Report On

FCC Testing of the NEWTECH, INC.
Short Range Device Vital Signs Monitor NT1D
In accordance with FCC CFR 47 Part 15 Part C

COMMERCIAL-IN-CONFIDENCE

FCC ID: XPANT1D

Document 57009051 Report 01 Issue 1 September 2009

Product Service

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REPORT ON

FCC CRF 47 Parts 15 C: 2008 Testing of the
NEWTECH, INC. Short Range Device Vital Signs Monitor NT1D

Document 57009051 Report 01 Issue 1

September 09

PREPARED FOR

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PREPARED BY

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Project Engineer

APPROVED BY

Li Qun
Project engineer

DATED

4 September 2009

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47: Part 15. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

Q Li X Zhang

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Product Service

SECTION 1

REPORT SUMMARY

FCC Testing of the NEWTECH, INC.
Short Range Device Vital Signs Monitor NT1D
in accordance with FCC CFR 47 Part 15C

Product Service

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the NEWTECH, INC. Short Range Device Vital Signs Monitor NT1D to the requirements of FCC CFR 47 Part 15C: 2008.

Testing was carried out in support of an application for Grant of Equipment Authorisation of Short Range Device Vital Signs Monitor NT1D.

Objective	To perform FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	NEWTECH, INC.
Model Number(s)	Short Range Device Vital Signs Monitor NT1D
Serial Number(s)	Engineering sample
Antenna Gain	-0.3dBi
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15C: 2008
Incoming Release Date	Declaration of Build Status 24 July 2009
Start of Test	28 July 2009
Finish of Test	27 August 2009
Name of Engineer(s)	Q Li X Zhang
Related Document(s)	FCC CFR 47 Part 15:2008 ANSI C63.4:2003

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1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results in accordance with FCC CFR 47 Part 15: 2008 is shown below.

Configuration - Short Range Device Vital Signs Monitor						
Section	FCC Clause	Test Description	Mode	Mod State	Result	Comments
2.1	15.249 (a)(e)	Field Strength and Harmonics	2440 MHz	0	Pass	-
2.2	15.49 (c)(d)(d) 15.209	Radiated Spurious Emissions	2440 MHz	0	Pass	-
2.3	2.1049 (h)	Occupied Bandwidth	2440 MHz	0	Pass	-
2.4	15.207	Conducted Emissions on Power Line	2440 MHz	0	Pass	-

Product Service

1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Short Range Device Vital Signs Monitor
MANUFACTURER	NEWTECH, INC.
TYPE	NT1D
PART NUMBER	--
SERIAL NUMBER	Engineering sample
HARDWARE VERSION	--
SOFTWARE VERSION	--
TRANSMITTER OPERATING RANGE	2440MHz
RECEIVER OPERATING RANGE	2440MHz
COUNTRY OF ORIGIN	P.R. CHINA
INTERMEDIATE FREQUENCIES	--
ITU DESIGNATION OF EMISSION	1M36F1D
HIGHEST INTERNALLY GENERATED FREQUENCY	2440MHz
FCC ID	XPANT1D
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	NT1D is a Short Range Device Vital Signs Monitor
MANUFACTURING DESCRIPTION	The Vital Signs Monitor NT1D was powered by 4xAA size Ni-MH Batteries and alkaline batteries: 4.4 – 6.0Vdc normal; The batteries could be charged by the adaptor: Model Type: NT-CHR1 Manufacturer: NEWTECH, INC. Input: 100 – 240Vac, 50/60Hz Output: 9Vdc, 0.5A; 6Vdc, 0.5A

Signature Tang Dekai
Date 20 July 2009
D of B S Serial No 57009051

No responsibility will be accepted by TÜV Product Service Beijing Branch as to the accuracy of the information declared in this document by the manufacturer.

Product Service

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) NT1D was a NEWTECH, INC. Short Range Device Vital Signs Monitor as shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.

Equipment Under Test

Product Service

1.4.2 Test Configuration

Configuration 1: 2.4GHz Short Range Device

The EUT was configured in accordance with FCC CFR 47 Part 15: 2008.

