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Test Report: 93086TRFWL


Applicant: Lifescan Inc
1000 Gibraltar Drive
Milpitas, CA
95035-6312 USA

Apparatus: OneTouch® Ultralink™ Meter

FCC ID: I5Q512

In Accordance With: FCC Part 15 Subpart C, 15.249
Operation in the 902-928MHz, 2400 - 2483.5 MHz,
5725-5875MHz and 24.0-24.25 GHz

Tested By: Nemko Canada Inc.
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Authorized By: 
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Date: September 19, 2007

Total Number of Pages: 18

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed: OneTouch® Ultralink™ Meter

Specification: FCC Part 15 Subpart C, 15.249

Compliance Status: Complies

Exclusions: None

Non-compliances: None

Report Release History: Original Release

Author: Jason Nixon, Telecom Specialist

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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Section 1 : Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

OneTouch® Ultralink™ Meter (P/N: 2124601)

1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
1	OneTouch® Ultralink™ Meter (Slave)	100008
2	OneTouch® Ultralink™ Meter (Master)	100050
3	OneTouch® Ultralink™ Meter (Master)	100004
4	OneTouch® Ultralink™ Meter (Slave)	100120

The first samples were received on: September 17, 2007

1.3 Theory of Operation

The EUT is a glucose meter, which can transmit a reading to a partner device using 916.5MHz RF signals.

1.4 Technical Specifications of the EUT

Operating Frequency:	916.5MHz
Emission Designator	P1D
Modulation:	Pulse modulated
Antenna Data:	Integral
Power Source:	2x “AAA” batteries

Section 2 : Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.249

Operation in the 902-928MHz, 2400 - 2483.5 MHz, 5725-5875MHz
and 24.0-24.25 GHz bands

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range : 15 – 30 °C
Humidity range : 20 - 75 %
Pressure range : 86 - 106 kPa
Power supply range : +/- 5% of rated voltages

2.4 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
EMI Test Chamber 3m	TDK	SAC-3	FA002047	May 19/08
Biconical	Sunol	BC2	FA002078	July 25/08
Log Periodic Antenna	Sunol	LP5	FA002077	July 25/08
Flush Mount Turntable	Sunol	FM2022	FA002082	NCR
Controller	Sunol	SC104V	FA002060	NCR
Mast	Sunol	TLT2	FA002061	NCR
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU	FA002043	Oct. 24/07
50 Coax cable	HUBER + SUHNER	None	FA002022	July 3/08
50 Coax cable	HUBER + SUHNER	None	FA002015	July 3/08
Horn Antenna #2	EMCO	3115	FA000825	Jan. 30/08
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	Aug. 21/08
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	Aug. 21/08
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	Aug. 21/08
5.0 – 18.0 GHz Amplifier	NARDA	DWT-186N23U40	FA001409	COU

COU – Calibrate on Use

NCR – No Calibration Required

2.5 Measurement Uncertainty

Nemko Canada measurement uncertainty has been calculated using guidance of UKAS LAB 34:2003 and TIA-603-B Nov 7, 2002. All calculations have been performed to provide a confidence level of 95% and can be found in Nemko Canada document MU-003.

Section 3 : Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

There were no additional observations made during this assessment.

Section 4 : Results Summary

This section contains the following:

FCC Part 15 Subpart C : Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

- N No : not applicable / not relevant.
- Y Yes : Mandatory i.e. the apparatus shall conform to these tests.
- N/T Not Tested, mandatory but not assessed. (See section 3.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

4.1 FCC Part 15 Subpart C : Test Results

Part 15	Test Description	Required	Result
15.31(e)	Variation of power supply	N	
15.207(a)	Powerline Conducted Emissions	N	
15.209(a)	Radiated Emissions within Restricted Bands	Y	PASS
15.215(c)	20dB Bandwidth	Y	PASS
15.249(a)	Radiated emissions not in Restricted Bands	Y	PASS
15.249(b)	Fixed Point-to-Point operation in the 24.0-24.25 GHz Band	N	
15.249(d)	Spurious emissions (except Harmonics)	Y	PASS

