



FCC PART 74 SUBPART H
ISED C RSS-210, ISSUE 11, JUNE 2024
TEST REPORT

For

Lectrosonics, Inc.

581 Laser Rd. NE
Rio Rancho, NM 87124, USA

FCC ID: DBZDSSMA
IC: 8024A-DSSMA

Report Type: Original Report	Product Type: Digital Wireless Microphone Transmitter
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Report Number: R2411181-74	
Report Date: 2025-01-15	
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* This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "*" (Rev.2)

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R2411181-74	Original Report	2024-01-15

1. General Description

1.1 Product Description for Equipment Under Test (EUT)

This test report has been compiled on behalf of *Lectrosonics, Inc.* and their product model: *DSSM-A1B1* (FCC ID: DBZDSSMA, IC: 8024A-DSSMA), which henceforth is referred to as the EUT. The EUT is a Digital Wireless Microphone Transmitter. The EUT operates in the frequency range: 470.100 – 607.950 MHz.

1.2 Mechanical Description of EUT

The EUT measures approximately: 6.6 cm (L) x 4.9 cm (W) x 1.7 cm (H), and weighs approximately 0.1 kg.

The data gathered are from the typical production sample provided by the Lectrosonics, Inc. with serial number 103.

1.3 Objective

The following test report was prepared on behalf of *Lectrosonics, Inc.* in accordance with Part 74, Subparts H of the Federal Communications Commission rules and RSS-210 Issue 11.

The objective was to determine compliance with Part 74 of the FCC Rules, and RSS-210 Issue 11, limits for RF output power, Operating Bandwidth & Emission Mask, Field strength at Spurious Emissions, and Frequency Stability.

1.4 Related Submittal(s)/Grant(s)

None

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI/TIA-603-E-2016, FCC KDB 971168 D01 Power Meas License Digital Systems v03r01, KDB 206256 D01v02 and ETSI EN 300 422-1 v2.2.1 (2021-11) Wireless Microphones; Audio PMSE up to 3 GHz; Part 1: Audio PMSE Equipment up to 3 GHz; Harmonised Standard for access to radio spectrum.

All tests were performed at Bay Area Compliance Laboratories Corp.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Parameter	Measurement uncertainty
Occupied Channel Bandwidth	±5%
RF output power, conducted	±0.57 dB
Power Spectral Density, conducted	±1.48 dB
Unwanted Emissions, conducted	±1.57 dB
All emissions, radiated	±4.0 dB
AC power line Conducted Emission	±2.0 dB
Temperature	±2°C
Humidity	±5%
DC and low frequency voltages	±1.0%
Time	±2%
Duty Cycle	±3%

1.7 Test Facility Registrations

BACLs test facilities that are used to perform Radiated and Conducted Emissions tests are currently recognized by the Federal Communications Commission as Accredited with NIST Designation Number US1129.

BACL's test facilities that are used to perform Radiated and Conducted Emissions tests are currently registered with Innovation, Science and Economic development Canada under Registration Numbers: 3062A.

BACL is a Chinese Taipei Bureau of Standards Metrology and Inspection (BSMI) validated Conformity Assessment Body (CAB), under Appendix B, Phase I Procedures of the APEC Mutual Recognition Arrangement (MRA). BACL's BSMI Lab Code Number is: SL2-IN-E-1002R

BACL's test facilities that are used to perform AC Line Conducted Emissions, Telecommunications Line Conducted Emissions, Radiated Emissions from 30 MHz to 1 GHz, and Radiated Emissions from 1 GHz to 6 GHz are currently recognized as Accredited in accordance with the Voluntary Control Council for Interference [VCCI] Article 15 procedures under Registration Number A-0428.

1.8 Test Facility Accreditations

Bay Area Compliance Laboratories Corp. (BACL) is:

A- An independent, 3rd-Party, Commercial Test Laboratory accredited to ISO/IEC 17025:20127 by A2LA (Test Laboratory Accreditation Certificate Number 3297.02), in the fields of: Electromagnetic Compatibility and Telecommunications. Unless noted by an Asterisk (*) in the Compliance Matrix (See Section 3 of this Test Report), BACL's ISO/IEC 17025:2017 Scope of Accreditation includes all of the Test Method Standards and/or the Product Family Standards detailed in this Test Report..

BACL's ISO/IEC 17025:2017 Scope of Accreditation includes a comprehensive suite of EMC Emissions, EMC Immunity, Radio, RF Exposure, Safety and wireline Telecommunications test methods applicable to a wide range of product categories. These product categories include Central Office Telecommunications Equipment [including NEBS - Network Equipment Building Systems], Unlicensed and Licensed Wireless and RF devices, Information Technology Equipment (ITE); Telecommunications Terminal Equipment (TTE); Medical Electrical Equipment; Industrial, Scientific and Medical Test Equipment; Professional Audio and Video Equipment; Industrial and Scientific Instruments and Laboratory Apparatus; Cable Distribution Systems, and Energy Efficient Lighting.

B- A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body

- - For the USA (Federal Communications Commission):

- 1- All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
- 2- All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
- 3- All Telephone Terminal Equipment within FCC Scope C.

- For the Canada (Innovation, Science and Economic development Canada - ISED):

- 1- All Scope 1-Licence-Exempt Radio Frequency Devices;
- 2- All Scope 2-Licensed Personal Mobile Radio Services;
- 3- All Scope 3-Licensed General Mobile & Fixed Radio Services;
- 4- All Scope 4-Licensed Maritime & Aviation Radio Services;
- 5- All Scope 5-Licensed Fixed Microwave Radio Services
- 6- All Broadcasting Technical Standards (BETS) in the Category I Equipment Standards List.

For Singapore (Infocomm Media Development Authority - IMDA):

- 1 All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IMDA MRA Recognition Scheme: 2011, Annex 2
2. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IMDA MRA Recognition Scheme: 2011, Annex 2

- For the Hong Kong Special Administrative Region:

- 1 All Radio Equipment, per KHCA 10XX-series Specifications;
- 2 All GMDSS Marine Radio Equipment, per HKCA 12XX-series Specifications;
- 3 All Fixed Network Equipment, per HKCA 20XX-series Specifications.

- For Japan:

- 1 MIC Telecommunication Business Law (Terminal Equipment):
 - All Scope A1 - Terminal Equipment for the Purpose of Calls;
 - All Scope A2 - Other Terminal Equipment
- 2 Radio Law (Radio Equipment):
 - All Scope B1 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
 - All Scope B2 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
 - All Scope B3 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

C- A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.01) to certify Products to USA's Environmental Protection Agency (EPA) ENERGY STAR Product Specifications for:

- 1 Electronics and Office Equipment:
 - for Telephony (ver. 3.0)
 - for Audio/Video (ver. 3.0)
 - for Battery Charging Systems (ver. 1.1)
 - for Set-top Boxes & Cable Boxes (ver. 4.1)
 - for Televisions (ver. 6.1)
 - for Computers (ver. 6.0)
 - for Displays (ver. 6.0)
 - for Imaging Equipment (ver. 2.0)
 - for Computer Servers (ver. 2.0)
- 2 Commercial Food Service Equipment
 - for Commercial Dishwashers (ver. 2.0)
 - for Commercial Ice Machines (ver. 2.0)
 - for Commercial Ovens (ver. 2.1)
 - for Commercial Refrigerators and Freezers
- 3 Lighting Products
 - For Decorative Light Strings (ver. 1.5)
 - For Luminaires (including sub-components) and Lamps (ver. 1.2)
 - For Compact Fluorescent Lamps (CFLs) (ver. 4.3)
 - For Integral LED Lamps (ver. 1.4)
- 4 Heating, Ventilation, and AC Products
 - for Residential Ceiling Fans (ver. 3.0)
 - for Residential Ventilating Fans (ver. 3.2)
- 5 Other
 - For Water Coolers (ver. 3.0)

D. A NIST Designated Phase-I and Phase-II Conformity Assessment Body (CAB) for the following economies and regulatory authorities under the terms of the stated MRAs/Treaties:

- Australia: ACMA (Australian Communication and Media Authority) – APEC Tel MRA -Phase I;
- Canada: (Innovation, Science and Economic development Canada - ISEDC) Foreign Certification Body – FCB – APEC Tel MRA -Phase I & Phase II;
- Chinese Taipei (Republic of China – Taiwan):
 - o BSMI (Bureau of Standards, Metrology and Inspection) APEC Tel MRA -Phase I;
 - o NCC (National Communications Commission) APEC Tel MRA -Phase I;
- European Union:
 - o EMC Directive 2014/30/EU US-EU EMC & Telecom MRA CAB (NB)
 - o Radio Equipment (RE) Directive 2014/53/EU US-EU EMC & Telecom MRA CAB (NB)
 - o Low Voltage Directive (LVD) 2014/35/EU
- Hong Kong Special Administrative Region: (Office of the Telecommunications Authority – OFTA) APEC Tel MRA -Phase I & Phase II
- Israel – US-Israel MRA Phase I
- Republic of Korea (Ministry of Communications - Radio Research Laboratory) APEC Tel MRA -Phase I
- Singapore: (Infocomm Media Development Authority - IMDA) APEC Tel MRA -Phase I & Phase II;
- Japan: VCCI - Voluntary Control Council for Interference US-Japan Telecom Treaty VCCI Side Letter
- USA:
 - o ENERGY STAR Recognized Test Laboratory – US EPA
 - o Telecommunications Certification Body (TCB) – US FCC;
 - o Nationally Recognized Test Laboratory (NRTL) – US OSHA
- Vietnam: APEC Tel MRA -Phase I;

2. EUT Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI/TIA-603-E-2016, ANSI C63.26-2015, KDB 971168 D01 v03r01, and ETSI EN 300 422-1 v2.2.1 (2021-11).

2.2 EUT Exercise Software

EUT configurations were managed via an integrated menu within the device. Options to change the frequency and power were displayed on the screen of the EUT.

Mode	Channel	Frequency (MHz)	Power Setting
D2	Low	470.100	50mW
	Middle	539.025	
	High	607.950	
HDM	Low	470.100	4mW
	Middle	539.025	
	High	607.950	

2.3 Special Equipment

No special equipment was used during testing.

2.4 Equipment Modifications

No modifications were made to the EUT during testing.

2.5 Local Support Equipment

None

2.6 Remote Support Equipment

None

2.7 Power Supply and Line Filters

Manufacturer	Description	Model	Serial Number
Lectrosonics, Inc.	Lithium Ion Battery Pack	LB-50	-

2.8 Interface Ports and Cables

None

3. Summary of Test Results

FCC & ISEDC Rules	Descriptions of Test	Result (s)
FCC 2.1093 ISEDC RSS-102	RF Exposure	Compliant ¹
FCC §74.861 (e)(1)(ii) RSS-210 Section G.2	RF Output Power	Compliant
FCC §2.1049 FCC §74.861 (e)(5,6,7) RSS-210 Section G.2 & G.3 ETSI EN 300 422-1 (4.2.4.2.2)	Operating Bandwidth & Emission Mask	Compliant
FCC §74.861 (e)(7)(iv) RSS-210 Section G.5 ETSI EN 300 422-1 (4.2.4.1.2)	Spurious Emissions at the Antenna Port	Compliant
FCC §74.861 (e)(7)(iv) RSS-210 Section G.5 ETSI EN 300 422-1 (4.2.4.1.2)	Field Strength of Spurious Emissions	Compliant
FCC §2.1055 FCC §74.861 (e)(4) RSS-210 Section G.2 & G.4	Frequency Stability	Compliant

Note¹: Please refer to SAR test report for test results.

BACL is responsible for all the information provided in this report, except when information is provided by the customer as identified in this report. Information provided by the customer, e.g., antenna gain, can affect the validity of results.

