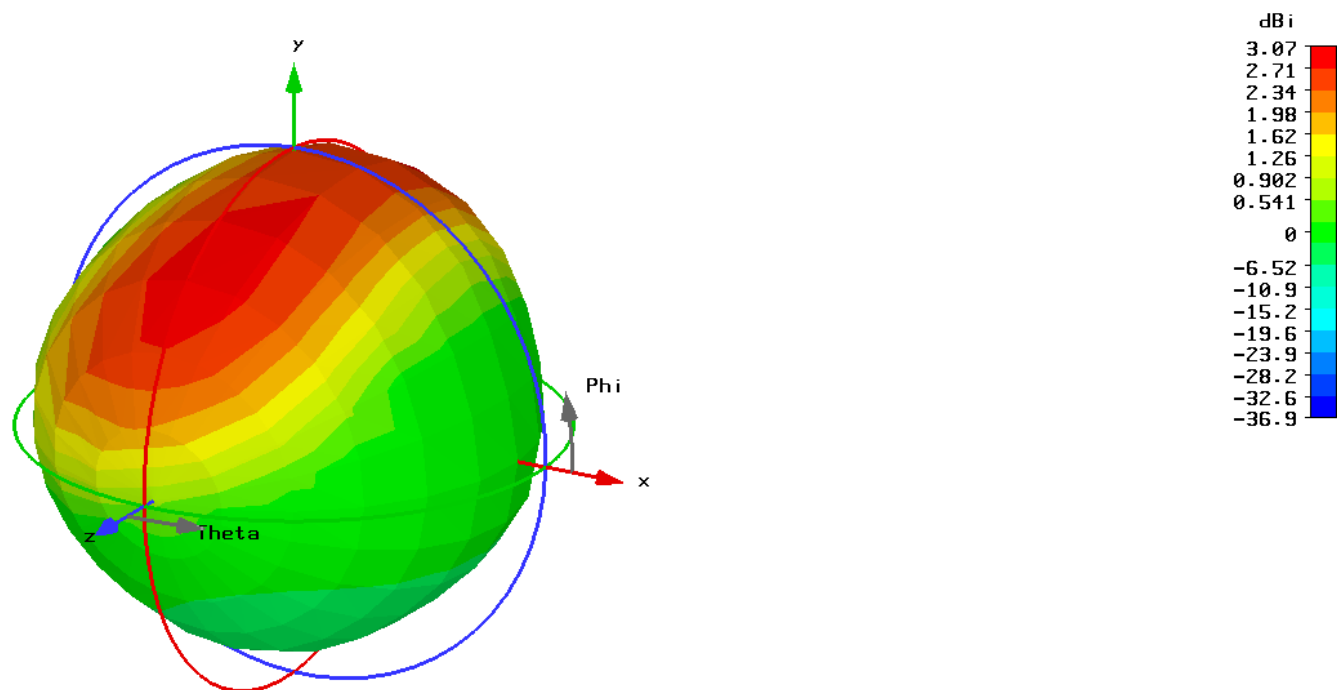
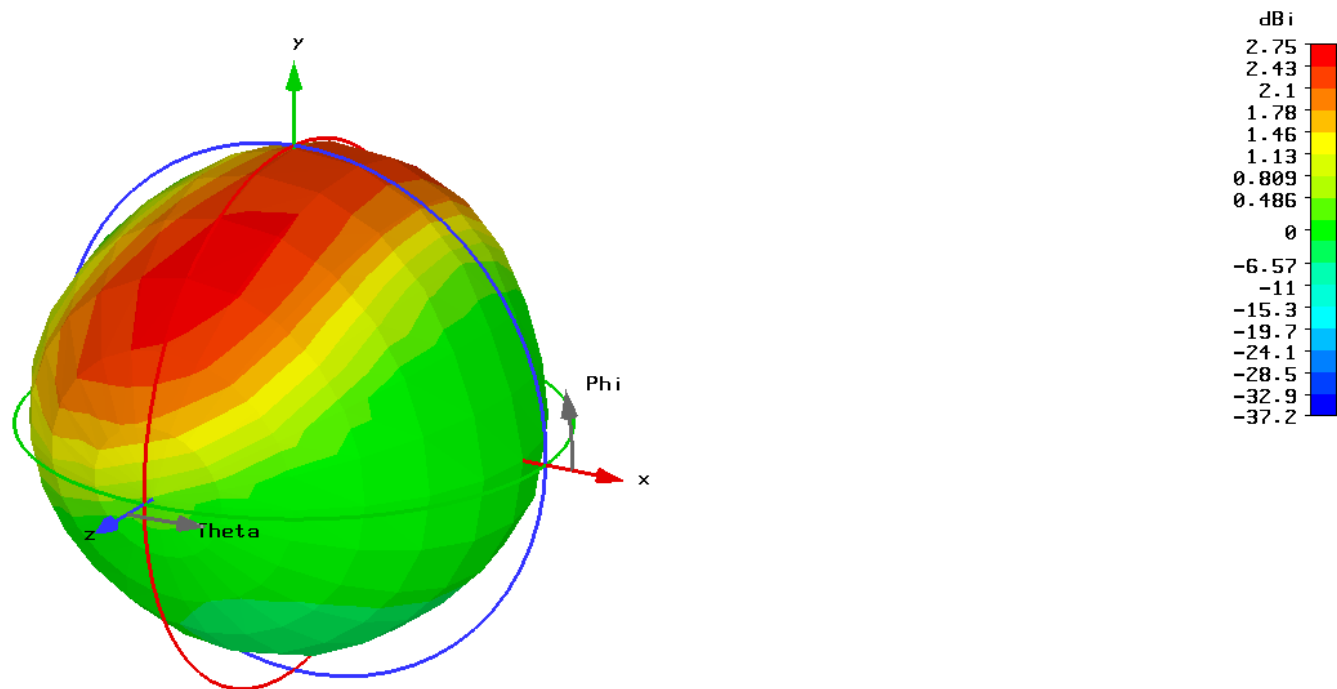


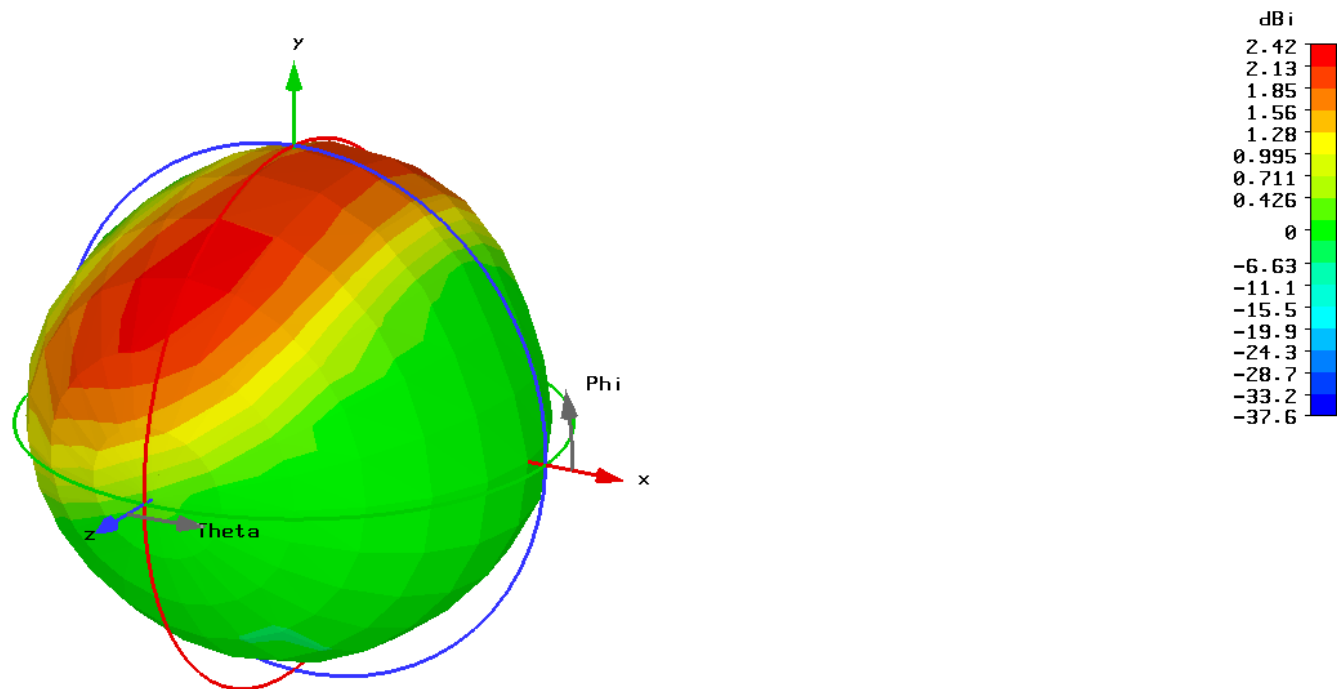
GTX Antenna Development Simulation MODEL 10C						8/4/2008 11:30
(Note: metal modelled as Tin, FR-4 as loss tangent .025)						
				Simulated		
			Frequency	Efficiency calculated	Band-Average Efficiency	AT&T Min. Requirement
GSM 850	Uplink	low	824	41%	48%	16%
		mid	836.5	48%		
		high	849	54%		
	Downlink	low	869	70%	69%	
		mid	881.5	67%		
		high	894	70%		
E-GSM 900	Uplink	low	880	67%	70%	
		mid	897.5	71%		
		high	915	72%		
	Downlink	low	925	72%	68%	
		mid	942.5	68%		
		high	960	63%		
DCS 1800	Uplink	low	1710	40%	56%	
		mid	1747.5	57%		
		high	1785	70%		
	Downlink	low	1805	74%	75%	
		mid	1842.5	76%		
		high	1880	74%		
PCS 1900	Uplink	low	1850	75%	74%	40%
		mid	1880	74%		
		high	1910	72%		
	Downlink	low	1930	73%	73%	
		mid	1960	74%		
		high	1990	73%		



