

Nemko Test Report: 3L0389RUS2

Applicant: Kemp-Meek Mfg.
101 Park Central
Mineola, TX 75773

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

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 "David Light", is positioned above the printed name of the authorized person.

David Light, Resource Manager

Date: 10/6/03

Table Of Contents

Section 1. Summary Of Test Results 3

Section 2. General Equipment Specification 5

Section 3. Radiated Emissions..... 7

Section 4.Test Equipment List..... 14

ANNEX A TEST DIAGRAMS 1

EQUIPMENT: Truck Radio**Section 1. Summary Of Test Results**

Manufacturer: Kemp-Meek Mfg.

Model No.: Truck Radio

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 C63.4-1992. Radiated Emissions were made on an open area test site.



New Submission



Production Unit



Class II Permissive Change



Pre-Production Unit



Equipment Code

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: 100351-0**

Nemko Dallas Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko Dallas Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

EQUIPMENT: Truck Radio**Summary Of Test Data**

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

Footnotes For N/A's:

The device is battery powered.

Section 2. General Equipment Specification

Frequency Range: 922.8 – 927.9 MHz

Tunable Bands: N/A

Number of Channels: 50

Channel Spacing: 100 kHz

User Frequency Adjustment: None

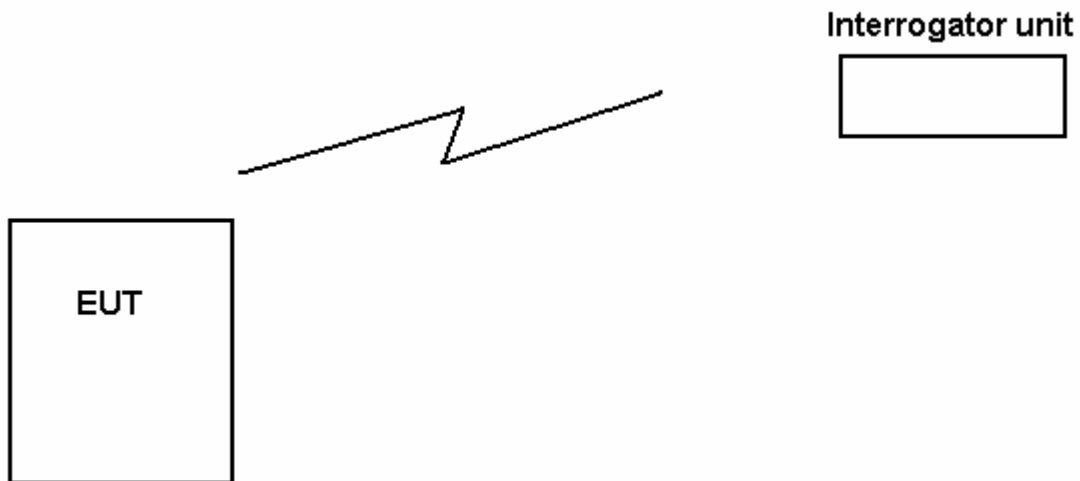
Integral Antenna	Yes	No
	☒	☐

EQUIPMENT: Truck Radio

Description of EUT

Wireless meter interrogation device.

System Diagram



EQUIPMENT: Truck Radio**Section 3. Radiated Emissions**

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.249
TESTED BY: Eldon Berry	DATE: 9/3/03

Minimum Standard: Para no. 15.249

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

Fundamental (MHz)	Field Strength (mV/m)	Field Strength (dB μ V)	Harmonic (mV/m)	Harmonic (dB μ V)
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.

Frequency spectrum investigated from 19MHz to 10GHz.

EQUIPMENT: Truck Radio

Test Data - Radiated Emissions



NEMKO Dallas, Inc.

Dallas Headquarters:

 802 N. Kealy
 Lewisville, TX 75057
 Tel: (972) 436-9600
 Fax: (972) 436-2667

Radiated Emissions Data

Complete	<u> X </u>	Job # :	<u>3L0389R</u>	Test # :	<u>RF</u>
Preliminary	<u> </u>		Page <u> 1 </u>	of	<u> 1 </u>
Client Name : <u>Kemp Meek</u>					
EUT Name : <u>Truck radio</u>					
EUT Model # : <u>Truck radio</u>					
EUT Part # : <u>None</u>					
EUT Serial # : <u>None</u>					
EUT Config. : <u>Typical</u>					
Specification : <u>15.249</u>					
Rod. Ant. # :	<u>NA</u>	Temp. (deg. C) :	<u>23</u>	Reference :	<u>Date : 9/3/2003</u>
Bicon Ant.# :	<u>NA</u>	Humidity (%) :	<u>62</u>		<u>Time : 11:30</u>
Log Ant.# :	<u>759</u>	EUT Voltage :	<u>12</u>		<u>Staff : Eldon Berry</u>
Bilog Ant.# :	<u>NA</u>	EUT Frequency :	<u>dc</u>		<u>Photo ID :</u>
Dipole Ant.# :	<u>NA</u>	Phase :	<u> </u>	Peak Bandwidth:	<u>1 MHz</u>
Cable# :	<u>1983</u>	Location :	<u>AOATS</u>	Video Bandwidth	<u>1MHz</u>
Preamplifier# :	<u>NA</u>	Distance :	<u>3</u>		
Limiter# :	<u>na</u>				
Atten # :	<u>NA</u>				
Detector# :	<u>1036</u>				

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.	Comment
922.8	V	0	59.8	24.3	8.2	0.0	92.3	94.0	-1.7	Pass	
922.8	H	0	51.7	24.3	8.2	0.0	84.2	94.0	-9.8	Pass	
925.4	V	0	59.7	24.3	8.2	0.0	92.2	94.0	-1.8	Pass	
925.4	H	0	51.8	24.3	8.2	0.0	84.3	94.0	-9.7	Pass	
927.9	V	0	59.8	24.3	8.2	0.0	92.3	94.0	-1.7	Pass	
927.9	H	0	49.6	24.3	8.2	0.0	82.1	94.0	-11.9	Pass	

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

EQUIPMENT: Truck Radio**Test Data - Radiated Emissions**

<u>Radiated Emissions</u>									
Page <u>1</u> of <u>3</u>									
Job No.: 3L0389R		Date: 3/3/2003							
Specification: 15.249		Temperature(°C): 22							
Tested By: Eldon Berry		Relative Humidity(%) 55							
E.U.T.: TruckRadio									
Configuration: Typical installation - Low power									
Sample Number: 1									
Location: AC 3		RBW: 1 MHz							
Detector Type: Peak		VBW: 1 MHz							
<u>Test Equipment Used</u>									
Antenna: 993		Directional Coupler: #N/A							
Pre-Amp: 1016		Cable #1: 1484							
Filter: 1481		Cable #2: 1485							
Receiver: 1464		Cable #3: #N/A							
Attenuator #1: #N/A		Cable #4: #N/A							
Attenuator #2: #N/A		Mixer: #N/A							
Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Comment at 922.8 MHz	Tx
1.8456	53.2	27.2	2.9	32.7	50.6	54	-3.4	Pk-H	
2.7684	45.5	29.4	3.4	32.9	45.4	54	-8.6	Pk-H	
3.6912	46.2	30.4	4.0	33.0	47.6	54	-6.4	Pk-H noise floor	
4.614	44.7	32.4	4.8	32.8	49.2	54	-4.9	Pk-H noise floor	
5.5368	44.3	33.7	5.0	31.6	51.4	54	-2.6	Pk-H noise floor	
6.4596	43.3	35.1	5.7	32.8	51.4	54	-2.6	Pk-H noise floor	
7.3824	43.2	35.8	6.1	31.9	53.2	54	-0.8	Pk-H noise floor	
7.3824	43.2	35.8	6.1	31.9	53.2	54	-0.8	Pk-H noise floor	
8.3052	43.5	35.8	6.8	31.9	54.2	74	-19.8	Pk-H noise floor	
8.3052	32	35.8	6.8	31.9	42.7	54	-11.3	Avg-H noise floor	
9.228	43	37.0	7	33.8	53.2	54	-0.8	Pk-H noise floor	
9.228	43	37.0	7	33.8	53.2	54	-0.8	Pk-H noise floor	
1.8456	51.3	27.2	2.9	32.7	48.7	54	-5.3	Pk-V	
2.7684	47.2	29.4	3.4	32.9	47.1	54	-6.9	Pk-V	
3.6912	48	30.4	4.0	33.0	49.4	54	-4.6	Pk -V noise floor	
4.614	44.5	32.4	4.8	32.8	49.0	54	-5.1	Pk -V noise floor	
5.5368	44.3	33.7	5.0	31.6	51.4	54	-2.6	Pk -V noise floor	
6.4596	43.3	35.1	5.7	32.8	51.4	54	-2.6	Pk -V noise floor	
7.3824	43	35.8	6.1	31.9	53.0	54	-1.0	Pk -V noise floor	
8.3052	43.6	35.8	6.8	31.9	54.3	74	-19.7	Pk -V noise floor	
8.3052	31.5	35.8	6.8	31.9	42.2	54	-11.8	Pk -V noise floor	
9.228	43	37.0	7	33.8	53.2	54	-0.8	Pk -V noise floor	
Notes: With cable fix									
Searched to the 10th harmonic.									

