Nemko Test Report:	2L0609RUS1
Applicant:	Kemp-Meek Mfg. 101 Park Central Mineola, TX 75773
Equipment Under Test: **(E.U.T.)**	NetRadio
In Accordance With:	**FCC Part 15, Subpart C, 15.247** Frequency Hopping Transmitters
Tested By:	Nemko Dallas Inc. 802 N. Kealy Lewisville, Texas 75057-3136
Authorized By:	 Tom Tidwell, Frontline Manager
Date:	3/6/03
Total Number of Pages:	38

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Section 1. Summary of Test Results

Manufacturer: Kemp-Meek Mfg

Model No.: NetRadio

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 Part 15, Subpart C, Paragraph 15.247 for Frequency Hopping Spread Spectrum devices. Radiated tests were conducted is accordance with ANSI C63.4-1992. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

☒	New Submission	☐	Production Unit
☐	Class II Permissive Change	☒	Pre-Production Unit
☐	Family Listing		

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

Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	RESULT
Powerline Conducted Emissions	15.207(a)	48 dBµV	N/A (1)
Channel Separation	15.247(a)(1)	Greater of 25 kHz or 20 dB Bandwidth	Complies
Pseudorandom Hopping Algorithm	15.247(a)(1)		Complies
Time of Occupancy	15.247(a)(1)(ii)	≤ 0.4 sec in 30 sec	Complies
20 dB Occupied Bandwidth	15.247(a)(1)	≤ 1 MHz	Complies
Peak Power Output	15.247(b)	1 Watt	Complies
Spurious Emissions (Antenna Conducted)	15.247(c)	-20 dBc	N/A (2)
Spurious Emissions (Radiated)	15.247(c)	Table 15.209(a)	Complies

Footnotes:

(1) The device is battery powered.
(2) The device has an integral antenna.

Section 2. Equipment Under Test (E.U.T.)

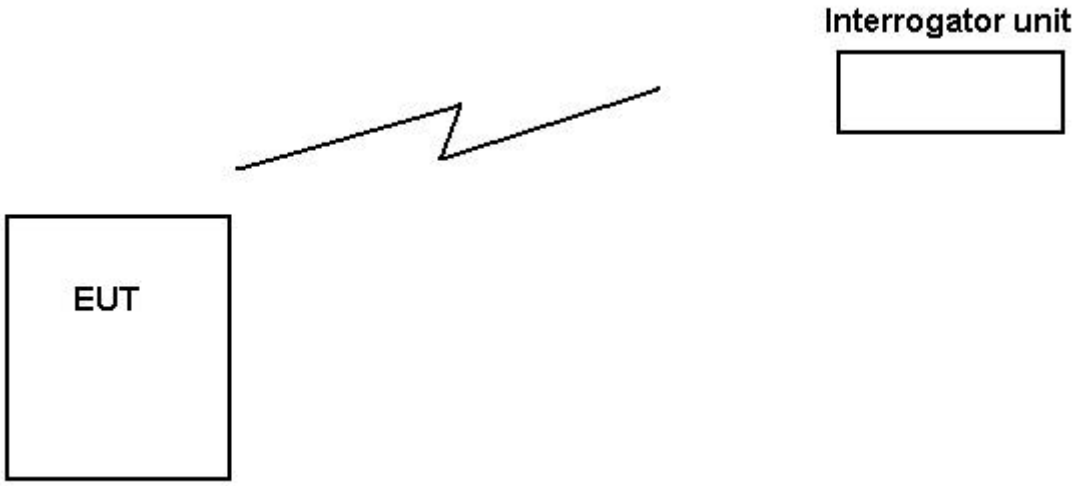
General Equipment Information

Frequency Band:	902.1 – 907.8 MHz
Number of Channels:	50
Channel Spacing:	100 kHz
User Frequency Adjustment:	Software controlled
Supply Voltage	3.4 Vdc battery

Description of EUT

Wireless meter reading device.

System Diagram



Section 3. Channel Separation

NAME OF TEST: Channel Separation	PARA. NO.: 15.247(a)(1)
TESTED BY: David Light	DATE: 3/3/2003

Test Results: Complies.

Measurement Data: See 20 dB BW plot

Measured 20 dB bandwidth:	57.5 kHz
Channel Separation:	100 kHz

Test Data – Channel Separation

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

Nemko Dallas, Inc.

Data Plot **Channel Seperation**

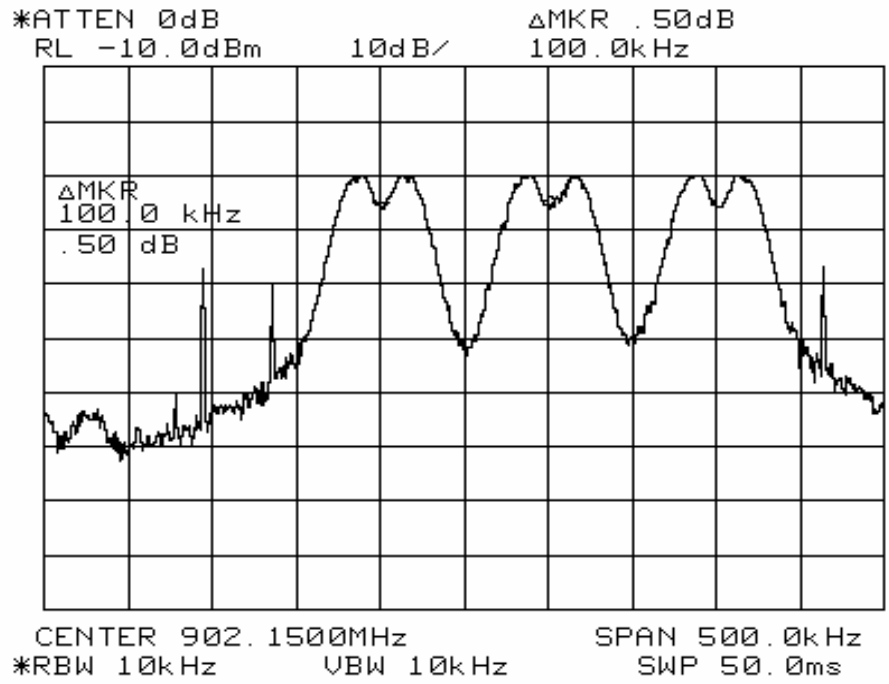
Page 1 of 5 Complete x

Job No.: 2L0609R Date: 3/3/2003 Preliminary:
Specification: 15.247 Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 24
E.U.T.: NETRADIO
Configuration: TX
Sample Number: 1
Location: AC 3 RBW: Refer to plots Measurement
Detector Type: Peak VBW: Refer to plots Distance: NA m

