The California Channel
Exhibit B
Radiation Hazard

The California Channel

Radiation Hazard

General description of installation and summary of proposed measures used to protect human exposure to radio frequency electromagnetic fields.

The transmit earth station will be located on the secured roof of an office building in a controlled environment. The access door leading to the roof will be locked and access provided only to authorized building maintenance personnel. A sign warning of potential hazard from RF Electromagnetic Fields will be posted on the door leading to the roof.

The roof mounted earth station antenna will be located within a personnel barrier adequate to prevent human exposure to unsafe levels of RF electromagnetic fields, including occupancy of the area in front of the antenna. The personnel barrier will be equipped with radio frequency hazard warning signs in all accessible directions.

Description of specific areas and proposed measures to prevent human exposure to radio frequency electromagnetic fields.

Antenna surface and region between the feed horn and surface:

Operators and technicians shall receive training specifying these areas as high exposure areas. Procedures will be established that will assure that all transmitters are turned off before access by maintenance personnel to this area is possible.

On-axis near, transition and far regions:

In any operating position, the antenna pointing requires that the on-axis regions be well clear of directions that would cause human exposure to radio frequency electromagnetic fields. The antenna requires manual alignment prior to use by personnel at the antenna on the rooftop. The requirement to manually align the antenna will allow personnel to insure that the antenna is not improperly aligned in such a way to cause a RF hazard.

Off axis, near, transition and far regions:

The potential exposure levels fall below that established for both the controlled and uncontrolled environment.

Radiation Hazard Analysis

This analysis predicts the radiation levels around a proposed earth station complex, comprised of one or more aperture (reflector) type antennas. This report is developed in accordance with the prediction methods contained in OET Bulletin No. 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields," Edition 97-01, pp 26-30. The maximum level of non-ionizing radiation to which employees may be exposed is limited to a power density level of 5 milliwatts per square centimeter (5 mW/cm^2) averaged over any 6 minute period in a **controlled environment** and the maximum level of non-ionizing radiation to which the general public is exposed is limited to a power density level of 1 milliwatt per square centimeter (1 mW/cm^2) averaged over any 30 minute period in a **uncontrolled evironment**. Note that the worse-case radiation hazards exist along the beam axis. Under normal circumstances, it is highly unlikely that the antenna axis will be aligned with any occupied area since that would represent a blockage to the desired signals, thus rendering the link unuseable.

Earth Station Technical Parameter Table

Antenna Actual Diameter	2.4	meters		
Antenna Surface Area	4.5	sq. meters		
Antenna Isotropic Gain		42.4	dBi	
Number of Identical Adjacent Antennas*		1		
Nominal Antenna Efficiency (ε)		72 %		
Nominal Frequency		6185	MHz	
Nominal Wavelength (λ)		0.0485	meters	
Maximum Transmit Power / Carrier		50	Watts	
Number of Carriers		2		
Total Transmit Power		100	Watts	
W/G Loss from Transmitter to Feed		0	dB	
Total Feed Input Power		100	Watts	
Near Field Limit	$R_{nf} = D^2/4\lambda =$		30	meters
Far Field Limit	$R_{ff} = 0.6\ D^2/\lambda =$		71	meters
Transition Region	R_{nf} to R_{ff}			

* The Radiation Levels will be increased directly by the number of antennas indicated, on the assumption that all antennas may illuminate the same area.

In the following sections, the power density in the above regions, as well as other critically important areas will be calculated and evaluated. The calculations are done in the order discussed in OET Bulletin 65. In addition to the input parameters above, input cells are provided below for the user to evaluate the power density at specific distances or angles.

1.0 At the Antenna Surface

The power density at the reflector surface can be calculated from the expression:

$PD_{refl} =$ $4P/A =$ 8.84 mW/cm² (1)

Where: P = total power at feed, milliwatts

A = Total area of reflector, sq. cm

In the normal range of transmit powers for satellite antennas, the power densities at or around the reflector surface is expected to exceed safe levels. This area will not be accessible to the general public. Operators and technicians should receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

2.0 On-Axis Near Field Region

The geometrical limits of the radiated power in the near field approximate a cylindrical volume with a diameter equal to that of the antenna. In the near field, the power density is neither uniform nor does its value vary uniformly with distance from the antenna. For the purpose of considering radiation hazard it is assumed that the on-axis flux density is at its maximum value throughout the length of this region. The length of this region, i.e., the distance from the antenna to the end of the near field, is computed as Rnf above.

The maximum power density in the near field is given by:

$PD_{nf} = (16\ \varepsilon\ P)/(\pi\ D^2) =$ 6.36 mW/cm² (2)

from 0 to 30 meters

Evaluation

Uncontrolled Environment:	Mitigation Required, See Note 1
Controlled Environment:	Mitigation Required, See Note 1

3.0 On-Axis Transition Region

The transition region is located between the near and far field regions. As stated in Bulletin 65, the power density begins to vary inversely with distance in the transition region. The maximum power density in the transition region will not exceed that calculated for the near field region, and the transition region begins at that value. The maximum value for a given distance within the transition region may be computed for the point of interest according to:

$PD_t =$ $(PD_{nf})(R_{nf})/R =$ dependent on R (3)

where: PD_{nf} = near field power density

R_{nf} = near field distance

R = distance to point of interest

For: $30 < R <$ 71 meters

We use Eq (3) to determine the safe on-axis distances required for the two occupancy conditions:

Evaluation

Uncontrolled Environment Safe Operating Distance, (meters), R_{safeu}:	In F-F region, See Section 4
Controlled Environment Safe Operating Distance,(meters), R_{safec}:	38

4.0 On-Axis Far-Field Region

The on- axis power density in the far field region (PD_{ff}) varies inversely with the square of the distance as follows:

PD_{ff} = $PG/(4 \pi R^2)$ = dependent on R (4)

where: P = total power at feed

G = Numeric Antenna gain in the direction of interest relative to isotropic radiator

R = distance to the point of interest

For: $R > R_{ff}$ = 71 meters

PD_{ff} = 2.72 mW/cm^2 at R_{ff}

We use Eq (4) to determine the safe on-axis distances required for the two occupancy conditions:

Evaluation

Uncontrolled Environment Safe Operating Distance,(meters), R_{safeu} : 118

Controlled Environment Safe Operating Distance,(meters), R_{safec} : See Section 3

5.0 Off-Axis Levels at the FarField Limit and Beyond

In the far field region, the power is distributed in a pattern of maxima and minima (sidelobes) as a function of the off-axis angle between the antenna center line and the point of interest. Off-axis power density in the far field can be estimated using the antenna radiation patterns prescribed for the antenna in use. Usually this will correspond to the antenna gain pattern envelope defined by the FCC or the ITU, which takes the form of:

G_{off} = 32 - 25log(Θ)

for Θ from 1 to 48 degrees; -10 dBi from 48 to 180 degrees

(Applicable for commonly used satellite transmit antennas)

Considering that satellite antenna beams are aimed skyward, power density in the far field will usually not be a problem except at low look angles. In these cases, the off axis gain reduction may be used to further reduce the power density levels.

For example: At one (1) degree off axis At the far-field limit, we can calculate the power density as:

G_{off} = 32 - 25log(1) = 32 - 0 dBi = 1585 numeric

$PD_{1\ deg\ off\text{-}axis}$ = PD_{ff} x 1585/G = 0.2484 mW/cm^2 (5)

6.0 Off-Axis power density in the Near Field and Transitional Regions

According to Bulletin 65, off-axis calculations in the near field may be performed as follows: assuming that the point of interest is at least one antenna diameter removed from the center of the main beam, the power density at that point is at least a factor of 100 (20 dB) less than the value calculated for the equivalent on-axis power density in the main beam. Therefore, for regions at least D meters away from the center line of the dish, whether behind, below, or in front under of the antenna's main beam, the power density exposure is at least 20 dB below the main beam level as follows:

$PD_{nf(off\text{-}axis)}$ = PD_{nf} /100 = 0.064 mW/cm^2 at D off axis (6)

See page 5 for the calculation of the distance vs elevation angle required to achieve this rule for a given object height.

7.0 Region Between the Feed Horn and Sub-reflector

Transmissions from the feed horn are directed toward the subreflector surface, and are confined within a conical shape defined by the feed horn. The energy between the feed horn and subreflector is conceded to be in excess of any limits for maximum permissible exposure. This area will not be accessible to the general public. Operators and technicians should receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

Note 1:

Mitigation of the radiation level may take several forms. First, check the distance from the antenna to the nearest potentially occupied area that the antenna could be pointed toward, and compare to the distances appearing in Sections 2, 3 & 4. If those distances lie within the potentially hazardous regions, then the most common solution would be to take steps to insure that the antenna(s) are not capable of being pointed at those areas while RF is being transmitted. This may be accomplished by setting the tracking system to not allow the antenna be pointed below certain elevation angles. Other techniques, such as shielding may also be used effectively.

Evaluation of Safe Occupancy Area in Front of Antenna

The distance (S) from a vertical axis passing through the dish center to a safe off axis location in front of the antenna can be determined based on the dish diameter rule (Item 6.0). Assuming a flat terrain in front of the antenna, the relationship is:

$$S = (D/ \sin \alpha) + (2h - D - 2)/(2 \tan \alpha) \qquad (7)$$

Where: α = minimum elevation angle of antenna

D = dish diameter in meters

h = maximum height of object to be cleared, meters

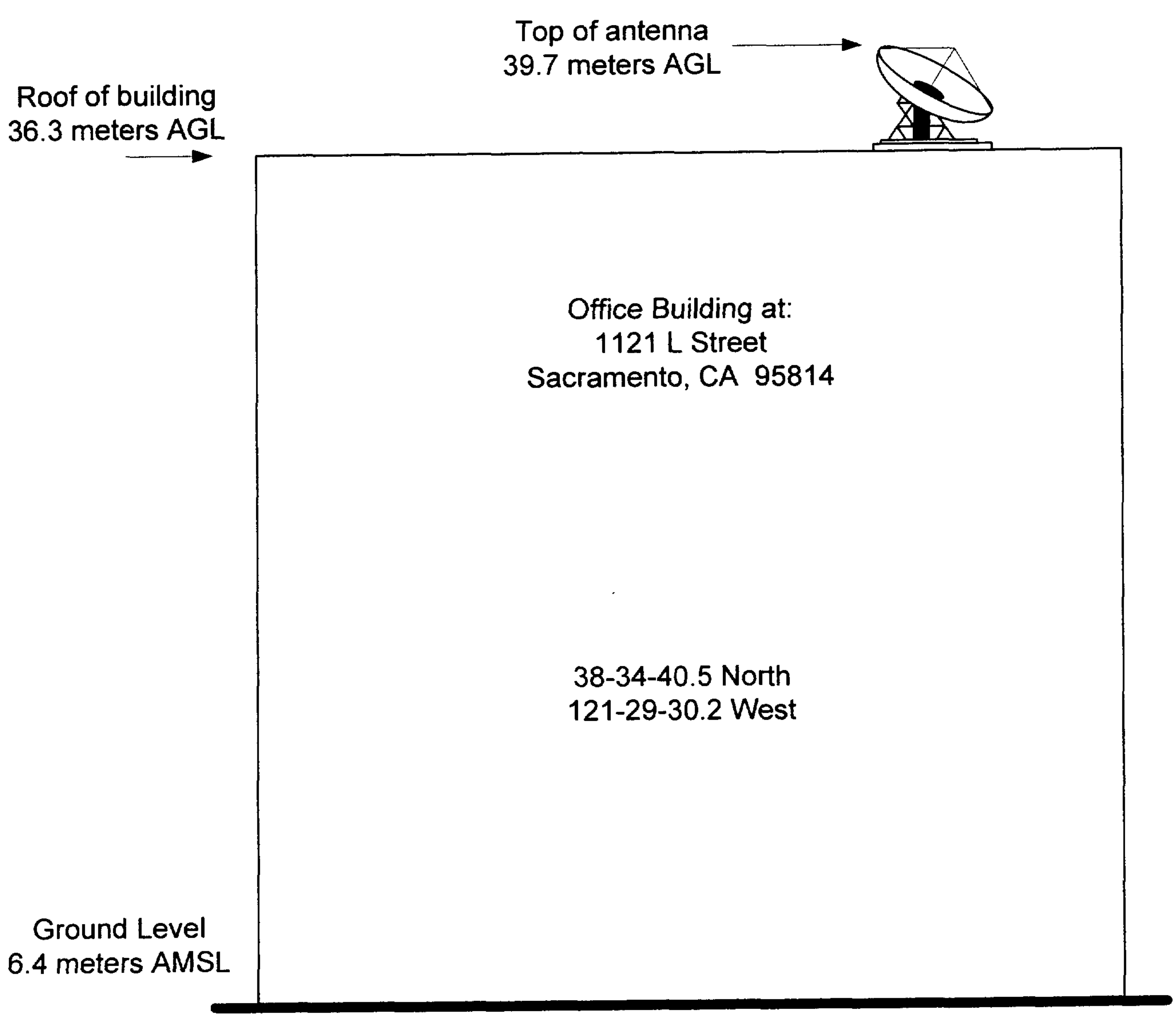
For distances equal or greater than determined by equation (7), the radiation hazard will be below safe levels for all but the most powerful stations (> 4 kilowatts RF at the feed).