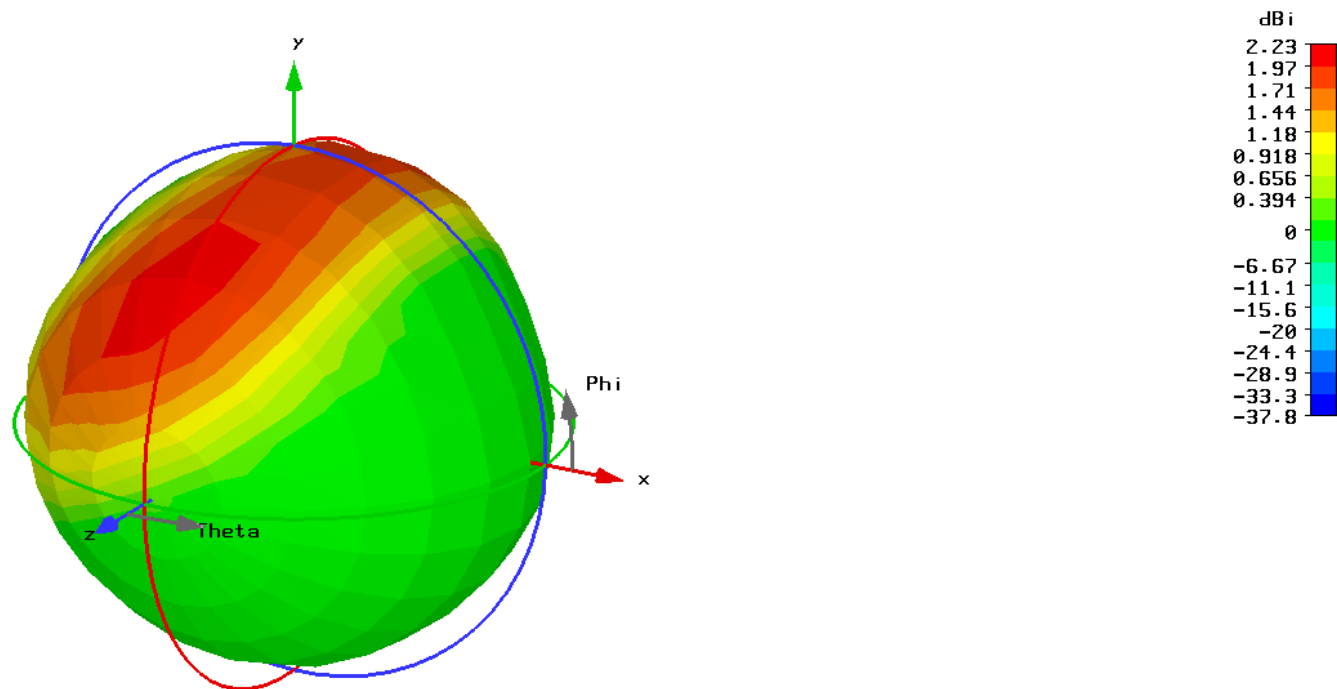
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1710) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1710  
Rad. effic. = 0.6406  
Tot. effic. = 0.4032  
Dir. = 3.066 dBi



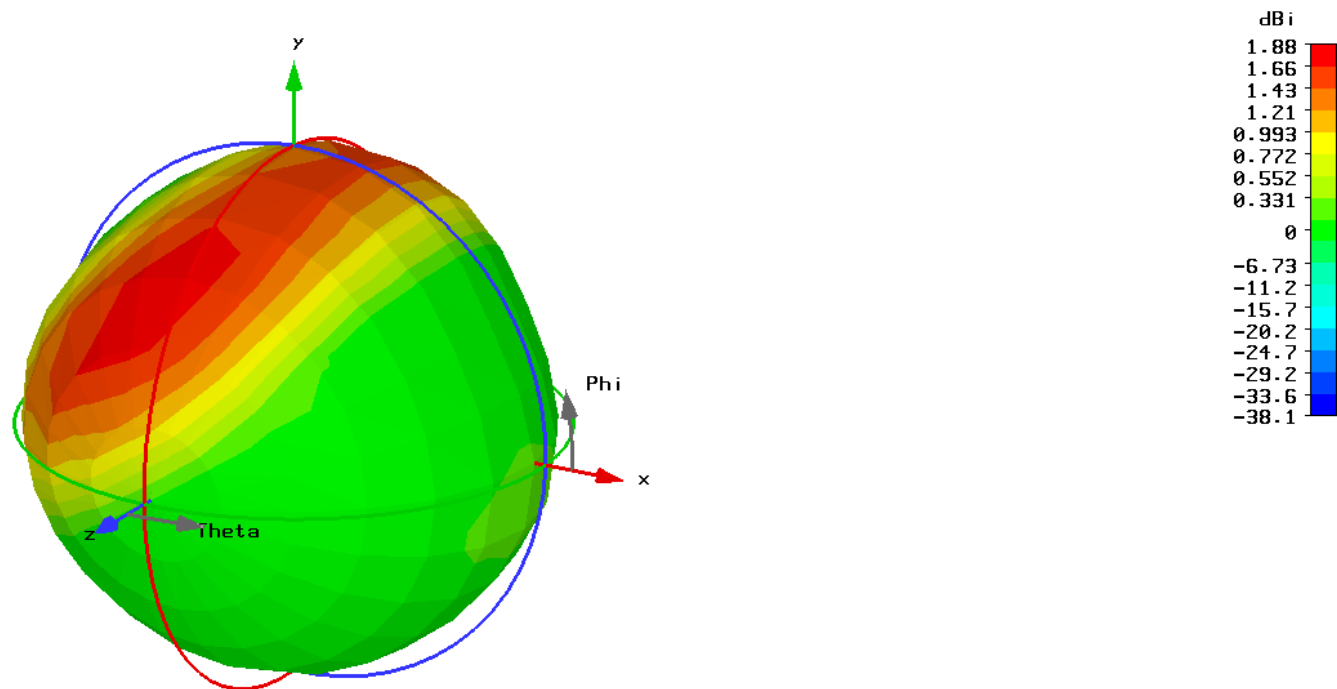
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1747.5) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1747.5  
Rad. effic. = 0.6805  
Tot. effic. = 0.5695  
Dir. = 2.751 dBi



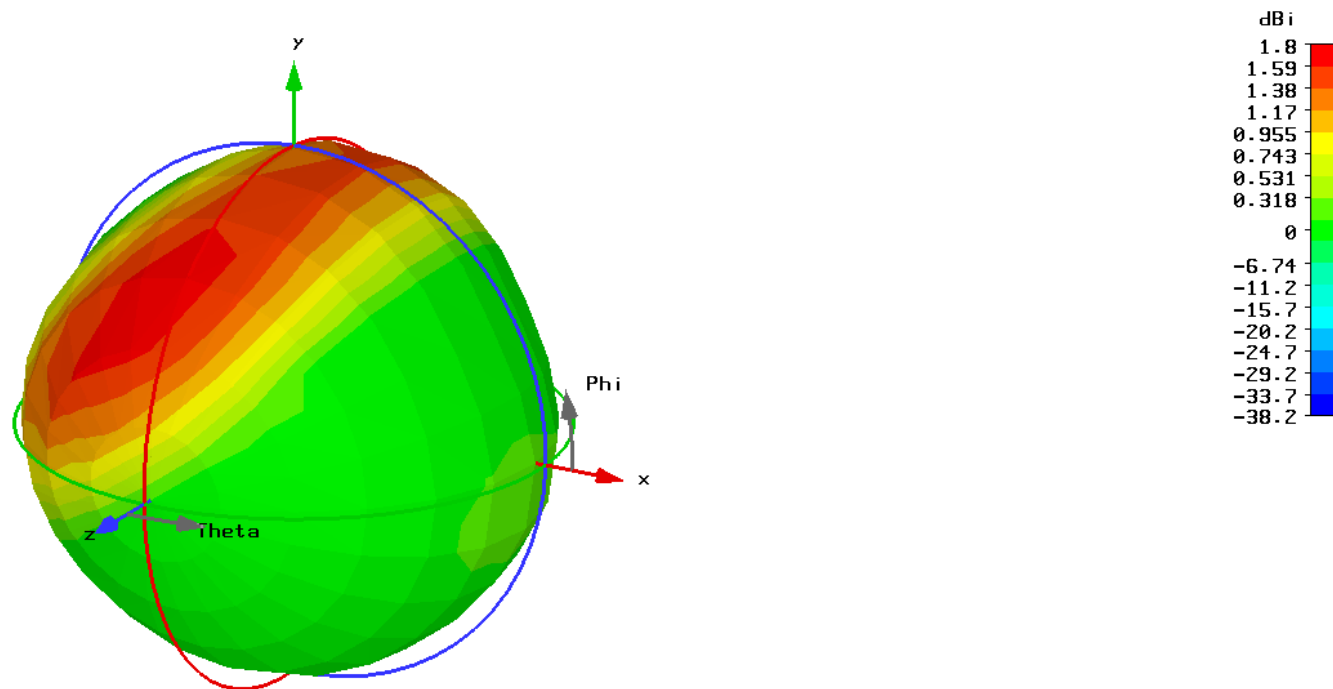
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1785) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1785  
Rad. effic. = 0.7267  
Tot. effic. = 0.7015  
Dir. = 2.416 dBi



