# 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<br>Position | March 9, 2021<br>Date |

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| 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 appendixes.

# 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 995 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 | **±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.

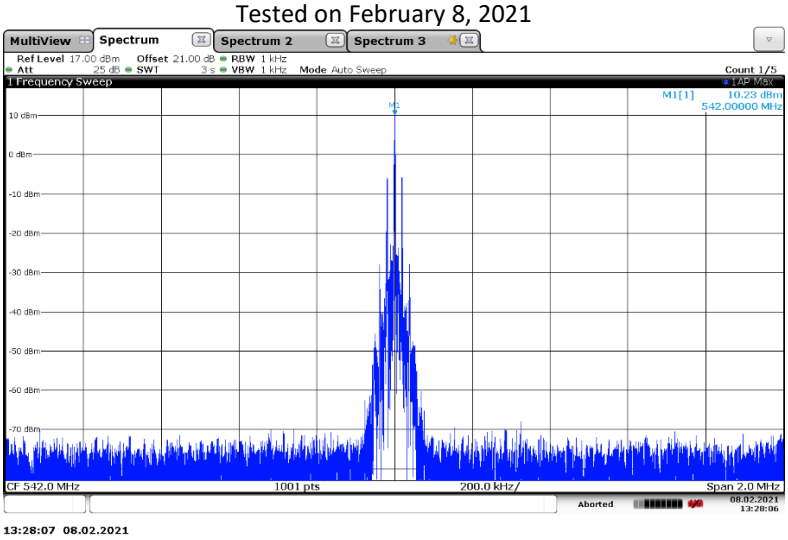
The temperature during the testing was 74 degrees F, with relative humidity of 17%.

**Figure A-1 - Test Setup for Necessary Bandwidth**

**Appendix A**

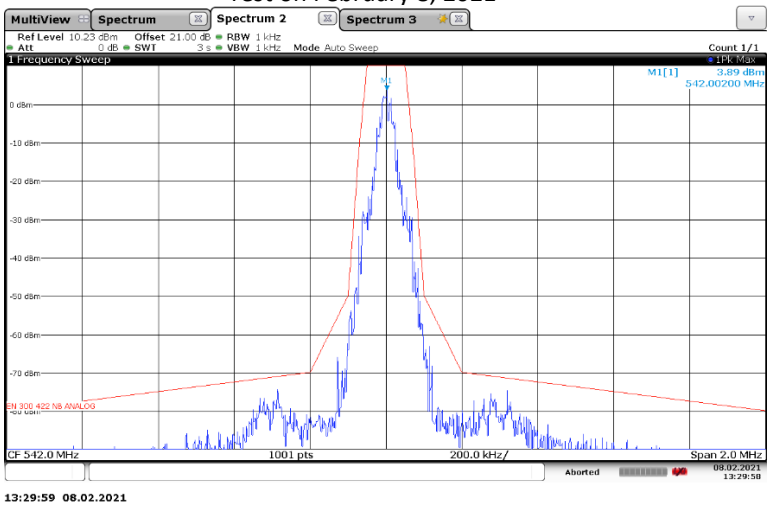
## Test Information

| | |
|---|---|
| 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

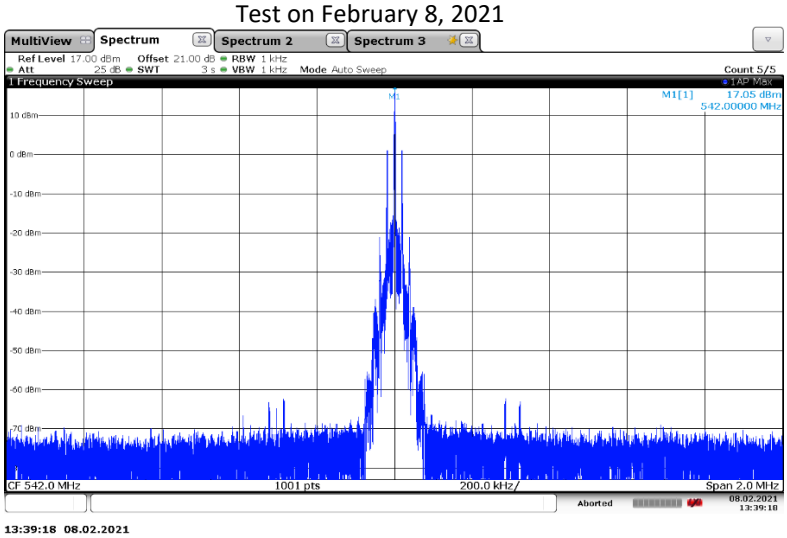
| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | Low Frequency, 542.000MHz, 10mW |
| Operator Name: | Frank Salmeron |
| Comment: | Maximum Relative Level |
| Date Tested: | Test on February 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: | Low Frequency, 542.000MHz, 50mW |
| Operator Name: | Frank Salmeron |
| Comment: | Carrier Power |
| Date Tested: | Test on February 8, 2021 |

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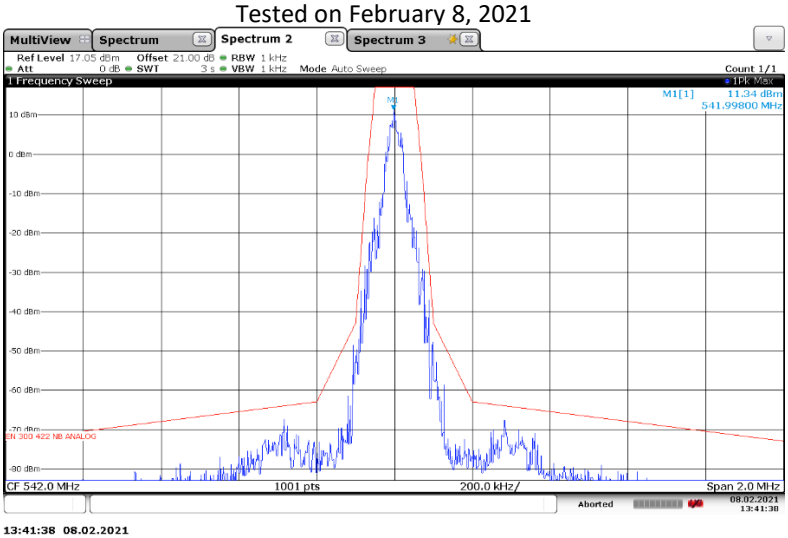
## Test Information

| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | Low Frequency, 542.000MHz, 50mW |
| Operator Name: | Frank Salmeron |
| Comment: | Maximum Relative Level |
| Date Tested: | Tested on February 8, 2021 |

