

ISED CABid: ES1909

Test report No:
NIE: 71139REM.002A1

Test report

**FCC Rules and Regulations CFR 47, Part 15, Subpart B
(10-1-21 Edition) & ICES-003 Issue 7 (October 2020)**

(*) Identification of item tested	Bluetooth enabled blood glucose meter.
(*) Trademark	OneTouch
(*) Model and /or type reference	Verio Reflect
Other identification of the product	HW version: rev E SW version: 4.1.2 FCC ID: Verio Reflect: 2ACT5-K01 Ultra Plus Reflect: 2ACT5-P01 IC: Verio Reflect: 12202A-K01 Ultra Plus Reflect: 12202A-P01
(*) Features	Bluetooth LE
Manufacturer	Lifescan Europe GmbH Gubelstrasse 34, 6300 Zug, Switzerland
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-21 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez Industrial & Automotive EMC Lab. Manager
Date of issue	2023-01-23
Report template No	FDT08_24 (*) "Data provided by the client"



Index

ACRONYMS3

COMPETENCES AND GUARANTEES3

GENERAL CONDITIONS4

UNCERTAINTY4

DATA PROVIDED BY THE CLIENT4

USAGE OF SAMPLES5

TEST SAMPLE DESCRIPTION6

IDENTIFICATION OF THE CLIENT7

TESTING PERIOD AND PLACE7

DOCUMENT HISTORY7

ENVIRONMENTAL CONDITIONS8

REMARKS AND COMMENTS9

TESTING VERDICTS9

LIST OF EQUIPMENT USED DURING THE TEST9

SUMMARY.....10

APPENDIX A: TEST RESULTS11

DESCRIPTION OF THE OPERATION MODES13

TEST STANDARDS VERSION APPLIED14

TEST CASES DETAILS15

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

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

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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 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 and average 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

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")

The sample consists of a Bluetooth enabled blood glucose meter. Blood glucose meter for measuring the levels of Glucose in a patient's blood. Bluetooth is used to transfer the patients result(s) to their smart device.

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 under test have been selected by: The client.

Sample 01: S/01

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	71139B_11.1	Glucose meter	ONETOUCH Verio Reflect	--	2022-04-07	Element Under Test

Sample 02: S/02

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/02	71139B_11.1	Glucose meter	ONETOUCH Verio Reflect	--	2022-04-07	Element Under Test
	--	USB cable	--	--	--	Auxiliary element
	CTC-4667-U	Laptop	Latitude 5300	1M1WFW2	--	Auxiliary Element
	--	AC/DC adapter for laptop	LA65MM130	0G4X7T	--	Auxiliary Element

Test sample description

Ports..... :	Port name and description		Cable			
			Specified max length [m]	Attached during test	Shielded	Coupled to patient
	FTDI Cable		[X]	[]	[]	
			[]	[]	[]	
Supplementary information to the ports..... :						
Rated power supply	Voltage and Frequency		Reference poles			
			L1	L2	L3	N
	[]	AC:	[]	[]	[]	[]
	[X]	DC: 3.0V				
Rated Power						
Clock frequencies..... :	Main processor: 20 MHz. Bluetooth processor: 64 MHz					
Other parameters						
Software version	4.1.2					
Hardware version	rev E					
Dimensions in cm (W x H x D)						
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	
	nRF52805		BLE transceiver		Nordic Semi.	
	MSP430F6636IPZ		Microcontroller		Texas Instruments	
Accessories (not part of the test item)	Description		Type		Manufacturer	
	N/A					
Documents as provided by the applicant..... :	Description		File name		Issue date	
	N/A					

Identification of the client

Lifescan Scotland Ltd
Beechwood Park North, Inverness, IV2 3ED, UK

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2022-04-13
Date (finish)	2023-01-23

Document history

Report number	Date	Description
71139REM.002	2022-07-12	First release
71139REM.002A1	2023-01-23	First modification. Addition: Conducted and Radiated Emission results are added when the device is connected to a host by USB. This report cancels and replaces the previous 71139REM.002.

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. = 860mbar Max. = 1060mbar

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. = 860mbar Max. = 1060mbar

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. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Victoria Olmedo Villalba.

