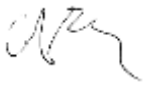
RF TEST REPORT

SIEMIC
A Bureau Veritas Group Company

Report No.: FCC_RF_SL18110904-MED-081-MICS
Supersede Report No.: N/A

Applicant	:	Medtronic Inc.
Product Name	:	Communicator
Model No.	:	4NR016
Test Standard	:	47 CFR FCC Part 95I
Test Method	:	ANSI/TIA-603-D:2010 ANSI C63.26:2015
FCC ID	:	LF54NR016
Dates of test	:	05/14/2018 to 05/18/2018
Issue Date	:	05/31/2018
Test Result	:	☒ Pass ☐ Fail
Equipment complied with the specification [X] **Equipment did not comply with the specification [ ]**		

This Test Report is Issued Under the Authority of:	
	
Cipher	**Chen Ge**
Test Engineer	Engineer Reviewer
This test report may be reproduced in full only **Test result presented in this test report is applicable to the tested sample only**	

Issued By:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, CA 95035

ilac-MRA

A2LA ACCREDITED
TESTING CERT # 2742-01

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC, NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	EMC, RF/Wireless, Telecom, Safety
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC, RF, Telecom
Canada	IC FCB, NIST	EMC, RF, Telecom
Singapore	iDA, NIST	EMC, RF, Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_RF_SL18110904-MED-081-MICS	None	Original	05/31/2018

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Medtronic, Inc.
Product: Communicator
Model: 4NR016

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

MedRadio programmer/control transmitter. A MedRadio transmitter that operates or is designed to operate outside of a human body for the purpose of communicating with a receiver, or for triggering a transmitter, connected to a medical implant device or to a medical body-worn device used in the MedRadio Service; and which also typically includes a frequency monitoring system that initiates a MedRadio communications session.

MedRadio transmitters associated with medical implant devices, which incorporate a frequency monitoring system as set forth in §95.2559(a), may transmit on any frequency in the 401-406 MHz band.

3 Customer information

Applicant Name	:	Medtronic, Inc.
Applicant Address 1	:	8200 Coral Sea Street NE, Mounds View, MN 55112
Manufacturer Name	:	Medtronic, Inc.
Manufacturer Address 1	:	8200 Coral Sea Street NE, Mounds View, MN 55112

4 Test site information

Lab performing tests	:	SIEMIC Laboratories
Lab Address	:	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	:	540430
IC Test Site No.	:	4842D
VCCI Test Site No.	:	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	:	Communicator
Model No.	:	4NR016
Trade Name	:	Medtronic Inc
Serial No.	:	NKW005131N
Input Power	:	3.0 VDC (Battery Power 2 x AAA)
Product Hardware version	:	N/A
Product Software version	:	N/A
Radio Hardware version	:	N/A
Radio Software version	:	N/A
Product Radio Test firmware	:	xTM_Formal_Test_App_Executable_v6_0.exe
Date of EUT received	:	04/28/2018
Equipment Class/ Category	:	MICS
Working Frequencies	:	402-405MHz

6.2 Radio Description

Specifications for Radio:

Radio Type	MICS
Operating Frequency	402-405 MHz
Modulation	FSK
Channel Spacing	300 KHz
Antenna Type	Integral Loop Antenna
Antenna Gain	-4 dBi
N0. Of RF Channels	10
Antenna Connector Type	N/A

6.3 EUT test modes/configuration Description

Mode	Note
RF test	Set the EUT to transmit continuously in different test modes and channels.
Note: None	

Test Item	Operating mode	Tested antenna port	Test frequencies
Antenna Requirement	N/A	-	-
Effective Radiated Power of the Fundamental Emission	Continuous Transmit	-	402.15 MHz (Low Channel 1),404.85 MHz (High Channel 10)
Radiated Measurements 30MHz to 1GHz	Continuous Transmit	-	402.15 MHz (Low Channel 1),404.85 MHz (High Channel 10)
Radiated Measurements above 1GHz	Continuous Transmit	-	402.15 MHz (Low Channel 1), 403.35MHz (Mid Channel 5), 404.85 MHz (High Channel 10)
Frequency Stability	Continuous Transmit	-	
Occupied Bandwidth	Continuous Transmit	-	
Note: Only radiated measurements were performed during the test.			

