



Australia lags behind in Smoke Alarms for Children and the Hearing Impaired

FREQUENCY MATTERS

The **Australian standard** smoke alarm uses a **high pitched** pure tone of **3000 Hertz**. However, for the hearing impaired and children, this frequency is not the most effective tone.

Recent research has found that a **lower-pitched** square tone of **520 Hertz** (near to middle C on the piano) is **much more effective**.

The U.S. National Fire Protection Association and the U.S. Fire Administration have found:

1. A **520 Hz** square-wave T-3 sound was the single most effective signal, awakening **92 %** of participants **with hearing loss**, depending on the volume of the signal.
2. The **3100 Hz** pure tone T-3 sound, which is the tone in most standard smoke alarms, awoke only **44 %** of participants **with hearing loss**.
3. Visual and tactile devices used alone were not as effective in waking most people at risk. **Strobe lights** awoke only **27 %** of participants with hearing loss, while **bed shakers** awoke **80 to 83 %** of participants with hearing loss.
4. The **low-pitch** T-3 sound awoke **children** (aged 6 to 10) **96 %** of the time. The **high pitch** standard alarm awoke children only **57 %** of the time.

5. **94 %** of **children** aged 6 to 15 years **did not awake reliably to a standard alarm** installed in their hallway.
6. The **520 Hz** signal was successful in waking **all sober young adults** whereas **21%** of them had slept through the **3100 Hz** alarm.

The **520 Hz** is more likely to be heard by the hearing impaired because their ability to hear the higher tones (e.g. **3000 Hz**), is **most**

There is now very strong evidence that the current **high-pitched** smoke alarm is consistently the **least effective** for waking people.

In the USA, a low-frequency (520 Hz) square-wave signal type fire alarm must now be installed in residential bedrooms of people with mild to severe hearing loss.

Australian producers of **alarms** for the Hearing Impaired do not seem to be aware of the 520Hz research, despite the fact that this information is readily available on the internet. **No Australian producer** is making the low frequency alarms. Britain too is lagging behind.

In the USA, **Loudenlow Smoke Alarm** is available.



It produces both 500 hertz and 2500 Hz frequencies at 85dB.

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