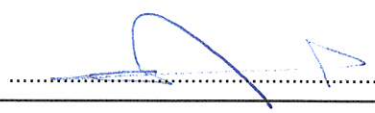
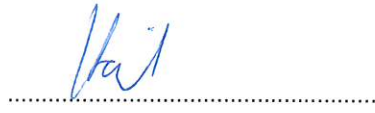


EMC TEST REPORT FCC CFR Title 47 / Chapter I / Subchapter A / Part 15 / Subpart B ISED ICES-003 Issue 7	
Report Reference No	G0M-2403-2480-EF0115B-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	    A2LA - Registration number: 1983.01 (ISED) ISED wireless device testing laboratory: CN 3470A DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	BIOTRONIK SE & Co. KG
Address	Woermannkehe 1 12359 Berlin GERMANY
Test Specification Standard(s)	FCC CFR Title 47 / Chapter I / Subchapter A / Part 15 / Subpart B ISED ICES-Gen Issue 1 ; Amendment 1 (February 2021) ISED ICES-003 Issue 7 ANSI C63.4:2014+A1:2017
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	CardioMessenger Smart / Telemonitorig System
Model(s)	CardioMessenger Smart 4G
Additional Model(s)	None
Brand Name(s)	BIOTRONIK
Hardware Version(s)	CardioMessenger Smart 4G mit LP1 Rev Cx
Software Version(s)	ULP_HIGH_1_37_0, ULP_LOW_1_17_0, M0C.400005, SMARTAPP 1.x
FCC-ID	QRI-CMSMART4GWW2
IC	4708A-CMSMART4GWW2
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	2024-08-27	
Report:		
Compiled by	Mahmood Nasor	
Tested by (+ signature)	Mahmood Nasor	
Responsible for Test (+ signature) (EMC Test Engineer)	Manuel Engel	
Approved by (+ signature) (Senior EMC Test Technician)	Matthias Handrik	
Date of Issue	2024-11-25	
Total number of pages	39	
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.		
Statement concerning the uncertainty of the measurement systems used for decisions on conformity (decision rule): The Decision Rule is applied on the basis of CISPR 16-4-2 and/or IEC 61000-4-x (TR 61000-1-6) and their national publications. These standards provide guidance on how to calculate and apply measurement uncertainty whilst providing maximum uncertainties allowance. In all cases due consideration will be given to ILAC-G8:09/2019. Compliance or non-compliance with a disturbance limit is determined in the following manner. - If U_{lab} is less than or equal to U_{CISPR}, then: compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit. - If U_{lab} is greater than U_{CISPR}, then: compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{CISPR})$, exceeds the disturbance limit; non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{CISPR})$, exceeds the disturbance limit. Where appropriate for the test, for example for EMC pulsed immunity tests, the laboratory has demonstrated, by calibrating its equipment and facilities, that it complies with the above requirements and therefore no allowance of uncertainties has been given to the tolerances.		
Additional Comments:		
None		

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
MICS	Medical Implant Communications Service

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2024-11-25	Initial Release	--

REPORT INDEX

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2.2	Test Conditions and Results - Conducted emissions acc. to ANSI C63.4.....	33
3	Measurement Uncertainty	39

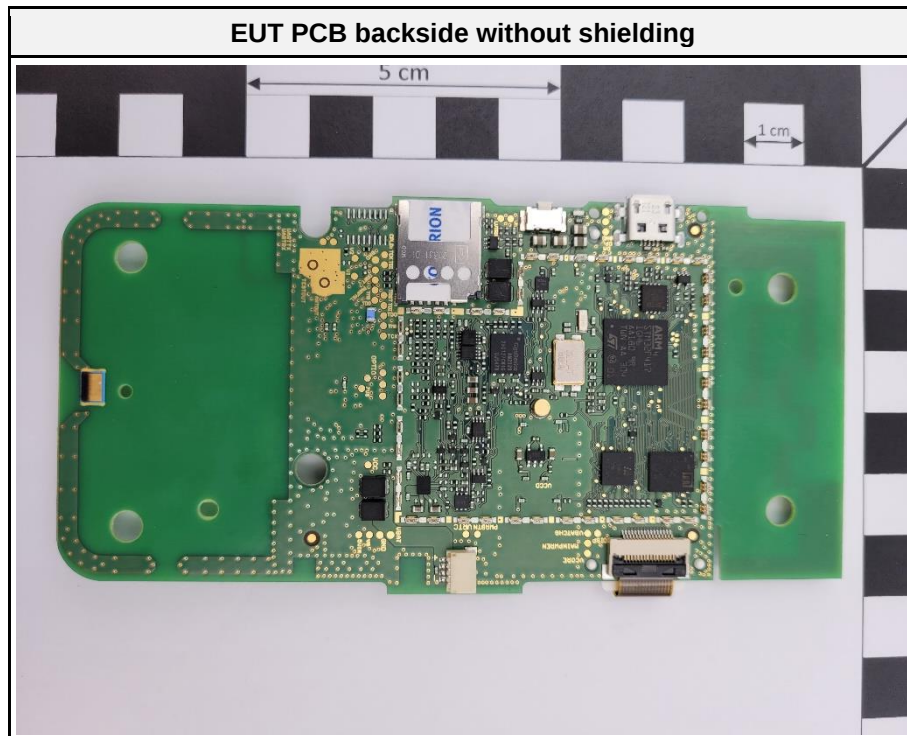
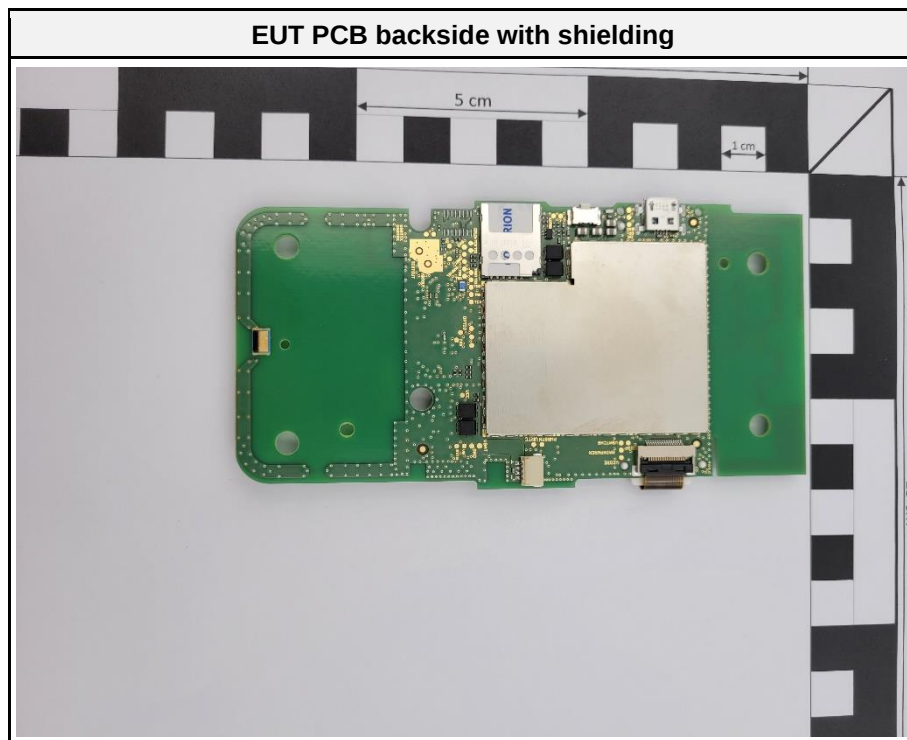
1 Equipment (Test Item) Under Test

Description	CardioMessenger Smart / Telemonitorig System		
Intended Use	CardioMessenger Smart is designed for stationary use when placed on a patient's nightstand, as well as mobile use. It receives high-quality data from the implanted device whether it is BIOTRONIK's ICDs, CRTs, or pacemaker at night while the patient is sleeping. Once it receives the data, the CardioMessenger immediately forwards the information to the Home Monitoring Service Center using the cellular network (all) without any assistance from the patient.		
Model	CardioMessenger Smart 4G		
Additional Model(s)	None		
Brand Name(s)	BIOTRONIK		
Hardware Version(s)	CardioMessenger Smart 4G mit LP1 Rev Cx		
Software Version(s)	ULP_HIGH_1_37_0, ULP_LOW_1_17_0, M0C.400005, SMARTAPP 1.x		
Number of tested samples	1		
Sample Identification	EUT #	Sample-ID	Serial Number
	EUT 1	48018	91244976
EUT Dimensions [cm]	13.0 x 6.5 x 1.7		
FCC-ID	QRI-CMSMART4GWW2		
IC	4708A-CMSMART4GWW2		
Class	Class B		
Equipment type	Table top		
Highest internal frequency [MHz]	168 (Clock); 2170 (LTE RF frequency)		
Protective Earth	No		
Functional Earth	No		
Radio Module	Type	GSM - LTE eMTC / CatM1	
	Model	ME910G1-WW	
	Manufacturer	Telit Cinterion	
	FCC-ID	RI7ME910G1WW	
	IC	5131A-ME910G1WW	
Radio Module 2	Type	Medical Implant Communication Service	
	Model	Hermes 3	
	Manufacturer	Biotronik/MSEI	
	FCC-ID	Unspecified	
	IC	Unspecified	
Supply Voltage	V _{NOM}	3.7 V DC via internal rechargeable lithium battery	
AC/DC-Adaptor	Model	GTM96180-1107-2.0	
	Vendor	GlobTek	
	Input	100 - 240	
	Output	5 V Dc	
Manufacturer	BIOTRONIK SE & Co. KG Woermannkehre 1 12359 Berlin GERMANY		

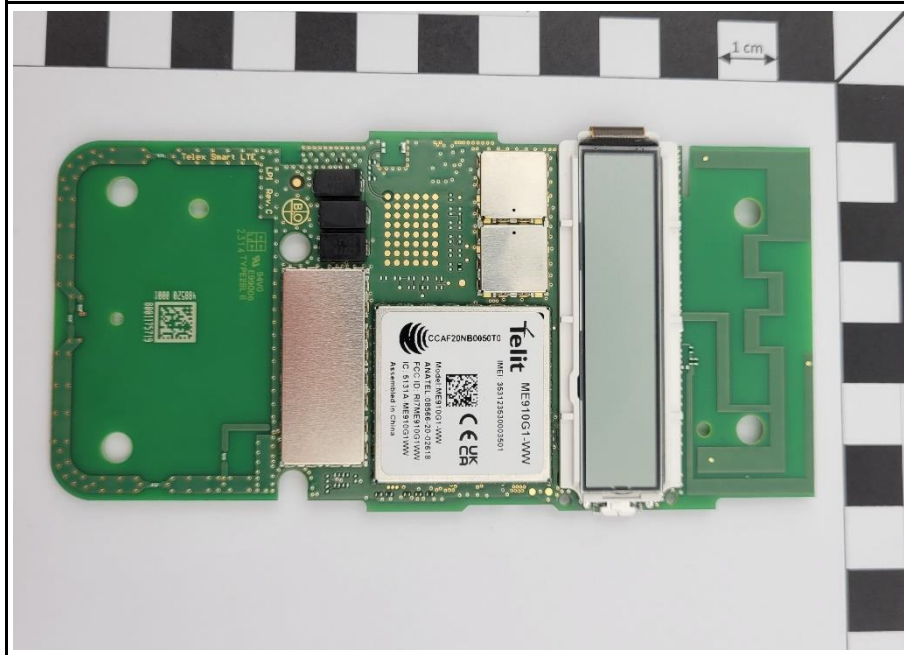
1.1 Equipment Ports

Name	Type	Attributes	Comment
USB	DC/IO	Count: 1 Cable length [m]: 1.8 Direction: In Service only: Yes Shielded: No	-
Description:			
AC	AC mains power input/output port		
DC	DC power input/output port		
BAT	DC power input port connected to external battery		
IO	Input/Output port		
TP	Telecommunication port		
NE	Non-electrical port		
GND	Functional Earth		

