

# Part No. 9003069F0

## 5G/4G FPC Antenna

617 – 960 MHz / 1400 – 2690 MHz / 3300 – 5000 MHz

Supports: Broadband LTE, 5G Sub-6GHz, CAT-M, NB-IoT, SigFox, LoRa, Cellular LPWA



The KYOCERA AVX 9003069F0 antenna is a flexible embedded antenna optimized to cover the high band MIMO bands for 5G NR modules. It delivers on the key needs of device designers for higher functionality and better performance in a small form factor, helping optimize the 4x4 MIMO system for 5G sub-6GHz applications.

It is designed for flexible mounting on the underside of any non-metallic housing with a cable and connector for easy installation. The flexibility and adhesive backing make it easy to mount in unique and custom enclosures, while enabling an environmentally sealed enclosure and protection from tampering or accidental antenna damage.

### LTE 5G Antenna

617 – 960 MHz  
 1400 – 2690 MHz,  
 3300 – 5000 MHz

#### KEY BENEFITS

##### Reduced Costs & Time-to-Market

Standard antennas eliminate design fees, redesign cycle time and minimize risk associated with customer solution. Quicker time to market.

##### Quicker Time-to-Market

By optimizing antenna size, performance and emissions, customer and regulatory specifications are more easily met.

##### Reliability

Products are the latest RoHS version compliant.

#### APPLICATIONS

- Embedded design
- Wireless nodes
- Gateway / Routers
- Access Points
- Smart meters
- Home automation
- Healthcare
- M2M. Industrial IoT devices
- Monitoring equipment
- Smart Grids
- Remote sensors/ Tracking

These innovative antenna provides compelling advantages for 5G NR enabled devices such as having a cable connection to the PCB allowing for a flexible placement offered with MHF or MHF4 compatible connectors.

#### Electrical Specifications

Typical characteristics measured with 300 mm cable.

Frequency (MHz)	617 - 960	1400 - 2690	3300 – 5000
VSWR	< 5.0:1	< 3.0:1	< 3.7:1
Peak Gain	2.5 dBi	6 dBi	5.5 dBi
Average Efficiency	35%	61%	50%
Feed Point Impedance	50 $\Omega$ unbalanced		
Polarization	Linear		
Radiation Pattern	Omnidirectional		

#### Mechanical Specifications & Ordering Part Number

Ordering Part #	9003069F0-AA10L0300
Dimensions (mm)	102.0 x 14.5 x 0.14
Mounting Type	Adhesive Tape 3M467MP
Weight (g)	1.3
Connector/Cable (mm)	MHF (U.FL compatible) Length: 300, Cable 1.13, Color: Black
Packaging	PE Bag

Additional variations with different cable lengths, colors and connectors are available.

**5G/4G KYOCERA AVX FPC Cable Antenna Specifications**  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

**LTE Bands covered by 9003069F0**

LTE Band	Frequency Band (MHz)	Uplink (UL) (MHz)	Downlink (DL) (MHz)	Region	Covered
1	2100	1920 - 1980	2110 - 2170	Global	Yes
2	1900	1850 - 1910	1930 - 1990	NAM	
3	1800	1710 - 1785	1805 - 1880	Global	
4	1700	1710 - 1755	2110 - 2155	NAM	
5	850	824 - 849	869 - 894	NAM	
6	850	830 - 840	875 - 885	APAC	
7	2600	2500 - 2570	2620 - 2690	EMEA	
8	900	880 - 915	925 - 960	Global	Yes
9	1800	1749.9 - 1784.9	1844.9 - 1879.9	APAC	
10	1700	1710 - 1770	2110 - 2170	NAM	
11	1500	1427.9 - 1447.9	1475.9 - 1495.9	Japan	
12	700	699 - 716	729 - 746	NAM	
13	700	777 - 787	746 - 756	NAM	
14	700	788 - 798	758 - 768	NAM	
17	700	704 - 716	734 - 746	NAM	
18	850	815 - 830	860 - 875	Japan	
19	850	830 - 845	875 - 890	Japan	
20	800	832 - 862	791 - 821	EMEA	
21	1500	1447.9 - 1462.9	1495.9 - 1510.9	Japan	
22	3500	3410 - 3490	3510 - 3590	EMEA	
23	2000	2000 - 2020	2180 - 2200	NAM	
24	1600	1626.5 - 1660.5	1525 - 1559	NAM	
25	1900	1850 - 1915	1930 - 1995	NAM	
26	850	814 - 849	859 - 894	NAM	
27	850	807 - 824	852 - 869	NAM	
28	700	703 - 748	758 - 803	APAC,EU	
29	700	N/A	717 - 728	NAM	
30	2300	2305 - 2315	2350 - 2360	NAM	
31	450	452.5 - 457.5	462.5 - 467.5	Global	No
32	1500	N/A	1452 - 1496	EMEA	Yes
33	1900		1900 - 1920		
34	2000		2010 - 2025		
35	1850		1850 - 1910		
36	1900		1930 - 1990		
37	1900		1910 - 1930		Yes
38	2600		2570 - 2620		
39	1900		1880 - 1920		
40	2300		2300 - 2400		
41	2500		2496 - 2690		
42	3500		3400 - 3600		
43	3700		3600 - 3800		

NAM: North America, EMEA: Europe, Middle East, and Africa, APAC: Asia-Pacific, EU: Europe

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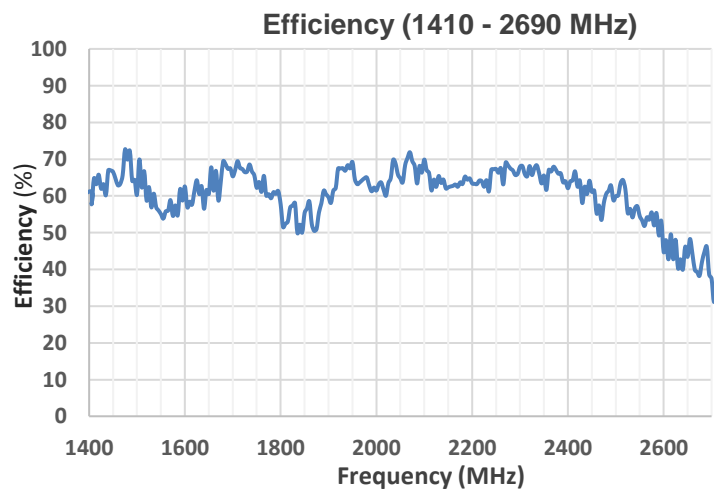
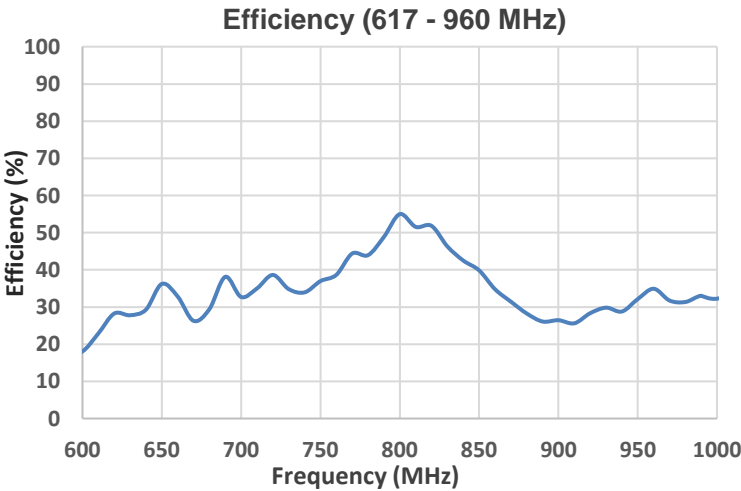
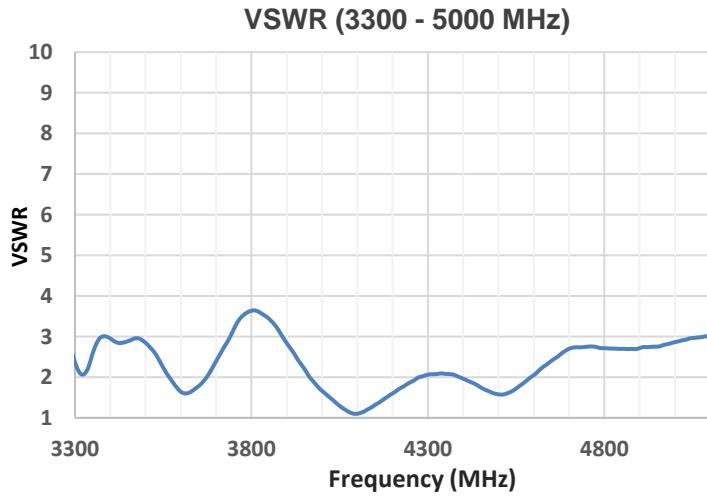
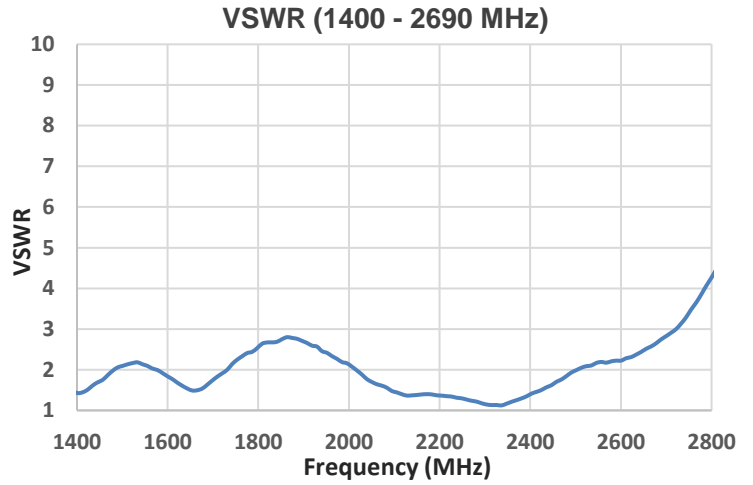
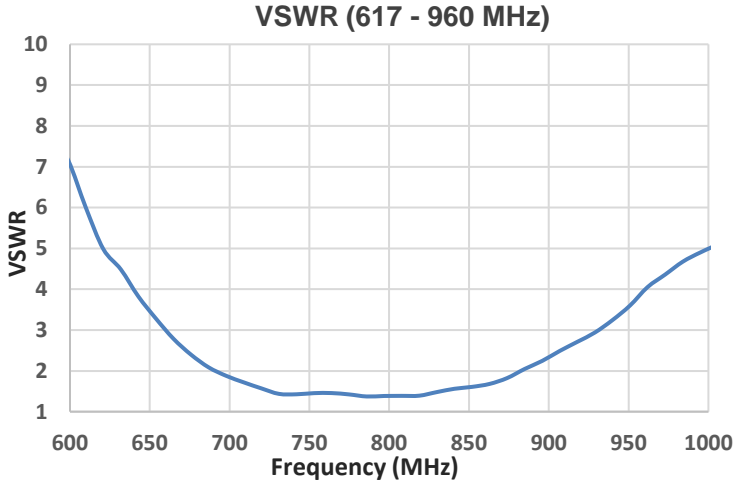
5G Bands covered by 9003069F0

