

Part No. 1005460F0

5G/4G Wide Band FPC Embedded Antenna

617 MHz - 6 GHz

Supports: Broadband LTE, 5G NR sub-6GHz, 5G-FR1, LTE CAT-M, NB-IoT, SigFox, LoRa, Cellular LPWA



KYOCERA AVX LTE cellular embedded antenna 1005460F0 addresses the challenges facing today's product designers. Based on a flexible substrate for easier integration, high performance and isolation characteristics, this antenna offers better connectivity. The 1005460F0 is designed to perform efficiently for long cable lengths, when the antenna is far from the ground plane. In addition, 1005460F0 is offered in multiple standard cable lengths ranging from 100 mm to 300 mm and cable connection compatibility including U.FL, MHF4L, MMCX connection compatibility offered in multiple standard cable lengths ranging from 25 mm to 500 mm.

5G/4G FPC Embedded Antenna

617 - 960 MHz

1400 - 2200 MHz

2300 - 2700 MHz

3300 - 3800 MHz

5000 - 6000 MHz

KEY BENEFITS

Reduced Costs and Time-to-Market

Standard antenna eliminates design fees and cycle time associated with a custom solution; getting products to market faster.

Greater Flexibility with Unique Form Factors

KYOCERA AVX technology helps you deliver more advanced ergonomic designs without adverse impact on product performance.

Environmental Compliance

Products are the latest RoHS compliance.

APPLICATIONS

- Medical applications
- Home automation
- M2M, Industrial devices
- IoT
- Healthcare
- Tracking
- NB-IoT
- SigFox
- LoRa
- Cellular LPWA
- LTE CAT-M

Electrical Specifications

Typical characteristics, using 200 mm cable mounted directly onto PC/ABS.

Frequency (MHz)	617 - 960	1400 - 2200	2300 - 2700	3300 - 3800	5000 - 6000
Average Efficiency	60%	62%	62%	52%	56%
Peak Gain	3.4 dBi	4.0 dBi	3.0 dBi	2.5 dBi	4.2 dBi
VSWR Match	<2.4:1	<2.1:1	<2.1:1	<2.0:1	<2.0:1
Feed Point Impedance	50 ohms unbalanced				
Polarization	Linear				
Power Handling	2 Watts CW				
Radiation Pattern	Omni				

Mechanical Specifications & Ordering Part Number

Ordering Part #	1005460F0-AA10L0200
Dimensions (mm)	100.0 x 30.0 x 0.2 (1.6 high at cable solder connection)
Weight (grams)	1.66
Cable/ Connector (mm)	Length: 200, Diameter: 1.13, Color: Black; U.FL compatible connector (MHF4L and MMCX options available)
Mounting	Adhesive on bottom side of antenna
Packaging	PE bags

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

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

LTE Bands covered by 1005460F0

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		
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 - 23151	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			
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

5G/4G Wide Band FPC Embedded Antenna Specifications.
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5G Bands covered by 1005460F0

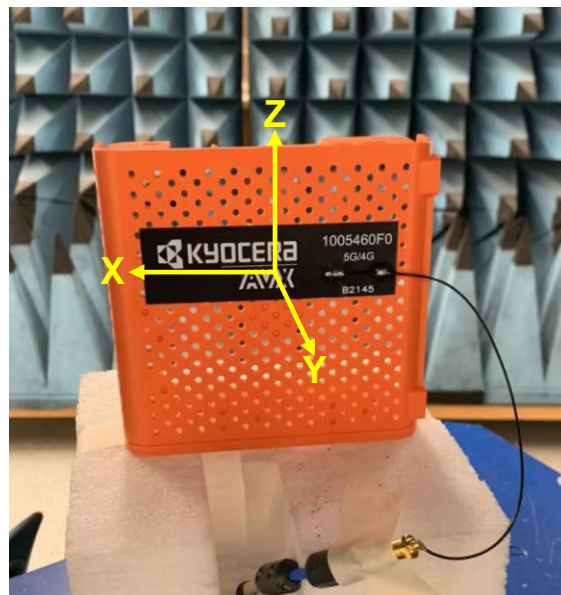
5G Band	Uplink (UL) (MHz)	Downlink (DL) (MHz)	Bandwidth (MHz)	Duplexing Mode	Covered
n1	1920 - 1980	2110 - 2170	60	FDD	Yes
n2	1850 - 1910	1930 - 1990	60	FDD	
n3	1710 - 1785	1805 - 1880	75	FDD	
n5	824 - 849	869 - 894	25	FDD	
n7	2500 - 2570	2620 - 2690	70	FDD	
n8	880 - 915	925 - 960	35	FDD	
n20	832 - 862	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 Wide Band FPC Embedded Antenna Specifications.
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Test Setup



