



Nemko Test Report: 4L0563RUS1rev4

Applicant: Elliott Electronics

**Equipment Under Test:
(E.U.T.)** EPAL ALERT Transmitter

In Accordance With: **FCC Part 15, Subpart C, 15.249**
For 900 MHz Transmitters

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

Authorized By:

A handwritten signature in black ink, appearing to read 'Abe Cox', is positioned above a thin vertical red line.

Abe Cox
Key Accounts Manager

Date: 26 October, 2005

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EQUIPMENT:EPAL Alert Transmitter

Section 1. Summary Of Test Results

Manufacturer: Elliott Electronics

Model No.: EPAL ALERT Transmitter

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.



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. NONE



NVLAP LAB CODE: 100426-0

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EQUIPMENT:EPAL Alert Transmitter

Summary Of Test Data

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

*The transmitter is battery powered.

EQUIPMENT:EPAL Alert Transmitter

Section 2. General Equipment Specification

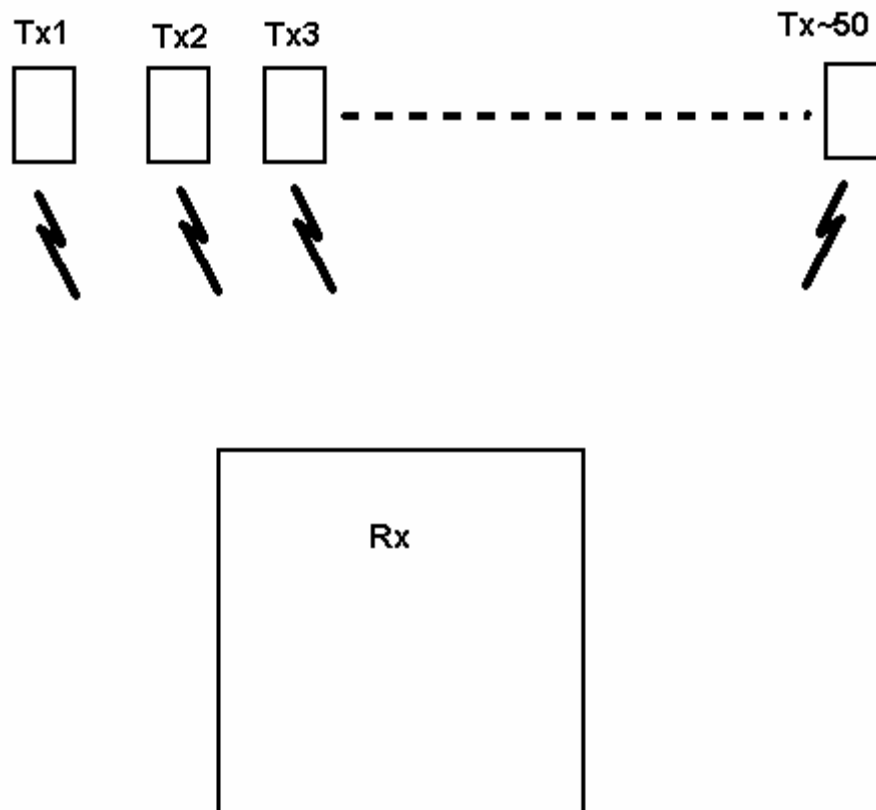
Frequency Range:	915 MHz Single channel				
Operating Frequency(ies) of Sample:	915 MHz				
Input Power:	3 Vdc				
Tunable Bands:	N/A				
Number of Channels:	One				
Channel Spacing:	NA				
User Frequency Adjustment:	None				
Integral Antenna	<table><tbody><tr><td>Yes</td><td>No</td></tr><tr><td>☒</td><td>☐</td></tr></tbody></table>	Yes	No	☒	☐
Yes	No				
☒	☐				

EQUIPMENT:EPAL Alert Transmitter

Description of EUT

EPAL (**E**lectronic **P**roximity **A**nd **L**ocation) is a portable system that keeps track of up to 50 target people or objects per home unit. It tells you when a target is out of range (up to 250 feet) and allows you to locate the target via the home unit (receiver).

