

Progress Report September 1995

**Texas Instruments Incorporated
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**Contact: Tom Kilgo 972-997-3097
Tom Jones 972-997-3322**

Dallas LMDS Experiment

A brassboard solid state system consisting of one node transceiver and a customer premises unit was in constant operation between two of the company's buildings in the I-75/I-635 area of North Dallas. Equipment was configured as it would be deployed with the CPE equipment located approximately 1 kilometer from the Node. System was used primarily to test simultaneous digital two way communications, demonstrate the capabilities of 28 GHz to interested parties, and provide data for engineering. Frequencies used were 27750-28500MHz and 29300-29500MHz. Maximum transmit power was 20mW/carrier.

Testing to Support International Technical Trials

Brassboard test equipment was constructed and tested in Dallas prior to shipment to a client's international facility where a technology trial was conducted between May and August demonstrating two way digital telephony, video conferencing at 164 kbits second rates, and transmission of MPEG and JPEG video. Outages caused by rain fade at 6.5 kilometers was major test data to be acquired during this test.

Equipment Tests

Various tests were conducted in Dallas using pre-production Node transceivers and CPEs mounted in trucks that could be moved from point to point around the area to evaluate multipath effects, propagation into various types of neighborhoods, and testing of various antenna patterns. Evaluated multipath effects, signal bouncing, non-line of sight transmission quality, and transmission quality in urban environments. Two TWT based node sectors (90 degrees each) were installed to test sector to sector interference, bit error rate performance and fade margin. Maximum transmit power was 1 W/carrier.