***All measurements in Free Space & directly onto PC/ABS**



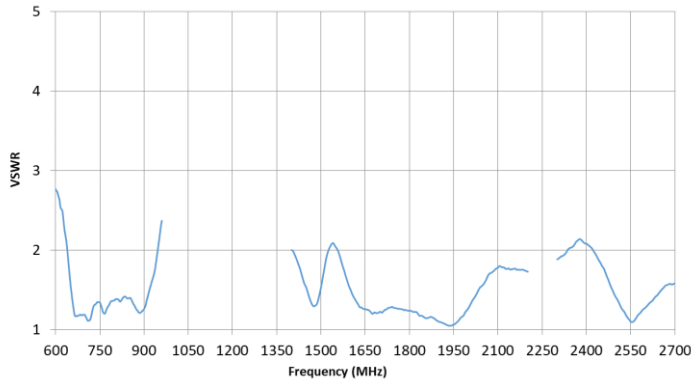
***Description of Chamber Spherical Coordinate System**

5G/4G Wide Band FPC Embedded Antenna Specifications.
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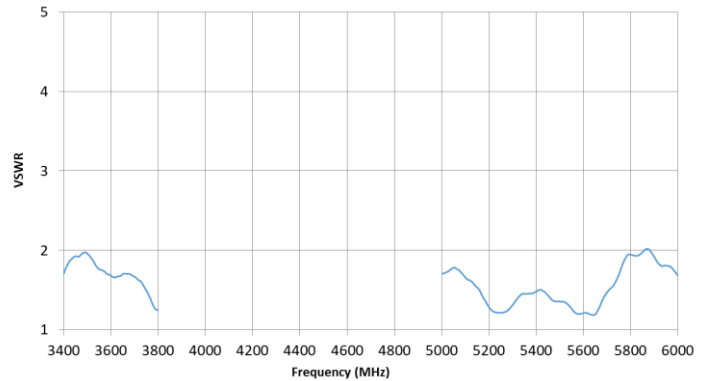
VSWR, Efficiency, Peak Gain Plots

Typical characteristics, using 200 mm cable mounted directly onto PC/ABS.

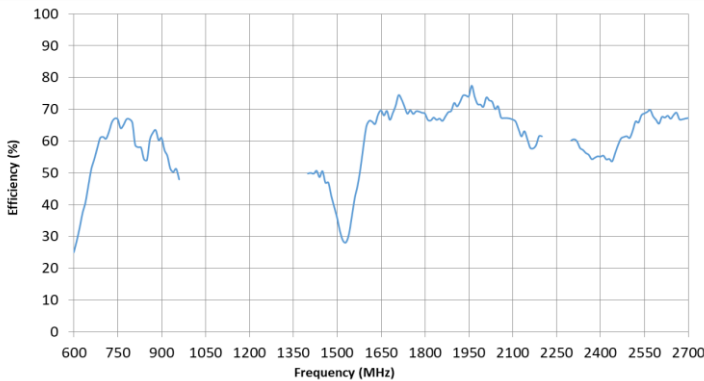
**VSWR
(600-2700 MHz)**



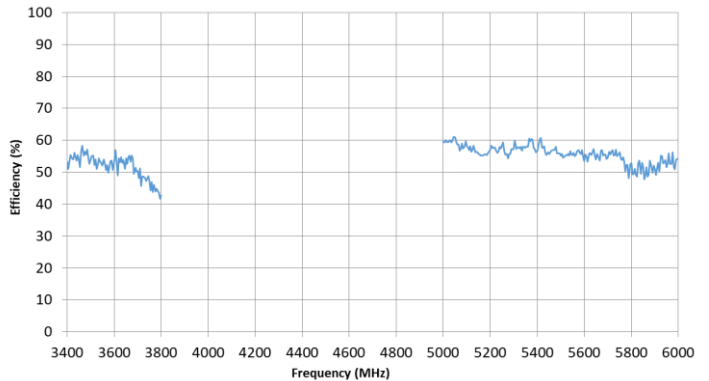
**VSWR
(3400-6000 MHz)**



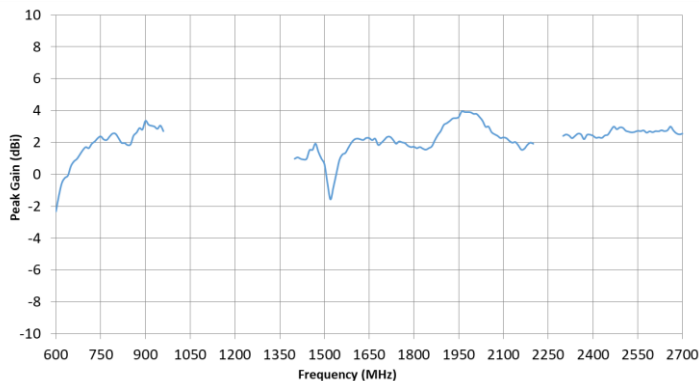
**Efficiency
(600-2700 MHz)**



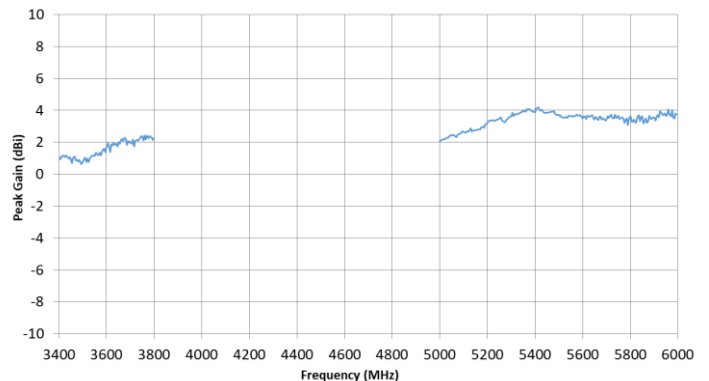
**Efficiency
(3400-6000 MHz)**



**Peak Gain
(600-2700 MHz)**



**Peak Gain
(3400-6000 MHz)**



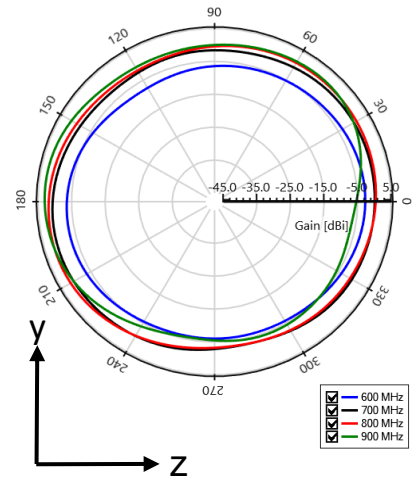
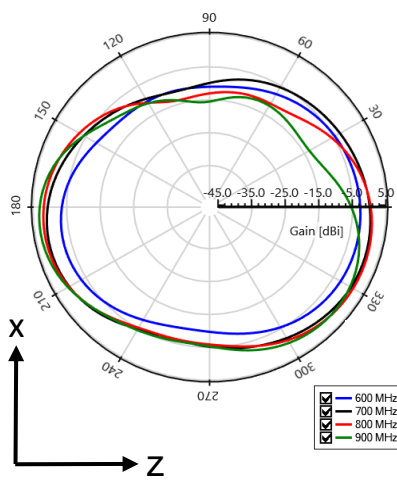
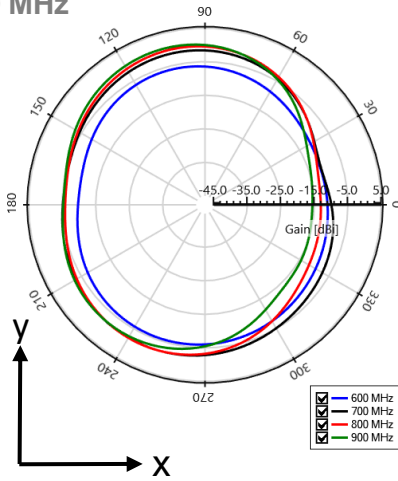
5G/4G Wide Band FPC Embedded Antenna Specifications.
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Radiation Patterns (600-2100 MHz)

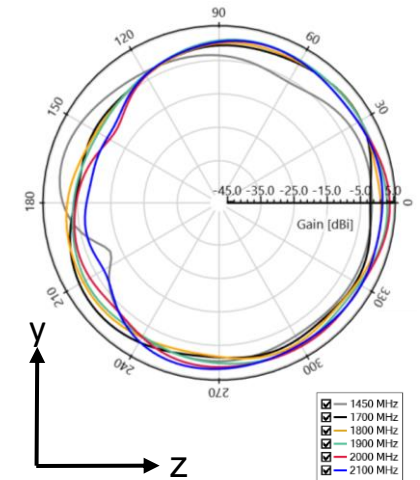
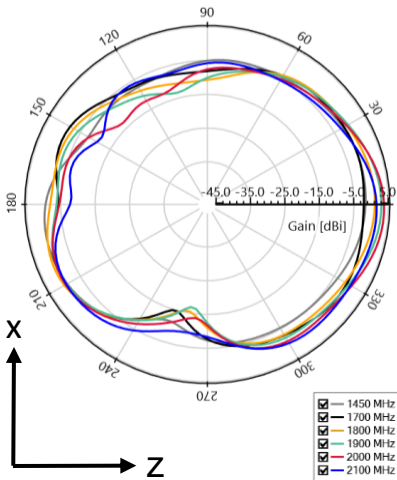
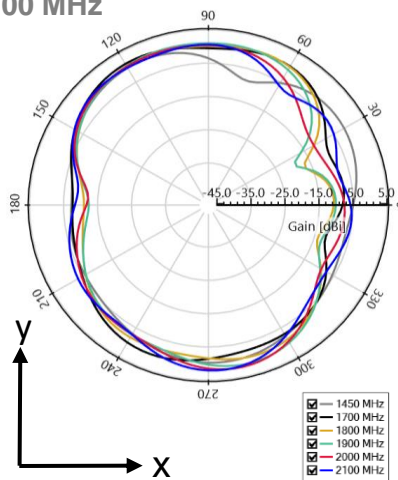
Typical characteristics, using 200 mm cable mounted directly onto PC/ABS.



Measured between 600-900 MHz



Measured between 1450-2100 MHz



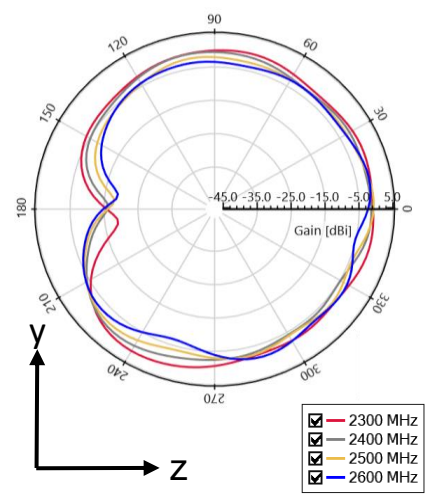
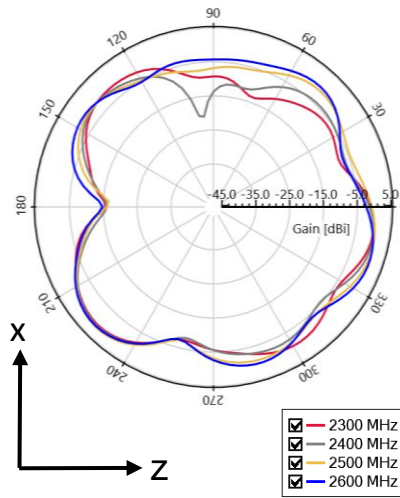
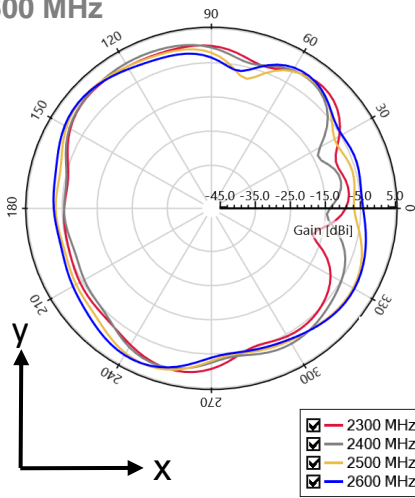
5G/4G Wide Band FPC Embedded Antenna Specifications.
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Radiation Patterns (2300-3750 MHz)

