

ISED CABid: ES1909

Test Report No:

Lab. Company Number: 4621A

85343RRF.002

Partial Test Report

USA FCC Part 15.31, 15.225, 15.247, 15.209

CANADA RSS-210, RSS-247, RSS-Gen

(*) Identification of item tested	OMNI MAX +
(*) Trademark	DATAMARS
(*) Model and /or type reference	OMNI MAX +
Other identification of the product	FCC ID: NDX-OMNIMAX2 IC: 4678A-OMNIMAX2
(*) Features	HW version: 1V1 SW version: 2.0.0
(*) Manufacturer	DATAMARS SA via Industria 16, 6814 Lamone, Switzerland
Test method requested, standard	USA FCC Part 15.31 (10-1-24 Edition): Measurement standard. USA FCC Part 15.225 (10-1-24 Edition): Operation within the band 13.110 -14.010. USA FCC Part 15.247 (10-1-24) Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-24) Edition: Radiated emission limits; general requirements. CANADA RSS-210 Issue 11 (June 2024). CANADA RSS-247 Issue 4 (July 2024). CANADA RSS-Gen Issue 5 Amendment 2 (February 2021) Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid Systems Devices Operating Under Section 15.247 of the FCC Rules. 558074 D01 Meas Guidance v05r02 dated April 2, 2019. ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024: American National Standard for Testing Unlicensed Wireless Devices.
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager 
Date of issue	2026-03-26
Report template No	FDT08_27 (*) "Data provided by the client"

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Competences and guarantees

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DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that include testing performed in this test report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, Company Number: 4621A, with the appropriate scope of accreditation that covers the performed tests in this report.

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DEKRA Testing and Certification S.A.U. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the radiated emissions of the EUT is:

From 9 kHz to 30 MHz:	Measurement uncertainty $\leq \pm 3.04$ dB.
From 30 MHz to 1 GHz:	Measurement uncertainty $\leq \pm 5.03$ dB.
From 1 to 17 GHz:	Measurement uncertainty $\leq \pm 4.32$ dB.
From 17 to 26 GHz:	Measurement uncertainty $\leq \pm 4.58$ dB.

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of a Portable Bluetooth® Reader for Animal Identification.

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of results. The laboratory is not responsible for such information and it is not covered by accreditation.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial Nº	Date of Reception	Application
S/01	84605_5.1	Portable Bluetooth® Reader for Animal Identification	OMNI MAX +	S005	2025-12-10	Element Under Test

Notes referenced to samples during the project:

Id	Type
S/01	Sample used for radiated tests

Test sample description

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded		
	USB type C			[]	[]		
Enclosure (plastic+LCD)			[]	[]			
Supplementary information to the ports..... :							
Rated power supply	Voltage and Frequency			Reference poles			
				L1	L2	L3	N
	[X]	AC: Wall mount adapter 5V 10W		[]	[]	[]	[]
[X]		DC: 2x Li-ion polymer 3.7V, 1800 mAh, series					
Rated Power	Battery: 6 Vdc (min), 7.4 Vdc (nominal), 8.4 Vdc (max)						
Clock frequencies.....	32 MHz main Main CPU						
Other parameters							
Software version	2.0.0						
Hardware version	1V1						
Dimensions in cm (W x H x D)	27mm x 150mm x 266mm						
Mounting position	[]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[X]	Hand-held equipment					
	[]	Other:					
Modules/parts.....	Module/parts of test item			Type		Manufacturer	
	MCU which contains BT			STM32WB55		STM	
Accessories (not part of the test item)	Description			Type		Manufacturer	
							
Documents as provided by the applicant.....	Description			File name		Issue date	
							

Identification of the client

DATAMARS SA
Via Industria 16, 6814 Lamone, Switzerland

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U. Severo Ochoa 6. 29590, Campanillas, Málaga, Spain (Location B)
Date (start)	2026-03-12
Date (finish)	2026-03-13

Document history

Report number	Date	Description
85343RRF.002	2026-03-26	First release.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

Remarks and comments

The tests have been performed by the technical personnel: Antonio Maireles y Valentín Andarias.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
06791	SEMIANECHOIC ABSORBER LINED CHAMBER IV	FACT 3 200 STP	ETS LINDGREN	N/A
06792	SHIELDED ROOM	S101	ETS LINDGREN	N/A
06609	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2026-04-21
06615	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2026-04-24
00242	ACTIVE LOOP ANTENNA 9 KHZ-30 MHz	11966A	HEWLETT PACKARD	2027-08-06
06143	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2027-01-22
06142	PRE-AMPLIFIER G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2026-07-30
06496	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK	2026-12-01
03783	PRE-AMPLIFIER G>30dB 1GHz-18GHz	BLMA 0118-3A	BONN ELEKTRONIK	2026-03-17
04657	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2026-06-12
10573	PRE-AMPLIFIER G>46dB 18GHz-40GHz	BLMA 1840-5G	BONN ELEKTRONIK	2026-03-07
07817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2026-07-01
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
05850	DIGITAL MULTIMETER	179	FLUKE	2026-11-06

Testing verdicts

Not applicable:	N/A
Pass:	P
Fail:	F
Not measured:	N/M

Summary

FCC PART 15 PARAGRAPH / RSS-Gen/ RSS-210/ RSS-247		
Requirement – Test case	Verdict	Remark
FCC 15.31 (h), FCC 15.209 (a), 15.225 (d), 15.247 (d) / RSS-Gen 8.9, RSS-210 B.6 (a)(iv), RSS-247 5.5: - Emission limitations radiated (Transmitter)	P	(1)
<u>Supplementary information and remarks:</u> (1) Only simultaneous mode radiated spurious emission test was requested.		

Appendix A: Test results

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TEST CONDITIONS

(*) Declared by the Applicant

POWER SUPPLY (*):

Vnominal: 7.4 Vdc
Vminimum: 6.0 Vdc
Vmaximum: 8.4 Vdc
Type of Power Supply: Battery

ANTENNA (*):

Modulation	Maximum Declared Antenna Gain	Type of Antenna
Bluetooth Low Energy	-1.8 dBi	Integral antenna (PCB)
RFID	N/A	Integral antenna (Coil)

RADIOS AND CHANNELS TESTED (worst cases):

Bluetooth Low Energy / DTS		
Mode:	2Mbit/s	
Channel Spacing:	2 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	0	2402

RFID 134.2 kHz ISO 11784/5		
Mode:	ISO 11784/5	
Channel Spacing:	Not Applicable	
Frequency Range:	134.2 kHz	
Transmit Channel:	Channel	Channel Frequency (kHz)
	Single Channel	134.2

TESTED SIMULTANEOUS TRANSMISSION MODES:

The EUT was tested in the following operating mode:

- Continuous transmission with a modulated carrier at maximum power in all required channels selecting the supported data rates/modulations types.

During transmitter test the EUT was being controlled by the SW tool to operate in a continuous transmit mode on the test channel as required and in each of the different modulation modes.

Operation mode 1:

*** Simultaneous transmission mode, Bluetooth Low Energy and RFID 134.2 kHz ISO 11784/5**, with the EUT configured to simultaneously transmit two signals at maximum output power:

- Bluetooth Low Energy / Low Channel (2402 MHz, GFSK 2Mbit/s)
- RFID 134.2 kHz ISO 11784/5 Single Channel

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m (Loop antenna for the range between 9 kHz to 30 MHz, Bilog antenna for 30 MHz to 1000 MHz, Double ridge horn antenna 1 GHz-17 GHz) and at a distance of 1.5 m for the frequency range 17 GHz-26 GHz (horn antenna).

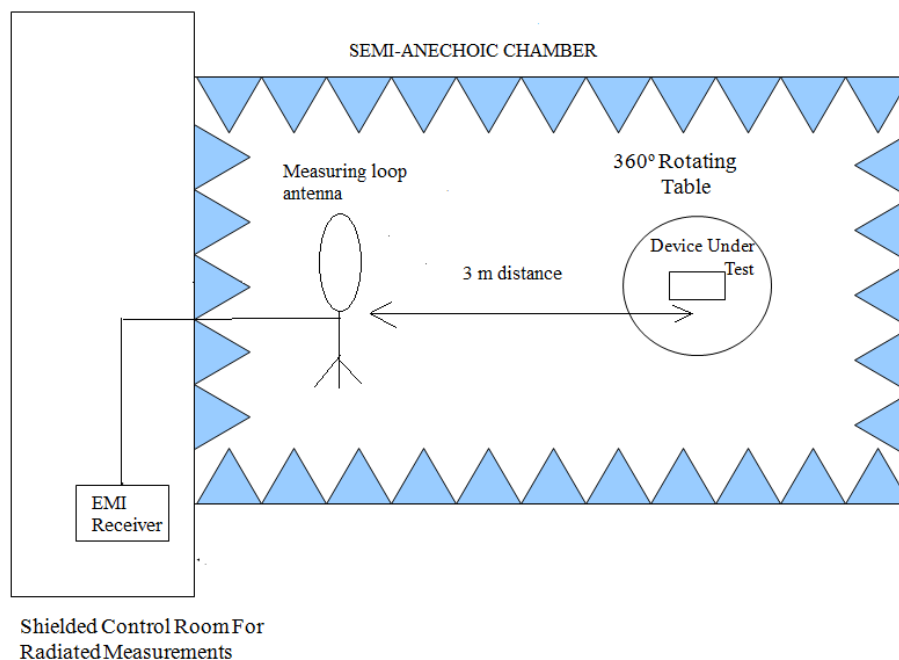
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

