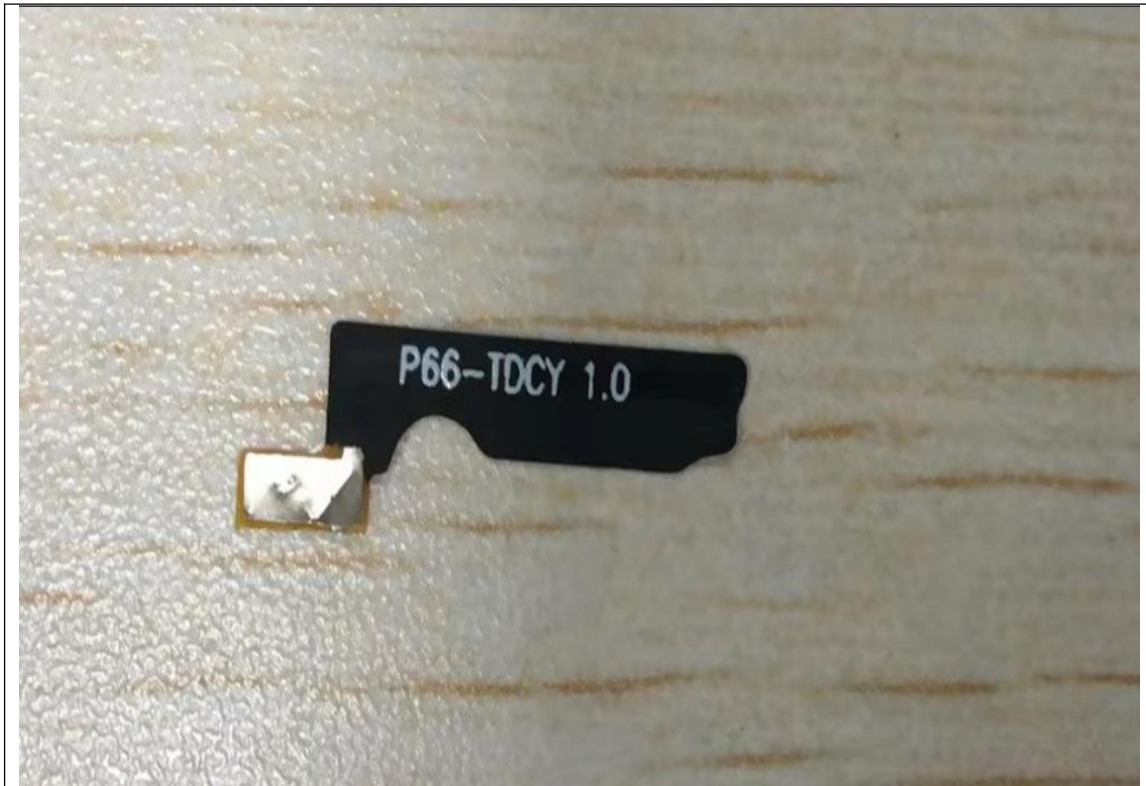


## Antenna Information

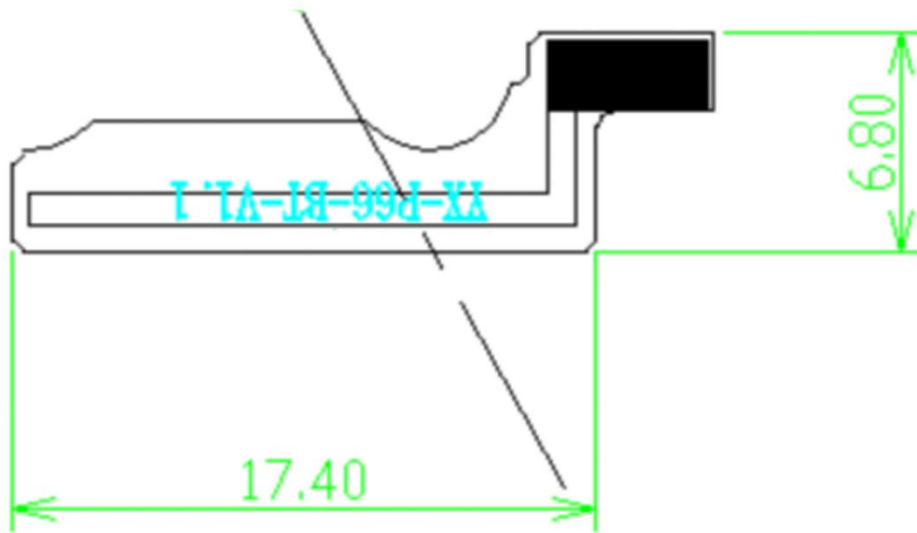
|                           |  |
|---------------------------|--|
| Manufacturer              | <b>Shenzhen Panlong Communication Technology Co., Ltd.</b>   |
| Manufacturer Address      | 201, 2nd Floor, Baisifu Maker, No. 8 North Second Lane, Shiyan Liguang Water Plant, Bao'an District, Shenzhen City |
| Antenna Type              | Onboard antenna  |
| Antenna Model             | FPC antenna  |
| Antenna Part Number       | 3.30.P66.001   |
| Antenna Frequency Range   | 2400-2500MHz   |
| Antenna Peak Gain         | -1.56 dBi  |
| Antenna Dimension (LxHxW) | 17.4mm*14.8mm  |

