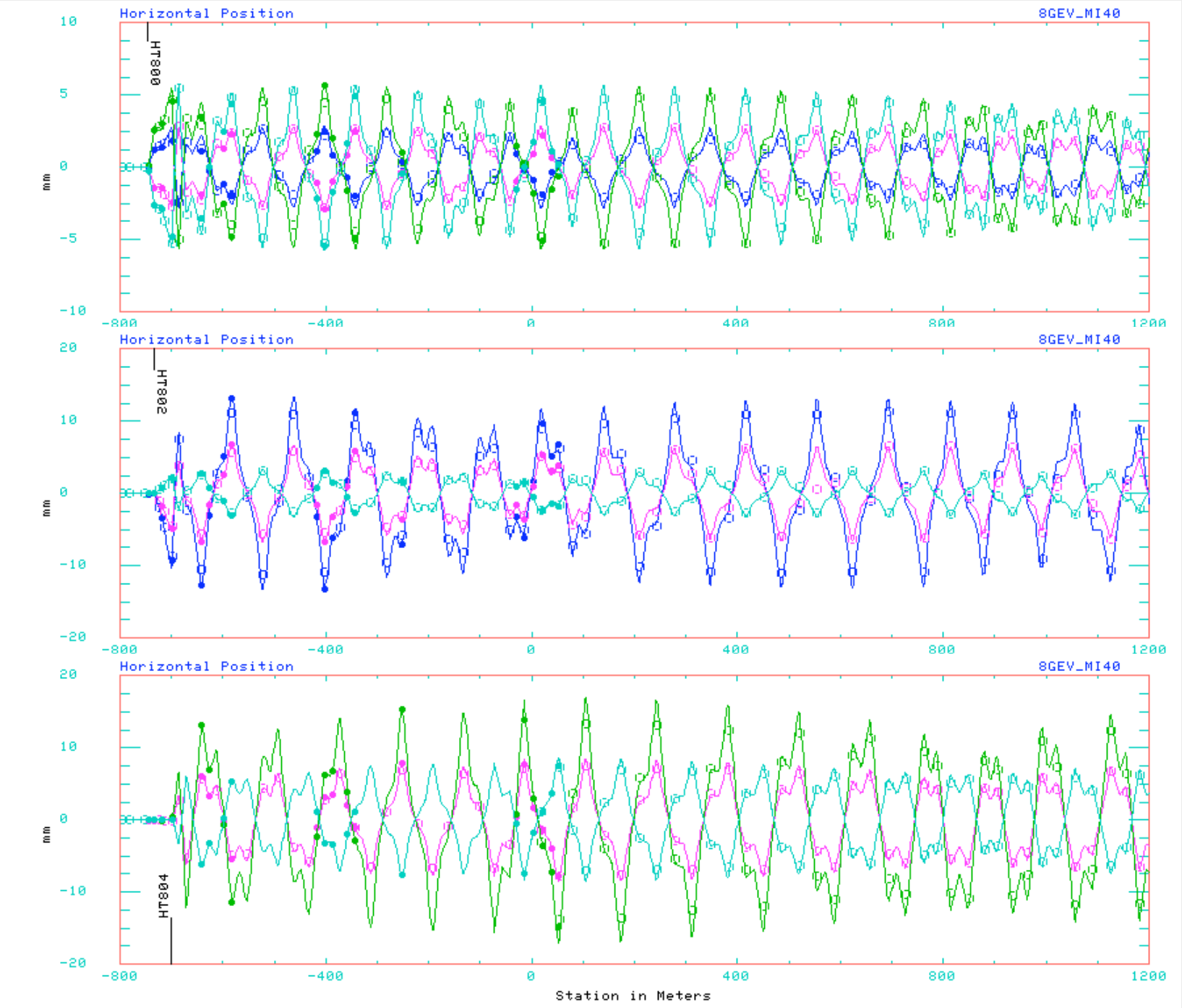
MI8 line to MI optics study, Mar 01 2008

- Orbit data
  - HT800, HT802 & HT804 for horizontal plane.
  - MP02, VT803 & VT805 for vertical plane.
- Dispersion data
  - ± 2000 Hz from MI nominal injection frequency.
- Lattice
  - Measured beta function
  - Matching to MI beta function

