TransCell 1900 CB
FCC System Test Results Report

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1.0 INTRODUCTION

Transcept's *TransCell 1900 CB System* is a PCS 1900 radio system with a fiber or a 75-Ohm coaxial interface that facilitates establishing wireless service by distributing Code Division Multiple Access (CDMA) signals between a Base Transceiver Station (BTS) and mobile users. The TransCell 1900 CB system is applicable to wireless operators utilizing singlemode fiber (SMF) or coaxial infrastructure. It is specifically designed to take advantage of the CDMA 1900MHz air interface. The primary components of the TransCell 1900 CB system are

- Cable Microcell Integrators (CMIs)
- Hub Unit; comprised of
    - Hub Control Unit (HCU)
    - Hub Interface Converters (HICs)
    - Hub Fiber Interfaces (HFIs) (optional)
    - +24VDC power supply
    - RF Interface Assemblies (RFIAs).

These components provide the CDMA signal interfaces between the mobile users, BTS's, and the fiber network. The Hub Control Unit (HCU) provides the command, control and monitoring of the infrastructure network including the primary components' health.

This document contains a detailed functional description of the TransCell 1900 CB System. It includes the system interface and performance data that will be of interest to PCS providers, system designers, operators, and maintainers.

2.0 TRANSCELL 1900 CB SYSTEM

2.1 OVERVIEW

The TransCell 1900 CB system provides a means to distribute wireless Personal Communications Services (PCS) over either, fiber optic cable, 75-Ohm coaxial cable, or hybrid fiber/coaxial (HFC) cable infrastructure. The TransCell 1900 CB System was developed specifically to support the ANSI TIA/EIA-95-B 1900MHz protocol. A fiber and/or coaxial network is used to distribute the PCS signals between the hub facility and attached remote locations throughout the service area. A Cable Microcell Integrator (CMI) at each remote location converts the modulated light or IF signals to PCS frequencies and radiates/receives through a set of three antennas at each CMI location. One HIC provides the interface at the hub facility for up to three CDMA sectors (up to three carriers per sector). Figure 2-1 is a simplified functional view of the system.

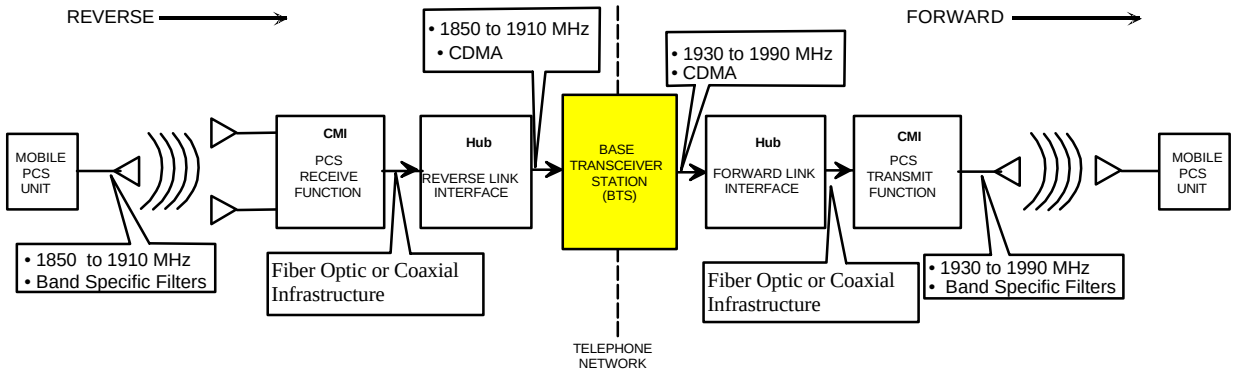


Figure 2-1. TransCell 1900 CB System

Figure 2-2 shows the basic TransCell 1900 CB System elements. The hub facility contains some of the TransCell 1900 CB System equipment along with the telephony equipment traditionally found in a hub. The product specification describes the TransCell 1900 CB System equipment. Since the interfacing telephony equipment will depend upon the specific equipment and service provider, telephony equipment is mentioned only to describe pertinent interfaces.

