



Test report No:
NIE: 64657RRF.001

Test Report

USA FCC Part 15.231, 15.209
CANADA RSS-Gen, RSS-210

(*) Identification of item tested	Transmitter
(*) Trademark	JCM TECHNOLOGIES, S.A.
(*) Model and /or type reference	Tested model: GPRMNHIDIC Derived models not tested: GPRMNHIDIC-CAM
Other identification of the product	HW version: 2000821 (S-GO2M-RFP FCC-EL) SW version: GONOAPS_RFPIC_03090000 FCC ID: U5Z-GOMINI IC: 8572A-GOMINI
(*) Features	868 MHz radio transmitter
Applicant	JCM TECHNOLOGIES, S.A. C/Costa d'en Paratge, 6B, 08500, Vic, Barcelona (Spain)
Test method requested, standard	USA FCC Part 15.231 (10-1-19 Edition): Periodic operation in the band 40.66-40.70 MHz and above 70 MHz. USA FCC Part 15.209 (10-1-19 Edition): Radiated emission limits, general requirements. CANADA RSS-Gen Issue 5 (April 2018). General Requirements for Compliance of Radio Apparatus. CANADA RSS-210 Issue 10 (December 2019). Licence-Exempt Radio Apparatus: Category I Equipment. ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Carlos Luque RF Lab. Supervisor 74841983Y JOSE CARLOS LUQUE (C:A29507456) 6) Firmado digitalmente por 74841983Y JOSE CARLOS LUQUE (C:A29507456) Fecha: 2020.07.23 08:12:46 +02'00'
Date of issue	2020-07-23
Report template No	FDT08_22 (*) "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 is an ISED-recognized accredited testing laboratory with appropriate scope of accreditation that include testing performed in this test report.

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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.

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 GPRMNHIDIC is a 868 MHz radio transmitters with high security rolling code and side-prog system.
3. Derived models not tested:

These models have been declared by the supplier as equivalent ones:



Date: 22/07/2020
Contact Person: David Clos Bonet

JCM Technologies, S.A.
C/ Costa d'en Paratge, 6B
08500 VIC (SPAIN)
Tel. +34 93 883 32 31
www.jcm-tech.com

Statement from the applicant – Declaration:

Model name:

GPRMNHIDIC and GPRMNHIDIC-CAM

Models that are used in for applied standard test:

To whom it may concern,

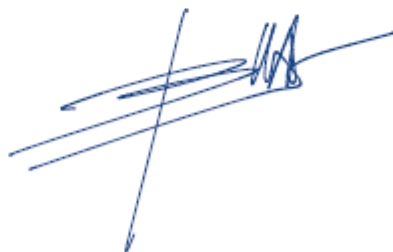
This statement letter is to declare following products

GPRMNHIDIC and GPRMNHIDIC-CAM

These Model names and part numbers should be listed in test reports

These products have same electronics part, but below features are different between models:

Only change the customer logo and the product reference



Jordi Beringues Algué

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 Nº	Description	Model	Serial Nº	Date of reception
64657D/014	Transmitter	GPRMNHIDIC	--	2020/06/19

Sample S/01 has undergone the test(s): All Conducted tests indicated in Appendix A except Section 15.231 Subclause (a) (1) / RSS-210 A.1.1.: Transmitter deactivation.

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

Control Nº	Description	Model	Serial Nº	Date of reception
64657D/016	Transmitter	GPRMNHIDIC	--	2020/06/19

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

- Sample S/03 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
64657D/015	Transmitter	GPRMNHIDIC	--	2020/06/19

Sample S/03 has undergone the test(s): Section 15.231 Subclause (a) (1) / RSS-210 A.1.1.: Transmitter deactivation.

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:	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 3 V					
	DC:						
Rated Power	36mW						
Clock frequencies.....	26MHz						

Other parameters	---		
Software version	GONOAPS_RFPIK_03090000		
Hardware version	2000821 (S-GO2M-RFP FCC-EL)		
Dimensions in cm (W x H x D)	32 x 50 x 9 mm		
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
Accessories (not part of the test item)	Description	Type	Manufacturer
Documents as provided by the applicant	Description	File name	Issue date
	UM_1246057_Rev00 (User's manual)		18/06/2020
	Descripción Técnica emisores GO-PROMNHID-CAD		18/06/2020

⁽³⁾ Only for Medical Equipment

Identification of the client

JCM TECHNOLOGIES, S.A.
C/Costa d'en Paratge, 6B, 08500, Vic, Barcelona

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2020-06-26
Date (finish)	2020-07-03

Document history

Report number	Date	Description
64657RRF.001	2020-07-23	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 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

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

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. = 35 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: José Gabriel Pendón and Miguel Ángel Torres.

