

Test report No:  
NIE: 71612REM.002

## Test report

### FCC Rules and Regulations CFR 47, Part 15, Subpart B and C (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)

(*) Identification of item tested	Sports watch with GPS and BLE connectivity
(*) Trademark	SUUNTO
(*) Model and /or type reference	OW211
Other identification of the product	HW version: B2 SW version: 2.21 FCC ID: RYPOW211 IC: 5175A-OW211
(*) Features	BLE, GNSS
Manufacturer	Suunto Oy Tammiston kauppatie 7A 01510 Vantaa, Finland
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B and C (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager
Date of issue	2022-08-02
Report template No	FDT08_24 (*) "Data provided by the client"



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## Acronyms

Acronym ID	Acronym Description
Code	EMC Test Code
Freq Rng	Frequency Range
MP	Measurement Point
OM	Operation Mode
S/	Sample
V	Verdict

## 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.

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.
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

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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 measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is  $I = \pm 4,9$  dB for quasi-peak measurements,  $I = \pm 4,6$  dB for peak measurements ( $k= 2$ ).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 12.75 GHz is  $I = \pm 2,6$  dB for peaks and average measurements ( $k = 2$ ).

## 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 consists of a Sports watch with GPS for tracking outdoor trainings, optical heart rate measurement and BLE connectivity to connect with a smart phone and the Suunto App for recording training logs and analyze training and 24/7 data.

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 N°	Date of Reception	Application
S/01	71612_17.1	Sports watch with GPS and BLE connectivity	OW211	22201200030	2022-06-01	Element Under Test
S/01 & S/02	71612_16.1	USB charger	--	02201200032	2022-05-20	Element Under Test
S/02	71612_5.1	Sports watch with GPS and BLE connectivity	GNSS Radiated EU	22191200135	2022-05-20	Element Under Test
S/02	I00074_16	AC/DC adapter	EP-TA50EWE	R37N5R6H204RT3	---	Auxiliary element

Notes referenced to samples during the project:

Id	Type
S/01	Sample for radiated and conducted test except GPS and Glonass mode.
S/02	Sample for GPS and Glonass mode.

## Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient <sup>(3)</sup>		
.....	.....	.....	[ ]	[ ]	[ ]		
Supplementary information to the ports..... :	.....						
Rated power supply ..... :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[ ]	AC: .....	[ ]	[ ]	[ ]	[ ]	[ ]
[ ]	DC: .....						
Rated Power ..... :	.....						
Clock frequencies ..... :	.....						
Other parameters..... :	.....						
Software version ..... :	2.21						
Hardware version..... :	B2						
Dimensions in cm (W x H x D)..... :	4.32 x 1.06 x 4.72						
Mounting position..... :	[ ]	Table top equipment					
	[ ]	Wall/Ceiling mounted equipment					
	[ ]	Floor standing equipment					
	[X]	Hand-held equipment					
	[ ]	Other: .....					
Modules/parts ..... :	Module/parts of test item		Type	Manufacturer			
	Sports watch		OW211	Suunto			
	Charging cable		100030830	Suunto			
Accessories (not part of the test item) ..... :	Description		Type	Manufacturer			
	.....		.....	.....			
Documents as provided by the applicant ..... :	Description		File name	Issue date			
	.....		.....	.....			

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

## Identification of the client

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Suunto Oy  
Tammiston kauppatie 7A  
01510 Vantaa, Finland

## Testing period and place

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<b>Test Location</b>	DEKRA Testing and Certification S.A.U.
<b>Date (start)</b>	2022-06-20
<b>Date (finish)</b>	2022-06-21

## Document history

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Report number	Date	Description
71612REM.002	2022-08-02	First release

## Environmental conditions

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

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

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

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

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

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



## Remarks and comments

The tests have been performed by the technical personnel: Salvador Cuellar Guerrero.

## Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P
Partial Passed	P*

## List of equipment used during the test

Control No.	Equipment	Model	Manufacturer	Next Calibration
6064	SEMIANECHOIC ABSORBER LINED CHAMBER	SAC-3	FRANKONIA	N/A
6329	SHIELDED ROOM	--	FRANKONIA	N/A
6126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2023-05-04
6132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2023-05-09
4612	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2024-07-13
5641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2024-09-15
9360	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2023-05-11
8866	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-09-21
4679	THREE-PHASE ARTIFICIAL V-NETWORK 32A	PMM L3-32	NARDA	2023-01-11
5152	TRANSIENT LIMITER 10DB N CONNECTOR	VTSD 9561-F	SCHWARZBECK	2022-10-20
2942	EMI TEST RECEIVER 20Hz-40GHz	ESU40	ROHDE AND SCHWARZ	2023-11-22

Control No.	Equipment	Model	Manufacturer	Next Calibration
4848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A

## Summary

Test Specification	Requirement – Test case	Verdict	Remark
FCC CFR 47, Part 15, Subpart B (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)	RE Radiated emission. Electromagnetic field measure	Pass	(1)
FCC CFR 47, Part 15, Subpart B and C (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)	CE Continuous conducted emission	Pass	--

Supplementary information and remarks:

1. Range:  $f > 12.75$  GHz. Test required only to the 5th harmonics of the maximum internal work frequency in the EUT.

## Appendix A: Test results

## Appendix A content

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## Description of the operation modes

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The operation modes described in this paragraph constitute a functionality of the sample under test for itself.