Horizontal orbits

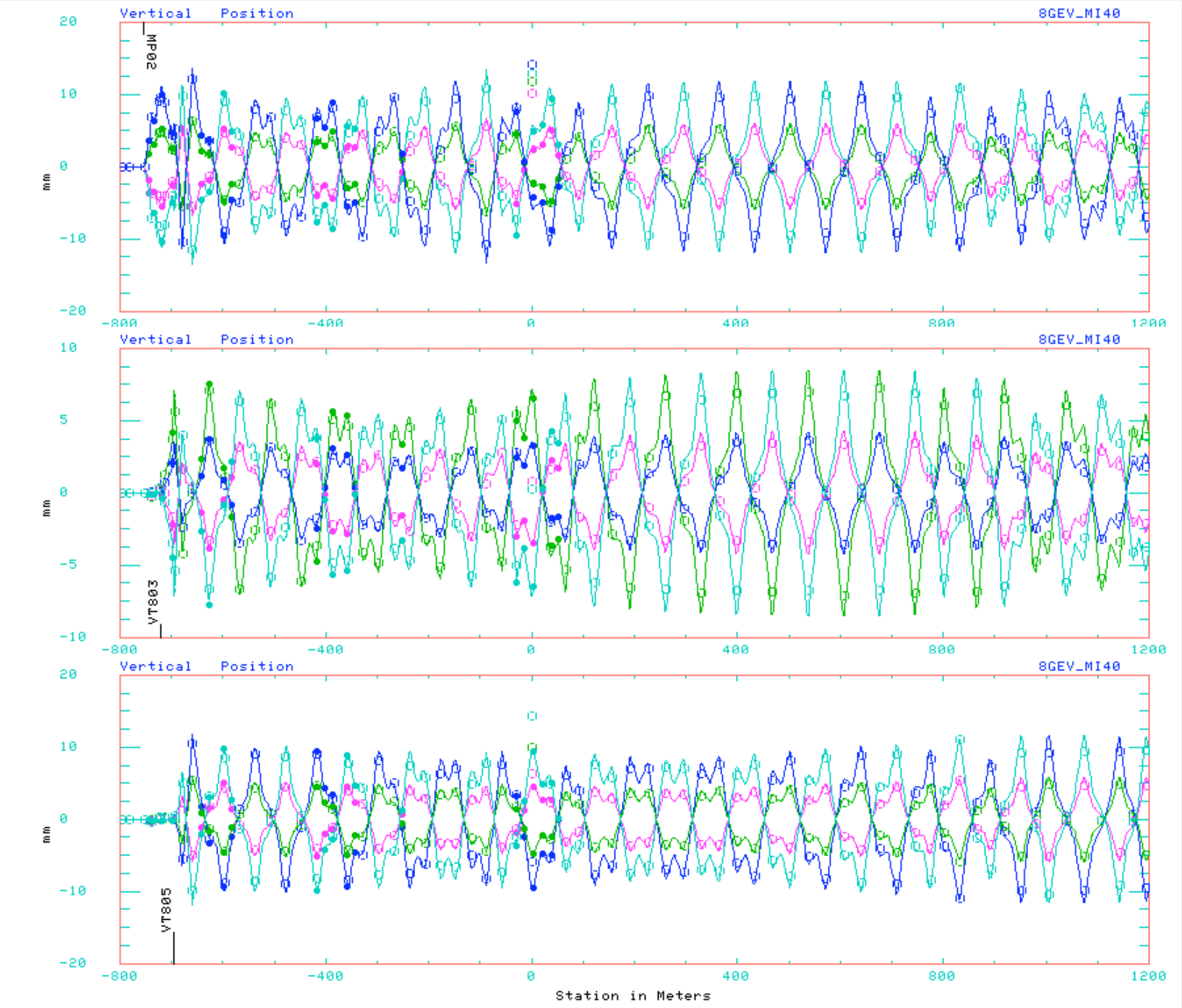


HT800

HT802

HT804

Vertical orbits

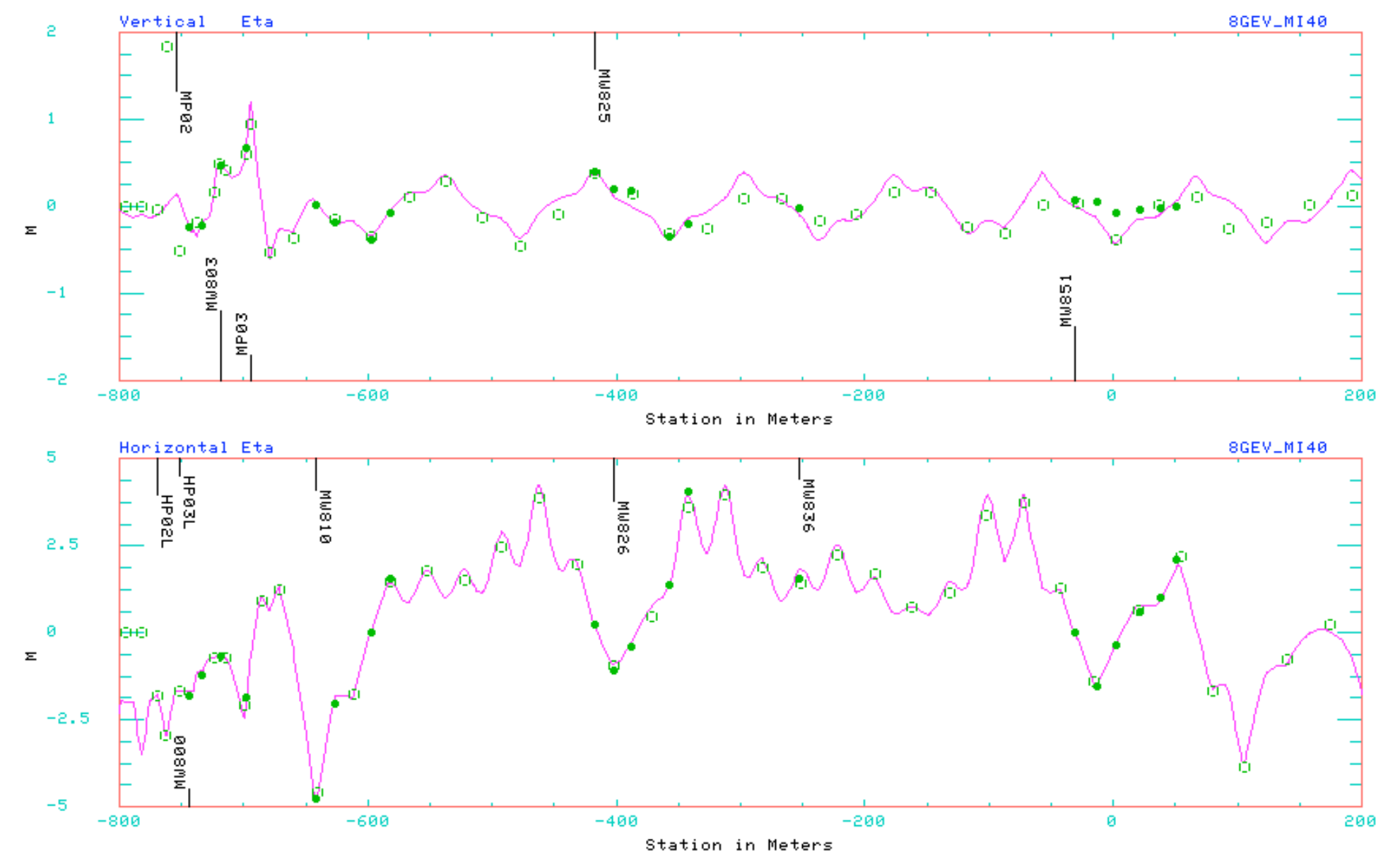


MPØ2

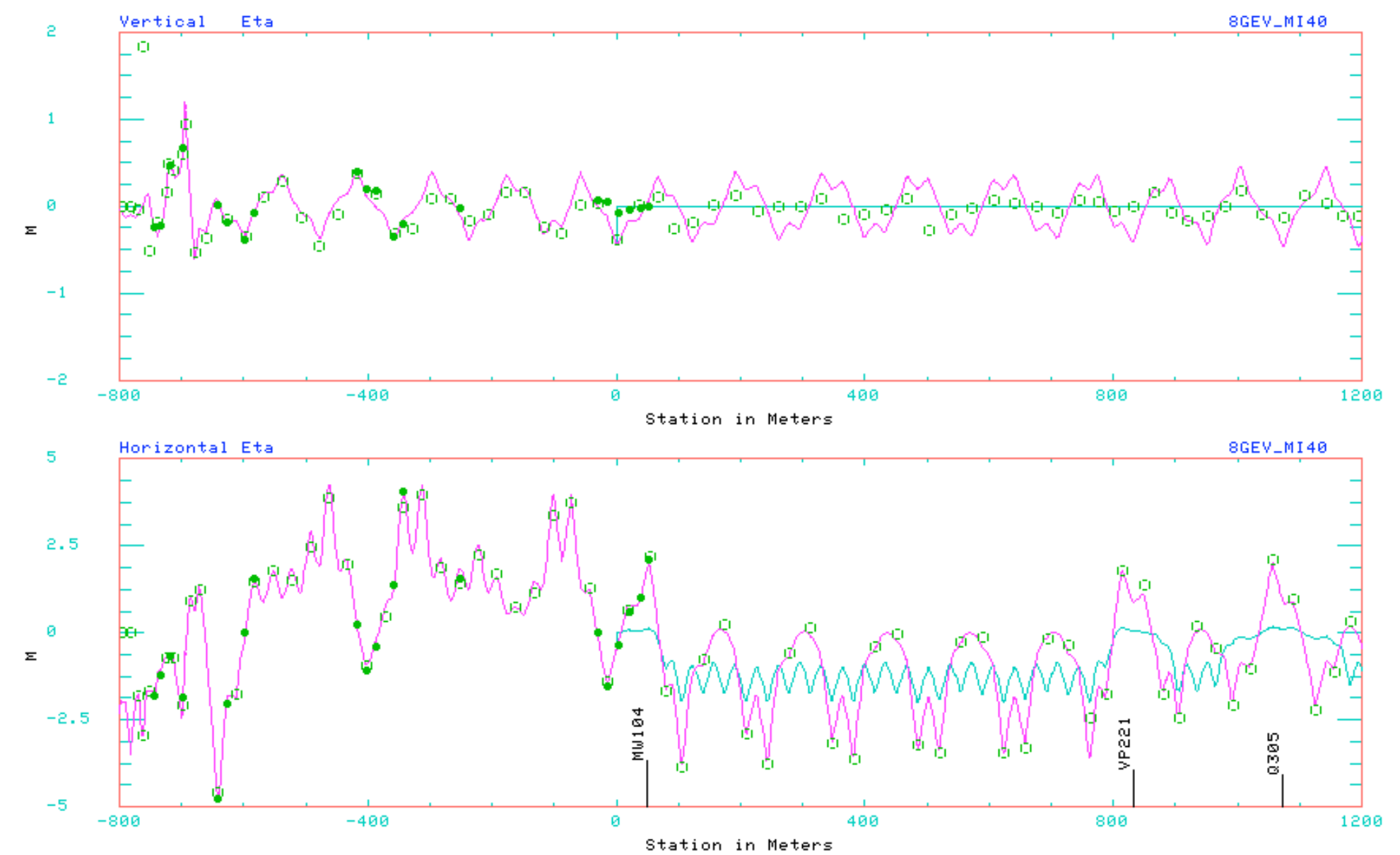
VT803

VT805

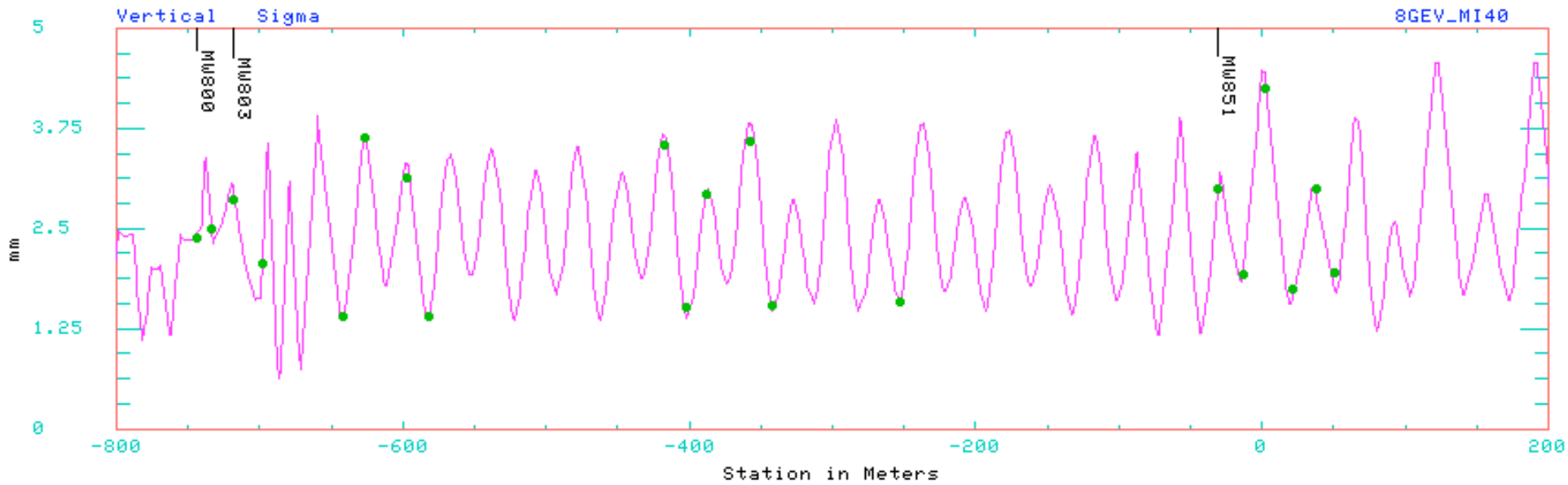
MI8 line Eta function

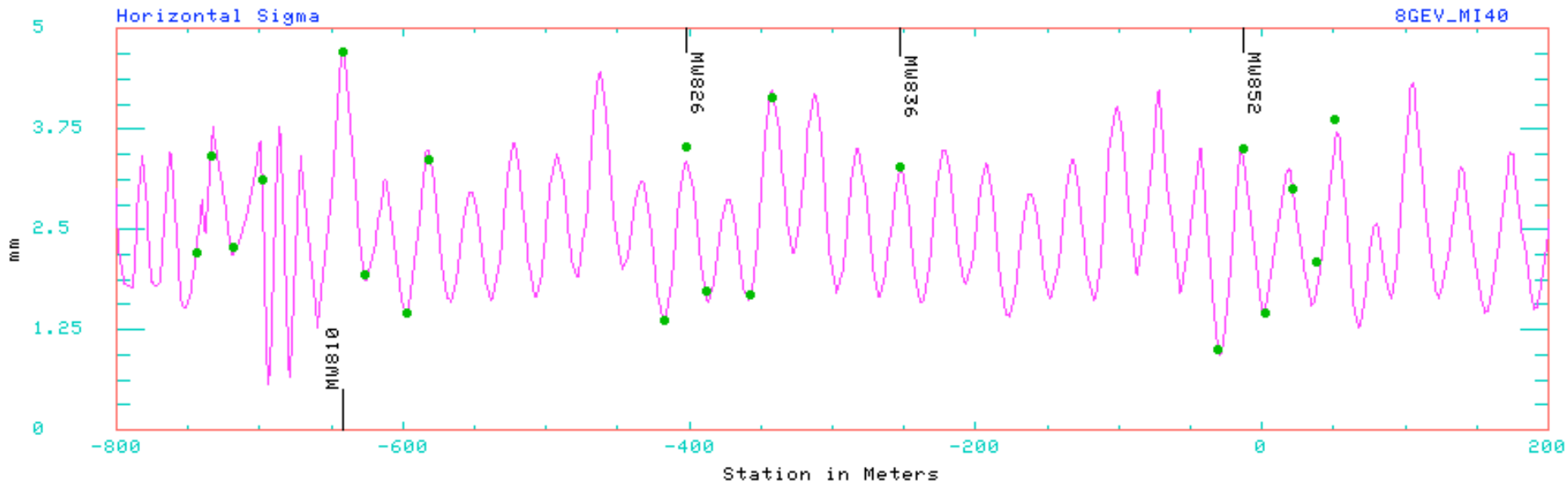


Dispersion function, MI8 line to MI

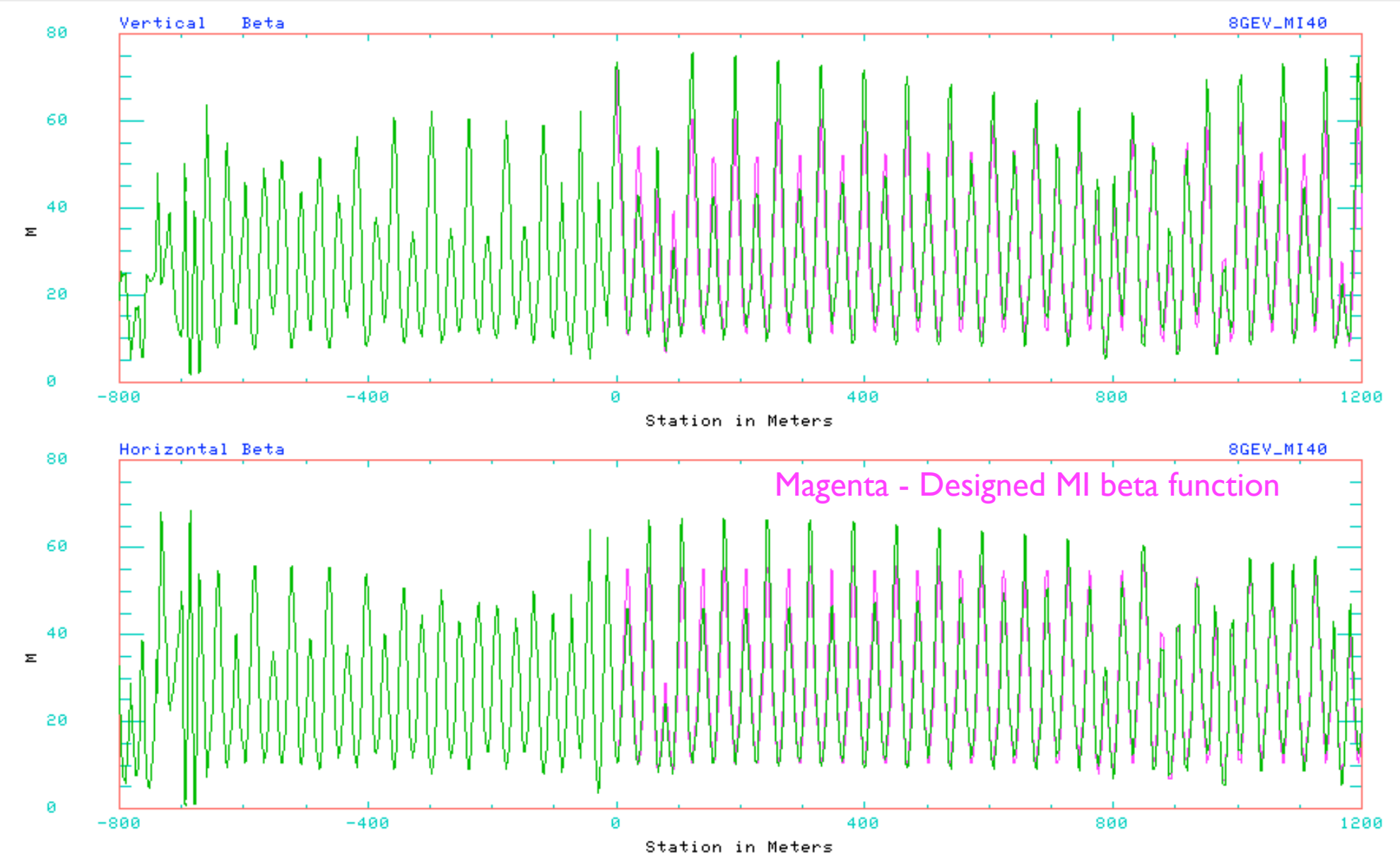


MI8 line sigma

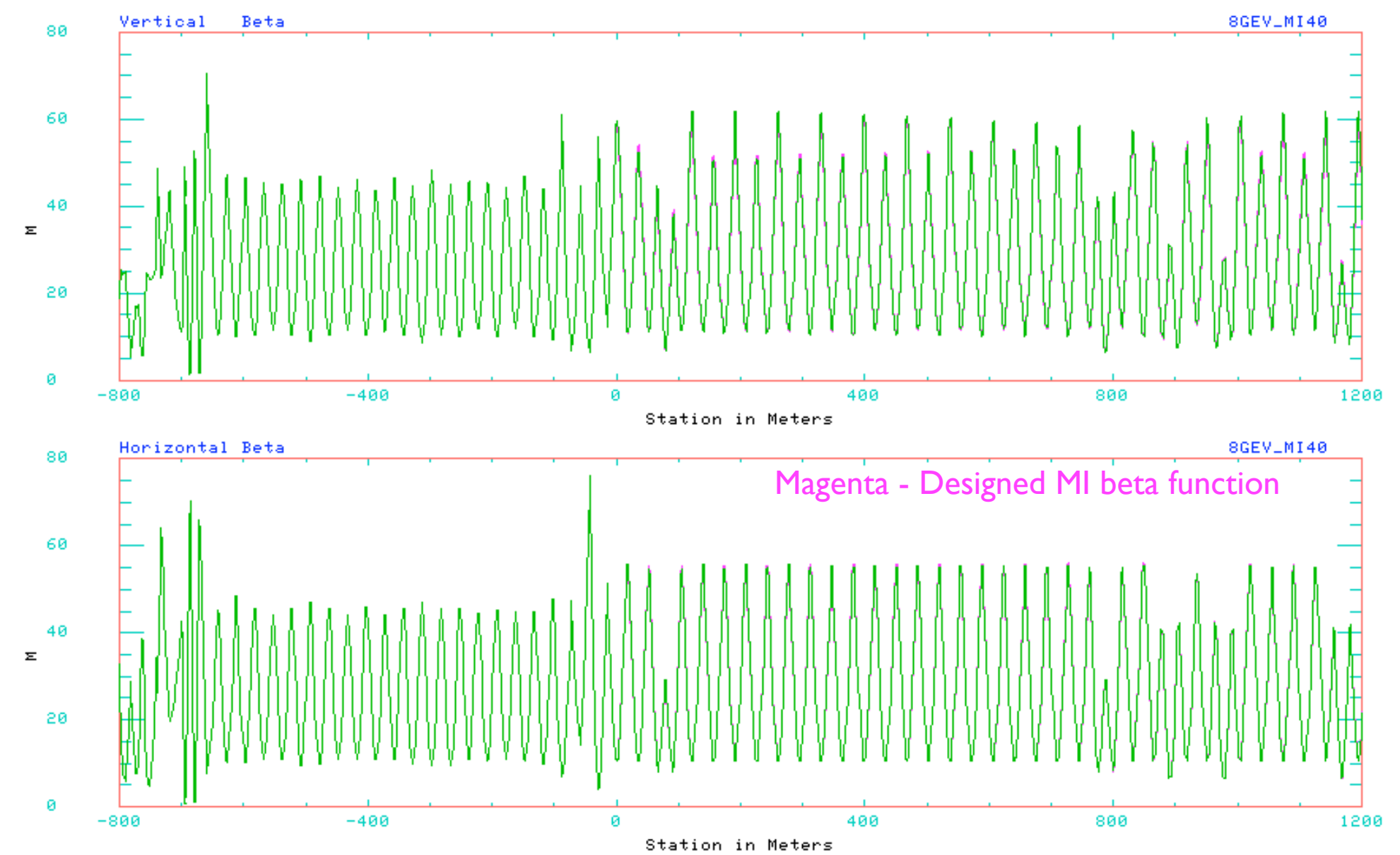




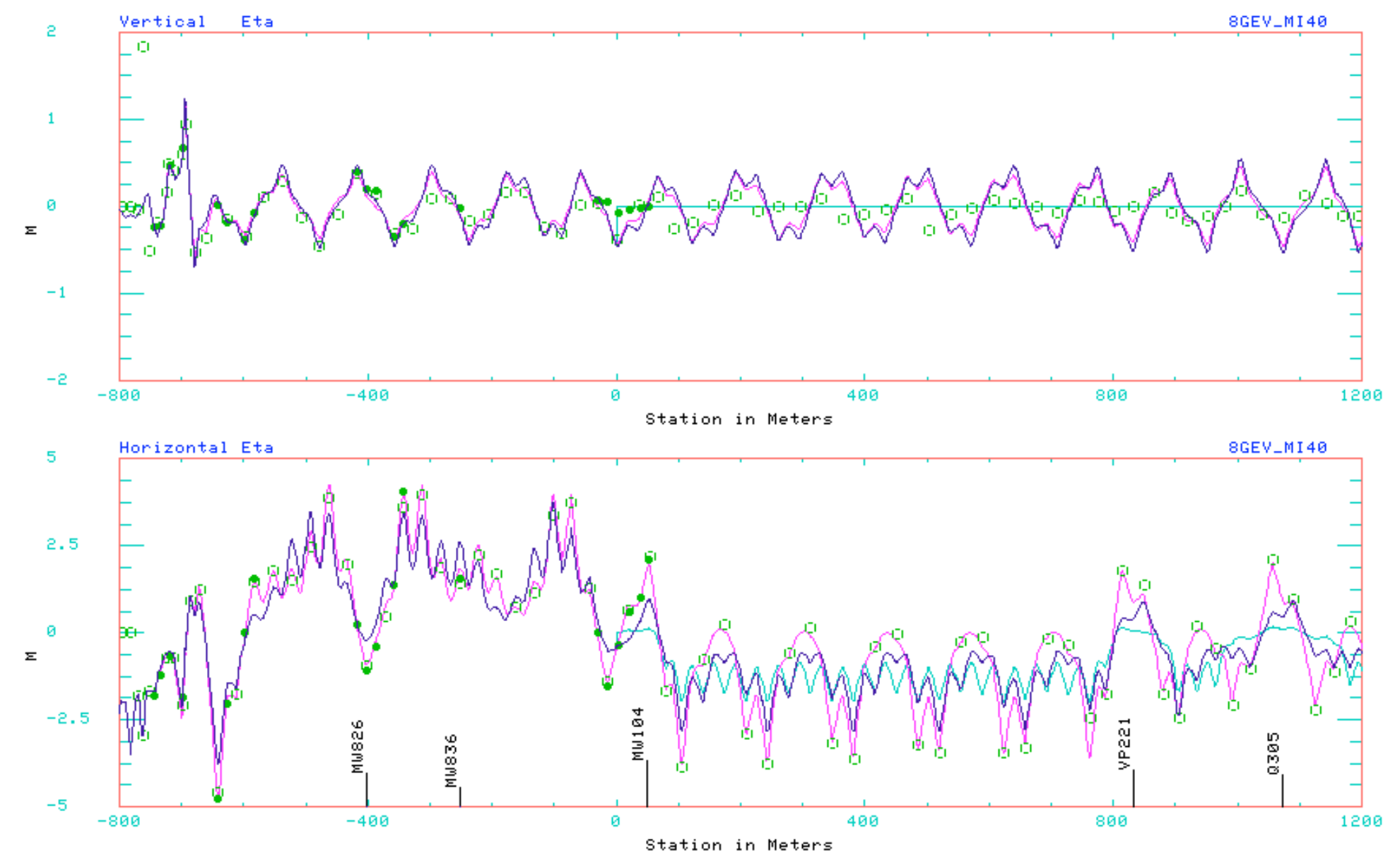
MI8 line beta to MI



MI8 line beta matched to MI



Dispersion after beta matching to MI



Quad settings

DB name		Setting		PA1676 reading	Reading	Match reading	Match change	New setting
B:Q800S	Amps	43.74		43.32	43.20	43.32	0.00	
B:Q801S	Amps	32.18		31.80	31.80	31.80	0.00	
B:Q802S	Amps	15.60		15.36	15.40	15.36	0.00	
B:Q804S	Amps	29.44		29.30	28.90	29.20	-0.10	
B:Q805S	Amps	9.38		9.24	9.20	12.24	3.00	12.38
B:Q806S	Amps	21.50		21.16	21.10	21.16	0.00	
B:Q807S	Amps	33.50		33.84	33.00	33.84	0.00	
B:Q808S	Amps	10.98		10.88	10.80	12.88	2.00	12.98
B:Q809S	Amps	11.88		10.64	11.70	10.64	0.00	
I:Q847S	Amps	6.82		6.80	6.80	8.80	2.00	8.82
I:Q848S	Amps	28.36		32.29	28.30	32.29	0.00	
I:Q849S	Amps	0.00		0.20	0.20	0.70	0.50	0.50
I:Q850S	Amps	8.52		0.52	8.50	7.02	6.50	15.02
I:Q851S	Amps	25.30		10.27	25.30	13.37	3.10	28.40
I:Q852S	Amps	14.38		5.46	14.40	0.46	-5.00	9.38

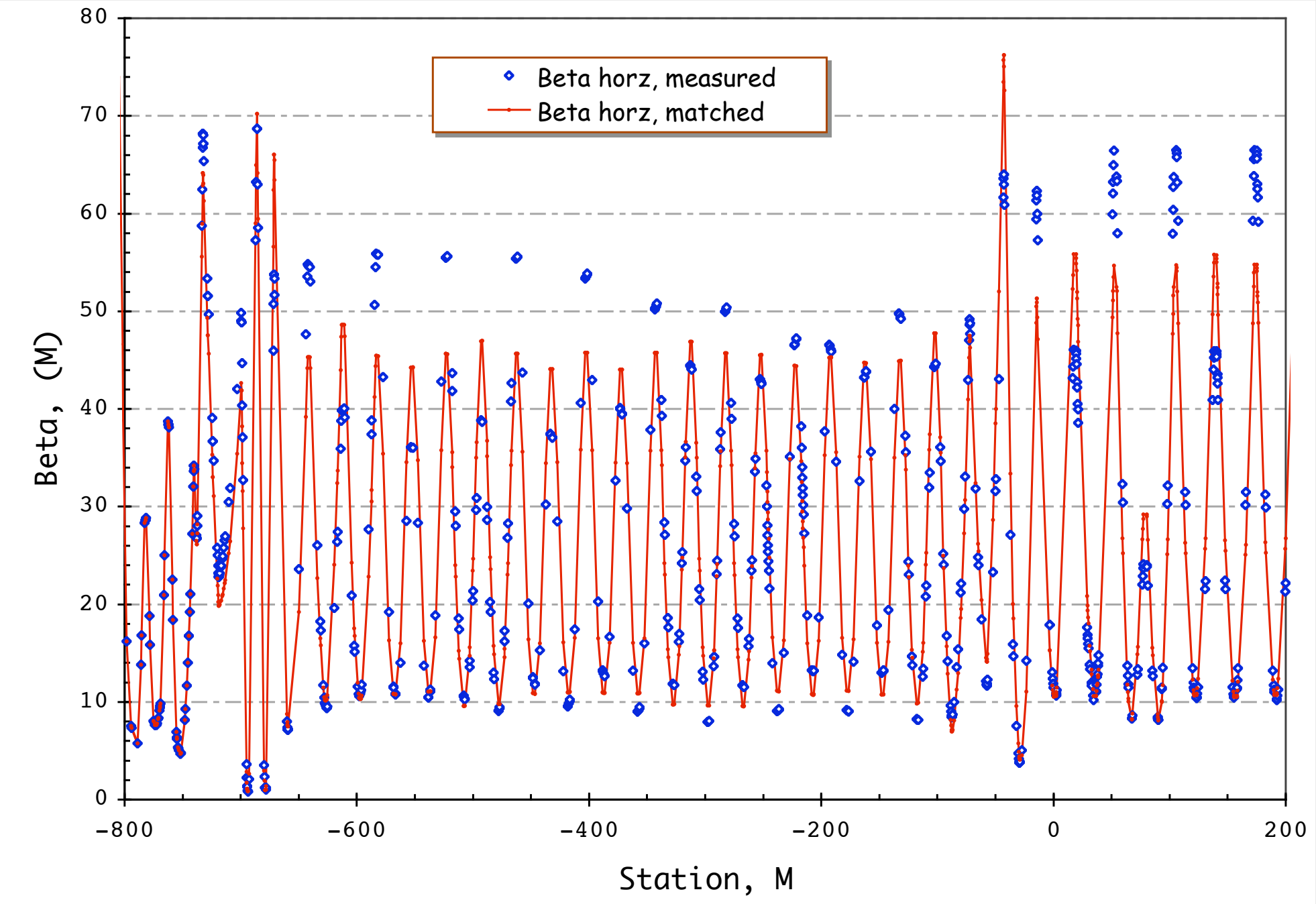
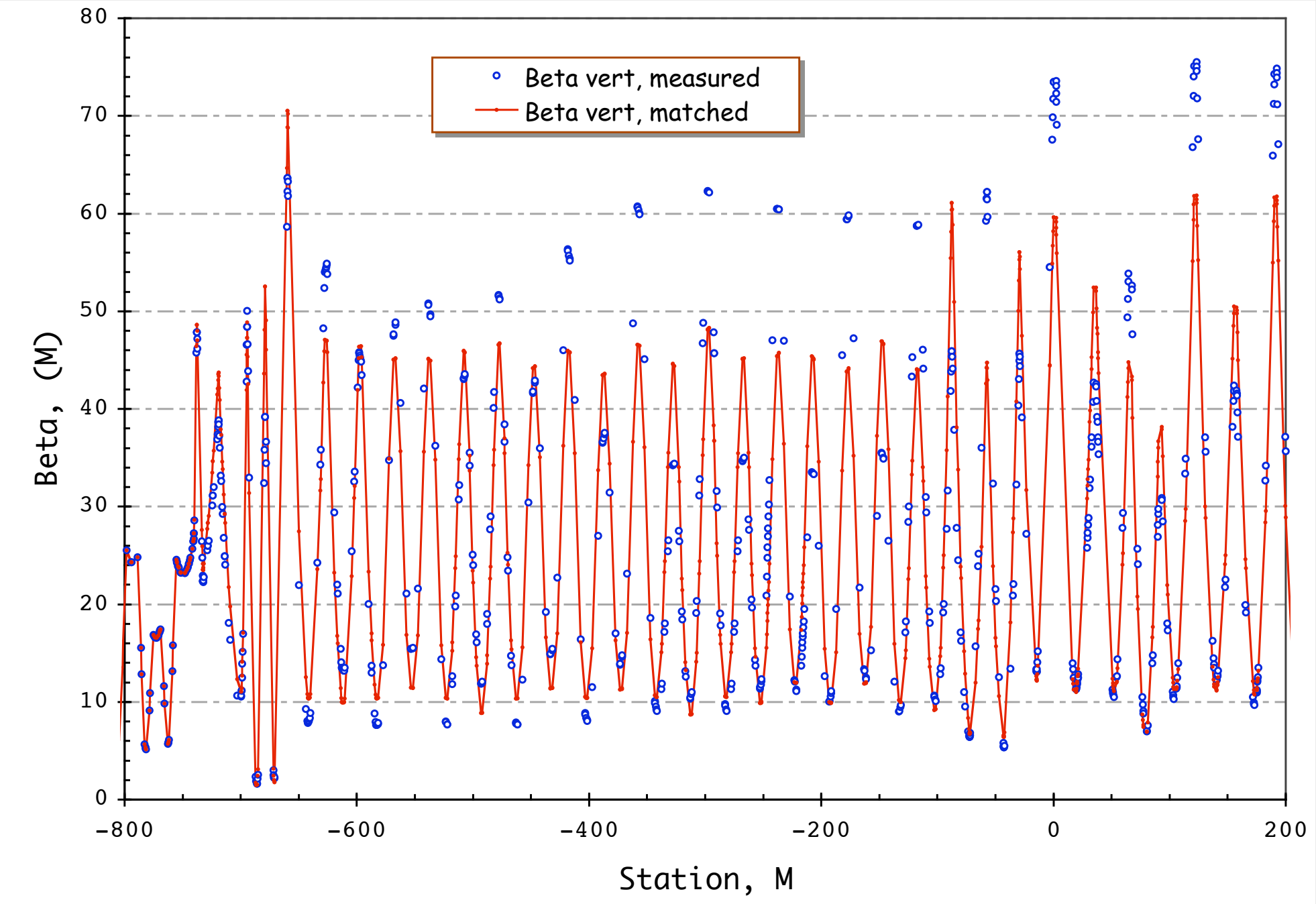
B:Q800	AMP	248.31		248.25	248.10	255.25	7.00	255.31
B:Q801	AMP	215.50		214.00	214.10	214.00	0.00	
B:Q802	AMP	186.90		183.99	185.20	183.99	0.00	
B:Q803	AMPS	85.10		105.99	88.00	100.99	-5.00	80.10
I:Q847	AMP	173.90		175.32	172.30	175.32	0.00	

Beam emittances from MI8 line

# of Booster turns	Emittance (H) π-mm-mr	Emittance (V) π-mm-mr	ΔP/P E-3
7	1.93 ± .06	2.08 ± .18	.69 ± .03
10	2.27 ± .07	2.51 ± .17	.85 ± .03
11	2.43 ± .07	2.74 ± .20	.91 ± .03

* All emittances are 1-sigma values.
& Multiply by a factor of 6 to get 95% value.

MI8 line horizontal beta



MI8 line vertical beta