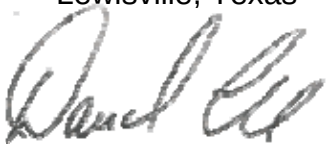
Nemko Test Report: 3014RUS1

Applicant: Pilot Technologies, Inc.
883 Cornelius Road
Rockwall, TX 75087

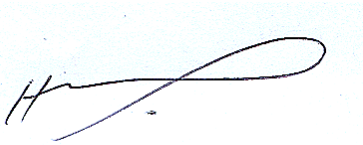
Equipment Under Test: (E.U.T.) PLS100

In Accordance With: **FCC Part 15, Subpart C, 15.249**
Operation within the bands 902-928 MHz,

Tested By: Nemko USA Inc.
802 N. Kealy
Lewisville, Texas 75057-3136



TESTED BY: _____ **DATE:** **20 April 2007**
David Light, Senior Wireless Engineer



APPROVED BY: _____ **DATE:** **20th April 2007**
Harry Ward, Verificator

Total Number of Pages: 19

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Section 1. Summary Of Test Results

Manufacturer: Pilot Technologies, Inc

Model No.: PLS100

Serial No.: None

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15.249. All tests were conducted using measurement procedure ANSI C63.4-2003. Radiated Emissions were made on an open area test site.

☒ New Submission ☐ Production Unit

☐ Class II Permissive Change ☒ Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.
See " Summary of Test Data".

NVLAP LAB CODE: 100426-0

Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Conducted Emissions	15.207	Complies
Radiated Emissions	15.249	Complies

Footnotes For N/A's:

Section 2. General Equipment Specification

Frequency Range:	904.925 MHz Fixed - Base 924.925 MHz Fixed - Remote
Operating Frequency(ies) of Sample:	904.925 MHz and 924.925 MHz
Tunable Bands:	None
Number of Channels:	2
Channel Spacing:	Single channel operation
User Frequency Adjustment:	None

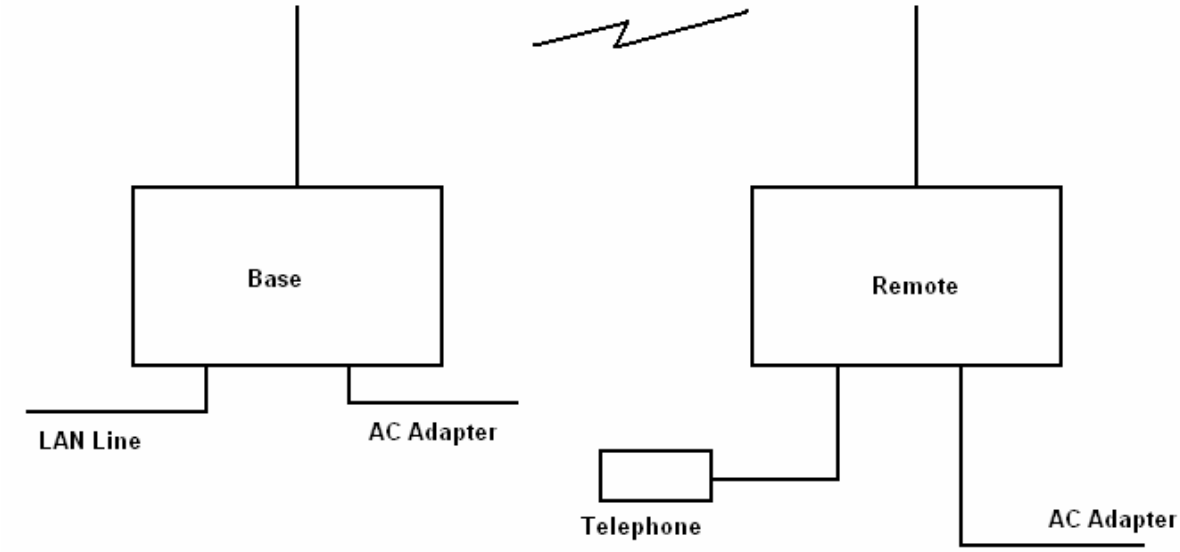
Integral Antenna	**Yes**	**No**
	☐	☒

The device uses a reverse polarity SMA connector on the antenna

Description of EUT

Wirelessly extends LAN phone service to areas where there are no wired connections.

System Diagram



Section 3. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207
TESTED BY: David Light	DATE: 19 April 2007

Minimum Standard: §15.207 Conducted limits.

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 mH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of Conducted Emission (MHz)	Limit (dBmV) Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

Test Results: Complies . The spectrum was searched thouroughly from 150 kHz to 30 MHz. The worst case emission was 44.71 dBµV at 567.9 kHz. This is 1.29 dB below the average specification limit of 46 dBµV. This is a peak reading. The plots presented are representative of the investigation.