Test Equipment Used

Antenna:	1304	Directional Coupler:	
Pre-Amp:	1016	Cable #1:	1484
Filter:	1481	Cable #2:	1485
Receiver:	1464	Cable #3:	
Attenuator #1		Cable #4:	
Attenuator #2:		Mixer:	

Additional equipment used:
Measurement Uncertainty: +/-1.7 dB



Notes: **CHANNEL SEPARATION**

Section 4. Pseudorandom Hopping Algorithm

NAME OF TEST: Pseudorandom Hopping Algorithm	PARA. NO.: 15.247(a)(1)
TESTED BY: Supplied by applicant	DATE:

Test Results: Complies.

Measurement Data: See sample hopping sequence.
Number of Hopping Frequencies: 50 (See attached plots)

Refer to separate exhibit.

Test Plots – Number of Channels

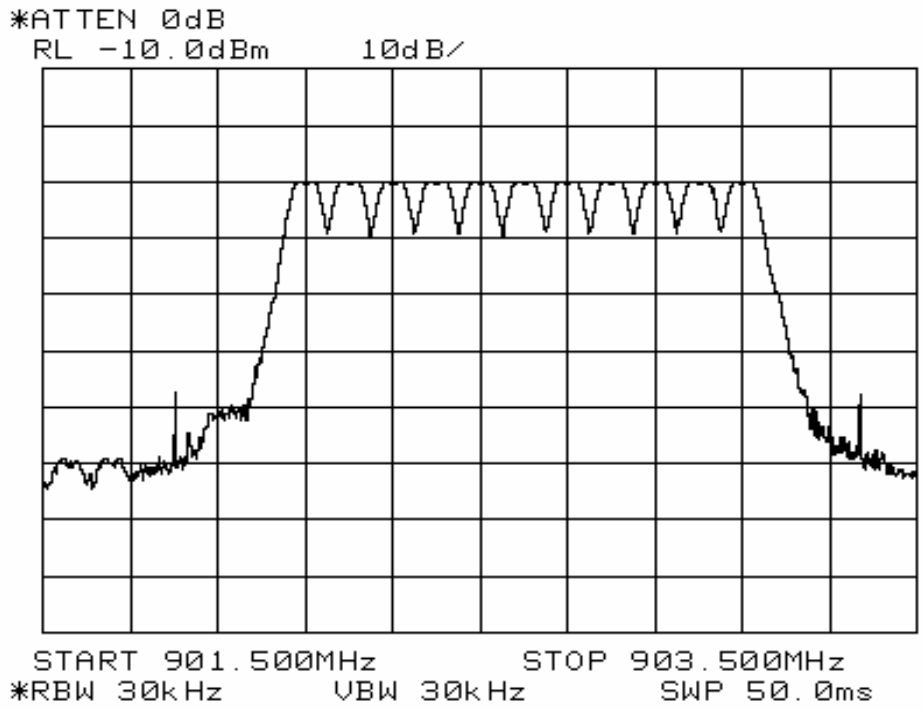
Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **HOPPING CHANNELS**

Page 3 of 5

Job No.:	2L0609R	Date:	3/3/2003
Specification:	15.247	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	24
E.U.T.:	NETRADIO		
Configuration:	TX		



Notes: **LOWER SET OF HOPPING CHANNELS (11)**

Test Plots – Number of Channels

Dallas Headquarters:
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Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Test Plot: **HOPPING CHANNELS**

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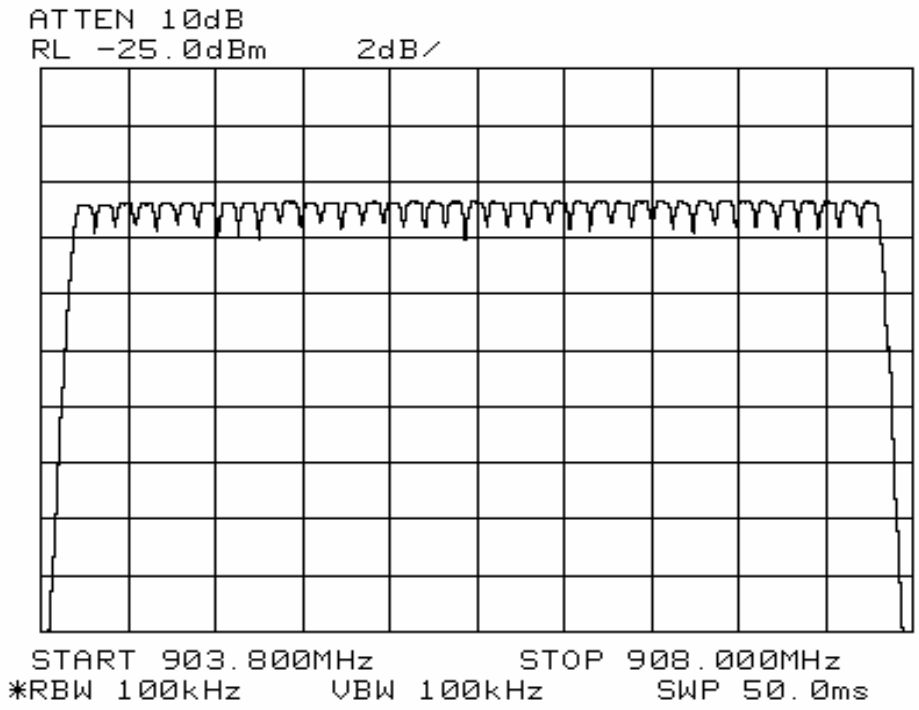
Job No.:	2L0609R	Date:	3/3/2003
Specification:	15.247	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	24
E.U.T.:	NETRADIO		
Configuration:	TX		



Notes: **UPPER HOPPING CHANNELS (39)**

Section 5. Time of Occupancy

NAME OF TEST: Time of Occupancy	PARA. NO.: 15.247(a)(1)
TESTED BY: David Light	DATE: 3/3/2003

Test Results: Complies.

