KYOCERA AVX

**DATASHEET**
Part No. W7-Family
Product:
Tri-Band 2.4/5/6GHz
Wi-Fi 6E/7 Embedded
Antenna

# Part No. W7P35X8F04-U100D3B0T
## Tri-Band 2.4/5/6GHz Wi-Fi 6E/7 Embedded Antenna
**2400 MHz – 2480 MHz, 5150 MHz – 5850 MHz, 5925 MHz – 7125 MHz**
Supports: Wi-Fi, Wi-Fi 6E/7, Bluetooth, BLE, Zigbee, WLAN




**Tri-Band 2.4/5/6GHz Wi-Fi 6E/7 Embedded Antenna**
2400 MHz – 2480 MHz
5150 MHz – 5850 MHz
5925 MHz – 7125 MHz

### KEY BENEFITS

**Quicker Time-to-Market**
Standard part means fewer design changes, and simple implementation

**Superior Network Coverage**
Better network coverage means more reliable wireless connections.

**Faster Data Rates**
Improved performance also means faster data rates for downloading e-mail, surfing the internet and watching mobile video.

**Environmental Compliance**
Products are the latest RoHS version compliant.

### APPLICATIONS

- Access Points and Routers
- Gateways
- Wi-Fi applications
- Embedded design
- IoT Industrial devices
- Smart Home/Cities

KYOCERA AVX's W7 Family antennas include an embedded Wi-Fi Antenna design in PCB and FPC solutions. Alternatively, a PCB with foam on the back side is also offered to minimize the detuning of the antenna on different surfaces that delivers on the key needs of today's wireless product designers: miniaturized design and superior signal sensitivity.

### Extensive RF Experience
KYOCERA AVX antennas are supported by documentation, and when needed, by the expertise of RF engineers who have integrated hundreds of antenna designs into wireless devices.

### Global Operations & Design Support
KYOCERA AVX's global operations support an integrated network of design centers that can take projects from concept to production.

### Electrical Specifications
Typical Characteristics (in reference device housing made in PC/ABS plastic and 100 mm cable length)

| Frequency Band (MHz) | 2400 - 2480 | 5150 – 5850 | 5925 - 7125 |
|---|---|---|---|
| Peak Gain | 2 dBi | 3.4 dBi | 3.5 dBi |
| Average Efficiency | 66% | 75% | 68% |
| Return Loss Match | <-11 dB | <-11 dB | <-10 dB |
| Power handling | 2 W | | |
| Free Point Impedance | 50 ohms unbalanced | | |
| Polarization | Linear | | |
| Radiation Pattern | Omni-directional | | |

### Mechanical Specifications

| Part Number | W7P35X8F04-U100D3B0T |
|---|---|
| Overall Size (mm) | 35.2 x 8.5 x 1.69 |
| Mounting Type | Adhesive 3M 9448A |
| Connector(s) / Length | IPEX MHFI / 100 mm |
| Weight (grams) | 0.7 |
| Packaging | PE BAG |
| Operating Temperature | [ - 40 ˚C ; +85 ˚C ] |
| Storage Temperature / Humidity | [ - 40 ˚C ; +85 ˚C ] |
| Variant | FPC, PCB |
| Color | Black |

*Additional variations available in different cable lengths, colors and connectors, refer to Appendix on page 7.