1.4.3 Modes of Operation

Operation Modes

Mode 1 – 2440 MHz

Information on the specific test modes utilised are detailed in the test procedure for each individual test.

Product Service

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure, test laboratories or an open test area as appropriate.

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.7 MODIFICATION RECORD

Modification State	Description of Modification fitted to EUT	Sample S/N
0	Initial sample supplied by customer	Engineering sample

No modifications were made to the EUT during testing.

1.8 ALTERNATIVE TEST SITE

The testing was conducted at following site registrations:

FCC Accreditation
910917 The State Radio Monitoring Center, No.80 Beilishi Road Xicheng District Beijing, China.

Product Service

SECTION 2

TEST DETAILS

FCC Testing of the NEWTECH, INC.
Short Range Device Vital Signs Monitor NT1D
in accordance with FCC CFR 47 Part 15C

2.1 FIELD STRENGTH AND HARMONICS

2.1.1 Specification Reference

FCC CFR 47 Part 15: 2008, Subpart C, Clause 15.249(a)(e)

2.1.2 Equipment Under Test

Short Range Device Vital Signs Monitor NT1D

2.1.3 Date of Test and Modification State

06 August 2009 – Modification State 0

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2008.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within a semi-anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

Emissions identified within the range 2.4GHz – 2.4385GHz were formally measured using Peak and Average Dectectors, as propriate.

The measurements were performed at a 3m distance unless otherwise stated.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration1 - Mode 1

2.1.6 Environmental Conditions

	06 August 2009
Ambient Temperature	23.2°C
Relative Humidity	24.1%

Product Service

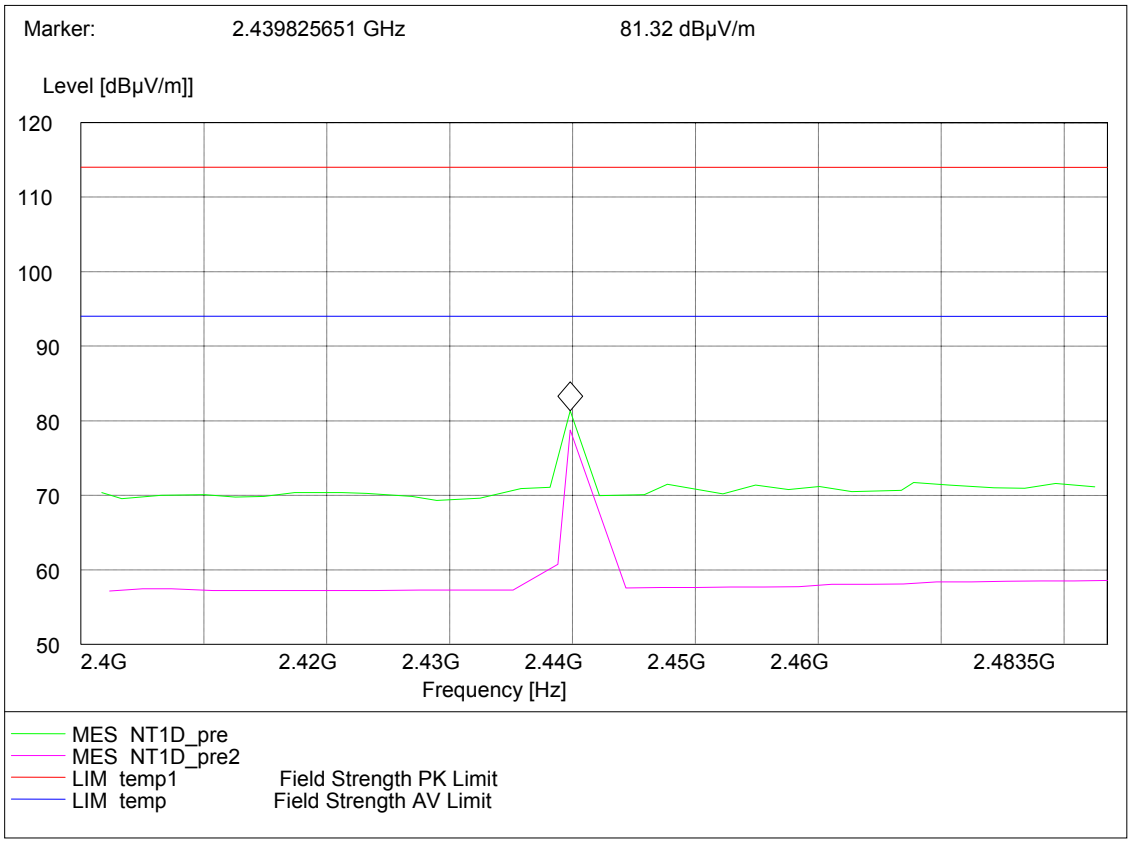
2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15: 2008 for Field Strength and Harmonics.

