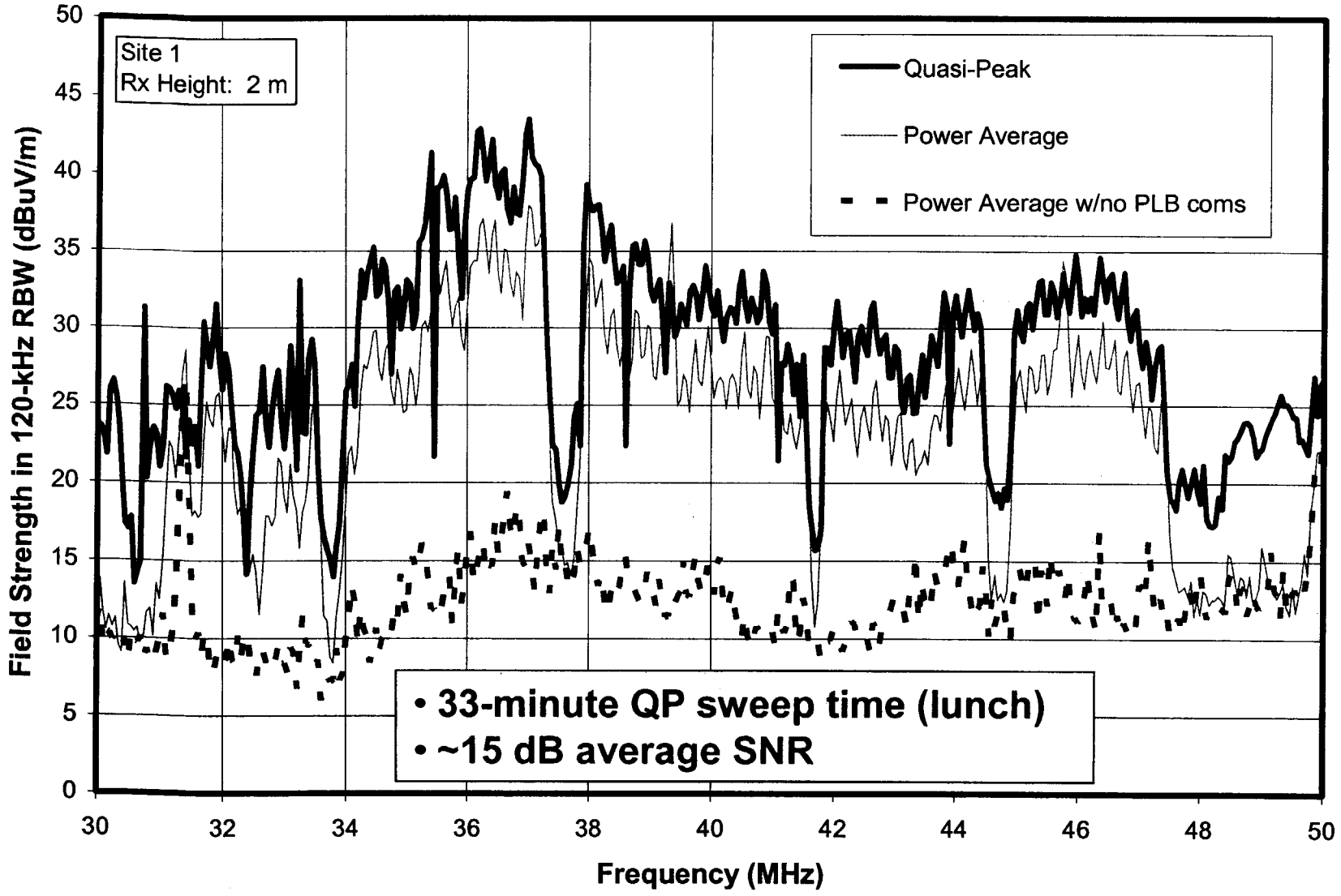
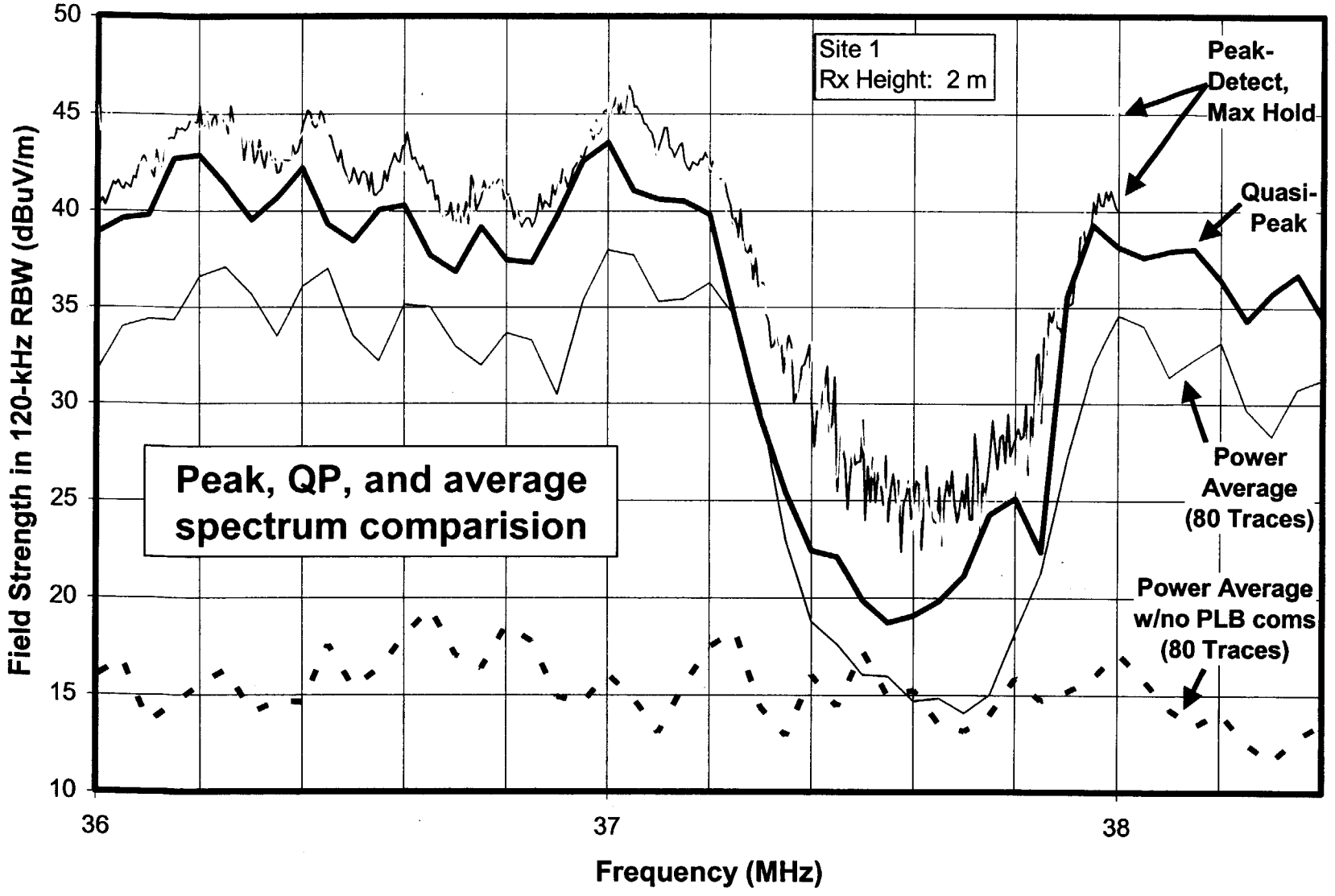
Site 1—Full-Band Quasi-Peak and Average Spectra

FCC Laboratory



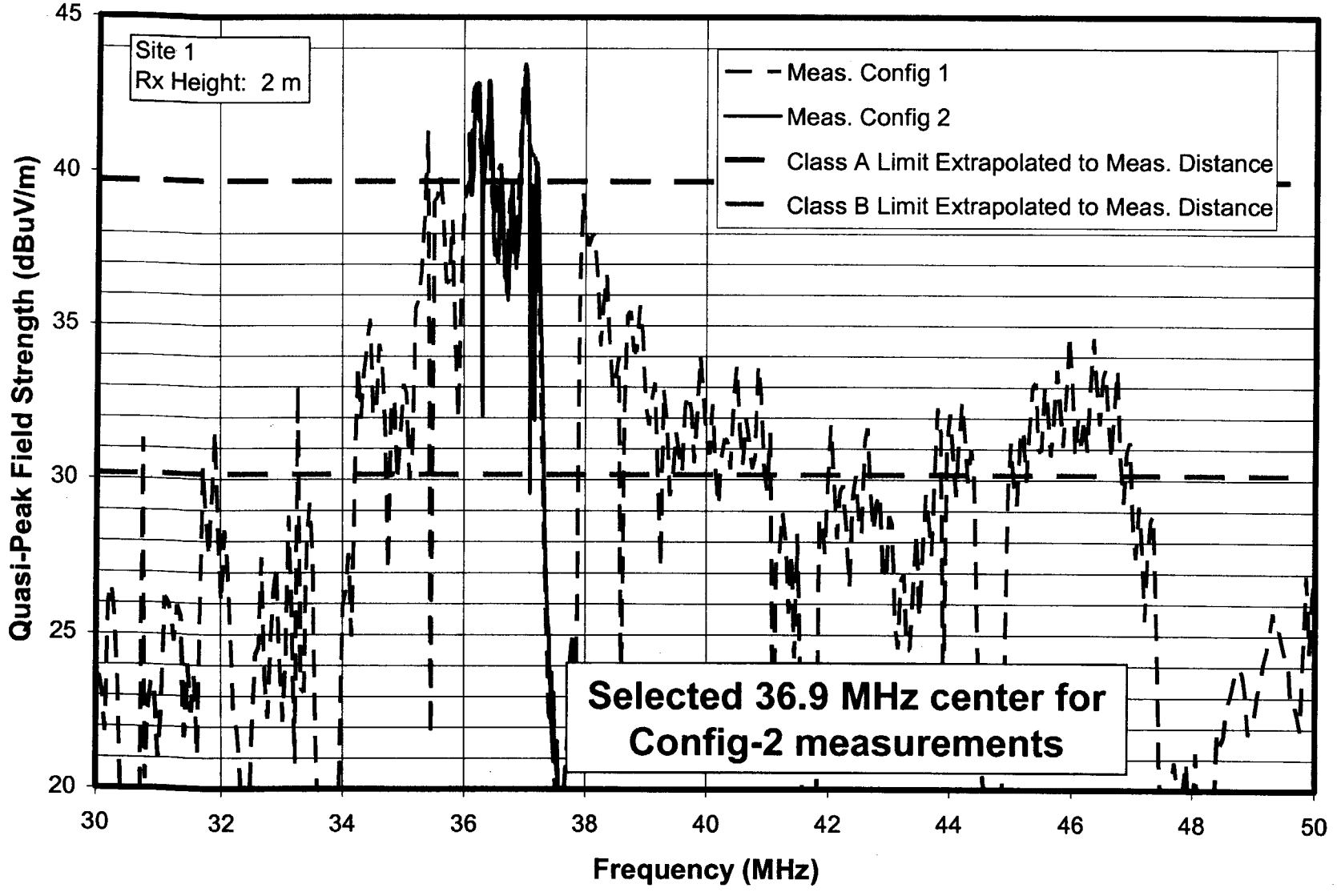
Site 1—Expanded Spectrum Comparison

FCC Laboratory

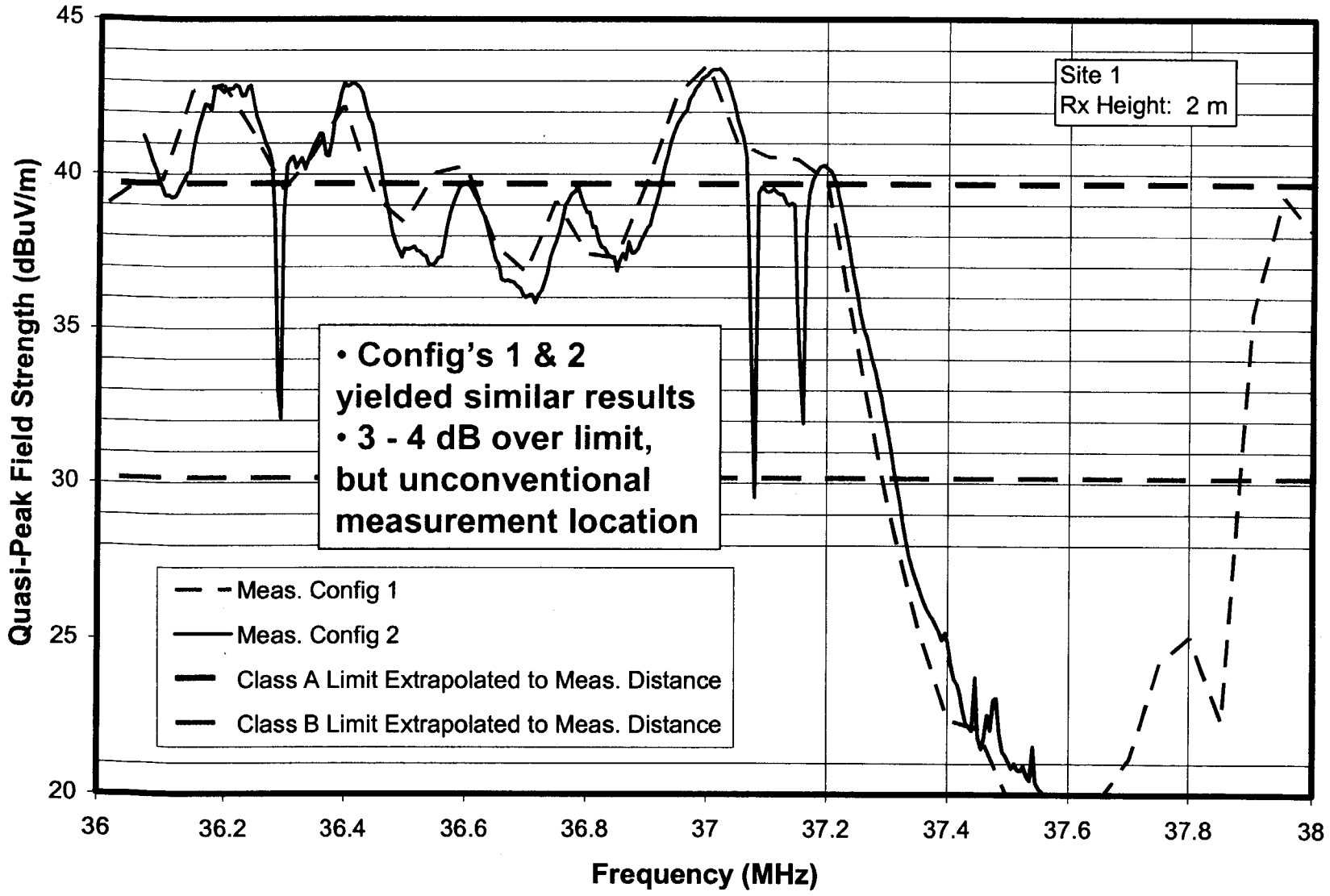


Site 1—Full-Band Quasi Peak Spectra and Limits

FCC Laboratory

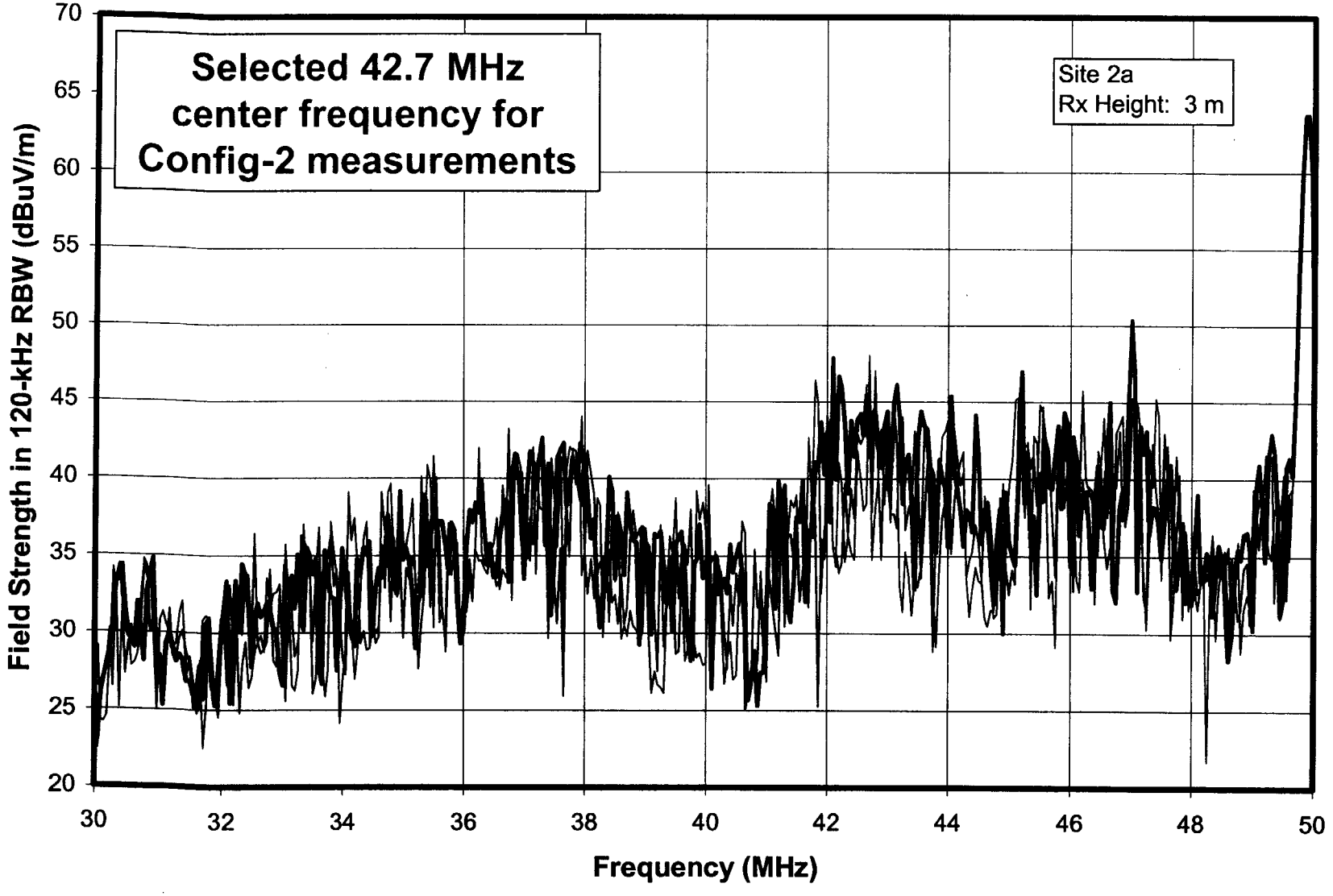


Site 1—Expanded Quasi Peak Spectra and Limits



