



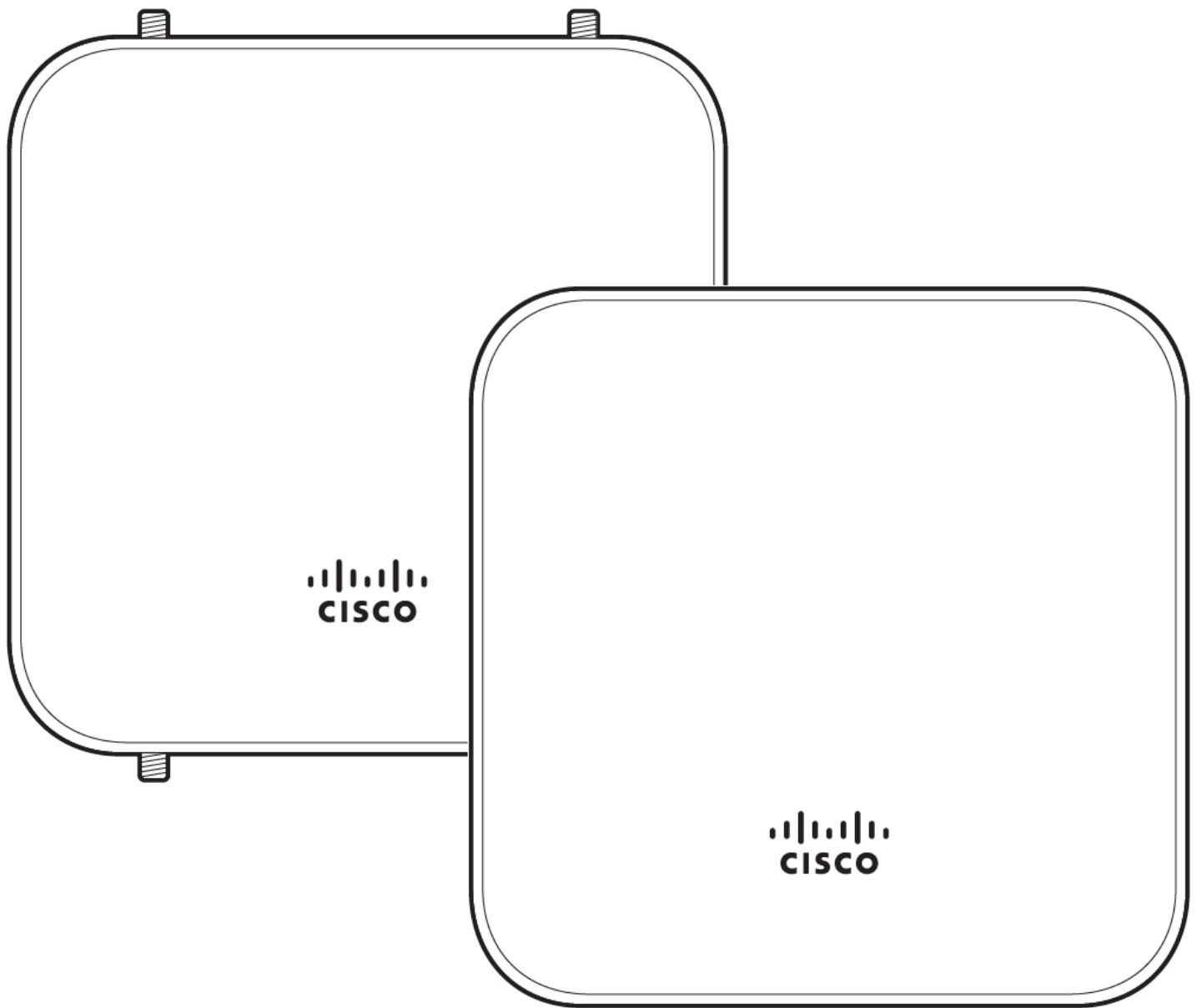
MG52/52E Technical Specifications

Overview

In cases of primary uplink failure, wireless WAN connectivity options, like cellular networks, can serve as a backup for ensuring connectivity.

MG52 cellular gateway is a 5G StandAlone (SA)/ Non-StandAlone (NSA) device which enables the delivery of high-speed internet access with low latency and increased capacity. The use of standalone 5G allows for advanced features like network slicing, which allows the creation of virtualized, dedicated slices of the network tailored for specific applications or services.

MG52/E is compatible with both Meraki and non-Meraki security appliances, routing, or switching devices by leveraging Ethernet and IP-based protocols. Its additional 802.3AT compatibility allows it to be positioned anywhere by using power over Ethernet (PoE), similar to any access point. This flexibility gives users the choice of an ideal physical placement to optimize signal quality.



MG Series and Meraki Cloud Management


All Meraki devices are managed via the Meraki cloud. The MG series are self-configuring and managed over the web, and can be deployed at remote locations without any assistance from end-users.

Meraki Cloud services monitor all devices 24x7 and deliver real-time alerts if any devices encounter a problem. Remote diagnostics tools enable real-time troubleshooting through any web browser. New features, enhancements and critical security patches are delivered over the web, removing the need to manually download software updates.

Features

- Highlights**
 - Built in 5G SA/NSA Sub6 LTE CAT20
 - Cloud managed eSIM
 - Dual SIM support
 - Supports 2 separate downstream Ethernet connections
 - Small form factor
 - PoE+ or DC powered
 - IP67 rating
 - Optional Patch antenna (MG52E)
- Management**
 - Manageability from the Cisco Meraki dashboard
 - Self-configuring Cellular Gateway
 - Automatic firmware upgrades with scheduling control
 - Extensive API support
- Remote Diagnostics**
 - Email, SMS and Mobile push notification alerts
 - Ping, traceroute, cable testing, and link failure detection with alerting
 - Remote packet capture
 - Combined event and configuration change logs with instant search
 - DM logging via Local Status Page

The MG52/E cellular gateway uses 6 to 8 megabytes a day of data for telemetry on dashboard and connection monitoring when the unit is idle. Any additional devices that are downstream of the MG52/E may increase data usage. Cisco Meraki products are cloud connected devices that report telemetry into Dashboard for network monitoring purposes. The usage will be reduced in future firmware updates.

 **Note:** MG52/52E now features cloud managed eSIM*. This allows you to connect your device directly to a cellular network without needing to install a physical sim.

*Coming Soon: Service Provider integration in progress.

Use Cases

Note that the following use cases refer to using a Meraki MX appliance with the MG52/E as a WAN uplink. However, the use cases can also apply to non-Meraki devices.

- **Antenna placement where cellular coverage is best**
 - Signal strength is key for cellular performance. The MG52/E makes cellular a viable option in situations where high bandwidth or throughput is needed or locations where the MX is not necessarily the best location for a strong cellular signal. The separation of cellular antenna and MX expands cellular options for all networks, particularly for mid-range MXs deployed in a data center or medium/large branch location. The 4 x 4 DL MIMO is capable of supporting deployments that demand higher throughput capacity.
- **Primary WAN**
 - In areas where wired internet services are not available or wired connectivity takes too long or is expensive, the MG52/E provides a simple, viable

option for wireless WAN connectivity.