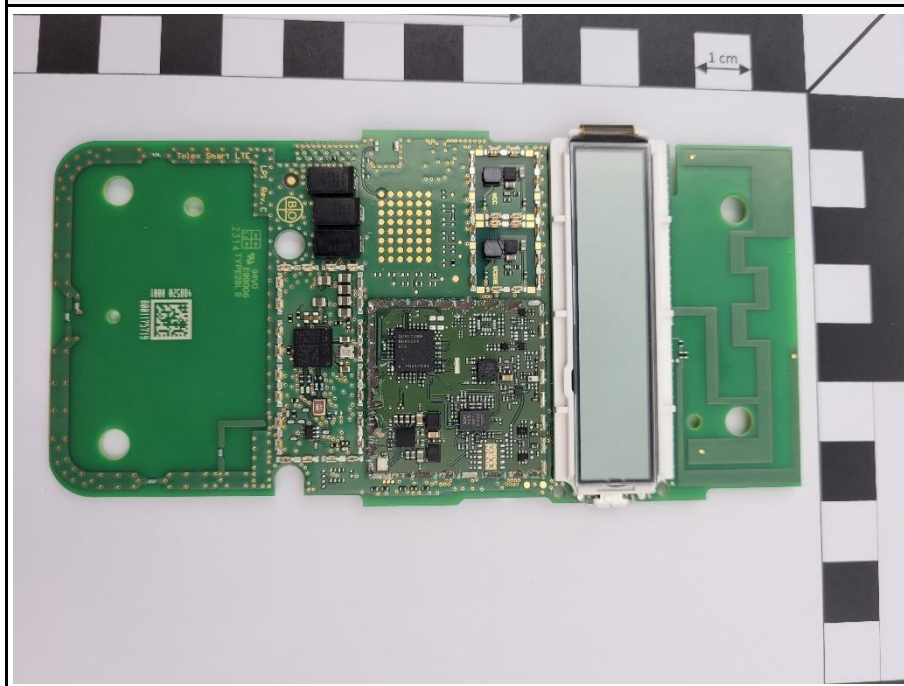
1.2 Equipment Photos – Internal (Provided by Customer)