Measurement Data:

Maximum Dwell Time On Any Channel: 50 mS

Test Data – Time of Occupancy

Nemko

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Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot — **Time of Occupancy**

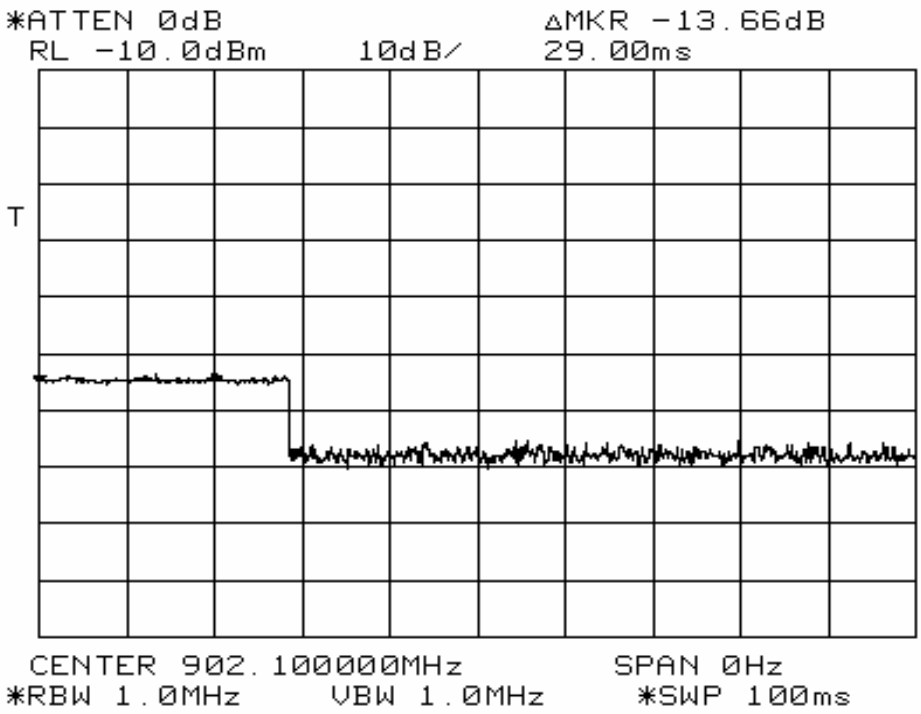
Page 1 of 5 — Complete x

Job No.:	2L0609R	Date:	3/3/2003	Preliminary:	
Specification:	15.247	Temperature(°C):	22		
Tested By:	David Light	Relative Humidity(%)	24		
E.U.T.:	NETRADIO				
Configuration:	TX				
Sample Number:	1				
Location:	AC 3	RBW:	Refer to plots	Measurement	
Detector Type:	Peak	VBW:	Refer to plots	Distance:	NA m

Test Equipment Used

Antenna:	1304	Directional Coupler:	
Pre-Amp:	1016	Cable #1:	1484
Filter:	1481	Cable #2:	1485
Receiver:	1464	Cable #3:	
Attenuator #1		Cable #4:	
Attenuator #2:		Mixer:	

Additional equipment used:
Measurement Uncertainty: +/-1.7 dB



Notes: **TIME OF OCCUPANCY**
30 mS (Minimum dwell time)

Test Data – Time of Occupancy

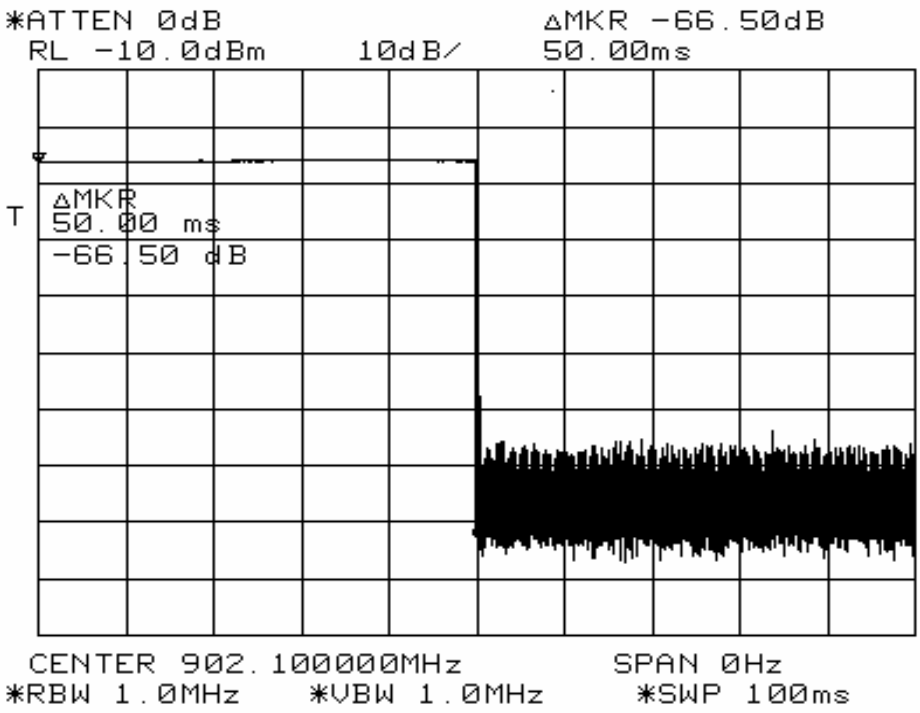
Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Test Plot: **Time of Occupancy**

Page 5 of 5

Job No.:	2L0609R	Date:	3/3/2003
Specification:	15.247	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	24
E.U.T.:	NETRADIO		
Configuration:	TX		



Notes: **Time of occupancy**
50 mS (Maximum dwell time)

Section 6. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 15.247(a)(1)(i)
TESTED BY: David Light	DATE: 3/3/2003

Test Results: Complies.

