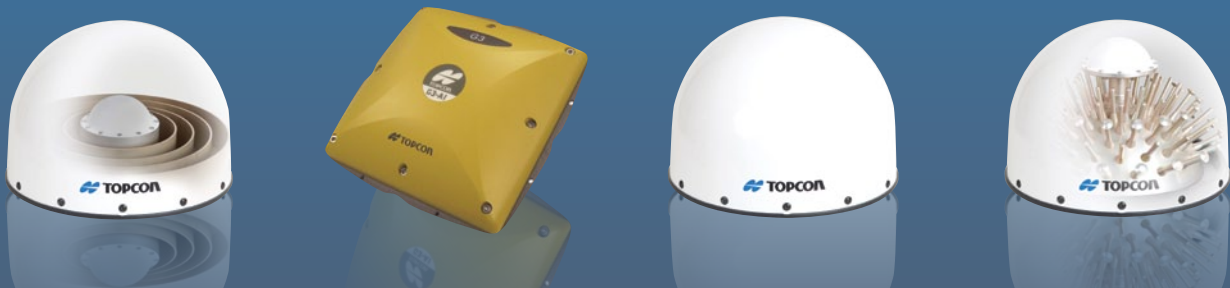


# ANTENNA SURVEY

After choosing the most appropriate receiver for your application from the Receiver Survey in the January issue of *GPS World*, you may need an antenna, too. We have collected key specifications for 408 antennas from 31 manufacturers.

We have made every effort to present an accurate and comprehensive listing of antenna information; however, *GPS World* cannot be held responsible for the accuracy of information supplied by the companies or the performance of any equipment listed. In some cases the manufacturer-provided data was abbreviated or truncated to fit the space available. Footnotes supply additional information to guide you through the survey.

Readers with questions about specific units should contact the manufacturers directly. We welcome your feedback about this special section and encourage new companies to participate next year. To recommend improvements or to be listed in the survey next year, please email [gpsworld@gpsworld.com](mailto:gpsworld@gpsworld.com).



## FOOTNOTES

- |  |  |
|--|--|
| <p><sup>1</sup> GPS L1 frequency 1575.42 MHz<br/>GPS L2 frequency 1227.60 MHz</p> <p><sup>2</sup> User environment and applications:</p> <ul style="list-style-type: none"> <li>A = aviation</li> <li>D = defense</li> <li>E = meteorology</li> <li>G = survey/GIS</li> <li>L = land</li> <li>M = marine</li> <li>N = navigation</li> <li>O = other</li> <li>P = other position reporting</li> <li>R = real-time DGPS reference</li> <li>S = space</li> <li>T = timing</li> <li>V = vehicle/vessel tracking</li> </ul> | <p><sup>3</sup> A single voltage standing wave ratio (VSWR) figure indicates a combined antenna and amplifier.</p> <p><sup>4</sup> Noise figure is expressed in maximum decibels.</p> <p><sup>5</sup> L/D = lightning/diode.</p> |
|--|--|

## ABBREVIATIONS

- cm: centimeter
- dB: decibel
- ∅: diameter
- ft: foot
- g: force of gravity
- g: gram
- Hz: hertz
- in: inch
- kg: kilogram
- lb: pound
- m: meter
- mA: milliampere
- max: maximum
- MHz: megahertz
- min: minimum
- mm: millimeter
- na: not applicable
- nr: no response
- qty: quantity
- RHCP: right-hand circular polarization
- typ: typical

# New Topcon antennas support expanding GNSS frequency bandwidth, new systems

The need for geodetic GNSS equipment to support the expanding GNSS frequency bandwidth grows with modernization of existing satellite constellations and the expectation of new systems coming online. This requires antennas that support existing and new signals while capable of providing the best signal possible by rejecting multipath and indirect signals.

Addressing these considerations are the goals for Topcon antenna development. Designs are to be achieved without decreasing the proven multipath rejection capabilities of a Choke Ring style antenna.

Topcon now offers two new geodetic antennas for use with existing and next generation GNSS constellations. These antennas use Topcon's new TA-5 full spectrum GNSS antenna element in two ground plane designs; the first being Topcon's improved Choke Ring style while the second uses Topcon's new innovative pin based, convex impedance ground plane.

## TA-5 Full Spectrum GNSS Element

Topcon's new antennas employ the newly designed TA-5 full spectrum GNSS antenna element. The TA-5 antenna element utilizes an array of vertical convex dipoles. **Fig.1** shows the main components of this antenna element. It has an antenna radome (1), a cup with dipoles (2) and power summarizing unit (3). The latter is capacitively coupled with the dipoles. Such an array of dipoles results in a very smooth behavior of the reactance versus frequency and, in turn, broadband functionality. This antenna element possesses a bandwidth which is larger than the entire GNSS band from 1160 up to 1615 MHz.

## Topcon CR-G5 Choke Ring Antenna

The new Topcon CR-G5 antenna incorporates the Topcon TA-5 antenna element into Topcon's improved choke ring ground plane design. The choke ring style ground plane is one generally accepted for minimizing multipath and adverse effects from indirect signals. The purpose of the choke groove structures used by the antenna is to decrease the antenna gain for the directions below the horizon. This reduces multipath error significantly.

Choke grooves form a so-called impedance structure. This impedance surface exists where the relationship between the electric and magnetic fields is of another type compared to regular conductors or isolators. This impedance surface passes

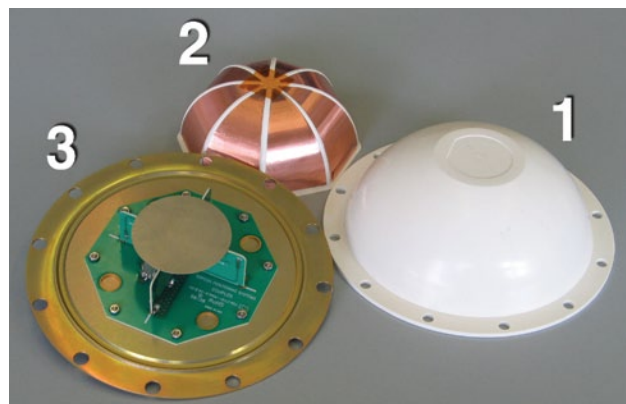


Fig.1 TA-5 antenna element



Fig.2 Cross-sectional view of the choke grooves structure

through the choke groove openings.

**Fig. 2** schematically shows a cross-sectional view of the choke grooves structure with the impedance surface shown by a dashed line. The surface impedance of the choke groove structure exhibits variations over the GNSS frequency band.

## Topcon PN-A5 - Pin Design Convex Impedance Ground Plane

Another design creating an impedance surface is a straight pins structure shown schematically with **Fig. 3**. Within the design process it has been established that the desired property of the impedance surface formed by the pins structure demonstrates 30 percent less frequency derivative compared to a choke groove structure. This allows for more consistent antenna functionality over the expanded GNSS frequency band.

If the surface is made convex rather than flat then this same scenario holds true (**Fig.4**). Only the grazing directions are now below the horizon. This improves sensitivity to low elevation satellites. An important consideration requires the radius of the curvature of the surface be properly chosen as not to increase the antenna sensitivity for multipath signals coming from underneath. Topcon's new PN-A5 antenna



This see-through image shows Topcon's convex impedance ground plane that combines with its TA-5 full-spectrum antenna element to create the new PN-A5 GNSS antenna.

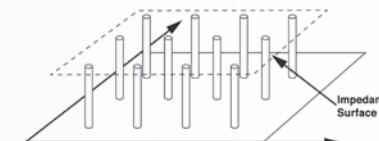


Fig.3 Straight pins structure with the imaginary impedance surface.

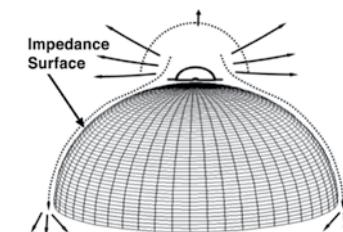


Fig.4 Multipath rejection by convex impedance structure.

incorporates this new convex ground plane based on pin structures.

## Antenna Performance Characterization

The following examples compare the performance of the PN-A5 antenna with a CR4 antenna (Topcon version of the original JPL Choke Ring design) to demonstrate low elevation gain. Improvement of the PN-A5 antenna SNR for low elevation satellites allows a receiver to reliably track satellites to the horizon. It should be noted the antenna gain at zenith for the PN-A5 antenna is 2dB less compared to the CR4. This is in agreement with the main antenna directivity theorems based on the energy conservation law. Namely, an antenna with a wider pattern is to have less maximal gain. **Figs. 6a, 6b**, demonstrate this maximal gain with lessening of 2dB in SNR for directions close to zenith compared to the CR4. This does not lead to signal tracking difficulties as the already high SNR values near zenith.

Another important feature of the reference station antennas is phase center offset variations in vertical versus frequency of GNSS signal. This is illustrated by **Fig.7**. It should be noted with the earlier CR4 JPL design there is a resonance close to the lowest GNSS frequency resulting in rapid phase center variations. With Topcon's improved CR-G5 Choke Ring, this resonance is shifted below the GNSS band. Additionally, Topcon's PN-A5 shows very smooth phase center offset variations due to the pin structure design versus the choke grooves.

## Summary

The CR-G5 and the PN-A5 are new Topcon full wave GNSS geodetic antennas. The CR-G5 uses a new Choke Ring design ground plane. The PN-A5 comprises a new convex impedance ground plane. Both antennas use the new TA-5 broadband multi-dipole antenna element. Both antennas are suitable for all GNSS signals existing and those planned for the coming 10-15 years.

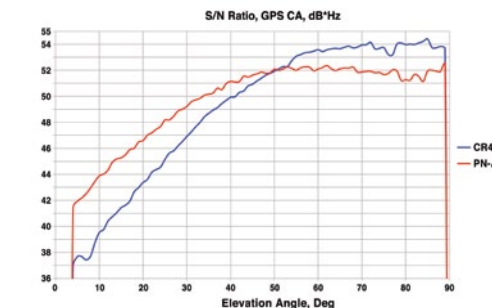


Fig.6a Signal-to-noise ratio versus satellite elevation - GPS CA code

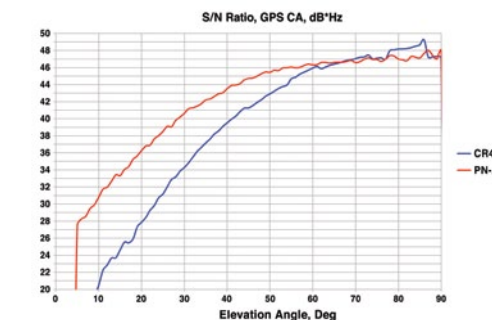


Fig.6b Signal-to-noise ratio versus satellite elevation - GPS P code

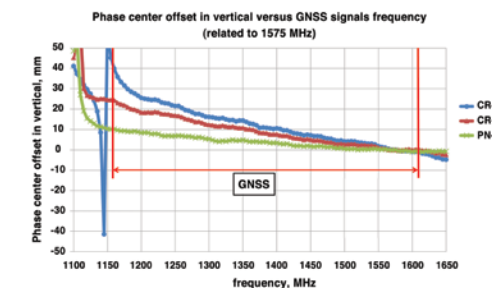


Fig.7

Manufacturer	Model	Intro. Date	User Envir. 1	Size: Length x Width x Height	Weight	Frequency/Bandwidth 2	VSWR 3	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB)	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N)/Type	LID 4	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration	
AeroAntenna Technology, Inc. www.aeroantenna.com	AT1675-7 L1/L2 GPS & GLONASS	2007	G	7.25 x 3.20 in	1.36 lb	1590 ± 25 & 1238 ± 21.5 MHz	≤2.0:1	3 dB Max @Boresight	38 dB	RHCP	2.4 dB Max	+4.25 to +15 VDC	70 mA	-40 to +85	nr	Y	Y	TNC Female	None	Pole Mount	nr	Amplifier	
	AT1675-17 GPS/GNSS ANTENNA	2000	AG	4.70 x 3.0 x .75 in	8 oz	1590 ± 25 & 1238 ± 21.5 MHz	≤2.0:1	as above	26 & 40 dB	RHCP	2.5 dB Max	+5 to +15 VDC	28, 55 and 75 mA	-55 to +85	nr	Y	Y	TNC OR SMA Female	None	Roof Mount	nr	Amplifier	
	AT2775-80 (TSO) L-Band/GPS ANTENNA	2008	AG	4.70 x 3.0 x .92 in	10 oz	1555-8 & 1238 ± 21.5 30 MHz	≤2.0:1	as above	43 dB	RHCP	2.5 dB Max	+5 to +15 VDC	70 mA	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT1675-80 (TSO) GPS/ GNSS L-BAND ANTENNA	2008	AG	4.70 x 3.0 x .92 in	10 oz	1570 ±45 & 1238 ±21.5 MHz	≤1.5:1	as above	43 dB	RHCP	2.6 dB Max	+5 to +15 VDC	70 mA	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT1675-382 GPS/GNSS ANTENNA	2008	LG	5.75 x 2.46 in	1.00 lb	1570±45 & 1164-1260 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.2 +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Pole Mount	nr	Amplifier	
	AT1675-381 GPS/GNSS	2009	A	5.75 x 2.46 in	1.00 lb	1570±45 & 1164-1260 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.2 +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	NR	Amplifier	
	AT1675-383 GPS/GNSS	2009	LG	5.75 x 2.46 in	1.00 lb	1570±45 & 1164-1260 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.2 +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	NR	Amplifier	
	AT1675-382 GPS L1/L2 and L-BAND	2001	LG	5.75 x 2.46 in	1.00 lb	1555±30 & 1217-1237 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.25 to +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Pole Mount	nr	Amplifier	
	AT2775-203 L1/L2 GPS	2005	L	2.98 x 2.17 x 1.49 in	4.47 oz	1575 & 1227± 10 MHz	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+2.5 TO +5.5 vdc	38 ma	-50 to +70	nr	Y	Y	SMA Female	None	Magnetic Mount	nr	Amplifier	
	AT2775-94 L1/L2 GPS	2005	AL	3.44 x 2.19 x .77 in	.34 lb	1575 & 1227± 10 MHz	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+3 to +5.5 VDC	26 mA	-55 to +70	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT575-493 L1 GPS TSO C190	2007	A	4.68 x 3.00 x .66 in	7.0 oz	1575± 10MHz	≤1.5:1	as above	26 dB	RHCP	2.5 dB Max	+5 to +15 VDC	35 ma	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT2775-457	2007	L	2.64 x 1.69 x .69 in	131 G	1575 & 1227± 10 MHz	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+2.5 TO 5.5 VDC	60 mA	-50 to +70	nr	Y	Y	TNC Male	RG 316	Magnetic Mount	nr	Amplifier	
	AT575-234 L1 GPS TSO C190	2008	A	4.70 x 3.0 x .75 in	8.0 oz	1575±10 MHz	≤1.5:1	as above	29.5 dB	RHCP	2.5 dB Max	+4.5 to +15 VDC	50 mA	-70 to +70	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT1621-262 GPS/IRIDIUM	2005	VL	3.44 x 2.19 x .77 in	4.5 oz	1575 & 1621± 5 MHz	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+3 to +5.5 VDC	35 mA	-55 to +85	nr	Y	Y	SMA/TNC	None	Roof Mount	nr	Amplifier	
	AT2300-126 L1XM TSO C190	2008	A	4.70 x 3.0 x .75 in	8.0 oz	1575±10 MHz	≤1.5:1	as above	29.5 dB	RHCP	2.5 dB Max	+4.5 to +15 VDC	50 mA	-70 to +70	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT2775-304 L1/L2 GPS	2009	LD	2.20 x .57 in	4.47 oz	1575 & 1227± 10 MHz	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+2.5 TO +5.5 vdc	38 ma	-50 to +70	nr	Y	Y	SMA Female	None	Magnetic Mount	nr	Amplifier	
	AT1675-120 GPS/GNSS CHOKE RING	2009	LG	14 x 13 in	11.00 lb	1570±45 & 1164-1260 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.2 +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Pole Mount	nr	Amplifier	
	AT2775-264	2009	D	1.20 x 3.22 in	7 oz	1575 & 1227± 10 MHz	≤2.0:1	≤2.0:1	26 dB	RHCP	2.5 dB Max	+2.5 TO +5.5 vdc	38 ma	-50 to +70	nr	Y	Y	TNC Female	None	Magnetic Mount	nr	Amplifier	
	AT8075-4 GPS/GSM	2009	VL	3.45 x 2.20 x 2.5 in	.80lb	1575 /GSM QUAD BAND	≤2.0:1	≤2.0:1	26 dB	RHCP	2.5 dB Max	+2.5 TO +5.5 vdc	38 ma	-50 to +70	nr	Y	Y	TNC Female	RG 58LL	Roof Mount	nr	Amplifier	
	AT1675-32 GPS/GNSS ANTENNA	2009	LG	5.75 x 2.46 in	1.00 lb	1570±45 & 1164-1260 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.2 +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT1675-182 GPS/GNSS ANTENNA	2009	LG	5.75 x 2.46 in	1.00 lb	1570±45 & 1164-1260 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.2 +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT2775-478 L1/L2 GPS	2009	LD	1.35 x 1.35 x .54 in	40 g	1575 & 1227± 10 MHz	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+2.5 TO +5.5 vdc	38 mA	-50 to +70	nr	Y	Y	SMA Female	None	Magnetic Mount	nr	Amplifier	
	AT2775-138 L1/L2 GPS	2002	LD	2.7 x 3.20 in	1 lb	1575 & 1227± 10 MHz	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+2.5 TO +5.5 vdc	38 mA	-50 to +70	nr	Y	Y	SMA Female	None	Pole Mount	nr	Amplifier	
	AT1675-339 L1/G1	2010	LG	7.5 x 2.8 in	1 LB	1565-1610 MHz	≤2.0:1	as above	26 & 38 dB	RHCP	2.5 dB Max	+4.2-18 VDC	65 mA	-40 to +70	nr	Y	Y	TNC Female	None	Pole Mount	nr	Amplifier	
	AT1675-539 GPS/GNSS	2010	LG	7.5 x 2.8 in	1 LB	1565-1610 & 1164-1260 MHz	≤2.0:1	as above	26 & 38 dB	RHCP	2.5 dB Max	+4.2-18 VDC	65 mA	-40 to +70	nr	Y	Y	TNC Female	None	Pole Mount	nr	Amplifier	
	AT3075-68	2010	LG	3.06 x 3.25 in	0.6 lb	1525-1585 MHz +USCG/DGPS	≤2.0:1	as above	26 dB	RHCP	2.5 dB Max	+5-15 VDC	55 mA	-40 to +70	nr	Y	Y	SMA & TNC Female	None	Pole Mount	nr	Amplifier	
	AT1675-116	2010	LG	3.5 x .84 in	200 G	1551-1615 MHz	≤2.0:1	as above	43 dB	RHCP	2.5 dB Max	+4.5-18 VDC	65 mA	-55 TO +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT1675-301	2009	LG	5.250 x 3.911 in	1 lb	1565-1615/1217-1260 MHz & 9.5-10 GHz	≤2.0:1	as above	38 dB	RHCP	2.6 dB Max	+5-15 VDC	70 mA	-20 TO +60	nr	Y	Y	SMA Female	None	Roof Mount	nr	Amplifier	
	AT1675-8	2009	A	4.70 x 3.00 x .75 in	8 oz	1268± 12 MHz & 1590± 125MHz	≤2.0:1	as above	42 dB	RHCP	2.5 dB Max	+4.5-15 VDC	70 mA	-55 to +85	nr	Y	Y	TNC/SMA Female	None	Roof Mount	nr	Amplifier	
	AT1675-180	2011	A	4.31x 1.46 X5.55	8 oz	1565-1607 MHz & 1217-1260 MHz	≤2.0:1	as above	26 and 39 dB	RHCP	2.6 dB Max	+4.2 +15 VDC	40 & 65 mA	-55 to +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT1675-450	2011	LD	3.5 X .84 IN	8 oz	1565-1607 MHz & 1217-1260 MHz	≤2.0:1	as above	43 dB	RHCP	2.5 dB Max	+4.5-18 VDC	70 mA	-55 TO +85	nr	Y	Y	TNC Female	None	Roof Mount	nr	Amplifier	
	AT1675-19	2010	LG	2.20 x .57 in	75 g	1565-1607 MHz	≤2.0:1	as above	26 db	RHCP	2.5 dB Max	+2.5-5.5 VDC	60 mA	-40 TO +85	nr	Y	Y	SMA Female	None	Roof Mount	nr	Amplifier	
	Allis Communications Co., Ltd. www.alliscom.tw	M812B	2004	N	48 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 90° <9< 90°	1.8	2.7-6V	4.5 +/- 2.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
		M820B	2004	N	48 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 9 in +/- 90°	1.8	2.7-6V	3.5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
		M827B	2004	N	50 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 9 in +/- 90°	1.8	2.7-6V	8.5 +/- 4.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
		M827A	1999	N	51 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 9 in +/- 90°	1.4	3-5.5V	22 +/- 5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
		M828T	2004	N	52 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	28	omni at 9 in +/- 90°	1.8	2.7-6V	8.5 +/- 4.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
		M828S	2004	N	53 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	28	omni at 9 in +/- 90°	1.8	2.7-6V	11.3 +/- 4.7mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
		M535C	2004	N	54 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	35	omni at 9 in +/- 90°	2	4-6V	22 +/- 5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
		M335C	2004	N	55 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	35	omni at 9 in +/- 90°	2	2.7-4.2V	22 +/- 5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS
M840C		2004	N	55 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	40	omni at 9 in +/- 90°	2	2.7-6V	25 +/- 3.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS	
L312B		1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 9 in +/- 90°	1.5	2.7V-3.6V	6 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS	
L320B		1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 9 in +/- 90°	1.5	2.7V-3.6V	6 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS	
L327B		1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 9 in +/- 90°	1.5	2.7V-3.6V	9 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS	
L512B		1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 9 in +/- 90°	1.5	4.5-6V	5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS	
L520B		1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 9 in +/- 90°	1.5	4.5-6V	5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS	
L527B		1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 9 in +/- 90°	1.5	4.5-6V	9 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG1745m	Magnetic base		GPS	
L827A		1997	N	50 x 50 x 17 mm	46																		

Manufacturer	Model	Intro. Date	User Envir. 1	Size: Length x Width x Height	Weight	Frequency/Bandwidth 2	VSWR 3	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB)	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N)/Type	LD 4	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration
AeroAntenna Technology, Inc. continued	U812B	2007	N	49 x 36.6 x 15.8 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 0 in +/- 90°	1.8	2.7-6V	4.5 +/- 2.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	U12BC	2007	AGN	49 x 36.6 x 15.8 mm	42	1575.42MHz, 1227.6MHz/7MHz	1.5:1	3 dB max	35	omni at 0 in +/- 90°	2	2.6V-6V	12 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	GG27A	2008	N	75 x 16 mm	<200 g (w/o cable)	1559MHz-1610MHz	2.0:1	3 dB max	27	nr	1.8 dB typ	3.5 V DC	22 mA typ	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/3m	Magnetic base		GPS/GLONASS
	FLMTA	2005	NV	143 x 54.4 x 16 mm	<140 g (w/o cable)	1575.42/824-960/1850-1990 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	3.5 V DC	25 mA max	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3 m Cellular: RG174/3 m	Tape		GPS/Cellular
	FLMFA	2005	NV	143 x 54.4 x 16 mm	as above	1575.42/824-960/1850-1990/2400-2483.5 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	3.5 V DC	25 mA max	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3m, Cellular: RG174/3m, WiFi: RG174/3m	Tape		GPS/Cellular/WiFi
	GCRTB/GCMTB	2003	NV	100 x 39 mm	as above	1575.42 / 824-960 /1850-1990 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	2.7V/6V	13mA max	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/5m Cellular: RG58/5m	Roof mount or magnetic		GPS/Cellular
	GCRFA	2005	NV	100 x 39 mm	<160 g (w/o cable)	1575.42/824-960/1850-1990/2400-2483.5 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	3.5 V DC	22 mA typ	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3m, Cellular: RG174/3m, WiFi: RG174/3m	Thread Permanent Mount		GPS/Cellular/WiFi
	PA175	2004	TV	66 x 66 x 18 mm	48 g	1575.42/20 MHz	2.0:1	3 dB typ	4 typ/na	nr	nr	na	na	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	na/na	Tape		Transmitting antenna
	CM20B	2010	NV	75 x 16 mm	75g	1575.42/824-960/1710-1990MHz	2.0:1	3 dB typ	20	nr	1.8 dB typ	2.7-6V DC	3.5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	NIN	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3m, Cellular: RG174/3m	Magnetic base		GPS/Cellular
	ACCTE	2008	O	123.0 x 22.1 x 7.96 mm	68.2g	1575.42 / 824-960 /1850-1990 MHz	2.0:1			850MHz : 0.5 dBi 1920 : 2.8 dBi	nr	nr	nr	-40°C-85°C		Y/rubber sealed		BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	Cellular: RG174/3m	Tape		Cellular
ACCTC	2008	O	123.0 x 22.1 x 18.0 mm	68.2g	1575.42 / 824-960 /1850-1990 MHz	2.0:1			850MHz : 0.5 dBi 1920 : 2.8 dBi	nr	nr	nr	-40°C-85°C		Y/rubber sealed		BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	Cellular: RG174/3m	Tape		Cellular	
Antenova www.antenova.com	M10372 GPS RF Antenna Module	2010	LMNPV	28x13x5mm	1.5g	GPS L1 frequency 1575.42 MHz, 30MHz	na, integrated antenna	na, integrated antenna	18 dB	RHCP	2 dB	1.8 VDC	30 mA typ	-30 to +85	ETSI EN 300 019-2-7	N	na	30 way Board-to-Board Connector	na	Connectorized, Planar Mount	Contact Antenova	Antenna, RF Front-end, GPS engine
	M10382 GPS RF Antenna Module	2011	LMNPV	24.2x9.9x3.8mm	1.1g	GPS L1 frequency 1575.42 MHz, 30MHz	na, integrated antenna	na, integrated antenna	20 dB	RHCP	0.7 dB	1.8 VDC or 3.3 VDC	40 mA@1.8V	-40 to +85	ETSI EN 300 019-2-7	N	na	Surface Mount	na	SMT	Contact Antenova	Antenna, RF Front-end, GPS engine
	A10137 GPS Co-planar Antenna	2006	LMNPV	20x9x1.6mm	0.7g	GPS L1 frequency 1575.42 MHz, 30MHz	1.4:1 Max	nr	1 dB	nr	nr	nr	nr	-40 to +85	nr	nr	nr	Surface Mount	nr	SMT	Contact Antenova	nr
Esis, Inc. Antenna Products & Technologies www.esisinc.com/antennas	N100-3-1-4-Element CRPA	2003	D	7 x 7 x 2 in	3 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	Fixed & rotary wing	Y/nr	na	TNC (female)	na	12 thru holes	nr	nr
	N100-6-1-4-Element, 7 output Polarimetric CRPA	2007	D	7 x 7 x 2 in	3 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	Fixed & rotary wing	Y/nr	na	TNC (female)	na	12 thru holes	nr	nr
	N79-3-1-7-Element CRPA	2002	D	2 x 14.12 in Ø	8 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	Fixed & rotary wing	Y/nr	na	SMA	30 in	24 thru holes	nr	nr
	N104-1-1-5-Element CRPA	2002	D	2 x 14.12 in Ø	8 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	Fixed & rotary wing	Y/nr	na	SMA	na	24 thru holes	nr	nr
	N105-1-1-3-Element CRPA	2002	D	Triangular 8 x 8.7 x 2 in	3 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	Fixed & rotary wing	Y/nr	na	SMA (female)	na	12 thru holes	nr	nr
	C146-13-2 FRPA	1992	D	1.5 in x 5.25 in Ø	<1 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	Fixed & rotary wing	Y/nr	na	TNC (female)	na	6 thru holes	nr	nr
	C146-10-1 FRPA	1989	G	1.5 in x 5 in Ø	<1 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	Ground use plus fixed and rotary wing	Y/nr	na	SMA (female)	na	12 thru holes	nr	nr
	C146-22-1 FRPA	2005	G	1.5 in x 5 in Ø	<1 lb	L1, L2	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	as above	Y/nr	na	SMA (female)	na	12 thru holes	nr	nr
	C146-24-1 FRPA	2008	G	1.5 in x 5 in Ø	<1 lb	L1, L2, Glonass, Galileo	1.5:1	Variable w/elelevat.	na	Hemispheric	na	na	na	Military spec.	as above	Y/nr	na	SMA (female)	na	12 thru holes	nr	nr
	N103-3-1	2006	A	3.9 x 1.0 in	1 lb	L1, L2	2.0:1	Variable w/elelevat.	na	Hemispheric	na	na	na	as above	Fixed & rotary wing	Y/nr	na	TNC (female)	na	4 thru holes on a contoured 6.18in R mounting surface	nr	nr
Falcom USA www.falcomusa.com	FALANT-7	2007	ELDGMNPV	70 x 13 mm (diameter x high)	≤ 99 gr.	1575 ± 3MHz	< 1.4		Gain without cable 18 dB typ	RHCP	0.7 dB	2.5 V to 3.6 VDC	3 mA max	-40 °C < T < +85 °C	Sine Sweep, 1 G(0-P), 10-150-10 MHz each axis	Y/Ultrasond sealed	NIN	FAKRA SMB-female	2.5 m RG174 standard	Adhesive pad base	L1 GPS / Dual SAW filter	Integrated quad band GSM and GPS antenna
	FS03	2008	ADLMNPRV	50.8 x 14.8 x 13.2 mm		1575.42 MHz	< 2.0 : 1			RHCP									Nil		L1 GPS / Dual SAW filter	Single module with Antenna
	Bohero LT	2007	ADLMNPRV	56 x 85 x 20 mm	90 g	1575.42 MHz					RHCP			-40 °C to + 85 °C						Adhesive pad base	L1 GPS / Dual SAW filter	Integrated antenna and modem solution
Fastrax Ltd. www.fastraxgps.com	UC40 GPS antennamodule	2011	DMNTV	9.6x14.0x1.95	0.5g	GPS L1	na, Integrated Receiver	na, Integrated Receiver	na, Integrated Receiver	Hemispherical, Linear pol.	na, Integrated Receiver	1.71V...1.89V		-40C...+85C		N		31 contact LGA	NA	SMD	Contact Fastrax	Antenna with fully integrated GPS engine
	UP501 GPS antenna module	2009	DMNTV	22.0 x 22.0 x 8.0 mm	9.0 g	GPS L1	na, Integrated Receiver	na, Integrated Receiver	na, Integrated Receiver	Hemispherical, RHCP	na, Integrated Receiver	3.0V...4.2V		-40C...+85C		N		1x6 pin grid, 2.54mm pitch	NA	Horizontally mounted connector	Contact Fastrax	Antenna with fully integrated GPS engine
	UP501B GPS antenna module	2009	DMNTV	22.0 x 22.0 x 8.0 mm	9.1 g	GPS L1	na, Integrated Receiver	na, Integrated Receiver	na, Integrated Receiver	Hemispherical, RHCP	na, Integrated Receiver	3.0V...4.2V		-40C...+85C		N		1x6 pin grid, 2.54mm pitch	NA	Horizontally mounted connector	Contact Fastrax	Antenna with fully integrated GPS engine
	UP501D GPS antenna module	2009	DMNTV	22.0 x 22.0 x 8.0 mm	9.1 g	GPS L1	na, Integrated Receiver	na, Integrated Receiver	na, Integrated Receiver	Hemispherical, RHCP	na, Integrated Receiver	3.0V...4.2V		-40C...+85C		N		1x6 pin grid, 2.54mm pitch	NA	Horizontally mounted connector	Contact Fastrax	Antenna with fully integrated GPS engine
	UP300 GPS antenna module	2007	DMNTV	19.0 x 27.0 x 7.2 mm	9.1 g	GPS L1	na, Integrated Receiver	na, Integrated Receiver	na, Integrated Receiver	Hemispherical, RHCP	na, Integrated Receiver	3.0V...3.6V		-40C...+85C		N		8-pin JST SM08B-SURS-TF	NA	Horizontally mounted connector	Contact Fastrax	Antenna with fully integrated GPS engine
Flech Corporation www.flech.com.tw	FA02	4/20/2010	ALMNV	52.5 x 36.5 x 11.65 mm	20 g	1575.42MHz/L1	2	<= 5	29	RHCP	0.65	2.5-3.3	5	-40 to +85	na	Y/ IP65	N	SMA/MCX/MMCX	various length available	magnetic /sticker	price will be quoted by qty.	
	GPS Source, Inc. www.gpsource.com	L1A	2006	DELMNOTV	3.445 x 3.445 x .649 in	3.2 oz	1575.42 k 5MHz	2.01	nr	3 dB/35dB	Hemispheric	1.0dB	3-16 VDC	20 mA max	-40 to +85	Sine 10-500 Hz 5G XYZ, Shock 30G	Y/Water Proof	DC ground	SMA, TNC, BNC, N	na	10-32 4-Hole 2.3 in	\$175
GPS Source, Inc. www.gpsource.com	L1P	2006	as above	3.445 x 3.445 x .649 in	2.7 oz	1575.42 k 10MHz	2.01	nr	3 dB	Hemispheric	na	na	na	-40 to +85	as above	Y/Water Proof	DC ground	SMA, TNC, BNC, N	na	10-32 4-Hole 2.3 in	\$50	GPS
	L1L2-2GP	2010	ADELMNOTV	2.6 x .94 in	6.4 oz	1575.5 k 10MHz 1227.6 k 10MHz	2.01	nr	3 dB	Hemispheric	na	na	na	-54 to +71	as above	Y/Water Proof	DC ground	SMA, TNC, N	na	6-32 4-Hole 2.3 in	\$510	GPS
	L1L2-2GA	2010	ADELMNOTV	2.6 x .94 in	6.4 oz	1575.5 k 10MHz 1227.6 k 10MHz	2.01	nr	L1 3 dB/33 dB L2 6.7dB/33 dB	Hemispheric	na	3-10 VDC	50 mA max	-54 to +71	as above	Y/Water Proof	DC ground	SMA, TNC, N	na	6-32 4-Hole 2.3 in	\$600	GPS
	L1L2-RA-1	2011	ADELMNOTV	3 X 2.27 IN	6.3 oz	1575.42 k 15MHz 127.6 k 15MHz	2.0:1	2dB max	L1 3dB/26 dB L2 3dB/26dB	Hemispheric	2.5dB	2.5- 10 VDC	30 mA max	-54 to +71	as above	Y/Water Proof	DC ground	SMA	na	Magnet or 10-32 1-hole and 6-32 3-hole	\$600	GPS
	L1L2-RA-2	2011	ADELMNOTV	3.4 X 2.2	6.7 oz	1575.42 k 15MHz 127.6 k 15MHz	2.0:1	2dB max	L1 3dB/26 dB L2 3dB/26dB	Hemispheric	2.5dB	2.5- 10 VDC	30 mA max	-54 to +71	as above	Y/Water Proof	DC ground	SMA, TNC, N	na	6-32 4-hole	\$600	GPS
	L1L2-S2GRA-1	2011	ADELMNOTV	2.7"	6.4 oz	1575.42 k 15MHz 127.6 k 15MHz	2.0:1	2dB max	L1 3dB/30 dB L2 3dB/30dB	Hemispheric	3dB	3.3- 10 VDC	35 mA max	-54 to +71	as above	Y/Water Proof	DC ground	SMA	na	Magnet or 10-32 1-hole and 6-32 3-hole	\$600	GPS
	L1L2-2GAD	2011	adELMNOTV	2.6"	6.4 oz	1575.42 k 15MHz 127.6 k 15MHz	2.0:1	2dB max	L1 3dB/30 dB L2 3dB/30dB	Hemispheric	3dB	3.3- 10 VDC	35 mA max	-54 to +71	as above	Y/Water Proof	DC ground	SMA, TNC, N	na	6-32 4-Hole 2.3 in	\$600	GPS
	Gutec AB www.gutec.se	GNSSA200	2010	G	85 x 166 mm Ø	250 g	GPS L1, GPS L2, GLONASS L1, GLONASS L2	0.084	<3 dB	6 dB/30 dB	Hemispheric	1.5 dB	3.5-15 VDC	10 mA	-40 to +85	Sine10-200 Hz 1 G XYZ, Shock 10 G	Y/ventilated body("Gore vent"), hermetic connector	na	TNC	na	5/8 in. UNC	995
Hemisphere GPS www.hemispheregps.com		A21	2009	ADEGLMNV	70 x 130 mm	380 g	1525-1585MHz			30 dB	RHCP	2.0, typ	3-12 VDC	20-30mA typ	-40 to +70	EP455	Y/IP69K	NIN	TNC	5 metre typ	Magnetic, screw	call
	A22	2009	ADEGLMNV	70 x 130 mm	380 g	1525-1585MHz			30 dB	RHCP	2.0, typ	3-12 VDC	20-30mA typ	-40 to +70	EP455	Y/IP69K	NIN	N	5 metre typ	Magnetic, screw	call	L1 GPS / L-Band
	A31	2011	DEGLMNV	104 x 145 mm	734 g	283.5- 325kHz, 1525- 1585MHz			30 dB	RHCP	2.0, typ	5- 12 VDC	50- 60mA typ	-40 to +70	EP455	Y/IP69K	NIN	TNC	5 metre typ	Magnetic, screw	call	L1 GPS / L-Band / Beacon
	A42	2011	DEGLMNV	70 x 130 mm	380 g	1165- 1253MHz, 1525- 1613MHz			30 dB	RHCP	2.0, typ	3- 12 VDC	35mA typ	-40 to +70	EP455	Y/IP69K	NIN	TNC	5 metre typ	Magnetic, screw	call	L1/L2/L5/L-Band, GPS / GLONASS / Galileo / Beidou / QZSS / SBAS
	A52	2010	DEGLMNV	76 x 185 mm	778 g	1165- 1253MHz, 1525- 1613MHz			30 dB	RHCP	2.0, typ	3- 12 VDC	30- 45mA typ	-40 to +70	EP455	Y/IP69K	NIN	TNC	5 metre typ	Magnetic, screw	call	L1/L2/L5/L-Band, GPS / GLONASS / Galileo / Beidou / QZSS / SBAS
Impact Power, Inc. www.impactpw.com	M812B	2004	N	48 x 40 x 13 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 90° <90°	1.8	2.7-6V	4.5									

