



South Africa 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 South Africa 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 2-1 summarizes the characteristics of the most frequently used supervision tones in the South Africa network.

Table 2-1 South Africa Digital Tone Generator Supervision Tones

Tone	Frequencies (Hz)	Amplitude (dBm)	Cadence	Detected by CPA?
Dial	400 modulated 33 at 90%	-8	Continuous	Yes
Ring	400 modulated 33 at 90%	-8	0.4 seconds on, 0.2 seconds off, 0.4 seconds on, 2 seconds off, REPEATED	Yes
Busy	400	-8	0.5 seconds on, 0.5 seconds off, REPEATED	Yes
Reorder	400	-8	0.25 seconds on, 0.25 seconds off, REPEATED	Yes

Table 2-1 South Africa Digital Tone Generator Supervision Tones (continued)

Tone	Frequencies (Hz)	Amplitude (dBm)	Cadence	Detected by CPA?
SIT	950 1400 1800	-8 -8 -8	0.33 seconds on, 0.33 seconds on, 0.33 seconds on, 0.33 seconds off, REPEATED	Yes
Intrusion	400	-8	0.15 seconds on, 0.25 seconds off, 0.15 seconds on, 1.45 seconds off, REPEATED	No
Call Notify	900	-8	0.2 seconds on, 0.2 seconds off, 0.2 seconds on, 0.2 seconds off, 0.2 seconds on, 5 seconds off, REPEATED	No
Comfort	950 950 1400	-8 -8 -8	0.66 seconds on, 0.33 seconds off, 0.33 seconds on, 1.32 seconds on, 2.64 seconds off, REPEATED	Yes—as Pager
Call Waiting	400 modulated 33 at 90%	-8	0.25 seconds on, 0.25 seconds off, 0.25 seconds on, 0.25 seconds off, 0.25 seconds on, 0.25 seconds off, 0.25 seconds on, 7.25 seconds off, REPEATED	Yes—as Reorder
Number Unavailable	400	-8	2.5 seconds on, 0.5 seconds off, REPEATED	Yes—as SIT
Positive Acknowledge	700 1100	-8	0.25 seconds on, 0.25 seconds off, 0.25 seconds on, 0.25 seconds off, REPEATED	Yes—as Reorder

Tone Detection

CPA processing is modified to support the South Africa network requirements. Use the system administration answer supervision templates function to control tone detection for the tones listed in Table 2-1. 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 2-2 shows the Answer Supervision Template screen terms to use with the South Africa country feature package.

Table 2-2 Answer Supervision Template Screen Terminology for South Africa

Answer Supervision Template Event and Tone Names	South Africa Tone Names
Dial	Dial
Ringback	Ring
Busy	Busy
Reorder	Reorder, Call Waiting, Positive Acknowledge
SIT Tones	SIT, Number Unavailable
Pager Cue	Comfort
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, the Voice Path Control (\$66) command and the DTMF Collection Control (\$67) command.

Table 2-3 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 2-3.

Table 2-3 *Tone Levels, Values, and Port Addresses*

Tone	Output Level	Decimal 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	-8 dBm	3	03	04C2
380 Hz Digit Trip	-10 dBm	4	04	04C3
440 Hz	-13 dBm	5	05	04C4
480 Hz High Tone	-17 dBm	6	06	04C5
1400 Hz	-8 dBm	7	07	04C6
1000 Hz @max CODEC output	5.79 dBm	8	08	04C7
950 Hz	-8 dBm	9	09	04C8
404 Hz Test Tone	0 dBm	10	0A	04C9
900 Hz Test Tone	-8 dBm	11	0B	04CA
2804 Hz	0 dBm	12	0C	04CB
Steady Ringback	variable	13	0D	04CC
1800 Hz	-8 dBm	14	0E	04CD
Digital Test Pattern	—	15	0F	04CE
400 Hz	-14 dBm	16	10	04CF
Reserved	—	17	11	04D0
Ring	-8 dBm	18	12	04D1
Busy	-8 dBm	19	13	04D2
Reorder	-8 dBm	20	14	04D3
SIT	-8 dBm	21	15	04D4
Intrusion	-8 dBm	22	16	04D5
Call Notify	-8 dBm	23	17	04D6
Comfort	-8 dBm	24	18	04D7
Call Waiting	-8 dBm	25	19	04D8
Number Unavailable	-8 dBm	26	1A	04D9
Positive Acknowledge	-8 dBm	27	1B	04DA
Reserved	—	28	1C	04DB
Reserved	—	29	1D	04DC

Table 2-3 Tone Levels, Values, and Port Addresses (continued)

Tone	Output Level	Decimal Value	Hex Value	Port Address
Reserved	—	30	1E	04DD
Reserved	—	31	1F	04DE
Reserved	—	32	20	04DF
DTMF digit 0 (steady)	-13/-11 dBm/freq	33	21	04E0
DTMF digit 1 (steady)	-13/-11 dBm/freq	34	22	04E1
DTMF digit 2 (steady)	-13/-11 dBm/freq	35	23	04E2
DTMF digit 3 (steady)	-13/-11 dBm/freq	36	24	04E3
DTMF digit 4 (steady)	-13/-11 dBm/freq	37	25	04E4
DTMF digit 5 (steady)	-13/-11 dBm/freq	38	26	04E5
DTMF digit 6 (steady)	-13/-11 dBm/freq	39	27	04E6
DTMF digit 7 (steady)	-13/-11 dBm/freq	40	28	04E7
DTMF digit 8 (steady)	-13/-11 dBm/freq	41	29	04E8
DTMF digit 9 (steady)	-13/-11 dBm/freq	42	2A	04E9
DTMF digit A (steady)	-13/-11 dBm/freq	43	2B	04EA
DTMF digit B (steady)	-13/-11 dBm/freq	44	2C	04EB
DTMF digit C (steady)	-13/-11 dBm/freq	45	2D	04EC
DTMF digit D (steady)	-13/-11 dBm/freq	46	2E	04ED
DTMF digit * (steady)	-13/-11 dBm/freq	47	2F	04EE
DTMF digit # (steady)	-13/-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

Table 2-3 Tone Levels, Values, and Port Addresses (continued)

Tone	Output Level	Decimal Value	Hex Value	Port Address
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