

<u>APPLICANT</u>	<u>Manufacturer</u>
North American Technical Services 30 Northport Road Sound Beach, NY 11789-1734	Knogo North America 350 Wireless Boulevard Hauppauge, NY 11788

TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C

TEST PROCEDURE: FCC 15.249(a)

TEST SAMPLE DESCRIPTION

BRANDNAME: Knogo

MODEL: Uhf Wrap Desk FCC ID:

TYPE: Anti-Theft Device, Pulsed RF Transmitter

FREQUENCY RANGE: 916.5 MHz

POWER REQUIREMENTS: 12 VAC derived from Ault P/N: 308-1112-000 AC Transformer

TESTS PERFORMED

- 15.207(a) AC Line Conducted Emissions
- 15.249(a) Radiated Emissions, Fundamental and Harmonics
- 15.294(c) Occupied Bandwidth
Duty Cycle

REPORT OF MEASUREMENTS

Applicant: North American Technical Services.

Device: Anti-Theft Device, Pulsed RF Transmitter

FCC ID:

Power Requirements: 12 VAC derived from Ault P/N: 308-1112-000 AC Transformer

Applicable Rule Section: Part 15, Subpart C, Section 15.249

TEST RESULTS

- 15.207(a): The radio frequency voltage that was conducted back on to the AC power line on any frequency/frequencies within the bandwidth of 450kHz to 30MHz did not exceed 250 microvolts.
- 15.249(a): Field strength of emissions from the intentional radiator operating in the 902-928 MHz frequency band did not exceed 50 mV/m average for the fundamental and 500 uV/m average for harmonics.
- 15.249(b): Field strength readings were taken at three meters unless otherwise noted.
- 15.249(c): Emissions radiated outside the specified frequency band except for harmonics, were attenuated by at least 50dB or to the emissions limits of 15.209, whichever was the lesser attenuation.
- 15.249(d): All measurements were taken utilizing a peak detector. The peak field strength of any emission did not exceed the maximum permitted average field strength by more than 20dB under any condition of modulation.

DETERMINATION OF DUTY CYCLE

The unit's RF output was directly coupled to the input of the spectrum analyzer. The analyzer was set for a frequency span of 0Hz. The sweep time was then adjusted in order to display one full pulse train. The transmitter on time was then summed and compared to the time for one full cycle in order to obtain the duty cycle.

Transmitter On Time	=	50 milliseconds (maximum- worst case in 100 ms)
Transmitter Cycle Time	=	250 microseconds
Transmitter Duty Cycle	=	50 %
Correction Factor	=	-6.0 db ($20 \log 0.5 = -6.0$)

SPECTRUM ANALYZER DESENSITIZATION CONSIDERATIONS

Due to the nature of the emissions being measured, care was taken to ensure that the resolution bandwidth of the spectrum analyzer was adequate to provide accurate measurements. The following formula was utilized:

Setting pulse desensitization equal to zero and utilizing the minimum observed pulse width of 124 μ s yields a minimum required bandwidth of 5.376 kHz. FCC specified bandwidths of 100kHz and 1MHz were utilized below and above 1GHz, respectively.

GENERAL NOTES

1. All user accessible controls were adjusted to produce maximum emissions.
2. Measurements of conducted emissions were performed utilizing a 50 ohm/50 μ henry Line Impedance Stabilization Network (LISN).
3. The unit operates in the band of 902-928 MHz band at a single frequency of 916.5 MHz.
4. The frequency range was scanned from 30MHz to 9.3 GHz. All emissions not reported were more than 20dB below the specified limit.

EXHIBIT 4

Radiated Emissions

Para. 15.249(a)

(Please see separate e-file attachment named REdata.doc)

EXHIBIT 4

Duty Cycle

(Please see separate e-file attachment named Dutycycle.pdf)

EXHIBIT 4

Occupied Bandwidth

Para. 15.249(c)

(Please see separate e-file attachment named OccBw.pdf)

EXHIBIT 4

Conducted Emissions

Para. 15.207(a)

(Please see separate e-file attachment named CeData.pdf)

Report Number: R-8384-1
FCC ID #: