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C.I.F. A29507456

DEKRA

ISED CABid: ES1909
Lab. Company Number: 4621A

Test Report No:
74801RRF.005

Partial Test Report
USA FCC Part 15.31h, 15.247, 15.209
CANADA RSS-247, RSS-Gen

(*) Identification of item tested	RIE - Receiver In the Ear Hearing Aid
(*) Trademark	ReSound, Beltone
(*) Model and /or type reference	DURR1
Other identification of the product	FCC ID: X26DURR1 IC: 6941C-DURR1
(*) Features	BLE(1 & 2 MBit+Proximity), MI, Magnetic charging @135k, rechargeable battery HW version: C6.0DREHYB,V1.D,C6.0 SW version: Dooku3
Applicant	GN Hearing A/S Lautrupbjerg 7, 2750 Ballerup, Denmark
Test method requested, standard	USA FCC Part 15.31(h) (10-1-20 Edition): Measurement standard. USA FCC Part 15.247 (10-1-20) Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-20) Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (March 2019). 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 C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456)
Date of issue	2023-07-05
Report template No	FDT08_24 (*) "Data provided by the client"

ilac-MRA ENAC ENSAYO ISO 17025 Nº51 / LE147

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Competences and guarantees

DEKRA Testing and Certification is a testing laboratory accredited by the National Accreditation Body (ENAC - Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification is a FCC-recognized accredited testing laboratory with appropriate scope of accreditation that covers the performed tests in this report.

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

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification 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 at the time of performance of the test.

DEKRA Testing and Certification 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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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification and the Accreditation Bodies.

Uncertainty

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

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 model DURR1 is a hearing aid that features a sound amplification of the sound received by the microphone.

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 result.

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	74801E_58.1	RIE - Receiver In the Ear Hearing Aid	DURR1	2300803037	2023-04-19	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	Coupled to patient(3)	
	-		-	-	-	-	
Supplementary information to the ports……..:	-						
Rated power supply .....:	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
		AC:					
	X	DC: 3.7 V rechargeable battery					
Rated Power .....:	3.7V, 18.5mAh						
Clock frequencies.....:	CPU XTAL: 32MHz						
Other parameters .....:	N/A						
Software version .....:	Dooku3						
Hardware version .....:	C6.0DREHYB,V1.D,C6.0						
Dimensions in cm (W x H x D) ....:	up to 0.7 x 1.2 x 2.7						
Mounting position .....:		Table top equipment					
		Wall/Ceiling mounted equipment					
		Floor standing equipment					
		Hand-held equipment					
	X	Other: Receiver in the ear, HA behind the ear					
Modules/parts.....:	Module/parts of test item		Type	Manufacturer			
	Dundee		DURR1	GN Hearing A/S			
Accessories (not part of the test item) .....:	Description		Type	Manufacturer			
	Charger		C-1	GN Hearing A/S			
	Charger		C-2	GN Hearing A/S			

	Charger	C-3	GN Hearing A/S
	Power adapter, type: A806A-050100U-EU1	-	Aohai Technology
	Power adapter, type: A18A-50100U-US2	-	Aohai Technology
Documents as provided by the applicant.....:	Description	File name	Issue date
	See ftp-server	-	-

(3) Only for Medical Equipment

Identification of the client

GN HEARING A/S

Lautrupbjerg 7, 2750 Ballerup, Denmark

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2023-05-18
Date (finish)	2023-05-18

Document history

Report number	Date	Description
74801RRF.005	2023-07-05	First release.

Environmental conditions

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

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

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

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

Remarks and comments

The tests have been performed by the technical personnel: Victoria Olmedo.

Used instrumentation:

Radiated Measurements:

Control No.	Equipment	Model	Manufacturer	Next Calibration
7763	HORN ANTENNA 1-18GHz	BBHA 9120D	SCHWARZBECK MESS-ELEKTRONIK	2026-01-16
6495	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2024-03-19
2932	HYBRID BILOG ANTENNA 30MHz-6GHz	JB6	SUNOL SCIENCES CORPORATION	2023-10-29
7862	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-3G	BONN ELEKTRONIK	2024-03-14
7769	PREAMPLIFIER 30dB 500MHz-18GHz	BBV 9718 C	SCHWARZBECK	2024-02-15
8130	SEMIANECHOIC ABSORBER LINED CHAMBER	P29419	ALBATROSS	--
8134	SHIELDED ROOM	P29419	ALBATROSS PROJECTS GMBH	--
6158	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2023-10-22
8835	SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz	FSW50	ROHDE AND SCHWARZ	2025-02-08
4848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	--
7549	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2024-05-02
7550	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2024-05-02
5862	EMI TEST RECEIVER 9kHz-7GHz	ESR7	ROHDE AND SCHWARZ	2025-02-15
7762	Active Loop Antenna 9kHz-30MHz	FMZB 1519B	SCHWARZBECK FMZB 1519B	2025-12-01

