

Freq(Hz)	Phi(0°)Phi(7.5°)	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
5.785GPol	5.785GPol	Phi(15°)Phi(22.5°)	Phi(30°)Phi(37.5°)	Phi(45°)Phi(52.5°)	Phi(60°)Phi(67.5°)	Phi(75°)Phi(82.5°)	Phi(90°)Phi(97.5°)	Phi(105°)Phi(112.5°)	Phi(120°)Phi(127.5°)	Phi(135°)Phi(142.5°)	Phi(150°)Phi(157.5°)	Phi(165°)Phi(172.5°)	Phi(180°)Phi(187.5°)	Phi(195°)Phi(202.5°)	Phi(210°)Phi(217.5°)	Phi(225°)Phi(232.5°)	Phi(240°)Phi(247.5°)	Phi(255°)Phi(262.5°)	Phi(270°)Phi(277.5°)	Phi(285°)Phi(292.5°)	Phi(300°)Phi(307.5°)	Phi(315°)Phi(322.5°)	Phi(330°)Phi(337.5°)	Phi(345°)Phi(352.5°)
Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain
Theta(0°)	Theta(7.5°)	Theta(15°)	Theta(22.5°)	Theta(30°)	Theta(37.5°)	Theta(45°)	Theta(52.5°)	Theta(60°)	Theta(67.5°)	Theta(75°)	Theta(82.5°)	Theta(90°)	Theta(97.5°)	Theta(105°)	Theta(112.5°)	Theta(120°)	Theta(127.5°)	Theta(135°)	Theta(142.5°)	Theta(150°)	Theta(157.5°)	Theta(165°)	Theta(172.5°)	
-4.89/4.2	-3.56/3.11	-3.54/3.12	-2.95/2.47	-2.66/1.78	-4.65/3.21	-4.65/3.21	-2.95/2.47	-2.21/1.97	-1.47/1.18	-1.75/1.15	-1.68/2.99	-3.87/3.58	-3.71/4.03	-6.62/5.42	-6.03/7.53	-11.17/10.73	-18.2/16.38	-8.65/8.83	-9.55/8.7	-7.86/8.05	-10.57/12.44	-13.35/14.36	-18.26/17.77	-17.08/17.55
-4.89/4.2	-3.56/3.11	-3.54/3.12	-2.95/2.47	-2.66/1.78	-4.65/3.21	-4.65/3.21	-2.95/2.47	-2.21/1.97	-1.47/1.18	-1.75/1.15	-1.68/2.99	-3.87/3.58	-3.71/4.03	-6.62/5.42	-6.03/7.53	-11.17/10.73	-18.2/16.38	-8.65/8.83	-9.55/8.7	-7.86/8.05	-10.57/12.44	-13.35/14.36	-18.26/17.77	-17.08/17.55
Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain
Theta(0°)	Theta(7.5°)	Theta(15°)	Theta(22.5°)	Theta(30°)	Theta(37.5°)	Theta(45°)	Theta(52.5°)	Theta(60°)	Theta(67.5°)	Theta(75°)	Theta(82.5°)	Theta(90°)	Theta(97.5°)	Theta(105°)	Theta(112.5°)	Theta(120°)	Theta(127.5°)	Theta(135°)	Theta(142.5°)	Theta(150°)	Theta(157.5°)	Theta(165°)	Theta(172.5°)	
-16/17.74	-12.39/15.33	-9.52/11.64	-5.34/7.13	-0.84/2.17	-0.84/2.17	-0.49/0.81	-0.49/0.81	-0.26/0.41	-0.8/0.84	-1.04/0.23	-1.04/0.23	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87
-16/17.74	-12.39/15.33	-9.52/11.64	-5.34/7.13	-0.84/2.17	-0.84/2.17	-0.49/0.81	-0.49/0.81	-0.26/0.41	-0.8/0.84	-1.04/0.23	-1.04/0.23	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87
Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain
Theta(0°)	Theta(7.5°)	Theta(15°)	Theta(22.5°)	Theta(30°)	Theta(37.5°)	Theta(45°)	Theta(52.5°)	Theta(60°)	Theta(67.5°)	Theta(75°)	Theta(82.5°)	Theta(90°)	Theta(97.5°)	Theta(105°)	Theta(112.5°)	Theta(120°)	Theta(127.5°)	Theta(135°)	Theta(142.5°)	Theta(150°)	Theta(157.5°)	Theta(165°)	Theta(172.5°)	
-16/17.74	-12.39/15.33	-9.52/11.64	-5.34/7.13	-0.84/2.17	-0.84/2.17	-0.49/0.81	-0.49/0.81	-0.26/0.41	-0.8/0.84	-1.04/0.23	-1.04/0.23	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	-0.72/1.87	
Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain	Gain



Total Gain Data

Table with columns for Frequency (MHz), Total Gain (dBi), and 32 directional gain values (Phi(0) to Phi(35)). Rows include gain data for frequencies 2.45GHz, 5.2GHz, and 5.6GHz, with each frequency having 32 directional gain entries.



Antenna Pattern

Appendix B

Table with columns for frequency (MHz), gain (dBi), and various antenna pattern values for different frequencies (e.g., 25.5, 30, 35, 40, 45, 50, 60, 65, 70, 75, 80, 85, 90, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195, 200, 205, 210, 215, 220, 225, 230, 235, 240, 245, 250, 255). The table contains 33 columns of data, each representing a specific frequency and its corresponding antenna pattern values across various angles.



Antenna Pattern

Appendix B

Theta	Phi	Gain	Phi(0°)	Phi(7.5°)	Phi(15°)	Phi(22.5°)	Phi(30°)	Phi(37.5°)	Phi(45°)	Phi(52.5°)	Phi(60°)	Phi(67.5°)	Phi(75°)	Phi(82.5°)	Phi(90°)	Phi(105°)	Phi(112.5°)	Phi(120°)	Phi(135°)	Phi(142.5°)	Phi(150°)	Phi(157.5°)	Phi(165°)	Phi(172.5°)	Phi(180°)	Phi(187.5°)	Phi(195°)	Phi(202.5°)	Phi(210°)	Phi(217.5°)	Phi(225°)	Phi(232.5°)	Phi(240°)	Phi(247.5°)	Phi(255°)	Phi(262.5°)	Phi(270°)	Phi(277.5°)	Phi(285°)	Phi(292.5°)	Phi(300°)	Phi(307.5°)	Phi(315°)	Phi(322.5°)	Phi(330°)	Phi(337.5°)	Phi(345°)	Phi(352.5°)
Theta	Phi	Gain	Phi(0°)	Phi(7.5°)	Phi(15°)	Phi(22.5°)	Phi(30°)	Phi(37.5°)	Phi(45°)	Phi(52.5°)	Phi(60°)	Phi(67.5°)	Phi(75°)	Phi(82.5°)	Phi(90°)	Phi(105°)	Phi(112.5°)	Phi(120°)	Phi(135°)	Phi(142.5°)	Phi(150°)	Phi(157.5°)	Phi(165°)	Phi(172.5°)	Phi(180°)	Phi(187.5°)	Phi(195°)	Phi(202.5°)	Phi(210°)	Phi(217.5°)	Phi(225°)	Phi(232.5°)	Phi(240°)	Phi(247.5°)	Phi(255°)	Phi(262.5°)	Phi(270°)	Phi(277.5°)	Phi(285°)	Phi(292.5°)	Phi(300°)	Phi(307.5°)	Phi(315°)	Phi(322.5°)	Phi(330°)	Phi(337.5°)	Phi(345°)	Phi(352.5°)
Theta	Phi	Gain	Phi(0°)	Phi(7.5°)	Phi(15°)	Phi(22.5°)	Phi(30°)	Phi(37.5°)	Phi(45°)	Phi(52.5°)	Phi(60°)	Phi(67.5°)	Phi(75°)	Phi(82.5°)	Phi(90°)	Phi(105°)	Phi(112.5°)	Phi(120°)	Phi(135°)	Phi(142.5°)	Phi(150°)	Phi(157.5°)	Phi(165°)	Phi(172.5°)	Phi(180°)	Phi(187.5°)	Phi(195°)	Phi(202.5°)	Phi(210°)	Phi(217.5°)	Phi(225°)	Phi(232.5°)	Phi(240°)	Phi(247.5°)	Phi(255°)	Phi(262.5°)	Phi(270°)	Phi(277.5°)	Phi(285°)	Phi(292.5°)	Phi(300°)	Phi(307.5°)	Phi(315°)	Phi(322.5°)	Phi(330°)	Phi(337.5°)	Phi(345°)	Phi(352.5°)
Theta	Phi	Gain	Phi(0°)	Phi(7.5°)	Phi(15°)	Phi(22.5°)	Phi(30°)	Phi(37.5°)	Phi(45°)	Phi(52.5°)	Phi(60°)	Phi(67.5°)	Phi(75°)	Phi(82.5°)	Phi(90°)	Phi(105°)	Phi(112.5°)	Phi(120°)	Phi(135°)	Phi(142.5°)	Phi(150°)	Phi(157.5°)	Phi(165°)	Phi(172.5°)	Phi(180°)	Phi(187.5°)	Phi(195°)	Phi(202.5°)	Phi(210°)	Phi(217.5°)	Phi(225°)	Phi(232.5°)	Phi(240°)	Phi(247.5°)	Phi(255°)	Phi(262.5°)	Phi(270°)	Phi(277.5°)	Phi(285°)	Phi(292.5°)	Phi(300°)	Phi(307.5°)	Phi(315°)	Phi(322.5°)	Phi(330°)	Phi(337.5°)	Phi(345°)	Phi(352.5°)
Theta	Phi	Gain	Phi(0°)	Phi(7.5°)	Phi(15°)	Phi(22.5°)	Phi(30°)	Phi(37.5°)	Phi(45°)	Phi(52.5°)	Phi(60°)	Phi(67.5°)	Phi(75°)	Phi(82.5°)	Phi(90°)	Phi(105°)	Phi(112.5°)	Phi(120°)	Phi(135°)	Phi(142.5°)	Phi(150°)	Phi(157.5°)	Phi(165°)	Phi(172.5°)	Phi(180°)	Phi(187.5°)	Phi(195°)	Phi(202.5°)	Phi(210°)	Phi(217.5°)	Phi(225°)	Phi(232.5°)	Phi(240°)	Phi(247.5°)	Phi(255°)	Phi(262.5°)	Phi(270°)	Phi(277.5°)	Phi(285°)	Phi(292.5°)	Phi(300°)	Phi(307.5°)	Phi(315°)	Phi(322.5°)	Phi(330°)	Phi(337.5°)	Phi(345°)	Phi(352.5°)



Antenna Pattern

Appendix B

Table with columns for frequency, gain, and various antenna parameters (Phi values) ranging from 0 to 360 degrees. Includes sub-headers for frequency and gain, and a large grid of data points for each parameter.



Antenna Pattern

Appendix B

Table with 33 columns (Theta, Phi) and 100 rows (Theta values). Each cell contains numerical data representing antenna pattern values.

E1(XY plane) – $\Theta(90)\Phi(0-360)$
 E2(XZ plane) – $\Theta(0-180)\Phi(0)$ and $\Theta(0-180)\Phi(180)$
 E3(YZ plane) – $\Theta(0-180)\Phi(90)$ and $\Theta(0-180)\Phi(270)$