Testing verdicts

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

List of equipment used during the test

Control Number	Description	Model	Manufacturer	Next Calibration
7763	HORN ANTENNA 1-18GHz	BBHA 9120D	SCHWARZBECK MESS-ELEKTRONIK	2022-11-15
7769	PREAMPLIFIER 30dB 500MHz-18GHz	BBV 9718 C	SCHWARZBECK	2023-03-25
7817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-12-30
7826	ULTRALOG ANTENNA 30MHz-6GHz	HL562E_UPG	ROHDE AND SCHWARZ	2022-10-15
7922	HORN ANTENNA 17-40GHz	BBHA 9170	SCHWARZBECK	---
8856	PRE-AMPLIFIER G>30dB 17-40GHz	BLMA 1840-4A	BONN ELEKTRONIK	2022-09-08
4848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	--
7853	EMI RECEIVER 10Hz-30MHz	PMM 9010F	NARDA	2023-12-03
7859	THREE-PHASE ARTIFICIAL NETWORK 32A	PMM L3-32	NARDA	2023-01-14
8165	GROUNDING PLANE LAB-3	-	-	-
7822	EMC Software	RADIMATION	DARE INSTRUMENTS	-

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-21 Edition) & ICES-003 Issue 7 (October 2020)	RE Radiated emission. Electromagnetic field measure	Pass	--
	CE Conducted emission.	Pass	(1)
<u>Supplementary information and remarks:</u> (1) Test performed on the AC port in the PC auxiliary device. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.			

Appendix A: Test results

Appendix A content

DESCRIPTION OF THE OPERATION MODES 13

TEST STANDARDS VERSION APPLIED 14

TEST CASES DETAILS 15

RE Radiated emission. Electromagnetic field measure..... 15

CE Continuous conducted emission..... 20

Description of the operation modes

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes a failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

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

Id	Description
01	EUT ON. BT OFF. Power supply: 6 Vdc (2x CR2032 Batteries)
02	EUT ON. BT OFF. In communication with an auxiliary PC by USB. Power supply: 6 Vdc (2x CR2032 Batteries).
03	EUT ON. BT in communication. In communication with an auxiliary PC by USB. Power supply: 6 Vdc (2x CR2032 Batteries).

Test standards version applied

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 (10-1-21 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	RE Radiated emission.
FCC CFR 47, Part 15, Subpart B (10-1-21 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	CE Conducted emission.

Test Cases Details

RE Radiated emission. Electromagnetic field measure

FCC 15.109 & ICES-003 Issue 7 (3.2.2) limits (Class B)

The applied limit for radiated emissions, 3 m distance, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (01-10-21 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
	(μ V/m)	(dB μ V/m)	(μ V/m)	(dB μ V/m)	(dB μ V/m)	(dB μ 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

NOTE: FCC QP and AVG detectors and limits are in concordance with RSS-Gen Issue 5 (March 2019), Secs. 7.1 and 7.3.

Results

S/	OM	Code	Freq Rng (MHz)	Comments	V
01	01	RE0101HR	[1000, 12750]		P
01	01	RE0101LR	[30, 1000]		P
02	02	RE0202HR	[1000, 12750]		P
02	02	RE0202LR	[30, 1000]		P

