FCC PART 15, SUBPART B and C
TEST REPORT

for

ZIGBEE TEMPERATURE SENSOR

MODEL: PST6000

Prepared for

TELKONET, INC.
10200 INNOVATION DRIVE, SUITE 300
MILWAUKEE, WISCONSIN 53226

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested:	Zigbee Temperature Sensor Model: PST6000 S/N: N/A
Product Description:	See Expository Statement.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Telkonet, Inc. 10200 Innovation Drive, Suite 300 Milwaukee, Wisconsin 53226
Test Dates:	February 7 and 15, 2012; November 20 and 28, 2012; December 4, 2012; and January 22 and 29, 2013
Test Specifications:	EMI requirements CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247
Test Procedure:	ANSI C63.4
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.209
3	Spurious Radiated RF Emissions, 10 kHz – 30 MHz and 1000 MHz – 25000 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.247(d)
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
5	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
6	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3)
7	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
8	Peak Power Spectral Density from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Zigbee Temperature Sensor, Model: PST6000. The emission measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note #1: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Telkonet, Inc.

Clark Stremke	Senior RF Engineer

Compatible Electronics Inc.

David Tran	Test Technician
Kyle Fujimoto	Test Engineer
Michael Christensen	Lab Manager, Brea Division

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

The test sample has not been returned to Telkonet, Inc as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
KDB 558074 D01 Meas Guidance v02	Guidance for Performing Compliance Measurements on Digital Transmissions Systems (DTS) Operating Under 15.247
ANSI C63.10 2009	American National Standard for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

AC Mode: The Zigbee Temperature Sensor, Model: PST6000 (EUT) was connected to the AC public mains, sensor, router, and a 50 ohm load. The EUT also had 2 unterminated cables attached to it. The EUT was continuous transmitting and receiving depending on the test.

DC Mode: The Zigbee Temperature Sensor, Model: PST6000 (EUT) was connected to the DC power supply, sensor, router, and a 50 ohm load. The EUT also had 2 unterminated cables attached to it. The EUT was continuous transmitting and receiving depending on the test.

Repeater Mode: The EUT was setup was described in the modes above. The EUT was transmitting to a second PST6000 that was placed approximately 100 feet away. The EUT then re-transmitted the original to a third PST6000 unit that was placed approximately 100 feet away from the second PST6000.

During the preliminary investigation it was determined that the AC mode was the worst case for emissions and the final radiated data as well as the conducted data was taken in this mode.

The EUT was also verified in Repeater Mode to insure that the emissions did not go higher.

Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1 **AC Mode Only:** This is a 2-meter unshielded cable connecting the EUT to the AC public mains. The cable is hard wired into a 10-pin terminal block and has a standard 3-prong plug at the AC public mains end

Cable 2 **DC Mode Only:** This is 2-meter cable connecting the EUT to the DC power supply. The cable is hard wired into a 10-pin terminal block and has a standard 3-prong plug at the DC power supply end.

Cable 3 This is a 1.5-meter unshielded cable connecting the EUT to the sensor. The cable has a 12-pin molex connector at the EUT end and is hard wired into the sensor. The cable was bundled to a length of 40-centimeters.

Cable 4 This is a 1.2-meter unshielded cable connecting the EUT to an RJ-45 coupler. The cable as a 12-pin molex connector at the EUT end and is hard wired into the RJ-45 coupler. The cable was bundled to a length of 1-meter.

Cable 5 This is a 1-meter unshielded cable connecting the RJ-45 coupler to the router. The cable has an RJ-45 connector at the router end and is hard wired into the RJ-45 coupler.

Cable 6 This is a 3-meter unshielded cable connecting the EUT to a 50 ohm load. The cable has a 12-pin molex connector at the EUT end and a 50-amp load at the other end. The cable was bundled to a length of 40-centimeters.

Cable 7 This is a 1.1-meter unshielded, unterminated cable connected to the EUT. The cable has a 6-pin molex connector at the EUT end. The cable was bundled to a length of 40-centimeters.

Cable 8 This is a 1.1-meter unshielded, unterminated cable connected to the EUT. The cable is hard wired into a 10-pin terminal block at the EUT end. The cable was bundled to a length of 40-centimeters.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
ZIGBEE TEMPERATURE SENSOR (EUT)	TELKONET, INC.	PST6000	N/A	XV6PST6000
WIRELESS ROUTER	LINKSYS	WIRELESS G BB ROUTER	CDFD1G1H4342	Q87-WT54GV60
ROUTER POWER ADAPTER	JAMCO	DBU120020	100095	N/A
DC POWER SUPPLY*	HQ POWER	PS603U	N/A	N/A
SENSOR	N/A	N/A	N/A	N/A
50 OHM LOAD	N/A	N/A	N/A	N/A

*For DC Mode Only

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8568B	2517A01563	May 30, 2012	May 30, 2013
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A15285	May 30, 2012	May 30, 2013
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 30, 2012	May 30, 2013
Spectrum Analyzer – Main Section	Hewlett Packard	8568B	3638A08784	May 27, 2011	May 27, 2012
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 27, 2011	May 27, 2012
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 27, 211	May 27, 2012
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2010	November 19, 2012
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	November 19, 2014
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Loop Antenna	Com-Power	AL-130	17089	January 21, 2011	January 21, 2013
Biconical Antenna	Com Power	AB-900	43028	May 24, 2012	May 24, 2013
Log Periodic Antenna	Com Power	AL-100	16252	May 24, 2012	May 24, 2013
Biconical Antenna	Com Power	AB-900	15250	June 8, 2011	June 8, 2012
Log Periodic Antenna	Com Power	AL-100	16252	June 8, 2011	June 8, 2012

5.3 Emissions Test Equipment (Continued)

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
RF RADIATED EMISSIONS TEST EQUIPMENT (CONTINUED)					
Horn Antenna	Com-Power	AH-118	071175	February 29, 2012	March 1, 2014
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Horn Antenna	Com-Power	AH826	71957	NCR	N/A
Preamplifier	Com-Power	PA-102	1017	December 28, 2011	December 28, 2012
Microwave Preamplifier	Com-Power	PA-118	181656	December 28, 2011	December 28, 2012
Microwave Preamplifier	Com-Power	PA-840	711919	March 10, 2010	March 10, 2012
Microwave Preamplifier	Com-Power	PA-840	711013	May 17, 2012	May 17, 2013
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12078	June 20, 2011	June 20, 2013
LISN	Com Power	LI-215	12082	June 20, 2011	June 20, 2013
Transient Limiter	Com Power	252A910	1	November 7, 2011	November 7, 2012
VARIATION OF THE INPUT POWER TEST EQUIPMENT					
Variable Auto Transformer	Staco Energy Products	3PN1010	N/A	N/A	N/A
Multimeter	Wavetek	DM25XT	40209875	May 30, 2012	May 30, 2013

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Transmitter Power

Transmit power is herein defined as the power delivered to a 50 ohm load at the RF output of the EUT.

Power	Frequency
17.62 dBm	2405 MHz
17.62 dBm	2445 MHz
15.82 dBm	2480 MHz

7.2 Channel Number and Frequencies

There are a total of 16 channels.

2405 MHz
2410 MHz
2415 MHz
2420 MHz
2425 MHz
2430 MHz
2435 MHz
2440 MHz
2445 MHz
2450 MHz
2455 MHz
2460 MHz
2465 MHz
2470 MHz
2475 MHz
2480 MHz

7.3 Antenna Gain

The antennas have a gain of 3 dBi.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 2009. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

Complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, the Com Power Microwave Preamplifier Model: PA-118 was used for frequencies above 1 GHz, and the Com Power Microwave Preamplifier Model: PA-840 was used for frequencies above 18 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The readings were averaged by a "duty cycle correction factor," derived from 20 log (dwell time / one pulse train with blanking interval). The full 20 dB average could be applied because the duty cycle was less than 10%.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 10 kHz to 25 GHz to obtain the final test data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets.