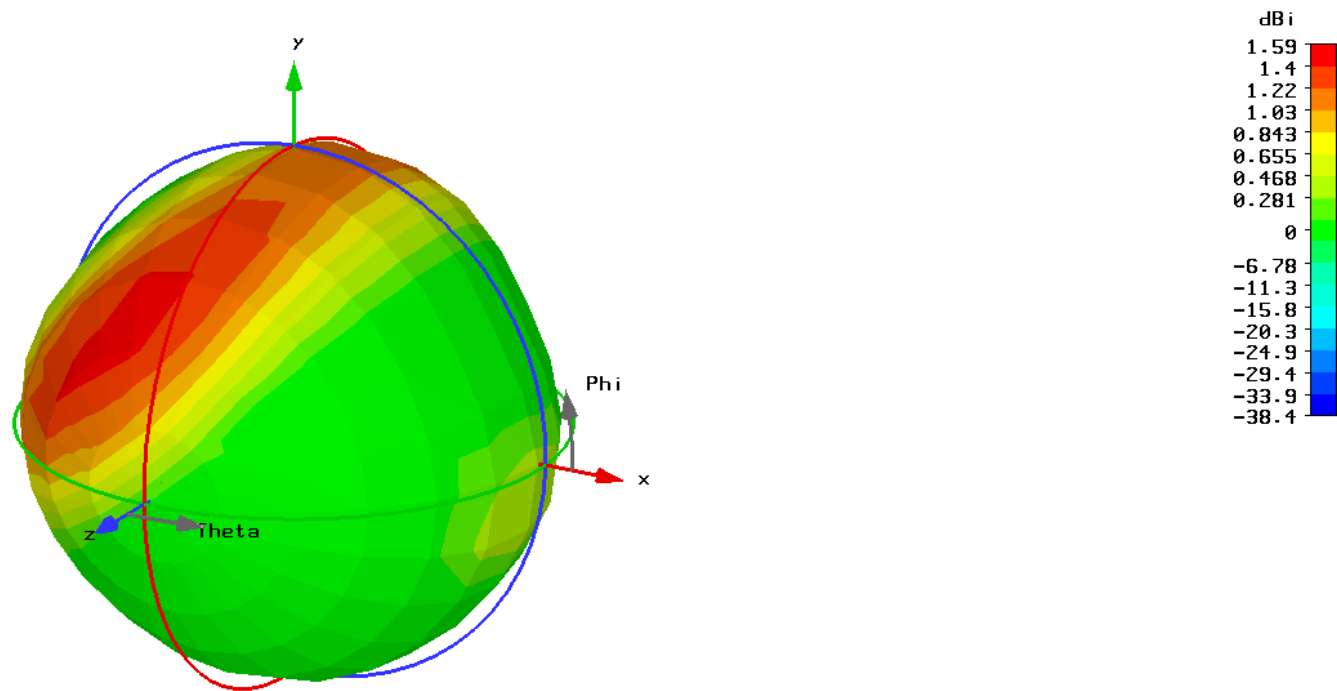
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1805) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1805  
Rad. effic. = 0.7506  
Tot. effic. = 0.7415  
Dir. = 2.231 dBi



Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1842.5) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1842.5  
Rad. effic. = 0.7806  
Tot. effic. = 0.7580  
Dir. = 1.876 dBi

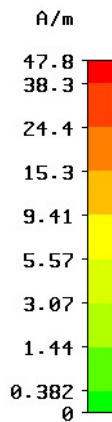
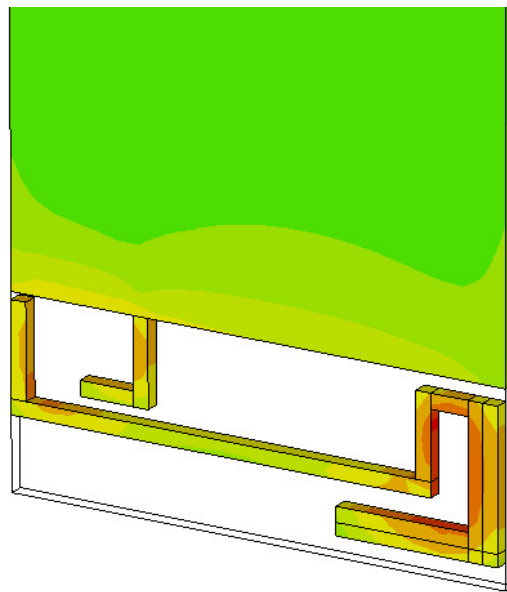


Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1850) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1850  
Rad. effic. = 0.7832  
Tot. effic. = 0.7548  
Dir. = 1.804 dBi

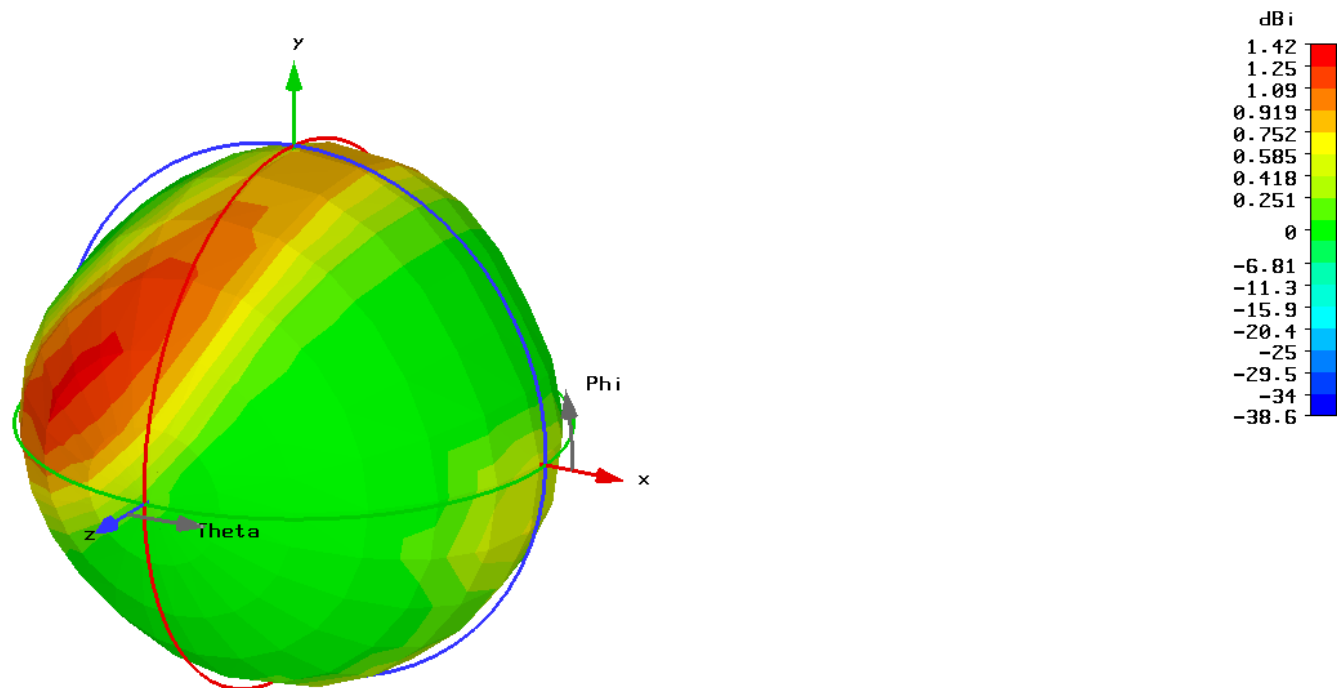


Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1880) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1880  
Rad. effic. = 0.7837  
Tot. effic. = 0.7355  
Dir. = 1.592 dBi