System Diagram



EQUIPMENT:EPAL Alert Transmitter

Section 3. Radiated Emissions

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.249
TESTED BY: David Light	DATE: 10/26/2005

Minimum Standard: Para no. 15.249

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

Fundamental (MHz)	Field Strength (mV/m)	Field Strength (dBμV)	Harmonic (mV/m)	Harmonic (dBμV)
902-928	50	94	0.5	54

(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.

EQUIPMENT: EPAL Alert Transmitter

Test Data - Radiated Emissions

Radiated Emissions Data												
Complete	<u>X</u>		Job # : <u>4L0563R</u>				Test # : <u>RE-2</u>					
Preliminary			Page <u>1</u>				of <u>1</u>					
Client Name :	<u>ELLIOT ELECTRONICS</u>											
EUT Name :	<u>EPAL ALERT Transmitter</u>											
EUT Model # :	<u>EPAL ALERT Transmitter</u>											
EUT Config. :	<u>TX</u>											
Specification :	<u>15.249</u>						Reference :					
Rod. Ant. #:			Temp. (deg. C) :	<u>20</u>		Date :		<u>10/26/05</u>				
Bicon Ant. #:			Humidity (%) :	<u>35</u>		Time :		<u>9:00</u>				
Log Ant. #:	<u>1034</u>		EUT Voltage :	<u>3</u>		Staff :		<u>D. LIGHT</u>				
Horn Ant. #:	<u>993</u>		EUT Frequency :	<u>dc</u>		Photo ID:		<u>NA</u>				
Dipole Ant. #:			Phase:			Peak Bandwidth:		<u>100 kHz < 1 GHz</u>				
Cable#:	<u>1983</u>		Location:	<u>AOATS</u>		Video Bandwidth:		<u>100kHz < 1 GHz</u>				
Preamp#:	<u>1016</u>		Distance:	<u>3M</u>		Peak Bandwidth:		<u>1 MHz > 1 GHz</u>				
Cable #2:	<u>1484</u>				Video Bandwidth:		<u>1 MHz > 1 GHz</u>					
Cable #3:	<u>1485</u>											
Detector#1:	<u>1036</u>											
Detector#2:	<u>1464</u>											

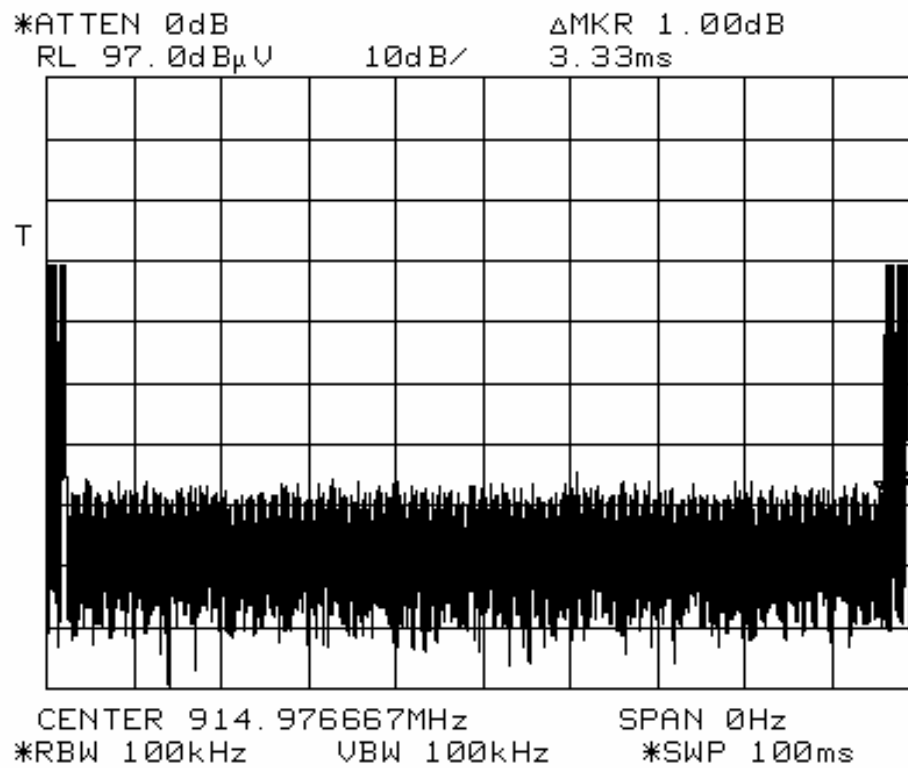
Meas. Freq. (MHz)	Ant. Pol. (H/V)	Duty Cycle (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass/Fail Unc.	Comment
915	V	0	34.7	17.7	8.2	0.0	60.6	94.0	-33.4	Pass	Carrier Peak
915	H	0	45	17.7	8.2	0.0	70.9	94.0	-23.1	Pass	Carrier Peak
1830	V	0	64.3	27.9	2.7	31.8	63.1	74.0	-10.9	Pass	Peak
1830	V	-23.6	64.3	27.9	2.7	31.8	39.5	54.0	-14.5	Pass	Average
2745	V	0	67	28.2	3.7	32.5	66.4	74.0	-7.6	Pass	Peak
2745	V	-23.6	67	28.2	3.7	32.5	42.8	54.0	-11.2	Pass	Average
3660	V	0	46	30.3	3.5	31.8	48.0	54.0	-6.0	Pass	Peak
4575	V	0	43	32.2	4.1	30.8	48.5	54.0	-5.5	Pass	Noise floor Peak
5490	V	0	41.5	33.6	5.7	28.9	51.9	54.0	-2.1	Pass	Noise floor Peak
6405	V	0	42	34.9	5.3	32.4	49.8	54.0	-4.2	Pass	Noise floor Peak
7320	V	0	41	36.3	5.3	34.2	48.4	54.0	-5.6	Pass	Noise floor Peak
8235	V	0	41.5	36.7	5.7	33.2	50.7	54.0	-3.3	Pass	Noise floor Peak
9150	V	0	42.3	37.8	5.8	33.3	52.6	54.0	-1.4	Unc.	Noise floor Peak
2745	H	0	61.8	28.2	3.7	32.5	61.2	74.0	-12.8	Pass	Peak
2745	H	-23.6	61.8	28.2	3.7	32.5	37.6	54.0	-16.4	Pass	Average
1830	H	0	61	27.9	2.7	31.8	59.8	74.0	-14.2	Pass	Peak
1830	H	-23.6	61	27.9	2.7	31.8	36.2	54.0	-17.8	Pass	Average

..\\EMCShare\\AUTOMATE\\DATASHTS\\RADEMEV Rev C.xls Document Control #EMC DS EM RAD HFE

- 1) The device was tested with a new battery.
- 2) The spectrum was searched from 30 MHz to 10 GHz. All emissions within 20 dB of the specification limit were reported.
- 3) The device was tested at full power.
- 4) The device was tested on three orthogonal axis'.

EQUIPMENT:EPAL Alert Transmitter

Duty Cycle Correction

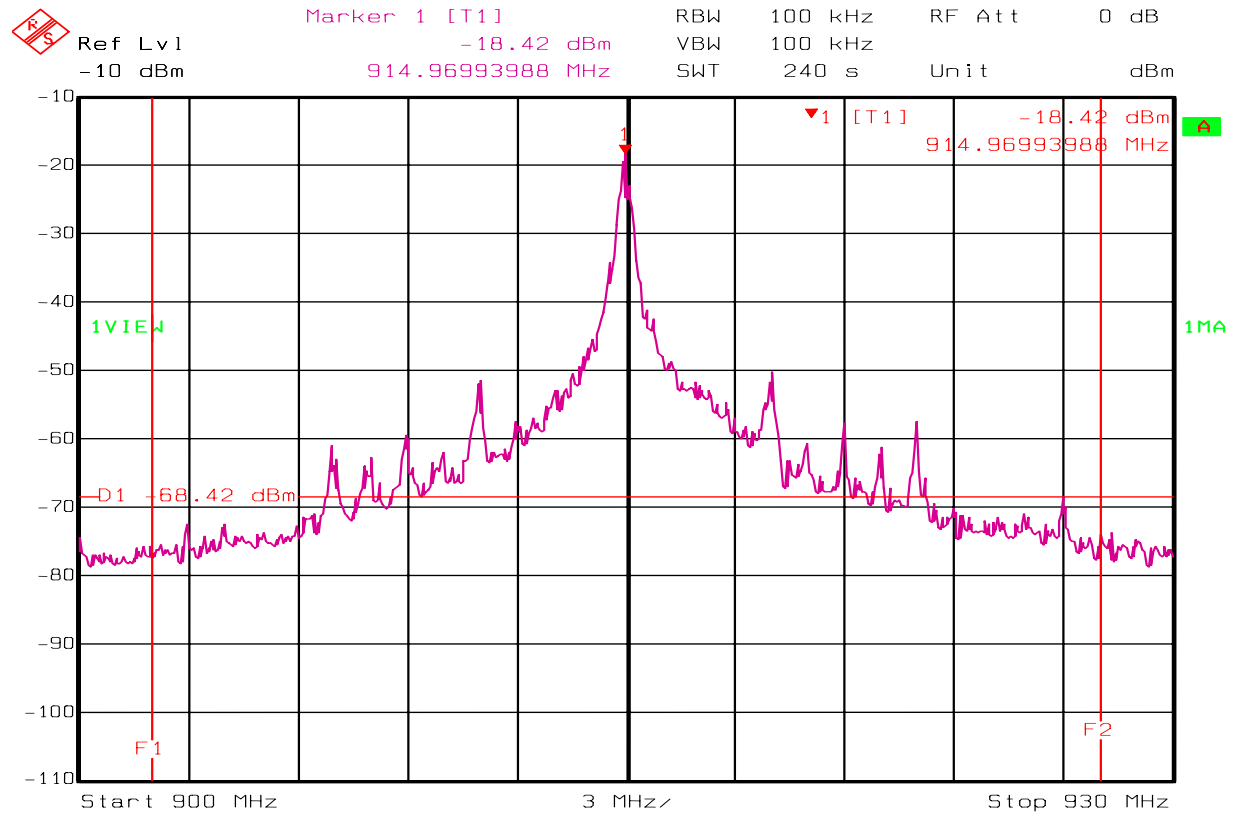


$20\log(6.6\text{mS}/100\text{mS}) = -23.6 \text{ dB}$ Correction for Average readings over 1 GHz

EQUIPMENT: EPAL Alert Transmitter

Bandedge Plot

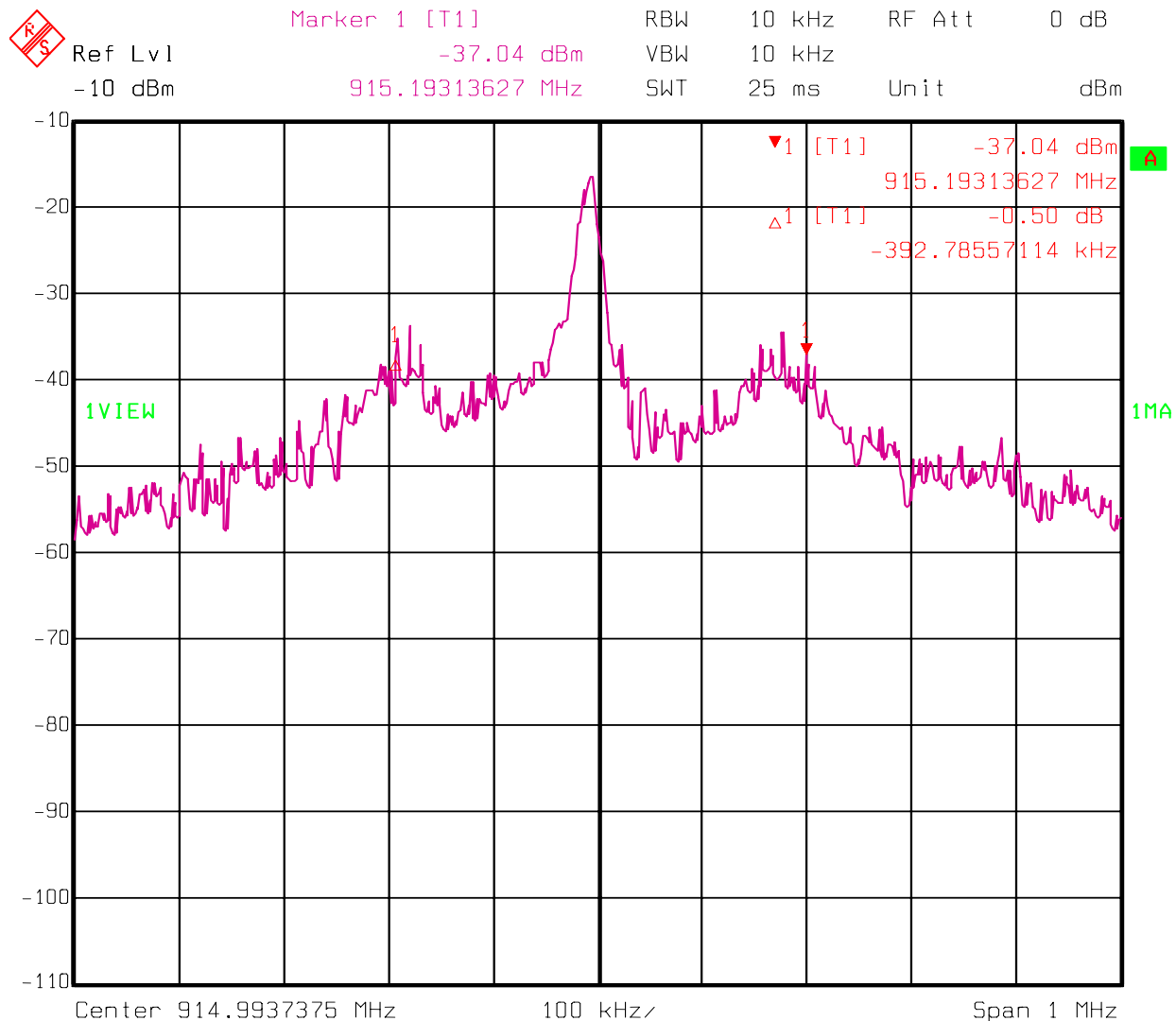
Frequency lines indicate bandedges at 902 and 928 MHz. Display line indicates -50 dBc point.



Date: 02.MAR.2005 11:12:41

EQUIPMENT:EPAL Alert Transmitter

99% Bandwidth (for Industry Canada)



Date: 02.MAR.2005 11:24:54

20 dB Bandwidth = 393 kHz

EQUIPMENT:EPAL Alert Transmitter

Radiated Photographs



EQUIPMENT:EPAL Alert Transmitter

Section 4. Test Equipment List

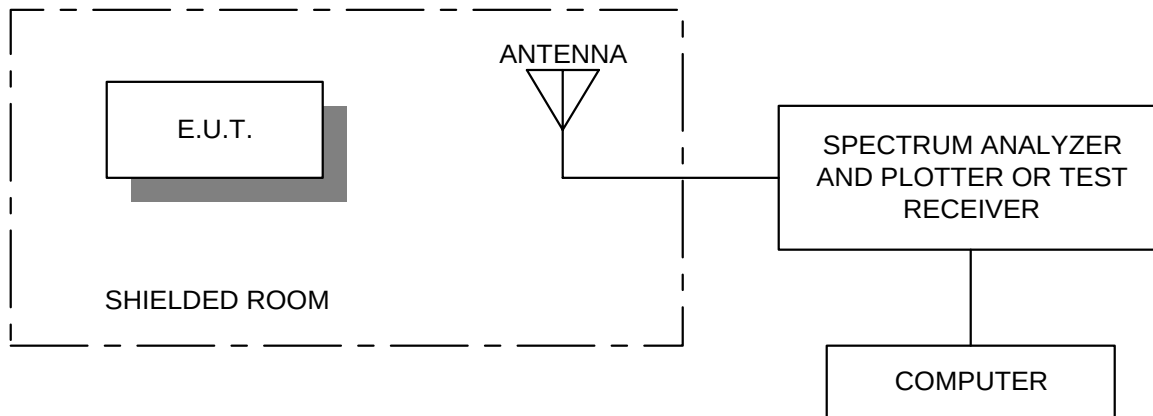
Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	03/22/04	03/23/06
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	01/14/05	01/15/07
993	Horn antenna	A.H. Systems SAS-200/571	XXX	08/01/05	08/02/07
1983	CABLE	KTL Site A OATS	N/A	CBU	N/A
1034	ANTENNA,LP	A.H. SYSTEMS SAS-200/510	121	01/26/05	01/26/06
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	11/12/04	11/12/05
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	CBU	N/A
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	CBU	N/A

ANNEX A

TEST DIAGRAMS

EQUIPMENT: EPAL Alert Transmitter

Radiated Prescan



Test Site For Radiated Emissions