The operation modes used by the samples to which the present report refers, are shown in the following table:

Id	Description
OM/01	EUT ON. Bluetooth Low Energy in reception mode. GNSS active. Charging battery. Power supply: 5Vdc (through USB port).
OM/02	EUT ON. Bluetooth Low Energy in reception mode. GNSS active. Charging battery. Power supply: 115Vac
OM/03	EUT ON. Bluetooth low energy ON with communication established. GNSS in RX mode. Charging battery. Power supply: 115Vac
OM/04	EUT ON. GNSS active, receiving position signal via GPS. Bluetooth low energy without communication established. Charging battery. Power supply: 115Vac
OM/05	EUT ON. GNSS active, receiving position signal via Glonass. Bluetooth low energy without communication established. Charging battery. Power supply: 115Vac

## Test standards version applied

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The product standards and test standards applied for each test cases are shown in the following table:

Product Test Standard	Test standard	Requirement – Test case
FCC CFR 47, Part 15, Subpart B (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	RE Radiated emission.
FCC CFR 47, Part 15, Subpart B and C (10-1-20 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	CE Continuous conducted emission

## Test Cases Details

### FCC 47 CFR Part 15B

#### RE Radiated emission. Electromagnetic field measure

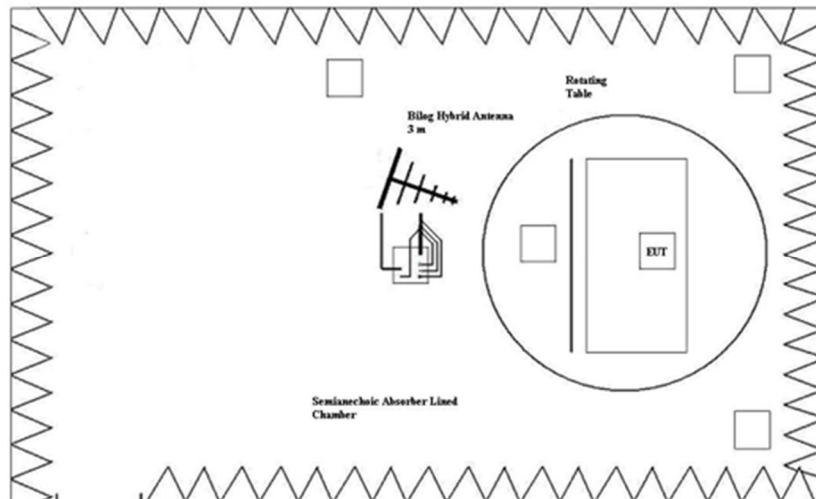
#### Limits

The applied limit for radiated emissions, 3 m distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-1-20 Edition), Secs. 15.109 & ICES-003 Issue 7 (October 2020).

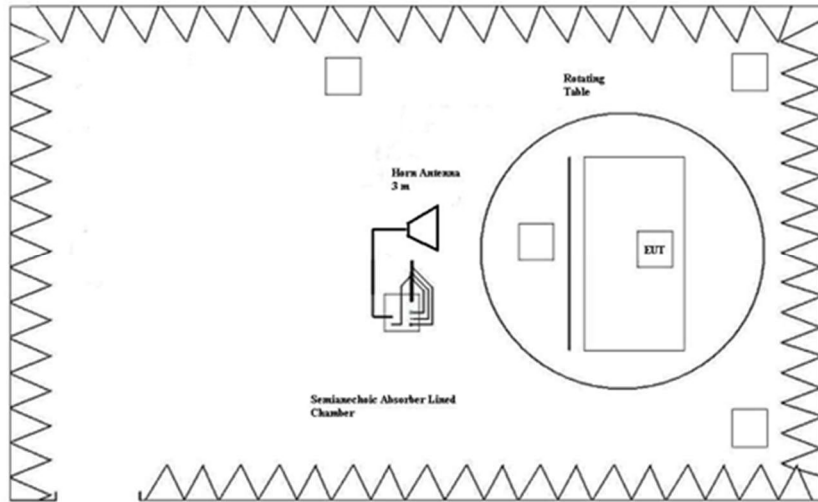
Frequency range (MHz)	FCC Part 15B		ICES-003 Issue 7		FCC Part 15B & ICES-003 Issue 7	
	QP Limit for 3 m		QP Limit for 3 m		PK Limit for 3 m	AVG Limit for 3 m
	( $\mu\text{V/m}$ )	( $\text{dB}\mu\text{V/m}$ )	( $\mu\text{V/m}$ )	( $\text{dB}\mu\text{V/m}$ )	( $\text{dB}\mu\text{V/m}$ )	( $\text{dB}\mu\text{V/m}$ )
30 to 88	100	40	100	40	---	---
88 to 216	150	43.5	150	43.5	---	---
216 to 230	200	46	200	46	---	---
230 to 960	200	46	224	47	---	---
960 to 1000	500	54	500	54	---	---
Above 1000	---	---	---	---	74	54

Limits according to FCC Part 15B, are equal or more stringent than those of ICES-003 Issue 7.

