**DEKRA Testing and Certification, S.A.U.**
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
C.I.F. A29507456

ISED CABid: ES1909

Lab. Company Number: 4621A

Test Report No:

NIE: 74223RRF.006

# Partial Test Report

## USA FCC Part 15.31, 15.225, 15.247, 15.209
## CANADA RSS-210, RSS-247, RSS-Gen

| | |
|---|---|
| (*) Identification of item tested | XS4 One+ sfc Keypad Electronic Lock Series including all mechanical variants |
| (*) Trademark | SALTO |
| (*) Model and /or type reference | W61MK (Type reference: E2131) |
| Other identification of the product | FCC ID: UKCW61MK<br>IC: 10088A-W61MK |
| (*) Features | Features: Bluetooth LE<br>HW version: 1.0<br>SW version: 0190 (Control FW), 0186 (FUS FW)<br>0187 (BLE FW), 0202 (Motor FW) |
| Applicant | SALTO SYSTEMS, S.L.<br>Arkotz 9, Polígono Lanbarren<br>20180, Oiartzun, Gipuzkoa, SPAIN |
| Test method requested, standard | USA FCC Part 15.31 (10-1-21 Edition): Measurement standard.<br>USA FCC Part 15.225 (10-1-21 Edition): Operation within the band 13.110 -14.010.<br>USA FCC Part 15.247 (10-1-21) Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz.<br>USA FCC Part 15.209 (10-1-21) Edition: Radiated emission limits; general requirements.<br>CANADA RSS-210 Issue 10 (December 2019).<br>CANADA RSS-247 Issue 2 (February 2017).<br>CANADA RSS-Gen Issue 5 (March 2019).<br>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.<br>ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices. |
| Approved by (name / position & signature) | Rafael López Martín<br>EMC Consumer & RF Lab. Manager<br>  2023.01.24 08:45:46 +01'00' |
| Date of issue | 2023-01-24 |
| Report template No | FDT08_24<br>(*) "Data provided by the client" |

# Index

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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.

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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 is:

| | |
|---|---|
| From 9 kHz to 30 MHz: | Measurement uncertainty $\leq \pm$ 5.01 dB. |
| From 30 MHz to 1 GHz: | Measurement uncertainty $\leq \pm$ 4.22 dB. |
| From 1 to 17 GHz: | Measurement uncertainty $\leq \pm$ 4.71 dB. |
| From 17 to 26 GHz: | Measurement uncertainty $\leq \pm$ 4.92 dB. |

# 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 XS4 One+ sfc Keypad Electronic Lock Series with RFID Mifare (ISO 14443A & ISO 15693 standard based) and Bluetooth LE technology.

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.

| Id | Control Number | Description | Model | Serial Nº | Date of Reception | Application |
|---|---|---|---|---|---|---|
| S/01 | 74223C_2.1 | XS4 One+ sfc Keypad | W61MK | -- | 2022-12-19 | Element Under Test |

Notes referenced to samples during the project:

| Id | Type |
|---|---|
| S/01 | Sample used for radiated test |

# Test sample description

<table>
<tr><td rowspan="2">Ports…… :</td><td rowspan="2">Port name and description</td><td colspan="4">Cable</td></tr>
<tr><td>Specified max length [m]</td><td>Attached during test</td><td>Shielded</td><td>Coupled to patient(3)</td></tr>
<tr><td></td><td>--</td><td></td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>Supplementary information to the ports…… :</td><td colspan="5">--</td></tr>
<tr><td rowspan="4">Rated power supply.....:</td><td colspan="2" rowspan="2">Voltage and Frequency</td><td colspan="4">Reference poles</td></tr>
<tr><td>L1</td><td>L2</td><td>L3</td><td>N</td><td>PE</td></tr>
<tr><td>[ ]</td><td>AC:</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td><td>[ ]</td></tr>
<tr><td>[X]</td><td colspan="5">DC: 4.5 Vdc (3 x LR06 batteries)</td></tr>
<tr><td>Rated Power.....:</td><td colspan="6">--</td></tr>
<tr><td>Clock frequencies.....:</td><td colspan="6">27.12 MHz, 32 MHz, 32.768 KHz</td></tr>
<tr><td>Other parameters .....:</td><td colspan="6">N/A</td></tr>
<tr><td>Software version.....:</td><td colspan="6">0190 (Control FW) + 0186 (FUS FW) + 0187 (BLE FW) + 0202 (Motor FW)</td></tr>
<tr><td>Hardware version .....:</td><td colspan="6">1.0</td></tr>
<tr><td>Dimensions in cm (W x H x D).....:</td><td colspan="6">6.7 x 29.0 x 2.0 cm</td></tr>
<tr><td rowspan="5">Mounting position .....:</td><td>[ ]</td><td colspan="5">Table top equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Wall/Ceiling mounted equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Floor standing equipment</td></tr>
<tr><td>[ ]</td><td colspan="5">Hand-held equipment</td></tr>
<tr><td>[X]</td><td colspan="5">Other: Door mounting</td></tr>
<tr><td rowspan="2">Modules/parts.....:</td><td colspan="3">Module/parts of test item</td><td>Type</td><td>Manufacturer</td></tr>
<tr><td colspan="3">SoC + Antenna</td><td>BLE</td><td>ST + JOHANSON</td></tr>
<tr><td></td><td colspan="3">--</td><td></td><td></td></tr>
<tr><td rowspan="2">Accessories (not part of the test item).....:</td><td colspan="3">Description</td><td>Type</td><td>Manufacturer</td></tr>
<tr><td colspan="3">--</td><td></td><td></td></tr>
<tr><td rowspan="4">Documents as provided by the applicant .....:</td><td colspan="3">Description</td><td>File name</td><td>Issue date</td></tr>
<tr><td colspan="3">User manual</td><td></td><td></td></tr>
<tr><td colspan="3">FW Explanation</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td>.....</td><td>.....</td></tr>
</table>

(3) Only for Medical Equipment

# Identification of the client

SALTO SYSTEMS, S.L.
Arkotz 9, Polígono Lanbarren
20180, Oiartzun, Gipuzkoa, SPAIN

# Testing period and place

| | |
|---|---|
| **Test Location** | DEKRA Testing and Certification S.A.U. |
| **Date (start)** | 2023-01-18 |
| **Date (finish)** | 2023-01-19 |

# Document history

| Report number | Date | Description |
|---|---|---|
| 74223RRF.006 | 2023-01-24 | First release. |

# Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

| | |
|---|---|
| **Temperature** | Min. = 15 ºC<br>Max. = 35 ºC |
| **Relative humidity** | Min. = 20 %<br>Max. = 75 % |

In the semianechoic chamber, the following limits were not exceeded during the test.

| | |
|---|---|
| **Temperature** | Min. = 15 ºC<br>Max. = 35 ºC |
| **Relative humidity** | Min. = 20 %<br>Max. = 75 % |

# Remarks and comments

The tests have been performed by the technical personnel: Jose Manuel Jimenez and Pablo Redondo.

Used instrumentation:

| Control No. | Equipment | Model | Manufacturer | Next Calibration |
|---|---|---|---|---|
| 4825 | SEMIANECHOIC ABSORBER LINED CHAMBER | FACT 3 200 STP | ETS LINDGREN | N/A |
| 4826 | SHIELDED ROOM | S101 | ETS LINDGREN | N/A |
| 0242 | ACTIVE LOOP ANTENNA 9 kHz-30 MHz | 11966A | HEWLETT PACKARD | 2024-08-18 |
| 6165 | EMI TEST RECEIVER 9kHz-7GHz | ESR7 | ROHDE AND SCHWARZ | 2023-11-08 |
| 4578 | HYBRID BILOG ANTENNA 30MHz-6GHz | 3142E | ETS LINDGREN | 2023-04-30 |
| 6142 | PRE-AMPLIFIER G>38dB 30MHz-6GHz | BLNA 0360-01N | BONN ELEKTRONIK | 2023-06-16 |
| 4612 | HORN ANTENNA 1-18GHz | BBHA 9120 D | SCHWARZBECK MESS-ELEKTRONIK | 2024-07-13 |
| 3783 | PRE-AMPLIFIER G>30dB 1GHz-18GHz | BLMA 0118-3A | BONN ELEKTRONIK | 2023-12-29 |
| 4716 | SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz | FSW50 | ROHDE AND SCHWARZ | 2024-08-12 |
| 4657 | HORN ANTENNA 18-40GHz | BBHA 9170 | SCHWARZBECK MESS-ELEKTRONIK | 2023-05-05 |
| 8856 | PRE-AMPLIFIER G>30dB 17-40GHz | BLMA 1840-4A | BONN ELEKTRONIK | 2023-11-02 |
| 4848 | 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-247 | | |
|---|---|---|
| **Requirement – Test case** | **Verdict** | **Remark** |
| FCC 15.31 (h), FCC 15.209 (a), 15.225 (d), 15.247 (d) / RSS-Gen 8.9, RSS-210 B.6 (a)(iv), RSS-247 5.5:<br>- Emission limitations radiated (Transmitter) | P | (1) |
| Supplementary information and remarks:<br>(1) Only simultaneous mode radiated spurious emission test was requested. | | |

# **Appendix A:** Test results.

# INDEX

# TEST CONDITIONS

(*) Declared by the Applicant

POWER SUPPLY (*):

Vnominal: 4.5Vdc

Type of Power Supply: 3 x LR06 batteries

ANTENNA (*):

Type of Antenna for Bluetooth Low Energy: Integral (Chip).

Maximum Declared Antenna Gain for Bluetooth Low Energy: +0.5 dBi

Type of Antenna for RFID 13.56 MHz ISO 14443A: Integral (PCB).

Maximum Declared Antenna Gain for RFID 13.56 MHz ISO 14443A: N/A

Type of Antenna for RFID 13.56 MHz ISO 15693: Integral (PCB).

Maximum Declared Antenna Gain for RFID 13.56 MHz ISO 15693: N/A

RADIOS AND CHANNELS TESTED:

| | Bluetooth Low Energy / DTS | |
|---|---|---|
| Mode: | 1M (GFSK - 1DH5) | |
| Channel Spacing: | 2 MHz | |
| Frequency Range: | 2402 MHz to 2480 MHz | |
| Transmit Channel: | Channel | Channel Frequency (MHz) |
| | 17 | 2440 |

| | RFID 13.56 MHz ISO 14443A / ASK 100%, OOK (subcarrier fc/16) | |
|---|---|---|
| Mode: | Single Channel | |
| Channel Spacing: | Not Applicable | |
| Frequency Range: | 13.553 - 13.567 MHz | |
| Transmit Channel: | Channel | Channel Frequency (MHz) |
| | 1 | 13.56 |

| | RFID 13.56 MHz ISO 15693 / ASK 10% - 30%, OOK (subcarrier fc/32) | |
|---|---|---|
| Mode: | Single Channel | |
| Channel Spacing: | Not Applicable | |
| Frequency Range: | 13.553 - 13.567 MHz | |
| Transmit Channel: | Channel | Channel Frequency (MHz) |
| | 1 | 13.56 |

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.

**Selected Transmission Modes for each Radio:**

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

* Bluetooth Low Energy: Transmitter radiated spurious emissions tests were performed with the EUT transmitting 1 Mbps in the Middle Channel (2440 MHz).

* RFID 13.56 MHz: Transmitter radiated spurious emissions tests were performed with the EUT transmitting in the Single Channel configuration supported by this radio.

**TESTED SIMULTANEOUS TRANSMISSION MODES:**

*** Simultaneous transmission mode Bluetooth, RFID 13.56 MHz ISO 14443A**, with the EUT configured to simultaneously transmit two signals at maximum output power:

Bluetooth Low Energy in 1 Mbps in the Middle Channel (2440 MHz), RFID 13.56 MHz ISO 14443A Single Channel.

*** Simultaneous transmission mode Bluetooth, RFID 13.56 MHz ISO 15693**, with the EUT configured to simultaneously transmit two signals at maximum output power:

Bluetooth Low Energy in 1 Mbps in the Middle Channel (2440 MHz), RFID 13.56 MHz ISO 15693 Single Channel.

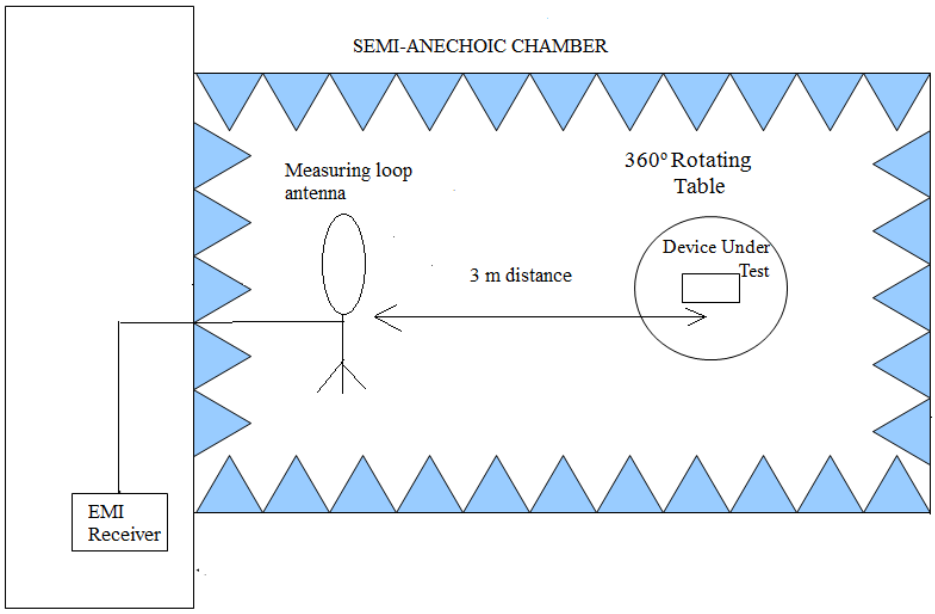
RADIATED MEASUREMENTS:

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 horn antenna 17 GHz-26 GHz), at distance of 1.5 m for the frequency range 17 GHz-26 GHz.

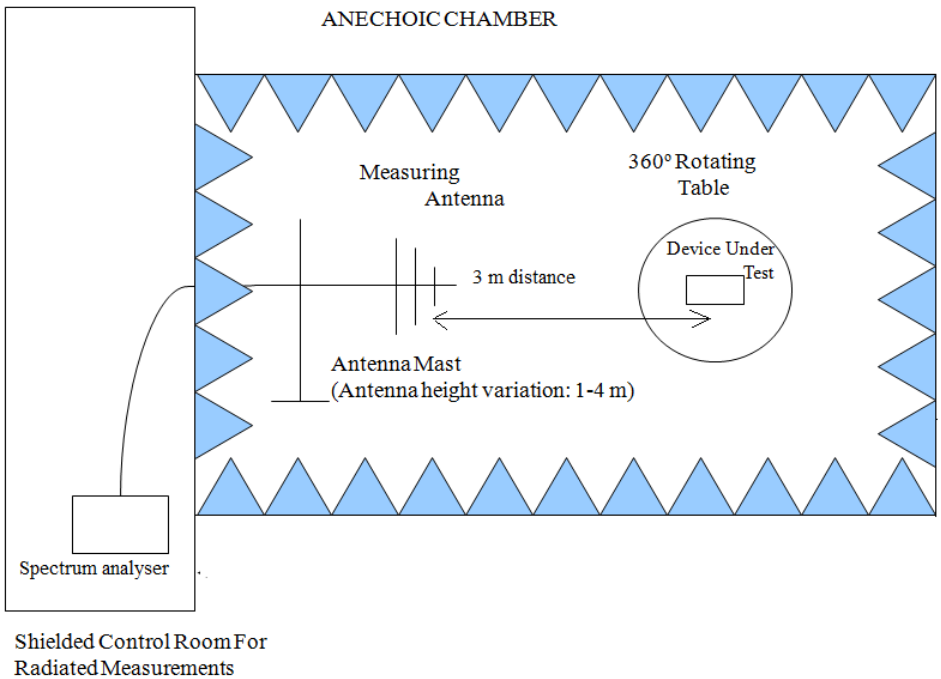
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

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

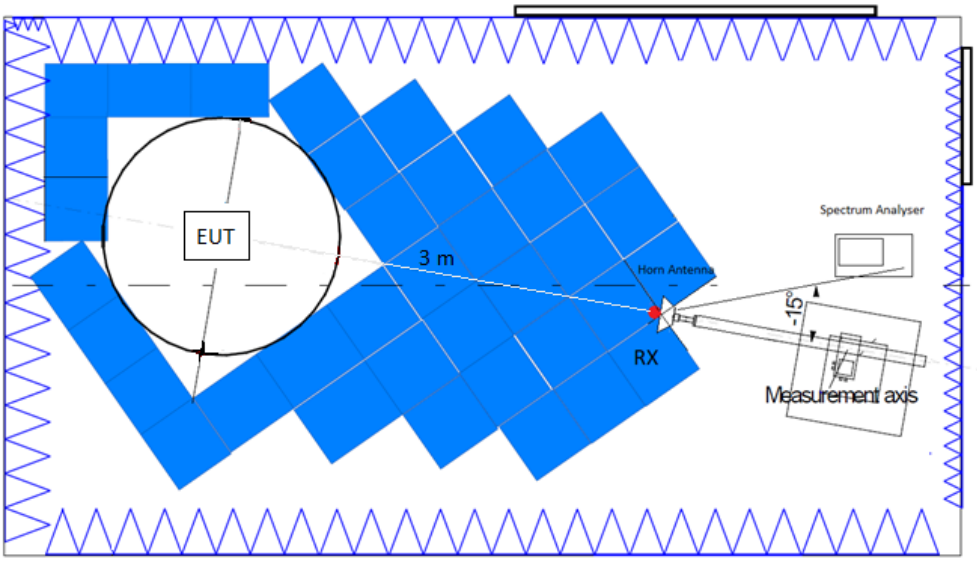
Radiated measurements setup f < 30 MHz:



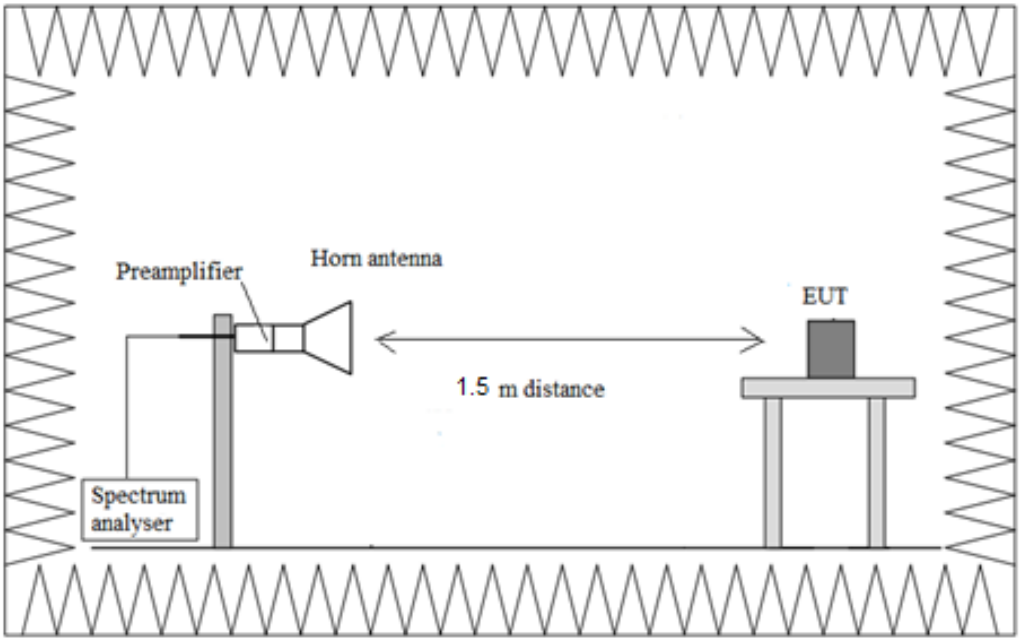

Radiated measurements setup 30 MHz < f < 1 GHz:



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.

RESULTS:

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.

All tests were performed in a semi-anechoic chamber at a distance of 3 m for the frequency range 9 KHz-17 GHz and at distance of 1.5 m for the frequency range 17 GHz-26 GHz.

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.

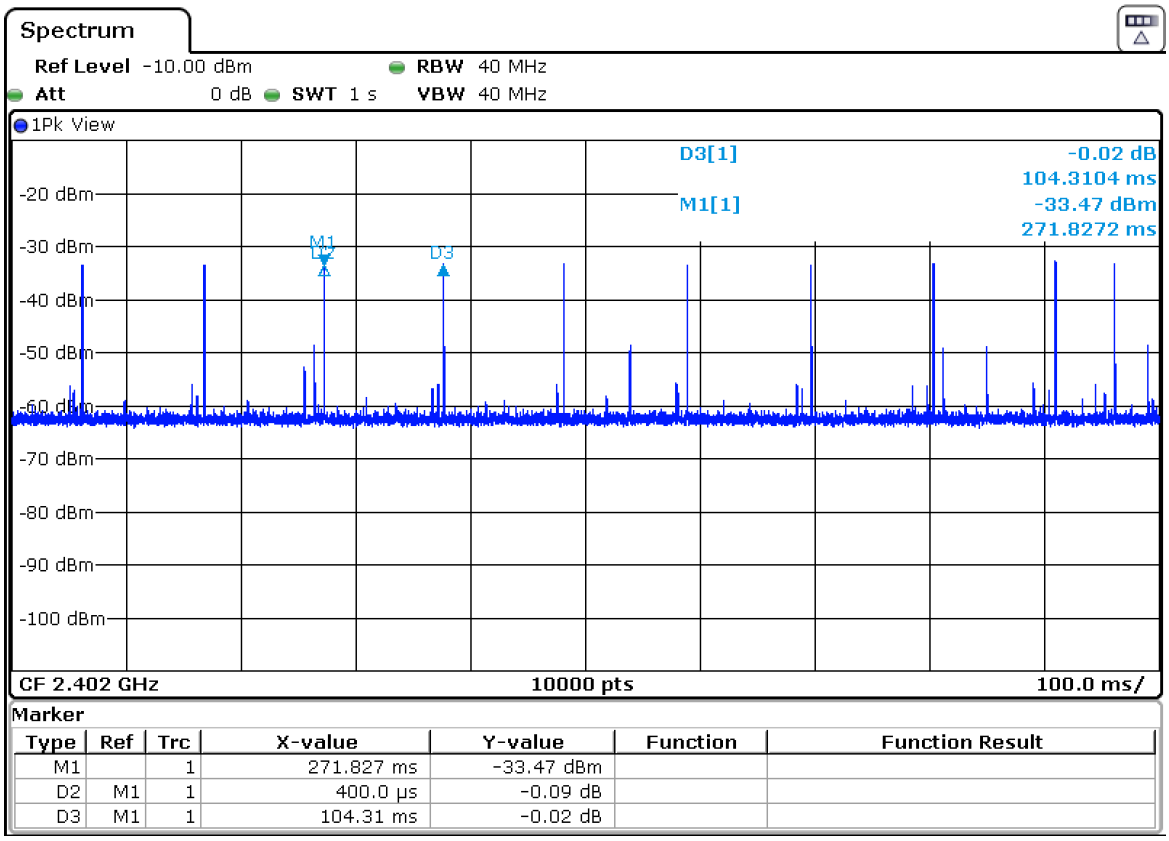
A resolution bandwidth / video bandwidth of 100 kHz / 300 kHz was used for frequencies between 30 MHz up to 1 GHz and 1 MHz / 3 MHz for frequencies above 1 GHz.

Test performed on the following worst-cases in all relevant tests channels.

- **Simultaneous transmission mode Bluetooth Low Energy, RFID 13.56 MHz ISO 14443A:**

  Bluetooth Low Energy: Middle Channel (2440 MHz)
  RFID 13.56 MHz ISO 14443A: Single Channel (13.56 MHz)

## Computation of duty-cycle correction factor




According to ANSI C63.10, paragraph 7.5, we can determinate the Duty Cycle in this way:

Duty cycle correction factor δ = 20 * log (Tx ON (ms) * Number of pulses within 100 ms) / 100 ms

δ = 20 log (400us)/100ms = -47.97 dB.

**Frequency range 9 kHz - 30 MHz:**

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

**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.

According to 558074 D01 15.247 Meas Guidance v05r02:
Several measurement methods are available for making average measurements for radiated and antenna-port conducted spurious emission provided that:

i. The spurios emission fall in restricted band
ii. Emission are temporally related to the fundamental
iii. The maximum duty cycle used in determining the reduction factor is hardwired such that under no condition can it be changed or modified by either the device or end user
iv. documented justification for use of Section 15.35(c) including the measurements used to determine the worst-case duty cycle must be included in the test report, and
v. the duty cycle correction factor is the worst-case operational duty cycle based on the maximum transmission time in any 100 msec period.

If the above criteria are satisfied, one of the following measurement techniques may be used:

Applying a duty cycle correction to the Peak measurement – First, a Peak measurement is made using the Peak detector function of a spectrum analyzer. The spectrum analyzer settings should be such that it meets the requirements of 11.12.2.4 in ANSI C63.10 for making a Peak measurement. Then the operational duty cycle of the EUT may be subtracted from the Peak reading to derive the RMS average value. If the EUT supports more than one operational duty cycle the worst-case value should be used, i.e., the highest operational duty cycle.

