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LAB N° 1347 L

TEST REPORT

Ref. n.	**FCCTR_185700-0**	Issue Date:	**26/11/2024**	Pages:	**38**

Test object	*Type test according to Standards* **47 CFR FCC Part 15 Subpart C §15.247**	
Applicant	**DATALOGIC S.r.l.** Via S. Vitalino 13 - 40012 Lippo Di Calderara Di Reno - Bologna - Italy Phone. +39 051 3147196 Fax +39 051 3147561	
Trade mark	DATALOGIC™	
Manufacturer	DATALOGIC S.r.l.	
Product	Radio module	
Tested model	**SIRIUS STAR RADIO, 915MHZ**	
FCC Identification number	**U4F-SIRIUS915**	
Date of test samples receipt	16/10/2024	
No. of tested samples	1 – Sampled by the manufacturer	
Test date	From 29/10/2024 to 12/11/2024	
Testing site	PRSLAB S.r.l. Unipersonale - Via Campagna 92 - 22020 Faloppio - Como - Italy	
FCC designation number	IT0012	
Test results	**COMPLIANT**	
Verifications carried out by	**Daniele AOSANI** *Laboratory Engineer*	Daniele Aosani
Approved by	**Luana PARISI** *Reviewer*	Luana Parisi

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.

TABLE OF CONTENTS

0. RELEASE CONTROL RECORD

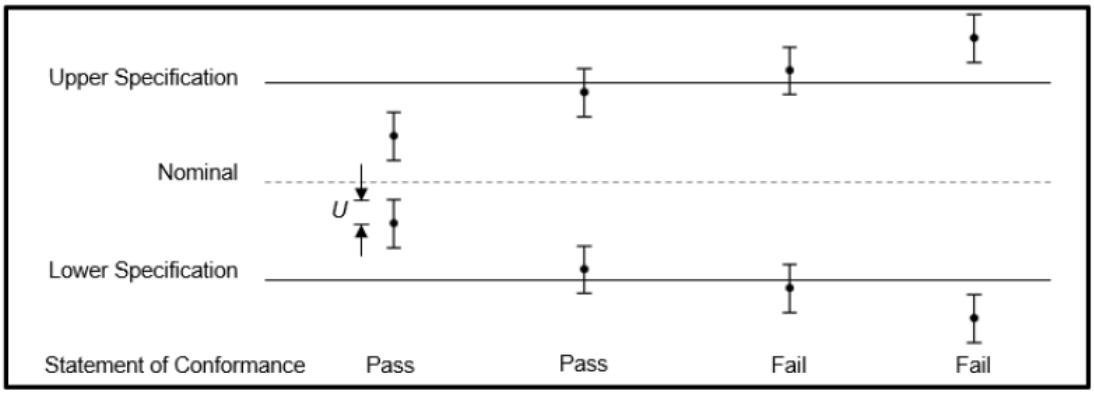
TEST REPORT NUMBER	REASON OF CHANGE	DATE OF ISSUE
FCCTR_185700-0	Original release	26/11/2024

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

- None

3. GENERAL REMARKS

- None

4. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

4.1 EUT Identification

DESCRIPTION	Radio module
MODEL NAME	SIRIUS STAR RADIO, 915MHZ
FCC ID	U4F-SIRIUS915
SERIAL NO.	B24PAAFEY00001040
PRS LAB INTERNAL REFERENCE	BC 267/2024 3/15
TRADEMARK	DATALOGIC™
MANUFACTURER	DATALOGIC S.r.l.
COUNTRY OF MANUFACTURER	Italy
SINGLE UNIT OR SYSTEM	Single
POWER SOURCE	DC power from board
SUPPLY VOLTAGE	3.0 ÷ 3.6Vdc, Typical 3.3Vdc
OPERATING TEMPERATURE	-30°C ÷ +85°C
HARDWARE VERSION (Information provided by Customer)	A
FIRMWARE VERSION (Information provided by Customer)	A
DIMENSIONS	See photographic documentation
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; F = 926.936MHz

4.2 Radio module technical data

ETS CATEGORY	Digital Transmission System (DTS) - Transceiver
FREQUENCY BAND	From 902MHz to 928MHz
WORKING FREQUENCY	910MHz
NUMBER OF CHANNELS	1
CHANNEL OCCUPIED BANDWIDTH	1.16MHz
CHANNEL SPACING	---
TYPE OF MODULATION	NRZ
DATA RATE	500000 bit/s
ANTENNA TYPE (Information provided by Customer)	Flexible antenna with cable
ANTENNA GAIN (Information provided by Customer)	**SRFI068H-100** with peak gain of 0.2dBi
ANTENNA MODEL (Information provided by Customer)	**SRFI068V-100** with peak gain of 0.7dBi
ANTENNA MANUFACTURER (Information provided by Customer)	antenova®

4.3 Ports identification

	PORT	DESCRIPTION	CONNECTION	NOTES
☐	Enclosure	Electronic board	---	---
☐	AC power port	Port not present	---	---
☒	DC power port	3.3Vdc	PIN stripe	---
☐	Signal/control port	Port not present	---	---
☐	Telecommunication port	Port not present	---	---
☒	Antenna port	☐Internal; ☒External	UFL	---

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 set radio channels.
- Auxiliary board to supply radio module and send command via USB connected to

5. 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	Continuous transmission, modulated carrier at 910MHz

Special Test Software: Special software by the Applicant to operate the EUT at each channel frequency continuously. For example, the transmitter will be operated at each of the lowest, middle and highest frequencies individually continuously during testing.

Special Hardware Used: None

Transmitter Test Antenna: The EUT was tested with two antennas, one at a time, mounted in a typical manner for its normal intended use as external antenna equipment.

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6. REFERENCE STANDARDS

REFERENCE STANDARD	DESCRIPTION
47 CFR FCC Part 15 Subpart C §15.247	Radio Frequency Devices – Intentional Radiators Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz
KDB 558074 D01	Guidance for compliance measurements on Digital Transmission Systems (DTS), Frequency Hopping Spread Spectrum System (DSS) and Hybrid System Device (DSS) operating under §15.247 of the FCC rules.
ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
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

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

EUT PORT	DESCRIPTION OF PHENOMENA	BASIC STANDARD	OPERATING CONDITION[1]	RESULTS
Antenna port	Antenna requirement	FCC Part 15 §15.203	---	Compliant
	Maximum Peak Output Power	FCC Part 15 §15.247 (b) (3)	#1	Within the limits
	6dB Bandwidth	FCC Part 15 §15.247 (a) (2)	#1	Within the limits
	Power Spectral Density	FCC Part 15 §15.247 (e)	#1	Within the limits
	Band-Edge	FCC Part 15 § 15.247 (d)	#1	Within the limits
	RF radiated Spurious Emissions at the Transmitter Antenna Terminal	FCC Part 15 § 15.247 (d)	#1	Within the limits
	Transmitter Radiated Emissions <1GHz	FCC Part 15 § 15.247 (d) & § 15.249 (a)	#1	Within the limits
	Transmitter Radiated Emissions >1GHz	FCC Part 15 § 15.247 (d) & § 15.249 (a)	#1	Within the limits

Note: [1] Ref. Tab. Of Section 5

9. TESTS RESULTS

TEST **1.**	**ANTENNA REQUIREMENTS**
REFERENCE DOCUMENT	**According to §15.203 / 15.204** An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sec. 15.211, Sec. 15.213, Sec. 15.217, Sec. 15.219, or Sec. 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Sec. 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded

Antenna Requirements
The EUT has two external flexible antennas with cable.
RESULT: **COMPLIANT**

TEST **2.**	**MAXIMUM PEAK OUTPUT POWER**
REFERENCE DOCUMENT	**According to §15.247(b) (3)** For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

• **TEST LOCATION**	Semi-Anechoic Chamber					
• **DISTANCE OF MEASUREMENT**	3m					
• **TYPE OF MEASUREMENT**	Radiated					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	MXE Emi Receiver	Keysight	N9038A	MY57290150	11/2023	11/2024
	Semi-Anechoic Chamber	Siemens	B83117-D6019-T232	003-005-134/94C	02/2024	02/2025
	Horn antenna	Electro Metrics	EM-6961	6278	10/2023	10/2026
	Software EMC	Rohde & Schwarz	EMC32-E	V 8.40.0	N.A.	
• **TESTED PORT**	Antenna					
• **TEST METHOD**	ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023 section 11.9					
• **FREQUENCY RANGE**	Carrier					
• **UNCERTAINTY OF MEASURE**	Level of confidence = 95% (k=2) Expanded uncertainty = 5,15 dB					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	24 °C
Ambient humidity	**25 - 75%rH**	45%
Pressure	**86 - 106kPa (860mbar - 1060mbar)**	1014 mbar

OPERATING CONDITION: **#1**

RESULT: **WITHIN THE LIMITS**

MEASUREMENT PARAMETER	
Resolution bandwidth	RBW ≥ DTS bandwidth
Video bandwidth	VBW ≥ 3 x RBW
Span	span ≥ 3 x RBW
Sweep time	Auto couple
Detector	Peak
Trace-Mode	Max. hold

TEST DESCRIPTION

Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously - rotating, remotely - controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency.