#### Setup for measurements



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

## Results

S/	OM	Code	Freq Rng (MHz)	V
01	OM/01	RE0101LR	[30, 1000]	P
01	OM/01	RE0101HR	[1000, 12750]	P

## Verdict

Pass



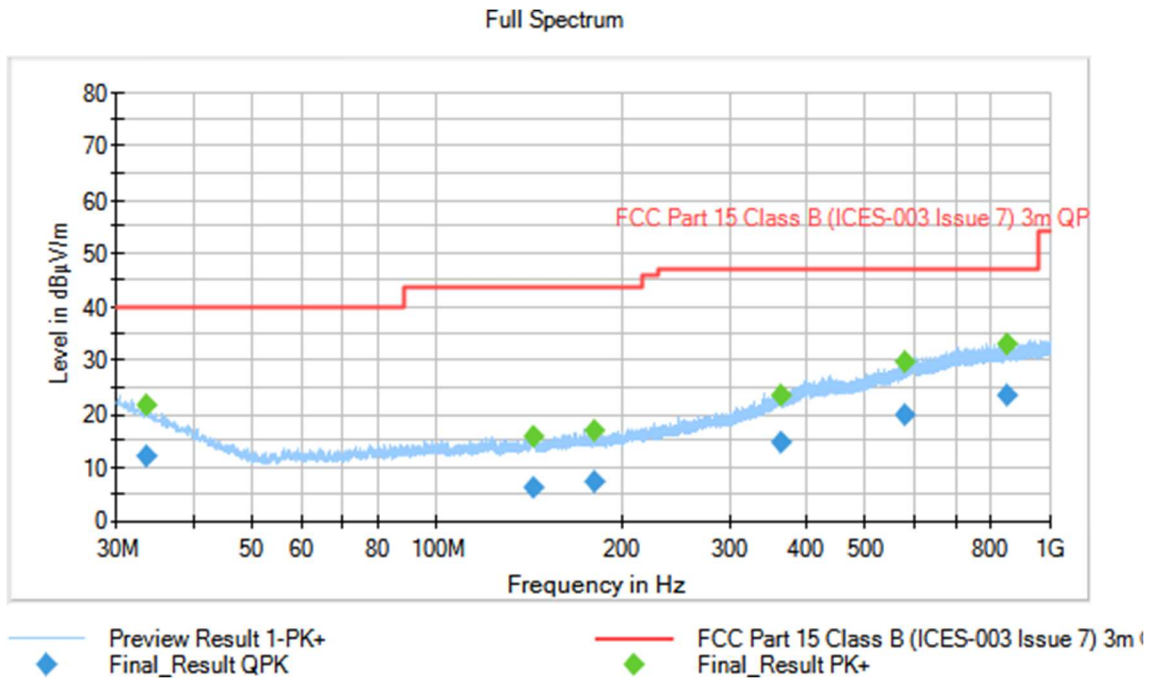
**Attachments**

**EMC Test Code = RE0101LR, Frequency Range MHz = [30, 1000]**

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Bluetooth Low Energy in reception mode. GNSS active. Charging battery.  
 Power supply: 5Vdc (through USB port).

**Images:**



**Tables:**

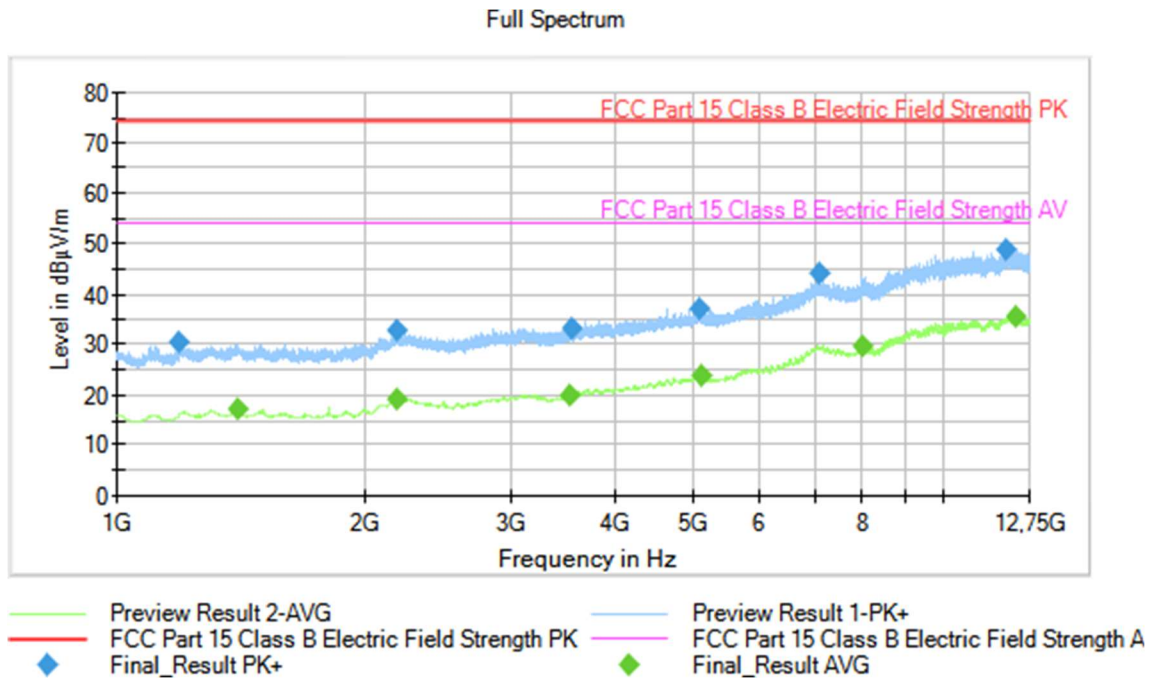
Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height(cm)	Pol	Azimuth(deg)
33.504000	12.04	---	40.00	27.96	198.0	H	92.0
33.504000	---	21.67	---	---	198.0	H	92.0
143.291000	---	15.80	---	---	143.0	V	-8.0
143.291000	6.34	---	43.52	37.18	143.0	V	-8.0
180.744000	7.18	---	43.52	36.34	240.0	V	42.0
180.744000	---	16.79	---	---	240.0	V	42.0
364.545000	14.64	---	47.00	32.36	122.0	V	-32.0
364.545000	---	23.66	---	---	122.0	V	-32.0
576.976000	19.79	---	47.00	27.21	151.0	H	159.0
576.976000	---	29.63	---	---	151.0	H	159.0
851.684000	---	32.96	---	---	321.0	V	-39.0
851.684000	23.57	---	47.00	23.43	321.0	V	-39.0

**EMC Test Code = RE0101HR, Frequency Range MHz = [1000, 12750]**

Sample ID: S/01

Operation Mode: OM/01. EUT ON. Bluetooth Low Energy in reception mode. GNSS active. Charging battery.  
 Power supply: 5Vdc (through USB port).

