

RADIO REPORT FCC 47 CFR Part 15C ISED Canada RSS-210 Operation within the 13.110 – 14.010 MHz band	
Report Reference No	G0M-1708-6775-TFC225RI-V02
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	 A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Test Firm Designation Number: DE0008 IC Testing Laboratory site: 3470A-2
Applicant	Phillips-Medisize A/S
Address	Gimsinglundvej 20 7600 Struer DENMARK
Test Specification	According to FCC/ISED rules
Standard	47 CFR Part 15C RSS-210, Issue 9, 2016-08 RSS-Gen, Issue 5, 2018-04
Non-Standard Test Method	None
Test Scope	Full compliance test
Equipment under Test (EUT):	
Product Description	SynfuGo, an automated personalized infusion pump
Model(s)	SynfuGo
Additional Model(s)	None
Brand Name(s)	SynfuGo
Hardware Version(s)	HDR ver 3.00
Software Version(s)	01.05.00
FCC-ID	2AAGY-SYNFUGO
IC	-/-
Test Result	PASSED

Possible test case verdicts:		
required by standard but not tested	N/T	
not required by standard	N/R	
test object does meet the requirement	P(PASS)	
test object does not meet the requirement	F(FAIL)	
Testing:		
Test Lab Temperature	20 - 23 °C	
Test Lab Humidity	32 – 38 %	
Date of receipt of test item	2017-08-23	
Report:		
Compiled by	Wilfried Treffke	
Tested by (+ signature) (Responsible for Test)	Wilfried Treffke	
Approved by (+ signature) (Deputy Head of Lab)	Toralf Jahn	
Date of Issue	2019-02-26	
Total number of pages	29	
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:		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2018-09-03	Initial Release	
02	2019-02-26	Applicant and manufacturer corrected.	W. Treffke

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RFID	Radio Frequency Identification
RMS	Root mean square
VBW	Video bandwidth
V _{NOM}	Nominal supply voltage

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1 Equipment (Test Item) Under Test

Description	SynfuGo, an automated personalized infusion pump	
Model	SynfuGo	
Additional Model(s)	None	
Brand Name(s)	SynfuGo	
Serial Number(s)	None	
Hardware Version(s)	HDR ver 3.00	
Software Version(s)	01.05.00	
PMN	N/A	
HVIN	N/A	
FVIN	N/A	
HMN	N/A	
FCC-ID	2AAGY-SYNFUGO	
IC	-/-	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	13.110 - 14.010 MHz	
Radio technology	RFID	
Modulation	ASK	
Antenna	Type	Integrated
	Model	Custom
	Manufacturer	Medicom Innovation Partner
	Gain	Unspecified
Supply Voltage	V _{NOM}	3.7 VDC
Operating Temperature	T _{NOM}	21 °C
AC/DC-Adaptor	Model	ASSA54e-050100
	Vendor	AQUIL STAR PRECISION INDUSTRIAL
	Input	100-240 VAC
	Output	5 VDC
Manufacturer	Phillips-Medisize A/S Gimsinglundvej 20 7600 Struer DENMARK	

1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
None				
Description:				
AE	Auxillary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
Comment:				

1.5 Test Modes

Mode	Description
Transmit	Mode = Transmit Modulation = ASK Duty cycle = 100 %
Comment:	

1.6 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	0	13.56

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-210				
Product Standard Reference	Requirement	Reference Method	Result	Remarks
RSS-Gen 6.7	Occupied Bandwidth	RSS-Gen 6.7	N/R	Informational only
FCC 15.225(a-c) ISED RSS-210 B.6(a)	Fundamental in-band field strength emissions	ANSI C63.10	PASS	
FCC 15.225(d) FCC 15.209 ISED RSS-210 B.6(d)	Emission radiated outside the specified frequency band	ANSI C63.10	PASS	
FCC 15.225(e) ISED RSS-210 B.6	Frequency stability	ANSI C63.10	PASS	
ISED RSS-Gen 4.10 ISED RSS-Gen 7.1	Receiver radiated spurious emissions	ANSI C63.10	N/A	
47 CFR 15.207 RSS-Gen 8.8	AC power line conducted emissions	ANSI C63.10	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

3 Test Conditions and Results

3.1 Test Conditions and Results - Occupied bandwidth

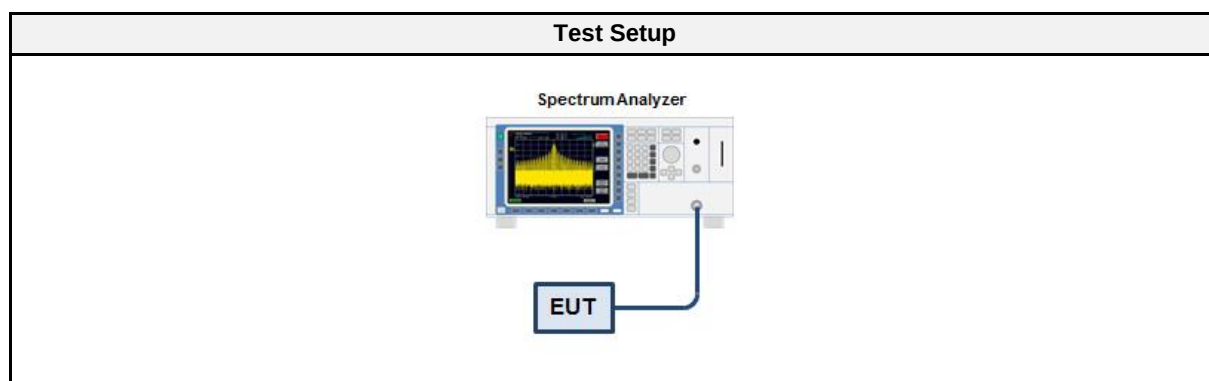
3.1.1 Information

Test Information	
Reference	ISED RSS-Gen 6.7
Measurement Method	Conducted
Operator	Sebastian Suckow
Date	2017-11-06