Measurement Data: See attached plots.

Test Data – Occupied Bandwidth

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

Nemko Dallas, Inc.

Data Plot **Occupied Bandwidth**

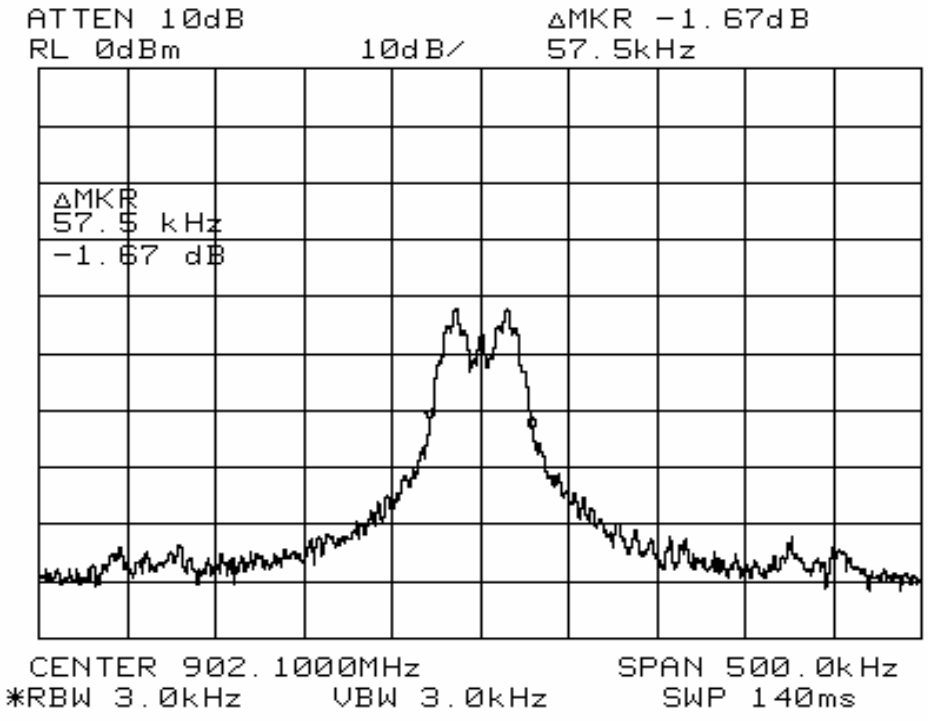
Page 1 of 3 Complete ____

Job No.:	2L0609R	Date:	3/3/2003	Preliminary:	
Specification:	15.247	Temperature(°C):	22		
Tested By:	David Light	Relative Humidity(%)	24		
E.U.T.:	NETRADIO				
Configuration:	TX				
Sample Number:	1				
Location:	AC 3	RBW:	Refer to plots	Measurement	
Detector Type:	Peak	VBW:	Refer to plots	Distance:	NA m

Test Equipment Used

Antenna:	1304	Directional Coupler:	
Pre-Amp:		Cable #1:	1484
Filter:		Cable #2:	1485
Receiver:	1464	Cable #3:	
Attenuator #1		Cable #4:	
Attenuator #2:		Mixer:	

Additional equipment used:
Measurement Uncertainty: +/-1.7 dB



Notes: **Lowest channel**

Test Data – Occupied Bandwidth

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

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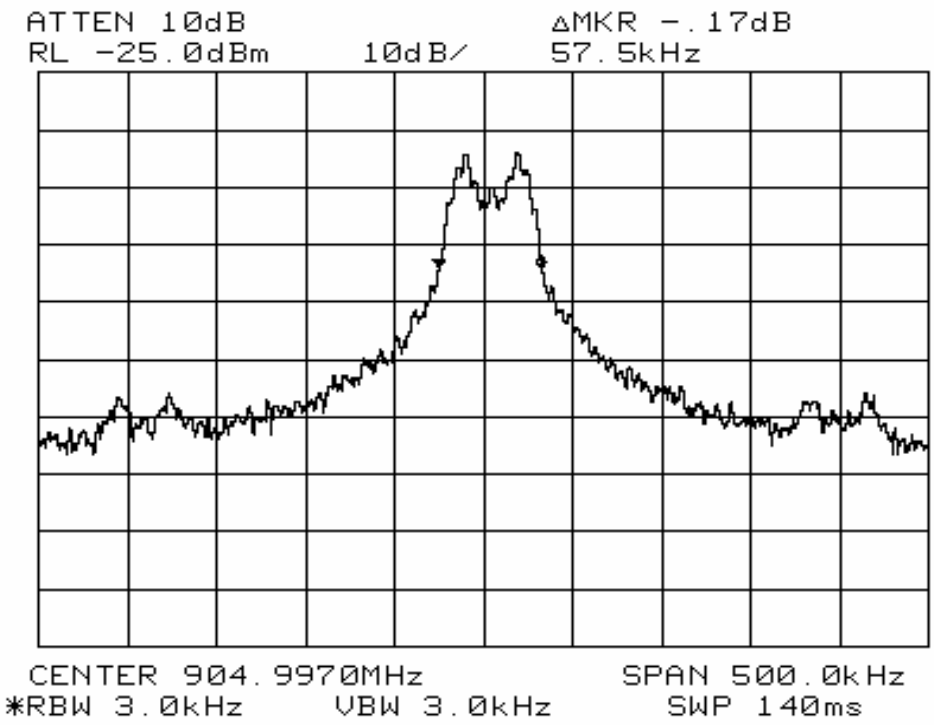
Data Plot **Occupied Bandwidth**