## Antenna Photo

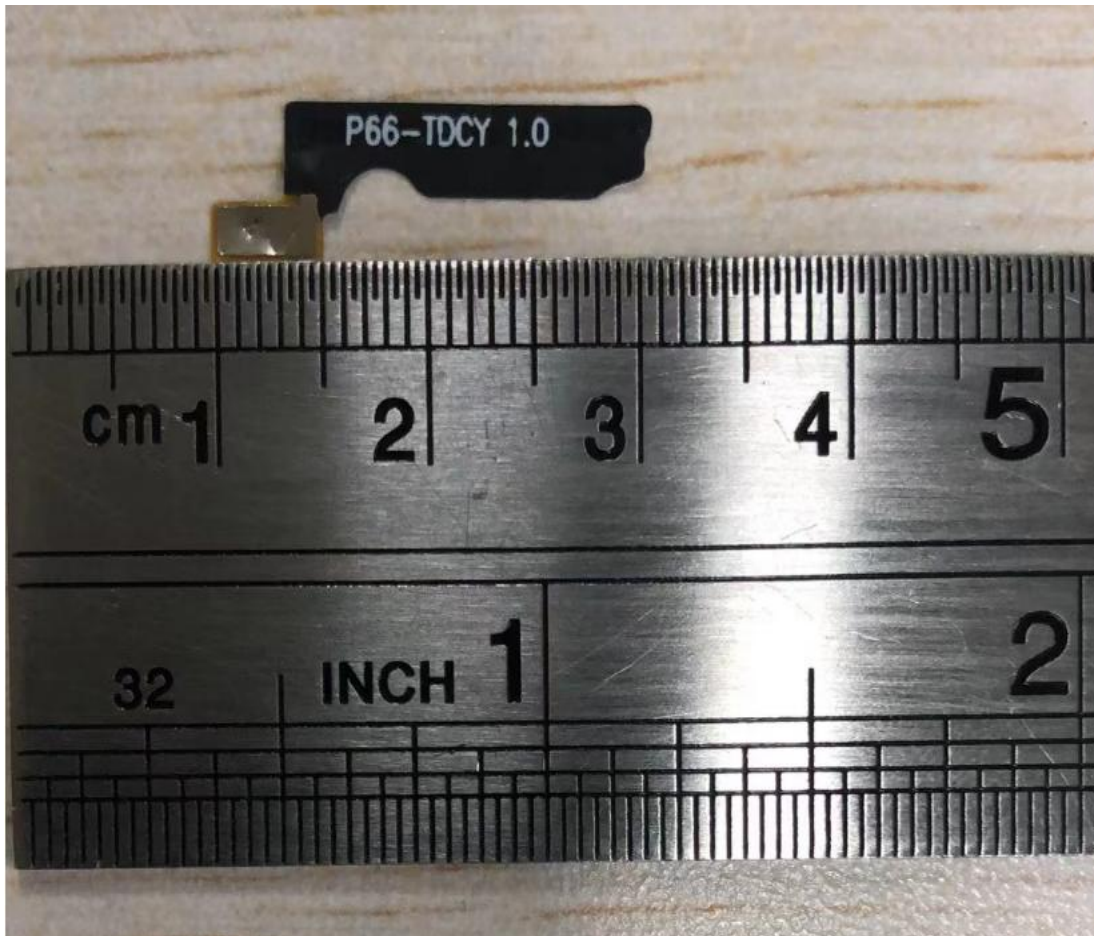


Antenna Top View

[



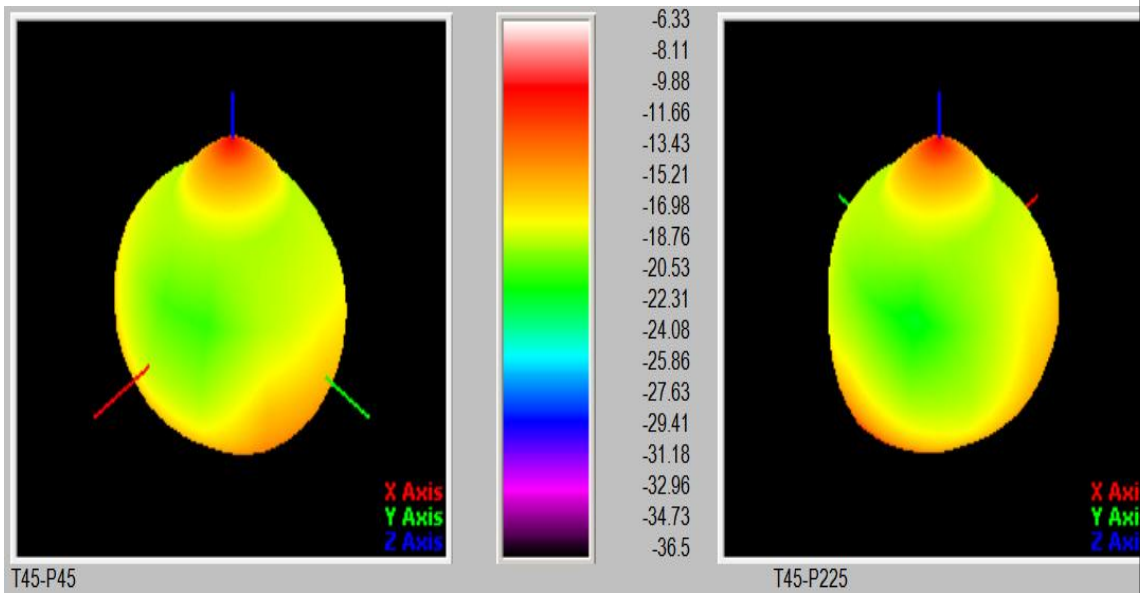
With Ruler]



Antenna Bottom View [With Ruler]

Antenna Pattern/Gain Measurement data/Table:

Example:



| Frequency                 | 2.4GHz | 2.42GHz | 2.44GHz | 2.45GHz | 2.46GHz | 2.48GHz | 2.5GHz |
|---------------------------|--------|---------|---------|---------|---------|---------|--------|
| Ant. Port Inp. Pow. (dBi) | 0      | 0       | 0       | 0       | 0       | 0       | 0      |
| Rad. Pow. (dBi)           | -6.13  | -5.54   | -6.02   | -6.17   | -6.41   | -7.02   | -7.79  |
| Rad. Pow. 0-90 (dBi)      | -8.91  | -8.12   | -8.44   | -8.51   | -8.66   | -9.1    | -9.76  |
| Rad. Pow. 90-180 (dBi)    | -9     | -8.66   | -9.32   | -9.57   | -9.91   | -10.76  | -11.74 |
| Peak EIRP (dBi)           | -2.12  | -1.56   | -2.13   | -2.21   | -2.4    | -2.92   | -3.76  |
| Directivity (dBi)         | 4.01   | 3.98    | 3.89    | 3.96    | 4.01    | 4.1     | 4.03   |
| Efficiency (dB)           | -6.13  | -5.54   | -6.02   | -6.17   | -6.41   | -7.02   | -7.79  |
| Efficiency (%)            | 24.38  | 27.93   | 25      | 24.15   | 22.86   | 19.86   | 16.63  |
| Gain (dBi)                | -2.12  | -1.56   | -2.13   | -2.21   | -2.4    | -2.92   | -3.76  |