Manufacturer	Model	Intro. Date	User Envir. 1	Size: Length x Width x Height	Weight	Frequency/Bandwidth 2	VSWR 3	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB)	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N)/Type	LD 4	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration
Impact Power, Inc. <i>continued</i>	L320B	1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 0 in +/- 90°	1.5	2.7V-3.6V	6 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L327B	1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	2.7V-3.6V	9 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L512B	1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 0 in +/- 90°	1.5	4.5-6V	5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L520B	1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 0 in +/- 90°	1.5	4.5-6V	5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L527B	1998	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	4.5-6V	9 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L827A	1997	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	3-5.5V	22 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L827D	2010	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	3-5.5V	22 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L827F	2010	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	3-5.5V	22 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L827E	2010	N	50 x 50 x 17 mm	46	1575.42MHz / 10MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	3-5.5V	22 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	L828T	2010	N	50 x 50 x 17 mm	46	1575.42MHz / 20MHz	1.5:1	3 dB max	28	omni at 0 in +/- 90°	1.5	2.7V-6V	8.5 +/- 4.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	A312B	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 0 in +/- 90°	1.5	2.7V-3.6V	6 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A512B	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 0 in +/- 90°	1.5	4.5-6V	5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A320B	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 0 in +/- 90°	1.5	2.7V-3.6V	6 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A520B	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 0 in +/- 90°	1.5	4.5-6V	5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A327B	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	2.7V-3.6V	6 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A527B	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	4.5-6V	9 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A827B	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	2.7V-6V	8.5 +/- 4.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A827A	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.4	3-5.5V	22 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	A528R	2010	N	60 x 40 mm	65	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.5	5V-16V	11 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	P827A	2001	N	55 x 31 mm	108	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.4	3-5.5V	22 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Thread Permanent Mount		GPS
	U535C	2007	N	49 x 36.6 x 15.8 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	35	omni at 0 in +/- 90°	2	4-6V	22 +/- 5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	U335C	2007	N	49 x 36.6 x 15.8 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	35	omni at 0 in +/- 90°	2	2.7-4.2V	22 +/- 5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	U827A	2007	N	49 x 36.6 x 15.8 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.4	3-5.5V	22 +/- 5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	U827B	2007	N	49 x 36.6 x 15.8 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	27	omni at 0 in +/- 90°	1.8	2.7-6V	8.5 +/- 4.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	U820B	2007	N	49 x 36.6 x 15.8 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	20	omni at 0 in +/- 90°	1.8	2.7-6V	3.5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	U812B	2007	N	49 x 36.6 x 15.8 mm	42	1575.42MHz / 20MHz	1.5:1	3 dB max	12	omni at 0 in +/- 90°	1.8	2.7-6V	4.5 +/- 2.5mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	U128C	2007	AGN	49 x 36.6 x 15.8 mm	42	1575.42MHz, 1227.6MHz/7MHz	1.5:1	3 dB max	35	omni at 0 in +/- 90°	2	2.6V-6V	12 +/- 3mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/5m	Magnetic base		GPS
	GG27A	2008	N	75 x 16 mm	<200 g (w/o cable)	1559MHz-1610MHz	2.0:1	3 dB max	27	nr	1.8 dB typ	3/5.5 V DC	22 mA typ	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	RG174/3m	Magnetic base		GPS/GLONASS
	FLMTA	2005	NV	143 x 54.4 x 16 mm	<140 g (w/o cable)	1575.42/824-960/ 1850-1990 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	3/5 V DC	25 mA max	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3 m Cellular: RG174/3m	Tape		GPS/Cellular
	FLMFA	2005	NV	143 x 54.4 x 16 mm	as above	1575.42/824-960/1850-1990/2400-2483.5 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	3/5 V DC	25 mA max	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3m, Cellular: RG174/3m, WiFi: RG174/3m	Tape		GPS/Cellular/WiFi
	GCRTB/GCMTB	2003	NV	100 x 39 mm	as above	1575.42 / 824-960 / 1850-1990 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	2.7V/6V	13mA max	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/5m Cellular: RG58/5m	Roof mount or magnetic		GPS/Cellular
	GCRFA	2005	NV	100 x 39 mm	<160 g (w/o cable)	1575.42/824-960/1850-1990/2400-2483.5 MHz	2.0:1	3 dB max	27	nr	1.5 dB typ	3/5 V DC	22 mA typ	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3m, Cellular: RG174/3m, WiFi: RG174/3m	Thread Permanent Mount		GPS/Cellular/WiFi
	PA175	2004	TV	66 x 66 x 18 mm	48 g	1575.42/20 MHz	2.0:1	3 dB typ	4 typ/na	nr	nr	na	na	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	na/na	Tape		Transmitting antenna
	CM20B	2010	NV	75 x 16 mm	75g	1575.42/824-960/1710-1990MHz	2.0:1	3 dB typ	20	nr	1.8 dB typ	2.7-6V DC	3.5 +/- 2mA	-40°C-85°C	Sine Sweep, 1G(0-P), 10-150-10Hz each axis	Y/rubber sealed	N/N	BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	GPS: RG174/3m, Cellular: RG174/3m	Magnetic base		GPS/Cellular
	ACCTE	2008	O	123.0 x 22.1 x 7.96 mm	68.2g	1575.42 / 824-960 / 1850-1990 MHz	2.0:1		850MHz : 0.5 dBi 1920 : 2.8 dBi	nr	nr	nr	nr	-40°C-85°C		Y/rubber sealed		BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	Cellular: RG174/3m	Tape		Cellular
ACCTC	2008	O	123.0 x 22.1 x 18.0 mm	68.2g	1575.42 / 824-960 / 1850-1990 MHz	2.0:1		850MHz : 0.5 dBi 1920 : 2.8 dBi	nr	nr	nr	nr	-40°C-85°C		Y/rubber sealed		BNC, TNC, SMA, SMB, MCX, SMC, MMCX, FAKRA	Cellular: RG174/3m	Tape		Cellular	
Inventeksys <i>www.inventeksys.com</i>	ACTPAT154-01-IP	2007	GLMNV	15x15x4mm	0.01 oz	1578.00 +/-2.0 MHz	1.5	2 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +85	NR	N	U.FL	63	Active Patch	\$9.75		
	ACTPAT184-01-IP	2007	GLMNV	18x18x4mm	0.01 oz	1578.00 +/-2.0 MHz	1.5	2 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +85	NR	N	U.FL	63	Active Patch	\$9.75		
	ACTPAT182-025-IP	2008	GLMNV	18x18x2mm	0.01 oz	1578.00 +/-2.0 MHz	1.5	2 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +85	NR	N	U.FL	25	Active Patch	\$9.75		
	ACTPAT182-01-IP	2008	GLMNV	18x18x2mm	0.01 oz	1578.00 +/-2.0 MHz	1.5	2 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +85	NR	N	U.FL	63	Active Patch	\$9.75		
	ACTPAT182-07-IP	2008	GLMNV	18x18x2mm	0.01 oz	1578.00 +/-2.0 MHz	1.5	2 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +85	NR	N	U.FL	165	Active Patch	\$9.75		
	ACTPAT294-01-IP	2008	GLMNV	25x25x4mm	0.01 oz	1581.00 +/-2.0 MHz	2	2 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +85	NR	N	U.FL	25	Active Patch	\$9.75		
	ANTDOM-05-01-WPM	2008	ADGLMNV	45x14.5mm	0.01 oz	1575.42 MHz	2	1.0 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +90	NR	Y	SMA	5000	Active Dome	\$12.75		
	ANTDOM-10-MCX-WPM	2008	ADGLMNV	45x14.5mm	0.01 oz	1575.42 MHz	2	1.0 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +90	NR	Y	MCX	10000	Active Dome	\$13.27		
	ANTDOM-10-MCX-WPMT	2008	ADGLMNV	45x14.5mm	0.01 oz	1575.42 MHz	2	1.0 dB Typical	26 to 35 dB	RHCP	1.4	2.7-5.4 V	10	-40 to +90</								

