	Product Feature	Implementation	Laboratory Evidence	Real-World Evidence	Informing the Patient ("When I adjust this feature, it will allow the hearing to…"
Audibility & Comfort	Multiple Channels of Compression	Repackage sounds into residual dynamic range of the user, better able to shape gain within specific frequency response	Data shows speech intelligibilty is improved with up to 5 channels in quiet (Woods et al, 2006) and up to 8 to 16 in noise (Yund & Buckles, 1995)	None	Effectively place more of the speech sounds into your "restricted" hearing range. Maximizing audibility while maintaining comfort will result in improve speech intelligibility.
	Multi-channel AGC-O	Keep loud sounds under the user's threshold of discomfort while maintiaining headroom across the entire frequency response	None	None	Keep virtually all loud sounds from becoming uncomfortably loud or intolerable.
	Expansion	Minimize the negative effects of soft ambient noise, like microphone noise	Even when intelligibility for soft speech is negatively affected, patients still prefer expansion (Plyler, et al, 2005, 2006, 2007)	Limited evidence suggests "expansion on" is preferred to "expansion off" in everyday listening conditions	Minimize low levels of room noise that can be extremely annoying in quiet listening situations.
	Automatic Feedback Reduction	Reduce acoustic feedback without sacrificing gain and headroom	Data (Johnson et al, 2007) shows that phase cancellation automatic feedback reduction systems do not negatively effect sound quality	None	Automatically detect whistling and eliminate or reduce it almost instantaneously. There are large individual differences in performance of this feature.
Comfort in Noise	DNR - Modulation detection	Reduce gain in each channel where the signal is classified as noise	In paired comparison studies, patients prefer "DNR on" when listening in both low and high noise conditions (E.g., Ricketts and Hornsby, 2005)	Studies published in non peer reviewed journals indicate that DNR is advantageous in everyday listening situations (Numerous studies - see Bentler, 2006 for reivew)	Improve listening comfort in noise but will not directly improve intelligibility in noise. DNR does no harm to your understanding of speech.
	DNR - Impulse detection	Reduces gain of impulse sounds	Paired comparison study indicates that "impulse noise reduction on" is preferred over "impulse noise reduction off" (Keidser, et al, 2007)	Non-peer reviewed published study indicates this type of DNR makes impulse sounds less annoying. (Chalupper & Powers, 2007)	Makes intense impulse sounds less annoying.
	DNR - Spectral subtraction or Wiener	Filter out the noise that occurs between gaps of syllables	Limited data suggests that Wiener filtering may improve perceived annoyance of noise (Mueller, et al, 2006)	Non-peer reviewed published study indicates this type of "DNR on" is preferred in everyday listening situations (Powers, et al 2006)	Improves listening comfort in noise, does no harm in quiet.

	DNR - "reverberation tail reduction"	Reduces energy of sound envelope based on time of arrival and amplitude of signal	None	None	Makes highly reverberant places (e.g. gym) more tolerable
Speech Intelligibility in Noise	Fixed Directional Microphones	Improves signal to noise ratio of listening area when speech and noise are spatially separated	When distance and reverberation effects are controlled, DMT technology improve signal to noise ratio 3 to 6dB (See Ricketts, 2005 for review)	30 to 50% of users prefer DMT on in noisy situations (Walden at al, 2004)	Improve speech understanding in noise, assuming you can spatially separate the speech & noise, and remember to push the memory button on the hearing aid.
	Adaptive Directional Technology	The null of the polar pattern automatically changes as the primary noise source moves in space	In paired comparison studies, no significant differences between fixed and adaptive DMT benefit (Bentler, 2004, Ricketts, 2005)	There is little basis for customizing automatic directionality feature based on user preference data (Walden etl al, 2007)	Adaptive DMT does not outperform conventional fixed DMT, but it may be easier to use for many patients
	Multi-Channel Adaptive DMT	Polar patterns tuned to multiple frequencies automatically change depending on the input levels	None	None	Adaptive DMT does not outperform conventional fixed DMT, but it may be easier to use for many patients
Convenience & Value-Added Extras	Input Signal Classification	Uses modulation, intensity and time characteristics to classify sound and change electroacoustic parameters, if necessary	None	None	The hearing aid analyzes your listening situations and classifies the signal based on loudness duration and spectrum. "The brain of the hearing aid."
	Trainable Volume Control	Hearing aid automatically sets the gain and/or compression parameters based on real time usage	None	Majority of participants preferred "trained" compression and noise suppression parameters to "untrained" condition (Zakis, et al, 2007)	The hearing aid calculates volume control setting, etc, and automatically determines where you prefer it, and remembers the setting. For many people this feature makes the hearing aid easier to use
	Automatic Program Switching	On-board classification system allows the hearing aid to change programs automatically depending in the characteristics of the incoming signal (automatic directional technology)	None	None	Automatic program switching may make the hearing aid easier to use because it makes the decisions as to what the optimal program should be for you in various listening situations.
	Datalogging	Objectively records use of hearing aids, programmed used, etc.	None	Experts agree that data logging helps them do a better job of tailoring the acoustic parameters to the hearing loss (Mueller, 2007)	Datalogging allows me to do a better job making precise adjustments to your hearing aids any time you are in the office for an appointment
	Data was compiled April, 2008				