

## AZIMUTH PATTERN Horizontal Polarization

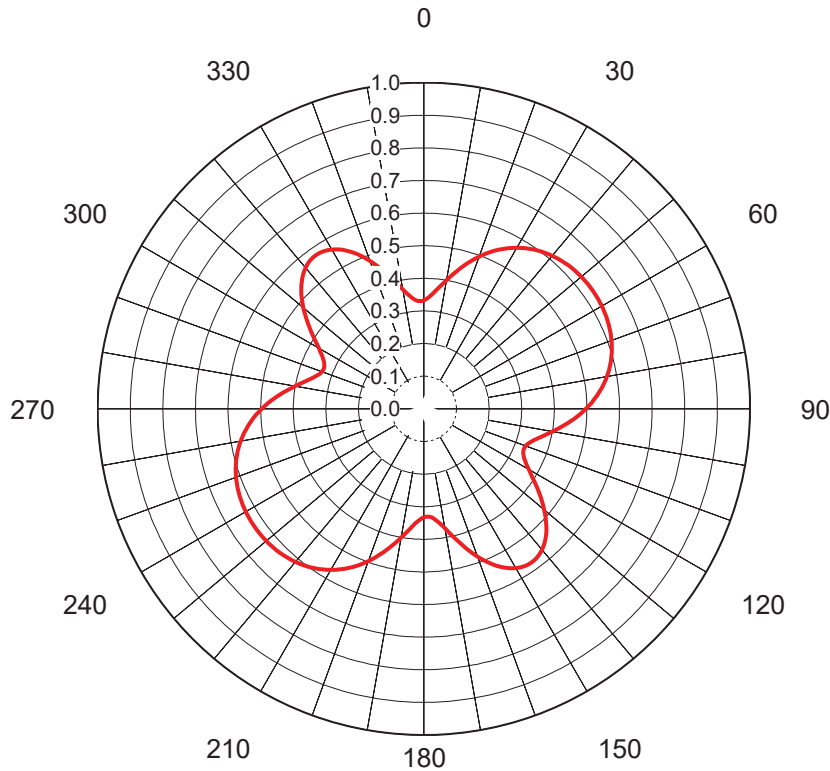
Proposal No. **C-70335-3**  
 Date **24-Feb-17**  
 Call Letters **KFPX 36**  
 Frequency **605 MHz**  
 Antenna Type **TFU-20DSC/VP-R P230**  
  
 Gain **2.24 (3.51dB)**  
**Calculated**  
  
 Directional  
 Drawing # **KFPX P230 H-POL**

| Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value |
|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| 0   | 0.552 | 36  | 0.564 | 72  | 0.582 | 108 | 0.518 | 144 | 0.999 | 180 | 0.552 | 216 | 0.564 | 252 | 0.582 | 288 | 0.518 | 324 | 0.999 |
| 1   | 0.534 | 37  | 0.574 | 73  | 0.574 | 109 | 0.534 | 145 | 1.000 | 181 | 0.534 | 217 | 0.574 | 253 | 0.574 | 289 | 0.534 | 325 | 1.000 |
| 2   | 0.518 | 38  | 0.582 | 74  | 0.564 | 110 | 0.552 | 146 | 0.999 | 182 | 0.518 | 218 | 0.582 | 254 | 0.564 | 290 | 0.552 | 326 | 0.999 |
| 3   | 0.502 | 39  | 0.591 | 75  | 0.555 | 111 | 0.569 | 147 | 0.998 | 183 | 0.502 | 219 | 0.591 | 255 | 0.555 | 291 | 0.569 | 327 | 0.998 |
| 4   | 0.487 | 40  | 0.599 | 76  | 0.545 | 112 | 0.588 | 148 | 0.995 | 184 | 0.487 | 220 | 0.599 | 256 | 0.545 | 292 | 0.588 | 328 | 0.995 |
| 5   | 0.472 | 41  | 0.607 | 77  | 0.535 | 113 | 0.606 | 149 | 0.992 | 185 | 0.472 | 221 | 0.607 | 257 | 0.535 | 293 | 0.606 | 329 | 0.992 |
| 6   | 0.460 | 42  | 0.614 | 78  | 0.524 | 114 | 0.624 | 150 | 0.988 | 186 | 0.460 | 222 | 0.614 | 258 | 0.524 | 294 | 0.624 | 330 | 0.988 |
| 7   | 0.447 | 43  | 0.621 | 79  | 0.514 | 115 | 0.643 | 151 | 0.983 | 187 | 0.447 | 223 | 0.621 | 259 | 0.514 | 295 | 0.643 | 331 | 0.983 |
| 8   | 0.436 | 44  | 0.627 | 80  | 0.504 | 116 | 0.662 | 152 | 0.976 | 188 | 0.436 | 224 | 0.627 | 260 | 0.504 | 296 | 0.662 | 332 | 0.976 |
| 9   | 0.426 | 45  | 0.633 | 81  | 0.493 | 117 | 0.681 | 153 | 0.970 | 189 | 0.426 | 225 | 0.633 | 261 | 0.493 | 297 | 0.681 | 333 | 0.970 |
| 10  | 0.418 | 46  | 0.639 | 82  | 0.483 | 118 | 0.699 | 154 | 0.961 | 190 | 0.418 | 226 | 0.639 | 262 | 0.483 | 298 | 0.699 | 334 | 0.961 |
| 11  | 0.410 | 47  | 0.644 | 83  | 0.472 | 119 | 0.718 | 155 | 0.953 | 191 | 0.410 | 227 | 0.644 | 263 | 0.472 | 299 | 0.718 | 335 | 0.953 |
| 12  | 0.406 | 48  | 0.648 | 84  | 0.463 | 120 | 0.736 | 156 | 0.943 | 192 | 0.406 | 228 | 0.648 | 264 | 0.463 | 300 | 0.736 | 336 | 0.943 |
| 13  | 0.401 | 49  | 0.652 | 85  | 0.453 | 121 | 0.754 | 157 | 0.933 | 193 | 0.401 | 229 | 0.652 | 265 | 0.453 | 301 | 0.754 | 337 | 0.933 |
| 14  | 0.399 | 50  | 0.654 | 86  | 0.444 | 122 | 0.772 | 158 | 0.921 | 194 | 0.399 | 230 | 0.654 | 266 | 0.444 | 302 | 0.772 | 338 | 0.921 |
| 15  | 0.397 | 51  | 0.657 | 87  | 0.435 | 123 | 0.789 | 159 | 0.910 | 195 | 0.397 | 231 | 0.657 | 267 | 0.435 | 303 | 0.789 | 339 | 0.910 |
| 16  | 0.399 | 52  | 0.659 | 88  | 0.427 | 124 | 0.806 | 160 | 0.896 | 196 | 0.399 | 232 | 0.659 | 268 | 0.427 | 304 | 0.806 | 340 | 0.896 |