**Images:**



**Tables:**

Frequency(MHz)	MaxPeak(dBµV/m)	Average(dBµV/m)	Limit(dBµV/m)	Margin(dB)
1188.500000	30.25	---	73.97	43.72
1399.750000	---	17.07	53.97	36.90
2179.000000	---	19.19	53.97	34.78
2182.250000	32.77	---	73.97	41.20
3528.000000	---	20.08	53.97	33.89
3544.000000	33.17	---	73.97	40.80
5082.000000	37.20	---	73.97	36.77
5098.250000	---	23.81	53.97	30.16
7082.750000	43.92	---	73.97	30.05
8019.750000	---	29.76	53.97	24.21
11969.250000	48.64	---	73.97	25.33
12299.500000	---	35.50	53.97	18.47

## CE Continuous conducted emission

### Limits of interference Class B

The applied limit for continuous conducted emissions in power leads, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B and C (10-1-20 Edition), Secs. 15.107 and 15.207 & ICES-003 Issue 7 (October 2020), in the frequency range 0,15 to 30 MHz, for Class B equipment was:

Frequency range (MHz)	Limit (dB $\mu$ V)	
	Quasi-Peak	Average
0,15 to 0,5	66 - 56	56 - 46
0,5 to 5	56	46
5 to 30	60	50

### Results

S/	OM	Code	Freq Rng (MHz)	Line	V
01	OM/02	CE01020N	[0.15, 30]	N	P
01	OM/02	CE0102L1	[0.15, 30]	L1	P
01	OM/03	CE01030N	[0.15, 30]	N	P
01	OM/03	CE0103L1	[0.15, 30]	L1	P
02	OM/04	CE02040N	[0.15, 30]	N	P
02	OM/04	CE0204L1	[0.15, 30]	L1	P
02	OM/05	CE02050N	[0.15, 30]	N	P
02	OM/05	CE0205L1	[0.15, 30]	L1	P

### Verdict

Pass

**Attachments**

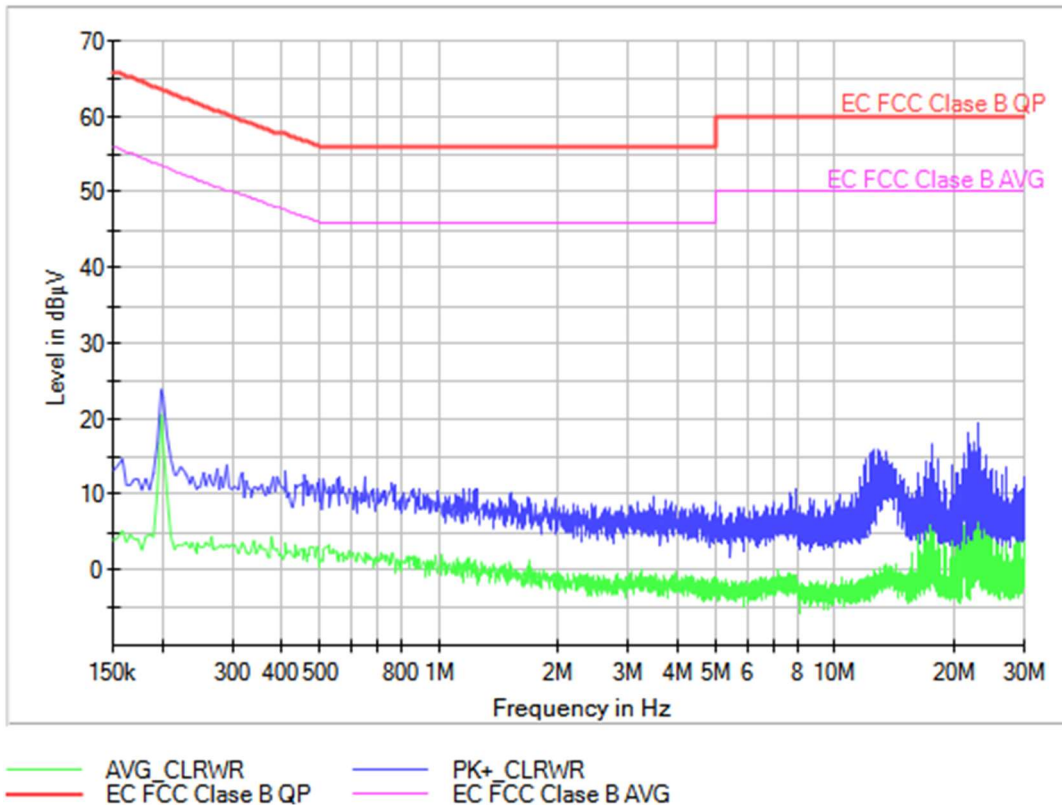
**EMC Test Code = CE01020N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N**

Sample ID: S/01

Operation Mode: OM/02. EUT ON. Bluetooth Low Energy in reception mode. GNSS active. Charging battery.  
 Power supply: 115Vac

**Images:**

EC FCC Class B ESPI CC



**Tables:**

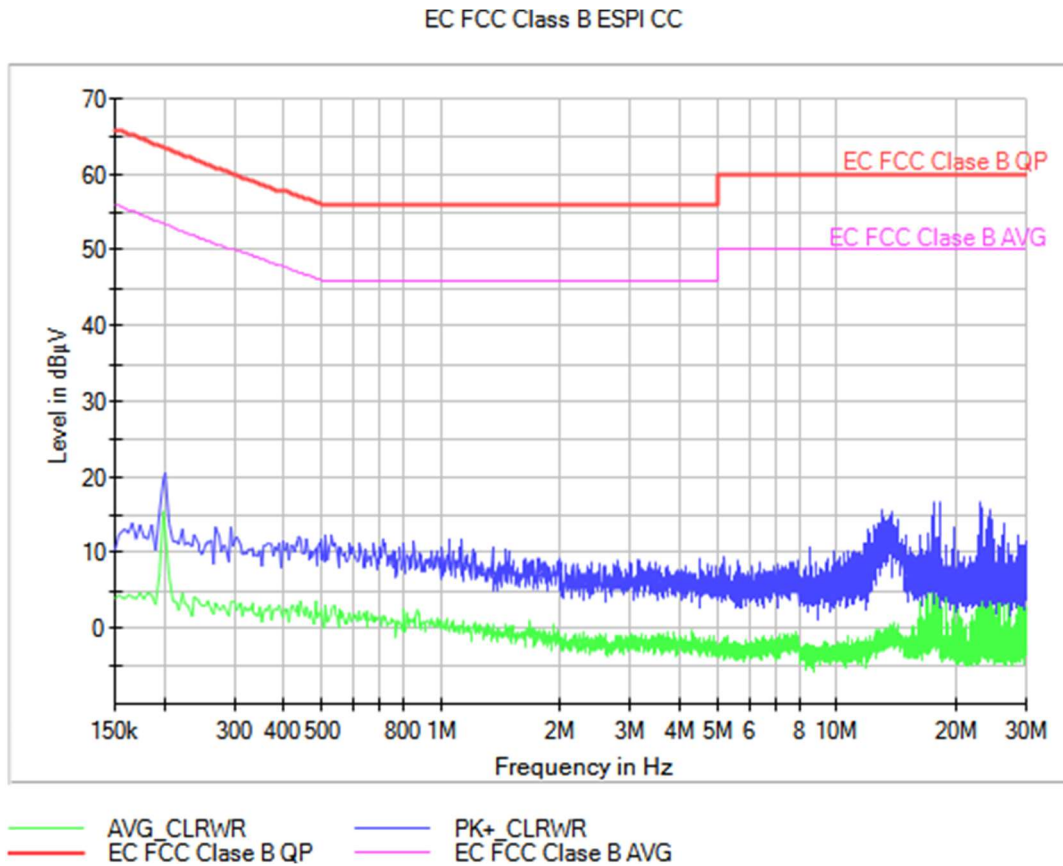
Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.198000	23.8	20.4

EMC Test Code = CE0102L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1

Sample ID: S/01

Operation Mode: OM/02. EUT ON. Bluetooth Low Energy in reception mode. GNSS active. Charging battery.  
 Power supply: 115Vac

Images:



Tables:

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.202000	20.5	12.8

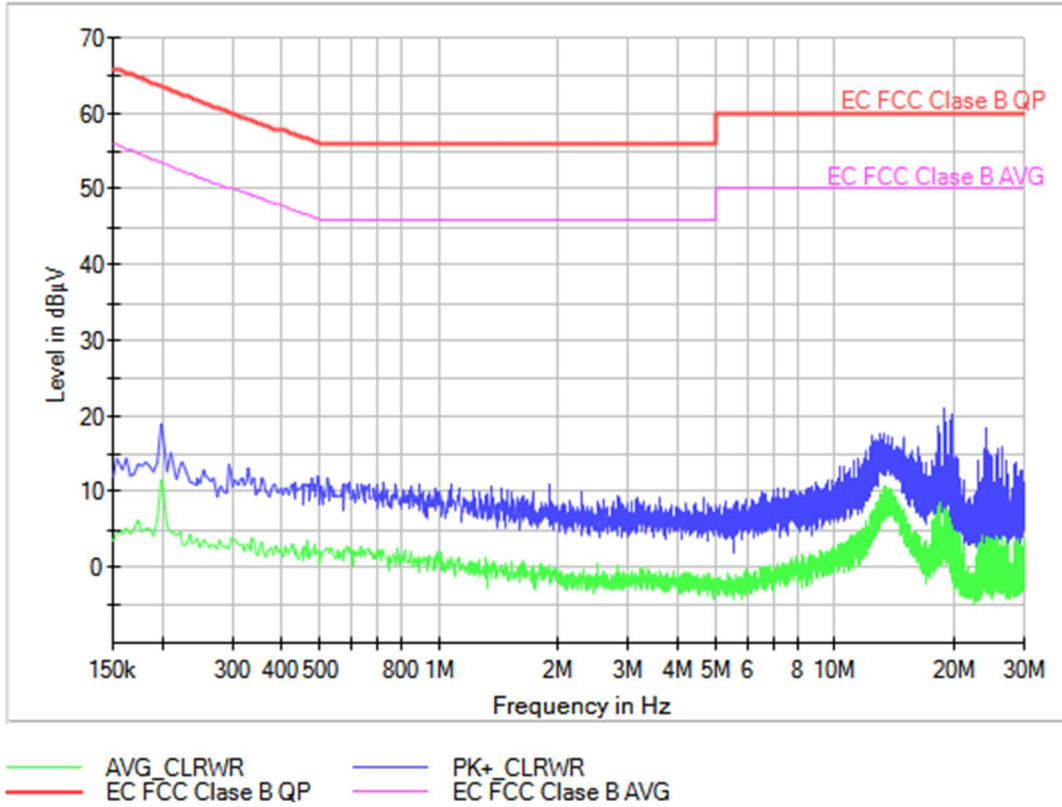
EMC Test Code = CE01030N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N

Sample ID: S/01

Operation Mode: OM/03. EUT ON. Bluetooth low energy ON with communication established. GNSS in RX mode. Charging battery. Power supply: 115Vac.

Images:

EC FCC Class B ESPI CC



Tables:

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.198000	18.8	11.6

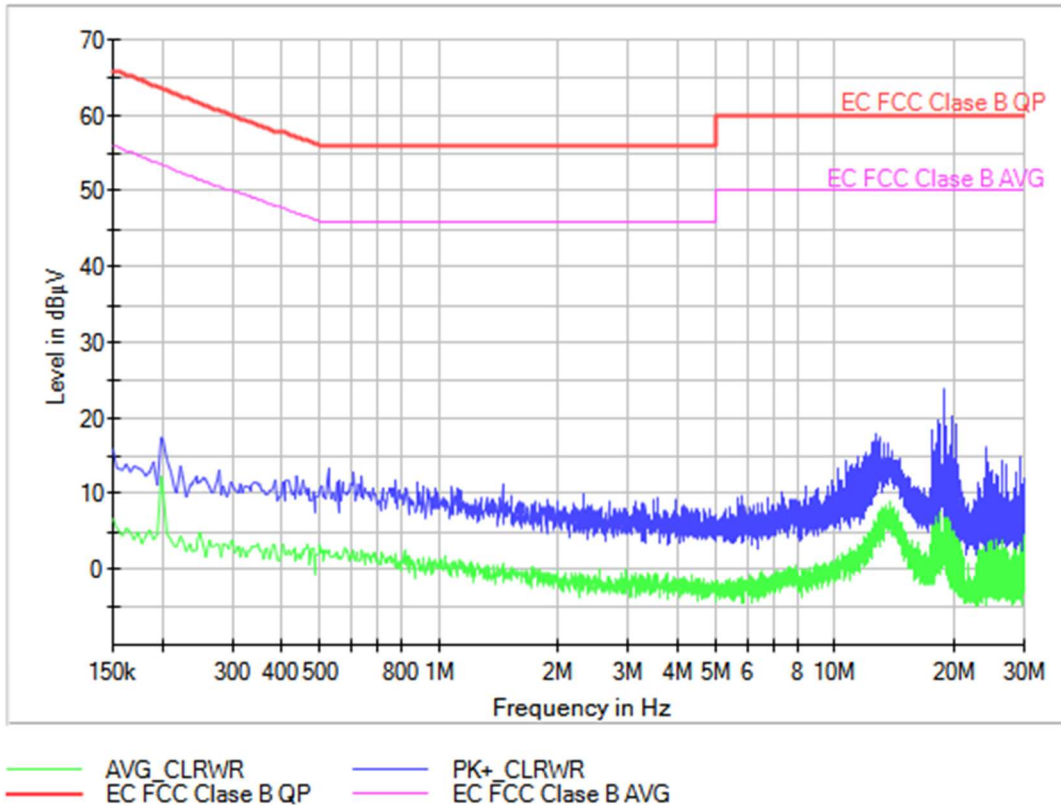
**EMC Test Code = CE0103L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1**

Sample ID: S/01

Operation Mode: OM/03. EUT ON. Bluetooth low energy ON with communication established. GNSS in RX mode. Charging battery. Power supply: 115Vac

**Images:**

EC FCC Class B ESPI CC



**Tables:**

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.198000	17.3	12.3

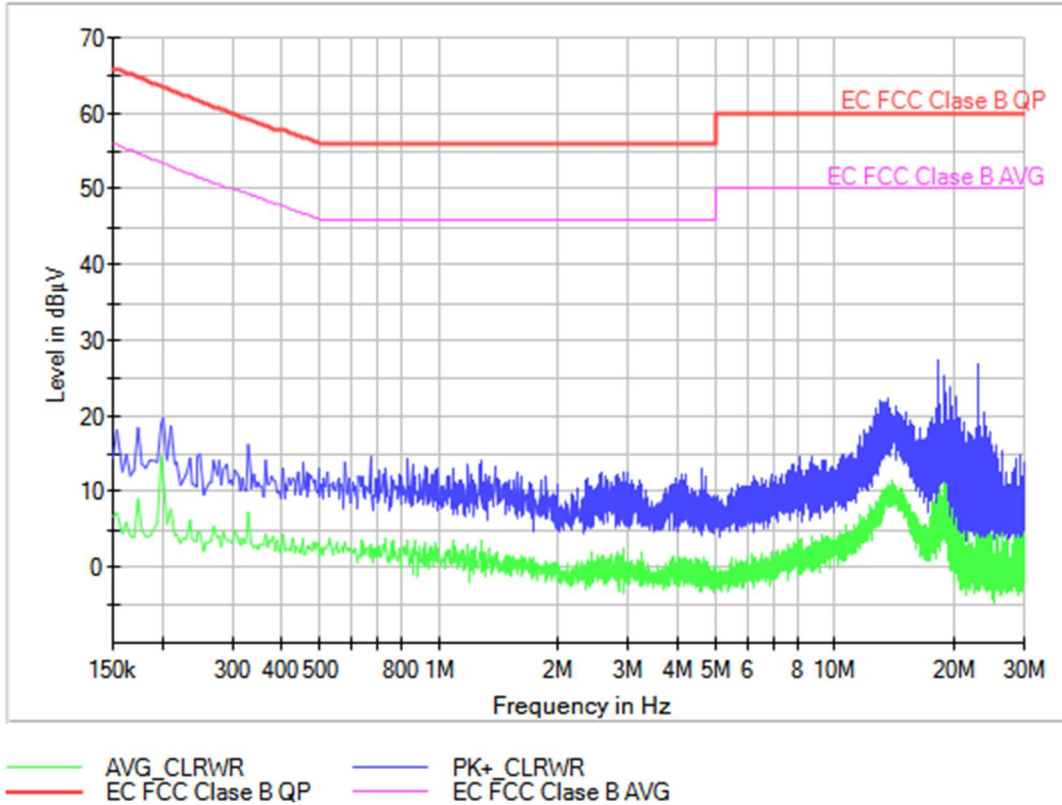
EMC Test Code = CE02040N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N

