CHAPTER 3

Finland Tone Plan

This chapter details the modifications to the Digital Tone Generator (DTG or DTG-2) and Call Progress Analyzer (CPA), and SPC-CPA service circuits to support the supervision tones specific to the Finland telephone network.

The information in this chapter supersedes the information in the following manuals:

- *Cisco VCO/4K System Administrator's Guide*
- *Cisco VCO/4K Standard Programming Reference*
- *Cisco VCO/4K Extended Programming Reference*
- *Cisco VCO/4K Supervision and Call Progress Tone Detection*

Tone Characteristics

Table 3-1 summarizes the characteristics of the most frequently used supervision tones, and two conference tones, in the Finland network.

Table 3-1 Finland Digital Tone Generator Supervision Tones

Tone	Frequency (Hz)	Amplitude (dBm)	Cadence	Detected by CPA?
Dial	425	–10	Continuous	Yes
Ring	425	–10	1.0 second on, 4.0 seconds off, REPEATED	Yes
Busy	425	–10	0.3 second on, 0.3 second off, REPEATED	Yes
Reorder[1]	425	–9	150 milliseconds on, 150 milliseconds off, REPEATED	Yes

Table 3-1 Finland Digital Tone Generator Supervision Tones (continued)

Tone	Frequency (Hz)	Amplitude (dBm)	Cadence	Detected by CPA?
SIT[1]	950 1400 1800	–9 –9 –9	300 milliseconds on, 300 milliseconds off, 300 milliseconds on, 1.0 second off, REPEATED	Yes
Intrusion	425	–10	200 milliseconds on, 300 milliseconds off, 200 milliseconds on, 1.3 seconds off, REPEATED	No
Warn	1400	–10	400 milliseconds on, 14.6 seconds off REPEATED	No
Waiting	900	–13	650 milliseconds on, 350 milliseconds off, 30 milliseconds on, REPEATED	No
		–10	1.3 seconds on, 2.8 seconds off, REPEATED	
Special Dial	425	–10	650 milliseconds on, 650 milliseconds off, REPEATED	No
Fax[2]	1100	—	2 seconds on	Yes

1. Available in the tone library, but not used in the Finland tone plan.
2. The fax tone is detected only; it is not generated.

Tone Detection

CPA processing is modified to support the Finland network requirements. Use the system administration answer supervision templates function to control tone detection for the tones listed in Table 3-1. Supervision template processing is described in the *Cisco VCO/4K System Administrator's Guide*.

Answer Supervision Template Screen Terminology

The supervision events and tones listed in the Answer Supervision Template screen use standard North American network terminology. Table 3-2 shows the Answer Supervision Template screen terms to use with the Finland country feature package.

Table 3-2 Answer Supervision Template Screen Terminology for Finland

Answer Supervision Template Event and Tone Names	Finland Tone Names
Dial	Dial
Ring	Ring
Busy	Busy
Reorder	Reorder
SIT	SIT
Pager Cue	Fax
Ring Cess.[1]	Not applicable
Voice Det.[1]	Not applicable
Voice Cess.[1]	Not applicable
Wink[1]	Not applicable
Answer[1]	Not applicable
Time[1]	Not applicable
Hook Flash[1]	Not applicable
ISUP Tone	Not applicable
ISUP Cess.[1]	Not applicable

1. Not a tone.

Tone Generation

Tone generation is performed through DTG outpulse and static tone channels. The allocation of these tones is controlled via inpulse rules, and the Voice Path Control ($66) and DTMF Collection Control ($67) commands.

Table 3-3 supersedes the tone generation table listed in the *Cisco VCO/4K Standard Programming Reference* and the *Cisco VCO/4K Extended Programming Reference*. It also supersedes the tone output level specifications found in the *Cisco VCO/4K Card Technical Descriptions*. For more information on generating tones, refer to the *Cisco VCO/4K System Administrator's Guide*.

The tones and their corresponding output levels, decimal values, hexadecimal values, and port addresses are summarized in Table 3-3.

Table 3-3 Tone Levels, Values, and Port Addresses

Tone	Output Level	Dec Value	Hex Value	Port Address
Beep	—	0	00	None
Quiet (PCM idle pattern 01010100)	—	1	01	04C0
1 kHz Test Tone	0 dBm	2	02	04C1
Dial	**–10 dBm**	**3**	**03**	**04C2**
380 Hz Digit Trip	–10 dBm	4	04	04C3
425 Hz	–10 dBm	5	05	04C4
480 Hz High Tone	–17 dBm	6	06	04C5
1400 Hz	–10 dBm	7	07	04C6
1000 Hz @max CODEC output	—	8	08	04C7
950 Hz	–13 dBm	9	09	04C8
404 Hz Test Tone	0 dBm	10	0A	04C9
1004 Hz Test Tone	0 dBm	11	0B	04CA
2804 Hz	0 dBm	12	0C	04CB
380 Hz	–10 dBm	13	0D	04CC
1760 Hz	–10 dBm	14	0E	04CD
Digital Test Pattern	—	15	0F	04CE
425 Hz	–10 dBm	16	10	04CF
Ring	**–10 dBm**	**17**	**11**	**04D0**
Busy	**–10 dBm**	**18**	**12**	**04D1**
Reorder	**–9 dBm**	**19**	**13**	**04D2**
380 Hz	–10 dBm	20	14	04D3
Reserved	—	21	15	04D4
Intrusion	**–10 dBm**	**22**	**16**	**04D5**
Warning	**–10 dBm**	**23**	**17**	**04D6**
Wait	**–13 dBm** **–10 dBm**	**24**	**18**	**04D7**
PBX Internal	–10 dBm	25	19	04D8
SIT	**–9 dBm**	**26**	**1A**	**04D9**
Special Dial	**–10 dBm**	**27**	**1B**	**04DA**
Reserved	—	28	1C	04DB
Reserved	—	29	1D	04DC
Reserved	—	30	1E	04DD
Reserved	—	31	1F	04DE
Reserved	—	32	20	04DF
DTMF digit 0 (steady)	–9/–11 dBm/freq	33	21	04E0

Table 3-3 Tone Levels, Values, and Port Addresses (continued)

Tone	Output Level	Dec Value	Hex Value	Port Address
DTMF digit 1 (steady)	–9/–11 dBm/freq	34	22	04E1
DTMF digit 2 (steady)	–9/–11 dBm/freq	35	23	04E2
DTMF digit 3 (steady)	–9/–11 dBm/freq	36	24	04E3
DTMF digit 4 (steady)	–9/–11 dBm/freq	37	25	04E4
DTMF digit 5 (steady)	–9/–11 dBm/freq	38	26	04E5
DTMF digit 6 (steady)	–9/–11 dBm/freq	39	27	04E6
DTMF digit 7 (steady)	–9/–11 dBm/freq	40	28	04E7
DTMF digit 8 (steady)	–9/–11 dBm/freq	41	29	04E8
DTMF digit 9 (steady)	–9/–11 dBm/freq	42	2A	04E9
DTMF digit A (steady)	–9/–11 dBm/freq	43	2B	04EA
DTMF digit B (steady)	–9/–11 dBm/freq	44	2C	04EB
DTMF digit C (steady)	–9/–11 dBm/freq	45	2D	04EC
DTMF digit D (steady)	–9/–11 dBm/freq	46	2E	04ED
DTMF digit * (steady)	–9/–11 dBm/freq	47	2F	04EE
DTMF digit # (steady)	–9/–11 dBm/freq	48	30	04EF
MF digit 0 (steady) (1300 + 1500 Hz)	–7 dBm/freq	49	31	04F0
MF digit 1 (steady) (700 + 900 Hz)	–7 dBm/freq	50	32	04F1
MF digit 2 (steady) (700 + 1100 Hz)	–7 dBm/freq	51	33	04F2
MF digit 3 (steady) (900 + 1100 Hz)	–7 dBm/freq	52	34	04F3
MF digit 4 (steady) (700 + 1300 Hz)	–7 dBm/freq	53	35	04F4
MF digit 5 (steady) (900 + 1300 Hz)	–7 dBm/freq	54	36	04F5
MF digit 6 (steady) (1100 + 1300 Hz)	–7 dBm/freq	55	37	04F6
MF digit 7 (steady) (700 + 1500 Hz)	–7 dBm/freq	56	38	04F7
MF digit 8 (steady) (900 + 1500 Hz)	–7 dBm/freq	57	39	04F8
MF digit 9 (steady) (1100 + 1500 Hz)	–7 dBm/freq	58	3A	04F9
MF digit KP (steady) (1100 + 1700 Hz)	–7 dBm/freq	59	3B	04FA
MF digit ST (steady (1500 + 1700 Hz)	–7 dBm/freq	60	3C	04FB
MF digit ST3P (700 + 1700 Hz)	–7 dBm/freq	61	3D	04FC
MF digit STP (900 + 1700 Hz)	–7 dBm/freq	62	3E	04FD
MF digit ST2P (1300 + 1700 Hz)	–7 dBm/freq	63	3F	04FE