Testing verdicts

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

Summary

FCC PART 15 PARAGRAPH / RSS-247		
Requirement – Test case	Verdict	Remark
FCC 15.31 (h), FCC 15.209 (a), 15.247 (d) / RSS-Gen 8.9, RSS-247 5.5: - Emission limitations radiated (Transmitter)	P	(1)
Supplementary information and remarks: (1) Only Co-Location radiated spurious emission test was requested.		

Appendix A: Test results.

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TEST CONDITIONS

POWER SUPPLY (V):

Vnominal: 3.7 Vdc

Type of Power Supply: Rechargeable battery.

ANTENNA:

Type of Antenna for Bluetooth LE: Integral.

Type of Antenna for Proprietary protocol 2.4 GHz: Integral.

Type of Antenna for Inductive coil: Magnetic induction coil.

Maximum Declared Antenna Gain for Bluetooth LE: -16 dBi

Maximum Declared Antenna Gain for Proprietary protocol 2.4 GHz: -16 dBi

Maximum Declared Antenna Gain for Inductive coil: Not Applicable

RADIOS AND CHANNELS TESTED:

	Bluetooth Low Energy 5.0 (2M, 1M) / DTS	
Mode:	2M (GFSK - 1DH5)	
Channel Spacing:	2 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	39	2480

	Proprietary protocol 2.4 GHz / DTS	
Mode:	2 Mbps	
Channel Spacing:	2 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	39	2480

	SRD 10.66 MHz / D-BPSK	
Mode:	Single Channel	
Channel Spacing:	Not Applicable	
Frequency Range:	5 - 30 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	1	10.66

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.

Selected Transmission Modes for each Radio:

The following configurations were selected based on preliminary testing that identified those corresponding to the worst-cases:

* Bluetooth Low Energy 5.0: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in 2 Mbps.

* Proprietary protocol 2.4 GHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting with a bit rate of 2 Mbps.

* SRD 10.66 MHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in the single channel configuration supported by this radio.

TESTED SIMULTANEOUS TRANSMISSION MODES:

*** Co-Location mode Bluetooth, SRD 10.66 MHz**: with the EUT configured to simultaneously transmit two signals at maximum output power: Bluetooth Low Energy in 2 Mbps mode, SRD 10.66 MHz.

*** Co-Location mode Proprietary protocol 2.4 GHz, SRD 10.66 MHz**: with the EUT configured to simultaneously transmit two signals at maximum output power: Proprietary protocol 2.4 GHz in 2 Mbps mode, SRD 10.66 MHz.

RADIATED MEASUREMENTS:

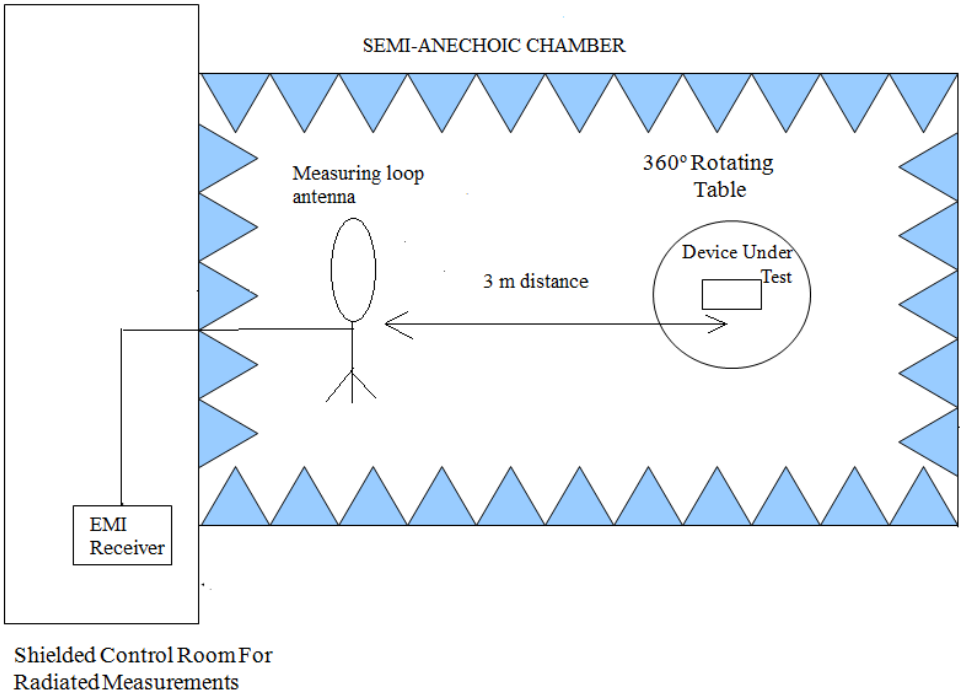
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m (Loop antenna for the range between 9 kHz to 30 MHz. The measurement antenna (Bilog antenna for the range between 30 MHz to 1000 MHz and 1 GHz-17 GHz Double ridge horn antenna) is situated at a distance of 3 m and at a distance of 1.5 m for the frequency range 17 GHz-26 GHz (17 GHz-40 GHz horn antenna).