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup



3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2017-07	2018-07

3.1.5 Procedure

Test Procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Span set to at least twice the emission spectrum 3. Resolution bandwidth set between 1 % to 5 % of OBW 4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function

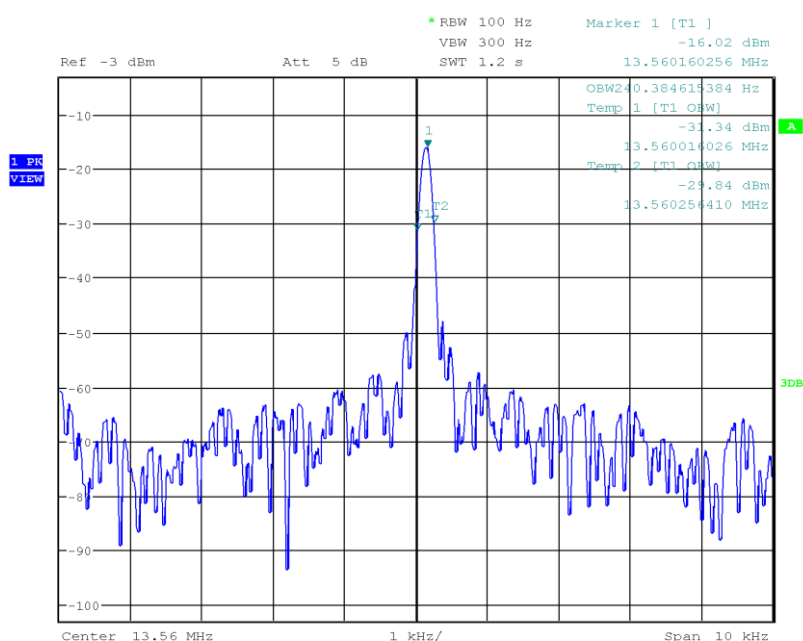
3.1.6 Results

Test Results	
Channel [MHz]	Bandwidth [kHz]
13.56	0.24

Occupied bandwidth

Occupied Bandwidth acc. to FCC 15.225 / ISSED RSS-210

Project Number: G0M-1708-6775
 Applicant: Phillips-Medsize A/S
 Model Description: InfuGo device, an automated personalized infusion pump
 Model: InfuGo
 Test Sample ID: 15245
 Operator: S. Suckow
 Test Site: Eurofins Product Service GmbH
 Test Date: 2017-11-06
 Note 1: RFID 13.56 MHz



Date: 6.NOV.2017 11:16:53

3.2 Test Conditions and Results - Fundamental in-band field strength emissions

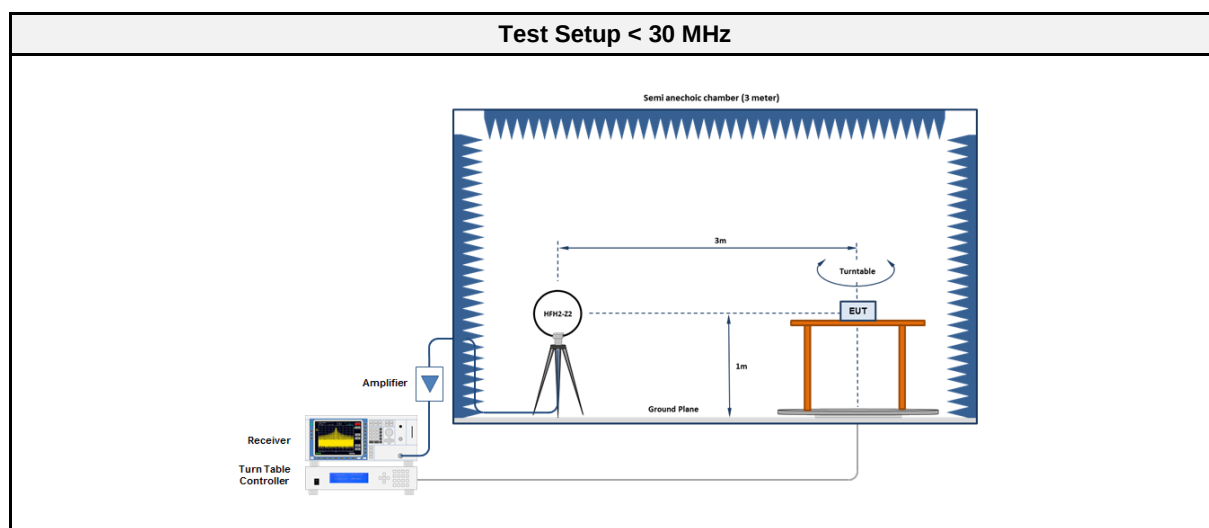
3.2.1 Information

Test Information	
Reference	FCC 15.225(a-c) / ISED RSS-210 B.6(a)
Measurement Method	Radiated
Operator	Sebastian Suckow
Date	2017-11-01

3.2.2 Limits

Limits			
Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [$\text{dB}\mu\text{V/m}$]	Limit Distance [m]
13.553 - 13.567	15848	84	30
13.410 - 13.553 13.567 - 13.710	334	50.5	30
13.110 - 13.410 13.710 - 14.010	106	40.5	30

3.2.3 Setup



3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-Anechoic Chamber	Frankonia	AC1	EF00062	-	-
Spectrum Analyzer	R&S	FSIQ 26	EF00151	2017-07	2018-07
Antenna	R&S	HFH2-Z2	EF00184	2016-12	2018-12

3.2.5 Procedure

Test Procedure	
1.	EUT set to test mode
2.	Span it set according to measurement range
3.	Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector
4.	Below 30MHz an extrapolation according ANSI 63.10; 6.4.4.2 is used.

