

APPENDIX D SPECIAL PROTECTION PROVISIONS

D.1 EXCLUDED FREQUENCY BANDS

As adopted in the BPL Report and Order, Access BPL emissions from overhead MV power lines are excluded from aeronautical (R) mobile allocations in the 1.7 – 30 MHz frequency range and the 74.8 – 75.2 MHz aeronautical radionavigation band, as delineated in Table D-1. Otherwise, with mature deployments of BPL devices: (1) reception of aeronautical safety communications by aeronautical (land or “base”) stations would be endangered; (2) reception of aeronautical safety communications by aircraft would be endangered; and (3) at some aeronautical station or aircraft locations, emissions from In-House BPL devices at these frequencies will increase receiver noise levels such that additional interfering signals from Access BPL devices cannot be risked. This exclusion amounts to less than 2.18 percent of national spectrum resource between 1.7 MHz and 80 MHz.

Table D-1: Bands in Which Access BPL Emissions Are Prohibited

Frequency Band	Total Spectrum (kHz)
2,850 – 3,025 kHz	175
3,400 – 3,500 kHz	100
4,650 – 4,700 kHz	50
5,450 – 5,680 kHz	230
6,525 – 6,685 kHz	160
8,815 – 8,965 kHz	150
10,005 – 10,100 kHz	95
11,275 – 11,400 kHz	100
13,260 – 13,360 kHz	100
17,900 – 17,970 kHz	70
21,924 – 22,000 kHz	76
74.8 – 75.2 MHz	400
TOTAL BANDWIDTH	1,706
U.S. AREA FACTOR	1.0
PORTION OF NATIONAL SPECTRUM RESOURCE AT 1.7 – 80 MHz	< 2.18% (area factor x bandwidth factor)

D.2 EXCLUSION ZONES

D.2.1 Coast Stations

The analytical results of Section 3.3.1 lead to a requirement to define exclusion zones in the 2,173.5-2,190.5 kHz band within 1 km of coast station facilities, whose coordinates are listed in Tables D-2 and D-3. This amounts to 0.022 percent of the

bandwidth between 1.7 MHz and 80 MHz and less than 0.004 percent of U.S. territorial area, or less than 0.0000008 percent of national spectrum resource between 1.7 MHz and 80 MHz. This special protection requirement will prevent substantial endangerment of distress alerting by ships and aircraft in oceanic areas. In the event that an Access BPL operator plans to deploy numerous Access BPL devices at these frequencies in areas near these exclusion zones, consult with the following point of contact may best ensure that harmful interference is prevented at these facilities:

Commandant (CG 622)
 U.S. Coast Guard
 2100 2nd Street, S.W.
 Washington, DC 20593 – 0001
 Telephone: (202) 267 – 2860
 E-Mail: cgcomms@comdt.uscg.mil

Table D-2: Exclusion zones for U.S. Coast Guard Coast Stations

Locale	Latitude	Longitude
Group Guam	13° 35' 23" N	144° 50' 24" E
GANTSEC	18° 18' 00" N	65° 46' 59" W
Puerto Rico	18° 28' 11" N	66° 07' 47" W
Honolulu	21° 18' 21" N	157° 53' 23" W
Group Key West	24° 33' 35" N	81° 47' 59" W
Trumbo Point CG Base	24° 33' 58" N	81° 47' 57" W
Miami	25° 37' 28" N	80° 23' 07" W
Everglades Park	25° 50' 10" N	81° 23' 13" W
Group Saint Petersburg (Everglades)	25° 51' 00" N	81° 23' 24" W
Station Ft. Lauderdale	26° 05' 21" N	80° 06' 40" W
Station Ft. Myers Beach	26° 27' 34" N	81° 57' 15" W
Group Miami (Ft. Pierce)	27° 27' 36" N	80° 18' 36" W
Station Ft. Pierce	27° 27' 50" N	80° 18' 27" W
Group Corpus Christi	27° 42' 01" N	97° 16' 11" W
Group Corpus Christi	27° 42' 06" N	97° 16' 45" W
ESD Saint Petersburg	27° 45' 21" N	82° 37' 32" W
Group Saint Petersburg	27° 46' 11" N	82° 37' 47" W
Station Port O'Connor	28° 26' 03" N	96° 25' 39" W
S. Padre Island	28° 26' 22" N	97° 09' 56" W
Freeport	28° 55' 59" N	95° 16' 59" W
Group Galveston (Freeport)	28° 56' 24" N	95° 17' 59" W
Station YANKEETOWN	29° 01' 51" N	82° 43' 39" W
Station Ponce De Leon Inlet	29° 03' 50" N	81° 55' 01" W
Group New Orleans (Grand Isle)	29° 15' 53" N	89° 57' 26" W
Galveston	29° 19' 59" N	94° 46' 18" W
Kapalan	29° 20' 04" N	94° 47' 17" W
Sabine	29° 43' 42" N	93° 52' 14" W
New Orleans	30° 01' 17" N	90° 07' 24" W
Panama City	30° 10' 01" N	85° 45' 04" W
Group Mobile (Panama City)	30° 10' 12" N	85° 45' 36" W