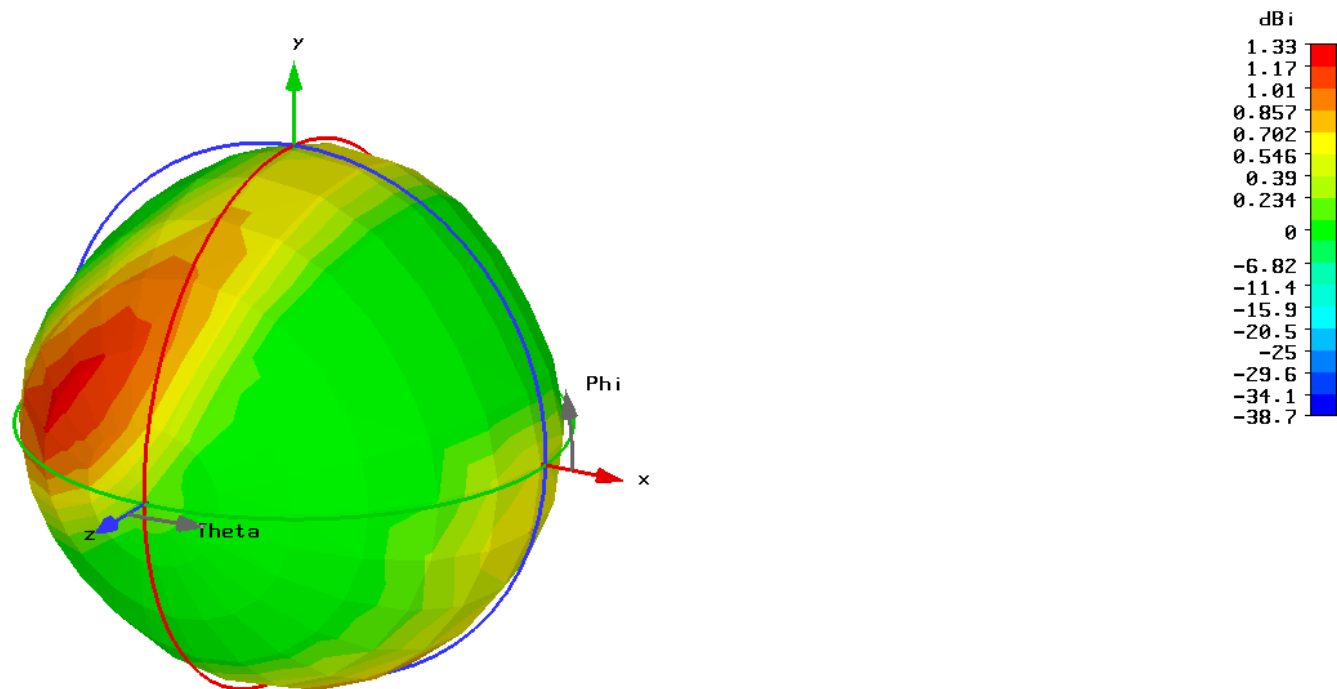




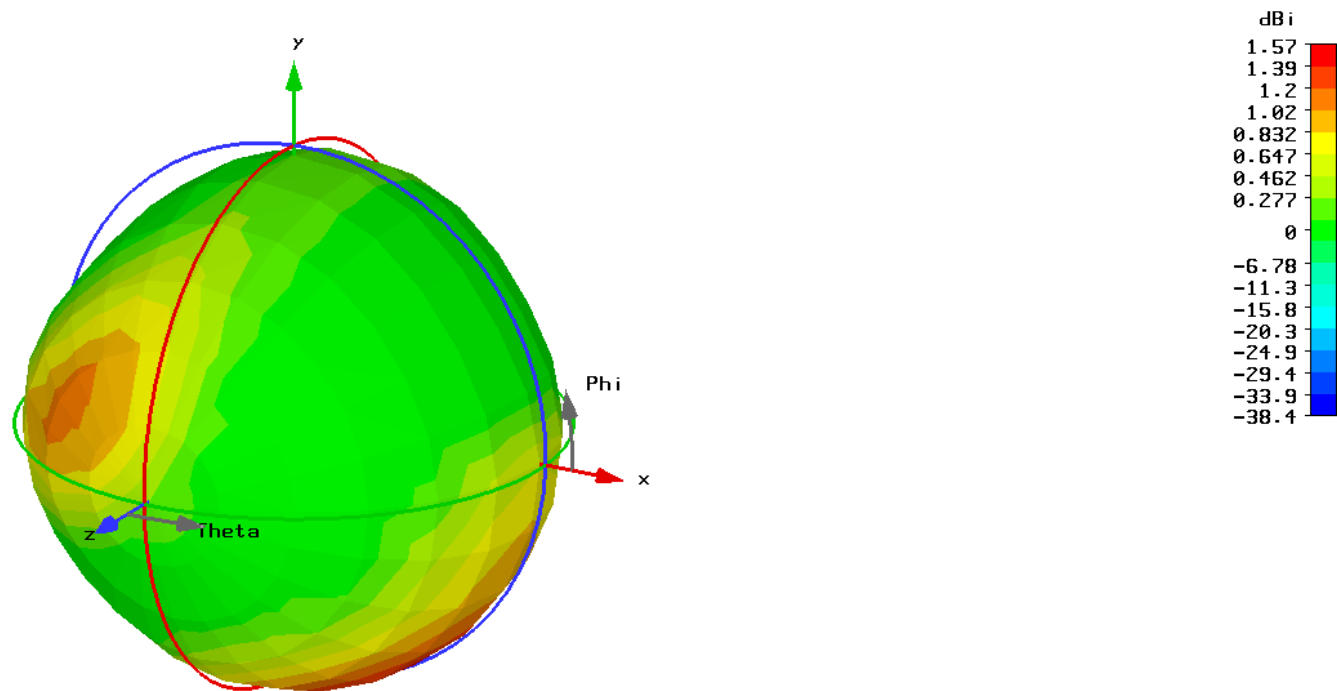
Type = Surface Current (peak)  
Monitor = h-field (f=1880) [1]  
Component = Abs  
Maximum-3d = 47.834 A/m at 1.85 / -0.13 / 0.06  
Frequency = 1880  
Amplitude Plot



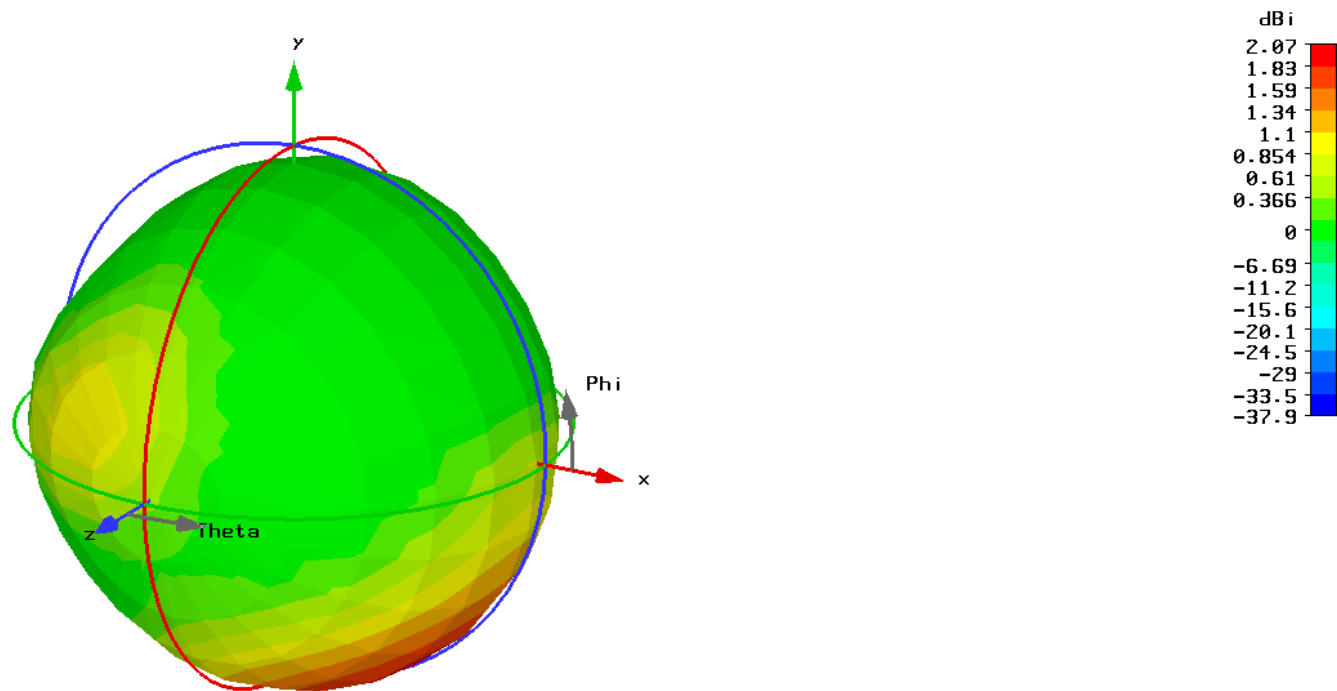
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1910) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1910  
Rad. effic. = 0.7761  
Tot. effic. = 0.7248  
Dir. = 1.420 dBi



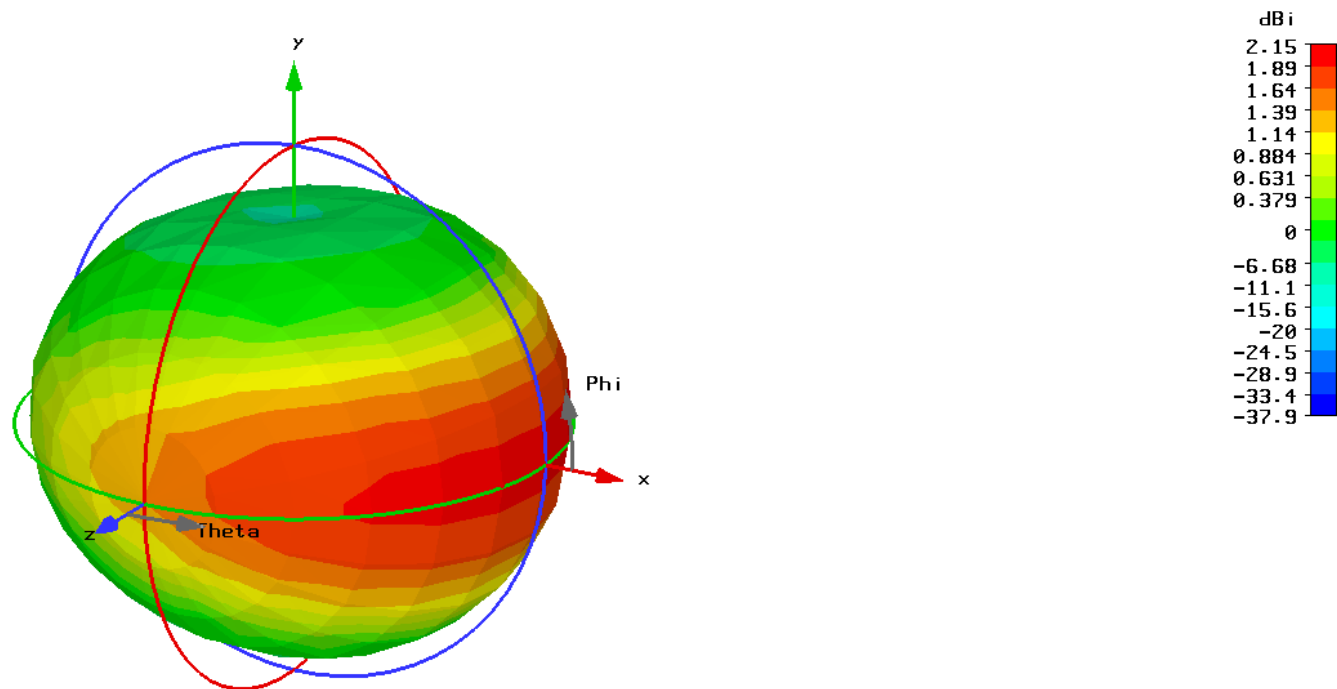
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1930) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1930  
Rad. effic. = 0.7704  
Tot. effic. = 0.7275  
Dir. = 1.325 dBi