Manufacturer	Model	Intro. Date	User Envir. 1	Size: Length x Width x Height	Weight	Frequency/Bandwidth 1	VSWR 1	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB)	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N)/Type	LD 1	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration
JAVAD GNSS continued	Tyrant-G3	2008	as above	140 x 140 x 62 mm	600 g	1565-1610 MHz	1.5:1/2.0:1	3 db	532 ± 2 dB	as above	1.7 dB	9-35 V DC	130 mA @ 9 V	-45 to +85	nr	Y/nr	YY	M12	M12 Connector	as above	nr	Smart Antenna, integrated with Receiver TR-G3
Leica Geosystems AG www.leica-geosystems.com	AS05	2009	DGLMNRV	62 x 170 mm Ø	0.44 kg	1565.5-1611.5 MHz	<2.0:1	na	-29 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	35 mA max	-40 to +70	MIL-STD-810F method 514.5-cat24	Y/IPX7	NN	TNC female	na	Threaded	nr	GPS & GLONASS
	AS10	2009	DGLMNRV	62 x 170 mm Ø	0.44 kg	1552.0-1609.0 MHz; 1165.0-1255.0 MHz	<2.0:1	na	-29 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	35 mA max	-40 to +70	as above	as above	NN	TNC female	na	Threaded	nr	GPS, GLONASS, GALILEO, COMPASS, SBAS, QZSS
	AR25	2008	EGLR	200 x 380 mm Ø	7.6 kg	1525.0-1612.0 MHz; 1164.0-1301.0 MHz	na	na	-40 dB typ	Omni-Directional	<1.2 dB	3.3-12 V DC	100 mA max	-55 to +80	na	as above	NN	N female	na	Threaded	nr	GPS, GLONASS, GALILEO, COMPASS, SBAS, QZSS
	AR10	2010	EGLR	136 x 240 mm Ø	1.12 kg	1525.0-1612.0 MHz; 1164.0-1301.0 MHz	<2.0:1	<1.4dB at zenith	-29 dB typ	Omni-Directional	<1.8 dB	3.3-12 V DC	40 mA max	-55 to +85	ISO9022-3	Y/IP67	NN	TNC female	na	Threaded	nr	GPS, GLONASS, GALILEO, COMPASS, SBAS, QZSS
	MNA1202 GG	2006	DGLMNRV	62 x 170 mm Ø	0.44 kg	1565.5-1611.5 MHz; 1217.7-1254.3 MHz	<2.0:1	na	-29 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	50 mA max	-40 to +70	MIL-STD-810F method 514.5-cat24	Y/IPX7	NN	TNC female	na	Threaded	nr	GPS & GLONASS
	GS08	2010	DGLMNRV	89 x 186 mm Ø	1.05 kg	1565.5-1611.5 MHz; 1217.7-1254.3 MHz	<2.0:1	na	-27 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	50 mA max	-40 to +65	na	Y/IPX7	YY	8-pin LEMO-1 / Bluetooth	na	Threaded	nr	GPS & GLONASS
	GS09	2009	DGLMNRV	89 x 186 mm Ø	1.05 kg	1565.5-1611.5 MHz; 1217.7-1254.3 MHz	<2.0:1	na	-27 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	50 mA max	-40 to +65	na	Y/IPX7	YY	8-pin LEMO-1 / Bluetooth	na	Threaded	nr	GPS & GLONASS
	GS12	2010	DGLMNRV	89 x 186 mm Ø	1.05 kg	1552.0-1609.0 MHz; 1165.0-1255.0 MHz	<2.0:1	na	-27 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	50 mA max	-40 to +65	na	Y/IPX7	YY	8-pin LEMO-1 / Bluetooth	na	Threaded	nr	GPS, GLONASS, GALILEO, COMPASS, SBAS, QZSS
	GS15	2009	DGLMNRV	198 x 196 mm Ø	1.34 kg	1552.0-1609.0 MHz; 1165.0-1255.0 MHz	<2.0:1	na	-27 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	50 mA max	-40 to +65	MIL-STD-810F method 514.5-cat24	Y/IPX7	YY	2 * 8-pin LEMO-1 / UART / Bluetooth	na	Threaded	nr	GPS, GLONASS, GALILEO, COMPASS, SBAS, QZSS
	PowerAntenna	2007	DGLMNRV	90 mm H x 186 mm Ø	1.55 kg	1565.5-1611.5 MHz; 1217.7-1254.3 MHz	<2.0:1	na	-27 dB typ	Omni-Directional	<2 dB	4.5-18 V DC	50 mA max	-40 to +65	MIL810F, Fig. 514.5C-3	Y/IPX7	YY	8-pin LEMO-1 / Bluetooth / Military 8-Pin	na	Threaded	nr	GPS & GLONASS
Maestro Wireless www.maestro-wireless.com	A1035-H	12/1/2009	ADLMNPRV	30.5 x 16.5 x 5mm	4 g	1575.42MHz				RHCP				-40 °C to + 85 °C	N							GPS & GLONASS
Maxtena, Inc. www.maxtena.com	M1621HCT-SMA (Iridium/GPS)	2010	DLMNOV	48 x 18 mm	9g	1575MHz/1621MHz	<2	1.0db	1.5db passive					-40 -+85C				SMA/TNC other	SMA/TNS/Embedded			
	M1516HCT-SMA (GPS/GLONASS)	2010	DLMNOV	48 x 18 mm	9g	1575MHz/1602MHz	<2	1.0db	1.0 db passive					-40 -+85C				SMA/TNC other	SMA/TNS/Embedded			
	M1227HCT-A-SMA (L1/L2 Active)	2010	ADEGLMNVO	50 x 30 mm	12g	1227MHz/ 1575MHz		1.0db	2.5db passive/ 27db Active		1 db	3.0-5.0V	50mA max	-40 -+85C				SMA/TNC other	SMA/TNS/Embedded			
	MEA1516 (GPS/GLONASS)	2009	DLMNOV	44 x 35 mm	110g	1575MHz/ 1602MHz	1.5:1		5db passive/ 32db active		1.5db max	2.5V-5.0V	11mA max	-40 -+85C				SMA/TNCMMCK/other	5m	Magnet, adhesive		
	M1575HCT-TMG-SMA (Timing)	2011	DLMNOV	50 x 30 mm	12g	1575MHz		1.0db	3.5db passive/ 23db active		1db	3.0-6.0V	50mA max	-40 -+85C				SMA/TNC other	SMA/TNS/Embedded			
M1575HCT-P-SMA (Passive GPS L1)	2011	DLMNOV	48 x 18 mm	9g	1575MHz	1.5max	0.5db	2.5db passive					-40 -+85C				SMA/TNC other	SMA/TNS/Embedded				
Microwave Photonics Systems www.b2p Photonics.com	OPW-3478, Fiber Optic Antenna Link	2002	DELMO	6" Diameter	500 grams	L1, L2	1.5:1		35 db	Omni-Directional	<2 dB	-9V to +18V DC	<50 mA	-40 to +85	Random & Sinusoidal Certified	Yes, MIL-STD-810F		TNC Female	Up To 10 KM	Multiple	12,000.00	Fiber Optic Antenna Link
Mobile Mark www.mobilemark.com	CLP-MB1 Series	2010	NV	12.4 D x 6.4 H in	0.6 lbs.	824-925 & 1850-1990 MHz Comm#1 2.4 & 4.9-6.0 GHz Comm#2 1575 (GPS) Comm#3	2.0:1	3 db max	2.5 dbi (peak) 824-894 MHz & 1850-1990 MHz Comm#1 2 dbi (peak) 2.4 & 4.9-6.0 GHz Comm#2 GPS, 1575.42 +/- 2 MHz 26 db LNA 5 dbi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	IEEE 1478	IPx7	NN	Choice of connectors	All cables RG-174, 2 ft (610 mm)	Standard license plate frame mounting	\$157.10 List Price	Cell, GSM/CDMA & WiFi
	CLP-U15 Series	2010	NV	12.4 D x 6.4 H in	0.6 lbs.	824-894 MHz & 1850-1990 MHz Comm#1 1575 MHz GPS Comm#2	2.0:1	3 db max	2.5 dbi (peak) 824-894 MHz & 1850-1990 MHz Comm#1 GPS, 1575.42 +/- 2 MHz 26 db LNA 5 dbi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	IEEE 1478	IPx7	NN	Choice of connectors	All cables RG-174, 2 ft (610 mm)	Standard license plate frame mounting	\$135.10 List Price	Cell & GSM/CDMA
	CVO-U15 series	2004	NV	4.75 x 3.6 x 0.9 in	0.3 lbs.	824-894 MHz (Cell) 1850-1990 MHz (GSM/CDMA) & 1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS, Unity Cell & GSM/CDMA	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx5	NN	Choice of connectors	15 ft RG-58 Cell & GSM/CDMA; 15 ft RG-174 GPS	Double-sided tape	\$79.10 List Price	Cell & GSM/CDMA
	CVS-U15 series	2004	NV	1.5 x 4.5 x 0.6 in	0.1 lbs.	as above	2.0:1	3 db max	5 dbi GPS, 2 dbi Cell & GSM/CDMA	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	10 ft dual RG-174 Cell & GSM/CDMA; RG-174 GPS	Double-sided tape	\$45.20 List Price	Cell & GSM/CDMA
	CVW-UMB Series	2010	NV	5.5 x 1.6 x 7 in	0.4 lbs.	800-960 & 1700-2200 MHz comm#1 1575 (GPS) comm#2	2.0:1	3 db max	2.5 dbi (peak) 800-960 & 1700-2200 MHz comm#1 GPS, 1575.42 +/- 2 MHz 26 db LNA 5 dbi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx5	NN	Choice of connectors	Dual RG-174 (10 ft/3 m)	Double-sided tape	\$54.20 List Price	Cell & GSM/CDMA
	DM2-2400/1575	2004	NV	1.5 in H x 2.9 in Ø	0.8 lbs.	2400-2485 MHz (802.11/WiFi) & 1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS, 2 dbi 802.11	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft RG-58 WiFi; 15 ft RG-174 GPS	Surface mount	\$97.30 List Price	802.11/ Wi-Fi
	DM-W15 Series	2010	NV	1.45 in H x 2.85 in Ø	0.65 lbs.	2.4/4.9-6.0 GHz comm#1 1575 (GPS) comm#2	2.0:1	3 db max	2.5 dbi 2.4/4.9-6.0 GHz comm#1 GPS, 1575.42 +/- 2 MHz 26 db LNA 5 dbi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	GPS RG-174, 15 ft (4.5 meters) 2.4/5 GHz RF-195, 15 ft (4.5 meters)	Surface mount	\$118.30 List Price	WiFi
	IW-1575	1998	NV	In-vcl 2 in sq. x 0.75 H	0.4 lbs.	1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	15 ft RG-174	Glass mount	\$41.00 List Price	GPS only
	LMW-UMB Series	2010	NV	1.5 in H x 3.5 in Ø	1.0 lb.	800-2200 MHz comm#1 1575 (GPS) comm#2	2.0:1	3 db max	Gain (800- 1250 MHz) 2 dbi Gain (1550- 2200 MHz) 4 dbi GPS, 1575.42 +/- 2 MHz 26 db LNA 5 dbi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	Cable 1 RF-195 15 ft (3 meters) GPS RG-174, 15 ft (3 meters)	Surface mount	\$136.50 List Price	Cell & GSM/CDMA
	MAG-1575	2000	NV	0.5 x 1.75 x 2 in	0.4 lbs.	1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	10 ft RG-174	Magnet mount	\$38.70 List Price	GPS only
	MAGV-UCE series	2006	NV	Overall H 5 in 1 in H x 2.6 in D	1 lbs.	824-894 MHz (Cell) 1850-1990 MHz (GSM/CDMA) & 1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS, 2 dbi (Cell & GSM/CDMA)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx5	NN	Choice of connectors	15 ft, RG-174 GPS; 15 ft, RG-58 Cell & GSM/CDMA	Magnet mount	\$129.30 List Price	Cell & GSM/CDMA
	MGO-U15 series	2001	NV	Overall 3.5 in H 1 in H x 2.625 in Ø	0.4 lbs.	as above	2.0:1	3 db max	5 dbi GPS, Unity Cell, GSM/CDMA	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	15 ft dual RG-174	Magnet mount	\$115.50 List Price	Cell & GSM/CDMA
	MGD-W15	2008	NV	3.75 in Ø x 1.9 in H	1 lbs.	2.4-2.5 GHz (2.4 band) 4.9-5 GHz (Public safety) 5-6GHz (Broadband) 1575 MHz (GPS)	2.0:1	3 db max	2.5 dbi gain(2.4-6 GHz) 5dbi gain (GPS)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	10 ft, RG-174 (GPS) 10ft, RF-195 (2.4/4.9/6GHz)	Magnet mount	\$113.80 List Price	Multiband
	MGW-305	2009	NV	3.2 in H x 4.2 in D	1.8 lbs.	694-894 MHz (700 MHz band) 2.4 GHz (WiFi band) & 4.9-6.0 GHz (Public Safety, Broadband) -1575 MHz (GPS)	2.0:1	3 db max	2 dbi gain (690-894 MHz) 5 dbi gain (2.4 and 4.9-6.0 GHz) 5 dbi gain (GPS)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft, RF-195 (690-894 MHz) 15 ft, RF-195 (2.4 & 4.9-6.0 GHz) 15 ft, RG-174 (GPS)	Magnet mount	\$193.50 List Price	Multiband
	MGW-UMB series 3 cable	2006	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2700 MHz comm#1 2400-2485 MHz comm#2 & 1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS, 5 dbi 2.4-2.5 GHz; 2 dbi (800-1 GHz) & 5 dbi (1700-2700 MHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft RG-174 GPS; 15 ft separate RF-195 comm#1 & #2	Magnet mount	\$166.20 List Price	Cell & GSM/CDMA, WiFi
	MGX-U15 series	2006	NV	Overall H 12 in 1 in H x 2.6 in Ø	0.5 lbs.	824-894 MHz (Cell) 1850-1990 MHz (GSM/CDMA) & 1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS, 2 dbi Cell; 5 dbi PCS	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx5	NN	Choice of connectors	15 ft RG-174 GPS; 15 ft RG-58 Cell & GSM/CDMA	Magnet mount	\$129.30 List Price	Cell & GSM/CDMA
	MM3-U15 series	2001	NV	2 in Ø, whip 3.25 in in-vcl 2 x 3.25 in	0.4 lbs.	824-894 MHz (Cell); 1850-1990 MHz (GPRS /1 x RTT)	2.0:1	3 db max	5 dbi GPS, 3 dbi (Cell & GSM/CDMA)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	15 ft RG-174 GPS; 15 ft RG-58 Cell & GSM/CDMA	Glass mount	\$105.40 List Price	Cell & GSM/CDMA
	NT-1575	2010	NV	3.75 in Ø x 1.25 in H	0.35 lbs.	1575 GPS Timing	2.0:1	3 db max	GPS, 1575.42 +/- 2 MHz 26 db LNA 5 dbi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 300 019-2-4, IEC 60068	IPx7	NN	Choice of connectors	NA	Pipe mount	\$100.10 List Price	GPS Timing only
	SM-150/1575	2008	NV	2.63 in Ø x 1.8 in H	.80 lbs.	130-170 MHz (VHF) 1575 MHz (GPS)	2.0:1	3 db max	Unity (VHF gain) 5dbi gain GPS	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	as above	Surface mount	\$115.50 List Price	GPS & VHF
	SM-1575	1999	NV	0.75 in H x 2 in Ø	0.4 lbs.	1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx5	NN	Choice of connectors	15 ft RG-174 GPS; 15 ft RG-58 220 band	Surface mount	\$67.20 List Price	GPS only
	SM-220/1575	2000	NV	Overall 8.5 in H 1 in H x 2.6 in Ø	0.5 lbs.	220-224 MHz & 1575 MHz (GPS)	2.0:1	3 db max	5 dbi GPS, Unity (220 band)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	15 ft RG-174 GPS; 15 ft RG-58 UHF	Surface mount	\$115.50 List Price	220 MHz band
	SM3-837/1575	2001	NV	Overall 14.5 in H 1 in H x 2.625 in Ø	0.5 lbs.	806-870 MHz (SMR) & 1575 MHz	2.0:1	3 db max	5 dbi GPS	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	15 ft RG-174 GPS; 15 ft RG-58 Cell	Surface mount	\$115.50 List Price	SMR Trunking
	SM450/1575	2000	NV	Overall H 9 in 1 in H x 2.625 in Ø	0.5 lbs.	450-470																

Manufacturer	Model	Intro. Date	User Envir.	Size: Length x Width x Height	Weight	Frequency/Bandwidth	VSWR	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB)	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N)/Type	LED	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration
Mobile Mark, continued	SMW-302 series 3 cable	2005	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2700 MHz comm#1 1700-2700 MHz comm#2 & 1575 MHz (GPS)	2.0:1	3 db max	5 dBi GPS, 2 dBi (800-1200 MHz) & 5 dBi (1.7-2.7 GHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	as above	Surface mount and mag-mount version available model MGW	Surface Mount \$145.70 List Price, Mag-Mount \$166.20 List Price	Cell, GSM/CDMA & WiFi
	SMW-303 series	2007	NV	3.2 in H x 4.2 in D	1.8 lbs.	2.4 & 4.9-6.0 GHz comm#1 2.1-2.5 & 4.4-6.0 GHz comm#2 1575 MHz (GPS)	2.0:1	3 db max	5 dBi GPS, 5 dBi (2.4 & 4.9-6 GHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft. RG-174 GPS; 15 ft. RF-195 (2.4 & 4.9-6 GHz)	Surface mount and mag-mount version available model MGW	Surface Mount \$145.70 List Price, Mag-Mount \$166.20 List Price	Multiband
	SMW-304 series	2007	NV	4.2 in D x 3.2 in H	1.8 lbs.	2.4 GHz comm#1 2.4 & 4.9-6.0 GHz comm#2 1575 MHz (GPS)	2.0:1	3 db max	5 dBi GPS, 5 dBi (2.4 & 4.9-6 GHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	as above	Surface mount and mag-mount version available model MGW	Surface Mount \$145.70 List Price, Mag-Mount \$166.20 List Price	Multiband
	SMW-305 Series	2009	NV	3.2 in H x 4.2 in D	1.8 lbs.	694-894 MHz (700 MHz band) 2.4 GHz (WiFi band) & 4.9-6.0 GHz (Public Safety, Broadband) GPS (1575)	2.0:1	3 db max	2 dBi gain (690-894 MHz) 5 dBi gain (2.4 and 4.9-6.0 GHz) 5 dBi gain (GPS)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft. RF-195 (690-894 MHz) 15 ft. RF-195 (2.4 & 4.9-6.0 GHz) 15 ft. RG-174 (GPS)	Surface mount	\$157.00 List Price	Multiband
	SMW-306 Series	2010	NV	3.2 in H x 4.2 in D	1.8 lbs.	2.4 GHz comm#1 3.36-0 GHz comm#2 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz 3 dBi, 1650-2000 MHz 5 dBi, 2100-2700 MHz 3 dBi, 2400-2485 MHz 5 dBi, 1700-2700 MHz 5 dBi, GPS, 1575.42 +/- 2 MHz 26 dB LNA 5 dBi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1 & 2 Separate RF-195 cables, Cable 3 (GPS) RG-174, 15 ft (4.5 meters) 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$157.00 List Price, Mag-Mount \$166.20 List Price	Multiband
	SMW-401 series 4 cable	2006	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2700 MHz comm#1 2400-2485 MHz comm#2 1700-2700 MHz comm#3 & 1575 MHz (GPS)	2.0:1	3 db max	5 dBi GPS, 5 dBi (1.7-2.7 GHz), 2 dBi (800-1 GHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft RG-174 GPS; 15 ft separate RF-195 comm#1 & #2	Surface mount and mag-mount version available model MGW	Surface Mount \$199.20 List Price, Mag-Mount \$219.70 List Price	Cell, GSM/CDMA & WiFi
	SMW-402 series 4 cable	2006	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2700 MHz comm#1 2400-2485 MHz comm#2 2.4 & 4.9-6 GHz comm#3 & 1575 MHz (GPS)	2.0:1	3 db max	5 dBi GPS, 2 dBi (800-1200 MHz); 5 dBi (1.7-2.7 GHz); 5 dBi (2400-2485 MHz) & 5 dBi (2.4 & 4.9-6 GHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft. RG-174 GPS; 15 ft. RF-195 (800-2700 MHz); 15 ft. RF-195 (2400-2485 MHz) & RF-195 (2.6 & 4.9-6 GHz)	Surface mount and mag-mount version available model MGW	Surface Mount \$199.20 List Price, Mag-Mount \$219.70 List Price	Cell, GSM/CDMA, WiFi & Public Safety
	SMW-403 series Orcom, 4 cable	2007	NV	5.3 in D x 3.2 in H 15 in overall	2.25 lbs.	800-2700 MHz comm#1 2400-2485 MHz comm#2 & Orcom comm#3, 1575 MHz (GPS)	2.0:1	3 db max	5 dBi gain GPS; 2 dBi (800-1200 MHz); 5 dBi (1.7-2.7 GHz) & 5 dBi (2400-2485 MHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	na	na	NN	Choice of connectors	15 ft. RG-174 (GPS); 15 ft. RF-195 (800-2700 MHz) & 15 ft. RF-195 (2.4 & 4.9-6 GHz)	Surface mount	\$314.20 List Price	Multiband
	SMW-404 series	2007	NV	4.2 in D x 3.2 in H	1.8 lbs.	800-2700 MHz comm#1 2.4 & 4.9-6.0 GHz comm#2 2.1-2.5 & 4.4-6.0 GHz comm#3 & 1575 MHz (GPS)	2.0:1	3 db max	5 dBi gain GPS; 2 dBi (800-1200 MHz); 5 dBi (1.7-2.7 GHz) & 5 dBi (2400-2485 MHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	as above	Surface mount and mag-mount version available model MGW	Surface Mount \$199.20 List Price, Mag-Mount \$219.70 List Price	Multiband
	SMW-406 Series	2009	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2700 MHz (Broadband) 1700-2700 MHz (AWS 1.7/2.1 GHz band) 2.1-2.5 & 4.4-6.0 GHz (2.4/5.0 GHz band) GPS (1575 MHz band)	2.0:1	3 db max	2 dBi gain (800-2700 MHz) 5 dBi gain (1700-2700 MHz) 5 dBi gain (2.4/5.0 GHz) 5 dBi gain (GPS)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft. RF-195 (800-2700 MHz) 15 ft. RF-195 (1700-2700 MHz) 15 ft. RF-195 (2.4/5.0 GHz) 15 ft. RG-174 (GPS)	Surface mount and mag-mount version available model MGW	Surface Mount \$204.90 List Price, Mag-Mount \$219.70 List Price	Multiband
	SMW-UMB series 3 cables	2005	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2700 MHz comm#1 2400-2485 MHz comm#2 & 1575 MHz (GPS)	2.0:1	3 db max	5 dBi gain GPS; 2 dBi (800-1200 MHz); 5 dBi (1.7-2.7 GHz) & 5 dBi (2400-2485 MHz)	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	15 ft. RG-174 (GPS); 15 ft. RF-195 (800-2700 MHz) & 15 ft. RF-195 (2400-2485 MHz)	Surface mount and mag-mount version available model MGW	\$126.50 List Price	Cell, GSM/CDMA & WiFi
	SMX-U15 series	2005	NV	Overall H 12 in 1 in H x 2.6 in D	0.5 lbs.	824-894 MHz (Cell) 1850-1990 MHz (GSM/CDMA) & 1575 MHz (GPS)	2.0:1	3 db max	5 dBi GPS, 2 dBi Cell; 5 dBi PCS	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx5	NN	Choice of connectors	15 ft. RG-174 GPS; 15 ft. RG-58 PCS/DCS	Surface mount	\$115.50 List Price	Cell & GSM/CDMA
	SMW-307 Series 3 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-1250 & 1650-2700 MHz (Cellular) 3.0-6.0 GHz (WiMAX, Public Safety and DSRC 5.9) 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz, 3 dBi, 1650-2000 MHz, 5 dBi, 2100-2700 MHz, 3 dBi, 3.0-6.0 GHz, 5 dBi, 1575.42 +/- 2 MHz, LNA 26dB, 5 dBi nominal RHCP, Antenna	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1 and 2, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$157.00 List Price, Mag-Mount \$166.20 List Price	Multiband
	SMW-308 Series 3 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-1250 MHz & 1650-2700 MHz (Cellular) 824-894 & 1850-1990 MHz (Cellular) 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz, 3 dBi, 1650-2000 MHz, 5 dBi, 2100-2700 MHz, 3 dBi, 824-894 MHz, 0 dBi peak, 1850-1990 MHz, 3 dBi peak, 1575.42 +/- 2 MHz, LNA 26dB, 5 dBi nominal RHCP, Antenna	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1 and 2, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$157.00 List Price, Mag-Mount \$166.20 List Price	Multiband
	SMW-309 Series 3 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-1250 MHz & 1650-2700 MHz (Cellular) 870-960 & 1710-1880 MHz (Cellular) 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz, 3 dBi, 1650-2000 MHz, 5 dBi, 2100-2700 MHz, 3 dBi, 870-960 MHz, 0 dBi peak, 1710-1880 MHz, 3dBi peak, 1575.42 +/- 2 MHz, LNA 26dB, 5 dBi nominal RHCP, Antenna	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1 and 2, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$157.00 List Price, Mag-Mount \$166.20 List Price	Multiband
	SMW-310 Series 3 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	450-470 MHz (UHF) 2400-2485 MHz (WiFi) 1575 MHz (GPS)	2.0:1	3 db max	450-470 MHz, 2 dBi, 2.4 GHz, 5 dBi, 1575.42 +/- 2 MHz, LNA 26dB, 5 dBi nominal RHCP, Antenna	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1, (UHF) Cable 2, RG-58 cable, 15 ft (4.5 meters) Cable 3 (GPS) RF-195 cable, 15 ft (4.5 meters) RG-174, 15 ft (4.5 meters)	Surface mount	\$157.00 List Price	Multiband
	SMW-405 Series 4 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2.7 GHz (Cellular) 2.4-2.5 GHz (WiFi) 1575 MHz (GPS)	2.0:1	3 db max	800-1250, 3 dBi, 1650-2000, 5 dBi, 2100-2700, 3 dBi, 2.4-2.5 GHz, 5 dBi (peak), 1575.42 +/- 2 MHz, LNA: 26dB, 1575.42 +/- 2 MHz, LNA: 26dB, 5 dBi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cables 1 & 2 Separate RF-195 15 ft (4.5 meters) Cables 3 & 4 (GPS) RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$220.50 List Price, Mag-Mount \$247.00 List Price	Multiband
	SMW-407 Series 4 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2.7 GHz (Cellular) 1.7-2.7 GHz (AWS, WiFi) 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz, 3 dBi, 1650-2000 MHz, 5 dBi, 2100-2700 MHz, 3 dBi, 1.7-2.7 GHz, 5 dBi, 1575.42 +/- 2 MHz, LNA: 26dB, 5 dBi nominal RHCP, Antenna	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1-3, Separate RF-195FR, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$291.30 List Price, Mag-Mount \$219.70 List Price	Multiband
	SMW-408 Series 4 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2.7 GHz (Cellular) 2.5-2.7 GHz (WiFi) 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz, 3 dBi, 1650-2000 MHz, 5 dBi, 2100-2700 MHz, 3 dBi, 2.5-2.7 GHz, 5 dBi, 1575.42 +/- 2 MHz, LNA: 26dB, 5 dBi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1-3, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$199.20 List Price, Mag-Mount \$219.70 List Price	Multiband
	SMW-409 Series 4 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2.7 GHz (Cellular) 1.7-2.7 GHz (AWS, WiFi) 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz, 3 dBi, 1650-2000 MHz, 5 dBi, 2100-2700 MHz, 3 dBi, 1.7-2.7 GHz, 5 dBi, 1.7-2.7 GHz, 5 dBi, 1575.42 +/- 2 MHz, LNA: 26dB, 5 dBi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1-3, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$199.20 List Price, Mag-Mount \$219.70 List Price	Multiband
	SMW-410 Series 4 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	2.1-2.5 & 4.4-6.0 GHz 2.4 GHz & 4.9-6.0 GHz 2.4 GHz & 4.9-6.0 GHz 1575 MHz (GPS)	2.0:1	3 db max	2.1-2.5 & 4.4-6.0 GHz, 5 dBi, 2.4 & 4.9-6.0 GHz, 5 dBi, 2.4 & 4.9-6.0 GHz, 5 dBi, 1575.42 +/- 2 MHz, LNA: 26dB, 5 dBi nominal RHCP	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1-3, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$199.20 List Price, Mag-Mount \$219.70 List Price	Multiband
	SMW-411 Series 4 cable	2011	NV	3.2 in H x 4.2 in D	1.8 lbs.	800-2.7 GHz (Cellular) 824-894 & 1850-1990 MHz (Cellular) 2.1-2.5 & 4.4-6.0 GHz (WiFi, DSRC 5.9, Public Safety 4.9) 1575 MHz (GPS)	2.0:1	3 db max	800-1250 MHz, 3 dBi, 1650-2000 MHz, 5 dBi, 2100-2700 MHz, 3 dBi, 824-894 MHz, 0 dBi Peak and 1850-1990 MHz, 3 dBi Peak, 2.1-2.5 & 4.4-6.0 GHz, 5 dBi, 1575.42 +/- 2 MHz, LNA: 26dB	Hemispheric	2 dB max, 1.7 dB typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1-3, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount and mag-mount version available model MGW	Surface Mount \$199.20 List Price, Mag-Mount \$219.70 List Price	Multiband

Manufacturer	Model	Intro. Date	User/Envir. 1	Size: Length x Width x Height	Weight	Frequency/Bandwidth 2	VSWR 3	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB) 4	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N) Type	L/D 5	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration
Mobile Mark, continued	SMW-412 Series 4 cable	2011	NV	3.2 in H x 4.2 in Ø	1.8 lbs.	694-2.7 GHz (LTE, Cellular) 2.4 & 4.9-6.0 GHz (WiFi, WIMAX, Public Safety 4.9, DSRG 5.9) 2.1-2.5 & 4.4-6.0 GHz (WiFi, Military 4.4, Public Safety 4.9, DSRG 5.9) 1575 MHz (GPS)	2.0:1	3 db max	694-894 MHz, 3 dbi; 1.7-2.7 GHz, 5 dbi; 2100-2700 MHz, 5 dbi; 2.4 GHz, 5 dbi; 4.9-6.0 GHz, 5 dbi; 4.4-6.0 GHz, 5 dbi; 1575.42 +/- 2 MHz, LNA: 26dB	Hemispheric	2 db max, 1.7 db typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1-3, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Surface mount	\$199.20 List Price	Multiband
	MGW-412 Series 4 cable	2011	NV	3.2 in H x 4.2 in Ø	1.8 lbs.	694-2.7 GHz (LTE, Cellular) 2.4 & 4.9-6.0 GHz (WiFi, WIMAX, Public Safety 4.9, DSRG 5.9) 2.1-2.5 & 4.4-6.0 GHz (WiFi, Military 4.4, Public Safety 4.9, DSRG 5.9) 1575 MHz (GPS)	2.0:1	3 db max	694-894 MHz, 3 dbi; 1.7-2.7 GHz, 5 dbi; 2100-2700 MHz, 5 dbi; 2.4 GHz, 5 dbi; 4.9-6.0 GHz, 5 dbi; 4.4-6.0 GHz, 5 dbi; 1575.42 +/- 2 MHz, LNA: 26dB	Hemispheric	2 db max, 1.7 db typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2C	IPx7	NN	Choice of connectors	Cable 1-3, Separate RF-195, 15 ft (4.5 meters) Cable 3 GPS, RG-174, 15 ft (4.5 meters)	Magnet mount	\$219.70 List Price	Multiband
	CLP-UHF Series	2011	NV	12.4 D x 6.4 H in	0.6 lbs.	420-500 MHz (UHF), 824-894 & 1850-1990 MHz (Cellular) 1575 MHz (GPS)	2.0:1	3 db max	Cellular & UHF 2.5 dbi (peak) 1575.42 +/- 2 MHz, LNA: 26dB	Hemispheric	2 db max, 1.7 db typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	IEEE 1478	IPx7	NN	Choice of connectors	Cellular & GPS RG-174, 2 ft (610 mm) UHF, RG-58, 2 ft (610 mm)	Standard license plate frame mounting	\$157.10 List Price	Multiband
	SMF-400/1575	2011	NV	Whip is 6 1/4" height (158.75 mm) Base is 1" H x 2 5/8" D (25mm x 67 mm)	0.4 lbs.	400 MHz UHF 380-430 MHz, factory set	2.0:1	3 db max	UHF-Unity, GPS 1575.42 +/- 2 MHz, LNA: 26dB	Hemispheric	2 db max, 1.7 db typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2-C	IPx5	NN	Choice of connectors	UHF Cable: RG-58, 15 feet (4.5 meters), GPS Cable: RG-174, 15 feet (4.5 meters)	Surface mount	\$117.30 List Price	UHF
	SMF-425/1575	2011	NV	Whip is 6 1/4" height (158.75 mm) Base is 1" H x 2 5/8" D (25mm x 67 mm)	0.4 lbs.	425 MHz UHF 400-450 MHz, factory set	2.0:1	3 db max	UHF-Unity, GPS 1575.42 +/- 2 MHz, LNA: 26dB	Hemispheric	2 db max, 1.7 db typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2-C	IPx5	NN	Choice of connectors	UHF Cable: RG-58, 15 feet (4.5 meters), GPS Cable: RG-174, 15 feet (4.5 meters)	Surface mount	\$117.30 List Price	UHF
SMF-450/1575	2011	NV	Whip is 6 1/4" height (158.75 mm) Base is 1" H x 2 5/8" D (25mm x 67 mm)	0.4 lbs.	450 MHz UHF 430-512 MHz, factory set	2.0:1	3 db max	UHF-Unity, GPS 1575.42 +/- 2 MHz, LNA: 26dB	Hemispheric	2 db max, 1.7 db typ	2.7 to 5 VDC; GPS	20 mA max, 10 mA typ	-40 to +85	EN 61373, IEEE 1478, MIL-810G, TIA-329.2-C	IPx5	NN	Choice of connectors	UHF Cable: RG-58, 15 feet (4.5 meters), GPS Cable: RG-174, 15 feet (4.5 meters)	Surface mount	\$117.30 List Price	UHF	
NavCom Technology, Inc. www.navcomtech.com	ANT-3001R	2009	D G L M N	5.75 x 2.46 in	1.1 lb	1570 ± 45 & 1164-1260 MHz	≤2.0:1	3 dB Max @ Boresight	39 dB	RHCP	2.6 dB Max	+4.2+15 VDC	65 mA	-55C TO +85C	nr	Y	Y	TNC Female	Antenna Cable / 12ft	Pole Mount	nr	nr
	ANT-3001A	2009	D G L M N	5.75 x 2.46 in	1.1 lb	1570 ± 45 & 1164-1260 MHz	≤2.0:1	3 dB Max @ Boresight	39 dB	RHCP	2.6 dB Max	+4.2+15 VDC	65 mA	-55C TO +85C	nr	Y	Y	TNC Female	Antenna Cable / 12ft	Fuselage/Vehicle Flush Mount (FAA Certified)	nr	nr
	ANT-3001BR	2009	R	14.82 x 13.83 in	10.5lb.	1570 ± 45 & 1164-1260 MHz	≤2.0:1	3 dB Max @ Boresight	38 dB	RHCP	2.6 dB Max	+4.2+15 VDC	65 mA	-55C TO +85C	nr	Y	Y	TNC Female	Antenna Cable / 12ft	Roof Mount	nr	nr
Navis, Inc. www.navis.com	434854011 Aviation Antenna	2008	A	119.4 x 73.6 x 107 mm	310 g	1570 to 1610 MHz (GPS/GLONASS L1) / 40MHz	< 1.5	3	30 typ.	RHCP, hemispherical radiation pattern, 5° to 175°	<3.5	9.6 to 14.4 V	75 mA	-55 to +70°C	1) 5 to 500 Hz: 5 g 2) 5 to 2k Hz: 10 g 3) 20 ms, 7k Hz: 12 g	Y / IP67	Y	TNC	N	Screw surface mount, includes mounting hardware	\$640.00	Aviation grade active antenna
	A101P Aviation antenna	2005	A	119.4 x 73.6 x 59 mm	180 g	1570 to 1610 MHz (GPS/GLONASS L1) / 40MHz	< 1.7	3	na	RHCP, hemispherical radiation pattern, 5° to 175°	na	na	-55 to +85°C	1) 5 to 2k Hz: 10 g 2) 20 ms, 7k Hz: 8 g 4) 5 to 15 ms 3kHz: 12 g 5) 15 ms, 18kHz: 15 g	Y / IP67	Y	TNC	N	Screw surface mount, includes mounting hardware	\$254.00	Aviation active antenna	
	B102 Magnet mount antenna	2008	N	35.6 x 47 x 15.8 mm	120 g	1570 to 1610 MHz (GPS/GLONASS L1) / 40MHz	< 2.5	3	28 typ.	RHCP, hemispherical radiation pattern, 5° to 175°	2	2.5 to 5.5 V	25 mA	-40 to +55°C	1) 6hr, 1 to 80 Hz: 5 g 2) 2 to 4 ms, 12k Hz: 15 g	Y / IP67	N	SMA/TNC	RG174 / 3 m or 5 m	Magnetic Mount	\$102.00	Magnet mount active antenna
	M102 Marine/Timing Antenna	2004	M	177H x 74 mm Ø.	280 g	1570 to 1610 MHz (GPS/GLONASS L1) / 40MHz	< 2.0	<3	48.5 typ.	RHCP, hemispherical radiation pattern, 5° to 175°	3.5	5 to 11 V	45 mA	-50 to +50°C	1) 5 to 300 Hz: 5 g 2) 5 to 10 ms: 15 g 3) 1 to 5 ms: 100 g	Y / IP67	Y	TNC	N	Pole mount, includes mounting hardware	\$391.00	Marine / External grade active antenna
Navman Wireless OEM www.navmanwireless.com	J3-ATTO-00-350.14 (TTL interface, with Micro Battery, with LED)	2010	DMNTV	30.0 x 30.0 x 8.0 mm	8.5g	GPS L1	na, integrated receiver	na, integrated receiver	na, integrated receiver	Hemispherical, RHCP	na, integrated receiver	3.0V...3.6V		-0C to +60C	random vibration IEC 68-2-64 max vehicle dynamics: 500 m/s shock (non-operating): 50 G peak, 11 ms	N		5pin gold fingers	optional accessory	Horizontally mounted	contact Navman Wireless at +1 949 461 7150	Antenna with fully integrated GPS engine
	J3-ATT1-00-350.14 (TTL without Micro Battery, without LED)	2010	DMNTV	30.0 x 30.0 x 8.0 mm	8.5g	GPS L1	na, integrated receiver	na, integrated receiver	na, integrated receiver	Hemispherical, RHCP	na, integrated receiver	3.0V...3.6V		-40C to +85C	random vibration IEC 68-2-64 max vehicle dynamics: 500 m/s shock (non-operating): 50 G peak, 11 ms	N		5pin gold fingers	optional accessory	Horizontally mounted	contact Navman Wireless at +1 949 461 7150	Antenna with fully integrated GPS engine
	J3-ARSD-00-350.14 (RS232 interface, with Micro Battery, with LED)	2010	DMNTV	30.0 x 30.0 x 8.0 mm	8.5g	GPS L1	na, integrated receiver	na, integrated receiver	na, integrated receiver	Hemispherical, RHCP	na, integrated receiver	3.0V...3.6V		-0C to +60C	random vibration IEC 68-2-64 max vehicle dynamics: 500 m/s shock (non-operating): 50 G peak, 11 ms	N		5pin gold fingers	optional accessory	Horizontally mounted	contact Navman Wireless at +1 949 461 7150	Antenna with fully integrated GPS engine
	J3-ARS1-00-350.14 (RS232 without Micro Battery, without LED)	2010	DMNTV	30.0 x 30.0 x 8.0 mm	8.5g	GPS L1	na, integrated receiver	na, integrated receiver	na, integrated receiver	Hemispherical, RHCP	na, integrated receiver	3.0V...3.6V		-40C to +85C	random vibration IEC 68-2-64 max vehicle dynamics: 500 m/s shock (non-operating): 50 G peak, 11 ms	N		5pin gold fingers	optional accessory	Horizontally mounted	contact Navman Wireless at +1 949 461 7150	Antenna with fully integrated GPS engine
NovAtel, Inc. www.novatel.ca	GPS-703-GGG	2009	DGLMNOPRV	69 x 185 mm Ø	500 g	1580.5 ± 28.5 MHz, 1210.0 ± 45 MHz	≤2.0:1	3 dB max	L1: 5 dBic / 29 db typ L2: 3 dBic / 29 db typ L5: 3 dBic / 29 db typ	RHCP	2.0 dB typ	4.5-18 V DC	36 mA typ	-40 to +85	MIL-STD-810F method 514.5	Y/Waterproof to IPX7	YY	TNC	na	Threaded	Inquire	nr
	GPS-702-GGL	2007	DGLMNOPRV	69 x 185 mm Ø	500 g	1588.5 ± 23 MHz, 1236.0 ± 18.3 MHz, 1545 ± 20 MHz	≤2.0:1	3 dB max	L1: 5 dBic / 29 db typ L2: 2 dBic / 29 db typ L: 5 dBic / 29 db typ	RHCP	2.5 dB typ	4.5-18 V DC	35 mA typ	-40 to +85	MIL-STD-810F method 514.6	Y/Waterproof to IPX8	YY	TNC	na	Threaded	Inquire	nr
	GPS-702-GG	2006	DGLMNOPRV	69 x 185 mm Ø	500 g	1588.5 ± 23 MHz, 1236.0 ± 18.3 MHz	≤2.0:1	3 dB max	L1: 5 dBic / 29 db typ L2: 2 dBic / 29 db typ	RHCP	2.5 dB typ	4.5-18 V DC	35 mA typ	-40 to +85	MIL-STD-810F method 514.7	Y/Waterproof to IPX9	YY	TNC, N	na	Threaded	Inquire	nr
	GPS-702L	2005	DGLMNOPRV	69 x 185 mm Ø	500 g	1575.4 ± 20 MHz, 1227.6 ± 20 MHz, 1543 ± 20 MHz	≤2.0:1	3 dB max	L1: 5 dBic / 27 db typ L2: 1.5 dBic / 27 db typ L: 5 dBic / 27 db typ	RHCP	2.5 dB typ	4.5-18 V DC	35 mA typ	-40 to +85	MIL-STD-810F method 514.8	Y/Waterproof to IPX10	YY	TNC	na	Threaded	Inquire	nr
	GPS-701-GGL	2007	DGLMNOPRV	69 x 185 mm Ø	500 g	1588.5 ± 23 MHz, 1545 ± 20 MHz	≤2.0:1	3 dB max	L1, L: 5 dBic / 29 db typ	RHCP	2.5 dB typ	4.5-18 V DC	35 mA typ	-40 to +85	MIL-STD-810F method 514.9	Y/Waterproof to IPX11	YY	TNC	na	Threaded	Inquire	nr
	GPS-701-GG	2006	DGLMNOPRV	69 x 185 mm Ø	500 g	1575.4-10+36 MHz	≤2.0:1	3 dB max	L1, L: 5 dBic / 29 db typ	RHCP	2.5 dB typ	4.5-18 V DC	35 mA typ	-40 to +85	MIL-STD-810F method 514.10	Y/Waterproof to IPX12	YY	TNC	na	Threaded	Inquire	nr
	GPS-704X	2006	DGLMNOPRV	69 x 185 mm Ø	468 g	1.15GHz-1.65 GHz	≤2.0:1	3 dB max	L1, L: +6 dBic, L2, L5: +2 dBic	RHCP	nr	nr	Passive	-40 to +85	nr	Y/nr	YY	TNC	na	Threaded	Inquire	nr
	ANT-26C1GA-TBW-N	2006	ALGMV	18 x 66 mm Ø	113 g	1575.4 ± 12 MHz	≤1.5:1	2 dB typ	33 dB typ	RHCP	2.4 dB typ	2.5-24 V DC	<30 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole back mount, surface	Inquire	nr
	ANT-2GNSA-TW	2009	ALGMV	26 x 66 mm Ø	255 g	1575.4 ± 17 MHz, 1609 ± 7 MHz, 1227.6 ± 12 MHz, 1252.5 ± 7.5 MHz, 1176.4 ± 12 MHz, 1542.5 ± 14 MHz	≤2.0:1	3.0 dB typ	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole back mount, surface	Inquire	nr
	ANT-35C1GA-TW-N	2006	ALGMV	18 x 89 mm Ø	184 g	1575.4 ± 12 MHz	≤1.5:1	2 dB typ	33 dB typ	RHCP	2.2 dB typ	2.5-24 V DC	<30 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-35C1GLA-TRW	2006	ALGMV	21 x 89 mm Ø	227 g	1575.4 ± 12 MHz, 1542.5 ± 17.5 MHz	≤1.5:1	2 dB typ	33 dB typ	RHCP	1.9 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-35C2GA-TW	2007	ALGMV	19 x 89 mm Ø	191 g	1575.4 ± 12 MHz, 1227.6 ± 12 MHz	≤1.5:1	2 dB typ	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-3GNSA-TW	2009	ALGMV	27 x 89 mm Ø	340 g	1575.4 ± 17 MHz, 1609 ± 7 MHz, 1227.6 ± 12 MHz, 1252.5 ± 7.5 MHz, 1176.4 ± 12 MHz, 1542.5 ± 14 MHz	≤2.0:1	3.5 dB typ	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-A72GA-TW-N	2006	ALGMV	119 x 76 x 18 mm (ARINC 743A)	198 g	1575.4 ± 12 MHz, 1227.6 ± 12 MHz	≤1.5:1	2 dB typ	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-A71GLA4-TW	2007	ALGMV	119 x 76 x 20 mm (ARINC 743A)	191 g	1525-1595 MHz, 1602-1626 MHz	≤1.5:1	2 dB typ	40 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<39 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-42GNSA-TW	2009	ALGMV	119 x 76 x 26 mm (ARINC 743A)	272 g	1575.4 ± 17 MHz, 1609 ± 7 MHz, 1227.6 ± 12 MHz, 1252.5 ± 7.5 MHz, 1176.4 ± 12 MHz, 1542.5 ± 14 MHz	≤2.0:1	3.5 dB typ	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-A72GLA-TW-N	2006	ALGMV	119 x 76 x 20 mm (ARINC 743A)	191 g	1575.4 ± 13 MHz, 1227.6 ± 13 MHz, 1542.5 ± 17.5 MHz	≤1.5:1	2 dB typ	33 dB typ	RHCP	1.9 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-A72GLA4-TW-N	2006	ALGMV	119 x 76 x 20 mm (ARINC 743A)	191 g	1575.4 ± 13 MHz, 1227.6 ± 13 MHz, 1542.5 ± 17.5 MHz	≤1.5:1	2 dB typ	40 dB typ	RHCP	1.9 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr
	ANT-A72GOLA-TW	2009	ALGMV	119 x 76 x 23 mm (ARINC 743A)	227 g	1575.4 ± 16 MHz, 1609 ± 7 MHz, 1227.6 ± 12 MHz, 1252.5 ± 7.5 MHz, 1542.5 ± 14 MHz	≤2.0:1	2 dB typ	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	YY	TNC	na	4-hole, surface	Inquire	nr



Manufacturer	Model	Intro. Date	User Envir. 1	Size: Length x Width x Height	Weight	Frequency/Bandwidth 2	VSWR 3	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB)	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N)/Type	L/D 4	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration
NovAtel, Inc. continued	ANT-7ZGNSSA-TW	2009	G L R	100 x 180 mm Ø	848 g	1575.4 ± 17 MHz, 1609 ± 7 MHz, 1227.6 ± 12 MHz, 1252.5 ± 7.5 MHz, 1542.5 ± 14 MHz	≤2.0:1	3.0 dB typ	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	Y/Y	TNC	na	Threaded	Inquire	nr
	ANT-C2GA-NW-N	2006	G L R	223 x 308 mm Ø	4.1 kg	1575.4 ± 13 MHz, 1227.6 ± 13 MHz	≤1.5:1	nr	33 dB typ	RHCP	3.0 dB typ	2.5-24 V DC	<35 mA typ	-55 to +85	>30 G's	Y/nr	Y/Y	TNC	na	Threaded	Inquire	nr
	GNSS-750	2008	G L R	380 x 200 mm Ø	7.6 kg	1568.5 ± 55 MHz, 1232 ± 80 MHz	≤1.5:1	2 dB @ zenith	5 dBic / 43 dB typ	RHCP	2.0 dB typ	3.3-12 V DC	100 mA typ	-55 to +85	ISO 9022-36-05	Y/MIL-STD-810F, IEC-60529	Y/Y	N-Type with TNC adaptor supplied	na	Threaded	Inquire	nr
PulseLarsen www.pulseelectronics.com	GPS Tri-Band Glass Mount	2004	V	2.9 x 1.8 x 0.7 in	nr	824-960/1710-2170/1575.42 MHz	2:1 or better	nr	2 dBi/2 dB/5 dBic/26 ± 2 dB (LNA)	Linear/Linear/RHCP	nr	3 or 5 V DC	25	-40 to +85	nr	Y	nr	NoConn/SMA, NoConn/SMB, SMA/MPL, SMA/SMA	16 ft, 1 in RG174 / 16 ft, 1 in RG174	3M VHB adhesive tape	\$95	nr
	GPS Tri-Band Roof Mount	2004	V	7.6 x 3.4 x 1.3 in	nr	as above	2:1 or better	nr	as above	Omni/Omni/RHCP	nr	3 or 5 V DC	25	-40 to +85	nr	Y	nr	TNC/SMA, NoConn/SMA, NoConn/SMB, MPL/SMA, SMA/SMA, TNC/BNC	as above	Direct feed 3/4-in hole	\$112	nr
	as above (white)	2004	V	7.6 x 3.4 x 1.3 in	nr	as above	2:1 or better	nr	as above	Omni/Omni/RHCP	nr	3 or 5 V DC	25	-40 to +85	nr	Y	nr	NoConn/NoConn, NoConn/SMA, NoConn/SMB, SMA/SMA, MPL/SMA	as above	Direct feed 3/4-in hole	\$112	nr
	GPS Tri-Band Mag Mount	2009	V	7.6 x 3.4 x 1.3 in	nr	as above	2:1 or better	nr	as above	Omni/Omni/RHCP	nr	3 or 5 V DC	25	-40 to +85	nr	Y	nr	TNC/SMA, NoConn/SMA	as above	Mag mount	\$225	nr
	GPS Tri-Band Combi Whip	2004	V	3.9 x 2.3 x 3.2 in	nr	as above	2:1 or better	nr	as above	Vertical/Vertical/ RHCP	nr	3 or 5 V DC	25	-40 to +85	nr	Y	nr	TNC/SMA, NoConn/SMA, NoConn/SMB, SMA/MPL, SMA/SMA	as above	Direct feed 3/4-in hole	\$120-126	nr
	GPS NMO Mount (black)	2001	V	1.3 x 2.9 in Ø	nr	1575.4 MHz	>2:1	3 Max	5 dBic/28 ± 2 dB (LNA)	RHCP	2	5 V DC	20	-30 to +80	nr	Y	nr	na	nr	NMO mount	\$82	nr
	GPS NMO Mount (white)	2001	V	1.3 x 2.9 in Ø	nr	1575.4 MHz	>2:1	3 Max	5 dBic/28 ± 2 dB (LNA)	RHCP	2	5 V DC	20	-30 to +80	nr	Y	nr	na	nr	NMO mount	\$82	nr
	GPS NMO (black) w/ cable kit	2001	V	1.3 x 2.9 in Ø	nr	1575.4 MHz	>2:1	3 Max	5 dBic/28 ± 2 dB (LNA)	RHCP	2	5 V DC	20	-30 to +80	nr	Y	nr	SMB, SMA, BNC	17 ft. RG58/U dual shield	NMO mount	\$105	nr
	GPS NMO white w/ cable kit	2001	V	1.3 x 2.9 in Ø	nr	1575.4 MHz	>2:1	3 Max	5 dBic/28 ± 2 dB (LNA)	RHCP	2	5 V DC	20	-30 to +80	nr	Y	nr	SMB, SMA, BNC	17 ft. RG58/U dual shield	NMO mount	\$105	nr
	GPS Timing Antenna	2001	T	4 in H, 16 in with pipe x 4.25 in Ø	1 lb.	1575.42 MHz ± 1.023	<2.0:1	nr	25 ± 2 dB	RHCP	2.5	4-15 V DC	35	-30 to +80	nr	Y	nr	N Male	nr	Bracket	Contact Factory	nr
	GPS/UHF Dual Band	2000	V	base 2 in x 2.3 in x 0.7 in elliptical whip 6.14 in	nr	406-512/1575.42 MHz	2.0:1	nr	2.14 dBi / 5 dBic / 26 ± 2 dB (LNA)	RHCP/Vertical	2	5 V DC	nr	-30 to +80	nr	Y	nr	SMA/SMA, SMA/SMB	16.4 ft RG174	Direct feed 5/8 in hole with die cut	\$117.60	nr
	GPS/VHF Dual Band	2008	V	base 2 x 2.3 x 0.7 in elliptical whip 22 in	nr	136-174/1575.42 MHz	2.0:1	nr	2.14 dBi / 5 dBic / 26 ± 2 dB (LNA)	RHCP/Vertical	2	5 V DC	nr	-30 to +80	nr	Y	nr	SMA/SMB	16.4 ft RG174	Direct feed 5/8 in hole with die cut	\$117.60	nr
	GPS/800 Dual Band	2008	V	base 2 x 2.3 x 0.7 in elliptical whip 10.25 in	nr	806-896/1575.42 MHz	2.0:1	nr	5 dBi / 5 dBic / 26 ± 2 dB (LNA)	RHCP/Vertical	2	5 V DC	nr	-30 to +80	nr	Y	nr	SMA/SMB, SMA/SMA, FME/SMA, TNC/SMA	16.4 ft RG174	Direct feed 5/8 in hole with die cut	\$126.00	nr
	GPS/900 Dual Band	2008	V	base 2 x 2.3 x 0.7 in elliptical whip 11.5 in	nr	890-960/1575.42 MHz	2.0:1	nr	5 dBi / 5 dBic / 26 ± 2 dB (LNA)	RHCP/Vertical	2	5 V DC	nr	-30 to +80	nr	Y	nr	SMA/SMB, SMA/SMA	16.4 ft RG174	Direct feed 5/8 in hole with die cut	\$126.00	nr
	GPS Module	2005	V	1 x 1 x 0.3 in	nr	1575.42 MHz	2.0:1	nr	0 dBi / 26 ± 2 dB (LNA)	Hemispherical	2	3 V DC	20 Max	-30 to +80	nr	N	nr	SMB, SMA	16 ft RG174		\$50.00	nr
GPS Direct Mount	2001	V	0.7 x 2.5 in Ø	nr	1575.4 MHz	2.0:1	nr	5 dBic/28 ± 2 dB (LNA)	RHCP	nr	5 V DC	nr	-30 to +80	nr	Y	nr	MCX, MMCX, SMB, SMA, NoConn	17 ft RG174	Bolt requiring 5/8-in hole with die cut	\$64.10	nr	
GPS Glass Mount	2010	V	1.97 x 1.18 x .21 in	nr	1575.4 MHz	1.5:1	nr	28 ± 2 dB (LNA)	Omni	1	5 V DC	12 Typ	-40 to +85	nr	Y	nr	MMCX, SMA, MCX, FME, SMA	RG174, 5 ft/9.8ft/16.5ft	Die-cut 2 sided tape included	\$16.63	nr	
GPS Mag Mount	2001	V	1.7 x 1.5 x 0.5 in	nr	1575.4 MHz	>2:1	3 Max (at center frequency)	5 dBic/26 ± 2 dB (LNA)	RHCP	2	5 V DC	20 Max	-30 to +80	nr	Y	nr	MCX, MMCX, SMB, SMA, BNC, No Conn	17 ft RG174	Magnetic	\$44.00	nr	
GPS 3V Direct Mount	2005	V	0.7 x 2.38 x 2 in	nr	1575.42 MHz	>2:1	nr	5 dBic/26 ± 2 dB (LNA)	RHCP	2	3 V DC	20 Max	-30 to +80	nr	Y	nr	Order separately	16.4 ft RC174	Direct feed 5/8in hole	\$54.00	nr	
Roof Mount GPS with NMOHF High Frequency Mount	2010	V	4.6 x 2.1 x .7 in	nr	1574.4 - 1576.4 plus antenna frequency (any NMO mount antenna will work on the NMOHF side)	dependent on NMO mount antenna	nr	GPS: 5 dBic/26 ± 2 dB (LNA) GPS: RHCP NMOHF: Dependent on antenna	3-5 V DC	25	-40 to +85	nr	Y	nr	No Conn, FME/No Conn, SMA/SMA, FME/SMA	GPS: 16.8 ft RG174 NMOHF: 16.8 ft RG58	Direct feed 3/4-in hole	\$145.00	nr			
3 Cable Roof Mount LTE Antenna with GPS		2011	V	3.5 x 4.3 in Ø	nr	698-960/1710-2170/2400-2485/1575.42	GPS: 2.0:1 Cable 1 & 2: 2.5:1	nr	GPS: 5 dBic/26 ± 2 dB (LNA) Cable 1 (698-960/1710-2485): 5 dBi Cable 2 (2400-2485): 7 dBi	Linear Vertical/RHCP	2	3-5 V DC	25	-40 to +80	nr	Y	nr	Available upon request	GPS: RG-174 Cable 1 & 2: RG58UD Cable length as requested	Direct feed 3/4in hole	\$110.50	nr
	GPS Quadband glass mount	2010	V	1.5 x 5.2 x 0.54 in	nr	824-960/1710-2170/1575.42 MHz	>2:1	nr	0dBi/0 dB/5 dBic/26 ± 2 dB (LNA)	RHCP	nr	3 or 5 V DC	25	-40 to +185	nr	Y	nr	Various	RG 174, 9.84 ft or 16.4 feet	3M VHB adhesive tape	\$24	nr
	GPS Quadband glass mount	2010	V	4 x 2 x .33 in	nr	824-960/1710-2170/1575.42 MHz	>2:1	nr	2 dBi/2 dB/5 dBic/26 ± 2 dB (LNA)	Linear	nr	4 or 5 V DC	26	-40 to +186	nr	N	nr	Various	RG 174, 9.84 ft or 16.4 feet	3M VHB adhesive tape	\$20	nr
	GPS Patch antenna	2010	Integrated antenna	5 x .5 x .16 in	nr	1575.4 MHz	>2:1	nr	0 dBi	RHCP	nr	nr	-40 to +187	nr	N	nr	Various	RG 174, 9.84 ft or 16.4 feet	Soldering	\$0.50	nr	
	GPS Pentaband LTE Direct mount	2011	V	5.5 x 2.2 x 1.4 in	nr	700/824-960/1710-2170-2700 and 1575.42 MHz	>2:1	nr	0 dBi/2 dB/5 dBic/26 ± 2 dB (LNA)	RHCP	nr	nr	-40 to +188	nr	Y	nr	Various	RG 174, 9.84 ft or 16.4 feet	Direct mount	\$28	nr	
Active Integrated GPS antenna	2011	Integrated antenna	5 x .5 x .3 in	nr	1575.4 MHz	>2:1	nr	0 dBi/25dB	RHCP	nr	nr	-30 to +80	nr	N	nr	IPEX	0.8 mm diameter cable, various lengths	via connector	\$7	nr		
GPS plus Glonass Patch antenna	2011	Integrated antenna	5 x .5 x .16 in	nr	1575.4 MHz and glonass	>2:1	nr	0 dBi	RHCP	nr	nr	-30 to +80	nr	N	nr	IPEX	0.8 mm diameter cable, various lengths	via connector	\$7	nr		
Rojone www.rojone.com	MaxNav	2000	DGLMV	110 x 18 mm	150 g	157.5 ± 5 MHz	<1.5:1	3 dB	6/36 dB	Omni-Directional	1.2 dB	3-30 V DC	25 mA	-40 to +60c	na	Y/IP68	DC ground	N preferred but all available	As applicable	Magnetic/Pole/ Screw	nr	nr
	GPSAS-wide	2004	DLMnrV	115 x 30	220g	1535-1576 MHz DGPS-GPS	<1.5:1	3 dB	6/50 dB	Omni-Directional	<0.7 dB	5-30 V DC	80 mA	-40 to +60c	na	Y/IP68	DC ground	N preferred but all available	As applicable	As above	nr	nr
	L1/L2	2004	DR	200 x 30 mm	480g	1535-1576/1220-1230MHz	<1.5:1	3 dB	6/50 dB	Omni-Directional	<0.7 dB	5-30 V DC	80 mA	-40 to +60c	na	Y/IP68	DC ground	N preferred but all available	As applicable	Pole/ Screw	nr	nr
Saratel www.saratel.com	SL1201/SL1202 (GeoHelix-P2)	2006	ADLNPVSM	22 x 11 x 11 mm	7g	1575.42 MHz ± 2	2.0:1 typ	<1.5 dB	-2.8 dBic w/o gnd pln	RHCP cardioid	nr	nr	-40 to +85	Full report available	N	nr	Surface Mount	nr	Internal or external	Inquire	nr	
	SL1206 (GeoHelix-S)	2003	ADLNPVSM	44 x 14.6 x 12 mm	8.4g	1575.42 MHz ± 2	2.0:1 typ	<2 dB	+25 dBic nom.	RHCP cardioid	1.2 dB typ	3.3 V DC	13 mA	-40 to +85	Full report available	N	nr	Surface Mount	nr	Internal or external	Inquire	nr
	SL1204 (GeoHelix-M)	2008	ADLNPVSM	34 x 12.4 x 13.3 mm	7g	1575.42 MHz ± 2	2.0:1 typ	<2 dB	+18 dBic nom.	RHCP cardioid	0.8dB typ	3.0 V DC	3.4 mA	-40 to +85	Full report available	N	nr	Surface Mount	nr	Internal or external	Inquire	nr
	SL1203A (Rugged Passive antenna)	2009	ADLNPVSM	31 x 19(15) x 19(15) mm	14g	1575.42 MHz ± 2	2.0:1 typ	<2 dB	-2.8 dBic w/o gnd pln	RHCP cardioid	nr	nr	-40 to +85	Full report available	Y	nr	SMA male	nr	External	Inquire	nr	
	SL1203C (Rugged Passive antenna)	2010	ADLNPVSM	31.5 x 19(15) x 19(15) mm	14g	1575.42 MHz ± 2	2.0:1 typ	<2 dB	-2.8 dBic w/o gnd pln	RHCP cardioid	nr	nr	-40 to +85	Full report available	Y	nr	SMA male	nr	External	Inquire	nr	
	SL1203D (Rugged Passive antenna)	2010	ADLNPVSM	31.4 x 15 x 15 mm	14g	1575.42 MHz ± 2	2.0:1 typ	<2 dB	-2.8 dBic w/o gnd pln	RHCP cardioid	nr	nr	-40 to +85	Full report available	Y	nr	SMA male	nr	External	Inquire	nr	
	SL1300 (lbs Pro GeoHelix-P3)	2008	ADLNPVSM	12 x 7.5 x 7.5 mm	3 g	1575.42 MHz ± 3	2.0:1 typ	<1.5 dB	-5.0 dBic w/o gnd pln	RHCP cardioid	nr	nr	-40 to +85	Full report available	N	nr	Surface Mount	nr	Internal or external	Inquire	nr	
	SL1203B (Rugged Passive antenna)	2011	ADLNPVSM	29.1 x 15 x 15 mm	14g	1575.42 MHz ± 2	2.0:1 typ	<2 dB	-2.8 dBic w/o gnd pln	RHCP cardioid	nr	nr	-40 to +85	Full report available	Y	nr	SMA male	nr	External	Inquire	nr	
SL1300EVK (lbs Pro GeoHelix-P3 Evaluation Kit)	2011	ADLNPVSM	60 x 60 x 18	33.7g	1575.42 MHz ± 2	2.0:1 typ	<1.5 dB	-4.5 dBic	RHCP cardioid	nr	nr	-40 to +85	Full report available	N	nr	SMA male	nr	External	\$35	nr		
Spectra Precision www.spectraprecision.com www.ashtech.com	ASH-661 (L1/L2/L5 GNSS Antenna)	2010	GLMNORT	ø 190.5 x 73.15 mm ø 7.50 x 2.88 in	0.53 kg 1.12 lb	L1/L2/L5 GPS L1/L2 GLONASS GALILEO E1/E5a	<2.0:1	3 dB max @ BORESIGHT	38 dB ± 2 dB	nr	2.5 dB max	+4.2 to +15 VDC	nr	-40 to +70	DO-160D	nr	NIN	TNC (f) coaxial conn. -50 ohms	nr	5/8-11 UNC-2B	nr	nr
	ASH-660 (L1 GNSS Antenna)	2010	GLMNORT	ø 190.5 x 73.15 mm ø 7.50 x 2.88 in	0.45 kg 1 lb	L1 GPS L1 GLONASS	<2.0:1	3 dB max @ BORESIGHT	38 dB ± 2 dB	nr	2.5 dB max	+4.2 to +15 VDC	nr	-40 to +70	DO-160D	nr	NIN	TNC (f) coaxial conn. -50 ohms	nr	5/8-11 UNC-2B	nr	nr
	GNSS Machine/Marine Antenna	2009	GLMNORT	ø 143 x 38.8 (+9.6) mm ø 5.755 x 1.53 (+0.38) in	0.45 kg 1 lb	L1/L2 GPS L1/L2 GLONASS L-Band	<2.0:1	3 dB max	38 dB ± 2 dB	nr	2.6 dB max	+4.2 to +15 VDC	60 mA	-55 to +85	DO-160D ENV CAT: E1-ABB[CLMY] XSFDZSZAACP[A3]Z[A]CA	nr	NIN	TNC (f) coaxial conn. -50 ohms	nr	8X Ø 213 THRU 82° C SINK x Ø.365	nr	nr
	GNSS Choke Ring Antenna	2009	GLOR	ø 376 x 351.2 mm ø 14.82 x 13.83 in	4.7 kg 10.5 lb	L1/L2/L5 GPS L1/L2 GLONASS GALILEO E1/E5a L-Band	<2.0:1	3 dB max @ BORESIGHT	39 dB ± 2 dB	nr	2.6 dB max	+4.2 to +15 VDC	65 mA	-55 to +85	DO-160D ENV CAT: E1-ABB[CLMY] XSFDZSZAACP[A3]Z[A]CA	nr	NIN	TNC (f) coaxial conn. -50 ohms	nr	1-14 UNS-2B THREAD 3X 3/8-16 UNC-2B INSERTS ON A.B.C. Ø12.70	nr	nr
	GPS L1 Aircraft Antenna	1997	ANOPRSTL	3.44 x 2.19 x 1.27 in	110 g	L1 GPS	≤2.0:1	3 dB max at bore sight	38 dB ± 2 dB	Hor. ≥-7.5 dBic, 5° ≥-4.5 dBic, 10° ≥-3 dBic, 15° or above ≥-2 dBic	nr	2.5 dB max	+5 to +18VDC	50 mA	-55°C to +85°C	nr	nr	TNC (f) coaxial conn. -50 ohms	nr	4x Mounting Screws, 6-32UNC-2A x .75	nr	nr
Surrey Satellite Technology Ltd. www.sstl.co.uk	SGR Patch Antenna ASY-00741-04	2000	S	45 x 50 x 20 mm	50g	1574.																

Manufacturer	Model	Intro Date	User Envir.	Size: Length x Width x Height	Weight	Frequency/Bandwidth	VSWR	Axial Ratio (dB)	Gain/Gain with Amplifier (dB)	Pattern	Noise Figure (dB)	Amplifier DC Voltage	Amplifier Current (mA)	Operating Temperature (°C)	Vibration	Environmentally Sealed (Y/N)/Type	L/D	Connectors	Cable Type/Length	Mounting Configuration	List Price in U.S. Dollars	Integration	
Tallysman Wireless, Inc. continued	TW1017 GPS L1 Pre-filtered, 4mm profile patch, embedded,	2011	ADLNOTV	35 x 35 x 5.8 mm	80 g	GPS L1/1572.5 to 1578 MHz	<1.5:1	4	3 dBic/19 dB	Hemispherical	1	2.5 to 5.5	5	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	N	no/Y 15 KV ESD Protection	MMCX, MCX, SMB, SMC, SMA	RG174/15 cm	Screw or adhesive	Contact distributor or Tallysman	Low profile RF can, Lightsquared immune	
	TW2017 GPS L1 Pre-filtered, embedded	2011	ADLNOTV	35 x 35 x 4.8 mm	80 g	GPS L1/1572.5 to 1578 MHz	<1.5:1	4	2.5 dBic/18.5 dB	Hemispherical	1	2.5 to 5.5	5	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	N	no/Y 15 KV ESD Protection	U.F.L, H.F.L, MMS, MMCX	1.5 mm dia. CO-6F. FH-SB cable/15 cm	Screw or adhesive	Contact distributor or Tallysman	Low profile RF can	
	TW2012 GPS L1 Pre-filtered, Mag mount	2010	ADLNOTV	50 x 50 x 7.8 mm	100 g	GPS L1/1572.5 to 1578 MHz	<1.5:1	4	3 dBic/31dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	N	no/Y 15 KV ESD Protection	MMCX, MCX, SMB, SMC, SMA	RG174/15 cm	Screw or adhesive	Contact distributor or Tallysman	Professional Grade	
	TW3072 GPS L1 Pre-filtered, Fixed mount, for Timing	2011	DGLNMOTV	66.5 x 66.5 x 21 mm	150g	GPS L1/1572.5 to 1578 MHz	<1.5:1	4	3 dBic/31dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	TNC female on bottom of base or SMA, TNC, etc. on cable assly	Custom cable assembly available	3/4 inch (19mm) through hole or bracket mount	Contact distributor or Tallysman	Custom colour and labelling available	
	TW2105 GPS L1 embedded, Dual feed	2010	ADLNOTV	50 x 50 x 7.8 mm	100 g	GPS L1/1565 to 1585 MHz	<1.5:1	<3	4.25 dBic/32.25dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	N	no/Y 15 KV ESD Protection	MMCX, MCX, SMB, SMC, SMA	RG174/15 cm	Screw or adhesive	Contact distributor or Tallysman	Optimisation & custom tuning available	
	TW2100 GPS Dual feed mag mount	2010	DGLNMOTV	57 x 57 x 15 mm	150 g	GPS L1/1565 to 1585 MHz	<1.5:1	<3	4.25 dBic/32.25 dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	SMA female on side of radome (bulkhead) or SMA, TNC, MCX, N... on cable	RG174/5 m & Custom cable assembly available	Magnet or screw mount	Contact distributor or Tallysman	Custom colour and labelling available	
	TW3100 GPS L1, Dual feed, Fixed mount	2010	DGLNMOTV	66.5 x 66.5 x 21 mm	150g	GPS L1/1565 to 1585 MHz	<1.5:1	<3	4.25 dBic/32.25 dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	TNC female on bottom of base, or N type	Custom cable assembly available	3/4 inch (19mm) through hole or bracket mount	Contact distributor or Tallysman	Custom colour and labelling available	
	TW3130 GPS Dual feed Timing antenna	2011	DGLNMOT	66.5 x 66.5 x 45 mm	150g	GPS L1/1565 to 1585 MHz	<1.5:1	<3	4.25 dBic/32.25 dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	TNC female on bottom of base, or N type	Custom cable assembly available	3/4 inch (19mm) bracket or mast mount	Contact distributor or Tallysman	Domed radome	
	TW2405 GPS L1 + GLONASS L1 embedded, dual feed	2010	ADLNOTV	50 x 50 x 7.8 mm	100 g	GPS L1+GLONASS L1/1574 to 1606 MHz	<1.5:1	<3	4.25 dBic/32.25 dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	N	no/Y 15 KV ESD Protection	MMCX, MCX, SMB, SMC, SMA	RG174/15 cm	Screw or adhesive	Contact distributor or Tallysman	Optimisation & custom tuning available	
	TW2400 GPS L1 + GLONASS L1 dual feed mag mount	2010	DGLNMOTV	57 x 57 x 15 mm	150 g	GPS L1+GLONASS L1/1574 to 1606 MHz	<1.5:1	<3	4.25 dBic/32.25 dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	SMA female on side of radome (bulkhead) or SMA, TNC, MCX, N... on cable	RG174/5 m & Custom cable assembly available	Magnet or screw mount	Contact distributor or Tallysman	Custom colour and labelling available	
	TW2410 GPS L1 + GLONASS L1 Dual feed mag mount	2010	DGLNMOTV	57 x 57 x 15 mm	150 g	GPS L1+GLONASS L1/1574 to 1606 MHz	<1.5:1	<3	4.25 dBic/29.25 dB	Hemispherical	1	2.5 to 5.5	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	SMA female on side of radome (bulkhead) or SMA, TNC, MCX, N... on cable	RG174/5 m & Custom cable assembly available	Magnet or screw mount	Contact distributor or Tallysman	Low Voltage	
	TW3400 GPS L1 + GLONASS L1	2010	DGLNMOTV	66.5 x 66.5 x 21 mm	150g	GPS L1+GLONASS L1/1574 to 1606 MHz	<1.5:1	<3	4.25 dBic/32.25 dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	TNC female on bottom of base, or N type	Custom cable assembly available	3/4 inch through hole or bracket mount	Contact distributor or Tallysman	Dual feed, fixed mount antenna	
	TW3430 GPS L1 + GLONASS L1 Timing antenna	2011	DGLNMOT	66.5 x 66.5 x 45 mm	150g	GPS L1+GLONASS L1/1574 to 1606 MHz	<1.5:1	<3	4.25 dBic/32.25 dB	Hemispherical	1	3 to 10	10	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	TNC female on bottom of base, or N type	Custom cable assembly available	3/4 inch bracket or mast mount	Contact distributor or Tallysman	Dual feed element & domed radome	
	TW2505 GlobaStar STU, embedded	2011	DMNV	50mm dia x 7.8mm ht	80 g	1615 MHz +/- 10 MHz	<1.5:1	<3	na	Hemispherical	na	na	na	na	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	N	no/Y 15 KV ESD Protection	15 cm cable with SMA, TNC, MCX, N...	Custom cable assembly available	Screw or adhesive	Contact distributor or Tallysman	Dual, quadrature feeds
	TW2500 GlobaStar STU, Mag Mount	2011	DMNV	57 x 57 x 15 mm	150 g	1615 MHz +/- 10 MHz	<1.5:1	<3	na	Hemispherical	na	na	na	na	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	50 cm cable with SMA, TNC, MCX, N...	Custom cable assembly available	Magnet or screw mount	Contact distributor or Tallysman	Dual, quadrature feeds
	TW3500 GlobaStar STU, Fixed mount	2011	DMNV	66.5 x 66.5 x 21 mm	150g	1615 MHz +/- 10 MHz	<1.5:1	<3	na	Hemispherical	na	na	na	na	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	TNC female on bottom of base, or N type	3/4 inch bracket or mast mount	Contact distributor or Tallysman	Dual, quadrature feeds	
	TW2605 Iridium, embedded	2011	DMNV	50mm dia x 7.8mm ht	80 g	1616 to 1626.5 MHz	<1.5:1	<3	na	Hemispherical	na	na	na	na	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	N	no/Y 15 KV ESD Protection	15 cm cable with SMA, TNC, MCX, N...	Custom cable assembly available	Screw or adhesive	Contact distributor or Tallysman	Dual, quadrature feeds
	TW2600 Iridium, Mag mount	2011	DMNV	57 x 57 x 15 mm	150 g	1616 to 1626.5 MHz	<1.5:1	<3	na	Hemispherical	na	na	na	na	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	50 cm cable with SMA, TNC, MCX, N...	Custom cable assembly available	Magnet or screw mount	Contact distributor or Tallysman	Dual, quadrature feeds
TW3600 Iridium, Fixed Mount	2011	DMNV	66.5 x 66.5 x 21 mm	150g	1616 to 1626.5 MHz	<1.5:1	<3	na	Hemispherical	na	na	na	na	-40 to +85	3G (3 axis, 15min, 10 to 200Hz sweep)	Y/IP67	no/Y 15 KV ESD Protection	TNC female on bottom of base, or N type	3/4 inch bracket or mast mount	Contact distributor or Tallysman	Dual, quadrature feeds		
Topcon Positioning Systems, Inc. www.topconpositioning.com	PG-A5	2005	GLR	14.2 x 14.2 x 5.4 cm	.380kg	1586.5 ± 25 MHz	≤ 2.0:1	2	6.5/30	Symmetrical	1.8	3-18	30	-40C to +55C	MIL-STD-810F	Y/IP65	YY	TNC	RG-58/10 m	Threaded	Contact distributor	na	
	PG-A1	2005	GLR	14.2 x 14.2 x 5.4 cm w/o GP, Ø 20.0 x 5.4 cm w GP	.492kg w/o GP, 0.662kg w/GP	1217-1260 MHz/1565-1620 MHz	≤ 2.0:1	2	6/30	Symmetrical	1.8	2.7-12	25	-40C to +55C	MIL-STD-810F	Y/Waterproof	YY	TNC	RG-58/10 m	Threaded	Contact distributor	na	
	G3-A1	2005	GLR	14.2 x 14.2 x 5.4 cm w/o GP, Ø 20.0 x 5.4 cm w GP	.515kg w/o GP, .685kg w/GP	1590 ± 30 MHz / 1240 ± 25 MHz / 1176.5 ± 12.5 MHz	<1.5:1/1.5:1	2	5/30	Symmetrical	1.5	3-15	30	-40C to +65C	MIL-STD-810F	Y/Waterproof	YY	TNC	RG-58/10 m	Threaded	Contact distributor	na	
	CR-G5	2011	GLR	Ø 30.8 x 15.25 cm (w/o dome)	4.8 kg (w/o dome)	L1 1565 +/- 50MHz (typ) L2 1230 +/- 80MHz (typ)	≤ 2.0:1	2	5/30	Symmetrical	1.5	3-12	100	-50C to +85C	MIL-STD-810F	Y/Waterproof	YY	N	RG-58/10 m, >	Threaded	Contact distributor	na	
	PN-A5	2011	GLR	Ø 41.5 x 29.2 cm (dome included)	7.1 kg (dome included)	L1 1565 +/- 50MHz (typ) L2 1230 +/- 80MHz (typ)	≤ 2.0:1	2	5/48	Symmetrical	1.5	3-12	100	-50C to +85C	MIL-STD-810F	Y/Waterproof	YY	N	RG-58/10 m, >	Threaded	Contact distributor	na	
Trimble www.trimble.com	Choke Ring Antenna	1996	GLRY	38.1 Ø x 12.7 cm, 15 Ø x 5 in	5.5 kg/ 12.1 lb.	1575 MHz (L1), 1227 MHz (L2)	nr	nr	5/48 ±1.0 (L1)	nr	2.1 dB	7-12 V DC	nr	nr	-40 to +65	nr	nr	N-Type	nr/30 m	Tripod, tribrach	OEM pricing; inquire	nr	
	Magnetic Mount 3 V Antenna, SMB, SMA, MCX, SMA connectors	2001	LNPVY	37.4 x 34 x 12.9 mm	25 g (without cable) cable length 5 m	1575 MHz	2.0 max	4 dB @ 90°	27 dBi ±3 dBi typ temp	nr	1.8 (+25 C) /2.3(+85 C)	5 V DC	nr	nr	-40 to +85	as above	Y/Waterproof JISD0203 S2	nr	SMB, SMA	1.5DS-QEHV/5 m	Magnetic mount	OEM pricing; inquire	nr
	Magnetic Mount 5V Antenna, SMB, SMA, MCX, SMA connectors	2001	LNPVY	37.4 x 34 x 12.9 mm	25 g (without cable) cable length 5 m	1575 MHz	2.0 max	4 dB @ 90°	27 dBi ±3 dBi typ temp	nr	1.8 (+25 C) /2.3(+85 C)	5 V DC	nr	nr	-40 to +85	as above	Y/Waterproof JISD0203 S2	nr	MCX, SMA	1.5DS-QEHV/5 m	Magnetic mount	OEM pricing; inquire	nr
	Unpackaged Embedded 3 V	2001	LNPVY	22 x 21 x 7.5 mm	20 g (cable length 85 mm)	1575 MHz	2.0 max	4d B @ 90°	27 dBi ±3 dBi typ temp	nr	1.5 (+25 C) /2.0(+85 C)	3 V DC	nr	nr	-40 to +85	as above	nr	nr	H.F.L	0.8 D/8 cm	Mounting holes	OEM pricing; inquire	nr
	Bulkhead	2001	LNPVY	64.5 x 40 mm	150 g	1.8 dB max	2.0 max	4d B @ 90°	27 dBi ±3 dBi typ temp	nr	1.8 (+25 C) /2.3(+85 C)	5 V or 3 V	nr	nr	-40 to +86	as above	nr	nr	TNC	na	Threaded	OEM pricing; inquire	nr
	Trimble A3	2005	DGLMnV	16 x 6.2 cm	0.39 kg	1575 MHz	2.0 max	nr	42 dB	Upper hemispherical	nr	2.95-11.5 V DC	nr	nr	-50° to +85°	MIL-STD-810-F	as above	nr	TNC-type	Any with up to 10 dB loss	Tripod, tribrach	Contact Distributor	nr
	Zephyr 2 Antenna	2006	DGLMnV	34.3 x 7.6 cm	0.60kg	L1/L2/L5/G1/G2/E1/E5ab/E6	2.0 max	2 dB @ Zenith	50 dB ±2.0	Upper hemispherical	2.0 dB	3.3-20 V DC	125	nr	-40° to +70°	as above	as above	nr	TNC female	Any with up to 10 dB loss	Tripod, tribrach, pole	Contact Distributor	nr
Zephyr Geodetic 2 Antenna	2006	DGLMnV	34.3 x 8.5 cm	1.36kg	L1/L2/L5/G1/G2/E1/E5ab/E6	2.0 max	2 dB @ Zenith	50 dB ±2.0	Upper hemispherical	2.0 dB	3.3-20 V DC	125	nr	-40° to +70°	as above	as above	nr	TNC female	Any with up to 10 dB loss	as above	Contact Distributor	nr	
Trimble GNSS Choke Ring	2008	GLRY	38.1 Ø x 12.7 cm, 15 Ø x 5 in	5.5 kg/ 12.1 lb.	L1/L2/L5/G1/G2/E1/E5ab/E6	2.0 max	2 dB @ Zenith	50 dB ±2.0	Upper hemispherical	2.0 dB	3.3-20 V DC	100	nr	-40° to +70°	as above	as above	nr	N-Type female	Any with up to 10 dB loss	Tripod, tribrach	Contact Distributor	nr	
Zephyr 2 Rugged	2008	DGLMnV	25.4 x 11.1 cm	1.8 kg	L1/L2/L5/G1/G2/OmniSTAR/E1/E2/E5ab/E6/SBAS	2.0 max	2 dB @ Zenith	50 dB ±2.0	Upper hemispherical	2.0 dB	3.3-20 V DC	125	nr	-40° to +70°	Designed for extreme shock and vibration installations. Bouyant	+/- 5 psi sealing, Rain and spray per IEC 60945	nr	TNC female	Any with up to 10 dB loss	Rugged 4 point mount to pole, or 5/16" thread to pole	Contact Distributor	nr	
u-blox AG www.u-blox.com	ANN-MS	2003	LMNVT	48 x 40 x 13 mm	42 g (without cable) <105g (with cable)	GPS L1, 10 MHz	2.0 max	3 dB typ	4 dB/27 dB	nr	1.8 dB typ	2.7-6.0 VDC	Typ. 8.5 mA, +/- 4.5 mA	-40 to +80	Sine sweep 1 G (o-p) 10-150-10 Hz ea axis	Y/Rubber sealed	NN	Choice: SMA, SMB, MCX, FAKRA	RG-174, 5 m	Magnetic	contact u-blox	nr	
Wang Electro-Opto Corporation www.weo.com	GNSS-D060-L-P0900	2011	LNVT	60x x 15 mm	180g	1150- 1620 MHz	<2.0:1	<4dB	4dBi typ	RHCP	2 dB typ	3-5 VDC	na	-30 to +60	MIL-STD-810F	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	na	
	GNSS-D060-L-P0900-LNA	2011	LNVT	60x x 15 mm	182g	1150- 1620 MHz	<2.0:1	<4dB	4dBi / 20dBi typ	RHCP	2/2.5 dB typ	3-5 VDC	4 mA	-30 to +60	MIL-STD-810F	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	na	
	GNSS-D060-L-P0500	2011	LNVT	60x x 15 mm	180g	1150- 1620 MHz	<2.0:1	<4dB	4dBi typ	RHCP	2 dB typ	3-5 VDC	na	-30 to +60	MIL-STD-810F	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	na	
	GNSS-D060-L-P0500-LNA	2011	LNVT	60x x 15 mm	182g	1150- 1620 MHz	<2.0:1	<4dB	4dBi / 20dBi typ	RHCP	2/2.5 dB typ	3-5 VDC	4 mA	-30 to +60	MIL-STD-810F	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	na	
	GNSS-D060-L-P0100	2011	LNVT	60x x 15 mm	180g	1150- 1620 MHz	<2.0:1	<4dB	4dBi typ	RHCP	2 dB typ	3-5 VDC	na	-30 to +60	MIL-STD-810F	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	na	
	GNSS-D060-L-P0100-LNA	2011	LNVT	60x x 15 mm	182g	1150- 1620 MHz	<2.0:1	<4dB	4dBi / 20dBi typ	RHCP	2/2.5 dB typ	3-5 VDC	4 mA	-30 to +60	MIL-STD-810F	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	na	
	GNSS-D115-L-P0500	2011	DLNVT	115x x 30 mm	250g	1100- 2000 MHz	<2.0:1	<3 dB	5dBi typ	RHCP	1.7 dB typ	na	na	-45 to +70	MIL-STD-810F, DO-160E	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	na	
	GNSS-D115-L-P0500-LNA	2011	DLNVT	115x x 30 mm	252g	1100- 2000 MHz	<2.0:1	<3 dB	5dBi / 21.43dBi typ	RHCP	1.7/2 dB typ	3-5 VDC	4-20 mA	na	-45 to +70	MIL-STD-810F, DO-160E	Y/Rubber Sealed	NN	SMA/other available	na	Side or bottom feed	Upon Inquiry	