

# Unit 2 FWH 7

## 20% Eddy Current Inspection

**Technician: Blake Long Nathan Morris**

**April 17, 2018**





## **Thielsch Engineering**

**1 South Ocean Blvd, Suite 204  
Boca Raton, FL 33432  
Office: 561-504-0153**

April 17, 2018

East Kentucky Power Cooperative  
Cooper Power Plant RD,  
Somerset, KY 42501  
Attn: Eddie Hudson

Dear Mr. Hudson,

This report will detail the eddy current inspection performed on the Unit 2 #7 feed water heater at the East Kentucky Power cooperative Cooper Station in Somerset KY. The inspection covered 328 of 1492(5/8" X 0.053" SA688 304SS) straight leg tubes.

Results of the inspection found no wall degradation on 305 tubes, 1 obstructed tube and 22 tubes that were mechanically plugged. Please see the attached map, pictures and data for a more detailed overview of the inspection.

Thank you for the opportunity to work with you at the Cooper Station Power Plant. We look forward to working with you again in the future. If you have any questions regarding the inspection, please call anytime.

Sincerely,

Nathan Morris  
ET IIA and IRIS Inspector











MADE BY AMERICAN POWER SERVICES INC.



No. 1490

Job# 15055K1401E

Date 10/20/10

NATL BD 5999

CERTIFIED BY

**Yuba**

HEAT TRANSFER DIVISION  
TULSA, OKLAHOMA

W  
PHT  
RT-1

\*\*SHELL SIDE

TUBE SIDE

M.A.W.P. 550 P.S.I. @ 480\* °F. 2700 P.S.I. 480 °F.

M.D.M.T. 120 °F. @ 550 P.S.I. 120 °F. 270 P.S.I.

MFERS. SERIAL NO. 91-H-916-7 YEAR 1991

\* 710 SKIRT FLUID TEMP.

\*\* 15 PSTG EXT. PRESS.

**Yuba**

TEST PRESSURE P.S.I. SHELL 825 TUBES 4050

TEST TEMP. MIN °F SHELL 60 TUBES 60

CUSTOMER ITEM NO. 7

MFERS. SERIAL NO. 91-H-916-7

PURCHASE ORDER

44-340 HIGH PRESS. FEEDWATER

HEATER

ITEM EH-7

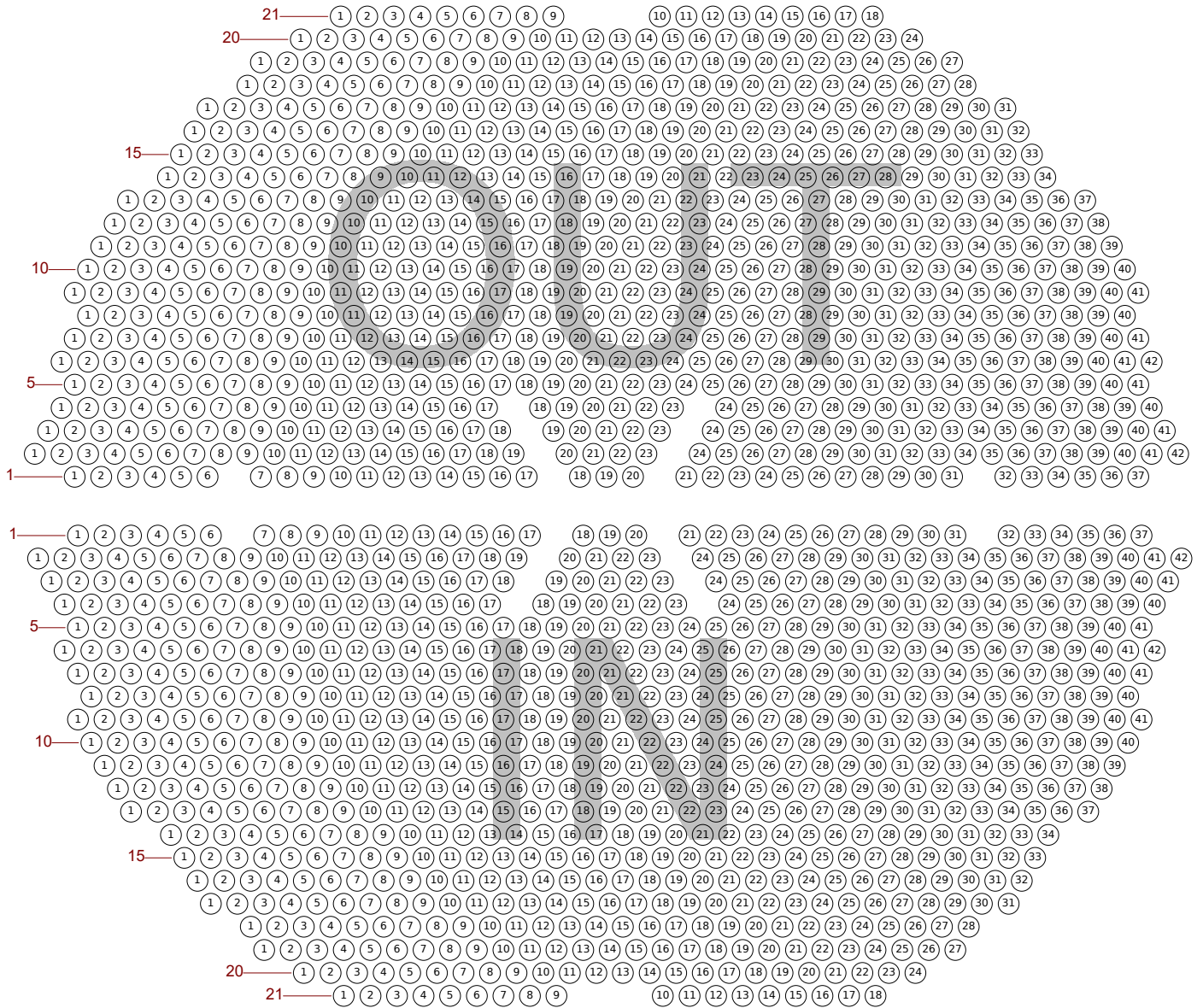
# Cooper Power Station

Unit 2 FWH 7

5/8" x 0.053" SA688-304

20% Eddy Current Inspection

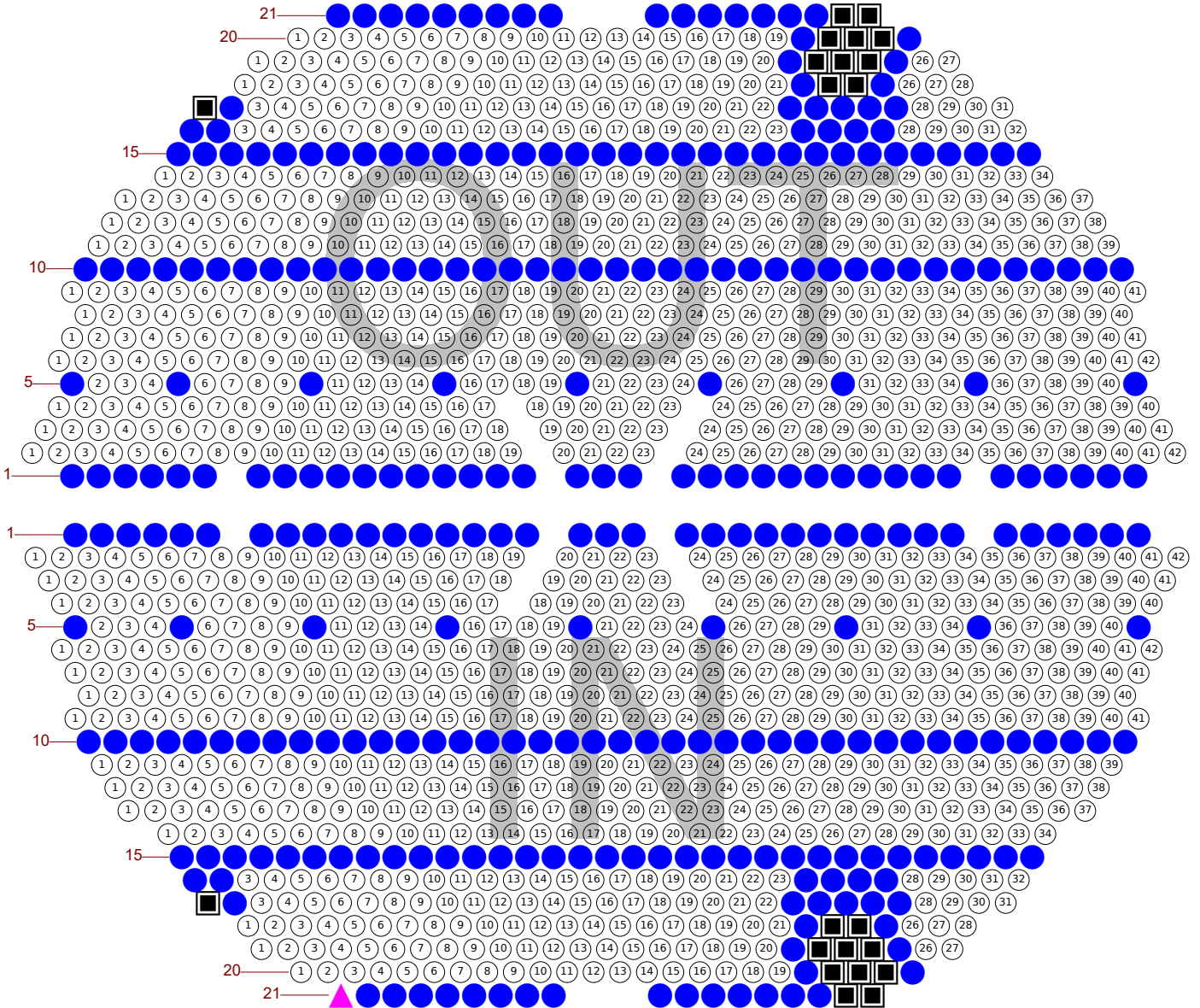
April 17th 2018



Model Unit 2 FWH 7 (1,492 tubes)  
1,492 open tubes

# East Kentucky Power Cooperative

Cooper Power Station  
 Unit 2 FWH 7  
 5/8" x 0.053" SA688-304  
 20% Eddy Current Inspection  
 April 17th 2018



SYM	HITS	TUBES	VIS	TYPE	DESCRIPTION
▲	1	1	1	QUERY	Obstructed Tube.qry
■	22	22	22	QUERY	Plugged Tubes.qry
●	305	305	305	QUERY	NDD (No Degredation Detected).qry
	328	328	328		

Model Unit 2 FWH 7 (1,492 tubes)  
 1,164 open tubes



TEST LINK BALANCE REF NULL HW NULL

IP Address: 192.1.6.46

Config Options Scope Waveform Freq Sweep Status

Sample Rate 688 Num Chan 8 Trigger Internal

Config Options	Probe Options	AUX Chans
Continuous Mode <input type="checkbox"/>	Ghent/S10 <input type="checkbox"/>	Time <input type="checkbox"/>
32-bit Mode <input checked="" type="checkbox"/>	High Speed RPC <input type="checkbox"/>	Encoders <input type="checkbox"/>
Dynamic Gain <input checked="" type="checkbox"/>	Array Outputs <input type="checkbox"/>	RMS <input type="checkbox"/>
Internal Reference <input checked="" type="checkbox"/>	X-Probe Clock <input type="checkbox"/>	Gains <input type="checkbox"/>
Time Slew <input checked="" type="checkbox"/>		Sample Index <input type="checkbox"/>
Increment Caps <input type="checkbox"/>		Status & IO <input type="checkbox"/>
Auto Stop <input type="checkbox"/>		Sample Flags <input type="checkbox"/>
No Powerdown <input checked="" type="checkbox"/>		
Synch Outputs On <input type="checkbox"/>		

TIME SLOT	#	DRIVER		COMPENSATOR		COIL								
		FREQUENCY	DRIVE	PHASE	DRIVE	1	2	3	4	5	6	7	8	
1	1	180.000 KHz	100.00%	201.411°	72.68%	1	2							
2	1	90.000 KHz	100.00%	216.687°	50.33%	3	4							
3	1	45.000 KHz	100.00%	240.668°	32.99%	5	6							
4	1	23.000 KHz	100.00%	217.428°	22.75%	7	8							

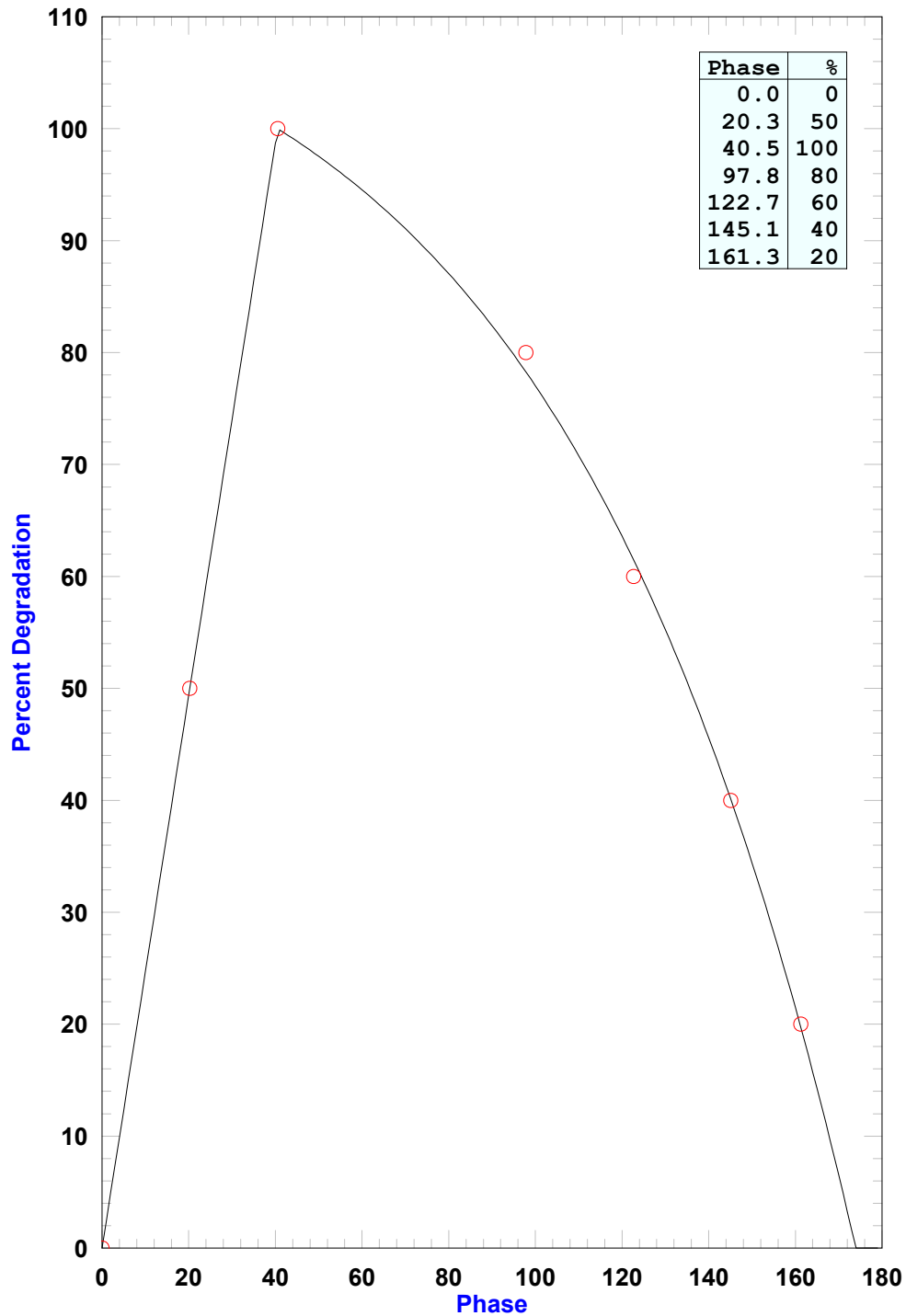
SLOT	DELAY (µS)	INTEG (wave)	TIME (µS)	ENCODER				
				1	2	3	4	5
1	20	71	415					
2	20	36	421					
3	20	18	421					
4	20	4	194					

SLOT	COIL INPUT GAIN (dB)							
	1	2	3	4	5	6	7	8
1	14	8						
2	14	8						
3	14	8						
4	14	8						

COIL	DR1	DR3	BC	HN	RFT	CAP	NAME
1	DIF					A 12	
2	ABS					A 0	
3							
4							
5							
6							
7							
8							



**CH 1 180 KHz DEG Curve**



Phase	%	Phase	%	Phase	%	Phase	%
0.0	0	52.0	97	104.0	75	156.0	27
1.0	2	53.0	97	105.0	74	157.0	26
2.0	5	54.0	96	106.0	73	158.0	24
3.0	7	55.0	96	107.0	73	159.0	23
4.0	10	56.0	96	108.0	72	160.0	21
5.0	12	57.0	95	109.0	71	161.0	20
6.0	15	58.0	95	110.0	71	162.0	19
7.0	17	59.0	95	111.0	70	163.0	17
8.0	20	60.0	95	112.0	69	164.0	16
9.0	22	61.0	94	113.0	69	165.0	14
10.0	25	62.0	94	114.0	68	166.0	13
11.0	27	63.0	94	115.0	67	167.0	11
12.0	30	64.0	93	116.0	67	168.0	10
13.0	32	65.0	93	117.0	66	169.0	8
14.0	35	66.0	93	118.0	65	170.0	7
15.0	37	67.0	92	119.0	64	171.0	5
16.0	39	68.0	92	120.0	64	172.0	3
17.0	42	69.0	91	121.0	63	173.0	2
18.0	44	70.0	91	122.0	62	174.0	0
19.0	47	71.0	91	123.0	61	175.0	0
20.0	49	72.0	90	124.0	60	176.0	0
21.0	52	73.0	90	125.0	60	177.0	0
22.0	54	74.0	90	126.0	59	178.0	0
23.0	57	75.0	89	127.0	58	179.0	0
24.0	59	76.0	89	128.0	57		
25.0	62	77.0	88	129.0	56		
26.0	64	78.0	88	130.0	55		
27.0	67	79.0	87	131.0	54		
28.0	69	80.0	87	132.0	53		
29.0	72	81.0	87	133.0	52		
30.0	74	82.0	86	134.0	52		
31.0	77	83.0	86	135.0	51		
32.0	79	84.0	85	136.0	50		
33.0	81	85.0	85	137.0	49		
34.0	84	86.0	84	138.0	48		
35.0	86	87.0	84	139.0	47		
36.0	89	88.0	83	140.0	46		
37.0	91	89.0	83	141.0	45		
38.0	94	90.0	82	142.0	43		
39.0	96	91.0	82	143.0	42		
40.0	99	92.0	81	144.0	41		
41.0	100	93.0	81	145.0	40		
42.0	100	94.0	80	146.0	39		
43.0	99	95.0	80	147.0	38		
44.0	99	96.0	79	148.0	37		
45.0	99	97.0	79	149.0	36		
46.0	99	98.0	78	150.0	34		
47.0	98	99.0	78	151.0	33		
48.0	98	100.0	77	152.0	32		
49.0	98	101.0	76	153.0	31		
50.0	98	102.0	76	154.0	29		
51.0	97	103.0	75	155.0	28		

Site

Owner **Somerset, KY**

Site Code **COOPERPOWER** Unit **2**

Comp **U2FWH7** Model **Unit 2 FWH 7**

Outage **Spring 2018** Date **04/17/2018**

Cal

Cal Num **1** Disk  Leg **INLET**

Material **SA688 304ss** ID **0.750** OD **0.800**

Operators

Operator ID **7012** Level **IIA**

Operator ID  Level

Standards

Type **SA688** SN **EU014713**

Type  SN

Type  SN

Probe

Model **450MF** Vendor **Corestar**

Ext Type  Vendor

Head Size **0** Head SN

Shaft Length **0** Shaft SN

Ext Length **0** Ref Head SN

Slip SN  Ref Shaft SN

Tester Config

IDX	TYPE	CHAN	FREQ	SPAN	Y/X	ROT	COIL	CTX

Config

Auto Mode **Manual**

Sample Rate **0** Num Chan **0** Offset **0**

Acq Speed **24.00** RPC RPM  Acq Dir **PULL**

File

Source **CoreStar** Samples **10,000**

Procedure **TGR ET REV 4**

Software **8.1**

Equipment

Tester **Omni-200** SN **0122-1207**

Pusher  SN

Fixture  SN

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File=9 SEC= ROW=999 TUB=999

TLIST	REPORT	COMPARE	HISTORY	SUMMARY	MESSAGE	SETUP	CURVE	AUTO LOC	OPTIONS	SCREENING	LOC	BEG	END	7012	PRI	F								
1	DSET 1	DSET 1	DSET 1	DSET=1 SEC= ROW=999 TUB=999			DSET=1 SEC= ROW=999 TUB=999			DSET=1 SEC= ROW=999 TUB=999			TEST OPTIONS PLAN											
2	MIX 1V C1	CH 3V C1	CH 6V C2	60	MIX 1 1:3:5			120°	90	CH 1 180 KHz		43°	40	CH 6 45 KHz				309°	CAL SEC ROW TUB TIME					
													1		IN		5		2		03:38			
													OBS		PLG						TESTER OFF		CONFIG	
													ACQUIRE								24.00			
													Speed				Pos							
													Cal		199 MB		Free		524 GB					
													Samples		2,240									
													Acquired		328 of		392							
													ENTRY		D		SEC		ROW		TUB		CNT	
													39		A		IN		5		2		^	
													40		A		IN		5		3			
													41		A		IN		5		4			
													42		A		IN		5		5		1	
													43		A		IN		5		6			
													44		A		IN		5		7			
													45		A		IN		5		8			
													46		A		IN		5		9			
													47		A		IN		5		10		1	
													48		A		IN		5		11			
													49		A		IN		5		12			
													50		A		IN		5		13			
													51		A		IN		5		14			
													52		A		IN		5		15		1	
													53		A		IN		5		16		v	
													DSET 1 Mix		Δt=0.000s		Speed ???						04/17/2018 11:49:23	

LINE	SEC	ROW	TUB	VOLTS	DEG	CODE	%	CH	LOCATION	EXTENT
110	OUT	15	23			NDD		M1		
111	OUT	15	24			NDD		M1		
112	OUT	15	25			NDD		M1		
113	OUT	15	26			NDD		M1		

File=109 SEC=OUT ROW=15 TUB=23

TLIST	REPORT	COMPARE	HISTORY	SUMMARY	MESSAGE	SETUP	CURVE	AUTO LOC	OPTIONS	SCREENING	LOC	BEG	END	7012	PRI	F																																																																																																																																																							
1	DSET 1	DSET 1	DSET 1	DSET=1 SEC=OUT ROW=15 TUB=23			DSET=1 SEC=OUT ROW=15 TUB=23			DSET=1 SEC=OUT ROW=15 TUB=23																																																																																																																																																													
18	MIX 1V C1	CH 3V C1	CH 6V C2	60	MIX 1 1:3:5	120°	90	CH 1 180 KHz	43°	60	CH 6 45 KHz	309°	<table border="1"> <tr> <th>CAL</th> <th>SEC</th> <th>ROW</th> <th>TUB</th> <th>TIME</th> </tr> <tr> <td>1</td> <td>IN</td> <td>5</td> <td>2</td> <td>03:39</td> </tr> </table>				CAL	SEC	ROW	TUB	TIME	1	IN	5	2	03:39																																																																																																																																													
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Unit 2 FWH #7

LINE	SEC	ROW	TUB	VOLTS	DEG	CODE	%	CH	LOCATION	EXTENT
1					ANALYST	7012			IIA	04/17/18
2					ACQ END	1127				04/17/18
3					CAL	1				
4					CAL	1			COOPERP	PRI
5					COMP	U2FWH7				
6					PROBE	450MF				
7					ANALYST	7012			IIA	04/17/18
8					OPERATOR	7012			IIA	
9					ACQ START	0647				04/17/18
10										
11	OUT	1	1			NDD		1		
12	OUT	1	2			NDD		1		
13	OUT	1	3			NDD		M1		
14	OUT	1	4			NDD		M1		
15	OUT	1	5			NDD		M1		
16	OUT	1	6			NDD		M1		
17	OUT	1	7			NDD		M1		
18	OUT	1	8			NDD		M1		
19	OUT	1	9			NDD		M1		
20	OUT	1	10			NDD		M1		
21	OUT	1	11			NDD		M1		
22	OUT	1	12			NDD		M1		
23	OUT	1	13			NDD		M1		
24	OUT	1	14			NDD		M1		
25	OUT	1	15			NDD		M1		
26	OUT	1	16			NDD		M1		
27	OUT	1	17			NDD		M1		
28	OUT	1	18			NDD		M1		
29	OUT	1	19			NDD		M1		
30	OUT	1	20			NDD		M1		
31	OUT	1	21			NDD		M1		
32	OUT	1	22			NDD		M1		
33	OUT	1	23			NDD		M1		
34	OUT	1	24			NDD		M1		
35	OUT	1	25			NDD		M1		
36	OUT	1	26			NDD		M1		
37	OUT	1	27			NDD		M1		
38	OUT	1	28			NDD		M1		
39	OUT	1	29			NDD		M1		
40	OUT	1	30			NDD		M1		
41	OUT	1	31			NDD		M1		
42	OUT	1	32			NDD		M1		
43	OUT	1	33			NDD		M1		
44	OUT	1	34			NDD		M1		
45	OUT	1	35			NDD		M1		
46	OUT	1	36			NDD		M1		
47	OUT	1	37			NDD		M1		
48	OUT	10	1			NDD		M1		
49	OUT	10	2			NDD		M1		
50	OUT	10	3			NDD		M1		
51	OUT	10	4			NDD		M1		
52	OUT	10	5			NDD		M1		
53	OUT	10	6			NDD		M1		
54	OUT	10	7			NDD		M1		
55	OUT	10	8			NDD		M1		
56	OUT	10	9			NDD		M1		
57	OUT	10	10			NDD		M1		
58	OUT	10	11			NDD		M1		
59	OUT	10	12			NDD		M1		
60	OUT	10	13			NDD		M1		
61	OUT	10	14			NDD		M1		
62	OUT	10	15			NDD		M1		
63	OUT	10	16			NDD		M1		
64	OUT	10	17			NDD		M1		

LINE	SEC	ROW	TUB	VOLTS	DEG	CODE	%	CH	LOCATION	EXTENT
65	OUT	10	18			NDD		M1		
66	OUT	10	19			NDD		M1		
67	OUT	10	20			NDD		M1		
68	OUT	10	21			NDD		M1		
69	OUT	10	22			NDD		M1		
70	OUT	10	23			NDD		M1		
71	OUT	10	24			NDD		M1		
72	OUT	10	25			NDD		M1		
73	OUT	10	26			NDD		M1		
74	OUT	10	27			NDD		M1		
75	OUT	10	28			NDD		M1		
76	OUT	10	29			NDD		M1		
77	OUT	10	30			NDD		M1		
78	OUT	10	31			NDD		M1		
79	OUT	10	32			NDD		M1		
80	OUT	10	33			NDD		M1		
81	OUT	10	34			NDD		M1		
82	OUT	10	35			NDD		M1		
83	OUT	10	36			NDD		M1		
84	OUT	10	37			NDD		M1		
85	OUT	10	38			NDD		M1		
86	OUT	10	39			NDD		M1		
87	OUT	10	40			NDD		M1		
88	OUT	15	1			NDD		M1		
89	OUT	15	2			NDD		M1		
90	OUT	15	3			NDD		M1		
91	OUT	15	4			NDD		M1		
92	OUT	15	5			NDD		M1		
93	OUT	15	6			NDD		M1		
94	OUT	15	7			NDD		M1		
95	OUT	15	8			NDD		M1		
96	OUT	15	9			NDD		M1		
97	OUT	15	10			NDD		M1		
98	OUT	15	11			NDD		M1		
99	OUT	15	12			NDD		M1		
100	OUT	15	13			NDD		M1		
101	OUT	15	14			NDD		M1		
102	OUT	15	15			NDD		M1		
103	OUT	15	16			NDD		M1		
104	OUT	15	17			NDD		M1		
105	OUT	15	18			NDD		M1		
106	OUT	15	19			NDD		M1		
107	OUT	15	20			NDD		M1		
108	OUT	15	21			NDD		M1		
109	OUT	15	22			NDD		M1		
110	OUT	15	23			NDD		M1		
111	OUT	15	24			NDD		M1		
112	OUT	15	25			NDD		M1		
113	OUT	15	26			NDD		M1		
114	OUT	15	27			NDD		M1		
115	OUT	15	28			NDD		M1		
116	OUT	15	29			NDD		M1		
117	OUT	15	30			NDD		M1		
118	OUT	15	31			NDD		M1		
119	OUT	15	32			NDD		M1		
120	OUT	15	33			NDD		M1		
121	OUT	16	1			NDD		M1		
122	OUT	16	2			NDD		M1		
123	OUT	17	1			PLG		1		
124	OUT	16	24			NDD		M1		
125	OUT	16	25			NDD		M1		
126	OUT	16	26			NDD		M1		
127	OUT	16	27			NDD		M1		
128	OUT	17	2			NDD		M1		
129	OUT	17	23			NDD		M1		
130	OUT	17	24			NDD		M1		



LINE	SEC	ROW	TUB	VOLTS	DEG	CODE	%	CH	LOCATION	EXTENT
131	OUT	17	25			NDD		M1		
132	OUT	17	26			NDD		M1		
133	OUT	17	27			NDD		M1		
134	OUT	18	22			NDD		M1		
135	OUT	18	23			PLG		1		
136	OUT	18	24			PLG		1		
137	OUT	18	25			NDD		M1		
138	OUT	19	21			NDD		M1		
139	OUT	19	22			PLG		1		
140	OUT	19	23			PLG		1		
141	OUT	19	24			PLG		1		
142	OUT	19	25			NDD		M1		
143	OUT	20	20			NDD		M1		
144	OUT	20	21			PLG		1		
145	OUT	20	22			PLG		1		
146	OUT	20	23			PLG		1		
147	OUT	20	24			NDD		M1		
148	OUT	21	1			NDD		M1		
149	OUT	21	2			NDD		M1		
150	OUT	21	3			NDD		M1		
151	OUT	21	4			NDD		M1		
152	OUT	21	5			NDD		M1		
153	OUT	21	6			NDD		M1		
154	OUT	21	7			NDD		M1		
155	OUT	21	8			NDD		M1		
156	OUT	21	9			NDD		M1		
157	OUT	21	10			NDD		M1		
158	OUT	21	11			NDD		M1		
159	OUT	21	12			NDD		M1		
160	OUT	21	13			NDD		M1		
161	OUT	21	14			NDD		M1		
162	OUT	21	15			NDD		M1		
163	OUT	21	17			PLG		1		
164	OUT	5	1			NDD		M1		
165	OUT	5	5			NDD		M1		
166	OUT	5	10			NDD		M1		
167	OUT	5	15			NDD		M1		
168	OUT	5	20			NDD		M1		
169	OUT	5	25			NDD		M1		
170	OUT	5	30			NDD		M1		
171	OUT	5	35			NDD		M1		
172	OUT	5	41			NDD		M1		
173	IN	1	1			NDD		M1		
174	IN	1	2			NDD		M1		
175	IN	1	3			NDD		M1		
176	IN	1	4			NDD		M1		
177	IN	1	5			NDD		M1		
178	IN	1	6			NDD		M1		
179	IN	1	7			NDD		M1		
180	IN	1	8			NDD		M1		
181	IN	1	9			NDD		M1		
182	IN	1	10			NDD		M1		
183	IN	1	11			NDD		M1		
184	IN	1	12			NDD		M1		
185	IN	1	13			NDD		M1		
186	IN	1	14			NDD		M1		
187	IN	1	15			NDD		M1		
188	IN	1	16			NDD		M1		
189	IN	1	17			NDD		M1		
190	IN	1	18			NDD		M1		
191	IN	1	19			NDD		M1		
192	IN	1	20			NDD		M1		
193	IN	1	21			NDD		M1		
194	IN	1	22			NDD		M1		
195	IN	1	23			NDD		M1		
196	IN	1	24			NDD		M1		

LINE	SEC	ROW	TUB	VOLTS	DEG	CODE	%	CH	LOCATION	EXTENT
197	IN	1	25			NDD		M1		
198	IN	1	26			NDD		M1		
199	IN	1	27			NDD		M1		
200	IN	1	28			NDD		M1		
201	IN	1	29			NDD		M1		
202	IN	1	30			NDD		M1		
203	IN	1	31			NDD		M1		
204	IN	1	32			NDD		M1		
205	IN	1	33			NDD		M1		
206	IN	1	34			NDD		M1		
207	IN	1	35			NDD		M1		
208	IN	1	36			NDD		M1		
209	IN	1	37			NDD		M1		
210	IN	5	1			NDD		M1		
211	IN	5	5			NDD		M1		
212	IN	5	10			NDD		M1		
213	IN	5	15			NDD		M1		
214	IN	5	20			NDD		M1		
215	IN	5	25			NDD		M1		
216	IN	5	30			NDD		M1		
217	IN	5	35			NDD		M1		
218	IN	5	41			NDD		M1		
219	IN	10	1			NDD		M1		
220	IN	10	2			NDD		M1		
221	IN	10	3			NDD		M1		
222	IN	10	4			NDD		M1		
223	IN	10	5			NDD		M1		
224	IN	10	6			NDD		M1		
225	IN	10	7			NDD		M1		
226	IN	10	8			NDD		M1		
227	IN	10	9			NDD		M1		
228	IN	10	10			NDD		M1		
229	IN	10	11			NDD		M1		
230	IN	10	12			NDD		M1		
231	IN	10	13			NDD		M1		
232	IN	10	14			NDD		M1		
233	IN	10	15			NDD		M1		
234	IN	10	16			NDD		M1		
235	IN	10	17			NDD		M1		
236	IN	10	18			NDD		M1		
237	IN	10	19			NDD		M1		
238	IN	10	20			NDD		M1		
239	IN	10	21			NDD		M1		
240	IN	10	22			NDD		M1		
241	IN	10	23			NDD		M1		
242	IN	10	24			NDD		M1		
243	IN	10	25			NDD		M1		
244	IN	10	26			NDD		M1		
245	IN	10	27			NDD		M1		
246	IN	10	28			NDD		M1		
247	IN	10	29			NDD		M1		
248	IN	10	30			NDD		M1		
249	IN	10	31			NDD		M1		
250	IN	10	32			NDD		M1		
251	IN	10	33			NDD		M1		
252	IN	10	34			NDD		M1		
253	IN	10	35			NDD		M1		
254	IN	10	36			NDD		M1		
255	IN	10	37			NDD		M1		
256	IN	10	38			NDD		M1		
257	IN	10	39			NDD		M1		
258	IN	10	40			NDD		M1		
259	IN	15	1			NDD		M1		
260	IN	15	2			NDD		M1		
261	IN	15	3			NDD		M1		
262	IN	15	4			NDD		M1		

LINE	SEC	ROW	TUB	VOLTS	DEG	CODE	%	CH	LOCATION	EXTENT
263	IN	15	5			NDD		M1		
264	IN	15	6			NDD		M1		
265	IN	15	7			NDD		M1		
266	IN	15	8			NDD		M1		
267	IN	15	9			NDD		M1		
268	IN	15	10			NDD		M1		
269	IN	15	11			NDD		M1		
270	IN	15	12			NDD		M1		
271	IN	15	13			NDD		M1		
272	IN	15	14			NDD		M1		
273	IN	15	15			NDD		M1		
274	IN	15	16			NDD		M1		
275	IN	15	17			NDD		M1		
276	IN	15	18			NDD		M1		
277	IN	15	19			NDD		M1		
278	IN	15	20			NDD		M1		
279	IN	15	21			NDD		M1		
280	IN	15	22			NDD		M1		
281	IN	15	23			NDD		M1		
282	IN	15	24			NDD		M1		
283	IN	15	25			NDD		M1		
284	IN	15	26			NDD		M1		
285	IN	15	27			NDD		M1		
286	IN	15	28			NDD		M1		
287	IN	15	29			NDD		M1		
288	IN	15	30			NDD		M1		
289	IN	15	31			NDD		M1		
290	IN	15	32			NDD		M1		
291	IN	15	33			NDD		M1		
292	IN	16	1			NDD		M1		
293	IN	16	2			NDD		M1		
294	IN	16	24			NDD		M1		
295	IN	16	25			NDD		M1		
296	IN	16	26			NDD		M1		
297	IN	16	27			NDD		M1		
298	IN	17	1			PLG		1		
299	IN	17	2			NDD		M1		
300	IN	17	24			NDD		M1		
301	IN	17	25			NDD		M1		
302	IN	17	26			NDD		M1		
303	IN	17	23			NDD		M1		
304	IN	17	27			NDD		M1		
305	IN	18	22			NDD		M1		
306	IN	18	23			PLG		1		
307	IN	18	24			PLG		1		
308	IN	18	25			NDD		M1		
309	IN	19	21			NDD		M1		
310	IN	19	22			PLG		1		
311	IN	19	23			PLG		1		
312	IN	19	24			PLG		1		
313	IN	19	25			NDD		M1		
314	IN	20	20			NDD		M1		
315	IN	20	21			PLG		1		
316	IN	20	22			PLG		1		
317	IN	20	23			PLG		1		
318	IN	20	24			NDD		M1		
319	IN	21	1			OBS		1		
320	IN	21	2			NDD		M1		
321	IN	21	3			NDD		M1		
322	IN	21	4			NDD		M1		
323	IN	21	5			NDD		M1		
324	IN	21	6			NDD		M1		
325	IN	21	7			NDD		M1		
326	IN	21	8			NDD		M1		
327	IN	21	9			NDD		M1		
328	IN	21	10			NDD		M1		



