

MEASUREMENT AND TECHNICAL REPORT

MEDTRONIC MINIMED 18000 Devonshire Street Northridge, CA 91325

DATE: 06 January 2006

| This Report Concerns: | Original Grant: X | X Class II Change: | | | | | | | |
|---|--------------------|---|-----------------------------|--|--|--|--|--|--|
| Equipment Type: | TGMS II | | | | | | | | |
| Deferred grant requested per 47 0.457(d)(1)(ii)? | CFR | Yes: Defer until: | No: X | | | | | | |
| Company Name agrees to notify Commission by: of the intended date of announce date. | | N/A duct so that the g | grant can be issued on that | | | | | | |
| Transition Rules Request per 15 | .37? Yes: | :: No: X* | | | | | | | |
| (*) FCC Part 15, Paragraph(s) 15.2 | 231(a), 15.231(c), | and 15.231(e) | | | | | | | |
| Report Prepared b | y: | TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 Fax: 858 546 0364 | | | | | | | |



TABLE OF CONTENTS

| | | | Pages |
|-----|---|-------------------------|--------|
| 1.0 | GENERAL INFORMATION | I | 3 - 4 |
| | 1.1 Product Description | | 3 |
| | GENERAL INFORMATION 1.1 Product Description 1.2 Related Submittal Grant 1.3 Tested System Details 1.4 Test Methodology 1.5 Test Facility SYSTEM TEST CONFIGURATION 2.1 Justification 2.2 EUT Exercise Software 2.3 Special Accessories 2.4 Equipment Modifications 2.5 Configuration of Test System DEACTIVATION EQUIPMENT/DATA EMISSION BANDWIDTH EQUIPMENT/DATA FIELD STRENGTH OF EMISSIONS EQUIPMENT/DATA ATTESTATION STATEMENT | | 3 |
| | 1.3 Tested System Detai | ils | 3 |
| | 1.4 Test Methodology | | 3 |
| | 1.5 Test Facility | | 4 |
| 2.0 | SYSTEM TEST CONFIGUR | RATION | 5 |
| | 2.1 Justification | | 5 |
| | 2.2 EUT Exercise Softwa | are | 5 |
| | 2.3 Special Accessories | | 5 |
| | 2.4 Equipment Modificati | ions | 5 |
| | 2.5 Configuration of Test | System | 5 |
| 3.0 | DEACTIVATION EQUIPME | ENT/DATA | |
| | EMISSION BANDWIDTH E | EQUIPMENT/DATA | |
| | FIELD STRENGTH OF EM | IISSIONS EQUIPMENT/DATA | 6 - 10 |
| 4.0 | ATTESTATION STATEME | NT | 11 |



1.0 GENERAL INFORMATION

1.1 Product Description

None

1.2 Related Submittal Grant

None

1.3 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests.

| Test Summary | | | | | | | | | | | | | |
|-----------------------------|-------------|-------------|---------------|-----------|------|--|--|--|--|--|--|--|--|
| | Paragraph _ | | | | | | | | | | | | |
| Test Description | Number | Mid Channel | High Channel | Pass/Fail | | | | | | | | | |
| | | | | | | | | | | | | | |
| Deactivation | 15.231(a) | | 50 mS | | Pass | | | | | | | | |
| | | | | | | | | | | | | | |
| Emissions Bandwidth | 15.231(c) | | 60.2 kHz | | Pass | | | | | | | | |
| | | | 68.8 dBμV/m @ | | | | | | | | | | |
| Field Strength of Emissions | 15.231(e) | | 418 MHz | | Pass | | | | | | | | |

Testing was performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983.

Report No. SC506393-08



1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 Fax: 858 546 0364

The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.



2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emissions in the following configuration:

See Test Setup Photos Exhibit

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Equipment Modifications

None

2.5 Configuration of Test System

See Test Setup Photos Exhibit



3.0 DEACTIVATION EQUIPMENT/DATA EMISSION BANDWIDTH EQUIPMENT/DATA FIELD STRENGTH OF EMISSIONS EQUIPMENT/DATA

Test Conditions: DEACTIVATION: FCC Part 15.231(a)

EMISSION BANDWIDTH: FCC Part 15.231(c)

FIELD STRENGTH OF EMISSIONS: FCC Part 15.231(e)

The following measurements were performed at the San Diego Testing Facility:

☐ - Test not applicable

■ - Roof (Small Open Area Test Site)

Test Equipment Used:

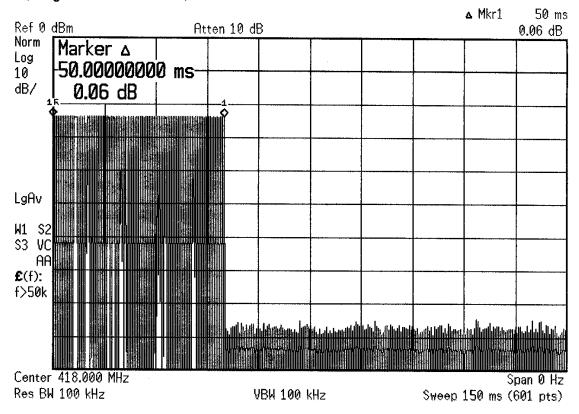
| Model No. | Prop. No. | Description | Serial No./Version No. | Date Cal'ed | | | |
|-----------|-----------|-----------------------------|------------------------|-------------|-------|--|--|
| 3146 | 243 | Log Periodic Dipole Antenna | EMCO | 106X | 06/05 | | |
| 3146 | 418 | Log Periodic Antenna | EMCO | 9402-3775 | 03/05 | | |
| 3115 | 453 | Double Ridge Antenna | EMCO | 9412-4364 | 08/05 | | |
| E4440A | 6814 | Spectrum Analyzer | Hewlett Packard | MY42510441 | 12/04 | | |
| | | | | | | | |
| HFOATS | | Test Software | TUV America | Beta231 | N/A | | |

Remarks: One year calibration cycle for all test equipment and sites.



FCC Part 15.231(a) - Deactivation

* Agilent 11:24:39 Dec 12, 2005

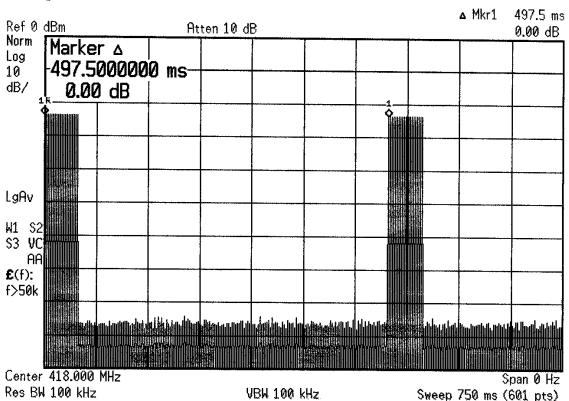




5-second interval cycle. "No transmit activity occurs prior to triggered graph" for the deactivation graph.