EQUIPMENT: Truck Radio**Test Data - Radiated Emissions**

Radiated Spurious Emissions								
Page <u>2</u> of <u>3+B104</u>		Continuation Page						
Job No.: <u>2L0609R</u>		Date: <u>3/3/2003</u>						
Specification: <u>15.249</u>		Temperature(°F): <u>22</u>						
Tested By: <u>#N/A</u>		Relative Humidity(%) <u>16</u>						
E.U.T.: <u>TruckRadio</u>								
Configuration: <u>Typical installation - Low powerr</u>								

Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Comment
								Tx at 925.4MHz
1.8508	50.2	27.2	2.9	32.7	47.6	54	-6.4	Pk-V
2.7762	47.2	29.4	3.4	32.9	47.1	54	-6.9	Pk-V
3.7016	45.2	30.4	4.0	33.0	46.6	54	-7.4	Pk -V noise floor
4.614	44.2	32.4	4.8	32.8	48.7	54	-5.4	Pk -V noise floor
5.5524	42.8	33.7	5.0	31.6	49.9	54	-4.1	Pk -V noise floor
6.4778	42.5	35.1	5.7	32.8	50.6	54	-3.5	Pk -V noise floor
7.4032	43.2	35.8	6.1	31.9	53.2	54	-0.8	Pk -V noise floor
8.3286	43.7	35.8	6.8	31.9	54.4	74	-19.6	Pk -V noise floor
8.3286	31.2	35.8	6.8	31.9	41.9	74	-32.1	Avg -V noise floor
9.254	43	37.0	7	33.8	53.2	54	-0.8	Pk -V noise floor
1.8508	50.7	27.2	2.9	32.7	48.1	54	-5.9	Pk-H
2.7762	45.3	29.4	3.4	32.9	45.2	54	-8.8	Pk-H
3.7016	46	30.4	4.0	33.0	47.4	54	-6.6	Pk-H noise floor
4.614	43.8	32.4	4.8	32.8	48.3	54	-5.8	Pk-H noise floor
5.5524	42.2	33.7	5.0	31.6	49.3	54	-4.7	Pk-H noise floor
6.4778	40.5	35.1	5.7	32.8	48.6	54	-5.5	Pk-H noise floor
7.4032	41.8	35.8	6.1	31.9	51.8	54	-2.2	Pk-H noise floor
8.3286	43.7	35.8	6.8	31.9	54.4	74	-19.6	Pk-H noise floor
8.3286	31.5	35.8	6.8	31.9	42.2	54	-11.8	Avg-H noise floor
9.254	42.5	37.0	7	33.8	52.7	54	-1.3	Pk-H noise floor
Notes:	With cable fix							
Searched to the 10th harmonic.								

EQUIPMENT: Truck Radio**Test Data - Radiated Emissions**

<u>Radiated Spurious Emissions</u>								
Page <u>3</u> of <u>3</u>		Continuation Page						
Job No.: 2L0609R		Date: 3/3/2003						
Specification: 15.249		Temperature(°F): 22						
Tested By: #N/A		Relative Humidity(%) 16						
E.U.T.: Truck Radio								
Configuration: Typical								
Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Comment
								Tx at 927.9.4MHz
1.8558	48.5	27.2	2.9	32.7	45.9	54	-8.1	P-V
2.7837	45	29.4	3.4	32.9	44.9	54	-9.1	P-V
3.7116	45.7	30.4	4.0	33.0	47.1	54	-6.9	P-V
4.6395	44.5	32.4	4.8	32.8	49.0	54	-5.1	Pk-V noise floor
5.5674	43	33.7	5.0	31.6	50.1	54	-3.9	Pk-V noise floor
6.4953	40.2	35.1	5.7	32.8	48.3	54	-5.7	Pk-V noise floor
7.4232	42.2	35.8	6.1	31.9	52.2	54	-1.8	Pk-V noise floor
8.3511	43.3	35.8	6.8	31.9	54.0	74	-20.0	Pk-V noise floor
8.3511	31.5	35.8	6.8	31.9	42.2	54	-11.8	Avg-V noise floor
9.279	43.3	37.0	7	33.8	53.5	54	-0.5	Pk-V noise floor
1.8558	51.2	27.2	2.9	32.7	48.6	54	-5.4	Pk-H
2.7837	44.5	29.4	3.4	32.9	44.4	54	-9.6	Pk-H
3.7116	43.7	30.4	4.0	33.0	45.1	54	-8.9	Pk-H noise floor
4.6395	43.5	32.4	4.8	32.8	48.0	54	-6.1	Pk-H noise floor
5.5674	41.2	33.7	5.0	31.6	48.3	54	-5.7	Pk-H noise floor
6.4953	40.7	35.1	5.7	32.8	48.8	54	-5.2	Pk-H noise floor
7.4232	41.5	35.8	6.1	31.9	51.5	54	-2.5	Pk-H noise floor
8.3511	44.2	35.8	6.8	31.9	54.9	74	-19.1	Pk-H noise floor
8.3511	31.5	35.8	6.8	31.9	42.2	54	-11.8	Avg-H noise floor
9.279	43	37.0	7	33.8	53.2	54	-0.8	Pk-H noise floor
Notes:	With cable fix							
Searched to the 10th harmonic.								

