

HARMONIC AND SPURIOUS RADIATED EMISSIONS

Test Engr: Chin Pang
 Project #:03U1881-1
 Company:Symbol Technologies EMEA
 EUT Descr.:802.11b WLAN RF Port
 EUT M/N:BYGA2
 Test Target:FCC 15.247
 Mode Oper: Tx

Test Equipment:

EMCO Horn 1-18GHz T73; S/N: 6717 @ 1m	Pre-amplifier 1-26GHz Miteq NSP2600-44	Spectrum Analyzer 8593EM Analyzer	Horn > 18GHz
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Hi Frequency Cables

(2 ft) (2 ~ 3 ft) (4 ~ 6 ft) (12 ft)

Peak Measurements:
 1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:
 1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
Transmitting on Low Channel															
4.824	9.8	44.4	33.3	33.9	3.9	-36.1	0.0	1.0	47.1	36.0	74.0	54.0	-26.9	-18.0	V
4.824	9.8	44.5	33.3	33.9	3.9	-36.1	0.0	1.0	47.2	36.0	74.0	54.0	-26.8	-18.0	H
Transmitting on Mid Channel															
4.874	9.8	45.0	33.5	33.9	4.0	-36.1	0.0	1.0	47.8	36.3	74.0	54.0	-26.2	-17.7	V
4.824	9.8	44.5	33.3	33.9	3.9	-36.1	0.0	1.0	47.2	36.0	74.0	54.0	-26.8	-18.0	H
Transmitting on High Channel															
4.924	9.8	44.8	33.3	34.0	4.0	-36.1	0.0	1.0	47.7	36.1	74.0	54.0	-26.3	-17.9	V
4.924	9.8	44.3	33.2	34.0	4.0	-36.1	0.0	1.0	47.2	36.1	74.0	54.0	-26.8	-17.9	H

No other emissions were detected above the system noise floor.

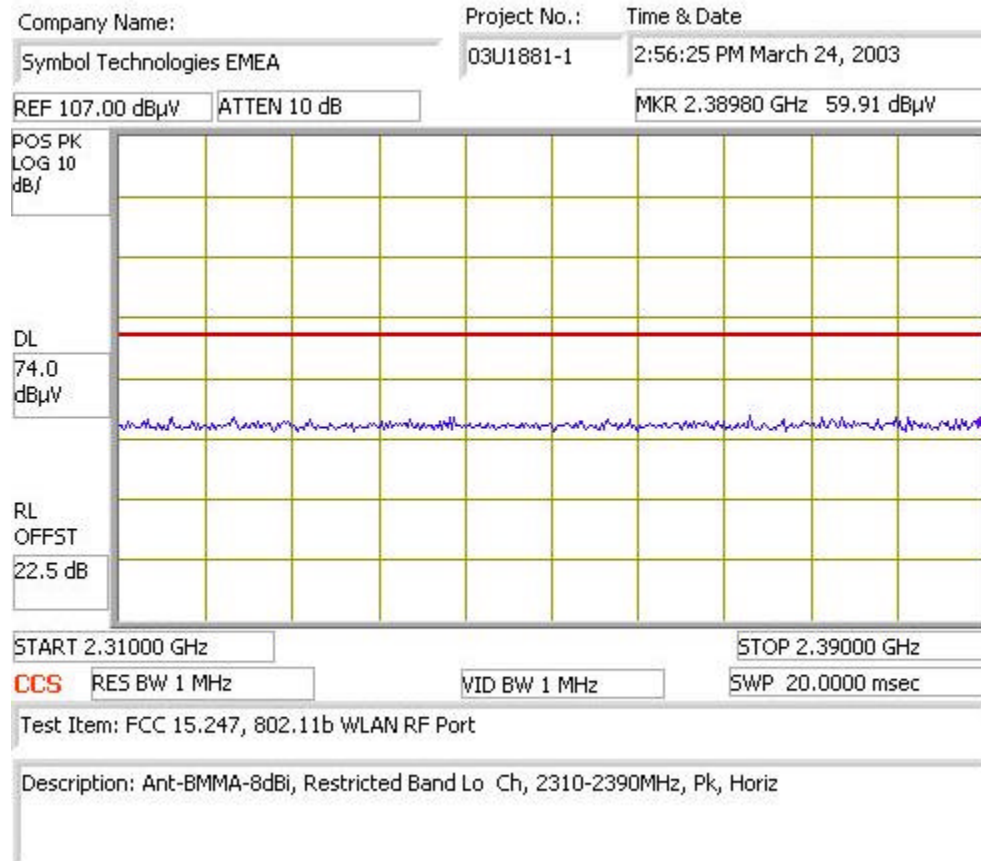
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