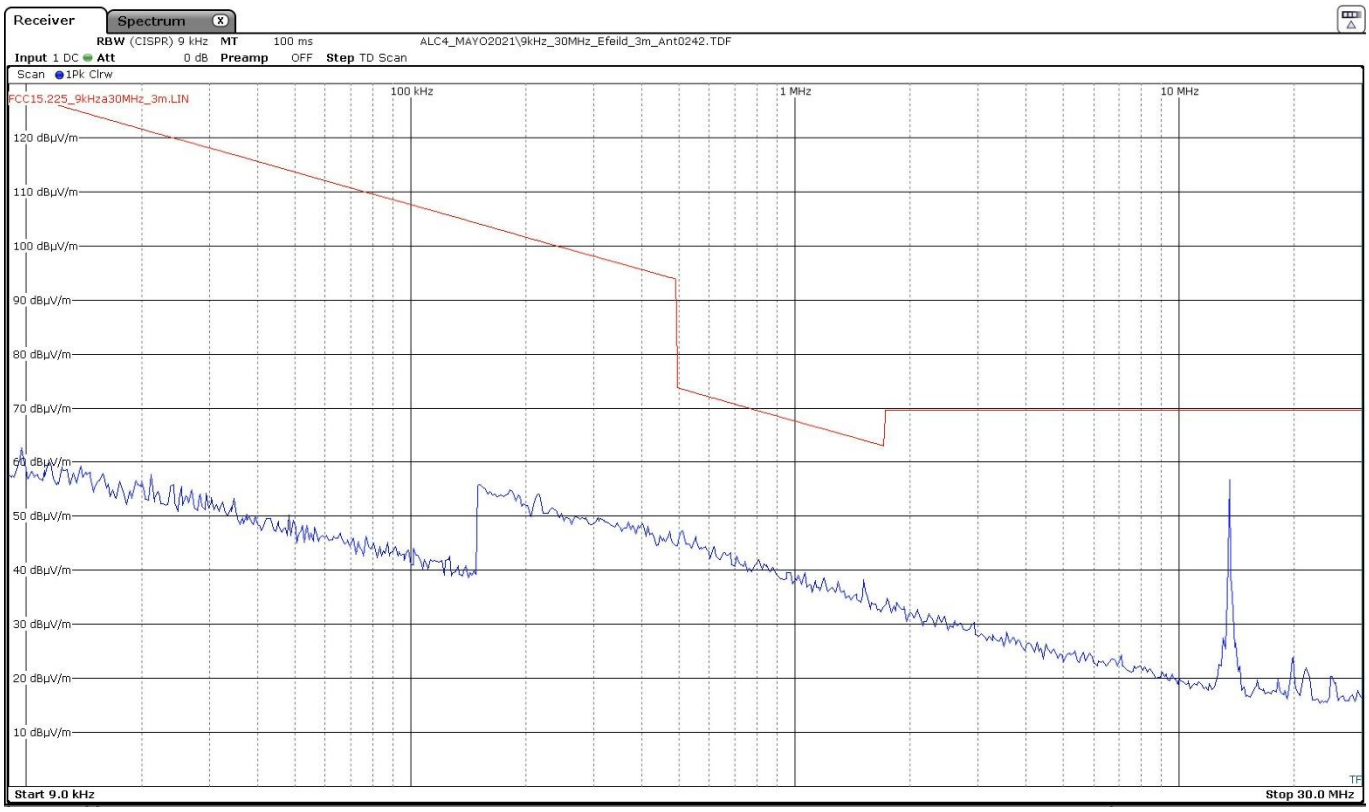
Spurious frequencies detected at less than 20 dB below the limit:

** Duty Cycle correction factor:* *-47.97 dB*

| Freq Rng (GHz) | Unwanted Freq (MHz) | Unwanted Lvl (dBµV/m) | Corrected Unwanted Lvl (dBµV/m) | Pol | Detector |
|---|---|---|---|---|---|
| [3, 17] | 4880.2000 | 60.49 | -- | V | PK |
| | | 58.19 | 10.22 | | AVG |
| | 7320.6800 | 57.57 | -- | H | PK |
| | | 51.21 | 3.24 | | AVG |
| | 12200.9400 | 57.70 | -- | H | PK |
| | | 50.69 | 2.72 | | AVG |

Verdict: PASS

## FREQUENCY RANGE 9 kHz - 30 MHz (worst-case):

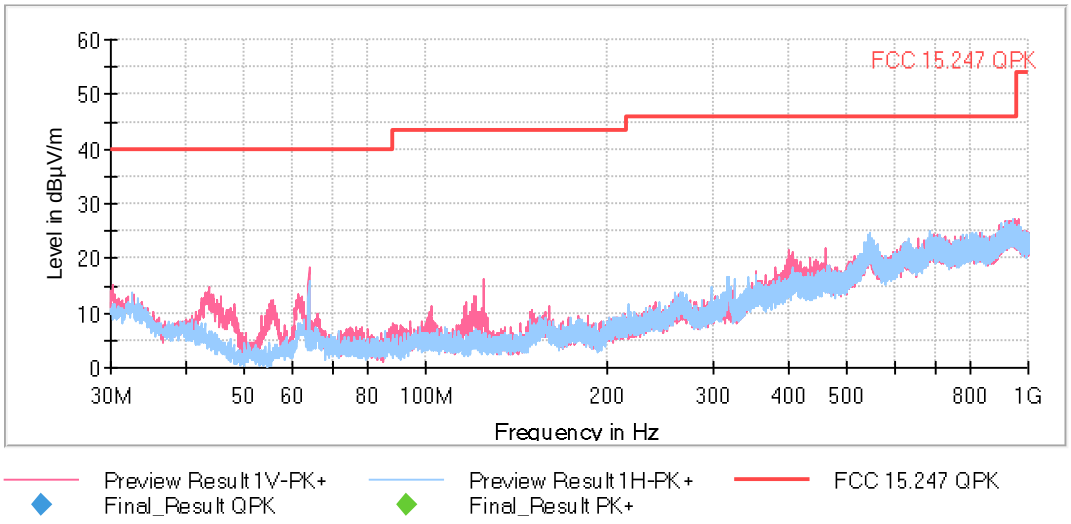



The highest peak is the RFID 13.56 MHz carrier frequency.

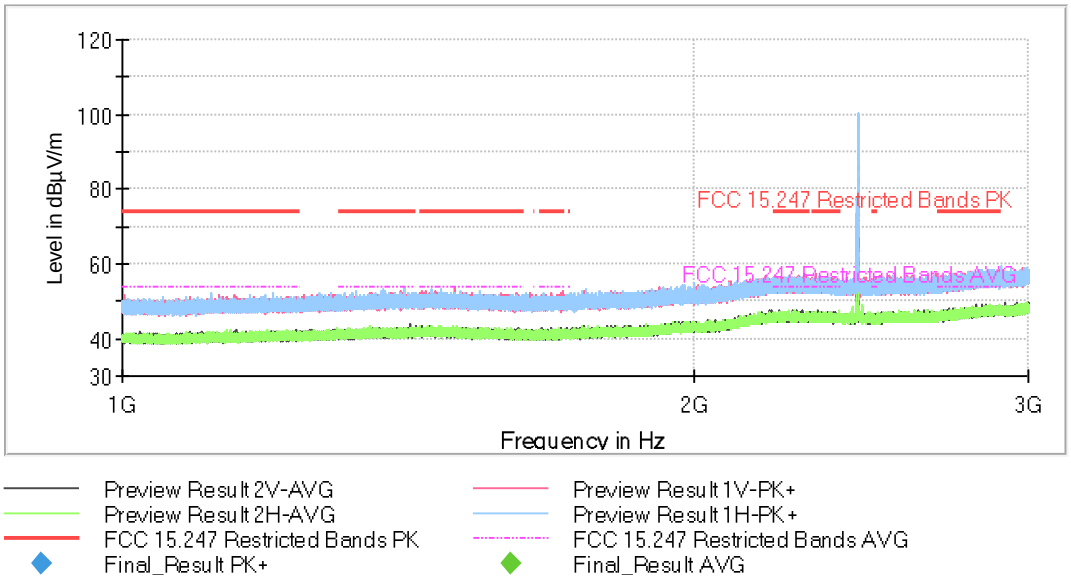
Spectrum Analyzer Parameters:

| Subrange | Step Size | Detectors | Bandwidth | Sweep Time | Preamp |
|---|---|---|---|---|---|
| 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 |
| Receiver: [FSW 50] | | | | | |
| 3 GHz - 17 GHz | 140 kHz | PK+ ; AVG | 1 MHz | 1 s | 0 dB |
| Receiver: [FSW 50] | | | | | |
| 17 GHz - 26 GHz | 300 kHz | PK+ ; AVG | 1 MHz | 1 s | 0 dB |