For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

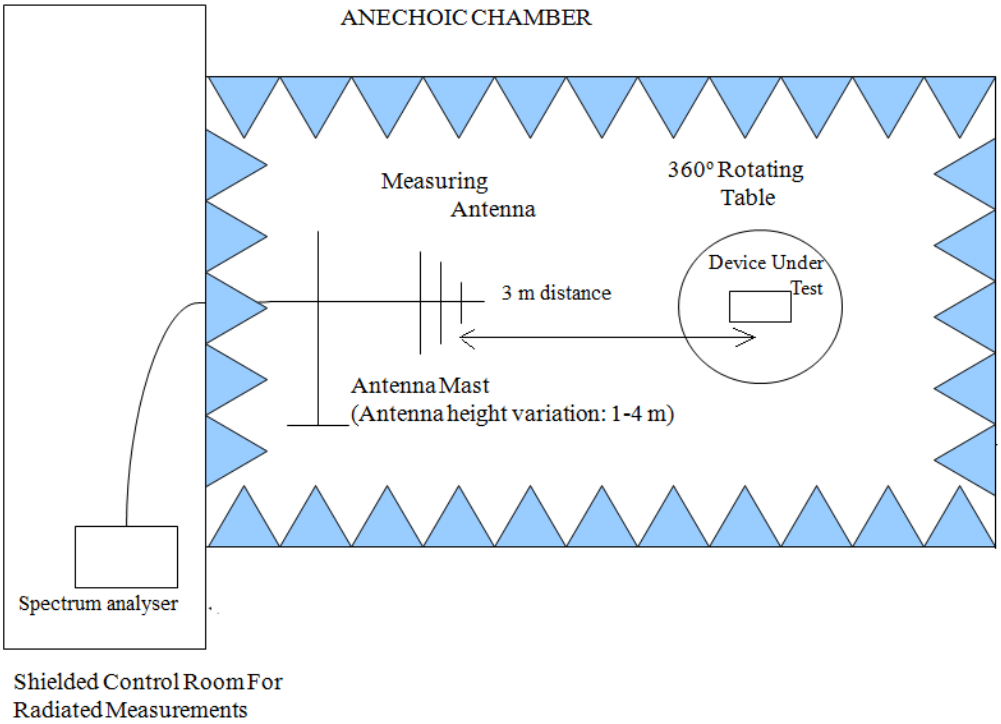
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find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

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

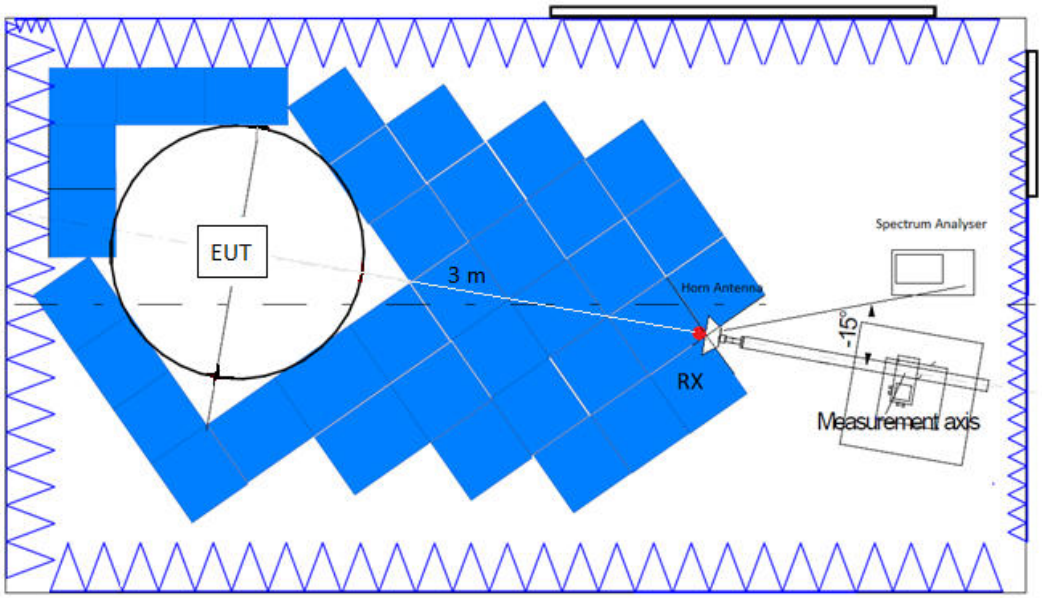
Radiated measurements setup 9 KHz < f < 30 MHz:



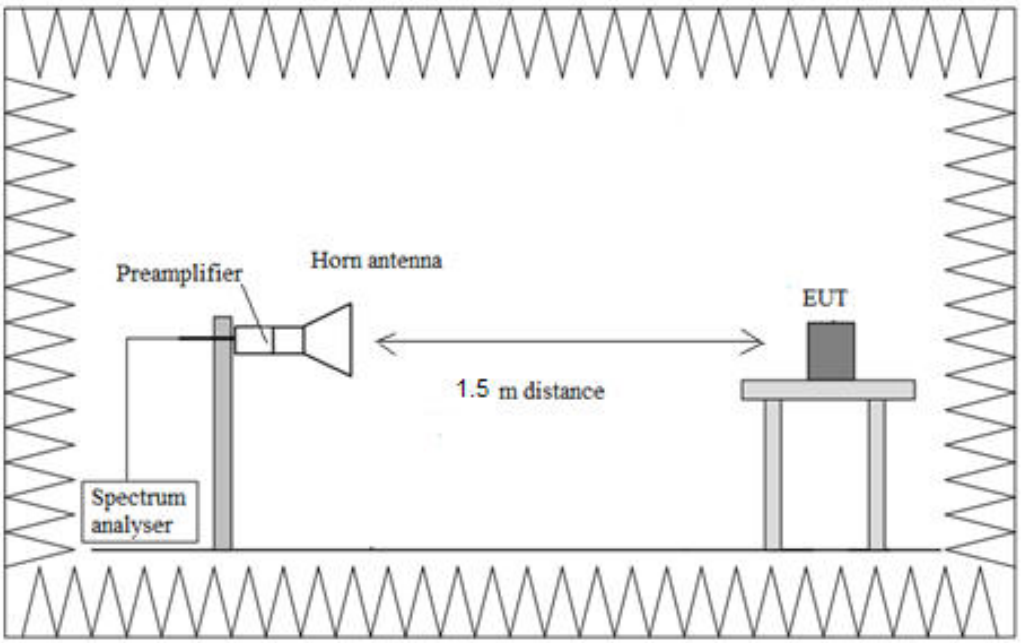
Radiated measurements setup 30 MHz < f < 1 GHz:



Radiated measurements setup f > 1 GHz up to 17 GHz:



Radiated measurements setup f > 17 GHz up to 40 GHz:



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 (µV/m)	Field strength (dBµV/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	29.54	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:

The situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º 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.

All tests were performed in a semi-anechoic chamber at a distance of 3 m for the frequency range 30 MHz-17 GHz and at distance of 1m for the frequency range 17 GHz-26 GHz.

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.

Test performed on the following worst-cases in all relevant tests channels.

- **Co-Location mode Bluetooth Low Energy, SRD 10.66 MHz:**

Bluetooth Low Energy:	High Channel (2480 MHz). GFSK. 2 Mbps.
SRD 10.66 MHz:	Single Channel (10.66 MHz). D-BPSK.

Frequency range 9 kHz - 30 MHz:

The spurious emissions do not depend on either the operating channel or the modulation mode.

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

Measurement uncertainty (dB) <± 3.08

Frequency range 30 MHz - 1 GHz:

The spurious emissions below 1 GHz do not depend on either the operating channel or the modulation mode.

