



Test Lab
Cert 2764.01

FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test report No:
3447ERM.006A1

Test report

**USA FCC Part 15.249, 15.209
CANADA RSS-210, RSS-Gen**

**Radio Frequency Devices. Operation within the bands 902 - 928
MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz.**

Identification of item tested	IQON EV Charging Station
Trademark	EVBox
Model and /or type reference	EVBox IQon
Other identification of the product	Charging station with RF Technologies: RFID, LTE, WiFi, Bluetooth , RFComm (902-928MHz)
Features	N/A
Manufacturer	EVBox BV Kabelweg 47, 1014 BA, Amsterdam, The Netherlands
Test method requested, standard	USA FCC Part 15.247, 10-1-20 Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC CFR Part 27, 10-1-20 Edition CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (April 2018). ANSI C63.10-2020 USA FCC Part 15.225 (10-1-20 Edition): Operation within the band 13.110 -14.010. USA FCC Part 15.209 (10-1-20 Edition): Radiated emission limits, general requirements. RSS-210 Issue 10: Licence-Exempt Radio Apparatus: Category I Equipment
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	10-30-2021
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. 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 Certification at the time of performance of the test.

DEKRA Certification Inc. 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 item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Certification internal document PODT000.

Frequency (MHz)	U(k=2)	Units
30-180	3.82	dB
180-1000	2.61	dB
1000-18000	2.92	dB
18000-40000	2.15	dB

Data provided by the client

Wi-Fi / BLE module.

DEKRA 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 N°	Description	Model	Serial N°	Date of reception
3447/02	Radiated Sample	EVBox Iqon	EVB-P20390006	28/09/2020

Sample S/01 is composed of the following accessories

Control N°	Description	Model	Serial N°	Date of reception
3447/02	Loadbox	Phillips1000W	1001	-

1. Sample S/01 has undergone following test(s):

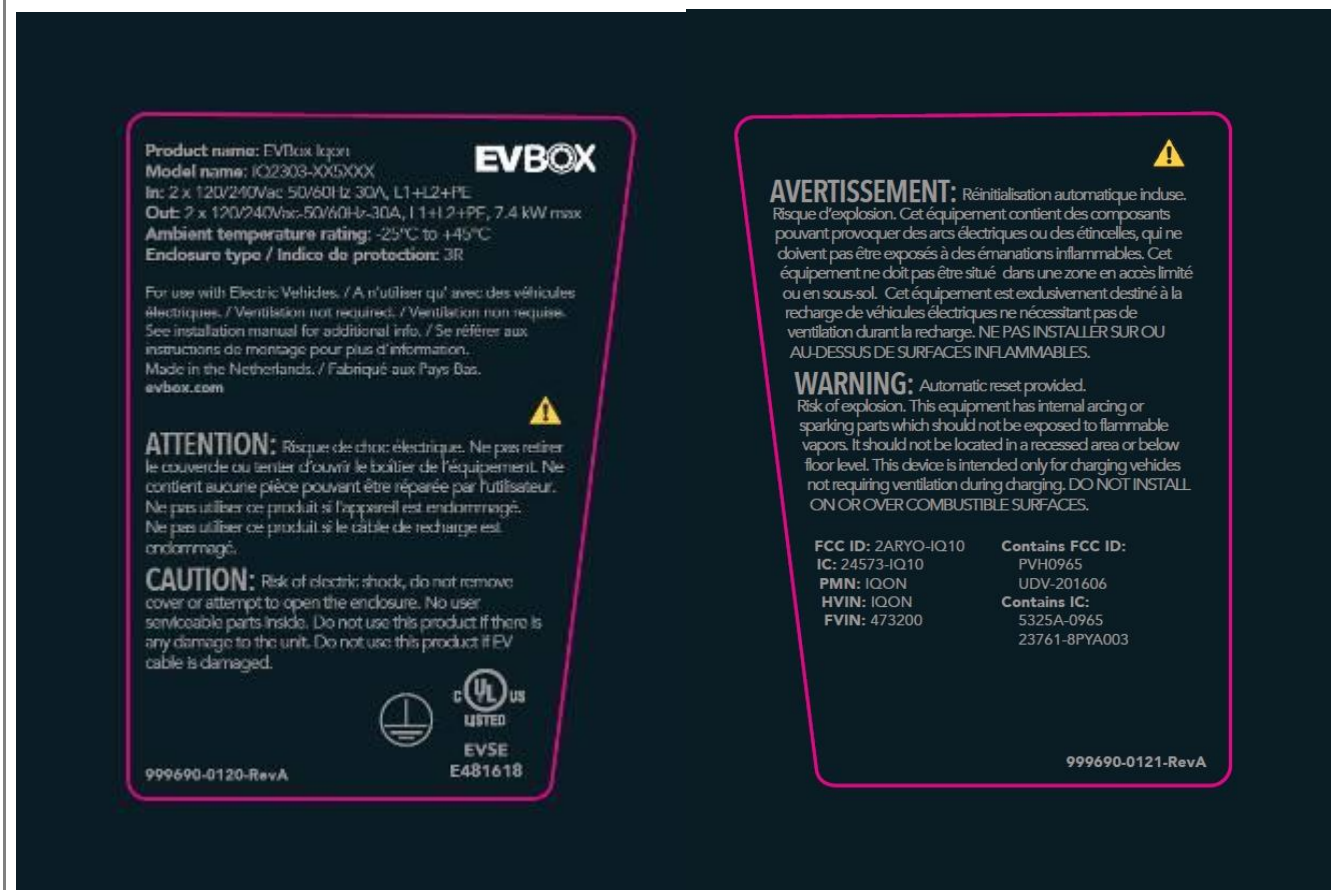
All radiated tests indicated in appendix A.