- **Secondary WAN for Failover**
 - An MX's primary or secondary WAN interface connected to an MG52/E may use the cellular network for both primary and secondary uplinks
- **Primary/Secondary WAN for SD-WAN**
 - An MX with an MG52/E as a primary and/or secondary WAN uplink may use the cellular network to establish VPNs for SD-WAN.
- **High Availability Uplink**
 - The MG52/E can be used as either a primary or secondary internet uplink for MX HA topologies. Its two LAN ports allow the MXs to share access to the same cellular network.

Technical Breakdown

Physical Specifications

Models	MG52	MG52E
Dimensions (w x d x h)	173 x 173 x 36.5mm	173 x 173 x 36.5mm
Weight (without accessories)	560g	710g
Power Supply	12V/1A, 48-57V DC/0.35A	12V/1A, 48-57V DC/0.35A
Power Load	16 Watt Maximum (PoE 802.3at)	16 Watt Maximum (PoE 802.3at)
Operating Temperature	-40°F to 122°F (-40°C to 50°C)	-40°F to 122°F (-40°C to 50°C)
Humidity	5% to 95% non-condensing	5% to 95% non-condensing
Storage and Transportation Temperature	-22°F - 158°F -30°C - 70°C	-22°F - 158°F -30°C - 70°C
Product Category	5G SA/ NSA Sub6 LTE CAT20	5G SA/ NSA Sub6 LTE CAT20
Maximum Wireless Data Rate (Down/Up) Passthrough	2 Gbps / 300 Mbps	2 Gbps / 300 Mbps
Maximum Wireless Data Rate (Down/Up) NAT	1.5 Gbps/ 300 Mbps	1.5 Gbps/ 300 Mbps

Antennas	Internal	Di
LAN Interfaces - Dedicated	1x Dedicated 2.5 GbE RJ45	1x
LAN Interfaces - Convertible	1x Convertible LAN/WAN 2.5 GbE RJ45	1x
SIM Slots	2	2
eSIM	1	1

Interfaces

LAN Interfaces	2x 2.5 GbE
WAN Interfaces	1x 5G SA/NSA Sub6 LTE CAT20 Cellular modem
SIM Card Slot	Nano (4FF)

Product Category and Certifications

5G Category	5G SA/NSA Sub 6GHz
LTE Category	CAT20
Certifications	PTCRB (US), RCM (ANZ, APAC), GCF (EU), IC (CA), FCC (US)
Certified Carriers	AT&T, T-Mobile
Carriers leveraging GCF	https://www.globalcertificationforum...f-members.html
Carrier Certification in Progress	Verizon*
Beta Tested Carriers	AT&T, T-Mobile, Verizon

Carrier compatibility is generally based on having compatible bands on the modem. In the open market, carriers may only require regulatory domain certifications and open market certifications, like the PTCRB and GCF, to be compatible for their network. Sometimes carriers will require additional testing before a device can be used on their network. The section Tested Carriers is based on Meraki device certifications being approved by those specific carriers. A carrier being listed above means that they have officially certified the Meraki product for their cellular network. There may be many unlisted carriers that could be

functionally compatible with Meraki devices. The list of tested certified carriers is based on the carrier validating Meraki per their network parameter requirements. If a carrier you are looking to use is not listed above, it could be that they do not require additional compliance testing for their network.

MTBF Rating

Model	MTBF at 25°C
MG52	1,663,492
MG52E	1,663,492

Accessories

Accessory SKU	Description
MA-PWR-30W-XX	Standard power adapter. Regional plugs per SKU.
MA-INJ-4	Gigabit 802.3at PoE injector
MA-ANT-C2-B	Dipole Antenna pair included with MG52E
MA-ANT-DUAL-C3	Patch Antenna pair for MG52E

Included In The Box

Model	Contents
MG52	1 x MG52-HW
	1 x Mounting plate
MG52E	1 x MG52E-HW
	1 x Mounting plate
	4 x dipole antennas



We only support and recommend having all 4 antennas connected on the MG52/E.





Non-Meraki Antenna not supported

Note: Non-Meraki antennas are not supported. The socket is a reversed RP-SMA that is designed to detect the official MG smart dipole antennas and smart patch antenna. Usage of non-Meraki accessories may damage the MG and degrade performance. The Cisco Meraki antennas are designed for the maximum allowable gain without exceeding the EIRP for local regulatory domains on their supported bands.



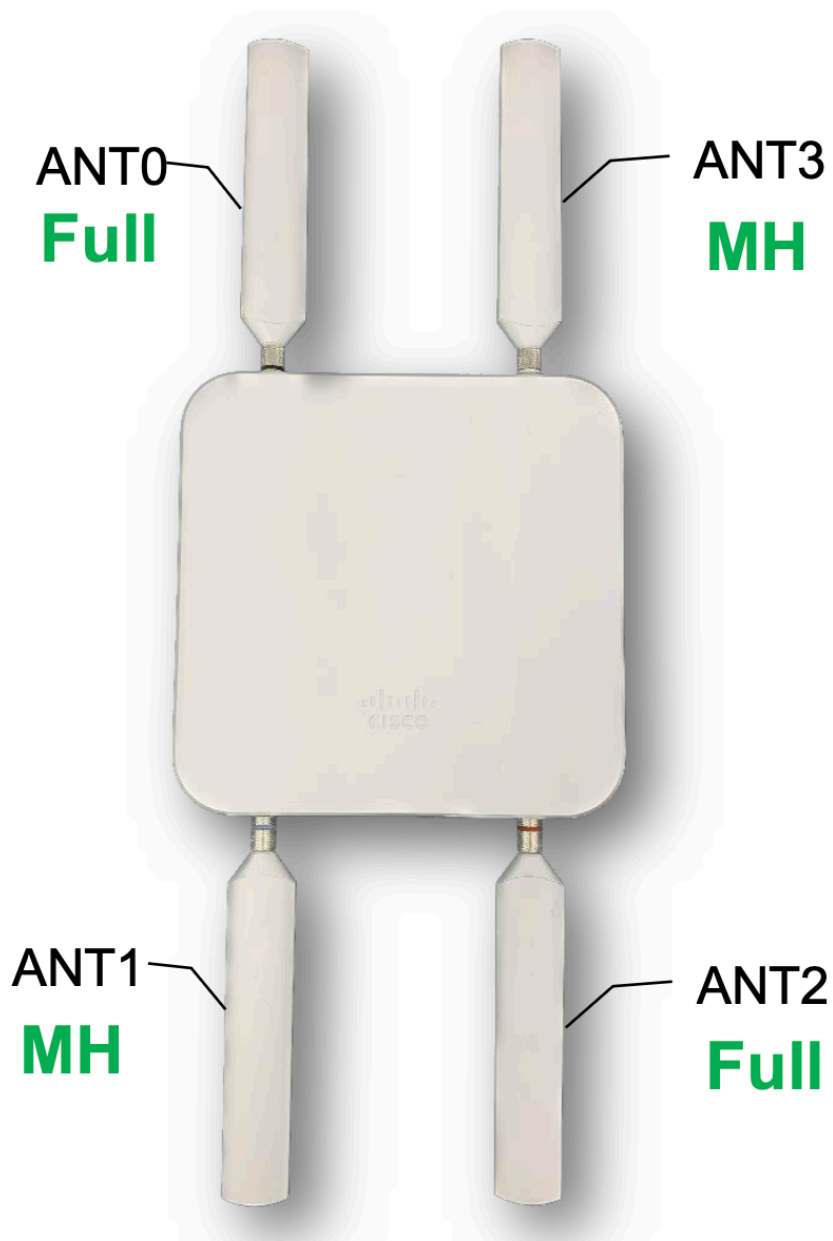
Power Adapter vs PoE: The MG can be powered using a PoE or via a power adapter. The power adapter always takes the first preference i.e if the MG is already powered via the PoE and then the power adapter is connected, then the MG will power off and power on using the adapter as the power source. The same scenario applies when the PoE and power adapter are connected simultaneously and the power source from the adapter goes down, the MG will power off and then power on. Plugging/unplugging PoE when power adapter is connected to the MG does not have any bearing on the operation of the MG as the device will always draw power from the adapter whenever it is connected.