4. FCC §74.861 (e)(1)(ii) & RSS-210 Section G.2 – RF Output Power

4.1 Applicable Standards

According to FCC§74.861 (e):

For low power auxiliary stations operating in the 600 MHz duplex gap and the bands allocated for TV broadcasting, the following technical requirements apply:

- 1) The power may not exceed the following values.
 - i. 54-72, 76-88, and 174-216 MHz bands: 50 mW EIRP
 - ii. 470-608 MHz band: 250 mW conducted power
 - iii. 653-657 MHz band: 20 mW EIRP

According to RSS-210 Section G.2:

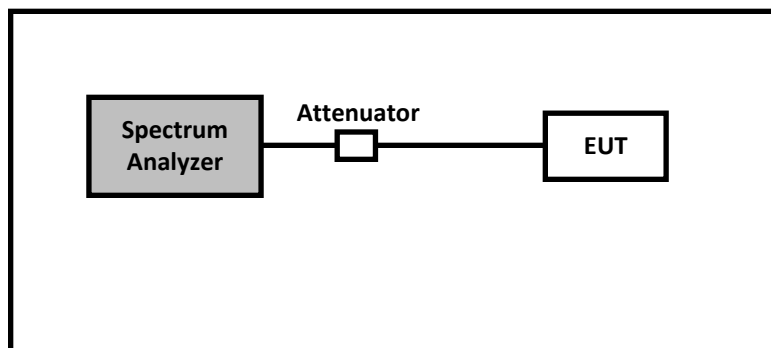
The transmit power shall be measured in terms of average value over any period of continuous transmission. The frequency bands, e.i.r.p., authorized bandwidth and frequency stability limits for devices are provided in table G1 for wireless microphones and table G2 for WMAS.

Table G1: Specifications for wireless microphones			
Frequency bands (MHz)	e.i.r.p. (mW)	Authorized bandwidth (kHz)	Frequency stability (± ppm)
54-72 76-88 174-216	≤ 50	≤ 200	≤ 50
470-608	≤ 250	≤ 200	≤ 50
614-616 653-663	≤ 20	≤ 200	≤ 50

4.2 Test Procedure

Please refer to KDB 971168 D01 v03r01 Section 5.

4.3 Test Setup Block Diagram



4.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Interval
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2024-06-14	1 year
-	-	10dB Attenuator	-	-	Each time ¹	Each time ¹
-	-	RF Cable	-	-	Each time ¹	Each time ¹

Note¹: cable and attenuator included in the test set-up were checked each time before testing.

Statement of Traceability: *BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 “A2LA Policy on Metrological Traceability”.*

4.5 Test Environmental Conditions

Temperature:	17 °C
Relative Humidity:	51.3 %
ATM Pressure:	101.5 kPa

The testing was performed by Arturo Reyes on 2024-12-04 at RF test site.

4.6 Test Results

Mode	Channel	Frequency (MHz)	Conducted Output Power (dBm)	Conducted Output Power (mW)	EIRP (dBm)	EIRP (mW)	Conducted and EIRP Limit (mW)	Result
D2	Low	470.100	16.13	41.02	18.28	67.30	< 250	Pass
	Middle	539.025	16.32	42.85	18.47	70.31	< 250	Pass
	High	607.950	16.14	41.11	18.29	67.45	< 250	Pass
HDM	Low	470.100	6.08	4.06	8.23	6.65	< 250	Pass
	Middle	539.025	6.15	4.12	8.3	6.76	< 250	Pass
	High	607.950	6.23	4.20	8.38	6.89	< 250	Pass

Note 1: EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Note 2: Antenna Gain declared by customer = 2.15 dBi

5. FCC §2.1049, FCC §74.861 (e)(5,6,7), RSS-210 Section G.2 & G.3 & ETSI EN 300 422-1 (4.2.4.2.2) – Occupied Bandwidth & Emission Mask

5.1 Applicable Standards

According to FCC §74.861 (e)(5):

The operating bandwidth shall not exceed 200 kilohertz, except that a wireless multichannel audio system must have an operating bandwidth not exceeding 6 megahertz in the TV bands or 4 megahertz in the 653-657 MHz band and must have a mode of operation in which it is capable of transmitting at least three audio channels per megahertz. For wireless multichannel audio systems operating in the TV bands, the 6 megahertz (or less) channel must fall entirely within a single TV channel (2-36) that is available for Part 74 LPAS use under § 74.802(b). The provisions of § 74.802(c) regarding frequency of operation within TV channels do not apply to wireless multichannel audio systems:

According to FCC §74.861 (e)(6):

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

- i. On any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB;
- ii. On any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB;
- iii. On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least $43 + 10\log_{10}$ (mean output power in watts) dB.

According to FCC §74.861 (e)(7)(ii):

Emissions within the band from $2.5 \times B$ below to $2.5 \times B$ above the carrier frequency, where B is the channel bandwidth, shall comply with the emission mask in Figure 2 of section 4.2.4.2.2 of ETSI EN 300 422-1 V2.2.1 (2021-11) (incorporated by reference, see § 74.35).

According to RSS-210 Section G.2:

The transmit power shall be measured in terms of average value over any period of continuous transmission. The frequency bands, e.i.r.p., authorized bandwidth and frequency stability limits for devices are provided in table G1 for wireless microphones and table G2 for WMAS.

Table G1: Specifications for wireless microphones			
Frequency bands (MHz)	e.i.r.p. (mW)	Authorized bandwidth (kHz)	Frequency stability ($\pm$ ppm)
54-72 76-88 174-216	≤ 50	≤ 200	≤ 50
470-608	≤ 250	≤ 200	≤ 50
614-616 653-663	≤ 20	≤ 200	≤ 50

According to RSS-210 Section G.3:

The occupied bandwidth for wireless microphones shall not exceed the authorized bandwidth specified in tables G1 and G2, above.

WMAS shall have a bandwidth less than 6 megahertz and shall have a mode of operation capable of operating with at least three (3) audio channels per megahertz.

For WMAS operating in the TV bands (54-72 MHz, 76-88 MHz, 174-216 MHz and 470-608 MHz), the 6 megahertz (or less) channel shall fall entirely within a single TV channel.

According to ETSI EN 300 422-1 V2.2.1 (2021-11) Section 4.2.4.2.2:

The following limits are applicable, where B is the Declared Channel Bandwidth.

The mean Power Density, measured with 1 kHz measurement bandwidth and RMS detector, of the transmitter unwanted emissions shall not exceed the limits of the masks provided in figure 1 for equipment employing analogue modulation and figure 2 for equipment employing digital modulation, but excluding WMAS.

The limits in figures 1 and 2 are relative to the transmitter RF output power according to clauses 4.2.1 and 5.4.1.

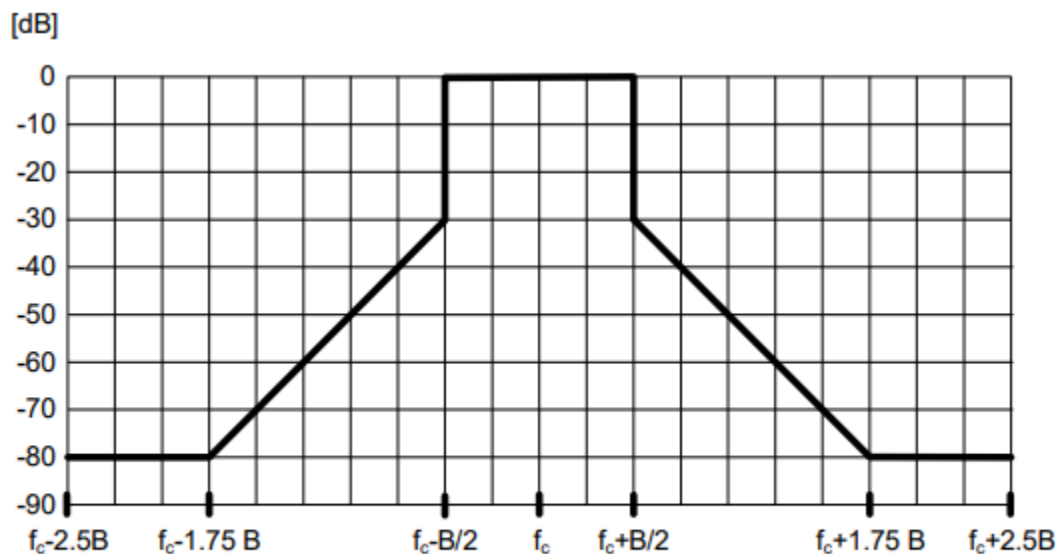


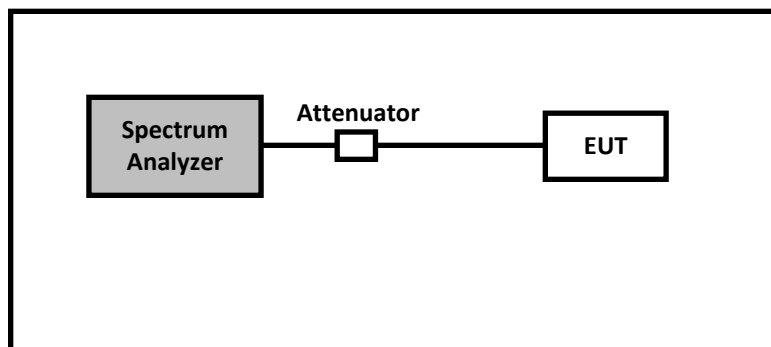
Figure 2: Transmit spectral power mask for equipment employing digital modulation, except WMAS, RBW = 1 kHz

5.2 Test Procedure

For OBW measurement, please refer to KDB 971168 D01 v03r01 Section 4.

For Emission mask measurement, please refer to ETSI EN 300 422-1 V2.2.1 (2021-11) Section 5.4.3.

5.3 Test Setup Block Diagram



5.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Interval
624	Agilent	Spectrum Analyzer	E4446A	MY48250238	2024-06-14	1 year
912	Rohde & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2024-07-25	1 year
-	-	10dB Attenuator	-	-	Each time ¹	Each time ¹
-	-	RF Cable	-	-	Each time ¹	Each time ¹

Note¹: cable and attenuator included in the test set-up were checked each time before testing.

Statement of Traceability: *BACL Corp.* attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 “A2LA Policy on Metrological Traceability”.

5.5 Test Environmental Conditions

Temperature:	17 to 19 °C
Relative Humidity:	47.2 to 51.7 %
ATM Pressure:	101.2 to 101.7 kPa

The testing was performed by Arturo Reyes from 2024-12-04 to 2024-12-16 and 2025-01-15 at RF test site.

5.6 Test Results

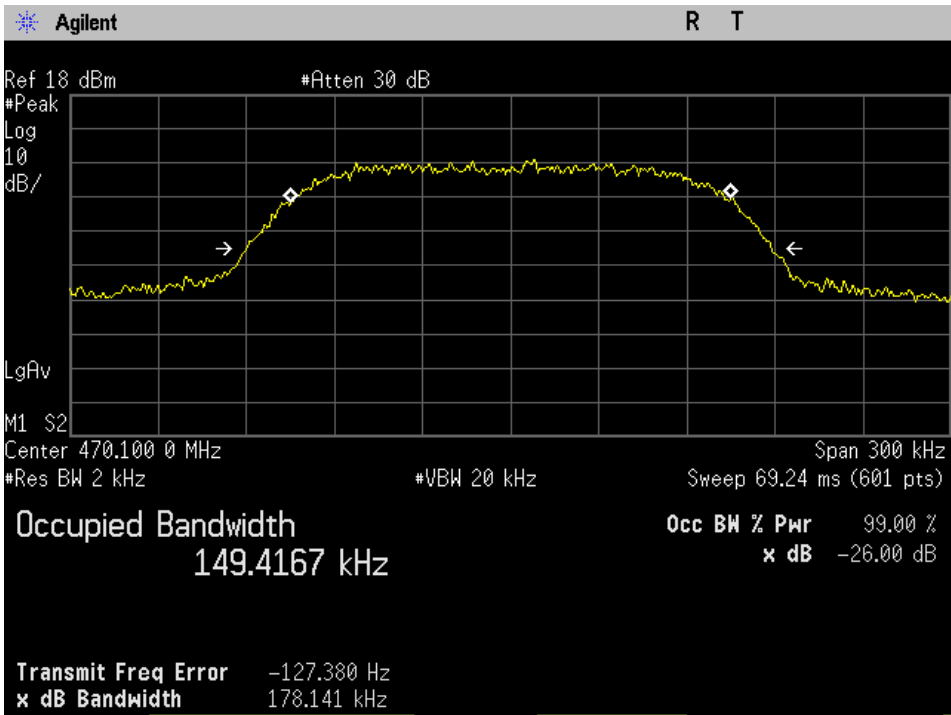
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	99% Occupied Bandwidth Limit (kHz)	Result
D2	Low	470.100	149.417	< 200	Pass
	Middle	539.025	150.395	< 200	Pass
	High	607.950	150.105	< 200	Pass
HDM	Low	470.100	99.771	< 200	Pass
	Middle	539.025	99.966	< 200	Pass
	High	607.950	100.104	< 200	Pass

Emission Mask Test Result: Pass

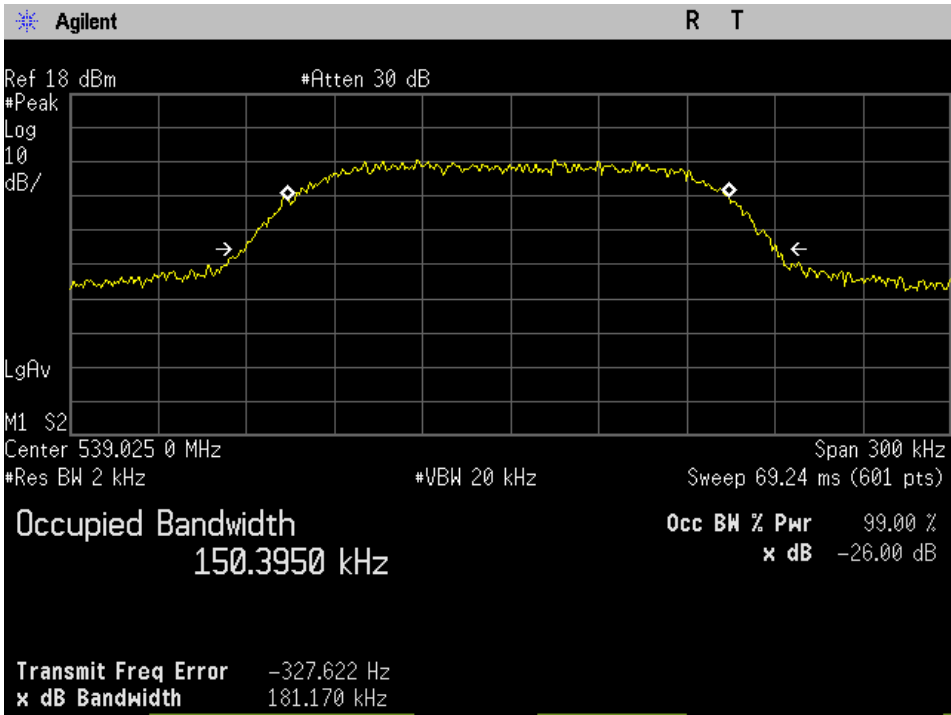
Please refer to Section 5.7 & 5.8 for detailed Occupied Bandwidth and Emission Mask plots, respectively.

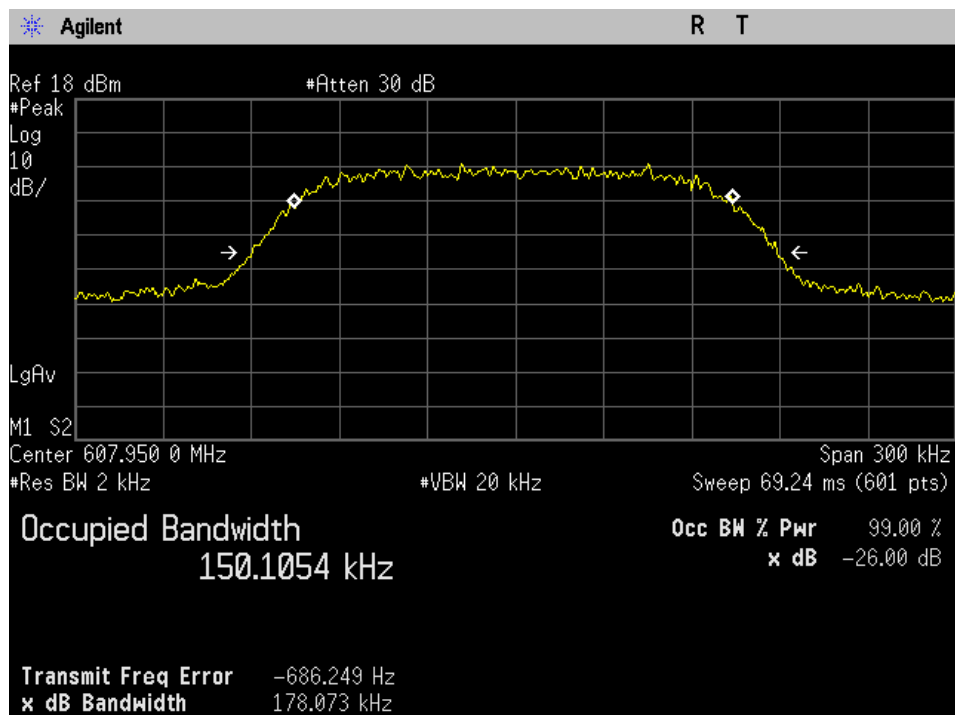
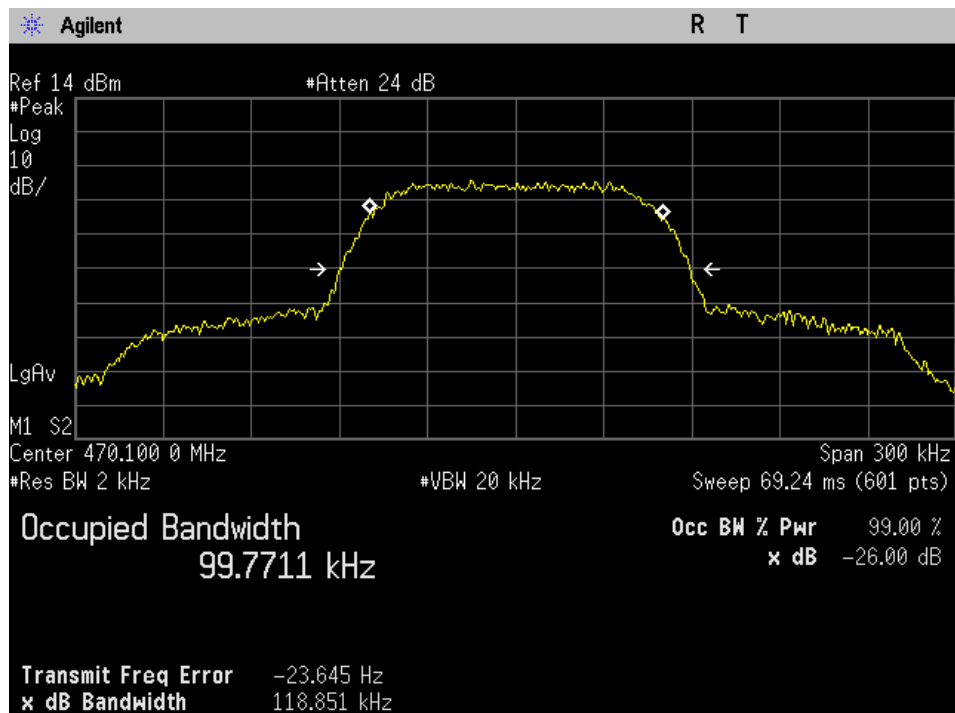
5.7 Occupied Bandwidth Plots

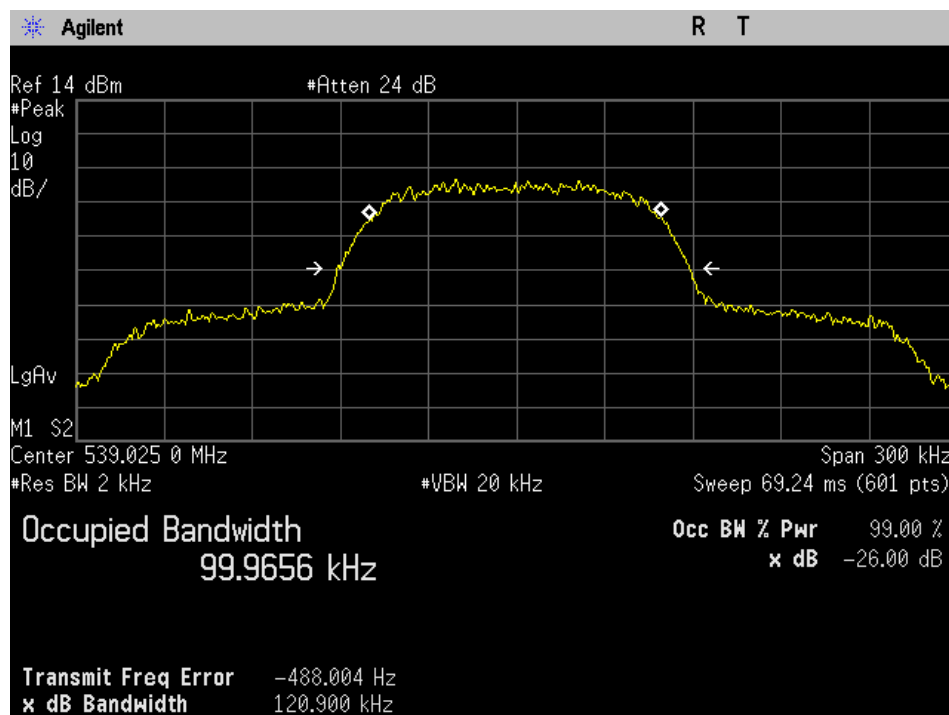
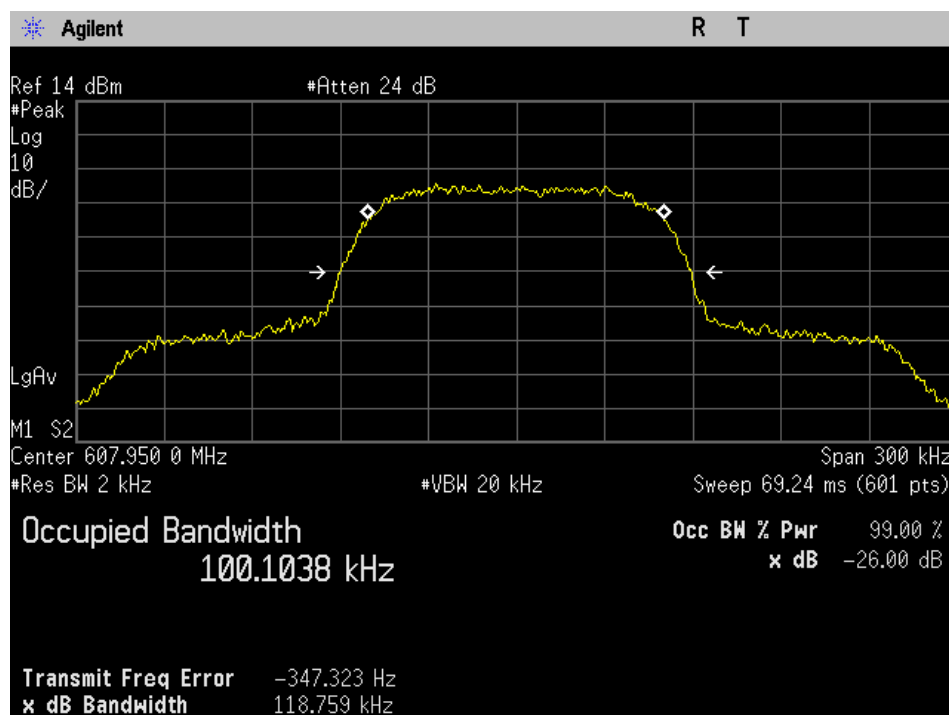
D2 mode: 470.100 MHz, 99% OBW



