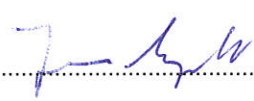


EMC TEST REPORT FCC 47 CFR Part 15B, ISED ICES-003 Issue 6	
Report Reference No	G0M-1904-8185-EF0115B-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	    DAKKS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A-2 DAKKS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	Medela AG
Address	Lättichstr. 4b 6340 Baar SWITZERLAND
Test Specification	
Standard	47 CFR Part 15 Subpart B ISED ICES-003 Issue 6 ANSI C63.4:2014
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	freestyle
Model(s)	101035796
Additional Model(s)	None
Brand Name(s)	Medela
Hardware Version(s)	101032361-9H
Software Version(s)	V0.30.1
FCC-ID	2ATCR648386
IC	25040-648386
Test Result	PASSED

Possible test case verdicts:																											
required by standard but not tested	N/T																										
not required by standard	N/R																										
required by standard but not appl. to test object	N/A																										
test object does meet the requirement	P(PASS)																										
test object does not meet the requirement	F(FAIL)																										
Testing:																											
Date of receipt of test item	2019-04-12																										
Report:																											
Compiled by	Matthias Handrik																										
Tested by (+ signature) (Responsible for Test)	Matthias Handrik																										
Approved by (+ signature) (Deputy Head of Lab)	Jens Marquardt																										
Date of Issue	2019-05-23																										
Total number of pages	49																										
General Remarks:																											
The test results presented in this report relate only to the object tested. The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.																											
Additional Comments:																											
The manufacturer declares several variants of the adapters:																											
<table border="1"> <thead> <tr> <th>Mains adapter series</th> <th>Variant (plug)</th> <th>Mains adapter type</th> <th>Article number</th> </tr> </thead> <tbody> <tr> <td rowspan="4">1 S010BL ¹⁾</td> <td>EU ²⁾</td> <td>S010BLV0500200</td> <td>101039085</td> </tr> <tr> <td>UK</td> <td>S010BLB0500200</td> <td>101039087</td> </tr> <tr> <td>AUS/NZ</td> <td>S010BLS0500200</td> <td>101039088</td> </tr> <tr> <td>CN</td> <td>S010BLC0500200</td> <td>101039089</td> </tr> <tr> <td rowspan="2">2 S010W ¹⁾</td> <td>EU ²⁾</td> <td>S010WV0500200</td> <td>101036685</td> </tr> <tr> <td>CN</td> <td>S010WC0500200</td> <td>101036689</td> </tr> </tbody> </table>				Mains adapter series	Variant (plug)	Mains adapter type	Article number	1 S010BL ¹⁾	EU ²⁾	S010BLV0500200	101039085	UK	S010BLB0500200	101039087	AUS/NZ	S010BLS0500200	101039088	CN	S010BLC0500200	101039089	2 S010W ¹⁾	EU ²⁾	S010WV0500200	101036685	CN	S010WC0500200	101036689
Mains adapter series	Variant (plug)	Mains adapter type	Article number																								
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	AUS/NZ	S010BLS0500200	101039088																								
	CN	S010BLC0500200	101039089																								
2 S010W ¹⁾	EU ²⁾	S010WV0500200	101036685																								
	CN	S010WC0500200	101036689																								
¹⁾ All variants of the S010BL resp. the S010W series have identical electronics (PCB, layout, assy) ²⁾ tested version																											

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
T _{NOM}	Nominal operating temperature
V _{NOM}	Nominal supply voltage

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2019-05-23	Initial Release	

REPORT INDEX

1	Equipment (Test Item) Under Test.....	6
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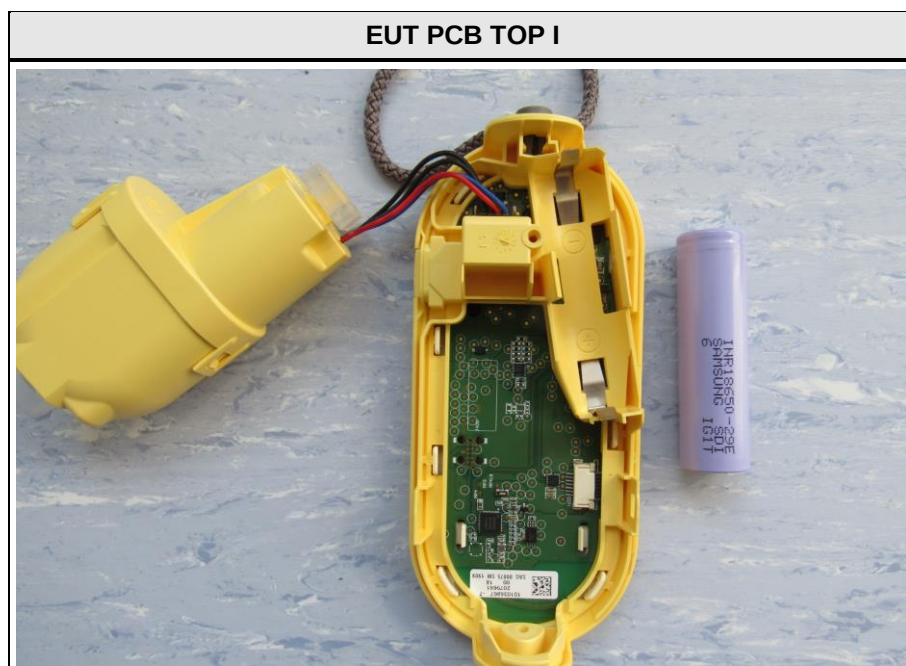
1 Equipment (Test Item) Under Test

Description	freestyle	
Model	101035796	
Additional Model(s)	None	
Brand Name(s)	Medela	
Serial Number(s)	K20191300003	
Hardware Version(s)	101032361-9H	
Software Version(s)	V0.30.1	
FCC-ID	2ATCR648386	
IC	25040-648386	
Class	Class B	
Equipment type	Table top	
Highest internal frequency [MHz]	2480	
Radio Module	Type	Bluetooth Low Energy
	Model	Unspecified
	Manufacturer	Unspecified
	FCC-ID	Unspecified
	IC	Unspecified
Supply Voltage	V _{NOM}	5VDC (AC/DC adaptor)
AC/DC-Adaptor I	Model	S010BLV0500200
	Vendor	TenPao
	Input	100 - 240VAC 50/60Hz 0.4A
	Output	5V DC 2A
AC/DC-Adaptor II	Model	S010WV0500200
	Vendor	TenPao
	Input	100 - 240VAC 50/60Hz 0.4A
	Output	5V DC 2A
Manufacturer	Medela AG Lättichstr. 4b 6340 Baar SWITZERLAND	

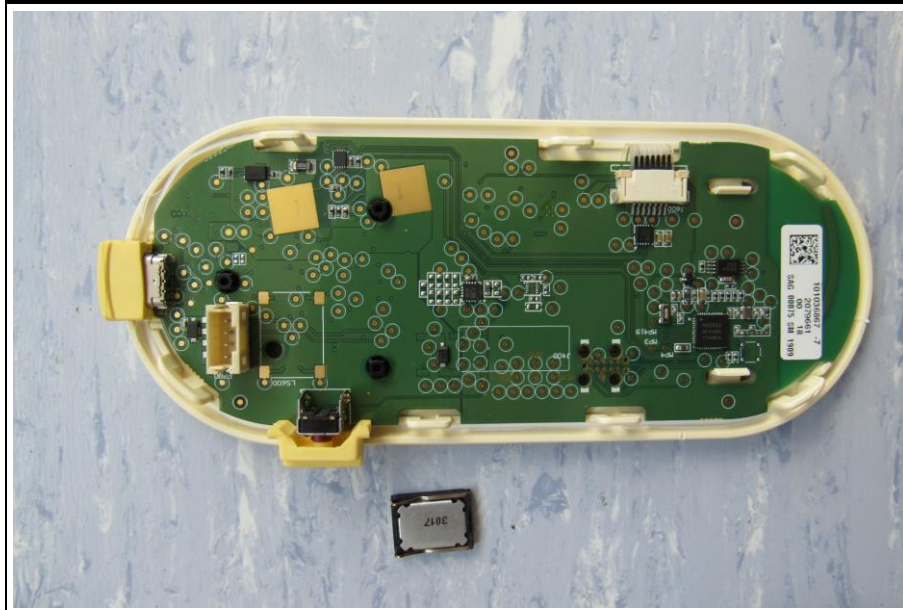
1.1 Equipment Ports

Name	Type	Attributes	Comment
Power	AC	Count: 1 Direction: In Service only: No	
Description:			
AC	AC mains power input/output port		
DC	DC power input/output port		
IO	Input/Output port		
TP	Telecommunication port		
NE	Non-electrical port		

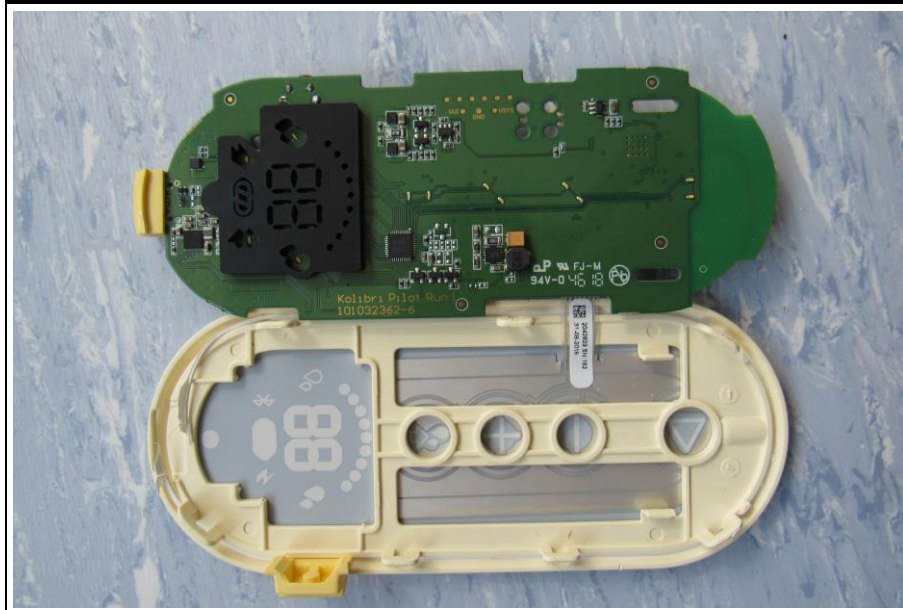
1.2 Equipment Photos - Internal



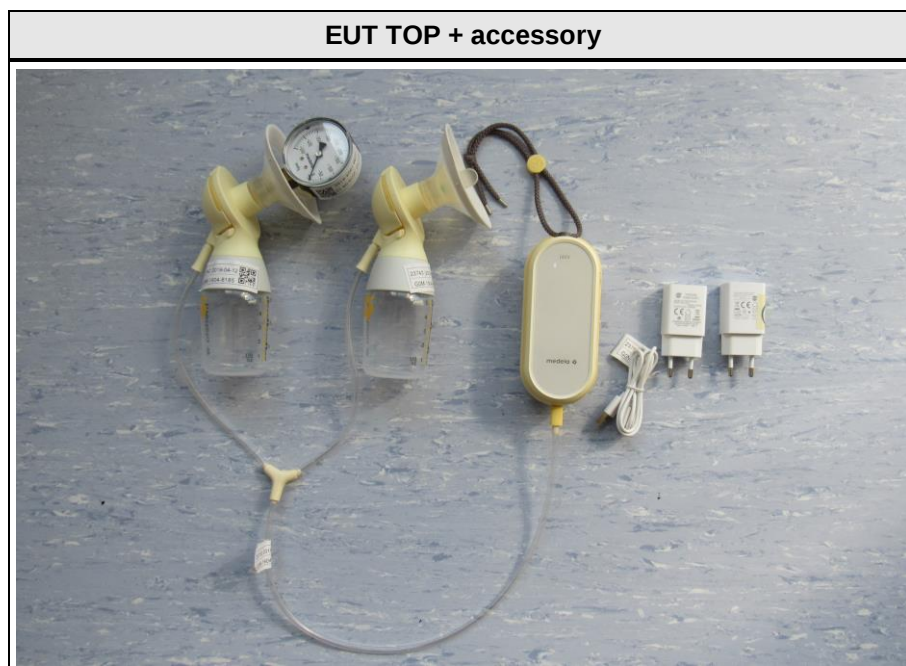
EUT PCB TOP II



EUT PCB BOTTOM



1.3 Equipment Photos - External



EUT BOTTOM



EUT FRONT



EUT BACK



EUT AC/DC adaptor II



EUT AC/DC adaptor II



EUT AC/DC adaptor I



EUT AC/DC adaptor I



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	tablet	HUAWEI	KOB-W09	
AE	App MDC Explorer	Medela AG	Vers.: 2.1.221018	
CBL	USB	-	-	USB Charger
AE	Bottle	Medela AG	-	2x
AE	Under pressure meter	Medela AG	-	-
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
Comment:				

1.5 Operational Modes

Mode #	Description
1	EUT powered via internal battery Bluetooth connection to tablet
2	EUT charging Bluetooth connection to tablet
Comment:	

1.6 EUT Configuration

Configuration #	Description
1	- EUT powered up. - Bluetooth connection to tablet - EUT controlled via App on tablet („freestyle“; FULL EXPRESSION) - 2 bottles; one closed with under pressure meter; one fully closed
Comment:	

1.7 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyser in dBµV. Any external preamplifiers used are taken into account through internal analyser settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyser. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyser (dB}\mu\text{V)} + \text{A.F. (dB/m)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dBµV/m). The FCC limits are given in units of µV/m. The following formula is used to convert the units of µV/m to dBµV/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 \cdot \log(\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

Reading + AF	= Net Reading	:	Net reading - FCC limit	= Margin
+21.5 dBµV + 26 dB/m	= 47.5 dBµV/m	:	47.5 dBµV/m - 57.0 dBµV/m	= -9.5 dB

2 Result Summary

FCC 47 CFR Part 15B, ISED ICES-003 Issue 6				
Reference	Requirement	Reference Method	Result	Remarks
Emission				
FCC 15.109 ICES-003, 8, 6.1	Radiated emissions	ANSI C63.4:2014	PASS	
FCC 15.107 ICES-003, 8, 6.2	AC power line conducted emissions	ANSI C63.4:2014	PASS	
Comment:				

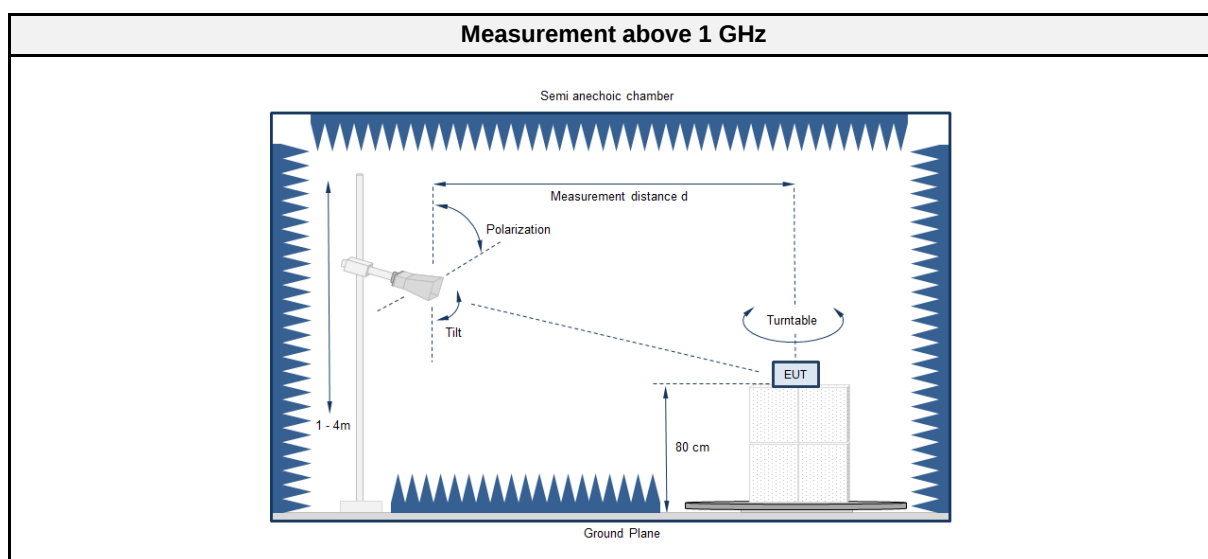
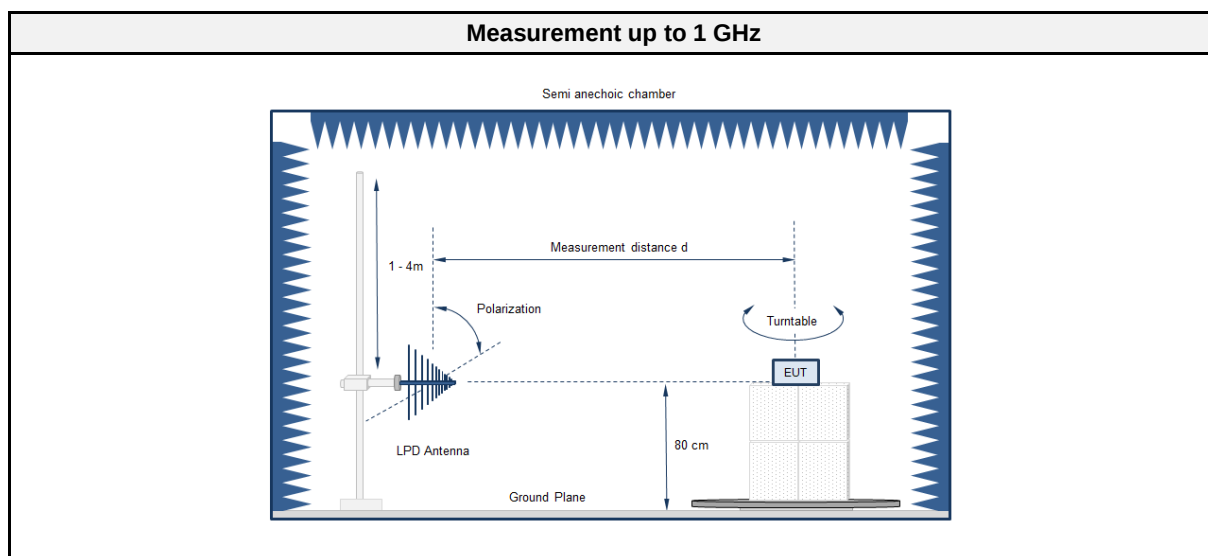
Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

2.1 Test Conditions and Results - Radiated emissions acc. to ANSI C63.4

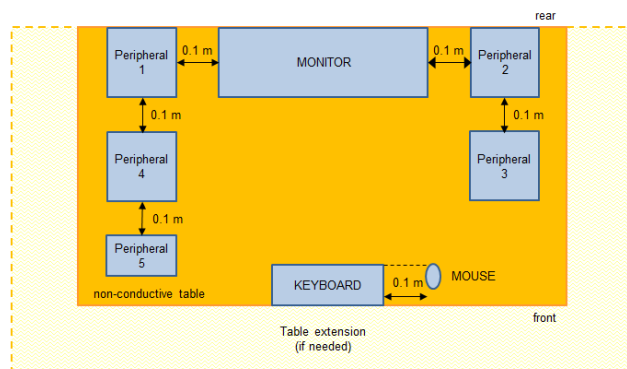
2.1.1 Information

Test Information	
Reference	FCC 15.109, ICES-003, 8, 6.1
Reference method	ANSI C63.4:2014 Section 8
Equipment class	Class B
Equipment type	Table top
Highest internal frequency [MHz]	2480
Measurement range	30 MHz to 12400 MHz
Temperature [°C]	22
Humidity [%]	25
Operator	Matthias Handrik
Date	2019-04-17

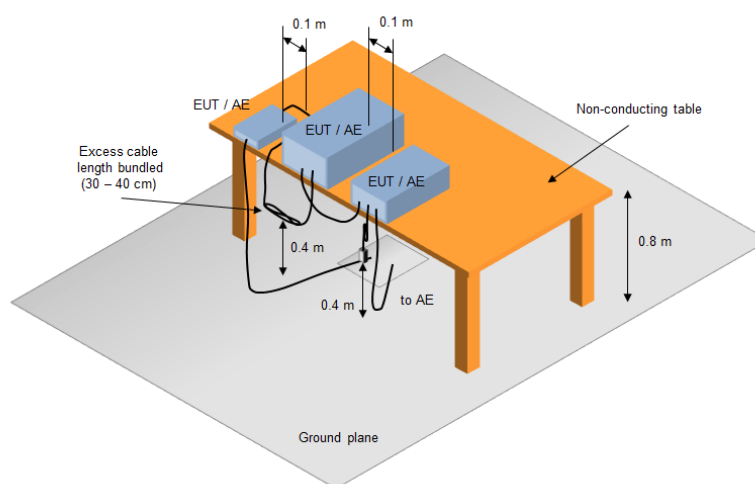
2.1.2 Setup



Equipment placement - Table top



Test Setup



2.1.3 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	Radimation	2016.1.10

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC1	EF00062	2018-07	2021-07
EMI Test Receiver	Keysight	N9038A-526/WXP	EF01070	2018-08	2019-08
Biconical Antenna	R&S	HK 116	EF00030	2016-04	2019-04
LPD Antenna	R&S	HL 223	EF00187	2016-05	2019-05
Horn antenna	Schwarzbeck	BBHA 9120D (1-18GHz)	EF00018	2016-09	2019-09

2.1.4 Procedure

Exploratory measurement	
1.	The EUT was placed on a non-conductive table at a height of 0.8m.
2.	The EUT and support equipment, if needed, were set up to simulate typical usage.
3.	Cables, of type and length specified by the manufacturer, were connected to at least one port of each type and were terminated by a device or simulating load of actual usage.
4.	The antenna was placed at a distance of 3 or 10 m.
5.	The received signal was monitored at the measurement receiver.
6.	This procedure has to be performed in both antenna polarizations, horizontal and vertical.
7.	The arrangement of the equipment with the maximum emission level is shown on the setup picture at item 1.3

Final measurement	
1.	The EUT was placed on a 0.8 m non-conductive table at a 3 m distance from the receive antenna. The antenna output was connected to the measurement receiver.
2.	A biconical antenna was used for the frequency range 30 – 200 MHz, a logarithmic periodical antenna was used for the frequency range from 200 – 1000 MHz. Above one 1 GHz a Double Ridged Broadband Horn antenna was used. The antenna was placed on an adjustable height antenna mast.
3.	The EUT and cable arrangement were based on the exploratory measurement results.
4.	Emissions were maximized at each frequency by rotating the EUT and adjusting the receive antenna height and polarization. The maximum values were recorded.
5.	The test data of the worst-case conditions were recorded and shown on the next pages.

2.1.5 Limits

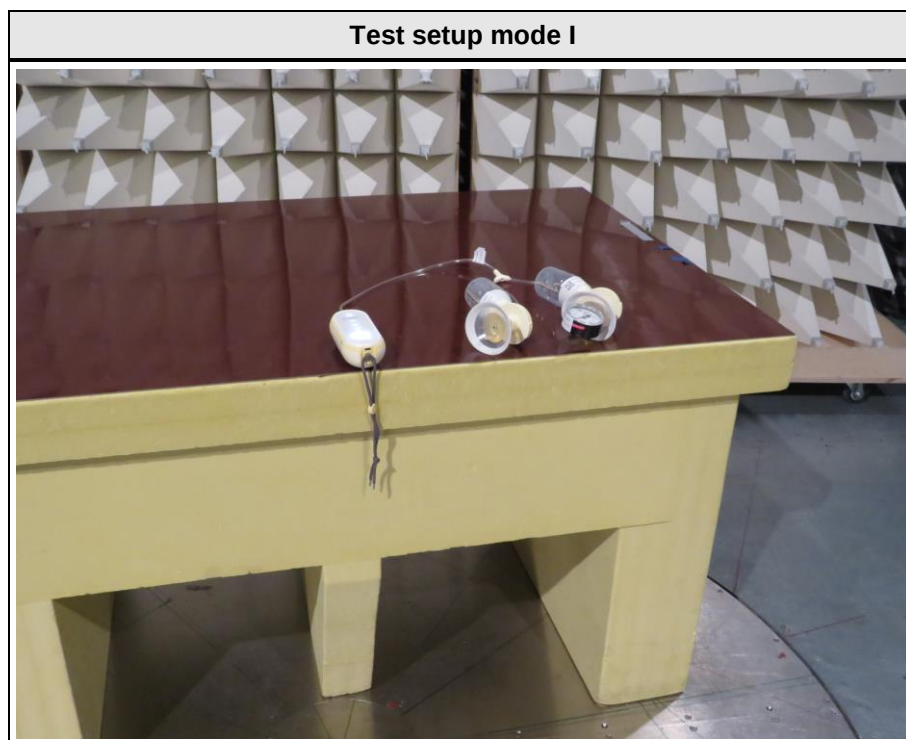
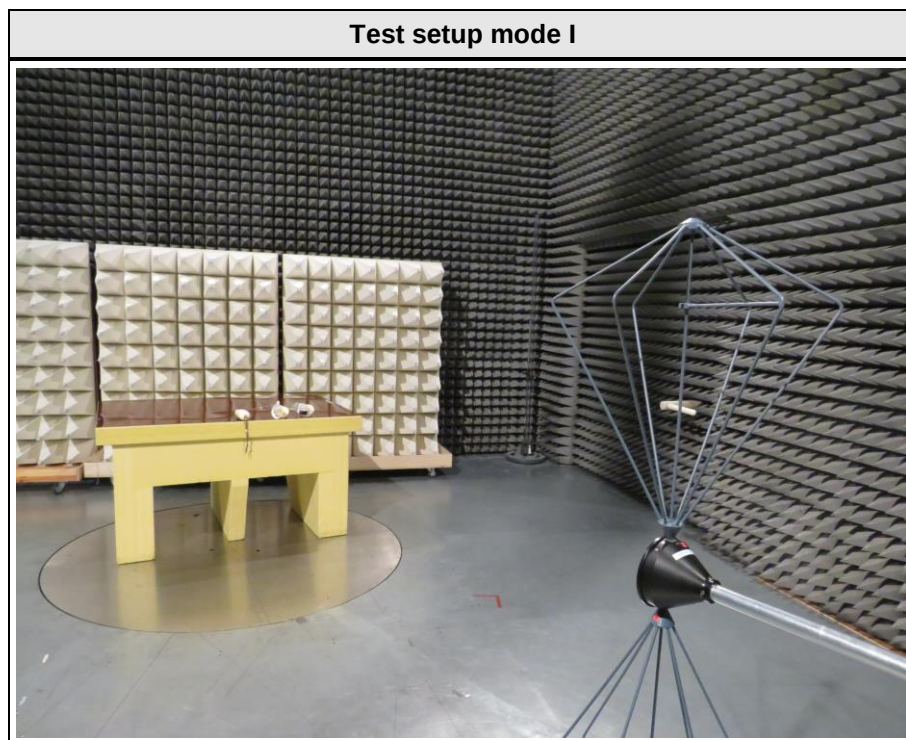
Class B @ 3 m		
Frequency [MHz]	Detector	Limit [dB μ V/m]
30 - 88	Quasi-peak	40
88 - 216	Quasi-peak	43.5
216 - 960	Quasi-peak	46
960 - 1000	Quasi-peak	54
> 1000	Peak	74
	Average	54

Class A @ 10 m		
Frequency [MHz]	Detector	Limit [dB μ V/m]
30 - 88	Quasi-peak	39
88 - 216	Quasi-peak	43.5
216 - 960	Quasi-peak	46.5
960 - 1000	Quasi-peak	49.5
> 1000	Peak	69.5
	Average	49.5

