Creating Station Acknowledge Tones for a DXI System

Table of Contents

1 Intent & Scope 1
2 Introduction 1
3 Overview 1
4 Setting up an Acknowledge Signal 2
4.1 Creating a tone using the Maintenance menus 2
4.2 Assigning the Tone ID to a Stations CRQ. 2
5 Using a Text Editor to Modify Configuration Files 3

1 Intent & Scope

The Application Note describes how to create a tone in a DXI system that can be used to indicate that a station call request (CRQ) switch has been pressed.

2 Introduction

When a CRQ switch is pressed a positive feedback signal will provide assurance to the person making the call request that the switch closure has been recognized by the DXI system. This feedback signal can be in the form of a short beep tone.

3 Overview

When a CRQ switch at a station is pressed the DXI system can be programmed to generate an audio signal back to the station to indicate that the switch closure has been recognized by the DXI system. In a DXI system this signal has the following characteristics:

i) The signal will be generated each time the switch is pressed.

ii) The signal will only play once per switch closure.

iii) The signal does not indicate that the call request has been placed in the event queue.

The signal that is generated by the DXI is usually a short tone created by a digital signal processor (DSP) and consists of four equal time sub-intervals and two distinct frequencies (Start Freq1 and Stop Freq2). Each sub-interval of the tone can be programmed to:

i) generate no output

ii) change the output frequency from Start Freq 1 to Stop Freq 2 during a sub- interval.

iii) change the output frequency from Stop Freq 2 to Start Freq 1 during a sub-interval.

iv) maintain a constant frequency during an sub-interval

4 Setting up an Acknowledge Signal

In the DXI we need to first create an appropriate tone using the Maintenance set of menus, then using the Administration set of menus specify the stations which will generate a station acknowledge tone when their CRQ switch is pressed.

4.1 Creating a tone using the Maintenance menus

In the Maintenance set of menus select Edit → Modify Hardware and select Tone from the "Database to Modify" prompt. Use the "F10" key to add a new tone to the configuration.

```
↓ / Enter: Next Field.          ↑: Previous field.            Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry         End: Quit
                                F9: Delete  F10: Add          F1: Help
Tone ID:              1
Name (English):       Acknowledge
Name (French):        ?
Name (Spanish)::      ?
Volume1:              3                   (0-7)
Profile1:             255                 See help for description)
Num steps1:           1
Start Freq1:          475                 (Hertz)
End Freq1:            1100                (Hertz)
Period1:              20                  (milliseconds)
Tone DSP:             0
```

Tone ID is a unique number that identifies the tone; in this case it is set to 1. The Profile1 of 255 represents a constant frequency signal of 475 Hz (Start Freq1) with a duration of 20 ms. (The End Freq1 and Numsteps1 have no effect on this particular profile). The Volume1 setting of 3 represents a middle setting, but can be made lower for a quieter tone or higher for a louder tone.

Press the "End" key to return to the "Database to Modify" screen, then select "Exit" to return to the Maintenance set of menus. You will be prompted to save your modified configuration before returning to the Maintenance menus.

4.2 Assigning the Tone ID to a Station CRQ.

Once we have created a suitable tone the next step is to assign that tone to each station's CRQ switch so that it will generate as a call acknowledge signal when the switch is pressed. From the Administration set of menus select Edit → Modify Software. In the "Database to Modify" prompt select Station. Using the Page Down/ Page Up keys or pressing F2 to search by entering the station number select the station you want to have a call acknowledge feature.

By repeatedly pressing the "Home" key go to page 4 of 11 of station parameters entries.

```
↓ / Enter: Next Field.          ↑: Previous field.          Home: Next Page
    ←/→: Select        PgUp/PgDn: Next/previous entry        End: Quit
                                                              F1: Help

Station ID:          1172  Switch 1       Page 4 of 11
Release Action 1:    Stn Ack Tone
ID1:                 1172
ID2:                 1
Master:
Release Action 2:    Unknown
ID1:                 0
ID2:                 0
Master:
Release Action 3:    Unknown
ID1:                 0
ID2:                 0
Master:
Release Action 4:    Unknown
ID1:                 0
ID2:                 0
Master:
```

The Release Action 1 should be set to "Stn Ack Tone" to send an acknowledge tone when Switch 1 is pressed (the CRQ switch).

The ID1 parameter should be set to the same number as the Station ID (1172 in this example) so that the tone is broadcast on the same station as the one that initiated the CRQ.

The ID2 should be assigned the ID number of the tone you want to be used as the acknowledge tone, in this example Tone ID: 1.

The configuration of every station that requires an acknowledge tone must be modified in a similar fashion.

Once you have added the acknowledge feature to the required stations press the "End" key to return to the "Modify Data Base" screen and select "Exit" to return to the Administration set of menus. You will be prompted to save the configuration before returning to the Administration menus.

5 Using a Text Editor to Modify Configuration Files

A faster method of altering configuration files is to change the data base directly using a text editor. To add the same tone to the hardware configuration as made in Section 4 you can alter the hardware configuration file as follows.

Page down until the cursor is after the last card entry and add the following:

Tone 1 Name "Acknowledge" "?" "?"
Tone Type 3 255 1 475 1100 20 0 0 0 0 0 0
Tone Channel 126 DSP 0:

Note that tone channels allocate from 126 downward in steps of 2. If there are other tones in the system make sure that there is not a conflict with other channels (make this channel number 2 lower than the lowest DSP channel used by other tones).

Save the hardware configuration file and exit.

To modify a station so that it will receive an acknowledge tone you can modify the station parameters in the software configuration file as follows:

i) delete the semicolon at the end of the last line of the station configuration

ii) add the following lines

Release_Actions 1

Stn_Ack_Tone_ON <station> <tone> 0;

In the above example in the software configuration file where the original entry was,

```
Station     1172 Name “117B” “?” “?”
            Master 9000 Volume 3;
```

After editing it becomes,

```
Station     1172 Name “117B” “?” “?”
            Master 9000 Volume 3
            Release_Actions 1
            Stn_Ack_Tone_ON 1172 1 0;
```

Save the software configuration and exit.