D2 mode: 539.025 MHz, 99% OBW

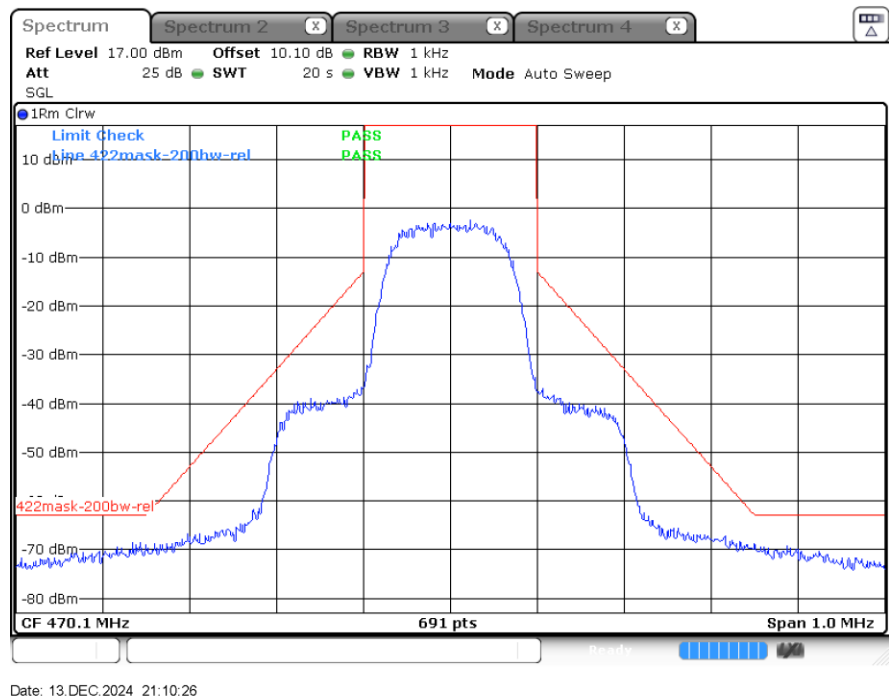


D2 mode: 607.950 MHz, 99% OBW**HDM mode: 470.100 MHz, 99% OBW**

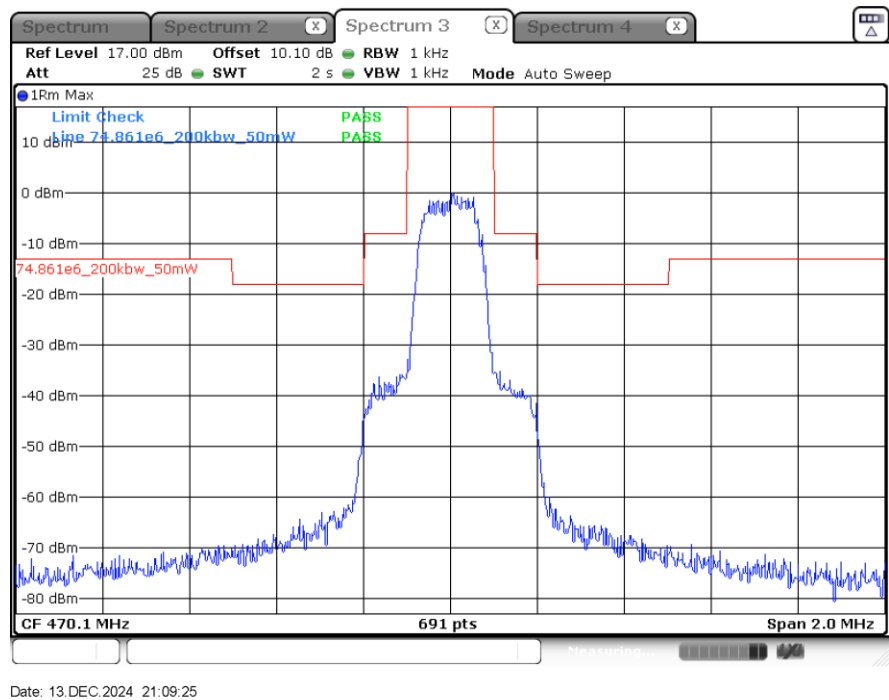
HDM mode: 539.025 MHz, 99% OBW**HDM mode: 607.950 MHz, 99% OBW**

5.8 Emission Mask Plots

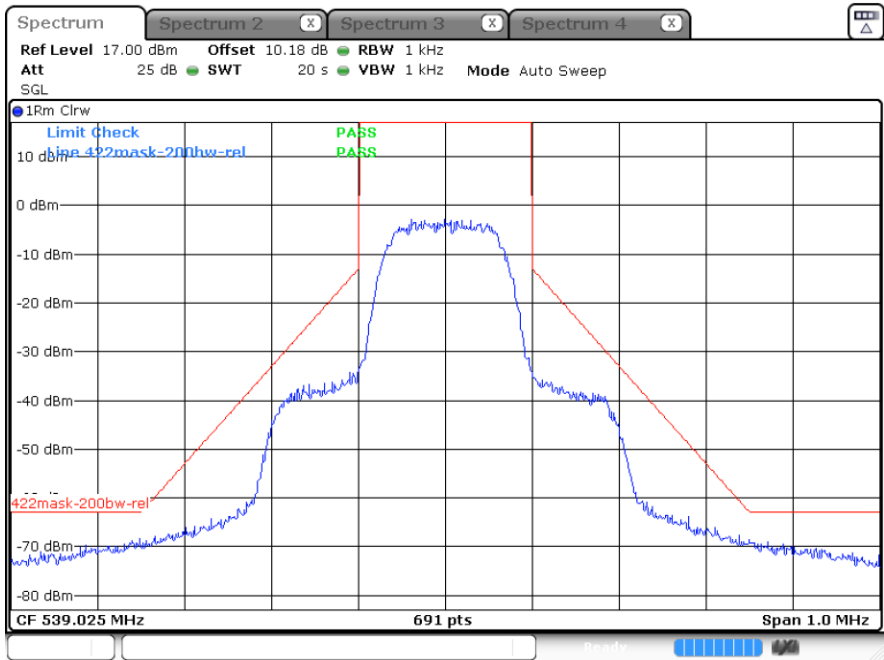
D2 mode: 470.100 MHz, Emission Mask (1)



D2 mode: 470.100 MHz, Emission Mask (2)

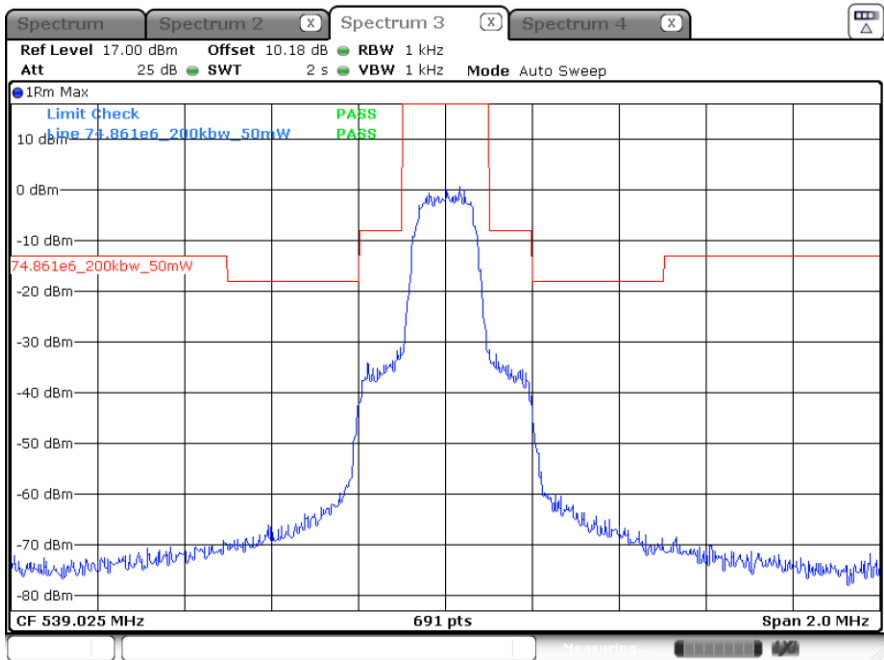


D2 mode: 539.025 MHz, Emission Mask (1)



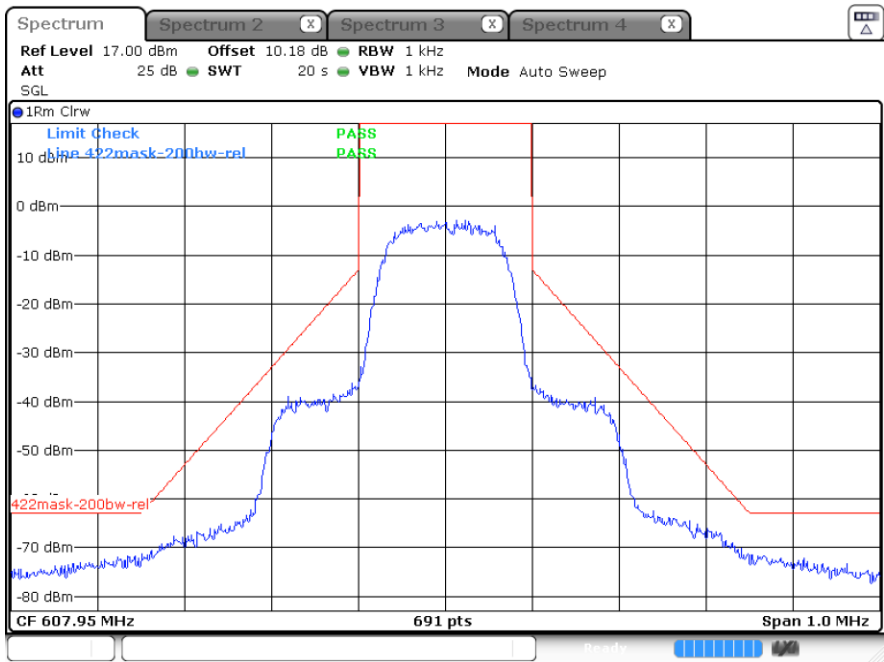
Date: 13.DEC.2024 21:12:48

D2 mode: 539.025MHz, Emission Mask (2)



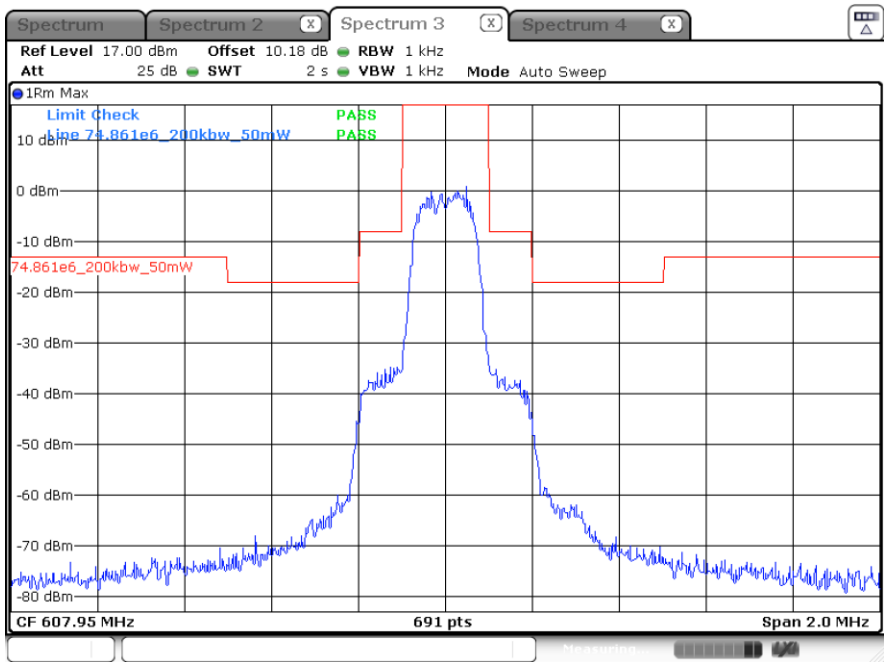
Date: 13.DEC.2024 21:13:55

D2 mode: 607.950 MHz, Emission Mask (1)



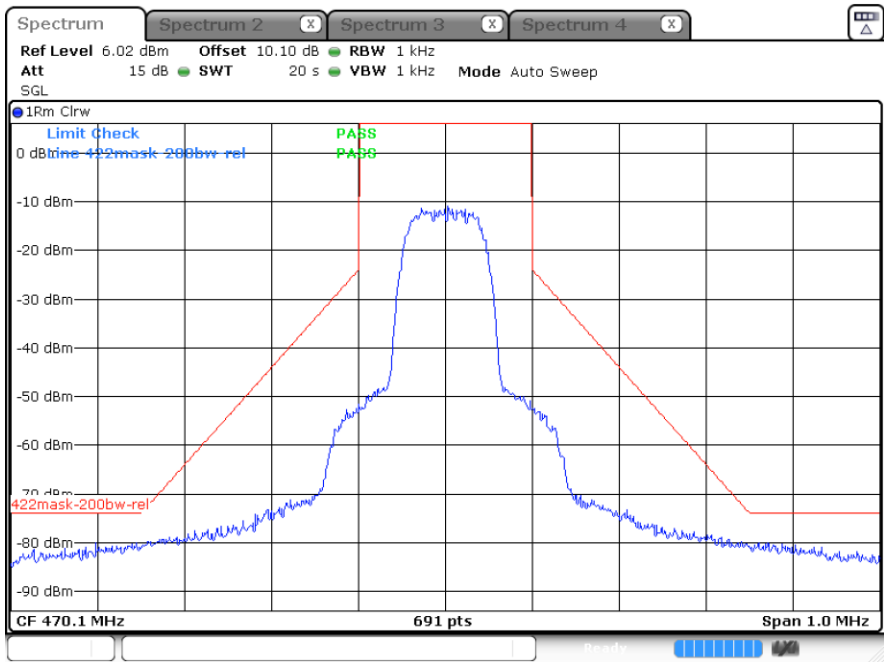
Date: 13.DEC.2024 21:21:38

D2 mode: 607.950 MHz, Emission Mask (2)