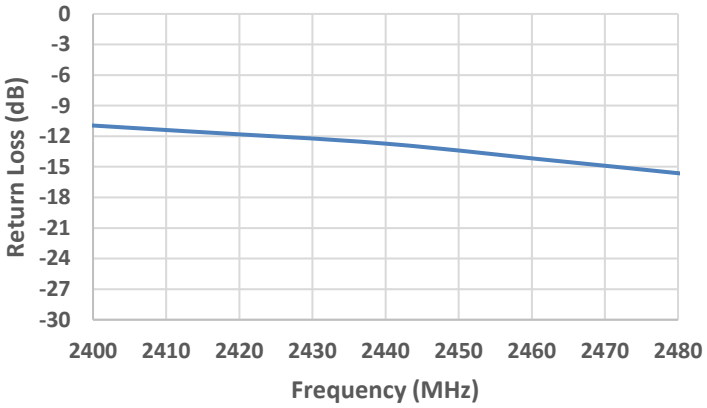
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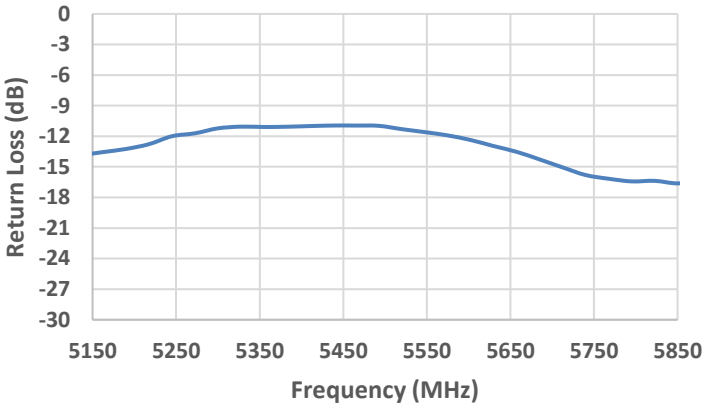
## Return Loss and Efficiency Data

Typical performance in reference device housing made in PC/ABS plastic and 100mm cable length

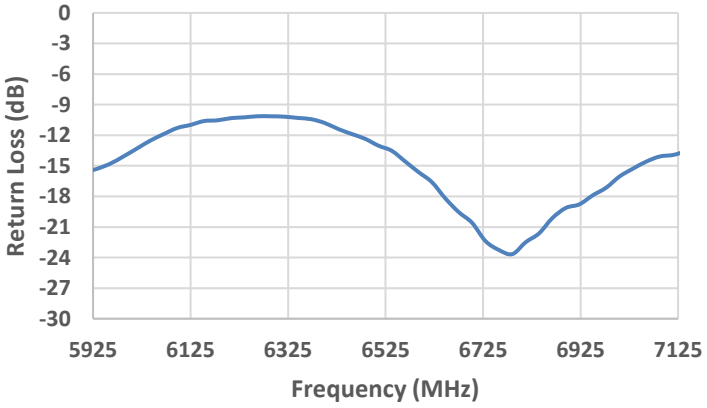
### Return Loss (2400 MHz – 2480 MHz)



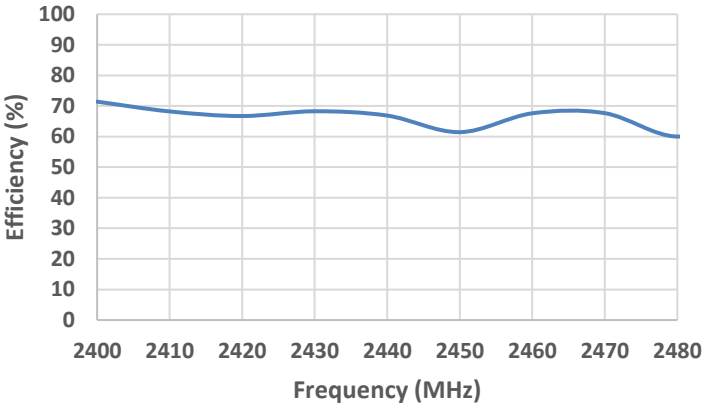

### Return Loss (5150 MHz – 5850 MHz)



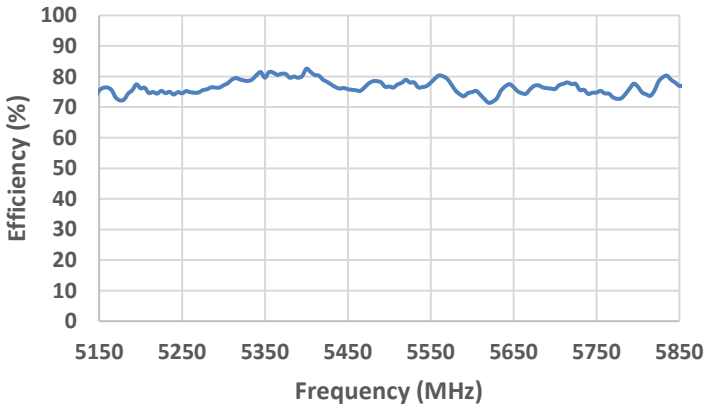

### Return Loss (5925 MHz – 7125 MHz)



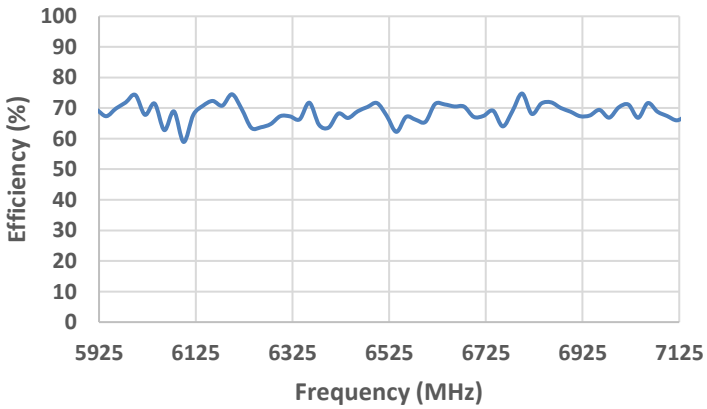

### Efficiency (2400 MHz – 2480 MHz)




### Efficiency (5150 MHz – 5850 MHz)




### Efficiency (5925 MHz – 7125 MHz)





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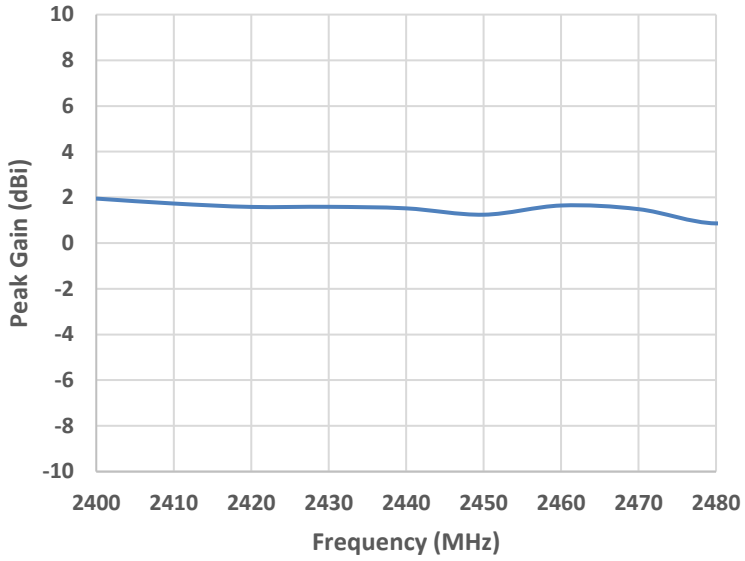
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**KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs**

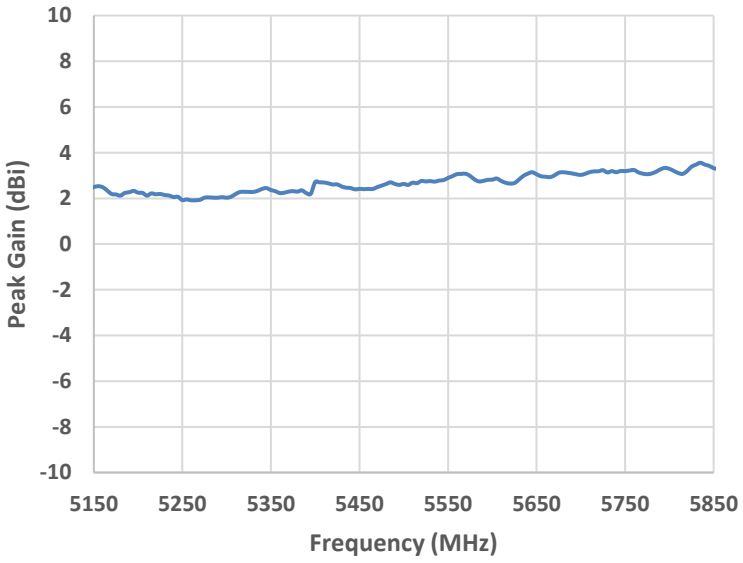
## Peak Gain Data

Typical performance in reference device housing made in PC/ABS plastic and 100mm cable length

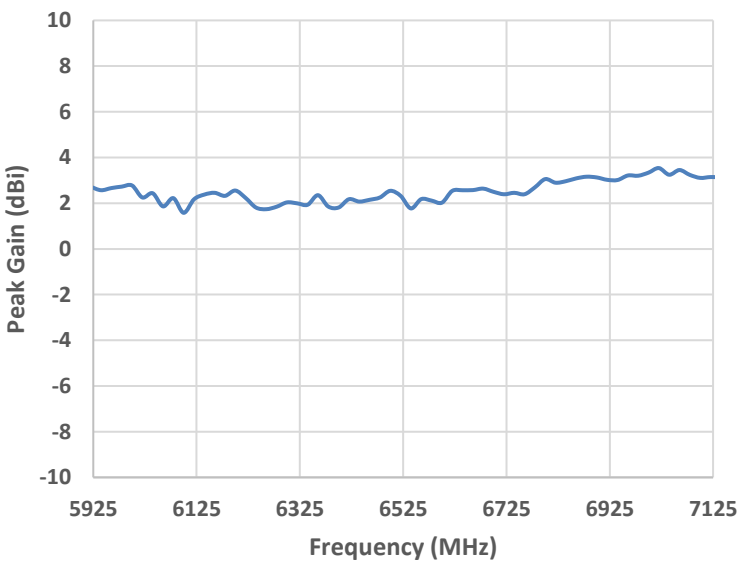
**Peak Gain (2400 MHz - 2480 MHz)**




**Peak Gain (5150 MHz - 5850 MHz)**




**Peak Gain (5925 MHz - 7125 MHz)**



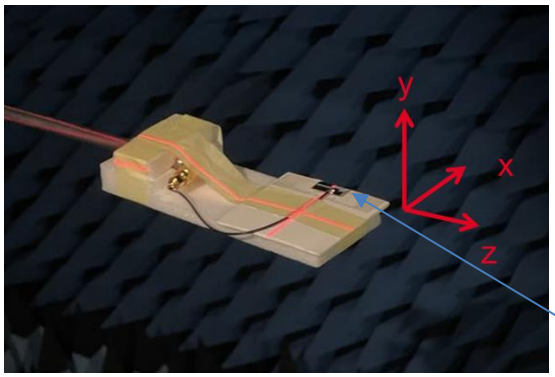



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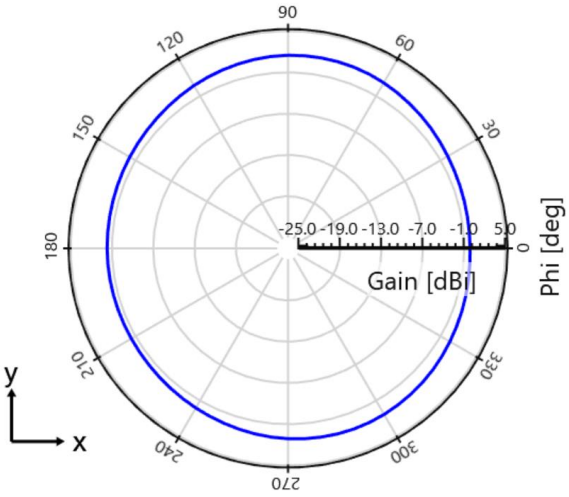
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## Antenna Radiation Patterns

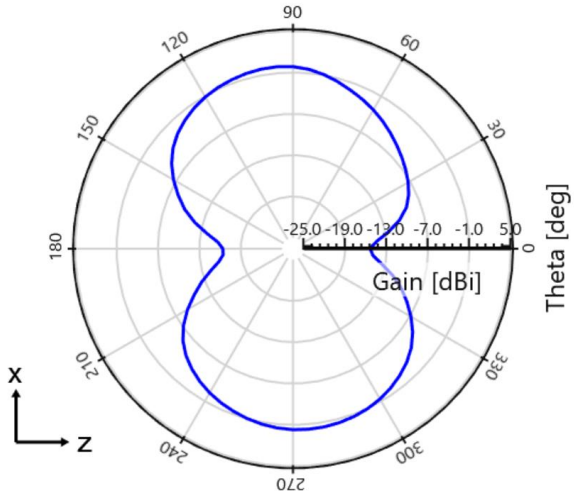
Typical performance in reference device housing made in PC/ABS plastic and 100mm cable length
Measured @2440 MHz



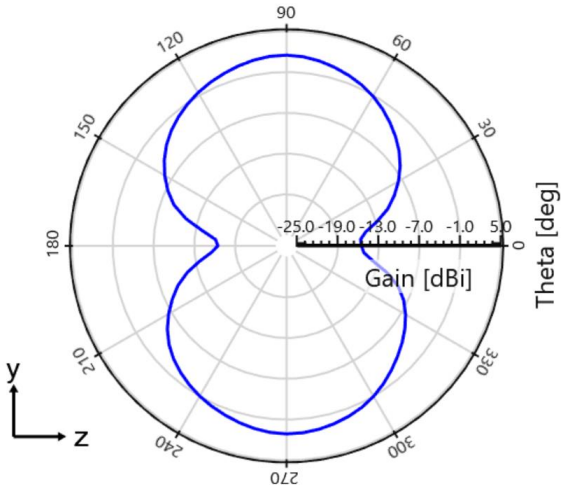

Gain (Total) - θ = 90 deg - 2440 MHz [Plane XY]




Gain (Total) - φ = 0 deg - 2440 MHz [Plane XZ]




Gain (Total) - φ = 90 deg - 2440 MHz [Plane YZ]





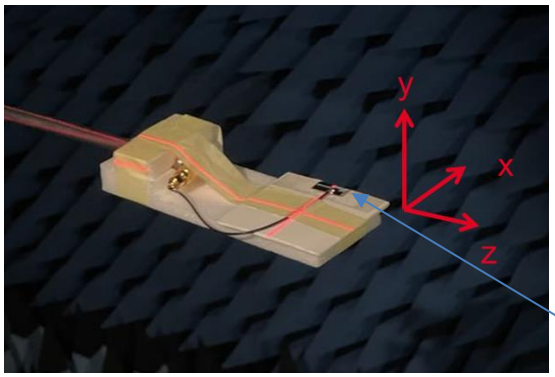
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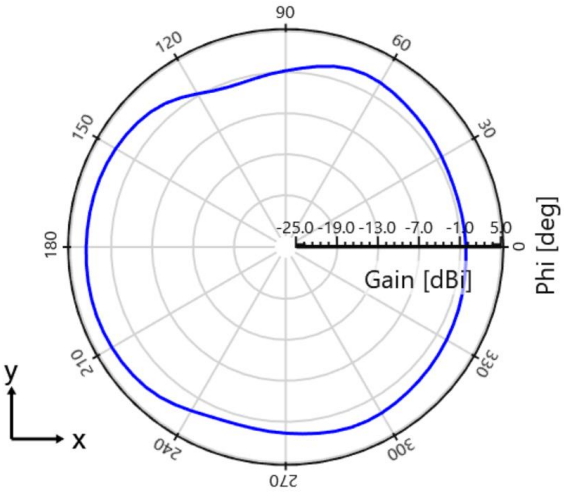
## Antenna Radiation Patterns

Typical performance in reference device housing made in PC/ABS plastic and 100mm cable length
Measured @ 5550 MHz

