MENSR - Airborne SAR Mensuration Data

MENSR provides the collection geometry parameters required by image mensuration programs; it is optional, but its use will allow more accurate mensuration.

MENSRB Format Description

The format and description for the user defined fields of the MENSRB extension is detailed in Table 1.

TABLE 1 MENSRB – AIRBORNE SAR MENSURATION DATA EXTENSION FORMAT

R = REQUIRED , C = CONDITIONAL , <> = BCS SPACES ALLOWED FOR ENTIRE FIELD

Field	Name	Size	Value Range	Units	Type
CETAG	Unique Extension Identifier	6	MENSRB	N/A	R
CEL	Length of Entire Tagged Record	5	00205	bytes	R
The following fields define MENSRB					
Aircraft Position: The format ddmmss.ssssX represents degrees (00-89), minutes (00-59), seconds (00-59), and decimal fractions of seconds (0000-9999) of latitude, with X = N for north or S for south, and dddmmss.ssssY represents degrees (000-179), minutes (00-59), seconds (00-59), and decimal fractions of seconds (0000-9999) of longitude, with Y = E for east or W for west. The format ±dd.dddddddd indicates degrees of latitude (north is positive), and ±ddd.dddddddd represents degrees of longitude (east is positive).					
ACFT_LOC	The aircraft position at the UTC of the Patch.	25	ddmmss.ssssX dddmmss.ssssY or ±dd.dddddddd ±ddd.dddddddd		R
ACFT_LOC_ACCY	<u>Aircraft Position Accuracy</u>. 90% probable circular error value. Unknown=000000 or 000.00	6	000.01 to 999.99 000000 or 000.00	feet	R
ACFT_ALT	The aircraft altitude in feet above mean sea level (MSL) at the UTC of the Patch.	6	000000 to 999999	ft	R
Collection Reference Point: In Search modes, the airborne system chooses a Reference Point (RP) which may be at or near the center of each patch. The Patch Center, the actual, geometric center of the processed imagery, may be offset from the RP. In Spot Modes, the RP is in the exact center of the scene, so the offsets are both equal to 0. The location of the RP relative to the image is specified either by offset values (OF_PC_R & OF-PC_A) or by row/column location (RP-ROW & RP_COL); at least one set of fields must contain valid information, as determined by sensor capabilities. The format ddmmss.ssssX represents degrees (00-89), minutes (00-59), seconds (00-59), and decimal fractions of seconds (0000-9999) of latitude, with X = N for north or S for south, and dddmmss.ssssY represents degrees (000-179), minutes (00-59), seconds (00-59), and decimal fractions of seconds (0000-9999) of longitude, with Y = E for east or W for west. The format ±dd.dddddddd indicates degrees of latitude (north is positive), and ±ddd.dddddddd represents degrees of longitude (east is positive). Where accuracy of the data does not warrant maximum precision, space characters will replace fractional digits; the decimal points are required and their position within the field will not change with changing accuracy. For example, "ddmmss. Xdddmmss. Y" (with 4 spaces between decimal points and X/Y) if position is only known to within ±100 ft.					
RP_LOC	Reference Point Location	25	ddmmss.ssssX dddmmss.ssssY or ±dd.dddddddd ±ddd.dddddddd		R

Field	Name	Size	Value Range	Units	Type
RP_LOC_ACCY	Reference Point Location Accuracy. 90% probable circular error value. Unknown=000000 or 000.00	6	000.01 to 999.99, 000000, 000.00	feet	R
RP_ELV	Reference Point Elevation. The elevation of the reference point above mean sea level (MSL).	6	-01000 to +30000	feet	R
OF_PC_R	Range Offset. Distance between the RP and the Patch Center. Positive values indicate the RP is closer than the Patch Center to the sensor. Default = +0000.0	7	±9999.9	feet	<R>
OF_PC_A	Azimuth Offset Distance between the RP and the Patch Center. Positive values indicate the RP occurs behind (i.e., earlier) than the Patch Center.	7	±9999.9	feet	<R>
COSGRZ	Cosine of the Graze Angle. Computed by dividing the ground plane range of the RP to the antenna at mid collection array (RGM) by the slant range of the RP to the antenna at mid array (RSM):	7	0.00000 to 1.00000		R
RGCRP	Estimated Slant Range in feet from the antenna at mid collection array to the RP	7	0000000 to 3000000	feet	R
RLMAP	This field indicates whether the map was imaged from the right (R) side or the left (L) side of the aircraft.	1	L, R		R
RP_ROW	Row containing the RP	5	00001 to 99999		<R>
RP_COL	Column containing the RP	5	00001 to 99999		<R>
Reference Point Unit Basis Vectors: The unit basis vectors needed to mensurate within a tile are the basis vectors that align with the row and column directions in the image plane. The basis vectors point in the direction of increasing row and column indices. For images in an along-track by cross-track orientation, the row direction corresponds to along-track and the column direction corresponds to cross-track. For images in a range by azimuth orientation, the row direction corresponds to azimuth while the column direction corresponds to range. The altitude vector is perpendicular to the row and column vectors and points up. In the unit basis vector names given below, the range vector name is tied to the column direction and the azimuth vector name is tied to the row direction. The variables are given as pure numbers in an earth-fixed NED coordinate system centered at the scene (segment) reference point.					
C_R_NC	Range Unit Vector, North	10	±1.0000000		R
C_R_EC	Range Unit Vector, East	10	±1.0000000		R
C_R_DC	Range Unit Vector, Down	10	±1.0000000		R
C_AZ_NC	Azimuth Unit Vector, North	9	±1.000000		R
C_AZ_EC	Azimuth Unit Vector, East	9	±1.000000		R
C_AZ_DC	Azimuth Unit Vector, Down	9	±1.000000		R
C_AL_NC	Altitude: North Component	9	±1.000000		R
C_AL_EC	Altitude: East Component	9	±1.000000		R
C_AL_DC	Altitude: Down Component	9	±1.000000		R
TOTAL_TILES_COLS	Total number of tiles in imaging operation in column direction.	3	001 to 999		<R>
TOTAL_TILES_ROWS	Total number of tiles in imaging operation in row direction.	5	00001 to 99999		<R>