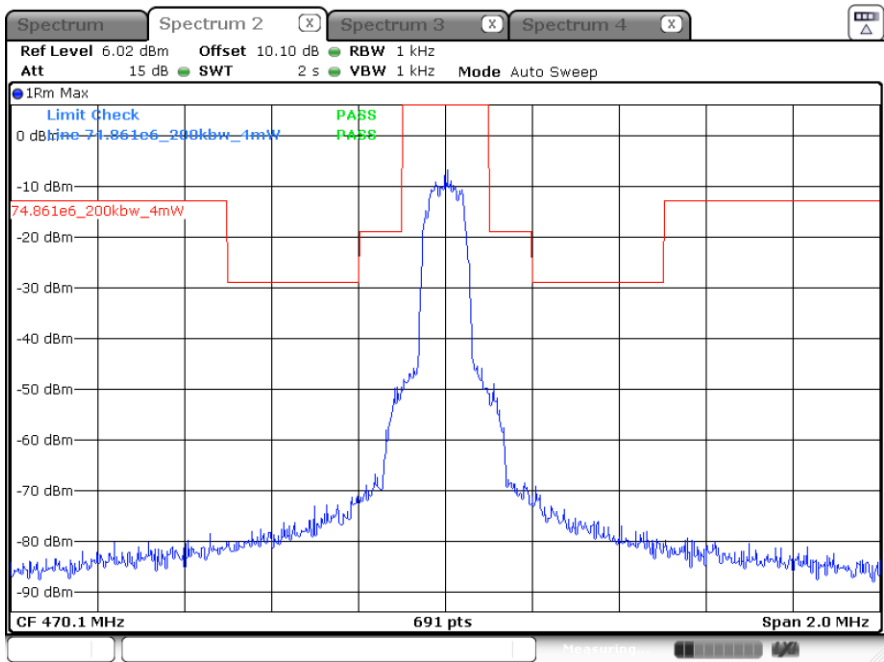
Date: 13.DEC.2024 21:20:49

HDM mode: 470.100 MHz, Emission Mask (1)



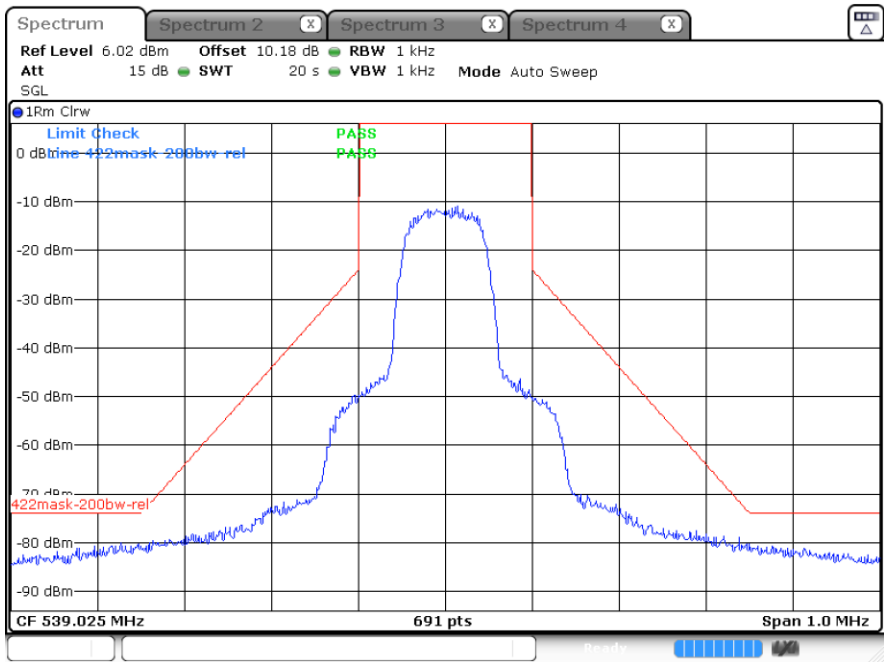
Date: 13.DEC.2024 21:08:37

HDM mode: 470.100 MHz, Emission Mask (2)



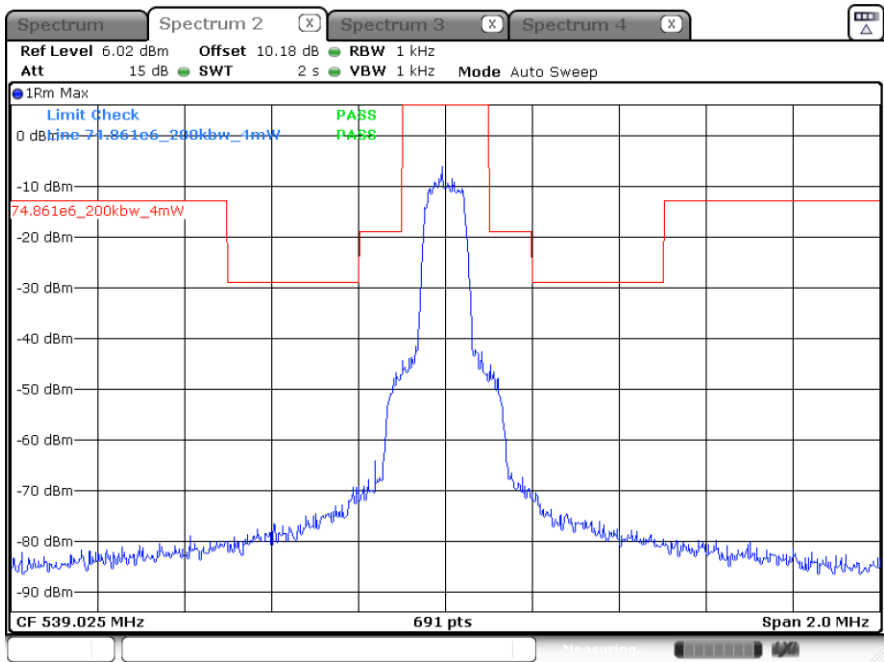
Date: 13.DEC.2024 21:09:02

HDM mode: 539.025 MHz, Emission Mask (1)



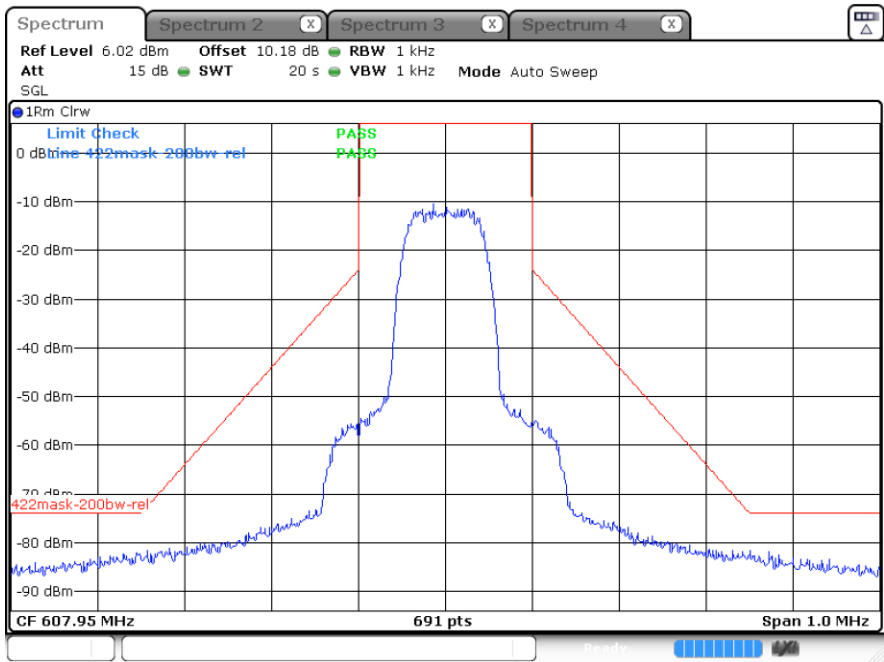
Date: 13.DEC.2024 21:16:17

HDM mode: 539.025 MHz, Emission Mask (2)



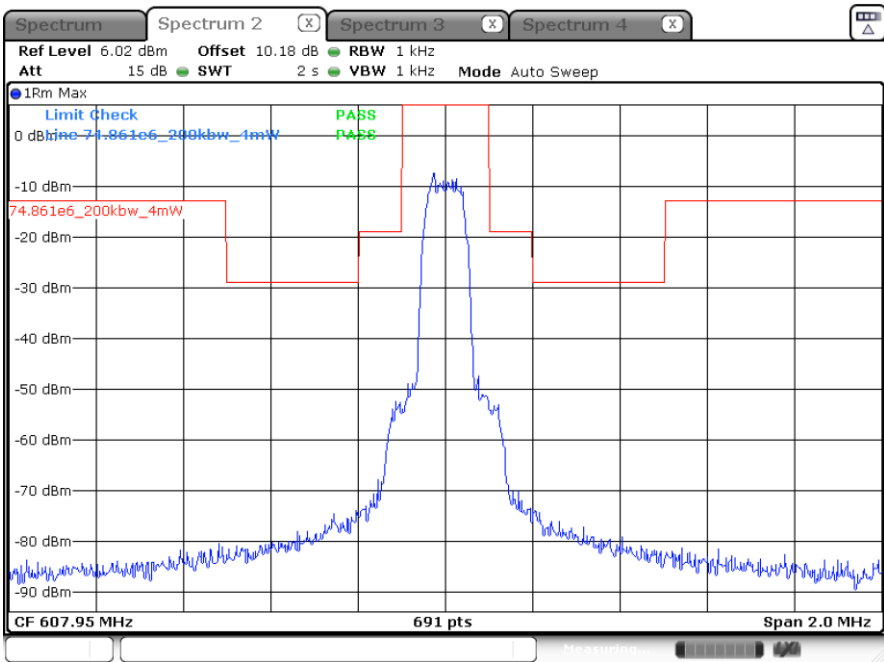
Date: 13.DEC.2024 21:15:34

HDM mode: 607.950 MHz, Emission Mask (1)



Date: 13.DEC.2024 21:18:35

HDM mode: 607.950 MHz, Emission Mask (2)



Date: 13.DEC.2024 21:19:24

6. FCC §74.861 (e)(7)(iv), RSS-210 Section G.5 & ETSI EN 300 422-1 (4.2.4.1.2) – Spurious Emissions at Antenna Port

6.1 Applicable Standards

According to FCC §74.861 (e)(7)(iv):

Emissions outside of the emission masks listed in paragraphs (e)(7)(i) through (e)(7)(iii) shall comply with the limits specified in section 4.2.4.1.2 of ETSI EN 300 422-1 V2.2.1 (2021-11) (incorporated by reference, see § 74.35).

According to RSS-210 Section G.5:

The transmitter unwanted emissions shall meet and be measured according to the requirements in sections 4.2.4.1.2 and 4.2.4.2.2 of ETSI EN 300 422-1.

According to ETSI EN 300 422-1 V2.2.1 (2021-11) Section 4.2.4.1.2:

The level of transmitter unwanted emissions in the spurious domain shall not exceed the limits given in table 4.

**Table 4: Transmitter unwanted emission limits
(from ERC Recommendation 74-01 [2])**

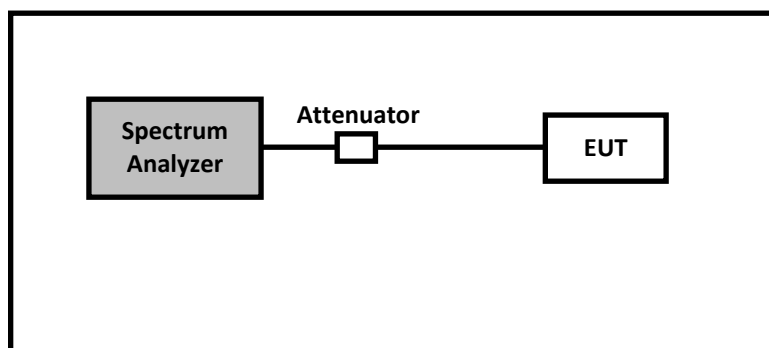
Frequency range	Maximum power	RBW
9 kHz - 150 kHz	-36 dBm	1 kHz
150 kHz - 30 MHz	-36 dBm	10 kHz
30 MHz - 1 GHz	-36 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
except:		
47 MHz - 74 MHz 87,5 MHz - 118 MHz	-54 dBm	100 kHz
174 MHz - 230 MHz 470 MHz - 862 MHz	-54 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
$1 \text{ GHz} < f \leq F_{\text{upper}}$	-30 dBm	$F_c + 2,5 B \leq f \leq f_c + 10 B$: 30 kHz $F_c + 10 B < f \leq f_c + 12 B$: 300 kHz $f > f_c + 12 B$: 1 MHz $f < f_c - 12 B$: 1 MHz $f_c - 12 B \leq f < f_c - 10 B$: 300 kHz $f_c - 10 B \leq f \leq f_c - 2,5 B$: 30 kHz

with B being the Declared Channel Bandwidth.