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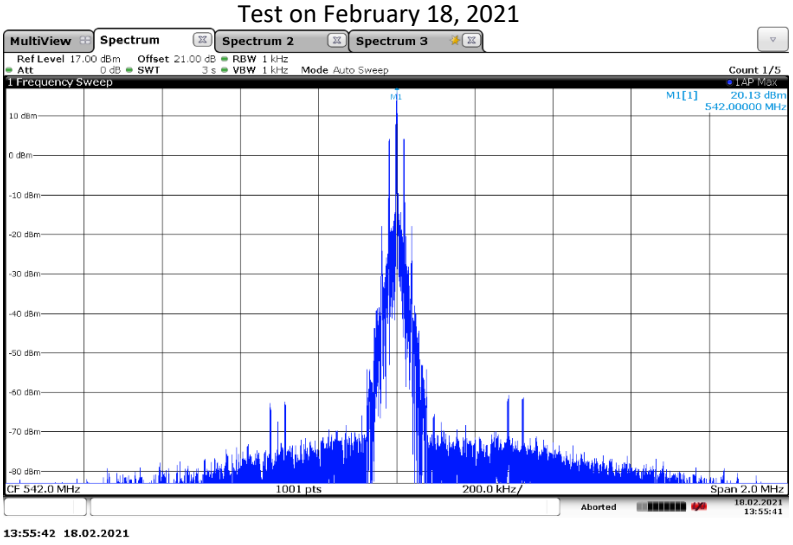
**Appendix A**

## Test Information

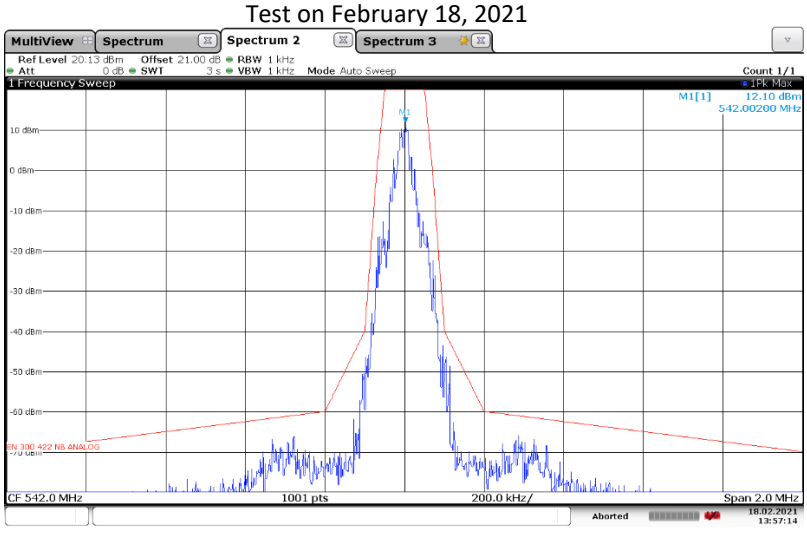
| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | Low Frequency, 542.000MHz, 100mW |
| Operator Name: | Frank Salmeron |
| Comment: | Carrier Power |
| Date Tested: | Test on February 18,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




13:55:42 18.02.2021

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

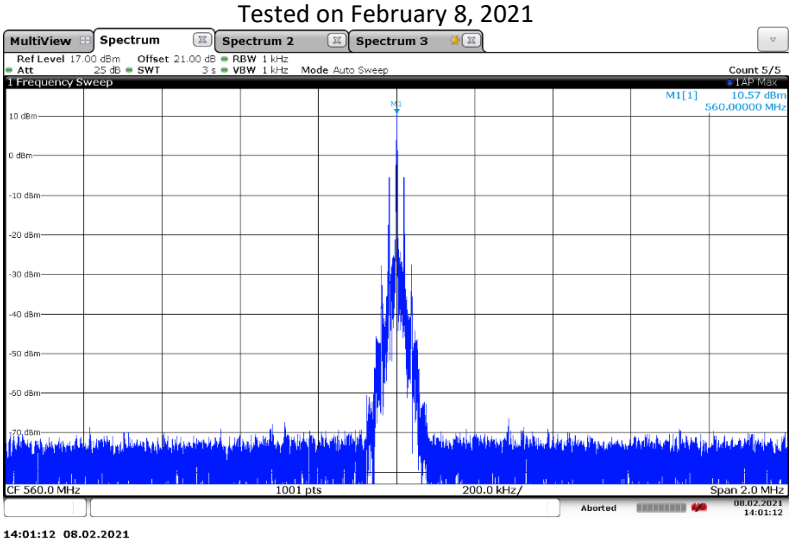



13:57:15 18.02.2021

**Appendix A**

## Test Information

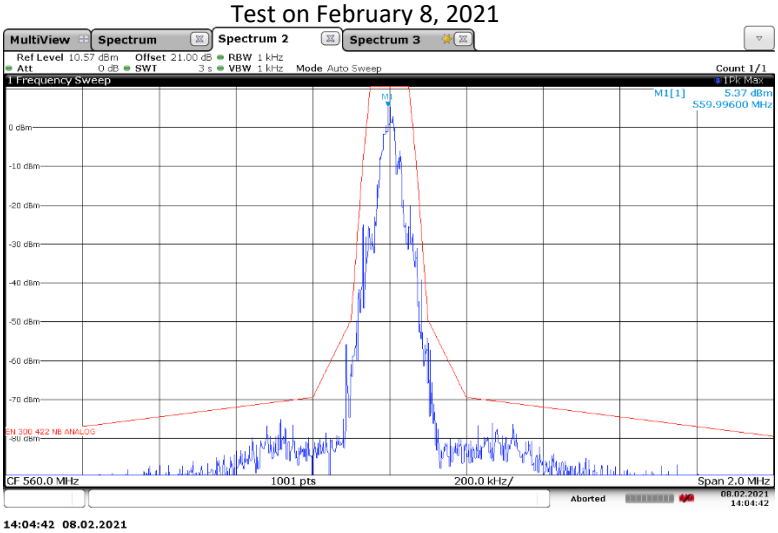
| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | Middle Frequency, 560.000MHz, 10mW |
| Operator Name: | Frank Salmeron |
| Comment: | Carrier Power |
| Date Tested: | Tested on February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




14:01:12 08.02.2021

## 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: | Maximum Relative Level |
| Date Tested: | Test on February 8, 2021 |