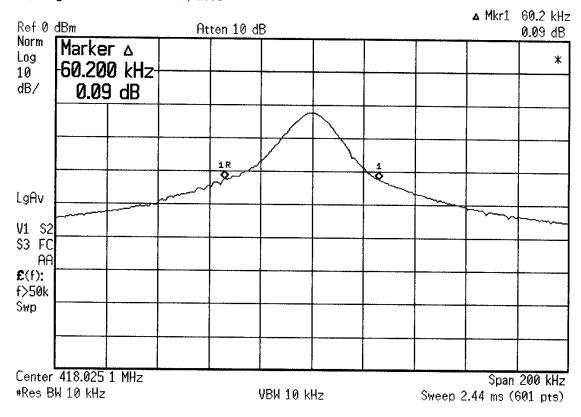
* Agilent 11:26:11 Dec 12, 2005





FCC Part 15.231(c) - Emission Bandwidth

* Agilent 11:47:07 Dec 12, 2005





| | | | | | | Notes | | ambient | | ambient | ambient | ambient | ambient | ambient | ambient | | | | | | | |
|----------------------------|------------------------------|---------------------|-----------------------|-------------------|---|---------------------------------|---------|---------|----------|----------|----------|----------|----------|----------|----------|---|--|---|---|---|-----------|--------------|
| | | | | | | Antenna Helght | - | | | | + | | | | | | | | + | | | |
| | | | | | Red 6814 | EUT Rotation | 87 | | 127 | 1 | | T | | | | 1 | | Ħ | | | \dagger | |
| FCC Part 15 para 15.231(e) | | | | | हत्युप्र | MARGIN (dB) pk av | -3.5 | -4.6 | -18.3 | -24.1 | -47.3 | -14.5 | -14.6 | -13.2 | -15.3 | | | | | | | |
| 15 para | 3 Meters | Roof | N/A | 418 | 453 | MARC | -11.5 | | | -32.1 | | -22.4 | -22.6 | -21.1 | -23.2 | | | | | 1 | | |
| CC Part | | Ai | ٠. | ,,, | (e) K | SPEC LIMIT (dBuV/m) pk av | _ | ₩ | - | 52.3 | | - | \vdash | \dashv | 52.3 | | | | | | | |
| ű. | TEST DIST: | TEST SITE: | BICONICAL: | 106: | OTHER: by Cycle) uty Cycle) tor Loss | | 92.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | | | | | | | |
| SPEC: | Ë | P | BIC | | OLOG(Du 20LOG(D F Preselec | L (dBuV/m) av | 68.8 | 47.7 | Ж 0 | 28.2 | 35.0 | 37.9 | 37.7 | 39.7 | 37.1 | | | | | | | |
| TESTER: RALPH COLE | | | | | Duty Cycle= 25% No other emissions detected above 1GHz: RBW & VBW 1 MHz for Pk; AVG = PK - 20LOG(Duty Cycle) below 1GHz: RBW & VBW 100 kHz for Pk; AVG = PK - 20LOG(Duty Cycle) CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss | CF (dB/m) MAX LEVEL (dBuV/m) | 80.9 | 59.8 | 46.0 | 40.3 | 47.0 | 49.9 | 49.8 | 51.2 | 49.1 | | | | | | | |
| HAYH | | | | | 25% No other emissions detected N & VBW 1 MHz for Pk; AVG = PK - V & VBW 100 KHz for Pk; AVG = PK - ttor + Cable Loss - Preamplifier Gain | CF (dB/m) | 16.3 | 22.6 | 28.3 | 31.2 | 34.6 | 36.9 | 38.3 | 39.7 | 40.1 | | | | | | | |
| R: 19 | | | | | No othe W 1 MH W 100 K | HORIZ (dBuv) pk DCav | 52.5 | 25.2 | 5.7 | 4.7 | 4.0 | 1.0 | -0.5 | -0.5 | -3.0 | | | | | | | |
| TESTE | ped | 43421 | | 2005 | 25% W & VB W & VB | | 64.6 | 37.2 | 17.7 | 10.2 | 12.4 | 13.0 | 11.5 | 11.5 | 9.0 | | | | | | | |
| 83 | cs Minin | SN: 11 | ter | December 12, 2005 | ile= SHz: RB SHz: RBi tenna Fa | VERT. (dBuv) pk DCav | 37.7 | 20.3 | 0.3 | 4.7 | 9.0 | 9.0- | -0.5 | -0.5 | -3.0 | | | | | | | |
| : SC5063! | Medtroni | TGMS II SN: 1143421 | Transmit | Decer | Duty Cycle= above 1GHz: below 1GHz: CF = Antenna | VERT. | 49.7 | 32.3 | 11.7 | 2.6 | 11.4 | 11.4 | 11.5 | 11.5 | 9.0 | | | | | | | |
| REPORT No: SC506393 | CUSTOMER: Medtronics Minimed | EUT: | EUT MODE: Transmitter | DATE: | NOTES: | FREQ (MHz) | 418.050 | 836.100 | 1254.150 | 2000 250 | 2508.300 | 2926.350 | 3344.400 | 3762.450 | 4180.500 | | | | | | | |



4.0 ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per CFR 47, Part(s) 15.231(a), 15.231(c), and 15.231(e)

■ - Performed

The Equipment Under Test

■ - Fulfills the requirements of CFR 47, Part(s) 15.231(a), 15.231(c), and 15.231(e)

Testing Start Date: 12 December 2005

Testing End Date: 12 December 2005

- TÜV AMERICA, INC. -

Reviewing Engineer:

David Gray

(EMC Engineer In Charge)

Wail Ufue

Test Engineer:

Ralph Cole

(EMC Engineer)