Development and Evaluation of the Multi-Modal Communication Management Suite

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Command and Control Operations

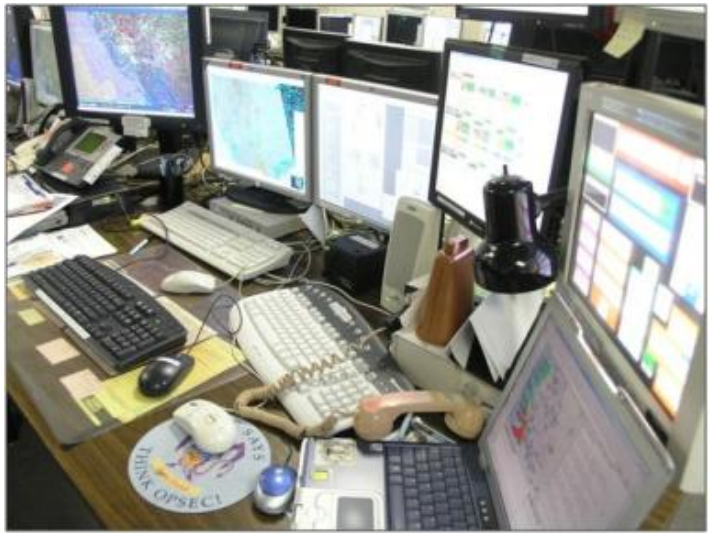
Command and Control Operations

Pros

- **Real-time access to information from distributed operators results in greater situation awareness thus more accurate and faster decisions**

Cons

- **Overload of communication that is perishable or hard to detect**
- **Systems that are redundant and not inter-connected**