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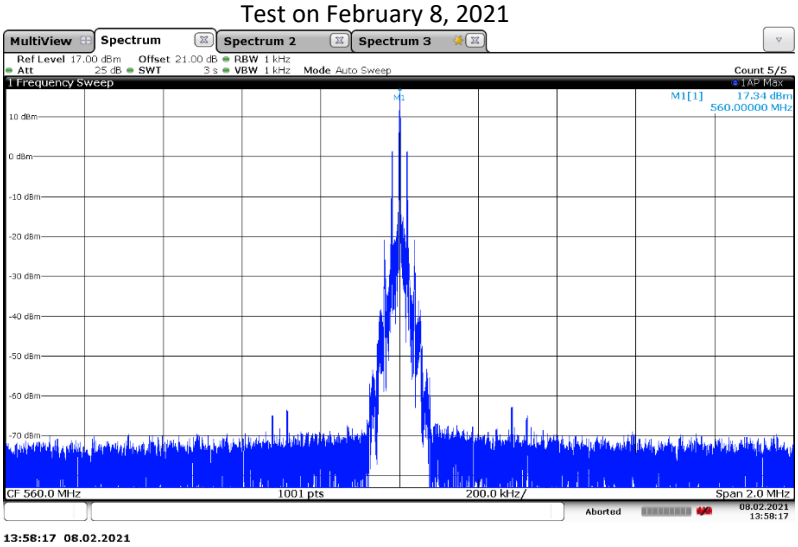
**Appendix A**

## Test Information

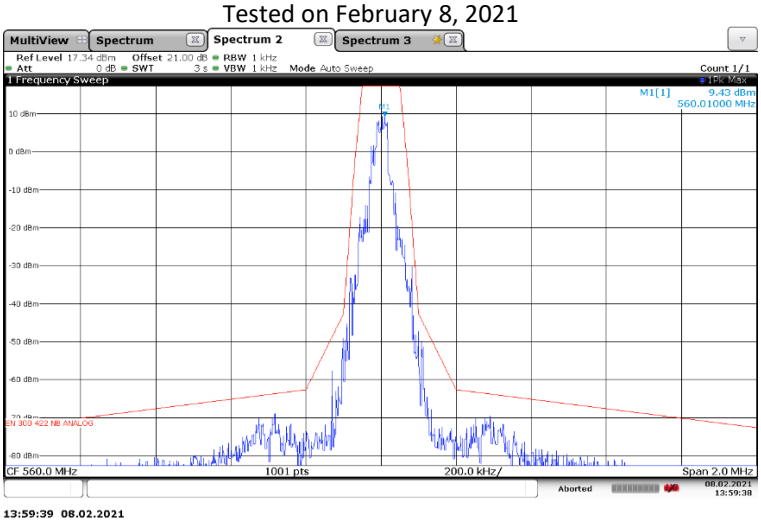
| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | Middle Frequency, 560.000MHz, 50mW |
| Operator Name: | Frank Salmeron |
| Comment: | Carrier Power |
| Date Tested: | Test on February 8, 2021 |




13:58:17 08.02.2021

## 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, 50mW |
| Operator Name: | Frank Salmeron |
| Comment: | Maximum Relative Level |
| Date Tested: | Tested on February 8, 2021 |

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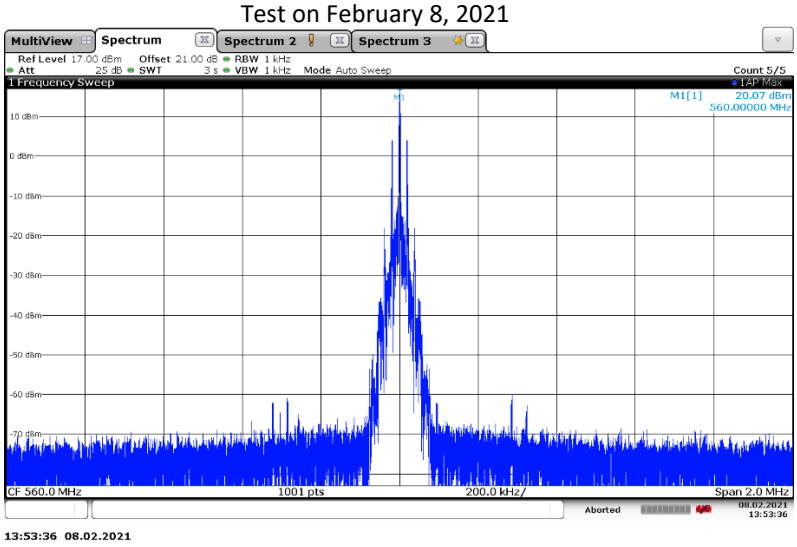
**Appendix A**

## 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 |

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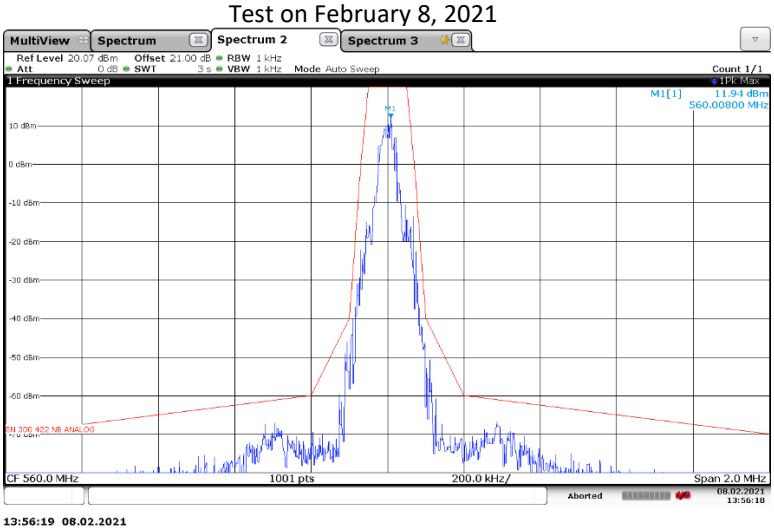
## Test Information

| | |
|---|---|
| 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: | Maximum Relative Level |
| Date Tested: | Test on February 8, 2021 |

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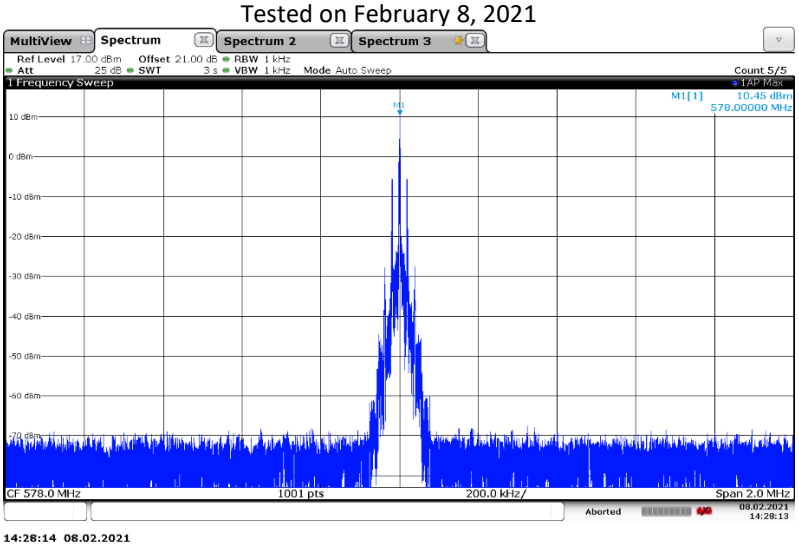
**Appendix A**

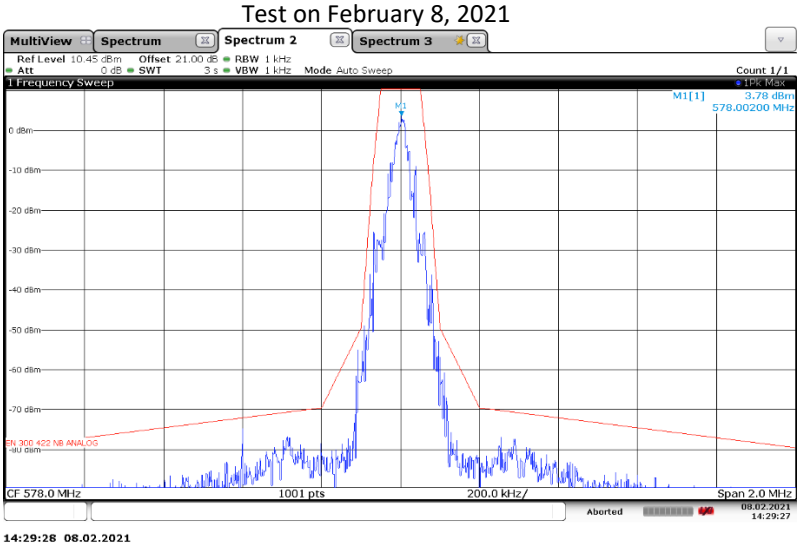
## Test Information

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

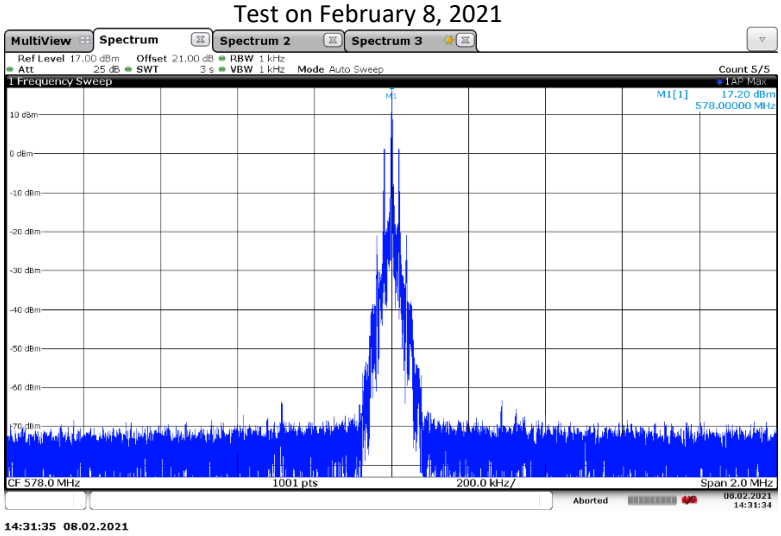
EUT Name: P9T H21
Serial Number: Test Unit # 1
Test Description: EN 300 422 Analog Necessary Bandwidth
Operating Conditions: High Frequency, 578.000MHz, 10mW
Operator Name: Frank Salmeron
Comment: Maximum Relative Level
Date Tested: Test on February 8, 2021



**Appendix A**

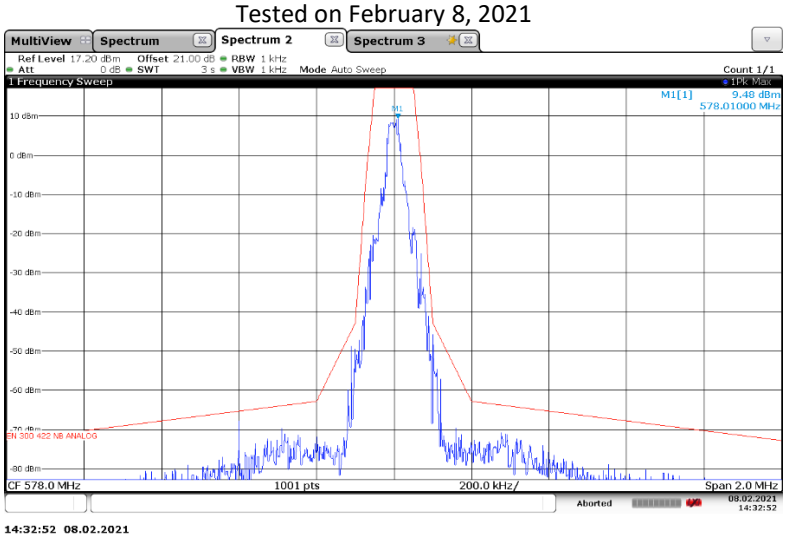
## Test Information

| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | High Frequency, 578.000MHz, 50mW |
| Operator Name: | Frank Salmeron |
| Comment: | Carrier Power |
| Date Tested: | Test on February 8, 2021 |




## Test Information

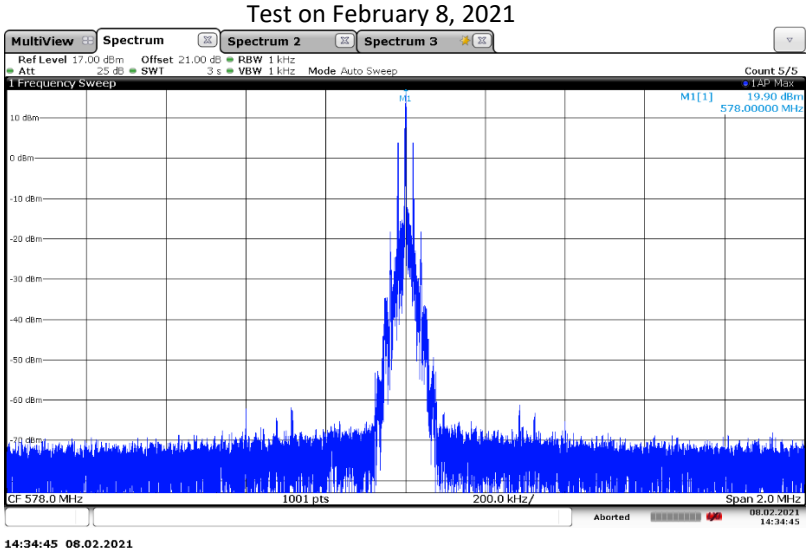
| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | High Frequency, 578.000MHz, 50mW |
| Operator Name: | Frank Salmeron |
| Comment: | Maximum Relative Level |
| Date Tested: | Tested on February 8, 2021 |