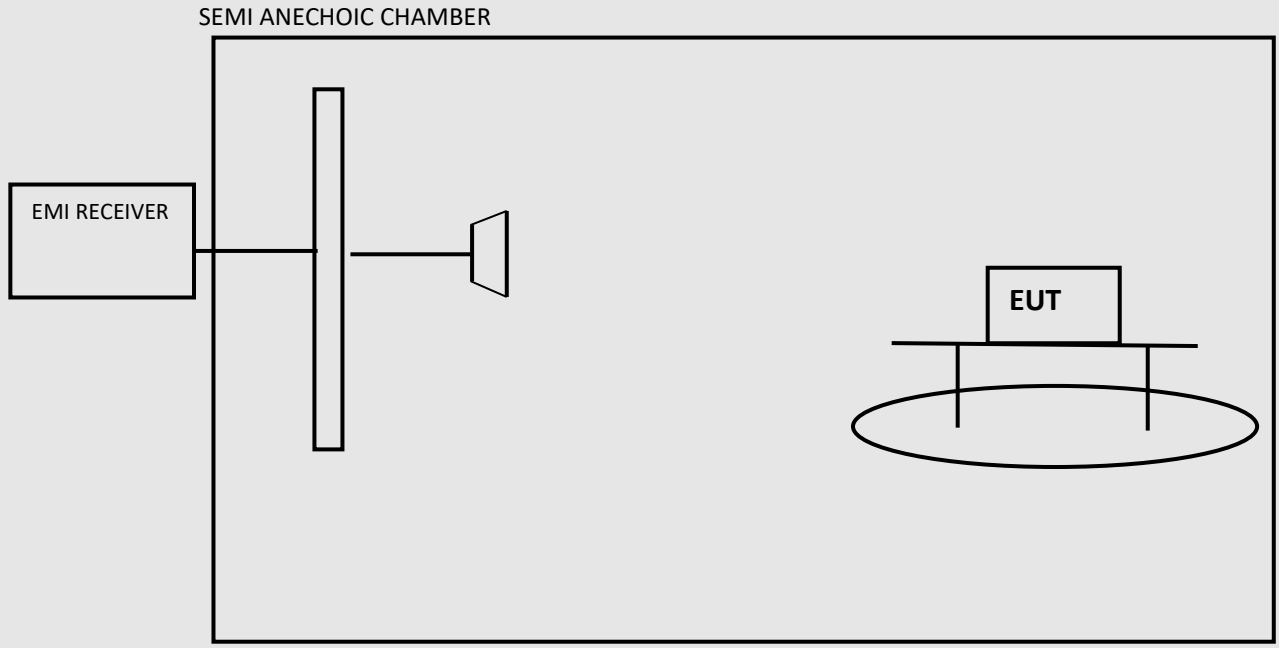
The EUT is placed at test table.

For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m

Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m~4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3m.

This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

TEST SETUP BLOCK DIAGRAM



TEST RESULTS

Radiated power with antenna SRFI068H-100						
Channel	**Frequency (MHz)**	**EIRP (dBm)**	**Antenna Gain (dB)**	**Max Conducted Output power**	**Limit (dBm)**	**Result**
--	910.00	14.74	0.2	14.54	30	**WITHIN THE LIMITS**
Note: ---						

Radiated power with antenna SRFI068V-100						
Channel	**Frequency (MHz)**	**EIRP (dBm)**	**Antenna Gain (dB)**	**Max Conducted Output power**	**Limit (dBm)**	**Result**
--	910.00	15.24	0.7	14.54	30	**WITHIN THE LIMITS**
Note: ---						

TEST **3.**	**POWER SPECTRAL DENSITY**
REFERENCE DOCUMENT	**According to §15,247) (e)** For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

• **TEST LOCATION**	Radio test area					
• **TYPE OF MEASUREMENT**	Conducted					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	Emi Receiver	Rohde & Schwarz	ESU 40	100111	03/2024	03/2025
• **TESTED PORT**	Antenna					
• **TEST METHOD**	ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023 section 11.10					
• **FREQUENCY RANGE**	Carrier					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	24 °C
Ambient humidity	**25 - 75%rH**	45%
Pressure	**86 - 106kPa (860mbar - 1060mbar)**	1014 mbar

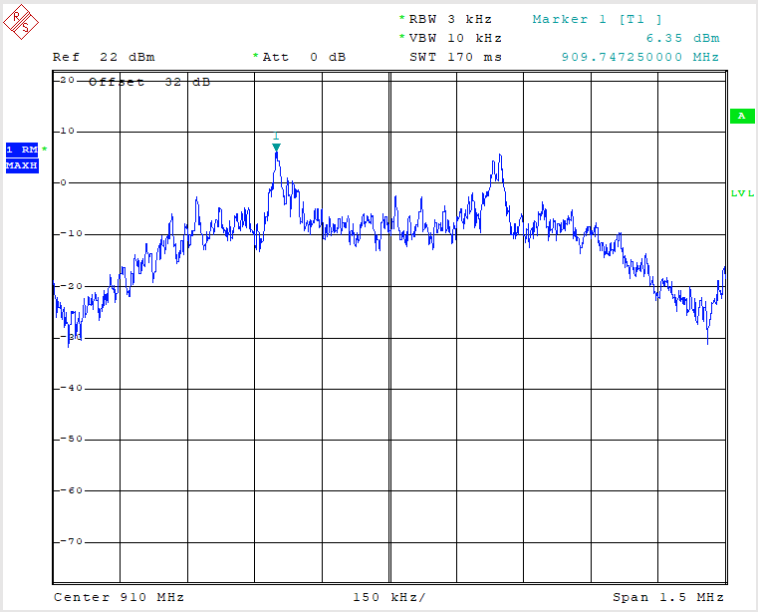
OPERATING CONDITION: **#1**

RESULT: **COMPLIANT**

MEASUREMENT PARAMETER	
Resolution bandwidth	3kHz
Video bandwidth	10kHz
Span	1.5MHz
Sweep time	Auto couple
Detector	Peak
Trace-Mode	Max. hold

TEST DESCRIPTION
Allow trace to fully stabilize. Use the peak marker function to determine the maximum amplitude level within the RBW. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat

TEST RESULTS



Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)	Result
--	910	6.35	8	**1.65**	**COMPLIANT**

TEST **4.**	**6dB CHANNEL BANDWIDTH**
REFERENCE DOCUMENT	**According to §15,247(a)(2)** Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands, The minimum 6 dB bandwidth shall be at least 500 kHz.

• **TEST LOCATION**	Radio test area					
• **TYPE OF MEASUREMENT**	Radiated					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	Emi Receiver	Rohde & Schwarz	ESU 40	100111	03/2024	03/2025
• **TESTED PORT**	Antenna					
• **TEST METHOD**	ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023 section 6.9					
• **FREQUENCY RANGE**	Carrier					

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

OPERATING CONDITION: **#1**

RESULT: **COMPLIANT**

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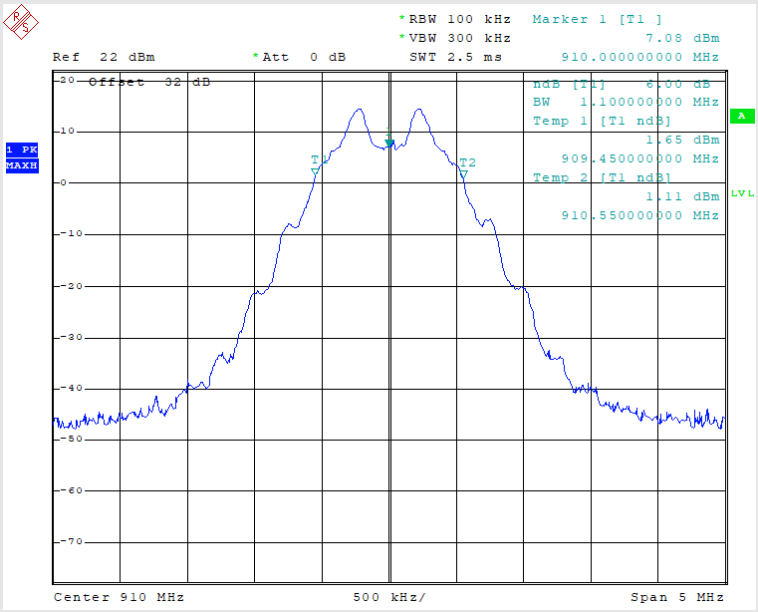
MEASUREMENT PARAMETER – 6dB Bandwidth	
Resolution bandwidth	100kHz
Video bandwidth	300kHz
Span	5MHz
Sweep time	Auto couple
Detector	Peak
Trace-Mode	Max. hold

TEST DESCRIPTION
Allow the trace to stabilize. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

Measurement Result

Channel	Frequency (MHz)	6dB Bandwidth (kHz)	Limits (kHz)	Verdict
--	910	1100	>500	Within the limits

6dB Bandwidth



TEST **5.**	**BAND EDGE**
REFERENCE DOCUMENT	**According to §15,247(d)** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits, If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB, Attenuation below the general limits specified in Sec, 15,209(a) is not required, In addition, radiated emissions which fall in the restricted bands, as defined in Sec, 15,205(a), must also comply with the radiated emission limits specified in Sec, 15,209(a) (see Sec, 15,205(c)),

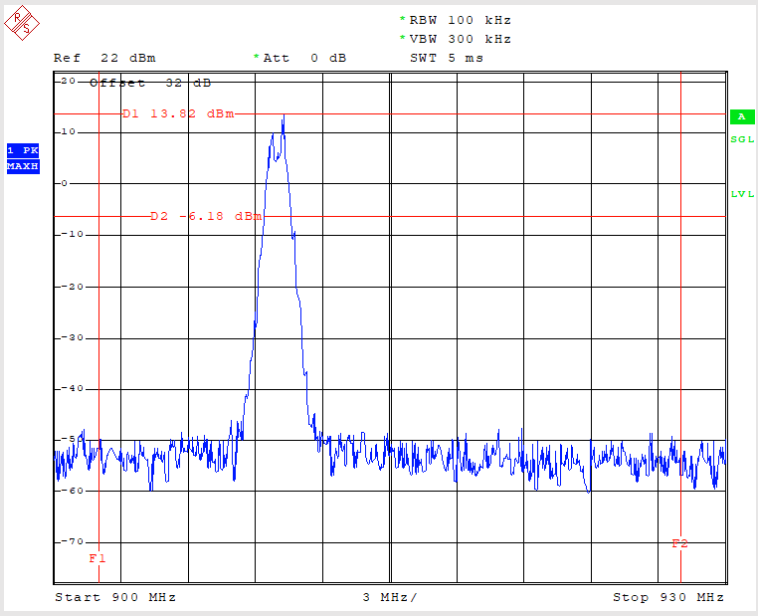
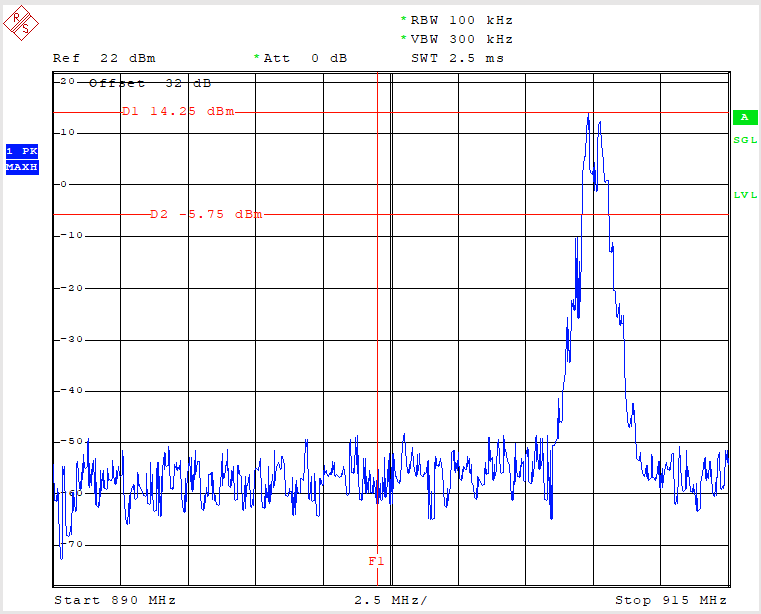
• **TEST LOCATION**	Radio test area					
• **TYPE OF MEASUREMENT**	Conducted					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	Emi Receiver	Rohde & Schwarz	ESU 40	100111	03/2024	03/2025
• **TESTED PORT**	Antenna					
• **TEST METHOD**	ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023 section 11.13					
• **FREQUENCY RANGE**	Carrier					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	24 °C
Ambient humidity	**25 - 75%rH**	45%
Pressure	**86 - 106kPa (860mbar - 1060mbar)**	1014 mbar

OPERATING CONDITION: **#1**

RESULT: **COMPLIANT**

TEST RESULTS

CHANNEL -- 910 MHZ	 

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TEST **6.**	**RF RADIATED SPURIOUS EMISSIONS AT THE TRANSMITTER ANTENNA TERMINAL**
REFERENCE DOCUMENT	**According to $ 15.247 (d) and $ 15.209 (a)** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 Db below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 Db instead of 20 Db. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

• **TEST LOCATION**	Radio test area					
• **TYPE OF MEASUREMENT**	Conducted					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	Emi Receiver	Rohde & Schwarz	ESU 40	100111	03/2024	03/2025
• **TESTED PORT**	Antenna					
• **TEST METHOD**	ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023 section 7.8.8					
• **FREQUENCY RANGE**	30MHz – 26GHz					
• **LIMITS**	Acc. To ref. Std.					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	24 °C
Ambient humidity	**25 - 75%rH**	45%
Pressure	**86 - 106kPa (860mbar - 1060mbar)**	1014 mbar

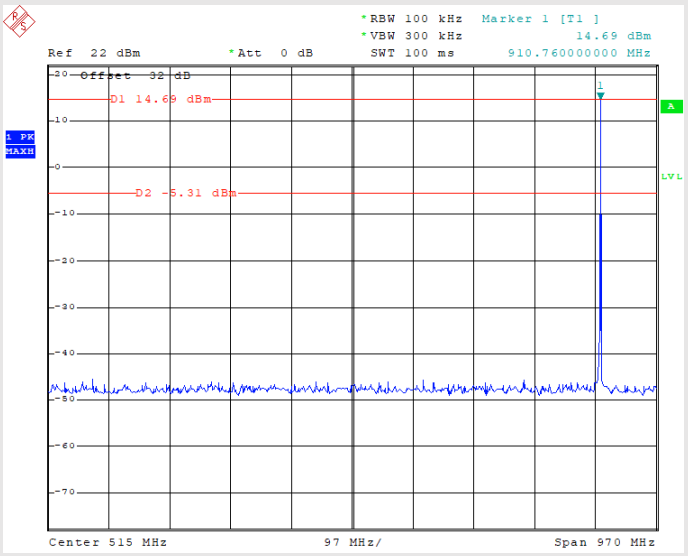
OPERATING CONDITION: **#1**

RESULT: **WITHIN THE LIMITS**

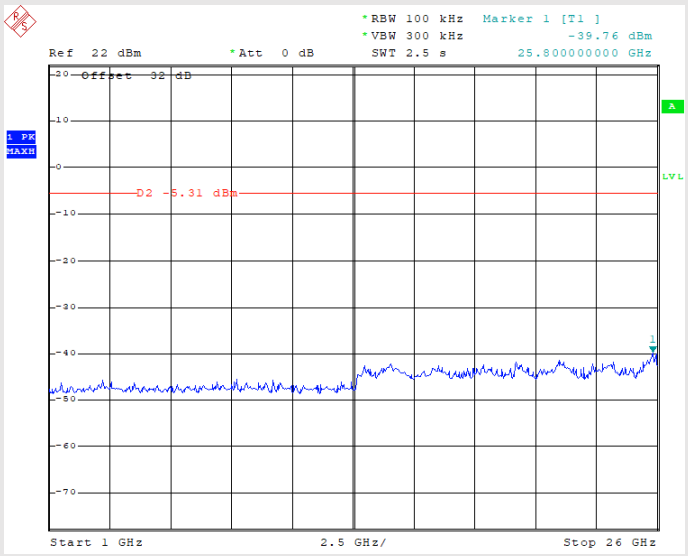
TEST RESULTS

Channel 910MHz

Frequency range: 30MHz – 1GHz



Frequency range: 1GHz – 26GHz



TEST 7.	TRANSMITTER RADIATED EMISSIONS < 1GHZ
REFERENCE DOCUMENT	**According to $ 15.247 (d) and $ 15.209 (a)** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 Db below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 Db instead of 20 Db. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

• **TEST LOCATION**	Semi-Anechoic Chamber					
• **DISTANCE OF MEASUREMENT**	3m					
• **TYPE OF MEASUREMENT**	Radiated					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	Emi Receiver	Rohde & Schwarz	ESU 40	100111	03/2024	03/2025
	MXE Emi Receiver	Keysight	N9038A	MY57290150	11/2023	11/2024
	Semi-Anechoic Chamber	Siemens	B83117-D6019-T232	003-005-134/94C	02/2024	02/2025
	Loop antenna	Rohde & Schwarz	HFH 2-Z2	841801/012	03/2023	03/2026
	Bi-log antenna	Chase	CBL6111C	2717	03/2022	03/2025
	Software EMC	Rohde & Schwarz	EMC32-E	V 8.40.0	N.A.	
• **TESTED PORT**	Enclosure					
• **TEST METHOD**	ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023 section 6.5					
• **FREQUENCY RANGE**	9kHz – 1GHz					
• **LIMITS**	Acc. To ref. Std.					
• **UNCERTAINTY OF MEASURE**	Level of confidence = 95% (k=2) Expanded uncertainty 9kHz – 30MHz = 4,24 dB Expanded uncertainty 30MHz – 1GHz = 5,72 dB					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	24 °C
Ambient humidity	**25 - 75%rH**	45%
Pressure	**86 - 106kPa (860mbar - 1060mbar)**	1014 mbar

OPERATING CONDITION: **#1**

RESULT: **WITHIN THE LIMITS**

MEASUREMENT PARAMETER		
Frequency Range:	**9kHz – 30MHz**	**30MHz – 1GHz**
Resolution bandwidth:	200Hz	100kHz
Video bandwidth:	1kHz	300kHz
Span:	See plots below	See plots below
Sweep time	Auto couple	Auto couple
Detector:	Peak	Peak
Trace-Mode:	Max. hold	Max. hold

TEST DESCRIPTION

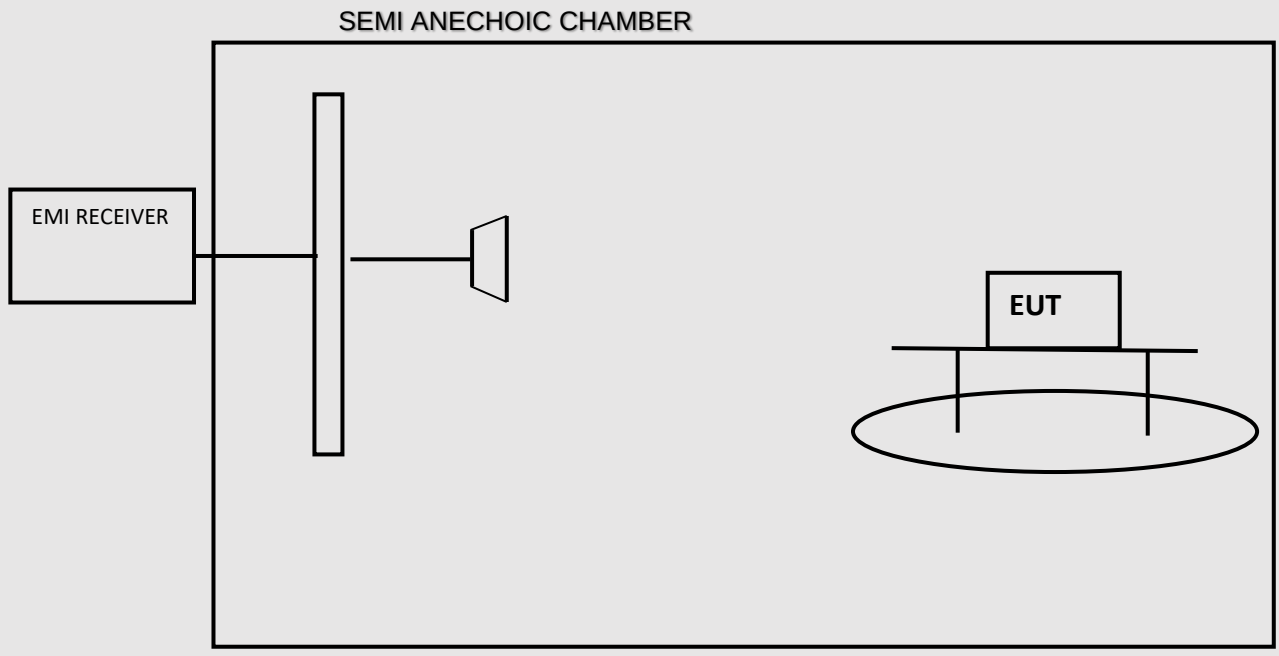
Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously - rotating, remotely - controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency.

The EUT is placed at test table height is 80 cm above the reference ground plane.

Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m~4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3m.

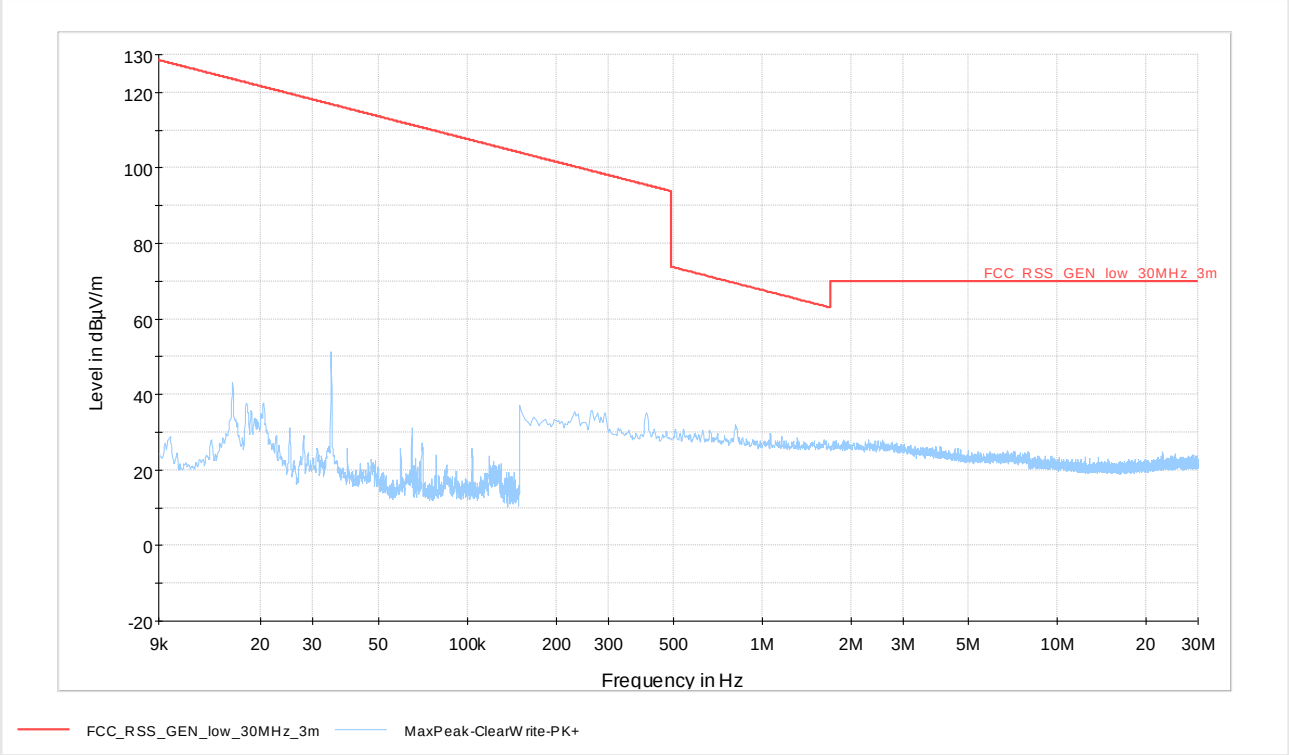
This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

TEST SETUP BLOCK DIAGRAM



TEST RESULTS - Radiated with antenna SRFI068H-100

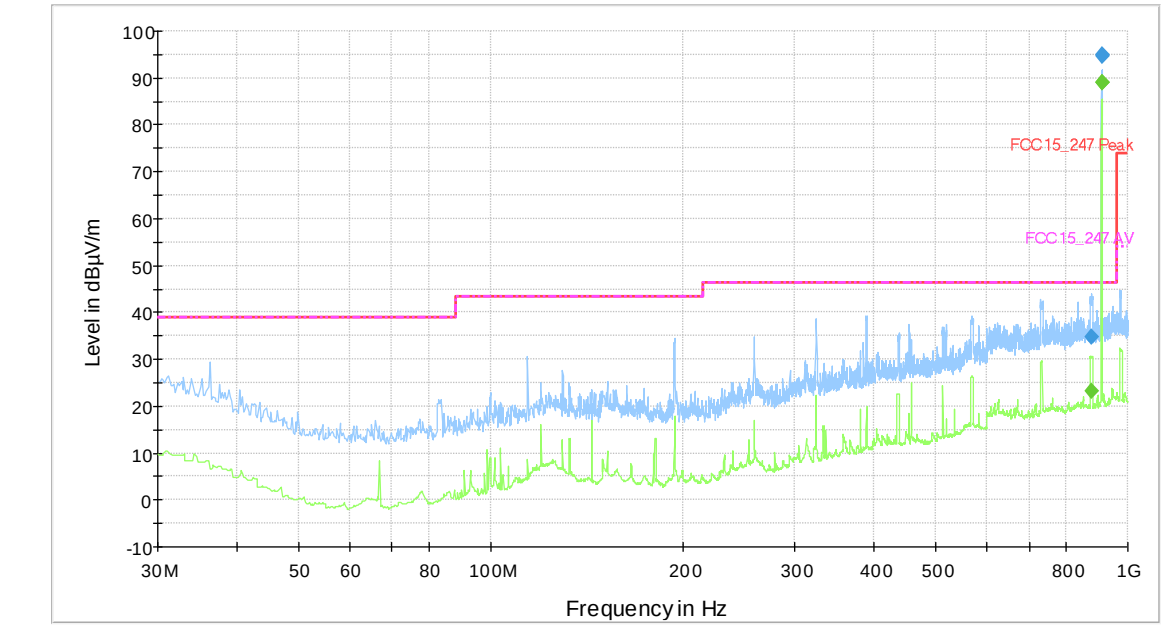
Carrier frequency 910MHz	
RX Antenna Polarization: ---	**Frequency Range: 9kHz – 30MHz**



Final Result:

All emissions are below 10dB from the limit, for this reason no further assessments were carried out on the individual points

RX Antenna Polarization: Vertical	Frequency Range: 30MHz – 1GHz



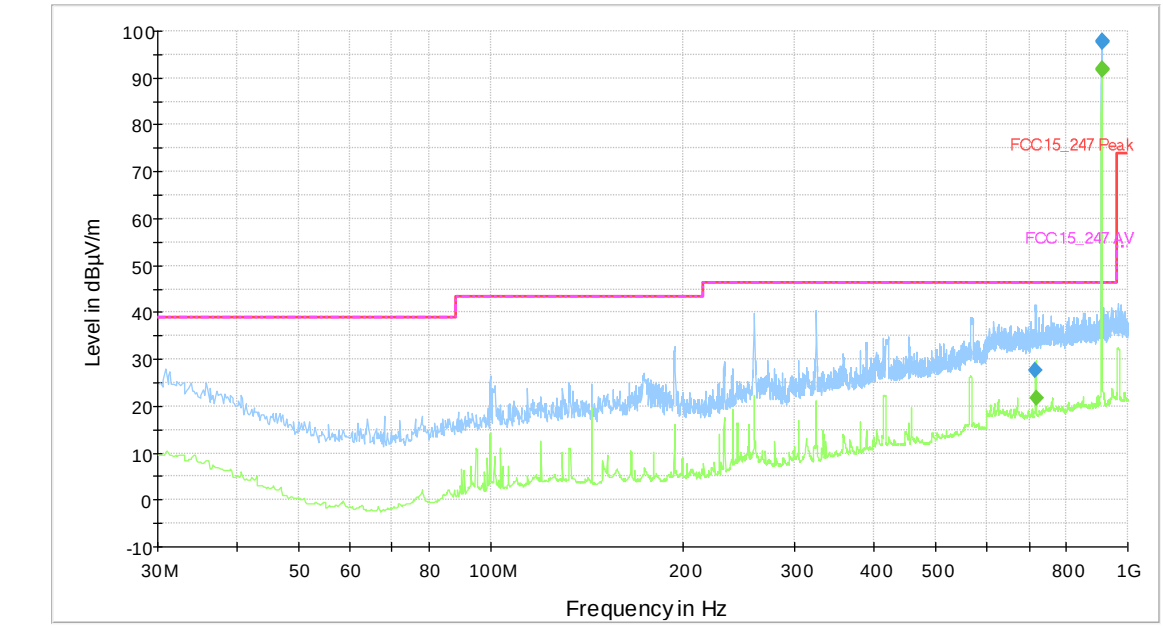
Final Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
875.640000	34.8	257.8	7.0	11.60	46.40
909.780000	94.9	231.8	82.0	-48.50	46.40
910.230000	94.7	232.8	82.0	-48.30	46.40

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
879.120000	23.3	330.1	7.0	23.10	46.40
909.750000	89.2	203.8	82.0	-42.80	46.40
910.230000	89.2	205.8	82.0	-42.80	46.40

NOTE: Peaks out of limits are due to carrier frequency.

RX Antenna Polarization: Horizontal	Frequency Range: 30MHz – 1GHz



Final Result:

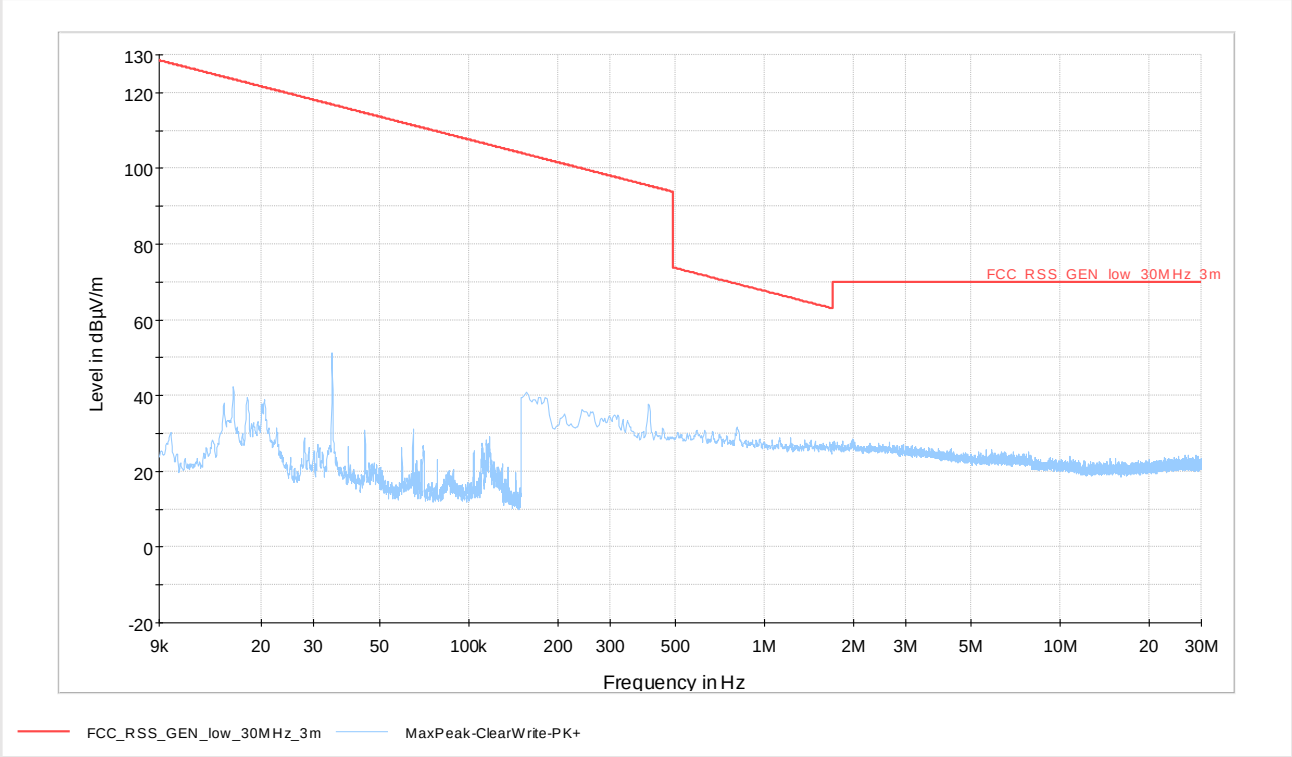
Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
716.760000	27.7	99.7	172.0	18.70	46.40
909.780000	97.8	99.8	-5.0	-51.40	46.40
910.230000	97.6	99.7	-5.0	-51.20	46.40

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
717.420000	21.7	99.8	183.0	24.70	46.40
909.750000	91.9	99.8	0.0	-45.50	46.40
910.230000	91.6	99.8	3.0	-45.20	46.40

NOTE: Peaks out of limits are due to carrier frequency.

TEST RESULTS - Radiated with antenna SRFI068V-100

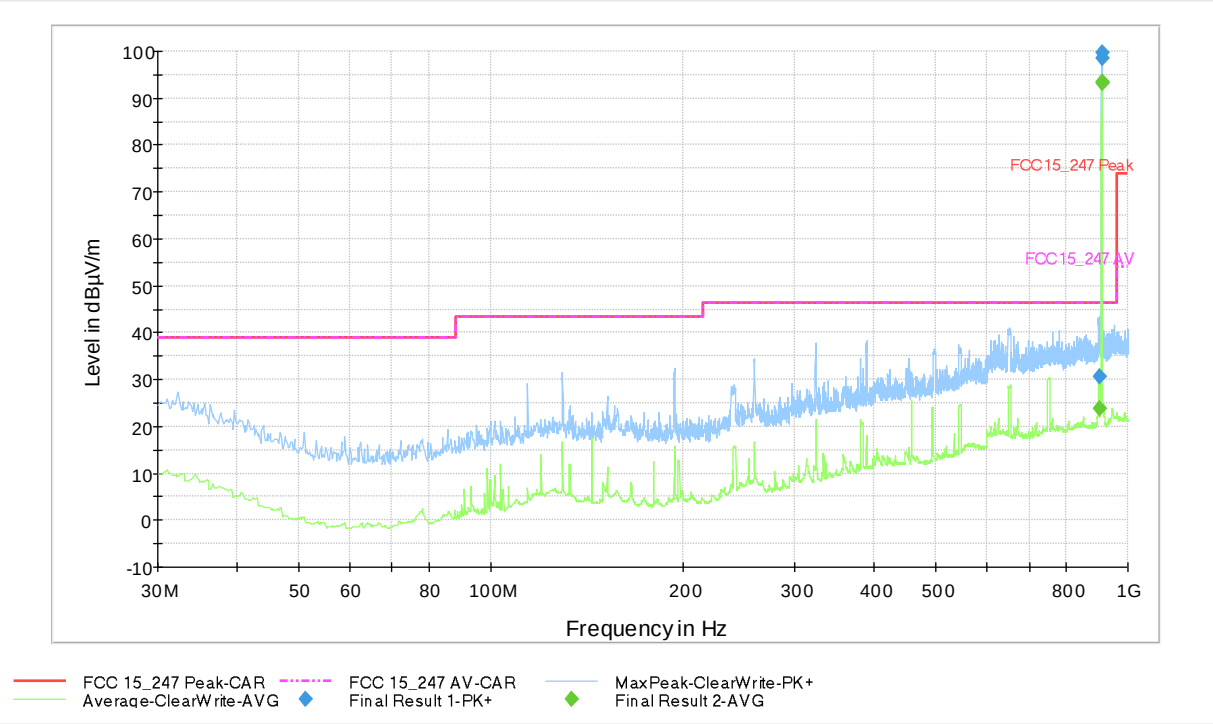
Carrier frequency 910MHz	
RX Antenna Polarization: ---	**Frequency Range: 9kHz – 30MHz**



Final Result:

All emissions are below 10dB from the limit, for this reason no further assessments were carried out on the individual points

RX Antenna Polarization: Vertical	Frequency Range: 30MHz – 1GHz



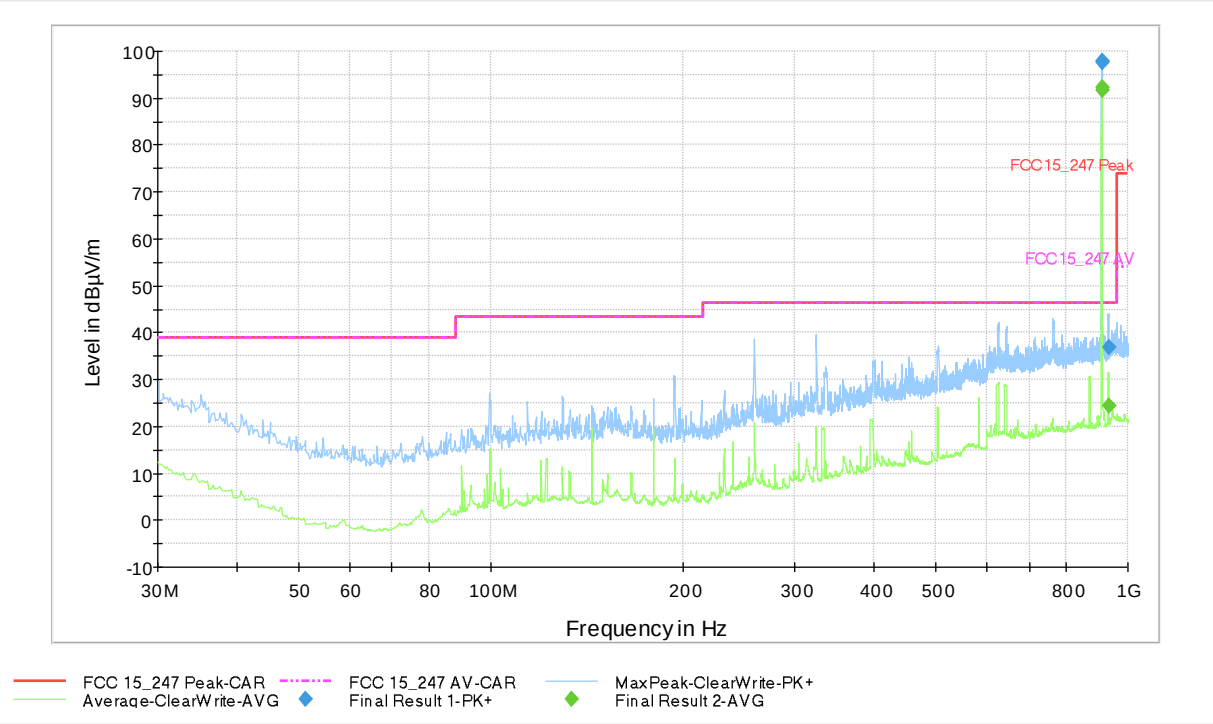
Final Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
904.590000	30.6	312.8	264.0	15.80	46.40
909.780000	99.6	124.8	-8.0	-53.20	46.40
910.230000	98.6	127.8	-4.0	-52.20	46.40

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
903.480000	23.8	204.8	277.0	22.60	46.40
909.750000	93.5	123.8	-8.0	-47.10	46.40
910.230000	93.1	125.8	-6.0	-46.70	46.40

NOTE: Peaks out of limits are due to carrier frequency.

RX Antenna Polarization: Horizontal	Frequency Range: 30MHz – 1GHz



Final Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
909.780000	97.9	99.7	277.0	-51.50	46.40
910.230000	97.8	99.8	277.0	-51.40	46.40
933.060000	36.8	180.1	277.0	9.60	46.40

Frequency (MHz)	Average (dBµV/m)	Height (cm)	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
909.750000	92.4	104.7	277.0	-46.00	46.40
910.230000	91.8	99.8	277.0	-45.40	46.40
933.360000	24.4	99.8	277.0	22.00	46.40

NOTE: Peaks out of limits are due to carrier frequency.