3.2.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level @ 30 m [dBμV/m]	Detector	Polarization	Limit @ 30 m [dBμV/m]	Margin
13.56	13.562	09.30	pk	N/A	84.00	-74.70

3.3 Test Conditions and Results - Emissions radiated outside the specified frequency band

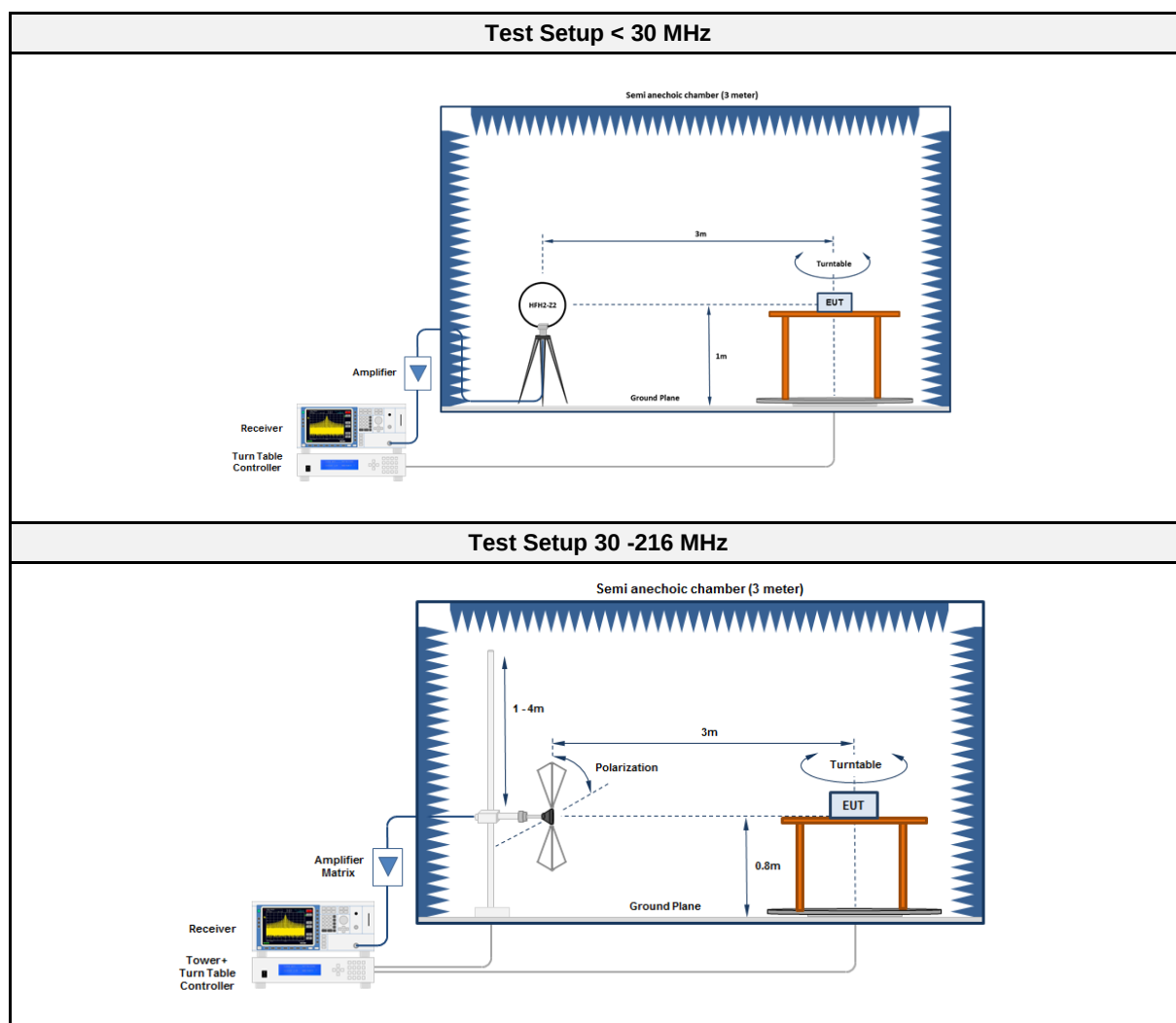
3.3.1 Information

Test Information	
Reference	FCC 15.225(d) / ISED RSS-210 B.6 (d)
Measurement Method	Radiated
Operator	Sebastian Suckow
Date	2017-11-01

3.3.2 Limits

Limits				
Frequency range [MHz]	Detector	Limit [$\mu\text{V/m}$]	Limit [$\text{dB}\mu\text{V/m}$]	Limit Distance [m]
0.009 - 0.490	Quasi-Peak	$2400/F[\text{kHz}]$	48.5 - 13.8	300
0.490 - 1.705	Quasi-Peak	$2400/F[\text{kHz}]$	13.8 - 2.97	30
1.705 - 30	Quasi-Peak	30	29.5	30
30 - 88	Quasi-Peak	100	40	3
88 - 216	Quasi-Peak	150	43.5	3

3.3.3 Setup



3.3.4 Equipment

Test Equipment < 30 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	-	-
Loop Antenna	R&S	HFH2-Z2	EF00184	2016-12	2018-12
Measurement Receiver	R&S	N9038A-526/WXP	EF01070	2017-08	2018-08
Test Equipment 30 - 216 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	-	-
Measurement Receiver	R&S	N9038A-526/WXP	EF01070	2017-08	2018-08
Antenna	R&S	HK116	EF00012	2016-05	2019-05
Antenna	R&S	HL223	EF00187	2016-05	2019-05

3.3.5 Procedure

Test Procedure
1. EUT set to test mode 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to maximum emission levels

