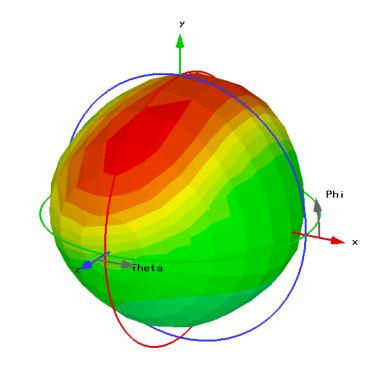
GTX Antenna	a Developr	nent Simulatio	n MODEL 10C			8/4/2008 11:3
Nota: matal i	modelled as	Tin FR-1 as la	oss tangent .025)			
vote. metar i	Tioueneu as		os tangent .020)	Sin	nulated	
			Frequency	Efficiency calculated	Band-Average Efficiency	AT&T Min. Requirement
GSM 850	Uplink	low	824	41%	<u> </u>	16%
		mid	836.5	48%	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%		



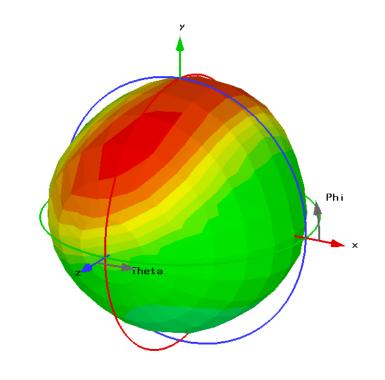
dBi 3.07 2.71 2.34 1.98 1.62 1.26 0.902 0.541

-6.52 --10.9 --15.2 --19.6 --23.9 --28.2 --32.6 --36.9 -

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

= Farfield

Туре



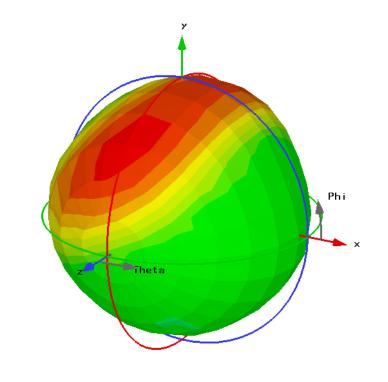
dВі 2.75 2.43 2.1 1.78 1.46 1.13 0.809 0.486

-6.57 -11 -15.3 -19.7 -24.1

-28.5 -32.9 -37.2

Туре Approximation = enabled (kR >> 1) = farfield (f=1747.5) [1] Monitor Component = Abs Output = Directivity = 1747.5 Frequency Rad. effic. = 0.6805 = 0.5695 Tot. effic. Dir. = 2.751 dBi

= Farfield



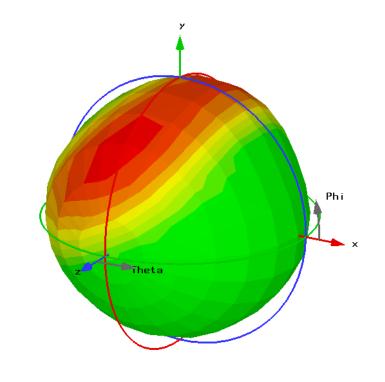
dBi
2.42 2.13 1.85 1.56 1.28 0.995 0.711 0.426 -

-6.63

-11.1 -15.5 -19.9 -24.3 -28.7

-33.2 -37.6

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

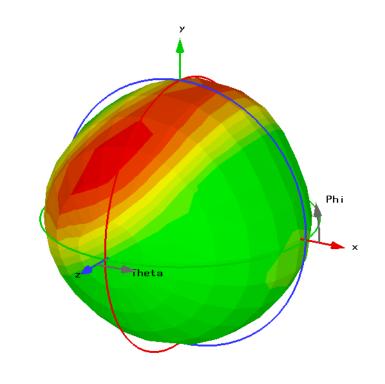


dBi 2.23 1.97 1.71 1.44 1.18 0.918 0.656 0.394

-6.67 --11.1 --15.6 --20 --24.4 -

-28.9 -33.3 -37.8

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



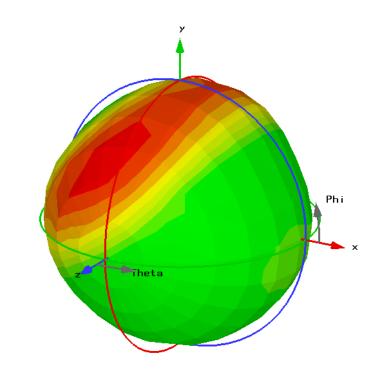
dВі 1.88 1.66 1.43 1.21 0.993 0.772 0.552 0.331