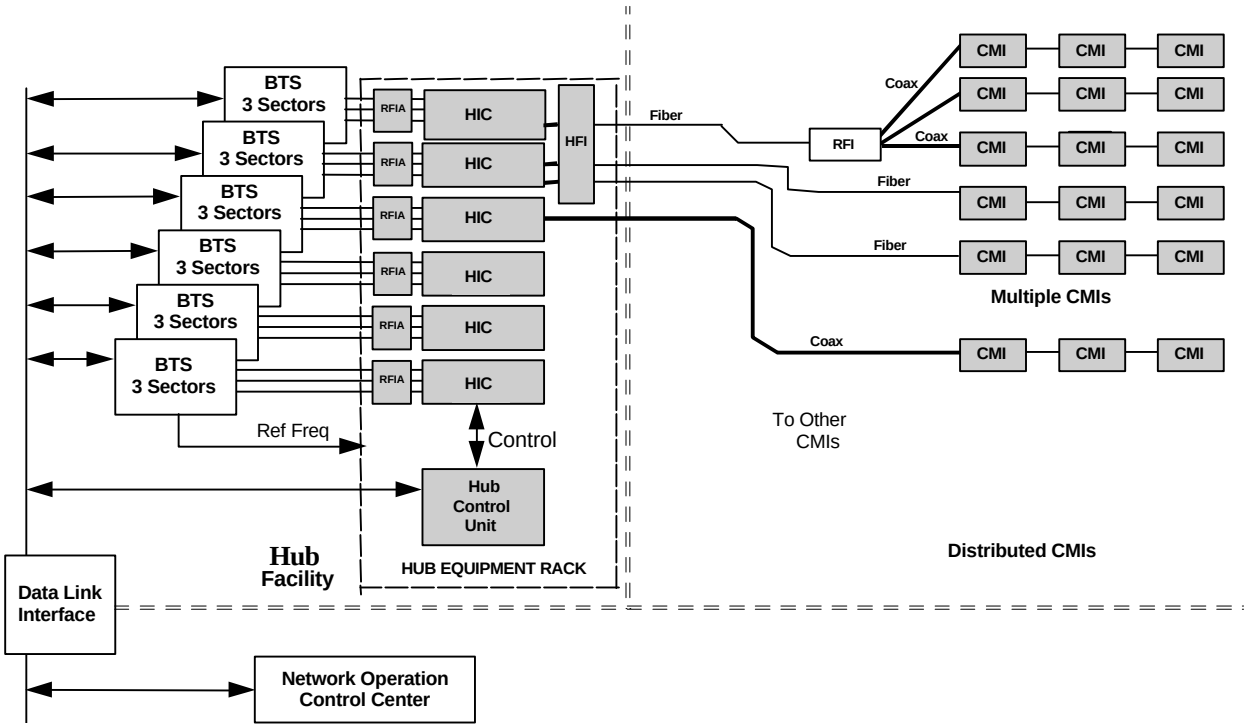


Figure 2-2. Basic Elements of the PCS System

The Hub components of the TransCell 1900 CB System are the HIC, HFI, RFIA, and the Hub Control Unit (HCU). The pertinent telephony component is the Base Transceiver Station (BTS) located at the hub facility. The customer's Network Operation Control Center (NOCC), or equivalent, may span multiple hub facilities and/or traditional tower-based PCS sites.

Up to 3 three-carrier CDMA sectors of the BTS telephony equipment interfaces to the fiber or coax network through a single HIC unit. A CDMA sector/HIC can interface to one or multiple CMIs, depending on the differences between the fiber/coaxial network coverage and the desired coverage of a single CDMA sector. A typical installation may have several dozen CDMA sectors with their associated HIC units connected to several dozen CMIs. Each HIC at the hub can host up to 10 CMIs per sector, distributed on fiber/coaxial networks, with typical deployments comprising four to six CMIs per sector. The specific number of CMIs per HIC will be determined by the desired coverage for the CDMA sector in question and the optical/RF loss between the HIC and the furthest CMI. Each HIC is designed so that, if desired, a different number of CMIs may be attached to it.

3.0 TEST REQUIREMENTS

3.1 FCC REQUIREMENTS

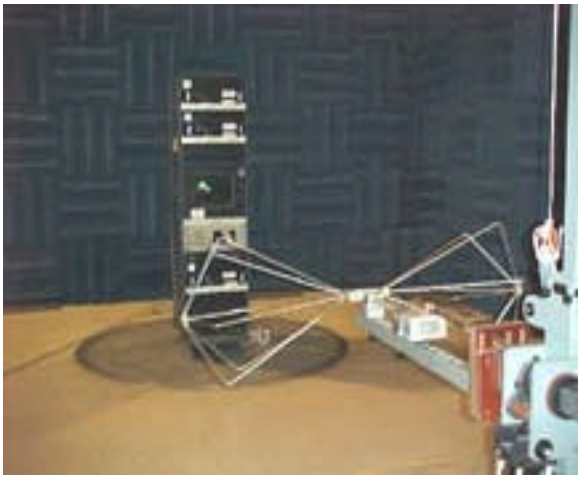
The Hub equipment rack, consisting of the HCU, HICs, HFIs and RFIAs, was tested to the requirements of FCC CFR 47, Part 15 for Class A devices. Radiated and conducted emissions were measured on the 115V AC powered instrument. Two CMIs were tested to FCC CFR 47, Part 24 for radiated emissions and to FCC CFR 47, Part 15, Subpart C for conducted emissions. The CMIs tested were worst-case configurations of a Multi-FA coaxial and Multi-FA fiber CMI. All instruments tested complied with the applicable limits defined for its test.

3.2 TEST FACILITY

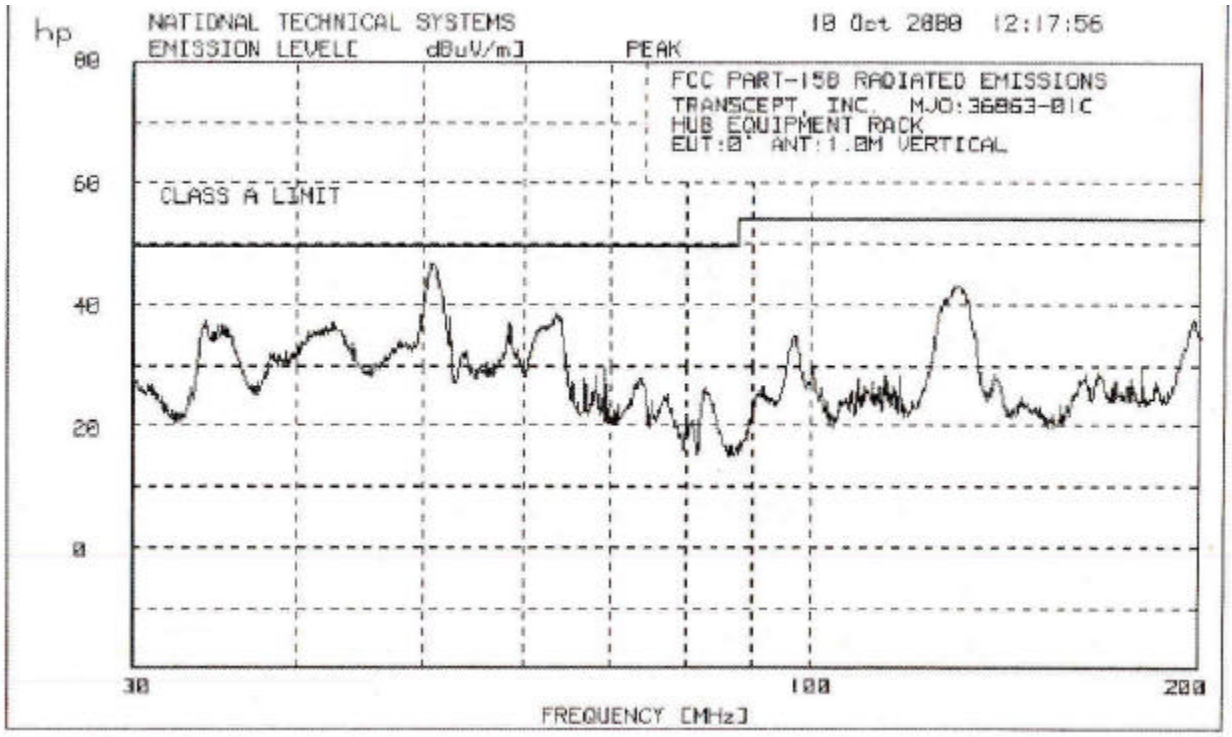
Radiated emissions and powerline conducted emissions tests were performed at the site of National Technical Systems, Boxborough, MA. The system tests were conducted at Transcept Inc., Manchester, NH.

