

DEVELOPMENT OF HEIMDALL, HPM EXPERT SYSTEM					
	HEIMDALL 1 1995	HEIMDALL 2 1999	HEIMDALL 3 2001	HEIMDALL 4 2003	HEIMDALL 5 <sup>†</sup> under development
<b>PRIME POWER</b>	LiCl Primary Battery Secondary Battery Turbo-Alternator Diesel Alternator* DC/DC Converter AC/DC Converter Low tech AC/DC Converter High Tech Magneto-Cumulative Generator Internal Combustion Engine	High Rate Secondary Battery Turbine Transmission Electric Motor/Controller Hydraulic Pump/Motor/Controller Flywheel Alternator Pulsed Alternator Rocket MHD Generator Internal Combustion Engine Platform Prime Power	COTS Prime Power	Internal Combustion Engine	
<b>PULSED POWER</b>	Inductive Peaker Modulator Marx Generator PFL PFN Linear Induction Adder	Blumlein		Modulator Marx Generator PFL PFN Linear Induction Adder	
<b>MICROWAVE SOURCE</b>	Relativistic Magnetron MILO  Diode Vircator Triode Vircator Backward Wave Oscillator Multiwave Cerenkov Generator Hertzian Oscillator (UWB) Pulse Compressor Magnet	Relativistic TWT  Reltron	COTS Transmitters  Coherent Multiple Source Xmitters		Relativistic Magnetron-Fixed Freq. Relativistic Magnetron-Freq. Tunable MILO Vircators Backward Wave Oscillator Multiwave Cerenkov Generator Relativistic Klystron
<b>ANTENNA</b>	Conical Horn Pyramidal Horn Parabolic Dish TEM Horn Bowtie Phased Array (Horns) Mode Converter TM-TE	Valsov Helix and Spiral	COTS Antennas	Bowtie	
<b>PROPAGATION</b>			<del>COTS Propagation</del>	COTS Propagation	
<b>POST PROCESSORS</b>		X-ray Shield Packaging			Super Ranets
<b>SYSTEMS</b>			COTS Turnkey Systems	Ranets-E <del>Sinus</del> NPS System	Compact Systems Sinus System Upgrades

\* Strikethroughs mean that the algorithm was updated in a later version of Heimdall.

† Note that currently Heimdall 5.0 is not available in software, although the algorithms for 5.0 are on the **Technology Algorithm CD**