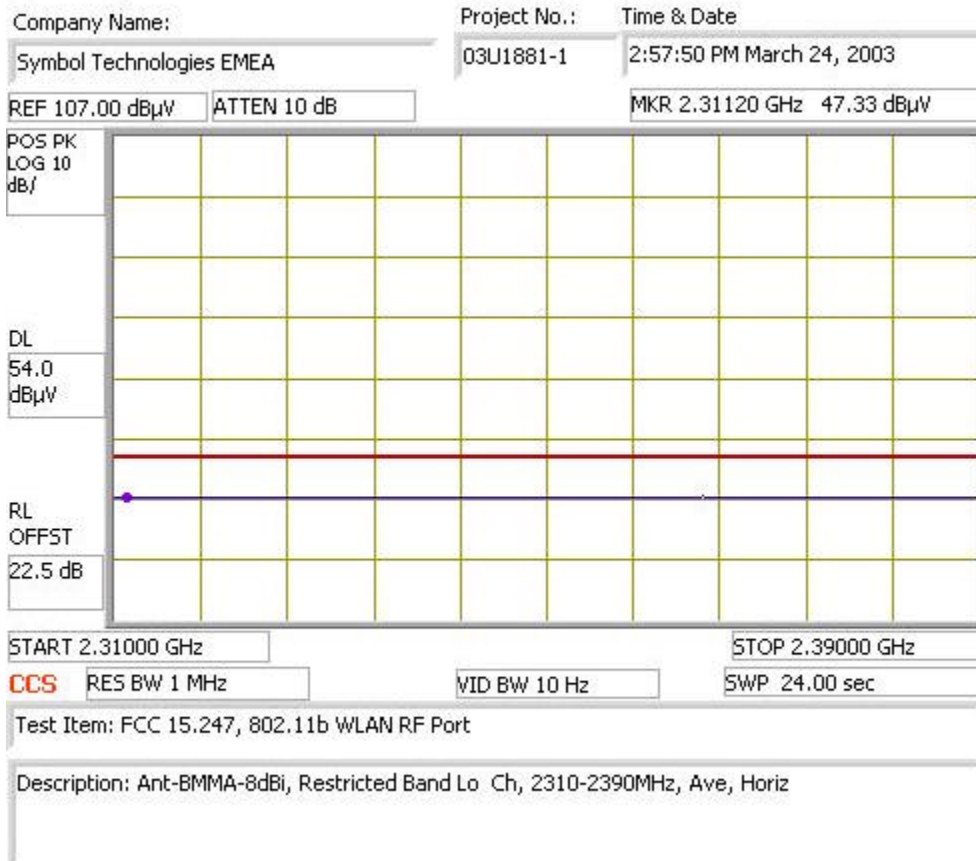
7.7.4. DIPOLE ANTENNA RESULTS

SETUP PHOTO

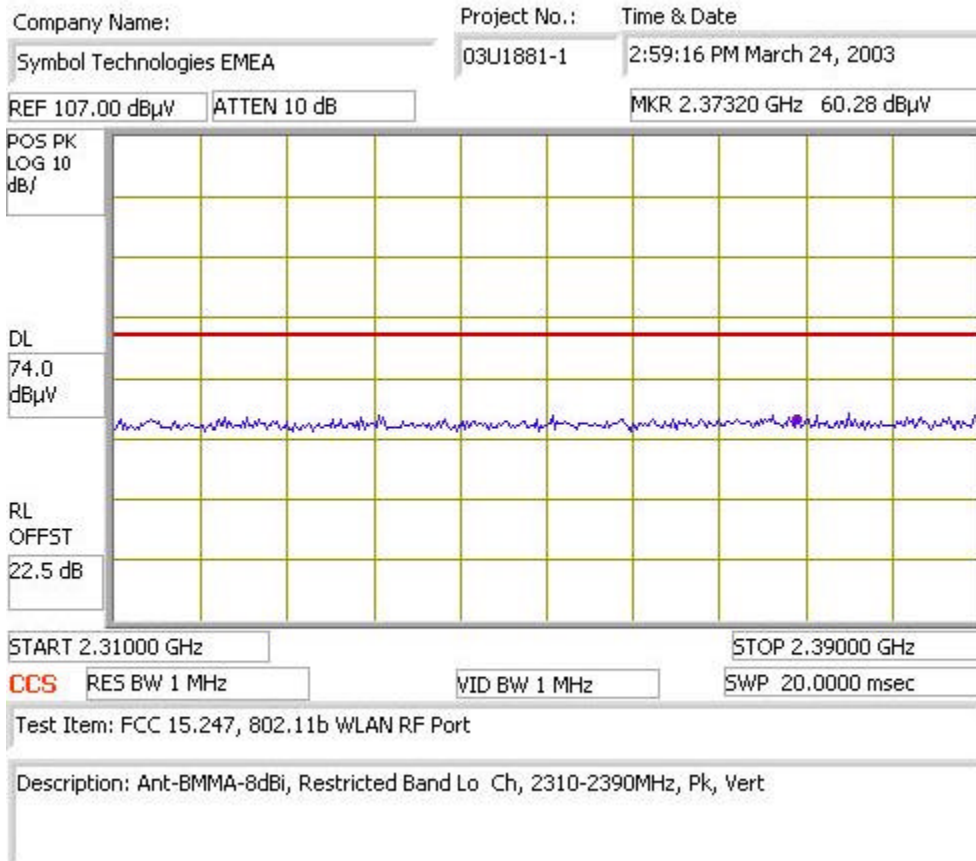


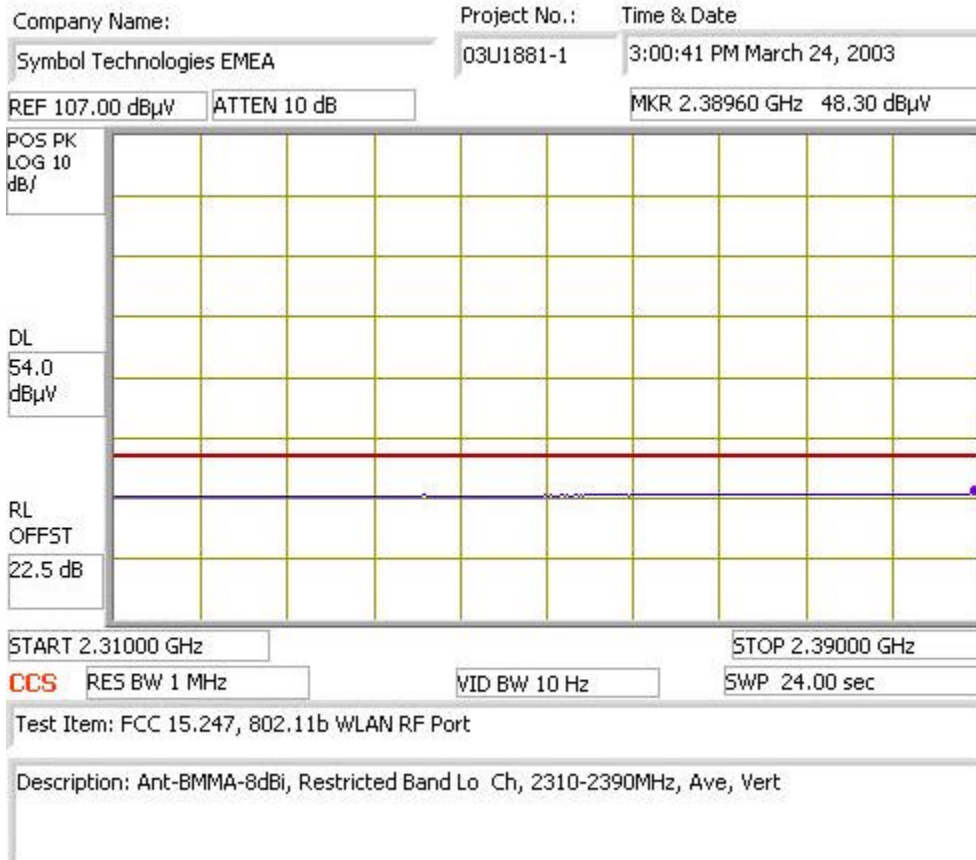
ADJACENT RESTRICTED BAND (LOW CHANNEL, HORIZONTAL)



