DEKRA Testing and Certification, S.A.U.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
C.I.F. A29507456

ISED CABid: ES1909
Lab. Company Number: 4621A

Test Report No:
76794RRF.002A1

Test Report
USA FCC Part 15.249, 15.209
CANADA RSS-210, RSS-Gen

(*) Identification of item tested	AIRZONE LITE THERMOSTAT WIRELESS
(*) Trademark	AIRZONE
(*) Model and/or type reference	AZS62LITERB
(*) Derived model not tested	AZS62LITERN
Other identification of the product	FCC ID: SVS-006-LU5 IC: 24685-006LU5
(*) Features	SRD 915 MHZ. Powered by battery button CR2450. HW version: V2.0 SW version: 3.6.0
Applicant	CORPORACIÓN EMPRESARIAL ALTRA S.L. C/ MARIE CURIE 21, MÁLAGA (29590), SPAIN
Test method requested, standard	USA FCC Part 15.249 (10-1-21 Edition): Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 - 24.25 GHz. USA FCC Part 15.209 (10-1-21 Edition): Radiated emission limits; general requirements. CANADA RSS-210 Issue 10 (December 2019). CANADA RSS-Gen Issue 5 Amendment 2 (February 2021). ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
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	2024-05-16
Report template No	FDT08_24 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
99OBW	99% Occupied Channel Bandwidth
Avg Field	Average Field Strength
Detector	Detector used
Equipment	Equipment Type
Freq	Frequency
Freq Rng	Frequency Range
MP	Measurement Point
Mod	Modulation
Operation Band	Operation Band
Pk Field	Peak Field Strength
Pol	Polarization
Unwanted Freq	Unwanted Emissions Frequency
Unwanted Lvl	Unwanted Emissions Level

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 an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that covers the performed tests in this 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.

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.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification S.A.U.
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 S.A.U. and the Accreditation Bodies.

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 EUT from 30 MHz to 1 GHz is: Measurement uncertainty ≤ ± 5.03 dB with factor (k = 2).

The total uncertainty of the measurement system for the radiated emissions of EUT from 1 GHz to 17 GHz is: Measurement uncertainty ≤ ± 4.32 dB with factor (k = 2).

The total uncertainty of the measurement system for the conducted testing of EUT is:
Occupied Channel Bandwidth: Measurement uncertainty ≤ ± 1.17 %.

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 AZS62LITERB consists of a Thermostat with capacitive buttons to control the temperature of the zones in Airzone systems. Wireless communications. Powered by battery button CR2450.

3. Derived models not tested. These models have been declared by the supplier as equivalent ones:

Date: 13/07/2022

Ref.: declaration of similarity for models: **AZS62LITERB, AZS62LITERN**

We,

Corporación Empresarial Altra

C/ MARIE CURIE, 21 MALAGA (29590), SPAIN,

hereby declare that our product Airzone Lite Thermostat Wireless, model AZS62LITERB and model AZS62LITERN are electrically identical.

The Airzone Lite Thermostat Wireless variants differ only on the cover glass color:

- Model **AZS62LITERB** has the front cover glass in white
- Model **AZS62LITERN** has the front cover glass in black

Therefore, the values indicated in the test reports No.

- 76794REM001s
- 76794REM.002s
- 76794RRF001s
- 76794RRF002s
- 76794RSE.001

for the tested model AZS62LITERB are still valid and representative for the non-tested model AZS62LITERN.

Sincerely,

By: Alejandro Torres González
Title: Certification Engineer
Company: Corporación Empresarial Altra S.L.
Telephone: +34 900 400 445
e-mail: atorres@altracorporacion.es

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.

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	76794B_4.1	AIRZONE LITE THERMOSTAT WIRELESS	AZS62LITERB	F01MJ0Y	2023-10-16	Element Under Test
S/02	76794B_5.1	AIRZONE LITE THERMOSTAT WIRELESS	AZS62LITERB	F01MIXW	2023-10-23	Element Under Test

Notes referenced to samples during the project:

Id	Type
S/01	Test sample used for Radiated testing.
S/02	Test sample used for Conducted testing.

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…… :	No ports available					
Rated power supply .....:	Voltage and Frequency		Reference poles			
			L1	L2	L3	N	PE
	[ ]	AC:	[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 3.3 Vdc					
Rated Power .....:	0.02 mW					
Clock frequencies.....:	--					
Other parameters .....:	--					
Software version .....:	3.6.0.					
Hardware version .....:	V2.0					
Dimensions in cm (W x H x D) ....:	92 x 92 x 15.85 mm					
Mounting position .....:	[ ]	Table top equipment				
	[X]	Wall/Ceiling mounted equipment				
	[ ]	Floor standing equipment				
	[ ]	Hand-held equipment				
	[ ]	Other:				
Modules/parts.....:	Module/parts of test item	Type	Manufacturer			
	Transceiver radio	S2-LPTQR	ST			
Accessories (not part of the test item) .....:	Description	Type	Manufacturer			
	MAIN CONTROL BOARD (FLEXA)	AZPV6IBPRO6	AIRZONE			
Documents as provided by the applicant.....:	Description	File name	Issue date			
	Data Sheet	FT_AZS62LITE	--			

(3) Only for Medical Equipment

Identification of the client

CORPORACIÓN EMPRESARIAL ALTRA S.L.

C/ Marie Curie, 21, 29590, Málaga, Spain

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2023-11-13
Date (finish)	2023-11-14

Document history

Report number	Date	Description
76794RRF.002	2023-12-29	First release.
76794RRF.002A1	2024-05-16	Second release. Modified due to minor typos. This report cancels and replaces 76794RRF.002

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 %

In the chamber for conducted measurements, 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: Pablo Redondo, Rafael Fernández, Álvaro Gutiérrez, Valentín Andarias and Sergio Carrasco.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
6791	SEMIANECHOIC ABSORBER LINED CHAMBER	FACT 3 200 STP	ETS LINDGREN	N/A
6792	SHIELDED ROOM	S101	ETS LINDGREN	N/A
4578	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2026-06-01
6144	PRE-AMPLIFIER G>40dB 10MHz-6GHz	BLNA 0160-01N	BONN ELEKTRONIK	2024-07-25
4611	HORN ANTENNA 1-18GHz	BHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2026-01-16
5705	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2024-07-26
7817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-12-30
7760	DIGITAL MULTIMETER	175	FLUKE	2024-11-08
6793	SHIELDED ROOM	S101	ETS LINDGREN	N/A
6668	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2024-12-14
5850	DIGITAL MULTIMETER	179	FLUKE	2024-11-02

Testing verdicts

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

Summary

FCC PART 15 PARAGRAPH / RSS-249			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.249 (b) / RSS-210 B.10 (a)	Field strength of fundamental end harmonics emissions	P	
FCC 15.249 (d) (e) / RSS-210 B.10 (b)	Maximum output power and antenna gain	P	
99dBw	Occupied Channel Bandwidth 99%	P	
Supplementary information and remarks: None.			

Appendix A: Test results

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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal:	3.3 Vdc
Type of Power Supply:	Battery (button CR2450).

ANTENNA (*):

Type of Antenna:	Integral (Embeded PCB).
Maximum Declared Antenna Gain:	-1.3 dBi

TEST FREQUENCIES (*):

Low Channel:	915.2 MHz
High Channel:	917.2 MHz

During transmitter test the EUT was controlled by a SW tool provided by the client to operate in a continuous transmit mode on the modulation schemes and test channels as required.

CONDUCTED MEASUREMENTS:

The equipment under test was set up in a shielded room and it is connected to the spectrum analyzer using a low loss RF cable. The reading of the spectrum analyser is corrected taking into account the cable loss.

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. 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).

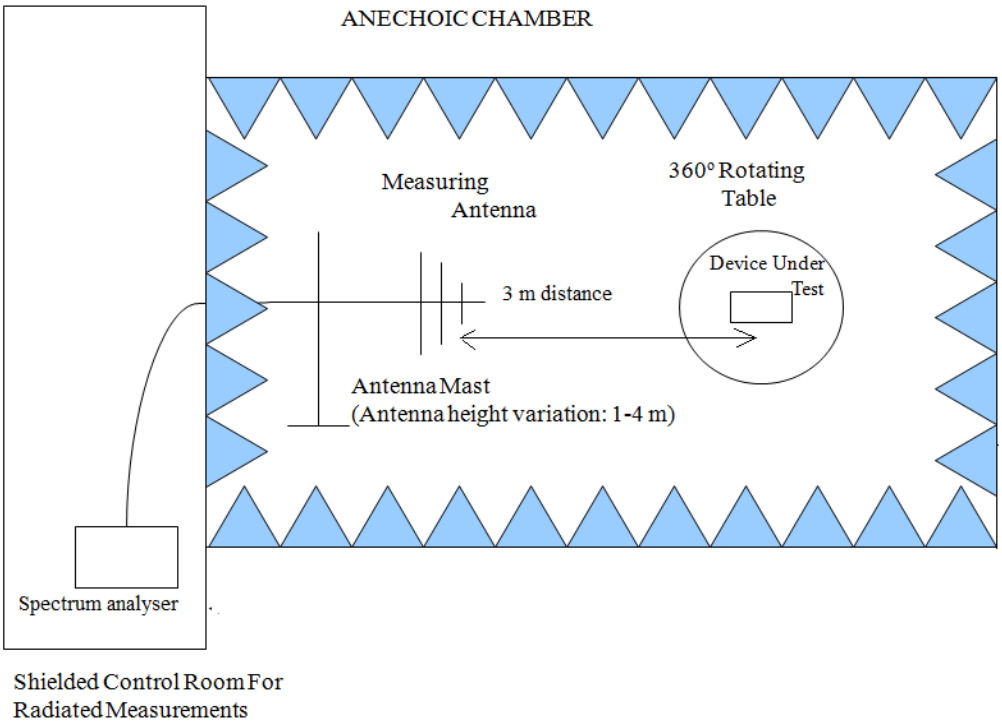
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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.