**FREQUENCY RANGE 30 MHz - 1 GHz (worst-case):**

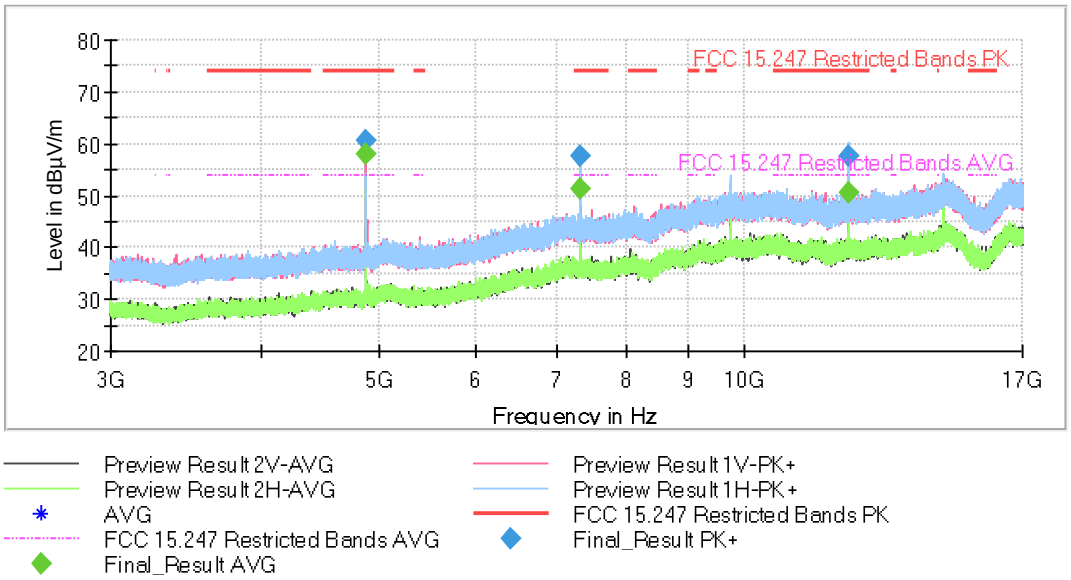



**FREQUENCY RANGE 1 - 3 GHz (worst-case):**



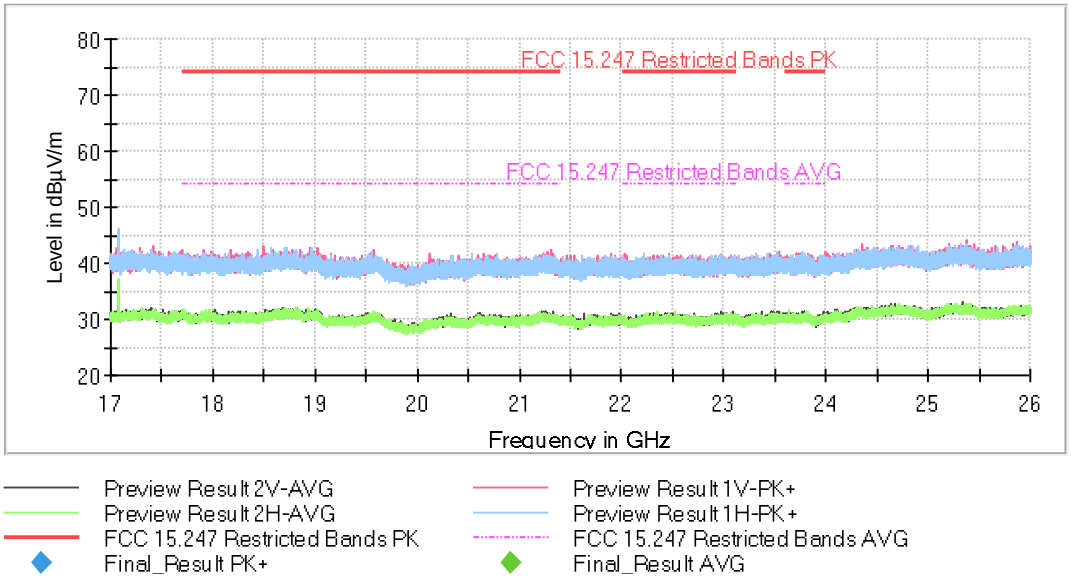

The peak above the limit is the Bluetooth LE carrier frequency.

**FREQUENCY RANGE 3 - 17 GHz (worst-case):**




*See note, table and comment on page 17 regarding the evaluation of average measurement.

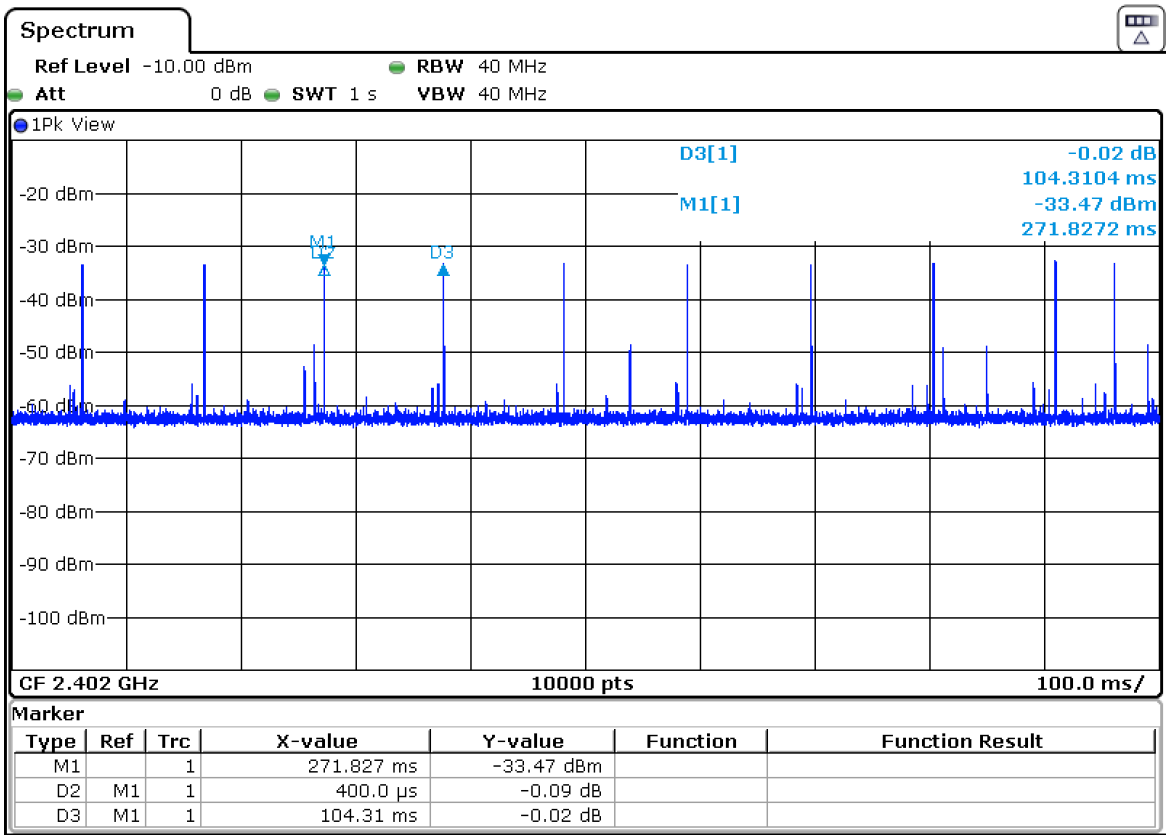
**FREQUENCY RANGE 17 - 26 GHz (worst-case):**



