THEKDWGROUP

Suite 500
1200 19th Street, NW
Washington, DC 20036
tel (202) 955-9659
fax (202) 955-9792
thekdwgroup.com

March 19, 2003

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street SW
Room TWB-204
Washington, DC 20554

Re: Notice of Ex Parte Communication

In the Matter of Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands, WT Docket No. 02-146, and Loea Communications Corporation Petition for Rulemaking, RM-10288

Dear Ms. Dortch:

On Wednesday morning, March 19, 2003, Louis Slaughter, Jay Lawrence, Tom Wetmore, and I met on behalf of Loea Communications Corporation with the following staff members of the Wireless Telecommunications Bureau: D'Wana Terry, Ramona Nelson, Herb Zeiler, Scot Stone, Jennifer Burton, and Gerardo Mejia (all from the Public Safety and Private Wireless Division); Shellie Blakeney (from the Office of the Bureau Chief); Tom Stanley (from the Policy Division); and Michael Marcus (from the Office of Engineering and Technology).

The purpose of this meeting was to provide an overview of the upper milliwave technology, the field tests of the technology that have occurred to date, and the comments filed in the above cited rulemaking and petition and the outstanding issues. The attached presentation, given to the FCC staff at this meeting, was used to provide this overview. It is based on the comments and reply comments filed by Loea in the rulemaking.

During this meeting, the following issues were discussed:

1. Loea's proposed site-based licensing scheme, including its proposed nationwide blanket license and third-party coordinator;

2. Use of the FCC's Universal Licensing System;

3. Use of the bands on an unlicensed basis;

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4. Coordinating the sharing of the bands between commercial and Federal users;

5. Ensuring the coordination system's accuracy by having providers submit all necessary information; and

6. The potential for interference of the "pencil beams" in various deployments.

Pursuant to the requirements of Section 1.1206 of the Commission's rules, I am filing electronic copies of this notice for addition to this docket and petition.

Respectfully submitted,

Thomas Cohen

Enclosure

CC: D'Wana Terry (WTB – Public Safety and Private Wireless Division)
Ramona Melson (WTB – Public Safety and Private Wireless Division)
Herb Zeiler (WTB – Public Safety and Private Wireless Division)
Scot Stone (WTB – Public Safety and Private Wireless Division)
Jennifer Burton (WTB – Public Safety and Private Wireless Division)
Gerardo Mejia (WTB – Public Safety and Private Wireless Division)
Shellie Blakeney (WTB – Office of the Bureau Chief)
Tom Stanley (WTB – Policy Division)
Michael Marcus (OET)

FCC NPRM in WT Docket 02-146/RM-10288 Allocations and Service Rules for the 71-76, 81-86, and 92-95 GHz Bands

March 19, 2003 Presentation to the FCC

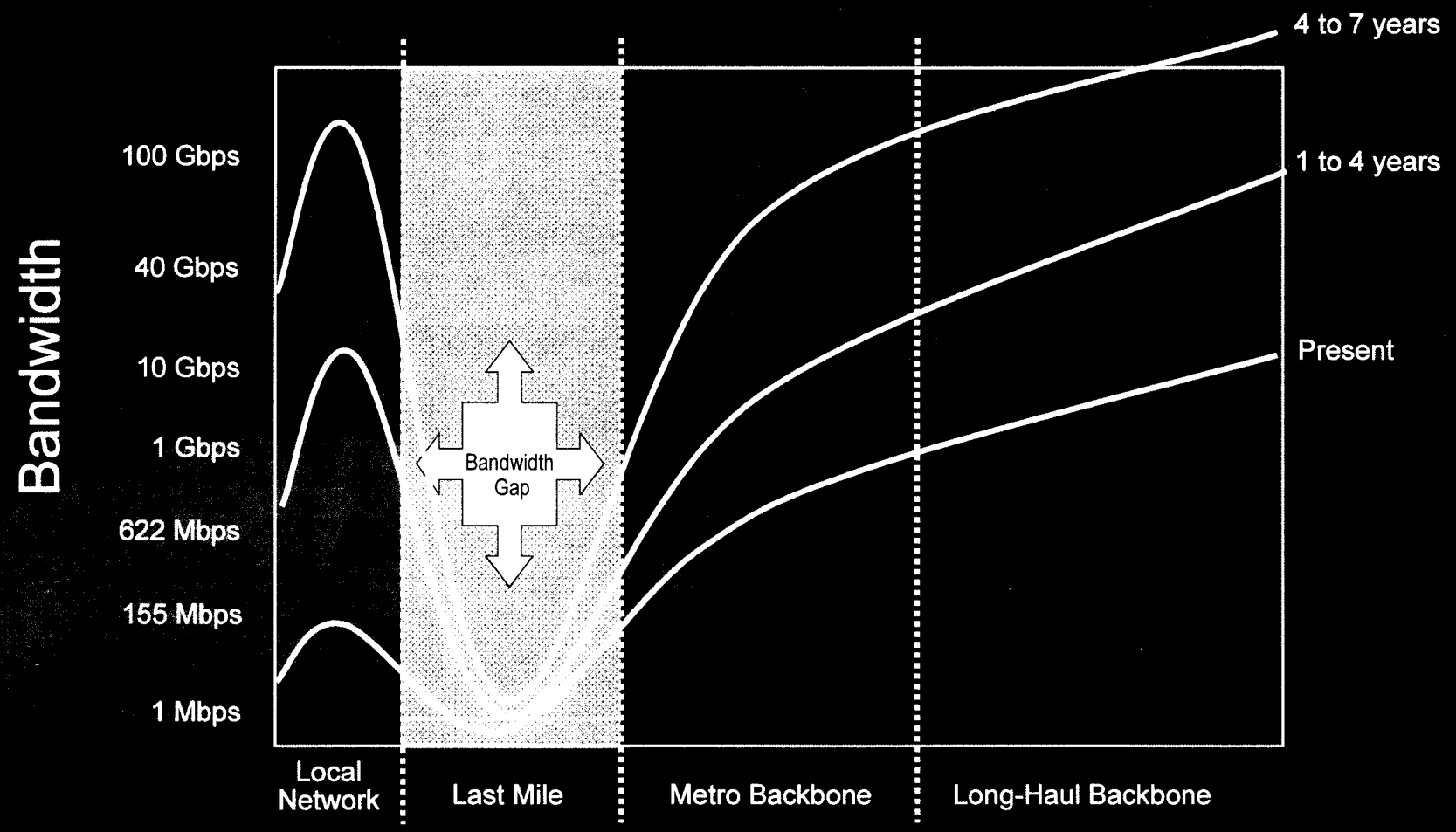
Louis Slaughter, CEO
Loea Communications Corporation

Local Contact: Thomas Cohen, Principal, The KDW Group LLC
(202) 887-1203; tcohen@thekdwgroup.com

Loea Communications Corporation

- Hawaii Based Corporation with Offices in California and Massachusetts
- Subsidiary of Trex Enterprises
- Developed Upper Milliwave technology for DOD

Last Mile Bandwidth Crunch

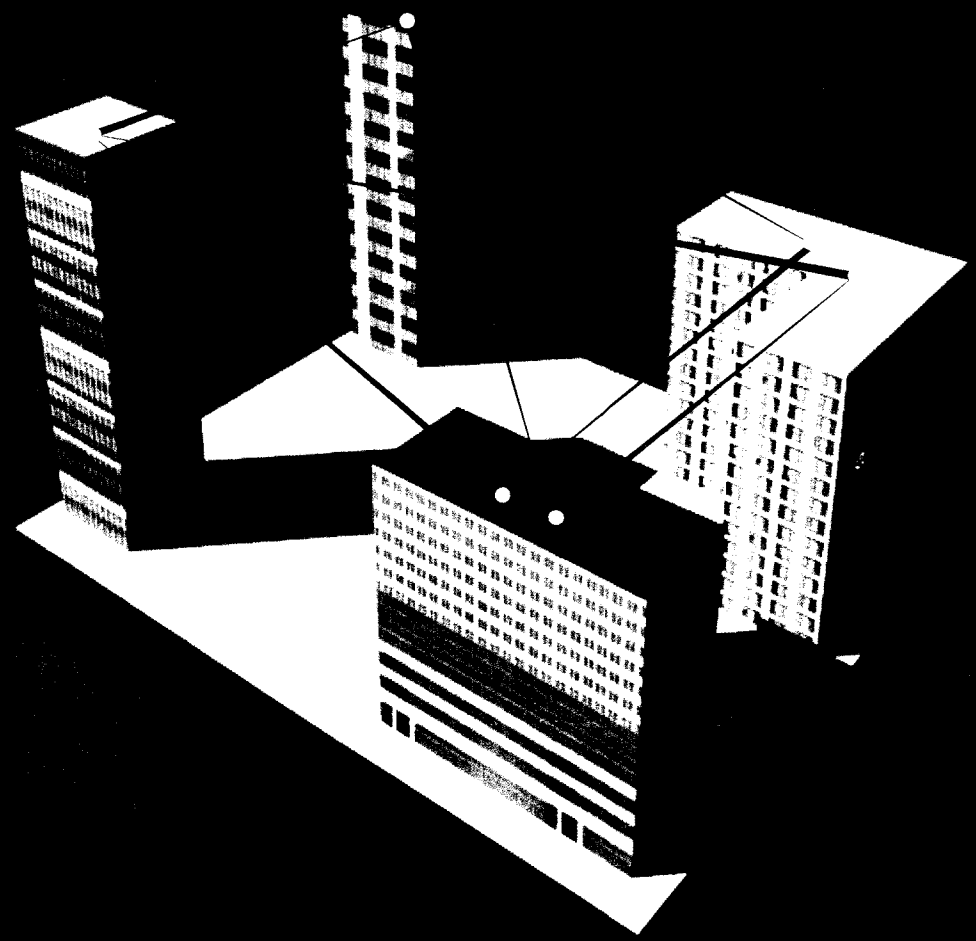


E|P V|C Enterprise Partners *Venture Capital*

February 2002

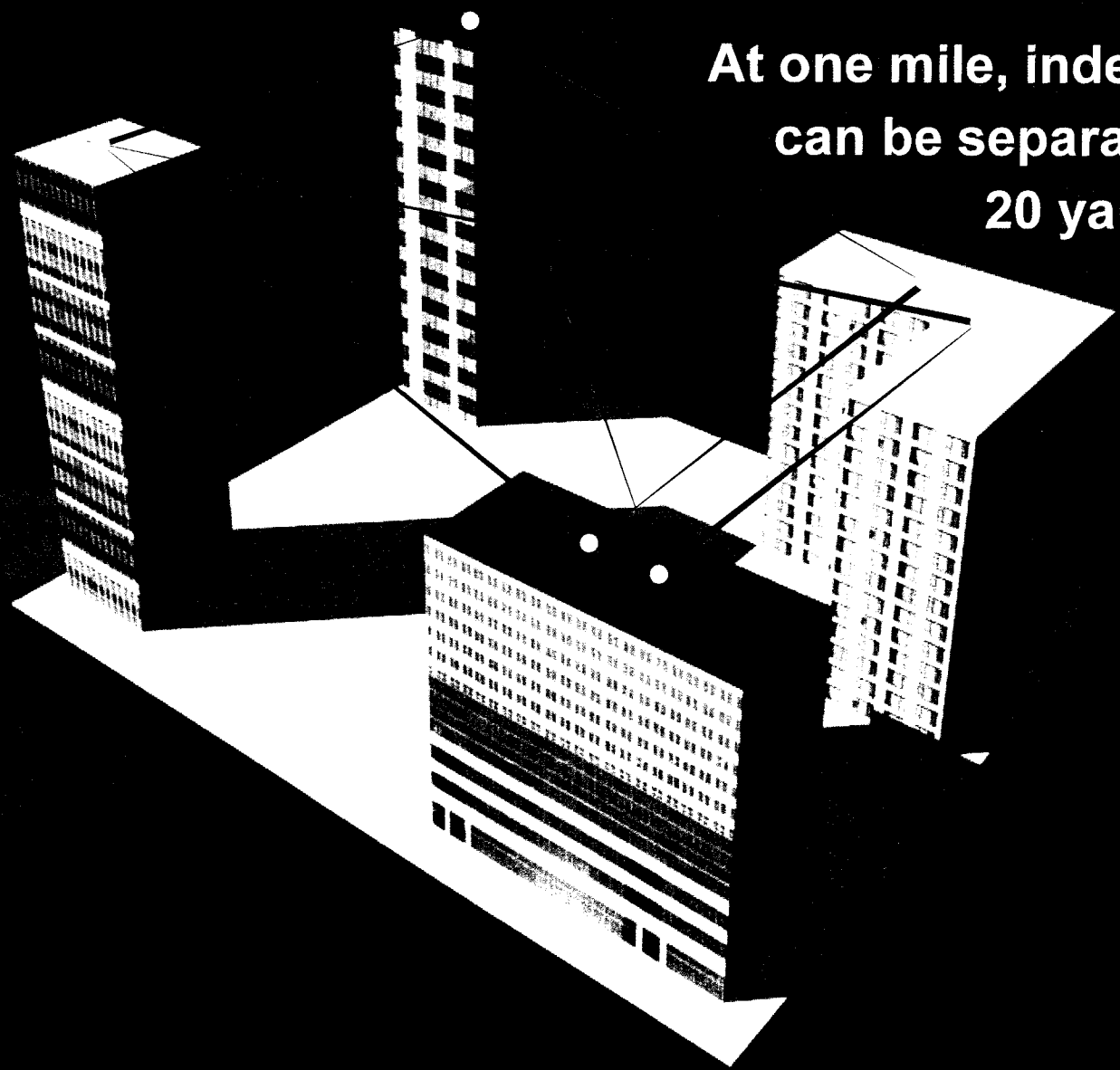
"750 K Business buildings domestically - 5% have fiber".....Cisco