3.3.6 Results

Test Results							
Channel [MHz]	Emission [MHz]	Level [dB μ V/m]	Detector	Polarization	Limit [dB μ V/m]	Limit distance [m]	Margin [dB]
13.56	191.925	37.61	pk	hor	43.50	3	-05.89
13.56	191.925	33.77	pk	ver	43.50	3	-09.73

3.4 Test Conditions and Results - Frequency stability

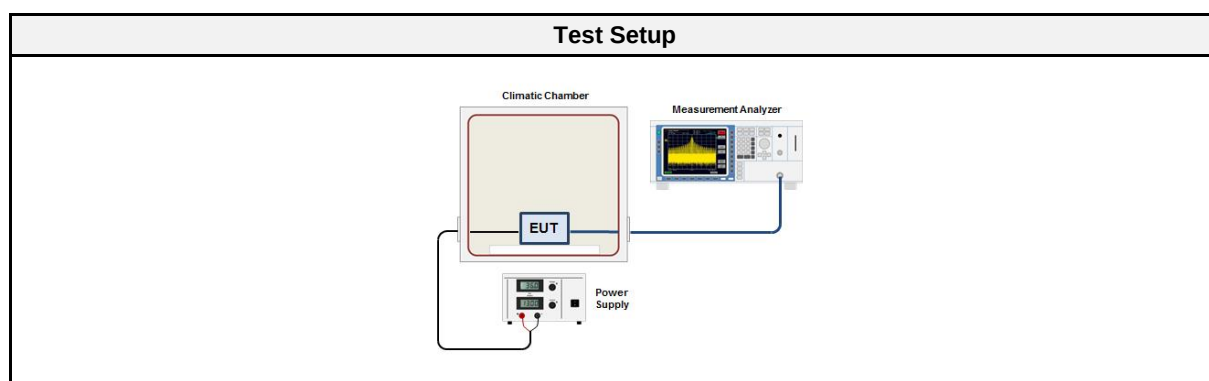
3.4.1 Information

Test Information	
Reference	FCC 15.225(e) / ISED RSS-210 B.6
Measurement Method	Conducted
Operator	Sebastian Suckow
Date	2017-11-01

3.4.2 Limits

Limits
Frequency error limit
$\pm 0.01\%$ ($\pm 100\text{ppm}$)

3.4.3 Setup



3.4.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2017-07	2018-07

3.4.5 Procedure

Test Procedure
1. EUT set to test mode 2. The ambient temperature and supply voltage is set according to measurement conditions 3. Span is set to capture fundamental emission 4. Frequency error is measured with frequency counter measurement function

3.4.6 Results

Test Results				
Channel [MHz]	Temperatur [°C]	Voltage [V]	Measured Frequency [MHz]	Error [ppm]
13.56	21	3.7	13.560000	0
13.56	21	3.3	13.559193	-59.53
13.56	21	4.1	13.559193	-59.53
13.56	10	3.7	13.559193	-59.53
13.56	30	3.7	13.560295	21.75
13.56	40	3.7	13.560901	66.43

3.5 Test Conditions and Results - AC power line conducted emissions

3.5.1 Information

Test Information	
Reference	ANSI C63.10
Operator	Sebastian Suckow
Date	2017-11-01

3.5.2 Limits

Limits and results				
Frequency [MHz]	Quasi-Peak [dBμV/m]	Result	Average [dBμV/m]	Result
0.15 to 5	66 to 56*	PASS	56 to 46*	PASS
0.5 to 5	56	PASS	46	PASS
5 to 30	60	PASS	50	PASS
Comments: * Limit decreases linearly with the logarithm of the frequency.				

