
	EMERGENCY MEASURES RADIO GROUP
	OTTAWA ARES

Two Names - One Group - One Purpose

In Building Signal Reinforcement For Amateur Radio Emergency Communications

Situation

- In an emergency, EMRG Clients will be operating from multi-room, multi-level, commercial buildings.
 - Examples: Nepean Sportsplex, City Hall
- Most commercial buildings are constructed with concrete and steel, which acts as an RF shield.
- Most amateur repeaters are designed for mobile or base station use, not portable or in building use.
 - Using portables radios outside depends on location.

Communications Evolution

- Black 500 set in the front hall has been replaced by phones in almost every room, cordless or mobile phones and more than 1 phone line.



- Radio operator beside the main door with cable outside to an antenna has also been replaced.
 - Clients want communications co-located so information can be exchanged quickly, in real time.
 - May require 2 or more voice channels + data channel

Quality & Consistency

- **QUALITY:** “Better Than Nothing” = Nothing
 - If audio signal quality of 3 and above is considered usable, then providing an audio quality of 1 or 2 is viewed by clients as providing nothing.
- **CONSISTENCY:** The capability and audio quality must be consistent through shift changes.
 - Shift 1 has cross band repeater capability so they can communicate from anywhere inside the building.
 - Shift 2 only has a portable radio so they can only communicate from outside the building.

Cross Band Repeaters

- Cross band repeaters offer excellent solution to extend coverage to portable radios inside.
- Can be deployed to any building
- Problem with consistency if cross band mobile is in a vehicle and the person leaves.
- Establishing multiple voice channels for a single building becomes more challenging due to the amount of equipment and interference between systems.

Two EMRG Challenges

Two Different Solutions

Ottawa City Hall

- Emergency Operations Centre (EOC)

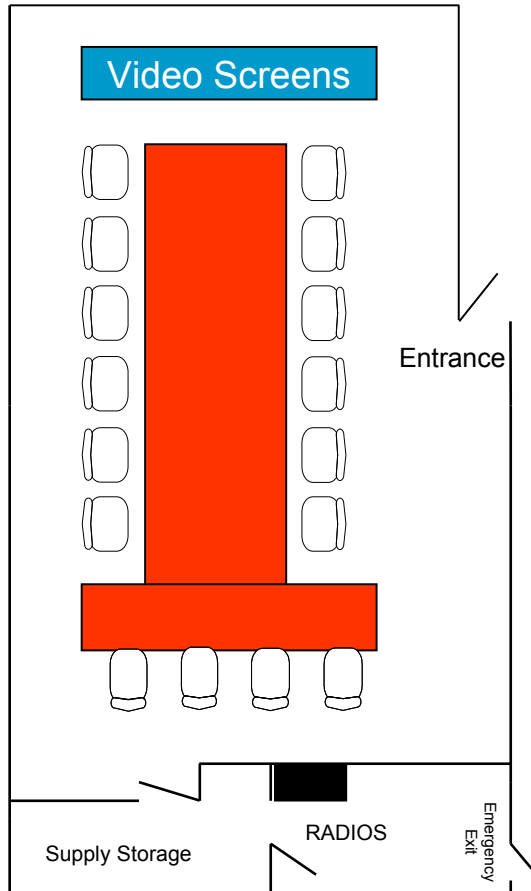


Ben Franklin Plan

- Emergency Social Services (ESS) Command Centre



City Hall EOC



OBJECTIVE:

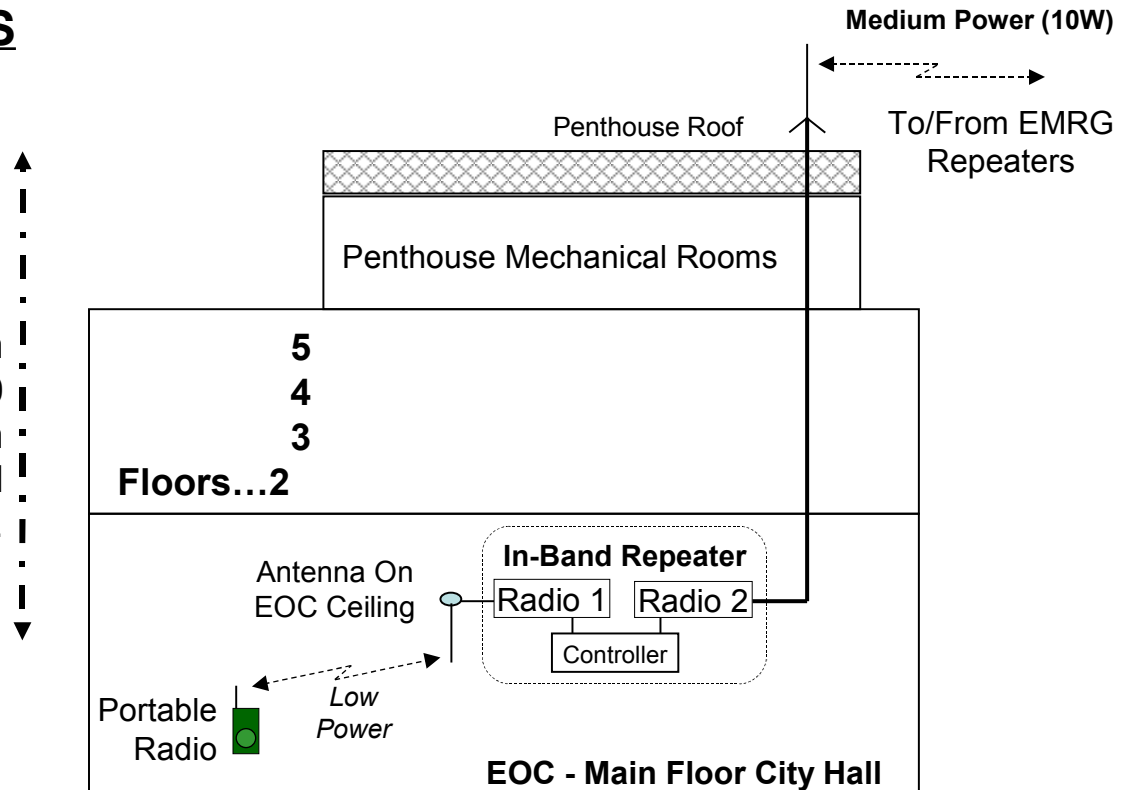
- Provide up to 3 voice channels and 1 data channel in the EOC using portable radios, so the radio operator can sit at any position in the EOC.

In Band & Cross Band Repeater Extension

VOICE CHANNELS

- VHF – VHF
- UHF – UHF
- UHF – 220

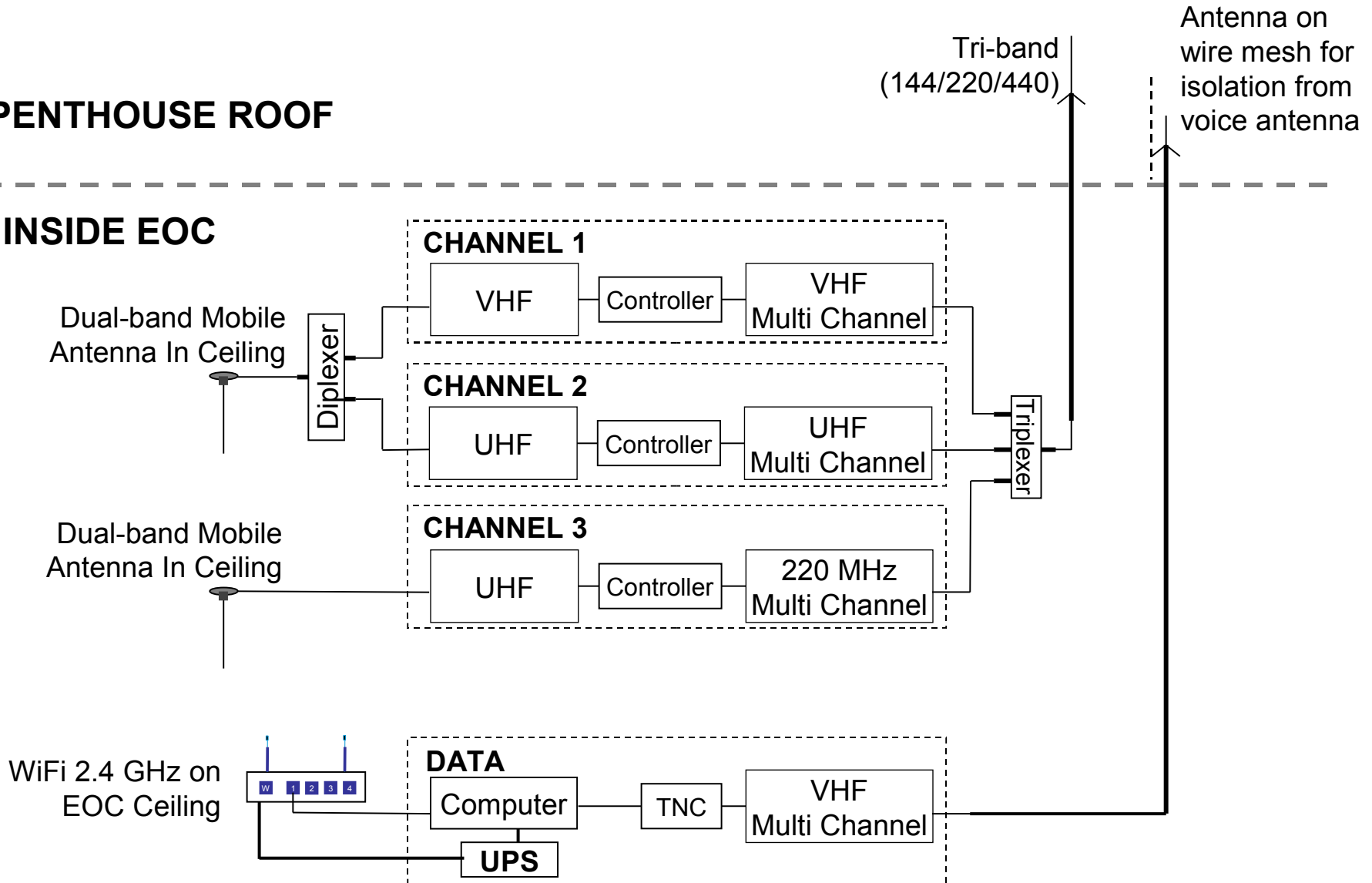
50 Ft Vertical separation
from EOC to Roof = 50
db isolation + isolation
from concrete and steel
in 5 floors of building.



Not To Scale

PENTHOUSE ROOF

INSIDE EOC



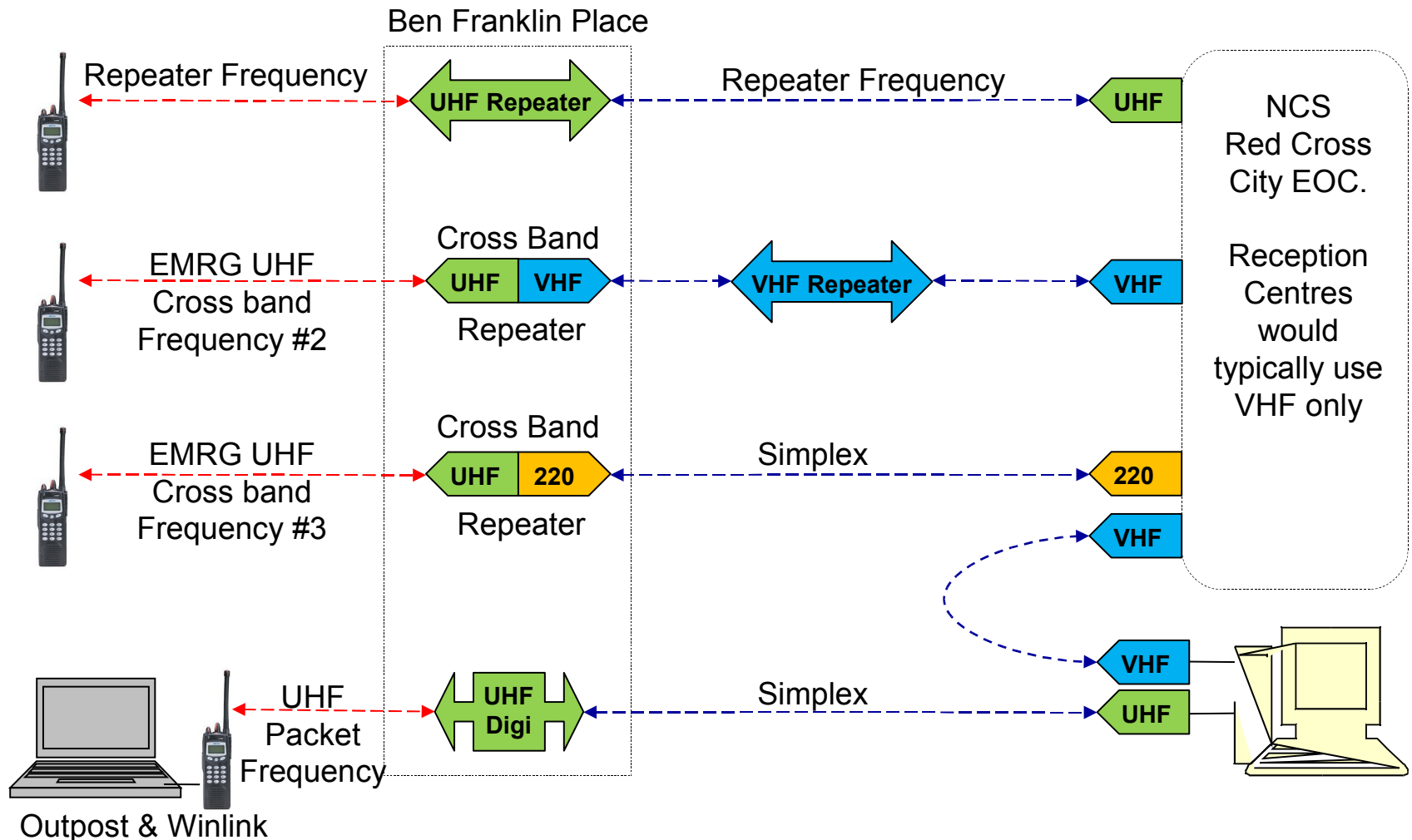
Ben Franklin Place (BFP)

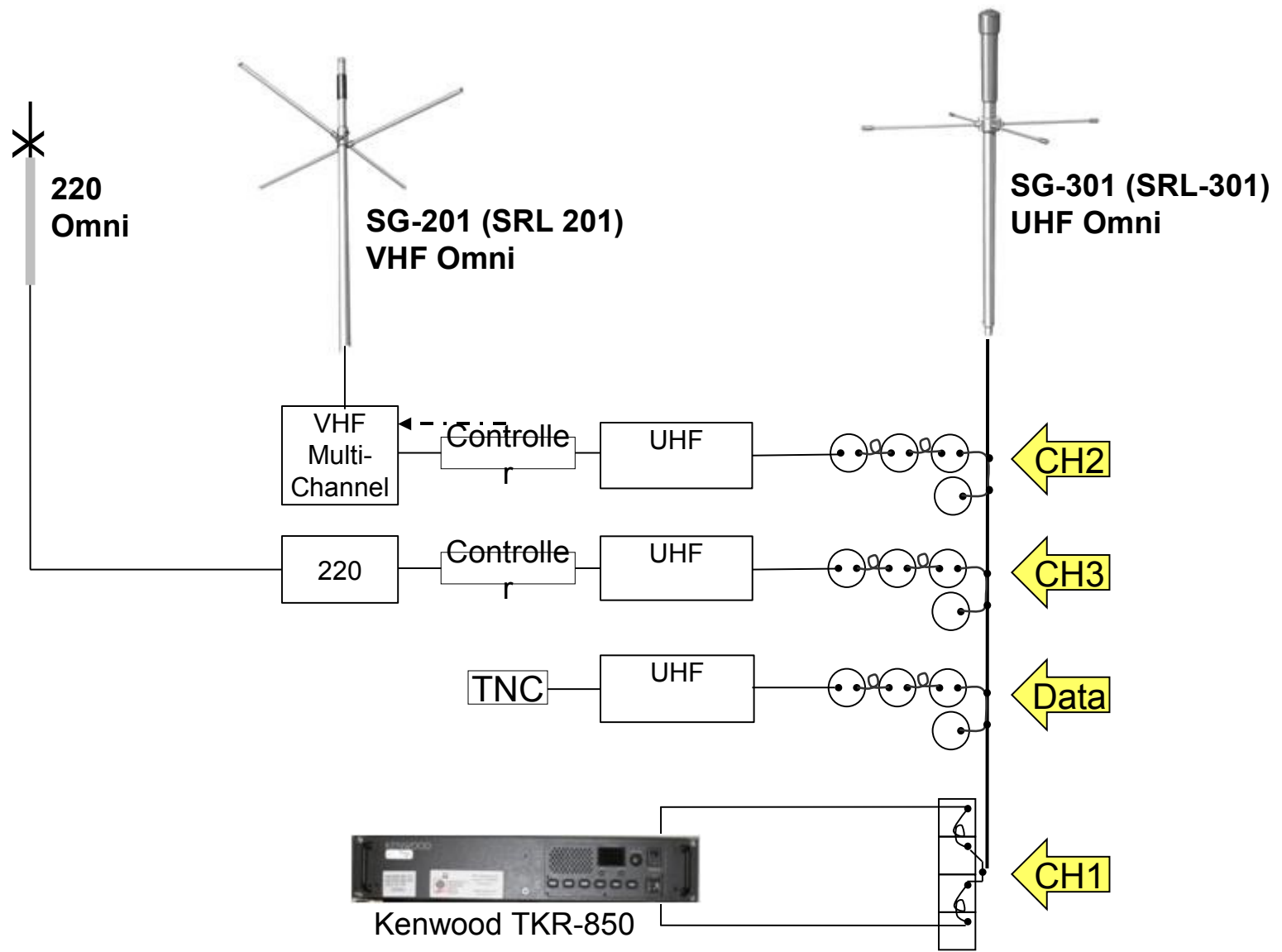
OBJECTIVE:

- Provide 3 voice channels and 1 data channel using portable radios in BFP, & 100 Constellation, and extending to Algonquin College.

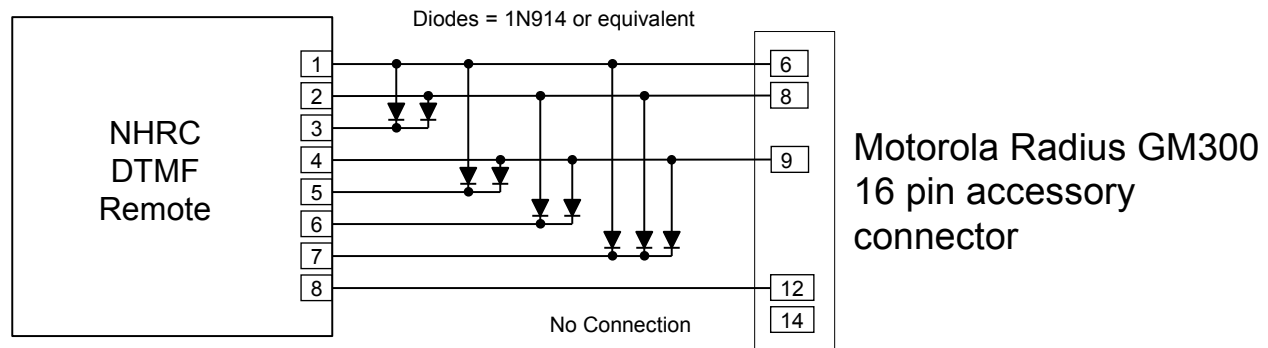
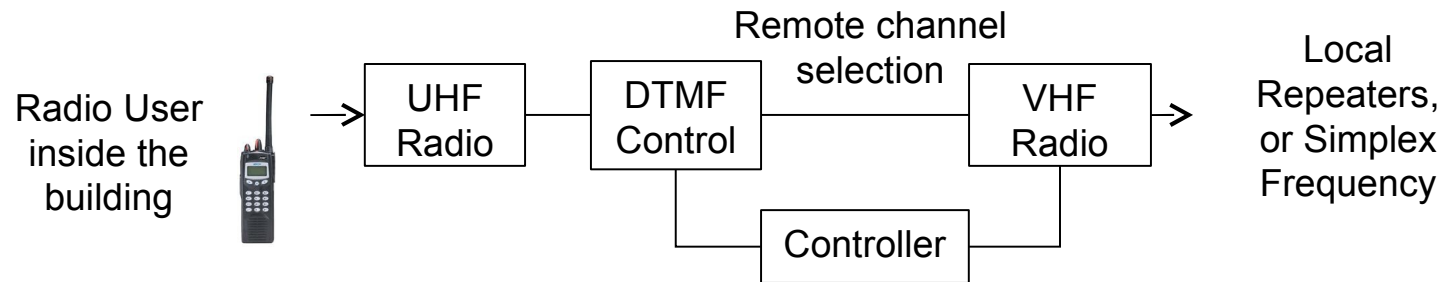


Multi Coupling + Cross Band Repeaters





Remote Channel Control



SUMMARY

- The world's expectation is crystal clear wireless communications any time, any place.
 - In the Swiss Air crash, even amateurs would turn to cell phones if the radio link was noisy.
- The technology exists and is available to Amateur radio to implement solutions that provide the coverage and audio quality required.

www.emrg.ca

The EMRG web site provides information related to Amateur radio emergency communications, specifically as it relates to the City of Ottawa.

- Project Information
- Newsletters
- Upcoming Events
- Documentation
- Links to related information

Information: **training @ emrg . ca**