



DLMB-1040	DB_04
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APS Upgrade
 Date Measured: Thursday, February 17, 2022
 Surveyors: JARVIS
 Instrument s/n: 394890
 Software version: SA 2021.2.71490.1 (x64)
 Survey file: DA23_USMN_2_M1_TEST.xit64
 Report created: April 12, 2022
 Units of measure: meters, milliradians

Module Assembly
 DS1059
 MFC019
 DQ503
 ES2073
 DQ418
 DS1057
 SQ373
 DM143
 SQ237
 MFC017
 DQ169

S3 [S1/S3 Production Magnet](#)
 FC2 [8-Pole Fast Corrector Production Magnet](#)
 Q5 [Q5 Production Magnet](#)
 S2 [S2 Sextupole Magnet](#)
 Q4 [Q4 Reverse Bend Quadrupole Magnet](#)
 S1 [S1/S3 Production Magnet](#)
 Q3 [Q3 Production Magnet](#)
 M1 [M1 Production Magnet](#)
 Q2 [Q2 Production Magnet](#)
 FC1 [8-Pole Fast Corrector Production Magnet](#)
 Q1 [Q1 Production Magnet](#)

Alignment Summary:

dam23	X (m)	Y (m)	Z (m)	Pitch (mr)	Yaw (mr)	Roll (mr)
DA23_AQ1_0	-0.000040	0.000030	0.000005	-0.046	0.000	0.020
DA23_AQ2_0	-0.000035	0.000022	0.000039	-0.024	-0.185	-0.018
DA23_AQ3_0	0.000007	0.000006	0.000159	-0.127	-0.005	0.074
DA23_AS1_0	-0.000001	0.000016	0.000158	-0.110	-0.018	0.048
DA23_AQ4_V	0.000008	0.000006	0.000116	-0.155	-0.060	-0.053
DA23_AS2_0	0.000002	-0.000008	0.000301	-0.055	-0.307	0.075
DA23_AQ5_V	0.000016	0.000003	0.000284	0.110	0.055	-0.018
DA23_AS3_0	0.000027	-0.000003	0.000412	-0.061	0.139	-0.061

Average	-0.000002	0.000009	0.000184	-0.058	-0.048	0.008
Std. Dev.	0.000022	0.000012	0.000130	0.076	0.131	0.051
ABS Max	0.000040	0.000030	0.000412	0.155	0.307	0.075

dam23	X (m)	Y (m)	Z (m)	Pitch (mr)	Yaw (mr)	Roll (mr)
DA23_AM1_V	0.000195	-0.000063	-0.001083	-0.001	-0.025	0.003
NOTES:	M1 data is not included in the statistics reported above.					

Positive pitch/yaw/roll angles represent counter-clockwise rotations of the magnet around the X/Y/Z axes from the magnet axis defined during fiducialization, and do not necessarily represent the true deviations of the magnet axis from the beam axis.