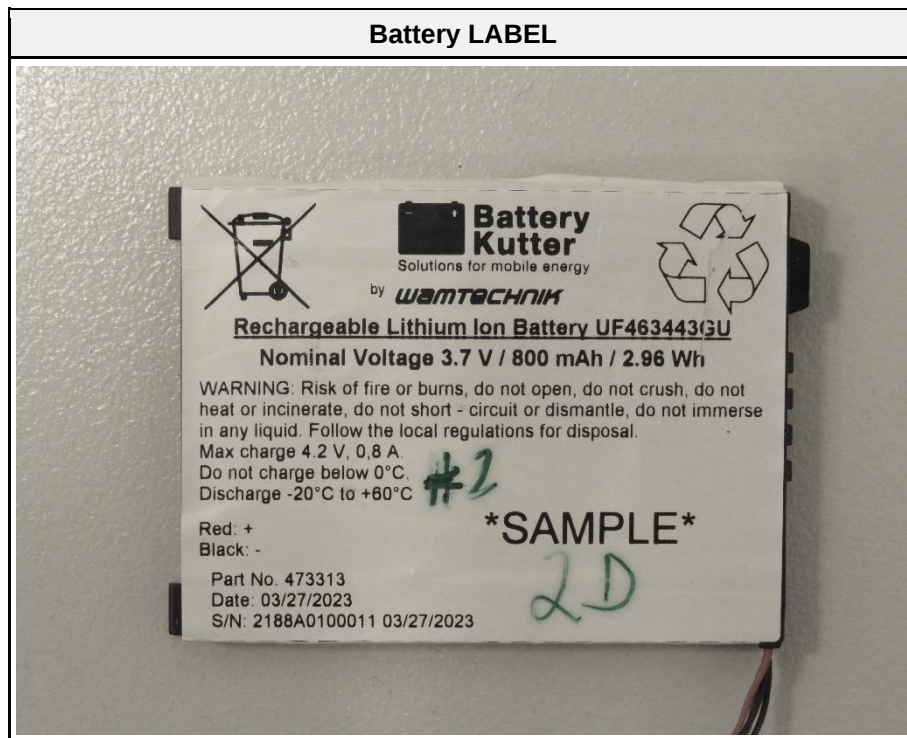


EUT PCB frontside with shielding



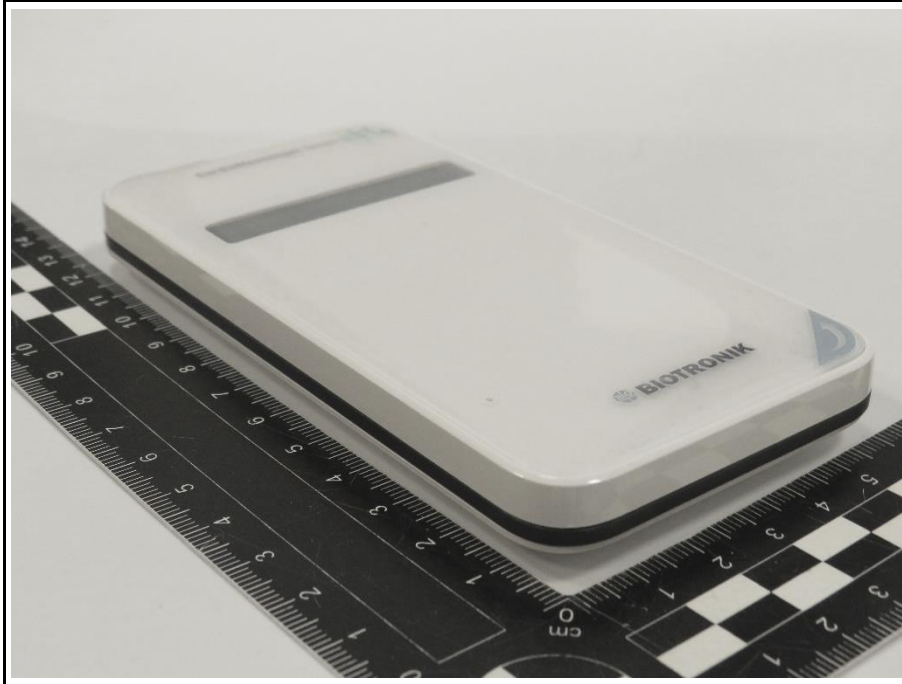
EUT PCB frontside without shielding





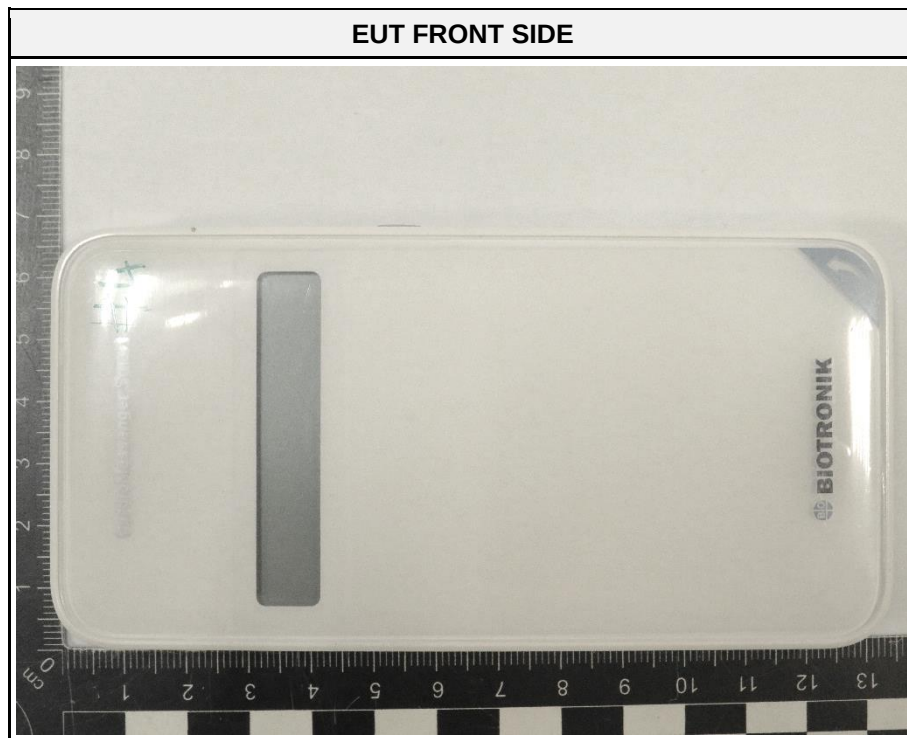
1.3 Equipment Photos - External

EUT IN PERSPECTIVE I

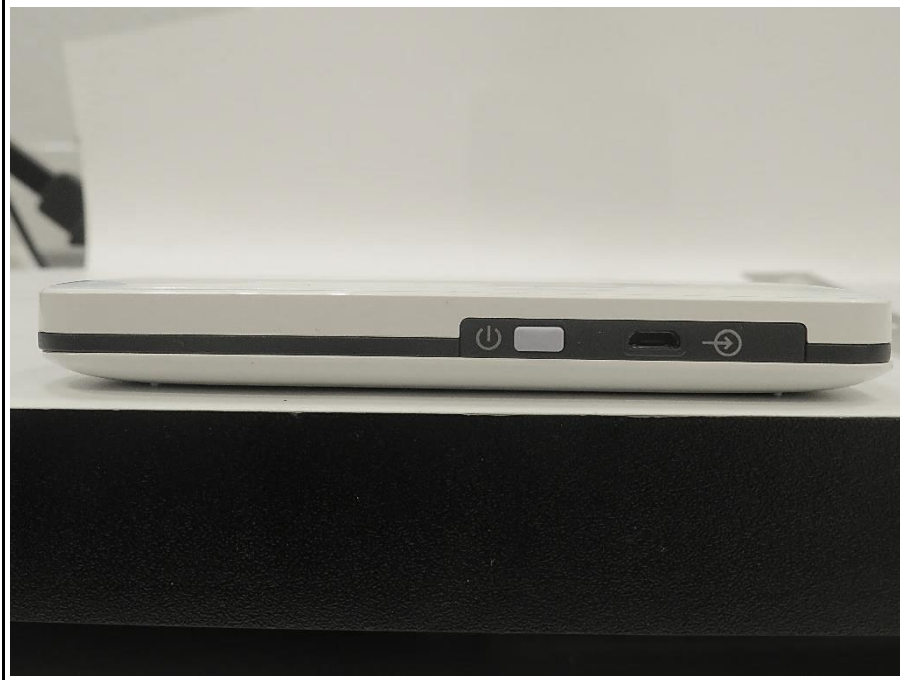


EUT IN PERSPECTIVE II





EUT RIGHT SIDE



EUT LEFT SIDE

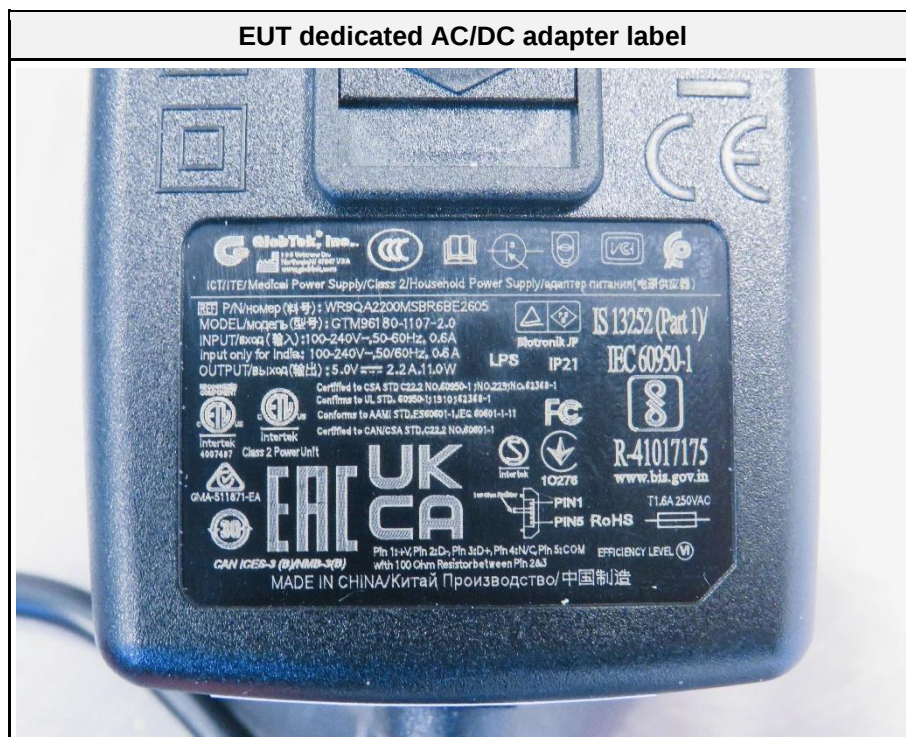


EUT TOP SIDE



EUT BOTTOM SIDE





1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
SIM	Functional radio communication tester	R&S	CMW290	EF01367
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
MON	Monitoring Equipment			
CBL	Connecting Cable			
SW	Software			
Comment: --				

1.5 Operational Modes

Mode #	Description
1	Mobile communication connection with LTE eMTC1 FDD 26 LTE eMTC1 FDD 26 settings on Functional radio communication tester: eMTC1 ☒; Ch.: 26865; uplink power: TX power control: MAX-Power.
2	Mobile communication connection with LTE eMTC1 FDD 26 LTE eMTC1 FDD 26 settings on Functional radio communication tester: eMTC1 ☒; Ch.: 26865; uplink power: TX power control: MAX-Power. EUT is charging
Comment: EUT support MICS 402-405 MHz and mobile communication functionality for GSM 850, 900, 1800 and 1900, LTE Cat M1 / eMTC for FDD 1, 2, 3, 4, 5, 8, 12, 18, 19, 20, 26 and 28. Chosen RF functionality is mobile communication and reported only: LTE eMTC1 FDD 26.	

1.6 EUT Configuration

Configuration #	Description
1	EUT is charging via dedicated AC/DC adapter.
2	EUT is operating on internal battery.
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

Title 47 CFR Part 15B, ISED ICES-003 Issue 7				
Reference	Requirement	Reference Method	Result	Remarks
Emission				
FCC 15.109 ICES-003, 3.2.2	Radiated emissions	ANSI C63.4:2014 +A1:2017	PASS	--
FCC 15.107 ICES-003, 3.2.1	AC power line conducted emissions	ANSI C63.4:2014 +A1:2017	PASS	--
Comment: --				

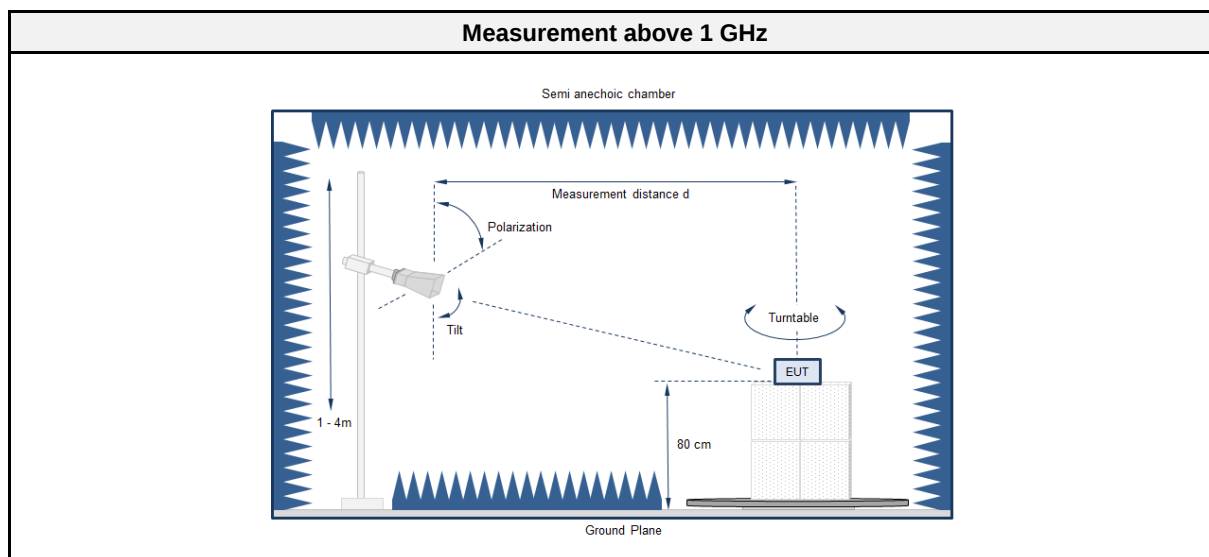
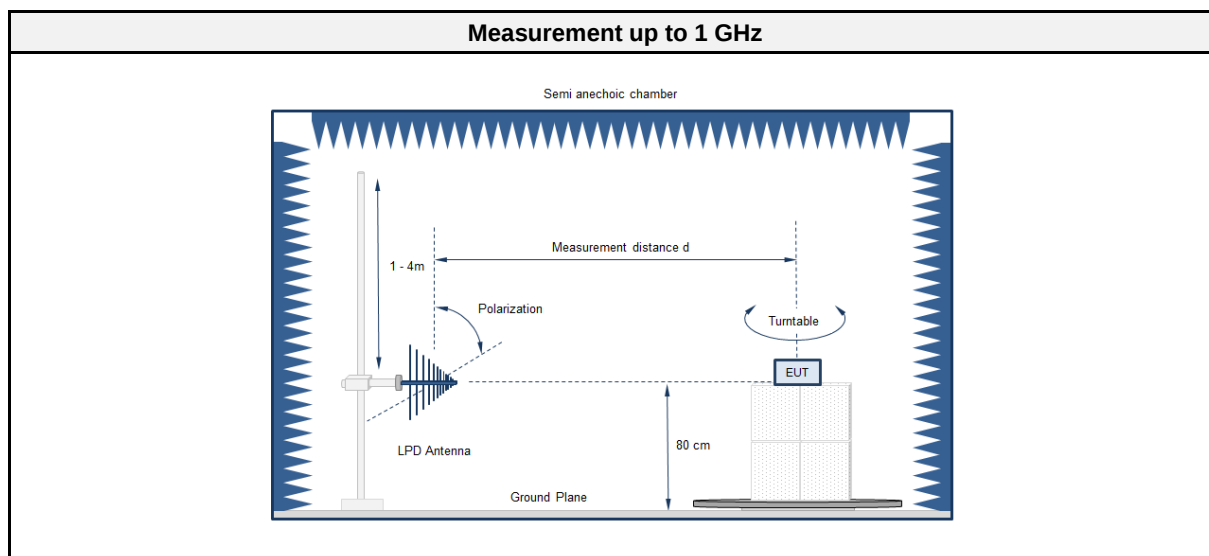
Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

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

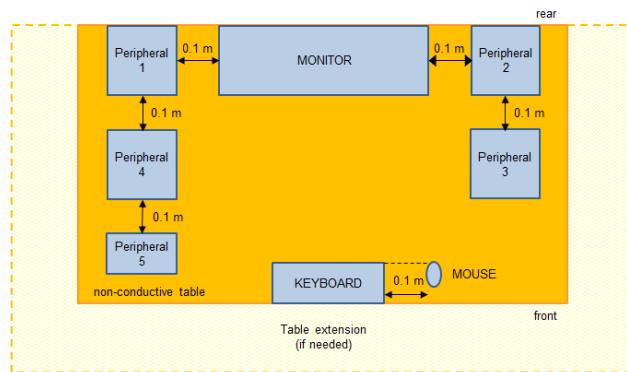
2.1.1 Information

Test Information	
Reference	FCC 15.109, ICES-003, 3.2.2
Reference method	ANSI C63.4 Section 8
Equipment class	Class B
Equipment type	Table top
Highest internal frequency [MHz]	2155
Measurement range	30 MHz to 11000 MHz
Temperature [°C]	24 – 26
Humidity [%]	41 – 43
Operator	Mahmood Nasor
Supervisor	Manuel Engel
Date	2024-08-28

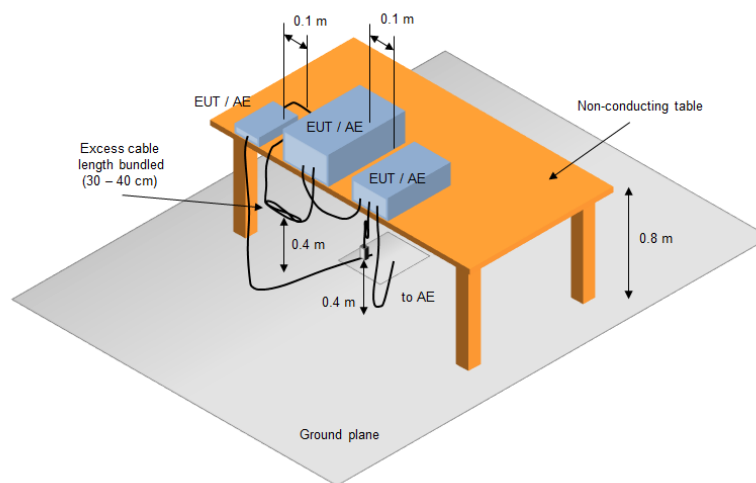
2.1.2 Setup *Table top*:



Equipment placement - Table top



Test Setup



2.1.3 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	raditeq	RadiMation Pro	2023.2.6

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber (NSA)	Frankonia	AC1	EF00062	2024-07	2027-07
Anechoic chamber (SVSWR)	Frankonia	AC 1	EF01011	2024-07	2027-07
Programmable AC Source	Chroma ATE Inc.	61604	EF01068	2023-08	2025-08
Test Receiver	Rohde & Schwarz GmbH & Co. KG - Vertrieb Berlin	ESW44	EF01856	2024-04	2025-04
Network Analyzer	Rohde & Schwarz GmbH & Co. KG	ZVL6	EF01198	2024-07	2025-07
Notch filter 0.5-1 GHz	Schomandl	86883	EF00233	Functional test	Functional test
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	EF01824	2022-10	2025-10
Horn Antenna	Schwarzbeck	BBHA9120D	EF00018	2022-12	2025-12
Climatic Sensor	Embedded Data Systems, LLC.	2800100000254 17E	EF01054	2023-07	2027-07

2.1.4 Procedure

Exploratory measurement Table top	
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 2.1.2

Final measurement 3m Table top	
1.	The EUT was placed on a 0.8 m non-conductive table at a 3 or 10 m distance from the receive antenna. The antenna output was connected to the measurement receiver.
2.	A broadband hybrid antenna was used for the frequency range 30 – 1000 MHz. Above one 1 GHz a Double Ridged Broadband Horn antenna was used. The antenna was placed on an adjustable height antenna mast. If required, in the range 1- 18 GHz a Double Ridged Broadband Horn antenna, in the range 18 – 40 GHz a High Gain / Standard Gain Horn 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.

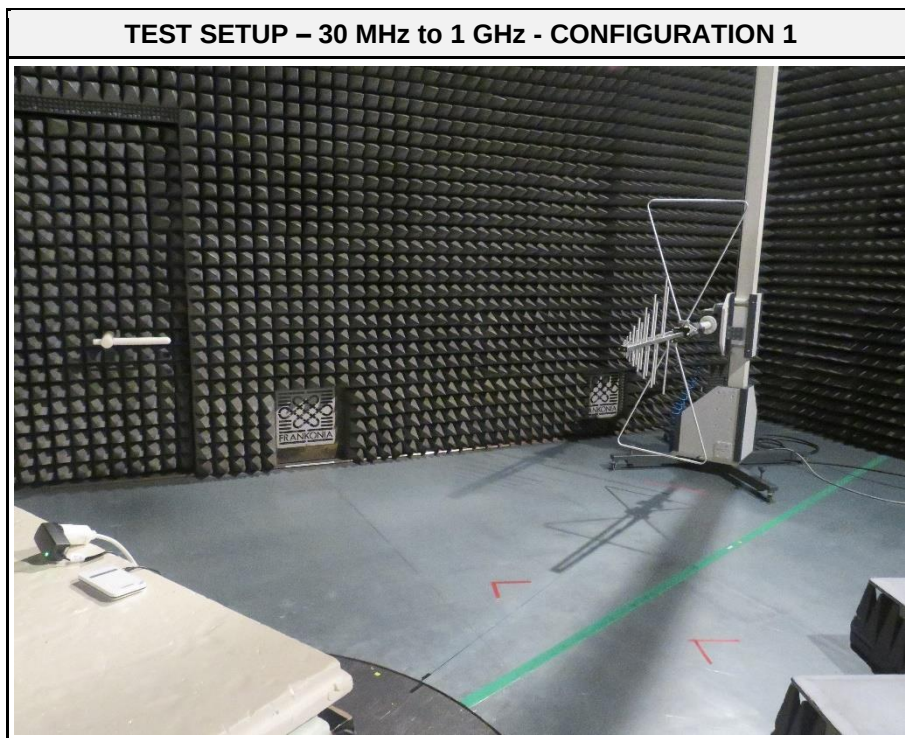
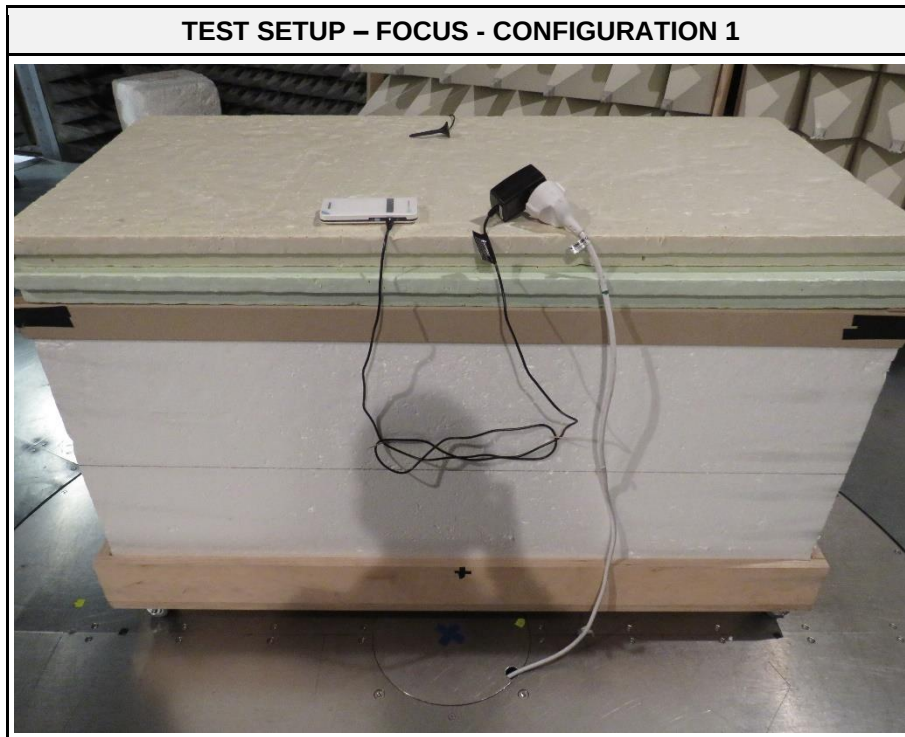
2.1.5 Limits

Class B @ 3 m		
Frequency [MHz]	Detector	Limit [dBµV/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

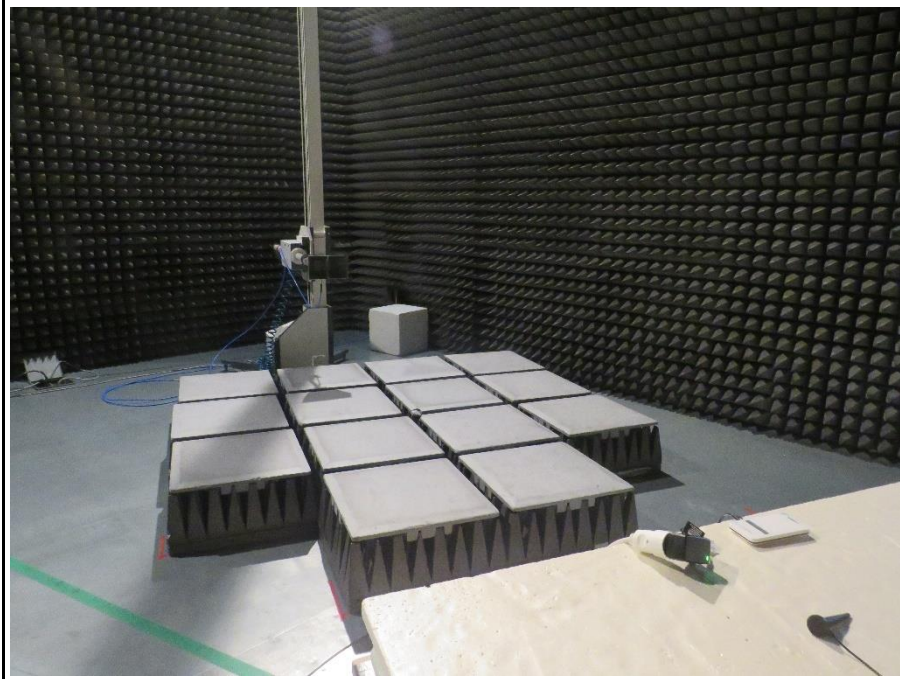
2.1.6 Results

Test Results			
Operational mode	EUT Configuration	Verdict	Remark
2	1	PASS	120 V AC / 60 Hz
1	2	PASS	--
Note: Power cable length see Equipment Ports table			

2.1.7 Setup Photos



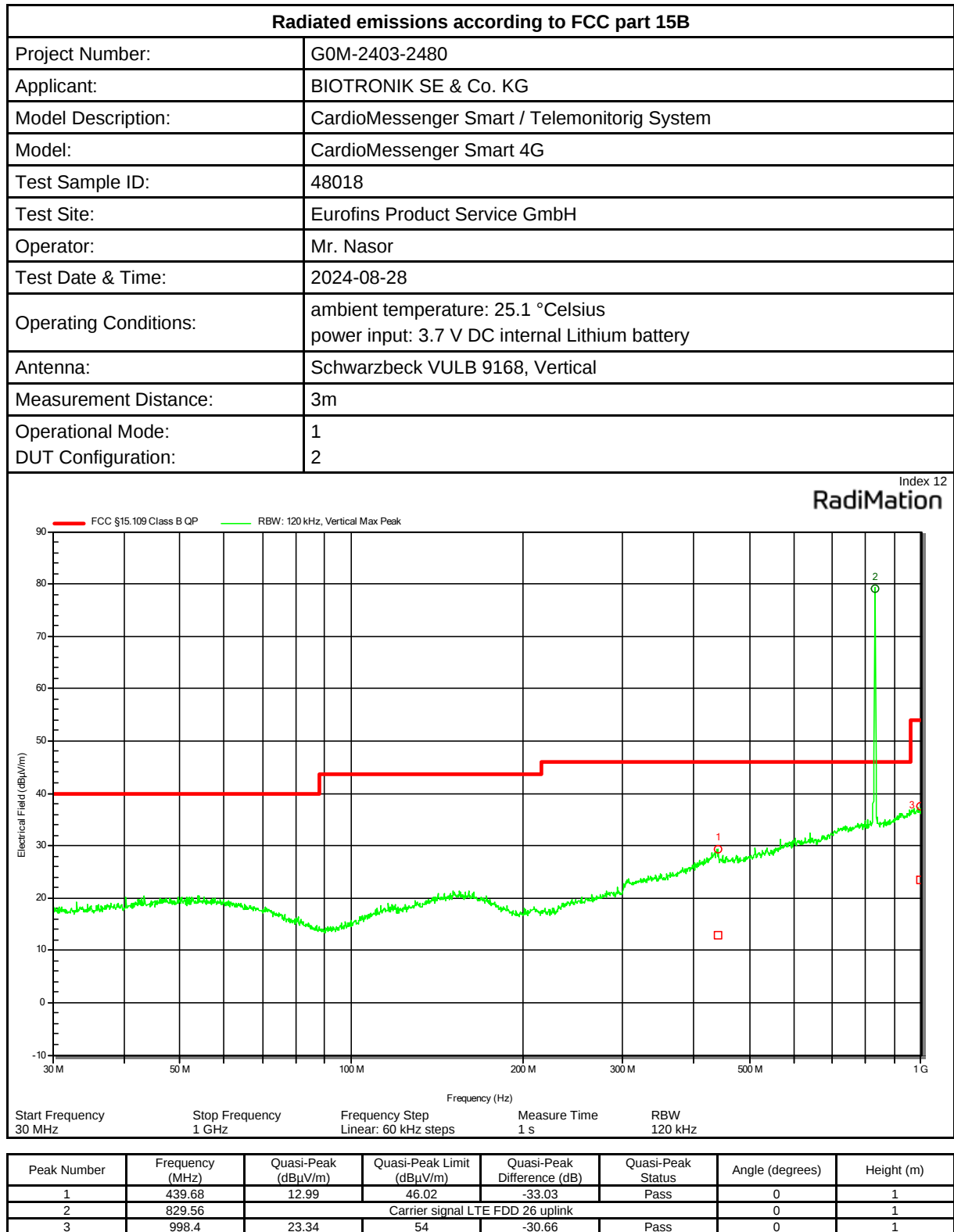
TEST SETUP – 1 GHz to 11 GHz - CONFIGURATION 1



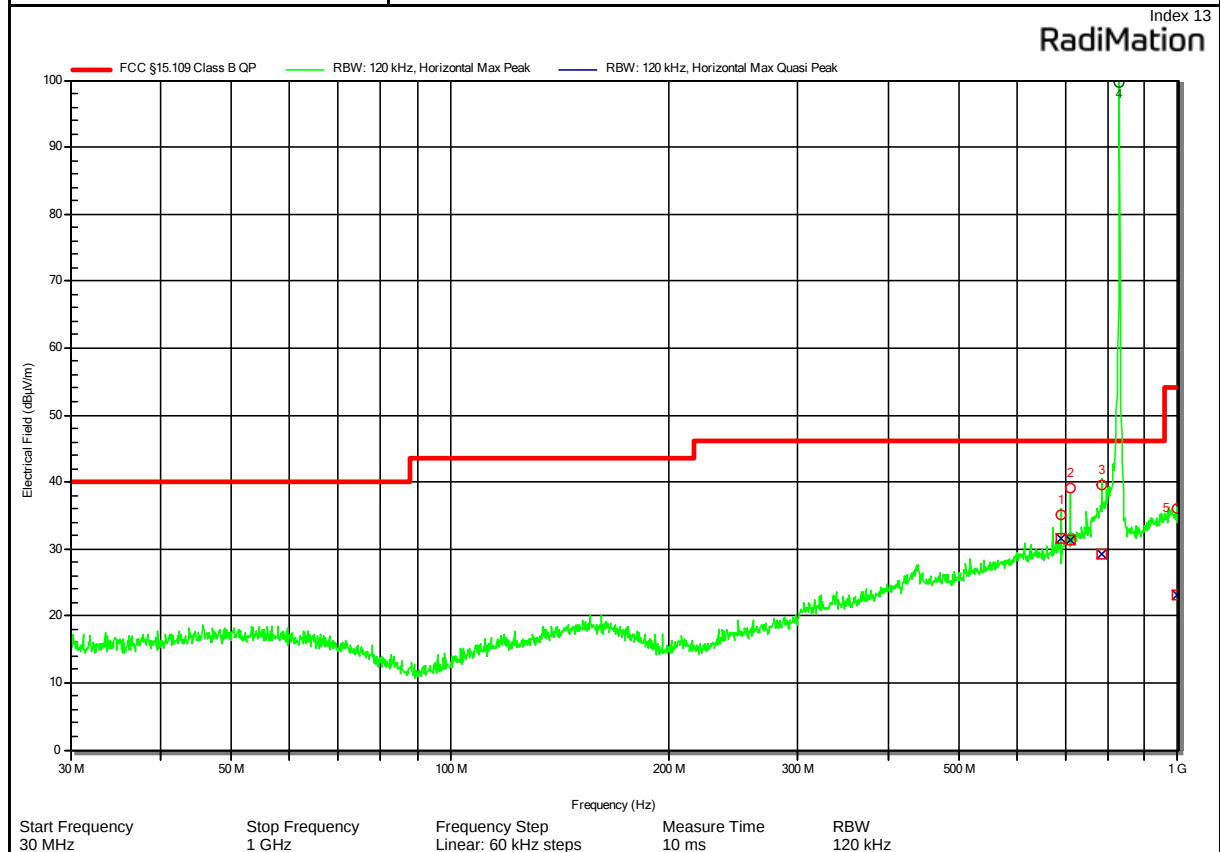
TEST SETUP - FOCUS - CONFIGURATION 2



2.1.8 Records

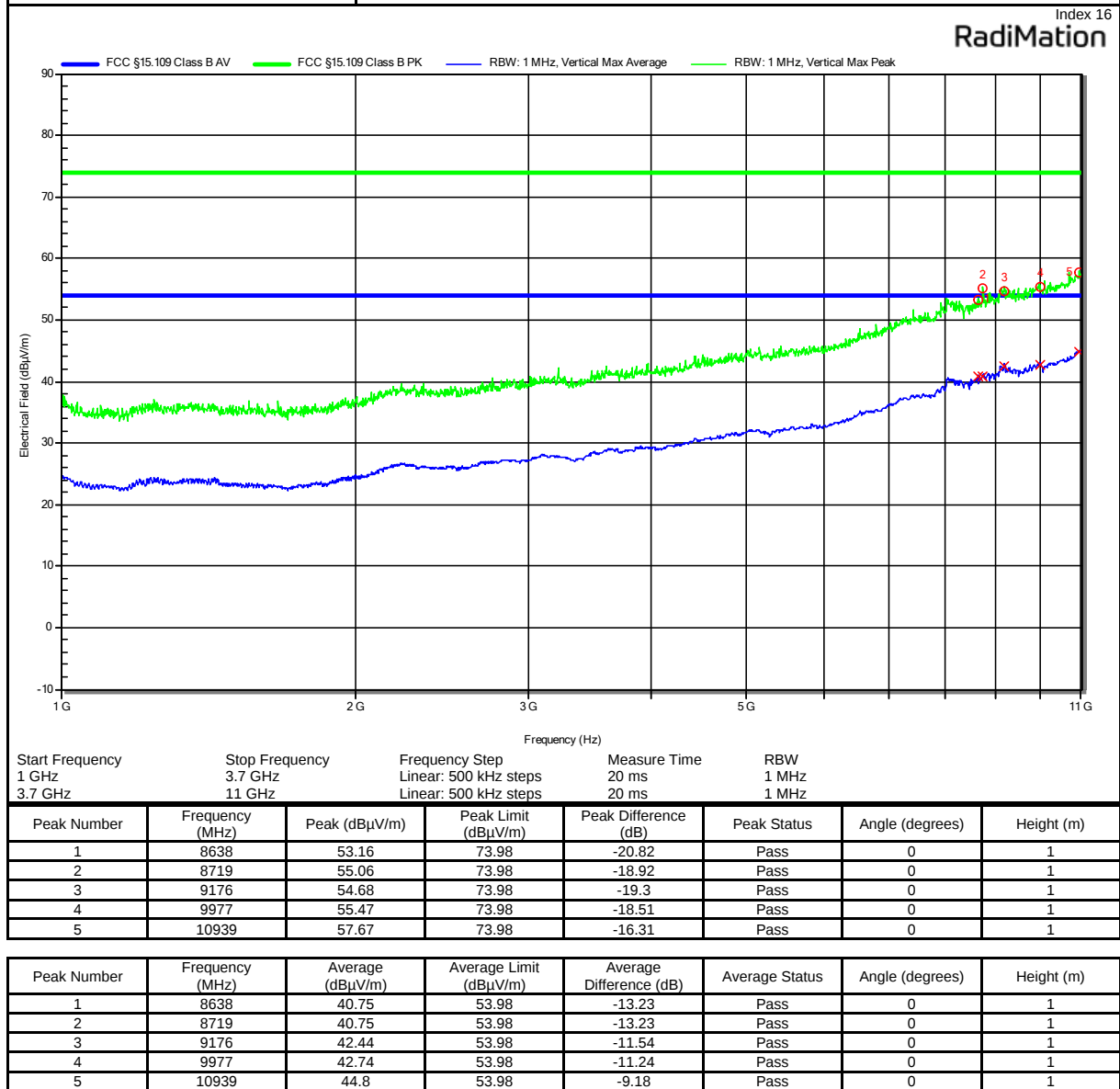


Radiated emissions according to FCC part 15B	
Project Number:	G0M-2403-2480
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	CardioMessenger Smart / Telemonitorig System
Model:	CardioMessenger Smart 4G
Test Sample ID:	48018
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Nasor
Test Date & Time:	2024-08-28
Operating Conditions:	ambient temperature: 25.1 °Celsius power input: 3.7 V DC internal Lithium battery
Antenna:	Schwarzbeck VULB 9168, Horizontal
Measurement Distance:	3m
Operational Mode:	1
DUT Configuration:	2



Peak Number	Frequency (MHz)	Quasi-Peak (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Quasi-Peak Difference (dB)	Quasi-Peak Status	Angle (degrees)	Height (m)
1	691.2	31.56	46.02	-14.46	Pass	0	1
2	710.4	31.35	46.02	-14.67	Pass	0	1
3	787.2	29.34	46.02	-16.68	Pass	0	1
4	829.56	Carrier signal LTE FDD 26 uplink				0	1
5	997.26	23.23	54	-30.77	Pass	0	1

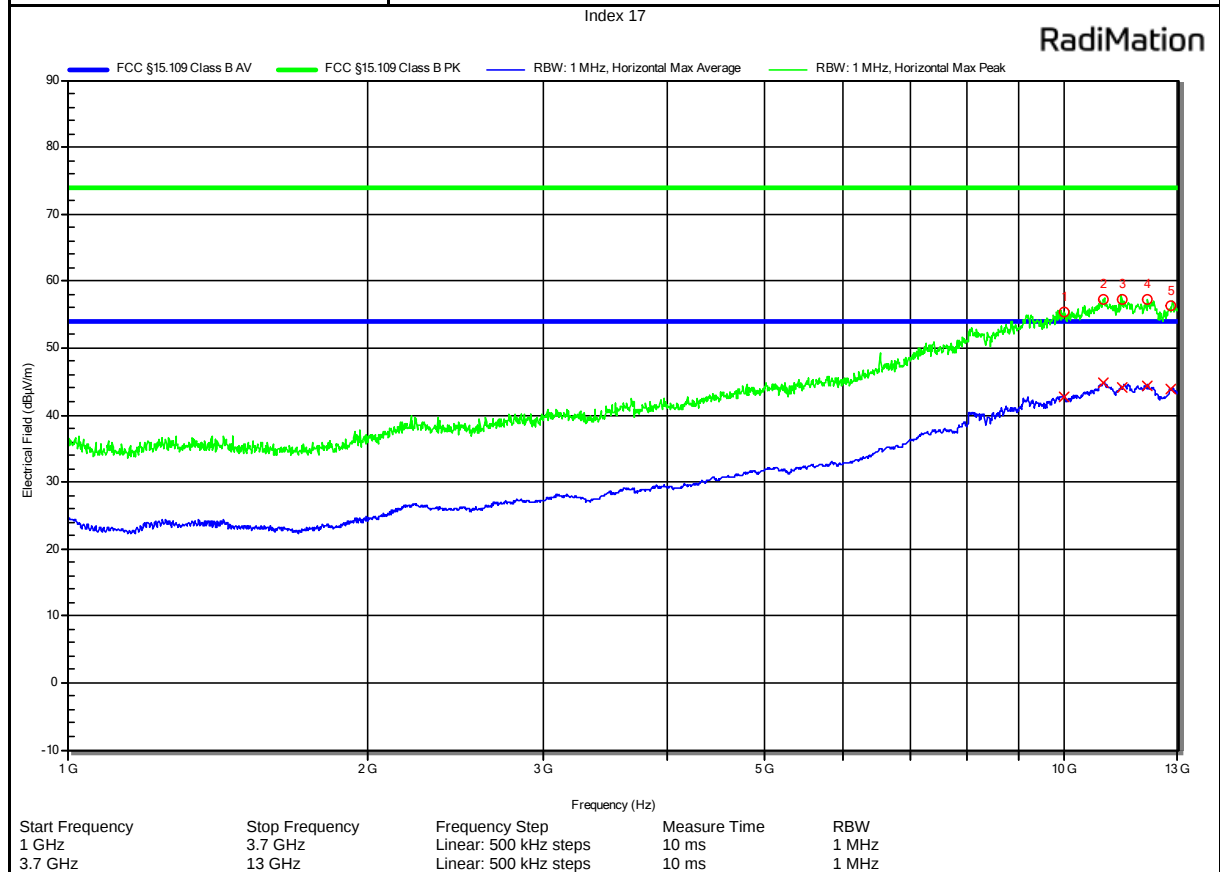
Radiated emissions according to FCC part 15B	
Project Number:	G0M-2403-2480
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	CardioMessenger Smart / Telemonitorig System
Model:	CardioMessenger Smart 4G
Test Sample ID:	48018
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Nasor
Test Date & Time:	2024-08-28
Operating Conditions:	ambient temperature: 25.1 °Celsius power input: 3.7 V DC internal Lithium battery
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement Distance:	3m
Operational Mode:	1
DUT Configuration:	2



Test Report No.: G0M-2403-2480-EF0115B-V01

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

Radiated emissions according to FCC part 15B	
Project Number:	G0M-2403-2480
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	CardioMessenger Smart / Telemonitorig System
Model:	CardioMessenger Smart 4G
Test Sample ID:	48018
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Nasor
Test Date & Time:	2024-08-28
Operating Conditions:	ambient temperature: 25.1 °Celsius power input: 3.7 V DC internal Lithium battery
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement Distance:	3m
Operational Mode:	1
DUT Configuration:	2



Peak Number	Frequency (MHz)	Peak (dBµV/m)	Peak Limit (dBµV/m)	Peak Difference (dB)	Peak Status	Angle (degrees)	Height (m)
1	9999.5	55.48	73.98	-18.5	Pass	0	1
2	10935	57.22	73.98	-16.76	Pass	0	1
3	11417.5	57.25	73.98	-16.73	Pass	0	1
4	12117	57.29	73.98	-16.68	Pass	0	1
5	12777	56.33	73.98	-17.65	Pass	0	1

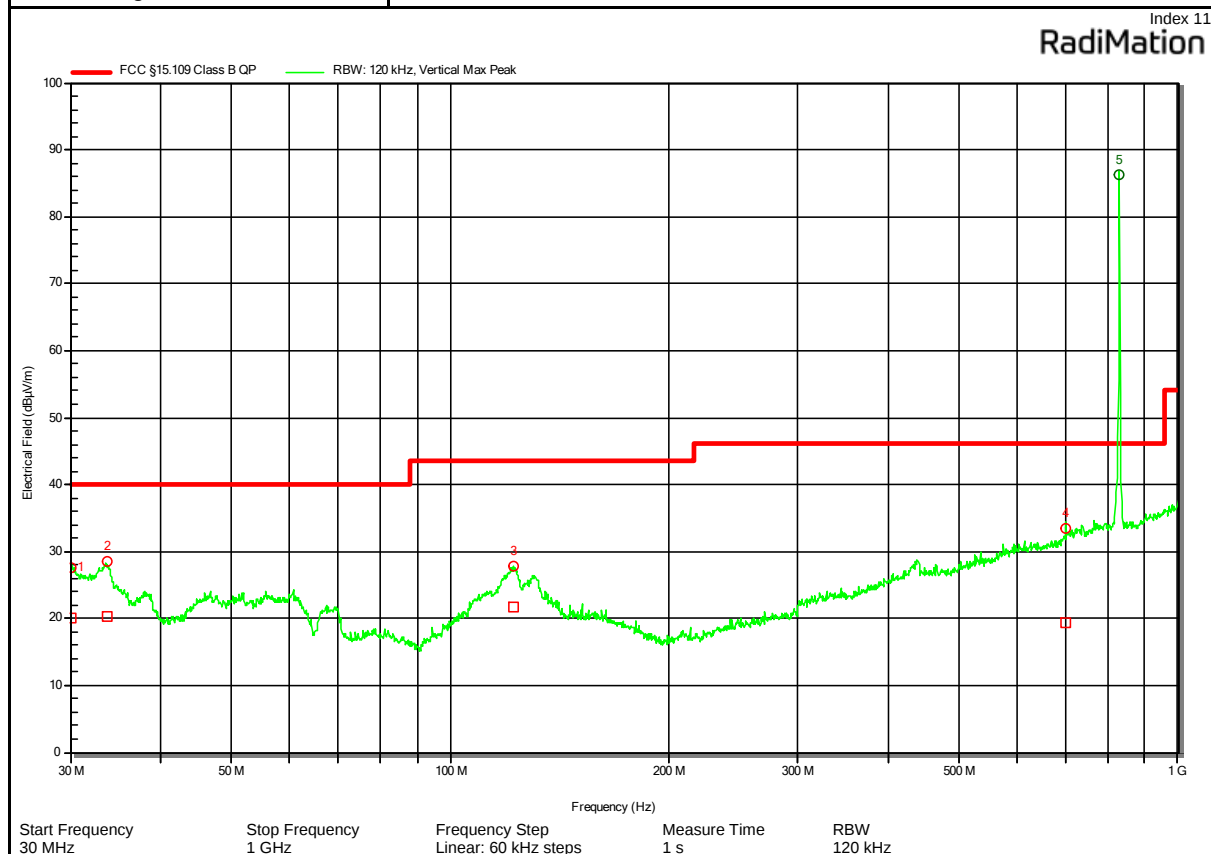
Peak Number	Frequency (MHz)	Average (dBµV/m)	Average Limit (dBµV/m)	Average Difference (dB)	Average Status	Angle (degrees)	Height (m)
1	9999.5	42.79	53.98	-11.19	Pass	0	1
2	10935	44.78	53.98	-9.2	Pass	0	1
3	11417.5	44.07	53.98	-9.91	Pass	0	1
4	12117	44.43	53.98	-9.54	Pass	0	1
5	12777	43.9	53.98	-10.08	Pass	0	1

Test Report No.: G0M-2403-2480-EF0115B-V01

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

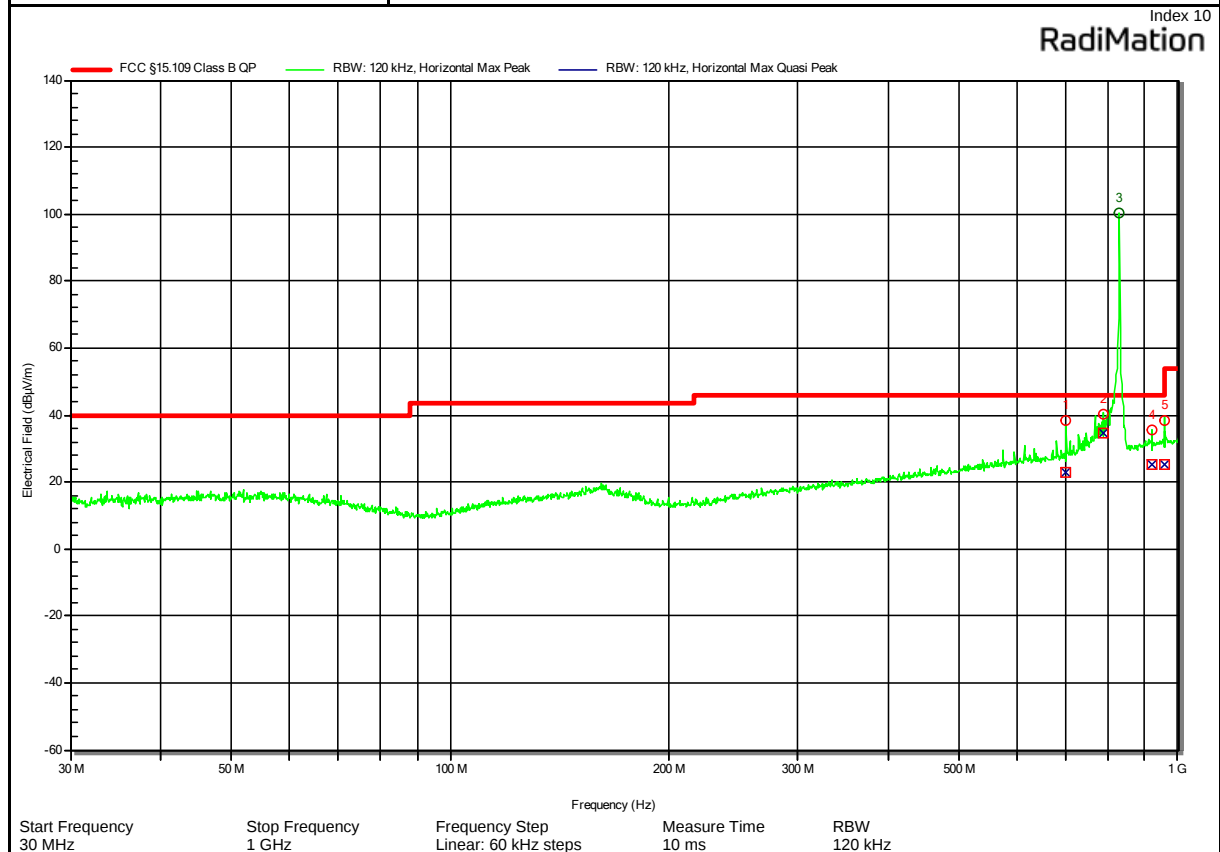
Radiated emissions according to FCC part 15B

Project Number:	G0M-2403-2480
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	CardioMessenger Smart / Telemonitorig System
Model:	CardioMessenger Smart 4G
Test Sample ID:	48018
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Nasor
Test Date & Time:	2024-08-28
Operating Conditions:	ambient temperature: 25.1 °Celsius power input: 120 V / 60 Hz
Antenna:	Schwarzbeck VULB 9168, Vertical
Measurement Distance:	3m
Operational Mode:	2
DUT Configuration:	1