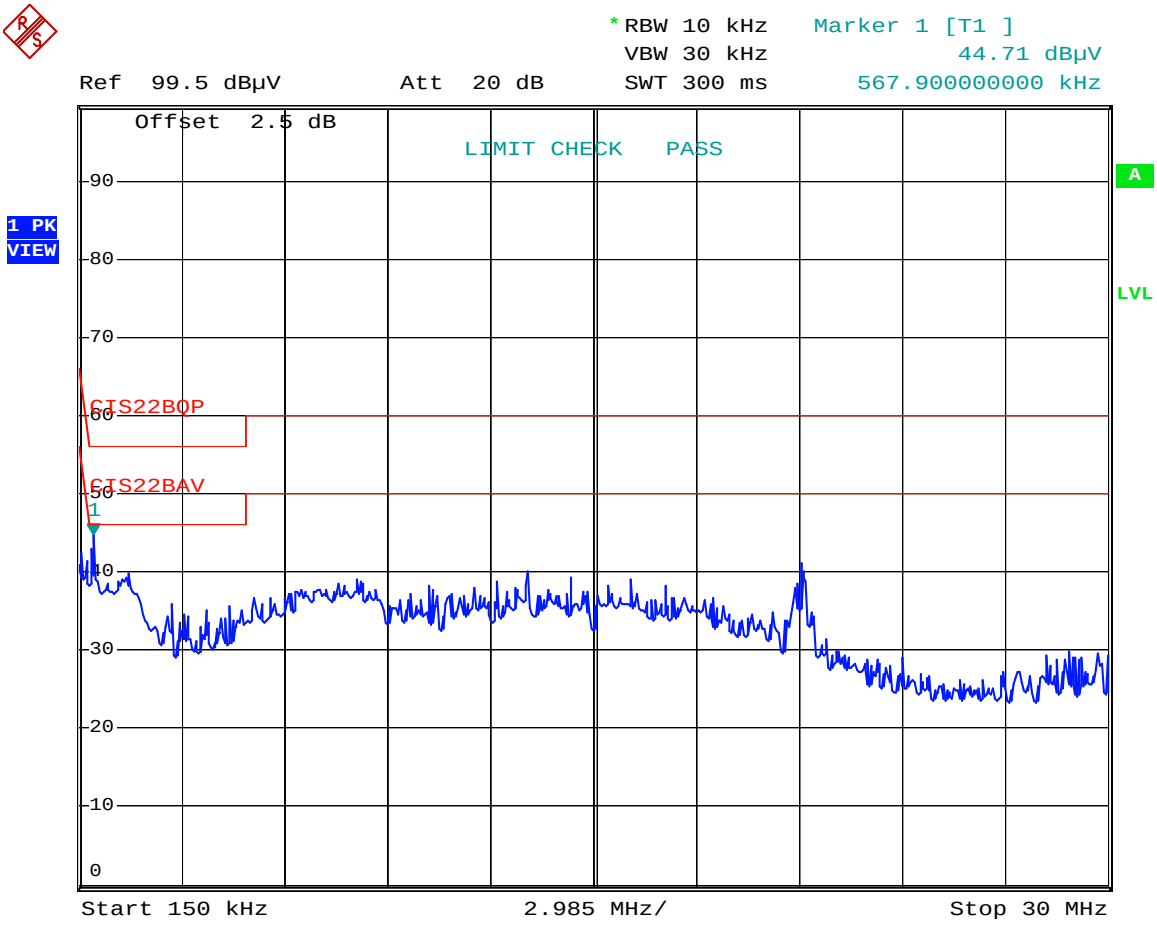
Measurement Data: See attached graph(s).

Method of Measurement: (Procedure ANSI C63.4-2003)

Measurements were made using a spectrum analyzer with 10 kHz RBW, Peak Detector. Any emissions that are close to the limit are measured using a test receiver with 10 kHz bandwidth, CISPR Quasi-Peak Detector.

Test Data – Powerline Conducted Emissions

Remote – L1



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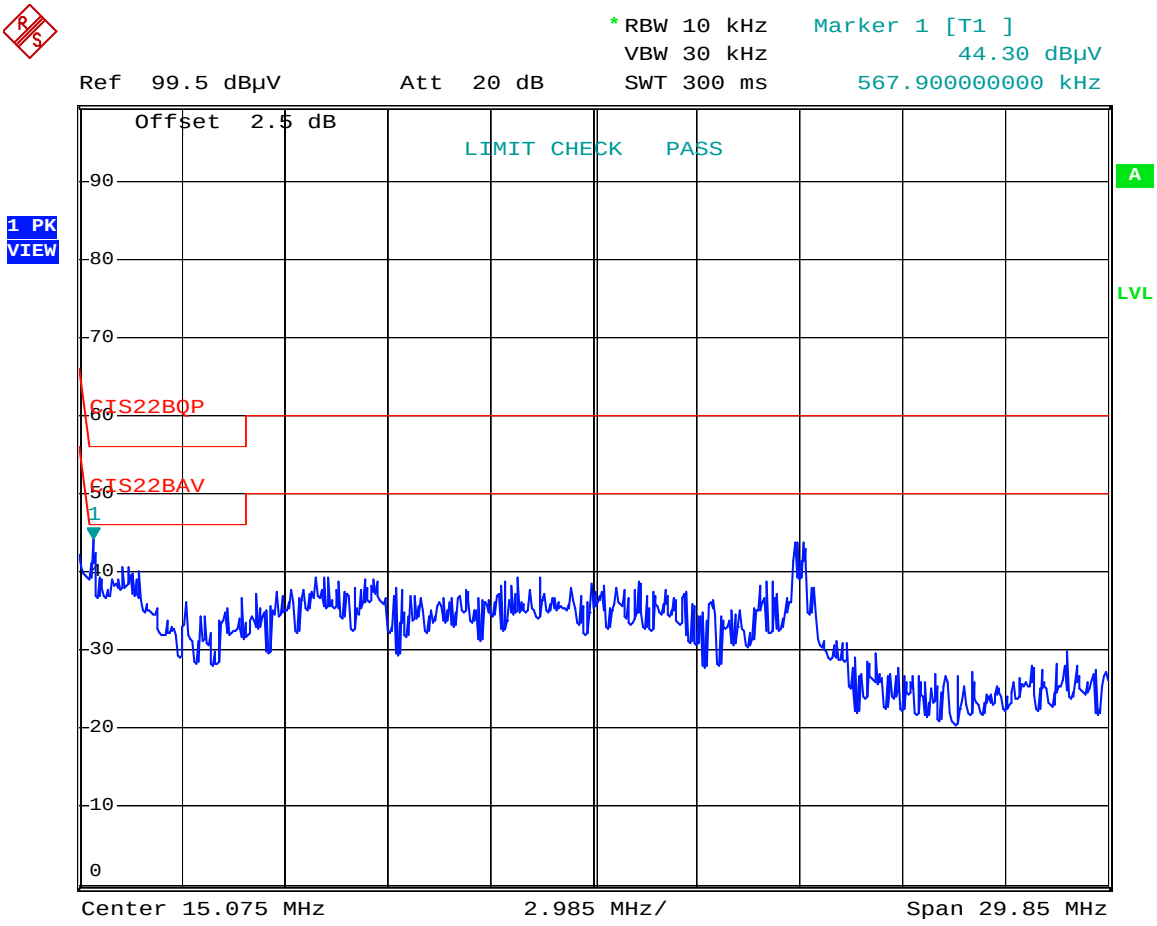
Test Data – Powerline Conducted Emissions

Remote – L2



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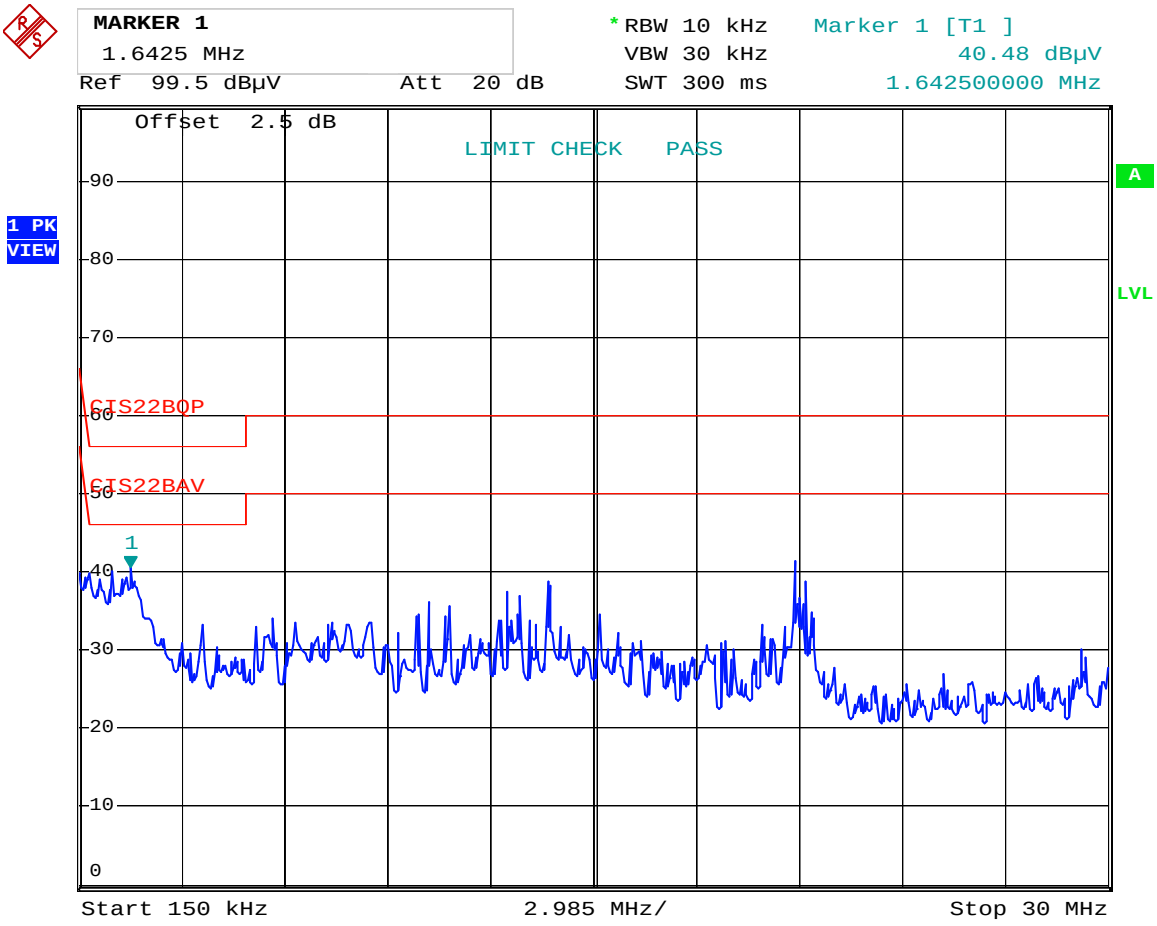
Test Data – Powerline Conducted Emissions

Base L1



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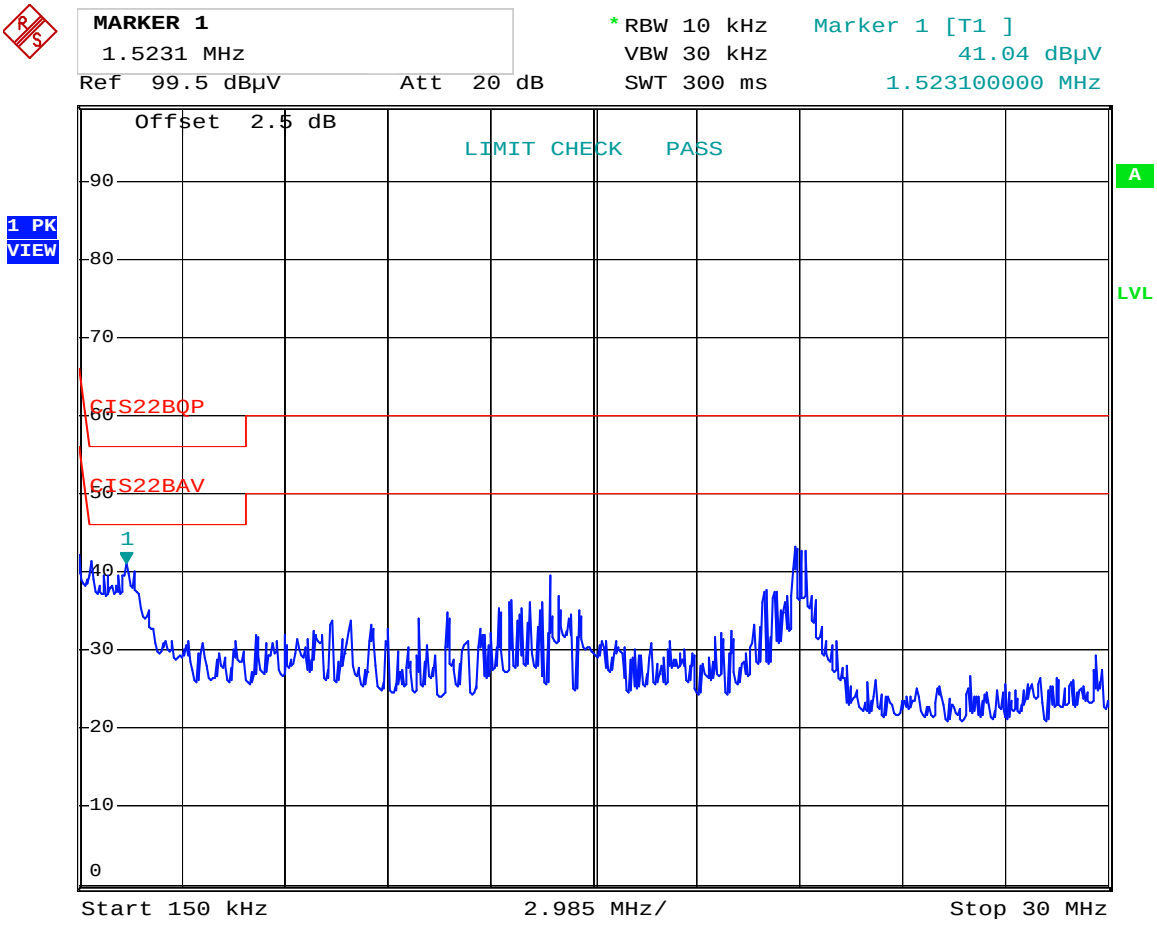
Test Data – Powerline Conducted Emissions

Base L2



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Power Supply Used: Phihong Switching Power Supply Model PSM11R-120

Section 4. Radiated Emissions

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.249
TESTED BY: David Light	DATE: 20 February 2007

Minimum Standard: Para no. 15.249

(a) The field strengths shall not exceed the following:

Carrier (MHz)	Field Strength (mV/m)	Field Strength (dBμV)	Harmonic (μV/m)	Harmonic (dBμV)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54
24000-24250	250	108	2500	68

(b) Field strength limits are specified at a distance of 3 metres.

(c) 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 limits of 15.209 whichever is the less attenuation.

(d) …for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Test Results: Complies

Measurement Data: See attached table.

Test Data - Radiated Emissions

Carrier Power

Radiated Emissions Data

Complete	X			Job # :	3014
Preliminary				Page	1
Client Name :	Pilot Technolgies				
EUT Name :	Wireless Phone Extender				
EUT Model # :	PLS100				
EUT Part # :	PLR300 (Remote) & PLB300 (Base)				
EUT Serial # :	None				
EUT Config. :	Linked				

Specification :	CFR47 Part 15.249			Reference :	ANSI C63.4 2003
Rod. Ant. #:		Temp. (deg. C) :	23	Date :	02/21/07
Bicon Ant.#:	760	Humidity (%) :	45	Time :	2:30
Log Ant.#:	1034	EUT Voltage :	120	Staff :	David Light
Bilog Ant.#:		EUT Frequency :	60	Photo ID:	NA
Dipole Ant.#:		Phase:	1	Peak Bandwidth:	100 KHz
Cable#:	1522	Location:	D oats	Video Bandwidth	100 KHz
Preamp#:	1025	Distance:	3 Meters	QP Bandwidth:	120 KHz
Limiter#:	NA	Barometric pressure:	1016		
Atten #:	NA				
Detector#:	1036				

Meas. Freq. (MHz)	Ant. Pol. (H/V)	Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail Unc.	QP readings Comment
904.93	V	0	60	17.7	12.1	0.0	89.8	94.0	-4.2	Pass	Base
924.93	V	0	59	17.7	12.1	0.0	88.8	94.0	-5.2	Pass	Remote

Meter reading + AF + Path loss – RF Gain = Corrected reading

All readings are PEAK unless otherwise specified.

Input voltage was varied +/-15% with no effect on output power.

Test Data – Radiated Emissions

Spurs continued

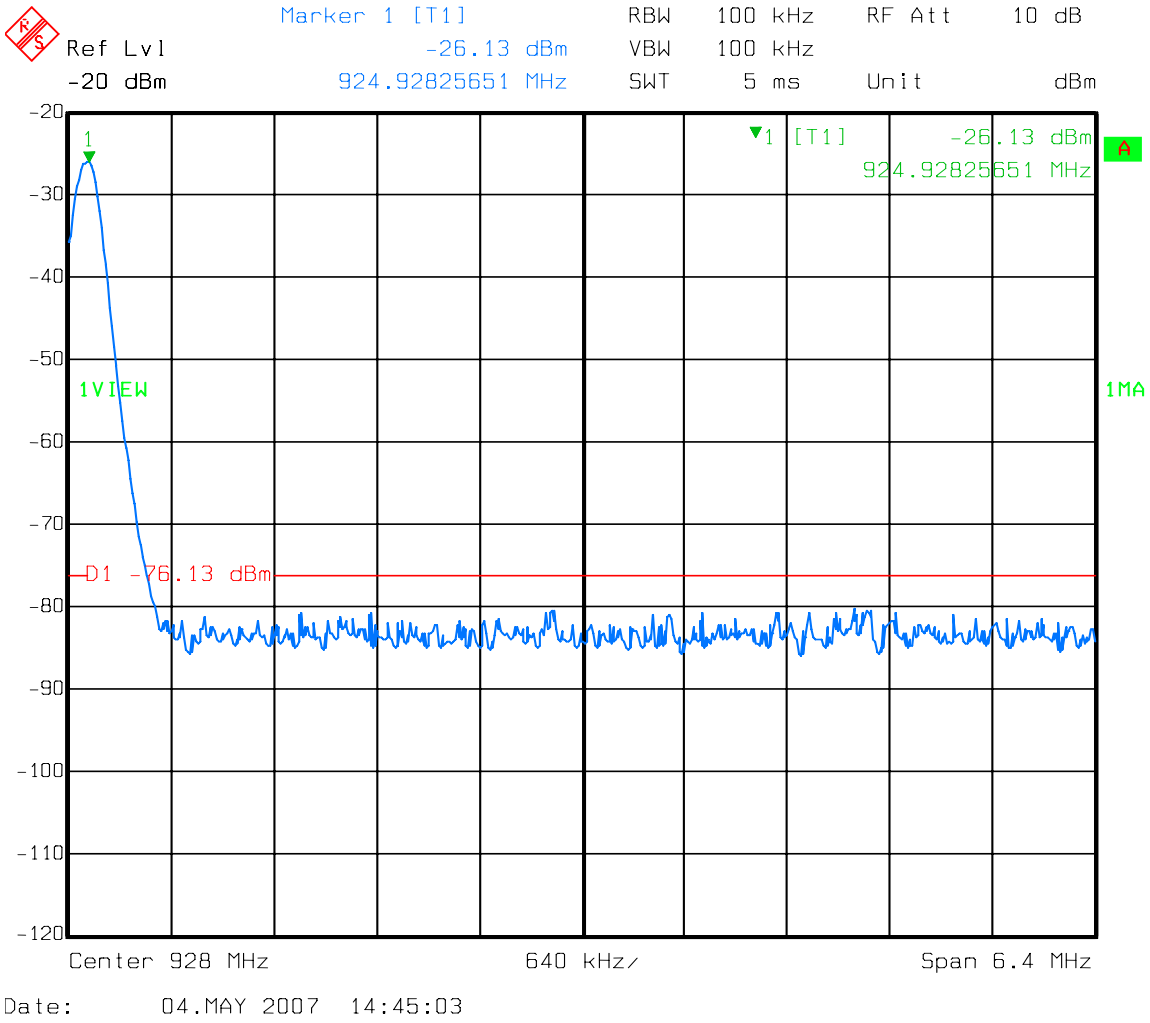
Measurement Data:	Reading listed by frequency.				Test Distance: 3 Meters					
Freq MHz	Rdng dBµV	Horn dB	Cable dB	Cable 2 GHz dB	Pre-A dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1849.786 Remote	53.2	+27.4	+0.7	+2.1 +2.5	-32.1	+0.0	53.8	54.0	-0.2	Vert
1849.786 Remote	51.0	+27.4	+0.7	+2.1 +2.5	-32.1	+0.0	51.6	54.0	-2.4	Horiz
1810.572 Base	51.0	+27.0	+0.7	+2.1 +2.5	32.0	+0.0	51.3	54.0	-2.7	Vert
2712.478 Base	53.0	+29.3	+0.8	+2.8 +0.0	32.7	+0.0	53.2	54.0	-0.8	Vert
3617.588 Base	50.0	+30.3	+0.8	+2.8 +0.0	32.4	+0.0	51.5	54.0	-2.5	Vert
6177.781 Base	44.8	+34.7	+1.2	+3.7 +0.0	30.7	+0.0	53.7	54.0	-0.3	Vert
1810.572 Base	50.8	+27.0	+0.7	+2.1	32.0	+0.0	48.6	54.0	-5.4	Horiz

Searched spectrum from 30 MHz to 10 GHz

All readings are PEAK unless otherwise noted.

RBW = VBW = 1 MHz

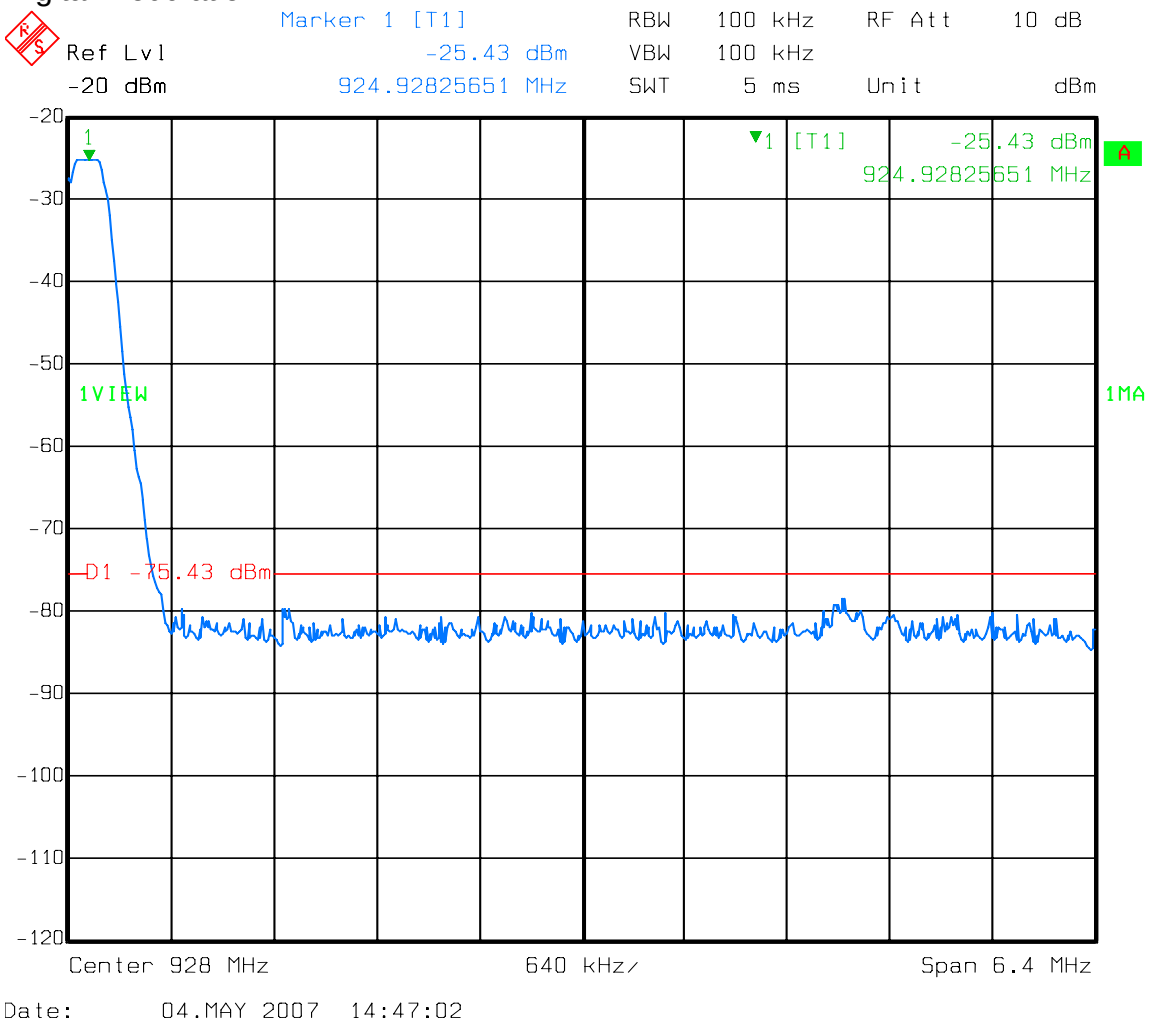
Band Edge Plots
Remote
Analog
2500 cps tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.



Band Edge Plots

Remote

Digital Modulation

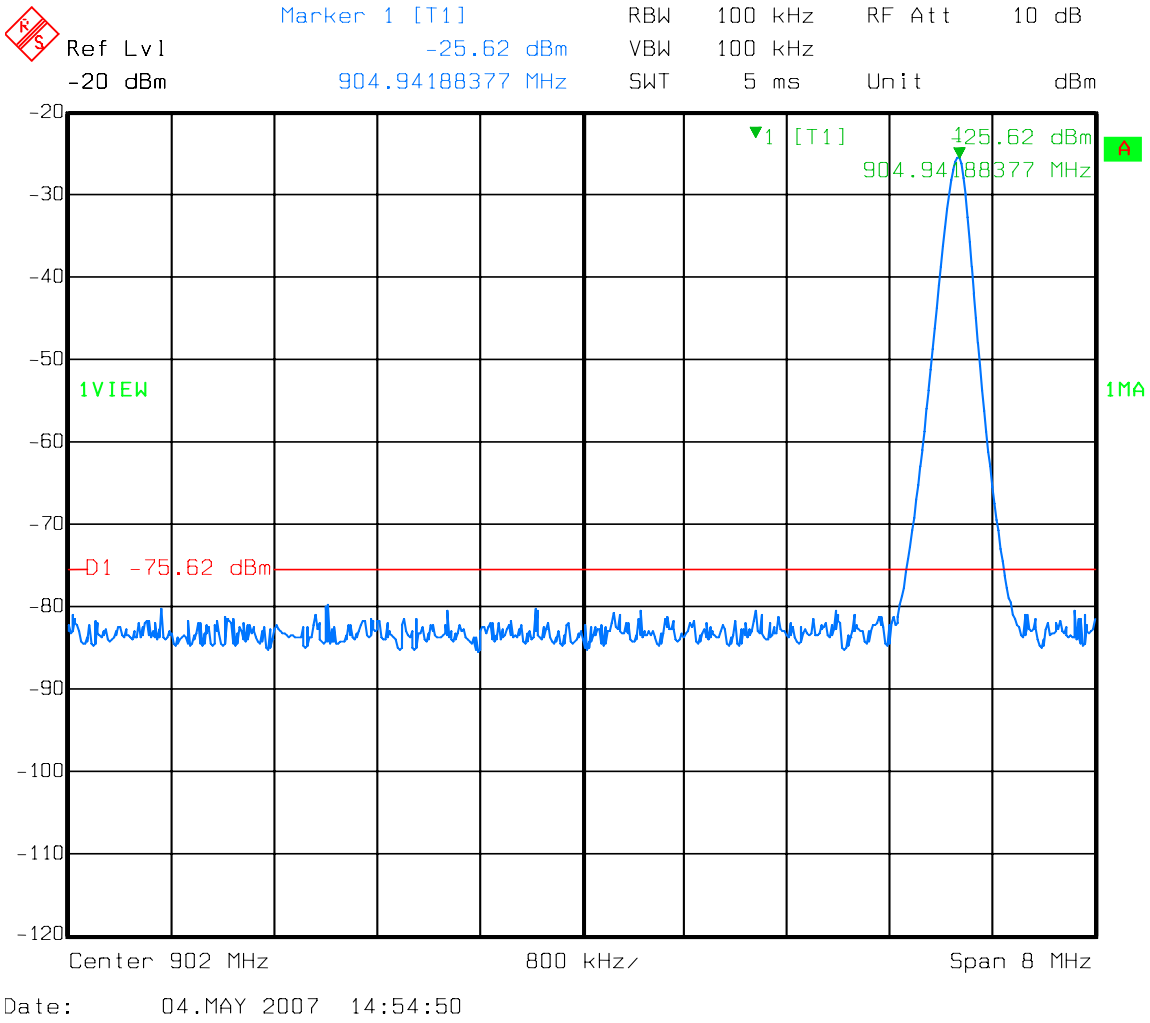


Band Edge Plots

Base

Analog

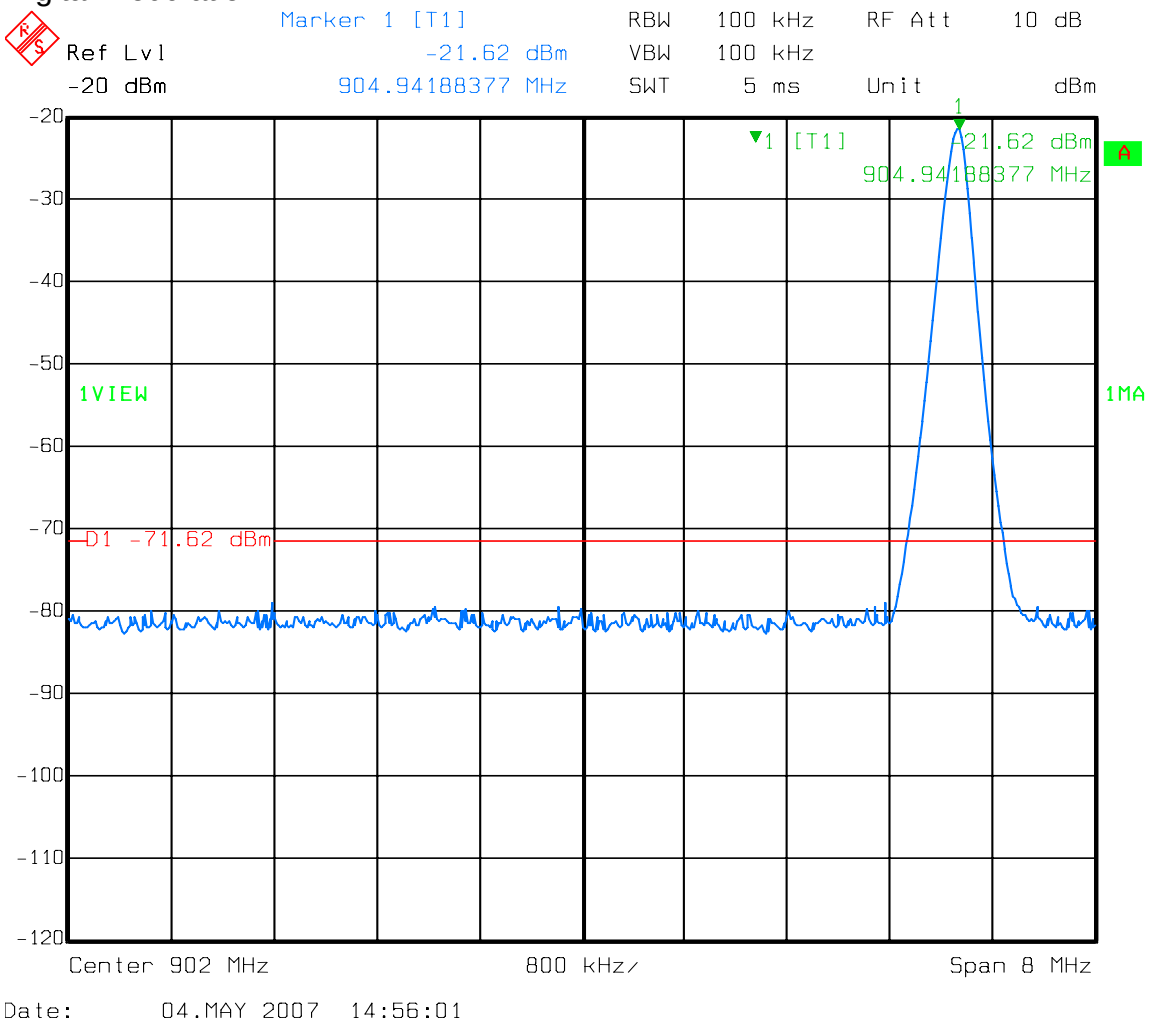
2500 cps tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.



Band Edge Plots

Base

Digital Modulation



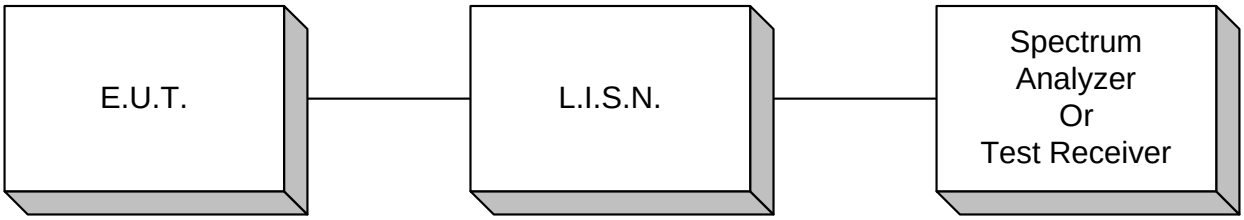
Section 5. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
759	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	556	03/30/07	03/30/08
760	Antenna biconical	Electro Metrics MFC-25	477	01/19/07	01/19/08
1522	Cable Assy, LAB 5 - D OATS	Nemko USA, Inc. Site D OATS	N/A	03/23/07	03/23/08
1025	PREAMP, 25dB	Nemko USA, Inc. LNA25	399	09/29/06	09/29/07
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	05/26/06	05/26/08
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	01/24/07	01/24/09
1484	Cable	Storm PR90-010-072	N/A	10/02/06	10/02/07
1485	Cable	Storm PR90-010-216	N/A	10/02/06	10/02/07
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	04/20/06	04/20/07
1034	ANTENNA,LP	A.H. SYSTEMS SAS-200/510	121	03/30/07	03/30/08
1659	Spectrum Analyzer	Rhode & Schwarz FSP	973353	01/24/07	01/24/09
968	Filter, High pass 5khz	Solartron 7930-5.0	933124	04/20/06	04/20/07
1258	LISN .15mhz-30mhz	EMCO 0	1305	04/19/06	04/19/07

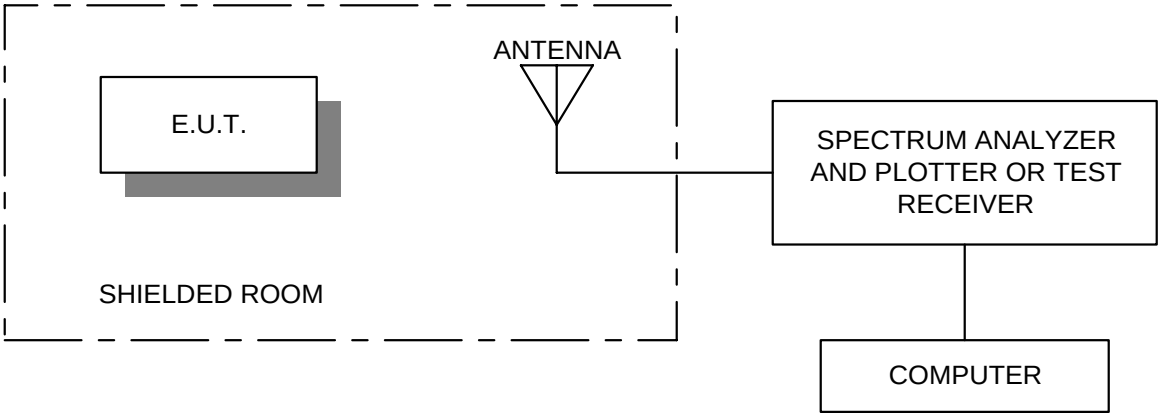
ANNEX A

TEST DIAGRAMS

Conducted Emissions



Radiated Prescan



Test Site For Radiated Emissions