| 17  | 0.400 | 53  | 0.661 | 89  | 0.419 | 125 | 0.823 | 161 | 0.883 | 197 | 0.400 | 233 | 0.661 | 269 | 0.419 | 305 | 0.823 | 341 | 0.883 |
| 18  | 0.403 | 54  | 0.661 | 90  | 0.413 | 126 | 0.839 | 162 | 0.869 | 198 | 0.403 | 234 | 0.661 | 270 | 0.413 | 306 | 0.839 | 342 | 0.869 |
| 19  | 0.407 | 55  | 0.662 | 91  | 0.407 | 127 | 0.854 | 163 | 0.854 | 199 | 0.407 | 235 | 0.662 | 271 | 0.407 | 307 | 0.854 | 343 | 0.854 |
| 20  | 0.413 | 56  | 0.661 | 92  | 0.403 | 128 | 0.869 | 164 | 0.839 | 200 | 0.413 | 236 | 0.661 | 272 | 0.403 | 308 | 0.869 | 344 | 0.839 |
| 21  | 0.419 | 57  | 0.661 | 93  | 0.400 | 129 | 0.883 | 165 | 0.823 | 201 | 0.419 | 237 | 0.661 | 273 | 0.400 | 309 | 0.883 | 345 | 0.823 |
| 22  | 0.427 | 58  | 0.659 | 94  | 0.399 | 130 | 0.896 | 166 | 0.806 | 202 | 0.427 | 238 | 0.659 | 274 | 0.399 | 310 | 0.896 | 346 | 0.806 |
| 23  | 0.435 | 59  | 0.657 | 95  | 0.397 | 131 | 0.910 | 167 | 0.789 | 203 | 0.435 | 239 | 0.657 | 275 | 0.397 | 311 | 0.910 | 347 | 0.789 |
| 24  | 0.444 | 60  | 0.654 | 96  | 0.399 | 132 | 0.921 | 168 | 0.772 | 204 | 0.444 | 240 | 0.654 | 276 | 0.399 | 312 | 0.921 | 348 | 0.772 |
| 25  | 0.453 | 61  | 0.652 | 97  | 0.401 | 133 | 0.933 | 169 | 0.754 | 205 | 0.450 | 241 | 0.652 | 277 | 0.401 | 313 | 0.933 | 349 | 0.754 |
| 26  | 0.463 | 62  | 0.648 | 98  | 0.406 | 134 | 0.943 | 170 | 0.736 | 206 | 0.463 | 242 | 0.648 | 278 | 0.406 | 314 | 0.943 | 350 | 0.736 |
| 27  | 0.472 | 63  | 0.644 | 99  | 0.410 | 135 | 0.953 | 171 | 0.718 | 207 | 0.472 | 243 | 0.644 | 279 | 0.410 | 315 | 0.953 | 351 | 0.718 |
| 28  | 0.483 | 64  | 0.639 | 100 | 0.418 | 136 | 0.961 | 172 | 0.699 | 208 | 0.483 | 244 | 0.638 | 280 | 0.418 | 316 | 0.961 | 352 | 0.699 |
| 29  | 0.493 | 65  | 0.633 | 101 | 0.426 | 137 | 0.970 | 173 | 0.681 | 209 | 0.493 | 245 | 0.633 | 281 | 0.426 | 317 | 0.970 | 353 | 0.681 |
| 30  | 0.504 | 66  | 0.627 | 102 | 0.436 | 138 | 0.976 | 174 | 0.662 | 210 | 0.504 | 246 | 0.627 | 282 | 0.436 | 318 | 0.976 | 354 | 0.662 |
| 31  | 0.514 | 67  | 0.621 | 103 | 0.447 | 139 | 0.983 | 175 | 0.643 | 211 | 0.514 | 247 | 0.621 | 283 | 0.447 | 319 | 0.983 | 355 | 0.643 |
| 32  | 0.524 | 68  | 0.614 | 104 | 0.460 | 140 | 0.988 | 176 | 0.624 | 212 | 0.524 | 248 | 0.614 | 284 | 0.460 | 320 | 0.988 | 356 | 0.624 |
| 33  | 0.535 | 69  | 0.607 | 105 | 0.472 | 141 | 0.992 | 177 | 0.606 | 213 | 0.535 | 249 | 0.607 | 285 | 0.472 | 321 | 0.992 | 357 | 0.606 |
| 34  | 0.545 | 70  | 0.599 | 106 | 0.487 | 142 | 0.995 | 178 | 0.588 | 214 | 0.545 | 250 | 0.599 | 286 | 0.487 | 322 | 0.995 | 358 | 0.588 |
| 35  | 0.555 | 71  | 0.591 | 107 | 0.502 | 143 | 0.998 | 179 | 0.569 | 215 | 0.555 | 251 | 0.591 | 287 | 0.502 | 323 | 0.998 | 359 | 0.569 |

