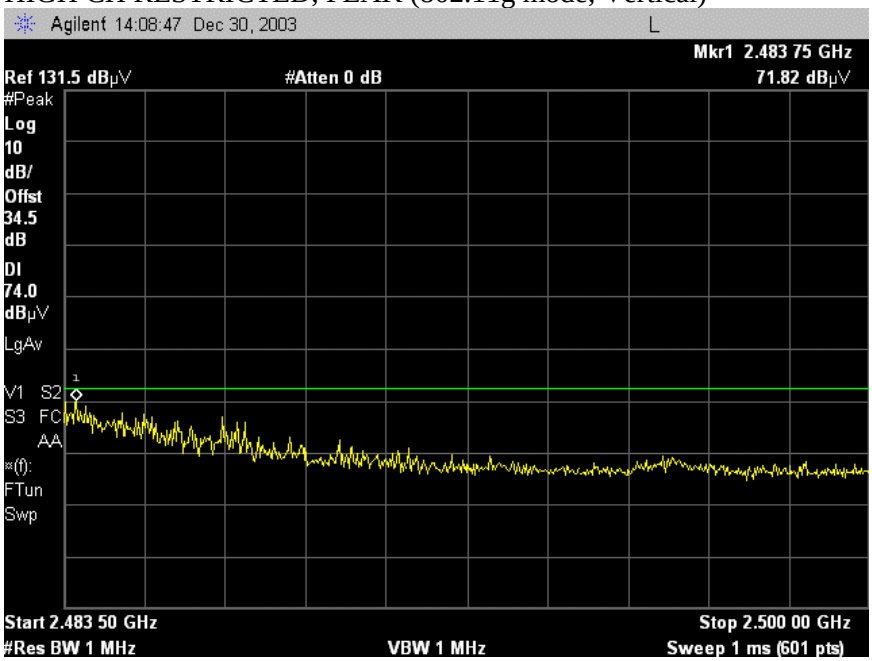
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Vertical)



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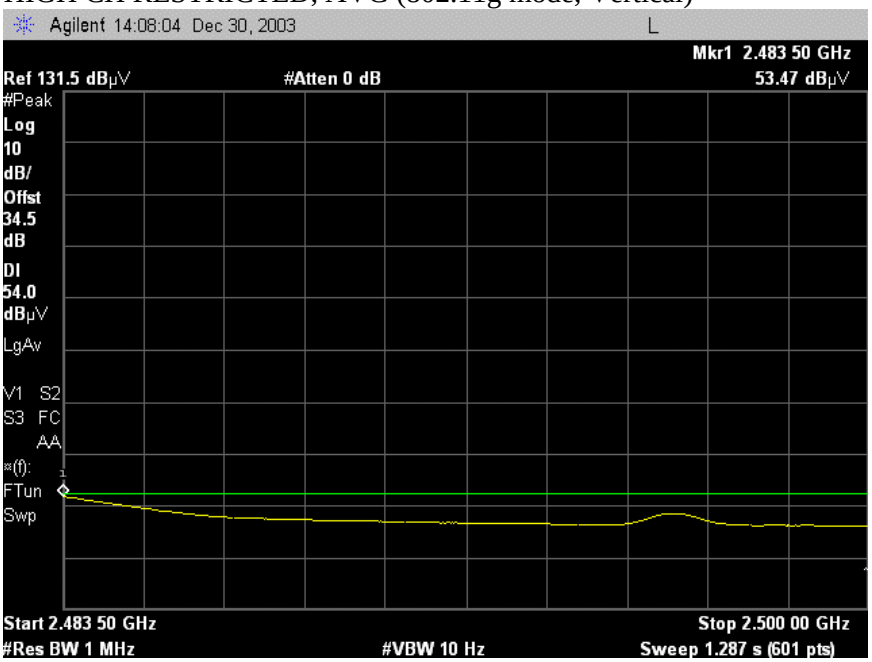
HIGH CH RESTRICTED, AVG (802.11g mode, Vertical)



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HARMONICS AND SPURIOUS EMISSIONS (g MODE)

12/29/03 High Frequency Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #: 03U2433
Company: HEWLETT PACKARD
EUT Descrip.: 802.11 A/B/G J07H069.01
EUT M/N: NX9100(HP TRUMAN)
Test Target: FCC
Mode Oper: TX(NORMAL)

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T63 Miteq 646456	Agilent E4446A Analyzer		FCC 15.205

Hi Frequency Cables: ☐ (2 ft) ☑ (2 ~ 3 ft) ☐ (4 ~ 6 ft) ☑ (12 ft)