What is 70+ GHz Wireless



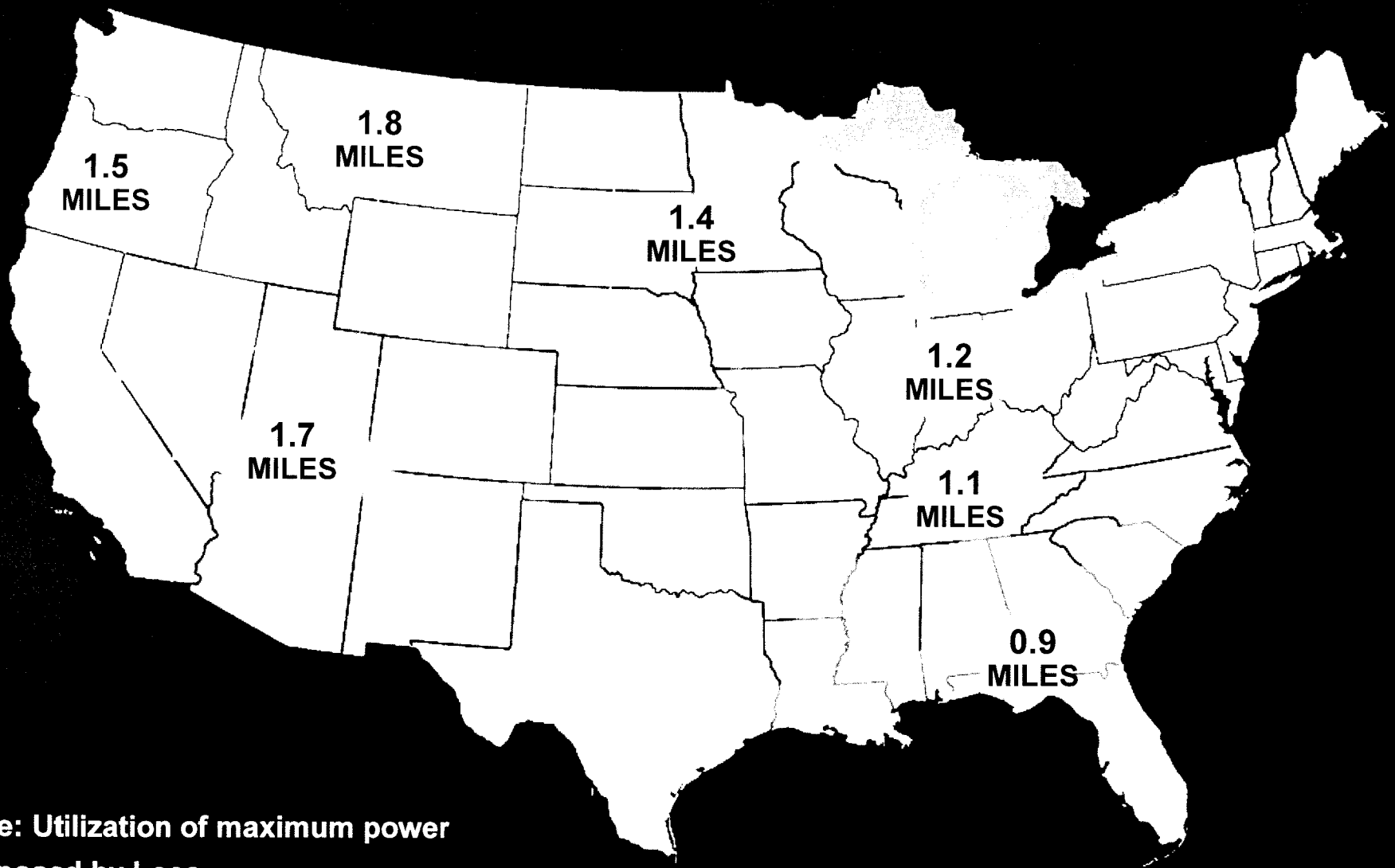
- Radio Frequency E-Band Millimeter Spectrum
- Low Power- Less than 1 Watt Transmit Power
- Pencil Beams 0.36 Degree Radius with 2 Ft. Antenna
- 10 GHz of Spectrum 71-76 & 81-86 GHz

99.999% Equipment Redundancy



At one mile, independent links can be separated by only 20 yards

Weather Availability of 99.999% (By Rainfall Region)



Note: Utilization of maximum power proposed by Loea

Why 70+ GHz Wireless?

