

**Mutual Aid Box Alarm System – Illinois  
Policy – Practices – Guidelines Manual**

Index #C-01-02

Adopted – 4-24-03

Revised:

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Subject: CTCSS Tones  
Functional Area: Communications  
Category: Policy  
  
Approved By: MABAS Executive Board

**Purpose:**

To implement the use of Carrier Tone Coded Squelch Systems (CTCSS), also commonly known as “Private Line™” or “PL™” on the IFERN and fireground frequencies.

**Responsibility:**

This policy applies to all MABAS member agencies. It is encouraged that all fire departments and related emergency response organizations throughout Illinois adopt the procedures set forth herein.

**Accountability:**

Enforcement of this specific policy rests initially with the Co-Chairs of the MABAS Telecommunications, Communications, and Dispatch Centers committee, then the MABAS CEO, followed by the MABAS President, 1<sup>st</sup> Vice President and 2<sup>nd</sup> Vice President.

**Reporting Requirement:**

There is no routine reporting requirement for this policy.

**Background:**

When the MABAS organization was formed in the early 1970's, radio communications were primitive as compared to the systems and equipment in use today. Many radios were not capable of CTCSS and those that were CTCSS equipped were limited to a single tone frequency. Since numerous CTCSS tones were already in use throughout the Chicago metropolitan area, a single CTCSS tone for MABAS was not practical and carrier squelch mode was selected.

Radio spectrum has become increasingly congested, especially in the large metropolitan areas. This congestion includes the public safety radio frequency spectrum. Many base stations that monitor the IFERN frequency in carrier squelch mode are subjected to adjacent channel interference and frequency mixes. Adjacent states utilize the IFERN frequency for other purposes, which also cause unwanted interference. The result is radio volumes are muted, limiting the effectiveness of the frequency.

In the command unit environment, where multiple radios are being used in close proximity to one another, there is often unwanted noise received and sounded through the radio speakers. While mostly annoying, this problem can be masked by the use of different CTCSS tones on the various frequencies being used.

Most radio communications equipment in use today by the fire service is capable of multiple CTCSS tones, selected on a mode specific basis. Older equipment can also be inexpensively modified to transmit CTCSS tones.

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**Policy:**

The MABAS Telecommunications, Communications and Dispatch Committee hereby establishes the following policy:

1. All IFERN base station radios should be programmed or modified for transmit and receive CTCSS utilizing a tone frequency of 210.7 Hz (M2).
2. All fire service mobile/portable radios should be programmed or modified for transmit CTCSS utilizing the following tones:

IFERN	154.2650 MHz	210.7 Hz (M2)
RED Fireground	153.8300 MHz	69.3 Hz (WZ)
WHITE Fireground	154.2800 MHz	74.4 Hz (WA)
BLUE Fireground	154.2950 MHz	85.4 Hz (YA)
GOLD Fireground	153.8375 MHz	91.5 Hz (ZZ)
BLACK Fireground	154.2725 MHz	94.8 Hz (ZA)
GRAY Fireground	154.2875 MHz	136.5 HZ (4Z)
IFERN2	154.3025 MHz	67.0 Hz (XZ)

3. All MABAS Divisions and fire departments should be prepared to implement the use of CTCSS on the IFERN frequency with an absolute application date of January 1, 2006.
4. All base and communications/command van users should monitor the frequencies in the carrier squelch mode prior to transmitting as required by FCC regulations.

**Conclusion:**

Adding CTCSS to base station receivers should control unwanted co-channel and adjacent channel interference.