

# MiVoice MX-ONE Market Characteristics

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[illegible]

## Market specific values for Australia

TRM-parameters	
0	Digital extension line, PBX operator line, IP extension lines
1	Analog extension line
2	Spare
3	Digital trunks
4	Analog external line
5	2-wire tie line (TLU21, 23)
6	2-wire tie line (TLU23 LL)
7	4-wire tie line (TLU23 SL)
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

From line type

TRM-matrix		To line type																							
TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
0	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	4	5	2	4	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
4	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
5	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
7	2	2	1	1	1	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz) dBm0	Cadence (ms)	tone-pause-tone	Note
0	Pause (silence)	3/0	425, -10			Cont.
1	Dial tone	3/0	425, -10	320-10		Rep.
2	Special dial tone	3/0	425, -10	375-375		Rep.
3	Busy tone	-3/0	425, -10	375-375		Rep.
4	Congestion tone	-3/0	425, -10	2500-500		Rep.
5	NU tone	-3/0	425, -10	88-14720		Rep.
6	Warning tone for intrusion	6/0	425, -10			Cont.
8	Facsimile's ringback	3/0	425, -10			Non rep.
11	Call waiting tone	6/0	425, -4	200-200	200	330-1000 330-1000
13	Verification tone	6/0	400, -10			Rep.
14	Warning tone for conference	0/0	450, -10			Rep.
15	Ring tone	0/0	425, -20	330-30		Rep.
16	Call diversion message	0/0	400, -10	400-200	390-2010	Rep.
17	1st ring tone	0/0	450, -10	400-200	390-2010	Rep.
18	Queue tone	0/0	400, -10	400-200	390-2010	Rep.
21	HW-test tone	3/0	450, -10	400-200	390-2010	Cont.
22	Music on hold 1	0/0	425, -10			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	3/0	Ext. input			Cont.
29	Call waiting tone from trunk	6/0	425, -10	200-200	200	Non rep.
31	Expensive route warning tone	0/0	425, -10			Rep. 4 sec.
32	Message waiting dial tone	3/0	1400, -17	250-750		Rep.
33	Message waiting special dial tone	3/0	425, -10	320-10		Rep.
41	Global dial reorder tone	3/0	425, -10			Cont.
42	Global ring tone	3/0	425, -10	1000-3000		Rep.
43	Global busy tone	3/0	425, -10	500-500		Rep.
44	Global interception tone	3/0	425, -10	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' are repeated.

Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	25 Hz	1000-2500	
External call	25 Hz	500-300	500-2500
Call back	25 Hz	300-400	

Optical signals			
Signal		Cadence (ms)	light-pause-light
Line not connected	turned off		
Function on key activated	light		
Line connected	1850-50	50-50	
Parked call	500-500		
Incoming call	300-300		

## Generated in the MX-ONE IP Telephone

Tone Messages			
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone
Dial tone	425, -10		
Special dial tone	425, -10	500-50	
Busy tone	425, -10	500-500	
Congestion tone	425, -10	1000-4000	
Call waiting tone	425, -10	200-200	200
On hold tone	300, -10	10-150	10-5000
Special information tone	400, -10	10-150	10-5000
	1800, -10		333-1000
	1400, -10		333
	950, -10		

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	Programmable	1000-5000	
External call	Programmable	350-200	350-5000
Call back	Programmable	350-400	

Optical signals			
Signal		Cadence (ms)	light-pause-light
Free or non-requested function	turned off		
Function on key activated	light		
Line connected	1850-50	50-50	
Parked call	500-500		
Incoming call	300-300		

TRM-parameters	
0	PBX operator line
1	Analog extension
2	Digital IP extension
3	Spare
4	BTU30 and TLU27 trunk line
5	Digital tie line, TLU27/6 and TLU27/6F
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

		TRM-matrix																										
		To line type																										
From line type	TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
	0	2	2	2	2	2	2	2	1	0			8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	1	3	3	3	2	3	3	2	1				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	2	2	2	2	2	2	1	0				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	3	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	4	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	5	2	2	2	2	2	2	1	0				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	6	2	2	2	2	2	2	1	0				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	7	3	3	3	2	3	3						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	8	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	9	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	10	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	11	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	12	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	13	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	14	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	15	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	16	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	17	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	18	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	19	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	20	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	21	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	22	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	23	2	2	2	2	2	2	2	2				2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

**Note:** TL54 is supported in the Austria market from MIX-ONE 3.1 and onwards.  
See information further down.

Tone Messages						
Number	Name	Attenuation (dBm)	Frequency (Hz, dBm)	Cadence (ms)	tone-pause-tone	Note
0	Pause (challenge)	0/0	425, -4			
1	Dial tone	0/0	425, -4			Cont.
2	Special dial tone	0/0	425, -4	320-10		Rep.
3	Busy tone	0/0	425, -4	330-330		Rep.
4	Congestion tone	0/0	425, -4	150-150		Rep.
5	NU tone	0/0	1800, -4 1400, -4 950, -4	330-30	330-30	330-1000
6	Warning tone for intrusion	0/0	1400, -4 1800, -4 1400, -4 950, -4	75-1520		Rep.
8	Faultman's ringback	0/0	1800, -4 1400, -4 950, -4	100-100	100-100	100-1000
9	Dial waiting tone	0/0	425, -4	100-100		Rep.
11	Call waiting tone	0/0	425, -4	100-1000	100	Non rep.
13	Verification tone	0/0	425, -4	30-330	30-330	30-1980
14	Warning tone for conference	0/0	1400, -17	300-19840	10-19840	Rep.
15	Ring tone	0/0	425, -4	1000-4000		Rep.
16	Call diversion message	0/0	425, 0	100		Switch click
17	1st ring tone	0/0	425, -4	1200		Non rep.
18	Queue tone	0/0	425, -4	1000-4000		Rep.
21	IRV test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	0/0	425, -4			Cont.
29	Call waiting tone from trunk	0/0	425, -4	100-1000	100	Non rep.
30	Expensive route warning tone	0/0	950, -4	320-10		Rep. 4 seq.
31	Message waiting dial tone	0/0	425, -4	320-10		Rep.
32	Message waiting special dial tone	0/0	425, -4	320-10		Rep.
33	Global dial reorder tone	0/0	425, -4			Cont.
41	Global ring tone	0/0	425, -4	1000-3000		Rep.
42	Global busy tone	0/0	425, -4	500-500		Rep.
43	Global interception tone	0/0	425, -4	500-2000		Rep.

**Note 1:** The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
**Note 2:** The tone levels for External lines are not valid in a Media Gateway LIM.

Ringling signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Line not connected		turned off	Cont.
Function on key activated		light	Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

Tone Messages					
Tone Message	Frequency (Hz, dBm)	Duration (ms)	tone-pause-tone		Note
Dial tone	425, -10	500-50			Cont.
Special dial tone	425, -10	500-50			Rep.
Ring tone	425, -10	500-500			Rep.
Ring tone	425, -10	1000-4000			Rep.
Congestion tone	425, -10	200-200			Rep.
Call waiting tone	425, -10	200-600	200		Non rep.
	300, -10	10-150	10-5000	10-	
On hold tone	400, -10	150	5000		Rep.
	1800, -10			333-1000	
	1400, -10		333		
	950, -10	333			Rep.
Special information tone					

Ringling signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

Line interface units for TL54 are		Discontinuous Tie Line
TL54	TLP54	
	TLU54/1	E
	TLU54/2	AC50
	TLU54/3	AC2006
	TLU54/4	LB
	TLU54/5	PL
	TLU54/6	E

## Market specific values for Belgium

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix																											
		To line type																									
From line type	TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
		0	2	3	2	1	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	1	4	5	4	2	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	2	3	4	3	2	3	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	4	1	2	1	2	0	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	5	2	3	2	1	2	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	6	1	2	1	2	0	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	7	3	4	3	2	3	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	-1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (resilience)	0/0	425 -4			Cont.
1	Dial tone	0/0	425 -4	1000-50		Rep.
2	Special dial tone	0/0	425 -4	500-500		Rep.
3	Busy tone	0/0	425 -4	250-250		Rep.
4	Congestion tone	0/0	425 -4	1800 -4	330-30	330-1000
			1400 -4			
5	NU tone	0/0	950 -4	330-30		Rep.
6	Warning tone for intrusion	0/-3	1400 -4	500-500	10-500	330-1000
			1800 -4			
8	Faultman's ringback	0/0	950 -4	330-30		Rep.
11	Call waiting tone	0/0	425 -4	100-1000	100	Non rep.
13	Verification tone	0/0	425 -4	45-45		Rep.
	Warning tone for conference	0/0	1400 -4	1000-14720	360-14720	Rep.
15	Ring tone	0/0	425 -4	1000-3000		Rep.
16	Call diversion message	0/0	DC 0	100		Switch click
17	1st ring tone	0/0	425 -4	300		Non rep.
18	Queue tone	0/0	425 -4	1000-3000		Rep.
21	HW-test tone	0/0	425 -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	0/0	425 -4			Cont.
28	Recall dial tone	0/0	425 -4	100-100	100-100	100
	Call waiting tone from trunk	0/0	425 -4	100-1000	100	Non rep.
31	Expensive route warning tone	0/0	950 -17	4000		Non rep.
32	Message waiting dial tone	0/0	425 -4	45-45		Rep.
	Message waiting special dial tone	0/0	425 -4	1000-250		Rep.
41	Global dial reorder tone	0/0	425 -4			Cont.
42	Global ring tone	0/0	425 -4	1000-3000		Rep.
43	Global busy tone	0/0	425 -4	500-500		Rep.
44	Global interception tone	0/0	425 -4	300-300		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50		50-50	Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Dial tone	425 -10			Cont.
Special dial tone	425 -10	500-50		Rep.
Busy tone	425 -10	500-500		Rep.
Ring tone	425 -10	1000-4000		Rep.
Congestion tone	425 -10	200-200		Rep.
Call waiting tone	425 -10	200-500	200	Non rep.
On hold tone	300 -10	10-150	10-5000	
	400 -10	10-150	10-5000	
Special information tone	1800 -10		333	333-1000
	1400 -10			
	950 -10		333	Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	300-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50		50-50	Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

TRM- parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie-line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

[illegible]

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause ('silence')					
1	Dial tone	0/0	425, -4	960-60		Rep.
2	Special dial tone	0/0	425, -4	125-125		Rep.
3	Busy tone	0/0	425, -4	250-250		Rep.
	Congestion tone = Busy tone (No 3)					
4	NU tone = Busy tone (No 5)	0/0	425, -4	250-250		Rep.
	NU tone = Busy tone (No 5)	0/0	425, -4	250-250		Rep.
6	Warning tone for intrusion	0/-3	1400, -4	50-960		Rep.
8	Faultman's ringback = Busy tone (No 3)	0/0	425, -4	250-250		Rep.
11	Call waiting tone	0/0	425, -4	100-1000	100	Non rep.
13	Verification tone	0/0	425, -4	30-330		Rep.
	Warning tone for conference	0/0	1400, -4	1000-14720	360-14720	Rep.
15	Ring tone	0/0	425, -4	950-3950		Rep.
16	Call diversion message	0/0	100, -4	100		Switch click
17	1st ring tone	0/0	425, -4	1000		Non rep.
18	Queue tone	0/0	425, -4	990-990		Rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	0/0	425, -4			Cont.
	Call waiting tone					
29	brunk	0/0	425, -4	100-1000	100	Non rep.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interconnection tone	0/0	425, -4	200-200		Rep.

**Note 1:** The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
**Note 2:** The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	300-400	300-4000	Rep.
External call	25 Hz	1000-4000		Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal		Cadence (ms)	light-pause-light	Note
Line not connected		turned off		Cont.
Function on key activated		light		Cont.
Line connected		1850-50	50-50	Rep.
Parked call		500-500		Rep.
Incoming call		300-300		Rep.

Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz)	Cadence (ms)	tone-pause-tone	Note
One tone	425, -10			Rep.
Special dial tone	425, -10	500-50		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-400-50		Rep.
Competition tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-600	200	Non rep.
On hold tone	300, -10	10-150	10-1500	Rep.
	400, -10	150	10-5000	
	1800, -10	1400, -10		
Special information tone	950, -10	333	333	Rep.
	333			
			333-1000	

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>	Note
Internal call	Programmable	1000-500	Rep.
External call	Programmable	350-300      350-5000	Rep.
Call back	Programmable	350-400	Rep.

  

Optical signals			
Signal	Cadence (ms) <b>light-pulse-light</b>		Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1650-50	50-50	Rep.
Parked call	500-500		Rep.
Intercom call	300-300		Rep.

# Market specific values for Canada

TRM parameters		TRM matrix																								
Special setup for 200 Phones		To line type																								
From line		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
0	Digital extension lines, PBX, opto-trunk lines, IP extension	0	2	2	4	3	1	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	Special setup for 200 Phones	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2	Analog on premise Extension (ONS)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	Analog off premise Extension (ONS)	3	3	3	5	4	2	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
4	Analog Trunk (ATT)	4	2	2	4	3	1	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
5	Digital Trunk (DTT)	5	1	1	3	2	0	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	Analog external Trunk line (AEC)	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
7	Digital ext	7	1	1	3	2	0	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	Spare	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
9	Spare	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
10	Spare	10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	Spare	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
12	Spare	12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
13	Spare	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
14	Spare	14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
15	Spare	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
16	Spare	16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
17	Spare	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
18	Spare	18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
19	Spare	19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
20	Spare	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
21	Spare	21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	Spare	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
23	Spare	23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

on	Values (dB)
0	0
1	+1
2	+2
3	+3
4	+4
5	+5
6	+6
7	+7
8	+8
9	+9
10	+10
11	+11
12	+12
13	+13
14	+14
15	+15

Tone Messages							
Number	Name	Alt. Freq. (Hz)	Attenuation (dBm0)	Duration (ms)	tone/pause/tones	Note	
	Pause (silence)		350, -7				
1	Dial tone	613	440, -7			Cont.	
2	Special dial tone	D10	350, -13.7	300-15		Rep.	
3	Busy tone	D10	440, -13.7	300-15		Rep.	
4	Long tone	D10	440, -24	250-250		Rep.	
5	Special long tone	D10	440, -24	250-250		Rep.	
6	Ringback tone	D10	440, -19	1000		Rep.	
7	Warning tone for 613-intercept	D10	440, -19	1000	125-550	Rep.	
8	Call waiting 11-tone	313	440, -13.5	3000-15000		Non rep.	
9	Intercept 11-tone	D10	440, -13.5	150		Cont.	
10	Warning tone for 613-intercept	D10	428, -4			Cont.	
11	Ring tone	313	1400, -10	1000		Cont.	
12	Call divert	D10	440, -19	3000		Rep.	
13	Music on Z2 hold 1	D10	Ext. input			Req. as RVA	
14	Music on Z2 hold 2	D10	Ext. input			Req. as RVA	
15	Music on Z2 hold 3	D10	Ext. input			Req. as RVA	
16	Recall dial tone	D10	350, -13.7	100-100	100-100	Rep.	
17	Call waiting tone from 29 trunk	D10	350, -13.7	100-1000	100	Non rep.	
18	Trunk	D10	440, -13.7	100-1000	100	Rep.	
19	Expressive route warning 31-tone	D10	440, -19	4000		Non rep.	
20	Message waiting 31-tone	D10	440, -19	4000		Non rep.	
21	Special dial tone	613	440, -24	300-24		Cont.	
22	Message waiting special tone	D10	440, -24	300-10		Rep.	
23	Confirm tone	D10	350, -13.7	100-100	100-100	100	Non rep.
24	Global dial reorder 41-tone	D10	440, -13.5	1000		Cont.	
25	Global dial reorder 41-tone	D10	440, -13.5	3000		Rep.	
26	Global dial reorder 41-tone	D10	440, -13.5	500-500		Rep.	
27	Global dial reorder 41-tone	D10	440, -13.5	250-200		Rep.	

Note 1: The characters " " in a column in the table above implies that only the values within the two " " are repeated.

Note 2: The tone levels for External lines are not valid in a Media Gateway LM.

Signal	Frequency (Hz)	Duration (ms)	tone/pause/tones	Note
Internal	1900-5000			Rep.
External	1900-5000	50-50		Rep.
Call back	1900-5000	50-50		Rep.

Signal	Frequency (Hz)	Duration (ms)	tone/pause/tones	Note
Line not connected	1900-5000			Cont.
Function on key active	1900-5000	50-50		Rep.
Line connected	1900-5000	50-50		Rep.
Parked call	1900-5000	50-50		Rep.
Receiving call	1900-5000	50-50		Rep.

## Generated in the IP Telephone

Tone Messages						
Tone Message	Frequency (Hz)	Attenuation (dBm0)	Cadence (ms)	tone-pause-tone	Note	
Dial tone	425	-10			Cont.	
Special dial tone	425	-10				
Busy tone	425	-10	600-50		Rep.	
Busy tone	425	-10	600-500		Rep.	
Long tone	425	-10	1000-4000		Rep.	
Call waiting tone	425	-10	200-200		Rep.	
Call waiting tone	425	-10			Non rep.	
On hold tone	300	-10	10-150	10-5000	Non rep.	
On hold tone	1400	-10	10-150	10-5000	Non rep.	
Informational tone	1400	-10	1500	333	333-1000	
27 hook ringing tone	1400	-10	333		Rep.	
28 hook ringing tone	1400	-10	2000-500		Rep.	
29 hook ringing tone	425	-10	30-330		Rep.	

Signal	Frequency (Hz)	Duration (ms)	tone/pause/tones	Note
Internal	1900-5000			Rep.
External	1900-5000	50-50		Rep.
Call back	1900-5000	50-50		Rep.

Signal	Frequency (Hz)	Duration (ms)	tone/pause/tones	Note
Line not connected	1900-5000			Cont.
Function on key active	1900-5000	50-50		Rep.
Line connected	1900-5000	50-50		Rep.
Parked call	1900-5000	50-50		Rep.
Receiving call	1900-5000	50-50		Rep.



## Market specific values for China

TRM-parameters		TRM-matrix	
0	Digital	From line type	To line type
1	Analog Ext.		TRM
2	Analog Ext.(long)	0	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
3	Spare	1	2 4 3 2 0 2 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
4	Analog external line	2	4 6 5 2 2 4 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5	Digital external line	3	3 5 4 2 1 3 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
6	2-wire tie line	4	2 2
7	4-wire tie line	5	1 3 2 2 0 1 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
8	Spare	6	2 4 3 2 0 2 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
9	Spare	7	0 2 1 2 0 0 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
10	Spare	8	3 5 4 2 1 3 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
11	Spare	9	2 2
12	Spare	10	2 2
13	Spare	11	2 2
14	Spare	12	2 2
15	Spare	13	2 2
16	Spare	14	2 2
17	Spare	15	2 2
18	Spare	16	2 2
19	Spare	17	2 2
20	Spare	18	2 2
21	Spare	19	2 2
22	Spare	20	2 2
23	Spare	21	2 2
		22	2 2
		23	2 2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages		Attenuation	Frequency	Cadence (ms)	tone-pause-tone	Note
Number	Name	Ext/Int	(Hz, dBm0)			
0	Pause (=silence)	0/0	450, -4			Cont.
1	Dial tone	0/0	450, -4	400-40		Rep.
2	Special dial tone	0/0	450, -4	350-350		Rep.
3	Busy tone	0/0	450, -4	150-150		Rep.
4	Congestion tone	0/0	450, -4	100-100	100-100	400-400
5	ND tone	0/0	450, -4	75-1520	100	30-330
6	Warning tone for intrusion	3/3	450, -4	100-1000	100	30-1980
11	Call waiting tone	0/0	450, -4	30-330	30-330	30-1980
13	Verification tone	6/6	450, -4	1000-14720	360-14720	
14	Warning tone for conference	3/3	1400, -10	1000-14720	360-14720	
15	Ring tone	0/0	450, -4	1020-4020		
16	Call diversion message	0/0	DC, 0	100		
17	1st ring tone	0/0	450, -4	1200		
21	HW-test tone	0/0	425, -4			
22	Music on hold 1	0/0	Ext. input			
23	Music on hold 2	0/0	Ext. input			
32	Dial tone for message	0/0	450, -4	400-40		
41	Global dial recorder tone	0/0	450, -4			
42	Global ring tone	0/0	450, -4	1000-3000		
43	Global busy tone	0/0	450, -4	500-500		
44	Global interception tone	0/0	450, -4	200-200		

Note 1: The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals		Frequency	Cadence (ms)	signal-pause-signal	Note
Signal	(Hz)				
Internal call	25 Hz	1000-4000			Rep.
External call	25 Hz	300-400	300-4000		Rep.
Call back	25 Hz	300-400			Rep.

Optical signals		Cadence (ms)	light-pause-light	Note
Signal				
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages		Frequency	Cadence (ms)	tone-pause-tone	Note
Tone Message		(Hz, dBm0)			
Dial tone		425, -10			Cont.
Special dial tone		425, -10	500-50		Rep.
Busy tone		425, -10	500-500		Rep.
Ring tone		425, -10	1000-4000		Rep.
Congestion tone		425, -10	200-200		Rep.
Call waiting tone		425, -10	200-500	200	Non rep.
On hold tone		300, -10	10-150	10-5000	Rep.
		400, -10	10-150	10-5000	
Special information tone		1800, -10		333	333-1000
		1400, -10		333	
Connection in progress tone		950, -10	333		Rep.
		425, -10	30-300		Rep.

Ringing signals		Frequency	Cadence (ms)	signal-pause-signal	Note
Signal	(Hz)				
Internal call	Programmable	1000-5000			Rep.
External call	Programmable	350-300	350-5000		Rep.
Call back	Programmable	350-400			Rep.

Optical signals		Cadence (ms)	light-pause-light	Note
Signal				
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Market specific values for Denmark

TRM-parameters		TRM-matrix	
0	PBX operator, digital extension, IP extension	From line type	To line type
1	New analog extension, short line		TRM
2	New analog extension, long line	0	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
3	Old analog extension, short line	1	4 5 4 4 3 3 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
4	New analog trunk board, long line	2	3 4 3 3 2 2 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5	Old analog trunk board, long line	3	3 4 3 3 2 2 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
6	Digital PSTN line, digital tie line	4	1 2 1 1 0 0 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
7	Analog tie line, 4 wires	5	1 2 1 1 0 0 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
8	Spare	6	2 3 2 2 1 1 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
9	Spare	7	3 4 3 3 2 2 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
10	Spare	8	2 2
11	Spare	9	2 2
12	Spare	10	2 2
13	Spare	11	2 2
14	Spare	12	2 2
15	Spare	13	2 2
16	Spare	14	2 2
17	Spare	15	2 2
18	Spare	16	2 2
19	Spare	17	2 2
20	Spare	18	2 2
21	Spare	19	2 2
22	Spare	20	2 2
23	Spare	21	2 2
		22	2 2
		23	2 2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
0	-1
1	-6
2	-3
3	0
4	+3
5	+6
6	+9
7	+12
8	+15
9	+18
10	+21
11	+24
12	+27
13	+30
14	+33
15	+36

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (silence)					
1	Dial tone	6/6	425, -4			Cont.
2	Special dial tone	6/6	425, -4	320-10		Rep.
3	Busy tone	6/6	425, -4	250-250		Rep.
4	Congestion tone	6/6	425, -4	250-250		Rep.
5	NU tone	12/12	1800, -4 1400, -4 950, -4	330-30	330-1000	Rep.
6	Warning tone for intrusion	9/9	1400, -17	75-1520		Rep.
11	Call waiting tone	6/6	425, -4	100-1000	100	Non rep.
13	Verification tone	6/6	425, -4	320-10		Rep.
14	Warning tone for conference	9/9	1400, -17	1000-14720	360-14720	Rep.
15	Ring tone	6/6	425, -4	900-3990		Rep.
16	Call diversion message	6/6	DC, 0	100		Switch click
17	1st ring tone	6/6	425, -4	1000		Non rep.
18	Queue tone	6/12	950, -17	650-325	325-20	1320-2640
21	HW-test tone	6/6	425, -4			Rep.
22	Music on hold 1	6/6	Ext. input			Cont.
23	Music on hold 2	6/6	Ext. input			Opt. Requires RVA
24	Music on hold 3	6/6	Ext. input			Opt. Requires RVA
26	External dial tone	6/6	425, -4			Rep.
29	Call waiting tone from trunk	6/6	425, -4	100-1000	100	Non rep.
31	Expensive route warning tone	6/6	950, -17	4000		Non rep.
32	Message waiting dial tone	6/6	950, -4			Cont.
33	Message waiting special dial tone	6/6	950, -4	320-10		Rep.
41	Global dial reorder tone	6/6	425, -4			Cont.
42	Global ring tone	6/6	425, -4	1000-3000		Rep.
43	Global busy tone	6/6	425, -4	500-500		Rep.
44	Global interception tone	6/6	425, -4	200-200		Rep.

Note 1: The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	25 Hz	300-400	300-4000
External call	25 Hz	1000-4000	
Call back	25 Hz	300-400	
Diverted call	25 Hz	300-400	300-4000

Optical signals			
Signal	Cadence (ms)		light-pulse-light
Line not connected	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Dial tone	425, -10			Cont.
Special dial tone	425, -10	500-50		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-4000		Rep.
Congestion tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-600	200	Non rep.
On hold tone	300, -10 400, -10	10-150 10-150	10-5000 10-5000	Rep.
Special information tone	1800, -10 1400, -10 950, -10		333 333	333-1000 Rep.
Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.
Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

### Market specific values for Finland

TRM-parameters	
0	Digital
1	Analog Extension (long)
2	Analog Extension
3	Spare
4	Digital PSTN
5	Analog PSTN line
6	Analog PSTN, long line
7	2-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix		To line type																														
TRM	From line type	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27			
0	0	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
	1	3	3	4	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
	2	4	4	5	2	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
	4	2	2	3	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
	5	2	2	3	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	6	2	2	3	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	7	2	2	3	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	8	2	2	3	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
01	-1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ex/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)					
1	Dial tone	3/3	425, -4	200-300	200-300	Rep.
2	Special dial tone	3/3	425, -4	650-25		Rep.
3	Busy tone	3/3	425, -4	330-330		Rep.
4	Congestion tone	3/3	425, -4	250-250		Rep.
5	NU tone	12/12	1800, -4 1400, -4 950, -4	330-30	330-1000	Rep.
6	Warning tone for intrusion	12/12	425, -4	210-300	210-1290	Rep.
8	Faultman's ringback	6/6	425, -4	650-150		Rep.
11	Call waiting tone	9/9	425, -4	200-200	200-8000	Rep. 2 seq.
13	Verification tone	6/6	425, -4	650-150		Rep.
14	Warning tone for conference	0/0	1400, -17	480-14720		Rep.
15	Ring tone	3/3	425, -4	990-3990		Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	3/3	425, -4	1000		Non rep.
18	Queue tone	0/0	1400, -17 950, -17	650-325	325-20	1320-2640
21	HW-test tone	3/3	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	3/3	425, -4			Cont.
29	Call waiting tone from trunk	9/9	425, -4	200-200	200-8000	Rep. 2 seq.
32	Message waiting dial tone	3/3	425, -4	650-25		Rep.
33	Message waiting special dial tone	3/3	425, -4	650-25		Rep.
41	Global dial reorder tone	3/3	425, -4			Cont.
42	Global ring tone	3/3	425, -4	1000-3000		Rep.
43	Global busy tone	3/3	425, -4	500-500		Rep.
44	Global interception tone	3/3	425, -4	200-200		Rep.

