



ISED LISTED
 REGISTRATION NUMBER
 4621A-4

Test report No:
 NIE: 58817RRF.001

Test report

USA FCC Part 15.209

CANADA RSS-Gen Issue 5

Identification of item tested	Wireless MTU programmer
Trademark	ACLARA
Model and /or type reference	109-6900
Other identification of the product	FCC ID: LLB-1096900 IC: 4546A-1096900
Features	Bluetooth, inductive coil RF comm 71 kHz
Applicant	ACLARA TECHNOLOGIES LLC 77 Westport Plaza Drive Suite 500, St. Louis, 63146, MO, USA
Test method requested, standard	USA FCC Part 15.209 (10-1-17 Edition): Radiated emission limits, general requirements. CANADA RSS-Gen Issue 5 (April 2018). 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)	A. Llamas RF Lab. Manager
Date of issue	2019-01-30
Report template No	FDT08_21

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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 include testing performed in this test report.

DEKRA Testing and Certification is a laboratory with a measurement site in compliance with the requirements of RSS 212, Issue 1 (Provisional) and has been added to the list of filed sites of the Canadian Certification and Engineering Bureau. Reference File Number: ISED 4621A-4.

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.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification.
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 sample consists of a Wireless MTU programmer.

DEKRA 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
58817B/01	Wireless MTU programmer	109-6900	--	2018/10/26
58817B/05	AC/DC Adapter	TY0500100A1mn	--	2018/10/26
58817B/06	USB Cable	CCP-mUSB2-AMBM-1M	--	2018/10/26

1. Sample S/01 has undergone the following test(s):

All radiated tests indicated in Appendix A.

Sample S/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
58817B/02	Wireless MTU programmer	109-6900	--	2018/10/26

2. Sample S/02 has undergone the following test(s):

The Occupied bandwidth test indicated in Appendix A.

Test sample description

Ports..... :	Port name and description	Cable				
		Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾	
	USB wire	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Supplementary information to the ports..... :						
Rated power supply..... :	Voltage and Frequency		Reference poles			
			L1	L2	L3	N
	<input checked="" type="checkbox"/>	AC: 120V 60Hz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	DC: 3.7V (battery)					

Rated Power..... :	0.15 W		
Clock frequencies..... :	16 MHz		
Other parameters..... :			
Software version..... :			
Hardware version..... :	v2		
Dimensions in cm (W x H x D) ... :	4.5 x 4.5 x 5.2		
Mounting position..... :	<input checked="" type="checkbox"/>	Other: In contact with other product	
Modules/parts..... :	Module/parts of test item	Type	Manufacturer
	Programmer	Electronic equipment	Bizintek Innova S.L.
	Wall charger with US plug	Charger	Toye Technology China Limited
	USB wire	Wire	Cablexpert
Accessories (not part of the test item)..... :	Description	Type	Manufacturer
Documents as provided by the applicant..... :	Description	File name	Issue date
	User manual	ACL_PRO_User Manual.pdf	10/2018
	Bluetooth module's datasheet with FCC certificate	mbn52832.pdf	10/2017
	Coil plane	045-6703_045-6703.pdf	01/2014
	Wall charger's datasheet	TY4002-5W	09/2018
	USB wire datasheet	XX0498_drawing	06/2016

⁽³⁾ Only for Medical Equipment

Identification of the client

BIZINTEK INNOVA S.L.
 Nemesio Mogrobejo 9ª, 48015, Bilbao, SPAIN

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2018-10-29
Date (finish)	2018-10-31

Document history

Report number	Date	Description
58817RRF.001	2019-01-30	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 %
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω

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 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω
Normal site attenuation (NSA)	< ±4 dB at 10 m distance between item under test and receiver antenna, (30 MHz to 1000 MHz)
Field homogeneity	More than 75% of illuminated surface is between 0 and 6 dB (26 MHz to 1000 MHz).