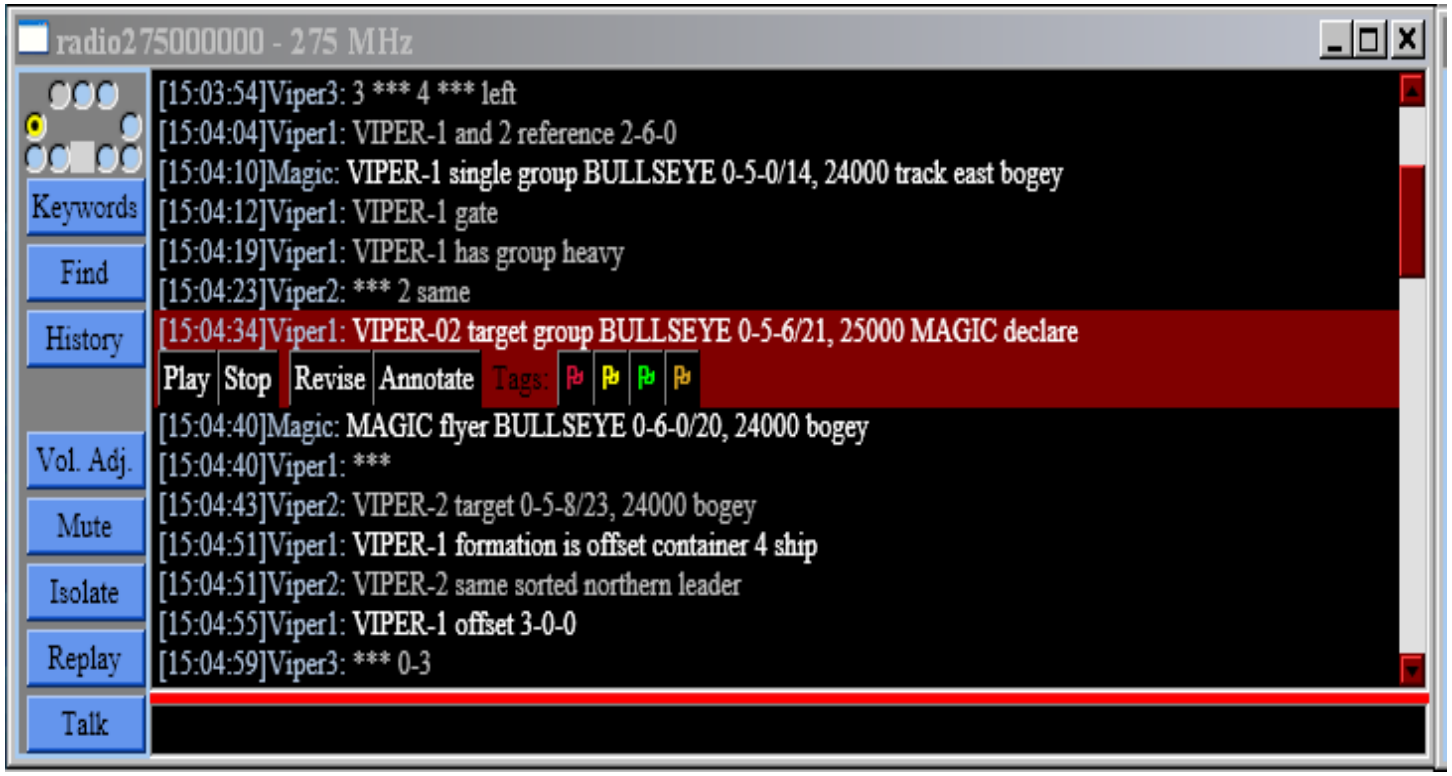
Multi-Modal Communication

Spatial Audio

- **Spatializing communication into virtual locations increases intelligibility by 30 – 40% as well as reduces listener's perceived mental workload**