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Support Equipment Description	Model	Serial Number	Manufacturer	Notes
1	LAPTOP	LATITUDE E6220	N/A	DELL	N/A

7.2 Cabling Description

Item	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
-	-	-	-	-	-	-	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	xTM_Formal_Test_App_Executable_v6_0.exe	Provided by manufacturer to set EUT in continuous mode

8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
EIRP (Caluculated from Field Strength)	FCC	47 CFR §95.2567(a)(1)	FCC	ANSI/TIA/EIA-603-D:2010	☒ Pass ☐ N/A
Radiated Spurious Emissions	FCC	47 CFR §95.2569	FCC	ANSI/TIA/EIA-603-D:2010	☒ Pass ☐ N/A
Frequency Stability	FCC	47 CFR §95.2565	FCC	ANSI/TIA/EIA-603-D:2010	☒ Pass ☐ N/A
Occupied Bandwidth	FCC	47 CFR §95.2573	FCC	ANSI/TIA/EIA-603-D:2010	☒ Pass ☐ N/A
Remark	1. All measurement uncertainties are not taken into consideration for all presented test result. 2. The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.				

9 Measurement Uncertainty

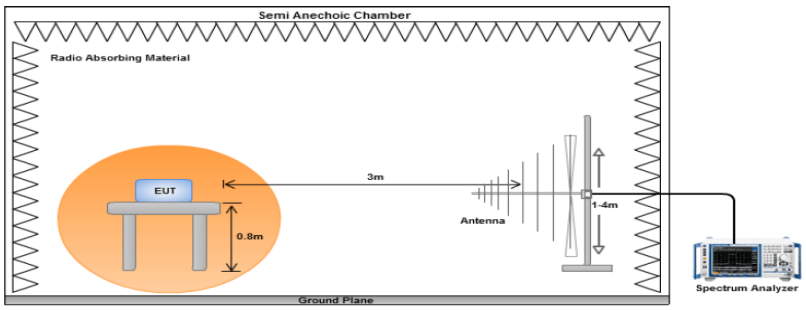
Emissions			
Test Item	**Frequency Range**	**Description**	**Uncertainty**
AC Conducted Emissions	150KHz – 30MHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±3.5dB
RF conducted measurement	150KHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±0.95dB
Radiated Spurious Emissions	30MHz – 1GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	±6dB
Radiated Spurious Emissions	1GHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	±6dB

10 Measurements, examination and derived results

10.1 Radiated Power of the Fundamental Emission

Requirement(s):

Spec	Requirement	Applicable
FCC 95.2567	Each MedRadio transmitter type must be designed such that the MedRadio equivalent isotropically radiated power (M-EIRP) does not exceed the limits in this section. Compliance with these limits must be determined as set forth in §95.2569. (a) *Transmitters subject to frequency monitoring—401-406 MHz.* For MedRadio transmitters that are not excepted under §95.2559(b) from the frequency monitoring requirements of §95.2559(a) (1) The M-EIRP within any 300 kHz bandwidth within the 402-405 MHz band must not exceed 25 microwatts. MedRadio equivalent isotropically radiated power (M-EIRP). Antenna input power times gain for free-space or in-tissue measurement configurations required for MedRadio equipment, expressed in Watts, where the gain is referenced to an isotropic radiator.	☒

Test Setup			
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission.		
Test Date	05/14/2018 to 05/18/2018	Environmental conditions	Temperature 23°C Relative Humidity 48% Atmospheric Pressure 1026mbar
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Cipher at 10 meter chamber.

Radiated Power - 402.15 MHz

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBuV)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
402.15	79.03	102	100	V	402.15	-27.74	0	1	-28.74	-16	-12.74
402.15	77.13	261	189	H	402.15	-30.94	0	1	-31.94	-16	-15.94

Radiated Power - 403.35 MHz

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBuV)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
403.35	77.02	44	120	V	403.35	-29.37	0	1	-30.37	-16	-14.37
403.35	75.64	246	199	H	403.35	-33.28	0	1	-34.28	-16	-18.28

Radiated Power - 404.85

Indicated			Test Antenna		Substituted						
Frequency (MHz)	Raw (dBuV)	Degree	Height (cm)	Polarity	Frequency (MHz)	Level (dBm)	Ant Gain (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
404.85	78.69	205	100	V	404.85	-28.77	0	1	-29.77	-16	-13.77
404.85	76.63	187	299	H	404.85	-31.87	0	1	-32.87	-16	-16.87

