LAND MOBILE PRODUCT SECTOR PSB # 724 1301 E. ALGONQUIN RD APC # 388,398 SCHAUMBURG, IL 60196 Date: MAY 1993 (708) 576-0180 EXPIRES : N/A

Subject: MSF 5000 NOISE ON TRANSMITTED CARRIER

MODEL AFFECTED: ALL DIGITAL/SECURE CAPABLE MSF 5000 STATIONS

Noisy operation has been observed when the secure capable MSF 5000 station is placed into high RF environments.

It is recommended that the following procedure be used to insure that all unused audio paths are jumpered out.

TRANSMIT AUDIO PATHS: The Secure Station control board (SSCB) provides inputs into the transmit audio modulation path. It is good standard practice to jumper OUT all unused transmit modulation audio paths. This will improve audio quality by reducing the opportunity of unwanted signals mixing with the transmitted audio.

HIGH RF ENVIRONMENTS: The requirement to jumper OUT and properly terminate unused audio inputs becomes critical in situations at RF sites which are congested and/or where there are commercial broadcast transmitters co-located.

CRITICAL AUDIO PATHS: It has been found that the most critical of these paths are those that ENTER the modulation path after the splatter filter. They are:

GCC DATA AUDIO; TX DATA AUDIO; CODED MOD AUDIO; TKG TX AUDIO JU14 & JU6 JU15 & JU4 JU3 JU5

GCC DATA AUDIO--- JU14 routes this audio through the Pre-emphasis, limiter splatter filter, and Maximum Deviation EEPOT 4. JU6 routes this audio into the audio summer just prior to the Transmit Audio Modulator. If the MSF is not equipped for GCC operation both JU14 and JU6 should be jumpered to VB reference. JU14 should always be in the NORMAL position when not used for GCC data input, jumpered to the ALTERNATE position can cause Oscillations which can affect receiver operation.

TX DATA AUDIO--- JU15 routes this audio through the Maximum Deviation EEPOT 4. JU4 routes this audio into the audio summer just prior to the Transmit Audio Modulator. For normal operation both JU15 and JU4 should be jumpered to VB reference.

CODED MOD AUDIO--- JU3 routes this audio input directly into the Audio Summer just before the Transmit Modulator. If the MSF is NOT equipped for Secure operation JU3 should be jumpered to VB reference.

TKG TX AUDIO--- JU5 routes this audio input directly into the Audio Summer just before the Transmit Modulator. JU5 should remain connected to this audio input source for normal

Trunking operation.

NOTE: VB CONNECTION IS MADE BY THE "NORMAL" POSITION IN JUMPERS JU3,JU4,JU6,JU14,JU15 AND IN THE "ALTERNATE" POSITION FOR JUMPER JU5.

It has been demonstrated that setting these jumpers properly can have a SIGNIFICANT impact on the delivered audio quality of the MSF 5000 secure capable base station.

THERE IS AN ELECTRONIC BULLETIN BOARD AVAILABLE FROM THE PRODUCT SERVICES GROUP. ACCESS IS VIA 300 TO 2400 BAUD MODEM BY DIALING (708) 576-0936.

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