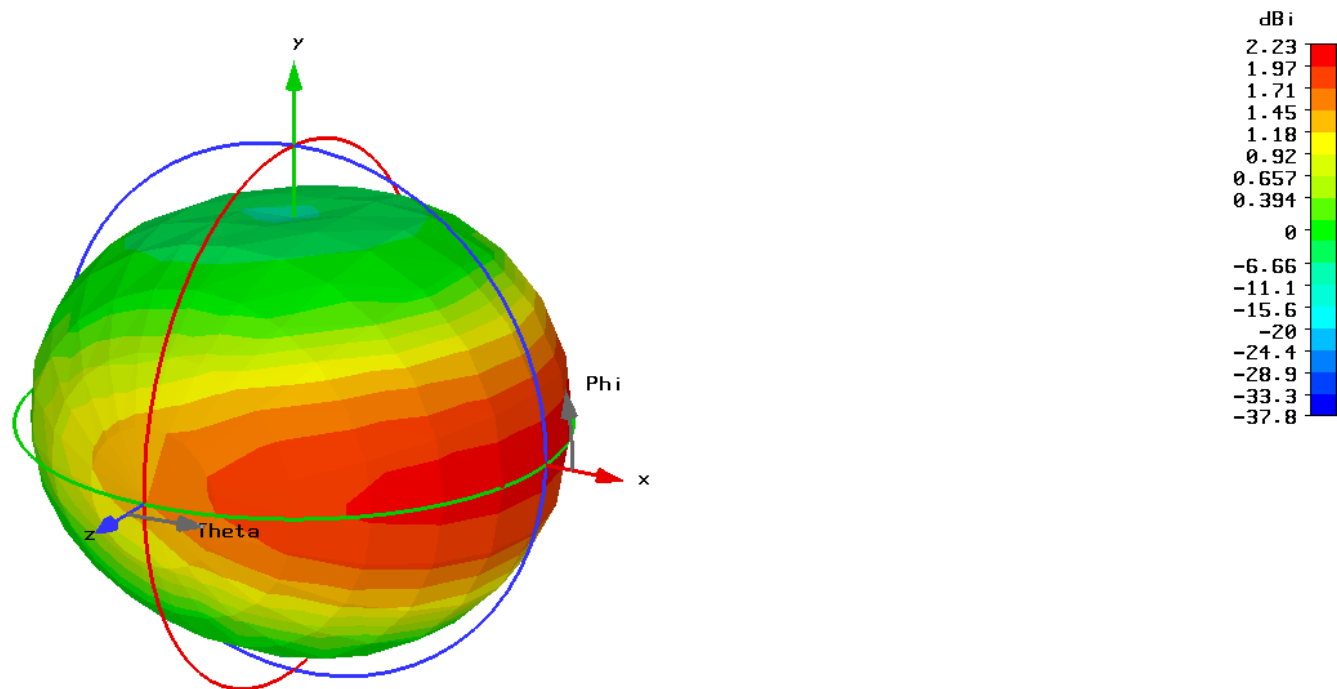
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1960) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1960  
Rad. effic. = 0.7582  
Tot. effic. = 0.7374  
Dir. = 1.571 dBi



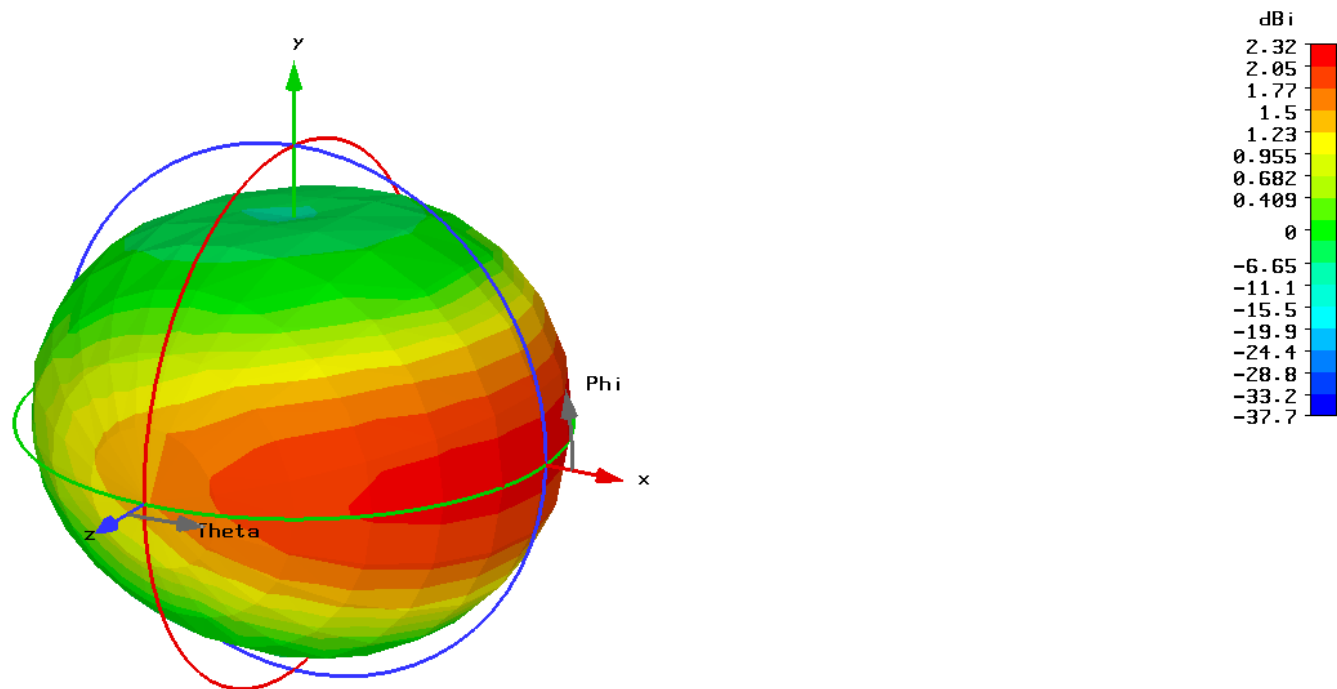
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=1990) [1]  
Component = Abs  
Output = Directivity  
Frequency = 1990  
Rad. effic. = 0.7349  
Tot. effic. = 0.7321  
Dir. = 2.074 dBi



Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=824) [1]  
Component = Abs  
Output = Directivity  
Frequency = 824  
Rad. effic. = 0.8948  
Tot. effic. = 0.4137  
Dir. = 2.147 dBi



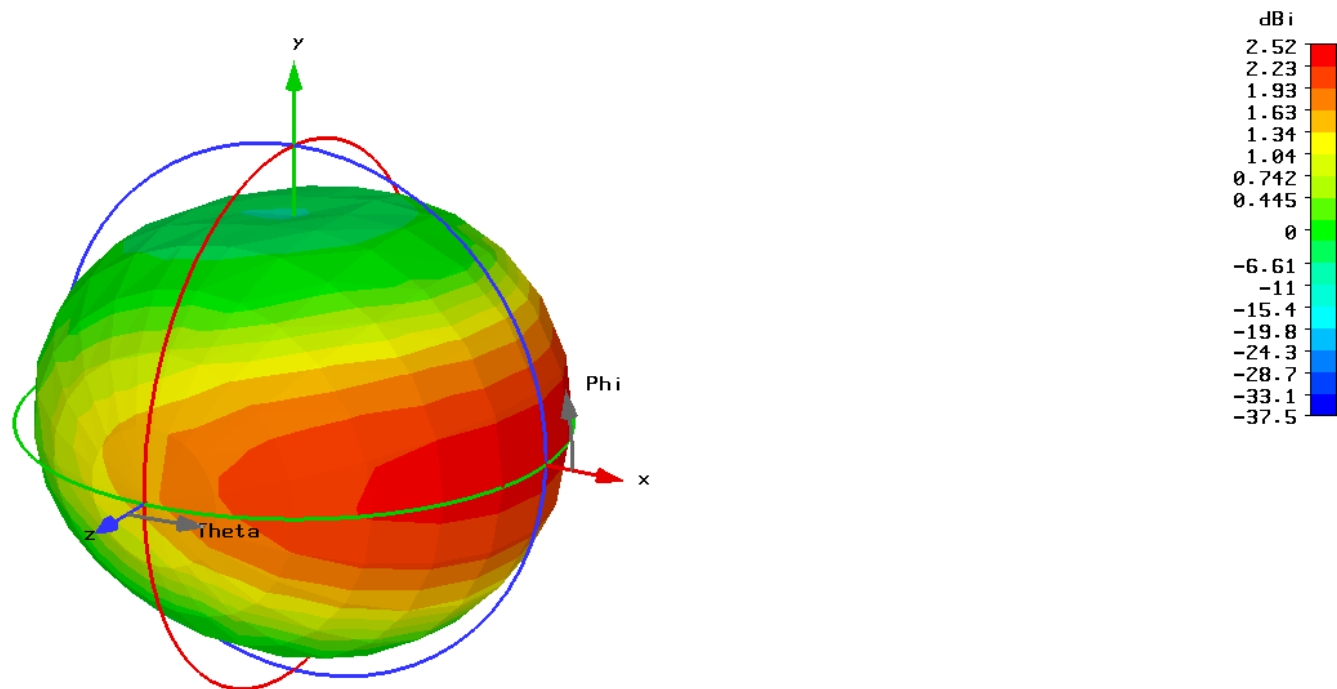
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=836.5) [1]  
Component = Abs  
Output = Directivity  
Frequency = 836.5  
Rad. effic. = 0.8842  
Tot. effic. = 0.4754  
Dir. = 2.234 dBi