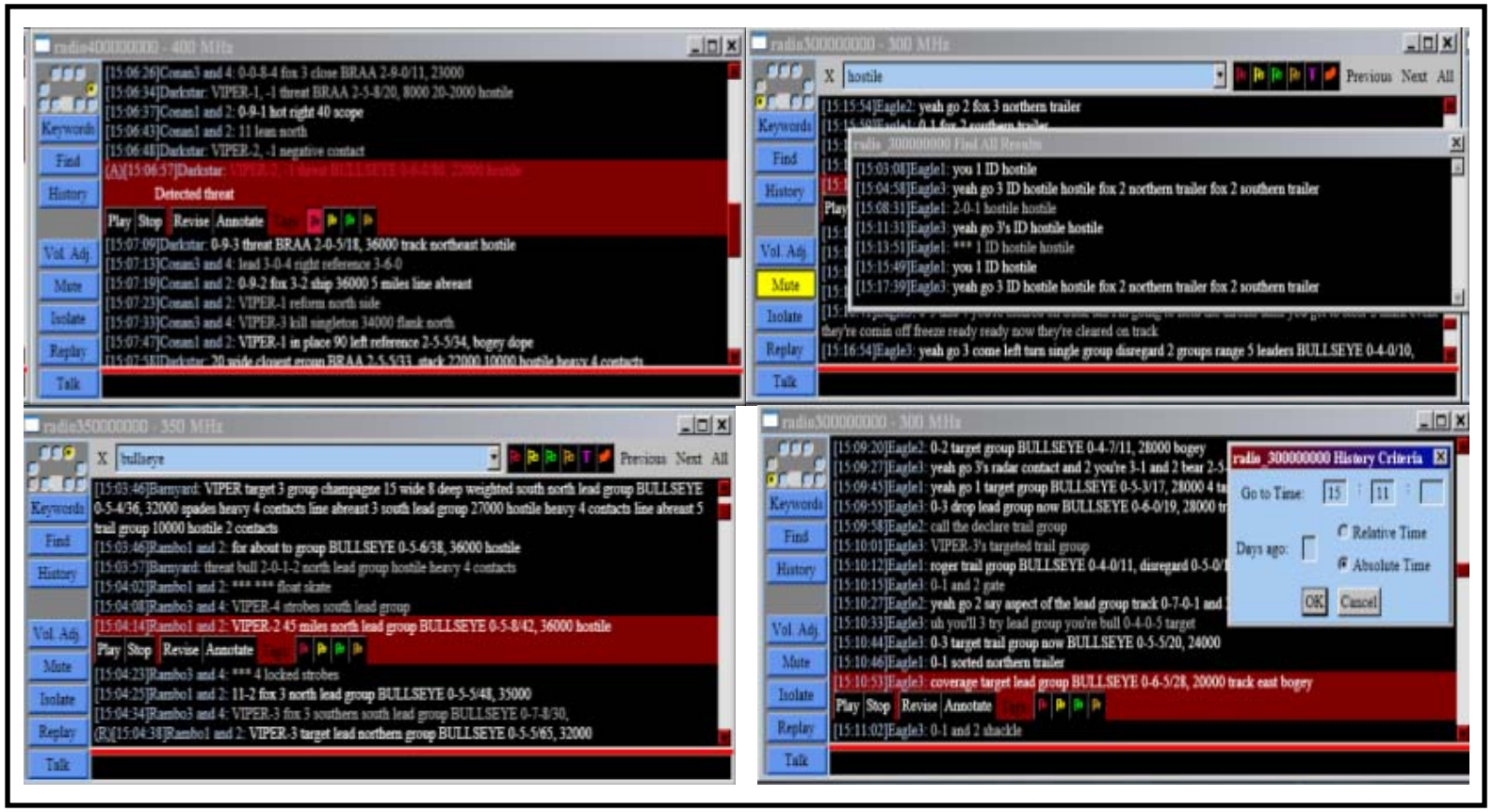
Capture and display of messages

- **Real-time speech-to-text transcription**
- **Records audio files**
- **Sends and receives Chat message**



Accessing Information

- Flag lines of comm for easy retrieval
- 'Find' function allows operators to search for specific comm
- 'History' goes to particular times

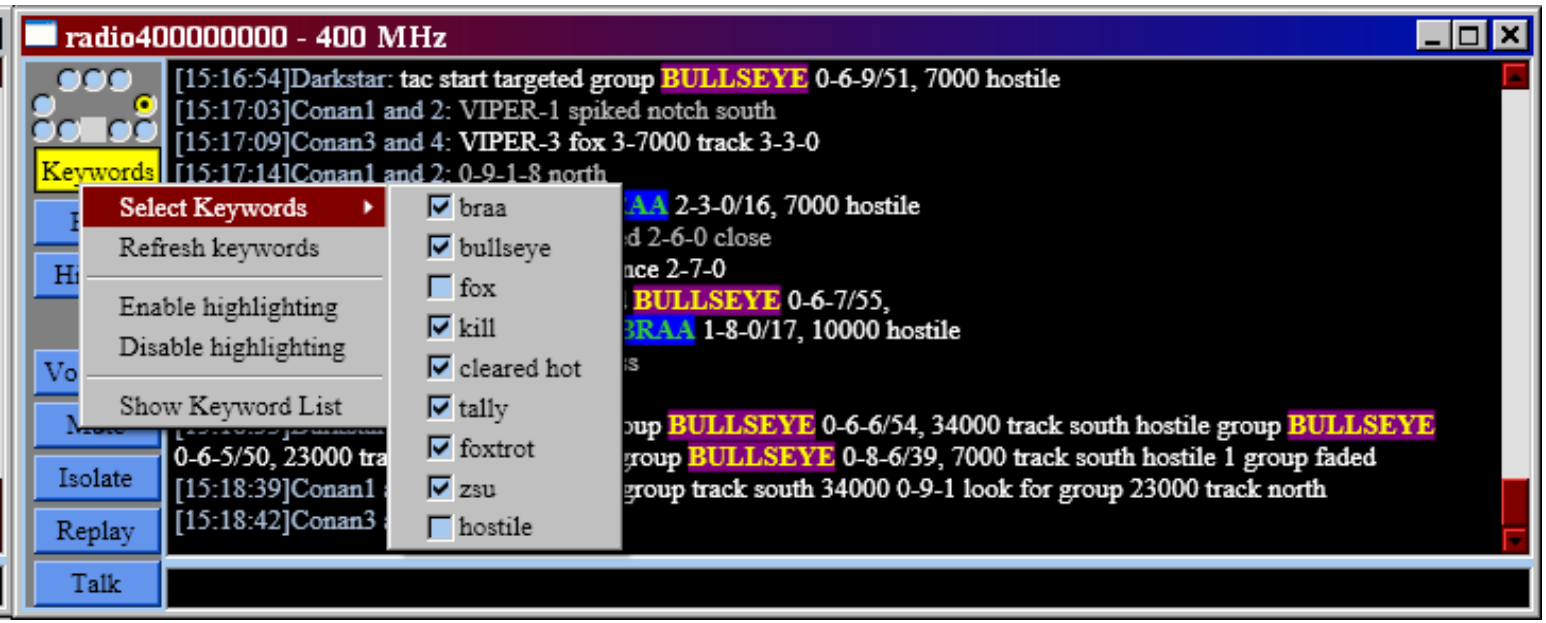


Edit / Annotate Messages

- SR is not 100% accurate
- essages can be edited to flect the corrrect formation
- ext can be formated to ser's preference
- perators can leave notes themselves for later view or debriefings

Keyword

- **User defined keywords are hightlighted**



Evaluation of the Multi-Modal Communication Tool

itial evaluation of the MMC tool

- Assess the potential utility as a communication management suite as compared to Radio, 3D Radio, and Chat

The combination of comm tools would aid operators to quickly and accurately detect and reply to critical messages independent of information load

10 paid participants monitored six comm channels for 10 minutes for the occurance of a critical phrase and reply by repeating the message back

Research Design

4 comm devices x 2 signal difficulties within design

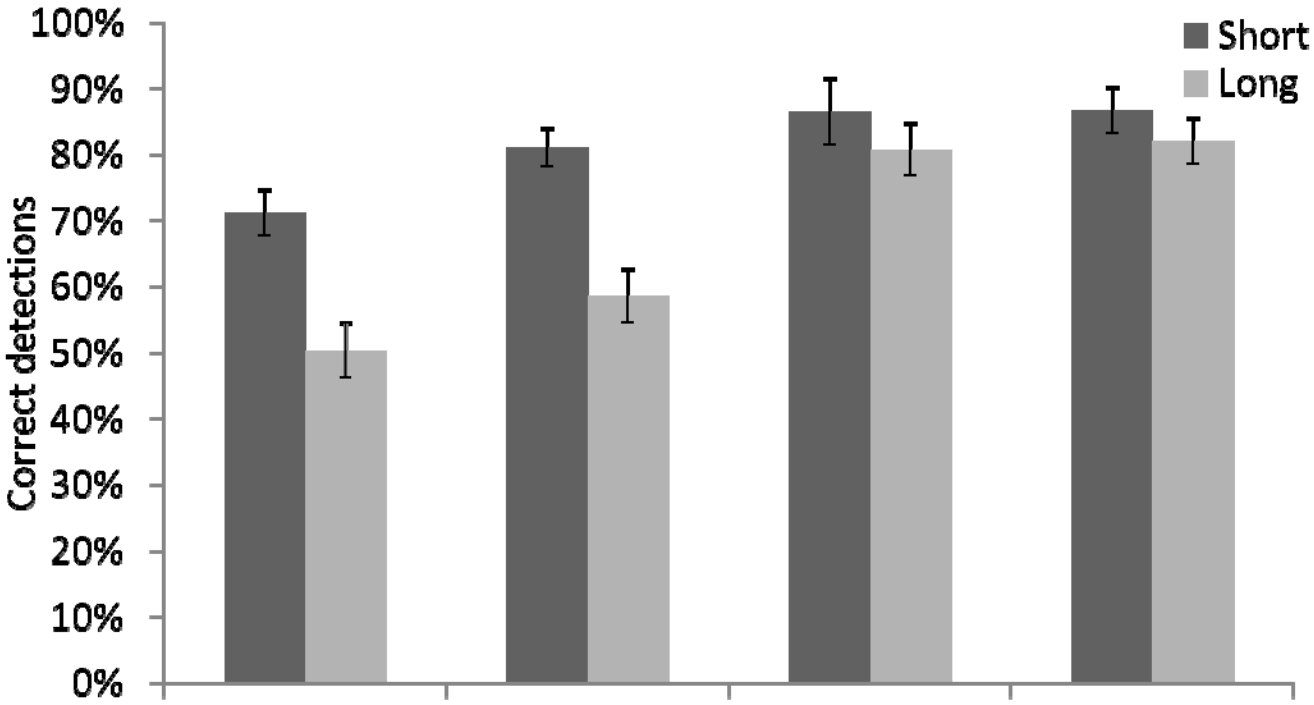
- Radio, 3D, Chat, & MMC
- Short & Long
  - Viper 1 ID hostile
  - Vipter 1 hostile north trail group 75 miles
  - **Neutral signals**
- 4 signals per channel per min
- **Critical signals**
- 1 critical signal per channel per min

Results - Correct Detections

MMC (84.3) = Chat (83.6) > 3D (69.8) > Radio (60.7)

Short (81.3) > Long (67.9)

Significant Interaction

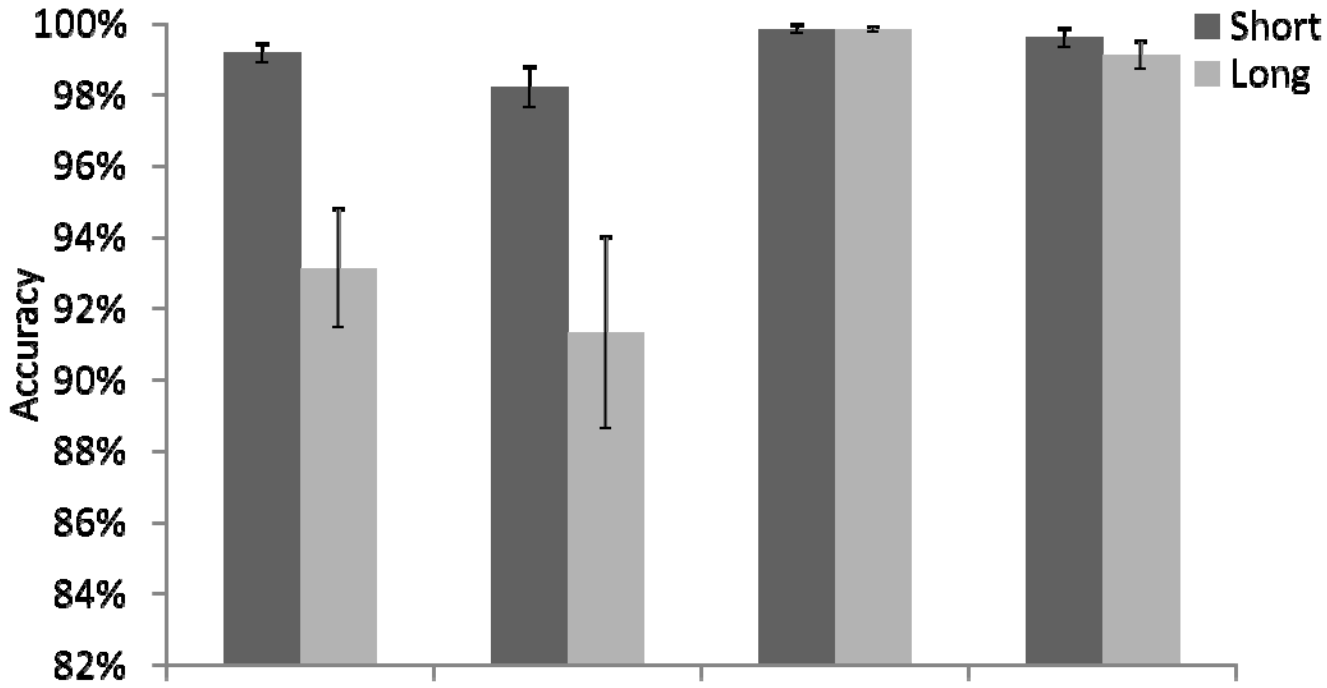


Results - Accuracy

MMC (99.4) = Chat (99.8) > 3D (94.8) = Radio (96.1)

Short (99.2) > Long (95.8)

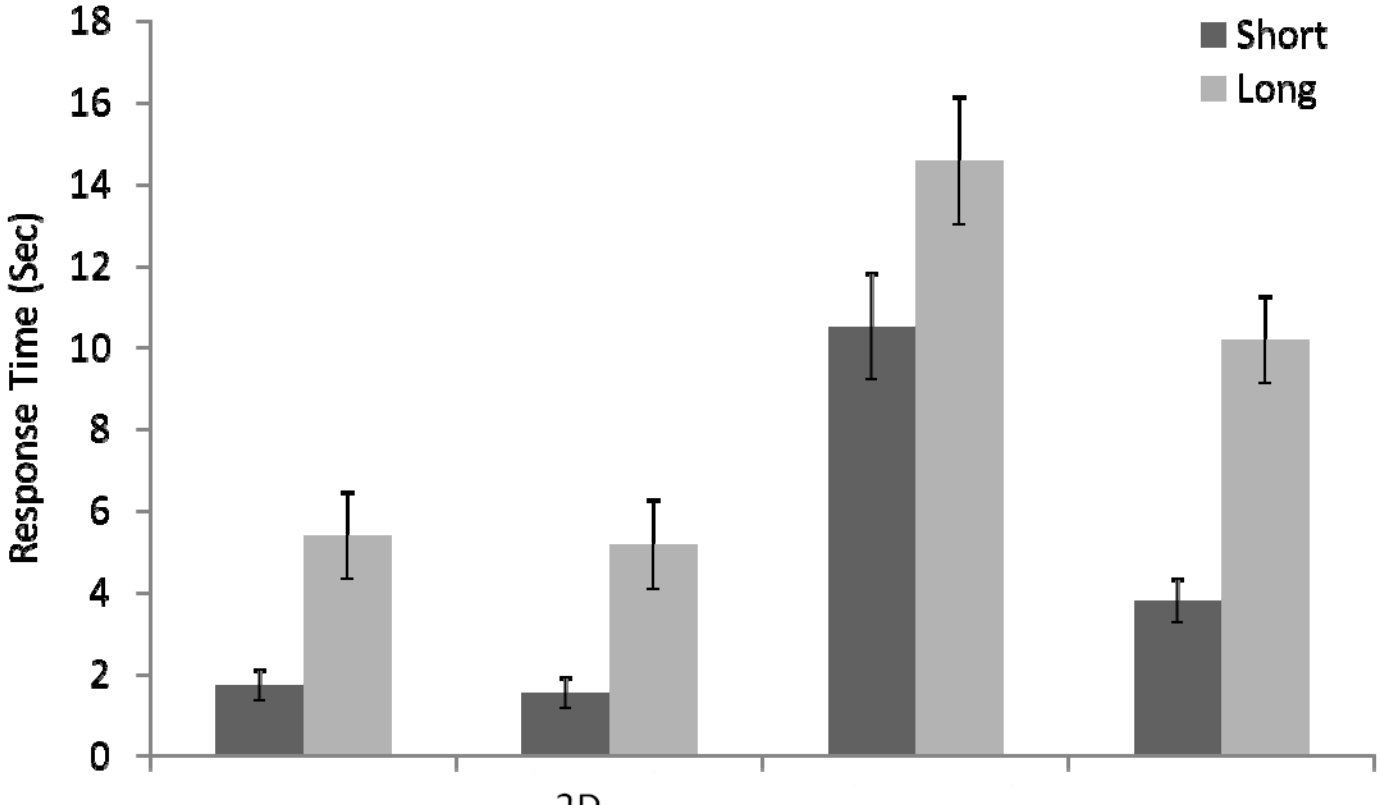
Significant Interaction



Results – Response Time

Radio (3.51) = 3D (3.35) < MMC (6.98) < Chat (12.54)

Short (4.39) < Long (8.82)



Conclusion

his study examined opertor's ability to quickly and accurately reply detected signals with the use of various communication devices

adio vs Chat

MC offers a compromise between the speed of Radio monitoring nd the accuracy and logging capabilites afforded from Chat

here was no difference in correct detection and response accuracy etween the short and long critical messages for the Chat and MMC onditions

he availability of persistent transcriptions of Radio communication nd increased intelligibility of 3D Radio coupled with the ability to etrieve pertinent information could be the difference between ission success or failure

Questions?

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