-6.73 --11.2 --15.7 --20.2 --24.7 -

-29.2 -33.6 -38.1

Туре Approximation = enabled (kR >> 1) = farfield (f=1842.5) [1] Monitor Component = Abs Output = Directivity Frequency = 1842.5 Rad. effic. = 0.7806 = 0.7580 Tot. effic. Dir. = 1.876 dBi

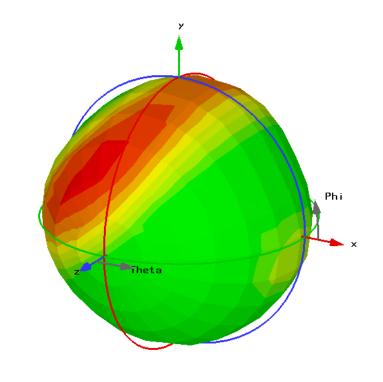
= Farfield



dBi 1.8 1.59 1.38 1.17 0.955 0.743 0.531 0.318

-6.74 --11.2 --15.7 --20.2 --24.7 --29.2 --33.7 --38.2 -

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

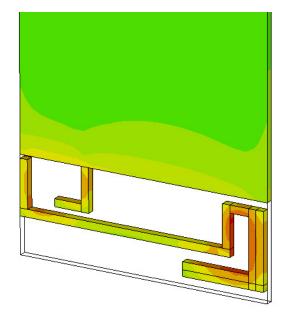


dBi 1.59 1.4 1.22 1.03 0.843 0.655 0.468 0.281

-6.78 --11.3 --15.8 --20.3 --24.9 -

-29.4 --33.9 --38.4 -

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



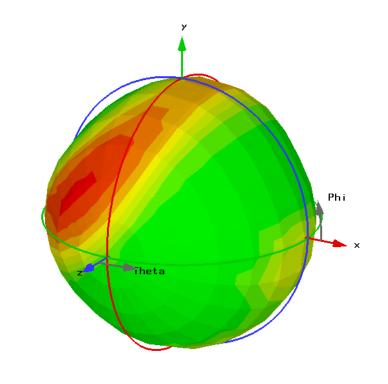
24.4 -15.3 -9.41 -5.57 -3.07 -1.44 -0.382 -

A/m 47.8 38.3

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



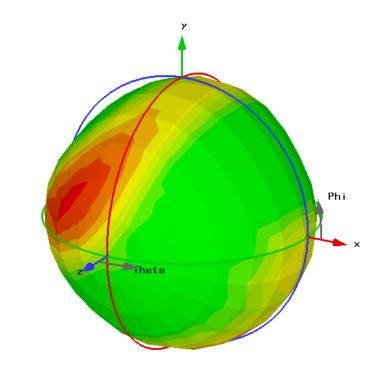
dBi 1.42 1.25 1.09 0.919 0.752 0.585 0.418 0.251

-6.81 -11.3 -15.9 -20.4 -25 -29.5

-34 -38.6

Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=1910) [1]
Component = Abs
Output = Directivity
Frequency = 1910
Rad. effic. = 0.7761
Tot. effic. = 0.7248

= 1.420 dBi

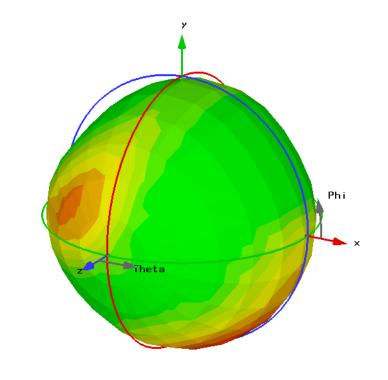


dBi 1.33 1.17 1.01 0.857 0.702 0.546 0.39 0.234

-6.82 -11.4 -15.9 -20.5 -25 -29.6

-34.1 -38.7

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



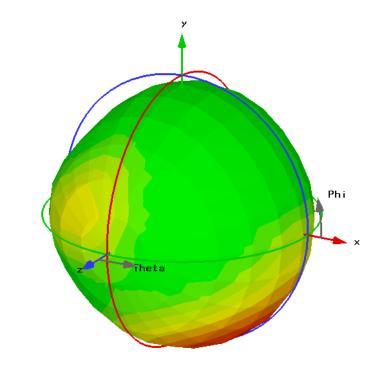
dВі 1.57 1.39 1.2 1.02 0.832 0.647 0.462 0.277

-6.78 --11.3 --15.8 --20.3 --24.9 -

-29.4 --33.9 --38.4 -

Туре Approximation = enabled (kR >> 1) = farfield (f=1960) [1] Monitor Component = Abs Output = Directivity Frequency = 1960 Rad. effic. = 0.7582 Tot. effic. = 0.7374Dir. = 1.571 dBi

= Farfield



dВі 2.07 1.83 1.59 1.34 1.1 0.854 0.61 0.366

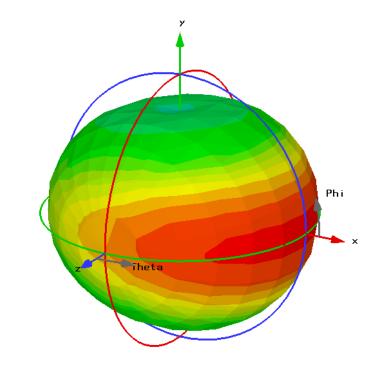
-6.69

-11.2 -15.6 -20.1 -24.5

-29 -33.5 -37.9

Туре Approximation = enabled (kR >> 1) = farfield (f=1990) [1] Monitor Component = Abs Output = Directivity Frequency = 1990 Rad. effic. = 0.7349 Tot. effic. = 0.7321Dir. = 2.074 dBi

= Farfield



dBi 2.15 1.89 1.64 1.39 1.14 0.884 0.631 0.379

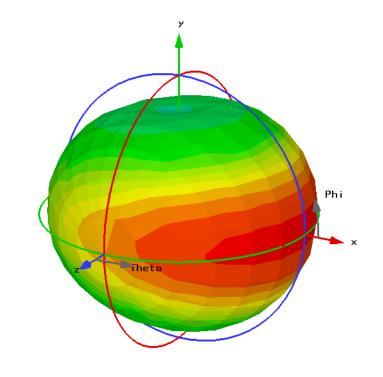
-6.68 -11.1 -15.6

-24.5 -28.9

-33.4 -37.9

Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=824) [1]
Component = Abs
Output = Directivity
Frequency = 824
Rad. effic. = 0.8948
Tot. effic. = 0.4137

= 2.147 dBi



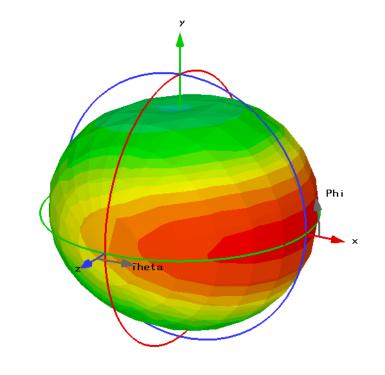
dВі 2.23 1.97 1.71 1.45 1.18 0.92 0.657 0.394

-6.66 -11.1 -15.6 -20 --24.4 -28.9

-33.3 -37.8

Туре Approximation = enabled (kR >> 1) = farfield (f=836.5) [1] Monitor Component = Abs Output = Directivity = 836.5 Frequency Rad. effic. = 0.8842 Tot. effic. = 0.4754 Dir. = 2.234 dBi

= Farfield



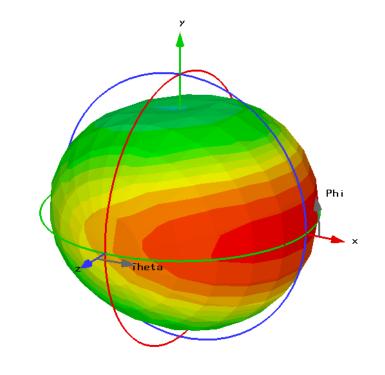
dBi 2.32 2.05 1.77 1.5 1.23 0.955 0.682 0.409

-6.65

-11.1 --15.5 --19.9 --24.4 --28.8 --33.2 --37.7 -

Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=849) [1]
Component = Abs
Output = Directivity
Frequency = 849
Rad. effic. = 0.8725
Tot. effic. = 0.5369

= 2.319 dBi



dBi 2.52 2.23 1.93 1.63 1.34 1.04 0.742

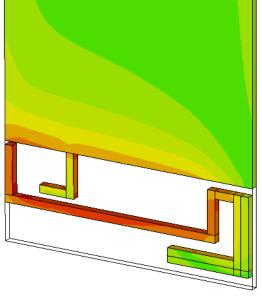
-6.61 --11 --15.4 --19.8 --24.3 --28.7 -

-33.1 --37.5 -

Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=880) [1]
Component = Abs
Output = Directivity
Frequency = 880
Rad. effic. = 0.8516
Tot. effic. = 0.6653

= 2.522 dBi

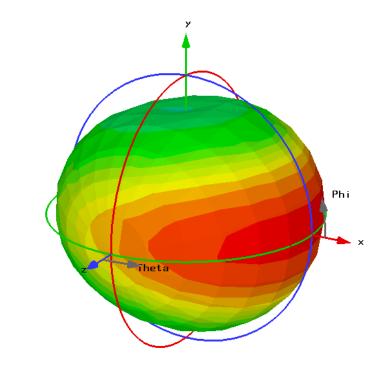
A/m
35.8
28.7
18.3
11.5
7.05
4.17
2.30
1.08
0.286



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

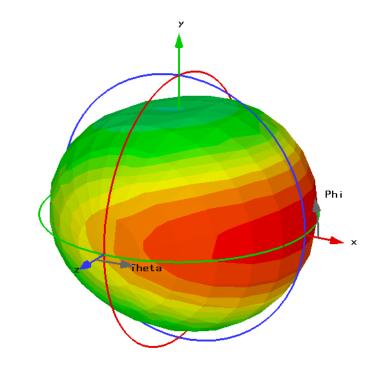


dBi 2.53 -2.23 -1.94 -1.64 -1.34 -1.04 -0.745 -0.447 -

-6.61 --11 --15.4 --19.8 --24.2 --28.7 -

-33.1 --37.5 -

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



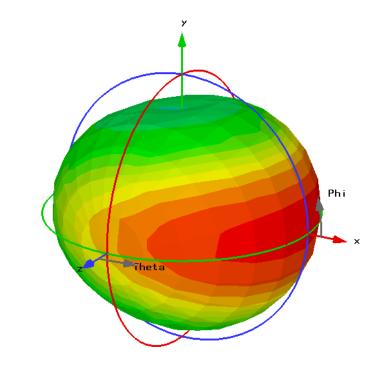
dBi 2.61 2.3 2 1.69 1.38 1.08 0.768 0.461

-6.6 -11 -15.4 -19.8 -24.2 -28.6

-33 · -37 · 4 ·

Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=894) [1]
Component = Abs
Output = Directivity
Frequency = 894
Rad. effic. = 0.8484
Tot. effic. = 0.7017

= 2.611 dBi

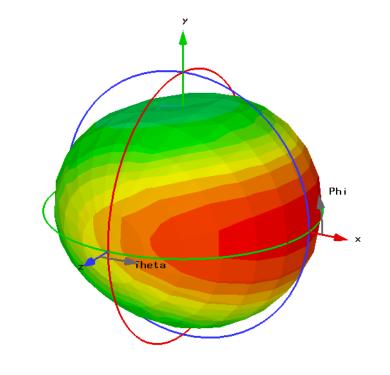


dBi 2.63 2.32 2.01 1.7 1.39 1.08 0.774 0.465

-6.59 -11 -15.4 -19.8 -24.2 -28.6

-33 · -37 · 4 ·

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



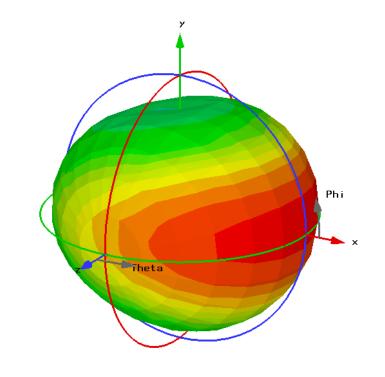
dBi 2.74 -2.42 -2.09 -1.77 -1.45 -1.13 -0.806 -0.483 -

-6.58 -11 -15.3

-19.7 --24.1 --28.5 --32.9 -

Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=915) [1]
Component = Abs
Output = Directivity
Frequency = 915
Rad. effic. = 0.8507
Tot. effic. = 0.7217

= 2.739 dBi



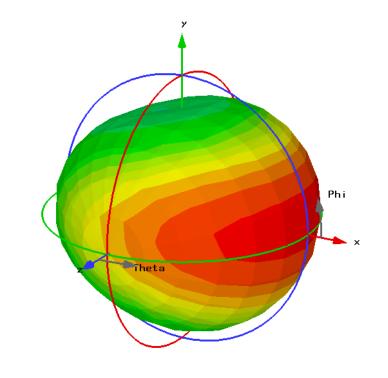
dBi
2.8
2.47
2.14
1.81
1.48
1.15
0.823
0.494

-6.57 --10.9 --15.3 --19.7 --24.1 -

-28.4 -32.8 -37.2

Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=925) [1]
Component = Abs
Output = Directivity
Frequency = 925
Rad. effic. = 0.8541
Tot. effic. = 0.7157