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

Measurement uncertainty (dB) <± 5.15

Frequency range 1 - 26 GHz:

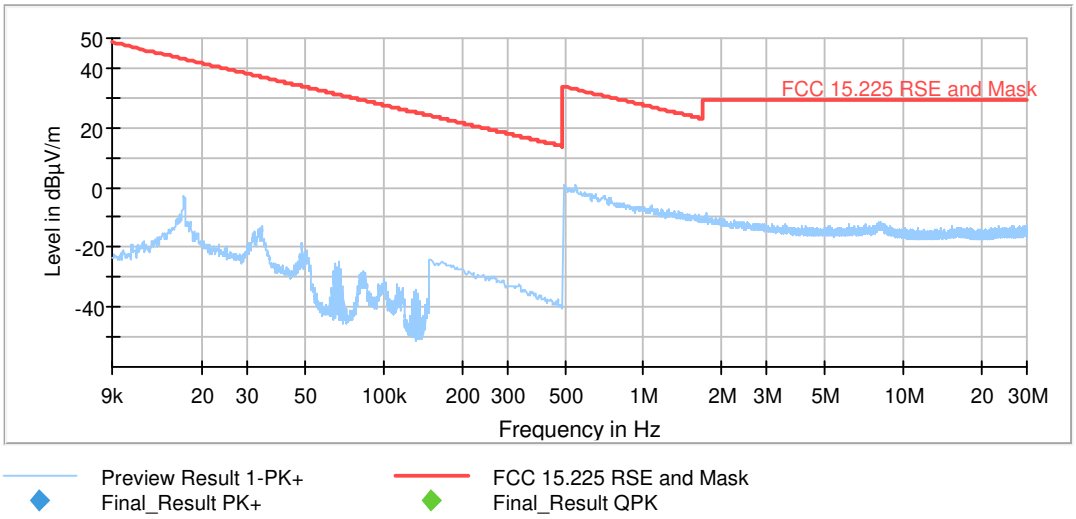
Spurious frequencies detected closest to the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
4960	43.53	V	Peak

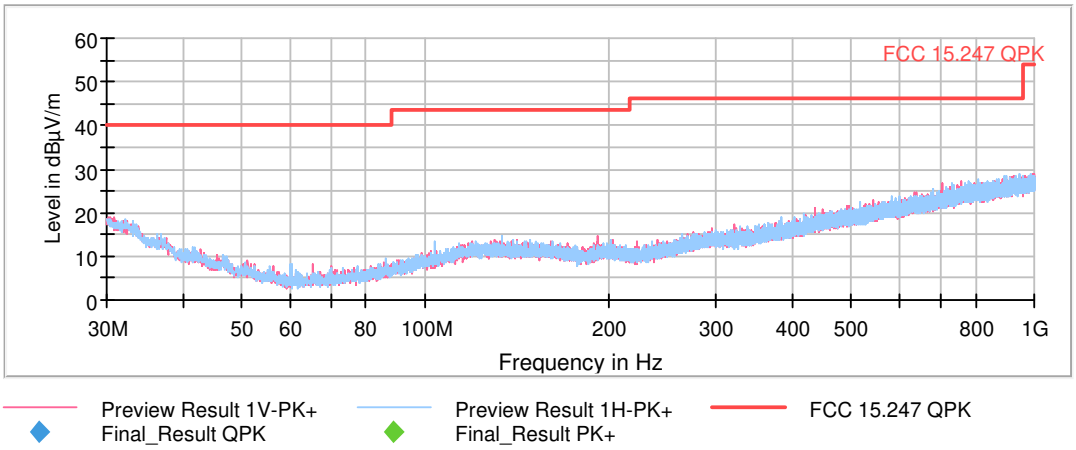
Measurement uncertainty (dB): 1 < f < 17 GHz <± 4.28
17 < f < 26 GHz <± 4.89

Verdict: PASS

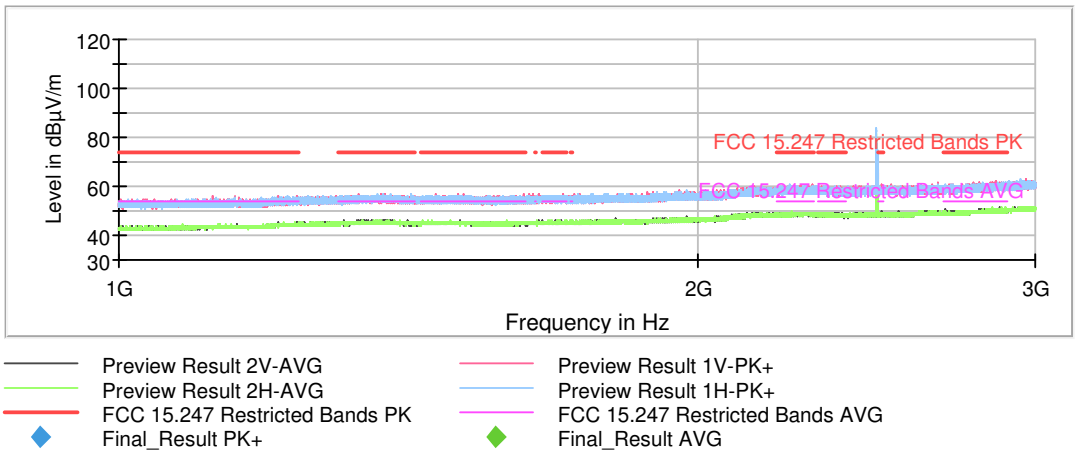
FREQUENCY RANGE 9 kHz - 30 MHz (worst-case):



