Exhibit 7 Test Equipment

2.1033 (b) (8) If the equipment for which certification is being sought must be tested with peripheral or accessory devices connected or installed, a brief description of those peripherals or accessories. The peripheral or accessory devices shall be unmodified, commercially available equipment.

Broadcast Electronics Response

TEST EQUIPMENT LIST

1. Audio Precision System One, S/N 32497.
2. Bird 10 kW water load.
3. Blue M Electric Model CO-250CX Environmental Chamber, S/N CB-219.
4. Broadcast Electronics Model AS-10 AM Stereo Modulation Monitor.
5. Broadcast Electronics Capacitive RF Voltage Pick up, Test Fixture.
6. Circuit Research Labs (CRL) Amigo Audio Processor, S/N GG1061.
7. Compaq Portable II Computer.
8. Delta Electronics Model TCA-5/10EXR RF Ammeter, S/N 6246. With Model TCT-4 Transformer, S/N 6246.
9. Delta Electronics Model SNG-1 Stereo Noise Generator, S/N 0092.
10. Epson Model EX-800 Line Printer.
11. Fluke Model 75 Digital Multimeter.
12. Fluke Model 77 Digital Multimeter.
13. Fluke Model 80T-150U Temperature Probe.
14. Hewlett-Packard Model 3585B Spectrum Analyzer, S/N 2824A00461.
15. Hewlett-Packard Model 8591 EM Spectrum Analyzer, S/N 3520A00191.
16. Hewlett-Packard Model 4193A Vector Impedance Meter, S/N 2830J02440.
17. Hewlett-Packard Model 5315B Universal Counter, S/N 2510A03455.
18. Hewlett-Packard Model 7470A Plotter, S/N 2308A 74847.
19. Pioneer Model PD-101 Compact Disc Player, S/N MC3611404 AS.
20. Tektronix Model 2445 Oscilloscope, S/N B021942.
21. Texscan FP-50 3 dB Attenuator Pad.
22. Texscan FP-50 10 dB Attenuator Pad.
23. Texscan FP-50 20 dB Attenuator Pad.
24. Yokogawa Electric Works Type 2011 Class 0.5 Ammeter, S/N 77AA0014.
25. Emco Model 6512 Passive Loop Antenna

Exhibit 8 Part 15 References

2.1033 (b) (9) For equipment subject to the provision of Part 15 of this chapter, the application shall indicate if the equipment is being authorized pursuant to the transition provisions in § 15.37 of this chapter.

(10) Applications for the certification of direct sequence spread spectrum transmitters under part 15 shall be accompanied by an exhibit demonstrating compliance with the processing gain provisions of § 15.247(e) of this chapter. Applications for the certification of frequency hopping transmitters under part 15 shall be accompanied by an exhibit describing compliance of the associated receiver or receivers with § 15.247(a)(1) of this chapter. (Added 98-58, 10/5/98)

(11) Applications for the certification of scanning receivers shall include a statement describing the methods used to comply with the design requirements of all parts of § 15.121(a) of this chapter. or the marketing requirements of § 15.121(b) of this chapter. The application must specifically include a statement assessing the vulnerability of the equipment to possible modification and describing the design features that prevent the modification of the equipment by the user to receive transmissions from the Cellular Radiotelephone Service. The application must also demonstrate compliance with the signal rejection requirement of § 15.121 of this chapter, including details on the measurement procedures used to demonstrate compliance.

(12) Applications for certification of transmitters operating within the 59.0—64.0 GHz band under part 15 of this chapter shall also be accompanied by an exhibit demonstrating compliance with the provisions of § 15.255 (g) and (i) of this chapter. (Added 98-58, 10/5/98)

Broadcast Electronics Response
Not Applicable.

Exhibit 9 RF Power Output

2.1046 MEASUREMENTS REQUIRED: RF POWER OUTPUT.

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

(c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations. (Added 74-113, 3/25/74)

73.51 DETERMINING OPERATING POWER.

(a) Except in those circumstances described in paragraph (d) of this section, the operating power shall be determined by the direct method. The direct method consists of either: (Revised 84-628-12/12/84)

(1) using a suitable instrument for determining the antenna's input power directly from the RF voltage, RF current, and phase angle; or (Added 84-628, 12/12/84)

(2) calculating the product of the licensed antenna or common point resistance at the operating frequency (see § 73.54), and the square of the indicated unmodulated antenna current at that frequency, measured at the point where the resistance has been determined. (Added 84-628, 12/12/84)

(d) When it is not possible or appropriate to use the direct method of power determination due to technical reasons, the indirect method of determining operating power (see paragraphs (e) and (f) of this section) may be used on a temporary basis. A notation must be made in the station log indicating the dates of commencement and termination of measurement using the indirect method of power determination. (Added 84-628, 12/21/84)

(e) The antenna input power is determined indirectly by applying an appropriate factor to the input power to the last radio-frequency power amplifier stage of the transmitter, using the following formula: (Revised 79-369, 7/2/79)

Antenna input power = Ep x Ip x F

Where:

Ep	=	DC input voltage of final radio stage.
Ip	=	Total DC input current of final radio stage.
F	=	Efficiency factor.

(1) If the formula is not appropriate for the design of the transmitter final amplifier, use a formula specified by the transmitter manufacturer with other appropriate operating parameters. (Added 79-369, 7/2/79)

73.1215 SPECIFICATIONS FOR INDICATING INSTRUMENTS.

The following requirements and specifications shall apply to indicating instruments used by broadcast stations:

(a) Linear scale instruments:

(1) Length of scale shall not be less than 2.3 inches (5.8 cm).

(2) Accuracy shall be at least 2 percent of the full scale reading.

(3) The maximum rating of the meter shall be such that it does not read off scale during modulation or normal operation.

(4) Scale shall have at least 40 divisions.

(5) Full scale reading shall not be greater than five times the minimum normal indication.

(d) Instruments having expanded scales: (Added 76-789, 9/8/76)

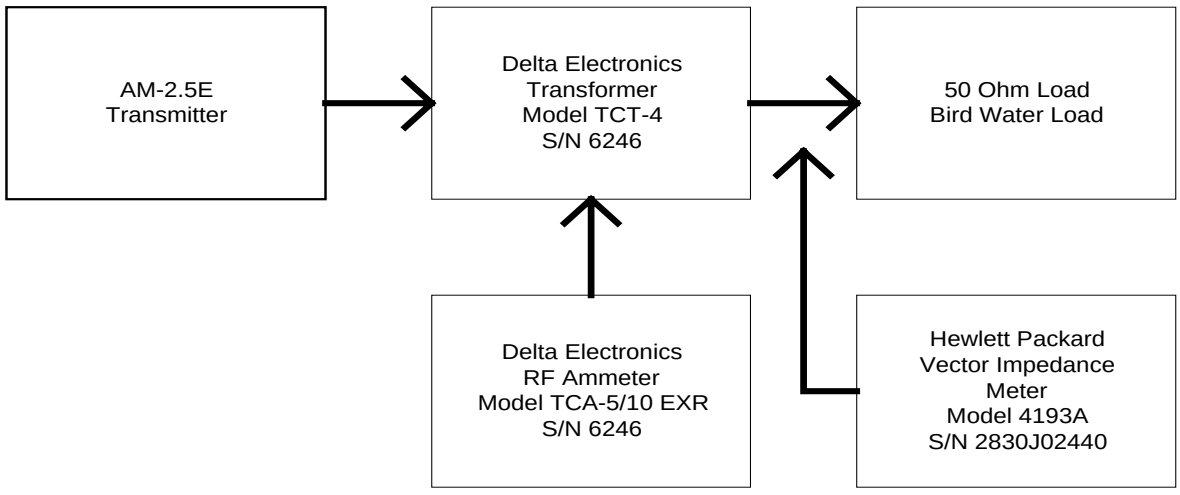
(1) Shall meet the requirements of paragraphs (a)(1), (2), and (3) of this section for linear scale instruments. (Added 76-789, 9/8/76)

(2) Full scale reading shall not be greater than five times the minimum normal indication. (Added 76-789, 9/8/76)

(3) No scale division above one-fifth full scale reading shall be greater than one-fiftieth of the full scale reading. (Example: An ammeter meeting the requirement (1) is acceptable for indicating current from 1 to 5 amperes, provided no division between 1 and 5 amperes is greater than one-fiftieth of 5 amperes, 0.1 ampere.) (Added 76-789, 9/8/76)

Broadcast Electronics Response

Test Procedure
RF Power Output



The resistance of the radio frequency load attached to the output terminals of the AM-2.5E transmitter was measured with Vector Impedance Meter HP 4193A at the operating frequency of 1000 kHz. The load resistance was measured to be 50.9 ohms.

The actual power was determined using the direct method specified in 73.51 (a)(2) by calculating the product of the measured load resistance and the square of the indicated unmodulated load current, measured at the point where the resistance has been determined.

Power (watts) = R (ohms) x I x I (amperes)

The measured data is tabulated in Paragraph "B" below.

B. Indirect Method of Determining Antenna Power on AM-2.5E Broadcast Transmitter

The design of the AM-2.5E transmitter does not lend itself to the measurement of the transmitter power using the formula as described in Part 73, paragraph 73.51 (e) in the FCC Rules and Regulations. Instead, a directional coupler is used to provide a direct indication of forward and reflected power at the transmitter output. The theory of operation of the directional coupler and the metering circuit is included below. The calibration of the meters is described in the response to 2.983 (d). The chart below is a comparison of the actual power as measured by the direct measurement to the power indication on the AM-2.5E forward power meter.

RF Load Resistance (R in Ohms)	RF Output Current (I in Amps)	RF Pwr. Out. Pwr. Watts (P=RxIxI) (Watts)	AM-2.5E Fwd. Pwr. Meter Indicating (Watts)	Percent Error of Full Scale	Meter Scale
50.9	7.00	2494	2500	-.2	High
50.9	6.30	2020	2000	+.7	High
50.9	5.50	1539	1500	+1.3	High
50.9	4.50	1031	1000	+1.0	High
50.9	3.81	739	750	-1.5	Low
50.9	3.12	495	500	-.7	Low
50.9	2.26	260	250	+1.3	Low

C. Theory of Operation of the Directional Coupler

The directional coupler is designed to provide DC voltages proportional to the square root of the forward and reflected power of the transmitter. A voltage sample is obtained by attaching the 93 turns of the primary winding of T203 to the RF line (See the schematic for the directional coupler 917-0306-002). The secondary windings for the forward and reflected samples are 1 and 3 turns respectively. Three turns were used for the reflected sample to improve the indications at very low reflected powers. A current sample is obtained by placing a single turning of the RF line through toroids T201 and T202. The current samples from the 93-turn secondary windings of T201 and T202 are going through a nominal 150 ohms and 50 ohms resistors respectively. This will yield voltages proportional to the current in the RF line. A voltage proportional to the square root of the forward power sample is achieved by effectively adding the voltage sample across the one turn secondary winding of T203 with the voltage across the 50 ohm resistor. The voltage proportional the square root of the reflected power is obtained by effectively subtracting the voltage sample across the three turn secondary of T203 from the voltage across the 150 ohm resistor. These voltages are then rectified, filtered and sent to the controller. In the controller the audio is filtered so the meters will not respond to modulation. These voltages are then squared yielding voltages proportional to the forward and reflected power of the transmitter. The squared voltages are then used to drive the forward and reflected meters.

D. Specifications for Indicating Instrument

The Broadcast Electronics AM-2.5E transmitter Forward Power meter is a linear scale instrument with two scales:

1) High with 3000 watts maximum reading.
2) Low with 750 watts maximum reading.

The specifications of the AM-2.5E Forward Power Meter meets or exceeds the requirements specified in 73.1215(a) and 73.121(d) of the FCC Rules. A copy of the meter specifications is attached (see Exhibit 12A).

Exhibit 10 Modulation Characteristics

2.1047 MEASUREMENTS REQUIRED: MODULATION CHARACTERISTICS.

(b) Equipment which employs modulation limiting: (Added 74-113, 3/25/74)

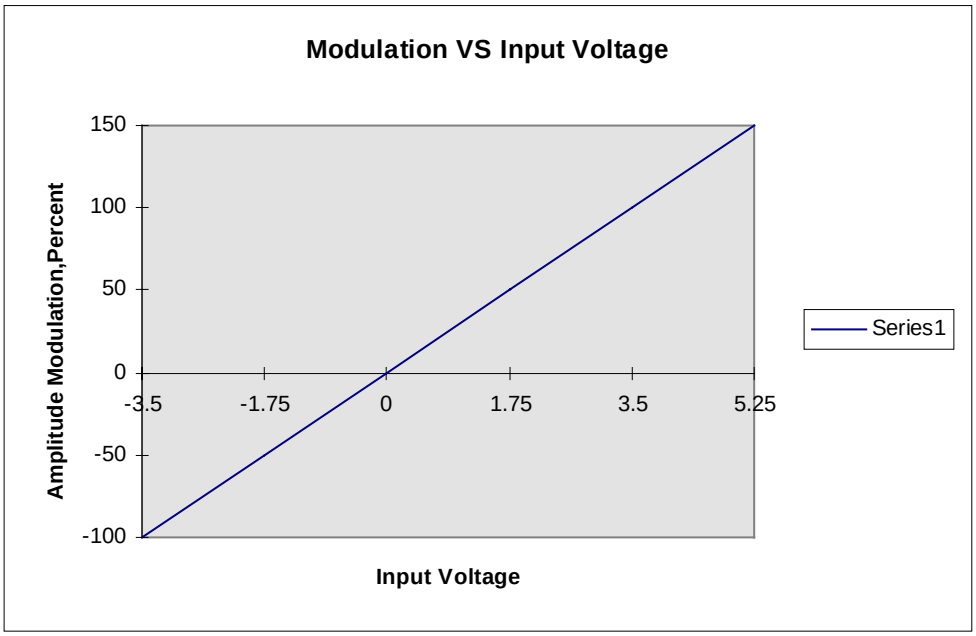
A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed. (Added 74-113, 3/25/74)

(d) Other types of equipment: (Added 74-113, 3/25/74)

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed. (Added 74-113, 3/25/74)

Broadcast Electronics Response

See the plot below for the curve showing the percentage of modulation versus the modulation input voltage applied to the AM-2.5E transmitter.



The AM-2.5E is designed to operate satisfactorily with the monaural or the C-QUAM stereophonic amplitude modulation. Push-button switches are provided on the front of the stereo card to select any one of the following modulation conditions:

(a) Mono Left (L)
(b) Mono Right (R)
(c) Mono Left and Right (L+R)
(d) Stereo

The AM-2.5E is capable of absolute modulation limits of -100% to +150%.