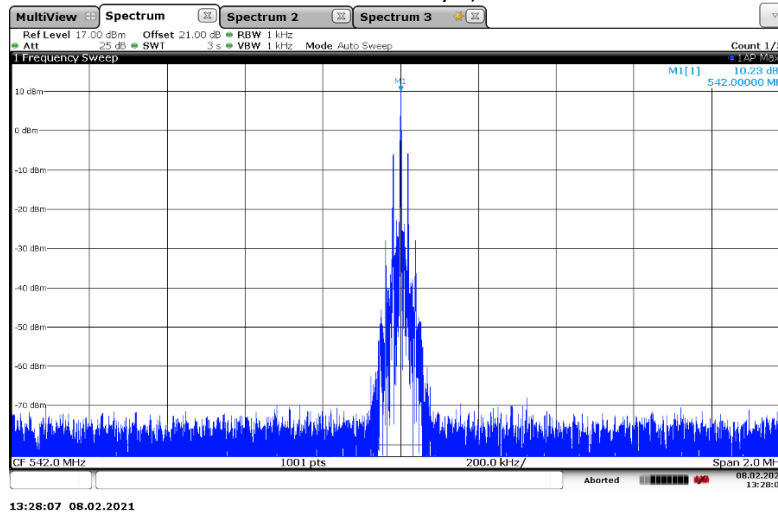


Figure A-1 - Test Setup for Necessary Bandwidth

Appendix A

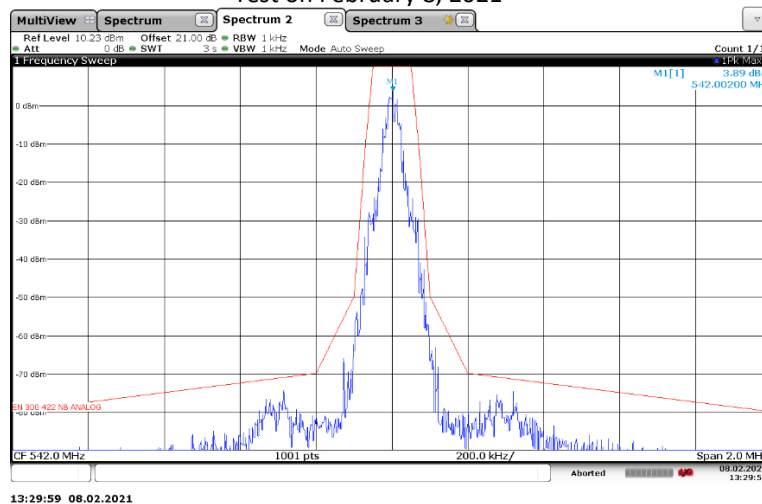
Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: Low Frequency, 542.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Tested on February 8, 2021



Test Information

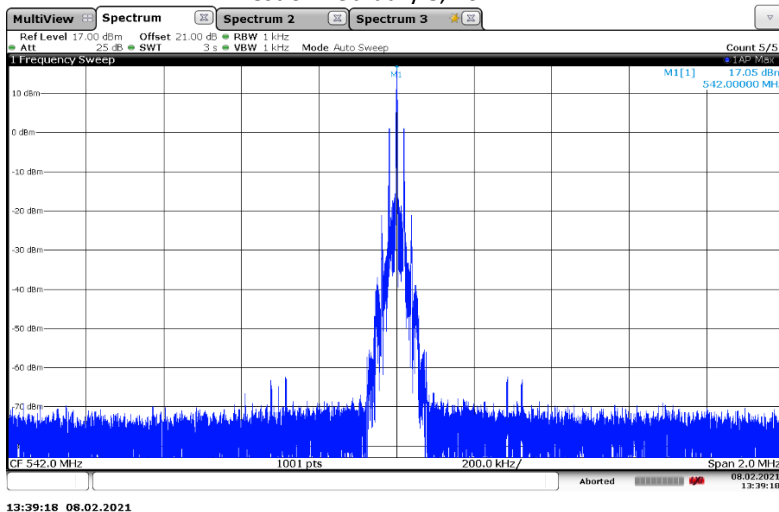
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 Operator Name: Frank Salmeron
 Comment: Maximum Relative Level
 Date Tested: Test on February 8, 2021



Appendix A

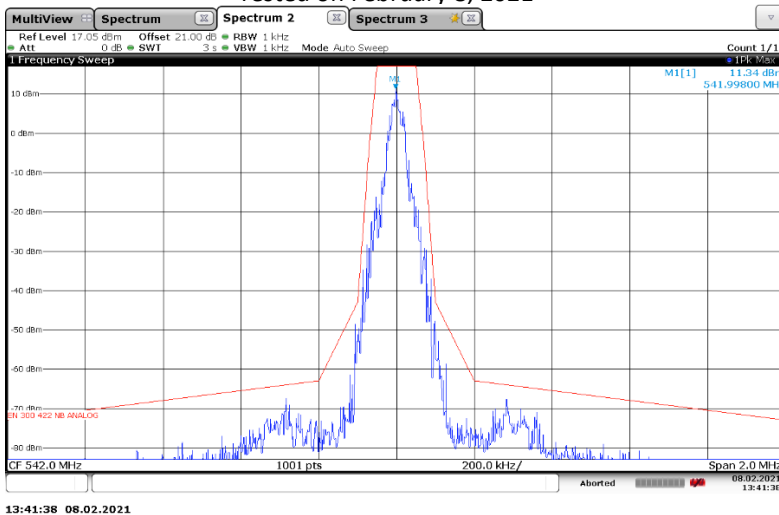
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 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Test on February 8, 2021



Test Information

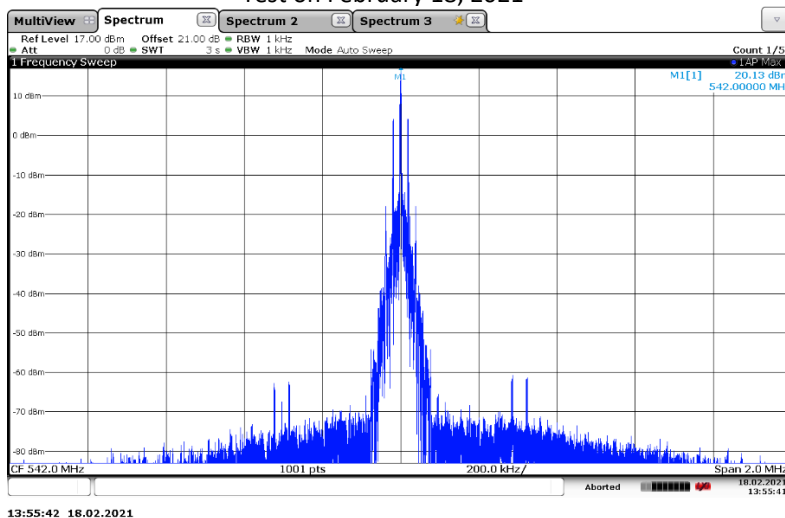
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 Comment: Maximum Relative Level
 Date Tested: Tested on February 8, 2021



Appendix A

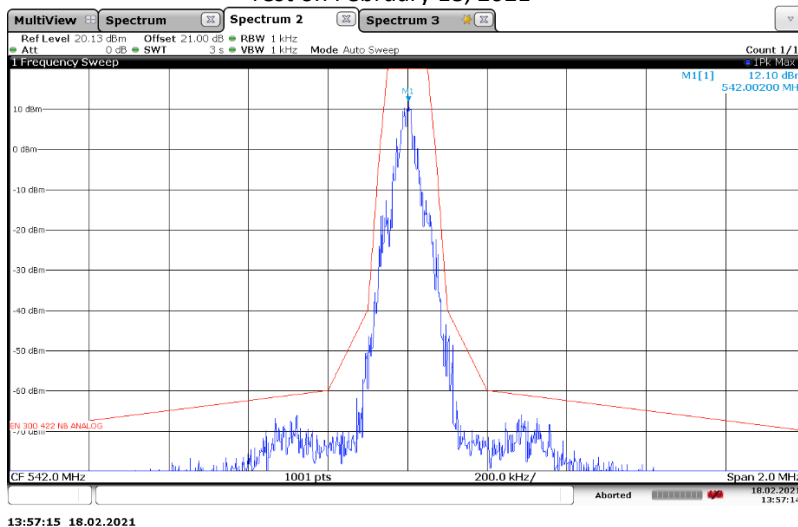
Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: Low Frequency, 542.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Test on February 18, 2021



Test Information

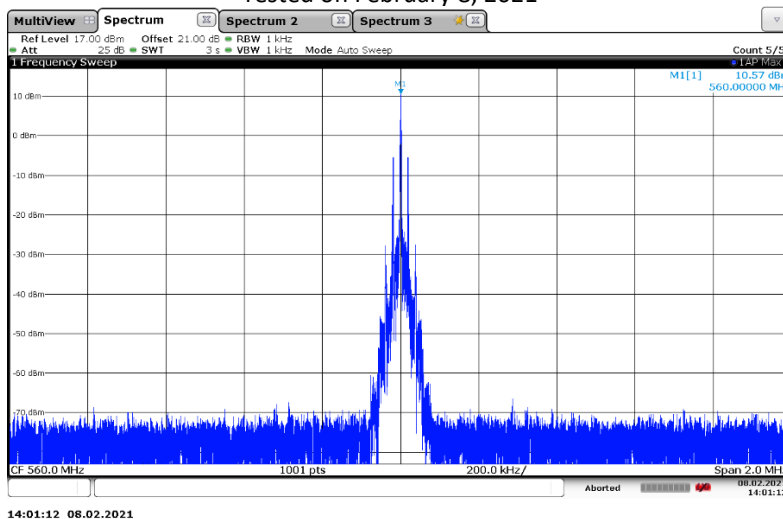
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 Comment: Maximum Relative Level
 Date Tested: Test on February 18, 2021



Appendix A

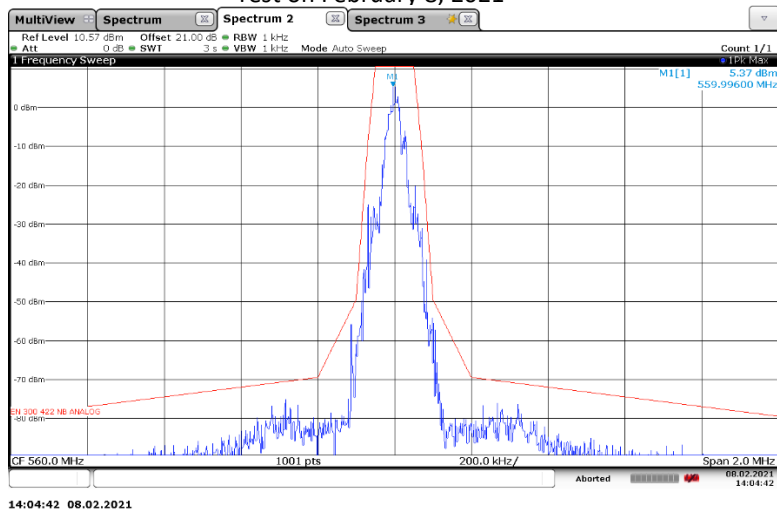
Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: Middle Frequency, 560.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Tested on February 8, 2021



Test Information

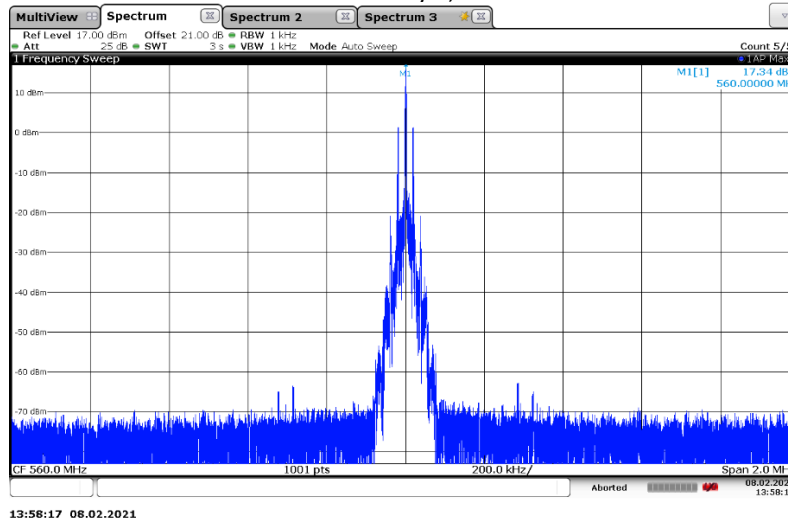
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 Operator Name: Frank Salmeron
 Comment: Maximum Relative Level
 Date Tested: Test on February 8, 2021