FREQUENCY RANGE 30 MHz - 1 GHz (worst-case):

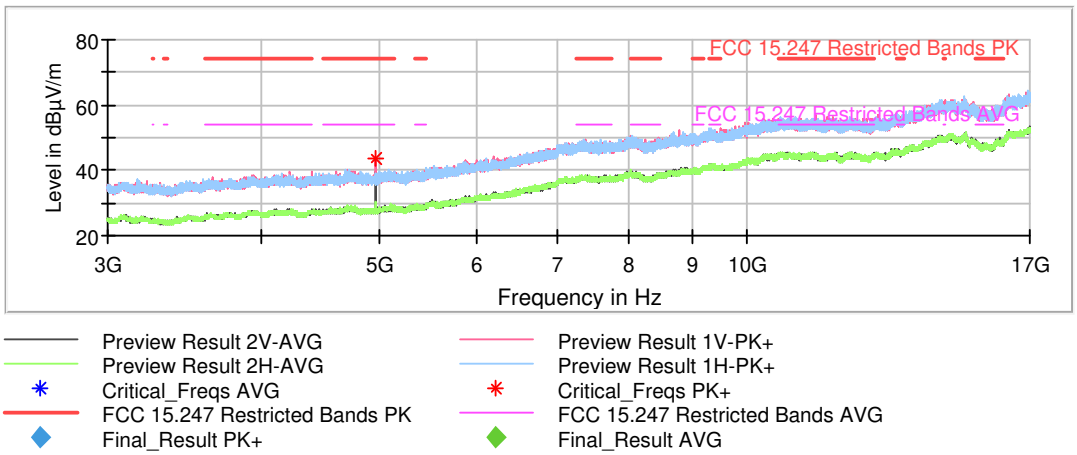


FREQUENCY RANGE 1 - 3 GHz (worst-case):

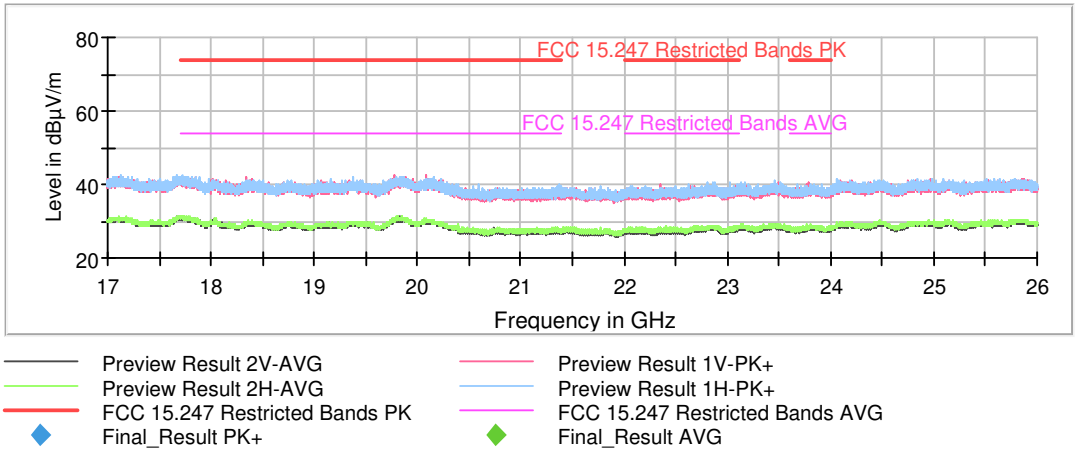


The peak above the highest limit is the Bluetooth LE carrier frequency.

FREQUENCY RANGE 3 - 17 GHz (worst-case):



FREQUENCY RANGE 17 - 26 GHz (worst-case):



- **Co-Location mode Proprietary protocol 2.4 GHz, SRD 10.66 MHz:**

Proprietary protocol 2.4 GHz:	High Channel (2480 MHz). GFSK. 2 Mbps.
SRD 10.66 MHz:	Single Channel (10.66 MHz). D-BPSK.

Frequency range 9 kHz - 30 MHz:

The spurious emissions do not depend on either the operating channel or the modulation mode.

