Appendix B: Broome County UHF Frequency Search

Public Safety Communications System Assessment and Design

Broome County, New York

Engineering Report

June 28, 2012

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1 Purpose and Scope

The purpose of this document is to convey the results of following a process for finding UHF Public Safety (PS) frequencies licensed within Broome County, and frequency pairs that potentially may be licensable by Broome County on a countywide basis for conventional use. The potential for licensing frequencies will be based on a centrally located site and is not based on specific site locations or parameters.

The goal of the process is the following:

- Find Public Safety Pool Frequencies
  - Determine Frequency Ownership -
  - County
  - Local Government
  - State Government
- Find Potentially Licensable Frequencies
  - ComStudy1 Frequency Finder - Use ComStudy's "Frequency Finder" function and determine the best candidate frequencies.
  - FCC County Identified Search - Find potentially licensable frequencies
  - Perform engineering analysis

The scope is limited to searching the FCC's Universal Licensing System (ULS) database and employing ComStudy to find potentially countywide licensable frequencies.

1 A software radio propagation and FCC search tool from RadioSoft.

2 Finding Licensed Frequencies

To find frequencies licensed within the County and potential frequencies for licensing, the FCC's ULS database is searched. The search is performed and returns all PS licenses for the frequencies shown in Table 1. The search is performed for a sufficient distance (in this case 155 km) from the center of Broome County to include incumbent licenses that must be protected from potential interference from proposed Broome County radio operations.

Table 1: UHF Frequency Search Ranges

Frequency Range (MHz)
453.0125 to 453.99375
458.0125 to 458.99375
460.0125 to 460.64375
462.9375 to 463.19375
465.0125 to 467.99375
468.0000 to 468.19375

3 FCC ULS Database Search Results

The results of the FCC ULS database search are contained in Excel spreadsheet titled, “110726_broome_453_0125_to_468_19375_search_r002.” Given in Table 2 are the names of the Worksheets containing frequency information and a description of their contents.

Table 2: Excel Spreadsheet Contents

Worksheet	Contents
Site- Frequency Search Results	Not sorted FCC search results.
Sorted	FCC search results sorted by frequency.
Broome Co. Licensee	All frequencies licensed to Broome County.
Licenses in Broome County	All frequencies licensed within Broome County.
Sorted & Distance Filtered	Sorted by frequency and filtered by maximum search distance.
No Dup. Sorted & Filtered Dist.	Duplicate frequencies removed from “Sorted & Filtered Dist.” Worksheet.
No Dup. Sort.,Filt.,Min.Dist.	Same as above with minimum distance from search origin included
GIS, Broome Licensee	Information in a format for import into ArcMap
Potential Frequencies	List of potential frequencies based on being farther than 65 km from the search origin

Worksheet “Licenses in Broome County” is the worksheet given to the County for the determination of potential entities. Worksheet “Potential Frequencies” can be further refined by eliminating frequencies based on FCC limitations and using ComStudy for further analysis.

4 ComStudy Frequency Finder Results

The results based on employing ComStudy's "Frequency Finder" function are contained in Excel spreadsheet, "110727_broome_uhf_frequency_finder_r005." The ten best (considering ComStudy's ranking, FCC Limitations, and Pool) frequencies have their own worksheet within the spreadsheet.

The list of frequencies is then checked against FCC Limitations and the frequency and its frequency pair is checked in ComStudy. Within ComStudy a search for adjacent channel (within 7.5 kHz) incumbents are performed. At this phase of the analysis what is considered is interference from co-channel incumbents to Broome (R6602 incumbent interference contours and mobile area of operations are plotted), and the likelihood of Broome operations to cause interference to co-channel incumbents.

The results are shown in Table 3. A "Yes" or "Possible" in the "Potential" Column indicates there is potential for licensing the frequency pair.

Table 3: Frequency Information and Potential Analysis

Frequency (MHz)	Limitation1	Class Of Station	Coordinator2	Potential	Comment
460/465.2875	None	Base/Mobile	PP	Yes	Specific site analysis needed.
460/465.1500	None	Base/Mobile	PP	Yes	Specific site analysis needed.
460/465.1875	27	Base/Mobile	PP	No	Interference to Broome.
453/458.1750	None	Base/Mobile	PP	No	Interference to Broome.
460/465.6125	None	Base/Mobile	PF	No	Interference to Broome.
453/458.2375	None	Base/Mobile	PP	No	Interference to Broome.
460/465.1000	None	Base/Mobile	PP	No	Interference to Broome.
460/465.0875	27	Base/Mobile	PP	No	Interference to Broome.
460/465.2750	27	Base/Mobile	PP	No	Interference to Broome.
453/458.3875	None	Base/Mobile	PX	Possible	Broome mobiles may interfere with KNAI404 City of Oneonta mobiles.

1: Limitations;

(27): This frequency will be assigned with an authorized bandwidth not to exceed 11.25 kHz.

2: Coordinator;

PF = Fire Pool, PP = Police Pool, PX = General Pool

5 Conclusion

Based on a centrally located site, a trunked UHF radio system, and the analysis performed, there are potentially three frequency pairs that can be licensed. The final determination will be based on specific sites and parameters.