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

## AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-70335-3**  
 Date **24-Feb-17**  
 Call Letters **KFPX 36**  
 Frequency **605 MHz**  
 Antenna Type **TFU-20DSC/VP-R P230**  
 Gain **1.56 (1.94dB)**  
 Calculated  
 Directional  
 Drawing # **KFPX P230 V-POL**



| Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value | Deg | Value |
|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| 0   | 0.333 | 36  | 0.599 | 72  | 0.606 | 108 | 0.339 | 144 | 0.575 | 180 | 0.333 | 216 | 0.599 | 252 | 0.606 | 288 | 0.339 |
| 1   | 0.335 | 37  | 0.603 | 73  | 0.603 | 109 | 0.335 | 145 | 0.576 | 181 | 0.335 | 217 | 0.603 | 253 | 0.603 | 289 | 0.335 |
| 2   | 0.339 | 38  | 0.606 | 74  | 0.599 | 110 | 0.333 | 146 | 0.575 | 182 | 0.339 | 218 | 0.606 | 254 | 0.599 | 290 | 0.333 |
| 3   | 0.345 | 39  | 0.610 | 75  | 0.595 | 111 | 0.331 | 147 | 0.574 | 183 | 0.345 | 219 | 0.610 | 255 | 0.595 | 291 | 0.331 |
| 4   | 0.351 | 40  | 0.613 | 76  | 0.591 | 112 | 0.331 | 148 | 0.571 | 184 | 0.351 | 220 | 0.613 | 256 | 0.591 | 292 | 0.331 |
| 5   | 0.357 | 41  | 0.615 | 77  | 0.586 | 113 | 0.331 | 149 | 0.568 | 185 | 0.357 | 221 | 0.615 | 257 | 0.586 | 293 | 0.331 |
| 6   | 0.365 | 42  | 0.618 | 78  | 0.581 | 114 | 0.334 | 150 | 0.564 | 186 | 0.365 | 222 | 0.618 | 258 | 0.581 | 294 | 0.334 |
| 7   | 0.373 | 43  | 0.620 | 79  | 0.576 | 115 | 0.337 | 151 | 0.559 | 187 | 0.373 | 223 | 0.620 | 259 | 0.576 | 295 | 0.337 |
| 8   | 0.382 | 44  | 0.622 | 80  | 0.570 | 116 | 0.342 | 152 | 0.553 | 188 | 0.382 | 224 | 0.622 | 260 | 0.570 | 296 | 0.342 |
| 9   | 0.391 | 45  | 0.624 | 81  | 0.564 | 117 | 0.348 | 153 | 0.547 | 189 | 0.391 | 225 | 0.624 | 261 | 0.564 | 297 | 0.348 |
| 10  | 0.401 | 46  | 0.626 | 82  | 0.558 | 118 | 0.355 | 154 | 0.539 | 190 | 0.401 | 226 | 0.626 | 262 | 0.558 | 298 | 0.355 |
| 11  | 0.410 | 47  | 0.627 | 83  | 0.552 | 119 | 0.363 | 155 | 0.531 | 191 | 0.410 | 227 | 0.627 | 263 | 0.552 | 299 | 0.363 |
| 12  | 0.420 | 48  | 0.628 | 84  | 0.545 | 120 | 0.372 | 156 | 0.523 | 192 | 0.420 | 228 | 0.628 | 264 | 0.545 | 300 | 0.372 |
| 13  | 0.430 | 49  | 0.629 | 85  | 0.538 | 121 | 0.381 | 157 | 0.513 | 193 | 0.430 | 229 | 0.629 | 265 | 0.538 | 301 | 0.381 |
| 14  | 0.440 | 50  | 0.630 | 86  | 0.530 | 122 | 0.392 | 158 | 0.503 | 194 | 0.440 | 230 | 0.630 | 266 | 0.530 | 302 | 0.392 |
| 15  | 0.450 | 51  | 0.631 | 87  | 0.522 | 123 | 0.402 | 159 | 0.493 | 195 | 0.450 | 231 | 0.631 | 267 | 0.522 | 303 | 0.402 |
