Table 1-2 Supported NMEA Output Messages *(Continued)*

Message	SiRF Software Options					
	GSW2[1]	SiRFDRive[1]	SiRFXTrac[1]	SiRFLoc[1]	GSW3 & GSWLT3[1]	SiRFDiRect
152	2.5 & above	No	2.3 & above	No	3.2.0 & above	Yes
154	2.5 & above	No	2.3 & above	No	3.2.0 & above	Yes

1. GSW2 and SiRFDRive software only output NMEA version 2.20 (and earlier). Standard binaries for SiRFXTrac, GSW3, and GSWLT3 firmware use NMEA 3.0. Users of SiRF's software developer's kit can choose through software conditional defines (UI_NMEA_VERSION_XXX) to allow a choice between NMEA 2.20 and 3.00. The file NMEA_SIF.H contains the NMEA version defines.

2. MSS message for GSW3 and GSWLT3 is empty since they do not support BEACON.

GGA —Global Positioning System Fixed Data

Note – Fields marked in italic *red* apply only to NMEA version 2.3 (and later) in this NMEA message description.

Table 1-3 contains the values for the following example:

$GPGGA,002153.000,3342.6618,N,11751.3858,W,1,10,1.2,27.0,M,-34.2,M,,0000*5E

Table 1-3 GGA Data Format

Name	Example	Unit	Description
Message ID	$GPGGA		GGA protocol header
UTC Time	002153.000		hhmmss.sss
Latitude	3342.6618		ddmm.mmmm
N/S Indicator	N		N=north or S=south
Longitude	11751.3858		dddmm.mmmm
E/W Indicator	W		E=east or W=west
Position Fix Indicator	1		See Table 1-4
Satellites Used	10		Range 0 to 12
HDOP	1.2		Horizontal Dilution of Precision
MSL Altitude	27.0	meters	
Units	M	meters	
Geoid Separation	-34.2	meters	Geoid-to-ellipsoid separation. Ellipsoid altitude = MSL Altitude + Geoid Separation.
Units	M	meters	
Age of Diff. Corr.		sec	Null fields when DGPS is not used
Diff. Ref. Station ID	0000		
Checksum	*5E		
<CR> <LF>			End of message termination

Table 1-4 Position Fix Indicator

Value	Description
0	Fix not available or invalid
1	GPS SPS Mode, fix valid
2	Differential GPS, SPS Mode, fix valid
3-5	Not supported
6	*Dead Reckoning Mode, fix valid*