

FCC Form 442: Exhibit 1- Advanced Technology (UK) Plc

This Exhibit 1 defines the objectives of the proposed programme, describes the Advanced Technology (ATL) products involved and identifies the utilization of the art and science of radio communications in the Automatic Meter Reading (AMR) industry.

Experimental Programme

The purpose of this programme is to perform commercial and technical trials of Advanced Technology's AMR products in an energy utility environment using a range of Private Land Mobile Radio frequencies between 150-174 MHz and 216-222 MHz that are allocated to the Industrial/Business services pursuant to Section 90.35 of the Commission's Rules. This will require close co-operation with the utilities' engineering, commercial, technical and operational staff in order for them to evaluate the benefits of installing ATL's AMR system. Consequently, ATL seeks blanket authority to operate on the proposed range of frequencies on a nationwide basis. Prior to each commercial and technical trial, ATL will consult with an FCC certified frequency coordinator to identify a particular frequency from among those authorized that is available in a particular area. ATL will then conduct its trial on the frequency recommended by the frequency coordinator. In this way, ATL believes that the proposed operations will not interfere with operations by existing facilities.

Advanced Technology AMR Products

ATL's AMR system provides a remote energy meter reading capability over a RF LAN and a choice of WAN's. The system comprises a number of discrete products each having a bi-directional RF interface. The RF transmission uses sophisticated modulation and data validation/recovery techniques to provide optimum transmission range at low power without errors. The choice of the RF frequency band is at the choice of the customer in accordance with the local communications regulations.

- 1) Basic AMR Unit – This RF unit is directly mounted within an energy meter (water, gas or electric) or in an adjacent above or below ground location. The data recorded by the meter is read by the EWE and transmitted over a low power RF (from 100mW up to 500mW) LAN to a concentrator. Bi-directional RF messaging to maximise operational control is provided.
- 2) Concentrator – This RF unit receives the RF transmissions from clusters of AMR units over the RF LAN and transmits the content over a WAN to a central computer. The Concentrator can interface to a wide number of WAN's, e.g. PSTN (telephone switched networks), Mobile RF Data networks or X25 packet switched networks. The Concentrator also broadcasts control messages (in a bi-directional mode) received from the central computer to the units. The concentrator product is produced in two forms: Single Channel Concentrator (SCC) for low density populations of meters (and hence basic AMR units) such as rural to suburban areas or small to medium sized

industrial complexes; and a Multi Channel Concentrator form where high density populations are experienced, i.e. urban areas or large, complex industrial sites.

- 3) ATL Gateway – This is a PC based SW package which provides a bi-directional operational control interface to the AMR units and the Concentrator. The Gateway includes a Configuration Database to reflect the physical AMR network and its connectivity. The Gateway also stores received metering data and if required a SW package providing a higher level of data analysis can be co-resident on the PC. Alternatively the Gateway can transmit the metering data via a FTP interface to utility computers for post-processing, e.g. generation of billing data, preparation of billing invoices, consumption and trend analysis, etc.

Programme Objectives

The primary objectives of the programme are as follows:

- Demonstration of ATL's AMR capability at utility industry trade shows, exhibitions and seminars.
- Demonstration of ATL's AMR capability on energy utilities premises.
- Demonstration of ATL's AMR capability to energy utilities' major industrial and commercial customers.
- Demonstrate the benefits and features of ATL's AMR system to energy utilities management and technical staff and their major industrial and commercial customers.
- In conjunction with energy utilities (water, gas and electricity), install and integrate limited numbers (up to 100 units in any one location) of ATL's AMR equipment in operational networks.
- Perform "live" trials of ATL's AMR system in operational energy networks (water, gas and electricity).
- With the co-operation of utility technical, commercial, engineering and operational staff to monitor the operation of AMR equipment during the trial.
- During said trials, to demonstrate the benefits, features and cost effectiveness of installing an ATL, RF based, AMR system.

Application of RF

ATL AMR system utilizes that part of the spectrum generally reserved for low power (up to 500mW), non-broadcast environments. The RF products provide 500mW power across a frequency range of 124MHz – 315MHz. Selected frequencies from this range are operational in ATL's installed base throughout the world. The band width centered around any one frequency is 12.5 kHz with no reduction in the transmitted RF power of 500mW. The base product is an RF transceiver that can be used in a variety of telemetry situations where low cost data capture is the prime requirement, e.g. monitoring remote energy transfer pipelines, pumping stations, traffic movements, large industrial complexes, etc. This particular application of the base RF transceiver is in the energy metering industry and is applicable to both domestic and industrial/commercial

environments. By utilization of RF communications principles, major benefits and cost savings are gained in the collection of metering data through to the presentation of billing information to the end user and utility load management, forecasting and provision of value added services.