Test sample description

Ports..... :	Port name and description		Cable				
			Specified length [m]	Attached during test	Shielded		
	<i>No Data Provided</i>			☒	☐		
			☐	☐			
Supplementary information to the ports..... :	No data provided						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☒	AC: 120 / 240 Vac 50/60Hz (External power supply)	☒	☒	☐	☐	☒
Rated Power	2x7.2 kW						
Clock frequencies	Main MCU (PIC18F67K40) (Chargerbox): 16 MHz CCID MCU (PIC32MM0016GPL28) (Chargerbox): Internal oscillator RFComm MCU (PIC32MM0064GPM028) (Chargerbox): 27.12 MHz Main MCU (PIC32MZ2048EFG064) (Chargepoint): 24 MHz BT+WiFi module (ODIN-W262): 26 MHz and 24 MHz 4G module (SIM7500A): 19.2 MHz RFID MCU (CLRC663): 27.12 MHz						
Other parameters..... :	No data Provided						
Software version	G4 P0419 BQ419 v13						
Hardware version..... :	190321						
Dimensions in cm (L x W x D) :	420 mm x 1843 mm x 290 mm						
Mounting position..... :	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☒	Floor standing equipment					
	☐	Hand-held equipment					
	☐	Other:					
Modules/parts	Module/parts of test item		Type		Manufacturer		
	<i>No Data Provided</i>		S5		UM		
Accessories (not part of the test item)	Description		Type		Manufacturer		
	No data Provided						
Documents as provided by the	Description		File name		Issue date		

applicant.....:	Equipment declaration Data	FDT30_14 Declaration Equipment Data_NA	

Copy of marking plate:



Identification of the client

EVBox BV
Kabelweg 47, 1014 BA, Amsterdam, The Netherlands

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	2021-06-01
Date (finish)	2021-07-28

Document history

Report number	Date	Description
3447ERM.006	09-17-2021	First release
3447ERM.006A1	10-30-2021	Second release

Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 3447ERM.006 related with the same samples, in the next clauses and sub-clauses:

Clauses/ Sub-Clauses	Modification	Justification
Antenna Gain	Updated test report to reflect the correct antenna gain	Typo error

This modification test report cancels and replaces the test report 3447ERM.006

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. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

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

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Lourdes and Nasir Khan.

Testing verdicts

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

Summary

FCC PART 15.209 PARAGRAPH / RSS-247					
Report Section	FCC Spec Clause	RSS Spec Clause	Test Description	Verdict	Remark
A.3	§ 15.209 (d)	RSS-247 5.5	Emission limitations radiated (Transmitter)	P	N/A
<u>Supplementary information and remarks:</u> None.					

List of equipment used during the test

Radiated Measurements

CONTROL NUMBER	DESCRIPTION	LAST CALIBRATION	NEXT CALIBRATION
1179	Semi anechoic Absorber Lined Chamber Frankonia SAC 3 plus "L"	N/A	N/A
1065	BiconicalLog antenna ETS LINDGREN 3142E	2020/08	2023/08
1057	Double-ridge Waveguide Horn antenna 1-18 GHz	2020/06	2023/06
1056	Double-ridge Waveguide Horn antenna 18-40 GHz	2020/01	2023/01
1014	Spectrum analyzer Rohde & Schwarz FSV40	2021/05	2023/05
1015, 1017, 1019, 1020	Rohde & Schwarz EMC32 software	N/A	N/A