8.1.3 RF Emissions Test Results

Table 1.0 CONDUCTED EMISSION RESULTS
Zigbee Temperature Sensor, Model: PST6000

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
22.662 (BL) (Internal)	46.24	50.00	-3.76
0.265 (BL) (External)	47.50	51.29	-3.79
0.260 (WL) (Internal)	47.44	51.42	-3.99
0.265 (WL) (Internal)	47.23	51.29	-4.06
0.332 (BL) (Internal)	45.21	49.39	-4.18
23.399 (BL) (Internal)	45.69	50.00	-4.31

Table 2.0 RADIATED EMISSION RESULTS
Zigbee Temperature Sensor, Model: PST6000

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
7215 (H) (Y-Axis) (Internal)	52.80 (A)	54.00	-1.20
7335 (H) (Y-Axis) (Internal)	52.21 (A)	54.00	-1.79
4960 (H) (X-Axis) (External)	52.21 (A)	54.00	-1.79
4960 (H) (Y-Axis) (External)	51.69 (A)	54.00	-2.31
4960 (H) (X-Axis) (Internal)	51.25 (A)	54.00	-2.75
7440 (H) (Y-Axis) (Internal)	51.23 (A)	54.00	-2.77

Notes:

*	The complete emissions data is given in Appendix E of this report.		
QP	Quasi-Peak Reading	A	Average Reading
H	Horizontal Polarization	V	Vertical Polarization

8.2 Emissions Bandwidth (EBW)

The 6 dB Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The following steps were performed for measuring the 6 dB Bandwidth.

1. Set resolution bandwidth (RBW) = 1-5% of the DTS Bandwidth, not to exceed 100 kHz.
2. Set the video bandwidth (VBW) to equal or greater than 3 times the RBW.
3. Detector = Peak.
4. Trace Mode = Max Hold.
5. Sweep = Auto Couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emissions that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(2). The 6 dB bandwidth is greater than 500 kHz. Please see the data sheets located in Appendix E.

8.3 Peak Output Power

The Peak Output Power was taken using the EMI Receiver. The EUT was directly connected to the EMI Receiver. The Peak Output Power was then taken. The following steps were performed to measure the Peak Output Power.

1. Set resolution bandwidth (RBW) ≥ DTS bandwidth.
2. Set VBW ≥ 3 x RBW.
3. Set Span ≥ RBW.
4. Sweep Time = Auto Couple.
5. Sweep = Auto Couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emissions that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3). Please see the data sheets located in Appendix E.

8.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The emissions are at least 20 dB the level of the fundamental. Please see the data sheets located in Appendix E.

8.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (2390 MHz when the EUT was on the low channel and 2483.5 MHz when the EUT was on the high channel) using the EMI Receiver. A preamplifier was used to boost the signal level, with the plots being taken at a 3 meter test distance. The radiated emissions test procedure as describe in section 8.2 of this test report was used to maximize the emission.

The marker delta method was also done per section 6.9.3. of ANSI C63.10 as follows:

a) Perform an in-band field strength measurement of the fundamental emissions using the RBW and detector function specified in section 6.3, 6.4, 6.5 or 6.6 of ANSI C63.10 as applicable, and the appropriate regulatory requirements for the frequency being measured.

b) Choose a measurement receiver span that encompasses both the peak of the fundamental emissions and the band-edge emission under investigation. Set the analyzer RBW to approximately 1% to 5% of the total span, unless otherwise specified, with a video bandwidth equal to or greater than the RBW. Record the peak levels of the fundamental emissions and the relevant band-edge emissions (i.e., run several sweeps in peak hold mode). Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not an absolute field strength measurement; it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.

c) Subtract the delta measured in b) from the field strengths measured in a). The resultant field strengths (CISPR, QP, average, or peak, as appropriate) are then used to determine band-edge compliance of the restricted band, described in 5.9

d) The above "delta" measurement technique may be used for measuring emissions that are up to two "standard" bandwidths away from the band edge, where a "standard" bandwidth is the bandwidth specified by 4.2.3.2 for the frequency being measured. For example, band-edge measurements in the restricted band that begins at 2483.5 MHz requires a measurement bandwidth of at least 1 MHz. Therefore the "delta" technique for measuring emissions up to 2 MHz removed from the band edge may be used. Radiated emissions that are removed by more than two "standard" bandwidths shall be measured in the conventional manner.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the restricted bands closest to the band edges at 2390 MHz and 2483.5 MHz meet the limits of section 15.209. Please see the data sheets located in Appendix E.

8.6 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

1. Set the analyzer center frequency to DTS channel center frequency .
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW ≥ 3 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize .
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (e).

8.7 Variation of the Input Power

The variation of the input power test was performed using the EMI Receiver. The EUT input power was varied between 85% and 115% of the nominal rated supply voltage. The carrier frequency was monitored for any change in amplitude.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15. 31(e).

9. CONCLUSIONS

The Zigbee Temperature Sensor, Model: PST6000 meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0, 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

NVLAP listing links

Agoura Division / **Brea Division** / **Silverado/Lake Forest Division**

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

ANSI listing CETCB

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).
US/EU MRA list NIST MRA site

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).
APEC MRA list NIST MRA site

We are also listed for IT products by the following country/agency:

VCCI Support member: Please visit http://www.vcci.jp/vcci_e/

FCC Listing, from FCC OET site
FCC test lab search https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm

Compatible Electronics IC listing can be found at:
http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.247 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Zigbee Temperature Sensor
Model: PST6000
S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

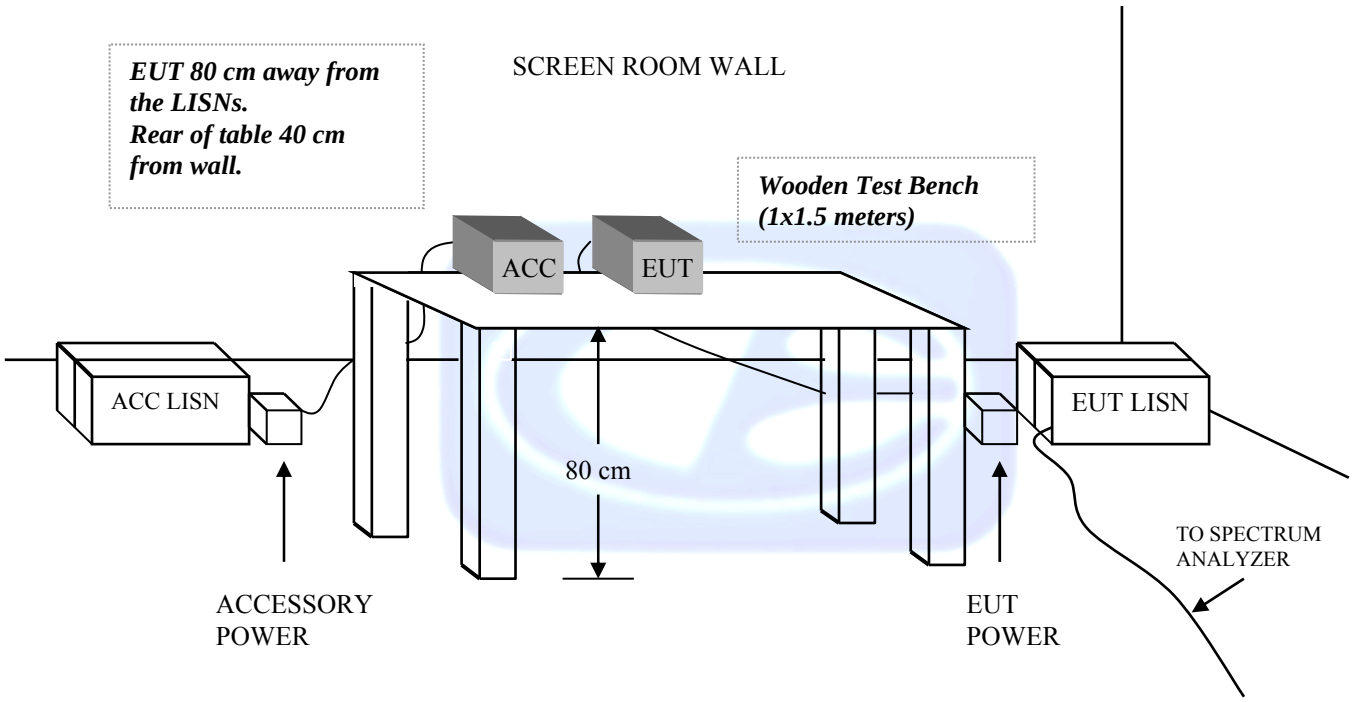
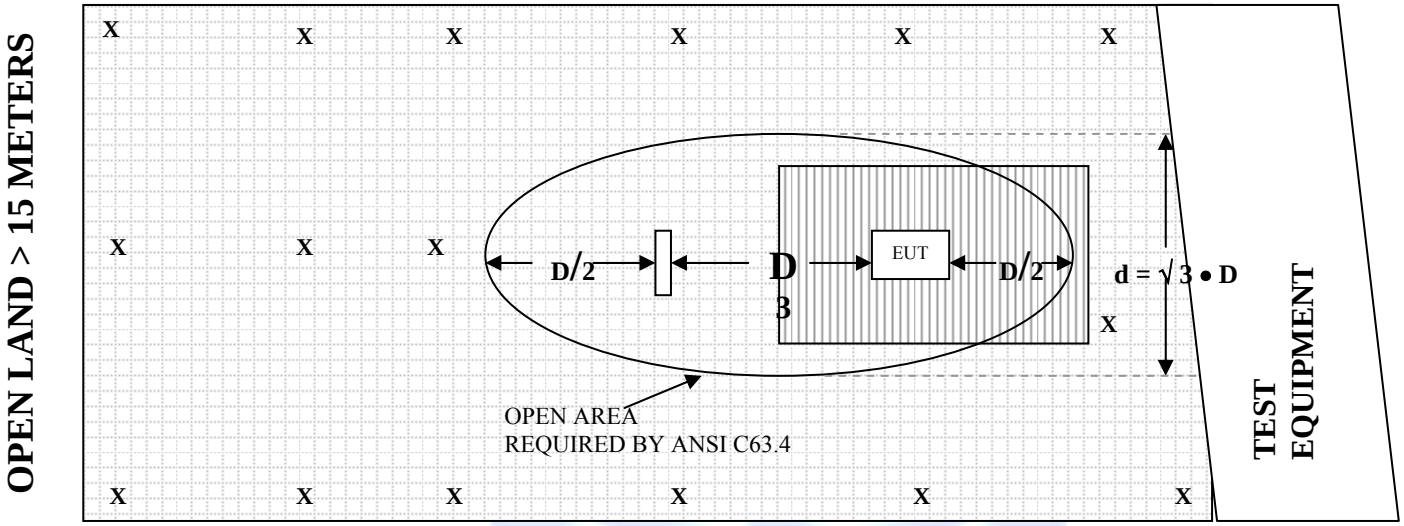