The test results are shown below.

Configuration 1 - Mode 1

Fundamental Frequencies



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Harmonic Frequencies

Harmonic Frequency (MHz)	Polarisation	Height (cm)	Azimuth (degree)	Field Strength		Limit	
				dBµV/m	µV/m	dBµV/m	µV/m
4880	Vertical	100.00	0.00	25.13 AV	18.05	54.0	500
4880	Vertical	100.00	0.00	42.75 PK	137.25	74.0	5000
7320	Horizontal	400.00	0.00	29.03 AV	28.28	54.0	500
7320	Horizontal	100.00	0.00	41.86 PK	123.88	74.0	5000
9760	Horizontal	400.00	180.00	26.47 AV	21.06	54.0	500
9760	Vertical	300.00	270.00	39.91 PK	98.97	74.0	5000
12200	Horizontal	100.00	270.00	30.35 AV	32.92	54.0	500
12200	Horizontal	400.00	180.00	43.37 PK	147.40	74.0	5000
14640	Horizontal	100.00	270.00	28.87 AV	27.77	54.0	500
14640	Horizontal	400.00	180.00	43.21 PK	144.71	74.0	5000
17080	Horizontal	400.00	180.00	33.63 AV	48.03	54.0	500
17080	Vertical	400.00	0.00	47.44 PK	235.50	74.0	5000
19520	Vertical	400.00	90.00	39.24 AV	91.62	54.0	500
19520	Horizontal	200.00	0.00	54.24 PK	515.23	74.0	5000
21960	Vertical	400.00	90.00	44.65 AV	170.80	54.0	500
21960	Horizontal	400.00	0.00	57.14 PK	749.89	74.0	5000
24400	Vertical	400.00	90.00	50.71 AV	343.16	54.0	500
24400	Vertical	400.00	0.00	63.45 PK	1487.65	74.0	5000

Limit	Fundamental : ≤50mV/m or ≤94dBµV/m ≤500mV/m or ≤114dBµV/m Harmonics: ≤500 µV/m or ≤54dBµV/m(Avg) ≤5000 µV/m or ≤74dBµV/m(PK)

Remarks

The field strength of emissions from the intentional radiator operated in the 2400MHz to 2483.5MHz band did not exceed 50mW/m or 94/m (Average) & 500mW/m or 114/m (Peak) for the fundamental, 500 µV/m or 54dBµV/m (Average) & 5000 µV/m or 74dBµV/m (Peak) for harmonics.

2.2 RADIATED SPURIOUS EMISSIONS

2.2.1 Specification Reference

FCC CFR 47 Part 15: 2008, Subpart C, Clause 15.249(c)(d)(e),15.209

2.2.2 Equipment Under Test

Short Range Device Vital Signs Monitor NT1D

2.2.3 Date of Test and Modification State

06 August 2009 – Modification State 0

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2008.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations.

Emissions identified within the range 30MHz – 1GHz were then formally meausred using a Peak detector. Emissions identified withing the range 1GHz – 25GHz were then formally measured using Peak and Average Dectectors, as propriate.