Used instrumentation:

Conducted Measurements:

	Last Calibration	Due Calibration
1. Shielded Room ETS LINDGREN S101	N.A.	N.A.
2. Signal and Spectrum Analyzer 10 Hz - 40 GHz ROHDE AND SCHWARZ FSV40	2019/09	2021/09

Radiated Measurements:

	Last Calibration	Due Calibration
1. Semianechoic Absorber Lined Chamber ETS LINDGREN FACT 3 200 STP	N.A.	N.A.
2. Shielded Room ETS LINDGREN S101	N.A.	N.A.
3. Biconical/Log Antenna 30 MHz - 6 GHz ETS LINDGREN 3142E	2020/04	2023/04
4. Pre-Amplifier G>40dB 10MHz-6GHz, BONN ELEKTRONIK, BLNA 0160-01N	2020/02	2021/02
5. EMI Test Receiver 7 GHz ROHDE AND SCHWARZ ESR7	2019/10	2021/10
6. Attenuator 3dB, 2W, DC-18GHz, TECHNIWAVE TWTS2G	2020/01	2021/01
7. Horn Antenna 1-18 GHz SCHWARZBECK MESS-ELEKTRONIK BBHA 9120 D	2019/11	2022/11
8. RF Pre-amplifier, 40 dB ,1-18 GHz BONN ELEKTRONIK BLMA 0118-1M	2020/05	2021/05
9. Signal and Spectrum Analyzer 10 Hz - 40 GHz ROHDE AND SCHWARZ FSV40	2019/09	2021/09
10. High Pass Filter 1.1 - 8 GHz, WAINWRIGHT INSTRUMENTS WHK10-990-1100-8000- 40SS	2019/06	2021/06
11. High Pass Filter 3 - 18 GHz TEMSTRON / TEMWELL ST-3GA2833-HS	2019/10	2020/10

Testing verdicts

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

Summary

1. SRD 868.32 MHz.

FCC 15.231, 15.209 / RSS-Gen, RSS-210 PARAGRAPH		
Requirement – Test case	Verdict	Remark
Occupied Bandwidth	P	
FCC 15.231 (a)(1) / RSS-210 A.1.1. Transmitter deactivation	P	
FCC 15.231 (c) / RSS-210 A.1.3. Bandwidth	P	
FCC 15.231 (b), 15.209 (a) / RSS-Gen 8.9., RSS-210 A.1.2. Field strength and Emission limitations radiated (Transmitter)	P	
<u>Supplementary information and remarks:</u>		
None.		

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(Transmitter)17

TEST CONDITIONS

POWER SUPPLY (V):

Vnominal: 3.7 Vdc
Type of Power Supply: Battery.

ANTENNA:

Type of Antenna: Integral.

TEST FREQUENCIES:

Nominal Operating Frequency: 868.32 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

The equipment under test was scanned for spurious emissions in the frequency range 30 to 10000 MHz.

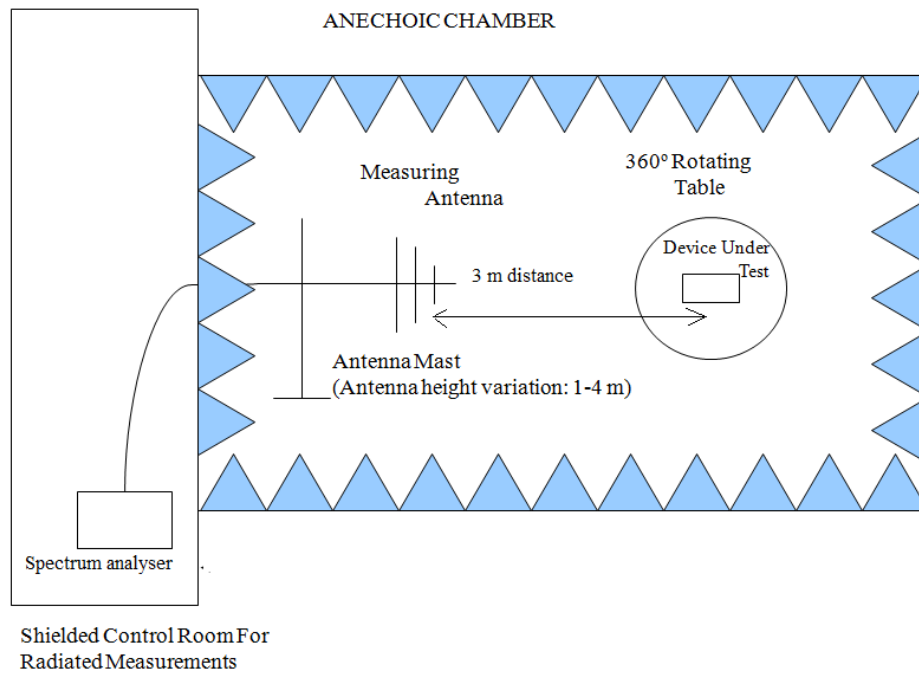
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30 MHz-1000 MHz (30 MHz-1000 MHz Bilog antenna) and at a distance of 3m for the frequency range 1 GHz-10 GHz (1 GHz-18 GHz Double ridge horn antenna).

For radiated emissions in the range 1 GHz-10 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 sample is prepared so that transmits continuously when the batteries are connected.

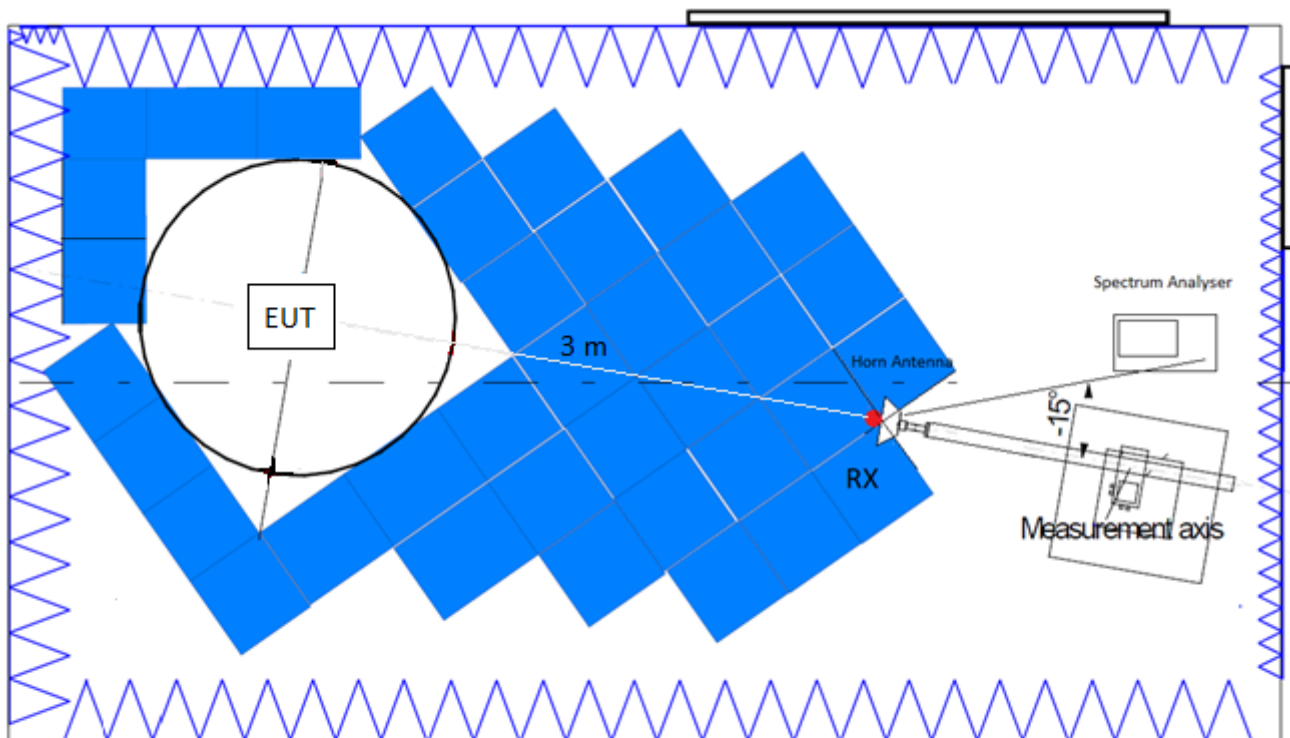
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

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

Radiated measurements setup $f < 1$ GHz:



Radiated measurements setup $f > 1$ GHz:



Occupied Bandwidth

SPECIFICATION:

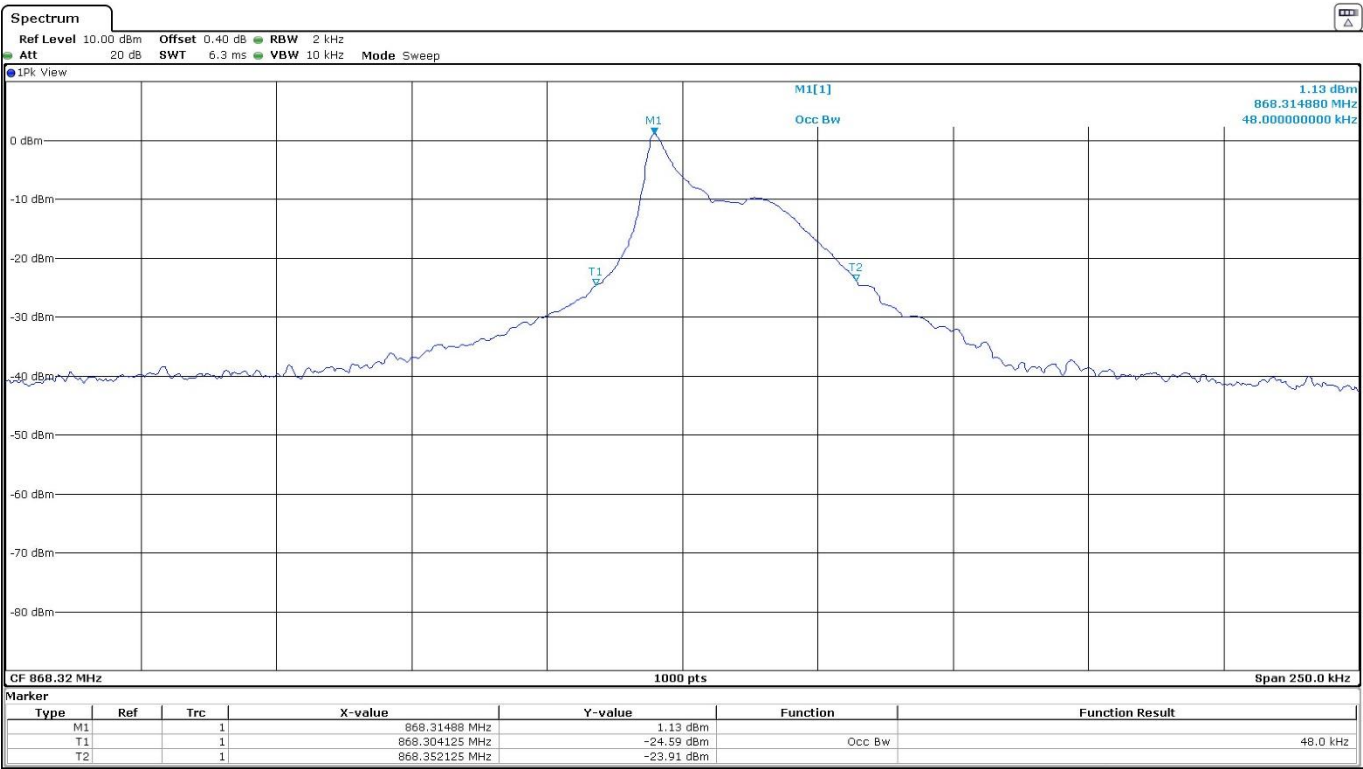
RSS-210 A.1.3.: The 99% bandwidth shall be no wider than 0.25% of the centre frequency for devices operating between 70 MHz and 900 MHz.

