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:
72872RRF.006A1

Partial Test Report
USA FCC 15.31, 15.209, 15.225, 15.247
CANADA RSS-210, RSS-247, RSS-Gen

(*) Identification of item tested	GWL-SVK 1C
(*) Trademark	Verisure
(*) Model and /or type reference	GWL-SVK
Other identification of the product	FCC ID: 2AGMK-GWL-SVK IC: Not provided
(*) Features	SRD 915 MHz, DECT and NFC HW version: 1C SW version: 4.7
Applicant	Telecom Design S.A. 2 bis rue Nully de Harcourt, Canejan, France
Test method requested, standard	USA FCC Part 15.31(h) (10-1-21 Edition): Measurement standard. USA FCC Part 15.209 (10-1-21 Edition): Radiated emission limits; general requirements. USA FCC Part 15.225 (10-1-21 Edition): Operation within the band 13.110 -14.010. USA FCC Part 15.247 (10-1-21 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. CANADA RSS-210 Issue 10, Dec. 2019. CANADA RSS-247 Issue 2, Feb. 2017. CANADA RSS-Gen Issue 5 (April 2018), Amendment 2 (February 2021). ANSI C63.10-2020: American National Standard for Testing Unlicensed Wireless Devices. ANSI C63.26-2015. IEEE/ANSI Standard for Testing of Transmitters Used in Licensed Radio Services. - FCC 15.31 (h), FCC 15.209 (a), FCC 15.247 (d) / RSS-210 B.10 (b), RSS-247 5.5, RSS-Gen 8.9 Emission limitations radiated (Transmitter)
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	2023-09-05
Report template No	FDT08_24 (*) "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 is an 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, 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.

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The results presented in this Test Report apply only to the particular item under test established in this document.

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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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 the EUT from 9 kHz to 30 MHz is:
Measurement uncertainty $\leq \pm$ 3.04 dB with factor (k=2).
The total uncertainty of the measurement system for the radiated emissions of the EUT from 30 MHz to 1 GHz is:
Measurement uncertainty $\leq \pm$ 5.35 dB with factor (k=2).
The total uncertainty of the measurement system for the radiated emissions of the EUT from 1 to 10 GHz is:
Measurement uncertainty $\leq \pm$ 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").

2. The sample model GWL-SVK is a Verisure Keypad with SRD, DECT and NFC capabilities.

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
72872C/024	GWL-SVK 1C	GWL-SVK	3N4S GZZJ	13-12-2022

Sample S/01 has undergone the following 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(3)
	PORT1 = SRD	0.1	☒	☐	☐
	PORT 2 = DECT	0.1	☒	☒	☐
	PORT 3 = NFC	0.1	☒	☐	☐
Supplementary information to the ports……:	-				
Rated power supply ..... :	Voltage and Frequency				
	☒ DC: 3.0V to 4.5V				
Rated Power..... :	5W				
Clock frequencies..... :	26 MHz				
Other parameters ..... :	-				
Software version..... :	4.7				
Hardware version ..... :	1C				
Dimensions in cm (W x H x D) ... :	-				
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	
	-		-	-	

(3) Only for Medical Equipment

Identification of the client

Verisure Innovation

Nordenskiöldsgatan 11A, 211 19, Malmö, Sweden

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	05-01-2023
Date (finish)	23-01-2023

Document history

Report number	Date	Description
72872RRF.006	2023-07-06	First release.
72872RRF.006A1	2023-09-05	Second release. The value of the antenna gains are modified. This modification test report cancels and replaces the test report 72872RRF.006.

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: Miguel Manuel López.

Used instrumentation:

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.	Active Loop Antenna HEWLETT PACKARD 11966A	2022-08	2024-08
4.	Hybrid Bilog Antenna 30MHz-6GHz	2022-06	2023-06
5.	RF Preamplifier, G>38dB 30MHz-6GHz BONN ELEKTRONIK BLNA 0360-01N	2022-06	2023-06
6.	EMI Test Receiver 7 GHz ROHDE AND SCHWARZ ESR7	2021-11	2023-11
7.	Horn Antenna 1-18 GHz SCHWARZBECK MESS-ELEKTRONIK BBHA 9120 D	2020-08	2023-08
8.	RF Preamplifier G>30dB, 1-18GHz BONN ELEKTRONIK BLMA 0118-3A	2022-12	2023-12
9.	EMI Test Receiver 2 Hz - 44 GHz, ROHDE AND SCHWARZ ESW44	2021-12	2023-12
10.	EMC/RF Testing SW ROHDE AND SCHWARZ EMC32	N/A	N/A

