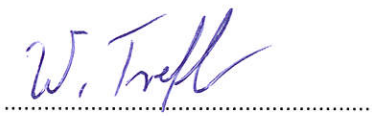
RADIO REPORT

FCC 47 CFR Part 95I
Medical Device Radiocommunication Service (MedRadio)

ISED RSS-243
Medical Devices Operating in the 401 – 406 MHz Frequency Band

Report Reference No	G0M-1909-8468-TFC95IMR-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	BIOTRONIK SE & Co. KG
Address	Woermannkehre 1 12359 Berlin GERMANY
Test Specification	According to FCC/ISED rules
Standard	47 CFR Part 95I RSS-243, Issue 3, 2010-02 RSS-Gen, Issue 5, Amendment 1, 2019-03
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	BM2610 / Implantable Cardiac Monitor
Model(s)	BIOMONITOR III
Additional Model(s)	BIOMONITOR IIIm
Brand Name(s)	BIOTRONIK
Hardware Version(s)	ASM-0929_06, BOM-0468_02, SCH-0295_03
Software Version(s)	ROM: 7848ROMRev_1.03 / RAM: 7848RAMRev_04.06
FCC-ID	QRI-BM2610
IC	4708A-BM2610
Test Result	**PASSED**

Possible test case verdicts:		
Required by standard but not tested	N/T	
Not required by standard	N/R	
Not applicable to EUT	N/A	
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	2019-09-26	
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	2019-10-28	
Total number of pages	79	
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	2019-10-28	Initial Release	

ABBREVIATIONS AND ACRONYMS

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

REPORT INDEX

1 Equipment (Test Item) Under Test

Description	BM2610 / Implantable Cardiac Monitor	
Model	BIOMONITOR III	
Additional Model(s)	BIOMONITOR IIIm	
Brand Name(s)	BIOTRONIK	
Serial Number(s)	95001139 (radiated sample) 4022611487 (conducted sample)	
Hardware Version(s)	ASM-0929_06, BOM-0468_02, SCH-0295_03	
Software Version(s)	ROM: 7848ROMRev_1.03 / RAM: 7848RAMRev_04.06	
PMN	BIOMONITOR IIIm	
HVIN	450218	
FVIN	N/A	
HMN	N/A	
FCC-ID	QRI-BM2610	
IC	4708A-BM2610	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	402 - 405 MHz	
Radio technology	MedRadio (MICS) active medical implant	
Modulation	FSK	
Emission designator	F1D	
Number of channels	9	
Channel spacing	300 kHz	
Spectrum access	LBT/AFA (channel access controlled by ULP-AMI-P device outside the human body)	
Number of antenna ports	1	
Antenna	Type	Integrated
	Model	BIOMONITOR III Lead
	Manufacturer	BIOTRONIK SE & Co. KG
	Gain	-27.2 dBi (customer declaration)
Supply Voltage	V_{NOM}	2.7 VDC
	V_{MIN}	2.0 VDC
	V_{MAX}	3.3 VDC
Operating Temperature	T_{NOM}	37 °C
	T_{MIN}	25 °C
	T_{MAX}	45 °C
AC/DC-Adaptor	Model	None
	Vendor	None
	Input	None
	Output	None
Manufacturer	BIOTRONIK SE & Co. KG Woermannkehre 1 12359 Berlin GERMANY	

1.5 Support Equipment.

Product Type	Device	Manufacturer	Model	Comment
AE	Programming Wand	BIOTRONIK	ICS3000	-
AE	Telbox Programmer	BIOTRONIK	Telbox	-
AE	USB MedRadio Transceiver	BIOTRONIK	MICS Monitor	Companion device
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.6 Test mode duty cycle

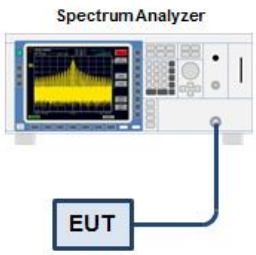
1.6.1 Information

Test Information	
Measurement Method	ANSI C63.10 11.6

1.6.2 Requirements

Requirements	
Duty cycle	Duty cycle correction
≥ 98 %	No correction required
< 98 %	Correction required (10 x Log_{10}(1/DC)

1.6.3 Setup

Test Setup


1.6.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2019-07	2020-07

1.6.5 Procedure

Test Procedure
1. EUT set to test mode 2. Span is set to zero span 3. Detector set to peak 4. Sweep time is set long enough to capture at least 5 bursts 5. Envelope peak value of emission spectrum is selected 6. The maximum burst duration T_{ON} is measured using two markers set to the start and the end of the longest burst 7. The minimum idle duration T_{OFF} is measured using two markers set to the start and the end of the shortest idle period 8. The duty cycle is calculated by DC = T_{ON} / (T_{ON} + T_{OFF}) 9. The duty cycle correction is calculated by DC = 10 x Log_{10}(T_{ON} / (T_{ON} + T_{OFF}))

1.6.6 Results

Duty Cycle Results		
Mode	Duty Cycle	Correction Factor [dB]
Modulated	1 (100%)	0

1.7 Test Modes

Mode	Description
Unmodulated	Mode = Transmit Modulation = None
Modulated	Mode = Transmit Modulation = 2-FSK Power level = maximum
Standby	Mode = Standby Modulation = None
Receive	Mode = Receive Modulation = 2-FSK
Normal	Mode = Regular data connection to companion device
Comment:	

1.8 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	8	402.45
F2	Tx / Rx	0	403.65
F3	Tx / Rx	7	404.85

1.9 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 analyzer in dBµV. Any external preamplifiers used are taken into account through internal analyzer 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 analyzer. 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:

Reading on Analyzer (dBµV) + A.F. (dB/m) = Net field strength (dBµV/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:

Limit (dBµV/m) = 20*log (µV/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

1.10 Simulated human body

For radiated tests the implant was placed in a simulated human body.

Liquid components			
Component		percentage per weight	
Deionized water		52.4	
Bactericide		0.08	
Hydroxy ethyl cellulose (HCE)		1.0	
Sodium chloride		1.4	
Sucrose		45.0	
Tissue parameters – 403.5MHz Measured tissue parameters:			
Component	Target	Measured	Tolerance [%]
Dielectric constant ε	62.5	63.08	0.93
Conductivity σ [ms/cm]	9.08	8.8	-2.22

2 Result Summary

FCC 47 CFR Part 95I, 15C, ISED RSS-243, ISED RSS-Gen				
Product Standard Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
ISED RSS-243 3.2 ISED RSS-Gen 6.7	Occupied Bandwidth	ANSI C63.10 6.9.3	N/R	Informational only
FCC 95.2573(a) ISED RSS-243 3.6	Emission Bandwidth	ANSI C63.10 6.9.2 ETSI EN 301 839 5.3.2	PASS	
FCC 95.2565 ISED RSS-243 3.3, 5.3	Frequency stability	ETSI EN 301 839 5.3.1	PASS	
FCC 95.2567(a), 95.2569 ISED RSS-243 5.4	Transmitter output power	ETSI EN 301 839 5.3.3	PASS	
FCC 95.2579 ISED RSS-243 3.4, 5.5	Band edge compliance	ANSI C63.10 6.10	PASS	
FCC 95.2579 ISED RSS-243 3.4, 5.5	Transmitter unwanted emissions	ANSI C63.10 6.10	PASS	
ISED RSS-243 3.5, 5.6 ISED RSS-Gen 7.3	Receiver spurious emissions	ANSI C63.10 6.10	PASS	
FCC 15.207 ISED RSS-Gen 7.2, 8.8	AC power line conducted emissions	ANSI C63.10 6.2	N/R	EUT battery powered
FCC 95.2559(a)(3),(a)(4) ISED RSS-243 3.6, 5.7.1	System threshold power levels	ETSI EN 301 839 5.3.7.1.3	N/R	Applies only to equipment by which LBT is performed
FCC 95.2559(a)(1) ISED RSS-243 3.6, 5.7.2	Monitoring system bandwidth	ETSI EN 301 839 5.3.7.1.4	N/R	Applies only to equipment by which LBT is performed
FCC 95.2559(a)(2) ISED RSS-243 3.6, 5.7.3	Scan cycle time	ETSI EN 301 839 5.3.7.1.5	N/R	Applies only to equipment by which LBT is performed
FCC 95.2559(a)(2) ISED RSS-243 3.6, 5.7.4	Minimum channel monitoring period	ETSI EN 301 839 5.3.7.1.5	N/R	Applies only to equipment by which LBT is performed
FCC 95.2559(a)(5) ISED RSS-243 3.6, 5.7.5	Channel Access	ETSI EN 301 839 5.3.7.1.6	N/R	Applies only to equipment by which LBT is performed
FCC 95.2559(a)(5) ISED RSS-243 3.6, 5.7.6	Discontinuation of MICS of MEDS session	ETSI EN 301 839 5.3.7.1.7	N/R	Applies only to equipment by which LBT is performed
FCC 95.2559(a)(6) ISED RSS-243 3.6, 5.7.7	Use of the pre-scanned alternate channel	ETSI EN 301 839 5.3.7.1.8	N/R	Applies only to equipment by which LBT is performed
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

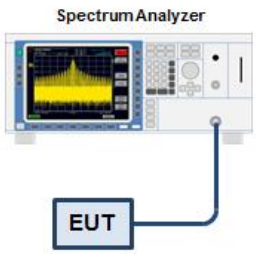
3.1.1 Information

Test Information	
Reference	ISED RSS-243 3.2, RSS-Gen 6.6
Measurement Method	ANSI C63.10 6.9.3
Operator	Wilfried Treffke
Date	2019-09-27

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup

Test Setup


3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2019-07	2020-07

3.1.5 Procedure

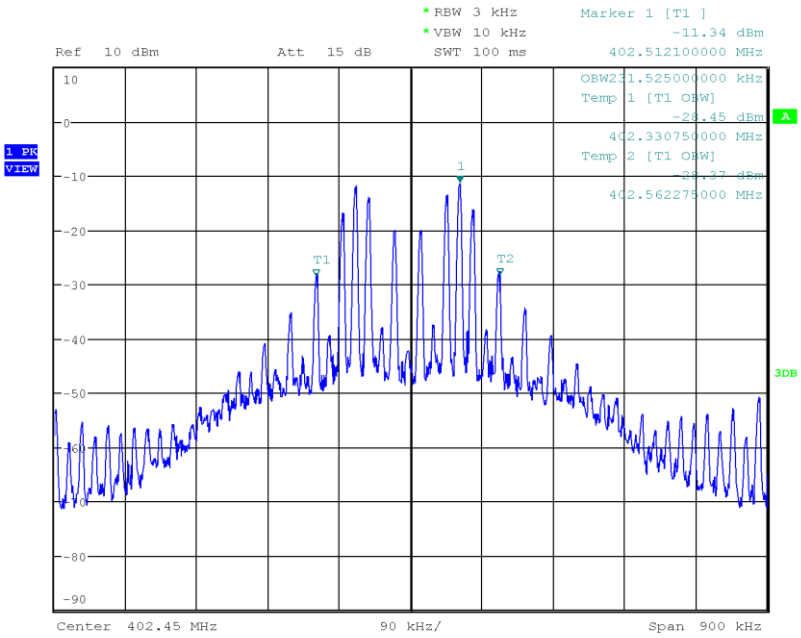
Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum 3. The resolution bandwidth is set 1 % to 5 % of the bandwidth 4. The occupied bandwidth (99%) is measured with the build-in analyzer function

3.1.6 Results

Test Results		
Mode	Channel [MHz]	Bandwidth [MHz]
Modulated	402.45	231.525
Modulated	403.65	231.750
Modulated	404.85	232.425

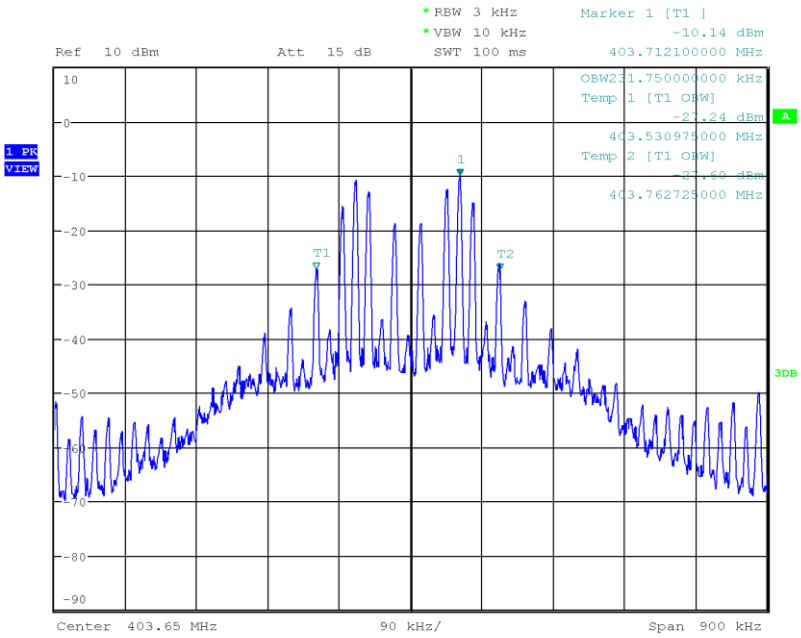
Occupied Bandwidth RSS-243

Project Number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	BM2610 / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm
Test Sample ID:	25662
Reference Method:	RSS-Gen Issue 4 6.6 (Occupied Bandwidth)
Operational Mode:	2FSK, 16 kbps, Channel: 8, 402.45 MHz
Operating Conditions:	Tnom / Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-09-27
Occupied Bandwidth [kHz]:	231.525



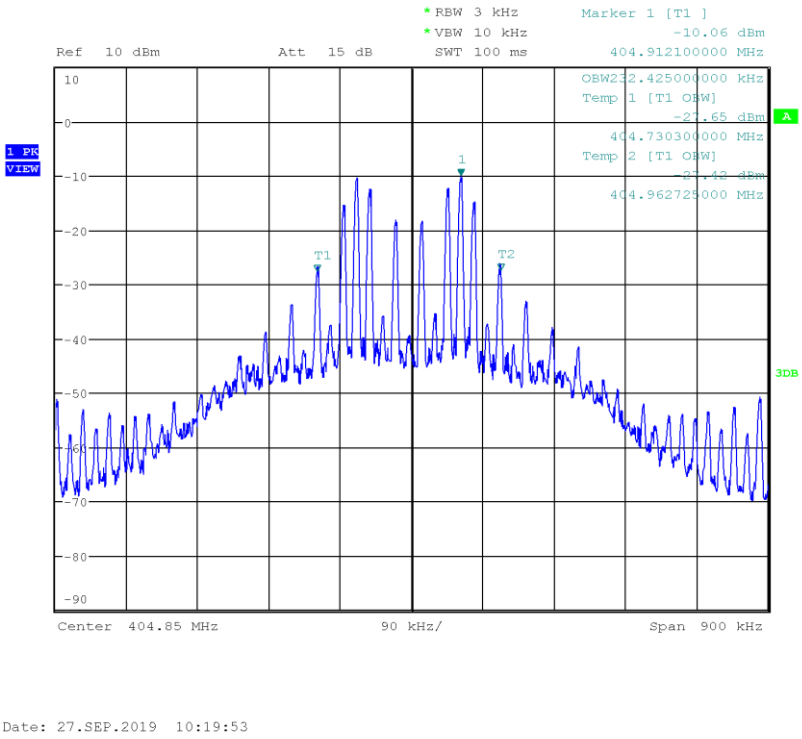
Occupied Bandwidth RSS-243

Project Number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	BM2610 / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm
Test Sample ID:	25662
Reference Method:	RSS-Gen Issue 4 6.6 (Occupied Bandwidth)
Operational Mode:	2FSK, 16 kbps, Channel: 0, 403.65 MHz
Operating Conditions:	Tnom / Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-09-27
Occupied Bandwidth [kHz]:	231.750



Occupied Bandwidth RSS-243

Project Number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	BM2610 / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm
Test Sample ID:	25662
Reference Method:	RSS-Gen Issue 4 6.6 (Occupied Bandwidth)
Operational Mode:	2FSK, 16 kbps, Channel: 7, 404.85 MHz
Operating Conditions:	Tnom / Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-09-27
Occupied Bandwidth [kHz]:	232.425



3.2 Test Conditions and Results - Emission bandwidth

3.2.1 Information

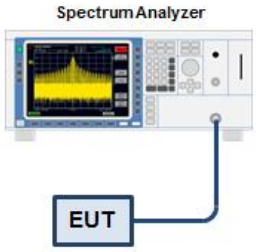
Test Information	
Reference	FCC 95.2573(a) ISED RSS-243 3.6
Measurement Method	ANSI C63.10 6.9.2 ETSI EN 301 839 5.3.2
Operator	Wilfried Treffke
Date	2019-09-27

3.2.2 Limits

Limits
≤ 300 kHz

3.2.3 Setup

Test Setup



3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2019-07	2020-07

3.2.5 Procedure

Test Procedure

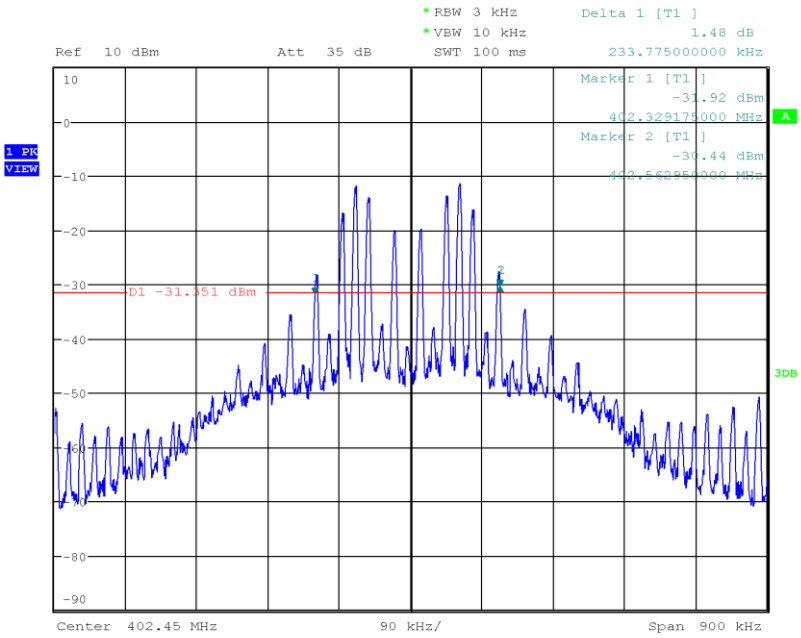
1. EUT set to test mode
2. Span set to at least twice the emission spectrum
3. Detector set to peak and max hold
4. Envelope peak value of emission spectrum is selected
5. Marker on envelope of spectrum is set to level of -20 dB to the left of the peak
6. Marker on envelope of spectrum is set to level of -20 dB to the right of the peak
7. 20dB Bandwidth is determined by marker frequency separation

3.2.6 Results

Test Results		
Mode	Channel [MHz]	Bandwidth [MHz]
Modulated	402.45	233.775
Modulated	403.65	233.775
Modulated	404.85	234.000

20 dB Bandwidth FCC

Project Number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	BM2610 / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm
Test Sample ID:	25662
Reference Standards:	FCC 95.627
Reference Method:	47 CFR § 95.627(a)(6)(i)
Operational Mode:	2FSK, 16 kbps, Channel: 8, 402.45 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-09-27
Lower Frequency [MHz]:	402.329
Upper Frequency [MHz]:	402.563
20 dB Bandwidth [kHz]:	233.775



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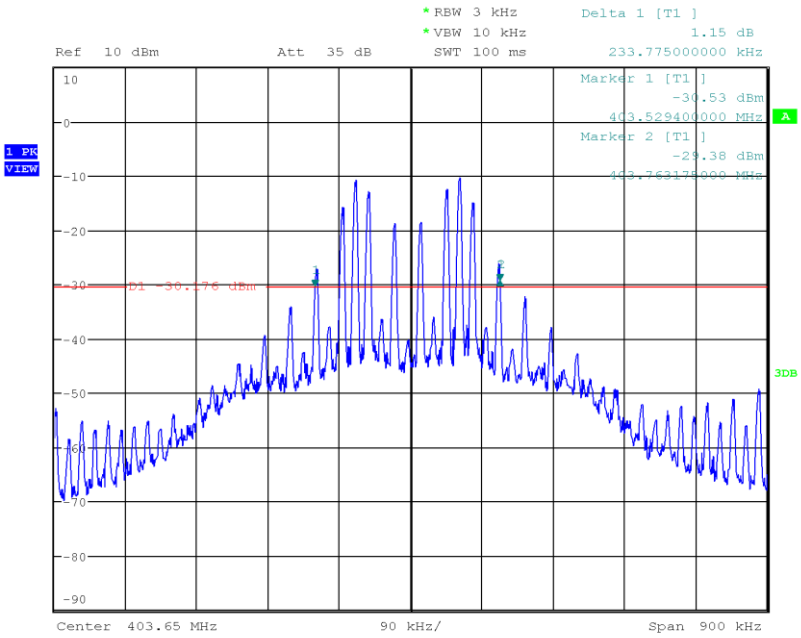
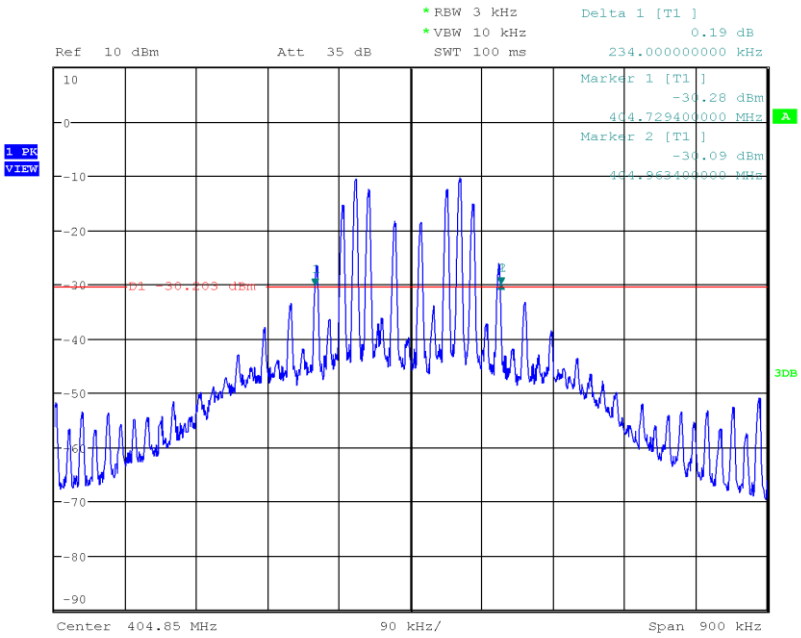
20 dB Bandwidth FCC

Project Number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	BM2610 / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm
Test Sample ID:	25662
Reference Standards:	FCC 95.627
Reference Method:	47 CFR § 95.627(a)(6)(i)
Operational Mode:	2FSK, 16 kbps, Channel: 0, 403.65 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-09-27
Lower Frequency [MHz]:	403.529
Upper Frequency [MHz]:	403.763
20 dB Bandwidth [kHz]:	233.775



20 dB Bandwidth FCC

Project Number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	BM2610 / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm
Test Sample ID:	25662
Reference Standards:	FCC 95.627
Reference Method:	47 CFR § 95.627(a)(6)(i)
Operational Mode:	2FSK, 16 kbps, Channel: 7, 404.85 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2019-09-27
Lower Frequency [MHz]:	404.729
Upper Frequency [MHz]:	404.963
20 dB Bandwidth [kHz]:	234.000



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3.3 Test Conditions and Results - Frequency stability

3.3.1 Information

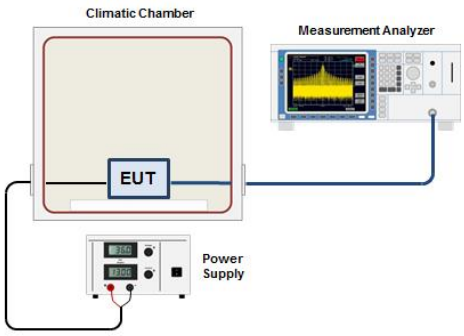
Test Information	
Reference	FCC 95.2565 ISED RSS-243 3.3, 5.3
Measurement Method	ETSI EN 301 839 5.3.1
Operator	Wilfried Treffke
Date	2019-09-27

3.3.2 Limits

Limits
≤ ±100 ppm

3.3.3 Setup

Test Setup



3.3.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2019-07	2020-07

3.3.5 Procedure

Test Procedure

1. EUT set to test mode with supply voltage and temperature set to nominal conditions
2. EUT transmits without modulation
3. Detector set to peak and max hold
4. Peak of emission is measured using a frequency counter
5. The frequency error is determined as the deviation of the emission frequency from the nominal frequency stated by the customer.

3.3.6 Results

Test Results				
Channel [MHz]	Temperature [°C]	Supply voltage [VDC]	Frequency [MHz]	Drift [ppm]
402.45	37	2.7	402.446162	-09.54
402.45	25	2.7	402.447319	-06.66
402.45	45	2.7	402.445487	-11.21
403.65	37	2.7	403.646231	-09.34
403.65	25	2.7	403.647399	-06.44
403.65	45	2.7	403.645557	-11.01
404.85	37	2.7	404.846305	-09.13
404.85	25	2.7	404.847474	-06.24
404.85	45	2.7	404.845633	-10.79

3.4 Test Conditions and Results - Transmitter output power

3.4.1 Information

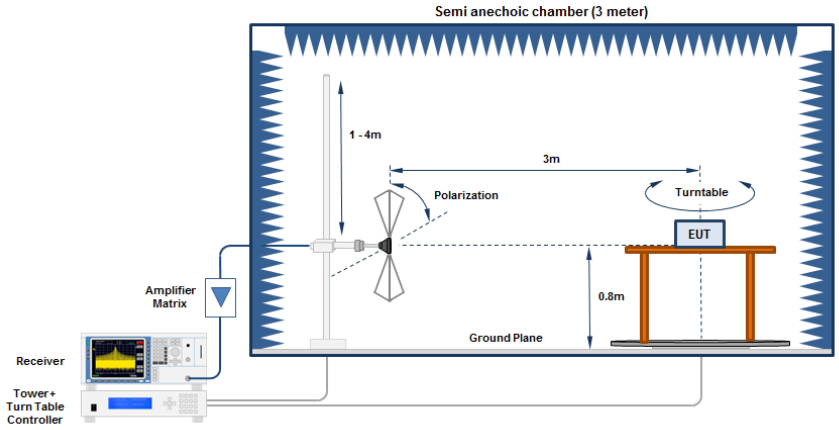
Test Information	
Reference	FCC 95.2567(a), 95.2569 ISED RSS-243 5.4
Measurement Method	EN 301 839 5.3.3
Operator	Wilfried Treffke
Date	2019-09-26

3.4.2 Limits

Limits
≤ 25 µW (-16 dBm) e.i.r.p.

3.4.3 Setup

Test Setup



3.4.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2019-07	2020-07
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

3.4.5 Procedure

Test Procedure

1. EUT set to test frequency with modulation
2. Measurement polarization is set to vertical
3. Span it set according to measurement range and detector is set to peak and max hold
4. Resolution bandwidth is set two be at least twice the emission bandwidth
5. During the sweep the EUT is rotated to obtain maximum emission level
6. Measurement is repeated with horizontal measurement polarization

3.4.6 Results

Test Results				
Channel [MHz]	Emission Level [dBm e.i.r.p.]	Detector	Limit [dBm e.i.r.p.]	Margin [dB]
402.45	-34.6	pk	-16	-18.60
404.85	-34.0	pk	-16	-18.00

3.5 Test Conditions and Results - Band-edge and In-band Emissions

3.5.1 Information

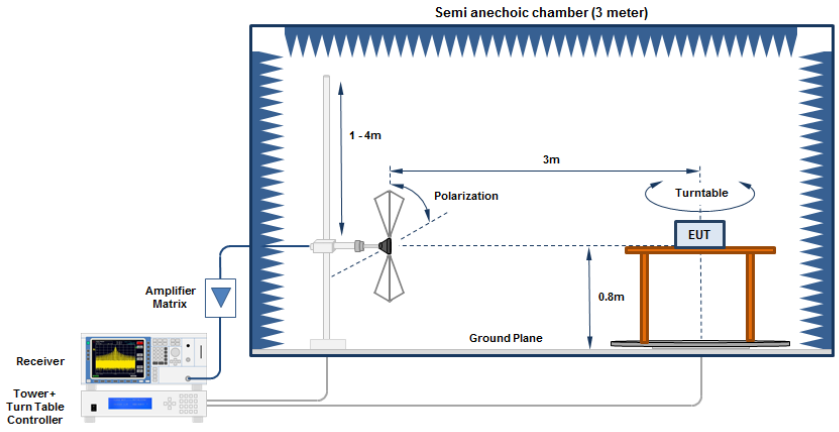
Test Information	
Reference	FCC 95.2579 ISED RSS-243 3.4, 5.5
Measurement Method	ANSI C63.10 6.10
Operator	Wilfried Treffke
Date	2019-09-28

3.5.2 Limits

Limits FCC	
Frequency range	Limit
402 MHz – 250 kHz ≤ f ≤ 402 MHz	20 dB below maximum permitted output power
402 MHz < f < 150 kHz - f_C	20 dB below transmitter output power
150 kHz + f_C < f < 405 Mhz	20 dB below transmitter output power
405 MHz ≤ f ≤ 405 MHz + 250 kHz	20 dB below maximum permitted output power
Limits ISED	
Frequency range	Limit
402 MHz – 250 kHz < f < 150 kHz-f_C	20 dB below maximum permitted output power
150 kHz+f_C < f < 405 MHz + 250 kHz	20 dB below maximum permitted output power
The FCC limits are more stringent than the ISED limits, that is why the FCC limits are used to fulfil the band-edge emission requirements	

3.5.3 Setup

Test Setup



3.5.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01003	2019-07	2020-07
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

3.5.5 Procedure

Test Procedure
1. EUT set to test frequency with modulation
2. Measurement polarization is set to vertical
3. Span it set according to measurement range
4. Resolution bandwidth is set to 1% of the emission bandwidth and detector is set to peak
5. During the sweep the EUT is rotated to obtain maximum emission level
6. Measurement is repeated with horizontal measurement polarization

3.5.6 Results

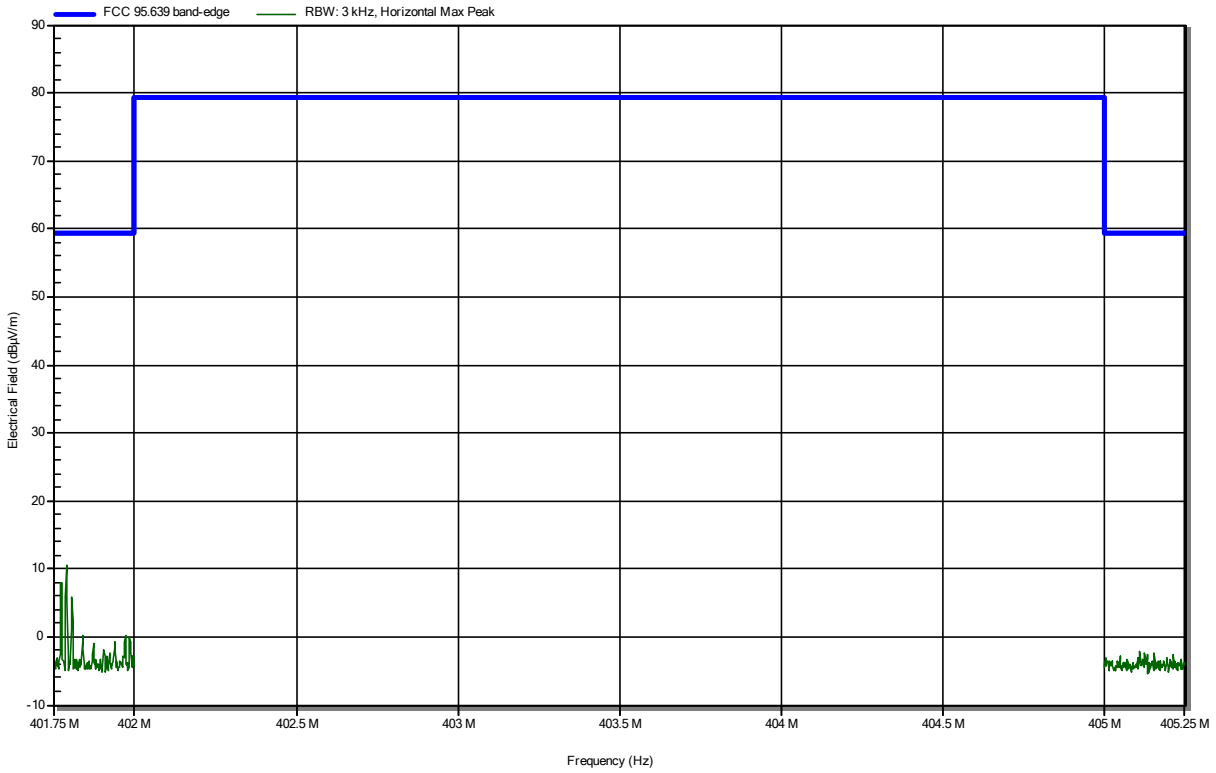
Test Results					
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Pol.	Limit [dBµV/m]	Margin [dB]
402.45	402.3	30.64	ver	54.10	-23.46
402.45	402.627	27.68	ver	54.10	-26.42
402.45	403.235	21.69	hor	54.10	-32.41
402.45	403.235	34.80	ver	54.10	-19.30
404.85	403.268	23.73	ver	44.10	-20.37
404.85	404.06	27.96	ver	44.10	-16.14
404.85	404.7	16.96	hor	44.10	-27.14
404.85	404.7	28.59	ver	44.10	-15.51
404.85	404.999	11.79	hor	44.10	-32.31
404.85	405	26.68	ver	59.40	-32.72
404.85	405	27.84	ver	44.10	-16.26

