




# COCHLEAR IMPLANT COMPARISON CHART

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	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
	 Advanced Bionics	 Cochlear™ Cochlear <sup>1</sup>	 MED-EL	
CORPORATE OWNERSHIP	Owned by: <a href="#">Sonova Holding AG</a> <sup>2</sup> Traded as: <a href="#">PHBN:GR SONVF:US</a> <a href="#">SOON1:EB SOON:BO SOON:TQ</a> <a href="#">SONVY:US</a>	Owned by: <a href="#">Cochlear Limited</a> Traded as: <a href="#">COH:AU CHEOF:US</a> <a href="#">OC5:GR CHEOY:US</a>	Founded & privately owned by: <a href="#">Prof. Erwin Hochmair + Dr. Ingeborg Hochmair</a>	
ESTABLISHED, LOCATION	AB: 1993 California, USA Sonova: 1947 Switzerland	1981 Australia	1977 Austria	
US PATENTS <small>(AS OF 29-JUL-18)</small>	589	592	256	USA patents only to avoid global duplications: <a href="#">US Patent Office Quick Search</a> by "Assignee Name" <a href="#">Google Patent Search</a>
ESTIMATED GLOBAL MARKET SHARE	20%	55%	20%	Remaining 5% includes Oticon (Neurelec) & Nurotron.
CURRENT IMPLANT	HiRes Ultra HiRes 90K Advantage HiRes 90k	CI532 Slim Modiolar CI512 Contour Advance CI522 Slim Straight CI24RE Contour Advance (CA) or Straight (ST) <sup>3</sup>	SYNCHRONY CONCERT SONATA	Latest implant system from each manufacturer may not be available in all markets.
MAXIMUM STIMULATION RATE	83,000 PPS	32,000 PPS	51,000 PPS	PPS rate is the number of updates per second the implant is capable of providing.
CHANNELS	16 120 Virtual	22	12	<a href="#">Discussion on Electrodes &amp; Channels.</a>
ELECTRODES	16	22	Up to 24	Electrical contacts between the implant and the cochlea.
ELECTRODE DRIVERS	16	1	12	Each electrode driver contains a positive and negative current source.
MAXIMUM SIMULTANEOUS ELECTRODE DRIVERS	4 / 16 <sup>4</sup> Current Software/Hardware Capability	1 / 1 Current Software/Hardware Capability	2 / 12 <sup>5</sup> Current Software/Hardware Capability	

<sup>1</sup> Cochlear images provided courtesy of Cochlear™ Americas, © 2009 Cochlear Americas

<sup>2</sup> Sonova Holding AG also owns [Phonak](#).

<sup>3</sup> A combined cochlear implant & hearing aid (CI/HA) system uses the same implant electronics as a conventional cochlear implant. Cochlear's L24 implant is the CI24 implant with a shortened electrode array.

<sup>4</sup> Simultaneous stimulation to create virtual electrodes.

<sup>5</sup> Simultaneous stimulation of lowest channels for timing information.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
RF CARRIER & DATA RATE	49 MHz, 1Mb sec <sup>6</sup>	5 MHz, 0.5Mb sec <sup>6</sup>	12 MHz, 0.6Mb sec <sup>6</sup>	Sound processor communication frequency & data rate.
ELECTRODE ARRAY	HiFocus Mid-Scala HiFocus SlimJ HiFocus 1J HiFocus Helix	CI532 Slim Modiolar CI512/CI522 Profile Series CI24RE (CA) <sup>7</sup> , CI24RE (ST) <sup>8</sup>	FLEX Series FORM Series CLASSIC Series	Multiple array types provide options for unusual physiologies.
LENGTH OF ELECTRODE ARRAYS	HiFocus Mid-Scala: 18.5/15.0 SlimJ: 23.0/20.0 1J: 25.0/17.0 Helix: 24.5/13.25	CI532: 39.1/19.1 CI512/CI522: 32.0/19.0 CI24RE (CA): 23.9/15.0 CI24RE (ST): 28.0/16.4	FLEX Series FLEXOFT: 31.5/26.4 FLEX28: 28.0/23.1 FLEX24: 24.0/20.9 FLEX20: 20.0/15.4  FORM Series FORM24: 24.0/18.7 FORM19: 19.0/14.3  CLASSIC Series STANDARD: 31.5/26.4 MEDIUM: 24.0/20.9 COMPRESSED: 15.0/12.1	Measurements in millimeters (mm) & are total/active lengths.
IMPLANT HOUSING & COIL DIMENSIONS (WITHOUT ARRAY)	HiRes Ultra: 56.2 x 28.5 x 4.5 Advantage: 56.0 x 28.0 x 5.5 HiRes 90K: 56.0 x 28.0 x 5.5	CI532: 50.5 x 31.0 x 3.9 CI512/CI522: 50.5 x 31.0 x 3.9 CI24RE: 51.2 x 30.9 x 6.9	SYNCHRONY: 45.7 x 25.4 x 4.5 CONCERT: 45.7 x 25.4 x 4.5 SONATA: 45.7 x 24.8 x 5.9	Length (L) x Width (W) x Depth (D) Measurements in millimeters (mm).
BONE RECESS DEPTH	HiRes Ultra: 0.5-1.0 <sup>8</sup> Advantage: 3.0 HiRes 90K: 3.0	CI532: Data Pending CI512/CI522: 2.2 CI24RE: 2.3	SYNCHRONY: 2.0 Maximum <sup>9</sup> CONCERT: 2.0 Maximum <sup>9</sup> SONATA: 2.0 Maximum	Bone recess measurements in millimeters (mm), according to manufacturer recommendations.  Elevation from bone referred to as "bump height."
ELEVATION FROM BONE WITH RECESS WELL	HiRes Ultra: 3.5-4.0 Advantage: 2.5 HiRes 90K: 2.5	CI532: Data Pending CI512/CI522: 1.7 CI24RE: 4.6	SYNCHRONY: 2.5 CONCERT: 2.5 SONATA: 3.9	See American Academy of Audiology "To Drill or not to Drill a Well for the Cochlear Implant's Internal Device?"
ELEVATION FROM BONE WITHOUT RECESS WELL	HiRes Ultra: 4.5 Advantage: 5.5 HiRes 90K: 5.5	CI532: Data Pending CI512/CI522: 3.9 CI24RE: 6.9	SYNCHRONY: 4.5 CONCERT: 4.5 SONATA: 5.9	Implant migration may occur if manufacturer's surgical instructions are not followed. Always consult with your implant center regarding implant anchoring questions.

<sup>6</sup> Zeng FG, Rebscher S, Harrison W, Sun X, Feng H., "Cochlear Implants: System Design, Integration, and Evaluation" Page 63 Table II

<sup>7</sup> Cochlear CI24RE housing and coil available with two electrode array configurations, Contour Advance (CA) and Full Band Straight (ST).

<sup>8</sup> The minimum established guideline suggests that a 0.5mm -1.0mm recess ramp with suture tie-down holes be created for stability.