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X = GROUND RODS	= GROUND SCREEN
D = TEST DISTANCE (meters)	= WOOD COVER

COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: JANUARY 21, 2011

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.9	9.6
0.01	-41.79	9.71
0.02	-41.43	10.07
0.05	-41.53	9.97
0.07	-41.47	10.03
0.1	-41.44	10.06
0.2	-41.61	9.89
0.3	-41.62	9.88
0.5	-41.66	9.84
0.7	-41.48	10.02
1	-41.13	10.37
2	-40.89	10.61
3	-41.00	10.50
4	-41.14	10.36
5	-41.02	10.48
10	-40.69	10.82
15	-40.41	11.09
20	-41.07	10.43
25	-42.10	9.40
30	-41.15	10.35

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15250

CALIBRATION DATE: JUNE 8, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	10.90	100	9.50
35	11.00	120	12.10
40	11.80	140	11.40
45	11.60	160	12.40
50	11.40	180	15.70
60	9.80	200	16.20
70	7.00	250	16.10
80	5.70	300	19.00
90	7.00		

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16252

CALIBRATION DATE: JUNE 8, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.30	700	20.40
400	15.50	800	20.60
500	15.80	900	20.10
600	20.20	1000	22.80

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 43028

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	11.80	120	13.20
35	11.20	125	13.30
40	11.90	140	11.60
45	10.70	150	11.80
50	11.40	160	12.70
60	10.30	175	14.80
70	7.60	180	15.70
80	5.70	200	15.80
90	7.90	250	14.80
100	10.7	300	19.80

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16252

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.00	700	20.30
350	13.20	750	20.80
400	14.50	800	21.00
450	15.40	850	23.70
500	15.80	900	21.70
550	16.60	950	24.20
600	18.90	1000	24.30
650	19.10		

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 29, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.6	10.0	37.7
1.5	22.0	10.5	38.4
2.0	28.7	11.0	38.0
2.5	29.3	11.5	38.2
3.0	30.6	12.0	39.0
3.5	30.4	12.5	42.4
4.0	31.1	13.0	40.8
4.5	33.4	13.5	40.0
5.0	35.3	14.0	39.7
5.5	35.1	14.5	43.5
6.0	36.9	15.0	42.7
6.5	37.4	15.5	39.7
7.0	37.6	16.0	39.2
7.5	36.2	16.5	39.7
8.0	38.4	17.0	42.2
8.5	39.3	17.5	47.6
9.0	37.4	18.0	51.2
9.5	38.0		

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: MARCH 18, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	22.2	10.0	39.8
1.5	24.2	10.5	40.2
2.0	27.2	11.0	39.7
2.5	27.8	11.5	39.9
3.0	30.5	12.0	41.7
3.5	30.9	12.5	42.7
4.0	31.9	13.0	42.3
4.5	33.2	13.5	40.3
5.0	33.6	14.0	42.6
5.5	36.2	14.5	43.4
6.0	35.8	15.0	41.9
6.5	36.1	15.5	40.8
7.0	37.9	16.0	41.0
7.5	37.4	16.5	41.5
8.0	38.0	17.0	44.5
8.5	38.8	17.5	47.6
9.0	38.0	18.0	50.8
9.5	39.2		

COM-POWER AH826

HORN ANTENNA

S/N: 71957

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: DECEMBER 28, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.54	300	38.45
40	38.53	350	38.47
50	38.57	400	38.36
60	38.54	450	38.07
70	38.54	500	38.31
80	38.54	550	38.37
90	38.54	600	38.28
100	38.53	650	38.19
125	38.51	700	38.24
150	38.43	750	37.88
175	38.56	800	37.94
200	38.50	850	37.65
225	38.46	900	37.50
250	38.57	950	37.47
275	38.45	1000	36.86

COM-POWER PA-118

PREAMPLIFIER

S/N: 181656

CALIBRATION DATE: DECEMBER 28, 2011

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.22	10.0	24.66
1.5	26.31	10.5	25.22
2.0	27.40	11.0	25.17
2.5	26.52	11.5	24.47
3.0	27.35	12.0	25.29
3.5	29.02	12.5	26.03
4.0	28.51	13.0	24.11
4.5	26.62	13.5	24.28
5.0	27.13	14.0	25.81
5.5	27.29	14.5	25.45
6.0	26.72	15.0	25.36
6.5	25.62	15.5	26.76
7.0	25.25	16.0	28.09
7.5	24.23	16.5	23.23
8.0	23.72	17.0	26.58
8.5	24.91	17.5	27.45
9.0	25.73	18.0	27.53
9.5	24.79		

COM-POWER PA-840

MICROWAVE PREAMPLIFIER

S/N: 711919

CALIBRATION DATE: MARCH 11, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	28.05	29.5	23.78
18.5	28.35	30.0	21.88
19.0	28.27	30.5	23.42
19.5	28.62	31.0	21.24
20.0	28.67	31.5	22.69
20.5	27.96	32.0	21.59
21.0	27.76	32.5	21.09
21.5	26.91	33.0	21.22
22.0	27.19	33.5	21.38
22.5	26.90	34.0	20.21
23.0	26.90	34.5	20.89
23.5	26.43	35.0	20.18
24.0	26.75	35.5	21.23
24.5	24.96	36.0	20.99
25.0	26.56	36.5	21.09
25.5	24.75	37.0	14.63
26.0	25.13	37.5	16.74
26.5	24.79	38.0	22.62
27.0	24.54	38.5	24.14
27.5	23.72	39.0	25.97
28.0	24.34	39.5	27.40
28.5	24.01	40.0	22.69
29.0	24.96		

COM-POWER PA-840

PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MAY 17, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.81	31.0	25.77
19.0	24.57	31.5	25.36
20.0	23.46	32.0	25.15
21.0	22.51	32.5	25.13
22.0	23.85	33.0	25.52
23.0	23.31	33.5	25.24
24.0	24.44	34.0	25.08
25.0	25.42	34.5	25.27
26.0	25.71	35.0	23.99
26.5	25.66	35.5	24.67
27.0	25.84	36.5	24.80
27.5	25.29	37.0	26.27
28.0	25.46	37.5	24.86
28.5	25.58	38.0	24.64
29.0	26.16	38.5	23.46
29.5	26.14	39.0	21.29
30.0	26.01	39.5	20.83
30.5	25.67	40.0	19.96

FRONT VIEW

TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – RADIATED EMISSIONS – EXTERNAL ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – RADIATED EMISSIONS – EXTERNAL ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – RADIATED EMISSIONS – INTERNAL ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

