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APPLICANT: AES CORPORTATION

FCC ID: L9N-7080V2

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GENERAL INFORMATION REQUIRED  
FOR TYPE ACCEPTANCE

2.1033 (C) (1) (2) AES CORPORTATION will sell the FCCID: L9N-7080V2  
VHF transciever in quantity, for use under FCC  
RULES PART 95

2.1033 (C) TECHNICAL DESCRIPTION

(3) The user manual is included as Exhibit 11.

(4) ALLOWED AUTHORIZED BANDWIDTH = 20.0KHz.

$B_n = 2M + 2DK$

$M = 3000$

$D = 3.2 K$  (Peak Deviation)

$K = 1$

$B_n = 2(3.0K) + 2(3.2K)(1) = 6.0K + 6.4K = 12.4 K$

Type of Emission: 12K4F3E

ALLOWED AUTHORIZED BANDWIDTH = 20.0KHz.

2.1033(C)(5) Frequency Range: 218-219 MHz

(6) Power Range and Controls: This UUT has two(2) power  
ranges, 2.0 watts

(7) 2,1033(c)(b) Maximum Output Power Rating: 5.0Watts  
into a 50 ohm resistive load.

(8) DC Voltages and Current into Final Amplifier:

POWER INPUT	FINAL AMPLIFIER ONLY
POWER OUT	2.0
Vce Volts	13.8v
Ice Amps	0.55
Pin Watts	7.59

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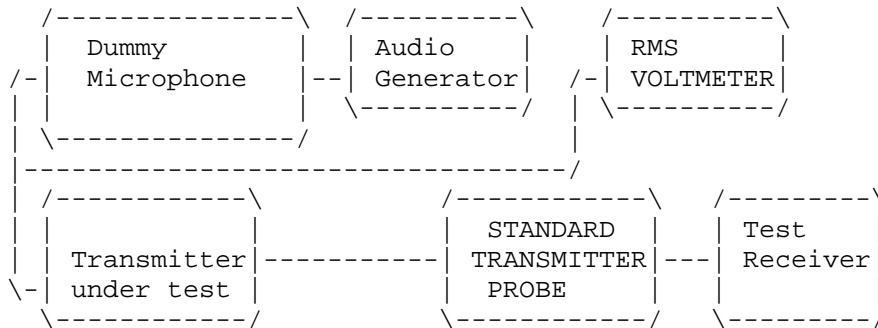


2.1047(a) Modulation characteristics:

AUDIO FREQUENCY RESPONSE The audio frequency response was measured in accordance with TIA/EIA Specification TIA/EIA-603 S2.2.6.2.1. The audio frequency response curve is shown in Exhibit # &audfrres&.

2.1049 AUDIO LOW PASS FILTER Not applicable, 95 Subpart F.

2.1049 AUDIO INPUT VERSUS MODULATION The audio frequency input versus deviation was measured in accordance with TIA/EIA Specification 603 S2.2.6.2.1. with the following exceptions; starting with 1000Hz the input was increased well beyond the deviation changing. This measurement was repeated for the band limits and any frequency deemed appropriate. See Exhibit # 10A-10C.



1.The test receiver audio bandwidth was <50Hz to >20,000Hz.

2.1049 Occupied bandwidth:

90.210 (b)

- (1) Zero dB on any frequency within the authorized frequency segment.
- (2) At least 28dB on any frequency removed from the midpoint of the assigned frequency segment by more than 250kHz up to and including 750kHz.
- (3) At least 35dB on any frequency removed from the midpoint of the assigned frequency segment be more than 750kHz up to and including 1250kHz.
- (4) At least  $43 + 10 \log(P)$  dB on any frequency removed from the midpoint of the assigned frequency segment be more than 1250kHz.

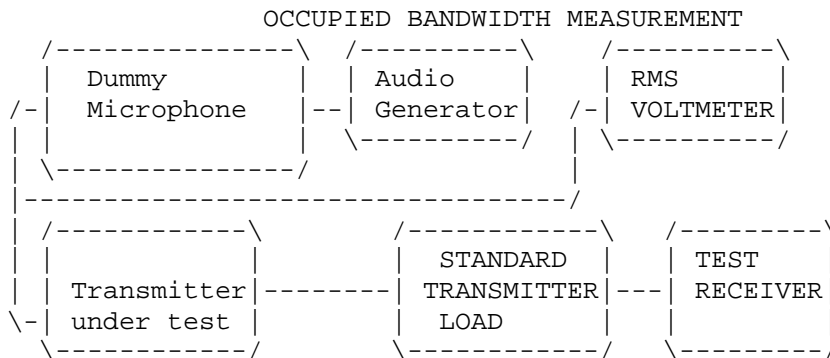
See Exhibit # 8A-8B.

2.1049 Occupied bandwidth: Using TIA/EIA 2.2.11 sideband Spectrum TIA/EIA-603 S2.2.11 was used to measure the occupied bandwidth. Plots were made of the highest frequency and at 2500Hz. Data in the plots show that all sidebands beyond the authorized bandwidth are less than 0.5% of the unmodulated carrier. The plots show the transmitter modulation with;

For 25.0KHz Channel spacing no modulation, 2500Hz, 3000Hz

At each of the tone input was adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth plots follow.

Test procedure diagram

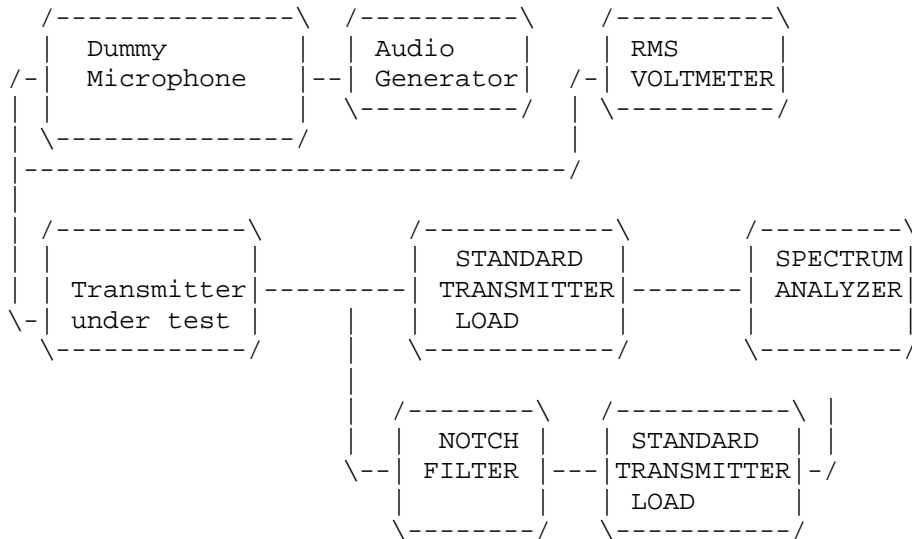


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2.1051

Spurious emissions at antenna terminals(conducted):

The following data shows the level of conducted spurious responses at the antenna terminal. The test procedure used was TIA/EIA 603 S2.2.13 with the exception that the emissions were recorded in dBc. The spectrum was scanned from 0.4 to at least the 10th harmonic of the fundamental.



Method of Measuring Conducted Spurious Emissions

NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

REQUIREMENTS: Emissions must be 50 +10log(Po) dB below the mean power output of the transmitter.

$$\text{POWER } 43 + 10\log(2.0) = 46.0\text{dB}$$

EMISSION FREQUENCY MHz	dB BELOW CARRIER
218.00	00.00
436.00	65.00
654.00	75.70
872.00	67.80
1090.0	89.10
1308.0	64.60
1526.00	54.90
1744.00	66.50
1962.00	58.00
2180.00	62.20

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2.1053 (b) Field strength of spurious emissions:

The tabulated Data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 to 4.7 GHz. This test was conducted per ANSI C63.4-1992 with the exception of briefly connecting the transmitter to a half wave dipole for the purpose of establishing a reference.

NAME OF TEST: RADIATED SPURIOUS EMISSIONS

REQUIREMENTS:

POWER  $43 + 10\log(2.0) = 46.0\text{dB}$

TEST DATA: POWER

EMISSION FREQUENCY MHz	ATT. LEVEL dB	MARGIN dB
218.00	00.00	00.00
436.00	65.00	19.00
654.00	75.70	29.70
872.00	67.80	21.80
1090.0	86.40	40.40
1308.0	62.10	16.10
1526.00	52.90	6.90
1744.00	68.30	22.30
1962.00	59.10	13.1
2180.00	63.30	17.30

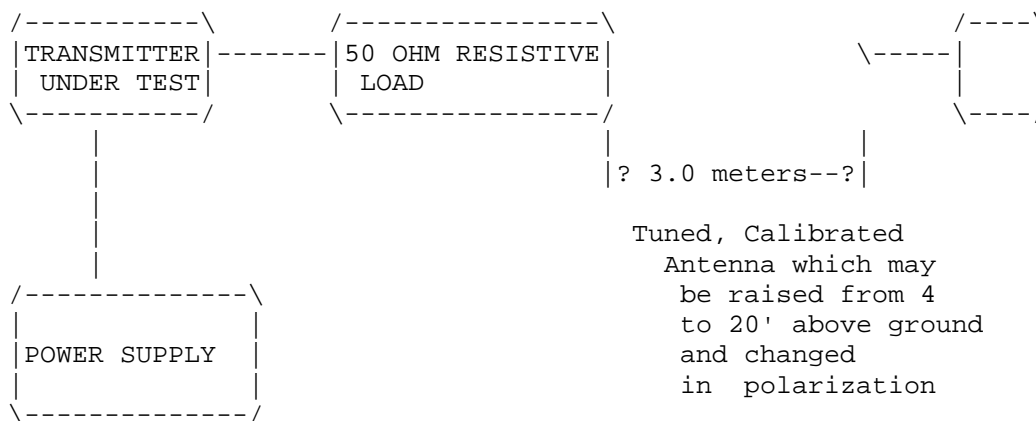
METHOD OF MEASUREMENT: The procedure used was TIA/EIA 603, THE measurements were made at the test site located at TIMCO ENGINEERING INC. 849 NW State Road 45 Newberry, Florida 32669.

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NAME OF TEST: RADIATED SPURIOUS EMISSIONS CONTD.

Method of Measuring Radiated Spurious Emissions

Hewlett Packard  
Spectrum  
Analyzer  
HP8566A



Equipment placed 4' above ground on a rotatable platform.

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TEST EQUIPMENT LIST

1. X Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/  
preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter  
HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02,  
S/N 3008A00372 Cal. 10/17/99
2. X Biconnical Antenna: Eaton Model 94455-1, S/N 1057
3. X Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
4. X Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,  
1-18 GHz, S/N 2319 Cal. 4/27/99
5. \_\_\_Horn 40-60GHz: ATM Part #19-443-6R
6. \_\_\_Line Impedance Stabilization Network: Electro-Metrics Model  
ANS-25/2, S/N 2604 Cal. 2/9/00
7. X Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
8. X Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99
9. \_\_\_Peak Power Meter: HP Model 8900C, S/N 2131A00545 Cal 7/19/99
10. X Open Area Test Site #1-3meters Cal. 12/22/99
11. \_\_\_Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
12. \_\_\_Signal Generator: HP 8614A, S/N 2015A07428 Cal. 5/29/99
13. \_\_\_Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N  
9706-1211 Cal. 6/23/97
14. \_\_\_Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153  
Cal. 11/24/99
15. X AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
16. \_\_\_Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
17. \_\_\_Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
18. \_\_\_Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99

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