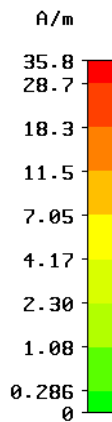
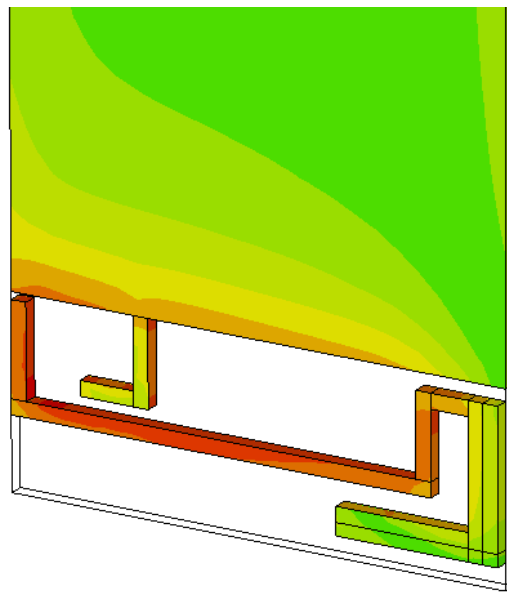
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=849) [1]  
Component = Abs  
Output = Directivity  
Frequency = 849  
Rad. effic. = 0.8725  
Tot. effic. = 0.5369  
Dir. = 2.319 dBi



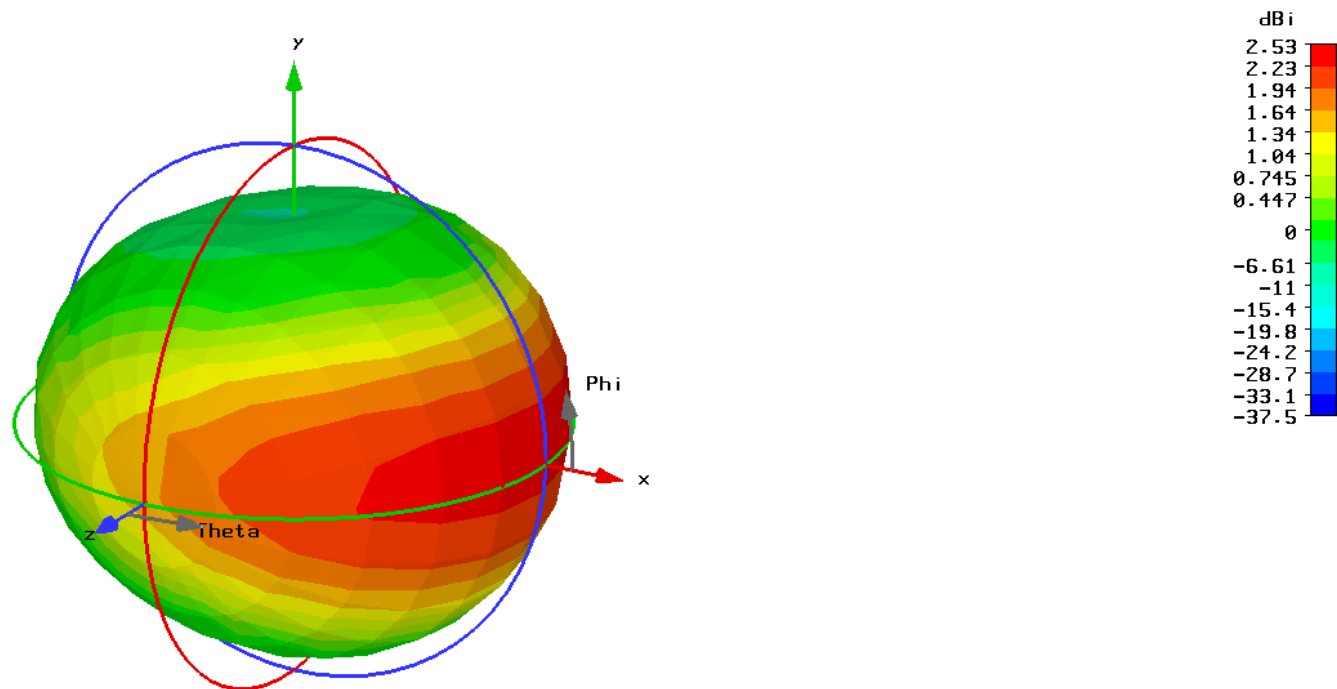




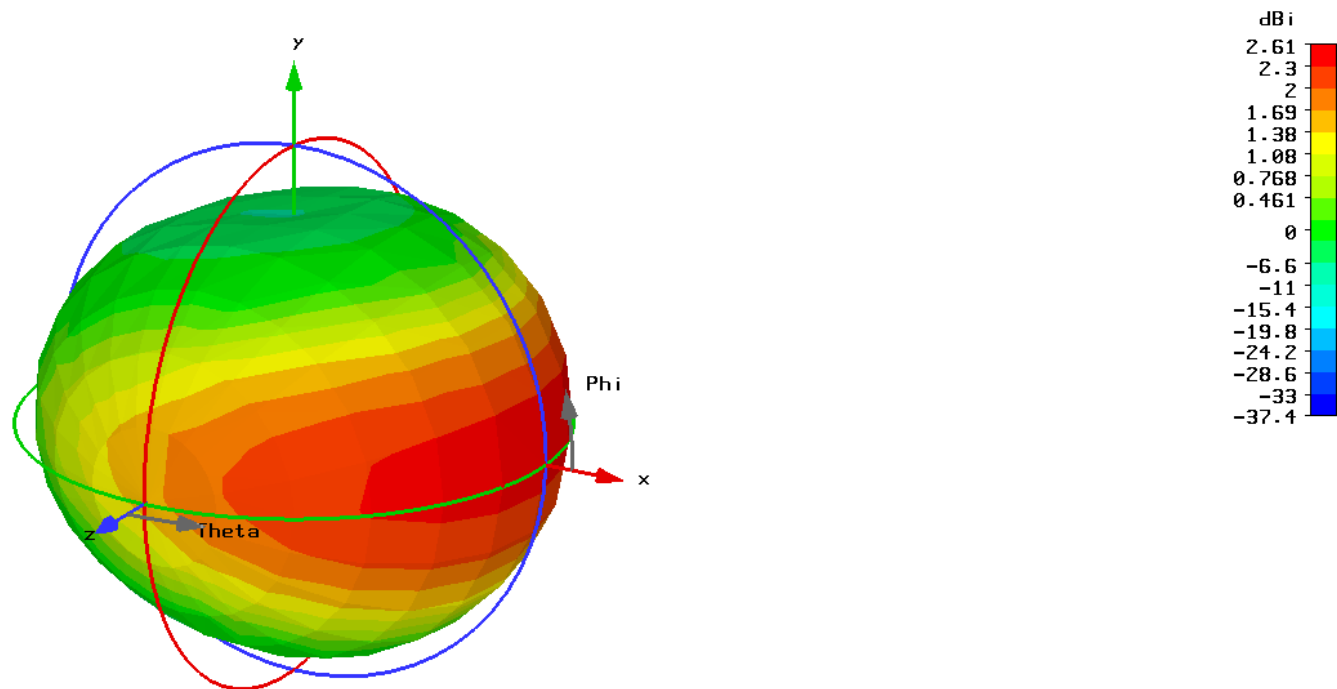
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=880) [1]  
Component = Abs  
Output = Directivity  
Frequency = 880  
Rad. effic. = 0.8516  
Tot. effic. = 0.6653  
Dir. = 2.522 dBi



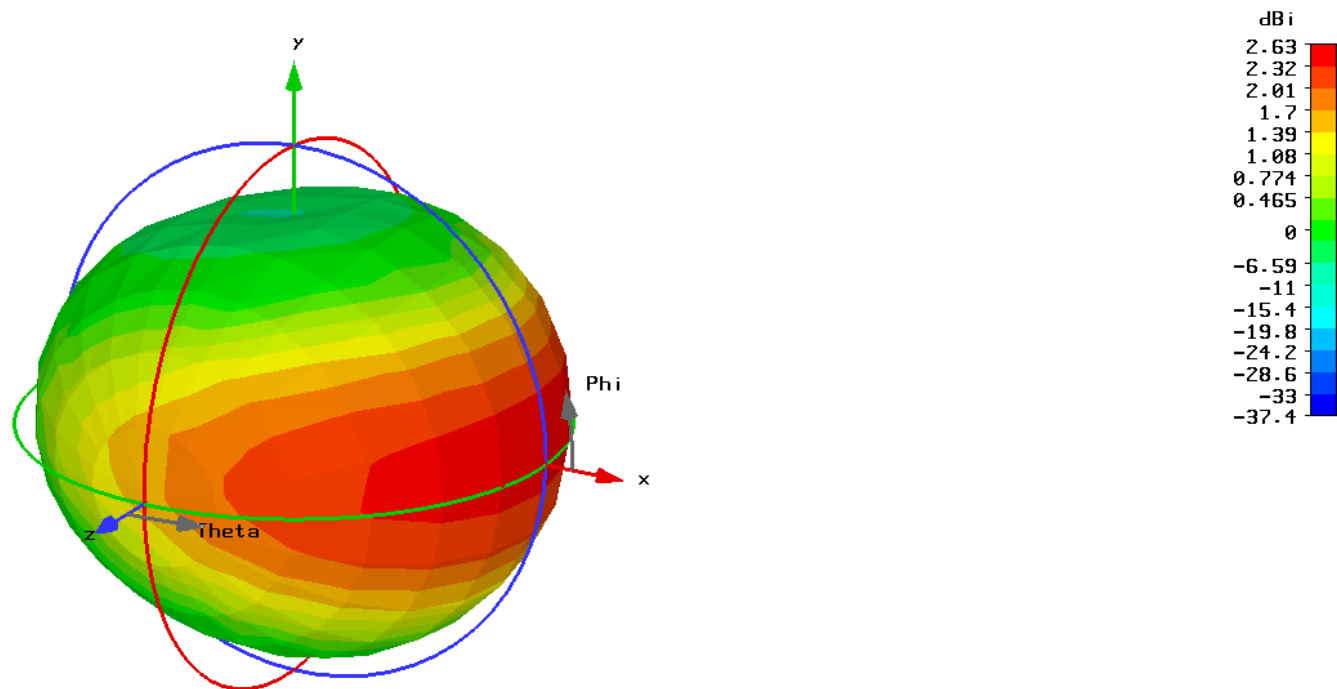
Type = Surface Current (peak)  
Monitor = h-field (f=880) [1]  
Component = Abs  
Maximum-3d = 35.845 A/m at 0.06 / -0.4 / 0  
Frequency = 880  
Amplitude Plot