- **Simultaneous mode mode Bluetooth Low Energy, RFID 13.56 MHz ISO 15693:**

| | |
|---|---|
| Bluetooth Low Energy: | Middle Channel (2440 MHz) |
| RFID 13.56 MHz ISO 15693: | Single Channel (13.56 MHz) |

**Computation of duty-cycle correction factor**




According to ANSI C63.10, paragraph 7.5, we can determinate the Duty Cycle in this way:

Duty cycle correction factor δ = 20 * log (Tx ON (ms) * Number of pulses within 100 ms) / 100 ms

δ = 20 log (400us)/100ms = -47.97 dB.

**Frequency range 9 kHz - 30 MHz:**

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

**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.

According to 558074 D01 15.247 Meas Guidance v05r02:
Several measurement methods are available for making average measurements for radiated and antenna-port conducted spurious emission provided that:

i. The spurios emission fall in restricted band
ii. Emission are temporally related to the fundamental
iii. The maximum duty cycle used in determining the reduction factor is hardwired such that under no condition can it be changed or modified by either the device or end user
iv. documented justification for use of Section 15.35(c) including the measurements used to determine the worst-case duty cycle must be included in the test report, and
v. the duty cycle correction factor is the worst-case operational duty cycle based on the maximum transmission time in any 100 msec period.

If the above criteria are satisfied, one of the following measurement techniques may be used:

Applying a duty cycle correction to the Peak measurement – First, a Peak measurement is made using the Peak detector function of a spectrum analyzer. The spectrum analyzer settings should be such that it meets the requirements of 11.12.2.4 in ANSI C63.10 for making a Peak measurement. Then the operational duty cycle of the EUT may be subtracted from the Peak reading to derive the RMS average value. If the EUT supports more than one operational duty cycle the worst-case value should be used, i.e., the highest operational duty cycle.

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

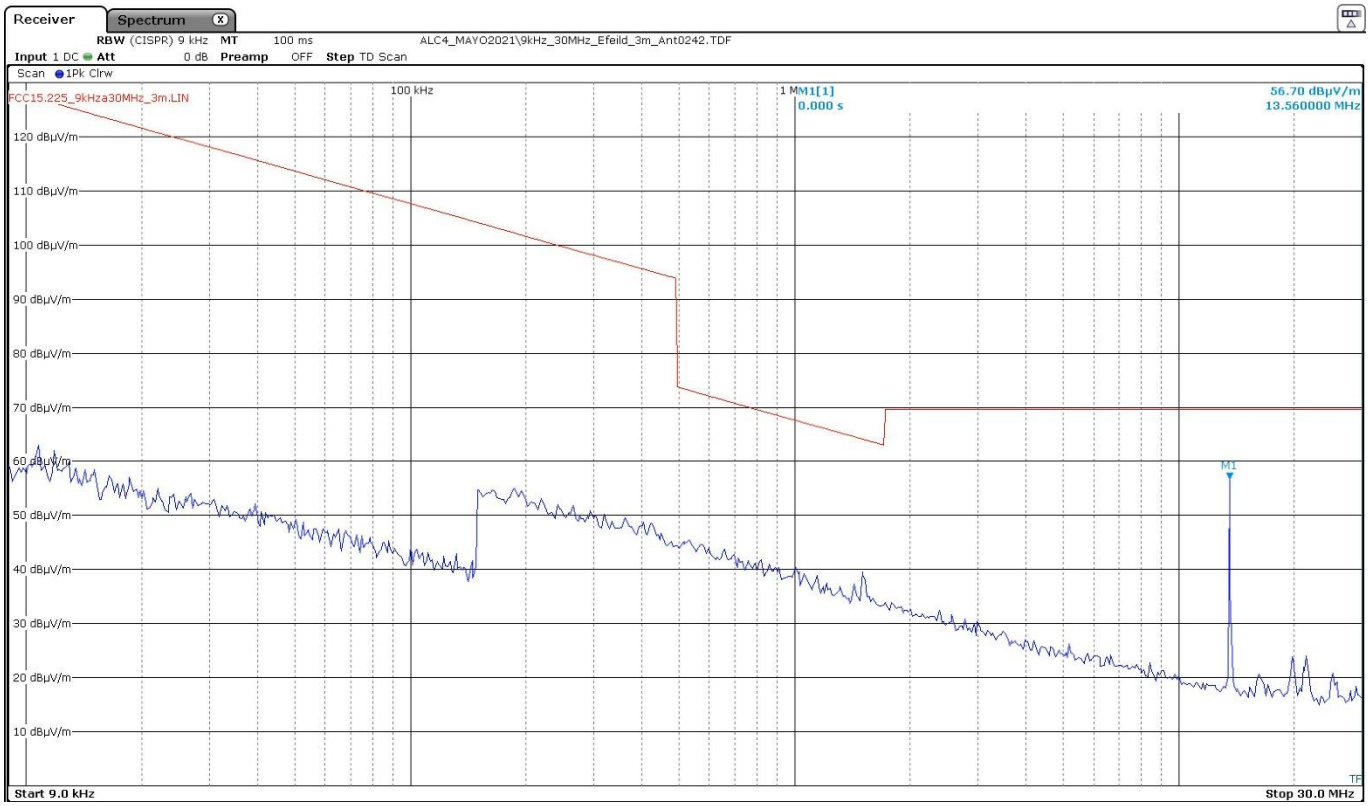
** Duty Cycle correction factor:* *-47.97 dB*

| Freq Rng (GHz) | Unwanted Freq (MHz) | Unwanted Lvl (dBµV/m) | Corrected Unwanted Lvl (dBµV/m) | Pol | Detector |
|---|---|---|---|---|---|
| [3, 17] | 4879.5000 | 59.46 | -- | H | PK |
| | | 56.19 | 8.22 | | AVG |
| | 7319.4200 | 57.30 | -- | V | PK |
| | | 52.31 | 4.34 | | AVG |
| | 12198.7000 | 60.51 | -- | H | PK |
| | | 54.19 | 6.22 | | AVG |

