

## **I. INTRODUCTION AND SUMMARY**

Bosch Telecom, Inc., is an innovative manufacturer of electronic devices sold in the United States and abroad to support multichannel video and data distribution networks. Most recently, it has been involved in the development of transmitters and associated equipment to be used in the Local Multipoint Distribution Service ("LMDS").

The FCC has now completed the initial stages in its rulemaking to allocate spectrum for LMDS and has proposed to allocate additional spectrum for this purpose. Specifically, on July 22, 1996, the FCC released its First Report and Order and Fourth Notice of Proposed Rulemaking in CC Docket No. 92-297. In that decision the agency allocated the 27.5-28.35 GHz and 29.1-29.25 GHz bands for LMDS and also proposed to allocate the 31.0-31.3 GHz band.

Bosch Telecom proposes to begin marketing its LMDS device upon grant of Type Acceptance under Part 2 of the Commission's rules. 47 C.F.R. § 2.983 (1996). In order to test the functionality of its equipment during design and development, however, Bosch Telecom's predecessor in interest on this project -- Texas Instruments Incorporated -- sought and received experimental authority to deploy and operate prototypes under call sign KQ2XBP. See File No. 4522-EX-R-97. That license was subsequently transferred to Bosch Telecom with FCC approval and allows Bosch to conduct experimentation in the 27.5 -28.35 GHz bands and to operate a control tone at 28.49 GHz. See File No. 5745-EX-AL-97.

By this application, Bosch Telecom seeks to modify its experimental license -- subject to the non-interference and other conditions described below -- to include additional channels and to operate, test and demonstrate its equipment to service providers and end users. Specifically, Bosch Telecom seeks to modify its license to include the 27.35-27.5 GHz, 29.1-29.25 GHz and 31.0-31.3 GHz bands and an additional control tone at 27.36 GHz. These additional channels will permit Bosch Telecom to test and demonstrate equipment that will be developed for use in the new band proposed by FCC for LMDS in the U.S. and to test and demonstrate equipment that will be developed for overseas markets. Attached for the staff's convenience is a draft authorization prepared for this purpose.

Bosch Telecom believes the public interest, necessity and convenience will be served by the grant of the subject application, as it would enhance the company's ability to obtain information needed to ensure its products accommodate and promote new technologies and services.

## **II. RESPONSES TO INDIVIDUAL QUESTIONS ON FCC FORM 442**

### **Item 4(A): Frequency**

Bosch Telecom's devices are or will be designed to operate using the frequencies 27.35-27.5 GHz, 28.49 GHz, 29.1-29.25 GHz and 31.0-31.3 GHz bands. Equipment designed to operate in the 27.35-27.5 GHz band and on 28.49 GHz will not be marketed for use in the U.S., however.

Bosch Telecom previously received authorization to operate in the 27.5-28.35 GHz band and on a control tone operating on 28.49 GHz. A copy of its current license is attached for the staff's convenience.

By this application Bosch Telecom seeks modification of its license to operate in the additional bands 27.35-27.5 GHz, 29.1-29.25 GHz and 31.0-31.3 GHz. It also seeks authority to operate another pilot tone on channel 27.36 GHz  $\pm$  100 kHz. Bosch Telecom proposes to use this pilot tone in conjunction with the test of equipment being developed for use abroad in the band 27.35 - 27.5 GHz. No equipment operating with either the 27.36 GHz or 28.49 GHz pilot tone will be sold for use in the U.S. The pilot tone on 27.36 GHz would be employed in a manner similar to its current use of the pilot tone on 28.49 GHz. The maximum power would not exceed 50 watts ERP, which compares to the primary transmitter radiated power of 2kW.

### **Item 4(B): Transmitter Power**

The prototype devices will eventually be "type-accepted" pursuant to Section 2.983 of the FCC's rules and are designed to operate at a maximum of 120 watts transmitter power output ("TPO"). The pilot tone operates at a maximum of 2 watts TPO.

### **Item 4(C): Maximum Effective Radiated Power**

The prototype devices will eventually be "type-accepted" pursuant to Section 2.983 of the FCC's rules and are designed to operate at a maximum of 2kW effective radiated power ("ERP")  
The pilot tone operates at a ~~minimum~~ <sup>maximum?</sup> of 50 watts ERP.

### **Item 4(D): "Mean" or "Peak"**

The values shown above in Items 4(B) and 4(C) above are "Mean."

**Item 4(E): Emission**

The primary emission designator for the proposed operations is 320MG9W at a maximum of 416 Mbps, but Bosch Telecom also seeks to employ various other modes of modulation, bandwidth and data rates. Nevertheless, none of these modes of operation would extend beyond the specific frequencies set forth under Item 4(A) above. The pilot tone would be an unmodulated carrier (N0N).

**Item 4(F): Modulating Signal**

See item 4(E) above.

**Item 4(G): Necessary Bandwidth**

The maximum necessary bandwidth is 320 MHz.

**Item 5(b): Location of Proposed Operation**

Bosch Telecom proposes to conduct its experimental operations at a limited number of locations within the United States. As it is not able to determine at this time exactly where these tests will eventually be conducted (except as described below), it seeks nationwide authority to conduct its experimentation and demonstration.

Specifically, Bosch Telecom proposes to test, demonstrate, and operate products (1) at its own premises; (2) at the premises of entities working under Bosch Telecom's authorization in the design and development of the devices and related products; (3) at trade shows or non-residential exhibitions; (4) at non-residential business, commercial, industrial, scientific or medical locations during the design, development and pre-production stages; and (5) certain residential locations participating in the design, development or evaluation of LMDS services.

Of particular and initial importance to Bosch Telecom is its plan to demonstrate its equipment in the Dallas area beginning on or about January 15, 1998. Bosch Telecom proposes to launch for service providers a comprehensive demonstration of the capabilities of its equipment to support various multichannel video and data distribution applications.

Bosch Telecom submits that its proposed operations would be consistent with Section 2.803 of the Commission's new marketing rules and Section 5.202 of the Commission's experimental rules. See Revision of Part 2 of the Commission's Rules Relating to the Marketing and Authorization of Radio Frequency Devices, ET Docket No. 94-45, Report and Order, released Feb. 12, 1997, at ¶¶ 11-13, 19-20 ("Marketing Rule Revisions"); 47 C.F.R. § 5.202 (1996).

### **Items 6, 15: Antenna Information**

LMDS operations typically require the use of directional and omnidirectional antennas mounted on building or towers and receive antennas located at subscriber premises. Bosch Telecom will restrict operation under its experimental authorization to ensure compliance with FCC and Federal Aviation Administration ("FAA") requirements.

### **Item 10: Narrative Statement**

See preceding narrative statement and discussion under "Introduction and Summary."

### **Item 13: Equipment to Be Installed**

The section above entitled "Introduction and Background" describes the equipment to be installed under the authority requested in this application. Bosch Telecom proposes to operate a sufficient number of units as discussed below to complete performance, functionality and acceptance testing of its products.

### **Item 19: Owner and Operator of Equipment**

Bosch Telecom understands that the FCC permits (1) companies to enter into agreements and contracts to manufacture new products; (2) manufacturers to sell, but not deliver, products on a conditional basis to wholesalers and retailers; (3) entities to operate certain prototype devices for, among other things, compliance testing, demonstration at trade shows and other exhibitions with appropriate notices displayed; and (4) companies to evaluate product performance and customer acceptability at the manufacturer's facilities or at certain non-residential sites during the developmental, design and pre-production stages. See Marketing Rule Revisions, § 2.803; Part 15 Revisions, 6 FCC Rcd 1683, 1685 (1991).

Aside from these general rules, however, the FCC also allows parties to seek additional authorization to demonstrate equipment at residential locations or operate on channels that are normally subject to a licensing requirement. Such authority may be granted under the FCC's experimental rules set forth in Part 5 of the Code of Federal Regulations, 47 C.F.R. Part 5 (1996).

Accordingly, Bosch Telecom seeks an experimental license to demonstrate its equipment at residential locations as permitted under Section 5.202(d), (f) and (i) of the Commission's rules. 47 C.F.R. § 5.202(d), (f) and (i) (1996). This rule permits companies to conduct such studies, provided that: (1) participants are advised that permission to provide the service or operate the device is granted under experimental authority and is strictly temporary; and (2) the devices are owned by the licensee. Grant of such authority would allow Bosch Telecom to demonstrate products under experimentation in a real-world environment.

To obtain accurate data, Bosch Telecom must employ a sufficient number of units during its experimentation to simulate actual usage. It expects that it will be able to complete such studies with a maximum of 20 base units and 200 subscriber units per product generation. This number is intended to reflect the maximum number of unapproved units that will be in operation at any given time in the United States. In other words, before Bosch Telecom begins to experiment on a new product, it generally will have obtained approval or a license to operate certain existing products under experimentation or it will have recalled those products and ceased operation. As required, Bosch Telecom would seek separate and specific authority if more units are needed to conduct a particular study.

Bosch Telecom wishes to emphasize that it does not seek authority to market equipment or services and will not receive any revenue from users during this experimentation. It proposes only to demonstrate its equipment. Should a service provider seek to market its services, Bosch Telecom would anticipate that the service provider will obtain appropriate authority from the Commission.

Bosch Telecom recognizes that the operation of any device under experimentation must not cause harmful interference to authorized facilities. Should interference occur, Bosch Telecom will take reasonable steps to resolve the interference, including if necessary arranging for the discontinuance of operation. To that end, Bosch Telecom would advise entities receiving the equipment that permission to operate the equipment has been granted under experimental authority issued to Bosch Telecom, that such operation is strictly temporary, and that the equipment may not cause harmful interference. Accordingly, Bosch Telecom proposes to label the equipment or user information as follows:

**FCC STATEMENT**

Permission to operate this device has been granted under experimental authority issued by the Federal Communications Commission to Bosch Telecom, Inc., is strictly temporary and may be cancelled at any time.

This device has not been approved by the FCC and is not, and may not be, offered for sale or sold until the approval of the FCC has been obtained. Thus, the user does not hold a property right in the device and may be required to return the device.

Moreover, Bosch Telecom will coordinate its activities with any existing or future licensee in the proposed bands. Indeed, it Telecom anticipates that such entities are likely to be involved in the testing and demonstration.

**Item 20: Contacts for Inquiries**

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**III. CONCLUSION**

Bosch Telecom submits that grant of this application will serve the public interest, convenience and necessity, as it would allow Bosch Telecom to enhance its ability to develop innovative products to support the information needs of the public.