Page 2 of 3

Job No.:	2L0609R	Date:	3/3/2003
Specification:	15.2	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	24
E.U.T.:	NETRADIO		
Configuration:	TX		



Notes: **CENTER CHANNEL**

Test Data – Occupied Bandwidth

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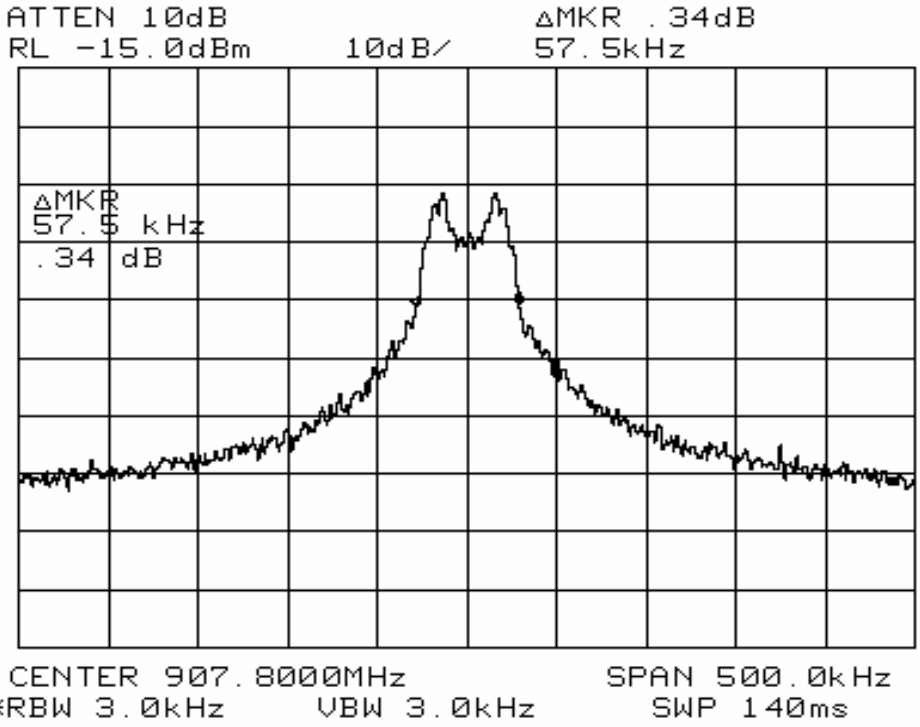
Data Plot **Occupied Bandwidth**

Page 3 of 3

Job No.:	2L0609R	Date:	3/3/2003
Specification:	15.247	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	24
E.U.T.:	NETRADIO		
Configuration:	TX		



Notes: **HIGHEST CHANNEL**

Section 7. Peak Power Output

NAME OF TEST: Peak Power Output	PARA. NO.: 15.247 (b)
TESTED BY: David Light	DATE: 3/3/2003

Test Results: Complies.

Measurement Data: See attached data.
Detachable antenna? ☐ Yes ☒ No
If yes, state the type of non-standard connector used:

The input power was varied +/- 15% with no change in output power>

Test Data – Peak Power Output

Nemko Dallas, Inc.

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

EIRP Substitution Method

Page 1 of 1 — Complete X — Preliminary

Job No.: 2L0609R — Date: 3/3/03
Specification: 15.247 — Temperature(°C): 22
Tested By: David Light — Relative Humidity(%) 24
E.U.T.: NETRADIO
Configuration: TX
Sample No: 1
Location: AC 3 — RBW: 300 kHz — Measurement
Detector Type: Peak — VBW: 300 kHz — Distance: 3 m

Test Equipment Used

Antenna: 1304 — Directional Coupler:
Pre-Amp: — Cable #1: 1483
Filter: — Cable #2: 1485
Receiver: 1464 — Cable #3:
Attenuator #1 — Cable #4:
Attenuator #2: — Mixer:
Additional equipment used:
Measurement Uncertainty: +/-3.6 dB

Frequency (MHz)	Meter Reading (dBm)	Correction Factor (dB)		Pre-Amp Gain (dB)	Substitution Antenna Gain (dBi)		EIRP (dBm)	EIRP (mW)	Polarity	Comments
902.100	-31.0	29.3		0	7.1		5.4	3.49	V	LOWEST CHANNEL
902.100	-30.9	31.0		0	7.1		7.2	5.25	H	
905.000	-30.0	29.3		0	7.1		6.4	4.40	V	MID CHANNEL
905.000	-30.0	31.0		0	7.1		8.1	6.46	H	
907.800	-29.7	29.3		0	7.1		6.7	4.71	V	HIGHEST CHANNEL
907.800	-30.8	31.0		0	7.1		7.3	5.37	H	

Notes:

Section 8. Spurious Emissions (Radiated)

NAME OF TEST: Spurious Emissions (Radiated)	PARA. NO.: 15.247(c)
TESTED BY: David Light	DATE: 3/3/2003

Test Results: Complies.

Measurement Data: See attached table.

Duty Cycle Calculation:

Duty Cycle correction factor(dB) = 20 log (rf_{ON} in ms/100ms)

20 log (50 mS/100 mS) = 6 dB (worst case)

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

Page 1 of 2

Job No.: 2L0609R Date: 3/3/2003
Specification: 15.247 Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 16
E.U.T.: Net-Radio
Configuration: Upright - Typical installation - Tx full power
Sample Number: 1
Location: AC 3 RBW: 1 MHz
Detector Type: Peak VBW: 1 MHz