5G Band	Uplink (UL) (MHz)	Downlink (DL) (MHz)	Bandwidth (MHz)	Duplexing Mode	Covered
n1	1920 - 1980	2110 - 2170	60	FDD	Yes
n2	1850 - 1910	1930 - 1990	60	FDD	
n3	1710 - 1785	1805 - 1880	75	FDD	
n5	824 - 849	869 - 894	25	FDD	
n7	2500 - 2570	2620 - 2690	70	FDD	
n8	880 - 915	925 - 960	35	FDD	
n20	832 - 862	791 - 821	30	FDD	
n28	703 - 748	758 - 803	45	FDD	
n38		2570 - 2620	50	TDD	
n41		2496 - 2690	194	TDD	
n50		1432 - 1517	85	TDD	
n51		1427 - 1432	5	TDD	
n66	1710 - 1780	2110 - 2200	70/90	FDD	
n70	1695 - 1710	1995 - 2020	15/25	FDD	
n71	663 - 698	617 - 652	35	FDD	
n74	1427 - 1470	1475 - 1518	43	FDD	
n75	N/A	1432 - 1517	85	SDL	
n76	N/A	1427 - 1432	5	SDL	
n77		3300 - 4200	900	TDD	
n78		3300 - 3800	500	TDD	
n79		4400 - 5000	600	TDD	
n80	1710 - 1785	N/A	75	SUL	
n81	880 - 915	N/A	35	SUL	
n82	832 - 862	N/A	30	SUL	
n83	703 - 748	N/A	45	SUL	
n84	1920 - 1980	N/A	60	SUL	

