

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

MAY 18 2000

In the Matter of)

DIRECTV Enterprises, Inc.

for Authority to Launch and Operate
DIRECTV 4S (USABBS-13)

S2430 SAT-LOA-20010518-00045
DIRECTV ENTERPRISES, INC.
DIRECTV 4S

**APPLICATION FOR AUTHORITY TO LAUNCH
AND OPERATE DIRECTV 4S (USABBS-13)**

DIRECTV Enterprises, Inc. ("DIRECTV")¹ hereby applies for authority to launch and operate a direct broadcast satellite, DIRECTV 4S, and collocate it at the 101° W.L. orbital location with its DIRECTV 2, 3 and 1R satellites.

DIRECTV currently operates a DBS system consisting of five high-power DBS satellites located at the 101°W.L., 110° W.L. and 119° W.L. orbital positions.² DIRECTV uses these satellites to retransmit more than 225 channels of digital video and audio entertainment, educational and informational programming to more than 9.8 million subscribers throughout the United States who receive this programming using small dish antennas.

As set forth below, the addition of DIRECTV 4S to DIRECTV's existing constellation of DBS satellites will enhance DIRECTV's ability to provide local broadcast channel service, thereby positioning DIRECTV to offer consumers a complete substitute to incumbent cable

¹ DIRECTV is a licensee in the DBS service and a wholly-owned subsidiary of Hughes Electronics Corporation.

² DIRECTV has been granted authority to launch and operate its sixth high-power DBS satellite, DIRECTV 5 (formerly Tempo 1), at the 119° W.L. orbital location. *DIRECTV Enterprises, Inc. (For Authority to Launch and Operate a Direct Broadcast Satellite Service Space Station)*, Order and Authorization, 15 FCC Rcd 23630 (2000).

system offerings. Deployment of DIRECTV 4S is vital to DIRECTV's provision of local broadcast programming to consumers in their local markets, the continued development of DIRECTV's DBS service, and DIRECTV's ability to continue to offer U.S. consumers a powerful multichannel video programming distributor ("MVPD") alternative to services offered by incumbent cable operators. Thus, grant of this application is in the public interest.

I. BACKGROUND

DIRECTV's affiliate and predecessor in interest, Hughes Communications Galaxy ("HCG") launched DIRECTV 1 (formerly known as DBS 1), the United States' first DBS satellite, in December 1993. HCG launched DIRECTV 2 (formerly known as DBS 2) in August 1994.

In June 1995, the Commission consented to the pro forma assignment of the licenses and facilities necessary to operate DIRECTV's DBS system from HCG to DIRECTV.³ In that same month, DIRECTV launched DIRECTV 3 (formerly known as DBS 2A) and collocated it at the 101° W.L. orbital position.

On August 2, 1999, DIRECTV received authority from the Commission to launch and operate its DIRECTV 1R satellite and collocate it with DIRECTV's system of DBS satellites at the 101° W.L. orbital location. On April 1, 1999, the Commission granted United States Satellite Broadcasting Co., Inc. ("USSB") authorization to transfer control of its DBS and related earth

³ On April 7, 1995, the Commission also approved the assignment of the earth station authorization for DIRECTV's uplink facilities at Castle Rock, Colorado, from Hughes Communication Satellite Services to DIRECTV Enterprises, Inc.

EXPEDITED PROCESSING REQUESTED

station authorizations to DIRECTV.⁴ Pursuant to this order, DIRECTV relocated DIRECTV 1 to the 110° W.L. orbital location.

In May 1999, the Commission granted Tempo Satellite, Inc. authority to assign its authorization to construct, launch, and operate its DBS system using eleven frequencies at the 119° W.L. orbital position to DIRECTV.⁵ DIRECTV assumed control of the Tempo 2 satellite, now known as DIRECTV 6, in orbit at that location. In November 2000, DIRECTV received authority to launch and operate DIRECTV 5, and to collocate this satellite at 119° W.L.⁶

Now, in an effort to provide expanded and improved service to consumers, including additional local broadcast channel service offerings, as envisioned by Congress, DIRECTV seeks Commission approval to launch and operate DIRECTV 4S and to collocate the satellite at the 101° W.L. orbital position.

⁴ *United States Satellite Broadcasting Co., Inc. Transferor and DIRECTV Enterprises, Inc. Transferee; For Consent to Transfer of Control of the USSB II, Inc. Authorization to Operate a Direct Broadcast Satellite System Using Five Channels at the 101° W.L. Orbital Location; Authorization to Construct, Launch, and Operate a Direct Broadcast Satellite System Using Three Channels at the 110° W.L. Orbital Location; and the Related Earth Registration (Call Sign E 930437); United States Satellite Broadcasting Co. Inc. Application for Additional Time to Construct and Launch a Direct Broadcast Satellite at the 110° W.L. Orbital Location, Order and Authorization, 14 FCC Rcd 4585 (1999). In March 1999, the Commission granted DIRECTV's application to transfer control of two transmit/receive earth stations (Call Signs E930485 and E950153) from USSB to DIRECTV. USSB II, Inc., Consent to Transfer Control, File No. SEES-T/C019981217-01925, (Mar. 15, 1999).*

⁵ *Tempo Satellite, Inc., Assignor and DIRECTV Enterprises, Inc., Assignee; Application for Consent to Assign Authorization to Construct, Launch and Operate a Direct Broadcast Satellite System Using 11 Frequencies at the 119° W.L. Orbital Location; TCI Satellite Entertainment, Inc., Transferor and Primestar, Inc., Transferee; Application for Transfer of Control of Tempo Satellite, Inc.; EchoStar Satellite Corp. and Directsat Corp.; Applications for Special Temporary Authority to Operate a Direct Broadcast Satellite System, Order and Authorization, 14 FCC Rcd 7946 (1999).*

⁶ *DIRECTV Enterprises, Inc. (For Authority to Launch and Operate a Direct Broadcast Satellite Service Space Station), Order and Authorization, 15 FCC Rcd 23630 (2000).*

II. AUTHORITY REQUESTED

DIRECTV 4S is a Boeing-built 601 HP model satellite designed to provide U.S. domestic broadcast satellite service. DIRECTV 4S is a “spot beam” satellite specifically intended to provide additional local broadcast channel programming capacity for DIRECTV’s existing DBS system. The satellite is described in detail in Appendix A attached hereto. The deployment of DIRECTV 4S will allow DIRECTV to incorporate spot beam technology into its existing DBS system, which will complement the already-high quality of its video programming service for subscribers by adding additional local broadcast programming.

DIRECTV's existing constellation of satellites at 101° W.L. includes the DIRECTV 2 and 3 satellites located at 100.8° and 100.85°, respectively, and DIRECTV 1R at 101.2°. By this application, DIRECTV requests authorization to launch, operate, and collocate DIRECTV 4S at the 101.2° W.L. orbital position, and then, upon successful launch and placement of DIRECTV 4S, to drift DIRECTV 1R slightly east from its current position at 101.2° W.L. to 101.15° W.L.

III. GENERAL TECHNICAL INFORMATION AND INTERFERENCE ANALYSES

Appendix A contains a technical description of the DIRECTV 4S satellite. Interference analyses performed in accordance with ITU Radio Regulations Appendices S30 and S30A determined that coordination with Canada and Mexico is required per Section 2 of Annex 1 of Appendix S30. Technical coordination with Canada is already underway and a successful result is expected. Coordination with Mexico will be handled by the Commission. DIRECTV 4S was shown to be in full compliance with all other applicable international interference criteria and limitations of Appendices S30 and S30A.

IV. APPLICANT QUALIFICATIONS

DIRECTV is a fully qualified DBS licensee. DIRECTV's legal qualifications are a matter of public record. For DBS systems, the Commission has not required a prior demonstration of financial qualifications, but has instead relied on the applicant meeting due diligence milestones once a system is authorized.⁷ Nevertheless, DIRECTV has sufficient financial resources available to cover the costs of launching and operating the DIRECTV 4S satellite. DIRECTV is a wholly-owned subsidiary of Hughes Electronics Corporation, which is wholly-owned by General Motors Corporation.

V. TYPE OF OPERATIONS

DIRECTV intends to operate DIRECTV 4S on a non-broadcast, non-common carrier basis, as it operates its current satellite capacity at 101° W.L., 110° W.L. and 119° W.L.. DIRECTV may sell and/or lease a portion of its capacity on a non-common carrier basis for complementary business purposes.

VI. SCHEDULE

The expected launch date of DIRECTV 4S is October 2001.

VII. PUBLIC INTEREST CONSIDERATIONS

Authorizing DIRECTV to launch and operate the DIRECTV 4S satellite in the manner discussed above will bolster DIRECTV's ability to provide consumers with access to local broadcast station signals in their local television markets, which will enhance the overall service that DIRECTV currently offers its customers. Such improved service capabilities will have a number of specific and important public interest benefits.

⁷ See 47 C.F.R. §100.19.

EXPEDITED PROCESSING REQUESTED

First, successful launch and positioning of DIRECTV 4S at 101.2° W.L. will provide DIRECTV with expanded capacity to distribute local broadcast signals to its existing subscriber base and to new subscribers. The deployment of DIRECTV 4S will facilitate DIRECTV's provision of more programming choices for consumers.

Second, Commission authorization of launch and operation of the DIRECTV 4S satellite will permit DIRECTV to provide service that is a more complete substitute to traditional cable offerings, as envisioned by Congress when it enacted the Satellite Home Viewer Improvement Act of 1999.⁸ Due to legal impediments that prevented DBS providers from retransmitting local television broadcast stations to subscribers located in the markets of those stations, DBS providers historically had operated at a significant competitive disadvantage vis-à-vis cable operators in the MVPD market. Consumers in the past reported that their inability to receive local broadcast signals from DBS operators negatively affected their decision to subscribe to DBS.⁹ In enacting the SHVIA in 1999, Congress granted satellite carriers a permanent compulsory license to retransmit local broadcast television programming, thereby removing one of the most significant barriers to DBS operators fully competing in the MVPD market. Congress acknowledged that without the legal authority to distribute local broadcast signals, satellite television simply would not be a complete substitute for the MVPD services offered by incumbent cable television monopolists.¹⁰

⁸ Satellite Home Viewer Improvement Act of 1999, Pub. L. No. 106-113, 113 Stat. 1501, 1501A-526 to 1501A-545 (Nov. 29, 1999) ("SHVIA").

⁹ *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Seventh Annual Report, CS Docket No. 00-132, FCC 01-1 (rel. Jan. 8, 2001) (*Seventh Report*) at ¶ 13.

¹⁰ H.R. Rep. No. 106-79, at 11-15.

As Congress and the Commission both have recognized, the continued success of DBS is integral to the establishment of a more competitive market for the delivery of MVPD services. In the Commission's most recent report on the status of competition in the MVPD market, the Commission reiterated that "DBS is the principal competitor to cable television."¹¹ Although, as of June 2000, 80% of all MVPD subscribers received their video programming from a franchised cable operator,¹² recent technological and legislative successes should place DBS on a more equal competitive and regulatory footing with traditional cable service offerings. Indeed, the Commission recently stated that the increase in DBS's share of MVPD households to more than 15% nationally¹³ has been attributed, in part, to the authority granted by SHVIA to DBS providers to distribute local broadcast television stations in their local markets.¹⁴

As one of the most successful distributors of multichannel video programming, DIRECTV is one of a handful of competitive alternatives to incumbent cable operators. By offering attractive programming packages that include local broadcast offerings to consumers at competitive prices, DIRECTV hopes to continue to serve public demand for high quality video and audio programming services. The launch and operation of DIRECTV 4S is necessary to achieve this goal.

Finally, the new state-of-the-art DIRECTV 4S satellite, which employs spot beam technology to provide service while limiting interference, is designed to provide expanded capacity for DIRECTV's DBS system on a spectrally efficient basis. Specifically, as described in

¹¹ Seventh Report at ¶ 61.

¹² *Id.* at ¶ 5.

¹³ *Id.* at ¶ 61.

¹⁴ *Id.* at ¶ 13.

Appendix A, the DIRECTV 4S satellite will provide up to 44 RF transponders to selected geographic regions. The 44 transponders will reuse six of the defined 32 frequencies in the BSS band. DIRECTV also will reuse frequency on the uplink. All 16 BSS odd-numbered channels and the six even-numbered spot beam channels will be fed from two distinct uplink sites. As such, the deployment of DIRECTV 4S will allow for the continued maximization of frequency reuse, an important Commission policy goal. Because DBS ultimately is a spectrum-constrained service, the Commission should provide DBS operators with every opportunity to increase system capacity by utilizing the spectrum more efficiently. Authorization and deployment of DIRECTV 4S advances this goal.

VIII. THE NEED FOR EXPEDITED PROCESSING

It is important that additional capacity be made available as soon as possible for DIRECTV's provision of local broadcast channel service to subscribers. While it is generally in the public interest to facilitate the prompt expansion of DBS service to consumers, Congress specifically required in the SHVIA that DBS providers comply with satellite must carry obligations no later than January 1, 2002.¹⁵ In order for DIRECTV to offer local broadcast channel service in a significant number of markets *and* comply with this regulatory obligation, it is imperative that DIRECTV deploy additional satellite capacity in the October timeframe currently contemplated. DIRECTV therefore requests that this application be processed on an expedited basis.

¹⁵ See In the Matter of Implementation of the Satellite Home Viewer Improvement Act of 1999, CS Docket No. 00-96 (rel. Nov. 30, 2000), at ¶ 1.

IX. SECTION 304 WAIVER

In accordance with Section 304 of the Communications Act,¹⁶ the parties to this application hereby waive any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise.

X. CONCLUSION

For the foregoing reasons, DIRECTV respectfully requests that the Commission grant this application to launch and operate the DIRECTV 4S satellite.

¹⁶ 47 U.S.C. § 304.

EXPEDITED PROCESSING REQUESTED

Respectfully submitted,

DIRECTV ENTERPRISES, INC.

By: David A. Baylor
David A. Baylor
Executive Vice President

EXPEDITED PROCESSING REQUESTED

ANTI-DRUG ABUSE ACT CERTIFICATION

Pursuant to Section 1.2002 of the Commission's rules, 47 C.F.R. § 1.2002, DIRECTV Enterprises, Inc. ("DIRECTV") certifies that neither DIRECTV, nor any of its shareholders, nor any of its officers or directors, are subject to a denial of Federal benefits pursuant to authority granted in Section 5301 of the Anti-Drug Abuse Act of 1988.

Very truly yours,

By: David A. Baylor
DIRECTV Enterprises, Inc.

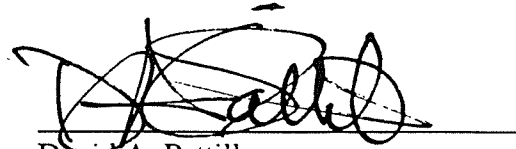
Title: David A. Baylor - Executive Vice President

May __, 2001

**CERTIFICATION OF PERSON RESPONSIBLE
FOR PREPARING ENGINEERING INFORMATION
SUBMITTED IN THIS APPLICATION**

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this Application, that I am familiar with Parts 25 and 100 of the Commission's Rules, that I have either prepared or reviewed the engineering information submitted in this Application, and that it is complete and accurate to the best of my knowledge.

By:



David A. Pattillo
Sr. Manager, Communications Systems
DIRECTV, Inc.

May 16 2001

APPENDIX A

DIRECTV 4S (USABSS-13)

SATELLITE DESCRIPTION AND INTERFERENCE ANALYSES

May 2001

TABLE OF CONTENTS

OVERVIEW.....	1
COMMUNICATIONS PAYLOAD.....	1
ITU RADIO REGULATIONS ANNEXES.....	4
ANNEX 1 TO APPENDIX S30.....	5
APPENDIX S4 (ANNEX 2 TO APPENDIX S30).....	12
ANNEX 1 TO APPENDIX S30A.....	74
APPENDIX S4 (ANNEX 2 TO APPENDIX 30A).....	76

DIRECTV 4S SYSTEM DESCRIPTION

OVERVIEW

This section provides a brief technical description of the DIRECTV 4S satellite for the 101.2° W.L. orbital position. DIRECTV 4S (USABSS-13) is a Boeing built 601 HP 3-axis stabilized spacecraft designed to provide U.S. domestic broadcast satellite service. DIRECTV 4S contains an active attitude and position control subsystem, a telemetry, command and ranging subsystem, a thermal control subsystem, and an electrical power subsystem.

The repeater consists of 10 national beam channels and 44 spot beam channels, each with 24 MHz of usable bandwidth. Uplink frequencies will be in the 17.3-17.8 GHz band, and downlink frequencies in the 12.2-12.7 GHz band. DIRECTV 4S will enable DIRECTV to make the most efficient use of its existing capacity in order to meet the must-carry obligation imposed by the Satellite Home Viewer Improvement Act of 1999.