The measurements were performed at a 3m distance unless otherwise stated.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1

2.2.6 Environmental Conditions

	06 August 2009
Ambient Temperature	23.2°C
Relative Humidity	24.1%

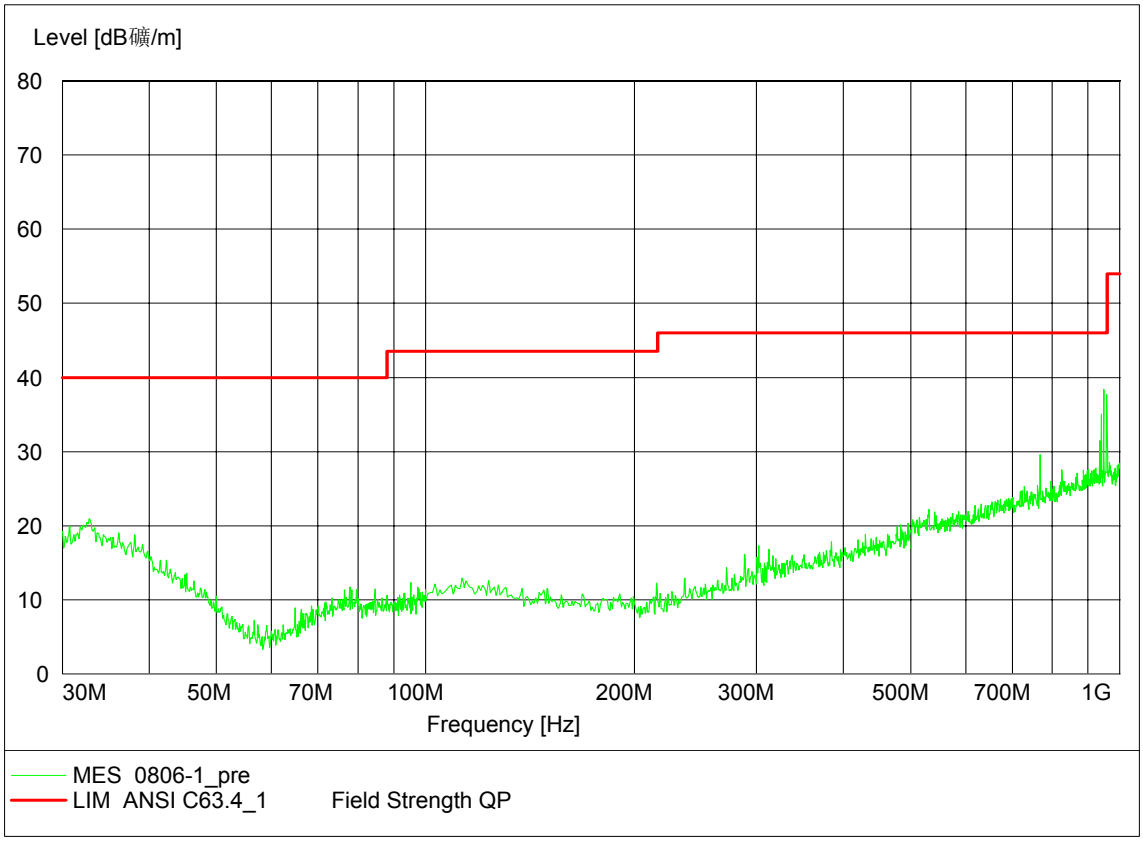
Product Service

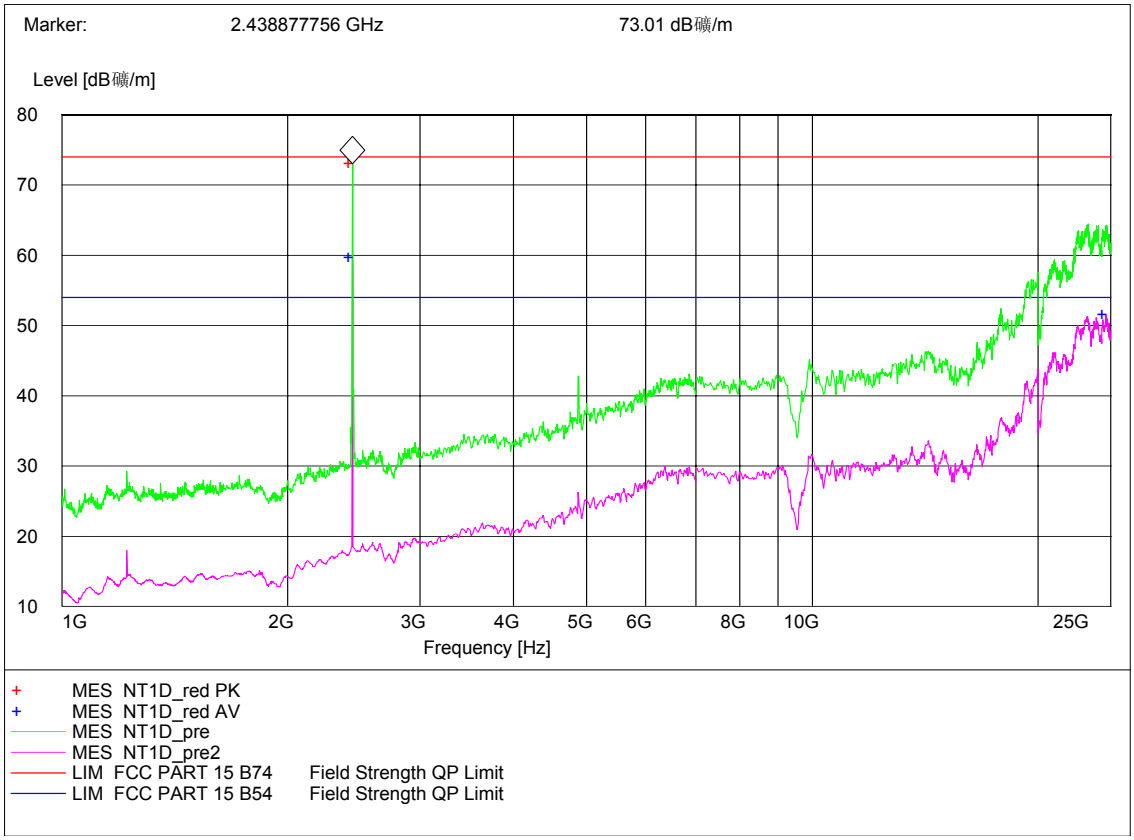
2.2.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15: 2008 Radiated Spurious Emissions.

The test results are shown below.

Configuration 1 - Mode 1





Note: The emission beyond the limit is the operating frequency.

Limit

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30 – 88	100	40.0	3
88 – 216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

Remarks

The EUT does not exceed the limit at the measured frequency.

Product Service

2.3 OCCUPIED BANDWIDTH

2.3.1 Specification Reference

FCC CFR 47 Part 2: 2008, Clause 2.1049(h)

2.3.2 Equipment Under Test

Short Range Device Vital Signs Monitor NT1D

2.3.3 Date of Test and Modification State

28 July 2009 – Modification State 0

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2: 2008.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1