**5G/4G KYOCERA AVX FPC Cable Antenna Specifications**  
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**Return Loss, Efficiency, and Peak Gain Plots**

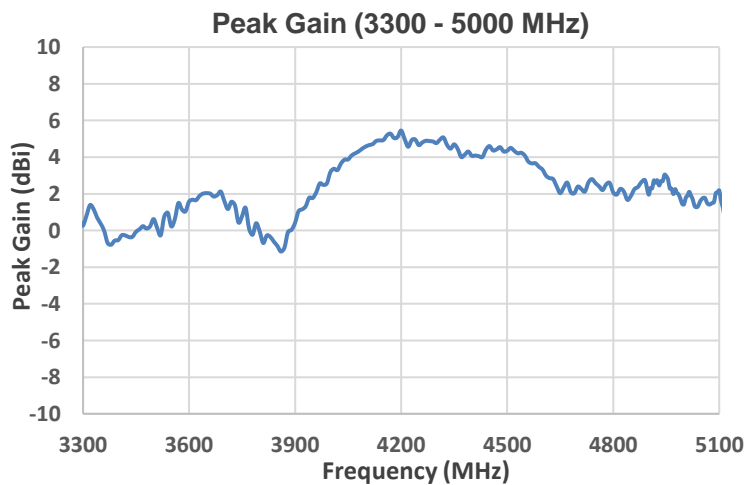
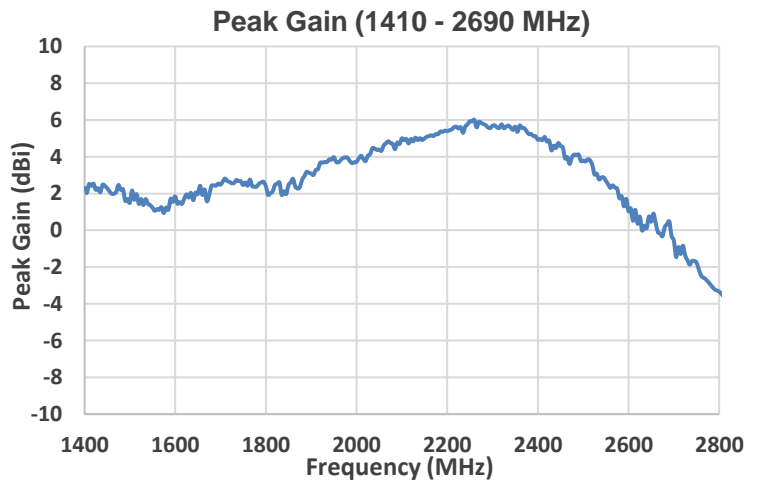
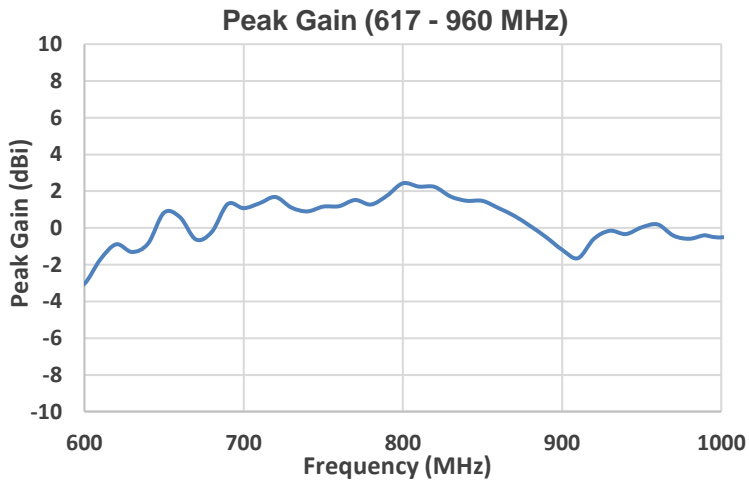
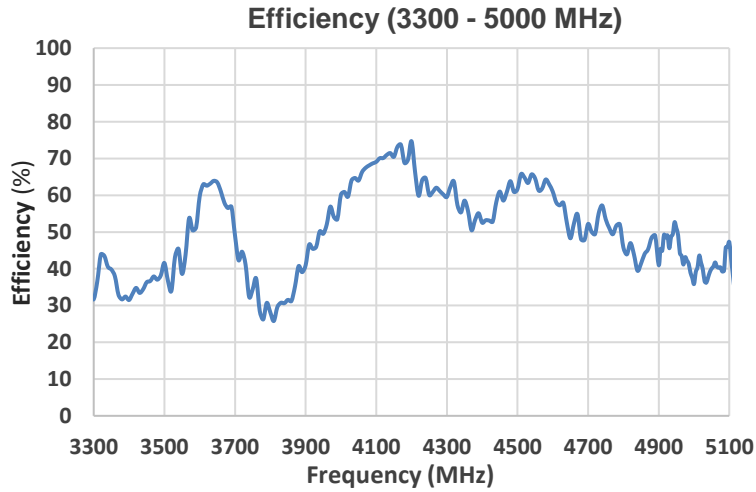
Typical characteristics measured with 300 mm cable.



