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Subject: H4JVT-3H040-S – Summary of Circuit Changes

The following information summarizes the circuit changes made to the previously approved **VT-3H040-S** Family of Low Band VHF Transmitters (FCC ID: H4J-VT3H040-S) to permit operation with an increased Peak Frequency Deviation of 6.5 kHz, and therefore an increased Necessary Bandwidth and a corresponding additional emission designator of **19K0F3E**:

1) In the Transmitter Amplifier Module, the VSWR OVERLOAD signal (at the output of Q8) is used to also drive the VSWR SENSE circuit via a jumper from the output of R50 to the input of LPF5. Surface Mount Jumpers JU3 and JU4 are uninstalled. This modification provides improved Power Amplifier protection in the event of high antenna VSWR; and

2) In the Transmitter Synthesizer Module, PLL Frequency Synthesizer IC U10 (MC145191F) is replaced with equivalent PLL Frequency Synthesizer IC MC145190F capable of providing increased deviation required for the 19K0F3E emission designator (the MC145191 is optimized for single–supply systems of 5 V ±10% while the MC145190 is optimized for supply systems ranging up to 9.5 V). In association with this IC change, the following discrete circuit components are also changed:
   a) R29 was 18K2 now 36K5
      This change regulates the amount of current that the Phase/Frequency Detector Output pin (PDout) of U10 sinks and sources; and
   b) C23 was 68pF now 100pF
      This change improves VCO signal coupling for increased deviation levels.

Dated this **19th** day of **May**, **2004**

By:

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