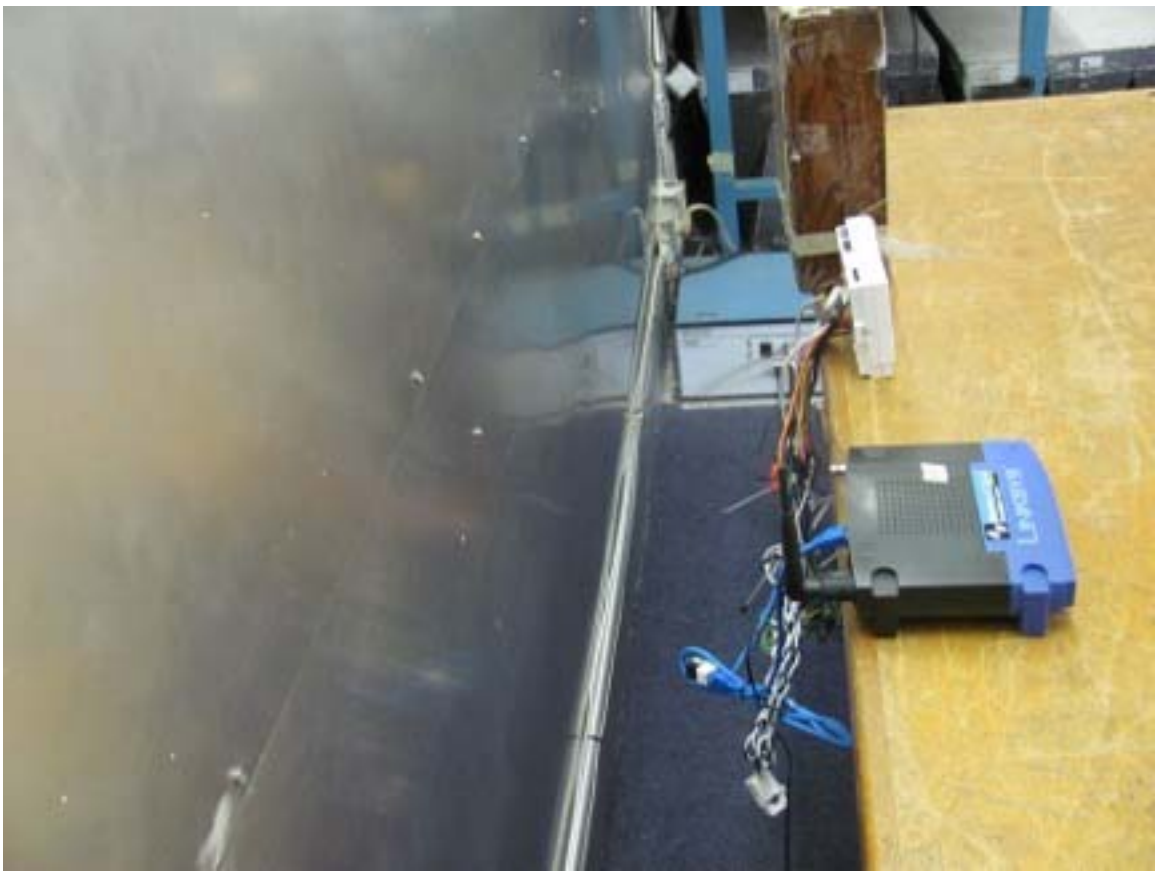
TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – RADIATED EMISSIONS – INTERNAL ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – CONDUCTED EMISSIONS – EXTERNAL ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – CONDUCTED EMISSIONS – EXTERNAL ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – CONDUCTED EMISSIONS – INTERNAL ANTENNA

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

TELKONET, INC.
ZIGBEE TEMPERATURE SENSOR
MODEL: PST6000
FCC SUBPART B AND C – CONDUCTED EMISSIONS – INTERNAL ANTENNA

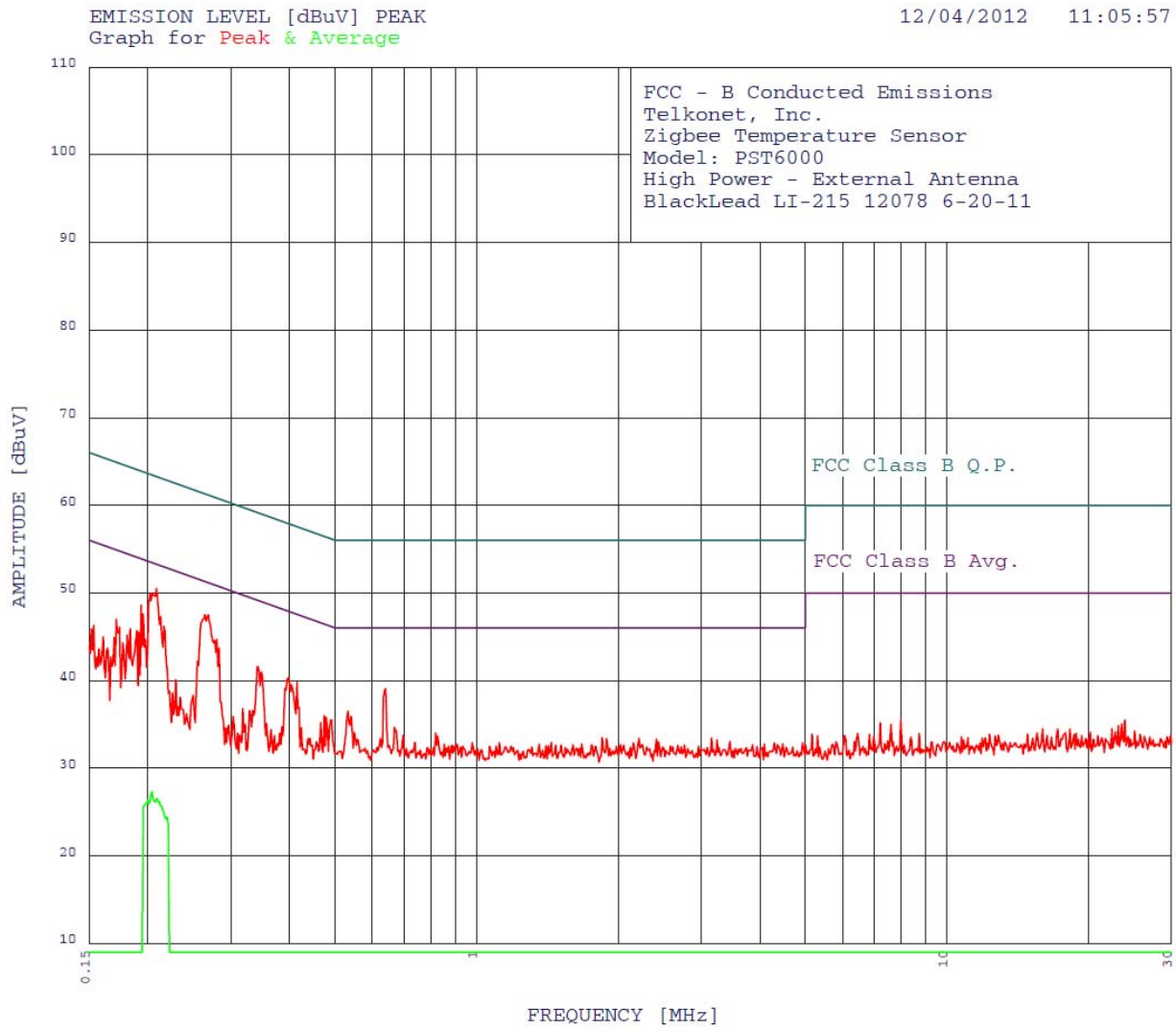
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

CONDUCTED EMISISONS

DATA SHEETS


EMISSION LEVEL [dBuV] PEAK
12/04/2012 11:05:57
Graph for Peak & Average
FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - External Antenna
BlackLead LI-215 12078 6-20-11
FCC Class B Q.P.
FCC Class B Avg.
AMPLITUDE [dBuV]
FREQUENCY [MHz]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30

page 1/1

12/04/2012 11:05:57

FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - External Antenna
BlackLead LI-215 12078 6-20-11
TEST ENGINEER : Test Engineer: Kyle Fujimoto

48 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.208	50.50	53.27	-2.77**
2	0.265	47.50	51.29	-3.79
3	0.194	48.60	53.88	-5.28
4	0.280	44.70	50.81	-6.11
5	0.196	47.60	53.80	-6.20**
6	0.216	46.20	52.96	-6.76**
7	0.641	39.08	46.00	-6.92
8	0.283	43.70	50.72	-7.02
9	0.343	41.60	49.13	-7.53
10	0.398	40.32	47.90	-7.58
11	0.415	39.82	47.55	-7.73
12	0.171	47.00	54.90	-7.90
13	0.348	41.00	49.00	-8.00
14	0.189	45.70	54.06	-8.36
15	0.183	45.90	54.33	-8.43
16	0.192	45.50	53.97	-8.47
17	0.181	45.20	54.46	-9.26
18	0.532	36.50	46.00	-9.50
19	0.153	46.31	55.82	-9.51
20	0.152	45.91	55.91	-10.00
21	0.170	44.90	54.98	-10.08
22	0.177	44.30	54.63	-10.33
23	0.161	45.00	55.43	-10.42
24	0.474	36.01	46.45	-10.43
25	0.479	35.81	46.36	-10.55
26	0.489	35.51	46.18	-10.67
27	0.669	34.67	46.00	-11.33
28	0.466	35.21	46.58	-11.36
29	0.164	43.70	55.25	-11.54
30	0.550	34.10	46.00	-11.90
31	0.818	34.04	46.00	-11.96
32	0.157	43.61	55.60	-11.99
33	0.698	33.76	46.00	-12.24
34	0.229	40.10	52.48	-12.38
35	0.167	42.70	55.11	-12.41
36	1.849	33.48	46.00	-12.52
37	3.158	33.44	46.00	-12.56
38	2.214	33.41	46.00	-12.59
39	1.889	33.39	46.00	-12.61
40	0.624	33.38	46.00	-12.62
41	2.410	33.31	46.00	-12.69
42	0.424	34.62	47.37	-12.76
43	3.243	33.24	46.00	-12.76
44	0.329	36.60	49.48	-12.88
45	0.318	36.80	49.75	-12.95
46	3.456	33.05	46.00	-12.95
47	0.156	42.71	55.69	-12.98
48	2.436	33.01	46.00	-12.99

** Please refer to the previous graph and the following data sheet for the Average results.

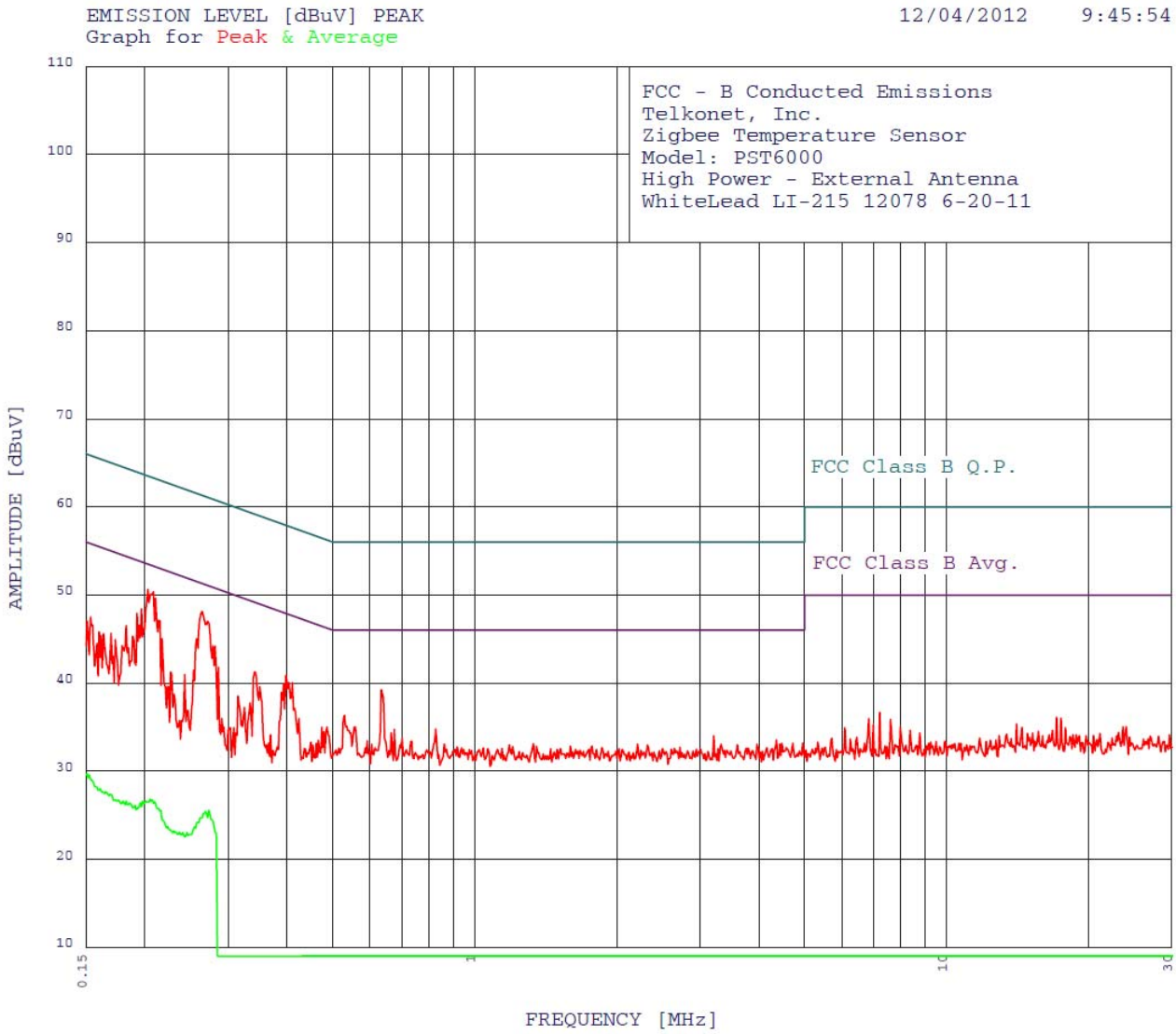
page 1/1

12/04/2012 11:05:57

FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - External Antenna
BlackLead LI-215 12078 6-20-11
TEST ENGINEER : Test Engineer: Kyle Fujimoto

5 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.204	27.32	53.44	-26.12
2	0.210	26.51	53.23	-26.72
3	0.212	26.16	53.14	-26.98
4	0.200	26.36	53.62	-27.26
5	0.220	24.45	52.83	-28.38


EMISSION LEVEL [dBuV] PEAK
12/04/2012 9:45:54
Graph for Peak & Average
FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - External Antenna
WhiteLead LI-215 12078 6-20-11
FCC Class B Q.P.
FCC Class B Avg.
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

12/04/2012 9:45:54

FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - External Antenna
WhiteLead LI-215 12078 6-20-11
TEST ENGINEER : Test Engineer: Kyle Fujimoto

48 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.203	50.63	53.49	-2.86**
2	0.208	50.34	53.27	-2.93**
3	0.265	48.13	51.29	-3.16**
4	0.211	49.64	53.18	-3.55**
5	0.197	48.43	53.75	-5.32**
6	0.214	47.14	53.05	-5.91**
7	0.193	47.93	53.93	-5.99**
8	0.258	45.04	51.51	-6.47**
9	0.282	44.19	50.76	-6.57**
10	0.279	44.20	50.85	-6.65**
11	0.634	39.24	46.00	-6.76
12	0.398	40.85	47.90	-7.05
13	0.195	46.53	53.84	-7.31**
14	0.411	40.06	47.63	-7.58
15	0.183	46.54	54.37	-7.83**
16	0.217	45.04	52.91	-7.87**
17	0.343	41.26	49.13	-7.88
18	0.393	39.85	47.99	-8.14
19	0.153	47.50	55.82	-8.32**
20	0.188	45.33	54.10	-8.77**
21	0.286	41.78	50.63	-8.85
22	0.151	46.99	55.95	-8.96**
23	0.170	45.64	54.98	-9.35**
24	0.350	39.56	48.95	-9.39
25	0.160	45.81	55.47	-9.66**
26	0.163	45.62	55.29	-9.67**
27	0.530	36.31	46.00	-9.69
28	0.173	44.94	54.81	-9.87**
29	0.162	45.42	55.38	-9.96**
30	0.254	41.45	51.64	-10.19**
31	0.558	35.03	46.00	-10.97
32	0.243	40.96	52.00	-11.04**
33	0.158	44.51	55.56	-11.05**
34	0.826	34.79	46.00	-11.21
35	0.486	34.99	46.23	-11.24
36	0.676	34.73	46.00	-11.27
37	0.315	38.55	49.84	-11.28
38	0.227	41.25	52.57	-11.32**
39	0.424	35.96	47.37	-11.41
40	0.474	34.99	46.45	-11.46
41	0.334	37.76	49.35	-11.59
42	0.665	34.34	46.00	-11.66
43	0.479	34.49	46.36	-11.87
44	3.209	34.03	46.00	-11.97
45	0.701	33.73	46.00	-12.27
46	0.325	37.26	49.57	-12.32
47	4.361	33.57	46.00	-12.43
48	0.592	33.45	46.00	-12.55

**Please See the Average Readings on the Next Page and on the Plot

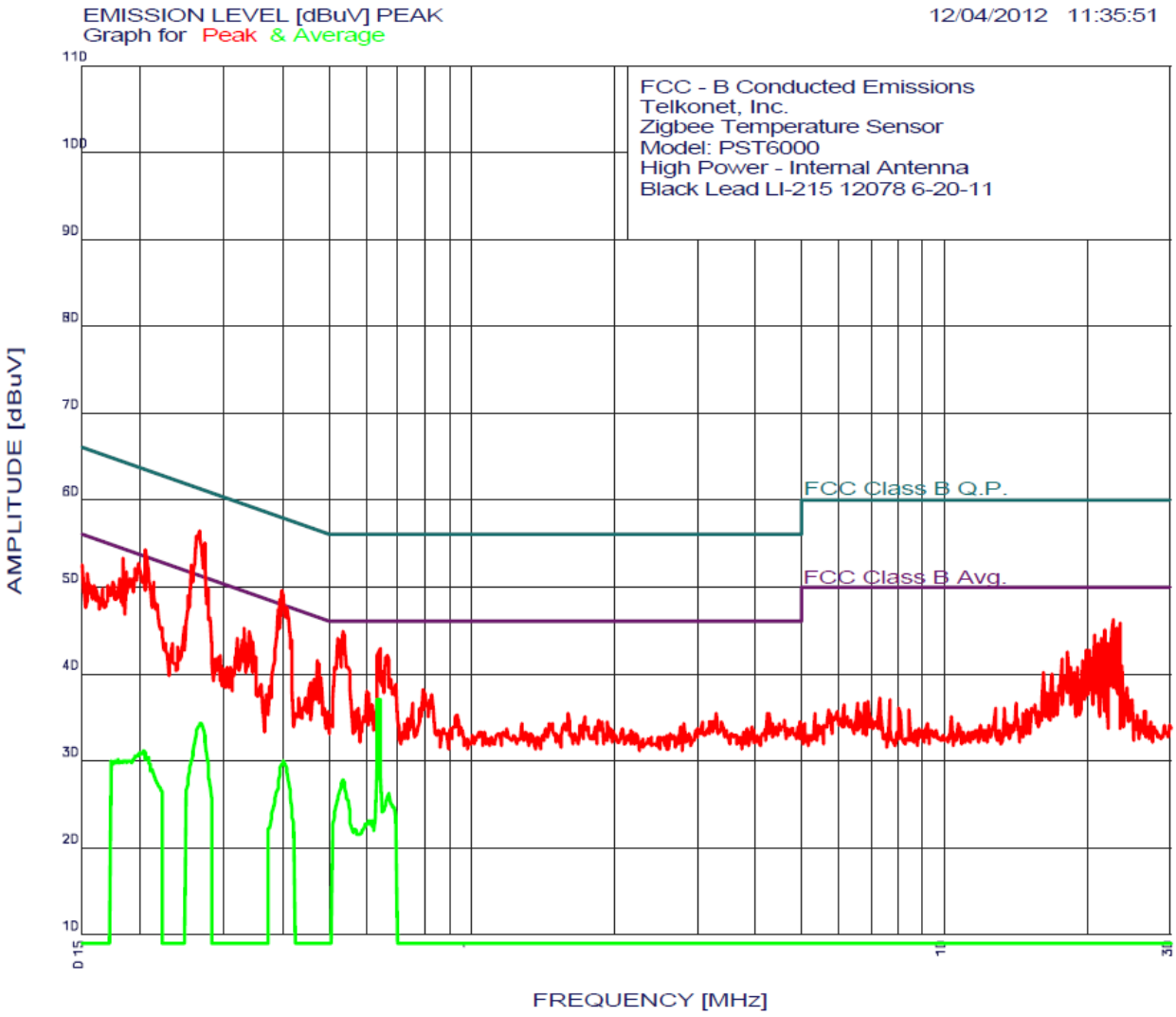
page 1/1

12/04/2012 9:45:54

FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - External Antenna
WhiteLead LI-215 12078 6-20-11
TEST ENGINEER : Test Engineer: Kyle Fujimoto

32 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.273	25.57	51.02	-25.45
2	0.269	25.41	51.15	-25.75
3	0.151	29.73	55.95	-26.22
4	0.152	29.57	55.86	-26.30
5	0.205	26.84	53.40	-26.56
6	0.207	26.74	53.31	-26.57
7	0.262	24.70	51.38	-26.67
8	0.210	26.55	53.23	-26.68
9	0.201	26.59	53.58	-26.99
10	0.198	26.59	53.71	-27.12
11	0.214	25.76	53.05	-27.29
12	0.157	28.25	55.60	-27.35
13	0.258	24.14	51.51	-27.37
14	0.196	26.39	53.80	-27.41
15	0.216	25.54	52.96	-27.42
16	0.161	28.00	55.43	-27.43
17	0.165	27.67	55.20	-27.54
18	0.169	27.36	55.03	-27.67
19	0.183	26.60	54.37	-27.77
20	0.185	26.39	54.24	-27.84
21	0.190	26.13	54.01	-27.88
22	0.180	26.60	54.50	-27.90
23	0.255	23.67	51.60	-27.93
24	0.176	26.70	54.68	-27.98
25	0.173	26.75	54.81	-28.06
26	0.246	23.02	51.90	-28.89
27	0.223	23.73	52.70	-28.96
28	0.250	22.79	51.77	-28.98
29	0.240	23.01	52.08	-29.07
30	0.237	23.09	52.21	-29.12
31	0.230	23.24	52.43	-29.19
32	0.233	23.09	52.34	-29.25


EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average
12/04/2012 11:35:51
FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - Internal Antenna
Black Lead LI-215 12078 6-20-11
FCC Class B Q.P.
FCC Class B Avg.
AMPLITUDE [dBuV]
FREQUENCY [MHz]
110
100
90
80
70
60
50
40
30
20
10
0.15
1.0
30

FCC - B Conducted Emissions 12/04/2012 11:35:51
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - Internal Antenna
Black Lead LI-215 12078 6-20-11
Test Engineer: Kyle Fujimoto

50 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 3.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.266	56.37	51.24	5.12**
2	0.398	49.52	47.90	1.62**
3	0.205	54.26	53.40	0.86**
4	0.393	48.62	47.99	0.63**
5	0.184	53.16	54.28	-1.13**
6	0.198	52.56	53.71	-1.16**
7	0.535	44.82	46.00	-1.18**
8	0.521	44.11	46.00	-1.89**
9	0.213	50.57	53.09	-2.53**
10	0.641	42.77	46.00	-3.23**
11	0.181	50.96	54.46	-3.50**
12	22.662	46.24	50.00	-3.76
13	0.665	41.97	46.00	-4.03**
14	0.332	45.21	49.39	-4.18
15	23.399	45.69	50.00	-4.31
16	0.155	51.42	55.73	-4.31
17	0.339	44.82	49.22	-4.40
18	23.022	45.27	50.00	-4.73
19	21.841	44.98	50.00	-5.02
20	0.471	41.38	46.49	-5.11
21	0.347	43.62	49.04	-5.42
22	20.716	44.49	50.00	-5.51
23	0.320	44.01	49.71	-5.70
24	21.490	44.05	50.00	-5.95
25	21.044	43.52	50.00	-6.48
26	22.193	43.40	50.00	-6.60
27	0.481	39.49	46.32	-6.83
28	19.950	42.74	50.00	-7.26
29	20.278	42.56	50.00	-7.44
30	18.241	42.40	50.00	-7.60
31	0.457	38.97	46.76	-7.79
32	0.788	38.16	46.00	-7.84
33	0.601	37.97	46.00	-8.03**
34	0.608	37.77	46.00	-8.23**
35	17.669	41.68	50.00	-8.32
36	19.644	41.43	50.00	-8.57
37	0.233	43.48	52.34	-8.86
38	23.776	40.92	50.00	-9.08
39	0.751	36.66	46.00	-9.34
40	19.133	40.62	50.00	-9.38
41	16.226	40.15	50.00	-9.85
42	18.724	40.11	50.00	-9.89
43	16.849	39.96	50.00	-10.04
44	4.227	35.46	46.00	-10.54
45	1.603	35.40	46.00	-10.60
46	3.294	35.34	46.00	-10.66
47	0.934	35.14	46.00	-10.86
48	1.735	34.99	46.00	-11.01
49	24.278	38.36	50.00	-11.64
50	7.294	37.14	50.00	-12.86

**Please See the Average Readings on the Next Page and on the Plot

FCC - B Conducted Emissions 12/04/2012 11:35:51
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - Internal Antenna
Black Lead LI-215 12078 6-20-11
Test Engineer: Kyle Fujimoto

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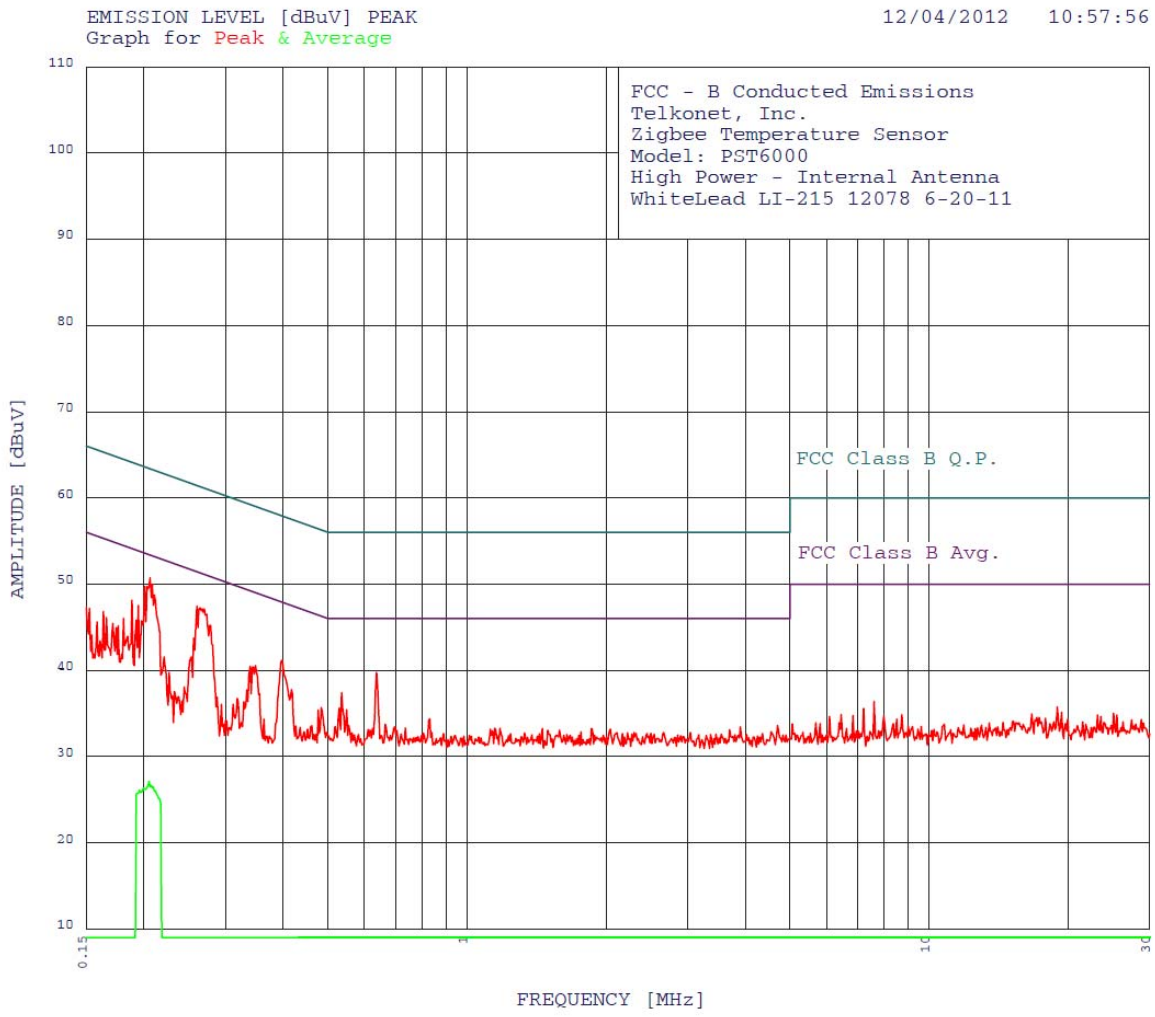
5 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 3.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.637	37.03	46.00	-8.97
2	0.267	34.31	51.20	-16.88
3	0.402	29.96	47.81	-17.85
4	0.535	27.77	46.00	-18.23
5	0.203	30.99	53.49	-22.50


EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average
12/04/2012 10:57:56
FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - Internal Antenna
WhiteLead LI-215 12078 6-20-11
FCC Class B Q.P.
FCC Class B Avg.
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
FREQUENCY [MHz]

page 1/1

12/04/2012 10:57:56

FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - Internal Antenna
WhiteLead LI-215 12078 6-20-11
TEST ENGINEER : Test Engineer: Kyle Fujimoto

48 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.206	50.73	53.35	-2.62**
2	0.208	49.94	53.27	-3.33**
3	0.201	49.73	53.58	-3.85**
4	0.260	47.44	51.42	-3.99
5	0.265	47.23	51.29	-4.06
6	0.211	48.74	53.18	-4.45**
7	0.277	45.20	50.89	-5.69
8	0.188	48.13	54.10	-5.97
9	0.637	39.74	46.00	-6.26
10	0.195	47.53	53.84	-6.31**
11	0.398	41.15	47.90	-6.75
12	0.256	43.75	51.55	-7.81
13	0.193	45.83	53.93	-8.09**
14	0.181	46.04	54.46	-8.42
15	0.348	40.56	49.00	-8.44
16	0.163	46.82	55.29	-8.47
17	0.535	37.42	46.00	-8.58
18	0.152	47.20	55.86	-8.67
19	0.339	40.46	49.22	-8.76
20	0.166	46.13	55.16	-9.03
21	0.171	45.44	54.90	-9.46
22	0.176	45.14	54.68	-9.54
23	0.417	37.76	47.50	-9.75
24	0.174	44.94	54.77	-9.83
25	0.158	45.61	55.56	-9.95
26	0.254	41.55	51.64	-10.09
27	0.184	43.94	54.28	-10.35
28	0.530	35.61	46.00	-10.39
29	0.550	35.42	46.00	-10.58
30	0.484	35.69	46.27	-10.58
31	0.476	35.39	46.40	-11.01
32	0.221	41.54	52.78	-11.24
33	0.334	37.76	49.35	-11.59
34	0.831	34.39	46.00	-11.61
35	0.154	44.10	55.78	-11.67
36	0.161	43.42	55.43	-12.01
37	0.665	33.74	46.00	-12.26
38	0.555	33.63	46.00	-12.37
39	4.696	33.58	46.00	-12.42
40	0.518	33.51	46.00	-12.49
41	3.903	33.44	46.00	-12.56
42	0.698	33.43	46.00	-12.57
43	0.735	33.32	46.00	-12.68
44	1.178	33.29	46.00	-12.71
45	1.148	33.28	46.00	-12.72
46	1.859	33.26	46.00	-12.74
47	1.456	33.25	46.00	-12.75
48	0.227	39.75	52.57	-12.82

**Please See the Average Readings on the Next Page and on the Plot

page 1/1

12/04/2012 10:57:56

FCC - B Conducted Emissions
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000
High Power - Internal Antenna
WhiteLead LI-215 12078 6-20-11
TEST ENGINEER : Test Engineer: Kyle Fujimoto

7 highest peaks above -50.00 dB of FCC Class B Avg. limit line
Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.205	27.12	53.40	-26.28
2	0.207	26.64	53.31	-26.67
3	0.210	26.45	53.23	-26.78
4	0.212	26.03	53.14	-27.11
5	0.200	26.34	53.62	-27.28
6	0.196	26.08	53.80	-27.72
7	0.194	25.75	53.88	-28.13