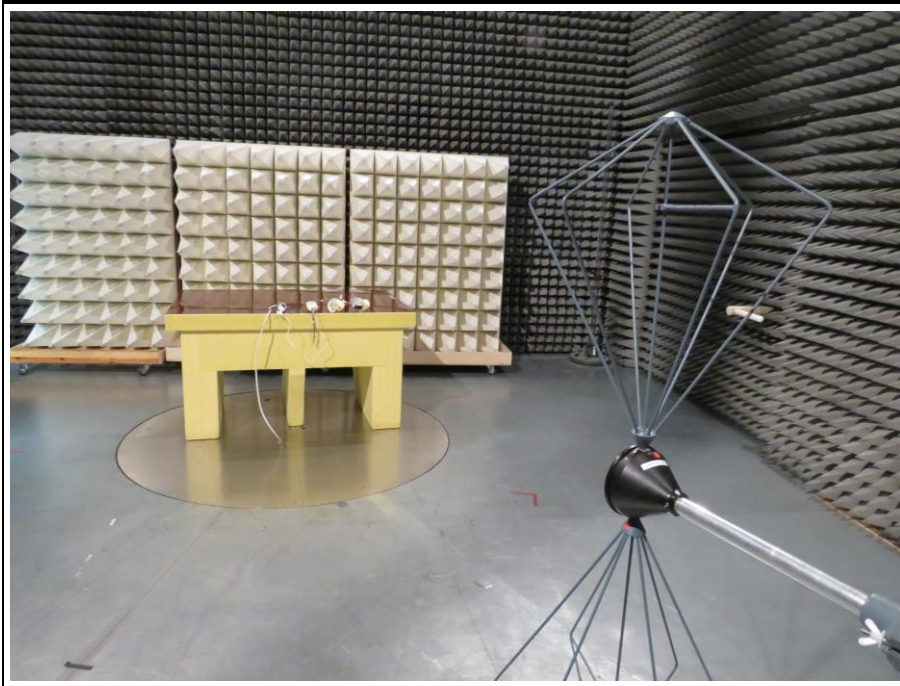
2.1.6 Results

Test Results			
Operational mode	EUT Configuration	Verdict	Remark
1/2	1	PASS	

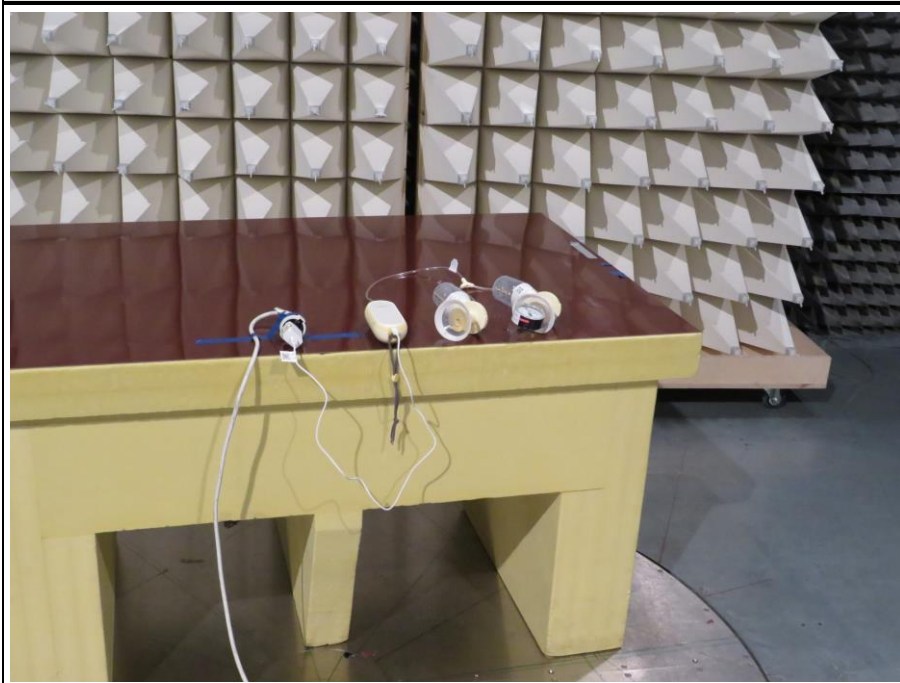
2.1.7 Setup Photos



Test setup mode II



Test setup mode II



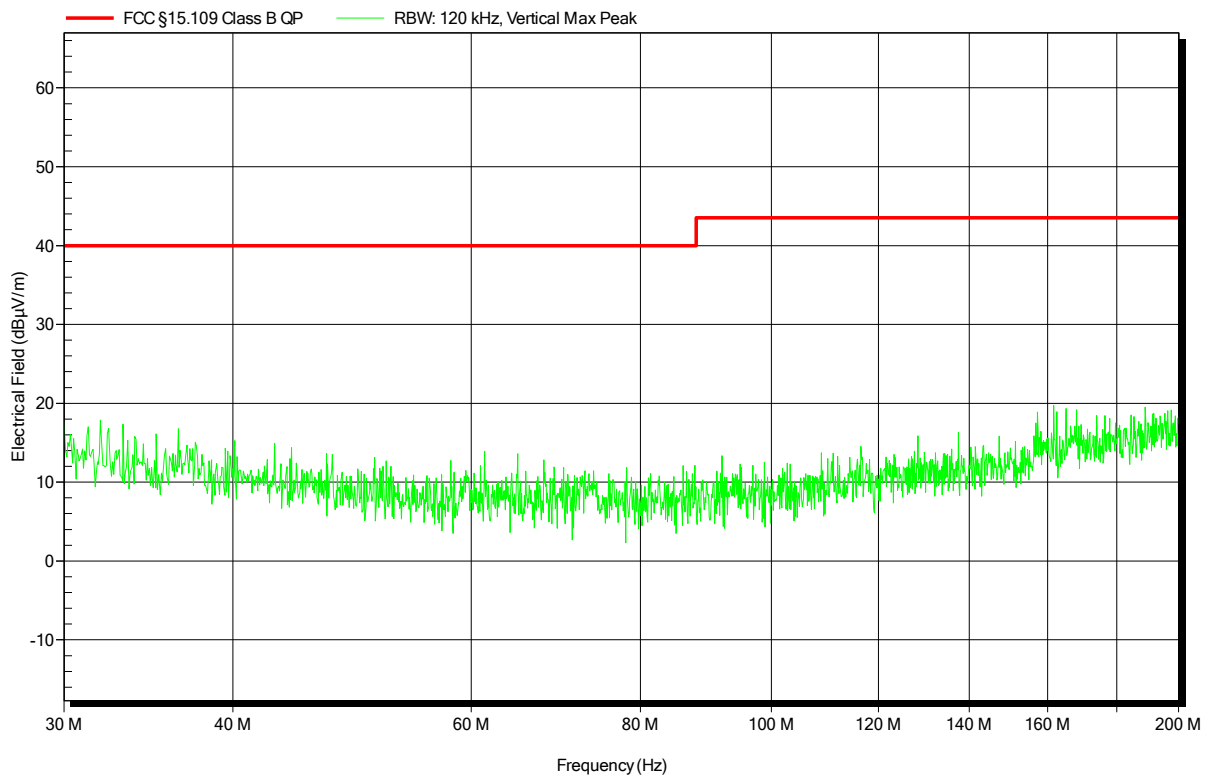
2.1.8 Records

Radiated emissions under normal conditions according to FCC part 15B

Project number: G0M-1904-8185

Applicant:	Medela AG
EUT Name:	freestyle
Model:	101035796
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: battery
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3m
Mode:	mode 1
Test Date:	2019-04-17
Note:	

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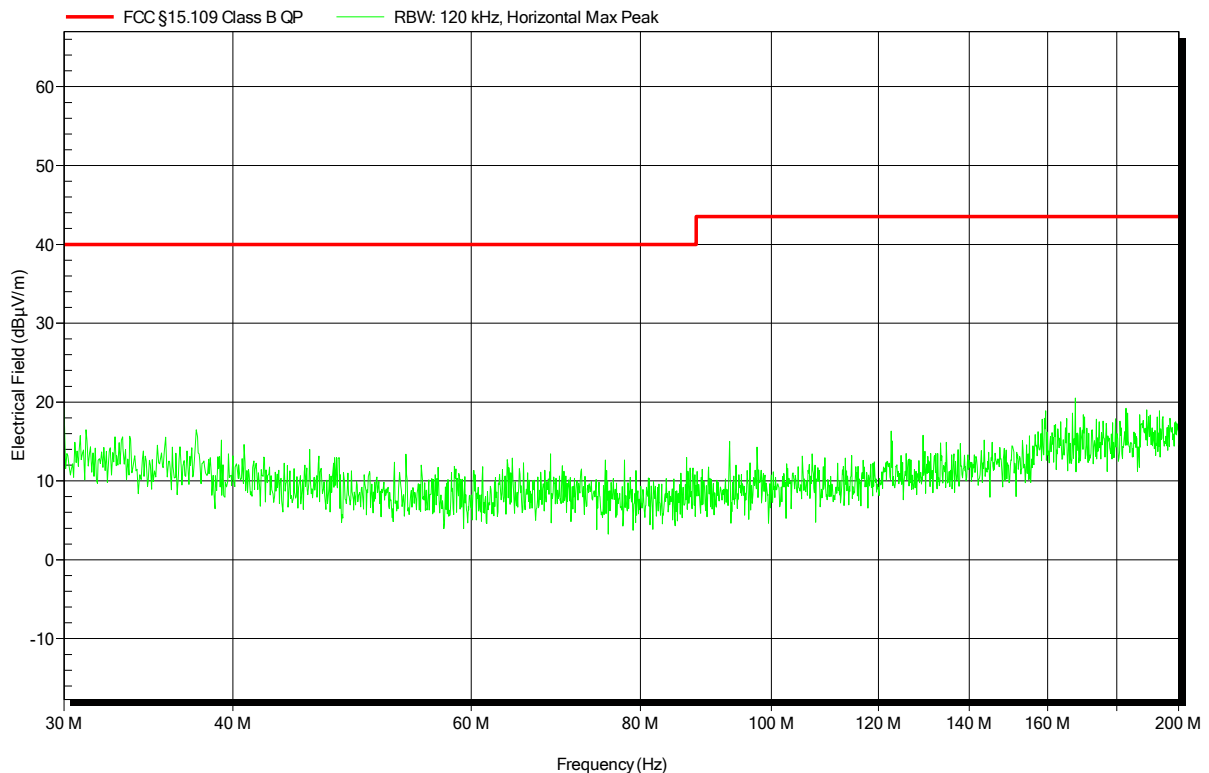


Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: battery
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3m
 Mode: mode 1
 Test Date: 2019-04-17
 Note:

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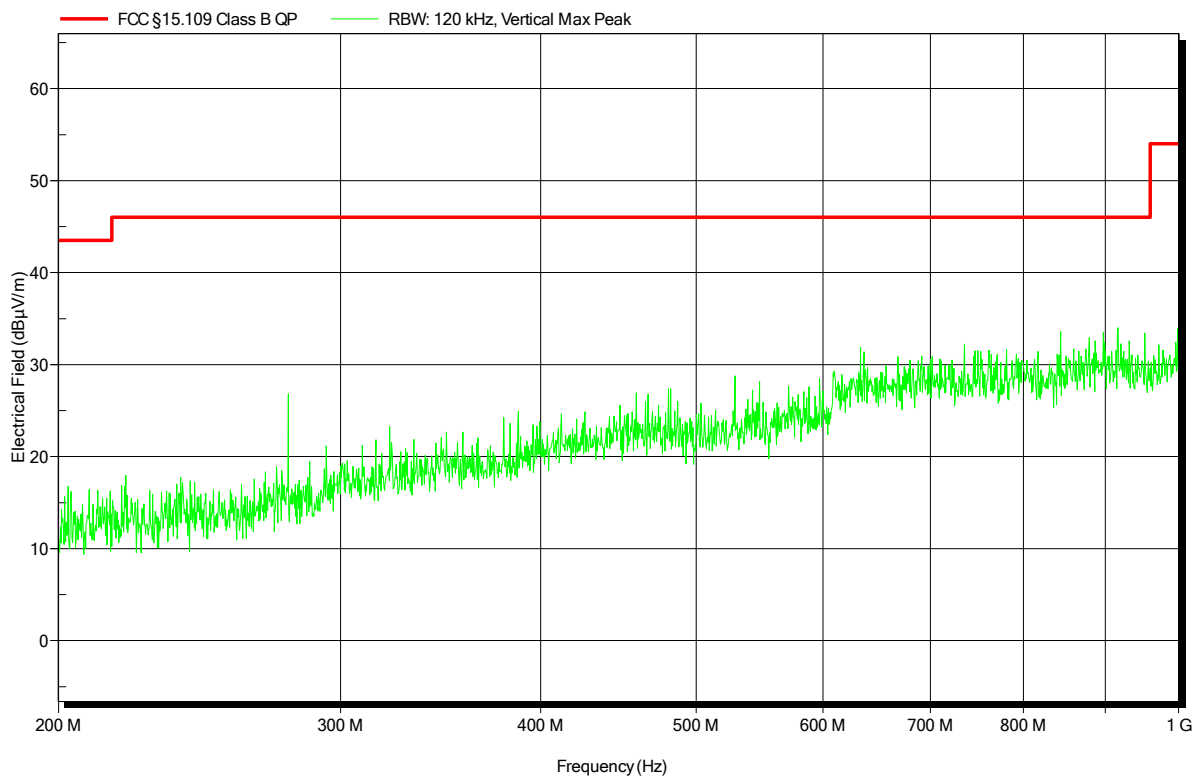


Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: battery
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3m
 Mode: mode 1
 Test Date: 2019-04-17
 Note:

