DEKRA Testing and Certification, S.A.U.
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C.I.F. A29507456

ISED CABid: ES1909

Lab. Company Number: 4621A

Test Report No:
75691RRF.003A1

Partial Test Report

USA FCC Part 15.31, 15.247, 15.209, 90
CANADA RSS-119, RSS-247, RSS-Gen

(*) Identification of item tested	SCG2228
(*) Trademark	Sepura
(*) Model and /or type reference	SCG2228
Other identification of the product	FCC ID: XX6SCG2228M IC: 8739A-SCG2228ME
(*) Features	TETRA (806-870MHz), BT, BLE, GNSS, 802.11 b, g, n (20MHz, 2.4 GHz) HW version: PLX-850155A0 SW version: 1807 020 10138
Applicant	Sepura Limited 9000 Cambridge Research Park, Beach Drive, Waterbeach, Cambridge CB25 9TL, UK
Test method requested, standard	USA FCC Part 15.31 (10-1-21 Edition): Measurement standard. USA FCC Part 15.247 (10-1-21) Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-21) Edition: Radiated emission limits; general requirements. USA FCC Part 90 (10-1-21 Edition). CANADA RSS-119 Issue 12 Amendnent 1 (April 2022). CANADA RSS-247 Issue 3 (August 2023). CANADA RSS-Gen Issue 5 Amendment 2 (February 2021) 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 C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024: American National Standard for Testing Unlicensed Wireless Devices. 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 Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456)
Date of issue	2026-01-08
Report template No	FDT08_24 (*) "Data provided by the client"

ilac-MRA ENAC ENSAYO ISO 17025 Nº51 / LE147

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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 an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that include testing performed in this test 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. **IMPORTANT:** No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA Testing and Certification S.A.U.

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.
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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 17 GHz is: Measurement uncertainty ≤ ± 4.32 dB (with factor k = 2).

The total uncertainty of the measurement system for the radiated emissions of EUT from 17 GHz to 26 GHz is: Measurement uncertainty ≤ ± 5.51 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").
2. The sample consists of a TETRA Mobile radio working in frequency range 806-870MHz with BT, Wi-Fi and GNSS options.

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	75691_12.1	TETRA MobileRadio	SCG2228	1PR002401GPT84Q	2024-01-17	Element Under Test
S/01	75691_6.1	WLAN Antenna	Ixxat 1.04.0085.00001 Stubby WiFi Antenna	--	2024-01-17	Auxiliary Element
S/01	75691_32.1	Speaker VAC	300-00722	--	2024-01-17	Auxiliary Element
S/01	75691_33.1	Microphone	300-00079	--	2024-01-17	Auxiliary Element
S/01	75691_34.1	Remote control	300-00079	--	2024-01-17	Auxiliary Element
S/01	75691_35.1	RS-232 to multipin connector cable	300-00068	--	2024-01-17	Auxiliary Element
S/01	75691_42.1	DC power cable	300-02010	--	2024-01-17	Auxiliary Element
S/01	75691_45.1	GPS antenna	300-00063	--	2024-01-17	Auxiliary Element
S/01	75691_46.1	TETRA Antenna	AFGB-5S	--	2024-01-17	Auxiliary Element
S/01	75691_47.1	RS-232- USB cable	300-02009	--	2024-01-17	Auxiliary Element
S/01	75691_52.1	TETRA Antenna support	MD	--	2024-01-17	Auxiliary Element

Notes referenced to samples during the project:

Id	Type
S/01	Sample used for radiated tests

Test sample description

Ports…… :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)		
	TETRA ant port	5m	[X]	[X]	[ ]		
	BT and Wi-Fi port	.....	[X]	[ ]	[ ]		
	GNSS	5m	[X]	[ ]	[ ]		
	Power (9 way D sub male)	5m	[X]	[ ]	[ ]		
	Console 1 (15 way D sub female)	5m	[X]	[X]	[ ]		
	.....	.....	[ ]	[ ]	[ ]		
Supplementary information to the ports…… :	.....						
Rated power supply .....:	Voltage and Frequency			Reference poles			
				L1	L2	L3	N	PE
	[ ]	AC:		[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 10.8-15.6V						
Rated Power .....:	.....						
Clock frequencies.....:	.....						
Other parameters .....:	.....						
Software version .....:	1807 020 10138						
Hardware version .....:	PLX-850155A0						
Dimensions in cm (W x H x D) ....:	.....						
Mounting position .....:	[ ]	Table top equipment					
	[ ]	Wall/Ceiling mounted equipment					
	[ ]	Floor standing equipment					
	[ ]	Hand-held equipment					
	[X]	Other: Vehicle Installation					
Modules/parts.....:	Module/parts of test item		Type	Manufacturer			
	BT/WiFi module		1LV	Murata			
	GNSS chip		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		.....	.....			
	quick ref guide		.....	.....			
	SCG2228 full installation guide		.....	.....			
	.....		.....	.....			