RESULTS:

Nominal Centre Frequency = 868.32 MHz

Limit of Spectrum Bandwidth = 0.25 % x Nominal Centre Frequency = 2170.80 kHz

Measured 99% Bandwidth (kHz)	48
Measurement uncertainty (kHz)	<± 0.38



Verdict: Pass

FCC 15.231 (a)(1) / RSS-210 A.1.1. Transmitter deactivation

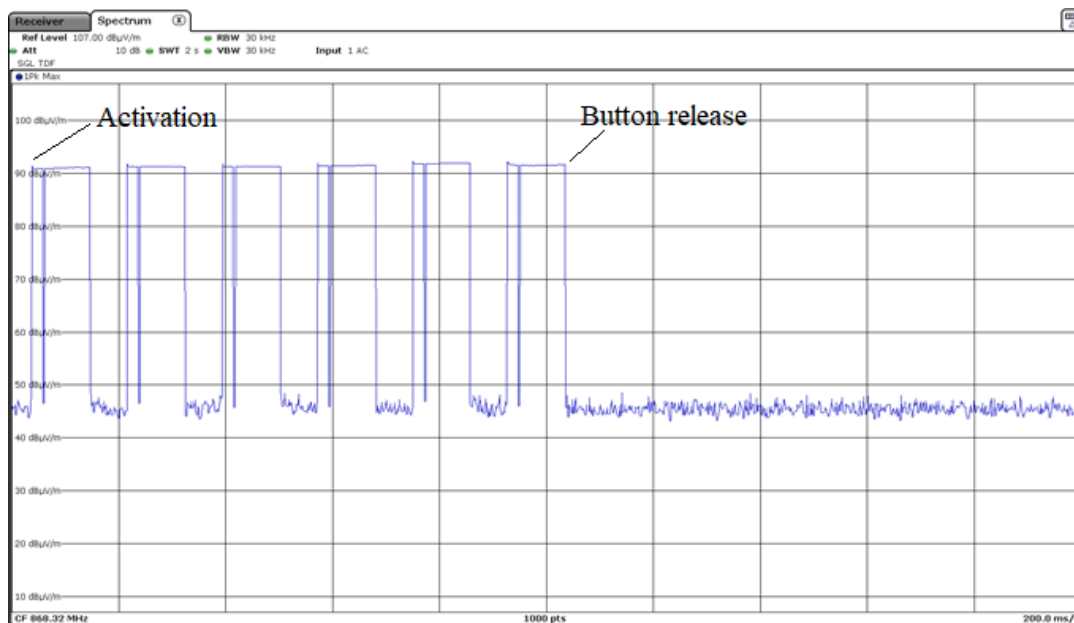
SPECIFICATION:

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

RESULTS:

The equipment can only operate in manual mode.

The transmission is activated by pressing a button and ceases after releasing it in less than 5 seconds.



Verdict: Pass

FCC 15.231 (c) / RSS-210 A.1.3. Bandwidth

SPECIFICATION:

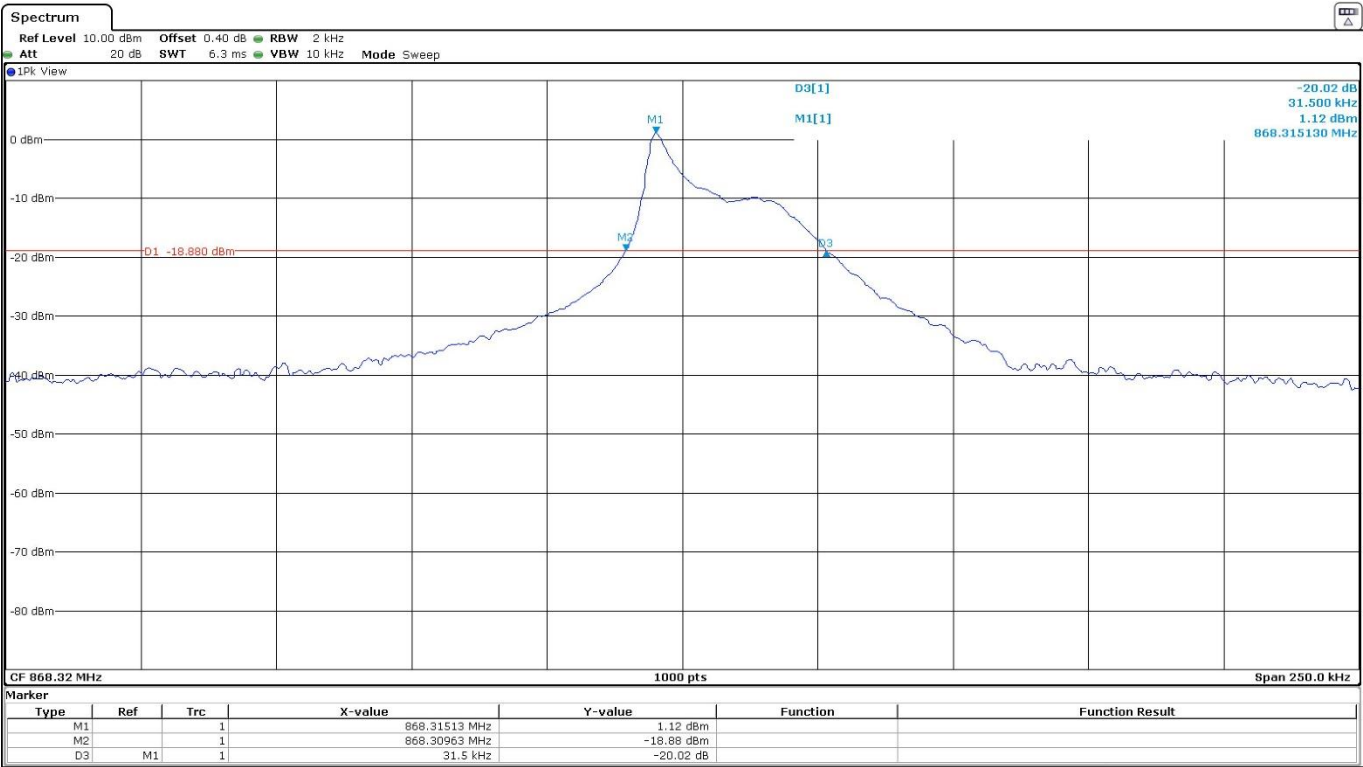
FCC 15.231: The bandwidth of the emission shall be no wider than 0.25 % of the centre frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

RESULTS:

Nominal Centre Frequency = 868.32 MHz

Limit of Spectrum Bandwidth = 0.25 % x Nominal Centre Frequency = 2170.80 kHz

Measured 20 dB Bandwidth (kHz)	31.5
Measurement uncertainty (kHz)	<± 0.38



Verdict: Pass

FCC 15.231 (b), 15.209 (a) / RSS-Gen 8.9., RSS-210 A.1.2. Field strength and Emission limitations radiated (Transmitter)

SPECIFICATION:

The field strength of emissions from intentional radiators shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental ($\mu\text{V/m}$)	Field strength of spurious emissions ($\mu\text{V/m}$)
40.66 – 40.70	2,250	225
70 – 130	1,250	125
130 - 174	1,250 to 3,750 **	125 to 375 **
174 - 260	3,750	375
260 - 470	3,750 to 12,500 **	375 to 1,250 **
Above 470	12,500	1,250

** : Linear Interpolations: The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

Spurious emissions shall be attenuated to the limits shown in the above table or to the general limits shown in Section 15.209 / RSS-Gen, whichever limit permits a higher field strength.

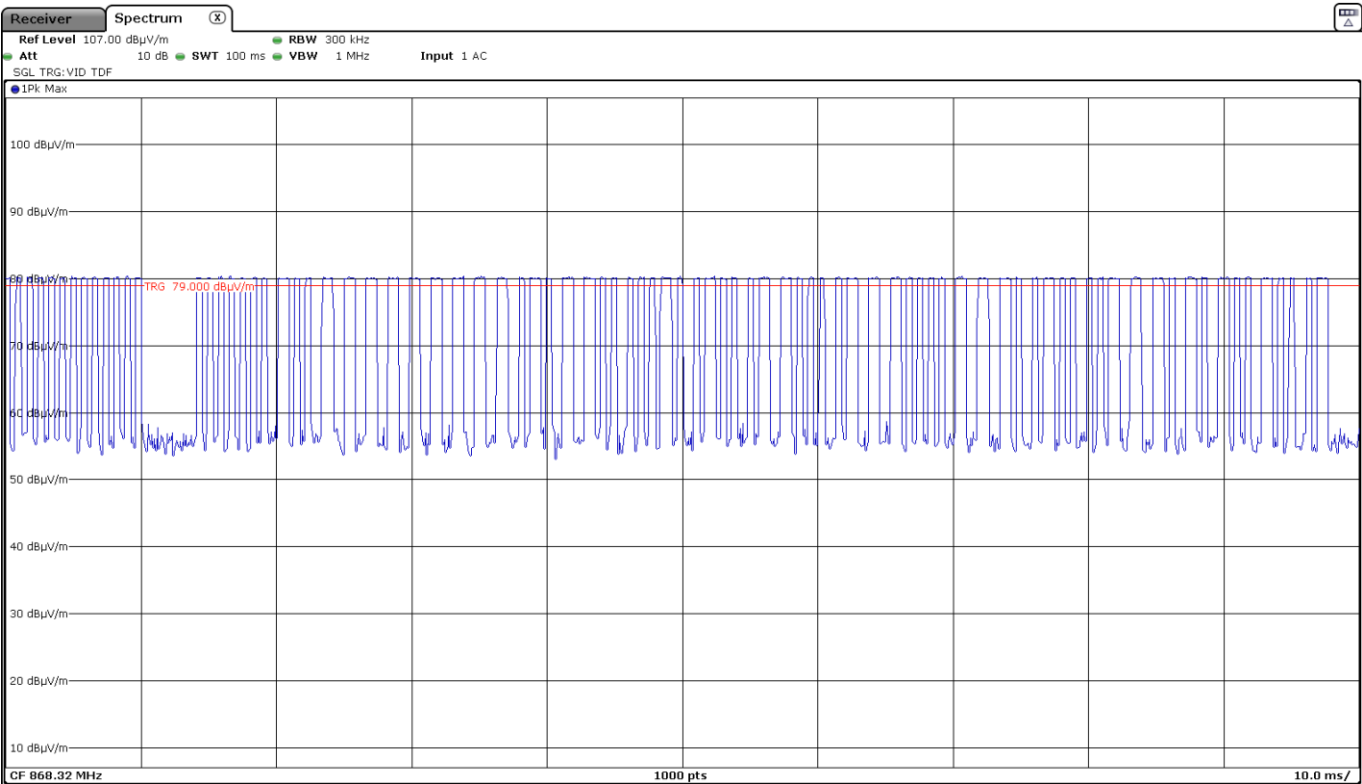
For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RESULTS:

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.

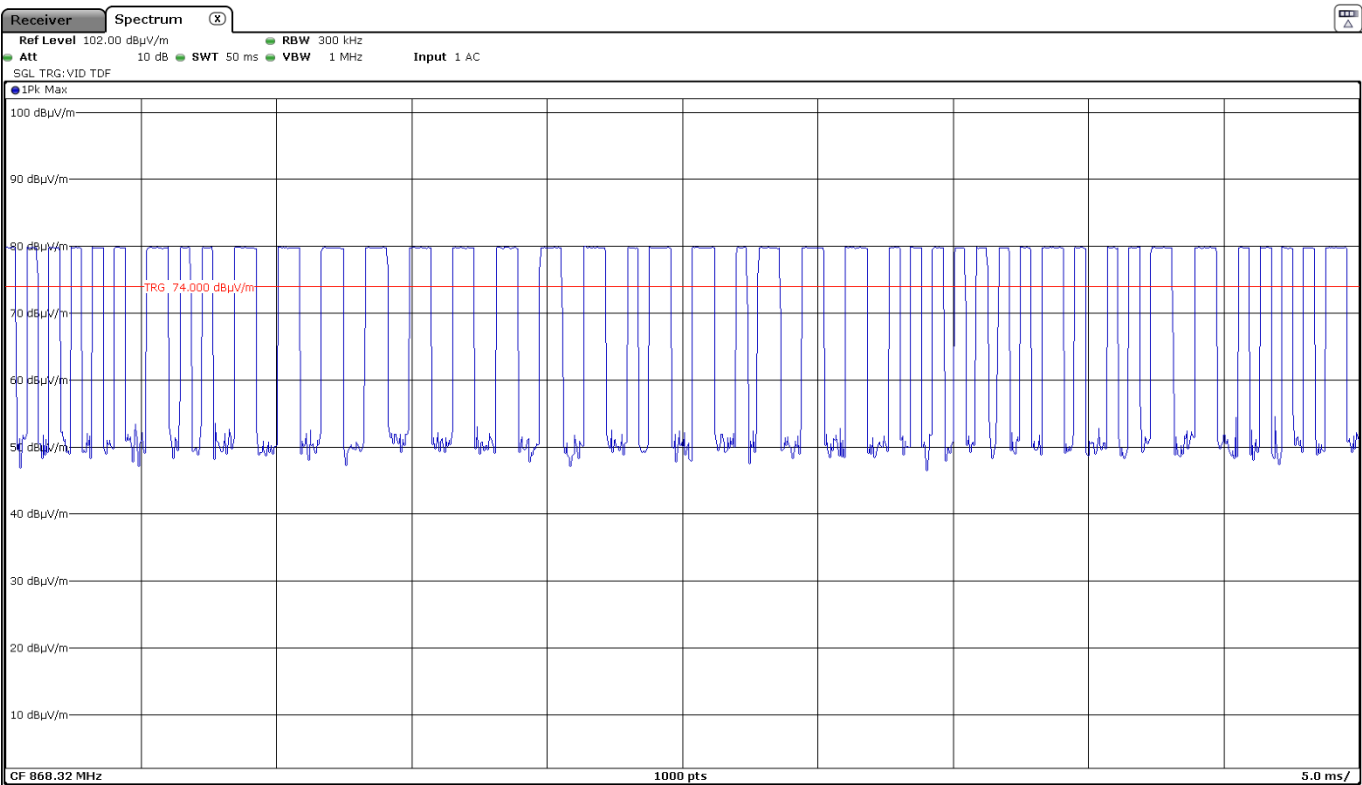
The transmission is pulsed so the average values of transmitter fundamental and spurious emissions are calculated from the measured peak values using the duty cycle correction factor δ as indicated in the standard ANSI C63.10-2013.