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	Band-edge

Index 80

RadiMation

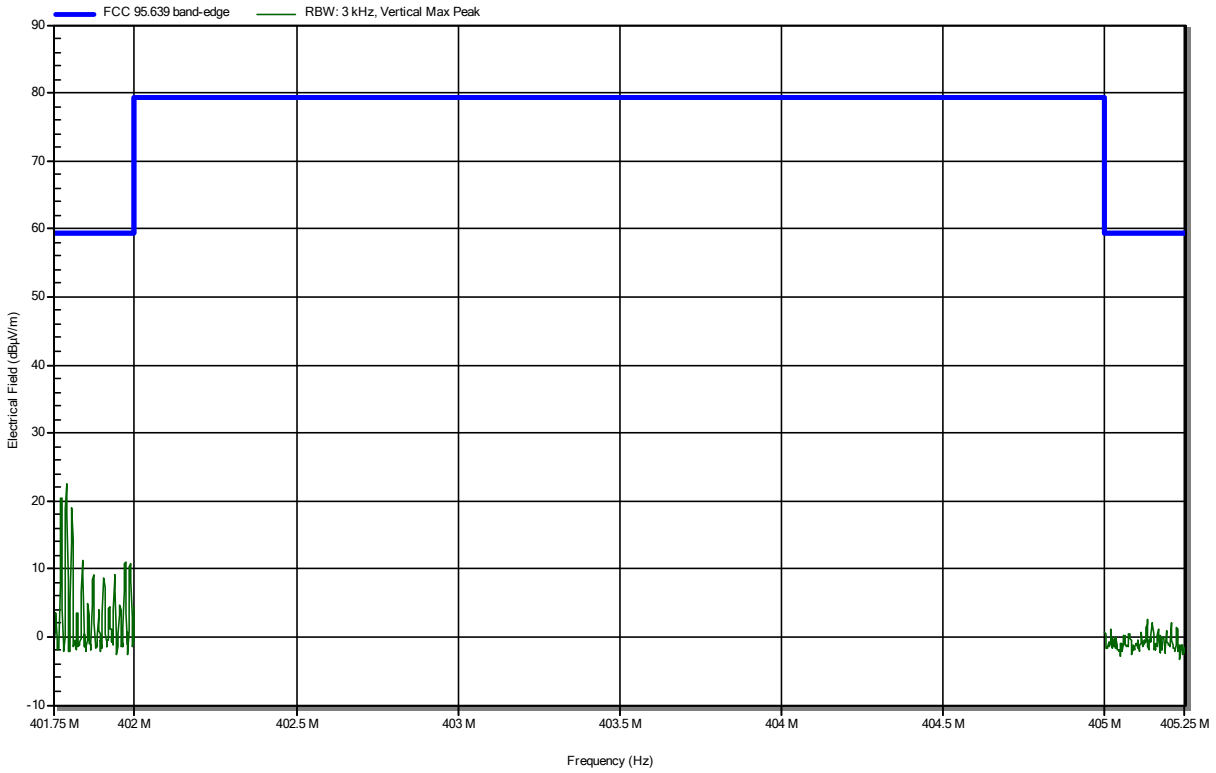


Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	Band-edge

Index 79

RadiMation

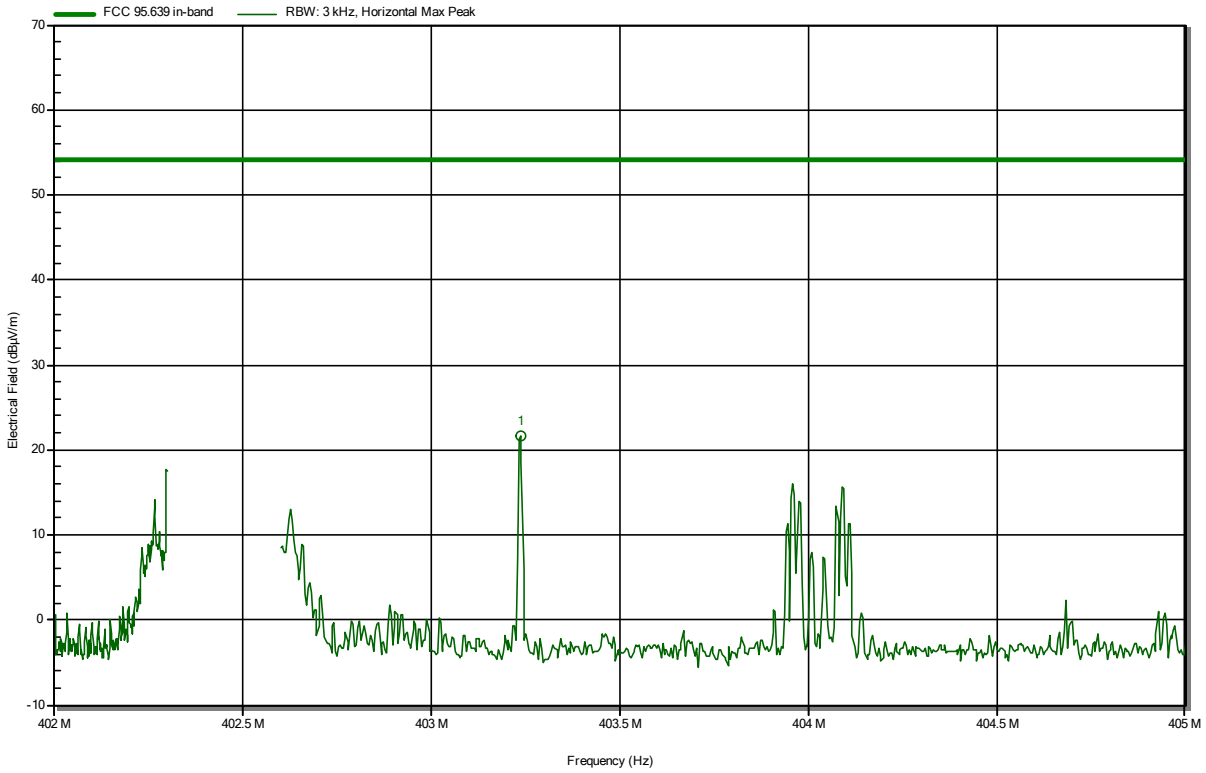


Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	In-band emissions

Index 83

RadiMation

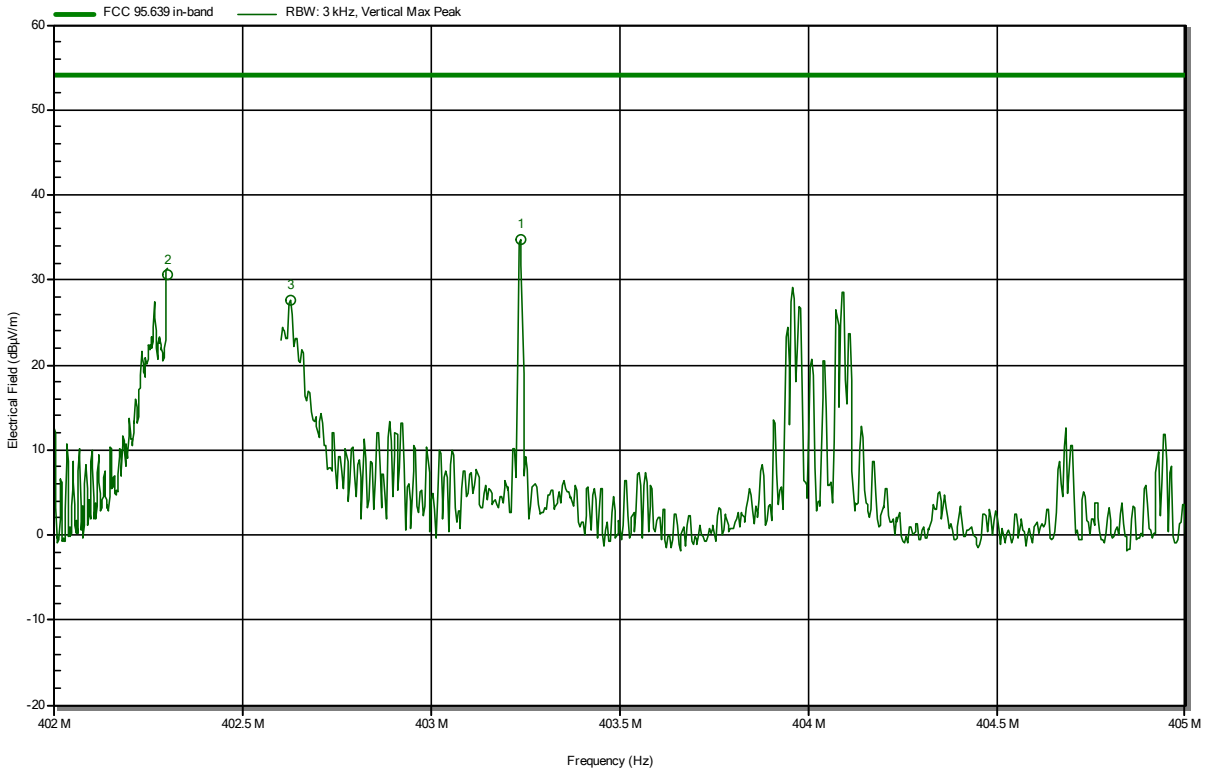


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
403.235 MHz	21.69 dBµV/m	54.1 dBµV/m	-32.41 dB	Pass

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	In-band emissions

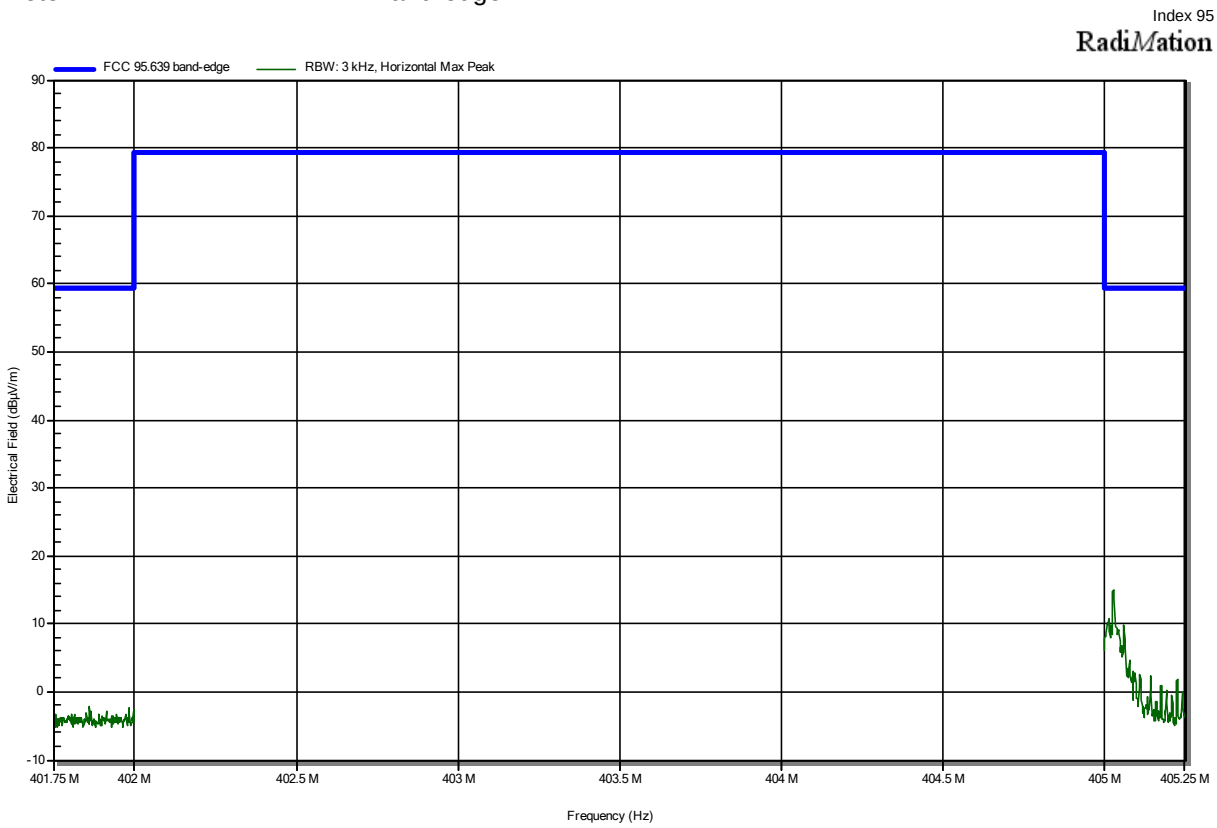
Index 84
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
402.3 MHz	30.64 dBµV/m	54.1 dBµV/m	-23.46 dB	Pass
402.627 MHz	27.68 dBµV/m	54.1 dBµV/m	-26.42 dB	Pass
403.235 MHz	34.8 dBµV/m	54.1 dBµV/m	-19.3 dB	Pass

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-26
Note:	Band-edge

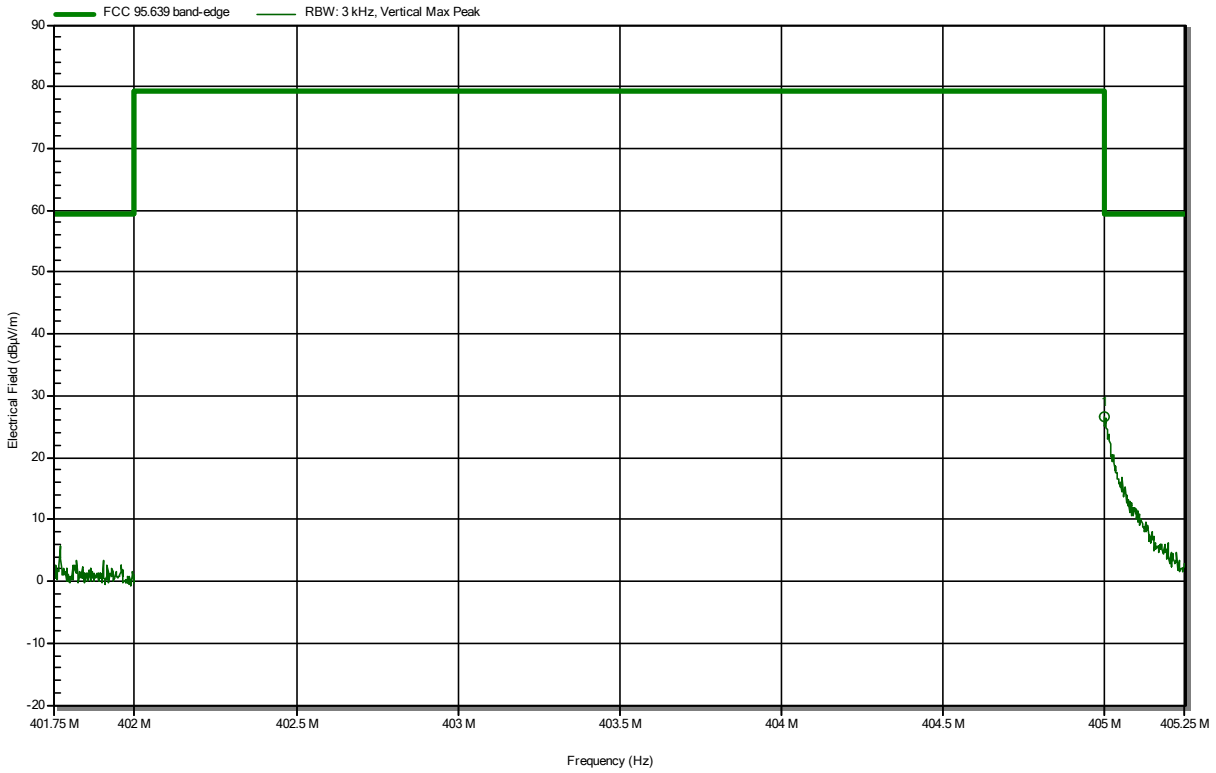


Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-28
Note:	Band-edge

Index 106

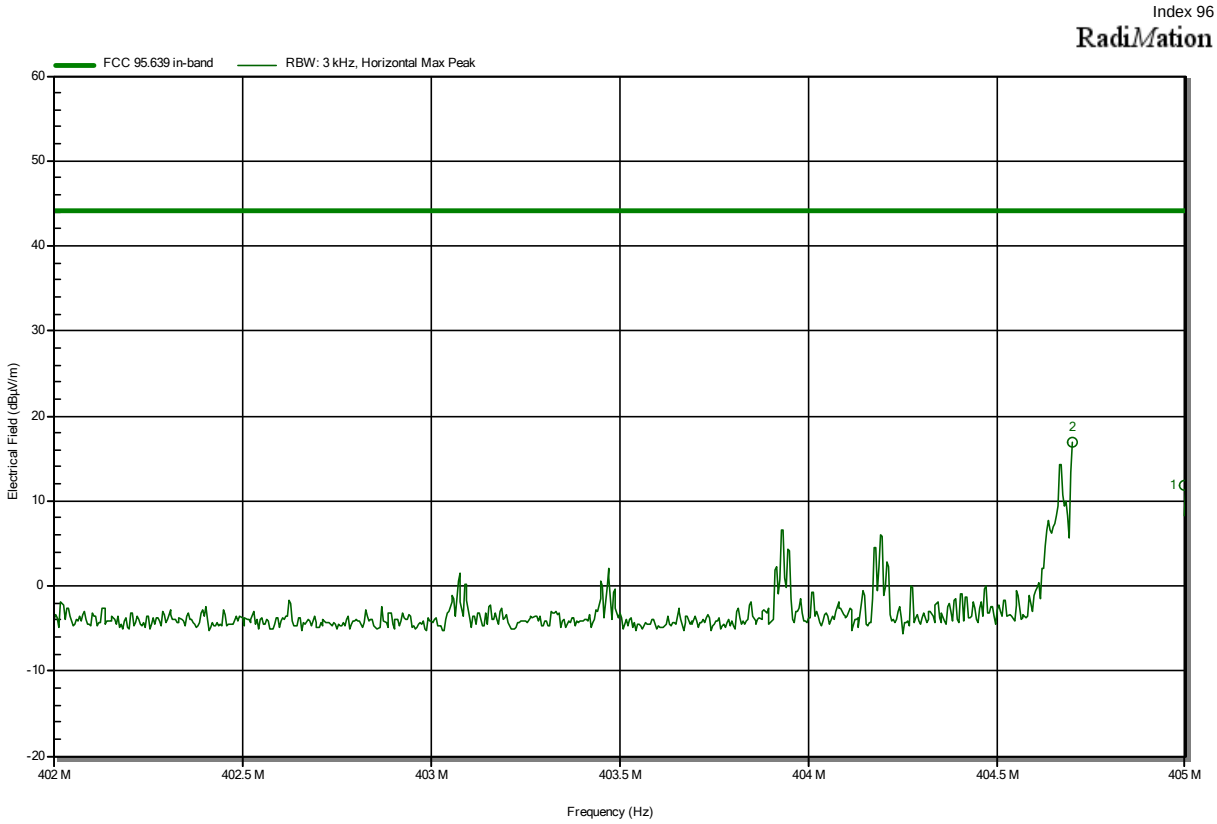
RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
405 MHz	26.68 dBµV/m	59.4 dBµV/m	-32.72 dB	Pass

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-26
Note:	In-band emissions



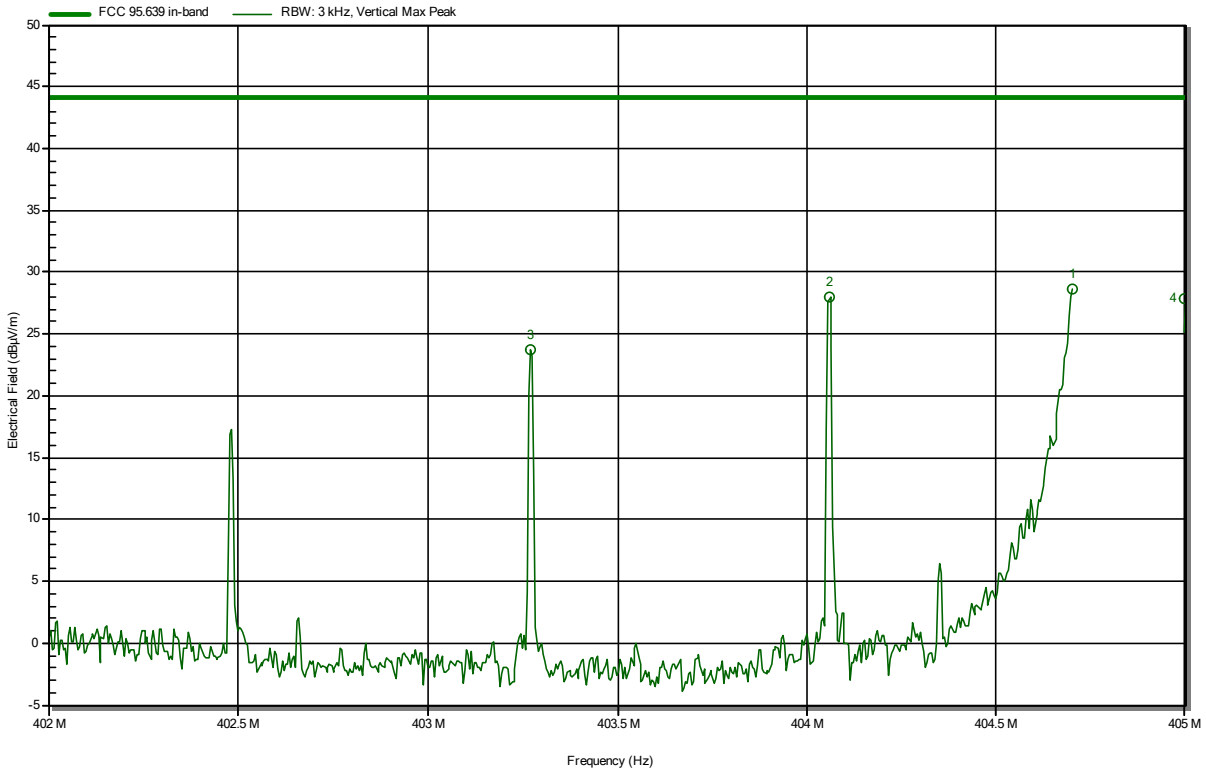
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
404.7 MHz	16.96 dBµV/m	44.1 dBµV/m	-27.14 dB	Pass
404.999 MHz	11.79 dBµV/m	44.1 dBµV/m	-32.31 dB	Pass

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-28
Note:	In-band emissions

Index 107

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
403.268 MHz	23.73 dBµV/m	44.1 dBµV/m	-20.37 dB	Pass
404.06 MHz	27.96 dBµV/m	44.1 dBµV/m	-16.14 dB	Pass
404.7 MHz	28.59 dBµV/m	44.1 dBµV/m	-15.51 dB	Pass
405 MHz	27.84 dBµV/m	44.1 dBµV/m	-16.26 dB	Pass

3.6 Test Conditions and Results - Transmitter unwanted emissions

3.6.1 Information

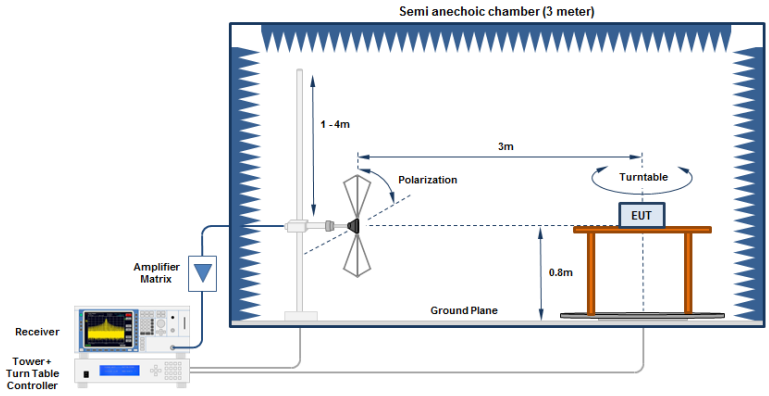
Test Information	
Reference	FCC 95.2579 ISED RSS-243 3.4, 5.5
Measurement Method	ANSI C63.10 6.10
Operator	Wilfried Treffke
Date	2019-09-28