**Appendix A**

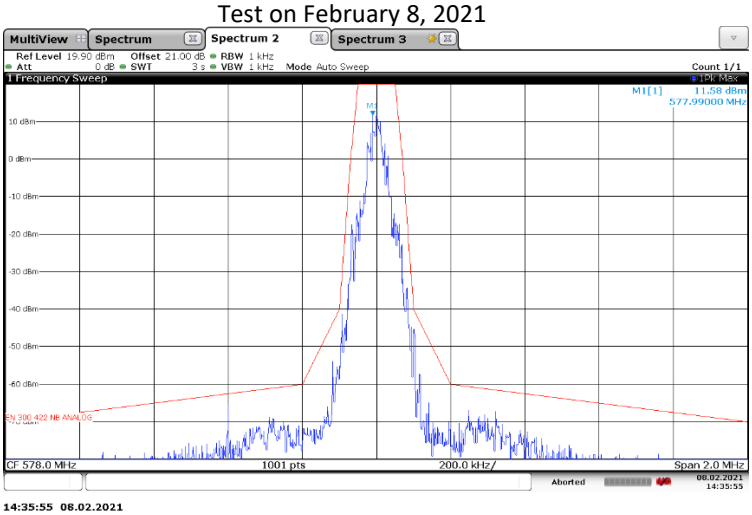
## Test Information

| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | High Frequency, 578.000MHz, 100mW |
| Operator Name: | Frank Salmeron |
| Comment: | Carrier Power |
| Date Tested: | Test on February 8, 2021 |




## Test Information

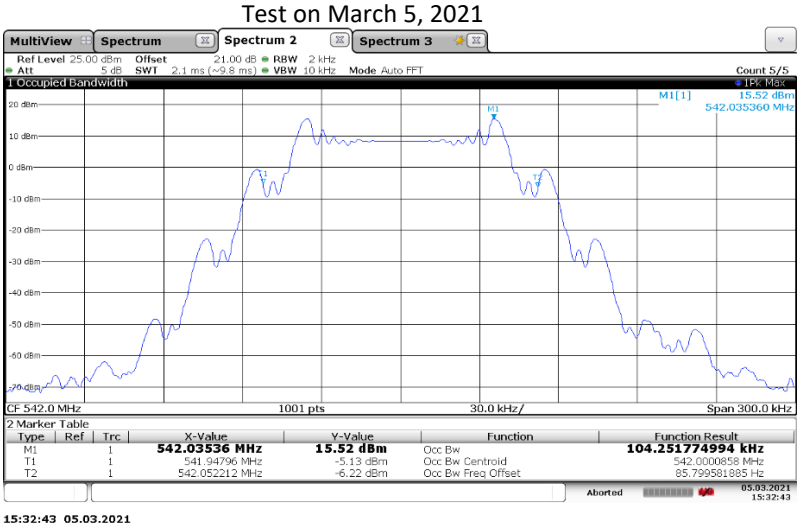
| | |
|---|---|
| EUT Name: | P9T H21 |
| Serial Number: | Test Unit # 1 |
| Test Description: | EN 300 422 Analog Necessary Bandwidth |
| Operating Conditions: | High Frequency, 578.000MHz, 100mW |
| Operator Name: | Frank Salmeron |
| Comment: | Maximum Relative Level |
| Date Tested: | Test on February 8, 2021 |



**Appendix A**

## Test Information

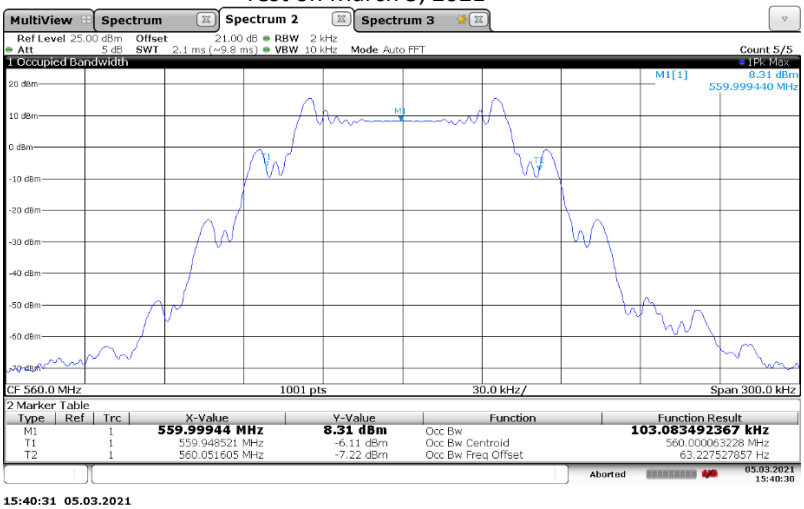
EUT Name: P9T H21
Serial Number: Test Unit # 1
Test Description: RSS-Gen 99% Emissions Bandwidth
Operating Conditions: Low Frequency, 542.000MHz, 100mW
Operator Name: Frank Salmeron
Comment:
Date Tested: Test on March 5, 2021




15:32:43 05.03.2021

## 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

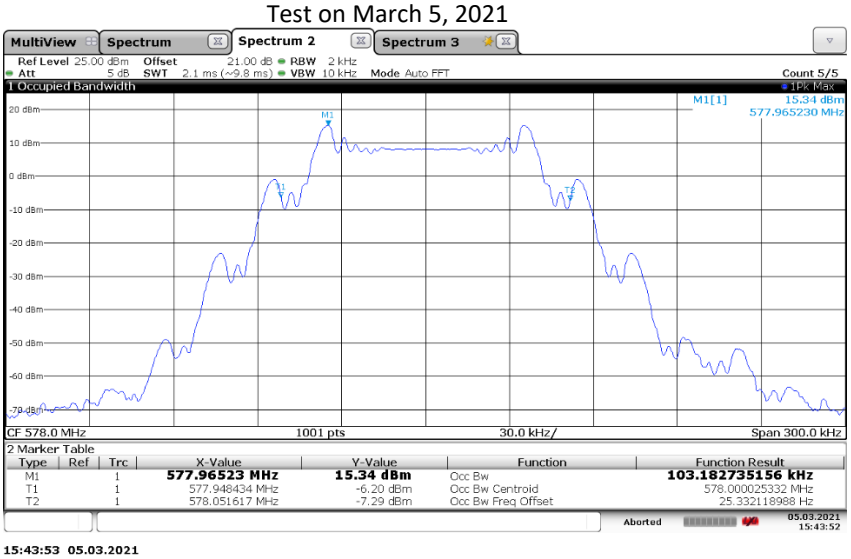



15:40:31 05.03.2021

**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 10$^{th}$ 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:**

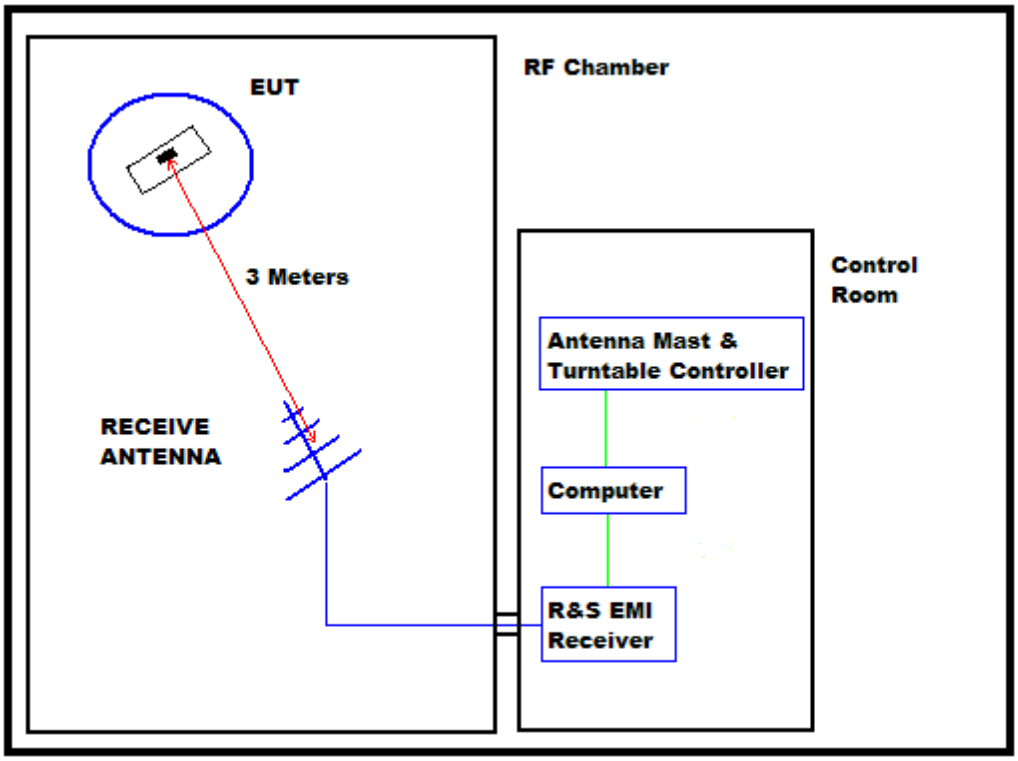
The EUT was powered up and the frequency of the transmitter was selected using the front panel controls. The EUT was checked for proper operation after it was setup on the test table. For radiated spurious emissions the testing was performed with the EUT set to the low, middle, and high frequencies with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

i. The EUT was rotated so that all of its sides were exposed to the receiving antenna.
ii. Since the measuring antennas are linearly polarized, both horizontal and vertical field components were measured.
iii. 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%.

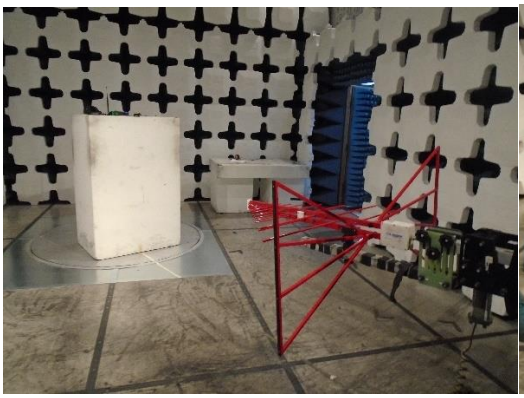


**Figure B 1: P9T Transmitter Test Setup**

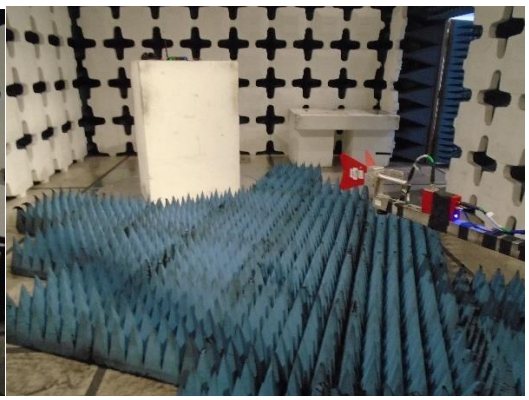


**Figure B 2: P9T Transmitter Test Setup**

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

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: | 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

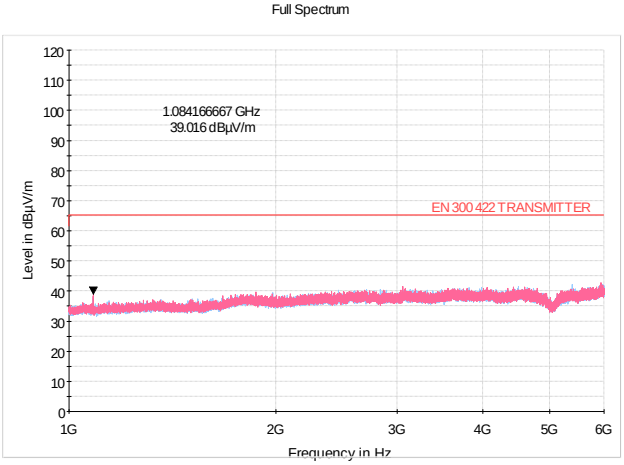
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 540.996000 | 38.49 | --- | 43.38 | 4.89 | 1000.0 | 120.000 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

Final Results

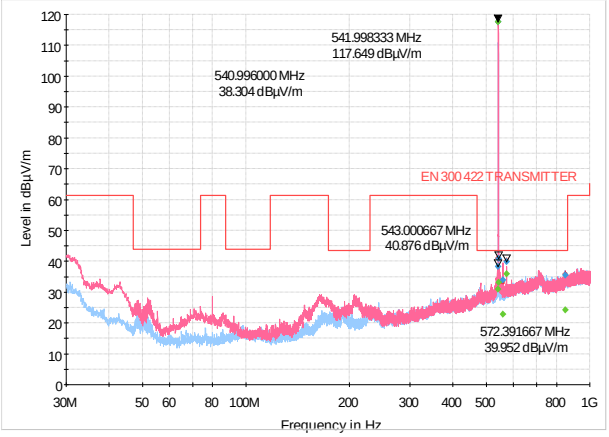
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