For	D =		2.4	meters
	h =		2.5	meters
Then:				
	α	S		
	10		15.5	meters
	15	10.4	meters	
	20	7.8	meters	
	25	6.3	meters	
	30	5.3	meters	
	33.5	4.8	meters	
	41.3	4	meters	

Suitable fencing or other barrier should be provided to prevent casual occupancy of the area in front of the antenna within the limits prescribed above at the lowest elevation angle required.

The California Channel
Exhibit C
Sketch of Antenna Site

The California Channel
Site Sketch



The California Channel
Exhibit D
Frequency Coordination

Multicomm Sciences Int'l, Inc

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Fax: 973-625-1002
http://www.MulticommSciences.com

May 10, 2004

TO: All Coordinators

RE: The California Channel
T/R Earth Station
Sacramento, CA
PCN dated March 26, 2004
Information Only Letter

Dear Sir or Madam:

On behalf of our client, The California Channel, we are enclosing an information- only letter on the above prior coordination notice.

Our client has dropped the power and increased the bandwidth only. Please do not report any cases already resolved at a higher power.

For your convenience, we have enclosed data sheets reflecting this change. Should you have any questions, please do not hesitate to contact MSI.

Sincerely,

A. Palsulich

Andrea Palsulich, Manager
Data Processing Dept
Enc.

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
05/10/04

COMPANY NAME:	THE CALIFORNIA CHANN
EARTH STATION LOCATION:	SACRAMENTO, CA
LATITUDE(DMS):	38 34 40.5 (NAD83)
LONGITUDE(DMS):	121 29 30.2
SITE GROUND ELEVATION(FT. AMSL):	21.0
ANTENNA CENTER LINE(FT)	125.0
ANTENNA TYPE:	PATRIOT TXFCC-240CSC
ANTENNA DIAMETER(METERS):	2.4
4 GHZ ANTENNA GAIN(DBI):	38.4
15 DB HALF BEAMWIDTH(DEG):	3.30
6 GHZ ANTENNA GAIN(DBI):	42.4
15 DB HALF BEAMWIDTH(DEG):	2.10
OPERATING MODE:	T/R
RECEIVE BAND(MHZ):	3700 - 4200
TRANSMIT BAND(MHZ):	5925 - 6425
EMISSION DESIGNATOR	4M00G1F
MODULATION:	DIGITAL
MAX. AVAILABLE RF POWER(DBW/4KHZ):	-12.00
(DBW/4MHZ):	18.00
MAX. EIRP (DBW/4KHZ):	30.4
(DBW/4MHZ):	60.4
MAX. PERMISSIBLE INTERFERENCE POWER	
4 GHZ 20%(DBW)	-156.0
4 GHZ 0.0100%(DBW)	-128.0
6 GHZ 20%(DBW/4KHZ)	-154.0
6 GHZ 0.0025%(DBW/4KHZ)	-131.0
SATELLITE ARC (MIN/MAX)	88/140 DEG
AZIMUTH	133.3/208.2 DEG
ELEVATION	33.5/ 41.3 DEG
RADIO CLIMATE	A
RAIN ZONE	3
MAXIMUM GREAT CIRCLE COORDINATION DISTANCE(KM)	
4 GHZ	169.3
6 GHZ	105.3
PRECIPITATION SCATTER CONTOUR RADIUS(KM)	
4 GHZ	103.0
6 GHZ	127.1

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SACRAMENTO, CA
38 34 40.5
121 29 30.2

AZ DEG	DISC DEG	HOR ANG DEGREES	4GHZ HOR GAIN	6GHZ HOR GAIN	4GHZ COORD KM	6GHZ COORD KM	RAIN 4 SCAT KM	RAIN 6 SCAT KM
5.	121.	.0	-12.0	-13.0	116.0	102.0	103.0	127.1
10.	117.	.0	-12.0	-13.0	117.1	102.0	103.0	127.1
15.	113.	.0	-12.0	-13.0	118.3	102.0	103.0	127.1
20.	109.	.0	-12.0	-13.0	119.6	102.0	103.0	127.1
25.	105.	.0	-12.0	-13.0	120.9	102.0	103.0	127.1
30.	101.	.0	-12.0	-13.0	122.3	102.0	103.0	127.1
35.	97.	.0	-12.0	-13.0	123.9	102.0	103.0	127.1
40.	93.	.0	-12.0	-13.0	125.5	102.0	103.0	127.1
45.	89.	.0	-12.0	-13.0	127.2	102.0	103.0	127.1
50.	84.	.0	-12.0	-13.0	129.0	102.0	103.0	127.1
55.	80.	.0	-12.0	-13.0	130.9	102.0	103.0	127.1
60.	76.	.0	-12.0	-13.0	133.0	102.0	103.0	127.1
65.	72.	.0	-12.0	-13.0	135.1	102.0	103.0	127.1
70.	68.	.0	-12.0	-13.0	137.5	102.0	103.0	127.1
75.	64.	.0	-12.0	-13.0	139.9	102.0	103.0	127.1
80.	60.	.0	-12.0	-13.0	142.5	102.0	103.0	127.1
85.	56.	.0	-12.0	-13.0	145.3	102.0	103.0	127.1
90.	53.	.0	-12.0	-13.0	148.2	102.0	103.0	127.1
95.	49.	.0	-12.0	-13.0	151.3	102.0	103.0	127.1
100.	46.	.0	-9.5	-9.5	154.4	102.0	103.0	127.1
105.	43.	.0	-8.8	-8.8	157.6	102.0	103.0	127.1
110.	40.	.0	-8.0	-8.0	160.7	102.0	103.0	127.1
115.	38.	.0	-7.4	-7.4	163.6	101.8	103.0	127.1
120.	36.	.0	-6.8	-6.8	166.1	103.3	103.0	127.1
125.	34.	.0	-6.4	-6.4	168.0	104.5	103.0	127.1
130.	34.	.0	-6.2	-6.2	169.1	105.2	103.0	127.1
135.	33.	.0	-6.1	-6.1	169.3	105.3	103.0	127.1
140.	34.	.0	-6.3	-6.3	168.5	104.8	103.0	127.1
145.	35.	.0	-6.7	-6.7	166.8	103.8	103.0	127.1
150.	37.	.0	-7.2	-7.2	164.5	102.3	103.0	127.1
155.	39.	.0	-7.8	-7.8	161.7	100.6	103.0	127.1
160.	41.	.0	-8.4	-8.4	159.2	102.0	103.0	127.1
165.	43.	.0	-8.8	-8.8	157.3	102.0	103.0	127.1
170.	44.	.0	-9.2	-9.2	155.9	102.0	103.0	127.1
175.	45.	.0	-9.3	-9.3	155.1	102.0	103.0	127.1
180.	45.	.0	-9.4	-9.4	154.9	102.0	103.0	127.1
185.	45.	.0	-9.3	-9.3	155.1	102.0	103.0	127.1
190.	44.	.0	-9.2	-9.2	155.9	102.0	103.0	127.1
195.	43.	.0	-8.8	-8.8	157.3	102.0	103.0	127.1
200.	42.	.0	-8.6	-8.6	158.4	102.0	103.0	127.1
205.	41.	.0	-8.4	-8.4	159.0	102.0	103.0	127.1