Remarks and comments

The tests have been performed by the technical personnel: Jaime Amador, José Gabriel Pendón, Carlos Alberto Contreras.

Used instrumentation:

	Last Cal. date	Cal. due date
1. Semianechoic Absorber Lined Chamber ETS LINDGREN FACT 3 200 STP	N.A.	N.A.
2. Active Loop Antenna Hewlett Packard 11966A	2018/06	2020/06
3. EMI Test Receiver Rohde & Schwarz ESR7	2017/08	2019/08
4. Spectrum Analyzer PSA 3Hz-26.5 GHz Agilent Technologies E4440A	2017/10	2019/10

Testing verdicts

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

Summary

FCC PART 15 / RSS-Gen PARAGRAPH		
Requirement – Test case	Verdict	Remark
15.209 Subclause (a) / RSS-Gen Clause 8.9. Transmitter emission limits	P	
<u>Supplementary information and remarks:</u>		
None.		

Appendix A: Test results

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TEST CONDITIONS

Power supply (V):

Vnominal AC: 120 Vac

Type of power supply AC: Wall charger with US plug (AC/DC adapter).

Vnominal DC: 3.7 Vdc

Type of power supply DC: Battery charged by USB cable.

Type of antenna: RF Coil.

Test Frequencies:

Nominal Operating Frequency: 71 kHz

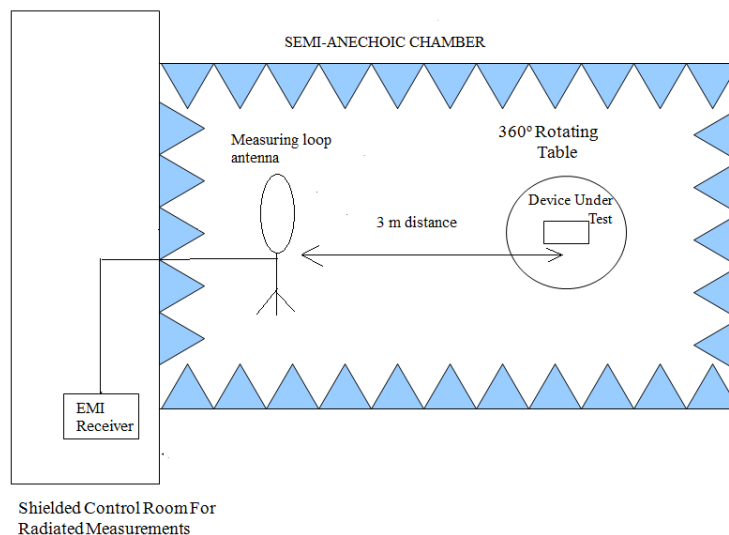
RADIATED MEASUREMENTS

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

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.

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.



