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:
72082RRF.003

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

(*) Identification of item tested	CENTRAL FLEXA 4
(*) Trademark	AIRZONE
(*) Model and /or type reference	AZCE8CB2MOT (USA)
(*) Derived model not tested	AZCE8CB1MOT (EU)
Other identification of the product	FCC ID: SVS-CB-MOT IC: 24685-CBMOT
(*) Features	HW version: V1.0 SW version: V3.5.0 Features supported: SRD, Bluetooth (See data sheet)
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 1 (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.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez EMC Consumer & RF Lab. Manager Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456)
Date of issue	2023-04-04
Report template No	FDT08_24 (*) "Data provided by the client"

Index

Acronyms

Acronym ID	Acronym Description
# of Tx Chains	Number of Transmission Chains
Detector	Detector used
Equipment	Equipment Type
Freq	Frequency
Freq Rng	Frequency Range
MP	Measurement Point
Mod	Modulation
Pol	Polarization
Port	Active Port
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 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, 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 ≤ ± 5,35 dB with factor (k = 2).

The total uncertainty of the measurement system for the radiated emissions of EUT from 1 GHz to 10 GHz is: Measurement uncertainty ≤ ± 4,32 dB with factor (k = 2).

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" and "Derived model not tested").

2. The sample consists of a CENTRAL FLEXA 4, a configurable electronic board that controls the system through wired and wireless devices. Externally powered at 110/230 Vac. Wall mounted.

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.

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

Control Nº	Description	Model	Serial Nº	Date of reception
72082B/003	CENTRAL FLEXA 4	AZCE8CB2MOT	0ACEUB	24-10-2022

Auxiliary elements used with the Sample S/01:

Control Nº	Description	Model	Serial Nº	Date of reception
72232/008	Communication Cable	-	-	25-10-2022
72082B/004	Power Cord	-	-	24-10-2022

Sample S/01 has undergone the following test(s): The Radiated tests indicated in the Appendix B. The element 72082B/003 is used with a firmware update.

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

Control Nº	Description	Model	Serial Nº	Date of reception
72082B/003	CENTRAL FLEXA 4	AZCE8CB2MOT	0ACEUB	24-10-2022

Auxiliary elements used with the Sample S/02:

Control Nº	Description	Model	Serial Nº	Date of reception
72232/008	Communication Cable	-	-	25-10-2022
72082B/004	Power Cord	-	-	24-10-2022

Sample S/02 has undergone the following test(s): The Conducted tests indicated in the Appendix B. The element 72082B/003 is used with a firmware update.

Test sample description

Ports…… :	Port name and description	Cable				
		Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)	
	1-Airzone connection bus	100	[X]	[X]	[ ]	
	2-Automation bus	100	[X]	[X]	[ ]	
	3-CAN connection bus	100	[ ]	[X]	[ ]	
	4-AC unit bus	2	[ ]	[ ]	[ ]	
	5-Actuator outputs	15	[X]	[ ]	[ ]	
	6-Relay outputs	-	[ ]	[ ]	[ ]	
Supplementary information to the ports…… :	Ports 1, 2, 3, 4 (HBES/BACS network port), Ports 5, 6 (I/O signal port) Complete description of the ports in the file "List of devices and Manual test"					
Rated power supply .....:	Voltage and Frequency		Reference poles			
			L1	L2	L3	N	PE
	[X]	AC: 110 (USA)	[X]	[ ]	[ ]	[X]	[X]
	[ ]	DC:					
Rated Power .....:	2.4 W						
Clock frequencies.....:	.....						
Other parameters.....:	.....						
Software version .....:	V3.5.0						
Hardware version.....:	V1.0						
Dimensions in cm (W x H x D) ....:	195 x 180 x 55,5 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	
	Central Flexa 4		AZCE8CB2MOT		AIRZONE	
Accessories (not part of the test item) .....:	Description		Type		Manufacturer	
	Thermostat		Think		Airzone	
	Gateway		AZX6GTCDA1		Airzone	
	Webserver		AZX6WSC5GE		Airzone	
	Thermostat radio		Lite		Airzone	
Documents as provided by the applicant.....:	Description		File name		Issue date	
	Data sheet		FTAZCE8CB1M		.....	