TEST **8.**	**TRANSMITTER RADIATED EMISSIONS > 1GHZ**
REFERENCE DOCUMENT	**According to $ 15.247 (d) and $ 15.209 (a)** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 Db below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 Db instead of 20 Db. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

• **TEST SETUP**	Acc. To ref. Std.					
• **TEST LOCATION**	Semi-Anechoic Chamber					
• **DISTANCE OF MEASUREMENT**	3m					
• **TYPE OF MEASUREMENT**	Radiated					
• **TEST EQUIPMENT USED FOR TEST**	**Instrument**	**Manufacturer**	**Model**	**Serial n°**	**Calibrated On**	**Due to**
	MXE Emi Receiver	Keysight	N9038A	MY57290150	11/2023	11/2024
	Semi-Anechoic Chamber	Siemens	B83117-D6019-T232	003-005-134/94C	02/2024	02/2025
	Horn antenna	Electro Metrics	EM-6961	100437	10/2023	10/2026
	High pass filter	Waineright	WHK 1,3/15G	9	10/2023	10/2025
	Software EMC	Rohde & Schwarz	EMC32-E	V 8.40.0	N.A.	
• **TESTED PORT**	Antenna					
• **TEST METHOD**	ANSI C63.10:2020; ANSI C63.10:2020/Cor.1:2023 section 6.6					
• **FREQUENCY RANGE**	1GHz – 10GHz					
• **LIMITS**	Acc. To ref. Std.					
• **UNCERTAINTY OF MEASURE**	Level of confidence = 95% (k=2) Expanded uncertainty 1GHz – 10GHz = 5,15 dB					

TEST CONDITIONS	REQUIRED	MEASURED
Ambient temperature	**23°C ± 5°C**	24 °C
Ambient humidity	**25 - 75%rH**	45%
Pressure	**86 - 106kPa (860mbar - 1060mbar)**	1014 mbar

OPERATING CONDITION: **#1**

RESULT: **WITHIN THE LIMITS**

MEASUREMENT PARAMETER 1GHz - 10GHz	
Resolution bandwidth:	1MHz
Video bandwidth:	3MHz
Span:	See plots below
Sweep time	Auto couple
Detector:	Peak
Trace-Mode:	Max. hold

TEST DESCRIPTION

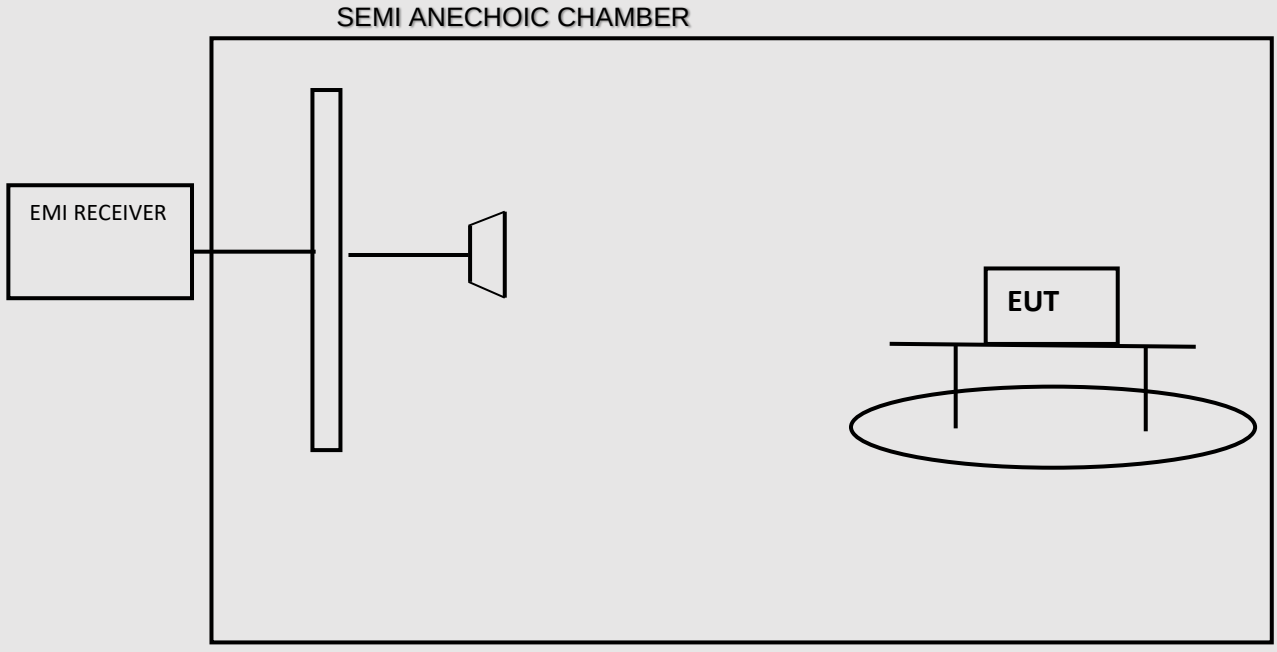
Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously - rotating, remotely - controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency.

The EUT is placed at test table height is 1.5 m

Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m~4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3m.

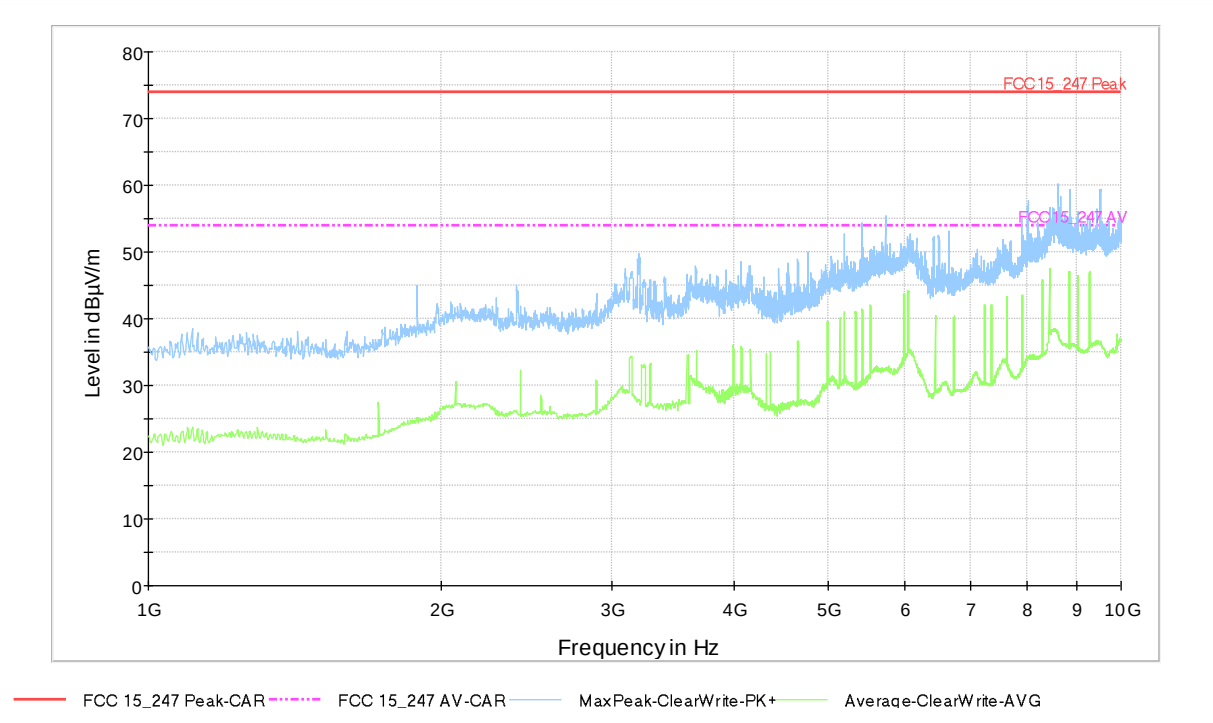
This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

TEST SETUP BLOCK DIAGRAM



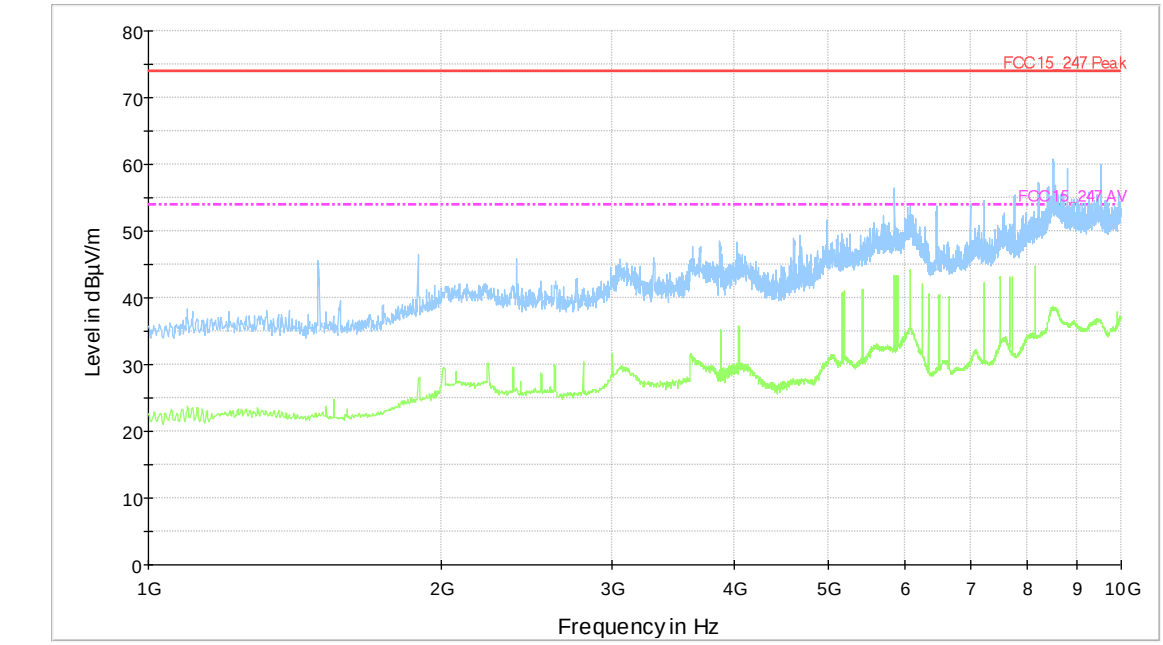
TEST RESULTS - Radiated with antenna SRFI068H-100

Carrier frequency 910MHz	
RX Antenna Polarization: Vertical	**Frequency Range: 1GHz – 10GHz**



Final Result:

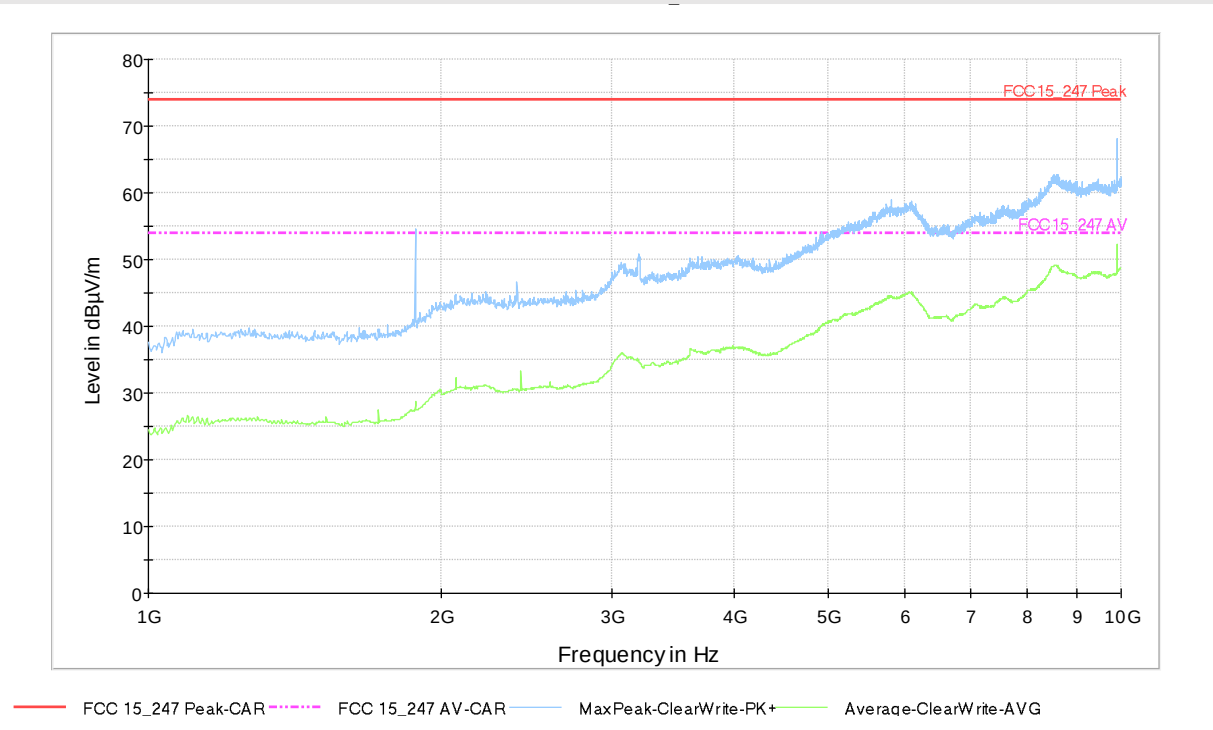
RX Antenna Polarization: Horizontal	Frequency Range: 1GHz – 10GHz



Final Result:

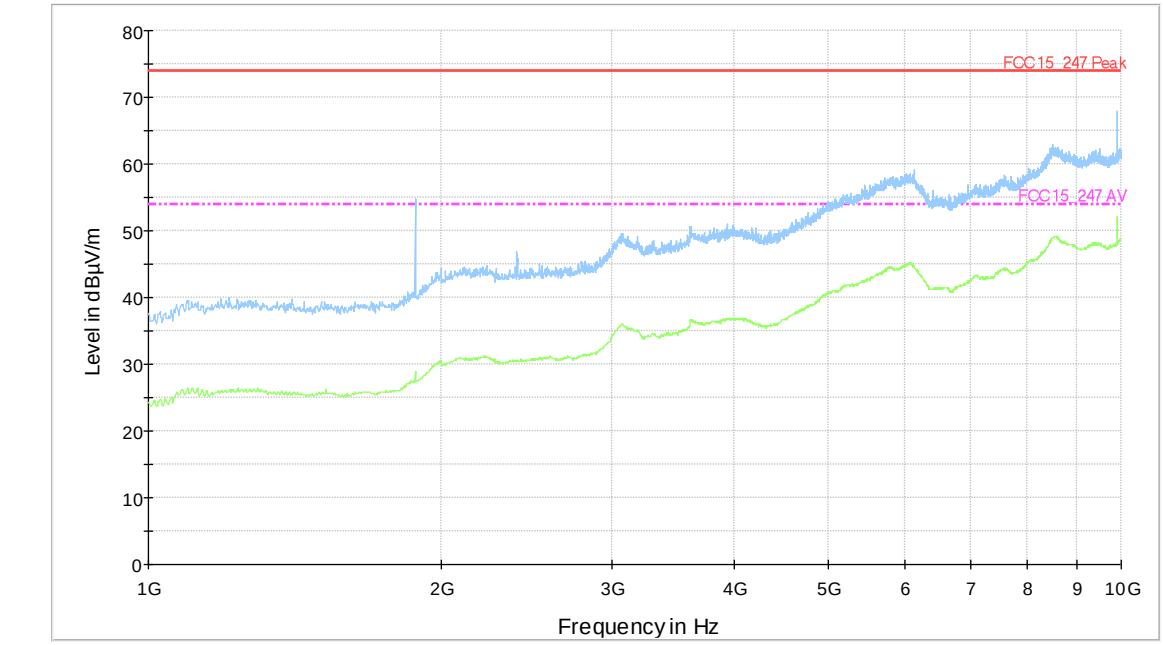
TEST RESULTS - Radiated with antenna SRFI068V-100

Carrier frequency 910MHz	
RX Antenna Polarization: Vertical	**Frequency Range: 1GHz – 10GHz**



Final Result:

RX Antenna Polarization: Horizontal	Frequency Range: 1GHz – 10GHz



Final Result:

END OF TEST REPORT