

Maximum Permissible Exposure Test Report

for

Adtran, Inc.
901 Explorer Boulevard
Huntsville, AL 35806

FCC ID: HDCTRC4205L1

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WLL PROJECT #: 8030RFFCC

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1.0 Introduction

This report has been prepared on behalf of Adtran, Inc. to show compliance with the RF exposure requirements as defined in FCC Part 1.1307(b)(1) for the Adtran Tracer 4205 Device.

3.8 Radio Frequency Radiation Exposure

In accordance with Section 1.1310 of the FCC rules, the Maximum Permissible Exposure (MPE) limit for this frequency range is 1mW/cm² for General Population/Uncontrolled Access. The EUT is designed for telecommunications transmissions and may use high gain antennas (up to 44.2 dBi) and the transmitter section is designed for mounting on an antenna mast. Only professional installers install this device and is limited to installations such as towers and rooftops. Warnings are in the installation manual which limit the exposure to the direct beam during installation and maintenance. These warnings to the installers insure that the general public is not exposed to RF energy.

The TRACER 4205 is designed for a transmit power of 20 dBm (100mW). Assuming the highest allowable gain antenna is used (44.2 dBi) the following power density is calculated.

$$S = (PG)/(4\pi R^2)$$

Where,

S = Power Density

P = Output Power at the Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna

For this device, the calculation is as follows:

$$S = \text{FCC Limit} = 1\text{mW/cm}^2$$

$$P = \text{Output Power} = 93.3\text{mW (measured)}$$

$$G = \text{Worst Case Gain} = 44.2 \text{ dBi (26,302.6 linear gain)}$$

$$R = \text{Based on 4.6 meters (15 feet) specified in User's Manual}$$

$$S = \{(93.3\text{mW})(26,302.6)\}/\{(12.56)(460\text{cm}^2)\} = 0.923\text{mW/cm}^2$$

This power density is the worst case for maximum beam exposure. This level is below the limit of $1\text{mW}/\text{cm}^2$ MPE for general population/uncontrolled access. This unit is only installed by professionals and is limited in practice to installations on rooftops or towers. Warnings are provided in the installation manual to limit exposure to the direct beam during the installation and maintenance phase. These warnings ensure that the device is installed properly and does not expose the general public to RF energy hazards.