RADIATED EMISSIONS

DATA SHEETS

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Low Channel
X-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405								N/A
2405								DONE VIA CONDUCTED
4810	66.25	V	74	-7.75	Peak	1.25	135	
4810	46.25	V	54	-7.75	Avg	1.25	135	
7215	58.25	V	74	-15.75	Peak	1.25	155	
7215	38.25	V	54	-15.75	Avg	1.25	155	
9620								No Emission
9620								Detected
12025								No Emission
12025								Detected
14430								No Emission
14430								Detected
16835								No Emission
16835								Detected
19240								No Emission
19240								Detected
21645								No Emission
21645								Detected
24050								No Emission
24050								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Low Channel
X-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405								N/A
2405								DONE VIA CONDUCTED
4810	63.21	H	74	-10.79	Peak	1.1	320	
4810	43.21	H	54	-10.79	Avg	1.1	320	
7215	57.97	H	74	-16.03	Peak	1.1	330	
7215	37.97	H	54	-16.03	Avg	1.1	330	
9620	54.41	H	--	--	Peak	2	180	Not in
9620	34.41	H	--	--	Avg	2	180	Restricted Band
12025								No Emission
12025								Detected
14430								No Emission
14430								Detected
16835								No Emission
16835								Detected
19240								No Emission
19240								Detected
21645								No Emission
21645								Detected
24050								No Emission
24050								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Low Channel
Y-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405								N/A
2405								DONE VIA CONDUCTED
4810	63.71	V	74	-10.29	Peak	1.2	210	
4810	43.71	V	54	-10.29	Avg	1.2	210	
7215	60.34	V	74	-13.66	Peak	2	0	
7215	40.34	V	54	-13.66	Avg	2	0	
9620	61.39	V	--	--	Peak	2	180	Not in
9620	41.39	V	--	--	Avg	2	180	Restricted Band
12025								No Emission
12025								Detected
14430								No Emission
14430								Detected
16835								No Emission
16835								Detected
19240								No Emission
19240								Detected
21645								No Emission
21645								Detected
24050								No Emission
24050								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Low Channel
Y-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405								N/A
2405								DONE VIA CONDUCTED
4810	61.71	H	74	-12.29	Peak	1.3	150	
4810	41.71	H	54	-12.29	Avg	1.3	150	
7215	62.95	H	74	-11.05	Peak	1.1	160	
7215	42.95	H	54	-11.05	Avg	1.1	160	
9620	55.12	H	--	--	Peak	1.8	160	Not in
9620	42.29	H	--	--	Avg	1.8	160	Restricted Band
12025								No Emission
12025								Detected
14430								No Emission
14430								Detected
16835								No Emission
16835								Detected
19240								No Emission
19240								Detected
21645								No Emission
21645								Detected
24050								No Emission
24050								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Middle Channel
X-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2445								N/A
2445								DONE VIA CONDUCTED
4890	59.55	V	74	-14.45	Peak	1.2	350	
4890	39.55	V	54	-14.45	Avg	1.2	350	
7335	65.59	V	74	-8.41	Peak	1.5	50	
7335	45.59	V	54	-8.41	Avg	1.5	50	
9780	53.16	V	--	--	Peak	1.5	180	Not in
9780	33.16	V	--	--	Avg	1.5	180	Restricted Band
12225								No Emission
12225								Detected
14670								No Emission
14670								Detected
17115								No Emission
17115								Detected
19560								No Emission
19560								Detected
22005								No Emission
22005								Detected
24450								No Emission
24450								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Middle Channel
X-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2445								N/A
2445								DONE VIA CONDUCTED
4890	55.13	H	74	-18.87	Peak	1.3	350	
4890	35.13	H	54	-18.87	Avg	1.3	350	
7335	55.31	H	74	-18.69	Peak	1.3	50	
7335	35.31	H	54	-18.69	Avg	1.3	50	
9780	54.94	H	--	--	Peak	1.2	210	Not in
9780	34.94	H	--	--	Avg	1.2	210	Restricted Band
12225								No Emission
12225								Detected
14670								No Emission
14670								Detected
17115								No Emission
17115								Detected
19560								No Emission
19560								Detected
22005								No Emission
22005								Detected
24450								No Emission
24450								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Middle Channel
Y-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2445								N/A
2445								DONE VIA CONDUCTED
4890	57.69	V	74	-16.31	Peak	1.2	230	
4890	37.69	V	54	-16.31	Avg	1.2	230	
7335	61.34	V	74	-12.66	Peak	1.5	190	
7335	41.34	V	54	-12.66	Avg	1.5	190	
9780	53.52	V	--	--	Peak	1.3	240	Not in
9780	33.52	V	--	--	Avg	1.3	240	Restricted Band
12225								No Emission
12225								Detected
14670								No Emission
14670								Detected
17115								No Emission
17115								Detected
19560								No Emission
19560								Detected
22005								No Emission
22005								Detected
24450								No Emission
24450								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 02/15/2012
Lab: B
Tested By: David Tran

Middle Channel
Y-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2445								N/A
2445								DONE VIA CONDUCTED
4890	56.21	H	74	-17.79	Peak	1.4	175	
4890	36.21	H	54	-17.79	Avg	1.4	175	
7335	64.13	H	74	-9.87	Peak	1.5	170	
7335	44.13	H	54	-9.87	Avg	1.5	170	
9780	54.47	H	--	--	Peak	1.3	185	Not in
9780	34.47	H	--	--	Avg	1.3	185	Restricted Band
12225								No Emission
12225								Detected
14670								No Emission
14670								Detected
17115								No Emission
17115								Detected
19560								No Emission
19560								Detected
22005								No Emission
22005								Detected
24450								No Emission
24450								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 11/20/2012
Lab: B
Tested By: Kyle Fujimoto

High Channel
X-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480								N/A
2480								DONE VIA CONDUCTED
4960	68.17	V	74	-5.83	Peak	1.25	155	
4960	48.17	V	54	-5.83	Avg	1.25	155	
7440	64.31	V	74	-9.69	Peak	1.55	135	
7440	44.31	V	54	-9.69	Avg	1.55	135	
9920								No Emission
9920								Detected
12400								No Emission
12400								Detected
14880								No Emission
14880								Detected
17360								No Emission
17360								Detected
19840								No Emission
19840								Detected
22320								No Emission
22320								Detected
24800								No Emission
24800								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 11/20/2012
Lab: B
Tested By: Kyle Fujimoto

High Channel
X-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480								N/A
2480								DONE VIA CONDUCTED
4960	72.21	H	74	-1.79	Peak	1.25	155	
4960	52.21	H	54	-1.79	Avg	1.25	155	
7440	62.13	H	74	-11.87	Peak	1.25	165	
7440	42.13	H	54	-11.87	Avg	1.25	165	
9920								No Emission
9920								Detected
12400								No Emission
12400								Detected
14880								No Emission
14880								Detected
17360								No Emission
17360								Detected
19840								No Emission
19840								Detected
22320								No Emission
22320								Detected
24800								No Emission
24800								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 11/20/2012
Lab: B
Tested By: Kyle Fujimoto

High Channel
Y-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480								N/A
2480								DONE VIA CONDUCTED
4960	59.05	V	74	-14.95	Peak	1.25	135	
4960	39.05	V	54	-14.95	Avg	1.25	135	
7440	53.63	V	74	-20.37	Peak	1.25	145	
7440	33.63	V	54	-20.37	Avg	1.25	145	
9920								No Emission
9920								Detected
12400								No Emission
12400								Detected
14880								No Emission
14880								Detected
17360								No Emission
17360								Detected
19840								No Emission
19840								Detected
22320								No Emission
22320								Detected
24800								No Emission
24800								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 11/20/2012
Lab: B
Tested By: Kyle Fujimoto

High Channel
Y-Axis - High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480								N/A
2480								DONE VIA CONDUCTED
4960	71.69	H	74	-2.31	Peak	1.25	155	
4960	51.69	H	54	-2.31	Avg	1.25	155	
7440	67.71	H	74	-6.29	Peak	1.25	135	
7440	47.71	H	54	-6.29	Avg	1.25	135	
9920								No Emission
9920								Detected
12400								No Emission
12400								Detected
14880								No Emission
14880								Detected
17360								No Emission
17360								Detected
19840								No Emission
19840								Detected
22320								No Emission
22320								Detected
24800								No Emission
24800								Detected

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Dates: 02/15/2012 and 11/20/2012
Lab: B & D
Tested By: David Tran
and Kyle Fujimoto

Radiated Emissions 10 kHz to 25 GHz
High Power Mode - External Antenna

Axis of EUT	Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Comments
								No Emissions Detected
								from 10 kHz to 25 GHz
								for the Non-Harmonic
								Emissions from the
								EUT for both the Vertical and
								Horizontal Polarizations.
								Tested on 02/15/2012 for
								Low Channel and Middle Channel
								Tested on 11/20/2012 for
								High Channel

FCC 15.247
Telkonet, Inc.
Zigbee Temperature Sensor
Model: PST6000

Date: 11/28/2012
Lab: B
Tested By: Kyle Fujimoto

Repeater Mode
High Power Mode - External Antenna

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								Note: The Emissions
								do not change amplitude
								when the EUT is put into
								Repeater Mode.