

Prepared (also subject responsible if other) Com-Net Ericsson EUS\A\RLC Bryan McWatters	FCC ID No. OWDTR-0007-E Exhibit 12		
Approved EUS\A\RLC Bryan McWatters	Checked	Date 10-18-2000	Rev A

CIRCUIT AND DEVICE DESCRIPTION**2.1033 (c) (10)**

(10) Oscillator and other Frequency Stabilizing Circuit Descriptions:

The frequency reference is a self-contained quartz crystal oscillator (TCXO) module, operating 19.2MHz.

The TCXO is compensated by internal temperature compensating circuit providing 1.5ppm stability from -30°C to $+60^{\circ}\text{C}$.

(11) Circuit or devices employed for suppression of spurious radiation:

- a. The radio has metal rear cover and internal plastic molded case with shields to reduce radiation.
- b. The reverse side of front assembly is metallized to suppress radiation.
- c. Extensive use of chip bypass capacitors in each module to reduce radiation from interconnecting leads.
- d. The radio has Low pass filters to reduce harmonics at RF Power Amplifier input and VCO output.
- e. During acquisition of the synthesizer phase lock loop, the transmitter output is inhibited by the removal of DC voltage to the gain control stage of the RF power chain and by that DC power source is not applied to pre-amplifier and modulator.

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CIRCUIT AND DEVICE DESCRIPTION

2.1033 (c) (10) (continued)

(11) Circuit or Devices employed for limiting modulation:

- Reference is made to the schematic diagram MD00-TC-0081 in Exhibit 4.
- Instantaneous audio limiting is accomplished Mixed Digital-Analog IC (PATTI : U500).
The PATTI provides both limiting and Post-Limiting filtering. The PATTI runs from a regulated supply voltage, which prevents deviation changes vs. changes in radio power supply voltage. Following the Limiter, an audio signal is provided through Post-Limiting filtering to the Transmit CODEC and is converted to PCM signal. PCM signal is sent to DSP. Any optional tone modulation such as CTCSS modulation is added in DSP (U600).

(12) Since there are no detail data or information about the core of DSP, KDE cannot describe this section.

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OCCUPIED BANDWIDTH

(FOR 12.5 kHz CHANNELIZATION)

Method of Measurement Per 2.1049 Data on Occupied Bandwidth is presented in the form of a spectrum analyzer plot which illustrates the transmitter sidebands. A plot is taken of the carrier sideband modulated with a 2500 Hz tone at a level 16 dB greater than that required to produce 50 percent modulation. (The spectrum analyzer grid indicates the reference level of the carrier unmodulated in all exhibits.)

•Analog

	$B_n = 2M + 2DK$ where	$M = 3000$ Hz
Telephony		$D = 2000$ Hz
		$K = 1$ (assumed)
	$B_n = 10000$	
	Therefore, Emission Designator = 10K0F3E	

•Digital

	$B_n = 2(B/2) + 2DK$ where	$B=9600$ Hz
Data, Digital Voice		$D = 2100$ Hz
		$K=1$ (assumed)
	$B_n=13800$	Exceeds 90.209 requirement of 13.6 kHz
	Measurements made with Advantest Spectrum Analyzer show 8.8 kHz maximum bandwidth occupied. Digital techniques employed by Comnet-Ericsson make a more efficient use of bandwidth than reflected by Carson's rule calculation.	
	Therefore, Emission Designator = 8K8F1D and 8K8F1E	