(3) Only for Medical Equipment

Identification of the client

CORPORACIÓN EMPRESARIAL ALTRA S.L.
C/ MARIE CURIE 21, MÁLAGA (29590), SPAIN

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2022-11-22
Date (finish)	2022-12-23

Document history

Report number	Date	Description
72082RRF.003	2023-02-22	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. = 30 % 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. = 30 % 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. = 30 % Max. = 60 %

Remarks and comments

The tests have been performed by the technical personnel: Daniel Mejías Herrera.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
8130	SEMIANECHOIC ABSORBER LINED CHAMBER	P29419	ALBATROSS	--
8134	SHIELDED ROOM	P29419	ALBATROSS PROJECTS GMBH	--
4848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	--
5862	EMI TEST RECEIVER 9kHz-7GHz	ESR7	ROHDE AND SCHWARZ	2025-02-15
6157	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2025-01-18
7763	HORN ANTENNA 1-18GHz	BBHA 9120D	SCHWARZBECK MESS-ELEKTRONIK	2026-01-16
7769	PREAMPLIFIER 30dB 500MHz-18GHz	BBV 9718 C	SCHWARZBECK	2024-02-15
7826	ULTRALOG ANTENNA 30MHz-6GHz	HL562E_UPG	ROHDE AND SCHWARZ	2026-01-13

Testing verdicts

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

Summary

SRD 915 MHz

FCC PART 15 PARAGRAPH/ RSS-210			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.249 (a) / RSS-210 B.10 (a)	Field strength of fundamental and harmonic emissions	P	
FCC 15.249 (d) / RSS-210 B.10 (b)	Emissions radiated outside of the specific frequency bands	P	
Supplementary information and remarks: None			

Appendix A: Test results. SRD 915 MHz

INDEX

TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal:	115 Vac
Type of Power Supply:	AC Mains Supply

ANTENNA (*):

Type of Antenna:	Monopole SMA
Maximum Declared Antenna Gain:	-1.3 dBi

TEST FREQUENCIES (*):

Low Channel:	915.2 MHz
High Channel:	917.2 MHz

CONDUCTED MEASUREMENTS:

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

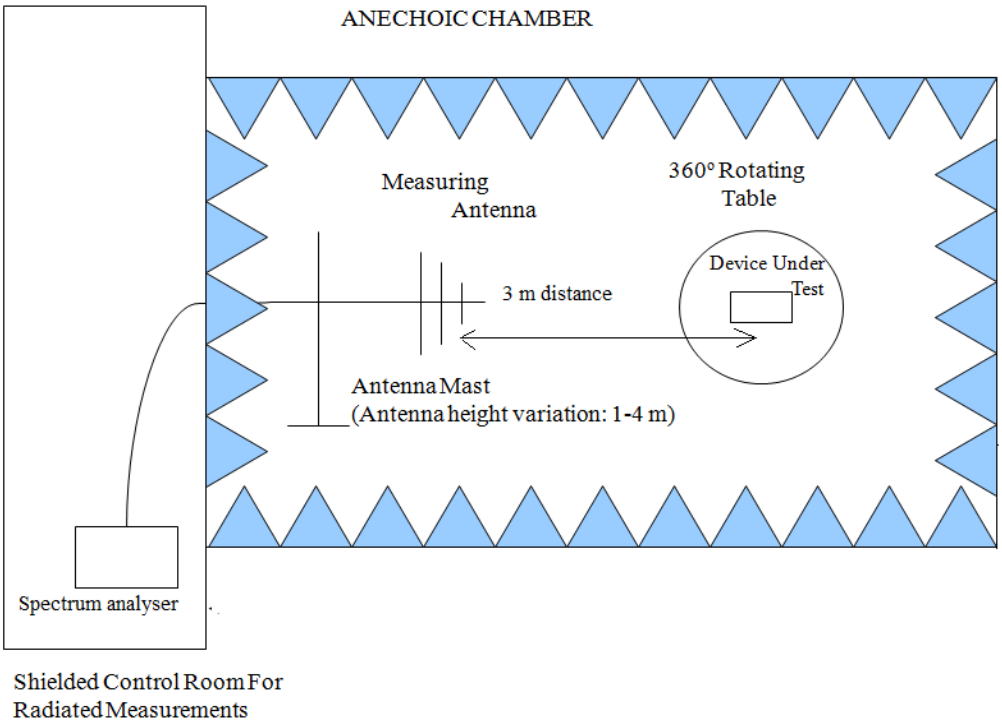
RADIATED MEASUREMENTS:

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-10 GHz Double ridge horn antenna) is situated at a distance of 3 m.