Appendix A

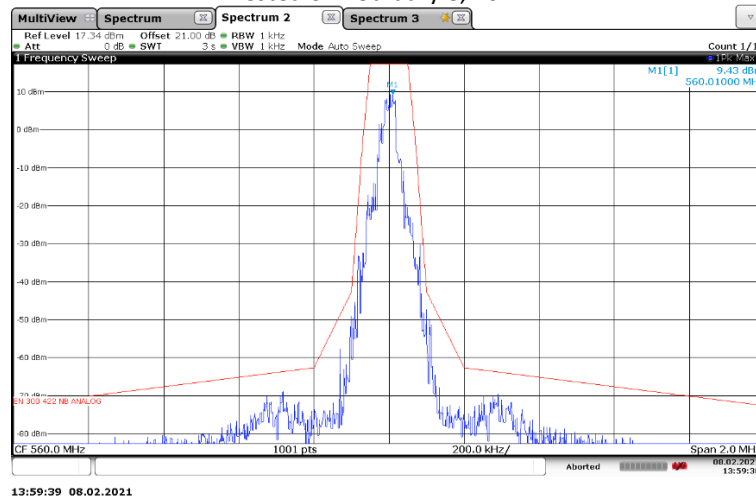
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EUT Name: P9T H21
 Serial Number: Test Unit # 1
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 Operating Conditions: Middle Frequency, 560.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Test on February 8, 2021



Test Information

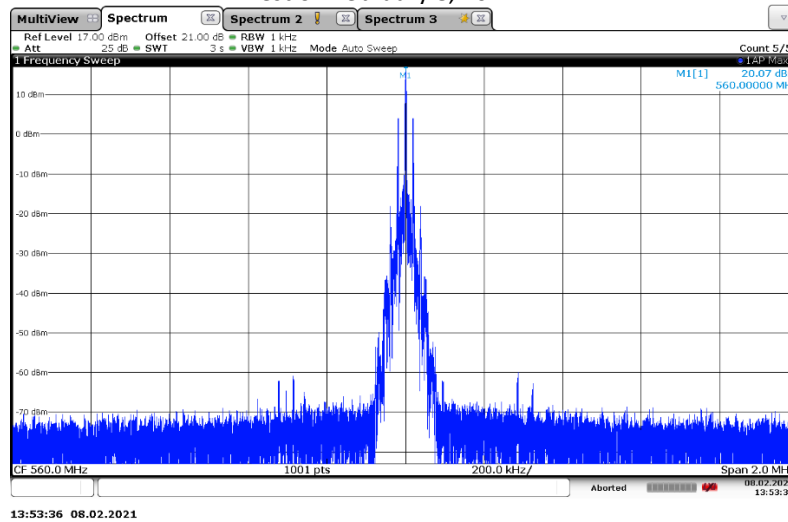
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 Operator Name: Frank Salmeron
 Comment: Maximum Relative Level
 Date Tested: Tested on February 8, 2021



Appendix A

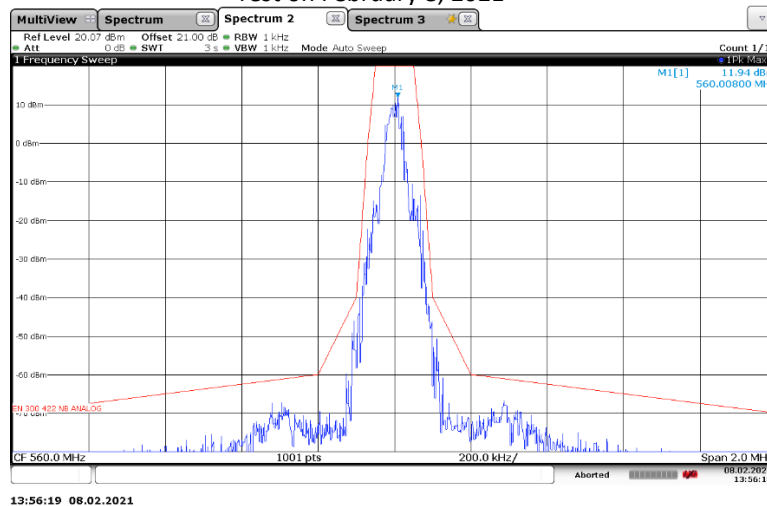
Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: Middle Frequency, 560.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Test on February 8, 2021



Test Information

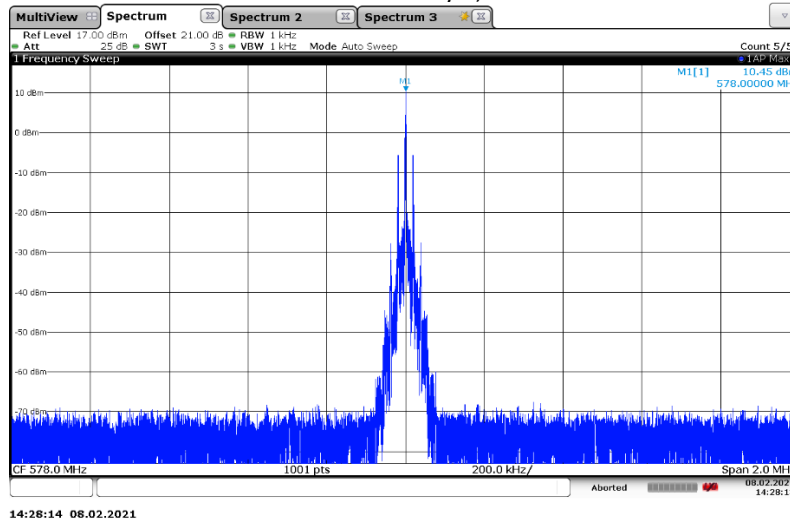
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 Operating Conditions: Middle Frequency, 560.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: Maximum Relative Level
 Date Tested: Test on February 8, 2021



Appendix A

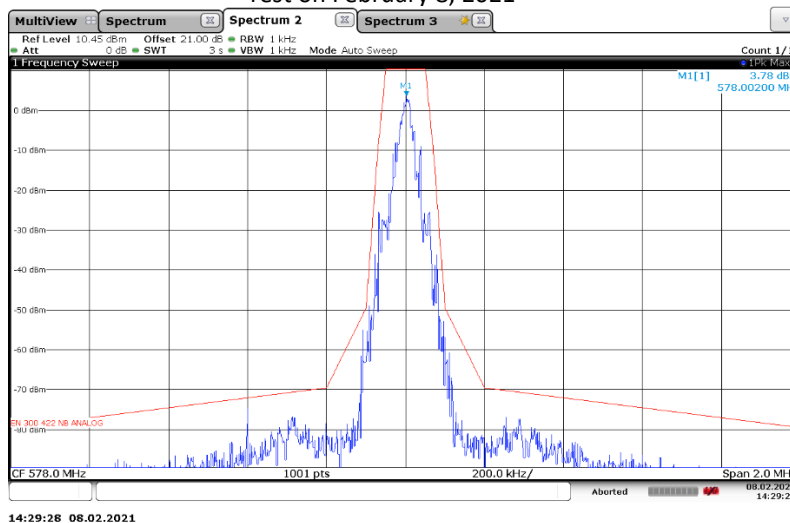
Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: High Frequency, 578.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Tested on February 8, 2021



Test Information

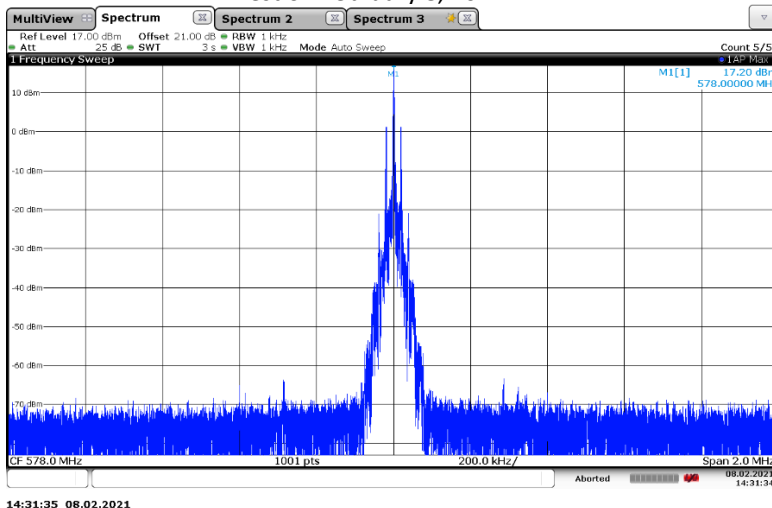
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 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: High Frequency, 578.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: Maximum Relative Level
 Date Tested: Test on February 8, 2021



Appendix A

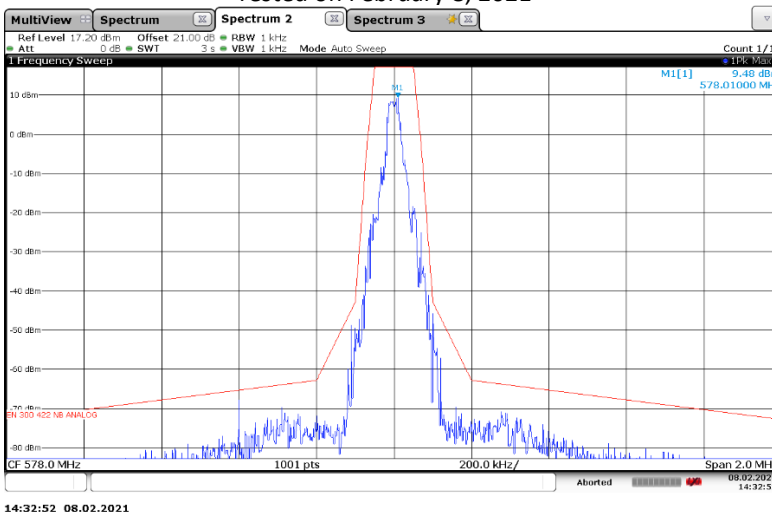
Test Information

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 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: High Frequency, 578.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Test on February 8, 2021



Test Information

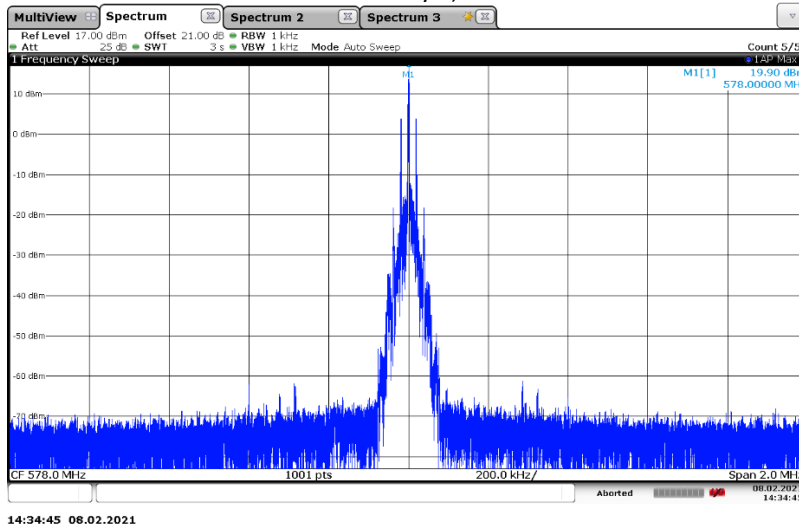
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 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: High Frequency, 578.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: Maximum Relative Level
 Date Tested: Tested on February 8, 2021



Appendix A

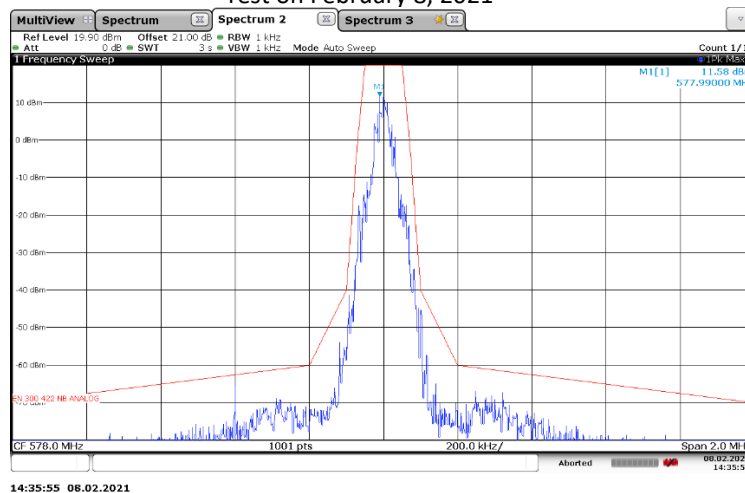
Test Information

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 Serial Number: Test Unit # 1
 Test Description: EN 300 422 Analog Necessary Bandwidth
 Operating Conditions: High Frequency, 578.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: Carrier Power
 Date Tested: Test on February 8, 2021