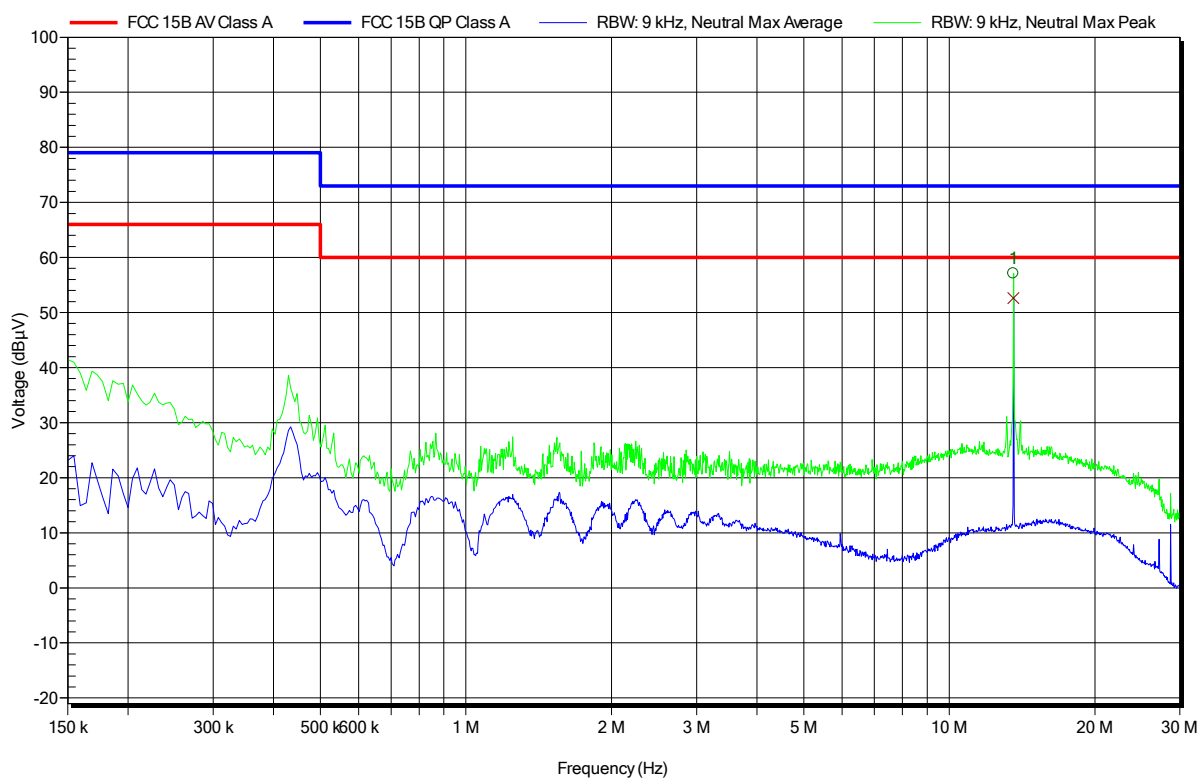
AC power line conducted emissions

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

Project number: G0M-1708-6775

Applicant: Phillips-Medisize A/S
 EUT Name: InfuGo device, an automated personalized infusion pump
 Model: InfuGo
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 22°C, Unom: 3.7 VDC
 LISN: ESH2-Z5 N
 Mode: RFID charging mode
 Test Date: 2017-11-06
 Note:

Index 2



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	13,56 MHz	52,63 dBµV	60 dBµV	-7,37 dB	Pass

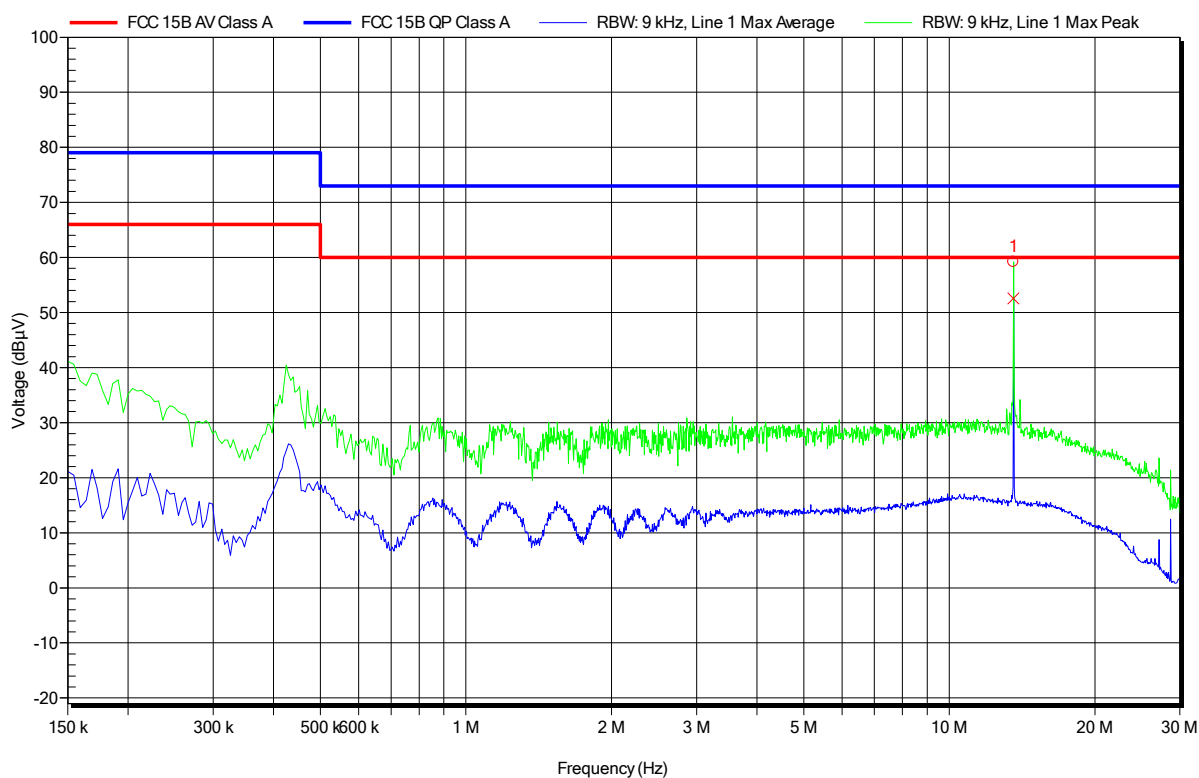
AC power line conducted emissions

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

Project number: G0M-1708-6775

Applicant: Phillips-Medisize A/S
 EUT Name: InfuGo device, an automated personalized infusion pump
 Model: InfuGo
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 22°C, Unom: 3.7 VDC
 LISN: ESH2-Z5 L
 Mode: RFID charging mode
 Test Date: 2017-11-06
 Note:

Index 3



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status
1	13,56 MHz	52,55 dBμV	60 dBμV	-7,45 dB	Pass