Note 1: The characters 'n' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal	Cadence (ms)	light-pause-light	Note	
Line not connected	turned off		Cont.	
Function on key activated	light		Cont.	
Line connected	1850-50	50-50	Rep.	
Parked call	500-500		Rep.	
Incoming call	300-300		Rep.	

### Generated in the MX-ONE IP Telephone

Tone Messages						
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note		
Dial tone	425, -10			Cont.		
Special dial tone	425, -10	500-50		Rep.		
Busy tone	425, -10	500-500		Rep.		
Ring tone	425, -10	1000-4000		Rep.		
Congestion tone	425, -10	200-200		Rep.		
Call waiting tone	425, -10	200-600	200	Non rep.		
On hold tone	300, -10 400, -10	10-150 10-150	10-5000 10-5000	Rep.		
Special information tone	1800, -10 1400, -10 950, -10	333	333	333-1000	Rep.	
Ringing signals						
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note		
Internal call	Programmable	1000-5000		Rep.		
External call	Programmable	350-300	350-5000	Rep.		
Call back	Programmable	350-400		Rep.		
Optical signals						
Signal	Cadence (ms)	light-pause-light	Note			
Free or non-requested function	turned off		Cont.			
Function on key activated	light		Cont.			
Line connected	1850-50	50-50	Rep.			
Parked call	500-500		Rep.			
Incoming call	300-300		Rep.			

TRM-parameters	
0	Digital
1	Analog Ext.
2	Analog Ext.(long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

[illegible]

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)					
1	Dial tone	0/0	330, -8			Cont.
2	Special dial tone	0/0	440, -11			Cont.
3	Busy tone	0/0	440, -11	500-500	750-750	Rep.
4	Congestion tone	0/0	440, -11	500-500		Rep.
6	Warning tone for intrusion	0/0	440, -11	200-200	200-1400	Rep.
7	Call progress tone	0/0	440, -11	50-50		Rep.
11	Call waiting tone	0/0	440, -11	300-2500		Rep.
13	Venification tone	0/0	440, -11			Cont.
14	Warning tone for conference	0/0	440, -11	200-9800		Rep.
15	Ring tone	0/0	440, -11	1500-3500		Rep.
16	Call diversion message	0/0	1700, -16	2000		Non rep.
17	1st ring tone	0/0	440, -11	1500		Non rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	6/6	440, -11 330, -8			Cont.
33	Message waiting tone	0/0	440, -11	500-100		Rep.
34	Message waiting special dial tone	0/0	440, -11	500-100		Rep.
40	Waiting progress tone	0/0	440, -11	200-200	200-5000	Rep.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

**Note 1:** The characters ' in a column in the table above implies that only the values within the two ' are repeated

**Note 2:** The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals					
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>			Note
Internal call	50 Hz	<b>500-500</b>	<b>500-3500</b>		Rep.
External call	50 Hz	<b>1500-3500</b>			Rep.
Call hack	50 Hz	<b>300-400</b>			Rep.

Optical signals			
Signal	Cadence (ms)	light-pause/light	Note
Line not connected	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm)	Cadence (ms) tone-pause-tone	Note	
Chall tone	425, -10			Cont.
Special dial tone	425, -10	500-50		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-5000		Rep.
Composition tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-800 200		Non rep.
On hold tone	300, -10	10-150	10-5000	Rep.
	400, -10	10-150	10-5000	
	1800, -10	1400, -10	333-1000	
Special information tone	950, -10	333	333	Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>		Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals			
Signal	Cadence (ms)	light-pause	light
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Market specific values for Germany

TRM-parameters	
0	OPI, DBC 500
1	DBC 600
2	D3, ISDN
3	Analog
4	Digital external line, IP extension
5	Analog trunk line
6	Spare
7	Spare
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix		To line type																							
From line type	TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	0	2	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	1	2	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	2	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	3	4	4	5	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	4	2	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	5	2	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Note: TL54 is supported in the German market from MX-ONE 3.1 and onwards.  
See information further down.

Tone Messages					
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone	Note
0	Pause (=silence)	0/0	425, -4	200-300	200-800
1	Dial tone	0/0	425, -4	320-10	Rep.
2	Special dial tone	0/0	425, -4	250-250	Rep.
3	Busy tone	0/0	425, -4	500-500	Rep.
4	Congestion tone	-3/-3	425, -4	1800, -4	330-1000
			1400, -4 950, -4	330-30	Rep.
5	NU tone	0/0	425, -4	210-300	210-1290
6	Warning tone for intrusion	12/12	425, -4	120-300	120-7650
8	Faultman's ringback = NU tone (number 5)	-3/-3	425, -4	500-500	Rep.
11	Call waiting tone	-3/-3	425, -4	100-1900	Rep. 5 seq.
13	Verification tone	0/0	425, -4	320-10	Rep.
14	Warning tone for conference	15/15	425, -4	120-300	120-7650
15	Ring tone	-3/-3	425, -4	990-3990	Rep.
17	Call ring tone	0/0	425, -4	1000	Non rep.
18	Queue tone	-3/-3	425, -4	990-3990	Rep.
21	HW-test tone	0/0	425, -4		Cont.
22	Music on hold 1	0/0	Ext. input		Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input		Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input		Opt. Requires RVA
26	External dial tone	-3/-3	425, -4		Cont.
29	Call waiting tone from trunk	0/0	425, -4	100-1900	Rep. 5 seq.
31	Expensive route warning tone	0/0	950, -17	4000	Non rep.
32	Message waiting dial tone	0/0	950, -4	200-300	200-800
33	Message waiting special dial tone	0/0	950, -4	320-10	Rep.
41	Global dial reorder tone	-3/-3	425, -4		Cont.
42	Global ring tone	-3/-3	425, -4	1000-3000	Rep.
43	Global busy tone	-3/-3	425, -4	500-500	Rep.
44	Global interception tone	-3/-3	425, -4	200-200	Rep.

Note 1: The characters " in a column in the table above implies that only the values within the two " are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	25 Hz	1000-4000	Rep.
External call	25 Hz	1000-500	Rep.
Call back	25 Hz	300-400	Rep.

Optical signals			
Signal	Frequency (Hz)	Cadence (ms) light-pulse-light	Note
Line not connected		turned off	Cont.
Function on key activated		light	Cont.
Line connected		1850-50	50-50
Parked call		500-500	Rep.
Incoming call		300-300	Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone		Note
Dial tone	425, -10	500-50		Cont.
Special dial tone	425, -10	500-500		Rep.
Busy tone	425, -10	1000-4000		Rep.
Congestion tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-600	200	Non rep.
On hold tone	300, -10	10-150	10-5000	Rep.
	400, -10	150	10-5000	
Special information tone	1800, -10			
	1400, -10	333	333	333-1000
	950, -10			Rep.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	Programmable	1000-5000	Rep.
External call	Programmable	350-300	350-5000
Call back	Programmable	350-400	Rep.

Optical signals			
Signal	Frequency (Hz)	Cadence (ms) light-pulse-light	Note
Free or non-requested function		turned off	Cont.
Function on key activated		light	Cont.
Line connected		1850-50	50-50
Parked call		500-500	Rep.
Incoming call		300-300	Rep.

Line interface units for TL54 are	
TL54	Discontinuous Tie Line
TLPS4	
TLU54	

Market specific values for Hong-Kong, A-law PCM Coding

TRM-parameters		From line type	TRM-matrix																							
			To line type																							
TRM			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
0	Digital		0	2	3	4	5	6																		
1	Analog Extension		1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
2	Analog Extension (long)		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
3	Spare		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
4	Analog external line		4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
5	Digital external line		5	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
6	2-wire tie line		6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
7	4-wire tie line		7	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
8	Spare		8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
9	Spare		9	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
10	Spare		10	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
11	Spare		11	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
12	Spare		12	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
13	Spare		13	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
14	Spare		14	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
15	Spare		15	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
16	Spare		16	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
17	Spare		17	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
18	Spare		18	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
19	Spare		19	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
20	Spare		20	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
21	Spare		21	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
22	Spare		22	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
23	Spare		23	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
0	-1
1	-6
2	-3
3	0
4	+3
5	+6
6	+9
7	+12
8	+15
9	+18
10	+21
11	+24
12	+27
13	+30
14	+33
15	+36
16	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz) dBm0	Cadence (ms)	tone-pause-tone	Note
0	Pause (-silence)		350, -13.7			
1	Dial tone	-6/-6	440, -13.7			Cont.
2	Special dial tone	-6/-6	350, -13.7	300-15		Rep.
3	Busy tone	-6/-6	440, -13.7	300-15		Rep.
4	Congestion tone	-6/-6	480, -24	500-500		Rep.
5	NUJ tone	-6/-6	480, -24	250-250		Rep.
6	Warning tone for intrusion	-6/-6	480, -24	75-1520		Rep.
11	Call waiting tone	-6/-6	480, -24	200-4700		Rep.
12	Interception tone	-6/-6	480, -24	200-4700		Rep.
13	Verification tone	-6/-6	440, -13.7	30-300	30-2010	Rep.
14	Warning tone for conference	-6/-6	480, -24	1000-14720	360-14720	Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	-6/-6	440, -19	400		Non rep.
21	HW-test tone	0/0	425, -4	400		Cont.
21	HW-test tone	-6/-6	480, -24			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires R/A
23	Music on hold 2	0/0	Ext. input			Opt. Requires R/A
26	External dial tone	-6/-6	350, -13.7			Cont.
32	Message waiting dial tone	-6/-6	440, -13.7	300-15		Rep.
33	Message waiting special dial tone	-6/-6	350, -13.7	300-15		Rep.
39	Confirmation tone	-6/-6	440, -13.7	100-100	100-100	Non rep.
41	Global ring tone	0/0	425, -4	1000-3000		Rep.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ring signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	20 Hz	1000-3000		Rep.
External call	20 Hz	400-200	400-3000	Rep.
Call back	20 Hz	300-400		Rep.

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Line not connected	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

Generated in the MX-ONE IP Telephone

Tone Messages					
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone		Note
Dial tone	425, -10				Cont.
Special dial tone	425, -10	500-50			Rep.
Busy tone	425, -10	500-500			Rep.
Ring tone	425, -10	1000-4000			Rep.
Congestion tone	425, -10	200-200			Rep.
Call waiting tone	425, -10	200-600	200		Non rep.
On hold tone	300, -10	10-150	10-5000		Rep.
	400, -10	10-150	10-5000		Rep.
	1800, -10			333-1000	
Special information tone	1400, -10	333			Rep.
Connection in progress tone	950, -10				Rep.

Ring signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Market specific values for Hong-Kong, My-law PCM coding

TRM-parameters		TRM-matrix																									
		From line type	TRM	To line type																							
				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
0	Digital			0	2	3	2	3	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	Analog Ext.			1	4	5	4	5	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2	Analog Ext.(long)			2	3	4	3	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	Spare			3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
4	Analog external line			4	1	2	2	2	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
5	Digital external line			5	2	3	2	3	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	2-wire tie line			6	1	2	2	2	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
7	4-wire tie line			7	3	2	3	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	Spare			8	1	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
9	Spare			9	3	4	3	2	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
10	Spare			10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	Spare			11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
12	Spare			12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
13	Spare			13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
14	Spare			14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
15	Spare			15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
16	Spare			16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
17	Spare			17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
18	Spare			18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
19	Spare			19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
20	Spare			20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
21	Spare			21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	Spare			22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
23	Spare			23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
0	-1
1	-6
2	-3
3	0
4	+2
5	+3
6	+6
7	+9
8	+12
9	+15
10	+18
11	+21
12	+24
13	+27
14	+30
15	+36

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)		350, -13.7			
1	Dial tone	-6/-6	440, -13.7			Cont.
2	Special dial tone	-6/-6	350, -13.7	300-15		Rep.
3	Busy tone	0/-6	440, -13.7	500-500		Rep.
4	Congestion tone	0/-6	480, -24	250-250		Rep.
5	NU tone	-6/-6	620, -24			Cont.
6	Warning tone for intrusion	-6/-6	480, -24	75-1520		Rep.
7	Faultman's ringback = NU	-6/-6	620, -24	75-1520		Rep.
8	tone (number 5)	-6/-6	620, -24			Cont.
11	Call waiting tone	-6/-6	480, -24	200-4700		Rep.
12	Interception tone	-6/-6	620, -24			Cont.
13	Verification tone	-6/-6	440, -13.7	30-300	30-2010	Rep.
14	Warning tone for conference	-6/-6	480, -24	1000-14720	360-14720	Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	-6/-6	440, -19	400		Non rep.
21	HW-test tone	-6/-6	480, -24			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	-6/-6	350, -13.7			Cont.
32	Message waiting dial tone	-6/-6	440, -13.7	300-15		Rep.
33	Message waiting special dial tone	-6/-6	440, -13.7	300-15		Rep.
39	Confirmation tone	-6/-6	350, -13.7	100-100	100-100	Non rep.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal		Cadence (ms)	light-pause-light	Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages						
Tone Message		Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone		Note
Dial tone		425, -10				Cont.
Special dial tone		425, -10	500-50			Rep.
Busy tone		425, -10	500-500			Rep.
Ring tone		425, -10	1000-4000			Rep.
Congestion tone		425, -10	200-200			Rep.
Call waiting tone		425, -10	200-600	200		Non rep.
On hold tone		300, -10	10-150	10-5000		Rep.
		400, -10	10-150	10-5000		Rep.
Special information tone		1800, -10				Rep.
Connection in progress		1400, -10	333	333		Rep.
		950, -10	30-330			Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals				
Signal		Cadence (ms)	light-pause-light	Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

# Market specific values for the India market

TRM-parameters	
1	Digital
2	Analog Extension
3	Analog Extension (long)
4	Spare
5	Analog external line
6	Digital external line
7	2-wire tie line
8	4-wire tie line
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix																									
From line	To line type									To line type															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
0	1	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1	4	5	4	2	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	3	4	3	2	3	3	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	2	3	2	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	2	3	2	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	1	2	1	2	1	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	3	4	2	3	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Tone Messages									
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm)	Cadence (ms)	tone-pause-tone	Note			
0	Pause (resilience)	0/0	425 -4			Cont.			
1	Dial tone	0/0	425 -4	320-10		Rep.			
2	Special dial tone	0/0	425 -4	330-330		Rep.			
3	Busy tone	0/0	425 -4	150-150		Rep.			
4	Congestion tone	0/0	425 -4	1800 -4	330-30	Rep.			
5	NU tone	0/0	950 -4	330-30	330-1000	Rep.			
6	Warning tone for intrusion	3/3	1400 -4	75-1520		Rep.			
7	Call waiting tone	0/0	425 -4	100-1000		Non rep.			
11	Verification tone	0/0	425 -4	30-330	30-1980	Rep.			
14	Warning tone for conference	3/3	1400 -17	1000-1472	360-14720	Rep.			
15	Ring tone	0/0	425 -4	890-3990		Rep.			
16	Call diversion	0/0	DC 0	100		Switch click			
17	1st ring tone	0/0	425 -4	1200		Non rep.			
21	HW-test tone	0/0	425 -4			Cont.			
22	Music on hold	0/0	Ext. input			Opt. Requires RVA			
23	Music on hold	0/0	Ext. input			Opt. Requires RVA			
24	Music on hold	0/0	Ext. input			Opt. Requires RVA			
31	Expensive route warning tone	0/0	850 -4	320-10		Rep. 4 sec.			
41	Global dial recorder tone	0/0	425 -4			Cont.			
42	Global ring tone	0/0	425 -4	1000-3000		Rep.			
43	Global busy tone	0/0	425 -4	500-500		Rep.			
44	Global interception tone	0/0	425 -4	200-200		Rep.			

Note 1: The characters 'in' in a column in the table above implies that only the values within the two 'are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ring signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	25 Hz	1000-4000	
External call	25 Hz	300-400	300-4000
Call back	25 Hz	300-400	

Optical signals			
Signal	Cadence (ms)		light-pulse-light
Line not connected	turned off		Cont.
Function on key active	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages									
Tone Message	Frequency (Hz, dBm)	Cadence (ms)	tone-pause-tone	Note					
Dial tone	425 -10			Cont.					
Special dial tone	425 -10	500-50		Rep.					
Busy tone	425 -10	500-500		Rep.					
Ring tone	425 -10	1000-4000		Rep.					
Congestion tone	425 -10	200-200		Rep.					
Call waiting tone	425 -10	200-600	200	Non rep.					
On hold tone	400 -10	10-150	10-5000	Rep.					
Special information tone	1800 -10	333	333	333-1000					

Ring signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	Programmable	1000-5000	
External call	Programmable	350-300	350-5000
Call back	Programmable	350-400	

Optical signals			
Signal	Cadence (ms)		light-pulse-light
Free or non-requested	turned off		Cont.
Function on key active	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.



## Market specific values for Indonesia

TRM-parameters		From line type	TRM-matrix																							
			To line type																							
0	Digital		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	Analog Ext.		0	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Analog Ext.(long)		1	4	5	4	2	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Spare		2	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	Analog external line		3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Digital external line		4	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	2-wire tie line		5	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	4-wire tie line		6	1	2	1	2	1	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Spare		7	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	Spare		8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	Spare		9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Spare		10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Spare		11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Spare		12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Spare		13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Spare		14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Spare		15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	Spare		16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	Spare		17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	Spare		18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	Spare		19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	Spare		20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	Spare		21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	Spare		22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
			23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages					
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone	Note
0	Pause (=silence)				
1	Dial tone	0/0	425, -4		Cont.
2	Special dial tone	0/0	425, -4	320-10	Rep.
3	Busy tone	0/0	425, -4	330-330	Rep.
4	Congestion tone	0/0	425, -4	150-150	Rep.
5	NU tone	0/0	1800, -4 1400, -4 950, -4	330-30	330-1000 Rep.
6	Warning tone for intrusion	3/3	1400, -4	75-1520	Rep.
11	Call waiting tone	0/0	425, -4	100-1000	100 Non rep.
13	Verification tone	0/0	425, -4	30-330	30-330 30-1980 Rep.
14	Warning tone for conference	3/3	1400, -17	1000-14720	360-14720 'Rep.'
15	Ring tone	0/0	425, -4	990-3990	Rep.
16	Call diversion message	0/0	DC, 0	100	Switch click
17	1st ring tone	0/0	425, -4	1200	Non rep.
21	HW-test tone	0/0	425, -4		Cont.
22	Music on hold 1	0/0	Ext. input		Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input		Opt. Requires RVA
41	Global dial reorder tone	0/0	425, -4		Cont.
42	Global ring tone	0/0	425, -4	1000-3000	Rep.
43	Global busy tone	0/0	425, -4	500-500	Rep.
44	Global interception tone	0/0	425, -4	200-200	Rep.

Note 1: The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway L.M.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	25 Hz	1000-4000	Rep.
External call	25 Hz	300-400	300-4000 Rep.
Call back	25 Hz	300-400	Rep.

Optical signals			
Signal	Cadence (ms) light-pulse-light		Note
Line not connected	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Generated in the IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone	Note	
Dial tone	425, -10		Cont.	
Special dial tone	425, -10	500-50	Rep.	
Busy tone	425, -10	500-500	Rep.	
Ring tone	425, -10	1000-4000	Rep.	
Congestion tone	425, -10	200-200	Rep.	
Call waiting tone	425, -10	200-600	200	Non rep.
On hold tone	300, -10 400, -10	10-150 10-150	10-5000 10-5000	Rep.
Special information tone	1800, -10 1400, -10 950, -10		333	333-1000 Rep.
Connection in progress tone	425, -10	30-330	Rep.	

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	Programmable	1000-5000	Rep.
External call	Programmable	350-300	350-5000 Rep.
Call back	Programmable	350-400	Rep.

Optical signals			
Signal	Cadence (ms) light-pulse-light		Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Market specific values for Ireland

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

From line type

TRM-matrix		To line type																									
TRM		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
0	0	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	1	5	4	2	4	4	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	2	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	4	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	5	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	6	2	1	2	1	1	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	7	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
9	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (-silence)					
1	Dial tone	0/0	425, -4			Cont.
2	Special dial tone	0/0	425, -4	320-10		Rep.
3	Busy tone	0/0	425, -4	500-500		Rep.
4	Congestion tone	0/0	425, -4	150-150		Rep.
5	NU tone	0/0	1800, -4 1400, -4 950, -4	330-30	330-1000	Rep.
6	Warning tone for intrusion	3/3	1400, -4	75-1520		Rep.
11	Call waiting tone	0/0	425, -4	100-1000	100	Non rep.
13	Verification tone	0/0	425, -4	30-330	30-330	30-1980
	Warning tone for conference	3/3	1400, -17	1000-14720	360-14720	Rep.
15	Ring tone	0/0	425, -4	990-3990		Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	0/0	425, -4	1200		Non rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
25	Special ring tone	0/0	440, -7 480, -7	400-200 400-200	390-2010 390-2010	Rep.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50		50-50	Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages					
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note	
Dial tone	425, -10			Cont.	
Special dial tone	425, -10	500-50		Rep.	
Busy tone	425, -10	500-500		Rep.	
Ring tone	425, -10	1000-4000		Rep.	
Congestion tone	425, -10	200-200		Rep.	
Call waiting tone	425, -10	200-600	200	Non rep.	
On hold tone	300, -10 400, -10	10-150 10-150	10-5000 10-5000	Rep.	
Special information tone	1800, -10 1400, -10 950, -10		333	333-1000	Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable		1000-5000	Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50		50-50	Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

[illegible]

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Alteration Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)					
1	Dial tone	0/0	350, -7 440, -7			Cont.
2	Special dial tone	0/0	350, -7 440, -7	320-10		
3	Busy tone	0/-3	425, -4	500-500		Rep.
4	Congestion tone	0/-3	425, -4	200-200		Rep.
5	Disassembly tone	0/-3	425, -4	100-100		Rep.
6	Warning tone for intrusion	6/6	425, -4	200-200	200-1400	Rep.
8	Faultman's ringback	0/0	425, -4	100-100	100-100	100-1500
11	Call waiting tone	6/2	425, -4	100-1400		Rep. 5 seq.
13	Verification tone	0/-3	425, -4	100-100	100-100	100-1500
14	Warning tone for conference	6/2	425, -4	200-9800		Rep.
15	Ring tone	0/-3	425, -4	1000-4000		Rep.
16	Call diversion message	0/0	DC, 0	160		Switch click
17	1st ring tone	0/0	425, -4	1000		Non rep.
18	Queue tone	0/0	425, -4	200-200	200-3400	Rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires R/A
23	Music on hold 2	0/0	Ext. input			Opt. Requires R/A
24	Music on hold 3	0/0	Ext. input			Opt. Requires R/A
28	External dial tone	0/0	425, -4	200-200	600-1000	Rep.
29	Call waiting tone from trunk	6/6	425, -4	100-4900		Rep. 5 seq.
32	Message waiting dial tone	0/0	950, -4	100-100	100-100	100-1500
33	Message waiting special dial tone	0/0	350, -7 440, -7	320-10		Rep.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interconnection tone	0/0	425, -4	200-200		Rep.

**Note 1:** The characters \* in a column in the table above implies that only the values within the two \* are repeated.

**Note 2:** The tone levels for External lines are not valid in a Media Gateway 1 IM

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>		Note
Internal call	25 Hz	600-200	200-4000	Rep.
External call	25 Hz	1000-4000		Rep.
Call back	25 Hz	200-200	200-4000	Ren

Optical signals		Cadence (ms)		light-pause	light	Note
Signal						
Line not connected			turned off			Cont.
Function on key activated			light			Cont.
Line connected			1850-50	50-50		Rep.
Parked call			500-500			Rep.
Incoming call			300-300			Rep.

Generated in the MX-ONE IP Telephone

Tone Messages					
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note	
Chal tone	425 ~ 10				Cont.
Special dial tone	425 ~ 10	500-50			Rep.
Busy tone	425 ~ 10	500-500			Rep.
Ring tone	425 ~ 10	1000-4000			Rep.
Competition tone	425 ~ 10	200-200			Rep.
Call waiting tone	425 ~ 10	200-600	200		Non rep.
On hold tone	360 ~ 10	10-150	10-5000		Rep.
	400 ~ 10	10-150	10-5000		
	1800 ~ 10			333-1000	
	1400 ~ 10				
Special information tone	950 ~ 10				Rep.
	950 ~ 10	333	333		

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>		Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Market specific values for Malaysia

TRM-parameters	
0	Digital
1	Analog Ext.
2	Analog Ext.(long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix		To line type																									
From line type	TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
	0	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	4	5	4	2	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
4	2	3	2	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
5	2	3	2	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	1	2	1	2	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
7	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (ralliance)					
1	Dial tone	3/0	425,-4			Cont.
3	Busy tone	6/3	425,-4	500-500		Rep.
4	Congestion tone = Busy tone (No 3)	6/3	425,-4	500-500		Rep.
5	NU tone	6/3	425,-4	2500-500		Rep.
6	Warning tone for intrusion	12/9	425,-4	200-200	200-5000	Rep.
8	Faultman's ringback = NU tone (No 5)	6/3	425,-4	2500-500		Rep.
11	Call waiting tone	3/0	425,-4	100-1000	100	Non rep.
13	Verification tone	3/0	425,-4	400-200	400-2000	Rep.
14	Warning tone for conference	12/9	425,-4	1000-14720	360-14720	Rep.1
15	Ring tone	3/0	425,-4	400-200	400-2000	Rep.
16	Call diversion message	6/3	DC, 0	100		Switch click
17	1st ring tone	0/0	425,-4	400-200	400	Non rep.
21	HW-test tone	0/0	425,-4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
41	Global dial reorder tone	0/0	425,-4			Cont.
42	Global ring tone	0/0	425,-4	1000-3000		Rep.
43	Global busy tone	0/0	425,-4	500-500		Rep.
44	Global interception tone	0/0	425,-4	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	25 Hz	1000-4000	
External call	25 Hz	400-200	400-2000
Call back	25 Hz	300-400	

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Line not connected	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages					
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note	
Dial tone	425,-10			Cont.	
Special dial tone	425,-10	500-50		Rep.	
Busy tone	425,-10	500-500		Rep.	
Ring tone	425,-10	1000-4000		Rep.	
Congestion tone	425,-10	200-200		Rep.	
Call waiting tone	425,-10	200-400	200	Non rep.	
On hold tone	400,-10	10-150	10-5000	Rep.	
Special information tone	1800,-10			333-1000	
	1400,-10				
	950,-10	333		Rep.	