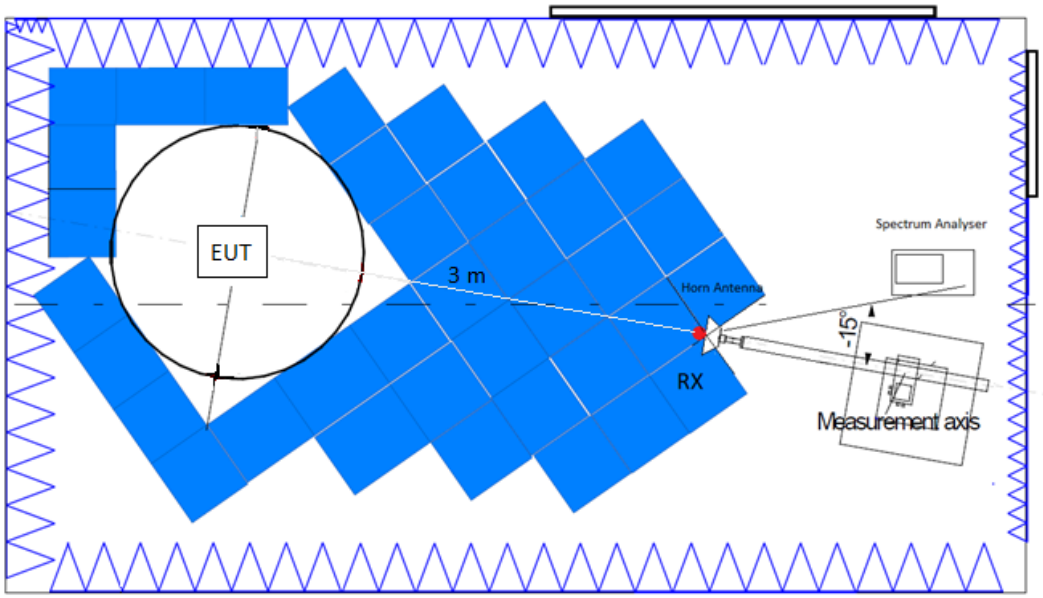
Measurements were made in both horizontal and vertical planes of polarization.

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

Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 10 GHz:



TEST CASES DETAILS

Occupied Channel Bandwidth 99%

Specification

* RSS-Gen Issue 5, Clause 6.7 Occupied bandwidth (or 99% emission bandwidth) and x dB bandwidth:

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

Modulation: 2GFSK

Results

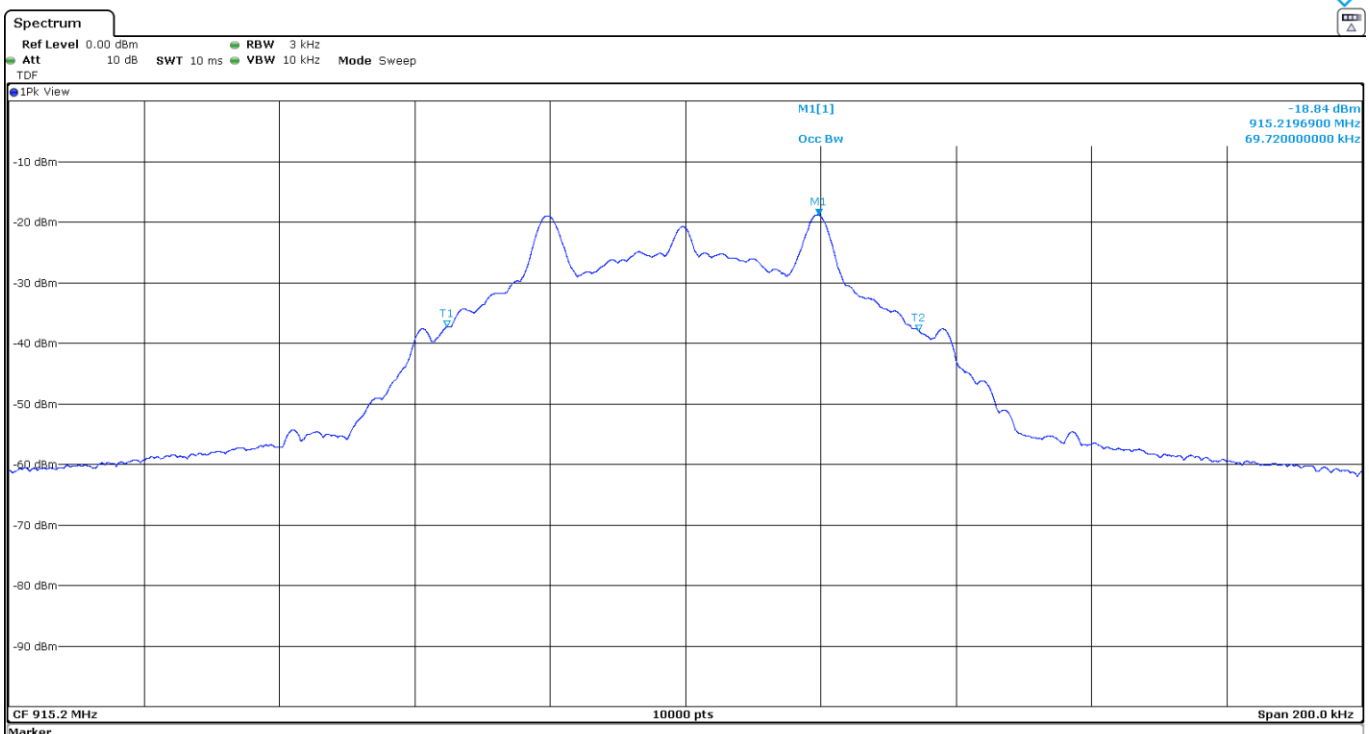
Operation Band (MHz)	Equipment	Freq (MHz)	99OBW (kHz)
[902, 928]	Other	915.20	69.72
		917.20	70.00