Testing verdicts

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

Summary

FCC 15.31, 15.209, 15.225, 15.247 / RSS-210, RSS-247, RSS-Gen PARAGRAPH		
Requirement – Test case	**Verdict**	**Remark**
FCC 15.31 (h), FCC 15.209 (a), FCC 15.247 (d) / RSS-210 B.10 (b), RSS-247 5.5, RSS-Gen 8.9 Emission limitations radiated (Transmitter)	P	(1)
Supplementary information and remarks: (1) Only Simultaneous Transmission Radiated Spurious Emissions test was requested.		

Appendix A: Test results FCC 15.31, 15.209, 15.225, 15.247 / RSS-210, RSS-247, RSS-Gen

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TEST CONDITIONS

(*): Data provided by the Applicant.

POWER SUPPLY (*):

Vnominal: 4.5 Vdc

Type of Power Supply: Battery

ANTENNA (*):

NFC 13.56 MHz:

Type of Antenna: Integrated.

Maximum Declared Antenna Gain: Not provided.

DECT 1925 MHz:

Type of Antenna: Integrated Whip.

Maximum Declared Antenna Gain: +0.61 dBi

SRD 915 MHz:

Type of Antenna: Integrated Whip.

Maximum Declared Antenna Gain: +0.23 dBi

TEST FREQUENCIES (*):

	NFC 13.56 MHz	
Mode:	Mifare	
Channel Spacing:	Single Channel	
Frequency Range:	13.56 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	Single	13.56

	DECT 1925 MHz	
Mode:	DECT (Emission designator: DCX81)	
Channel Spacing:	DECT	
Frequency Range:	1920 MHz to 1930 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	High	1928.448

	SRD 915 MHz	
Mode:	2GFSK / 4GFSK	
Channel Spacing:	1 MHz	
Frequency Range:	915.5-927.5 MHz	
Transmit Channel:	Channel	Channel Frequency (MHz)
	Single	925.5

The test set-up was made in accordance to the general provisions of FCC DTS Measurement 558074 D01 DTS Meas Guidance v05r02 dated April 2, 2019.

The EUT was tested in the following operating mode:

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.

The following configurations were selected based on preliminary testing that identified those corresponding to the worst-cases:

Selected Transmission Modes for each Radio:

The following configurations were selected based on preliminary testing that identified those corresponding to the worst-cases:

* NFC 13.56 MHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in NFC 13.56 MHz / MIFARE mode configuration as this mode is the only one supported.

* DECT 1925 MHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in DECT 1928.448 MHz / DECT mode configuration as this mode is the only one supported.

* SRD 915 MHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in SRD 925.5 MHz / 2GFSK mode configuration as this mode was found as the worst-case for spurious emissions than all the other SRD 915 MHz modes.

TESTED SIMULTANEOUS TRANSMISSION MODES:

*** Simultaneous Transmission mode NFC 13.56 MHz, DECT 1925 MHz, with the EUT configured to** simultaneously transmit the following signals at maximum output power:

NFC 13.56 MHz / MIFARE Single Channel; DECT 1925 MHz / Single Channel (1928.448 MHz).

*** Simultaneous Transmission mode SRD 915 MHz, DECT 1925 MHz, with the EUT configured to** simultaneously transmit the following signals at maximum output power:

SRD 915 MHz / Single Channel (925.5 MHz); DECT 1925 MHz / Single Channel (1928.448 MHz).

Simultaneous Transmission Radiated Spurious Emissions

SPECIFICATION:

NFC 13.56 MHz and DECT 1925 MHz:

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), 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 - 25000	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.

SRD 915 MHz:

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.

METHOD:

The measurement was performed with the EUT inside an anechoic chamber.

The spectrum was scanned from 9 kHz to at least the 10th harmonic of the NFC frequency of the co-located radios for Simultaneous Transmission mode NFC + DECT.

The spectrum was scanned from 30 MHz to at least the 10th harmonic of the SRD frequency of the co-located radios for Simultaneous Transmission mode SRD + DECT.

