ENCLOSURE

SAN ONOFRE NUCLEAR GENERATING STATION (SONGS)

SONGS-3 CYCLE 15 STARTUP TEST ACTIVITY REDUCTION (STAR) PROGRAM IMPLEMENTATION SUMMARY REPORT

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SONGS-3 CYCLE 15 STAR PROGRAM IMPLEMENTATION SUMMARY REPORT

Introduction

Southern California Edison first applied the Startup Test Activity Reduction (STAR) Program methodology to San Onofre Nuclear Generating Station (SONGS) Unit 2 Cycle 15, which allowed the elimination of Control Element Assembly (CEA) group worth measurements from the Low Power Physics Test (LPPT) Program.

SONGS Technical Specification Surveillance Requirement (SR) 3.1.4.1, "Verify MTC [Moderator Temperature Coefficient] within the upper limit [prior to entering Mode 1 after each fuel loading]," was not changed prior to SONGS-3 Cycle 15 initial criticality; therefore, SR 3.1.4.1 was performed consistent with previous cycles, as allowed by Reference 1.

The SONGS-3 Cycle 15 STAR Implementation Summary Report includes information as required from Condition/Limitation #3 of the NRC safety evaluation of Reference 1, which states,

> "The staff requires each licensee using STAR to submit a summary report following the first application, either successful or not, of STAR to its plant. The report should (a) identify the core design method used, (b) compare the measured and calculated values and the differences between these values to the corresponding core design method uncertainties and (c) show compliance with the STAR applicability requirements. If the application of STAR is unsuccessful, identify the reasons why the STAR application failed."

Core Design Method

The Westinghouse Reactor Operation and Control Simulator (ROCS) computer program and Studsvik SIMULATE-3 (SIM-3) computer program were used for the core design and startup test predictions of SONGS-3 Cycle 15, consistent with Reference 2.

STAR Test Results and Associated Uncertainties

Attachment 1 Table 1, "STAR Test Results and Uncertainties," provides results from the SONGS-3 Cycle 15 LPPT Program, consistent with the list of STAR program tests provided in Table 3-3 of Reference 1. All of the measured values were within test acceptance criteria. Differences between measured and predicted (calculated) parameters compared favorably with the core design method uncertainties.

STAR Applicability Requirements

Reference 1 Table 3-4, "STAR Program Applicability Requirements," lists the applicability requirements for use of the STAR program. The STAR applicability requirements involve the following 5 areas: 1) Core Design, 2) Fabrication (Fuel Assembly and Control Element Assembly (CEA)), 3) Refueling, 4) CEA Lifetime, and 5) Startup Testing. Prior to eliminating the CEA group worth measurements from the SONGS-3 Cycle 15 Low Power Physics Test program, all STAR applicability requirements were verified to be met.

Conformance with the Core Design applicability requirements is documented in Reference 3.

Conformance with the Fuel Fabrication applicability requirements is documented in Reference 4.

Conformance with the CEA Fabrication applicability requirements is documented in Reference 5.

Conformance with the Refueling requirements is documented in References 6 and 7. Reference 6, as performed for SONGS-3 Cycle 15, documents verification of proper CEA coupling based on visual criteria consistent with Reference 1 Table 3-4: 1) weight comparison of coupled vs. uncoupled CEA, 2) visual verification of "7-slot" pin position, 3) visual height comparison of CEA extension shafts, and 4) reweighing of coupled CEA extension shafts by an independent team. Reference 7, as performed for SONGS-3 Cycle 15, documents verification that the fuel assemblies and CEAs are installed in the proper location and with the correct orientation.

Conformance with the CEA Lifetime applicability requirements is documented in References 8 and 9. The eighty-three full length CEAs used in the SONGS-3 Cycle 15 core are comprised of seventy-five new 5-finger CEAs, four re-used 5-finger CEAs that were new for Cycle 14, and four re-used 4-finger CEAs that were new for Cycle 13. At most, Cycle 15 represents a third cycle of operation for its constituent CEAs. Reference 8 concludes that these CEAs will be within the CEA lifetime requirements throughout Cycle 17 operation. Therefore, all of the full length CEAs utilized in SONGS-3 Cycle 15 are within established limits.

Conformance with the Startup Testing requirement of Critical Boron Concentration within 500 pcm of prediction is documented in Reference 10, as performed for SONGS-3 Cycle 15. Test results are provided in Attachment 1.

Summary

The measured test results for all the required STAR tests in Table 3-3 of Reference 1 were within the test acceptance criteria; all test results compared favorably with the associated core design method uncertainties. Compliance with the STAR applicability requirements was demonstrated. Therefore, all of the requirements to implement STAR for SONGS-3 Cycle 15 were met. STAR was implemented successfully for SONGS-3 Cycle 15.

References

1. WCAP-16011-P-A, Revision 0, "Startup Test Activity Reduction Program," February 2005 (referred to in this report as STAR)
2. SCE-9801-P-A, Reload Analysis Methodology for the San Onofre Nuclear Generating Station Units 2 and 3 [Reload Topical Report], June 1999
3. Calculation NFM-3-PH-1519 (Rev 0), SONGS-3 Cycle 15 STAR Physics Verification, 7/16/2008
4. Calculation, NFM-3-MI-1501 (Rev 0), SONGS-3 Cycle 15 Fuel Mechanical Design Inputs, 5/5/2008
5. Calculation, NFM-3-MI-1502 (Rev 0), SONGS-3 Cycle 15 CEA STAR Verification, 8/12/2008
6. Procedure SO23-I-3.46, Remote Five Finger CEA Extension Shaft Coupling, Rev. 5, 11/12/2008
7. Procedure SO23-X-7, Nuclear Fuel Movement for Refueling Cycles, Rev 16, 10/17/2008
8. Calculation N-1020-175, CEA Life Limit for Units 2 and 3 Cycles 15 through 17, 5/10/2007
9. Calculation NFM-3-PH-1520, SONGS-3 Cycle 15 Physics RAR Input, 7/1/2008
10. Procedure SO23-XXXVII-1, Low Power Physics Testing, Rev. 6, 7/1/2008

ATTACHMENT 1
TEST RESULTS

TABLE 1
STAR TEST RESULTS AND UNCERTAINTIES

TEST	POWER	MEASURED VALUE	CALCULATED VALUE	DIFFERENCE	TEST CRITERIA	UNCERTAINTY
CEA Drop Time	Shutdown	Drop Time to 90% Inserted: 3.05 sec avg, 3.22 sec max	N/A	N/A	Maximum Allowed: 3.4 sec avg, 3.6 sec max	N/A
CEA Drop time Characteristics	Shutdown	30 (of 91) CEAs identified to be couple checked with reactimeter; couple check of 33 CEAs actually performed with reactimeter; all CEAs verified to be coupled		Procedure and program conservatisms dictated couple checks of 33 CEAs	All CEAs verified to be coupled	N/A
Critical Boron Concentration (CBC)	Hot Zero Power (HZP)	2162 ppm	2164 ppm	-2 ppm (-14 pcm)	50 ppm (procedural review), 500 pcm (STAR)	± 26 ppm
Moderator Temperature Coefficient (MTC) Alternate Surveillance	HZP	+1.1 pcm/°F	+1.1 pcm/°F	-0.0 pcm/°F	MTC < 5 pcm/°F	± 2.4 pcm/°F
MTC, as measured using Reactimeter	HZP	+0.7 pcm/°F	+1.1 pcm/°F	-0.4 pcm/°F	MTC < 5 pcm/°F; Diff < 3 pcm/°F	± 2.4 pcm/°F
Incore Flux Symmetry	Low (20%)	See Table 2	See Table 2	+5.22% max positive; -3.42% most negative	Relative Power Density (RPD) within ± 10% of prediction for fuel assemblies with RPD > 0.9	N/A

ATTACHMENT 1
TEST RESULTS

TABLE 1
STAR TEST RESULTS AND UNCERTAINTIES

TEST	POWER	MEASURED VALUE	CALCULATED VALUE	DIFFERENCE	TEST CRITERIA	UNCERTAINTY
Incore Power Distribution	Intermediate	@ 20% power: See Table 2	@ 20% power: See Table 2	@ 20% power: 1.54% RMS Radial PD;	< 5% RMS	N/A
		@ 65% power: See Table 3	@ 65% power: See Table 3	@ 65% power: 1.56% RMS Radial PD;	< 5% RMS	N/A
		See Table 4	See Table 4	3.42% RMS Axial PD;	< 5% RMS	N/A
		Fq = 1.70;	Fq = 1.74;	-2.4%;	< ± 10%	± 5.93%;
		Fxy = 1.47;	Fxy = 1.50;	-1.9%;	< ± 10%	± 5.46%;
		Fr = 1.42;	Fr = 1.46;	-2.5%	< ± 10%	± 4.24%;
		Fz = 1.18	Fz = 1.20	-1.8%	< ± 10%	N/A
Isothermal Temperature Coefficient (ITC)	Intermediate to Hot Full Power (HFP)	-10.1 pcm/°F	-10.0pcm/°F	-0.1 pcm/°F	Diff < 3 pcm/°F	± 2.4 pcm/°F
MTC Surveillance	Intermediate to HFP	-4.9 pcm/°F @ 70% power;	-4.5 pcm/°F	-0.4 pcm/°F	< -0.6 pcm/°F	± 2.4 pcm/°F
		-7.6 pcm/°F @ 100% power;	-7.2 pcm/°F	-0.4 pcm/°F	< -3.0 pcm/°F	
		-36.4 pcm/°F @ EOC 100% (from HZP test);	-36.0 pcm/°F	-0.4 pcm/°F	> -37 pcm/°F	
		-36.1 pcm/°F @ EOC 100% (from 48 EFPD HFP test)	-36.0 pcm/°F	-0.1 pcm/°F	> -37 pcm/°F	

ATTACHMENT 1
TEST RESULTS

TABLE 1
STAR TEST RESULTS AND UNCERTAINTIES

TEST	POWER	MEASURED VALUE	CALCULATED VALUE	DIFFERENCE	TEST CRITERIA	UNCERTAINTY
Incore Power Distribution	HFP	See Table 5	See Table 5	1.42% RMS Radial PD;	< 5% RMS	N/A
		See Table 6	See Table 6	2.73% RMS Axial PD;	< 5% RMS	N/A
		Fq = 1.68;	Fq = 1.72;	-2.3%;	< ± 10%	± 5.93%;
		Fxy = 1.46;	Fxy = 1.49;	-2.1%;	< ± 10%	± 5.46%;
		Fr = 1.42;	Fr = 1.45;	-2.0%	< ± 10%	± 4.24%;
		Fz = 1.16	Fz = 1.19	-2.5%	< ± 10%	N/A
Δ CBC HZP – HFP	HFP	592 ppm	583 ppm	+9 ppm	± 74 ppm	± 26 ppm

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

PREDICTED RELATIVE POWER DENSITIES

Assy # / RPD															
						1 / 0.417	2 / 0.838	3 / 0.838	4 / 0.418						
			5 / 0.312	6 / 0.507	7 / 0.880	8 / 1.162	9 / 1.056	10 / 1.163	11 / 0.881	12 / 0.508	13 / 0.313				
		14 / 0.415	15 / 0.916	16 / 1.087	17 / 1.195	18 / 1.213	19 / 1.348	20 / 1.215	21 / 1.195	22 / 1.088	23 / 0.917	24 / 0.415			
	25 / 0.415	26 / 0.962	27 / 1.174	28 / 1.266	29 / 1.096	30 / 1.301	31 / 1.160	32 / 1.301	33 / 1.092	34 / 1.267	35 / 1.177	36 / 0.962	37 / 0.415		
38 / 0.313	39 / 0.917	40 / 1.177	41 / 1.323	42 / 1.159	43 / 1.261	44 / 1.093	45 / 1.258	46 / 1.093	47 / 1.262	48 / 1.163	49 / 1.323	50 / 1.174	51 / 0.916	52 / 0.312	
53 / 0.508	54 / 1.088	55 / 1.267	56 / 1.163	57 / 1.277	58 / 1.087	59 / 1.218	60 / 1.060	61 / 1.220	62 / 1.088	63 / 1.277	64 / 1.159	65 / 1.266	66 / 1.087	67 / 0.507	
68 / 0.881	69 / 1.195	70 / 1.092	71 / 1.262	72 / 1.088	73 / 1.180	74 / 1.003	75 / 1.100	76 / 1.005	77 / 1.180	78 / 1.087	79 / 1.261	80 / 1.096	81 / 1.195	82 / 0.880	
83 / 0.418	85 / 1.163	86 / 1.215	87 / 1.301	88 / 1.093	89 / 1.220	90 / 1.005	91 / 0.626	92 / 0.568	93 / 0.626	94 / 1.003	95 / 1.218	96 / 1.093	97 / 1.301	98 / 1.213	99 / 1.162	84 / 0.417
100 / 0.838	102 / 1.056	103 / 1.348	104 / 1.160	105 / 1.258	106 / 1.060	107 / 1.100	108 / 0.568	109 / 0.438	110 / 0.568	111 / 1.100	112 / 1.060	113 / 1.258	114 / 1.160	115 / 1.348	116 / 1.056	101 / 0.838
117 / 0.838	119 / 1.162	120 / 1.213	121 / 1.301	122 / 1.093	123 / 1.218	124 / 1.003	125 / 0.626	126 / 0.568	127 / 0.626	128 / 1.005	129 / 1.220	130 / 1.093	131 / 1.301	132 / 1.215	133 / 1.163	118 / 0.838
134 / 0.417	136 / 0.880	137 / 1.195	138 / 1.096	139 / 1.261	140 / 1.087	141 / 1.180	142 / 1.005	143 / 1.100	144 / 1.003	145 / 1.180	146 / 1.088	147 / 1.262	148 / 1.092	149 / 1.195	150 / 0.881	135 / 0.418
	151 / 0.507	152 / 1.087	153 / 1.266	154 / 1.159	155 / 1.277	156 / 1.088	157 / 1.220	158 / 1.060	159 / 1.218	160 / 1.087	161 / 1.277	162 / 1.163	163 / 1.267	164 / 1.088	165 / 0.508	
	166 / 0.312	167 / 0.916	168 / 1.174	169 / 1.323	170 / 1.163	171 / 1.262	172 / 1.093	173 / 1.258	174 / 1.093	175 / 1.261	176 / 1.159	177 / 1.323	178 / 1.177	179 / 0.917	180 / 0.313	
		181 / 0.415	182 / 0.962	183 / 1.177	184 / 1.267	185 / 1.092	186 / 1.301	187 / 1.160	188 / 1.301	189 / 1.096	190 / 1.266	191 / 1.174	192 / 0.962	193 / 0.415	
			194 / 0.415	195 / 0.917	196 / 1.088	197 / 1.195	198 / 1.215	199 / 1.348	200 / 1.213	201 / 1.195	202 / 1.087	203 / 0.916	204 / 0.415		
			205 / 0.313	206 / 0.508	207 / 0.881	208 / 1.163	209 / 1.056	210 / 1.162	211 / 0.880	212 / 0.507	213 / 0.312				
						214 / 0.418	215 / 0.838	216 / 0.838	217 / 0.417						

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

MEASURED RELATIVE POWER DENSITIES

Assy # / RPD															
						1 / 0.425	2 / 0.836	3 / 0.840	4 / 0.432						
			5 / 0.323	6 / 0.514	7 / 0.892	8 / 1.160	9 / 1.053	10 / 1.172	11 / 0.921	12 / 0.522	13 / 0.325				
		14 / 0.427	15 / 0.931	16 / 1.087	17 / 1.192	18 / 1.216	19 / 1.326	20 / 1.224	21 / 1.201	22 / 1.090	23 / 0.930	24 / 0.425			
	25 / 0.432	26 / 0.975	27 / 1.200	28 / 1.264	29 / 1.099	30 / 1.286	31 / 1.160	32 / 1.284	33 / 1.091	34 / 1.259	35 / 1.195	36 / 0.967	37 / 0.433		
38 / 0.321	39 / 0.946	40 / 1.203	41 / 1.321	42 / 1.165	43 / 1.252	44 / 1.092	45 / 1.226	46 / 1.088	47 / 1.244	48 / 1.160	49 / 1.305	50 / 1.181	51 / 0.927	52 / 0.313	
53 / 0.520	54 / 1.131	55 / 1.280	56 / 1.168	57 / 1.266	58 / 1.086	59 / 1.195	60 / 1.038	61 / 1.193	62 / 1.075	63 / 1.253	64 / 1.142	65 / 1.254	66 / 1.095	67 / 0.506	
68 / 0.877	69 / 1.203	70 / 1.107	71 / 1.247	72 / 1.085	73 / 1.160	74 / 0.993	75 / 1.069	76 / 0.996	77 / 1.158	78 / 1.080	79 / 1.240	80 / 1.097	81 / 1.182	82 / 0.861	84 / 0.408
85 / 1.160	86 / 1.216	87 / 1.279	88 / 1.066	89 / 1.192	90 / 0.991	91 / 0.619	92 / 0.535	93 / 0.620	94 / 0.998	95 / 1.197	96 / 1.081	97 / 1.278	98 / 1.205	99 / 1.145	101 / 0.830
102 / 1.071	103 / 1.325	104 / 1.154	105 / 1.215	106 / 1.052	107 / 1.088	108 / 0.571	109 / 0.432	110 / 0.570	111 / 1.085	112 / 1.055	113 / 1.223	114 / 1.157	115 / 1.325	116 / 1.065	118 / 0.834
119 / 1.159	120 / 1.209	121 / 1.278	122 / 1.066	123 / 1.199	124 / 1.012	125 / 0.627	126 / 0.540	127 / 0.622	128 / 0.994	129 / 1.198	130 / 1.075	131 / 1.284	132 / 1.222	133 / 1.157	135 / 0.416
136 / 0.879	137 / 1.205	138 / 1.112	139 / 1.250	140 / 1.089	141 / 1.171	142 / 1.007	143 / 1.080	144 / 1.005	145 / 1.167	146 / 1.091	147 / 1.253	148 / 1.108	149 / 1.198	150 / 0.872	
151 / 0.523	152 / 1.142	153 / 1.284	154 / 1.168	155 / 1.271	156 / 1.087	157 / 1.206	158 / 1.050	159 / 1.206	160 / 1.092	161 / 1.272	162 / 1.171	163 / 1.275	164 / 1.111	165 / 0.515	
166 / 0.323	167 / 0.952	168 / 1.203	169 / 1.322	170 / 1.174	171 / 1.259	172 / 1.101	173 / 1.237	174 / 1.100	175 / 1.258	176 / 1.170	177 / 1.324	178 / 1.201	179 / 0.940	180 / 0.319	
	181 / 0.438	182 / 0.976	183 / 1.196	184 / 1.269	185 / 1.105	186 / 1.297	187 / 1.166	188 / 1.291	189 / 1.103	190 / 1.266	191 / 1.206	192 / 0.977	193 / 0.436		
		194 / 0.427	195 / 0.930	196 / 1.096	197 / 1.212	198 / 1.235	199 / 1.338	200 / 1.220	201 / 1.187	202 / 1.083	203 / 0.927	204 / 0.426			
			205 / 0.314	206 / 0.522	207 / 0.927	208 / 1.186	209 / 1.072	210 / 1.161	211 / 0.870	212 / 0.505	213 / 0.310				
					214 / 0.436	215 / 0.850	216 / 0.843	217 / 0.423							

83 / 0.419
100 / 0.839
117 / 0.840
134 / 0.423

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
1	0.425	0.417	0.008	0.0192
2	0.836	0.838	-0.002	-0.0024
3	0.840	0.838	0.002	0.0024
4	0.432	0.418	0.014	0.0335
5	0.323	0.312	0.011	0.0353
6	0.514	0.507	0.007	0.0138
7	0.892	0.880	0.012	0.0136
8	1.160	1.162	-0.002	-0.0017
9	1.053	1.056	-0.003	-0.0028
10	1.172	1.163	0.009	0.0077
11	0.921	0.881	0.040	0.0454
12	0.522	0.508	0.014	0.0276
13	0.325	0.313	0.012	0.0383
14	0.427	0.415	0.012	0.0289
15	0.931	0.916	0.015	0.0164
16	1.087	1.087	0	0
17	1.192	1.195	-0.003	-0.0025
18	1.216	1.213	0.003	0.0025
19	1.326	1.348	-0.022	-0.0163
20	1.224	1.215	0.009	0.0074
21	1.201	1.195	0.006	0.0050
22	1.090	1.088	0.002	0.0018
23	0.930	0.917	0.013	0.0142
24	0.425	0.415	0.010	0.0241
25	0.432	0.415	0.017	0.0410
26	0.975	0.962	0.013	0.0135
27	1.200	1.174	0.026	0.0221
28	1.264	1.266	-0.002	-0.0016
29	1.099	1.096	0.003	0.0027
30	1.286	1.301	-0.015	-0.0115
31	1.160	1.160	0	0
32	1.284	1.301	-0.017	-0.0131
33	1.091	1.092	-0.001	-0.0009
34	1.259	1.267	-0.008	-0.0063
35	1.195	1.177	0.018	0.0153
36	0.967	0.962	0.005	0.0052
37	0.433	0.415	0.018	0.0434
38	0.321	0.313	0.008	0.0256
39	0.946	0.917	0.029	0.0316
40	1.203	1.177	0.026	0.0221

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
41	1.321	1.323	-0.002	-0.0015
42	1.165	1.159	0.006	0.0052
43	1.252	1.261	-0.009	-0.0071
44	1.092	1.093	-0.001	-0.0009
45	1.226	1.258	-0.032	-0.0254
46	1.088	1.093	-0.005	-0.0046
47	1.244	1.262	-0.018	-0.0143
48	1.160	1.163	-0.003	-0.0026
49	1.305	1.323	-0.018	-0.0136
50	1.181	1.174	0.007	0.0060
51	0.927	0.916	0.011	0.0120
52	0.313	0.312	0.001	0.0032
53	0.520	0.508	0.012	0.0236
54	1.131	1.088	0.043	0.0395
55	1.280	1.267	0.013	0.0103
56	1.168	1.163	0.005	0.0043
57	1.266	1.277	-0.011	-0.0086
58	1.086	1.087	-0.001	-0.0009
59	1.195	1.218	-0.023	-0.0189
60	1.038	1.060	-0.022	-0.0208
61	1.193	1.220	-0.027	-0.0221
62	1.075	1.088	-0.013	-0.0119
63	1.253	1.277	-0.024	-0.0188
64	1.142	1.159	-0.017	-0.0147
65	1.254	1.266	-0.012	-0.0095
66	1.095	1.087	0.008	0.0074
67	0.506	0.507	-0.001	-0.0020
68	0.877	0.881	-0.004	-0.0045
69	1.203	1.195	0.008	0.0067
70	1.107	1.092	0.015	0.0137
71	1.247	1.262	-0.015	-0.0119
72	1.085	1.088	-0.003	-0.0028
73	1.160	1.180	-0.020	-0.0169
74	0.993	1.003	-0.010	-0.0100
75	1.069	1.100	-0.031	-0.0282
76	0.996	1.005	-0.009	-0.0090
77	1.158	1.180	-0.022	-0.0186
78	1.080	1.087	-0.007	-0.0064
79	1.240	1.261	-0.021	-0.0167
80	1.097	1.096	0.001	0.0009

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
81	1.182	1.195	-0.013	-0.0109
82	0.861	0.880	-0.019	-0.0216
83	0.419	0.418	0.001	0.0024
84	0.408	0.417	-0.009	-0.0216
85	1.160	1.163	-0.003	-0.0026
86	1.216	1.215	0.001	0.0008
87	1.279	1.301	-0.022	-0.0169
88	1.066	1.093	-0.027	-0.0247
89	1.192	1.220	-0.028	-0.0230
90	0.991	1.005	-0.014	-0.0139
91	0.619	0.626	-0.007	-0.0112
92	0.535	0.568	-0.033	-0.0581
93	0.620	0.626	-0.006	-0.0096
94	0.998	1.003	-0.005	-0.0050
95	1.197	1.218	-0.021	-0.0172
96	1.081	1.093	-0.012	-0.0110
97	1.278	1.301	-0.023	-0.0177
98	1.205	1.213	-0.008	-0.0066
99	1.145	1.162	-0.017	-0.0146
100	0.839	0.838	0.001	0.0012
101	0.830	0.838	-0.008	-0.0095
102	1.071	1.056	0.015	0.0142
103	1.325	1.348	-0.023	-0.0171
104	1.154	1.160	-0.006	-0.0052
105	1.215	1.258	-0.043	-0.0342
106	1.052	1.060	-0.008	-0.0075
107	1.088	1.100	-0.012	-0.0109
108	0.571	0.568	0.003	0.0053
109	0.432	0.438	-0.006	-0.0137
110	0.570	0.568	0.002	0.0035
111	1.085	1.100	-0.015	-0.0136
112	1.055	1.060	-0.005	-0.0047
113	1.223	1.258	-0.035	-0.0278
114	1.157	1.160	-0.003	-0.0026
115	1.325	1.348	-0.023	-0.0171
116	1.065	1.056	0.009	0.0085
117	0.840	0.838	0.002	0.0024
118	0.834	0.838	-0.004	-0.0048
119	1.159	1.162	-0.003	-0.0026
120	1.209	1.213	-0.004	-0.0033

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
121	1.278	1.301	-0.023	-0.0177
122	1.066	1.093	-0.027	-0.0247
123	1.199	1.218	-0.019	-0.0156
124	1.012	1.003	0.009	0.0090
125	0.627	0.626	0.001	0.0016
126	0.540	0.568	-0.028	-0.0493
127	0.622	0.626	-0.004	-0.0064
128	0.994	1.005	-0.011	-0.0109
129	1.198	1.220	-0.022	-0.0180
130	1.075	1.093	-0.018	-0.0165
131	1.284	1.301	-0.017	-0.0131
132	1.222	1.215	0.007	0.0058
133	1.157	1.163	-0.006	-0.0052
134	0.423	0.417	0.006	0.0144
135	0.416	0.418	-0.002	-0.0048
136	0.879	0.880	-0.001	-0.0011
137	1.205	1.195	0.010	0.0084
138	1.112	1.096	0.016	0.0146
139	1.250	1.261	-0.011	-0.0087
140	1.089	1.087	0.002	0.0018
141	1.171	1.180	-0.009	-0.0076
142	1.007	1.005	0.002	0.0020
143	1.08	1.100	-0.020	-0.0182
144	1.005	1.003	0.002	0.0020
145	1.167	1.180	-0.013	-0.0110
146	1.091	1.088	0.003	0.0028
147	1.253	1.262	-0.009	-0.0071
148	1.108	1.092	0.016	0.0147
149	1.198	1.195	0.003	0.0025
150	0.872	0.881	-0.009	-0.0102
151	0.523	0.507	0.016	0.0316
152	1.142	1.087	0.055	0.0506
153	1.284	1.266	0.018	0.0142
154	1.168	1.159	0.009	0.0078
155	1.271	1.277	-0.006	-0.0047
156	1.087	1.088	-0.001	-0.0009
157	1.206	1.220	-0.014	-0.0115
158	1.050	1.060	-0.010	-0.0094
159	1.206	1.218	-0.012	-0.0099
160	1.092	1.087	0.005	0.0046

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
161	1.272	1.277	-0.005	-0.0039
162	1.171	1.163	0.008	0.0069
163	1.275	1.267	0.008	0.0063
164	1.111	1.088	0.023	0.0211
165	0.515	0.508	0.007	0.0138
166	0.323	0.312	0.011	0.0353
167	0.952	0.916	0.036	0.0393
168	1.203	1.174	0.029	0.0247
169	1.322	1.323	-0.001	-0.0008
170	1.174	1.163	0.011	0.0095
171	1.259	1.262	-0.003	-0.0024
172	1.101	1.093	0.008	0.0073
173	1.237	1.258	-0.021	-0.0167
174	1.100	1.093	0.007	0.0064
175	1.258	1.261	-0.003	-0.0024
176	1.170	1.159	0.011	0.0095
177	1.324	1.323	0.001	0.0008
178	1.201	1.177	0.024	0.0204
179	0.940	0.917	0.023	0.0251
180	0.319	0.313	0.006	0.0192
181	0.438	0.415	0.023	0.0554
182	0.976	0.962	0.014	0.0146
183	1.196	1.177	0.019	0.0161
184	1.269	1.267	0.002	0.0016
185	1.105	1.092	0.013	0.0119
186	1.297	1.301	-0.004	-0.0031
187	1.166	1.160	0.006	0.0052
188	1.291	1.301	-0.010	-0.0077
189	1.103	1.096	0.007	0.0064
190	1.266	1.266	0	0
191	1.206	1.174	0.032	0.0273
192	0.977	0.962	0.015	0.0156
193	0.436	0.415	0.021	0.0506
194	0.427	0.415	0.012	0.0289
195	0.930	0.917	0.013	0.0142
196	1.096	1.088	0.008	0.0074
197	1.212	1.195	0.017	0.0142
198	1.235	1.215	0.020	0.0165
199	1.338	1.348	-0.010	-0.0074
200	1.220	1.213	0.007	0.0058

ATTACHMENT 1
TEST RESULTS

TABLE 2
20% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
201	1.187	1.195	-0.008	-0.0067
202	1.083	1.087	-0.004	-0.0037
203	0.927	0.916	0.011	0.0120
204	0.426	0.415	0.011	0.0265
205	0.314	0.313	0.001	0.0032
206	0.522	0.508	0.014	0.0276
207	0.927	0.881	0.046	0.0522
208	1.186	1.163	0.023	0.0198
209	1.072	1.056	0.016	0.0152
210	1.161	1.162	-0.001	-0.0009
211	0.870	0.880	-0.010	-0.0114
212	0.505	0.507	-0.002	-0.0039
213	0.310	0.312	-0.002	-0.0064
214	0.436	0.418	0.018	0.0431
215	0.850	0.838	0.012	0.0143
216	0.843	0.838	0.005	0.0060
217	0.423	0.417	0.006	0.0144

SUM OF THE SQUARES OF THE DIFFERENCES = 0.0518
RMS ERROR = .0154

ALL BUNDLE POWERS MEET THE ACCEPTANCE CRITERIA

BOXED VALUES ARE MOST NEGATIVE AND MOST POSITIVE VALUES FOR INCORE FLUX SYMMETRY IN TABLE 1

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

PREDICTED RELATIVE POWER DENSITIES

Assy # / RPD															
						1 / 0.413	2 / 0.835	3 / 0.836	4 / 0.414						
			5 / 0.304	6 / 0.495	7 / 0.867	8 / 1.163	9 / 1.069	10 / 1.165	11 / 0.868	12 / 0.497	13 / 0.305				
		14 / 0.410	15 / 0.914	16 / 1.081	17 / 1.191	18 / 1.221	19 / 1.343	20 / 1.223	21 / 1.192	22 / 1.082	23 / 0.916	24 / 0.411			
	25 / 0.411	26 / 0.957	27 / 1.185	28 / 1.264	29 / 1.099	30 / 1.297	31 / 1.166	32 / 1.297	33 / 1.094	34 / 1.266	35 / 1.190	36 / 0.957	37 / 0.410		
38 / 0.305	39 / 0.916	40 / 1.190	41 / 1.320	42 / 1.161	43 / 1.259	44 / 1.097	45 / 1.258	46 / 1.098	47 / 1.259	48 / 1.166	49 / 1.320	50 / 1.185	51 / 0.914	52 / 0.304	
53 / 0.497	54 / 1.082	55 / 1.266	56 / 1.166	57 / 1.274	58 / 1.090	59 / 1.220	60 / 1.069	61 / 1.222	62 / 1.092	63 / 1.274	64 / 1.161	65 / 1.264	66 / 1.081	67 / 0.495	
68 / 0.868	69 / 1.192	70 / 1.094	71 / 1.259	72 / 1.092	73 / 1.183	74 / 1.018	75 / 1.108	76 / 1.022	77 / 1.183	78 / 1.090	79 / 1.259	80 / 1.099	81 / 1.191	82 / 0.867	84 / 0.413
85 / 1.165	86 / 1.223	87 / 1.297	88 / 1.098	89 / 1.222	90 / 1.022	91 / 0.627	92 / 0.569	93 / 0.627	94 / 1.018	95 / 1.220	96 / 1.097	97 / 1.297	98 / 1.221	99 / 1.163	101 / 0.835
102 / 1.069	103 / 1.343	104 / 1.166	105 / 1.258	106 / 1.069	107 / 1.108	108 / 0.569	109 / 0.435	110 / 0.569	111 / 1.108	112 / 1.069	113 / 1.258	114 / 1.166	115 / 1.343	116 / 1.069	118 / 0.836
119 / 1.163	120 / 1.221	121 / 1.297	122 / 1.097	123 / 1.220	124 / 1.018	125 / 0.627	126 / 0.569	127 / 0.627	128 / 1.022	129 / 1.222	130 / 1.098	131 / 1.297	132 / 1.223	133 / 1.165	135 / 0.414
136 / 0.867	137 / 1.191	138 / 1.099	139 / 1.259	140 / 1.090	141 / 1.183	142 / 1.022	143 / 1.108	144 / 1.018	145 / 1.183	146 / 1.092	147 / 1.259	148 / 1.094	149 / 1.192	150 / 0.868	
151 / 0.495	152 / 1.081	153 / 1.264	154 / 1.161	155 / 1.274	156 / 1.092	157 / 1.222	158 / 1.069	159 / 1.220	160 / 1.090	161 / 1.274	162 / 1.166	163 / 1.266	164 / 1.082	165 / 0.497	
166 / 0.304	167 / 0.914	168 / 1.185	169 / 1.320	170 / 1.166	171 / 1.259	172 / 1.098	173 / 1.258	174 / 1.097	175 / 1.259	176 / 1.161	177 / 1.320	178 / 1.190	179 / 0.916	180 / 0.305	
	181 / 0.410	182 / 0.957	183 / 1.190	184 / 1.266	185 / 1.094	186 / 1.297	187 / 1.166	188 / 1.297	189 / 1.099	190 / 1.264	191 / 1.185	192 / 0.957	193 / 0.411		
		194 / 0.411	195 / 0.916	196 / 1.082	197 / 1.192	198 / 1.223	199 / 1.343	200 / 1.221	201 / 1.191	202 / 1.081	203 / 0.914	204 / 0.410			
			205 / 0.305	206 / 0.497	207 / 0.868	208 / 1.165	209 / 1.069	210 / 1.163	211 / 0.867	212 / 0.495	213 / 0.304				
					214 / 0.414	215 / 0.836	216 / 0.835	217 / 0.413							

83 / 0.414
100 / 0.836
117 / 0.835
134 / 0.413

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

MEASURED RELATIVE POWER DENSITIES

Assy # / RPD															
						1 / 0.424	2 / 0.830	3 / 0.833	4 / 0.428						
			5 / 0.325	6 / 0.515	7 / 0.902	8 / 1.158	9 / 1.043	10 / 1.167	11 / 0.920	12 / 0.519	13 / 0.324				
		14 / 0.423	15 / 0.926	16 / 1.085	17 / 1.192	18 / 1.214	19 / 1.324	20 / 1.220	21 / 1.198	22 / 1.087	23 / 0.926	24 / 0.422			
	25 / 0.433	26 / 0.971	27 / 1.188	28 / 1.257	29 / 1.089	30 / 1.285	31 / 1.161	32 / 1.284	33 / 1.082	34 / 1.255	35 / 1.189	36 / 0.964	37 / 0.430		
38 / 0.320	39 / 0.947	40 / 1.201	41 / 1.316	42 / 1.159	43 / 1.247	44 / 1.094	45 / 1.244	46 / 1.092	47 / 1.243	48 / 1.157	49 / 1.303	50 / 1.181	51 / 0.930	52 / 0.313	
53 / 0.520	54 / 1.136	55 / 1.281	56 / 1.165	57 / 1.264	58 / 1.078	59 / 1.202	60 / 1.049	61 / 1.203	62 / 1.076	63 / 1.255	64 / 1.138	65 / 1.257	66 / 1.108	67 / 0.509	
68 / 0.879	69 / 1.202	70 / 1.105	71 / 1.250	72 / 1.086	73 / 1.166	74 / 1.001	75 / 1.087	76 / 1.007	77 / 1.170	78 / 1.082	79 / 1.240	80 / 1.096	81 / 1.186	82 / 0.867	84 / 0.418
83 / 0.427	85 / 1.162	86 / 1.203	87 / 1.279	88 / 1.072	89 / 1.204	90 / 1.005	91 / 0.629	92 / 0.563	93 / 0.633	94 / 1.017	95 / 1.207	96 / 1.076	97 / 1.276	98 / 1.197	99 / 1.150
100 / 0.841	102 / 1.073	103 / 1.326	104 / 1.158	105 / 1.235	106 / 1.062	107 / 1.100	108 / 0.579	109 / 0.445	110 / 0.579	111 / 1.101	112 / 1.065	113 / 1.239	114 / 1.156	115 / 1.319	116 / 1.066
101 / 0.833	117 / 0.842	119 / 1.164	120 / 1.212	121 / 1.283	122 / 1.072	123 / 1.207	124 / 1.018	125 / 0.634	126 / 0.564	127 / 0.632	128 / 1.009	129 / 1.209	130 / 1.080	131 / 1.281	132 / 1.203
118 / 0.837	134 / 0.427	136 / 0.882	137 / 1.208	138 / 1.111	139 / 1.251	140 / 1.089	141 / 1.175	142 / 1.011	143 / 1.092	144 / 1.009	145 / 1.173	146 / 1.089	147 / 1.250	148 / 1.104	149 / 1.197
135 / 0.427	151 / 0.522	152 / 1.141	153 / 1.282	154 / 1.160	155 / 1.267	156 / 1.084	157 / 1.209	158 / 1.053	159 / 1.208	160 / 1.085	161 / 1.265	162 / 1.157	163 / 1.273	164 / 1.122	165 / 0.516
	166 / 0.321	167 / 0.949	168 / 1.198	169 / 1.316	170 / 1.167	171 / 1.253	172 / 1.097	173 / 1.245	174 / 1.095	175 / 1.251	176 / 1.160	177 / 1.315	178 / 1.196	179 / 0.940	180 / 0.318
		181 / 0.435	182 / 0.970	183 / 1.188	184 / 1.262	185 / 1.094	186 / 1.288	187 / 1.152	188 / 1.281	189 / 1.090	190 / 1.257	191 / 1.195	192 / 0.971	193 / 0.432	
			194 / 0.424	195 / 0.926	196 / 1.092	197 / 1.206	198 / 1.224	199 / 1.323	200 / 1.206	201 / 1.177	202 / 1.077	203 / 0.924	204 / 0.423		
				205 / 0.320	206 / 0.522	207 / 0.929	208 / 1.175	209 / 1.054	210 / 1.145	211 / 0.861	212 / 0.503	213 / 0.321			
						214 / 0.431	215 / 0.838	216 / 0.829	217 / 0.415						

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
1	0.424	0.4128	0.0112	0.0271
2	0.830	0.8354	-0.0054	-0.0065
3	0.833	0.8362	-0.0032	-0.0038
4	0.428	0.4136	0.0144	0.0348
5	0.325	0.3043	0.0207	0.068
6	0.515	0.4954	0.0196	0.0396
7	0.902	0.8665	0.0355	0.041
8	1.158	1.1626	-0.0046	-0.004
9	1.043	1.0689	-0.0259	-0.0242
10	1.167	1.1648	0.0022	0.0019
11	0.920	0.8679	0.0521	0.06
12	0.519	0.4967	0.0223	0.0449
13	0.324	0.3050	0.0190	0.0623
14	0.423	0.4102	0.0128	0.0312
15	0.926	0.9138	0.0122	0.0134
16	1.085	1.0810	0.0040	0.0037
17	1.192	1.1913	0.0007	0.0006
18	1.214	1.2207	-0.0067	-0.0055
19	1.324	1.3431	-0.0191	-0.0142
20	1.220	1.2229	-0.0029	-0.0024
21	1.198	1.1918	0.0062	0.0052
22	1.087	1.0825	0.0045	0.0042
23	0.926	0.9158	0.0102	0.0111
24	0.422	0.4110	0.0110	0.0268
25	0.433	0.4110	0.0220	0.0535
26	0.971	0.9570	0.0140	0.0146
27	1.188	1.1854	0.0026	0.0022
28	1.257	1.2640	-0.0070	-0.0055
29	1.089	1.0990	-0.0100	-0.0091
30	1.285	1.2974	-0.0124	-0.0096
31	1.161	1.1659	-0.0049	-0.0042
32	1.284	1.2968	-0.0128	-0.0099
33	1.082	1.0945	-0.0125	-0.0114
34	1.255	1.2662	-0.0112	-0.0088
35	1.189	1.1901	-0.0011	-0.0009
36	0.964	0.9570	0.0070	0.0073
37	0.430	0.4102	0.0198	0.0483
38	0.320	0.3050	0.0150	0.0492
39	0.947	0.9158	0.0312	0.0341
40	1.201	1.1901	0.0109	0.0092

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
41	1.316	1.3204	-0.0044	-0.0033
42	1.159	1.1607	-0.0017	-0.0015
43	1.247	1.2586	-0.0116	-0.0092
44	1.094	1.0975	-0.0035	-0.0032
45	1.244	1.2582	-0.0142	-0.0113
46	1.092	1.0976	-0.0056	-0.0051
47	1.243	1.2594	-0.0164	-0.0130
48	1.157	1.1664	-0.0094	-0.0081
49	1.303	1.3204	-0.0174	-0.0132
50	1.181	1.1854	-0.0044	-0.0037
51	0.930	0.9138	0.0162	0.0177
52	0.313	0.3043	0.0087	0.0286
53	0.520	0.4967	0.0233	0.0469
54	1.136	1.0825	0.0535	0.0494
55	1.281	1.2662	0.0148	0.0117
56	1.165	1.1664	-0.0014	-0.0012
57	1.264	1.2737	-0.0097	-0.0076
58	1.078	1.0897	-0.0117	-0.0107
59	1.202	1.2200	-0.0180	-0.0148
60	1.049	1.0691	-0.0201	-0.0188
61	1.203	1.2224	-0.0194	-0.0159
62	1.076	1.0919	-0.0159	-0.0146
63	1.255	1.2737	-0.0187	-0.0147
64	1.138	1.1607	-0.0227	-0.0196
65	1.257	1.2640	-0.0070	-0.0055
66	1.108	1.0810	0.0270	0.0250
67	0.509	0.4954	0.0136	0.0275
68	0.879	0.8679	0.0111	0.0128
69	1.202	1.1918	0.0102	0.0086
70	1.105	1.0945	0.0105	0.0096
71	1.250	1.2594	-0.0094	-0.0075
72	1.086	1.0919	-0.0059	-0.0054
73	1.166	1.1827	-0.0167	-0.0141
74	1.001	1.0182	-0.0172	-0.0169
75	1.087	1.1076	-0.0206	-0.0186
76	1.007	1.0216	-0.0146	-0.0143
77	1.170	1.1827	-0.0127	-0.0107
78	1.082	1.0897	-0.0077	-0.0071
79	1.240	1.2586	-0.0186	-0.0148
80	1.096	1.0990	-0.0030	-0.0027

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
81	1.186	1.1913	-0.0053	-0.0044
82	0.867	0.8665	0.0005	0.0006
83	0.427	0.4136	0.0134	0.0324
84	0.418	0.4128	0.0052	0.0126
85	1.162	1.1648	-0.0028	-0.0024
86	1.203	1.2229	-0.0199	-0.0163
87	1.279	1.2968	-0.0178	-0.0137
88	1.072	1.0976	-0.0256	-0.0233
89	1.204	1.2224	-0.0184	-0.0151
90	1.005	1.0216	-0.0166	-0.0162
91	0.629	0.6265	0.0025	0.0040
92	0.563	0.5687	-0.0057	-0.0100
93	0.633	0.6265	0.0065	0.0104
94	1.017	1.0182	-0.0012	-0.0012
95	1.207	1.2200	-0.0130	-0.0107
96	1.076	1.0975	-0.0215	-0.0196
97	1.276	1.2974	-0.0214	-0.0165
98	1.197	1.2207	-0.0237	-0.0194
99	1.150	1.1626	-0.0126	-0.0108
100	0.841	0.8362	0.0048	0.0057
101	0.833	0.8354	-0.0024	-0.0029
102	1.073	1.0689	0.0041	0.0038
103	1.326	1.3431	-0.0171	-0.0127
104	1.158	1.1659	-0.0079	-0.0068
105	1.235	1.2582	-0.0232	-0.0184
106	1.062	1.0691	-0.0071	-0.0066
107	1.100	1.1076	-0.0076	-0.0069
108	0.579	0.5687	0.0103	0.0181
109	0.445	0.4348	0.0102	0.0235
110	0.579	0.5687	0.0103	0.0181
111	1.101	1.1076	-0.0066	-0.0060
112	1.065	1.0691	-0.0041	-0.0038
113	1.239	1.2582	-0.0192	-0.0153
114	1.156	1.1659	-0.0099	-0.0085
115	1.319	1.3431	-0.0241	-0.0179
116	1.066	1.0689	-0.0029	-0.0027
117	0.842	0.8354	0.0066	0.0079
118	0.837	0.8362	0.0008	0.0010
119	1.164	1.1626	0.0014	0.0012
120	1.212	1.2207	-0.0087	-0.0071

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
121	1.283	1.2974	-0.0144	-0.0111
122	1.072	1.0975	-0.0255	-0.0232
123	1.207	1.2200	-0.0130	-0.0107
124	1.018	1.0182	-0.0002	-0.0002
125	0.634	0.6265	0.0075	0.0120
126	0.564	0.5687	-0.0047	-0.0083
127	0.632	0.6265	0.0055	0.0088
128	1.009	1.0216	-0.0126	-0.0123
129	1.209	1.2224	-0.0134	-0.0110
130	1.08	1.0976	-0.0176	-0.0160
131	1.281	1.2968	-0.0158	-0.0122
132	1.203	1.2229	-0.0199	-0.0163
133	1.158	1.1648	-0.0068	-0.0058
134	0.427	0.4128	0.0142	0.0344
135	0.427	0.4136	0.0134	0.0324
136	0.882	0.8665	0.0155	0.0179
137	1.208	1.1913	0.0167	0.0140
138	1.111	1.0990	0.0120	0.0109
139	1.251	1.2586	-0.0076	-0.0060
140	1.089	1.0897	-0.0007	-0.0006
141	1.175	1.1827	-0.0077	-0.0065
142	1.011	1.0216	-0.0106	-0.0104
143	1.092	1.1076	-0.0156	-0.0141
144	1.009	1.0182	-0.0092	-0.0090
145	1.173	1.1827	-0.0097	-0.0082
146	1.089	1.0919	-0.0029	-0.0027
147	1.250	1.2594	-0.0094	-0.0075
148	1.104	1.0945	0.0095	0.0087
149	1.197	1.1918	0.0052	0.0044
150	0.876	0.8679	0.0081	0.0093
151	0.522	0.4954	0.0266	0.0537
152	1.141	1.0810	0.0600	0.0555
153	1.282	1.2640	0.0180	0.0142
154	1.160	1.1607	-0.0007	-0.0006
155	1.267	1.2737	-0.0067	-0.0053
156	1.084	1.0919	-0.0079	-0.0072
157	1.209	1.2224	-0.0134	-0.0110
158	1.053	1.0691	-0.0161	-0.0151
159	1.208	1.2200	-0.0120	-0.0098
160	1.085	1.0897	-0.0047	-0.0043

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
161	1.265	1.2737	-0.0087	-0.0068
162	1.157	1.1664	-0.0094	-0.0081
163	1.273	1.2662	0.0068	0.0054
164	1.122	1.0825	0.0395	0.0365
165	0.516	0.4967	0.0193	0.0389
166	0.321	0.3043	0.0167	0.0549
167	0.949	0.9138	0.0352	0.0385
168	1.198	1.1854	0.0126	0.0106
169	1.316	1.3204	-0.0044	-0.0033
170	1.167	1.1664	0.0006	0.0005
171	1.253	1.2594	-0.0064	-0.0051
172	1.097	1.0976	-0.0006	-0.0005
173	1.245	1.2582	-0.0132	-0.0105
174	1.095	1.0975	-0.0025	-0.0023
175	1.251	1.2586	-0.0076	-0.006
176	1.160	1.1607	-0.0007	-0.0006
177	1.315	1.3204	-0.0054	-0.0041
178	1.196	1.1901	0.0059	0.0050
179	0.940	0.9158	0.0242	0.0264
180	0.318	0.3050	0.0130	0.0426
181	0.435	0.4102	0.0248	0.0605
182	0.970	0.9570	0.0130	0.0136
183	1.188	1.1901	-0.0021	-0.0018
184	1.262	1.2662	-0.0042	-0.0033
185	1.094	1.0945	-0.0005	-0.0005
186	1.288	1.2968	-0.0088	-0.0068
187	1.152	1.1659	-0.0139	-0.0119
188	1.281	1.2974	-0.0164	-0.0126
189	1.090	1.0990	-0.0090	-0.0082
190	1.257	1.2640	-0.0070	-0.0055
191	1.195	1.1854	0.0096	0.0081
192	0.971	0.9570	0.0140	0.0146
193	0.432	0.4110	0.0210	0.0511
194	0.424	0.4110	0.0130	0.0316
195	0.926	0.9158	0.0102	0.0111
196	1.092	1.0825	0.0095	0.0088
197	1.206	1.1918	0.0142	0.0119
198	1.224	1.2229	0.0011	0.0009
199	1.323	1.3431	-0.0201	-0.0150
200	1.206	1.2207	-0.0147	-0.0120

ATTACHMENT 1
TEST RESULTS

TABLE 3
65% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
201	1.177	1.1913	-0.0143	-0.0120
202	1.077	1.0810	-0.0040	-0.0037
203	0.924	0.9138	0.0102	0.0112
204	0.423	0.4102	0.0128	0.0312
205	0.32	0.3050	0.0150	0.0492
206	0.522	0.4967	0.0253	0.0509
207	0.929	0.8679	0.0611	0.0704
208	1.175	1.1648	0.0102	0.0088
209	1.054	1.0689	-0.0149	-0.0139
210	1.145	1.1626	-0.0176	-0.0151
211	0.861	0.8665	-0.0055	-0.0063
212	0.503	0.4954	0.0076	0.0153
213	0.321	0.3043	0.0167	0.0549
214	0.431	0.4136	0.0174	0.0421
215	0.838	0.8362	0.0018	0.0022
216	0.829	0.8354	-0.0064	-0.0077
217	0.415	0.4128	0.0022	0.0053

SUM OF THE SQUARES OF THE DIFFERENCES = .0530
RMS ERROR = .0156

ALL BUNDLE POWERS MEET THE ACCEPTANCE CRITERIA

ATTACHMENT 1
TEST RESULTS

TABLE 4
65% CORE AVERAGE AXIAL POWER DISTRIBUTION

PCT. HT.	MEASURED VALUE	PREDICTED VALUE	DIFFERENCE
100 (TOP)	0.4028	0.388	0.0148
98	0.5130	0.540	-0.0270
96	0.6149	0.678	-0.0631
94	0.7073	0.770	-0.0627
92	0.7894	0.849	-0.0596
90	0.8608	0.914	-0.0532
88	0.9217	0.965	-0.0433
86	0.9724	1.008	-0.0356
84	1.0138	1.043	-0.0292
82	1.0468	1.072	-0.0252
80	1.0726	1.096	-0.0234
78	1.0926	1.116	-0.0234
76	1.1079	1.133	-0.0251
74	1.1197	1.147	-0.0273
72	1.1292	1.158	-0.0288
70	1.1372	1.167	-0.0298
68	1.1442	1.174	-0.0298
66	1.1507	1.179	-0.0283
64	1.1569	1.183	-0.0261
62	1.1628	1.186	-0.0232
60	1.1681	1.187	-0.0189
58	1.1727	1.188	-0.0153
56	1.1761	1.186	-0.0099
54	1.1781	1.184	-0.0059
52	1.1785	1.180	-0.0015
50	1.1770	1.175	0.0020
48	1.1737	1.169	0.0047
46	1.1686	1.163	0.0056
44	1.1619	1.155	0.0069
42	1.1540	1.147	0.0070
40	1.1452	1.137	0.0082
38	1.1359	1.127	0.0089
36	1.1264	1.114	0.0124
34	1.1169	1.101	0.0159
32	1.1076	1.087	0.0206
30	1.0981	1.072	0.0261
28	1.0883	1.055	0.0333
26	1.0774	1.036	0.0414
24	1.0647	1.016	0.0487
22	1.0491	0.994	0.0551
20	1.0293	0.970	0.0593
18	1.0042	0.943	0.0612
16	0.9725	0.912	0.0605
14	0.9330	0.876	0.0570
12	0.8845	0.836	0.0485
10	0.8264	0.789	0.0374
8	0.7582	0.734	0.0242
6	0.6797	0.667	0.0127
4	0.5912	0.589	0.0022
2	0.4935	0.469	0.0245
0 (BOT)	0.3878	0.338	0.0498

SUM OF THE SQUARES OF THE DIFFERENCES = .0595
RMS ERROR = .0342

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

PREDICTED RELATIVE POWER DENSITIES

Assy # / RPD															
						1 / 0.417	2 / 0.836	3 / 0.836	4 / 0.418						
			5 / 0.309	6 / 0.500	7 / 0.866	8 / 1.155	9 / 1.065	10 / 1.157	11 / 0.868	12 / 0.502	13 / 0.310				
		14 / 0.415	15 / 0.914	16 / 1.077	17 / 1.184	18 / 1.213	19 / 1.331	20 / 1.215	21 / 1.184	22 / 1.078	23 / 0.916	24 / 0.416			
	25 / 0.416	26 / 0.955	27 / 1.178	28 / 1.255	29 / 1.098	30 / 1.291	31 / 1.164	32 / 1.290	33 / 1.093	34 / 1.257	35 / 1.183	36 / 0.955	37 / 0.415		
38 / 0.31	39 / 0.916	40 / 1.183	41 / 1.309	42 / 1.158	43 / 1.256	44 / 1.101	45 / 1.258	46 / 1.101	47 / 1.257	48 / 1.164	49 / 1.309	50 / 1.178	51 / 0.914	52 / 0.309	
53 / 0.502	54 / 1.078	55 / 1.257	56 / 1.164	57 / 1.271	58 / 1.094	59 / 1.224	60 / 1.077	61 / 1.226	62 / 1.096	63 / 1.271	64 / 1.158	65 / 1.255	66 / 1.077	67 / 0.500	
68 / 0.868	69 / 1.184	70 / 1.093	71 / 1.257	72 / 1.096	73 / 1.188	74 / 1.030	75 / 1.120	76 / 1.033	77 / 1.188	78 / 1.094	79 / 1.256	80 / 1.098	81 / 1.184	82 / 0.866	84 / 0.417
85 / 1.157	86 / 1.215	87 / 1.290	88 / 1.101	89 / 1.226	90 / 1.033	91 / 0.644	92 / 0.588	93 / 0.644	94 / 1.030	95 / 1.224	96 / 1.101	97 / 1.291	98 / 1.213	99 / 1.155	101 / 0.836
102 / 1.065	103 / 1.331	104 / 1.164	105 / 1.258	106 / 1.077	107 / 1.120	108 / 0.588	109 / 0.454	110 / 0.588	111 / 1.120	112 / 1.077	113 / 1.258	114 / 1.164	115 / 1.331	116 / 1.065	118 / 0.836
119 / 1.155	120 / 1.213	121 / 1.291	122 / 1.101	123 / 1.224	124 / 1.030	125 / 0.644	126 / 0.588	127 / 0.644	128 / 1.033	129 / 1.226	130 / 1.101	131 / 1.290	132 / 1.215	133 / 1.157	135 / 0.418
136 / 0.866	137 / 1.184	138 / 1.098	139 / 1.256	140 / 1.094	141 / 1.188	142 / 1.033	143 / 1.120	144 / 1.030	145 / 1.188	146 / 1.096	147 / 1.257	148 / 1.093	149 / 1.184	150 / 0.868	
151 / 0.500	152 / 1.077	153 / 1.255	154 / 1.158	155 / 1.271	156 / 1.096	157 / 1.226	158 / 1.077	159 / 1.224	160 / 1.094	161 / 1.271	162 / 1.164	163 / 1.257	164 / 1.078	165 / 0.502	
166 / 0.309	167 / 0.914	168 / 1.178	169 / 1.309	170 / 1.164	171 / 1.257	172 / 1.101	173 / 1.258	174 / 1.101	175 / 1.256	176 / 1.158	177 / 1.309	178 / 1.183	179 / 0.916	180 / 0.310	
	181 / 0.415	182 / 0.955	183 / 1.183	184 / 1.257	185 / 1.093	186 / 1.290	187 / 1.164	188 / 1.291	189 / 1.098	190 / 1.255	191 / 1.178	192 / 0.955	193 / 0.416		
		194 / 0.416	195 / 0.916	196 / 1.078	197 / 1.184	198 / 1.215	199 / 1.331	200 / 1.213	201 / 1.184	202 / 1.077	203 / 0.914	204 / 0.415			
			205 / 0.310	206 / 0.502	207 / 0.868	208 / 1.157	209 / 1.065	210 / 1.155	211 / 0.866	212 / 0.500	213 / 0.309				
					214 / 0.418	215 / 0.836	216 / 0.836	217 / 0.417							

83 / 0.418
100 / 0.836
117 / 0.836
134 / 0.417

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

MEASURED RELATIVE POWER DENSITIES

Assy # / RPD														
					1 / 0.416	2 / 0.815	3 / 0.819	4 / 0.422						
			5 / 0.333	6 / 0.512	7 / 0.886	8 / 1.143	9 / 1.029	10 / 1.155	11 / 0.912	12 / 0.518	13 / 0.329			
		14 / 0.421	15 / 0.924	16 / 1.083	17 / 1.187	18 / 1.203	19 / 1.317	20 / 1.210	21 / 1.195	22 / 1.086	23 / 0.923	24 / 0.419		
	25 / 0.438	26 / 0.968	27 / 1.175	28 / 1.255	29 / 1.084	30 / 1.285	31 / 1.156	32 / 1.284	33 / 1.076	34 / 1.253	35 / 1.175	36 / 0.960	37 / 0.434	
38 / 0.319	39 / 0.944	40 / 1.193	41 / 1.315	42 / 1.155	43 / 1.251	44 / 1.094	45 / 1.251	46 / 1.092	47 / 1.247	48 / 1.153	49 / 1.3	50 / 1.173	51 / 0.927	52 / 0.313
53 / 0.518	54 / 1.128	55 / 1.281	56 / 1.163	57 / 1.27	58 / 1.082	59 / 1.214	60 / 1.059	61 / 1.215	62 / 1.08	63 / 1.259	64 / 1.133	65 / 1.256	66 / 1.103	67 / 0.507
68 / 0.882	69 / 1.203	70 / 1.103	71 / 1.257	72 / 1.092	73 / 1.182	74 / 1.014	75 / 1.107	76 / 1.019	77 / 1.184	78 / 1.086	79 / 1.244	80 / 1.091	81 / 1.184	82 / 0.867
83 / 0.431	85 / 1.161	86 / 1.199	87 / 1.284	88 / 1.077	89 / 1.218	90 / 1.023	91 / 0.643	92 / 0.593	93 / 0.646	94 / 1.033	95 / 1.220	96 / 1.079	97 / 1.275	98 / 1.182	99 / 1.144	84 / 0.423
100 / 0.836	102 / 1.066	103 / 1.323	104 / 1.156	105 / 1.245	106 / 1.070	107 / 1.117	108 / 0.590	109 / 0.460	110 / 0.59	111 / 1.118	112 / 1.072	113 / 1.247	114 / 1.15	115 / 1.311	116 / 1.055	101 / 0.826
117 / 0.836	119 / 1.160	120 / 1.199	121 / 1.285	122 / 1.076	123 / 1.221	124 / 1.034	125 / 0.647	126 / 0.593	127 / 0.645	128 / 1.026	129 / 1.222	130 / 1.083	131 / 1.280	132 / 1.188	133 / 1.152	118 / 0.829
134 / 0.43	136 / 0.882	137 / 1.205	138 / 1.107	139 / 1.255	140 / 1.093	141 / 1.189	142 / 1.022	143 / 1.111	144 / 1.021	145 / 1.187	146 / 1.093	147 / 1.255	148 / 1.099	149 / 1.194	150 / 0.876	135 / 0.43
	151 / 0.519	152 / 1.132	153 / 1.278	154 / 1.154	155 / 1.272	156 / 1.088	157 / 1.220	158 / 1.060	159 / 1.218	160 / 1.089	161 / 1.270	162 / 1.151	163 / 1.272	164 / 1.118	165 / 0.514	
	166 / 0.319	167 / 0.944	168 / 1.188	169 / 1.312	170 / 1.161	171 / 1.256	172 / 1.096	173 / 1.249	174 / 1.094	175 / 1.253	176 / 1.156	177 / 1.315	178 / 1.190	179 / 0.939	180 / 0.317	
		181 / 0.438	182 / 0.965	183 / 1.173	184 / 1.259	185 / 1.087	186 / 1.285	187 / 1.143	188 / 1.278	189 / 1.082	190 / 1.257	191 / 1.188	192 / 0.970	193 / 0.437		
			194 / 0.421	195 / 0.922	196 / 1.090	197 / 1.202	198 / 1.212	199 / 1.313	200 / 1.195	201 / 1.174	202 / 1.077	203 / 0.923	204 / 0.421			
				205 / 0.326	206 / 0.520	207 / 0.920	208 / 1.161	209 / 1.036	210 / 1.133	211 / 0.856	212 / 0.501	213 / 0.323				
						214 / 0.424	215 / 0.822	216 / 0.814	217 / 0.409							

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
1	0.416	0.4168	-0.0008	-0.0019
2	0.815	0.8356	-0.0206	-0.0247
3	0.819	0.8363	-0.0173	-0.0207
4	0.422	0.4176	0.0044	0.0105
5	0.333	0.3092	0.0238	0.0770
6	0.512	0.5003	0.0117	0.0234
7	0.886	0.8663	0.0197	0.0227
8	1.143	1.1552	-0.0122	-0.0106
9	1.029	1.0646	-0.0356	-0.0334
10	1.155	1.1572	-0.0022	-0.0019
11	0.912	0.8675	0.0445	0.0513
12	0.518	0.5015	0.0165	0.0329
13	0.329	0.3100	0.0190	0.0613
14	0.421	0.4150	0.0060	0.0145
15	0.924	0.9138	0.0102	0.0112
16	1.083	1.0765	0.0065	0.0060
17	1.187	1.1840	0.0030	0.0025
18	1.203	1.2130	-0.0100	-0.0082
19	1.317	1.3308	-0.0138	-0.0104
20	1.210	1.2151	-0.0051	-0.0042
21	1.195	1.1844	0.0106	0.0089
22	1.086	1.0779	0.0081	0.0075
23	0.923	0.9158	0.0072	0.0079
24	0.419	0.4158	0.0032	0.0077
25	0.438	0.4158	0.0222	0.0534
26	0.968	0.9553	0.0127	0.0133
27	1.175	1.1780	-0.0030	-0.0025
28	1.255	1.2552	-0.0002	-0.0002
29	1.084	1.0977	-0.0137	-0.0125
30	1.285	1.2907	-0.0057	-0.0044
31	1.156	1.1637	-0.0077	-0.0066
32	1.284	1.2900	-0.0060	-0.0047
33	1.076	1.0933	-0.0173	-0.0158
34	1.253	1.2573	-0.0043	-0.0034
35	1.175	1.1825	-0.0075	-0.0063
36	0.96	0.9553	0.0047	0.0049
37	0.434	0.4150	0.0190	0.0458
38	0.319	0.3100	0.0090	0.0290
39	0.944	0.9158	0.0282	0.0308
40	1.193	1.1825	0.0105	0.0089

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
41	1.315	1.3091	0.0059	0.0045
42	1.155	1.1581	-0.0031	-0.0027
43	1.251	1.2560	-0.0050	-0.0040
44	1.094	1.1007	-0.0067	-0.0061
45	1.251	1.2576	-0.0066	-0.0052
46	1.092	1.1008	-0.0088	-0.0080
47	1.247	1.2567	-0.0097	-0.0077
48	1.153	1.1636	-0.0106	-0.0091
49	1.300	1.3091	-0.0091	-0.0070
50	1.173	1.1780	-0.0050	-0.0042
51	0.927	0.9138	0.0132	0.0144
52	0.313	0.3092	0.0038	0.0123
53	0.518	0.5015	0.0165	0.0329
54	1.128	1.0779	0.0501	0.0465
55	1.281	1.2573	0.0237	0.0188
56	1.163	1.1636	-0.0006	-0.0005
57	1.270	1.2707	-0.0007	-0.0006
58	1.082	1.0943	-0.0123	-0.0112
59	1.214	1.2235	-0.0095	-0.0078
60	1.059	1.0768	-0.0178	-0.0165
61	1.215	1.2258	-0.0108	-0.0088
62	1.080	1.0964	-0.0164	-0.0150
63	1.259	1.2707	-0.0117	-0.0092
64	1.133	1.1581	-0.0251	-0.0217
65	1.256	1.2552	0.0008	0.0006
66	1.103	1.0765	0.0265	0.0246
67	0.507	0.5003	0.0067	0.0134
68	0.882	0.8675	0.0145	0.0167
69	1.203	1.1844	0.0186	0.0157
70	1.103	1.0933	0.0097	0.0089
71	1.257	1.2567	0.0003	0.0002
72	1.092	1.0964	-0.0044	-0.0040
73	1.182	1.1882	-0.0062	-0.0052
74	1.014	1.0300	-0.0160	-0.0155
75	1.107	1.1196	-0.0126	-0.0113
76	1.019	1.0333	-0.0143	-0.0138
77	1.184	1.1882	-0.0042	-0.0035
78	1.086	1.0943	-0.0083	-0.0076
79	1.244	1.2560	-0.0120	-0.0096
80	1.091	1.0977	-0.0067	-0.0061

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
81	1.184	1.1840	0	0
82	0.867	0.8663	0.0007	0.0008
83	0.431	0.4176	0.0134	0.0321
84	0.423	0.4168	0.0062	0.0149
85	1.161	1.1572	0.0038	0.0033
86	1.199	1.2151	-0.0161	-0.0132
87	1.284	1.2900	-0.0060	-0.0047
88	1.077	1.1008	-0.0238	-0.0216
89	1.218	1.2258	-0.0078	-0.0064
90	1.023	1.0333	-0.0103	-0.0100
91	0.643	0.6441	-0.0011	-0.0017
92	0.593	0.5876	0.0054	0.0092
93	0.646	0.6441	0.0019	0.0029
94	1.033	1.0300	0.0030	0.0029
95	1.220	1.2235	-0.0035	-0.0029
96	1.079	1.1007	-0.0217	-0.0197
97	1.275	1.2907	-0.0157	-0.0122
98	1.182	1.2130	-0.0310	-0.0256
99	1.144	1.1552	-0.0112	-0.0097
100	0.836	0.8363	-0.0003	-0.0004
101	0.826	0.8356	-0.0096	-0.0115
102	1.066	1.0646	0.0014	0.0013
103	1.323	1.3308	-0.0078	-0.0059
104	1.156	1.1637	-0.0077	-0.0066
105	1.245	1.2576	-0.0126	-0.0100
106	1.070	1.0768	-0.0068	-0.0063
107	1.117	1.1196	-0.0026	-0.0023
108	0.590	0.5876	0.0024	0.0041
109	0.460	0.4536	0.0064	0.0141
110	0.590	0.5876	0.0024	0.0041
111	1.118	1.1196	-0.0016	-0.0014
112	1.072	1.0768	-0.0048	-0.0045
113	1.247	1.2576	-0.0106	-0.0084
114	1.150	1.1637	-0.0137	-0.0118
115	1.311	1.3308	-0.0198	-0.0149
116	1.055	1.0646	-0.0096	-0.0090
117	0.836	0.8356	0.0004	0.0005
118	0.829	0.8363	-0.0073	-0.0087
119	1.160	1.1552	0.0048	0.0042
120	1.199	1.2130	-0.014	-0.0115

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
121	1.285	1.2907	-0.0057	-0.0044
122	1.076	1.1007	-0.0247	-0.0224
123	1.221	1.2235	-0.0025	-0.0020
124	1.034	1.0300	0.0040	0.0039
125	0.647	0.6441	0.0029	0.0045
126	0.593	0.5876	0.0054	0.0092
127	0.645	0.6441	0.0009	0.0014
128	1.026	1.0333	-0.0073	-0.0071
129	1.222	1.2258	-0.0038	-0.0031
130	1.083	1.1008	-0.0178	-0.0162
131	1.280	1.2900	-0.0100	-0.0078
132	1.188	1.2151	-0.0271	-0.0223
133	1.152	1.1572	-0.0052	-0.0045
134	0.430	0.4168	0.0132	0.0317
135	0.430	0.4176	0.0124	0.0297
136	0.882	0.8663	0.0157	0.0181
137	1.205	1.1840	0.0210	0.0177
138	1.107	1.0977	0.0093	0.0085
139	1.255	1.2560	-0.0010	-0.0008
140	1.093	1.0943	-0.0013	-0.0012
141	1.189	1.1882	0.0008	0.0007
142	1.022	1.0333	-0.0113	-0.0109
143	1.111	1.1196	-0.0086	-0.0077
144	1.021	1.0300	-0.0090	-0.0087
145	1.187	1.1882	-0.0012	-0.0010
146	1.093	1.0964	-0.0034	-0.0031
147	1.255	1.2567	-0.0017	-0.0014
148	1.099	1.0933	0.0057	0.0052
149	1.194	1.1844	0.0096	0.0081
150	0.876	0.8675	0.0085	0.0098
151	0.519	0.5003	0.0187	0.0374
152	1.132	1.0765	0.0555	0.0516
153	1.278	1.2552	0.0228	0.0182
154	1.154	1.1581	-0.0041	-0.0035
155	1.272	1.2707	0.0013	0.0010
156	1.088	1.0964	-0.0084	-0.0077
157	1.220	1.2258	-0.0058	-0.0047
158	1.060	1.0768	-0.0168	-0.0156
159	1.218	1.2235	-0.0055	-0.0045
160	1.089	1.0943	-0.0053	-0.0048

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
161	1.270	1.2707	-0.0007	-0.0006
162	1.151	1.1636	-0.0126	-0.0108
163	1.272	1.2573	0.0147	0.0117
164	1.118	1.0779	0.0401	0.0372
165	0.514	0.5015	0.0125	0.0249
166	0.319	0.3092	0.0098	0.0317
167	0.944	0.9138	0.0302	0.0330
168	1.188	1.1780	0.01	0.0085
169	1.312	1.3091	0.0029	0.0022
170	1.161	1.1636	-0.0026	-0.0022
171	1.256	1.2567	-0.0007	-0.0006
172	1.096	1.1008	-0.0048	-0.0044
173	1.249	1.2576	-0.0086	-0.0068
174	1.094	1.1007	-0.0067	-0.0061
175	1.253	1.256	-0.003	-0.0024
176	1.156	1.1581	-0.0021	-0.0018
177	1.315	1.3091	0.0059	0.0045
178	1.190	1.1825	0.0075	0.0063
179	0.939	0.9158	0.0232	0.0253
180	0.317	0.3100	0.007	0.0226
181	0.438	0.4150	0.023	0.0554
182	0.965	0.9553	0.0097	0.0102
183	1.173	1.1825	-0.0095	-0.0080
184	1.259	1.2573	0.0017	0.0014
185	1.087	1.0933	-0.0063	-0.0058
186	1.285	1.2900	-0.005	-0.0039
187	1.143	1.1637	-0.0207	-0.0178
188	1.278	1.2907	-0.0127	-0.0098
189	1.082	1.0977	-0.0157	-0.0143
190	1.257	1.2552	0.0018	0.0014
191	1.188	1.1780	0.01	0.0085
192	0.970	0.9553	0.0147	0.0154
193	0.437	0.4158	0.0212	0.0510
194	0.421	0.4158	0.0052	0.0125
195	0.922	0.9158	0.0062	0.0068
196	1.090	1.0779	0.0121	0.0112
197	1.202	1.1844	0.0176	0.0149
198	1.212	1.2151	-0.0031	-0.0026
199	1.313	1.3308	-0.0178	-0.0134
200	1.195	1.2130	-0.0180	-0.0148

ATTACHMENT 1
TEST RESULTS

TABLE 5
100% RADIAL POWER DISTRIBUTION

ASSEMBLY	MEASURED	PREDICTED	DIFFERENCE	DIFF / PRED
201	1.174	1.1840	-0.0100	-0.0084
202	1.077	1.0765	0.0005	0.0005
203	0.923	0.9138	0.0092	0.0101
204	0.421	0.4150	0.0060	0.0145
205	0.326	0.3100	0.0160	0.0516
206	0.520	0.5015	0.0185	0.0369
207	0.920	0.8675	0.0525	0.0605
208	1.161	1.1572	0.0038	0.0033
209	1.036	1.0646	-0.0286	-0.0269
210	1.133	1.1552	-0.0222	-0.0192
211	0.856	0.8663	-0.0103	-0.0119
212	0.501	0.5003	0.0007	0.0014
213	0.323	0.3092	0.0138	0.0446
214	0.424	0.4176	0.0064	0.0153
215	0.822	0.8363	-0.0143	-0.0171
216	0.814	0.8356	-0.0216	-0.0258
217	0.409	0.4168	-0.0078	-0.0187

SUM OF THE SQUARES OF THE DIFFERENCES = .0438
RMS ERROR = .0142

ALL BUNDLE POWERS MEET THE ACCEPTANCE CRITERIA

ATTACHMENT 1
TEST RESULTS

TABLE 6
100% CORE AVERAGE AXIAL POWER DISTRIBUTION

PCT. HT.	MEASURED VALUE	PREDICTED VALUE	DIFFERENCE
100 (TOP)	0.3926	0.358	0.0346
98	0.4987	0.494	0.0047
96	0.5965	0.619	-0.0225
94	0.6849	0.705	-0.0201
92	0.7631	0.779	-0.0159
90	0.8309	0.841	-0.0101
88	0.8884	0.892	-0.0036
86	0.9362	0.935	0.0012
84	0.9749	0.972	0.0029
82	1.0058	1.004	0.0018
80	1.0301	1.030	0.0001
78	1.0490	1.052	-0.0030
76	1.0638	1.073	-0.0092
74	1.0758	1.090	-0.0142
72	1.0860	1.106	-0.0200
70	1.0951	1.119	-0.0239
68	1.1038	1.131	-0.0272
66	1.1123	1.142	-0.0297
64	1.1208	1.151	-0.0302
62	1.1291	1.159	-0.0299
60	1.1371	1.165	-0.0279
58	1.1444	1.170	-0.0256
56	1.1506	1.174	-0.0234
54	1.1555	1.177	-0.0215
52	1.1587	1.179	-0.0203
50	1.1600	1.179	-0.0190
48	1.1597	1.179	-0.0193
46	1.1576	1.177	-0.0194
44	1.1543	1.174	-0.0197
42	1.1500	1.171	-0.0210
40	1.1451	1.166	-0.0209
38	1.1401	1.160	-0.0199
36	1.1354	1.152	-0.0166
34	1.1311	1.143	-0.0119
32	1.1274	1.133	-0.0056
30	1.1239	1.121	0.0029
28	1.1202	1.108	0.0122
26	1.1155	1.093	0.0225
24	1.1089	1.075	0.0339
22	1.0991	1.055	0.0441
20	1.0846	1.033	0.0516
18	1.0640	1.007	0.0570
16	1.0358	0.978	0.0578
14	0.9985	0.943	0.0555
12	0.9509	0.902	0.0489
10	0.8920	0.854	0.0380
8	0.8214	0.795	0.0264
6	0.7389	0.725	0.0139
4	0.6448	0.641	0.0038
2	0.5399	0.512	0.0279
0 (BOT)	0.4257	0.371	0.0547

SUM OF THE SQUARES OF THE DIFFERENCES = 0.0379
RMS ERROR = 0.0273