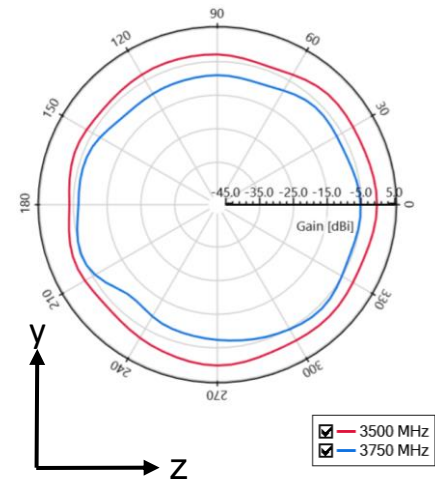
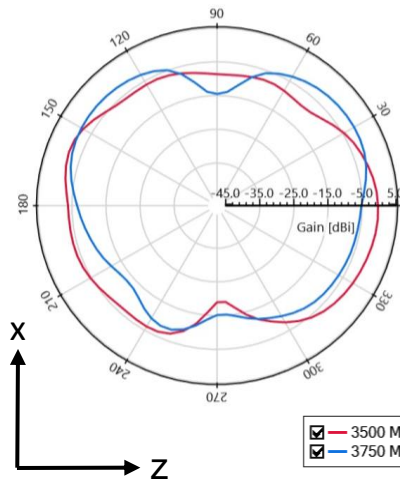
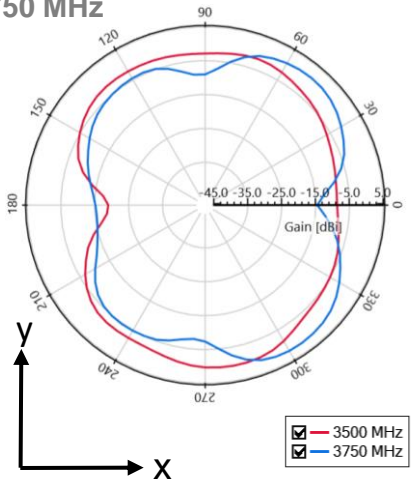
Typical characteristics, using 200 mm cable mounted directly onto PC/ABS.



Measured between 2300-2600 MHz



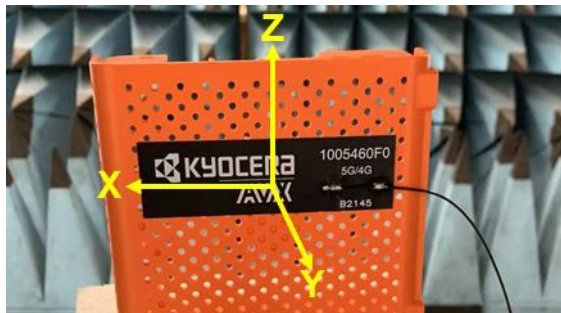
Measured between 3500-3750 MHz



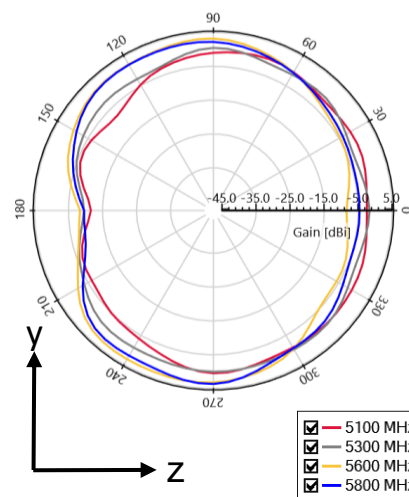
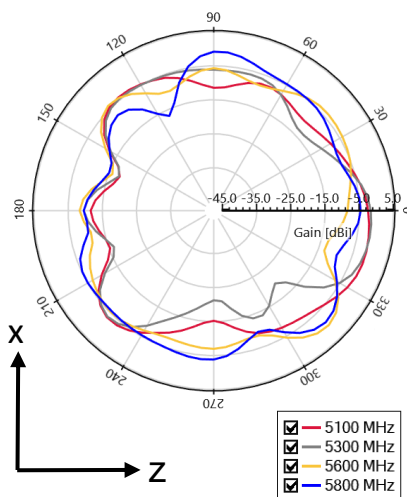
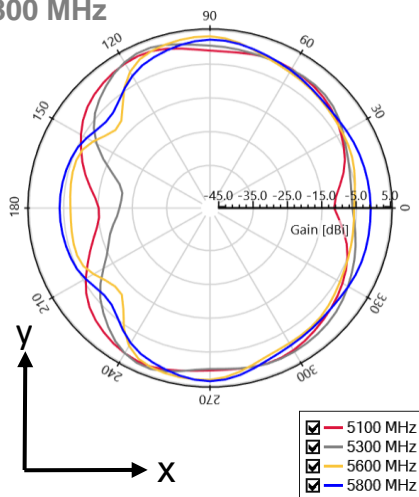
5G/4G Wide Band FPC Embedded Antenna Specifications.
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Radiation Patterns (5100-5800 MHz)

Typical characteristics, using 200 mm cable mounted directly onto PC/ABS.