(3) 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)	2024-02-22
Date (finish)	2024-02-22

Document history

Report number	Date	Description
75691RRF.003	2024-04-04	First release.
75691RRF.003A1	2026-01-08	Second release. This report is modified due to an update on the cover page. This report cancels and replaces the test report 75691RRF.003.

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 %

Remarks and comments

The tests have been performed by the technical personnel: Pablo Redondo.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
04825	SEMIANECHOIC ABSORBER LINED CHAMBER	FACT 3 200 STP	ETS LINDGREN	N/A
04826	SHIELDED ROOM	S101	ETS LINDGREN	N/A
07548	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2024-04-21
07547	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2024-04-21
04578	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2026-06-01
06142	PRE-AMPLIFIER G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2024-06-28
06165	EMI TEST RECEIVER 9kHz-7GHz	ESR7	ROHDE AND SCHWARZ	2025-12-27
04611	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2026-01-16
04657	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2026-06-12
08856	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-4A	BONN ELEKTRONIK	2025-02-27
05705	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2024-07-26
04716	SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz	FSW50	ROHDE AND SCHWARZ	2024-08-12
06157	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2025-01-18
09555	DC POWER SUPPLY	HMP2020	ROHDE AND SCHWARZ	N/A
07758	DIGITAL MULTIMETER	175	FLUKE	2024-11-08
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A

Testing verdicts

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

Summary

FCC PART 15 PARAGRAPH / RSS-Gen/ RSS-119/ RSS-247		
Requirement – Test case	**Verdict**	**Remark**
FCC 15.31 (h), FCC 15.209 (a), 15.247 (d) / FCC 90.210 / RSS-Gen 8.9, RSS-119 5.8, RSS-247 5.5: - Emission limitations radiated (Transmitter)	P	(1)
Supplementary information and remarks: (1) Only simultaneous mode radiated spurious emission test was requested.		

Appendix A: Test results.

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TEST CONDITIONS

(*) Declared by the Applicant

POWER SUPPLY (*):

Vnominal: 12Vdc

Type of Power Supply: External power supply

ANTENNA (*):

Modulation	Maximum Declared Antenna Gain	Type of Antenna
TETRA	+5 dBi	UHF Gain Whip Antenna M6 standard moun
802.11 bgn20 / BLE / BT	+1 dBi	Ixxat 1.04.0085.00001 BT/WiFi Antenna with SMA Connector (226-2765 RS Components)

RADIOS AND CHANNELS TESTED (worst case):

802.11 bgn20 (worst case of the 2.4GHz communication module according RF output power)		
Mode:	802.11 b (1 Mbit/s)	
Channel Spacing:	20 MHz	
Frequency Range:	2400 MHz to 2483.5 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	1	2412

TETRA		
Mode:	Tetra Modulation: π/4 DQPSK	
Channel Spacing:	25 kHz	
Frequency Range:	806 MHz to 824 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	High	823.9875

TETRA		
Mode:	Tetra Modulation: π/4 DQPSK	
Channel Spacing:	25 kHz	
Frequency Range:	851 MHz - 869 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	High	868.9875

TESTED SIMULTANEOUS TRANSMISSION MODES:

The EUT was tested in the following operating mode:

- Continuous transmission with a modulated carrier at maximum power in all required channels selecting the supported data rates/modulations types.

During transmitter test the EUT was being controlled by the SW tool to operate in a continuous transmit mode on the test channel as required and in each of the different modulation modes.

Operation mode 1:

*** Simultaneous transmission mode, 802.11 b and TETRA (806 MHz to 824 MHz)**, with the EUT configured to simultaneously transmit two signals at maximum output power:

- 802.11 b / Low Channel (2412 MHz, 1Mbit/s)
- TETRA / High Channel (823.9875 MHz)

Operation mode 2:

*** Simultaneous transmission mode, 802.11 b and TETRA (851 MHz - 869 MHz)**, with the EUT configured to simultaneously transmit two signals at maximum output power:

- 802.11 b / Low Channel (2412 MHz, 1Mbit/s)
- TETRA / High Channel (868.9875 MHz)

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m (Loop antenna for the range between 9 kHz to 30 MHz, Bilog antenna for 30 MHz to 1000 MHz, Double ridge horn antenna 1 GHz-17 GHz) and at a distance of 1.5 m for the frequency range 17 GHz-26 GHz (horn antenna).

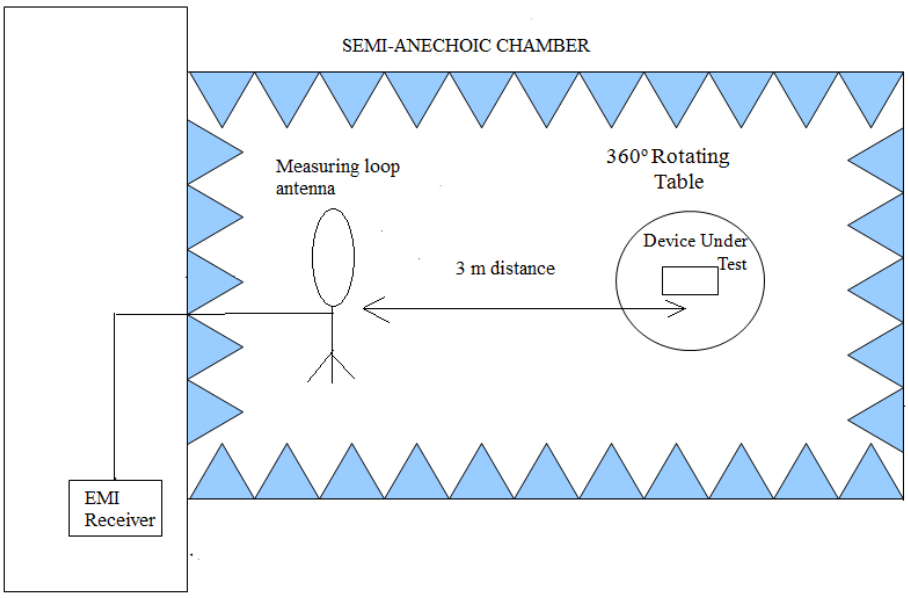
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

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

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.

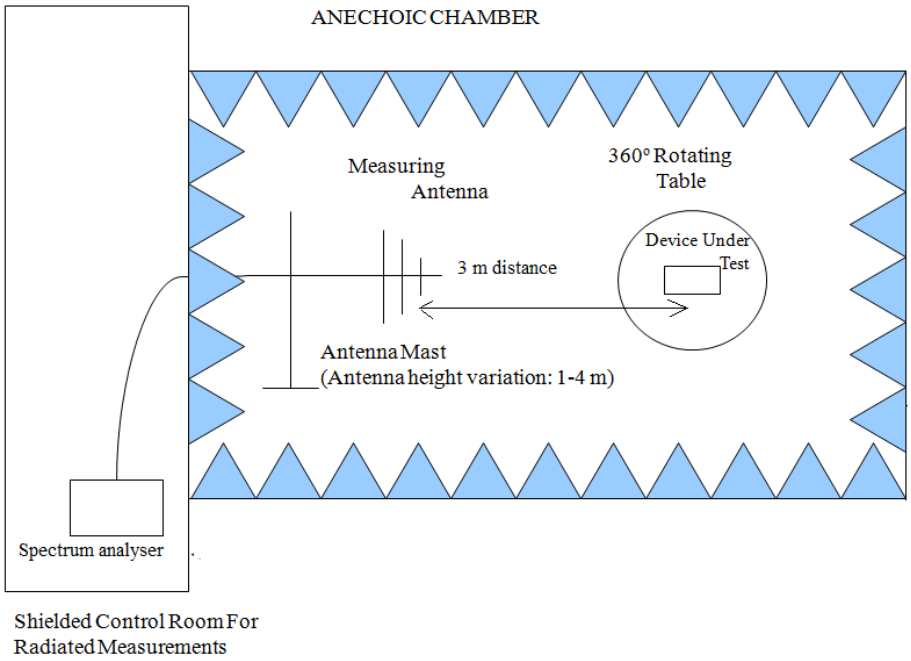
A resolution bandwidth / video bandwidth of 100 kHz / 300 kHz was used for frequencies between 30 MHz up to 1 GHz and 1 MHz / 3 MHz for frequencies above 1 GHz.

Radiated measurements setup f < 30 MHz:

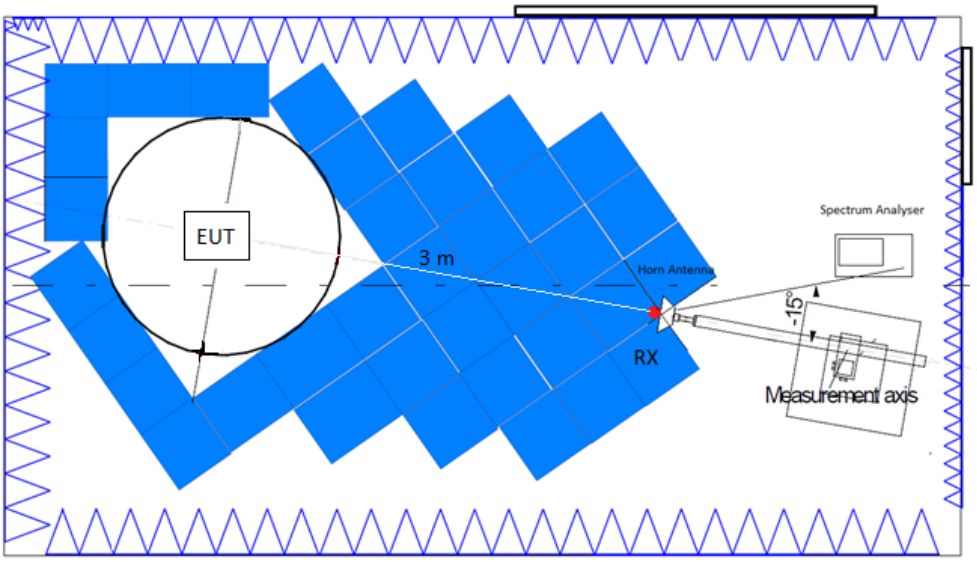


Shielded Control Room For Radiated Measurements

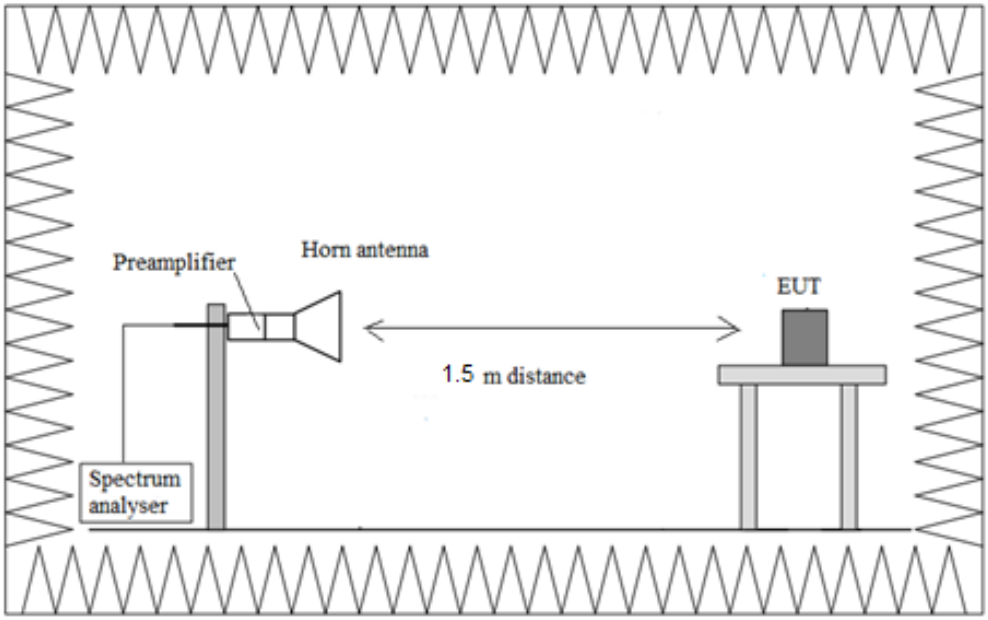
Radiated measurements setup 30 MHz < f < 1 GHz:



Radiated measurements setup f > 1 GHz up to 17 GHz:



Radiated measurements setup f > 17 GHz:



Radiated emissions

Specification:

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), appearing outside of the band 13.110 MHz - 14.010 MHz band must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

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 - 40000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

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.

RSS-247. Attenuation below the general field strength limits specified in RSS-Gen is not required.

FCC §2.1053, §90.210:

On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

RSS-119 5.5, 5.8:

Table 17 - Emission Mask Y

Displacement Frequency. fd (kHz)	Minimum Attenuation (dB)	Resolution Bandwidth (Hz)
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

Results:

- **Operation mode 1:**

Frequency range 30 MHz - 1 GHz

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

Frequency range 1 - 26 GHz

Spurious frequencies 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.

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

Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
2472.123077	64.23	V	PK
4119.720000	65.04	V	PK

- **Operation mode 2:**

Frequency range 30 MHz - 1 GHz

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

Frequency range 1 - 26 GHz

Spurious frequencies 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.

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

Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
1738.092308	63.14	V	PK

Verdict
Pass

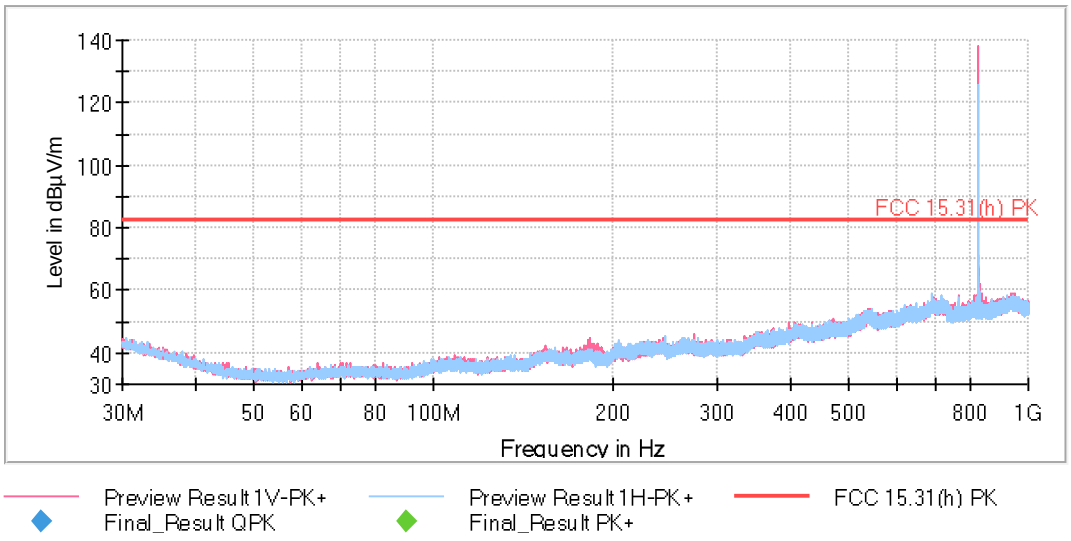
Attachments

Spectrum Analyzer Parameters:

Receiver: [ESR 7]					
30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	0 dB
Receiver: [FSW 50]					
1 GHz - 3 GHz	30,769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Receiver: [FSV 40]					
17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

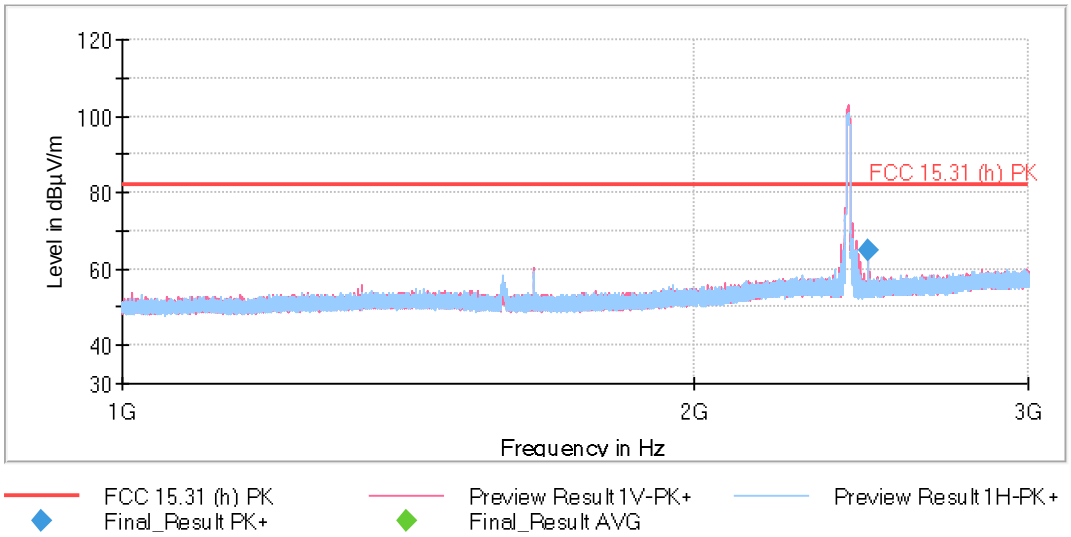
- **Operation mode 1**

FREQUENCY RANGE 30 MHz - 1 MHz:



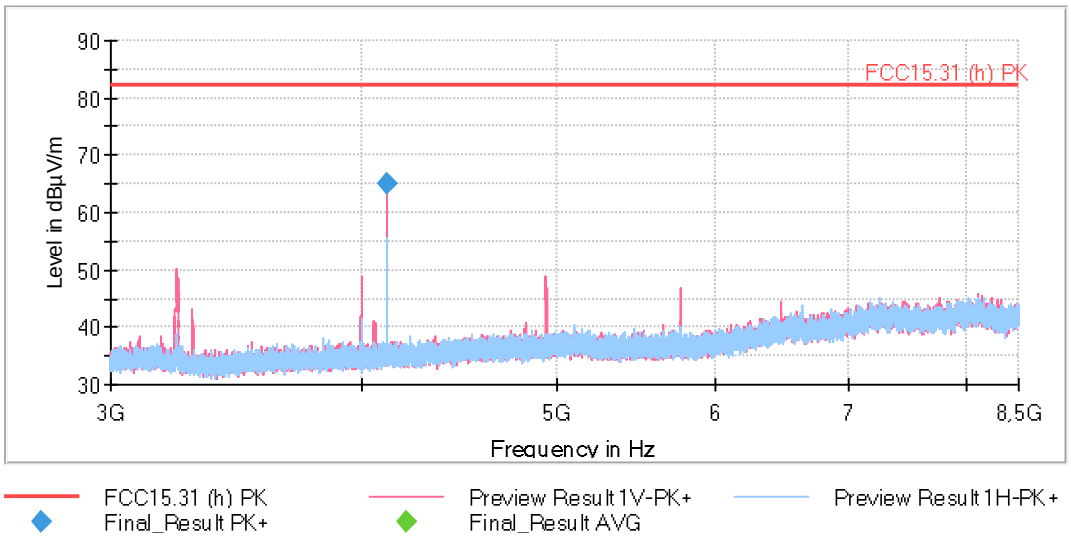
The peak above the limit is the TETRA carrier frequency.

FREQUENCY RANGE 1 - 3 GHz:

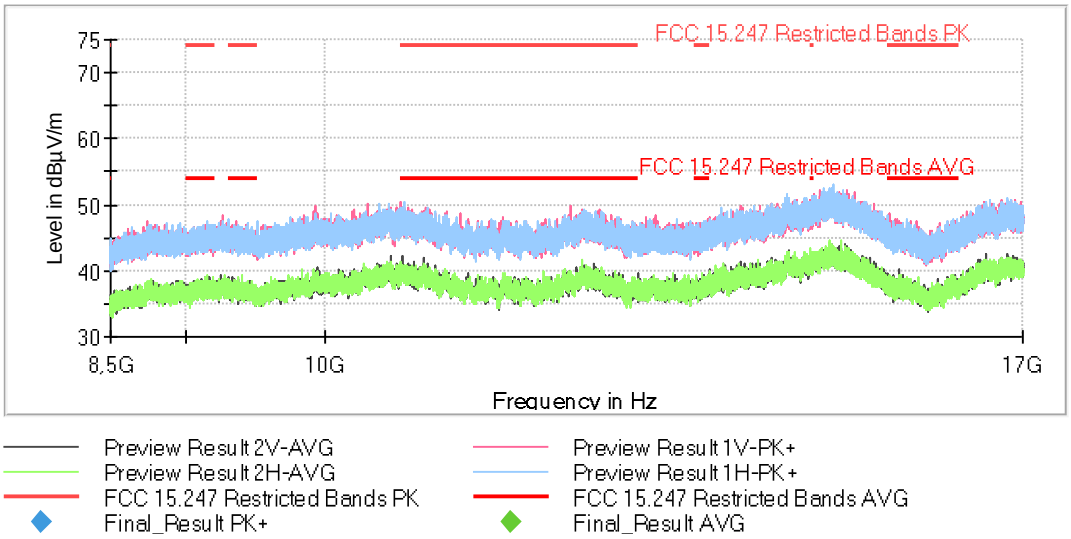


The peak above the limit is the WiFi carrier frequency.

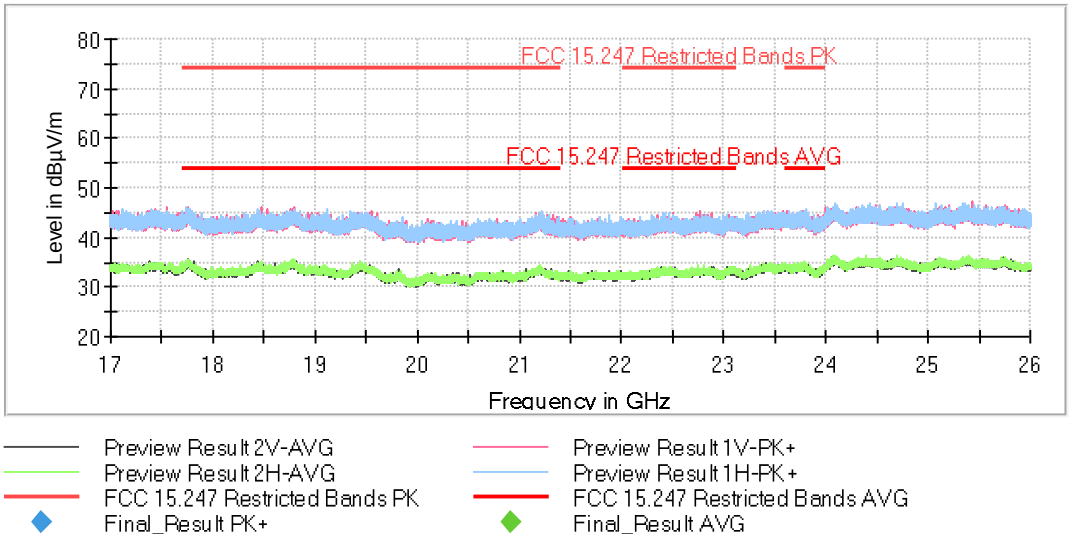
FREQUENCY RANGE 3 – 8,5 GHz:



FREQUENCY RANGE 8.5 - 17 GHz:

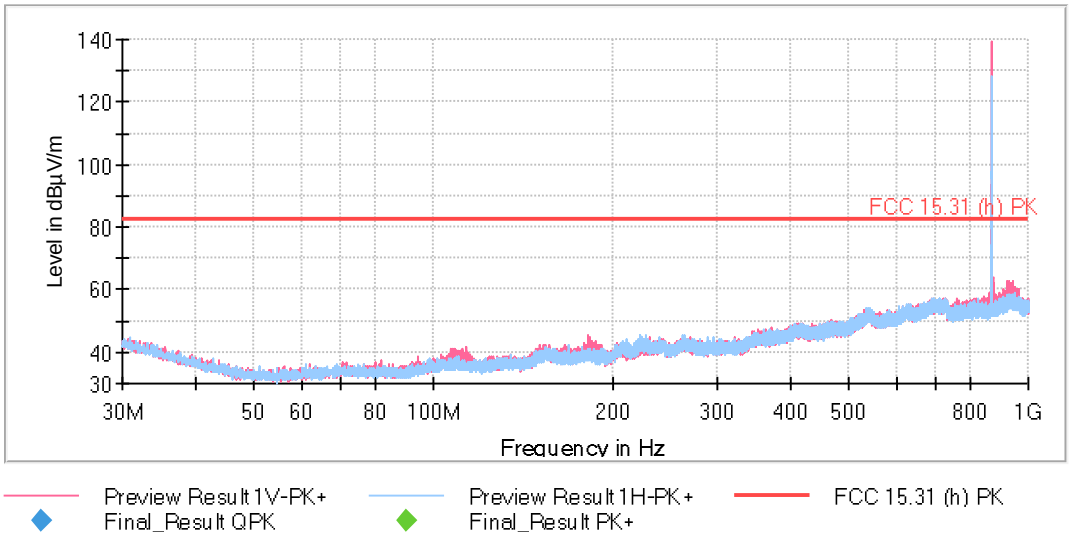


FREQUENCY RANGE 17 - 26 GHz:



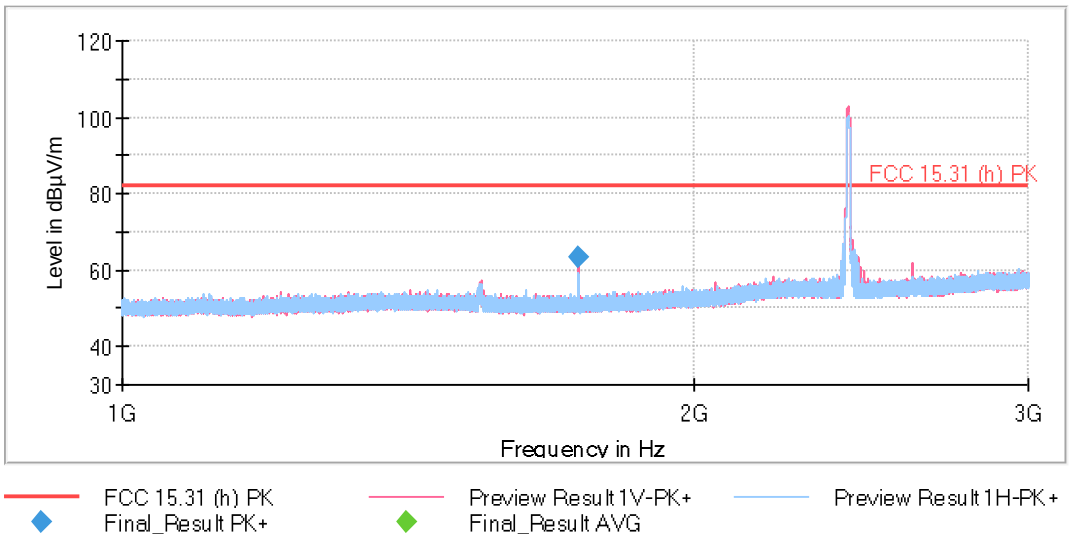
- **Operation mode 2**

FREQUENCY RANGE 30 MHz - 1 GHz:



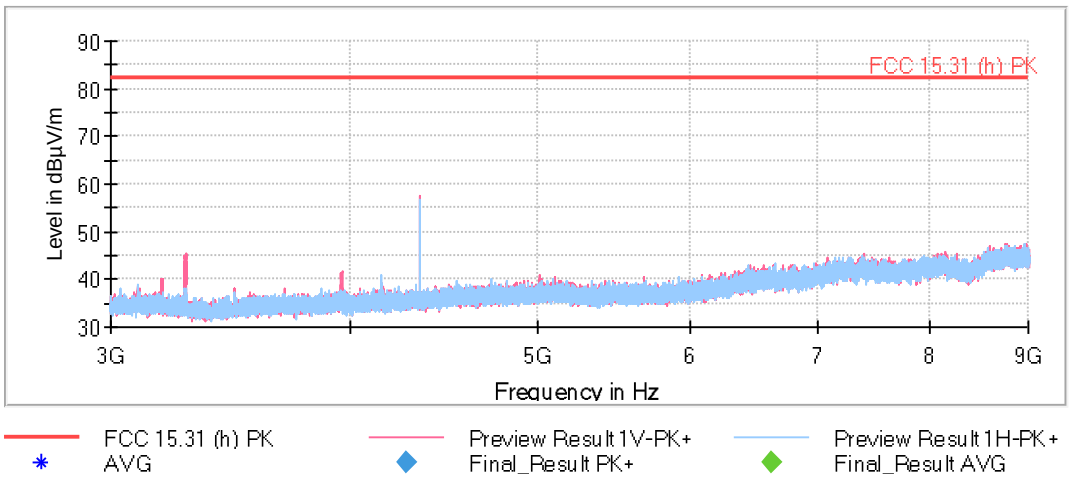
The peak above the limit is the TETRA carrier frequency.

FREQUENCY RANGE 1 - 3 GHz:

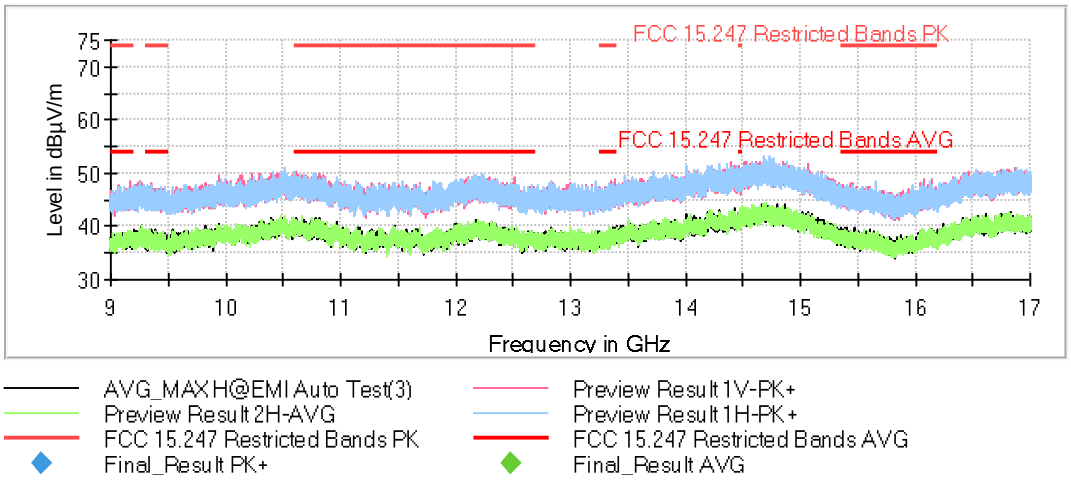
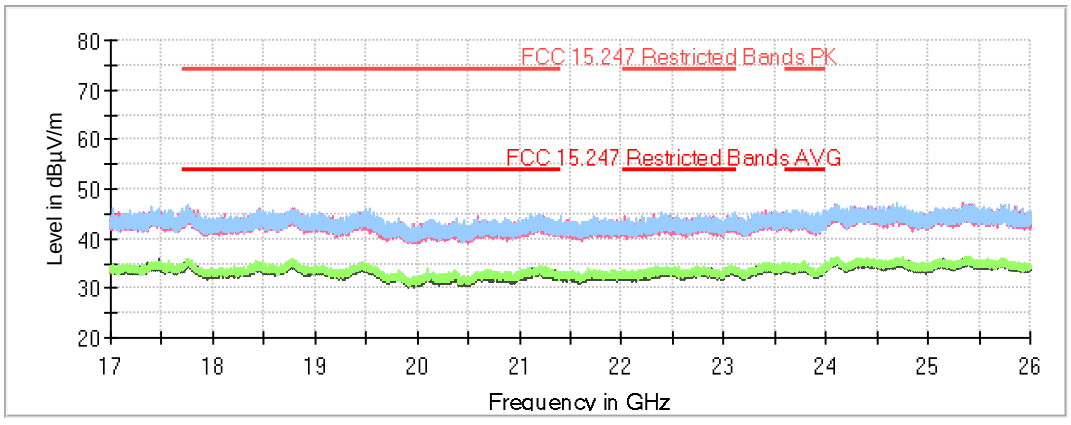


The peak above the limit is the WiFi carrier frequency.

FREQUENCY RANGE 3 - 9 GHz:



FREQUENCY RANGE 9 - 17 GHz:



FREQUENCY RANGE 17 - 26 GHz: