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6436 County Rd. 11
Pequot Lakes, MN 56472
218.562.4877 800.828.4055
Fax 218.562.4878
www.hunttechnologies.com

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Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

RE: FCC ID: submittal as limited modular device
AirPoint Focus (AirPoint transmitter board)

1. The modular transmitter must have its own RF shielding. This is intended to ensure that the module does not have to rely upon the shielding provided by the device into which it is installed in order for all modular transmitter emissions to comply with Part 15 limits. It is also intended to prevent coupling between the RF circuitry of the module and any wires or circuits in the device into which the module is installed. Such coupling may result in non-compliant operation.

The AirPoint transmitter board is mounted on the Focus Board which is only integrated into a Landis + Gyr Focus Meter. The AirPoint board was tested standalone because there are different meter forms for the Focus meter. Since the AirPoint board does not have its own shielding on all sides, it could not be tested in an entirely standalone configuration, therefore requiring a limited modular approval application. Since there is ground plane on the back of the AirPoint board behind the RF section, that part of it is considered shielded. The front side, however, is not shielded. Since the Focus meter is the only thing past the plane of the front side of the AirPoint board, it was determined by Joe Dichoso of the FCC and Matt Karlgaard of Hunt Technologies, that it should be tested in a "standalone" configuration with the Focus board attached. [*FCC Communication attached.*] Since the Focus board is the same for all meter forms, it would cover everything needed for the approval. In order to allow the AirPoint board to stand up correctly, it was tested with the front part of the Focus meter housing and the Focus board attached. This provided the correct operating voltages (rather than using external dc power supplies), etc. The use of the Focus meter base did not provide any external shielding or filtering for the AirPoint board, so in effect it is a stand alone configuration. The housing used during testing is all plastic and will be present in every configuration.

The Landis + Gyr housing part number is 70807.

The Landis + Gyr Focus Board part number is 71216.

The Landis + Gyr meter bases in which the AirPoint board may be installed are:

1S CL100, 120V	2K CL480, 240V	4S CL20, 240V
2S CL200, 240V	3S CL20, 120V	12S CL 200, 120V
2SE CL320, 240V	3S CL20, 240V	25S CL 200, 120V

2. The modular transmitter must have buffered modulation/data inputs (if such inputs are provided) to ensure that the module will comply with Part 15 requirements under conditions of excessive data rates or over-modulation.

The AirPoint microprocessor communicates with the Focus meter to read the applicable data that it must transmit. It then provides modulation to the RF section. Therefore, the data rate of the communications between the AirPoint board and the Focus meter has no bearing on the data rate of the transmitted signal. In other words, there is no way for the Focus meter to make the AirPoint board transmit excessive data rates or over-modulate.

3. The modular transmitter must have its own power supply regulation. This is intended to ensure that the module will comply with Part 15 requirements regardless of the design of the power supplying circuitry in the device into which the module is installed.

The AirPoint board takes +9 to +16 V DC from the Focus board and regulates it down +3.6Vdc. The regulated +3.6Vdc supply is used in the RF circuit.

The Focus meter is powered by 220-240VAC since it is an electric meter for a residence and the feeds to most residences are 240VAC. However, the Focus meters that will be used with the AirPoint board will be powered with anywhere from 120VAC to 208V 3 phase. This falls under the FCC guideline for measuring a device which draws its power from a device which connects to the AC mains, it must be demonstrated that it does not cause the device which connects to the AC mains to become non-compliant. If it can be demonstrated that it will be compliant in a representative host, it does not have to demonstrate compliance in every possible host. Thus, the testing proves the AirPoint board, when connected to a compliant host connected to the AC mains, allows the host to remain compliant. The host that was provided for the testing operated at 60 Hz 220 VAC.

4. The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204(c). The antenna must either be permanently attached or employ a "unique" antenna coupler (at all connections between the module and the antenna, including the cable). Any antenna used with the module must be approved with the module, either at the time of initial authorization or through a Class II permissive change. The "professional installation" provision of Section 15.203 may not be applied to modules.

The antenna is integral to the printed circuit board.

5. The modular transmitter must be tested in a stand-alone configuration, i.e., the module must not be inside another device during testing. This is intended to demonstrate that the module is capable of complying with Part 15 emission limits regardless of the device into which it is eventually installed. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in Section 15.207. AC or DC power lines and data input/output lines connected to the module must not contain ferrites, unless they will be marketed with the module (see Section 15.27(a)). The length of these lines shall be length typical of actual use or, if that length is unknown, at least 10 centimeters to insure that there is no coupling between the case of the module and supporting equipment. Any accessories, peripherals, or support equipment connected to the module during testing shall be unmodified or commercially available (see Section 15.31(i)).

The transmitter was tested in a stand-alone configuration per number 1 above.

6. The modular transmitter must be labeled with its own FCC ID number, and, if the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: XYZMODEL1" or "Contains FCC ID: XYZMODEL1." Any similar wording that expresses the

same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization.

The FCC ID is contained on a label on the AirPoint board itself as well as on a label on the outside of the meter saying "Contains FCC ID: TEB-AIRPT677 / IC: 5931A-AIRPT677"

7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter and the manufacturer must provide adequate instructions along with the module to explain any such requirements. A copy of these instructions must be included in the application for equipment authorization. For example, there are very strict operational and timing requirements that must be met before a transmitter is authorized for operation under Section 15.231. For instance, data transmission is prohibited, except for operation under Section 15.231(e), in which case there are separate field strength level and timing requirements. Compliance with these requirements must be assured.

There are no special setup or operating conditions the installer or end user needs to be made aware of in order to make sure the transmitter operation complies with FCC Part 15 Subpart C Section 15.249.

8. The modular transmitter must comply with any applicable RF exposure requirements. For example, FCC Rules in Sections 2.1091, 2.1093 and specific Sections of Part 15, including 15.319(i), 15.407(f), 15.253(f) and 15.255(g), require that Unlicensed PCS, UNII and millimeter wave devices perform routine environmental evaluation for RF Exposure to demonstrate compliance. In addition, spread spectrum transmitters operating under Section 15.247 are required to address RF Exposure compliance in accordance with Section 15.247(b)(4). Modular transmitters approved under other Sections of Part 15, when necessary, may also need to address certain RF Exposure concerns, typically by providing specific installation and operating instructions for users, installers and other interested parties to ensure compliance.

The FASY-0677-0001 AirPoint Focus complies with the RF exposure limits for humans as called out in FCC 2.1091 (mobile >20 cm) or 2.1093 (portable <20 cm) and RSS-210 (14). The transmitter is used to send data to meter readers. It is exempt from RF Evaluation based on its operating frequency of 902-928 MHz, and transmitted power of 0.162 watts based on: $P_{trans} = (4\pi)^2 * Distance^2 / 377 * (E_{field}/(1*10^6))^2 = (4\pi)^2 * (737100/(1*10^6))^2 / 377 = 0.16299 \text{ W}$. This would be less than the 1.5 watts requirement for a mobile device and the 0.200 watts requirement for a portable device operating at 902-928 MHz.

Sincerely,



Dave Olson
VP of Engineering
Tele: (218) 562-5547
Fax: (218) 562-4878
dave.olson@huntdtechnologies.com