**Alarm tones**

**Tone characteristics**

* Mono, sample rate 48 kHz, 16-bit sample depth
* Peak level: <-1.3 dBFS (Full Scale square wave = 0 dBFS)
* RMS level: <-9 dBFS (Full Scale sine wave = -3 dBFS)
* Glitch free and gapless repeat
* MS = Multi-sine, TS = Triple-sine, SW = Sine wave, B = Bell
* Filename format: Alarm\_MS\_<frequency (range)>\_<duty cycle>\_<duration>.wav
* **Alarm\_B\_100p\_1s**
  + Bell sound, 1 s
  + Duty cycle 100%
  + Offshore “Abandon platform”
* **Alarm\_B\_100p\_2.5s**
  + Bell sound with release, 2.5 s
  + Duty cycle 100%
  + Offshore “FG”
* **Alarm\_MS\_300-1200Hz\_100p\_1s.wav**
  + Sweep 300 Hz – 1200 Hz, up in 1 s
  + Duty cycle 100%
  + “General purpose”
* **Alarm\_MS\_350-500Hz\_100p\_1s.wav**
  + Sweep 350 Hz – 500 Hz, up in 1 s
  + Duty cycle 100%
* **Alarm\_MS\_400Hz\_100p\_1s.wav**
  + Continuous 400 Hz, 1 s
  + Duty cycle 100%
* **Alarm\_MS\_420Hz\_48p\_(0.60+0.65)s.wav**
  + Intermittent 420 Hz, 0.60 s on, 0.65 s off
  + Duty cycle 48%
  + Australia, AS 2220 “Alert” (extended spectrum)
* **Alarm \_MS\_420Hz\_50p\_(0.6+0.6)s.wav**
  + Intermittent 420 Hz, 0.6 s on, 0.6 s off
  + Duty cycle 50%
  + Australia, AS 1670.4, ISO 7731 “Alert” (extended spectrum)
* **Alarm\_MS\_422-775Hz\_46p\_(0.85+1.00)s.wav**
  + Sweep 422 Hz – 775 Hz, up in 0.85 s, 1.0 s off
  + Duty cycle 46%
  + USA, “NFPA Whoop”
* **Alarm\_MS\_500-1200-500Hz\_100p\_(1.5+1.5)s.wav**
  + Sweep 500 Hz – 1200 Hz, up in 1.5 s, down in 1.5 s
  + Duty cycle 100%
  + “Siren”
* **Alarm\_MS\_500-1200Hz\_94p\_(3.75+0.25)s.wav**
  + Sweep 500 Hz – 1200 Hz, up in 3.75 s, 0.25 s off
  + Duty cycle 94%
  + Australia, AS 2220 -1978 “Action”
* **Alarm\_MS\_500-1200Hz\_88p\_(3.5+0.5)s.wav**
  + Sweep 500 Hz – 1200 Hz, up in 3.5 s, 0.5 s off
  + Duty cycle 88%
  + Netherlands, NEN 2575 “Evacuation”
* **Alarm\_MS\_500Hz\_20p\_(0.15+0.60)s.wav**
  + Intermittent 500 Hz, 0.15 s on, 0.6 s off
  + Duty cycle 20%
  + Sweden, SS 03 17 11 “Local Warning”
* **Alarm\_MS\_500Hz\_60p\_4x(0.15+0.10)s.wav**
  + Intermittent 500 Hz, 0.15 s on, 0.1 s off, 4 repetitions
  + Duty cycle 60%
  + Sweden, SS 03 17 11 “Imminent Danger”
* **Alarm\_MS\_500Hz\_100p\_1s.wav**
  + Continuous 500 Hz, 1 s
  + Duty cycle 100%
  + Sweden, SS 03 17 11 “All clear”; Germany, KTA3901 “All clear”
* **Alarm\_MS\_520Hz\_13p\_(0.5+3.5)s.wav**
  + Intermittent 520 Hz, 0.5 s on, 3.5 s off
  + Duty cycle 13%
  + Australia, AS 4428.16 “Alert” (extended spectrum)
* **Alarm\_MS\_520Hz\_38p\_3x(0.5+0.5)s+1s.wav**
  + Intermittent 520 Hz, 0.5 s on, 0.5 s off, 0.5 s on, 0.5 s off, 0.5 s on, 1.5 s off
  + Duty cycle 38%
  + Australia, AS 4428.16, ISO 8201 “Evacuation” (extended spectrum)
* **Alarm\_MS\_550+440Hz\_100p\_(1+1)s.wav**
  + Alternating 550 Hz, 1 s and 440 Hz, 1 s
  + Duty cycle 100%
  + Sweden “Turn Out”
* **Alarm\_MS\_560+440Hz\_100p\_2x(0.1+0.4)s.wav**
  + Alternating 560 Hz, 0.1 s and 440 Hz, 0.4 s, 2 repetitions
  + Duty cycle 100%
  + France, NF S 32-001 “Fire”
* **Alarm\_MS\_660Hz\_33p\_(6.5+13)s.wav**
  + Intermittent 660 Hz, 6.5 s on, 13 s off
  + Duty cycle 33%
  + Sweden “Pre-mess”
* **Alarm\_MS\_660Hz\_50p\_(1.8+1.8)s.wav**
  + Intermittent 660 Hz, 1.8 s on, 1.8 s off
  + Duty cycle 50%
  + Sweden “Local warning”
* **Alarm\_MS\_660Hz\_50p\_4x(0.15+0.15)s.wav**
  + Intermittent 660 Hz, 0.15 s on, 0.15 s off, 4 repetitions
  + Duty cycle 50%
  + Sweden “Air raid”
* **Alarm\_MS\_660Hz\_100p\_1s.wav**
  + Continuous 660 Hz, 1 s
  + Duty cycle 100 %
  + Sweden “All clear”
* **Alarm\_MS\_720Hz\_70p\_(0.7+0.3)s.wav**
  + Intermittent 720Hz, 0.7 s on, 0.3 s off
  + Duty cycle 70%
  + Germany “Industrial alarm”
* **Alarm\_MS\_800+970Hz\_100p\_2x(0.25+0.25)s.wav**
  + Alternating 800 Hz, 0.25 s and 970 Hz, 0.25 s, 2 repetitions
  + Duty cycle 100%
  + UK, BS 5839-1 “Fire”, EN 54-3
* **Alarm\_MS\_800-970Hz\_38p\_3x(0.5+0.5)s+1s.wav**
  + Sweep 800 Hz – 970 Hz, up in 0.5 s, 0.5 s off, up in 0.5 s, 0.5 s off, up in 0.5 s, 1.5 s off
  + Duty cycle 38%
  + ISO 8201
* **Alarm\_MS\_800-970Hz\_100p\_1s.wav**
  + Sweep 800 Hz – 970 Hz, up in 1 s
  + Duty cycle 100%
  + UK, BS 5839-1 “Fire”
* **Alarm\_MS\_800-970Hz\_100p\_7x0.14s.wav**
  + Sweep 800 Hz – 970 Hz, up in 0.14 s, 7 repetitions
  + Duty cycle 100%
  + UK, BS 5839-1 “Fire”
* **Alarm\_MS\_970+630Hz\_100p\_(0.5+0.5)s.wav**
  + Alternating 970 Hz, 0.5 s and 630 Hz, 0.5 s
  + Duty cycle 100%
  + UK, BS 5839-1
* **Alarm\_MS\_970Hz\_20p\_(0.25+1.00)s.wav**
  + Intermittent 970 Hz, 0.25 s on, 1 s off
  + Duty cycle 20%
  + “General purpose”
* **Alarm\_MS\_970Hz\_38p\_3x(0.5+0.5)s+1s.wav**
  + Intermittent 970 Hz, 0.5 s on, 0.5 s off, 0.5 s on, 0.5 s off, 0.5 s on, 1.5 s off
  + Duty cycle 38%
  + ISO 8201 “Emergency evacuation”
* **Alarm\_MS\_970Hz\_40p\_5x(1+1)s+(3+7)s.wav**
  + Intermittent 970 Hz, 1 s on, 1 s off, 5 repetitions, 3 s on, 7 s off
  + Duty cycle 40%
  + Maritime
* **Alarm\_MS\_970Hz\_50p\_(1+1)s.wav**
  + Intermittent 970 Hz, 1 s on, 1 s off
  + Duty cycle 50%
  + UK, BS 5839-1 “Alert”, PFEER “Alert”, Maritime
* **Alarm\_MS\_970Hz\_50p\_(12+12)s.wav**
  + Intermittent 970 Hz, 12 s on, 12 s off
  + Duty cycle 50%
  + Maritime
* **Alarm\_MS\_970Hz\_52p\_7x(1+1)s+(5+4)s.wav**
  + Intermittent 970 Hz, 1 s on, 1 s off, 7 repetitions, 5 s on, 4 s off
  + Duty cycle 52%
  + Maritime “General emergency alarm”
* **Alarm\_MS\_970Hz\_56p\_7x(1+1)s+(7+4)s.wav**
  + Intermittent 970 Hz, 1 s on, 1 s off, 7 repetitions, 7 s on, 4 s off
  + Duty cycle 56%
  + Maritime “General emergency alarm”
* **Alarm\_MS\_970Hz\_64p\_7x(1+1)s+(7+1)s.wav**
  + Intermittent 970 Hz, 1 s on, 1 s off, 7 repetitions, 7 s on, 1 s off
  + Duty cycle 64%
  + Maritime “General emergency alarm”
* **Alarm\_MS\_970Hz\_65p\_(5+1)s+(1+1)s+(5+4)s.wav**
  + Intermittent 970 Hz, 5 s on, 1 s off, 1 s on, 1 s off, 5 s on, 4 s off
  + Duty cycle 65%
  + Maritime
* **Alarm\_MS\_970Hz\_67p\_(1+1)s+(3+1)s.wav**
  + Intermittent 970 Hz, 1 s on, 1 s off, 3 s on, 1 s off
  + Duty cycle 67%
  + Maritime IMO “Leave ship”
* **Alarm\_MS\_970Hz\_72p\_3x(7+2)s+2s.wav**
  + Intermittent 970 Hz, 7 s on, 2 s off, 3 repetitions, 2 s off
  + Duty cycle 72%
  + Maritime “Man overboard”
* **Alarm\_MS\_970Hz\_74p\_4x(5+1)s+3s.wav**
  + Intermittent 970 Hz, 5 s on, 1 s off, 4 repetitions, 3 s off
  + Duty cycle 74%
  + Maritime
* **Alarm\_MS\_970Hz\_80p\_(12+3)s.wav**
  + Intermittent 970 Hz, 12 s on, 3 s off
  + Duty cycle 80%
  + Maritime
* **Alarm\_MS\_970Hz\_100p\_1s.wav**
  + Continuous 970 Hz, 1 s
  + Duty cycle 100%
  + UK, BS 5839-1 “Evacuate”, PFEER “Toxic gas”, Maritime “Fire”, EN 54-3
* **Alarm\_MS\_1000+2000Hz\_100p\_(0.5+0.5)s.wav**
  + Alternating 1000 Hz, 0.5 s and 2000 Hz, 0.5 s
  + Duty cycle 100%
  + Singapore
* **Alarm\_MS\_1200-500Hz\_100p\_1s.wav**
  + Sweep 1200 Hz – 500 Hz, down in 1 s
  + Duty cycle 100%
  + Germany, DIN 33404 Part 3, PFEER “Prepare for evacuation”, EN 54-3
* **Alarm\_MS\_1400-1600-1400Hz\_100p\_(1.0+0.5)s.wav**
  + Sweep 1400 Hz – 1600 Hz, up in 1.0 s, down in 0.5 s
  + Duty cycle 100%
  + France, NFC 48-265
* **Alarm\_MS\_2850Hz\_25p\_3x(0.5+0.5)s+1s.wav**
  + Intermittent 2850 Hz, 0.5 s on, 0.5 s off, 0.5 s on, 0.5 s off, 0.5 s on, 1.5 s off
  + Duty cycle 25%
  + USA, ISO 8201 “High tone”
* **Alarm\_SW\_650-1100-650Hz\_50p\_4x(0.125+0.125)s.wav**
  + Sweep 650 Hz – 1100 Hz, up and down in 0.125 s, 0.125 s off, 4 repetitions
  + Duty cycle 50%
  + Offshore “H2S alarm”
* **Alarm \_TS\_420Hz\_50p\_(0.6+0.6)s.wav**
  + Intermittent 420 Hz, 0.6 s on, 0.6 s off
  + Duty cycle 50%
  + Australia, AS 1670.4, ISO 7731 “Alert” (standard spectrum)
* **Alarm\_TS\_520Hz\_13p\_(0.5+3.5)s.wav**
  + Intermittent 520 Hz, 0.5 s on, 3.5 s off
  + Duty cycle 13%
  + Australia, AS 4428.16 “Alert” (standard spectrum)
* **Alarm\_TS\_520Hz\_38p\_3x(0.5+0.5)s+1s.wav**
  + Intermittent 520 Hz, 0.5 s on, 0.5 s off, 0.5 s on, 0.5 s off, 0.5 s on, 1.5 s off
  + Duty cycle 38%
  + Australia, AS 4428.16, ISO 8201 “Evacuation” (standard spectrum)

**Attention tones**

**Tone characteristics**

* Mono, sample rate 48 kHz, 16-bit sample depth
* Filename format: Attention\_<sequence number>\_<number of tones>\_<duration>.wav
* **Attention\_A\_1T\_1.5s.wav**
  + Single tone chime
  + Marimba and Vibraphone, A4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 1.5 s
* **Attention\_B\_1T\_1.5s.wav**
  + Single tone chime
  + Marimba and Vibraphone, C#5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 1.5 s
* **Attention\_C\_1T\_1.5s.wav**
  + Single tone chime
  + Marimba and Vibraphone, E5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 1.5 s
* **Attention\_D\_1T\_1.5s.wav**
  + Single tone chime
  + Marimba and Vibraphone, G5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 1.5 s
* **Attention\_E1\_2T\_2s.wav**
  + Two tone pre-chime
  + Marimba and Vibraphone, A4/C#5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_E2\_2T\_2s.wav**
  + Two tone post-chime
  + Marimba and Vibraphone, C#5/A4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_F1\_3T\_2s.wav**
  + Three tone pre-chime
  + Marimba and Vibraphone, G4/C5/E5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_F2\_3T\_2s.wav**
  + Three tone post-chime
  + Marimba and Vibraphone, E5/C5/G4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_G1\_3T\_2.5s.wav**
  + Three tone pre-chime
  + Marimba and Vibraphone, A#4/D5/F5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2.5 s
* **Attention\_G2\_3T\_2.5s.wav**
  + Three tone post-chime
  + Marimba and Vibraphone, F5/D5/A#4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2.5 s
* **Attention\_H1\_4T\_3s.wav**
  + Four tone pre-chime
  + Marimba and Vibraphone, E5/C5/D5/E4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_H2\_4T\_3s.wav**
  + Four tone post-chime
  + Marimba and Vibraphone, G4/D5/E5/C5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_J1\_4T\_3s.wav**
  + Four tone pre-chime
  + Marimba and Vibraphone, G4/C5/E5/G5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_J2\_4T\_3s.wav**
  + Four tone post-chime
  + Marimba and Vibraphone, G5/E5/C5/G4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_K1\_4T\_2.5s.wav**
  + Four tone pre-chime
  + Marimba and Vibraphone, G4/C5/E5/G5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2.5 s
* **Attention\_K2\_4T\_2.5s.wav**
  + Four tone post-chime
  + Marimba and Vibraphone, G5/E5/C5/G4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2.5 s
* **Attention\_L1\_4T\_3s.wav**
  + Four tone pre-chime
  + Marimba and Vibraphone, C5/E5/G5/A5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_L2\_4T\_3s.wav**
  + Four tone post-chime
  + Marimba and Vibraphone, A5/G5/E5/C5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_M1\_6T\_2s.wav**
  + Six tone pre-chime
  + Marimba and Vibraphone, G4/C5/E5/G4/C5/E5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_M2\_4T\_2s.wav**
  + Four tone post-chime
  + Marimba and Vibraphone, C5/E5/C5/G4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_N1\_7T\_2s.wav**
  + Seven tone pre-chime
  + Marimba and Vibraphone, E5/F4/C5/G4/E6/C6/G5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_N2\_4T\_2s.wav**
  + Four tone post-chime
  + Marimba and Vibraphone, C6/E5/C5/G4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_O1\_6T\_3s.wav**
  + Six tone pre-chime
  + Marimba and Vibraphone, F5/C5/C5/G5/(A4+C6)/(F4+A5)
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_O2\_5T\_2.5s.wav**
  + Five tone post-chime
  + Marimba and Vibraphone, A#5/A#5/A5/A5/(F4+F5)
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2.5 s
* **Attention\_P1\_8T\_4s.wav**
  + Eight tone pre-chime
  + Marimba and Vibraphone, A4/A4/A4/C5/D5/D5/D5/(D4+A4)
  + Peak level -6 dBFS, RMS level < -10 dBFS, 4 s
* **Attention\_P2\_4T\_2.5s.wav**
  + Four tone post-chime
  + Marimba and Vibraphone, (A4+D5)/A4/D5/(A4+D5)
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2.5 s
* **Attention\_Q1\_3T\_3.5s.wav**
  + Three tone pre-chime
  + Celesta, G4/C5/E5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3.5 s
* **Attention\_Q2\_3T\_3.5s.wav**
  + Three tone post-chime
  + Celesta, E5/C5/G4
  + Peak level -6 dBFS, RMS level < -10 dBFS, 3.5 s
* **Attention\_R\_6T\_2.5s.wav**
  + Six tone chime
  + Guitar, F4/C5/F5/F4/C5/F5
  + Peak level -6 dBFS, RMS level < -10 dBFS, 2.5 s
* **Attention\_S\_3T\_2s.wav**
  + Three tone chime
  + Vibraphone, C4/D4/D#4
  + Peak level -3 dBFS, RMS level < -10 dBFS, 2 s
* **Attention\_T\_3T\_3s.wav**
  + Three tone chime
  + Vibraphone, D5/C4/D4
  + Peak level -4 dBFS, RMS level < -10 dBFS, 3 s
* **Attention\_U\_3T\_3.5s.wav**
  + Three tone chime
  + Vibraphone, C#6/E5/C5
  + Peak level -5 dBFS, RMS level < -10 dBFS, 3.5 s

**Silence tones**

**Tone characteristics**

* Mono, sample rate 48 kHz, 16-bit sample depth
* Filename format: Silence\_<duration>.wav
* **Silence\_1s.wav**
  + Silence period, 1 s
* **Silence\_2s.wav**
  + Silence period, 2 s
* **Silence\_4s.wav**
  + Silence period, 4 s
* **Silence\_8s.wav**
  + Silence period, 8 s
* **Silence\_16s.wav**
  + Silence period, 16 s

**Test tones**

**Tone characteristics**

* Mono, sample rate 48 kHz, 16-bit sample depth
* Filename format: Test\_<purpose>\_<duration>.wav
* **Test\_Loudspeaker\_AB\_20kHz\_10s.wav**
  + Sine wave 20 kHz, peak level -20 dBFS, RMS level -23 dBFS, 10 s
  + Inaudible signal to drive the A-group loudspeakers and check connectivity of the A- and B-loudspeakers simultaneously while the building is occupied, the B-loudspeakers get a 22 kHz signal
  + The A-loudspeakers are connected to their own zone amplifier channel; this zone gets the 20 kHz signal
  + Keep smartphone in front of the loudspeaker, a smartphone spectrum analyzer detects both the 20 kHz and the 22 kHz simultaneously
* **Test\_Loudspeaker\_AB\_22kHz\_10s.wav**
  + Sine wave 22 kHz, peak level -20 dBFS, RMS level -23 dBFS, 10 s
  + Inaudible signal to drive the B-group loudspeakers and check connectivity of the A- and B-loudspeakers simultaneously while the building is occupied, the A-loudspeakers get a 20 kHz signal
  + The B-loudspeakers are temporarily connected to another amplifier channel, for another zone; this zone gets the 22 kHz signal
  + Keep smartphone in front of the loudspeaker, a smartphone spectrum analyzer detects both the 20 kHz and the 22 kHz simultaneously
* **Test\_LoudspeakerPolarity\_10s.wav**
  + Filtered sawtooth 50 Hz, peak level -12 dBFS, RMS level -20 dBFS, 10 s
  + Audible signal to detect proper polarity of connected loudspeakers
  + Smartphone oscilloscope detects a positive or negative sharp peak, that should be in the same direction for all loudspeakers
* **Test\_PinkNoise\_30s .wav**
  + Pink noise signal 20 Hz – 20 kHz, peak level -3 dBFS, RMS level -16 dBFS, 30 s
  + Audible signal for acoustic measurements
* **Test\_STIPA\_BedrockAudio\_100s.wav**
  + STIPA test signal, peak level – 4.2 dBFS, RMS level -11 dBFS, 100 s
  + Test signal to measure the speech intelligibility via the Speech Transmission Index
  + Copyright Bedrock Audio BV (<http://bedrock-audio.com/>), used with permission
  + Compatible with all STIPA meters compliant to IEC 60268-16 Ed. 4 (Bedrock Audio, NTi Audio, Audio Precision)
  + The signal can be looped. A 440 Hz beep signal of -12 dBFS, duration 1 s, marks the beginning of the 100 s test signal. Start the measurement after this beep, so the measurement will not be disturbed by a gap between end and restart.
  + A measurement cycle takes a minimum of 15 s
* **Test\_TickTone\_1800Hz\_5x(0.5+2)s.wav**
  + Intermittent 1800 Hz sinewave, 0.5 s on, 2 s off, 4 repetitions
  + Duty cycle 20%
  + Route the tick tone to a zone to deliver an audible bleep from each speaker in that zone; loss of the tick tone along the line allows the engineer to identify the position of the line discontinuity.
* **Test\_Reference\_440Hz\_10s.wav**
  + Continuous 440 Hz sinewave, 10s
  + Duty cycle 100%

*Requests for other tones can be directed to Bosch Security Systems, Eindhoven, The Netherlands.*