- @ 1.25 Gbps (Gigabits per second) now, 2.5 Gbps (OC-48) and 10 Gbps (OC-192 / 10 Gig-E) in the near future
- First Mile Communications with 99.999% reliability of one mile throughout most of USA
-
- Temporary installations within minutes, permanent within hours
- As the beams are "pencil beams"
- Transmission distances at 10 miles possible
- Attenuated by rain but minimal affect by fog and haze

Applications

- Gig-E LAN Expansion
- Fiber Extension
- Access Diversity (Redundancy)
- Disaster Recovery/Prevention
- Wireless Backhaul
  - Cell Towers
  - Wi-Fi hot spots
- Storage Area Networking
- Entertainment Industry
- Air-to-Ground and Air-to-Air
- Desk-top Video Conferencing
- Virtual Presence
- Distance Learning
- Tele-medicine

The FCC's Process for Adopting Rules for the Upper Milliwave Bands

- July, 2000 – FCC Public Forum on Potential for 92-95 GHz Band
- July, 2001 – Loea Obtains First STA to Test Technology
- September, 2001 – Loea files Petition to Establish Service Rules for 71-76 GHz and 81-86 GHz Bands
- June, 2002 – FCC Issues NPRM for Allocations and Service Rules for 71-76 GHz, 81-86 GHz & 92-95 GHz Bands
- December, 2002 – Initial Comments in NPRM Filed
- February, 2003 – Reply Comments in NPRM Filed

Summary of Comments

"EXTREMELY HIGH DEGREE OF CONSENSUS" AND "UNITY OF PURPOSE" AMONG COMMENTERS

Technical Rules

- Use Part 101 Regulatory Framework
- General Support for FCC's Allocation Proposals
- No Channelization in the 71-76 GHz & 81-86 GHz Bands: No Unlicensed Use
- Establish Specifications for Total Radiated Power and Antenna Directionality, In Band PSD Limit, and Out-of-Band Emissions