Measured between 5100-5800 MHz



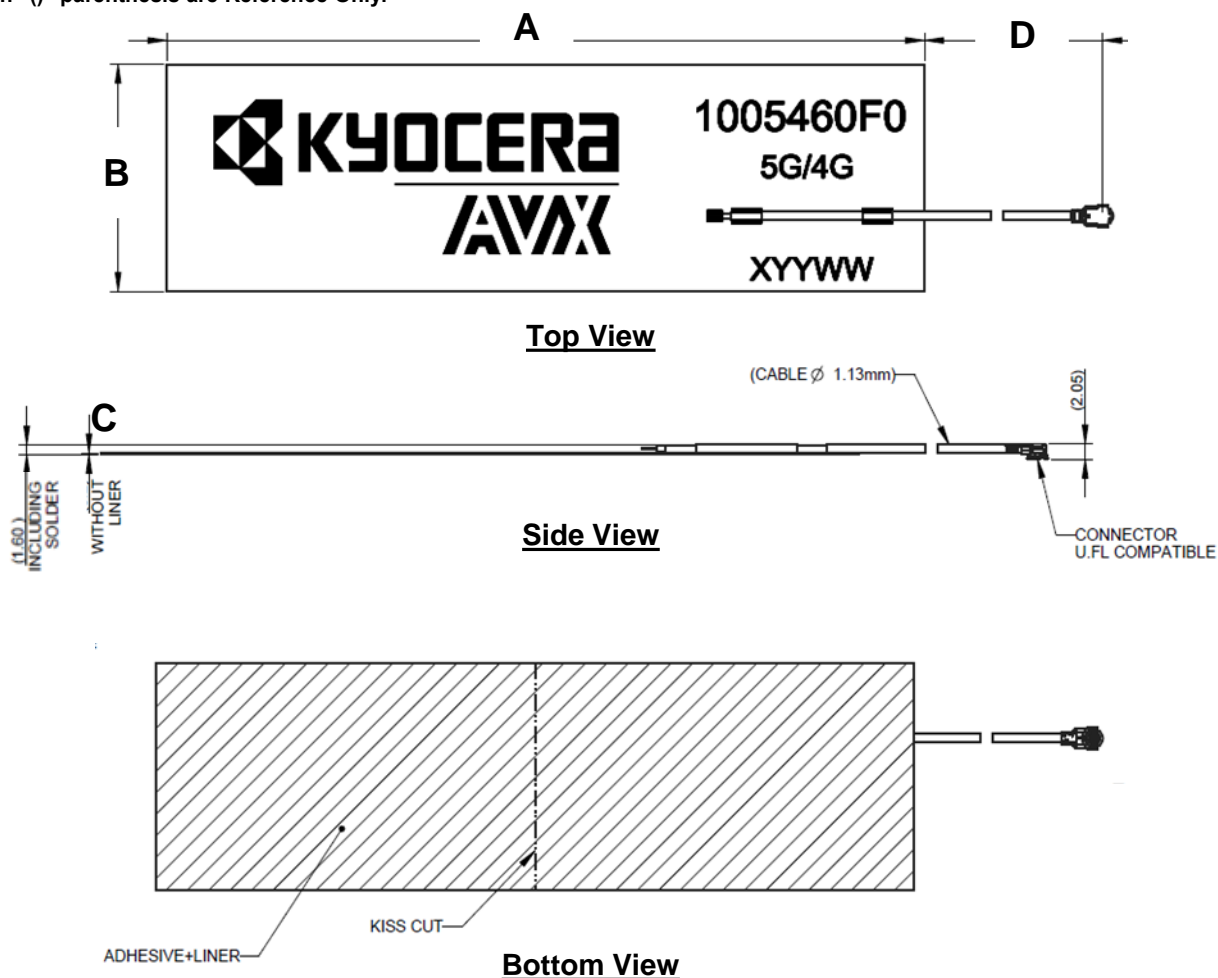
5G/4G Wide Band FPC Embedded Antenna Specifications.
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Mechanical Dimensions (U.FL compatible)

Typical antenna dimensions (mm)

Part Number	A	B	C	D Cable Length (0XXX)	Connector Orientation
1005460F0-AA10L0100	100.0 ± 0.2	30.0 ± 0.2	0.2	100.0 ± 3.0	Face Down
1005460F0-AA10L0150	100.0 ± 0.2	30.0 ± 0.2	0.2	150.0 ± 4.0	Face Down
1005460F0-AA10L0200	100.0 ± 0.2	30.0 ± 0.2	0.2	200.0 ± 4.0	Face Down
1005460F0-AA10L0250	100.0 ± 0.2	30.0 ± 0.2	0.2	250.0 ± 4.0	Face Down
1005460F0-AA10L0300	100.0 ± 0.2	30.0 ± 0.2	0.2	300.0 ± 4.5	Face Down

*Total Height of (1.60 mm) includes the cable solder connection
 *Height "C" of (0.20 mm) includes FPC + adhesive thicknesses
 *Dimensions in "()" parenthesis are Reference Only.



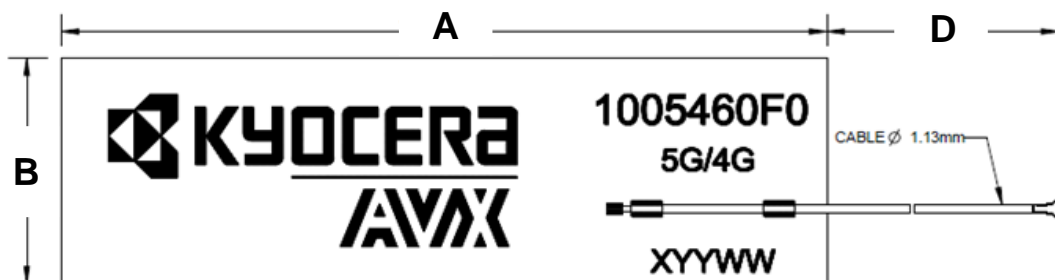
5G/4G Wide Band FPC Embedded Antenna Specifications.
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Mechanical Dimensions (MHF4L compatible)

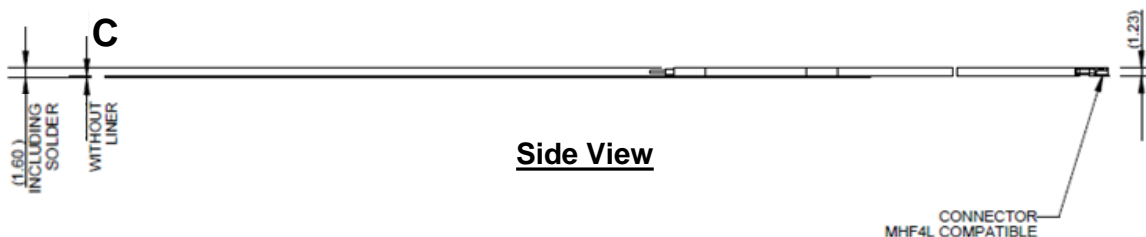
Typical antenna dimensions (mm)

Part Number	A	B	C	D Cable Length (0XXX)	Connector Orientation
1005460F0-AC10L0100	100.0 ± 0.2	30.0 ± 0.2	0.2	100.0 ± 3.0	Face Down
1005460F0-AC10L0150	100.0 ± 0.2	30.0 ± 0.2	0.2	150.0 ± 4.0	Face Down
1005460F0-AC10L0200	100.0 ± 0.2	30.0 ± 0.2	0.2	200.0 ± 4.0	Face Down
1005460F0-AC10L0250	100.0 ± 0.2	30.0 ± 0.2	0.2 </td <td>250.0 ± 4.0</td> <td>Face Down</td>	250.0 ± 4.0	Face Down
1005460F0-AC10L0300	100.0 ± 0.2	30.0 ± 0.2	0.2	300.0 ± 4.5	Face Down

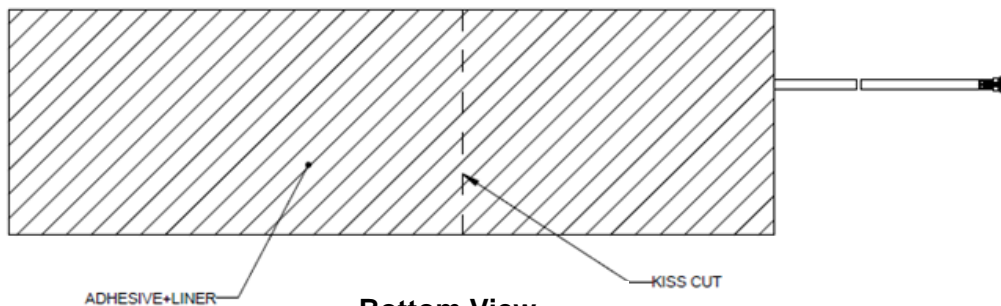
*Total Height of (1.60 mm) includes the cable solder connection
 *Height "C" of (0.20 mm) includes FPC + adhesive thicknesses
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Top View