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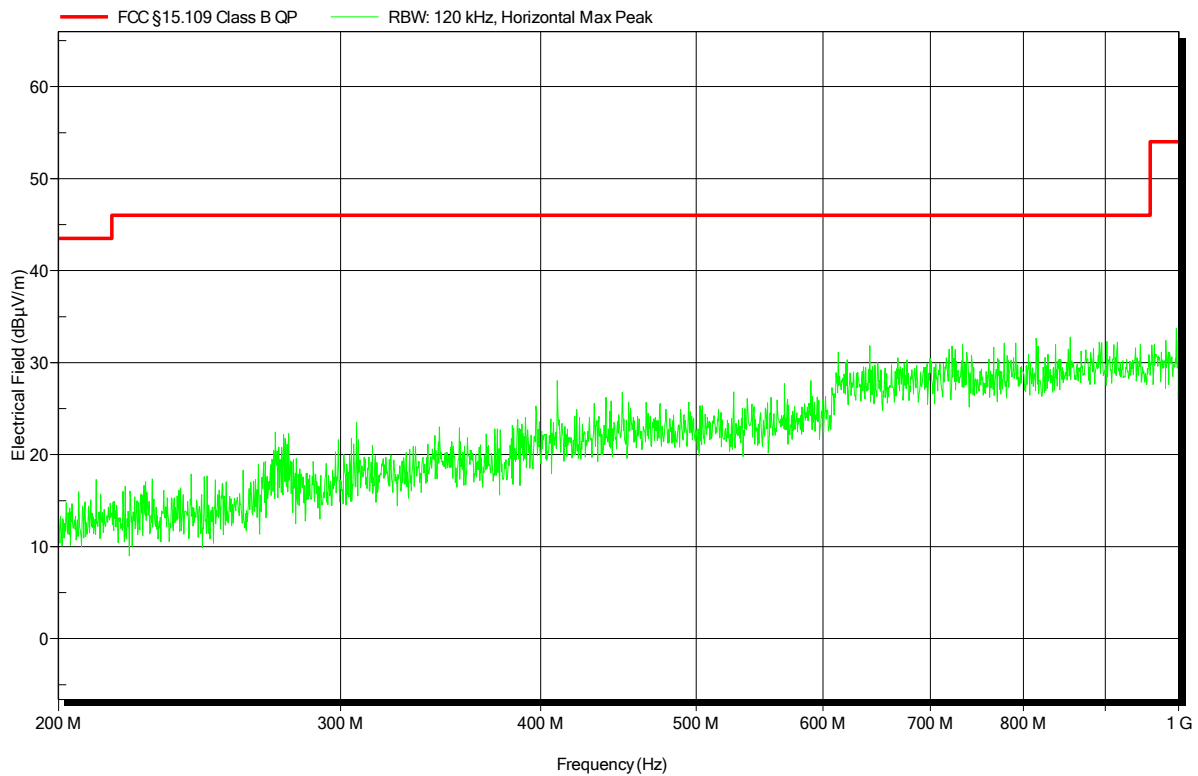


Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: battery
Antenna: Rohde & Schwarz HL 223, Horizontal
Measurement distance: 3m
Mode: mode 1
Test Date: 2019-04-17
Note:

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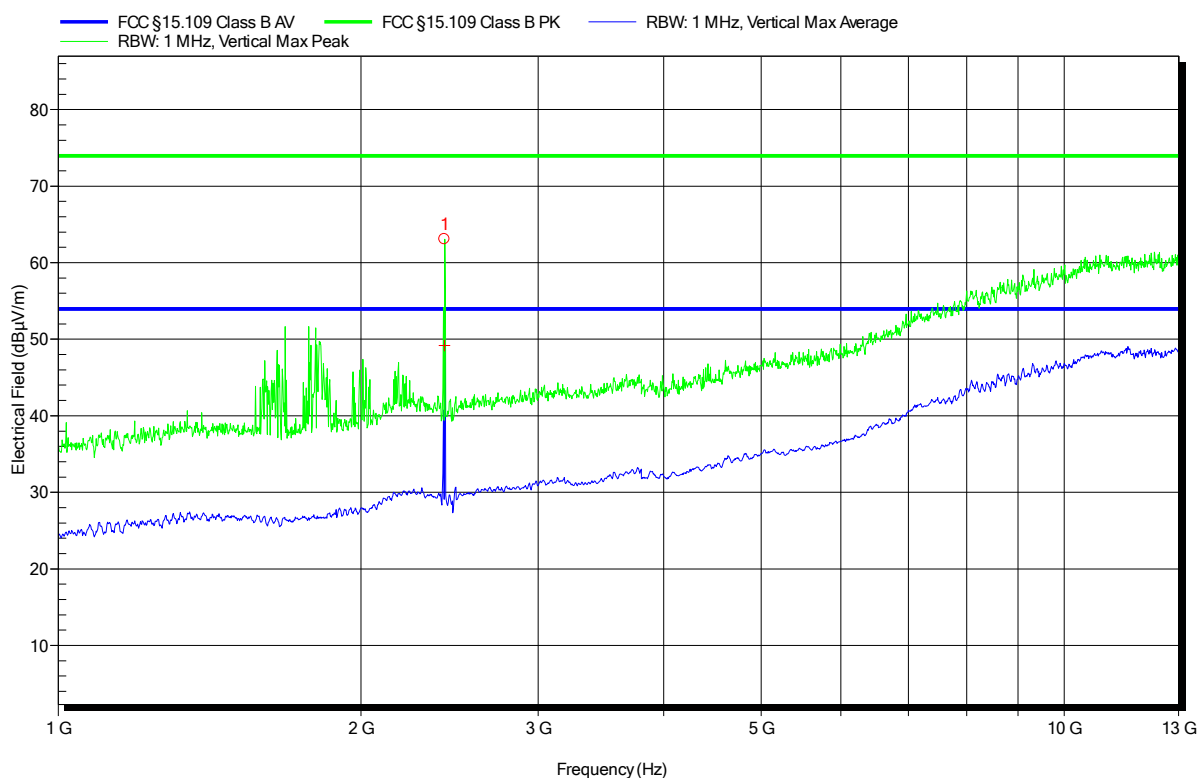


Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3m
 Mode: mode 1
 Test Date: 2019-04-17
 Note:

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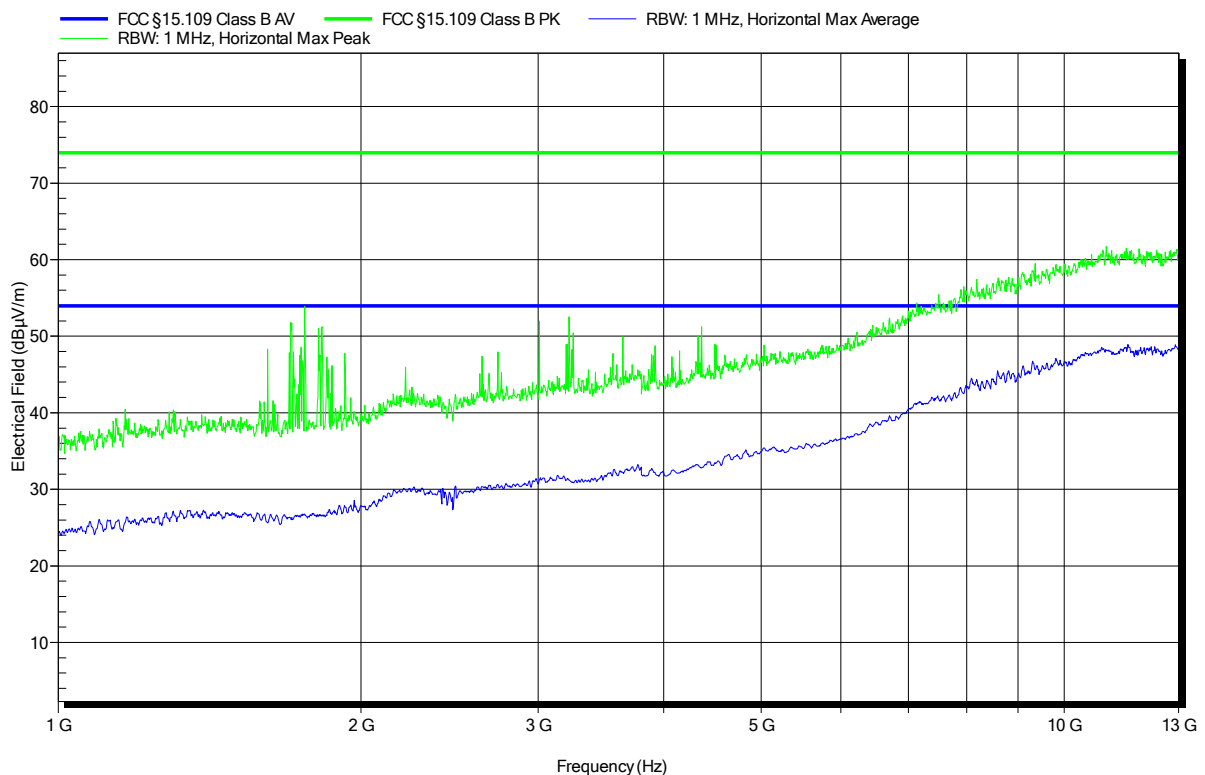
Peak Number	Frequency	Peak	Angle	Height
1	2.422 GHz	BT carrier		

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3m
 Mode: mode 1
 Test Date: 2019-04-17
 Note:

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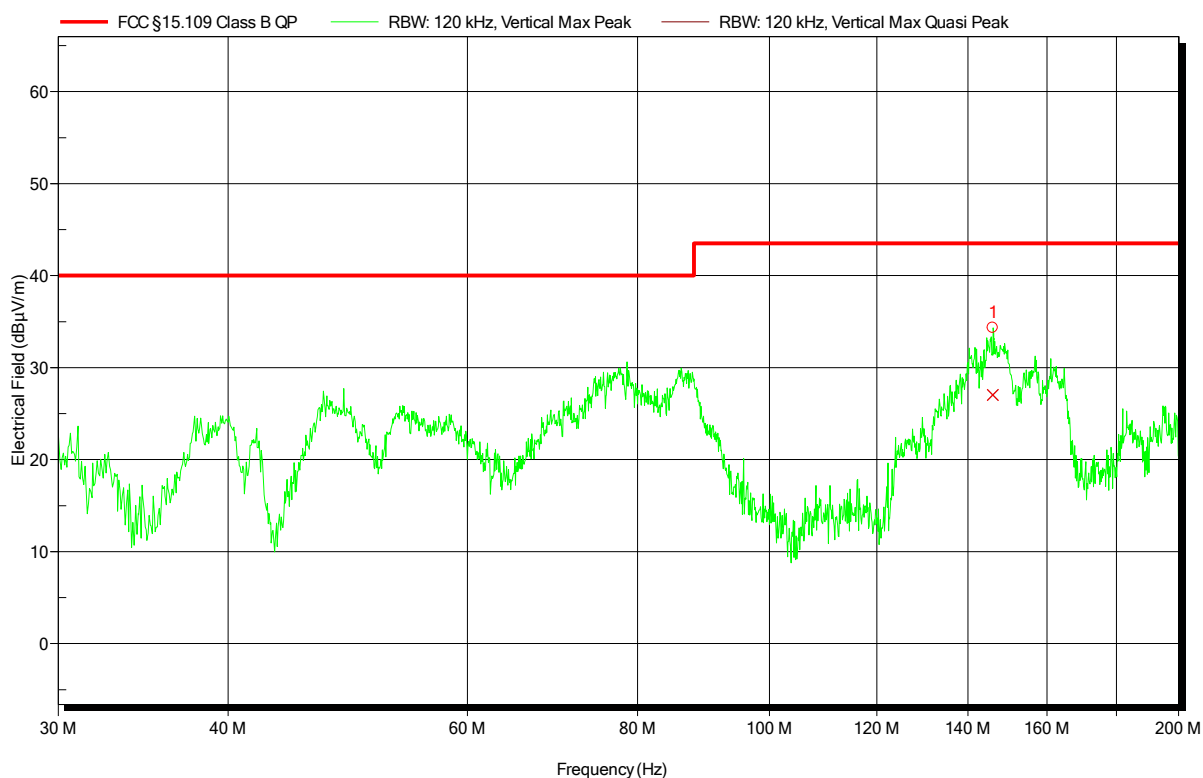


Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3m
 Mode: mode 2; AC/DC adaptor I
 Test Date: 2019-04-17
 Note:

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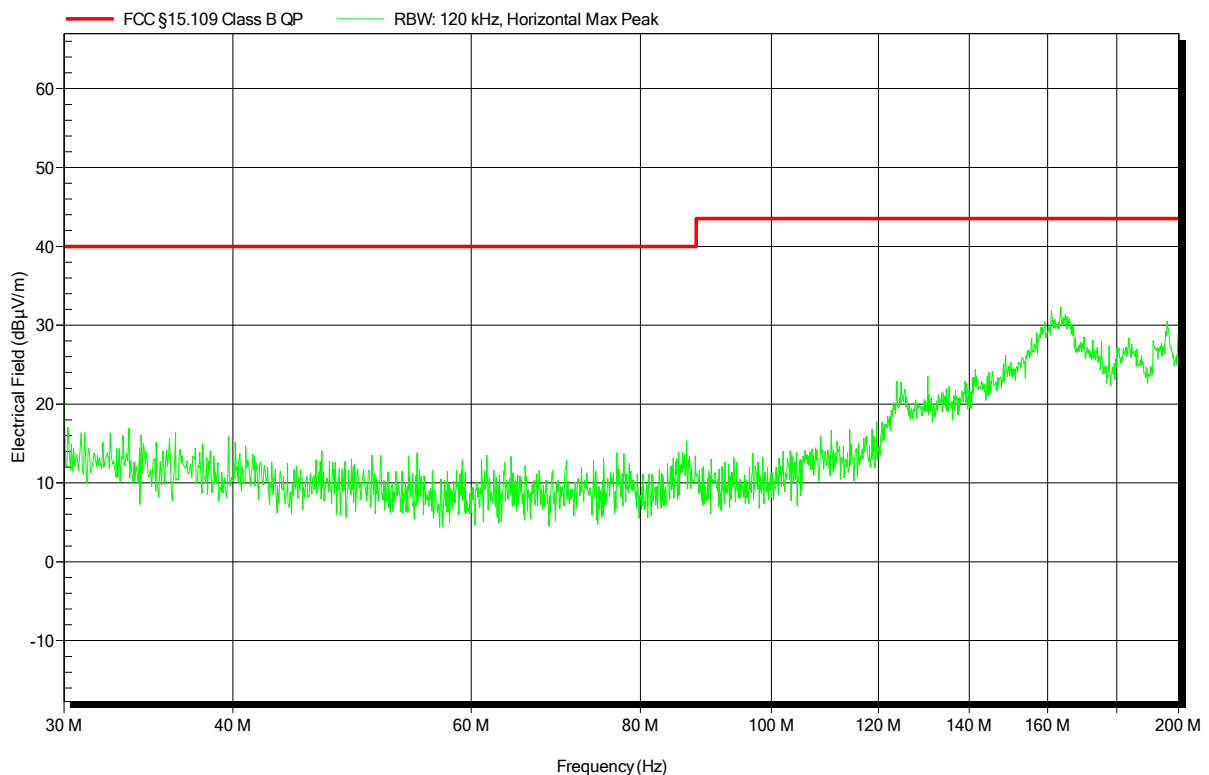
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	146.015 MHz	27.04 dBµV/m	43.52 dBµV/m	-16.48 dB	Pass	-157 Degree	1 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3m
 Mode: mode 2; AC/DC adaptor I
 Test Date: 2019-04-17
 Note:

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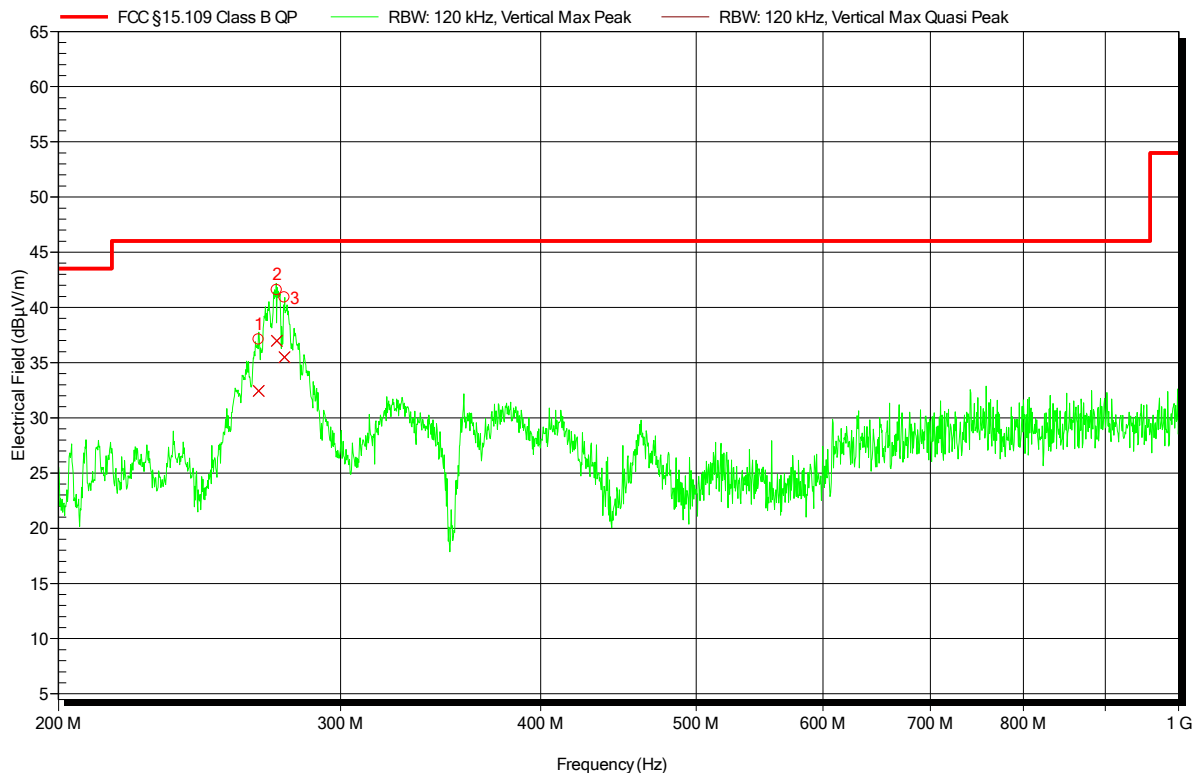


Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
Antenna: Rohde & Schwarz HL 223, Vertical
Measurement distance: 3m
Mode: mode 2; AC/DC adaptor I
Test Date: 2019-04-17
Note:

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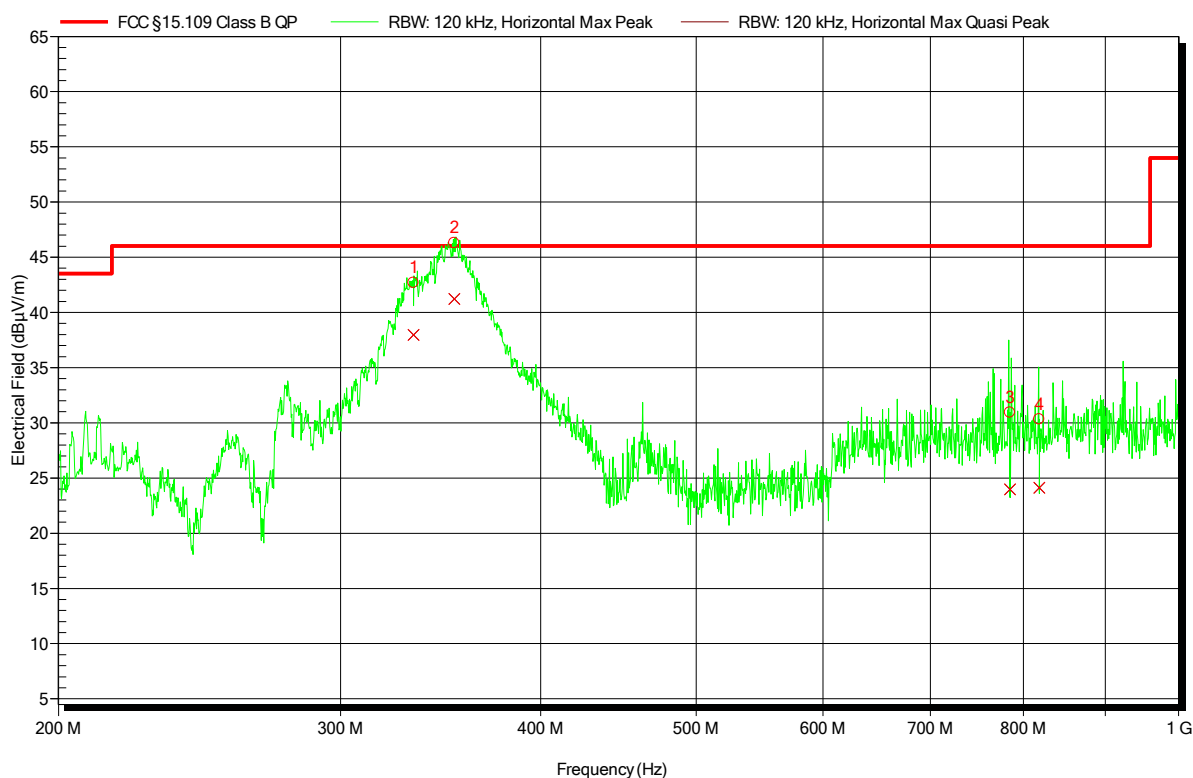
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	266.779 MHz	32.42 dBµV/m	46.02 dBµV/m	-13.6 dB	Pass	36 Degree	1.50 m
2	273.774 MHz	36.99 dBµV/m	46.02 dBµV/m	-9.03 dB	Pass	36 Degree	1.50 m
3	276.818 MHz	35.51 dBµV/m	46.02 dBµV/m	-10.51 dB	Pass	36 Degree	1.50 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
Antenna: Rohde & Schwarz HL 223, Horizontal
Measurement distance: 3m
Mode: mode 2; AC/DC adaptor I
Test Date: 2019-04-17
Note:

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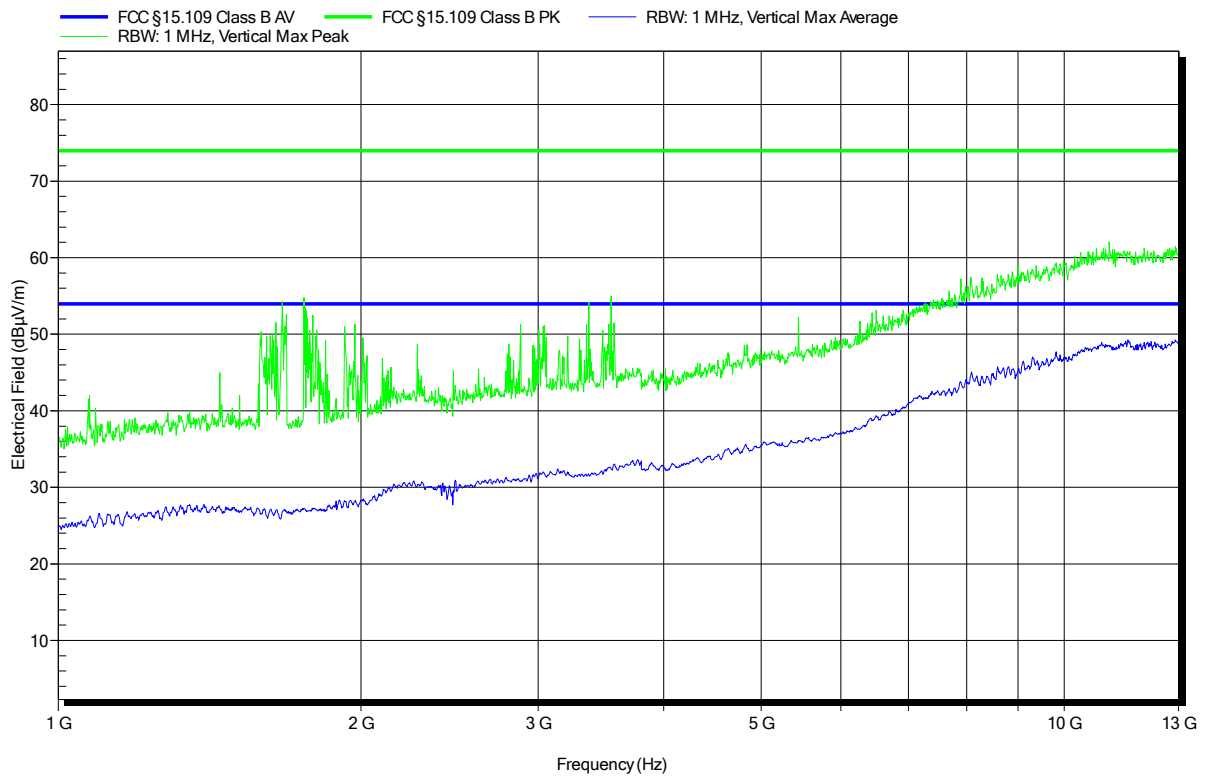
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	333.275 MHz	37.96 dBµV/m	46.02 dBµV/m	-8.06 dB	Pass	118 Degree	1 m
2	353.389 MHz	41.23 dBµV/m	46.02 dBµV/m	-4.79 dB	Pass	118 Degree	1 m
3	784.803 MHz	23.98 dBµV/m	46.02 dBµV/m	-22.04 dB	Pass	118 Degree	1 m
4	818.463 MHz	24.12 dBµV/m	46.02 dBµV/m	-21.9 dB	Pass	118 Degree	1 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3m
 Mode: mode 2; AC/DC adaptor I
 Test Date: 2019-04-17
 Note:

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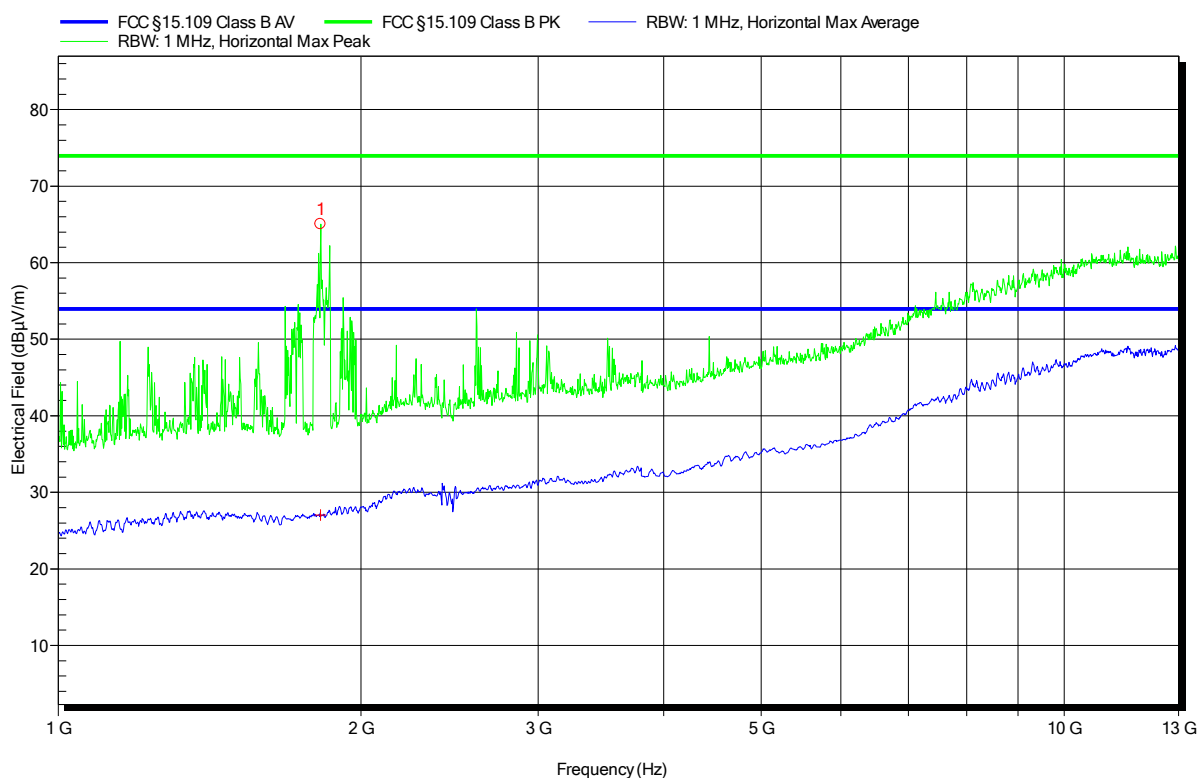


Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 3m
Mode: mode 2; AC/DC adaptor I
Test Date: 2019-04-17
Note:

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Peak Number	Frequency	Peak	Angle	Height
1	1.823 GHz	65.04 dBµV/m	-5 Degree	1 m

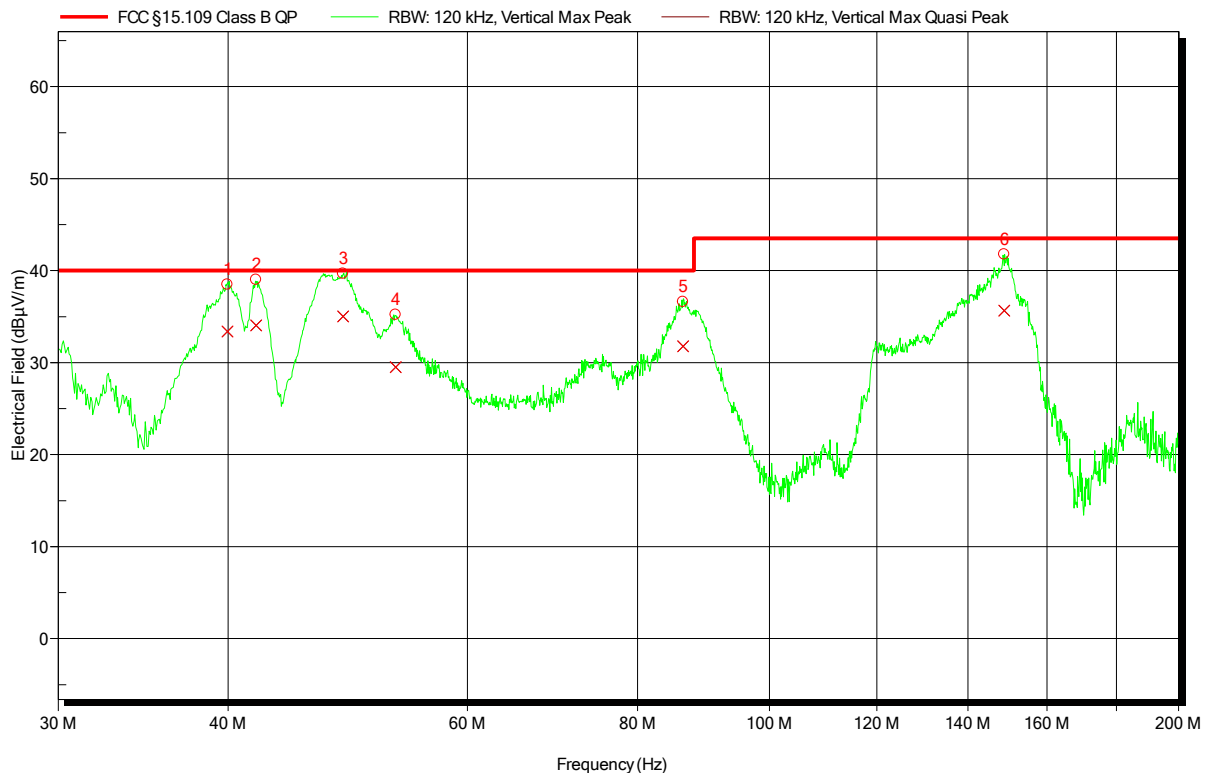
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.823 GHz	27.01 dBµV/m	53.98 dBµV/m	-26.97 dB	Pass	-5 Degree	1 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
Antenna: Rohde & Schwarz HK 116, Vertical
Measurement distance: 3m
Mode: mode 2; AC/DC adaptor II
Test Date: 2019-04-17
Note:

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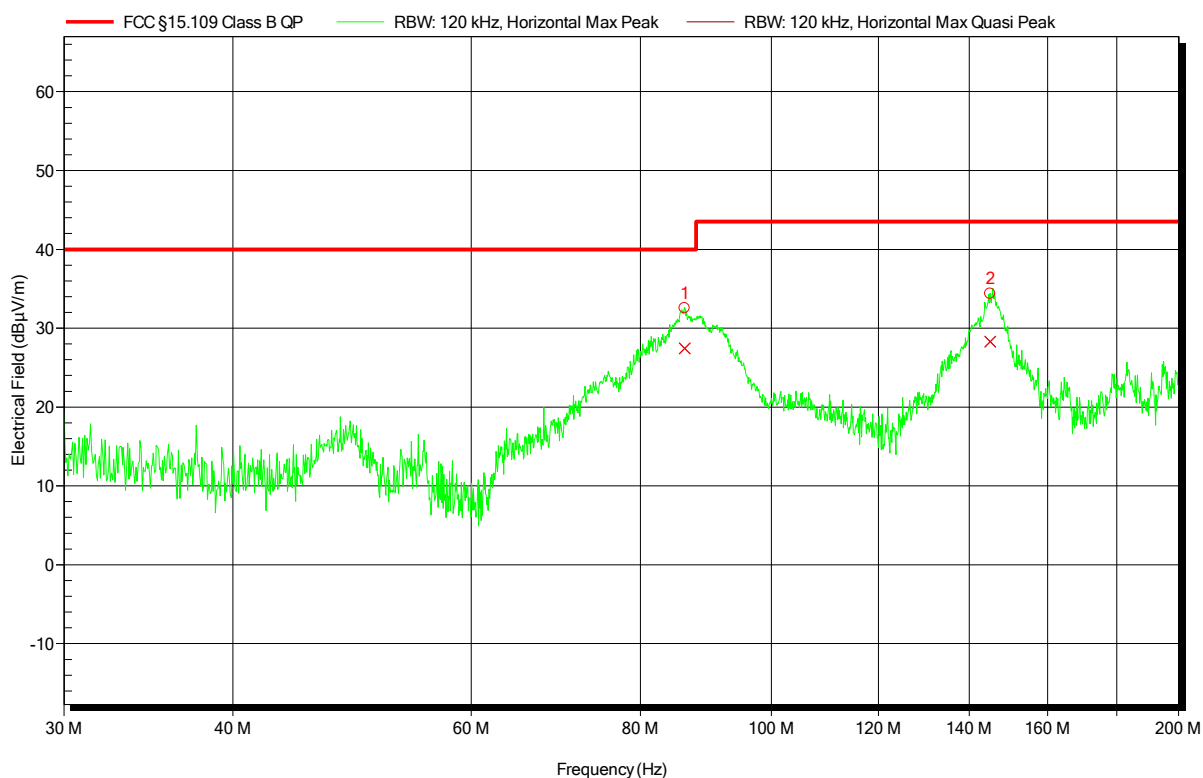
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	39.968 MHz	33.39 dBμV/m	40 dBμV/m	-6.61 dB	Pass	90 Degree	1 m
2	41.95 MHz	34.06 dBμV/m	40 dBμV/m	-5.94 dB	Pass	90 Degree	1 m
3	48.615 MHz	35.02 dBμV/m	40 dBμV/m	-4.98 dB	Pass	90 Degree	1 m
4	53.119 MHz	29.52 dBμV/m	40 dBμV/m	-10.48 dB	Pass	90 Degree	1 m
5	86.446 MHz	31.77 dBμV/m	40 dBμV/m	-8.23 dB	Pass	90 Degree	1 m
6	148.892 MHz	35.66 dBμV/m	43.52 dBμV/m	-7.86 dB	Pass	90 Degree	1 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3m
 Mode: mode 2; AC/DC adaptor II
 Test Date: 2019-04-17
 Note:

Index 8



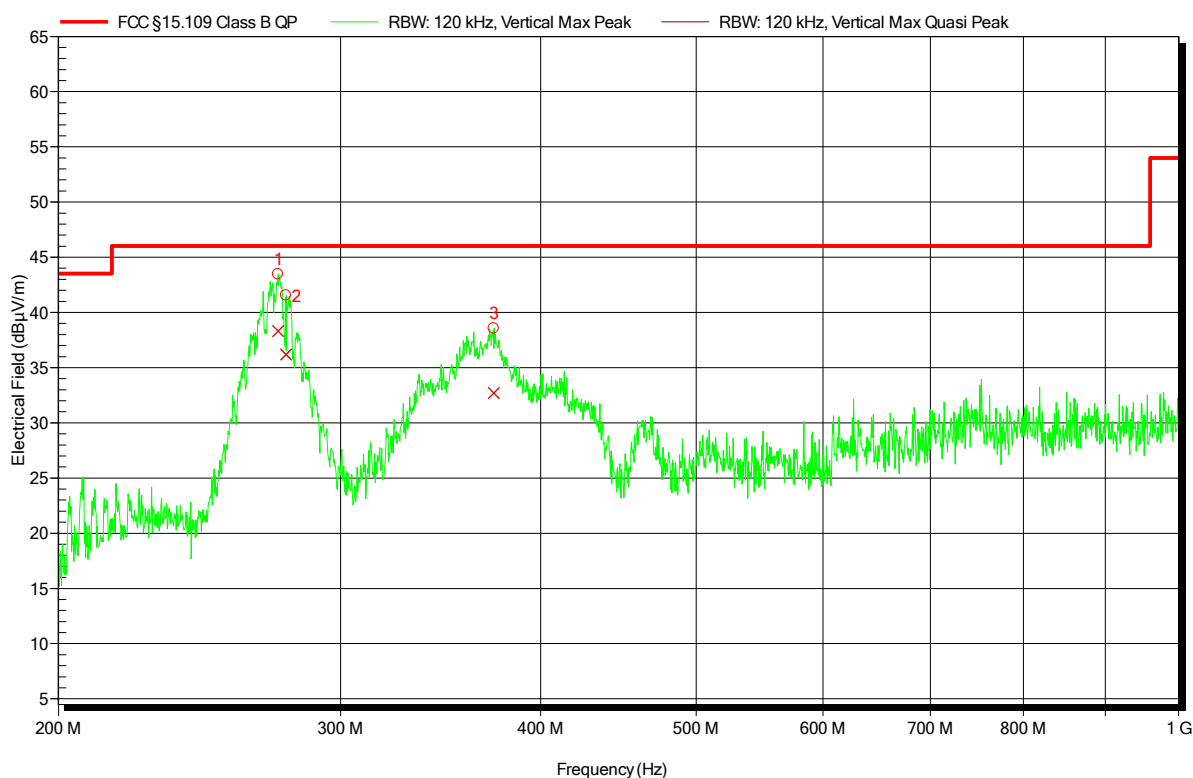
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	86.266 MHz	27.46 dBµV/m	40 dBµV/m	-12.54 dB	Pass	-30 Degree	3 m
2	145.121 MHz	28.28 dBµV/m	43.52 dBµV/m	-15.25 dB	Pass	-30 Degree	3 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3m
 Mode: mode 2; AC/DC adaptor II
 Test Date: 2019-04-17
 Note:

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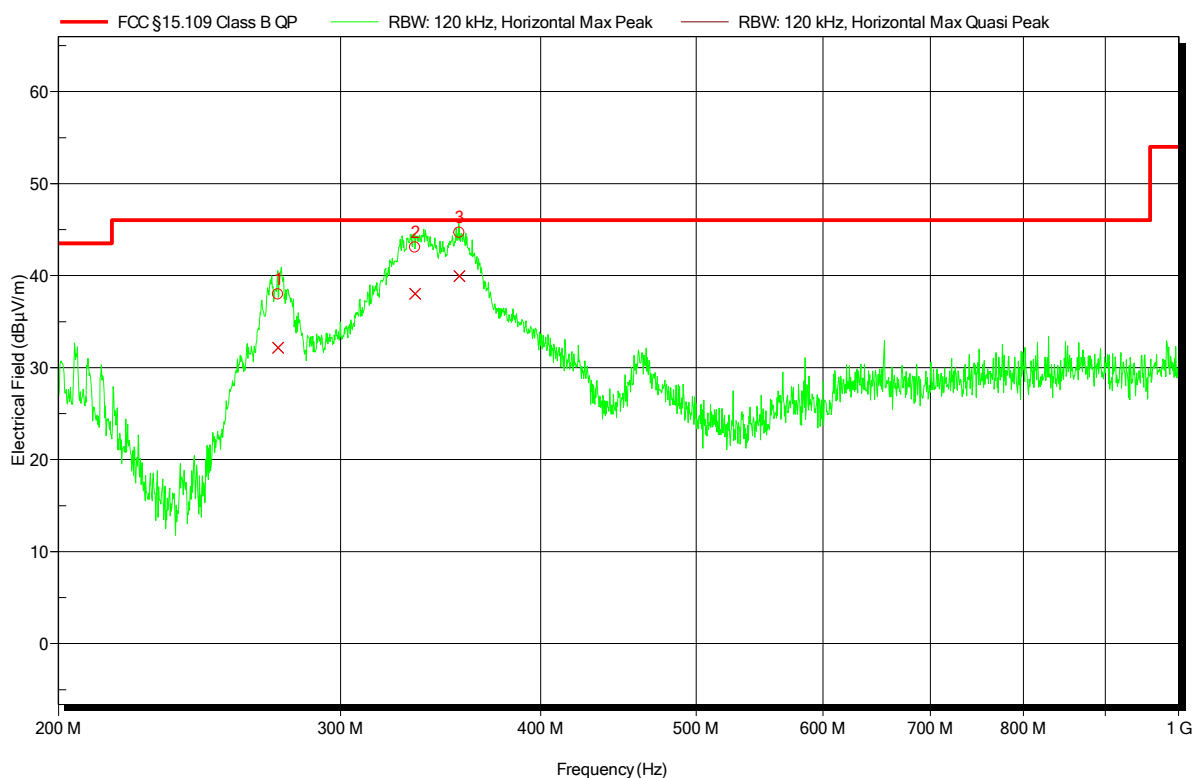
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	274.368 MHz	38.31 dBµV/m	46.02 dBµV/m	-7.71 dB	Pass	96 Degree	1.57 m
2	277.52 MHz	36.18 dBµV/m	46.02 dBµV/m	-9.84 dB	Pass	96 Degree	1.57 m
3	374.002 MHz	32.7 dBµV/m	46.02 dBµV/m	-13.32 dB	Pass	96 Degree	1.57 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
Antenna: Rohde & Schwarz HL 223, Horizontal
Measurement distance: 3m
Mode: mode 2; AC/DC adaptor II
Test Date: 2019-04-17
Note:

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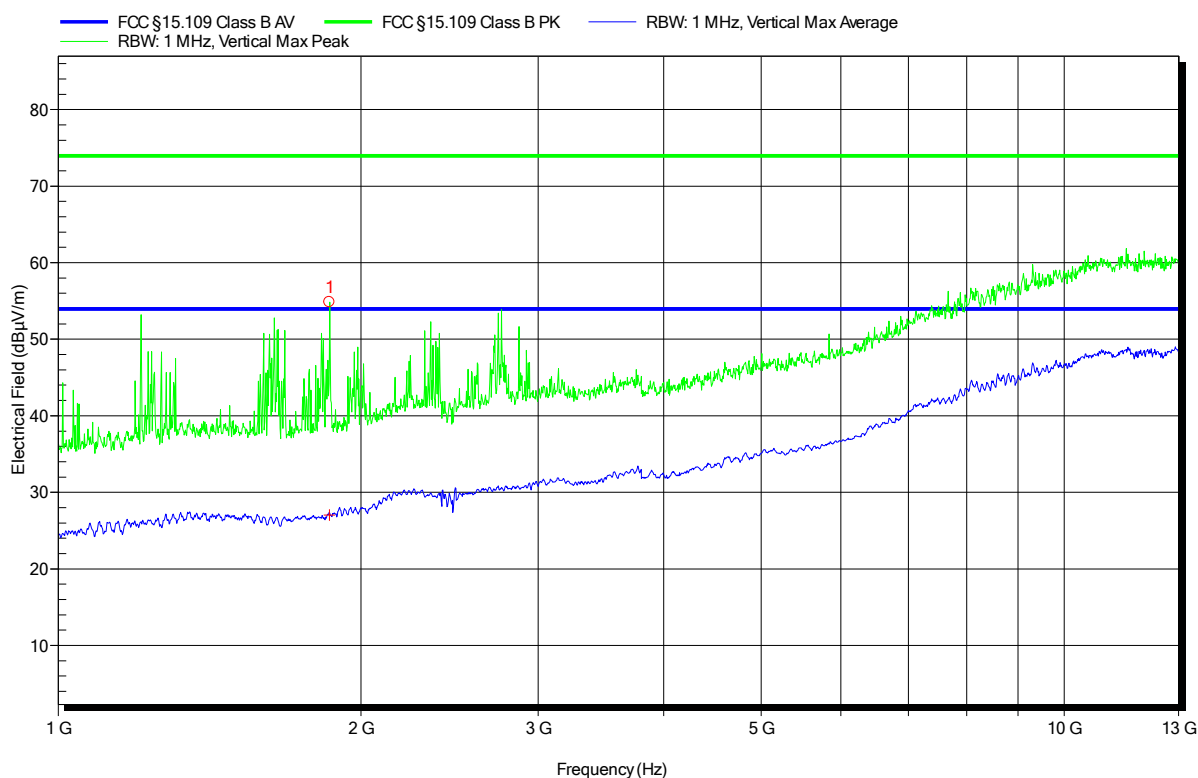
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
1	274.332 MHz	32.16 dBµV/m	46.02 dBµV/m	-13.86 dB	Pass	-90 Degree	1 m
2	333.984 MHz	38.02 dBµV/m	46.02 dBµV/m	-8 dB	Pass	-90 Degree	1 m
3	355.863 MHz	39.95 dBµV/m	46.02 dBµV/m	-6.07 dB	Pass	-90 Degree	1 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 3m
Mode: mode 2; AC/DC adaptor II
Test Date: 2019-04-17
Note:

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Peak Number	Frequency	Peak	Angle	Height
1	1.861 GHz	54.85 dBμV/m	-67 Degree	1.40 m

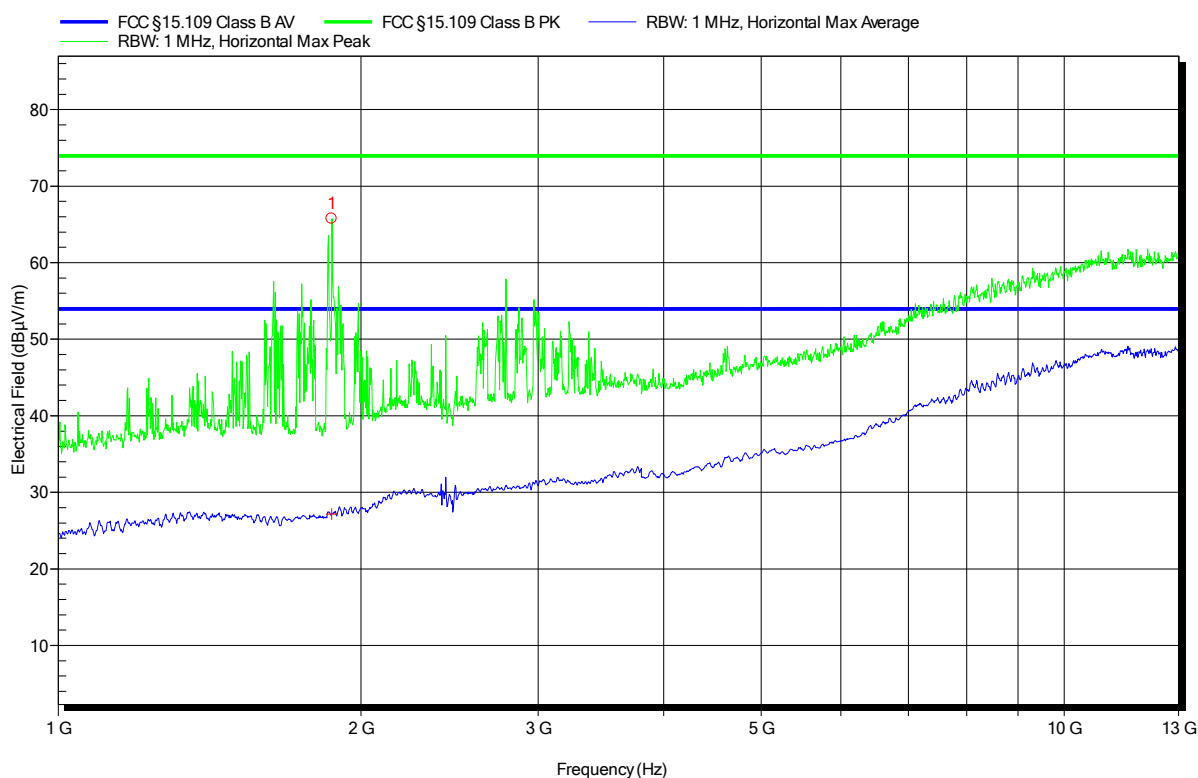
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.861 GHz	27.05 dBμV/m	53.98 dBμV/m	-26.93 dB	Pass	-67 Degree	1.40 m

Radiated emissions according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 22°C, Unom: 120V AC (AC/DC adaptor)
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 3m
Mode: mode 2; AC/DC adaptor II
Test Date: 2019-04-17
Note:

Index 19

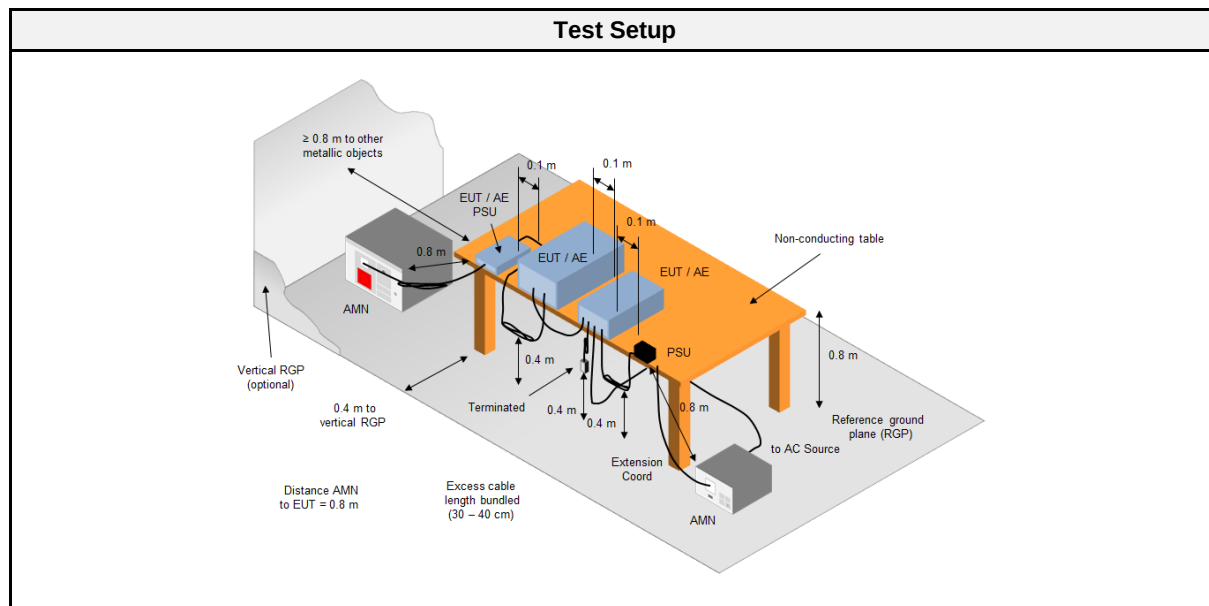


Peak Number	Frequency	Peak	Angle	Height
1	1.871 GHz	65.73 dBμV/m	44 Degree	1.50 m

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	Angle	Height
1	1.871 GHz	27.16 dBμV/m	53.98 dBμV/m	-26.82 dB	Pass	44 Degree	1.50 m

2.2.1 Information

2.2.2 Setup



2.2.3 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	Radimation	2016.1.10

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2019-02	2021-02
Pulse Limiter	R&S	ESH3-Z2	EF01063	2018-07	2019-07
EMI Test Receiver	R&S	ESR 7	EF00943	2018-07	2019-07

2.2.4 Procedure

Exploratory measurement	
1.	The EUT was placed on a non conductive table 0.8 m above the reference ground plane and 0.4 m away from the vertical conducting plane (ANSI C63.4: 2014 item 7.3.1)
2.	The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN.
3.	The distance between the outer edge of the EUT and the LISN shall be set to 0.8 m. A longer power cord shall be bundled to this length (bundling shall not exceed 40 cm in length).
4.	The LISN measurement port was connected to a measurement receiver
5.	I/O cables were bundled not longer than 0.4 m
6.	Measurement was performed in the frequency range 0.15 – 30MHz on each current-carrying conductor
7.	To maximize the emissions the cable positions were manipulated
8.	The worst configuration of EUT and cables is shown on a test setup picture at item 1.3

Final measurement	
1.	The EUT was placed on a non conductive table 0.8 m above the reference ground plane and 0.4 m away from the vertical conducting plane (ANSI C63.4: 2014 item 7.3.1)
2.	The power cord that is normally supplied or recommended by the manufacturer was connected to the LISN.
3.	The distance between the outer edge of the EUT and the LISN shall be set to 0.8 m. A longer power cord shall be bundled to this length (bundling shall not exceed 40 cm in length).
4.	The LISN measurement port was connected to a measurement receiver
5.	The EUT and cable arrangement were based on the exploratory measurement results
6.	The test data of the worst-case conditions were recorded and shown on the next pages

2.2.5 Limits

Class B		
Frequency [MHz]	Quasi-peak Limit [dBμV]	Average Limit [dBμV]
0.15 - 0.5	66 - 56 *	56 - 46 *
0.5 - 5	56	46
5 - 30	60	50
* Decreases with the logarithm of the frequency		

2.2.6 Results

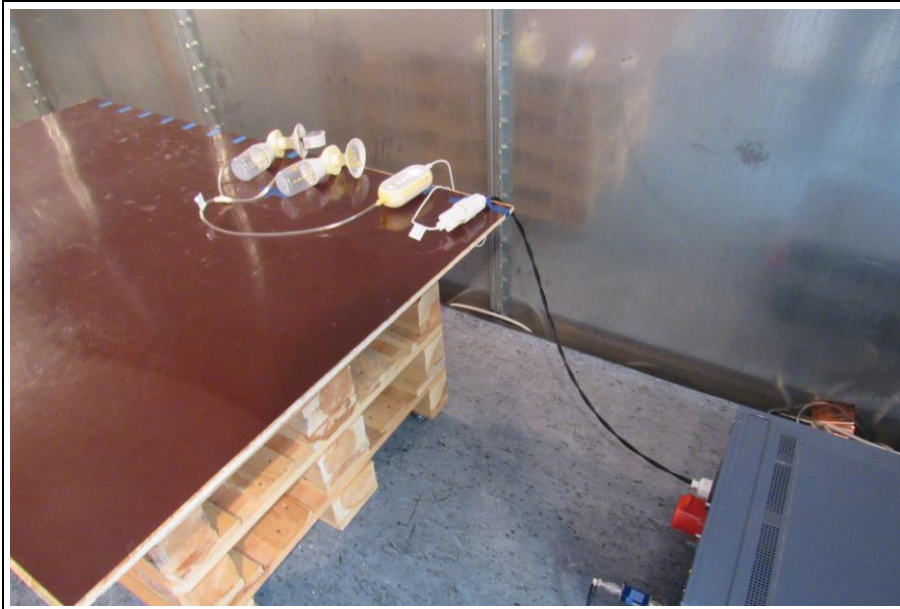
AC power line conducted emissions					
Port	Coupling	Operational mode	EUT Configuration	Verdict	Remark
Power	AMN	2	1	PASS	