3.6.2 Limits

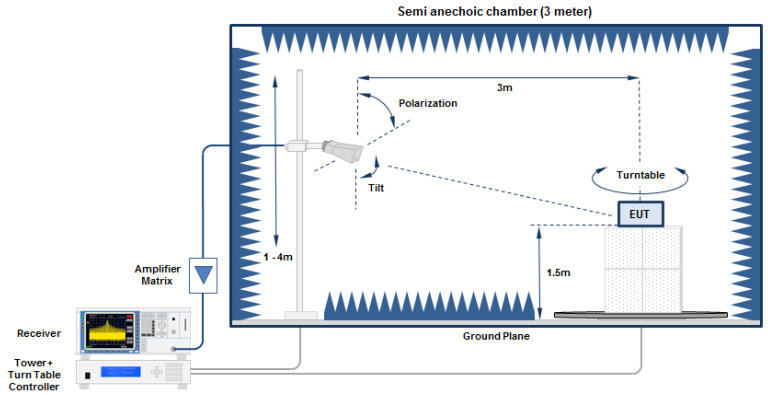
Limits				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3

3.6.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz



3.6.4 Equipment

Test Equipment 30 - 1000 MHz					
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	R&S	ESU 26	EF00887	2019-07	2020-07
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	R&S	ESU 26	EF00887	2019-07	2020-07
Antenna	Schwarzbeck	BBHA 9120D	EF01153	2019-10	2020-10

3.6.5 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 peak emission levels within restricted bands

3.6.6 Results

Test Results							
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Limit dist. [m]	Margin [dB]
402.45	213.903	20.56	pk	hor	43.50	3	-22.94
402.45	401.75	29.15	pk	ver	46.00	3	-16.85
402.45	408.109	25.34	pk	ver	46.00	3	-20.66
404.85	398.84	32.22	pk	ver	46.00	3	-13.78
404.85	405.25	23.58	pk	hor	46.00	3	-22.42

3.7 Test Conditions and Results - Receiver spurious emissions

3.7.1 Information

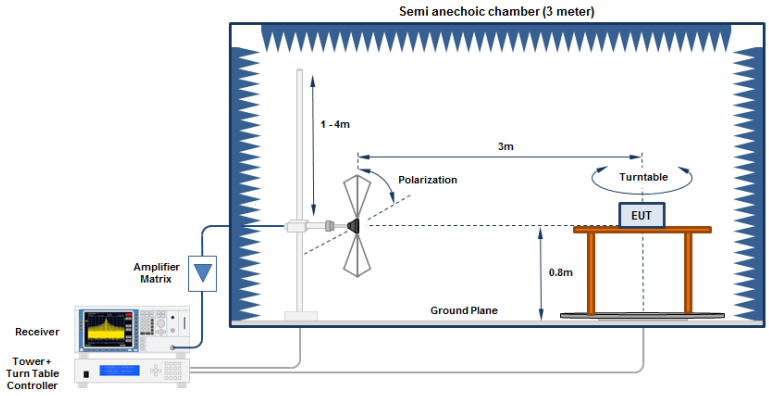
Test Information	
Reference	ISED RSS-243 3.5, 5.6 ISED RSS-Gen 7.3
Measurement Method	ANSI C63.10 6.10
Operator	Wilfried Treffke
Date	2019-09-27

3.7.2 Limits

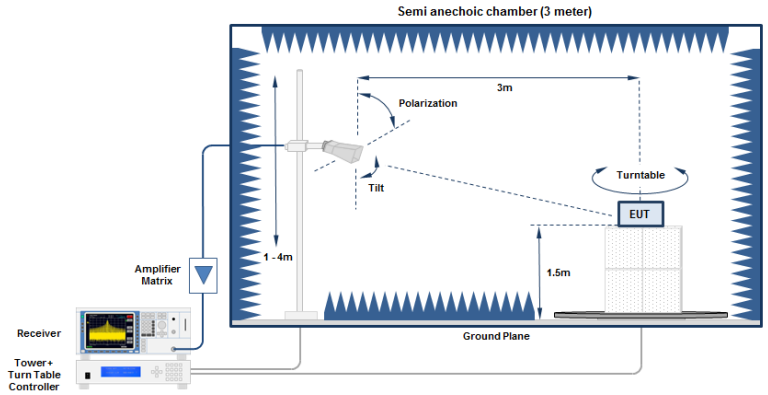
Limits				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3

3.7.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz



3.7.4 Equipment

Test Equipment 30 - 1000 MHz					
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	R&S	ESU 26	EF00887	2019-07	2020-07
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
Measurement Receiver	R&S	ESU 26	EF00887	2019-07	2020-07
Antenna	Schwarzbeck	BBHA 9120D	EF01153	2019-10	2020-10

3.7.5 Procedure

Test Procedure
1. EUT set to receive 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 peak emission levels

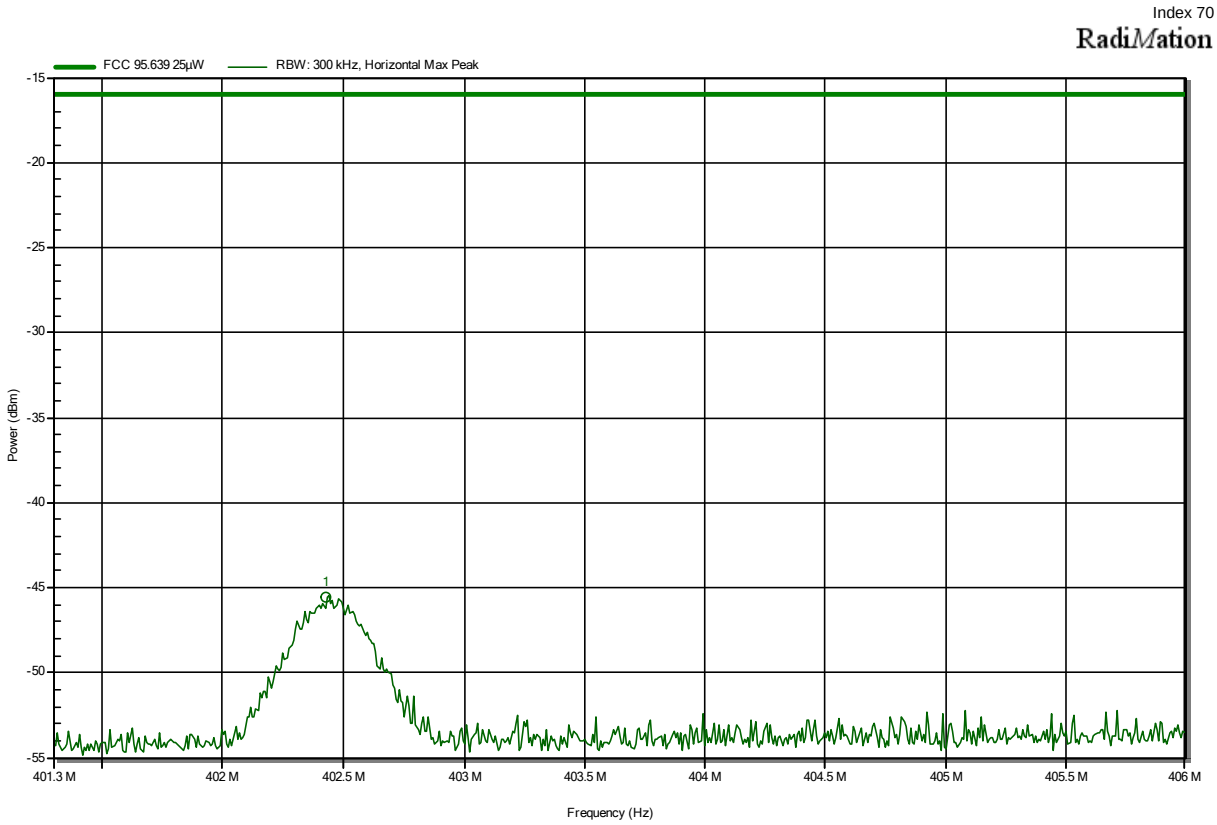
3.7.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Emission Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
403.65	239.744	26.04	pk	ver	46.00	-19.96

ANNEX A Transmitter output power

Radiated power according to 47 CFR Part 95 Subpart I

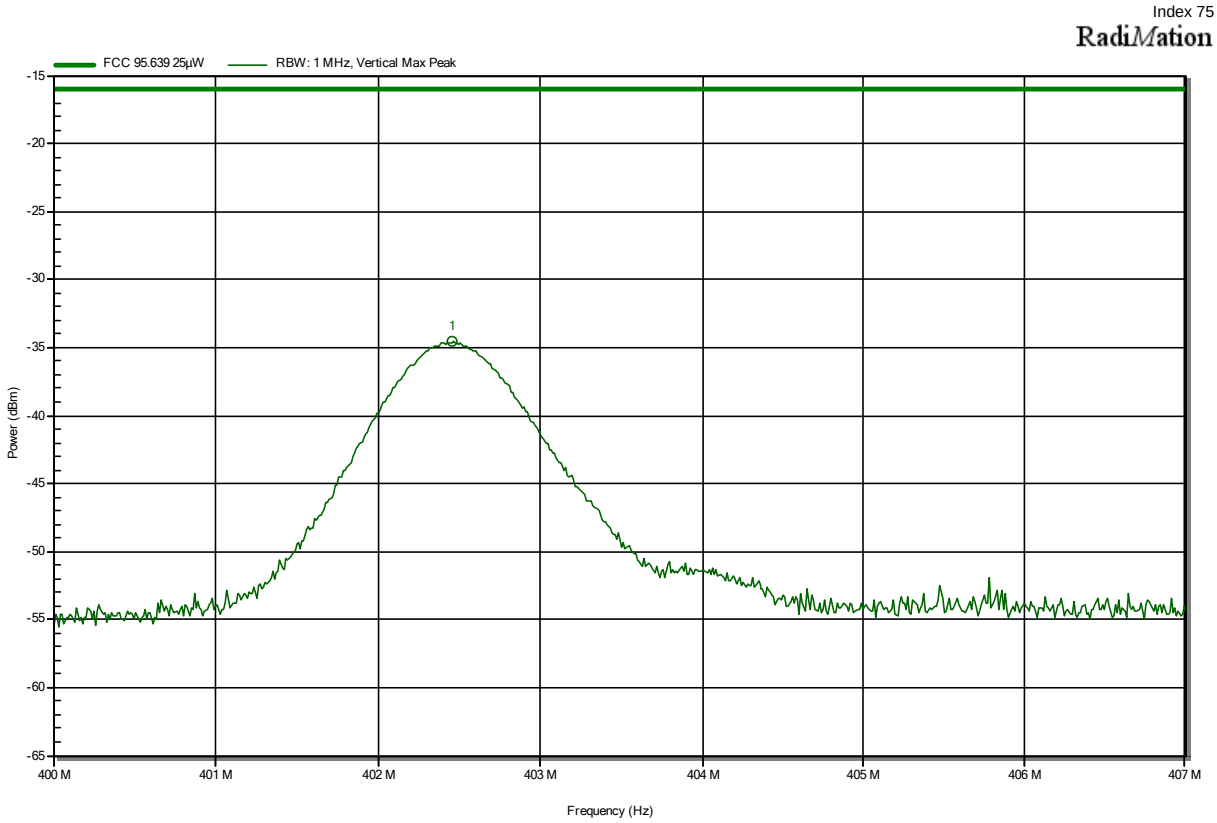
Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	Configurable Antenna, Horizontal
Measurement distance:	3 m
Mode:	Tx; CW; 402.45 MHz
Test Date:	2019-09-26
Note:	Tx Power EIRP



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
402.43 MHz	-45.5 dBm	-16 dBm	-29.54 dB	Pass

Radiated power according to 47 CFR Part 95 Subpart I

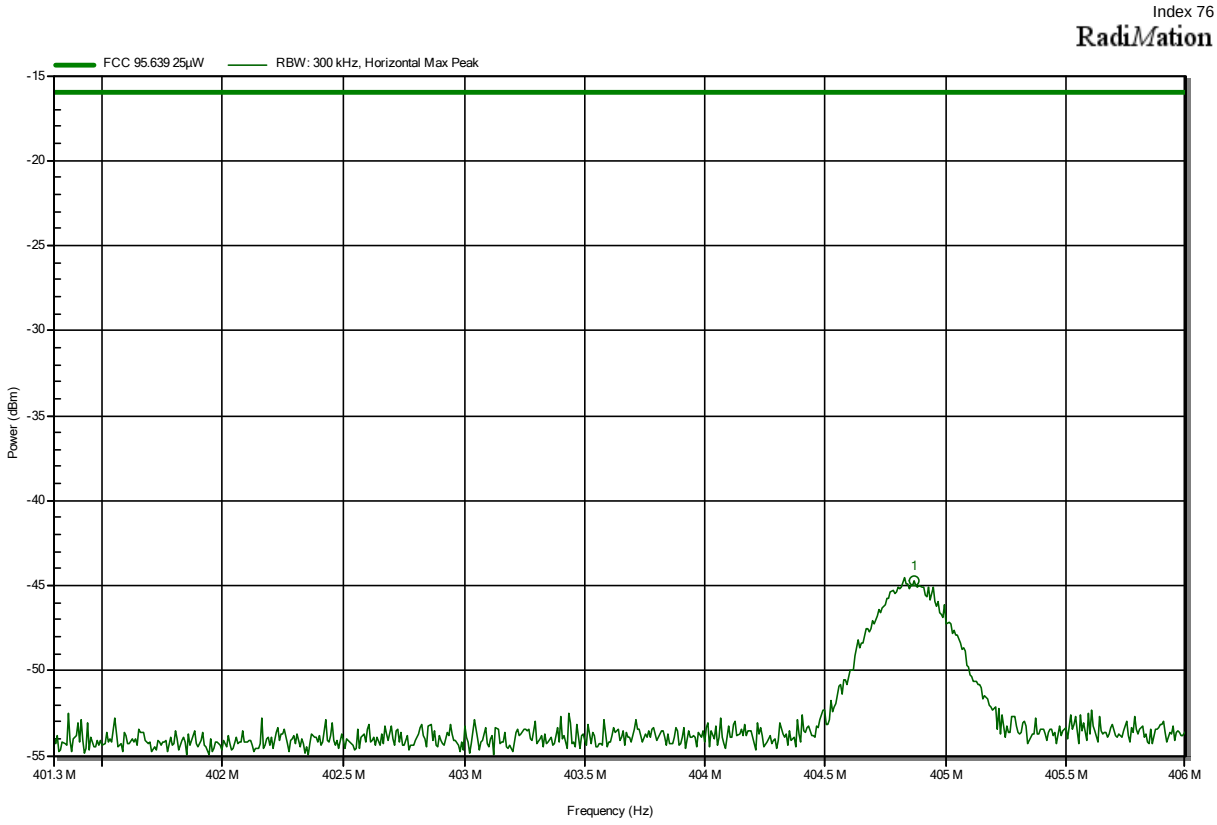
Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	Configurable Antenna, Vertical
Measurement distance:	3 m
Mode:	Tx; CW; 402.45 MHz
Test Date:	2019-09-26
Note:	Tx Power EIRP



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
402.43 MHz	-34.6 dBm	-16 dBm	-18.57 dB	Pass

Radiated power according to 47 CFR Part 95 Subpart I

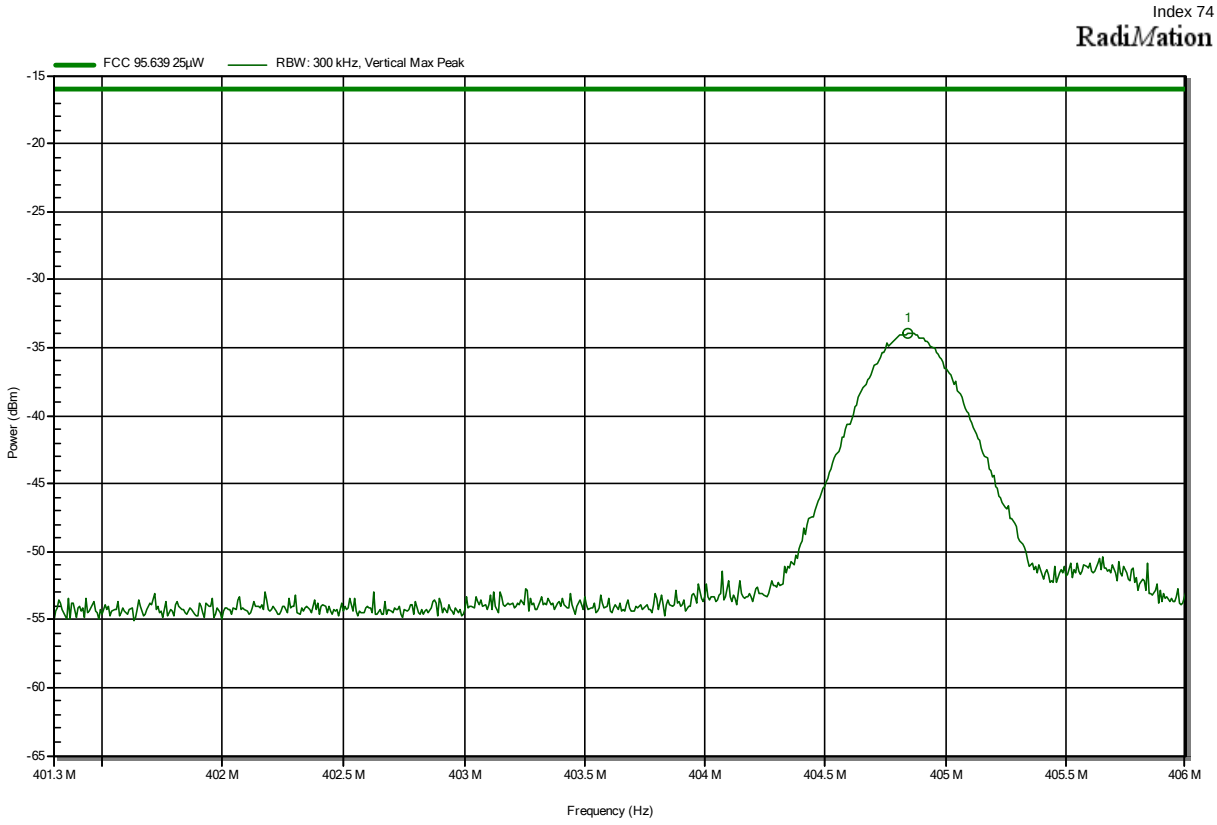
Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	Configurable Antenna, Horizontal
Measurement distance:	3 m
Mode:	Tx; CW; 404.85 MHz
Test Date:	2019-09-26
Note:	Tx Power EIRP



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
404.87 MHz	-44.7 dBm	-16 dBm	-28.71 dB	Pass