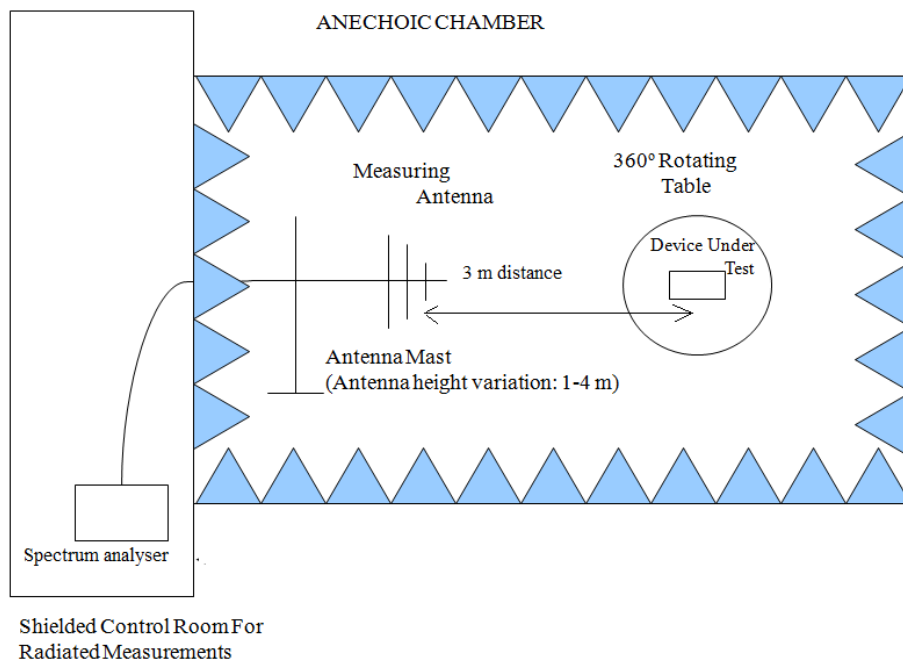
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

A resolution bandwidth / video bandwidth of 100 kHz / 300 kHz was used for frequencies between 30 MHz up to 1 GHz and 1 MHz / 3 MHz for frequencies above 1 GHz.

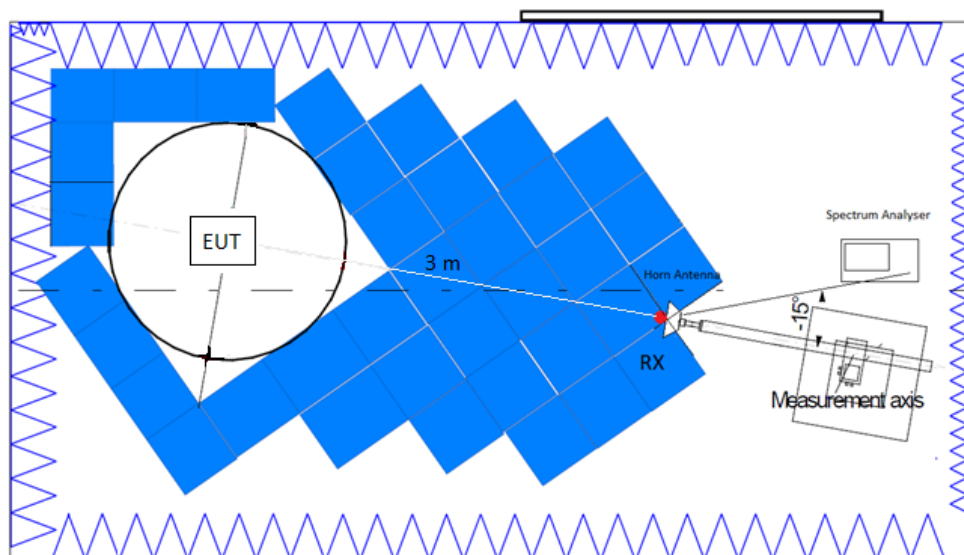
Radiated measurements setup $f < 30$ MHz:



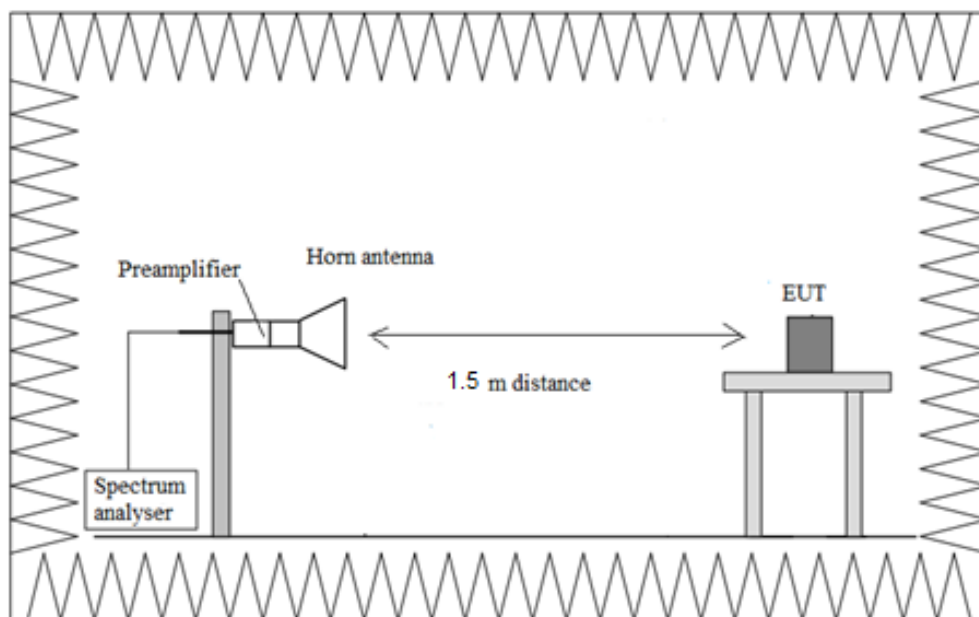
Radiated measurements setup $30 \text{ MHz} < f < 1 \text{ GHz}$:



Radiated measurements setup $f > 1 \text{ GHz}$ up to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



SAMPLE CALCULATION

For radiated measurements:

Values measures by the test receiver / analyzer are converted to field strength, in dBuV/m, at the regulatory distance using the following calculation:

$$\text{Unwanted Lvl (dBuV/m)} = \text{Raw Rec (dBuV)} + \text{Preamp (dB)} + \text{Trd Corre. (dB/m)} + \text{SigPath (dB)}$$

Where,

Raw Rec (dBuV): Measured voltage in the receiver / spectrum analyzer in dBuV

Preamp (dB): Path loses due to preamplifier

Trd Corr. (dB/m): Antenna factor in dB/m

SigPath (dB) = Cable loss (dB) – External Gain amplifier (dB) – Distance factor (dB)

Cable loss (dB): Cable loss

External Gain amplifier (dB): Gain from external amplifier (when used)

Distance factor (dB): Distance factor in dB. When measurement distance is different to limit distance

The field strength, calculated by this way is compared with the regulatory limit.

Radiated emissions

Specification:

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), appearing outside of the band 13.110 MHz - 14.010 MHz band must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

Frequency Range (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Measurement distance (m)
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	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 40000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RSS-247. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Results:

- **Operation mode 1:**

Frequency range 9 kHz - 30 MHz:

Spurious frequencies detected at less than 20 dB below the limit:

Unwanted Freq (kHz)	Unwanted Lvl (dBµV/m)	Pol	Detector	Sig Path (dB)	Preamp (dB)	Trd Corr. (dB/m)	Raw Rec (dBµV)
669.75	19.47	H	Peak	-29.2	0	9.9	38.8
939.75	13.66	H	Peak	-29.2	0	9.8	33.0
1207.50	7.74	H	Peak	-29.2	0	9.8	27.1
1475.25	6.14	H	Peak	-29.1	0	9.8	25.5

Frequency range 30 MHz - 26 GHz

No spurious frequencies detected at less than 20 dB below the limit.