3.3 TEST RESULTS

Hub Test Setup



CMI Test Setup

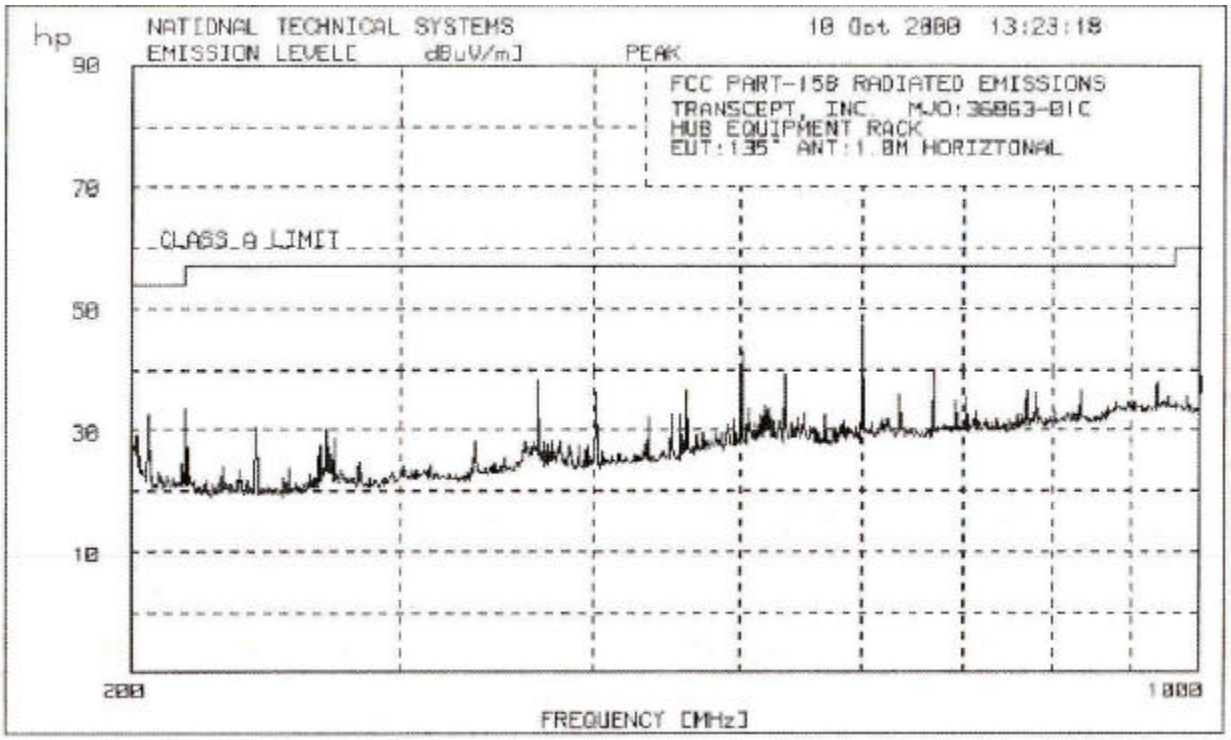


NATIONAL TECHNICAL SYSTEMS 10 Oct 2000 12:17:56

6. FCC PART15 B RAD EMIS 10/10/00
   6.1 30-200MHZ

10 highest Peaks above -30 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	34.06	37.4	-12.2
2	42.6	36.9	-12.7
3	51	46.8	-2.8
4	58.46	36.8	-12.8
5	63.42	38.6	-11.0
6	68.16	28.3	-21.3
7	69.33	29.6	-20.0
8	96.96	35	-19.0
9	114.13	28.2	-25.8
10	129.09	43.1	-10.9