Verdict: PASS

Verdict: PASS

## FREQUENCY RANGE 9 kHz - 30 MHz (worst-case):

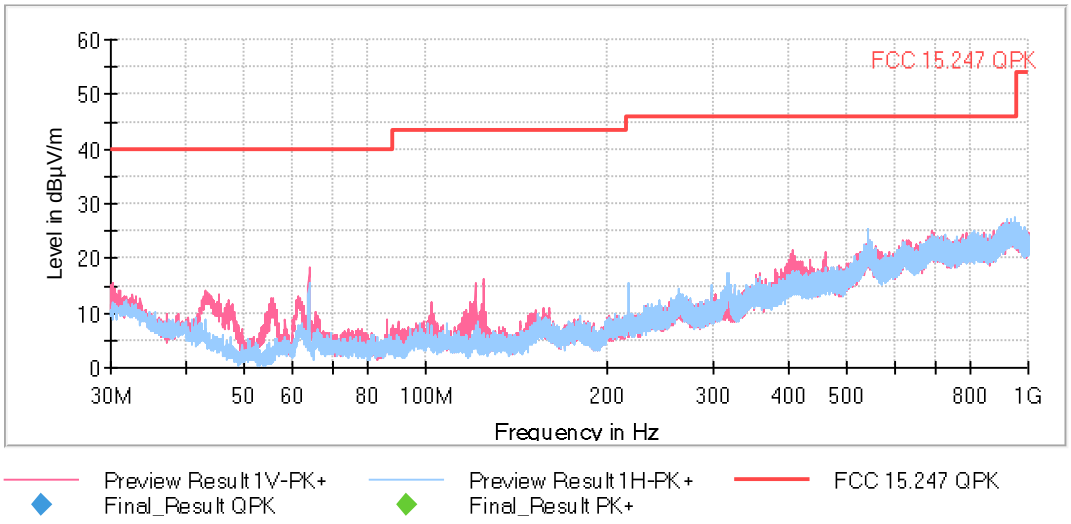



The highest peak is the RFID 13.56 MHz carrier frequency.

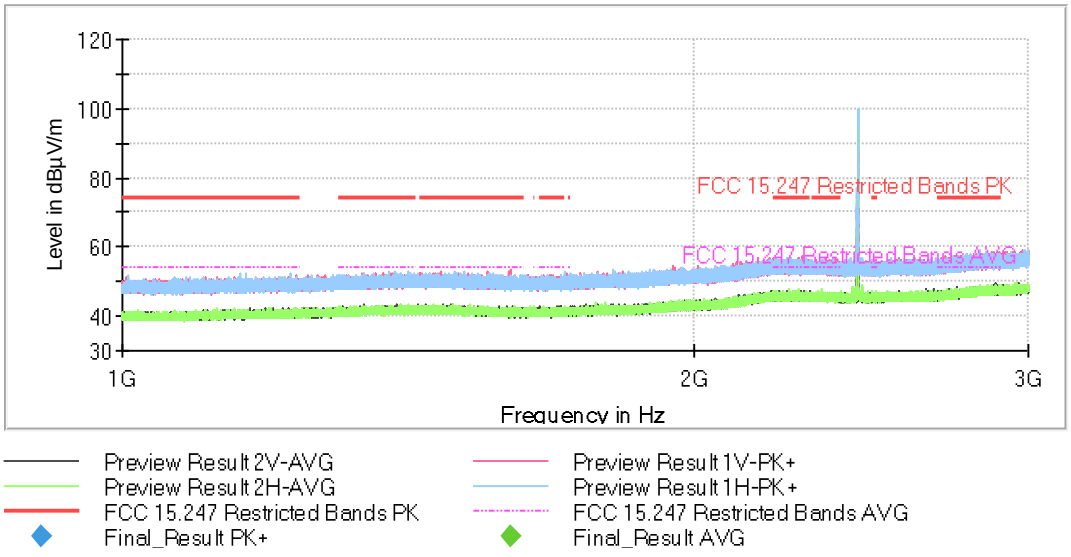
Spectrum Analyzer Parameters:

| Subrange | Step Size | Detectors | Bandwidth | Sweep Time | Preamp |
|---|---|---|---|---|---|
| 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 |
| Receiver: [FSW 50] | | | | | |
| 3 GHz - 17 GHz | 140 kHz | PK+ ; AVG | 1 MHz | 1 s | 0 dB |
| Receiver: [FSW 50] | | | | | |
| 17 GHz - 26 GHz | 300 kHz | PK+ ; AVG | 1 MHz | 1 s | 0 dB |

**FREQUENCY RANGE 30 MHz - 1 GHz (worst-case):**

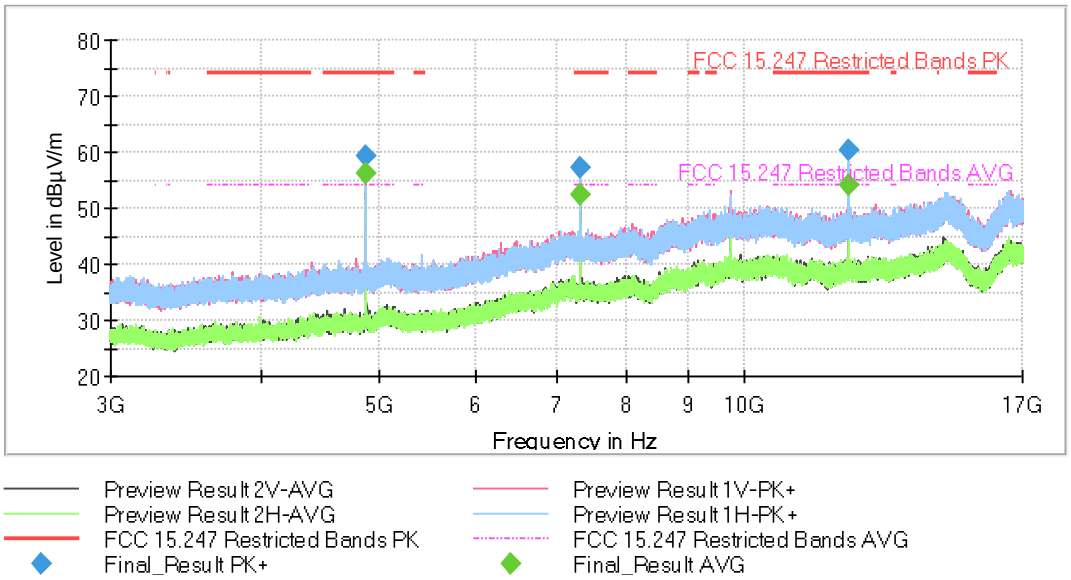



**FREQUENCY RANGE 1 - 3 GHz (worst-case):**




The peak above the limit is the Bluetooth LE carrier frequency.

**FREQUENCY RANGE 3 - 17 GHz (worst-case):**




*See note, table and comment on page 22 regarding the evaluation of average measurement.

**FREQUENCY RANGE 17 - 26 GHz (worst-case):**