Test Equipment Used

Antenna: 1304 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

Measurement Uncertainty: +/- .7 dB

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 902.1 MHz
2.71	57.7	28.2	3.7	33.1	56.5	74	-17.5	P -H
2.71	51.7	28.2	3.7	33.1	50.5	54	-3.5	A -H
3.61	50	30.3	3.7	32.6	51.4	54	-2.6	P -H
4.51	45	32.2	4.1	33.4	47.9	54	-6.1	P -H
5.41	43.1	33.6	4.7	33	48.4	54	-5.6	P -H
6.31	42.1	34.9	5.3	31.5	50.8	54	-3.2	P -H
7.22	42	35.8	5.3	32.9	50.2	54	-3.8	P -H
8.12	42	36.7	5.7	32.9	51.5	54	-2.5	P -H
9.02	42.8	37.8	5.5	34.0	52.1	54	-1.9	P -H
2.7063	52.2	28.2	3.7	33.1	51.0	54	-3.0	P -V
3.6084	44.7	30.3	3.7	32.6	46.1	54	-7.9	P -V
4.5105	44	32.2	4.1	33.4	46.9	54	-7.1	P -V
5.4126	42.8	33.6	4.7	33.0	48.1	54	-5.9	P -V
6.3147	44	34.9	5.3	31.5	52.7	54	-1.3	P -V
7.2168	41.3	35.8	5.3	32.9	49.5	54	-4.5	P -V
8.1189	42.5	36.7	5.7	32.9	52.0	54	-2.0	P -V
9.021	42	37.8	5.5	34	51.3	54	-2.7	P -V

Notes:

Test Data - Radiated Emissions

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

Nemko Dallas, Inc.

Radiated Spurious Emissions

Page 2 of 2 **Continuation Page**

Job No.: 2L0609R Date: 3/3/2003

Specification: 15.247 Temperature(°F): 22

Tested By: #N/A Relative Humidity(%) 16

E.U.T.: Net-Radio

Configuration: Upright - Typical installation - Tx full power

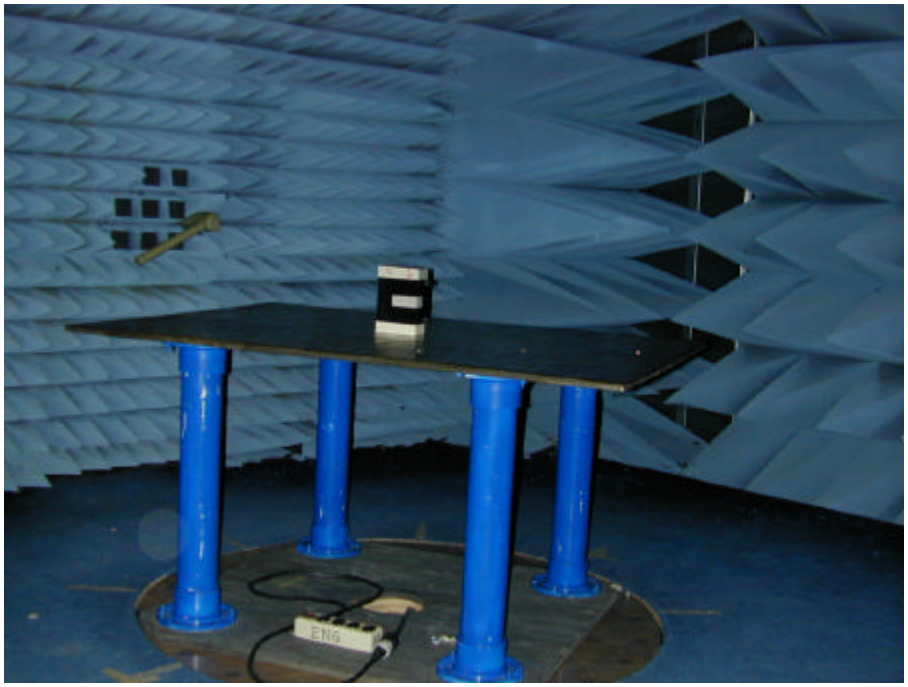
Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Comment
								Tx at 905 MHz
2.715	51.2	28.2	3.7	33.1	50.0	54	-4.0	P -V
3.62	45.8	30.3	3.7	32.6	47.2	54	-6.8	P -V
4.525	43.5	32.2	4.1	33.4	46.4	54	-7.6	P -V
5.430	42.6	33.6	4.7	33	47.9	54	-6.1	P -V
6.335	42.3	34.9	5.3	31.5	51.0	54	-3.0	P -V
7.24	41.2	35.8	5.3	32.9	49.4	54	-4.6	P -V
8.145	41.3	36.7	5.7	32.9	50.8	54	-3.2	P -V
9.050	43.0	37.8	5.5	34.0	52.3	54	-1.7	P -V
2.715	57.5	28.2	3.7	33.1	56.3	74	-17.7	P -H
2.715	51.5	30.3	3.7	32.6	52.9	54	-1.1	A -H
3.62	51	30.3	3.7	32.6	52.4	54	-1.6	P -H
4.525	43	32.2	4.1	33.4	45.9	54	-8.1	P -H
5.430	42.0	33.6	4.7	33	47.3	54	-6.7	P -H
6.335	42.5	34.9	5.3	31.5	51.2	54	-2.8	P -H
7.24	41.2	35.8	5.3	32.9	49.4	54	-4.6	P -H
8.145	41.3	36.7	5.7	32.9	50.8	54	-3.2	P -H
9.050	43.0	37.8	5.5	34.0	52.3	54	-1.7	P -H
								Tx at 907.8 MHz
2.7234	56	28.2	3.7	33.1	54.8	74	-19.2	P -H
2.723	50.0	30.3	3.7	32.6	51.4	54	-2.6	A -H
3.631	50.7	30.3	3.7	32.6	52.1	54	-1.9	P -H
4.539	44.3	32.2	4.1	33.4	47.2	54	-6.8	P -H
5.447	44	33.6	4.7	33	49.3	54	-4.7	P -H
6.3546	42.8	34.9	5.3	31.5	51.5	54	-2.5	P -H
7.262	44.1	35.8	5.3	32.9	52.3	54	-1.7	P -H
8.1702	41.8	36.7	5.7	32.9	51.3	54	-2.7	P -H
9.078	42.3	37.8	5.5	34.0	51.6	54	-2.4	P -H
2.723	45.7	30.3	3.7	32.6	47.1	54	-6.9	P -V
3.631	42	30.3	3.7	32.6	43.4	54	-10.6	P -V
4.539	41	32.2	4.1	33.4	43.9	54	-10.1	P -V
5.447	43	33.6	4.7	33	48.3	54	-5.7	P -V
6.3546	42.8	34.9	5.3	31.5	51.5	54	-2.5	P -V
7.262	41.8	35.8	5.3	32.9	50.0	54	-4.0	P -V
8.1702	41.8	36.7	5.7	32.9	51.3	54	-2.7	P -V
9.078	43.5	37.8	5.5	34.0	52.8	54	-1.2	P -V

Notes: Searched spectrum to the 10th harmonic - All emissions within 20 dB of the spec limit were reported

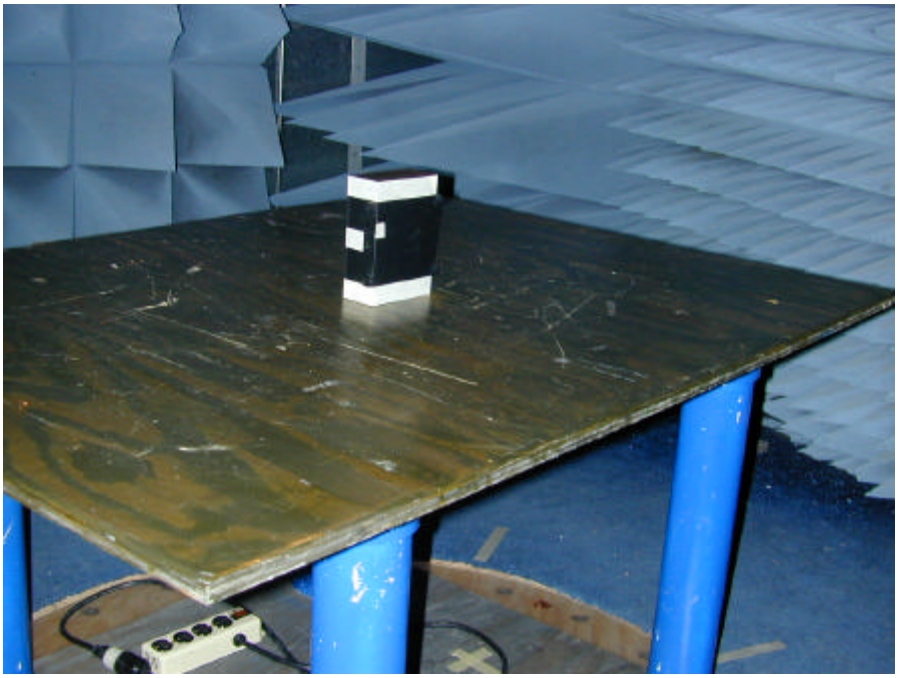
All measurements are peak unless otherwise noted - Average measurements use 6 dB duty cycle correction

Radiated Photographs (Worst Case Configuration)

FRONT VIEW



REAR VIEW



Section 9. 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	07/15/02	07/15/03
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	07/15/02	07/15/03
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	07/30/01	07/31/03

ANNEX A - TEST DETAILS

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207(a)

Minimum Standard: The R.F. that is conducted back onto the AC power line on any frequency within the band 0.45 to 30 MHz shall not exceed 250µV (48 dBµV) across 50 ohms.

NAME OF TEST: Channel Separation	PARA. NO.: 15.247(a)(1)

Minimum Standard: Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

NAME OF TEST: Pseudorandom Hopping Algorithm	PARA. NO.: 15.247(a)(1)

Minimum Standard: The system shall hop to channel frequencies that are selected from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their transmitters and shall shift frequencies in synchronization with the transmitted signals.

NAME OF TEST: Time of Occupancy	PARA. NO.: 15.247(a)(1)(ii)

Minimum Standard:

Frequency Band (MHz)	20 dB Bandwidth	No. of Hopping Channels	Average Time of Occupancy
902 - 928	<250 kHz	50	=<0.4 sec. in 20 sec.
902 – 928	=>250 kHz	25	=<0.4 sec. in 10 sec.
2400 – 2483.5	-----	75	=<0.4 sec. in 30 sec.
5725 – 5850	-----	75	=<0.4 sec. in 30 sec.

Method Of Measurement:

The spectrum analyzer is set as follows:

RBW: 1 MHz
VBW: = RBW
Span: 0 Hz
LOG dB/div.: 10 dB
Sweep: Sufficient to see one hop time sequence.
Trigger: Video

The occupancy time of one hop is measured as above. The average time of occupancy is calculated over the appropriate period of time from above table (10, 20, or 30 seconds).

Avg. time of occupancy = (period from table/duration of one hop)/no. of channels multiplied by the duration of one hop.

For instance:

If a 2.4 GHz system has a measured hop duration time of 1 msec. and uses 75 channels, then the average time of occupancy would be:

(30 sec./.001 sec.)/75 chan. = 400 x 1 msec. = 400 msec. or 0.4 sec. in 30 sec.

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 15.247(a)(2)

Minimum Standard:

Frequency Band (MHz)	Maximum 20 dB Bandwidth
902 - 928	500 kHz
2400 – 2483.5	1 MHz
5725 – 5850	1 MHz

Method Of Measurement:

The spectrum analyzer is set as follows:

RBW: At least 1% of span/div.
VBW: >RBW
Span: Sufficient to display 20 dB bandwidth
LOG dB/div.: 10 dB
Sweep: Auto

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Peak Power Output	PARA. NO.: 15.247(b)

Minimum Standard:

Frequency Band (MHz)	No. of Hopping Channels	Maximum Peak Power Output at Antenna Port
902 - 928	at least 50	1 watt
902 – 928	25 - 49	0.25 watts
2400 – 2483.5	75	1 watt
5725 – 5850	75	1 watt

If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point to point operation may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceed 6 dBi.

Systems operating in the 5725 – 5850 MHz band that are used exclusively for fixed, point-to-point operation may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

Direct Measurement Method For Detachable Antennas:
If the antenna is detachable, a peak power meter is used to measure the power output with the transmitter operating into a 50 ohm load. The dBi gain of the antenna(s) employed shall be reported.

EIRP For Integral Antenna:

Test Method: TIA/EIA-603-1992, Section 2.2.12

The antenna substitution method was used to determine the equivalent radiated power at spurious frequencies. The spurious emissions were measured at a distance of 3 meters. The EUT was then replaced with a reference substitution antenna with a known gain referenced to an isotropic. This antenna was fed with a signal at the spurious frequency. The level of the signal was adjusted to repeat the previously measured level. The resulting eirp is the signal level fed to the reference antenna corrected for gain referenced to an isotropic.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Spurious Emissions at Antenna Terminals PARA. NO.: 15.247(c)

Minimum Standard: In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits. Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength (µV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC

Method Of Measurement:

30 MHz - 10th harmonic plot
RBW: 100 kHz
VBW: 300 kHz
Sweep: Auto
Display line: -20 dBc

Lower Band Edge
RBW: At least 1% of span/div.
VBW: >RBW
Span: As necessary to display any spurious at band edge.
Sweep: Auto
Center Frequency: 902 MHz, 2400 MHz, or 5725 MHz
Marker: Peak of fundamental emission
Marker Δ: Peak of highest spurious level below center frequency.

Upper Band Edge
RBW: At least 1% of span/div.
VBW: >RBW
Span: As necessary to display any spurious at band edge.
Sweep: Auto
Center Frequency: 928 MHz, 2483.5 MHz, or 5850 MHz
Marker: Peak of fundamental emission
Marker Δ: Peak of highest spurious level above center frequency.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Radiated Spurious Emissions PARA. NO.: 15.247(c)

Minimum Standard: In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits:

Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength (mV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC

15.205 Restricted Bands

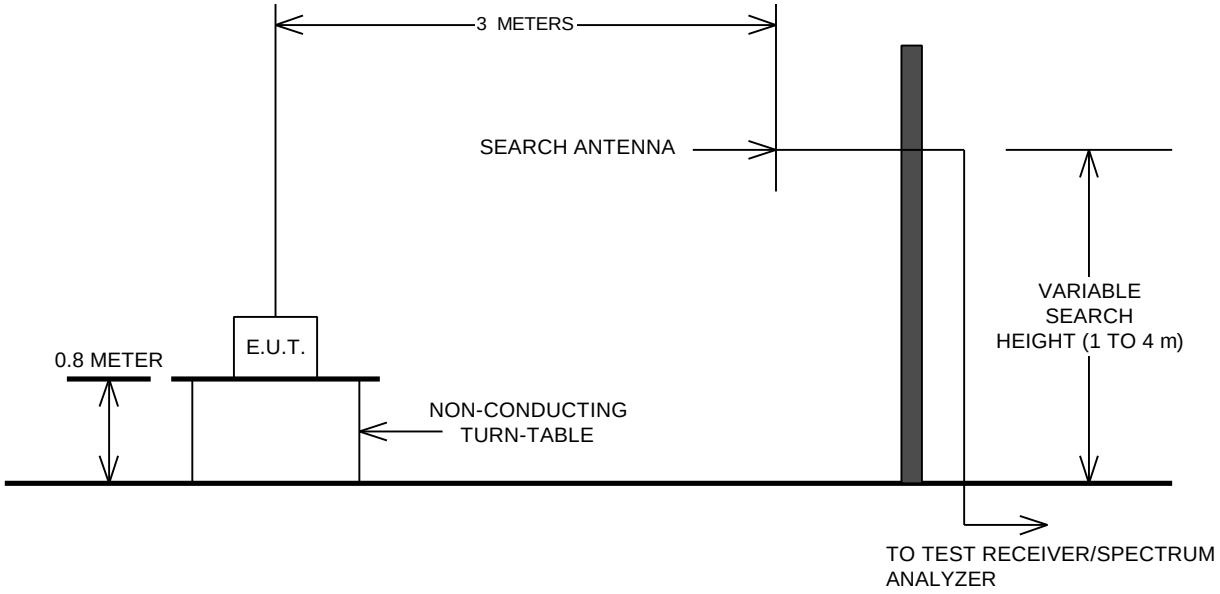
MHz	MHz	MHz	GHz
0.09-0.11	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.125-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41	1718		

Number of channels tested:

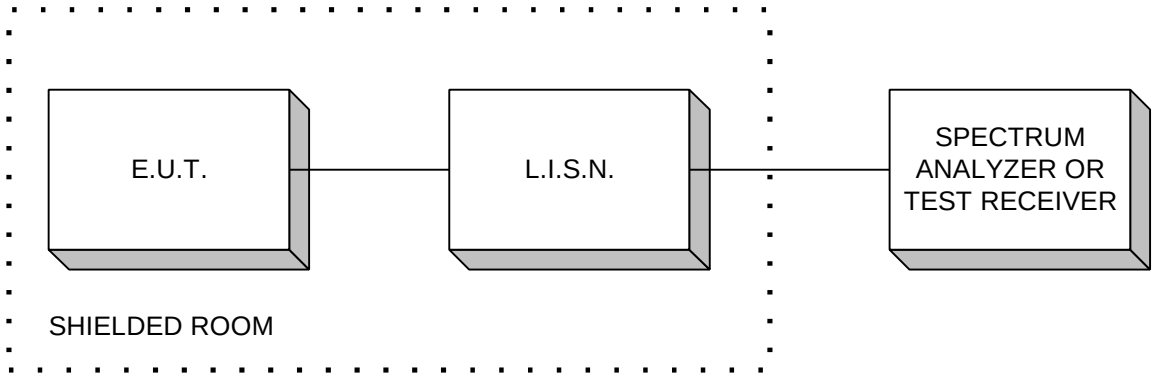
Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

ANNEX B - TEST DIAGRAMS

Test Site For Radiated Emissions



Conducted Emissions



Peak Power At Antenna Terminals