Verdict

Pass

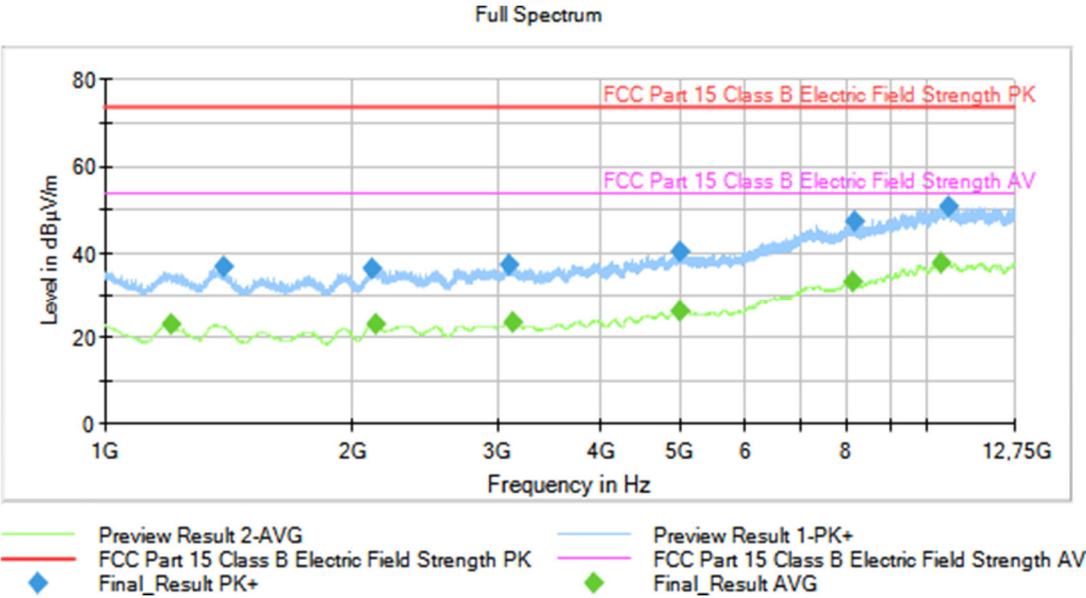
Attachments

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

Sample ID: S/01

Operation Mode: 01. EUT ON. BT OFF. Power supply: 6 Vdc (2x CR2032 Batteries).

Images:



Tables:

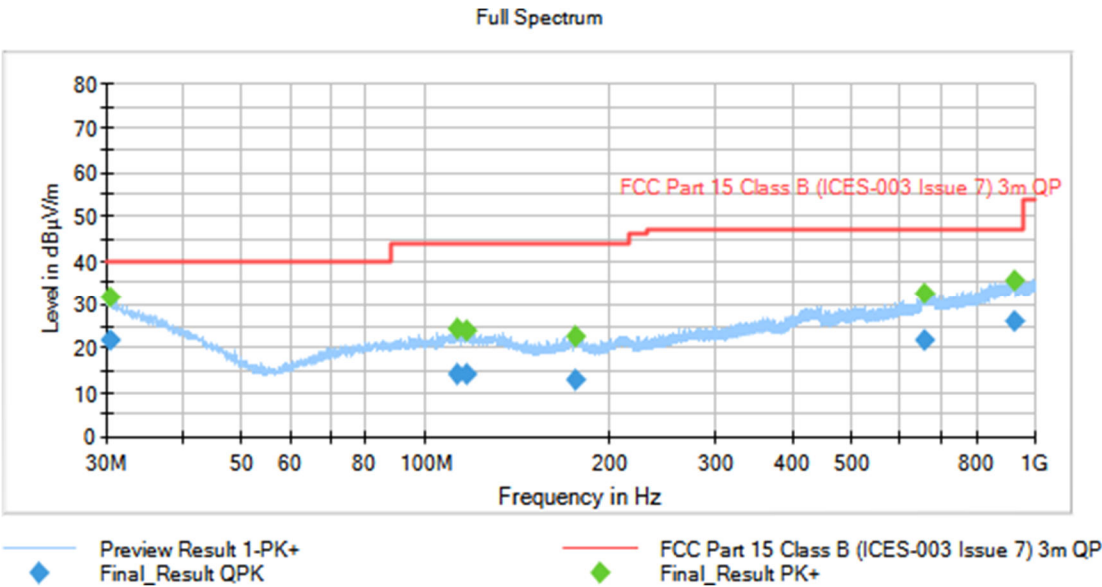
Frequency(MHz)	MaxPeak(dBµV/m)	Average(dBµV/m)	Limit(dBµV/m)	Margin(dB)
1200.000000	---	23.13	53.97	30.84
1395.600000	36.85	---	73.97	37.12
2106.800000	36.10	---	73.97	37.87
2127.200000	---	23.14	53.97	30.83
3102.000000	37.19	---	73.97	36.78
3126.400000	---	23.62	53.97	30.35
4999.200000	---	26.43	53.97	27.54
5000.000000	40.06	---	73.97	33.91
8128.800000	---	33.25	53.97	20.72
8144.400000	47.00	---	73.97	26.97
10390.000000	---	37.51	53.97	16.46
10601.200000	50.81	---	73.97	23.16

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

Sample ID: S/01

Operation Mode: 01. EUT ON. BT OFF. Power supply: 6 Vdc (2x CR2032 Batteries).

Images:



Tables:

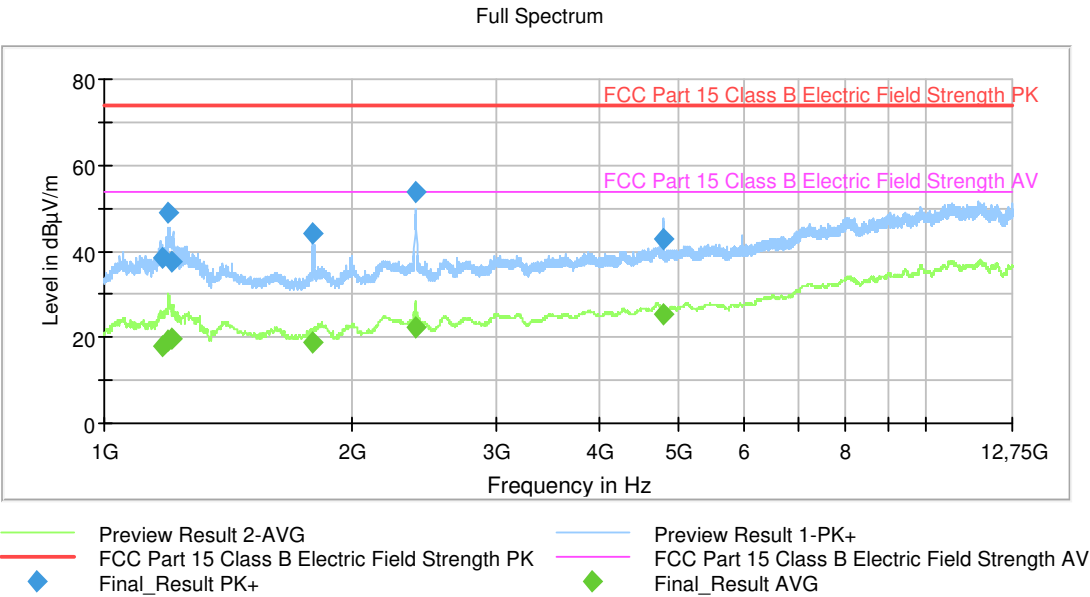
Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height(cm)	Pol	Azimuth(deg)
30.514000	---	31.69	---	---	400.0	H	40.0
30.514000	21.96	---	40.00	18.04	400.0	H	40.0
113.169000	14.23	---	43.52	29.29	177.0	V	69.0
113.169000	---	24.39	---	---	177.0	V	69.0
116.848000	14.20	---	43.52	29.32	177.0	H	162.0
116.848000	---	23.95	---	---	177.0	H	162.0
176.240000	12.63	---	43.52	30.89	396.0	V	256.0
176.240000	---	22.78	---	---	396.0	V	256.0
659.509000	---	32.48	---	---	112.0	V	129.0
659.509000	22.03	---	47.00	24.97	112.0	V	129.0
923.742000	26.02	---	47.00	20.98	132.0	V	14.0
923.742000	---	35.47	---	---	132.0	V	14.0

EMC Test Code = RE0202HR, Frequency Range MHz = [1000, 12750]

Sample ID: S/02

Operation Mode: 02. USB port connected to a PC.

Images:



Final_Result

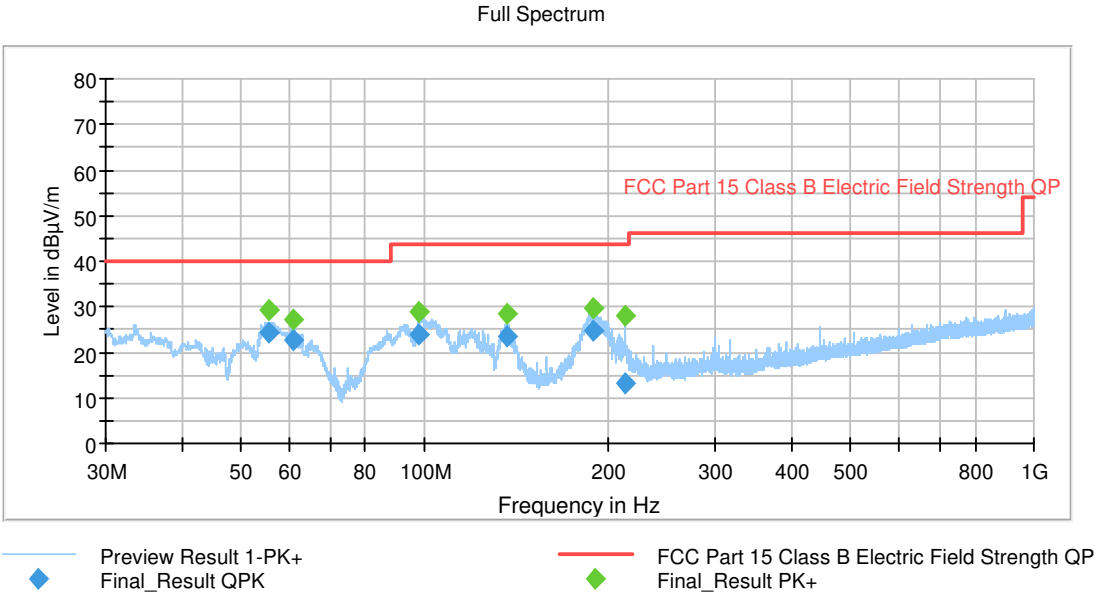
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)
1178.900000	---	18.12	53.97	35.85	15000.0	168.0	V	57.0
1178.900000	38.65	---	73.97	35.32	15000.0	168.0	V	57.0
1196.280000	---	19.33	53.97	34.64	15000.0	169.0	V	57.0
1196.280000	48.95	---	73.97	25.02	15000.0	169.0	V	57.0
1210.200000	---	19.66	53.97	34.31	15000.0	153.0	V	1.0
1210.200000	37.62	---	73.97	36.35	15000.0	153.0	V	1.0
1792.780000	---	18.58	53.97	35.39	15000.0	100.0	V	25.0
1792.780000	44.16	---	73.97	29.81	15000.0	100.0	V	25.0
2391.000000	---	22.25	53.97	31.72	15000.0	109.0	V	32.0
2391.000000	53.84	---	73.97	20.13	15000.0	109.0	V	32.0
4790.300000	---	25.57	53.97	28.40	15000.0	119.0	V	41.0
4790.300000	43.06	---	73.97	30.91	15000.0	119.0	V	41.0