| 16  | 0.460 | 52  | 0.632 | 88  | 0.514 | 124 | 0.414 | 160 | 0.482 | 196 | 0.460 | 232 | 0.632 | 268 | 0.514 | 304 | 0.414 |
| 17  | 0.469 | 53  | 0.632 | 89  | 0.506 | 125 | 0.425 | 161 | 0.471 | 197 | 0.469 | 233 | 0.632 | 269 | 0.506 | 305 | 0.425 |
| 18  | 0.479 | 54  | 0.632 | 90  | 0.497 | 126 | 0.437 | 162 | 0.460 | 198 | 0.479 | 234 | 0.632 | 270 | 0.497 | 306 | 0.437 |
| 19  | 0.488 | 55  | 0.632 | 91  | 0.488 | 127 | 0.448 | 163 | 0.448 | 199 | 0.488 | 235 | 0.632 | 271 | 0.488 | 307 | 0.448 |
| 20  | 0.497 | 56  | 0.632 | 92  | 0.479 | 128 | 0.460 | 164 | 0.437 | 200 | 0.497 | 236 | 0.632 | 272 | 0.479 | 308 | 0.460 |
| 21  | 0.506 | 57  | 0.632 | 93  | 0.469 | 129 | 0.471 | 165 | 0.425 | 201 | 0.506 | 237 | 0.632 | 273 | 0.469 | 309 | 0.471 |
| 22  | 0.514 | 58  | 0.632 | 94  | 0.460 | 130 | 0.482 | 166 | 0.414 | 202 | 0.514 | 238 | 0.632 | 274 | 0.460 | 310 | 0.482 |
| 23  | 0.522 | 59  | 0.631 | 95  | 0.450 | 131 | 0.493 | 167 | 0.402 | 203 | 0.522 | 239 | 0.631 | 275 | 0.450 | 311 | 0.493 |
| 24  | 0.530 | 60  | 0.630 | 96  | 0.440 | 132 | 0.503 | 168 | 0.392 | 204 | 0.530 | 240 | 0.630 | 276 | 0.440 | 312 | 0.503 |
| 25  | 0.538 | 61  | 0.629 | 97  | 0.430 | 133 | 0.513 | 169 | 0.381 | 205 | 0.538 | 241 | 0.629 | 277 | 0.430 | 313 | 0.513 |
| 26  | 0.545 | 62  | 0.628 | 98  | 0.420 | 134 | 0.523 | 170 | 0.372 | 206 | 0.545 | 242 | 0.628 | 278 | 0.420 | 314 | 0.523 |
| 27  | 0.552 | 63  | 0.627 | 99  | 0.410 | 135 | 0.531 | 171 | 0.363 | 207 | 0.552 | 243 | 0.627 | 279 | 0.410 | 315 | 0.531 |
| 28  | 0.558 | 64  | 0.626 | 100 | 0.401 | 136 | 0.539 | 172 | 0.355 | 208 | 0.558 | 244 | 0.626 | 280 | 0.401 | 316 | 0.539 |
| 29  | 0.564 | 65  | 0.624 | 101 | 0.391 | 137 | 0.547 | 173 | 0.348 | 209 | 0.564 | 245 | 0.624 | 281 | 0.391 | 317 | 0.547 |
| 30  | 0.570 | 66  | 0.622 | 102 | 0.382 | 138 | 0.553 | 174 | 0.342 | 210 | 0.570 | 246 | 0.622 | 282 | 0.382 | 318 | 0.553 |
| 31  | 0.576 | 67  | 0.620 | 103 | 0.373 | 139 | 0.559 | 175 | 0.337 | 211 | 0.576 | 247 | 0.620 | 283 | 0.373 | 319 | 0.559 |
| 32  | 0.581 | 68  | 0.618 | 104 | 0.365 | 140 | 0.564 | 176 | 0.334 | 212 | 0.581 | 248 | 0.618 | 284 | 0.365 | 320 | 0.564 |
| 33  | 0.586 | 69  | 0.615 | 105 | 0.357 | 141 | 0.568 | 177 | 0.331 | 213 | 0.586 | 249 | 0.615 | 285 | 0.357 | 321 | 0.568 |
| 34  | 0.591 | 70  | 0.613 | 106 | 0.351 | 142 | 0.571 | 178 | 0.331 | 214 | 0.591 | 250 | 0.613 | 286 | 0.351 | 322 | 0.571 |
| 35  | 0.595 | 71  | 0.610 | 107 | 0.345 | 143 | 0.574 | 179 | 0.331 | 215 | 0.595 | 251 | 0.610 | 287 | 0.345 | 323 | 0.574 |