Test Report No.: G0M-1904-8185-EF0115B-V01

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

2.2.7 Setup Photos

Test setup AC/DC adaptor I



Test setup AC/DC adaptor II



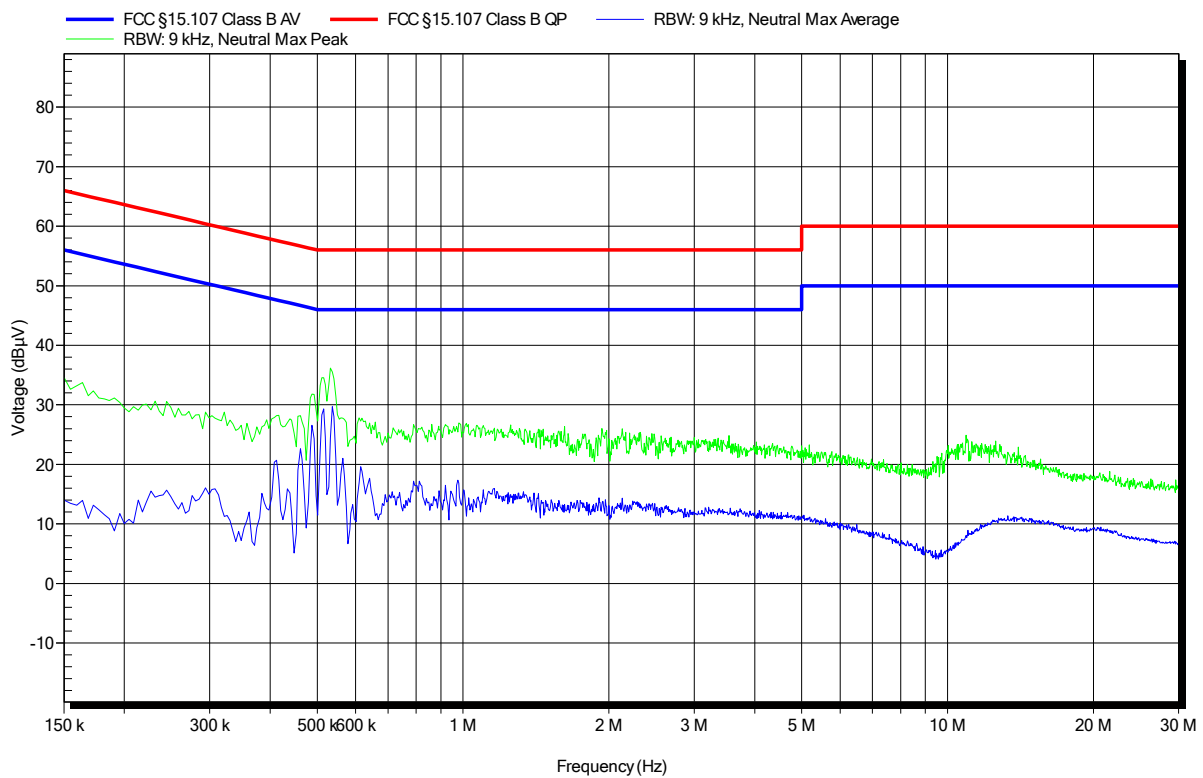
2.2.8 Records

EMI voltage test in the ac-mains according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 26°C, Unom: 120V AC (AC/DC adaptor)
 LISN: ESH2-Z5 N
 Mode: mode 2; AC/DC adaptor I
 Test Date: 2019-04-16
 Note:

Index 1

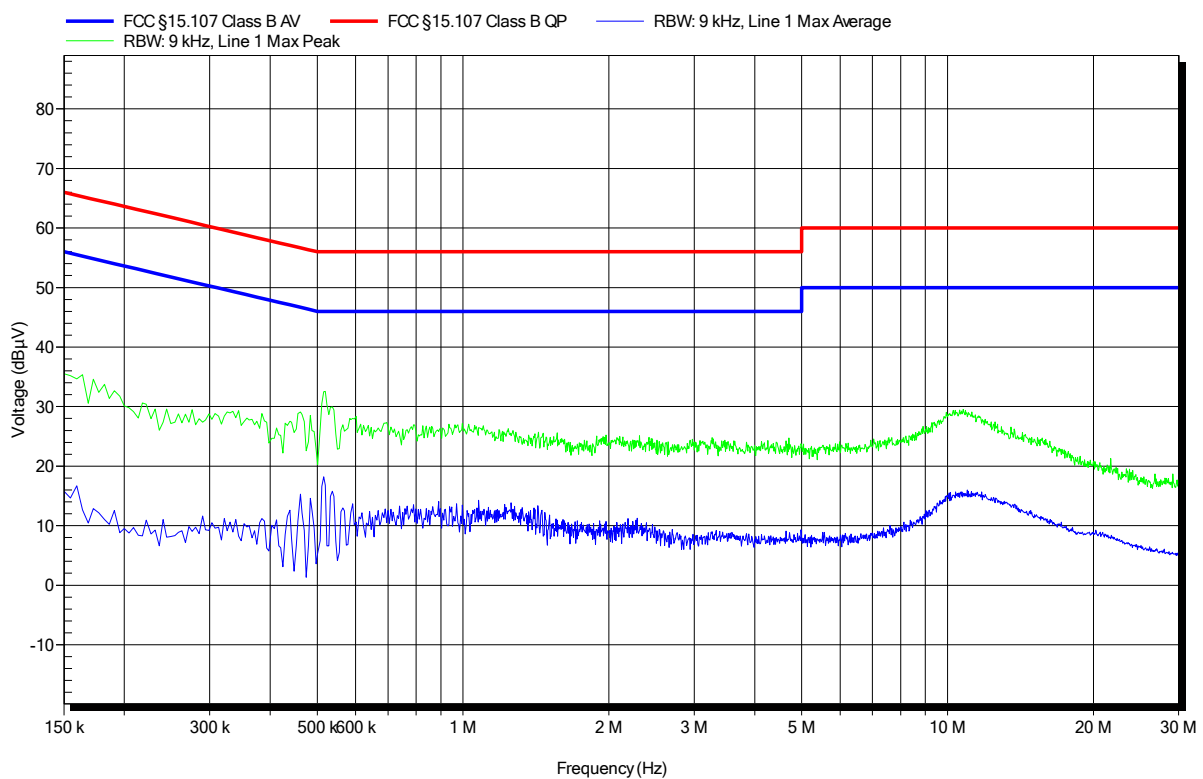


EMI voltage test in the ac-mains according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
EUT Name: freestyle
Model: 101035796
Test Site: Eurofins Product Service GmbH
Operator: Mr. Handrik
Test Conditions: Tnom: 26°C, Unom: 120V AC (AC/DC adaptor)
LISN: ESH2-Z5 L
Mode: mode 2; AC/DC adaptor I
Test Date: 2019-04-16
Note:

Index 2

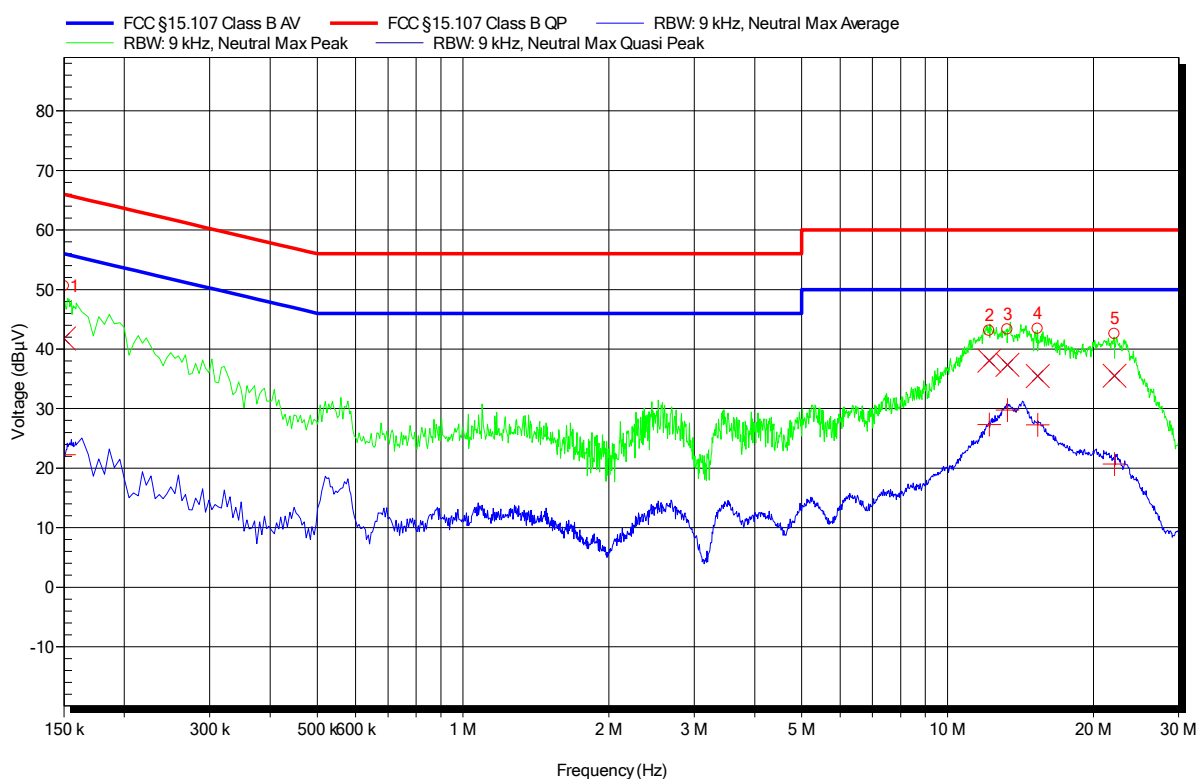


EMI voltage test in the ac-mains according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 26°C, Unom: 120V AC (AC/DC adaptor)
 LISN: ESH2-Z5 N
 Mode: mode 2; AC/DC adaptor II
 Test Date: 2019-04-16
 Note:

Index 4



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
1	150 kHz	41.8 dBμV	66 dBμV	-24.2 dB	Pass
2	12.201 MHz	38.07 dBμV	60 dBμV	-21.93 dB	Pass
3	13.286 MHz	37.38 dBμV	60 dBμV	-22.62 dB	Pass
4	15.347 MHz	35.49 dBμV	60 dBμV	-24.51 dB	Pass
5	22.11 MHz	35.51 dBμV	60 dBμV	-24.49 dB	Pass

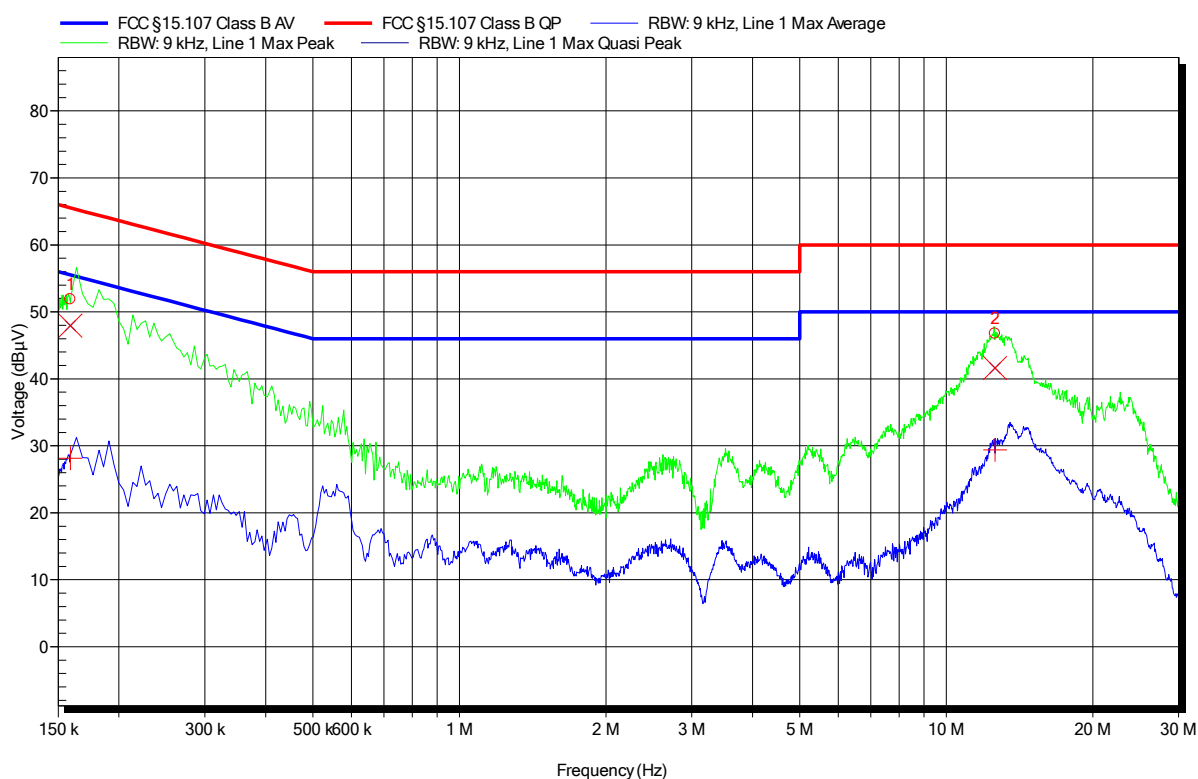
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	150 kHz	22.26 dBμV	56 dBμV	-33.74 dB	Pass
2	12.201 MHz	27.31 dBμV	50 dBμV	-22.69 dB	Pass
3	13.286 MHz	29.74 dBμV	50 dBμV	-20.26 dB	Pass
4	15.347 MHz	27.27 dBμV	50 dBμV	-22.73 dB	Pass
5	22.11 MHz	20.68 dBμV	50 dBμV	-29.32 dB	Pass

EMI voltage test in the ac-mains according to FCC part 15B

Project number: G0M-1904-8185

Applicant: Medela AG
 EUT Name: freestyle
 Model: 101035796
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 26°C, Unom: 120V AC (AC/DC adaptor)
 LISN: ESH2-Z5 L
 Mode: mode 2; AC/DC adaptor II
 Test Date: 2019-04-16
 Note:

Index 3



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
1	159 kHz	47.96 dBµV	65.52 dBµV	-17.56 dB	Pass
2	12.584 MHz	41.61 dBµV	60 dBµV	-18.39 dB	Pass

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	159 kHz	28.13 dBµV	55.52 dBµV	-27.38 dB	Pass
2	12.584 MHz	29.4 dBµV	50 dBµV	-20.6 dB	Pass