The EUT was placed on a non-conductive stand at a 3 meter distance from the measuring antenna.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded.

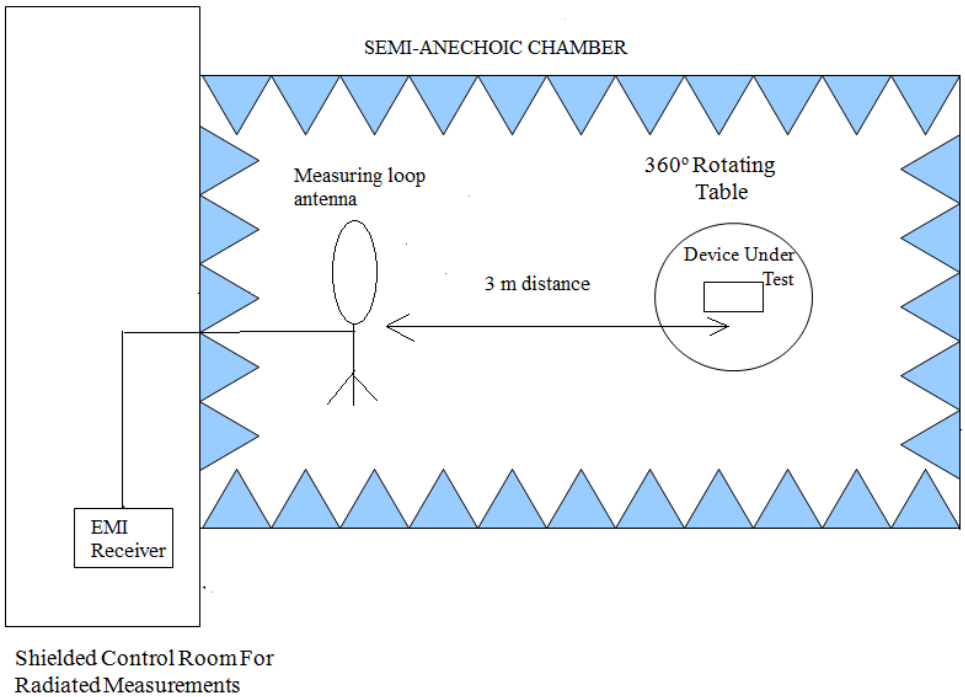
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

These measurements have been performed in order to check the impact of the Simultaneous Transmission of all radio interfaces (that can be transmitting simultaneously).

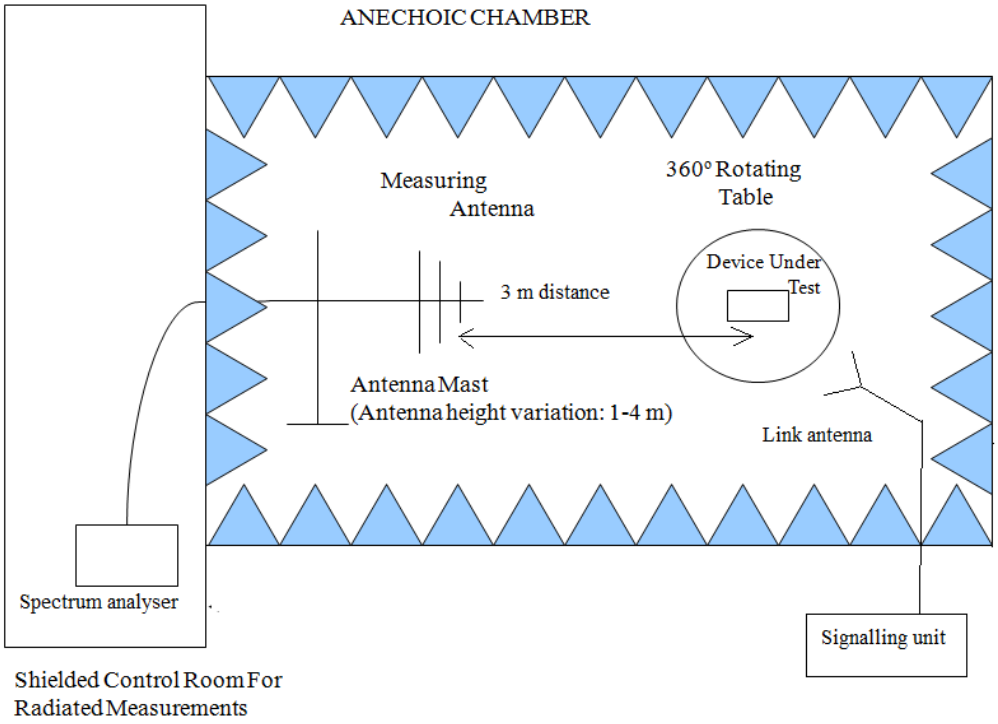
A resolution bandwidth / video bandwidth of 100 kHz / 300 kHz was used for spectrum below 1 GHz and 1MHz / 3 MHz for spectrum above 1 GHz.

TEST SETUP:

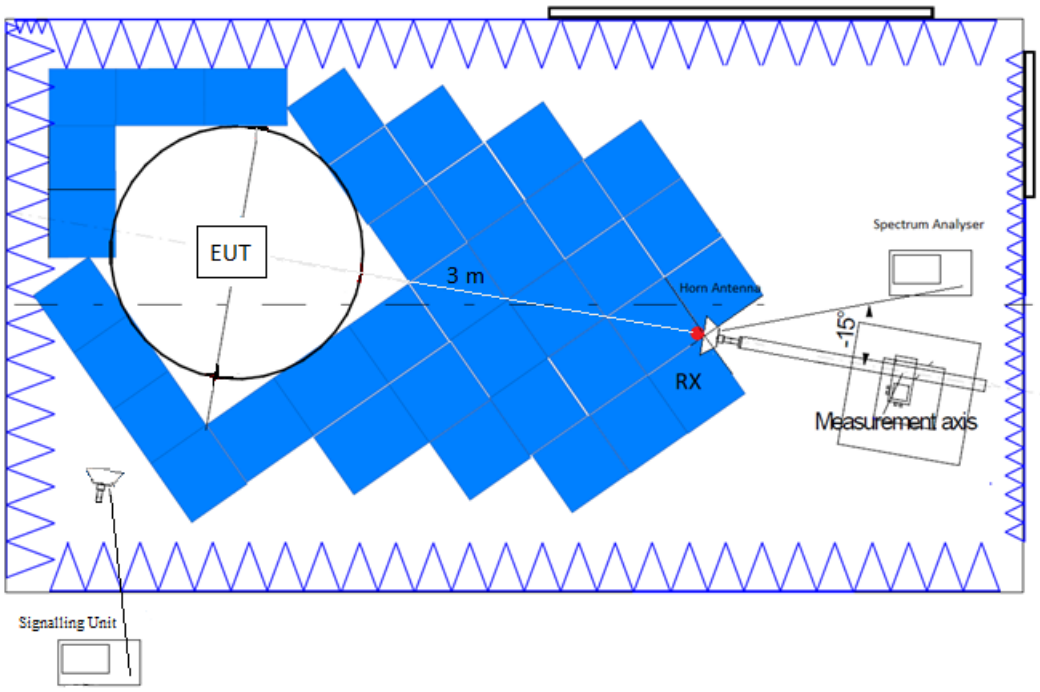
Radiated measurements setup 9 kHz to 30 MHz:



Radiated measurements below 1 GHz.



Radiated measurements between 1 GHz and 10 GHz.



RESULTS:

- **Simultaneous Transmission mode NFC 13.56 MHz, DECT 1925 MHz:**

NFC 13.56 MHz: Single Channel (13.56 MHz). MIFARE.
DECT 1925 MHz: Single Channel (1928.448 MHz). DECT.

LIMIT: The spurious frequencies were measured at 3 meter. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
0.009 - 0.490 MHz	Quasi-Peak	-
0.490 - 1.705 MHz	Quasi-Peak	-
1.705 - 30.0 MHz	Quasi-Peak	29.54
30 - 88 MHz	Quasi-Peak	40
88 - 216 MHz	Quasi-Peak	43.5
216 - 960 MHz	Quasi-Peak	46
960 - 1000 MHz	Quasi-Peak	54

(*) Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

Frequency range 9 kHz - 30 MHz:

No spurious frequencies at less than 20 dB below the limit.