Appendix A: Test results

Appendix A Content

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PRODUCT INFORMATION

The following information is provided by the client

Information	Description
Modulation	FHSS
Adaptive	Adaptive Equipment operating in Non-Adaptive mode
Operation mode	
- Operating Frequency Range	902-928 MHz
- Nominal Channel Bandwidth	2 MHz
- RF Output Power	0 dBm
Extreme operating conditions	
- Temperature range	-25 °C to +45 °C
Antenna type	Integral Antenna
Antenna gain	1 dBi
Nominal Voltage	
- Supply Voltage	230 Vac
- Type of power source	AC Voltage
Equipment type	Proprietary protocol 2.4GHz
Geo-location capability	No

DESCRIPTION OF TEST CONDITIONS

TEST CONDITIONS	DESCRIPTION
TC#01	<u>Power supply (V):</u> $V_{\text{nominal}} = 240 \text{ Vac} / 60 \text{ Hz}$ <u>Test Frequencies for Radiated tests:</u> LTE_Band2+RFID13.56+SRD915+BLE
TC#02	<u>Power supply (V):</u> $V_{\text{nominal}} = 240 \text{ Vac} / 60 \text{ Hz}$ <u>Test Frequencies for Radiated tests:</u> LTE_Band4+RFID13.56+SRD915+BLE
TC#03	<u>Power supply (V):</u> $V_{\text{nominal}} = 240 \text{ Vac} / 60 \text{ Hz}$ <u>Test Frequencies for Radiated tests:</u> LTE_Band12+RFID13.56+SRD915+BLE
TC#04	<u>Power supply (V):</u> $V_{\text{nominal}} = 240 \text{ Vac} / 60 \text{ Hz}$ <u>Test Frequencies for Radiated tests:</u> WiFi2.4+RFID13.56+SRD915
TC#05	<u>Power supply (V):</u> $V_{\text{nominal}} = 240 \text{ Vac} / 60 \text{ Hz}$ <u>Test Frequencies for Radiated tests:</u> WiFi5GHz+RFID13.56+SRD915

TEST A.1: EMISSION LIMITATIONS RADIATED (TRANSMITTER)

LIMITS:

Product standard:

§ 2.1049 and RSS-Gen

Test standard:

§ 2.1049 and RSS-Gen 6.7

LIMITS

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):

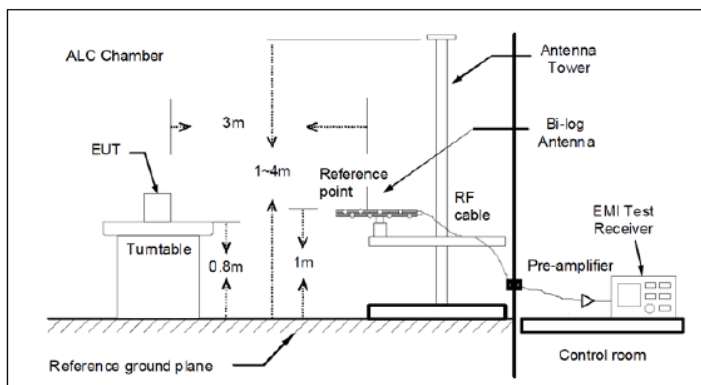
Frequency Range (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

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.

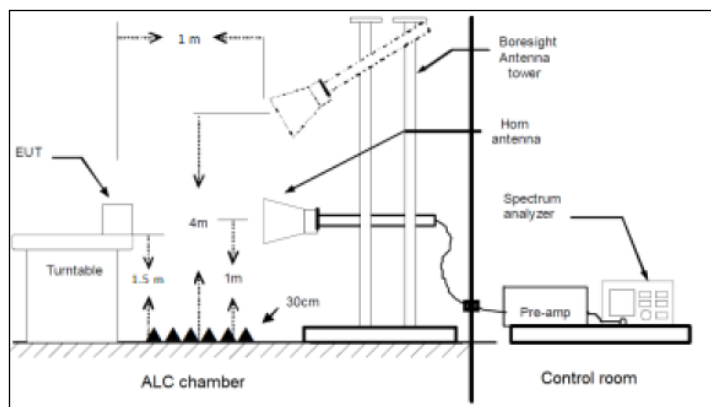
TEST SETUP:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bi-log antenna) and at 1m for the frequency range 1-40 GHz (1 GHz-18 GHz and 18 GHz-40 GHz Double ridge horn antennas). For radiated emissions in the range 1-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

Radiated measurements Setup $f < 1$ GHz



Radiated measurements setup $f > 1$ GHz



TESTED SAMPLES:

S/01

TESTED CONDITIONS MODES:

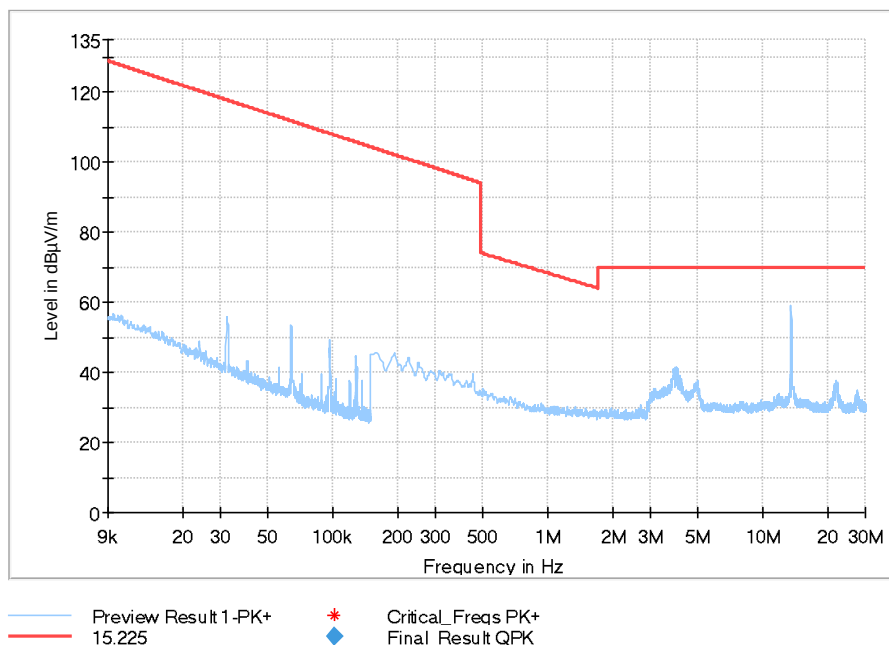
TC#01

TEST RESULTS:

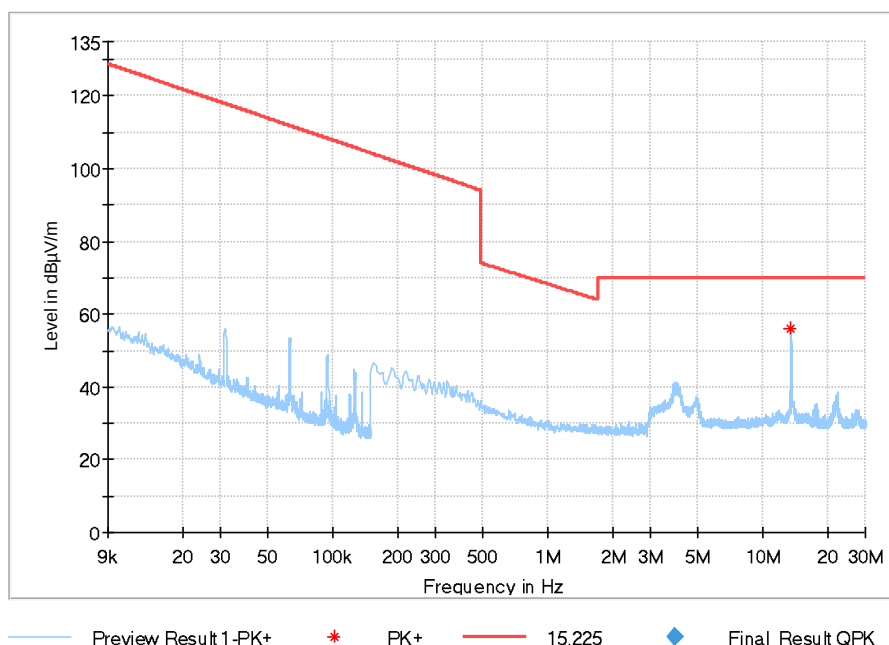
PASS

Test Results: 9kHz-30MHz

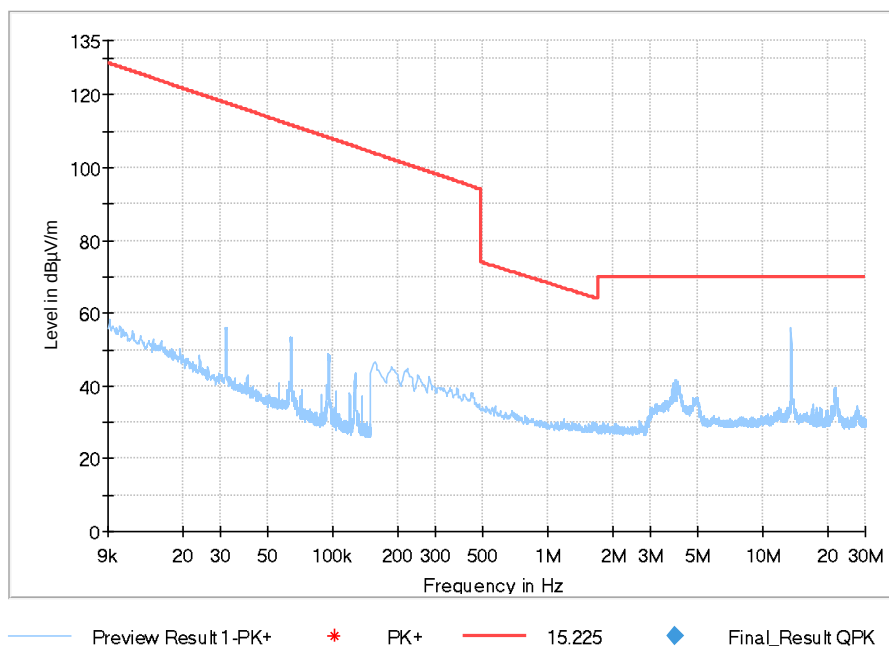
LTE_Band2+RFID13.56+SRD915+BLE



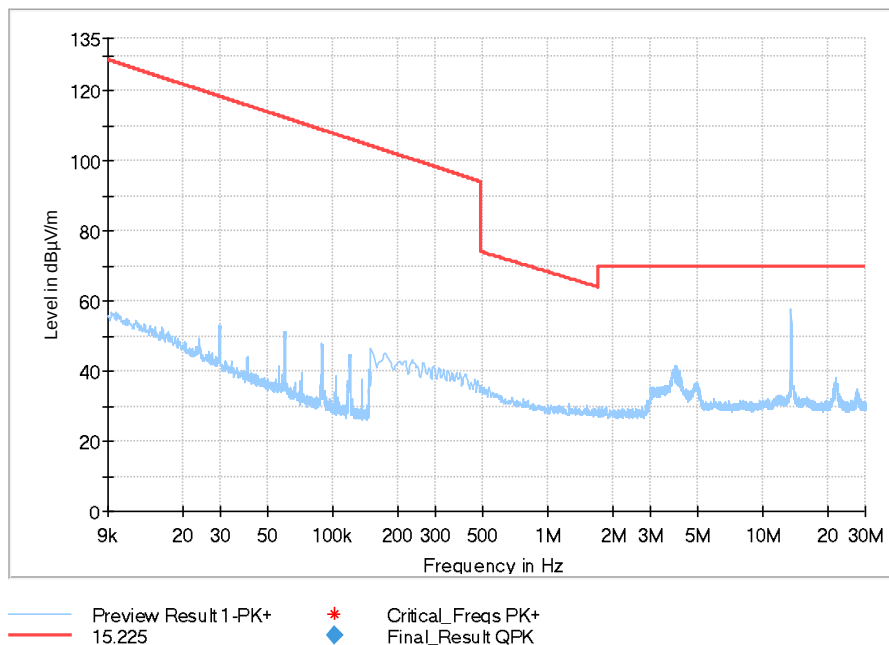
LTE_Band4+RFID13.56+SRD915+BLE



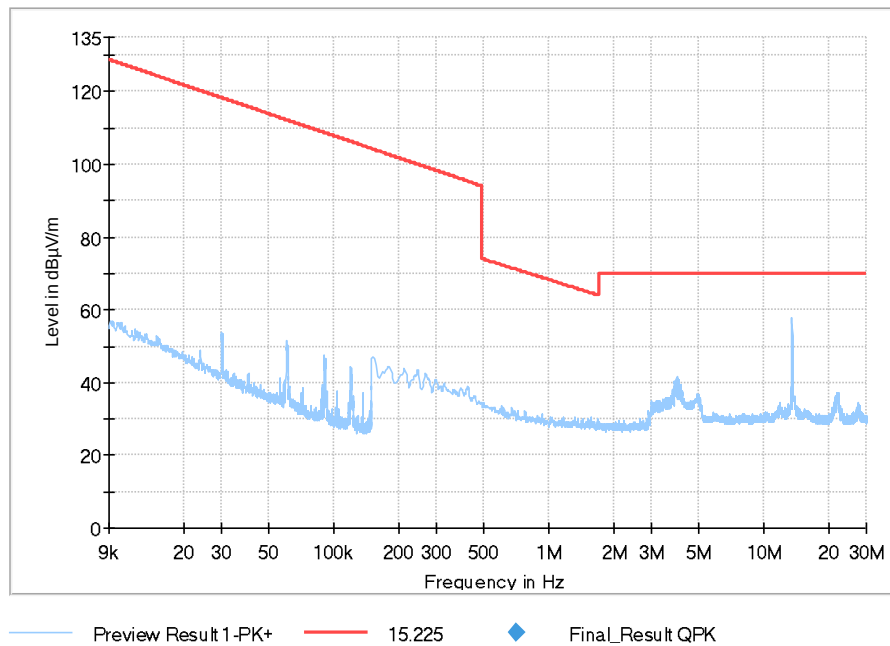
LTE Band12+RFID13.56+SRD915+BLE



WiFi2.4+RFID13.56+SRD915



WiFi5GHz+RFID13.56+SRD915



Test Results: 30MHz-1000MHz

LTE_Band2+RFID13.56+SRD915+BLE

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
76.596	34.79	40.00	5.21	3000	120	104.0	V	313.0
82.866	34.91	40.00	5.09	3000	120	100.0	V	47.0
229.941	43.67	46.00	2.33	3000	120	130.0	H	29.0
233.612	45.61	46.00	0.39	3000	120	109.0	H	23.0
235.403	45.32	46.00	0.68	3000	120	110.0	H	9.0

LTE_Band4+RFID13.56+SRD915+BLE

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
82.180	34.68	40.00	5.32	3000	120	112.0	V	89.0
229.791	43.44	46.00	2.56	3000	120	100.0	H	38.0
233.522	44.22	46.00	1.78	3000	120	100.0	H	23.0
235.403	45.05	46.00	0.95	3000	120	100.0	H	15.0
237.224	43.37	46.00	2.63	3000	120	118.0	H	40.0

LTE Band12+RFID13.56+SRD915+BLE

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
76.596	35.85	40.00	4.15	3000	120	131.0	V	311.0
233.581	44.64	46.00	1.36	3000	120	106.0	H	19.0
235.371	44.95	46.00	1.05	3000	120	104.0	H	28.0

WiFi2.4+RFID13.56+SRD915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
42.657	30.24	40.00	9.76	3000	120	105.0	V	-6.0
76.628	34.72	40.00	5.28	3000	120	114.0	V	-45.0
82.449	35.37	40.00	4.63	3000	120	129.0	V	52.0
190.571	41.30	43.50	2.20	3000	120	125.0	H	28.0
229.851	43.93	46.00	2.07	3000	120	105.0	H	28.0
233.701	43.67	46.00	2.33	3000	120	113.0	H	21.0
235.521	45.33	46.00	0.67	3000	120	100.0	H	23.0
237.373	45.19	46.00	0.81	3000	120	105.0	H	15.0

WiFi5GHz+RFID13.56+SRD915

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