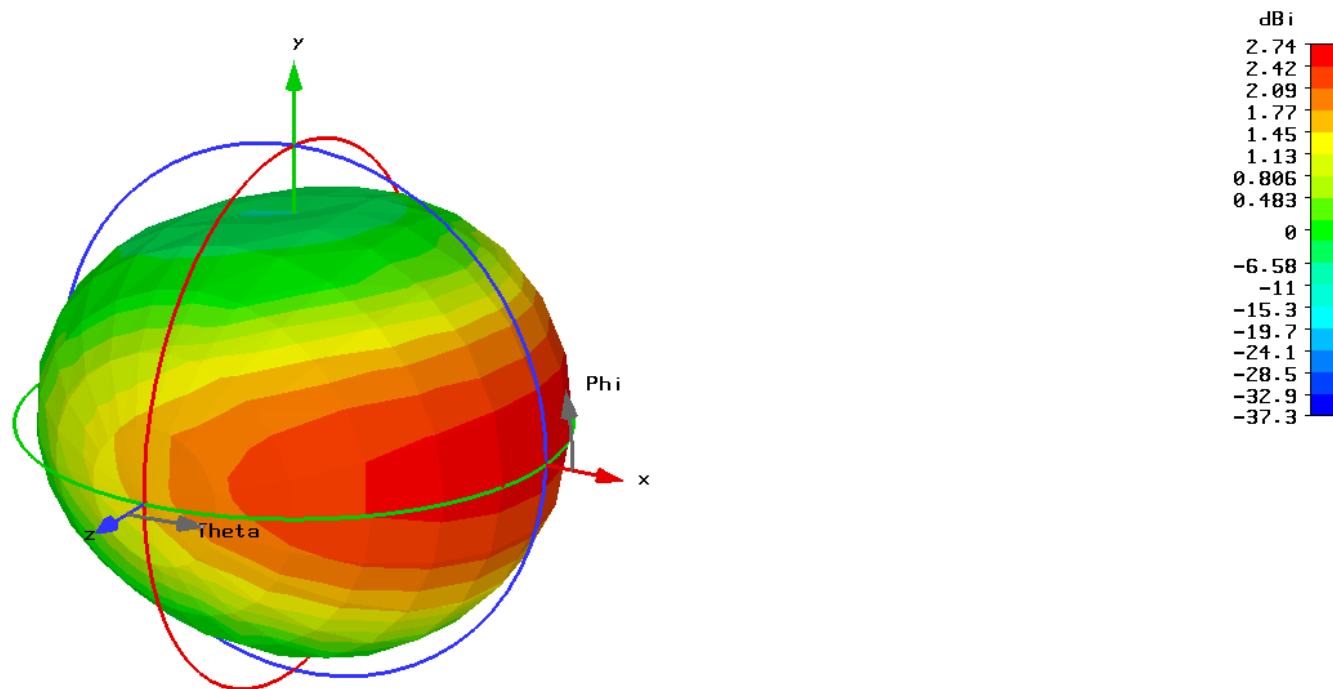
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=881.5) [1]  
Component = Abs  
Output = Directivity  
Frequency = 881.5  
Rad. effic. = 0.8511  
Tot. effic. = 0.6700  
Dir. = 2.532 dBi



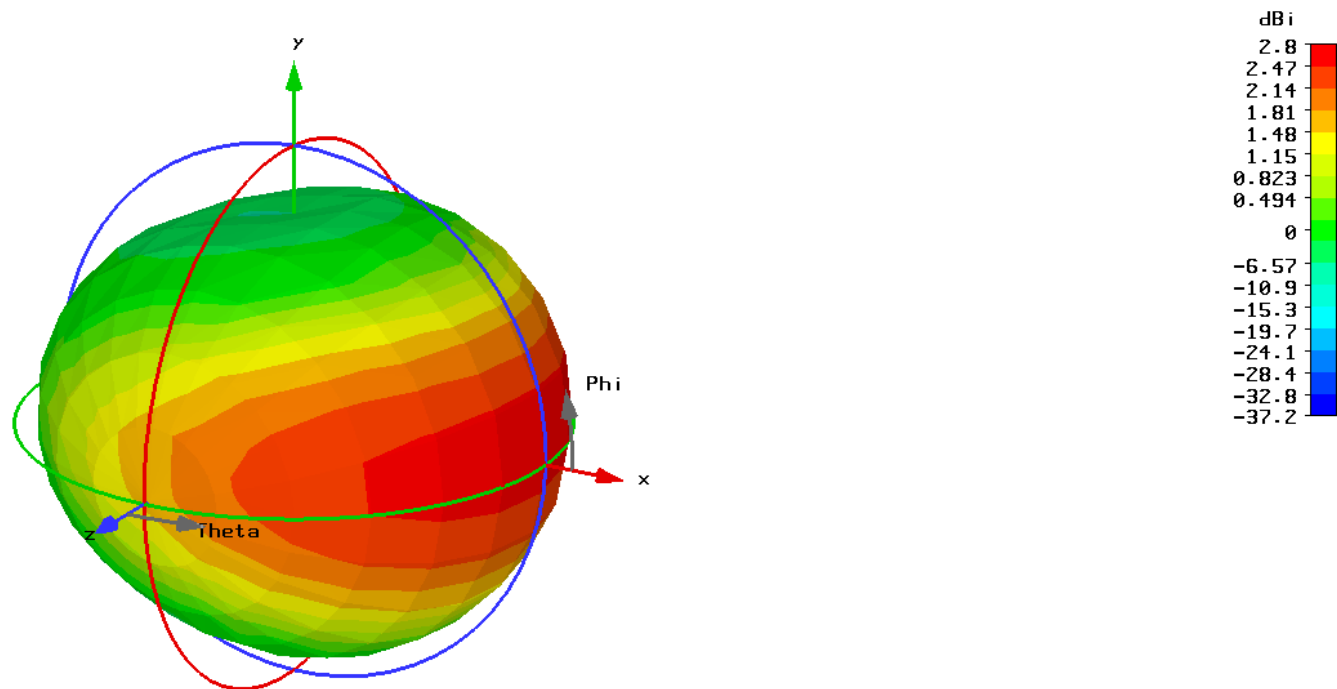
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=894) [1]  
Component = Abs  
Output = Directivity  
Frequency = 894  
Rad. effic. = 0.8484  
Tot. effic. = 0.7017  
Dir. = 2.611 dBi



Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=897.5) [1]  
Component = Abs  
Output = Directivity  
Frequency = 897.5  
Rad. effic. = 0.8483  
Tot. effic. = 0.7081  
Dir. = 2.633 dBi

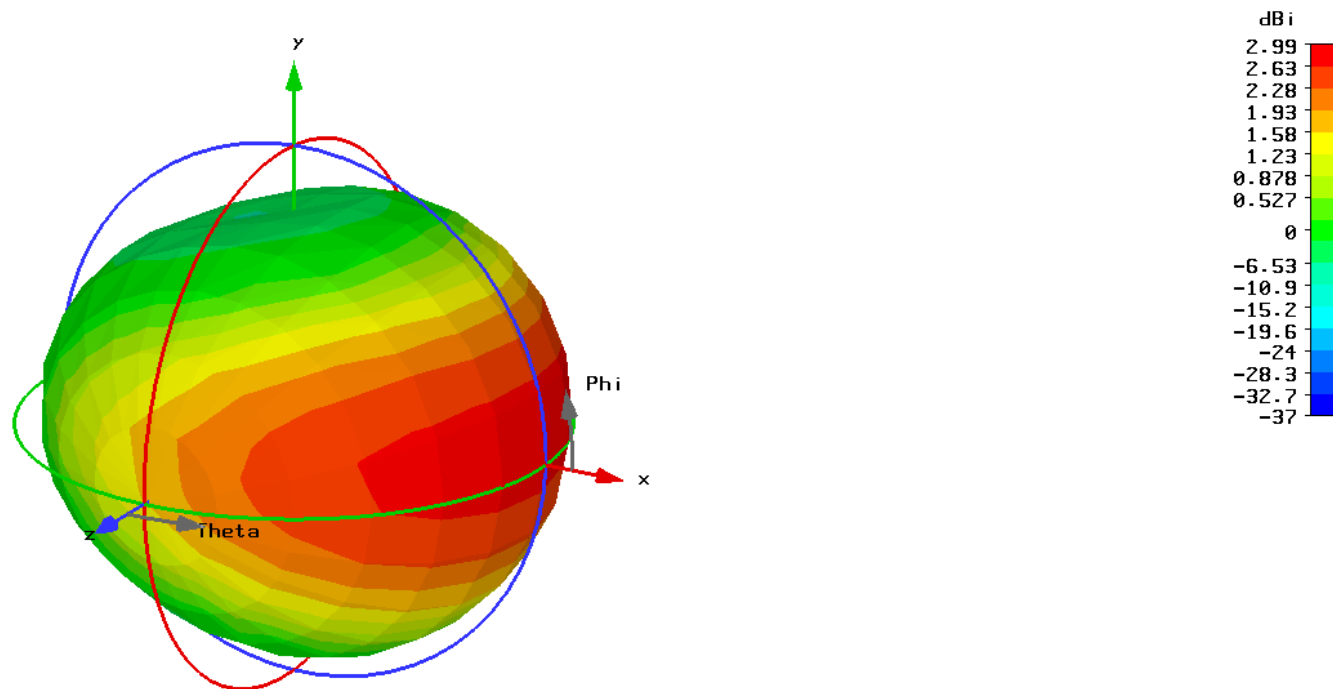


Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=915) [1]  
Component = Abs  
Output = Directivity  
Frequency = 915  
Rad. effic. = 0.8507  
Tot. effic. = 0.7217  
Dir. = 2.739 dBi