Test Information

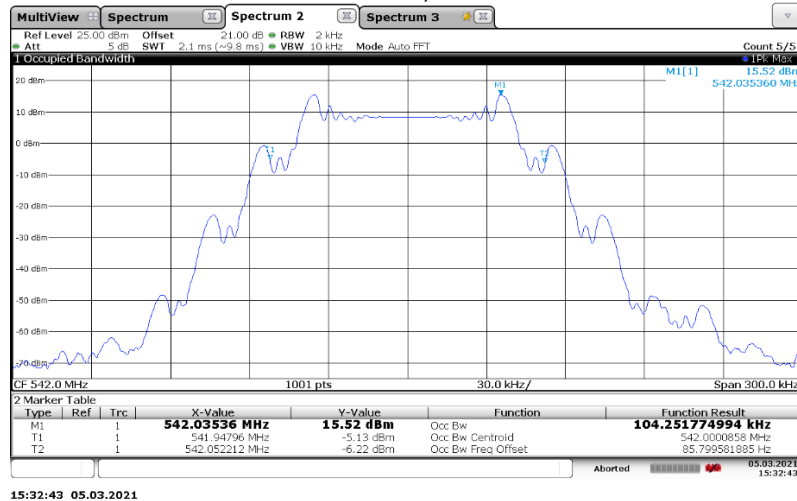
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 Test Description: EN 300 422 Analog Necessary Bandwidth
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 Operator Name: Frank Salmeron
 Comment: Maximum Relative Level
 Date Tested: Test on February 8, 2021



Appendix A

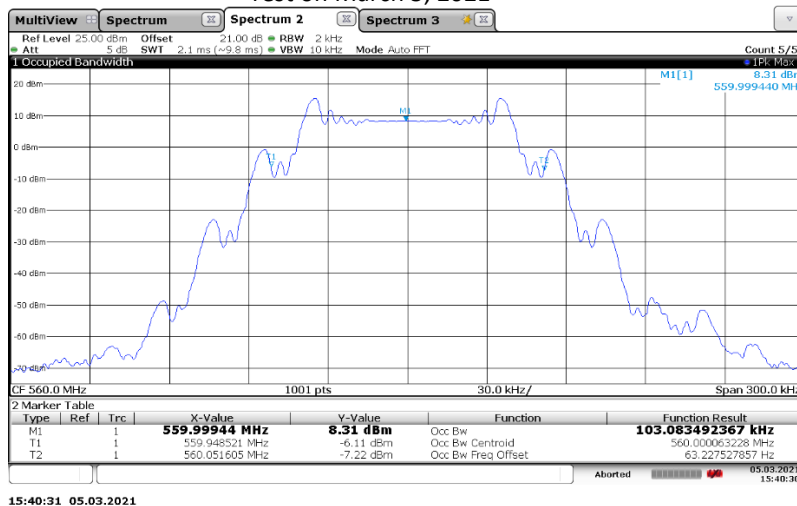
Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: RSS-Gen 99% Emissions Bandwidth
 Operating Conditions: Low Frequency, 542.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment:
 Date Tested: Test on March 5, 2021



Test Information

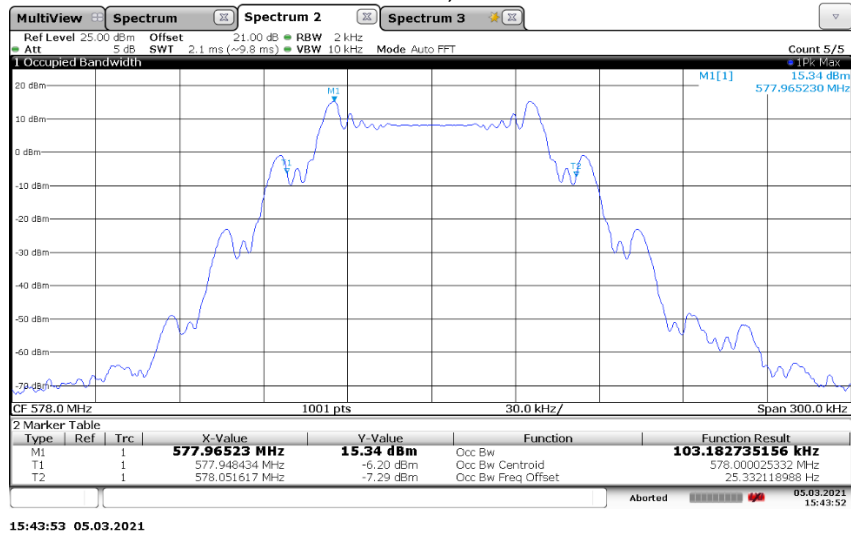
EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: RSS-Gen 99% Emissions Bandwidth
 Operating Conditions: Middle Frequency, 560.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment:
 Date Tested: Test on March 5, 2021



Appendix A

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: RSS-Gen 99% Emissions Bandwidth
 Operating Conditions: High Frequency, 578.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment:
 Date Tested: Test on March 5, 2021



99% Emissions Bandwidth at 100mW

540.000MHz	104.252kHz
560.000MHz	103.084kHz
578.000MHz	103.183kHz

Appendix B

Spurious Emissions

Purpose:

This test performed to determine if the EUT meets the radiated RF emission requirements of the FCC Part 74H Section 74.861(e)(7).

Requirements:

As stated in FCC 74H section 74.861(e)(7), and RSS-210 Annex G, Compliance for spurious emission requirements shall be demonstrated using the applicable limits of EN 300 422-1. Both the FCC Part 74H and RSS-210 require Emissions shall be investigated up to the 10th harmonic of the fundamental.

Measurement Uncertainty:

All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

Values of Expanded Measurement Uncertainty (95% Confidence)

Measurement Type	U _{lab}	U _{ETSI}
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1000 MHz)	4.24 dB	6.00 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site) (1 GHz – 13 GHz)	4.56 dB	6.00 dB

U_{lab} = Determined for Shure EMC Laboratory

U_{ETSI} = From ETSI EN 300 422-1 Table 10

Since U_{lab} is less than or equal to U_{ETSI}:

- Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
Non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

Test Setup and Instrumentation:

Photographs of the test setup are shown in Figure B 1 and Figure B 2. The test instrumentation can be determined from Table 10-1.

EUT Operation:

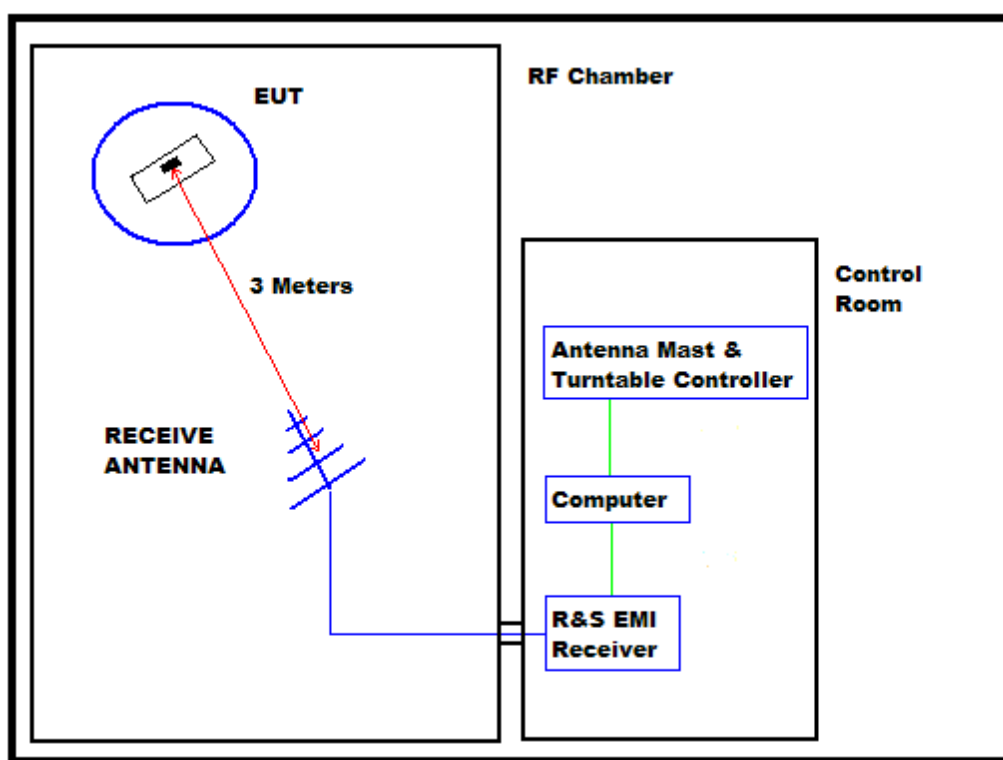
The EUT was powered up and the frequency of the transmitter was selected using the front panel controls. The EUT was checked for proper operation after it was setup on the test table. For radiated spurious emissions the testing was performed with the EUT set to the low, middle, and high frequencies with RF power output of 10mW, 50mW, and 100mW.

Appendix B

Specific Test Procedures:

All tests were performed in a 28ft. x 20ft. x 18.5ft. 3m semi-anechoic test chamber. The walls and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4A-2017 for site attenuation.

The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All power lines and signal lines entering the enclosure pass through filters on the enclosure wall. The power line filters prevent extraneous signals from entering the enclosure on these leads.



BLOCK DIAGRAM OF SHIELDED ENCLOSURE

Preliminary radiated measurements were performed to determine the frequencies where the significant emissions might be found. With the EUT at one set position and the measurement antenna at a set height (i.e. without maximizing), the radiated emissions were measured using a peak detector and automatically plotted. The BiConiLog measuring antenna was positioned at a 3 meter distance from the EUT for below 1GHz testing, and a double ridged waveguide antenna above 1GHz testing.

Appendix B

All significant broadband and narrowband signals found in the preliminary sweeps were then measured using a peak detector at a test distance of 3 meters. The measurements were made with a BiConiLog antenna over the frequency range of 30 MHz to 1 GHz, and a double ridged waveguide antenna over the frequency range of 1 GHz to 6 GHz.

To ensure that maximum emission levels were measured, the following steps were taken:

- The EUT was rotated so that all of its sides were exposed to the receiving antenna.
- Since the measuring antennas are linearly polarized, both horizontal and vertical field components were measured.
- The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to maximize the readings.

The equivalent power was determined from the field intensity levels measured at 3 meters using the substitution method. To determine the emission power, another antenna was set in place of the EUT and connected to a calibrated signal generator. (A tuned dipole was used for all measurements below 1GHz and a double ridged waveguide antenna was used for all measurements above 1GHz.) The output of the signal generator was adjusted to match the received level at the EMI receiver. The signal level was recorded. The reading was corrected to compensate for cable loss and antenna gain.

Results:

The plots of the peak preliminary radiated voltage levels in the graphs on page 26 thru page 43. All emissions measured from the EUT were within the ETSI EN 300 422-1 specification limits.

The temperature during the testing in the RF Chamber was 76 degrees F, with relative humidity of 26%.