**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: | 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

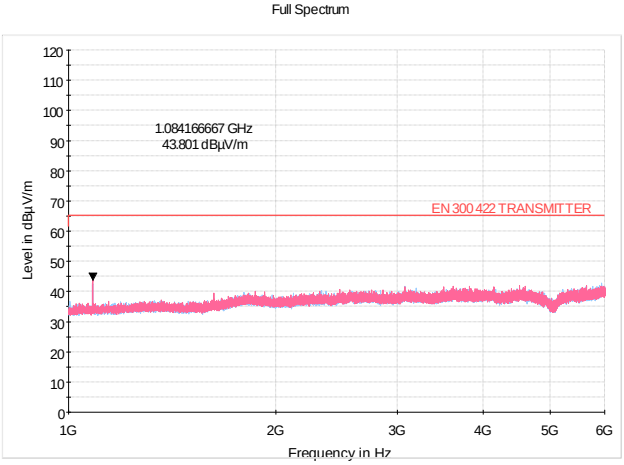
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 540.996000 | --- | 30.95 | 43.38 | 12.43 | 1000.0 | 120.000 | 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 |




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 |
|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

Final Results

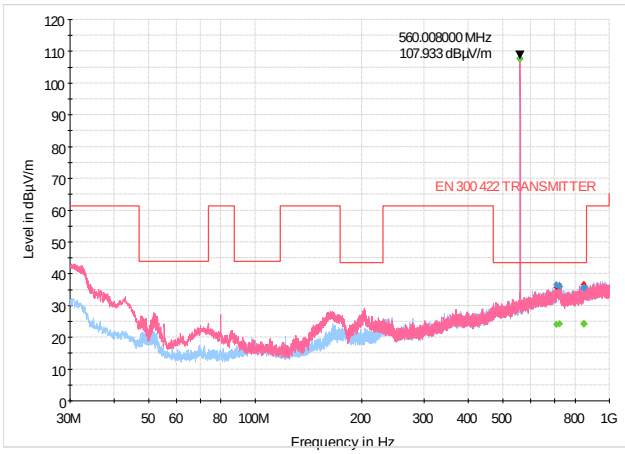
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

**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 | 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

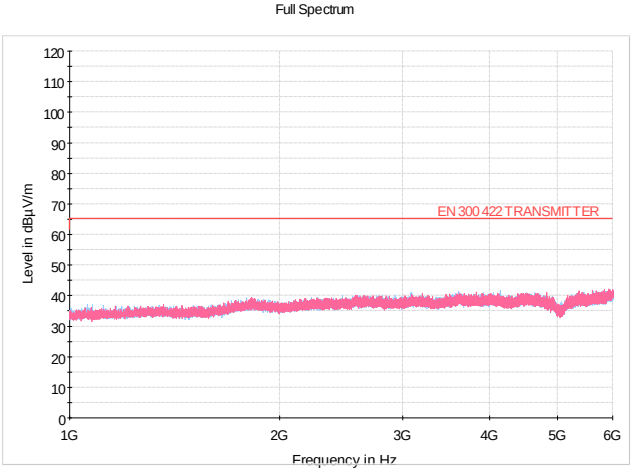
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 560.008000 | --- | 107.60 | 43.38 | -64.22 | 1000.0 | 120.000 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

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 | 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

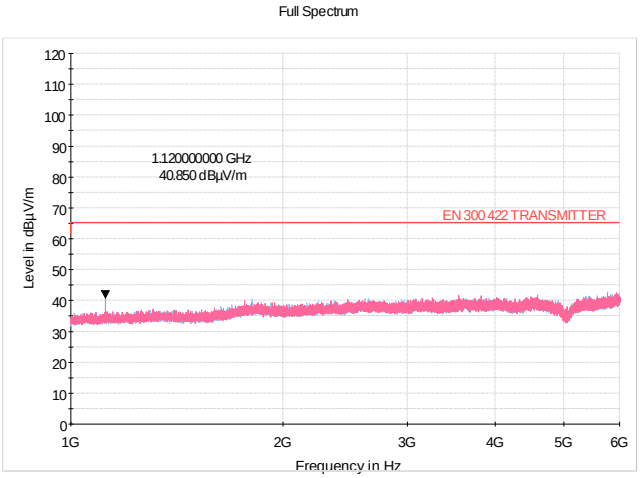
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 560.008000 | --- | 114.17 | 43.38 | -70.79 | 1000.0 | 120.000 | 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 |




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

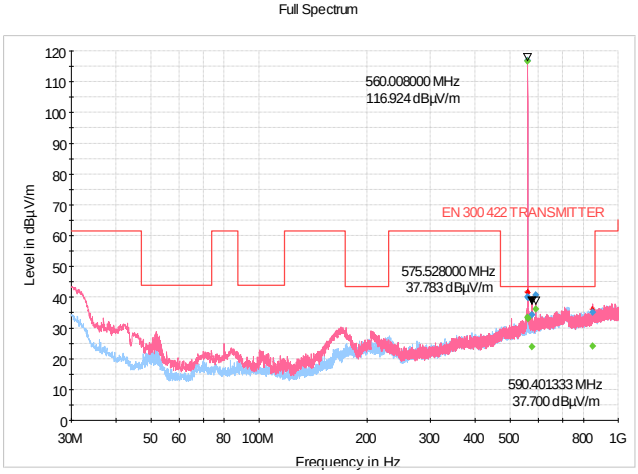
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

**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 |




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

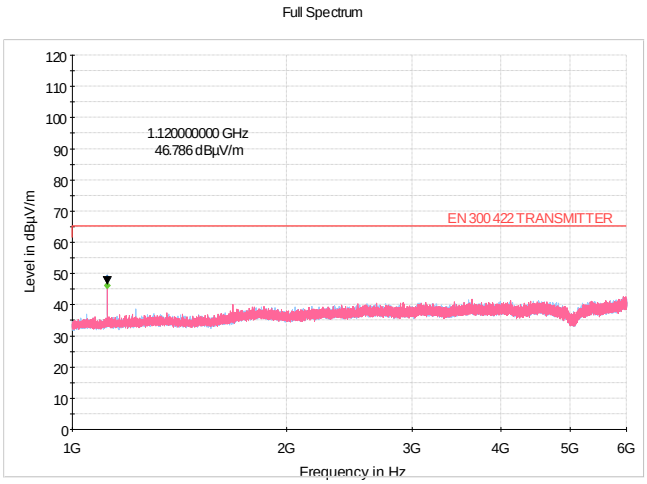
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 558.908667 | 40.08 | --- | 43.38 | 3.30 | 1000.0 | 120.000 | 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 |




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

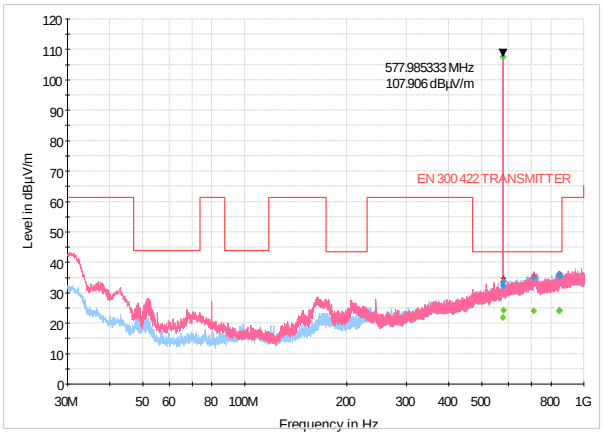
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1120.000000 | 48.45 | --- | 65.23 | 16.78 | 1000.0 | 1000.000 | 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

