7. PARTS LIST/TUNE-UP INFO

7.1 Parts List

The transmitter, can be subdivided as follows:

Modulator with Adaptive pre-correction – RF output
ALC Board
Output Detector Board
Control Card Board
1W Amplifier Board
Single Stage UHF Amplifier Board
Dual Stage Amplifier Pallet
Astec Switching Power Supply
Densei-Lamda Switching Power Supply

7.2 Tune-Up Information

This transmitter was aligned at the factory and should not require additional adjustments to achieve normal operation.

This transmitter is of a tray design with multiple boards inside the tray. If a board fails, that board needs to be changed out with a replacement board. The failed board can then be sent back for repair.

7.2.1 Set-Up of the Output Power of the Transmitter

Check that the Auto/Man switch S1 on the ALC Board is in the Automatic ALC position. Adjust R75 the ALC pot on the ALC Board as needed to attain 100% output power. Switch to Manual Gain (Manual ALC) and adjust the Manual Gain pot R62 for 100 % output power. Switch the ALC Board back to Automatic ALC.

7.2.2 ALC Board Set-Up in the Tray

On (A5) the ALC Board (1308570), preset the Overdrive Threshold pot R38 full CW and set R62, Manual Adjust, and R75, ALC Adjust, full CCW.

Apply an 8-VSB signal at -3 dBm average level to the J1 input jack to the tray. Switch S1 to Manual Gain, and increase the output power to 100%. Calibrate the transmitter output power using R23, Forward Calibration pot, on the Output Detector Board.

Turn the output power down to 10% power. Remove the output RF connector from J2 on tray and calibrate the reflected power to 10%, using R7, the Reflected Calibration pot, on the Output Detector Board. Re-connect the RF output connector to the tray and increase the power, in Manual gain, to 110%. Adjust the Overdrive pot R38, CCW until the overdrive threshold just trips and the Overdrive Fault LED DS4 lights. Turn the pot slightly CW so that power comes back up and DS4 goes out.

Switch S1 to ALC. Turn the ALC Adjust pot R75 until the power is 100%. Switch S1 between ALC and Manual to verify smooth switching, with minimal change in power.

Switch the tray Off and insert a 10 dB attenuator at the input. Switch the tray On and

verify the input fault LED comes on and the RF power Mutes. Output power should drop by at least 20-30 dB.

Switch the tray Off and remove the 10 dB attenuator. Replace the input connector and turn the tray back on. With the tray in ALC, use the ALC Adjust pot, R75, to decrease the power to 10%. Remove the RF output connector from the tray. Verify that the VSWR Cutback LED, DS6, comes on and the Reflected Power drops to approximately 6%. Reconnect the RF output connector and increase the power back up to 100%.

This completes the set up of the ALC board.

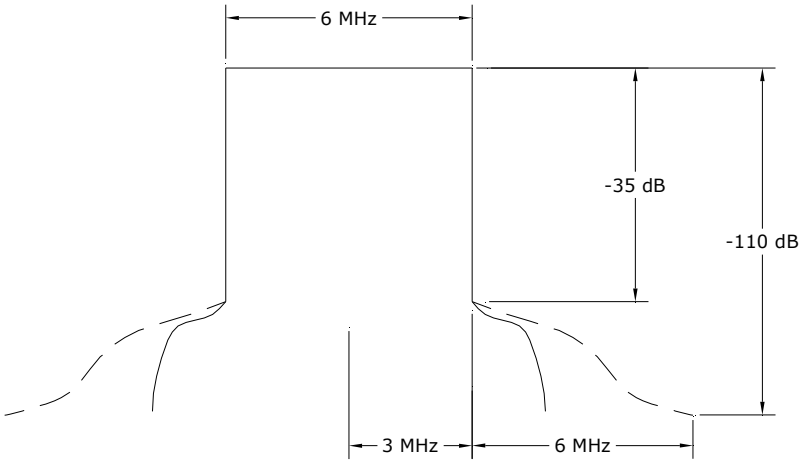

Figure 3: Typical Digital Spectrum

7.2.3 Linearity Correction Adjustment (Non-Linear Distortions)

As shipped, the transmitter was preset to include amplitude and phase pre-distortion. The pre-distortion was adjusted to approximately compensate the corresponding non-linear distortions of the Power Amplifier. All adjustments are made using the Modulator.

The transmitter is now set up and ready for normal operation.