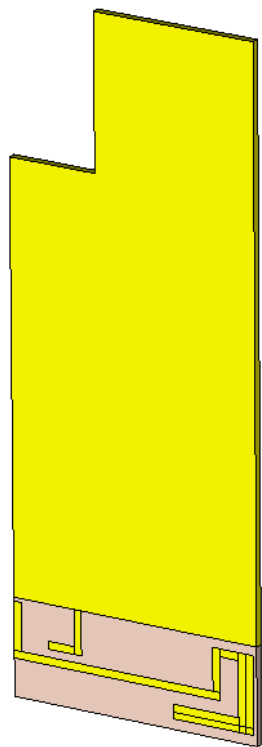


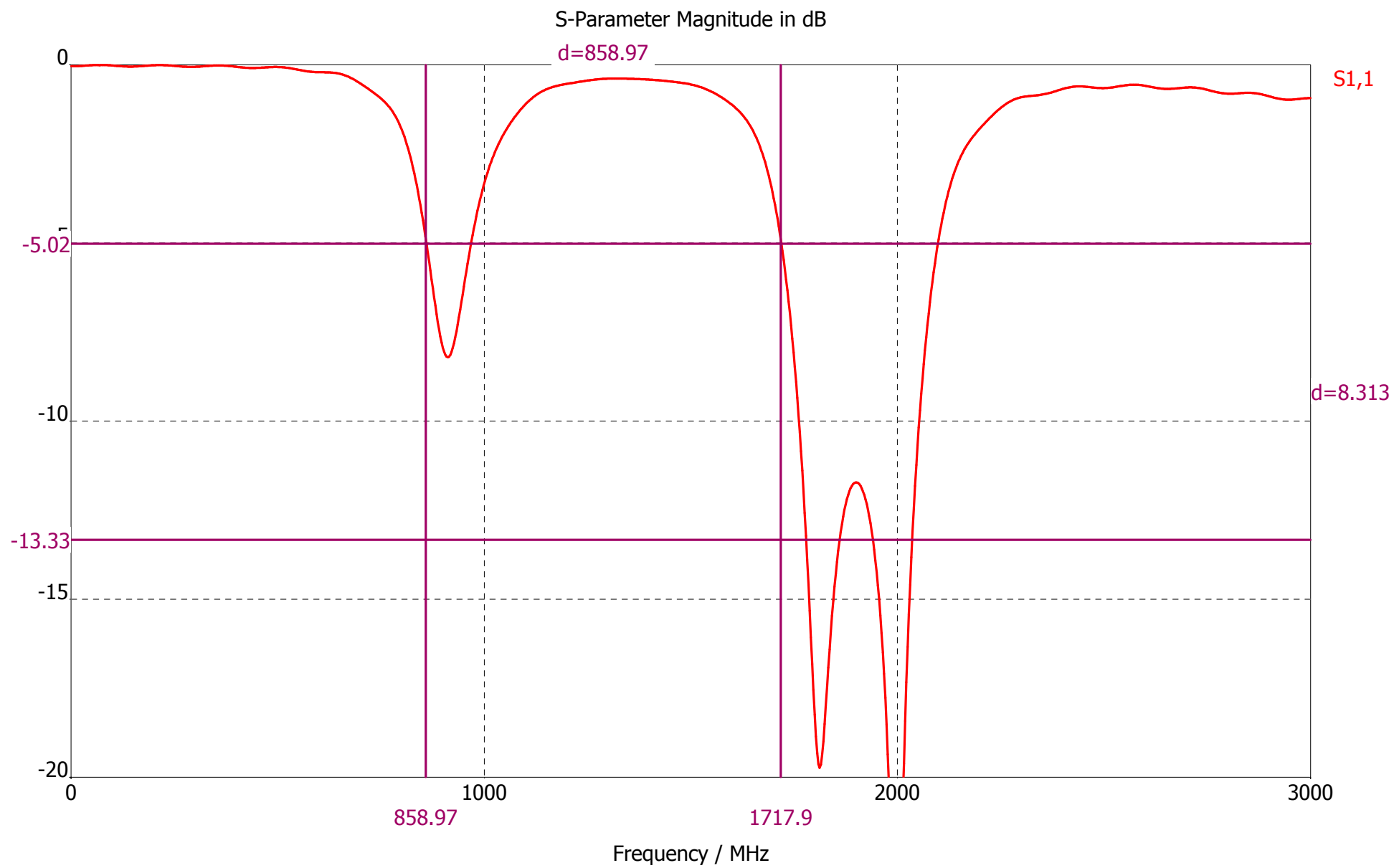
Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=925) [1]  
Component = Abs  
Output = Directivity  
Frequency = 925  
Rad. effic. = 0.8541  
Tot. effic. = 0.7157  
Dir. = 2.798 dBi



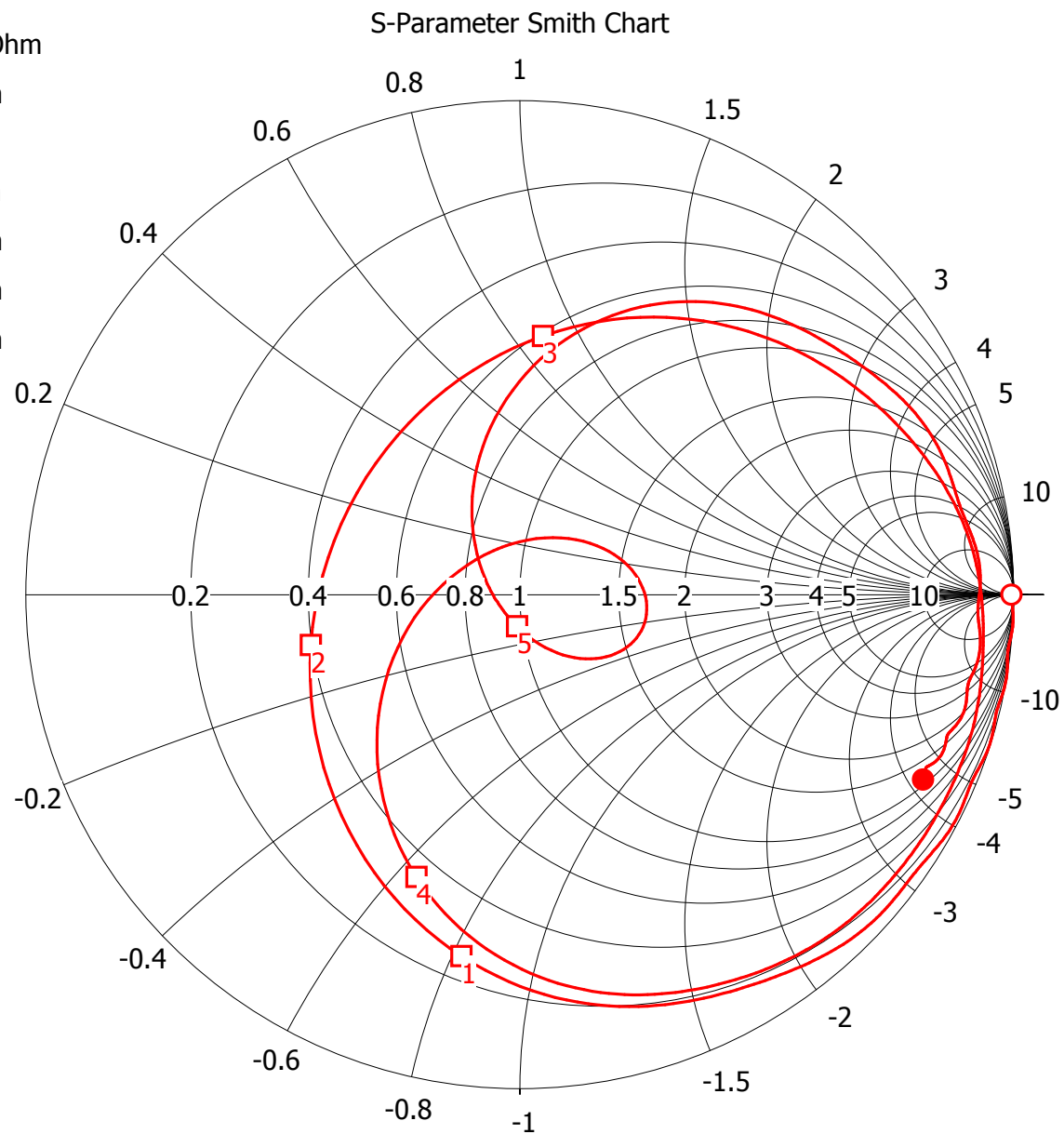


Type = Farfield  
Approximation = enabled ( $kR \gg 1$ )  
Monitor = farfield (f=960) [1]  
Component = Abs  
Output = Directivity  
Frequency = 960  
Rad. effic. = 0.8665  
Tot. effic. = 0.6266  
Dir. = 2.985 dBi





○	0.0000 (2.265e+004, 0) Ohm
□ <sub>1</sub>	822.0 ( 12.62, -40.96) Ohm
□ <sub>2</sub>	888.0 ( 19.9, -5.025) Ohm
□ <sub>3</sub>	960.0 ( 30.57, 44.31) Ohm
□ <sub>4</sub>	1710. ( 17.59, -31.94) Ohm
□ <sub>5</sub>	1989. ( 49.03, -6.334) Ohm
●	3000. ( 55.51, -215.4) Ohm



S<sub>1,1</sub> ( 50 Ohm)

Parameter = Frequency / MHz