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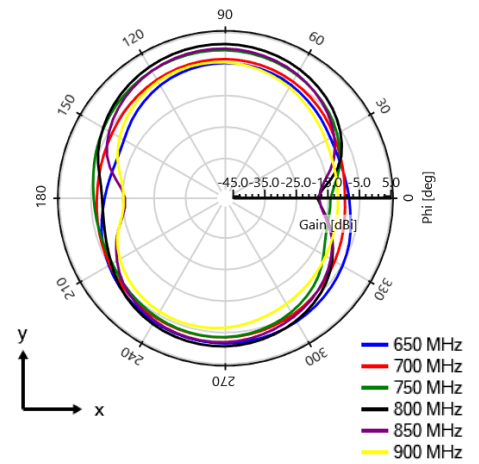
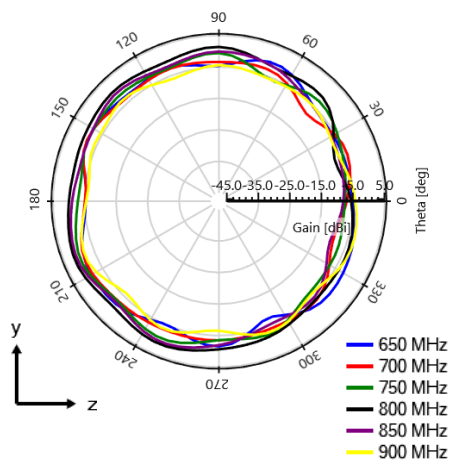
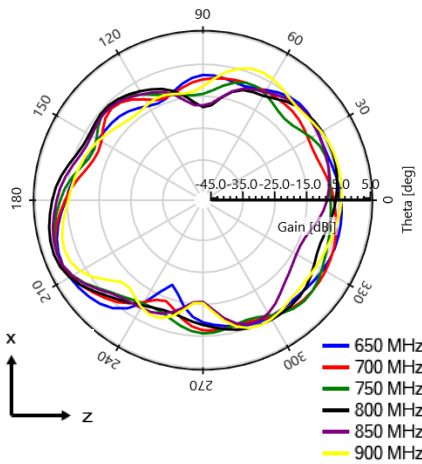
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**Antenna Radiation Patterns**

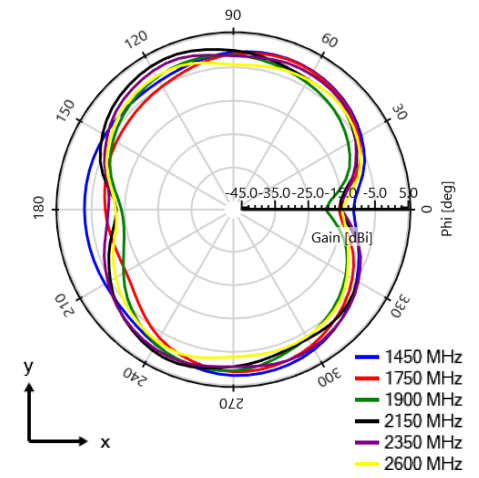
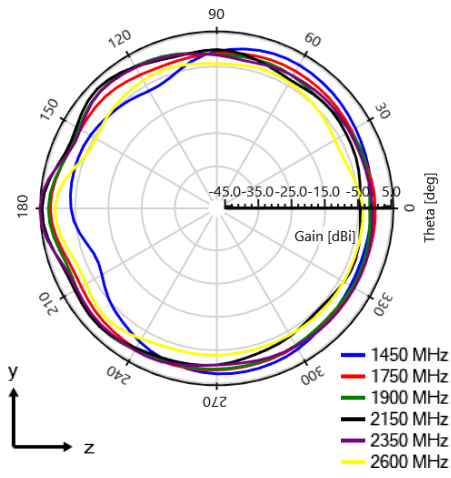
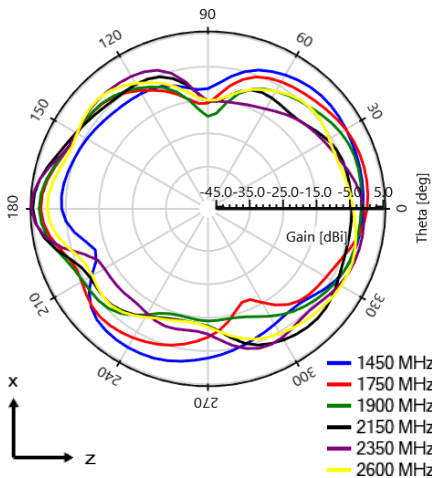
Typical characteristics measured with 300 mm cable.



**Measured (700 - 960 MHz)**



**Measured (1450 - 2600 MHz)**



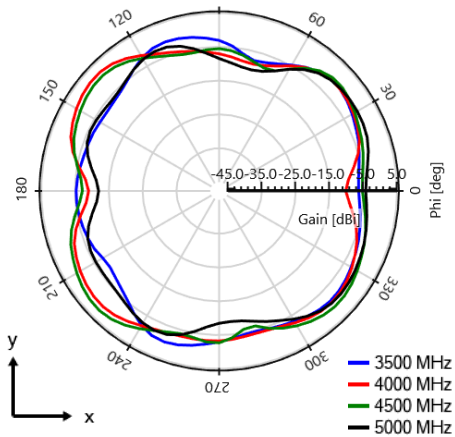
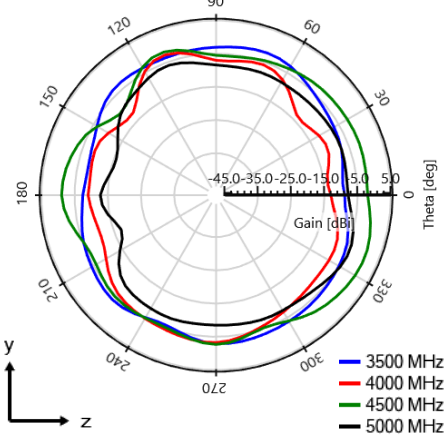
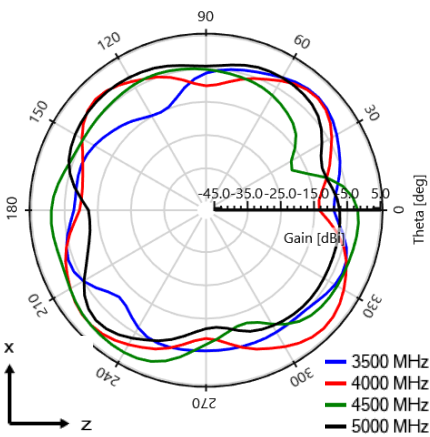
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**Antenna Radiation Patterns**

Typical characteristics measured with 300 mm cable.



**Measured (3300 – 5000 MHz)**



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### Typical Ordering Part Numbers

Below are the generic standard antenna part numbers

Part Number	Connector	D (Cable Length XXXX)
9003069F0-AA10LXXXX	MHF (U.FL compatible)	XXXX
9003069F0-AC10LXXXX	MHF4L	XXXX
9003069F0-AA10L0100	MHF (U.FL compatible)	0100
9003069F0-AA10L0150	MHF (U.FL compatible)	0150
9003069F0-AA10L0200	MHF (U.FL compatible)	0200
9003069F0-AA10L0250	MHF (U.FL compatible)	0250
9003069F0-AA10L0300	MHF (U.FL compatible)	0300
9003069F0-AA10L0400	MHF (U.FL compatible)	0400
9003069F0-AC10L0100	MHF4L	0100
9003069F0-AC10L0150	MHF4L	0150
9003069F0-AC10L0200	MHF4L	0200
9003069F0-AC10L0250	MHF4L	0250
9003069F0-AC10L0300	MHF4L	0300
9003069F0-AC10L0400	MHF4L	0400