# Shenzhen Panlong Communication Technology Co., Ltd.

| Test Point ID | Freq. (MHz) | TRP (dBm) | Gain (dBi) | Directivity (dBi) | Efficiency (%) | Efficiency (dB) | Max (dBm) | Theta of Max | Phi of Max | Min (dBm) | Theta of Min | Phi of Min | AVG (dBm) | Max/Min (dB) | Max/AVG (dB) | Min/AVG (dB) |
|---------------|-------------|-----------|------------|-------------------|----------------|-----------------|-----------|--------------|------------|-----------|--------------|------------|-----------|--------------|--------------|--------------|
| 1             | 2350.0      | 2350.00   | -6.33      | 5.36              | 6.8%           | -11.70          | -6.33     | 15000        | 180        | -36.50    | 18000        | 0          | -11.37    | 30.17        | 5.04         | -25.13       |
| 2             | 2355.0      | 2355.00   | -6.19      | 5.30              | 7.1%           | -11.50          | -6.19     | 15000        | 180        | -34.13    | 18000        | 9000       | -11.13    | 27.94        | 4.93         | -23.01       |
| 3             | 2360.0      | 2360.00   | -5.77      | 5.60              | 7.3%           | -11.37          | -5.77     | 15000        | 180        | -32.50    | 18000        | 0          | -10.97    | 26.73        | 5.20         | -21.53       |
| 4             | 2365.0      | 2365.00   | -5.61      | 5.68              | 7.4%           | -11.29          | -5.61     | 15000        | 180        | -32.80    | 18000        | 0          | -10.85    | 27.19        | 5.24         | -21.96       |
| 5             | 2370.0      | 2370.00   | -5.35      | 5.83              | 7.6%           | -11.18          | -5.35     | 15000        | 180        | -33.66    | 18000        | 3000       | -10.69    | 28.31        | 5.34         | -22.96       |
| 6             | 2375.0      | 2375.00   | -5.40      | 5.79              | 7.6%           | -11.19          | -5.40     | 15000        | 180        | -35.39    | 18000        | 3000       | -10.67    | 29.99        | 5.27         | -24.72       |
| 7             | 2380.0      | 2380.00   | -5.27      | 5.81              | 7.8%           | -11.08          | -5.27     | 15000        | 180        | -37.97    | 18000        | 0          | -10.55    | 32.70        | 5.28         | -27.42       |
| 8             | 2385.0      | 2385.00   | -5.24      | 5.64              | 8.2%           | -10.88          | -5.24     | 15000        | 180        | -35.67    | 18000        | 0          | -10.35    | 30.44        | 5.11         | -25.33       |
| 9             | 2390.0      | 2390.00   | -5.29      | 5.56              | 8.2%           | -10.84          | -5.29     | 15000        | 180        | -34.76    | 18000        | 0          | -10.30    | 29.47        | 5.02         | -24.45       |
| 10            | 2395.0      | 2395.00   | -5.31      | 5.43              | 8.4%           | -10.74          | -5.31     | 15000        | 180        | -33.02    | 18000        | 6000       | -10.22    | 27.71        | 4.91         | -22.80       |
| 11            | 2400.0      | 2400.00   | -5.36      | 5.18              | 8.8%           | -10.54          | -5.36     | 15000        | 180        | -35.24    | 18000        | 3000       | -10.04    | 29.88        | 4.68         | -25.20       |
| 12            | 2405.0      | 2405.00   | -5.31      | 5.12              | 9.1%           | -10.43          | -5.31     | 0            | 0          | -36.10    | 18000        | 6000       | -9.95     | 30.80        | 4.64         | -26.15       |
| 13            | 2410.0      | 2410.00   | -5.26      | 4.99              | 9.4%           | -10.25          | -5.26     | 0            | 0          | -37.32    | 18000        | 6000       | -9.81     | 32.06        | 4.55         | -27.51       |
| 14            | 2415.0      | 2415.00   | -5.25      | 4.85              | 9.8%           | -10.10          | -5.25     | 0            | 0          | -37.98    | 18000        | 3000       | -9.70     | 32.73        | 4.45         | -28.29       |