2.3.6 Environmental Conditions

	28 July 2009
Ambient Temperature	23.6°C
Relative Humidity	24.3%

Product Service

2.3.7 Test Results

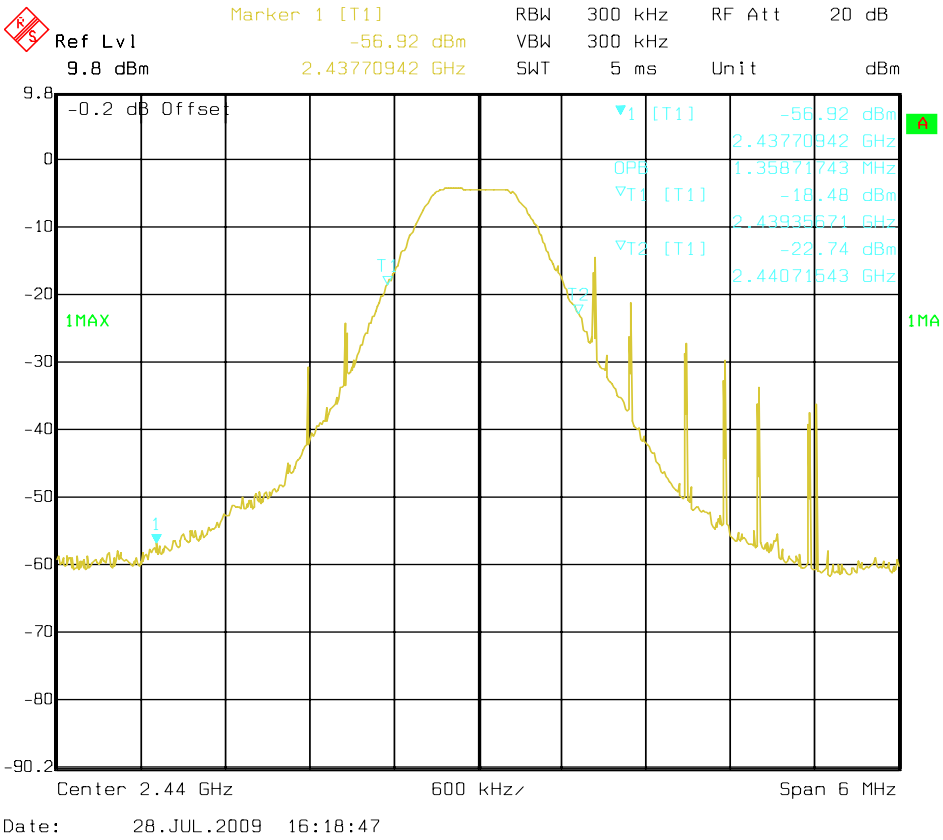
For the period of test the EUT met the requirements of FCC CFR 47 Part 2: 2008 for Occupied Bandwidth.

Configuration 1 - Mode 1

Frequency (MHz)	Occupied bandwidth (MHz)
2440	1.36

The plot of test result are shown below.

Configuration 1 - Mode 1



Product Service

2.4 CONDUCTED EMISSION ON POWER LINE

2.4.1 Specification Reference

FCC CFR 47 Part 15: 2008, Subpart C, Clause 15.207

2.4.2 Equipment Under Test

Short Range Device Vital Signs Monitor NT1D

2.4.3 Date of Test and Modification State

27 August 2009 – Modification State 0

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 15: 2008.

Emissions were formally measured using a Quasi-Peak and Average Detectors, which meet the CISPR requirements. The details of the worst-case emissions for the Live and Neutral Lines are presented in the tables below.

Conducted Emission were measured on Live and Neutral Lines in turn.

Measurements were made over the frequency range 0.15MHz to 30MHz.

The EUT was supplied from a 6.0Vdc, 0.5A AC/DC Adatptor (Model: NT-CHR1).

