

Part No. 9001815F0

5G & NB-IoT FPC embedded Antenna

600 / 700 / 750 / 850 / 900 / 1500 / 1800 / 1900 / 2100 / 2700 / 3400 – 3800 MHz / 5150 – 5850 MHz

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



KYOCERA AVX 5G & NB-IoT FPC 9001815F0 address 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. In addition, 9001815F0 supports all the worldwide cellular bands for LTE. Antenna offered in multiple cable lengths for different applications environments.

5G NB-IoT FPC Embedded Antenna

617 - 960 MHz,
 1415 - 2690 MHz,
 3400 - 3800 MHz,
 5150 - 5850 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 version compliant.

APPLICATIONS

- Medical/Healthcare
- Telecommunications & Networking
- Infrastructure & Networking
- Industrial Automation
- M2M / Internet of Things (IoT) devices
- Alarm systems
- Smart meters
- Transportation & Automotive
- Remote control, monitoring, and sensing
- Smart Home networking
- LPWA, LoRa applications

Electrical Specifications

Typical Characteristics, using with 200 mm cable in free space loaded with 1.6 mm ABS.

Frequency (MHz)	617 - 960	1415 - 2690	3400 - 3800	5150 - 5850
Average Efficiency	35%	60%	47%	56%
Peak Gain	1.5 dBi	4.65 dBi	3.84 dBi	4.81 dBi
VSWR Match	7.2:1 max	2.6:1 max	3.8:1 max	2.2:1 max
Feed Point Impedance	50 Ω unbalanced			
Polarization	Linear			
Power Handling	2 Watts CW			
Radiation Pattern	Omni-directional			

Mechanical Specifications & Ordering Part Number

Ordering Part #	9001815F0-AA10L0200
Dimensions (mm)	102.0 x 14.5 x 0.2
Weight (grams)	1.1
Connector / Cable (mm)	U.FL compatible connector Length: 200, Cable diameter: 1.13, Color: Black
Mounting	using 3M467 Adhesive
Packaging	PE Bag

5G & NB-IoT FPC Embedded Antenna Specifications.
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

LTE Bands covered by 9001815F0-AA10LXXXX

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

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5G Bands covered by 9001815F0-AA10LXXXX

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	No
n78	3300 - 3800		500	TDD	Yes
n79	4400 - 5000		600	TDD	No
n80	1710 - 1785	N/A	75	SUL	Yes
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 & NB-IoT FPC Embedded Antenna Specifications.
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Test Setup

Typical performance with 200 mm cable



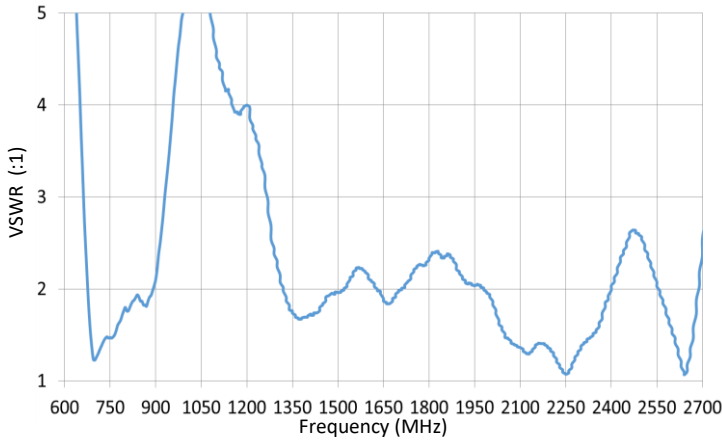
***All measurements taken in Free Space loaded with 1.6 mm thick ABS plastic.**

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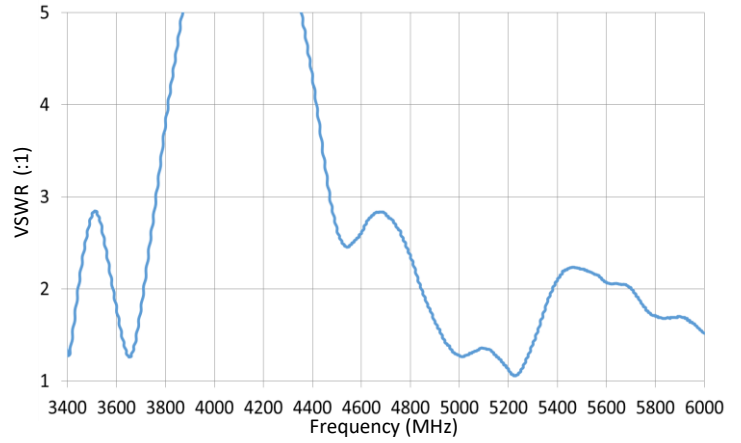
VSWSR, Efficiency, and Peak Gain Plots

Typical performance with 200 mm

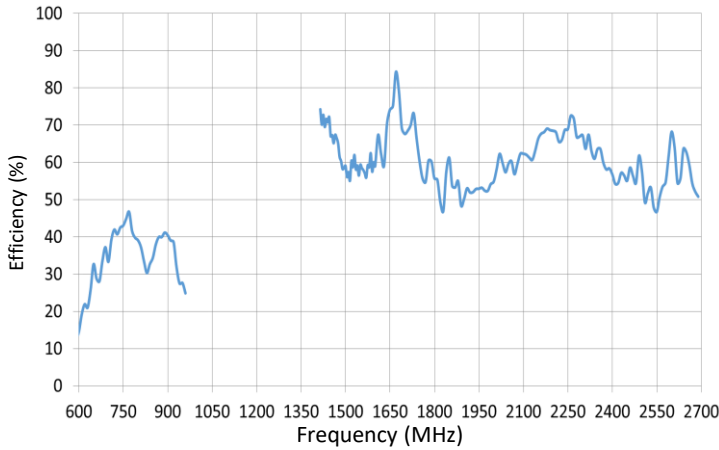
VSWSR (600 - 2700 MHz)



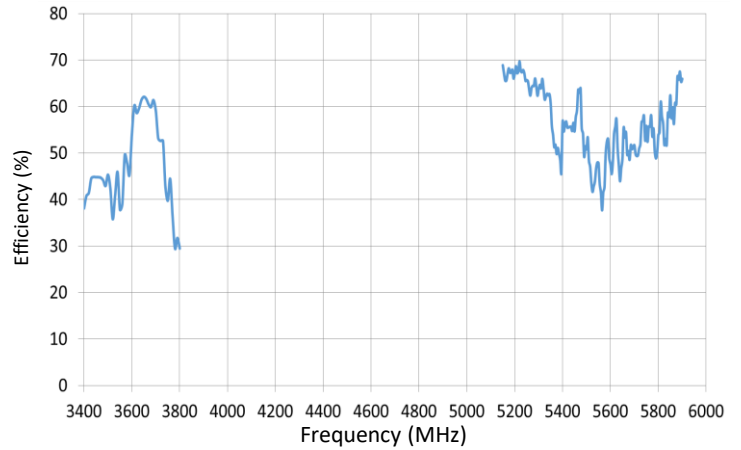
VSWSR (3400 - 6000 MHz)



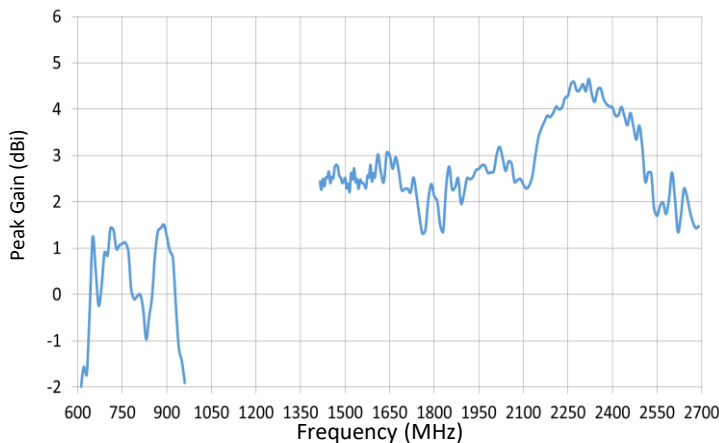
Efficiency (600 - 2700 MHz)



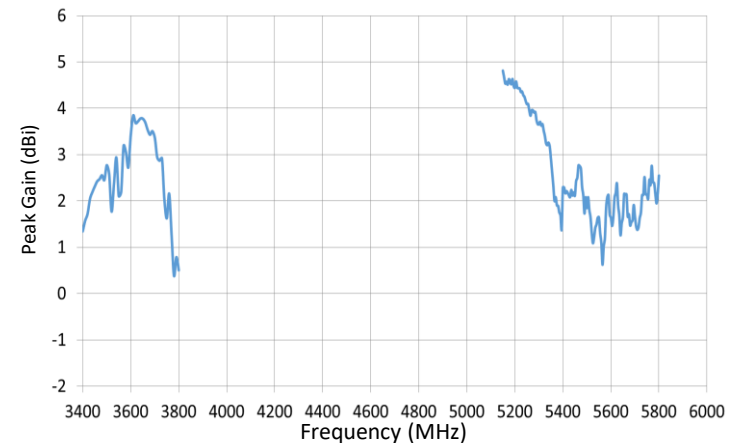
Efficiency (3400 - 6000 MHz)



Peak Gain (600 - 2700 MHz)



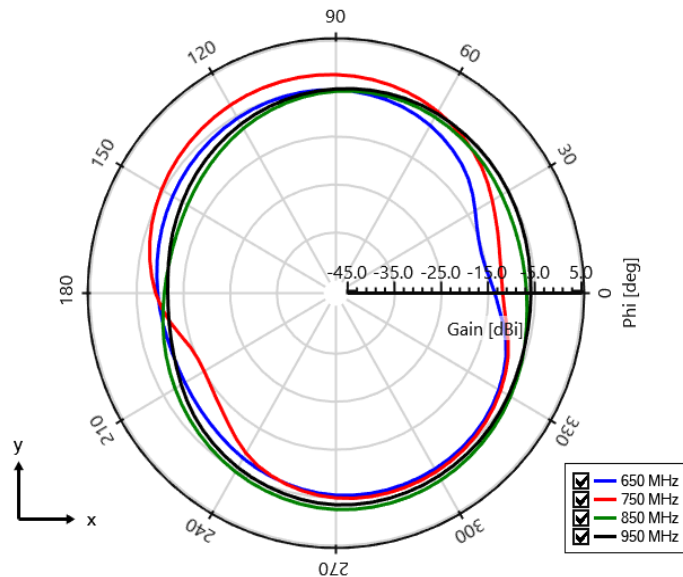
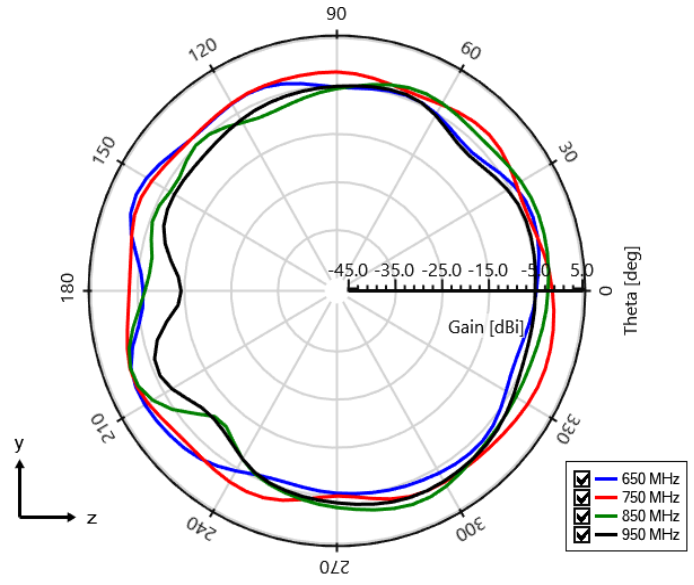
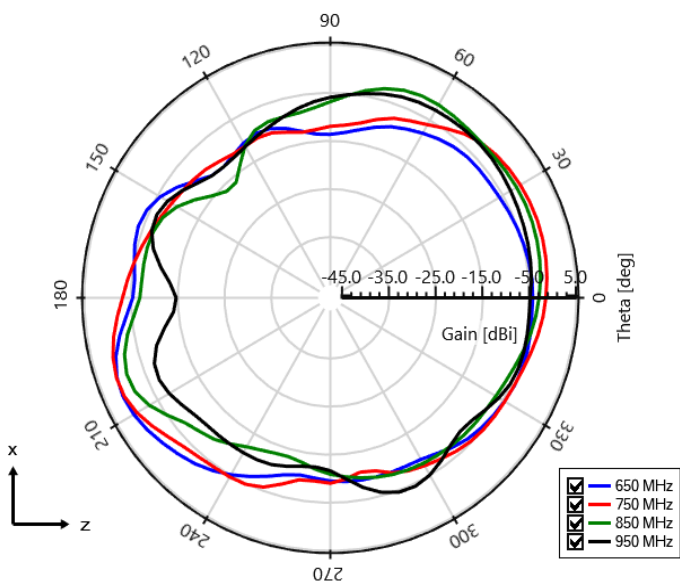
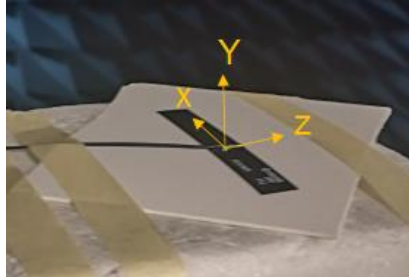
Peak Gain (3400 - 6000 MHz)



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Radiation Patterns (650, 750, 850, 950) MHz

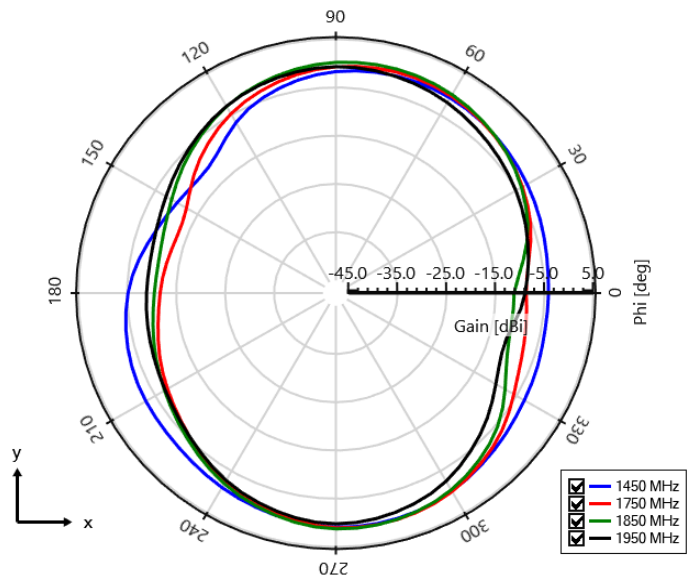
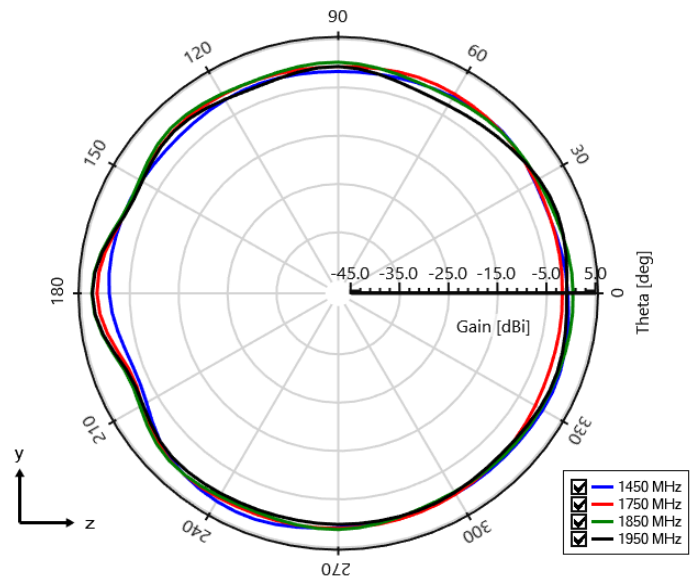
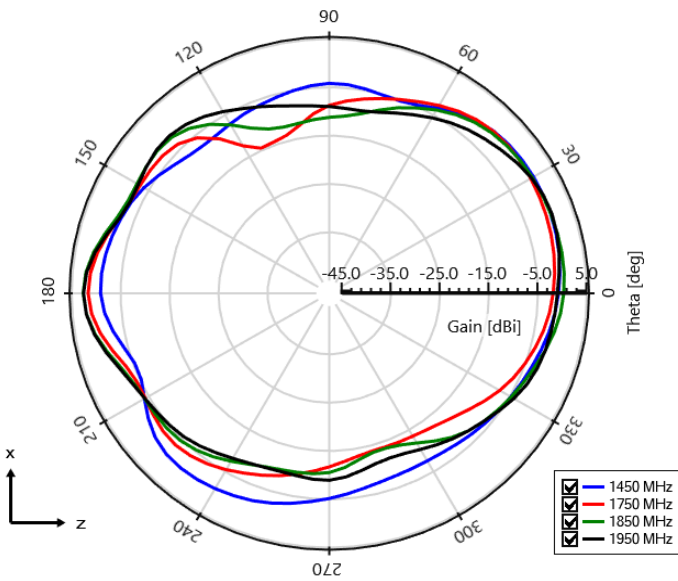
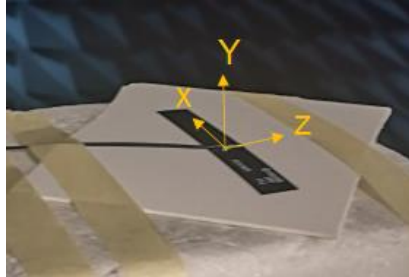
Typical performance with 200 mm



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Radiation Patterns (1450, 1750, 1850, 1950) MHz

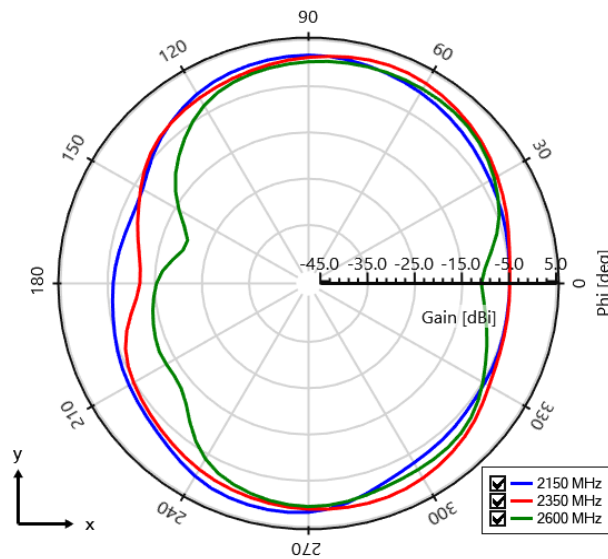
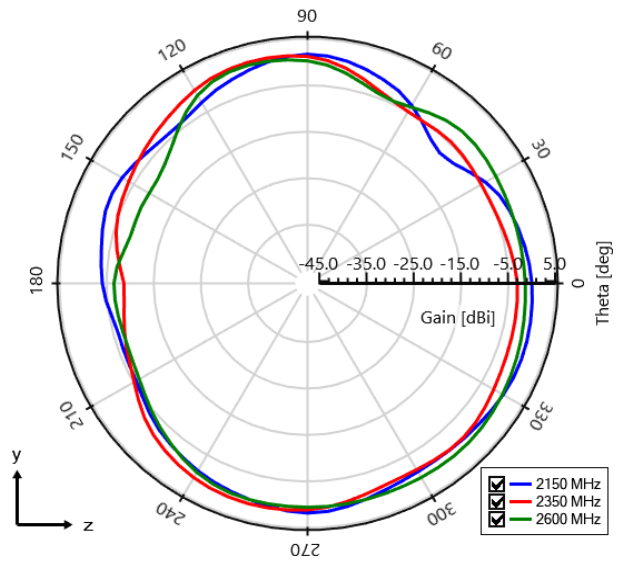
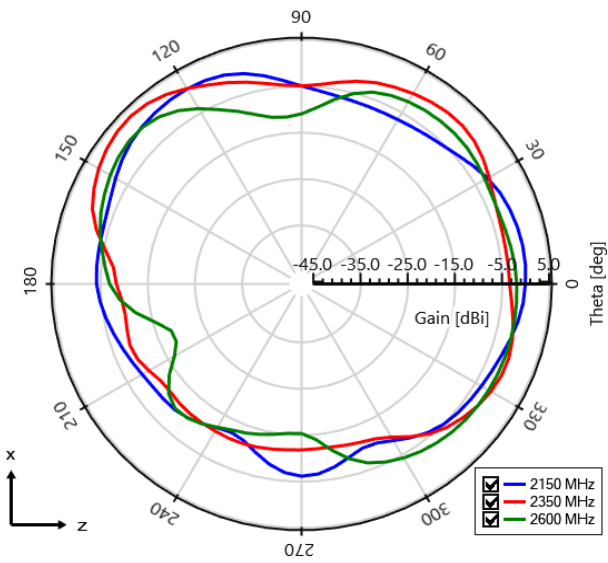
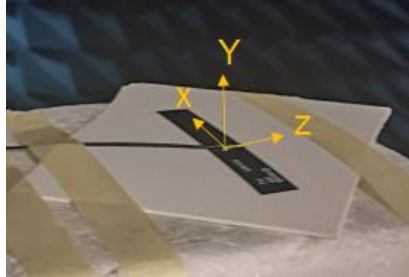
Typical performance with 200 mm



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Radiation Patterns (2150, 2350, 2600) MHz

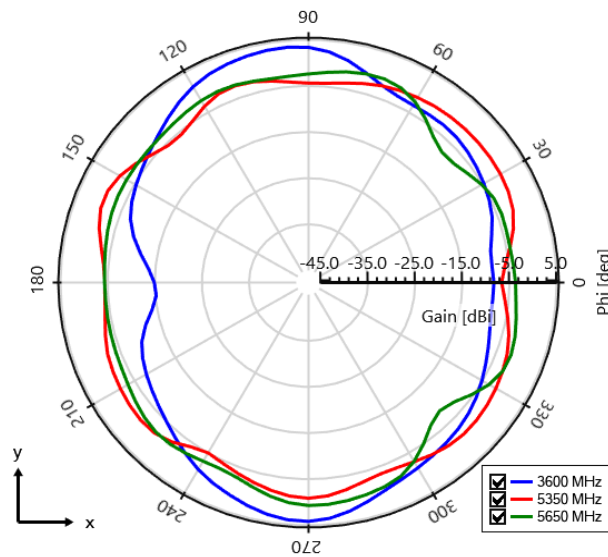
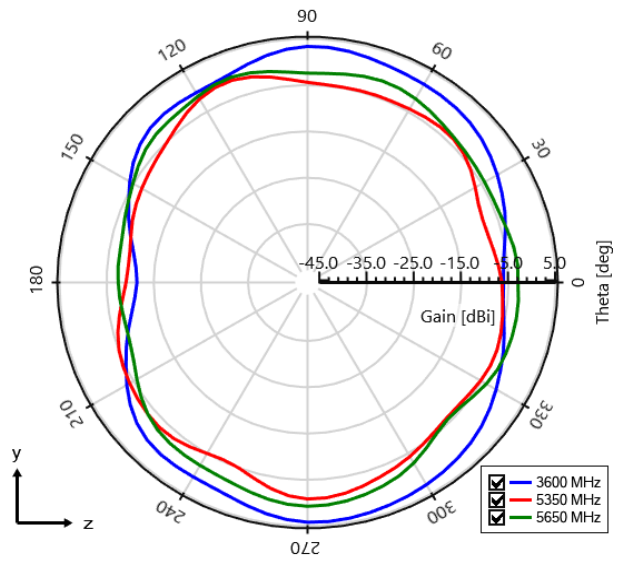
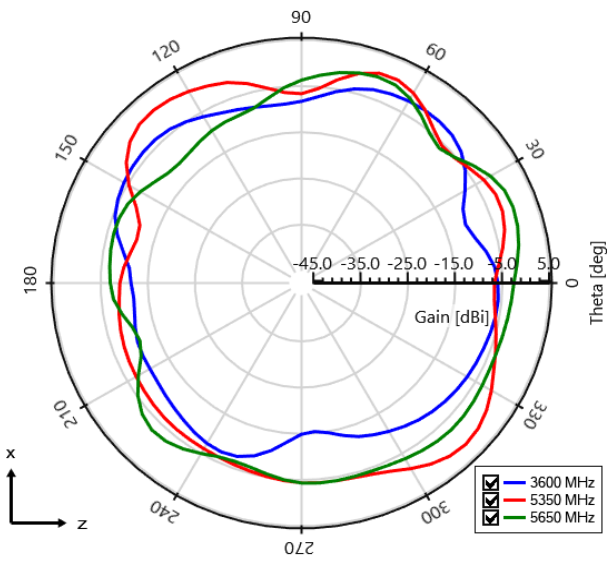
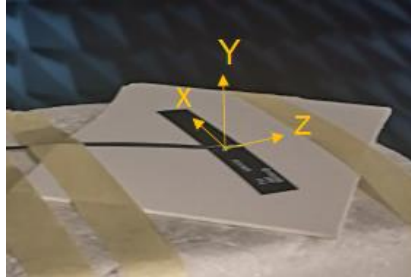
Typical performance with 200 mm



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Radiation Patterns (3600, 5350, 5650) MHz

Typical performance with 200 mm

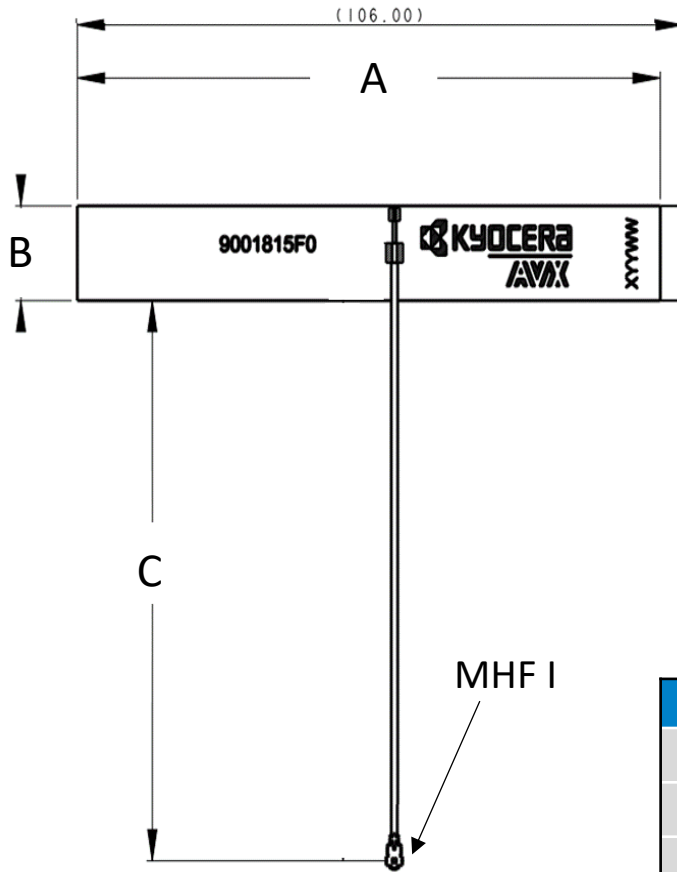


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Mechanical Dimensions

Typical antenna dimensions (mm)

Part Number	A	B	C (Cable length)	Connector
9001815F0-AA10LXXXX	102.0	14.5	XXXX	MHF I (U.FL compatible)
9001815F0-AC10LXXXX	102.0	14.5	XXXX	MHF 4L
9001815F0-AA10L0200	102.0	14.5	200	MHF I (U.FL compatible)
9001815F0-AC10L0200	102.0	14.5	200	MHF 4L



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