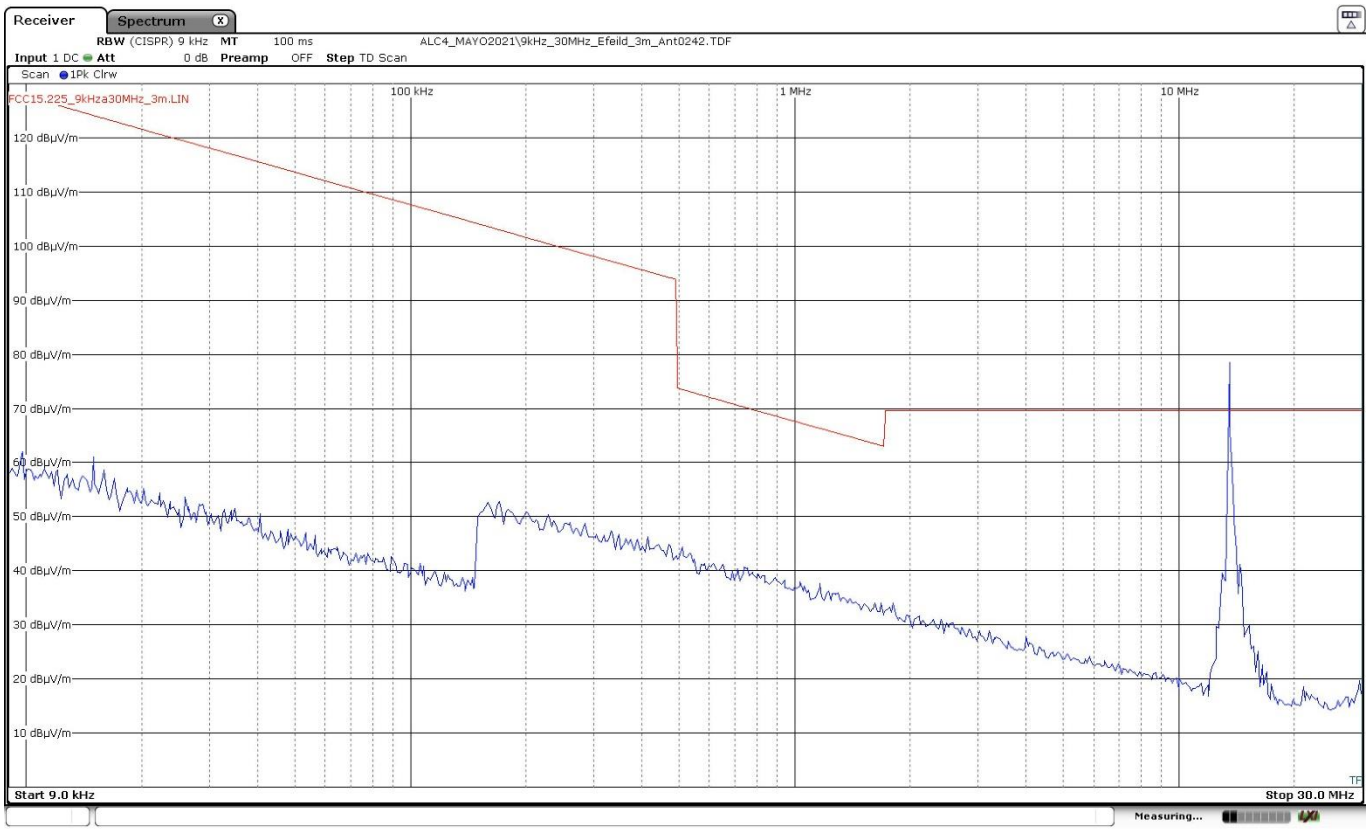
Frequency range 30 MHz - 1 GHz:

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	E.I.R.P (dBµV/m)	Polarization	Detector
40.67	22.02	V	Quasi-Peak

