

FCC ID: NV4-SENTRAX

EXHIBIT 2
MEASUREMENT REPORT

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TEST FACILITY

The testing was conducted at the Hyak Laboratories, Inc. three meter open field site located in Spotsylvania, Virginia. A complete description of the site is on file with the FCC Laboratory Division, Ref. 31040/SIT/HYAK.

DESCRIPTION OF DEVICE UNDER TEST:

The device is a low power data transceiver operating under the provisions of Part 15.249 of the FCC Rules. The transmit and receive frequencies are the same, operating in simplex mode at 916.5 MHz nominal. The modulation mode is on/off keying at 9600 baud nominal.

The receiver section is a TRF type that employs sequential tuned stages that are clocked at a nominal 245 kHz. No emissions relating to the receiver clock frequency were detectable.

MEASUREMENT PROCEDURE - RADIATED EMISSIONS:

Transmitter field strength measurements were conducted according to the procedures set out in ANSI C63.4 (1992). The device under test was placed on a rotating turntable 0.8 meters high, centered at 3 meters distant from the measurement antenna. The device was placed in the center of the turntable and tested in three major planes as shown in the test set-up photos.

The device was powered by an HP 6261A power supply, located directly under the turntable, connected through slip rings mounted under the turntable base. In normal operation the device will be powered from the 12 volt electrical system of a heavy truck. For the purposes of testing, the device was locked in a constant duty cycle transmit mode by tying the data input line to the positive rail of the power supply.

The field strength measurements were taken using HP 8594E and HP 8596E spectrum analyzers, EMCO 3121C dipole set and an EMCO 3115 DRG horn. The device was scanned from 30 MHz to 9.2 GHz, and all emissions were noted. In this case the only emissions detected were those harmonically related to the fundamental transmit frequency.

At each detected emission frequency, the device was measured by rotating the turntable and adjusting the antenna height over a range of 1 to 4 meters to obtain the maximum output level. This procedure was performed with both horizontal and vertical antenna polarizations with the device in the positions described above. The peak reading for each frequency was recorded in column 2 on the data sheet. The readings for the 5th harmonic were obtained by reducing the distance from the measurement antenna to 1 meter and entering a -9.5 dB distance correction factor into the final calculation for those measurements. Harmonics above the 5th were not detectable.

RADIATED EMISSIONS			FCC ID: NV4-SENTRAX			page 1 of 1	
client ROCKWELL/MERITOR			model SENTRAX			project # 0619	
device data transceiver					Test date 04-16-98		
CFR V47 15.249		antenna Dipoles/DRG horn				temp. = 24C	
Frequency Radiated MHz.	Peak Reading dBm	Ant Factor dB	Ant Polar	Field 1 Intensity uV/m @ 3m	Duty Cycle -dB	Field 2 Intensity uV/m @ 3m	FCC Limit
916.395	-45.50	30.6	H	13505			50000
1832.790	-85.77	29.6	V	348			500
2749.185	-107.02	32.5	V	42			500
3665.580	-107.08	35.6	H	60			500
4581.975	-99.45	36.9	H	167			500
5498.397	-104.45	37.5	H	101			500
This device uses an on/off keyed digital communication format and operates in simplex mode. In normal operation the data packets will yield a duty cycle correction factor (per Part 15.35) that would be applied to the calculations for emissions above 1GHz. However this was not factored into this report since all emissions were within FCC limits in the peak readings.							
The receiver section of this device is a TRF detector. There were no emissions evident in the receive mode.							

EXHIBIT 4
PHOTOGRAPHS

PHOTOGRAPHS FOLLOW THIS PAGE