Sample ID: S/02

Operation Mode: OM/04. EUT ON. GNSS active, receiving position signal via GPS. Bluetooth low energy without communication established. Charging battery. Power supply: 115Vac

Images:

EC FCC Class B ESPI CC



Tables:

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.202000	19.6	11.9



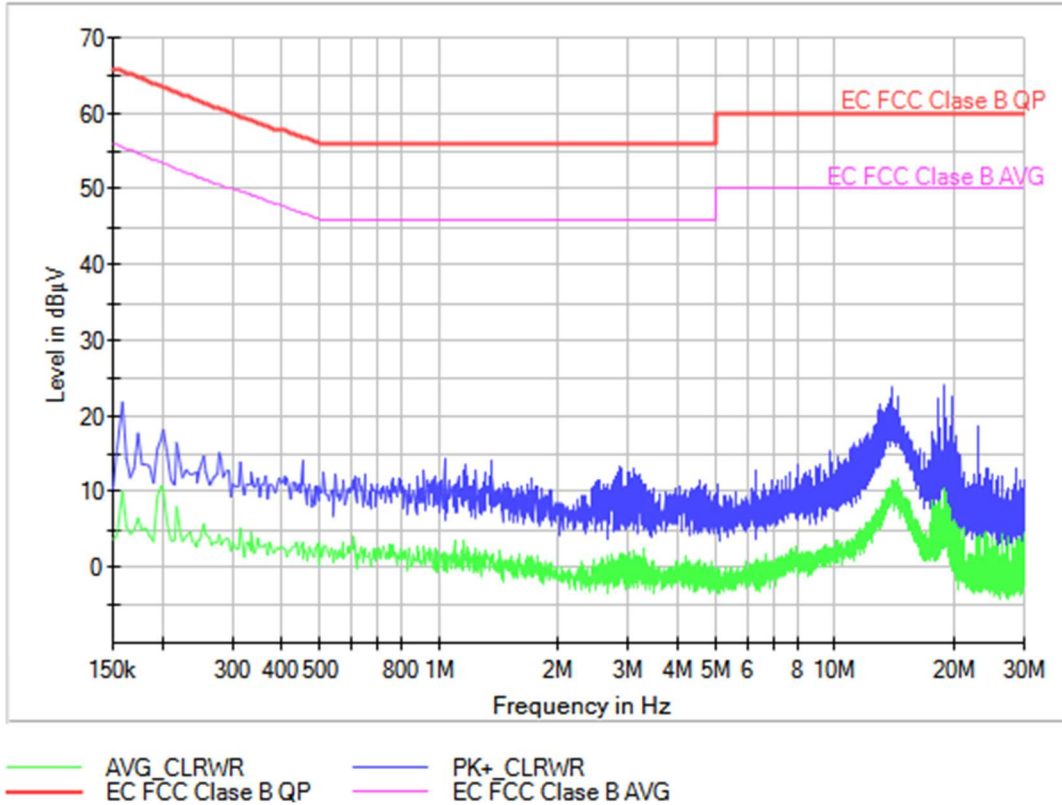
**EMC Test Code = CE0204L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1**

Sample ID: S/02

Operation Mode: OM/04. EUT ON. GNSS active, receiving position signal via GPS. Bluetooth low energy without communication established. Charging battery. Power supply: 115Vac.