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SACRAMENTO, CA
38 34 40.5
121 29 30.2

AZ DEG	DISC DEG	HOR ANG DEGREES	4GHZ HOR GAIN	6GHZ HOR GAIN	4GHZ COORD KM	6GHZ COORD KM	RAIN 4 SCAT KM	RAIN 6 SCAT KM
210.	41.	.0	-8.4	-8.4	159.1	102.0	103.0	127.1
215.	42.	.0	-8.5	-8.5	158.6	102.0	103.0	127.1
220.	43.	.0	-8.8	-8.8	157.6	102.0	103.0	127.1
225.	44.	.0	-9.1	-9.1	156.2	102.0	103.0	127.1
230.	46.	.0	-9.5	-9.5	154.4	102.0	103.0	127.1
235.	48.	.0	-10.0	-10.0	152.4	102.0	103.0	127.1
240.	50.	.0	-12.0	-13.0	150.2	102.0	103.0	127.1
245.	53.	.0	-12.0	-13.0	147.9	102.0	103.0	127.1
250.	56.	.0	-12.0	-13.0	145.6	102.0	103.0	127.1
255.	59.	.0	-12.0	-13.0	143.3	102.0	103.0	127.1
260.	62.	.0	-12.0	-13.0	141.0	102.0	103.0	127.1
265.	66.	.0	-12.0	-13.0	138.9	102.0	103.0	127.1
270.	69.	.0	-12.0	-13.0	136.8	102.0	103.0	127.1
275.	73.	.0	-12.0	-13.0	134.7	102.0	103.0	127.1
280.	76.	.0	-12.0	-13.0	132.8	102.0	103.0	127.1
285.	80.	.0	-12.0	-13.0	131.0	102.0	103.0	127.1
290.	84.	.0	-12.0	-13.0	129.3	102.0	103.0	127.1
295.	88.	.0	-12.0	-13.0	127.6	102.0	103.0	127.1
300.	91.	.0	-12.0	-13.0	126.0	102.0	103.0	127.1
305.	95.	.0	-12.0	-13.0	124.6	102.0	103.0	127.1
310.	99.	.0	-12.0	-13.0	123.2	102.0	103.0	127.1
315.	103.	.0	-12.0	-13.0	121.8	102.0	103.0	127.1
320.	106.	.0	-12.0	-13.0	120.6	102.0	103.0	127.1
325.	110.	.0	-12.0	-13.0	119.4	102.0	103.0	127.1
330.	113.	.0	-12.0	-13.0	118.3	102.0	103.0	127.1
335.	117.	.0	-12.0	-13.0	117.3	102.0	103.0	127.1
340.	120.	.0	-12.0	-13.0	116.3	102.0	103.0	127.1
345.	123.	.0	-12.0	-13.0	115.4	102.0	103.0	127.1
350.	126.	.0	-12.0	-13.0	114.6	102.0	103.0	127.1
355.	129.	.0	-12.0	-13.0	114.0	102.0	103.0	127.1
360.	125.	.0	-12.0	-13.0	114.9	102.0	103.0	127.1

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FREQUENCY COORDINATION REPORT

4 AND 6 GHZ TRANSMIT-RECEIVE EARTH STATION

THE CALIFORNIA CHANNEL

SACRAMENTO, CA

MAY 3, 2004

1. **CONCLUSIONS**

An Interference Study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed Earth Station demonstrates that this site will operate satisfactorily with the Microwave Environment as defined on the frequency coordination data sheet.

2. **SUMMARY OF RESULTS**

There were no potential great circle interference cases at 4 GHz. All of the potential great cirlce interference cases at 6 GHz were found to be acceptable on the basis that harmful interference will not likely result from the proposed operation, considering the criteria, the potential interference receive levels, and the total propagation losses.

There were no reported cases of rain scatter beam intersections.

3. **SUPPLEMENTAL SHOWING**

The Satellite Earth station proposed in this Application was coordinated by Multicomm Sciences International, Inc., Frequency Coordinators Group, using computer techniques and in accordance with Parts 25 and 101 of the FCC Rules and Regulations.

4. **FREQUENCY COORDINATION DATA**

Frequency Coordination Data which is attached, contains the following:

Technical Characteristics of Proposed Earth Station

Horizon Antenna Gain Plot

Discrimination Angle Plot

Local Horizon Plot

Satellite Elevation Plot

4 and 6 GHz Coordination Contour

4 and 6 GHz Rain Scatter

5. **FREQUENCY COORDINATION STATEMENT (FCC PART 101)**

Holders of licenses, permittees, prior filed applicants or planners of 6 GHz transmitting stations were notified on March 26, 2004 of the proposed Earth Station technical details in accordance with Section 25.203 (c-2) of the FCC Rules and Regulations. Satisfactory coordination was achieved on the basis that harmful interference would not occur, or that sufficient terrestrial blocking exists.

AT&T
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Cagal Cellular Communications
Napa Cellular Telphone
Bay Area Cellular Telephone
Citizens Communications Services
GTE Mobilnet of California LP
Marin County of California
Pacific Gas and Electric
Sonoma County California
Ubiquitel BCS
Pacific Bell
Sacramento Valley LP
Loral Spacecom DBA Loral Skynet
MCI Network Services
Sacramento Municipal Utility District
Western States Teleport
Union Pacific Railroad
California, State of
Corban Communications

6. **Certification of Person Responsible for Preparing Frequency Coordination Information Submitted in this Application**

I hereby certify that I am the technically qualified person responsible for preparation of the frequency coordination information contained in this application; that I am familiar with Parts 101 and 25 of the Commission's Rules;

that I have either prepared or reviewed the frequency coordination information submitted in this application; and, that it is complete and accurate to the best of my knowledge.

Janine I. Miliband

Janine I. Miliband, Manager
Frequency Coordination Services
MSI Frequency Coordinators Group
Multicomm Sciences International, Inc.
May 3, 2004

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
03/22/04

COMPANY NAME:	THE CALIFORNIA CHANNEL
EARTH STATION LOCATION:	SACRAMENTO, CA
LATITUDE(DMS):	38 34 40.5 (NAD83)
LONGITUDE(DMS):	121 29 30.2
SITE GROUND ELEVATION(FT. AMSL):	21.0
ANTENNA CENTER LINE(FT)	125.0
ANTENNA TYPE:	PATRIOT TXFCC-240CSC
ANTENNA DIAMETER(METERS):	2.4
4 GHZ ANTENNA GAIN(DBI):	38.4
15 DB HALF BEAMWIDTH(DEG):	3.30
6 GHZ ANTENNA GAIN(DBI):	42.4
15 DB HALF BEAMWIDTH(DEG):	2.10
OPERATING MODE:	T/R
RECEIVE BAND(MHZ):	3700 - 4200
TRANSMIT BAND(MHZ):	5925 - 6425
EMISSION DESIGNATOR	3M00G1F
MODULATION:	DIGITAL
MAX. AVAILABLE RF POWER(DBW/4KHZ):	-8.75
(DBW/3MHZ):	20.0
MAX. EIRP (DBW/4KHZ):	33.65
(DBW/3MHZ):	62.4
MAX. PERMISSIBLE INTERFERENCE POWER	
4 GHZ 20%(DBW)	-128.0
4 GHZ 0.0100%(DBW)	-156.0
6 GHZ 20%(DBW/4KHZ)	-154.0
6 GHZ 0.0025%(DBW/4KHZ)	-131.0
SATELLITE ARC (MIN/MAX)	88/140 DEG
AZIMUTH	133.3/208.2 DEG
ELEVATION	33.5/ 41.3 DEG
RADIO CLIMATE	A
RAIN ZONE	3
MAXIMUM GREAT CIRCLE COORDINATION DISTANCE(KM)	
4 GHZ	361.4
6 GHZ	115.0
PRECIPITATION SCATTER CONTOUR RADIUS(KM)	
4 GHZ	321.6
6 GHZ	127.1

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121 29 30.2

AZ DEG	DISC DEG	HOR ANG DEGREES	4GHZ HOR GAIN	6GHZ HOR GAIN	4GHZ COORD KM	6GHZ COORD KM	RAIN 4 SCAT KM	RAIN 6 SCAT KM
5.	121.	.0	-12.0	-13.0	247.6	102.0	321.6	127.1
10.	117.	.0	-12.0	-13.0	250.0	102.0	321.6	127.1
15.	113.	.0	-12.0	-13.0	252.6	102.0	321.6	127.1
20.	109.	.0	-12.0	-13.0	255.3	102.0	321.6	127.1
25.	105.	.0	-12.0	-13.0	258.1	102.0	321.6	127.1
30.	101.	.0	-12.0	-13.0	261.2	102.0	321.6	127.1
35.	97.	.0	-12.0	-13.0	264.4	102.0	321.6	127.1
40.	93.	.0	-12.0	-13.0	267.9	102.0	321.6	127.1
45.	89.	.0	-12.0	-13.0	271.5	102.0	321.6	127.1
50.	84.	.0	-12.0	-13.0	275.4	102.0	321.6	127.1
55.	80.	.0	-12.0	-13.0	279.5	102.0	321.6	127.1
60.	76.	.0	-12.0	-13.0	283.9	102.0	321.6	127.1
65.	72.	.0	-12.0	-13.0	288.6	102.0	321.6	127.1
70.	68.	.0	-12.0	-13.0	293.5	102.0	321.6	127.1
75.	64.	.0	-12.0	-13.0	298.8	102.0	321.6	127.1
80.	60.	.0	-12.0	-13.0	304.3	102.0	321.6	127.1
85.	56.	.0	-12.0	-13.0	310.3	102.0	321.6	127.1
90.	53.	.0	-12.0	-13.0	316.5	100.7	321.6	127.1
95.	49.	.0	-12.0	-13.0	323.0	102.8	321.6	127.1
100.	46.	.0	-9.5	-9.5	329.7	104.9	321.6	127.1
105.	43.	.0	-8.8	-8.8	336.5	107.1	321.6	127.1
110.	40.	.0	-8.0	-8.0	343.1	109.2	321.6	127.1
115.	38.	.0	-7.4	-7.4	349.3	111.2	321.6	127.1
120.	36.	.0	-6.8	-6.8	354.7	112.9	321.6	127.1
125.	34.	.0	-6.4	-6.4	358.8	114.2	321.6	127.1
130.	34.	.0	-6.2	-6.2	361.1	114.9	321.6	127.1
135.	33.	.0	-6.1	-6.1	361.4	115.0	321.6	127.1
140.	34.	.0	-6.3	-6.3	359.7	114.5	321.6	127.1
145.	35.	.0	-6.7	-6.7	356.2	113.3	321.6	127.1
150.	37.	.0	-7.2	-7.2	351.1	111.7	321.6	127.1
155.	39.	.0	-7.8	-7.8	345.2	109.8	321.6	127.1
160.	41.	.0	-8.4	-8.4	339.9	108.2	321.6	127.1
165.	43.	.0	-8.8	-8.8	335.8	106.9	321.6	127.1
170.	44.	.0	-9.2	-9.2	332.9	105.9	321.6	127.1
175.	45.	.0	-9.3	-9.3	331.2	105.4	321.6	127.1
180.	45.	.0	-9.4	-9.4	330.7	105.2	321.6	127.1
185.	45.	.0	-9.3	-9.3	331.2	105.4	321.6	127.1
190.	44.	.0	-9.2	-9.2	333.0	105.9	321.6	127.1
195.	43.	.0	-8.8	-8.8	335.7	106.8	321.6	127.1
200.	42.	.0	-8.6	-8.6	338.2	107.6	321.6	127.1
205.	41.	.0	-8.4	-8.4	339.5	108.0	321.6	127.1

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AZ DEG	DISC DEG	HOR ANG DEGREES	4GHZ HOR GAIN	6GHZ HOR GAIN	4GHZ COORD KM	6GHZ COORD KM	RAIN 4 SCAT KM	RAIN 6 SCAT KM
210.	41.	.0	-8.4	-8.4	339.7	108.1	321.6	127.1
215.	42.	.0	-8.5	-8.5	338.7	107.8	321.6	127.1
220.	43.	.0	-8.8	-8.8	336.6	107.1	321.6	127.1
225.	44.	.0	-9.1	-9.1	333.5	106.1	321.6	127.1
230.	46.	.0	-9.5	-9.5	329.7	104.9	321.6	127.1
235.	48.	.0	-10.0	-10.0	325.3	103.5	321.6	127.1
240.	50.	.0	-12.0	-13.0	320.6	102.0	321.6	127.1
245.	53.	.0	-12.0	-13.0	315.8	100.5	321.6	127.1
250.	56.	.0	-12.0	-13.0	310.8	102.0	321.6	127.1
255.	59.	.0	-12.0	-13.0	305.9	102.0	321.6	127.1
260.	62.	.0	-12.0	-13.0	301.1	102.0	321.6	127.1
265.	66.	.0	-12.0	-13.0	296.5	102.0	321.6	127.1
270.	69.	.0	-12.0	-13.0	292.0	102.0	321.6	127.1
275.	73.	.0	-12.0	-13.0	287.7	102.0	321.6	127.1
280.	76.	.0	-12.0	-13.0	283.6	102.0	321.6	127.1
285.	80.	.0	-12.0	-13.0	279.7	102.0	321.6	127.1
290.	84.	.0	-12.0	-13.0	276.0	102.0	321.6	127.1
295.	88.	.0	-12.0	-13.0	272.4	102.0	321.6	127.1
300.	91.	.0	-12.0	-13.0	269.1	102.0	321.6	127.1
305.	95.	.0	-12.0	-13.0	265.9	102.0	321.6	127.1
310.	99.	.0	-12.0	-13.0	262.9	102.0	321.6	127.1
315.	103.	.0	-12.0	-13.0	260.1	102.0	321.6	127.1
320.	106.	.0	-12.0	-13.0	257.4	102.0	321.6	127.1
325.	110.	.0	-12.0	-13.0	254.9	102.0	321.6	127.1
330.	113.	.0	-12.0	-13.0	252.6	102.0	321.6	127.1
335.	117.	.0	-12.0	-13.0	250.4	102.0	321.6	127.1
340.	120.	.0	-12.0	-13.0	248.3	102.0	321.6	127.1
345.	123.	.0	-12.0	-13.0	246.4	102.0	321.6	127.1
350.	126.	.0	-12.0	-13.0	244.7	102.0	321.6	127.1
355.	129.	.0	-12.0	-13.0	243.4	102.0	321.6	127.1
360.	125.	.0	-12.0	-13.0	245.4	102.0	321.6	127.1

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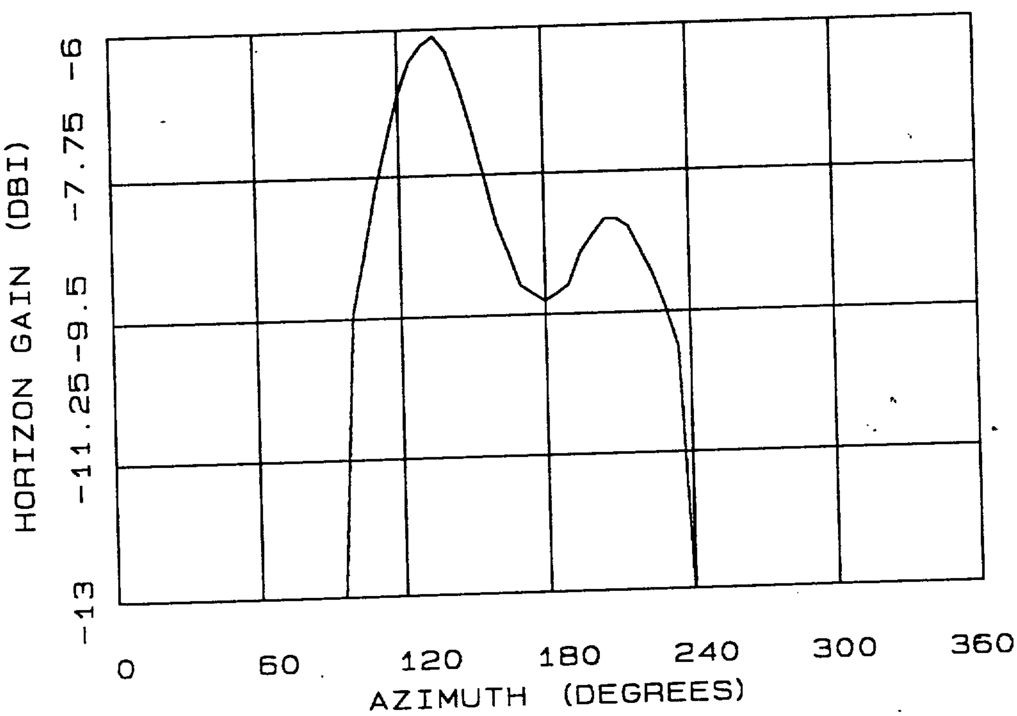
HORIZON ANTENNA GAIN PLOT 6 GHZ



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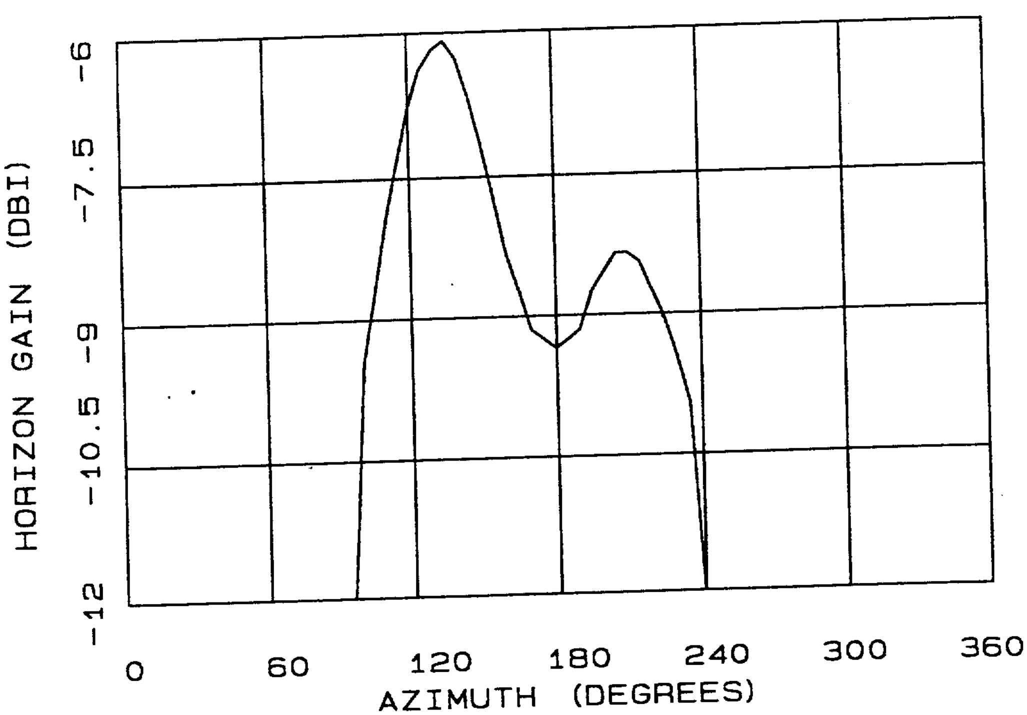

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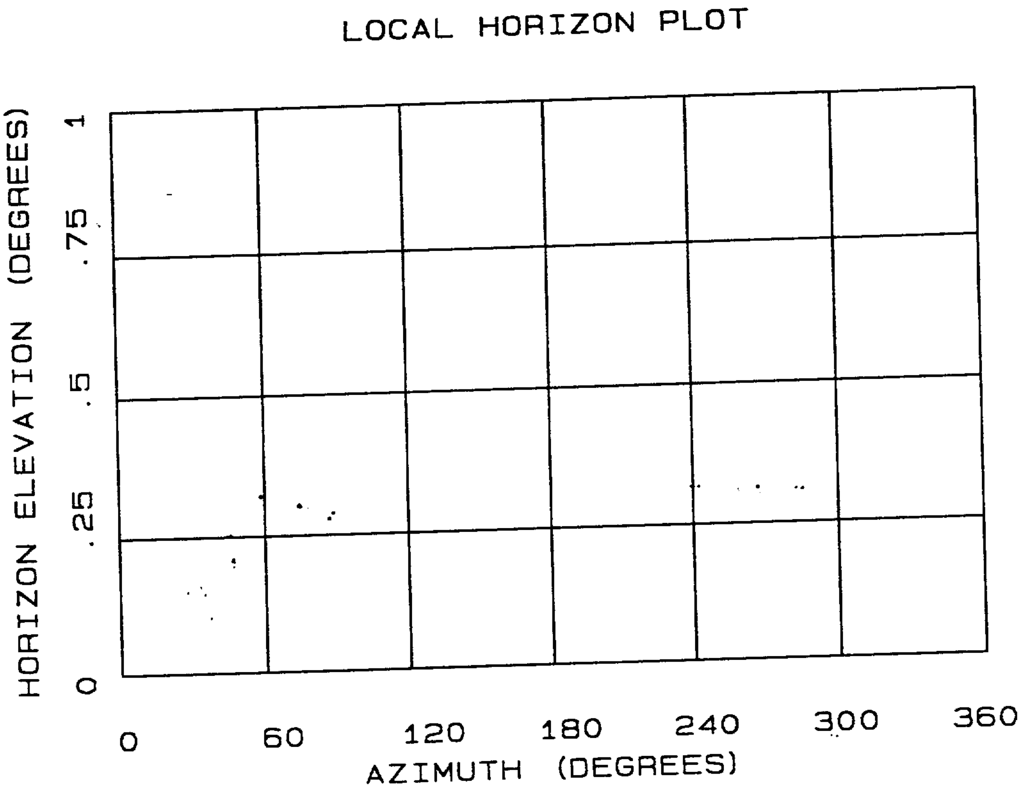

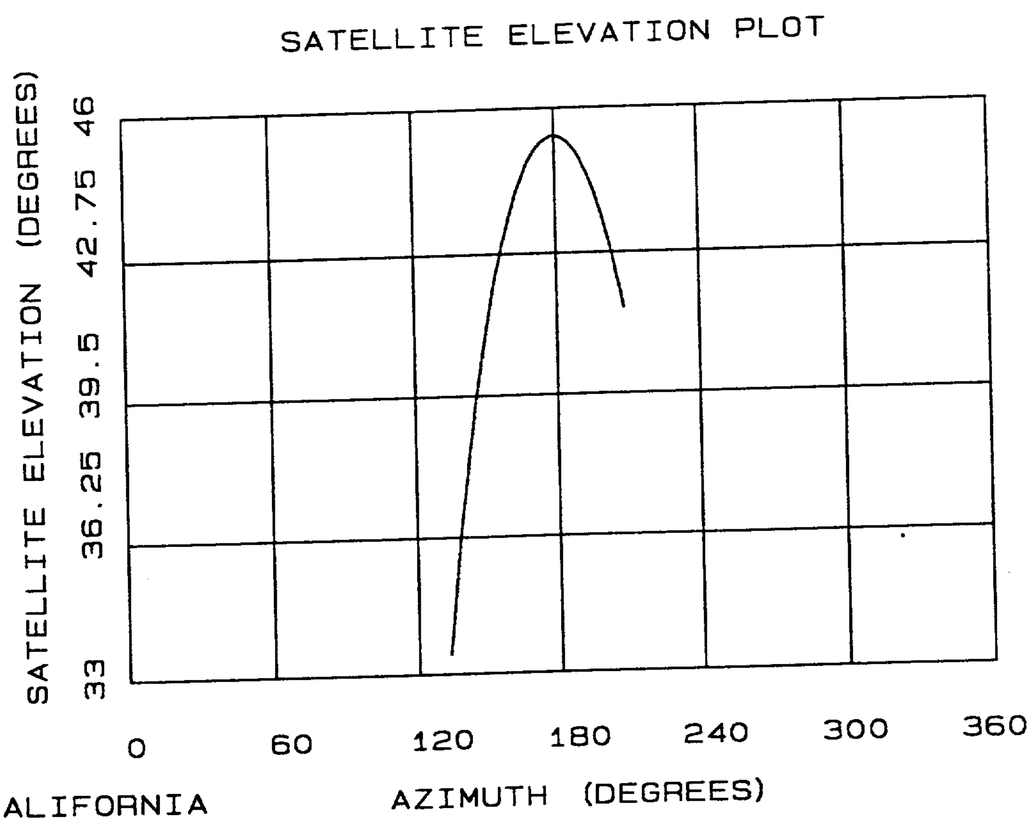

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TONOPAH
SAN FRANCISCO
San Joaquin R
FRESNO
LAS
SAN SIMEON
BAKERSFIELD
35°
6 GHZ
COORDINATION CONTOUR
LOS ANGELES
LONG BEACH
SAN DIEGO
THE CALIFORNIA
SACRAMENTO, CA
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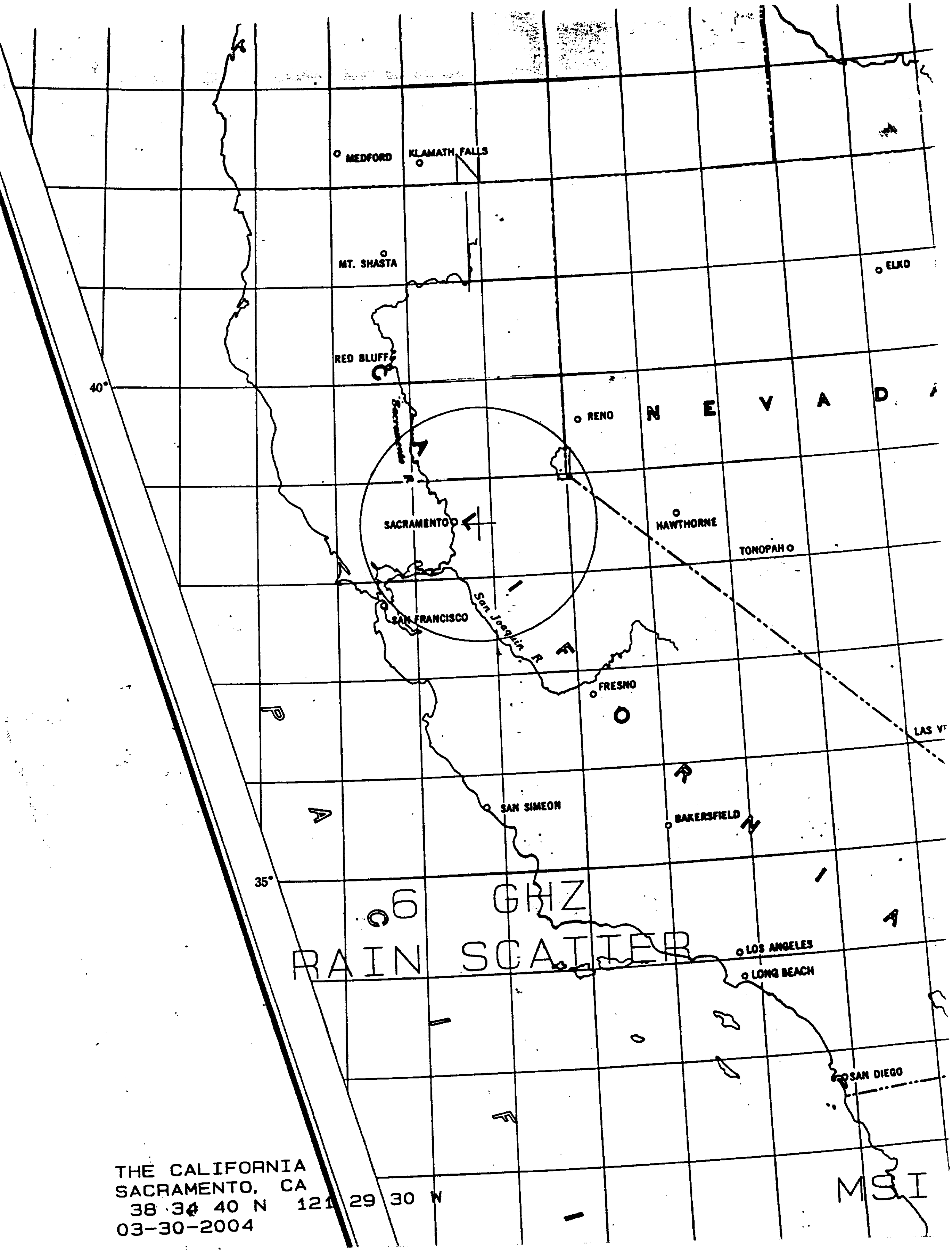
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BAKERSFIELD
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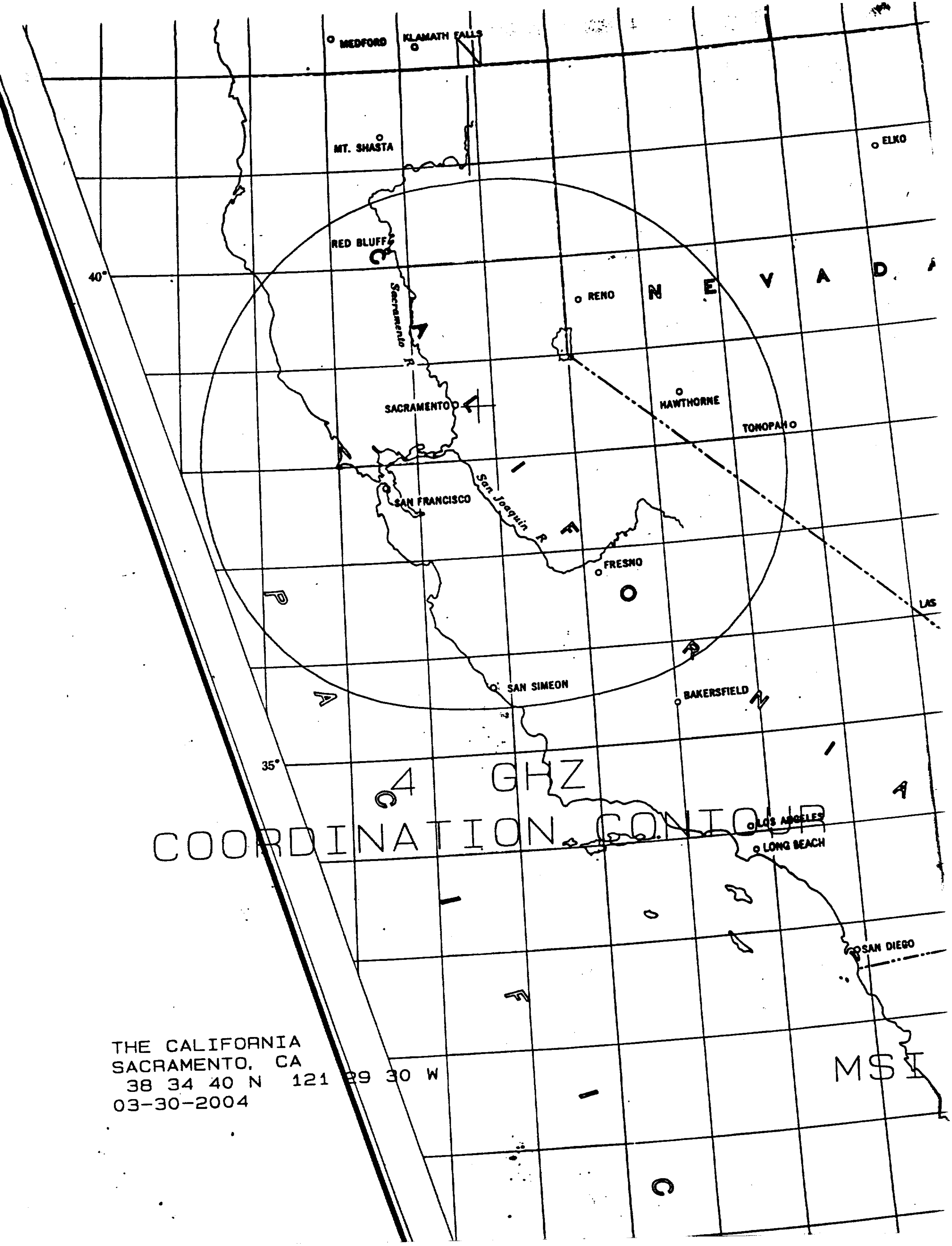

MEDFORD
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TONOPAH
SAN FRANCISCO
San Joaquin R
FRESNO
LAS
SAN SIMEON
BAKERSFIELD
35°
C A L I F O R N I A
P A C I F I C
4 GHZ
COORDINATION CONTOUR
LOS ANGELES
LONG BEACH
SAN DIEGO
THE CALIFORNIA
SACRAMENTO, CA
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