EQUIPMENT: Truck Radio

Radiated Photographs (Worst Case Configuration)



EQUIPMENT: Truck Radio

Radiated Photographs (Worst Case Configuration)



EQUIPMENT: Truck Radio**Section 4. Test Equipment List**

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1482	Band Pass Filter	K & L 11SH10-4000/T12000-0/0	2	Cal B4 Use	N/A
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	07/24/03	07/23/04
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	07/24/03	07/23/04
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	02/11/03	02/11/05
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	07/15/02	07/15/03
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	09/22/03	09/22/05
966	Receiver	Rohde & Schwartz ESH2	880370/029	09/17/03	09/16/04
981	ANTENNA, LOOP	ROHDE & SCHWARZ HFH2-Z2	871336/20	Cal Not Req	N/A

Nemko Dallas

FCC PART 15, SUBPART C
FOR 900 MHz TRANSMITTERS
PROJECT NO.:
ANNEX A

EQUIPMENT:

FCC ID:

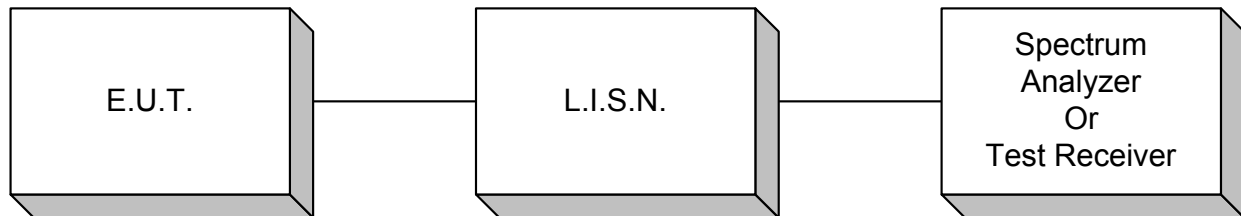
ANNEX A

TEST DIAGRAMS

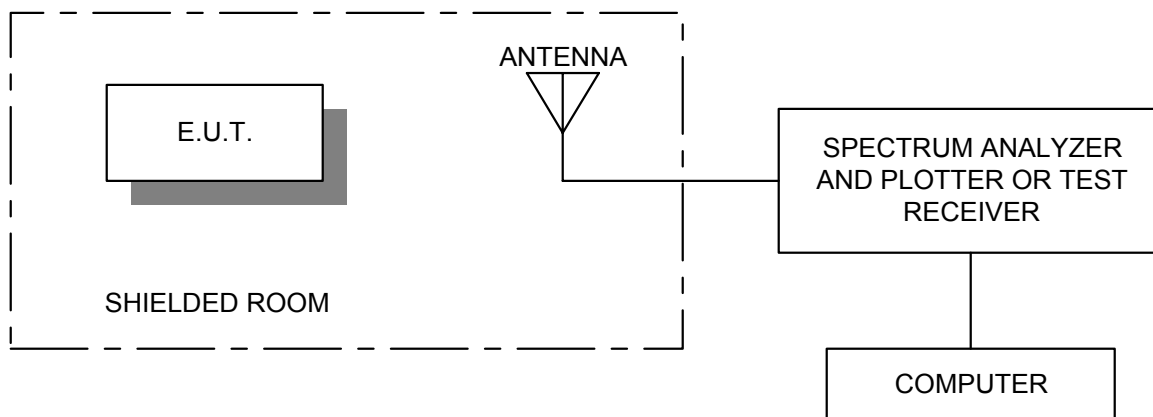
EQUIPMENT:

FCC ID:

Conducted Emissions



Radiated Prescan



EQUIPMENT:

FCC ID:

Test Site For Radiated Emissions