Attachments

Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 915.20000 Modulation = 2GFSK

Images:



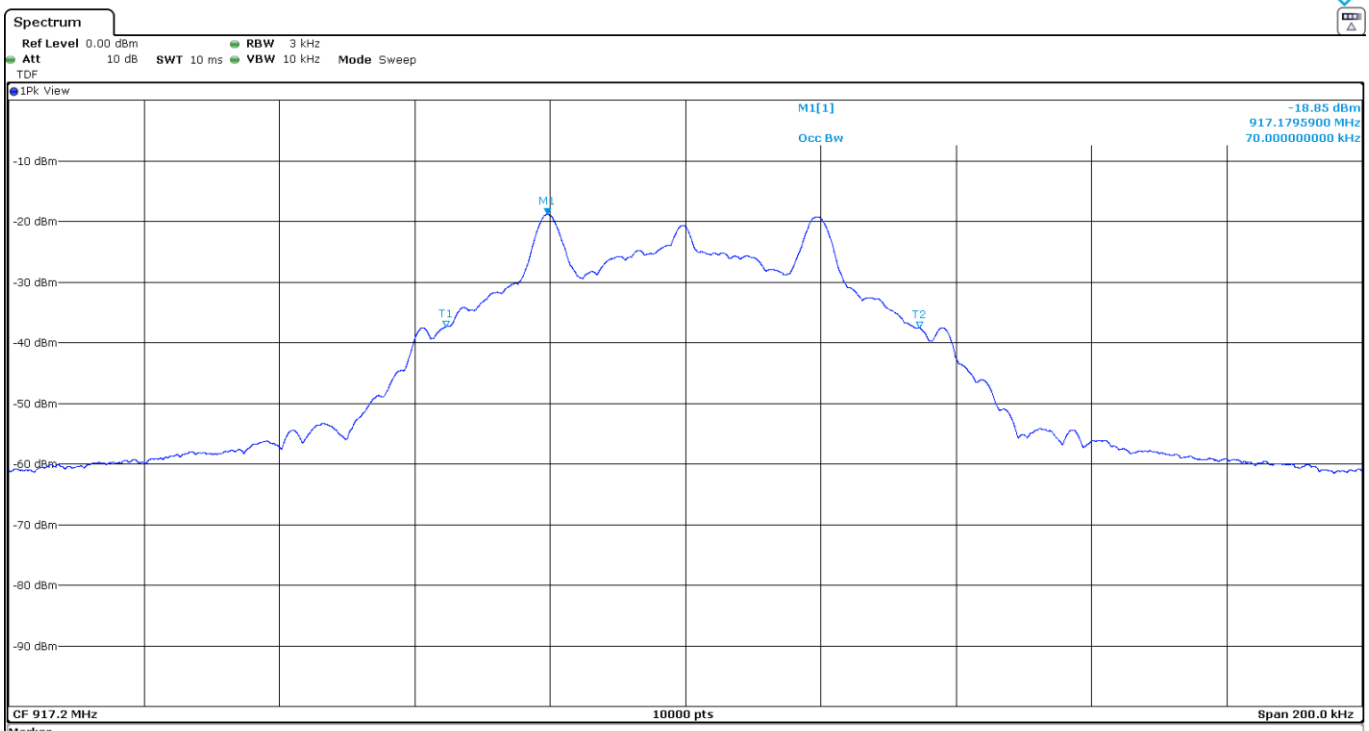
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	915.21969 MHz	-18.84 dBm		
T1		1	915.16481 MHz	-37.29 dBm	Occ Bw	69.72 kHz
T2		1	915.23453 MHz	-37.99 dBm		

Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 917.20000 Modulation = 2GFSK

Images:



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	917.17959 MHz	-18.85 dBm		
T1		1	917.16459 MHz	-37.38 dBm	Occ Bw	70.0 kHz
T2		1	917.23459 MHz	-37.58 dBm		

FCC 15.249 (b) / RSS-210 B.10 (a) Field strength of fundamental and harmonics emissions

Limits

The field strength of emissions from intentional radiators shall comply with the following:

Fundamental frequency (MHz)	Field strength of fundamental (mV/m)	Field strength (dBµV/m)	Measurement distance (m)
902 - 928	50	93.98	3
2400 - 2483.5	50	93.98	3
5725 - 5875	50	93.98	3
24000 - 24250	250	107.96	3

For frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Modulation: 2GFSK

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Pk Field (dBµV/m)	Avg Field (dBµV/m)
[902, 928]	Other	915.20	59.87	57.34
		917.20	59.69	57.16

Verdict

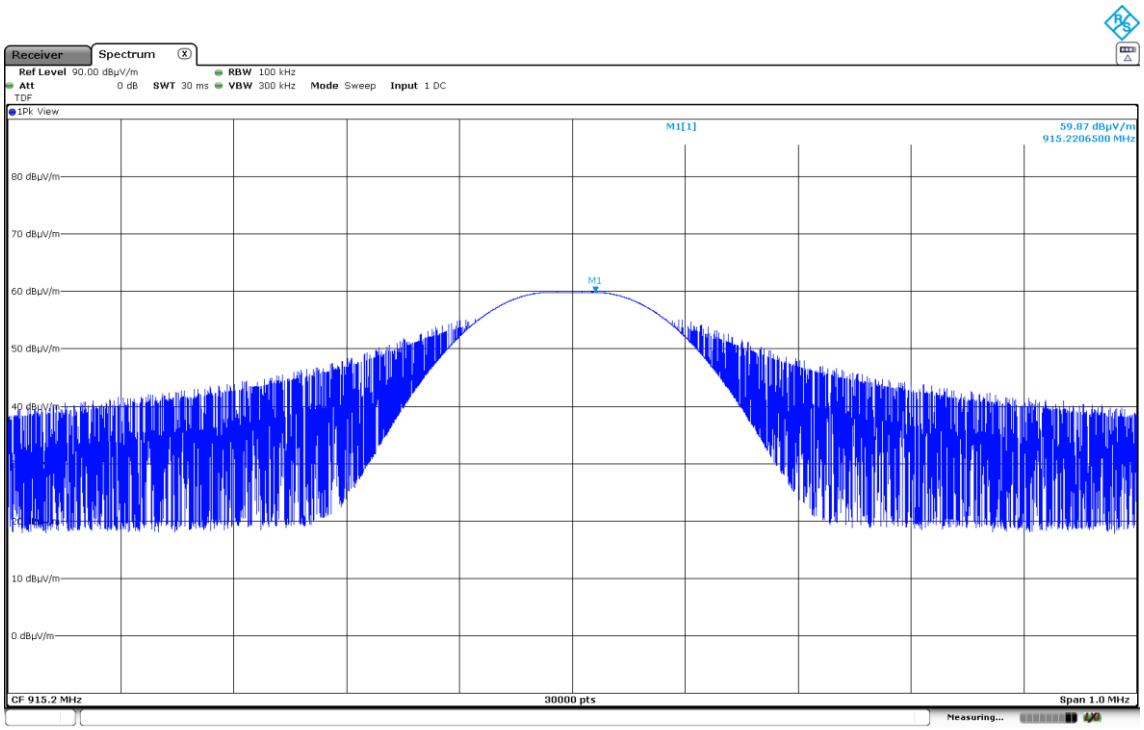
Pass

Attachments

Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 915.20000 Modulation = 2GFSK