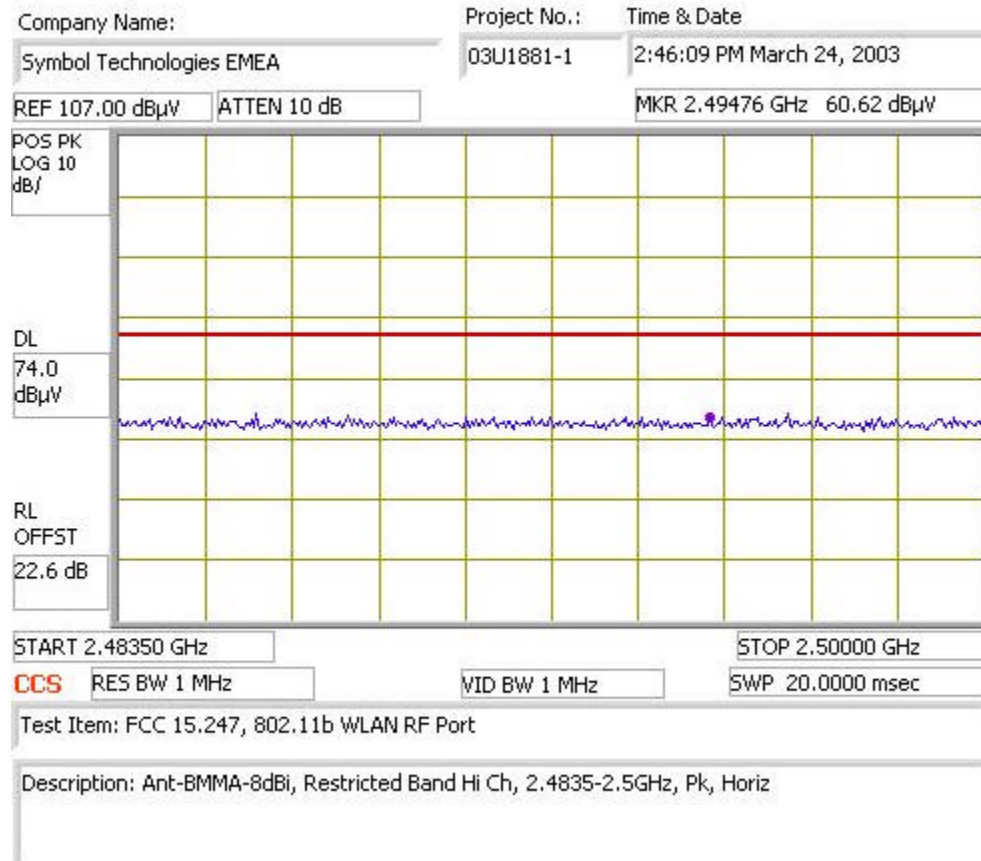


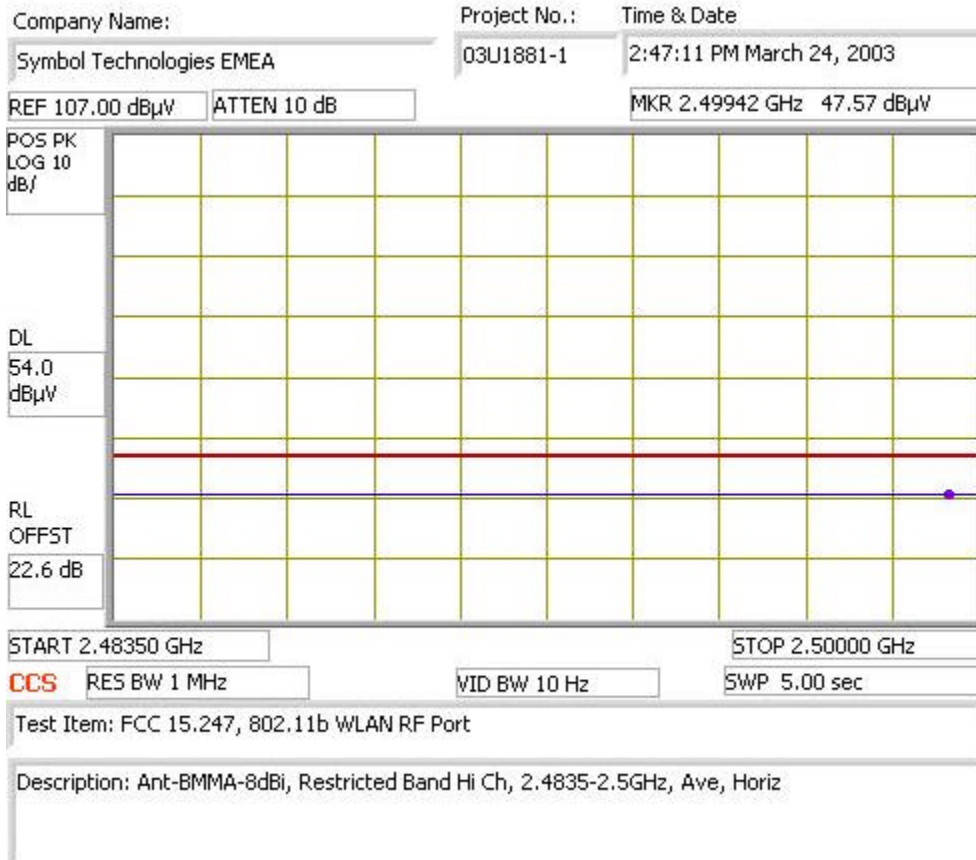
ADJACENT RESTRICTED BAND (LOW CHANNEL, VERTICAL)



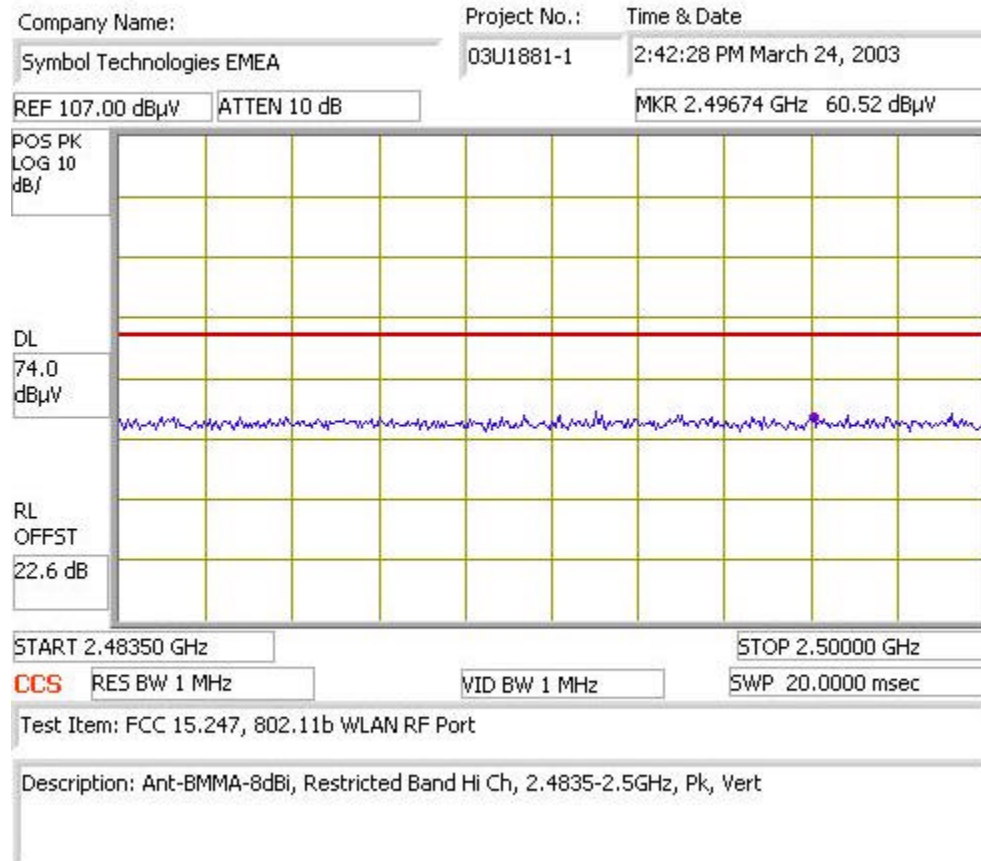


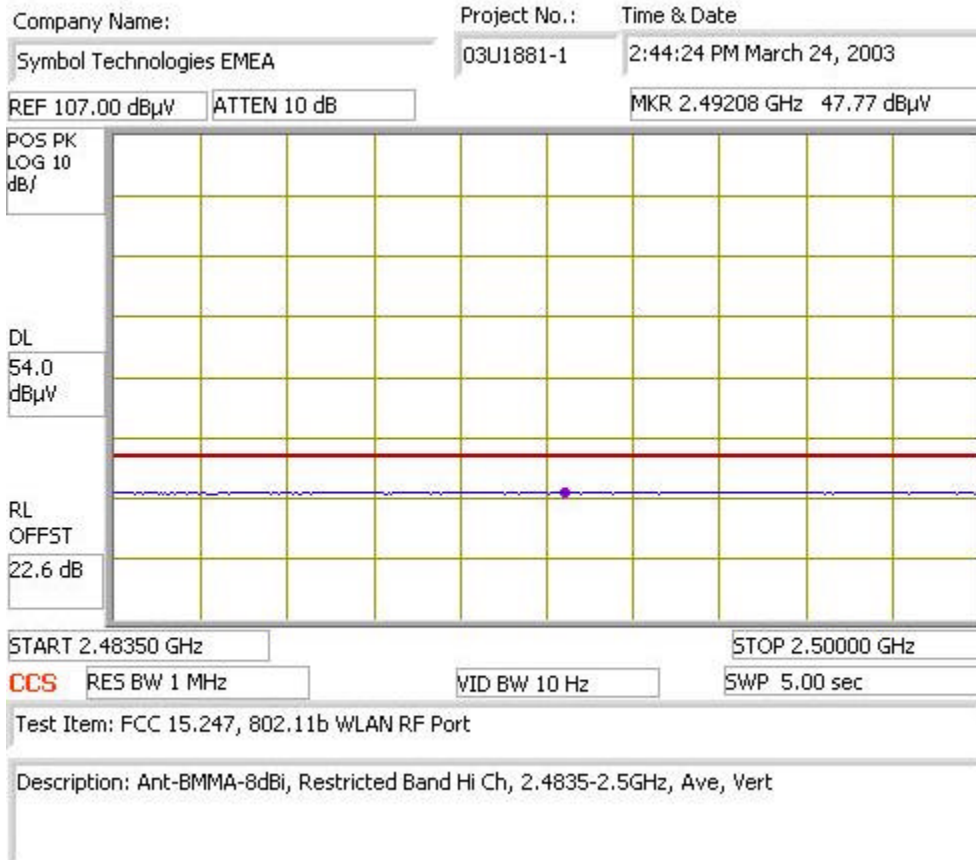
ADJACENT RESTRICTED BAND (HIGH CHANNEL, HORIZONTAL)





ADJACENT RESTRICTED BAND (HIGH CHANNEL, VERTICAL)





HARMONIC AND SPURIOUS RADIATED EMISSIONS

03/26/03 High Frequency Measurement
 Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
 Project #:03U1881-1
 Company:Symbol Technologies EMEA
 EUT Descr.:802.11b WLAN RF Port
 EUT M/N:BMMA1
 Test Target:FCC 15.247
 Mode Oper: Tx

Test Equipment:

EMCO Horn 1-18GHz T73; S/N: 6717 @ 1m	Pre-amplifier 1-26GHz Miteq NSP2600-44	Spectrum Analyzer 8593EM Analyzer	Horn > 18GHz
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Hi Frequency Cables
 (2 ft)
 (2 ~ 3 ft)
 (4 ~ 6 ft)
 (12 ft)

Peak Measurements:
 1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:
 1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

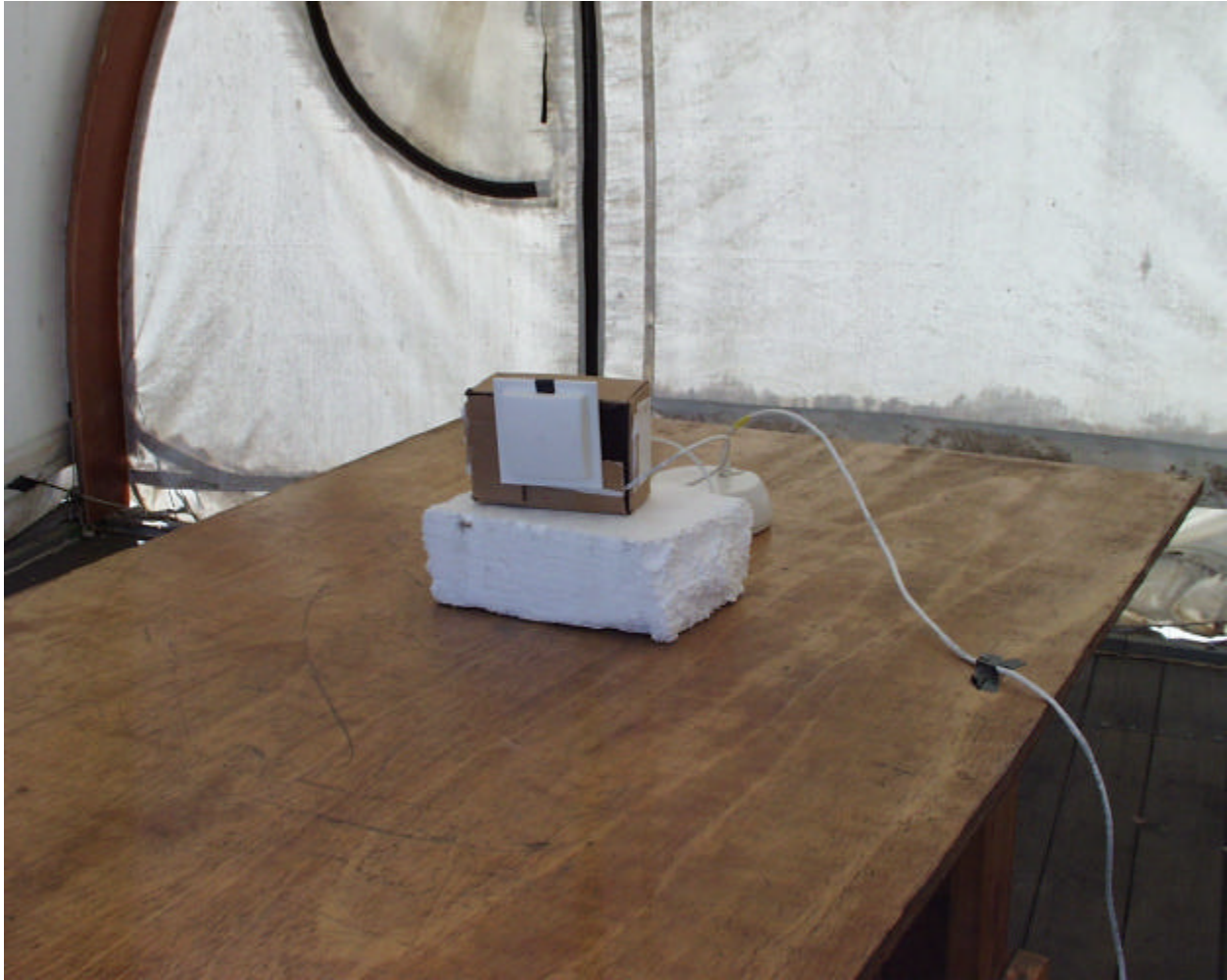
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
Transmitting on Low Channel															
4.824	9.8	45.0	33.4	33.9	3.9	-36.1	0.0	1.0	47.7	36.1	74.0	54.0	-26.3	-17.9	V
4.824	9.8	44.3	33.3	33.9	3.9	-36.1	0.0	1.0	47.0	36.0	74.0	54.0	-27.0	-18.0	H
Transmitting on Mid Channel															
4.874	9.8	45.7	33.6	33.9	4.0	-36.1	0.0	1.0	48.5	36.4	74.0	54.0	-25.5	-17.6	V
4.824	9.8	45.2	33.2	33.9	3.9	-36.1	0.0	1.0	47.9	35.9	74.0	54.0	-26.1	-18.1	H
Transmitting on High Channel															
4.924	9.8	48.3	35.0	34.0	4.0	-36.1	0.0	1.0	51.2	37.9	74.0	54.0	-22.8	-16.1	V
4.924	9.8	44.4	33.3	34.0	4.0	-36.1	0.0	1.0	47.2	36.1	74.0	54.0	-26.8	-17.9	H

No other emissions were detected above the system noise floor.

