

**PRELIMINARY SPECIFICATION FOR  
ERI CARINA™ HORIZONTALLY POLARIZED  
COAXIAL SLOTTED ARRAY ANTENNA**

*Prepared For  
WVEO- DT  
International Broadcasting Corporation  
Aguadilla, PR  
March 12, 2007*

**ANTENNA TYPE:**  
**ALP16L2-HSP-17**

**SPECIFICATION NO:**  
**JEH031207-07B**



Electronics Research, Inc.  
7777 Gardner Road  
Chandler, Indiana U.S.A 47610

JEH031207-07B -1-

3.12.07

# **PRELIMINARY SPECIFICATION FOR ERI CARINA™ HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA**

## **ELECTRICAL CHARACTERISTICS:**

CHANNEL:	17
FREQUENCY RANGE:	488.00 - 494.00 MHz
AZIMUTH PATTERN NUMBER:	Hor Pol: ALP-P
ELEVATION PATTERN NUMBER:	Hor Pol: ALP16L2
AZIMUTH DIRECTIVITY:	Hor Pol: 1.88 (2.74 dB)
ELEVATION DIRECTIVITY:	Hor Pol: 16.59 (12.20 dBd)
PEAK POWER GAIN:	Hor Pol: 31.19 (14.94 dBd)
GAIN AT HORIZONTAL:	Hor Pol: 27.85 (14.45 dBd)
ELECTRICAL BEAM TILT:	-0.50 Degrees
INPUT POWER REQUIRED:	1.347 kW Average Power, 8VSB Digital
MAXIMUM INPUT POWER:	3.00 kW Average Power
INPUT TYPE:	1-5/8" EIA
ANTENNA VSWR (MAXIMUM):	DTV: 1.10 Over 6 MHz of Channel



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# PRELIMINARY SPECIFICATION FOR ERI CARINA™ HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

## MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION:

Side Mount

\*(Tower Interface supplied and  
installed by others.)

HEIGHT OF ANTENNA:

40.8 feet

HEIGHT OF CENTER OF  
RADIATION:

20.4 feet

OVERALL HEIGHT (A):

40.8 feet

DEICING:

Unpressurized Slot Cover Radome Enclosure

RADOME DIAMETER (C):

CONTACT ERI

RADOME COLOR:

GRAY

CLIMBING DEVICE:

NOT APPLICABLE

CALCULATED WEIGHT<sup>1</sup>:

240 lbs.

ANTENNA AREA<sup>2</sup>:

FRONT AREA:

C<sub>A</sub>A<sub>C</sub>: 35.3 square feet

A<sub>C</sub>: 29.4 square feet

SIDE AREA:

C<sub>A</sub>A<sub>C</sub>: 21.4 square feet

A<sub>C</sub>: 17.9 square feet

***This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three translational and three rotational degrees of freedom.***

<sup>1</sup> Calculated weight is based on the PRELIMINARY design of the antenna. The actual weight of the antenna will be within  $\pm 10\%$  of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna.

<sup>2</sup> Antenna Area is calculated per EIA/TIA-RS222-F.

***Note: Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.***



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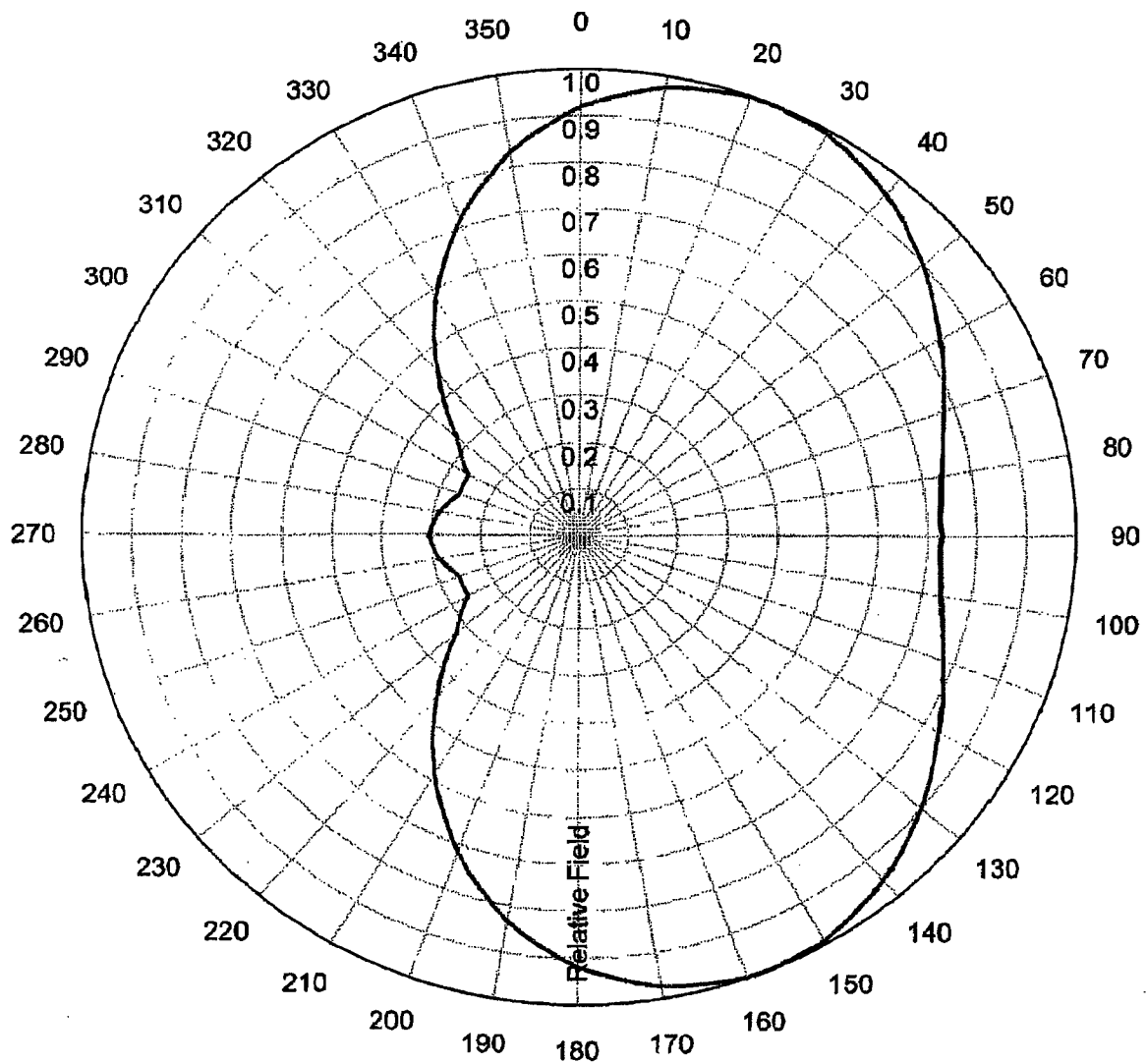
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## AZIMUTH PATTERN

Type: ALP-P

	Numeric	dBd
Directivity:	<u>1.88</u>	<u>2.74</u>
Peak(s) at:		
Polarization:	<u>Horizontal</u>	
Channel:	<u>17</u>	
Location:	<u>Aguadilla, PR</u>	
Note:		



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## AZIMUTH TABULATED DATA

Type: ALP-P

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.919	-0.73	92	0.727	-2.77	184	0.884	-1.07	276	0.296	-10.57
2	0.930	-0.63	94	0.728	-2.76	186	0.867	-1.24	278	0.292	-10.69
4	0.941	-0.53	96	0.732	-2.71	188	0.850	-1.41	280	0.289	-10.78
6	0.952	-0.43	98	0.735	-2.67	190	0.833	-1.59	282	0.283	-10.96
8	0.963	-0.33	100	0.739	-2.63	192	0.810	-1.83	284	0.277	-11.15
10	0.974	-0.23	102	0.745	-2.56	194	0.786	-2.09	286	0.271	-11.34
12	0.979	-0.18	104	0.752	-2.48	196	0.763	-2.35	288	0.265	-11.54
14	0.984	-0.14	106	0.760	-2.38	198	0.740	-2.62	290	0.259	-11.73
16	0.990	-0.09	108	0.769	-2.28	200	0.717	-2.89	292	0.259	-11.73
18	0.995	-0.04	110	0.778	-2.18	202	0.690	-3.22	294	0.259	-11.73
20	0.999	-0.01	112	0.789	-2.06	204	0.664	-3.56	296	0.259	-11.73
22	1.000	0.00	114	0.801	-1.93	206	0.637	-3.92	298	0.259	-11.73
24	1.000	0.00	116	0.813	-1.80	208	0.611	-4.28	300	0.259	-11.73
26	0.996	-0.03	118	0.824	-1.68	210	0.585	-4.66	302	0.273	-11.28
28	0.994	-0.05	120	0.836	-1.56	212	0.557	-5.08	304	0.286	-10.87
30	0.993	-0.06	122	0.848	-1.43	214	0.529	-5.53	306	0.299	-10.49
32	0.985	-0.13	124	0.861	-1.30	216	0.502	-5.99	308	0.313	-10.09
34	0.978	-0.19	126	0.874	-1.17	218	0.474	-6.48	310	0.326	-9.74
36	0.970	-0.26	128	0.886	-1.05	220	0.446	-7.01	312	0.350	-9.12
38	0.963	-0.33	130	0.899	-0.92	222	0.422	-7.49	314	0.374	-8.54
40	0.955	-0.40	132	0.910	-0.82	224	0.398	-8.00	316	0.398	-8.00
42	0.944	-0.50	134	0.921	-0.71	226	0.374	-8.54	318	0.422	-7.49
44	0.933	-0.60	136	0.933	-0.60	228	0.350	-9.12	320	0.446	-7.01
46	0.921	-0.71	138	0.944	-0.50	230	0.326	-9.74	322	0.474	-6.48
48	0.910	-0.82	140	0.955	-0.40	232	0.313	-10.09	324	0.502	-5.99
50	0.899	-0.92	142	0.963	-0.33	234	0.299	-10.49	326	0.529	-5.53
52	0.886	-1.05	144	0.970	-0.26	236	0.286	-10.87	328	0.557	-5.08
54	0.874	-1.17	146	0.978	-0.19	238	0.273	-11.28	330	0.585	-4.66
56	0.861	-1.30	148	0.985	-0.13	240	0.259	-11.73	332	0.611	-4.28
58	0.848	-1.43	150	0.993	-0.06	242	0.259	-11.73	334	0.637	-3.92
60	0.836	-1.56	152	0.994	-0.05	244	0.259	-11.73	336	0.664	-3.56
62	0.824	-1.68	154	0.996	-0.03	246	0.259	-11.73	338	0.690	-3.22
64	0.813	-1.80	156	1.000	0.00	248	0.259	-11.73	340	0.717	-2.89
66	0.801	-1.93	158	1.000	0.00	250	0.259	-11.73	342	0.740	-2.62
68	0.789	-2.06	160	0.999	-0.01	252	0.265	-11.54	344	0.763	-2.35
70	0.778	-2.18	162	0.995	-0.04	254	0.271	-11.34	346	0.786	-2.09
72	0.769	-2.28	164	0.990	-0.09	256	0.277	-11.15	348	0.810	-1.83
74	0.760	-2.38	166	0.984	-0.14	258	0.283	-10.96	350	0.833	-1.59
76	0.752	-2.48	168	0.979	-0.18	260	0.289	-10.78	352	0.850	-1.41
78	0.745	-2.56	170	0.974	-0.23	262	0.292	-10.69	354	0.867	-1.24
80	0.739	-2.63	172	0.963	-0.33	264	0.296	-10.57	356	0.884	-1.07
82	0.735	-2.67	174	0.952	-0.43	266	0.299	-10.49	358	0.902	-0.90
84	0.732	-2.71	176	0.941	-0.53	268	0.302	-10.40	360	0.919	-0.73
86	0.728	-2.76	178	0.930	-0.63	270	0.305	-10.31			
88	0.727	-2.77	180	0.919	-0.73	272	0.302	-10.40			
90	0.729	-2.75	182	0.902	-0.90	274	0.299	-10.49			



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**AZIMUTH PATTERN  
FCC FILING FORMAT**

Type: ALP-P  
Polarization: Horizontal

Angle	Field	ERP (kW)	ERP (dBk)
0	0.919	35.472	15.499
10	0.974	39.844	16.004
20	0.999	41.916	16.224
30	0.993	41.414	16.171
40	0.955	38.305	15.833
50	0.899	33.944	15.308
60	0.836	29.354	14.677
70	0.778	25.422	14.052
80	0.739	22.937	13.605
90	0.729	22.321	13.487
100	0.739	22.937	13.605
110	0.778	25.422	14.052
120	0.836	29.354	14.677
130	0.899	33.944	15.308
140	0.955	38.305	15.833
150	0.993	41.414	16.171
160	0.999	41.916	16.224
170	0.974	39.844	16.004
180	0.919	35.472	15.499
190	0.833	29.143	14.645
200	0.717	21.592	13.343
210	0.585	14.373	11.576
220	0.446	8.354	9.219
230	0.326	4.464	6.497
240	0.259	2.817	4.498
250	0.259	2.817	4.498
260	0.289	3.508	5.450
270	0.305	3.907	5.918
280	0.289	3.508	5.450
290	0.259	2.817	4.498
300	0.259	2.817	4.498
310	0.326	4.464	6.497
320	0.446	8.354	9.219
330	0.585	14.373	11.576
340	0.717	21.592	13.343
350	0.833	29.143	14.645



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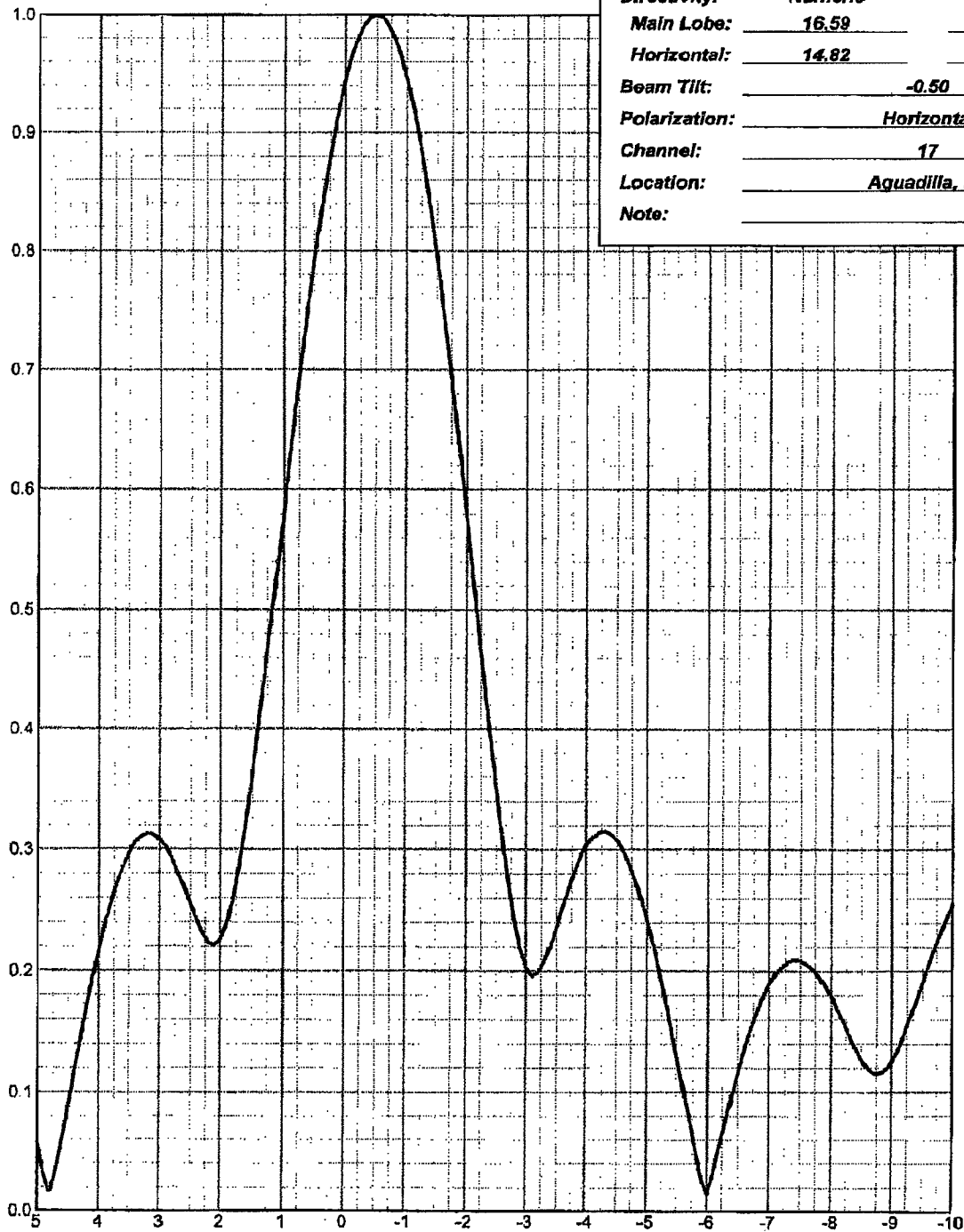
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## ELEVATION PATTERN

Type:	ALP16L2	
Directivity:	Numeric	dBd
Main Lobe:	16.59	12.20
Horizontal:	14.82	11.71
Beam Tilt:	-0.50	
Polarization:	Horizontal	
Channel:	17	
Location:	Aguadilla, PR	
Note:		

Relative Field



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## ELEVATION TABULATED DATA

Type: ALP16L2

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
5.00	0.058	-24.73	-6.50	0.118	-18.58	-42.00	0.004	-47.86	-88.00	0.007	-43.10
4.75	0.026	-31.70	-6.75	0.160	-15.92	-43.00	0.035	-29.12	-89.00	0.003	-50.46
4.50	0.088	-21.01	-7.00	0.190	-14.42	-44.00	0.042	-27.54	-90.00	0.000	-40.00
4.25	0.156	-16.14	-7.25	0.206	-13.72	-45.00	0.029	-30.75			
4.00	0.217	-13.27	-7.50	0.209	-13.60	-46.00	0.018	-34.89			
3.75	0.265	-11.55	-7.75	0.199	-14.02	-47.00	0.023	-32.77			
3.50	0.297	-10.54	-8.00	0.179	-14.94	-48.00	0.014	-37.08			
3.25	0.312	-10.12	-8.25	0.153	-16.33	-49.00	0.012	-38.42			
3.00	0.308	-10.23	-8.50	0.127	-17.92	-50.00	0.041	-27.74			
2.75	0.287	-10.84	-8.75	0.116	-18.71	-51.00	0.059	-24.58			
2.50	0.255	-11.87	-9.00	0.126	-17.99	-52.00	0.057	-24.88			
2.25	0.227	-12.88	-9.25	0.155	-16.19	-53.00	0.039	-28.18			
2.00	0.226	-12.92	-9.50	0.191	-14.38	-54.00	0.033	-29.63			
1.75	0.274	-11.24	-9.75	0.226	-12.94	-55.00	0.056	-25.04			
1.50	0.359	-8.90	-10.00	0.255	-11.87	-56.00	0.071	-22.97			
1.25	0.467	-6.62	-11.00	0.284	-10.93	-57.00	0.065	-23.74			
1.00	0.580	-4.73	-12.00	0.186	-14.61	-58.00	0.039	-28.18			
0.75	0.693	-3.19	-13.00	0.063	-24.01	-59.00	0.005	-46.02			
0.50	0.794	-2.00	-14.00	0.007	-43.10	-60.00	0.044	-27.13			
0.25	0.880	-1.11	-15.00	0.013	-37.72	-61.00	0.076	-22.38			
0.00	0.945	-0.49	-16.00	0.029	-30.75	-62.00	0.091	-20.82			
-0.25	0.986	-0.13	-17.00	0.003	-50.46	-63.00	0.086	-21.31			
-0.50	1.000	0.00	-18.00	0.053	-25.51	-64.00	0.070	-23.10			
-0.75	0.986	-0.12	-19.00	0.071	-22.97	-65.00	0.066	-23.61			
-1.00	0.946	-0.48	-20.00	0.057	-24.88	-66.00	0.095	-20.45			
-1.25	0.881	-1.10	-21.00	0.141	-17.02	-67.00	0.140	-17.08			
-1.50	0.796	-1.98	-22.00	0.224	-13.00	-68.00	0.183	-14.75			
-1.75	0.693	-3.19	-23.00	0.227	-12.88	-69.00	0.216	-13.31			
-2.00	0.579	-4.75	-24.00	0.150	-16.48	-70.00	0.236	-12.54			
-2.25	0.462	-6.71	-25.00	0.058	-25.04	-71.00	0.241	-12.36			
-2.50	0.350	-9.12	-26.00	0.042	-27.54	-72.00	0.234	-12.62			
-2.75	0.258	-11.78	-27.00	0.043	-27.33	-73.00	0.217	-13.27			
-3.00	0.203	-13.85	-28.00	0.017	-35.39	-74.00	0.193	-14.29			
-3.25	0.204	-13.83	-29.00	0.003	-50.46	-75.00	0.166	-15.60			
-3.50	0.236	-12.54	-30.00	0.000	-40.00	-76.00	0.138	-17.20			
-3.75	0.275	-11.21	-31.00	0.012	-38.42	-77.00	0.110	-19.17			
-4.00	0.304	-10.34	-32.00	0.017	-35.39	-78.00	0.086	-21.31			
-4.25	0.315	-10.05	-33.00	0.055	-25.19	-79.00	0.065	-23.74			
-4.50	0.308	-10.23	-34.00	0.115	-18.79	-80.00	0.048	-26.38			
-4.75	0.282	-10.98	-35.00	0.156	-16.14	-81.00	0.036	-28.87			
-5.00	0.242	-12.32	-36.00	0.149	-16.54	-82.00	0.027	-31.37			
-5.25	0.190	-14.45	-37.00	0.098	-20.18	-83.00	0.021	-33.56			
-5.50	0.129	-17.79	-38.00	0.043	-27.33	-84.00	0.017	-35.39			
-5.75	0.065	-23.74	-39.00	0.058	-24.73	-85.00	0.015	-36.48			
-6.00	0.016	-35.92	-40.00	0.068	-23.35	-86.00	0.012	-38.42			
-6.25	0.065	-23.74	-41.00	0.042	-27.54	-87.00	0.009	-40.92			



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