

## DATASHEET TÉCNICO

## Antena FM vertical

## ADVBN

CATEGORIA  
Broadcast FMREVISÃO / VERSÃO  
A / 1.0DOCUMENTO  
EFTX-DS-ADVBN-D822PROCESSADO EM  
2026-09-01SHA-256 DA FONTE  
466d1053036a8d8e...

## ADVBN FM VERTICAL MEDIA POTENCIA

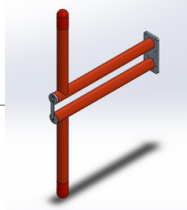


Antena FM omnidirecional em polarização vertical  
Antena de média potência até 5kW por elemento  
Alimentação interna com pressurização plena  
Capacidade de "tilt" e "null-fill"  
Montagem topo / lateral, pré sintonizada em fábrica  
Construção robusta em linha rígida coaxial  
Opções de ganho e separação vertical de  $\lambda$  ou  $\lambda/2$

## Especificações

## ADVBN

|                                |                                                                                                              |
|--------------------------------|--------------------------------------------------------------------------------------------------------------|
| Faixa de Frequência            | FM - 76 até 108 MHz                                                                                          |
| Polarização                    | vertical                                                                                                     |
| Circularidade                  | < 3,69 dB @ espaço livre                                                                                     |
| Diagrama vertical              | "tilt" e "null fill" opcional - CONSULTE                                                                     |
| Ganho de potência              | vide tabela "Ganho vs. Modelo"                                                                               |
| Impedância de entrada          | 50 Ohms                                                                                                      |
| VSWR máx @ +/- 200 kHz         | 1,2 : 1 @ montagem topo / 1,5 : 1 @ montagem lateral<br>1,07 : 1 @ montagem lateral ou topo com sintonizador |
| Conector de entrada do sistema | EIA 1 5/8", 3 1/8"<br>compatível com a potência máx especificada                                             |
| Potência máx por elemento      | 5kW @ EIA 1 5/8"                                                                                             |
| Pressurização                  | plena                                                                                                        |
| Dimensões e esforços           | vide tabela "Características Mecânicas"                                                                      |
| Velocidade vento máx           | 180 Km/h                                                                                                     |



|                           |                                                                                                                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Material da antena</b> | Elementos de cobre, latão e alumínio soldados em processo TIG/MIG<br>Fixadores de inox, isoladores de PTFE e de fibra de vidro<br>Compatibilidade galvânica entre os vários componentes da antena                                                                 |
| <b>Conexões Internas</b>  | Linha rígida com conexões internas com tratamento de prata                                                                                                                                                                                                        |
| <b>Montagem</b>           | Para cada elemento é fornecido a ferragem padrão para fixação traseira em tubos de diâmetro de 115 a 305 mm                                                                                                                                                       |
| <b>Aterramento</b>        | Por intermédio da própria estrutura da antena                                                                                                                                                                                                                     |
| <b>Embalagem</b>          | Todos os modelos são fornecidos com embalagem em separado para os elementos radiantes, linhas rígidas e ferragem de fixação                                                                                                                                       |
| <b>Variações</b>          | Alimentação inferior (end-feed) ou central (center-feed) com linha rígida<br>Configurações acima de 8 níveis de empilhamento - CONSULTE<br>Diagramas dedicados ou direcionais - CONSULTE<br>Opção de separação $\lambda/2$ para redução de radiação não ionizante |

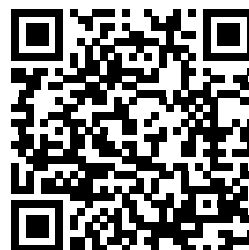
ADVBN - (# níveis) - (frequência) - (potência)

1,2,3,4,5,6,7,8 76 até 108 em kW

Biblioteca com diagramas de radiação e composições especiais "tilt" e "null-fill" disponíveis para edição e download  
Antenna Composer EFTX

Disponível para assinantes .

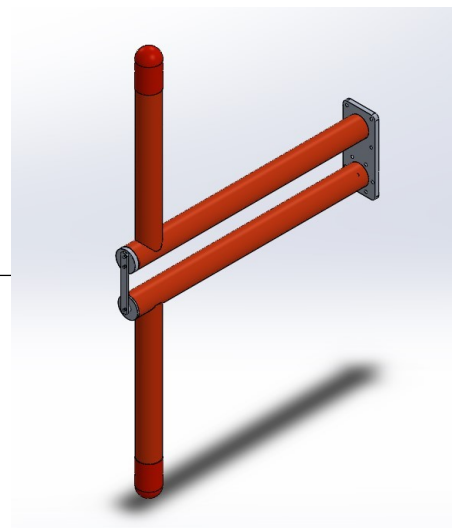
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VALIDAR DOCUMENTO

<https://antennacomposer.com.br/validar-documento/EFTX-DS-ADVBN-D822...>

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| Pressurização                  | plena                                                                                                        |
| Dimensões e esforços           | vide tabela <b>“Características Mecânicas”</b>                                                               |
| Velocidade vento máx           | 180 Km/h                                                                                                     |

|                           |                                                                                                                                                                                                                                                                   |
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ADVBN – {# níveis} – {frequência} – {potência}

1,2,3,4,5,6,7,8

76 até 108

em kW

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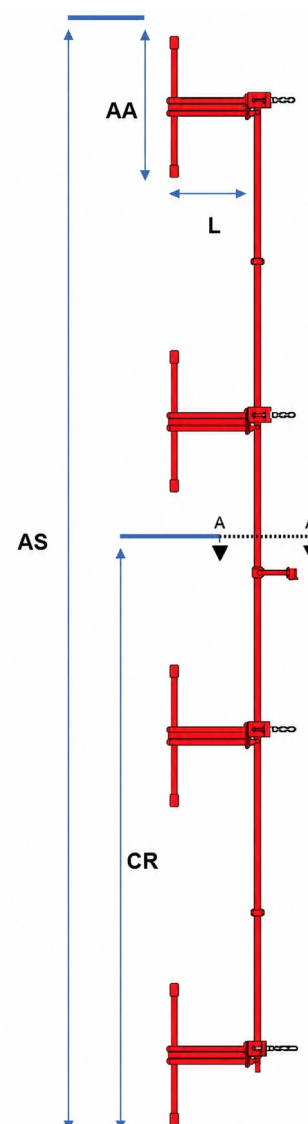
Ganho vs. Modelo

| Modelo  | dBd  |
|---------|------|
| ADVDN-1 | 0,20 |
| ADVDN-2 | 3,08 |
| ADVDN-3 | 4,80 |
| ADVDN-4 | 6,03 |
| ADVDN-5 | 6,99 |
| ADVDN-6 | 7,77 |
| ADVDN-7 | 8,43 |
| ADVDN-8 | 9,01 |

ganho para cada componente de polarização sem "tilt" e "null fill"

Características Mecânicas – dimensões e esforços

| Modelo  | MHz | Lateral |       | Topo  |       |
|---------|-----|---------|-------|-------|-------|
|         |     | AS(*)   | CR    | AS    | CR    |
| ADVDN-1 | 76  | 0,52    | 0,26  | 2,52  | 2,26  |
|         | 88  | 0,52    | 0,26  | 2,52  | 2,26  |
|         | 98  | 0,52    | 0,26  | 2,52  | 2,26  |
|         | 108 | 0,52    | 0,26  | 2,52  | 2,26  |
| ADVDN-2 | 76  | 4,47    | 2,23  | 6,47  | 4,23  |
|         | 88  | 3,93    | 1,96  | 5,93  | 3,96  |
|         | 98  | 3,58    | 1,79  | 5,58  | 3,79  |
|         | 108 | 3,30    | 1,65  | 5,30  | 3,65  |
| ADVDN-3 | 76  | 8,41    | 4,21  | 10,41 | 6,21  |
|         | 88  | 7,34    | 3,67  | 9,34  | 5,67  |
|         | 98  | 6,64    | 3,32  | 8,64  | 5,32  |
|         | 108 | 6,08    | 3,04  | 8,08  | 5,04  |
| ADVDN-4 | 76  | 12,36   | 6,18  | 14,36 | 8,18  |
|         | 88  | 10,7    | 5,37  | 12,7  | 7,37  |
|         | 98  | 9,70    | 4,85  | 11,7  | 6,85  |
|         | 108 | 8,85    | 4,43  | 10,9  | 6,43  |
| ADVDN-5 | 76  | 16,31   | 8,15  | 18,31 | 10,15 |
|         | 88  | 14,2    | 7,08  | 16,2  | 9,08  |
|         | 98  | 12,8    | 6,38  | 14,8  | 8,38  |
|         | 108 | 11,6    | 5,82  | 13,6  | 7,82  |
| ADVDN-6 | 76  | 20,26   | 10,13 | 22,26 | 12,13 |
|         | 88  | 17,6    | 8,78  | 19,6  | 10,8  |
|         | 98  | 15,8    | 7,91  | 17,8  | 9,91  |
|         | 108 | 14,4    | 7,20  | 16,4  | 9,20  |
| ADVDN-7 | 76  | 24,20   | 12,10 | 26,20 | 14,10 |
|         | 88  | 21,0    | 10,5  | 23,0  | 12,5  |
|         | 98  | 18,9    | 9,44  | 20,9  | 11,4  |
|         | 108 | 17,2    | 8,59  | 19,2  | 10,6  |
| ADVDN-8 | 76  | 28,15   | 14,08 | 30,15 | 16,08 |
|         | 88  | 24,4    | 12,2  | 26,4  | 14,2  |
|         | 98  | 21,9    | 11,0  | 23,9  | 13,0  |
|         | 108 | 20,0    | 9,98  | 22,0  | 12,0  |



AS altura do sistema em m  
 CR centro de radiação em m  
 AA altura da antena em m  
 L largura da antena em m  
 AE área de exposição (CaAc) em m<sup>2</sup>  
 P peso da antena em Kg

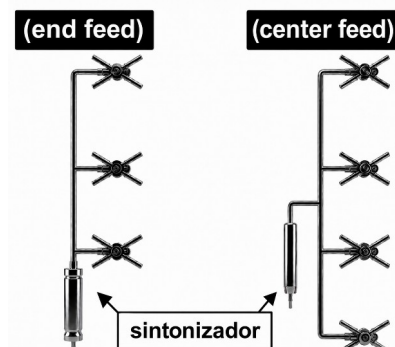
AS válido somente para alimentação central (center fed), acrescentar aprox. 2,4 m para alimentação inferior (end feed)

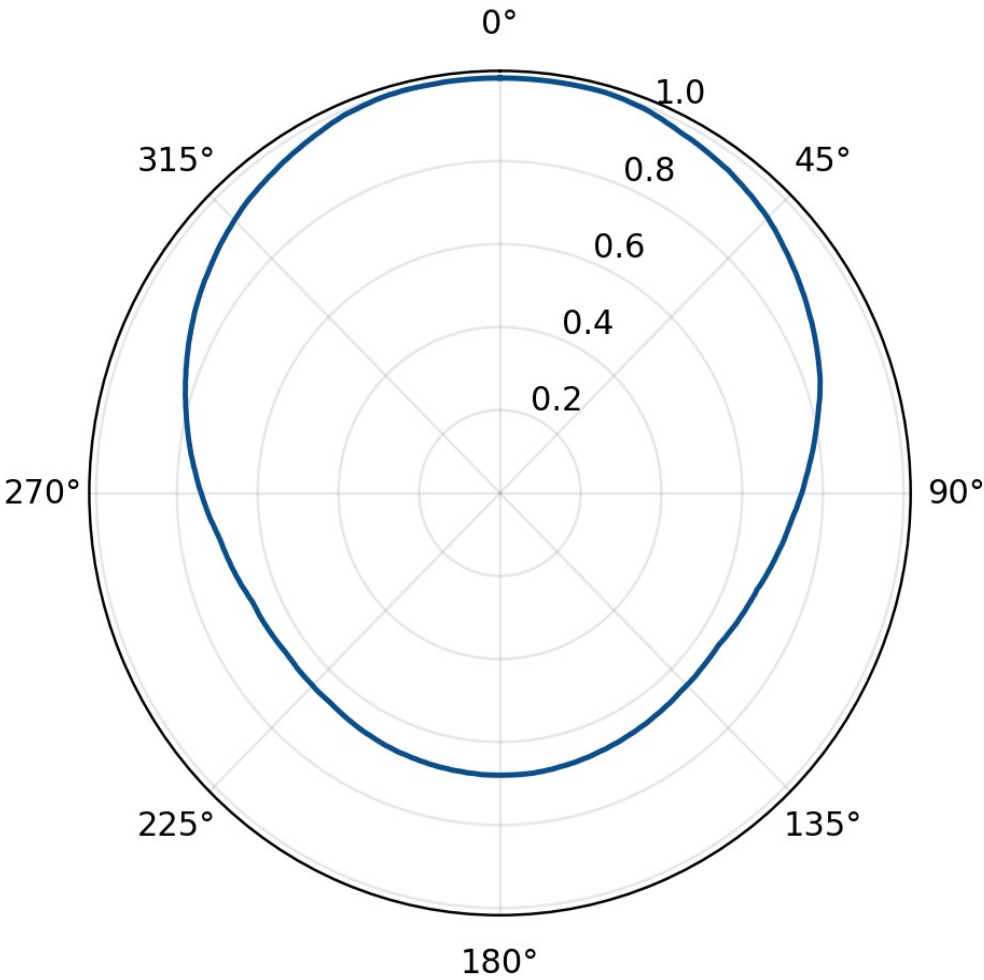
| Modelo  | AA  | L    | AE   | P  |
|---------|-----|------|------|----|
| ADVDN-1 |     |      | 0,16 | 4  |
| ADVDN-2 |     |      | 0,32 | 9  |
| ADVDN-3 |     |      | 0,48 | 13 |
| ADVDN-4 | 1,7 | 0,81 | 0,64 | 17 |
| ADVDN-5 |     |      | 0,80 | 21 |
| ADVDN-6 |     |      | 0,96 | 26 |
| ADVDN-7 |     |      | 1,12 | 30 |
| ADVDN-8 |     |      | 1,28 | 34 |

AE e P considerando interconexão dos elementos em linha rígida de 1 5/8"

#### Alimentação com LINHA RÍGIDA

Antenas especificadas com "tilt" e / ou "null -fill" são fornecidas com alimentação central ("center feed") e devem apresentar preferencialmente número par de níveis.





Parâmetros da configuração

ÂNGULO DE MEIA POTÊNCIA HORIZONTAL

198.97°

GANHO

0.20 dBd

FRENTE/COSTAS

3.35 dB

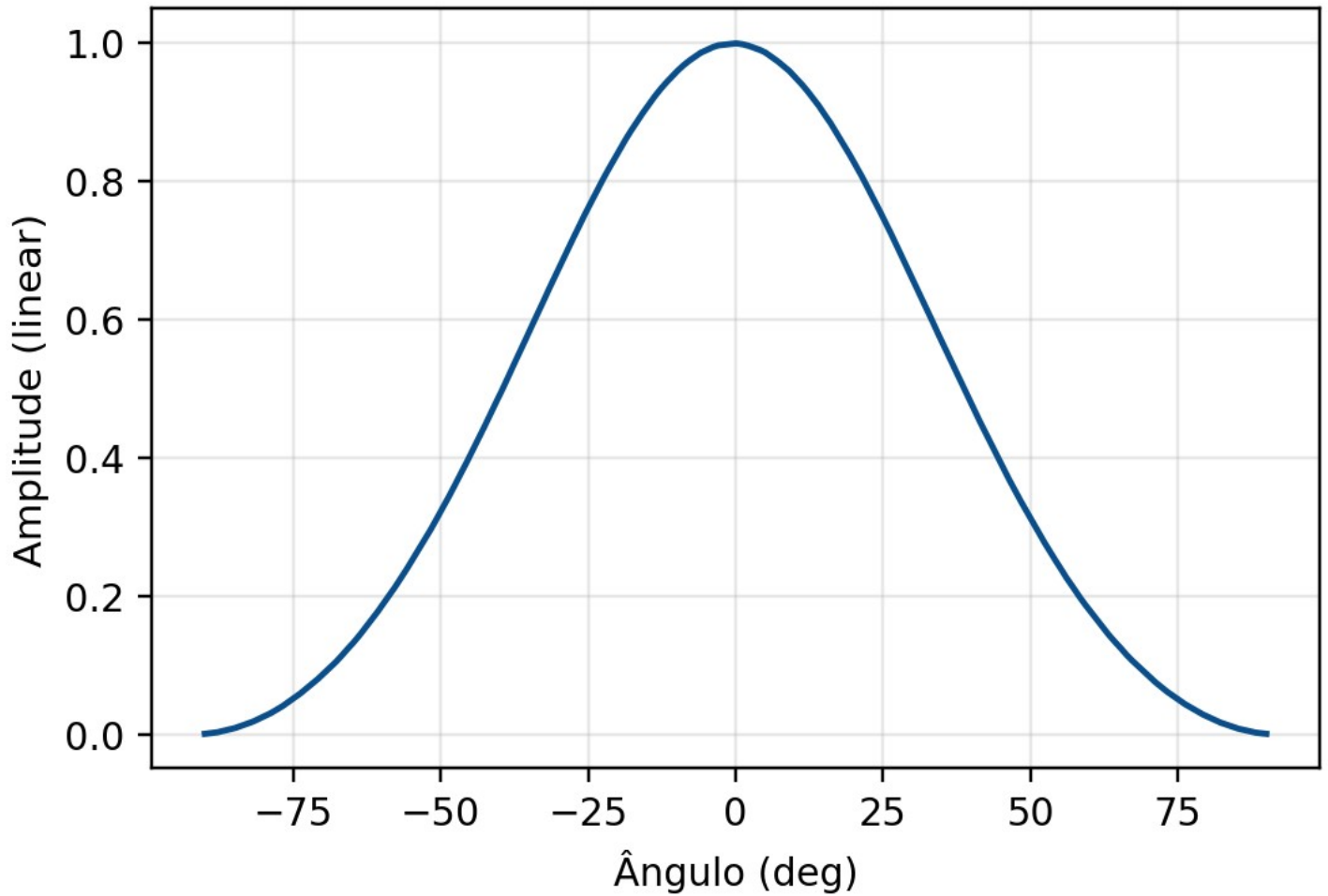
RIPPLE

3.69 dB

# Tabela completa - Azimute



| Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB |
|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|
| 0°     | 1.0000 | 0.00     | 73°    | 0.8290 | 1.63     | 146°   | 0.6620 | 3.58     | 219°   | 0.6580 | 3.64     | 292°   | 0.8370 | 1.55     |
| 1°     | 1.0000 | 0.00     | 74°    | 0.8240 | 1.68     | 147°   | 0.6630 | 3.57     | 220°   | 0.6570 | 3.65     | 293°   | 0.8420 | 1.49     |
| 2°     | 1.0000 | 0.00     | 75°    | 0.8180 | 1.74     | 148°   | 0.6630 | 3.57     | 221°   | 0.6570 | 3.65     | 294°   | 0.8460 | 1.45     |
| 3°     | 1.0000 | 0.00     | 76°    | 0.8130 | 1.80     | 149°   | 0.6640 | 3.56     | 222°   | 0.6570 | 3.65     | 295°   | 0.8510 | 1.40     |
| 4°     | 1.0000 | 0.00     | 77°    | 0.8080 | 1.85     | 150°   | 0.6650 | 3.54     | 223°   | 0.6570 | 3.65     | 296°   | 0.8550 | 1.36     |
| 5°     | 1.0000 | 0.00     | 78°    | 0.8030 | 1.91     | 151°   | 0.6650 | 3.54     | 224°   | 0.6570 | 3.65     | 297°   | 0.8590 | 1.32     |
| 6°     | 1.0000 | 0.00     | 79°    | 0.7980 | 1.96     | 152°   | 0.6660 | 3.53     | 225°   | 0.6560 | 3.66     | 298°   | 0.8640 | 1.27     |
| 7°     | 1.0000 | 0.00     | 80°    | 0.7930 | 2.01     | 153°   | 0.6670 | 3.52     | 226°   | 0.6560 | 3.66     | 299°   | 0.8680 | 1.23     |
| 8°     | 1.0000 | 0.00     | 81°    | 0.7880 | 2.07     | 154°   | 0.6680 | 3.50     | 227°   | 0.6560 | 3.66     | 300°   | 0.8730 | 1.18     |
| 9°     | 1.0000 | 0.00     | 82°    | 0.7840 | 2.11     | 155°   | 0.6680 | 3.50     | 228°   | 0.6560 | 3.66     | 301°   | 0.8770 | 1.14     |
| 10°    | 1.0000 | 0.00     | 83°    | 0.7790 | 2.17     | 156°   | 0.6690 | 3.49     | 229°   | 0.6560 | 3.66     | 302°   | 0.8810 | 1.10     |
| 11°    | 1.0000 | 0.00     | 84°    | 0.7740 | 2.23     | 157°   | 0.6700 | 3.48     | 230°   | 0.6560 | 3.66     | 303°   | 0.8850 | 1.06     |
| 12°    | 1.0000 | 0.00     | 85°    | 0.7690 | 2.28     | 158°   | 0.6700 | 3.48     | 231°   | 0.6550 | 3.68     | 304°   | 0.8890 | 1.02     |
| 13°    | 1.0000 | 0.00     | 86°    | 0.7650 | 2.33     | 159°   | 0.6710 | 3.47     | 232°   | 0.6550 | 3.68     | 305°   | 0.8930 | 0.98     |
| 14°    | 1.0000 | 0.00     | 87°    | 0.7600 | 2.38     | 160°   | 0.6720 | 3.45     | 233°   | 0.6550 | 3.68     | 306°   | 0.8960 | 0.95     |
| 15°    | 1.0000 | 0.00     | 88°    | 0.7560 | 2.43     | 161°   | 0.6730 | 3.44     | 234°   | 0.6550 | 3.68     | 307°   | 0.9000 | 0.92     |
| 16°    | 0.9990 | 0.01     | 89°    | 0.7520 | 2.48     | 162°   | 0.6730 | 3.44     | 235°   | 0.6560 | 3.66     | 308°   | 0.9040 | 0.88     |
| 17°    | 0.9980 | 0.02     | 90°    | 0.7480 | 2.52     | 163°   | 0.6740 | 3.43     | 236°   | 0.6570 | 3.65     | 309°   | 0.9080 | 0.84     |
| 18°    | 0.9970 | 0.03     | 91°    | 0.7430 | 2.58     | 164°   | 0.6750 | 3.41     | 237°   | 0.6580 | 3.64     | 310°   | 0.9120 | 0.80     |
| 19°    | 0.9950 | 0.04     | 92°    | 0.7390 | 2.63     | 165°   | 0.6750 | 3.41     | 238°   | 0.6590 | 3.62     | 311°   | 0.9160 | 0.76     |
| 20°    | 0.9940 | 0.05     | 93°    | 0.7350 | 2.67     | 166°   | 0.6760 | 3.40     | 239°   | 0.6600 | 3.61     | 312°   | 0.9190 | 0.73     |
| 21°    | 0.9930 | 0.06     | 94°    | 0.7300 | 2.73     | 167°   | 0.6760 | 3.40     | 240°   | 0.6610 | 3.60     | 313°   | 0.9230 | 0.70     |
| 22°    | 0.9910 | 0.08     | 95°    | 0.7260 | 2.78     | 168°   | 0.6770 | 3.39     | 241°   | 0.6620 | 3.58     | 314°   | 0.9260 | 0.67     |
| 23°    | 0.9880 | 0.10     | 96°    | 0.7220 | 2.83     | 169°   | 0.6780 | 3.38     | 242°   | 0.6630 | 3.57     | 315°   | 0.9300 | 0.63     |
| 24°    | 0.9860 | 0.12     | 97°    | 0.7190 | 2.87     | 170°   | 0.6780 | 3.38     | 243°   | 0.6640 | 3.56     | 316°   | 0.9330 | 0.60     |
| 25°    | 0.9830 | 0.15     | 98°    | 0.7160 | 2.90     | 171°   | 0.6790 | 3.36     | 244°   | 0.6650 | 3.54     | 317°   | 0.9370 | 0.57     |
| 26°    | 0.9810 | 0.17     | 99°    | 0.7130 | 2.94     | 172°   | 0.6790 | 3.36     | 245°   | 0.6650 | 3.54     | 318°   | 0.9400 | 0.54     |
| 27°    | 0.9780 | 0.19     | 100°   | 0.7100 | 2.97     | 173°   | 0.6800 | 3.35     | 246°   | 0.6660 | 3.53     | 319°   | 0.9430 | 0.51     |
| 28°    | 0.9760 | 0.21     | 101°   | 0.7060 | 3.02     | 174°   | 0.6800 | 3.35     | 247°   | 0.6670 | 3.52     | 320°   | 0.9450 | 0.49     |
| 29°    | 0.9750 | 0.22     | 102°   | 0.7030 | 3.06     | 175°   | 0.6800 | 3.35     | 248°   | 0.6700 | 3.48     | 321°   | 0.9480 | 0.46     |
| 30°    | 0.9730 | 0.24     | 103°   | 0.7000 | 3.10     | 176°   | 0.6800 | 3.35     | 249°   | 0.6720 | 3.45     | 322°   | 0.9500 | 0.45     |
| 31°    | 0.9710 | 0.26     | 104°   | 0.6970 | 3.14     | 177°   | 0.6800 | 3.35     | 250°   | 0.6750 | 3.41     | 323°   | 0.9530 | 0.42     |
| 32°    | 0.9690 | 0.27     | 105°   | 0.6940 | 3.17     | 178°   | 0.6800 | 3.35     | 251°   | 0.6780 | 3.38     | 324°   | 0.9550 | 0.40     |
| 33°    | 0.9670 | 0.29     | 106°   | 0.6910 | 3.21     | 179°   | 0.6800 | 3.35     | 252°   | 0.6800 | 3.35     | 325°   | 0.9580 | 0.37     |
| 34°    | 0.9650 | 0.31     | 107°   | 0.6880 | 3.25     | 180°   | 0.6800 | 3.35     | 253°   | 0.6830 | 3.31     | 326°   | 0.9610 | 0.35     |
| 35°    | 0.9630 | 0.33     | 108°   | 0.6850 | 3.29     | 181°   | 0.6800 | 3.35     | 254°   | 0.6850 | 3.29     | 327°   | 0.9630 | 0.33     |
| 36°    | 0.9620 | 0.34     | 109°   | 0.6820 | 3.32     | 182°   | 0.6800 | 3.35     | 255°   | 0.6880 | 3.25     | 328°   | 0.9660 | 0.30     |
| 37°    | 0.9590 | 0.36     | 110°   | 0.6780 | 3.38     | 183°   | 0.6800 | 3.35     | 256°   | 0.6900 | 3.22     | 329°   | 0.9680 | 0.28     |
| 38°    | 0.9560 | 0.39     | 111°   | 0.6770 | 3.39     | 184°   | 0.6800 | 3.35     | 257°   | 0.6930 | 3.19     | 330°   | 0.9710 | 0.26     |
| 39°    | 0.9540 | 0.41     | 112°   | 0.6750 | 3.41     | 185°   | 0.6790 | 3.36     | 258°   | 0.6950 | 3.16     | 331°   | 0.9730 | 0.24     |
| 40°    | 0.9510 | 0.44     | 113°   | 0.6730 | 3.44     | 186°   | 0.6790 | 3.36     | 259°   | 0.6980 | 3.12     | 332°   | 0.9760 | 0.21     |
| 41°    | 0.9490 | 0.45     | 114°   | 0.6710 | 3.47     | 187°   | 0.6790 | 3.36     | 260°   | 0.7000 | 3.10     | 333°   | 0.9780 | 0.19     |
| 42°    | 0.9460 | 0.48     | 115°   | 0.6700 | 3.48     | 188°   | 0.6780 | 3.38     | 261°   | 0.7030 | 3.06     | 334°   | 0.9810 | 0.17     |
| 43°    | 0.9430 | 0.51     | 116°   | 0.6680 | 3.50     | 189°   | 0.6780 | 3.38     | 262°   | 0.7070 | 3.01     | 335°   | 0.9840 | 0.14     |
| 44°    | 0.9410 | 0.53     | 117°   | 0.6660 | 3.53     | 190°   | 0.6780 | 3.38     | 263°   | 0.7110 | 2.96     | 336°   | 0.9860 | 0.12     |
| 45°    | 0.9380 | 0.56     | 118°   | 0.6650 | 3.54     | 191°   | 0.6770 | 3.39     | 264°   | 0.7150 | 2.91     | 337°   | 0.9890 | 0.10     |
| 46°    | 0.9340 | 0.59     | 119°   | 0.6630 | 3.57     | 192°   | 0.6770 | 3.39     | 265°   | 0.7200 | 2.85     | 338°   | 0.9900 | 0.09     |
| 47°    | 0.9310 | 0.62     | 120°   | 0.6610 | 3.60     | 193°   | 0.6770 | 3.39     | 266°   | 0.7240 | 2.81     | 339°   | 0.9910 | 0.08     |
| 48°    | 0.9270 | 0.66     | 121°   | 0.6590 | 3.62     | 194°   | 0.6760 | 3.40     | 267°   | 0.7280 | 2.76     | 340°   | 0.9930 | 0.06     |
| 49°    | 0.9230 | 0.70     | 122°   | 0.6580 | 3.64     | 195°   | 0.6760 | 3.40     | 268°   | 0.7320 | 2.71     | 341°   | 0.9940 | 0.05     |
| 50°    | 0.9190 | 0.73     | 123°   | 0.6560 | 3.66     | 196°   | 0.6750 | 3.41     | 269°   | 0.7360 | 2.66     | 342°   | 0.9960 | 0.03     |
| 51°    | 0.9160 | 0.76     | 124°   | 0.6540 | 3.69     | 197°   | 0.6750 | 3.41     | 270°   | 0.7400 | 2.62     | 343°   | 0.9970 | 0.03     |
| 52°    | 0.9120 | 0.80     | 125°   | 0.6540 | 3.69     | 198°   | 0.6740 | 3.43     | 271°   | 0.7450 | 2.56     | 344°   | 0.9980 | 0.02     |
| 53°    | 0.9080 | 0.84     | 126°   | 0.6540 | 3.69     | 199°   | 0.6740 | 3.43     | 272°   | 0.7490 | 2.51     | 345°   | 0.9980 | 0.02     |
| 54°    | 0.9050 | 0.87     | 127°   | 0.6540 | 3.69     | 200°   | 0.6730 | 3.44     | 273°   | 0.7530 | 2.46     | 346°   | 0.9990 | 0.01     |
| 55°    | 0.9010 | 0.91     | 128°   | 0.6540 | 3.69     | 201°   | 0.6730 | 3.44     | 274°   | 0.7570 | 2.42     | 347°   | 0.9990 | 0.01     |
| 56°    | 0.8970 | 0.94     | 129°   | 0.6540 | 3.69     | 202°   | 0.6730 | 3.44     | 275°   | 0.7620 | 2.36     | 348°   | 0.9990 | 0.01     |
| 57°    | 0.8930 | 0.98     | 130°   | 0.6540 | 3.69     | 203°   | 0.6720 | 3.45     | 276°   | 0.7660 | 2.32     | 349°   | 0.9990 | 0.01     |
| 58°    | 0.8900 | 1.01     | 131°   | 0.6540 | 3.69     | 204°   | 0.6710 | 3.47     | 277°   | 0.7710 | 2.26     | 350°   | 0.9990 | 0.01     |
| 59°    | 0.8860 | 1.05     | 132°   | 0.6550 | 3.68     | 205°   | 0.6710 | 3.47     | 278°   | 0.7750 | 2.21     | 351°   | 0.9990 | 0.01     |
| 60°    | 0.8820 | 1.09     | 133°   | 0.6550 | 3.68     | 206°   | 0.6700 | 3.48     | 279°   | 0.7790 | 2.17     | 352°   | 1.0000 | 0.00     |
| 61°    | 0.8780 | 1.13     | 134°   | 0.6550 | 3.68     | 207°   | 0.6690 | 3.49     | 280°   | 0.7840 | 2.11     | 353°   | 1.0000 | 0.00     |
| 62°    | 0.8750 | 1.16     | 135°   | 0.6550 | 3.68     | 208°   | 0.6680 | 3.50     | 281°   | 0.7880 | 2.07     | 354°   | 1.0000 | 0.00     |
| 63°    | 0.8710 | 1.20     | 136°   | 0.6550 | 3.68     | 209°   | 0.6670 | 3.52     | 282°   | 0.7920 | 2.03     | 355°   | 1.0000 | 0.00     |
| 64°    | 0.8670 | 1.24     | 137°   | 0.6550 | 3.68     | 210°   | 0.6670 | 3.52     | 283°   | 0.7970 | 1.97     | 356°   | 1.0000 | 0.00     |
| 65°    | 0.8630 | 1.28     | 138°   | 0.6560 | 3.66     | 211°   | 0.6660 | 3.53     | 284°   | 0.8010 | 1.93     | 357°   | 1.0000 | 0.00     |
| 66°    | 0.8590 | 1.32     | 139°   | 0.6570 | 3.65     | 212°   | 0.6650 | 3.54     | 285°   | 0.8060 | 1.87     | 358°   | 1.0000 | 0.00     |
| 67°    | 0.8550 | 1.36     | 140°   | 0.6580 | 3.64     | 213°   | 0.6640 | 3.56     | 286°   | 0.8100 | 1.83     | 359°   | 1.0000 | 0.00     |
| 68°    | 0.8510 | 1.40     | 141°   | 0.6580 | 3.64     | 214°   | 0.6630 | 3.57     | 287°   | 0.8150 | 1.78     | 360°   | 1.0000 | 0.00     |
| 69°    | 0.8470 | 1.44     | 142°   | 0.6590 | 3.62     | 215°   | 0.6620 | 3.58     | 288°   | 0.8190 | 1.73     |        |        |          |
| 70°    | 0.8430 | 1.48     | 143°   | 0.6600 | 3.61     | 216°   | 0.6610 | 3.60     | 289°   | 0.8240 | 1.68     |        |        |          |
| 71°    | 0.8390 | 1.52     | 144°   | 0.6600 | 3.61     | 217°   | 0.6600 | 3.61     | 290°   | 0.8280 | 1.64     |        |        |          |
| 72°    | 0.8340 | 1.58     | 145°   | 0.6610 | 3.60     | 218°   | 0.6590 | 3.62     | 291°   | 0.8330 | 1.59     |        |        |          |



## Parâmetros da configuração

ELEMENTOS VERTICAIS

1

ÂNGULO DE MEIA POTÊNCIA VERTICAL

56.16°

GANHO

0.20 dBd

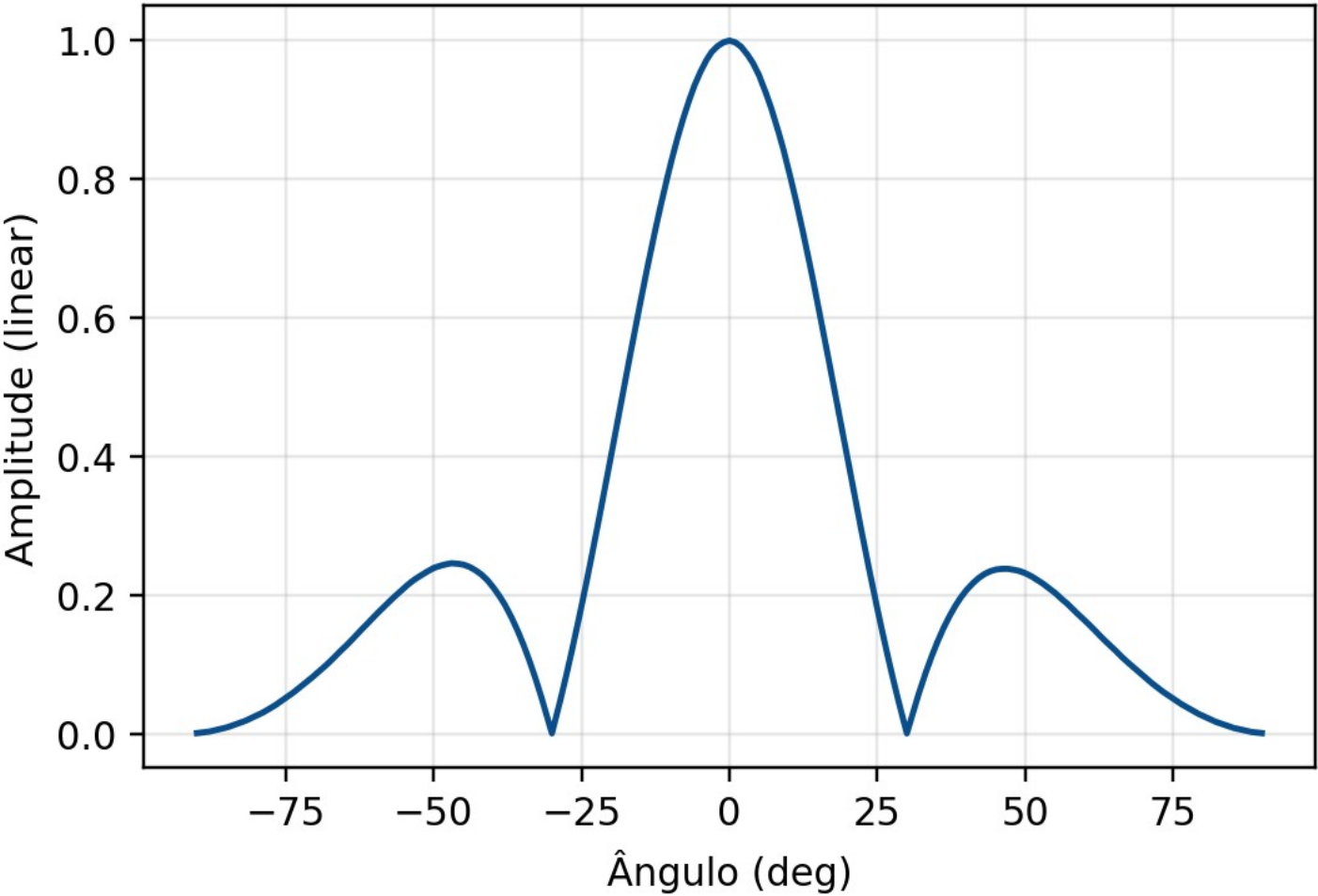
PRIMEIRO NULO

76.00°

Tabela completa - Elevação



| Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB |
|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|
| -90.0° | 0.0010             | 60.00    | -54.0° | 0.2640             | 11.57    | -18.0° | 0.8700             | 1.21     | 18.0°  | 0.8580             | 1.33     | 54.0°  | 0.2550             | 11.87    |
| -89.5° | 0.0015             | 56.48    | -53.5° | 0.2710             | 11.34    | -17.5° | 0.8765             | 1.14     | 18.5°  | 0.8510             | 1.40     | 54.5°  | 0.2485             | 12.09    |
| -89.0° | 0.0020             | 53.98    | -53.0° | 0.2780             | 11.12    | -17.0° | 0.8830             | 1.08     | 19.0°  | 0.8440             | 1.47     | 55.0°  | 0.2420             | 12.32    |
| -88.5° | 0.0025             | 52.04    | -52.5° | 0.2850             | 10.90    | -16.5° | 0.8895             | 1.02     | 19.5°  | 0.8365             | 1.55     | 55.5°  | 0.2350             | 12.58    |
| -88.0° | 0.0030             | 50.46    | -52.0° | 0.2920             | 10.69    | -16.0° | 0.8960             | 0.95     | 20.0°  | 0.8290             | 1.63     | 56.0°  | 0.2280             | 12.84    |
| -87.5° | 0.0040             | 47.96    | -51.5° | 0.2995             | 10.47    | -15.5° | 0.9020             | 0.90     | 20.5°  | 0.8215             | 1.71     | 56.5°  | 0.2220             | 13.07    |
| -87.0° | 0.0050             | 46.02    | -51.0° | 0.3070             | 10.26    | -15.0° | 0.9080             | 0.84     | 21.0°  | 0.8140             | 1.79     | 57.0°  | 0.2160             | 13.31    |
| -86.5° | 0.0060             | 44.44    | -50.5° | 0.3150             | 10.03    | -14.5° | 0.9140             | 0.78     | 21.5°  | 0.8060             | 1.87     | 57.5°  | 0.2095             | 13.58    |
| -86.0° | 0.0070             | 43.10    | -50.0° | 0.3230             | 9.82     | -14.0° | 0.9200             | 0.72     | 22.0°  | 0.7980             | 1.96     | 58.0°  | 0.2030             | 13.85    |
| -85.5° | 0.0080             | 41.94    | -49.5° | 0.3305             | 9.62     | -13.5° | 0.9255             | 0.67     | 22.5°  | 0.7895             | 2.05     | 58.5°  | 0.1970             | 14.11    |
| -85.0° | 0.0090             | 40.92    | -49.0° | 0.3380             | 9.42     | -13.0° | 0.9310             | 0.62     | 23.0°  | 0.7810             | 2.15     | 59.0°  | 0.1910             | 14.38    |
| -84.5° | 0.0105             | 39.58    | -48.5° | 0.3460             | 9.22     | -12.5° | 0.9360             | 0.57     | 23.5°  | 0.7730             | 2.24     | 59.5°  | 0.1855             | 14.63    |
| -84.0° | 0.0120             | 38.42    | -48.0° | 0.3540             | 9.02     | -12.0° | 0.9410             | 0.53     | 24.0°  | 0.7650             | 2.33     | 60.0°  | 0.1800             | 14.89    |
| -83.5° | 0.0135             | 37.39    | -47.5° | 0.3625             | 8.81     | -11.5° | 0.9455             | 0.49     | 24.5°  | 0.7565             | 2.42     | 60.5°  | 0.1745             | 15.16    |
| -83.0° | 0.0150             | 36.48    | -47.0° | 0.3710             | 8.61     | -11.0° | 0.9500             | 0.45     | 25.0°  | 0.7480             | 2.52     | 61.0°  | 0.1690             | 15.44    |
| -82.5° | 0.0165             | 35.65    | -46.5° | 0.3790             | 8.43     | -10.5° | 0.9545             | 0.40     | 25.5°  | 0.7395             | 2.62     | 61.5°  | 0.1635             | 15.73    |
| -82.0° | 0.0180             | 34.89    | -46.0° | 0.3870             | 8.25     | -10.0° | 0.9590             | 0.36     | 26.0°  | 0.7310             | 2.72     | 62.0°  | 0.1580             | 16.03    |
| -81.5° | 0.0200             | 33.98    | -45.5° | 0.3955             | 8.06     | -9.5°  | 0.9630             | 0.33     | 26.5°  | 0.7220             | 2.83     | 62.5°  | 0.1525             | 16.33    |
| -81.0° | 0.0220             | 33.15    | -45.0° | 0.4040             | 7.87     | -9.0°  | 0.9670             | 0.29     | 27.0°  | 0.7130             | 2.94     | 63.0°  | 0.1470             | 16.65    |
| -80.5° | 0.0240             | 32.40    | -44.5° | 0.4125             | 7.69     | -8.5°  | 0.9705             | 0.26     | 27.5°  | 0.7040             | 3.05     | 63.5°  | 0.1420             | 16.95    |
| -80.0° | 0.0260             | 31.70    | -44.0° | 0.4210             | 7.51     | -8.0°  | 0.9740             | 0.23     | 28.0°  | 0.6950             | 3.16     | 64.0°  | 0.1370             | 17.27    |
| -79.5° | 0.0280             | 31.06    | -43.5° | 0.4295             | 7.34     | -7.5°  | 0.9770             | 0.20     | 28.5°  | 0.6860             | 3.27     | 64.5°  | 0.1325             | 17.56    |
| -79.0° | 0.0300             | 30.46    | -43.0° | 0.4380             | 7.17     | -7.0°  | 0.9800             | 0.18     | 29.0°  | 0.6770             | 3.39     | 65.0°  | 0.1280             | 17.86    |
| -78.5° | 0.0325             | 29.76    | -42.5° | 0.4470             | 6.99     | -6.5°  | 0.9830             | 0.15     | 29.5°  | 0.6680             | 3.50     | 65.5°  | 0.1230             | 18.20    |
| -78.0° | 0.0350             | 29.12    | -42.0° | 0.4560             | 6.82     | -6.0°  | 0.9860             | 0.12     | 30.0°  | 0.6590             | 3.62     | 66.0°  | 0.1180             | 18.56    |
| -77.5° | 0.0375             | 28.52    | -41.5° | 0.4650             | 6.65     | -5.5°  | 0.9880             | 0.10     | 30.5°  | 0.6500             | 3.74     | 66.5°  | 0.1135             | 18.90    |
| -77.0° | 0.0400             | 27.96    | -41.0° | 0.4740             | 6.48     | -5.0°  | 0.9900             | 0.09     | 31.0°  | 0.6410             | 3.86     | 67.0°  | 0.1090             | 19.25    |
| -76.5° | 0.0430             | 27.33    | -40.5° | 0.4825             | 6.33     | -4.5°  | 0.9920             | 0.07     | 31.5°  | 0.6320             | 3.99     | 67.5°  | 0.1050             | 19.58    |
| -76.0° | 0.0460             | 26.74    | -40.0° | 0.4910             | 6.18     | -4.0°  | 0.9940             | 0.05     | 32.0°  | 0.6230             | 4.11     | 68.0°  | 0.1010             | 19.91    |
| -75.5° | 0.0490             | 26.20    | -39.5° | 0.5000             | 6.02     | -3.5°  | 0.9955             | 0.04     | 32.5°  | 0.6140             | 4.24     | 68.5°  | 0.0970             | 20.26    |
| -75.0° | 0.0520             | 25.68    | -39.0° | 0.5090             | 5.87     | -3.0°  | 0.9970             | 0.03     | 33.0°  | 0.6050             | 4.36     | 69.0°  | 0.0930             | 20.63    |
| -74.5° | 0.0550             | 25.19    | -38.5° | 0.5185             | 5.70     | -2.5°  | 0.9975             | 0.02     | 33.5°  | 0.5955             | 4.50     | 69.5°  | 0.0890             | 21.01    |
| -74.0° | 0.0580             | 24.73    | -38.0° | 0.5280             | 5.55     | -2.0°  | 0.9980             | 0.02     | 34.0°  | 0.5860             | 4.64     | 70.0°  | 0.0850             | 21.41    |
| -73.5° | 0.0615             | 24.22    | -37.5° | 0.5370             | 5.40     | -1.5°  | 0.9985             | 0.01     | 34.5°  | 0.5770             | 4.78     | 70.5°  | 0.0810             | 21.83    |
| -73.0° | 0.0650             | 23.74    | -37.0° | 0.5460             | 5.26     | -1.0°  | 0.9990             | 0.01     | 35.0°  | 0.5680             | 4.91     | 71.0°  | 0.0770             | 22.27    |
| -72.5° | 0.0685             | 23.29    | -36.5° | 0.5550             | 5.11     | -0.5°  | 0.9995             | 0.00     | 35.5°  | 0.5590             | 5.05     | 71.5°  | 0.0735             | 22.67    |
| -72.0° | 0.0720             | 22.85    | -36.0° | 0.5640             | 4.97     | 0.0°   | 1.0000             | 0.00     | 36.0°  | 0.5500             | 5.19     | 72.0°  | 0.0700             | 23.10    |
| -71.5° | 0.0755             | 22.44    | -35.5° | 0.5735             | 4.83     | 0.5°   | 0.9995             | 0.00     | 36.5°  | 0.5410             | 5.34     | 72.5°  | 0.0665             | 23.54    |
| -71.0° | 0.0790             | 22.05    | -35.0° | 0.5830             | 4.69     | 1.0°   | 0.9990             | 0.01     | 37.0°  | 0.5320             | 5.48     | 73.0°  | 0.0630             | 24.01    |
| -70.5° | 0.0830             | 21.62    | -34.5° | 0.5920             | 4.55     | 1.5°   | 0.9980             | 0.02     | 37.5°  | 0.5230             | 5.63     | 73.5°  | 0.0600             | 24.44    |
| -70.0° | 0.0870             | 21.21    | -34.0° | 0.6010             | 4.42     | 2.0°   | 0.9970             | 0.03     | 38.0°  | 0.5140             | 5.78     | 74.0°  | 0.0570             | 24.88    |
| -69.5° | 0.0910             | 20.82    | -33.5° | 0.6100             | 4.29     | 2.5°   | 0.9955             | 0.04     | 38.5°  | 0.5050             | 5.93     | 74.5°  | 0.0540             | 25.35    |
| -69.0° | 0.0950             | 20.45    | -33.0° | 0.6190             | 4.17     | 3.0°   | 0.9940             | 0.05     | 39.0°  | 0.4960             | 6.09     | 75.0°  | 0.0510             | 25.85    |
| -68.5° | 0.0990             | 20.09    | -32.5° | 0.6285             | 4.03     | 3.5°   | 0.9925             | 0.07     | 39.5°  | 0.4870             | 6.25     | 75.5°  | 0.0480             | 26.38    |
| -68.0° | 0.1030             | 19.74    | -32.0° | 0.6380             | 3.90     | 4.0°   | 0.9910             | 0.08     | 40.0°  | 0.4780             | 6.41     | 76.0°  | 0.0450             | 26.94    |
| -67.5° | 0.1075             | 19.37    | -31.5° | 0.6470             | 3.78     | 4.5°   | 0.9890             | 0.10     | 40.5°  | 0.4690             | 6.58     | 76.5°  | 0.0425             | 27.43    |
| -67.0° | 0.1120             | 19.02    | -31.0° | 0.6560             | 3.66     | 5.0°   | 0.9870             | 0.11     | 41.0°  | 0.4600             | 6.74     | 77.0°  | 0.0400             | 27.96    |
| -66.5° | 0.1170             | 18.64    | -30.5° | 0.6650             | 3.54     | 5.5°   | 0.9840             | 0.14     | 41.5°  | 0.4515             | 6.91     | 77.5°  | 0.0375             | 28.52    |
| -66.0° | 0.1220             | 18.27    | -30.0° | 0.6740             | 3.43     | 6.0°   | 0.9810             | 0.17     | 42.0°  | 0.4430             | 7.07     | 78.0°  | 0.0350             | 29.12    |
| -65.5° | 0.1265             | 17.96    | -29.5° | 0.6830             | 3.31     | 6.5°   | 0.9780             | 0.19     | 42.5°  | 0.4345             | 7.24     | 78.5°  | 0.0325             | 29.76    |
| -65.0° | 0.1310             | 17.65    | -29.0° | 0.6920             | 3.20     | 7.0°   | 0.9750             | 0.22     | 43.0°  | 0.4260             | 7.41     | 79.0°  | 0.0300             | 30.46    |
| -64.5° | 0.1360             | 17.33    | -28.5° | 0.7010             | 3.09     | 7.5°   | 0.9715             | 0.25     | 43.5°  | 0.4175             | 7.59     | 79.5°  | 0.0280             | 31.06    |
| -64.0° | 0.1410             | 17.02    | -28.0° | 0.7100             | 2.97     | 8.0°   | 0.9680             | 0.28     | 44.0°  | 0.4090             | 7.77     | 80.0°  | 0.0260             | 31.70    |
| -63.5° | 0.1465             | 16.68    | -27.5° | 0.7185             | 2.87     | 8.5°   | 0.9645             | 0.31     | 44.5°  | 0.4005             | 7.95     | 80.5°  | 0.0240             | 32.40    |
| -63.0° | 0.1520             | 16.36    | -27.0° | 0.7270             | 2.77     | 9.0°   | 0.9610             | 0.35     | 45.0°  | 0.3920             | 8.13     | 81.0°  | 0.0220             | 33.15    |
| -62.5° | 0.1575             | 16.05    | -26.5° | 0.7360             | 2.66     | 9.5°   | 0.9565             | 0.39     | 45.5°  | 0.3835             | 8.32     | 81.5°  | 0.0200             | 33.98    |
| -62.0° | 0.1630             | 15.76    | -26.0° | 0.7450             | 2.56     | 10.0°  | 0.9520             | 0.43     | 46.0°  | 0.3750             | 8.52     | 82.0°  | 0.0180             | 34.89    |
| -61.5° | 0.1685             | 15.47    | -25.5° | 0.7535             | 2.46     | 10.5°  | 0.9475             | 0.47     | 46.5°  | 0.3670             | 8.71     | 82.5°  | 0.0165             | 35.65    |
| -61.0° | 0.1740             | 15.19    | -25.0° | 0.7620             | 2.36     | 11.0°  | 0.9430             | 0.51     | 47.0°  | 0.3590             | 8.90     | 83.0°  | 0.0150             | 36.48    |
| -60.5° | 0.1800             | 14.89    | -24.5° | 0.7700             | 2.27     | 11.5°  | 0.9380             | 0.56     | 47.5°  | 0.3510             | 9.09     | 83.5°  | 0.0135             | 37.39    |
| -60.0° | 0.1860             | 14.61    | -24.0° | 0.7780             | 2.18     | 12.0°  | 0.9330             | 0.60     | 48.0°  | 0.3430             | 9.29     | 84.0°  | 0.0120             | 38.42    |
| -59.5° | 0.1920             | 14.33    | -23.5° | 0.7865             | 2.09     | 12.5°  | 0.9275             | 0.65     | 48.5°  | 0.3355             | 9.49     | 84.5°  | 0.0105             | 39.58    |
| -59.0° | 0.1980             | 14.07    | -23.0° | 0.7950             | 1.99     | 13.0°  | 0.9220             | 0.71     | 49.0°  | 0.3280             | 9.68     | 85.0°  | 0.0090             | 40.92    |
| -58.5° | 0.2040             | 13.81    | -22.5° | 0.8030             | 1.91     | 13.5°  | 0.9165             | 0.76     | 49.5°  | 0.3205             | 9.88     | 85.5°  | 0.0080             | 41.94    |
| -58.0° | 0.2100             | 13.56    | -22.0° | 0.8110             | 1.82     | 14.0°  | 0.9110             | 0.81     | 50.0°  | 0.3130             | 10.09    | 86.0°  | 0.0070             | 43.10    |
| -57.5° | 0.2165             | 13.29    | -21.5° | 0.8185             | 1.74     | 14.5°  | 0.9045             | 0.87     | 50.5°  | 0.3055             | 10.30    | 86.5°  | 0.0060             | 44.44    |
| -57.0° | 0.2230             | 13.03    | -21.0° | 0.8260             | 1.66     | 15.0°  | 0.8980             | 0.93     | 51.0°  | 0.2980             | 10.52    | 87.0°  | 0.0050             | 46.02    |
| -56.5° | 0.2295             | 12.78    | -20.5° | 0.8335             | 1.58     | 15.5°  | 0.8920             | 0.99     | 51.5°  | 0.2905             | 10.74    | 87.5°  | 0.0040             | 47.96    |
| -56.0° | 0.2360             | 12.54    | -20.0° | 0.8410             | 1.50     | 16.0°  | 0.8860             | 1.05     | 52.0°  | 0.2830             | 10.96    | 88.0°  | 0.0030             | 50.46    |
| -55.5° | 0.2430             | 12.29    | -19.5° | 0.8485             | 1.43     | 16.5°  | 0.8790             | 1.12     | 52.5°  | 0.2760             | 11.18    | 88.5°  | 0.0025             | 52.04    |
| -55.0° | 0.2500             | 12.04    | -19.0° | 0.8560             | 1.35     | 17.0°  | 0.8720             | 1.19     | 53.0°  | 0.2690             | 11.40    | 89.0°  | 0.0020             | 53.98    |
| -54.5° | 0.2570             | 11.80    | -18.5° | 0.8630             | 1.28     | 17.5°  | 0.8650             | 1.26     | 53.5°  | 0.2620             | 11.63    | 89.5°  | 0.0015             | 56.48    |



Parâmetros da configuração

ELEMENTOS VERTICAIS

2

ÂNGULO DE MEIA POTÊNCIA VERTICAL

26.03°

GANHO

3.08 dBd

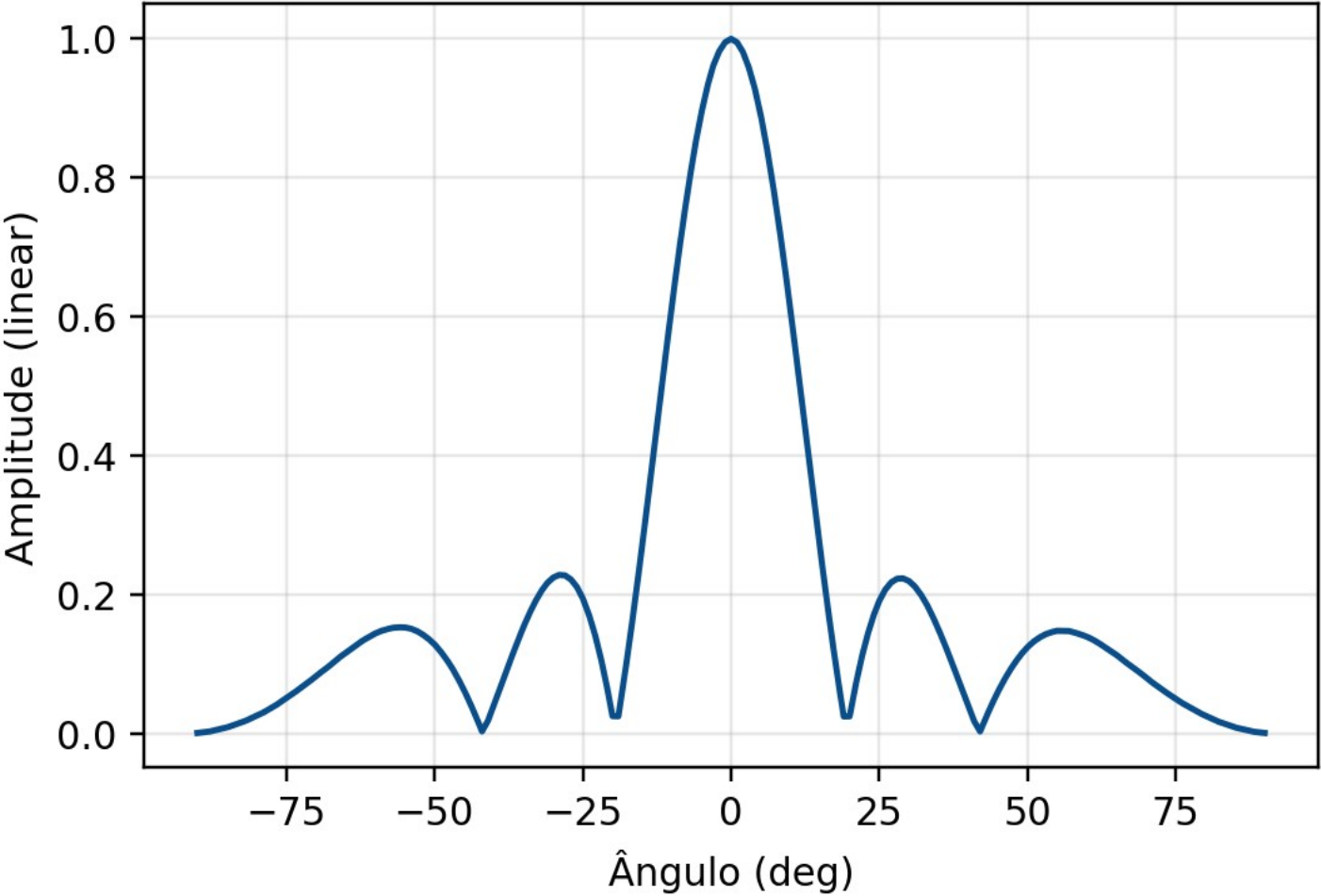
PRIMEIRO NULO

29.00°

Tabela completa - Elevação



| Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB |
|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|
| -90.0° | 0.0010 | 60.00    | -54.0° | 0.2176 | 13.25    | -18.0° | 0.4917 | 6.17     | 18.0°  | 0.4849 | 6.29     | 54.0°  | 0.2102 | 13.55    |
| -89.5° | 0.0015 | 56.48    | -53.5° | 0.2208 | 13.12    | -17.5° | 0.5141 | 5.78     | 18.5°  | 0.4625 | 6.70     | 54.5°  | 0.2070 | 13.68    |
| -89.0° | 0.0020 | 53.98    | -53.0° | 0.2239 | 13.00    | -17.0° | 0.5364 | 5.41     | 19.0°  | 0.4402 | 7.13     | 55.0°  | 0.2038 | 13.82    |
| -88.5° | 0.0025 | 52.04    | -52.5° | 0.2266 | 12.89    | -16.5° | 0.5587 | 5.06     | 19.5°  | 0.4177 | 7.58     | 55.5°  | 0.1997 | 13.99    |
| -88.0° | 0.0030 | 50.46    | -52.0° | 0.2293 | 12.79    | -16.0° | 0.5809 | 4.72     | 20.0°  | 0.3953 | 8.06     | 56.0°  | 0.1957 | 14.17    |
| -87.5° | 0.0040 | 47.96    | -51.5° | 0.2319 | 12.69    | -15.5° | 0.6027 | 4.40     | 20.5°  | 0.3731 | 8.56     | 56.5°  | 0.1922 | 14.33    |
| -87.0° | 0.0050 | 46.02    | -51.0° | 0.2345 | 12.60    | -15.0° | 0.6244 | 4.09     | 21.0°  | 0.3509 | 9.10     | 57.0°  | 0.1887 | 14.49    |
| -86.5° | 0.0060 | 44.44    | -50.5° | 0.2369 | 12.51    | -14.5° | 0.6458 | 3.80     | 21.5°  | 0.3289 | 9.66     | 57.5°  | 0.1844 | 14.68    |
| -86.0° | 0.0070 | 43.10    | -50.0° | 0.2393 | 12.42    | -14.0° | 0.6672 | 3.52     | 22.0°  | 0.3069 | 10.26    | 58.0°  | 0.1801 | 14.89    |
| -85.5° | 0.0080 | 41.94    | -49.5° | 0.2407 | 12.37    | -13.5° | 0.6877 | 3.25     | 22.5°  | 0.2852 | 10.90    | 58.5°  | 0.1760 | 15.09    |
| -85.0° | 0.0090 | 40.92    | -49.0° | 0.2421 | 12.32    | -13.0° | 0.7083 | 3.00     | 23.0°  | 0.2635 | 11.59    | 59.0°  | 0.1719 | 15.29    |
| -84.5° | 0.0105 | 39.58    | -48.5° | 0.2433 | 12.28    | -12.5° | 0.7279 | 2.76     | 23.5°  | 0.2425 | 12.31    | 59.5°  | 0.1681 | 15.49    |
| -84.0° | 0.0120 | 38.42    | -48.0° | 0.2445 | 12.24    | -12.0° | 0.7476 | 2.53     | 24.0°  | 0.2216 | 13.09    | 60.0°  | 0.1642 | 15.69    |
| -83.5° | 0.0135 | 37.40    | -47.5° | 0.2453 | 12.21    | -11.5° | 0.7661 | 2.31     | 24.5°  | 0.2011 | 13.93    | 60.5°  | 0.1600 | 15.91    |
| -83.0° | 0.0150 | 36.48    | -47.0° | 0.2461 | 12.18    | -11.0° | 0.7846 | 2.11     | 25.0°  | 0.1807 | 14.86    | 61.0°  | 0.1559 | 16.14    |
| -82.5° | 0.0165 | 35.65    | -46.5° | 0.2459 | 12.19    | -10.5° | 0.8023 | 1.91     | 25.5°  | 0.1610 | 15.86    | 61.5°  | 0.1516 | 16.38    |
| -82.0° | 0.0180 | 34.90    | -46.0° | 0.2456 | 12.19    | -10.0° | 0.8200 | 1.72     | 26.0°  | 0.1413 | 17.00    | 62.0°  | 0.1473 | 16.63    |
| -81.5° | 0.0200 | 33.99    | -45.5° | 0.2449 | 12.22    | -9.5°  | 0.8363 | 1.55     | 26.5°  | 0.1223 | 18.25    | 62.5°  | 0.1429 | 16.90    |
| -81.0° | 0.0220 | 33.16    | -45.0° | 0.2442 | 12.24    | -9.0°  | 0.8527 | 1.38     | 27.0°  | 0.1034 | 19.71    | 63.0°  | 0.1384 | 17.18    |
| -80.5° | 0.0240 | 32.40    | -44.5° | 0.2427 | 12.30    | -8.5°  | 0.8676 | 1.23     | 27.5°  | 0.0853 | 21.38    | 63.5°  | 0.1342 | 17.44    |
| -80.0° | 0.0260 | 31.71    | -44.0° | 0.2412 | 12.35    | -8.0°  | 0.8825 | 1.09     | 28.0°  | 0.0672 | 23.45    | 64.0°  | 0.1301 | 17.72    |
| -79.5° | 0.0280 | 31.07    | -43.5° | 0.2388 | 12.44    | -7.5°  | 0.8958 | 0.96     | 28.5°  | 0.0501 | 26.00    | 64.5°  | 0.1262 | 17.98    |
| -79.0° | 0.0299 | 30.47    | -43.0° | 0.2365 | 12.52    | -7.0°  | 0.9091 | 0.83     | 29.0°  | 0.0330 | 29.64    | 65.0°  | 0.1224 | 18.24    |
| -78.5° | 0.0324 | 29.78    | -42.5° | 0.2335 | 12.63    | -6.5°  | 0.9213 | 0.71     | 29.5°  | 0.0168 | 35.48    | 65.5°  | 0.1180 | 18.56    |
| -78.0° | 0.0349 | 29.14    | -42.0° | 0.2305 | 12.75    | -6.0°  | 0.9334 | 0.60     | 30.0°  | 0.0007 | 63.28    | 66.0°  | 0.1136 | 18.89    |
| -77.5° | 0.0374 | 28.55    | -41.5° | 0.2266 | 12.90    | -5.5°  | 0.9433 | 0.51     | 30.5°  | 0.0151 | 36.40    | 66.5°  | 0.1096 | 19.20    |
| -77.0° | 0.0399 | 27.99    | -41.0° | 0.2226 | 13.05    | -5.0°  | 0.9532 | 0.42     | 31.0°  | 0.0296 | 30.58    | 67.0°  | 0.1056 | 19.53    |
| -76.5° | 0.0428 | 27.37    | -40.5° | 0.2175 | 13.25    | -4.5°  | 0.9617 | 0.34     | 31.5°  | 0.0437 | 27.19    | 67.5°  | 0.1019 | 19.83    |
| -76.0° | 0.0458 | 26.78    | -40.0° | 0.2123 | 13.46    | -4.0°  | 0.9703 | 0.26     | 32.0°  | 0.0578 | 24.76    | 68.0°  | 0.0983 | 20.15    |
| -75.5° | 0.0487 | 26.24    | -39.5° | 0.2064 | 13.70    | -3.5°  | 0.9769 | 0.20     | 32.5°  | 0.0708 | 22.99    | 68.5°  | 0.0946 | 20.48    |
| -75.0° | 0.0517 | 25.73    | -39.0° | 0.2005 | 13.96    | -3.0°  | 0.9836 | 0.14     | 33.0°  | 0.0839 | 21.53    | 69.0°  | 0.0909 | 20.82    |
| -74.5° | 0.0546 | 25.25    | -38.5° | 0.1938 | 14.25    | -2.5°  | 0.9878 | 0.11     | 33.5°  | 0.0958 | 20.37    | 69.5°  | 0.0872 | 21.19    |
| -74.0° | 0.0576 | 24.80    | -38.0° | 0.1870 | 14.56    | -2.0°  | 0.9920 | 0.07     | 34.0°  | 0.1077 | 19.36    | 70.0°  | 0.0834 | 21.57    |
| -73.5° | 0.0610 | 24.30    | -37.5° | 0.1790 | 14.94    | -1.5°  | 0.9948 | 0.05     | 34.5°  | 0.1186 | 18.52    | 70.5°  | 0.0796 | 21.98    |
| -73.0° | 0.0644 | 23.83    | -37.0° | 0.1710 | 15.34    | -1.0°  | 0.9975 | 0.02     | 35.0°  | 0.1295 | 17.76    | 71.0°  | 0.0758 | 22.40    |
| -72.5° | 0.0677 | 23.38    | -36.5° | 0.1620 | 15.81    | -0.5°  | 0.9987 | 0.01     | 35.5°  | 0.1393 | 17.12    | 71.5°  | 0.0725 | 22.79    |
| -72.0° | 0.0711 | 22.96    | -36.0° | 0.1529 | 16.31    | 0.0°   | 1.0000 | 0.00     | 36.0°  | 0.1491 | 16.53    | 72.0°  | 0.0692 | 23.20    |
| -71.5° | 0.0745 | 22.56    | -35.5° | 0.1429 | 16.90    | 0.5°   | 0.9987 | 0.01     | 36.5°  | 0.1579 | 16.03    | 72.5°  | 0.0658 | 23.64    |
| -71.0° | 0.0778 | 22.18    | -35.0° | 0.1329 | 17.53    | 1.0°   | 0.9975 | 0.02     | 37.0°  | 0.1666 | 15.56    | 73.0°  | 0.0624 | 24.10    |
| -70.5° | 0.0816 | 21.76    | -34.5° | 0.1217 | 18.30    | 1.5°   | 0.9943 | 0.05     | 37.5°  | 0.1744 | 15.17    | 73.5°  | 0.0595 | 24.51    |
| -70.0° | 0.0854 | 21.37    | -34.0° | 0.1104 | 19.14    | 2.0°   | 0.9910 | 0.08     | 38.0°  | 0.1821 | 14.80    | 74.0°  | 0.0566 | 24.95    |
| -69.5° | 0.0892 | 21.00    | -33.5° | 0.0981 | 20.16    | 2.5°   | 0.9858 | 0.12     | 38.5°  | 0.1887 | 14.48    | 74.5°  | 0.0536 | 25.41    |
| -69.0° | 0.0929 | 20.64    | -33.0° | 0.0858 | 21.33    | 3.0°   | 0.9806 | 0.17     | 39.0°  | 0.1954 | 14.18    | 75.0°  | 0.0507 | 25.90    |
| -68.5° | 0.0966 | 20.30    | -32.5° | 0.0725 | 22.79    | 3.5°   | 0.9740 | 0.23     | 39.5°  | 0.2011 | 13.93    | 75.5°  | 0.0477 | 26.42    |
| -68.0° | 0.1003 | 19.98    | -32.0° | 0.0592 | 24.56    | 4.0°   | 0.9673 | 0.29     | 40.0°  | 0.2067 | 13.69    | 76.0°  | 0.0448 | 26.98    |
| -67.5° | 0.1044 | 19.63    | -31.5° | 0.0447 | 26.99    | 4.5°   | 0.9588 | 0.37     | 40.5°  | 0.2114 | 13.50    | 76.5°  | 0.0423 | 27.47    |
| -67.0° | 0.1085 | 19.29    | -31.0° | 0.0303 | 30.38    | 5.0°   | 0.9503 | 0.44     | 41.0°  | 0.2160 | 13.31    | 77.0°  | 0.0399 | 27.99    |
| -66.5° | 0.1130 | 18.94    | -30.5° | 0.0155 | 36.20    | 5.5°   | 0.9395 | 0.54     | 41.5°  | 0.2200 | 13.15    | 77.5°  | 0.0374 | 28.55    |
| -66.0° | 0.1175 | 18.60    | -30.0° | 0.0007 | 63.09    | 6.0°   | 0.9287 | 0.64     | 42.0°  | 0.2239 | 13.00    | 78.0°  | 0.0349 | 29.14    |
| -65.5° | 0.1214 | 18.32    | -29.5° | 0.0172 | 35.29    | 6.5°   | 0.9166 | 0.76     | 42.5°  | 0.2270 | 12.88    | 78.5°  | 0.0324 | 29.78    |
| -65.0° | 0.1253 | 18.04    | -29.0° | 0.0337 | 29.45    | 7.0°   | 0.9045 | 0.87     | 43.0°  | 0.2300 | 12.77    | 79.0°  | 0.0299 | 30.47    |
| -64.5° | 0.1296 | 17.75    | -28.5° | 0.0512 | 25.82    | 7.5°   | 0.8908 | 1.00     | 43.5°  | 0.2322 | 12.68    | 79.5°  | 0.0280 | 31.07    |
| -64.0° | 0.1339 | 17.47    | -28.0° | 0.0687 | 23.26    | 8.0°   | 0.8771 | 1.14     | 44.0°  | 0.2343 | 12.60    | 80.0°  | 0.0260 | 31.71    |
| -63.5° | 0.1385 | 17.17    | -27.5° | 0.0870 | 21.21    | 8.5°   | 0.8622 | 1.29     | 44.5°  | 0.2357 | 12.55    | 80.5°  | 0.0240 | 32.40    |
| -63.0° | 0.1431 | 16.89    | -27.0° | 0.1054 | 19.54    | 9.0°   | 0.8474 | 1.44     | 45.0°  | 0.2370 | 12.51    | 81.0°  | 0.0220 | 33.16    |
| -62.5° | 0.1475 | 16.62    | -26.5° | 0.1247 | 18.08    | 9.5°   | 0.8307 | 1.61     | 45.5°  | 0.2375 | 12.49    | 81.5°  | 0.0200 | 33.99    |
| -62.0° | 0.1520 | 16.36    | -26.0° | 0.1440 | 16.83    | 10.0°  | 0.8140 | 1.79     | 46.0°  | 0.2380 | 12.47    | 82.0°  | 0.0180 | 34.90    |
| -61.5° | 0.1563 | 16.12    | -25.5° | 0.1640 | 15.70    | 10.5°  | 0.7964 | 1.98     | 46.5°  | 0.2381 | 12.47    | 82.5°  | 0.0165 | 35.65    |
| -61.0° | 0.1606 | 15.89    | -25.0° | 0.1841 | 14.70    | 11.0°  | 0.7788 | 2.17     | 47.0°  | 0.2381 | 12.46    | 83.0°  | 0.0150 | 36.48    |
| -60.5° | 0.1651 | 15.65    | -24.5° | 0.2047 | 13.78    | 11.5°  | 0.7600 | 2.38     | 47.5°  | 0.2375 | 12.49    | 83.5°  | 0.0135 | 37.40    |
| -60.0° | 0.1696 | 15.41    | -24.0° | 0.2253 | 12.94    | 12.0°  | 0.7412 | 2.60     | 48.0°  | 0.2369 | 12.51    | 84.0°  | 0.0120 | 38.42    |
| -59.5° | 0.1739 | 15.19    | -23.5° | 0.2468 | 12.15    | 12.5°  | 0.7213 | 2.84     | 48.5°  | 0.2359 | 12.54    | 84.5°  | 0.0105 | 39.58    |
| -59.0° | 0.1782 | 14.98    | -23.0° | 0.2682 | 11.43    | 13.0°  | 0.7015 | 3.08     | 49.0°  | 0.2350 | 12.58    | 85.0°  | 0.0090 | 40.92    |
| -58.5° | 0.1823 | 14.78    | -22.5° | 0.2900 | 10.75    | 13.5°  | 0.6810 | 3.34     | 49.5°  | 0.2334 | 12.64    | 85.5°  | 0.0080 | 41.94    |
| -58.0° | 0.1864 | 14.59    | -22.0° | 0.3119 | 10.12    | 14.0°  | 0.6606 | 3.60     | 50.0°  | 0.2319 | 12.70    | 86.0°  | 0.0070 | 43.10    |
| -57.5° | 0.1906 | 14.40    | -21.5° | 0.3340 | 9.53     | 14.5°  | 0.6391 | 3.89     | 50.5°  | 0.2297 | 12.78    | 86.5°  | 0.0060 | 44.44    |
| -57.0° | 0.1948 | 14.21    | -21.0° | 0.3561 | 8.97     | 15.0°  | 0.6175 | 4.19     | 51.0°  | 0.2276 | 12.86    | 87.0°  | 0.0050 | 46.02    |
| -56.5° | 0.1987 | 14.04    | -20.5° | 0.3785 | 8.44     | 15.5°  | 0.5960 | 4.50     | 51.5°  | 0.2249 | 12.96    | 87.5°  | 0.0040 | 47.96    |
| -56.0° | 0.2026 | 13.87    | -20.0° | 0.4010 | 7.94     | 16.0°  | 0.5744 | 4.81     | 52.0°  | 0.2222 | 13.06    | 88.0°  | 0.0030 | 50.46    |
| -55.5° | 0.2065 | 13.70    | -19.5° | 0.4237 | 7.46     | 16.5°  | 0.5521 | 5.16     | 52.5°  | 0.2195 | 13.17    | 88.5°  | 0.0025 | 52.04    |
| -55.0° | 0.2105 | 13.54    | -19.0° | 0.4465 | 7.00     | 17.0°  | 0.5297 | 5.52     | 53.0°  | 0.2167 | 13.28    | 89.0°  | 0.0020 | 53.98    |
| -54.5° | 0.2141 | 13.39    | -18.5° | 0.4691 | 6.58     | 17.5°  | 0.5073 | 5.89     | 53.5°  | 0.2134 | 13.41    | 89.5°  | 0.0015 | 56.48    |



Parâmetros da configuração

ELEMENTOS VERTICAIS

3

ÂNGULO DE MEIA POTÊNCIA VERTICAL

17.56°

GANHO

4.80 dBd

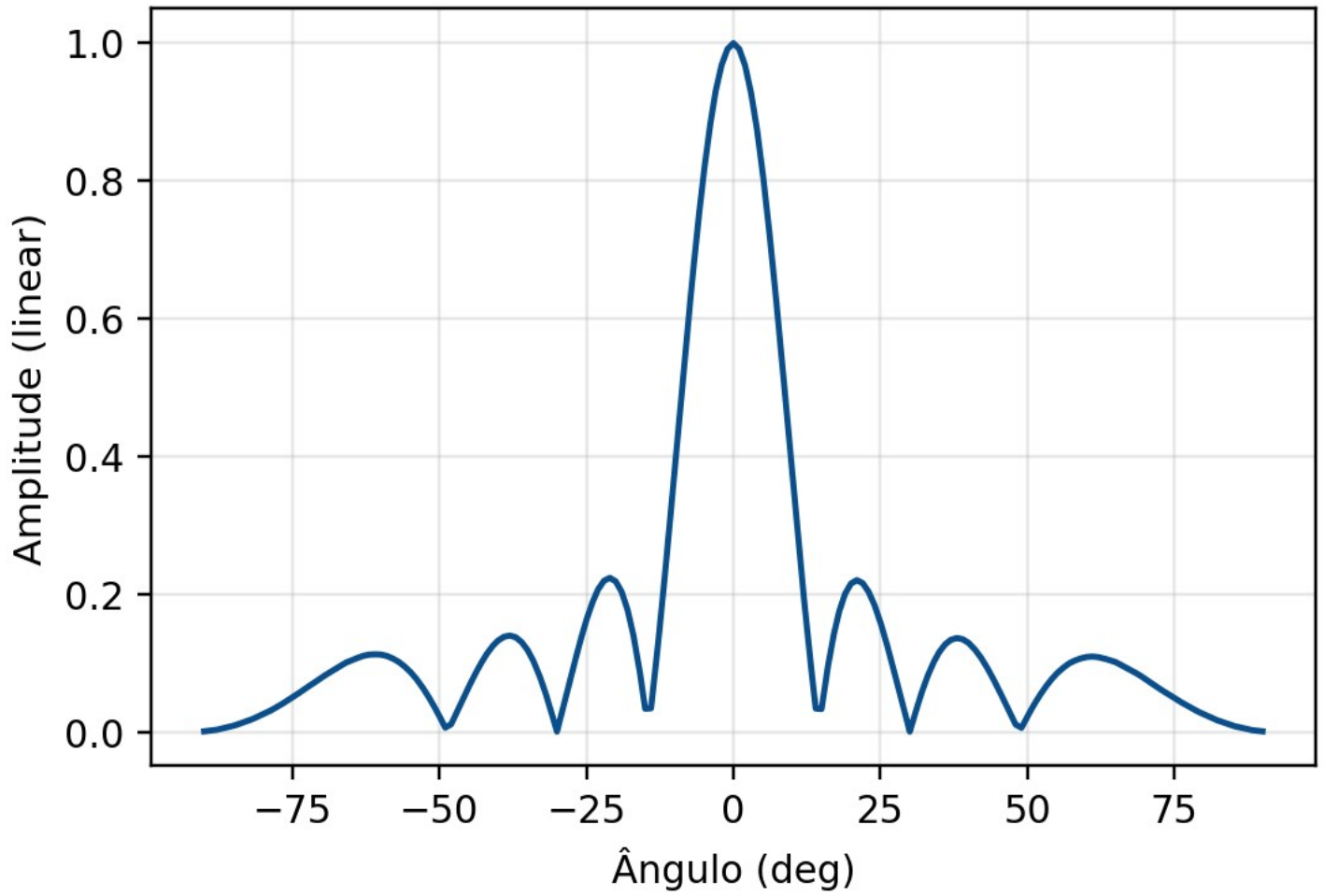
PRIMEIRO NULO

19.00°

Tabela completa - Elevação



| Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB |
|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|
| -90.0° | 0.0010             | 60.00    | -54.0° | 0.1512             | 16.41    | -18.0° | 0.0805             | 21.88    | 18.0°  | 0.0794             | 22.00    | 54.0°  | 0.1461             | 16.71    |
| -89.5° | 0.0015             | 56.48    | -53.5° | 0.1495             | 16.51    | -17.5° | 0.1103             | 19.15    | 18.5°  | 0.0521             | 25.66    | 54.5°  | 0.1471             | 16.65    |
| -89.0° | 0.0020             | 53.98    | -53.0° | 0.1478             | 16.60    | -17.0° | 0.1401             | 17.07    | 19.0°  | 0.0248             | 32.12    | 55.0°  | 0.1481             | 16.59    |
| -88.5° | 0.0025             | 52.04    | -52.5° | 0.1453             | 16.75    | -16.5° | 0.1718             | 15.30    | 19.5°  | 0.0249             | 32.07    | 55.5°  | 0.1480             | 16.59    |
| -88.0° | 0.0030             | 50.46    | -52.0° | 0.1428             | 16.91    | -16.0° | 0.2035             | 13.83    | 20.0°  | 0.0250             | 32.03    | 56.0°  | 0.1480             | 16.60    |
| -87.5° | 0.0040             | 47.96    | -51.5° | 0.1396             | 17.10    | -15.5° | 0.2367             | 12.52    | 20.5°  | 0.0473             | 26.50    | 56.5°  | 0.1478             | 16.60    |
| -87.0° | 0.0050             | 46.02    | -51.0° | 0.1364             | 17.30    | -15.0° | 0.2698             | 11.38    | 21.0°  | 0.0696             | 23.14    | 57.0°  | 0.1477             | 16.61    |
| -86.5° | 0.0060             | 44.44    | -50.5° | 0.1325             | 17.55    | -14.5° | 0.3041             | 10.34    | 21.5°  | 0.0892             | 21.00    | 57.5°  | 0.1466             | 16.68    |
| -86.0° | 0.0070             | 43.10    | -50.0° | 0.1287             | 17.81    | -14.0° | 0.3384             | 9.41     | 22.0°  | 0.1087             | 19.28    | 58.0°  | 0.1455             | 16.74    |
| -85.5° | 0.0080             | 41.94    | -49.5° | 0.1236             | 18.16    | -13.5° | 0.3733             | 8.56     | 22.5°  | 0.1252             | 18.04    | 58.5°  | 0.1441             | 16.83    |
| -85.0° | 0.0090             | 40.92    | -49.0° | 0.1186             | 18.52    | -13.0° | 0.4082             | 7.78     | 23.0°  | 0.1418             | 16.96    | 59.0°  | 0.1427             | 16.91    |
| -84.5° | 0.0105             | 39.58    | -48.5° | 0.1129             | 18.95    | -12.5° | 0.4432             | 7.07     | 23.5°  | 0.1556             | 16.16    | 59.5°  | 0.1412             | 17.01    |
| -84.0° | 0.0120             | 38.42    | -48.0° | 0.1071             | 19.40    | -12.0° | 0.4782             | 6.41     | 24.0°  | 0.1694             | 15.42    | 60.0°  | 0.1396             | 17.10    |
| -83.5° | 0.0135             | 37.40    | -47.5° | 0.1006             | 19.95    | -11.5° | 0.5127             | 5.80     | 24.5°  | 0.1803             | 14.88    | 60.5°  | 0.1376             | 17.23    |
| -83.0° | 0.0150             | 36.49    | -47.0° | 0.0940             | 20.54    | -11.0° | 0.5473             | 5.24     | 25.0°  | 0.1911             | 14.37    | 61.0°  | 0.1355             | 17.36    |
| -82.5° | 0.0165             | 35.66    | -46.5° | 0.0864             | 21.27    | -10.5° | 0.5812             | 4.71     | 25.5°  | 0.1992             | 14.01    | 61.5°  | 0.1330             | 17.52    |
| -82.0° | 0.0180             | 34.91    | -46.0° | 0.0788             | 22.06    | -10.0° | 0.6152             | 4.22     | 26.0°  | 0.2072             | 13.67    | 62.0°  | 0.1305             | 17.69    |
| -81.5° | 0.0200             | 34.00    | -45.5° | 0.0705             | 23.03    | -9.5°  | 0.6477             | 3.77     | 26.5°  | 0.2125             | 13.45    | 62.5°  | 0.1276             | 17.88    |
| -81.0° | 0.0220             | 33.17    | -45.0° | 0.0622             | 24.13    | -9.0°  | 0.6802             | 3.35     | 27.0°  | 0.2177             | 13.24    | 63.0°  | 0.1247             | 18.08    |
| -80.5° | 0.0239             | 32.42    | -44.5° | 0.0531             | 25.50    | -8.5°  | 0.7108             | 2.96     | 27.5°  | 0.2203             | 13.14    | 63.5°  | 0.1218             | 18.29    |
| -80.0° | 0.0259             | 31.73    | -44.0° | 0.0439             | 27.14    | -8.0°  | 0.7415             | 2.60     | 28.0°  | 0.2230             | 13.03    | 64.0°  | 0.1189             | 18.49    |
| -79.5° | 0.0279             | 31.09    | -43.5° | 0.0341             | 29.35    | -7.5°  | 0.7697             | 2.27     | 28.5°  | 0.2233             | 13.02    | 64.5°  | 0.1162             | 18.70    |
| -79.0° | 0.0299             | 30.50    | -43.0° | 0.0242             | 32.31    | -7.0°  | 0.7979             | 1.96     | 29.0°  | 0.2235             | 13.01    | 65.0°  | 0.1135             | 18.90    |
| -78.5° | 0.0323             | 29.81    | -42.5° | 0.0138             | 37.20    | -6.5°  | 0.8236             | 1.69     | 29.5°  | 0.2216             | 13.09    | 65.5°  | 0.1100             | 19.17    |
| -78.0° | 0.0348             | 29.18    | -42.0° | 0.0034             | 49.49    | -6.0°  | 0.8494             | 1.42     | 30.0°  | 0.2197             | 13.16    | 66.0°  | 0.1065             | 19.45    |
| -77.5° | 0.0372             | 28.59    | -41.5° | 0.0110             | 39.19    | -5.5°  | 0.8715             | 1.19     | 30.5°  | 0.2158             | 13.32    | 66.5°  | 0.1033             | 19.72    |
| -77.0° | 0.0396             | 28.04    | -41.0° | 0.0186             | 34.61    | -5.0°  | 0.8936             | 0.98     | 31.0°  | 0.2118             | 13.48    | 67.0°  | 0.1000             | 20.00    |
| -76.5° | 0.0425             | 27.42    | -40.5° | 0.0299             | 30.49    | -4.5°  | 0.9125             | 0.80     | 31.5°  | 0.2062             | 13.71    | 67.5°  | 0.0970             | 20.27    |
| -76.0° | 0.0454             | 26.85    | -40.0° | 0.0412             | 27.70    | -4.0°  | 0.9314             | 0.62     | 32.0°  | 0.2005             | 13.96    | 68.0°  | 0.0940             | 20.54    |
| -75.5° | 0.0483             | 26.32    | -39.5° | 0.0528             | 25.55    | -3.5°  | 0.9464             | 0.48     | 32.5°  | 0.1933             | 14.27    | 68.5°  | 0.0908             | 20.84    |
| -75.0° | 0.0512             | 25.82    | -39.0° | 0.0643             | 23.83    | -3.0°  | 0.9614             | 0.34     | 33.0°  | 0.1862             | 14.60    | 69.0°  | 0.0876             | 21.15    |
| -74.5° | 0.0540             | 25.35    | -38.5° | 0.0760             | 22.38    | -2.5°  | 0.9718             | 0.25     | 33.5°  | 0.1776             | 15.01    | 69.5°  | 0.0842             | 21.49    |
| -74.0° | 0.0568             | 24.91    | -38.0° | 0.0877             | 21.14    | -2.0°  | 0.9821             | 0.16     | 34.0°  | 0.1690             | 15.44    | 70.0°  | 0.0809             | 21.84    |
| -73.5° | 0.0601             | 24.43    | -37.5° | 0.0991             | 20.08    | -1.5°  | 0.9885             | 0.10     | 34.5°  | 0.1595             | 15.95    | 70.5°  | 0.0774             | 22.22    |
| -73.0° | 0.0633             | 23.97    | -37.0° | 0.1106             | 19.13    | -1.0°  | 0.9950             | 0.04     | 35.0°  | 0.1500             | 16.48    | 71.0°  | 0.0740             | 22.62    |
| -72.5° | 0.0665             | 23.54    | -36.5° | 0.1216             | 18.30    | -0.5°  | 0.9975             | 0.02     | 35.5°  | 0.1397             | 17.10    | 71.5°  | 0.0709             | 22.99    |
| -72.0° | 0.0697             | 23.14    | -36.0° | 0.1327             | 17.54    | 0.0°   | 1.0000             | 0.00     | 36.0°  | 0.1294             | 17.76    | 72.0°  | 0.0678             | 23.38    |
| -71.5° | 0.0728             | 22.76    | -35.5° | 0.1433             | 16.87    | 0.5°   | 0.9975             | 0.02     | 36.5°  | 0.1186             | 18.52    | 72.5°  | 0.0646             | 23.80    |
| -71.0° | 0.0759             | 22.40    | -35.0° | 0.1539             | 16.25    | 1.0°   | 0.9950             | 0.04     | 37.0°  | 0.1077             | 19.35    | 73.0°  | 0.0614             | 24.24    |
| -70.5° | 0.0793             | 22.01    | -34.5° | 0.1636             | 15.72    | 1.5°   | 0.9881             | 0.10     | 37.5°  | 0.0965             | 20.31    | 73.5°  | 0.0586             | 24.64    |
| -70.0° | 0.0828             | 21.64    | -34.0° | 0.1733             | 15.23    | 2.0°   | 0.9811             | 0.17     | 38.0°  | 0.0853             | 21.38    | 74.0°  | 0.0558             | 25.06    |
| -69.5° | 0.0861             | 21.30    | -33.5° | 0.1819             | 14.80    | 2.5°   | 0.9698             | 0.27     | 38.5°  | 0.0740             | 22.61    | 74.5°  | 0.0530             | 25.51    |
| -69.0° | 0.0895             | 20.97    | -33.0° | 0.1905             | 14.40    | 3.0°   | 0.9585             | 0.37     | 39.0°  | 0.0627             | 24.06    | 75.0°  | 0.0502             | 25.99    |
| -68.5° | 0.0926             | 20.66    | -32.5° | 0.1979             | 14.07    | 3.5°   | 0.9436             | 0.50     | 39.5°  | 0.0514             | 25.78    | 75.5°  | 0.0473             | 26.50    |
| -68.0° | 0.0958             | 20.37    | -32.0° | 0.2053             | 13.75    | 4.0°   | 0.9286             | 0.64     | 40.0°  | 0.0401             | 27.93    | 76.0°  | 0.0445             | 27.04    |
| -67.5° | 0.0993             | 20.06    | -31.5° | 0.2111             | 13.51    | 4.5°   | 0.9098             | 0.82     | 40.5°  | 0.0291             | 30.73    | 76.5°  | 0.0420             | 27.53    |
| -67.0° | 0.1027             | 19.77    | -31.0° | 0.2168             | 13.28    | 5.0°   | 0.8909             | 1.00     | 41.0°  | 0.0180             | 34.87    | 77.0°  | 0.0396             | 28.04    |
| -66.5° | 0.1064             | 19.46    | -30.5° | 0.2207             | 13.12    | 5.5°   | 0.8680             | 1.23     | 41.5°  | 0.0107             | 39.45    | 77.5°  | 0.0372             | 28.59    |
| -66.0° | 0.1101             | 19.16    | -30.0° | 0.2247             | 12.97    | 6.0°   | 0.8451             | 1.46     | 42.0°  | 0.0033             | 49.74    | 78.0°  | 0.0348             | 29.18    |
| -65.5° | 0.1131             | 18.93    | -29.5° | 0.2266             | 12.90    | 6.5°   | 0.8195             | 1.73     | 42.5°  | 0.0134             | 37.44    | 78.5°  | 0.0323             | 29.81    |
| -65.0° | 0.1161             | 18.70    | -29.0° | 0.2285             | 12.82    | 7.0°   | 0.7938             | 2.01     | 43.0°  | 0.0236             | 32.55    | 79.0°  | 0.0299             | 30.50    |
| -64.5° | 0.1193             | 18.47    | -28.5° | 0.2281             | 12.84    | 7.5°   | 0.7653             | 2.32     | 43.5°  | 0.0331             | 29.60    | 79.5°  | 0.0279             | 31.09    |
| -64.0° | 0.1224             | 18.24    | -28.0° | 0.2278             | 12.85    | 8.0°   | 0.7369             | 2.65     | 44.0°  | 0.0427             | 27.40    | 80.0°  | 0.0259             | 31.73    |
| -63.5° | 0.1257             | 18.02    | -27.5° | 0.2249             | 12.96    | 8.5°   | 0.7064             | 3.02     | 44.5°  | 0.0515             | 25.76    | 80.5°  | 0.0239             | 32.42    |
| -63.0° | 0.1289             | 17.79    | -27.0° | 0.2220             | 13.07    | 9.0°   | 0.6760             | 3.40     | 45.0°  | 0.0603             | 24.39    | 81.0°  | 0.0220             | 33.17    |
| -62.5° | 0.1318             | 17.60    | -26.5° | 0.2166             | 13.29    | 9.5°   | 0.6433             | 3.83     | 45.5°  | 0.0684             | 23.30    | 81.5°  | 0.0200             | 34.00    |
| -62.0° | 0.1346             | 17.42    | -26.0° | 0.2112             | 13.51    | 10.0°  | 0.6107             | 4.28     | 46.0°  | 0.0764             | 22.34    | 82.0°  | 0.0180             | 34.91    |
| -61.5° | 0.1371             | 17.26    | -25.5° | 0.2030             | 13.85    | 10.5°  | 0.5770             | 4.78     | 46.5°  | 0.0837             | 21.55    | 82.5°  | 0.0165             | 35.66    |
| -61.0° | 0.1395             | 17.11    | -25.0° | 0.1947             | 14.21    | 11.0°  | 0.5432             | 5.30     | 47.0°  | 0.0910             | 20.82    | 83.0°  | 0.0150             | 36.49    |
| -60.5° | 0.1419             | 16.96    | -24.5° | 0.1835             | 14.73    | 11.5°  | 0.5087             | 5.87     | 47.5°  | 0.0974             | 20.23    | 83.5°  | 0.0135             | 37.40    |
| -60.0° | 0.1443             | 16.82    | -24.0° | 0.1723             | 15.27    | 12.0°  | 0.4741             | 6.48     | 48.0°  | 0.1038             | 19.68    | 84.0°  | 0.0120             | 38.42    |
| -59.5° | 0.1461             | 16.71    | -23.5° | 0.1583             | 16.01    | 12.5°  | 0.4392             | 7.15     | 48.5°  | 0.1094             | 19.22    | 84.5°  | 0.0105             | 39.58    |
| -59.0° | 0.1479             | 16.60    | -23.0° | 0.1444             | 16.81    | 13.0°  | 0.4042             | 7.87     | 49.0°  | 0.1151             | 18.78    | 85.0°  | 0.0090             | 40.92    |
| -58.5° | 0.1492             | 16.52    | -22.5° | 0.1274             | 17.90    | 13.5°  | 0.3697             | 8.64     | 49.5°  | 0.1199             | 18.42    | 85.5°  | 0.0080             | 41.94    |
| -58.0° | 0.1505             | 16.45    | -22.0° | 0.1104             | 19.14    | 14.0°  | 0.3351             | 9.50     | 50.0°  | 0.1247             | 18.08    | 86.0°  | 0.0070             | 43.10    |
| -57.5° | 0.1515             | 16.39    | -21.5° | 0.0905             | 20.86    | 14.5°  | 0.3010             | 10.43    | 50.5°  | 0.1285             | 17.82    | 86.5°  | 0.0060             | 44.44    |
| -57.0° | 0.1525             | 16.33    | -21.0° | 0.0707             | 23.02    | 15.0°  | 0.2668             | 11.48    | 51.0°  | 0.1324             | 17.56    | 87.0°  | 0.0050             | 46.02    |
| -56.5° | 0.1528             | 16.32    | -20.5° | 0.0480             | 26.37    | 15.5°  | 0.2340             | 12.61    | 51.5°  | 0.1354             | 17.37    | 87.5°  | 0.0040             | 47.96    |
| -56.0° | 0.1531             | 16.30    | -20.0° | 0.0254             | 31.90    | 16.0°  | 0.2013             | 13.92    | 52.0°  | 0.1384             | 17.18    | 88.0°  | 0.0030             | 50.46    |
| -55.5° | 0.1531             | 16.30    | -19.5° | 0.0253             | 31.95    | 16.5°  | 0.1698             | 15.40    | 52.5°  | 0.1407             | 17.03    | 88.5°  | 0.0025             | 52.04    |
| -55.0° | 0.1530             | 16.31    | -19.0° | 0.0251             | 32.00    | 17.0°  | 0.1384             | 17.18    | 53.0°  | 0.1431             | 16.89    | 89.0°  | 0.0020             | 53.98    |
| -54.5° | 0.1521             | 16.36    | -18.5° | 0.0528             | 25.54    | 17.5°  | 0.1089             | 19.26    | 53.5°  | 0.1446             | 16.80    | 89.5°  | 0.0015             | 56.48    |



## Parâmetros da configuração

ELEMENTOS VERTICAIS

4

ÂNGULO DE MEIA POTÊNCIA VERTICAL

13.39°

GANHO

6.03 dBd

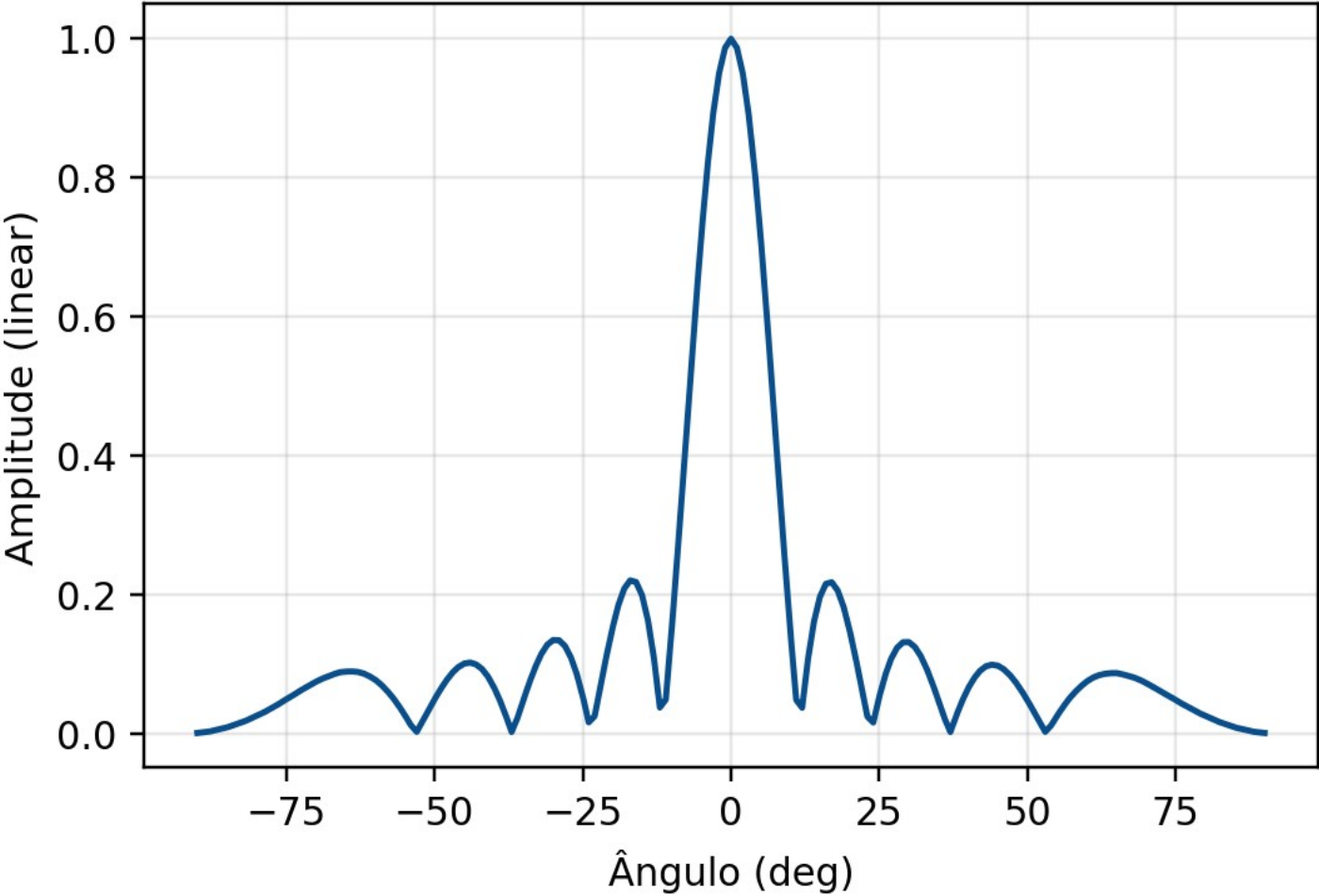
PRIMEIRO NULO

14.00°

Tabela completa - Elevação



| Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB |
|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|
| -90.0° | 0.0010             | 60.00    | -54.0° | 0.0782             | 22.14    | -18.0° | 0.1776             | 15.01    | 18.0°  | 0.1751             | 15.13    | 54.0°  | 0.0755             | 22.44    |
| -89.5° | 0.0015             | 56.48    | -53.5° | 0.0724             | 22.80    | -17.5° | 0.1590             | 15.97    | 18.5°  | 0.1879             | 14.52    | 54.5°  | 0.0803             | 21.90    |
| -89.0° | 0.0020             | 53.98    | -53.0° | 0.0667             | 23.52    | -17.0° | 0.1405             | 17.05    | 19.0°  | 0.2007             | 13.95    | 55.0°  | 0.0851             | 21.40    |
| -88.5° | 0.0025             | 52.04    | -52.5° | 0.0601             | 24.42    | -16.5° | 0.1165             | 18.67    | 19.5°  | 0.2081             | 13.63    | 55.5°  | 0.0889             | 21.02    |
| -88.0° | 0.0030             | 50.46    | -52.0° | 0.0535             | 25.43    | -16.0° | 0.0925             | 20.68    | 20.0°  | 0.2155             | 13.33    | 56.0°  | 0.0926             | 20.66    |
| -87.5° | 0.0040             | 47.96    | -51.5° | 0.0463             | 26.69    | -15.5° | 0.0632             | 23.98    | 20.5°  | 0.2180             | 13.23    | 56.5°  | 0.0959             | 20.36    |
| -87.0° | 0.0050             | 46.02    | -51.0° | 0.0391             | 28.17    | -15.0° | 0.0339             | 29.39    | 21.0°  | 0.2205             | 13.13    | 57.0°  | 0.0992             | 20.07    |
| -86.5° | 0.0060             | 44.44    | -50.5° | 0.0312             | 30.12    | -14.5° | 0.0342             | 29.32    | 21.5°  | 0.2183             | 13.22    | 57.5°  | 0.1014             | 19.88    |
| -86.0° | 0.0070             | 43.10    | -50.0° | 0.0233             | 32.64    | -14.0° | 0.0345             | 29.24    | 22.0°  | 0.2161             | 13.31    | 58.0°  | 0.1036             | 19.70    |
| -85.5° | 0.0080             | 41.94    | -49.5° | 0.0149             | 36.56    | -13.5° | 0.0731             | 22.72    | 22.5°  | 0.2098             | 13.56    | 58.5°  | 0.1052             | 19.56    |
| -85.0° | 0.0090             | 40.92    | -49.0° | 0.0064             | 43.87    | -13.0° | 0.1117             | 19.04    | 23.0°  | 0.2035             | 13.83    | 59.0°  | 0.1067             | 19.43    |
| -84.5° | 0.0105             | 39.58    | -48.5° | 0.0088             | 41.07    | -12.5° | 0.1538             | 16.26    | 23.5°  | 0.1939             | 14.25    | 59.5°  | 0.1078             | 19.35    |
| -84.0° | 0.0120             | 38.42    | -48.0° | 0.0113             | 38.95    | -12.0° | 0.1960             | 14.15    | 24.0°  | 0.1844             | 14.69    | 60.0°  | 0.1089             | 19.26    |
| -83.5° | 0.0135             | 37.40    | -47.5° | 0.0204             | 33.81    | -11.5° | 0.2409             | 12.36    | 24.5°  | 0.1720             | 15.29    | 60.5°  | 0.1093             | 19.23    |
| -83.0° | 0.0150             | 36.49    | -47.0° | 0.0295             | 30.60    | -11.0° | 0.2857             | 10.88    | 25.0°  | 0.1596             | 15.94    | 61.0°  | 0.1096             | 19.20    |
| -82.5° | 0.0165             | 35.67    | -46.5° | 0.0386             | 28.26    | -10.5° | 0.3323             | 9.57     | 25.5°  | 0.1452             | 16.76    | 61.5°  | 0.1092             | 19.23    |
| -82.0° | 0.0180             | 34.92    | -46.0° | 0.0477             | 26.42    | -10.0° | 0.3790             | 8.43     | 26.0°  | 0.1307             | 17.67    | 62.0°  | 0.1089             | 19.26    |
| -81.5° | 0.0199             | 34.01    | -45.5° | 0.0567             | 24.92    | -9.5°  | 0.4262             | 7.41     | 26.5°  | 0.1149             | 18.79    | 62.5°  | 0.1079             | 19.34    |
| -81.0° | 0.0219             | 33.19    | -45.0° | 0.0657             | 23.65    | -9.0°  | 0.4734             | 6.50     | 27.0°  | 0.0990             | 20.09    | 63.0°  | 0.1068             | 19.42    |
| -80.5° | 0.0239             | 32.44    | -44.5° | 0.0743             | 22.58    | -8.5°  | 0.5199             | 5.68     | 27.5°  | 0.0825             | 21.67    | 63.5°  | 0.1056             | 19.53    |
| -80.0° | 0.0258             | 31.75    | -44.0° | 0.0828             | 21.63    | -8.0°  | 0.5664             | 4.94     | 28.0°  | 0.0660             | 23.61    | 64.0°  | 0.1043             | 19.63    |
| -79.5° | 0.0278             | 31.12    | -43.5° | 0.0907             | 20.85    | -7.5°  | 0.6111             | 4.28     | 28.5°  | 0.0494             | 26.13    | 64.5°  | 0.1030             | 19.75    |
| -79.0° | 0.0297             | 30.54    | -43.0° | 0.0986             | 20.12    | -7.0°  | 0.6557             | 3.67     | 29.0°  | 0.0328             | 29.68    | 65.0°  | 0.1016             | 19.87    |
| -78.5° | 0.0321             | 29.86    | -42.5° | 0.1057             | 19.52    | -6.5°  | 0.6976             | 3.13     | 29.5°  | 0.0168             | 35.52    | 65.5°  | 0.0993             | 20.06    |
| -78.0° | 0.0346             | 29.23    | -42.0° | 0.1127             | 18.96    | -6.0°  | 0.7395             | 2.62     | 30.0°  | 0.0007             | 63.28    | 66.0°  | 0.0970             | 20.26    |
| -77.5° | 0.0369             | 28.65    | -41.5° | 0.1186             | 18.52    | -5.5°  | 0.7767             | 2.19     | 30.5°  | 0.0151             | 36.44    | 66.5°  | 0.0948             | 20.47    |
| -77.0° | 0.0393             | 28.11    | -41.0° | 0.1244             | 18.10    | -5.0°  | 0.8140             | 1.79     | 31.0°  | 0.0295             | 30.62    | 67.0°  | 0.0925             | 20.68    |
| -76.5° | 0.0421             | 27.51    | -40.5° | 0.1287             | 17.81    | -4.5°  | 0.8463             | 1.45     | 31.5°  | 0.0431             | 27.30    | 67.5°  | 0.0903             | 20.89    |
| -76.0° | 0.0450             | 26.94    | -40.0° | 0.1329             | 17.53    | -4.0°  | 0.8787             | 1.12     | 32.0°  | 0.0568             | 24.91    | 68.0°  | 0.0880             | 21.11    |
| -75.5° | 0.0477             | 26.43    | -39.5° | 0.1356             | 17.35    | -3.5°  | 0.9048             | 0.87     | 32.5°  | 0.0687             | 23.26    | 68.5°  | 0.0855             | 21.36    |
| -75.0° | 0.0505             | 25.94    | -39.0° | 0.1383             | 17.18    | -3.0°  | 0.9309             | 0.62     | 33.0°  | 0.0807             | 21.87    | 69.0°  | 0.0830             | 21.62    |
| -74.5° | 0.0531             | 25.49    | -38.5° | 0.1392             | 17.13    | -2.5°  | 0.9496             | 0.45     | 33.5°  | 0.0905             | 20.86    | 69.5°  | 0.0802             | 21.92    |
| -74.0° | 0.0558             | 25.07    | -38.0° | 0.1401             | 17.07    | -2.0°  | 0.9683             | 0.28     | 34.0°  | 0.1004             | 19.96    | 70.0°  | 0.0774             | 22.22    |
| -73.5° | 0.0588             | 24.61    | -37.5° | 0.1388             | 17.15    | -1.5°  | 0.9799             | 0.18     | 34.5°  | 0.1082             | 19.31    | 70.5°  | 0.0744             | 22.57    |
| -73.0° | 0.0619             | 24.17    | -37.0° | 0.1375             | 17.24    | -1.0°  | 0.9915             | 0.07     | 35.0°  | 0.1160             | 18.71    | 71.0°  | 0.0713             | 22.93    |
| -72.5° | 0.0648             | 23.77    | -36.5° | 0.1340             | 17.46    | -0.5°  | 0.9958             | 0.04     | 35.5°  | 0.1216             | 18.30    | 71.5°  | 0.0686             | 23.28    |
| -72.0° | 0.0677             | 23.39    | -36.0° | 0.1304             | 17.69    | 0.0°   | 1.0000             | 0.00     | 36.0°  | 0.1272             | 17.91    | 72.0°  | 0.0658             | 23.63    |
| -71.5° | 0.0705             | 23.04    | -35.5° | 0.1248             | 18.08    | 0.5°   | 0.9958             | 0.04     | 36.5°  | 0.1306             | 17.68    | 72.5°  | 0.0629             | 24.03    |
| -71.0° | 0.0732             | 22.71    | -35.0° | 0.1191             | 18.48    | 1.0°   | 0.9915             | 0.07     | 37.0°  | 0.1339             | 17.46    | 73.0°  | 0.0600             | 24.44    |
| -70.5° | 0.0762             | 22.36    | -34.5° | 0.1110             | 19.09    | 1.5°   | 0.9794             | 0.18     | 37.5°  | 0.1352             | 17.38    | 73.5°  | 0.0574             | 24.82    |
| -70.0° | 0.0792             | 22.02    | -34.0° | 0.1030             | 19.75    | 2.0°   | 0.9673             | 0.29     | 38.0°  | 0.1364             | 17.30    | 74.0°  | 0.0548             | 25.22    |
| -69.5° | 0.0820             | 21.72    | -33.5° | 0.0928             | 20.65    | 2.5°   | 0.9477             | 0.47     | 38.5°  | 0.1356             | 17.36    | 74.5°  | 0.0522             | 25.65    |
| -69.0° | 0.0848             | 21.43    | -33.0° | 0.0825             | 21.67    | 3.0°   | 0.9281             | 0.65     | 39.0°  | 0.1347             | 17.41    | 75.0°  | 0.0495             | 26.11    |
| -68.5° | 0.0873             | 21.18    | -32.5° | 0.0703             | 23.06    | 3.5°   | 0.9021             | 0.90     | 39.5°  | 0.1321             | 17.58    | 75.5°  | 0.0467             | 26.61    |
| -68.0° | 0.0898             | 20.94    | -32.0° | 0.0582             | 24.71    | 4.0°   | 0.8760             | 1.15     | 40.0°  | 0.1294             | 17.76    | 76.0°  | 0.0440             | 27.13    |
| -67.5° | 0.0924             | 20.69    | -31.5° | 0.0442             | 27.10    | 4.5°   | 0.8438             | 1.48     | 40.5°  | 0.1251             | 18.06    | 76.5°  | 0.0417             | 27.61    |
| -67.0° | 0.0950             | 20.44    | -31.0° | 0.0301             | 30.41    | 5.0°   | 0.8115             | 1.81     | 41.0°  | 0.1207             | 18.36    | 77.0°  | 0.0393             | 28.11    |
| -66.5° | 0.0977             | 20.20    | -30.5° | 0.0154             | 36.24    | 5.5°   | 0.7736             | 2.23     | 41.5°  | 0.1151             | 18.78    | 77.5°  | 0.0369             | 28.65    |
| -66.0° | 0.1003             | 19.97    | -30.0° | 0.0007             | 63.09    | 6.0°   | 0.7357             | 2.67     | 42.0°  | 0.1095             | 19.21    | 78.0°  | 0.0346             | 29.23    |
| -65.5° | 0.1021             | 19.82    | -29.5° | 0.0171             | 35.33    | 6.5°   | 0.6940             | 3.17     | 42.5°  | 0.1027             | 19.77    | 78.5°  | 0.0321             | 29.86    |
| -65.0° | 0.1039             | 19.66    | -29.0° | 0.0335             | 29.49    | 7.0°   | 0.6524             | 3.71     | 43.0°  | 0.0959             | 20.36    | 79.0°  | 0.0297             | 30.54    |
| -64.5° | 0.1057             | 19.52    | -28.5° | 0.0505             | 25.94    | 7.5°   | 0.6077             | 4.33     | 43.5°  | 0.0882             | 21.09    | 79.5°  | 0.0278             | 31.12    |
| -64.0° | 0.1074             | 19.38    | -28.0° | 0.0674             | 23.43    | 8.0°   | 0.5630             | 4.99     | 44.0°  | 0.0805             | 21.89    | 80.0°  | 0.0258             | 31.75    |
| -63.5° | 0.1089             | 19.26    | -27.5° | 0.0842             | 21.50    | 8.5°   | 0.5167             | 5.74     | 44.5°  | 0.0721             | 22.84    | 80.5°  | 0.0239             | 32.44    |
| -63.0° | 0.1105             | 19.13    | -27.0° | 0.1010             | 19.92    | 9.0°   | 0.4704             | 6.55     | 45.0°  | 0.0638             | 23.91    | 81.0°  | 0.0219             | 33.19    |
| -62.5° | 0.1114             | 19.06    | -26.5° | 0.1171             | 18.63    | 9.5°   | 0.4233             | 7.47     | 45.5°  | 0.0550             | 25.19    | 81.5°  | 0.0199             | 34.01    |
| -62.0° | 0.1123             | 18.99    | -26.0° | 0.1332             | 17.51    | 10.0°  | 0.3762             | 8.49     | 46.0°  | 0.0463             | 26.69    | 82.0°  | 0.0180             | 34.92    |
| -61.5° | 0.1126             | 18.97    | -25.5° | 0.1479             | 16.60    | 10.5°  | 0.3299             | 9.63     | 46.5°  | 0.0374             | 28.54    | 82.5°  | 0.0165             | 35.67    |
| -61.0° | 0.1128             | 18.95    | -25.0° | 0.1626             | 15.78    | 11.0°  | 0.2836             | 10.95    | 47.0°  | 0.0286             | 30.89    | 83.0°  | 0.0150             | 36.49    |
| -60.5° | 0.1127             | 18.96    | -24.5° | 0.1751             | 15.14    | 11.5°  | 0.2390             | 12.43    | 47.5°  | 0.0197             | 34.09    | 83.5°  | 0.0135             | 37.40    |
| -60.0° | 0.1125             | 18.97    | -24.0° | 0.1875             | 14.54    | 12.0°  | 0.1943             | 14.23    | 48.0°  | 0.0109             | 39.23    | 84.0°  | 0.0120             | 38.42    |
| -59.5° | 0.1116             | 19.05    | -23.5° | 0.1973             | 14.10    | 12.5°  | 0.1525             | 16.34    | 48.5°  | 0.0086             | 41.34    | 84.5°  | 0.0105             | 39.58    |
| -59.0° | 0.1107             | 19.12    | -23.0° | 0.2071             | 13.67    | 13.0°  | 0.1106             | 19.13    | 49.0°  | 0.0062             | 44.13    | 85.0°  | 0.0090             | 40.92    |
| -58.5° | 0.1089             | 19.26    | -22.5° | 0.2134             | 13.42    | 13.5°  | 0.0724             | 22.81    | 49.5°  | 0.0144             | 36.83    | 85.5°  | 0.0080             | 41.94    |
| -58.0° | 0.1071             | 19.40    | -22.0° | 0.2196             | 13.17    | 14.0°  | 0.0342             | 29.32    | 50.0°  | 0.0226             | 32.92    | 86.0°  | 0.0070             | 43.10    |
| -57.5° | 0.1048             | 19.59    | -21.5° | 0.2217             | 13.09    | 14.5°  | 0.0339             | 29.41    | 50.5°  | 0.0303             | 30.38    | 86.5°  | 0.0060             | 44.44    |
| -57.0° | 0.1024             | 19.79    | -21.0° | 0.2237             | 13.01    | 15.0°  | 0.0335             | 29.49    | 51.0°  | 0.0379             | 28.43    | 87.0°  | 0.0050             | 46.02    |
| -56.5° | 0.0992             | 20.07    | -20.5° | 0.2212             | 13.10    | 15.5°  | 0.0625             | 24.08    | 51.5°  | 0.0449             | 26.96    | 87.5°  | 0.0040             | 47.96    |
| -56.0° | 0.0959             | 20.36    | -20.0° | 0.2187             | 13.20    | 16.0°  | 0.0915             | 20.77    | 52.0°  | 0.0519             | 25.70    | 88.0°  | 0.0030             | 50.46    |
| -55.5° | 0.0919             | 20.73    | -19.5° | 0.2111             | 13.51    | 16.5°  | 0.1151             | 18.78    | 52.5°  | 0.0582             | 24.70    | 88.5°  | 0.0025             | 52.04    |
| -55.0° | 0.0880             | 21.11    | -19.0° | 0.2036             | 13.83    | 17.0°  | 0.1387             | 17.16    | 53.0°  | 0.0645             | 23.81    | 89.0°  | 0.0020             | 53.98    |
| -54.5° | 0.0831             | 21.61    | -18.5° | 0.1906             | 14.40    | 17.5°  | 0.1569             | 16.09    | 53.5°  | 0.0700             | 23.10    | 89.5°  | 0.0015             | 56.48    |



Parâmetros da configuração

ELEMENTOS VERTICAIS

5

ÂNGULO DE MEIA POTÊNCIA VERTICAL

11.10°

GANHO

6.99 dBd

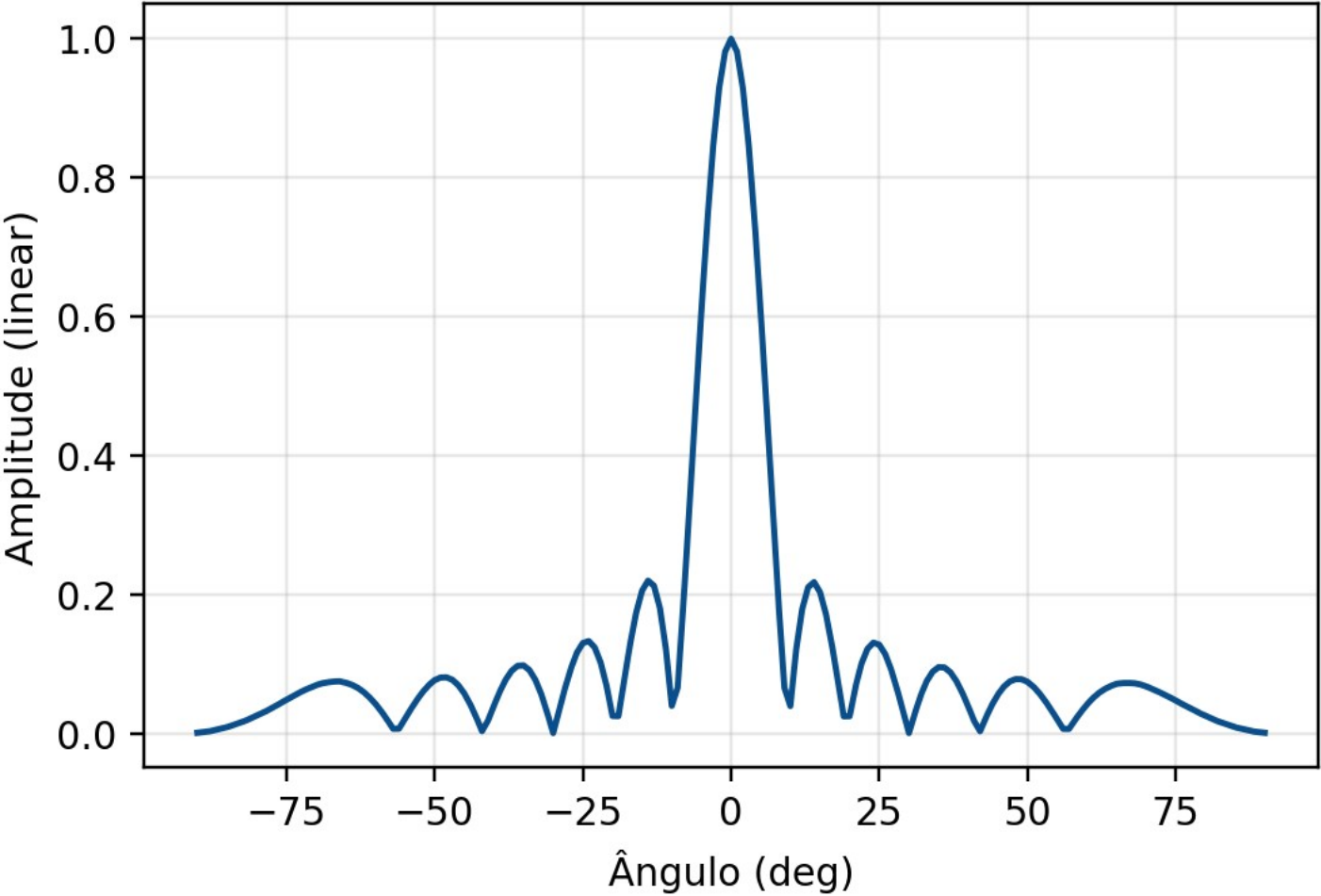
PRIMEIRO NULO

11.00°

Tabela completa - Elevação



| Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB |
|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|
| -90.0° | 0.0010             | 60.00    | -54.0° | 0.0124             | 38.14    | -18.0° | 0.2089             | 13.60    | 18.0°  | 0.2060             | 13.72    | 54.0°  | 0.0120             | 38.44    |
| -89.5° | 0.0015             | 56.48    | -53.5° | 0.0076             | 42.39    | -17.5° | 0.2148             | 13.36    | 18.5°  | 0.1942             | 14.24    | 54.5°  | 0.0189             | 34.47    |
| -89.0° | 0.0020             | 53.98    | -53.0° | 0.0028             | 51.09    | -17.0° | 0.2206             | 13.13    | 19.0°  | 0.1824             | 14.78    | 55.0°  | 0.0259             | 31.75    |
| -88.5° | 0.0025             | 52.04    | -52.5° | 0.0106             | 39.49    | -16.5° | 0.2194             | 13.18    | 19.5°  | 0.1659             | 15.60    | 55.5°  | 0.0322             | 29.86    |
| -88.0° | 0.0030             | 50.46    | -52.0° | 0.0184             | 34.70    | -16.0° | 0.2181             | 13.23    | 20.0°  | 0.1494             | 16.51    | 56.0°  | 0.0385             | 28.30    |
| -87.5° | 0.0040             | 47.96    | -51.5° | 0.0263             | 31.61    | -15.5° | 0.2086             | 13.61    | 20.5°  | 0.1299             | 17.73    | 56.5°  | 0.0442             | 27.09    |
| -87.0° | 0.0050             | 46.02    | -51.0° | 0.0341             | 29.34    | -15.0° | 0.1992             | 14.01    | 21.0°  | 0.1103             | 19.15    | 57.0°  | 0.0500             | 26.02    |
| -86.5° | 0.0060             | 44.44    | -50.5° | 0.0418             | 27.57    | -14.5° | 0.1811             | 14.84    | 21.5°  | 0.0890             | 21.01    | 57.5°  | 0.0549             | 25.21    |
| -86.0° | 0.0070             | 43.10    | -50.0° | 0.0496             | 26.10    | -14.0° | 0.1630             | 15.76    | 22.0°  | 0.0678             | 23.38    | 58.0°  | 0.0598             | 24.47    |
| -85.5° | 0.0080             | 41.94    | -49.5° | 0.0567             | 24.93    | -13.5° | 0.1360             | 17.33    | 22.5°  | 0.0463             | 26.70    | 58.5°  | 0.0639             | 23.88    |
| -85.0° | 0.0090             | 40.92    | -49.0° | 0.0638             | 23.90    | -13.0° | 0.1090             | 19.25    | 23.0°  | 0.0247             | 32.13    | 59.0°  | 0.0681             | 23.33    |
| -84.5° | 0.0105             | 39.59    | -48.5° | 0.0703             | 23.06    | -12.5° | 0.0734             | 22.69    | 23.5°  | 0.0205             | 33.78    | 59.5°  | 0.0716             | 22.90    |
| -84.0° | 0.0120             | 38.43    | -48.0° | 0.0767             | 22.30    | -12.0° | 0.0377             | 28.46    | 24.0°  | 0.0162             | 35.80    | 60.0°  | 0.0752             | 22.48    |
| -83.5° | 0.0135             | 37.41    | -47.5° | 0.0822             | 21.70    | -11.5° | 0.0434             | 27.24    | 24.5°  | 0.0346             | 29.22    | 60.5°  | 0.0778             | 22.18    |
| -83.0° | 0.0150             | 36.50    | -47.0° | 0.0877             | 21.14    | -11.0° | 0.0491             | 26.17    | 25.0°  | 0.0530             | 25.52    | 61.0°  | 0.0805             | 21.88    |
| -82.5° | 0.0164             | 35.68    | -46.5° | 0.0918             | 20.75    | -10.5° | 0.0993             | 20.06    | 25.5°  | 0.0685             | 23.29    | 61.5°  | 0.0823             | 21.69    |
| -82.0° | 0.0179             | 34.93    | -46.0° | 0.0958             | 20.37    | -10.0° | 0.1494             | 16.51    | 26.0°  | 0.0839             | 21.52    | 62.0°  | 0.0841             | 21.50    |
| -81.5° | 0.0199             | 34.03    | -45.5° | 0.0983             | 20.15    | -9.5°  | 0.2046             | 13.78    | 26.5°  | 0.0958             | 20.37    | 62.5°  | 0.0851             | 21.40    |
| -81.0° | 0.0219             | 33.21    | -45.0° | 0.1009             | 19.92    | -9.0°  | 0.2597             | 11.71    | 27.0°  | 0.1076             | 19.36    | 63.0°  | 0.0861             | 21.30    |
| -80.5° | 0.0238             | 32.47    | -44.5° | 0.1016             | 19.86    | -8.5°  | 0.3180             | 9.95     | 27.5°  | 0.1156             | 18.74    | 63.5°  | 0.0866             | 21.25    |
| -80.0° | 0.0257             | 31.79    | -44.0° | 0.1023             | 19.80    | -8.0°  | 0.3763             | 8.49     | 28.0°  | 0.1236             | 18.16    | 64.0°  | 0.0871             | 21.20    |
| -79.5° | 0.0277             | 31.16    | -43.5° | 0.1010             | 19.91    | -7.5°  | 0.4354             | 7.22     | 28.5°  | 0.1276             | 17.88    | 64.5°  | 0.0872             | 21.19    |
| -79.0° | 0.0296             | 30.58    | -43.0° | 0.0997             | 20.02    | -7.0°  | 0.4945             | 6.12     | 29.0°  | 0.1316             | 17.62    | 65.0°  | 0.0873             | 21.18    |
| -78.5° | 0.0319             | 29.91    | -42.5° | 0.0965             | 20.31    | -6.5°  | 0.5524             | 5.15     | 29.5°  | 0.1317             | 17.61    | 65.5°  | 0.0865             | 21.26    |
| -78.0° | 0.0343             | 29.29    | -42.0° | 0.0932             | 20.61    | -6.0°  | 0.6103             | 4.29     | 30.0°  | 0.1318             | 17.60    | 66.0°  | 0.0856             | 21.35    |
| -77.5° | 0.0366             | 28.73    | -41.5° | 0.0878             | 21.13    | -5.5°  | 0.6640             | 3.56     | 30.5°  | 0.1284             | 17.83    | 66.5°  | 0.0844             | 21.47    |
| -77.0° | 0.0389             | 28.20    | -41.0° | 0.0823             | 21.69    | -5.0°  | 0.7177             | 2.88     | 31.0°  | 0.1249             | 18.07    | 67.0°  | 0.0833             | 21.59    |
| -76.5° | 0.0416             | 27.61    | -40.5° | 0.0748             | 22.52    | -4.5°  | 0.7656             | 2.32     | 31.5°  | 0.1184             | 18.53    | 67.5°  | 0.0820             | 21.72    |
| -76.0° | 0.0443             | 27.06    | -40.0° | 0.0672             | 23.45    | -4.0°  | 0.8134             | 1.79     | 32.0°  | 0.1119             | 19.02    | 68.0°  | 0.0808             | 21.86    |
| -75.5° | 0.0470             | 26.57    | -39.5° | 0.0579             | 24.75    | -3.5°  | 0.8530             | 1.38     | 32.5°  | 0.1028             | 19.76    | 68.5°  | 0.0790             | 22.04    |
| -75.0° | 0.0496             | 26.10    | -39.0° | 0.0486             | 26.27    | -3.0°  | 0.8926             | 0.99     | 33.0°  | 0.0938             | 20.56    | 69.0°  | 0.0773             | 22.24    |
| -74.5° | 0.0520             | 25.67    | -38.5° | 0.0377             | 28.48    | -2.5°  | 0.9217             | 0.71     | 33.5°  | 0.0828             | 21.64    | 69.5°  | 0.0752             | 22.48    |
| -74.0° | 0.0545             | 25.27    | -38.0° | 0.0268             | 31.44    | -2.0°  | 0.9507             | 0.44     | 34.0°  | 0.0719             | 22.87    | 70.0°  | 0.0731             | 22.73    |
| -73.5° | 0.0573             | 24.84    | -37.5° | 0.0147             | 36.67    | -1.5°  | 0.9689             | 0.27     | 34.5°  | 0.0598             | 24.47    | 70.5°  | 0.0706             | 23.03    |
| -73.0° | 0.0601             | 24.43    | -37.0° | 0.0026             | 51.84    | -1.0°  | 0.9870             | 0.11     | 35.0°  | 0.0477             | 26.43    | 71.0°  | 0.0681             | 23.34    |
| -72.5° | 0.0626             | 24.06    | -36.5° | 0.0128             | 37.85    | -0.5°  | 0.9935             | 0.06     | 35.5°  | 0.0351             | 29.10    | 71.5°  | 0.0657             | 23.64    |
| -72.0° | 0.0652             | 23.71    | -36.0° | 0.0231             | 32.75    | 0.0°   | 1.0000             | 0.00     | 36.0°  | 0.0225             | 32.96    | 72.0°  | 0.0634             | 23.96    |
| -71.5° | 0.0675             | 23.41    | -35.5° | 0.0360             | 28.87    | 0.5°   | 0.9935             | 0.06     | 36.5°  | 0.0125             | 38.07    | 72.5°  | 0.0608             | 24.32    |
| -71.0° | 0.0698             | 23.12    | -35.0° | 0.0489             | 26.21    | 1.0°   | 0.9870             | 0.11     | 37.0°  | 0.0025             | 52.07    | 73.0°  | 0.0582             | 24.70    |
| -70.5° | 0.0723             | 22.82    | -34.5° | 0.0613             | 24.25    | 1.5°   | 0.9684             | 0.28     | 37.5°  | 0.0143             | 36.90    | 73.5°  | 0.0559             | 25.05    |
| -70.0° | 0.0748             | 22.53    | -34.0° | 0.0737             | 22.65    | 2.0°   | 0.9498             | 0.45     | 38.0°  | 0.0261             | 31.67    | 74.0°  | 0.0536             | 25.42    |
| -69.5° | 0.0769             | 22.28    | -33.5° | 0.0848             | 21.43    | 2.5°   | 0.9198             | 0.73     | 38.5°  | 0.0367             | 28.70    | 74.5°  | 0.0511             | 25.83    |
| -69.0° | 0.0790             | 22.05    | -33.0° | 0.0960             | 20.36    | 3.0°   | 0.8899             | 1.01     | 39.0°  | 0.0473             | 26.50    | 75.0°  | 0.0486             | 26.27    |
| -68.5° | 0.0807             | 21.87    | -32.5° | 0.1053             | 19.55    | 3.5°   | 0.8504             | 1.41     | 39.5°  | 0.0564             | 24.97    | 75.5°  | 0.0460             | 26.75    |
| -68.0° | 0.0824             | 21.69    | -32.0° | 0.1146             | 18.82    | 4.0°   | 0.8110             | 1.82     | 40.0°  | 0.0655             | 23.68    | 76.0°  | 0.0434             | 27.25    |
| -67.5° | 0.0840             | 21.52    | -31.5° | 0.1212             | 18.33    | 4.5°   | 0.7633             | 2.35     | 40.5°  | 0.0727             | 22.77    | 76.5°  | 0.0411             | 27.71    |
| -67.0° | 0.0856             | 21.35    | -31.0° | 0.1279             | 17.87    | 5.0°   | 0.7155             | 2.91     | 41.0°  | 0.0799             | 21.95    | 77.0°  | 0.0389             | 28.20    |
| -66.5° | 0.0870             | 21.21    | -30.5° | 0.1313             | 17.63    | 5.5°   | 0.6614             | 3.59     | 41.5°  | 0.0852             | 21.39    | 77.5°  | 0.0366             | 28.73    |
| -66.0° | 0.0885             | 21.06    | -30.0° | 0.1348             | 17.41    | 6.0°   | 0.6072             | 4.33     | 42.0°  | 0.0905             | 20.87    | 78.0°  | 0.0343             | 29.29    |
| -65.5° | 0.0889             | 21.02    | -29.5° | 0.1346             | 17.42    | 6.5°   | 0.5496             | 5.20     | 42.5°  | 0.0938             | 20.56    | 78.5°  | 0.0319             | 29.91    |
| -65.0° | 0.0894             | 20.97    | -29.0° | 0.1345             | 17.43    | 7.0°   | 0.4920             | 6.16     | 43.0°  | 0.0970             | 20.26    | 79.0°  | 0.0296             | 30.58    |
| -64.5° | 0.0895             | 20.96    | -28.5° | 0.1304             | 17.70    | 7.5°   | 0.4330             | 7.27     | 43.5°  | 0.0982             | 20.16    | 79.5°  | 0.0277             | 31.16    |
| -64.0° | 0.0897             | 20.95    | -28.0° | 0.1263             | 17.98    | 8.0°   | 0.3740             | 8.54     | 44.0°  | 0.0994             | 20.05    | 80.0°  | 0.0257             | 31.79    |
| -63.5° | 0.0894             | 20.98    | -27.5° | 0.1180             | 18.56    | 8.5°   | 0.3161             | 10.00    | 44.5°  | 0.0986             | 20.12    | 80.5°  | 0.0238             | 32.47    |
| -63.0° | 0.0891             | 21.01    | -27.0° | 0.1098             | 19.19    | 9.0°   | 0.2581             | 11.76    | 45.0°  | 0.0979             | 20.19    | 81.0°  | 0.0219             | 33.21    |
| -62.5° | 0.0879             | 21.12    | -26.5° | 0.0976             | 20.21    | 9.5°   | 0.2032             | 13.84    | 45.5°  | 0.0954             | 20.41    | 81.5°  | 0.0199             | 34.03    |
| -62.0° | 0.0868             | 21.23    | -26.0° | 0.0855             | 21.36    | 10.0°  | 0.1483             | 16.58    | 46.0°  | 0.0928             | 20.65    | 82.0°  | 0.0179             | 34.93    |
| -61.5° | 0.0848             | 21.43    | -25.5° | 0.0698             | 23.13    | 10.5°  | 0.0985             | 20.13    | 46.5°  | 0.0889             | 21.03    | 82.5°  | 0.0164             | 35.68    |
| -61.0° | 0.0829             | 21.63    | -25.0° | 0.0540             | 25.35    | 11.0°  | 0.0488             | 26.24    | 47.0°  | 0.0849             | 21.42    | 83.0°  | 0.0150             | 36.50    |
| -60.5° | 0.0803             | 21.91    | -24.5° | 0.0352             | 29.06    | 11.5°  | 0.0431             | 27.31    | 47.5°  | 0.0796             | 21.98    | 83.5°  | 0.0135             | 37.41    |
| -60.0° | 0.0777             | 22.20    | -24.0° | 0.0165             | 35.66    | 12.0°  | 0.0374             | 28.54    | 48.0°  | 0.0743             | 22.57    | 84.0°  | 0.0120             | 38.43    |
| -59.5° | 0.0741             | 22.60    | -23.5° | 0.0208             | 33.62    | 12.5°  | 0.0727             | 22.77    | 48.5°  | 0.0681             | 23.33    | 84.5°  | 0.0105             | 39.59    |
| -59.0° | 0.0706             | 23.02    | -23.0° | 0.0252             | 31.98    | 13.0°  | 0.1079             | 19.34    | 49.0°  | 0.0619             | 24.16    | 85.0°  | 0.0090             | 40.92    |
| -58.5° | 0.0662             | 23.58    | -22.5° | 0.0470             | 26.55    | 13.5°  | 0.1347             | 17.42    | 49.5°  | 0.0550             | 25.20    | 85.5°  | 0.0080             | 41.94    |
| -58.0° | 0.0618             | 24.18    | -22.0° | 0.0689             | 23.24    | 14.0°  | 0.1614             | 15.84    | 50.0°  | 0.0480             | 26.37    | 86.0°  | 0.0070             | 43.10    |
| -57.5° | 0.0567             | 24.92    | -21.5° | 0.0904             | 20.88    | 14.5°  | 0.1792             | 14.93    | 50.5°  | 0.0406             | 27.83    | 86.5°  | 0.0060             | 44.44    |
| -57.0° | 0.0516             | 25.74    | -21.0° | 0.1119             | 19.02    | 15.0°  | 0.1970             | 14.11    | 51.0°  | 0.0331             | 29.59    | 87.0°  | 0.0050             | 46.02    |
| -56.5° | 0.0457             | 26.80    | -20.5° | 0.1317             | 17.61    | 15.5°  | 0.2063             | 13.71    | 51.5°  | 0.0255             | 31.87    | 87.5°  | 0.0040             | 47.96    |
| -56.0° | 0.0398             | 28.00    | -20.0° | 0.1516             | 16.39    | 16.0°  | 0.2157             | 13.32    | 52.0°  | 0.0179             | 34.97    | 88.0°  | 0.0030             | 50.46    |
| -55.5° | 0.0333             | 29.56    | -19.5° | 0.1683             | 15.48    | 16.5°  | 0.2168             | 13.28    | 52.5°  | 0.0103             | 39.76    | 88.5°  | 0.0025             | 52.04    |
| -55.0° | 0.0267             | 31.47    | -19.0° | 0.1850             | 14.66    | 17.0°  | 0.2179             | 13.23    | 53.0°  | 0.0027             | 51.37    | 89.0°  | 0.0020             | 53.98    |
| -54.5° | 0.0195             | 34.18    | -18.5° | 0.1969             | 14.11    | 17.5°  | 0.2120             | 13.48    | 53.5°  | 0.0073             | 42.69    | 89.5°  | 0.0015             | 56.48    |



Parâmetros da configuração

ELEMENTOS VERTICAIS

6

ÂNGULO DE MEIA POTÊNCIA VERTICAL

9.24°

GANHO

7.77 dBd

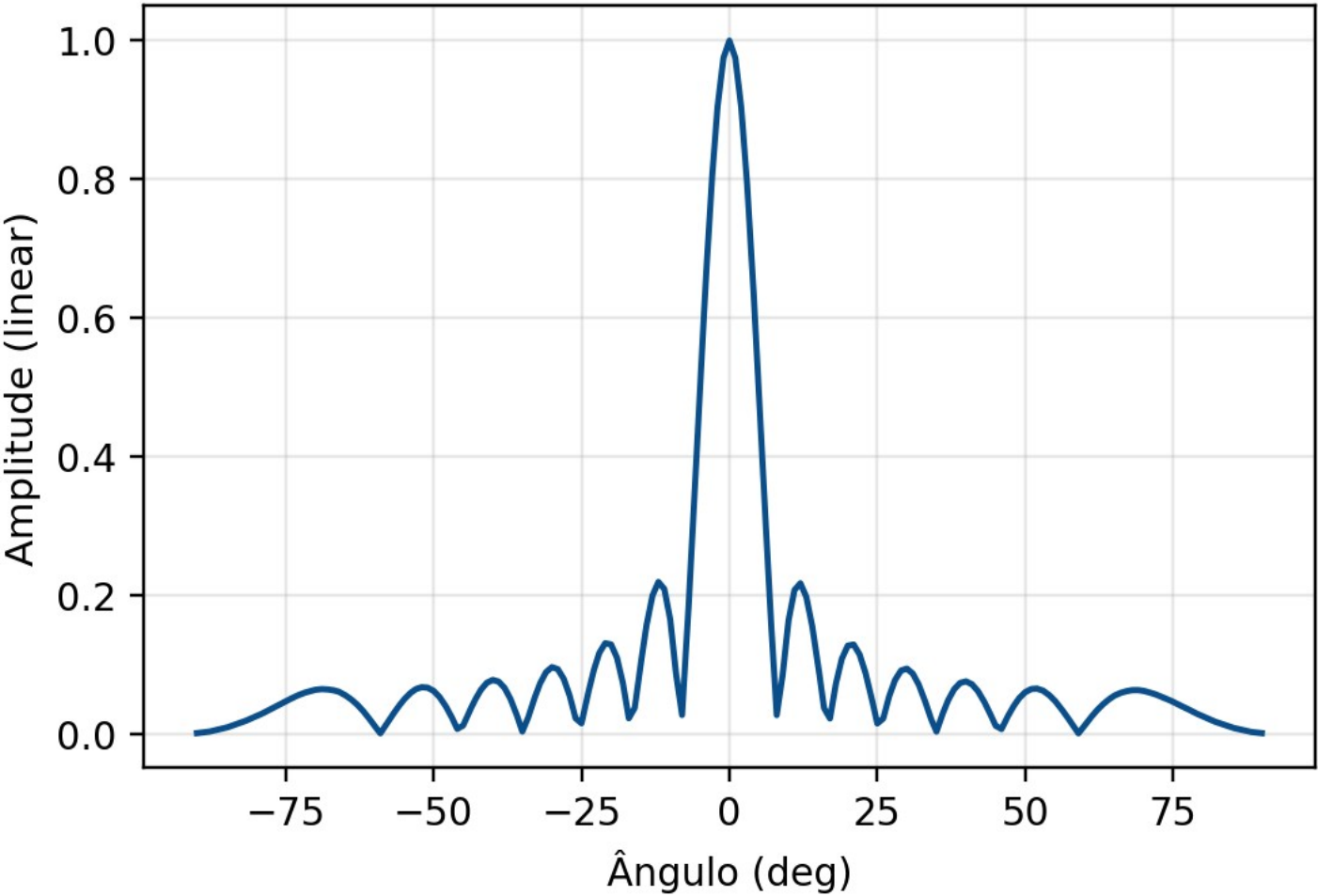
PRIMEIRO NULO

10.00°

Tabela completa - Elevação



| Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB |
|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|
| -90.0° | 0.0010             | 60.00    | -54.0° | 0.0351             | 29.09    | -18.0° | 0.0784             | 22.12    | 18.0°  | 0.0773             | 22.24    | 54.0°  | 0.0339             | 29.40    |
| -89.5° | 0.0015             | 56.48    | -53.5° | 0.0416             | 27.61    | -17.5° | 0.1041             | 19.65    | 18.5°  | 0.0510             | 25.85    | 54.5°  | 0.0272             | 31.31    |
| -89.0° | 0.0020             | 53.98    | -53.0° | 0.0482             | 26.34    | -17.0° | 0.1297             | 17.74    | 19.0°  | 0.0247             | 32.14    | 55.0°  | 0.0205             | 33.77    |
| -88.5° | 0.0025             | 52.04    | -52.5° | 0.0540             | 25.35    | -16.5° | 0.1519             | 16.37    | 19.5°  | 0.0248             | 32.10    | 55.5°  | 0.0136             | 37.32    |
| -88.0° | 0.0030             | 50.46    | -52.0° | 0.0598             | 24.47    | -16.0° | 0.1740             | 15.19    | 20.0°  | 0.0250             | 32.05    | 56.0°  | 0.0068             | 43.41    |
| -87.5° | 0.0040             | 47.96    | -51.5° | 0.0646             | 23.79    | -15.5° | 0.1898             | 14.43    | 20.5°  | 0.0464             | 26.68    | 56.5°  | 0.0067             | 43.47    |
| -87.0° | 0.0050             | 46.02    | -51.0° | 0.0695             | 23.16    | -15.0° | 0.2057             | 13.74    | 21.0°  | 0.0677             | 23.38    | 57.0°  | 0.0067             | 43.54    |
| -86.5° | 0.0060             | 44.44    | -50.5° | 0.0731             | 22.72    | -14.5° | 0.2128             | 13.44    | 21.5°  | 0.0842             | 21.49    | 57.5°  | 0.0130             | 37.72    |
| -86.0° | 0.0070             | 43.10    | -50.0° | 0.0767             | 22.30    | -14.0° | 0.2200             | 13.15    | 22.0°  | 0.1006             | 19.94    | 58.0°  | 0.0193             | 34.27    |
| -85.5° | 0.0080             | 41.95    | -49.5° | 0.0786             | 22.09    | -13.5° | 0.2163             | 13.30    | 22.5°  | 0.1112             | 19.08    | 58.5°  | 0.0252             | 31.97    |
| -85.0° | 0.0090             | 40.93    | -49.0° | 0.0805             | 21.89    | -13.0° | 0.2126             | 13.45    | 23.0°  | 0.1218             | 18.29    | 59.0°  | 0.0310             | 30.16    |
| -84.5° | 0.0105             | 39.59    | -48.5° | 0.0806             | 21.87    | -12.5° | 0.1966             | 14.13    | 23.5°  | 0.1263             | 17.97    | 59.5°  | 0.0363             | 28.79    |
| -84.0° | 0.0120             | 38.44    | -48.0° | 0.0808             | 21.85    | -12.0° | 0.1807             | 14.86    | 24.0°  | 0.1308             | 17.67    | 60.0°  | 0.0416             | 27.61    |
| -83.5° | 0.0135             | 37.42    | -47.5° | 0.0791             | 22.04    | -11.5° | 0.1517             | 16.38    | 24.5°  | 0.1292             | 17.77    | 60.5°  | 0.0462             | 26.71    |
| -83.0° | 0.0149             | 36.51    | -47.0° | 0.0773             | 22.23    | -11.0° | 0.1228             | 18.21    | 25.0°  | 0.1277             | 17.87    | 61.0°  | 0.0507             | 25.90    |
| -82.5° | 0.0164             | 35.69    | -46.5° | 0.0734             | 22.69    | -10.5° | 0.0813             | 21.80    | 25.5°  | 0.1210             | 18.35    | 61.5°  | 0.0545             | 25.28    |
| -82.0° | 0.0179             | 34.95    | -46.0° | 0.0695             | 23.16    | -10.0° | 0.0398             | 28.01    | 26.0°  | 0.1142             | 18.85    | 62.0°  | 0.0582             | 24.70    |
| -81.5° | 0.0198             | 34.05    | -45.5° | 0.0637             | 23.92    | -9.5°  | 0.0530             | 25.52    | 26.5°  | 0.1031             | 19.73    | 62.5°  | 0.0610             | 24.29    |
| -81.0° | 0.0218             | 33.24    | -45.0° | 0.0578             | 24.76    | -9.0°  | 0.0662             | 23.59    | 27.0°  | 0.0920             | 20.72    | 63.0°  | 0.0639             | 23.89    |
| -80.5° | 0.0237             | 32.50    | -44.5° | 0.0501             | 26.00    | -8.5°  | 0.1284             | 17.83    | 27.5°  | 0.0780             | 22.16    | 63.5°  | 0.0661             | 23.60    |
| -80.0° | 0.0256             | 31.83    | -44.0° | 0.0425             | 27.44    | -8.0°  | 0.1906             | 14.40    | 28.0°  | 0.0639             | 23.89    | 64.0°  | 0.0683             | 23.32    |
| -79.5° | 0.0275             | 31.21    | -43.5° | 0.0332             | 29.57    | -7.5°  | 0.2591             | 11.73    | 28.5°  | 0.0482             | 26.33    | 64.5°  | 0.0699             | 23.11    |
| -79.0° | 0.0294             | 30.64    | -43.0° | 0.0240             | 32.39    | -7.0°  | 0.3275             | 9.70     | 29.0°  | 0.0326             | 29.75    | 65.0°  | 0.0715             | 22.91    |
| -78.5° | 0.0317             | 29.98    | -42.5° | 0.0137             | 37.28    | -6.5°  | 0.3987             | 7.99     | 29.5°  | 0.0166             | 35.59    | 65.5°  | 0.0721             | 22.84    |
| -78.0° | 0.0340             | 29.37    | -42.0° | 0.0034             | 49.49    | -6.0°  | 0.4700             | 6.56     | 30.0°  | 0.0007             | 63.28    | 66.0°  | 0.0726             | 22.78    |
| -77.5° | 0.0362             | 28.82    | -41.5° | 0.0109             | 39.23    | -5.5°  | 0.5395             | 5.36     | 30.5°  | 0.0150             | 36.50    | 66.5°  | 0.0727             | 22.77    |
| -77.0° | 0.0384             | 28.31    | -41.0° | 0.0185             | 34.66    | -5.0°  | 0.6091             | 4.31     | 31.0°  | 0.0293             | 30.68    | 67.0°  | 0.0728             | 22.75    |
| -76.5° | 0.0410             | 27.74    | -40.5° | 0.0293             | 30.66    | -4.5°  | 0.6733             | 3.44     | 31.5°  | 0.0422             | 27.49    | 67.5°  | 0.0726             | 22.78    |
| -76.0° | 0.0436             | 27.21    | -40.0° | 0.0401             | 27.93    | -4.0°  | 0.7375             | 2.64     | 32.0°  | 0.0552             | 25.17    | 68.0°  | 0.0723             | 22.81    |
| -75.5° | 0.0460             | 26.74    | -39.5° | 0.0502             | 25.98    | -3.5°  | 0.7923             | 2.02     | 32.5°  | 0.0653             | 23.70    | 68.5°  | 0.0715             | 22.91    |
| -75.0° | 0.0485             | 26.29    | -39.0° | 0.0603             | 24.40    | -3.0°  | 0.8470             | 1.44     | 33.0°  | 0.0755             | 22.45    | 69.0°  | 0.0707             | 23.01    |
| -74.5° | 0.0507             | 25.90    | -38.5° | 0.0689             | 23.23    | -2.5°  | 0.8882             | 1.03     | 33.5°  | 0.0822             | 21.70    | 69.5°  | 0.0693             | 23.19    |
| -74.0° | 0.0530             | 25.52    | -38.0° | 0.0776             | 22.21    | -2.0°  | 0.9295             | 0.63     | 34.0°  | 0.0889             | 21.02    | 70.0°  | 0.0679             | 23.36    |
| -73.5° | 0.0554             | 25.13    | -37.5° | 0.0839             | 21.52    | -1.5°  | 0.9556             | 0.39     | 34.5°  | 0.0922             | 20.71    | 70.5°  | 0.0661             | 23.60    |
| -73.0° | 0.0579             | 24.75    | -37.0° | 0.0903             | 20.89    | -1.0°  | 0.9816             | 0.16     | 35.0°  | 0.0955             | 20.40    | 71.0°  | 0.0642             | 23.85    |
| -72.5° | 0.0601             | 24.43    | -36.5° | 0.0938             | 20.55    | -0.5°  | 0.9908             | 0.08     | 35.5°  | 0.0952             | 20.43    | 71.5°  | 0.0623             | 24.10    |
| -72.0° | 0.0622             | 24.12    | -36.0° | 0.0974             | 20.23    | 0.0°   | 1.0000             | 0.00     | 36.0°  | 0.0950             | 20.45    | 72.0°  | 0.0605             | 24.37    |
| -71.5° | 0.0640             | 23.87    | -35.5° | 0.0977             | 20.20    | 0.5°   | 0.9908             | 0.08     | 36.5°  | 0.0915             | 20.77    | 72.5°  | 0.0583             | 24.69    |
| -71.0° | 0.0659             | 23.63    | -35.0° | 0.0980             | 20.18    | 1.0°   | 0.9816             | 0.16     | 37.0°  | 0.0880             | 21.11    | 73.0°  | 0.0561             | 25.02    |
| -70.5° | 0.0677             | 23.39    | -34.5° | 0.0946             | 20.48    | 1.5°   | 0.9551             | 0.40     | 37.5°  | 0.0818             | 21.75    | 73.5°  | 0.0541             | 25.34    |
| -70.0° | 0.0695             | 23.16    | -34.0° | 0.0912             | 20.80    | 2.0°   | 0.9286             | 0.64     | 38.0°  | 0.0755             | 22.44    | 74.0°  | 0.0520             | 25.67    |
| -69.5° | 0.0709             | 22.99    | -33.5° | 0.0842             | 21.49    | 2.5°   | 0.8865             | 1.05     | 38.5°  | 0.0671             | 23.46    | 74.5°  | 0.0498             | 26.06    |
| -69.0° | 0.0722             | 22.83    | -33.0° | 0.0772             | 22.25    | 3.0°   | 0.8444             | 1.47     | 39.0°  | 0.0588             | 24.62    | 75.0°  | 0.0475             | 26.46    |
| -68.5° | 0.0730             | 22.74    | -32.5° | 0.0668             | 23.50    | 3.5°   | 0.7899             | 2.05     | 39.5°  | 0.0489             | 26.21    | 75.5°  | 0.0451             | 26.92    |
| -68.0° | 0.0738             | 22.64    | -32.0° | 0.0565             | 24.96    | 4.0°   | 0.7353             | 2.67     | 40.0°  | 0.0391             | 28.16    | 76.0°  | 0.0427             | 27.40    |
| -67.5° | 0.0743             | 22.58    | -31.5° | 0.0432             | 27.29    | 4.5°   | 0.6713             | 3.46     | 40.5°  | 0.0285             | 30.90    | 76.5°  | 0.0405             | 27.84    |
| -67.0° | 0.0748             | 22.52    | -31.0° | 0.0299             | 30.48    | 5.0°   | 0.6072             | 4.33     | 41.0°  | 0.0179             | 34.92    | 77.0°  | 0.0384             | 28.31    |
| -66.5° | 0.0750             | 22.50    | -30.5° | 0.0153             | 36.30    | 5.5°   | 0.5374             | 5.39     | 41.5°  | 0.0106             | 39.49    | 77.5°  | 0.0362             | 28.82    |
| -66.0° | 0.0751             | 22.49    | -30.0° | 0.0007             | 63.09    | 6.0°   | 0.4676             | 6.60     | 42.0°  | 0.0033             | 49.74    | 78.0°  | 0.0340             | 29.37    |
| -65.5° | 0.0741             | 22.60    | -29.5° | 0.0170             | 35.40    | 6.5°   | 0.3967             | 8.03     | 42.5°  | 0.0133             | 37.52    | 78.5°  | 0.0317             | 29.98    |
| -65.0° | 0.0732             | 22.71    | -29.0° | 0.0333             | 29.56    | 7.0°   | 0.3258             | 9.74     | 43.0°  | 0.0234             | 32.63    | 79.0°  | 0.0294             | 30.64    |
| -64.5° | 0.0717             | 22.89    | -28.5° | 0.0493             | 26.15    | 7.5°   | 0.2576             | 11.78    | 43.5°  | 0.0323             | 29.82    | 79.5°  | 0.0275             | 31.21    |
| -64.0° | 0.0703             | 23.07    | -28.0° | 0.0653             | 23.70    | 8.0°   | 0.1894             | 14.45    | 44.0°  | 0.0413             | 27.69    | 80.0°  | 0.0256             | 31.83    |
| -63.5° | 0.0682             | 23.33    | -27.5° | 0.0796             | 21.99    | 8.5°   | 0.1276             | 17.88    | 44.5°  | 0.0487             | 26.25    | 80.5°  | 0.0237             | 32.50    |
| -63.0° | 0.0661             | 23.60    | -27.0° | 0.0938             | 20.55    | 9.0°   | 0.0657             | 23.64    | 45.0°  | 0.0561             | 25.02    | 81.0°  | 0.0218             | 33.24    |
| -62.5° | 0.0630             | 24.01    | -26.5° | 0.1051             | 19.57    | 9.5°   | 0.0526             | 25.58    | 45.5°  | 0.0617             | 24.19    | 81.5°  | 0.0198             | 34.05    |
| -62.0° | 0.0600             | 24.43    | -26.0° | 0.1164             | 18.68    | 10.0°  | 0.0395             | 28.07    | 46.0°  | 0.0673             | 23.43    | 82.0°  | 0.0179             | 34.95    |
| -61.5° | 0.0561             | 25.02    | -25.5° | 0.1233             | 18.18    | 10.5°  | 0.0807             | 21.86    | 46.5°  | 0.0711             | 22.97    | 82.5°  | 0.0164             | 35.69    |
| -61.0° | 0.0522             | 25.64    | -25.0° | 0.1301             | 17.71    | 11.0°  | 0.1219             | 18.28    | 47.0°  | 0.0748             | 22.52    | 83.0°  | 0.0149             | 36.51    |
| -60.5° | 0.0476             | 26.44    | -24.5° | 0.1316             | 17.62    | 11.5°  | 0.1505             | 16.45    | 47.5°  | 0.0766             | 22.32    | 83.5°  | 0.0135             | 37.42    |
| -60.0° | 0.0430             | 27.33    | -24.0° | 0.1330             | 17.52    | 12.0°  | 0.1791             | 14.94    | 48.0°  | 0.0783             | 22.13    | 84.0°  | 0.0120             | 38.44    |
| -59.5° | 0.0376             | 28.50    | -23.5° | 0.1285             | 17.82    | 12.5°  | 0.1948             | 14.21    | 48.5°  | 0.0782             | 22.14    | 84.5°  | 0.0105             | 39.59    |
| -59.0° | 0.0322             | 29.85    | -23.0° | 0.1239             | 18.14    | 13.0°  | 0.2106             | 13.53    | 49.0°  | 0.0781             | 22.15    | 85.0°  | 0.0090             | 40.93    |
| -58.5° | 0.0261             | 31.67    | -22.5° | 0.1131             | 18.93    | 13.5°  | 0.2142             | 13.38    | 49.5°  | 0.0762             | 22.36    | 85.5°  | 0.0080             | 41.95    |
| -58.0° | 0.0200             | 33.97    | -22.0° | 0.1023             | 19.80    | 14.0°  | 0.2179             | 13.24    | 50.0°  | 0.0743             | 22.57    | 86.0°  | 0.0070             | 43.10    |
| -57.5° | 0.0134             | 37.43    | -21.5° | 0.0855             | 21.36    | 14.5°  | 0.2106             | 13.53    | 50.5°  | 0.0709             | 22.99    | 86.5°  | 0.0060             | 44.44    |
| -57.0° | 0.0069             | 43.26    | -21.0° | 0.0687             | 23.26    | 15.0°  | 0.2034             | 13.83    | 51.0°  | 0.0674             | 23.42    | 87.0°  | 0.0050             | 46.02    |
| -56.5° | 0.0069             | 43.18    | -20.5° | 0.0470             | 26.55    | 15.5°  | 0.1877             | 14.53    | 51.5°  | 0.0627             | 24.06    | 87.5°  | 0.0040             | 47.96    |
| -56.0° | 0.0070             | 43.11    | -20.0° | 0.0253             | 31.93    | 16.0°  | 0.1721             | 15.29    | 52.0°  | 0.0579             | 24.74    | 88.0°  | 0.0030             | 50.46    |
| -55.5° | 0.0141             | 37.03    | -19.5° | 0.0252             | 31.98    | 16.5°  | 0.1501             | 16.47    | 52.5°  | 0.0523             | 25.63    | 88.5°  | 0.0025             | 52.04    |
| -55.0° | 0.0212             | 33.49    | -19.0° | 0.0251             | 32.02    | 17.0°  | 0.1281             | 17.85    | 53.0°  | 0.0466             | 26.63    | 89.0°  | 0.0020             | 53.98    |
| -54.5° | 0.0281             | 31.02    | -18.5° | 0.0517             | 25.73    | 17.5°  | 0.1027             | 19.77    | 53.5°  | 0.0403             | 27.90    | 89.5°  | 0.0015             | 56.48    |



Parâmetros da configuração

ELEMENTOS VERTICAIS

7

ÂNGULO DE MEIA POTÊNCIA VERTICAL

7.62°

GANHO

8.43 dBd

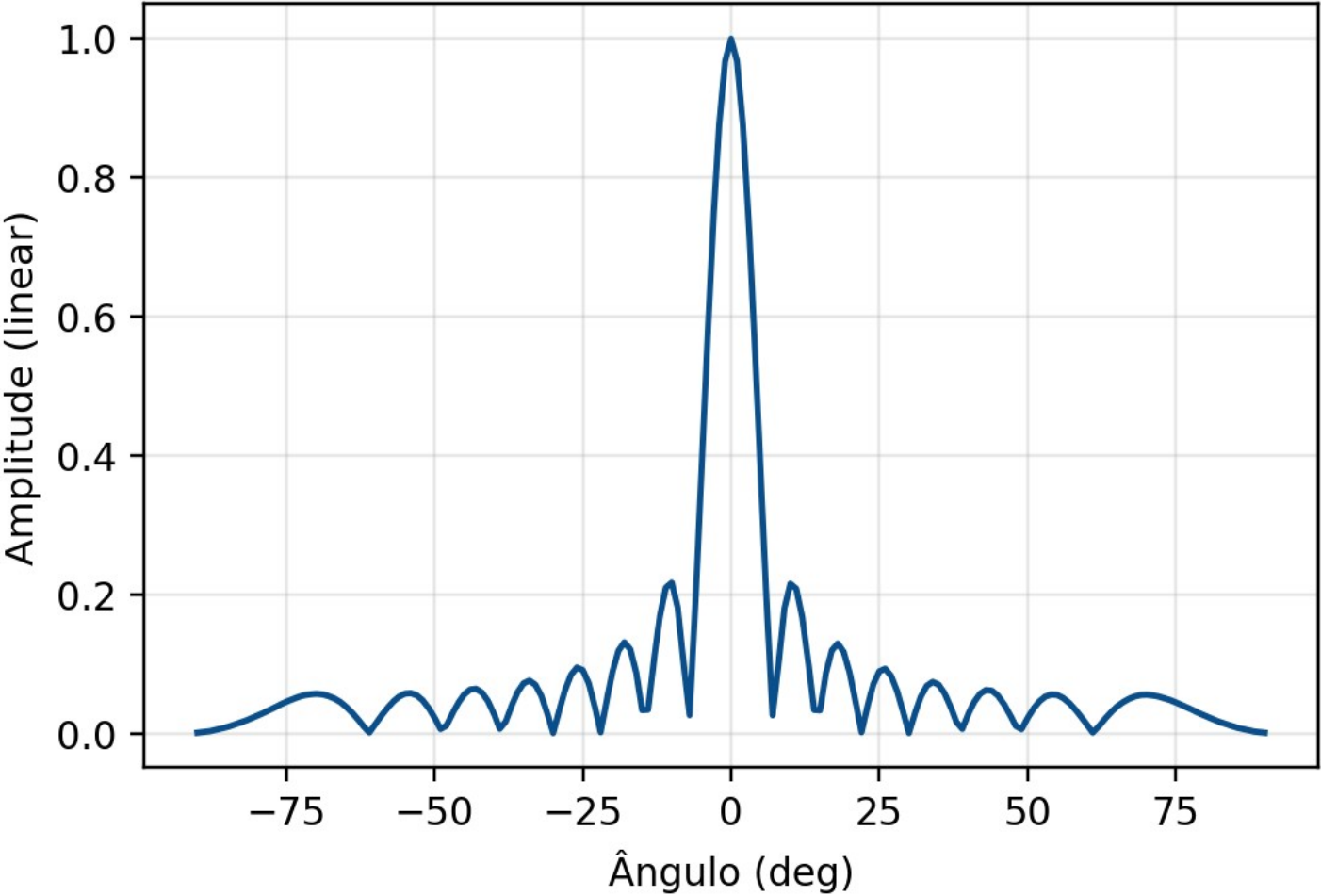
PRIMEIRO NULO

8.00°

Tabela completa - Elevação



| Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB | Ângulo | E/Emax | Aten. dB |
|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|
| -90.0° | 0.0010 | 60.00    | -54.0° | 0.0585 | 24.66    | -18.0° | 0.0733 | 22.70    | 18.0°  | 0.0723 | 22.82    | 54.0°  | 0.0565 | 24.97    |
| -89.5° | 0.0015 | 56.48    | -53.5° | 0.0615 | 24.22    | -17.5° | 0.0479 | 26.40    | 18.5°  | 0.0902 | 20.89    | 54.5°  | 0.0522 | 25.64    |
| -89.0° | 0.0020 | 53.98    | -53.0° | 0.0645 | 23.80    | -17.0° | 0.0225 | 32.96    | 19.0°  | 0.1082 | 19.32    | 55.0°  | 0.0480 | 26.37    |
| -88.5° | 0.0025 | 52.04    | -52.5° | 0.0659 | 23.62    | -16.5° | 0.0301 | 30.44    | 19.5°  | 0.1176 | 18.59    | 55.5°  | 0.0427 | 27.39    |
| -88.0° | 0.0030 | 50.46    | -52.0° | 0.0673 | 23.44    | -16.0° | 0.0376 | 28.49    | 20.0°  | 0.1271 | 17.92    | 56.0°  | 0.0374 | 28.54    |
| -87.5° | 0.0040 | 47.96    | -51.5° | 0.0670 | 23.48    | -15.5° | 0.0689 | 23.24    | 20.5°  | 0.1280 | 17.86    | 56.5°  | 0.0316 | 30.01    |
| -87.0° | 0.0050 | 46.02    | -51.0° | 0.0666 | 23.53    | -15.0° | 0.1002 | 19.99    | 21.0°  | 0.1288 | 17.80    | 57.0°  | 0.0257 | 31.78    |
| -86.5° | 0.0060 | 44.44    | -50.5° | 0.0643 | 23.83    | -14.5° | 0.1286 | 17.81    | 21.5°  | 0.1218 | 18.29    | 57.5°  | 0.0195 | 34.20    |
| -86.0° | 0.0070 | 43.10    | -50.0° | 0.0620 | 24.15    | -14.0° | 0.1571 | 16.08    | 22.0°  | 0.1148 | 18.80    | 58.0°  | 0.0133 | 37.55    |
| -85.5° | 0.0080 | 41.95    | -49.5° | 0.0576 | 24.78    | -13.5° | 0.1783 | 14.98    | 22.5°  | 0.1014 | 19.88    | 58.5°  | 0.0070 | 43.09    |
| -85.0° | 0.0090 | 40.93    | -49.0° | 0.0533 | 25.47    | -13.0° | 0.1995 | 14.00    | 23.0°  | 0.0881 | 21.10    | 59.0°  | 0.0007 | 62.52    |
| -84.5° | 0.0105 | 39.60    | -48.5° | 0.0470 | 26.55    | -12.5° | 0.2093 | 13.59    | 23.5°  | 0.0707 | 23.01    | 59.5°  | 0.0061 | 44.34    |
| -84.0° | 0.0120 | 38.44    | -48.0° | 0.0408 | 27.78    | -12.0° | 0.2191 | 13.19    | 24.0°  | 0.0533 | 25.46    | 60.0°  | 0.0114 | 38.87    |
| -83.5° | 0.0134 | 37.43    | -47.5° | 0.0331 | 29.62    | -11.5° | 0.2140 | 13.39    | 24.5°  | 0.0342 | 29.32    | 60.5°  | 0.0171 | 35.36    |
| -83.0° | 0.0149 | 36.52    | -47.0° | 0.0253 | 31.95    | -11.0° | 0.2090 | 13.60    | 25.0°  | 0.0150 | 36.45    | 61.0°  | 0.0227 | 32.86    |
| -82.5° | 0.0164 | 35.71    | -46.5° | 0.0162 | 35.80    | -10.5° | 0.1870 | 14.56    | 25.5°  | 0.0186 | 34.62    | 61.5°  | 0.0278 | 31.11    |
| -82.0° | 0.0178 | 34.97    | -46.0° | 0.0072 | 42.87    | -10.0° | 0.1650 | 15.65    | 26.0°  | 0.0221 | 33.11    | 62.0°  | 0.0329 | 29.65    |
| -81.5° | 0.0198 | 34.08    | -45.5° | 0.0097 | 40.30    | -9.5°  | 0.1253 | 18.04    | 26.5°  | 0.0381 | 28.39    | 62.5°  | 0.0372 | 28.58    |
| -81.0° | 0.0217 | 33.27    | -45.0° | 0.0121 | 38.33    | -9.0°  | 0.0855 | 21.36    | 27.0°  | 0.0540 | 25.35    | 63.0°  | 0.0416 | 27.62    |
| -80.5° | 0.0236 | 32.54    | -44.5° | 0.0217 | 33.25    | -8.5°  | 0.0564 | 24.97    | 27.5°  | 0.0658 | 23.63    | 63.5°  | 0.0452 | 26.89    |
| -80.0° | 0.0255 | 31.87    | -44.0° | 0.0314 | 30.07    | -8.0°  | 0.0273 | 31.28    | 28.0°  | 0.0777 | 22.19    | 64.0°  | 0.0489 | 26.22    |
| -79.5° | 0.0273 | 31.27    | -43.5° | 0.0402 | 27.92    | -7.5°  | 0.0974 | 20.23    | 28.5°  | 0.0845 | 21.47    | 64.5°  | 0.0519 | 25.70    |
| -79.0° | 0.0291 | 30.71    | -43.0° | 0.0490 | 26.19    | -7.0°  | 0.1676 | 15.52    | 29.0°  | 0.0913 | 20.80    | 65.0°  | 0.0549 | 25.21    |
| -78.5° | 0.0314 | 30.07    | -42.5° | 0.0563 | 24.99    | -6.5°  | 0.2472 | 12.14    | 29.5°  | 0.0927 | 20.66    | 65.5°  | 0.0568 | 24.91    |
| -78.0° | 0.0336 | 29.47    | -42.0° | 0.0636 | 23.93    | -6.0°  | 0.3267 | 9.72     | 30.0°  | 0.0941 | 20.52    | 66.0°  | 0.0588 | 24.62    |
| -77.5° | 0.0357 | 28.94    | -41.5° | 0.0687 | 23.26    | -5.5°  | 0.4097 | 7.75     | 30.5°  | 0.0905 | 20.86    | 66.5°  | 0.0601 | 24.43    |
| -77.0° | 0.0379 | 28.44    | -41.0° | 0.0737 | 22.65    | -5.0°  | 0.4926 | 6.15     | 31.0°  | 0.0869 | 21.22    | 67.0°  | 0.0614 | 24.24    |
| -76.5° | 0.0403 | 27.90    | -40.5° | 0.0757 | 22.41    | -4.5°  | 0.5729 | 4.84     | 31.5°  | 0.0790 | 22.04    | 67.5°  | 0.0622 | 24.12    |
| -76.0° | 0.0427 | 27.39    | -40.0° | 0.0778 | 22.18    | -4.0°  | 0.6531 | 3.70     | 32.0°  | 0.0711 | 22.96    | 68.0°  | 0.0630 | 24.01    |
| -75.5° | 0.0450 | 26.94    | -39.5° | 0.0766 | 22.31    | -3.5°  | 0.7240 | 2.81     | 32.5°  | 0.0601 | 24.42    | 68.5°  | 0.0631 | 23.99    |
| -75.0° | 0.0472 | 26.52    | -39.0° | 0.0754 | 22.45    | -3.0°  | 0.7948 | 1.99     | 33.0°  | 0.0491 | 26.18    | 69.0°  | 0.0633 | 23.98    |
| -74.5° | 0.0492 | 26.17    | -38.5° | 0.0708 | 23.00    | -2.5°  | 0.8498 | 1.41     | 33.5°  | 0.0362 | 28.83    | 69.5°  | 0.0627 | 24.06    |
| -74.0° | 0.0511 | 25.82    | -38.0° | 0.0662 | 23.58    | -2.0°  | 0.9048 | 0.87     | 34.0°  | 0.0233 | 32.65    | 70.0°  | 0.0621 | 24.13    |
| -73.5° | 0.0533 | 25.47    | -37.5° | 0.0583 | 24.69    | -1.5°  | 0.9400 | 0.54     | 34.5°  | 0.0133 | 37.54    | 70.5°  | 0.0610 | 24.30    |
| -73.0° | 0.0554 | 25.14    | -37.0° | 0.0503 | 25.96    | -1.0°  | 0.9752 | 0.22     | 35.0°  | 0.0032 | 49.79    | 71.0°  | 0.0598 | 24.47    |
| -72.5° | 0.0571 | 24.87    | -36.5° | 0.0396 | 28.06    | -0.5°  | 0.9876 | 0.11     | 35.5°  | 0.0157 | 36.10    | 71.5°  | 0.0585 | 24.66    |
| -72.0° | 0.0588 | 24.61    | -36.0° | 0.0288 | 30.81    | 0.0°   | 1.0000 | 0.00     | 36.0°  | 0.0281 | 31.03    | 72.0°  | 0.0572 | 24.86    |
| -71.5° | 0.0601 | 24.43    | -35.5° | 0.0161 | 35.89    | 0.5°   | 0.9876 | 0.11     | 36.5°  | 0.0386 | 28.28    | 72.5°  | 0.0554 | 25.13    |
| -71.0° | 0.0613 | 24.25    | -35.0° | 0.0033 | 49.56    | 1.0°   | 0.9752 | 0.22     | 37.0°  | 0.0490 | 26.19    | 73.0°  | 0.0537 | 25.41    |
| -70.5° | 0.0625 | 24.09    | -34.5° | 0.0136 | 37.32    | 1.5°   | 0.9395 | 0.54     | 37.5°  | 0.0568 | 24.92    | 73.5°  | 0.0520 | 25.69    |
| -70.0° | 0.0636 | 23.93    | -34.0° | 0.0239 | 32.43    | 2.0°   | 0.9039 | 0.88     | 38.0°  | 0.0645 | 23.81    | 74.0°  | 0.0503 | 25.97    |
| -69.5° | 0.0641 | 23.86    | -33.5° | 0.0371 | 28.62    | 2.5°   | 0.8482 | 1.43     | 38.5°  | 0.0690 | 23.22    | 74.5°  | 0.0483 | 26.33    |
| -69.0° | 0.0646 | 23.79    | -33.0° | 0.0502 | 25.99    | 3.0°   | 0.7924 | 2.02     | 39.0°  | 0.0735 | 22.68    | 75.0°  | 0.0463 | 26.69    |
| -68.5° | 0.0645 | 23.81    | -32.5° | 0.0615 | 24.22    | 3.5°   | 0.7218 | 2.83     | 39.5°  | 0.0746 | 22.54    | 75.5°  | 0.0440 | 27.12    |
| -68.0° | 0.0643 | 23.84    | -32.0° | 0.0729 | 22.75    | 4.0°   | 0.6512 | 3.73     | 40.0°  | 0.0757 | 22.41    | 76.0°  | 0.0418 | 27.58    |
| -67.5° | 0.0637 | 23.92    | -31.5° | 0.0809 | 21.84    | 4.5°   | 0.5711 | 4.87     | 40.5°  | 0.0736 | 22.66    | 76.5°  | 0.0398 | 28.00    |
| -67.0° | 0.0631 | 24.00    | -31.0° | 0.0890 | 21.02    | 5.0°   | 0.4911 | 6.18     | 41.0°  | 0.0715 | 22.91    | 77.0°  | 0.0379 | 28.44    |
| -66.5° | 0.0619 | 24.16    | -30.5° | 0.0926 | 20.67    | 5.5°   | 0.4081 | 7.79     | 41.5°  | 0.0667 | 23.52    | 77.5°  | 0.0357 | 28.94    |
| -66.0° | 0.0607 | 24.33    | -30.0° | 0.0963 | 20.33    | 6.0°   | 0.3251 | 9.76     | 42.0°  | 0.0618 | 24.18    | 78.0°  | 0.0336 | 29.47    |
| -65.5° | 0.0585 | 24.66    | -29.5° | 0.0948 | 20.47    | 6.5°   | 0.2459 | 12.18    | 42.5°  | 0.0548 | 25.23    | 78.5°  | 0.0314 | 30.07    |
| -65.0° | 0.0562 | 25.01    | -29.0° | 0.0933 | 20.60    | 7.0°   | 0.1667 | 15.56    | 43.0°  | 0.0477 | 26.43    | 79.0°  | 0.0291 | 30.71    |
| -64.5° | 0.0532 | 25.48    | -28.5° | 0.0863 | 21.28    | 7.5°   | 0.0969 | 20.27    | 43.5°  | 0.0391 | 28.16    | 79.5°  | 0.0273 | 31.27    |
| -64.0° | 0.0503 | 25.97    | -28.0° | 0.0794 | 22.01    | 8.0°   | 0.0271 | 31.34    | 44.0°  | 0.0305 | 30.32    | 80.0°  | 0.0255 | 31.87    |
| -63.5° | 0.0466 | 26.62    | -27.5° | 0.0672 | 23.45    | 8.5°   | 0.0561 | 25.03    | 44.5°  | 0.0211 | 33.51    | 80.5°  | 0.0236 | 32.54    |
| -63.0° | 0.0430 | 27.33    | -27.0° | 0.0551 | 25.18    | 9.0°   | 0.0850 | 21.41    | 45.0°  | 0.0118 | 38.59    | 81.0°  | 0.0217 | 33.27    |
| -62.5° | 0.0385 | 28.30    | -26.5° | 0.0388 | 28.22    | 9.5°   | 0.1244 | 18.10    | 45.5°  | 0.0094 | 40.57    | 81.5°  | 0.0198 | 34.08    |
| -62.0° | 0.0339 | 29.38    | -26.0° | 0.0225 | 32.95    | 10.0°  | 0.1638 | 15.71    | 46.0°  | 0.0070 | 43.14    | 82.0°  | 0.0178 | 34.97    |
| -61.5° | 0.0287 | 30.85    | -25.5° | 0.0189 | 34.46    | 10.5°  | 0.1856 | 14.63    | 46.5°  | 0.0157 | 36.08    | 82.5°  | 0.0164 | 35.71    |
| -61.0° | 0.0234 | 32.61    | -25.0° | 0.0153 | 36.29    | 11.0°  | 0.2074 | 13.66    | 47.0°  | 0.0244 | 32.24    | 83.0°  | 0.0149 | 36.52    |
| -60.5° | 0.0176 | 35.09    | -24.5° | 0.0348 | 29.17    | 11.5°  | 0.2123 | 13.46    | 47.5°  | 0.0320 | 29.89    | 83.5°  | 0.0134 | 37.43    |
| -60.0° | 0.0118 | 38.58    | -24.0° | 0.0542 | 25.31    | 12.0°  | 0.2172 | 13.26    | 48.0°  | 0.0396 | 28.05    | 84.0°  | 0.0120 | 38.44    |
| -59.5° | 0.0063 | 44.05    | -23.5° | 0.0720 | 22.86    | 12.5°  | 0.2074 | 13.66    | 48.5°  | 0.0456 | 26.82    | 84.5°  | 0.0105 | 39.60    |
| -59.0° | 0.0008 | 62.21    | -23.0° | 0.0897 | 20.95    | 13.0°  | 0.1976 | 14.09    | 49.0°  | 0.0517 | 25.73    | 85.0°  | 0.0090 | 40.93    |
| -58.5° | 0.0072 | 42.80    | -22.5° | 0.1031 | 19.73    | 13.5°  | 0.1765 | 15.06    | 49.5°  | 0.0559 | 25.05    | 85.5°  | 0.0080 | 41.95    |
| -58.0° | 0.0137 | 37.26    | -22.0° | 0.1166 | 18.66    | 14.0°  | 0.1555 | 16.16    | 50.0°  | 0.0601 | 24.42    | 86.0°  | 0.0070 | 43.10    |
| -57.5° | 0.0201 | 33.91    | -21.5° | 0.1237 | 18.15    | 14.5°  | 0.1273 | 17.90    | 50.5°  | 0.0624 | 24.10    | 86.5°  | 0.0060 | 44.44    |
| -57.0° | 0.0266 | 31.51    | -21.0° | 0.1307 | 17.67    | 15.0°  | 0.0991 | 20.08    | 51.0°  | 0.0646 | 23.79    | 87.0°  | 0.0050 | 46.02    |
| -56.5° | 0.0327 | 29.72    | -20.5° | 0.1299 | 17.73    | 15.5°  | 0.0681 | 23.33    | 51.5°  | 0.0649 | 23.75    | 87.5°  | 0.0040 | 47.96    |
| -56.0° | 0.0387 | 28.24    | -20.0° | 0.1290 | 17.79    | 16.0°  | 0.0372 | 28.59    | 52.0°  | 0.0653 | 23.71    | 88.0°  | 0.0030 | 50.46    |
| -55.5° | 0.0442 | 27.10    | -19.5° | 0.1193 | 18.46    | 16.5°  | 0.0297 | 30.54    | 52.5°  | 0.0639 | 23.90    | 88.5°  | 0.0025 | 52.04    |
| -55.0° | 0.0496 | 26.09    | -19.0° | 0.1097 | 19.20    | 17.0°  | 0.0222 | 33.07    | 53.0°  | 0.0625 | 24.09    | 89.0°  | 0.0020 | 53.98    |
| -54.5° | 0.0540 | 25.35    | -18.5° | 0.0915 | 20.77    | 17.5°  | 0.0472 | 26.51    | 53.5°  | 0.0595 | 24.52    | 89.5°  | 0.0015 | 56.48    |



Parâmetros da configuração

ELEMENTOS VERTICAIS

8

ÂNGULO DE MEIA POTÊNCIA VERTICAL

7.17°

GANHO

9.01 dBd

PRIMEIRO NULO

7.00°

Tabela completa - Elevação



| Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB | Ângulo | E/E <sub>max</sub> | Aten. dB |
|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|--------|--------------------|----------|
| -90.0° | 0.0010             | 60.00    | -54.0° | 0.0580             | 24.73    | -18.0° | 0.1313             | 17.64    | 18.0°  | 0.1294             | 17.76    | 54.0°  | 0.0560             | 25.03    |
| -89.5° | 0.0015             | 56.48    | -53.5° | 0.0564             | 24.97    | -17.5° | 0.1262             | 17.98    | 18.5°  | 0.1233             | 18.18    | 54.5°  | 0.0557             | 25.08    |
| -89.0° | 0.0020             | 53.98    | -53.0° | 0.0548             | 25.22    | -17.0° | 0.1212             | 18.33    | 19.0°  | 0.1173             | 18.62    | 55.0°  | 0.0554             | 25.13    |
| -88.5° | 0.0025             | 52.04    | -52.5° | 0.0513             | 25.80    | -16.5° | 0.1045             | 19.62    | 19.5°  | 0.1023             | 19.80    | 55.5°  | 0.0533             | 25.47    |
| -88.0° | 0.0030             | 50.46    | -52.0° | 0.0477             | 26.43    | -16.0° | 0.0878             | 21.13    | 20.0°  | 0.0874             | 21.17    | 56.0°  | 0.0511             | 25.83    |
| -87.5° | 0.0040             | 47.96    | -51.5° | 0.0423             | 27.48    | -15.5° | 0.0608             | 24.33    | 20.5°  | 0.0669             | 23.49    | 56.5°  | 0.0477             | 26.42    |
| -87.0° | 0.0050             | 46.02    | -51.0° | 0.0369             | 28.66    | -15.0° | 0.0337             | 29.45    | 21.0°  | 0.0464             | 26.67    | 57.0°  | 0.0443             | 27.06    |
| -86.5° | 0.0060             | 44.44    | -50.5° | 0.0299             | 30.49    | -14.5° | 0.0340             | 29.37    | 21.5°  | 0.0241             | 32.37    | 57.5°  | 0.0397             | 28.02    |
| -86.0° | 0.0070             | 43.11    | -50.0° | 0.0229             | 32.81    | -14.0° | 0.0343             | 29.29    | 22.0°  | 0.0017             | 55.18    | 58.0°  | 0.0351             | 29.09    |
| -85.5° | 0.0080             | 41.95    | -49.5° | 0.0146             | 36.69    | -13.5° | 0.0702             | 23.07    | 22.5°  | 0.0205             | 33.75    | 58.5°  | 0.0298             | 30.52    |
| -85.0° | 0.0090             | 40.93    | -49.0° | 0.0064             | 43.88    | -13.0° | 0.1061             | 19.48    | 23.0°  | 0.0393             | 28.11    | 59.0°  | 0.0245             | 32.23    |
| -84.5° | 0.0105             | 39.60    | -48.5° | 0.0088             | 41.10    | -12.5° | 0.1376             | 17.23    | 23.5°  | 0.0552             | 25.17    | 59.5°  | 0.0187             | 34.54    |
| -84.0° | 0.0120             | 38.45    | -48.0° | 0.0112             | 38.99    | -12.0° | 0.1691             | 15.44    | 24.0°  | 0.0710             | 22.97    | 60.0°  | 0.0130             | 37.70    |
| -83.5° | 0.0134             | 37.44    | -47.5° | 0.0199             | 34.00    | -11.5° | 0.1895             | 14.45    | 24.5°  | 0.0802             | 21.91    | 60.5°  | 0.0072             | 42.88    |
| -83.0° | 0.0149             | 36.54    | -47.0° | 0.0287             | 30.85    | -11.0° | 0.2099             | 13.56    | 25.0°  | 0.0894             | 20.97    | 61.0°  | 0.0013             | 57.58    |
| -82.5° | 0.0163             | 35.73    | -46.5° | 0.0364             | 28.78    | -10.5° | 0.2135             | 13.41    | 25.5°  | 0.0913             | 20.79    | 61.5°  | 0.0057             | 44.90    |
| -82.0° | 0.0178             | 34.99    | -46.0° | 0.0441             | 27.10    | -10.0° | 0.2171             | 13.27    | 26.0°  | 0.0931             | 20.62    | 62.0°  | 0.0101             | 39.95    |
| -81.5° | 0.0197             | 34.11    | -45.5° | 0.0502             | 25.99    | -9.5°  | 0.1993             | 14.01    | 26.5°  | 0.0879             | 21.12    | 62.5°  | 0.0153             | 36.30    |
| -81.0° | 0.0216             | 33.30    | -45.0° | 0.0562             | 25.00    | -9.0°  | 0.1816             | 14.82    | 27.0°  | 0.0827             | 21.65    | 63.0°  | 0.0206             | 33.73    |
| -80.5° | 0.0235             | 32.59    | -44.5° | 0.0598             | 24.47    | -8.5°  | 0.1407             | 17.04    | 27.5°  | 0.0719             | 22.87    | 63.5°  | 0.0253             | 31.94    |
| -80.0° | 0.0253             | 31.93    | -44.0° | 0.0633             | 23.97    | -8.0°  | 0.0997             | 20.03    | 28.0°  | 0.0611             | 24.28    | 64.0°  | 0.0300             | 30.46    |
| -79.5° | 0.0271             | 31.34    | -43.5° | 0.0638             | 23.90    | -7.5°  | 0.0631             | 24.00    | 28.5°  | 0.0466             | 26.62    | 64.5°  | 0.0341             | 29.34    |
| -79.0° | 0.0289             | 30.79    | -43.0° | 0.0643             | 23.83    | -7.0°  | 0.0265             | 31.55    | 29.0°  | 0.0322             | 29.84    | 65.0°  | 0.0382             | 28.35    |
| -78.5° | 0.0310             | 30.16    | -42.5° | 0.0616             | 24.21    | -6.5°  | 0.1076             | 19.36    | 29.5°  | 0.0164             | 35.68    | 65.5°  | 0.0414             | 27.66    |
| -78.0° | 0.0332             | 29.58    | -42.0° | 0.0588             | 24.61    | -6.0°  | 0.1888             | 14.48    | 30.0°  | 0.0007             | 63.28    | 66.0°  | 0.0445             | 27.03    |
| -77.5° | 0.0352             | 29.07    | -41.5° | 0.0528             | 25.55    | -5.5°  | 0.2810             | 11.03    | 30.5°  | 0.0148             | 36.58    | 66.5°  | 0.0470             | 26.56    |
| -77.0° | 0.0372             | 28.59    | -41.0° | 0.0467             | 26.61    | -5.0°  | 0.3732             | 8.56     | 31.0°  | 0.0290             | 30.76    | 67.0°  | 0.0494             | 26.12    |
| -76.5° | 0.0395             | 28.08    | -40.5° | 0.0377             | 28.46    | -4.5°  | 0.4679             | 6.60     | 31.5°  | 0.0409             | 27.76    | 67.5°  | 0.0513             | 25.80    |
| -76.0° | 0.0417             | 27.59    | -40.0° | 0.0288             | 30.82    | -4.0°  | 0.5625             | 5.00     | 32.0°  | 0.0529             | 25.53    | 68.0°  | 0.0531             | 25.49    |
| -75.5° | 0.0437             | 27.18    | -39.5° | 0.0178             | 35.00    | -3.5°  | 0.6498             | 3.74     | 32.5°  | 0.0607             | 24.34    | 68.5°  | 0.0542             | 25.32    |
| -75.0° | 0.0457             | 26.79    | -39.0° | 0.0068             | 43.37    | -3.0°  | 0.7370             | 2.65     | 33.0°  | 0.0685             | 23.29    | 69.0°  | 0.0552             | 25.15    |
| -74.5° | 0.0474             | 26.48    | -38.5° | 0.0119             | 38.45    | -2.5°  | 0.8069             | 1.86     | 33.5°  | 0.0713             | 22.93    | 69.5°  | 0.0555             | 25.11    |
| -74.0° | 0.0491             | 26.18    | -38.0° | 0.0171             | 35.33    | -2.0°  | 0.8768             | 1.14     | 34.0°  | 0.0742             | 22.59    | 70.0°  | 0.0558             | 25.07    |
| -73.5° | 0.0508             | 25.88    | -37.5° | 0.0286             | 30.86    | -1.5°  | 0.9223             | 0.70     | 34.5°  | 0.0723             | 22.82    | 70.5°  | 0.0554             | 25.14    |
| -73.0° | 0.0525             | 25.59    | -37.0° | 0.0401             | 27.93    | -1.0°  | 0.9678             | 0.28     | 35.0°  | 0.0703             | 23.06    | 71.0°  | 0.0549             | 25.21    |
| -72.5° | 0.0538             | 25.39    | -36.5° | 0.0498             | 26.06    | -0.5°  | 0.9839             | 0.14     | 35.5°  | 0.0641             | 23.86    | 71.5°  | 0.0542             | 25.32    |
| -72.0° | 0.0550             | 25.19    | -36.0° | 0.0594             | 24.53    | 0.0°   | 1.0000             | 0.00     | 36.0°  | 0.0579             | 24.75    | 72.0°  | 0.0535             | 25.44    |
| -71.5° | 0.0557             | 25.09    | -35.5° | 0.0658             | 23.64    | 0.5°   | 0.9839             | 0.14     | 36.5°  | 0.0485             | 26.28    | 72.5°  | 0.0522             | 25.65    |
| -71.0° | 0.0563             | 24.98    | -35.0° | 0.0722             | 22.83    | 1.0°   | 0.9678             | 0.28     | 37.0°  | 0.0391             | 28.15    | 73.0°  | 0.0509             | 25.86    |
| -70.5° | 0.0567             | 24.92    | -34.5° | 0.0741             | 22.60    | 1.5°   | 0.9218             | 0.71     | 37.5°  | 0.0279             | 31.09    | 73.5°  | 0.0496             | 26.09    |
| -70.0° | 0.0571             | 24.86    | -34.0° | 0.0761             | 22.37    | 2.0°   | 0.8759             | 1.15     | 38.0°  | 0.0167             | 35.57    | 74.0°  | 0.0483             | 26.33    |
| -69.5° | 0.0568             | 24.92    | -33.5° | 0.0731             | 22.72    | 2.5°   | 0.8053             | 1.88     | 38.5°  | 0.0116             | 38.69    | 74.5°  | 0.0466             | 26.64    |
| -69.0° | 0.0564             | 24.97    | -33.0° | 0.0701             | 23.09    | 3.0°   | 0.7348             | 2.68     | 39.0°  | 0.0066             | 43.60    | 75.0°  | 0.0449             | 26.96    |
| -68.5° | 0.0553             | 25.14    | -32.5° | 0.0621             | 24.13    | 3.5°   | 0.6478             | 3.77     | 39.5°  | 0.0173             | 35.24    | 75.5°  | 0.0428             | 27.36    |
| -68.0° | 0.0542             | 25.32    | -32.0° | 0.0542             | 25.32    | 4.0°   | 0.5608             | 5.02     | 40.0°  | 0.0280             | 31.05    | 76.0°  | 0.0408             | 27.78    |
| -67.5° | 0.0525             | 25.60    | -31.5° | 0.0419             | 27.55    | 4.5°   | 0.4665             | 6.62     | 40.5°  | 0.0367             | 28.71    | 76.5°  | 0.0390             | 28.18    |
| -67.0° | 0.0508             | 25.88    | -31.0° | 0.0296             | 30.56    | 5.0°   | 0.3721             | 8.59     | 41.0°  | 0.0453             | 26.87    | 77.0°  | 0.0372             | 28.59    |
| -66.5° | 0.0484             | 26.30    | -30.5° | 0.0152             | 36.38    | 5.5°   | 0.2799             | 11.06    | 41.5°  | 0.0512             | 25.81    | 77.5°  | 0.0352             | 29.07    |
| -66.0° | 0.0460             | 26.74    | -30.0° | 0.0007             | 63.09    | 6.0°   | 0.1878             | 14.53    | 42.0°  | 0.0571             | 24.86    | 78.0°  | 0.0332             | 29.58    |
| -65.5° | 0.0426             | 27.42    | -29.5° | 0.0168             | 35.49    | 6.5°   | 0.1071             | 19.41    | 42.5°  | 0.0598             | 24.46    | 78.5°  | 0.0310             | 30.16    |
| -65.0° | 0.0391             | 28.15    | -29.0° | 0.0329             | 29.65    | 7.0°   | 0.0263             | 31.59    | 43.0°  | 0.0626             | 24.07    | 79.0°  | 0.0289             | 30.79    |
| -64.5° | 0.0350             | 29.12    | -28.5° | 0.0477             | 26.44    | 7.5°   | 0.0627             | 24.05    | 43.5°  | 0.0620             | 24.15    | 79.5°  | 0.0271             | 31.34    |
| -64.0° | 0.0309             | 30.21    | -28.0° | 0.0624             | 24.10    | 8.0°   | 0.0991             | 20.08    | 44.0°  | 0.0615             | 24.22    | 80.0°  | 0.0253             | 31.93    |
| -63.5° | 0.0261             | 31.68    | -27.5° | 0.0734             | 22.69    | 8.5°   | 0.1398             | 17.09    | 44.5°  | 0.0580             | 24.73    | 80.5°  | 0.0235             | 32.59    |
| -63.0° | 0.0213             | 33.44    | -27.0° | 0.0843             | 21.48    | 9.0°   | 0.1805             | 14.87    | 45.0°  | 0.0545             | 25.27    | 81.0°  | 0.0216             | 33.30    |
| -62.5° | 0.0158             | 36.01    | -26.5° | 0.0896             | 20.95    | 9.5°   | 0.1980             | 14.07    | 45.5°  | 0.0487             | 26.26    | 81.5°  | 0.0197             | 34.11    |
| -62.0° | 0.0104             | 39.68    | -26.0° | 0.0949             | 20.45    | 10.0°  | 0.2155             | 13.33    | 46.0°  | 0.0428             | 27.38    | 82.0°  | 0.0178             | 34.99    |
| -61.5° | 0.0059             | 44.63    | -25.5° | 0.0930             | 20.63    | 10.5°  | 0.2119             | 13.48    | 46.5°  | 0.0353             | 29.06    | 82.5°  | 0.0163             | 35.73    |
| -61.0° | 0.0014             | 57.33    | -25.0° | 0.0911             | 20.81    | 11.0°  | 0.2084             | 13.62    | 47.0°  | 0.0277             | 31.14    | 83.0°  | 0.0149             | 36.54    |
| -60.5° | 0.0074             | 42.60    | -24.5° | 0.0817             | 21.76    | 11.5°  | 0.1880             | 14.52    | 47.5°  | 0.0193             | 34.28    | 83.5°  | 0.0134             | 37.44    |
| -60.0° | 0.0135             | 37.41    | -24.0° | 0.0722             | 22.82    | 12.0°  | 0.1676             | 15.51    | 48.0°  | 0.0109             | 39.26    | 84.0°  | 0.0120             | 38.45    |
| -59.5° | 0.0194             | 34.24    | -23.5° | 0.0561             | 25.02    | 12.5°  | 0.1364             | 17.31    | 48.5°  | 0.0085             | 41.37    | 84.5°  | 0.0105             | 39.60    |
| -59.0° | 0.0254             | 31.92    | -23.0° | 0.0400             | 27.95    | 13.0°  | 0.1051             | 19.57    | 49.0°  | 0.0062             | 44.14    | 85.0°  | 0.0090             | 40.93    |
| -58.5° | 0.0308             | 30.22    | -22.5° | 0.0209             | 33.60    | 13.5°  | 0.0695             | 23.15    | 49.5°  | 0.0142             | 36.96    | 85.5°  | 0.0080             | 41.95    |
| -58.0° | 0.0363             | 28.80    | -22.0° | 0.0018             | 55.04    | 14.0°  | 0.0340             | 29.37    | 50.0°  | 0.0222             | 33.08    | 86.0°  | 0.0070             | 43.11    |
| -57.5° | 0.0410             | 27.73    | -21.5° | 0.0244             | 32.24    | 14.5°  | 0.0337             | 29.46    | 50.5°  | 0.0290             | 30.76    | 86.5°  | 0.0060             | 44.44    |
| -57.0° | 0.0458             | 26.79    | -21.0° | 0.0471             | 26.54    | 15.0°  | 0.0333             | 29.54    | 51.0°  | 0.0358             | 28.92    | 87.0°  | 0.0050             | 46.02    |
| -56.5° | 0.0493             | 26.13    | -20.5° | 0.0678             | 23.37    | 15.5°  | 0.0601             | 24.42    | 51.5°  | 0.0410             | 27.74    | 87.5°  | 0.0040             | 47.96    |
| -56.0° | 0.0529             | 25.53    | -20.0° | 0.0886             | 21.05    | 16.0°  | 0.0868             | 21.23    | 52.0°  | 0.0462             | 26.70    | 88.0°  | 0.0030             | 50.46    |
| -55.5° | 0.0551             | 25.18    | -19.5° | 0.1038             | 19.68    | 16.5°  | 0.1033             | 19.72    | 52.5°  | 0.0496             | 26.08    | 88.5°  | 0.0025             | 52.04    |
| -55.0° | 0.0572             | 24.85    | -19.0° | 0.1189             | 18.49    | 17.0°  | 0.1197             | 18.44    | 53.0°  | 0.0531             | 25.50    | 89.0°  | 0.0020             | 53.98    |
| -54.5° | 0.0576             | 24.79    | -18.5° | 0.1251             | 18.06    | 17.5°  | 0.1246             | 18.09    | 53.5°  | 0.0545             | 25.26    | 89.5°  | 0.0015             | 56.48    |