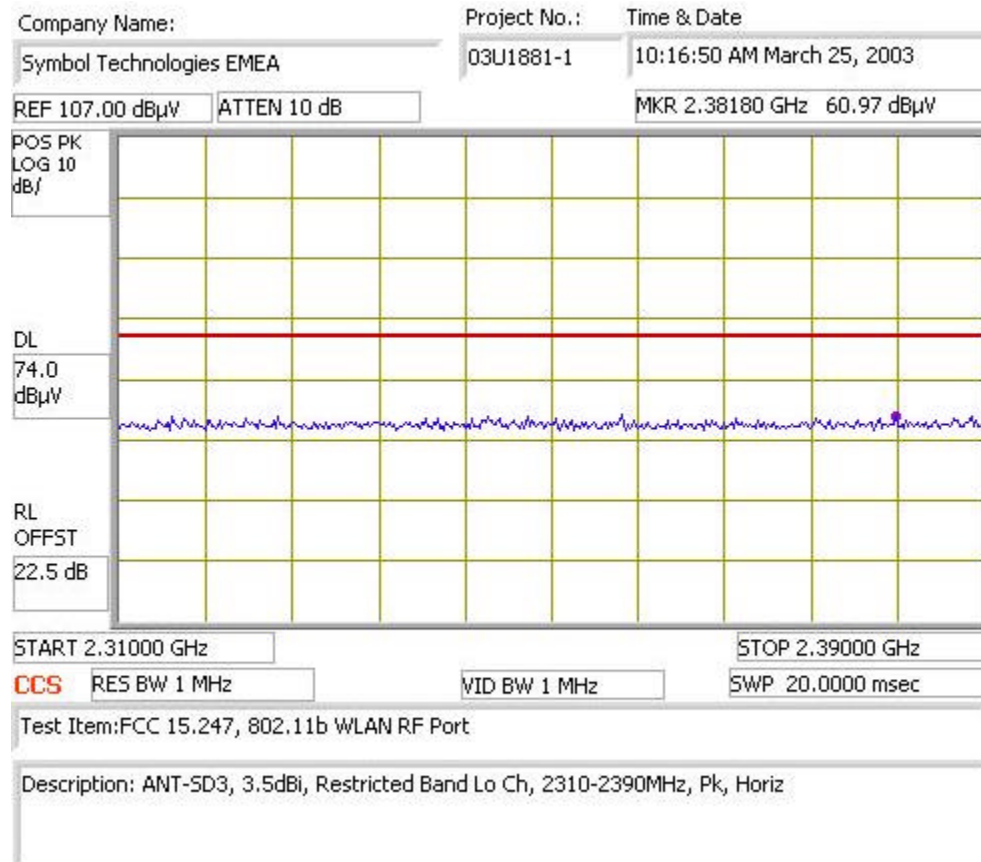
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

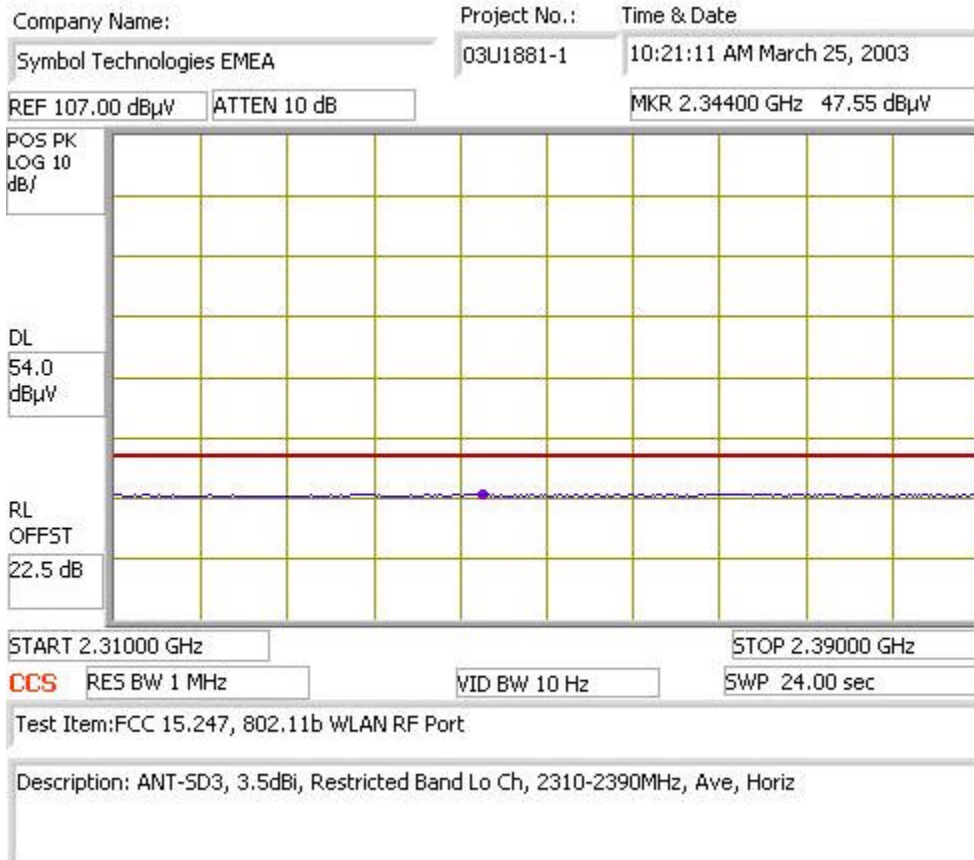
7.7.5. PATCH ANTENNA RESULTS

SETUP PHOTO

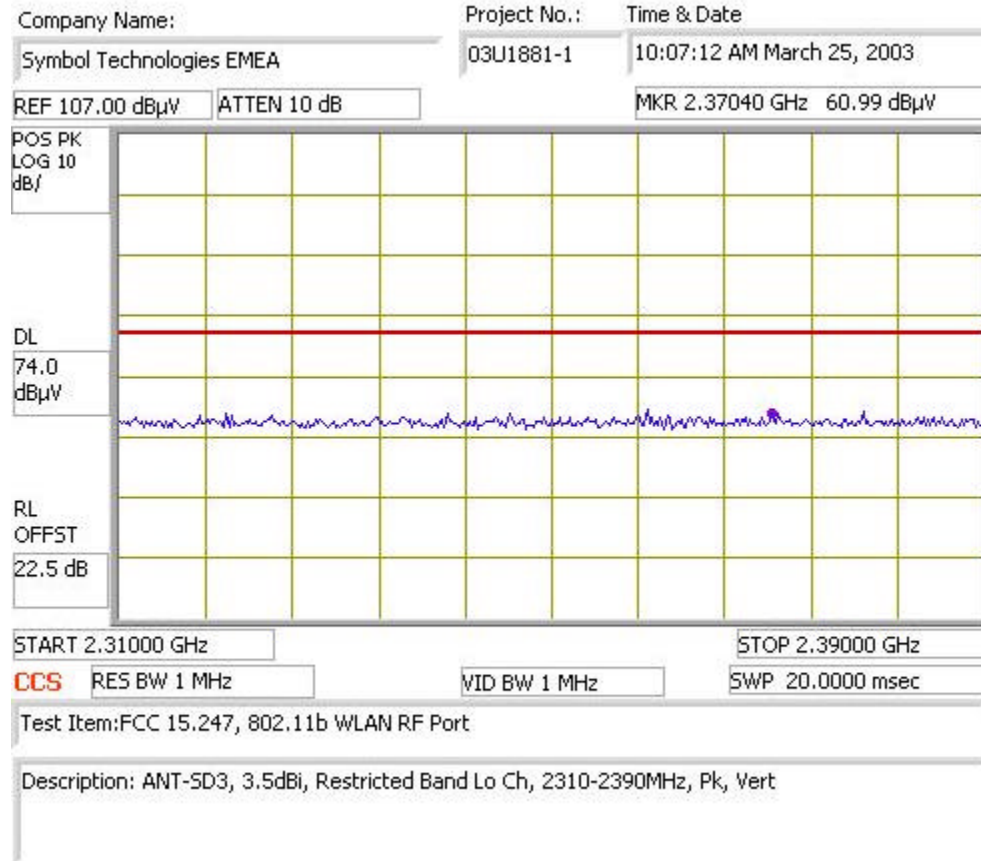


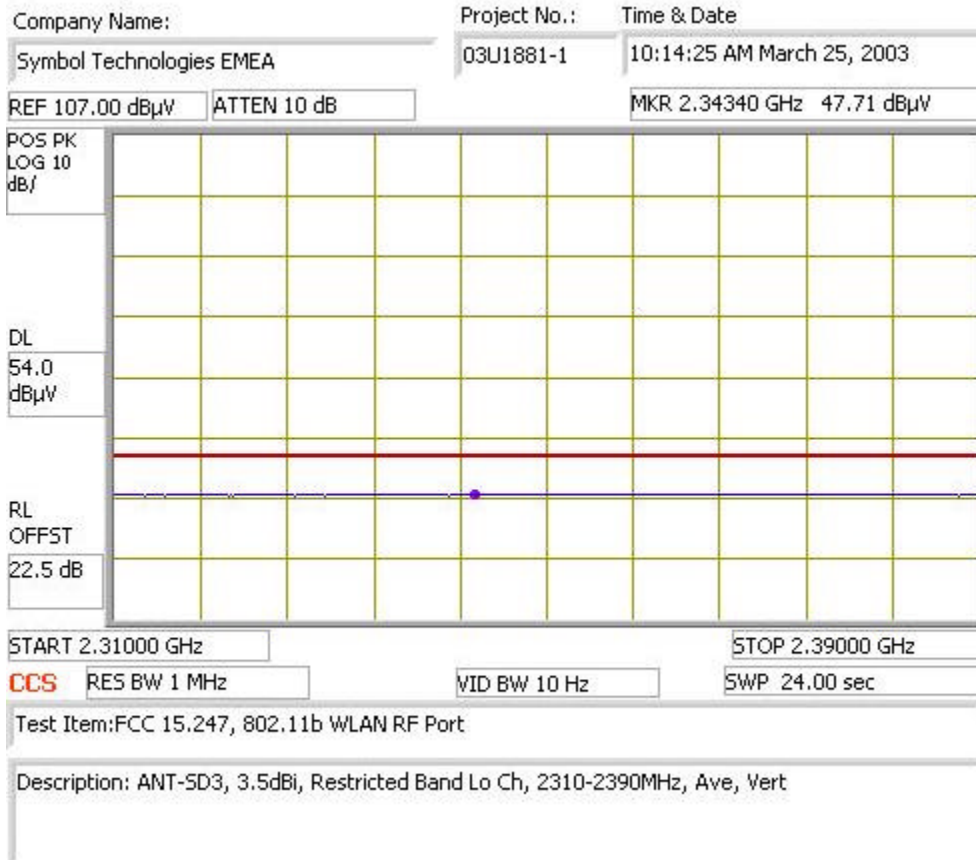
ADJACENT RESTRICTED BAND (LOW CHANNEL, HORIZONTAL)



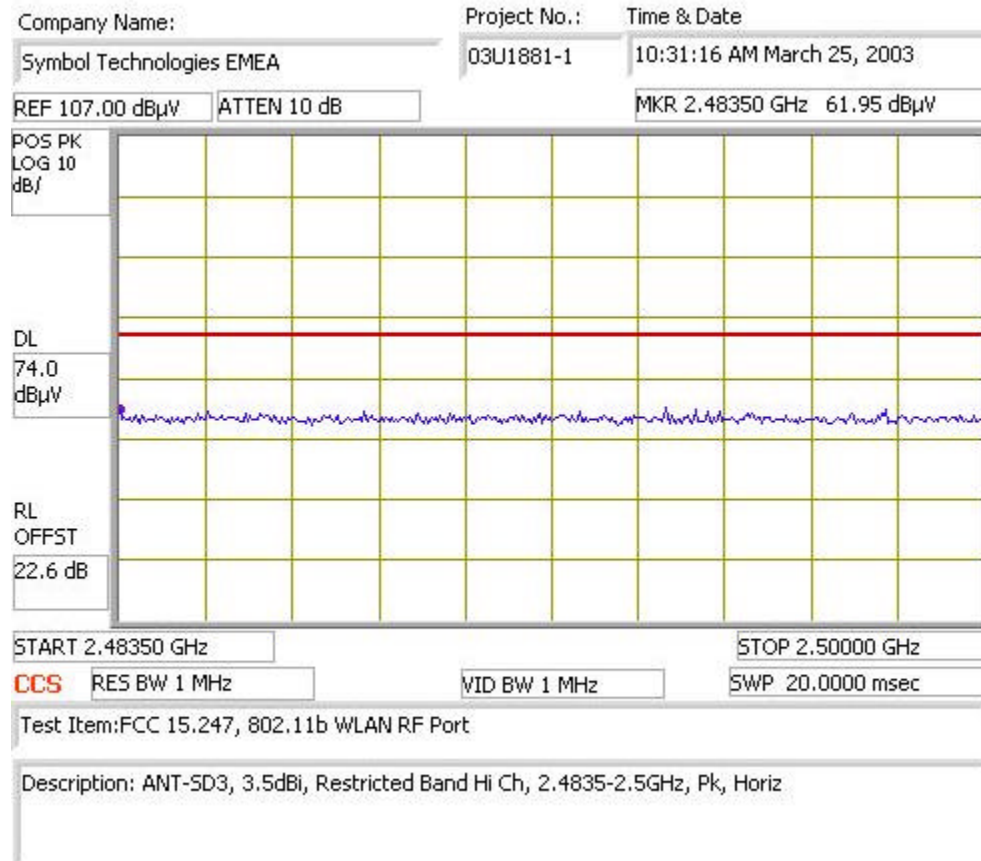


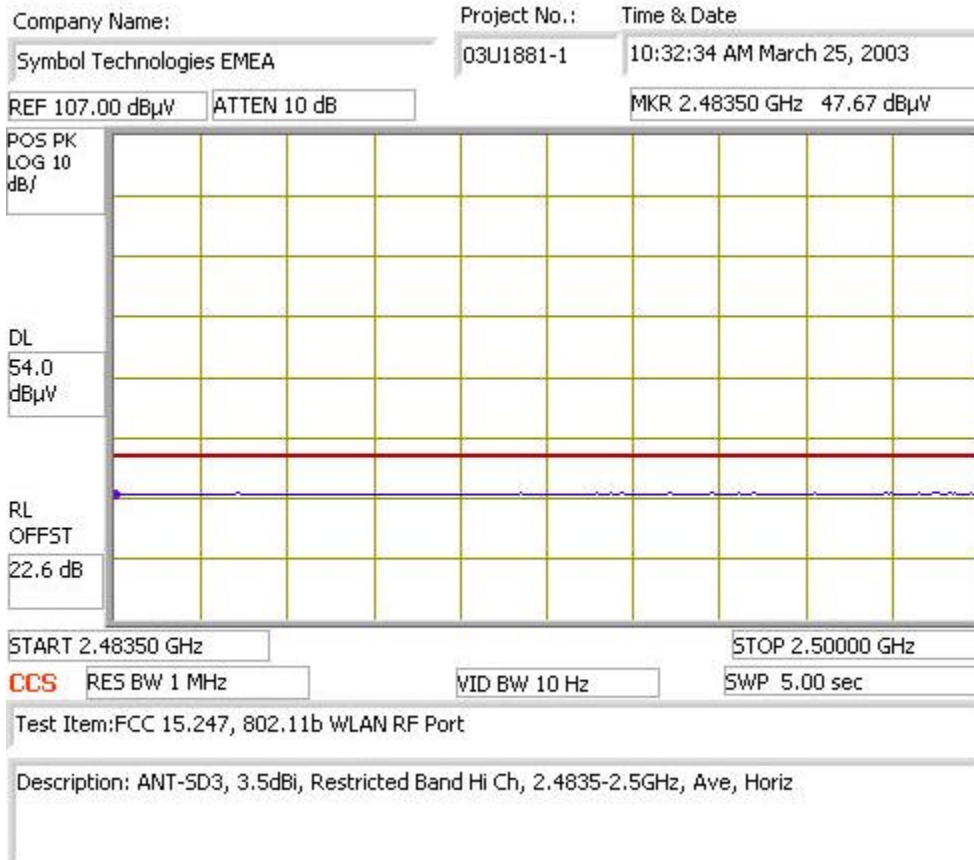
ADJACENT RESTRICTED BAND (LOW CHANNEL, VERTICAL)



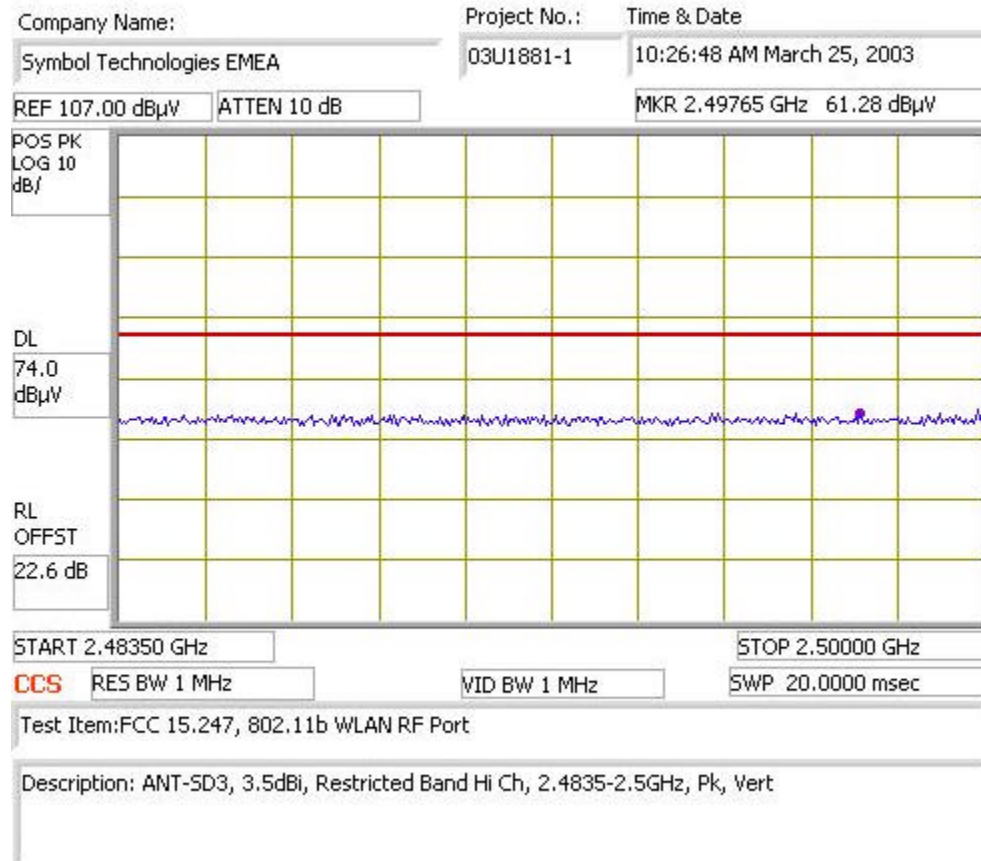


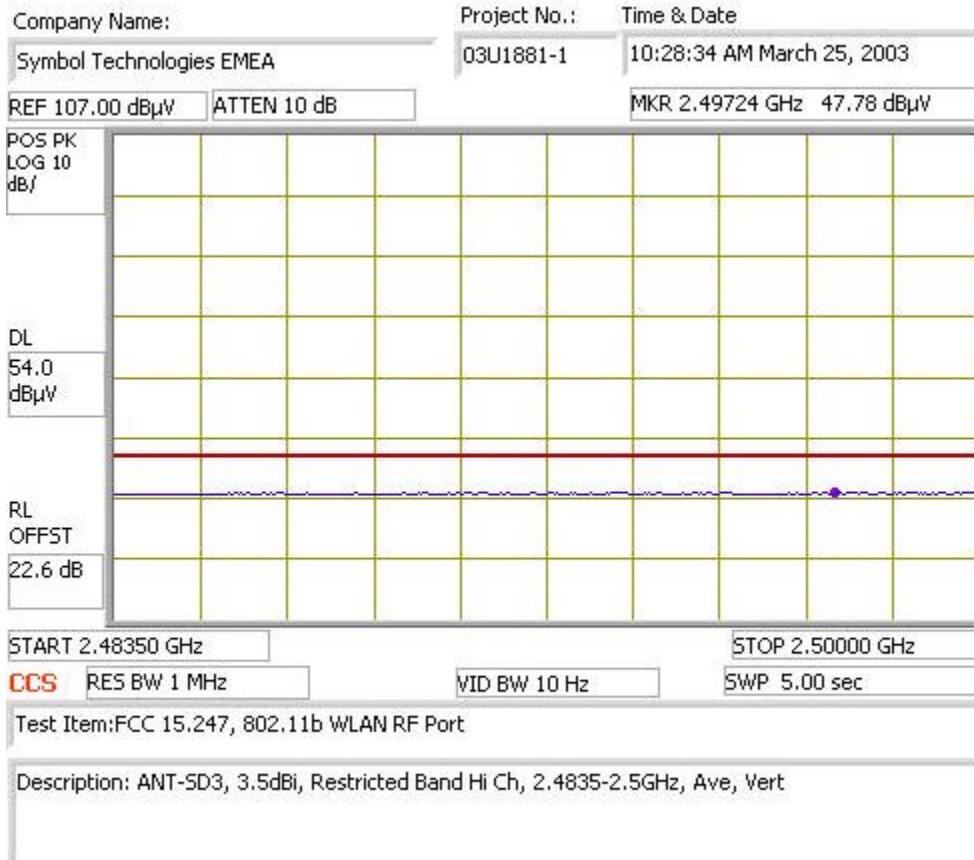
ADJACENT RESTRICTED BAND (HIGH CHANNEL, HORIZONTAL)





ADJACENT RESTRICTED BAND (HIGH CHANNEL, VERTICAL)





HARMONIC AND SPURIOUS RADIATED EMISSIONS

Project #:03U1881-1
 Company:Symbol Technologies EMEA
 EUT Descip.:802.11b WLAN RF Port
 EUT M/N:SD3
 Test Target:FCC 15.247
 Mode Oper: Tx

Test Equipment:

EMCO Horn 1-18GHz T73; S/N: 6717 @ 1m	Pre-amplifier 1-26GHz Miteq NSP2600-44	Spectrum Analyzer 8593EM Analyzer	Horn > 18GHz
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Hi Frequency Cables
 (2 ft) (2 ~ 3 ft) (4 ~ 6 ft) (12 ft)

Peak Measurements: 1 MHz Resolution Bandwidth
 1MHz Video Bandwidth
Average Measurements: 1 MHz Resolution Bandwidth
 10Hz Video Bandwidth


f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
Transmitting at Low Channel															
4.824	9.8	42.7	31.3	33.9	3.9	-36.1	0.0	1.0	45.4	34.0	74.0	54.0	-28.6	-20.0	V
4.824	9.8	43.7	31.3	33.9	3.9	-36.1	0.0	1.0	46.4	34.0	74.0	54.0	-27.6	-20.0	H
Transmitting at Mid Channel															
4.874	9.8	43.3	31.3	33.9	4.0	-36.1	0.0	1.0	46.1	34.1	74.0	54.0	-27.9	-19.9	V
4.874	9.8	42.9	31.2	33.9	4.0	-36.1	0.0	1.0	45.7	34.0	74.0	54.0	-28.3	-20.0	H
Transmitting at High Channel															
4.924	9.8	43.9	31.5	34.0	4.0	-36.1	0.0	1.0	46.8	34.3	74.0	54.0	-27.2	-19.7	V
4.924	9.8	42.5	31.2	34.0	4.0	-36.1	0.0	1.0	45.4	34.1	74.0	54.0	-28.6	-19.9	H

No other emissions were detected above the system noise floor

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

7.7.6. WORST-CASE EMISSIONS 30 TO 1000 MHz

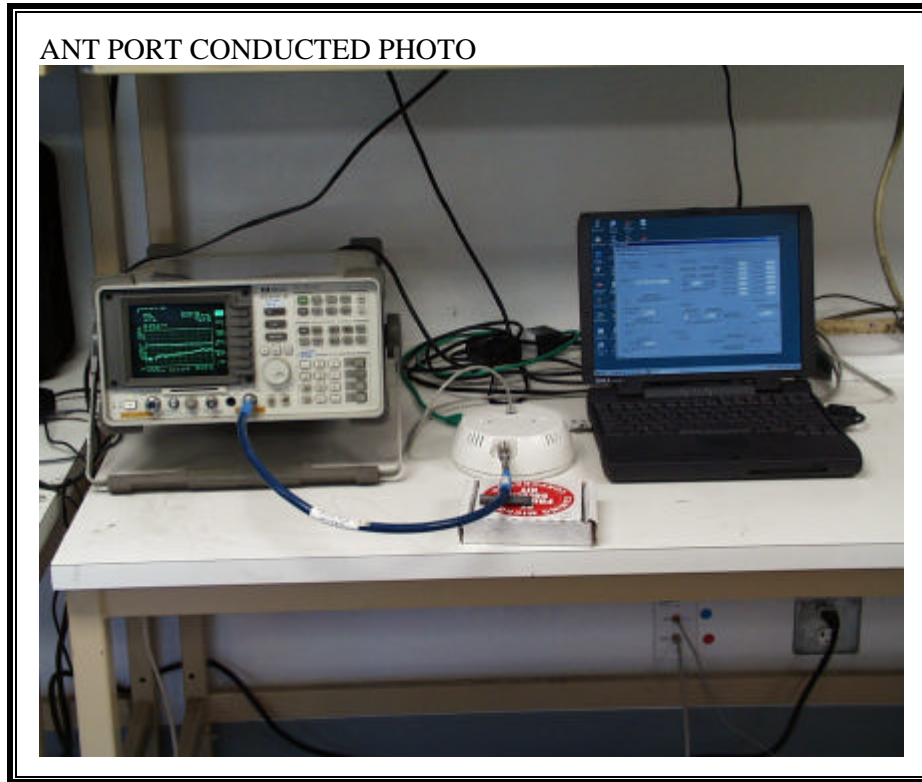
RESULTS

 <p>FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSMI, DHHS, NVLAP</p> <p>561F MONTEREY ROAD, SAN JOSE, CA 95037-9001 PHONE: (408) 463-0885 FAX: (408) 463-0888</p> <p><i>Company:</i> Symbol <i>EUT Description:</i> 802.11b WLAN RF Port. M/N: CCRF-5020, Class II Change <i>Test Configuration:</i> EUT/Support Equipment <i>Type of Test:</i> FCC 15.209 <i>Mode of Operation:</i> TX</p>	<p><i>Project #:</i> 030425A1 <i>Report #:</i> 030425A1 <i>Date & Time:</i> 04/25/03 2:48 PM <i>Test Engr:</i> Chin Pang</p> <p style="text-align: right; margin-top: 20px;"><< Main Sheet</p>
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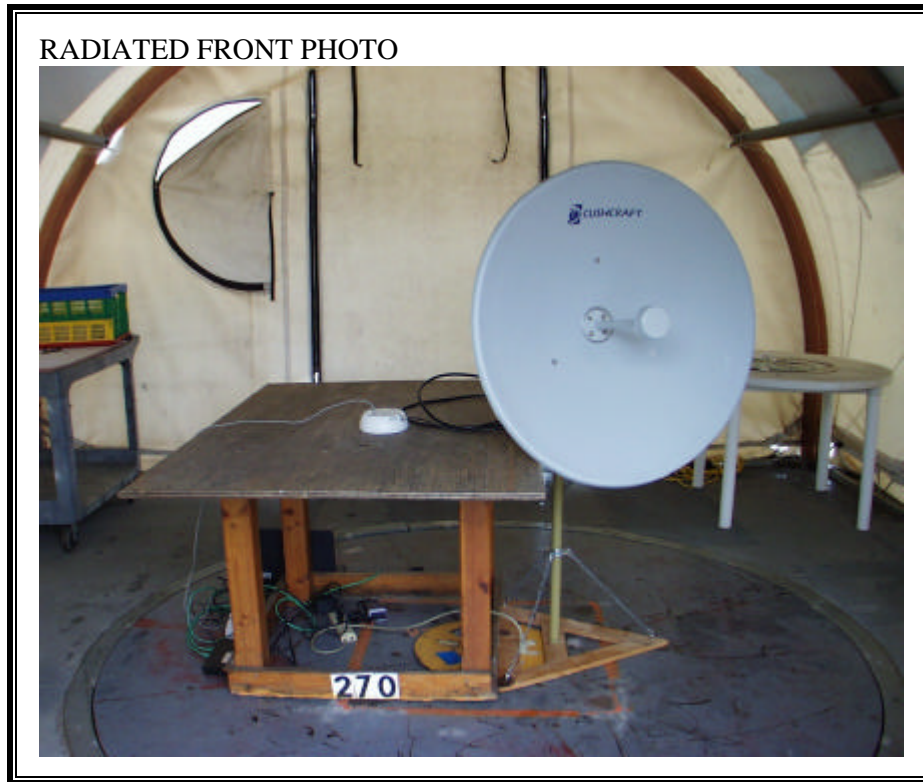
Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
500.00	50.90	17.47	3.68	27.71	44.34	46.00	-1.66	3mV	0.00	1.00	P
500.00	50.70	17.47	3.68	27.71	44.14	46.00	-1.86	3mH	0.00	1.50	P
200.00	48.60	17.38	2.23	26.67	41.54	43.50	-1.96	3mV	0.00	1.00	P
120.00	56.00	10.70	1.71	26.93	41.48	43.50	-2.02	3mH	0.00	2.00	P
250.00	55.00	12.22	2.53	26.52	43.23	46.00	-2.77	3mH	0.00	2.00	P
450.00	50.30	16.67	3.47	27.49	42.95	46.00	-3.05	3mH	0.00	2.00	P
6 Worst Data											

7.8. SETUP PHOTOS

ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP



RADIATED RF MEASUREMENT SETUP





POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP





END OF REPORT