Calculation of the Duty Cycle Correction Factor (δ):

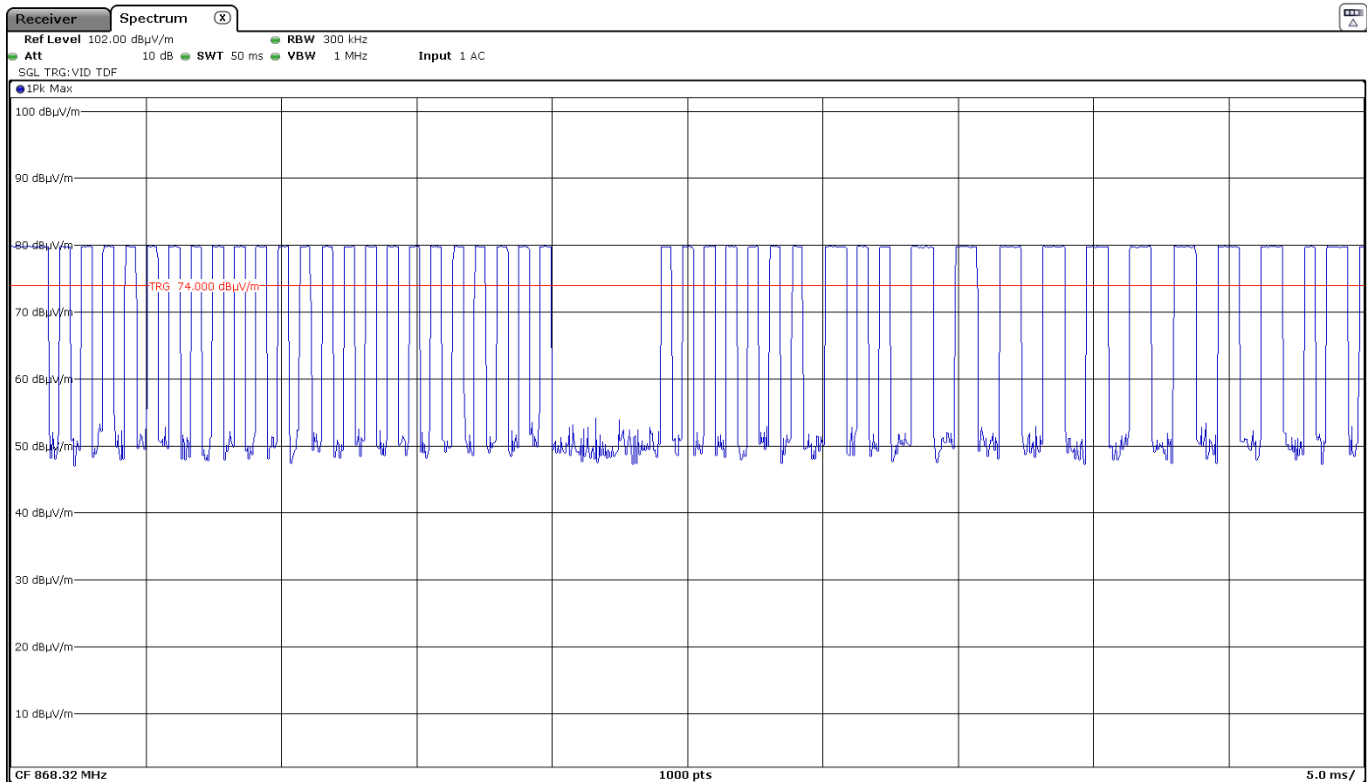


Number of pulses within 100 ms: 85.

Sub-part 1:



Sub-part 2:



Sub-part 1	Sub-pulse	Duration (ms)	Number of pulses	Sub-pulse "On Time" (ms)
	1	0.3892	19	7.3948
	2	0.4291	3	1.2873
	3	0.7897	14	11.0558
	4	0.8123	5	4.0615
	TOTAL "On Time" Sub-part 1:			23.7994

Sub-part 2	Sub-pulse	Duration (ms)	Number of pulses	Sub-pulse "On Time" (ms)
	1	0.3892	23	8.9516
	2	0.4291	10	4.291
	3	0.7897	2	1.5794
	4	0.8123	9	7.3107
	TOTAL "On Time" Sub-part 2:			22.1327

	Sub-pulse "On Time" (ms)
Sub-part 1	23.7994
Sub-part 2	22.1327
TOTAL "On Time":	45.9321

Duty Cycle Correction Factor (δ) = (TOTAL "On Time") / 100 = 0.459321

Duty Cycle Correction Factor (δ) (dB) = 20 log (δ) = -6.757673967 dB

Frequency range 30 MHz - 1000 MHz:

Fundamental Emission:

Frequency (MHz)	Polarization	Detector	Emission Level (μV/m)	Limits (μV/m) 15.231 (b) / 15.209
868.3251 (Fundamental)	H	Peak	9,268.30	125,000 (101.94 dBμV/m) / ---

Calculation for Average level:

Frequency (MHz)	Emission Level (dBμV/m) Peak	Duty Cycle Correction Factor δ (dB)	Average Corrected Emission Level (dBμV/m)	Limits (μV/m) 15.231 (b) / 15.209
868.3251	79.34	-6.757673967	72.58	12,500 (81.94 dBμV/m) / ---

Measurement uncertainty (dB): ± 4.99 dB

Frequency range 1 - 10 GHz:

Highest spurious level:

Spurious frequency (GHz)	Polarization	Detector	Emission Level (dBμV/m)	Limits (μV/m) 15.231 (b) / 15.209
1.736633	V	Peak	60.06	12,500 (81.94 dBμV/m) / 5,000 (74 dBμV/m)
2.604967	V	Peak	59.19	12,500 (81.94 dBμV/m) / 5,000 (74 dBμV/m)
3.47332	V	Peak	56.32	12,500 (81.94 dBμV/m) / 5,000 (74 dBμV/m)
4.34155	V	Peak	56.72	12,500 (81.94 dBμV/m) / 5,000 (74 dBμV/m)

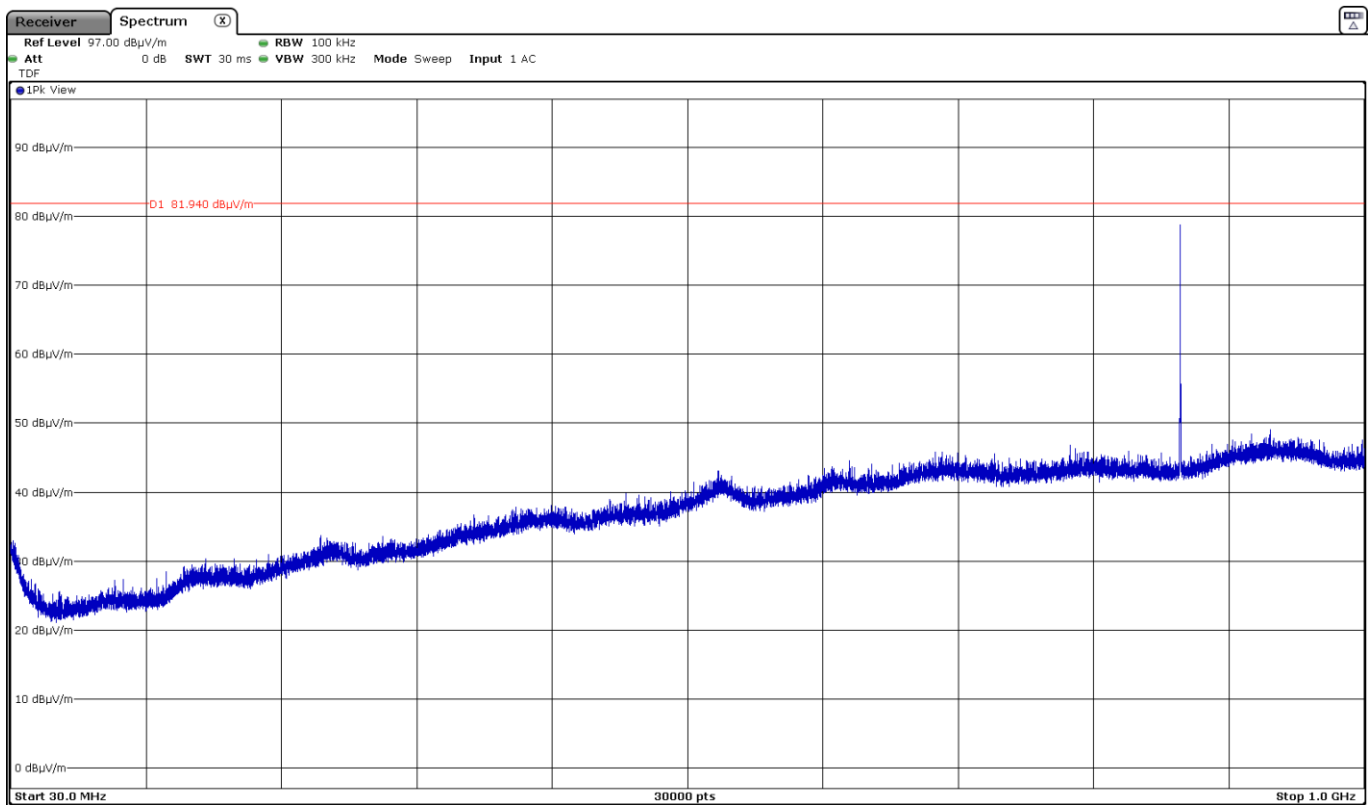
Calculation for the Average level of the spurious frequencies above the average limits:

Spurious frequency (GHz)	Emission Level (dBμV/m) Peak	Duty Cycle Correction Factor δ (dB)	Average Corrected Emission Level (dBμV/m)	Limits (μV/m) 15.231 (b) / 15.209
1.736633	60.06	-6.757673967	53.30232603	1,250 (61.94 dBμV/m) / 500 (54 dBμV/m)
2.604967	59.19	-6.757673967	52.43232603	1,250 (61.94 dBμV/m) / 500 (54 dBμV/m)
3.47332	56.32	-6.757673967	49.56232603	1,250 (61.94 dBμV/m) / 500 (54 dBμV/m)
4.34155	56.72	-6.757673967	49.96232603	1,250 (61.94 dBμV/m) / 500 (54 dBμV/m)

Measurement uncertainty (dB): ± 4.98 dB

Verdict: PASS

FREQUENCY RANGE 30 MHz - 1 GHz:



The highest peak is the SRD 868.32 MHz carrier frequency.

FREQUENCY RANGE 1 - 10 GHz:

