TECHNICAL DESCRIPTION OF THE EQUIPMENT
REF: FCC Part 2 paragraph 2.983

ADI LIMITED, SYSTEMS GROUP
DMR Configuration Management

CM REF: **AMX-CI-00065**
Issue: **1.00**

Range of Operating Power Levels
Ref: Paragraph 2.983 (d) (3)

5 W – 60W programmable on a per-channel basis.

Maximum Power Rating
Ref: Paragraph 2.983 (d) (4)

60 W

DC Voltages and Currents into Final Amplifier
Ref: Paragraph 2.983 (d)(5)

DC Voltage: 13.6V
DC Current: Less than 11A, depending on power output.

Functions of Semiconductors and Active Circuit Devices
Ref: Paragraph 2.983 (d)(6)

The product contains in excess of 500 active devices. The following tables identify the functions of the main blocks of circuitry.

Transceiver Module

Designator	Function
D8	Microprocessor
D24	ST bus cross connect
D13	PCM codec
N1, N2	RS232 serial port
D32	Xilinx logic
D28, D34	DSP
D31, N5, N6	TX DDS
D37, N7, N8	RX DDS
DC1	RF Xilinx logic

PA Module

Designator	Function
N3	RF PA
DC2	Microprocessor
NC4	A/D converter
D1	D/A converter
NC5	RS232 serial port

Instruction Book
Ref: Paragraph 2.983 (d)(8)

Operator Manual AMX-MA-00400, Iss. 0.03

Tune Up Procedure at Nominal Operating Power
Ref Paragraph 2.983 (d)(9)

The product covers the whole operating frequency band without adjustment and contains no adjustable components for tuning purposes.

Circuitry and Devices for Determining and Stabilizing Frequency
Ref: Paragraph 2.983 (d)(10)

Means for Frequency Determination and Stabilization:

Frequency Stabilization for the equipment uses a high stability, temperature compensated oven oscillator operating at a frequency of 10MHz with a stability of ±0.1ppm over the operating temperature range. This oscillator is designated as G4 on sheet 21 of the schematic diagram AMX-CD-00633

The Transmitter output frequencies are generated directly by the Frequency Synthesizer shown on sheets 22 and 23 of the schematic diagram AMX-CD-528.

The Receiver 1st Local Oscillator frequencies are higher then received frequencies by 45MHz and are generated by the Frequency Synthesizer (V14) as shown on sheet 12 of the schematic diagram AMX-CD-00948.

Both synthesizers use the 10MHz Reference Oscillator as the Frequency Reference.

Circuits for Suppression of Spurious Radiation, Limiting of Modulation, and Limiting of Power
Ref: Paragraph 2.983 (d)(11).

(i) Suppression of Spurious Radiation:
The Spurious Emissions are suppressed using appropriate shielding and filtering techniques. The harmonic filter (LP1) for the transmitter as shown on sheet 2 of the schematic diagram AMX-CD-00954.

(ii) Limiting of FM Deviation

The transmitter is equipped with the system to automatically limit the frequency deviation to ±5kHz for 25/30kHz channel operation and ±2.5kHz for 12.5/15kHz channel operation.

This function is performed by software algorithms, which are used to generate the modulation. These also include pre-emphasis and audio filtering.

(iii) Limiting of RF Power

The RF Output Power of the Transmitter is controlled by the circuitry shown on sheet 2 of the schematic diagram AMX-CD-00954.

The main components of the circuitry are Stripline Directional Coupler with the detector diode V6 located at the output of the RF Power Amplifier and the A/D converter NC4. The processor (DC2) compares the output level to a table stored in memory an docntrols the input attenuator (V3, V4, V5 and V7).

Test Data
Ref : Paragraph 2.983 (e)

All applicable test data are provided in the section Test Results of this Engineering Report.

Equipment Identification Plate/Label
Ref:Paragraph 2.983 (f)

Equipment identification label (AMX-LA-00985) is provided in the exhibits.

Photographs of the Equipment
Ref: Paragraph 2.983 (g)

Photographs of the equipment under test are provided in the Report on Pt. 15 Testing.

Controller Module

Designator	Function
D8	Microprocessor
D23	ST bus cross connect
D14	PCM codec
N2	RS232 serial port
D28, D42	Xilinx logic
D38. D40. D47, D49	General purpose I/O
D34, D36, D43, D45	General purpose I/O
G4	Oven Controlled Crystal Oscillator
D26	DSP

Interface Module

Designator	Function
N1	I/O amplifier
D1, ..., D6	General purpose output drivers
OC1, ..., OC4	General purpose input circuits
TA1, TA2	Audio isolation transformer
TB1, TB2	Audio isolation transformer

Power Supply Module

Designator	Function
B1	Mains rectifier
IC1	Regulator circuit
Q2, Q3	Switching transistors
Q11	Slow start transistor
RL1	Alarm relay
OC1	Isolator (optocoupler)

Complete Circuit Diagrams
Ref: Paragraph 2.983 (d)(7)

	Doc. Number	Issue
Transceiver Module RF Card	AMX-CD-00948	1.01
Tranceiver Module Digital Card	AMX-CD-00528	3.00
PA Module	AMX-CD-00954	2.01
Controller Module	AMX-CD-00633	2.00
Interface Module	AMX-CD-01033	1.02
4W Card	AMX-CD-01034	1.00