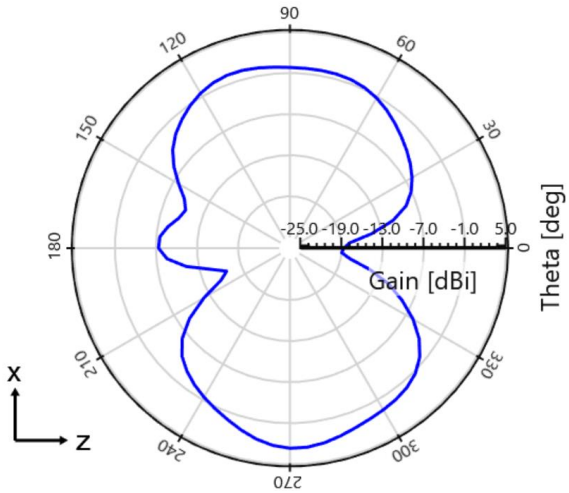



ABS

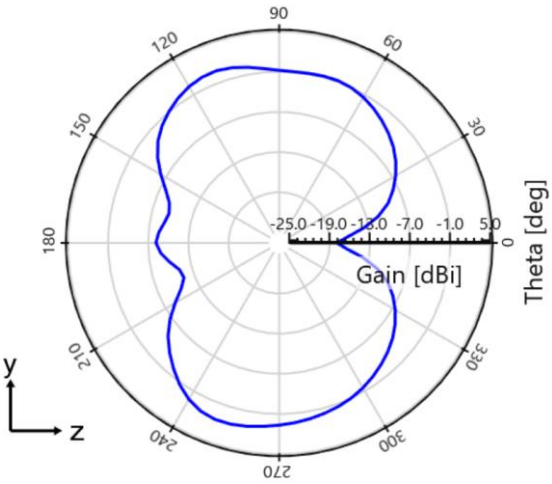
Gain (Total) - θ = 90 deg - 5550 MHz [Plane XY]




Gain (Total) - φ = 0 deg - 5550 MHz [Plane XZ]




Gain (Total) - φ = 90 deg - 5550 MHz [Plane YZ]





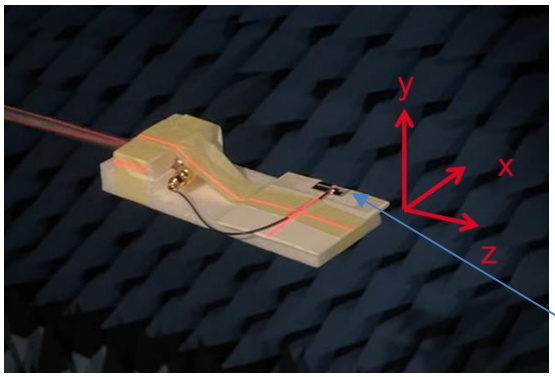
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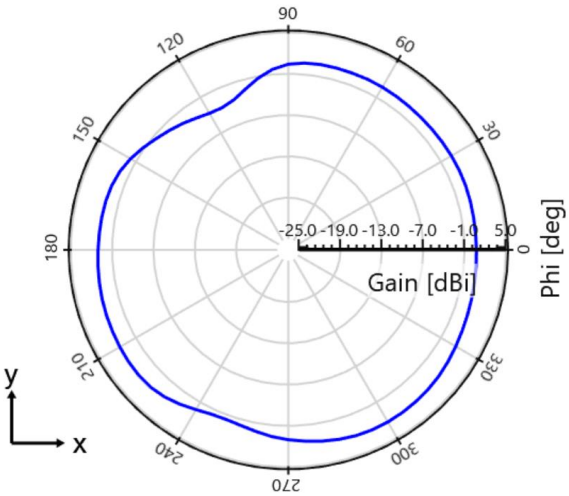
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## Antenna Radiation Patterns

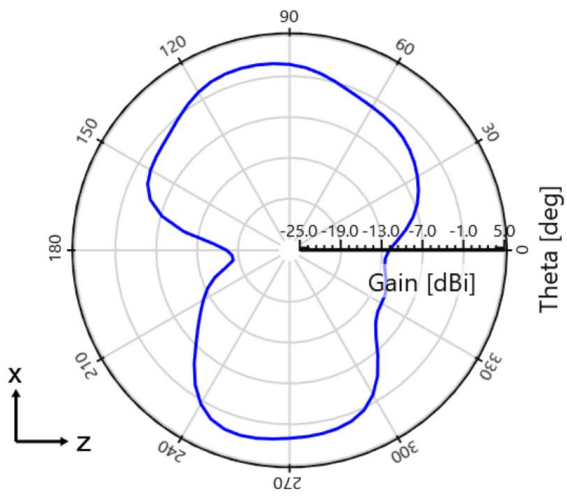
Typical performance in reference device housing made in PC/ABS plastic and 100mm cable length
Measured at 6520 MHz



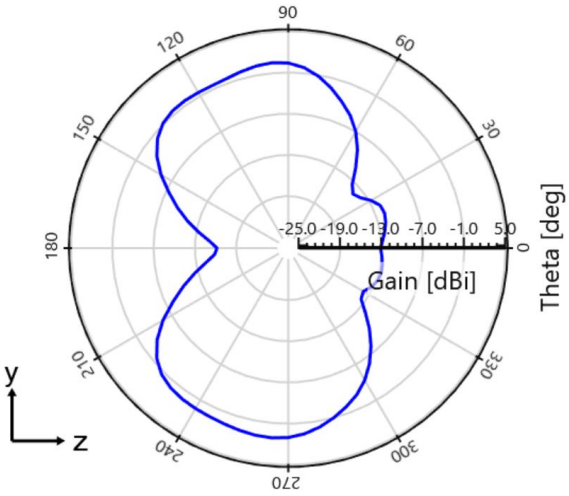

Gain (Total) - θ = 90 deg - 6520 MHz [Plane XY]




Gain (Total) - φ = 0 deg - 6520 MHz [Plane XZ]




Gain (Total) - φ = 90 deg - 6520 MHz [Plane YZ]





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## Generic Antenna Part Numbers

generic standard antenna part numbers for W7-Family

# Example of generic Wi-Fi PN: **W7P35X8F04-U100D3B0T**

## PN Nomenclature

PCB silk screen number

| W | 7 | P | 35X8 | F | 04 |
|---|---|---|---|---|---|
| **Series** | **Freq. of operation** | **Type** | **Size** | **Tuning version** | **PCB thickness** |
| W = Wi-Fi Family | 7 = 2.4/5/6 GHz | F = FPC<br>P = PCB | 35x8 =35.2x8.5 mm | W =Tuning on plastic wall<br>F = Tuning for foam on plastic wall | 01 = 0.1mm**<br>04 = 0.4 mm*<br>08 = 0.8 mm*** |

*Typical thickness for PCB
** Thickness for FPC
***Recommended for assembly with ribs

## PN Nomenclature

Second part of the PN

| U | 100 | D | 3 | B | 0 | T |
|---|---|---|---|---|---|---|
| **Connector type** | **Cable from connector to PCB edge** | **Connector orientation compared to PCB silkscreen printing** | **Cable diameter** | **Cable color** | **Ferrite beads** | **Mounting options** |
| U = MHF I (u.fl compatible)*<br>W = MHF III (w.fl compatible)**<br>H = MHF4L<br>L = MHF I LK<br>N = No connector | 050 = 50mm<br>100 =100mm*<br>150 =150mm<br>200 = 200mm<br>250 = 250mm<br>300 = 300mm | D = Connector down*<br>U = Connector Up<br>L = Left Side<br>R = Right Side<br>N = No connector | 1 = 0.81 mm<br>3 = 1.13mm*<br>7 = 1.37 mm | B = Black* | 0 = No*<br>1 = Yes | N = No adhesive<br>A = using adhesive 3M468MP*<br>C = using adhesive 3M467**<br>T = using adhesive 3M9448A*** |
| *Typical connector<br>** W.FL is NRND | *Typical length | *Typical orientation | *Typical diameter for u.fl | *Typical color | *Default configuration | *Adhesive for PCB<br>**Adhesive for FPC<br>***Adhesive for PCB + foam |

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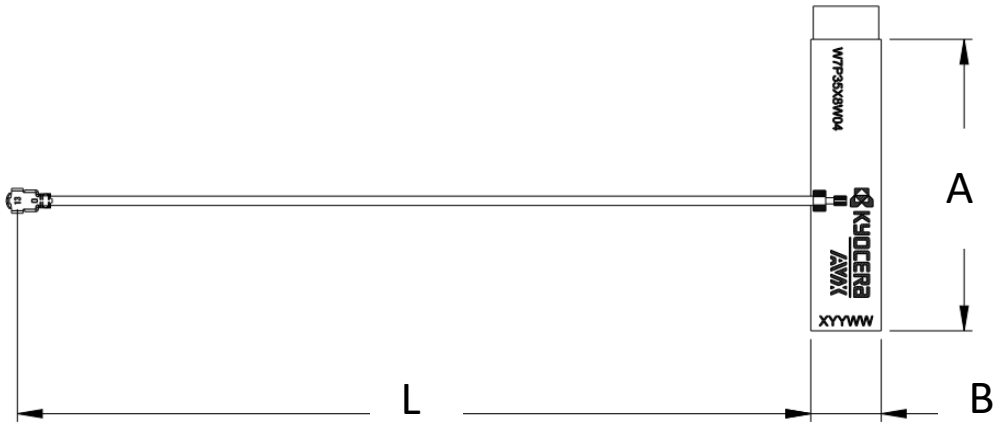
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## Mechanical Dimensions (mm)

| Part Number | A (mm) | B (mm) | C (mm) | L(mm) | Connector |
|---|---|---|---|---|---|
| W7P35X8F04-U100D3B0T | 35.2 ± 0.2 | 8.5 ± 0.2 | 1.69 | 100 ± 3 | MHFI (U.FL Compatible) |









*All dimensions provided in this document are for informational purposes only

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## Typical Ordering Part Numbers

| PN | TYPE | ADHESIVE / TUNING VERSION | A (mm) | B (mm) | C (mm) | COMPATIBLE CONNECTOR TYPE | L CABLE (mm) |
|---|---|---|---|---|---|---|---|
| W7P35X8W04-UXXXD3B0A | PCB | 3M 468MP / PLASTIC WALL | 35.2 | 8.5 | 0.53 | MHF I (U.FL compatible) | XXX |
| W7P35X8W04-HXXXD3B0A | | | | | | MHF 4L | |
| W7P35X8W04-WXXXD1B0A | | | | | | MHF III(W.FL compatible) | |
| W7P35X8F04-UXXXD3B0T | | 3M 9448A / FOAM ON PLASTIC WALL | | | 1.69 | MHF I (U.FL compatible) | |
| W7P35X8F04-HXXXD3B0T | | | | | | MHF 4L | |
| W7P35X8F04-WXXXD1B0T | | | | | | MHF III (W.FL compatible) | |
| W7F35X8W01-UXXXD3B0C | FPC | 3M 467 / PLASTIC WALL | | | 0.14 | MHF I (U.FL compatible) | |
| W7F35X8W01-HXXXD3B0C | | | | | | MHF 4L | |
| W7F35X8W01-WXXXD1B0C | | | | | | MHF III (W.FL compatible) | |

*XXX ➔ Cable length on customer request*

| XXX (mm) | Condition | Tolerance Z |
|---|---|---|
| 050 | XXX< 150 | ± 3.0 |
| 100 | XXX< 150 | ± 3.0 |
| 150 | 150 ≤ XXX < 300 | ± 4.0 |
| 200 | 150 ≤ XXX < 300 | ± 4.0 |
| 250 | 150 ≤ XXX < 300 | ± 4.0 |
| 300 | 300 ≤ XXX ≤ 500 | ± 5.0 |
| 400 | 300 ≤ XXX ≤ 500 | ± 5.0 |
| 500 | 500 ≤ XXX ≤ 1000 | ± 7.0 |
| 600 | 500 ≤ XXX ≤ 1000 | ± 7.0 |

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