76.745	35.15	40.00	4.85	3000	120	103.0	V	-46.0
82.238	35.34	40.00	4.66	3000	120	114.0	V	54.0
229.761	43.37	46.00	2.63	3000	120	100.0	H	47.0
233.702	43.50	46.00	2.50	3000	120	110.0	H	13.0
235.583	43.89	46.00	2.11	3000	120	103.0	H	-1.0
237.313	45.09	46.00	0.91	3000	120	103.0	H	11.0

Test Results: 3GHz-18GHz

LTE_Band2+RFID13.56+SRD915+BLE

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
7319.250	51.95	---	74.00	22.05	2000	1000	127.0	V	2.0
7319.250	---	42.59	54.00	11.41	2000	1000	127.0	V	2.0
12198.750	55.93	---	74.00	18.07	2000	1000	116.0	V	-5.0
12198.750	---	45.69	54.00	8.31	2000	1000	116.0	V	-5.0
17966.250	---	42.18	54.00	11.82	2000	1000	147.0	H	72.0
17966.250	55.13	---	74.00	18.87	2000	1000	147.0	H	72.0
17969.250	---	42.15	54.00	11.85	2000	1000	242.0	H	204.0
17969.250	55.07	---	74.00	18.93	2000	1000	242.0	H	204.0

LTE_Band4+RFID13.56+SRD915+BLE

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
14576.750	50.90	---	74.00	23.10	2000	1000	341.0	V	49.0
14576.750	---	38.23	54.00	15.77	2000	1000	341.0	V	49.0
17940.750	54.29	---	74.00	19.71	2000	1000	297.0	H	178.0
17940.750	---	41.48	54.00	12.52	2000	1000	297.0	H	178.0
17973.500	---	42.09	54.00	11.91	2000	1000	165.0	H	83.0
17973.500	55.17	---	74.00	18.83	2000	1000	165.0	H	83.0

LTE_Band12+RFID13.56+SRD915+BLE

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
14043.250	51.60	---	74.00	22.40	2000	1000	380.0	V	166.0
14043.250	---	38.42	54.00	15.58	2000	1000	380.0	V	166.0
14415.500	50.91	---	74.00	23.09	2000	1000	359.0	V	123.0
14415.500	---	37.79	54.00	16.21	2000	1000	359.0	V	123.0
17489.750	---	39.75	54.00	14.25	2000	1000	379.0	H	142.0
17489.750	52.74	---	74.00	21.26	2000	1000	379.0	H	142.0
17997.000	---	41.99	54.00	12.01	2000	1000	400.0	V	300.0
17997.000	55.34	---	74.00	18.66	2000	1000	400.0	V	300.0