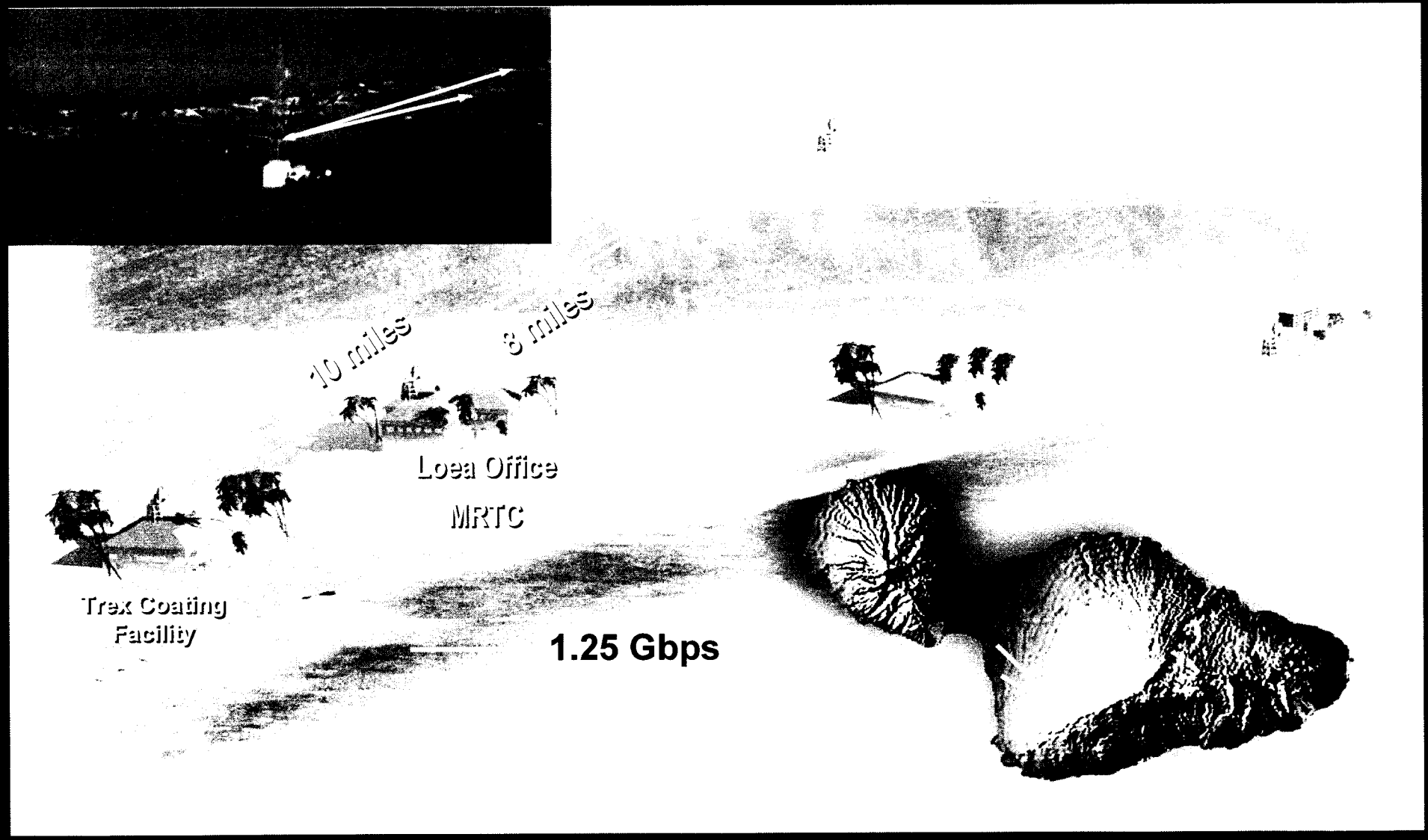
Operational Rules

- No Auctions/Band Managers
- Streamline Path-Based Licensing Process
- Improve Coordination Process with Federal Government
- 10 Year License Term/Shorter Construction Period

Tests and Deployments

- **STAs**
  - December, 2001 Maui Deployment – Initial Test from Mount Haleakula
  - University of Hawaii/Coconut Island – 1.25 Gbps Link (Demand Jumps)
  - Lower Manhattan – Gigabit Link in Urban Area for Redundancy and LAN Extensions; Installed in Offices with Transmission through Windows
  - 2003 ABC Super Bowl Telecast – Real Time Streaming HDTV
- **Federal Deployment**
  - United States Navy, Makaha Ridge on Kauai – 7.4 Mile Links
- **Conclusions**
  - The Technology Works
  - There is Significant Demand for High Speed Links
  - Users Demand QoS Equal to Wireline

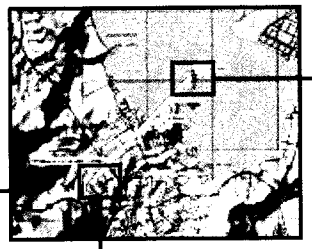
Maui Deployment (December 2001) Illustrates Viability of Technology and Benefit of Narrow Beams

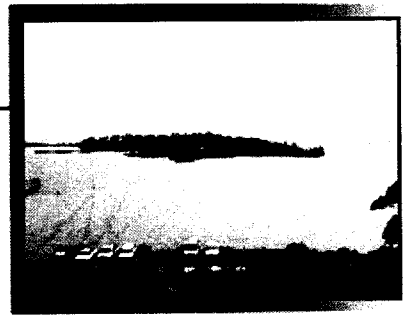


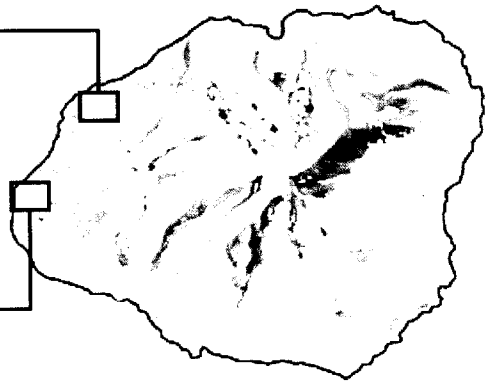
Other Hawaii Links Illustrate Benefits to Military, Schools

Coconut Island, Off Oahu

UH School of Oceanography:
Coconut Island to Oahu – 2.4 miles



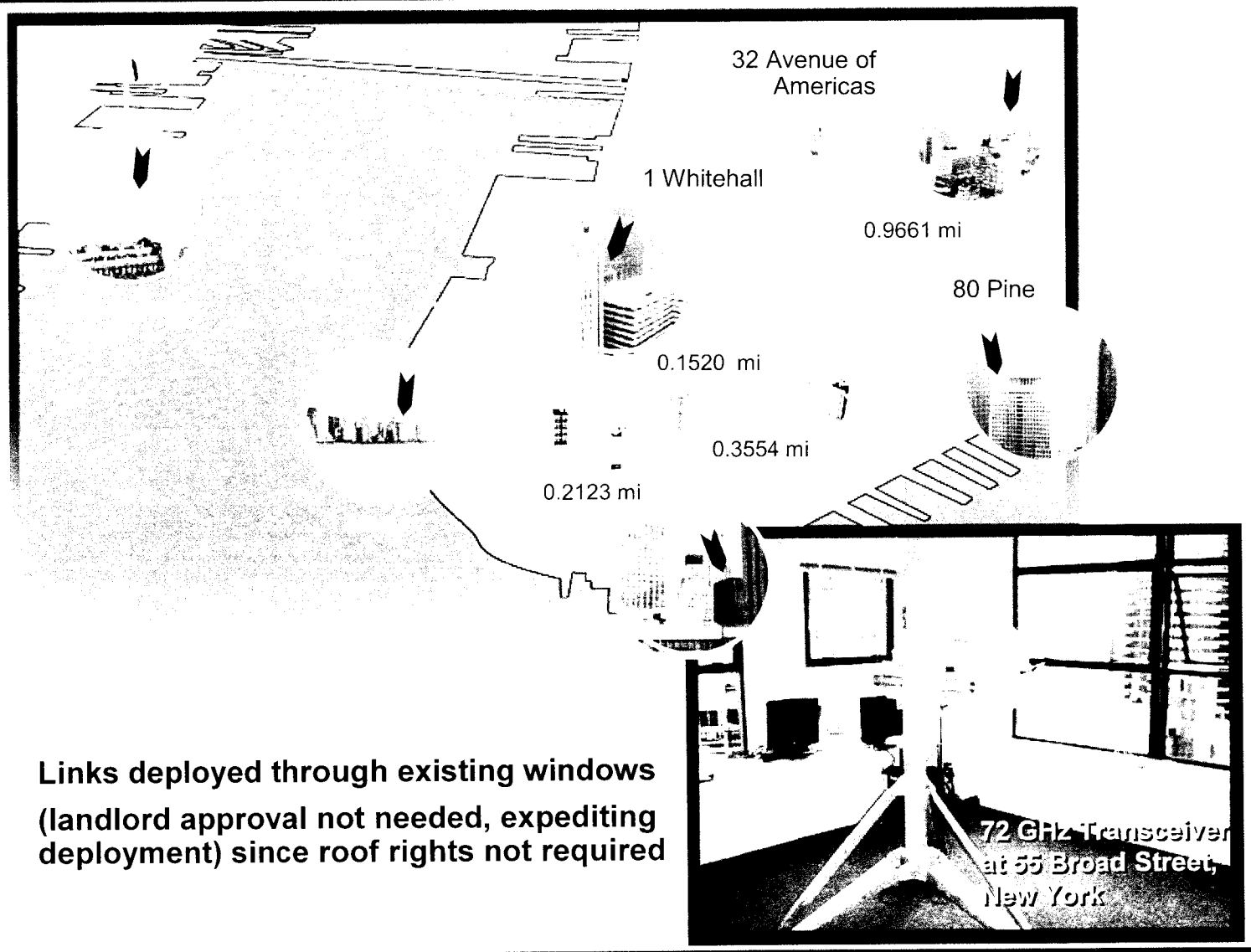




Makaha Ridge on Kauai

Navy Pacific Missile Range Facility to
Radar Site on Makaha Ridge – 7.4 miles

NYC Links Show Efficacy of Wireless Local Loop Redundancy



Links deployed through existing windows (landlord approval not needed, expediting deployment) since roof rights not required

Super Bowl XXXVII Proves Application for Streaming HDTV

Demonstrated wireless transmission of uncompressed HDTV at 1.485 Gbps in compliance with ANSI/SMPTE standard 292M-1998. Two links were deployed for redundancy.

Objectives of FCC Proceeding

- Rapid Deployment of Services/Facilities
- Enable Suppliers to Meet User Requirements
- Foster Innovation and Competition
- Accommodate Future Developments
- Efficient Use of Spectrum
- Advance Potential Sharing of Spectrum with the Federal Government
- Ease FCC Administration
- Ease Coordination with Federal Government

Technical Rules Industry Support

- Industry Process To Reach Consensus
  - Agreement by the Members of WCAI's Over 40 GHz Committee for Initial Comments
  - Further Convergence in Reply Comments with Agreement Among "Consensus Group": Bridgewave, Ceragon, Cisco, Endwave, Loea & Stratex
  - Continuing Discussions with Commercial Satellite Interests
  - Loea has Held Two Briefings Before IRAC and Frequent Discussions with Federal Government Users for Their Input

Technical Rules
FCC Allocation Proposals

- **71-76 GHz Band:**

  FSS Downlink; MSS Downlink; Move BSS Feeder Link; Allocation for BSS; Allocate 75.5-76 for Fixed, Mobile, and FSS Downlink; Allocation for SRS on a Secondary Basis; Eliminate RAS Allocation; Eliminate Amateur/AMSAT Allocation

- **Loea (WCAI) Position:**

  General Support, Except: No Need for a Footnote to Prevent Interference to Gov't FSS and Strongly Oppose Expansion of this Footnote to the Entire Band and Commercial FSS; Instead Employ PFD Limits and Restrict Angular Elevation of Fixed Terrestrial Service; Add Federal Gov't as Co-Primary in 75.5-76 GHz

- **81-86 GHz Band:**

  FSS Uplink; MSS Uplink; Allocation for FSS Uplink; Eliminate BSS Allocation; ADD BSS Feeder Link; Allocation for RAS