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

Sample ID: S/02

Operation Mode: 02. USB port connected to a PC.

Images:



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
55.457000	24.43	---	40.00	15.57	107.0	V	117.0
55.457000	---	29.24	---	---	107.0	V	117.0
60.831000	---	27.32	---	---	112.0	V	207.0
60.831000	22.58	---	40.00	17.42	112.0	V	207.0
98.231000	---	28.87	---	---	138.0	V	270.0
98.231000	24.07	---	43.52	19.45	138.0	V	270.0
136.564000	23.65	---	43.52	19.87	100.0	V	0.0
136.564000	---	28.53	---	---	100.0	V	0.0
189.447000	24.82	---	43.52	18.70	154.0	V	56.0
189.447000	---	29.61	---	---	154.0	V	56.0
212.980000	13.34	---	43.52	30.18	164.0	H	159.0
212.980000	---	28.14	---	---	164.0	H	159.0

CE Continuous conducted emission

Limits of interference Class B

The applied limit for continuous conducted emissions in power leads, according to the requirements of FCC Rules and Regulations 47 CFR Part 15, Secs. 15.107 and 15.207 & ICES-003, in the frequency range 0,15 to 30 MHz, for Class B equipment was:

Frequency range (MHz)	Limit (dB μ 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
02	OM/02	CE02020N	[0.15, 30]	N (AC port in the Laptop adapter)	P
02	OM/02	CE0202L1	[0.15, 30]	L1 (AC port in the Laptop adapter)	P
02	OM/03	CE02030N	[0.15, 30]	N (AC port in the Laptop adapter)	P
02	OM/03	CE0203L1	[0.15, 30]	L1 (AC port in the Laptop adapter)	P