Locale	Latitude	Longitude
ANT Jacksonville Beach	30° 17' 16" N	81° 24' 10" W
Pensacola	30° 20' 24" N	87° 18' 17" W
Group Mayport	30° 23' 10" N	81° 26' 01" W
Group Mayport	30° 23' 24" N	81° 25' 48" W
Ft. Morgan	30° 39' 07" N	88° 03' 12" W
Tybee Lighthouse	32° 01' 15" N	80° 50' 39" W
Point Loma Lighthouse	32° 39' 56" N	117° 14' 34" W
Point Loma	32° 40' 07" N	117° 14' 14" W
Activities San Diego	32° 43' 59" N	117° 11' 13" W
Group Charleston (Sullivan's Island)	32° 45' 00" N	79° 49' 47" W
Sullivan's Island Lights	32° 45' 02" N	79° 50' 03" W
Group Charleston	32° 46' 25" N	79° 56' 37" W
Group San Diego	32° 52' 48" N	118° 26' 23" W
San Pedro	33° 45' 00" N	118° 15' 58" W
Group Fort Macon	33° 53' 24" N	78° 01' 48" W
Point Mugu	33° 59' 32" N	119° 07' 18" W
Group LA / Long Beach	34° 07' 11" N	119° 06' 35" W
Channel Island	34° 09' 17" N	119° 13' 11" W
Station Oxnard Channel Island	34° 09' 43" N	119° 13' 19" W
Group Ft. Macon	34° 41' 48" N	76° 40' 59" W
Group Cape Hatteras	35° 13' 59" N	75° 31' 59" W
Group Cape Hatteras	35° 15' 35" N	75° 31' 48" W
Morro Bay (Cambria)	35° 31' 21" N	121° 03' 21" W
San Clemente Island	32° 50' 24" N	118° 23' 15" W
Point Pinos	36° 38' 12" N	121° 56' 06" W
CAMSLANT	36° 43' 47" N	76° 01' 11" W
Group Hampton Roads	36° 53' 01" N	76° 21' 10" W
Point Montara	37° 31' 23" N	122° 30' 47" W
Point Montara Lighthouse	37° 32' 09" N	122° 31' 08" W
Group San Francisco	37° 32' 23" N	122° 31' 11" W
Group San Francisco	37° 48' 34" N	122° 21' 55" W
Point Bonita	37° 49' 00" N	122° 31' 41" W
Group Eastern Shores	37° 55' 47" N	75° 22' 47" W
Group Eastern Shore	37° 55' 50" N	75° 22' 58" W
CAMPSPAC	38° 06' 00" N	122° 55' 48" W
Point Arena Lighthouse	38° 57' 18" N	124° 44' 28" W
Point Arena	38° 57' 36" N	123° 44' 23" W
Group Atlantic City	39° 20' 59" N	74° 27' 42" W
Activities New York	40° 36' 06" N	74° 03' 36" W
Activities New York	40° 37' 11" N	74° 04' 11" W
ESD Moriches Hut	40° 47' 19" N	72° 44' 53" W
Group Moriches	40° 47' 23" N	72° 45' 00" W
Group Humboldt Bay	40° 58' 41" N	124° 06' 31" W
Group Humboldt Bay	40° 58' 47" N	124° 06' 35" W
Trinidad Head	41° 03' 15" N	124° 09' 02" W
Group Long Island Sound	41° 16' 12" N	72° 54' 00" W
Station New Haven	41° 16' 12" N	72° 54' 06" W

