Subject: Response to Inquiry to FCC (Tracking Number 514864)

Office of Engineering and Technology

Inquiry on 04/16/2015 :

Inquiry:

My company (Flat Earth, Inc.) has developed a new UWB radar sensor for deployment as a static sensor in scientific research and municipal water management for the estimation of snow water equivalent (SWE) in watershed snow pack.

Additionally, this sensor is intended as a mobile snow depth measurement tool deployed on snow cat tractors at ski areas to provide valuable data about snow pack. This will help area managers make informed decisions about allocation of resources for the optimization of snow making and snow grooming at resorts thus reducing water and fuel usage (i.e. costs).

Basic operation of this sensor involves pointing the system at the ground/snowpack and recording the return pulse for interpretation. The SWE version is mounted on a pole above the snow in remote mountain locations while the mobile version is mounted to the chassis underneath a snow cat, very close to the surface of the snow (see SDS install guide). This low power system uses the Novelda UWB chip technology (trade name: Xethru) and operates between 0.9 and 3 gHz (-10db bandwidth) for optimum snow penetration.

We are currently seeking FCC certification for this system and would like to have a review of the feasibility of approval prior to sending the system to a testing facility. I will attach a datasheet and SDS install guide for your review. Please feel free to ask for any additional information required to make your assessment. Thank you for your help.

Mike Zambon

---Reply from Customer on 04/28/2015---

Can you please provide the status of my inquiry (514864) or the anticipated response time.

Thank you for your help.

Michael Zambon

FCC response on 05/01/2015

Based on the description and information provided, it appears that the subject UWB device would qualify for certification under 15.509 as a "specialized" ground penetrating radar.

---Reply from Customer on 08/05/2015---

One of the intended uses for our sensor is to mount underneath a snow cat (cm above the snow surface) at commercial ski areas to determine snow depth on the fly. This has the potential to greatly reduce costs and fuel usage for snow management activities at the ski areas. Therefore, I would like to submit the following statement for your approval of use at commercial ski resorts.

"This Ground Penetrating Radar Device shall beoperated only by commercial ski resorts, law enforcement agencies,scientific research institutes, commercial mining companies, constructioncompanies, and emergency rescue or firefighting organizations"

---Reply from Customer on 08/06/2015---

Our GPR sensor is designed to be mounted within 1 meter of the top of the snow pack (generally within 1/2 meter). It is my understanding that "ground" can be interpreted as the top of any lossy dielectric such as the top of the snow pack. Therefore, I would like to submit the following language for approval.

"This Ground Penetrating Radar Device shall beoperated only when in contact with or within 1 m of the ground, oranticipated snow pack."

In addition, our sensor is meant to be deployed by scientific research institutes but also by government agencies and municipalities as well, in order to determine water quantity in snow pack. These entities are not specifically identified in the list of approved users of GPR. Can these latter entities also be approved for use of this GPR device due to the immeasurable benefit to these groups from determination of water resources as a planing tool for communities?

FCC response on 08/10/2015

We are amenable to consideration of the top of the snowpack as the reference ground level when applying the 1-meter GPR height restriction specified by 15.503(f). In addition the Commission has taken a pretty liberal view in the past on what constitutes "scientific research" and based on the description provided, it appears that the proposed application would fit within that construct.

Attachment Details:

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