Verdict:

PASS

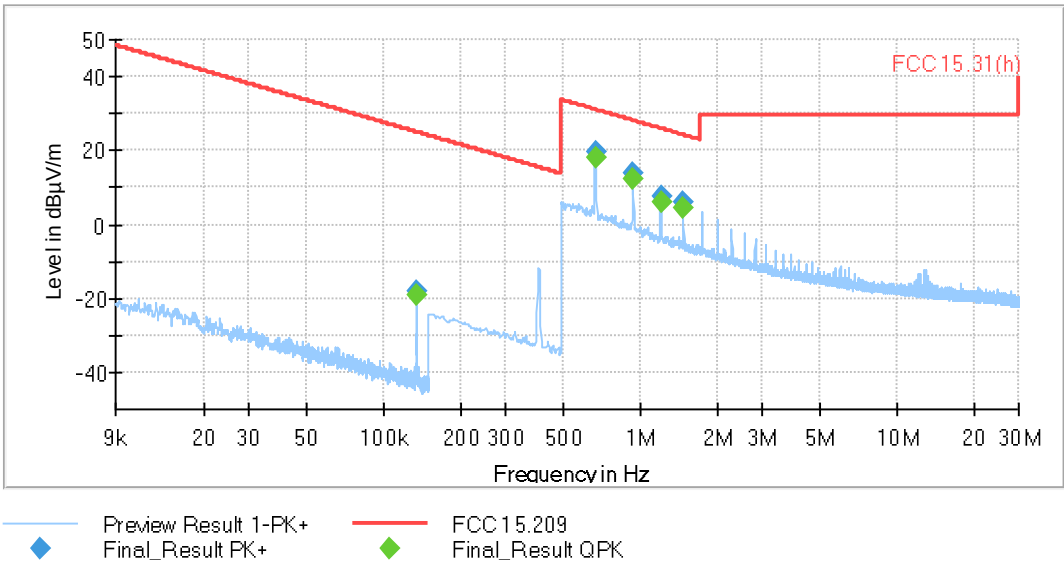
Attachments

Spectrum Analyzer Parameters:

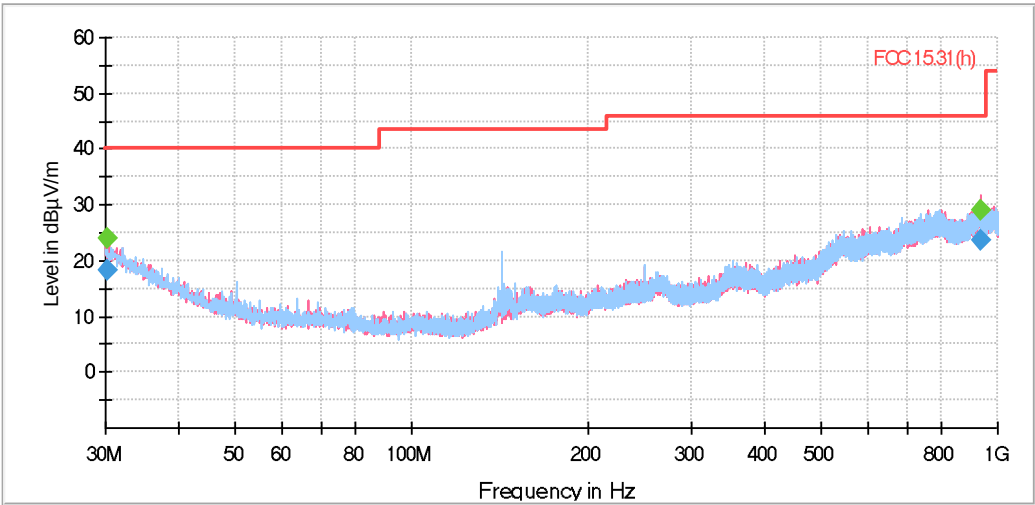
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
9 kHz - 150 kHz	50 Hz	PK+	200 Hz	0,1 s	0 dB
150 kHz - 30 MHz	2.25 kHz	PK+	9 kHz	0,1 s	0 dB
30 MHz - 1 GHz	48.5 kHz	PK+	100 kHz	1 s	0 dB
1 GHz - 3 GHz	30.769 kHz	PK+; AVG	1 MHz	1 s	0 dB
3 GHz - 17 GHz	140 kHz	PK+; AVG	1 MHz	1 s	30 dB
17 GHz - 26 GHz	300 kHz	PK+; AVG	1 MHz	1 s	0 dB

