Society of Broadcast Engineers, Inc.
Petition for Reconsideration

ET Docket 98-142
7 GHz MSS
Feeder Downlinks

May 10, 2002

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SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2, 25 and 97 of the Commission's Rules with Regard to the Mobile-Satellite Service Above 1 GHz	)	ET Docket No. 98-142
	)	

To: The Commission

Petition for Reconsideration by the Society of Broadcast Engineers, Inc.

The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members world wide, hereby respectfully submits its Petition for Reconsideration of the February 7, 2002, Report & Order ("R&O") to this ET Docket 98-142 rulemaking concerning 7 GHz MSS feeder downlink stations. The R&O was not published in the Federal Register until April 10, 2002; therefore, this Petition for Reconsideration is timely filed.

I. Interim Requirement for Part 101 Frequency Coordination Should Only Apply to 7 GHz TV BAS Stations Within 145 kilometers

1. At Paragraph 55, the Commission decided, as an "interim measure," to require Part 25 (Satellite) and Part 101 (Private Operational Fixed Service) style frequency coordination between fixed TV broadcast auxiliary service ("BAS") stations and MSS feeder downlinks. SBE can live with this, but requests that the Commission clarify that the more burdensome Part 101 frequency coordination protocol only applies to 7 GHz TV BAS stations within 145 kilometers of an MSS downlink, as requiring Part 101 coordination beyond this distance has nothing to do with MSS and so is beyond the scope of this proceeding. As shown by the attached Figure 1, this distance is obtained from a May 10, 2000, Comsearch frequency coordination study for the Clifton, Texas, MSS feeder downlink, which showed a maximum coordination distance of 145 kilometers for the 7 GHz downlink operation.

2. A map showing the locations of the three "grandfathered" MSS downlinks, at Clifton, Texas; Brewster, Washington; and Finca Pascual, Puerto Rico, is provided in the attached Figure 2, and the subsequent smaller-scale maps, Figures 3 (for Clifton), 4 (for Brewster), and 5 (for Finca Pascual), show the extent of such 145-kilometer coordination distance, as

well as line-of-sight conditions for a hypothetical airborne TV Pickup station operation at 914.4 meters (3,000 feet) AGL, which SBE believes is likely to be the maximum height for operational use. These shadow graphs show that even for this case a 145-kilometer Part 101 coordination trigger should be adequate, and limiting the requirement for the expensive and slow Part 101 frequency coordination protocols just to 7 GHz TV BAS stations close enough to actually pose an interference threat, as opposed to all 7 GHz TV BAS stations everywhere, would greatly minimize the burden on broadcasters. As suggested at Paragraph 58 of the R&O, SBE will indeed post these (or similar) maps to its web site.

II. FCC Decision Gives "Super Primary" Status to MSS Feeder Downlinks

3. The decision to require 7 GHz TV BAS stations to protect the entire portion of the 6,700-7,075 MHz MSS feeder downlink allocation that overlaps the 7 GHz TV BAS band, that is, from 6,875 MHz (the bottom edge of 7 GHz TV BAS Channel B1) through 7,075 MHz[1] (the top edge of 7 GHz TV BAS Channel B8), without requiring MSS entities to demonstrate that they are, in fact, actually using that entire block of frequencies, has the effect of granting MSS feeder downlinks "super primary" status, which is not in the public interest. This would be akin to requiring the protection of an existing point-to-point TV BAS station on, say, Channel B3 (6,925–6,950 MHz) not just on that channel, but over all possible 7 GHz TV BAS channels (*i.e.*, Channels B1 through B10, or 6,875–7,125 MHz). This would be nonsensical and wildly spectrum inefficient. The same is true for giving MSS feeder downlinks protection on all possible frequencies, as opposed to only those frequencies they can demonstrate they actually presently need. The claim made by MSS, that "...the commercial nature of MSS systems requires MSS operators to implement facilities to accommodate growth in traffic space segment"[2] can be said of any commercial entity that uses radio links. It is inconsistent for the FCC , on the one hand, to say TV BAS and MSS feeder downlinks will be regulated on a "co-primary" basis, but then require TV BAS to protect MSS feeder downlinks on all possible operational frequencies, whether they are currently in use or not, yet only protect TV BAS stations on their present, actual, frequencies.

4. Such action also makes a mockery of the Commission's Rules and policies governing Title III licenses, which, as pointed out in Paragraph 35 of the R&O, includes the premise that a newcomer station must protect all equal priority existing stations. However, if one group of

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[1] The sub portion from 7,025 MHz to 7,075 MHz, TV BAS Channels B7 and B8, is available only to the three "grandfathered" MSS downlinks at Brewster, Washington; Clifton, Texas; and Finca Pascual, Puerto Rico.

[2] R&O, at Paragraph 35.

supposedly co-primary stations is given protection over all possible frequencies they are entitled to use from the get go, whereas another class of stations are only given first-in-time rights for the frequencies they are actually using, then the protect-all-possible-frequencies group has a tremendous, and wildly unfair, advantage over the other group. The Commission should, therefore, only protect MSS feeder downlinks on the frequencies that are actually in use. If, at some future date, additional frequencies are needed, then MSS feeder downlinks can attempt to frequency coordinate the additional bandwidth they need, just as broadcasters who find they need an additional STL or ICR need to go searching for an available channel. The fact that additional spectrum might not be available at a future date is a fact of life that broadcasters and other commercial applicants have had to live with for a long time, and MSS entities should have to as well. However, if MSS licensees live up to their claims of only needing "a few" feeder downlink sites, and of only locating such downlinks in "remote areas," then they should have little difficulty in frequency coordinating additional bandwidth at a future date.

III. TV Pickup Stations Authorized Prior to February 7, 2002

5. In its comments, SBE argued that there was no need to create two classes of TV Pickup stations, one that predates MSS feeder downlinks and therefore has superior Title III first-in-time rights, and a second class of TV Pickup stations, authorized after that date, which would have an obligation to protect MSS feeder downlinks. SBE's logic was that because some TV Pickup licenses authorize nation wide operation (generally for TV Pickups licensed to Broadcast Network Entities or Cable Network Entities) or state wide operation (*e.g.*, for TV Pickups licensed to TV stations in that state), MSS feeder downlinks are already at risk from those existing stations, and it will create a competitive disadvantage for a TV station with a later licensed TV Pickup station trying to cover a breaking news event in the vicinity of a MSS feeder downlink versus a pre-MSS feeder downlink TV Pickup station that doesn't have to worry about providing such protection. For example, Waco, Texas, is within 145 kilometers of the Clifton MSS feeder downlink, and probably normally has very little TV Pickup activity. However, the standoff in 1993 of federal officers versus the Branch Dividian compound changed all of that for several weeks. Thus, one can never assume that just because a location is "remote," that TV BAS operations will never occur there. TV BAS operations are event driven, and must follow breaking news stories if they are to be effective. Although the bulk of such electronic news gathering ("ENG") operations now occur in the 2 GHz TV BAS band, as noted at Paragraph 53 of the R&O, pressure is being placed on this

band (ironically, again to accommodate MSS), making it likely that use of the 7 GHz TV BAS band for TV Pickup operations will need to expand.

6. The Commission nevertheless decided to effectively create two classes of TV Pickup stations, those that existed prior to MSS feeder downlinks, and those authorized after the creation of MSS feeder downlinks. SBE asks that the Commission establish the date of the R&O, that is, February 7, 2002, as the benchmark date for grandfathered and non-grandfathered TV Pickup operations. This would apply to those TV Pickup licenses that were already authorized to operate in geographic areas that include either Clifton, Brewster, or Finca Pascual. In this regard, SBE notes that while Section 74.604(c) of the FCC Rules requires TV Pickup stations to defer to (*i.e.*, protect) fixed links, MSS feeder downlinks are NOT "fixed link" stations because it is the transmitter which determines the class of station, and the transmitters on low earth orbit satellites are most definitely not "fixed." Therefore, TV Pickup stations and 7 GHz MSS feeder downlinks both employ mobile transmitters and have co-equal priority, and between co-equal priority stations the station with the later-in-time status has to accept any interference that might be caused by the earlier-in-time station.

7. The Commission noted that two of the ten 7 GHz TV BAS channels are not overlapped by the new FCC feeder downlink allocation (R&O, at Paragraph 56), and urged that airborne TV Pickup stations to utilize these two non-overlapping channels (Channels B9 and B10) "wherever possible." SBE agrees with such a goal, but notes that there are, unfortunately, more than two networks that cover news and sporting events on a national basis (namely, ABC, CBS, NBC, Fox and CNN). These broadcast and cable network entities are also likely to hold TV Pickup licenses issued years before the creation of the instant shared allotment with newcomer MSS feeder downlinks, which are likely to authorize operation nation-wide, and are likely to be used from airborne platforms. Therefore, while SBE hopes that the three "grandfathered" MSS feeder downlink stations, and any newcomer MSS feeder downlink stations that might get subsequently authorized, can be protected against interference from earlier-authorized TV Pickup stations with superior Title III first-in-time rights, such interference protection cannot be guaranteed if a major news event should occur in the vicinity of an MSS feeder downlink.

IV. Flawed Regulatory Flexibility Analysis

8. The Regulatory Flexibility Act ("RFA") analysis included in Appendix B of the R&O certified that the decisions reached in the R&O will "not have a significant economic impact on a substantial number of small entities." SBE disputes this conclusion. This is because

the requirement to undertake costly Part 101 frequency coordination will fall most heavily on small market TV stations and TV translator stations, low power television ("LPTV") stations, and Class A TV stations, which are more likely to have 7 GHz TV BAS microwave links in areas close enough to require such frequency coordination. For example, within 145 kilometers of the Brewster grandfathered MSS feeder downlink site the FCC engineering database shows 147 TV translator, LPTV, Class A TV, or full-service TV stations. Within 145 kilometers of the Clifton grandfathered MSS feeder downlink site the FCC engineering database shows 156 TV translator, LPTV, Class A TV, or full-service TV stations. And within 145 kilometers of the Finca Pascual grandfathered MSS feeder downlink site the FCC engineering database shows 186 TV translator, LPTV, Class A TV, or full-service TV stations. Since TV translator, LPTV and Class A TV stations are eligible to use 7 GHz TV Relay stations, pursuant to Section 74.601(c) of the FCC Rules, these classes of stations, most of which would reasonably be considered to be "small business entities," should have been considered. SBE did not address the Commission's preliminary RFA analysis in its initial comments or reply comments because there was no indication in the August 4, 1998, Notice of Proposed Rulemaking ("NPRM") that the Commission was proposing to require the more burdensome and expensive Part 101 frequency coordination protocols for 7 GHz TV BAS stations. However, now that the R&O has revealed this requirement, and without any discussion in the RFA analysis of the impact to TV translator, LPTV, Class A and small-market TV stations, SBE has no choice but to challenge the too-optimistic RFA analysis given in the R&O.

V. Summary

9. The Commission needs to confirm that only fixed TV BAS stations within 145 kilometers of an MSS feeder downlink site are required to use Part 101 frequency coordination methodologies. The Commission erred in giving MSS feeder downlink stations "super primary" status by requiring protection of all possible downlink frequencies rather than only the frequencies actually in use. The Commission needs to clearly establish what date is to be used for the "first-in-time" priority identified in the R&O as applying to Communications Act Title III stations; as previously stated, SBE suggests the February 2, 2002, R&O release date. Finally, the R&O failed to adequately consider the economic impact of requiring Part 101 frequency coordination on small business entities such as TV translator, LPTV, Class A TV, and small-market TV stations.

List of Figures

10. The following figures or exhibits have been prepared as a part of this Petition for Reconsideration of the February 7, 2002, R&O to ET Docket 98-142:

1. Copy of Comsearch Clifton, Texas, MSS feeder downlink coordination study showing a 145-kilometer coordination distance
2. Map showing the locations of the three "grandfathered" MSS feeder downlink stations
3. Clifton, Texas, MSS feeder downlink maps
4. Brewster, Washington, MSS feeder downlink maps
5. Finca Pascual, Puerto Rico, MSS feeder downlink maps.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

/s/ Troy Pennington, CSRE
SBE President

/s/ Dane E. Ericksen, P.E., CSRTE
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May 10, 2002

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Comsearch Frequency Coordination Study for Clifton, Texas, MSS Feeder Downlink

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
05/10/00

Company	GLOBALSTAR USA INC.
Owner code	ZAIRSA
Earth Station Name, State	CLIFTON, TX (RFT 1)
Latitude (DMS)	31 48 00.2 N
Longitude (DMS)	97 36 44.3 W
Ground Elevation AMSL (Ft/m)	715.2/ 218.0
Antenna Centerline AGL (Ft/m)	15.1/ 4.6
Receive Antenna Type:	Alcatel 5.5 Meter
7 GHz Gain (dBi) / Diameter (m)	50.2 / 5.5
3 dB / 15 dB Half Beamwidth	0.50 / 0.99
Transmit Antenna Type:	Alcatel 5.5 Meter
5 GHz Gain (dBi) / Diameter (m)	47.6 / 5.5
3 dB / 15 dB Half Beamwidth	0.66 / 1.33
Operating Mode	TRANSMIT AND RECEIVE
Modulation	DIGITAL
Emissions (Receive) :	7K00G1D, 50K0N0N, 1M23XXX
Receive Band (MHz)	6875.0000 - 7055.0000
Emissions (Transmit) :	50K0N0N, 76K0F2D, 1M23XXX
Transmit Band (MHz)	5091.0000 - 5250.0000
Max. Available RF Power (dBW)/4 kHz)	11.40
(dBW)/MHz)	20.40
Max. EIRP (dBW)/4 kHz)	59.00
(dBW)/MHz)	68.00
(dBW)	68.00
Max permissible Interference Power	
7 GHz, 20% (dBW/1 MHz)	-153.0
7 GHz, 0.0100% (dBW/1 MHz)	-143.0
5 GHz, 20% (dBW/1 MHz)	-140.0
5 GHz, 0.0025% (dBW/1 MHz)	-103.0
Range of Satellite Arc	
Azimuth Range (Min/Max)	0.0 / 360.0
Corresponding Minimum Elevation Angle:	10.0
Radio Climate	A
Rain Zone	2
Max Great Circle Coordination Distance (Mi/Km)	
7 GHz	90.1 / 145.0
5 GHz	229.9 / 370.0
Precipitation Scatter contour radius (Mi/Km	
7 GHz	80.8 / 130.0
5 GHz	88.9 / 143.0

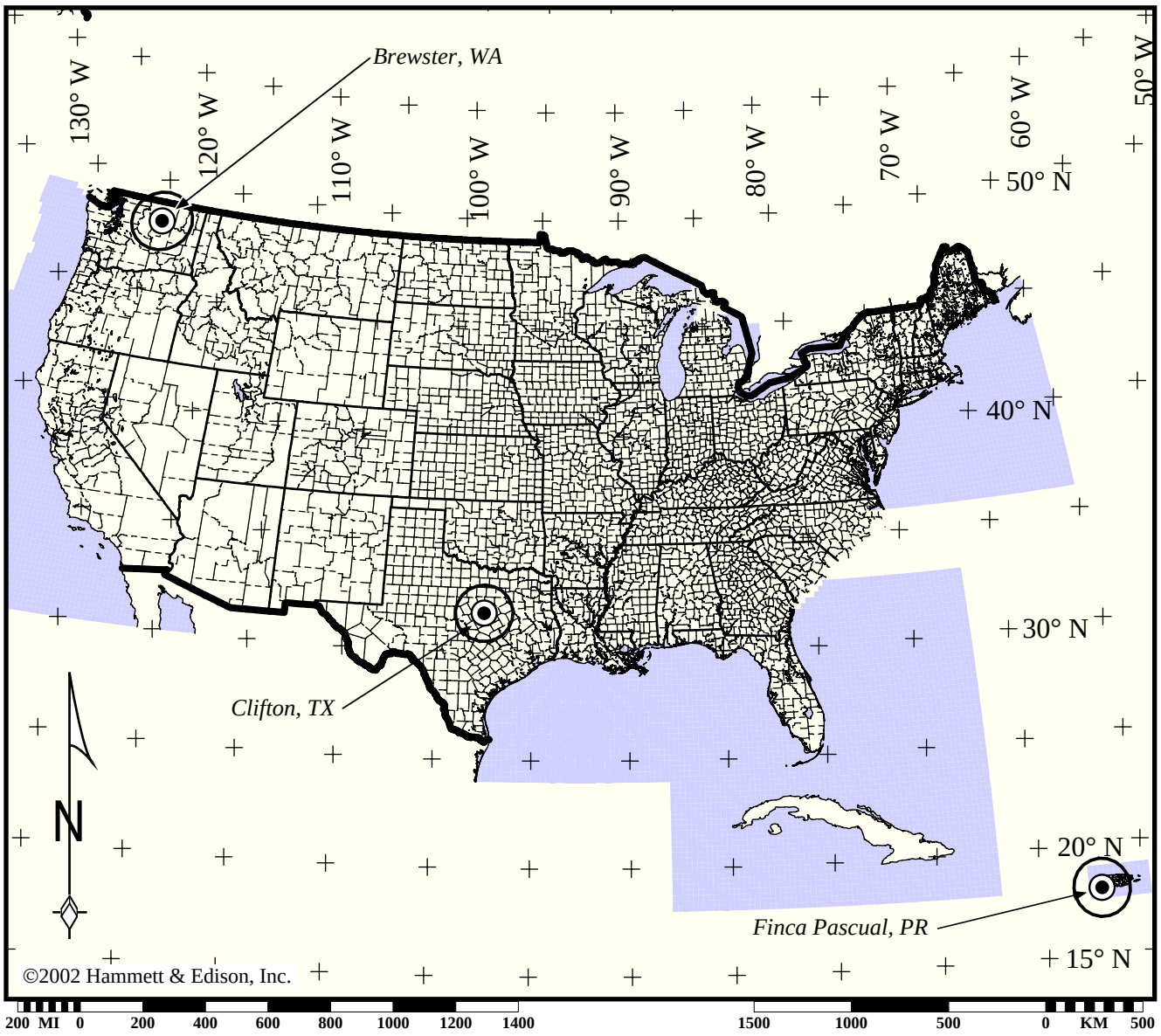
Comsearch Frequency Coordination Study for Clifton, Texas, MSS Feeder Downlink

Table of Earth Station Coordination Values
05/10/00

Earth Station Name CLIFTON TX (RFT 1)
Owner GLOBALSTAR USA INC.
Latitude 31 48 00.2 N
Longitude 97 36 44.3 W
Ground Elevation (Ft/m) 715.2/218.0 AMSL ACL 15.1 Feet AGL
Antenna Model Alcatel 5.5 Meter
Objectives: Receive -153.0 (dBW /1 MHz)
Transmit -140.0 (dBW /1 MHz) TX Power 11.4 (dBW/4 kHz)

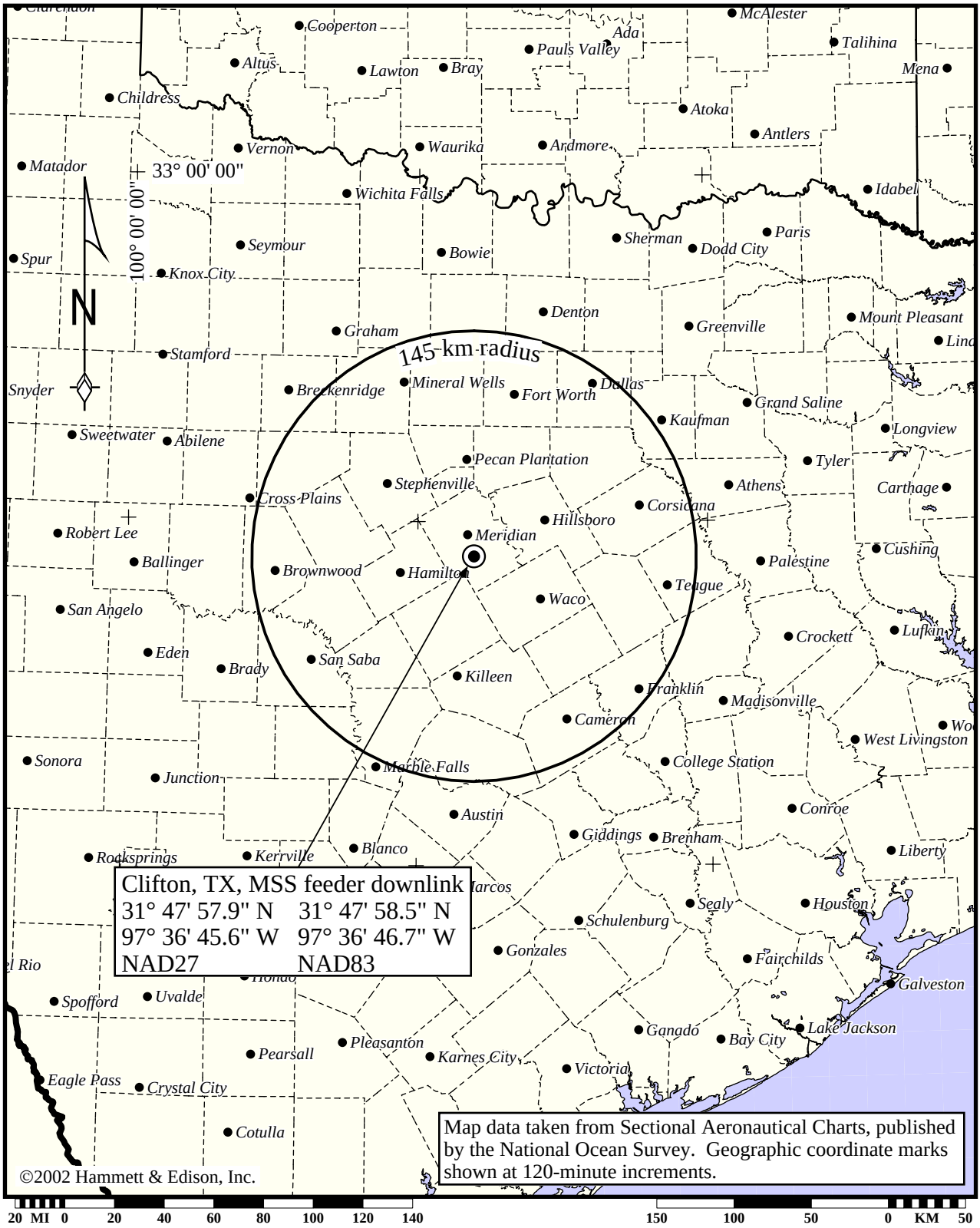
Azimuth (Deg)	Horizon Elevation Angle (Deg)	Antenna Disc. Angle Deg)	7 GHz Antenna Gain (dBi)	7 GHz Coordination Distance (Km)	5 GHz Antenna Gain (dBi)	5 GHz Coordination Distance (Km)
0	0.00	86.61	4.90	145.0	4.90	370.0
5	0.00	81.76	4.90	145.0	4.90	370.0
10	0.00	76.92	4.90	145.0	4.90	370.0
15	0.22	72.10	4.90	145.0	4.90	370.0
20	0.30	67.28	4.90	145.0	4.90	370.0
25	0.47	62.50	4.90	145.0	4.90	370.0
30	0.48	57.71	4.90	145.0	4.90	370.0
35	0.38	52.93	4.90	145.0	4.90	370.0
40	0.44	48.21	4.90	145.0	4.90	370.0
45	0.36	43.51	4.90	145.0	4.90	370.0
50	0.38	38.88	4.90	145.0	4.90	370.0
55	0.37	34.34	4.90	145.0	4.90	370.0
60	0.40	29.94	4.90	145.0	4.90	370.0
65	0.41	25.73	4.90	145.0	4.90	370.0
70	0.39	21.80	4.90	145.0	4.90	370.0
75	0.39	18.39	4.90	145.0	4.90	370.0
80	0.29	15.72	4.90	145.0	4.90	370.0
85	0.23	14.36	4.90	145.0	4.90	370.0
90	0.21	14.68	4.90	145.0	4.90	370.0
95	0.00	16.38	4.90	145.0	4.90	370.0
100	0.00	19.39	4.90	145.0	4.90	370.0
105	0.00	23.08	4.90	145.0	4.90	370.0
110	0.00	27.17	4.90	145.0	4.90	370.0
115	0.00	31.51	4.90	145.0	4.90	370.0
120	0.00	36.00	4.90	145.0	4.90	370.0
125	0.00	40.60	4.90	145.0	4.90	370.0
130	0.00	45.27	4.90	145.0	4.90	370.0
135	0.00	49.99	4.90	145.0	4.90	370.0
140	0.24	54.80	4.90	145.0	4.90	370.0
145	0.52	59.62	4.90	145.0	4.90	370.0
150	0.55	64.41	4.90	145.0	4.90	370.0
155	0.72	69.24	4.90	145.0	4.90	370.0
160	0.98	74.07	4.90	145.0	4.90	370.0
165	1.21	78.90	4.90	145.0	4.90	370.0
170	1.61	83.74	4.90	145.0	4.90	370.0
175	1.46	88.55	4.90	145.0	4.90	370.0
180	1.46	93.39	4.90	145.0	4.90	370.0

Grandfathered MSS Feeder Downlink Sites

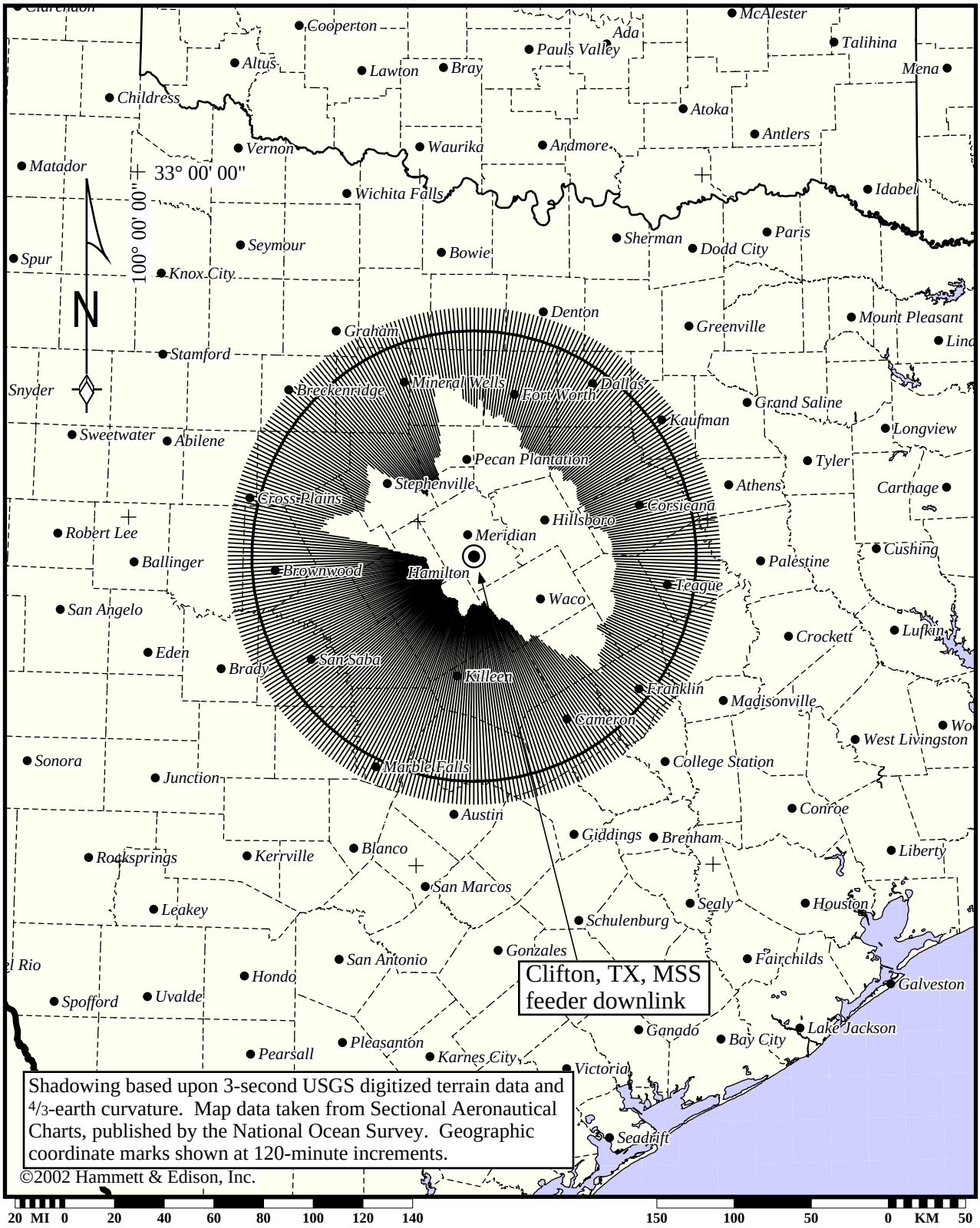


Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. City limits shown taken from U.S. Census Bureau TIGER/Line 2000 data. Geographic coordinate marks shown at 5-degree increments.

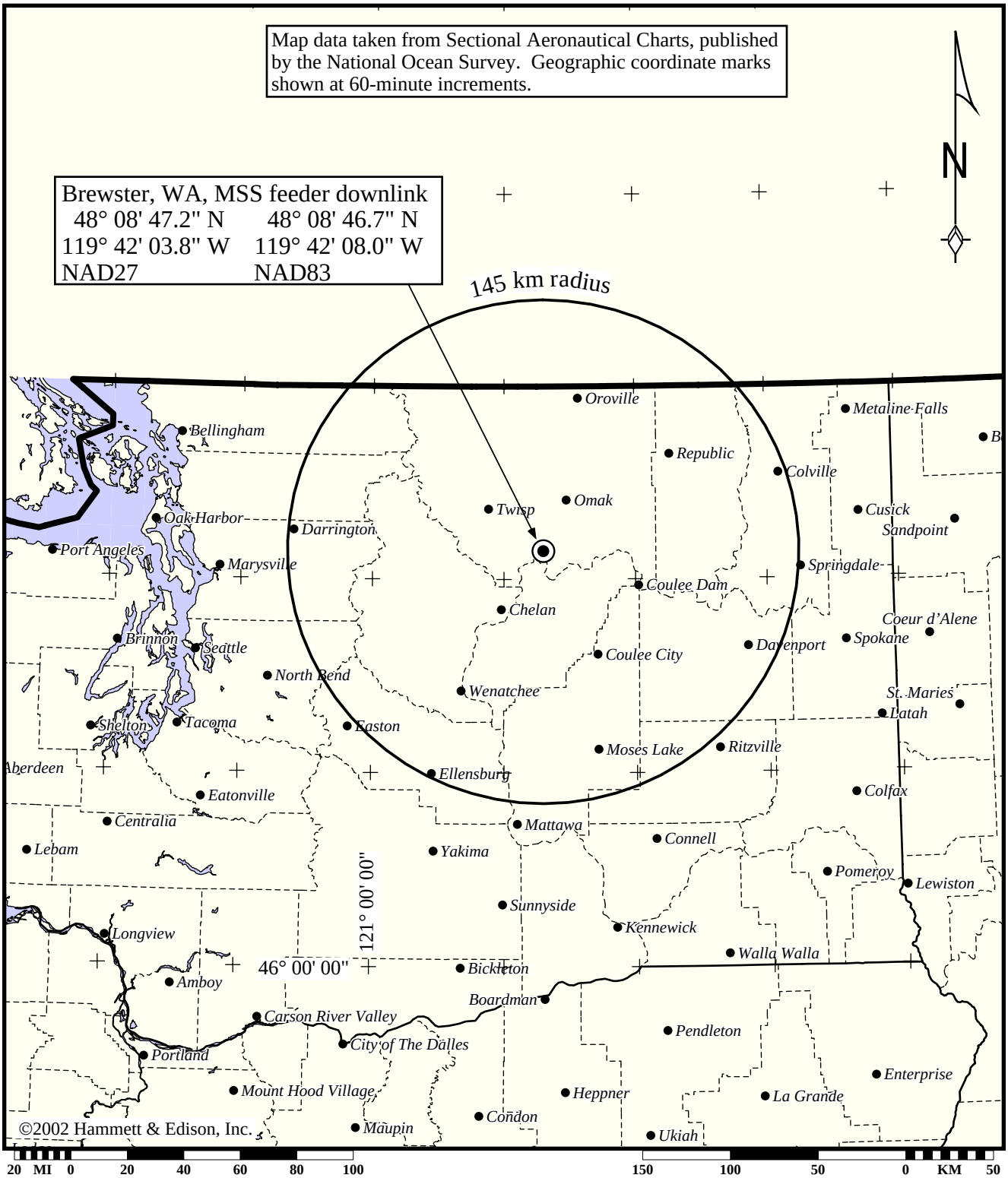
Clifton, Texas, MSS Feeder Downlink



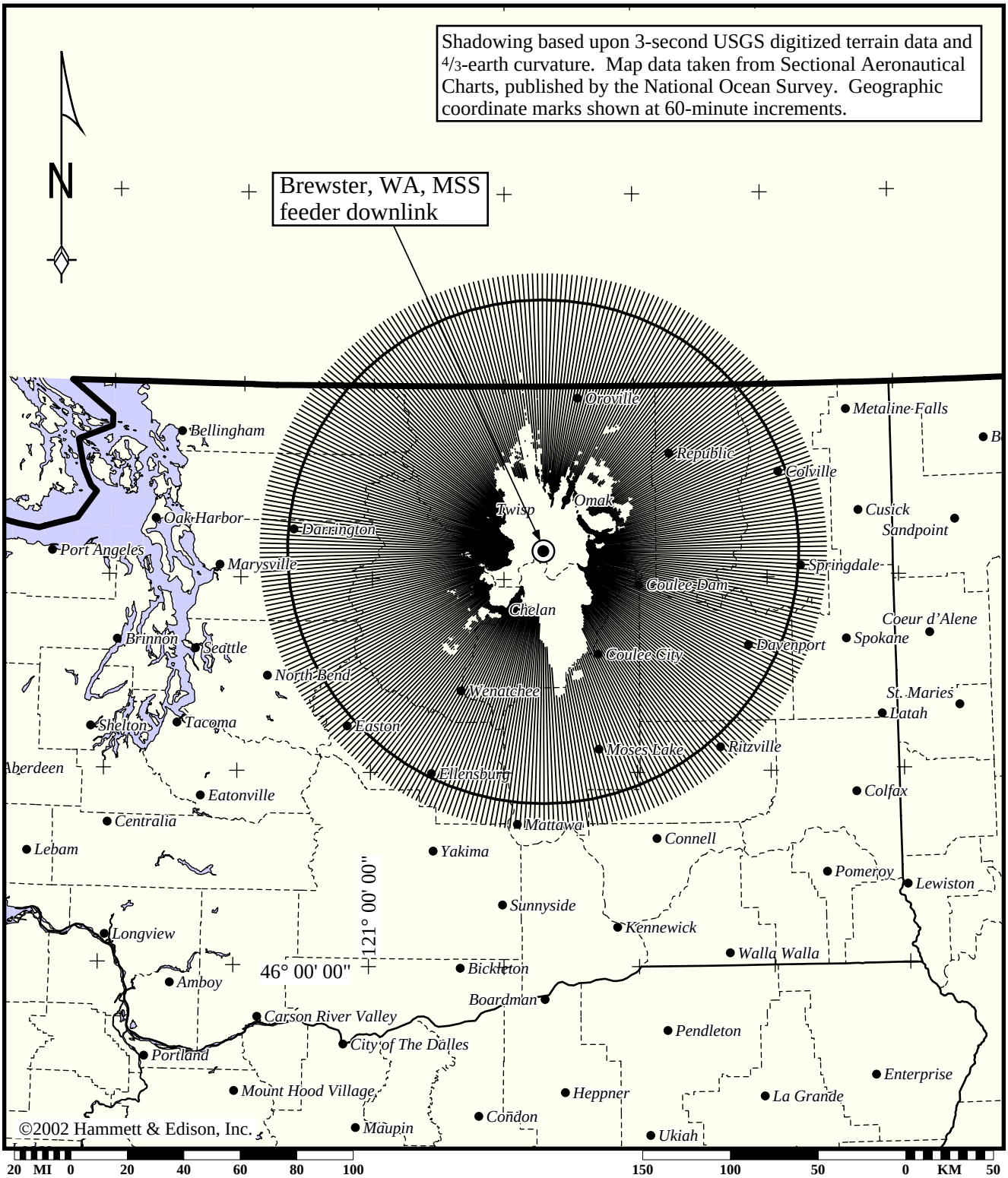
Line of Sight Areas for Clifton, Texas, MSS Feeder Downlink
Satellite Dish C.O.R. = 4.6 m AGL, 222.5 m AMSL
Hypothetical TV Pickup Height = 914.4 m (3,000 ft) AGL



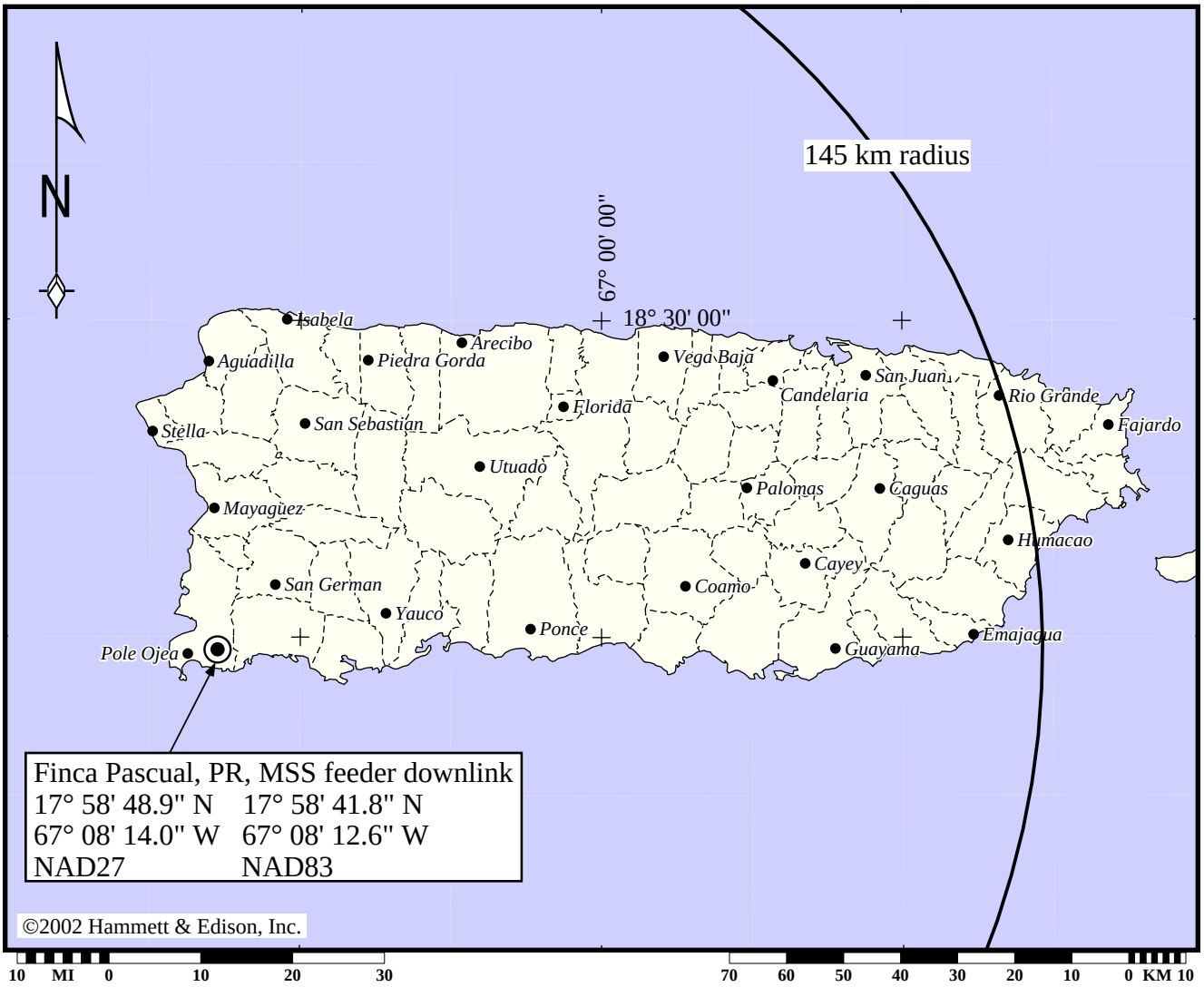
Brewster, Washington, MSS Feeder Downlink



Line of Sight Areas for Brewster, Washington, MSS Feeder Downlink
Satellite Dish C.O.R. = 4.6 m AGL, 385.6 m AMSL
Hypothetical TV Pickup Height = 914.4 m (3,000 ft) AGL

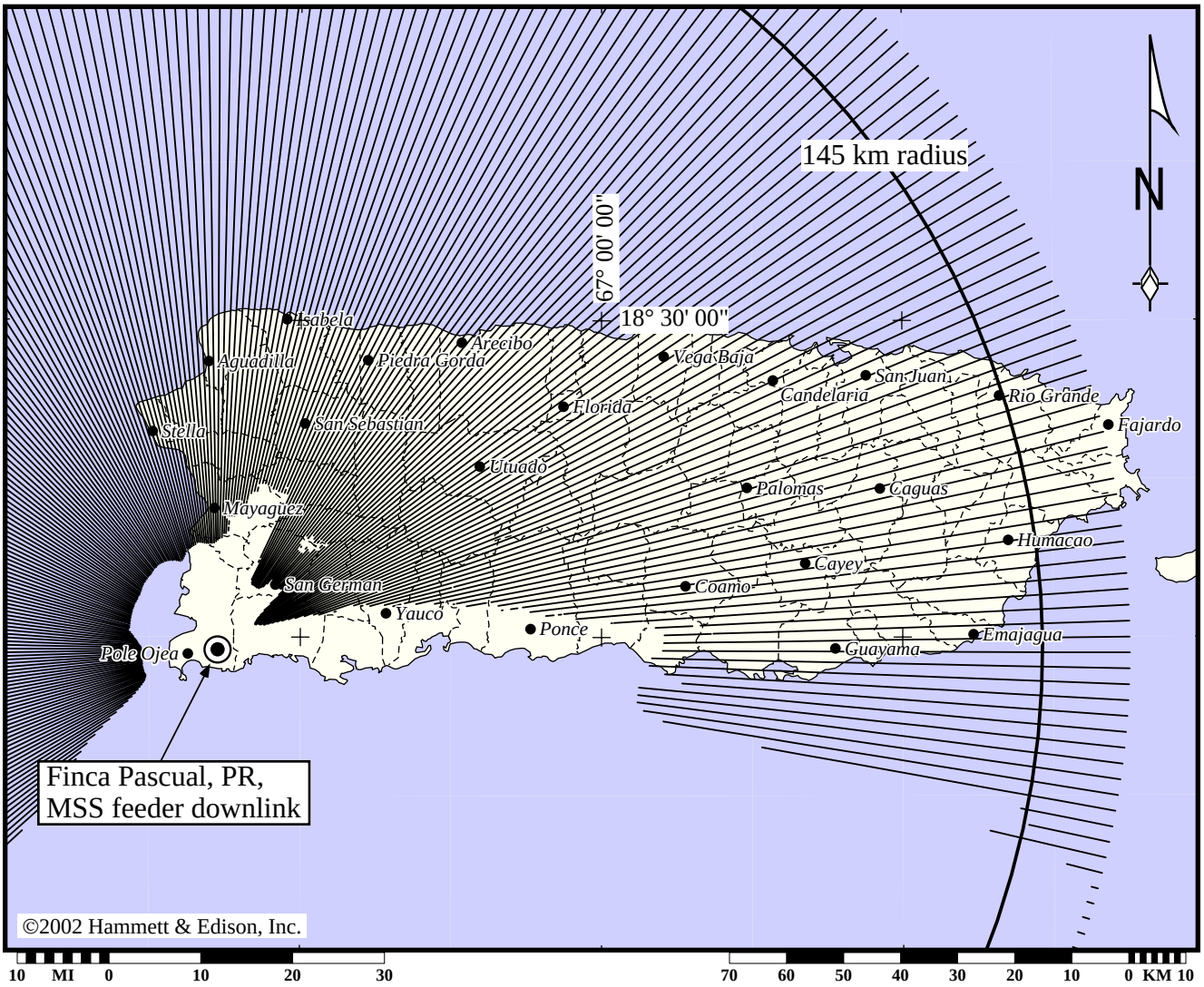


Finca Pascual, Puerto Rico, MSS Feeder Downlink



Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. Geographic coordinate marks shown at 30-minute increments.

Line of Sight Areas for Finca Pascual, Puerto Rico, MSS Feeder Downlink
Satellite Dish C.O.R. = 4.6 m AGL, 68.6 m AMSL
Hypothetical TV Pickup Height = 914.4 m (3,000 ft) AGL



Shadowing based upon 3-second USGS digitized terrain data and 4/3-earth curvature. Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. Geographic coordinate marks shown at 30-minute increments.