WiFi2.4+RFID13.56+SRD915

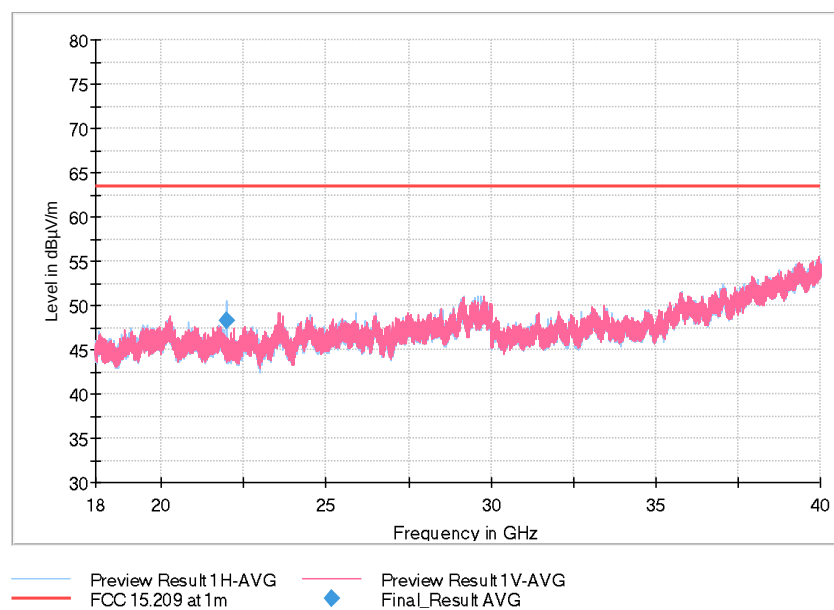
Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
14468.500	---	38.99	54.00	15.01	2000	1000	100.0	V	259.0
14468.500	52.29	---	74.00	21.71	2000	1000	100.0	V	259.0
17540.500	52.95	---	74.00	21.05	2000	1000	100.0	H	-62.0
17540.500	---	40.08	54.00	13.92	2000	1000	100.0	H	-62.0
17979.750	---	41.62	54.00	12.38	2000	1000	100.0	V	210.0
17979.750	54.64	---	74.00	19.36	2000	1000	100.0	V	210.0
17991.250	55.34	---	74.00	18.66	2000	1000	100.0	H	116.0
17991.250	---	41.91	54.00	12.09	2000	1000	100.0	H	116.0

WiFi5GHz+RFID13.56+SRD915

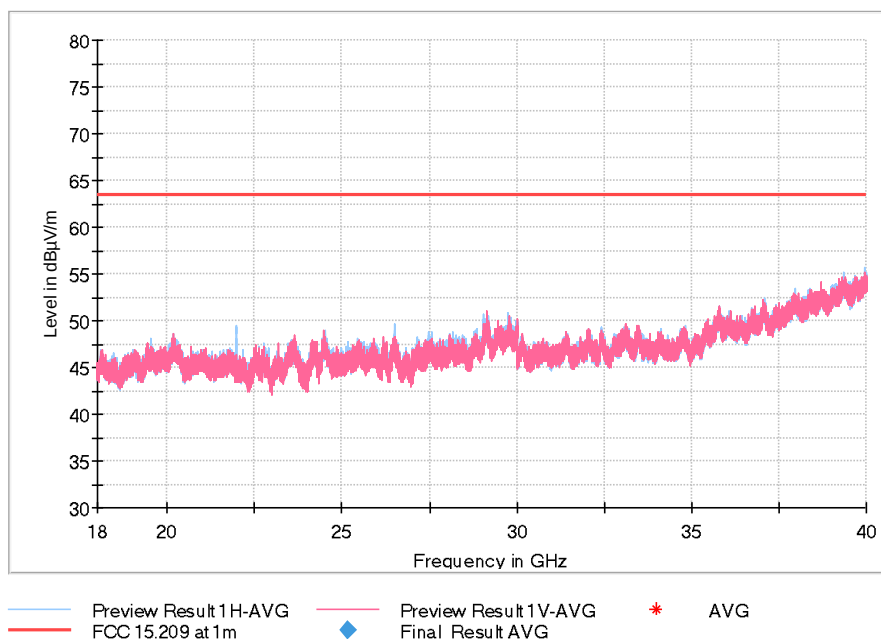
Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
6405.000	---	37.34	54.00	16.66	2000	1000	100.0	V	32.0
6405.000	45.43	---	74.00	28.57	2000	1000	100.0	V	32.0

