

ISED CABid: ES1909  
Lab. Company Number: 4621A

Test Report No:  
73315RRF.002A2

## Partial Test Report

### USA FCC Part 90 CANADA RSS-119

(*) Identification of item tested	SCG2229
(*) Trademark	SEPURA
(*) Model and /or type reference tested	SCG2229
Other identification of the product	FCC ID: XX6SCG2229M IC: 8739A-SCG2229ME
(*) Features	TETRA (380-470 MHz), BT, BLE, GNSS, 802.11 b,g,n (20 MHz, 2.4 GHz) HW version: PLX-890155A0-01 (H/W mod state 7) SW version: 1810 002 10138
Manufacturer	Sepura Limited 9000 Cambridge Research Park, Beach Drive, Waterbeach, Cambridge CB25 9TL, UK
Test method requested. standard	USA FCC Part 90 (10-1-21 Edition). CANADA RSS-119 Issue 12 (May 2015). ANSI C63.26-2015: Compliance Testing of Transmitters Used in Licensed Radio Services.
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager
Date of issue	2023-05-30
Report template No	FDT08_24 (*) "Data provided by the client"

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## Competences and guarantees

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DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that includes testing performed in this test report, FCC designation number ES0004.

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

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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.
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## Uncertainty

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Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

## Data provided by the client

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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 SCG2229 is a TETRA mobile radio in frequency range 380-470MHz with BT, Wi-Fi and GNSS option.
3. Derived variants not tested. These variants have been declared by the supplier of the sample as being the same as the model under test.

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06 February 2023



**Sepura Limited**  
9000 Cambridge Research Park,  
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Tel: +44 (0) 1223 876000  
[www.sepura.com](http://www.sepura.com)

Declaration of different variants of SCG2229

Defining all different variants of SCG2229

The units will all be marketed under the Product Marketing Name (PMN) of SCG2229.

There are 4 hardware variants under the family application, these relate to Sepura's commercial part numbers:

1-89\*00-0\*\*\*\*, 1-89\*60-0\*\*\*\*, 1-89\*50-0\*\*\*\*, 1-89\*00-0\*\*\*\*

where \* may be any digit or character.

Commercial part number 1-89\*00-0\*\*\*\* is the variant currently tested.

The following table summarises the differences between the variants:

Hardware Variant	RF Interfaces	Non-RF Interfaces
1-89*00-0****	TETRA Bluetooth WLAN GNSS	Ethernet GPIO Front Console Port Rear Console Port Power Input USB/GPIO SD Card
1-89*60-0****	TETRA Bluetooth WLAN GNSS	Rear Console Port Power Input USB/GPIO SD Card
1-89*50-0****	TETRA GNSS	Rear Console Port Power Input USB/GPIO SD Card
1-89*00-0****	TETRA GNSS	Rear Console Port Power Input USB/GPIO

Port Identification – Front Panel



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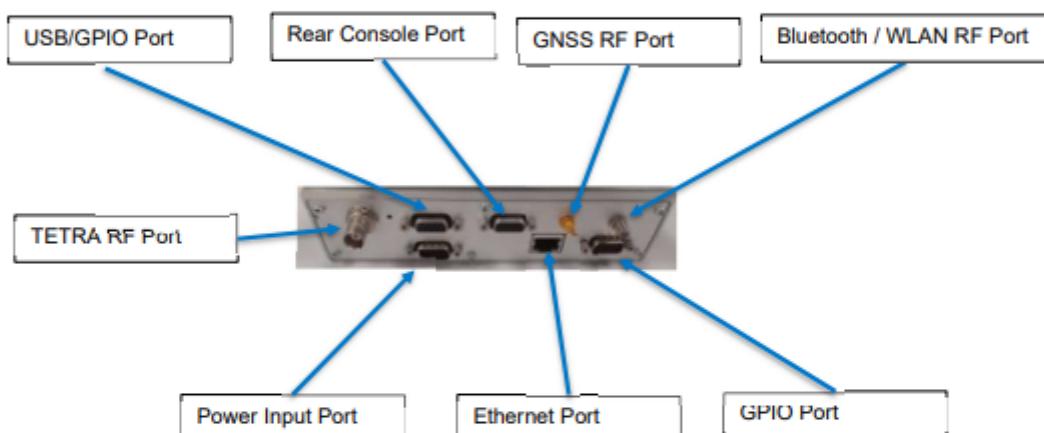
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Front Console Port

Port Identification – Rear Panel



The following table shows the difference between the front and rear panels on the variants:

Hardware Variant	Front Panel	Rear Panel
1-89*A0-0****		
1-89*60-0****		
1-89*50-0****		

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Hardware Variant	Front Panel	Rear Panel
1-89*00-0****		

Differences in radio frequency and RF output power: Where the RF interface is provided it has the same RF interface, with the same RF performance and same RF output power, as other variants.

Hardware Variant	TETRA	Bluetooth	WLAN	GNSS
1-89*A0-0****	40 dBm ±0.5dB	4.2	802.11 b, g, n	GPS, Galileo etc
1-89*60-0****	40 dBm ±0.5dB	4.2	802.11 b, g, n	GPS, Galileo etc
1-89*50-0****	40 dBm ±0.5dB	No Bluetooth	No WLAN	GPS, Galileo etc
1-89*00-0****	40 dBm ±0.5dB	No Bluetooth	No WLAN	GPS, Galileo etc

Differences in radio frequency circuitry. There is no difference between the RF circuitry of any of the variants. The only difference is whether the Bluetooth / WLAN module is included. All variants have TETRA and GNSS capability.

Differences in functional characteristics

Hardware Variant	Description
1-89*A0-0****	This is a fully populated variant with Ethernet port, GPIO port, front and rear console ports, USB/GPIO port, power input port and SD card. This fully populated unit has been Certified under ISED ID 8739A-SCG2229
1-89*60-0****	This variant is based on the fully populated 1-89*A0-0**** variant but has the Ethernet port, GPIO port and front console port removed. Other than the removal of this functionality there are no changes made to the circuitry or RF performance of this variant compared with the 1-89*A0-0**** variant
1-89*50-0****	This variant is based on the 1-89*60-0**** variant. It has the Bluetooth/WLAN module removed, but other than that is the same. There are no other changes to the circuitry or RF performance of this variant compared with the 1-89*60-0**** variant.
1-89*00-0****	This variant is based on the 1-89*50-0**** variant. It has the SD card removed, but other than that is the same. There are no other changes to the circuitry or RF performance of this variant compared with the 1-89*50-0**** variant.

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As can be seen by the information provided in this letter and exhibits in this application, all variants are subsets of the main variant tested and the test results are applicable to all variants. No changes have been made to the circuitry, PCB layouts, RF performance or functionality between the variants, other than removal of functions.

Sincerely,

Company Officer: Prakriti Gupta  
Telephone Number: +44 (0)1223 876000  
Email: prakriti.gupta@sepura.com  
Position: Conformance Team Leader

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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	Reception
73315C/045	SCG2229	SCG2229	1PR000676NE	06/10/2022
73315C/039	Connecting Cable	-	-	06/10/2022

Auxiliary elements used with the Sample S/01:

Control Nº	Description	Model	Serial Nº	Reception
73315C/023	USB to RS232 Cable	-	-	03/10/2022

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 Nº	Description	Model	Serial Nº	Reception
73315C/045	SCG2229	SCG2229	1PR000676NE	06/10/2022
73315C/038	Connecting Cable	-	-	06/10/2022

Auxiliary elements used with the Sample S/02:

Control Nº	Description	Model	Serial Nº	Reception
73315C/001	Laptop (EMC)	Latitude 7280	95PVNH2	03/10/2022
73315C/008	AC/DC Adapter	LA65NS2-01	-	03/10/2022
73315C/023	USB to RS232 Cable	-	-	03/10/2022
73315C/043	Antenna BT-WiFi Ant	-	-	06/10/2022
73315C/048	Remote Control	-	1PS602110CCW6MQ	06/10/2022
73315C/050	Loudspeaker	300-00719	-	06/10/2022

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 <sup>(3)</sup>		
TETRA ant port		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
BT and Wi-Fi port		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
GNSS port		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Ethernet		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Power (way D sub male)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Console 1 and 2( 15 way D sub female)		<input checked="" type="checkbox"/>	<input checked="" 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	PE
	<input type="checkbox"/> AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/> DC: 10.8-15.6V						
Rated Power.....	12V DC rated 90W						
Clock frequencies.....	-						
Other parameters .....	-						
Software version.....	Not provided						
Hardware version .....	PLX-890155A0-01 (H/W mod state 7)						
Dimensions in cm (W x H x D) ...	-						
Mounting position .....	<input type="checkbox"/>	Table top equipment					
	<input type="checkbox"/>	Wall/Ceiling mounted equipment					
	<input type="checkbox"/>	Floor standing equipment					
	<input type="checkbox"/>	Hand-held equipment					
	<input checked="" type="checkbox"/>	Other: vehicle installation					
Modules/parts.....	Module/parts of test item		Type	Manufacturer			
	BT/WiFi module		1LV	Murata			
	GNSS module		M-10	U -Blox			
Accessories (not part of the test item) .....	Description		Type	Manufacturer			
	-		-	-			
Documents as provided by the applicant .....	Description		File name	Issue date			
	safety guide		DOC-00170	-			
	quick ref guide		DOC-03196	-			
	SCG2229 full installation guide		DOC-04384	-			

<sup>(3)</sup> Only for Medical Equipment

## Identification of the client

Sepura Limited  
9000 Cambridge Research Park, Beach Drive, Waterbeach, Cambridge CB25 9TL, UK

## Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2022-11-14
Date (finish)	2023-05-30

## Document history

Report number	Date	Description
73315RRF.002	2023-02-07	First release.
73315RRF.002A1	2023-04-03	Second release. It includes RF Peak Output Power testing. This modification test report cancels and replaces the test report 73315RRF.002.
73315RRF.002A2	2023-05-30	Third release. It was modified due to a typo on the limit and it was clarify the method used. This modification test report cancels and replaces the test report 73315RRF.002A1.

## 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 anechoic 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: Francisco Javier Fernández, Miguel Manuel López, Rafael Fernández.

Used instrumentation:

<u>Conducted Measurements</u>	Last Calibration	Due Calibration
1. Shielded Room ETS LINDGREN S101	N/A	N/A
2. DC Power Supply 40V/40A Rohde & Schwarz NGPE40	N/A	N/A
3. Digital Multimeter FLUKE 179	2022-11	2023-11
4. Power Sensor 10MHz-8GHz ROHDE AND SCHWARZ NRP-Z11	2023-05	2024-05

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. Horn Antenna 1-18 GHz SCHWARZBECK MESS-ELEKTRONIK BBHA 9120 D	2023-01	2026-01
4. Biconical/Log Antenna 30 MHz - 6 GHz ETS LINDGREN 3142E	2021-09	2024-09
5. RF Preamplifier, 40 dB, 1-18 GHz BONN ELEKTRONIK BLMA 0118-1M	2022-07	2023-07
6. Spectrum Analyzer ROHDE AND SCHWARZ FSW50	2022-08	2024-08
7. EMI Test Receiver 7 GHz ROHDE AND SCHWARZ ESR7	2021-11	2023-11

## Testing verdicts

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

## Summary

FCC PART 90 / RSS-119 PARAGRAPH		
Requirement – Test case	Verdict	Remark
Clause 2.1047 and 90.207: Modulation characteristics	N/M	(1)
Clause 90.209 / RSS-119 Clause 5.5: Occupied Bandwidth	N/M	(1)
Clause 90.205, 90.279 / RSS-119 Clause 5.4: RF Output Power	P	
Clause 90.210 / RSS-119 Clauses 5.5, 5.8: Emission mask	N/M	(1)
Clause 90.221: Adjacent channel power	N/M	(1)
Clause 90.213 / RSS-119 Clause 5.3: Frequency stability	N/M	(1)
Clause 90.210 / RSS-119 Clause 5.8: Spurious emissions at antenna terminals	N/M	(1)
Clause 90.210 / RSS-119 Clause 5.8: Radiated Emissions	P	
Clause 90.214 / RSS-119 Clause 5.9: Transient frequency behaviour	N/M	(1)
<u>Supplementary information and remarks:</u>		
(1) Tests not requested.		

## Appendix A: Test results

## INDEX

TEST CONDITIONS .....	16
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## TEST CONDITIONS

(\*) Declared by the Applicant

### POWER SUPPLY (\*):

Vnominal: 12 Vdc  
Type of Power Supply: DC (Vehicle Battery).

### ANTENNA (\*):

Type of Antenna for TETRA: 5/8 wave M8 Standard Mount.  
Maximum Declared Antenna Gain for TETRA Antenna 1: +7 dBi  
Maximum Declared Antenna Gain for TETRA Antenna 2: +7 dBi

### Rated RF Output Power:

- Mode TETRA (22kHz bandwidth): 43 dBm (10 W).

### TEST FREQUENCIES (\*):

- Antenna 1 (406-430 MHz): Antenna 1

Low Channel: 406.1125 MHz  
Middle Channel: 418.05 MHz  
High Channel: 429.9875 MHz

- Antenna 2 (450-470 MHz):

Low Channel: 450.025 MHz  
Middle Channel: 460.025 MHz  
High Channel: 469.975 MHz

## RF Output Power

### SPECIFICATION:

#### **FCC § 90.205.**

##### **(g) 421-430 MHz.**

Limitations on power and antenna heights are specified in § 90.279.

##### **§ 90.279 Power limitations applicable to the 421-430 MHz band.**

(a) Base station authorizations in the 421-430 MHz band will be subject to Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limitations as shown in the table below. ERP is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction. EAH is calculated by subtracting the Assumed Average Terrain Elevation (AATE) as listed in table 7 of § 90.619 from the antenna height above mean sea level.

Limits of Effective Radiated Power (ERP) Corresponding to Effective Antenna Heights (EAH) of Base Stations in the 421-430 MHz Band

Effective antenna height (EAH) in meters (feet)	Maximum effective radiated power (ERP) (watts)
0-152 (0-500)	250
Above 152-305 (above 500-1000)	150
Above 305-457 (above 1000-1500)	75
Above 457-610 (above 1500-2000)	40
Above 610-762 (above 2000-2500)	20
Above 762-914 (above 2500-3000)	15
Above 914-1219 (above 3000-4000)	10
Above 1219 (above 4000)	5

(b) The maximum transmitter power output that will be authorized for control stations is 20 watts.

##### **(h) 450-470 MHz.**

(1) The maximum allowable station effective radiated power (ERP) is dependent upon the station's antenna HAAT and required service area and will be authorized in accordance with table 2. Applicants requesting an ERP in excess of that listed in table 2 must submit an engineering analysis based upon generally accepted engineering practices and standards that includes coverage contours to demonstrate that the requested station parameters will not produce coverage in excess of that which the applicant requires.

(2) Applications for stations where special circumstances exist that make it necessary to deviate from the ERP and antenna heights in Table 2 will be submitted to the frequency coordinator accompanied by a technical analysis, based upon generally accepted engineering practices and standards, that demonstrates that the requested station parameters will not produce a signal strength in excess of 39 dBu at any point along the edge of the requested service area. The coordinator may then recommend any ERP appropriate to meet this condition.

(3) An applicant for a station with a service area radius greater than 32 km (20 mi) must justify the requested service area radius, which may be authorized only in accordance with table 2, note 4. For base stations with service areas greater than 80 km, all operations 80 km or less from the base station will be on a primary basis and all operations outside of 80 km from the base station will be on a secondary basis and will be entitled to no protection from primary operations.

**Table 2 - 450-470 MHz - Maximum ERP/Reference HAAT for a Specific Service Area Radius**

	Service area radius (km)									
	3	8	13	16	24	32	40 <sup>4</sup>	48 <sup>4</sup>	64 <sup>4</sup>	80 <sup>4</sup>
Maximum ERP (w) <sup>1</sup>	2	100	2500	2500	2500	2500	2500	2500	2500	2500
Up to reference HAAT (m) <sup>3</sup>	15	15	15	27	63	125	250	410	950	2700

<sup>1</sup> Maximum ERP indicated provides for a 39 dBu signal strength at the edge of the service area per FCC Report R-6602, Fig. 29 (See §73.699, Fig. 10 b).

<sup>2</sup> Maximum ERP of 500 watts allowed. Signal strength at the service area contour may be less than 39 dBu.

<sup>3</sup> When the actual antenna HAAT is greater than the reference HAAT, the allowable ERP will be reduced in accordance with the following equation:  $ERP_{allow} = ERP_{max} \times (HAAT_{ref} / HAAT_{actual})^2$ .

<sup>4</sup> Applications for this service area radius may be granted upon specific request with justification and must include a technical demonstration that the signal strength at the edge of the service area does not exceed 39 dBu.

#### RSS-119 Clause 5.4.

The output power shall be within  $\pm 1$  dB of the manufacturer's rated power listed in the equipment specifications.

The transmitter output power limits set forth in the following table will come into force upon the publication of Issue 12 of this standard and will apply to newly certified equipment.

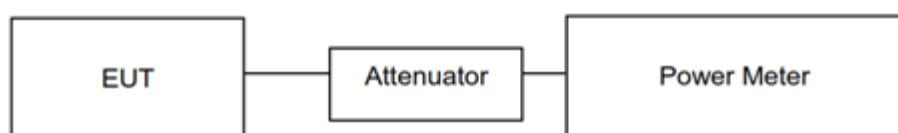
Frequency Band (MHz)	Transmitter Output Power (W)	
	Base/Fixed Equipment	Mobile Equipment
406.1-430 and 450-470	110	60

#### METHOD:

The EUT was controlled via the terminal emulator of PC.

The conducted RF output power measurements were made at the RF output terminal of the EUT using an attenuator and a calibrated power sensor.

#### TEST SETUP:



**RESULTS:**

Type of equipment: Mobile radio.  
Manufacturer's Rated Power: 43 dBm (19.95 W).

• **Antenna 1 (406-430 MHz):**

Frequency (MHz)	Maximum Peak power (dBm)	Maximum deviation (dB)
406.1125	42,98	-0,02
418.05	43,16	0,16
429.9875	43,25	0,25

Measurement uncertainty (dB):  $<\pm 0.33$

The sum of the system loss (dB) and antenna gain (dBd) for the worst case of conducted power (43 dBm) shall be such that the Effective Radiated Power (E.R.P.) shall not exceed the limit indicated above.

• **Antenna 2 (450-470 MHz):**

Frequency (MHz)	Maximum Peak power (dBm)	Maximum deviation (dB)
450.025	43,42	0,42
460.025	43,4	0,4
469.975	43,28	0,28

Measurement uncertainty (dB):  $<\pm 0.33$

The sum of the system loss (dB) and antenna gain (dBd) for the worst case of conducted power (43 dBm) shall be such that the Effective Radiated Power (E.R.P.) shall not exceed the limit indicated above.

Verdict: PASS

## Radiated Emissions

### SPECIFICATION:

FCC §2.1053, §90.210 (421 - 512 MHz band):

*Adjacent channel power limits.*

On any frequency removed from the assigned frequency by more than 75 kHz, the attenuation of any emission must be  $43 + 10 \log(P)$  dB.

RSS-119 5.5, 5.8:

**Table 17 - Emission Mask Y**

<b>Displacement Frequency. fd (kHz)</b>	<b>Minimum Attenuation (dB)</b>	<b>Resolution Bandwidth (Hz)</b>
12.375 < fd ≤ 13.975	whichever is the lesser attenuation: 30 + 16.67(fd-12.375) or 55 + 10 log10(p)	Specified in Section 4.2.2
fd > 13.975	whichever is the lesser attenuation: 57 or 55 + 10 log10(p)	Specified in Section 4.2.2

### METHOD:

The measurement was performed with the EUT having its accessories connected and placed in an anechoic chamber on a non-conductive stand at a distance of 3 meters from the measuring antenna. The RF output connector of the EUT was terminated with an attenuator and a 50 ohm load.

A preliminary scan was performed to determine the modulation that led to the High emissions, i.e, the worst case.

Then, considering the worst modulation, the spectrum was scanned from 30 MHz to at least the 10th harmonic of the High frequency generated within the equipment. The maximum field strength (dB $\mu$ V/m) was measured and recorded.

The detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization.

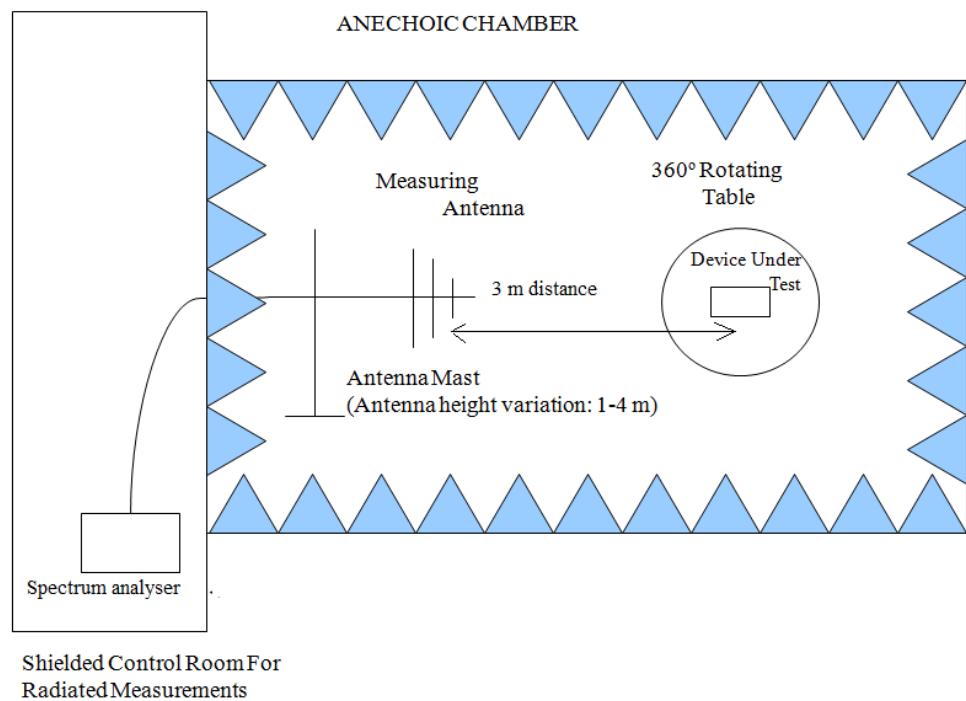
According to ANSI C63.26, the maximum field strength (dB $\mu$ V/m) of each detected emission at less than 20 dB respect to the limit was converted to an equivalent EIRP level (dBm) with the formula:

$$\text{EIRP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8;$$

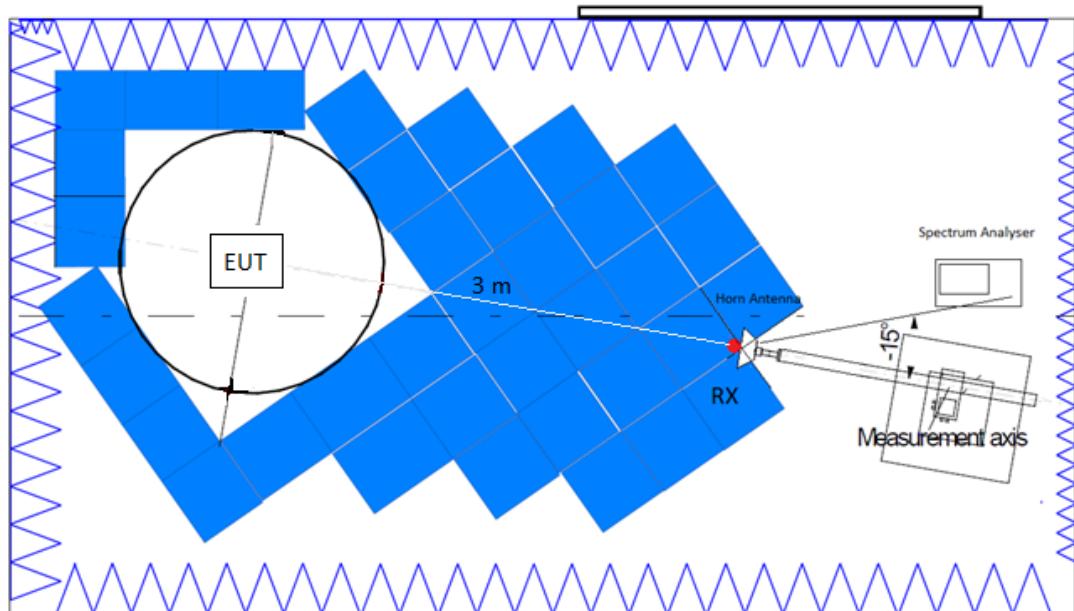
where D is the measurement distance in m. D = 3 m.

TEST SETUP:

Radiated measurements below 1 GHz.



Radiated measurements above 1 GHz.



**RESULTS:**

A preliminary scan determined the mode TETRA channel bandwidth 22 kHz as the worst case.

**• Antenna 1 (406-430 MHz):**

**Frequency Range 30 MHz- 1 GHz:**

- LOW CHANNEL:

No spurious signals were found at less than 20 dB below the limit in all the range.

Limit

- FCC Part 90.210: -13 dBm
- RSS-119 Low channel: -14.02 dBm

- MIDDLE CHANNEL:

No spurious signals were found at less than 20 dB below the limit in all the range.

Limit

- FCC Part 90.210: -13 dBm
- RSS-119 Low channel: -13.84 dBm

- HIGH CHANNEL:

No spurious signals were found at less than 20 dB below the limit in all the range.

Limit

- FCC Part 90.210: -13 dBm
- RSS-119 Low channel: -13.75 dBm

**Frequency Range 1 - 5 GHz:**

- LOW CHANNEL:

No spurious signals were found at less than 20 dB below the limit in all the range.

Limit

- FCC Part 90.210: -13 dBm
- RSS-119 Low channel: -14.02 dBm

- MIDDLE CHANNEL:

No spurious signals were found at less than 20 dB below the limit in all the range.

Limit

- FCC Part 90.210: -13 dBm
- RSS-119 Low channel: -13.84 dBm

- HIGH CHANNEL:

No spurious signals were found at less than 20 dB below the limit in all the range.

Limit

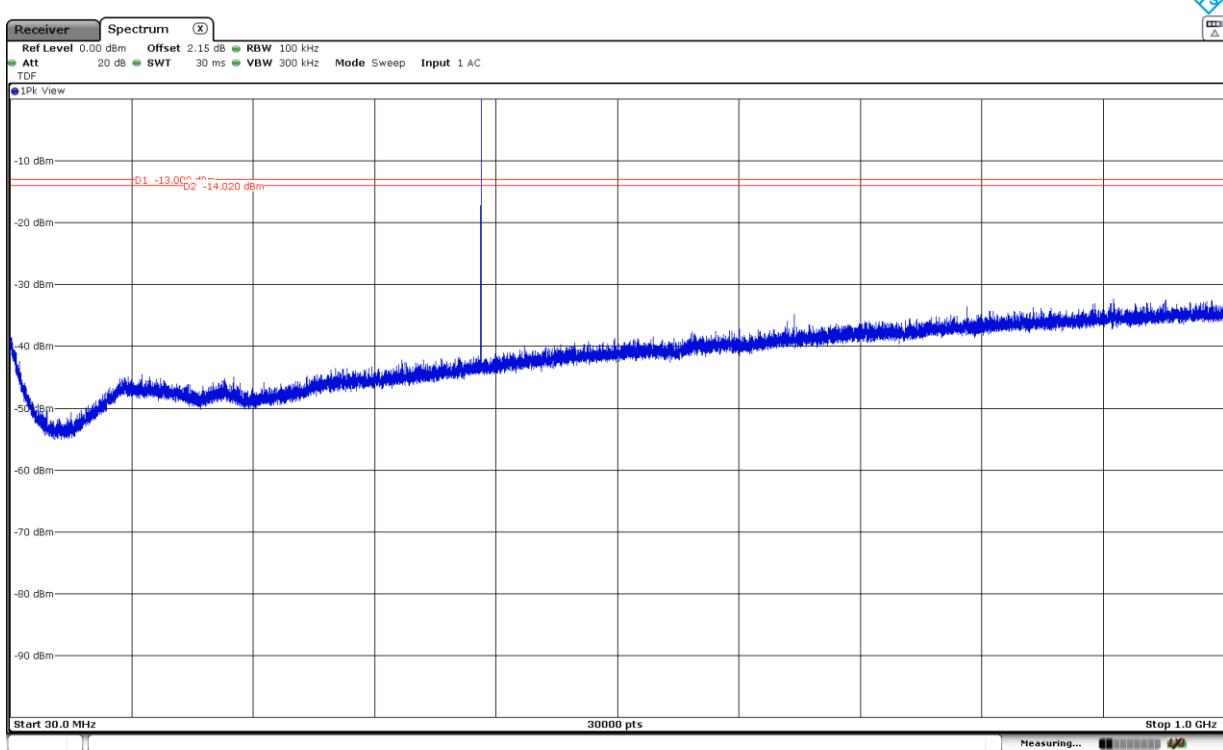
- FCC Part 90.210: -13 dBm
- RSS-119 Low channel: -13.75 dBm

Measurement uncertainty (dB)  $\leq \pm 5.01$  for  $f < 1$  GHz  
 $\leq \pm 4.22$  for  $f \geq 1$  GHz up to 5 GHz

Verdict: PASS

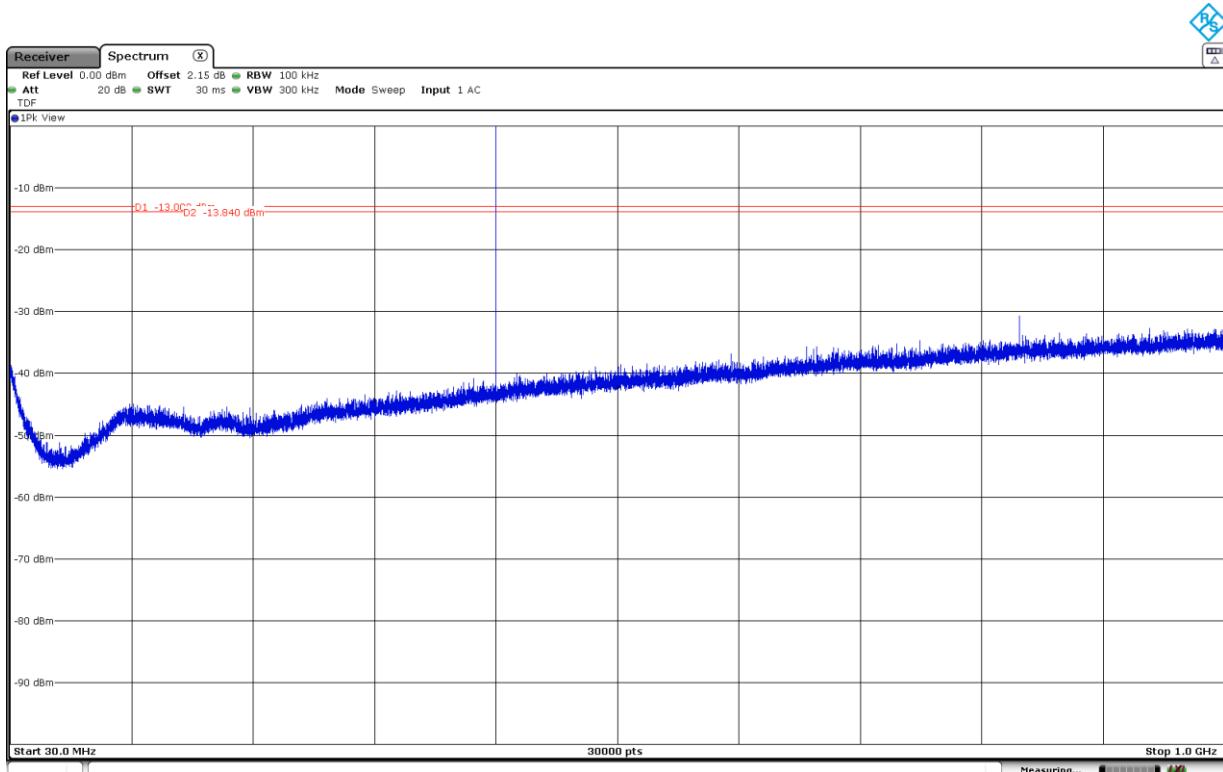
## FREQUENCY RANGE 30 MHz - 1 GHz:

### LOW CHANNEL:



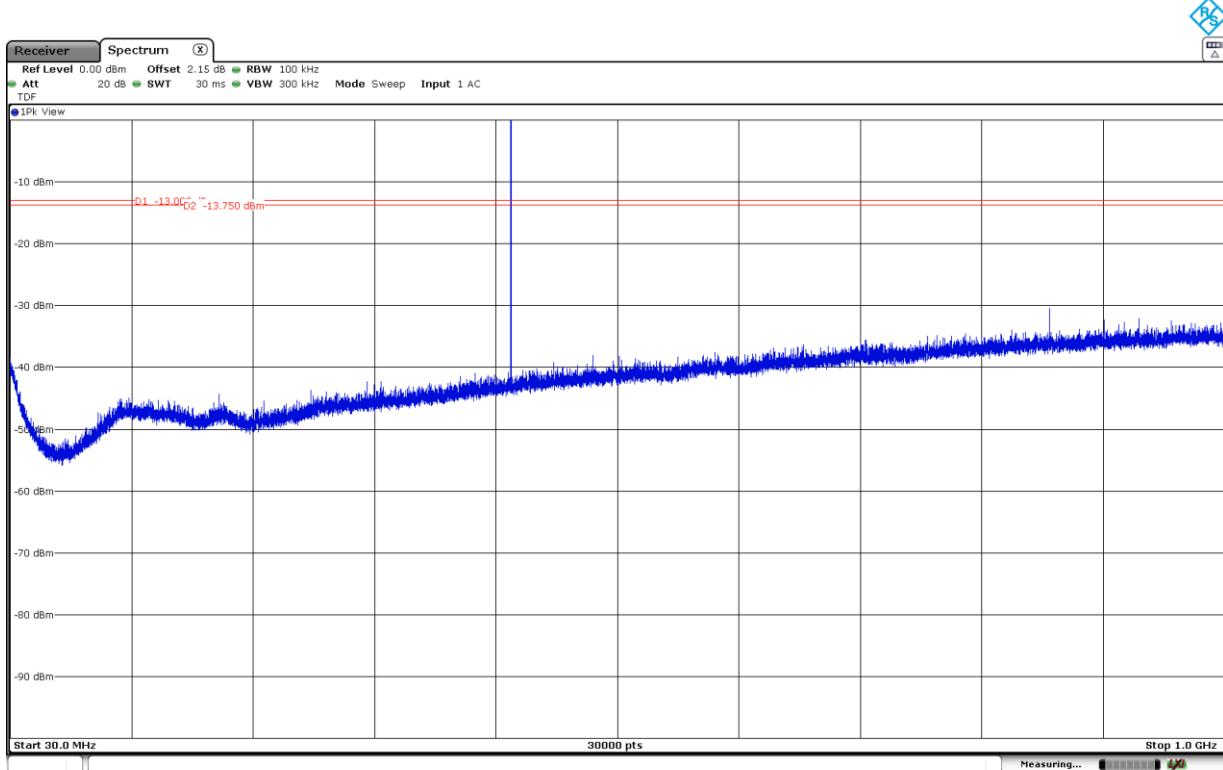
The high peak in the plot above corresponds to the carrier frequency.

### MIDDLE CHANNEL:



The high peak in the plot above corresponds to the carrier frequency.

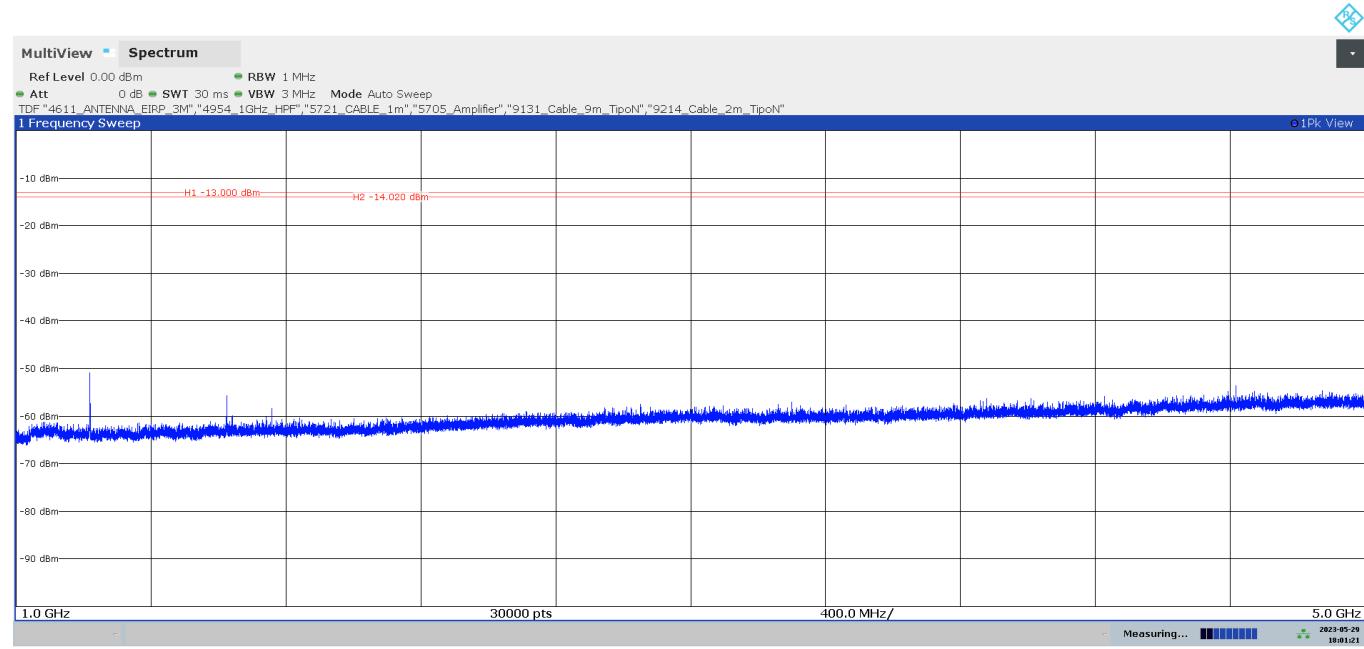
## HIGH CHANNEL:



The high peak in the plot above corresponds to the carrier frequency.