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	Programmable	1000-5000	
External call	Programmable	350-300	350-5000
Call back	Programmable	350-400	

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Market specific values for Market Group 2 markets

Market Group 2 = the market that was earlier called Export

TRM-parameters	
0	Digital/IP phone
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix		To line type																									
From line type		TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
0	0	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
	1	4	5	4	2	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	2	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	4	3	2	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	5	2	3	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	6	1	2	1	2	1	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	7	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)	0/0	425, -4			Cont.
1	Dial tone	0/0	425, -4	320-10		Rep.
2	Special dial tone	0/0	425, -4	330-330		Rep.
3	Busy tone	0/0	425, -4	150-150		Rep.
4	Congestion tone	0/0	1800, -4 1400, -4 950, -4	330-30	330-1000	Rep.
5	NU tone	0/0	425, -4	250-250	250-1240	Rep.
6	Warning tone for intrusion	-6/-6	425, -4	100-1000	100	Non rep.
11	Call waiting tone	0/0	425, -4	30-330	30-330	30-1980
13	Verification tone	0/0	425, -4	120-4960		Rep.
14	Warning tone for conference	-6/-6	425, -4	990-3990		Rep.
15	Ring tone	0/0	425, -4	100		Switch click
16	Call diversion message	0/0	DC, 0	1200		Non rep.
17	1st ring tone	0/0	425, -4			Cont.
21	HW-test tone	0/0	425, -4			Opt. Require s RVA
22	Music on hold 1	0/0	Ext. input			Opt. Require s RVA
23	Music on hold 2	0/0	Ext. input			Cont.
41	Global dial reorder tone	0/0	425, -4	1000-3000		Rep.
42	Global ring tone	0/0	425, -4	500-500		Rep.
43	Global busy tone	0/0	425, -4	200-200		Rep.
44	Global interception tone	0/0	425, -4			Rep.

Note 1: The characters ' in a column in the table above implies that only the values within the two ' are repeated.

Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	25 Hz	1000-4000	
External call	25 Hz	300-400	300-4000
Call back	25 Hz	300-400	

Optical signals			
Signal		Cadence (ms)	light-pause-light
Line not connected	turned off		
Function on key activated	light		
Line connected	1850-50	50-50	
Parked call	500-500		
Incoming call	300-300		

## Generated in the MX-ONE IP Telephone

Tone Messages					
Tone Message		Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Dial tone		425, -10			Cont.
Special dial tone		425, -10	500-50		Rep.
Busy tone		425, -10	500-500		Rep.
Ring tone		425, -10	1000-4000		Rep.
Congestion tone		425, -10	200-200		Rep.
Call waiting tone		425, -10	200-600	200	Non rep.
On hold tone		300, -10 400, -10	10-150 10-150	10-5000 10-5000	Rep.
Special information tone		1800, -10 1400, -10 950, -10	333	333	333-1000
Connection in progress tone		425, -10	30-330		Rep.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	Programmable	1000-5000	
External call	Programmable	350-300	350-5000
Call back	Programmable	350-400	

Optical signals			
Signal		Cadence (ms)	light-pause-light
Free or non-requested function	turned off		
Function on key activated	light		
Line connected	1850-50	50-50	
Parked call	500-500		
Incoming call	300-300		

## Market specific values for Mexico

TRM-parameters	
0	Digital
1	Analog Ext.
2	Analog Ext.(long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix		To line type																							
From line type	TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
		0	2	3	2	2	1	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	1	4	5	4	2	3	4	3	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	3	4	3	2	2	3	2	1			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	3	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	4	1	2	1	2	0	1	0	0			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	5	2	3	2	2	1	2	1	0			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	6	1	2	1	2	0	1	0	0			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	7	3	4	3	2	2	3	2	1			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	8	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	9	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	10	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	11	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	12	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	13	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	14	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	15	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	16	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	17	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	18	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	19	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	20	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	21	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	22	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2
	23	2	2	2	2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values	
(dB)	
Attenuation positions	
0	1
1	-6
2	-3
3	0
4	+3
5	+6
6	+9
7	+12
8	+15
9	+18
10	+21
11	+24
12	+27
13	+30
14	+33
15	+36
16	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)					
1	Dial tone	0/0	425, -4			Cont.
2	Special dial tone	0/0	425, -4	330-10		Rep.
4	Congestion tone	0/0	425, -4	150-150		Rep.
5	NU tone	0/0	1800, -4 1400, -4 950, -4	330-30	330-30	330-1000 Rep.
6	Warning tone for intrusion	3/3	1400, -4	75-1520		Rep.
11	Call waiting tone	0/0	425, -4	100-1000	100	Non rep.
13	Verification tone	0/0	425, -4	30-330	30-330	30-1980 Rep.
14	conference	3/3	1400, -17	1000-14720	360-14720	Rep.
15	Ring tone	0/0	425, -4	990-3990		Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	0/0	425, -4	1200		Non rep.
18	Queue tone	0/0	425, -4	990-3990		Rep.
21	HM-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal	Cadence (ms)	light-pulse-light		Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Dial tone	425, -10			Cont.
Special dial tone	425, -10	500-50		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-4000		Rep.
Congestion tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-600	200	Non rep.
On hold tone	300, -10	10-150	10-5000	Rep.
Special information tone	400, -10 1800, -10 1400, -10 950, -10	10-150	333	333-1000 Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programma	1000-5000		Rep.
External call	Programma	350-300	350-5000	Rep.
Call back	Programma	350-400		Rep.

Optical signals				
Signal	Cadence (ms)	light-pulse-light		Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Market specific values for The Netherlands

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix		To line type																							
From line type	TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	0	2	3	2	2	1	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1	4	5	4	4	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	3	4	3	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	2	3	2	2	1	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	1	2	1	1	0	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	2	3	2	2	1	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	1	2	1	1	0	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	3	4	3	3	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (ralliance)					
1	Dial tone	6/0	425, -4			Cont.
2	Special dial tone	6/0	425, -4	320-10		Rep.
3	Busy tone	6/0	425, -4	500-500		Rep.
4	Congestion tone	6/0	425, -4	200-250		Rep.
5	Information tone	3/0	425, -4	60-60		Rep.
6	Warning tone for intrusion	6/6	1400, -4	75-1440	75-1440	Rep.
8	Faultman's ringback	3/0	425, -4	60-60		Rep.
11	Call waiting tone	4/3	425, -4	200-4700		Rep. 5 seq.
13	Verification tone	6/0	425, -4	30-300	30-2010	Rep.
14	conference	6/6	425, -4	100-19840		Rep.
15	Ring tone	6/0	425, -4	990-3990		Rep.
17	1st ring tone	6/0	425, -4	1200		Non rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	6/0	425, -4			Cont.
	Call waiting tone from trunk	12/0	425, -4	200-4700		Rep. 5 seq.
29	Expensive route warning tone	6/0	1400, -4	4000		Non rep.
31	Message waiting dial tone	10/6	950, -4	65-330		Rep.
32	Message waiting special	10/6	950, -4	2000-1000		Rep.
33	dial tone	0/0	950, -17			Cont.
40	Dial tone	0/0	425, -4			Cont.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringling signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Dial tone	425, -10			Cont.
Special dial tone	425, -10	500-50		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-4000		Rep.
Congestion tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-400	200	Non rep.
On hold tone	300, -10	10-150	10-5000	
	400, -10	10-150	10-5000	
	1800, -10		333-1000	Rep.
	1400, -10			
Special information tone	950, -10	333		Rep.

Ringling signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Market specific values for New Zealand

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

From line type

TRM-matrix		To line type																							
TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
0	2	3	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	3	4	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2	3	3	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
4	1	2	1	2	0	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
5	2	3	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	1	2	1	2	0	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
7	2	3	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
0/1	-1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone		Note
0	Pause (existence)					
1	Dial tone	3/0	400, -10			Cont.
2	Special dial tone	0/0	350, -10	200-400	2010-390	Rep.
3	Busy tone	0/0	400, -10	500-500		Rep.
4	Congestion tone	0/0	400, -10	250-250		Rep.
5	NU tone	3/0	400, -10	75-100	75-400	Rep.
6	Warning tone for intrusion	3/3	1400, -17	300-4000		Rep.
8	Feetmen's ringback	0/0	400, -10			Cont.
11	Call waiting tone	0/0	440, -16	200-3000		Rep. 3 sec.
13	Verification tone	0/0	1400, -17			Cont.
14	Warning tone for conference	3/3	1400, -17	1000-14720	360-14720	Rep.
15	Ring tone	3/0	400, -10	400-200	400-2000	Rep.
16	Call diversion message	0/0	450, -10	400-200	400-2000	Switch click
17	1st ring tone	0/0	400, -10	400-200	400	Non rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
32	Message waiting dial tone					
32 part 1		0/0	400, -10	100-100	100	Rep. 1 sec.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.
45	Message waiting dial tone					
45 part 2		0/0	400, -10	100-100	100	Rep. 1 sec.
46	Call holding tone part 1	0/0	400, -10	500-500		Rep.
47	Call holding tone part 2	0/0	400, -10	500-2500		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

- 1) Dial tone with message waiting is achieved by using tone message 32 (100 on/100 off) to begin with for one second, then switch to tone message 45 (100 on/100 off) for another second, and then continue with tone message 8.
- 2) Call holding tone is achieved by using the tone message 46, then switching to tone message 47, and then back to message 46, repeatedly.
- 3) Devices designed to respond to particular ring cadences may not respond when used with this equipment.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal		Note
Internal call	25 Hz	1000-3000		Rep.
External call	25 Hz	400-200	400-2000	Rep.
Call back	25 Hz	500-500	500-600	Rep.

Optical signals				
Signal		Cadence (ms) light-pulse-light		Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1550-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms) tone-pulse-tone		Note
Dial tone	425, -10			Cont.
Special dial tone	425, -10	500-50		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-4000		Rep.
Congestion tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-400	300	Non rep.
On hold tone	400, -10	10-150	10-5000	Rep.
Special information tone	1800, -10 1400, -10 950, -10	333	333	333-1000 Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) signal-pulse-signal		Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals				
Signal		Cadence (ms) light-pulse-light		Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1550-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.



## Market specific values for North America

TRM-parameters		TRM-matrix	
		From line type	To line type
0	Digital extension lines, PSX operator lines, IP extensions	0	0 1 2 3 4 5 6 7 8 9 A B C D E F
1	Special setup for 203 Phones	1	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
2	Analog on premise Extension (ONS)	2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
3	Analog off premise Extension (OPS)	3	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
4	Analog tie Trunk (ATT)	4	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5	Digital tie Trunk (DTT)	5	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
6	Analog external Trunk line (AEO)	6	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
7	Digital external Trunk line (DET)	7	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
8	Spare	8	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
9	Spare	9	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
10	Spare	10	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
11	Spare	11	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
12	Spare	12	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
13	Spare	13	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
14	Spare	14	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
15	Spare	15	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
16	Spare	16	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
17	Spare	17	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
18	Spare	18	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
19	Spare	19	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
20	Spare	20	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
21	Spare	21	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
22	Spare	22	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
23	Spare	23	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
0	-1
1	-2
2	-3
3	-4
4	-5
5	-6
6	-7
7	-8
8	-9
9	-10
10	-11
11	-12
12	-13
13	-14
14	-15
15	-16

Tone Messages						
Number	Name	Attenuation (dB)	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone		Note
0	Pause (=silence)		350, -7			
1	Dial tone	6/3	440, -7	300-15		Cont.
2	Special dial tone	0/0	440, -13.7	300-15		Rep.
3	Busy tone	0/0	480, -24	500-500		Rep.
4	Congestion tone	0/0	480, -24	250-250		Rep.
5	Special ringback tone	0/0	480, -19	1000	125-3500	Rep.
6	Warning tone for intrusion	3/3	440, -13.5	3000-15000	250-15000	Rep.
11	Call waiting tone	3/0	440, -13.5	100		Non rep.
13	Interception tone	0/0	425, -4			Cont.
14	Warning tone for conference	3/3	1400, -16	1500		Cont.
15	Ring tone	0/0	440, -19	1000-3000		Rep.
16	Call diversion message	0/0	480, -19	1000-3000		Rep.
21	HW-test tone	6/0	440, -13.5	100		Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	Recall dial tone	0/0	350, -13.7	100-100	100-100	100-100
28	Call waiting tone from trunk	0/0	440, -13.7	100-100	100-100	100-100
29	Excessive route warning tone	0/0	440, -19	4000		Non rep.
31	Message waiting dial tone	6/3	480, -24	300-10		Cont.
33	Message waiting special dial tone	0/0	440, -13.7	100-100	100-100	100
36	Confirmation tone	0/0	440, -13.7	100-100	100-100	100
41	Global dial reorder tone	6/0	440, -13.5	1000-3000		Rep.
42	Global ring tone	6/0	440, -13.5	1000-3000		Rep.
43	Global busy tone	6/0	440, -13.5	500-500		Rep.
44	Global interception tone	6/0	440, -13.5	250-250		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway UML.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	10 Hz	1000-3000	Rep.
External call	20 Hz	1000-500	500-2000
Call back	20 Hz	500-500	

Optical signals			
Signal		Cadence (ms) light-pulse-light	Note
Line not connected		Turned off	Cont.
Function on key activated		light	Cont.
Line connected		1800-50	50-50
Parked call		500-500	
Incoming call		300-300	

## Generated in the MX-ONE IP Telephone

Tone Messages						
Tone Message		Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone			Note
Dial tone		425, -10				Cont.
Special dial tone		425, -10	500-50			Rep.
Busy tone		425, -10	500-500			Rep.
Ring tone		425, -10	1000-3000			Rep.
Congestion tone		425, -10	250-250			Rep.
Call waiting tone		425, -10	200-600	200		Non rep.
On hold tone		400, -10	10-150	10-5000		Rep.
Special information tone		1800, -10		333	333-1000	Rep.
Off hook ringing tone		950, -10		333		Rep.
Connection in progress tone		1400, -10		300-300		Rep.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	Programmable	1000-5000	Rep.
External call	Programmable	350-300	350-5000
Call back	Programmable	350-400	

Optical signals			
Signal		Cadence (ms) light-pulse-light	Note
Line not connected		Turned off	Cont.
Function on key activated		light	Cont.
Line connected		1800-50	50-50
Parked call		500-500	
Incoming call		300-300	

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare

[illegible]

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm)	Cadence (ms)	tone-pause-tone	Note
0	Pause (silence)	0/0	425 -			Cont.
1	Dial tone	0/0	425 -			Cont.
2	Special dial tone	0/0	425 -	320-10		Rep.
3	Busy tone	0/0	425 -	500-500		Rep.
4	Convergence tone	0/0	425 -	550-250		Rep.
5	NUI tone	0/0	1800 - 1400 -17 950 -17	330-30	330-1000	Rep.
6	Warning tone for intrusion	6/6	1400 -17	500-2000		Rep.
11	Call waiting tone	12/12	425 -	100-1000	100	Non rep.
13	Verification tone	3/3	950 -17	320-10		Rep.
14	Warning tone for conference	6/6	1400 -17	60-2000		Rep.
15	Ring tone	0/0	425 -	890-3990		Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	Id ring tone	0/0	425 -	1900		Non rep.
18	Queue tone	0/0	1400 -17	60-900	60-900	Rep.
21	Hi/Lo test tone	0/0	450 -	990-1980		Rep.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
41	Global dial reorder tone	0/0	425 -	425		Cont.
42	Global ring tone	0/0	425 -	1000-3000		Rep.
43	Global busy tone	0/0	425 -	500-500		Rep.
44	Global interconnection tone	0/0	425 -	700-210		Rep.

**Note 1:** The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
**Note 2:** The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals					
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>			Note
Internal call	25 Hz	300-400	300-4000		Rep.
External call	25 Hz	1000-4000			Rep.
Call back	25 Hz	300-400			Ren

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Line not connected	burned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

Tone Messages					
Tone Message	Frequency (Hz, dBnd)	Cadence (ms)	tone-pause-tone	Note	
Call tone	425 -10	425 -10			Cont.
Special dist. tone	425 -10	500 -50			Rep.
Busy tone	425 -10	500-500			Rep.
Ring tone	425 -10	1000-4000			Rep.
Congestion tone	425 -10	200-200			Rep.
Call waiting tone	425 -10	200-600	200		Non rep.
On hold tone	300 -10 400 -10 1800 -10 1400 -10	10-150 10-150 18-5000 18-5000			Rep.
Special information tone	1800 -10 1400 -10	333 333	333	333-1000	Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals				
Signal	Cadence (ms)	light-pause-light		Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Market specific values for the Republic of Korea

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

From line type

TRM-matrix		To line type																							
TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
0	1	2	3	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	4	5	4	2	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
4	2	3	2	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
5	2	3	2	2	2	2	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	1	2	1	2	1	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
7	3	4	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values	
(dB)	
Attenuation positions	
0	-1
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone		Note
0	Pause (=silence)		350, -7	1000-250		
1	Dial tone	0/0	440, -7	1000-250		Rep.
2	Special dial tone	0/0	425, -4	320-10		Rep.
3	Busy tone	0/0	480, -18	500-500	500	Rep.
4	Congestion tone	0/0	480, -18	150-150	150	Rep.
5	NU tone	0/0	1800, -4	330-10	330-10	Rep.
6	Warning tone for intrusion	3/3	1400, -4	75-1520		Rep.
11	Call waiting tone	0/0	425, -4	100-1000	100	Non rep.
13	Verification tone	0/0	425, -4	30-330	30-1980	Rep.
14	Warning tone for conference	3/3	1400, -17	1000-14720	25-14720	Rep.
15	Ring tone	0/0	480, -16	1000-2000		Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	0/0	480, -16	1000-2000		Rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires R/A
23	Music on hold 2	0/0	Ext. input			Opt. Requires R/A
26	External Dial Tone	0/0	350, -4	500-10		Rep.
31	Expensiv route warning	0/0	950, -4	320-10		Rep. 4 sec
41	Global dial recorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global intercom tone	0/0	425, -4	200-200		Rep.

Note 1: The characters 'in a column in the table above implies that only the values within the two ' are repeated.

Note 2: The tone levels for External lines are not valid in a Media Gateway LHM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	25 Hz	1000-2000	Rep.
External call	25 Hz	300-400	300-4000
Call back	25 Hz	300-400	Rep.

Optical signals			
Signal	Cadence (ms) light-pulse-light	Note	
Line not connected	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms) tone-pulse-tone		Note
Dial tone	425, -10	500-50		Cont.
Special dial tone	425, -10	500-500		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-4000		Rep.
Congestion tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-600	200	Non rep.
On hold tone	300, -10	10-150	10-5000	Rep.
	400, -10	150	10-5000	
Special information tone	1800, -10	333	333-1000	Rep.
	1400, -10			
	950, -10	333		

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pulse-signal	Note
Internal call	Programmable	1000-5000	Rep.
External call	Programmable	350-300	350-5000
Call back	Programmable	350-400	Rep.

Optical signals			
Signal	Cadence (ms) light-pulse-light	Note	
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

[illegible]

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-5
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
	0Pause (silence)					Cont.
1	Dial tone	0/0	425, -4			Rep.
2	Special dial tone	0/0	425, -4	320-10		Rep.
3	Busy tone	0/0	425, -4	500-500		Rep.
			1800, -4		330-1000	
5	NU tone	6/6	1400, -4 950, -4			Rep.
6	Warning tone for intrusion	15/12	425, -4	520-170	170-170'	Rep.
	Faultman's ringback = NU 8 tone (number 5)	6/6	1800, -4 1400, -4 950, -4		330-10	
11	Call waiting tone	0/0	425, -4	100-1000		Rep.
12	Verification tone	6/6	425, -4	30-330	30-1980	Non rep.
	Warning tone for intrusion					
14	conference	3/3	1400, -17	1000-14720	360-14720'	Rep.
15	Ring tone	0/0	425, -4	1200-4650		Rep.
16	Call diversion message	0/0	425, -4	100		Switch click
17	1st ring tone	0/0	425, -4	1200		Non rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
41	Global dial recorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interconnection tone	0/0	425, -4	100-200		Rep.

**Note 1:** The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
**Note 2:** The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>	Note
Internal call	25 Hz	<b>1000-4000</b>	Rep.
External call	25 Hz	<b>300-400</b>	Rep.
Call back	25 Hz	<b>300-400</b>	Rep.

Optical signals	Cadence (ms)		light-pause-light	Note
Signal				
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages					
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note	
Call tone	425-10				Cont.
Special dial tone	425-10	500-50			Rep.
Busy tone	425-10	500-500			Rep.
Ring tone	425-10	1000-4000			Rep.
Convey tone	425-10	200-300			Rep.
Call waiting tone	425-10	200-600	200		Non rep.
On hold tone	300-10	10-150	10-5000		
	400-10	10-150	10-5000		Rep.
	1400-10			333-1000	
Special information tone	1800-10	950-10	333	333	Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) <b>signal-pause-signal</b>		Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals			
Signal	Cadence (ms)		Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
incoming call	300-300		Rep.

TRM-parameters	
0	Digital
1	Analog Extension
3	Analog Extension (long)
4	Spare
5	Analog external line
6	Digital external line
7	2-wire tie line
8	4-wire tie line
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

[illegible]

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-5
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)					
1	Dial tone	0/0	350,-10 440,-10			Cont.
2	Special dial tone	0/0	350,-10 440,-10	750-750		
3	Busy tone	0/0	400,-10 400,-16	500-500	225-525	Rep. Rep.
4	Congestion tone	0/0	400,-10 400,-10	400-350		Rep.
5	NU tone	0/0	400,-10 1400,-17			Cont.
6	Warning tone for intrusion	3/3	400,-10 Faultman's ringback = NU	75-1520		Rep.
7	Faultman's ringback = NU	0/0	400,-10			Cont.
8	Ring (number 5)	0/0	400,-10	100-500	100-500	Rep. 2 seq.
11	Call waiting tone	0/0	400,-10	30-330	30-330	Rep.
13	Verification tone	6/6	425,-4	30-330	30-1980	Rep.
14	Warning tone for conference	3/3	1400,-17	1000-14720	360-14720'	Rep.'
15	Ring tone	0/0	400,-10	400-200	390-2010	Rep.
16	Call diversion message	0/0	450,-10	400-200	390-2010	Rep. Switch click
17	1st ring tone	0/0	DC, 0	100		
18	Queue tone	0/0	400,-10	400-200	400-200	Non rep.
21	HW-test tone	0/0	450,-10	400-200		
22	Music on hold 1	0/0	Ext. input			Cont. Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
41	Global dial reorder tone	0/0	425,-4			Cont.
42	Global ring tone	0/0	425,-4	1000-3000		Rep.
43	Global busy tone	0/0	425,-4	500-500		Rep.
44	Unpredictable conversation tone	0/0	425,-4	250-250		Rep.

**Note 1:** The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
**Note 2:** The tone levels for External lines are not valid in a Media Gateway LIM.

Ring signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	300-400	300-4000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals			
Signal	Cadence (ms)	<b>light-pause-light</b>	Note
Line not connected	turned off		Cont.
Function on key activated	light		Cont.
Line connected	<b>1850-50</b>	<b>50-50</b>	Rep.
Parked call	<b>500-500</b>		Rep.
Incoming call	<b>300-300</b>		Rep.

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Dial tone	425, -10			Cont.
Special dial tone	425, -10	500-50		Resp.
Busy tone	425, -10	900-300		Res.
Ring tone	425, -10	1000-4000		Resp.
Connection tone	425, -10	200-200		Resp.
Call waiting tone	425, -10	200-600		Non rep.
On hold tone	300, -10	10-150	10-5000	
	400, -10	10-150	10-5000	Resp.
Special information tone	1800, -10			
	1400, -10	333	333	Res.

Tone Messages					
Tone Message	Frequency (Hz, dBm)	Cadence (ms)	tone-pause-tone	Note	
Call tone	425, -10				Cont.
Special call tone	425, -10	500-50			Resp.
Busy tone	425, -10	500-500			Resp.
Ring tone	425, -10	1000-4000			Resp.
Convoation tone	425, -10	200-200			Resp.
Call waiting tone	425, -10	200-600	200		Non rep.
On hold tone	300, -10	10-150	10-5000		Resp.
	400, -10	10-150	10-5000		
	1800, -10			333-1000	
Special information tone	1400, -10				Resp.
	960, -10	333	333		

Ringling signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	250-400		Rep.

Optical signals			
Signal	Cadence (ms)	light-pause-light	Note
Free or non-requested function	turned off		Cont.
Function on key activated	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

# Market specific values for South Africa

TRM-parameters		TRM-matrix	
TRM-parameters	Digital	From line by	To line type
1	Digital		
2	Analog Extension		
3	Analog Extension (long)		
4	Spare		
5	Analog external line		
6	Digital external line		
7	2-wire tie line		
8	4-wire tie line		
9	Spare		
10	Spare		
11	Spare		
12	Spare		
13	Spare		
14	Spare		
15	Spare		
16	Spare		
17	Spare		
18	Spare		
19	Spare		
20	Spare		
21	Spare		
22	Spare		
23	Spare		

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions (dB)	
0	-1
1	-4
2	-3
3	6
4	+3
5	+6
6	+6
7	+12
8	+18
9	+18
10	+21
11	+24
12	+27
13	+30
14	+33
15	+36
16	+39

Tone Messages		Attenuation (dB)	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Number	Name	Ext/Int				
0	Pause (=silence)		350, -7			
1	Dial tone	0/0	440, -7		200-300	200-300
2	Special dial tone	0/0	350, -7	200-300	200-300	200-300
3	Busy tone	4/6	400, -7	600-500		Rep.
4	Congestion tone	3/3	400, -7	150-250		Rep.
5	NU tone	4/6	400, -7	2000-500		Rep.
6	Warning tone for intrusion	15/15	400, -7	150-250	150-1440	Rep.
7	Faultman's ringback = Cong. tone (No 4)	3/3	400, -7	200-250		Rep.
11	Call waiting tone	4/6	440, -7	100-600	100-5000	Rep. 2 seq.
13	dial tone (No 2)	0/0	350, -7	200-300	200-300	200-300
14	Verification tone = Special	0/0	440, -7	200-300	200-300	200-300
15	Warning tone for conference	15/15	400, -7	150-250	150-8000	Rep.
16	Ring tone	3/3	400, -7	400-200	400-2000	Rep.
17	Call diversion message	0/0	250, -7	1000		Switch click
17	1st ring tone	4/6	400, -7	1000		Non rep.
18	Queue tone = Ring tone (No 15)	3/3	400, -7	400-200	400-2000	Rep.
21	HW-test tone	4/6	350, -7			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RIVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RIVA
26	External dial tone	4/6	350, -7			Cont.
28	Call waiting tone from trunk	6/6	440, -7			Cont.
29	Expensive route warning tone	0/0	425, -4	100-1900		Rep. 5 seq.
31	Message waiting dial tone	0/0	350, -7	320-10		Rep. 4 sec.
32	Message waiting special	0/0	440, -7	200-300	200-300	200-300
33	dial tone	0/0	350, -7	200-300	200-300	200-300
40	Hold tone	0/0	440, -7	200-300	200-300	200-300
41	Global dial reorder tone	0/0	400, -7	30-40	30-4000	Rep.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	600-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters " in a column in the table above implies that only the values within the two " are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway UML.

Ringing signals		Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Signal					
Internal call	25 Hz	1000-4000			Rep.
External call	25 Hz	300-400	300-4000		Rep.
Call back	25 Hz	300-400			Rep.

Optical signals		Cadence (ms)	light-pulse-light	Note
Signal				
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1800-50	50-50		Rep.
Parked call	600-500			Rep.
Incoming call	600-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages		Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Tone Message					
Idle tone		425, -10			Cont.
Special dial tone		425, -10	600-50		Rep.
Busy tone		425, -10	600-500		Rep.
Ring tone		425, -10	1000-4000		Rep.
Congestion tone		425, -10	200-200		Rep.
Call waiting tone		425, -10	200-600	200	Non rep.
On hold tone		300, -10	10-150	10-5000	Rep.
		400, -10	10-150	10-5000	Rep.
Special information tone		1800, -10			Rep.
Connection in progress tone		1400, -10			Rep.
		950, -10	333	333	333-1000
		425, -4	30-330		Rep.

Ringing signals		Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Signal					
Internal call	Programmable	1000-5000			Rep.
External call	Programmable	350-300	350-5000		Rep.
Call back	Programmable	350-400			Rep.

Optical signals		Cadence (ms)	light-pulse-light	Note
Signal				
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1800-50	50-50		Rep.
Parked call	600-500			Rep.
Incoming call	600-300			Rep.

## Market specific values for Spain

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix		To line type																															
From line type	TRM	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	0	2	3	2	3	1	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1	4	5	4	2	3	4	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	3	4	3	2	3	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	1	2	1	2	0	1	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	2	3	2	2	1	2	1	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	1	2	1	2	0	1	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	3	4	3	2	3	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (ralliance)	0/0				
1	Dial tone	0/0	425, -4			Cont.
2	Special dial tone	0/0	425, -4	1000-100		Rep.
3	Busy tone	0/0	425, -4	200-200		Rep.
4	Congestion tone	0/0	425, -4	200-200	200-200	Rep.
5	NU tone	0/0	425, -4	200-200	200-600	Cont.
6	Warning tone for intrusion	0/0	1400, -17	400-5000		Rep.
8	Faultman's ringback	0/0	425, -4	200-200	200-200	Rep.
11	Call waiting tone	0/0	425, -4	200-200	200	Non rep.
			1800, -17			
			1400, -17		330-5	330-1000
12	Special information tone	0/0	950, -17	330-5		Rep.
13	Verification tone	0/0	425, -4			Cont.
14	Warning tone for conference	0/0	1400, -17	1000-14720	360-14720	'Rep.'
15	Ring tone	0/0	425, -4	1500-3000		Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	0/0	425, -4	1200		Non rep.
18	Queue tone	0/0	425, -4	1500-3000		Rep.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	0/0	425, -4			Cont.
28	Recall dial tone	0/0	425, -4	100-100	100-100	100
29	Call waiting tone from trunk	0/0	425, -4	200-200	200	Non rep.
31	Expensive route warning tone	0/0	1400, -17	2000-990		Rep. 4 seq.
32	Message waiting dial tone	0/0	425, -4	320-10		Rep.
33	Message waiting special dial tone	0/0	425, -4	320-10		Rep.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LHM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz		1000-4000	Rep.
External call	25 Hz		600-400	600-4000
Call back	25 Hz		300-400	Rep.
Inverted call	25 Hz		300-400	300-4000

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50		50-50	Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
Dial tone	425, -10			Cont.
Special dial tone	425, -10	500-50		Rep.
Busy tone	425, -10	500-500		Rep.
Ring tone	425, -10	1000-4000		Rep.
Congestion tone	425, -10	200-200		Rep.
Call waiting tone	425, -10	200-600	200	Non rep.
On hold tone	300, -10	10-150	10-5000	Rep.
	400, -10	10-150	10-5000	Rep.
	1800, -10		333-1000	
	1400, -10			
Special information tone	950, -10	333	333	Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	Programmable		1000-5000	Rep.
External call	Programmable		350-300	350-5000
Call back	Programmable		350-400	Rep.

Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50		50-50	Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

# Market specific values for Standard markets

TRM-parameters	
0	Digital
1	Analog Extension
2	Analog Extension (long)
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix																							
From line type	TRM	To line type							To line type														
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	1	4	5	4	2	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2	3	4	3	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	4	1	2	1	0	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	5	1	2	1	2	1	2	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	6	1	2	1	2	0	1	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	7	3	4	3	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	22	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation (dBm)	Frequency (Hz)	Cadence (ms)	tone-pause-tone	Note
0	Pause (=silence)					
1	Dial tone	0/0	425,-4			Cont.
2	Special dial tone	0/0	425,-4	320-10		Rep.
3	Busy tone	0/0	425,-4	330-330		Rep.
4	Congestion tone	0/0	425,-4	150-150		Rep.
5	NU tone	0/0	1800,-4	330-30	330-1000	Rep.
6	Warning tone for intrusion	3/3	1400,-4	75-1520		Rep.
11	Call waiting tone	0/0	425,-4	100-1000	100	Non rep.
13	Verification tone	0/0	425,-4	30-330	30-330	30-1980
14	Warning tone for conference	3/3	1400,-17	1000-14720	360-14720	Rep.
15	Ring tone	0/0	425,-4	990-3990		Rep.
16	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	0/0	425,-4	1200		Non rep.
21	HM-test tone	0/0	425,-4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
31	Expensive route warning tone	0/0	950,-4	320-10		Rep. 4 sec.
41	Global dial recorder tone	0/0	425,-4			Cont.
42	Global ring tone	0/0	425,-4	1000-3000		Rep.
43	Global busy tone	0/0	425,-4	500-500		Rep.
44	Global interception tone	0/0	425,-4	200-200		Rep.

Note 1: The characters ' ' in a column in the table above implies that only the values within the two ' ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal
Internal call	25 Hz	1000-4000	
External call	25 Hz	300-400	300-4000
Back	25 Hz	300-400	

Optical signals			
Signal	Cadence (ms)	light-pulse-light	Note
Line not connected	turned off		Cont.
Function on key act	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages						
Tone Message	Frequency (Hz)	Cadence (ms)	tone-pause-tone	Note		
Dial tone	425,-10			Cont.		
Special dial tone	425,-10	500-50		Rep.		
Busy tone	425,-10	500-500		Rep.		
Ring tone	425,-10	1000-4000		Rep.		
Congestion tone	425,-10	200-200		Rep.		
Call waiting tone	425,-10	200-400	200	Non rep.		
On hold tone	300,-10	10-150	10-5000			
	400,-10	150	10-5000			
	1800,-10			333-1000		
	1400,-10					
Special information tone	950,-10	333		Rep.		

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms)	signal-pulse-signal
Internal Programmable	1000-5000		
External Programmable	350-300	350-5000	
Call Programmable	350-300		
Back Programmable	350-400		

Optical signals			
Signal	Cadence (ms)	light-pulse-light	Note
Free or non-request	turned off		Cont.
Function on key act	light		Cont.
Line connected	1850-50	50-50	Rep.
Parked call	500-500		Rep.
Incoming call	300-300		Rep.



## Market specific values for Sweden

TRM-parameters	
0	Analog extension
1	Digital extension (not POTS), operator, IP extension
2	Spare
3	Spare
4	Analog PSTN
5	Digital PSTN
6	4-wire tie line
7	Spare
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix	
From line type	To line type
	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
0	6 4 2 2 3 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1	4 2 2 2 1 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
2	2 2
3	2 2
4	3 1 2 0 1 2 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5	4 2 2 2 1 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
6	2 2
7	5 3 2 2 3 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
8	2 2
9	2 2
10	2 2
11	2 2
12	2 2
13	2 2
14	2 2
15	2 2
16	2 2
17	2 2
18	2 2
19	2 2
20	2 2
21	2 2
22	2 2
23	2 2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions D1	1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone		Note
0	Pluse (challenge)	6/6	425 -4			Cont.
1	Dial tone	0/6	425 -4	320-10		Rep.
2	Special dial tone	0/6	425 -4	250-250		Rep.
3	Busy tone	3/6	425 -4	250-250		Rep.
4	Congestion tone	6/6	425 -4			Rep.
5	NU tone	10/10 0/0	1800 -17 1400 -17	330-30	330-1000	Rep.
6	Warning tone for intrusion	10/10	1400 -17	80-1520	75-1520	Rep.
8	Faultman's ringback	6/6	425 -4	250-750		Rep.
11	Call waiting tone	6/6	425 -4	200-500	200	Non rep.
13	Verification tone	0/0	425 -4	30-330	30-330	30-1980
14	Warning tone for conference	10/15	1400 -17	1000-14720	420-14720	Rep.
15	Ring tone	3/6	425 -4	990-4710		Rep.
16	Call diversion message	10/10	DC, 0	100		Switch click
17	1st ring tone	3/6	425 -4	1000		Non rep.
18	Queue tone	3/6	425 -4	990-4710		Rep.
21	HW-test tone	6/6	425 -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	6/6	425 -4			Cont.
29	Call waiting tone from trunk	6/6	425 -4	200-500	200	Non rep.
31	Expensive route warning tone	6/6	950 -17	4000		Non rep.
32	Message waiting dial tone	0/6	425	320-10		Rep.
33	Message waiting special dial tone	0/6	425	320-10		Rep.
41	Global dial recorder tone	6/6	425 -4			Cont.
42	Global ring tone	6/6	425 -4	1000-3000		Rep.
43	Global busy tone	6/6	425 -4	500-500		Rep.
44	Global interception tone	6/6	425 -4	200-200		Rep.

Note 1: The characters ' in a column in the table above implies that only the values within the two ' are repeated.

Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal		Note
Internal call	25 Hz	1000-5000		Rep.
External call	25 Hz	400-200	400-5000	Rep.
Call back	25 Hz	300-400		Rep.

Optical signals				
Signal		Cadence (ms) light-pulse-light		Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages						
Tone Message	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone				Note
Dial tone	425 -10					Cont.
Special dial tone	425 -10	500-50				Rep.
Busy tone	425 -10	500-500				Rep.
Ring tone	425 -10	1000-4000				Rep.
Congestion tone	425 -10	200-200				Rep.
Call waiting tone	425 -10	200-600	200			Non rep.
On hold tone	300 -10 400 -10 1800 -10	10-150 10-150 10-150	10-5000 10-5000			Rep.
Special information tone	1400 -10 950 -10	333	333			Rep.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal		Note
Internal call	Programmable	1000-5000		Rep.
External call	Programmable	350-300	350-5000	Rep.
Call back	Programmable	350-400		Rep.

Optical signals				
Signal		Cadence (ms) light-pulse-light		Note
Free or non-requested function	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50	50-50		Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Market specific values for Switzerland

TRM-parameters	
0	Digital extension line, PBX operator line, IP extension
1	Analog extension lines
2	Spare
3	Spare
4	Analog external line
5	Digital external line
6	2-wire tie line
7	4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix	
From line type	To line type
	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
0	2 3 2 2 2 2 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1	4 5 2 2 4 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
2	2 2
3	2 2
4	2 3 2 2 2 2 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5	2 3 2 2 2 2 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
6	0 1 2 0 0 0 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
7	3 4 2 2 3 3 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
8	2 2
9	2 2
10	2 2
11	2 2
12	2 2
13	2 2
14	2 2
15	2 2
16	2 2
17	2 2
18	2 2
19	2 2
20	2 2
21	2 2
22	2 2
23	2 2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation position D1	-1
0	-6
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages					
Number	Name	Attenuation Exh/Int	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone	Note
0	Pause (=silence)				
1	Dial tone	0/0	425, -4		Cont.
2	Special dial tone	0/0	425, -4	320-10	Rep.
3	Busy tone	0/0	425, -4	500-500	Rep.
4	Congestion tone	0/0	425, -4	150-150	Rep.
5	NU tone	0/0	1800, -4 1400, -4	330-30 330-30	Rep.
6	Warning tone for intrusion	0/0	1400, -4	75-1520	Rep.
11	Call waiting tone	0/0	425, -4	100-1000 100	Non rep.
13	Verification tone	0/0	425, -4	30-330 30-330	Rep.
14	Warning tone for conference	0/0	1400, -17	1000-19840 25-19840	'Rep.'
15	Ring tone	0/0	425, -4	990-3990	Rep.
16	Call diversion messa	0/0	DC 0	100	Switch click
17	Tst ring tone	0/0	425, -4	1200	Non rep.
18	Queue tone	0/0	425, -4	990-3990	Rep.
21	HW-test tone	0/0	425, -4		Cont.
22	Music on hold 1	0/0	Ext. input		Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input		Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input		Opt. Requires RVA
26	External dial tone	0/0	425, -4		Cont.
29	Call waiting tone from trunk	0/0	425, -4	100-1000 100	Non rep.
32	Message waiting dial tone	0/0	425, -4		Cont.
33	Message waiting special dial tone	0/0	425, -4	320-10	Rep.
41	Global dial recorder tone	0/0	425, -4		Cont.
42	Global ring tone	0/0	425, -4	1000-3000	Rep.
43	Global busy tone	0/0	425, -4	500-500	Rep.
44	Global interruption tone	0/0	425, -4	200-200	Rep.

Note 1: The characters 'in' a column in the table above implies that only the values within the two 'are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pause-signal	Note
Internal call	25 Hz	1000-4000	Rep.
External call	25 Hz	300-400 300-4000	Rep.
Call back	25 Hz	300-400	Rep.

Optical signals			
Signal	Cadence (ms) light-pulse-light	Note	
Line not connected	turned off	Cont.	
Function on key activated	light	Cont.	
Line connected	1850-50 50-50	Rep.	
Parked call	500-500	Rep.	
Incoming call	300-300	Rep.	

## Generated in the MX-ONE IP Telephone

Tone Messages				
Tone Message	Frequency (Hz, dBm0)	Cadence (ms) tone-pause-tone	Note	
Dial tone	425, -10		Cont.	
Special dial tone	425, -10	500-50	Rep.	
Busy tone	425, -10	500-500	Rep.	
Ring tone	425, -10	1000-4000	Rep.	
Congestion tone	425, -10	200-200	Rep.	
Call waiting tone	425, -10	200-600 200	Non rep.	
On hold tone	300, -10 400, -10	10-150 10-5000	Rep.	
Special information tone	1800, -10 1400, -10 950, -10	10-150 10-5000 333 333	333-1000	Rep.

Ringing signals			
Signal	Frequency (Hz)	Cadence (ms) signal-pulse-signal	Note
Internal call	Programmable	1000-5000	Rep.
External call	Programmable	350-300 350-5000	Rep.
Call back	Programmable	350-400	Rep.

Optical signals			
Signal	Cadence (ms) light-pulse-light	Note	
Free or non-requested function	turned off	Cont.	
Function on key activated	light	Cont.	
Line connected	1850-50 50-50	Rep.	
Parked call	500-500	Rep.	
Incoming call	300-300	Rep.	

## Market specific values for the United Kingdom

TRM-parameters	
0	Analog extension
1	Digital extension (ELU25 and ELU28), ISDN, CASIPTS, IP extension
2	Spare
3	Analog PSTN line (TLU74 only)
4	Analog PSTN line (BTU1 & BTU2 only)
5	Digital PSTN line, Digital tie line
6	Analog 2-wire tie line
7	Analog 4-wire tie line
8	Spare
9	Spare
10	Spare
11	Spare
12	Spare
13	Spare
14	Spare
15	Spare
16	Spare
17	Spare
18	Spare
19	Spare
20	Spare
21	Spare
22	Spare
23	Spare

TRM-matrix	
From line type	To line type
	TRM 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
0	5 3 2 3 3 3 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1	4 2 2 2 2 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
2	2 2
3	3 1 2 1 1 1 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
4	3 1 2 1 1 1 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5	4 2 2 2 2 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
6	3 1 2 1 1 1 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
7	3 1 2 1 1 1 1 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
8	2 2
9	2 2
10	2 2
11	2 2
12	2 2
13	2 2
14	2 2
15	2 2
16	2 2
17	2 2
18	2 2
19	2 2
20	2 2
21	2 2
22	2 2
23	2 2

The attenuation position values in the TRM-matrix refer to the amplification/attenuation position below

Attenuation Values (dB)	
Attenuation positions	
D1	1
0	-8
1	-3
2	0
3	+3
4	+6
5	+9
6	+12
7	+15
8	+18
9	+21
10	+24
11	+27
12	+30
13	+33
14	+36
15	+39

Tone Messages						
Number	Name	Attenuation Ext/Int	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note
0	Pause (silence)		350, -10			
1	Dial tone	0/0	440, -10			Cont.
2	Special dial tone	0/0	440, -10	750-750		Rep.
3	Busy tone	0/0	400, -10	375-375		Rep.
4	Congestion tone	0/0	400, -16		225-525	Rep.
5	NU tone	0/0	400, -10	400-350		Cont.
6	Warning tone for intrusion	3/3	1400, -17	1000-400	'100-400'	Rep.'
8	Faultman's ringback	0/0	400, -10			Cont.
11	Call waiting tone	0/0	400, -10	100-900	100-5000	Rep. 2 seq.
13	Verification tone	0/0	400, -10	200-400	2010-390	Rep.
14	Warning tone for conference	3/3	1400, -17	1000-14720	360-14720'	Rep.'
15	Ring tone	0/0	400, -10	400-200	390-2010	
16	Ring tone	0/0	450, -10	400-200	390-2010	Rep.
18	Call diversion message	0/0	DC, 0	100		Switch click
17	1st ring tone	0/0	400, -10	400-200	400	Non rep.
18	Queue tone	0/0	400, -10	400-200	390-2010	Rep. 2 seq.
21	HW-test tone	0/0	425, -4			Cont.
22	Music on hold 1	0/0	Ext. input			Opt. Requires RVA
23	Music on hold 2	0/0	Ext. input			Opt. Requires RVA
24	Music on hold 3	0/0	Ext. input			Opt. Requires RVA
26	External dial tone	0/0	350, -10			Cont.
29	Call waiting tone from trunk	0/0	400, -10	100-900	100-5000	Rep.
32	Message waiting dial tone	0/0	350, -10	750-750		Rep.
33	Message waiting special dial tone	0/0	440, -10	750-750		Rep.
41	Global dial reorder tone	0/0	425, -4			Cont.
42	Global ring tone	0/0	425, -4	1000-3000		Rep.
43	Global busy tone	0/0	425, -4	500-500		Rep.
44	Global interception tone	0/0	425, -4	200-200		Rep.

Note 1: The characters ' in a column in the table above implies that only the values within the two ' are repeated.  
Note 2: The tone levels for External lines are not valid in a Media Gateway LIM.

Ringing signals				
Signal	Frequency (Hz)	Cadence (ms)	signal-pause-signal	Note
Internal call	25 Hz	1000-4000		Rep.
External call	25 Hz	400-200	400-2000	Rep.
Call back	25 Hz	500-500	500-600	Rep.
Optical signals				
Signal	Cadence (ms)		light-pulse-light	Note
Line not connected	turned off			Cont.
Function on key activated	light			Cont.
Line connected	1850-50		50-50	Rep.
Parked call	500-500			Rep.
Incoming call	300-300			Rep.

## Generated in the MX-ONE IP Telephone

Tone Messages					
Tone Message	Frequency (Hz, dBm0)	Cadence (ms)	tone-pause-tone	Note	
Dial tone	425, -10				Cont.
Special dial tone	425, -10	500-50			Rep.
Busy tone	425, -10	500-500			Rep.
Ring tone	425, -10	1000-4000			Rep.
Congestion tone	425, -10	200-200			Rep.
Call waiting tone	425, -10	200-600	200		Non rep.
On hold tone	300, -10	10-150	10-5000		Rep.
	400, -10	10-150	10-5000		Rep.
Special information tone	1400, -10	333	333		Rep.
	950, -10				
Ringing signals					
Signal	Frequency (Hz)	Cadence (ms)	signal-pulse-signal	Note	
Internal call	Programmable	1000-5000			Rep.
External call	Programmable	350-300			Rep.
Call back	Programmable	350-400			Rep.
Optical signals					
Signal	Cadence (ms)		light-pulse-light	Note	
Free or non-requested function	turned off				Cont.
Function on key activated	light				Cont.
Line connected	1850-50		50-50		Rep.
Parked call	500-500				Rep.
Incoming call	300-300				Rep.

# Line types per application system

	TL60/ SL60	TL60/ SL63	TL1	TL4	TL11	TL12	TL19	TL22	TL25	TL26	TL30	TL35	TL37	TL38	TL45	TL49	TL50	TL51	TL65	TL66/ SIPL	TL72	TL81	TL95			
Australia	x				x	x	x	x			x	x	x				x		x	x						
Austria	x				x	x	x	x	x		x		x				x		x	x						
Belgium	x				x	x	x	x	x		x	x	x				x		x	x						
Brazil	x				x	x	x	x	x		x		x				x		x	x						
Canada	x	x	x			x		x			x				x		x		x	x						
China	x				x	x	x	x	x				x			x	x	x	x	x		x				
Denmark	x				x		x	x	x		x		x					x	x	x						
Finland	x				x	x	x	x	x		x	x	x				x		x	x						
France	x				x			x			x		x				x		x	x						
Germany	x						x	x	x		x	x	x				x		x	x						
Hong-Kong, A-law	x				x	x	x	x	x		x		x				x		x	x						
Hong-Kong, My-law	x	x	x		x	x		x	x						x		x		x	x						
India	x				x	x	x	x	x		x	x	x				x		x	x						
Indonesia	x				x	x	x	x	x		x	x	x				x		x	x						
Ireland	x				x	x		x	x		x		x				x		x	x						
Italy	x				x		x	x	x		x	x	x				x		x	x						
Malaysia	x				x	x	x	x	x		x		x				x		x	x						
Market Group 2	x				x	x	x	x	x		x	x	x			x	x		x	x			x			
Mexico, standard	x				x	x	x	x	x		x	x	x				x		x	x						
The Netherlands	x						x	x	x	x	x	x	x				x		x	x						
New Zealand	x		x		x	x		x	x		x		x				x		x	x						
North America	x	x	x			x		x			x				x		x		x	x						
Norway	x				x		x	x	x		x		x				x		x	x						
Republic of Korea	x				x	x		x	x		x		x				x		x	x						
Saudi Arabia	x		x		x	x	x	x	x		x	x	x			x	x		x	x						
Singapore	x				x	x	x	x	x		x	x	x				x		x	x						
South Africa	x				x		x	x	x		x	x	x				x		x	x						
Spain	x				x			x			x		x	x			x		x	x						
Standard	x				x	x	x	x	x		x	x	x				x		x	x						
Sweden	x			x			x	x	x		x		x				x		x	x						
Switzerland	x				x	x	x	x	x		x		x				x		x	x						
United Kingdom	x		x			x	x	x	x		x		x				x		x	x	x					

For explanation of line program unit names, see parameter UNIT

	CTL	EL6	EL7	IPL	ITL	ITLB	KL1	OL	PG1	PG3	RA1	REL		
Australia	x	x	x	x	x		x	x	x	x	x	x		
Austria	x	x	x	x	x		x	x	x	x	x	x		
Belgium	x	x	x	x	x		x	x	x	x	x	x		
Brazil	x	x	x	x	x		x	x	x	x	x	x		
Canada	x	x	x	x	x	x	x	x			x			
China	x	x	x	x	x		x	x	x	x	x	x		
Denmark	x	x	x	x	x		x	x	x	x	x	x		
Finland	x	x	x	x	x		x	x	x	x	x	x		
France	x	x	x	x	x		x	x	x	x	x	x		
Germany	x	x	x	x	x		x	x	x	x	x	x		
Hong-Kong, A-law	x	x	x	x	x		x	x	x	x	x	x		
Hong-Kong, My-law	x	x	x	x	x	x	x	x	x	x	x	x		
India	x	x	x	x	x		x	x	x	x	x	x		
Indonesia	x	x	x	x	x		x	x	x	x	x	x		
Ireland	x	x	x	x	x		x	x	x	x	x	x		
Italy	x	x	x	x	x		x	x	x	x	x	x		
Malaysia	x	x	x	x	x		x	x	x	x	x	x		
Market Group 2	x	x	x	x	x		x	x	x	x	x	x		
Mexico, standard	x	x	x	x	x		x	x	x	x	x	x		
The Netherlands	x	x	x	x	x		x	x	x	x	x	x		
New Zealand	x	x	x	x	x		x	x	x	x	x	x		
North America	x	x	x	x	x	x	x	x			x			
Norway	x	x	x	x	x		x	x	x	x	x	x		
Republic of Korea	x	x	x	x	x		x	x	x	x	x	x		
Saudi Arabia	x	x	x	x	x		x	x	x	x	x	x		
Singapore	x	x	x	x	x		x	x	x	x	x	x		
South Africa	x	x	x	x	x		x	x	x	x	x	x		
Spain	x	x	x	x	x		x	x	x	x	x	x		
Standard	x	x	x	x	x		x	x	x	x	x	x		
Sweden	x	x	x	x	x		x	x	x	x	x	x		
Switzerland	x	x	x	x	x		x	x	x	x	x	x		
United Kingdom	x	x	x	x	x		x	x	x	x	x	x		