

ISED CABid: ES1909

Test Report No:
NIE: 69157RRF.007

Test Report

USA FCC Part 15.209

CANADA RSS-Gen Issue 5

(*) Identification of item tested	Rechargeable wireless hearing instrument
(*) Trademark	ReSound, Beltone
(*) Model and /or type reference	CABR70
Other identification of the product	HW version: PCBA,CAM BTE70 RHI,V1.A,C6.0 SW version: Dooku2 FCC ID: XC26CABR70 IC: 6941C-CABR70
(*) Features	BT 1/2Mbit, proximity & MI radio, rechargeable battery, IP68 enclosure
Applicant	GN HEARING A/S Lautrupbjerg 7, 2750 Ballerup, Denmark
Test method requested, standard	USA FCC Part 15.209 (10-1-20 Edition): Radiated emission limits; general requirements. CANADA RSS-Gen Issue 5 amendment 1 (March 2019). General Requirements for Compliance of Radio Apparatus. ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López EMC Consumer & RF Lab. Manager  2022.02.03 17:44:22 +01'00'
Date of issue	2022-02-03
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Testing and Certification S.A.U. 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 S.A.U. is a 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, 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 S.A.U. has a calibration and maintenance program for its measurement equipment.

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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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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Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification S.A.U. 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 of the model CABR70 is a rechargeable wireless hearing aid.

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.

- Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Reception
69157B/018	Rechargeable wireless hearing instrument	CABR70	2100814940	2021/11/24

Sample S/01 has undergone the test(s): The Conducted tests indicated in the Appendix A.

- Sample S/02 is composed of the following elements:

Control N°	Description	Model	Serial N°	Reception
69157B/013	Rechargeable wireless hearing instrument	CABR70	2100814935	2021/11/24

Sample S/02 has undergone the test(s): The Radiated tests indicated in the Appendix A.

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:		☐	☐	☐	☐	☐
	☒ DC:	3.8 Vdc					
Rated Power.....:	-						
Clock frequencies.....:	-						
Other parameters	-						
Software version.....:	Dooku2						
Hardware version	PCBA,CAM BTE70 RHI,V1.A,C6.0						
Dimensions in cm (W x H x D) ...:	-						
Mounting position	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☒	Other:					
Modules/parts.....:	Module/parts of test item			Type	Manufacturer		
	-						
	-						
	Description			Type	Manufacturer		

Accessories (not part of the test item)	-		
Documents as provided by the applicant	Description	File name	Issue date
	-		

⁽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)	2021-12-14
Date (finish)	2021-12-21

Document history

Report number	Date	Description
69157RRF.007	2019-02-21	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 %

In the chamber for conducted measurements, 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 Manuel Sánchez, Jaime Barranquero.

Used instrumentation:

Conducted Measurements:

	Last Calibration	Due Calibration
1. Signal and Spectrum Analyzer 2 Hz - 50 GHz ROHDE AND SCHWARZ FSW50	2021/07	2023/07
2. DC Power Supply 30V/3A 90W, GW INSTEK GPS-3030D	N/A	N/A
3. Digital Multimeter FLUKE 175	2021/12	2022/12

Radiated Measurements:

	Last Calibration	Due Calibration
1. Semianechoic Absorber Lined Chamber ALBATROSS PROJECTS GMBH P29419	2020/01	2023/01
2. Shielded Room ALBATROSS PROJECTS GMBH P29419	N/A	N/A
3. Ultralog Antenna 30MHz-6GHz, ROHDE AND SCHWARZ HL562E_UPG	2019/10	2022/10
4. EMI Test Receiver 2 Hz - 44 GHz ROHDE AND SCHWARZ ESW44	2020/02	2022/02
5. ACTIVE LOOP ANTENNA 9 KHZ-30 MHz SCHWARZBECK FMZB 1519B	2019/11	2022/11

Testing verdicts

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

Summary

1. SRD 10.667 MHz.

FCC PART 15.209 / RSS-Gen PARAGRAPH		
Requirement – Test case	Verdict	Remark
Occupied bandwidth	P	
15.209 (a) / RSS-Gen 8.9. Transmitter emission limits	P	
<u>Supplementary information and remarks:</u> None.		

Appendix A: Test results

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TEST CONDITIONS

(*) Declared by the Applicant

POWER SUPPLY (*):

Vnominal: 3.8 Vdc
Type of Power Supply: Rechargeable battery.

ANTENNA (*):

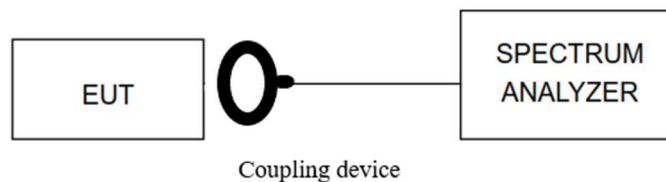
Type of Antenna: Integral (induction coil).
Maximum Declared Antenna Gain: N/A

TEST FREQUENCIES:

Nominal Operating Frequency: 10.667 MHz

CONDUCTED MEASUREMENTS:

The equipment under test EUT was set up in a shielded room and it is connected to the spectrum analyzer through a RF cable and a coupling device.



RADIATED MEASUREMENTS:

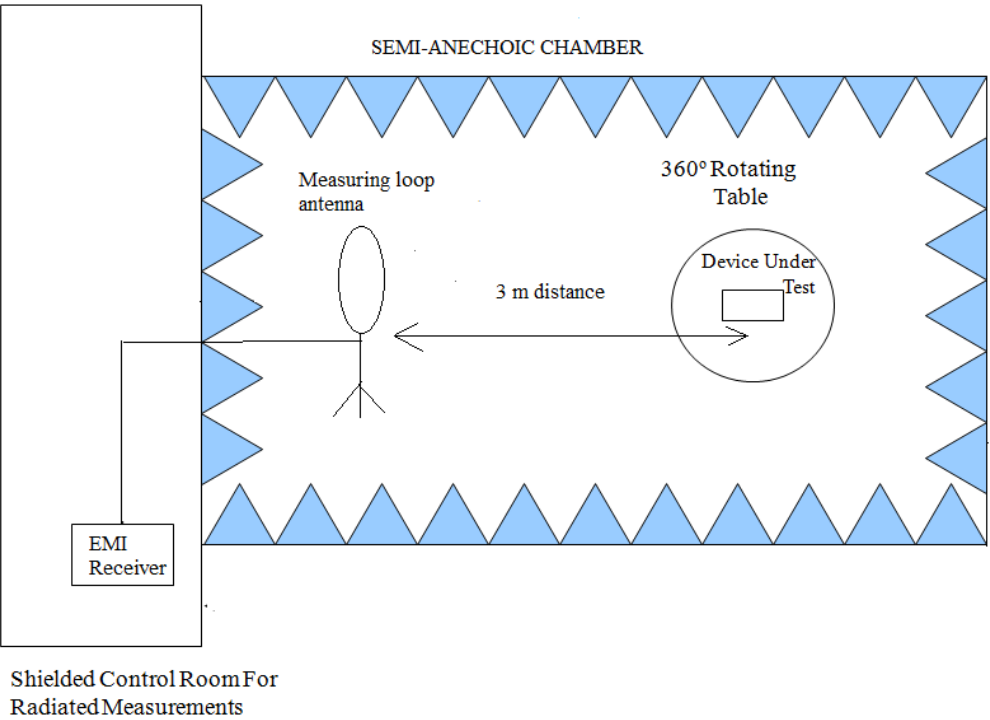
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m (Loop antenna for the range between 9 kHz to 30 MHz and Bilog antenna for 30 MHz to 200 MHz).

For radiated emissions in the range 9 kHz to 30 MHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 40 dB per decade is used to normalize the measured data for determining compliance.