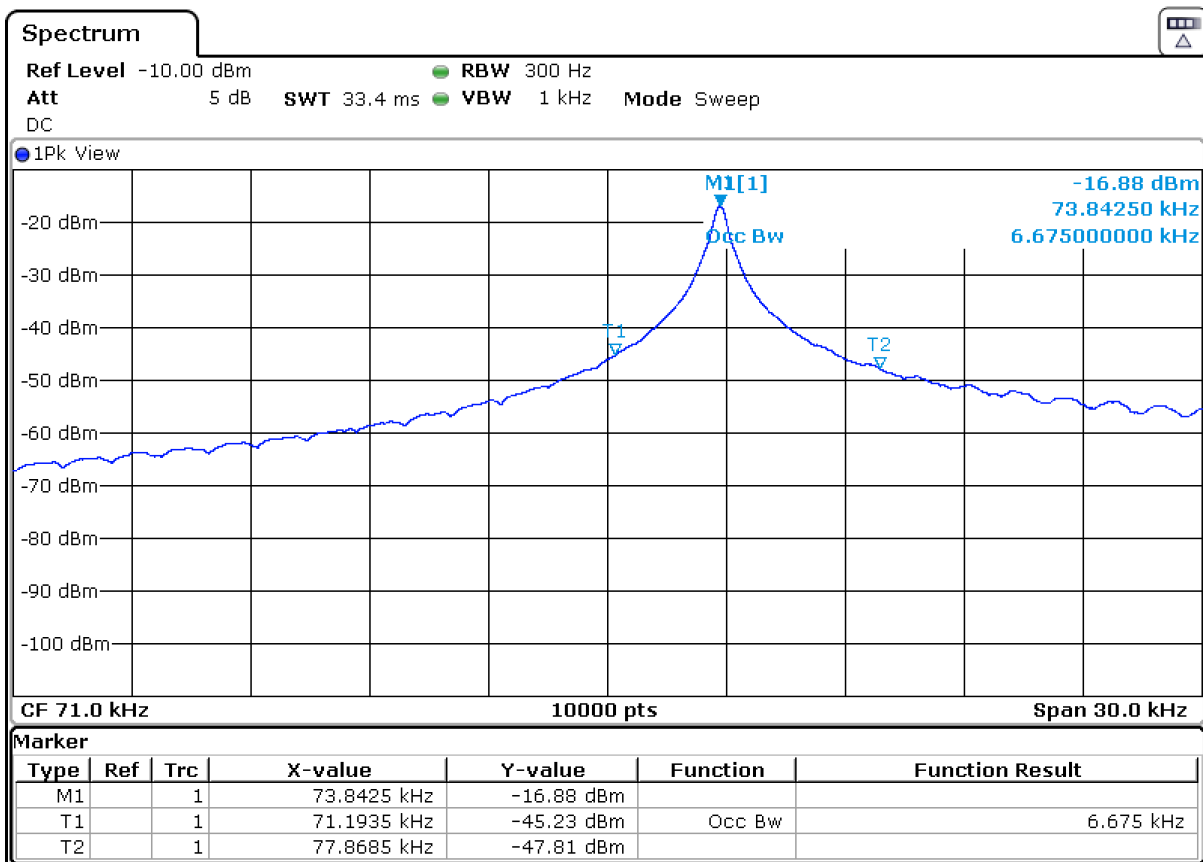
The test was performed with the equipment transmitting first with only the 71 kHz radio and repeated with the 2.4 GHz BT LE radio transmitting simultaneously to check the impact of the co-location of the other radio interface. The results and plots below show the worst results obtained.

Occupied Bandwidth

RESULTS

(See next plots).

99% bandwidth (kHz)	6.675
Measurement uncertainty (kHz)	<±0.02



Section 15.209 Subclause (a) / RSS-Gen Clause 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.

The spectrum was inspected from 9 kHz to 30 MHz searching for spurious signals.

The test was performed with the equipment transmitting first with only the 71 kHz radio and repeated with the 2.4 GHz BT LE radio transmitting simultaneously to check the impact of the co-location of the other radio interface. The results and plots below show the worst results obtained.

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.