The DIRECTV 4S satellite will use QPSK modulation in either the DIRECTV or DVB format (see Rec. ITU-R B.O.1294 System A or System B). Receivers will use 45 cm antennas except as noted. Transmissions will consist of multiplexed video, audio, and data services in each transponder. All transponders will have a 24 MHz bandwidth.

DIRECTV 4S will be placed in the 101.2° W.L. orbital position. DIRECTV-1R, currently located at 101.2° W.L., will be drifted east to 101.1° W.L.

The satellite design will meet its performance requirements for an operational lifetime of ≥ 15 years including 100% eclipse operation. The satellite will comply with all international laws and regulations pertaining to the operation of such a space system.

COMMUNICATIONS PAYLOAD

The DIRECTV 4S payload uses 26 separate spot beams on six frequencies (channels) to provide up to 44 RF transponders to selected geographic regions. Depending on the particular characteristics of the region, the power in the spot beam transponders varies from 30 watts to 88 watts. The 44 transponders reuse six of the defined 32 channels in the BSS Region 2 Plan.

Frequency reuse is also employed on the feeder link. Programming material to feed the spot beams is transmitted on all 16 BSS odd-numbered channels and six of the even-numbered feeder link channels. Programming is transmitted simultaneously from two distinct feeder link sites located in Los Angeles, CA and Castle Rock, CO.

Twenty-six distinct spot beams provide service to major population centers within the United States, while limiting interference into adjoining spot beams and maximizing the frequency reuse.

National beam coverage is provided using the other 10 even-numbered downlink channels: two at 280W, two at 240W and six at 120W. The national beam downlink coverage includes the contiguous 48 states (CONUS) plus Alaska and Hawaii. The feeder links for the National beam use the remaining 10 even-numbered feeder link channels. The minimum EIRP will be 49.0 dBW anywhere within the contiguous 48 states, a minimum of 41.2 dBW in the three population centers of Alaska, and 42.8 dBW in Hawaii.

The DIRECTV 4S satellite will use the BSS Region 2 frequency plan. Tables 1 and 2 show the spot beam frequency reuse plan for the downlink and feeder link. Telemetry and command frequencies are provided in Table 3.

Table 1. DIRECTV 4S Downlink Frequency Plan

BSS Downlink Channel	Spot Beam No. or National Beam
2	National
4	Spots 9, 12, 13, 14, 20, 24
6	National
8	National
10	National
12	Spots 9, 12, 13, 14, 15, 16, 18, 20
14	National
16	National
18	Spots 5, 6, 10, 11, 21
20	Spots 3, 12, 13, 14, 16, 17, 18, 19, 20
22	National
24	National
26	Spots 15, 21, 22, 23, 25, 26
28	Spots 1, 2, 3, 4, 5, 6, 7, 8, 10, 11
30	National
32	National

Table 2. DIRECTV 4S Feeder Link Frequency Plan

BSS Feeder Link Channel	Feed
1 – 31 ODD	Spot Beam
2	National Beam
4	Spot Beam
6	National Beam
8	National Beam
10	National Beam
12	Spot Beam
14	National Beam
16	National Beam
18	Spot Beam
20	Spot Beam
22	National Beam
24	National Beam
26	Spot Beam
28	Spot Beam
30	National Beam
32	National Beam

Table 3. DIRECTV 4S T&C Frequency and Polarization Plan

	Frequency, MHz	Polarization
Command Transfer Orbit	17300.50	RHCP
Command On-Station	17300.50	RHCP
Command On-Station Back up	17797.50	RHCP
Telemetry 1 Transfer Orbit	12698.75	RHCP
Telemetry 1 On-Station	12698.75	LHCP
Telemetry 1 On-Station Back up	12698.75	RHCP
Telemetry 2 Transfer Orbit	12699.75	RHCP
Telemetry 2 On-Station	12699.75	RHCP
Telemetry 2 On-Station Back up	12699.75	RHCP

ITU RADIO REGULATIONS ANNEXES

Interference analyses were performed according to Radio Regulations Annex 1 of Appendices S30 and S30A. Satellite and Feeder Link characteristics are provided in accordance with Annex 2 of Appendices S30 and S30A. These annexes are included as attachments 1 through 4 of this application.

ATTACHMENT 1

ANNEX 1 TO APPENDIX S30

USABSS-13

**LIMITS FOR DETERMINING WHETHER A SERVICE OF AN ADMINISTRATION IS
AFFECTED BY A PROPOSED MODIFICATION TO THE PLANS OR WHEN IT IS
NECESSARY UNDER THIS APPENDIX TO SEEK THE AGREEMENT OF ANY
OTHER ADMINISTRATION**

ANNEX 1 OF APPENDIX S30 FOR USABSS-13

- 1 Limits for the interference into frequency assignments in conformity with the Regions 1 and 3 Plan or with the Regions 1 and 3 List or into new or modified assignments in the Regions 1 and 3 List.**

Not Applicable to Region 2 modifications.

- 2 Limits to the change in the overall equivalent protection margin for frequency assignments in conformity with the Region 2 Plan.**

A detailed interference analysis was performed using MSPACEg version 1.96 and the uplink and downlink shaped and spot beams of USABSS-13. Results show that the administrations of Canada and Mexico are affected on downlink test points. Coordination with these administrations will be performed. The CD-ROM that accompanies this report contains the GIMS Data and Index folders and gxt files of the USABSS-13 beams used in this analysis.

- 3 Limits to the change in the power flux-density to protect the broadcasting-satellite service in Regions 1 and 2 in the band 12.2-12.5 GHz and in Region 3 in the band 12.5-12.7 GHz.**

For Region 2 modifications not to affect assignments in Region 1 or 3, the power flux density shall not exceed the limits given below:

$$\begin{array}{ll} -147 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz})) & \text{for } 0^\circ \leq \theta < 0.44^\circ \\ -138 + 25 \log \theta \text{ dB}(W/(m^2 \cdot 27 \text{ MHz})) & \text{for } 0.44^\circ \leq \theta < 19.1^\circ \\ -106 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz})) & \text{for } \theta \geq 19.1^\circ \end{array}$$

where θ is the difference in degrees between the longitudes of the broadcasting-satellite space station in Region 2 and the broadcasting-satellite space station affected in Region 1 or 3.

The closest Regions 1 and 3 BSS orbital location in the Regions 1 and 3 Plan or List is a French assignment at 160° W.L., which is 59° from the -101° W.L. orbital location. Therefore the $-106 \text{ dBW}/m^2/27 \text{ MHz}$ level applies.

The following Table shows the pfd level calculated using the *minimum* isolation of USABSS-13's spot and CONUS transmit beams to Regions 1 and 3 territories. The pfd limit is met with significant margin using the minimum isolation. Therefore, USABSS-13 is in compliance with Section 3.

Beam No.	EIRP, dBW	Minimum Isolation from USABSS-13 Beam to R1 and R3 (Antenna gain relative to peak)	PFD in 27 MHz	PFD Limit in 27 MHz	Margin, dB
1	63.2	-40.0	-139.3	-106	33.3
2	64.7	-40.0	-137.8	-106	31.8
3	65.2	-40.0	-137.3	-106	31.3
4	62.8	-40.0	-139.7	-106	33.7
5	61.1	-40.0	-141.4	-106	35.4
6	63.4	-40.0	-139.1	-106	33.1
7	56.3	-40.0	-146.2	-106	40.2
8	61.0	-40.0	-141.5	-106	35.5
9	56.3	-40.0	-146.2	-106	40.2
10	58.2	-30.0	-134.4	-106	28.4
11	59.9	-40.0	-142.6	-106	36.6
12	60.9	-40.0	-141.6	-106	35.6
13	62.4	-40.0	-140.1	-106	34.1
14	62.7	-40.0	-139.8	-106	33.8
15	61.1	-40.0	-141.4	-106	35.4
16	56.0	-40.0	-146.5	-106	40.5
17	56.8	-40.0	-145.7	-106	39.7
18	60.4	-40.0	-142.1	-106	36.1
19	58.2	-40.0	-144.3	-106	38.3
20	55.4	-30.0	-137.1	-106	31.1
21	60.8	-40.0	-141.7	-106	35.7
22	61.3	-40.0	-141.2	-106	35.2
23	59.9	-40.0	-142.6	-106	36.6
24	59.5	-40.0	-143.0	-106	37.0
25	57.1	-40.0	-145.4	-106	39.4
26	58.2	-30.0	-134.3	-106	28.3
CONUS	58.1	-20.0	-124.4	-106	18.4

4 Limits to the power flux-density to protect the terrestrial services of other administrations.

The pfd limits for a Region 2 modification not to affect a Region 1, 2, or 3 terrestrial service are given below:

$$\begin{array}{ll}
 -148 \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } \theta \leq 5^\circ \\
 -148 + 0.5(\theta - 5) \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } 5^\circ < \theta \leq 25^\circ \\
 -138 \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } 25^\circ < \theta \leq 90^\circ
 \end{array}$$

where θ represents the angle of arrival.

For territories of Regions 1 and 3 a similar analysis of the pfd levels in Section 3 was performed. As shown in the table, using minimum isolation to Regions 1 and 3 and the tightest pfd limit that could be applicable, $-148 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$, the pfd limit is met with significant margin.

Beam No.	EIRP, dBW	Minimum Isolation from USABSS-13 Beam to R1 and R3 (Antenna gain relative to peak)	PFD in 4 kHz	PFD Limit in 4 kHz	Margin, dB
1	63.2	-40.0	-177.1	-148	29.1
2	64.7	-40.0	-175.6	-148	27.6
3	65.2	-40.0	-175.1	-148	27.1
4	62.8	-40.0	-177.5	-148	29.5
5	61.1	-40.0	-179.2	-148	31.2
6	63.4	-40.0	-176.9	-148	28.9
7	56.3	-40.0	-184.0	-148	36.0
8	61.0	-40.0	-179.3	-148	31.3
9	56.3	-40.0	-184.0	-148	36.0
10	58.2	-30.0	-172.2	-148	24.2
11	59.9	-40.0	-180.4	-148	32.4
12	60.9	-40.0	-179.4	-148	31.4
13	62.4	-40.0	-177.9	-148	29.9
14	62.7	-40.0	-177.6	-148	29.6
15	61.1	-40.0	-179.2	-148	31.2
16	56.0	-40.0	-184.3	-148	36.3
17	56.8	-40.0	-183.5	-148	35.5
18	60.4	-40.0	-179.9	-148	31.9
19	58.2	-40.0	-182.1	-148	34.1
20	55.4	-30.0	-174.9	-148	26.9
21	60.8	-40.0	-179.5	-148	31.5
22	61.3	-40.0	-179.0	-148	31.0
23	59.9	-40.0	-180.4	-148	32.4
24	59.5	-40.0	-180.8	-148	32.8
25	57.1	-40.0	-183.2	-148	35.2
26	58.2	-30.0	-172.1	-148	24.1
CONUS	58.1	-20.0	-162.2	-148	14.2

Consistent with provision 4.2.3 d) of Article 4 of Appendix S30, these pfd limits apply to countries not having frequency assignment in the broadcasting-satellite service in the channel concerned. Since both Canada and Mexico, among other Region 2 countries, are assigned all

32 channels in the Plan, and therefore, will not be deploying terrestrial services, these limits do not need to be met on their territories.

For other Region 2 countries, a detailed analysis was performed using the ITU GIMS program. The above limits are specified in 4 kHz. The equivalent limits in 24 MHz are as follows:

$$\begin{array}{ll} -110.2 \text{ dB(W/(m}^2 \cdot 24 \text{ MHz))} & \text{for } \theta \leq 5^\circ \\ -110.2 + 0.5 (\theta - 5) \text{ dB(W/(m}^2 \cdot 24 \text{ MHz))} & \text{for } 5^\circ < \theta \leq 25^\circ \\ -100.2 \text{ dB(W/(m}^2 \cdot 24 \text{ MHz))} & \text{for } 25^\circ < \theta \leq 90^\circ \end{array}$$

where θ represents the angle of arrival.

Figure 1 shows the 25 degree elevation angle contour from 101° W.L. for the CONUS beam. As shown, the majority of Region 2 countries are within the 25 degree contour so that the $-100.2 \text{ dB(W/(m}^2 \cdot 24 \text{ MHz))}$ pfd limit applies. For South American countries outside of the 25 degree elevation angle contour, e.g. eastern Brazil, the isolation of the satellite gain contours is at least 30 dB and therefore the pfd limit is met similar to the Regions 1 and 3 cases listed above.

Using GIMS it has been determined that none of the beams exceed the $-100.2 \text{ dB(W/(m}^2 \cdot 24 \text{ MHz))}$ limit in any Region 2 country. Therefore USABSS-13 is compliant with section 4.

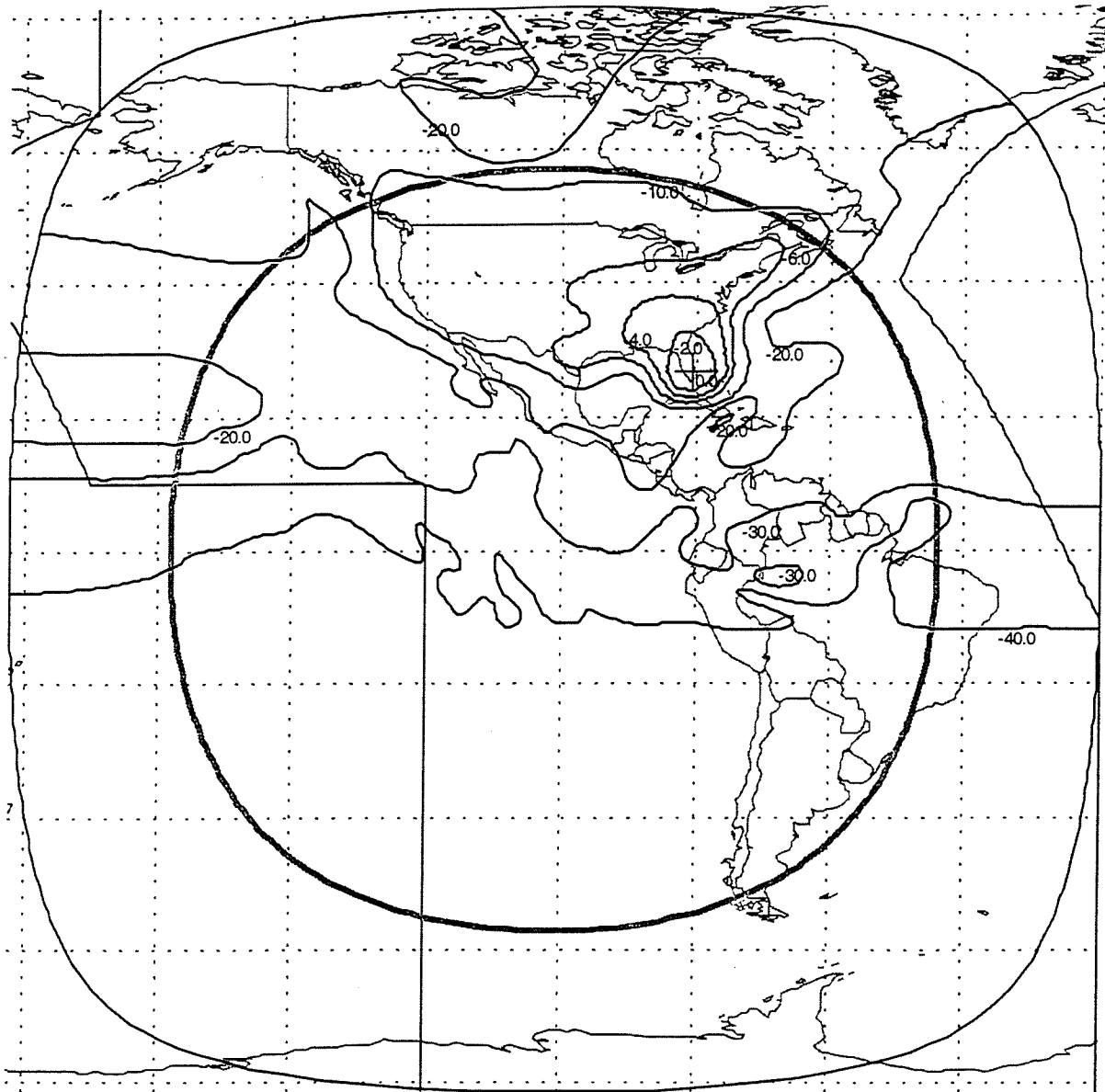


Figure 1. USABSS-13 25 Degree Elevation Angle Contour

5 (Not used.)