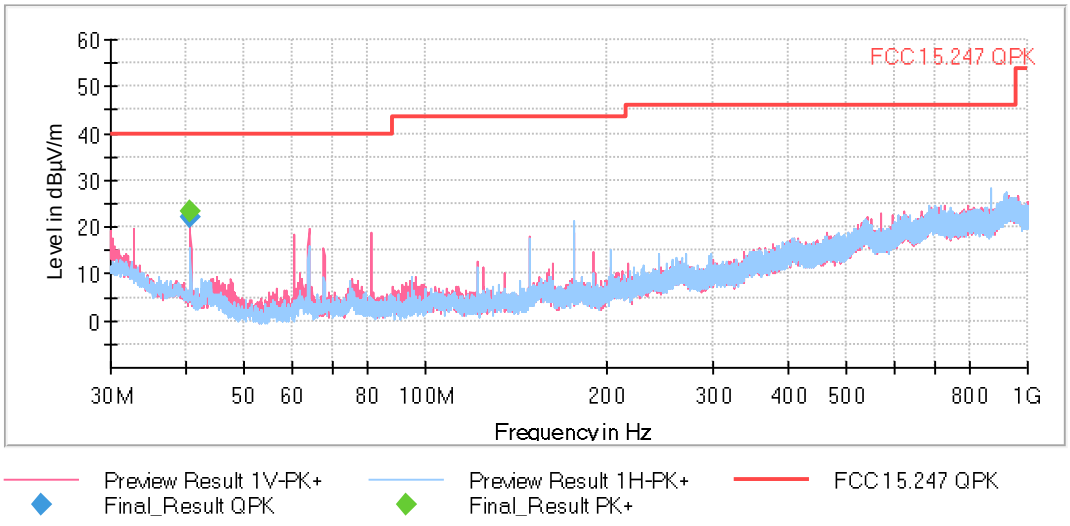
Verdict: PASS

FREQUENCY RANGE 9 kHz - 30 MHz:



The peak above the limit is the carrier frequency NFC 13.56 MHz.

FREQUENCY RANGE 30 MHz - 1 GHz:



- **Simultaneous Transmission mode DECT 1925 MHz, SRD 915 MHz:**

DECT 1925 MHz: Single Channel (1928.448 MHz).
SRD 915 MHz: Single Channel (925.5 MHz).

LIMIT: The spurious frequencies were measured at 3 meter. The limit of the test is determined by:

Frequency Range	Detector	Limit at 3m (dBµV/m)
30 - 88 MHz	Quasi-Peak	40
88 - 216 MHz	Quasi-Peak	43.5
216 - 960 MHz	Quasi-Peak	46
960 - 1000 MHz	Quasi-Peak	54
1 - 10 GHz	Peak	74 dBµV/m
1 - 10 GHz	Average	54 dBµV/m (*)

(*) Radiated emissions which fall in the restricted bands, as defined in §15.205(a).

Frequency range 30 MHz - 1 GHz:

No spurious frequencies at less than 20 dB below the limit.

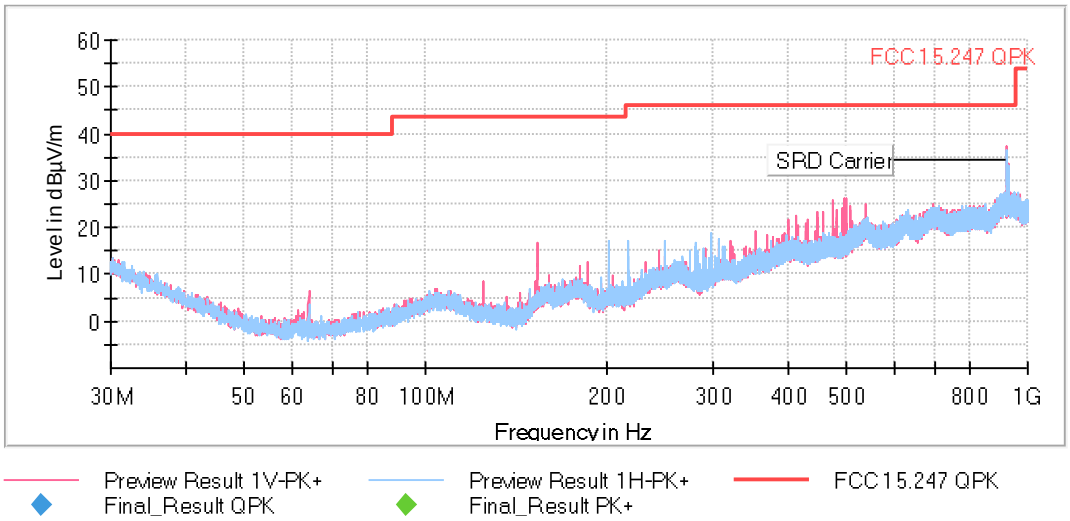
Frequency range 1 - 10 GHz:

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	E.I.R.P (dBµV/m)	Polarization	Detector
2776.276923	59.41	H	Peak
	50.31		Average
3702.520000	57.49	V	Peak
	53.30		Average
5551.920000	57.76	H	Peak

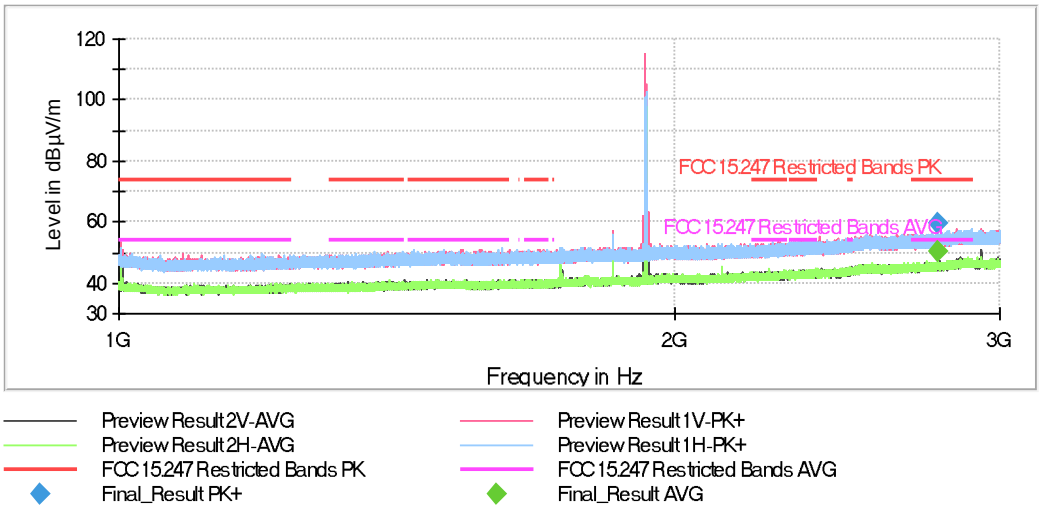
Verdict: PASS

FREQUENCY RANGE 30 MHz - 1 GHz:



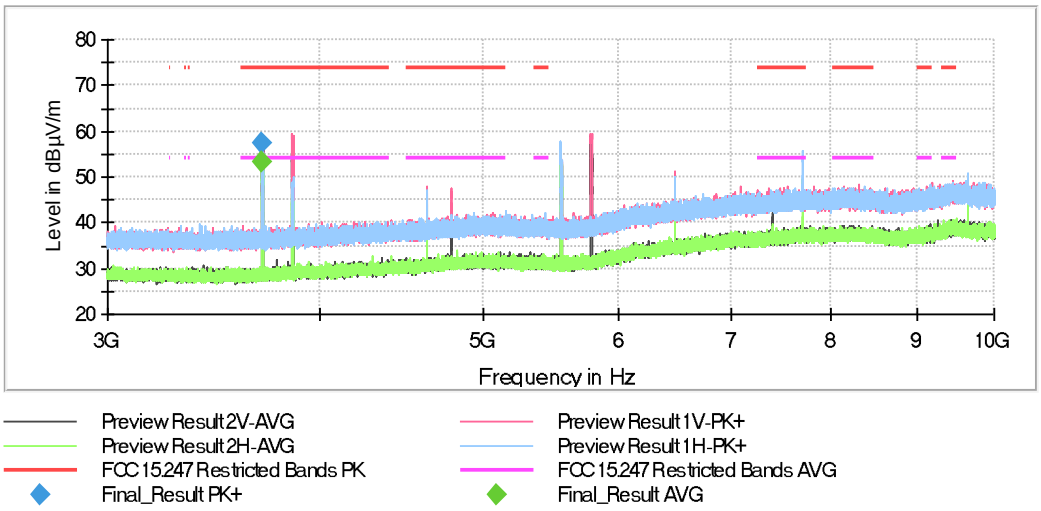
The highest peak is the carrier frequency SRD (925.5 MHz).

FREQUENCY RANGE 1 - 3 GHz:



The peak above the limit is the carrier frequency DECT 1925 MHz (1928.448 MHz).

FREQUENCY RANGE 3 - 10 GHz:



Peaks above the limit are due to the DECT technology and no radiated spurious limit applies to it.