# RFI Test - Hypercom T4205
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## 1 Introduction

This document shows RFI test info and results for the Hypercom T4205 Credit Card Terminal (see Figs. 1 and 2). Red circles in the pictures show RFI hot spots, but all the measurements were taken from the rear part of the device (stronger interference). This test was requested by Jorge Rodriguez.

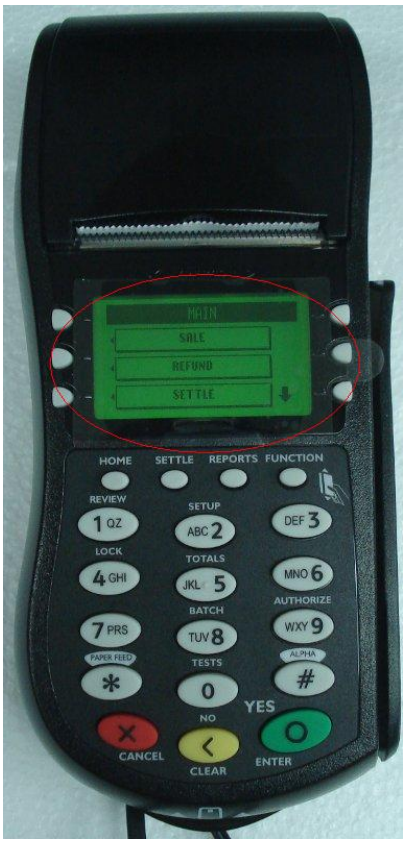


Figure 1: T4205 front - hot spot.


Figure 2: T4205 rear - hot spot.

## 2 Equipment

Hypercom T4205:

- Credit Card Terminal.
- DC Power Supply, wall adapter.
- Phone line non connected for the test.

Agilent E4445A Spectrum Analyzer:

- Trace 1: Clear Write, Average ON, 20 spec.
- Trace 2: Max Hold.
- Trace 3: Min Hold.
- 8192 points per spec.
- Internal Amplifier ON.
- 6dB Attenuation.
- SCPI Commands from Python.

ETS Model 7405[1] probe No.902:

- Magnetic field.
- Res. Freq. 1.5GHz.
- H/E Rejection 29dB.
- Performance: Fig. 3.
- + 15ft coax cable

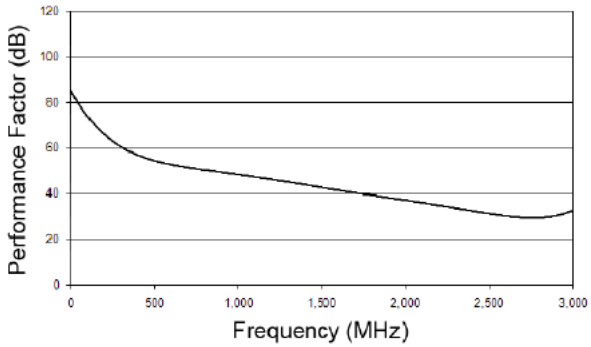


Figure 3: Probe No. 902 Performance.

ETS Model 7405[1] probe No.904:

- Electric field.
- Res. Freq. >1.0GHz.
- H/E Rejection 30dB.
- Performance: Fig. 4.
- + 15ft coax cable

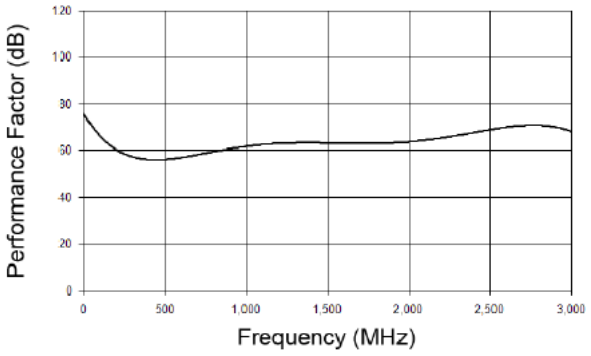


Figure 4: Probe No. 904 Performance.

## 3 Test Procedure

- Screen/shielded room front door closed.
- A/C ON, eth. switch ON, 10MHz buffer OFF
- Other equipment: spectrum analyzer, T4205 and power supply.
- Disconnect 10MHz coax to the buffer (in some way this is causing interference at 10MHz).
- Thirty (30) 100MHz bandwidth scans (12.207kHz per channel), from 0 to 3000MHz.
- Twenty (20) seconds "integration" time per spectrum.
- Trace results recorded using SCPI commands from a Python script.

## References

[1] ETS LINDGREN, *ETS Near-Field Probe Set Model 7405*.

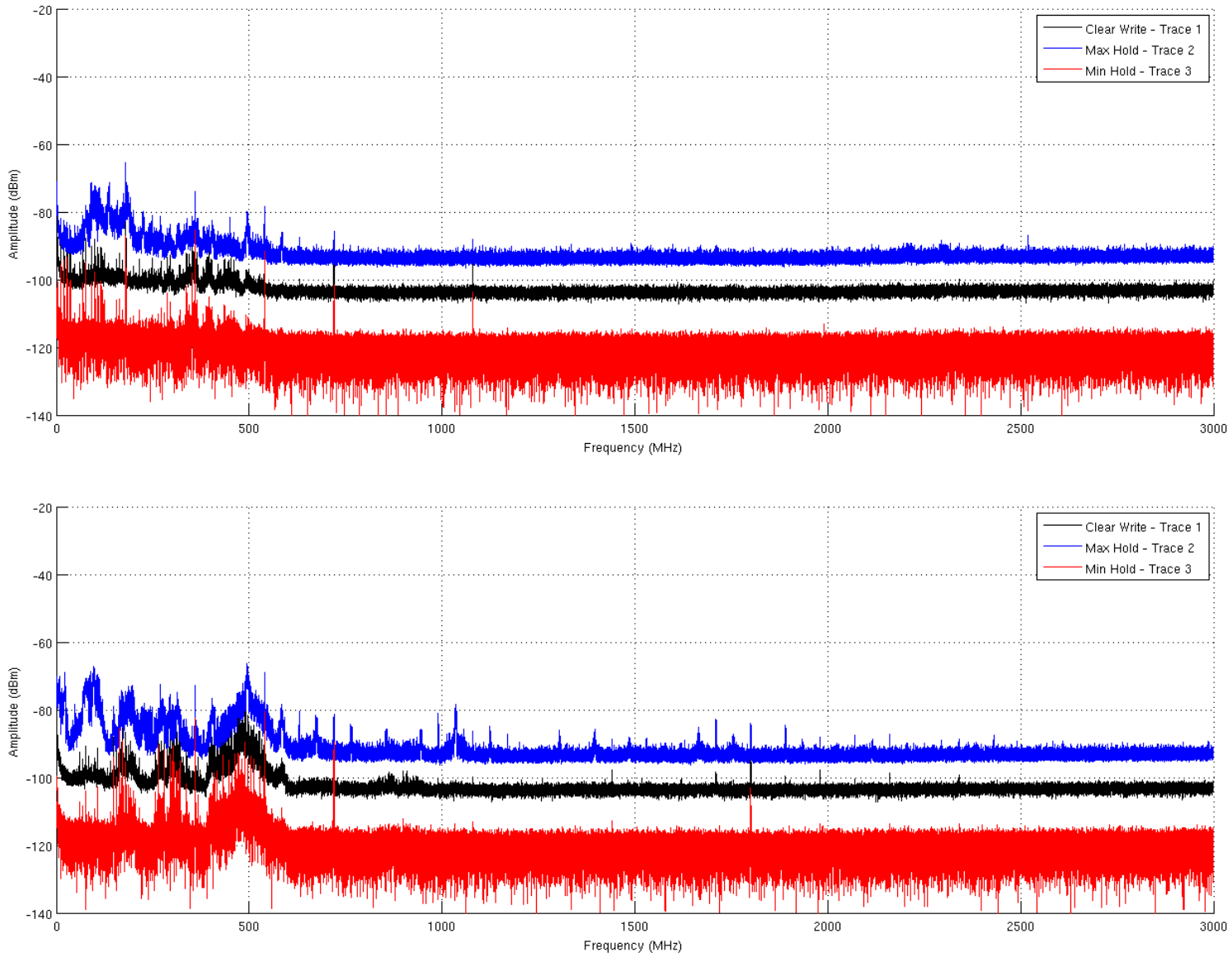


Figure 5: Test Results. Top: Magnetic Field - 902 Probe; Bottom: Electric Field - 904 Probe.