### Cable Lengths

XXX (mm)	Condition	Tolerance Z
100	$XXX < 150$	$100 \pm 3.0$
150	$150 \leq XXX \leq 300$	$150 \pm 4.0$
200	$150 \leq XXX \leq 300$	$200 \pm 4.0$
250	$150 \leq XXX \leq 300$	$250 \pm 4.0$
300	$300 \leq XXX \leq 500$	$300 \pm 5.0$
400	$300 \leq XXX \leq 500$	$400 \pm 5.0$

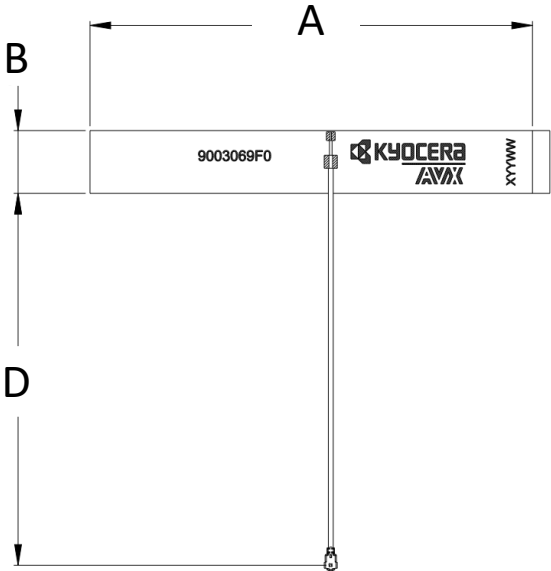


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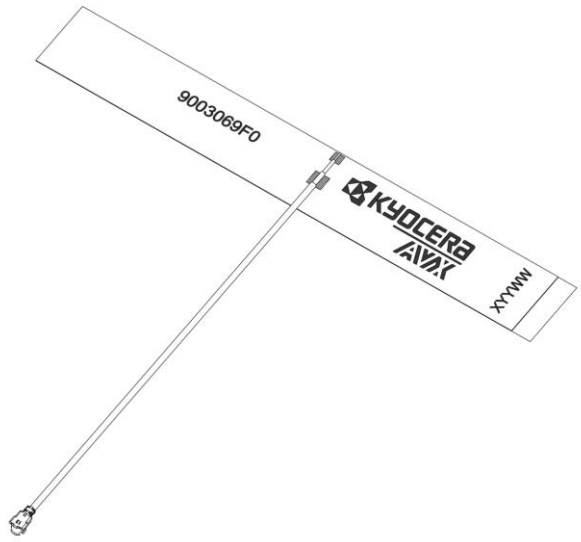
**Mechanical Dimensions**

Part Number	A (mm)	B (mm)	C (mm)	D (mm)	Connector
9003069F0-AA10L0300*	102.0	14.50	0.14	300	MHF (U.FL compatible)

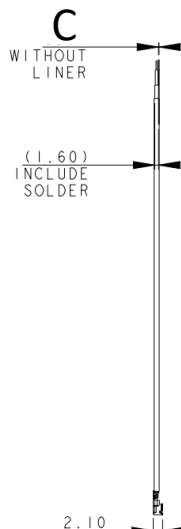
(\*) Reference design



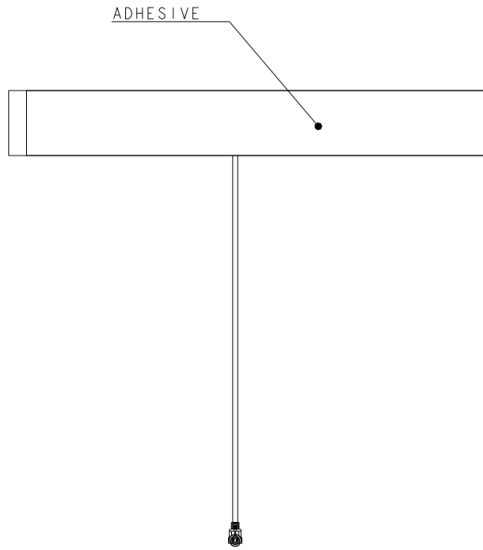
**Front View**



**Side View**



**Cable Side View**



**Back View**