10.2 Radiated Measurements

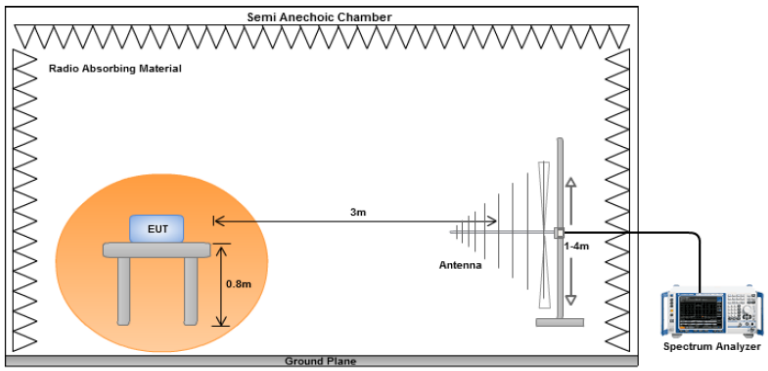
Radiated Measurements 30MHz to 1GHz

Requirement(s):

Spec	Requirement	Applicable
FCC 95.2579	Transmitter unwanted emissions per FCC and Canadian regulations emissions more than 250 kHz outside of the MICS band (402–405 MHz) or 100 kHz outside of the MEDS band (401–402 MHz and 405-406 MHz) shall be attenuated to a level no greater than the following field strength limits.	☒

Frequency range (MHz)	Field Strength (uV/m)
30 – 88	100
88 – 216	150
216 960	200
Above 960	500

Test Setup



Procedure

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
   a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. A Quasi-peak measurement was then made for that frequency point.
4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.

Test Date	05/14/2018 to 05/18/2018	Environmental conditions	Temperature 23°C Relative Humidity 48% Atmospheric Pressure 1026mbar
Remark	-		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes (See below) ☐ N/A

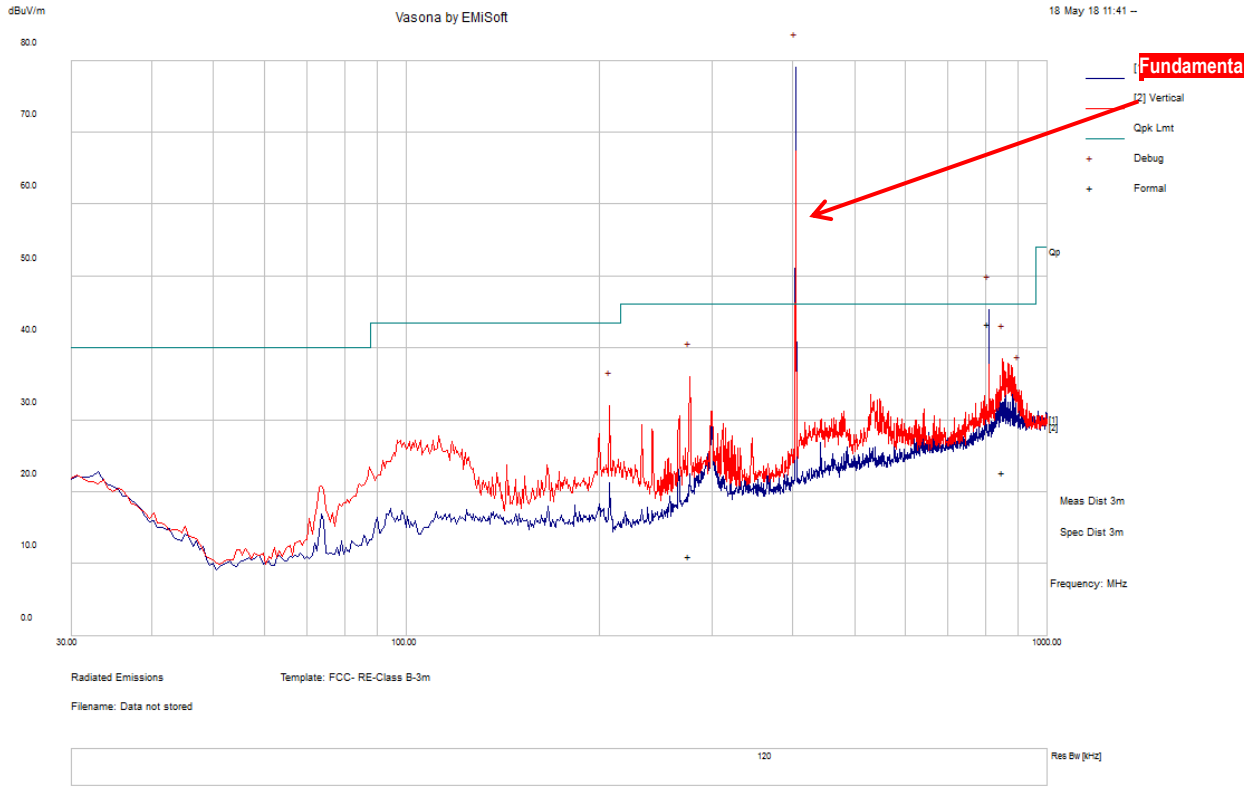
Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Cipher at 10 meter chamber.

