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CERTIFICATION TEST REPORT

Manufacturing Address: Bellus Medical, LLC DBA Crown Aesthetics
5005 Lyndon B. Johnson Fwy STE 370
Dallas, Texas 75244 USA

Applicant: Same as Above

Product Name: SkinPen® Precision Elite Handpiece

Product Description: Microneedling device, 13.56 RFID

**Operating Voltage/Freq.
of EUT During Testing:** Battery-Operated (3.6VDC)

Model(s): REF 200: SkinPen® Precision Elite Handpiece

FCC ID: 2AGLK-REF-200

Testing Commenced: 2024-04-04

Testing Ended: 2024-04-04

Summary of Test Results: In Compliance

The EUT complies with the EMC requirements when manufactured identically as the unit tested in this report, including any required modifications and/or manufacturer's statement. Any changes to the design or build of this unit subsequent to this testing may deem it non-compliant.

Standards:

- ❖ **FCC Part 15 Subpart C, Section 15.209**
- ❖ **FCC Part 15 Subpart C, Section 15.215(c) – Additional provisions to the general radiated emission limitations**
- ❖ **FCC Part 15 Subpart A, Section 15.31(e) – Measurement Standards**



Order Number: F2P30652C-C5

Applicant: Bellus Medical, LLC DBA Crown Aesthetics
Model: REF 200: SkinPen® Precision Elite Handpiece

Evaluation Conducted by:

Julius Chiller, Senior Wireless Project Engineer

Report Reviewed by:

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1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

1.2 Measurement Procedure:

All measurements were performed according to ANSI C63.10 and recommended FCC procedure of measurement of equipment operating under Section 15.209. A list of the measurement equipment can be found in Section 6.



1.3 Uncertainty Budget:

The uncertainty in EMC measurements arises from several factors which affect the results, some associated with environmental conditions in the measurement room, the test equipment being used, and the measurement techniques adopted.

The measurement uncertainty budgets detailed below are calculated from the test and calibration data and are expressed with a 95% confidence factor using a coverage factor of $k=2$. The Uncertainty for a laboratory is referred to as U_{lab} . For Radiated and Conducted Emissions, the Expanded Uncertainty is compared to the U_{cispr} values to determine if a specific margin is required to deem compliance.

U_{lab}

Measurement Range	Combined Uncertainty	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	2.54dB	5.07dB
Radiated Emissions <1 GHz @ 10m	2.55dB	5.09dB
Radiated Emissions 1 GHz to 2.7 GHz	1.81dB	3.62dB
Radiated Emissions 2.7 GHz to 18 GHz	1.55dB	3.10dB
AC Power Line Conducted Emissions, 150kHz to 30 MHz	1.38dB	2.76dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	1.66dB	3.32dB

U_{cispr}

Measurement Range	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	5.2dB
Radiated Emissions <1 GHz @ 10m	5.2dB
Radiated Emissions 1 GHz to 2.7 GHz	Under Consideration
Radiated Emissions 2.7 GHz to 18 GHz	Under Consideration
AC Power Line Conducted Emissions, 150kHz to 30 MHz	3.6dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	4.0dB

If U_{lab} is less than or equal to U_{cispr} , then:

- 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.

If U_{lab} is greater than U_{cispr} in table 1, then:

- compliance is deemed to occur if no measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

Note: Only measurements listed in the tables above that relate to tests included in this Test Report are applicable.



Order Number: F2P30652C-C5

Applicant: Bellus Medical, LLC DBA Crown Aesthetics
Model: REF 200: SkinPen® Precision Elite Handpiece

1.4 Document History:

Document Number	Description	Issue Date	Approved By
F2P30652C-C5-01E	First Issue	2024-04-08	K. Littell



2 SUMMARY OF TEST RESULTS

Test Name	Standard(s)	Results
Occupied Bandwidth	CFR 47 Part 15.215(c)	Complies
Field Strength of Emissions	CFR 47 Part 15.209	Complies
Radiated Spurious Emissions	CFR 47 Part 15.209	Complies
Voltage Variations	CFR 47 Part 15.31(e)	Complies*
Conducted Emissions	CFR 47 Part 15.207(a)	Not Applicable**