| 15            | 2420.0      | 2420.00   | -5.31      | 4.68              | 10.0%          | -9.99           | -5.31     | 0            | 0          | -36.67    | 18000        | 3000       | -9.62     | 31.36        | 4.31         | -27.05       |
| 16            | 2425.0      | 2425.00   | -5.30      | 4.55              | 10.3%          | -9.85           | -5.30     | 15000        | 180        | -34.79    | 18000        | 3000       | -9.52     | 29.49        | 4.22         | -25.27       |
| 17            | 2430.0      | 2430.00   | -5.21      | 4.40              | 10.9%          | -9.62           | -5.21     | 15000        | 180        | -35.39    | 18000        | 6000       | -9.34     | 30.17        | 4.12         | -26.05       |
| 18            | 2435.0      | 2435.00   | -5.14      | 4.27              | 11.5%          | -9.41           | -5.14     | 15000        | 180        | -37.46    | 18000        | 6000       | -9.16     | 32.33        | 4.03         | -28.30       |
| 19            | 2440.0      | 2440.00   | -5.12      | 4.17              | 11.8%          | -9.29           | -5.12     | 15000        | 180        | -36.86    | 18000        | 9000       | -9.08     | 31.74        | 3.96         | -27.79       |
| 20            | 2445.0      | 2445.00   | -5.16      | 4.02              | 12.1%          | -9.17           | -5.16     | 15000        | 180        | -39.07    | 18000        | 9000       | -9.00     | 33.91        | 3.84         | -30.07       |
| 21            | 2450.0      | 2450.00   | -5.17      | 3.89              | 12.4%          | -9.06           | -5.17     | 15000        | 180        | -36.70    | 18000        | 9000       | -8.91     | 31.53        | 3.74         | -27.79       |
| 22            | 2455.0      | 2455.00   | -5.09      | 3.86              | 12.7%          | -8.96           | -5.09     | 15000        | 180        | -33.76    | 18000        | 12000      | -8.83     | 28.67        | 3.73         | -24.93       |
| 23            | 2460.0      | 2460.00   | -5.25      | 3.69              | 12.8%          | -8.94           | -5.25     | 15000        | 180        | -33.02    | 18000        | 9000       | -8.83     | 27.77        | 3.58         | -24.19       |
| 24            | 2465.0      | 2465.00   | -5.38      | 3.57              | 12.7%          | -8.95           | -5.38     | 15000        | 180        | -32.49    | 18000        | 9000       | -8.84     | 27.11        | 3.46         | -23.64       |
| 25            | 2470.0      | 2470.00   | -5.58      | 3.41              | 12.6%          | -8.99           | -5.58     | 15000        | 180        | -34.23    | 18000        | 9000       | -8.87     | 28.66        | 3.29         | -25.37       |
| 26            | 2475.0      | 2475.00   | -5.73      | 3.47              | 12.0%          | -9.20           | -5.73     | 15000        | 180        | -33.64    | 18000        | 9000       | -9.06     | 27.92        | 3.34         | -24.58       |
| 27            | 2480.0      | 2480.00   | -5.89      | 3.44              | 11.7%          | -9.33           | -5.89     | 0            | 15000      | -32.37    | 18000        | 0          | -9.19     | 26.48        | 3.29         | -23.19       |
| 28            | 2485.0      | 2485.00   | -5.83      | 3.60              | 11.4%          | -9.43           | -5.83     | 0            | 15000      | -30.19    | 18000        | 9000       | -9.25     | 24.36        | 3.43         | -20.93       |
| 29            | 2490.0      | 2490.00   | -6.11      | 3.69              | 10.5%          | -9.80           | -6.11     | 0            | 15000      | -29.66    | 18000        | 0          | -9.59     | 23.56        | 3.48         | -20.07       |
| 30            | 2495.0      | 2495.00   | -6.19      | 3.83              | 10.0%          | -10.02          | -6.19     | 0            | 0          | -30.39    | 18000        | 9000       | -9.78     | 24.19        | 3.58         | -20.61       |
| 31            | 2500.0      | 2500.00   | -6.16      | 4.02              | 9.6%           | -10.17          | -6.16     | 0            | 15000      | -31.30    | 18000        | 0          | -9.89     | 25.14        | 3.73         | -21.41       |

Antenna Pattern/Measurement data