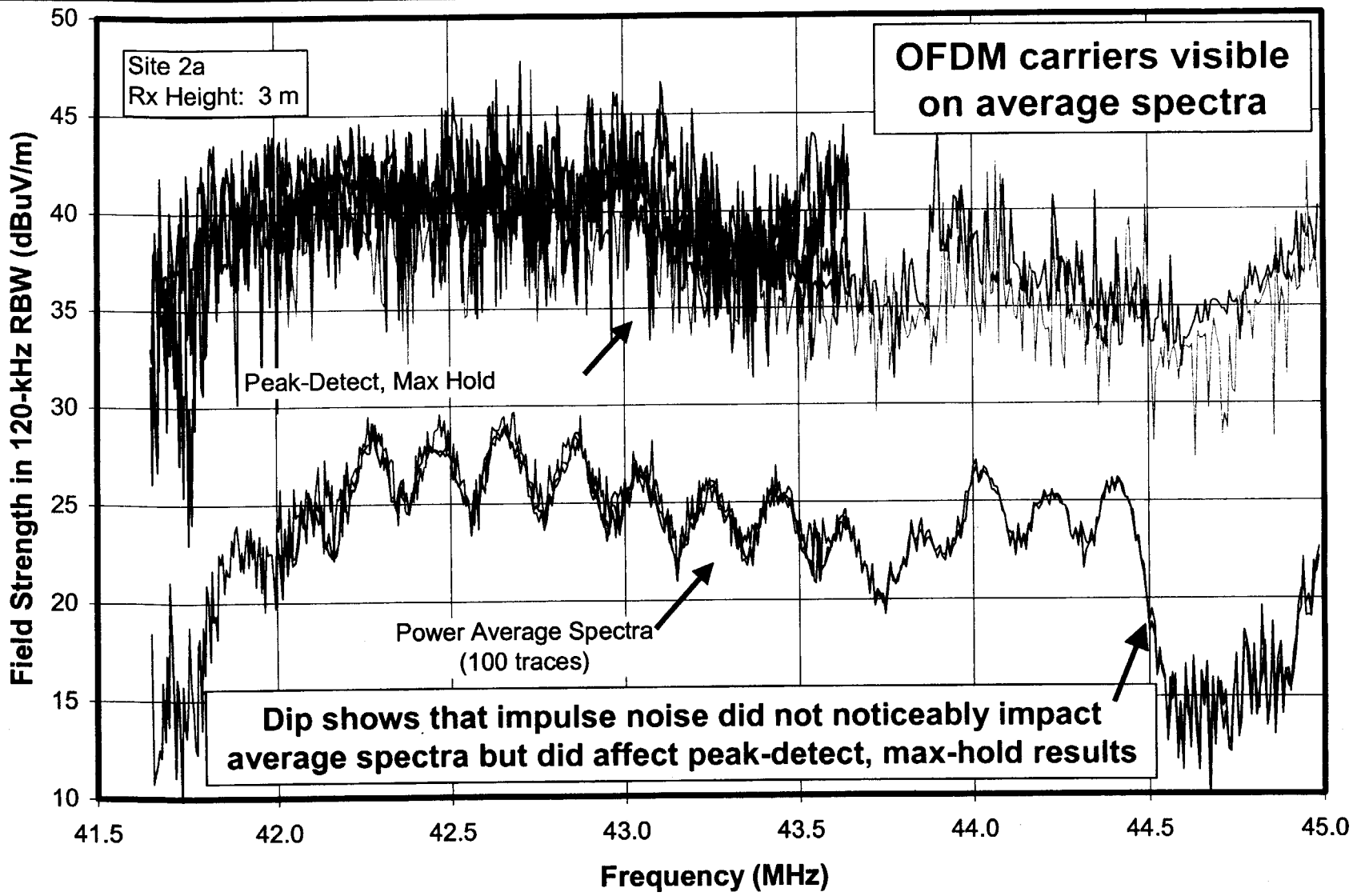
Site 2a—Three Max-Hold Spectra

FCC Laboratory



Site 2a—Expanded Max-Hold and Average Spectra

FCC Laboratory



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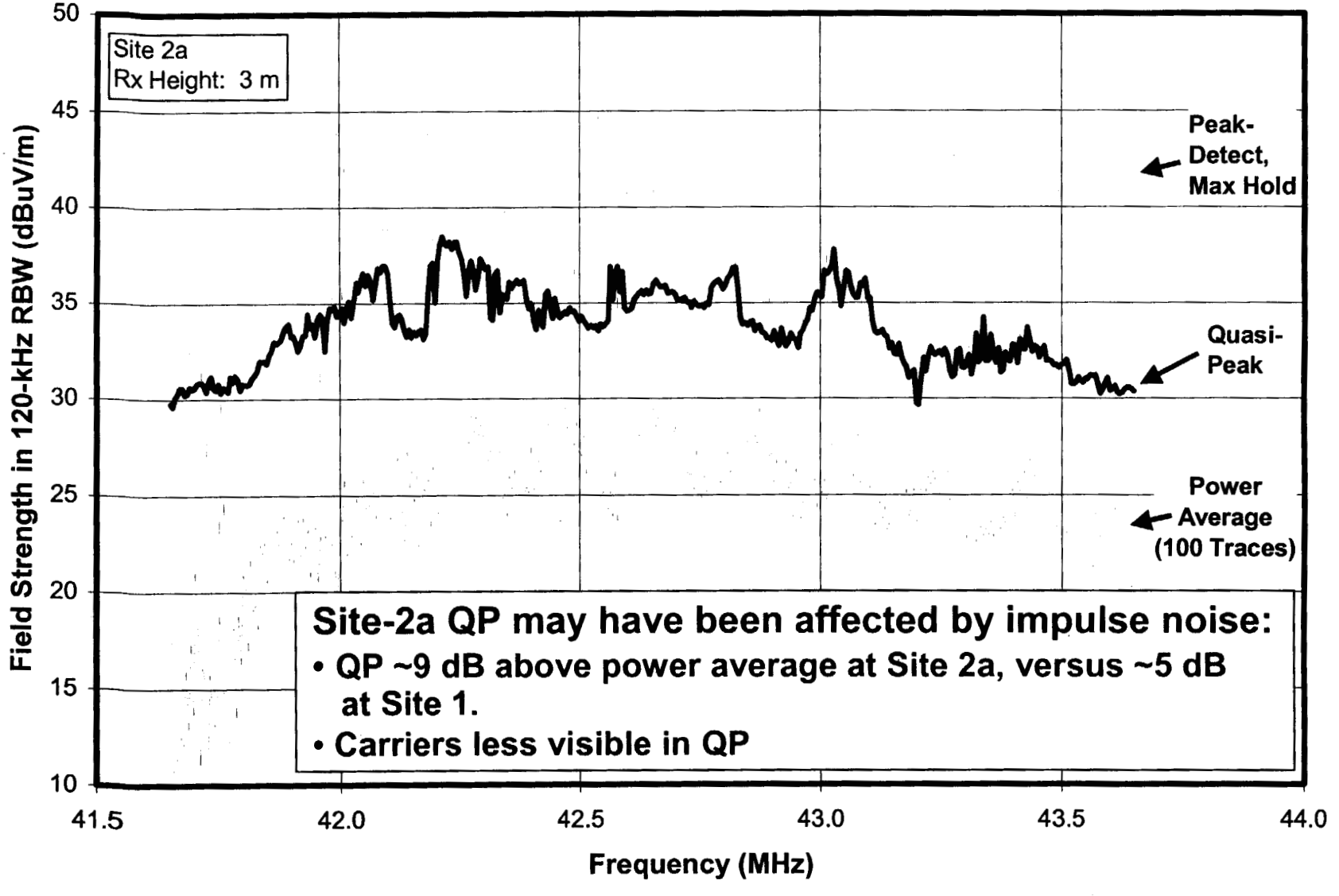
Site 2a—Comparison of Max-Hold, Quasi-Peak, and Average Spectra

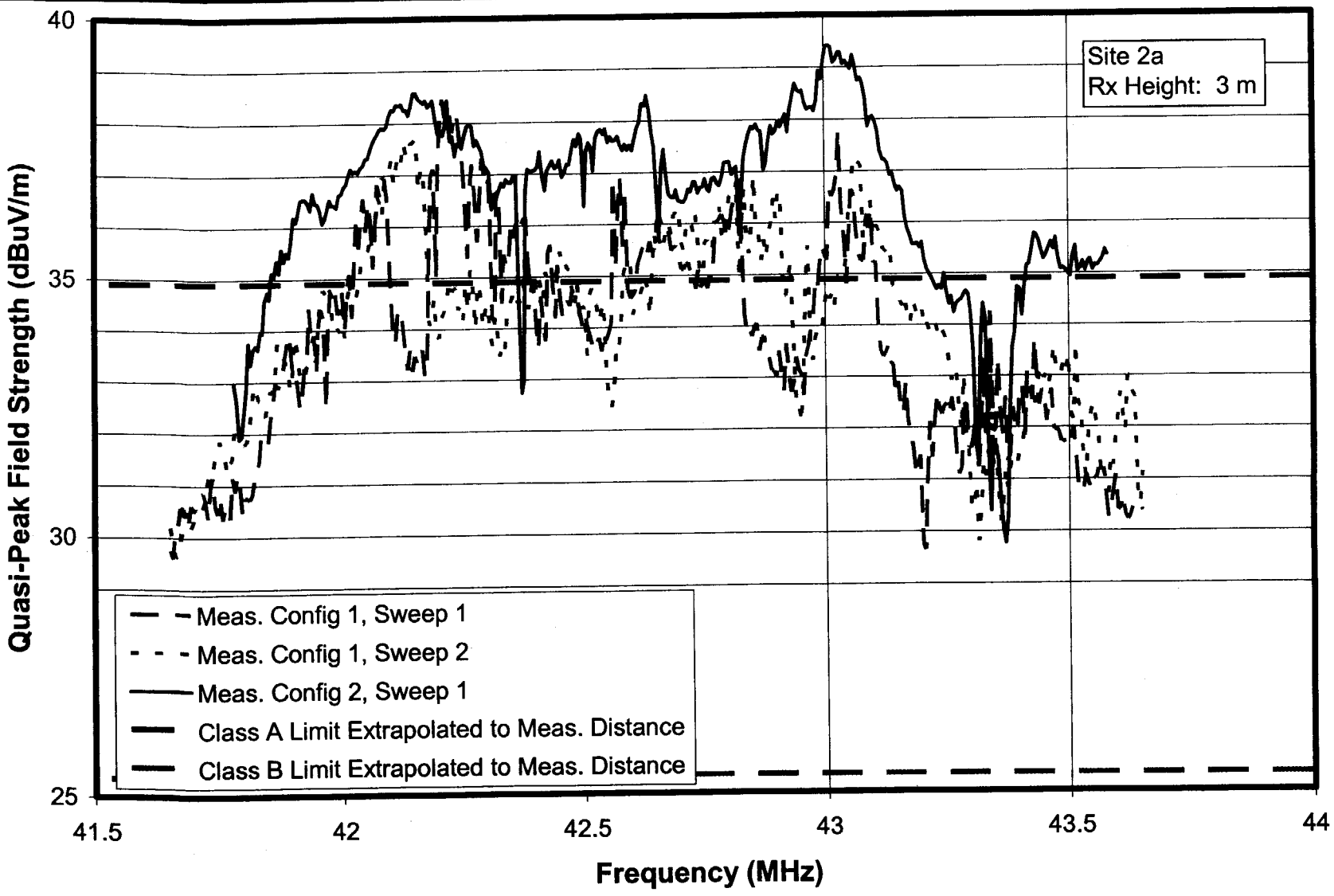


Site-2a QP may have been affected by impulse noise:

- QP ~9 dB above power average at Site 2a, versus ~5 dB at Site 1.
- Carriers less visible in QP

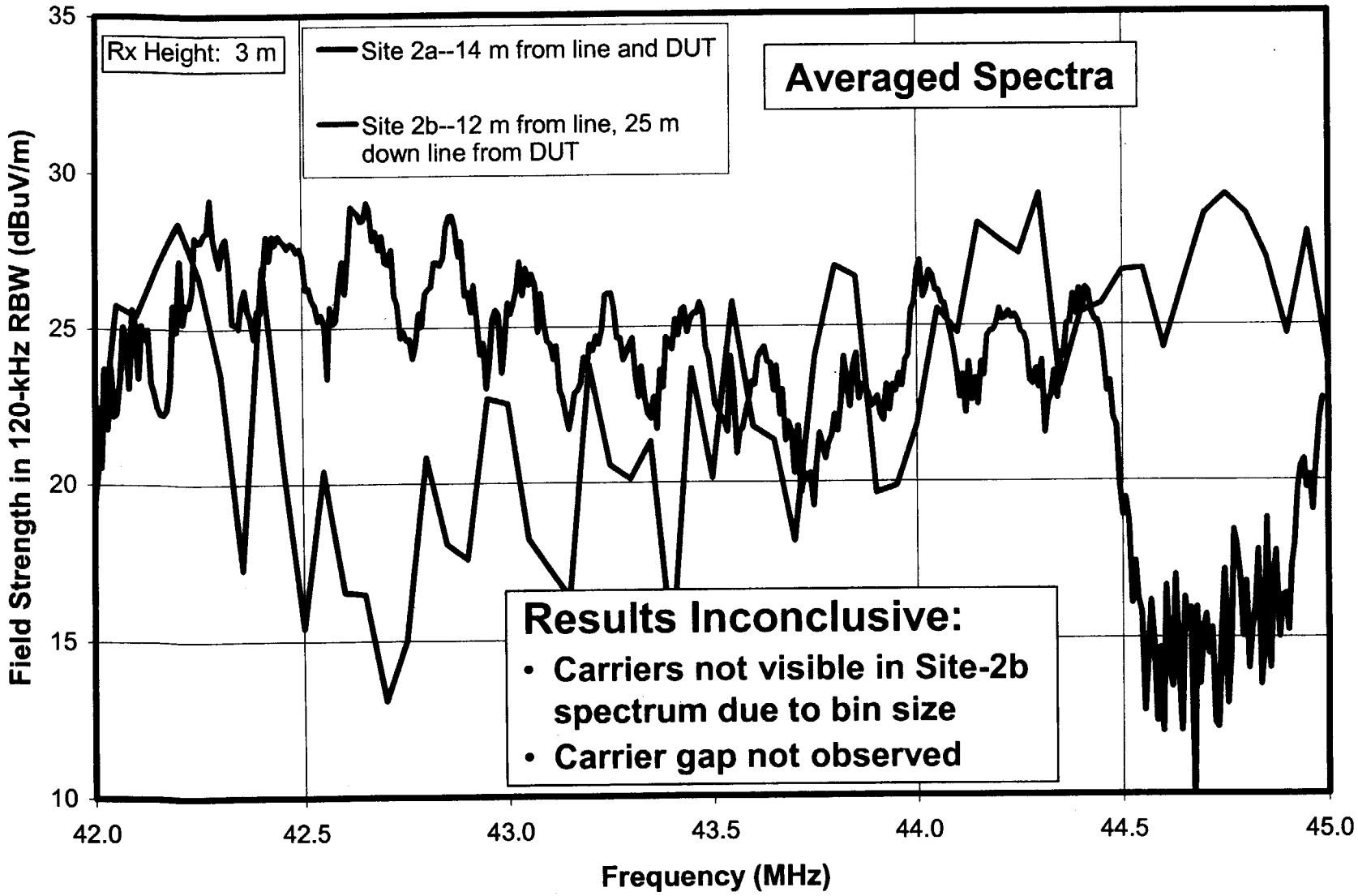
Site 2a—Three Quasi-Peak Spectrum Measurements

FCC Laboratory



Effect of Distance Down Line

FCC Laboratory



Conclusions

FCC Laboratory

Recommended Future FCC Tests
(To understand technology)

BPL Summary
After Briarcliff Manor, NY Test

To OET
September 8, 2004
Steve Martin & Andy Leimer – FCC Laboratory

On site support provided by Ambient during emission testing

Briarcliff Manor BPL Test Results

FCC Laboratory

wrt Interference Complaint in Notched Amateur Band

- Tested one device
- Compliant w/emission limits within measurement uncertainty
- Notch performed poorly
  - Vendor forgot to notch device 0.7 miles away
  - Vendor admitted bug in notching & plans a fix

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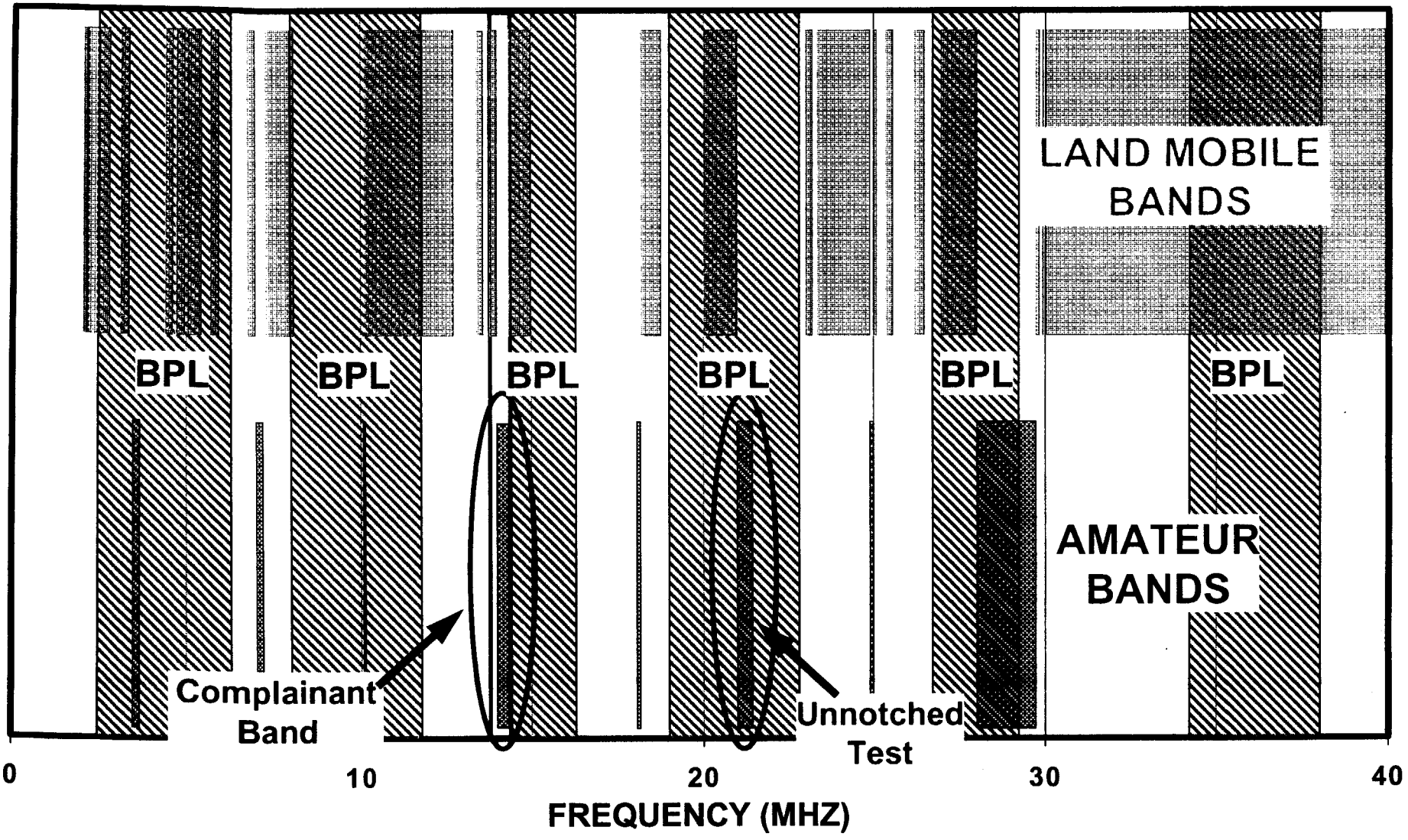
Frequency Allocations and Briarcliff Manor BPL Bands



Interference to Mobile Radio in Un-Notched Bands

Van and HF Amateur Antenna

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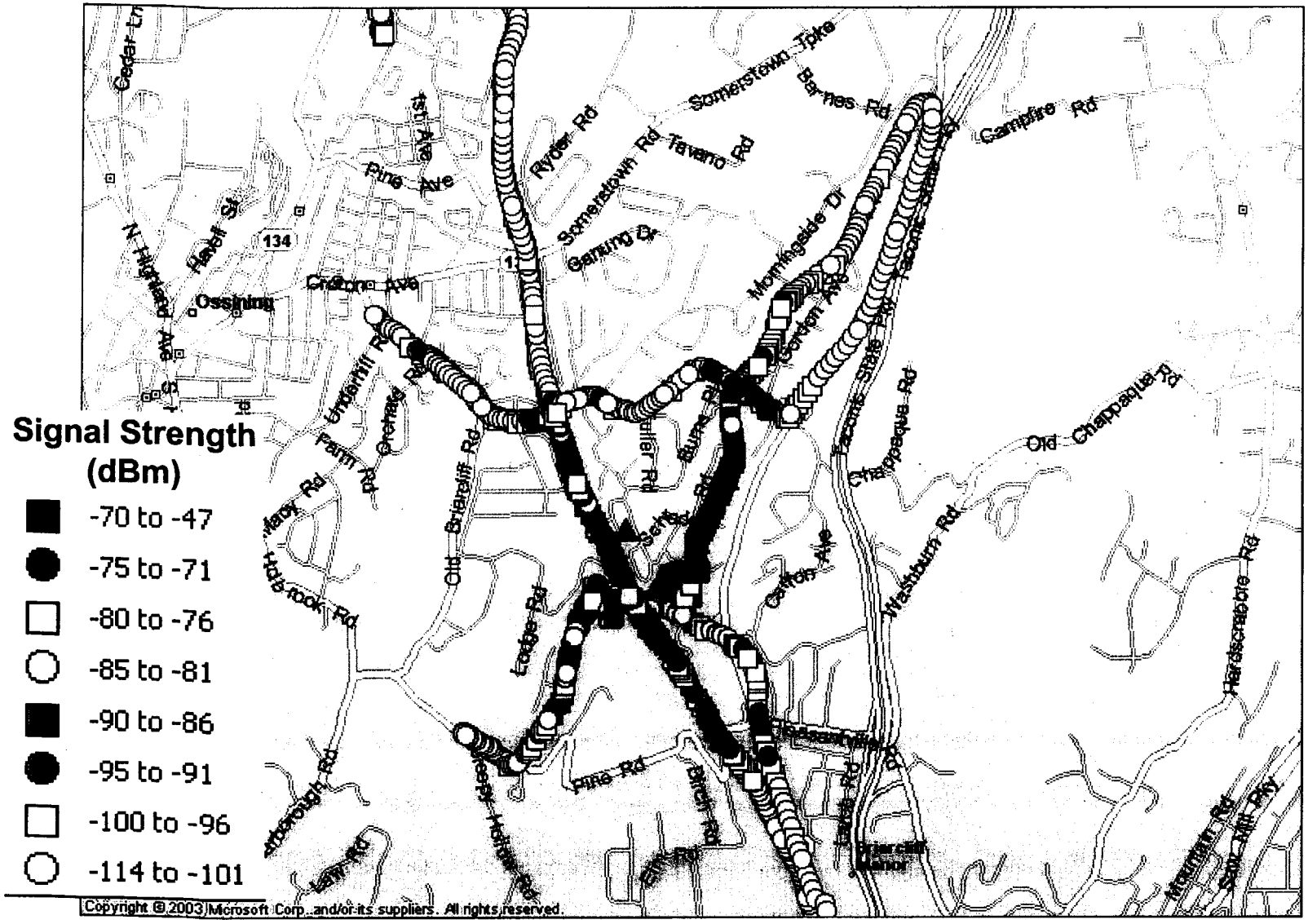
Power line height – 10.6 m
Antenna center height – 3 m

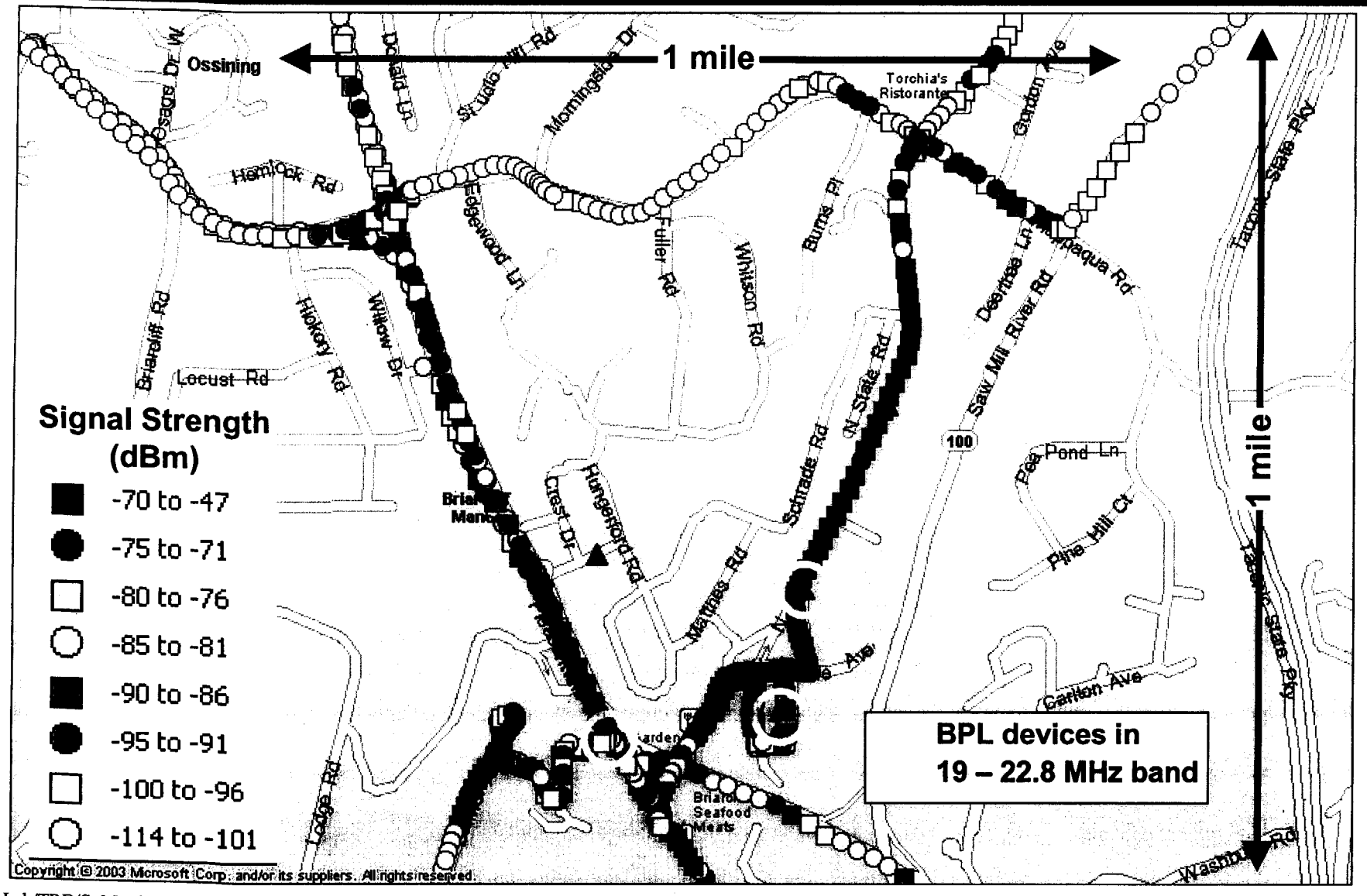
Briarcliff Manor Signal Strength Map at 21.2 MHz
(Unnotched Amateur Band)

FCC Laboratory



Briarcliff Manor Signal Strength Map at 21.2 MHz
(Unnotched Amateur Band)

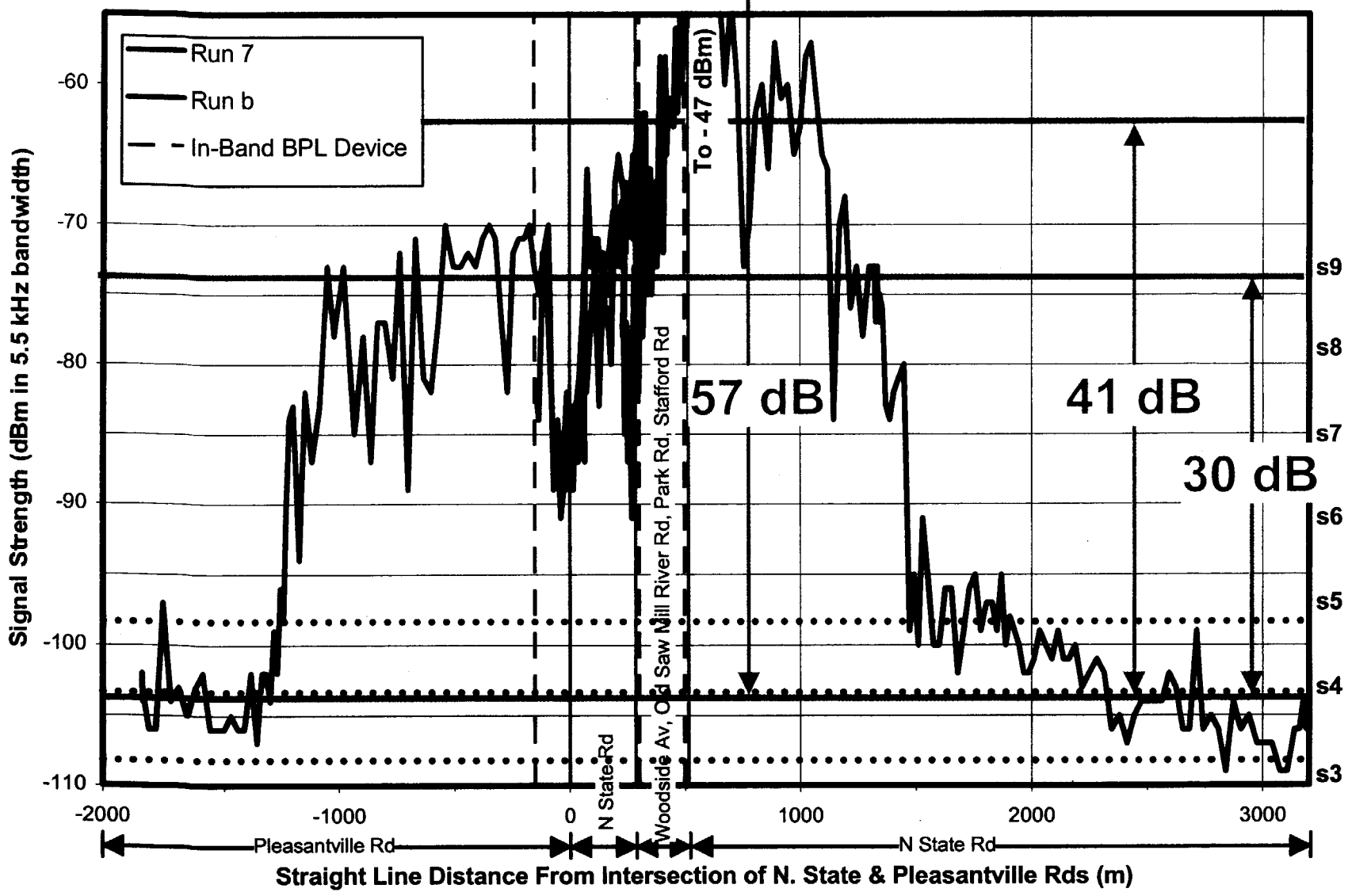
FCC Laboratory



Briarcliff Manor Received Levels at 21.2 MHz

(Unnotched Amateur Band)

FCC Laboratory

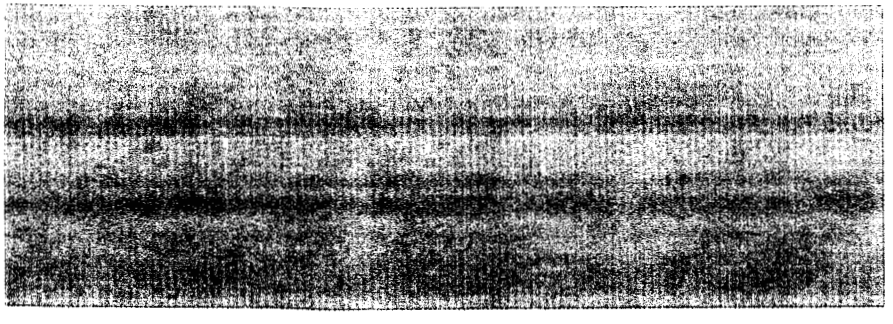


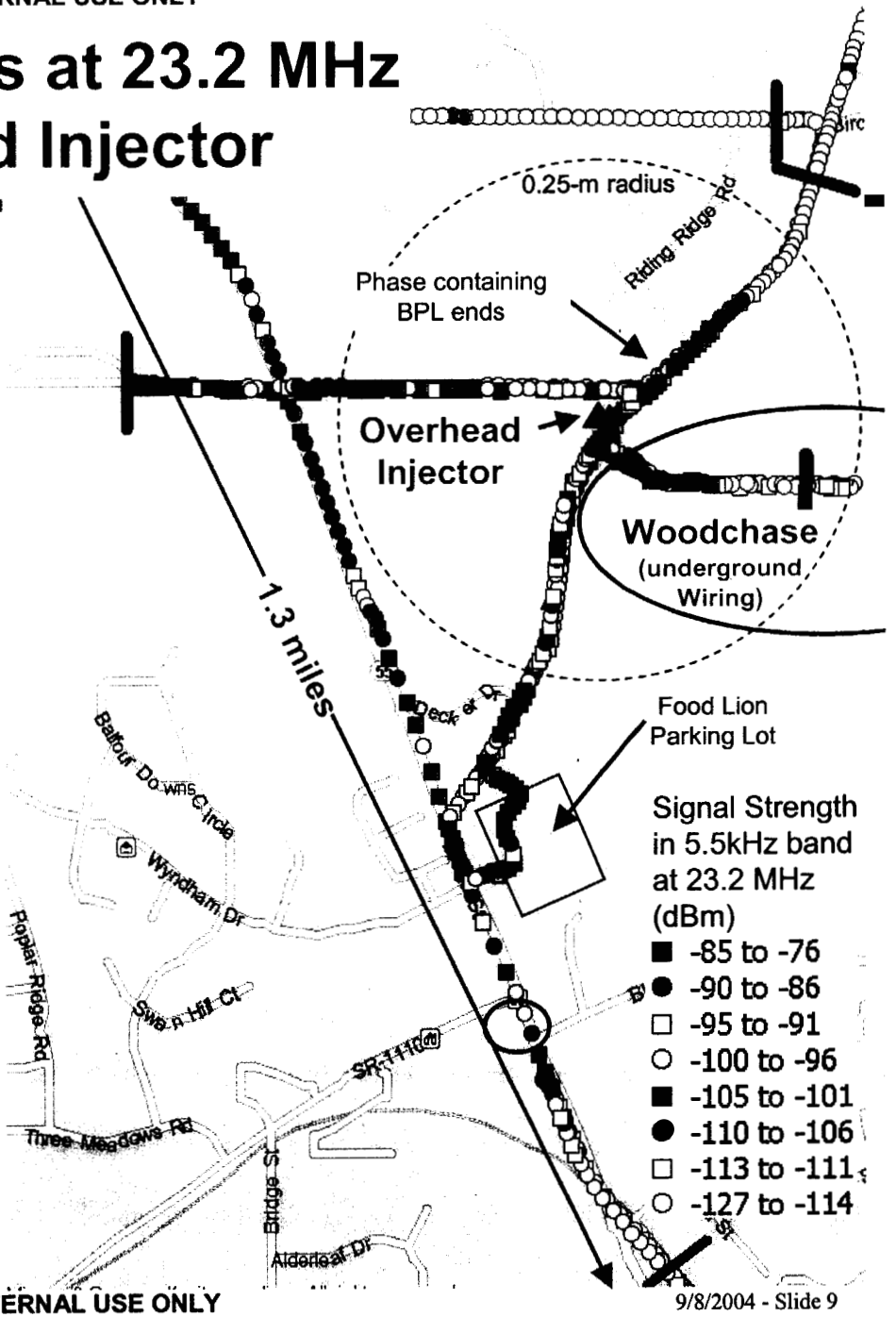
Raleigh Received Levels at 23.2 MHz From One Overhead Injector

FCC Laborator

- **Noise floor measurement prevented by inefficient antenna**
  - Designed for 27-MHz
- **Yellow levels** (0.6 mi of James Slaughter Rd & Old Powell Rd)
  - 14 to 23 dB above measurement floor
  - **~27 – 36 dB** above probable ambient noise floor
- **Red levels**
  - 24 to 38 dB above measurement floor
  - **~37 to 51 dB** above probable ambient noise floor

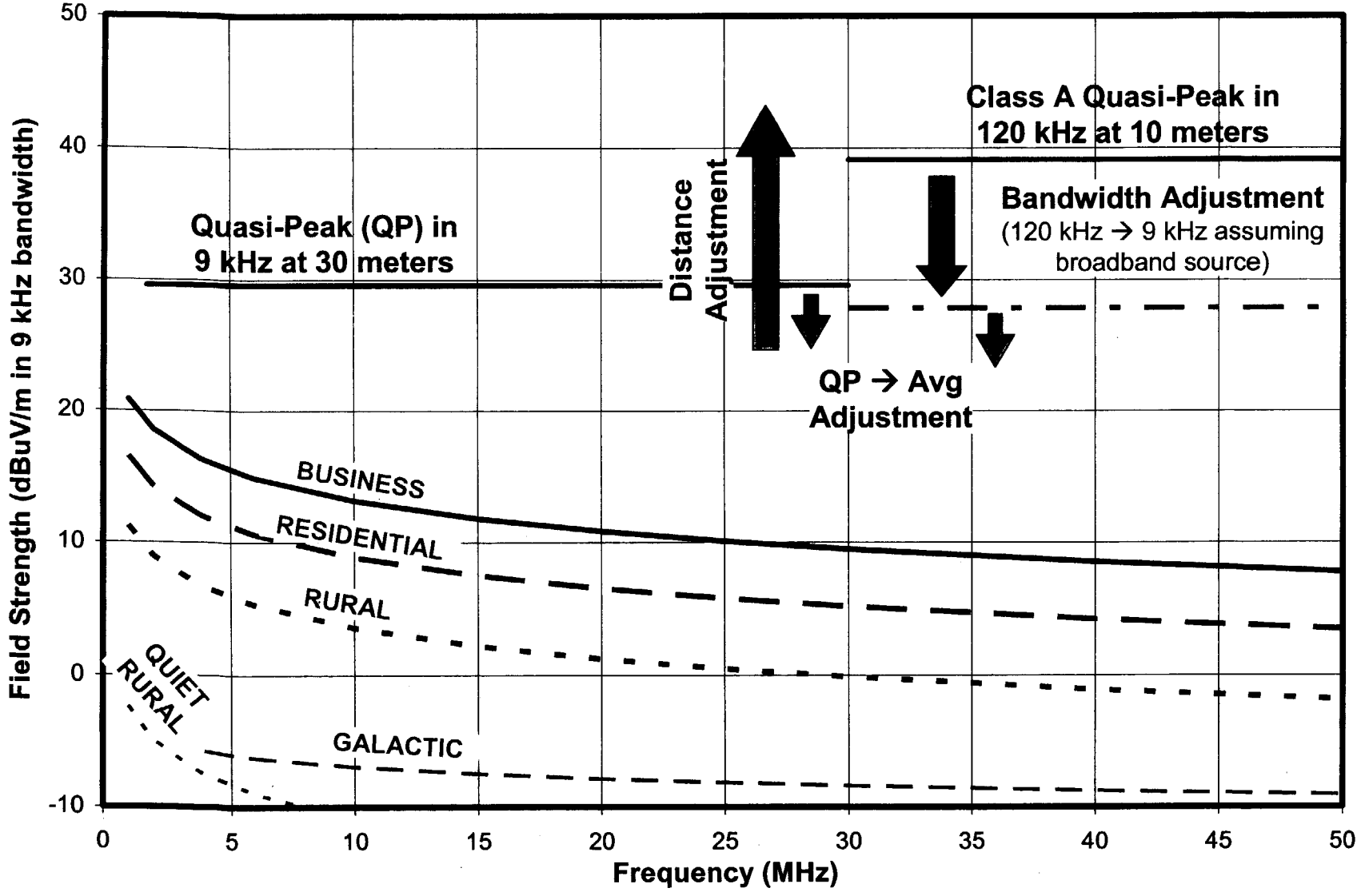
s-0 level observed on s-meter during much of test, is ~13 dB below floor of digital output indicator (-114 dBm)





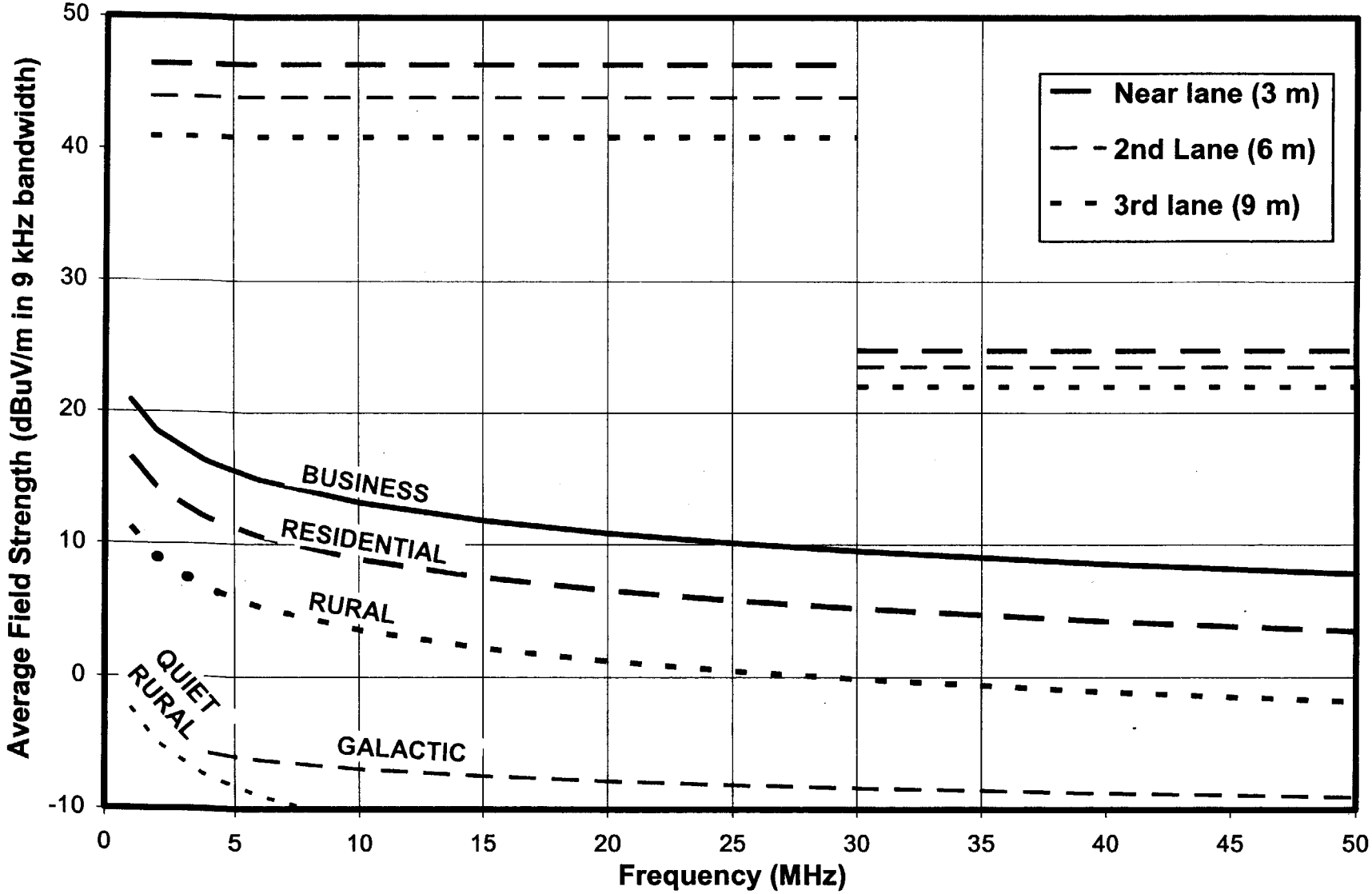
Part 15 Emission Limits and ITU Noise Curves

FCC Laboratory



Part 15 Emission Limits Extrapolated to Land Mobile Distances From Power Lines

FCC Laboratory



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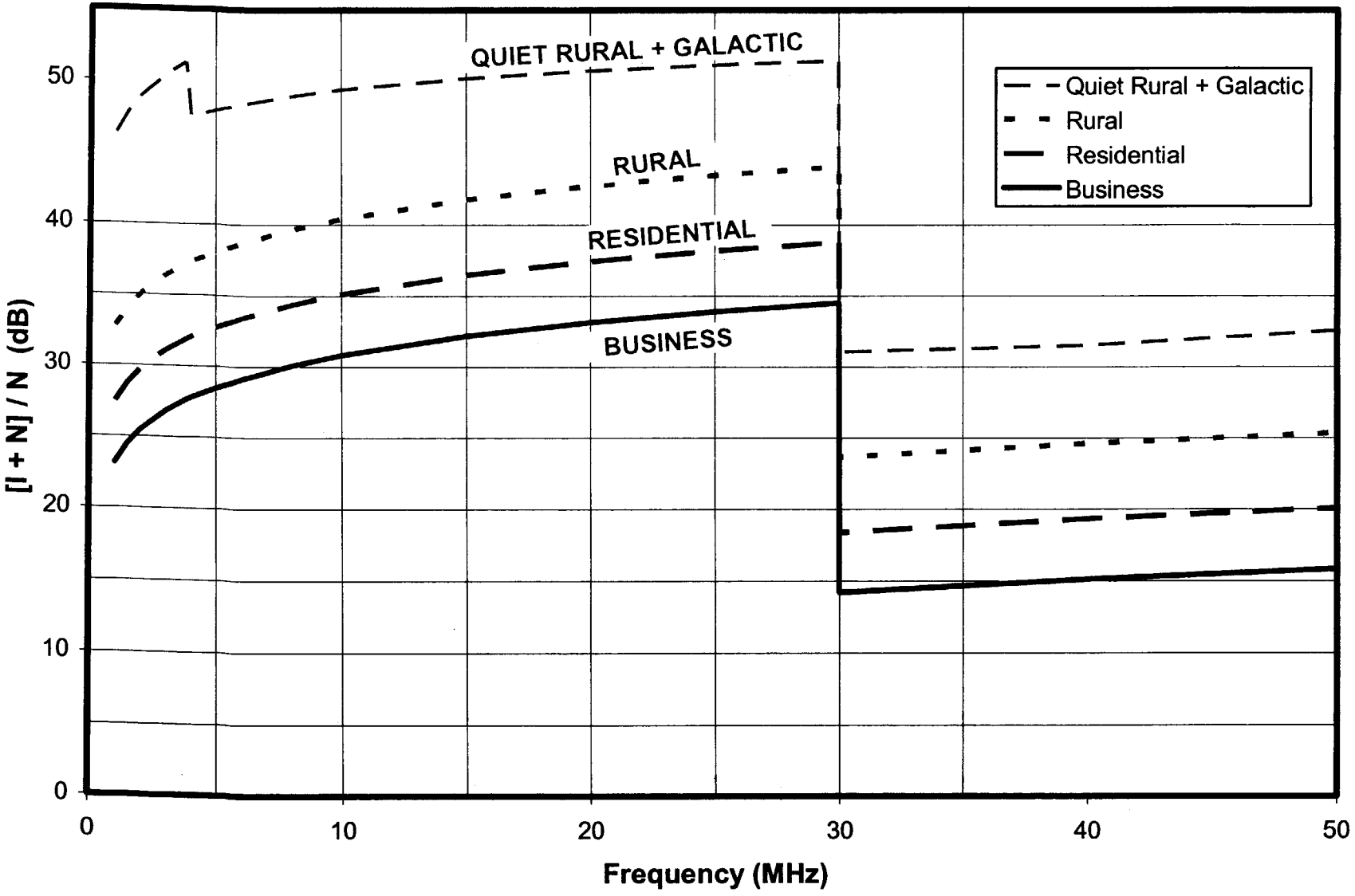
Mobile Radio Noise Floor Rise ([I+N]/N) Permitted by Current BPL Emission Limits



NTIA Results

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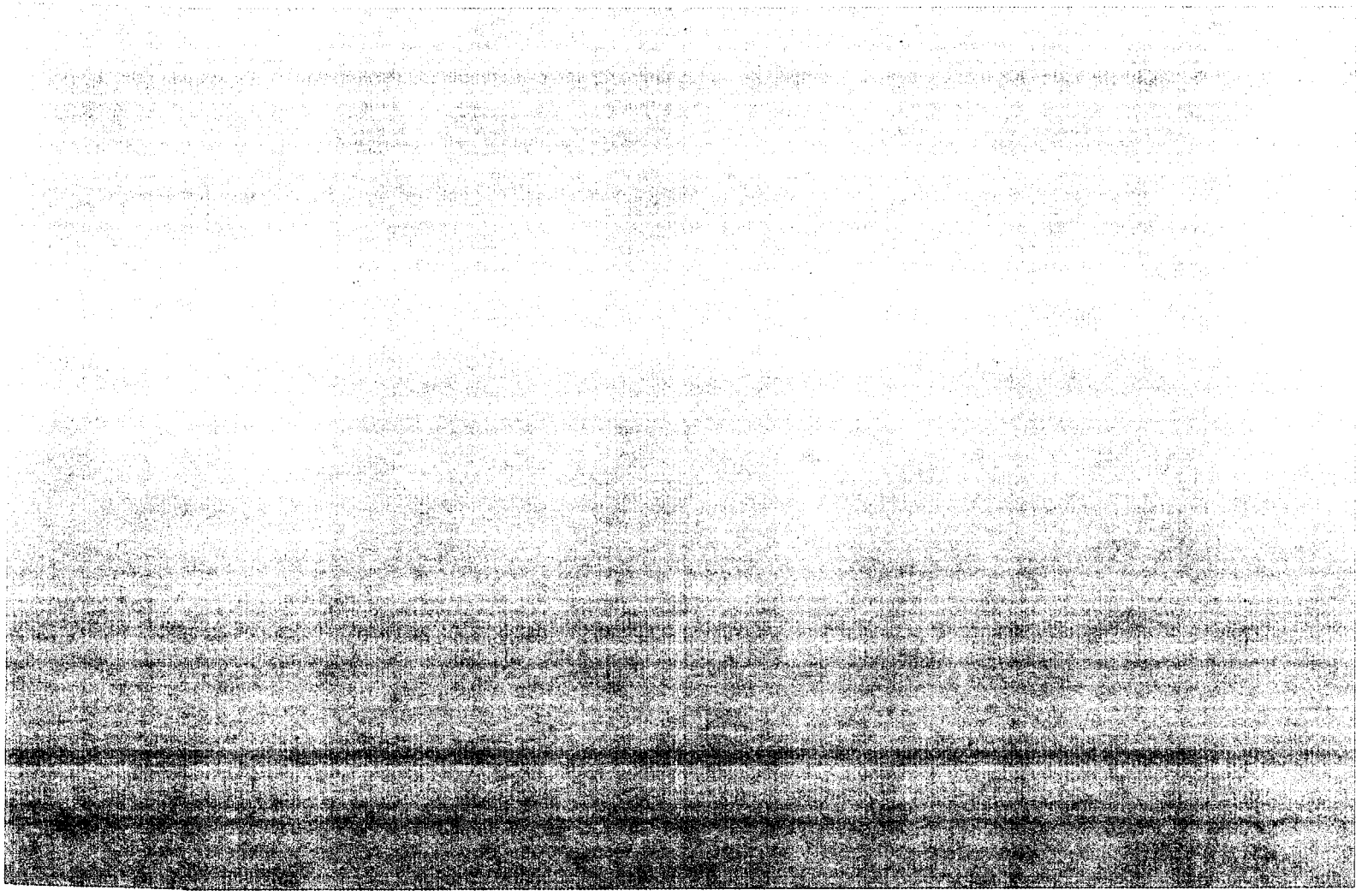
of Part 90 Land Mobile Licensees

by Band in 2-MHz Increments

FCC Laboratory