**Images:**

EC FCC Class B ESPI CC



**Tables:**

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.158000	21.8	10.1

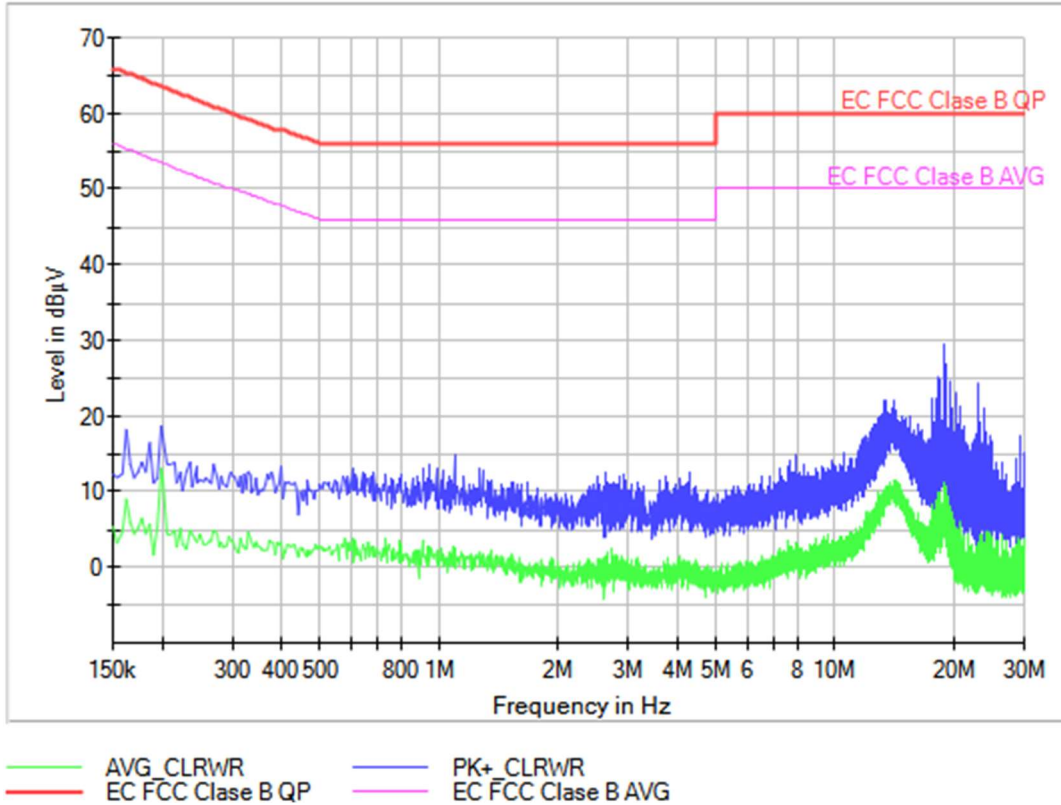
EMC Test Code = CE02050N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N

Sample ID: S/02

Operation Mode: OM/05. EUT ON. GNSS active, receiving position signal via Glonass. Bluetooth low energy without communication established. Charging battery. Power supply: 115Vac

Images:

EC FCC Class B ESPI CC



Tables:

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.198000	18.8	13.1

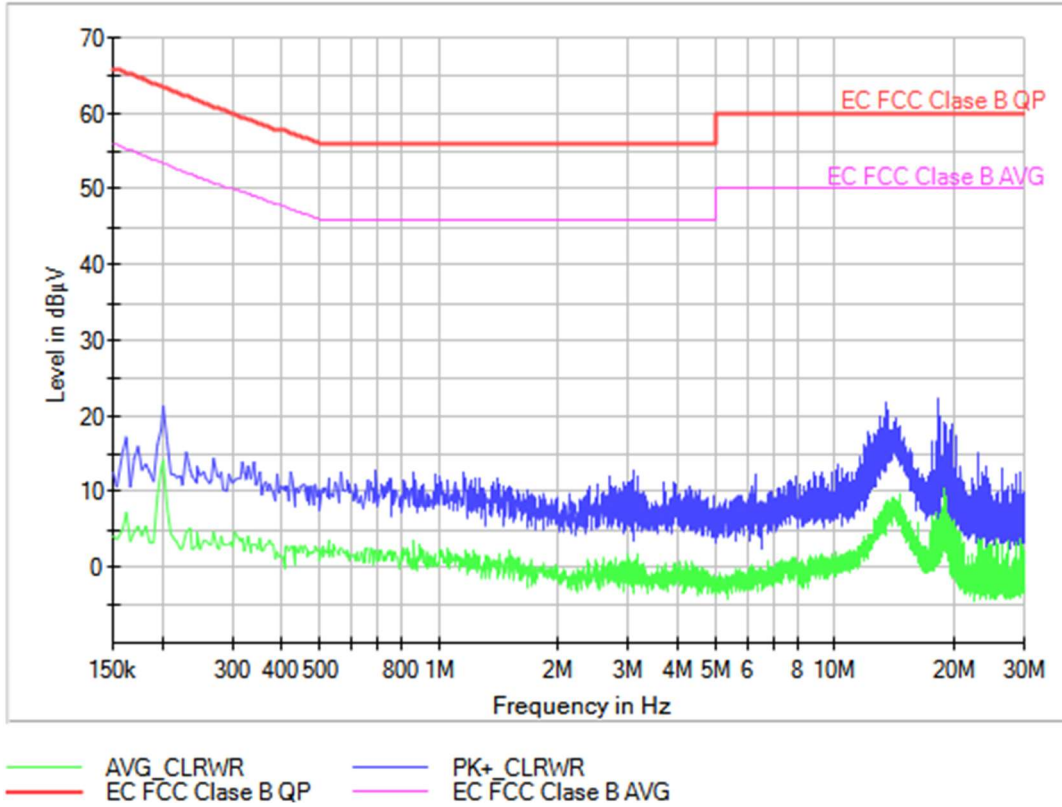
EMC Test Code = CE0205L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1

Sample ID: S/02

Operation Mode: OM/05. EUT ON. GNSS active, receiving position signal via Glonass. Bluetooth low energy without communication established. Charging battery. Power supply: 115Vac

Images:

EC FCC Class B ESPI CC



Tables:

Frequency(MHz)	PK+_CLRWR(dBµV)	AVG_CLRWR(dBµV)
0.202000	21.4	14.0