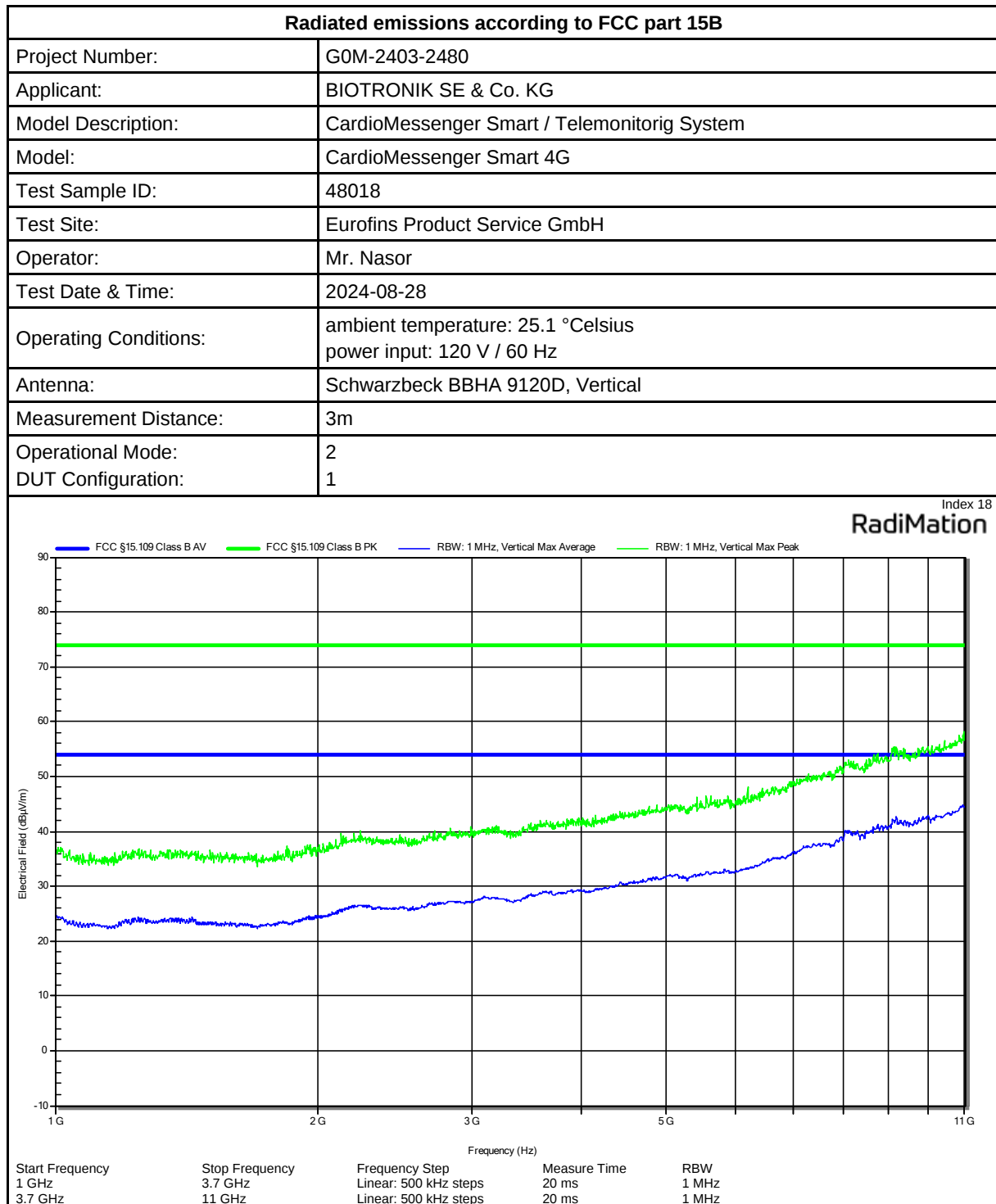


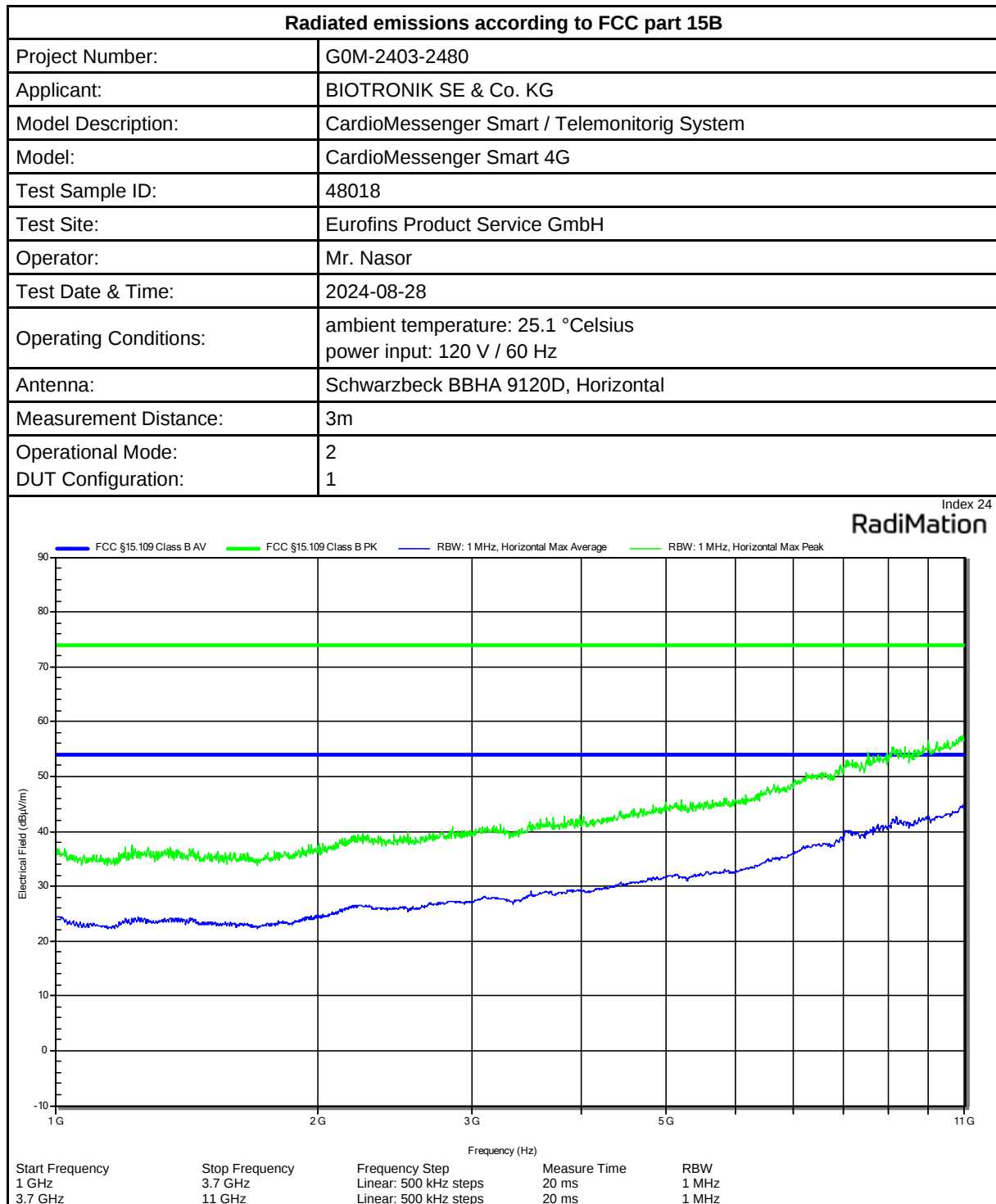
Peak Number	Frequency (MHz)	Quasi-Peak (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Difference (dB)	Quasi-Peak Status	Angle (degrees)	Height (m)
1	30	20.15	40	-19.85	Pass	0	1
2	33.72	20.31	40	-19.69	Pass	0	1
3	121.8	21.82	43.52	-21.7	Pass	0	1
4	702.3	19.37	46.02	-26.65	Pass	0	1
5	829.8		Carrier signal LTE FDD 26 uplink			0	1

Radiated emissions according to FCC part 15B	
Project Number:	G0M-2403-2480
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	CardioMessenger Smart / Telemonitorig System
Model:	CardioMessenger Smart 4G
Test Sample ID:	48018
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Nasor
Test Date & Time:	2024-08-28
Operating Conditions:	ambient temperature: 25.1 °Celsius power input: 120 V / 60 Hz
Antenna:	Schwarzbeck VULB 9168, Horizontal
Measurement Distance:	3m
Operational Mode:	2
DUT Configuration:	1



Peak Number	Frequency (MHz)	Quasi-Peak (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Quasi-Peak Difference (dB)	Quasi-Peak Status	Angle (degrees)	Height (m)
1	701.64	22.68	46.02	-23.34	Pass	0	1
2	791.388	34.63	46.02	-11.39	Pass	0	1
3	829.74	Carrier signal LTE FDD 26 uplink				0	1
4	921.576	25.27	46.02	-20.75	Pass	0	1
5	957.54	25.21	46.02	-20.81	Pass	0	1





2.2.1 Information

Test Information	
Reference	FCC 15.107, ICES-003, 3.2.1
Reference method	ANSI C63.4 Section 12
Measurement range	150 kHz to 30 MHz
Equipment class	Class B
Equipment type	Table top
Temperature [°C]	23 – 25
Humidity [%]	46 – 49
Operator	Mahmood Nasor
Date	2024-08-28
EUT #	EUT 1

Equipment placement

The diagram illustrates the recommended placement of computer equipment on a non-conductive table. A central MONITOR is positioned at the rear of the table. To its left is Peripheral 1, and to its right is Peripheral 2. Below Peripheral 1 is Peripheral 4, and below Peripheral 2 is Peripheral 3. At the front of the table, a KEYBOARD and a MOUSE are placed. The table is labeled 'non-conductive table' and 'Table extension (if needed)'. A 'Vertical coupling plane' is indicated above the table, with a distance of 0.4 m from the top of the monitor. Distances of 0.1 m are specified between the monitor and the peripherals, and between the peripherals and the keyboard/mouse.

Vertical coupling plane

0.4 m

rear

Peripheral 1

0.1 m

MONITOR

0.1 m

Peripheral 2

0.1 m

Peripheral 4

0.1 m

Peripheral 3

0.1 m

Peripheral 5

0.1 m

non-conductive table

KEYBOARD

0.1 m

MOUSE

front

Table extension (if needed)

[illegible]

2.2.3 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	raditeq	RadiMation Pro	2023.2.6

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	Schwarzbeck	NSLK 8127	EF01592	2024-07	2026-07
Pulse Limiter	R&S	ESH3-Z2	EF01063	2023-08	2025-08
EMI Test Receiver	R&S	ESU26	EF00887	2024-01	2025-01
Climatic Sensor	Embedded Data Systems, LLC.	2800100000254 17E	EF01054	2023-07	2027-07

2.2.4 Procedure

Exploratory measurement Table top	
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 2.2.2

Final measurement Table Top	
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

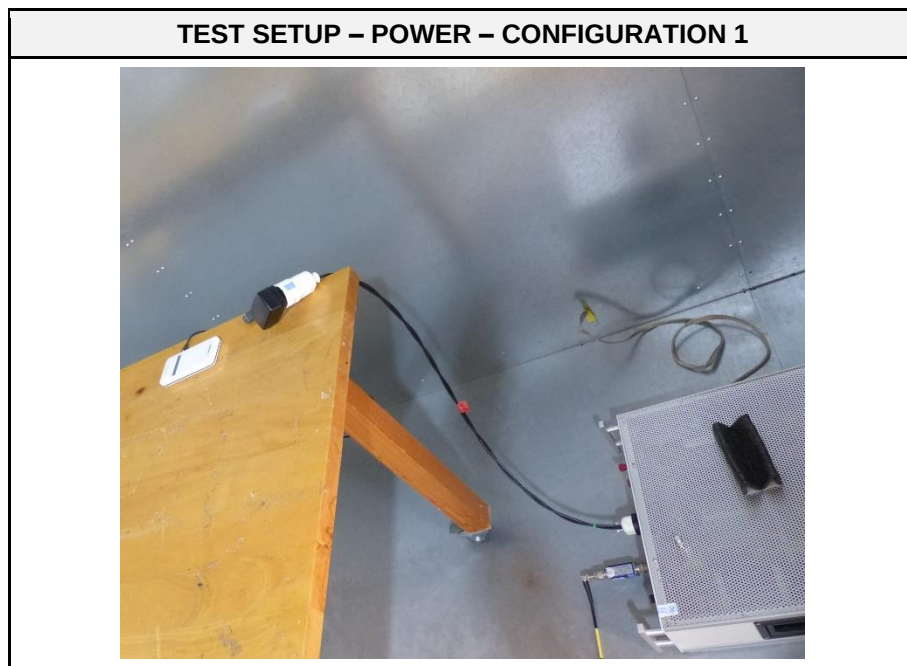
2.2.5 Limits

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

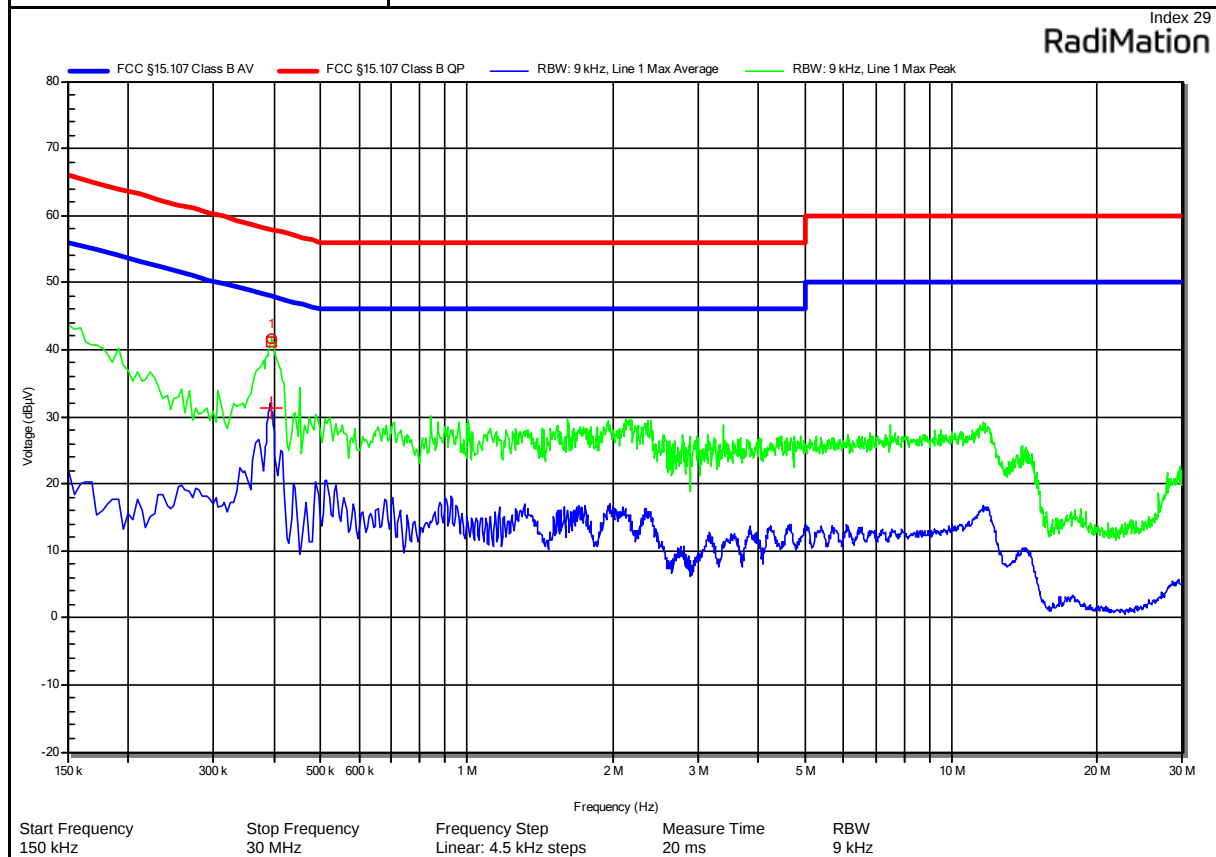
AC power line conducted emissions					
Port	Coupling	Operational mode	EUT Configuration	Verdict	Remark
Power	AMN	2	1	PASS	120 V AC / 60 Hz
Note: -					

2.2.7 Setup Photos



2.2.8 Records

Conducted emissions at the mains power port according to FCC part 15B	
Project Number:	G0M-2403-2480
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	CardioMessenger Smart / Telemonitoring System
Model:	CardioMessenger Smart 4G
Test Sample ID:	48018
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Nasor
Test Date & Time:	2024-08-28
Operating Conditions:	ambient temperature: 25.1 °Celsius power input: 120 V / 60 Hz
AMN:	Schwarzbeck NSLK 8127 RC L1
Operational Mode:	2
DUT Configuration:	1
Applied to Port:	Power
Note 1:	--



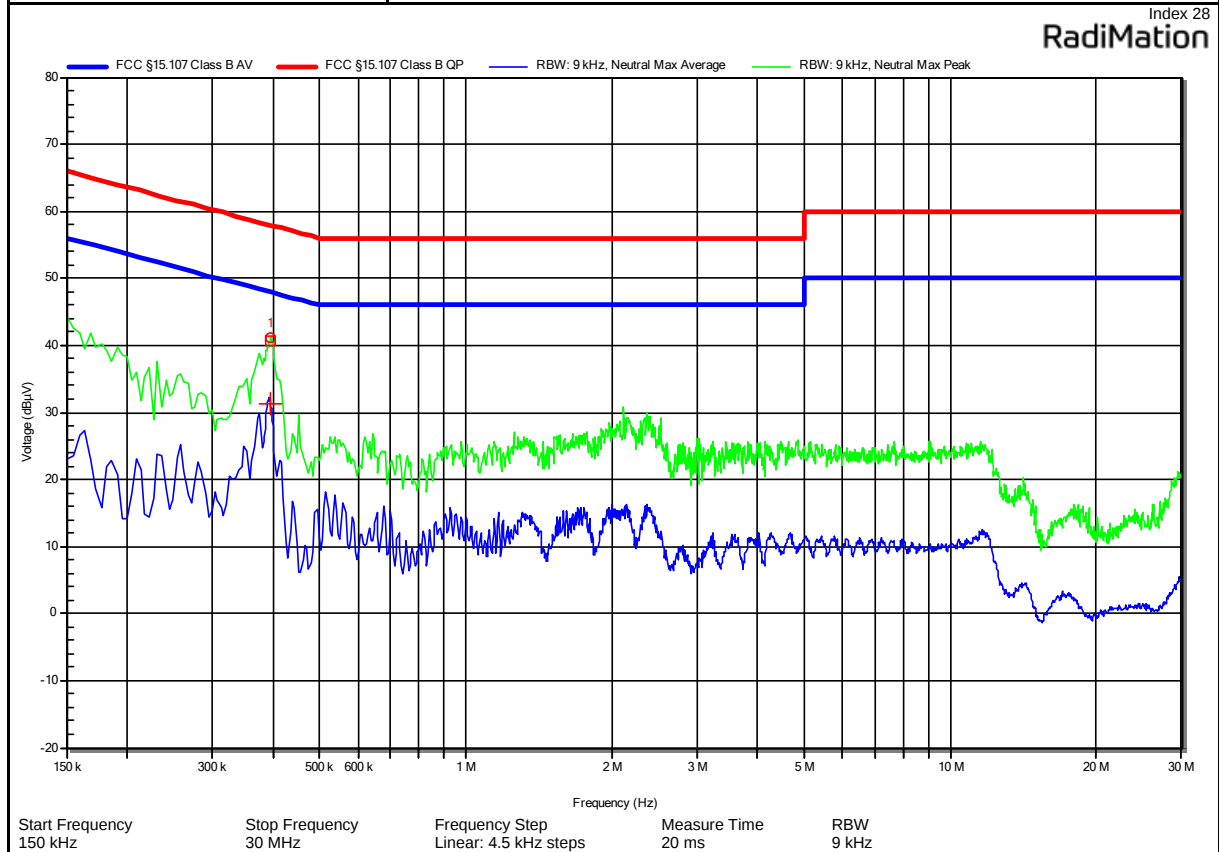
Peak Number	Frequency (MHz)	Quasi-Peak (dBµV)	Quasi-Peak Limit (dBµV)	Quasi-Peak Difference (dB)	Quasi-Peak Status	LISN
1	0.396	41.16	57.93	-16.78	Pass	Line 1

Peak Number	Frequency (MHz)	Average (dBµV)	Average Limit (dBµV)	Average Difference (dB)	Average Status	LISN
1	0.396	31.35	47.93	-16.58	Pass	Line 1

Test Report No.: G0M-2403-2480-EF0115B-V01

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

Conducted emissions at the mains power port according to FCC part 15B	
Project Number:	G0M-2403-2480
Applicant:	BIOTRONIK SE & Co. KG
Model Description:	CardioMessenger Smart / Telemonitoring System
Model:	CardioMessenger Smart 4G
Test Sample ID:	48018
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Nasor
Test Date & Time:	2024-08-28
Operating Conditions:	ambient temperature: 25.1 °Celsius power input: 120 V / 60 Hz
AMN:	Schwarzbeck NSLK 8127
Operational Mode:	2
DUT Configuration:	1
Applied to Port:	Power
Note 1:	--



Peak Number	Frequency (MHz)	Quasi-Peak (dBµV)	Quasi-Peak Limit (dBµV)	Quasi-Peak Difference (dB)	Quasi-Peak Status	LISN
1	0.396	40.74	57.93	-17.19	Pass	Neutral

Peak Number	Frequency (MHz)	Average (dBµV)	Average Limit (dBµV)	Average Difference (dB)	Average Status	LISN
1	0.396	31.36	47.93	-16.57	Pass	Neutral

3 Measurement Uncertainty

All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2.

Test Name	Measurement Uncertainty
Conducted emissions at the mains power port	150 kHz to 30 MHz, 3.35dB
Radiated Emission	30 MHz to 200 MHz @ 3m, 5.1dB 200 MHz to 1G Hz @ 3m, 5.3dB >1G Hz to 11 GHz @3m, 5.95dB