= 2.798 dBi



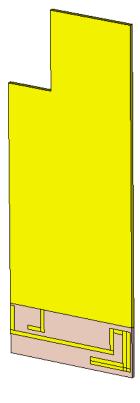
dBi 2.99 -2.63 -2.28 -1.93 -1.58 -1.23 -0.878 -0.527 -

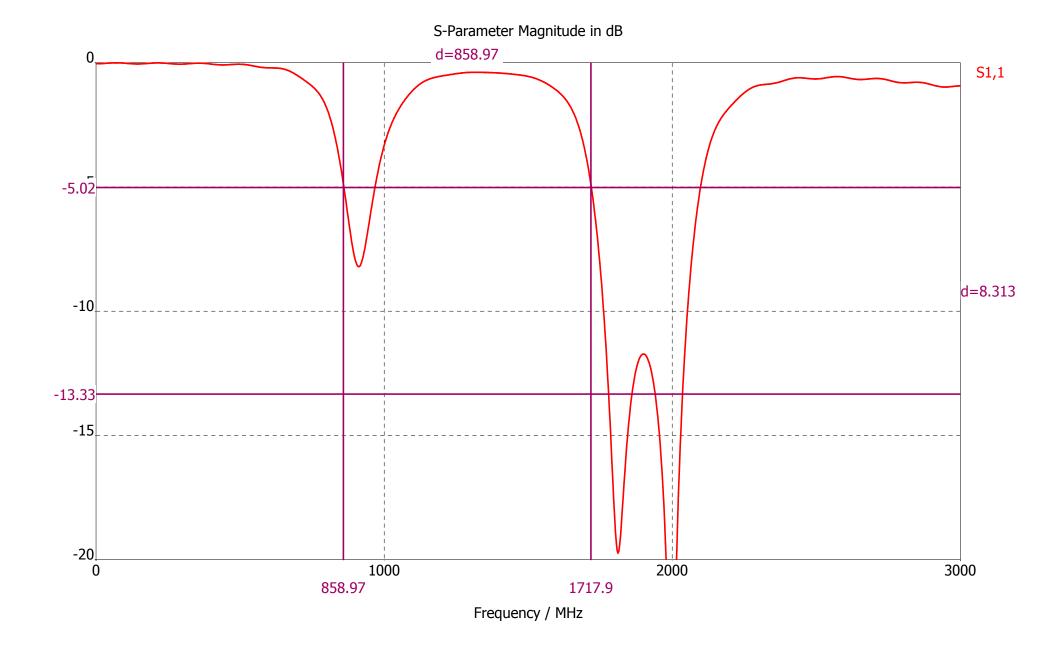
-6.53 -10.9 -15.2 -19.6 -24 -28.3

-32.7 -37

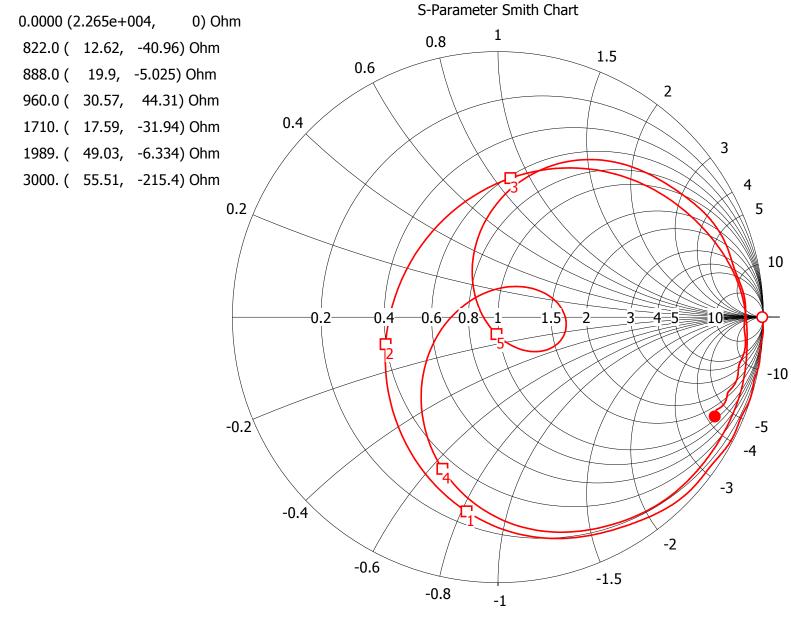
Type = Farfield
Approximation = enabled (kR >> 1)
Monitor = farfield (f=960) [1]
Component = Abs
Output = Directivity
Frequency = 960
Rad. effic. = 0.8665
Tot. effic. = 0.6266

= 2.985 dBi





S1,1 ( 50 Ohm)



Parameter = Frequency / MHz

0

--3 -4