Notes:

Appendix A : Test Results

Clause 15.215(c) 20dB Bandwidth

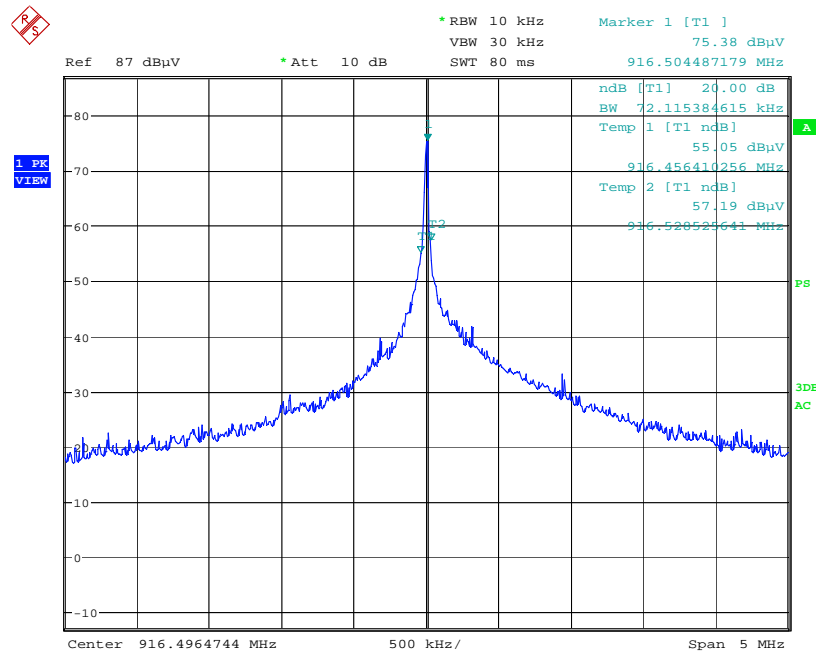
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Test Conditions:

Sample Number:	1	Temperature (°C):	24
Date:	September 17, 2007	Humidity (%):	33
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results: See Attached Plots.

20dB Bandwidth:



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Clause 15.249(a) Radiated emissions not in Restricted Bands

Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Clause 15.209(a) Radiated Emissions within Restricted Bands

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Conditions:

Sample Number:	1	Temperature (°C):	24
Date:	September 17, 2007	Humidity (%):	33
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	3m Chamber

Test Results: See attached Table

Emissions found in the Restricted bands defined in FCC Part 15 Subpart C, 15.205 have been assessed to the requirements of 15.209(a).

Additional Observations:

The Spectrum was searched from 30MHz to 10GHz.

The EUT was measured on three orthogonal axis with fresh new batteries.

All measurements were performed at 3m below 8GHz and at 1m above 8GHz. Measurements below 1GHz were performed using a 100kHz RBW/300kHz VBW Peak detector and measurements above 1GHz were performed using a 1MHz RBW/3MHz VBW Peak detector. Peak detectors were used due to the EUT being pulse modulated.

Corr values include all cable losses and antenna factors and for harmonic emissions also include pre-amp gains.

