BridgeWave

80GHz (E-Band) Link Registration: A Lightweight Approach to Spectrum Licensing

White Paper

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INTRODUCTION

80GHz (E-Band) refers to 10 GHz of licensed-band spectrum allocated by the US FCC, split between 71-76GHz and 81-86GHz. This spectrum allocation provides a unique set of benefits for users including:

- No channelization rules, making high data rates much easier to achieve than at lower frequencies
- Very narrow antenna beamwidths (less than 1.2 degrees), creating "spatial pipes" between the radios that protect links from interference and enable large-scale frequency re-use
- A lightweight licensing process that can typically be completed within minutes of knowing where the radios are to be located

TYPICAL 80GHz LINK REGISTRATION PROCESS

80GHz link registration is normally completed using an automated on-line registration database system. The system checks for possible interference between a proposed 80GHz installation and all existing registered 80GHz links based on the GPS coordinates of each radio location and the operating parameters of the particular radios being used. This system provides a real-time response that in the vast majority of cases is positive. The following factors may prevent receiving an immediate positive result from the automated system and may require a more extensive, manually-handled process:

- The automated process determines that the link (based on GPS coordinates) may cause harmful interference to an already-registered link, or may be subject to harmful interference from an already-registered link.
- The link is located near one of the radio astronomy sites shown on the attached map

- The link is within 35 miles of the US/Canada or US/Mexico border
- The link is near a Federal Government facility that is using 80GHz frequencies on a confidential basis
- The link is in an environmentally sensitive area or at a historic building site
- The link is located next to an airport runway

Most link registrations that cannot be registered through the automated system, can still be registered through a manual process using FCC Form 601, however this will require additional time and costs. Links located near radio astronomy sites typically require 4-6 weeks to coordinate with the site, and links near the borders typically require 9-12 weeks for international coordination.

BRIDGEWAVE REGISTRATION OPTIONS

There are two processes that can be used to register BridgeWave 80GHz links. If you expect to register several 80GHz links, you may consider obtaining an 80GHz nationwide FCC license. The license can be obtained by filing FCC Form 601 (currently requires a $830 FCC fee) and takes about one week for approval. You can file the form yourself or contract with Comsearch (or other radio frequency service company) to file it on your behalf.Once you have a nationwide license, you can directly register links through the on-line database working through one of the designated database managers (such as Comsearch). The charges for using the self-service automated system vary, but are currently no more than of a few hundred dollars per link. If the automated system is unable to complete registration of the link, then these firms can also assist you in pursuing the link registration manually using FCC Form 601. Upon receiving approval for the link, you have 12 months to complete construction of the link, and your license is good for 10 years, at which time you can apply to renew it.

The alternative process is to use BridgeWave's link registration service. This option is the simplest and most economical for users who do not anticipate coordinating a large number of links. BridgeWave will register the link in BridgeWave's name for your use, for a fee comparable to the full service rates charged by the database managers. In this case, it is not necessary for you to obtain your own nationwide license. In the exceptional cases when BridgeWave is not able to register the link through the automated system, BridgeWave will assist you in taking the additional required steps, working together with Comsearch, to complete the registration through the manual process.

For more details on the registration process, see the included Registration Guide fromComsearch.

BridgeWave

BridgeWave Communications, Inc.
3350 Thomas Road, Santa Clara, CA 95054
Ph: 866-577-6908 | Fax: 408 567-0775

www.bridgewave.com