

MPE Analysis Report

The Equipment Under Test (EUT) is a Toast Direct Attached which is a POS device (point of sale device). It supports reading magnetic stripe credit card, EMV smart credit card and passive RFID tag credit card. It can be connected to PC via USB port and operated by a corresponding software. The embedded MSR module (magnetic stripe reader) and EMV chip interface are used for reading magnetic stripe credit card and EMV smart credit card data respectively. The EUT contains 13.56MHz NFC tag reader for contactless payment card. The EUT is powered by USB port (5VDC).

The applicant declared that Bluetooth function is not provided by this product.

NFC Portion (13.56MHz single channel)

Antenna Type: Internal, Integral

Antenna Gain: 0dBi

Nominal RF power: 0dBm

Maximum allowed production tolerance: +0dB / -30dB

For Maximum Permissible Exposure (MPE) evaluation of the unit, the maximum power density at 20 cm from this transmitter shall be less than the General Population / Uncontrolled MPE limit in OET Bulletin 65 and meet the requirement listed in KDB447498.

For the NFC portion of the EUT, the measured powers among all the measured channels were within its production tolerance. The antenna gain is 0 dBi = 1 (num gain) and its maximum source-based time-averaging duty factor is 100%. From these data and its operating configuration, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna can be calculated according to OET Bulletin 65 as follow:

The EIRP radiated power
= conducted power (with maximum tolerance) + antenna gain
= 0 dBm + 0 dBi
= 0 dBm (1 mW)

The radiated (EIRP) source-based time-averaging output power
= (1 * 1) mW
= 1 mW

The power density at 20 cm from the antenna
= EIRP / $4\pi R^2$
= 0.0002 mW cm⁻²