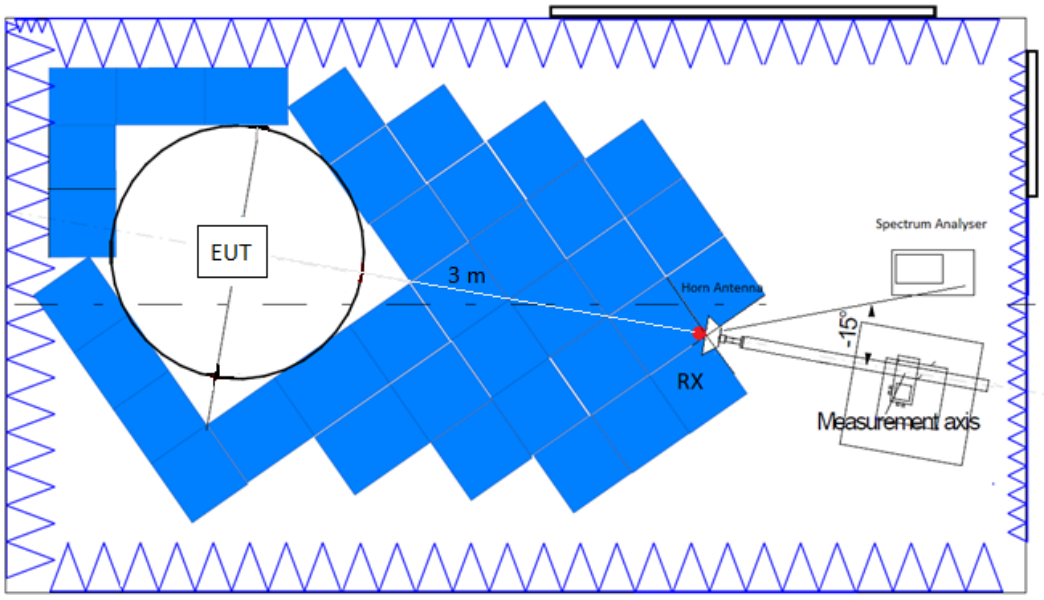
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find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



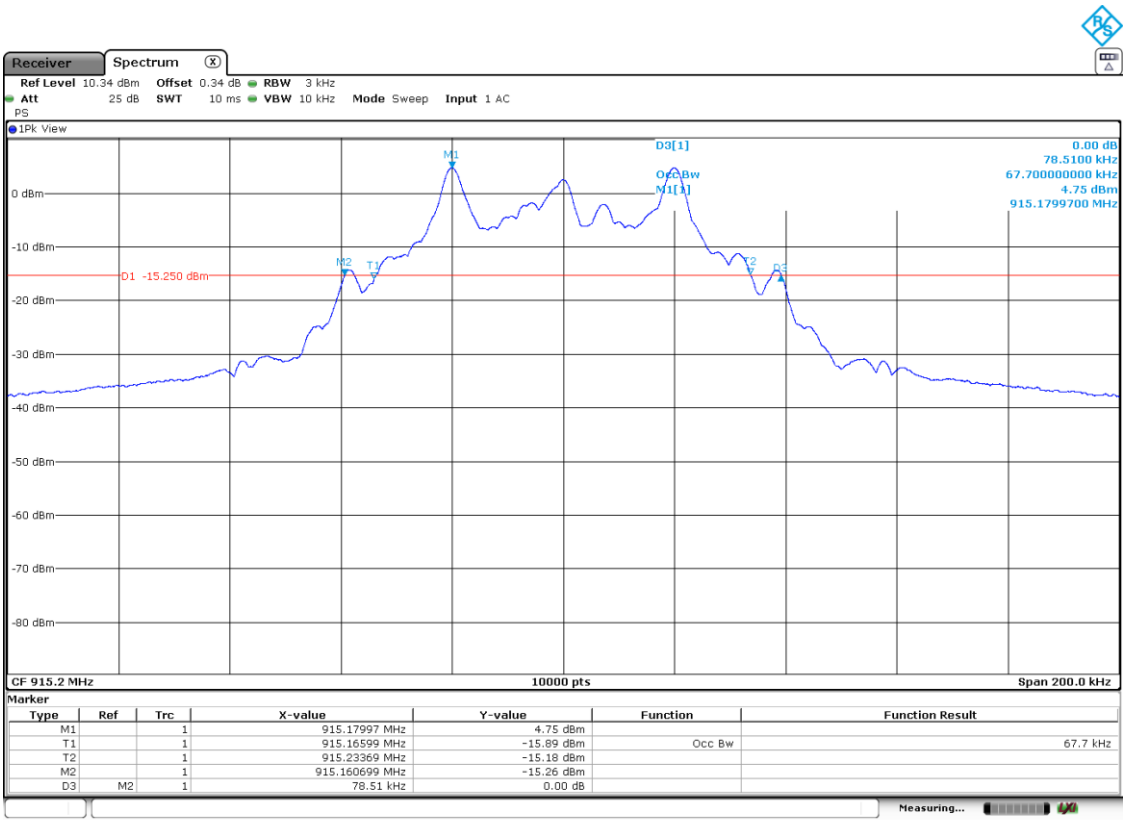
TEST CASES DETAILS

Occupied Bandwidth

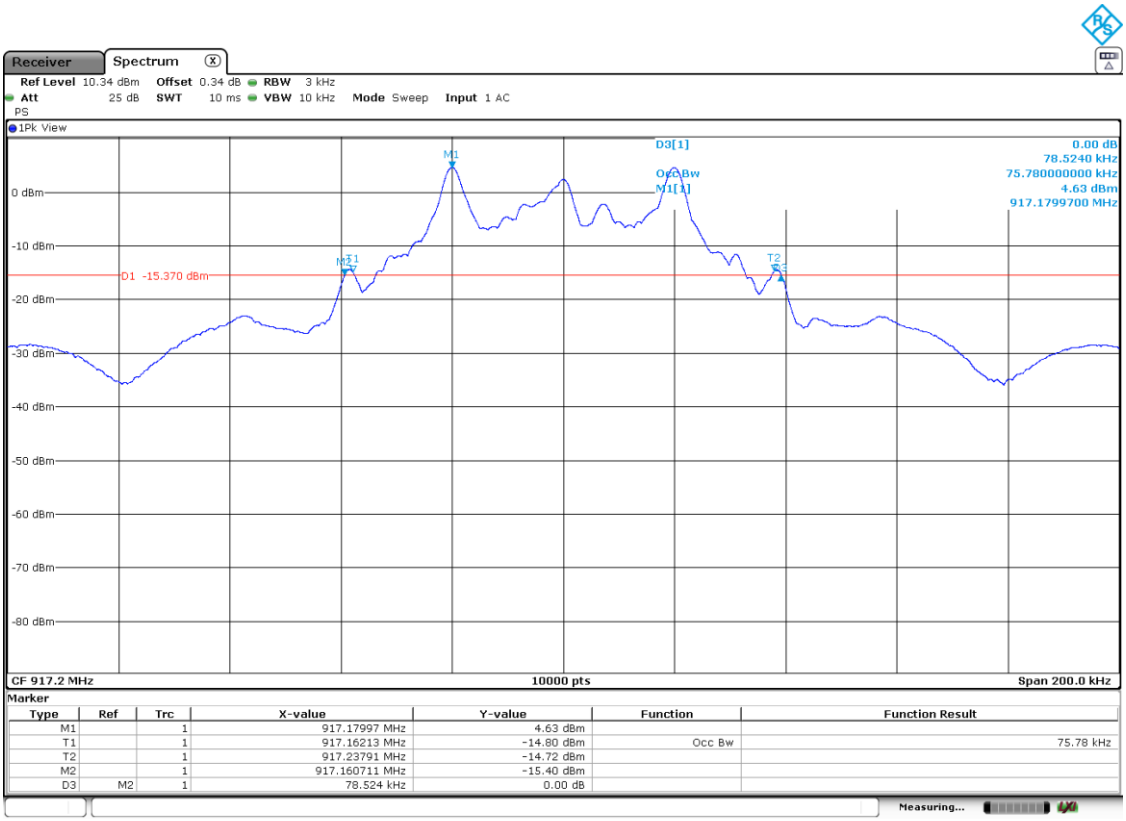
RESULTS:

	Low Channel 915.2 MHz	High Channel 917.2 MHz
99% Bandwidth (kHz)	67.70	75.78
Measurement Uncertainty (kHz)	<± 0.36	

- Low Channel:



- High Channel:



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

SPECIFICATION:

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

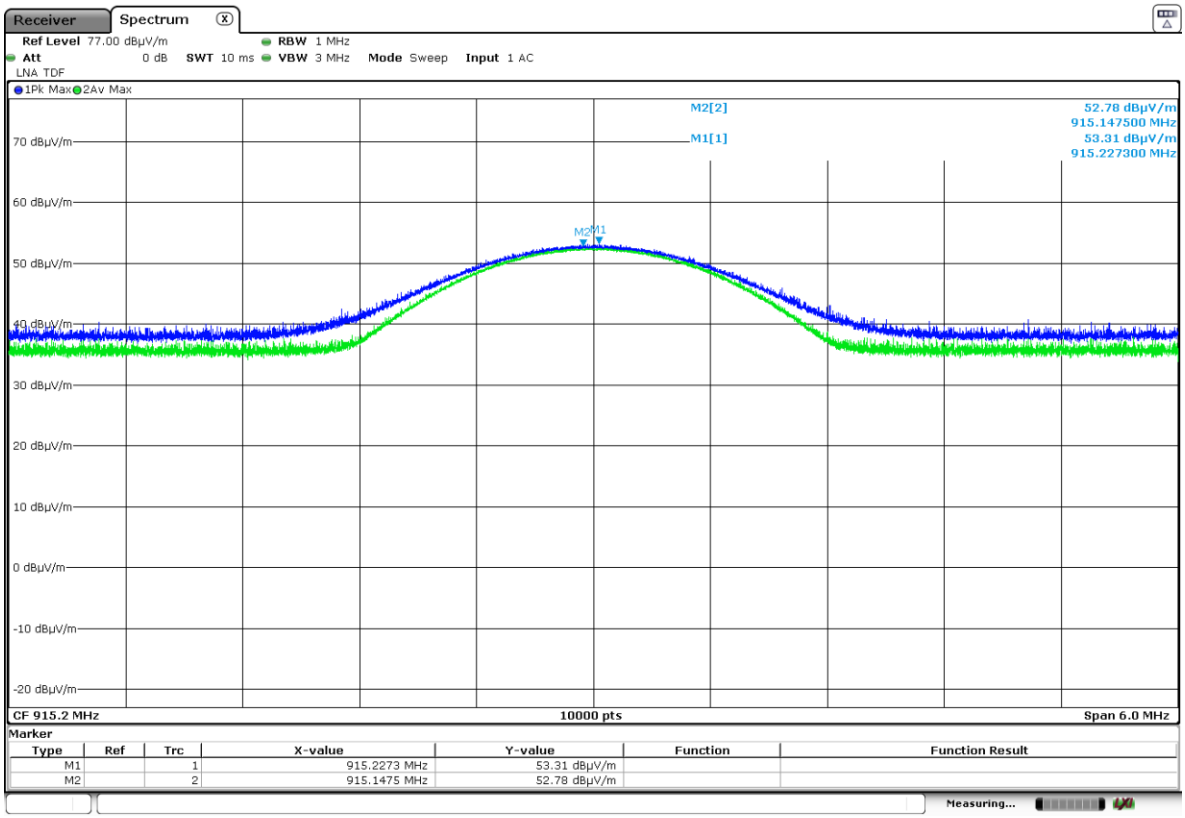
For frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

RESULTS:

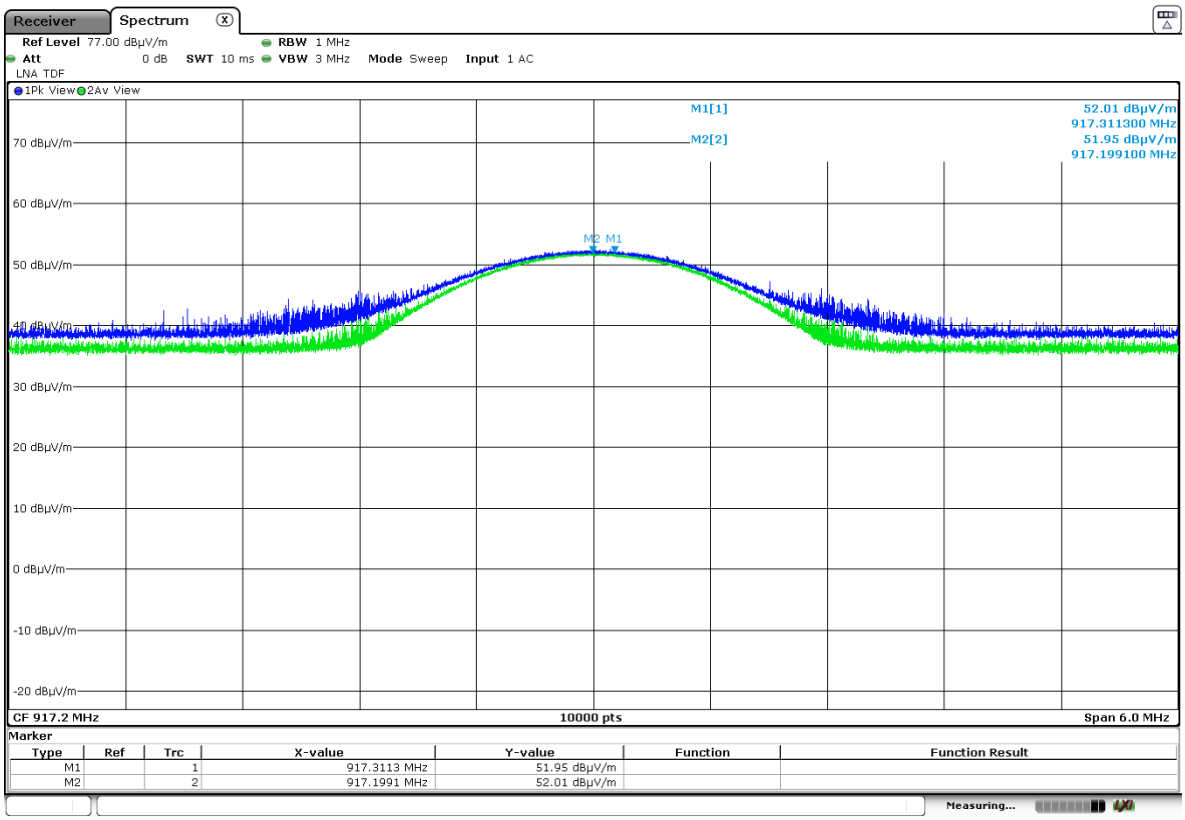
	Low Channel 915.2 MHz	High Channel 917.2 MHz
Average Field Strength (dBµV/m)	52.78	51.95
Peak Field Strength (dBµV/m)	53.31	52.01
Measurement Uncertainty (dB)	<±4.01	

Verdict: PASS

- Low Channel:



- High Channel:



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

SPECIFICATION:

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.

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-10 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.

Frequency range 30 MHz - 1 GHz:

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

- LOW CHANNEL:

Spurious Frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
288.2555	26.55	H	Quasi Peak
334.6770	29.85	V	Quasi Peak
371.1490	24.59	V	Quasi Peak

- HIGH CHANNEL:

Spurious Frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
288.0685	26.40	H	Quasi Peak
334.6285	28.34	V	Quasi Peak
363.7770	25.37	V	Quasi Peak

Measurement Uncertainty (dB) <± 5.03

Frequency range 1 - 10 GHz:

Spurious signals with peak levels above the average limit (54 dBµV/m at 3 m) are measured with average detector for checking compliance with the average limit.

Duty Cycle correction: +0.59 dB

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

- LOW CHANNEL:

Spurious Frequency (MHz)	Emission Level (dBµV/m)	Emission Level corrected (dBµV/m)	Polarization	Detector
1829.80	40.91	--	V	Peak
3660.50	49.58	--	H	Peak
4575.75	53.07	--	V	Peak
7321.50	53.16	--	H	Peak
9152.00	54.34	--	H	Peak
	48.57	49.16		Average

- HIGH CHANNEL:

Spurious Frequency (MHz)	Emission Level (dBµV/m)	Emission Level corrected (dBµV/m)	Polarization	Detector
1834.00	42.16	--	V	Peak
3668.00	48.65	--	H	Peak
4585.90	54.45	--	H	Peak
	53.32	53.91		Average
7337.50	53.11	--	H	Peak
9172.00	54.43	--	H	Peak
	47.42	48.01		Average