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1

2.4.6 Environmental Conditions

	27 August 2009
Ambient Temperature	23.3°C
Relative Humidity	24.4%

Product Service

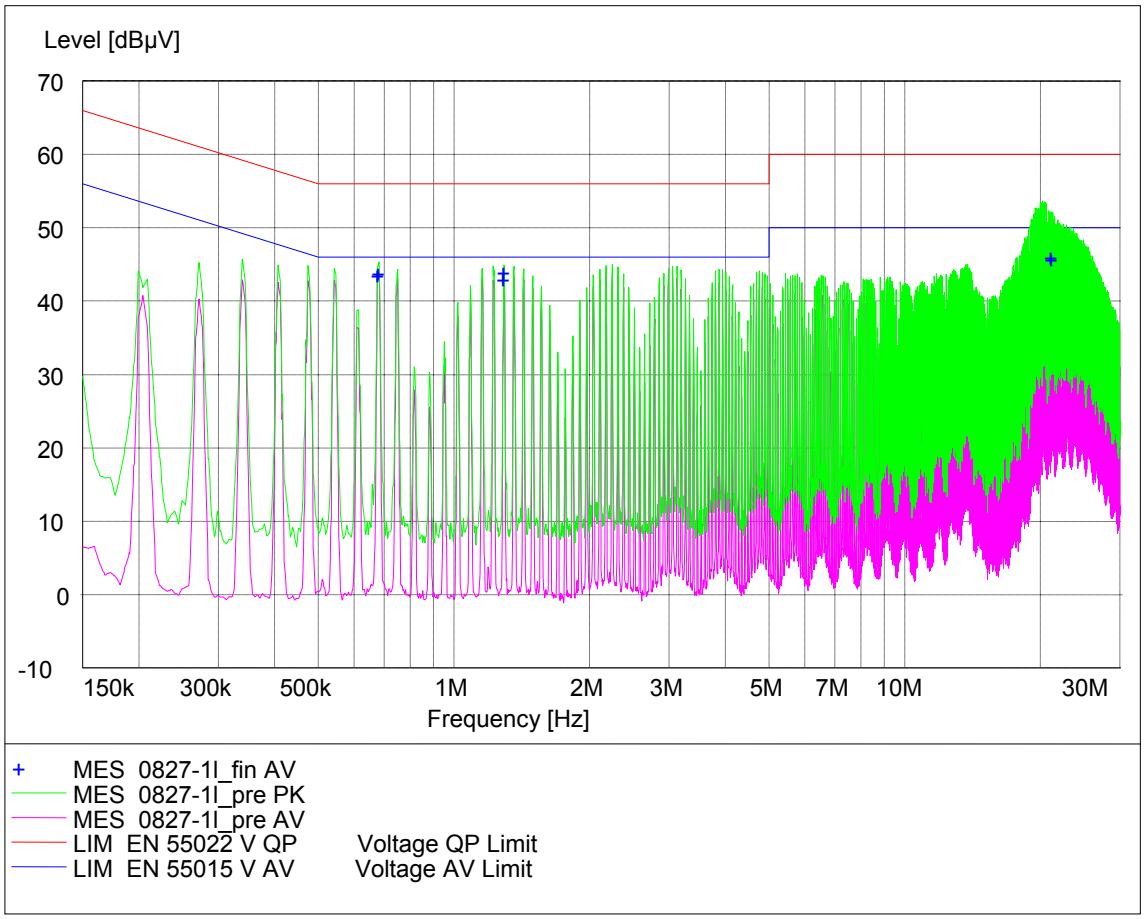
2.4.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15: 2008 for Conducted Emissions on Power Line.

The plots of test results are shown below.