6 Limits to the change in the power flux-density of assignments in the Regions 1 and 3 Plan to protect the fixed-satellite service (space-to-Earth) in the band 11.7-12.2 GHz in Region 2 or in the band 12.2-12.5 GHz in Region 3, and of assignments in the Region 2 Plan to protect the fixed-satellite service (space-to-Earth) in the band 12.5-12.7 GHz in Region 1 and in the band 12.2-12.7 GHz in Region 3.

The provisional limits that were adopted at WRC-00 are included in Resolution 540. The limits applicable to Region 2 BSS are reproduced below.

For interference caused by Region 2 BSS to Regions 1 and 3 FSS (space-to-Earth in the band 12.5-12.7 GHz in Region 1 and in the band 12.2-12.7 GHz in Region 3):

$-160 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $0^\circ \leq \theta < 0.054^\circ$</i>
$-137.46 + 17.74 \log \theta \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $0.054^\circ \leq \theta < 3.67^\circ$</i>
$-141.56 + 25 \log \theta \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $3.67^\circ \leq \theta < 11.54^\circ$</i>
$-115 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $11.54^\circ \leq \theta$</i>

where θ corresponds to the minimum geocentric angular separation between the interfering BSS and the interfered-with FSS space station. It is understood that, in the implementation of these criteria, the Bureau should take into account the pertinent station-keeping accuracy of the BSS and FSS space stations as filed by the notifying administrations.

NOTE – In addition, the 0.25 dB allowed increase over the pfd resulting from the original Plan assignments of all Regions should be maintained.

All Regions 1 and 3 FSS satellites are greater than 11.54° from the 101° W orbit location. Therefore the $-115 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$ level applies. As shown in the table in response to Section 3, the pfd limit per 27 MHz in Regions 1 and 3 is less than this level. Therefore, USABSS-13 is in compliance with this section.

7 Limits to the change in equivalent noise temperature to protect the fixed-satellite service (Earth-to-space) in Region 1 from modifications to the Region 2 Plan in the band 12.5-12.7 GHz

In order for a Region 2 modification not to affect FSS in Region 1, the $\Delta T / T$ resulting from the modification must be less than 4%, or less than the $\Delta T / T$ resulting from the assignment in the Region 2 Plan.

Searches of current Region 1 space station databases show no services operating in the band 12.5 - 12.7 GHz in the earth-to-space direction. Therefore, no Region 1 space stations can be affected and USABSS-13 is in compliance with Paragraph 7.

ATTACHMENT 2

APPENDIX S4 (ANNEX 2 TO APPENDIX S30)

USABSS-13

**BASIC CHARACTERISTICS TO BE FURNISHED IN NOTICES RELATING TO
SPACE STATIONS IN THE BROADCASTING-SATELLITE SERVICE**

APPENDIX S4 (ANNEX 2 TO APPENDIX S30) FOR USABSS-13

A.1 Identity of the satellite network

- a) Identity of a satellite network: USABSS-13
- b) Country and Beam Identification: USA; USAEH002
- f) Country symbol of the notifying administration: USA

A.2 Date of Bringing Into Use

- a) Date of Bringing into Use: October 1, 2001

A.3 Operation administration or agency

- A.3 Operating administration or agency: 120 (USA)

A.4 Orbital information

- a) For the case of a space station onboard a GSO satellite:
 - 1) nominal geographical longitude on the geostationary-satellite orbit: 101.2° W.L.
 - 2) planned longitudinal tolerance and inclination excursion: $\pm 0.05^\circ$ E-W; $\pm 0.05^\circ$ N-S

A.5 Coordination

A.6 Agreements

A.8 Rain Climatic Zone(s)

Rain climatic zones consistent with Figure 3 of Annex 5 of Appendix S30

A.11 Regular Hours of Operation

- A.11 Regular Hours of Operation: 24 hrs./day; 365 days/year

B.1 Designation of the satellite antenna beam

The USABSS-13 satellite contains 26 spot beams and one CONUS beam. Each beam has a unique MSPACE Beam Identification and GIMS Beam Name. Table 1 below is a complete list of USABSS-13 beams.

Table 1. USABSS-13 Beams

MSPACE Beam ID	GIMS Beam Name	MSPACE Beam ID	GIMS Beam Name	MSPACE Beam ID	GIMS Beam Name
USBSSS01	TS01	USBSSS10	TS10	USBSSS19	TS19
USBSSS02	TS02	USBSSS11	TS11	USBSSS20	TS20
USBSSS03	TS03	USBSSS12	TS12	USBSSS21	TS21
USBSSS04	TS04	USBSSS13	TS13	USBSSS22	TS22
USBSSS05	TS05	USBSSS14	TS14	USBSSS23	TS23
USBSSS06	TS06	USBSSS15	TS15	USBSSS24	TS24
USBSSS07	TS07	USBSSS16	TS16	USBSSS25	TS25
USBSSS08	TS08	USBSSS17	TS17	USBSSS26	TS26
USBSSS09	TS09	USBSSS18	TS18	USBSSCON	TCON

B.3 Geostationary Space Station Antenna Characteristics

- d) Pointing accuracy of the antenna: 0.1 degrees in any direction
- g) For the case of a space station submitted in accordance with Appendix S30:
 - 1. co-polar and cross-polar gain of antenna: see Table 2
 - 2. shape of the beam: all beams shaped
 - 3. for circular beams: not applicable
 - 4. for elliptical beams: not applicable
 - 5. for beams other than circular or elliptical shape:
 - co-polar and cross-polar gain contours: beam contours in GIMS format are provided at the end of this attachment. Beams are identified with their GIMS beam name as given in Table 1 above; also included with this application package is a CD-ROM containing the gxt files of all USABSS-13 beams.
 - beam aim point longitude and latitude: see Table 2

Table 2. USABSS-13 Beam Information

Beam	Co-pol Gain, dB	X-pol Gain, dB	Aim Point Long., W	Aim Point Lat., N	Beam	Co-pol Gain, dB	X-pol Gain, dB	Aim Point Long., W	Aim Point Lat., N
USBSSS01	48.4	16.5	68.7	44.3	USBSSS14	47.4	16.5	81.4	34.6
USBSSS02	48.7	16.5	77.7	34.8	USBSSS15	47.5	16.5	81.1	25.7
USBSSS03	48.5	16.5	81.9	27.8	USBSSS16	47.2	16.5	112.0	37.0
USBSSS04	48.6	16.5	80.4	41.2	USBSSS17	47.5	16.5	90.9	38.4
USBSSS05	48.3	16.5	87.1	43.7	USBSSS18	47.7	16.5	97.2	31.8
USBSSS06	48.6	16.5	87.0	34.4	USBSSS19	46.0	16.5	111.9	34.2
USBSSS07	47.7	16.5	94.5	39.0	USBSSS20	44.7	16.5	122.6	39.2
USBSSS08	48.1	16.5	95.6	29.6	USBSSS21	45.5	16.5	75.3	41.4
USBSSS09	44.5	16.5	105.0	40.1	USBSSS22	45.8	16.5	84.3	32.1
USBSSS10	46.4	16.5	121.5	46.3	USBSSS23	45.6	16.5	86.1	42.0
USBSSS11	46.9	16.5	116.8	34.1	USBSSS24	44.2	16.5	91.1	34.2
USBSSS12	47.4	16.5	72.8	41.3	USBSSS25	45.0	16.5	99.4	28.9
USBSSS13	47.4	16.5	82.5	41.3	USBSSS26	44.4	16.5	111.6	40.5
					USBSSCON	35.5	4.6	100.0	40.0

C.2 Assigned frequency (frequencies)

- a) In accordance with Appendix S30, channel numbers 2 – 32 even.

NOTE: Channels will not be operated simultaneously with USABSS-1R or USABSS-1 (currently operating at 110° W.L. and pending entry as modification)

C.4 Class of station(s) and Nature of service

Class of Station: EV

Nature of Service: CR

C.6 Polarization

Type of Polarization: Circular

Sense of Polarization: left-hand

C.7 Class of Emission

- a) Class of emission and necessary bandwidth:

Class of Emission: 24M0G7W

Necessary Bandwidth: 24 MHz

C.8 Power characteristics of the transmission

- h) Table 3 lists the power supplied to the antenna for each beam and each channel. Also provided for each beam and channel is the maximum power density per Hz.

Maximum power density per Hz for 24M0G7W emission: see Table 3

Table 3. USABSS-13 Transmission Characteristics

Beam	BSS CH.	Power to Antenna dBW	Max. Power Density per Hz			Beam	BSS CH.	Power to Antenna dBW	Max. Power Density per Hz		
			5 MHz	40 kHz	4 kHz				5 MHz	40 kHz	4 kHz
USBSSS01	28	14.9	-58.9	-58.9	-58.9	USBSSS14	4	15.3	-58.5	-58.5	-58.5
USBSSS02	28	16.0	-57.8	-57.8	-57.8	USBSSS14	12	13.2	-60.6	-60.6	-60.6
USBSSS03	20	13.5	-60.3	-60.3	-60.3	USBSSS14	20	13.1	-60.7	-60.7	-60.7
USBSSS03	28	16.7	-57.1	-57.1	-57.1	USBSSS15	12	13.4	-60.4	-60.4	-60.4
USBSSS04	28	14.2	-59.6	-59.6	-59.6	USBSSS15	26	13.6	-60.2	-60.2	-60.2
USBSSS05	18	12.8	-61.0	-61.0	-61.0	USBSSS16	12	8.5	-65.3	-65.3	-65.3
USBSSS05	28	7.7	-66.1	-66.1	-66.1	USBSSS16	20	8.8	-65.0	-65.0	-65.0
USBSSS06	18	14.8	-59.0	-59.0	-59.0	USBSSS17	20	9.3	-64.5	-64.5	-64.5
USBSSS06	28	13.3	-60.5	-60.5	-60.5	USBSSS18	12	10.7	-63.1	-63.1	-63.1
USBSSS07	28	8.6	-65.2	-65.2	-65.2	USBSSS18	20	12.7	-61.1	-61.1	-61.1
USBSSS08	28	12.9	-60.9	-60.9	-60.9	USBSSS19	20	11.8	-62.0	-62.0	-62.0
USBSSS09	4	11.5	-62.3	-62.3	-62.3	USBSSS20	4	9.4	-64.4	-64.4	-64.4
USBSSS09	12	11.8	-62.0	-62.0	-62.0	USBSSS20	12	7.7	-66.1	-66.1	-66.1
USBSSS10	18	9.7	-64.1	-64.1	-64.1	USBSSS20	20	10.7	-63.1	-63.1	-63.1
USBSSS10	28	11.7	-62.1	-62.1	-62.1	USBSSS21	18	15.3	-58.5	-58.5	-58.5
USBSSS11	18	12.2	-61.6	-61.6	-61.6	USBSSS21	26	12.4	-61.4	-61.4	-61.4
USBSSS11	28	13.0	-60.8	-60.8	-60.8	USBSSS22	26	15.5	-58.3	-58.3	-58.3
USBSSS12	4	13.4	-60.4	-60.4	-60.4	USBSSS23	26	14.3	-59.5	-59.5	-59.5
USBSSS12	12	13.5	-60.3	-60.3	-60.3	USBSSS24	4	15.3	-58.5	-58.5	-58.5
USBSSS12	20	12.5	-61.3	-61.3	-61.3	USBSSS25	26	12.1	-61.7	-61.7	-61.7
USBSSS13	4	12.1	-61.7	-61.7	-61.7	USBSSS26	26	13.8	-60.0	-60.0	-60.0
USBSSS13	12	15.0	-58.8	-58.8	-58.8	USBSSCON	2, 10	22.7	-51.1	-51.1	-51.1
USBSSS13	20	12.1	-61.7	-61.7	-61.7						

C.9 Information on modulation characteristics

- b) In the case of a space station submitted in accordance with Appendix S30:
1. type of modulation: QPSK
 2. pre-emphasis characteristics: not applicable
 3. TV standard: not applicable
 4. sound-broadcasting characteristics: time division multiplexed compressed digital data
 5. frequency deviation: not applicable
 6. composition of the baseband: time division multiplexed compressed video and audio
 7. type of multiplexing of the video and sound signal: time division multiplex
 8. energy dispersal characteristics: carrier will always be modulated
 9. digital modulation: effective bit rate: 30.32 Mbps (6/7 code rate), 23.58 Mbps (2/3 code rate); transmitted bit rate: 40 Mbps
 10. roll-off factor of the filter of the receiver: in accordance with ITU-R BO1293-1
- d) For stations operating in a frequency band subject to Nos. S22.5C, S22.5D or S22.5F provide:
- the type of mask;
 - the mask identification code.
- Not applicable

C.11 Service Area

- c) Service Area: Contiguous US, Alaska and Hawaii (see Figure 1)

Test points:

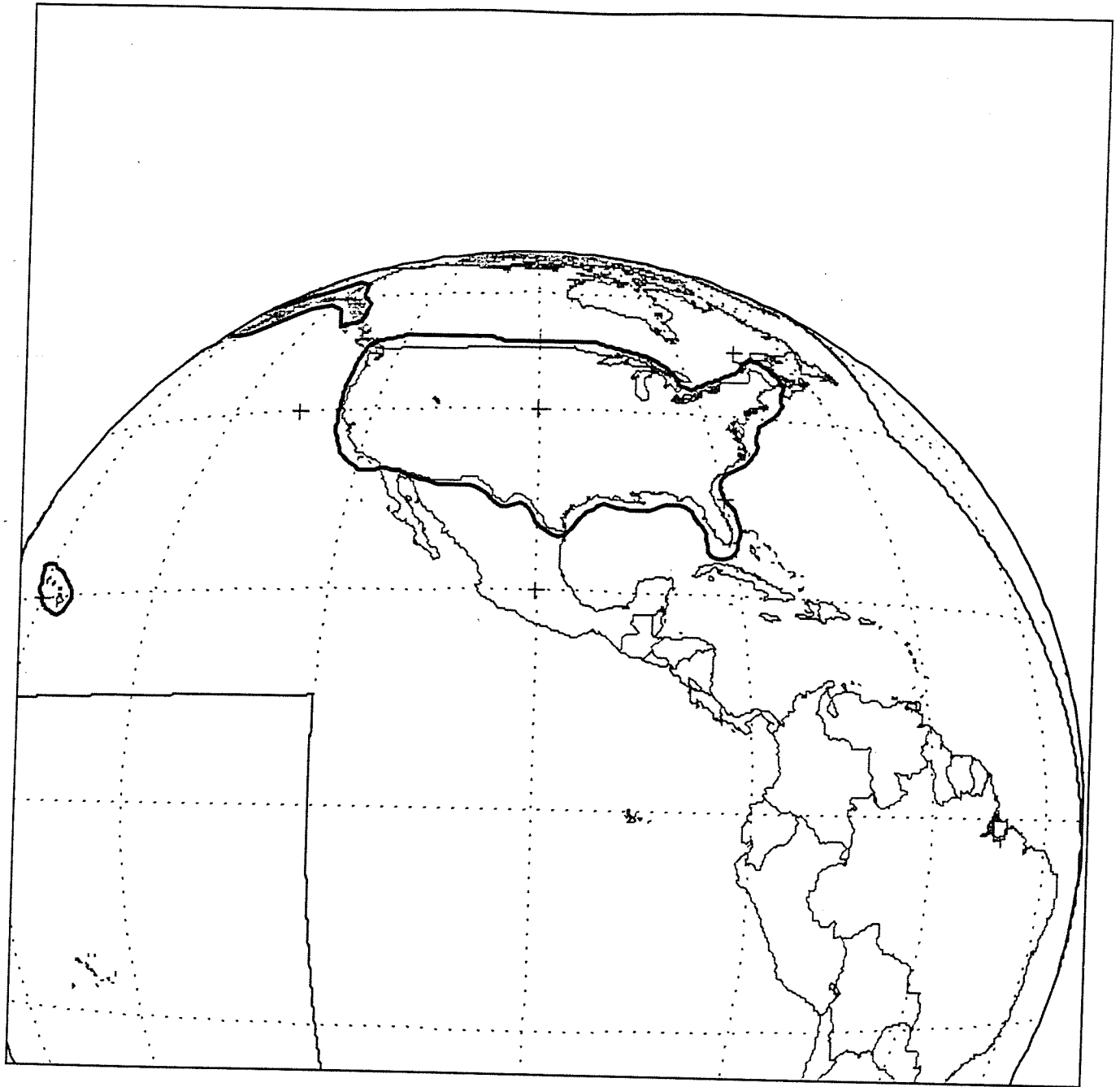
Test Point	Lat., N	Long., W	Test Point	Lat., N	Long., W
1	47.4	69.2	11	35.0	113.0
2	44.8	66.9	12	39.2	104.5
3	24.6	81.8	13	44.0	96.0
4	26.0	97.2	14	36.0	97.0
5	32.5	117.1	15	40.0	87.0
6	40.4	124.2	16	41.0	77.0
7	48.4	124.7	17	36.0	78.0
8	49.0	111.0	18	21.3	157.9
9	49.4	95.1	19	58.2	134.3
10	43.0	115.0	20	61.1	149.5

C.15 Description of the group(s) required in the case of non-simultaneous emissions

USABSS-13's CONUS beam (USBSSCON) is grouped in Group 20 with the Plan beam USAEH002, and space stations USABSS-2, USABSS-2A, and USABSS-1R at 101° W.L. The USBSSCON beam will not be operated simultaneously on the same channel with any other space station in Group 20.

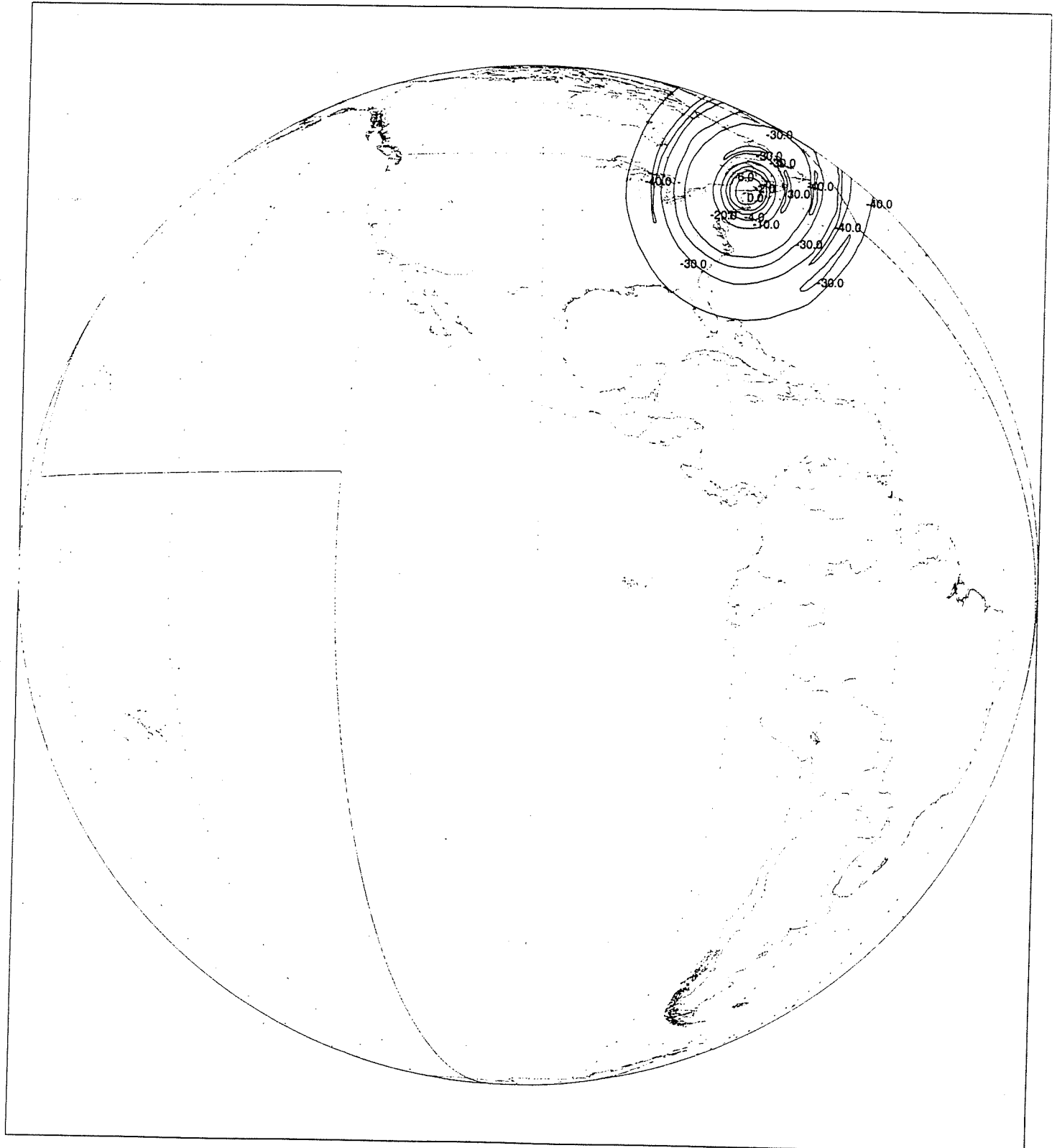
USABSS-13's spot beams (USBSSS01 – USBSSS26) are not grouped. The spot beams will transmit simultaneously on the same channels as other USABSS-13 spot beams, but not on the same channels as USABSS-13's CONUS beam or any other Group 20 beam.

Figure 1. USABSS-13 Downlink Service Area (Item C.11)



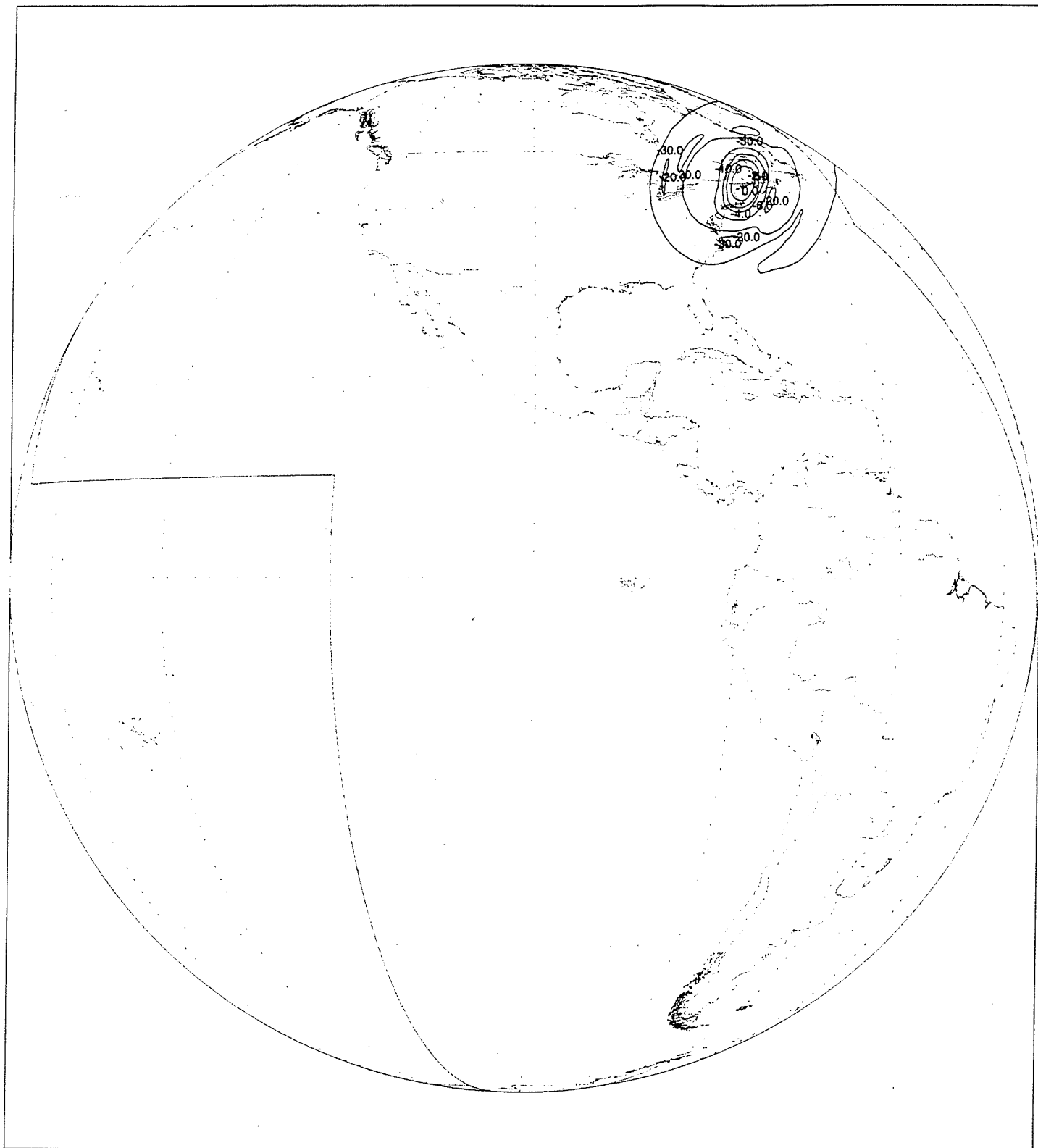
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS01
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

	Antenna boresight
——	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB
=====	-40 dB

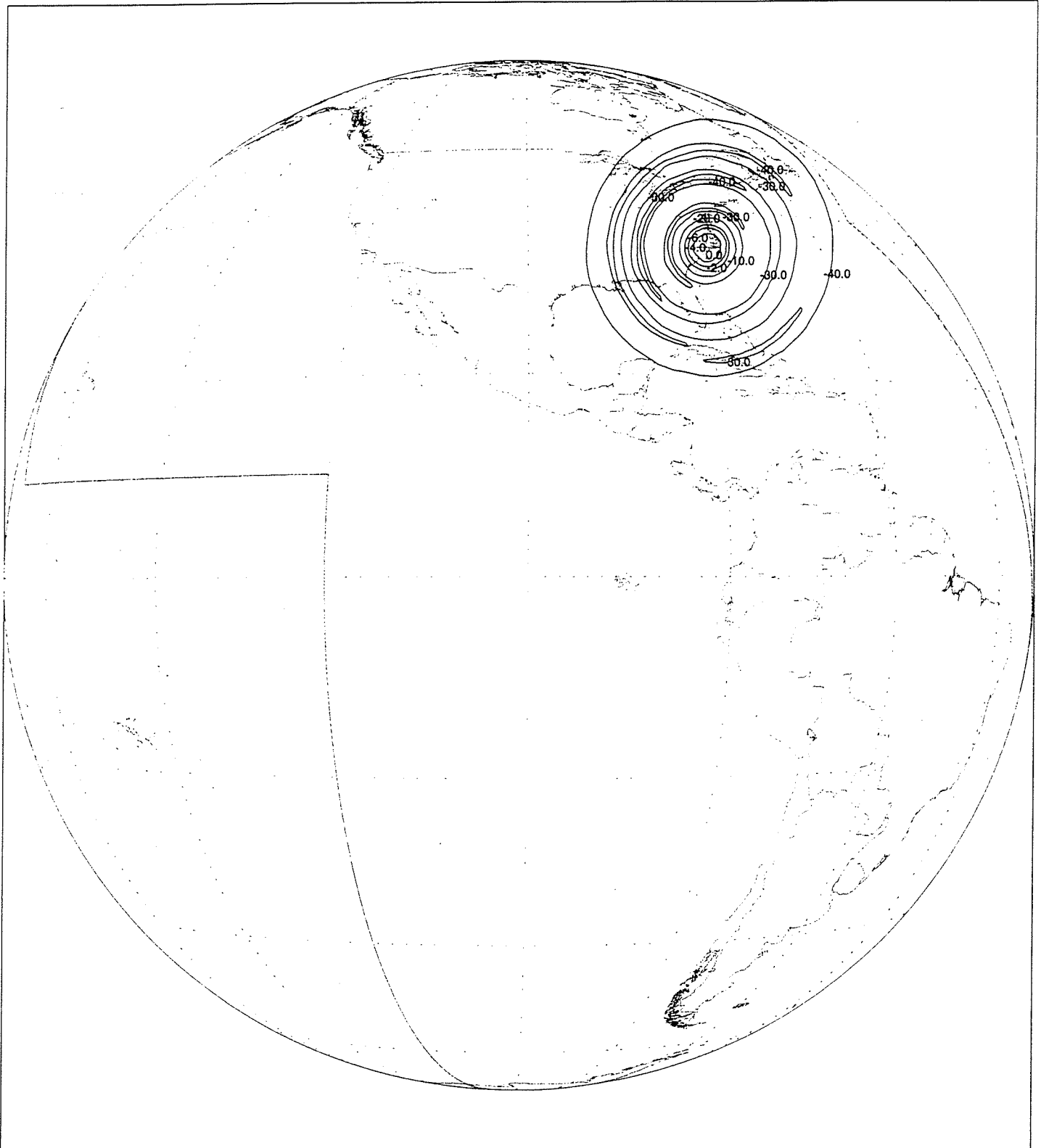
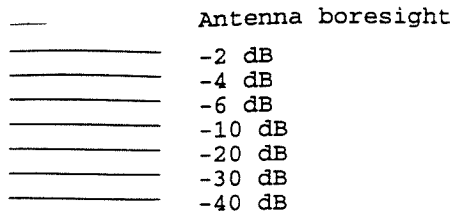


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS01
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

Antenna boresight
—
=====

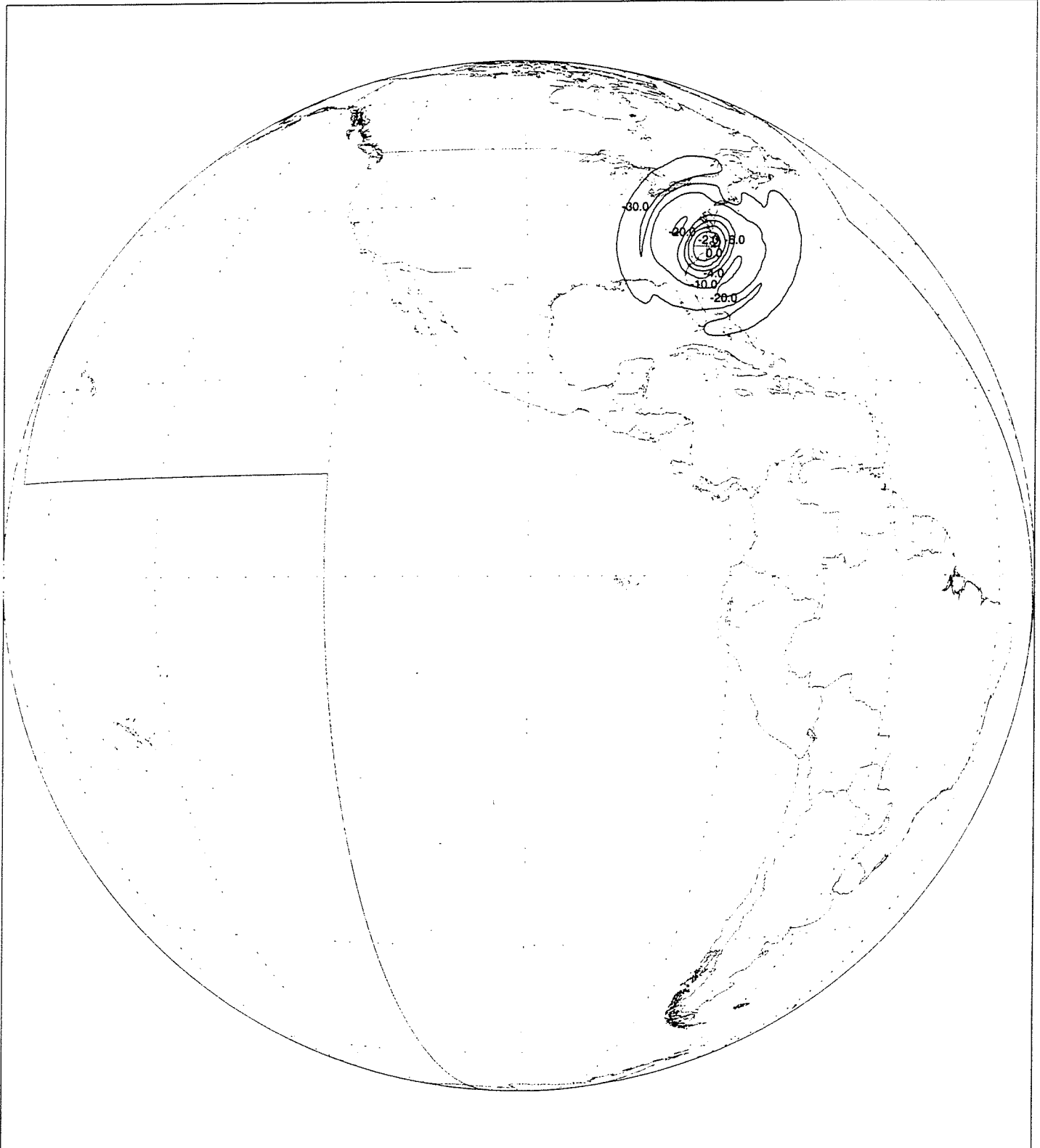


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS02
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000



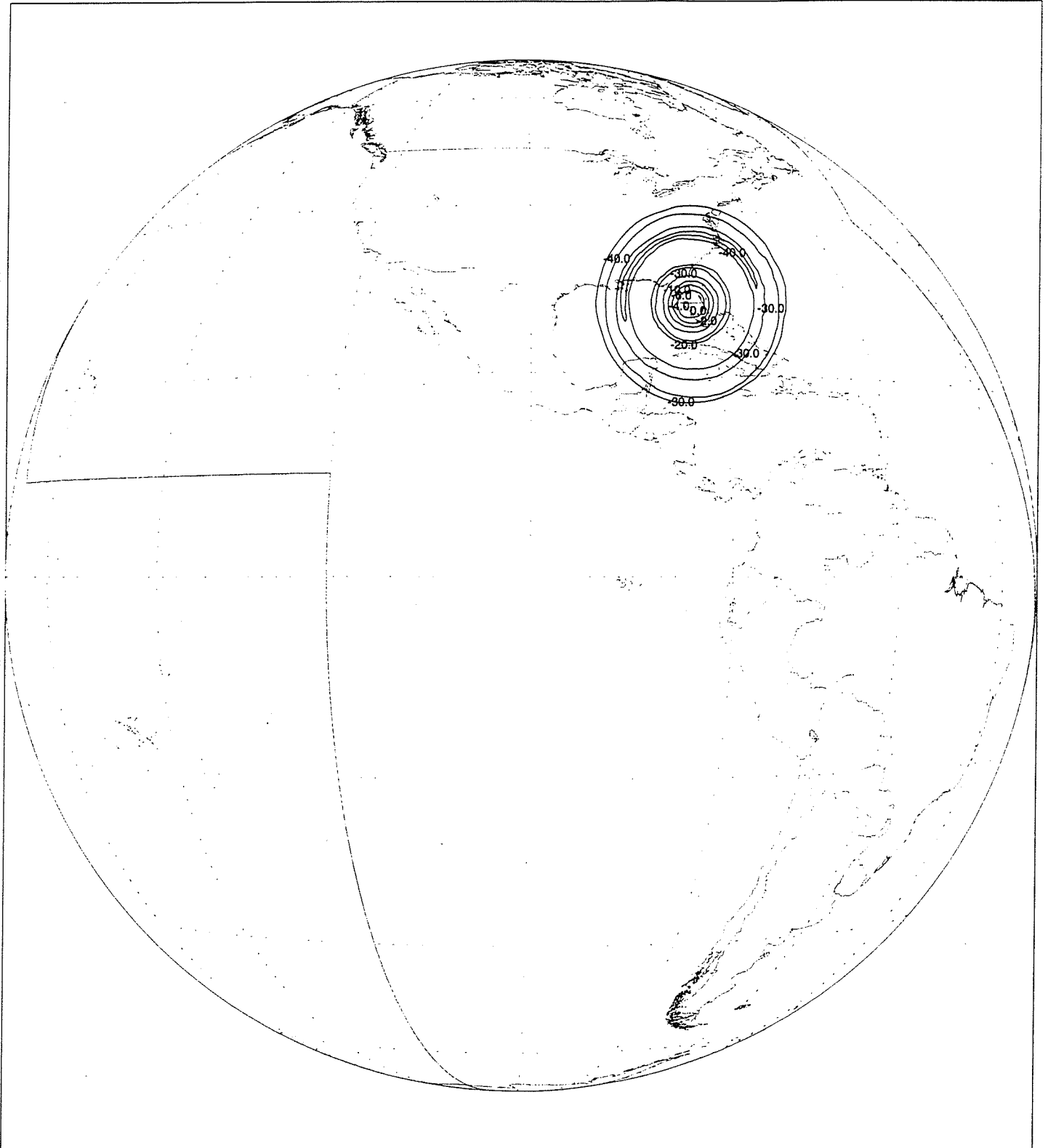
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS02
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

Antenna boresight	
—	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB



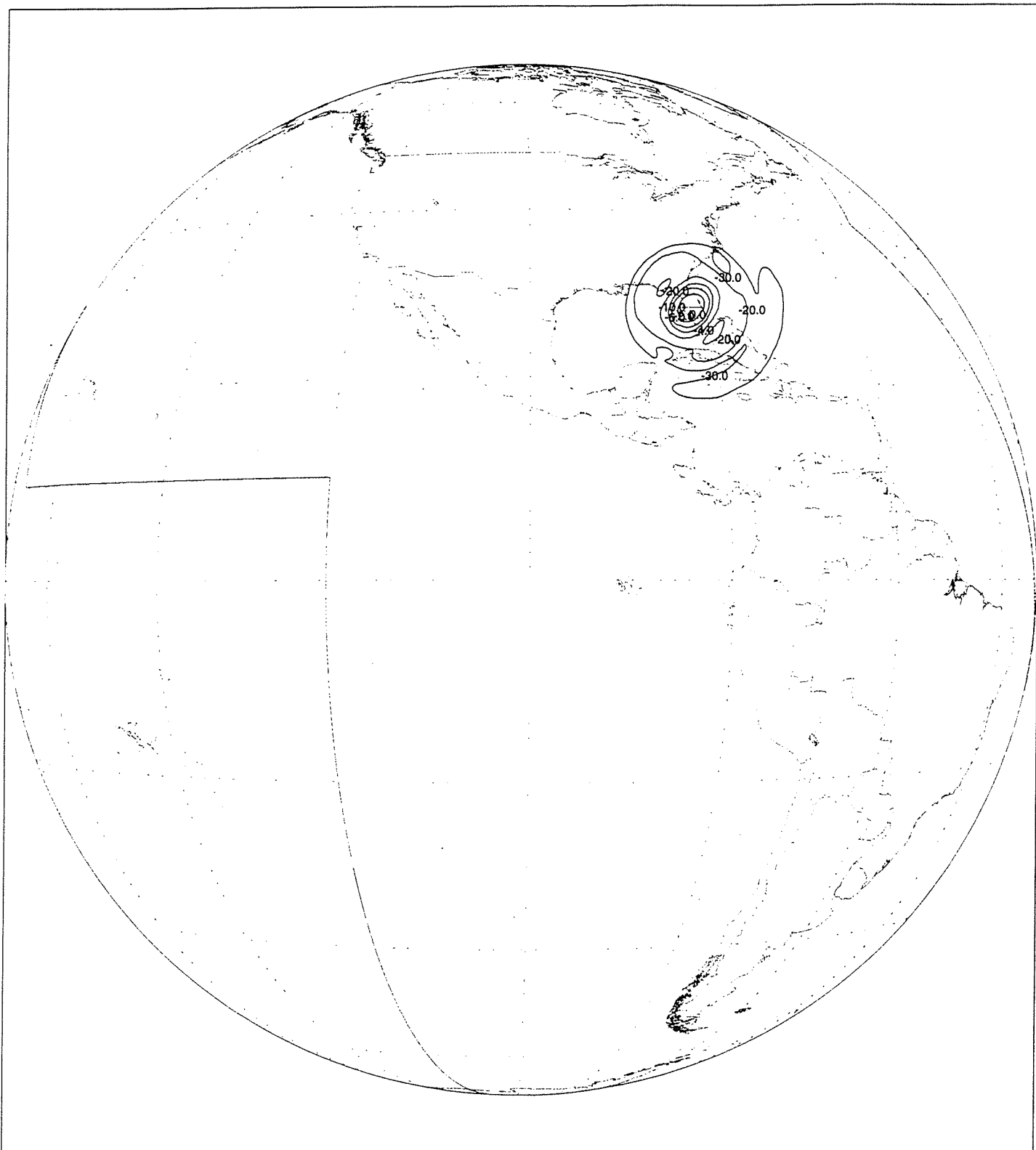
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS03
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
—	-2 dB
—	-4 dB
—	-6 dB
—	-10 dB
—	-20 dB
—	-30 dB
—	-40 dB

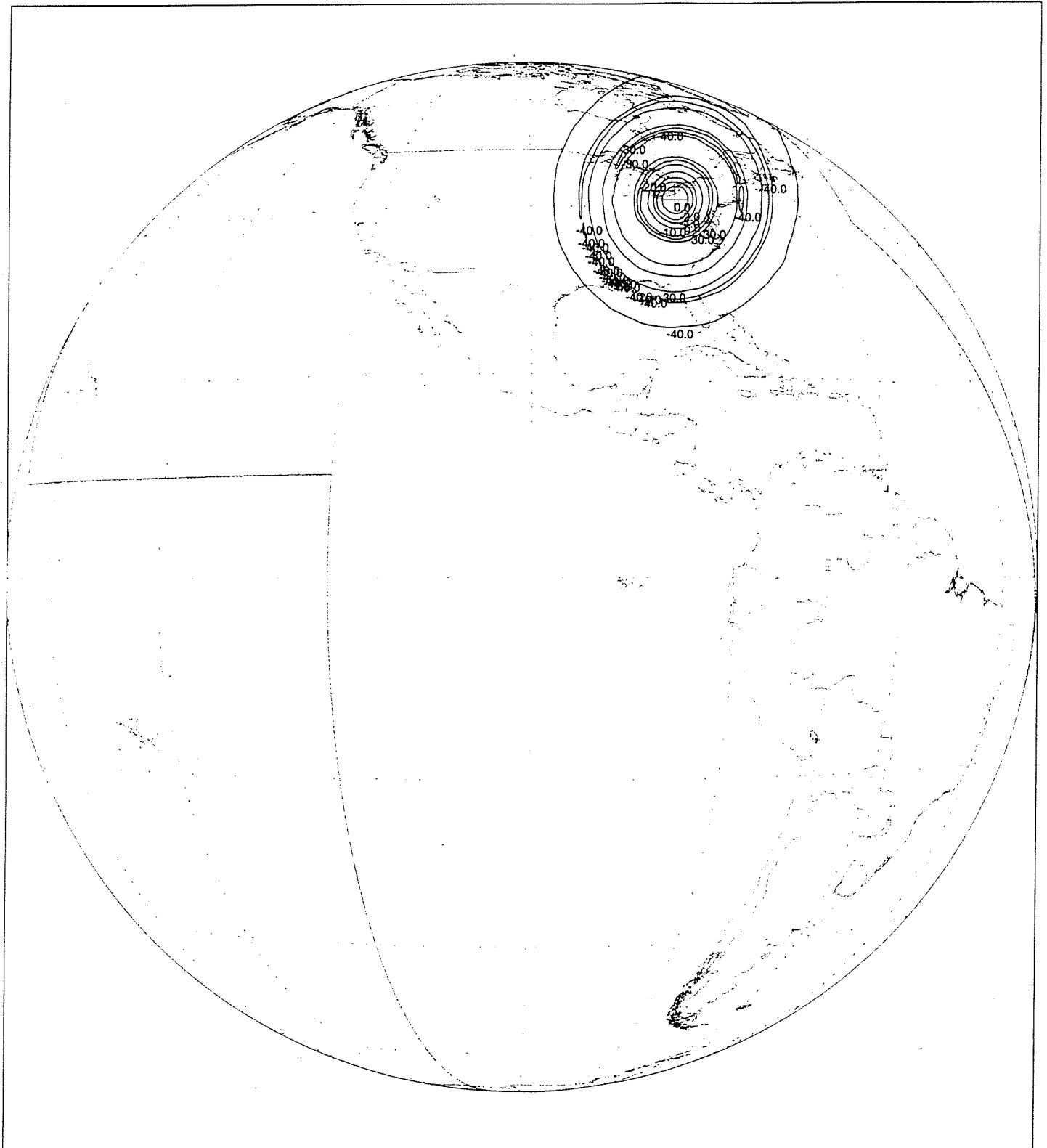
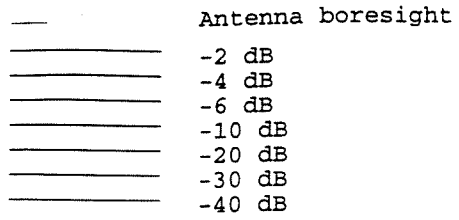


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS03
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

Antenna boresight	
—	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB

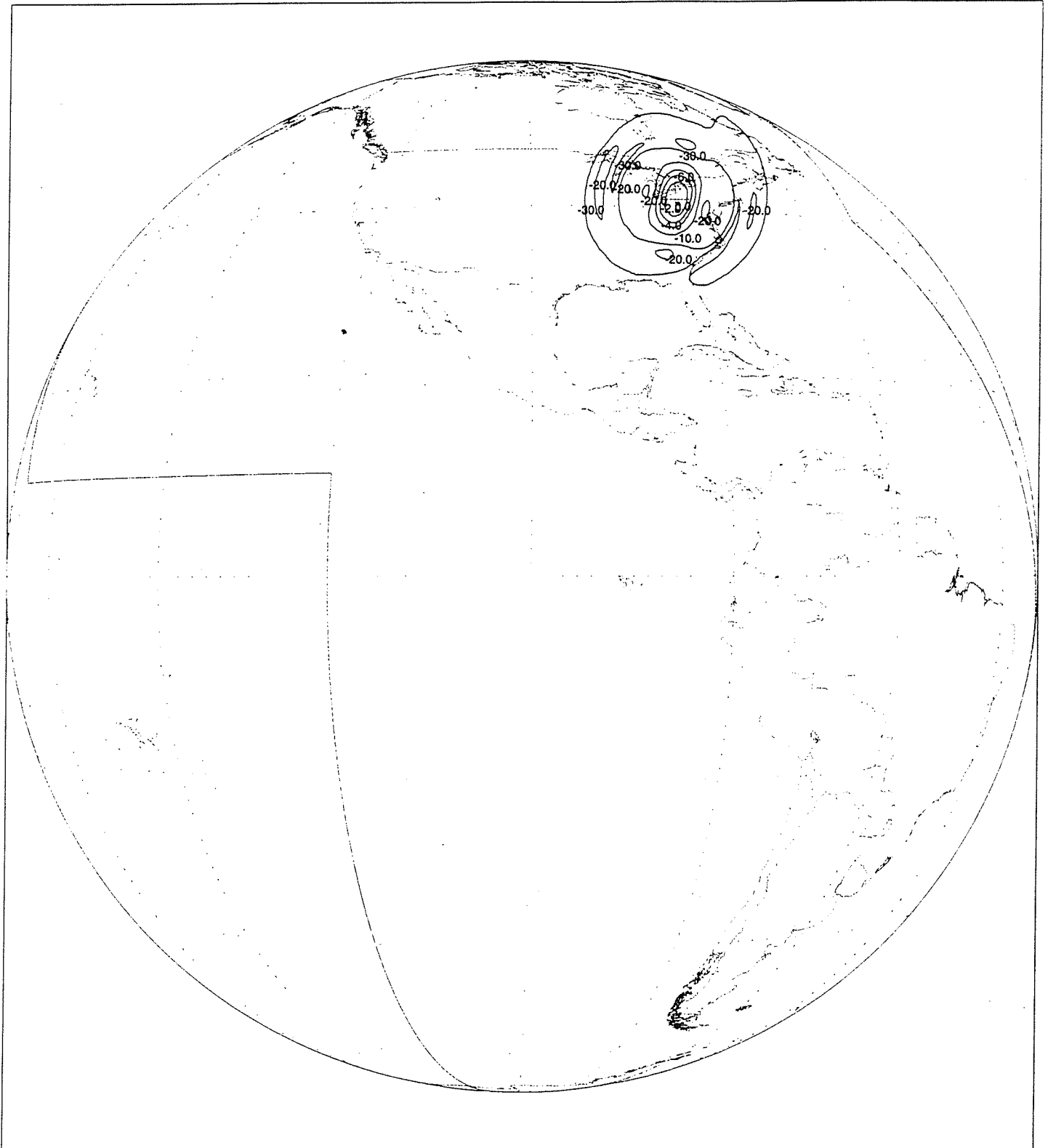


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS04
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000



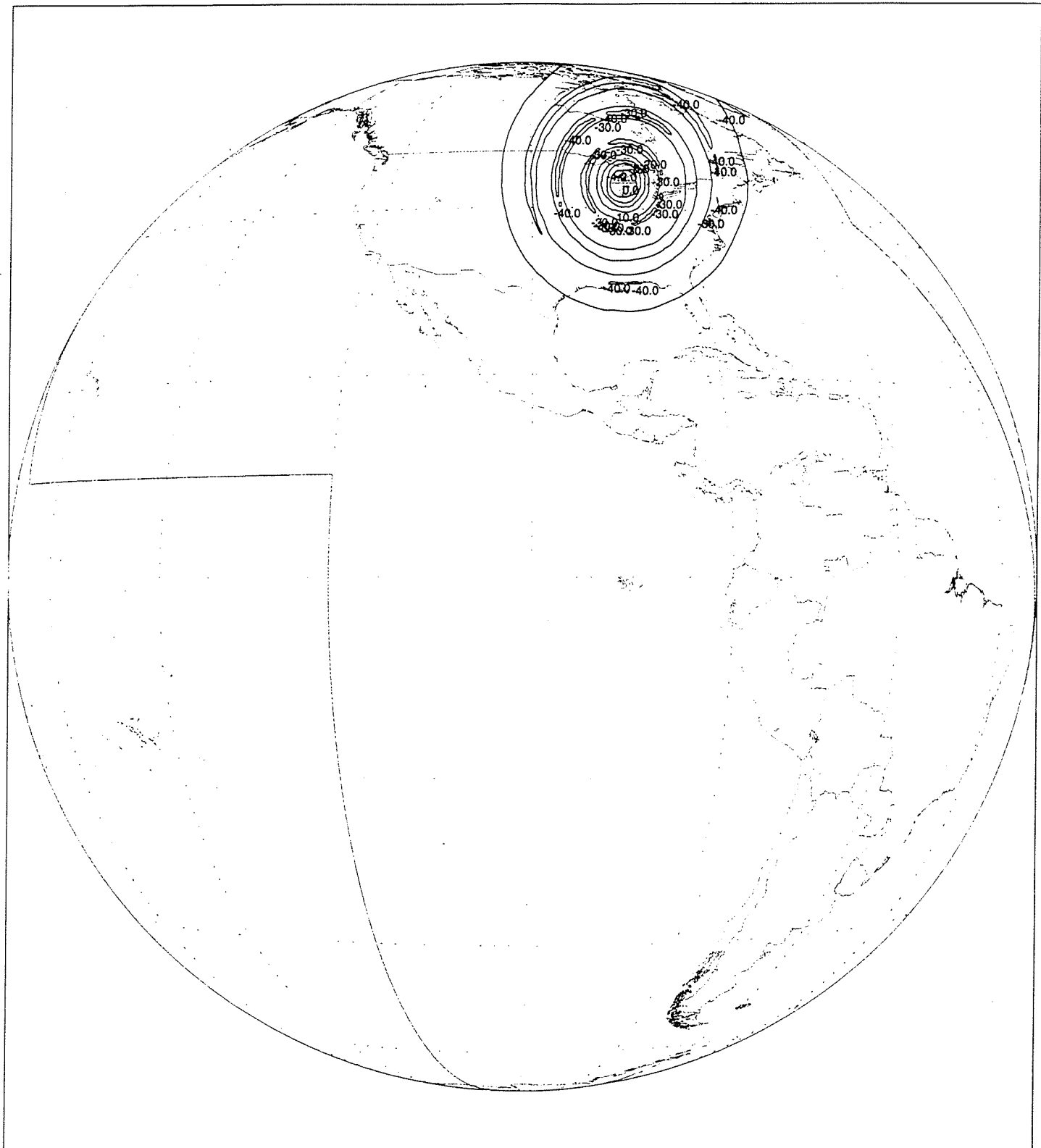
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS04
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
=====	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB

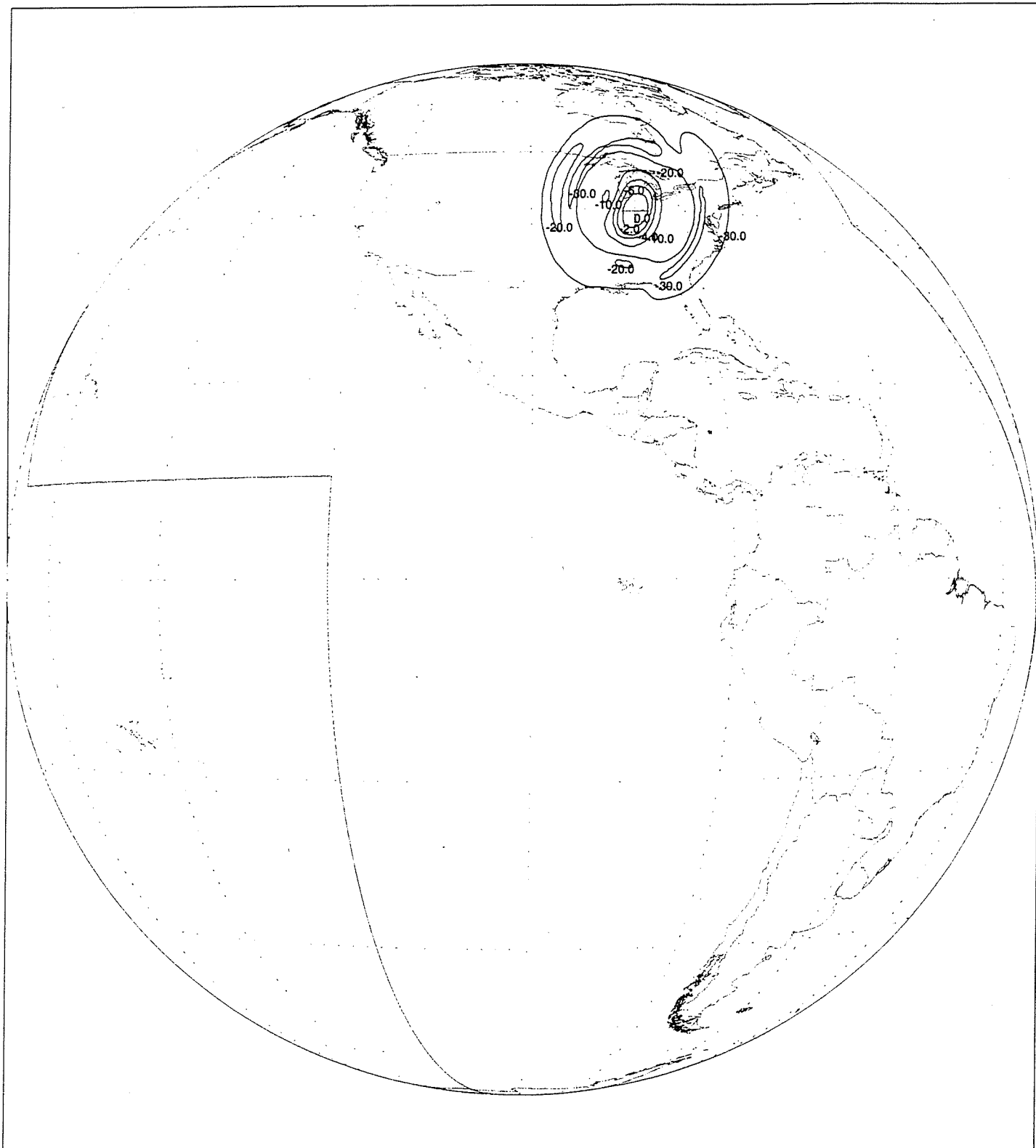
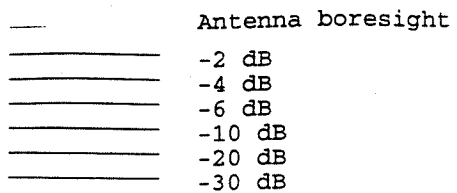


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS05
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
—————	-2 dB
—————	-4 dB
—————	-6 dB
—————	-10 dB
—————	-20 dB
—————	-30 dB
—————	-40 dB

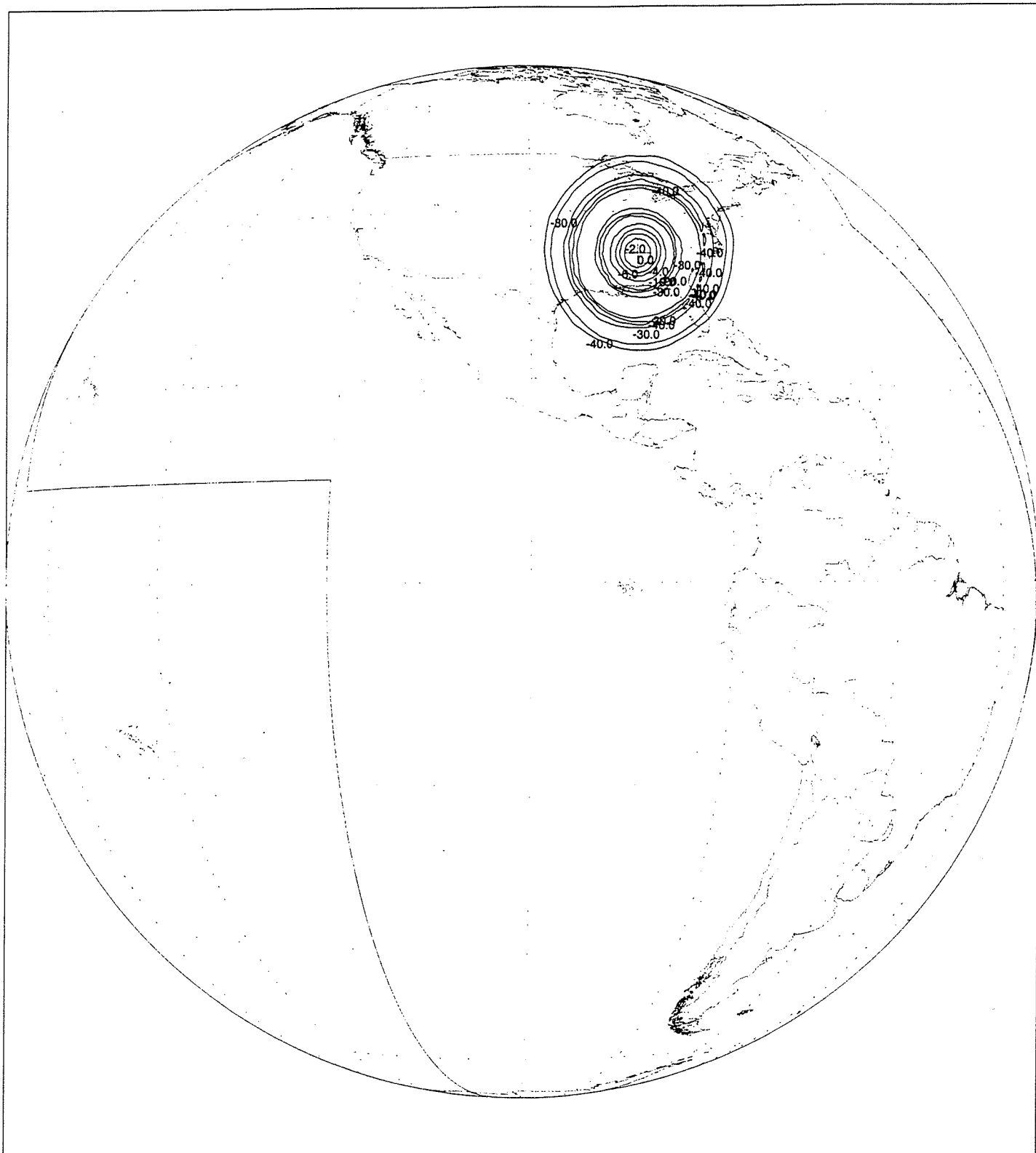


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS05
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000



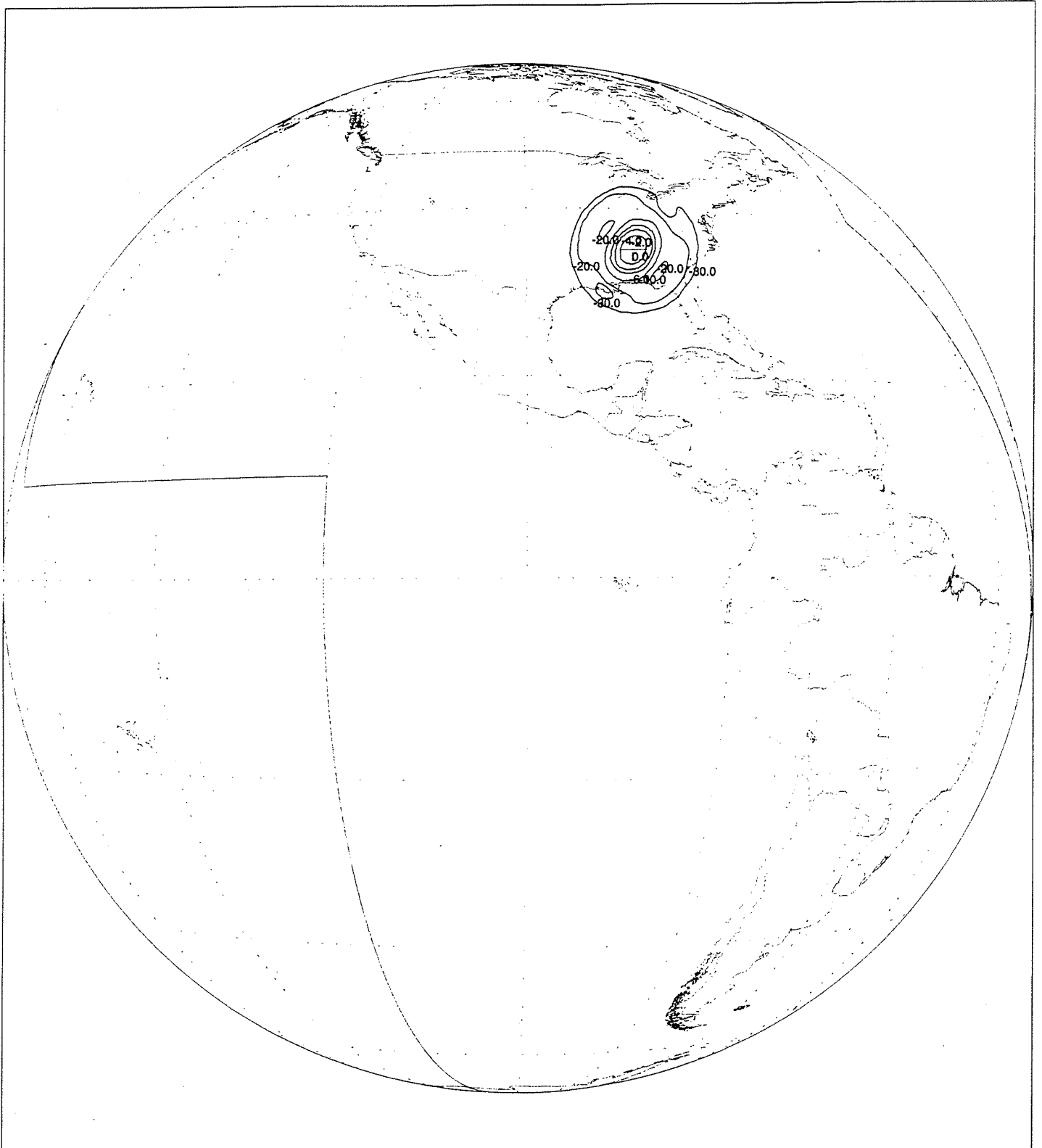
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS06
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

	Antenna boresight
—	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB
=====	-40 dB

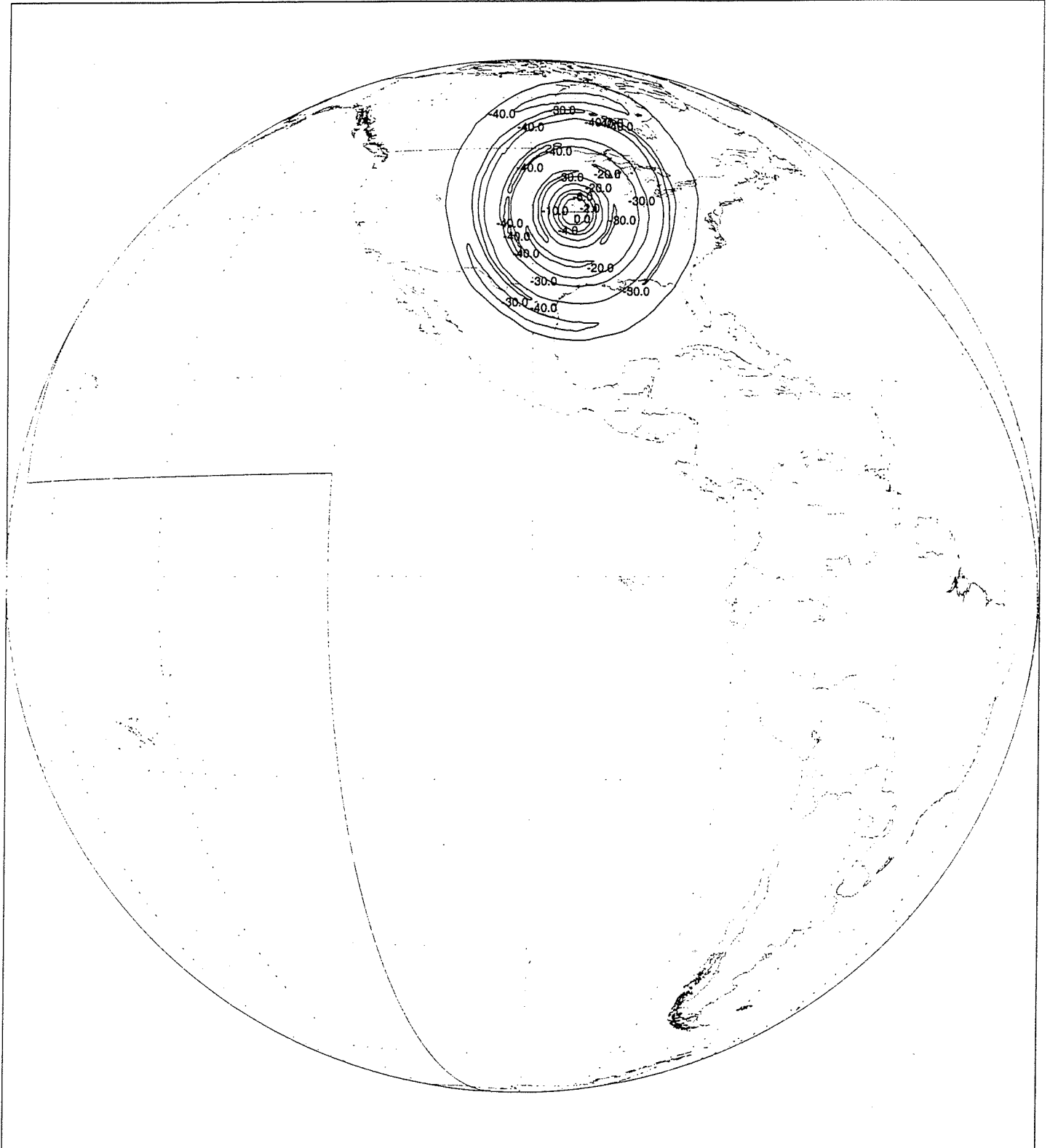
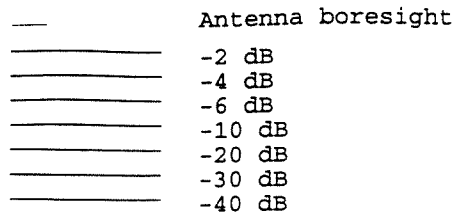


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS06
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

	Antenna boresight
—	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB

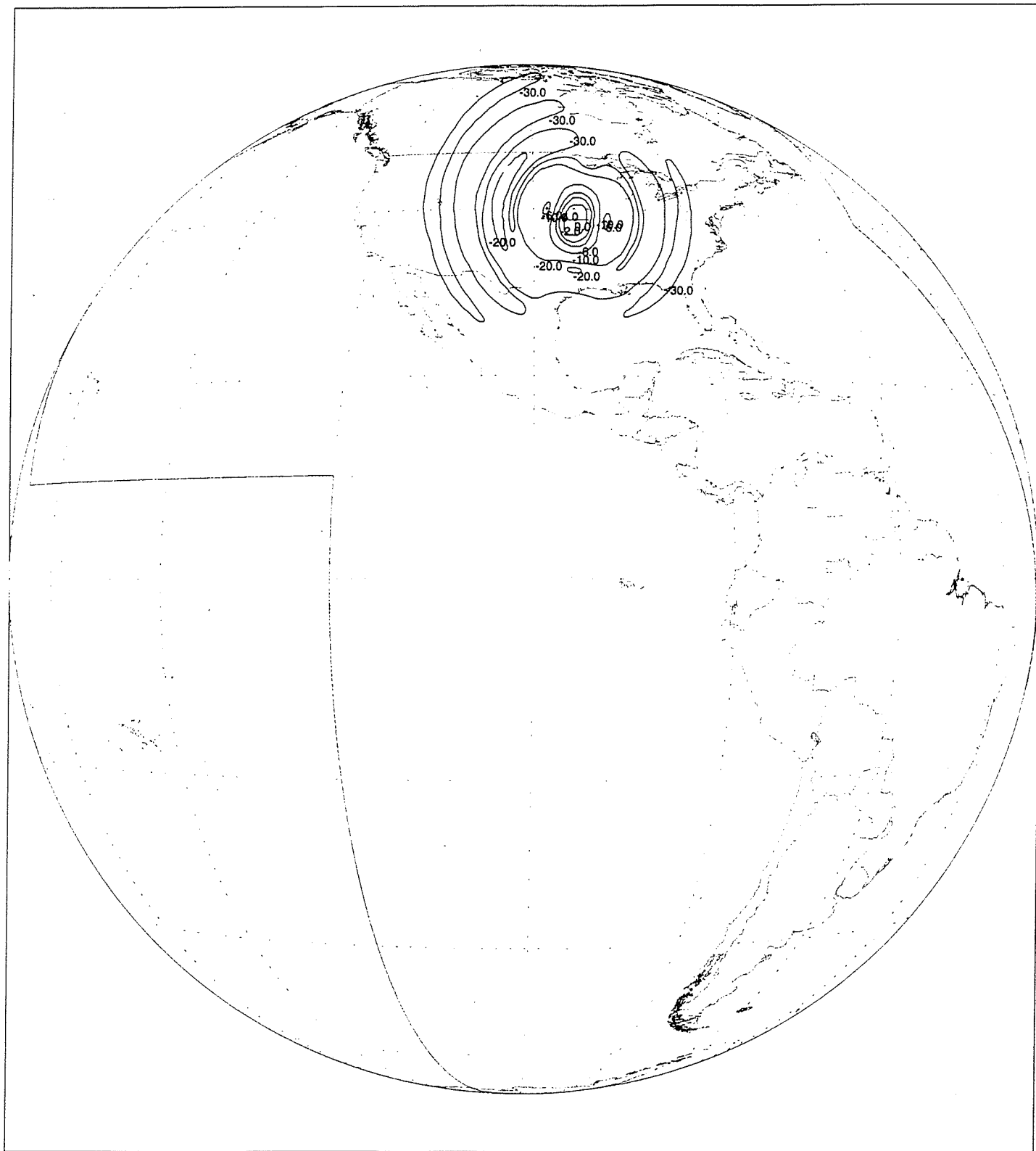


Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS07
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000



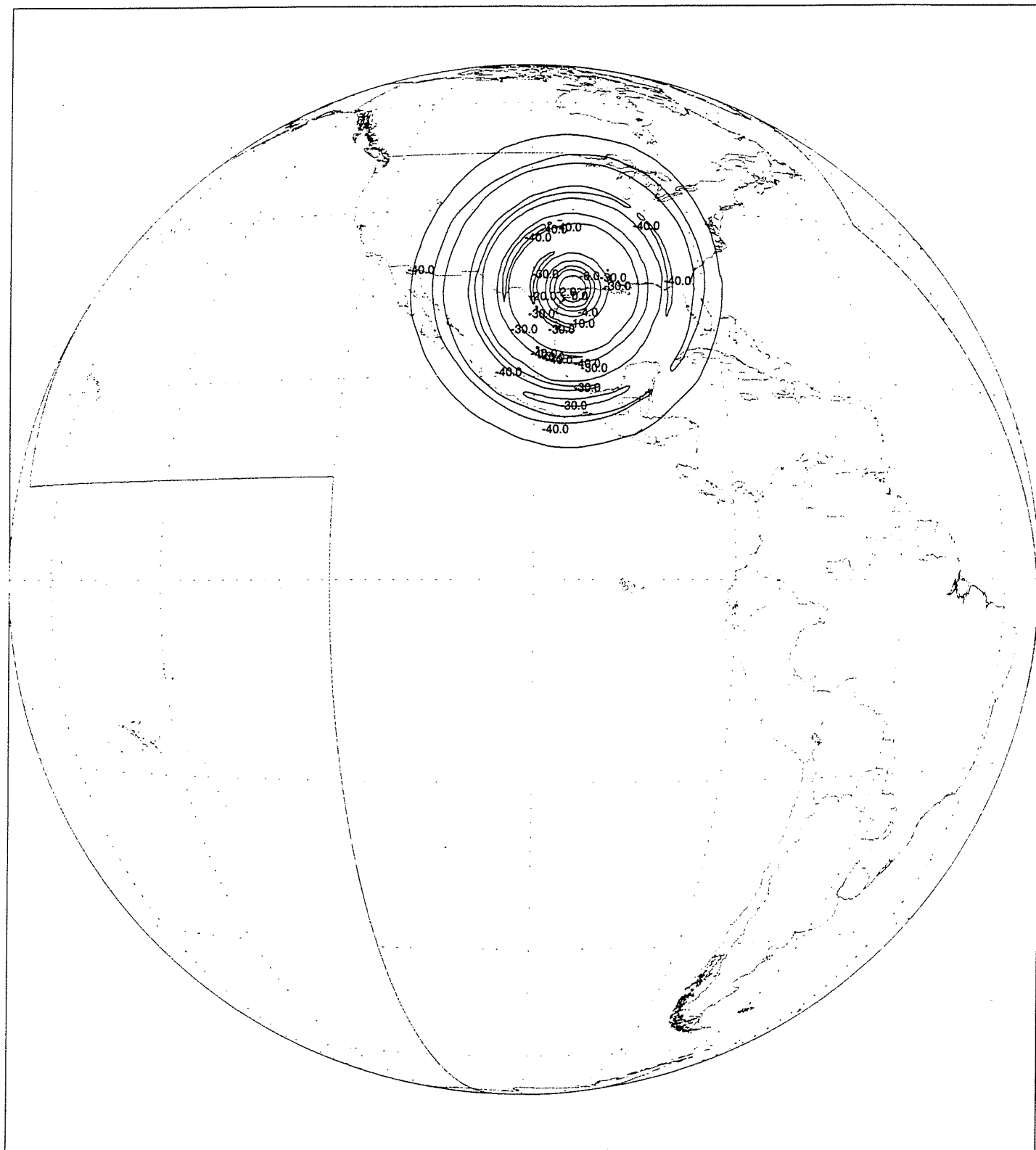
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS07
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
—	-2 dB
—	-4 dB
—	-6 dB
—	-10 dB
—	-20 dB
—	-30 dB



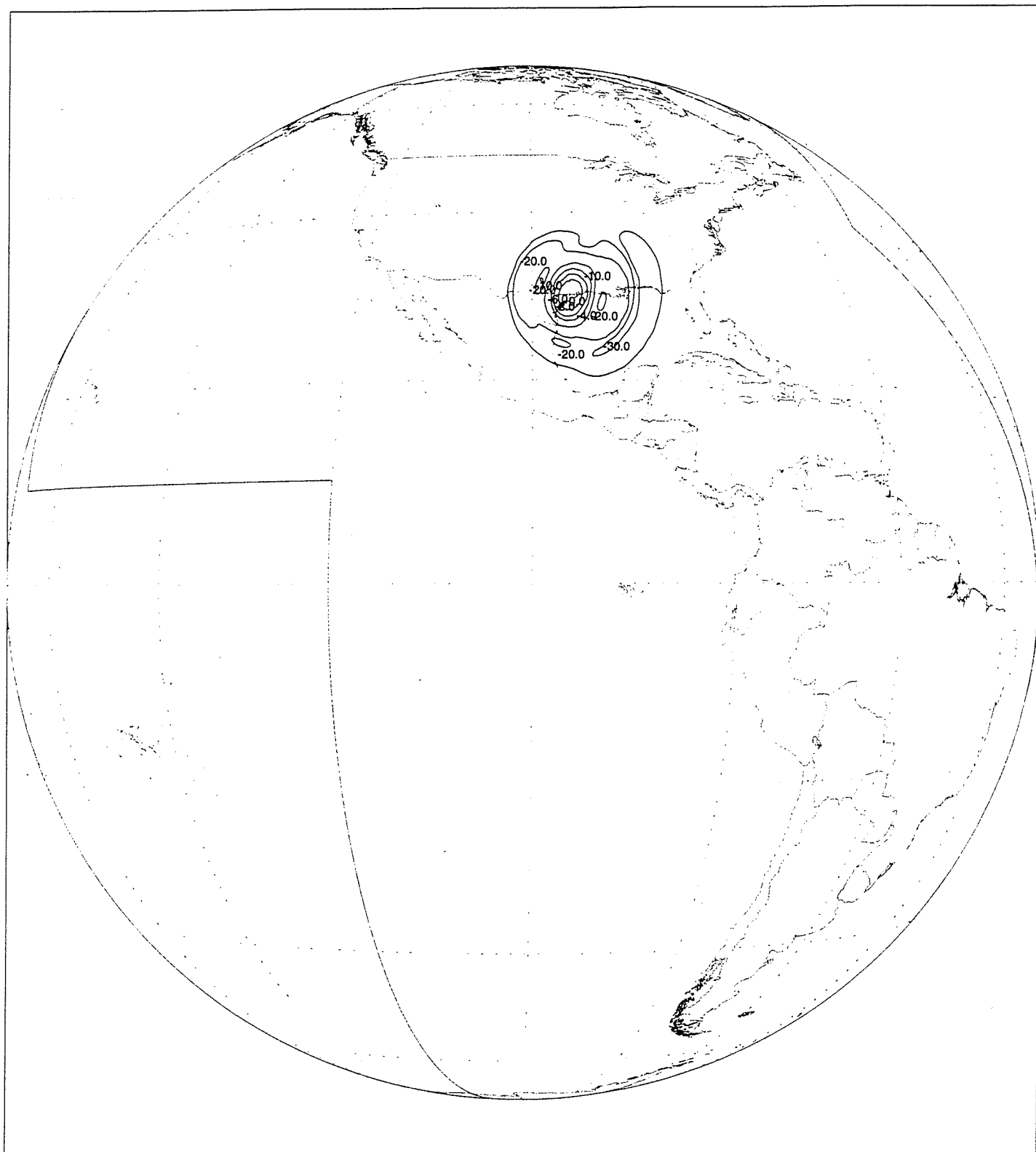
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS08
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
=====	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB
=====	-40 dB



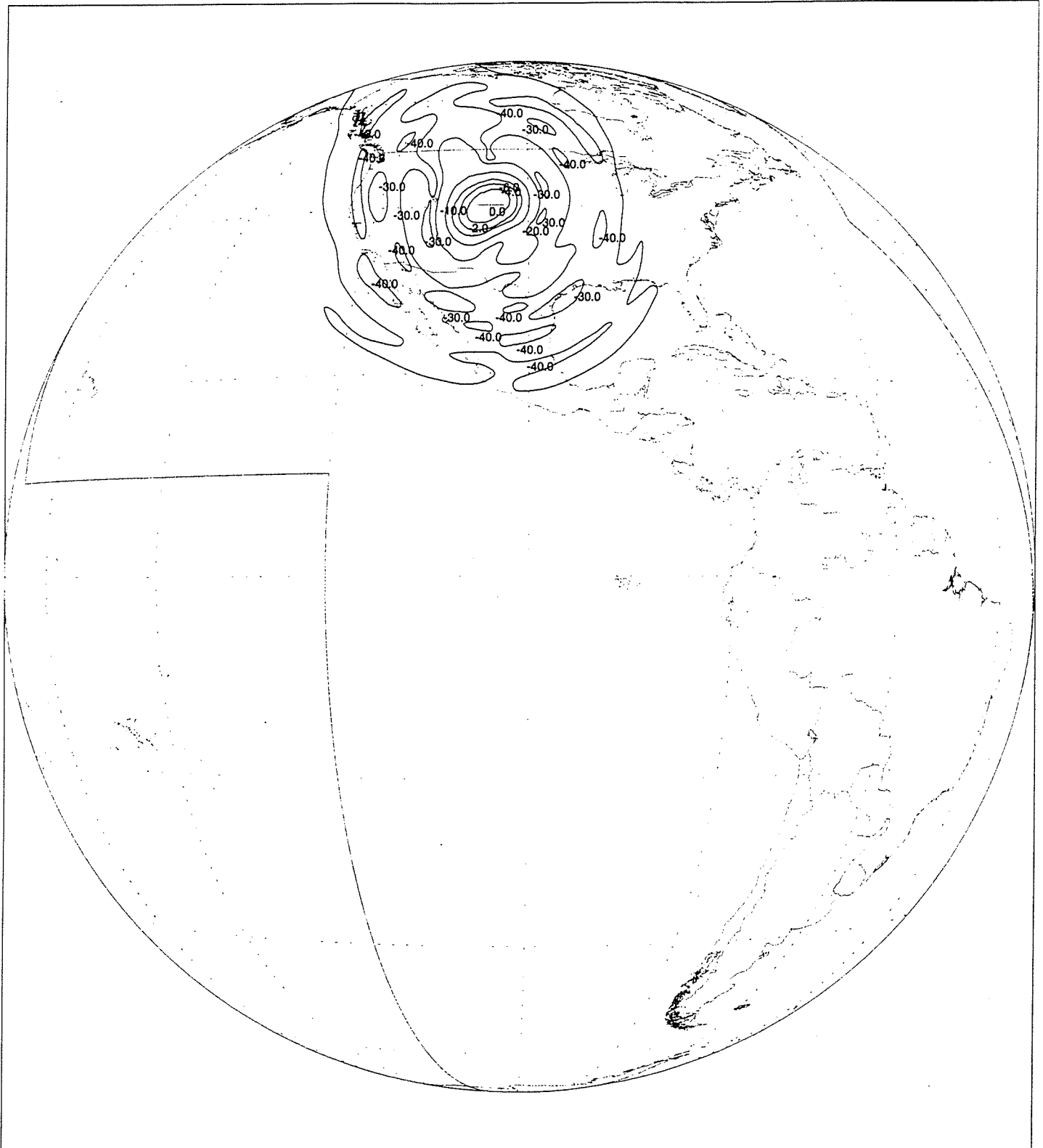
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS08
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

Antenna boresight	
—	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB



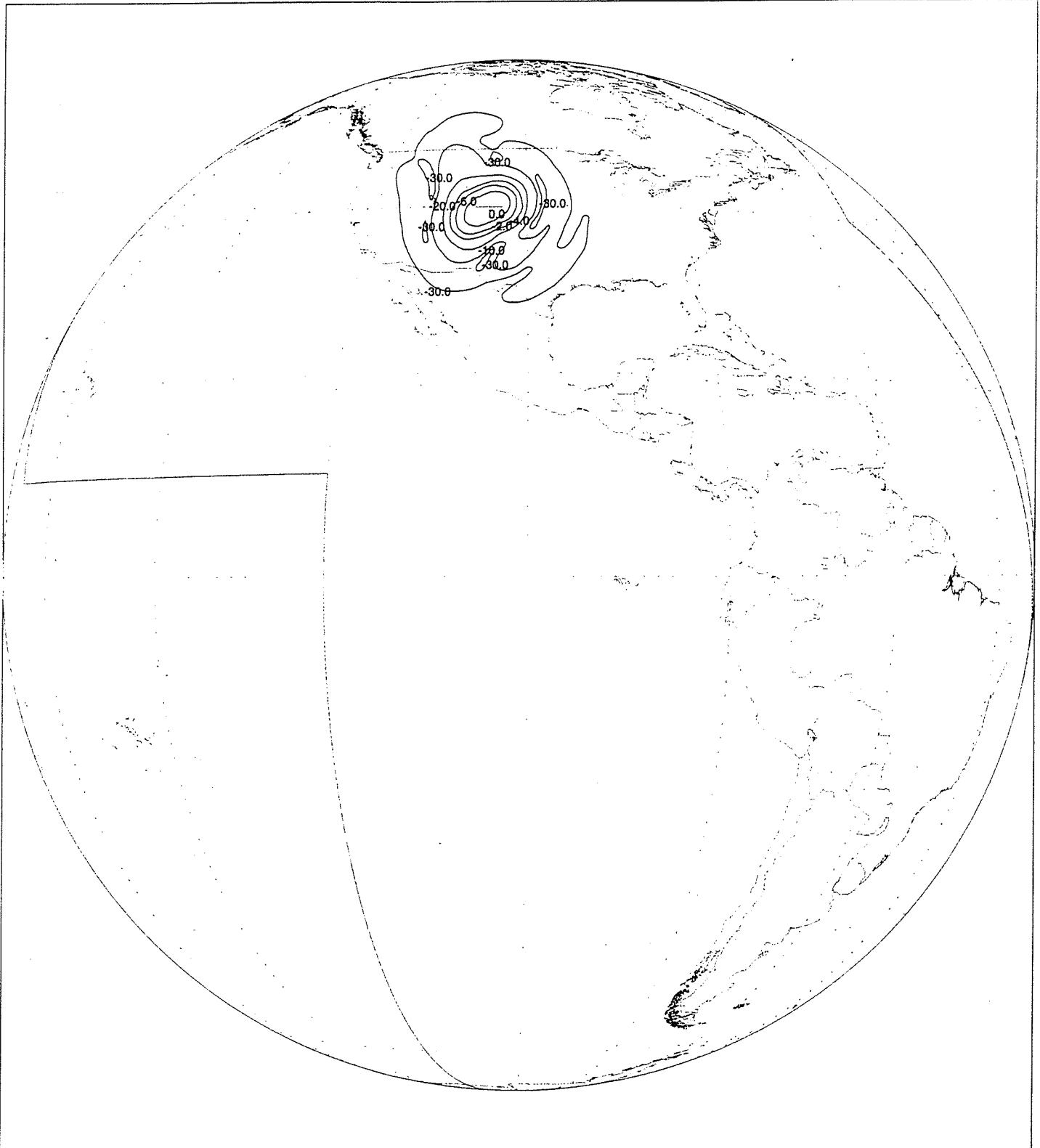
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS09
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
—	-2 dB
—	-4 dB
—	-6 dB
—	-10 dB
—	-20 dB
—	-30 dB
—	-40 dB



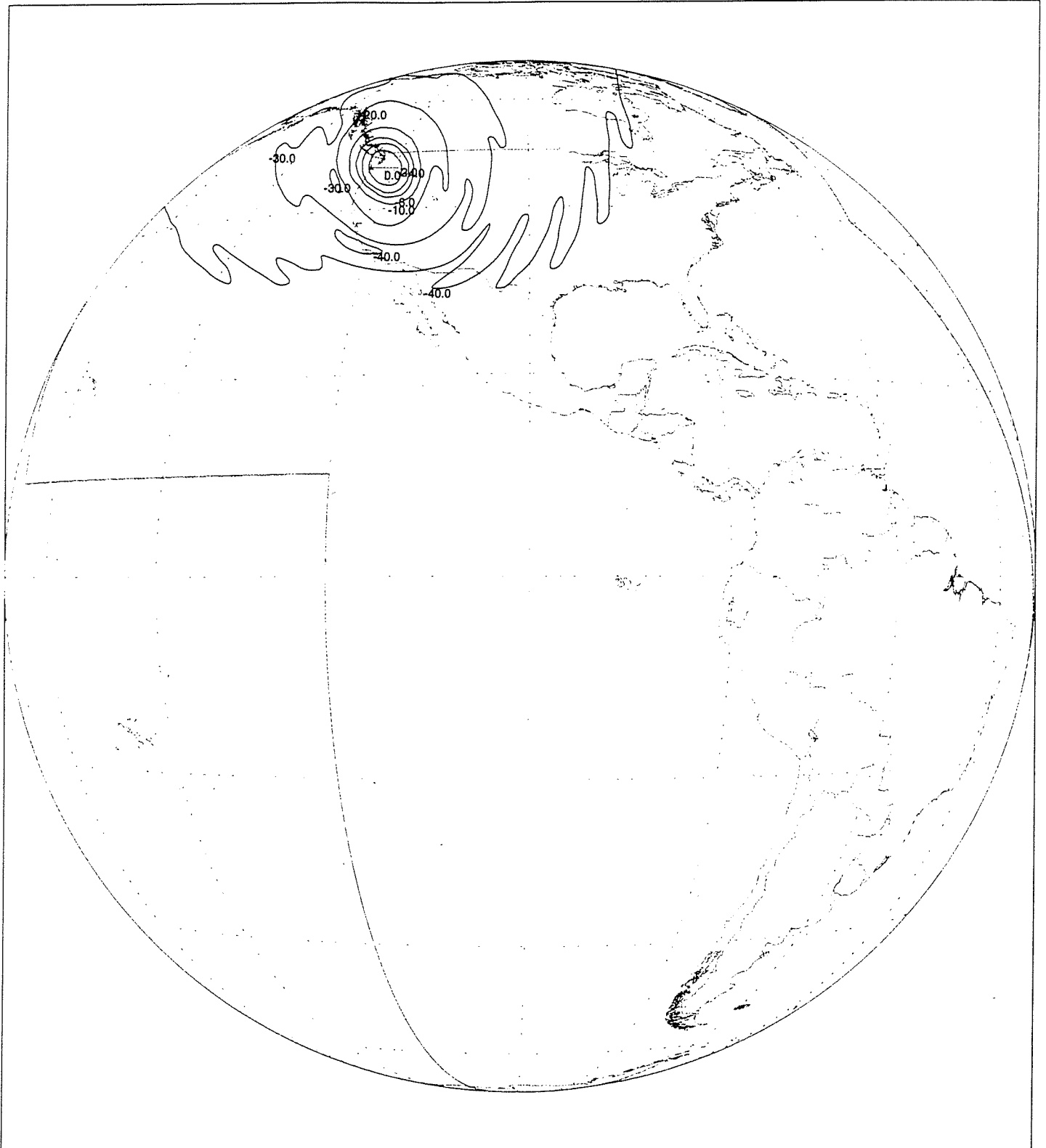
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS09
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

Antenna boresight	
—	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB



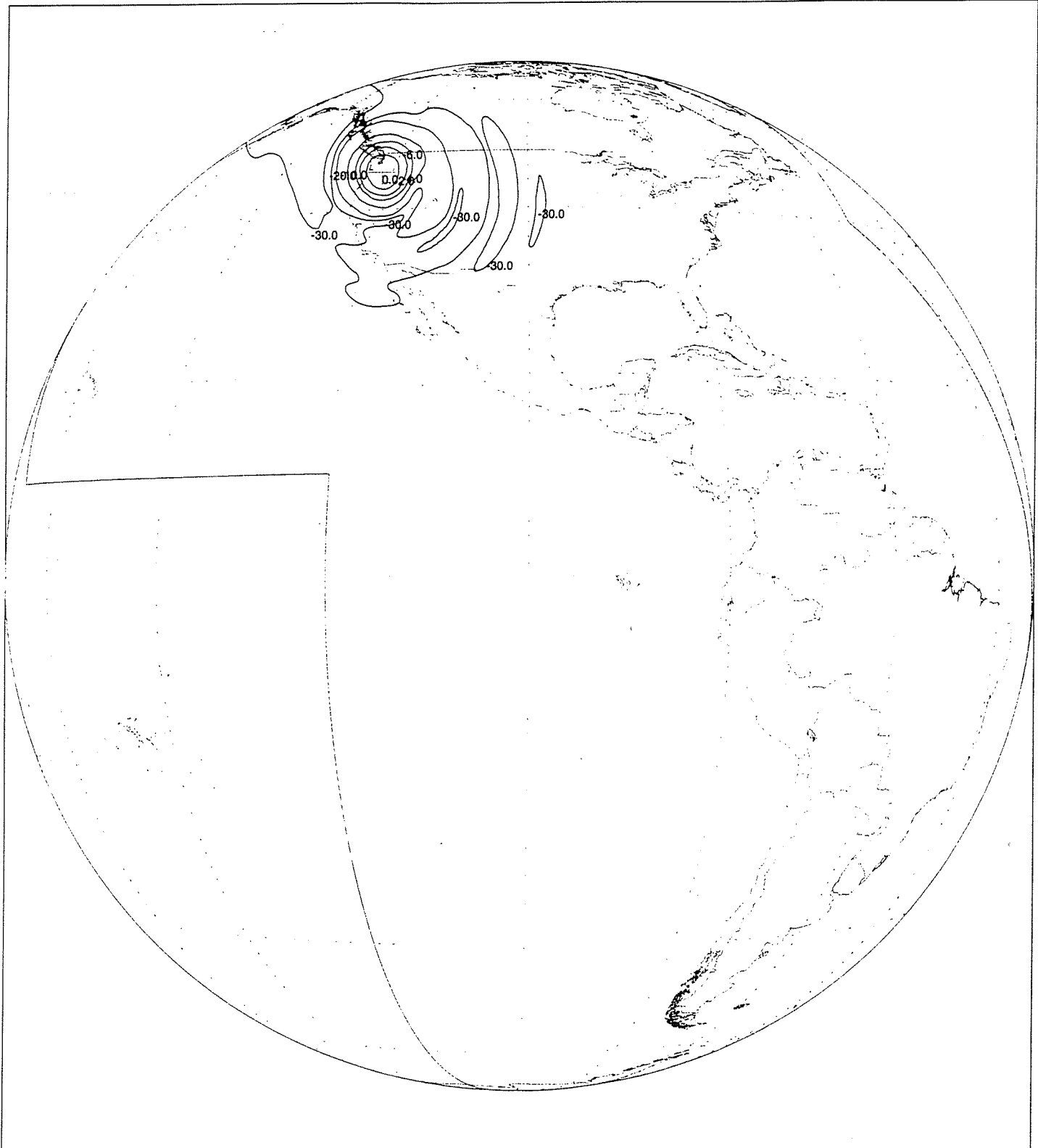
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS10
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
—	-2 dB
—	-4 dB
—	-6 dB
—	-10 dB
—	-20 dB
—	-30 dB
—	-40 dB



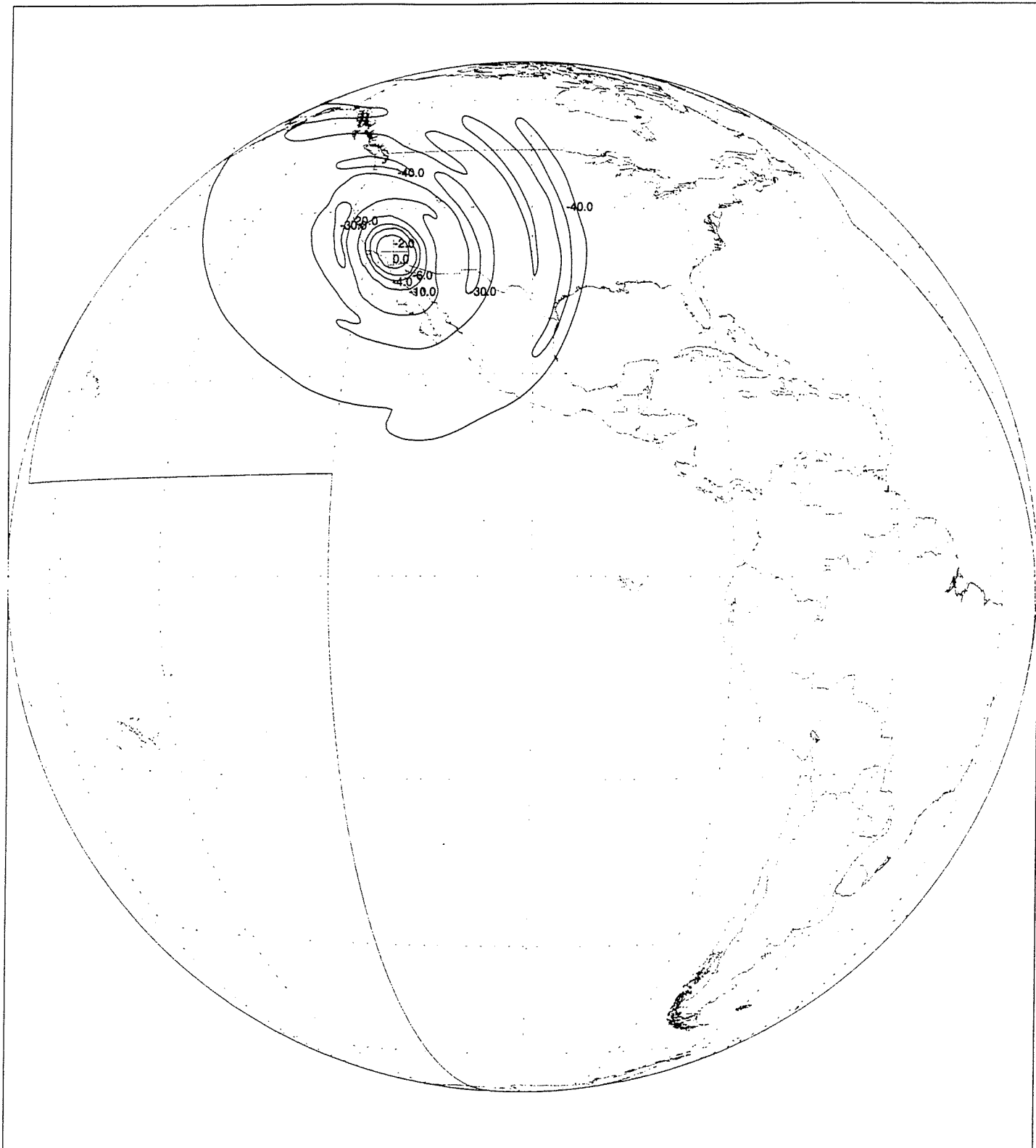
Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS10
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

Antenna boresight	
—	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB



Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS11
Emission / Reception : E
Polarization : C
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
=====	-2 dB
=====	-4 dB
=====	-6 dB
=====	-10 dB
=====	-20 dB
=====	-30 dB
=====	-40 dB



Notice ID : 140004002
Administration : USA
Satellite Network : USABSS13
Beam : TS11
Emission / Reception : E
Polarization : X
Service Area Number :
Service Area Name :
Reason : B
Satellite Position : -101.000

—	Antenna boresight
—————	-2 dB
—————	-4 dB
—————	-6 dB
—————	-10 dB
—————	-20 dB
—————	-30 dB