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

Measurement uncertainty (dB) <± 3.08

Frequency range 30 MHz - 1 GHz:

The spurious emissions below 1 GHz do not depend on either the operating channel or the modulation mode.

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

Measurement uncertainty (dB): < ± 5.15

Frequency range 1 - 26 GHz:

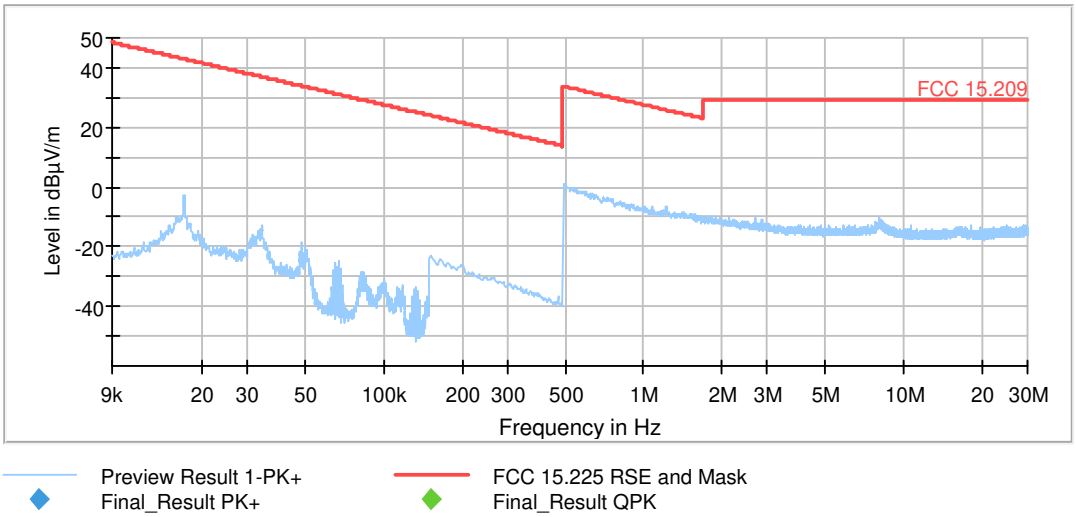
Spurious frequencies detected closest to the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
4959.5	42.85	V	Peak

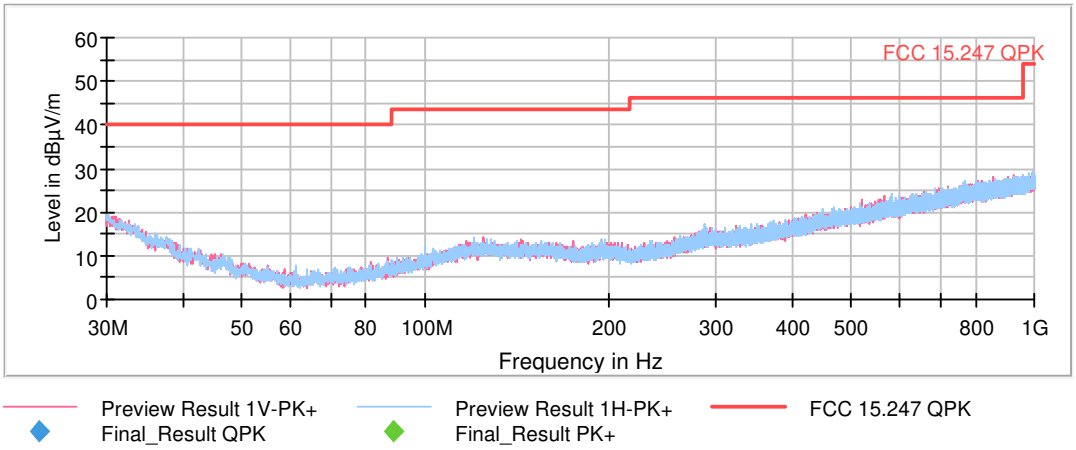
Measurement uncertainty (dB): 1 < f < 17 GHz <± 4.28
17 < f < 26 GHz <± 4.89