6.2 Test Procedure

Please refer to KDB 971168 D01 v03r01 Section 6 and ETSI EN 300 422-1 V2.2.1 (2021-11) Section 5.4.4.

6.3 Test Setup Block Diagram



6.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Interval
912	Rohde & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2024-07-25	1 year
-	-	10dB Attenuator	-	-	Each time ¹	Each time ¹
-	-	RF Cable	-	-	Each time ¹	Each time ¹

Note¹: cable and attenuator included in the test set-up were checked each time before testing.

Statement of Traceability: *BACL Corp.* attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 “A2LA Policy on Metrological Traceability”.

6.5 Test Environmental Conditions

Temperature:	17 to 19 °C
Relative Humidity:	47.2 to 51.7 %
ATM Pressure:	101.2 to 101.7 kPa

The testing was performed by Arturo Reyes from 2024-12-04 to 2024-12-16 at RF test site.

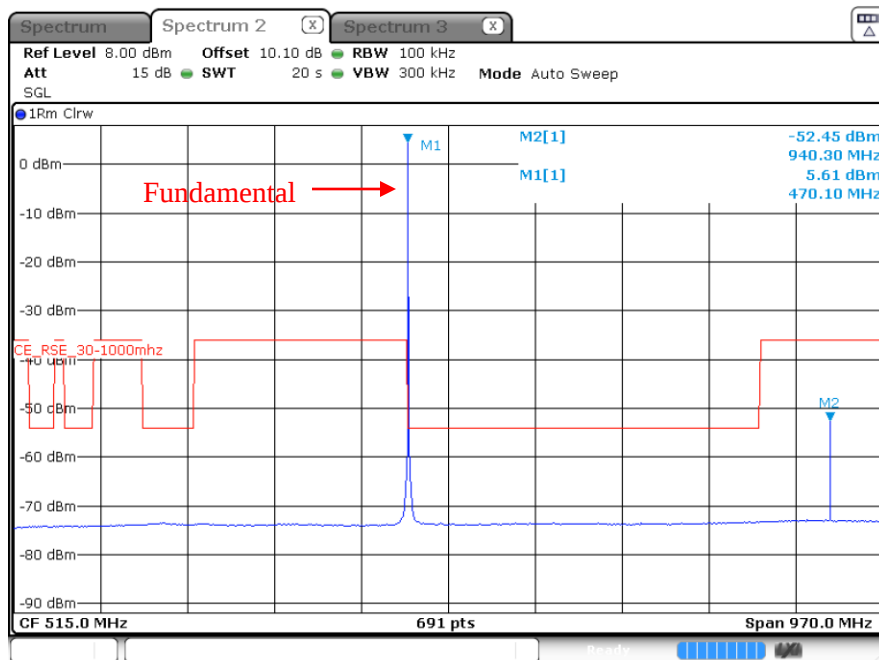
6.6 Test Results

Test Result: Pass

Please refer to Section 6.7 for detailed Spurious Emissions at Antenna Port plots.

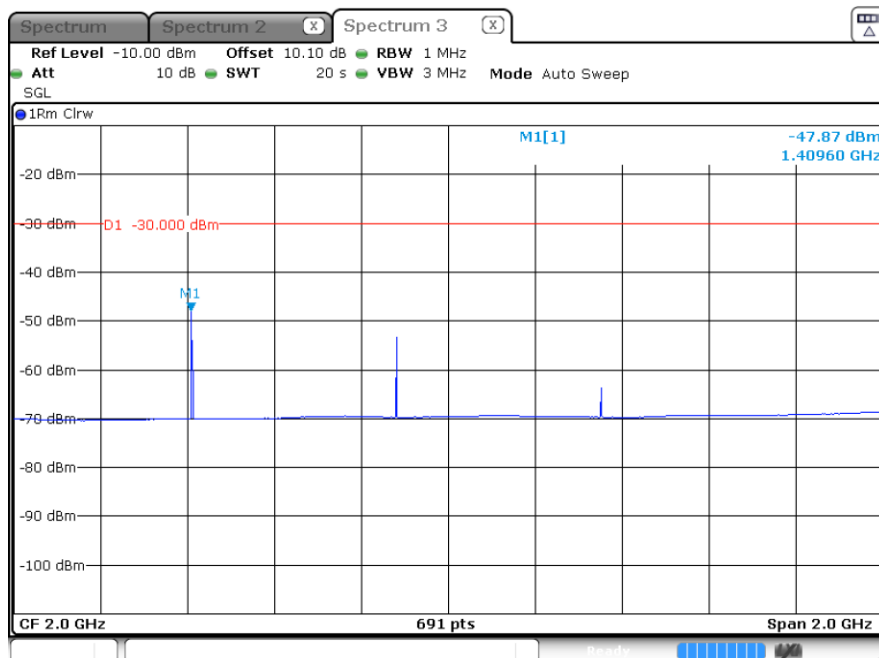
6.7 Spurious Emissions at Antenna Port Test Plots

D2 mode: 470.100 MHz, 30-1000 MHz



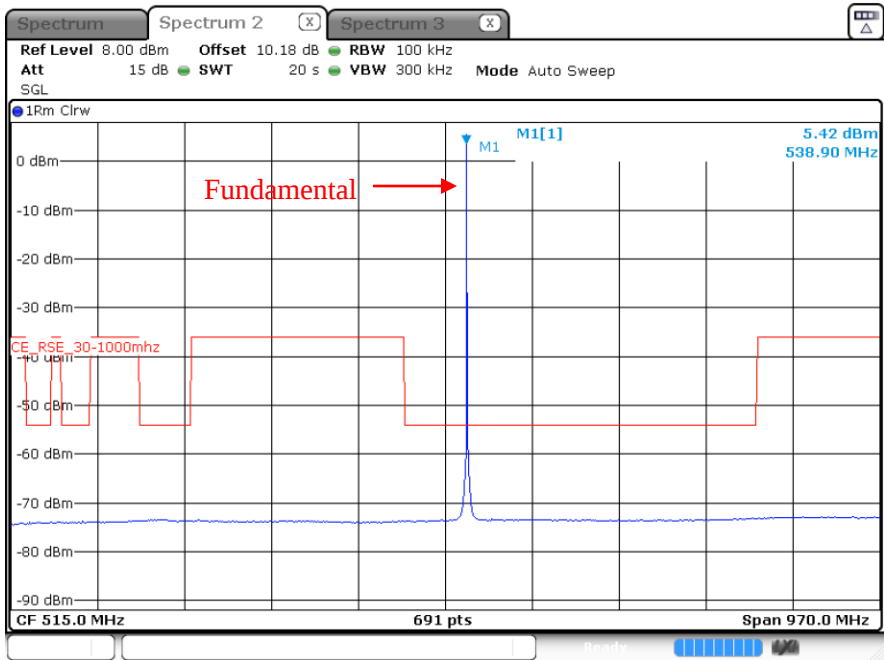
Date: 13 DEC 2024 21:34:49

D2 mode: 470.100 MHz, Above 1 GHz



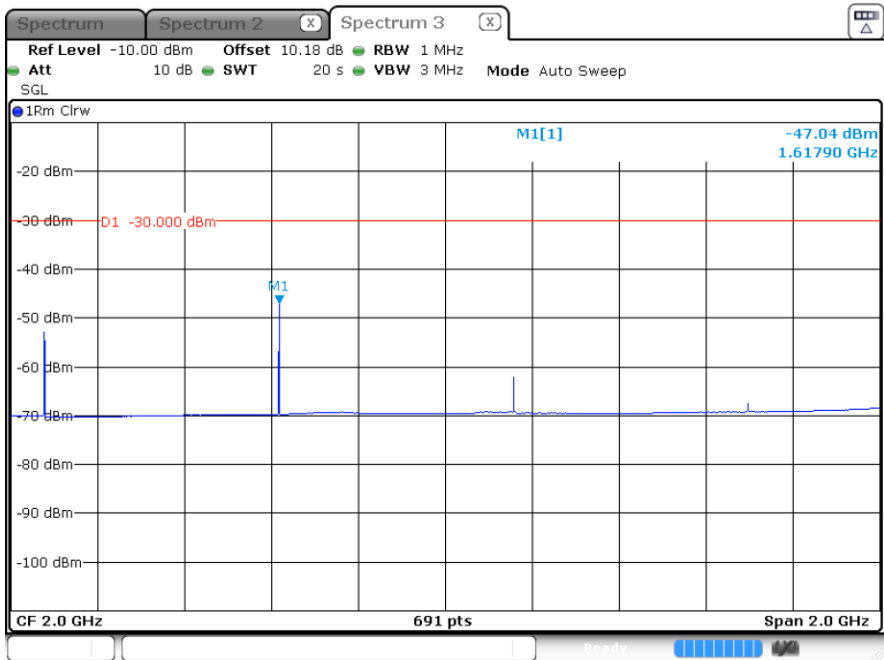
Date: 13 DEC 2024 21:35:45

D2 mode: 539.025 MHz, 30-1000 MHz



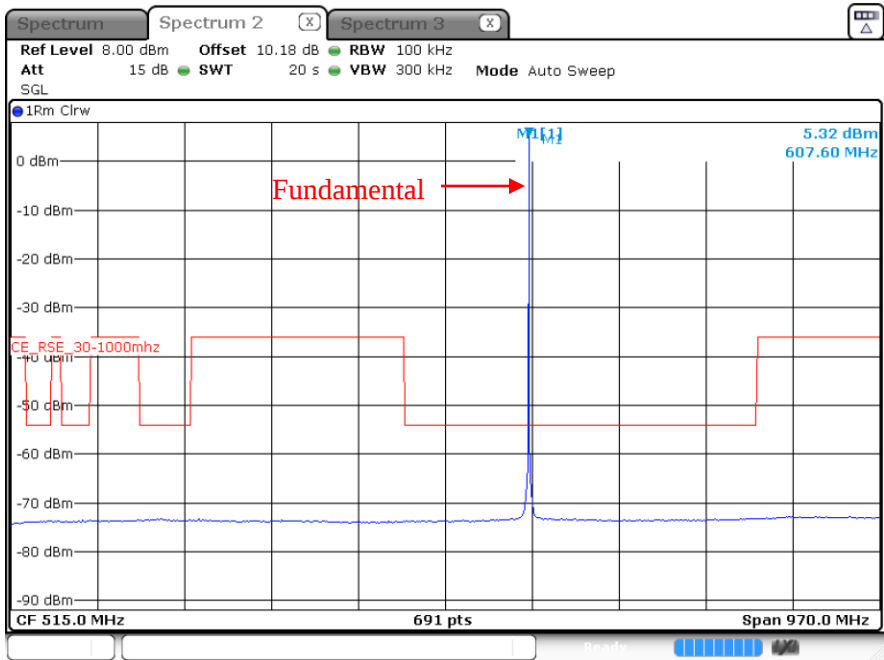
Date: 13.DEC.2024 21:53:21

D2 mode: 539.025 MHz, Above 1 GHz



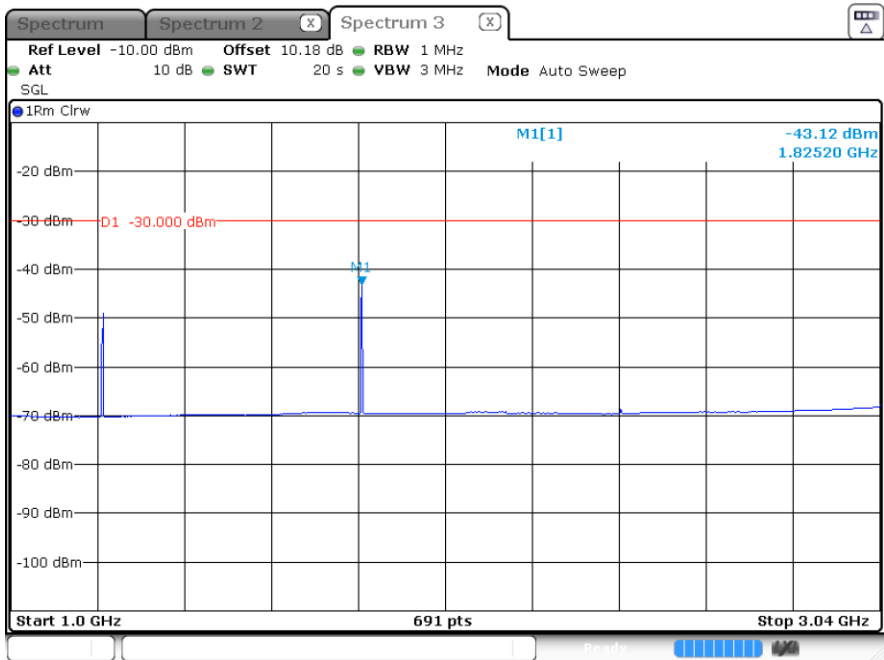
Date: 13.DEC.2024 21:54:19

D2 mode: 607.950 MHz, 30-1000 MHz



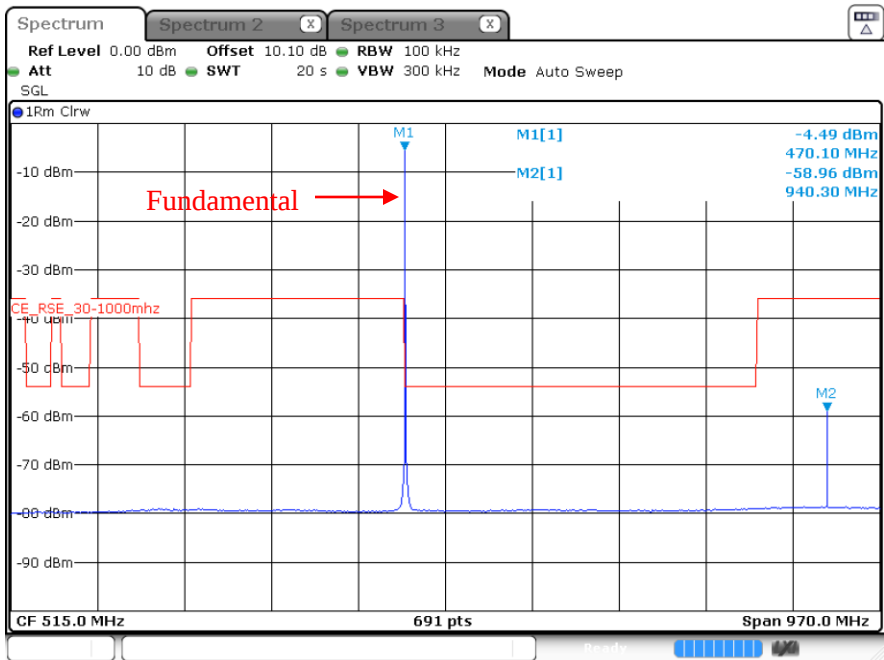
Date: 13.DEC.2024 22:06:40

D2 mode: 607.950 MHz, Above 1 GHz



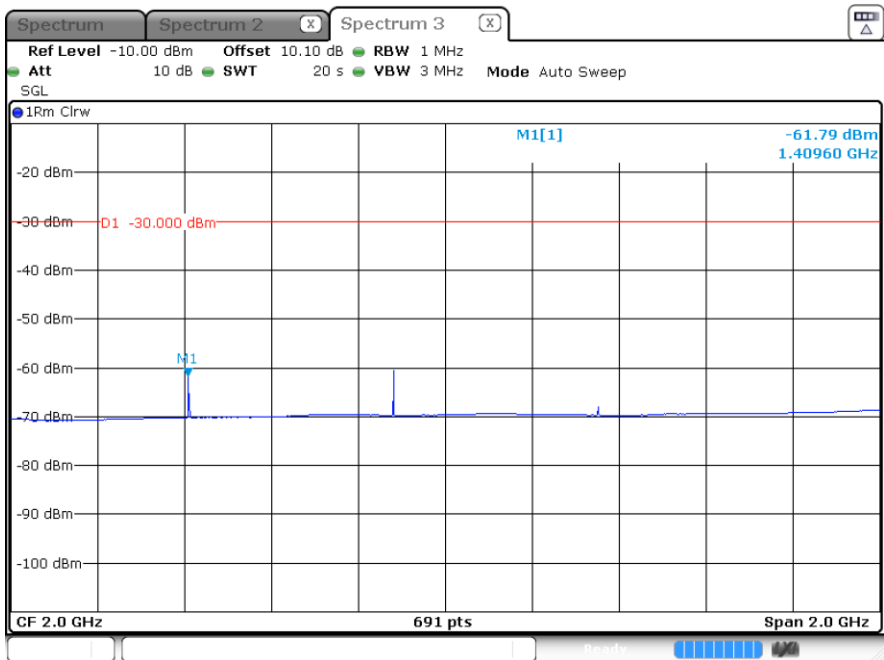
Date: 13.DEC.2024 22:10:00

HDM mode: 470.100 MHz, 30-1000 MHz



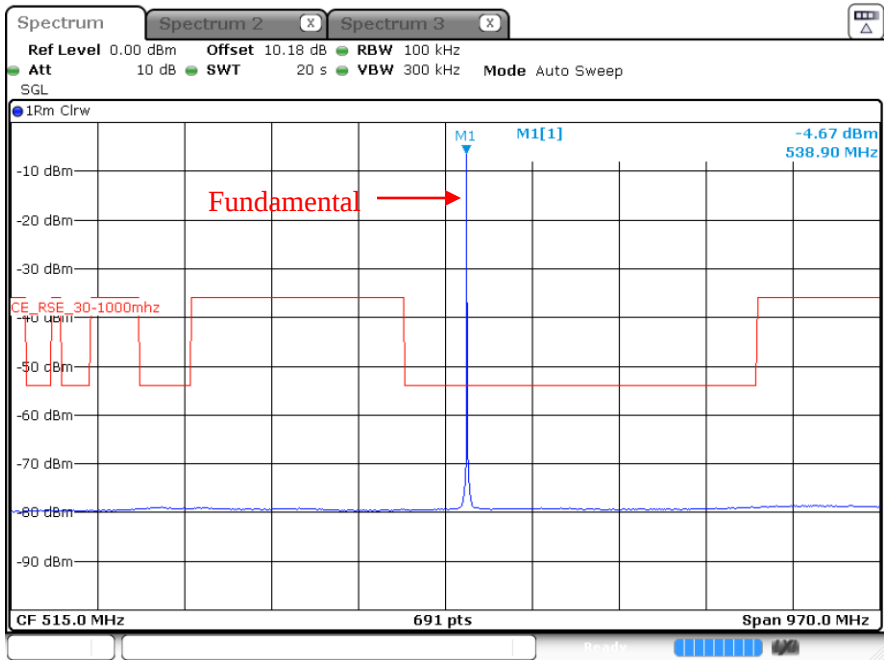
Date: 13 DEC 2024 21:40:23

HDM mode: 470.100 MHz, Above 1 GHz



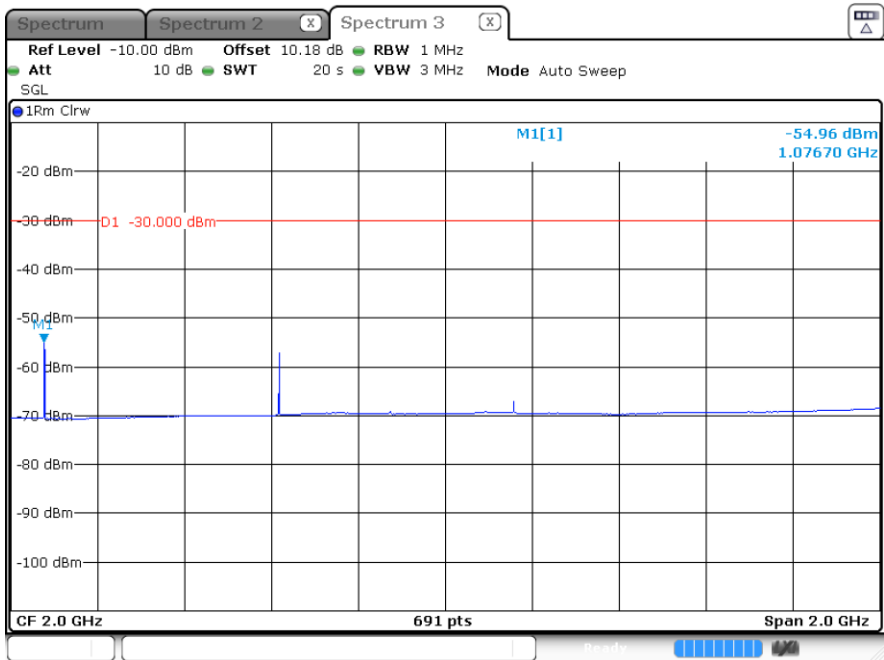
Date: 13 DEC 2024 21:36:46

HDM mode: 539.025 MHz, 30-1000 MHz



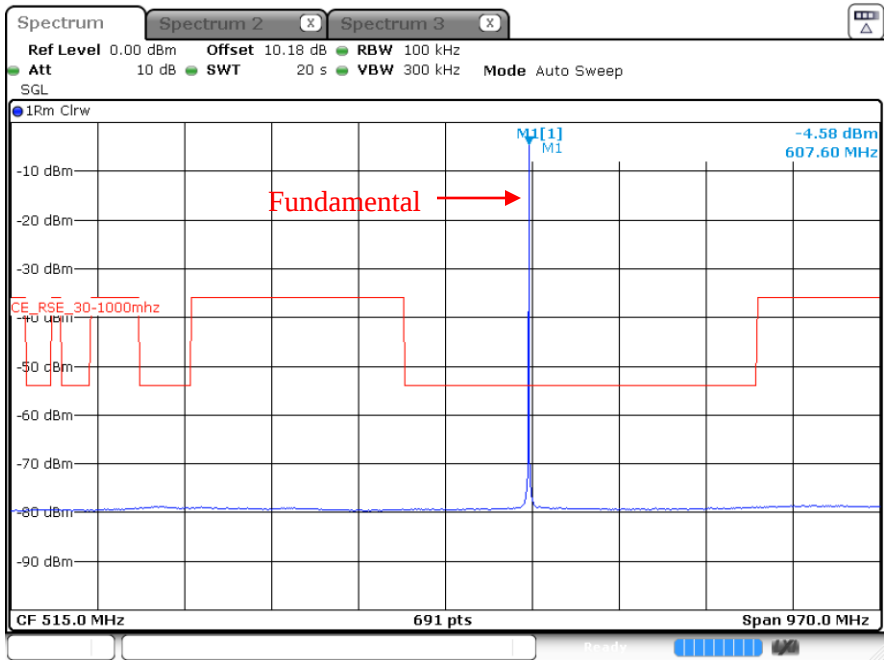
Date: 13.DEC.2024 21:52:14

HDM mode: 539.025 MHz, Above 1 GHz



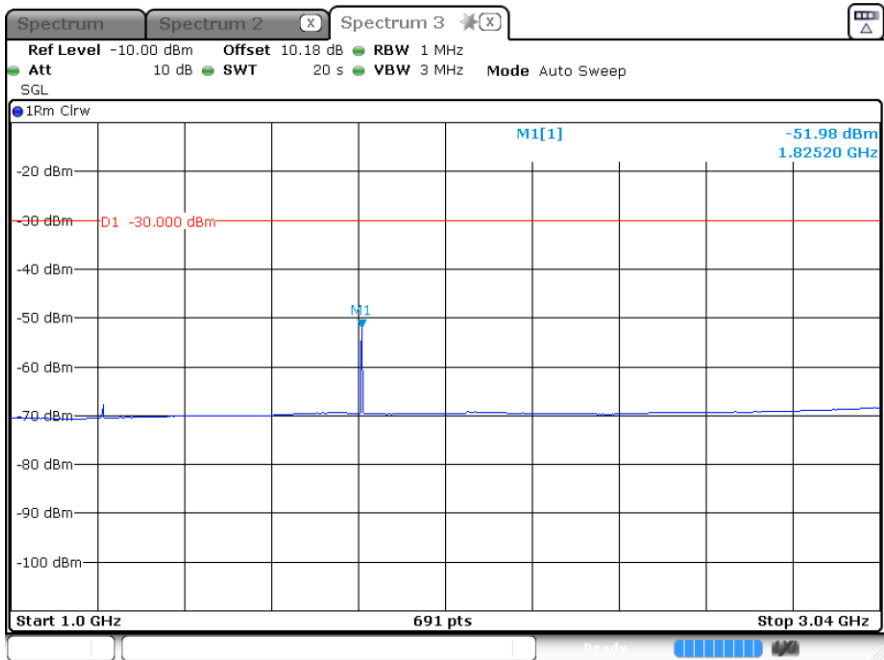
Date: 13.DEC.2024 21:50:19

HDM mode: 607.950 MHz, 30-1000 MHz



Date: 13.DEC.2024 22:07:47

HDM mode: 607.950 MHz, Above 1 GHz



Date: 13.DEC.2024 22:09:22

7. FCC §74.861 (e)(7)(iv), RSS-210 Section G.5 & ETSI EN 300 422-1 (4.2.4.1.2) – Field Strength of Spurious Radiation

7.1 Applicable Standards

According to FCC §74.861 (e)(7)(iv):

Emissions outside of the emission masks listed in paragraphs (e)(7)(i) through (e)(7)(iii) shall comply with the limits specified in section 4.2.4.1.2 of ETSI EN 300 422-1 V2.2.1 (2021-11) (incorporated by reference, see § 74.35).