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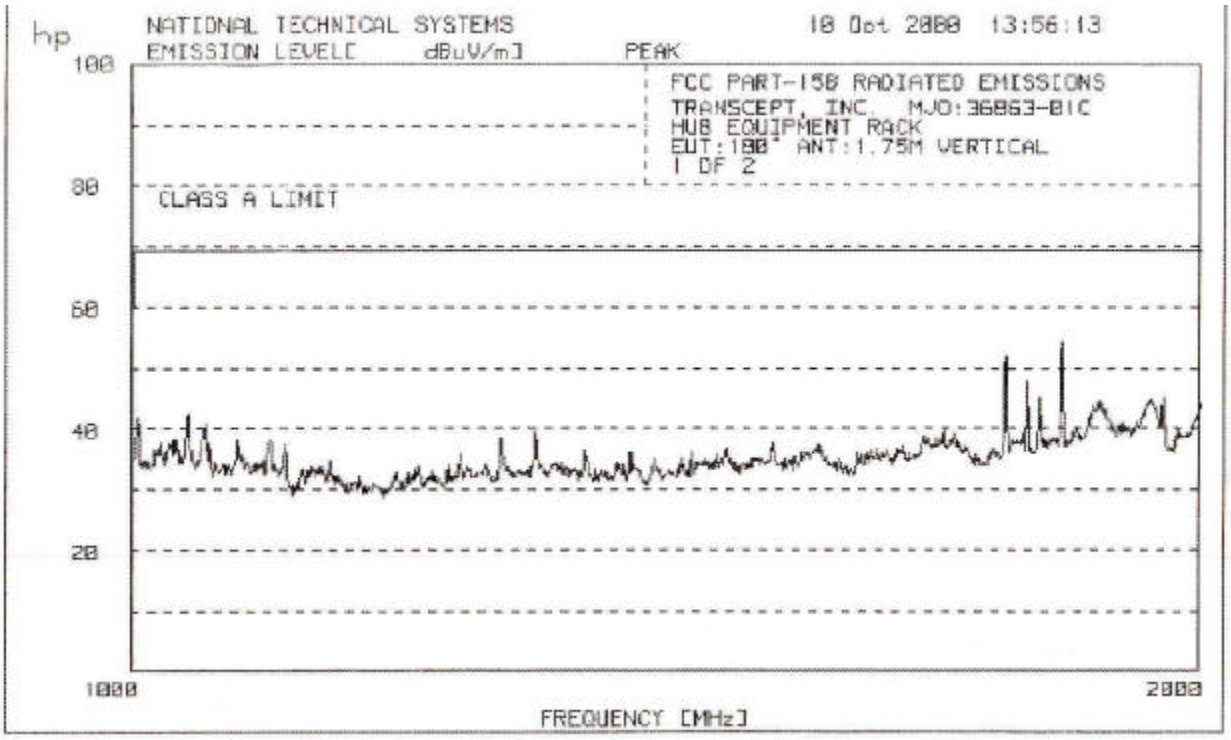
6. FCC PART15 B RAD EMIS 10/10/00
6.2 200-1000MHZ

10 highest Peaks above -30 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	216.74	33.4	-23.5
2	368.45	38	-18.9
3	401.86	36.1	-20.8
4	460.72	36.5	-20.4
5	500.89	42.9	-14.0
6	518.09	34.2	-22.7
7	534.16	39.2	-17.7
8	600.69	47.1	-9.8
9	635.46	35.7	-21.2
10	669.01	39.7	-17.2



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6. FCC PART15 B RAD EMIS 10/10/00
   6.3 1-2GHZ

10 highest Peaks above -30 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	1003.5	41.8	-27.7
2	1037.4	42.3	-27.2
3	1048.2	40.9	-28.6
4	1693.8	40.2	-29.3
5	1763.2	52	-17.5
6	1787.8	47.7	-21.8
7	1802.7	45	-24.5
8	1827.8	54.2	-15.3
9	1952.1	45.1	-24.4