802.11a/b/g Desktop Antenna Test Report

Tyco Electronics

UAM w/ U.FL Connector & 24” Cable

March 01, 2006

Intel Confidential

Digital Enterprise Group
Intel Corporation

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Executive Summary

Return Loss

- Return loss met in 802.11a/b/g (3 points are within 0.5 dB of our spec, but are still reasonable & acceptable)
- S11 stable across different placements

Peak Gain

- Peak gain met for entire 802.11a/b/g peak gain

Percent Area Gain over 180° (PAG)

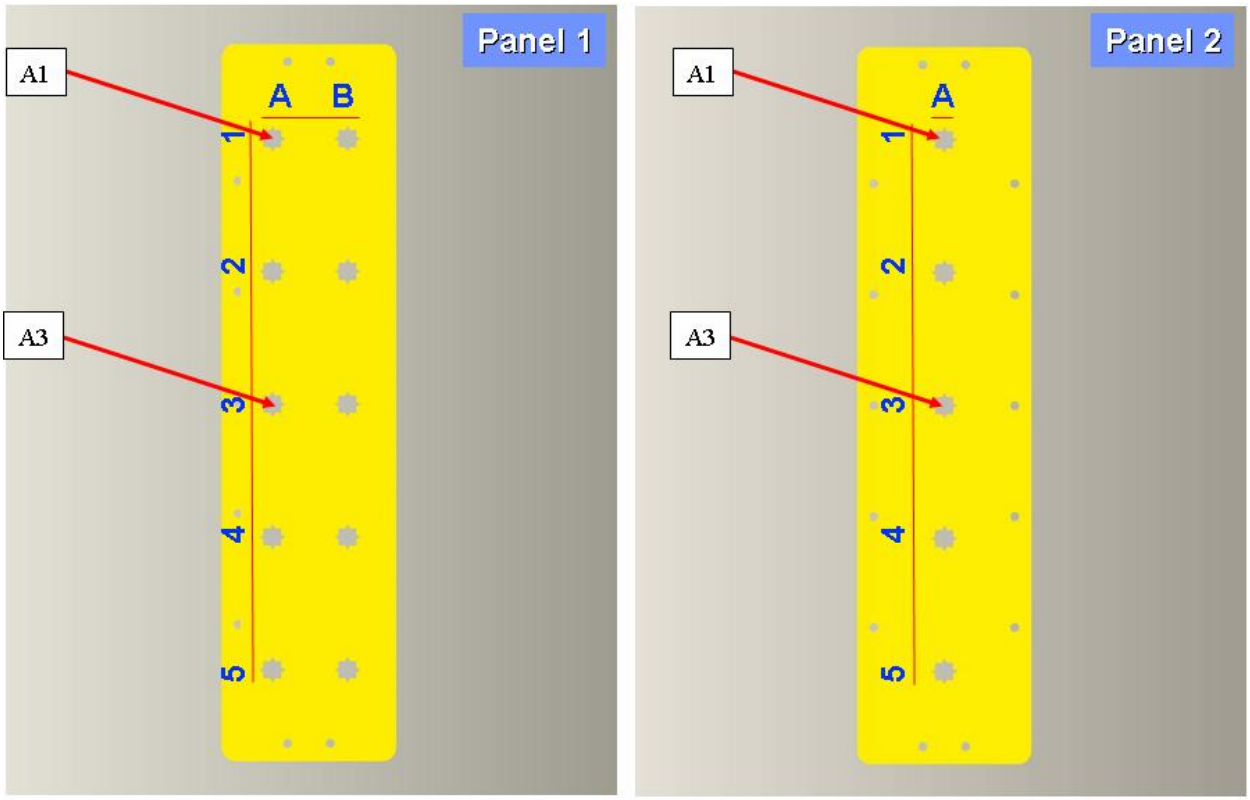
- PAG NOT met for 802.11a/b/g

House Testing

- Not complete

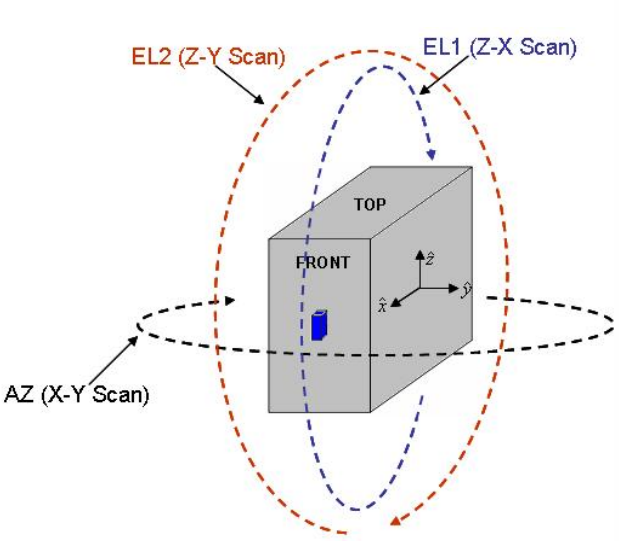
Test Setup & Positioning

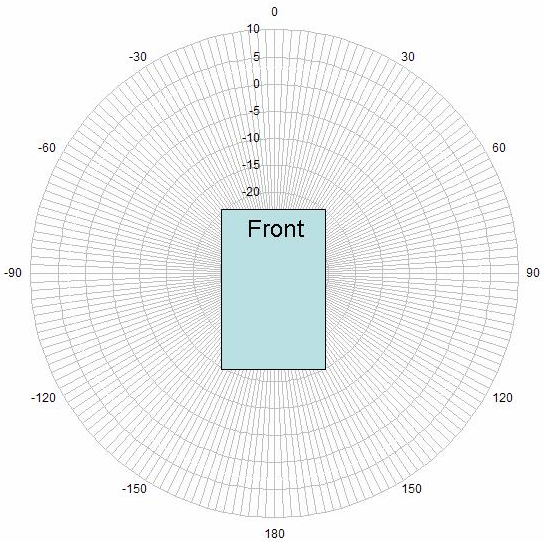
Desktop System Positions



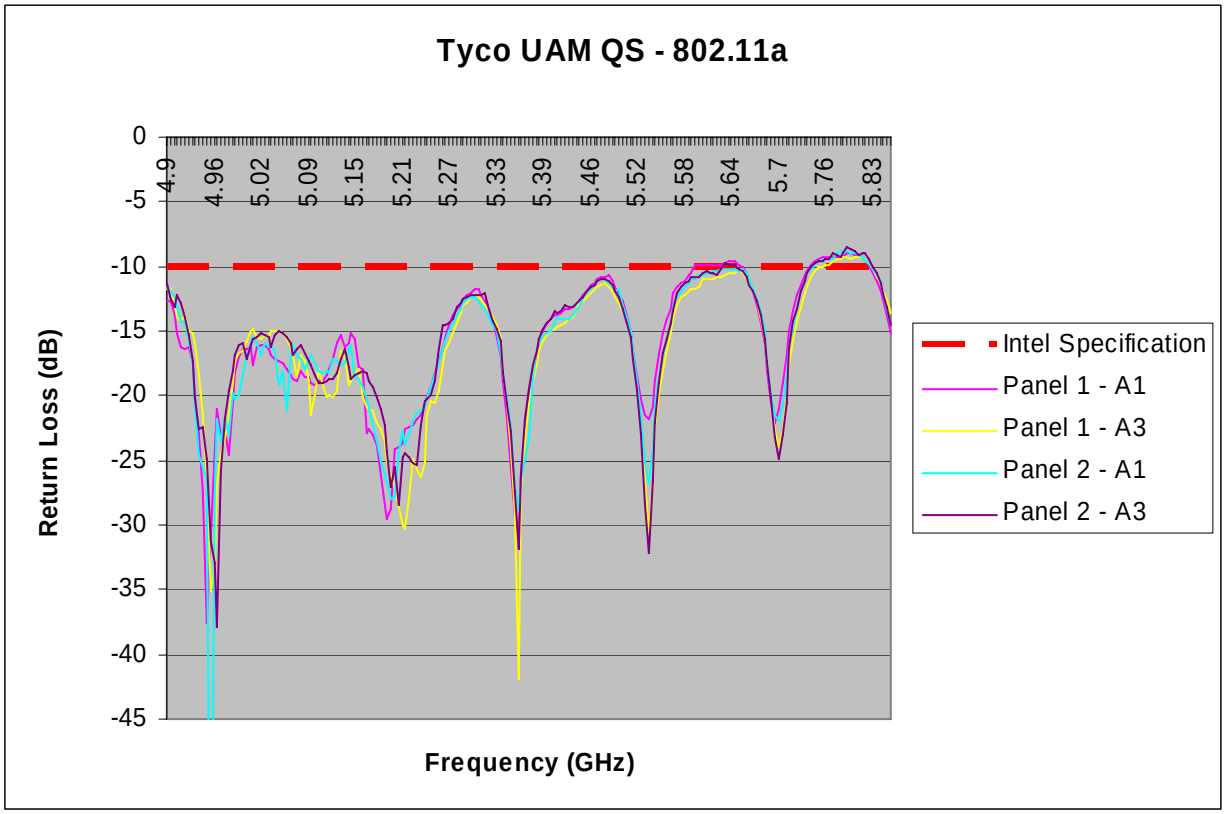
- UAM is placed vertically in all positions

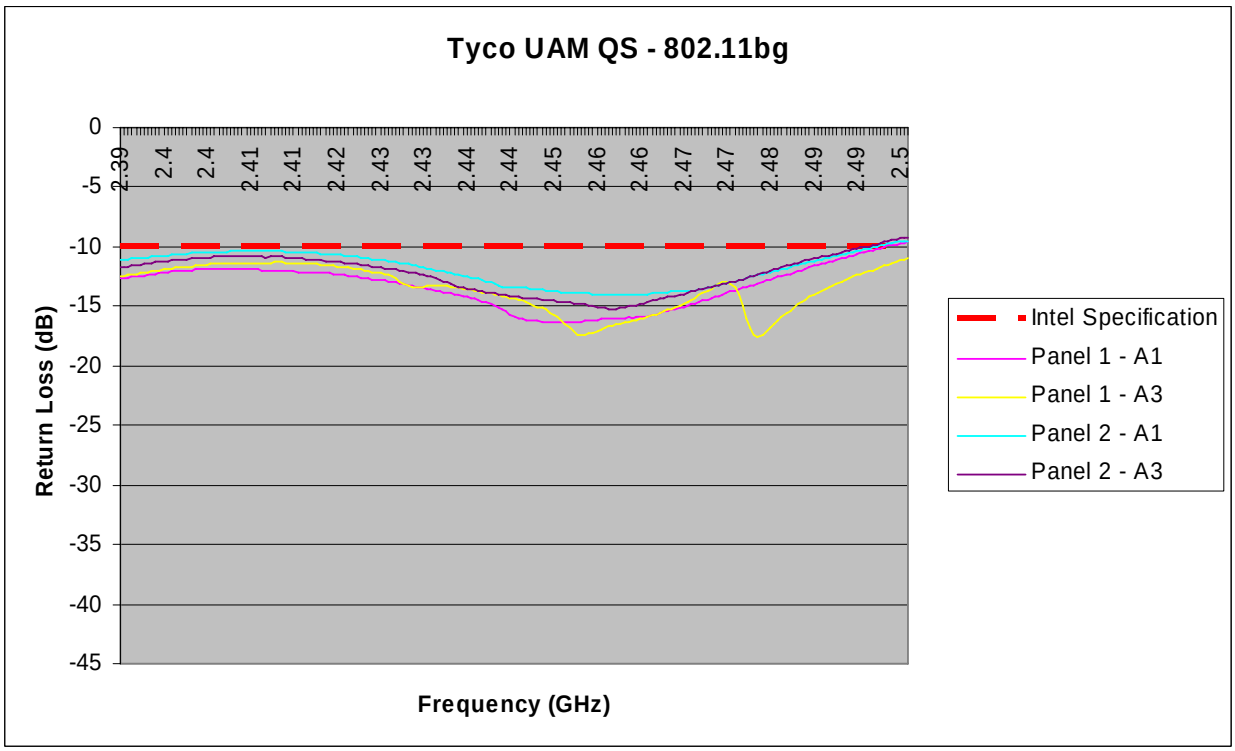
Anechoic Chamber Scans





Return Loss


Tyco UAM QS - 802.11a
Return Loss (dB)
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
4.9
4.96
5.02
5.09
5.15
5.21
5.27
5.33
5.39
5.46
5.52
5.58
5.64
5.7
5.76
5.83
Frequency (GHz)
Intel Specification
Panel 1 - A1
Panel 1 - A3
Panel 2 - A1
Panel 2 - A3

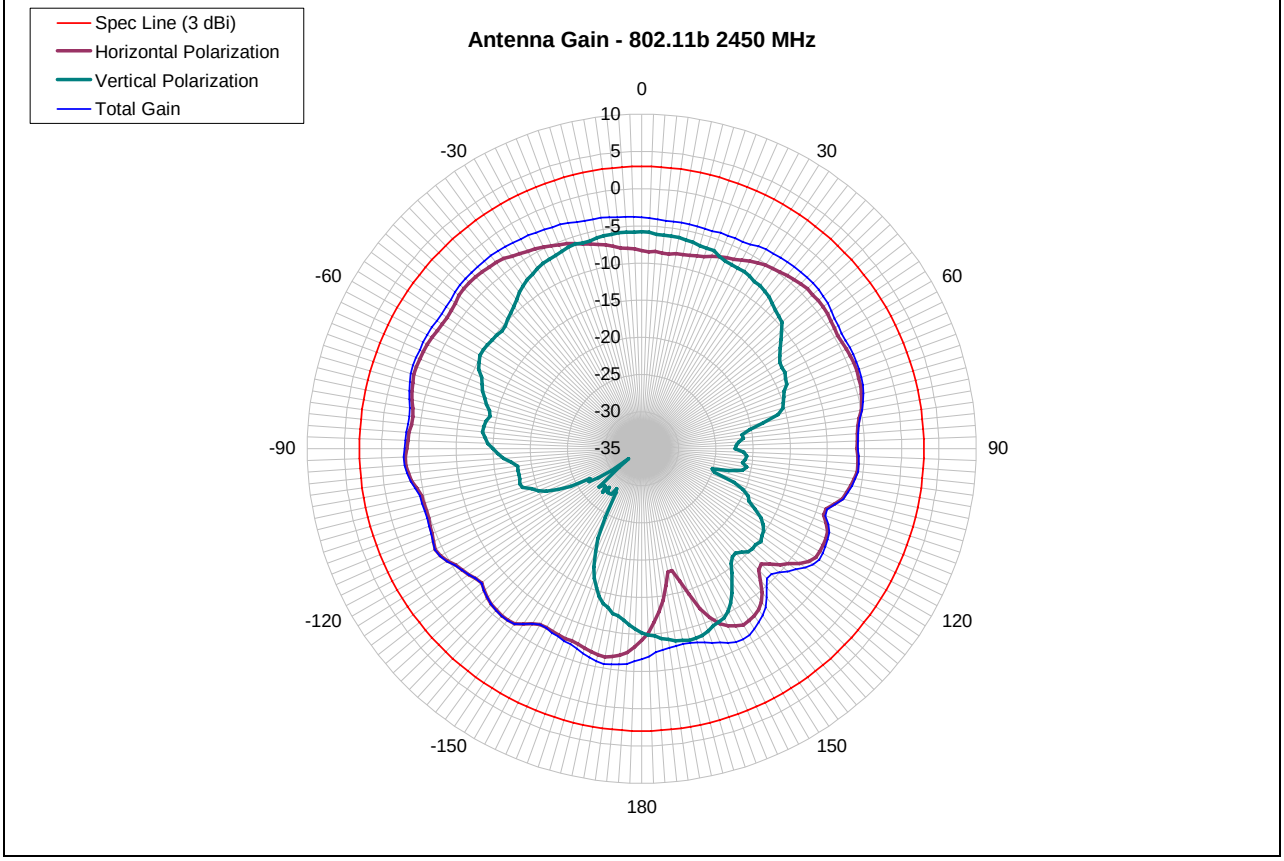

Tyco UAM QS - 802.11bg
Return Loss (dB)
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
2.39
2.4
2.4
2.41
2.41
2.42
2.43
2.43
2.44
2.44
2.45
2.46
2.46
2.47
2.47
2.48
2.49
2.49
2.5
Frequency (GHz)
Intel Specification
Panel 1 - A1
Panel 1 - A3
Panel 2 - A1
Panel 2 - A3

Return Loss

S_{11} (dB)					
Frequency (GHz)	Panel 1 – A1	Panel 1 – A3	Panel 2 – A1	Panel 2 – A3	**Intel Specification**
2.39	-12.67	-12.49	-11.12	-11.77	**-10 dB**
2.45	-16.31	-15.50	-13.70	-14.48	**-10 dB**
2.5	-9.57	-10.94	-9.49	-9.19	**-10 dB**
4.9	-12.65	-11.72	-11.64	-11.28	**-10 dB**
5.0	-16.43	-15.77	-16.90	-17.15	**-10 dB**
5.1	-18.94	-17.90	-18.15	-19.09	**-10 dB**
5.15	-17.80	-17.91	-18.74	-18.28	**-10 dB**
5.25	-18.24	-20.59	-18.35	-18.91	**-10 dB**
5.35	-21.66	-20.61	-20.08	-20.58	**-10 dB**
5.47	-10.89	-11.46	-11.04	-11.04	**-10 dB**
5.7	-20.37	-19.77	-19.77	-20.11	**-10 dB**
5.85	-15.14	-13.59	-14.52	-14.46	**-10 dB**

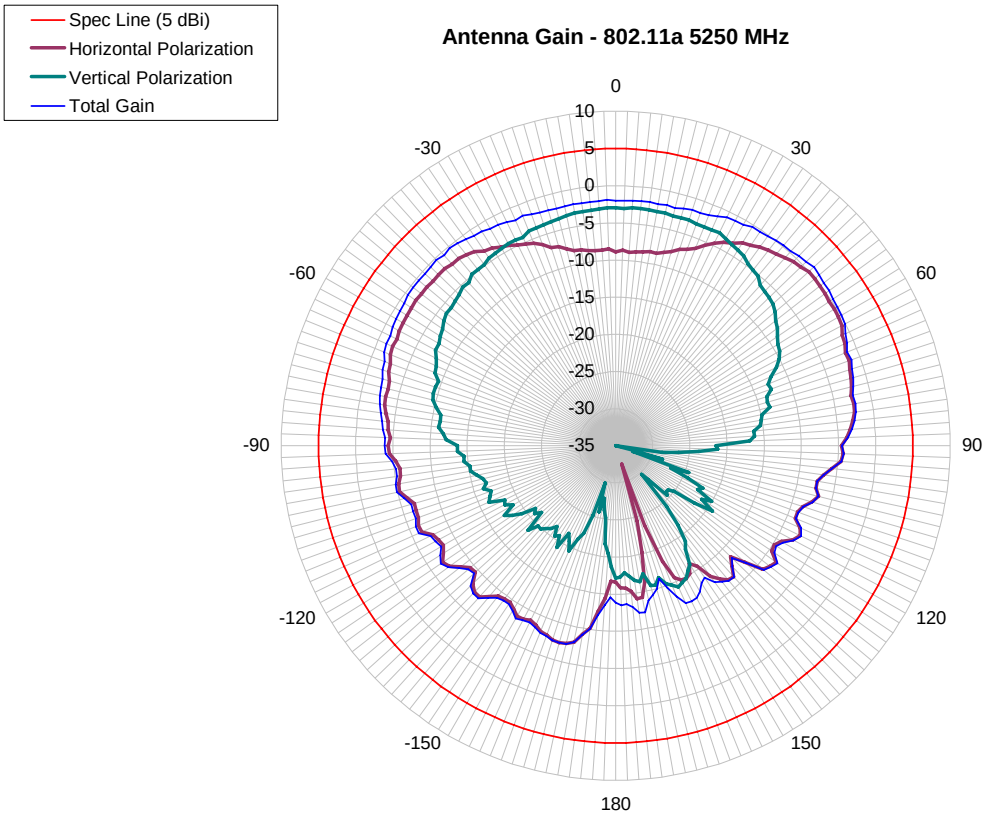
Anechoic Chamber Performance – Panel 1 – A1