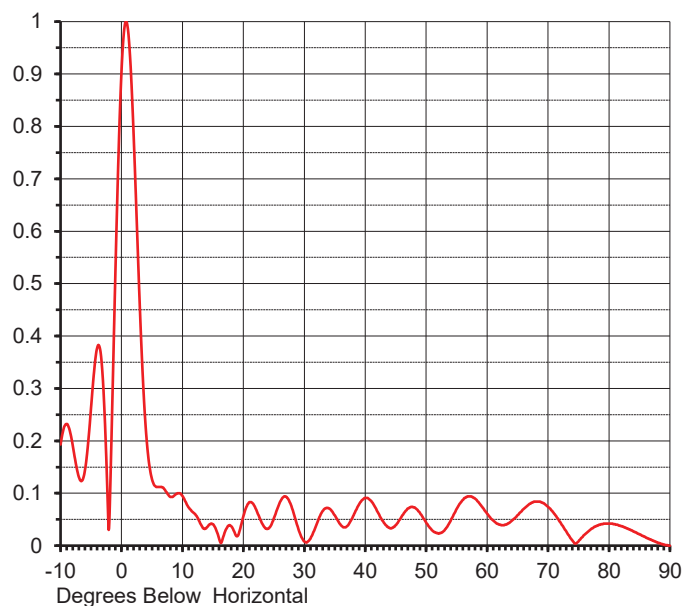
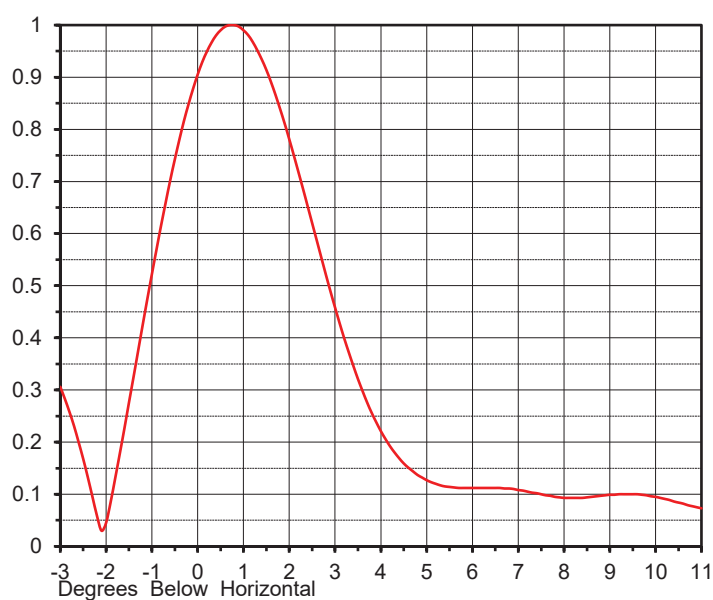
This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

## ELEVATION PATTERN

Proposal No. **C-70335-3**  
 Date **24-Feb-17**  
 Call Letters **KFPX 36**  
 Frequency **605 MHz**  
 Antenna Type **TFU-20DSC/VP-R P230**

RMS Directivity at Main Lobe **17.00 ( 12.30 dB )**  
 RMS Directivity at Horizontal **13.90 ( 11.43 dB )**  
**Calculated**

Beam Tilt **0.75 deg**  
 Drawing Number **20Q170075**



| Angle | Field | Angle | Field | Angle | Field | Angle | Field | Angle | Field |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| -10.0 | 0.193 | 10.0  | 0.095 | 30.0  | 0.008 | 50.0  | 0.044 | 70.0  | 0.074 |
| -9.0  | 0.232 | 11.0  | 0.073 | 31.0  | 0.013 | 51.0  | 0.029 | 71.0  | 0.061 |
| -8.0  | 0.191 | 12.0  | 0.061 | 32.0  | 0.040 | 52.0  | 0.023 | 72.0  | 0.045 |
| -7.0  | 0.131 | 13.0  | 0.041 | 33.0  | 0.066 | 53.0  | 0.029 | 73.0  | 0.027 |
| -6.0  | 0.144 | 14.0  | 0.035 | 34.0  | 0.071 | 54.0  | 0.047 | 74.0  | 0.010 |
| -5.0  | 0.263 | 15.0  | 0.041 | 35.0  | 0.058 | 55.0  | 0.070 | 75.0  | 0.008 |
| -4.0  | 0.377 | 16.0  | 0.014 | 36.0  | 0.039 | 56.0  | 0.087 | 76.0  | 0.021 |
| -3.0  | 0.306 | 17.0  | 0.027 | 37.0  | 0.037 | 57.0  | 0.094 | 77.0  | 0.031 |
| -2.0  | 0.045 | 18.0  | 0.037 | 38.0  | 0.056 | 58.0  | 0.090 | 78.0  | 0.038 |
| -1.0  | 0.522 | 19.0  | 0.018 | 39.0  | 0.079 | 59.0  | 0.077 | 79.0  | 0.041 |
| 0.0   | 0.905 | 20.0  | 0.056 | 40.0  | 0.091 | 60.0  | 0.061 | 80.0  | 0.042 |
| 1.0   | 0.990 | 21.0  | 0.083 | 41.0  | 0.085 | 61.0  | 0.048 | 81.0  | 0.041 |
| 2.0   | 0.781 | 22.0  | 0.071 | 42.0  | 0.065 | 62.0  | 0.040 | 82.0  | 0.037 |
| 3.0   | 0.458 | 23.0  | 0.044 | 43.0  | 0.045 | 63.0  | 0.040 | 83.0  | 0.033 |
| 4.0   | 0.221 | 24.0  | 0.032 | 44.0  | 0.034 | 64.0  | 0.047 | 84.0  | 0.027 |
| 5.0   | 0.127 | 25.0  | 0.052 | 45.0  | 0.039 | 65.0  | 0.058 | 85.0  | 0.022 |
| 6.0   | 0.112 | 26.0  | 0.083 | 46.0  | 0.056 | 66.0  | 0.070 | 86.0  | 0.016 |
| 7.0   | 0.108 | 27.0  | 0.093 | 47.0  | 0.071 | 67.0  | 0.080 | 87.0  | 0.011 |
| 8.0   | 0.093 | 28.0  | 0.071 | 48.0  | 0.073 | 68.0  | 0.084 | 88.0  | 0.006 |
| 9.0   | 0.099 | 29.0  | 0.033 | 49.0  | 0.062 | 69.0  | 0.082 | 89.0  | 0.002 |
|       |       |       |       |       |       |       |       | 90.0  | 0.000 |

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.