**To meet the requirements of 15.31, tests were performed with 3.6VDC Lithium Battery fully charged.*

***System is battery-operated, rechargeable; cannot be used while charging.*

Modifications Made to the Equipment
None



3 TABLE OF MEASURED RESULTS

Test	13.56 MHz
-20dB Occupied Bandwidth	1.057kHz
99% Occupied Bandwidth	0.400kHz
Field Strength of Fundamental*	-52.21 dB μ A/m / -0.71 dB μ V/m
Field Strength of Fundamental Extrapolated for 30-meter distance	-92.21 dB μ A/m / -40.71 dB μ V/m
Limit for Fundamental at 30 meters	30 μ V/m / 29.5 dB μ V/m

**13.56 MHz Field Strength was measured at 3m. The dB μ A/m was converted to dB μ V/m by adding 51.5dB.*



4 ENGINEERING STATEMENT

This report has been prepared on behalf of Bellus Medical, LLC DBA Crown Aesthetics, to provide documentation for the testing described herein. This equipment has been tested and found to comply with part 15.209 of the FCC Rules using ANSI C63.10 and Part 15 standards. The test results found in this test report relate only to the items tested.



5 EUT INFORMATION AND DATA

5.1 Equipment Under Test:

Product: **SkinPen® Precision Elite Handpiece**
Model(s): **REF 200: SkinPen® Precision Elite Handpiece**
Firmware Version: V0.61
Software Version: N/A
Serial No.: EP00005
FCC ID: 2AGLK-REF-200

5.2 Trade Name:

Bellus Medical, LLC DBA Crown Aesthetics

5.3 Power Supply:

Rechargeable Lithium Battery (3.6VDC)
Device is battery-operated, rechargeable; cannot be used while charging.

5.4 Applicable Rules:

CFR 47, Part 15.209

5.5 Equipment Category:

Radio Transmitter

5.6 Antenna:

Internal Coil

5.7 Accessories:

REF 015: SkinPen® Precision Elite Cartridge* with RFID Chip
Lot: X240206A
**Uses RFID to ensure cartridge is single use.*

5.8 Test Item Condition:

The equipment to be tested was received in good condition.

5.9 Testing Algorithm:

The RFID radio was tested while continuously transmitting at 13.56 MHz. Measurements were taken at 3 meters. 3.6VDC Lithium Battery was fully charged.

**6 LIST OF MEASUREMENT INSTRUMENTATION**

Equipment Type	Asset Number	Manufacturer	Model	Serial Number	Calibration Due Date
Shielded Chamber	CL166-E	Albatross Projects	B83117-DF435-T261	US140023	2024-11-15
Receiver	CL151	Rohde & Schwarz	ESU40	100319	2024-04-10
Receiver	CL204	Rohde & Schwarz	ESR7	101714	2024-04-12
Preamplifier	CL284	A.H. Systems, Inc.	PAM-1001	131	2024-04-12
Antenna, JB3 Combination	CL175	Sunol Sciences, Inc.	JB3	A030315	2024-09-25
Amplifier w/Monopole & 18" Loop	CL163-Loop	A.H. Systems, Inc.	EHA-52B	100	2024-12-14
Software:	Tile Version 3.4.B.3		Software Verified: 2024-04-04		
Software:	EMC 32, Version 8.53.0		Software Verified: 2024-04-04		
Temp/Hum. Recorder	CL293	Thermpro	TP50	1	2025-05-31



7 OCCUPIED BANDWIDTH

7.1 Requirements:

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the -20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

Bandwidth measurements were made at 200Hz RBW using the Marker Delta method.

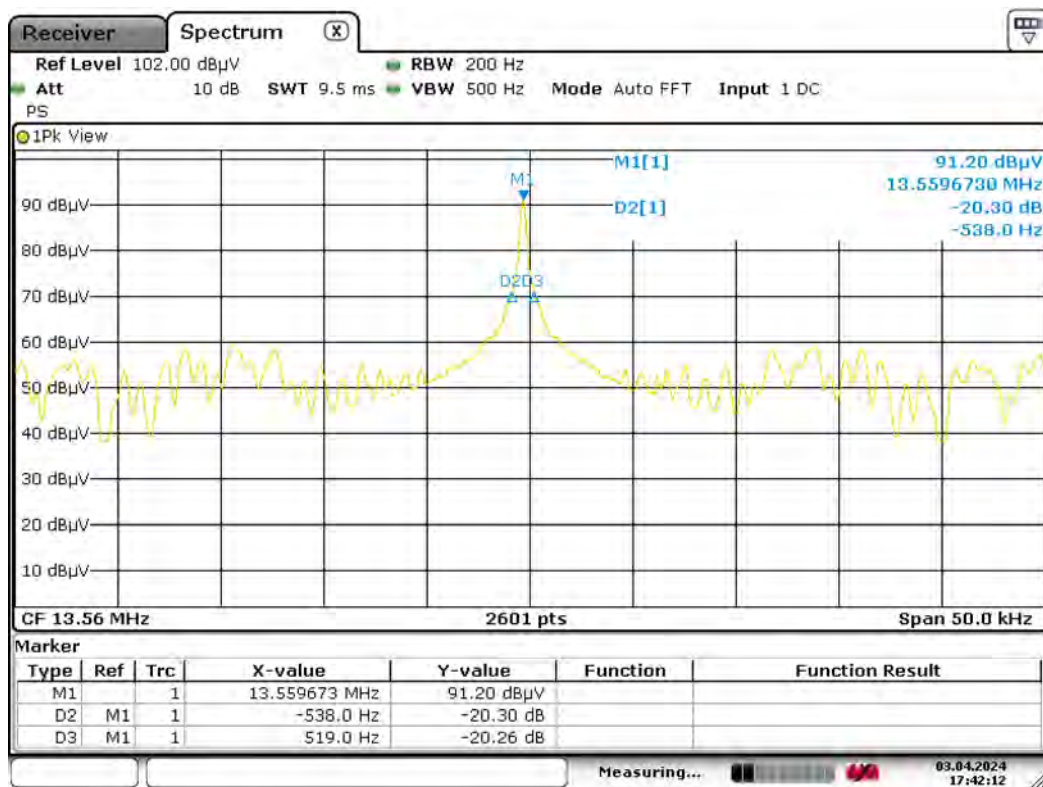


7.2 Test Data - Occupied Bandwidth

Test Date(s):	2024-04-04	Test Engineer(s):	J. Chiller
Standards:	CFR 47 Part 15.215(c)	Air Temperature:	21.5°C
		Relative Humidity:	39%

Note: Signal nature prohibits 1%-5% RBW.