Radiated power according to 47 CFR Part 95 Subpart I

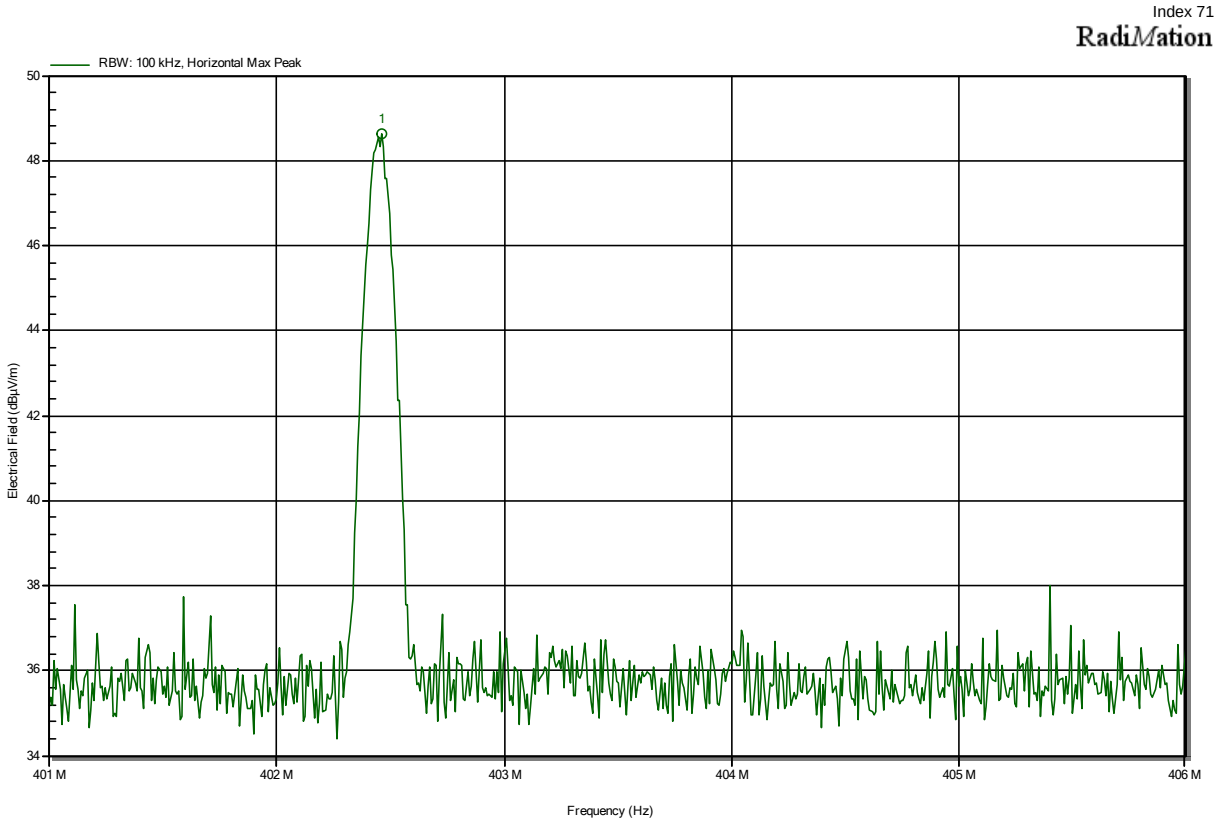
Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	Configurable Antenna, Vertical
Measurement distance:	3 m
Mode:	Tx; CW; 404.85 MHz
Test Date:	2019-09-26
Note:	Tx Power EIRP



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
404.84 MHz	-34 dBm	-16 dBm	-17.99 dB	Pass

Radiated power according to 47 CFR Part 95 Subpart I

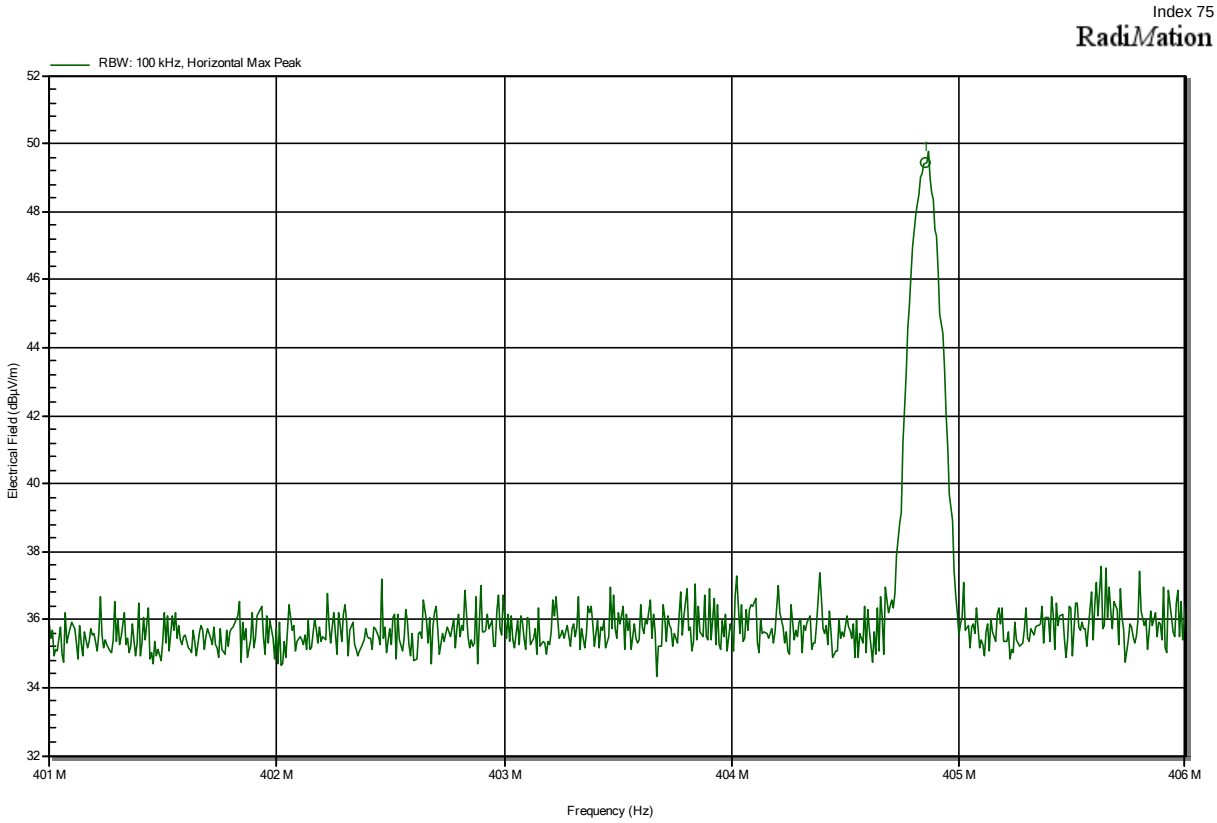
Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	Tx; CW; 402.45 MHz
Test Date:	2019-09-26
Note:	Power dBµV/m ERP



Frequency	Peak
402.458 MHz	48.62 dBµV/m

Radiated power according to 47 CFR Part 95 Subpart I

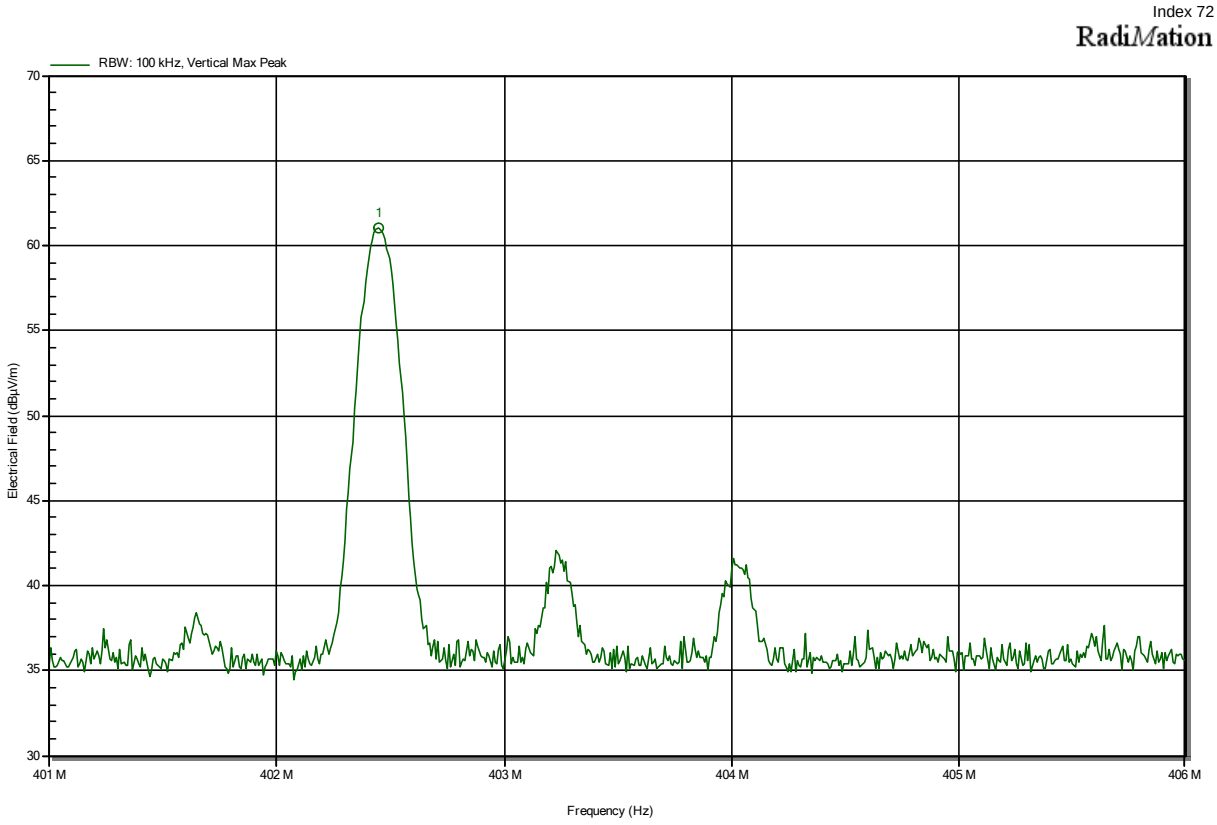
Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	Tx; CW; 404.85 MHz
Test Date:	2019-09-26
Note:	Power dBµV/m ERP



Frequency	Peak
404.854 MHz	49.42 dBµV/m

Radiated power according to 47 CFR Part 95 Subpart I

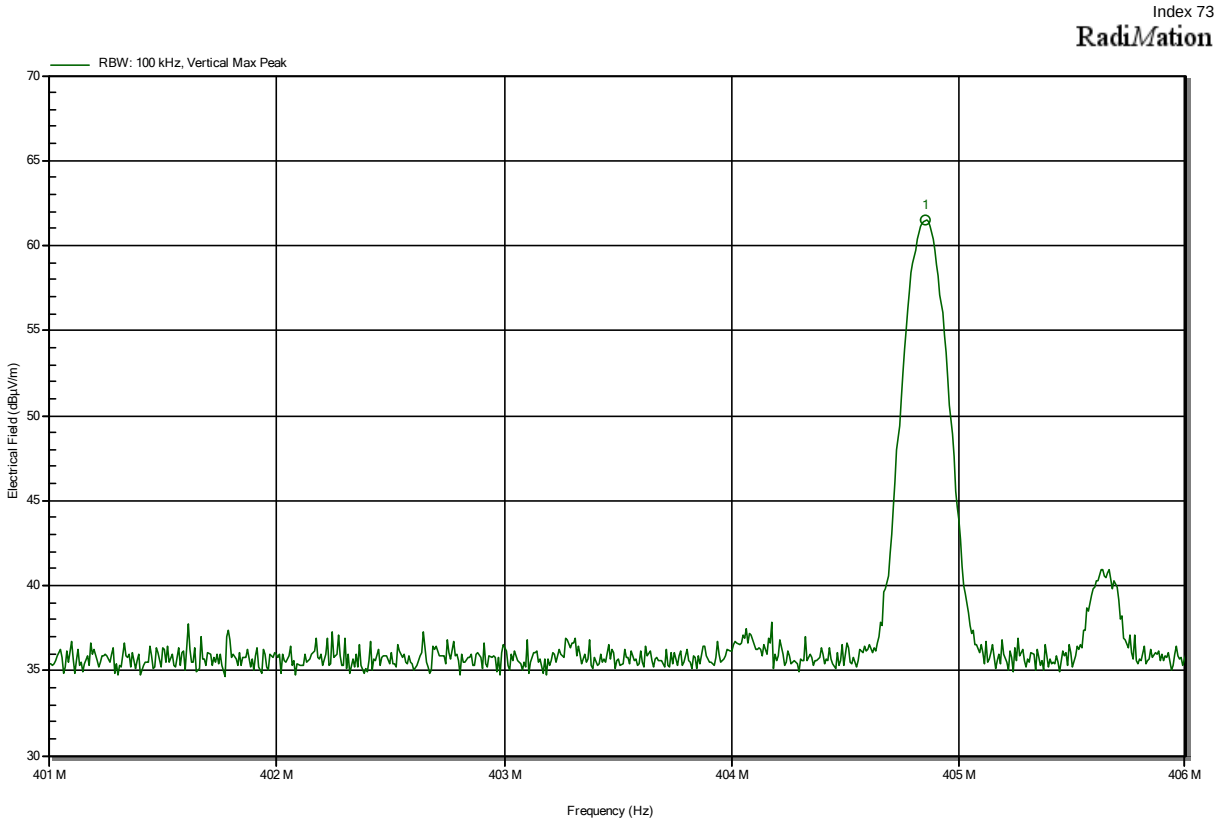
Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	Tx; CW; 402.45 MHz
Test Date:	2019-09-26
Note:	Power dBµV/m ERP



Frequency	Peak
402.442 MHz	61.02 dBµV/m

Radiated power according to 47 CFR Part 95 Subpart I

Order number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	Tx; CW; 404.85 MHz
Test Date:	2019-09-26
Note:	Power dBµV/m ERP

