BNL-103901-2014-TECH

AGS.SN20;BNL-103901-2014-IR

Affect of Tuning Various Harmonics of Low Field Dipoles

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May 1973

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Studies report — M G Barton

Time scheduled 0400 – 0600 2 - May - 73

Time actually run 0530 – 0600 "

Purpose of experiment was to check effect on intensity of tuning various harmonics of low field dipoles.

Program prepared by John Smith some months ago runs like a page on operating system. Harmonics are computed using simple azimuthal position as angular variable and constant weighting of dipoles (i.e. β-function difference ignored). Because of this simplification, round off errors in computation, and saturation of some power supplies, perfect orthogonality between various Fourier components does not exist.

Due to time limits, only ran sin 9θ, cos 9θ vertically. Instead of starting from no correction, used additive correction set derived by John Herrera based on orbit correction.

At each harmonic setting, beam intensity was observed for 6-7 pulses and averaged.

Attached is a sample page of the J. Smith program and the results observed. The corrected orbit is consistent with optimum intensity - at least for this harmonic.

PAGE 7 USER HARMONICS
VERTICAL 5-FEB-73 05:52:38

	READINGS	SETTINGS	
7COS	2484	2459	Ø
7SIN	-1440	-1515	Ø
8COS	-149	-122	Ø
8SIN	-581	-540	Ø
9COS	2342	2362	Ø
9SIN	1523	1487	Ø
10COS	-1053	-1013	Ø
10SIN	1321	1331	Ø
11COS	-1794	-1962	Ø
11SIN	-780	-859	Ø

RESET
HOLD
PRINT NO
SET SET Ø

INTEN= 1046
*TUNE ↑LOW A1Ø EXB SEB
GET DTA6 LOWF4 LOW
PRINT OPR13

FORM 6413 - 5