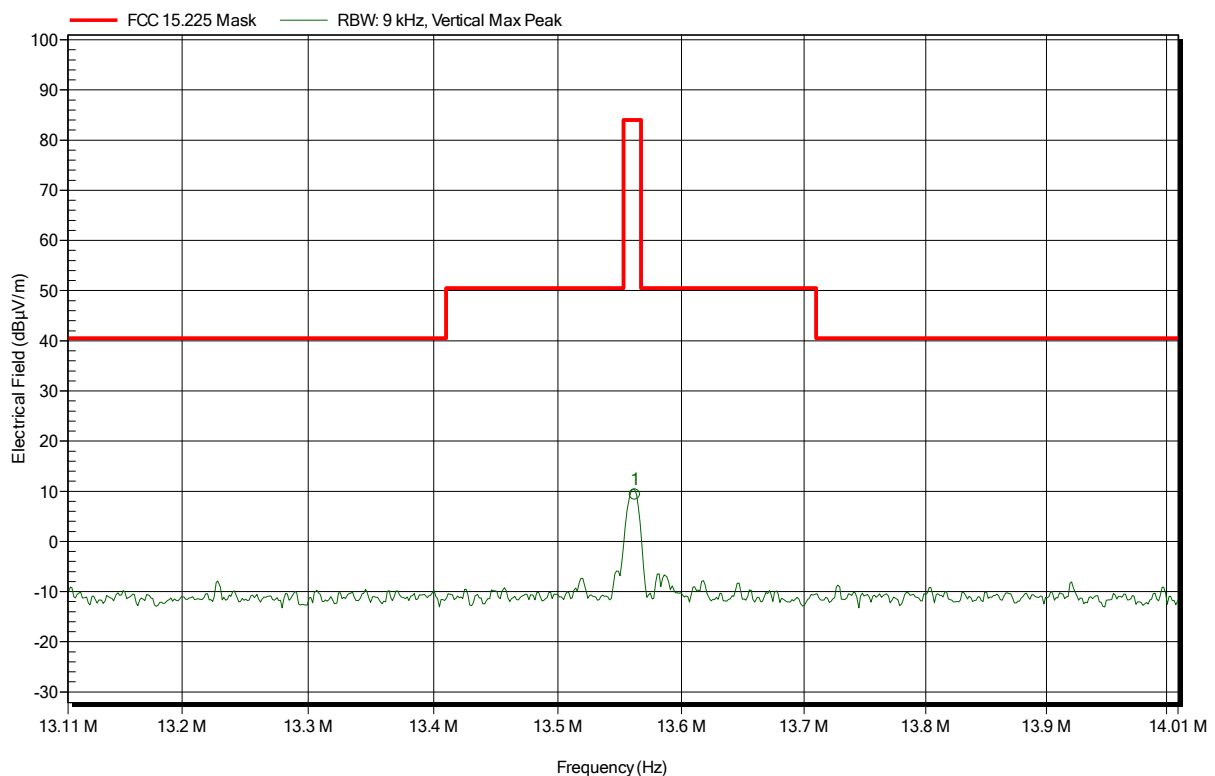
ANNEX A Transmitter in-band emissions

Spurious emissions according to FCC 15.225

Project number: G0M-1708-6775

Applicant:	Phillips-Medisize A/S
EUT Name:	InfuGo device, an automated personalized infusion pump
Model:	InfuGo
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 24°C, Vnom: 3.7 VDC
Antenna:	Rohde & Schwarz HFH 2-Z2
Measurement distance:	3 m converted to 30 m
Mode:	TX; RFID 13.56 MHz ASK
Test Date:	2017-01-11
Note:	

Index 3



Frequency
13.562 MHz

Peak
9.3 dBµV/m

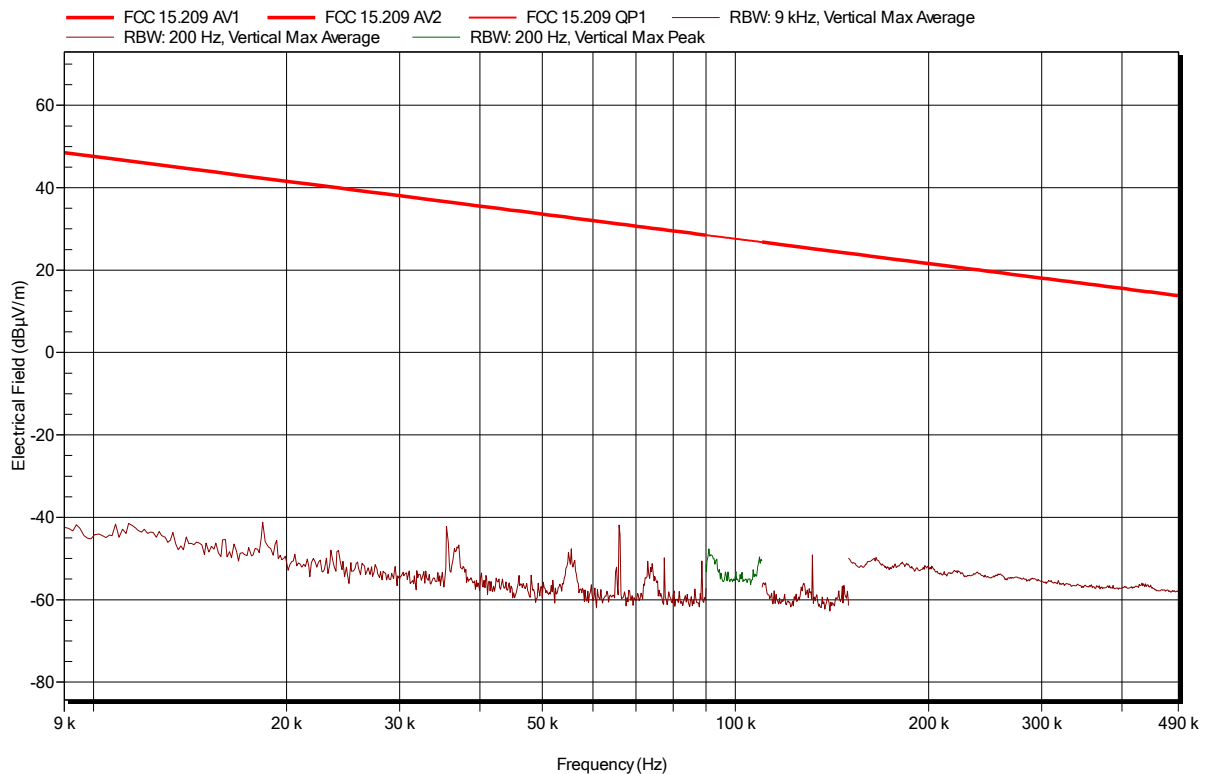
ANNEX B Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.225