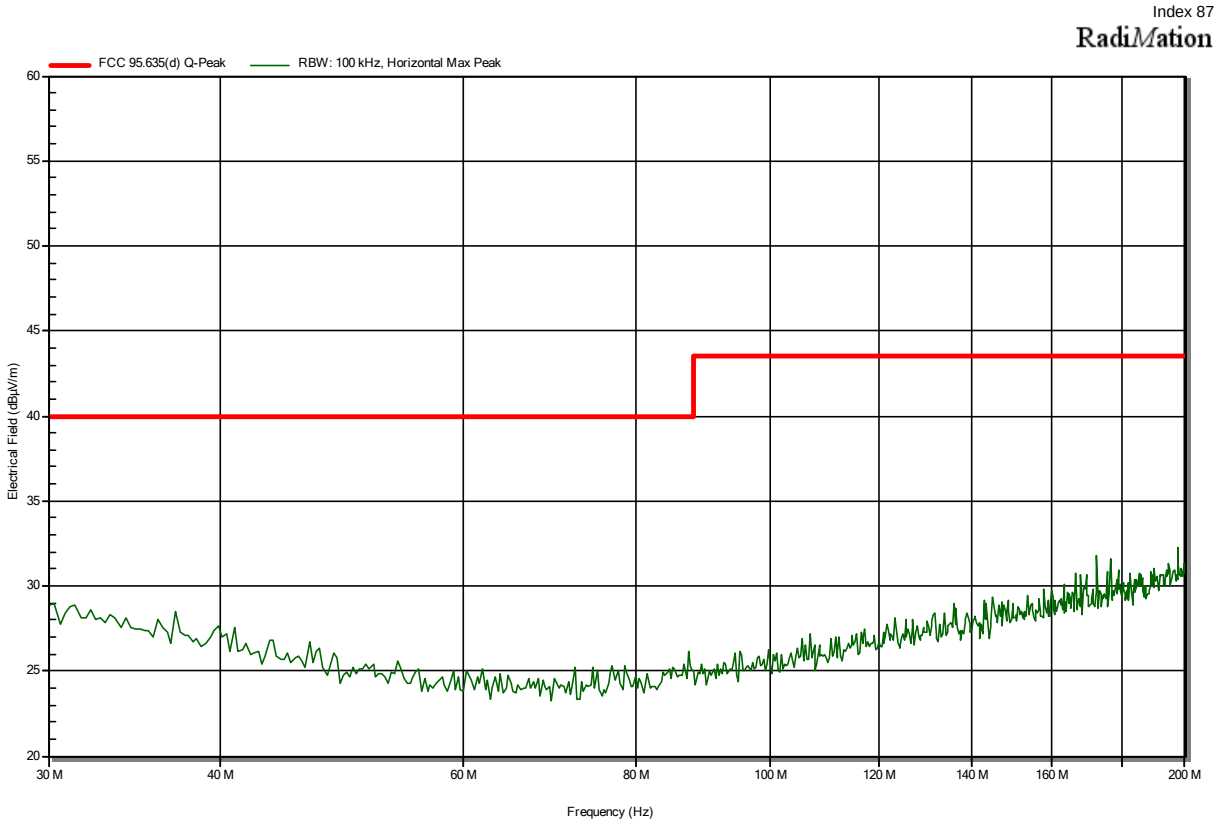


Frequency	Peak
404.854 MHz	61.52 dBµV/m

ANNEX B Transmitter spurious emissions

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	

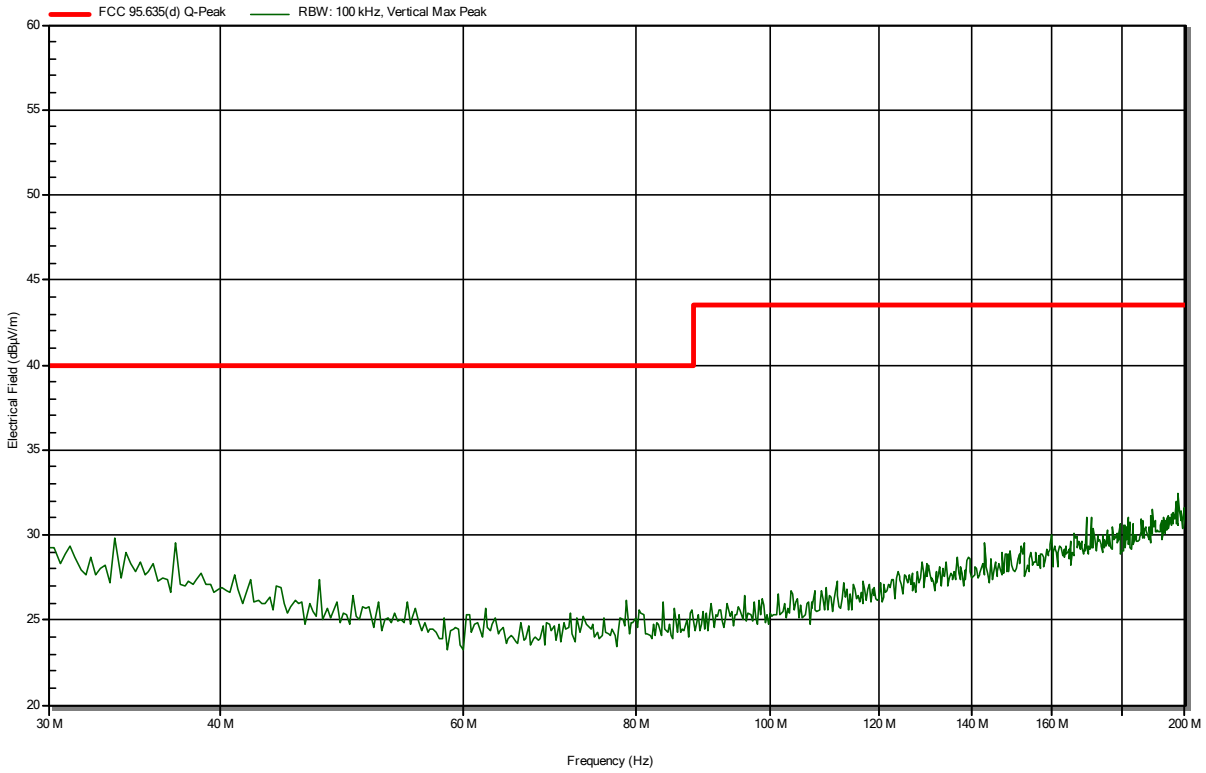


Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	

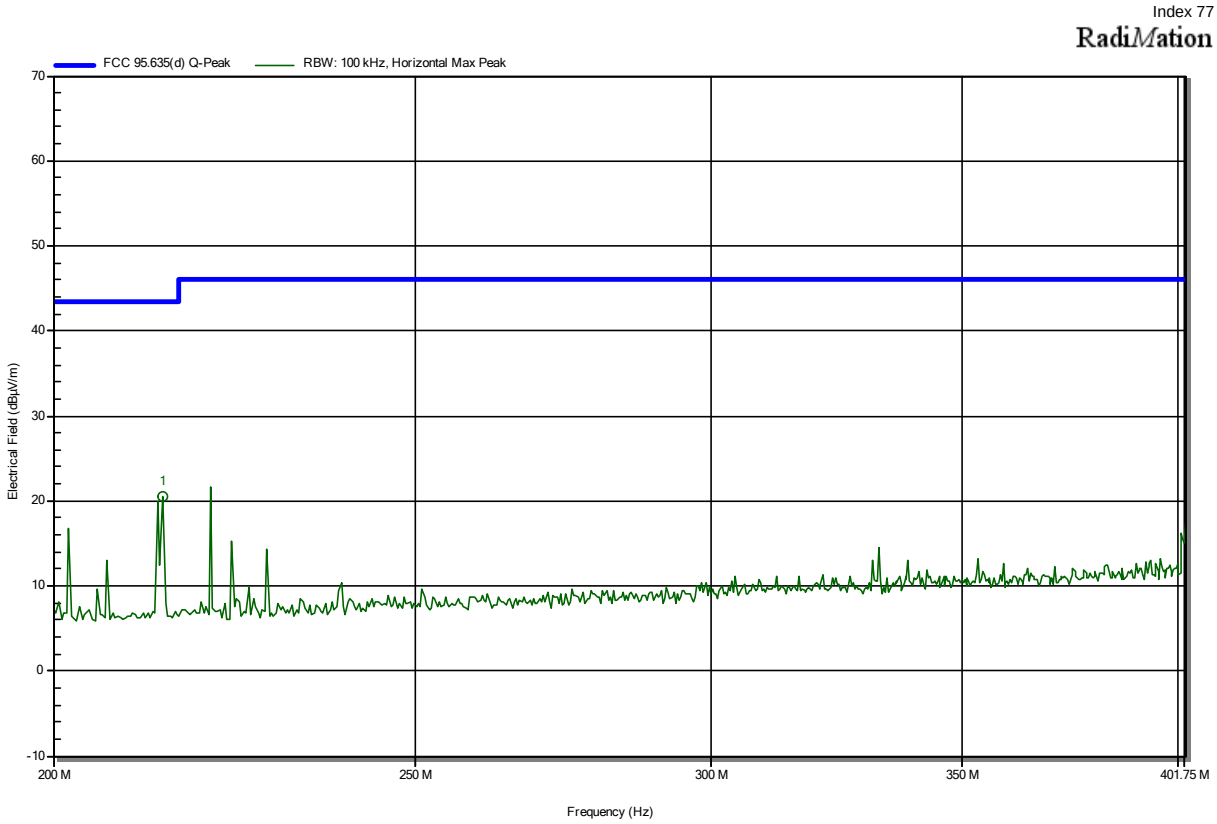
Index 88

RadiMation



Spurious emissions according to 47 CFR Part 95 Subpart I

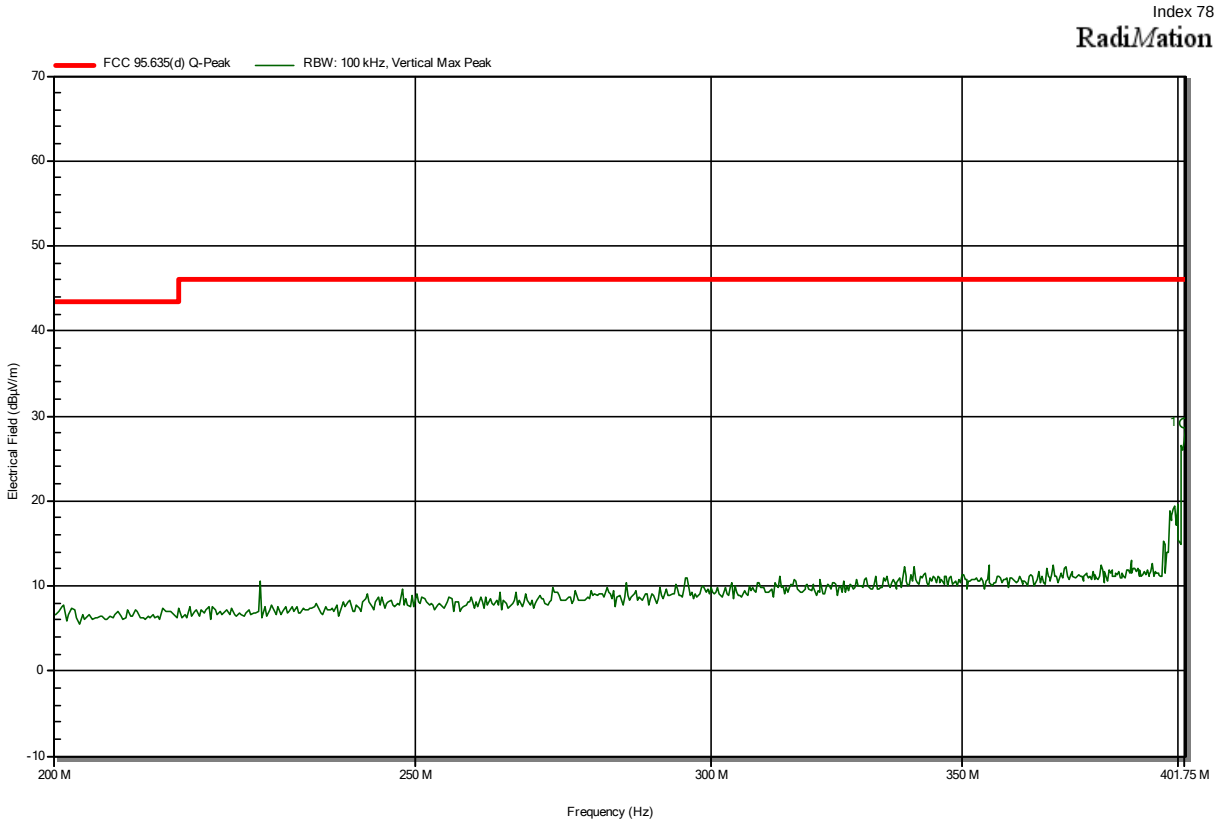
Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
213.903 MHz	20.56 dBµV/m	43.5 dBµV/m	-22.94 dB	Pass

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	



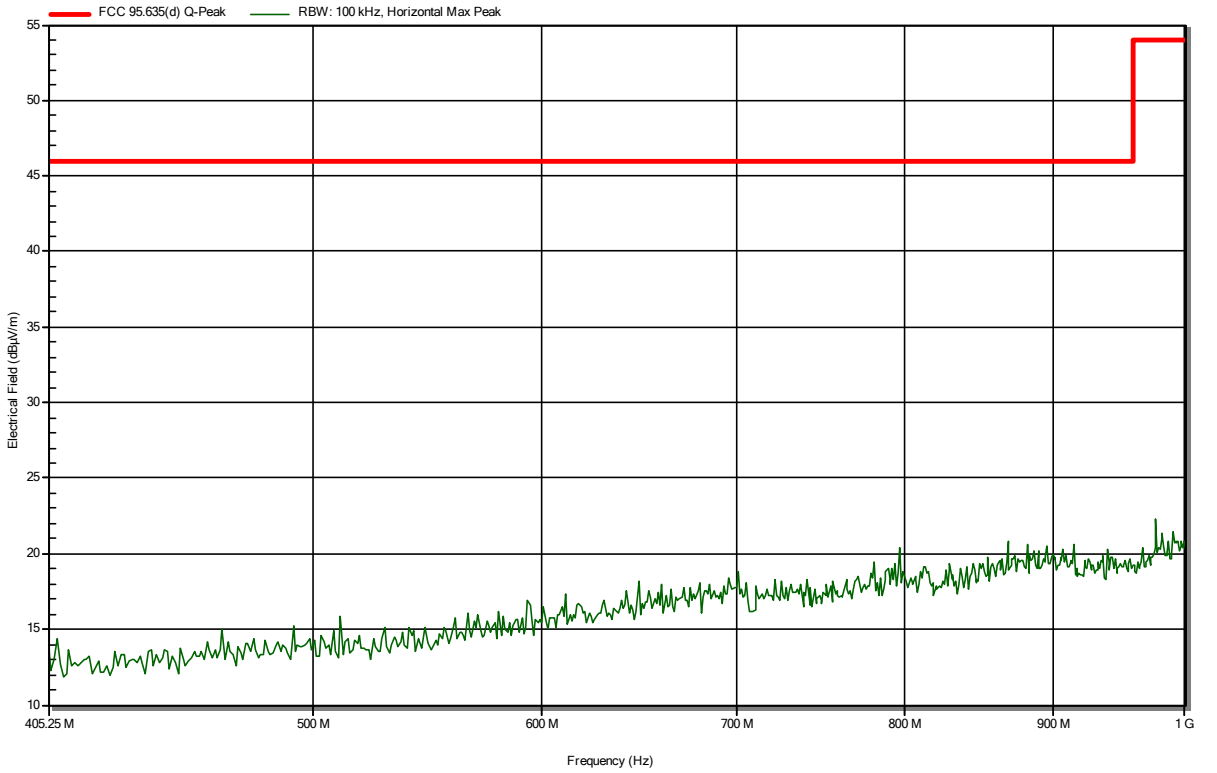
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
401.75 MHz	29.15 dBµV/m	46 dBµV/m	-16.85 dB	Pass

Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	

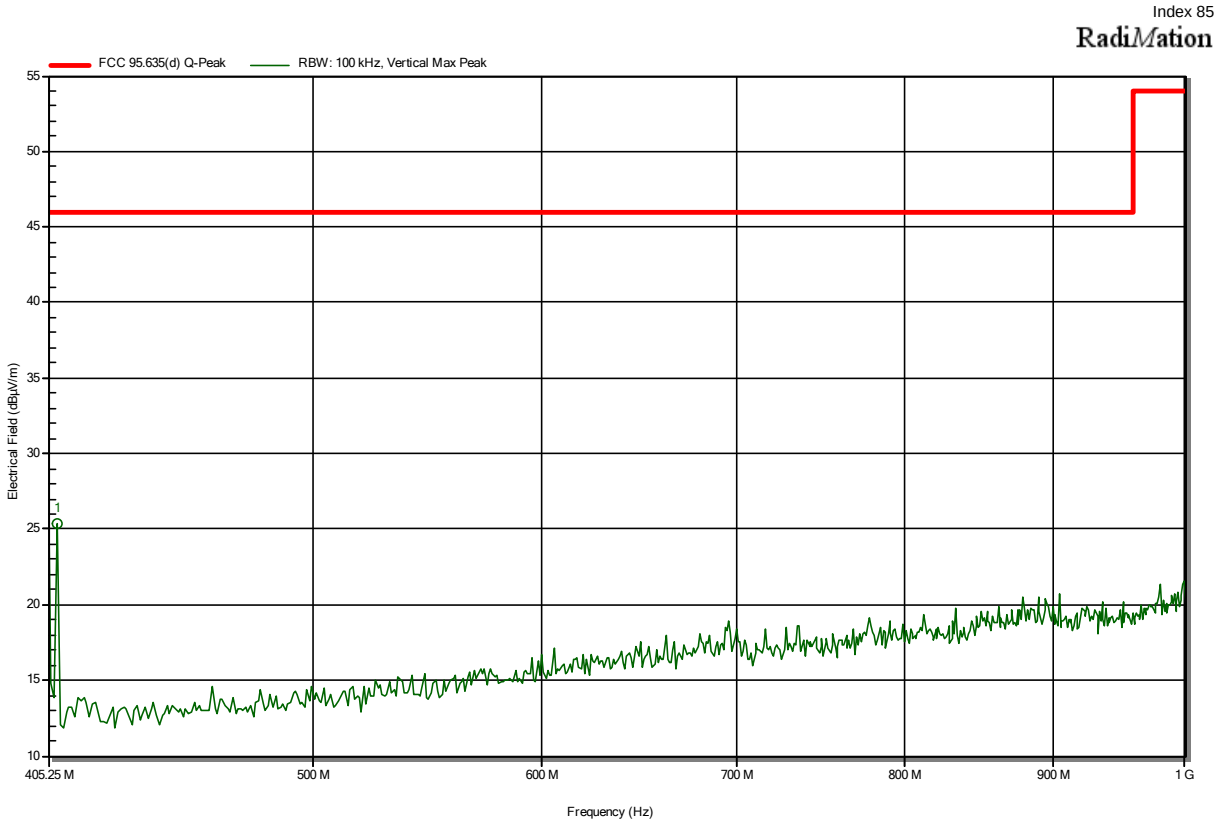
Index 86

RadiMation



Spurious emissions according to 47 CFR Part 95 Subpart I

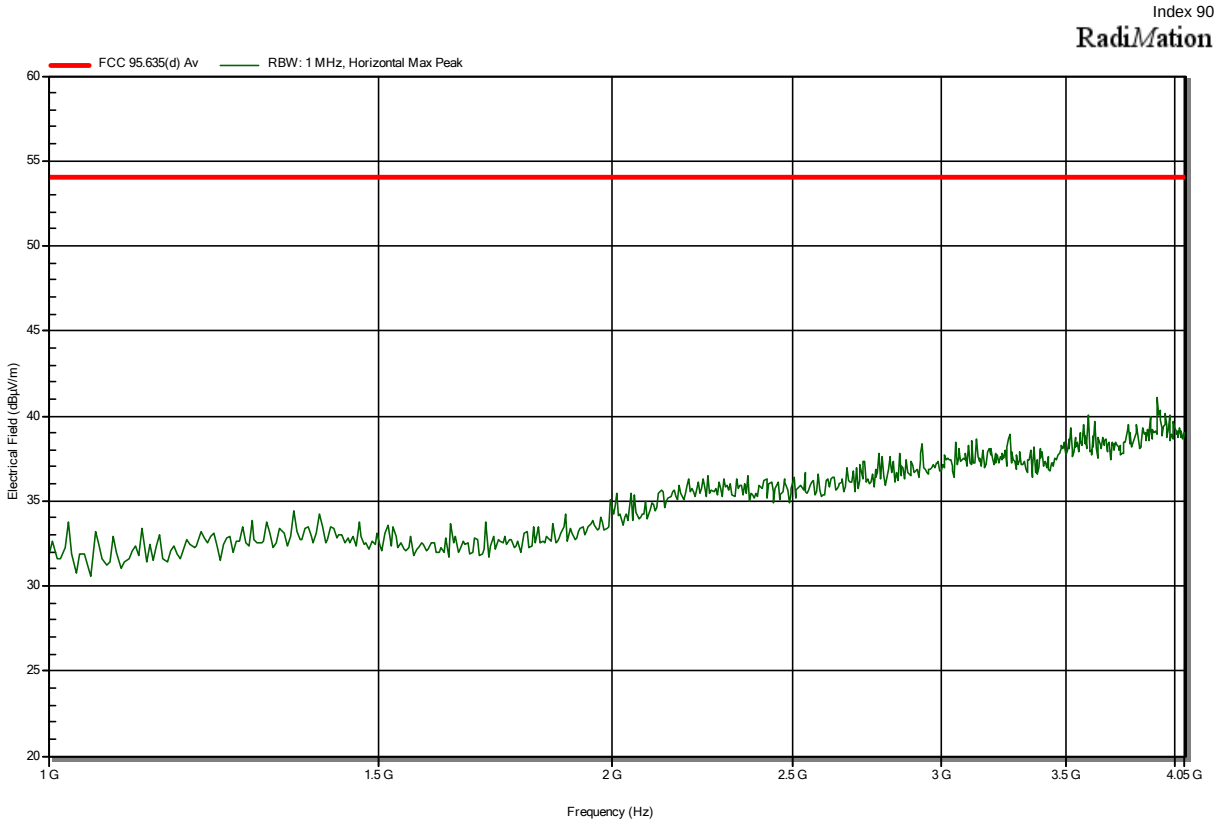
Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
408.109 MHz	25.34 dBµV/m	46 dBµV/m	-20.66 dB	Pass

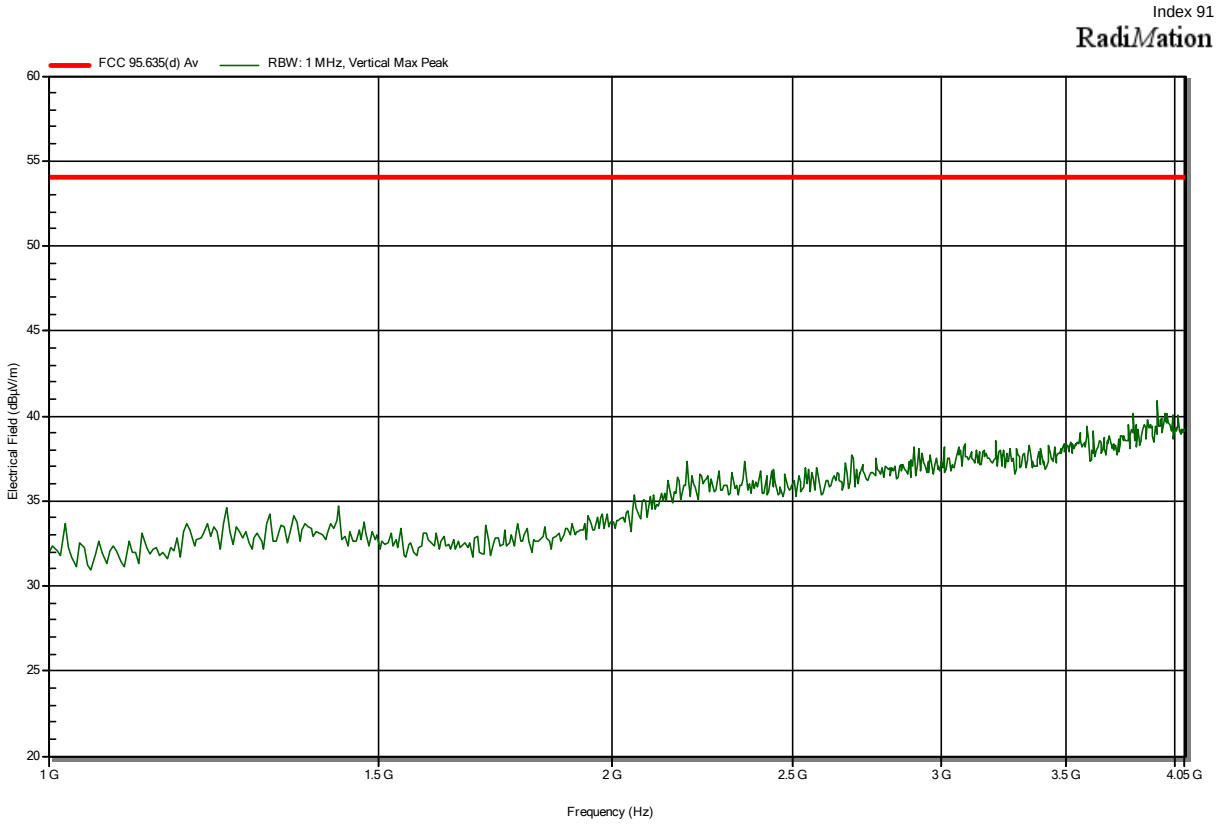
Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	



Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 402.45 MHz
Test Date:	2019-09-26
Note:	