MG52E Cellular Dipole Antenna Datasheet



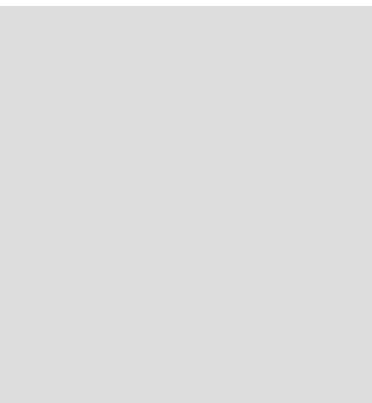
Note - Do not mix MG52E dipole antennas with other MG antennas

The dipole antennas (MA-ANT-C2-B) are included with the MG52E. When in use the dipoles have a spherical coverage in comparison to a patch antenna. The dipole antennas will excel at allowing users to place the MG in areas where a directional patch antenna cannot be mounted. The dipoles can be directly attached to the MG52E and require no additional mounting hardware.



Specifications

Category	Specifications
Physical and Environmental	<p>Dimensions</p> <p>144mm x 26.5mm x 12.3mm</p> <p>Material of Radiator</p> <p>PCB</p> <p>Material of Plastic</p>



PC
Operational Temperature
-40°C to +65°C (-40°F to 149°F)
Storage Temperature
-40°C to +80°C (-40°F to 176°F)
Connector
RP-SMA (female)

Warranty

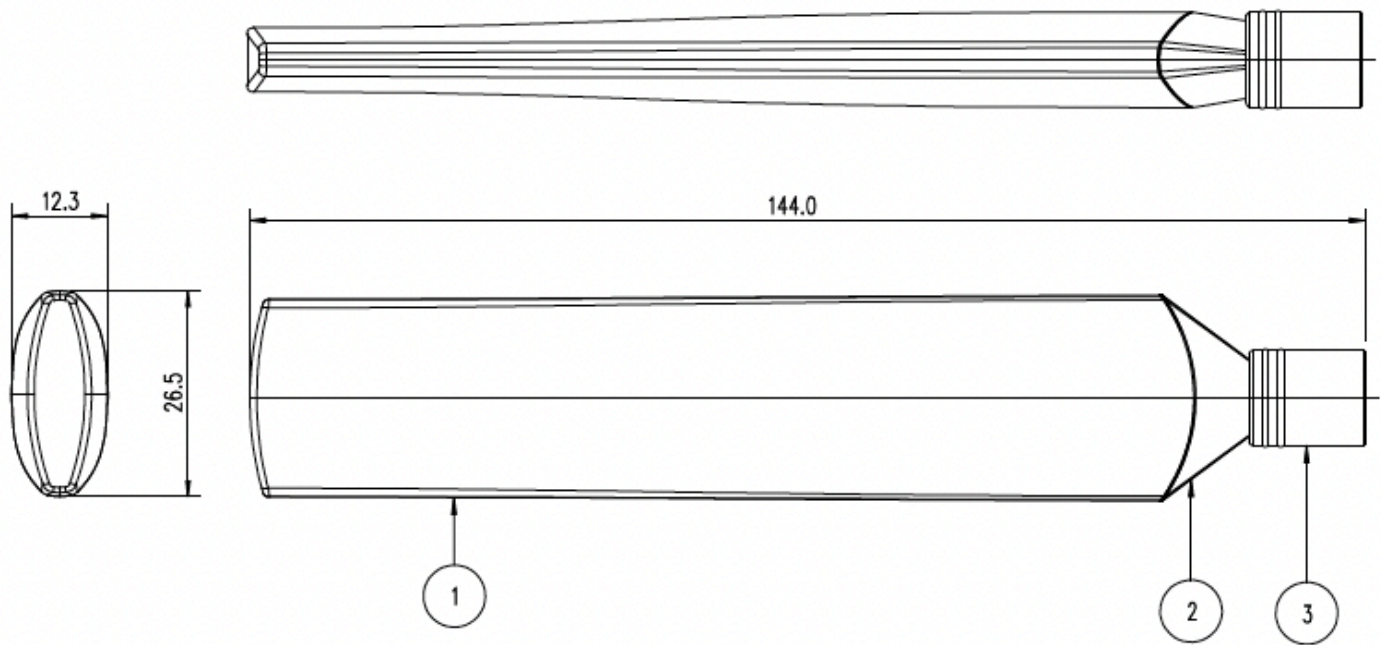
1 year hardware warranty included

Ordering Information

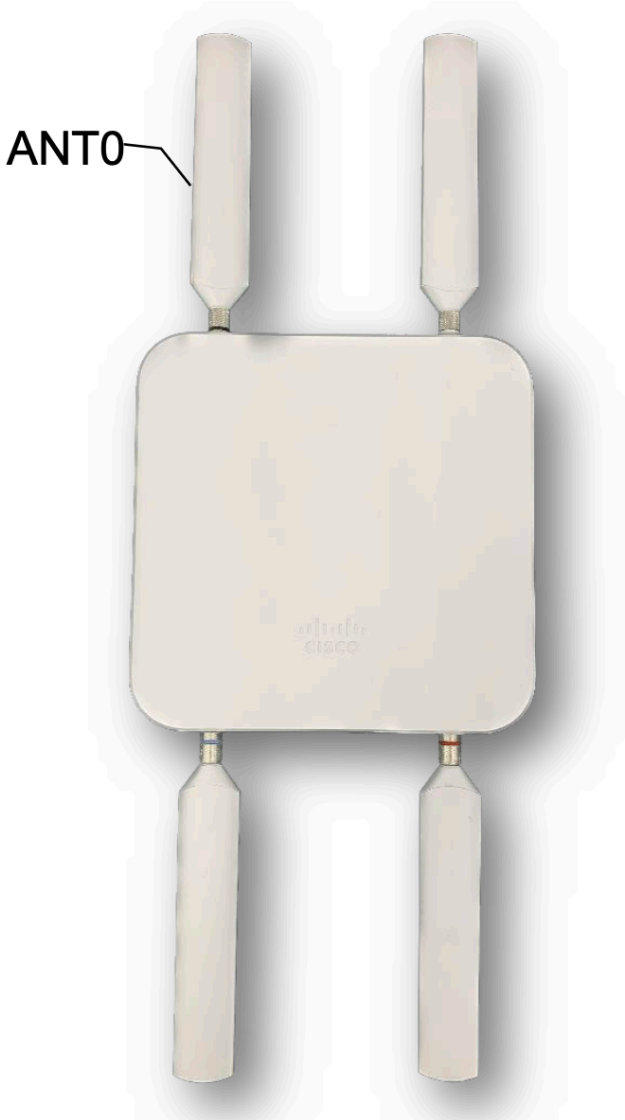
MA-ANT-C2-B

Regulatory

Certified for use with the MG52E
MA-ANT-C2-B



ANT0



Freq. (MHz)	Eff.	Peak Gain dBi
617	68%	2.6
622	68%	2.6
627	67%	2.4
632	67%	2.2
637	68%	1.8
642	69%	1.8
647	71%	2.0
652	72%	2.1
657	73%	2.2
662	72%	2.2
667	71%	2.0
672	68%	1.2
677	68%	1.7
682	70%	2.0
687	72%	2.0
692	76%	2.2
698	75%	2.0

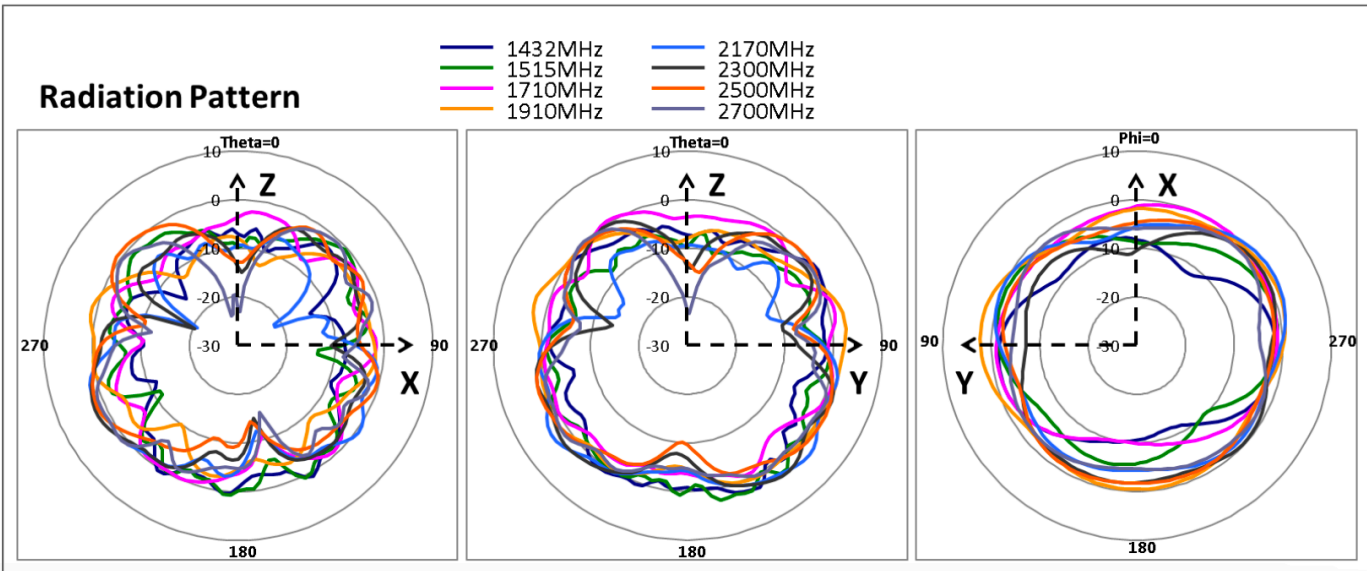
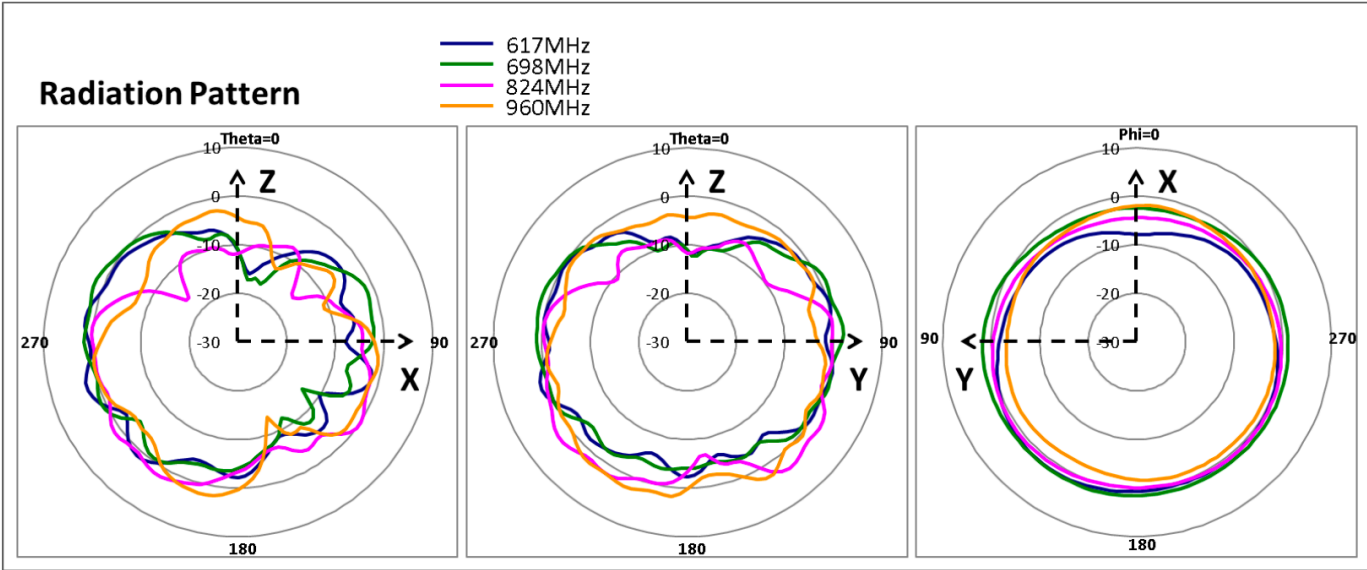
Freq. (MHz)	Eff.	Peak Gain dBi
704	75%	1.9
710	74%	1.8
716	72%	1.8
734	70%	1.4
740	70%	1.4
746	69%	1.7
751	68%	1.8
756	66%	1.7
777	64%	2.0
782	66%	2.2
787	68%	2.5
791	69%	2.9
806	68%	3.2
824	69%	3.5
836	68%	3.4
849	66%	3.2
869	63%	1.9
880	63%	1.5
894	64%	2.0
900	62%	2.1
915	64%	2.2
925	65%	2.2
940	66%	2.1
960	62%	2.1

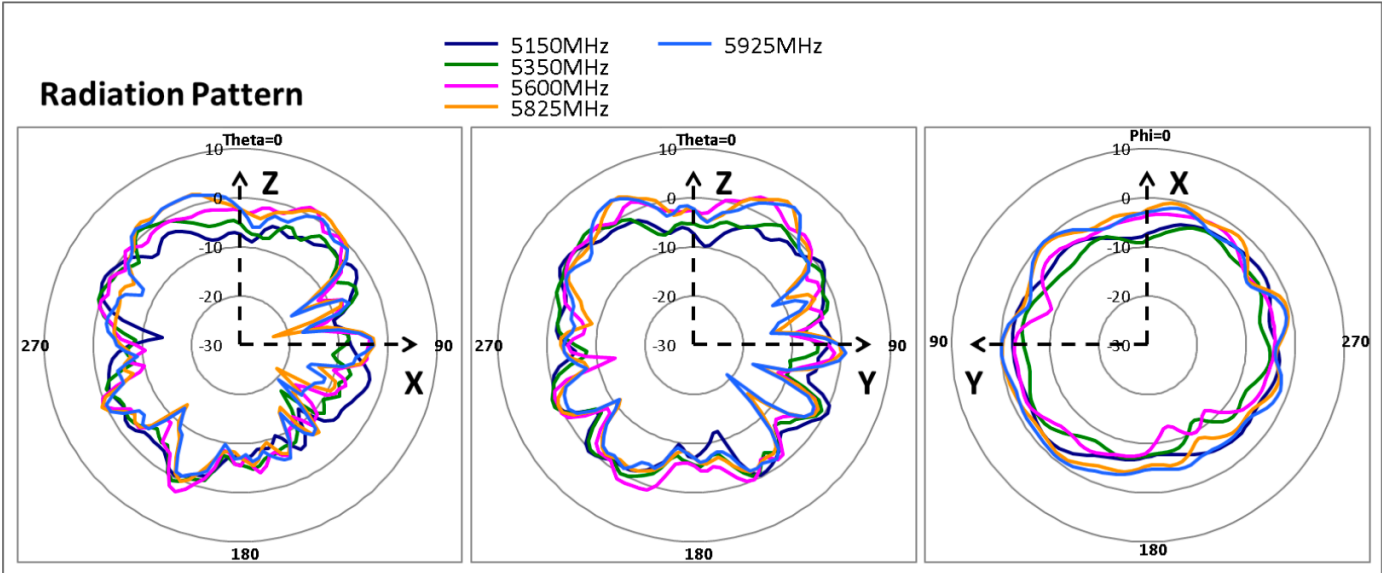
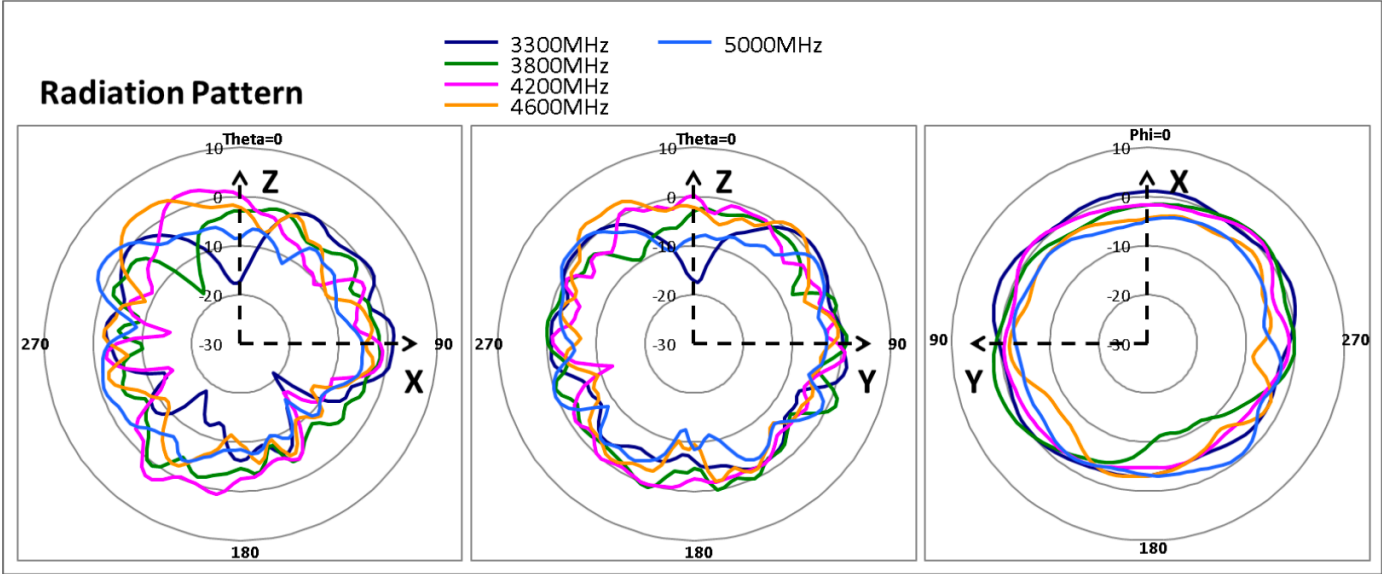
Freq. (MHz)	Eff.	Peak Gain dBi
1432	43%	1.6
1445	44%	1.2
1452	45%	1.1
1463	46%	1.3
1476	50%	1.9
1486	51%	2.3
1496	51%	2.3
1503	52%	2.4
1515	51%	2.2
1710	57%	1.1
1747	58%	1.9
1785	63%	2.9
1805	63%	2.9
1840	64%	2.3
1850	65%	2.6
1880	66%	3.1
1910	67%	3.1
1920	67%	3.0
1930	69%	3.0
1950	70%	3.0
1960	69%	2.9
1980	72%	3.1
1990	73%	3.3

Freq. (MHz)	Eff.	Peak Gain dBi
2110	69%	3.5
2132	69%	3.7
2140	68%	3.7
2155	67%	3.7
2170	66%	3.5
2200	65%	3.6
2300	70%	2.9
2325	68%	2.3
2350	69%	2.1
2375	71%	2.0
2400	73%	2.1
2442	76%	2.4
2484	74%	2.2
2496	72%	2.2
2500	71%	2.1
2525	72%	2.4
2535	73%	2.6
2550	74%	2.6
2570	75%	2.4
2600	71%	2.1
2620	72%	2.2
2655	70%	2.0
2675	68%	2.2
2690	67%	2.1
2700	67%	2.3

Freq. (MHz)	Eff.	Peak Gain dBi
3300	65%	2.9
3400	65%	2.5
3500	63%	2.8
3600	61%	2.5
3700	58%	2.8
3800	60%	2.0
4000	58%	1.0
4100	54%	2.7
4200	49%	3.6
4300	52%	4.2
4400	53%	5.1
4500	51%	4.2
4600	52%	3.8
4700	53%	3.4
4800	50%	3.3
4900	50%	3.1
5000	52%	2.5

Freq. (MHz)	Eff.	Peak Gain dBi
5150	56%	1.3
5250	54%	1.5
5350	53%	1.6
5470	55%	3.2
5600	58%	3.1
5725	59%	4.3
5750	59%	4.7
5800	56%	4.7
5825	56%	4.8
5850	58%	4.8
5875	56%	4.8
5900	55%	4.8
5925	54%	4.6





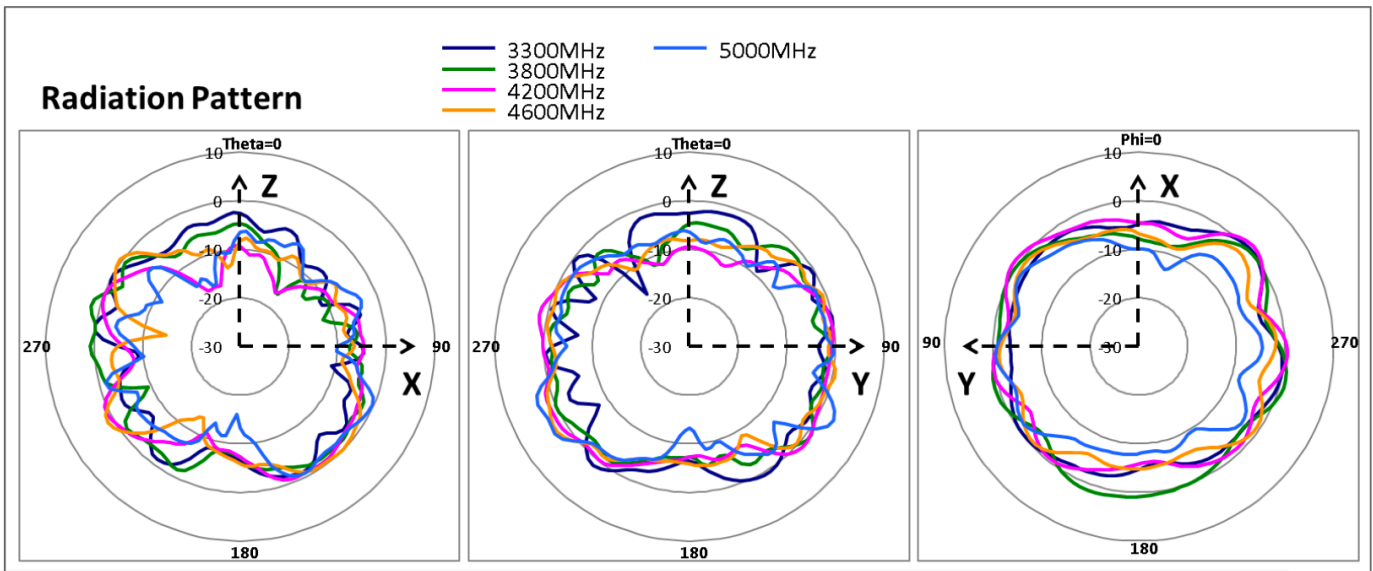
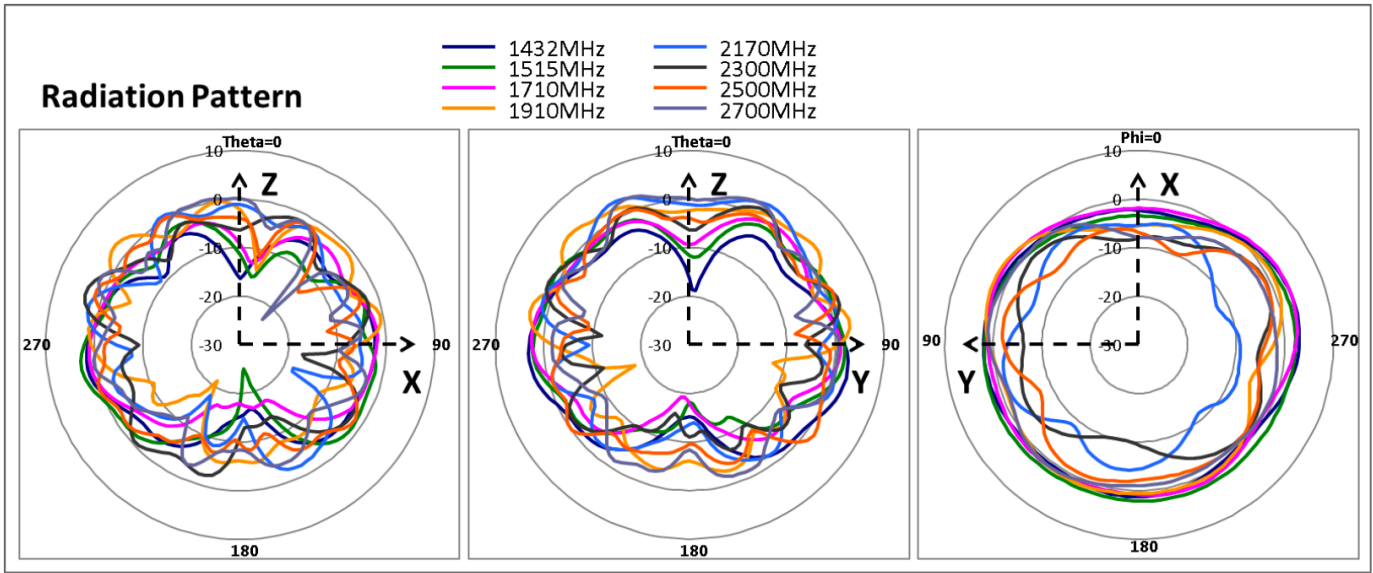
ANT1



Freq. (MHz)	Eff.	Peak Gain dBi
1432	65%	3.3
1445	68%	3.4
1452	69%	3.3
1463	70%	3.1
1476	74%	3.4
1486	74%	3.4
1496	72%	3.7
1503	72%	3.6
1515	71%	3.3
1710	62%	3.0
1747	60%	2.5
1785	60%	3.8
1805	59%	4.1
1840	58%	4.2
1850	61%	4.4
1880	64%	4.7
1910	66%	4.6
1920	68%	4.6
1930	69%	4.4
1950	71%	4.3
1960	71%	4.1
1980	73%	4.0
1990	73%	3.9

Freq. (MHz)	Eff.	Peak Gain dBi
2110	60%	2.4
2132	57%	2.0
2140	56%	1.9
2155	56%	2.2
2170	56%	2.6
2200	56%	3.5
2300	59%	3.6
2325	57%	2.5
2350	58%	2.4
2375	59%	2.9
2400	58%	2.8
2442	59%	2.6
2484	59%	2.5
2496	58%	2.6
2500	58%	2.7
2525	61%	2.9
2535	61%	3.0
2550	63%	3.0
2570	62%	3.0
2600	61%	2.7
2620	63%	3.0
2655	63%	3.2
2675	63%	3.2
2690	62%	3.2
2700	62%	3.3

Freq. (MHz)	Eff.	Peak Gain dBi
3300	56%	2.9
3400	58%	2.8
3500	59%	2.9
3600	62%	3.2
3700	61%	3.1
3800	61%	2.6
4000	61%	2.5
4100	63%	2.8
4200	60%	2.4
4300	67%	2.7
4400	60%	2.9
4500	62%	3.3
4600	58%	3.4
4700	55%	4.1
4800	53%	4.6
4900	53%	4.4
5000	49%	3.9



ANT2



Freq. (MHz)	Eff.	Peak Gain dBi
617	58%	1.8
622	58%	1.7
627	58%	1.3
632	58%	0.9
637	59%	0.2
642	60%	-0.2
647	61%	-0.2
652	63%	-0.1
657	63%	0.0
662	64%	0.0
667	64%	-0.1
672	65%	-0.4
677	65%	-0.3
682	65%	-0.2
687	66%	-0.1
692	69%	0.3
698	69%	0.3

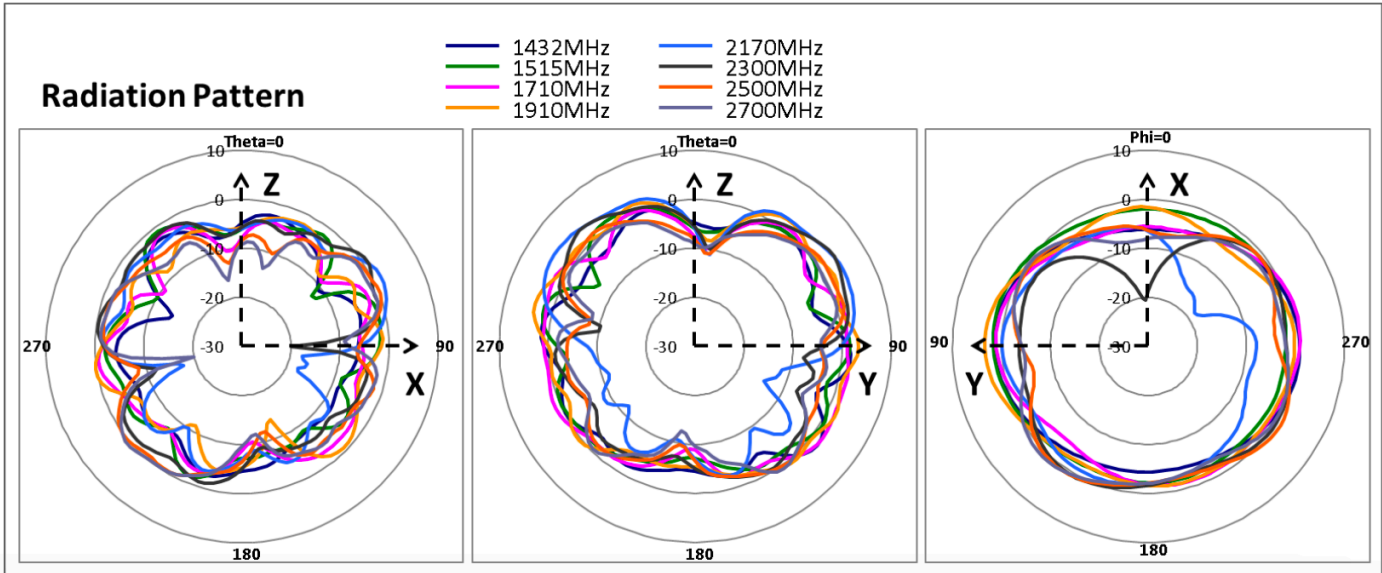
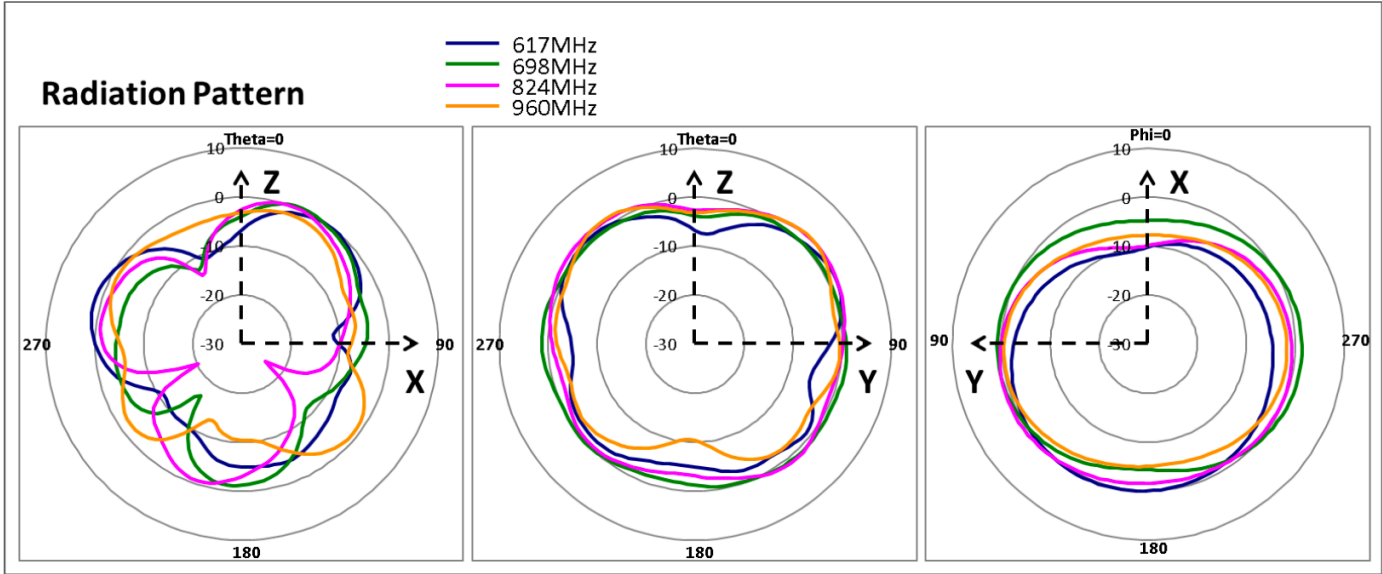
Freq. (MHz)	Eff.	Peak Gain dBi
704	69%	0.4
710	70%	0.5
716	70%	0.6
734	73%	0.4
740	73%	0.4
746	73%	0.2
751	72%	0.1
756	70%	0.0
777	68%	0.7
782	69%	0.8
787	70%	0.7
791	70%	0.7
806	67%	0.4
824	67%	0.0
836	67%	-0.2
849	64%	-0.1
869	57%	1.1
880	59%	1.3
894	63%	1.1
900	63%	0.6
915	65%	0.4
925	63%	0.1
940	62%	-0.5
960	59%	0.2