Frequency range 9 kHz-30 MHz

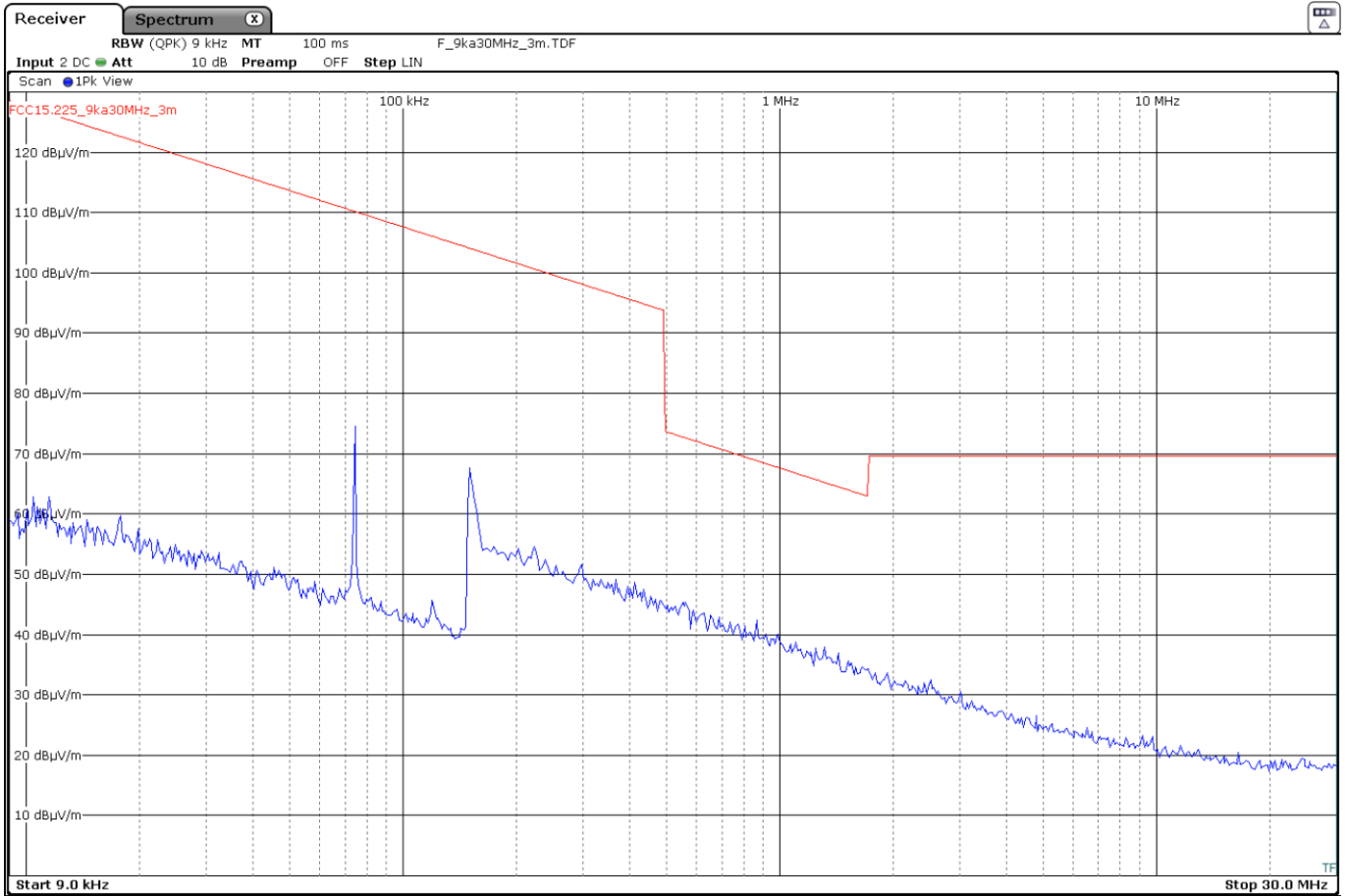
The maximum field strength of fundamental emission:

Frequency (kHz)	Maximum field strength ($\text{dB}\mu\text{V/m}$) measured at 3 m (average detector)	Maximum field strength ($\text{dB}\mu\text{V/m}$) extrapolated to 300 m (40 dB/decade)	Maximum field strength ($\mu\text{V/m}$) extrapolated to 300 m (40 dB/decade)	Limit ($\mu\text{V/m}$)
71.20	72.50	-7.50	0.42	32.34
Measurement uncertainty (dB)	± 3.61			

No spurious peaks found at less than 20 dB respect to the limit.

Verdict: PASS

FREQUENCY RANGE 9 kHz-30 MHz



Resolution bandwidth:
200 Hz for $9 \text{ kHz} \leq f \leq 150 \text{ kHz}$
9 kHz for $150 \text{ kHz} \leq f \leq 30 \text{ MHz}$

Note: The scan is performed with a peak detector.
The limits shown in the above plot are extrapolated to 3 meters.