PRS LAB S.r.l. Unipersonale
Sede operativa e Laboratori di prova
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LAB N° 1347 L

TEST REPORT

Ref. n.	**FCCTR_183732-1**	Issue Date:	**22/11/2023**	Pages:	**23**

Test object	*Type test according to Standard* **FCC Cfr 47 part 15 - Subpart C - §15.207, §15.209, §15.225**
Applicant	**PANINI S.p.A.** Via Varallo 24b - 10153 Torino - Italy Phone: +39.011.8176011
Trade mark	
Manufacturer	PANINI S.p.A.
Product	Identity Verification Platform
Tested model	**BioCred**
FCC ID	**2BCXDPN000001**
Date of test samples receipt	20/09/2023
No. of tested samples	1 – Sampled by the manufacturer
Test date	20/09/2023
Testing site	PRSLAB S.r.l. Unipersonale - Via Campagna 92 - 22020 Faloppio - Como - Italy
Testing site ID	IT0012
Test results	**CONFORME / COMPLIANT**

Verifications carried out by	**Daniele AOSANI** *Laboratory Engineer*	
Approved by	**Riccardo PFEIFFER** *Laboratory Manager*	

The test results reported in this test report shall refer only to the samples tested.
The sample has been provided by the customer and the results apply to the sample as received.
This report may not be partially reproduced, except with the prior written permission of the issuing Laboratory.
PRS refuses any responsibility about information provided by the customer contained in this test report.

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0. RELEASE CONTROL RECORD

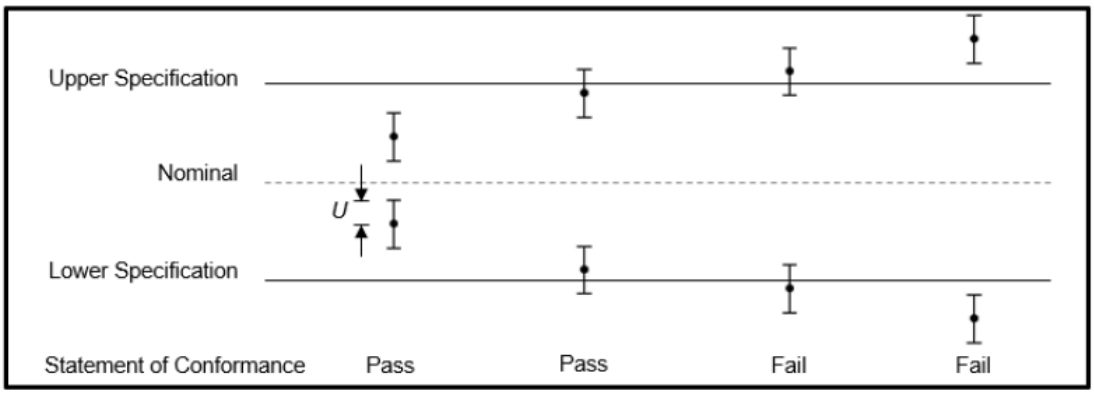
TEST REPORT NUMBER	REASON OF CHANGE	DATE OF ISSUE
FCCTR_183732-0	Original release	10/10/2023
FCCTR_183732-1	Edited Product description	22/11/2023

This document is valid in last revision that deletes and replaces the previous one

1. DECISION RULE

PRS LAB specifies that, if the decision rules of conformity of the test results are not indicated in detail in the standard/s object of tests, it takes as a decision rule for the declaration of conformity the simple binary system (w = 0) stated in the ILAC-G8-09:2019 document.

The decision rule is applicable for all parts of standard



U = 95% expanded measurement uncertainty

Statements of conformity are reported as:

- Pass: the measured value is below the acceptance limit, $AL{=}TL$.
- Fail: the measured value is above the acceptance limit, $AL{=}TL$.

Definitions

- Guard Band (w): interval between a tolerance limit and a corresponding acceptance limit where length $w{=}|TL{-}AL|$.
- Tolerance Limit (TL) (Specification Limit): specified upper or lower bound of permissible values of a property.
- Acceptance Limit (AL): specified upper or lower bound of permissible measured quantity values.

2. INFORMATION PROVIDED BY CUSTOMER

- According to Manufacturer declaration, the tested model is the most representative and the most complex. The differences between the tested one and his variants are described in the table above and are declared by Manufacturer.

3. GENERAL REMARKS

- n/a

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4. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

4.1 EUT Identification

DESCRIPTION	Identity Verification Platform
MODEL NAME	BioCred
FCC ID	2BCXDPN000001
SERIAL NO.	717001026
PRS LAB INTERNAL REFERENCE	BC 272/2023 1/2
TRADEMARK	PANINI®
MANUFACTURER	PANINI S.p.A.
COUNTRY OF MANUFACTURER	Italy
SINGLE UNIT OR SYSTEM	Single
SOFTWARE VERSION (Information provided by Customer)	N/A
HARDWARE VERSION (Information provided by Customer)	N/A
POWER SOURCE	AC/DC adapter (model **QJ15WD-0550200DP**) powered at 100-240V ~ 50-60Hz
SUPPLY VOLTAGE	5Vdc from AC/DC adapter
MAX POWER or MAX ABSORBED CURRENT	2A
OPERATING TEMPERATURE	0-40°C
DIMENSIONS	See photographic documentation
ENVIRONMENT CLASS	Class A
EUT STANDING	☐WALL; ☐CEILING; ☒TABLE; ☐FLOOR; ☒RACK MOUNTED; ☐BODY WORN; ☐HANDELD; ☐PORTABLE; ☐MOBILE
HIGHEST INTERNAL FREQUENCY (Information provided by Customer)	☐<108MHz; ☒108MHz<F<500MHz; ☐500MHz<F<1GHz; ☐F>1GHz

4.2 RFID module technical data

ETS CATEGORY	Radio-Frequency Identification (RFID)
FREQUENCY RANGE	13.553-13.567MHz
OPERATING FREQUENCY	13.56MHz
TRANSMITTER MAX POWER	18.90dBµV/m Peak@30m distance
TYPE OF MODULATION	ASK
ANTENNA TYPE	Internal

4.3 Ports identification

	PORT	DESCRIPTION	CONNECTION	NOTES
☒	Enclosure	Plastic	Screw	---
☒	AC Power input	115V ~ 60Hz by AC/DC adapter	---	---
☐	DC Power input	Port not present	---	---
☒	Signal / Control port	USB	Type A	<3m
☒	Telecomm.port	LAN	RJ45	<3m
☐	Antenna port	☒Internal; ☐External	---	---
Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.				

4.4 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test:

- None

4.5 Auxiliary equipment

- Auxiliary laboratory laptop used to generate RFID carrier.

5. REFERENCE STANDARDS

CODE OF FEDERAL REGULATIONS	DESCRIPTION
Title 47 Part 15 Subpart C	Radio frequency devices - Intentional Radiators
Title 47 Part 15 Subpart C § 15.207	Radio frequency devices - Intentional Radiators Conducted Limits
Title 47 Part 15 Subpart C § 15.209	Radio frequency devices - Intentional Radiators Radiated emission limits; general requirements.
Title 47 Part 15 Subpart C § 15.225	Radio frequency devices - Intentional Radiators Operation within the band 13.110-14.010MHz.
ANSI C63.4: 2014	American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz
ANSI C63.10:2013	American National Standard for Testing Unlicensed Wireless Devices

6. OPERATING MODES AND TEST CONDITIONS

In the following table there are the operating conditions adopted during tests identified by an indicator (#) at which has been referred the item “Operating condition of the equipment under test”

OPERATING CONDITION	DESCRIPTION
#1	EUT in maximum RFID output power. Radiated measurements were performed with the reader placed above the base; it produced worst case emissions and output power, therefore this alignment was used for all measurements.

Special Test Software: None

Special Hardware Used: None

Transmitter Test Antenna: The EUT has been tested with the antenna fitted in a manner typical of normal intended use as integral antenna equipment as described with the test results.

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7. UNITS OF MEASUREMENTS

Conducted EMI Data is in dBµV; dB referenced to one microvolt
Radiated EMI Data is in dBµV/m; dB/m referenced to one microvolt per meter

Sample Calculation:

RFS = Radiated Field Strength,
FSM = Field Strength Measured,
A.F. = Receive antenna factor,
Gain = amplification gains and/or cable losses.

RFS (dBµV/m @ 3m) = FSM (dBµV) + A.F. (dB/m) - Gain (dB)

8. SUMMARY OF TEST RESULTS

SUMMARY OF TEST RESULTS				
Port	**Test**	**Reference Standard**	**Operating Condition[1]**	**Results**
Enclosure	Radiated Field Emissions Mask	Title 47 Part 15 Subpart C § 15.225 (a)(b)(c)	#1	Within the limits
	Radiated Emissions 9kHz – 30MHz	Title 47 Part 15 Subpart C § 15.209	#1	Within the limits
	Radiated Emissions 30MHz – 1GHz	Title 47 Part 15 Subpart C § 15.225 (d)	#1	Within the limits
AC main	Conducted Emissions	Title 47 Part 15 Subpart C § 15.207	#1	Within the limits
Antenna	Frequency Stability	Title 47 Part 15 Subpart C § 15.225 (e)	#1	Within the limits

[1] Ref. Tab. Of Section 6

9. TESTS RESULTS

TEST 1.	RADIATED EMISSIONS – 9kHz to 1GHz
REFERENCE DOCUMENT	**FCC Cfr 47 part 15 - Subpart C - §15.209; FCC Cfr 47 Part 15 Subpart C - § 15.225 (d)**

• **TEST SETUP**	Acc. To ref. Std.
• **TEST LOCATION**	Semi-Anechoic Chamber
• **DISTANCE OF MEASUREMENT**	3m

• **TEST EQUIPMENT USED FOR TEST**

Instrument	Manufacturer	Model	Serial n°	Calibrated On	Due to
Stabilized Power Supply	Spitzenberger+ Spies	PAS5000	A154201/00595	02/2022	02/2024
Emi Receiver	Rohde & Schwarz	ESU 40	100111	02/2023	02/2024
MXE Emi Receiver	Keysight	N9038A	MY57290150	09/2022	09/2023
Semi-Anechoic Chamber	Siemens	B83117-D6019-T232	003-005-134/94C	02/2023	02/2024
Loop antenna	Rohde & Schwarz	HFH 2-Z2	841801/012	09/2023	09/2026
Bi-log antenna	Chase	CBL6111C	2717	04/2022	04/2025
Radiated Emission Cable (30MHz – 1GHz)	Sucoflex	Sucoflex 126	---	12/2021	12/2023
Software EMC	Rohde & Schwarz	EMC32-E	V 8.40.0	N.A.	

• **TESTED PORT**	Enclosure port
• **TEST METHOD**	ANSI C63.10:2013 section 6.5
• **FREQUENCY RANGE**	9kHz – 1GHz
• **LIMITS**	Acc. To § 15.209 (a)
• **UNCERTAINTY OF MEASURE**	Level of confidence = 95% (k=2) Expanded uncertainty 9kHz – 30MHz = 4,18 dB Expanded uncertainty 30MHz – 1GHz = 5,72 dB

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	23.6 °C
Ambient humidity	**25 - 75%rH**	38%
Pressure	**85 - 106kPa (860mbar - 1060mbar)**	960 mbar
Voltage		115V ~ 60Hz

OPERATING CONDITION: **#1**

RESULT: **WITHIN THE LIMITS**

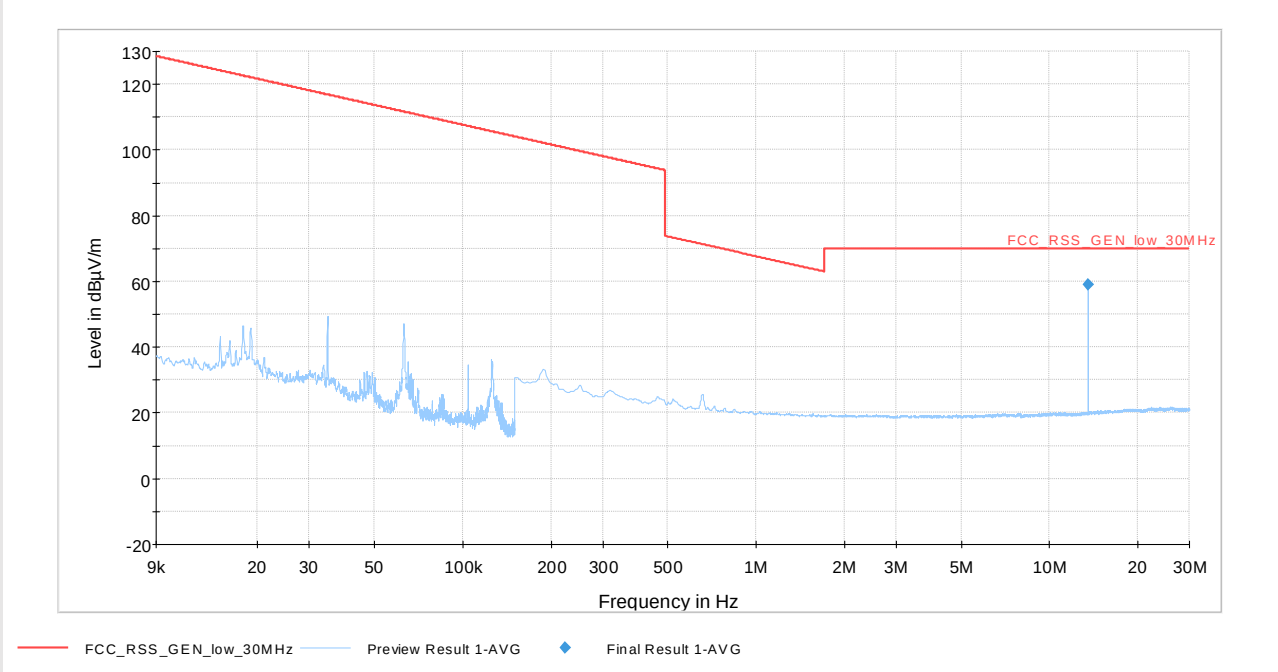
MEASUREMENT PARAMETER – 9kHz – 150kHz	
Resolution bandwidth	300Hz
Video bandwidth	1kHz
Span	141kHz
Sweep time	Auto couple
Detector	Peak
Trace-Mode	Max. hold

MEASUREMENT PARAMETER – 150kHz – 30MHz	
Resolution bandwidth	10kHz
Video bandwidth	30kHz
Span	29.850MHz
Sweep time	Auto couple
Detector	Peak
Trace-Mode	Max. hold

MEASUREMENT PARAMETER – 30MHz – 1GHz	
Resolution bandwidth	120kHz
Video bandwidth	300kHz
Span	970MHz
Sweep time	Auto couple
Detector	Peak
Trace-Mode	Max. hold

TEST RESULTS

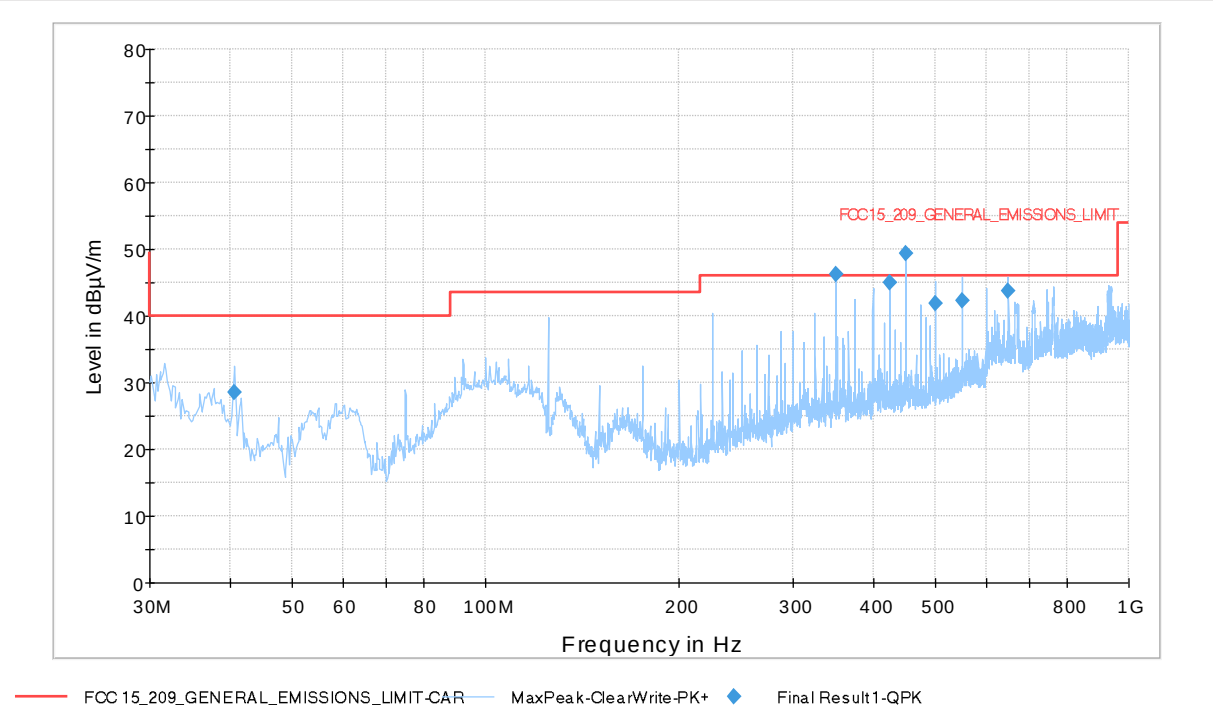
Frequency Range: 9kHz – 30MHz



Final Results:

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
13.560000	58.9	104.8	0.0	11.1	70.0

Frequency Range: 30MHz – 1GHz	Vertical polarization

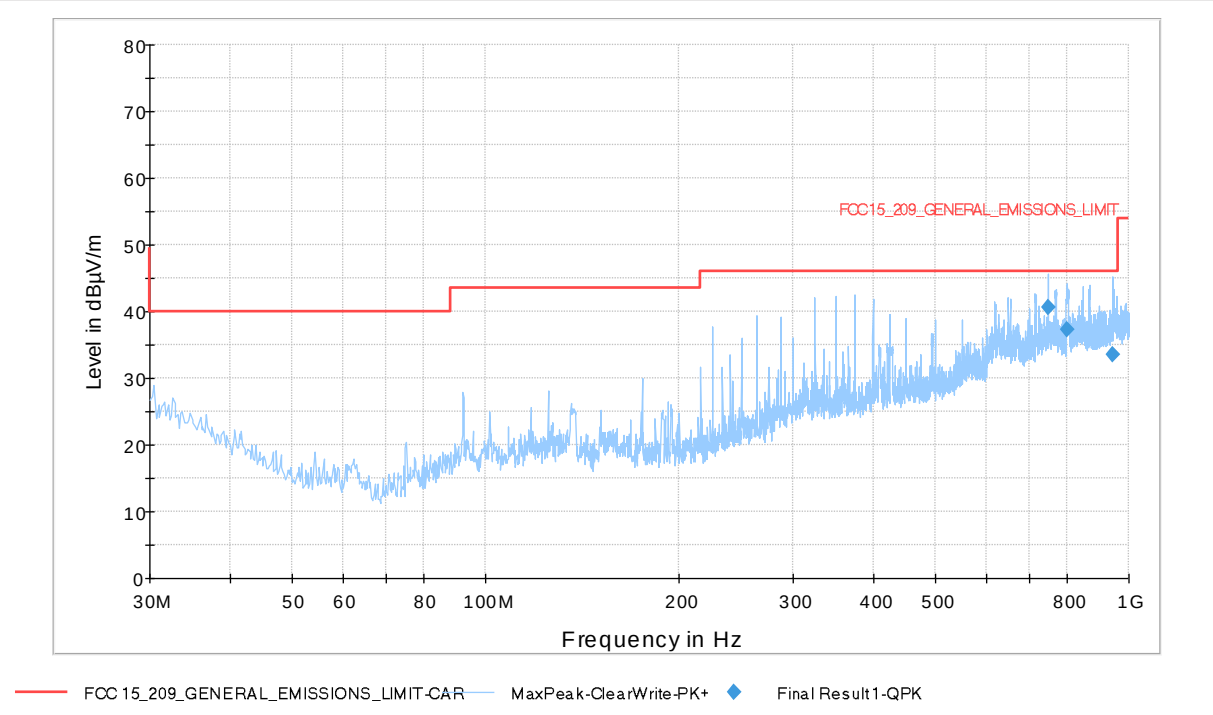


Final Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
40.650000	28.6	99.7	187.0	11.40	40.00
350.010000	46.3	122.8	277.0	-0.30	46.00
424.980000	45.0	122.9	7.0	1.00	46.00
450.000000	49.4	124.9	-8.0	-3.40	46.00
499.980000	41.9	99.8	-6.0	4.10	46.00
549.960000	42.4	99.7	-4.0	3.60	46.00
650.010000	43.7	99.9	7.0	2.30	46.00

NOTE: Peaks out of limits are due to electronic part of the EUT, these peaks are valuated In the unintentional test report.

Frequency Range: 30MHz – 1GHz	Horizontal polarization



Final Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
749.970000	40.7	99.8	1.0	5.30	46.00
799.980000	37.3	104.8	177.0	8.70	46.00
943.980000	33.5	204.7	264.0	12.50	46.00

TEST **2.**	**RADIATED FIELD EMISSIONS MASK**
REFERENCE DOCUMENT	**FCC Cfr 47 Part 15 Subpart C - § 15.225 (a)(b)(c)**

• **TEST SETUP**	Acc. To ref. Std.
• **TEST LOCATION**	Semi-Anechoic Chamber
• **DISTANCE OF MEASUREMENT**	3m

• **TEST EQUIPMENT USED FOR TEST**

Instrument	Manufacturer	Model	Serial n°	Calibrated On	Due to
Stabilized Power Supply	Spitzenberger+ Spies	PAS5000	A154201/00595	02/2022	02/2024
MXE Emi Receiver	Rohde & Schwarz	ESU 40	100111	02/2023	02/2024
Semi-Anechoic Chamber	Siemens	B83117-D6019-T232	003-005-134/94C	02/2023	02/2024
Loop antenna	Rohde & Schwarz	HFH 2-Z2	841801/012	09/2023	09/2026
Radiated Emission Cable (30MHz – 1GHz)	Sucoflex	Sucoflex 126	---	12/2021	12/2023
Software EMC	Rohde & Schwarz	EMC32-E	V 8.40.0	N.A.	

• **TESTED PORT**	Enclosure port
• **TEST METHOD**	ANSI C63.10:2013 section 6.5
• **FREQUENCY RANGE**	13.410MHz – 14.010MHz
• **LIMITS**	Acc. To § 15.225 (a)(b)(c)
• **UNCERTAINTY OF MEASURE**	Level of confidence = 95% (k=2) Expanded uncertainty 9kHz – 30MHz = 4,18 dB

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	23.6 °C
Ambient humidity	**25 - 75%rH**	38%
Pressure	**85 - 106kPa (860mbar - 1060mbar)**	960 mbar
Voltage		115V ~ 60Hz

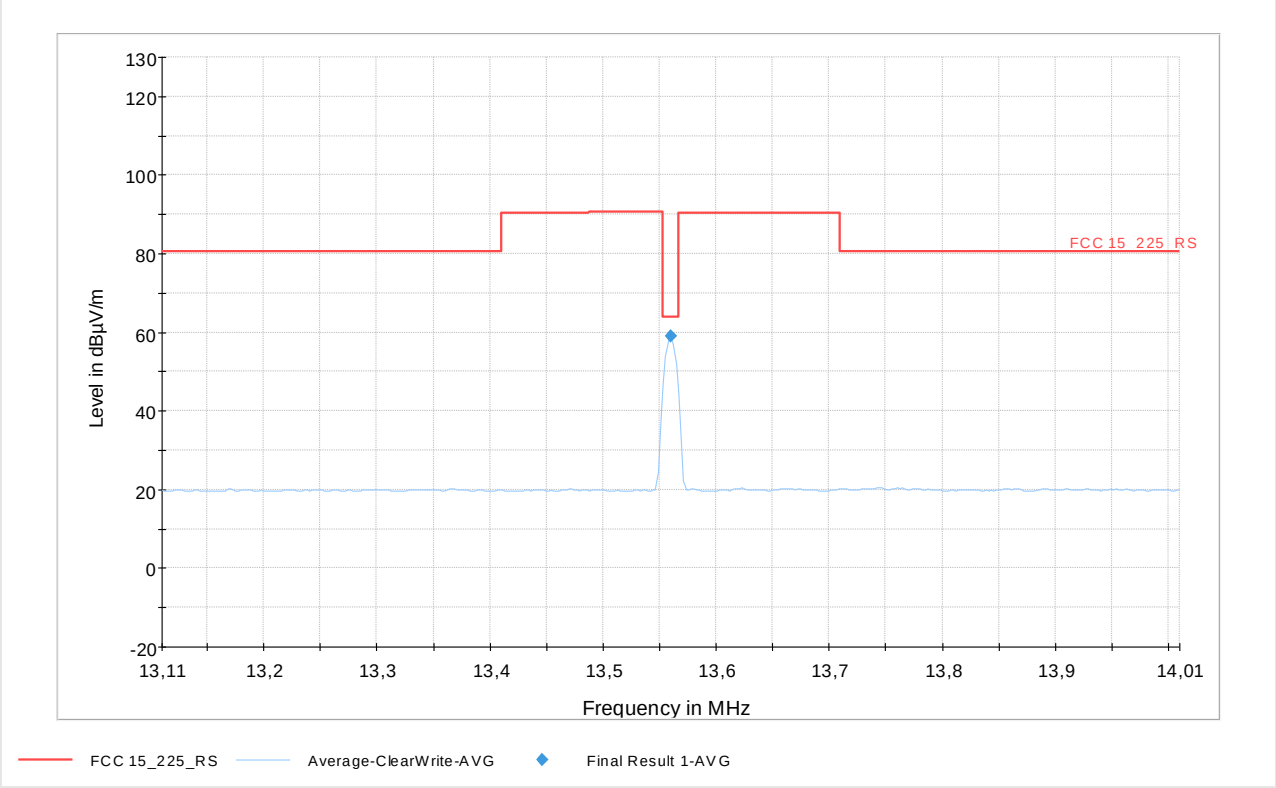
OPERATING CONDITION: **#1**

RESULT: **WITHIN THE LIMITS**

MEASUREMENT PARAMETER	
Resolution bandwidth	10kHz
Video bandwidth	30kHz
Span	600kHz
Sweep time	Auto couple
Detector	Peak
Trace-Mode	Max. hold

TEST RESULTS

Frequency Range: 13.410MHz – 14.010MHz



Final Results:

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
13.560000	58.9	104.8	0.0	5.1	64.0

TEST **3.**	**CONDUCTED EMISSION**
REFERENCE DOCUMENT	**FCC Cfr 47 part 15 - Subpart C - §15.207**

• **TEST SETUP**	Acc. to ANSI C63.4-2014					
• **TEST LOCATION**	Schielded room					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	Stabilized Power Supply	Spitzenberger+ Spies	PAS5000	A154201/0059 5	02/2022	02/2024
	MXE Emi Receiver	Keysight	N9038A	MY57290150	09/2022	09/2023
	LISN	Narda	L3-32	243ZT00202	08/2022	08/2024
	Software EMC	Rohde & Schwarz	EMC32-E	V 8.40.0	N.A.	
	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100837	07/2023	07/2025
• **TESTED PORT**	AC mains power port					
• **TEST METHOD**	ANSI C63.10:2013 section 6.2					
• **FREQUENCY RANGE**	150kHz - 30MHz					
• **LIMITS**	Acc. To § 15.207 (a)					
• **UNCERTAINTY OF MEASURE**	Level of confidence = 95% (k=2) Expanded uncertainty 150kHz – 30 MHz = 2,81 dB					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	24°C
Ambient humidity	**25 - 75%rH**	45%
Pressure	**85 - 106kPa (860mbar - 1060mbar)**	960mbar
Voltage		115V ~ 60Hz

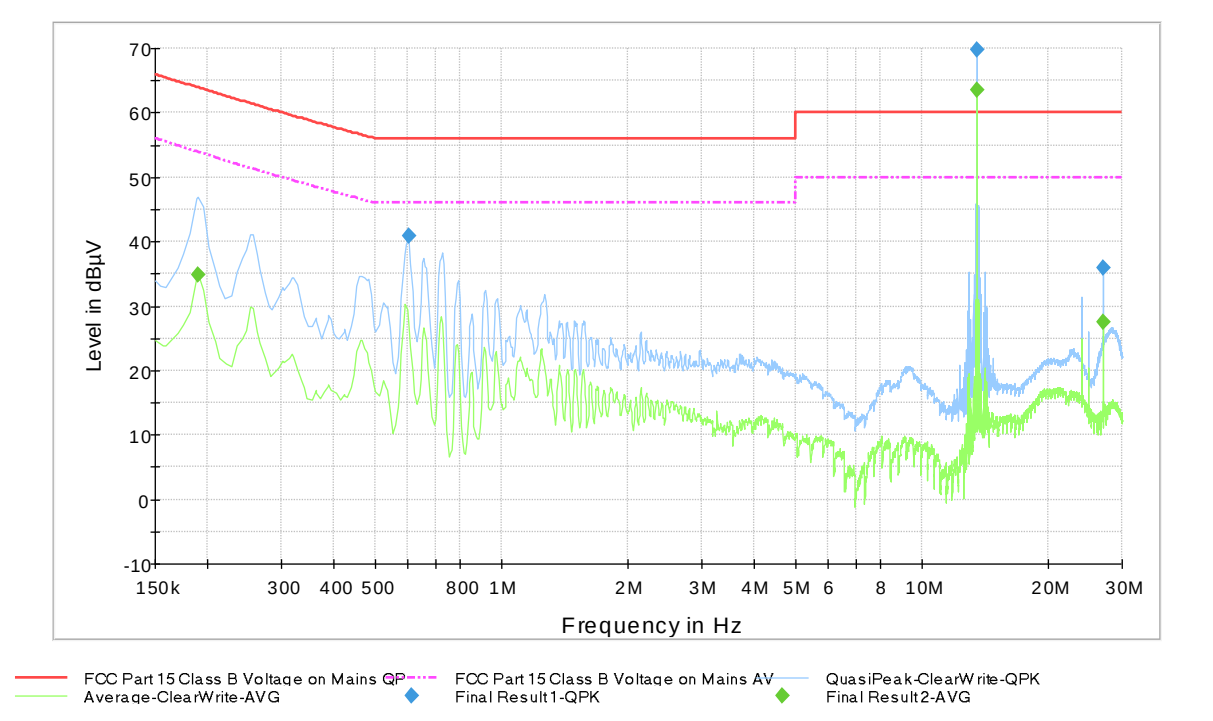
OPERATING CONDITION: **#1**

RESULT: **Within the Limits**

MEASUREMENT PARAMETER – 150kHz – 30MHz	
Resolution bandwidth	9kHz
Video bandwidth	30kHz
Span	29.850MHz
Sweep time	Auto couple
Detector	Quasi Peak - Average
Trace-Mode	Max. hold

TEST RESULTS

Line: L	Frequency Range: 150MHz – 30MHz



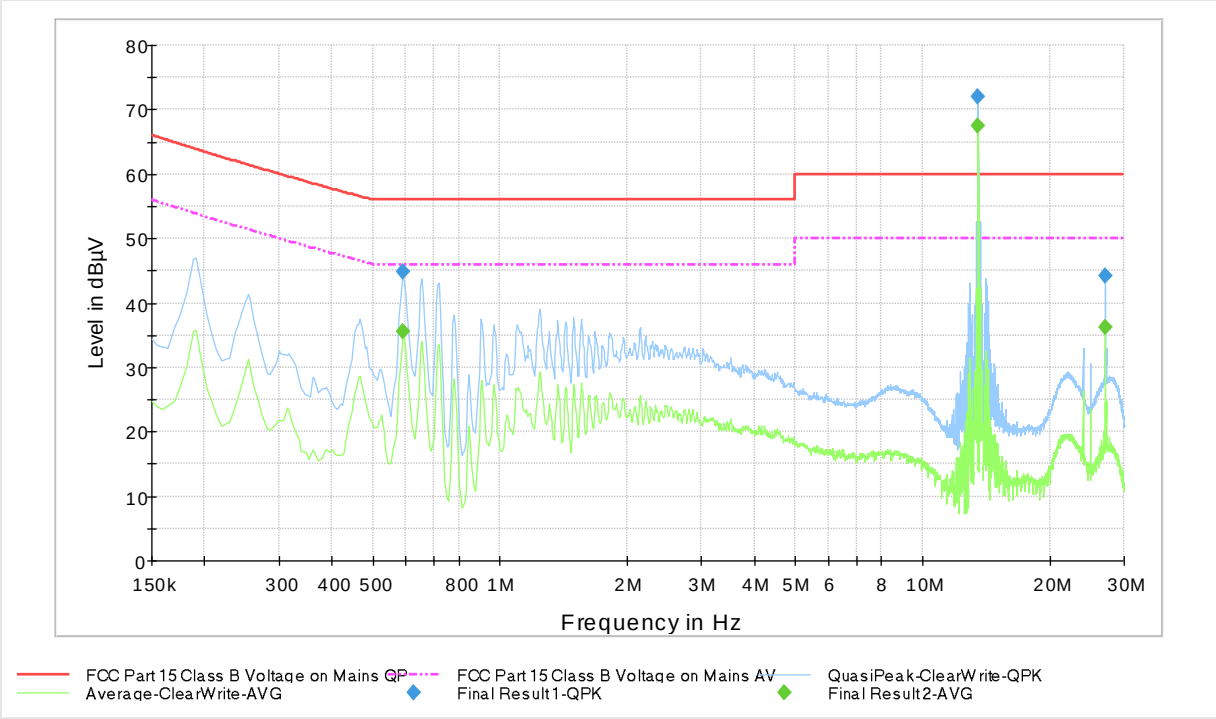
Final Results:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Margin (dB)	Limit (dBµV)
0.602250	40.8	GND	15.2	56.0
13.560000	69.7	GND	-9.7	60.0
27.118500	35.9	GND	24.1	60.0

Frequency (MHz)	Average (dBµV)	PE	Margin (dB)	Limit (dBµV)
0.190500	34.8	GND	19.1	53.9
13.560000	63.4	GND	-13.4	50.0
27.118500	27.5	GND	22.5	50.0

NOTE: Peaks at 13.56 MHz and 27.12 MHz belongs to NFC radiator contribution, not disabled during the present measurement.

Line: N	Frequency Range: 150MHz – 30MHz



Final Results:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Margin (dB)	Limit (dBµV)
0.591000	44.9	GND	11.1	56.0
13.560000	72.0	GND	-12.0	60.0
27.120750	44.3	GND	15.7	60.0

Frequency (MHz)	Average (dBµV)	PE	Margin (dB)	Limit (dBµV)
0.591000	35.5	GND	10.5	46.0
13.560000	67.6	GND	-17.6	50.0
27.120750	36.1	GND	13.9	50.0

NOTE: Peaks at 13.56 MHz and 27.12 MHz belongs to NFC radiator contribution, not disabled during the present measurement.

TEST **4.**	**FREQUENCY TOLLERANCE**
REFERENCE DOCUMENT	**FCC Cfr 47 Part 15 Subpart C - § 15.225 (e)**

• **TEST SETUP**	Acc. To ref. Std.					
• **TEST LOCATION**	Radio test area					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	Emi Receiver	Rohde & Schwarz	ESU 40	100111	02/2023	02/2024
• **TESTED PORT**	Antenna					
• **TEST METHOD**	ANSI C63.10:2013 section 6.8					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	23.6 °C
Ambient humidity	**25 - 75%rH**	38%
Pressure	**85 - 106kPa (860mbar - 1060mbar)**	960 mbar

OPERATING CONDITION: **#1**

RESULT: **WITHIN THE LIMITS**

LIMITS

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

TEST RESULTS

Voltage (V)	Temperature (°C)	Frequency (MHz)	Variation at the reference value (MHz)	Variation at the reference value (%)	Maximum variation	Result
115	+20	**13.559703440**	---	---	±0.01%	COMPLIANT
	-20	**13.559730400**	**+0.00002696**	**+0.0002**		
	+50	**13.559703440**	**0.00**	**0.00**		
97.75	+20	**13.559716920**	**-0.00001348**	**-0.0001**		
132.25	+20	**13.559743880**	**+0.00004048**	**+0.00004**		

END OF TEST REPORT