Measurement Uncertainty (dB) <± 4.32

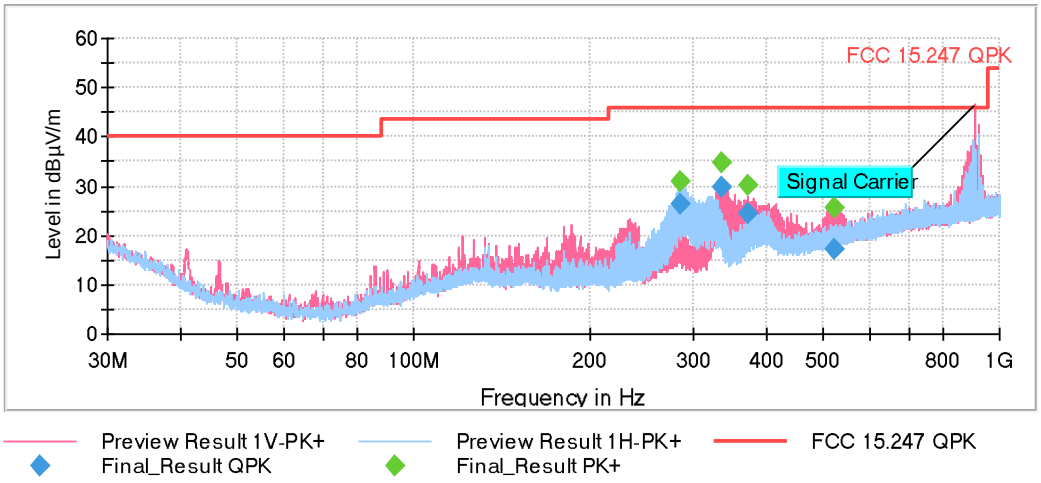
Verdict: PASS

The setting for each range of frequency is indicated in the following tables:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48,5 kHz	PK+	100 kHz	1 s	20 dB
1 GHz - 10 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

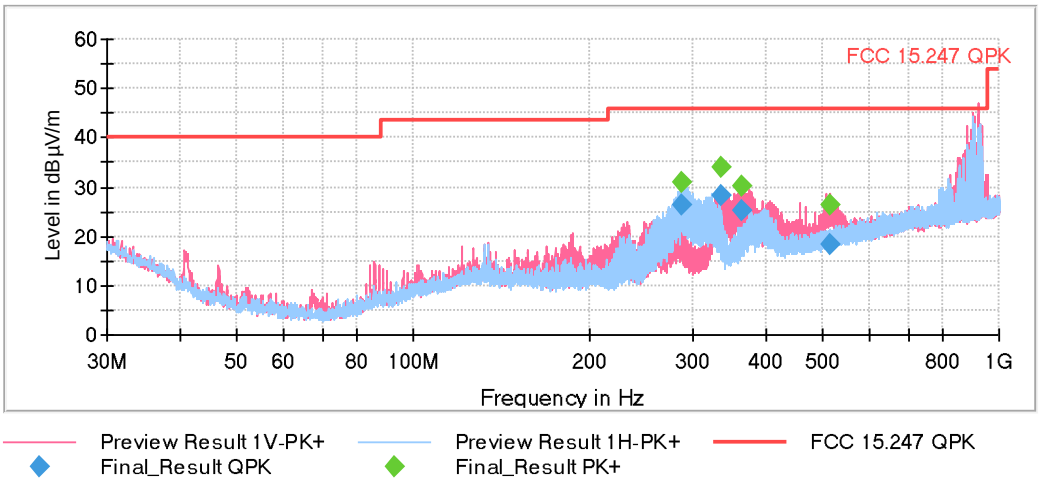
FREQUENCY RANGE 30 MHz - 1 GHz:

- Low Channel:



The peak above the limit is the carrier frequency.

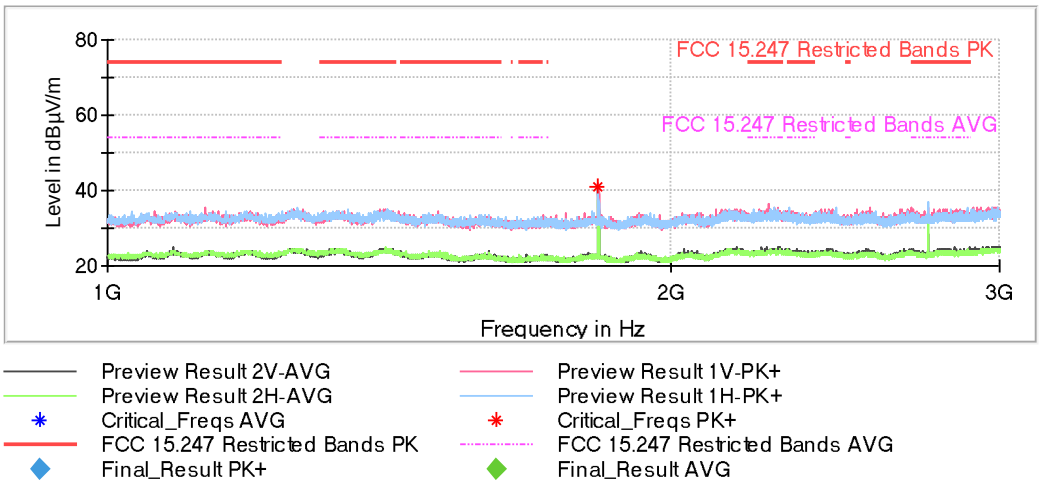
- High Channel:



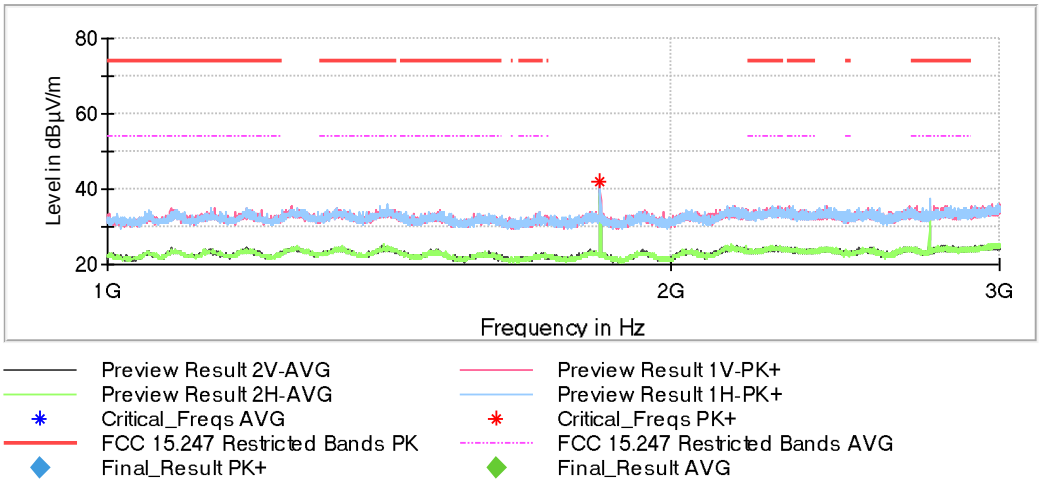
The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 - 3 GHz:

- Low Channel:

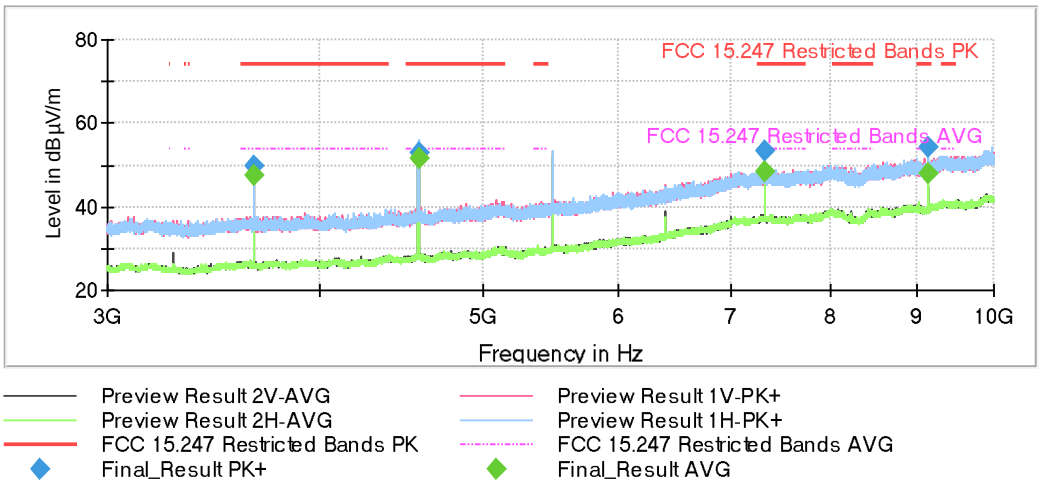


- High Channel:



FREQUENCY RANGE 3 - 10 GHz:

- Low Channel:



- High Channel: