

EXHIBIT 1

Description of Experimental System

Itron, Inc. ("Itron"), of Spokane, Washington, and EnScan, Inc. ("EnScan"), of Eden Prairie, Minnesota, have each been pursuing, over several years, methods of radio-based, off-site meter reading ("OMR"), to improve the efficiency of utility company operations. In February, 1992, Itron acquired EnScan (Call Sign KAZXMJ), which now operates as a wholly-owned subsidiary of Itron. At present, Itron is combining the two company's technologies and seeks in this application the authority to demonstrate and test the resultant product further.¹

Itron's Genesis OMR system combines a new communication device and a unique communication protocol for reading residential and commercial gas and electric meters remotely. The Genesis system has two components: the ERT unit and the DataCap PN handheld computer.

The ERT unit is a low-power communications device installed on a gas meter to encode natural gas consumption or in a kilowatt-hour electric meter to encode kilowatt-hour electric consumption. In addition, the ERT module monitors a tamper detection circuit. The receiver of the ERT Unit also monitors for the presence of an activation signal from the DataCap PN handheld device. The ERT is certified under Part 15 operating in the band 902-928 MHz.

The DataCap PN is a low power radio transceiver installed in a handheld computer and consists of the ERT activation transmitter, a multichannel receiver decoder, and a computer to control unit operation and data storage. Each DataCap PN unit will serve 250 ERT modules.

The DataCap PN is carried by utility meter readers walking meter reading routes on streets adjacent to buildings equipped with ERT meters. When the reader transmits the activation signal, the signal is received and decoded by the ERT Units, which then transmit the meter account data back to the DataCap PN.

¹ Itron will hold the license for the experimental system, but, if the Commission so desires, the customer/utility participating in the market test portion of the experiment (see Exhibit 2) could jointly hold the license for the particular DataCap PN unit used by such customer/utility.

The DataCap PN is capable of reading and storing meter data on up to 1,500 meters during an 8-hour shift.

EnScan was granted a Part 5 Experimental License, effective October 27, 1986, and renewed most recently as of February 1, 1992. The authorization allows EnScan to test twelve units of its mobile data collector, which was vehicle-driven (Call Sign KA2XMJ, File No. 0240-EX-R-92). With this application, Itron is seeking to modify and expand the experimental radio license. Itron is requesting to operate up to 125 of the DataCap PN units at 952 MHz or 956 MHz. As proposed in this application, 100 units would be used in the market test with utilities around the country, and 25 would be used in-house for further testing at the Itron/EnScan facilities in California, Minnesota, and Washington.

The objective of the experiment is to determine the performance of the new unit in varying "real-life" trials, operating with utilities in the various situations that they face, as described more fully in Exhibit 2. The data collected will enable Itron to determine the efficacy of various performance characteristics of the DataCap PN unit in order to maximize its commercial usefulness.

EXHIBIT 2

Market Test

Itron seeks, in addition to experimental authority to use the handheld DataCap PN computer on frequencies 952 and 956 MHz, the authority pursuant to 47 C.F.R. § 5.202(j) to conduct limited market studies and sales of its OMR system. Specifically, Itron seeks to market up to 100 of the DataCap PN units to up to 25 utilities across the country. During the market study, however, each utility will operate on the average only four (4) DataCap PN Units. Therefore, it is necessary to have the ability to involve up to 25 utilities in the market test in order to obtain a sufficient amount of reliable data, particularly given the high degree of variability among the factors to be tested during the market study, as discussed in detail below.

The marketing study seeks to demonstrate to utilities how Itron's OMR system can improve their operations. The traditional method of manually reading meters is an inefficient means to collect data. Itron's OMR system applies a high technology communications methodology to persistent problems of utility efficiency, that have previously led to higher rates to consumers, excessive energy consumption, and unnecessary facility construction.

One of the important purposes of the market test will be to determine the pricing structure for the Itron OMR system. The present plan is to price DataCap PN units in the \$5,000.00 to \$6,000.00 range. The demand for Itron's OMR system in this price range will, of course, determine what features and performance specifications to incorporate into each DataCap PN unit.

This pricing factor will also be heavily influenced by the utility's particular service area, which will require many multiples of the units. For example, the Los Angeles metropolitan area alone comprises 15 million utility meters. There are, therefore, a large number of variables of utility size, service area size and type, DataCap PN unit features and capabilities, and price all must be accounted for in the market testing.

There is, moreover, a requirement to provide units at multiple utilities in each of three types of utilities: gas, electric, and combination gas and electric

utilities. The functionality requirements, as well as performance requirements, are somewhat different at each of the three types. Therefore, data gathering is required at a cross-section of several utilities at each of these three types of utilities.

In addition to the above, there are service, function, environmental, and regulatory variables that also must be factored into the market test. These are outlined below.

1. Meter type and location.

Some functionality and performance variables that may be evaluated differently at all three types of utilities include the following:

- Each utility has a different mix of: 1) the types of meters that they purchase from different meter vendors; and 2) residential and commercial meters used within their service territory. It is necessary to test the reading performance on each of the types of meters used in order to ensure that all mixes can be accommodated.
- Various utilities throughout the United States have different placement of their meters; for example, some utilities place their meters in basements for protection from exposure to elements, others place meters outside the structure. The density of the metered structures also varies widely, from high-rises to row housing to suburban to rural. The resultant variance in interference potential will affect the percentage of possible readings the handheld is able to obtain.
- Utilities intend to use the Itron system to solve the problems associated with hard-to-read meters. These meters and problems will differ among utilities and must be evaluated to determine a set of functions and performance standards that will accommodate all of the hard-to-read meters. Such hard-to-read meters might include:
 - o Meters located in locked basements
 - o Meters in fenced yards

- o Meters in yards with dangerous dogs
 - o Hazardous areas such as crime areas
 - o Meters located inside homes, which cannot be viewed from outdoors
 - o Customers who will not allow access to meter readers
- Integration of automated data collection into manual meter reading routes. (Utilities will have differing mixes of reading requirements on each route. Each will have performance impact and functionality impact on the handheld.)

2. Data gathering requirements.

- Various utilities throughout the country have differing degrees of payment collections problems requiring termination of service, which could well require this function in the handheld computer.
- Utilities also differ on their requirements for off-cycle meter readings, because customer moves in and out, requiring opening and final readings, will vary. These too would have functionality requirements for the handheld computer that differ from standard meter readings.
- As to electric utilities, demand usage and time of use metering, which involves utilities collecting data on the amount of consumption used during varying time periods throughout the day and basing rates and incentive programs upon this consumption.
- Finally, in combination gas and electric utilities, the additional functionality and performance requirements that must be evaluated are the integration of individual requirements for gas and for electric into the same handheld device for combination utilities.

3. Environmental factors.

- Cold – Performance evaluation will be required to test capabilities of reading meters covered with snow and ice, performance of the handheld computer in very cold environments.

- Heat – such as the desert southwest. Again, effects of heat on performance and long term reliability must be evaluated.
- Moisture/humidity – such as the southeast. The effects of rain and high humidity on the reading capability of the handheld computer must be evaluated as well as long term reliability of components in such environments.
- Salt – such as coastal areas. Again, the effects on performance on meters with radio modules exposed to salt and salt water corrosion as well as long term reliability must be evaluated.

4. Regulatory factors.

Various public utility commissions throughout the United States place requirements on utilities for:

- Performance
- Cost effectiveness
- Levels of acceptable estimated readings
- Number of times per year that meters must be read
- Accuracy of readings
- Customer satisfaction

The DataCap PN units will contribute to solving these issues for utilities. As the requirements will vary by PUC, so will the testing criteria at different utilities.

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Determining the degree to which utilities in various situations, as described above, find Itron's OMR technology useful in solving these problems, and are willing to purchase accordingly, will aid Itron in tailoring the system before final product design and commercial rollout. Because of the limited number of units involved, and because they will not be marketed to end-user consumers, Itron submits that the benefits of the requested market authorization is in the public interest.