Trimble Navigation Limited
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Technical Justification of Bandwidth Use

14 September 2015

To: Whom It May Concern

Re: Application for FCC ID: KEAADL352, IC: 2368B-ADL352
Model: ADL35-2

Dear Sir or Madam:

Pursuant to § 90.203(j)(8), in Trimble's customer's precision differential GPS systems, a slower data rate (4800 bps and 8000 bps) will provide more spectral efficiency than the standard data rate (9600 bps) over a 12.5 kHz channel bandwidth.

While not technically a paging operation as exempted in § 90.203(j)(7), ours is a one-way broadcast operation. We broadcast time-sensitive data packets from one transmitter to many receivers—which are receive-only radios (like pagers). The receivers do not acknowledge receipt of the data. The application relies on relatively high (>90%) packet reception. Any change that lowers link margin (such as increasing the data rate in a channel or decreasing the channel bandwidth) will result in lower packet reception for some receivers.

When a receiver fails to achieve the necessary packet reception, operators are forced to install another transmitter, usually on a different frequency. Hence, losing link margin to even one receiver would essentially halve our system's spectral efficiency—because of a second transmitter. Installing more transmitters will reduce our system's spectral efficiency even more. Meeting the Commission's goal of spectral efficiency for one transmitter, as stated in § 90.203(j)(3) and § 90.203(j)(5), is counter to the overall spectral efficiency of our systems.

Please contact me should there be need for any additional clarification or information.

Best Regards,

Gerardo Torres
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