Verdict

Pass

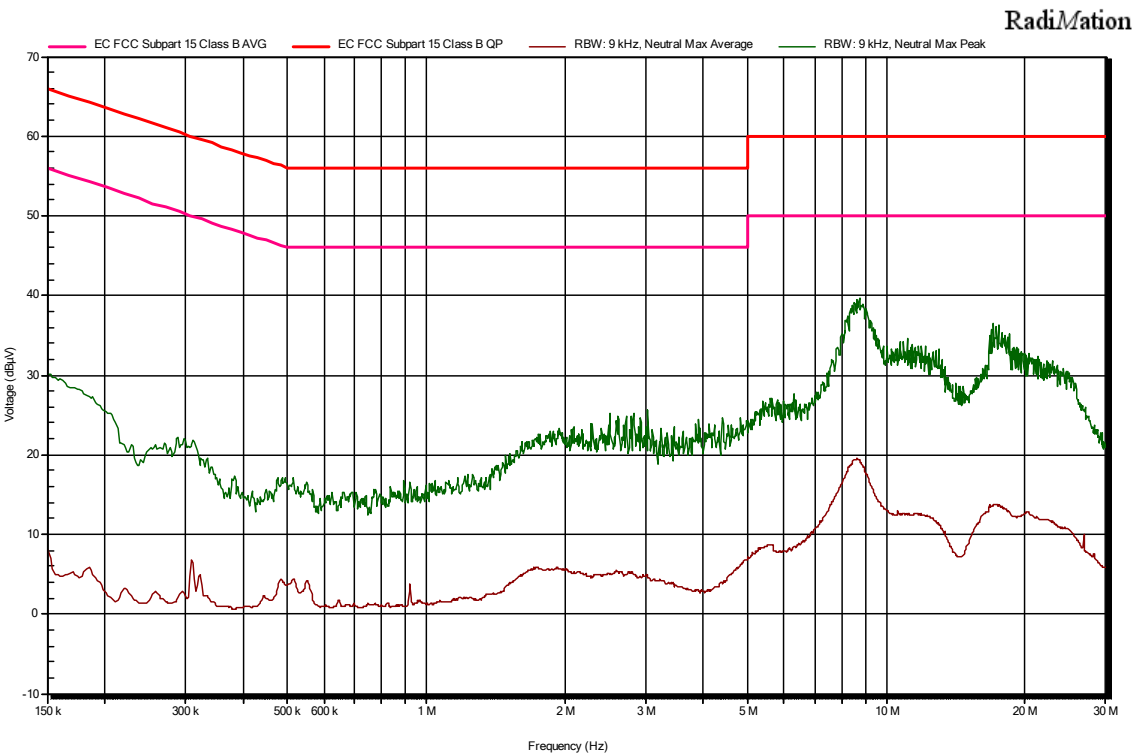
Attachments

EMC Test Code = CE02020N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N
(AC port in the Laptop adapter)

Sample ID: S/02

Operation Mode: OM/02.

Images:



Final Result

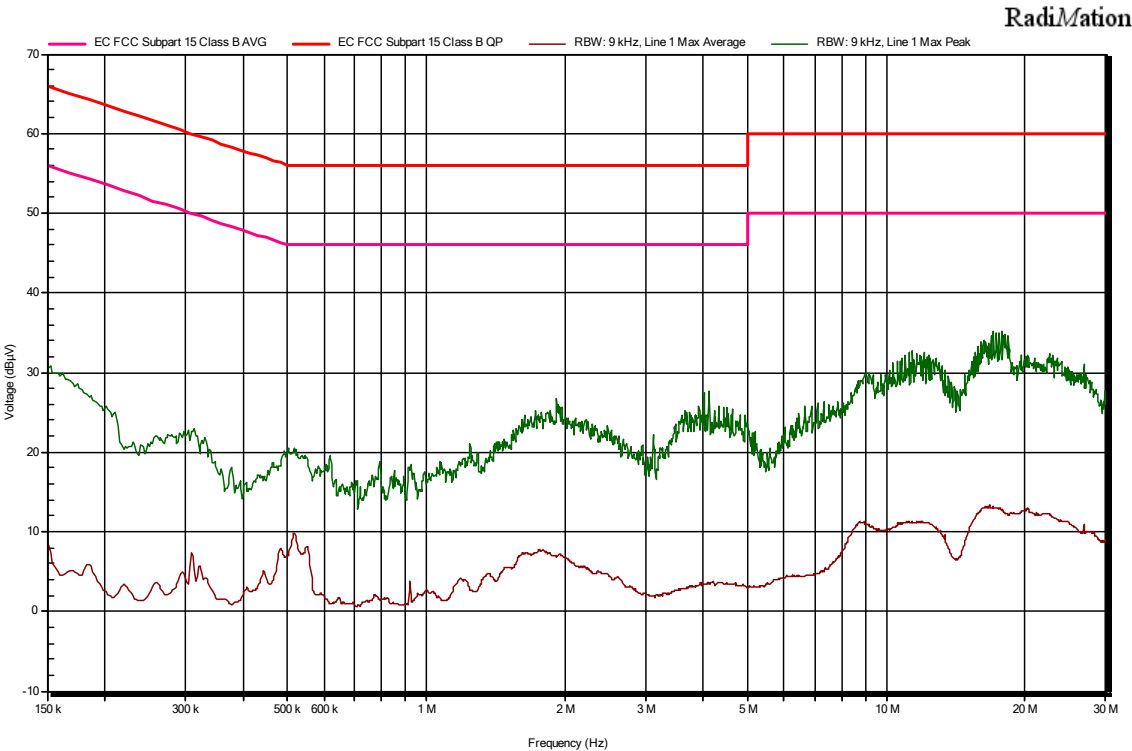
Frequency (MHz)	Average (dBµV)	Peak (dBµV)	Line
8,218 MHz	17,7 dBµV	37,4 dBµV	N
8,605 MHz	19,3 dBµV	39,4 dBµV	N
9,437 MHz	14,6 dBµV	35,5 dBµV	N
11,083 MHz	12,3 dBµV	34,5 dBµV	N
12,138 MHz	12,1 dBµV	33,7 dBµV	N
12,982 MHz	11 dBµV	33,3 dBµV	N
17,309 MHz	13,1 dBµV	36 dBµV	N
18,47 MHz	12,6 dBµV	35,2 dBµV	N
19,908 MHz	12,2 dBµV	32,8 dBµV	N
22,899 MHz	11,3 dBµV	31,8 dBµV	N

EMC Test Code = CE0202L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1
(AC port in the Laptop adapter)

Sample ID: S/02

Operation Mode: OM/02.

Images:



Final Result

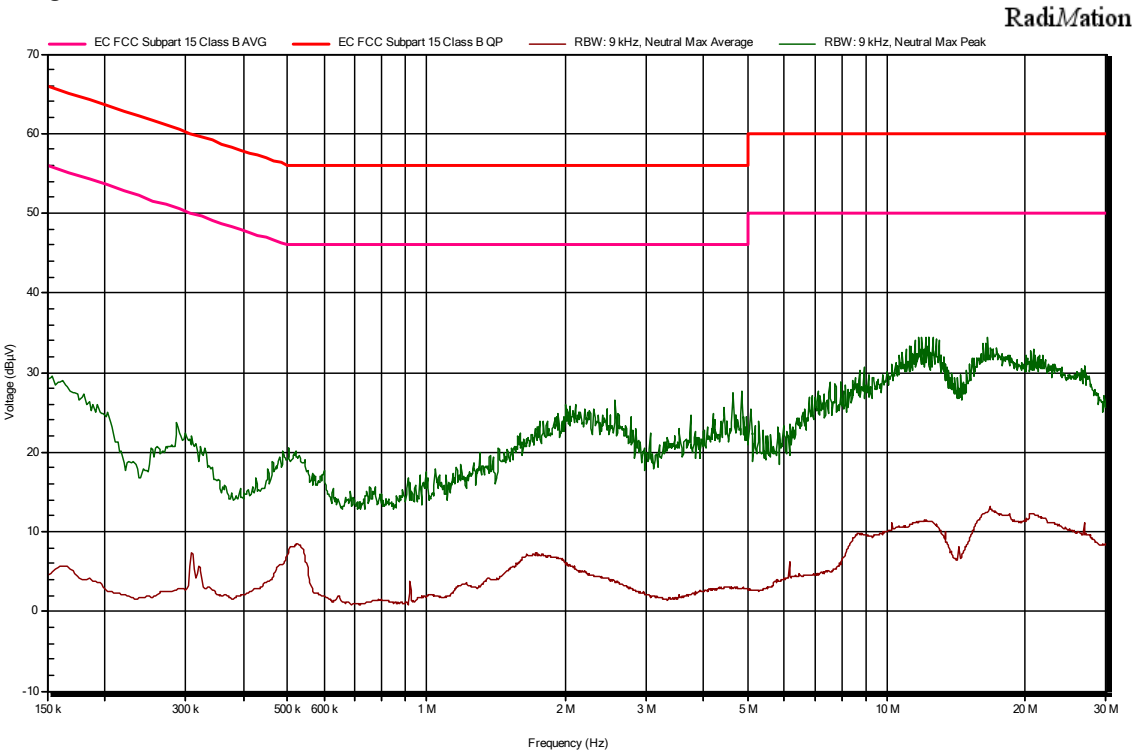
Frequency (MHz)	Average (dBµV)	Peak (dBµV)	Line
4,111 MHz	3,1 dBµV	27,6 dBµV	L1
11,4 MHz	10,7 dBµV	32,6 dBµV	L1
12,034 MHz	10,8 dBµV	32,5 dBµV	L1
12,862 MHz	10 dBµV	31,3 dBµV	L1
15,794 MHz	12,1 dBµV	33,3 dBµV	L1
17,092 MHz	12,6 dBµV	35,2 dBµV	L1
17,73 MHz	12,3 dBµV	35,2 dBµV	L1
20,3 MHz	12,6 dBµV	31,8 dBµV	L1
22,541 MHz	11,9 dBµV	32,3 dBµV	L1
26,798 MHz	10,9 dBµV	30,9 dBµV	L1

EMC Test Code = CE02030N, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = N
(AC port in the Laptop adapter)

Sample ID: S/02

Operation Mode: OM/03. In Bluetooth communication.

