

## eRHIC Permanent Magnet Quadrupole PMQ\_005A (26-Apr-2016)

Field harmonics are in "units" of  $10^{-4}$  of the quadrupole field at a reference radius of 10 mm.

	15-Dec-2015	18-Apr-2016	26-Apr-2016		15-Dec-2015	18-Apr-2016	26-Apr-2016
<b>Quantity</b>	<b>PMQ_005A* Run 6(+)</b>	<b>PMQ_005A* Run 10(++)</b>	<b>PMQ_005A* Run 11(+++)</b>	<b>Quantity</b>	<b>PMQ_005A* Run 6(+)</b>	<b>PMQ_005A* Run 10(++)</b>	<b>PMQ_005A* Run 11(+++)</b>
Integrated Gradient (T)	1.6483	1.6513	1.6509	Field Angle (mr)	--	--	--
Normal Dipole	--	--	--	Skew Dipole	--	--	--
Normal Quadrupole	10000.00	10000.00	10000.00	Skew Quadrupole	--	--	--
Normal Sextupole	-18.67	-4.37	0.26	Skew Sextupole	-5.69	-0.50	0.51
Normal Octupole	5.34	-1.19	-1.53	Skew Octupole	-21.09	-4.69	0.47
Normal Decapole	-0.88	0.35	-0.72	Skew Decapole	-4.11	-1.01	-0.38
Normal Dodecapole	-1.04	-0.80	0.09	Skew Dodecapole	0.29	0.03	0.41
Normal 14-pole	1.16	0.18	0.03	Skew 14-pole	-0.09	0.05	-0.12
Normal 16-pole	-1.46	-0.25	0.03	Skew 16-pole	-0.31	0.04	0.03
Normal 18-pole	0.12	0.04	0.00	Skew 18-pole	-0.03	-0.07	0.05
Normal 20-pole	0.45	0.20	0.03	Skew 20-pole	0.23	0.04	0.04
Normal 22-pole	-0.01	0.02	0.06	Skew 22-pole	0.00	0.03	0.01
Normal 24-pole	0.03	0.01	0.01	Skew 24-pole	-0.01	-0.02	0.02
Normal 26-pole	0.00	-0.01	-0.03	Skew 26-pole	0.00	0.00	0.00
Normal 28-pole	-0.12	-0.10	-0.10	Skew 28-pole	0.00	-0.01	-0.02
Normal 30-pole	0.00	0.00	0.01	Skew 30-pole	0.00	0.00	0.01
Field quality figure of merit	29.62	6.69	1.94				

\* PMQ\_005A is magnet built from magnets taken from PMQ\_0005 and installed in a modified holder to reduce 12-pole

(†) Run 6 is measurement repeated with no iron shims, after several iterations of measurements with iron shims.

(††) Run 10 is iteration #1 with all wires pushed radially outward using thin wedges.

(†††) Run 11 is iteration #2 with all wires pushed radially outward using thin wedges.

(Note: Magnet name used for testing was ERHIC-PMQ\_0105 to avoid non-numeric serial number).