Request for Modular Transmitter Approval

In accordance with FCC Public Notice DA 00-1407, June 26, 2000

LaserLine Manufacturing Inc. requests limited modular transmitter approval for the 40105 module. This letter addresses the numbered requirements below, followed by limitations.

1. The modular transmitter must have its own RF shielding.
The module has an RF shield to ensure that it does not have to rely upon the shielding provided by the device into which it is installed in order for all modular transmitter emissions to comply with Part 15 limits. It is also intended to prevent coupling between the RF circuitry of the module and any wires or circuits in the device into which the module is installed.

2. The modular transmitter must have buffered modulation/data inputs.
Data inputs to the module are buffered by a microcontroller's I/O pin circuitry.

3. The modular transmitter must have its own power supply regulation.
The module has a voltage regulator that supplies the RF section.

4. The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204(c).
The module's antenna connection is a reverse polarity SMA connector to limit connection to acceptable antennas. The module is tested and supplied with an authorized antenna.

5. The modular transmitter must be tested in a stand-alone configuration.
The module was tested in a stand-alone configuration.

6. The modular transmitter must be labeled with its own FCC ID number.
The module is labeled with its own FCC ID number. See label and label location drawing contained in this application. Instructions are given to the end user in the module data sheet that the outside of the device must also display a label referrring to the enclosed module.

7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter and the manufacturer must provide adequate instructions along with the module to explain any such requirements.
The module is compliant with all applicable FCC rules. Furthermore, the module generates modulation and timing internally in order to send only intermittent control signals as specified in Part 15.231(A-D), most particularly to prevent continuous transmission, data transmission or repetitive periodic transmissions, regardless of external inputs. No specific end-user behavior is required.

8. The modular transmitter must comply with any applicable RF exposure requirements.
The maximum average transmitting power is 0.5 mW. The supplied antenna is a 1/2 wave dipole. The theoretical antenna gain under optimal conditions is 5.15 dB (equal to 3.27 times power) and is lower in practice. The maximum equivalent isotropic radiated power EIRP is consequently:

EIRPmax = Ptx * Gtx =1.635 mW

From the EIRP the power density *p* can be calculated using the following equation:

$p = EIRP/(4*\pi*D^2)$ where D is the distance from the transmitting antenna.

The equation assumes that the distance D is great enough to be in the far field of the antenna. In the near field the power density *p* will be less than what is obtained from the equation.

Solving for a distance of 20 cm and EIRP of 1.635 mW, the maximum power density is 0.000325 mW/cm^2. FCC OET bulletin 65 states the MPE limit for uncontrolled general population mobile devices in this frequency range is $(f/1500)mw/cm^2 = 0.279\ mW/cm^2$.

Special requirement for Limited Modular Approval:
The EUT is designed for and tested for battery operation. Therefore, the EUT is only approved for use when installed in a battery operated mobile device produced by the manufacturer (Grantee).