Images:



Final_Result

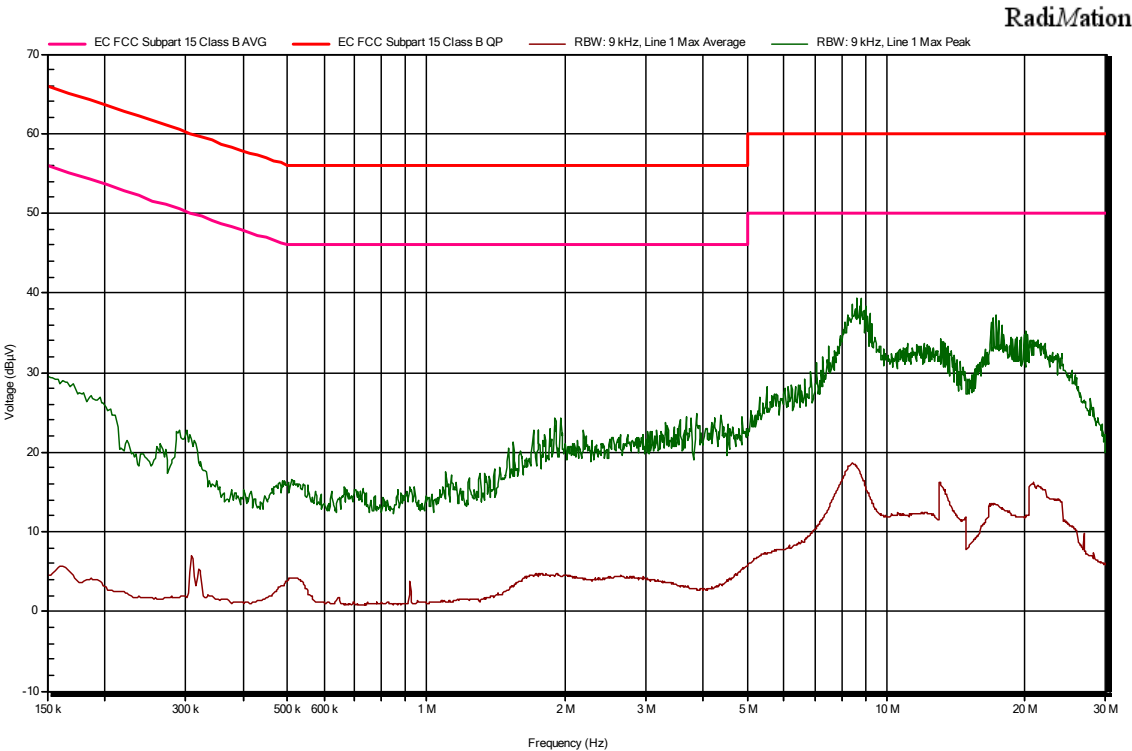
Frequency (MHz)	Average (dBµV)	Peak (dBµV)	Line
4,84 MHz	2,5 dBµV	27,4 dBµV	N
11,506 MHz	10,9 dBµV	33,3 dBµV	N
12,563 MHz	10,9 dBµV	34,5 dBµV	N
12,984 MHz	10 dBµV	33,7 dBµV	N
15,317 MHz	9,5 dBµV	31,8 dBµV	N
16,563 MHz	12,2 dBµV	34,4 dBµV	N
18,632 MHz	11,3 dBµV	31,7 dBµV	N
20,795 MHz	12,1 dBµV	32,8 dBµV	N
21,85 MHz	11,4 dBµV	32,1 dBµV	N
26,915 MHz	9,2 dBµV	30,8 dBµV	N

EMC Test Code = CE0203L1, Frequency Range MHz = [0.15, 30], Conducted Emissions - Tested Line = L1
(AC port in the Laptop adapter)

Sample ID: S/02

Operation Mode: OM/03. In Bluetooth communication.

Images:



Final Result

Frequency (MHz)	Average (dBµV)	Peak (dBµV)	Line
7,468 MHz	12,5 dBµV	33,3 dBµV	L1
8,815 MHz	16,6 dBµV	39,4 dBµV	L1
10,238 MHz	12,2 dBµV	32,1 dBµV	L1
11,101 MHz	11,8 dBµV	33,4 dBµV	L1
12,034 MHz	12,1 dBµV	33,6 dBµV	L1
13,197 MHz	15,5 dBµV	33,8 dBµV	L1
17,311 MHz	12,8 dBµV	37,2 dBµV	L1
17,734 MHz	12,6 dBµV	35,9 dBµV	L1
20,059 MHz	11,7 dBµV	35,1 dBµV	L1
22,065 MHz	14,8 dBµV	33,6 dBµV	L1