Locale	Latitude	Longitude
Station Brant Point	41° 17' 21" N	70° 05' 31" W
Group Woods Hole	41° 17' 23" N	70° 04' 47" W
Station Castle Hill	41° 27' 46" N	71° 21' 42" W
Group Woods Hole	41° 30' 30" N	70° 41' 42" W
Boston Area	41° 40' 12" N	70° 31' 48" W
Station Provincetown	42° 01' 48" N	70° 12' 42" W
Eastern Point	42° 36' 24" N	70° 39' 26" W
Cape Blanco	42° 50' 16" N	124° 33' 52" W
Group North Bend	43° 24' 16" N	124° 13' 22" W
Group North Bend	43° 24' 35" N	124° 14' 23" W
Cape Elizabeth	43° 33' 28" N	70° 12' 00" W
Group South Portland	43° 38' 24" N	70° 15' 00" W
Group South Portland	43° 38' 45" N	70° 14' 51" W
Group SW Harbor	44° 16' 19" N	68° 18' 27" W
Group Southwest Harbor	44° 16' 48" N	68° 18' 36" W
Fort Stevens, Oregon	46° 09' 14" N	123° 53' 07" W
Group Astoria	46° 09' 29" N	123° 31' 48" W
Group Astoria	46° 09' 35" N	123° 53' 24" W
La Push	47° 49' 00" N	124° 37' 59" W
Station Quillayute River	47° 54' 49" N	124° 38' 01" W
Port Angeles	48° 07' 59" N	123° 25' 59" W
Group Port Angeles	48° 08' 24" N	123° 24' 35" W
Juneau (Sitka)	57° 05' 24" N	135° 15' 35" W
Kodiak	57° 40' 47" N	152° 28' 47" W
Valdez (Cape Hinchinbrook)	60° 26' 23" N	146° 25' 48" W

Table D-3: Exclusion zones for Maritime Public Coast Stations

Licensee Name	Location	Latitude	Longitude
Shipcom LLC	Marina Del Ray, CA	33° 56' 21" N	118° 27' 14" W
Globe Wireless	Rio Vista, CA	38° 11' 55" N	121° 48' 34" W
Avalon Communications Corp	St. Thomas, VI	18° 21' 19" N	64° 56' 48" W
Globe Wireless	Bishopville, MD	38° 24' 10" N	75° 12' 59" W
Shipcom LLC	Mobile, AL	30° 40' 07" N	88° 10' 23" W
Shipcom, LLC	Coden, AL	30° 22' 35" N	88° 12' 20" W
Globe Wireless	Pearl River, LA	30° 22' 13" N	89° 47' 26" W
Globe Wireless	Kahalelani, HI	21° 10' 33" N	157° 10' 39" W
Globe Wireless	Palo Alto, CA	37° 26' 44" N	122° 06' 48" W
Globe Wireless	Agana, GU	13° 29' 22" N	144° 49' 39" E

D.2.2 Radioastronomy Observatories

Using correlation techniques, the Very Large Array (VLA) receivers operate with desired signal levels that are well below ambient noise levels and rely on the protection

criteria specified by the International Telecommunication Union Radiocommunication Sector (ITU-R) for radioastronomy observatories. Figure D-1 illustrates the antenna array at this facility near Socorro, New Mexico. The BPL Memorandum Opinion and Order defined an exclusion zone where Access BPL systems operating on overhead MV power lines in the 73.0 – 74.6 MHz band should be no closer than 65 km from the coordinates of the VLA facility.⁵ The coordinate at the center of the VLA is 34° 04' 43.50"N, 107° 37' 03.82"W. Figure D-2 shows the specified protection radii within the National Radio Astronomy Observatory. The BPL rules also state that Access BPL using LV power lines or underground power lines using the 73.0 – 74.6 MHz band should be excluded within 47 km from the coordinates of the VLA facility. The analyses in Section 3.3.3 confirmed that these exclusion zone radii are reasonable to limit the power flux density (PFD) to levels defined for this frequency band by the ITU-R. This amounts to 2.04 percent of the bandwidth between 1.7 MHz and 80 MHz and less than 0.028 percent of U.S. territorial area, or less than 0.0006 percent of national spectrum resource between 1.7 MHz and 80 MHz.



Figure D-1: Very Large Array (VLA) radioastronomy observatory

⁵ See Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems, ET Docket No. 04-37, Memorandum Opinion and Order, released August 7, 2006, (“BPL Memorandum Opinion and Order”), at ¶¶ 57 - 59.

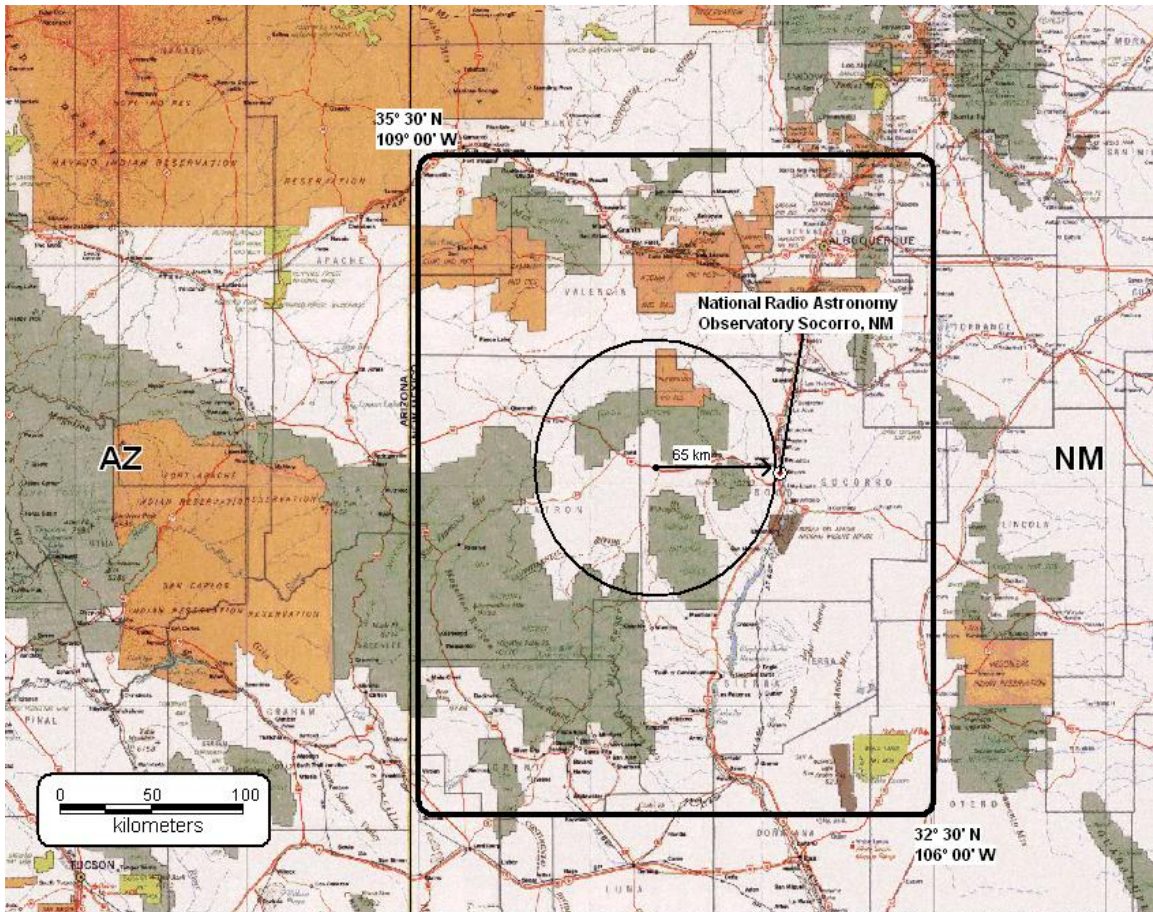


Figure D-2: VLA protection radii for overhead Access BPL shown within the National Radio Astronomy Observatory near Socorro, New Mexico.

D.3 CONSULTATION AREAS

Part 15 of the Commission’s rules for carrier current systems apply the same field strength limits for wanted and unwanted emissions, and so, consultation between BPL service providers and radio operators should not be limited to the fundamental frequencies intentionally used in Access BPL systems. Moreover, frequencies used by many communications receivers in the 1.7 – 30 MHz frequency range are subject to change in the long-term and over hourly or shorter time frames. In light of these factors and given that the consultation areas needed for BPL systems are small, consultation should be required for all planned Access BPL operations at all frequencies of potential concern in these consultation areas. These consultation areas are:

- For frequencies in the 1.7 – 30 MHz frequency range, the areas within 4 km of facilities located at the following coordinates:
 - the Commission’s protected field offices listed in 47 C.F.R. § 0.121, the point-of-contact for which is specified in that section;
 - the aeronautical stations listed in Tables D-4 and D-5;
 - the land stations listed in Tables D-6 and D-7;

- For frequencies in the 1.7 – 80 MHz frequency range, the areas within 4 km of facilities located at the coordinates specified for radio astronomy facilities in US 311.
- For frequencies in the 1.7 – 80 MHz frequency range, the area within 1 km of the Table Mountain Radio Receiving Zone, the coordinates and point of contact for which are specified in 47 C.F.R. § 21.113(b).
- For frequencies in the 1.7 – 30 MHz frequency range, the areas within 37 km of radar receiver facilities located at the coordinates specified in Table D-8.

Point of contact
 U.S. Coast Guard HQ
 Division of Spectrum Management CG-622
 2100 Second St., SW. Rm. 6611
 Washington, DC 20593
 Tel: 202-267-6036
 Fax: 202-267-4106
 Email: jtaboada@comdt.uscg.mil

Table D-4: Consultation Area Coordinates for Aeronautical (OR) Stations (1.7 – 30 MHz)

Command Name	Location	Latitude	Longitude
Washington	Arlington, VA	38° 51' 07" N	77° 02' 15" W
Cape Cod	Cape Cod, MA	41° 42' 00" N	70° 30' 00" W
Atlantic City	Atlantic City, NJ	39° 20' 59" N	74° 27' 42" W
Elizabeth City	Elizabeth City, NC	36° 15' 53" N	76° 10' 32" W
Savannah	Savannah, GA	32° 01' 30" N	81° 08' 30" W
Miami	Opa Locka, FL	25° 54' 22" N	80° 16' 01" W
Clearwater	Clearwater, FL	27° 54' 27" N	82° 41' 29" W
Borinquen	Aguadilla, PR	18° 18' 36" N	67° 04' 48" W
New Orleans	New Orleans, LA	29° 49' 31" N	90° 02' 06" W
Traverse City	Traverse City, MI	44° 44' 24" N	85° 34' 54" W
San Diego	San Diego, CA	32° 43' 33" N	117° 10' 15" W
Sacramento	McClellan AFB, CA	38° 40' 06" N	121° 24' 04" W
Astoria	Warrenton, OR	46° 25' 18" N	123° 47' 46" W
North Bend	North Bend, OR	43° 24' 39" N	124° 14' 35" W
Barbers Point	Kapolei, HI	21° 18' 01" N	158° 04' 15" W
Kodiak	Kodiak, AK	57° 44' 19" N	152° 30' 18" W
Houston	Houston, TX	29° 45' 00" N	95° 22' 00" W
Detroit	Mt. Clemens, MI	42° 36' 05" N	82° 50' 12" W
San Francisco	San Francisco, CA	37° 37' 58" N	122° 23' 20" W
Los Angeles	Los Angeles, CA	33° 56' 36" N	118° 23' 48" W

Command Name	Location	Latitude	Longitude
Humboldt Bay	McKinleyville, CA	40° 58' 39" N	124° 06' 45" W
Port Angeles	Port Angeles, WA	48° 08' 25" N	123° 24' 48" W
Sitka	Sitka, AK	57° 05' 50" N	135° 21' 58" W

Point of contact
 ARINC
 2551 Riva Road
 Annapolis, MD 21401
 Tel: 1-800-633-6882
 Fax: 410-266-2329
 Email: bplnotifications@arinc.com
www.arinc.com

Table D-5: Consultation Area Coordinates for Aeronautical Receive Stations (1.7 – 30 MHz)

Locale	Latitude	Longitude
Southampton, NY	40° 55' 15" N	72° 23' 41" W
Molokai, HI	21° 12' 23" N	157° 12' 30" W
Oahu, HI	21° 22' 27" N	158° 05' 56" W
Half Moon Bay, CA	37° 39' 64" N	122° 24' 44" W
Pt. Reyes, CA	38° 06' 00" N	122° 56' 00" W
Barrow, AK	71° 17' 24" N	156° 40' 12" W
Guam	13° 25' 12" N	144° 48' 00" E (note: Eastern Hemisphere)
NY Comm Center, NY	40° 46' 48" N	73° 05' 46" W
Cedar Rapids, IA	42° 02' 05.0" N	91° 38' 37.6" W
Beaumont, CA	33° 54' 27.1" N	116° 59' 49.1" W
Fairfield, TX	31° 47' 02.6" N	96° 47' 03.0" W
Houston, TX	29° 36' 35.8" N	95° 16' 54.8" W
Miami, FL	25° 49' 05" N	80° 18' 28" W

Point Of Contact
 U.S. Coast Guard HQ
 Division of Spectrum Management CG-622
 2100 Second St., SW. Rm. 6611
 Washington, DC 20593
 Tel: 202-267-6036
 Fax: 202-267-4106
 Email: jtaboada@comdt.uscg.mil

Table D-6: Consultation Area Coordinates for Land Stations, Set 1 (1.7–30 MHz)

Command Name	Location	Latitude	Longitude
COMMSTA Boston	Maspee, MA	41° 24' 00" N	70° 18' 57" W
Camlant	Chesapeake, VA	36° 33' 59" N	76° 15' 23" W
COMMSTA Miami	Miami, FL	25° 36' 58" N	80° 23' 04" W

Command Name	Location	Latitude	Longitude
COMMSTA New Orleans	Belle Chasse, IA	29° 52' 40" N	89° 54' 46" W
Campac	Pt. Reyes Sta, CA	38° 06' 00" N	122° 55' 48" W
COMMSTA Honolulu	Wahiawa, HI	21° 31' 08" N	157° 59' 28" W
COMMSTA Kodiak	Kodiak, AK	57° 04' 26" N	152° 28' 20" W
Guam	Finegayan, GU	13° 53' 08" N	144° 50' 20" E

Point of contact
 COTHEN Technical Support Center
 COTHEN Program Manager
 Tel: (800) 829-6336

Table D-7: Consultation Area Coordinates for Land Stations, Set 2 (1.7 – 30 MHz)

Site Name	Latitude	Longitude
Albuquerque, NM	35° 05' 02" N	105° 34' 23" W
Arecibo, PR	18° 17' 26" N	66° 22' 33" W
Atlanta, GA	32° 33' 06" N	84° 23' 35" W
Beaufort, SC	34° 34' 22" N	76° 09' 48" W
Cape Charles, VA	37° 05' 37" N	75° 58' 06" W
Cedar Rapids, IA	42° 00' 09" N	91° 17' 39" W
Denver, CO	39° 15' 45" N	103° 34' 23" W
Fort Myers, FL	81° 31' 20" N	26° 20' 01" W
Kansas City, MO	38° 22' 10" N	93° 21' 48" W
Las Vegas, NV	36° 21' 15" N	114° 17' 33" W
Lovelock, NV	40° 03' 07" N	118° 18' 56" W
Memphis, TN	34° 21' 57" N	90° 02' 43" W
Miami, FL	25° 46' 20" N	80° 28' 48" W
Morehead City, NC	34° 34' 50" N	78° 13' 59" W
Oklahoma City, OK	34° 30' 52" N	97° 30' 52" W
Orlando, FL	28° 31' 30" N	80° 48' 58" W
Reno, NV	38° 31' 12" N	119° 14' 37" W
Sarasota, FL	27° 12' 41" N	81° 31' 20" W
Wilmington, NC	34° 29' 24" N	78° 04' 31" W

Point Of Contact
 ROTH Deputy Program Manager
 (540) 653-3624

Table D-8: Consultation Area Coordinates for Radar Receiver Stations (1.7 – 30 MHz)

Latitude/Longitude
18° 01' N / 66° 30' W
28° 05' N / 98° 43' W
36° 34' N / 76° 18' W