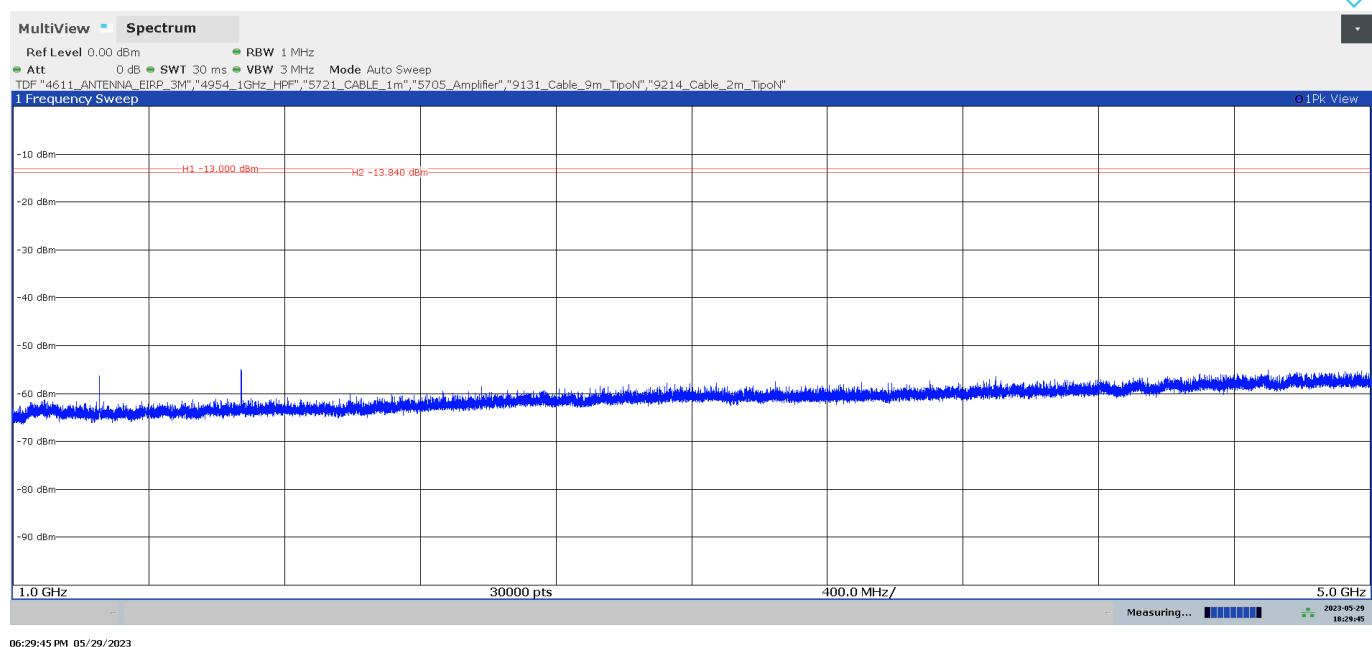
## FREQUENCY RANGE 1 - 5 GHz:

### LOW CHANNEL:



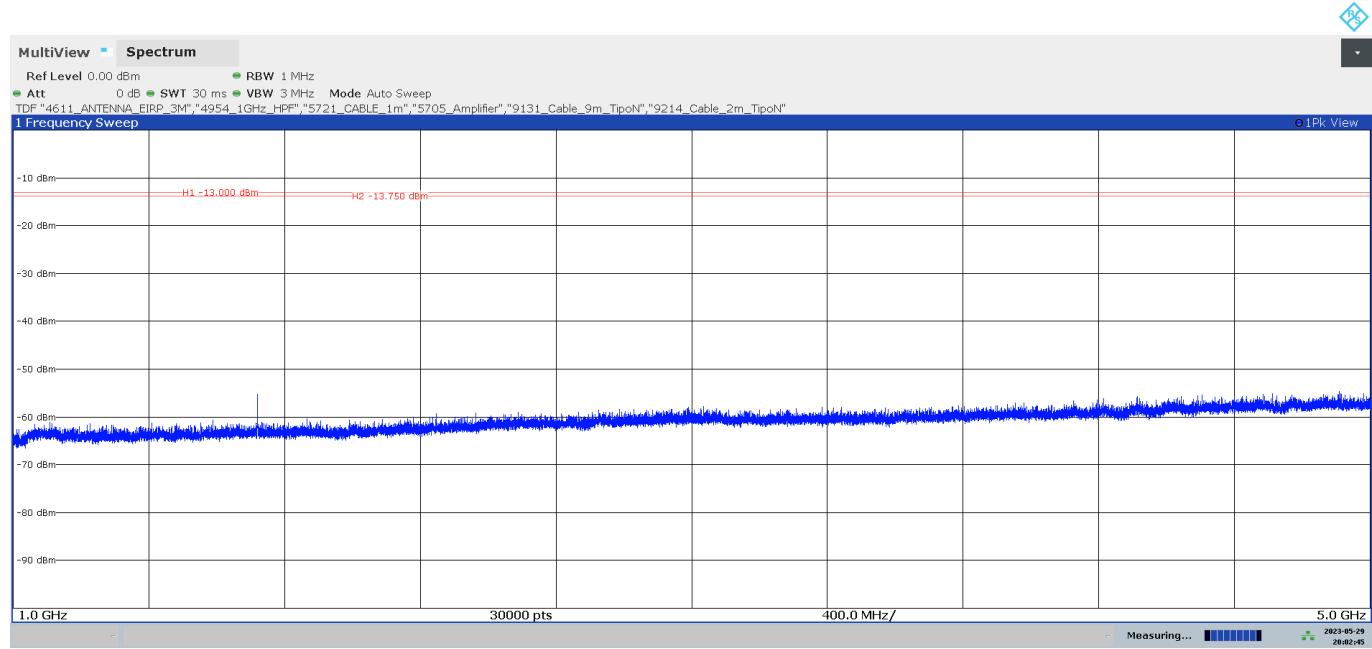
06:01:22 PM 05/29/2023

**MIDDLE CHANNEL:**



06:29:45 PM 05/29/2023

**HIGH CHANNEL:**

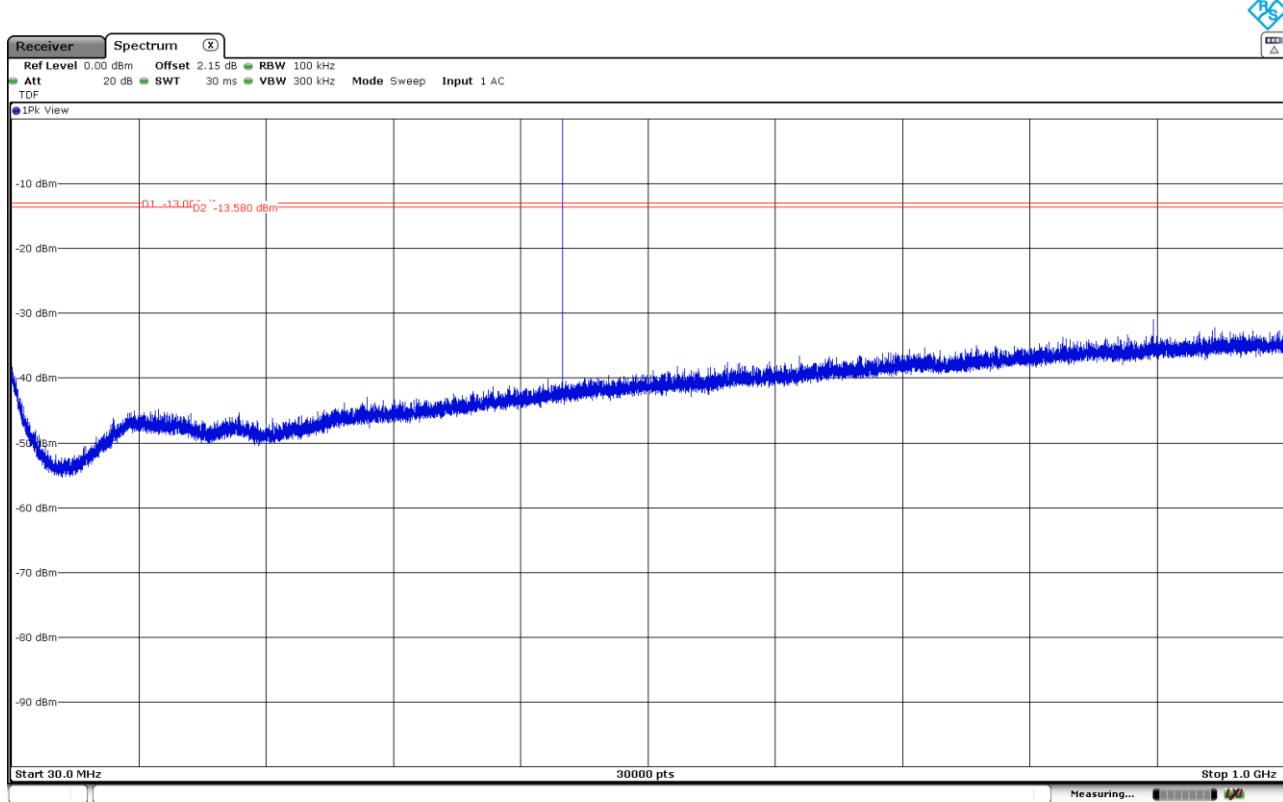


08:02:45 PM 05/29/2023



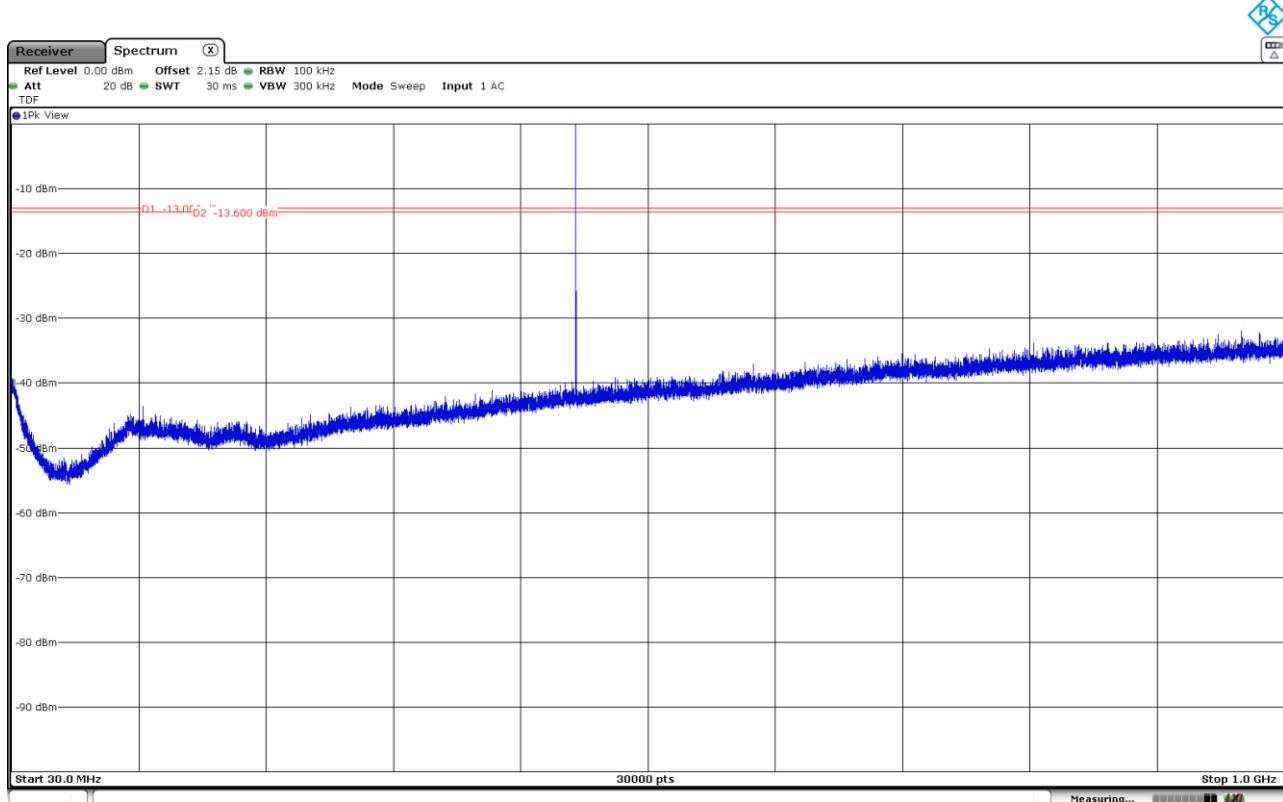
## FREQUENCY RANGE 30 MHz - 1 GHz:

### LOW CHANNEL:



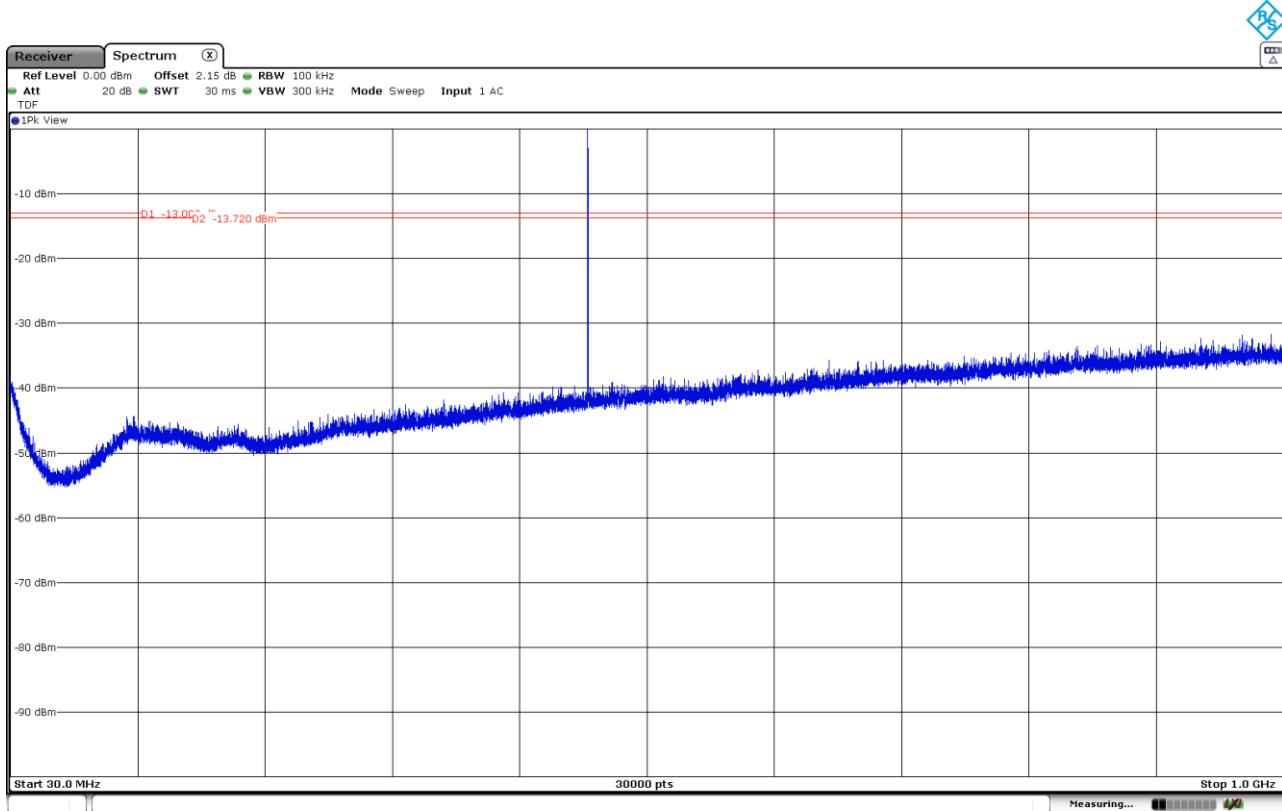
The High peak in the plot above corresponds to the carrier frequency.

### MIDDLE CHANNEL:



The High peak in the plot above corresponds to the carrier frequency.

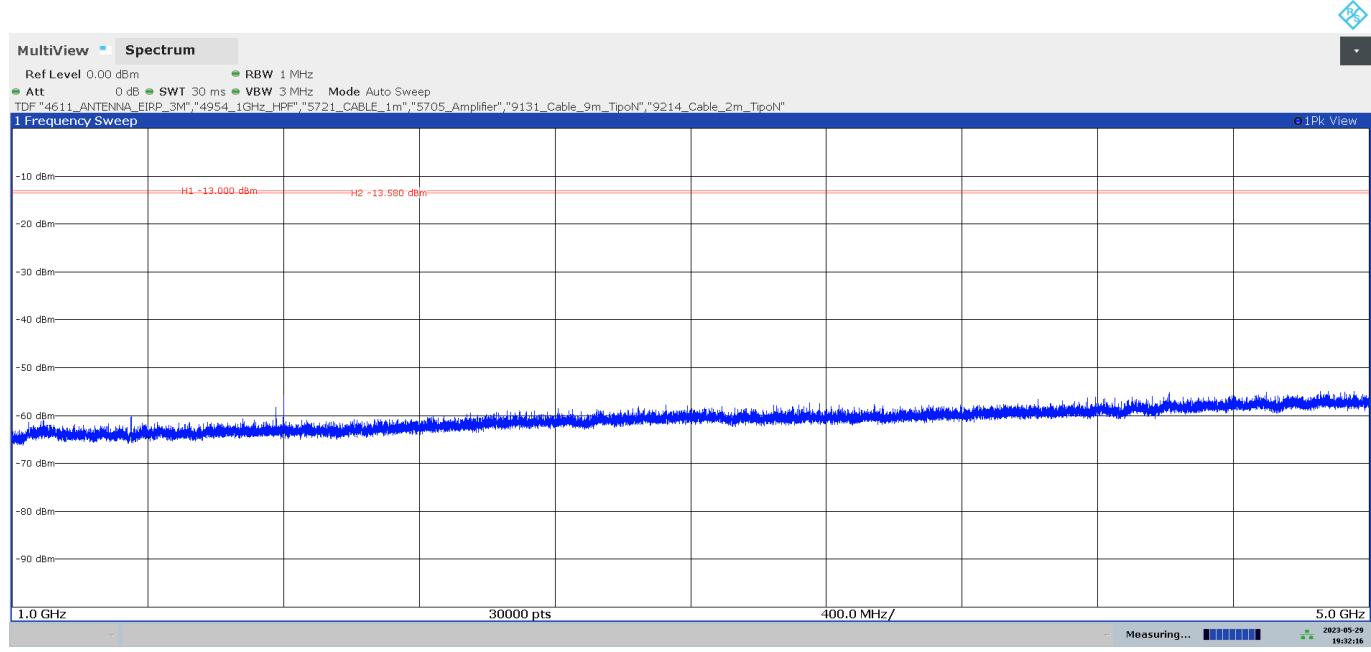
## HIGH CHANNEL:



The High peak in the plot above corresponds to the carrier frequency.

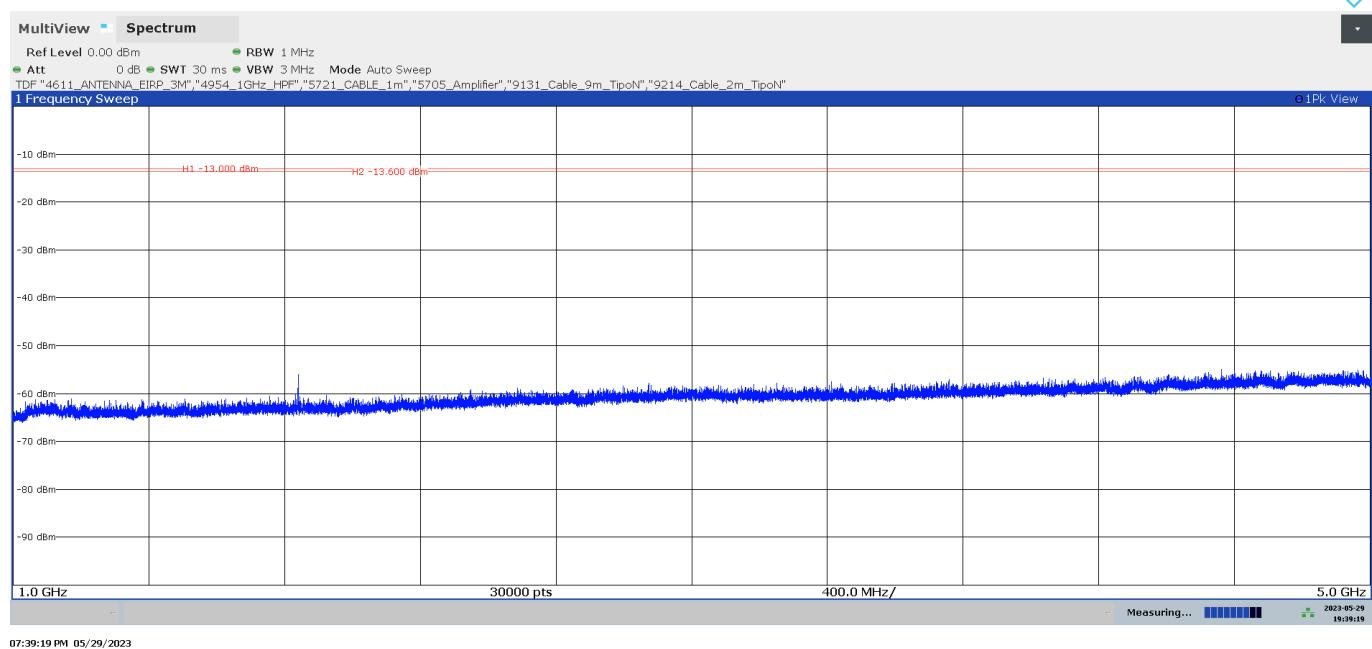
## FREQUENCY RANGE 1 - 5 GHz:

### LOW CHANNEL:



07:32:17 PM 05/29/2023

**MIDDLE CHANNEL:**



**HIGH CHANNEL:**