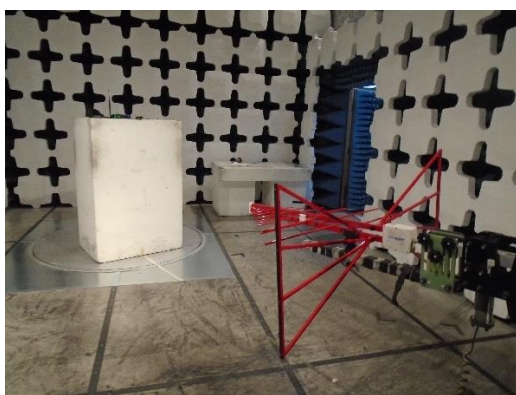


Figure B 1: P9T Transmitter Test Setup

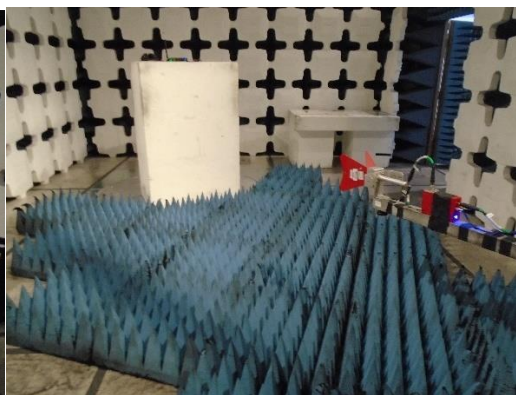


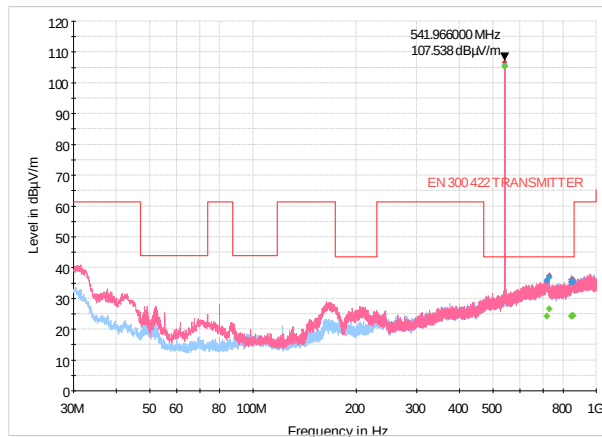
Figure B 2: P9T Transmitter Test Setup

Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Low Frequency 542.000MHz
 RF Power Level: 10mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 19, 2021



Critical Frequencies

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
541.998333	106.67	43.38	-63.29	---	---	177.0	V	264.0	20.3	4:12:10 PM - 1/13/2021
717.762333	35.84	43.38	7.54	---	---	177.0	V	68.0	22.9	9:14:39 AM - 1/21/2021
728.432333	37.57	43.38	5.81	---	---	225.0	V	68.0	23.0	9:15:49 AM - 1/21/2021
846.934000	36.19	43.38	7.19	---	---	272.0	H	265.0	24.2	4:06:59 PM - 1/20/2021
851.945667	35.56	43.38	7.82	---	---	103.0	V	236.0	24.2	9:10:37 AM - 1/21/2021
854.694000	36.09	43.38	7.29	---	---	100.0	V	131.0	24.2	4:08:36 PM - 1/20/2021

Final Results

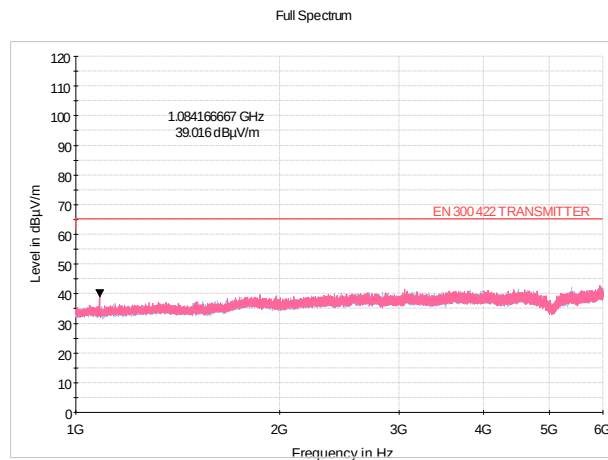
Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
541.998333	105.44	---	43.38	-62.06	1000.0	120.000	177.0	V	219.0	20.3	4:13:40 PM - 1/13/2021
541.998333	---	105.38	43.38	-62.00	1000.0	120.000	177.0	V	219.0	20.3	4:13:40 PM - 1/13/2021
717.762333	35.77	---	43.38	7.61	1000.0	120.000	177.0	V	68.0	22.9	9:14:53 AM - 1/21/2021
717.762333	---	24.10	43.38	19.28	1000.0	120.000	177.0	V	68.0	22.9	9:14:53 AM - 1/21/2021
728.432333	36.94	---	43.38	6.44	1000.0	120.000	225.0	V	68.0	23.0	9:15:54 AM - 1/21/2021
728.432333	---	26.54	43.38	16.84	1000.0	120.000	225.0	V	68.0	23.0	9:15:54 AM - 1/21/2021
846.934000	35.25	---	43.38	8.13	1000.0	120.000	275.0	H	265.0	24.2	4:07:04 PM - 1/20/2021
846.934000	---	24.23	43.38	19.15	1000.0	120.000	275.0	H	265.0	24.2	4:07:05 PM - 1/20/2021
851.945667	35.95	---	43.38	7.43	1000.0	120.000	103.0	V	236.0	24.2	9:10:49 AM - 1/21/2021
851.945667	---	24.41	43.38	18.97	1000.0	120.000	103.0	V	236.0	24.2	9:10:49 AM - 1/21/2021
854.694000	35.29	---	43.38	8.09	1000.0	120.000	100.0	V	86.0	24.2	9:09:45 AM - 1/21/2021
854.694000	---	24.37	43.38	19.01	1000.0	120.000	100.0	V	86.0	24.2	9:09:45 AM - 1/21/2021

Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Low frequency 542.000MHz
 RF Power Level: 10mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 19, 2021



Critical Frequencies

Frequency (MHz)	Max Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Final Results

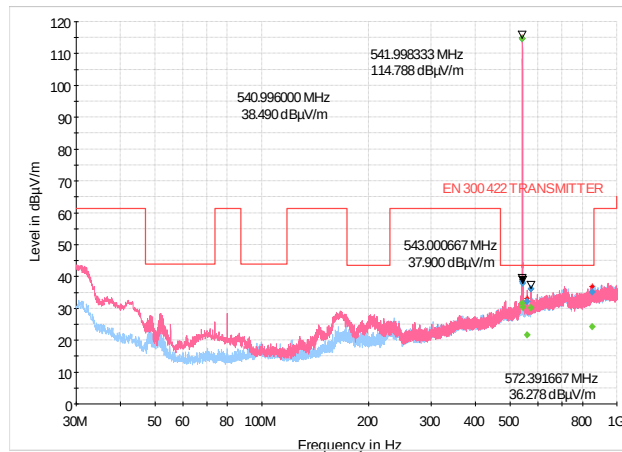
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Low Frequency 542.000MHz
 RF Power Level: 50mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 21, 2021



Critical Frequencies

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
540.996000	39.09	43.38	4.29	---	---	200.0	V	218.0	20.3	3:22:21 PM - 1/13/2021
541.998333	114.97	43.38	-71.59	---	---	199.0	V	273.0	20.3	3:24:33 PM - 1/13/2021
543.000667	39.25	43.38	4.13	---	---	177.0	V	33.0	20.3	3:21:06 PM - 1/13/2021
558.941000	33.21	43.38	10.17	---	---	225.0	V	236.0	20.2	3:23:28 PM - 1/13/2021
572.391667	36.18	43.38	7.20	---	---	112.0	V	51.0	20.4	3:19:49 PM - 1/13/2021
851.751667	36.92	43.38	6.46	---	---	275.0	V	272.0	24.2	9:29:25 AM - 1/21/2021

Final Results

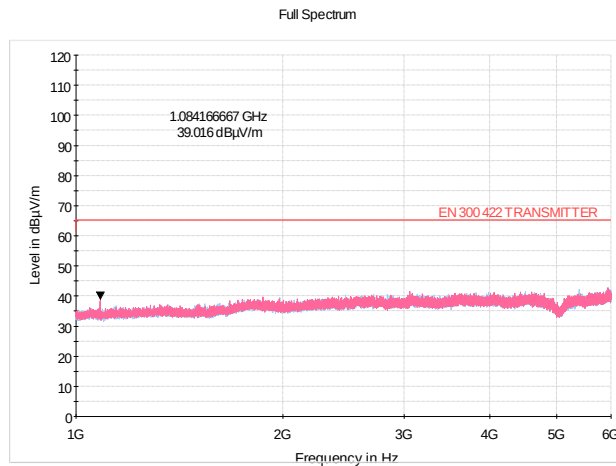
Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
540.996000	38.49	---	43.38	4.89	1000.0	120.000	200.0	V	220.0	20.3	3:22:33 PM - 1/13/2021
540.996000	---	31.57	43.38	11.81	1000.0	120.000	200.0	V	220.0	20.3	3:22:33 PM - 1/13/2021
541.998333	114.61	---	43.38	-71.23	1000.0	120.000	199.0	V	228.0	20.3	3:28:12 PM - 1/13/2021
541.998333	---	114.57	43.38	-71.19	1000.0	120.000	199.0	V	228.0	20.3	3:28:12 PM - 1/13/2021
543.000667	37.90	---	43.38	5.48	1000.0	120.000	177.0	V	33.0	20.3	3:21:20 PM - 1/13/2021
543.000667	---	30.26	43.38	13.12	1000.0	120.000	177.0	V	33.0	20.3	3:21:20 PM - 1/13/2021
558.941000	32.08	---	43.38	11.30	1000.0	120.000	225.0	V	236.0	20.2	3:23:34 PM - 1/13/2021
558.941000	---	21.58	43.38	21.80	1000.0	120.000	225.0	V	236.0	20.2	3:23:34 PM - 1/13/2021
572.391667	36.15	---	43.38	7.23	1000.0	120.000	112.0	V	51.0	20.4	3:19:59 PM - 1/13/2021
572.391667	---	30.07	43.38	13.31	1000.0	120.000	112.0	V	51.0	20.4	3:19:59 PM - 1/13/2021
851.751667	---	24.19	43.38	19.19	1000.0	120.000	275.0	V	272.0	24.2	9:29:31 AM - 1/21/2021
851.751667	35.07	---	43.38	8.31	1000.0	120.000	275.0	V	272.0	24.2	9:29:31 AM - 1/21/2021

Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description:	FCC 74H Radiated Emissions 1GHz - 6GHz
EUT:	P9T H21
Serial Number:	Test Unit # 1
Operating Frequency:	Low Frequency 542.000MHz
RF Power Level	50mW
Tester Name:	Sharjeel Sohail
Date Tested	January 19, 2021



Critical Frequencies

Frequency (MHz)	Max Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Final Results

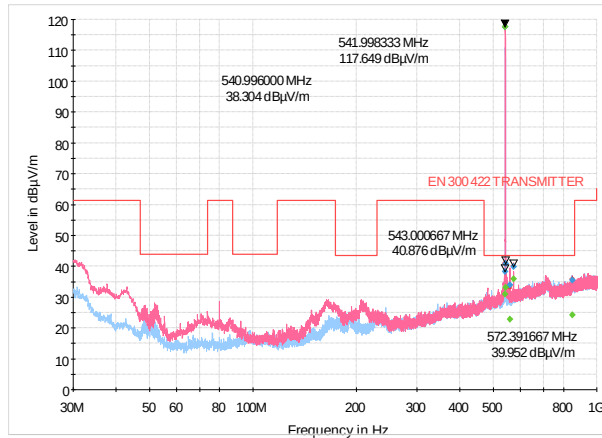
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Low Frequency 542.000MHz
 RF Power Level: 100mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on February 21, 2021



Critical Frequencies

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
540.996000	41.04	43.38	2.34	---	---	278.0	V	272.0	20.3	2:25:33 PM - 1/13/2021
541.998333	117.65	43.38	-74.27	---	---	200.0	V	260.0	20.3	2:26:56 PM - 1/13/2021
543.000667	40.80	43.38	2.58	---	---	302.0	V	275.0	20.3	2:28:17 PM - 1/13/2021
558.941000	33.28	43.38	10.10	---	---	225.0	V	237.0	20.2	2:29:42 PM - 1/13/2021
572.391667	40.24	43.38	3.14	---	---	102.0	V	243.0	20.4	2:30:54 PM - 1/13/2021
847.451333	35.89	43.38	7.49	---	---	103.0	H	228.0	24.2	9:48:59 AM - 1/21/2021

Final Results

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
540.996000	---	30.95	43.38	12.43	1000.0	120.000	278.0	V	272.0	20.3	2:25:46 PM - 1/13/2021
540.996000	38.30	---	43.38	5.08	1000.0	120.000	278.0	V	272.0	20.3	2:25:46 PM - 1/13/2021
541.998333	---	117.59	43.38	-74.21	1000.0	120.000	200.0	V	260.0	20.3	2:27:08 PM - 1/13/2021
541.998333	117.63	---	43.38	-74.25	1000.0	120.000	200.0	V	260.0	20.3	2:27:08 PM - 1/13/2021
543.000667	---	33.20	43.38	10.18	1000.0	120.000	302.0	V	275.0	20.3	2:28:28 PM - 1/13/2021
543.000667	40.88	---	43.38	2.50	1000.0	120.000	302.0	V	275.0	20.3	2:28:28 PM - 1/13/2021
558.941000	---	22.72	43.38	20.66	1000.0	120.000	225.0	V	237.0	20.2	2:29:48 PM - 1/13/2021
558.941000	33.88	---	43.38	9.50	1000.0	120.000	225.0	V	237.0	20.2	2:29:48 PM - 1/13/2021
572.391667	---	35.87	43.38	7.51	1000.0	120.000	102.0	V	243.0	20.4	2:31:06 PM - 1/13/2021
572.391667	39.95	---	43.38	3.43	1000.0	120.000	102.0	V	243.0	20.4	2:31:06 PM - 1/13/2021
847.451333	---	24.22	43.38	19.16	1000.0	120.000	103.0	H	228.0	24.2	9:49:10 AM - 1/21/2021
847.451333	35.41	---	43.38	7.97	1000.0	120.000	103.0	H	228.0	24.2	9:49:10 AM - 1/21/2021

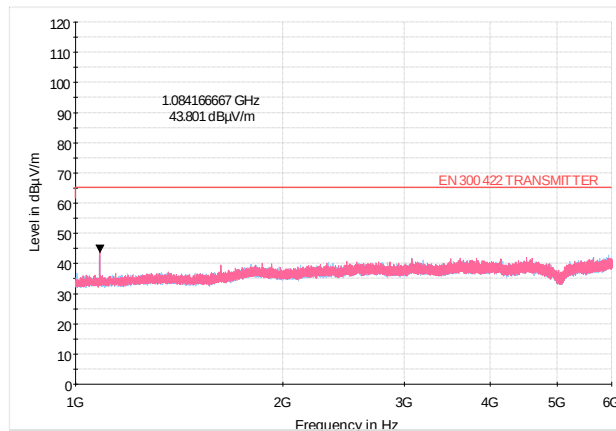
Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Low Frequency 542.000MHz
 RF Power Level: 100mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 19, 2021

Full Spectrum



Critical Frequencies

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Final Results

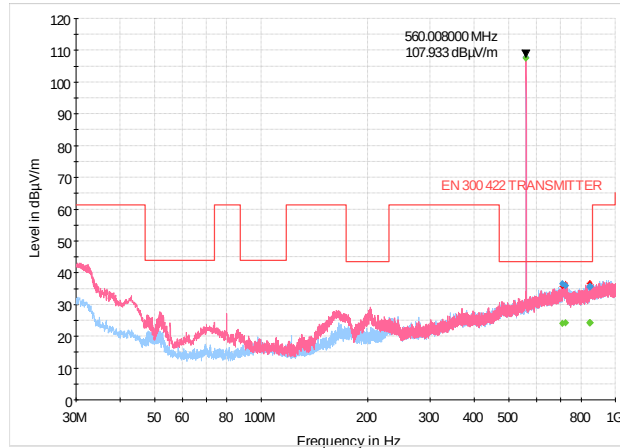
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description:	FCC 74H Radiated Emissions 30MHz - 1GHz
EUT	P9T H21
Serial Number	Test Unit # 1
Operating Frequency:	Middle Frequency 560.000MHz
RF Power Level	10mW
Tester Name	Sharjeel Sohail
Date Tested	Tested on January 20, 2021



Critical Frequencies

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
560.008000	107.96	43.38	-64.58	---	---	188.0	V	253.0	20.2	11:59:52 AM - 1/13/2021
709.323333	35.61	43.38	7.77	---	---	121.0	V	45.0	23.0	3:49:20 PM - 1/20/2021
722.935667	36.46	43.38	6.92	---	---	373.0	V	65.0	23.0	3:54:53 PM - 1/20/2021
845.673000	36.60	43.38	6.78	---	---	125.0	V	253.0	24.1	3:53:02 PM - 1/20/2021
847.742333	36.20	43.38	7.18	---	---	162.0	H	97.0	24.2	3:48:16 PM - 1/20/2021
849.811667	36.62	43.38	6.76	---	---	353.0	V	346.0	24.2	3:57:27 PM - 1/20/2021

Final Results

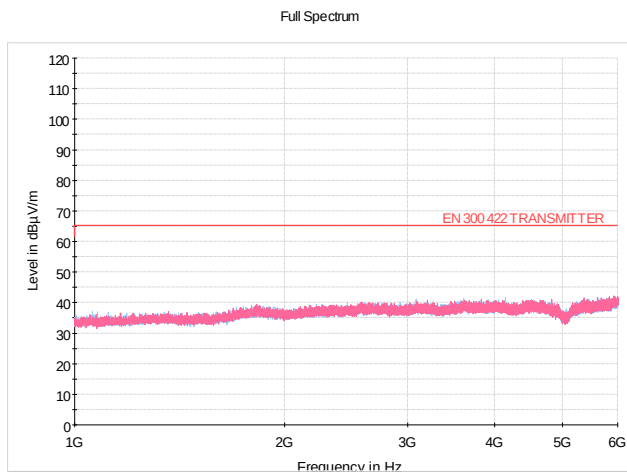
Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
560.008000	---	107.60	43.38	-64.22	1000.0	120.000	188.0	V	253.0	20.2	12:00:05 PM - 1/13/2021
560.008000	107.66	---	43.38	-64.28	1000.0	120.000	188.0	V	253.0	20.2	12:00:05 PM - 1/13/2021
709.323333	36.58	---	43.38	6.80	1000.0	120.000	121.0	V	45.0	23.0	3:49:28 PM - 1/20/2021
709.323333	---	24.10	43.38	19.28	1000.0	120.000	121.0	V	45.0	23.0	3:49:29 PM - 1/20/2021
722.935667	35.99	---	43.38	7.39	1000.0	120.000	375.0	V	65.0	23.0	3:54:58 PM - 1/20/2021
722.935667	---	24.27	43.38	19.11	1000.0	120.000	375.0	V	65.0	23.0	3:54:58 PM - 1/20/2021
845.673000	---	24.20	43.38	19.18	1000.0	120.000	125.0	V	253.0	24.1	3:53:08 PM - 1/20/2021
845.673000	35.48	---	43.38	7.90	1000.0	120.000	125.0	V	253.0	24.1	3:53:08 PM - 1/20/2021
847.742333	---	24.29	43.38	19.09	1000.0	120.000	162.0	H	97.0	24.2	3:48:27 PM - 1/20/2021
847.742333	35.51	---	43.38	7.87	1000.0	120.000	162.0	H	97.0	24.2	3:48:26 PM - 1/20/2021
849.811667	---	24.24	43.38	19.14	1000.0	120.000	353.0	V	346.0	24.2	3:57:39 PM - 1/20/2021
849.811667	35.64	---	43.38	7.74	1000.0	120.000	353.0	V	346.0	24.2	3:57:38 PM - 1/20/2021

Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Middle Frequency 560.000MHz
 RF Power Level: 10mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 19, 2021



Critical Frequencies

Frequency (MHz)	Max Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Final Results

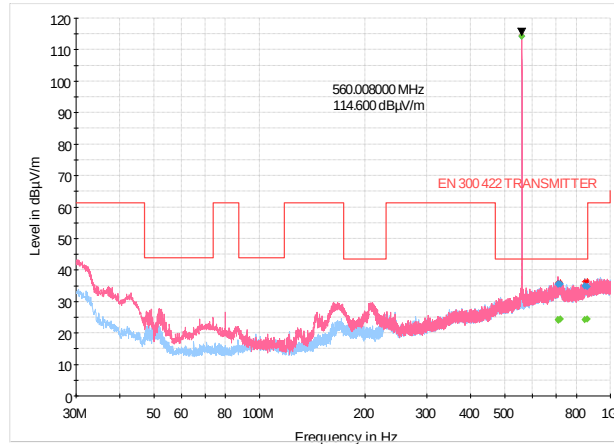
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
EUT P9T H21
Serial Number Test Unit # 1
Operating Frequency: Middle Frequency 560.000MHz
RF Power Level 50mW
Tester Name Sharjeel Sohail
Date Tested Tested on January 13, 2021



Critical Frequencies

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
560.008000	114.60	43.38	-71.22	---	---	187.0	V	247.0	20.2	12:51:05 PM - 1/13/2021
709.032333	35.83	43.38	7.55	---	---	213.0	V	110.0	23.0	3:34:46 PM - 1/20/2021
711.942333	35.58	43.38	7.80	---	---	175.0	H	13.0	22.9	3:11:01 PM - 1/20/2021
720.575333	36.13	43.38	7.25	---	---	272.0	V	123.0	23.0	3:35:58 PM - 1/20/2021
845.058667	36.39	43.38	6.99	---	---	375.0	H	320.0	24.1	3:27:40 PM - 1/20/2021
857.862667	36.52	43.38	6.86	---	---	275.0	H	157.0	24.3	3:12:13 PM - 1/20/2021

Final Results

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
560.008000	---	114.17	43.38	-70.79	1000.0	120.000	187.0	V	247.0	20.2	12:51:18 PM - 1/13/2021
560.008000	114.23	---	43.38	-70.85	1000.0	120.000	187.0	V	247.0	20.2	12:51:18 PM - 1/13/2021
709.032333	---	24.24	43.38	19.14	1000.0	120.000	213.0	V	110.0	23.0	3:34:56 PM - 1/20/2021
709.032333	35.47	---	43.38	7.91	1000.0	120.000	213.0	V	110.0	23.0	3:34:56 PM - 1/20/2021
711.942333	---	24.08	43.38	19.30	1000.0	120.000	175.0	H	13.0	22.9	3:11:07 PM - 1/20/2021
711.942333	35.53	---	43.38	7.85	1000.0	120.000	175.0	H	13.0	22.9	3:11:07 PM - 1/20/2021
720.575333	---	24.36	43.38	19.02	1000.0	120.000	275.0	V	123.0	23.0	3:36:03 PM - 1/20/2021
720.575333	35.57	---	43.38	7.81	1000.0	120.000	275.0	V	123.0	23.0	3:36:03 PM - 1/20/2021
845.058667	---	24.22	43.38	19.16	1000.0	120.000	375.0	H	320.0	24.1	3:27:46 PM - 1/20/2021
845.058667	34.85	---	43.38	8.53	1000.0	120.000	375.0	H	320.0	24.1	3:27:46 PM - 1/20/2021
857.862667	34.79	---	43.38	8.59	1000.0	120.000	275.0	H	157.0	24.3	3:12:27 PM - 1/20/2021
857.862667	---	24.31	43.38	19.07	1000.0	120.000	275.0	H	157.0	24.3	3:12:28 PM - 1/20/2021

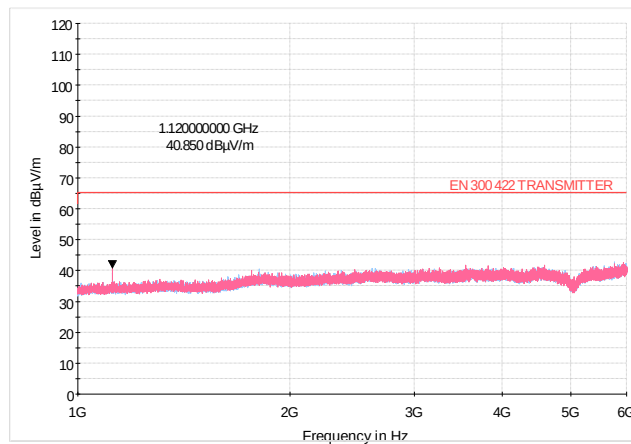
Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Middle Frequency 560.000MHz
 RF Power Level: 50mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 19, 2021

Full Spectrum



Critical Frequency

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
---	---	---	---	---	---	---		---	---	

Final Results

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
---	---	---	---	---	---	---	---		---	---	

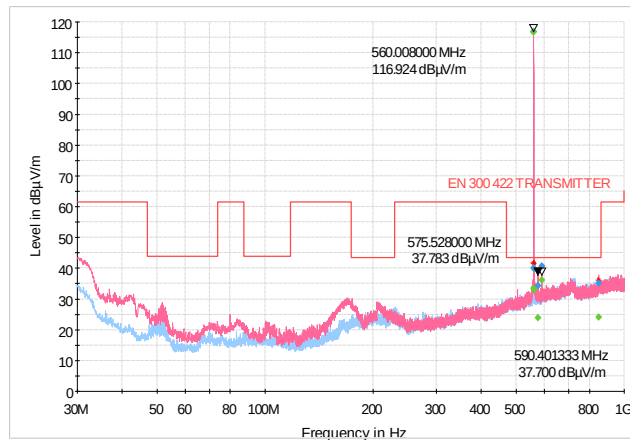
Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Middle Frequency 560.000MHz
 RF Power Level: 100mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 21, 2021

Full Spectrum



Critical Frequency

Frequency (MHz)	MaxPeak (dBµV/m)	DET 2 (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
558.908667	41.74	---	43.38	1.64	---	---	113.0	V	295.0	20.2	11:15:26 AM - 1/21/2021
560.008000	116.79	---	43.38	-73.41	---	---	200.0	V	151.0	20.2	11:17:16 AM - 1/21/2021
561.010333	41.49	---	43.38	1.89	---	---	294.0	V	288.0	20.2	11:20:30 AM - 1/21/2021
575.528000	34.56	---	43.38	8.82	---	---	200.0	V	198.0	20.5	11:17:55 AM - 1/21/2021
590.401333	40.60	---	43.38	2.78	---	---	106.0	V	167.0	21.2	11:14:15 AM - 1/21/2021
850.038000	36.03	---	43.38	7.35	---	---	399.0	V	233.0	24.2	11:21:58 AM - 1/21/2021

Final Results

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
558.908667	40.08	---	43.38	3.30	1000.0	120.000	113.0	V	295.0	20.2	11:15:36 AM - 1/21/2021
558.908667	---	33.52	43.38	9.86	1000.0	120.000	113.0	V	295.0	20.2	11:15:37 AM - 1/21/2021
560.008000	---	116.73	43.38	-73.35	1000.0	120.000	200.0	V	151.0	20.2	11:17:28 AM - 1/21/2021
560.008000	116.79	---	43.38	-73.41	1000.0	120.000	200.0	V	151.0	20.2	11:17:28 AM - 1/21/2021
561.010333	39.92	---	43.38	3.46	1000.0	120.000	294.0	V	288.0	20.2	11:20:42 AM - 1/21/2021
561.010333	---	33.04	43.38	10.34	1000.0	120.000	294.0	V	288.0	20.2	11:20:42 AM - 1/21/2021
575.528000	---	23.93	43.38	19.45	1000.0	120.000	200.0	V	153.0	20.5	11:19:05 AM - 1/21/2021
575.528000	34.19	---	43.38	9.19	1000.0	120.000	200.0	V	153.0	20.5	11:19:05 AM - 1/21/2021
590.401333	---	36.18	43.38	7.20	1000.0	120.000	106.0	V	167.0	21.2	11:14:27 AM - 1/21/2021
590.401333	40.67	---	43.38	2.71	1000.0	120.000	106.0	V	167.0	21.2	11:14:27 AM - 1/21/2021
850.038000	---	24.15	43.38	19.23	1000.0	120.000	400.0	V	233.0	24.2	11:22:03 AM - 1/21/2021
850.038000	35.07	---	43.38	8.31	1000.0	120.000	400.0	V	233.0	24.2	11:22:03 AM - 1/21/2021

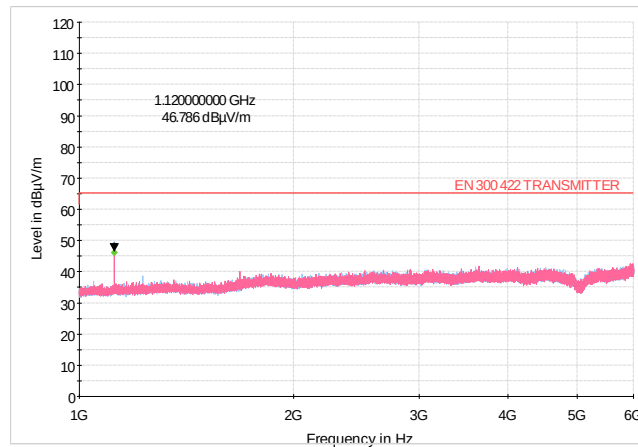
Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: Middle Frequency 560.000MHz
 RF Power Level: 100mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 19, 2021

Full Spectrum



Critical Frequency

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
1120.000000	48.6	65.23	16.56	---	---	336.0	V	22.0	-18.0	2:22:38 PM - 1/19/2021

Final Results

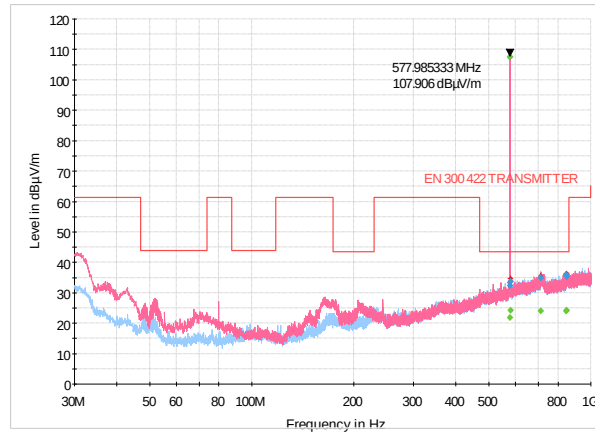
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
1120.000000	48.45	---	65.23	16.78	1000.0	1000.000	336.0	V	22.0	-18.0	2:22:49 PM - 1/19/2021
1120.000000	---	46.15	---	---	1000.0	1000.000	336.0	V	22.0	-18.0	2:22:49 PM - 1/19/2021

Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
EUT P9T H21
Serial Number Test Unit # 1
Operating Frequency: High Frequency 578.000MHz
RF Power Level 10mW
Tester Name Sharjeel Sohail
Date Tested Tested on January 20, 2021



Critical Frequency

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
576.983000	33.36	43.38	10.02	---	---	375.0	V	46.0	20.5	9:42:30 AM - 1/14/2021
577.985333	107.74	43.38	-64.36	---	---	102.0	V	320.0	20.5	9:44:15 AM - 1/14/2021
579.020000	34.67	43.38	8.71	---	---	200.0	V	281.0	20.5	9:45:13 AM - 1/14/2021
712.977000	35.54	43.38	7.84	---	---	225.0	V	160.0	22.8	1:38:41 PM - 1/20/2021
845.026333	36.19	43.38	7.19	---	---	100.0	V	190.0	24.1	1:35:56 PM - 1/20/2021
847.516000	36.33	43.38	7.05	---	---	225.0	H	256.0	24.2	1:28:17 PM - 1/20/2021

Final Results

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
576.98300	---	21.87	43.38	21.51	1000.0	120.000	375.0	V	46.0	20.5	9:42:36 AM - 1/14/2021
576.98300	32.42	---	43.38	10.96	1000.0	120.000	375.0	V	46.0	20.5	9:42:36 AM - 1/14/2021
577.98533	---	107.43	43.38	-64.05	1000.0	120.000	102.0	V	320.0	20.5	9:44:27 AM - 1/14/2021
577.98533	107.54	---	43.38	-64.16	1000.0	120.000	102.0	V	320.0	20.5	9:44:27 AM - 1/14/2021
579.02000	---	24.10	43.38	19.28	1000.0	120.000	200.0	V	236.0	20.5	9:47:03 AM - 1/14/2021
579.02000	33.63	---	43.38	9.75	1000.0	120.000	200.0	V	236.0	20.5	9:47:03 AM - 1/14/2021
712.97700	---	23.95	43.38	19.43	1000.0	120.000	225.0	V	160.0	22.8	1:38:47 PM - 1/20/2021
712.97700	34.81	---	43.38	8.57	1000.0	120.000	225.0	V	160.0	22.8	1:38:47 PM - 1/20/2021
845.02633	35.82	---	43.38	7.56	1000.0	120.000	100.0	V	190.0	24.1	1:36:08 PM - 1/20/2021
845.02633	---	24.09	43.38	19.29	1000.0	120.000	100.0	V	190.0	24.1	1:36:09 PM - 1/20/2021
847.51600	---	24.10	43.38	19.28	1000.0	120.000	225.0	H	256.0	24.2	1:28:22 PM - 1/20/2021
847.51600	35.39	---	43.38	7.99	1000.0	120.000	225.0	H	256.0	24.2	1:28:22 PM - 1/20/2021

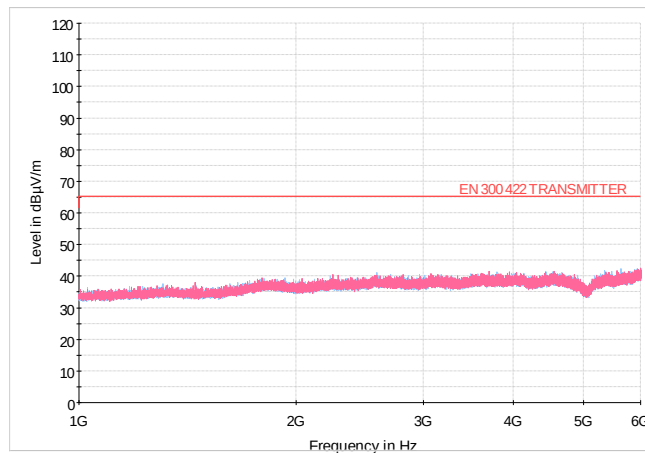
Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: High Frequency 578.000MHz
 RF Power Level: 10mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 20, 2021

Full Spectrum



Critical Frequencies

Frequency (MHz)	Max Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Final Results

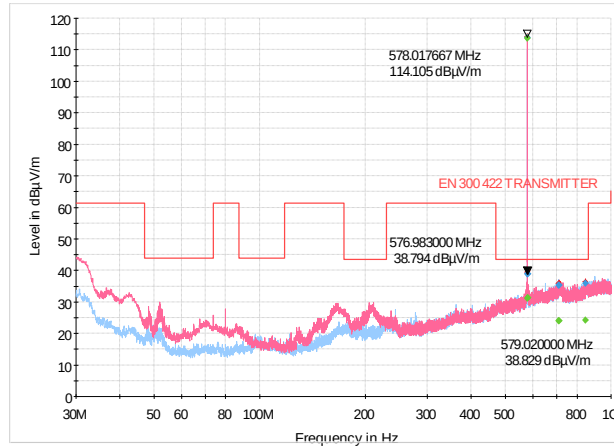
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
EUT P9T H21
Serial Number Test Unit # 1
Operating Frequency: High Frequency 578.000MHz
RF Power Level 50mW
Tester Name Sharjeel Sohail
Date Tested Tested on January 20, 2021



Critical Frequencies

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
576.983000	39.47	43.38	3.91	---	---	102.0	V	312.0	20.5	10:40:16 AM - 1/14/2021
578.017667	114.17	43.38	-70.79	---	---	102.0	V	312.0	20.5	10:39:28 AM - 1/14/2021
579.020000	39.92	43.38	3.46	---	---	104.0	V	312.0	20.5	10:41:03 AM - 1/14/2021
709.032333	35.91	43.38	7.47	---	---	400.0	H	45.0	23.0	10:37:36 AM - 1/14/2021
711.942333	36.17	43.38	7.21	---	---	328.0	V	134.0	22.9	2:03:29 PM - 1/20/2021
846.255000	36.44	43.38	6.94	---	---	102.0	H	264.0	24.2	2:01:31 PM - 1/20/2021

Final Results

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
576.98300	---	31.14	43.38	12.24	1000.0	120.000	102.0	V	312.0	20.5	10:40:28 AM - 1/14/2021
576.98300	38.79	---	43.38	4.59	1000.0	120.000	102.0	V	312.0	20.5	10:40:27 AM - 1/14/2021
578.01766	113.79	---	43.38	-70.41	1000.0	120.000	102.0	V	312.0	20.5	10:39:40 AM - 1/14/2021
578.01766	---	113.66	43.38	-70.28	1000.0	120.000	102.0	V	312.0	20.5	10:39:40 AM - 1/14/2021
579.02000	---	31.34	43.38	12.04	1000.0	120.000	104.0	V	312.0	20.5	10:41:15 AM - 1/14/2021
579.02000	38.83	---	43.38	4.55	1000.0	120.000	104.0	V	312.0	20.5	10:41:15 AM - 1/14/2021
709.03233	35.27	---	43.38	8.11	1000.0	120.000	400.0	H	45.0	23.0	10:37:41 AM - 1/14/2021
709.03233	---	24.02	43.38	19.36	1000.0	120.000	400.0	H	45.0	23.0	10:37:42 AM - 1/14/2021
711.94233	---	24.00	43.38	19.38	1000.0	120.000	328.0	V	134.0	22.9	2:03:43 PM - 1/20/2021
711.94233	35.40	---	43.38	7.98	1000.0	120.000	328.0	V	134.0	22.9	2:03:43 PM - 1/20/2021
846.25500	---	24.20	43.38	19.18	1000.0	120.000	102.0	H	264.0	24.2	2:01:44 PM - 1/20/2021
846.25500	35.84	---	43.38	7.54	1000.0	120.000	102.0	H	264.0	24.2	2:01:43 PM - 1/20/2021

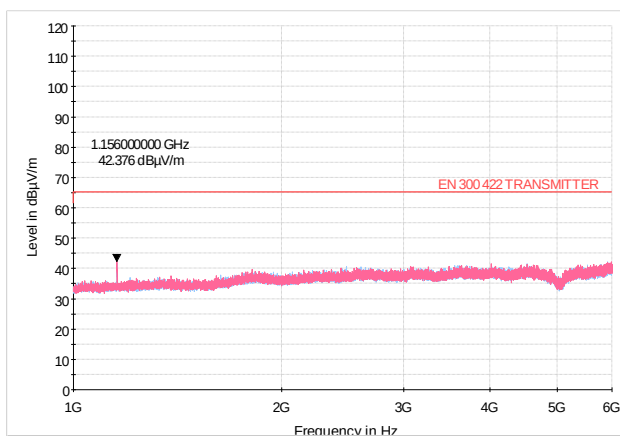
Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
 EUT: P9T H21
 Serial Number: Test Unit # 1
 Operating Frequency: High Frequency 578.000MHz
 RF Power Level: 50mW
 Tester Name: Sharjeel Sohail
 Date Tested: Tested on January 19, 2021

Full Spectrum



Critical Frequencies

Frequency (MHz)	Max Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Final Results

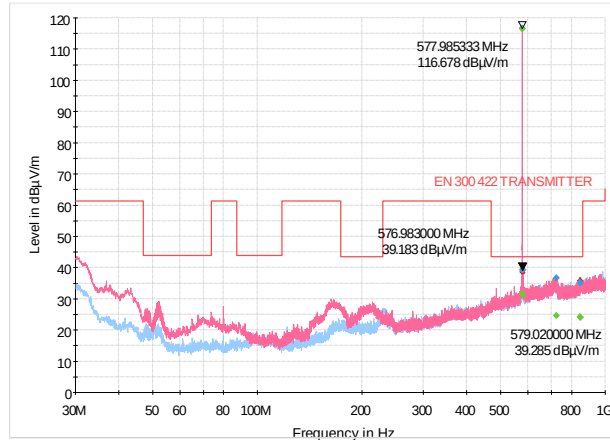
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 30MHz - 1GHz
EUT P9T H21
Serial Number Test Unit # 1
Operating Frequency: High Frequency 578.000MHz
RF Power Level 100mW
Tester Name Sharjeel Sohail
Date Tested Tested on January 20, 2021



Critical Frequencies

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
576.983000	38.66	43.38	4.72	---	---	100.0	V	13.0	20.5	11:20:38 AM - 1/14/2021
577.985333	116.88	43.38	-73.50	---	---	102.0	V	312.0	20.5	11:24:26 AM - 1/14/2021
579.020000	38.50	43.38	4.88	---	---	278.0	V	33.0	20.5	11:26:27 AM - 1/14/2021
723.711667	36.52	43.38	6.86	---	---	175.0	V	144.0	23.0	2:26:53 PM - 1/20/2021
844.864667	35.86	43.38	7.52	---	---	275.0	V	222.0	24.1	2:31:03 PM - 1/20/2021
848.809333	35.92	43.38	7.46	---	---	273.0	V	292.0	24.2	2:29:46 PM - 1/20/2021

Final Results

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
576.98300	39.18	---	43.38	4.20	1000.0	120.000	100.0	V	0.0	20.5	11:23:08 AM - 1/14/2021
576.98300	---	31.50	43.38	11.88	1000.0	120.000	100.0	V	0.0	20.5	11:23:08 AM - 1/14/2021
577.98533	116.53	---	43.38	-73.15	1000.0	120.000	102.0	V	312.0	20.5	11:24:38 AM - 1/14/2021
577.98533	---	116.42	43.38	-73.04	1000.0	120.000	102.0	V	312.0	20.5	11:24:38 AM - 1/14/2021
579.02000	39.29	---	43.38	4.09	1000.0	120.000	278.0	V	33.0	20.5	11:26:40 AM - 1/14/2021
579.02000	---	31.15	43.38	12.23	1000.0	120.000	278.0	V	33.0	20.5	11:26:41 AM - 1/14/2021
723.71166	36.62	---	43.38	6.76	1000.0	120.000	175.0	V	151.0	23.0	2:26:59 PM - 1/20/2021
723.71166	---	24.68	43.38	18.70	1000.0	120.000	175.0	V	151.0	23.0	2:26:59 PM - 1/20/2021
844.86466	---	24.10	43.38	19.28	1000.0	120.000	275.0	V	222.0	24.1	2:31:17 PM - 1/20/2021
844.86466	35.40	---	43.38	7.98	1000.0	120.000	275.0	V	222.0	24.1	2:31:16 PM - 1/20/2021
848.80933	---	24.05	43.38	19.33	1000.0	120.000	275.0	V	292.0	24.2	2:29:52 PM - 1/20/2021
848.80933	35.14	---	43.38	8.24	1000.0	120.000	275.0	V	292.0	24.2	2:29:51 PM - 1/20/2021

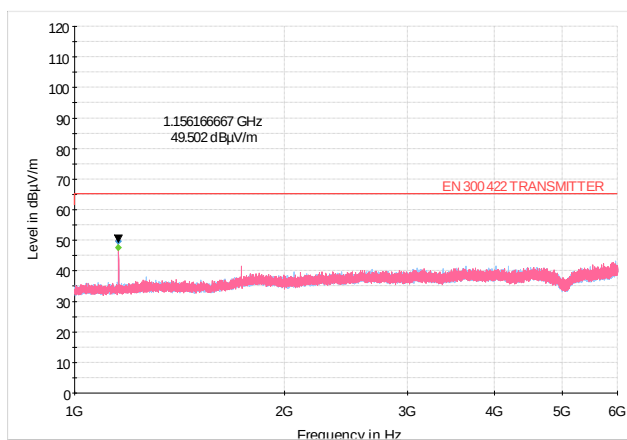
Appendix B

SHURE Radiated RF Emissions Test Report

Common Information

Test Description: FCC 74H Radiated Emissions 1GHz - 6GHz
EUT: P9T H21
Serial Number: Test Unit # 1
Operating Frequency: High Frequency 578.000MHz
RF Power Level: 100mW
Tester Name: Sharjeel Sohail
Date Tested: Tested on January 19, 2021

Full Spectrum



Critical Frequencies

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
1156.166667	49.7	65.23	15.48	---	---	100.0	V	39.0	-17.7	3:01:40 PM - 1/19/2021

Final Results

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
1156.166667	49.57	---	65.23	15.66	1000.0	1000.000	100.0	V	39.0	-17.7	3:01:50 PM - 1/19/2021
1156.166667	---	47.64	---	---	1000.0	1000.000	100.0	V	39.0	-17.7	3:01:50 PM - 1/19/2021

Appendix C

Maximum Conducted Power

Purpose:

This test performed to determine if the EUT meets the Maximum Conducted Power requirements of the FCC Part 74H, Section 74.861(e)(1)(ii), and RSS-210.

Requirements:

As stated in FCC Part 74H, Section 74.861(e)(1)(ii). RSS-210 requirement is for EIRP.

Measurement Uncertainty:

All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

Values of Expanded Measurement Uncertainty (95% Confidence)

Measurement Type	U_{lab}
Conducted measurements (30 MHz – 1000 MHz)	1.24 dB

U_{lab} = Determined for Shure EMC Laboratory

Since U_{lab} is less than or equal to U_{ETSI} :

- Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
Non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

Test Setup and Instrumentation:

Photographs of the test setup are shown in Figure C 1. The test instrumentation can be determined from Table 10-1.

EUT Operation:

The EUT was powered up and the frequency of the transmitter was selected using the front panel controls. For rated output power, the testing was performed with the EUT set to the low, middle, and high frequency within the operating frequency range, and at 10mW, 50mW, and 100mW RF output.

Appendix C**Specific Test Procedures:**

The output of the EUT was connected to the input of a 20dB attenuator. The output of the attenuator was connected to the input of an ETS-Lindgren EMPower USB RF Power Sensor.

The EMPower software was set to:

Trigger Level = -40dBm

Measure Time = 500mS

Sample Rate (S/s) = 5MS/s

Gap Time = 2.5mS

Threshold Level = -30dBc

Assembly Gain = 0dBi

Beamforming Gain = 0dB

The EUT was set to transmit on the low, middle, and high frequencies, and power levels of 10mW, 50mW, and 100mW.

Results:

The conducted RF power output for all frequencies measured meets the FCC 74H Section 74.861(e)(1)(ii).

The E.I.R.P. measurements meet the RSS-210 G.3.1 requirements.

The results are shown on page 46 thru page 52.

The temperature during the test was 75 degrees F, with relative humidity of 18%.

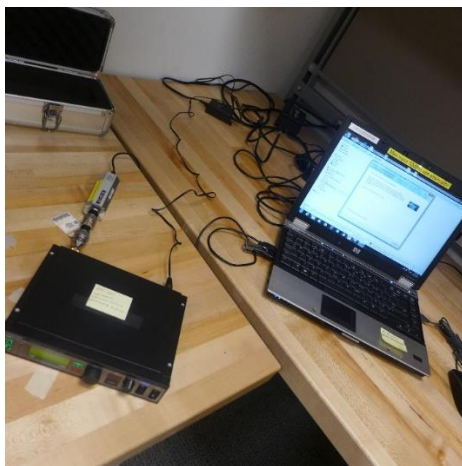


Figure C 1: Test setup for Maximum Power Output

Appendix C

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Power Output
 Operating Conditions: Low Frequency, 542.000, 10mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	Limit in dBm	Limit in mW	Margin In mW
10.28	10.67	23.98	250.00	239.33

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Low Frequency, 542.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	Limit in dBm	Limit in mW	Margin In mW
17.07	50.93	23.98	250.00	199.07

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Low Frequency, 542.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	Limit in dBm	Limit in mW	Margin In mW
19.86	96.83	23.98	250.00	153.17

Appendix C

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Middle Frequency, 560.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	Limit in dBm	Limit in mW	Margin In mW
10.29	10.69	23.98	250.00	239.31

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Middle Frequency, 560.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	Limit in dBm	Limit in mW	Margin In mW
17.08	51.05	23.98	250.00	198.95

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Middle Frequency, 560.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	Limit in dBm	Limit in mW	Margin In mW
19.82	95.94	23.98	250.00	154.06

Appendix C

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: High Frequency, 578.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	Limit in dBm	Limit in mW	Margin In mW
9.96	9.91	23.98	250.00	240.09

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: High Frequency, 578.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	Limit in dBm	Limit in mW	Margin In mW
16.76	47.42	23.98	250.00	202.58

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: High Frequency, 578.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: FCC Part 74H, Section 74.861(e)(1)(ii)
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	Limit in dBm	Limit in mW	Margin In mW
19.37	86.50	23.98	250.00	163.50

Appendix C

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Power Output
 Operating Conditions: Low Frequency, 542.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
10.28	10.67	1.2	2.15	13.63	23.07	250

$EIRP = (dBm) = \text{Measurement (dBm)} + \text{Antenna Gain} + \text{Equivalent Antenna Gain (dB)}$

H21 Measured antenna gain = 1.2dBi

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Low Frequency, 542.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
17.07	50.93	1.2	2.15	20.42	110.15	250

$EIRP = (dBm) = \text{Measurement (dBm)} + \text{Antenna Gain} + \text{Equivalent Antenna Gain (dB)}$

H21 Measured antenna gain = 1.2dBi

Appendix C

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Low Frequency, 542.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
19.86	96.83	1.2	2.15	23.21	209.41	250

$EIRP = (dBm) = \text{Measurement (dBm)} + \text{Antenna Gain} + \text{Equivalent Antenna Gain (dB)}$

H21 Measured antenna gain = 1.2dBi

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Middle Frequency, 560.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measured in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
10.29	10.69	1.2	2.15	13.64	23.12	250

$EIRP = (dBm) = \text{Measurement (dBm)} + \text{Antenna Gain} + \text{Equivalent Antenna Gain (dB)}$

G50 Measured antenna gain = 1.2dBi

Appendix C

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Middle Frequency, 560.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
17.08	51.05	1.2	2.15	20.43	110.41	250

EIRP = (dBm) = Measurement (dBm) + Antenna Gain + Equivalent Antenna Gain (dB)

H21 Measured antenna gain = 1.2dBi

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: Middle Frequency, 560.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
19.82	95.94	1.2	2.15	23.17	207.49	250

EIRP = (dBm) = Measurement (dBm) + Antenna Gain + Equivalent Antenna Gain (dB)

H21 Measured antenna gain = 1.2dBi

Appendix C

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: High Frequency, 578.000MHz, 10mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
9.96	9.91	1.2	2.15	13.31	21.43	250

EIRP = (dBm) = Measurement (dBm) + Antenna Gain + Equivalent Antenna Gain (dB)

H21 Measured antenna gain = 1.2dBi

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: High Frequency, 578.000MHz, 50mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
16.76	47.42	1.2	2.15	20.11	102.57	250

EIRP = (dBm) = Measurement (dBm) + Antenna Gain + Equivalent Antenna Gain (dB)

H21 Measured antenna gain = 1.2dBi

Test Information

EUT Name: P9T H21
 Serial Number: Test Unit # 1
 Test Description: Maximum Rated Output
 Operating Conditions: High Frequency, 578.000MHz, 100mW
 Operator Name: Frank Salmeron
 Comment: RSS-210
 Date Tested: Tested on January 21, 2021

Power Meter Measurement in dBm	Power Meter Measurement in mW	RSS-210: Measured Antenna Gain in dBi	RSS-210: Equivalent Antenna Gain in dB	RSS-210: EIRP in dBm	RSS-210: EIRP in mW	RSS-210: EIRP LIMIT in mW
19.37	86.50	1.2	2.15	22.72	187.07	250

EIRP = (dBm) = Measurement (dBm) + Antenna Gain + Equivalent Antenna Gain (dB)

H21 Measured antenna gain = 1.2dBi

Appendix D

FREQUENCY TOLERANCE

PURPOSE:

This test was performed to determine if the EUT meets the frequency stability requirements of the FCC Part 74H, Section 74.861(e)(4) and the RSS-210, G.3.1 specifications over the EUT operating frequency range of 542MHz to 578MHz.