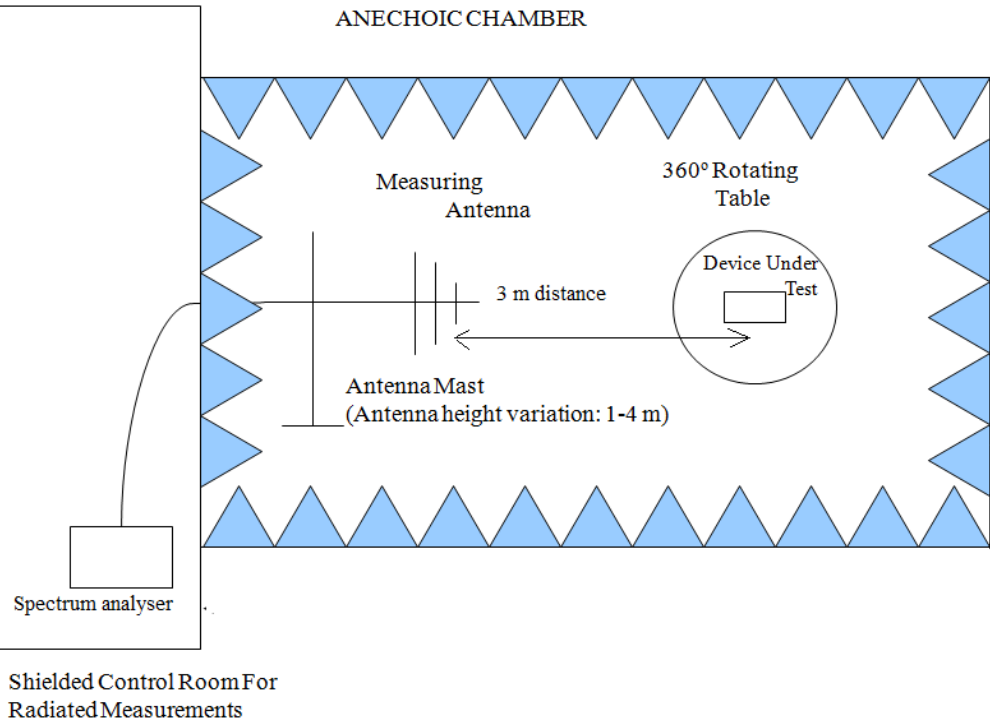
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

In the range between 9 kHz and 30 MHz the measurements were made in the three different orientation planes of the loop antenna to determine the maximum received field. Measurements above 30 MHz up to 200 MHz were made in both horizontal and vertical planes of polarization.

Radiated measurements setup $f < 30$ MHz:



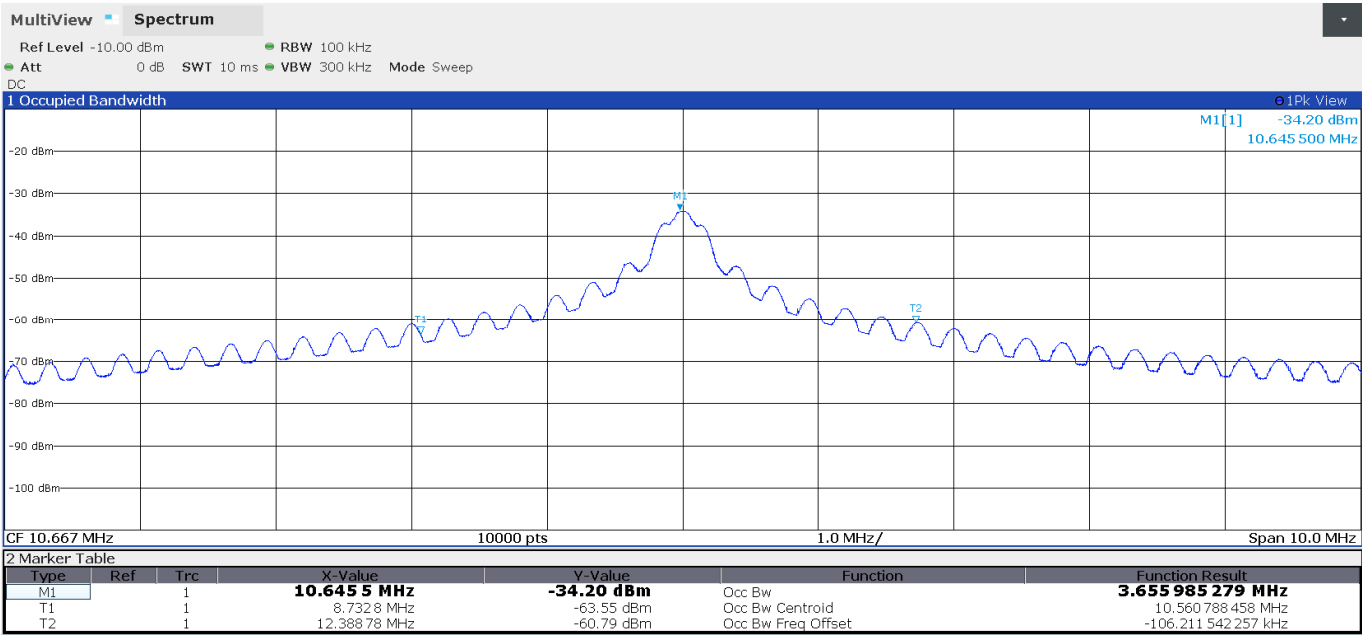
Radiated measurements setup $f > 30$ MHz up to 200 MHz:



Occupied Bandwidth

RESULTS:

99% Bandwidth (MHz)	3.655985279
Measurement uncertainty (kHz)	<±0.50



15.209 (a) / RSS-Gen 8.9. Transmitter emission limits

SPECIFICATION:

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 (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	29.54	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

RESULTS:

All tests were performed in a semi-anechoic chamber at a distance of 3 m, except for the measurement of the fundamental emission that was performed at a distance of 1 m due to its extremely low emission level. The maximum peak value of the fundamental emission was measured as the worst case.

The spectrum was inspected from 9 kHz to 200 MHz searching for spurious signals.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyser. This correction factor includes antenna factor and cable loss.

Fundamental emission:

E($\text{dB}\mu\text{V/m}$) extrapolated to 30 m (40 dB/decade)	-19.89
Equivalent level ($\text{dB}\mu\text{A/m}$) at 30 m	-71.39
Measurement uncertainty (dB)	$<\pm 3.04$

Verdict: PASS

Frequency range 9 kHz - 30 MHz:

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

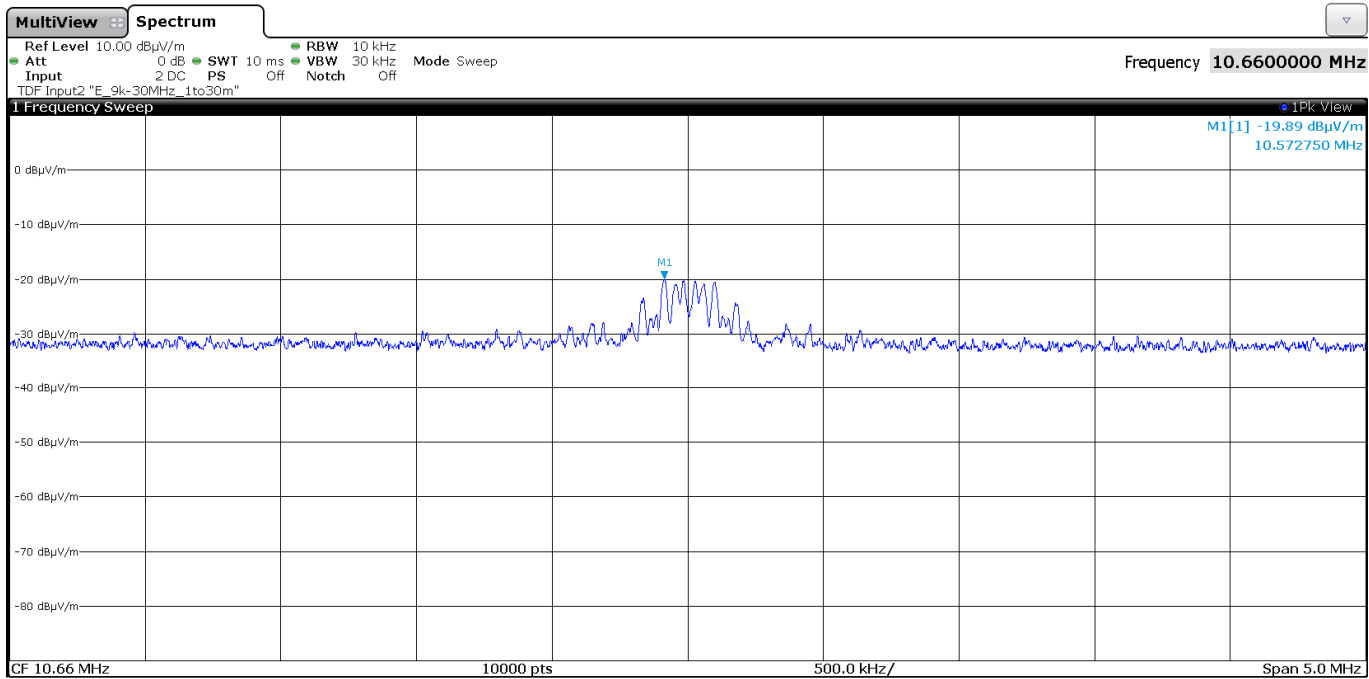
Verdict: PASS

Frequency range 30 - 200 MHz:

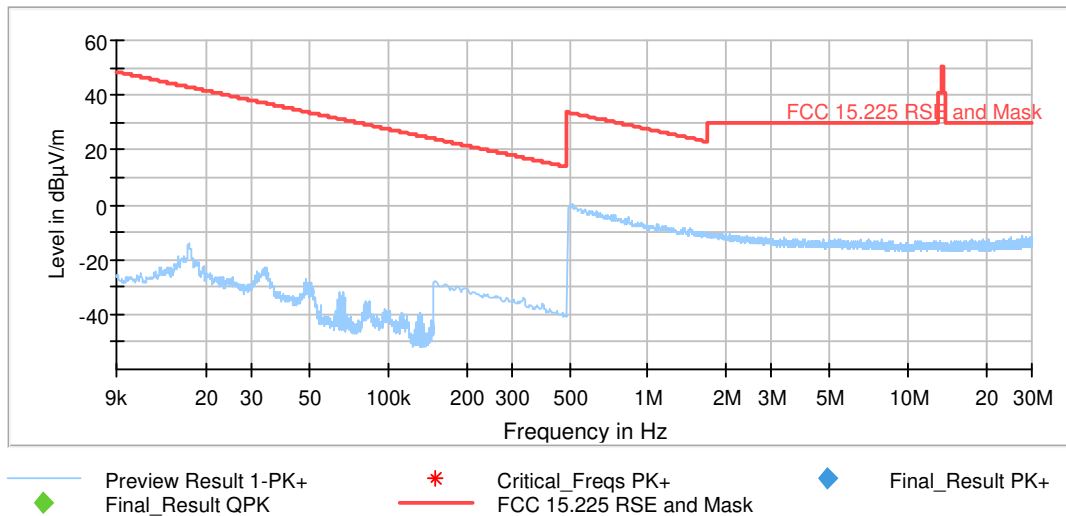
No spurious frequencies detected at less than 20 dB below the limit.

Verdict: PASS

FUNDAMENTAL EMISSION:



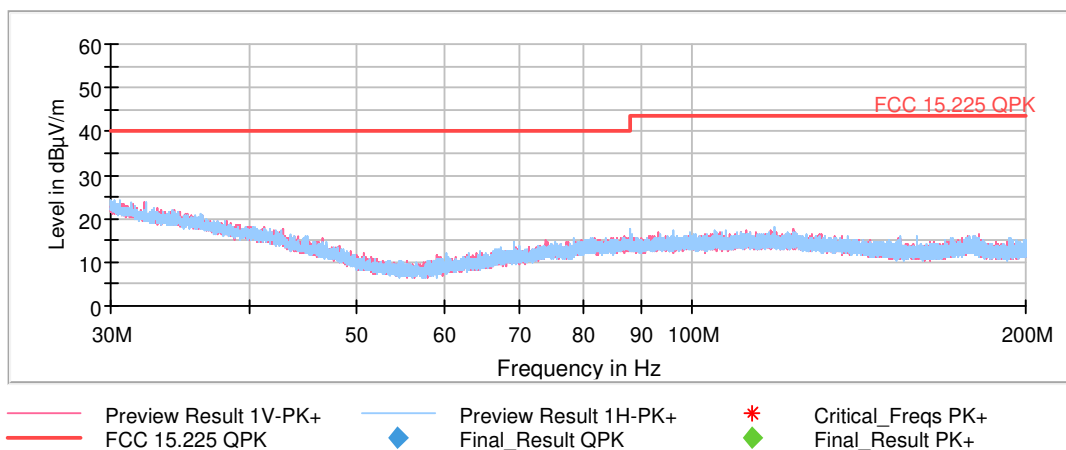
FREQUENCY RANGE 9 kHz - 30 MHz:



Note: The scan is performed with a peak detector.

Resolution bandwidth:
200 Hz for 9 kHz ≤ f ≤ 150 kHz
9 kHz for 150 kHz ≤ f ≤ 30 MHz

FREQUENCY RANGE 30 - 200 MHz:



Note: The scan is performed with a peak detector.