Radiated Emission Test Results (Below 1GHz)

Test specification:	Radiated Emissions		
Mains Power:	3.2 VDC	Result:	☒ Pass ☐ Fail
Tested by:	Cipher		
Test Date:	05/14/2018 to 05/18/2018		
Remarks:	402.15 MHz		

f=30MHz – 1000MHz plot and 3 meter distance measurement

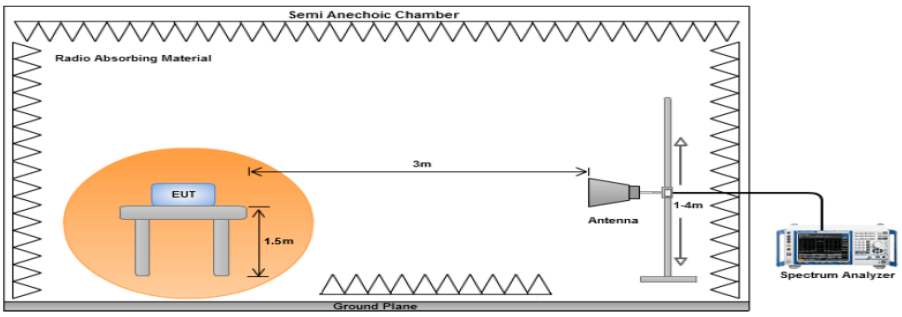


f=30MHz – 1000MHz and 3 meter distance measurement

Frequency MHz	Raw dBµV/m	Cable Loss	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
809.69	42.33	15.49	-14.73	43.09	Quasi Max	H	101	236	46	-2.91	Pass
851.75	20.67	15.53	-13.73	22.47	Quasi Max	V	125	294	46	-23.53	Pass
276.11	20.85	13.14	-23.12	10.87	Quasi Max	V	122	359	46	-35.13	Pass

10.2.1 Radiated Spurious Emissions above 1GHz

Requirement(s):

Spec	Requirement	Applicable
FCC 95.2579	For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. ☐ 20 dB down ☒ 30 dB down	☒
Test Setup		
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. An average measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.	
Remark	The EUT was scanned up to 6 GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case which is vertical.	
Result	☒ Pass ☐ Fail	

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Test was done by *Cipher* at *3m chamber*.

Radiated Emission-3 meter distance Measurements Test Results (Above 1GHz)

Above 1GHz – 402.15 MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
3779.55	39.8	11.37	1.4	52.57	Peak Max	V	102	195	74	-21.43	Pass
2654.02	41.49	9.3	-4.89	45.9	Peak Max	V	100	263	74	-28.1	Pass
1634.5	44.09	7.21	-11.82	39.48	Peak Max	V	100	146	74	-34.52	Pass
3779.55	26.91	11.37	1.4	39.68	Average Max	V	120	214	54	-14.32	Pass
2654.02	28.41	9.3	-4.89	32.82	Average Max	V	112	16	54	-21.18	Pass
1634.5	31.12	7.21	-11.82	26.51	Average Max	V	144	120	54	-27.49	Pass

Above 1GHz –403.35 MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1872.59	44.03	7.7	-9.01	42.72	Peak Max	V	100	126	74	-31.28	Pass
4874.55	39.8	13.2	3.76	56.76	Peak Max	V	142	121	74	-17.24	Pass
3798.52	40.27	11.41	1.55	53.23	Peak Max	V	210	132	74	-20.77	Pass
1872.59	30.86	7.7	-9.01	29.55	Average Max	V	143	9	54	-24.45	Pass
4874.55	25.93	13.2	3.76	42.89	Average Max	V	112	205	54	-11.11	Pass
3798.52	26.6	11.41	1.55	39.56	Average Max	V	144	359	54	-14.44	Pass

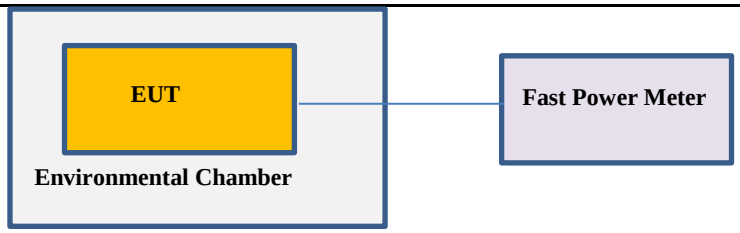
Above 1GHz – 404.85 MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
4715.25	41.07	13.03	2.86	56.96	Peak Max	V	102	255	74	-17.04	Pass
1876.95	45.06	7.7	-8.89	43.87	Peak Max	V	100	214	74	-30.13	Pass
2496.34	42.26	8.91	-6.2	44.97	Peak Max	V	132	29	74	-29.03	Pass
4715.25	25.93	13.03	2.86	41.82	Average Max	V	109	169	54	-12.18	Pass
1876.95	30.92	7.7	-8.89	29.73	Average Max	V	159	263	54	-24.27	Pass
2496.34	29.03	8.91	-6.2	31.74	Average Max	V	122	148	54	-22.26	Pass

10.2.2 Frequency Stability/Error

Requirement(s):

Spec	Requirement	Applicable
FCC 95.2565	Each MedRadio transmitter type must be designed to maintain a frequency stability of ±100 ppm of the operating frequency over the applicable temperature range set forth in this section. Frequency stability testing shall be performed over the appropriate temperature range. (a) 25 °C to 45 °C in the case of medical implant transmitters; and (b) 0 °C to 55 °C in the case of MedRadio programmer/control transmitters and medical body-worn	☒

Test Setup	 1. The EUT was set up inside an environmental chamber. 2. The EUT was placed in the centre of the environmental.			
Procedure	Frequency Stability was measured according to 47 CFR §2.1055. Measurement was taken with spectrum analyzer. The spectrum analyzer bandwidth and span was set to read in hertz. A voltmeter was used to monitor when varying the voltage.			
Test Date	05/14/2018 to 05/18/2018	Environmental conditions	Temperature Relative Humidity Atmospheric Pressure	23°C 48% 1026mbar
Remark	None			
Result	☒ Pass ☐ Fail			

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Test was done by Cipher at RF test site.

Test Result for Frequency Stability

Channel 1: 402.15 MHz

Test Conditions	Measured Frequency Condition MHz	Frequency Error PPM	Limit PPM
T (+25°C)	402.149752	-0.62	+/-100
T max (55°C)	402.150229	0.57	+/-100
T min (0°C)	402.149358	-1.60	+/-100

Channel 5: 403.35 MHz

Test Conditions	Measured Frequency Condition MHz	Frequency Error PPM	Limit PPM
T (+25°C)	403.346218	-9.38	+/-100
T max (55°C)	403.350833	2.07	+/-100
T min (0°C)	403.350724	1.79	+/-100

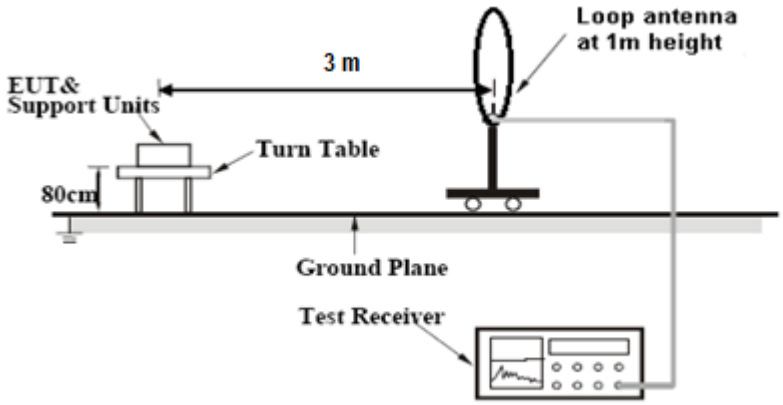
Channel 10: 404.85 MHz

Test Conditions	Measured Frequency Condition MHz	Frequency Error PPM	Limit PPM
T (+25°C)	404.849121	-2.17	+/-100
T max (55°C)	404.849117	-2.18	+/-100
T min (0°C)	404.850235	0.58	+/-100