Configuration 1 - Mode 1

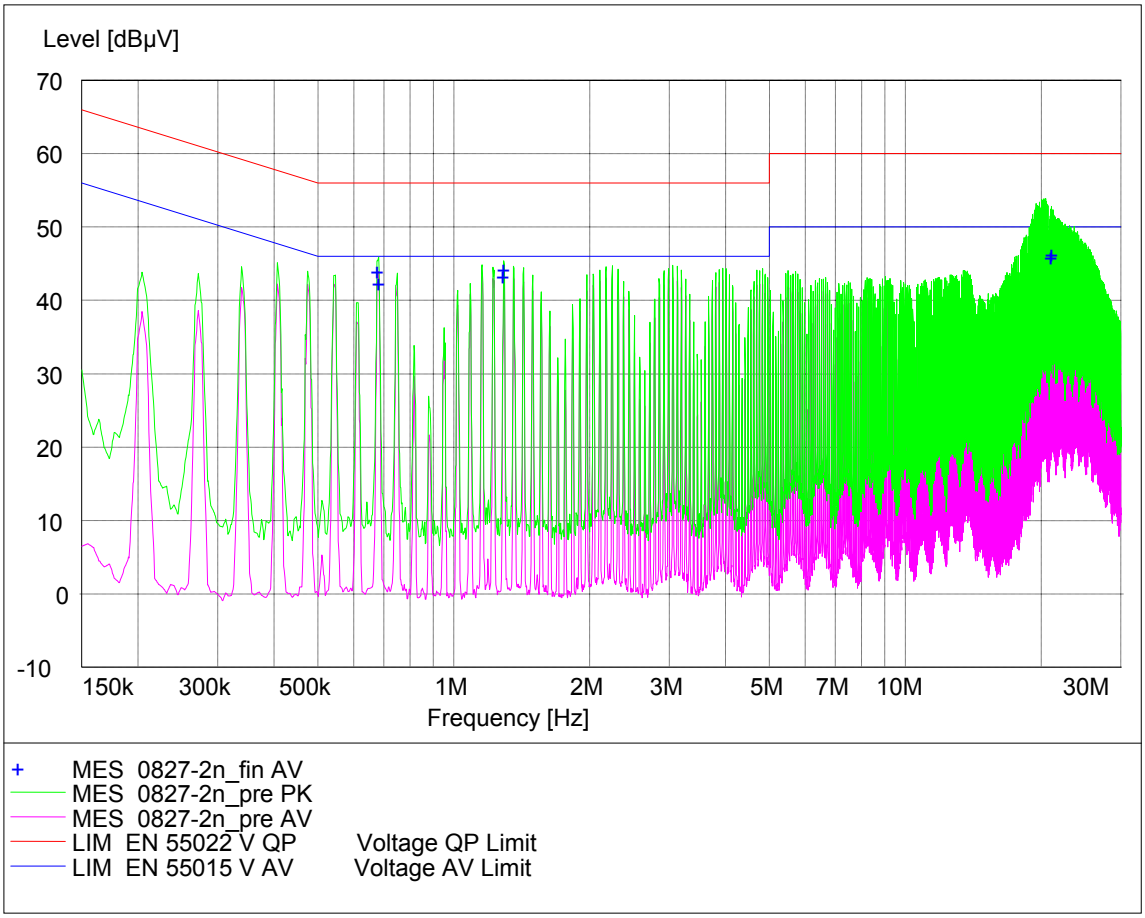
Live Line



Emission Frequency (MHz)	Average Level	Margin	Average Limit	
	dBµV	dB	dBµV	µV
0.677500	43.50	2.5	46.00	200.00
0.679000	43.80	2.2	46.00	200.00
1.288000	43.00	3.0	46.00	200.00
1.291000	44.00	2.0	46.00	200.00
21.128500	46.00	4.0	50.00	316.00
21.197500	45.80	4.2	50.00	316.00

Product Service

Neutral Line



Emission Frequency (MHz)	Average Level	Margin	Average Limit	
	dBµV	dB	dBµV	µV
0.678000	44.00	2.0	46.00	200.00
0.682000	42.40	3.6	46.00	200.00
1.288000	43.40	2.6	46.00	200.00
1.290000	44.30	1.7	46.00	200.00
21.057000	45.90	4.1	50.00	316.00
21.125000	46.30	3.7	50.00	316.00

Product Service

SECTION 3

TEST EQUIPMENT USED

Product Service

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	Serial No.	Calibration Due
Spectrum Analyser	R&S	FSEK30	838495	2010/08/19
Network Analyzer	Agilent	E8363B	MY43030474	2010/08/19
EMI Receiver	Rohde & Schwarz	ESI 40	100015	2010/08/19
Ultra log test antenna	Rohde & Schwarz	HL562	100167	2010/08/19
Double-Ridged Waveguide Horn Antenna	Rohde & Schwarz	HF 906	100029	2010/08/19
Antenna master	Frankonia	MA 260	-	TU
Relay Switch Unit	Rohde & Schwarz	331.1601.31	338965002	TU
Semi- Anechoic Chamber	Frankonia	23.18m×16.88m×9.60m	-	2010/09/23
Turn Table	Frankonia	PS2000	-	2010/08/19
EMI test software	Rohde & Schwarz	ES-K1	-	TU
EMI Test receiver	Rohde & Schwarz	ESCS	100029	2010/08/19
LISN	Rohde & Schwarz	ESH2Z11	50FH-020-10	2010/08/19
Thermo-hygrometer	AZ Instruments	8705	9151655	2010/12/16

TU Traceability Unscheduled

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Worst case error for both Time and Frequency measurement 12 parts in 10^6.		

* In accordance with CISPR 16-4

Product Service

SECTION 4

DISCLAIMERS AND COPYRIGHT

Product Service

4.1 DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.