<sup>9</sup> Available without or with fixation pins requiring two 1.0mm x 1.4mm recesses.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
IMPLANT WEIGHT	HiRes Ultra: 10.0 Advantage: 12.0 HiRes 90K: 12.0	CI532: 8.6 CI512/CI522: 8.8 CI24RE: 9.5	SYNCHRONY: 7.6 CONCERT: 7.6 SONATA: 8.6	Weight in grams (g).
IMPLANT CASING	HiRes Ultra: Titanium Advantage: Titanium HiRes 90K: Titanium	CI532: Titanium CI512/CI522: Titanium CI24RE: Titanium	SYNCHRONY: Titanium CONCERT: Titanium SONATA: Titanium	
IMPACT RESISTANCE	HiRes Ultra: 2.5 Joules <sup>10</sup> Advantage: 6.0 Joules HiRes 90K: 6.0 Joules	CI532: 2.5 Joules CI512/CI522: 2.5 Joules CI24RE: 1.0 Joules	SYNCHRONY: 2.5 Joules CONCERT: 2.5 Joules SONATA: 2.5 Joules	Damage resistance from accidental impact.
REMOVABLE MAGNET	HiRes Ultra: Yes Advantage: Yes HiRes 90K: Yes	CI532: Yes CI512/CI522: Yes CI24RE: Yes	SYNCHRONY: Yes CONCERT: No SONATA: No	MRI magnet safety varies by regulatory approval; an MRI may be available with a special compression bandage in some markets.
MRI WITH MAGNET	HiRes Ultra: Up to 1.5 Tesla <sup>11</sup> Advantage: Up to 1.5 Tesla HiRes 90K: Up to 1.5 Tesla	CI532: Up to 1.5 Tesla <sup>12</sup> CI512/CI522: Up to 1.5 Tesla CI24RE: Up to 1.5 Tesla	SYNCHRONY: 1.5 & 3.0 Tesla <sup>13</sup> CONCERT: 1.5 Tesla SONATA: 1.5 Tesla	All implants undergoing an MRI can produce <b>significant artifact</b> and/or other <b>adverse events</b> , such as <b>magnet dislocation</b> and/or depolarization, either of which may require surgical intervention. MRI Safety websites: <a href="#">Cochlear Implant Safety</a> <a href="#">Cochlear Implant List</a>
MRI WITH MAGNET REMOVED	HiRes Ultra: Up to 3.0 Tesla Advantage: Up to 1.5 Tesla HiRes 90K: Up to 1.5 Tesla	CI532: Up to 3.0 Tesla <sup>14</sup> CI512/CI522: Up to 3.0 Tesla CI24RE: Up to 3.0 Tesla	SYNCHRONY: 1.5 & 3.0 Tesla CONCERT: N/A SONATA: N/A	<b>MRI's in the immediate vicinity of the implant require magnet removal. Magnet removal should always be coordinated with the implant center &amp; implant manufacturer.</b>
WARRANTY	10 years	10 years	10 years	
CURRENT RELIABILITY	<a href="#">2017 Reliability Report</a>	<a href="#">2017 Reliability Report</a>	<a href="#">2017 Reliability Information</a>	All manufacturers claim top reliability. Search the <a href="#">FDA database</a> ; Product Code: MCM <a href="#">Reliability overview</a> .

<sup>10</sup> Impact Resistance Value Exceeds the impact requirements specified in [EN 45502-2-3:2010](#), which is 2.5 Joules.

<sup>11</sup> MRI without removing the magnet is not regulatory approved in all global markets. Use Advanced Bionics' [MRI Safety Information](#) to receive the regionally appropriate MRI Safety Information.

<sup>12</sup> MRI without removing the magnet is not regulatory approved in all global markets. Cochlear's implants are [FDA approved](#) without removing the magnet up to stated field strength. [Cochlear MRI instructions](#).

<sup>13</sup> MED-EL SYNCHRONY is [FDA approved](#) without removing the magnet for 1.5T and 3.0T. CONCERT and SONATA are FDA approved without removing the magnet for 1.5T. [MED-EL & MRI compatibility](#).

<sup>14</sup> MRI with the magnet removed is not regulatory approved in all global markets. Cochlear's implants are [FDA approved](#) with the magnet removed up to the stated field strength. [Cochlear MRI instructions](#).

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
CURRENT SOUND PROCESSOR IMAGES NOT TO SCALE	<p>Naída CI Q90 <a href="#">User Guide</a></p> 	<p>Nucleus® 7 CP1000 <a href="#">User Guide</a></p> 	<p>SONNET <a href="#">User Manual</a></p> 	<p>Latest sound processor from each manufacturer may not be available in all markets; previous generation sound processor may still be available.</p> <p>User guides/manuals linked within this chart may not be the manufacturer's latest edition.</p>
CURRENT SOUND PROCESSOR IMAGES NOT TO SCALE	<p>Neptune <a href="#">User Guide</a></p> 	<p>Kanso CP950 <a href="#">User Guide</a></p> 	<p>RONDO <a href="#">User Manual</a></p> 	<p>Each manufacturer offers multiple wearing options.</p>
REMOTE CONTROL IMAGES NOT TO SCALE	<p>Naída CI Q90 MyPilot <a href="#">User Guide</a></p> 	<p>Nucleus® 7 System <a href="#">User Guide</a> iOS Ready Nucleus® Smart App</p> 	<p>FineTuner <a href="#">User Instructions</a> (pages 11-14)</p> 	<p><a href="#">Remote control discussion.</a></p>
PROCESSOR DIMENSIONS AS INDICATED IN MANUFACTURER'S LITERATURE	<p>Naída CI Q90 with PowerCel 110 Mini: 40 x 9 x 19 PowerCel 110: 49 x 9 x 19 PowerCel 170 Mini: 50 x 9 x 19 PowerCel 170: 55 x 9 x 19 PowerCel 230: 59 x 9 x 19 Zinc-Air Pak: 53 x 9 x 19</p> <p>Neptune: 26 x 18 x 60 Neptune Connect: 17 x 18 x 58</p>	<p>Nucleus 7 CP1000 with Compact: 36.5 x 9 x 45.0 Standard: 43.3 x 9 x 45.0 Zinc-air: 47.9 x 9 x 44.5</p> <p>Kanso: 40.9 x 35.2 x 11.4</p>	<p>SONNET with Zinc-air: 56.7 x 9.3 x 37.4 Standard: 56.7 x 9.3 x 37.4 Micro: 51.4 x 9.3 x 37.4</p> <p>RONDO: 44.1 x 37.2 x 12.1</p>	<p>Dimensions in millimeters Height (H) x Width (W) x Depth (D)</p> <p>Naída depth dimensions are without an ear-hook or T-Mic 2.</p> <p>Neptune dimensions with water-proof configuration.</p> <p>Cochlear Nucleus 7 dimensions are with a medium ear-hook.</p>