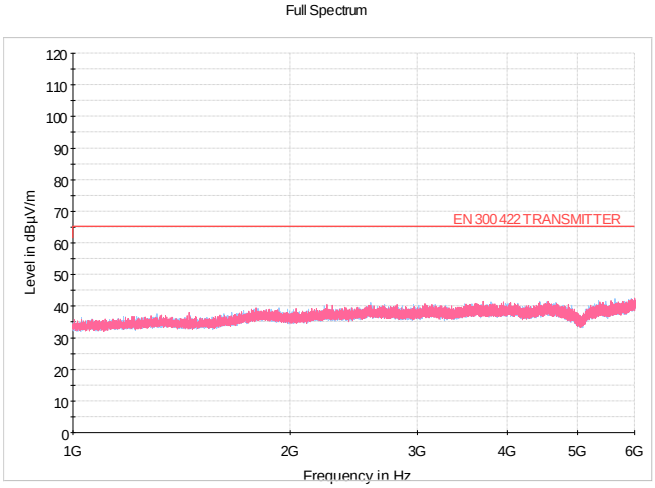
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 576.98300 | --- | 21.87 | 43.38 | 21.51 | 1000.0 | 120.000 | 375.0 | 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 |




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 |
|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

Final Results

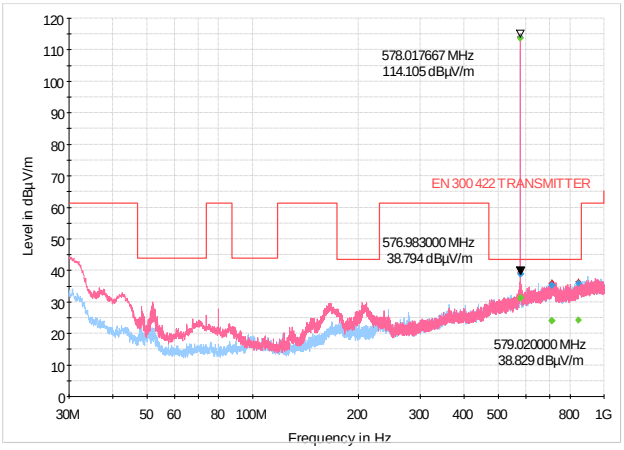
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

**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: | 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

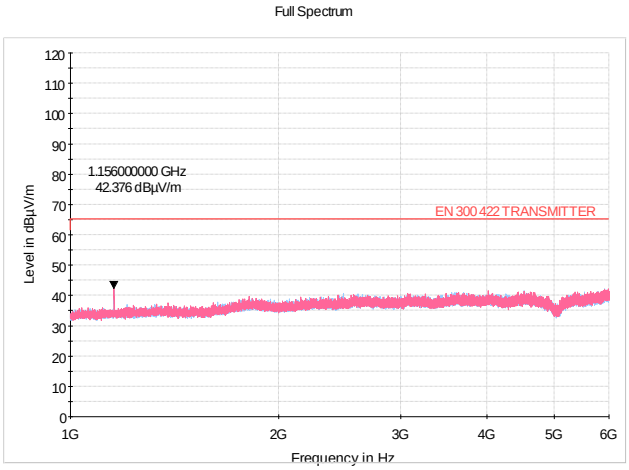
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 576.98300 | --- | 31.14 | 43.38 | 12.24 | 1000.0 | 120.000 | 102.0 | 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 |




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 |
|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

Final Results

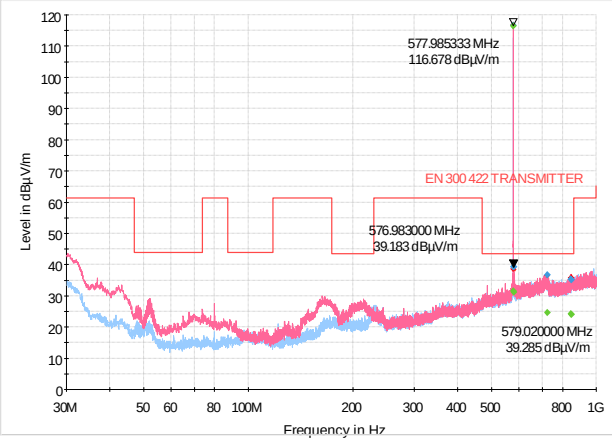
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | --- | --- | --- | | --- | --- | |

**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: | 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

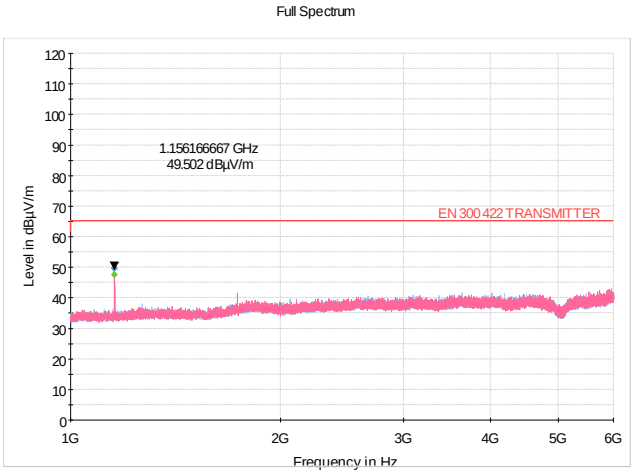
| Frequency (MHz) | MaxPeak (dBµV/m) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 576.98300 | 39.18 | --- | 43.38 | 4.20 | 1000.0 | 120.000 | 100.0 | 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 |




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%.

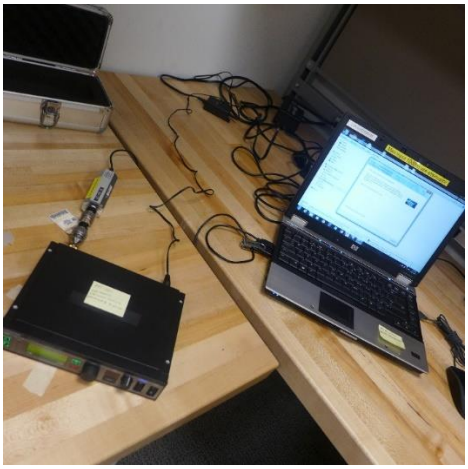


**Figure C 1: Test setup for Maximum Power Output**

**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) = 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: | 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) = 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: | 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) = 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, 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) = Measurement (dBm) + Antenna Gain + 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 ±50ppm

**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 ±50ppm 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: | 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 50mW, -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 | 542.000174 | 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 |