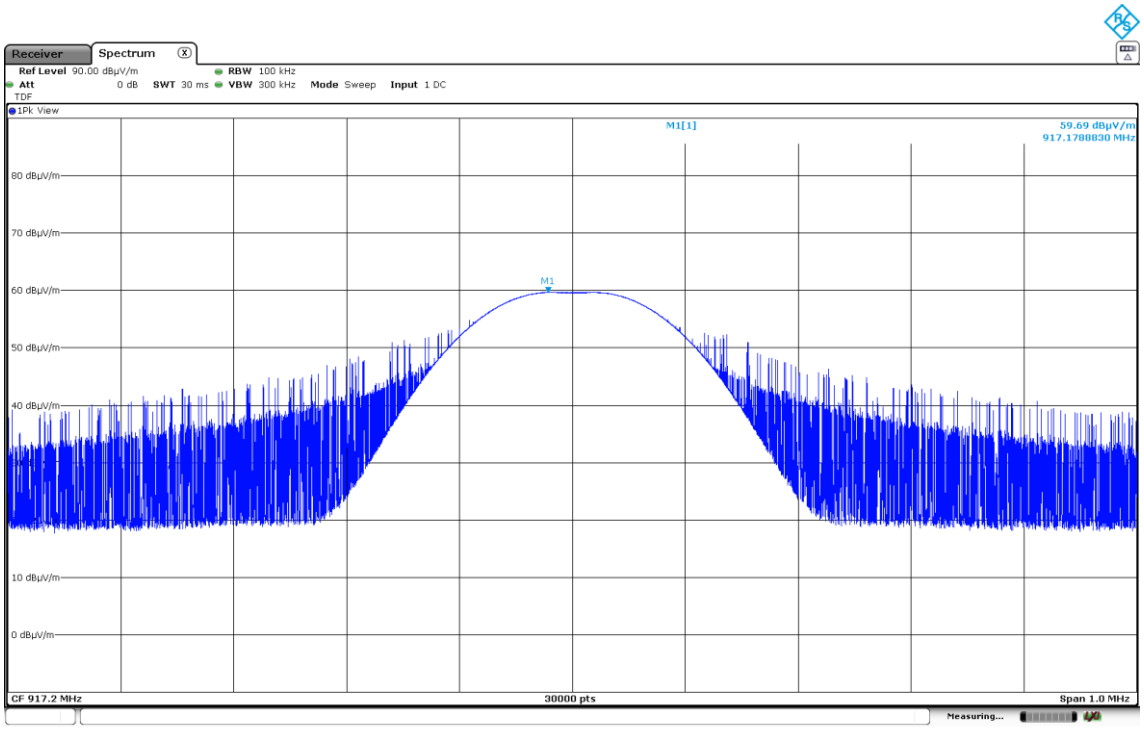
Images:



Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 917.20000 Modulation = 2GFSK

Images:



FCC 15.249 (d) (e) / RSS-210 B.10 (b) Emissions radiated outside of the specific frequency bands

Limits

The field strength of harmonics from intentional radiators shall comply with the following:

Fundamental frequency (MHz)	Field strength of harmonics (µV/m)	Field strength of harmonics (dBµV/m)	Measurement distance (m)
902 - 928	500	54	3
2400 - 2483.5	500	54	3
5725 - 5875	500	54	3
24000 - 24250	2500	67.96	3

Emissions radiated outside of the specific frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of fundamental or to the general radiated emission limits specified in section 15.209:

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	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

Whichever is the lesser attenuation.

Modulation: 2GFSK

Results

Frequency range 30 MHz - 1 GHz:

The spurious frequencies do not depend on the operating channel.

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

Frequency range 1 GHz – 10 GHz:

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

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
915.20000	[1, 10]	1834.4300	53.91	H	PK
		5503.0600	48.66	V	PK
917.20000		1834.3380	53.76	H	PK
		5503.4800	48.48	V	PK
		6420.620	45.65	H	PK

Verdict

Pass

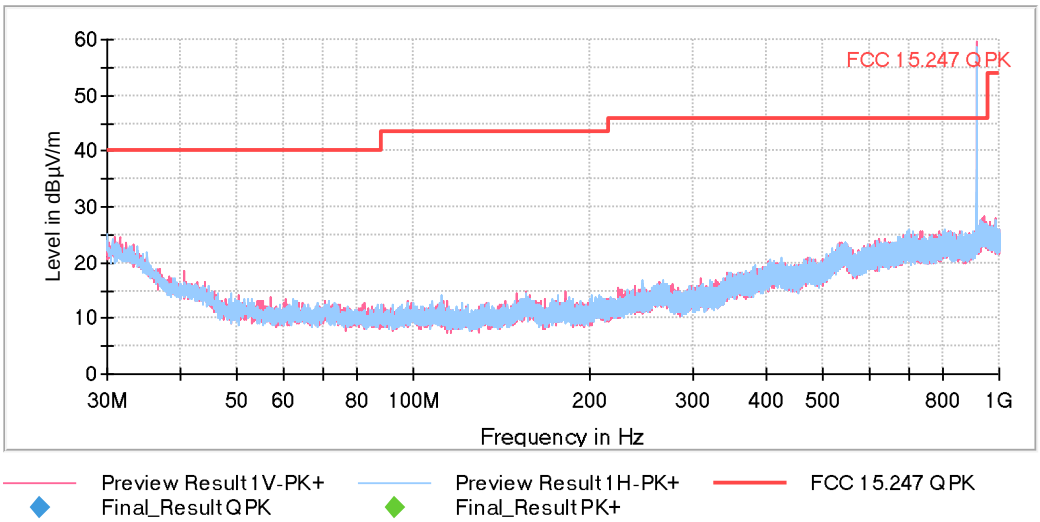
Attachments

Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 915.20000 Modulation = 2GFSK

Frequency Range GHz = [0.03, 1] Measurement Point = 1

Images:



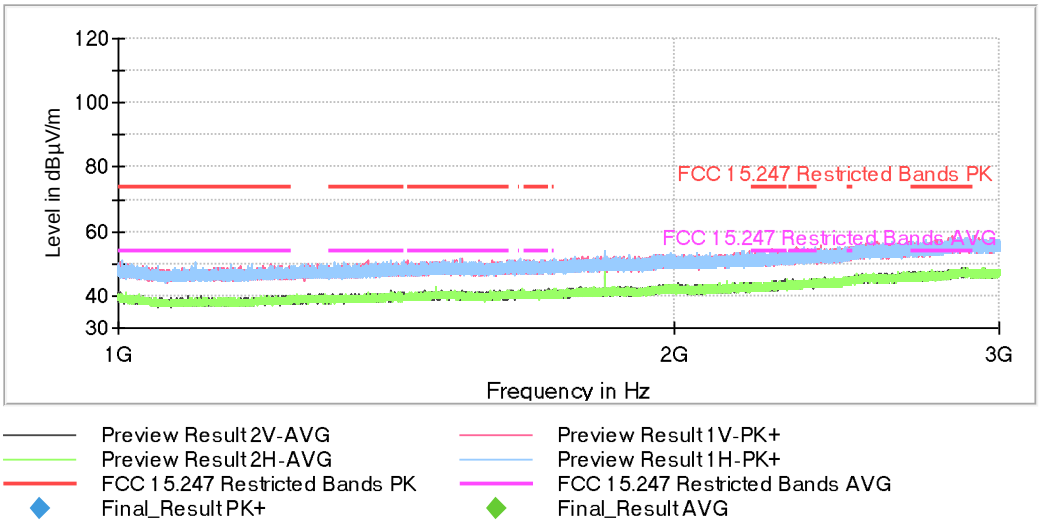
The peak above the limit is the SRD carrier frequency.

Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 915.20000 Modulation = 2GFSK

Frequency Range GHz = [1, 3] Measurement Point = 1

Images:

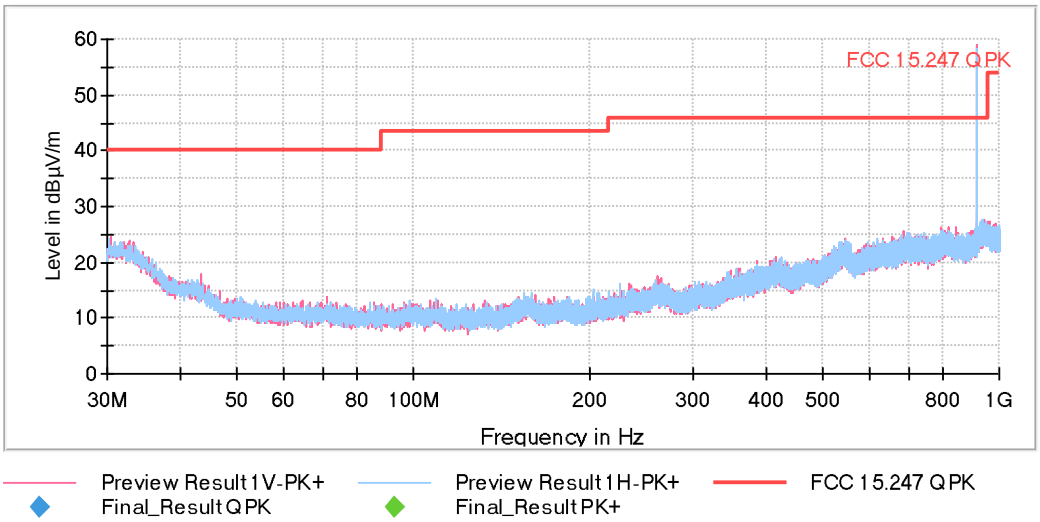


Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 917.20000 Modulation = 2GFSK

Frequency Range GHz = [0.03, 1] Measurement Point = 1

Images:



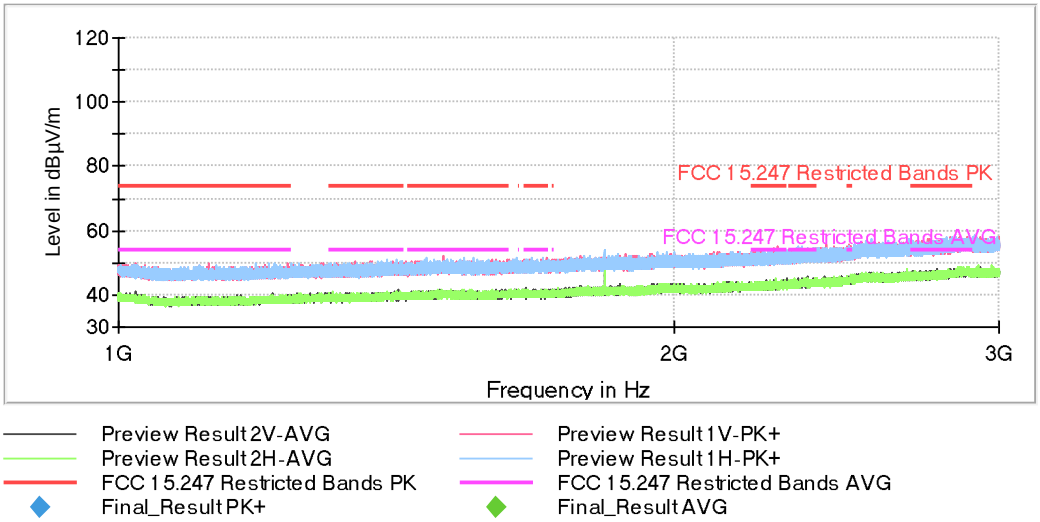
The peak above the limit is the SRD carrier frequency.

Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 917.20000 Modulation = 2GFSK

Frequency Range GHz = [1, 3] Measurement Point = 1

Images:

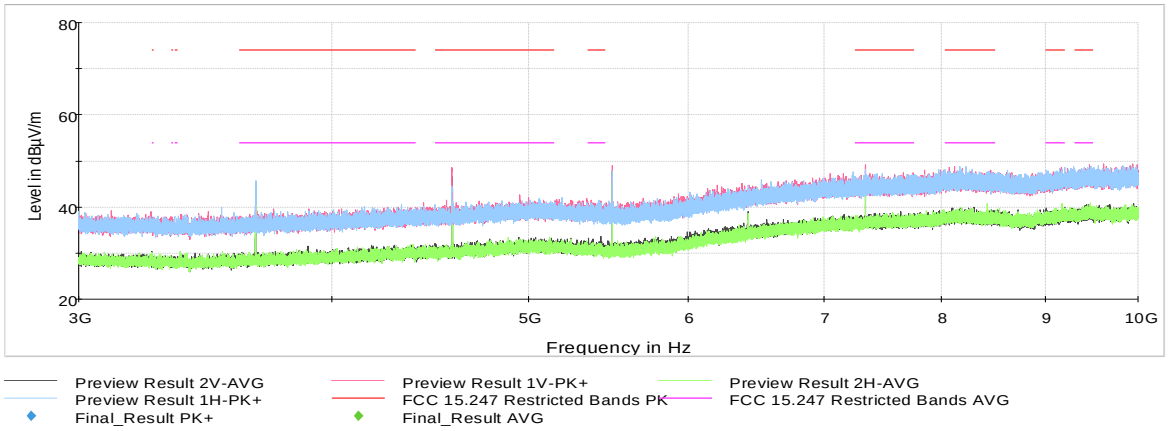


Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 915.20000 Modulation = 2GFSK

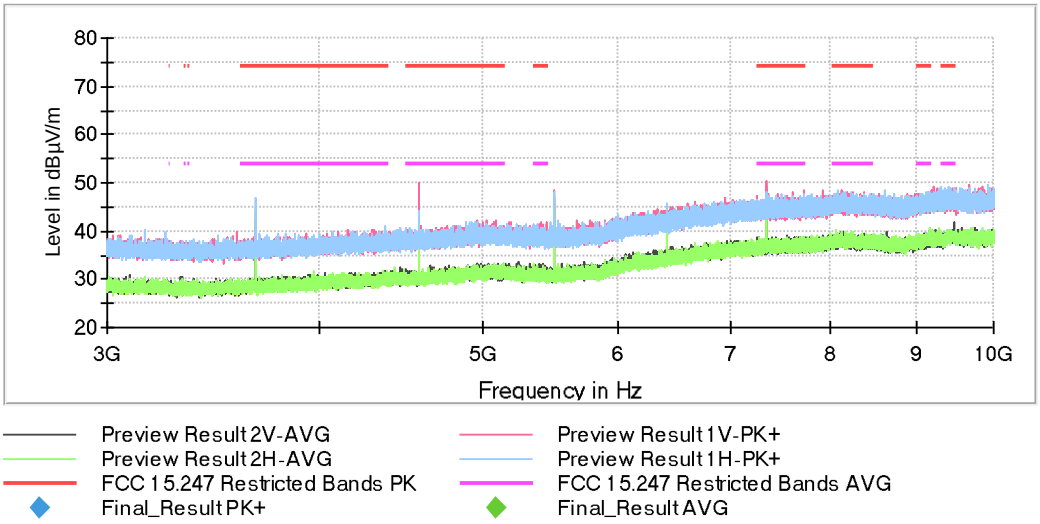
Frequency Range GHz = [3, 10] Measurement Point = 1

Images:



Operation Band MHz = [902, 928] Equipment Type = Other

Frequency MHz = 917.20000 Modulation = 2GFSK

Frequency Range GHz = [3, 10] Measurement Point = 1

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