

## Affect of Tuning Various Harmonics of Low Field Dipoles

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Studee's report — M of 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.  $p$ -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  $\sin 90$ ,  $\cos 90$  vertically. Instead of starting from no correction, used additive correction to set derived by John Herrera based on orbit correction.

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

attached as 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.

	READINGS	SETTINGS	
+	7COS 2484	2459	0
+	7SIN -1440	-1515	0
+	8COS -149	-122	0
+	8SIN -581	-540	0
+	9COS 2342	2362	0
+	9SIN 1523	1487	0
+	10COS -1053	-1013	0
+	10SIN 1321	1331	0
+	11COS -1794	-1962	0
+	11SIN -780	-859	0
+	RESET		
+	HOLD		
+	PRINT NO		
+	SET	SET	0
+	INTEN= 1046		
+	*TUNE *LOW A10	EXP	SEB
+	GET DTA6 LOWF4	LOW	
+	PRINT	OPR13	