Azimuth Scan – Frequency = 2.45 GHz



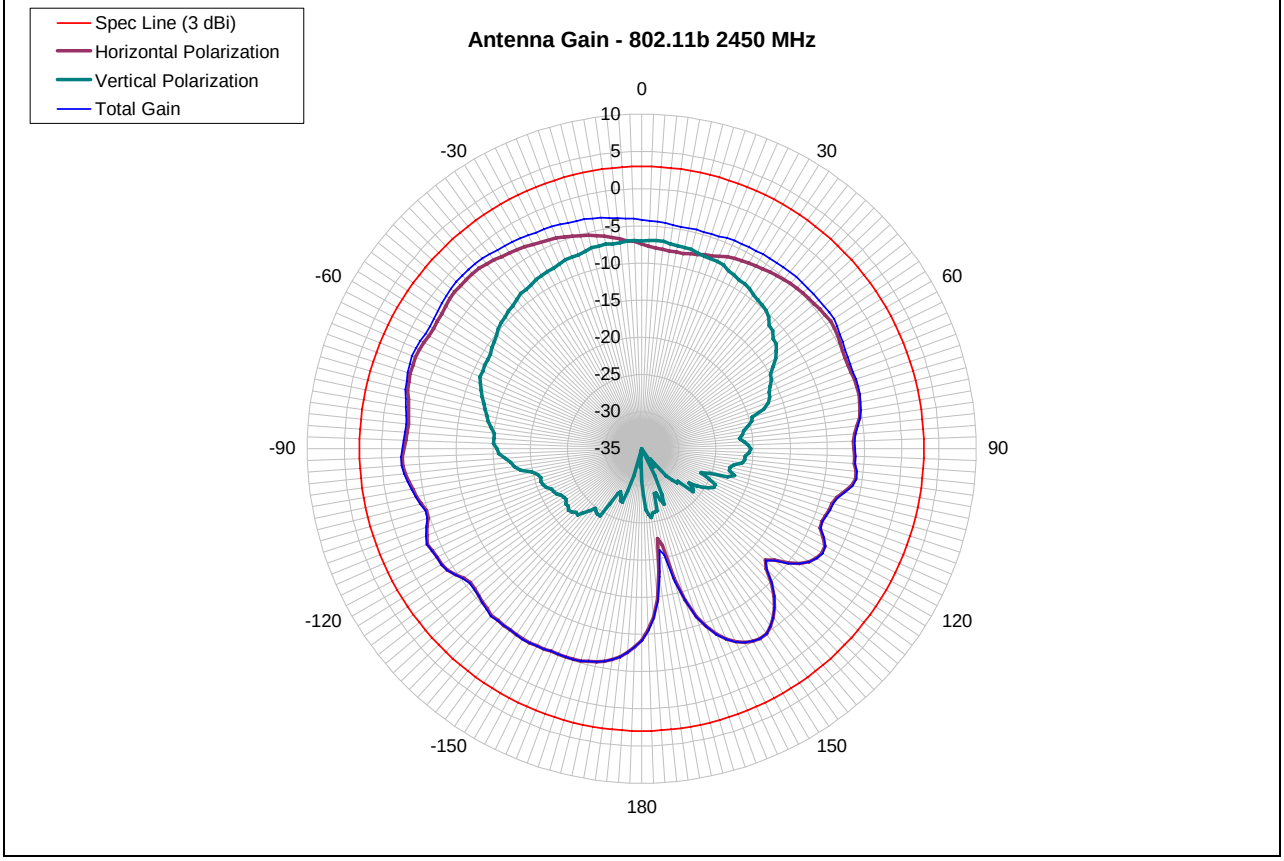
Anechoic Chamber Performance – Panel 1 – A1

Azimuth Scan – Frequency = 5.25 GHz



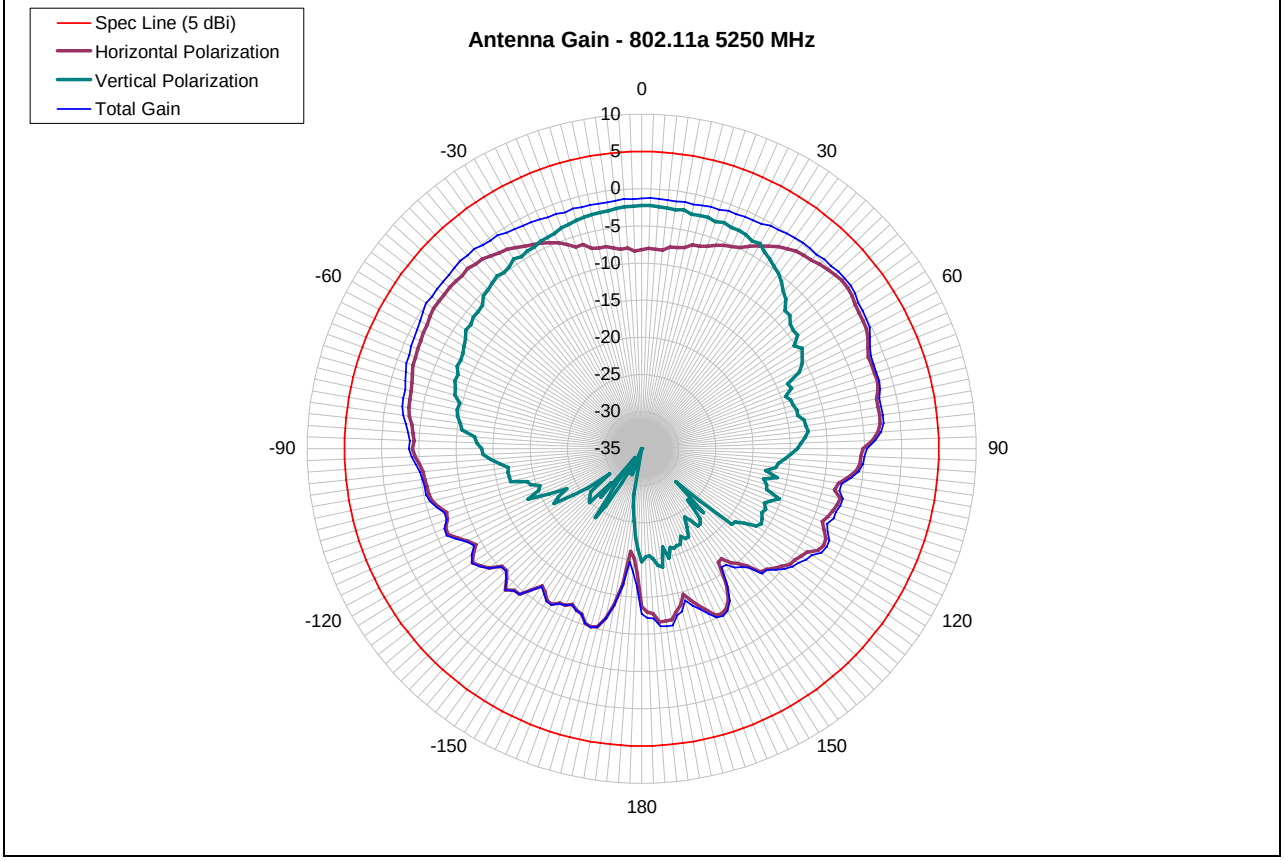
Anechoic Chamber Performance – Panel 1 – A3

Azimuth Scan – Frequency = 2.45 GHz



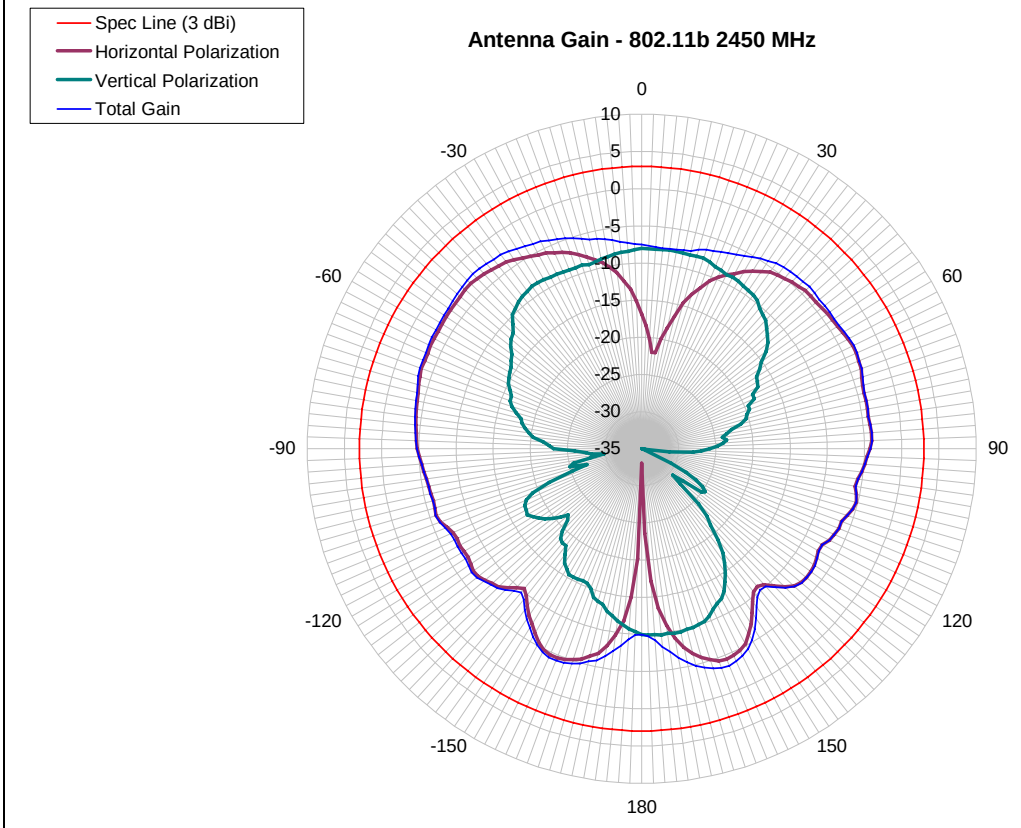
Anechoic Chamber Performance – Panel 1 – A3

Azimuth Scan – Frequency = 5.25 GHz



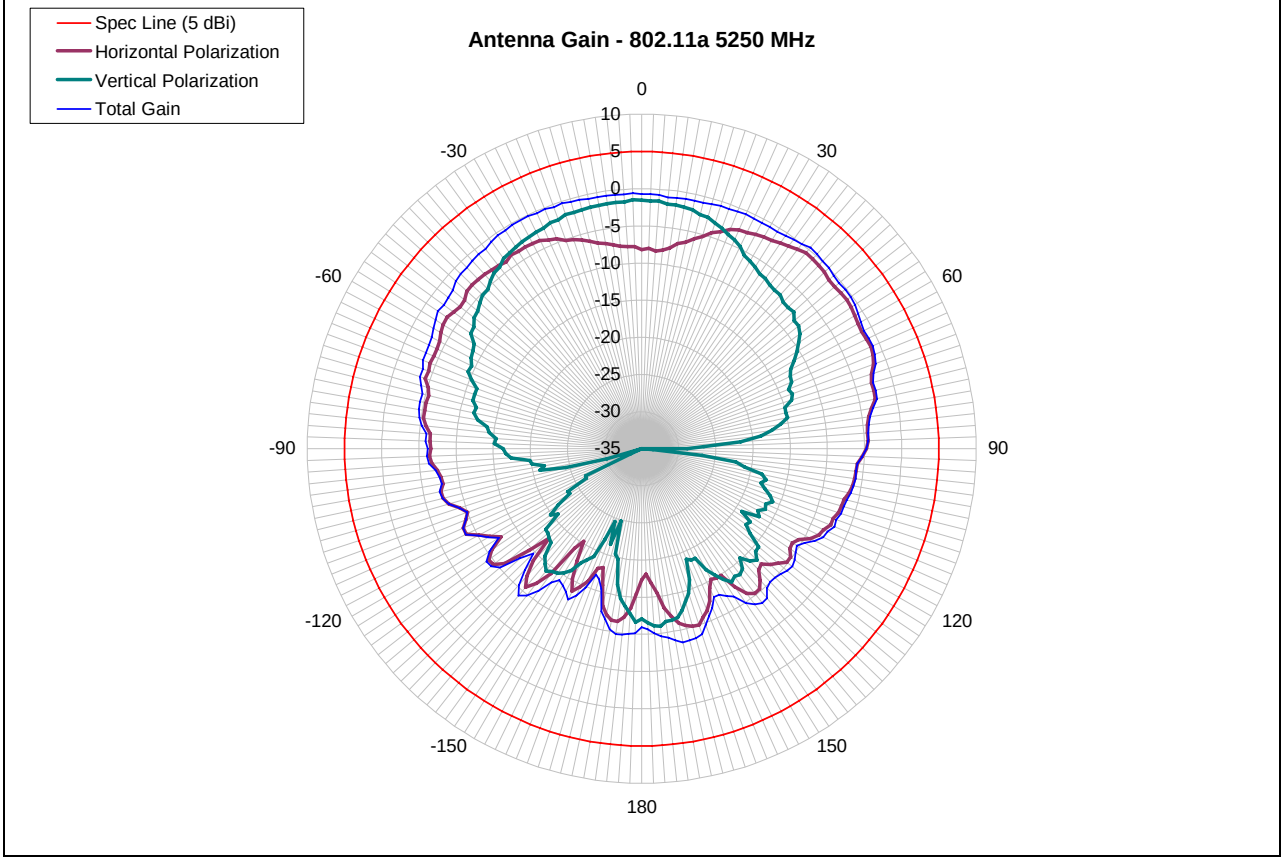
Anechoic Chamber Performance – Panel 2 – A1