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
PROCESSOR WEIGHT	<p>Naída CI Q90 with PowerCel 110 Mini: 11.0 PowerCel 110: 11.0 PowerCel 170 Mini: 12.0 PowerCel 170: 13.0 PowerCel 230: 13.0 Zinc-Air Pak: 13.0</p> <p>Neptune: 32 Neptune with Connect: 43.0</p>	<p>Nucleus 7 CP1000 with Compact: 7.9 Standard: 9.8 Zinc-air: 10.1</p> <p>Kanso with Magnet &amp; Batteries: 13.8</p>	<p>SONNET with Zinc-air: 11.3 Standard: 9.8 Micro: 8.8</p> <p>RONDO with standard magnet &amp; Zinc-air: 18.5</p> <p>RONDO with strong magnet &amp; Zinc-air: 21.5</p>	<p>Weights are in grams. Weights of battery packs include batteries.</p>
IP RATING (WATER & DUST RESISTANT)	<p>IP57: Naída CI Q90 with PowerCel batteries.</p> <p>IP68: Naída CI Q90 with AquaCase, AquaMic &amp; PowerCel 110 Mini, 110 or 170 Mini batteries.</p> <p>IP68: Neptune sound processor &amp; AquaMic configuration.</p>	<p>IP44: Nucleus 7 processor with disposable battery module.</p> <p>IP57: Nucleus 7 processor with rechargeable battery module.</p> <p>IP68: Nucleus 7 Aqua+ with Aqua+ coil &amp; rechargeable batteries.</p> <p>IP54: Kanso <sup>15</sup></p>	<p>IP54: SONNET using standard or rechargeable battery packs.</p> <p>RONDO: Not specified.</p> <p>IP68: SONNET with WaterWear Accessory using P675 (LR44) size Alkaline or Silver Oxide batteries <sup>16</sup></p> <p>IP 68: RONDO using WaterWear Accessory using P675 (LR44) size Alkaline or Silver Oxide batteries</p>	<p>IP rating description. Manufacturer's accessories for water use may not be available in all markets.</p>
MICROPHONE PLACEMENT	<p>Naída CI Q90: T-Mic2 at ear canal entrance, dual omnidirectional on top, single omnidirectional in headpiece.</p> <p>Neptune: Single omnidirectional in headpiece, T-Mic with T-Comm accessory.</p>	<p>Nucleus 7 CP1000: Dual omnidirectional on top.</p> <p>Kanso: Dual omnidirectional</p>	<p>SONNET: Dual omnidirectional on top.</p> <p>RONDO: Single omnidirectional.</p>	<p>Microphone placement, whether on the sound processor or on the headpiece or on an auxiliary device (T-Mic at the ear canal) is for better hearing in noise, and for natural telephone &amp; headphone use.</p>
INPUT DYNAMIC RANGE (IDR)	Up to 80dB	Up to 45dB <sup>17</sup>	75dB	IDR discussion.
SOUND CODING STRATEGIES	CIS, MPS, HiRes-P/S, HiRes F120-P/S, ClearVoice, HiRes Optima <sup>18</sup>	ACE, CIS, SPEAK	HD-CIS, FSP, FS4, FS4-p	Sound coding strategies are different ways to "hear" sound, and some may not be approved for pediatric use, but may be available "off-label."
PROGRAM SLOTS	<p>Naída CI Q90: 5 <sup>19</sup></p> <p>Neptune: 3</p>	<p>Nucleus 7: 4</p> <p>Kanso: 4</p>	<p>SONNET: 4</p> <p>RONDO: 4</p>	

<sup>15</sup> A silicone Kanso Aqua+ cover will be available.

<sup>16</sup> Pending regulatory approval in some markets; may not be available in all markets. WaterWear Accessory cannot use Zinc-Air batteries.

<sup>17</sup> (IDR) Instantaneous Input Dynamic Range - the IDR at any given moment within a total available range of 75dB.

<sup>18</sup> HiRes Optima processing on the HiRes Fidelity 120 platform increases battery life.

<sup>19</sup> Up to 10 programs stored in processor memory for bilateral recipients; Intellilink automatically recognizes & selects which implant the processor is fitted on.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
EAS (HYBRID) SOUND PROCESSING	Naída CI Q90: Yes Neptune: No	Nucleus 7: Yes Kanso: No	SONNET: Yes RONDO: No	Processor includes hearing aid functionality to use with preserved residual hearing. <a href="#">Information here</a> . Advanced Bionics and MED-EL refer to a combined CI/HA as "Electro-Acoustic Stimulation (EAS)" and Cochlear refers to a combined CI/HA as a "Hybrid."
USER CONTROLS	Naída CI Q90: Button functions for program changing, volume level, microphone sensitivity & standby mode; bilateral recipients can use one MyPilot to adjust both processors. QuickSync feature enables simultaneous volume & program setting adjustments on both sound processors. Neptune: Program switch, volume dial, sensitivity dial	Nucleus 7: Button functions for on/off, program changing, volume level, microphone sensitivity & telecoil on/off; bilateral recipients can use one Remote Assistant or Remote Control to adjust both processors. Kanso: Button functions for on/off, program changing, turning audio sources on/off, other functions available using Remote Assistant or Remote Control.	SONNET: Battery pack lock controls on/off, all other functions available on the FineTuner. Bilateral recipients can use one FineTuner to adjust both processors. RONDO: On/off switch. All functions available on the FineTuner. Bilateral recipients can use one FineTuner to adjust both processors.	User controls are clinician enabled.
SOUND PROCESSOR TO IMPLANT REGISTRATION	Naída CI Q90: Yes <sup>20</sup> Neptune: Yes	Nucleus 7: Yes Kanso: Yes	SONNET: Yes RONDO: Yes	Capability preventing a sound processor from functioning with an uncomfortable or painful stimulation when use is attempted on a different recipient or contralateral implant for bilateral recipients.
ALERTS VISUAL LED	Naída CI Q90: Yes Neptune: Yes	Nucleus 7: Yes Kanso: Yes	SONNET: Yes RONDO: Yes	Programmable visual status alerts can warn caregivers, such as parents, caregivers or teachers, of functions and/or problems.
ALERTS PRIVATE AUDIBLE	Naída CI Q90: Yes Neptune: Yes	Nucleus 7: Yes Kanso: Yes	SONNET: Yes RONDO: Yes	Programmable audible status alerts can warn the user of functions and/or problems.
BATTERY LIFE RECHARGABLE <small>MANUFACTURER CLAIMS OF MAXIMUM OPERATING TIME</small>	Naída CI Q90 PowerCel 110/110 Mini: 17 hours 170/170 Mini: 27 hours 230: 36 hours Neptune Ni-MH AAA: 21 hours	Nucleus 7 Compact: 19 hours Standard: 40 hours Kanso N/A	SONNET Standard: 10 hours Micro: 7 hours RONDO N/A	Programming algorithms trade battery life for hearing performance. For BTE processors each manufacturer may have off the ear battery options.
BATTERY LIFE DISPOSABLE <small>MANUFACTURER CLAIMS OF MAXIMUM OPERATING TIME</small>	Naída CI Q90 Zinc-Air: 56 hours AAA: 183 hours Neptune Alkaline AAA: 21 hours Lithium AAA: 30 hours	Nucleus 7 Zinc-air: 60 hours Kanso Zinc-air: 16 hours	SONNET Zinc-air: 60 hours AAA: 37 hours RONDO Zinc-air: 75 hours	Zinc-air batteries (675) are disposable; others are rechargeable that may require use of an attachable battery pack.

<sup>20</sup> Naída Q90 sound processors have the ability to load the correct programs for either ear automatically using the Intellilink safety feature.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
GLOBAL WARRANTY	Naída CI Q90 Processor: 3 years UHP, T-Mic & Cables: 3 years Neptune: 3 years UHP, AquaMic & Cables: 3 years Global warranty	Nucleus 7: 3 years Coil & Cables: 3 years Kanso: Not specified. Global Warranty (not published)	SONNET: 3 years <sup>21</sup> Coil & Cables: 3 years RONDO: 3 years Global Warranty (not published)	Warranty period may start on day of initial activation, varies by country.  Manufacturers may offer a one-time replacement for loss or accidental damage during the initial warranty period, depending on market.
USA\CANADA WARRANTY	Naída CI Q90 processor: 5 years <sup>22</sup> UHP, T-Mic & Cables: 5 years Battery Charger: 5 years Neptune: 5 years UHP, AquaMic & Cables: 5 years USA Warranty	Nucleus 7: 5 years <sup>23</sup> Coil & Cables: 5 years Kanso: Not specified. USA Warranty	SONNET: 5 years <sup>24</sup> RONDO: 5 years USA Warranty	In USA, when the manufacturer warranty expires repair or replacement may be covered by insurance.  Always check with your implant clinic & manufacturer for specific warranty information.
AUXILIARY (DIRECT) INPUT	Naída CI Q90: Accessory socket on Phonak ComPilot <sup>25</sup> Neptune: Accessory socket, T-Mic with T-Comm accessory	Nucleus 7: Yes, with the Wireless Mini Mic 2+ & the Wireless TV Streamer <sup>26</sup> Kanso: Yes, with the Wireless Mini Mic 2+ & the Wireless TV Streamer <sup>27</sup>	SONNET: Yes, with FM Battery Pack Cover using Euro Audio Adapter & via accessory socket on bottom of FM Battery Pack Cover RONDO: Yes, with Mini Battery Pack using Euro Audio adapter & via accessory socket on bottom of Mini Battery Pack	Auxiliary or direct input is used to connect to audio sources with wires; wireless capabilities eliminate the need for wires.  Bilateral recipients may be able to listen in stereo.
TELECOIL	Naída CI Q90: Yes Neptune: Yes, with T-Comm accessory	Nucleus 7: Yes Kanso: Yes	SONNET: Yes RONDO: Yes	Telecoil provides wireless (magnetic induction) access to hearing aid compatible telephones, and induction loop systems in many public & private buildings or areas.
FM	Naída CI Q90: Yes, with Roger 17 (Phonak) receiver <sup>28</sup> Neptune: Yes, MLxi & Phonak SmartLink+ using Euro FM port	Nucleus 7: Yes, with Roger 20 (Phonak) receiver Kanso: Yes, with Mini Mic 2+	SONNET: Yes, with FM Battery Pack Cover using Euro Audio Adapter or with Roger 21 (Phonak) receiver RONDO: Yes, with Mini Battery Pack using Euro Audio adapter	FM is a wireless analog or digital transmission from a micro-phone or other transmitter either directly to the processor or gateway device.
WIRELESS STREAMING	Naída CI Q90: Yes, with Phonak ComPilot Neptune: Yes, using direct audio input with a 3 <sup>rd</sup> party system	Nucleus 7: Yes, with Cochlear Wireless Phone Clip, Cochlear Mini Mic 2+, Cochlear TV Streamer or Made for iPhone (MFi) Compatible. Kanso: Yes, with Cochlear Wireless Phone Clip, Cochlear Mini Mic 2+ or Cochlear TV Streamer	SONNET: Yes, using telecoil with a 3 <sup>rd</sup> party system <sup>29</sup> RONDO: Yes, using telecoil with a 3 <sup>rd</sup> party system	External Bluetooth type adapters can be used on sound processors with direct connect inputs or via FM transmitters.

<sup>21</sup> Global market variable.

<sup>22</sup> USA & Canada only; Naída & Neptune sound processors are 5 years as part of an initial "implant kit" and are 3 years as part of any "upgrade kit;" other parts & accessories are 1 year.

<sup>23</sup> Nucleus 7 sound processor is 5 years, and is a "Three (3) year warranty when purchased as part of an upgrade."

<sup>24</sup> Reportedly the 2012 five-year warranty program extends to the SONNET and RONDO sound processor systems.

<sup>25</sup> Phonak ComPilot transmits a stereo signal.

<sup>26</sup> Wireless Mini Microphone 2+ may transmit a mono signal, and the Wireless TV Streamer transmits a stereo signal.

<sup>27</sup> The Nucleus & Kanso sound processors have several wireless options.

<sup>28</sup> Naída sound processor wireless accessories (pages 15-17).

<sup>29</sup> Additional wireless capability will need to be enabled for future use.

	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
WIRELESS BILATERAL CONTROLS	Naída CI Q90: Yes Neptune: No	Nucleus 7: No Kanso: No	SONNET: No RONDO: No	Bilateral recipients can control both processors from either processor.
WIRELESS CONTRALATERAL STREAMING	Naída CI Q90: Yes Neptune: No	Nucleus 7: No Kanso: No	SONNET: No RONDO: No	Sound processor and compatible hearing aid communicate wirelessly for audio streaming, useful for telephone calls and situations where the desired sound is on one side, e.g. in a car.
WIRELESS BIMODAL STREAMING	Naída CI Q90: Yes, with compatible Phonak hearing aid Neptune: No	Nucleus 7: Yes, with compatible Resound hearing aid Kanso: Not specified.	SONNET: Yes, using telecoil RONDO: Yes, using telecoil	Stream sounds from an external device to a cochlear implant processor and a compatible hearing aid at the same time.
INTEGRATED BIMODAL FUNCTIONALITY	Naída CI Q90: Yes, with compatible Phonak hearing aid Neptune: No	Nucleus 7: No Kanso: No	SONNET: No RONDO: No	Sound processor and compatible hearing aid communicate wirelessly for audio streaming, sound processing algorithms, unified controls such as program and volume switching.
DATA LOGGING	Naída CI Q90: Yes Neptune: No	Nucleus 7: Yes Kanso: Yes	SONNET: Yes RONDO: No	Data logging enables the clinician to review an implant recipient's program use and listening environment to assist in optimizing programming.
CLINIC FINDER	Advanced Bionics Clinic Finder	Cochlear Clinic Finder	MED-EL Clinic Finder	Contact clinic to verify that they offer the implant of your choice.
MANUFACTURER SPONSORED REHABILITATION	The Listening Room Musical Atmospheres	Rehabilitation resources HOPE (Re)habilitation Resources Listening Tools	Programme for Interactive Listening Activities Bridge to Better Communication Bridge Downloads Soundscape	Rehabilitation is critical for cochlear implant success. <a href="#">Spreadsheet</a> of rehabilitation apps created and maintained by Tina Childress, AuD.
MANUFACTURER FORUMS	The Hearing Journey Forum USA/CAN, Deutsch, Israel, Dansk, Italiano, Spain, Bahasa Indonesia	Cochlear Community & Networks	Hear Peers	By joining an online forum recipients & implant candidates can learn about cochlear implants from people who use them daily.



	ADVANCED BIONICS	COCHLEAR	MED-EL	COMMENTS
MANUFACTURER FACEBOOK PRESENCE	English (International)	English (USA & Canada) English (Asia Pacific) English (EU, ME & Africa)	English (USA) English (International) German (Germany) Spanish (Spain) Spanish (Latin America) Italian (Italy) Vietnamese (Viet Nam)	Manufacturer Facebook pages are where manufacturers members share & exchange information.
MANUFACTURER SPONSORED SUPPORT	Bionic Ear Association Connect with the Bionic Ear Association (BEA), a support network of volunteers & hearing health professionals. EU Newsletter	Cochlear country website Connect with a global team of volunteers around the world through the Cochlear Awareness Network (CAN).	Connect with the MED-EL US Patient Support Team MED-EL Offices Worldwide	
MANUFACTURER SOCIAL MEDIA PRESENCE	YouTube Twitter LinkedIn Pinterest Instagram	YouTube Twitter LinkedIn Pinterest Instagram	YouTube Twitter LinkedIn Blog Google+	
VOLUNTEER PROGRAMS	Bionic Ear Association (BEA): USA, UK, Spain, Germany, Netherlands	Volunteer Advocates (UK) Cochlear Community (US) Cochlear Awareness (AU/NZ)	HearPeers (USA) HearPeers (UK) MED-EL Patient Support Team	Volunteer recipients are often matched with "candidates" who are seeking one-on-one support through in-person contact or by email.
RUMORS & COOMING SOON	"Design and Evaluation of a CI Strategy Based on a 'Phantom' Channel"  New sound processor for C1 recipients.  SWORD Chip Technology		RONDO 2 (Approved in Canada & EU)  Wireless gateway device for SONNET with an external microphone and 3.5mm connector.	Search the FDA Premarket Approval (PMA) database (MCM code).  Manufacturers invest heavily in R&D for better performing implants & smaller sound processors advancing technologies.
EDITOR'S NOTE: The cochlear implant manufacturers listed in this chart have major global market shares and are regulatory agency approved in several markets. However, there are other emerging cochlear implant manufacturers in limited markets that can also be considered by an implant candidate depending on county of residence. Listing the other manufacturers in this chart is not practical at this time.				
PREVIOUS COMPARISON CHARTS	Version 6.1f 30-Jun-17   Version 7.0b 22-Feb-18   Version 7.0c 27-Feb-18			