

# Ka-Band Earth Station – Wahiawa, HI

## Frequency Coordination Report

29 GHz



Prepared on Behalf of  
General Dynamics

November 18, 2011



**COMSEARCH**  
A CommScope Company



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## **1. Summary of Results**

In support of General Dynamics Satellite Communication Services' proposal to modify the frequencies on earth station E980049 at 29 GHz<sup>1</sup>, Comsearch performed a frequency search considering all existing and proposed incumbent licenses within the coordination contours of the Ka-Band station in Wahiawa, Hawaii. The search results identified licensees in the common carrier fixed point-to-point microwave service and local television transmission service (LTTS). Prior notification letters were sent to the licensees and a copy of the notification data is provided in section three of this report. The earth station coordination was finalized on November 17, 2011 and no objections were received from any of the incumbents.

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<sup>1</sup> General Dynamics proposes to add 50 MHz of spectrum to E980049, which is currently transmitting at 29.1 – 29.25 GHz. The final frequency allocation would allow the earth station to operate from 29.1 – 29.3 GHz in the Ka-Band.



## 2. Supplemental Showing

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, a Ka-Band earth station in Wahiawa, HI was prior coordinated by Comsearch. The notification letters and datasheet for this earth station were sent to the following 29 GHz common carrier fixed microwave licensees on October 27, 2011. These licensees are typically authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a statewide or nationwide basis.

<b>Licensee</b>	<b>Authorized Geographic Area</b>
GTE Southwest Inc. dba Verizon Southwest	Continental US
Hawaiian Telcom, Inc.	Statewide: HI
Princeton Scientific Capital Management Corp.	Fixed Location in Honolulu, HI
Verizon West Virginia Inc.	Continental US

A notification letter and datasheet for the Ka-Band earth station in Wahiawa, HI was also sent to the following 29 GHz local television transmission licensee on October 27, 2011. This licensee is authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

<b>Licensee</b>	<b>Authorized Geographic Area</b>
Information Super Station, LLC	Continental US



### **3. Earth Station Coordination Data**

This section presents the data pertinent to the proposed modification of the Ka-Band earth station in Wahiawa, HI. This data was circulated to all incumbent licensees in the 29 GHz shared frequency ranges.

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
(703)726-5662 <http://www.comsearch.com>

Date: 10/27/2011  
Job Number:

### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E980049  
Licensee Code GEDYNS  
Licensee Name GENERAL DYNAMICS SATELLITE COMMUNICATION

### Site Information

#### WAHIAWA, HI

Venue Name  
Latitude (NAD 83) 21° 30' 57.2" N  
Longitude (NAD 83) 158° 0' 50.7" W  
Climate Zone C  
Rain Zone 4  
Ground Elevation (AMSL) 323.09 m / 1060.0 ft

### Link Information

Satellite Type Low Earth Orbit  
Mode TR - Transmit-Receive  
Modulation Digital  
Minimum Elevation Angle 10.0°  
Azimuth Range 0.0° to 360°  
Antenna Centerline (AGL) 5.49 m / 18.0 ft

### Antenna Information

#### Receive - FCC32

#### Transmit - FCC32

Manufacturer	Scientific Atlanta	Scientific Atlanta
Model	495600-311	495600-311
Gain / Diameter	54.0 dBi / 3.0 m	57.4 dBi / 3.0 m
3-dB / 15-dB Beamwidth	0.78° / 1.70°	0.25° / 0.62°
Max Available RF Power (dBW/4 kHz)		11.3
		(dBW/MHz) 35.3
Maximum EIRP (dBW/4 kHz)		68.7
		(dBW/MHz) 92.7
Interference Objectives:	Long Term	-153.0 dBW/MHz 20%
	Short Term	-141.0 dBW/MHz 0.01%
		-151.0 dBW/4 kHz 20%
		-128.0 dBW/4 kHz 0.0025%

### Frequency Information

#### Receive 19.0 GHz

#### Transmit 29.0 GHz

Emission / Frequency Range (MHz)	6M25G1D / 19400.0 - 19600.0	25K0G2D - 6M25G7W / 29100.0 - 29300.0
Max Great Circle Coordination Distance	200.0 km / 124.3 mi	200.0 km / 124.3 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	244.7 km / 152.0 mi

**COMSEARCH****Earth Station Data Sheet**

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**Coordination Values****WAHIAWA, HI**

Licensee Name	GENERAL DYNAMICS SATELLITE COMMUNICATION		
Latitude (NAD 83)	21° 30' 57.2" N		
Longitude (NAD 83)	158° 0' 50.7" W		
Ground Elevation (AMSL)	323.09 m / 1060.0 ft		
Antenna Centerline (AGL)	5.49 m / 18.0 ft		
Antenna Model	Scientific Atlanta 3.0 meter		
Antenna Mode	Receive 19.0 GHz		Transmit 29.0 GHz
Interference Objectives: Long Term	-153.0 dBW/MHz	20%	-151.0 dBW/4 kHz 20%
Short Term	-141.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power	11.3 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 19.0 GHz		Transmit 29.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	1.09	73.22	-1.00	200.00	-1.00	200.00
5	1.34	71.80	-1.00	200.00	-1.00	200.00
10	1.42	70.41	-1.00	200.00	-1.00	200.00
15	1.36	69.06	-1.00	200.00	-1.00	200.00
20	1.66	68.17	-1.00	200.00	-1.00	200.00
25	2.24	67.73	-1.00	200.00	-1.00	200.00
30	2.63	67.32	-1.00	200.00	-1.00	200.00
35	2.52	66.63	-1.00	200.00	-1.00	200.00
40	2.54	66.27	-1.00	200.00	-1.00	200.00
45	2.52	66.04	-1.00	200.00	-1.00	200.00
50	2.52	66.03	-1.00	200.00	-1.00	200.00
55	2.32	66.02	-1.00	200.00	-1.00	200.00
60	2.30	66.37	-1.00	200.00	-1.00	200.00
65	2.33	66.97	-1.00	200.00	-1.00	200.00
70	2.31	67.70	-1.00	200.00	-1.00	200.00
75	2.37	68.68	-1.00	200.00	-1.00	200.00
80	1.81	69.31	-1.00	200.00	-1.00	200.00
85	1.86	70.61	-1.00	200.00	-1.00	200.00
90	1.78	71.96	-1.00	200.00	-1.00	200.00
95	1.90	73.58	-1.00	200.00	-1.00	200.00
100	1.85	75.20	-1.00	200.00	-1.00	200.00
105	1.70	76.88	-1.00	200.00	-1.00	200.00
110	1.79	78.77	-1.00	200.00	-1.00	200.00
115	1.95	80.75	-1.00	200.00	-1.00	200.00
120	2.08	82.76	-1.00	200.00	-1.00	200.00
125	1.99	84.74	-1.00	200.00	-1.00	200.00
130	1.71	86.76	-1.00	200.00	-1.00	200.00
135	1.71	88.85	-1.00	200.00	-1.00	200.00
140	1.50	90.95	-1.00	200.00	-1.00	200.00
145	1.28	93.08	-1.00	200.00	-1.00	200.00
150	1.28	95.19	-1.00	200.00	-1.00	200.00
155	0.90	97.36	-1.00	200.00	-1.00	200.00
160	0.69	99.49	-1.00	200.00	-1.00	200.00
165	0.49	101.58	-1.00	200.00	-1.00	200.00
170	0.49	103.54	-1.00	200.00	-1.00	200.00
175	0.00	105.67	-1.00	200.00	-1.00	200.00
180	0.00	107.46	-1.00	200.00	-1.00	200.00
185	0.00	109.13	-1.00	200.00	-1.00	200.00

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Short Term	-141.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power	11.3 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 19.0 GHz		Transmit 29.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	110.67	-1.00	200.00	-1.00	200.00
195	0.00	112.05	-1.00	200.00	-1.00	200.00
200	0.00	113.27	-1.00	200.00	-1.00	200.00
205	0.00	114.31	-1.00	200.00	-1.00	200.00
210	0.00	115.16	-1.00	200.00	-1.00	200.00
215	0.00	115.81	-1.00	200.00	-1.00	200.00
220	0.00	116.25	-1.00	200.00	-1.00	200.00
225	0.00	116.48	-1.00	200.00	-1.00	200.00
230	0.00	116.49	-1.00	200.00	-1.00	200.00
235	0.00	116.28	-1.00	200.00	-1.00	200.00
240	0.00	115.86	-1.00	200.00	-1.00	200.00
245	0.00	115.23	-1.00	200.00	-1.00	200.00
250	0.00	114.40	-1.00	200.00	-1.00	200.00
255	0.00	113.38	-1.00	200.00	-1.00	200.00
260	0.00	112.18	-1.00	200.00	-1.00	200.00
265	0.00	110.81	-1.00	200.00	-1.00	200.00
270	0.00	109.29	-1.00	200.00	-1.00	200.00
275	0.39	107.39	-1.00	200.00	-1.00	200.00
280	0.00	105.86	-1.00	200.00	-1.00	200.00
285	0.00	103.97	-1.00	200.00	-1.00	200.00
290	0.00	102.00	-1.00	200.00	-1.00	200.00
295	0.00	99.94	-1.00	200.00	-1.00	200.00
300	0.00	97.82	-1.00	200.00	-1.00	200.00
305	0.00	95.65	-1.00	200.00	-1.00	200.00
310	0.00	93.45	-1.00	200.00	-1.00	200.00
315	0.00	91.23	-1.00	200.00	-1.00	200.00
320	0.00	89.00	-1.00	200.00	-1.00	200.00
325	0.00	86.77	-1.00	200.00	-1.00	200.00
330	0.00	84.57	-1.00	200.00	-1.00	200.00
335	0.39	82.50	-1.00	200.00	-1.00	200.00
340	0.33	80.38	-1.00	200.00	-1.00	200.00
345	0.48	78.41	-1.00	200.00	-1.00	200.00
350	0.81	76.62	-1.00	200.00	-1.00	200.00
355	0.86	74.81	-1.00	200.00	-1.00	200.00





## **4. Contact Information**

For questions or information regarding this Frequency Coordination Report, please contact:

Contact person:	Joanna Lynch
Title:	Manager, Spectrum & Data Solutions
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
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