M. Flom Associates, Inc.
International Compliance Testing Laboratory
3356 N. San Marcos Place, Suite 107
Chandler, AZ 85225
toll-free: (866) 311-3268
fax: (480) 926-3598
http://www.mflom.com
info@mflom.com

Date: November 10, 2005

Federal Communications Commission
Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: Kenwood USA Corporation
Equipment: TK-980
FCC ID: ALH24563110
FCC Rules: 90, Class II Permissive Change

Gentlemen:

On behalf of the Applicant, enclosed please find Application Form 731, Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown i.e.:

a) Application Form
b) Test Report
c) Filing Fees
d) Expository Statement and/or letter by Applicant

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

David E. Lee, Quality Assurance Manager

enclosure(s)
cc: Applicant
DEL/del

M. Flom Associates, Inc.
International Compliance Testing Laboratory
3356 N. San Marcos Place, Suite 107
Chandler, AZ 85225
toll-free: (866) 311-3268
fax: (480) 926-3598
http://www.mflom.com
info@mflom.com

Date: November 10, 2005

Applicant: Kenwood USA Corporation
Equipment: TK-980
FCC ID: ALH24563110

Expository Statement

Permissive Change

The applicant has made design changes/improvements to the originally FCC approved equipment.

Data contained herein confirms that a Permissive Change to the unit has been effected and that the performance of the unit is at or better than the levels originally reported to the commission.

The following changes/improvements have been made:

A) The transmitter frequency has been increased by 1MHz at the top of each band split (software change),

Old	New
806 – 824	806 – 825
851 – 869	851 - 870

Tests of conducted power output and spurious emissions undertaken to confirm that these specification changes do no affect the Grant parameters.

B) Additional Emission Designator, 14K0F3E, added (software change). Band width plots for the top channel in each band split included in the report.

No changes of output power, modulation hardware, frequency determining circuitry have been made in the change that necessitate an MPE re-evaluation

David E. Lee, Quality Assurance Manager

enclosure(s)
cc: Applicant
DEL/del

M. Flom Associates, Inc.
International Compliance Testing Laboratory
3356 N. San Marcos Place, Suite 107
Chandler, AZ 85225
toll-free: (866) 311-3268
fax: (480) 926-3598
http://www.mflom.com
info@mflom.com

Transmitter Certification

Class II Permissive Change

of

Model: TK-980
FCC ID: ALH24563110

to

Federal Communications Commission

Rule Part(s) 90

Date of report: November 10, 2005

On the Behalf of the Applicant:

Kenwood USA Corporation

At the Request of:

Kenwood USA Corporation
Communications Division
3975 Johns Creek Court, Suite 300
Suwanee, GA 30024

Attention of: Joel E. Berger, Research & Development
JBerger@kenwoodusa.com
(678) 474-4722; FAX: -4731

Supervised by: David E. Lee, Quality Assurance Manager

Table of Contents

Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) **Test Report**

b) Laboratory: M. Flom Associates, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d05b0020

d) Client: Kenwood USA Corporation
Communications Division
3975 Johns Creek Court, Suite 300
Suwanee, GA 30024

e) Identification: TK-980
ALH24563110
EUT Description: UHF Mobile Transceiver

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: November 10, 2005
EUT Received: November 5, 2005

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:

David E. Lee, Quality Assurance Manager

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

Accessories used during testing:

Type	Quantity	Manufacturer	Model	Serial No.	FCC ID
Audio Test Jig	1	Kenwood	-	-	-

Sub-part
2.1033(c)(14):

Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

_____	21 – Domestic Public Fixed Radio Services
_____	22 – Public Mobile Services
_____	22 Subpart H - Cellular Radiotelephone Service
_____	22.901(d) - Alternative technologies and auxiliary services
_____	23 – International Fixed Public Radiocommunication services
_____	24 – Personal Communications Services
_____	74 Subpart H - Low Power Auxiliary Stations
_____	80 – Stations in the Maritime Services
_____	80 Subpart E - General Technical Standards
_____	80 Subpart F - Equipment Authorization for Compulsory Ships
_____	80 Subpart K - Private Coast Stations and Marine Utility Stations
_____	80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
_____	80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
_____	80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
_____	80 Subpart V - Emergency Position Indicating Radio Beacons (EPIRB'S)
_____	80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
_____	80 Subpart X - Voluntary Radio Installations
_____	87 – Aviation Services
X	90 – Private Land Mobile Radio Services
_____	94 – Private Operational-Fixed Microwave Service
_____	95 Subpart A - General Mobile Radio Service (GMRS)
_____	95 Subpart C - Radio Control (R/C) Radio Service
_____	95 Subpart D - Citizens Band (CB) Radio Service
_____	95 Subpart E - Family Radio Service
_____	95 Subpart F - Interactive Video and Data Service (IVDS)
_____	97 - Amateur Radio Service
_____	101 – Fixed Microwave Services

Standard Test Conditions
and
Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2002, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

M. FLOM ASSOCIATES, INC.
Chandler, AZ

for technical competence in the field of

Electrical Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing.

Presented this 14th day of June 2004.

President
For the Accreditation Council
Certificate Number 2152-01
Valid to August 31, 2006

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

A2LA

"A2LA has accredited M. Flom Associates, Inc. Chandler, AZ for technical competence in the field of Electrical Testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 – 1999 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Certificate Number: **2152-01**

List of General Information Required for Certification

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to Part 90

Sub-part 2.1033

(c)(1): **Name and Address of Applicant**:

Kenwood USA Corporation
Communications Division
3975 Johns Creek Court, Suite 300
Suwanee, GA 30024

Manufacturer:

Kenwood Electronics Technologies PTE Ltd.
1 Ang Mo Kio Street 63
Singapore 569110

(c)(2): **FCC ID**: ALH24563110

Model Number: TK-980

(c)(3): **Instruction Manual(s):**

Please see original exhibits

(c)(4): **Type of Emission**: 16K0F3E, 20K0F1D, 11K2F1D, 11K0F3E, 14K0F3E

(c)(5): **Frequency Range, MHz**: 806 - 825
851 - 870

(c)(6): **Power Rating, Watts**: 15

____ Switchable X Variable ____ N/A

FCC Grant Note: BH

(c)(7): **Maximum Power Rating, Watts**: 100

DUT Results: Passes X Fails ____

Subpart 2.1033 (continued)
(c)(8): Voltages & currents in all elements in final RF stage, including final transistor or solid-state device:

Collector Current, A	=	7.0
Collector Voltage, Vdc	=	12.0
Supply Voltage, Vdc	=	13.8

(c)(14): **Test and Measurement Data**:

Follows

Name of Test: Carrier Output Power (Conducted)

Specification: 47 CFR 2.1046(a)

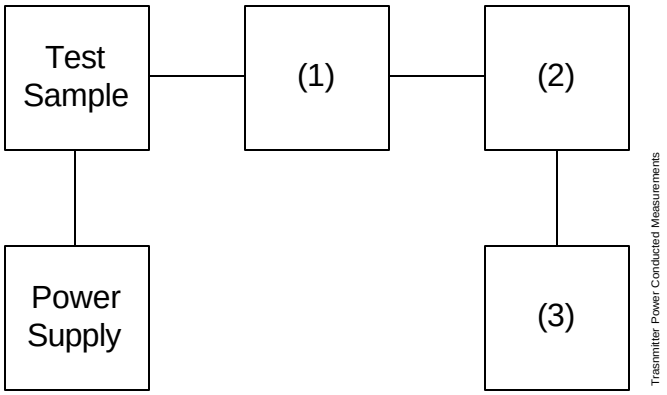
Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

Measurement Procedure

A) The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an RF Power Meter.

B) Measurement accuracy is ±3%.

Transmitter Test Set-Up: RF Power Output



	Asset	Description	s/n	Cycle	Last Cal
(1)	**Coaxial Attenuator**				
X	i00231/2	PASTERNACK PE7021-30 (30 dB)	231 or 232	NCR	
	i00122/3	NARDA 766 (10 dB)	7802 or 7802A	NCR	
(2)	**Power Meters**				
X	i00020	HP 8901A Power Mode	2105A01087	12 mo.	Apr-05
(3)	**Frequency Counter**				
X	i00020	HP 8901A Frequency Mode	2105A01087	12 mo.	Apr-05

Name of Test: Carrier Output Power (Conducted)

Measurement Results
(Worst case)

Frequency of Carrier, MHz	=	825, 870
Ambient Temperature	=	23°C ± 3°C

Power Setting	RF Power, dBm	RF Power, Watts
High	41.75	15.0

Performed by: Fred Chastain, Test Technicians

Name of Test: ERP Carrier Power (Radiated)

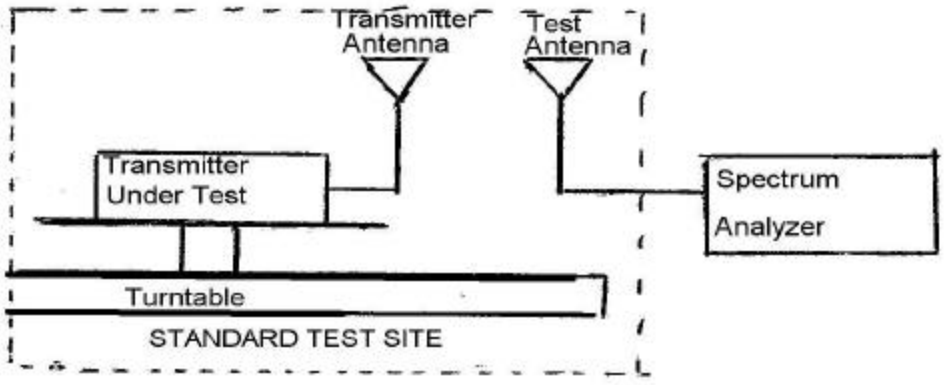
Specification: TIA/EIA 603A (Substitution Method)

Measurement Procedure

Definition
The average radiated power of a licensed device is the equivalent power required, when delivered to a half-wave dipole or horn antenna, to produce at a distant point the same average received power as produced by the licensed device.

Method of Measurement:

A) Connect the equipment as illustrated. Place the transmitter to be tested on the turntable in the standard test site.



B) Raise and lower the test antenna from 1m to 6 m with the transmitter facing the antenna and record the highest received signal in dB as LVL.

C) Repeat step B) for seven additional readings at 45° interval positions of the turntable.

D) Replace the transmitter under test with a half-wave or horn vertically polarized antenna. The center of the antenna should be at the same location as the transmitter under test. Connect the antenna to a signal generator with a known output power and record the path loss in dB or LOSS.

E) Calculate the average radiated output power from the readings in step C) and D) by the following:

average radiated power = 10 $\log_{10}$ Ó 10(LVL – LOSS)/10 (dBm)

Name of Test: ERP Carrier Power (Radiated)

Test Equipment

	Asset	Description	s/n	Cycle	Last Cal
Transducer					
	i00088	EMCO 3109-B 25MHz-300MHz	2336	24 mo.	Sep-05
X	i00089	Aprel 2001 200MHz-1GHz	001500	24 mo.	Sep-05
X	i00103	EMCO 3115 1GHz-18GHz	9208-3925	24 mo.	Jan-04
Amplifier					
X	i00028	HP 8449A	2749A00121	12 mo.	May-05
Spectrum Analyzer					
X	i00029	HP 8563E	3213A00104	12 mo.	May-05
X	i00033	HP 85462A	3625A00357	12 mo.	Jul-05
Substitution Generator					
X	i00067	HP 8920A Communication TS	3345U01242	12 mo.	Jun-05
	i00207	HP 8753D Network Analyzer	3410A08514	12 mo.	Jul-05

Name of Test: Field Strength of Spurious Radiation

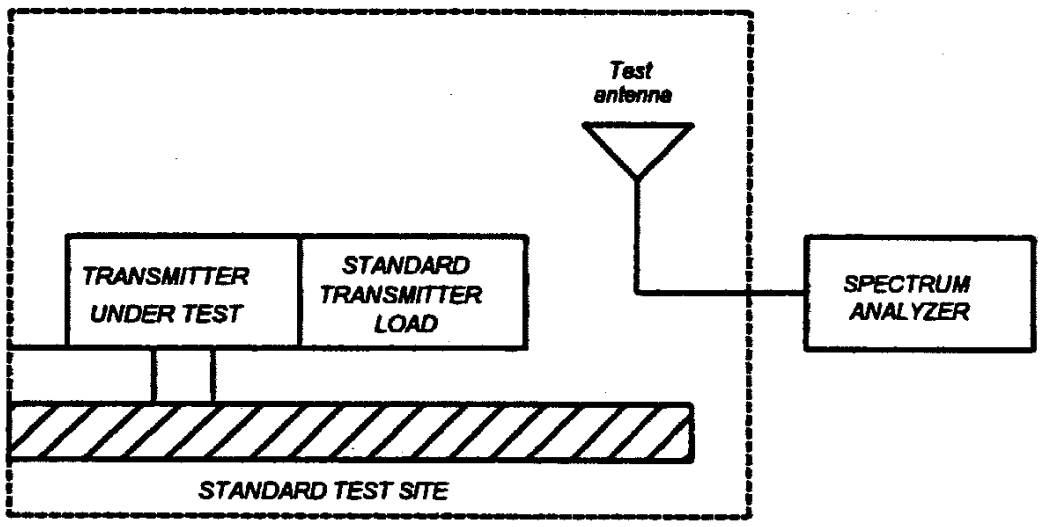
Specification: 47 CFR 2.1053(a)

Guide: ANSI/TIA/EIA-603-1992/2001, Paragraph 1.2.12 and Table 16, 47 CFR 22.917

Measurement Procedure

Definition:
Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

Method of Measurement:
A) Connect the equipment as illustrated
B) Adjust the spectrum analyzer for the following settings:
1) Resolution Bandwidth 100 kHz (<1 GHZ), 1 MHZ (> 1GHz).
2) Video Bandwidth = 3 times Resolution Bandwidth, or 30 kHz (22.917)
3) Sweep Speed ≤2000 Hz/second
4) Detector Mode = Mean or Average Power
C) Place the transmitter to be tested on the turntable in the standard test site. The transmitter is transmitting into a non-radiating load that is placed on the turntable. The RF cable to this load should be of minimum length.

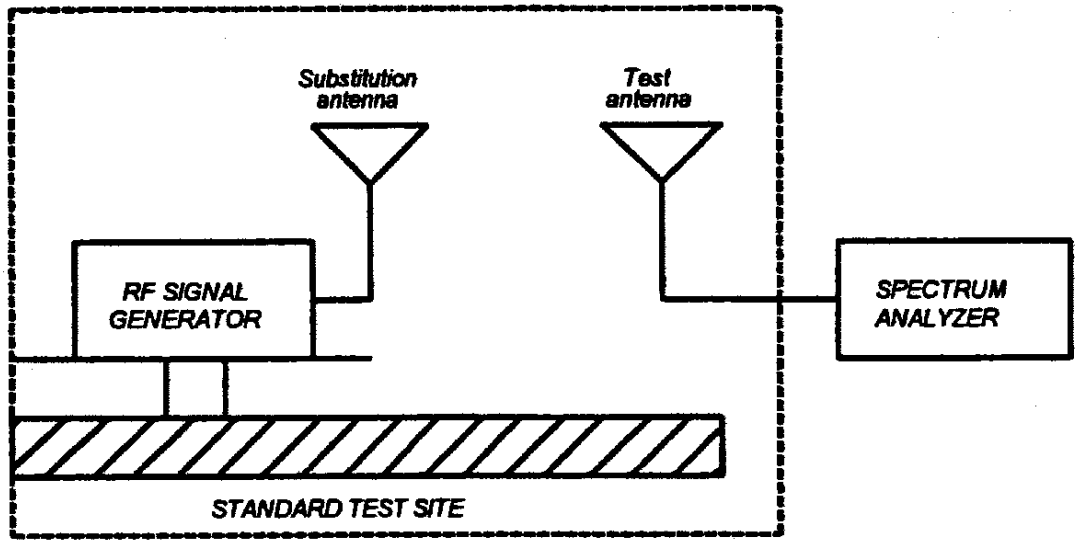


Name of Test: Field Strength of Spurious Radiation (Cont.)

D) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to ± the test bandwidth (see section 1.3.4.4).

E) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

F) Repeat step E) for each spurious frequency with the test antenna polarized vertically.



G) Reconnect the equipment as illustrated.

H) Keep the spectrum analyzer adjusted as in step B).

I) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

Name of Test: Field Strength of Spurious Radiation (Cont.)

J) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

K) Repeat step J) with both antennas vertically polarized for each spurious frequency.

L) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps J) and K) by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.

M) The levels recorded in step L) are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions dB =

$10\log_{10}$(TX power in watts/0.001) – the levels in step l)

NOTE: It is permissible that other antennas provided can be referenced to a dipole.

Test Equipment

	Asset	Description	s/n	Cycle	Last Cal
Transducer					
	i00088	EMCO 3109-B 25MHz-300MHz	2336	24 mo.	Sep-05
X	i00089	Aprel 2001 200MHz-1GHz	001500	24 mo.	Sep-05
X	i00103	EMCO 3115 1GHz-18GHz	9208-3925	24 mo.	Jan-04
Amplifier					
X	i00028	HP 8449A	2749A00121	12 mo.	May-05
Spectrum Analyzer					
X	i00029	HP 8563E	3213A00104	12 mo.	May-05
X	i00033	HP 85462A	3625A00357	12 mo.	Sep-05
Substitution Generator					
X	i00067	HP 8920A Communication TS	3345U01242	12 mo.	Jun-05
	i00207	HP 8753D Network Analyzer	3410A08514	12 mo.	Jul-05

Microphone, Antenna Port, and Cabling

Microphone	Yes	Cable Length	1	Meters
Antenna Port Terminated	Yes	Load	50 Ohm	Antenna Gain -
All Ports Terminated by Load	Yes	Peripheral	No	

Name of Test: Field Strength of Spurious Radiation (Cont)

Measurement Results

Ambient Temperature: 28°C ± 3°C

All Other Emissions = = 20 dB Below Limit

Emission Frequency, MHz/Harmonic	Spurious Level, dBc	
	Low	High
2nd to 10th	<-65	<-65

Performed by: Fred Chastain, Test Technicians

Name of Test: Emission Masks (Occupied Bandwidth)

Specification: 47 CFR 2.1049(c)(1)

Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.11

Measurement Procedure

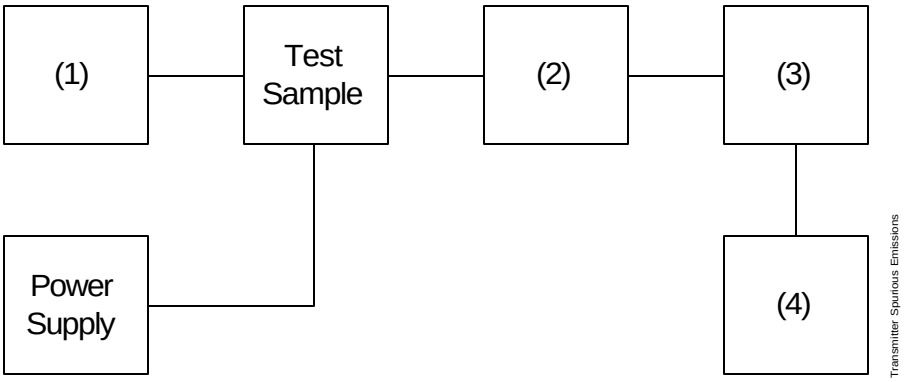
A) The EUT and test equipment were set up as shown below

B) For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for ±2.5/±1.25 kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.

C) For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.

D) The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

Transmitter Test Set-Up: Occupied Bandwidth



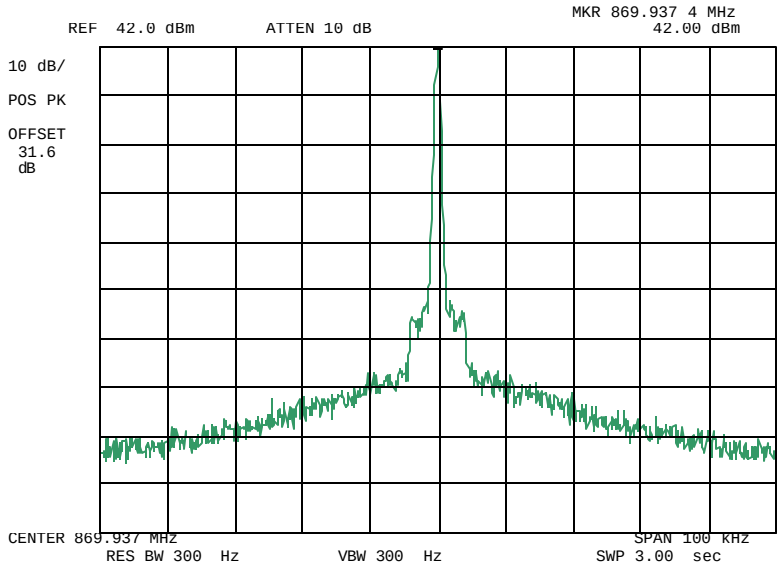
	Asset	Description	s/n	Cycle	Last Cal
(1) **Audio Oscillator/Generator**					
X	i00017	HP 8903A Modulation Meter	2216A01753	12 mo.	Apr-05
(2) **Coaxial Attenuator**					
X	i00231/2	PASTERNACK PE7021-30 (30 dB)	231 or 232	NCR	
	i00123	NARDA 766 (10 dB)	7802A	NCR	
(3) **Interface**					
X	i00021	HP 8954A Transceiver Interface	2146A00159	NCR	
(4) **Spectrum Analyzer**					
X	i00048	HP 8566B Spectrum Analyzer	2511A01467	12 mo.	Jul-05
	i00029	HP 8563E Spectrum Analyzer	3213A00104	12 mo.	May-05

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

Ambient Temperature: 23°C ± 3°C

Name of Test Emission Masks (Occupied Bandwidth)
g05b0162: 2005-Nov 09 Wed 16:14:00
STATE: 1:Low Power



Power: High / High Channel of Upper Band Split
Modulation: None

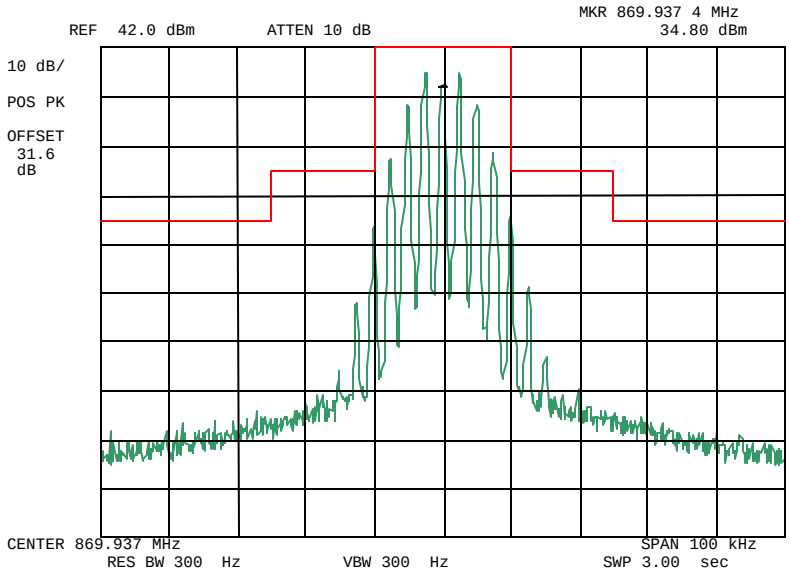
Performed by: Fred Chastain, Test Technicians

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

Ambient Temperature: 23°C ± 3°C

Name of Test: Emission Masks (Occupied Bandwidth)
g05b0063: 2005-Nov-10 Wed 16:16:00
STATE: 1:Low Power



Power: High / High Channel of Upper Band Split
Modulation: Voice: 2500 Hz (14K0F3E)
Mask: B, VHF/UHF 25kHz, w/LPF

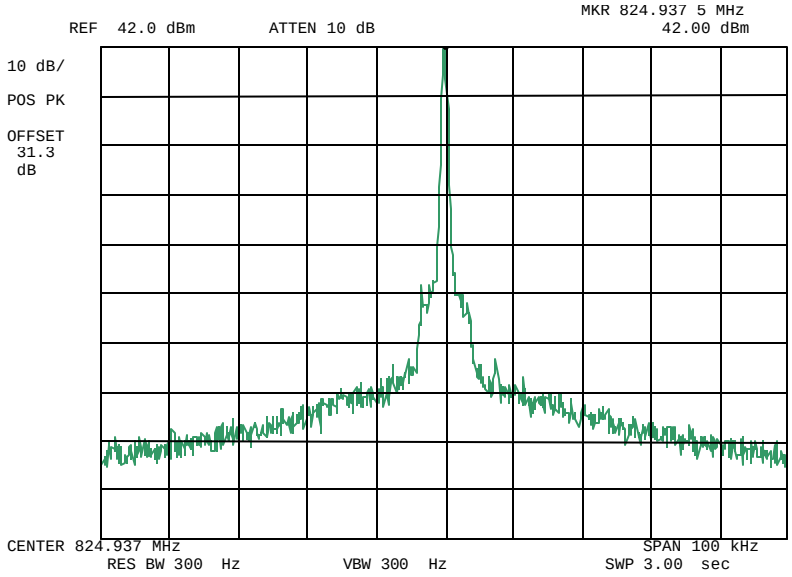
Performed by: Fred Chastain, Test Technicians

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

Ambient Temperature: 23°C ± 3°C

Name of Test: Emission Masks (Occupied Bandwidth)
g05b0053: 2005-Nov-09 Wed 15:15:00
STATE: 2:High Power



Power / Channel: High / High Channel of Lower Band Split
Modulation: None

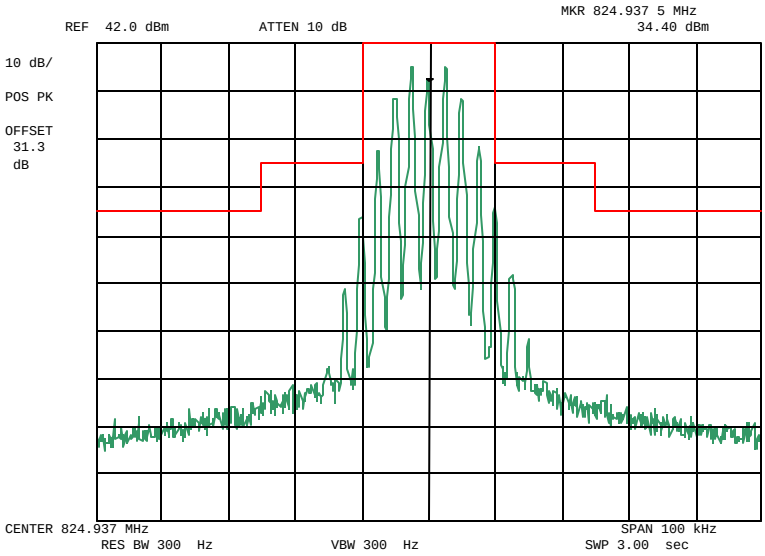
Performed by: Fred Chastain, Test Technicians

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

Ambient Temperature: 23°C ± 3°C

Name of Test: Emission Masks (Occupied Bandwidth)
g05b0061: 2005-Nov-09 Wed 16:00:00
STATE: 2:High Power



Power / Channel: High / High Channel of Lower Band Split
Modulation: Voice: 2500 Hz (14K0F3E)
Mask: B, VHF/UHF 25kHz, w/LPF

Performed by: Fred Chastain, Test Technicians

Name of Test: Necessary Bandwidth and Emission Bandwidth

Specification: 47 CFR 2.202(g)

Modulation = 14K0F3E

Necessary Bandwidth Calculation:

Maximum Modulation (M), kHz		3.0
Maximum Deviation (D), kHz	=	4.0
Constant Factor (K)	=	1
Necessary Bandwidth (B_N), kHz	=	(2 x M) + (2 x D x K)
	=	14.0

Performed by: Fred Chastain, Test Technicians

END OF TEST REPORT

Testimonial
and
Statement of Certification

This is to Certify:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.

2. **That** the technical data supplied with the application was taken under my direction and supervision.

3. **That** the data was obtained on representative units, randomly selected.

4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer: David E. Lee, Quality Assurance Manager

M. Flom Associates, Inc.
3356 North San Marcos Place, Suite 107
Chandler, Arizona 85225-7176
(480) 926-3100 phone, fax (480) 926-3598

ALH24563110
MFA p05b0004, d05b0020