Azimuth Scan – Frequency = 2.45 GHz



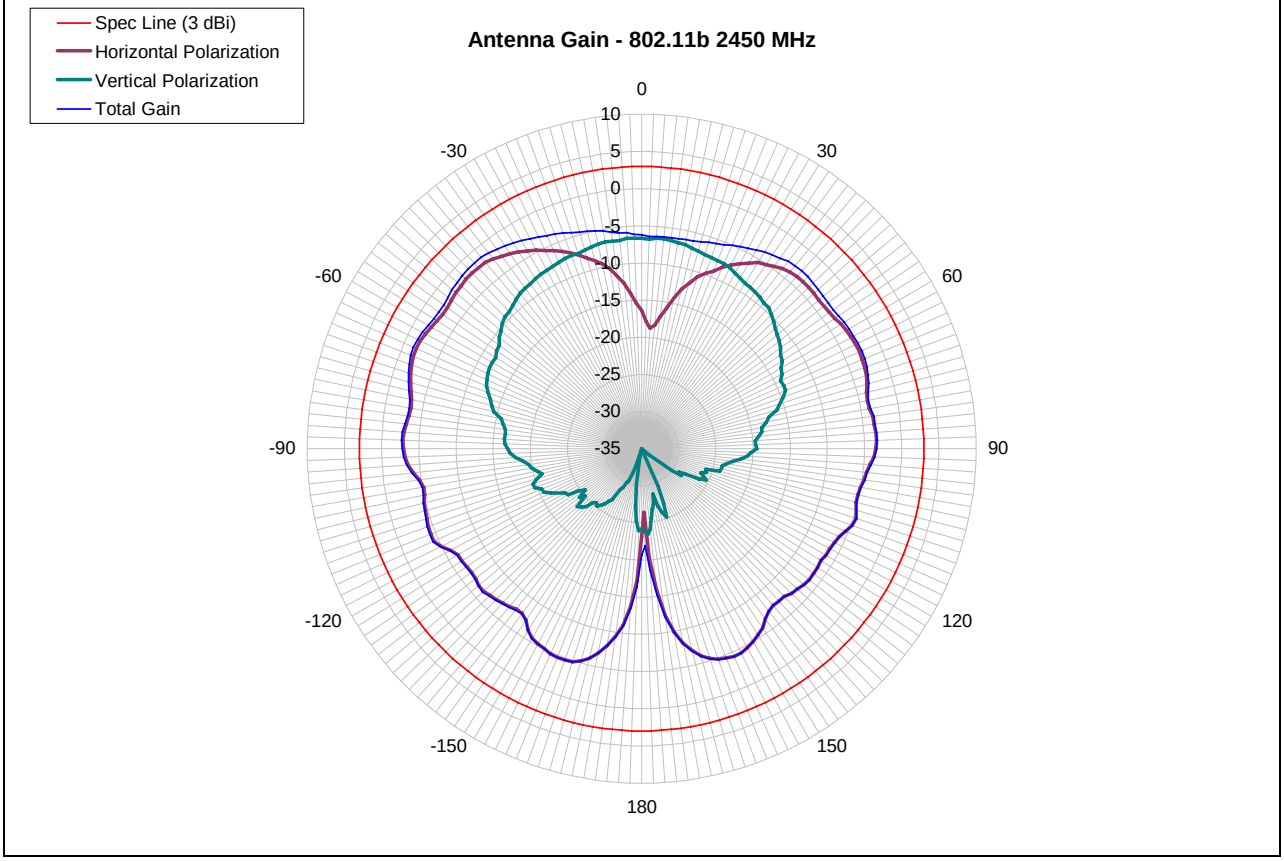
Anechoic Chamber Performance – Panel 2 – A1

Azimuth Scan – Frequency = 5.25 GHz



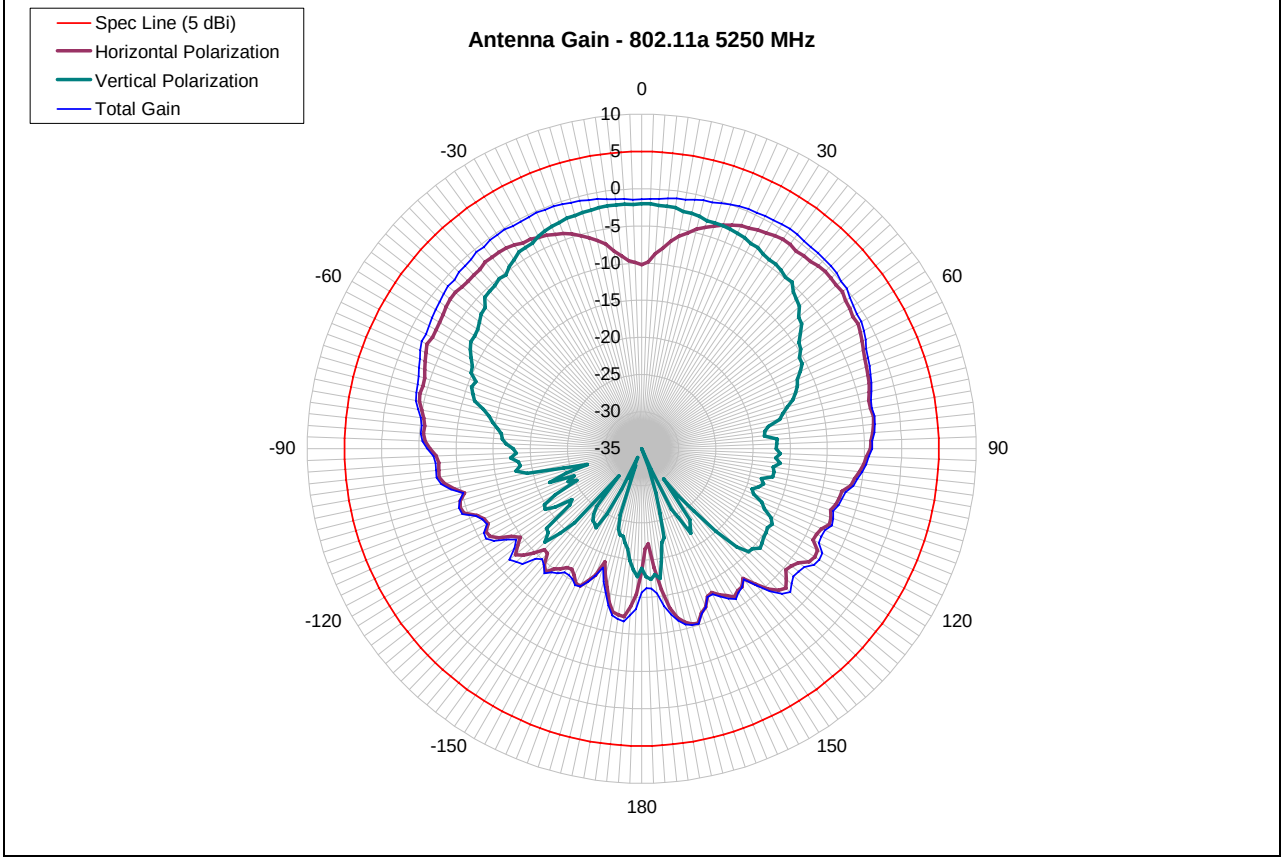
Anechoic Chamber Performance – Panel 2 – A3

Azimuth Scan – Frequency = 2.45 GHz



Anechoic Chamber Performance – Panel 2 – A3

Azimuth Scan – Frequency = 5.25 GHz



Azimuth Peak Gain (dBi)					
Frequency (GHz)	Panel 1 – A1	Panel 1 – A3	Panel 2 – A1	Panel 2 – A3	**Intel Specification**
2.39	-2.27	-1.10	-3.67	-1.32	**< 3 dBi**
2.45	-2.72	-2.15	-3.04	-1.77	**< 3 dBi**
2.5	-4.19	-3.15	-3.59	-2.93	**< 3 dBi**
4.9	-1.41	-0.75	-0.88	-1.84	**< 5 dBi**
5.0	-0.97	-0.59	-0.60	-0.48	**< 5 dBi**
5.1	-0.51	-0.12	-0.22	-0.41	**< 5 dBi**
5.15	-0.60	0.47	0.46	-0.36	**< 5 dBi**
5.25	0.06	0.19	-0.55	-0.67	**< 5 dBi**
5.35	-0.41	-0.38	-1.31	-1.14	**< 5 dBi**
5.47	-0.81	-1.13	-1.60	-1.83	**< 5 dBi**
5.7	-1.04	-1.21	-1.52	-2.21	**< 5 dBi**
5.85	-1.45	-1.46	-2.89	-2.74	**< 5 dBi**

Azimuth 80 Percent Area Gain over 180° (dBi)					
Frequency (GHz)	Panel 1 – A1	Panel 1 – A3	Panel 2 – A1	Panel 2 – A3	**Intel Specification**
2.39	-4.77	-5.19	-6.01	-5.56	**> -4 dBi**
2.45	-4.04	-4.61	-6.15	-5.02	**> -4 dBi**
2.5	-5.18	-5.18	-6.12	-5.47	**> -4 dBi**
4.9	-3.14	-2.59	-3.48	-3.95	**> -4 dBi**
5.0	-1.73	-1.30	-2.49	-3.40	**> -4 dBi**
5.1	-1.26	-1.17	-2.71	-2.25	**> -4 dBi**
5.15	-1.44	-0.75	-2.02	-2.15	**> -4 dBi**
5.25	-2.06	-1.77	-3.18	-2.97	**> -4 dBi**
5.35	-2.72	-2.20	-2.88	-2.95	**> -4 dBi**
5.47	-3.51	-3.43	-3.04	-3.81	**> -4 dBi**
5.7	-4.55	-4.18	-4.12	-3.83	**> -4 dBi**
5.85	-6.23	-5.88	-4.68	-4.65	**> -4 dBi**