Test Results: 18GHz-40GHz

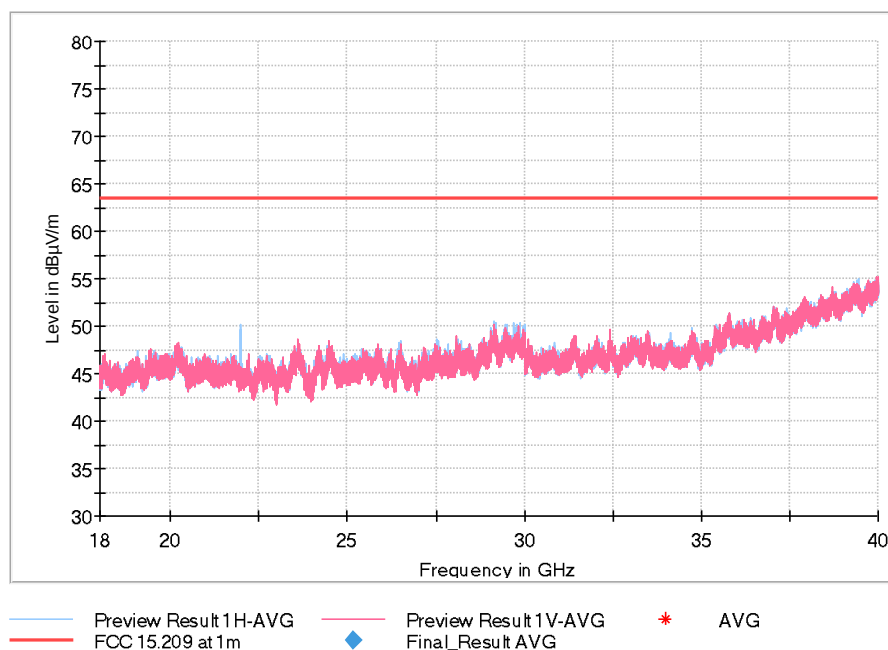
LTE_Band2+RFID13.56+SRD915+BLE



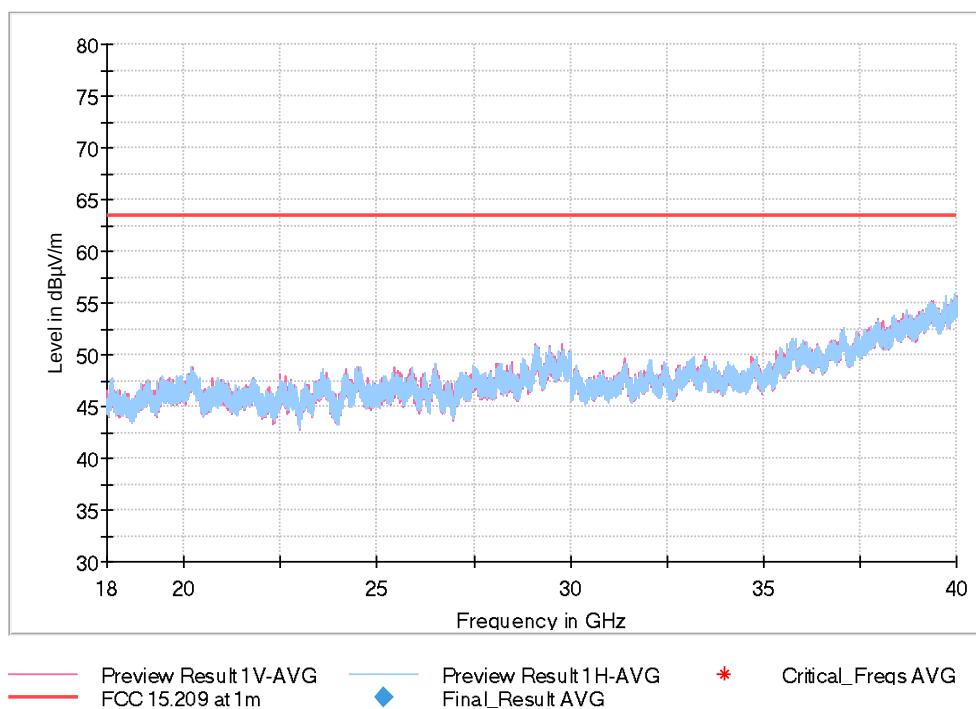
LTE Band4+RFID13.56+SRD915+BLE



LTE Band12+RFID13.56+SRD915+BLE



WiFi2.4+RFID13.56+SRD915



WiFi5GHz+RFID13.56+SRD915