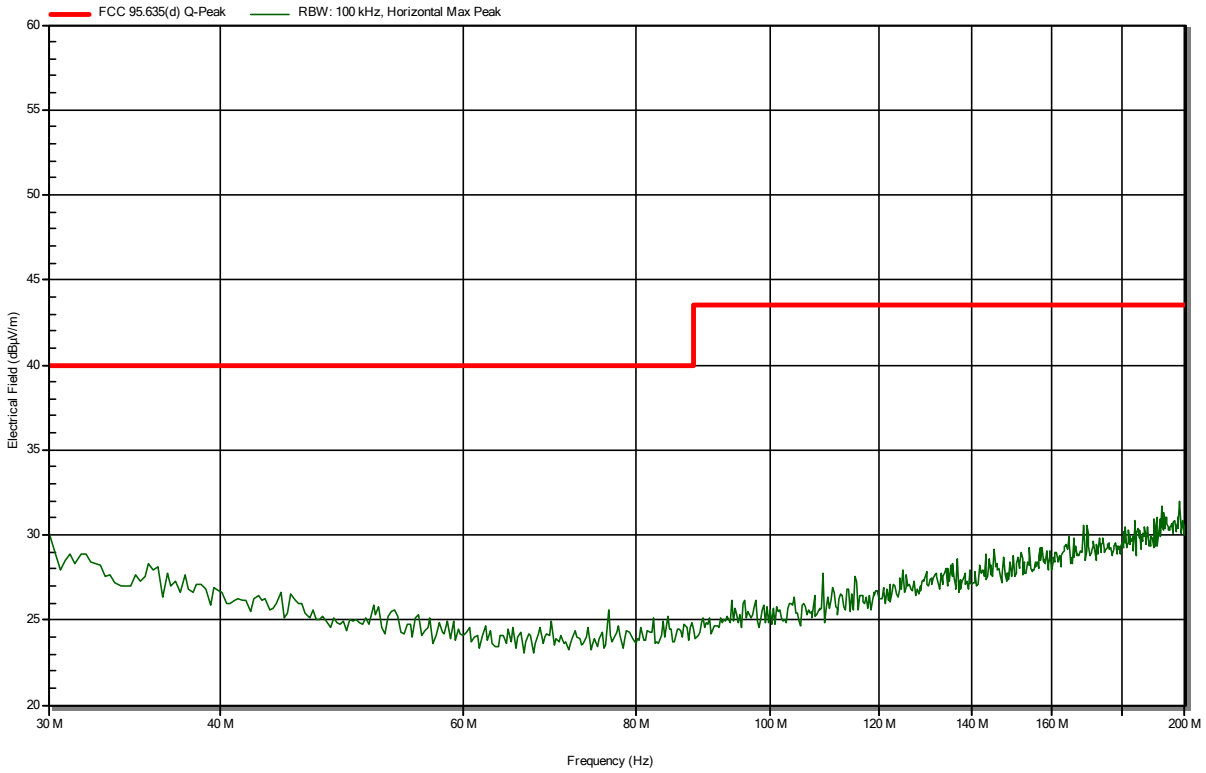


Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-27
Note:	

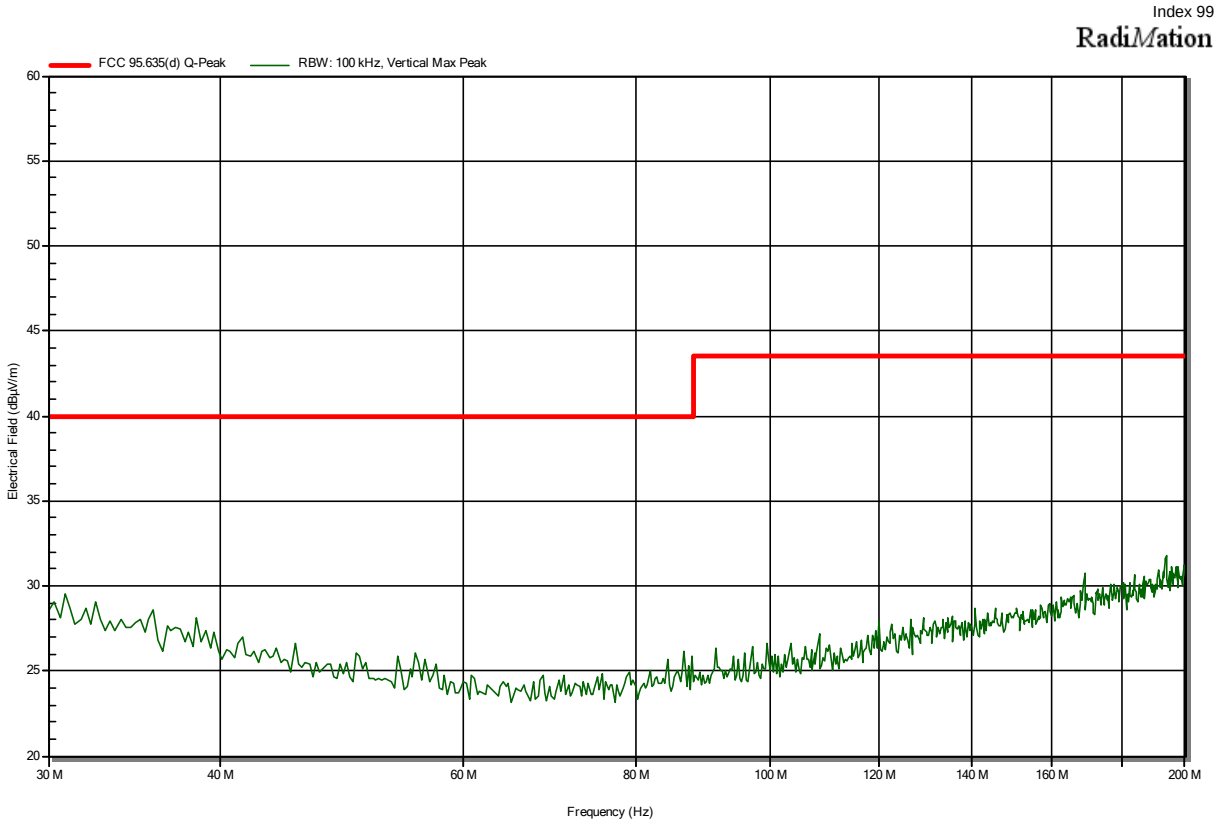
Index 98

RadiMation



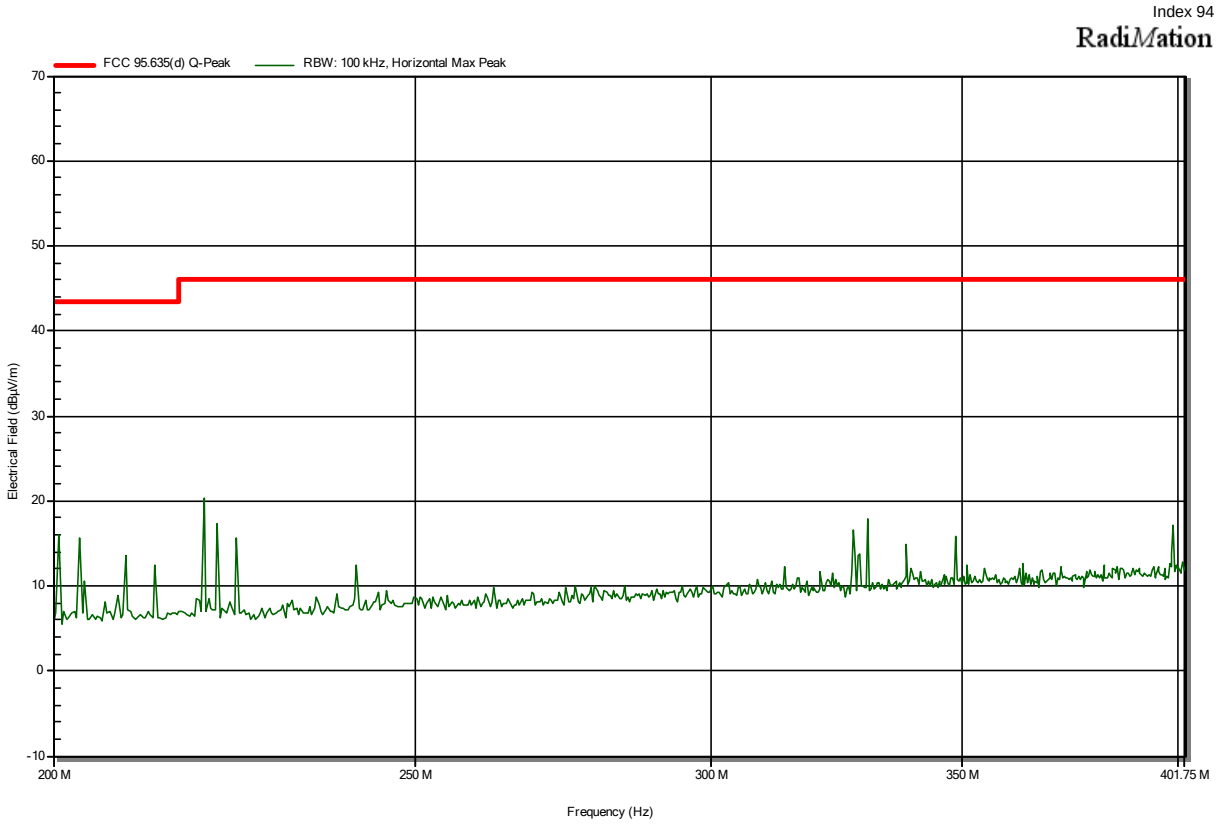
Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-27
Note:	



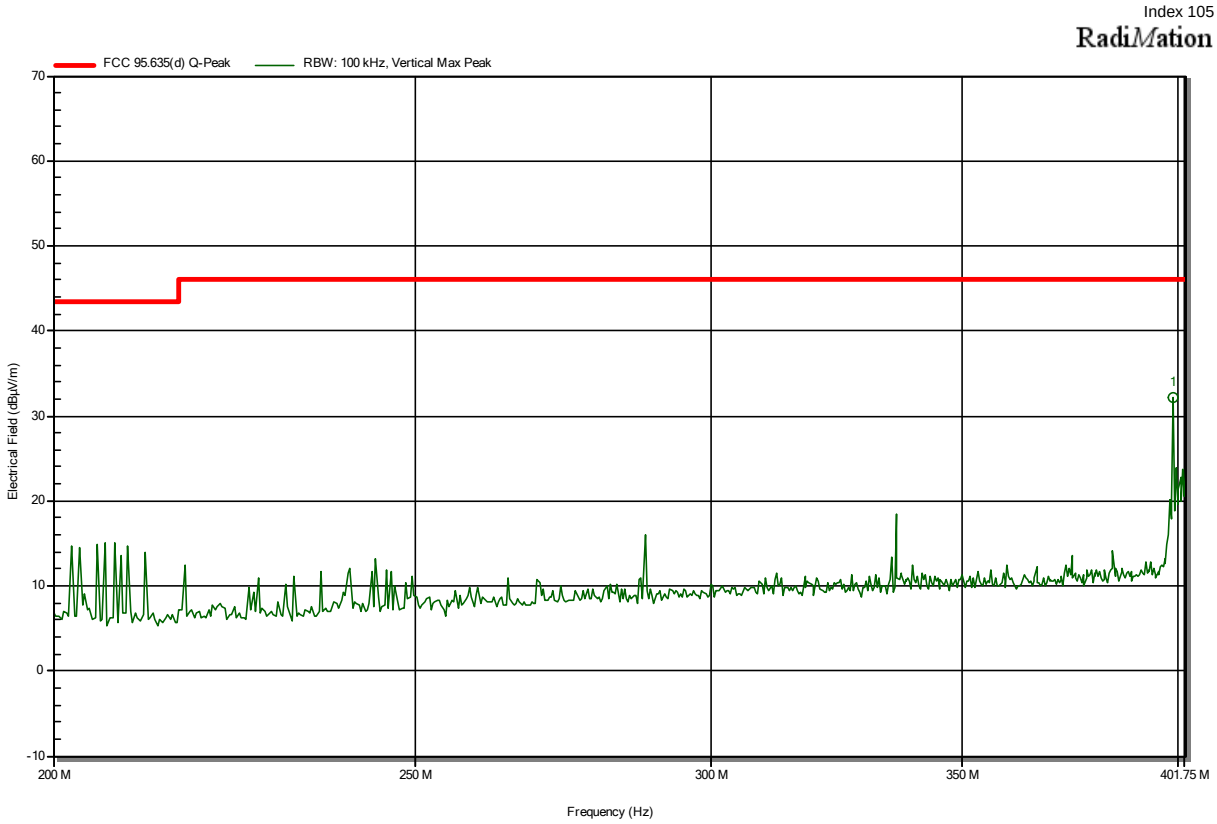
Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-26
Note:	



Spurious emissions according to 47 CFR Part 95 Subpart I

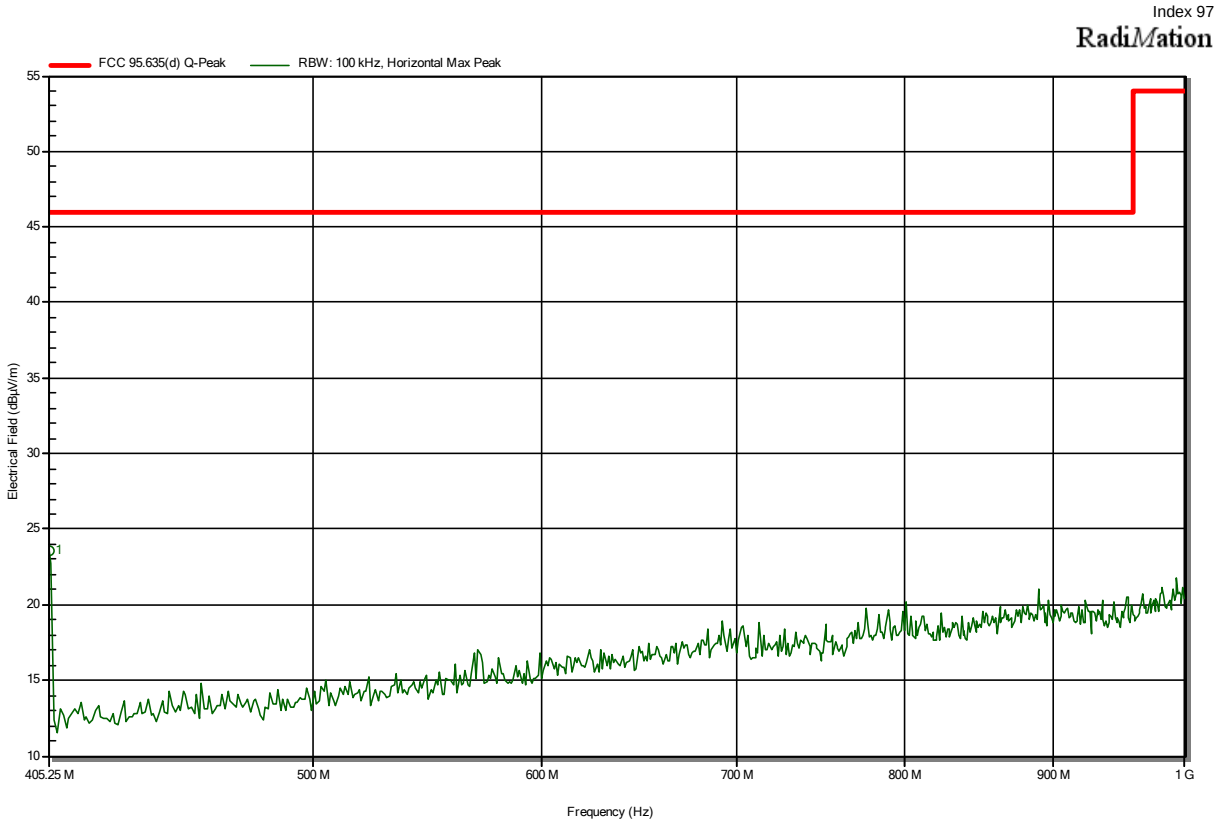
Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-28
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
398.84 MHz	32.22 dBµV/m	46 dBµV/m	-13.78 dB	Pass

Spurious emissions according to 47 CFR Part 95 Subpart I

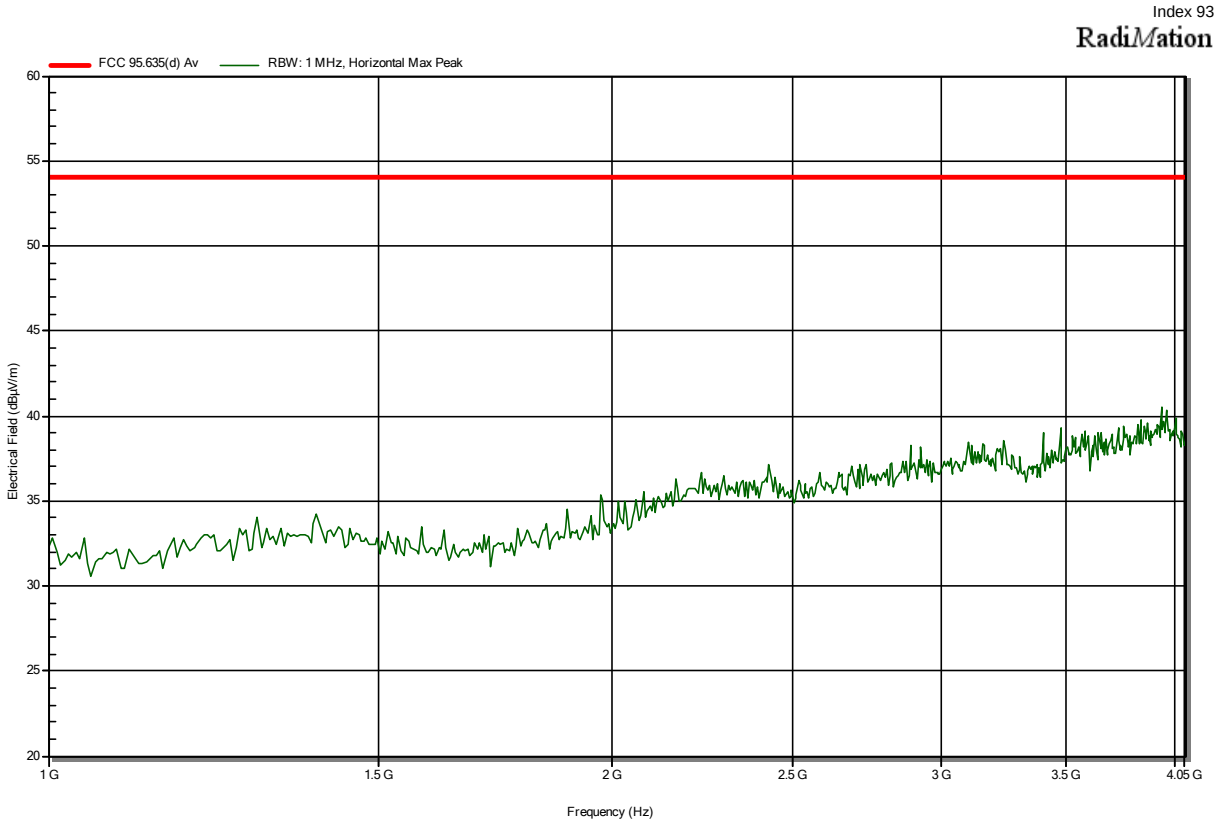
Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-26
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
405.25 MHz	23.58 dBµV/m	46 dBµV/m	-22.42 dB	Pass