-20dB



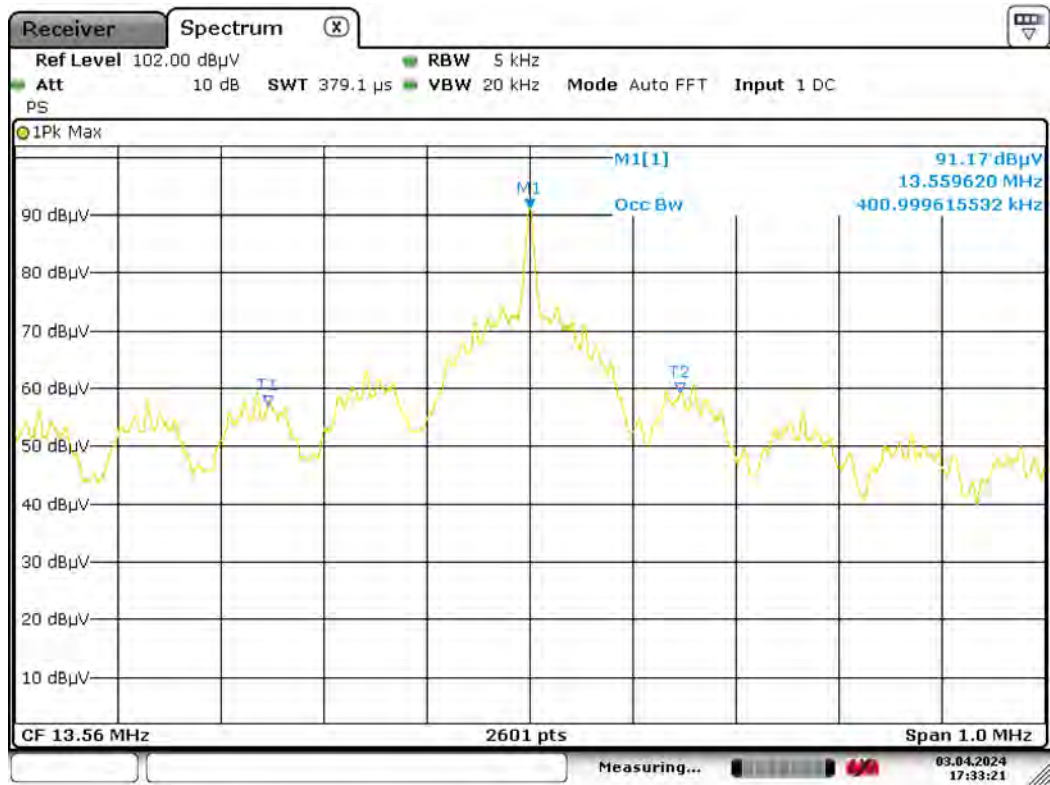
Date: 3.APR.2024 17:42:11



Order Number: F2P30652C-C5

Applicant: Bellus Medical, LLC DBA Crown Aesthetics
Model: REF 200: SkinPen® Precision Elite Handpiece

99%



Date: 3 APR 2024 17:33:22



8 FIELD STRENGTH OF EMISSIONS FROM INTENTIONAL RADIATORS

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

Notes:

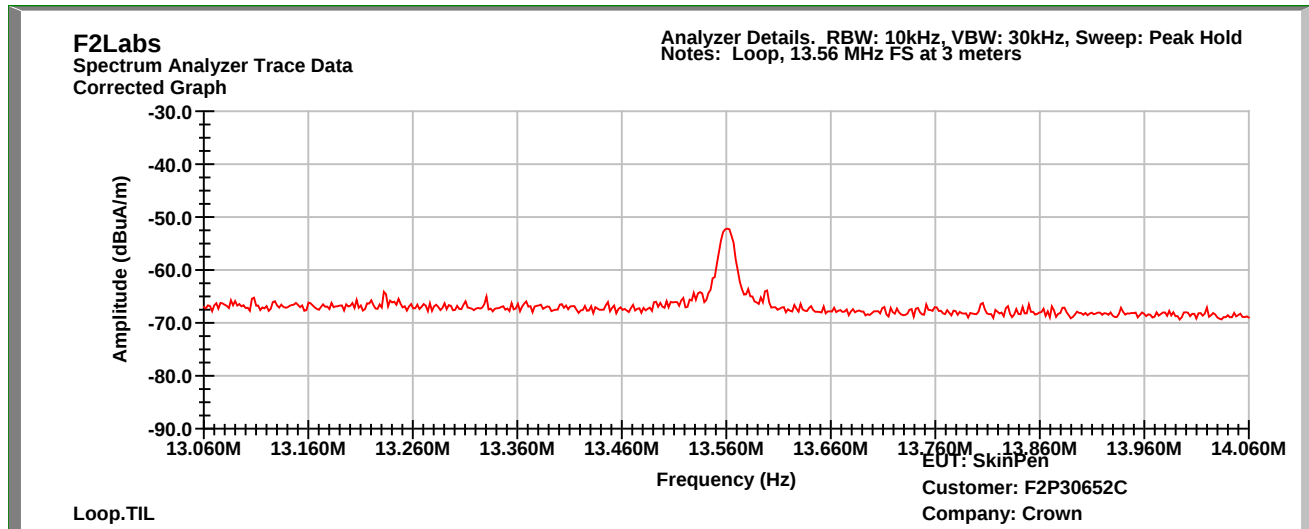
During the pre-scan evaluation, the EUT was rotated in all possible directions and all three orthogonal positions to find the maximum emissions. The orthogonal position that showed the highest emissions was used. The antenna was raised between 1 and 4 meters and the EUT turntable was rotated 360 degrees to maximize the emissions.

13.56 MHz Field Strength was measured at 3m, and results extrapolated by 40dB for 30-meter limit.



8.1 Test Data - Field Strength of Emissions from Intentional Radiators

Test Date(s):	2024-04-04	Test Engineer(s):	J. Chiller
Standards:	CFR 47 Part 15.209	Air Temperature:	21.5°C
Results:	Complies	Relative Humidity:	39%





8.2 Test Data – Spurious Emissions

Notes: Plots are peak, max hold pre-scan data included only to determine what frequencies to investigate and measure. During the pre-scan evaluation, the EUT was rotated in all possible directions and three orthogonal positions to find the maximum emissions. The orthogonal position that showed the highest emissions was used. At some frequencies, no emissions from the EUT were measurable over the ambient noise floor. The readings did not change with EUT on and EUT off.

At least 6 of the highest frequencies were measured per ANSI 63.4 in a 3-meter anechoic chamber. Frequencies below 1GHz were measured using a quasi-peak detector. The antenna was raised between 1 and 4 meters and the EUT turntable was rotated 360 degrees to maximize the emissions. Some of the frequencies did not change with the EUT on or off. At those frequencies, the test distance was shortened to 1 meter and still no emissions from the EUT were visible or over the ambient or limit. Frequencies were scanned from 9kHz to 1000 MHz and the highest emissions are listed below.

In the following plots, the red line indicates the measurement with the EUT on. Emissions to be found by the EUT were measured and listed in the table following the plots. The configuration was scanned and maximized to determine worst-case configuration. The following results are from the worst-case configuration confirmed with and without external cabling attached.

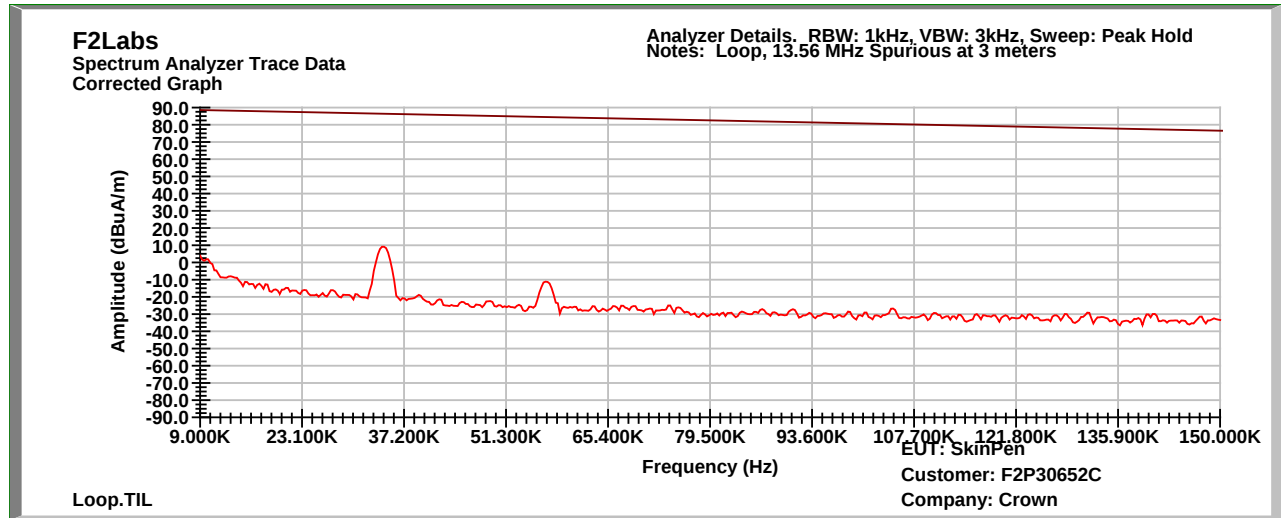


Order Number: F2P30652C-C5

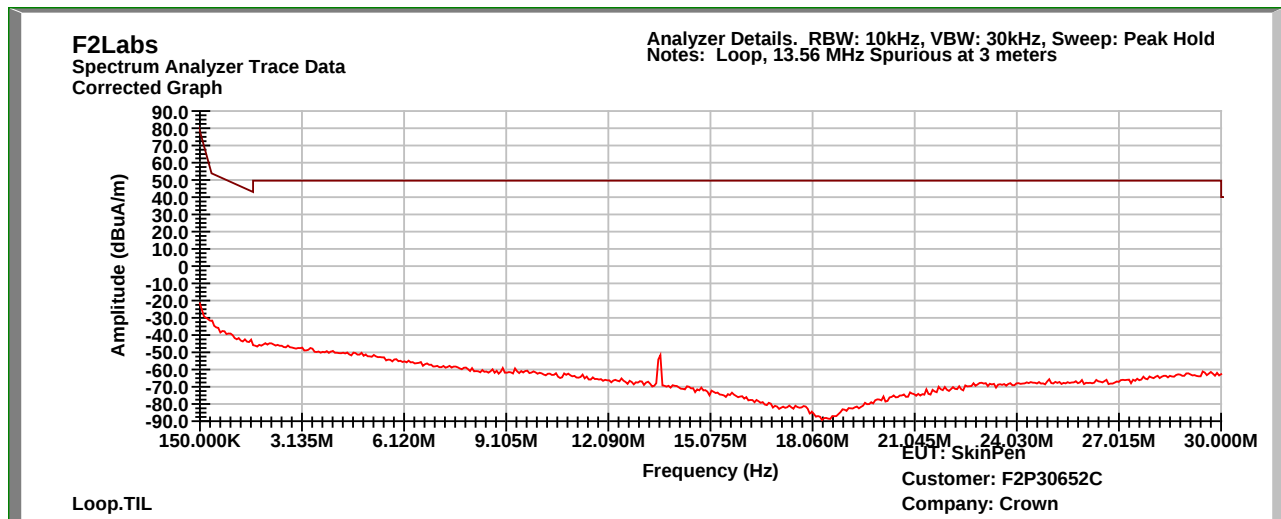
Applicant: Bellus Medical, LLC DBA Crown Aesthetics
Model: REF 200: SkinPen® Precision Elite Handpiece

Test Date(s):	2024-04-04	Test Engineer(s):	J. Chiller
Standards:	CFR 47 Part 15.209	Air Temperature:	21.5°C
Results:	Complies	Relative Humidity:	39%

13.56 MHz: 0.009 MHz to 0.15 MHz



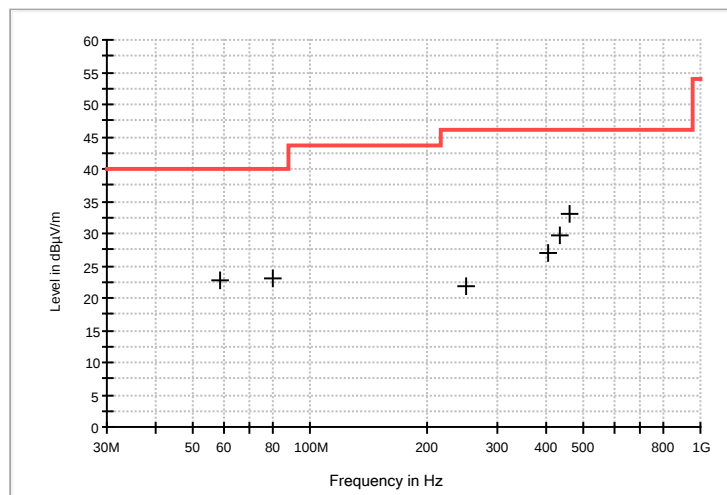
13.56 MHz: 0.15 MHz to 30 MHz





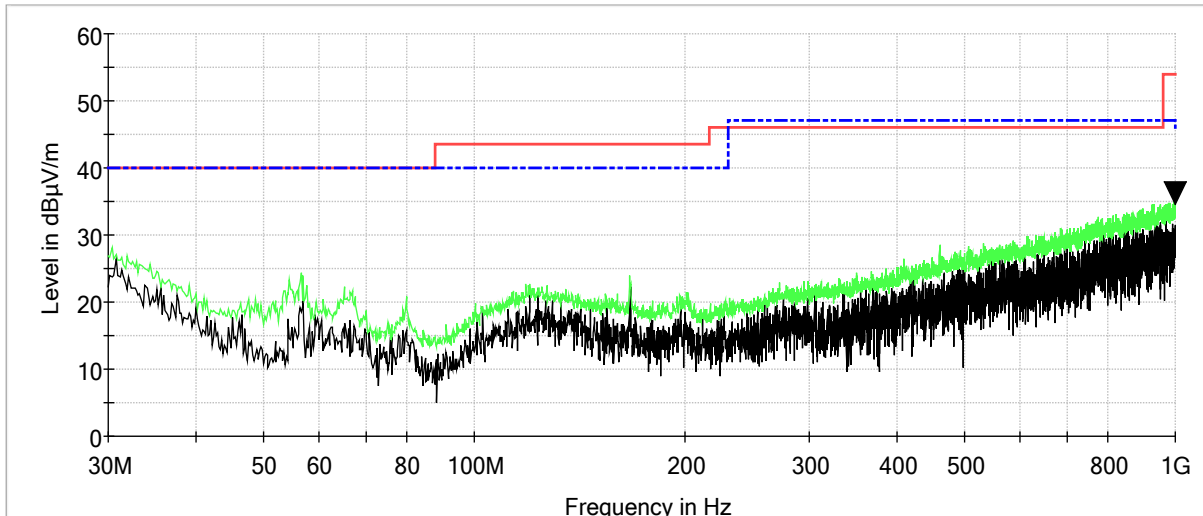
13.56 MHz: 30 MHz to 1000 MHz

Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Azimuth (degrees)	Reading (dBµV)	Corr. Factors (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
58.520000	V	100.00	7.00	40.3	-17.7	22.60	40.0	-17.4
80.000230	V	100.00	321.00	32.9	-9.8	23.10	40.0	-16.9