Project number: G0M-1708-6775

Applicant: Phillips-Medisize A/S
EUT Name: InfuGo device, an automated personalized infusion pump
Model: InfuGo
Test Site: Eurofins Product Service GmbH
Operator: Mr. Suckow
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC
Antenna: Rohde & Schwarz HFH 2-Z2
Measurement distance: 3 m converted to 300 m
Mode: TX; RFID 13.56 MHz ASK
Test Date: 2017-01-11
Note:

Index 1

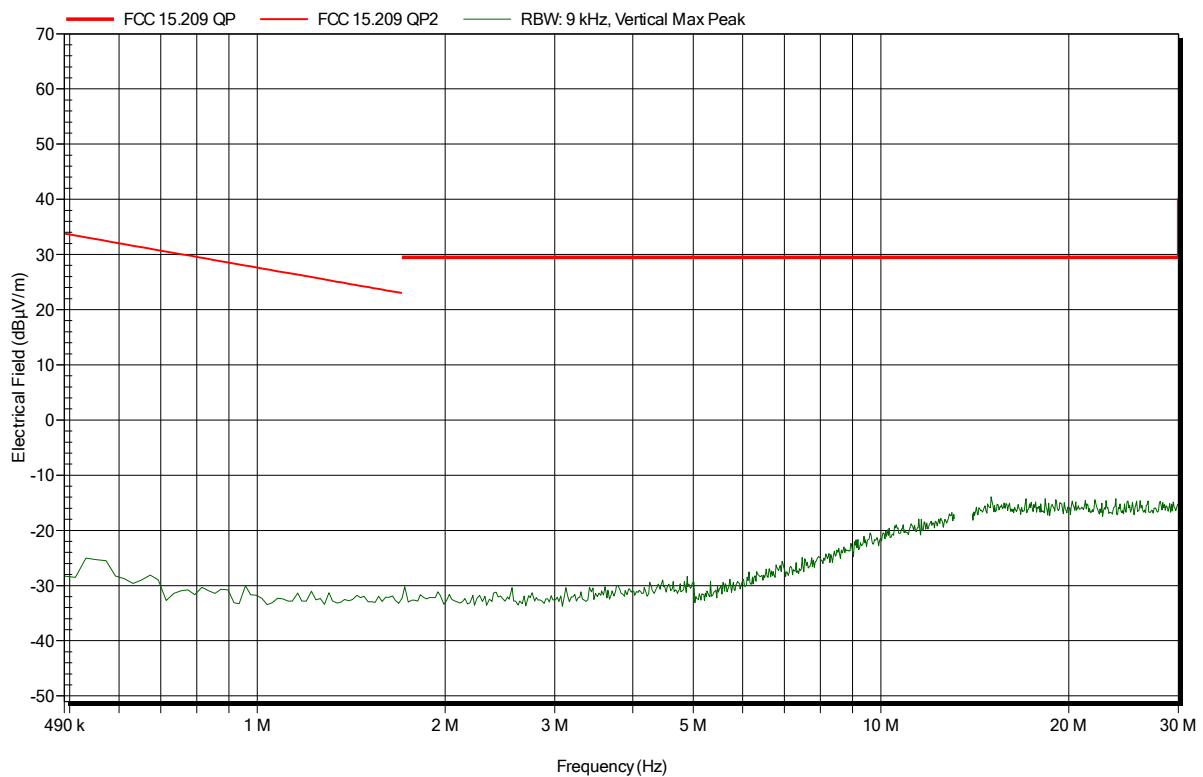


Spurious emissions according to FCC 15.225

Project number: G0M-1708-6775

Applicant:	Phillips-Medisize A/S
EUT Name:	InfuGo device, an automated personalized infusion pump
Model:	InfuGo
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 24°C, Vnom: 3.7 VDC
Antenna:	Rohde & Schwarz HFH 2-Z2
Measurement distance:	3 m converted to 30 m
Mode:	TX; RFID 13.56 MHz ASK
Test Date:	2017-01-11
Note:	