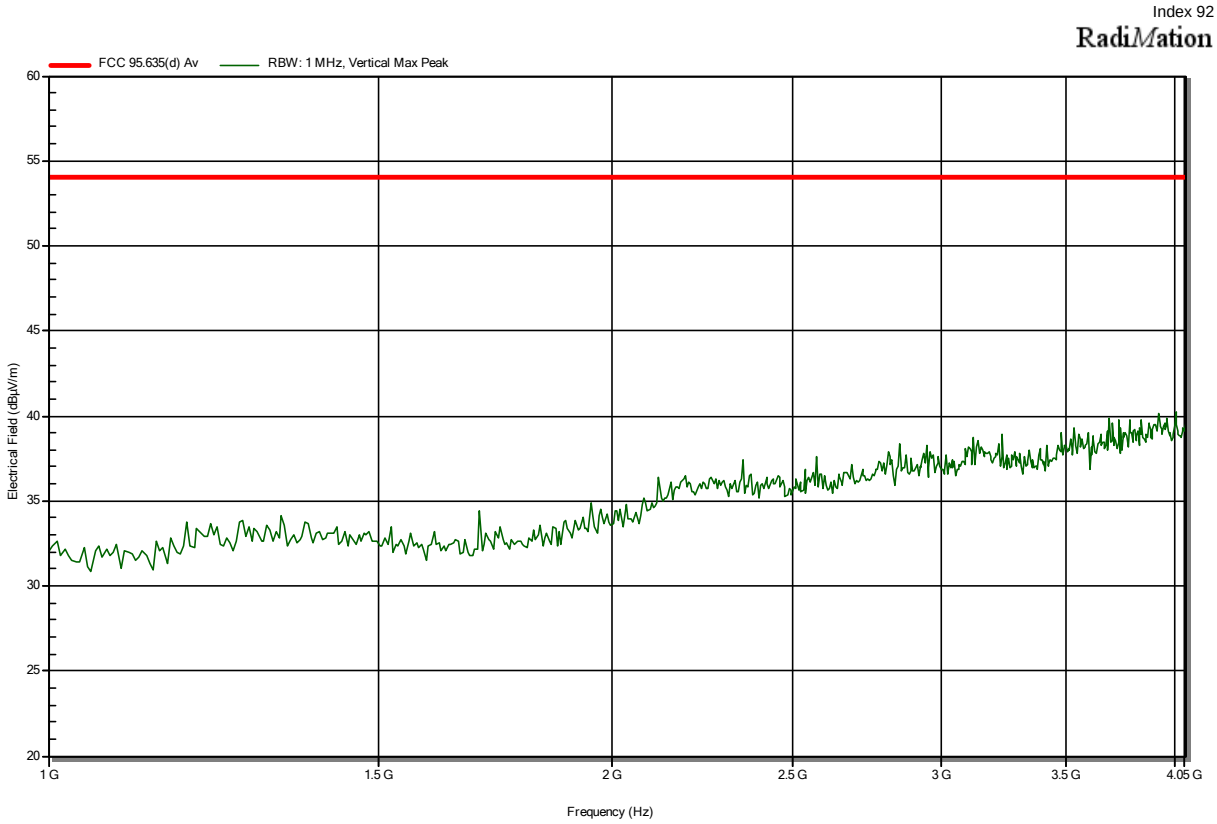
Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-26
Note:	



Spurious emissions according to 47 CFR Part 95 Subpart I

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; 2-FSK; 404.85 MHz
Test Date:	2019-09-26
Note:	



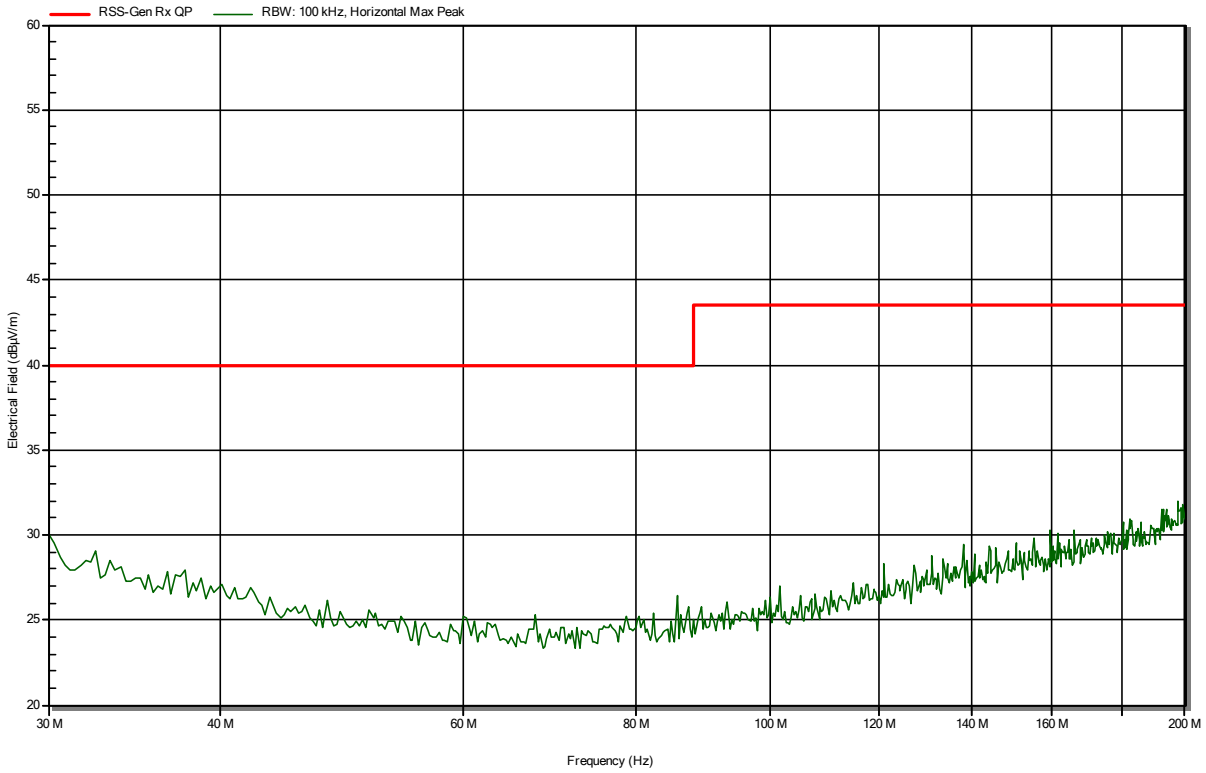
ANNEX C Receiver spurious emissions

Spurious emissions according to RSS-243 Issue 3

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	2019-09-27
Note:	

Index 47

RadiMation

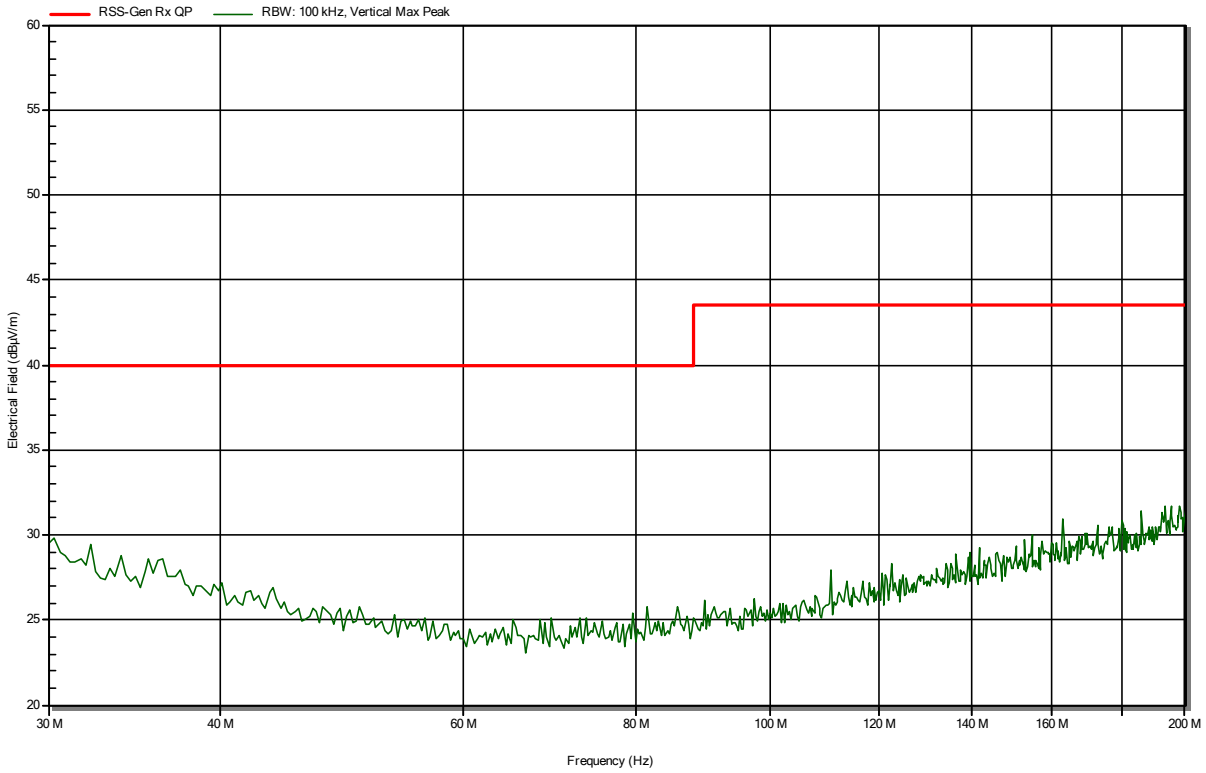


Spurious emissions according to RSS-243 Issue 3

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	2019-09-27
Note:	

Index 48

RadiMation

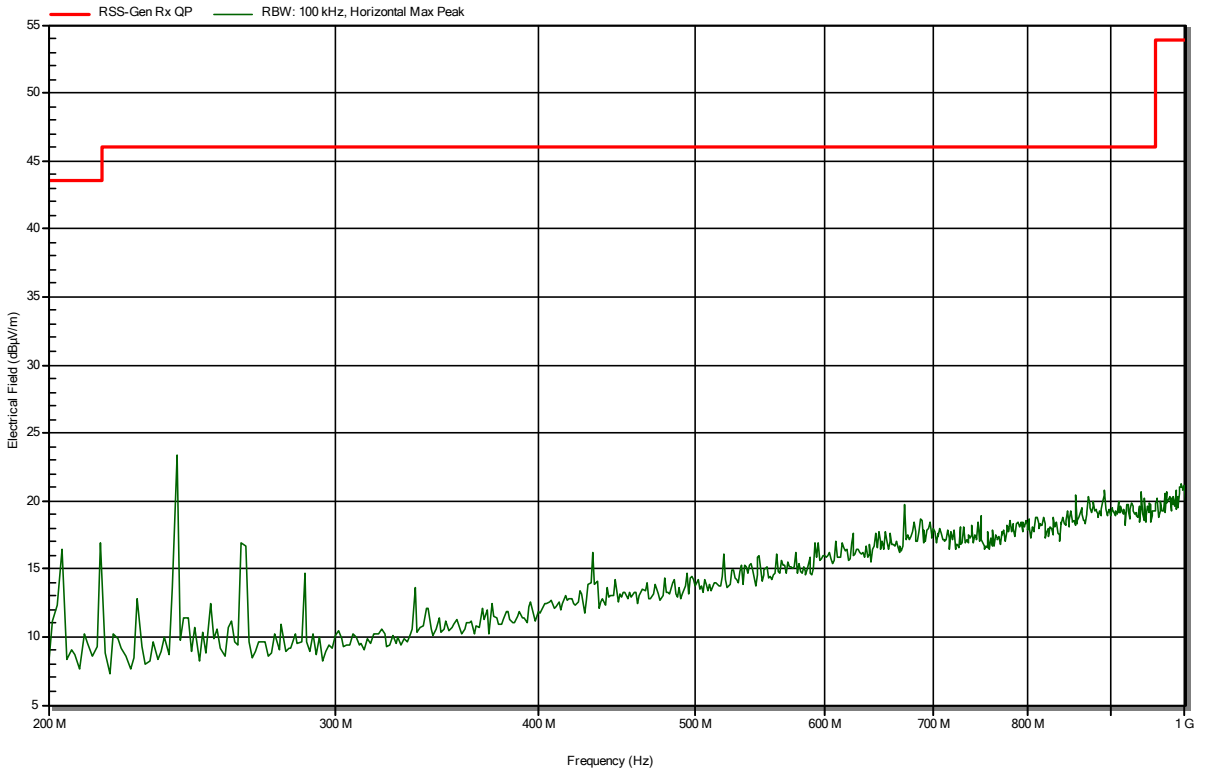


Spurious emissions according to RSS-243 Issue 3

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	2019-09-27
Note:	

Index 49

RadiMation

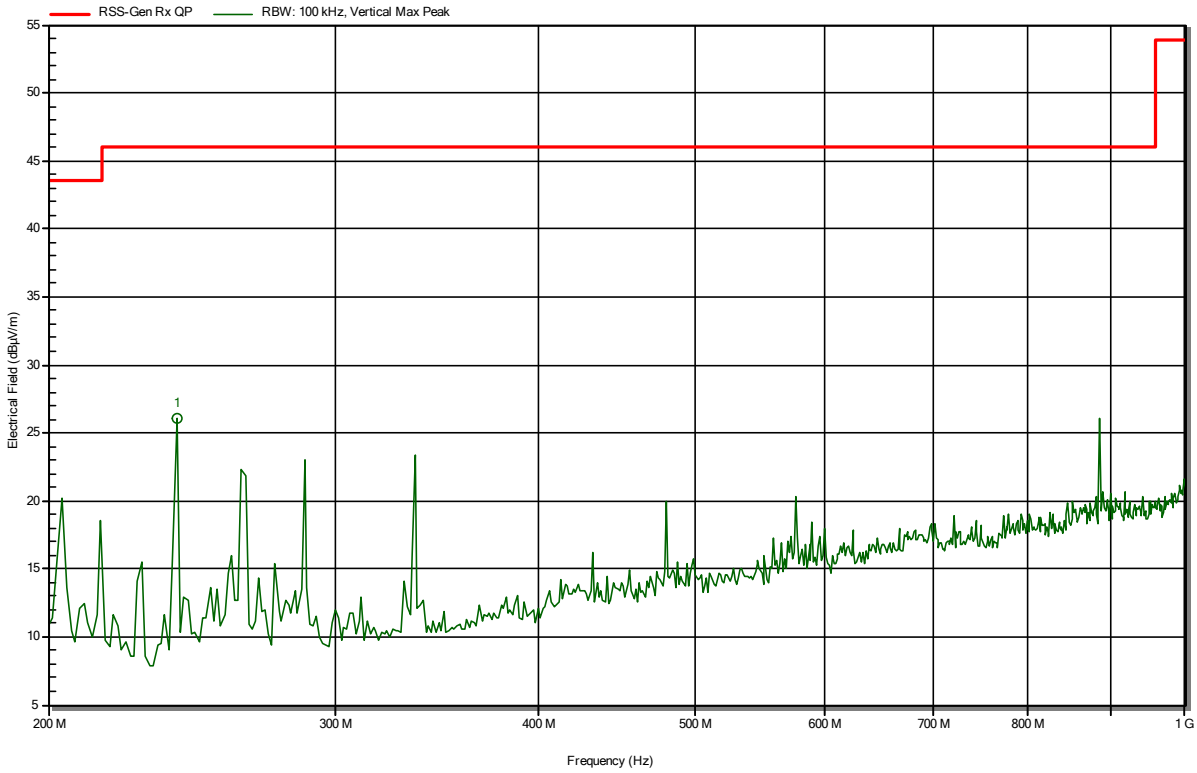


Spurious emissions according to RSS-243 Issue 3

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	2019-09-27
Note:	

Index 50

RadiMation



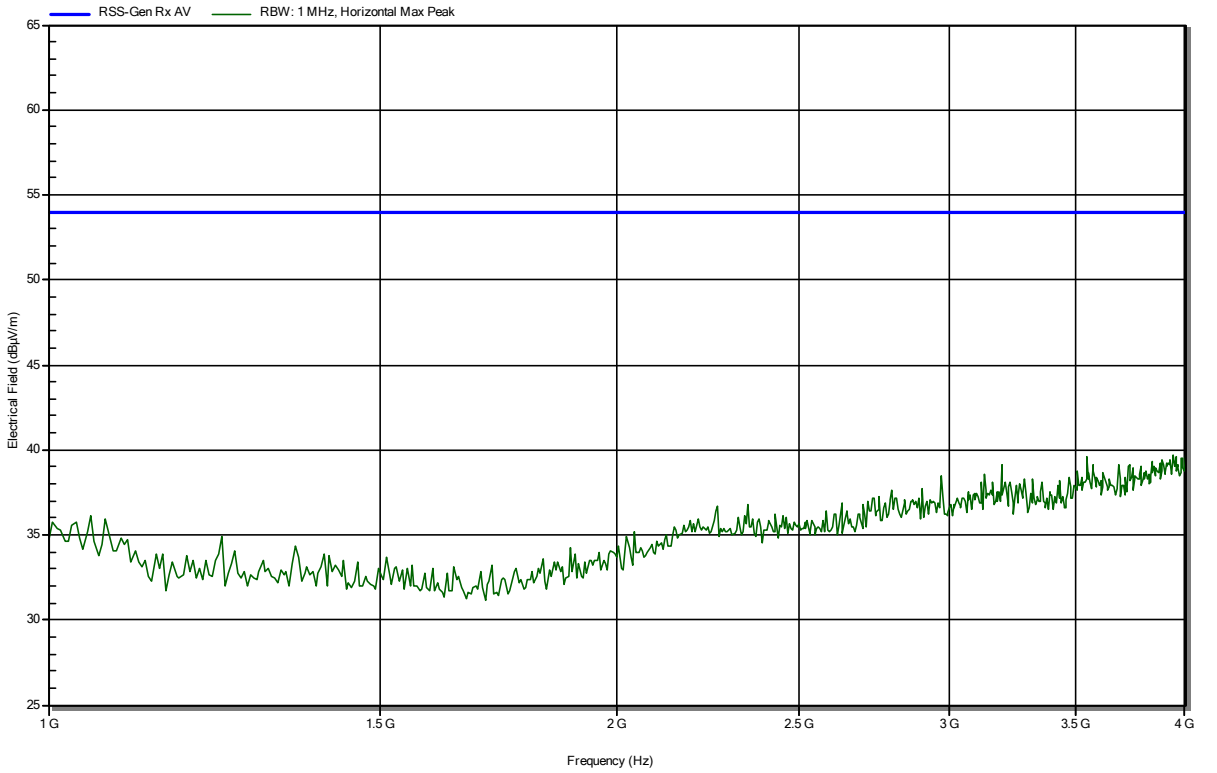
Frequency	Peak	Peak Limit	Peak Difference	Status
239.744 MHz	26.04 dBµV/m	46 dBµV/m	-19.96 dB	Pass

Spurious emissions according to RSS-243 Issue 3

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	2019-09-27
Note:	

Index 51

RadiMation



Spurious emissions according to RSS-243 Issue 3

Project number:	G0M-1909-8468
Applicant:	BIOTRONIK SE & Co. KG
EUT Name:	BMxxxx / Implantable Cardiac Monitor
Model:	BIOMONITOR IIIm (Ser.95001139)
Test Site:	Eurofins
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24 °Celsius°C, Vnom: 2.7 VDC (battery)
Antenna:	BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; 403.65 MHz
Test Date:	2019-09-27
Note:	

Index 52

RadiMation