Exhibit 1

Per Item 4 on the FCC Document
Particulars of Operation:

Frequency	Power			Emission	Modulating Signal	Necessary Bandwidth (kHz)
(A)*	(B)*	(C)*	(D)*	(E)*	(F)*	(G)*
824-849 MHz	0 dBm	0 dBm	mean/mean	See Exhibit 2	• 19.2 kbs • GMSK modulation • BT=0.5 modulation index	30 kHz
869-894 MHz	0 dBm	0 dBm	mean/mean	See Exhibit 2	• 19.2 kbs • GMSK modulation • BT=0.5 modulation index	30 kHz

30k0 G7D

* -See Explanations given in the FCC for 442: "Application for new or modified radio station authorization under part 5 of FCC Rules-experimental radio service (other) than broadcast," section 4.

Exhibit 2

a) Description of the nature of the research project being conducted.

GTE Personal Communications Services has designed a series of tests intended to assess and demonstrate the capability of the Cellular Digital Packet Data (CDPD) system to run data applications on radio communication links. CDPD is a wireless packet data network service that has recently been offered to the public for use across the US. CDPD operates over temporarily unused radio channels within the radio spectrum occupied by the Advanced Mobile Phone System (AMPS), commonly known as the cellular telephone service. The planned tests and demonstrations are to be conducted in a laboratory and will employ radio transmissions as part of the CDPD system testbed.

The testing and demonstration procedure for CDPD will involve full-duplex transmissions between the CDPD mobile data base station (MDBS) and CDPD mobile end stations (M-ES). Stations at both sides will use one channel pair, within the allocated AMPS spectrum (which currently occupies the 824-849 Mhz and 869-894 Mhz bands). Because only very low power levels will be used, it has been determined that the experiments and demonstrations *cannot affect the AMPS servie outside of the test-site building*. That will be accomplished, first by transmitting at a significantly reduced power level in all instances, secondly by using a sniffer device on the base stations, letting the system work as a normal CDPD facility. For numerical details on the interference extent, see the "Interference to the AMPS system" section.

b) A showing that communications facilities requested are necessary for the project involved.

The tests and demonstrations will be held indoors, and will involve full-duplex transmissions between a CDPD MDBS and its mobile end stations, as shown in Figure 1. The communication will be carried over an extremely short distance within building confines (typically 25 ft.), and therefore only very low power levels will be used (0 dBm or less). *These tests are to be conducted in a laboratory and will measure the effects of the radio medium impairments on packet delay, packet loss and other critical parameters affecting data applications that run over the radio interface provided by the CDPD system.* Because the CDPD actual service mode maintains its link connection over the radio medium, it is necessary to include transmissions as part of the CDPD testing plan in order to do meaningful testing and demonstration of the service.

c) A showing that existing communications facilities are inadequate.

The CDPD wireless packet data network service has just recently been offered to the public. The performance of the CDPD system, as well as interoperability between CDPD subsystems made by different makers, is not yet known and can be found only by analysis,

experimentation, and measurements. Currently, there is not testing site that offers such testing services.

As a provider of the CDPD wireless packet data service, GTE is committed to render an excellent service to our clients, as well as to other carriers' clients who are roaming into CDPD systems offered by GTE. To achieve this goal GTE intends to build an in-house testing and demonstration facility capable of testing this packet data system.

GTE Personal Communications Services, the developer and provider of CDPD services nationwide, is headquartered in Atlanta, GA where no public CDPD service is available.

Interference to AMPS system.

1) Methods used to reduce co-channel interference.

Each of the tests will be conducted in two phases. The first phase will use a fixed channel for the full-duplex link operation necessary for the test. While it is conceivable that when operating in this fixed channel mode, an indoor AMPS voice user might suffer service disruption, this *worst-case scenario* can happen only if the following two conditions are satisfied:

a) The voice user will call from near the test site.
b) The voice user will be directed by AMPS to use a channel already selected by GTE PCS for testing.

Because conflict between CDPD tests and AMPS can occur only when the two conditions are met, the probability of severance of AMPS service is negligible. To further preclude that possibility, a spectrum analyzer will be placed at the testing site to monitor the voice activity on the AMPS channels throughout testing. Statistics of AMPS channel use derived by the spectrum analyzer, will be used in selecting channel frequencies to avoid the above mentioned conflict.

The second phase of testing will reduce the risk of service disruption much further by activating a device known as an RF Sniffer, already mounted on the MDBS station. The RF Sniffer is a scanning receiver that can be programmed to continuously monitor the spectrum used by AMPS. Upon detection of radio energy emitted by an external source, the sniffer is programmed to command the MDBS to hop to another AMPS channel, which is temporarily idle. Channel hopping is specified to complete within 40 msec, which virtually eliminates the risk of service disruption to AMPS users even within the building. If voice traffic is high and no idle channel can be found, the MDBS shuts off its transmission until CDPD service can be resumed. This describes the nomral operation of commercial CDPD services.

2) Expected signal levels outside and inside the testing site-- link budgets.

Tables 1 and 2 in this section detail the link budgets of the AMPS system covering the region of the test site, and the test site transmissions. Note that Table 2 refers to both directions of the full-duplex channel. Table 3 below quantifies the interference caused by the proposed testing to AMPS users outside the testing site. Note that the only in-building AMPS user experiencing greater interference than the outside-building user would need to be in a room adjooining the test lab. This probability is negligible. Therefore, GTE considers the real worst case interference it mujst operate to render hamless is to the external AMPS user.

Table 1 AMPS Link Budget

	Item Description	Value	Unit	Comments
1	AMPS EIRP	+40.0	dBm	10 W (see EIA/TIA-553)
2	Propagation loss from AMPS base station to the Lab-site.	-122.7	dB	Used [1, eq.(11); 2, eq.(3.54b); 2, fig. 13.14] to compute the prop.loss using the following parameters: f=850MHz D=1.77km h_t=20m 8 story bldg. h_r=1.5m
3	Building penetration loss from the building exterior to the Lab site.	-20.0	dB	Used [2, p. 390] to estimate the loss.

Table 2 Lab Link Budget

	Item Description	Value	Unit	Comments
1	EIRP	-10	dBm	0.1mW
2	Propagation loss from CDPD base station to building walls.	-78.1	dB	Used [2, eq. 4.3-3)] λ=.35m d=25m
3	Building penetration loss from the building interior to exterior.	-20.0	dB	Used [2, p. 390] to estimate the loss.

The extent of interference caused by the Lab to AMPS service outside the building is summarized as follows:

Table 4 C/I Ratio Outside Building under Worst Case Conditions

	Item Description	Value	Unit	Comments
1	AMPS	-82.7	dBm	see lines 1 & 2 of Table 1.
2	CDPD Lab	-108.1	dBm	see lines 1 through 3 of Table 2.
3	C/I_{AMPS}	-25.4	dB	Outside building

1) Hata, Masaharu, "Empirical Formula for Propagation Loss in Land Mobile Radio Services," *IEEE Transactions on Vehicular Technology*, VT-29, Aug. 1980, pp. 317-25.

2) Lee, W.C.Y., *Mobile Cellular Telecommunications Systems*, McGraw-Hill, 1989.