Side View



Bottom View

5G/4G Wide Band FPC Embedded Antenna Specifications.
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Mechanical Dimensions (MMCX compatible)

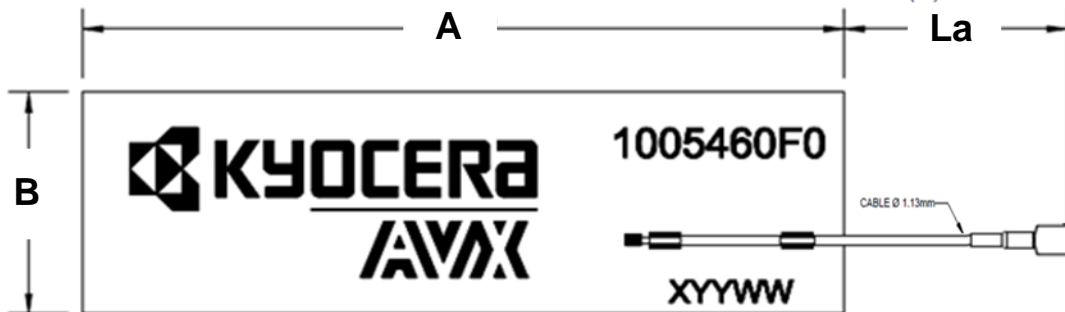
Typical antenna dimensions (mm)

Part Number	A	B	C	La Cable Length (XXXX)	Connector Orientation
1005460F0-AM30LXXXX	(100.0)	(30.00)	(0.20)	XXXX	Face Down
1005460F0-AM30L0100	(100.0)	(30.00)	(0.20)	100.0 ± 3.00	Face Down

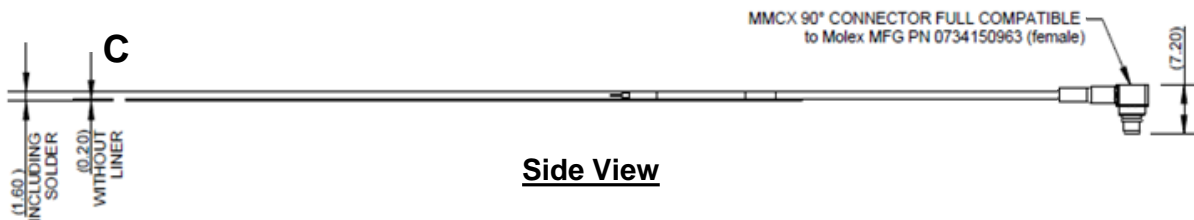
- *Total Height of (1.60 mm) includes the cable solder connection
- *Height "C" of (0.20 mm) includes FPC + adhesive thicknesses
- *Dimensions in "(")" parenthesis are Reference Only.
- *Cable length offered in 1 mm increments.

LENGTH DEFINITION La = XXXX	TOLERANCE Z
25 ≤ La < 125	±3.00
125 ≤ La < 275	±4.00
275 ≤ La < 475	±5.00
475 ≤ La ≤ 500	±6.00

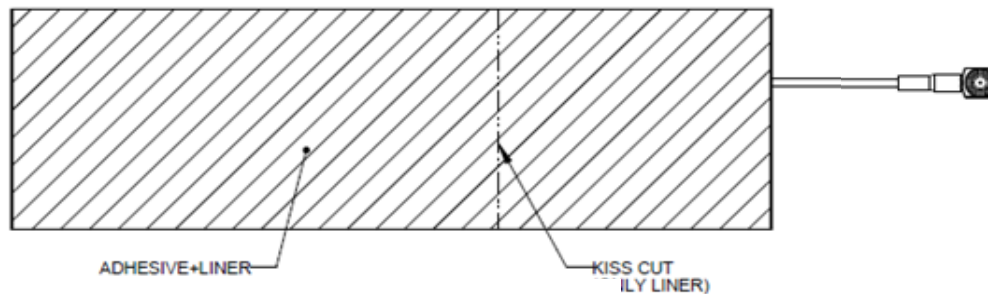
XXXX: CABLE LENGTH FROM PART NUMBER
 MINIMUM CABLE LENGTH (La): 25mm
 MAXIMUM CABLE LENGTH (La): 500mm



Top View



Side View



Bottom View