



FCC CERTIFICATION TEST REPORT ADDENDUM

(EIRP and Spurious Emissions Measurements)

Descartes Corporation
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FCC ID: PP9P2000CDPD

October 29, 2001

WLL PROJECT #: 6315X

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FCC CERTIFICATION TEST REPORT ADDENDUM

for

FCC ID: PP9P2000CDPD**1.0 Introduction**

This report addendum has been prepared to provide the radiated spurious emissions and EIRP measurements for the Descartes Corp. P2000 CDPD Transmitter under Part 22 of the FCC Rules and Regulations.

The emission measurements were performed at Washington Laboratories, Ltd. test center in Gaithersburg, MD. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by NIST NVLAP (NVLAP Lab Code: 200066-0) as an independent FCC test laboratory.

2.0 RF Power Output as Radiated Power (EIRP) – Substitution Method

The EUT was setup for the radiated RF power measurements on the Washington Laboratories open area test site (OATS). The EUT was placed on a wooden turn-table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading of the emission being measured on the receive spectrum analyzer. The EUT was then replaced with a substitution antenna. A signal generator was connected to the antenna and the level of the signal generator was adjusted to obtain the same level on the spectrum analyzer. This level is recorded on the data sheet along with the gain of the substitution antenna to obtain the EIRP measurement level.

Measurements were performed at three channels of the EUT representing a high, low and middle frequency of operation. Worst case spurious emission level are recorded in the data table. Testing was performed up to the 10th Harmonic for each frequency.

Table 1
RF Output Power – EIRP

Frequency	Substitution Level	Antenna Gain	EIRP	EIRP
MHz	dBm	dBi	dBm	Watts
824	21.97	6.8	28.77	0.754
836.5	21.27	6.9	28.17	0.656
848.99	22.57	6.5	29.37	0.865

Table 2
Spurious Radiated Emissions

Customer: Descartes Corp.
EUT: P2000 Terminal
FCC ID: PP9P2000CDPD
Job: 6315
Date: 10/26/01

Frequency MHz	Substitution Level dBm	Antenna Gain dBi	EIRP dBm	Limit dBm	Margin dB
Transmit Frequency: 824 MHz					
1648.07	-26.9	4.3	-22.6	-13.0	-9.6
2472.47	-30.0	3.7	-26.3	-13.0	-13.3
3295.79	-39.7	4.0	-35.7	-13.0	-22.7
4120.05	Noise Floor				
4944.00	Noise Floor				
5768.00	Noise Floor				
6592.00	Noise Floor				
7416.00	Noise Floor				
8240.00	Noise Floor				
Transmit Frequency: 836.5 MHz					
1672.78	-26.7	4.3	-22.4	-13.0	-9.4
2509.64	-33.4	3.8	-29.6	-13.0	-16.6
3346.70	-43.8	4.2	-39.6	-13.0	-26.6
4182.50	Noise Floor				
5019.00	Noise Floor				
5855.50	Noise Floor				
6692.00	Noise Floor				
7528.50	Noise Floor				
8365.00	Noise Floor				
Transmit Frequency: 849 MHz					
1698.20	-28.6	4.3	-24.3	-13.0	-11.3
2547.33	-35.4	3.7	-31.7	-13.0	-18.7
3395.80	Noise Floor				
4245.00	Noise Floor				
5094.00	Noise Floor				
5943.00	Noise Floor				
6792.00	Noise Floor				
7641.00	Noise Floor				
8490.00	Noise Floor				

Table 3: System Under TestFCC ID: PP9P2000CDPD

EUT: Descartes Corporation; M/N: P2000 CDPD; S/N: 981108107773 (base cradle)

Support Equipment:

PC: Gateway 2k Tower; M/N N/A; S/N: 0007784578; FCC ID: HWYG6V200T

Monitor: RIC; M/N: X-555, S/N: CVR9990323938; FCC ID: HSUTRLX-555

Keyboard: Hewlett Packard; M/N: KB-9970, S/N: 9H02203278B

Printer: Hewlett Packard; M/N 2225C + ; S/N: 2717S40327; FCC ID: DSI6XU2225

Mouse: Microsoft, M/N: 2.0A, S/N: 07053616, FCC ID: C3K5MP1

Table 4: Interface Cables Used

Non-shielded I/O cables were used throughout the system under test.

The EUT was powered via a non-shielded AC power cord.

Table 5: Measurement Equipment Used

The following equipment is used to perform measurements:

Hewlett-Packard Spectrum Analyzer: HP8564E

Hewlett-Packard Spectrum Analyzer: HP8568B

Hewlett-Packard Quasi-Peak Adapter: HP85650A

Hewlett-Packard Preselector: HP85685A

Hewlett-Packard Preamplifier: HP8449B

Hewlett Packard Signal Generator: 8672A-K22

Hewlett Packard Signal Generator: 8648C

Antenna Research Associates, Inc. Horn Antenna: DRG-118/A

A.H. Systems LP Antenna: SAS-200/518

Washington Laboratories Portable Antenna Mast (Site 1)

Washington Laboratories Motorized Turntable (Site 1)