- **Loea (WCAI) Position:**

  General Support, Except Oppose a Secondary Allocation for Amateur/AMSAT

Technical Rules
Positions of Consensus Group

- **Positions of consensus group**
  - Use Part 101 Regulatory Framework
  - No Channelization of Bands
  - Pair the 71-76 GHz and 81-86 GHz Bands for Dual-Band FDD; Permit FDD or TDD in 92-95 GHz Band
  - Require ATPC
  - Revise Specifications for Total Radiated Power and Antenna Directionality
  - In Band Transmissions Subject to a Maximum Power Spectral Density Limit of 150mW/100MHz
  - Out of Band Emission Limits Subject to Rule 101.111(2)(ii)
  - Permit Only Digital Modulation to Protect RAS services
  - No Unlicensed Operations in 71-76 GHz and 81-86 GHz Bands

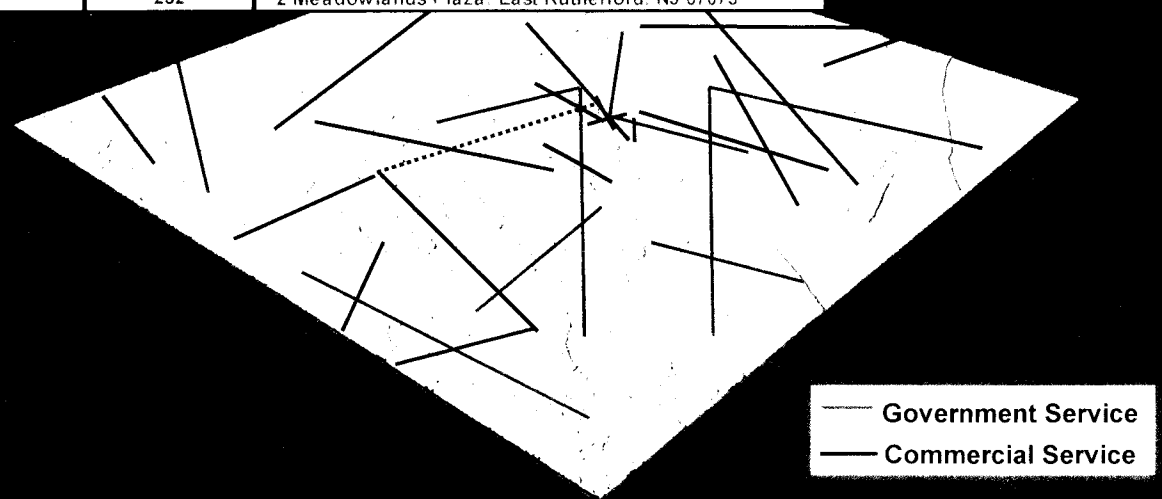
Operational Rules

- Consensus Proposals In Comments
  - Part 101 Site-Based Licensing of Paths with Expedited Processing (Nationwide Blanket License with 3rd Party Coordination)
  - No Geographic Licensing/Auctions/Band Managers
  - Streamlined Coordination with Federal Government (Trusted Path Coordinators)
  - 6 Month Construction Period
  - 10 Year License Term

Mapping Database Example

MMW Wireless Point-to-Point Path Coordination and FCC License Application (provide data in all fields marked *)

Link Identifier *	Empire State Building to Sheraton Meadowlands Conference Center, 6.6 miles					
Transmitter 1	Center Frequency * (GHz)	Bandwidth * (MHz)	Antenna Gain * (dBi)	EIRP * (dBW)	Polarization *	Station Identifier (coordinator use only)
	71.875	1750	51.0	36.0	Horizontal	WC2XPB
Tx 1 Location	GPS (NAD83) Latitude (N) *	Longitude (W) *	Ground Elevation * (ft above sea level)	Tower Height * (ft AGL)	Street Address * or other Locality Identifier	
	40.7480	73.9841	28	1461	350 Fifth Avenue, New York, NY 10118	
Transmitter 2	Center Frequency * (GHz)	Bandwidth * (MHz)	Antenna Gain * (dBi)	EIRP * (dBW)	Polarization *	Station Identifier (coordinator use only)
	73.875	1750	51.0	36.0	Vertical	WC2XPC
Tx 2 Location	GPS (NAD83) Latitude (N) *	Longitude (W) *	Ground Elevation * (ft above sea level)	Tower Height * (ft AGL)	Street Address * or other Locality Identifier	
	40.8066	74.0773	22	252	2 Meadowlands Plaza, East Rutherford, NJ 07073	



Loea Communications Corporation

Thank you to the FCC for its leadership and support in creating rules for this new spectrum at 71-76 GHz and 81-85 GHz !