- Operation mode 1

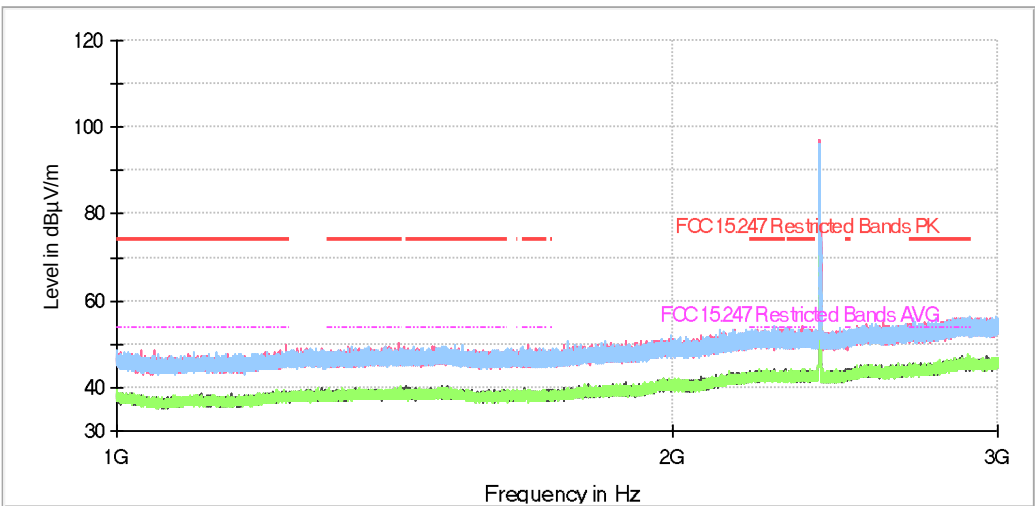
FREQUENCY RANGE 9 kHz - 30 MHz:



FREQUENCY RANGE 30 MHz - 1 GHz:

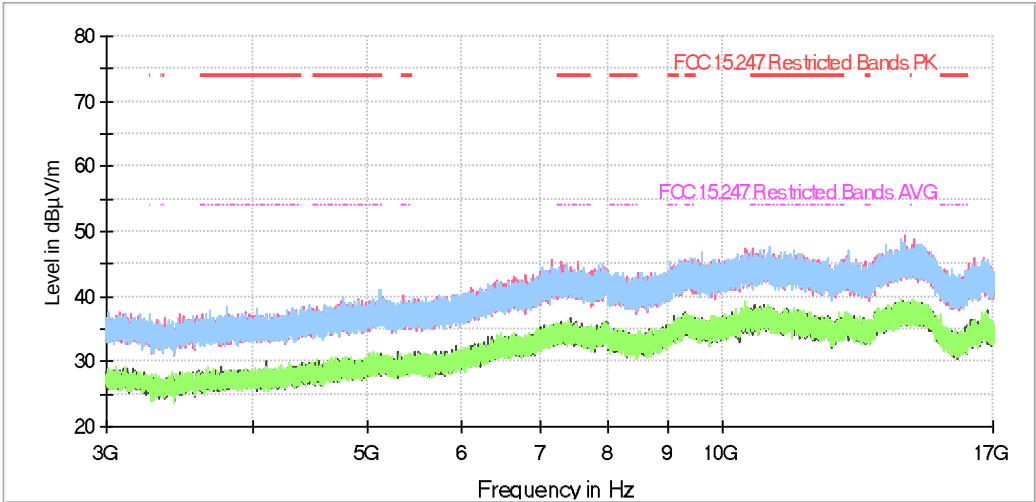


FREQUENCY RANGE 1 - 3 GHz:



The peak above the limit is the Bluetooth LE carrier frequency.

FREQUENCY RANGE 3 - 17 GHz:



FREQUENCY RANGE 17 - 26 GHz:

