RF Exposure Report

Report No.:	FCC_MPE_SL20020301-MED-020
NIM4CM01 FCC ID:	LF5NIMVITAL1
NIM4CPB1 FCC ID:	LF5NIMPAT1
Models:	NIM4CM01, NIM4CPB1
Issued Date:	02/18/2020
Applicant:	Medtronic, Inc.
Address:	710 Medtronic Parkway N.E, Minneapolis, MN 55432
Manufacturer:	Medtronic, Inc.
Address:	710 Medtronic Parkway N.E, Minneapolis, MN 55432
Issued By:	Bureau Veritas Consumer Products Services, Inc.
Lab Address:	775 Montague Expressway, Milpitas, CA 95035
FCC Registration / Designation Number:	540430

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TESTING CERT # 2742-01

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Release Control Record

Issue No.	Description	Date Issued
FCC_MPE_SL20020301-MED-020	Orignal Release	02/18/2020

1   Certificate of Conformity

Product:	**NIM Patient Interface / NIM Vital Console**
Brand:	Medtronic
Applicant:	Medtronic, Inc.
Standards:	FCC Part 2 (Section 2.1093)
	KDB 447498 D01 General RF Exposure Guidance v06
	IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services, Inc., Milpitas Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** _____ 02/18/2020 _____

Deon Dai / Test Engineer

Approved by : _____ , **Date:** _____ 02/18/2020 _____

Chen Ge / Engineer Reviewer

2   RF Exposure

2.1   Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f^2)*	30
30-300	27.5	0.073	0.2	30
300-1500	…	…	f/1500	30
1500-100,000	…	…	1.0	30

f = Frequency in MHz; *Plane-wave equivalent power density

2.2   MPE Calculation Formula

Pd = (Pout*G) / (4*pi*r^2)

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3   Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

2.4   Antenna Gain

The antenna type is Flex PIFA with 2 dBi gain.

NIM4CM01 FCC ID: LF5NIMVITAL1

Device contains 2 BT modules simultaneously transmitting.

NIM4CPB1 FCC ID: LF5NIMPAT1

Device contains 1 BT module. (BT-1)

2.5 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Max Power (mW)	Turn-Up Tolerance	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
BT1	4.53	2.83	±1dB	2	20	0.0011	1
BT2	9.15	8.22	±1dB	2	20	0.00259	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Calculate SAR test exclusion thresholds from condition "1" formulas.

Simultaneous Transmission

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Simultaneous Transmission Calculation
Model: NIM4CM01

Total = 0.0011/1 + 0.00259/1 = 0.00369 < 1

Therefore the maximum calculations of above situations are less than the "1" limit.

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