

How to Future Proof Your DAS for Band 14

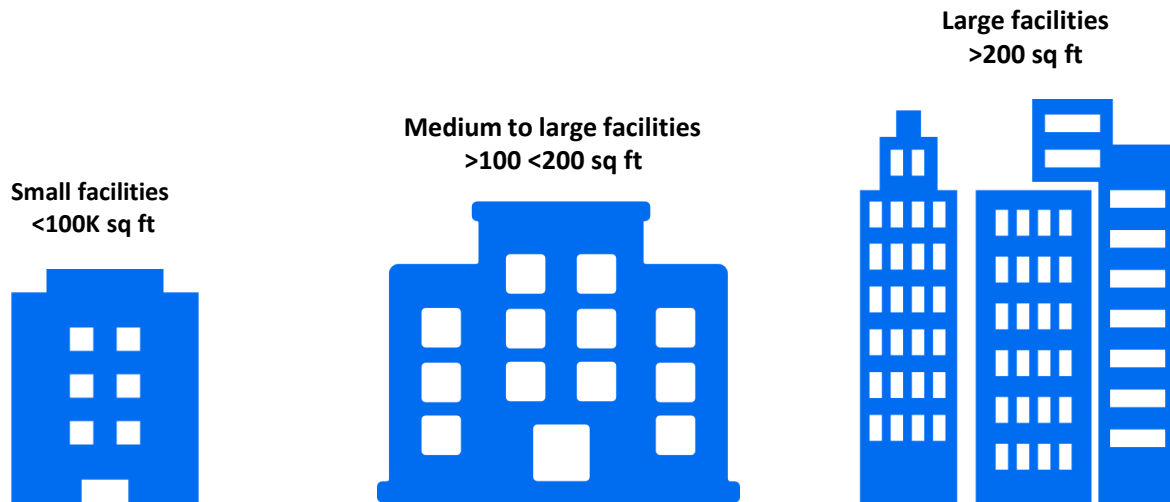


APCO Emerging Technology Forum
Presented by Gabe Guevara, Sales Manager at ADRF

Agenda

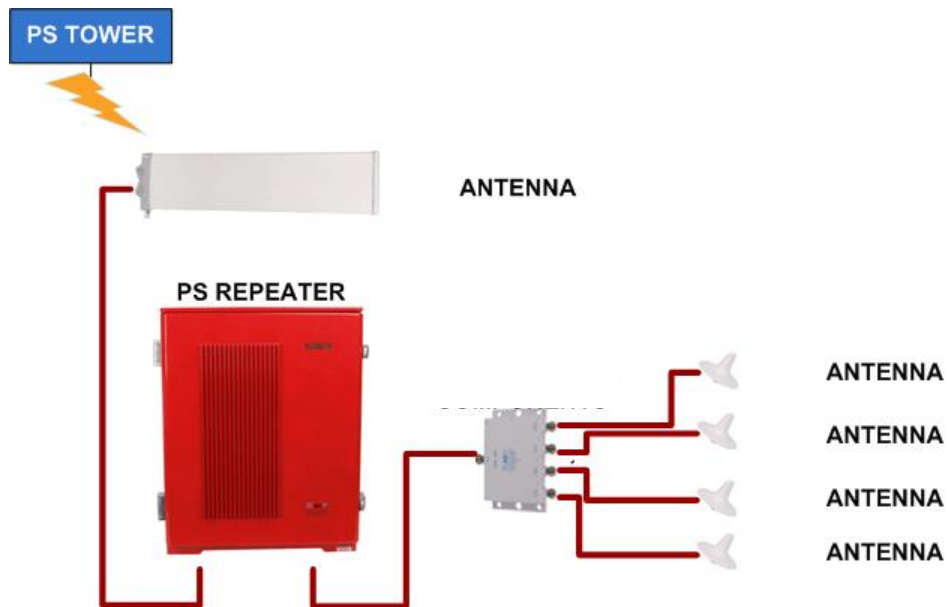
- I. Ways to provide indoor communications
- II. NFPA Compliance
- III. Future Bands / Technologies
- IV. Case Study

Ways to provide Indoor Communications

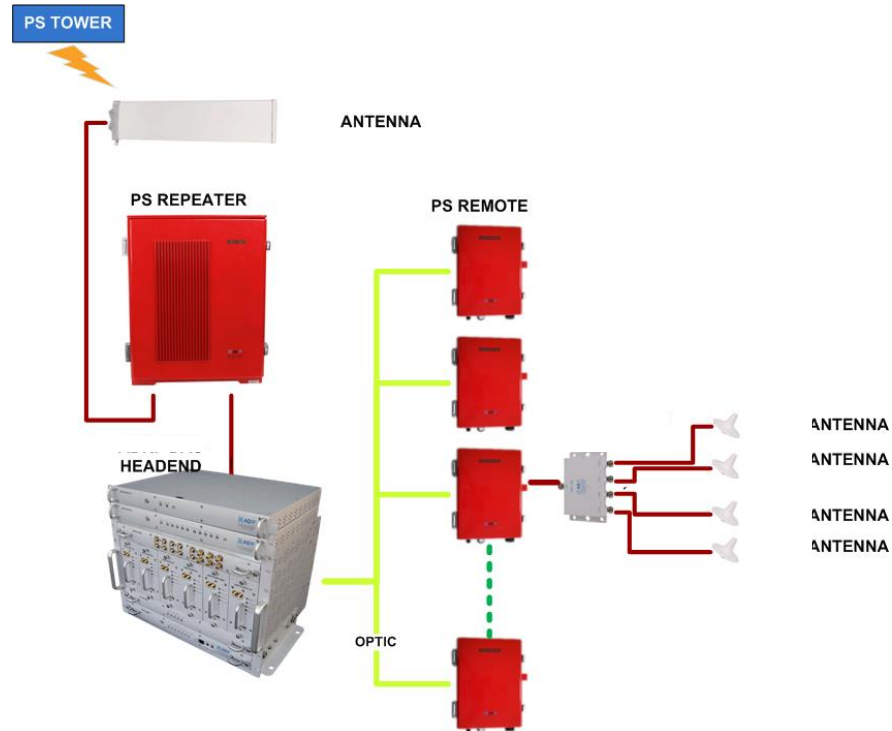


Regulations are driving the number of requirements for Public Safety DAS

Small Facilities : Passive Architecture with Public Safety Coverage

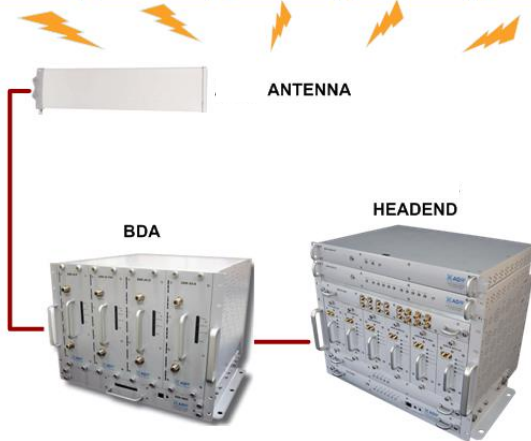


Medium- Large Area: Active Architecture with Public Safety Coverage

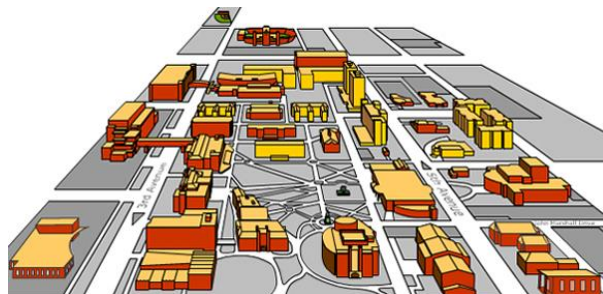
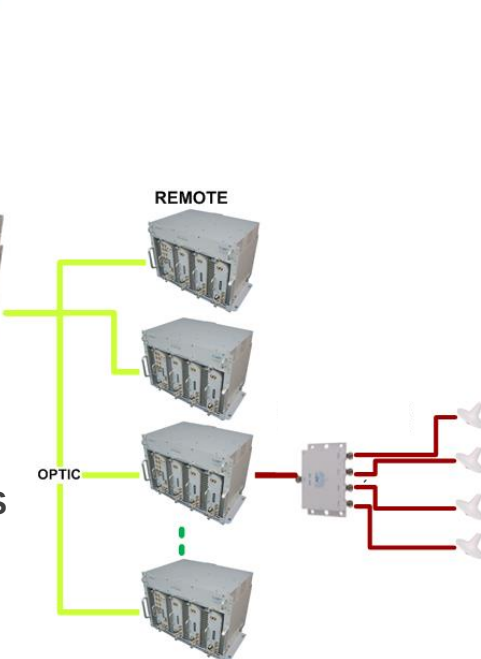


Large Area: Neutral Host -Active Architecture

PS TOWER VzW AT&T SPRINT T-MOBILE



Dedicated fiber and equipment for PS



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NFPA Compliance

NFPA - Compliance

- **System Coverage:** 99% coverage in critical areas designated by the local fire department
- **NEMA-4 Enclosures:** Dust, water, and corrosion-proof NEMA 4 compliant housing
- **System Monitoring Alarms:** to provide real-time monitoring of system's readiness. Power/Battery /Antenna /Equipment failure/battery charging
- **-95 dB Minimum signal Strength:** IFC and NFPA requires -96 dB of signal level regardless of the frequency
- **Battery Backup:** In case of main power failure (likely at a fire), 24 hours of run-time (minimum) to prevent danger to first responders
- **Antenna Isolation.** NFPA stipulates antenna isolation requirement of 15 dB higher than the gain of the amplifier.



Future Bands and Technologies

Future Bands and Technologies

- **Future Frequency Changes:** Need to support future frequency requirement. IFC and NFPA promote equipment that supports VHF, UHF 700 and 800 MHz
- Selection of products that already cover from VHF to 800 will provide savings in the future
- Choose products that are “**modulation agnostic**” modulation techniques can change in the future
- **Single mode fiber** is preferred among DAS active solutions



Band 14

- LTE E-UTRA Band
- FDD Frequency band
- Uplink 788-798 MHz
- Downlink 758-768 MHz
- Great indoor penetration being a lower band
- Not all buildings are built the same (LEED certified)

Public Safety Product Lines



DAS

Questions to ask:

- Frequencies: Does it support Commercial & PS bands - 134 MHz to 2690 MHz?
- Modularity: Does the system allow to support commercial and public safety on a same system?
- Expandability: Can I pay for bands that I need now and easily upgrade in the future?
- Does it have filtering options to mitigate interference?



Off Air Repeater

Questions to ask:

- Frequencies: Does it support dual bands - 700/800 MHz and VHF/UHF?
- Is it NFPA Compliant?
- Does it offer NEMA 4X compliant enclosure suitable for both indoor and outdoor environments?
- Does it have filtering options to mitigate interference?

Case Study - CFL

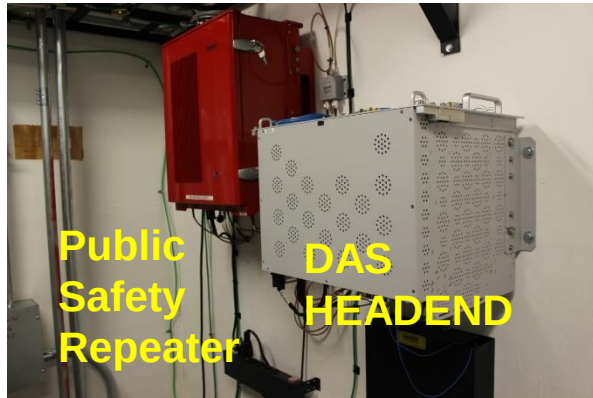
Consolidated Forensic Laboratory (CFL) Description

- Located in Washington D.C.
- 290K Square Feet Coverage Area
- LEED Silver Design
- Police and EMS Staff
- Radio Service Required



Tenants and Visitors require robust public safety service

DAS and Repeater Installation Photos



**4th Floor
West**



**3rd Floor
East**



**1st Floor
West**



Thank You.

For more information, contact sales@adrftech.com.