According to RSS-210 Section G.5:

The transmitter unwanted emissions shall meet and be measured according to the requirements in sections 4.2.4.1.2 and 4.2.4.2.2 of ETSI EN 300 422-1.

According to ETSI EN 300 422-1 V2.2.1 (2021-11) Section 4.2.4.1.2:

The level of transmitter unwanted emissions in the spurious domain shall not exceed the limits given in table 4.

**Table 4: Transmitter unwanted emission limits
(from ERC Recommendation 74-01 [2])**

Frequency range	Maximum power	RBW
9 kHz - 150 kHz	-36 dBm	1 kHz
150 kHz - 30 MHz	-36 dBm	10 kHz
30 MHz - 1 GHz	-36 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
except:		
47 MHz - 74 MHz 87,5 MHz - 118 MHz	-54 dBm	100 kHz
174 MHz - 230 MHz 470 MHz - 862 MHz	-54 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
$1 \text{ GHz} < f \leq F_{\text{upper}}$	-30 dBm	$F_c + 2,5 B \leq f \leq f_c + 10 B$: 30 kHz $F_c + 10 B < f \leq f_c + 12 B$: 300 kHz $f > f_c + 12 B$: 1 MHz $f < f_c - 12 B$: 1 MHz $f_c - 12 B \leq f < f_c - 10 B$: 300 kHz $f_c - 10 B \leq f \leq f_c - 2,5 B$: 30 kHz

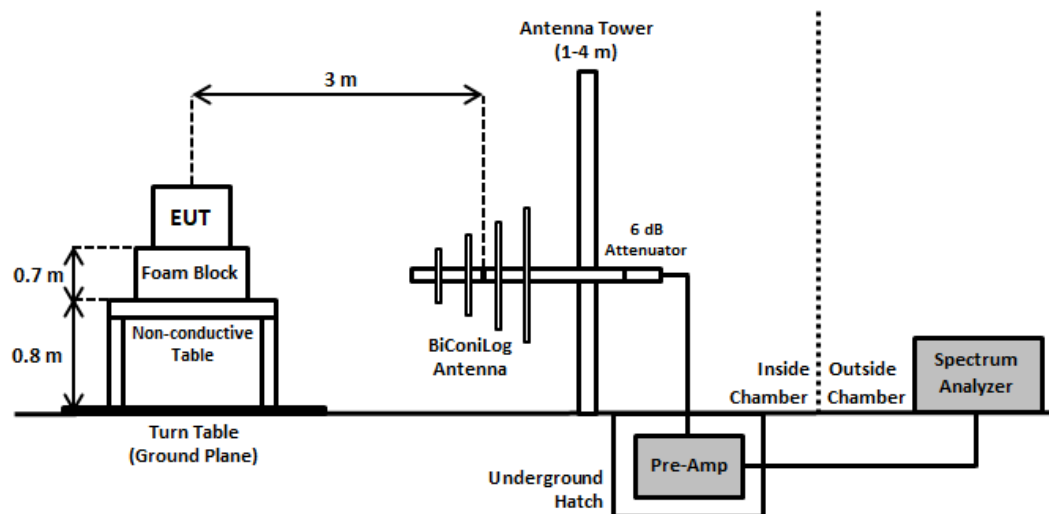
with B being the Declared Channel Bandwidth.

7.2 Test Procedure

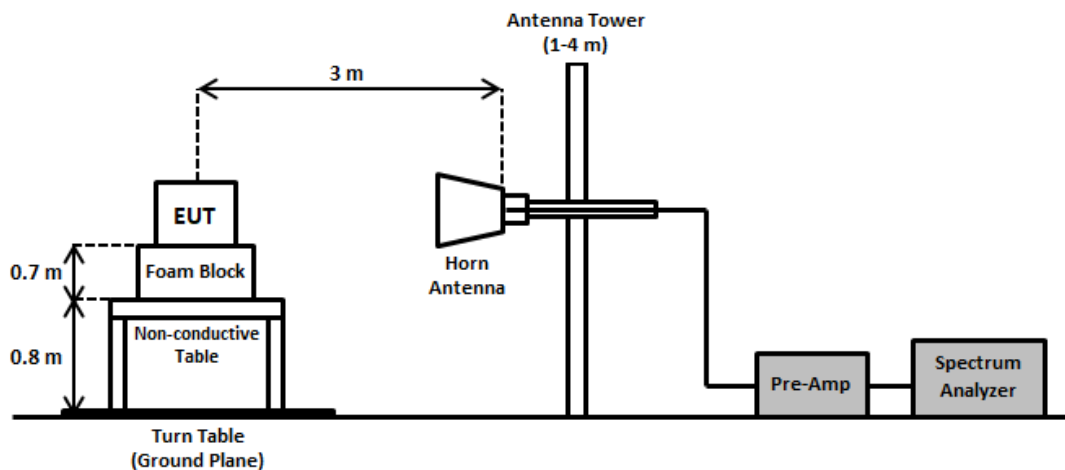
Please refer to KDB 971168 D01 v03r01 Section 7 and ETSI EN 300 422-1 V2.2.1 (2021-11) Section 5.4.4.

7.3 Test Setup Diagram

Below 1 GHz



Above 1 GHz



7.4 Test Equipment List and Details

BACL No.	Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Interval
1432	Keysight Technologies	MXE EMI Receiver, Multi-touch	N9038B	MY60180008	2024-01-15	1 year
316	Sonoma Instruments	Preamplifier 10 kHz - 2.5 GHz	317	260406	2024-08-30	6 months
321	Sunol Sciences	Biconilog Antenna	JB3	A020106-2; 1504	2023-12-18	2 years
1245	-	Attenuator	PE7390-6	01182018A	2023-12-18	2 years
1248	Pasternack	RG214 COAX Cable	PE3062	NA	2024-10-01	6 months
1249	Time Microwave	LMR-400 Cable Dc-3 GHz	AE13684	2k80612-5 6fts	2024-04-09	1 year
1359	Pasternack	N 600in RF Cable	PE3496LF-600	NA	2024-07-26	6 months
1246	HEWLET PACKARD	RF Limiter	11867A	01734	2024-04-09	1 year
568	Com-Power	Dipole Antenna	AD-100	721033DB1, 721033DB2, 721033DB3, 721032DB4	2023-07-11	2 years
1192	ETS Lindgren	Horn Antenna	3117	00218973	2024-10-23	2 years
1449	BACL	Preamplifier	BACL1313-A100M18G	4052472	2024-08-19	6 months
1295	Carlisle Interconnected Technologies	10m Coaxial Cable	UFB142A-1-3937-200200	64639890912-001	2024-10-16	6 months
1397	Mini Circuit	CBL ASSY 2.92MM PLUG TO PLUG 12"	FL086-12KM+	QN2318110-2318	2024-08-16	6 months
473	EMCO	Horn Antenna	3115	9511-4627	2024-11-26	2 years
1130	Aglient	MXG Analog Signal Generator	N5183A	MY50140453	2024-11-07	1 year

Statement of Traceability: *BACL Corp.* attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".

7.5 Test Environmental Conditions

Temperature:	22°C
Relative Humidity:	40%
ATM Pressure:	101.0 kPa

The testing was performed by Arturo Reyes on 2024-12-18 in 5m Chamber 3.

7.6 Test Results

Note: The data below are based on worst case mode (D2) when transmitting at maximum output power.

Freq. (MHz)	S.A. Amp. (dBμV)	Table Azimuth (Degrees)	Test Antenna		Substitution				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Freq. (MHz)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
470.100 MHz											
51.91	35.75	360	150	H	51.91	-82.98	0.70	0.83	-83.11	-54	-29.11
50.24	36.62	360	150	V	50.24	-80.72	1.20	0.83	-80.35	-54	-26.35
1051.37	46.43	360	150	H	1051.37	-67.32	5.78	1.35	-62.89	-30	-32.89
1609.84	41.65	360	150	V	1609.84	-72.12	5.78	1.35	-67.69	-30	-37.69
539.025 MHz											
50.11	36.84	360	150	H	50.11	-81.89	0.70	0.83	-82.02	-54	-28.02
50.70	35.34	360	150	V	50.70	-82.00	1.20	0.83	-81.63	-54	-27.63
1052.80	47.04	360	150	H	1052.80	-66.71	5.78	1.35	-62.28	-30	-32.28
1116.76	42.12	360	150	V	1116.76	-71.65	5.78	1.35	-67.22	-30	-37.22
607.950 MHz											
51.15	38.05	360	150	H	51.15	-80.68	0.7	0.83	-80.81	-54	-26.81
50.49	38.31	360	150	V	50.49	-79.03	1.2	0.83	-78.66	-54	-24.66
1059.50	46.98	360	150	H	1059.50	-66.77	5.78	1.35	-62.34	-30	-32.34
1050.84	43.69	360	150	V	1050.84	-70.08	5.78	1.35	-65.65	-30	-35.65

8. FCC §2.1055, FCC §74.861 (e)(4), RSS-210 Section G.2 & G.3 – Frequency Stability

8.1 Applicable Standards

According to KDB 971168 D01 Section 9:

The frequency stability of the transmitter shall be measured while varying the ambient temperatures and supply voltages over the ranges specified in Section 2.1055. The specific frequency stability limits are provided in the relevant rules section(s).

According to FCC §74.861 (e)(4)::

The frequency tolerance of the transmitter shall be 0.005 percent.

According to RSS-210 Section G.2:

The transmit power shall be measured in terms of average value over any period of continuous transmission. The frequency bands, e.i.r.p., authorized bandwidth and frequency stability limits for devices are provided in table G1 for wireless microphones and table G2 for WMAS.

Table G1: Specifications for wireless microphones			
Frequency bands (MHz)	e.i.r.p. (mW)	Authorized bandwidth (kHz)	Frequency stability (± ppm)
54-72 76-88 174-216	≤ 50	≤ 200	≤ 50
470-608	≤ 250	≤ 200	≤ 50
614-616 653-663	≤ 20	≤ 200	≤ 50

8.2 Test Procedure

According to FCC 2.1055:

- a) The frequency stability shall be measured with variation of ambient temperature as follows:
 - 1) From -30° to $+50^{\circ}$ centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.
 - 2) From -20° to $+50^{\circ}$ centigrade for equipment to be licensed for use in the Maritime Services under part 80 of this chapter, except for Class A, B, and S Emergency Position Indicating Radio beacons (EPIRBS), and equipment to be licensed for use above 952 MHz at operational fixed stations in all services, stations in the Local Television Transmission Service and Point-to-Point Microwave Radio Service under part 21 of this chapter, equipment licensed for use aboard aircraft in the Aviation Services under part 87 of this chapter, and equipment authorized for use in the Family Radio Service under part 95 of this chapter.
 - 3) From 0° to $+50^{\circ}$ centigrade for equipment to be licensed for use in the Radio Broadcast Services under part 73 of this chapter.
- b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.
- c) The frequency stability shall be measured with variation of primary supply voltage as follows:
 - 1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
 - 2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.
 - 3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

If an unmodulated carrier is not available, the measurement method shall be described in the test report.