10.2.3 Occupied bandwidth

Requirement(s):

Spec	Requirement	Applicable
FCC 95.2573	The transmitted signal bandwidth to be reported is to be its 99% emission bandwidth. The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. See RSS-GEN 4.6.1 for detailed method of measurement. • Each MedRadio transmitter type must be designed such that the MedRadio emission bandwidth does not exceed the applicable authorized bandwidth set forth in this section. (a) For MedRadio transmitters operating in the 402-405 MHz band, the maximum authorized bandwidth is 300 kHz. Such transmitters must not use more than 300 kHz of bandwidth (total) during a MedRadio communications session. This provision does not preclude full duplex or half duplex communications provided that the total bandwidth of all of the channels employed in a MedRadio communications session does not exceed 300 kHz.	☒

Test Setup	
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. To measure conducted, a SMA cable was used to replace the EUT antenna. To measure radiated, an external antenna was used to detect EUT transmission signal. 3. Measurement of the 99% Occupied Bandwidth of EUT transmission signal and make record.

Test Date	05/14/2018 to 05/18/2018	Environmental conditions	Temperature Relative Humidity Atmospheric Pressure	23°C 48% 1025mbar
Remark	-			
Result	☒ Pass ☐ Fail			

Test Data ☐ Yes (See below) ☒ N/A

Test Plot ☒ Yes (See below) ☐ N/A

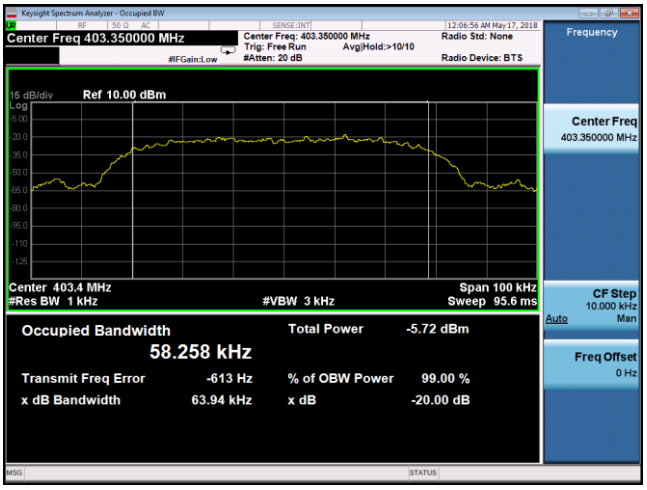
Test was done by Cipher at 10 meter chamber.

Test results:

402 MHz

Frequency (MHz)	Occupied Bandwidth (KHz)
402.15	58.20

403 MHz



Frequency (MHz)	Occupied Bandwidth (KHz)
403.35	58.26

405 MHz

Frequency (MHz)	Occupied Bandwidth (KHz)
404.85	58.17

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Radiated Emissions						
R & S Receiver	ESIB 40	100179	06/08/2017	1 Year	06/08/2018	☑
Pre-Amplifier (1-26.5GHz)	8449B	3008A00715	03/30/2018	1 Year	03/30/2019	☑
Preamplifier (100KHz-7GHz)	LPA-6-30	11140711	02/10/2018	1 Year	02/10/2019	☑
ETS-Lingren Loop Antenna	6512	49120	07/14/2017	1 Year	07/14/2018	☑
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	07/08/2017	1 Year	07/08/2018	☑
Horn Antenna (18-40 GHz)	AH-840	101013	07/15/2017	1 Year	07/15/2018	☑
Spectrum Analyzer	N9010A	10SL0219	08/02/2017	1 Year	08/02/2018	☑
Agilent Signal Generator	N5182A	MY47071065	04/12/2018	1 Year	04/12/2019	☑
Test Equity Environment Chamber	1007H	61201	07/21/2017	1 Year	07/21/2018	☑

Annex B. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		**Radio & Telecommunications Terminal Equipment:** EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)		Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
Hong Kong OFCA		**(Phase II)** OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		**Radio:** Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		**Radio**: A1. Terminal equipment for purpose of calling **Telecom**: B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		**EMI:** KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI **EMS:** KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS
		Radio: RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68
		Telecom: President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measurements
Australia CAB Recognition		**EMC:** AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4
		Radio communications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771
		Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016,AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2