REQUIREMENTS:

As stated in paragraph FCC 74.861(e)(4) and paragraph 6 of RSS-210 Table 1, for low power auxiliary stations operating in the bands allocated for TV broadcasting, the frequency tolerance of the transmitter shall be 0.005 percent. For RSS-210 G.3.1 the frequency tolerance is ± 50 ppm

MEASUREMENT UNCERTAINTY:

All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

Values of Expanded Measurement Uncertainty (95% Confidence):

Measurement Type	U_{lab}
Frequency Error (Stability)	.0000000583 ppm

U_{lab} = Determined for Shure EMC Laboratory

- Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- Non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

TEST SETUP AND INSTRUMENTATION:

The EUT was heated and cooled in an ESPEC temperature chamber over a temperature range of -30C to +50C. The temperature around the EUT was measured and monitored by a J-Type thermocouple connected to an Extech thermometer. The EUTs frequency was measured with a frequency counter set to measure signal count at 0.1Hz resolution. The EUT was measured at low, middle, and high frequencies. Photographs of the test setup are shown as Figure D-1. The test instrumentation can be determined from Table 10-1.

EUT OPERATION:

The antenna port of the EUT was connected to the 50 Ohm input of a frequency counter. The EUT was operated at 10mW, 50mW and 100mW. The EUT was set to transmit at a low, middle and high frequency within its operating band of H21 Band (542.000MHz to 578.000MHz).

Appendix D**TEST PROCEDURES:**

- a. The temperature chamber was set to 23C, ambient temperature, with the EUT inside and powered on.
- b. The EUT was allowed to soak for at least 20 minutes after the temperature chamber reached the set temperature.
- c. The measured frequency of the transmitter was measured on the frequency counter.
- d. Steps a. through c. were repeated at -30C through +50C in ten degree increments for representative low, mid and high frequencies within the EUTs operational band.

RESULTS:

The frequency stability measurements are presented on page 55 thru page 57. As shown by the test data, the test frequency deviation was within the 0.005 percent limit set out in the FCC Part 74H Section 74.861(e)(4). The test data also shows test frequency deviation was with the ± 50 ppm of RSS-210 specifications. The temperature in the test room during the test was 75 degrees F, with relative humidity of 18%.



Figure D-1 - Test Setup for Frequency Stability



Appendix D

Test Information

EUT Name:	P9T H21
Serial Number:	Test Unit # 1
Test Description:	FCC Part 74H Section 74.861(e)(4) Frequency Tolerance
Operating Conditions:	Low, Middle, and High frequency at 10mW, -30C to +50C
Operator Name:	Frank Salmeron
Comment:	R & S FSU Spectrum Analyzer and ESPEC Temp Chamber
Test Date:	March 2, 2021

Temp °C	Nominal Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	RSS-210 PPM	Pass Or Fail
-30	542.000	542.000168	0.0000310	0.005	168	0.30996309	PASS
-20	542.000	542.000018	0.0000033	0.005	18	0.33394833	PASS
-10	542.000	542.000183	0.0000338	0.005	183	0.33763837	PASS
0	542.000	542.000201	0.0000371	0.005	201	0.37084870	PASS
10	542.000	542.000014	0.0000027	0.005	14	0.26568265	PASS
20	542.000	542.000085	0.0000157	0.005	85	0.20848708	PASS
23	542.000	542.000140	0.0000258	0.005	140	0.25830258	PASS
30	542.000	542.000094	0.0000173	0.005	94	0.17343173	PASS
40	542.000	542.000082	0.0000151	0.005	82	0.15129151	PASS
50	542.000	542.000084	0.0000155	0.005	84	0.15498154	PASS
-30	560.000	560.000228	0.0000407	0.005	228	0.40714285	PASS
-20	560.000	560.000205	0.0000366	0.005	205	0.36607142	PASS
-10	560.000	560.000249	0.0000445	0.005	249	0.44464285	PASS
0	560.000	560.000221	0.0000395	0.005	221	0.39464285	PASS
10	560.000	560.000147	0.0001470	0.005	147	0.26249999	PASS
20	560.000	560.000115	0.0001150	0.005	115	0.20535714	PASS
23	560.000	560.000140	0.0001400	0.005	140	0.24999999	PASS
30	560.000	560.000098	0.0000980	0.005	98	0.17499999	PASS
40	560.000	560.000084	0.0000840	0.005	84	0.15000000	PASS
50	560.000	560.000088	0.0000880	0.005	88	0.15714285	PASS
-30	578.000	578.000199	0.0000344	0.005	199	0.34429065	PASS
-20	578.000	578.000190	0.0000329	0.005	190	0.32871972	PASS
-10	578.000	578.000210	0.0000363	0.005	210	0.36332179	PASS
0	578.000	578.000232	0.0000401	0.005	232	0.40138408	PASS
10	578.000	578.000150	0.0000260	0.005	150	0.25951557	PASS
20	578.000	578.000117	0.0000202	0.005	117	0.20242214	PASS
23	578.000	578.000118	0.0000204	0.005	118	0.20415224	PASS
30	578.000	578.000101	0.0000175	0.005	101	0.17474048	PASS
40	578.000	578.000088	0.0000152	0.005	88	0.15224913	PASS
50	578.000	578.000085	0.0000147	0.005	85	0.14705882	PASS



Appendix D

Test Information

EUT Name:

Serial Number:

Test Description:

Operating Conditions:

Operator Name:

Comment:

Test Date

P9T H21

Test Unit # 1

FCC Part 74H Section 74.861(e)(4) Frequency Tolerance

Low, Middle, and High frequency at 50mW, -30C to +50C

Frank Salmeron

R & S FSU Spectrum Analyzer and ESPEC Temp Chamber

March 2, 2021

Temp °C	Nominal Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	RSS-210 PPM	Pass Or Fail
-30	542.000	542.000174	0.0000321	0.005	174	0.32103321	PASS
-20	542.000	542.000255	0.0000470	0.005	255	0.47047970	PASS
-10	542.000	542.000249	0.0000459	0.005	249	0.45940959	PASS
0	542.000	542.000203	0.0000375	0.005	203	0.37453874	PASS
10	542.000	542.000144	0.0000266	0.005	144	0.26568265	PASS
20	542.000	542.000114	0.0000210	0.005	114	0.21033210	PASS
23	542.000	542.000143	0.0000264	0.005	143	0.26383763	PASS
30	542.000	542.000097	0.0000970	0.005	97	0.17896678	PASS
40	542.000	542.000084	0.0000155	0.005	84	0.15498154	PASS
50	542.000	542.000086	0.0000159	0.005	86	0.15867158	PASS
-30	560.000	560.000191	0.0000341	0.005	191	0.34107142	PASS
-20	560.000	560.000195	0.0000348	0.005	195	0.34821428	PASS
-10	560.000	560.000200	0.0000357	0.005	200	0.35714285	PASS
0	560.000	560.000218	0.0000389	0.005	218	0.38928571	PASS
10	560.000	560.000147	0.0000262	0.005	147	0.26249999	PASS
20	560.000	560.000116	0.0000207	0.005	116	0.20714285	PASS
23	560.000	560.000134	0.0000239	0.005	134	0.23928571	PASS
30	560.000	560.000099	0.0000177	0.005	99	0.17678571	PASS
40	560.000	560.000085	0.0000152	0.005	85	0.15178571	PASS
50	560.000	560.000084	0.0000	0.005	84	0.14821428	PASS
-30	578.000	578.000208	0.0000360	0.005	208	0.35986159	PASS
-20	578.000	578.000196	0.0000339	0.005	196	0.33910034	PASS
-10	578.000	578.000190	0.0000329	0.005	190	0.32871972	PASS
0	578.000	578.000229	0.0000396	0.005	229	0.39619377	PASS
10	578.000	578.000150	0.0000260	0.005	150	0.25951557	PASS
20	578.000	578.000120	0.0000208	0.005	120	0.20761245	PASS
23	578.000	578.000118	0.0000204	0.005	118	0.20415224	PASS
30	578.000	578.000100	0.0000173	0.005	100	0.17301038	PASS
40	578.000	578.000089	0.0000154	0.005	89	0.15397923	PASS
50	578.000	578.000091	0.0000157	0.005	91	0.15743944	PASS



Appendix D

Test Information

EUT Name:	P9T H21
Serial Number:	Test Unit # 1
Test Description:	FCC Part 74H Section 74.861(e)(4) Frequency Tolerance
Operating Conditions:	Low, Middle, and High frequency at 100mW, -30C to +50C
Operator Name:	Frank Salmeron
Comment:	R & S FSU Spectrum Analyzer and ESPEC Temp Chamber
Test Date:	March 2, 2021

Temp °C	Nominal Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	RSS-210 PPM	Pass Or Fail
-30	542.000	542.000167	0.0000308	0.005	167	0.30818808	PASS
-20	542.000	542.000205	0.0000378	0.005	205	0.37822878	PASS
-10	542.000	542.000211	0.0000389	0.005	211	0.38929889	PASS
0	542.000	542.000204	0.0000376	0.005	204	0.37638376	PASS
10	542.000	542.000143	0.0000264	0.005	143	0.26383763	PASS
20	542.000	542.000113	0.0000208	0.005	113	0.20848708	PASS
23	542.000	542.000150	0.0000277	0.005	150	0.27675276	PASS
30	542.000	542.000098	0.0000181	0.005	98	0.1808118	PASS
40	542.000	542.000086	0.0000159	0.005	86	0.15867158	PASS
50	542.000	542.000084	0.0000155	0.005	84	0.15498154	PASS
-30	560.000	560.000220	0.0000393	0.005	220	0.39285714	PASS
-20	560.000	560.000197	0.0000352	0.005	197	0.35178571	PASS
-10	560.000	560.000203	0.0000363	0.005	203	0.36250000	PASS
0	560.000	560.000216	0.0000386	0.005	216	0.38571428	PASS
10	560.000	560.000149	0.0000266	0.005	149	0.26607142	PASS
20	560.000	560.000115	0.0000205	0.005	115	0.20535714	PASS
23	560.000	560.000130	0.0000232	0.005	130	0.23214285	PASS
30	560.000	560.000099	0.0000177	0.005	99	0.17678571	PASS
40	560.000	560.000084	0.0000150	0.005	84	0.15000000	PASS
50	560.000	560.000087	0.0000870	0.005	87	0.15535714	PASS
-30	578.000	578.000229	0.0000396	0.005	229	0.39619377	PASS
-20	578.000	578.000230	0.0000398	0.005	230	0.39792387	PASS
-10	578.000	578.000172	0.0000298	0.005	172	0.29757785	PASS
0	578.000	578.000219	0.0000379	0.005	219	0.37889273	PASS
10	578.000	578.000151	0.0000261	0.005	151	0.26124567	PASS
20	578.000	578.000116	0.0000201	0.005	116	0.20069204	PASS
23	578.000	578.000118	0.0000204	0.005	118	0.20415224	PASS
30	578.000	578.000102	0.0000176	0.005	102	0.17647058	PASS
40	578.000	578.000087	0.0000151	0.005	87	0.15397923	PASS
50	578.000	578.000088	0.00000152	0.005	88	0.15224913	PASS