Verdict: PASS

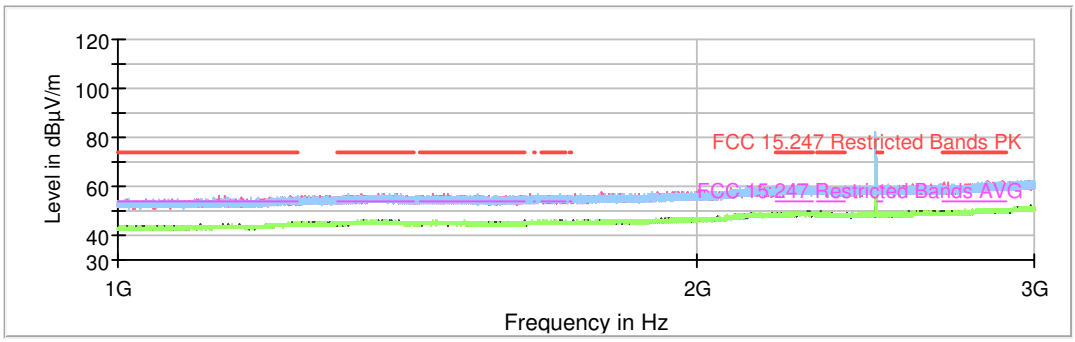
FREQUENCY RANGE 9 kHz - 30 MHz (worst-case):



FREQUENCY RANGE 30 MHz - 1 GHz (worst-case):



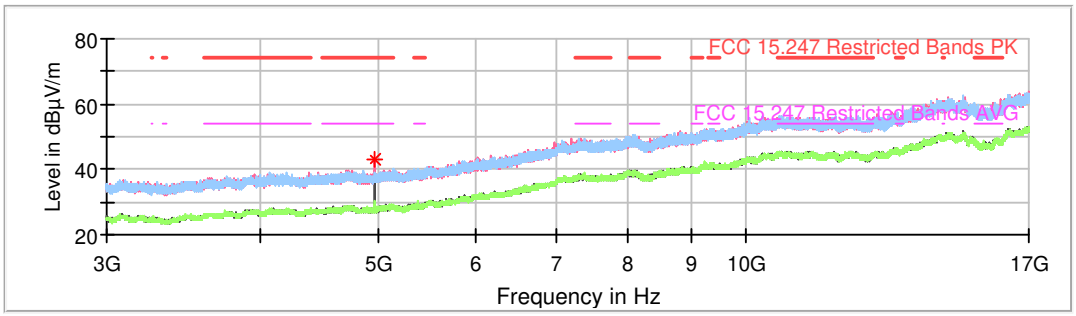
FREQUENCY RANGE 1 - 3 GHz (worst-case):

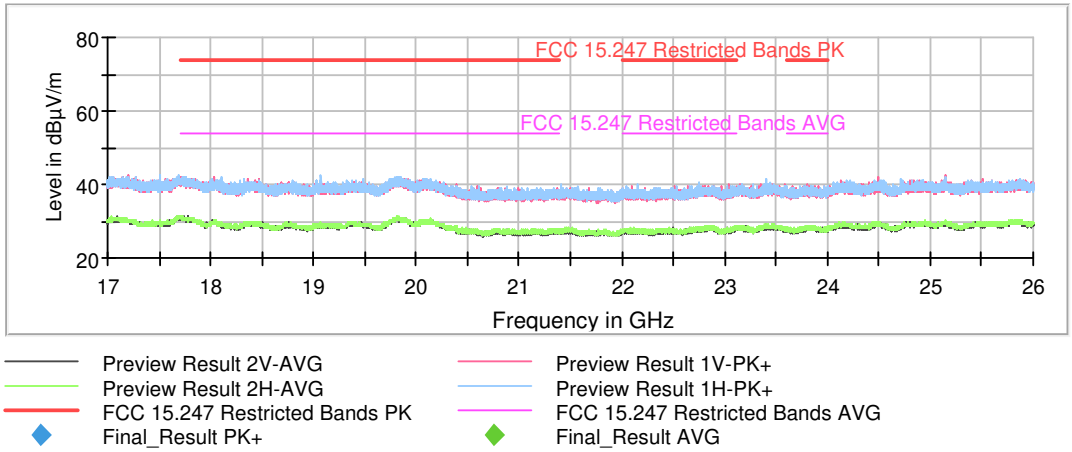


Preview Result 2V-AVG
Preview Result 2H-AVG
FCC 15.247 Restricted Bands PK
Final_Result PK+
Preview Result 1V-PK+
Preview Result 1H-PK+
FCC 15.247 Restricted Bands AVG
Final_Result AVG

The peak above the highest limit is the Proprietary protocol 2.4 GHz carrier frequency.

FREQUENCY RANGE 3 - 17 GHz (worst-case):



Preview Result 2V-AVG
Preview Result 2H-AVG
Critical_Freqs AVG
FCC 15.247 Restricted Bands PK
Final_Result PK+
Preview Result 1V-PK+
Preview Result 1H-PK+
Critical_Freqs PK+
FCC 15.247 Restricted Bands AVG
Final_Result AVG

FREQUENCY RANGE 17 - 26 GHz (worst-case):