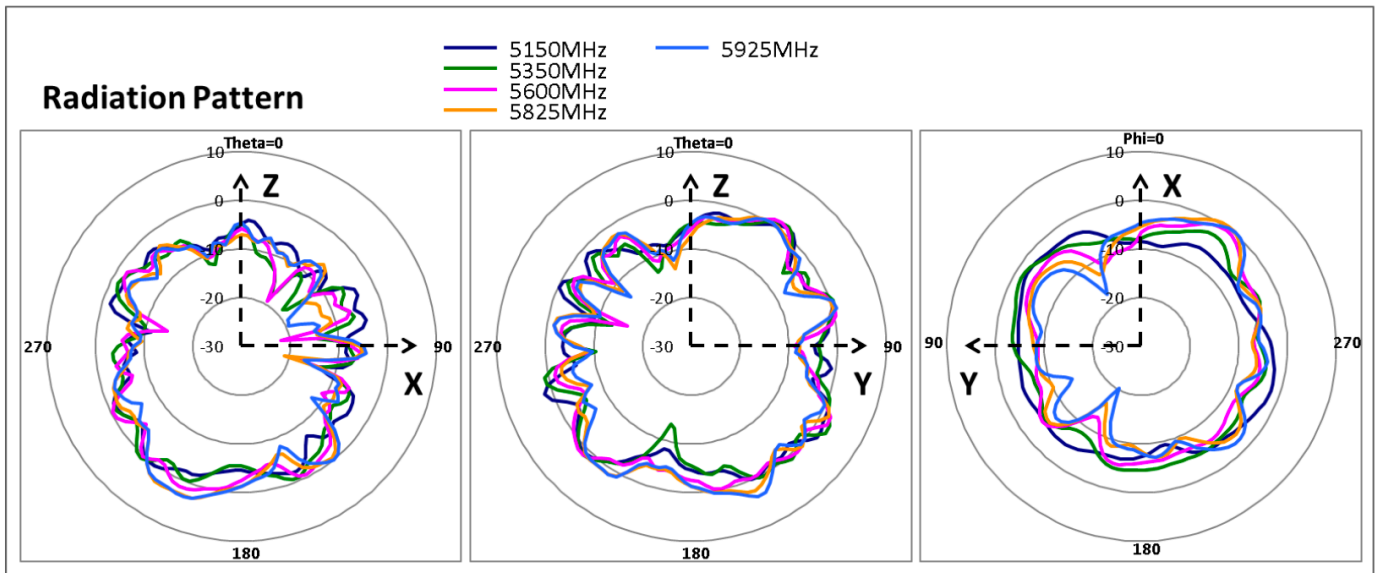
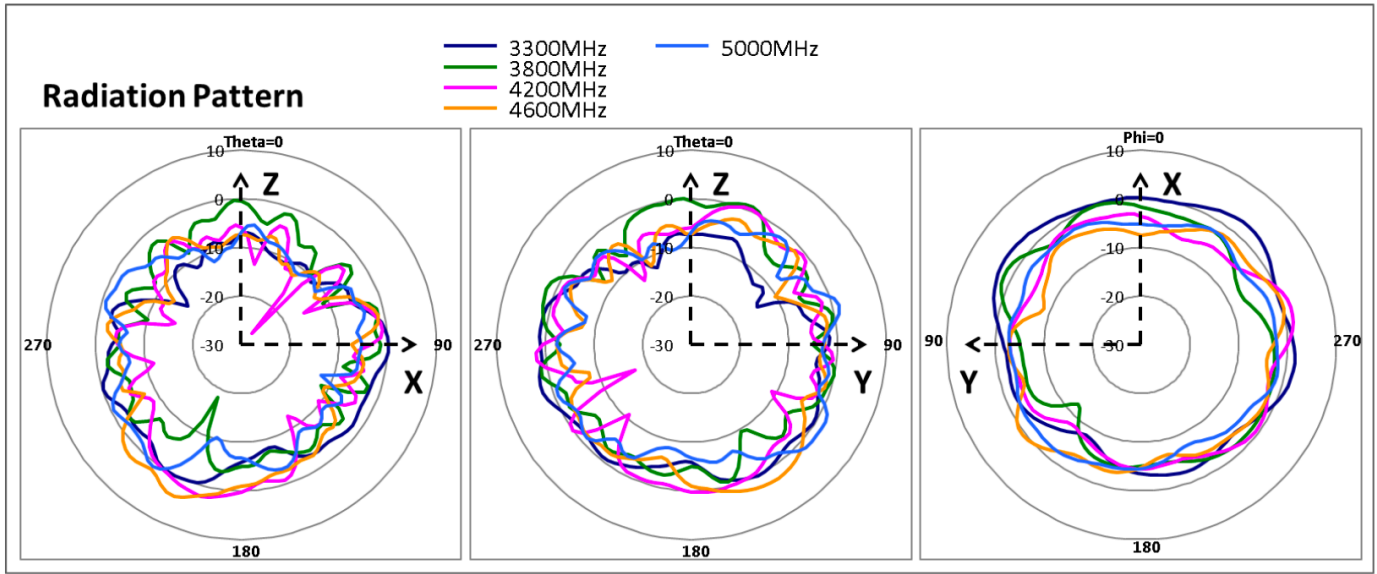
Freq. (MHz)	Eff.	Peak Gain dBi
1432	46%	2.1
1445	49%	1.8
1452	51%	1.9
1463	53%	1.9
1476	59%	2.2
1486	60%	2.2
1496	59%	2.1
1503	60%	2.0
1515	58%	2.0
1710	62%	2.6
1747	62%	2.5
1785	63%	2.9
1805	62%	3.1
1840	62%	2.8
1850	64%	3.0
1880	65%	3.1
1910	66%	3.8
1920	68%	4.0
1930	68%	4.0
1950	67%	3.9
1960	66%	3.8
1980	68%	3.8
1990	69%	3.8

Freq. (MHz)	Eff.	Peak Gain dBi
2110	56%	4.0
2132	56%	4.1
2140	56%	4.2
2155	59%	4.4
2170	57%	4.1
2200	61%	4.2
2300	69%	3.8
2325	67%	3.6
2350	65%	3.0
2375	67%	3.0
2400	69%	2.7
2442	73%	2.7
2484	71%	2.6
2496	68%	2.5
2500	67%	2.5
2525	68%	2.7
2535	69%	2.9
2550	70%	2.9
2570	69%	2.9
2600	68%	2.8
2620	68%	2.8
2655	66%	2.4
2675	64%	2.1
2690	63%	2.1
2700	63%	2.2

Freq. (MHz)	Eff.	Peak Gain dBi
3300	63%	3.3
3400	62%	3.1
3500	59%	2.8
3600	56%	2.2
3700	52%	2.4
3800	53%	1.6
4000	54%	1.4
4100	50%	1.5
4200	44%	1.6
4300	46%	5.2
4400	48%	6.1
4500	50%	5.4
4600	51%	4.5
4700	50%	3.6
4800	44%	3.4
4900	46%	2.6
5000	46%	1.9

Freq. (MHz)	Eff.	Peak Gain dBi
5150	51%	1.1
5250	49%	1.8
5350	50%	2.2
5470	51%	2.1
5600	49%	2.4
5725	47%	3.6
5750	49%	4.0
5800	48%	4.0
5825	49%	4.2
5850	49%	4.5
5875	50%	4.6
5900	48%	4.8
5925	48%	4.7



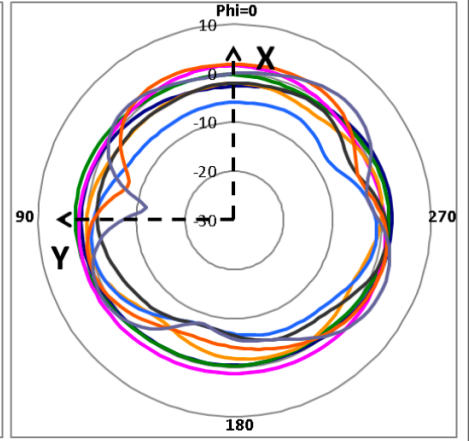
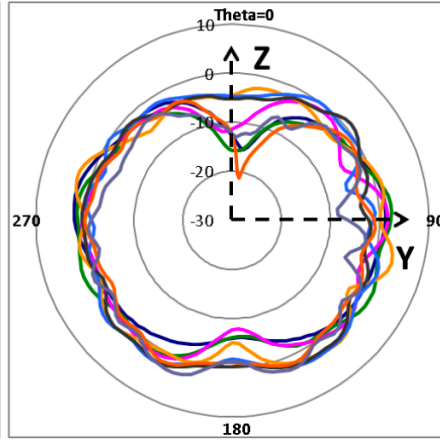
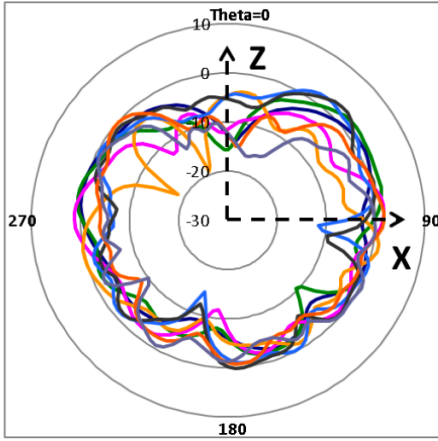


ANT3



Radiation Pattern

- 1432MHz
- 1515MHz
- 1710MHz
- 1910MHz
- 2170MHz
- 2300MHz
- 2500MHz
- 2700MHz



Radiation Pattern

- 3300MHz
- 3800MHz
- 4200MHz
- 4600MHz
- 5000MHz