Frequency (MHz)	Rcvd Level (dBμV/m)	Polarity	Corr. (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
916.50	66.70	V	24.72	91.42	94	2.58
916.50	63.90	H	25.49	89.39	94	4.61
1833.00	61.86	V	-17.82	44.04	54	9.96
1833.00	69.14	H	-17.02	52.12	54	1.88
2749.50	74.26	V	-24.19	50.07	54	3.93
2749.50	74.70	H	-23.39	51.31	54	2.69
3666.00	63.41	V	-18.40	45.01	54	8.99
3666.00	63.95	H	-18.00	45.95	54	8.05
4582.50	61.21	V	-17.71	43.50	54	10.50
4582.50	61.02	H	-17.98	43.04	54	10.96
5499.00	58.88	V	-14.01	44.87	54	9.13
5499.00	60.95	H	-14.01	46.94	54	7.06
6415.50	60.40	V	-14.73	45.67	54	8.33
6415.50	60.28	H	-14.82	45.46	54	8.54
7332.00	60.56	V	-12.82	47.74	54	6.26
7332.00	62.16	H	-12.85	49.31	54	4.69
9165.00	47.72	V	-4.28	43.44	54	10.56
9165.00	46.65	H	-4.35	42.30	54	11.70

Clause 15.249(d) Spurious emissions (except Harmonics)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Test Conditions:

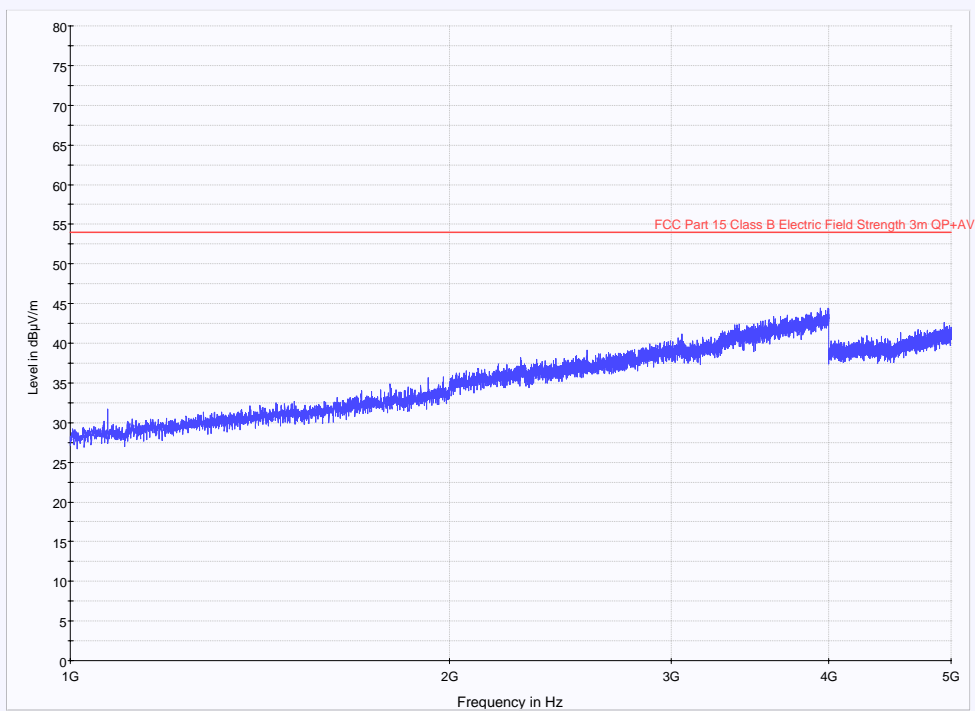
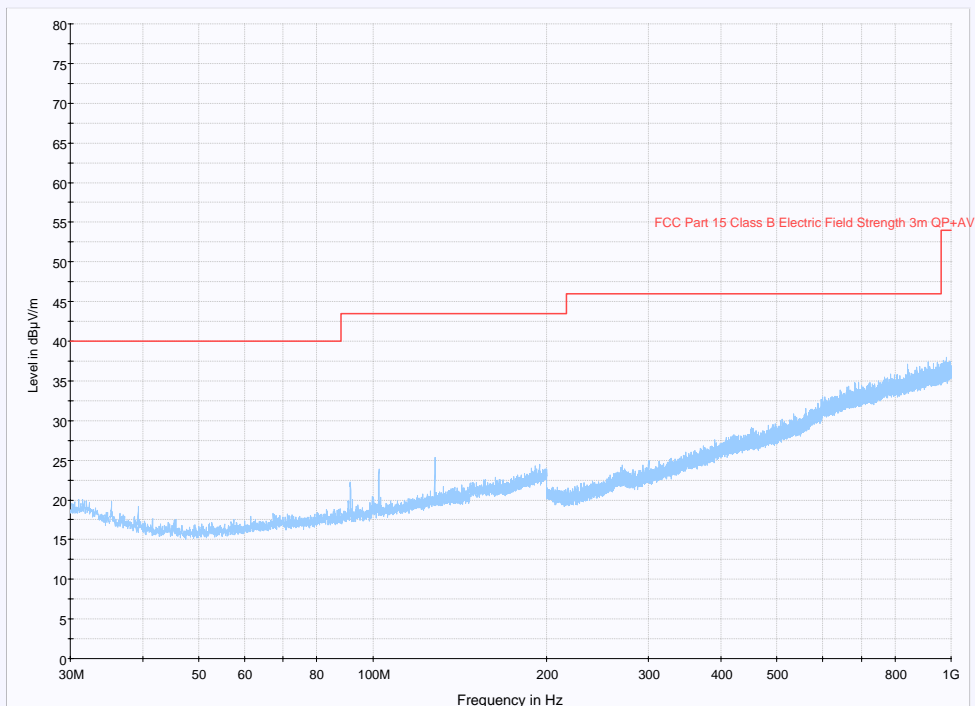
Sample Number:	1	Temperature (°C):	25
Date:	September 18, 2007	Humidity (%):	34
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	3m chamber

Test Results: See attached plots.

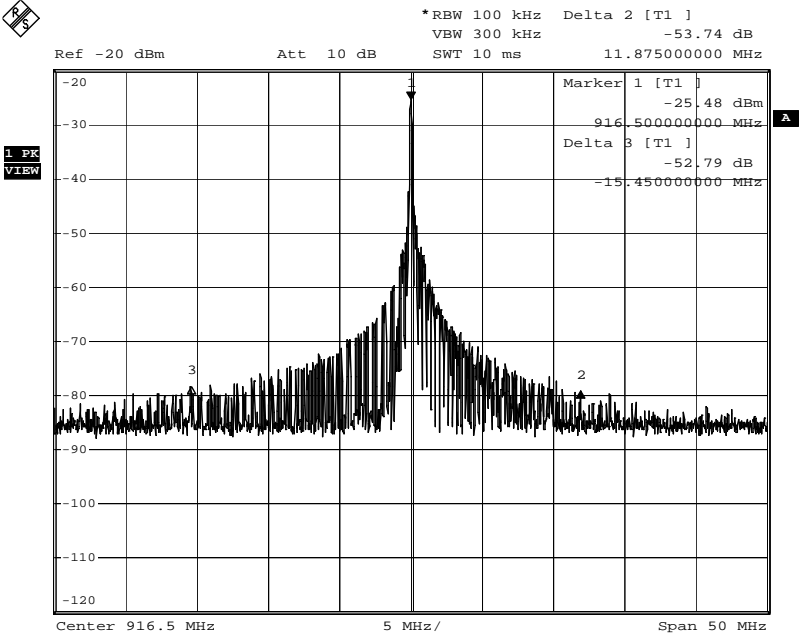
Additional Observations:

All plots were taken with a Receiver set in scan mode using an IF bandwidth of 120kHz Peak detector below 1GHz and an IF bandwidth of 1MHz Peak detector above 1GHz. All plots are corrected with the cable loss and antenna factors, and amplifier gain for measurements above 1GHz, to show compliance with the limits of 15.209. Measurements were performed at 3meters.

The EUT was in Rx mode with fresh new batteries.



Bandedges



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Appendix B : Setup Photographs

Spurious Emissions Setup:





Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions

