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OMEGA HAWAII ANTENNA SYSTEM: MODIFICATION AND VALIDATION TESTS.--ETC(U)
OCT 79 J C HANSELMAN N00123-78-C-0043
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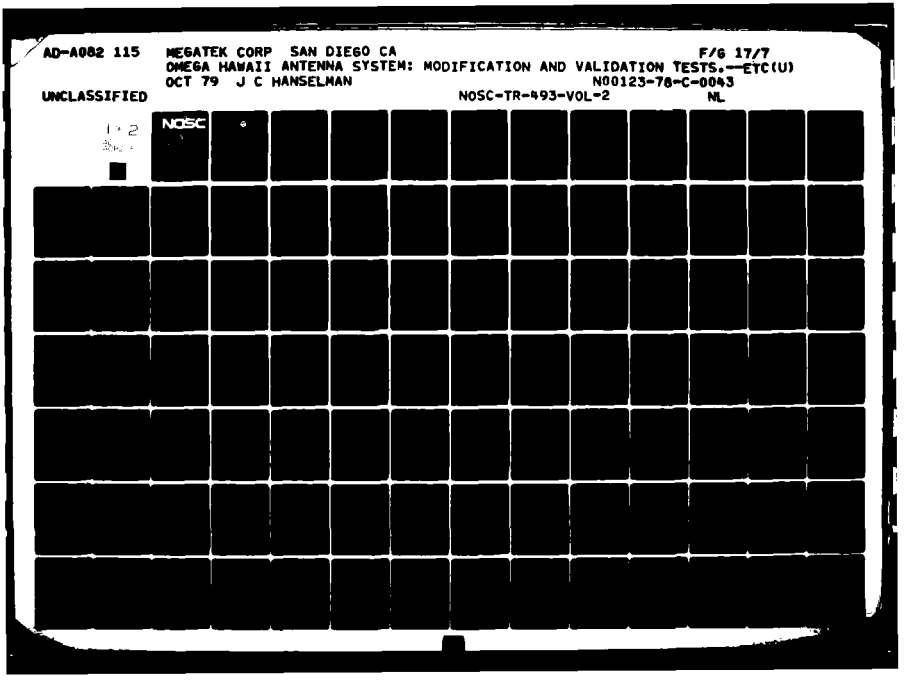

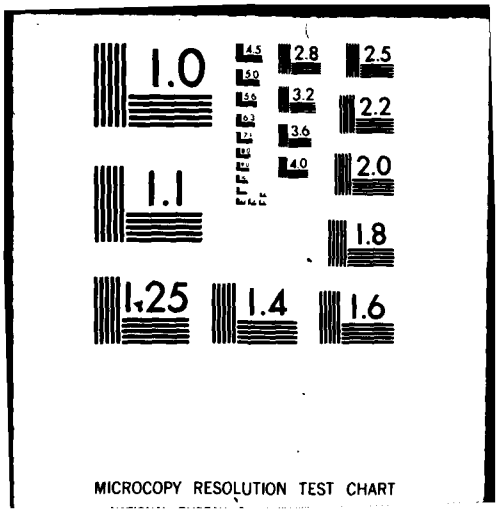
1.0
1.1
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4.5
5.0
5.6
6.3
MICROCOPY RESOLUTION TEST CHART

LEVEL II

NOSC

NOSC TR 493
Volume 2

NOSC TR 493
Volume 2

Technical Report 493
Volume 2

OMEGA HAWAII ANTENNA SYSTEM: MODIFICATION AND VALIDATION TESTS

Volume 2: Data Sheets

J.C. Hanselman, Megatek Corp.

19 October 1979

Final Report

Prepared for
US Coast Guard

NAVAL OCEAN SYSTEMS CENTER
SAN DIEGO, CALIFORNIA 92152

NAVAL OCEAN SYSTEMS CENTER, SAN DIEGO, CA 92152

AN ACTIVITY OF THE NAVAL MATERIAL COMMAND

SL GUILLE, CAPT, USN
Commander

HL BLOOD
Technical Director

ADMINISTRATIVE INFORMATION

Electronic measurements were performed on the Hawaii OMEGA Antenna System during the months of May and June 1978 and March and May 1979. The work was performed under NOSC project MP01538B10 with Megatek as contractor under NOSC Technical Agreements 005, 025, and 030, Contract N00123-78-C-0043.

Volume 1 of NOSC TR 493 is the report proper. Volume 2 contains data sheets.

Released by
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Electromagnetic Propagation
Division

Under authority of
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Environmental Sciences Department

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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Volume 1 is the report proper. Volume 2 contains data sheets.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Omega vlf navigation system
Antennas configuration
Monopole antenna
Measurements electrical
Radiation resistance - efficiency

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Electronic measurements were performed on the Hawaii Omega Antenna System during the months of May and June 1978 and March and May 1979. The work was performed under NOSC project MP01538B10 with Megatek as contractor. The electrical height of the antenna is 169 metres for all frequencies. The station can easily radiate more than 10 kW on all frequencies. There is no measurable deviation from omnidirectional radiation due to the proximity of the Haiku Valley walls to the south, west and north of the antenna. The apparent capacitance of the antenna was measured. Also, the inductance of the spare variometer and its variation was measured. From these preliminary measurements, the optimum location of the 11.050 kHz helix

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20. Abstract (Continued)

tap was determined and connected. The value of the antenna system's resistance was measured on three days of different weather conditions and found to vary. This variation is related to the degree of salt deposit on the antenna insulators. A recommended set of gear ratios for the variometer gear boxes is determined.

CONTENTS

INTRODUCTION

During the performance of modification and validation tests at OMEGA Hawaii, data and all pertinent information collected were recorded on appropriate data sheets. This information was later transcribed as necessary to data sheets designed to facilitate analysis and computation of desired operating parameters.

These data and computation sheets are presented herewith in rough form for future reference.

DATA SHEET 1

APPARENT CAPACITANCE

OMEGA HAWAII — 31 MAY 1978 (Date)

1. Frequency: 10,200 Hz.

2. Decade Capacitor

Indicated Reading: 0 .0451 µF.

Corrected Values : 0.0X 0 .040049 µF.

(Table) 0.00X 0 .005009 µF.

0.000X 0 .000101 µF.

Residual Capacitance: 0 .000048 µF.

Add

Total Decade Capacitance: 0 .045207 µF.

3. Variable Capacitor: 0 .000551 µF.
(Table)

4. Wiring Capacitance (if Measurable) 0 .000050 µF.

Add

5. Apparent Capacitance, $C_{app.}$ 0 .045808 µF.
(Antenna only)

6. Exit Bushing Capacitance 0 .000289 µF.

Add

7. Apparent Capacitance, $C_{app.}$ 0 .046097 µF.
(Includes Exit Bushing)

8. Reactance, X_C (Calculated) 338.5 Ohms

3 TRIALS; VARIABLE CAP.

547.3
547.5
550.7

$\bar{X}$ = 548.5

CORRECTION

548.5
+ 2.14
~~550.64~~
551

DATA SHEET 1

APPARENT CAPACITANCE

OMEGA HAWAII — 31 MAY 1978 (Date)

1. Frequency: 11,333.3 Hz.

2. Decade Capacitor

Indicated Reading: 0 . 0462 µF.

Corrected Values : 0.0X: 0 . 040049 µF.

(Table) 0.00X: 0 . 006010 µF.

0.000X: 0 . 000199 µF.

Residual Capacitance: 0 . 000048 µF. Add

Total Decade Capacitance: 0 . 046306 µF.

3. Variable Capacitor: 0 . 000627 µF.
(Table)

4. Wiring Capacitance (if Measurable) 0 . 000050 µF. Add

5. Apparent Capacitance, $C_{app.}$ 0 . 046983 µF.
(Antenna only)

6. Exit Bushing Capacitance 0 . 000289 µF. Add

7. Apparent Capacitance, $C_{app.}$ 0 . 047272 µF.
(Includes Exit Bushing)

8. Reactance, X_C (Calculated) 297.1 Ohms

3 TRIALS; VARIABLE CAP.

622.0
628.3
623.4

$\bar{X}$ = 624.57

CORRECTION

624.57
+2.06
~~626.63~~
627

DATA SHEET 1

APPARENT CAPACITANCE

OMEGA HAWAII — 31 MAY 1978 (Date)

1. Frequency: 11,550 Hz.

2. Decade Capacitor

Indicated Reading: 0 . 0469 µF.

Corrected Values : 0.0X — 0 . 040049 µF.

(Table) 0.00X — 0 . 006010 µF.

0.000X — 0 . 000897 µF.

Residual Capacitance: 0 . 000048 µF.

Add

Total Decade Capacitance: 0 . 047004 µF.

3. Variable Capacitor: 0 . 000161 µF.
(Table)

4. Wiring Capacitance (if Measurable) 0 . 000050 µF.

Add

5. Apparent Capacitance, $C_{app.}$ 0 . 047215 µF.
(Antenna only)

6. Exit Bushing Capacitance 0 . 000289 µF.

Add

7. Apparent Capacitance, $C_{app.}$ 0 . 047504 µF.
(Includes Exit Bushing)

8. Reactance, X_C (Calculated) 290.1 Ohms

3 TRIALS; VARIABLE CAP.

154.4
165.1
158.5

$\bar{X}$ = 160.33

CORRECTION

160.33
+0.81
~~161.14~~
161

DATA SHEET 1

APPARENT CAPACITANCE

OMEGA HAWAII — 31 MAY 1978 (Date)

1. Frequency: 11,800 Hz.

2. Decade Capacitor

Indicated Reading: 0 . 0472 µF.

Corrected Values : 0.0X — 0 . 040049 µF.

(Table) 0.00X — 0 . 007005 µF.

0.000X — 0 . 000199 µF.

Residual Capacitance: 0 . 000048 µF.

Add

Total Decade Capacitance: 0 . 047301 µF.

3. Variable Capacitor: 0 . 000165 µF.
(Table)

4. Wiring Capacitance (if Measurable) 0 . 000050 µF.

Add

5. Apparent Capacitance, $C_{app.}$ 0 . 047516 µF.
(Antenna only)

6. Exit Bushing Capacitance 0 . 000289 µF.

Add

7. Apparent Capacitance, $C_{app.}$ 0 . 047805 µF.
(Includes Exit Bushing)

8. Reactance, X_C (Calculated) 282.1 Ohms

3 TRIALS; VARIABLE CAP.

167.7
164.2
159.9
$\bar{X}$ = 163.93

CORRECTION

163.93
+0.82
~~+64.75~~
165

DATA SHEET 1

APPARENT CAPACITANCE

OMEGA HAWAII 31 MAY 1978
Date

1. Frequency 13,600 Hz.

2. Decade Capacitor

Indicated Reading: 0 . 0495 µF.

Corrected Values : 0.0X 0 . 040049 µF.

(Table) 0.00X 0 . 000004 µF.

0.000X 0 . 000501 µF.

Residual Capacitance: 0 . 000048 µF.
Add

Total Decade Capacitance: 0 . 049602 µF.

3. Variable Capacitor: 0 . 000316 µF.
(Table)

4. Wiring Capacitance (if Measurable) 0 . 000050 µF.
Add

5. Apparent Capacitance, $C_{app.}$ 0 . 049968 µF.
(Antenna only)

6. Exit Bushing Capacitance 0 . 000289 µF.
Add

7. Apparent Capacitance, $C_{app.}$ 0 . 050257 µF.
(Includes Exit Bushing)

8. Reactance, X_C(Calculated) 232.9 Ohms

3 TRIALS · VARIABLE CAP.

314.9
317.4
313.2

$\overline{X}$ = 315.17

CORRECTION

315.17
+1.10
~~316.27~~
316

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII — Location

5 JUNE 1978 — Date

1. Frequency 10,200 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NO NOISE.

N (E) ___.___ V.* N_1 (E_1) ___.___ V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	7.901	3.323	0.727
2.	___.___	___.___	8.408	3.531	0.725
3.	___.___	___.___	8.206	3.448	0.725
4.	___.___	___.___	7.723	3.207	0.711
5.	___.___	___.___	8.249	3.413	0.707
6.	___.___	___.___	7.477	3.082	0.702
7.	___.___	___.___	8.590	3.580	0.715
8.	___.___	___.___	8.718	3.615	0.709
9.	___.___	___.___	8.650	3.644	0.729
10.	___.___	___.___	8.650	3.635	0.726

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.718

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII
Location

5 JUNE 1978
Date

1. Frequency 11,050 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NO NOISE.

N (E) ___.___ V.* N_1 (E_1) ___.___ V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	8.249	3.540	0.753
2.	___.___	___.___	8.334	3.553	0.744
3.	___.___	___.___	8.160	3.487	0.747
4.	___.___	___.___	8.647	3.717	0.755
5.	___.___	___.___	8.345	3.598	0.759
6.	___.___	___.___	8.423	3.620	0.755
7.	___.___	___.___	8.128	3.473	0.747
8.	___.___	___.___	8.191	3.505	0.749
9.	___.___	___.___	8.322	3.563	0.750
10.	___.___	___.___	8.446	3.610	0.747

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.751

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 5 JUNE 1978 (Date)

1. Frequency 11,333 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NO NOISE.

N (E) ___.___ V.* N_1 (E_1) ___.___ V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	8.957	4.876	1.196
2.	___.___	___.___	9.532	5.221	1.212
3.	___.___	___.___	9.146	4.569	0.999
4.	JUMPER ACROSS	RELAY.	___.___	___.___	___.___
5.	___.___	___.___	8.914	4.034	0.828
6.	___.___	___.___	9.051	4.074	0.819
7.	REMOVED	JUMPER.	___.___	___.___	___.___
8.	___.___	___.___	9.642	4.830	1.005
9.	___.___	___.___	___.___	___.___	___.___
10.	___.___	___.___	___.___	___.___	___.___

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) ___.___

BAD RELAY. NOT USED.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) 5 JUNE 1978 (Date)

1. Frequency 11,800 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements.

N (E) 0.24 V.* N_1 (E_1) 0.40 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	8.420	3.631	8.417	3.609	0.751
2.	8.375	3.582	8.372	3.560	0.741
3	8.436	3.617	8.433	3.595	0.744
4.	8.630	3.699	8.627	3.677	0.744
5.	8.197	3.513	8.193	3.490	0.743
6.	8.282	3.557	8.279	3.534	0.746
7.	8.330	3.576	8.327	3.554	0.745
8.	8.119	3.478	8.115	3.455	0.742
9.	8.532	3.671	8.529	3.649	0.749
10.	8.758	3.776	8.755	3.755	0.752

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.746

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 5 JUNE 1978 (Date)

1. Frequency 13,600 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements.

N (E) 0.15 V.* N_1 (E_1) 0.30 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	8.475	3.705	8.474	3.693	0.773
2.	7.570	3.295	7.569	3.281	0.766
3.	8.880	3.870	8.879	3.858	0.769
4.	9.047	3.950	9.046	3.939	0.772
5.	8.445	3.685	8.444	3.673	0.771
6.	7.785	3.405	7.784	3.392	0.773
7.	8.440	3.680	8.439	3.668	0.770
8.	8.420	3.655	8.419	3.643	0.764
9.	8.654	3.760	8.653	3.748	0.765
10.	7.984	3.470	7.983	3.457	0.765

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.769

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII — Location

11 JUNE 1978 — Date

1. Frequency 10,200 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NO NOISE.

N (E) ___.___ V.* N_1 (E_1) ___.___ V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	8.244	4.733	1.350
2.	___.___	___.___	8.986	5.200	1.375
3.	___.___	___.___	7.812	4.557	1.402
4.	___.___	___.___	___.___	___.___	___.___
5.	___.___	___.___	___.___	___.___	___.___
6.	___.___	___.___	___.___	___.___	___.___
7.	___.___	___.___	___.___	___.___	___.___
8.	___.___	___.___	___.___	___.___	___.___
9.	___.___	___.___	___.___	___.___	___.___
10.	___.___	___.___	___.___	___.___	___.___

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 1.376

FIRST SERIES. STOPPED TO CLEAN INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 11 JUNE 1978 (Date)

1. Frequency 13,600 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NO NOISE

N (E) ___.___ V.* N_1 (E_1) ___.___ V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	2.627	4.150	1.195
2.	___.___	___.___	___.___	___.___	___.___
3.	___.___	___.___	___.___	___.___	___.___
4.	___.___	___.___	___.___	___.___	___.___
5.	___.___	___.___	___.___	___.___	___.___
6.	___.___	___.___	___.___	___.___	___.___
7.	___.___	___.___	___.___	___.___	___.___
8.	___.___	___.___	___.___	___.___	___.___
9.	___.___	___.___	___.___	___.___	___.___
10.	___.___	___.___	___.___	___.___	___.___

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) ___.___

FIRST SERIES. STOPPED TO CLEAN INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 11 JUNE 1978 (Date)

1. Frequency 10,200 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NOISE TOO SMALL. < 0.1% ERROR

N (E) 0.03 V.* N_1 (E_1) 0.08 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___._____	___._____	7.879	4.647	1.439
2.	___._____	___._____	8.349	4.998	1.493
3.	___._____	___._____	7.113	4.247	1.483
4.	___._____	___._____	10.599	6.328	1.483
5.	___._____	___._____	7.795	4.653	1.483
6.	___._____	___._____	___._____	___._____	___._____
7.	___._____	___._____	___._____	___._____	___._____
8.	___._____	___._____	___._____	___._____	___._____
9.	___._____	___._____	___._____	___._____	___._____
10.	___._____	___._____	___._____	___._____	___._____

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 1.476

SECOND SERIES.
AFTER CLEANING INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII
Location

11 JUNE 1968
Date

1. Frequency 11,050 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NOISE TOO SMALL TO RECORD.

N (E) ___.___ V.* N_1 (E_1) ___.___ V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	8.408	4.725	1.284
2.	___.___	___.___	10.019	5.644	1.291
3.	___.___	___.___	8.659	4.893	1.301
4.	___.___	___.___	10.416	5.879	1.297
5.	___.___	___.___	9.651	5.470	1.310
6.	___.___	___.___	___.___	___.___	___.___
7.	___.___	___.___	___.___	___.___	___.___
8.	___.___	___.___	___.___	___.___	___.___
9.	___.___	___.___	___.___	___.___	___.___
10.	___.___	___.___	___.___	___.___	___.___

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 1.297

SECOND SERIES.

AFTER CLEANING INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) 11 JUNE 1978 (Date)

1. Frequency 11,333 Hertz

2. Fixed Resistor, (Z) 0.22 µH 1.001 Ohms

3. Measurements. NOISE VERY SMALL.

N (E) —.— V.* N_1 (E_1) —.— V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	__.__	__.__	10.229	5.923	1.377
2.	__.__	__.__	7.730	4.480	1.380
3.	__.__	__.__	9.521	5.516	1.379
4.	__.__	__.__	10.813	6.275	1.384
5.	__.__	__.__	9.996	5.794	1.380
6.	__.__	__.__	__.__	__.__	__.__
7.	__.__	__.__	__.__	__.__	__.__
8.	__.__	__.__	__.__	__.__	__.__
9.	__.__	__.__	__.__	__.__	__.__
10.	__.__	__.__	__.__	__.__	__.__

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 1.380

SECOND SERIES.

AFTER CLEANING INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 11 JUNE 1978 (Date)

1. Frequency 11,800 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NOISE TOO SMALL. <0.1% ERROR.

N (E) 0.02 V.* N_1 (E_1) 0.09 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	10.387	5.913	1.323
2.	___.___	___.___	9.394	5.341	1.319
3.	___.___	___.___	10.046	5.698	1.312
4.	___.___	___.___	8.996	5.090	1.305
5.	___.___	___.___	10.756	6.063	1.293
6.	___.___	___.___	___.___	___.___	___.___
7.	___.___	___.___	___.___	___.___	___.___
8.	___.___	___.___	___.___	___.___	___.___
9.	___.___	___.___	___.___	___.___	___.___
10.	___.___	___.___	___.___	___.___	___.___

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 1.310

SECOND SERIES.

AFTER CLEANING INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 11 JUNE 1978 (Date)

1. Frequency 13,600 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NOISE SMALL. < 0.1% ERROR.

N (E) 0.08 V.* N_1 (E_1) 0.16 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___._____	___._____	9.296	5.004	1.167
2.	___._____	___._____	10.089	5.406	1.156
3.	___._____	___._____	9.153	4.911	1.159
4.	___._____	___._____	11.041	5.923	1.159
5.	___._____	___._____	8.574	4.585	1.151
6.	___._____	___._____	___._____	___._____	___._____
7.	___._____	___._____	___._____	___._____	___._____
8.	___._____	___._____	___._____	___._____	___._____
9.	___._____	___._____	___._____	___._____	___._____
10.	___._____	___._____	___._____	___._____	___._____

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 1.158

SECOND SERIES.

AFTER CLEANING INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 11 JUNE 1978 (Date)

1. Frequency 10,200 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NOISE TOO SMALL. < 0.1% ERROR.

N (E) 0.03 V.* N_1 (E_1) 0.08 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___._____	___._____	8.926	5.298	1.462
2.	___._____	___._____	10.664	6.218	1.400
3.	___._____	___._____	8.993	5.248	1.403
4.	___._____	___._____	8.984	5.248	1.406
5.	___._____	___._____	10.271	5.999	1.406
6.	___._____	___._____	___._____	___._____	___._____
7.	___._____	___._____	___._____	___._____	___._____
8.	___._____	___._____	___._____	___._____	___._____
9.	___._____	___._____	___._____	___._____	___._____
10.	___._____	___._____	___._____	___._____	___._____

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 1.415

THIRD SERIES

ONE-HALF HOUR AFTER CLEANING INSULATORS.

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII — Location

12 JUNE 1978 — Date

1. Frequency 10,200 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NO NOISE.

N (E) —.— V.* N_1 (E_1) —.— V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	__.__	__.__	10.290	4.950	0.928
2.	__.__	__.__	10.048	4.862	0.939
3.	__.__	__.__	7.865	3.719	0.898
4.	__.__	__.__	10.358	5.007	0.937
5.	__.__	__.__	8.524	4.136	0.944
6.	__.__	__.__	__.__	__.__	__.__
7.	__.__	__.__	__.__	__.__	__.__
8.	__.__	__.__	__.__	__.__	__.__
9.	__.__	__.__	__.__	__.__	__.__
10.	__.__	__.__	__.__	__.__	__.__

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.929

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 12 JUNE 1978 (Date)

1. Frequency 11,050 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements.

N (E) 0.05 V.* N_1 (E_1) 0.125 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	9.075	4.348	9.075	4.346	0.920
2.	9.050	4.340	9.050	4.338	0.922
3.	9.490	4.555	9.490	4.553	0.923
4.	9.541	4.591	9.541	4.589	0.928
5.	8.785	4.224	8.785	4.222	0.926
6.	___	___	___	___	___
7.	___	___	___	___	___
8.	___	___	___	___	___
9.	___	___	___	___	___
10.	___	___	___	___	___

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.924

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII — Location

12 JUNE 1978 — Date

1. Frequency 11,333 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements. NO NOISE.

N (E) ___.___ V.* N_1 (E_1) ___.___ V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	___.___	___.___	9.367	4.450	0.906
2.	___.___	___.___	9.127	4.350	0.912
3.	___.___	___.___	8.985	4.284	0.912
4.	___.___	___.___	8.957	4.265	0.910
5.	___.___	___.___	8.716	4.162	0.915
6.	___.___	___.___	___.___	___.___	___.___
7.	___.___	___.___	___.___	___.___	___.___
8.	___.___	___.___	___.___	___.___	___.___
9.	___.___	___.___	___.___	___.___	___.___
10.	___.___	___.___	___.___	___.___	___.___

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.911

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII (Location) — 12 JUNE 1978 (Date)

1. Frequency 11,800 Hertz

2. Fixed Resistor, (Z) 0.22 µH — 1.001 Ohms

3. Measurements.

N (E) 0.32 V.* N_1 (E_1) 0.48 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	9.890	4.716	9.885	4.692	0.905
2.	8.905	4.250	8.899	4.223	0.904
3.	9.905	4.727	9.900	4.703	0.906
4.	9.350	4.450	9.345	4.424	0.900
5.	9.087	4.326	9.081	4.299	0.900
6.	__.____	__.____	__.____	__.____	__.____
7.	__.____	__.____	__.____	__.____	__.____
8.	__.____	__.____	__.____	__.____	__.____
9.	__.____	__.____	__.____	__.____	__.____
10.	__.____	__.____	__.____	__.____	__.____

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.903

DATA SHEET DS2

ANTENNA SYSTEM RESISTANCE

R_{as}

HAWAII — Location

12 JUNE 1978 — Date

1. Frequency 13,600 Hertz

2. Fixed Resistor, (Z) 0.22 μH 1.001 Ohms

3. Measurements.

N (E) 0.15 V.* N_1 (E_1) 0.30 V*

Trial	E + N	$E_1 + N_1$	$\frac{E}{\sqrt{(E+N)^2 - N^2}}$	$\frac{E_1}{\sqrt{(E_1+N_1)^2 - N_1^2}}$	R_{as} (ohms)
1.	9.278	4.406	9.277	4.396	0.902
2.	9.916	4.711	9.915	4.701	0.903
3.	9.500	4.497	9.499	4.487	0.896
4.	8.860	4.215	8.859	4.204	0.904
5.	9.999	4.746	9.998	4.737	0.901
6.	__.____	__.____	__.____	__.____	__.____
7.	__.____	__.____	__.____	__.____	__.____
8.	__.____	__.____	__.____	__.____	__.____
9.	__.____	__.____	__.____	__.____	__.____
10.	__.____	__.____	__.____	__.____	__.____

*N (E) is noise measured at point E
N_1 (E_1) is noise measured at point E_1

R_{as} (Mean) 0.901

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C 1 DATE: 24 May 1979

I_{as} 400 A. K_1 0 . 98 K_2 0 . 99 K_3 1 . 00

LOOP HEIGHT 6 (MX/ft.) TRIPOD X HELICOPTER

(ABOVE: SURFACE - [illegible])

TYPE OF MEASUREMENT: HELICOPTER CAL. X BENCHMARK ROUTINE

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
1112	10.20	23.1					
1111	13.60	31.5					
1110	11.1/3	27.4					
1109	11.05	26.2					
1108	F_t 11.80	28.2					
1117	10.20	22.0					
1116	13.60	31.3					
1115	11-1/3	27.5					
1114	11.05	26.3					
1114	F_t 11.80	28.3					
1122	10.20	23.0					
1121	13.60	31.4					
1120	11-1/3	27.3					
1119	11.05	26.1					
1118	F_t 11.80	28.2					

COMMENT Not considered for a benchmark because of potential hotel construction.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C 1A DATE: 24 May 1979

I_{as} 400 A. K_1 0.98 K_2 0.99 K_3 1.00

LOOP HEIGHT 6 (mX/ft.) TRIPOD X HELICOPTER ____
(ABOVE: SURFACE - [illegible])

TYPE OF MEASUREMENT: HELICOPTER CAL. X BENCHMARK ____ ROUTINE ____

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1136	10.20	22.5					
1135	13.60	30.9					
1134	11.1/3	26.8					
1133	11.05	25.0					
1131	F_t 11.80	27.7					
1142	10.20	22.7					
1141	13.60	30.9					
1140	11-1/3	27.0					
1138	11.05	25.9					
1137	F_t 11.80	27.6					
1148	10.20	22.6					
1147	13.60	31.0					
1147	11-1/3	26.8					
1146	11.05	25.9					
1145	F_t 11.80	27.6					

COMMENT Site C 1A is approximately 30 meters from Site C 1. The mean values measured are within 1.75% of each other. This shows no appreciable field distortion.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C 1 DATE: 24 May 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 00

LOOP HEIGHT 6 (~~mX~~/ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - ~~SOIL XXXX~~)

TYPE OF MEASUREMENT: HELICOPTER CAL. X BENCHMARK ____ ROUTINE ____

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1222	10.20	22.0	095				
1221	13.60	30.1					
1220	11.1/3	26.5					
1219	11.05	25.2					
1218	F_t 11.80	27.2					
1227	10.20	21.0					
1226	13.60	30.1					
1225	11-1/3	26.4					
1224	11.05	25.3					
1223	F_t 11.80	27.0					
1232	10.20	22.0					
1231	13.60	30.1					
1230	11-1/3	26.3					
1229	11.05	25.2					
1228	F_t 11.80	27.2					

COMMENT Nose generally toward the station. (-50° from the loop plane.)
First Kuilima calibration flight.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C 1 DATE: 24 May 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.00

LOOP HEIGHT 6 (m/ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - ~~SEA LEVEL~~)

TYPE OF MEASUREMENT: HELICOPTER CAL. X BENCHMARK ___ ROUTINE ___

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1244	10.20	22.3	280				
1243	13.60	30.3					
1242	11.1/3	26.5					
1241	11.05	25.1					
1240	F_t 11.80	27.3					
1248	10.20	22.1					
1247	13.60	29.9					
1246	11-1/3	26.5					
1245	11.05	25.0					
1244	F_t 11.80	27.4					
1252	10.20	22.2					
1251	13.60	30.2					
1250	11-1/3	26.4					
1249	11.05	25.3					
1248	F_t 11.80	27.4					

COMMENT Nose generally away from the station. (-50° from the loop plane.)
Second Kuilima calibration flight.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C 3 DATE: 25 May 1979

I_{as} 400 A. K_1 0 . 98 K_2 0 . 99 K_3 1 . 00

LOOP HEIGHT 6 (M~~X~~/ft.) TRIPOD X HELICOPTER _____
(ABOVE: SURFACE - ~~SEAX X BWBLX~~)

TYPE OF MEASUREMENT: HELICOPTER CAL. X BENCHMARK ____ ROUTINE ____

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1002	10.20	23.4					
1001	13.60	31.8					
1000	11.1/3	27.4					
0959	11.05	26.3					
0958	F_t 11.80	28.0					
1006	10.20	23.3					
1005	13.60	31.6					
1005	11-1/3	27.3					
1004	11.05	26.4					
1003	F_t 11.80	28.0					
1018	10.20	23.0					
1017	13.60	31.4					
1009	11-1/3	27.5					
1008	11.05	26.5					
1007	F_t 11.80	28.1					

COMMENT Not considered for a benchmark because of potential hotel construction.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C 3 DATE: 25 May 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 00

LOOP HEIGHT 6 (~~mX~~/ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - ~~SEA LEVEL~~)

TYPE OF MEASUREMENT: HELICOPTER CAL. X BENCHMARK ___ ROUTINE ___

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1055	10.20	22.5	095				
1054	13.60	30.7					
1053	11.1/3	26.5					
1052	11.05	25.6					
1051	F_t 11.80	27.1					
1059	10.20	22.2					
1058	13.60	30.5					
1057	11-1/3	26.6					
1056	11.05	25.6					
1056	F_t 11.80	27.2					
1104	10.20	22.3					
1103	13.60	30.3					
1102	11-1/3	26.7					
1101	11.05	25.5					
1100	F_t 11.80	27.3					

COMMENT Nose generally toward the station. (-50° from the loop plane.)
Second Kuilima calibration flight.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C 3 DATE: 25 May 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 00

LOOP HEIGHT 6 (m/ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - ~~SEA LEVEL~~)

TYPE OF MEASUREMENT: HELICOPTER CAL. X BENCHMARK ___ ROUTINE ___

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1111	10.20	21.0	275				
1110	13.60	29.9					
1110	11.1/3	25.9					
1109	11.05	25.0					
1108	F_t 11.80	26.8					
1115	10.20	22.0					
1114	13.60	29.9					
1113	11-1/3	26.2					
1113	11.05	25.1					
1112	F_t 11.80	26.9					
1119	10.20	22.3					
1118	13.60	29.8					
1117	11-1/3	26.0					
1117	11.05	24.0					
1116	F_t 11.80	26.7					

COMMENT Nose generally away from the station. (-50° from the loop plane.)
Second Kuilima calibration flight.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 000-20 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (ft./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: [redacted] - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0918	10.20	43.0	120	3120	11122	19.4	358
0917	13.60	56.0		3127	11149	19.4	359
0916	11.1/3	47.2		3194	11162	19.4	359
0915	11.05	45.9		3235	11171	19.5	359
0915	F_t 11.80	49.3		3262	11136	19.5	359
0922	10.20	43.0		2994	10965	19.4	358
0921	13.60	56.2		3033	10987	19.4	358
0920	11-1/3	47.0		3067	11031	19.4	358
0919	11.05	45.9		3099	11071	19.4	358
0919	F_t 11.80	49.1		3101	11061	19.4	358
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 000-25 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0905	10.20	34.5	120	7796	9416	24.1	001
0904	13.60	44.7		7816	9408	24.2	001
0903	11.1/3	37.2		7785	9463	24.1	001
0903	11.05	36.1		7846	9532	24.2	001
0902	F_t 11.80	38.8		7907	9548	24.2	001
0909	10.20	34.1	120	7841	8959	24.3	360
0908	13.60	44.5		7827	9055	24.3	360
0907	11-1/3	37.3		7826	9122	24.3	000
0906	11.05	36.4		7802	9250	24.2	000
0905	F_t 11.80	38.9		7785	9402	24.1	001
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 000-30 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0847	10.20	28.0	117	13098	7717	29.9	357
0846	13.60	36.9		13118	7785	29.9	357
0845	11.1/3	30.3		13118	7841	29.9	357
0844	11.05	30.0		13179	7856	29.9	357
0843	F_t 11.80	31.2		13209	7929	30.0	357
0850	10.20	28.0	117	13074	7526	29.9	357
0849	13.60	36.4		13078	7574	29.9	357
0848	11-1/3	30.1		13061	7588	29.9	357
0848	11.05	29.6		13093	7616	29.9	357
0847	F_t 11.80	31.1		13128	7671	29.9	357
0854	10.20	27.9	117	13121	7331	30.0	356
0853	13.60	36.4		13062	7407	29.9	356
0852	11-1/3	29.8		13071	7407	29.9	356
0852	11.05	29.4		13073	7459	29.9	357
0851	F_t 11.80	31.0		13041	7532	29.9	357

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 000-35 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0832	10.20	23.7	117	18041	8730	35.0	353
0832	13.60	31.6		18040	8752	35.0	353
0831	11.1/3	26.2		18040	8774	35.0	353
0831	11.05	25.7		18069	8795	35.0	353
0830	F_t 11.80	26.4		18093	8808	35.0	353
0837	10.20	23.7		18064	8666	35.0	352
0836	13.60	31.5		18035	8676	35.0	352
0835	11-1/3	26.2		18039	8663	35.0	352
0834	11.05	25.9		18003	8668	34.9	352
0833	F_t 11.80	26.8		18058	8700	35.0	352
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 000-40 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0810	10.20	19.9	117	23813	15819	40.5	359
0810	13.60	27.3		23840	15832	40.5	359
0809	11.1/3	22.6		23803	15804	40.5	359
0808	11.05	22.4		23873	15789	40.6	359
0807	F_t 11.80	23.0		23885	15786	40.6	359
0821	10.20	19.8		23845	15772	40.6	359
0820	13.60	27.4		23802	15754	40.5	359
0819	11-1/3	22.9		23792	15720	40.5	359
0819	11.05	22.6		23789	15719	40.5	359
0818	F_t 11.80	23.3		23752	15716	40.5	359
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 000-40 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0654	10.20	20.3	125	24167	16445	40.8	000
0653	13.60	26.4		24111	16416	40.8	000
0652	11.1/3	21.5		24907	16412	41.7	358
0643	11.05	21.2		23912	16213	40.6	000
0642	F_t 11.80	22.7		23927	16219	40.6	000
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 050-20 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1213	10.20	43.1	172	10897	23681	19.8	049
1213	13.60	55.3		10900	23626	19.8	050
1212	11.1/3	47.4		10835	23520	19.7	050
1211	11.05	45.9		10785	23432	19.7	050
1210	F_t 11.80	49.5		10750	23336	19.7	050
1218	10.20	43.5	172	10703	23825	19.5	049
1217	13.60	55.2		10809	23860	19.6	049
1216	11-1/3	46.8		10863	23862	19.7	049
1215	11.05	45.5		10949	23880	19.8	049
1214	F_t 11.80	49.0		10931	23756	19.8	049
1222	10.20	43.8	172	10586	24100	19.3	047
1221	13.60	56.1		10604	24041	19.4	048
1220	11-1/3	47.4		10742	24172	19.5	047
1219	11.05	45.8		10748	24116	19.5	048
1219	F_t 11.80	49.6		10674	23893	19.5	048

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 050-25 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1200	10.20	35.0	172	15424	27223	24.2	046
1159	13.60	45.0		15400	27174	24.2	047
1158	11.1/3	37.7		15400	27126	24.2	047
1158	11.05	36.8		15401	27104	24.2	047
1157	F_t 11.80	39.4		15280	26901	24.1	047
1204	10.20	34.6		15462	27446	24.2	046
1203	13.60	44.7		15493	27413	24.2	046
1202	11-1/3	37.7		15588	27442	24.3	046
1201	11.05	36.9		15545	27370	24.3	046
1201	F_t 11.80	39.4		15444	27255	24.2	046
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 050-30 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1145	10.20	29.3	172	19674	29200	28.6	050
1144	13.60	33.0		19643	29096	28.6	050
1144	11.1/3	31.6		19642	29133	28.6	050
1143	11.05	31.4		19752	29060	28.7	050
1142	F_t 11.80	32.6		19742	29002	28.7	050
1150	10.20	29.6		19619	29494	28.5	049
1149	13.60	38.4		19592	29404	28.5	049
1148	11-1/3	31.7		19542	29276	28.4	049
1147	11.05	31.4		19608	29269	28.5	049
1146	F_t 11.80	32.7		19663	29263	28.6	049
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 050-35 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1134	10.20	24.0	175	24771	32150	33.8	052
1133	13.60	32.6		24770	32075	33.8	053
1132	11.1/3	27.6		24806	32023	33.8	053
1132	11.05	27.2		24796	31939	33.8	053
1131	F_t 11.80	27.7		24788	31859	33.8	053
1138	10.20	24.3		24516	32216	33.5	052
1137	13.60	32.5		24552	32184	33.5	052
1136	11-1/3	27.3		24636	32207	33.6	052
1135	11.05	27.1		24663	32180	33.7	052
1134	F_t 11.80	27.7		24721	32168	33.7	052
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 050-40 DATE: 27 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1121	10.20	20.2	180	30190	35276	39.2	056
1120	13.60	27.5		30222	35188	39.3	056
1120	11.1/3	23.8		30140	34968	39.2	057
1119	11.05	23.0		30109	34814	39.2	057
1118	F_t 11.80	24.1		30224	34844	39.3	057
1126	10.20	20.3		30014	35608	39.1	055
1125	13.60	27.8		29909	35383	39.0	055
1124	11-1/3	24.1		29882	35146	38.9	056
1123	11.05	23.6		29984	35180	39.0	056
1122	F_t 11.80	24.2		30110	35270	39.2	056
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 120-20 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 2000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0926	10.20	40.3	057	19514	7216	22.1	120
0925	13.60	51.2		19521	7277	22.1	120
0925	11.1/3	43.3		19492	7327	22.1	120
0924	11.05	41.7		19448	7381	22.1	120
0923	F_t 11.80	45.8		19374	7432	22.0	119
0930	10.20	40.0		19566	7180	22.1	120
0929	13.60	51.9		19500	7047	22.0	120
0929	11-1/3	44.0		19462	7055	22.0	120
0928	11.05	42.3		19515	7222	22.1	120
0927	F_t 11.80	45.9		19525	7214	22.1	120
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT Height - Gain measurement.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 120-20 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
0915	10.20	40.1	055	19313	7368	22.0	119
0915	13.60	51.3		19301	7372	21.9	119
0914	11.1/3	43.4		19283	7373	21.9	119
0913	11.05	42.2		19239	7370	21.9	119
0912	F_t 11.80	46.5		19173	7274	21.8	120
0919	10.20	40.0		19355	7412	22.0	119
0919	13.60	51.3		19368	7404	22.0	119
0918	11-1/3	43.3		19330	7357	22.0	119
0917	11.05	42.2		19334	7363	22.0	119
0916	F_t 11.80	45.9		19333	7388	22.0	119
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 120-25 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0 . 98 , K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0900	10.20	35.9	057	22007	8672	24.8	120
0859	13.60	45.9		22008	8666	24.8	120
0858	11.1/3	38.4		22028	8706	24.8	120
0857	11.05	37.6		22031	8707	24.8	120
0857	F_t 11.80	40.1		22037	8658	24.8	120
0904	10.20	36.0	057	22028	8735	24.8	120
0903	13.60	45.8		22048	8743	24.8	120
0902	11-1/3	38.5		22062	8768	24.9	120
0902	11.05	37.8		22003	8710	24.8	120
0901	F_t 11.80	40.4		22005	8694	24.8	120
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 120-30 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
0841	10.20	29.0	060	27035	12705	30.1	120
0840	13.60	37.2		27032	12700	30.1	120
0839	11.1/3	30.7		26988	12632	30.0	120
0838	11.05	30.4		26993	12679	30.0	120
0837	F_t 11.80	32.1		26979	12662	30.0	120
0846	10.20	28.6		27025	12648	30.1	120
0845	13.60	37.0		27051	12636	30.1	120
0845	11-1/3	30.0		27043	12648	30.1	120
0842	11.05	29.3		27000	12579	30.0	120
0841	F_t 11.80	31.6		27036	12705	30.1	120
0850	10.20	29.3		26912	12615	30.0	120
0849	13.60	37.5		26914	12625	30.0	120
0848	11-1/3	30.8		26890	12629	30.0	120
0848	11.05	29.9		26884	12572	29.9	120
0847	F_t 11.80	31.7		26956	12613	30.0	120

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 120-35 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0828	10.20	25.3	062	31746	17037	35.0	120
0827	13.60	33.1		31720	17025	34.9	120
0826	11.1/3	26.8		31700	17016	34.9	120
0826	11.05	26.6		31693	17015	34.9	120
0825	F_t 11.80	27.3		31734	17089	35.0	120
0831	10.20	25.2	062	31697	16964	34.9	120
0830	13.60	32.9		31720	17001	34.9	120
0830	11-1/3	26.5		31730	17021	34.9	120
0829	11.05	26.7		31724	17007	34.9	120
0828	F_t 11.80	27.3		31745	17033	35.0	120
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 120-40 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0809	10.20	21.0	062	37110	22297	40.5	120
0808	13.60	28.9		37118	22302	40.5	120
0807	11.1/3	23.6		37114	22331	40.5	120
0806	11.05	23.5		37156	22335	40.6	120
0805	F_t 11.80	23.3		37167	22352	40.6	120
0815	10.20	20.8		37195	22354	40.6	120
0814	13.60	28.8		37211	22373	40.6	120
0813	11-1/3	23.6		37218	22382	40.6	120
0813	11.05	23.8		37204	22359	40.6	120
0812	F_t 11.80	23.2		37178	22335	40.6	120
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 180-20 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1242	10.20	43.4	122	14635	14133	19.8	181
1241	13.60	56.7		14630	14164	19.8	181
1240	11.1/3	47.1		14648	14151	19.8	181
1240	11.05	46.3		14633	14135	19.8	181
1239	F_t 11.80	48.6		14664	14138	19.8	181
1246	10.20	43.4		14821	13998	19.9	181
1245	13.60	56.8		14763	14083	19.9	181
1244	11-1/3	46.9		14757	14073	19.8	181
1243	11.05	45.9		14723	14079	19.8	181
1242	F_t 11.80	48.5		14662	14099	19.8	181
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 180-25 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0 . 98 , K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 1000 (ft./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1223	10.20	34.4	120	18663	16966	24.9	183
1222	13.60	45.4		18636	16962	24.9	183
1221	11.1/3	37.1		18643	16956	24.9	183
1221	11.05	36.8		18609	16977	24.9	183
1220	F_t 11.80	38.2		18566	16949	24.8	183
1127	10.20	34.4	120	18630	17012	24.9	183
1125	13.60	45.2		18623	17006	24.9	183
1126	11-1/3	36.9		18673	17012	25.0	183
1224	11.05	36.2		18718	16973	25.0	183
1224	F_t 11.80	37.7		18699	16986	25.0	183
1232	10.20	34.5	120	18575	17222	25.0	183
1231	13.60	45.4		18558	17173	24.9	183
1230	11-1/3	37.0		18556	17119	24.9	183
1229	11.05	36.8		18613	17032	24.9	183
1228	F_t 11.80	38.4		18586	17024	24.9	183

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 180-30 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
1204	10.20	27.7	118	24212	19168	30.2	179
1203	13.60	38.0		24228	19125	30.2	179
1202	11.1/3	31.1		24248	19102	30.2	179
1201	11.05	30.8		24268	19087	30.2	179
1200	F_t 11.80	31.4		24276	19057	30.2	179
1208	10.20	28.0	118	24064	19213	30.1	179
1207	13.60	37.6		24101	19211	30.2	179
1206	11-1/3	31.1		24083	19208	30.1	179
1205	11.05	31.0		24124	19192	30.2	179
1205	F_t 11.80	31.4		24168	19171	30.2	179
1212	10.20	27.8	118	24244	19214	30.3	179
1211	13.60	37.8		24172	19220	30.2	179
1210	11-1/3	31.3		24104	19224	30.2	179
1210	11.05	30.8		24068	19245	30.1	179
1209	F_t 11.80	31.5		24048	19241	30.1	179

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 180-35 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1151	10.20	23.2	120	28923	23765	35.5	180
1150	13.60	31.7		28929	23776	35.5	180
1149	11.1/3	26.8		28906	23718	35.5	180
1149	11.05	26.2		28947	23717	33.5	180
1148	F_t 11.80	27.1		29048	23728	35.6	180
1155	10.20	23.1	120	28982	23887	35.6	180
1154	13.60	31.6		28969	23870	35.6	180
1153	11-1/3	26.7		28960	23847	35.6	180
1152	11.05	26.1		28972	23832	35.6	180
1151	F_t 11.80	27.3		28939	23781	35.5	180
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 180-40 DATE: 28 MAY 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1138	10.20	20.0	120	33393	28169	40.3	181
1137	13.60	27.1		33388	28142	40.3	181
1136	11.1/3	23.6		33428	28156	40.4	181
1136	11.05	22.6		33480	28137	40.4	181
1135	F_t 11.80	24.4		33504	28114	40.4	180
1142	10.20	20.1	120	33435	28177	40.4	181
1141	13.60	27.0		33503	28201	40.4	181
1140	11-1/3	23.4		33519	28195	40.4	181
1140	11.05	22.5		33500	28199	40.4	181
1139	F_t 11.80	24.5		33451	28181	40.4	181
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 265-20 DATE: 25 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 4000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1546	10.20	42.7	025	10270	17921	20.4	265
1545	13.60	54.8		10169	17658	20.5	265
1544	11.1/3	46.2		10070	17562	20.4	266
1543	11.05	45.5		10097	17629	20.4	266
1542	F_t 11.80	48.6		10189	17844	20.4	265
1554	10.20	42.2	025	10354	17595	20.6	265
1552	13.60	53.8		10431	17548	20.7	265
1550	11-1/3	45.5		10666	17509	20.9	265
1549	11.05	44.5		10419	17653	20.7	265
1548	F_t 11.80	48.4		10315	17798	20.5	265
1559	10.20	43.0		10122	17846	20.4	265
1558	13.60	54.6		10345	17705	20.6	265
1557	11-1/3	45.8		10417	17637	20.7	265
1556	11.05	44.8		10391	17647	20.7	265
1555	F_t 11.80	47.8		10508	17702	20.7	265

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 265-25 DATE: 25 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 4000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
1613	10.20	35.2	035	14927	14861	25.5	266
1612	13.60	47.2		14862	14911	25.4	266
1612	11.1/3	37.8		14875	15050	25.4	266
1611	11.05	36.9		14858	15154	25.4	265
1610	F_t 11.80	39.0		15039	15218	25.5	265
1624	10.20	34.6		15099	14712	25.7	266
1617	13.60	46.7		15125	14946	25.7	266
1616	11-1/3	37.5		15082	14971	25.6	266
1615	11.05	37.0		15036	14905	25.6	266
1614	F_t 11.80	39.4		14936	14799	25.5	266
1624	10.20	34.6		14910	14829	25.5	266
1623	13.60	46.7		14902	14916	25.5	266
1622	11-1/3	37.6		14927	15030	25.5	266
1621	11.05	36.7		15033	15055	25.6	265
1620	F_t 11.80	38.8		15058	14987	25.6	266

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 265-30 DATE: 25 MAY 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 4000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
1637	10.20	26.4	030	20219	13369	31.0	266
1636	13.60	34.9		20231	13436	31.0	266
1635	11.1/3	29.1		20190	13448	30.9	266
1634	11.05	28.8		20118	13491	30.8	266
1632	F_t 11.80	29.9		19765	13466	30.5	266
1642	10.20	26.4	030	20528	13415	31.3	266
1641	13.60	34.9		20492	13469	31.2	266
1640	11-1/3	28.8		20358	13383	31.1	266
1639	11.05	28.3		20337	13242	31.1	267
1638	F_t 11.80	29.4		20285	13269	31.0	267
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 265-35 DATE: 25 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 4000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
1653	10.20	23.4	030	24614	13793	35.4	267
1652	13.60	31.9		24632	13823	35.4	267
1651	11.1/3	26.0		24697	13962	35.5	266
1650	11.05	26.0		24624	13967	35.4	266
1649	F_t 11.80	26.3		24638	14000	35.4	266
1657	10.20	22.6		24982	13729	35.8	267
1656	13.60	31.6		24951	13722	35.8	267
1655	11-1/3	25.9		24985	13817	35.8	267
1654	11.05	25.9		24862	13793	35.7	267
1654	F_t 11.80	26.4		24771	13842	35.6	267
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 265-40 DATE: 25 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 4000 (mK./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
	10.20		028				
	13.60						
1717	11.1/3	21.6		31013	20500	41.2	260
1715	11.05	22.1		30427	20257	40.6	259
1713	F_t 11.80	23.4		30277	20243	40.4	259

	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 265-35 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 3000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1453	10.20	23.0	020	24839	16583	35.2	262
1453	13.60	32.3		24892	16626	35.2	262
1452	11.1/3	27.2		24961	16717	35.3	262
1450	11.05	25.9		24968	16702	35.3	262
1449	F_t 11.80	27.6		25038	16756	35.4	262
1458	10.20	23.0	020	24948	16833	35.2	261
1457	13.60	32.3		24926	16882	35.2	261
1456	11-1/3	27.3		24822	16752	35.1	261
1455	11.05	26.6		24680	16502	35.0	262
1454	F_t 11.80	27.8		24753	16539	35.1	262
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 265-40 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 4000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1519	10.20	20.3	205	28094	16508	38.7	264
1518	13.60	28.9		28020	16475	38.6	264
1518	11.1/3	24.3		28057	16671	38.6	264
1517	11.05	23.7		28045	16701	38.6	264
1515	F_t 11.80						
1524	10.20	20.4	205	27986	16305	38.6	264
1523	13.60	28.9		27932	16283	38.6	264
1522	11-1/3	24.5		27919	16222	38.6	265
1521	11.05	23.7		27989	16288	38.6	264
1520	F_t 11.80	25.5		27971	16210	38.6	265
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT 1515 measurement not recorded. DME was obviously wrong but not noted until after the flight.

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 305-20 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 3000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1331	10.20	43.2	065	19118	15579	19.2	300
1330	13.60	58.3		19081	15746	19.1	300
1329	11.1/3	48.9		19034	15787	19.1	300
1327	11.05	48.1		18953	15827	19.0	300
1326	F_t 11.80	50.9		18963	15807	19.0	300
1336	10.20	43.6	065	19139	15600	19.2	300
1335	13.60	58.1		19166	15642	19.2	300
1334	11-1/3	48.4		19179	15587	19.3	300
1333	11.05	47.2		19233	15509	19.3	300
1332	F_t 11.80	50.3		19193	15554	19.3	300
1341	10.20	43.8	065	19302	15529	19.4	300
1340	13.60	58.3		19214	15666	19.2	300
1339	11-1/3	48,4		19162	15721	19.2	300
1338	11.05	47.5		19166	15733	19.2	300
1337	F_t 11.80	50.5		19166	15638	19.6	298

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 305-25 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 3000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~X - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
1149	10.20	32.4	065	24871	10644	25.6	302
1148	13.60	44.2		24801	10937	25.4	302
1147	11.1/3	36.2		24742	10773	25.4	302
1146	11.05	36.0		24694	11040	25.2	302
1145	F_t 11.80	37.6		24745	10999	25.3	302
1154	10.20	33.1	065	24754	11011	25.3	302
1153	13.60	44.6		24762	10926	25.3	302
1152	11-1/3	36.3		24787	10760	25.5	302
1151	11.05	35.6		24910	10754	25.5	302
1150	F_t 11.80	36.8		24903	10669	25.6	302
1205	10.20	33.6	065	24632	10961	25.2	302
1159	13.60	44.7		24575	11075	25.1	302
1158	11-1/3	37.3		24554	11162	25.1	302
1157	11.05	36.5		24567	11273	25.0	302
1156	F_t 11.80	38.0		24617	11138	25.1	302

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 305-30 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 3000 (M./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: ~~SURFACE~~ - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1128	10.20	26.9	060	28664	8752	29.5	303
1128	13.60	37.4		28638	8736	29.5	303
1127	11.1/3	31.0		28569	8743	29.4	303
1126	11.05	30.5		28501	8788	29.4	302
1125	F_t 11.80	31.8		28464	8620	29.4	302
1132	10.20	26.3	060	28974	8819	29.8	303
1131	13.60	36.5		29005	8767	29.8	303
1130	11-1/3	29.7		28974	8754	29.8	303
1129	11.05	29.4		28844	8714	29.7	303
1129	F_t 11.80	30.6		28715	8653	29.6	303
1137	10.20	26.8		28831	8904	29.6	303
1137	13.60	36.9		28898	8880	29.7	303
1136	11-1/3	30.2		28935	8860	29.7	303
1135	11.05	29.5		28935	9013	29.7	304
1134	F_t 11.80	30.6		29006	8873	29.8	303

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 305-35 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0 . 98, K_2 1 . 00 K_3 1 . 03

LOOP HEIGHT 3000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1112	10.20	23.0	060	34266	10164	34.8	306
1111	13.60	31.5		34191	9995	34.8	306
1110	11.1/3	26.8		34141	10021	34.7	306
1109	11.05	26.2		34049	10144	34.5	306
1108	F_t 11.80	27.4		33892	9846	34.5	306
1116	10.20	23.0	060	34245	10436	34.6	307
1115	13.60	31.5		34266	10363	34.7	307
1114	11-1/3	26.7		34308	10299	34.8	307
1114	11.05	26.0		34247	10244	34.7	306
1113	F_t 11.80	27.3		34253	10235	34.7	306
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. 305-40 DATE: 26 MAY 1979

I_{as} 400 A. K_1 0.98, K_2 1.00 K_3 1.03

LOOP HEIGHT 3000 (m./ft.) TRIPOD _____ HELICOPTER X
(ABOVE: SURFACE - SEA LEVEL)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK ___ ROUTINE X

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1056	10.20	19.3	065	39449	12236	40.4	306
1055	13.60	26.5		39314	12189	40.2	306
1054	11.1/3	22.9		39274	12136	40.2	306
1052	11.05	22.6		39284	12511	40.0	307
1051	F_t 11.80	24.1		39607	12689	40.4	306
1101	10.20	19.6	065	39065	11988	40.0	306
1100	13.60	26.6		39111	11979	40.1	306
1059	11-1/3	23.2		39225	12954	40.2	306
1058	11.05	22.1		39351	12149	40.3	306
1057	F_t 11.80	23.9		39390	12209	40.3	306
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. A DATE: 31 MAY 1979

I_{as} 400 A. K_1 0 . 98 K_2 0 . 99 K_3 1 . 00

LOOP HEIGHT 6 (ft./ft.) TRIPOD X HELICOPTER ____
(ABOVE: SURFACE - [illegible])

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK X ROUTINE ____

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. OT.
1142	10.20	47.4					
1139	13.60	62.6					
1137	11.1/3	51.2					
1135	11.05	50.1					
1129	F_t 11.80	54.2					
1200	10.20	47.5					
1156	13.60	61.7					
1154	11-1/3	51.4					
1153	11.05	50.6					
1149	F_t 11.80	53.9					
1223	10.20	47.2					
1222	13.60	61.0					
1207	11-1/3	51.2					
1205	11.05	50.4					
1204	F_t 11.80	54.1					

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. B DATE: 31 MAY 1979

I_{as} 400 A. K_1 0 . 98 K_2 0 . 99 K_3 1 . 00

LOOP HEIGHT 6 (M./ft.) TRIPOD X HELICOPTER _____
(ABOVE: SURFACE - ~~XXXXXXXX~~)

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK X ROUTINE ____

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
1417	10.20	48.5					
1416	13.60	64.1					
1415	11.1/3	52.8					
1414	11.05	51.7					
1413	F_t 11.80	55.9					
1420	10.20	48.6					
1420	13.60	64.1					
1419	11-1/3	52.7					
1419	11.05	51.7					
1418	F_t 11.80	55.7					
1424	10.20	48.5					
1423	13.60	64.1					
1422	11-1/3	52.8					
1422	11.05	51.7					
1421	F_t 11.80	55.8					

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C DATE: 1 JUNE 1979

I_{as} 400 A. K_1 0 . 98 K_2 0 . 99 K_3 1 . 00

LOOP HEIGHT 6 (ft./ft.) TRIPOD X HELICOPTER _____
(ABOVE: SURFACE - [illegible])

TYPE OF MEASUREMENT: HELICOPTER CAL. ____ BENCHMARK X ROUTINE ____

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
0947	10.20	34.3					
0946	13.60	47.3					
0945	11.1/3	38.3					
0944	11.05	37.5					
0943	F_t 11.80	39.5					
0952	10.20	34.3					
0951	13.60	47.0					
0950	11-1/3	38.0					
0950	11.05	37.6					
0949	F_t 11.80	39.6					
0957	10.20	34.2					
0956	13.60	47.1					
0955	11-1/3	38.0					
0954	11.05	37.3					
0953	F_t 11.80	39.5					

COMMENT

DATA SHEET 5 (DS-5)

RADIO FIELD INTENSITY MEASUREMENTS

OMEGA STATION: HAWAII SITE NO. C DATE: 1 JUNE 1979

I_{as} 400 A. K_1 0 . 98 K_2 0 . 99 K_3 1 . 00

LOOP HEIGHT 6 (M./ft.) TRIPOD X HELICOPTER _____
(ABOVE: SURFACE - ~~SEAWATER~~)

TYPE OF MEASUREMENT: HELICOPTER CAL. ___ BENCHMARK X ROUTINE ___

TIME (LOCAL)	FREQUENCY (kHz)	E_g (mV)	HEADING (Mag.)	D M E D1	D2	DIST. km.	AZ. °T.
	10.20	34.2					
	13.60	47.0					
	11.1/3	38.0					
	11.05	37.2					
1000	F_t 11.80	39.6					
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						
	10.20						
	13.60						
	11-1/3						
	11.05						
	F_t 11.80						

COMMENT Taken by Chief Cox.

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 000-20 DATE: 27 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____, BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (m./ft.) TRIPOD ____ HELICOPTER X

(Above ~~Xxxxxx~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
19.4	10.20	400	43.0	392	44.3	43.1	7.8	166	0.0504	2.131
19.4			43.0		44.3	43.1	7.8	166	0.0504	2.131
.										
19.4	13.60		56.0		57.7	56.8	13.5	164	0.0877	2.809
19.4			56.2		57.9	57.0	13.6	165	0.0883	2.819
.										
19.4	11-1/3		47.2		48.6	47.5	9.4	165	0.0614	2.351
19.4			47.0		48.4	47.3	9.4	164	0.0609	2.341
.										
19.5	11.05		45.9		47.3	46.2	9.0	165	0.0586	2.296
19.4			45.9		47.3	46.1	8.9	164	0.0580	2.284
.										
19.5	11.80		49.3		50.8	49.7	10.4	167	0.0680	2.473
19.4			49.1		50.6	49.5	10.2	165	0.0667	2.450
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DATA SHEET 6 (OS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 000-25 DATE: 27 MAY 1979

Distance: _____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor

(If constant)

HELICOPTER CAL. _____, BENCHMARK _____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X

(Above S.L./S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
24.1	10.20	400	34.5	392	35.5	34.9	7.9	167	0.0511	2.145
24.3			34.1		35.1	34.5	7.8	167	0.0508	2.138
.										
24.2	13.60		44.7		46.0	45.6	13.5	165	0.0879	2.813
24.3			44.5		45.8	45.4	13.5	165	0.0879	2.812
.										
24.1	11-1/3		37.2		38.3	37.7	9.2	163	0.0598	2.320
24.3			37.3		38.4	37.9	9.4	165	0.0612	2.347
.										
24.2	11.05		36.1		37.2	36.6	8.7	163	0.0567	2.260
24.2			36.4		37.5	36.9	8.9	164	0.0577	2.279
.										
24.2	11.80		38.8		40.0	39.4	10.1	164	0.0658	2.433
24.1			38.9		40.1	39.5	10.1	164	0.0656	2.429
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 000-30 DATE: 27 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above Surface/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	$E_r d/I_a$ (Units)
29.9	10.20	400	28.0	392	28.8	28.5	8.1	170	0.0525	2.173
29.9			28.0		28.8	28.5	8.1	170	0.0525	2.173
30.0			27.9		28.7	28.4	8.1	170	0.0525	2.173
29.9	13.60		36.9		38.0	37.7	14.2	168	0.0921	2.879
29.9			36.4		37.5	37.2	13.8	166	0.0896	2.840
29.9			36.4		37.5	37.2	13.8	166	0.0896	2.840
29.9	11-1/3		30.3		31.2	30.9	9.5	166	0.0617	2.357
29.9			30.1		31.0	30.7	9.4	164	0.0609	2.342
29.9			29.8		30.7	30.4	9.2	163	0.0597	2.318
29.9	11.05		30.0		30.9	30.6	9.3	168	0.0605	2.333
29.9			29.6		30.5	30.2	9.0	166	0.0589	2.302
29.9			29.4		30.3	30.0	8.9	165	0.0581	2.286
30.0	11.80		31.2		32.1	31.8	10.1	164	0.0660	2.437
29.9			31.1		32.0	31.7	10.0	163	0.0651	2.421
29.9			31.0		31.9	31.6	9.9	163	0.0647	2.413
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 000-35 DATE: 27 MAY 1979

Distance: _____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

HELICOPTER CAL. _____ BENCHMARK _____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X

(Above ~~EXPANSE~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
35.0	10.20	400	23.7	392	24.4	24.2	8.0	169	0.0519	2.160
35.0			23.7		24.4	24.2	8.0	169	0.0519	2.160
.										
35.0	13.60		31.6		32.5	32.4	14.3	169	0.0929	2.892
35.0			31.5		32.4	32.3	14.2	169	0.0923	2.882
.										
35.0	11-1/3		26.2		27.0	26.8	9.8	168	0.0636	2.392
35.0			26.2		27.0	26.8	9.8	168	0.0636	2.392
.										
35.0	11.05		25.7		26.5	26.3	9.4	169	0.0611	2.346
34.9			25.9		26.7	26.5	9.5	170	0.0617	2.357
.										
35.0	11.80		26.4		27.2	27.0	9.9	163	0.0646	2.412
35.0			26.8		27.6	27.4	10.2	165	0.0666	2.448
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 000-40 DATE: 27 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~XXXXXX~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
40.5	10.20	400	19.9	392	20.5	20.4	7.6	164	0.0492	2.104
40.6			19.8		20.4	20.3	7.5	164	0.0489	2.098
.										
40.5	13.60		27.3		28.1	28.0	14.3	169	0.0931	2.894
40.5			27.4		28.2	28.1	14.4	170	0.0938	2.905
.										
40.5	11-1/3		22.6		23.3	23.2	9.8	168	0.0636	2.392
40.5			22.9		23.6	23.5	10.0	170	0.0653	2.424
.										
40.6	11.05		22.4		23.1	22.9	9.6	171	0.0627	2.376
40.5			22.6		23.3	23.1	9.8	172	0.0635	2.391
.										
40.6	11.80		23.0		23.7	23.6	10.2	165	0.0662	2.442
40.5			23.3		24.0	23.9	10.4	166	0.0676	2.467
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OMEGA STATION: HAWAII SITE NUMBER: 000-40 DATE: 26 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	Erd/Ia (Units)
40.8	10.20	400	20.3	392	20.9	20.8	8.0	169	0.0519	2.162
.										
.										
40.8	13.60		26.4		27.2	27.1	13.6	165		
.										
.										
41.7	11-1/3		21.5		22.1	22.0	9.4	169		
.										
.										
40.6	11.05		21.2		21.8	21.7	8.6	167		
.										
.										
40.6	11.80		22.7		23.4	23.3	9.9	163	0.0645	2.419
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(Above Surface)

HELICOPTER CAL

LOOP HEIGHT

RADIO FIELD INTENSITY MEASUREMENTS

DATA SHEET 6 DS-6 . REV 1

DS 6-6

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 050-20 DATE: 27 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~XXXXXX~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
19.8	10.20	400	43.1	392	44.4	43.2	8.1	170	0.0529	2.182
19.5			43.5		44.8	43.6	8.0	169	0.0522	2.167
19.3			43.8		45.1	43.8	8.0	168	0.0518	2.159
19.8	13.60		55.3		57.0	56.1	13.7	166	0.0892	2.833
19.6			55.2		56.9	56.0	13.4	164	0.0870	2.798
19.4			56.1		57.8	56.9	13.5	165	0.0880	2.814
19.7	11-1/3		47.4		48.8	47.7	9.8	168	0.0640	2.399
19.7			46.8		48.2	47.1	9.6	166	0.0624	2.369
19.5			47.4		48.8	47.7	9.6	167	0.0626	2.374
19.7	11.05		45.9		47.3	46.2	9.2	167	0.0598	2.321
19.8			45.5		46.9	45.8	9.1	167	0.0594	2.313
19.5			45.8		47.2	46.1	9.0	165	0.0583	2.291
19.7	11.80		49.5		51.0	49.9	10.8	169	0.0700	2.510
19.8			49.0		50.5	49.4	10.7	168	0.0693	2.498
19.5			49.6		51.1	50.0	10.6	168	0.0688	2.488
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 050-25 DATE: 27 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~SURFACE~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
24.2	10.20	400	35.0	392	36.1	35.4	8.2	170	0.0530	2.185
24.2			34.6		35.6	35.0	8.0	169	0.0518	2.160
.										
24.2	13.60		45.0		46.4	45.9	13.7	166	0.0891	2.832
24.2			44.7		46.0	45.6	13.5	165	0.0879	2.813
.										
24.2	11-1/3		37.7		38.8	38.3	9.5	166	0.0620	2.362
24.3			37.7		38.8	38.3	9.6	167	0.0625	2.372
.										
24.2	11.05		36.8		37.9	37.3	9.1	166	0.0590	2.304
24.3			36.9		38.0	37.4	9.2	167	0.0598	2.320
.										
24.1	11.80		39.4		40.6	40.0	10.3	166	0.0673	2.461
24.2			39.4		40.6	40.0	10.4	167	0.0678	2.471
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.										
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 050-30 DATE: 27 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above SURFACE/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
28.6	10.20	400	29.3	392	30.2	29.8	8.1	170	0.0525	2.173
28.5			29.6		30.5	30.1	8.2	171	0.0532	2.187
.										
28.6	13.60		38.0		39.1	38.8	13.7	166	0.0893	2.834
28.5			38.4		39.6	39.3	13.9	167	0.0905	2.854
.										
28.6	11-1/3		31.6		32.5	32.2	9.4	165	0.0613	2.349
28.4			31.7		32.7	32.3	9.3	164	0.0608	2.340
.										
28.7	11.05		31.4		32.3	32.0	9.4	169	0.0609	2.342
28.5			31.4		32.3	32.0	9.2	167	0.0601	2.325
.										
28.7	11.80		32.6		33.6	33.2	10.1	164	0.0658	2.434
28.6			32.7		33.7	33.3	10.1	164	0.0658	2.433
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.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 050-35 DATE: 27 MAY 1979

Distance: _____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
33.8	10.20	400	24.0	392	24.7	24.5	7.6	165	0.0495	2.111
33.5			24.3		25.0	24.8	7.7	165	0.0499	2.118
.										
33.8	13.60		32.6		33.6	33.4	14.2	168	0.0921	2.880
33.5			32.5		33.5	33.3	13.8	166	0.0899	2.845
.										
33.8	11-1/3		27.6		28.4	28.2	10.1	171	0.0657	2.432
33.6			27.3		28.1	27.9	9.8	168	0.0635	2.391
.										
33.8	11.05		27.2		28.0	27.8	9.8	173	0.0638	2.396
33.7			27.1		27.9	27.7	9.7	171	0.0629	2.380
.										
33.8	11.80		27.7		28.5	28.3	10.2	165	0.0663	2.443
33.7			27.7		28.5	28.3	10.1	164	0.0659	2.435
.										
.										
.										

HELICOPTER CAL. _____ BENCHMARK _____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X

(Above ~~surface~~/S.L.)

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 050-40 DATE: 27 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~SURFACE~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	he (m)	R_r (Ohm)	E_{rd}/I_a (Units)
39.2	10.20	400	20.2	392	20.8	20.7	7.3	161	0.0474	2.066
39.1			20.3		20.9	20.8	7.3	162	0.0476	2.071
.										
39.3	13.60		27.5		28.3	28.2	13.7	165	0.0889	2.828
39.0			27.8		28.6	28.5	13.7	166	0.0894	2.837
.										
39.2	11-1/3		23.8		24.5	24.4	10.1	171	0.0660	2.437
38.9			24.1		24.8	24.7	10.2	172	0.0666	2.449
.										
39.2	11.05		23.0		23.7	23.5	9.5	170	0.0616	2.355
39.0			23.6		24.3	24.2	9.9	173	0.0642	2.404
.										
39.3	11.80		24.1		24.8	24.7	10.5	167	0.0681	2.476
39.2			24.2		24.9	24.8	10.5	167	0.0683	2.479
.										
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 120-20 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
22.1	10.20	400	40.3	392	41.5	40.6	8.9	179	0.0582	2.289
22.1			40.0		41.2	40.3	8.8	177	0.0574	2.272
.										
22.1	13.60		51.2		52.7	52.1	14.7	172	0.0958	2.936
22.0			51.9		53.5	52.8	15.0	173	0.0975	2.963
.										
22.1	11-1/3		43.3		44.6	43.8	10.4	173	0.0678	2.470
22.0			44.0		45.3	44.5	10.7	175	0.0693	2.498
.										
22.1	11.05		41.7		43.0	42.2	9.6	171	0.0628	2.376
22.1			42.3		43.6	42.8	9.9	174	0.0646	2.411
.										
22.0	11.80		45.8		47.2	46.4	11.6	176	0.0753	2.604
22.1			45.9		47.3	46.5	11.7	177	0.0764	2.622
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HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 2000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above SURFACE/S.L.) Height - Gain measurement.

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 120-20 DATE: 28 MAY 1978

Distance: _____ . ____ km., (If constant) $K_1 = \frac{0.98}{I_a/I_{as}}$ $K_2 = \frac{1.00}{\text{Loop Factor}}$ $K_3 = \frac{1.03}{\text{Vehicle Factor}}$

HELICOPTER CAL. _____ BENCHMARK _____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD _____ HELICOPTER X

(Above ~~Surface~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
22.0	10.20	400	40.1	392	41.3	40.4	8.8	177	0.0571	2.267
22.0			40.0		41.2	40.3	8.7	176	0.0568	2.262
.										
21.9	13.60		51.3		52.8	52.2	14.5	171	0.0944	2.915
22.0			51.3		52.8	52.2	14.6	171	0.0953	2.928
.										
21.9	11-1/3		43.4		44.7	43.9	10.3	172	0.0668	2.452
22.0			43.3		44.6	43.8	10.3	173	0.0671	2.458
.										
21.9	11.05		42.2		43.5	42.6	9.7	172	0.0631	2.382
22.0			42.2		43.5	42.7	9.8	172	0.0637	2.394
.										
21.8	11.80		46.5		47.9	47.1	11.7	177	0.0762	2.619
22.0			45.9		47.3	46.5	11.6	176	0.0757	2.610
.										
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 120-25 DATE: 28 MAY 1979

Distance: _____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (m./ft.) TRIPOD ____ HELICOPTER X

(Above Surface/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
24.8	10.20	400	35.9	392	37.0	36.3	9.0	179	0.0587	2.299
24.8			36.0		37.1	36.4	9.1	180	0.0590	2.305
.										
24.8	13.60		45.9		47.3	46.8	15.0	173	0.0974	2.961
24.8			45.8		47.2	46.7	14.9	173	0.0970	2.955
.										
24.8	11-1/3		38.4		39.6	39.0	10.4	173	0.0676	2.467
24.9			38.5		39.7	39.1	10.5	174	0.0685	2.484
.										
24.8	11.05		37.6		38.7	38.2	9.9	174	0.0647	2.414
24.8			37.8		38.9	38.4	10.1	175	0.0654	2.427
.										
24.8	11.80		40.1		41.3	40.8	11.4	174	0.0739	2.579
24.8			40.4		41.6	41.1	11.5	175	0.0750	2.598
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.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 120-30 DATE: 28 MAY 1979

Distance: _____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~SURFACE~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
30.1	10.20	400	29.0	392	29.9	29.5	8.8	177	0.0571	2.266
30.1			28.6		29.5	29.1	8.5	174	0.0555	2.235
30.0			29.3		30.2	29.8	8.9	178	0.0579	2.282
30.1	13.60		37.2		38.3	38.1	14.6	171	0.0949	2.922
30.1			37.0		38.1	37.9	14.4	170	0.0939	2.907
30.0			37.5		38.6	38.4	14.7	172	0.0958	2.936
30.0	11-1/3		30.7		31.6	31.3	9.8	168	0.0638	2.396
30.1			30.0		30.9	30.6	9.4	165	0.0613	2.350
30.0			30.8		31.7	31.4	9.9	169	0.0642	2.404
30.0	11.05		30.4		31.3	31.0	9.6	171	0.0625	2.372
30.0			29.3		30.2	29.9	8.9	165	0.0581	2.286
29.9			29.9		30.8	30.5	9.2	167	0.0601	2.325
30.0	11.80		32.1		33.1	32.8	10.7	169	0.0699	2.508
30.1			31.6		32.5	32.3	10.5	167	0.0682	2.477
30.0			31.7		32.7	32.4	10.5	167	0.0681	2.476
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 120-35 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_o (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
35.0	10.20	430	25.3	342	26.1	25.8	9.1	180	0.0591	2.306
35.0			25.2		26.0	25.7	9.0	179	0.0583	2.290
34.9	10.8		29.3		34.1	33.8	15.8	177	0.1012	3.026
34.9			29.3		33.9	33.7	15.6	178	0.1002	3.002
34.9	11-1/3		26.4		27.4	27.1	10.1	171	0.0668	2.440
34.9			26.5		27.5	27.2	9.9	169	0.0647	2.411
34.9	11.05		26.6		27.6	27.3	10.0	174	0.0661	2.472
34.9			26.7		27.5	27.3	10.1	175	0.0656	2.480
35.0	11.80		27.3		28.1	27.9	10.6	168	0.0691	2.494
35.0			27.3		28.1	27.9	10.6	168	0.0691	2.494

HELICOPTER CAL. ____ BENCH-MARK ____ ELECTRIC ___X___

LOOP HEIGHT 10.0 (m / ft.) TRIPOD ____ HELICOPTER ___X___

(Above Surface)

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 120-40 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~XXXXXX~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
40.5	10.20	400	21.0	392	21.6	21.5	8.4	173	0.0548	2.220
40.6			20.8		21.4	21.3	8.3	172	0.0540	2.204
.										
40.5	13.60		28.9		29.8	29.7	16.0	179	0.1043	3.064
40.6			28.8		29.7	29.6	16.0	179	0.1041	3.061
.										
40.5	11-1/3		23.6		24.3	24.2	10.7	175	0.0693	2.498
40.6			23.6		24.3	24.2	10.7	176	0.0697	2.504
.										
40.6	11.05		23.5		24.2	24.1	10.6	180	0.0690	2.493
40.6			23.8		24.5	24.4	10.9	182	0.0708	2.525
.										
40.6	11.80		23.3		24.0	23.9	10.4	167	0.0680	2.473
40.6			23.2		23.9	23.8	10.4	166	0.0674	2.463
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.										
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATION

HELICOPTER CAL. ______ BENCHMARK ______ ROUTINE X

LOOP HEIGHT [illegible] (ft.) TRIPOD ______ HELICOPTER X

(Above [illegible])

OMEGA STATION: HAWAII SITE NUMBER: 180-20 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)

(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
19.8	10.20	[illegible]	43.1	392	44.7	43.5	8.2	171	0.0536	2.197
[illegible]			43.1		44.7	43.5	[illegible]	[illegible]	[illegible]	2.209
.										
[illegible]	[illegible]		[illegible]		53.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			56.5		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.										
[illegible]	11-1/[illegible]		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			[illegible]		[illegible]	[illegible]	9.7	[illegible]	[illegible]	[illegible]
.										
[illegible]	11.05		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			[illegible]		[illegible]	46.[illegible]	[illegible]	[illegible]	[illegible]	2.33[illegible]
.										
19.8	[illegible]		48.7		50.1	49.0	[illegible]	167	0.0662	2.47[illegible]
19.8			[illegible]		50.0	48.9	10.4	167	0.0679	2.472
.										
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 180-25 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (ft./ft.) TRIPOD ____ HELICOPTER X

(Above SURFACE/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
24.9	10.20	400	34.4	392	35.4	34.8	8.4	173	0.0544	2.212
24.9			34.4		35.4	34.8	8.4	173	0.0544	2.212
25.0			34.5		35.5	34.9	8.5	174	0.0551	2.228
24.9	13.60		45.4		46.8	46.3	14.8	172	0.0961	2.941
24.9			45.2		46.6	46.1	14.6	171	0.0953	2.928
24.9			45.4		46.8	46.3	14.8	172	0.0961	2.941
24.9	11-1/3		37.1		38.2	37.7	9.8	168	0.0636	2.393
25.0			36.9		38.0	37.5	9.8	168	0.0635	2.390
24.9			37.0		38.1	37.6	9.7	168	0.0633	2.387
24.9	11.05		36.8		37.9	37.3	9.6	171	0.0625	2.372
25.0			36.2		37.3	36.7	9.4	169	0.0610	2.343
24.9			36.8		37.9	37.3	9.6	171	0.0625	2.372
24.8	11.80		38.2		39.3	38.8	10.3	166	0.0671	2.457
25.0			37.7		38.8	38.3	10.2	165	0.0664	2.445
24.9			38.4		39.6	39.0	10.5	167	0.0683	2.480
.										
.										

OMEGA STATION: HAWAII SITE NUMBER: 180-30 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 Loop Factor K_3 = 1 . 03 Vehicle Factor
(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohms)	E_{rd}/I_a (Units)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	169	0.0524	2.177
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	171	0.0532	2.189
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.197
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.995
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17	0.0938	2.964
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	173	0.0968	2.979
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	11.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17	0.0664	2.444
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	173	0.0659	2.436
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17	0.0667	2.468
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	11.3	[illegible]	[illegible]	[illegible]	[illegible]	31.4	[illegible]	174	0.0660	2.419
[illegible]	[illegible]	[illegible]	31.9	[illegible]	[illegible]	31.5	10.1	175	0.0659	2.436
30.1	[illegible]	[illegible]	30.7	[illegible]	31.7	31.4	9.9	174	0.0646	2.411
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30.2	11.30	[illegible]	31.4	[illegible]	32.3	32.1	10.4	167	0.0678	2.470
30.2	[illegible]	[illegible]	1.4	[illegible]	32.3	32.1	10.4	167	0.0678	2.470
30,1	[illegible]	[illegible]	31.5	[illegible]	32.4	32.2	10.4	167	0.0677	2.469
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(Above Surface)

HELICOPTER (A/C) ____ FIXED-WING ____ X
LOOP HEIGHT [illegible] m. RECEIVER ____ X
RADIO FREQ. INTERFERENCE (RFI) [illegible] HELICOPTER ____ X

[illegible] (OS-SV) REV 1

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 180-35 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 1000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~SURFACE~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
35.5	10.20	400	23.2	392	23.9	23.7	7.9	167	0.0511	2.145
35.6			23.1		23.8	23.6	7.8	167	0.0510	2.142
.										
35.5	13.60		31.7		32.7	32.5	14.8	172	0.0962	2.943
35.6			31.6		32.5	32.4	14.8	172	0.0961	2.942
.										
35.5	11-1/3		26.8		27.6	27.4	10.5	174	0.0685	2.482
35.6			26.7		27.5	27.3	10.5	174	0.0684	2.480
.										
35.5	11.05		26.2		27.0	26.8	10.0	175	0.0654	2.426
35.6			26.1		26.9	26.7	10.0	175	0.0653	2.424
.										
35.6	11.80		27.1		27.9	27.7	10.8	170	0.0705	2.519
35.5			27.3		28.1	27.9	10.9	171	0.0711	2.530
.										
.										
.										

OMEGA STATION: HAWAII SITE NUMBER: 180-40 DATE: 28 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
[illegible]	13.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	7.6	164	0.0492	2.104
[illegible]						20.6	7.7	165	0.0499	2.119
[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						22.7	13.9	167	0.0806	[illegible]
[illegible]	11.[illegible]					23.2	10.6	175	0.0690	[illegible]
[illegible]						24.9	10.4	173	0.0678	[illegible]
[illegible]	11.[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						24.9	9.6	171	0.0622	2.375
[illegible]	11.[illegible]		[illegible]		[illegible]	25.0	11.3	174	0.0738	2.577
[illegible]			[illegible]		[illegible]	25.1	11.4	175	0.0744	2.588

DATA SHEET 6 (OS-61, REV 1
RADIO FIELD INTENSITY CALCULATIONS

HELICOPTER CAL.
LOOP HEIGHT [illegible]
(Above [illegible])

PILOT
HELICOPTER

AD-A082 115 MEGATEK CORP SAN DIEGO CA F/6 17/7
OMEGA HAWAII ANTENNA SYSTEM: MODIFICATION AND VALIDATION TESTS.--ETC(U)
OCT 79 J C HANSELMAN N00123-78-C-0043
UNCLASSIFIED NOSC-TR-493-VOL-2 NL

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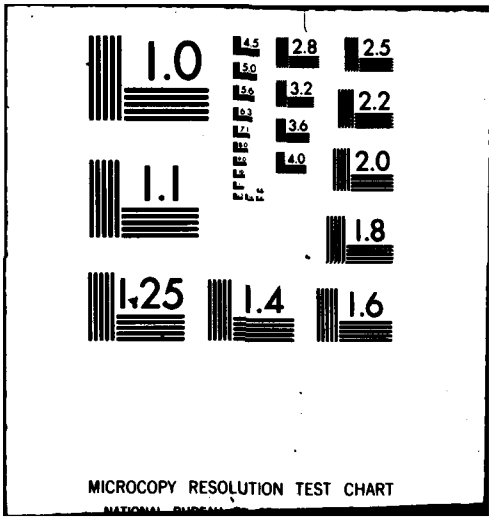
1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
6.3
MICROCOPY RESOLUTION TEST CHART

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 265-20 DATE: 25 MAY 1979

Distance: _____ . ___ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

HELICOPTER CAL. _____ BENCHMARK _____ ROUTINE X

LOOP HEIGHT 4000 (M./ft.) TRIPOD _____ HELICOPTER X
(Above MXXXXXX/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
20.4	10.20	400	42.7	392	44.0	42.9	8.5	174	0.0553	2.231
20.6			42.2		43.5	42.4	8.5	174	0.0551	2.227
20.4			43.0		44.3	43.2	8.6	175	0.0561	2.247
20.5	13.60		54.8		56.4	55.6	14.5	170	0.0941	2.909
20.7			53.8		55.4	54.6	14.2	169	0.0925	2.885
20.6			54.6		56.2	55.4	14.5	170	0.0943	2.913
20.4	11-1/3		46.2		47.6	46.6	10.0	170	0.0654	2.425
20.9			45.5		46.9	45.9	10.2	172	0.0667	2.449
20.7			45.8		47.2	46.2	10.2	171	0.0662	2.441
20.4	11.05		45.5		46.9	45.8	9.7	172	0.0633	2.386
20.7			44.5		45.8	44.9	9.6	171	0.0624	2.369
20.7			44.8		46.1	45.2	9.7	172	0.0632	2.385
20.4	11.80		48.6		50.1	49.1	11.1	172	0.0725	2.555
20.5			48.4		49.9	48.9	11.2	172	0.0727	2.558
20.7			47.8		49.2	48.3	11.1	172	0.0723	2.552
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 265-25 DATE: 25 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 4000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above ~~Runway~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	he (m)	R_r (Ohm)	E_{rd}/I_a (Units)
25.5	10.20	400	35.2	392	36.3	35.7	9.2	181	0.0598	2.320
25.7			34.6		35.6	35.1	9.0	179	0.0587	2.299
25.5			34.6		35.6	35.1	8.9	178	0.0578	2.280
25.4	13.60		47.2		48.6	48.2	16.6	183	0.1082	3.120
25.7			46.7		48.1	47.7	16.7	183	0.1085	3.125
25.5			46.7		48.1	47.7	16.4	181	0.1068	3.100
25.4	11-1/3		37.8		38.9	38.4	10.6	175	0.0688	2.489
25.6			37.5		38.6	38.1	10.6	175	0.0688	2.489
25.5			37.6		38.7	38.2	10.5	175	0.0686	2.486
25.4	11.05		36.9		38.0	37.5	10.1	175	0.0655	2.428
25.6			37.0		38.1	37.6	10.3	177	0.0669	2.454
25.6			36.7		37.8	37.3	10.1	175	0.0658	2.434
25.5	11.80		39.0		40.2	39.7	11.4	174	0.0740	2.581
25.5			39.4		40.6	40.1	11.6	176	0.0755	2.607
25.6			38.8		40.0	39.5	11.3	174	0.0738	2.578
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 265-30 DATE: 25 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 4000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above SEA LEVEL/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	$E_r d/I_a$ (Units)
31.0	10.20	400	26.4	392	27.2	26.9	7.7	166	0.0502	2.126
31.3			26.4		27.2	26.9	7.9	168	0.0512	2.147
.										
31.0	13.60		34.9		35.9	35.7	13.6	165	0.0887	2.825
31.2			34.9		35.9	35.7	13.8	166	0.0898	2.843
.										
30.9	11-1/3		29.1		30.0	29.7	9.4	164	0.0609	2.341
31.1			28.8		29.7	29.4	9.3	164	0.0604	2.332
.										
30.8	11.05		28.8		29.7	29.4	9.1	166	0.0592	2.308
31.1			28.3		29.1	28.9	9.0	165	0.0583	2.291
.										
30.5	11.80		29.9		30.8	30.5	9.6	160	0.0627	2.375
31.0			29.4		30.3	30.0	9.6	160	0.0627	2.375
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 265-35 DATE: 25 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 / I_a/I_{as} K_2 = 1 . 00 / Loop Factor K_3 = 1 . 03 / Vehicle Factor
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X
LOOP HEIGHT 4000 (M./ft.) TRIPOD ____ HELICOPTER X
(Above ~~Surface~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_{rd}/I_a (Units)
35.4	10.20	400	23.4	392	24.1	23.9	7.9	168	0.0517	2.158
35.8			22.6		23.3	23.1	7.6	164	0.0494	2.108
.										
35.4	13.60		31.9		32.9	32.7	14.9	173	0.0969	2.953
35.8			31.6		32.5	32.4	14.9	173	0.0972	2.958
.										
35.5	11-1/3		26.0		26.8	26.6	9.9	169	0.0644	2.408
35.8			25.9		26.7	26.5	10.0	170	0.0651	2.420
.										
35.4	11.05		26.0		26.8	26.6	9.8	173	0.0640	2.401
35.7			25.9		26.7	26.5	9.9	174	0.0646	2.412
.										
35.4	11.80		26.3		27.1	26.9	10.1	164	0.0656	2.430
35.6			26.4		27.2	27.0	10.3	165	0.0669	2.454
.										
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 265-40 DATE: 25 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 4000 (M./Ft.) TRIPOD ____ HELICOPTER X

(Above MXXXXM/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
.	10.20	400		392						
.										
.										
.	13.60									
.										
.										
41.2	11-1/3	400	21.6	392	22.2	22.1	9.2	163	0.0601	2.326
.										
.										
40.6	11.05	400	22.1	392	22.6	22.6	9.4	169	0.0611	2.344
.										
.										
40.4	11.80	400	23.4	392	24.1	24.0	10.4	167	0.0679	2.472
.										
.										
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 265-35 DATE: 26 MAY 1979

Distance: _____ . ___ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
35.2	10.20	400	23.0	392	23.7	23.5	7.6	165	0.0494	2.109
35.2			23.0		23.7	23.5	7.6	165	0.0494	2,109
.										
35.2	13.60		32.3		33.3	33.1	15.1	174	0.0982	2.973
35.2			32.3		33.3	33.1	15.1	174	0.0982	2.973
.										
35.3	11-1/3		27.2		28.0	27.8	10.7	176	0.0697	2.505
35.1			27.3		28.1	27.9	10.7	176	0.0694	2.500
.										
35.3	11.05		25.9		26.7	26.5	9.7	172	0.0632	2.384
35.0			26.6		27.4	27.2	10.1	175	0.0655	2.428
.										
35.4	11.80		27.6		28.4	28.2	11.1	172	0.0723	2.551
35.1			27.8		28.6	28.4	11.1	172	0.0721	2.547
.										
.										
.										

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 3000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above [redacted]/S.L.)

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 265-40 DATE: 26 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 4000 (M./ft.) TRIPOD ____ HELICOPTER X

(Above SMKXKM/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
38.7	10.20	400	20.3	392	20.9	20.8	7.2	160	0.0467	2.049
38.6			20.4		21.0	20.9	7.2	160	0.0469	2.054
.										
38.6	13.60		28.9		29.8	29.6	14.5	171	0.0947	2.919
38.6			28.9		29.8	29.6	14.5	171	0.0947	2.919
.										
38.6	11-1/3		24.3		25.0	24.9	10.2	172	0.0667	2.450
38.6			24.5		25.2	25.1	10.4	173	0.0678	2.470
.										
38.6	11.05		23.7		24.4	24.3	9.7	172	0.0634	2.389
38.6			23.7		24.4	24.3	9.7	172	0.0634	2.389
.										
.	11.80									
38.6			25.5		26.3	26.1	11.3	173	0.0735	2.572
.										
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 305-20 DATE: 26 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 3000 (ft./ft.) TRIPOD ____ HELICOPTER X

(Above ~~XXXXX~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
19.2	10.20	400	43.2	392	44.5	43.2	7.7	165	0.0498	2.117
19,2			43.6		44.9	43.6	7.8	167	0.0507	2.137
19.4			43.8		45.1	43.9	8.0	169	0.0523	2.170
19.1	13.60		58.3		60.0	59.1	14.1	168	0.0920	2.878
19.2			58.1		59.8	58.9	14.2	169	0.0924	2.883
19.2			58.3		60.0	59.1	14.3	169	0.0930	2.897
19.1	11-1/3		48.9		50.4	49.2	9.8	168	0.0638	2.397
19.3			48.4		49.9	48.7	9.8	168	0.0639	2.398
19.2			48.4		49.9	48.7	9.7	167	0.0632	2.385
19.0	11.05		48.1		49.5	48.3	9.4	169	0.0609	2.342
19.3			47.2		48.6	47.4	9.3	168	0.0606	2.336
19.2			47.5		48.9	47.7	9.3	168	0.0607	2.338
19.0	11.80		50.9		52.4	51.3	10.5	168	0.0686	2.485
19.3			50.3		51.8	50.7	10.6	168	0.0693	2.497
19.6			50.5		52.0	50.9	11.1	172	0.0721	2.547
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 305-25 DATE: 26 MAY 1979

Distance: _____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____. BENCHMARK ____ ROUTINE __X__

LOOP HEIGHT 3000 (M./Ft.) TRIPOD ____ HELICOPTER __X__

(Above ~~SEA~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
25.6	10.20	400	32.4	392	33.4	32.8	7.8	167	0.0511	2.144
25.3			33.1		34.1	33.5	8.0	169	0.0520	2.164
25.2			33.6		34.6	34.0	8.2	171	0.0532	2.187
25.4	13.60		44.2		45.5	45.1	14.6	171	0.0949	2.922
25.3			44.6		45.9	45.5	14.7	172	0.0958	2.937
25.1			44.7		46.0	45.6	14.8	172	0.0963	2.943
25.4	11-1/3		36.2		37.3	36.8	9.7	167	0.0631	2.383
25.5			36.3		37.4	36.9	9.8	168	0.0640	2.400
25.1			37.3		38.4	37.9	10.0	170	0.0654	2.426
25.2	11.05		36.0		37.1	36.5	9.4	169	0.0613	2.349
25.5			35.6		36.7	36.2	9.4	169	0.0615	2.352
25.0			36.5		37.6	37.0	9.5	170	0.0620	2.363
25.3	11.80		37.6		38.7	38.2	10.4	166	0.0677	2.468
25.6			36.8		37.9	37.4	10.2	165	0.0664	2.445
25.1			38.0		39.1	38.6	10.5	167	0.0680	2.474
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.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 305-30 DATE: 26 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK ____ ROUTINE X

LOOP HEIGHT 3000 (ft./ft.) TRIPOD ____ HELICOPTER X

(Above [redacted]/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	$E_r d/I_a$ (Units)
29.5	10.20	400	26.9	392	27.7	27.4	7.2	161	0.0471	2.059
29.8			26.3		27.1	26.8	7.1	159	0.0460	2.034
29.6			26.8		27.6	27.3	7.2	161	0.0471	2.059
29.5	13.60		37.4		38.5	38.3	14.1	168	0.0921	2.879
29.8			36.5		37.6	37.3	13.8	166	0.0895	2.838
29.7			36.8		37.9	37.6	13.9	167	0.0904	2.852
29.4	11-1/3		31.0		31.9	31.6	9.6	166	0.0624	2.371
29.8			29.7		30.6	30.3	9.1	162	0.0589	2.303
29.7			30.2		31.1	30.8	9.3	164	0.0605	2.333
29.4	11.05		30.5		31.4	31.1	9.3	168	0.0604	2.331
29.7			29.4		30.3	30.0	8.8	164	0.0573	2.270
29.7			29.5		30.4	30.1	8.9	164	0.0577	2.278
29.4	11.80		31.8		32.8	32.4	10.1	164	0.0658	2.434
29.6			30.6		31.5	31.2	9.5	159	0.0618	2.358
29.8			30.6		31.5	31.2	9.6	160	0.0626	2.374
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 305-35 DATE: 26 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X

LOOP HEIGHT 3000 (m./ft.) TRIPOD ____ HELICOPTER X

(Above ~~RUNWAY~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
34.8	10.20	400	23.0	392	23.7	23.5	7.4	163	0.0483	2.084
34.6			23.0		23.7	23.5	7.3	162	0.0477	2.072
.										
34.8	13.60		31.5		32.4	32.3	14.0	168	0.0913	2.866
34.7			31.5		32.4	32.3	13.9	167	0.0907	2.857
.										
34.7	11-1/3		26.8		27.6	27.4	10.0	170	0.0654	2.426
34.8			26.7		27.5	27.3	10.0	170	0.0653	2.424
.										
34.5	11.05		26.2		27.0	26.8	9.5	170	0.0617	2.357
34.7			26.0		26.8	26.6	9.4	169	0.0615	2.352
.										
34.5	11.80		27.4		28.2	28.0	10.4	166	0.0676	2.467
34.7			27.3		28.1	27.9	10.4	167	0.0679	2.472
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RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: 305-40 DATE: 26 MAY 1979

Distance: ____ . ____ km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 1 . 00 (Loop Factor) K_3 = 1 . 03 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK ____ ROUTINE X
LOOP HEIGHT 3000 (M./ft.) TRIPOD ____ HELICOPTER X
(Above ~~XXXXXX~~/S.L.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	$E_r d/I_a$ (Units)
40.4	10.20	400	19.3	392	19.9	19.7	7.1	159	0.0460	2.035
40.0			19.6		20.2	20.1	7.1	160	0.0465	2.046
.										
40.2	13.60		26.5		27.3	27.2	13.3	163	0.0864	2.789
40.1			26.6		27.4	27.3	13.3	163	0.0866	2.792
.										
40.2	11-1/3		22.9		23.6	23.5	9.9	169	0.0643	2.406
40.2			23.2		23.9	23.8	10.1	171	0.0660	2.437
.										
40.0	11.05		22.6		23.3	23.1	9.5	170	0.0620	2.362
40.3			22.1		22.8	22.6	9.2	168	0.0602	2.327
.										
40.4	11.80		24.1		24.8	24.7	11.1	172	0.0720	2.546
40.3			23.9		24.6	24.5	10.8	170	0.0705	2.518
.										
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.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: A DATE: 31 MAY 1979

Distance: 21 . 865 km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 0 . 99 (Loop Factor) K_3 = 1 . 00 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK X ROUTINE ____

LOOP HEIGHT 6 (ft./ft.) TRIPOD X HELICOPTER ____

(Above Surface/~~BXB~~.)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/Ia (Units)
.	10.20	400	47.4	392	46.9	45.9	11.2	200	0.0728	2.559
.			47.5		47.0	46.0	11.2	200	0.0731	2.565
.			47.2		46.7	45.7	11.1	199	0.0722	2.549
.	13.60		62.6		62.0	61.2	19.9	200	0.1294	3.413
.			61.7		61.1	60.3	19.3	197	0.1257	3.364
.			61.0		60.4	59.6	18.9	195	0.1229	3.326
.	11-1/3		51.2		50.7	49.8	13.2	195	0.0856	2.776
.			51.4		50.9	50.0	13.3	196	0.0863	2.787
.			51.2		50.7	49.8	13.2	195	0.0856	2.776
.	11.05		50.1		49.6	48.7	12.6	195	0.0818	2.714
.			50.6		50.1	49.1	12.8	197	0.0835	2.741
.			50.4		49.9	48.9	12.7	197	0.0828	2.730
.	11.80		54.2		53.7	52.8	14.8	198	0.0962	2.943
.			53.9		53.4	52.5	14.6	197	0.0952	2.927
.			54.1		53.6	52.7	14.7	198	0.0959	2.938
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: B DATE: 31 MAY 1979

Distance: 20 . 197 km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 0 . 99 (Loop Factor) K_3 = 1 . 00 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK X ROUTINE ____

LOOP HEIGHT 6 (M./ft.) TRIPOD X HELICOPTER ____

(Above Surface/~~MSL~~)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_g (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	$E_r d/I_a$ (Units)
.	10.20	400	48.5	392	48.0	46.8	9.9	188	0.0645	2.410
.			48.6		48.1	46.9	10.0	188	0.0648	2.415
.			48.5		48.0	46.8	9.9	188	0.0645	2.410
.	13.60		64.1		63.5	62.5	17.7	188	0.1153	3.221
.			64.1		63.5	62.5	17.7	188	0.1153	3.221
.			64.1		63.5	62.5	17.7	188	0.1153	3.221
.	11-1/3		52.8		52.3	51.2	11.9	185	0.0772	2.636
.			52.7		52.2	51.1	11.8	185	0.0769	2.631
.			52.8		52.3	51.2	11.9	185	0.0772	2.636
.	11.05		51.7		51.2	50.1	11.4	186	0.0739	2.579
.			51.7		51.2	50.1	11.4	186	0.0739	2.579
.			51.7		51.2	50.1	11.4	186	0.0739	2.579
.	11.80		55.9		55.3	54.3	13.3	189	0.0868	2.796
.			55.7		55.1	54.1	13.3	188	0.0862	2.786
.			55.8		55.2	54.2	13.3	188	0.0865	2.791
.										
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DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: C DATE: 1 JUNE 1979

Distance: 25 . 475 km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 0 . 99 (Loop Factor) K_3 = 1 . 00 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ BENCHMARK X ROUTINE ____

LOOP HEIGHT 6 (M./ft.) TRIPOD X HELICOPTER ____

(Above Surface/MSL)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
.	10.20	400	34.3	392	34.0	33.4	8.0	169	0.0523	2.170
.			34.3		34.0	33.4	8.0	169	0.0523	2.170
.			34.2		33.9	33.3	8.0	169	0.0520	2.164
.	13.60		47.3		46.8	46.4	15.5	176	0.1010	3.015
.			47.0		46.5	46.1	15.3	175	0.0997	2.996
.			47.1		46.6	46.2	15.4	176	0.1001	3.002
.	11-1/3		38.3		37.9	37.4	10.1	171	0.0657	2.431
.			38.0		37.6	37.1	9.9	169	0.0646	2.412
.			38.0		37.6	37.1	9.9	169	0.0646	2.412
.	11.05		37.5		37.1	36.6	9.7	171	0.0629	2.379
.			37.6		37.2	36.7	9.7	172	0.0632	2.385
.			37.3		36.9	36.4	9.6	170	0.0622	2.366
.	11.80		39.5		39.1	38.6	10.8	169	0.0700	2.510
.			39.6		39.2	38.7	10.8	170	0.0703	2.516
.			39.5		39.1	38.6	10.8	169	0.0700	2.510
.										
.										

DATA SHEET 6 (DS-6), REV 1

RADIO FIELD INTENSITY CALCULATIONS

OMEGA STATION: HAWAII SITE NUMBER: C DATE: 1 JUNE 1979

Distance: 25 . 475 km., K_1 = 0 . 98 (I_a/I_{as}) K_2 = 0 . 99 (Loop Factor) K_3 = 1 . 00 (Vehicle Factor)
(If constant)

HELICOPTER CAL. ____ . BENCHMARK X ROUTINE ____

LOOP HEIGHT 6 (M./Ft.) TRIPOD X HELICOPTER ____

(Above Surface/XXXX)

Dist. (km.)	Freq. (kHz)	I_{as} (A)	E_q (mV)	I_a (A)	E_m (mV/m)	E_r (mV/m)	P_r (kW)	h_e (m)	R_r (Ohm)	E_rd/I_a (Units)
.	10.20	400	34.2	392	33.9	33.3	8.0	169	0.0520	2.164
.										
.										
.	13.60		47.0		46.5	46.1	15.3	175	0.0997	2.996
.										
.										
.	11-1/3		38.0		37.6	37.1	9.9	169	0.0646	2.412
.										
.										
.	11.05		37.2		36.8	36.3	9.5	170	0.0619	2.360
.										
.										
.	11.80		39.6		39.2	38.7	10.8	170	0.0703	2.516
.										
.										
.										
.										