250.003600	H	100.00	14.00	43.9	-22.2	21.70	46.0	-24.3
405.870000	H	100.00	58.60	53.3	-26.4	26.90	46.0	-19.1
437.540000	H	100.00	42.30	56.5	-26.9	29.60	46.0	-16.4
461.030000	H	100.00	45.80	60.3	-27.4	32.90	46.0	-13.1

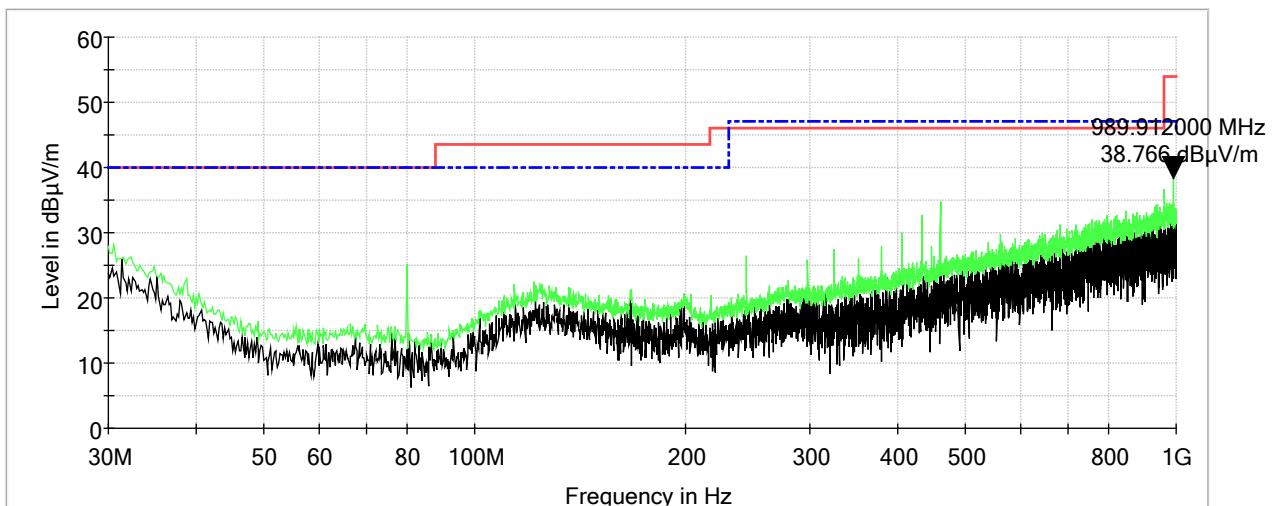




13.56 MHz: Characterization Scan, 30 MHz to 1000 MHz, Vertical



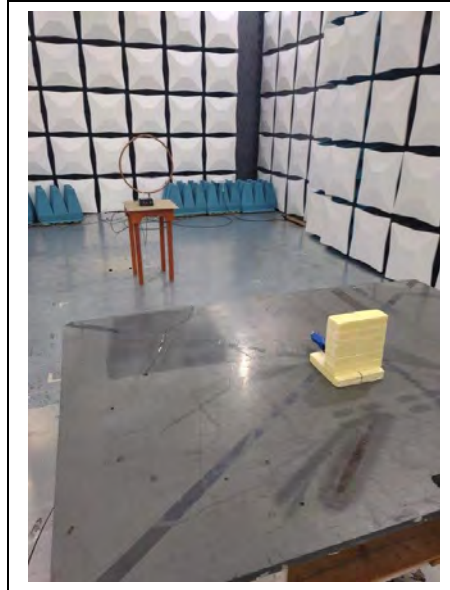
13.56 MHz: Characterization Scan, 30 MHz to 1000 MHz, Horizontal





9 TEST SETUP PHOTOGRAPHS

Field Strength, Occupied Bandwidth



Radiated Spurious Emissions: Less than 30 MHz





Radiated Spurious Emissions: 30 to 1000 MHz