Index 2

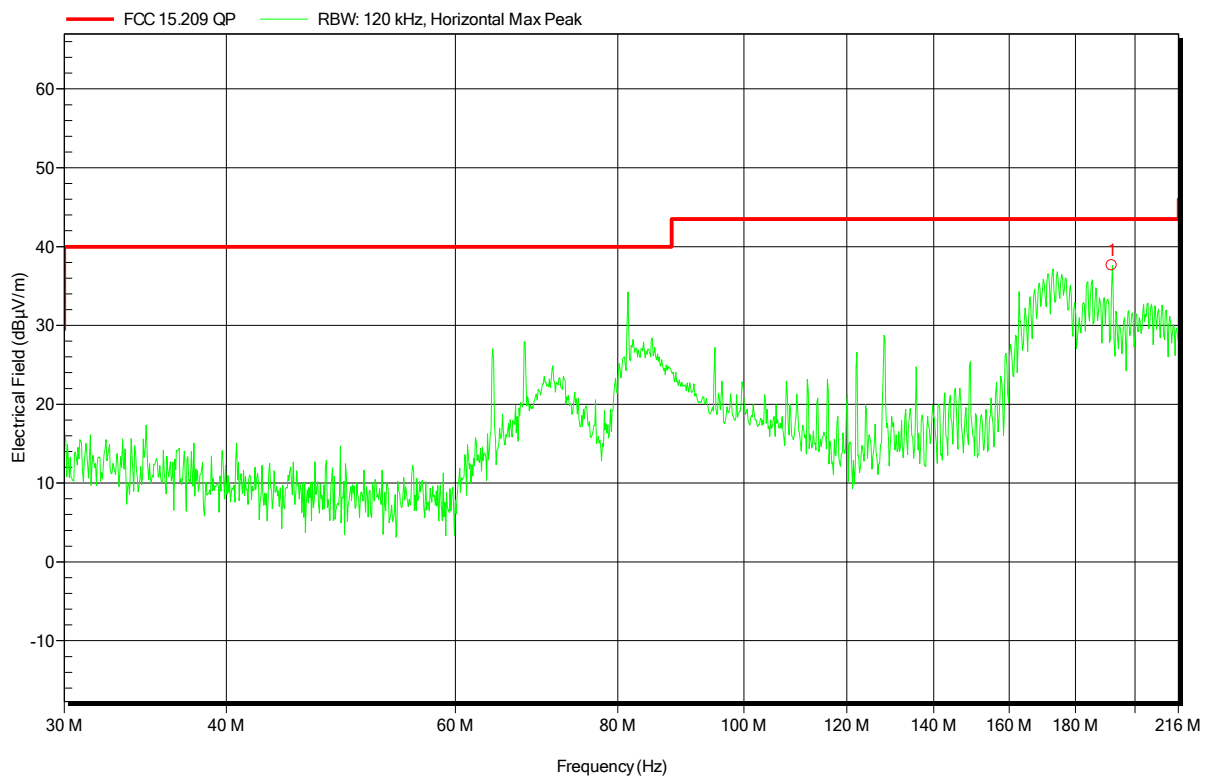


Radiated emissions under normal conditions according to FCC 15.225

Project number: G0M-1708-6775

Applicant: Phillips-Medisize A/S
EUT Name: InfuGo device, an automated personalized infusion pump
Model: InfuGo
Test Site: Eurofins Product Service GmbH
Operator: Mr. Suckow
Test Conditions: Tnom: 24°C, Unom: 3.7 VDC
Antenna: Rohde & Schwarz HK 116, Horizontal
Mode: RFID 13.56 MHz ASK
Test Date: 2017-11-06
Note: MA 239 TT 259

Index 10



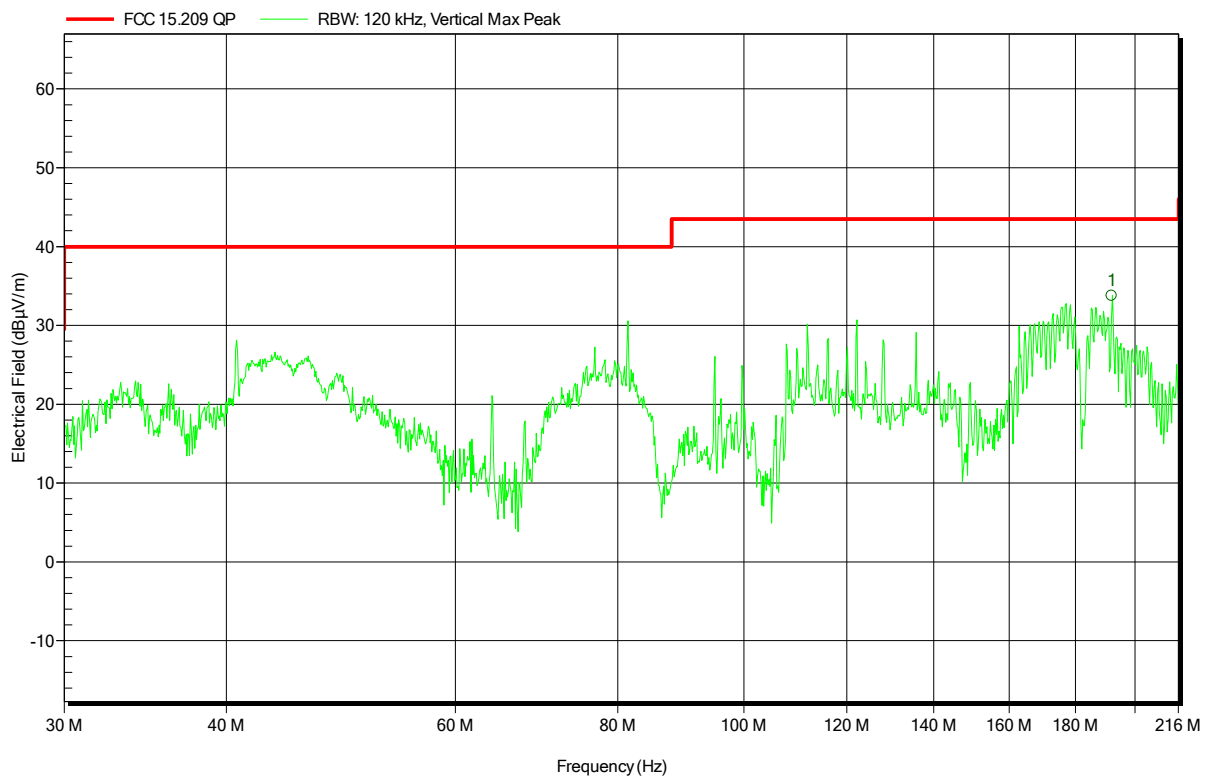
Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	191.925 MHz	37.61 dBµV/m	43.5 dBµV/m	-5.89 dB	Pass	0 Degree	1 m

Radiated emissions under normal conditions according to FCC 15.225

Project number: G0M-1708-6775

Applicant: Phillips-Medisize A/S
 EUT Name: InfuGo device, an automated personalized infusion pump
 Model: InfuGo
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Suckow
 Test Conditions: Tnom: 24°C, Unom: 3.7 VDC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Mode: RFID 13.56 MHz ASK
 Test Date: 2017-11-06
 Note: MA 100 TT 311

Index 9



Peak Number	Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Angle	Height
1	191.925 MHz	33.77 dBµV/m	43.5 dBµV/m	-9.73 dB	Pass	0 Degree	1 m