Peak Measurements: 1 MHz Resolution Bandwidth, 10Hz 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
		LOW CHANNEL (2412MHz) (G)													
4.824	9.8	42.4	34.0	33.1	2.9	-35.3	0.0	1.0	44.1	35.7	74.0	54.0	-29.9	-18.3	V(NOISE FLOOR)
4.824	9.8	42.9	34.1	33.1	2.9	-35.3	0.0	1.0	44.6	35.8	74.0	54.0	-29.4	-18.2	H(NOISE FLOOR)
12.060	9.8	41.0	31.4	39.3	5.1	-34.9	0.0	1.0	51.5	41.9	74.0	54.0	-22.5	-12.1	V(NOISE FLOOR)
12.060	9.8	40.7	31.5	39.3	5.1	-34.9	0.0	1.0	51.2	42.0	74.0	54.0	-22.8	-12.0	H(NOISE FLOOR)
		MIDDLE CHANNEL (2437MHz) (G)													
4.874	9.8	42.4	34.2	33.1	3.0	-35.3	0.0	1.0	44.2	36.0	74.0	54.0	-29.8	-18.0	V(NOISE FLOOR)
4.874	9.8	42.2	34.4	33.1	3.0	-35.3	0.0	1.0	44.0	36.2	74.0	54.0	-30.0	-17.8	H(NOISE FLOOR)
7.311	9.8	38.1	32.0	36.2	3.8	-34.6	0.0	1.0	44.5	38.4	74.0	54.0	-29.5	-15.6	V(NOISE FLOOR)
7.311	9.8	38.9	31.3	36.2	3.8	-34.6	0.0	1.0	45.3	37.7	74.0	54.0	-28.7	-16.3	H(NOISE FLOOR)
12.185	9.8	40.3	31.3	39.4	5.2	-35.1	0.0	1.0	50.7	41.7	74.0	54.0	-23.3	-12.3	V(NOISE FLOOR)
12.185	9.8	40.9	31.4	39.4	5.2	-35.1	0.0	1.0	51.3	41.8	74.0	54.0	-22.7	-12.2	H(NOISE FLOOR)
		HIGH CHANNEL (2462MHz) (G)													
4.924	9.8	42.0	34.0	33.2	3.0	-35.3	0.0	1.0	43.8	35.8	74.0	54.0	-30.2	-18.2	V(NOISE FLOOR)
4.924	9.8	42.3	34.4	33.2	3.0	-35.3	0.0	1.0	44.1	36.2	74.0	54.0	-29.9	-17.8	H(NOISE FLOOR)
7.386	9.8	43.0	32.0	36.3	3.8	-34.5	0.0	1.0	49.6	38.6	74.0	54.0	-24.4	-15.4	V(NOISE FLOOR)
7.386	9.8	42.1	31.2	36.3	3.8	-34.5	0.0	1.0	48.7	37.8	74.0	54.0	-25.3	-16.2	H(NOISE FLOOR)
12.310	9.8	38.0	31.0	39.4	5.2	-35.3	0.0	1.0	48.3	41.3	74.0	54.0	-25.7	-12.7	V(NOISE FLOOR)
12.310	9.8	38.0	31.3	39.4	5.2	-35.3	0.0	1.0	48.3	41.6	74.0	54.0	-25.7	-12.4	H(NOISE FLOOR)
		NO OTHER SPURIOUS EMISSIONS 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		

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HARMONICS AND SPURIOUS EMISSIONS (g TURBO MODE)

12/29/03 High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #: 03U2433
Company: HEWLETT PACKARD
EUT Descrip.: 802.11 A/B/G J07H069.01
EUT M/N: NX9100 (HP TRUMAN)
Test Target: FCC
Mode Oper: TX (NORMAL)

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T63 Miteq 646456	Agilent E4446A Analyzer		FCC 15.205

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
	MIDDLE CHANNEL (2437MHz) (G TURBO)														
4.874	9.8	43.7	34.0	33.1	3.0	-35.3	0.0	1.0	45.4	35.8	74.0	54.0	-28.6	-18.2	V (NOISE FLOOR)
4.874	9.8	42.1	34.7	33.1	3.0	-35.3	0.0	1.0	43.9	36.5	74.0	54.0	-30.1	-17.5	H (NOISE FLOOR)
7.311	9.8	39.3	31.2	36.2	3.8	-34.6	0.0	1.0	45.7	37.6	74.0	54.0	-28.3	-16.4	V (NOISE FLOOR)
7.311	9.8	39.7	31.5	36.2	3.8	-34.6	0.0	1.0	46.1	37.9	74.0	54.0	-27.9	-16.1	H (NOISE FLOOR)
12.185	9.8	41.2	30.9	39.4	5.2	-35.1	0.0	1.0	51.6	41.3	74.0	54.0	-22.4	-12.7	V (NOISE FLOOR)
12.185	9.8	41.4	31.0	39.4	5.2	-35.1	0.0	1.0	51.8	41.4	74.0	54.0	-22.2	-12.6	H (NOISE FLOOR)
	NO OTHER SPURIOUS EMISSIONS 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		

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HARMONICS AND SPURIOUS EMISSIONS (a MODE)

12/29/03 High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #: 03U2433
Company: HEWLETT PACKARD
EUT Descrip.: 802.11 A/B/G J07H069.01
EUT M/N: NX9100 (HP TRUMAN)
Test Target: FCC
Mode Oper: TX (NORMAL)

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T63 Miteq 646456	Agilent E4446A Analyzer		FCC 15.205

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
		LOW CHANNEL (5745MHz)													
11.490	9.8	49.7	35.7	38.7	5.0	-34.2	0.0	1.0	60.2	46.1	74.0	54.0	-13.8	-7.9	V
11.490	9.8	53.1	41.0	38.7	5.0	-34.2	0.0	1.0	63.6	51.4	74.0	54.0	-10.4	-2.6	H
		MIDDLE CHANNEL (5785MHz)													
11.570	9.8	50.0	34.0	38.8	5.0	-34.3	0.0	1.0	60.5	44.5	74.0	54.0	-13.5	-9.5	V
11.570	9.8	53.3	39.9	38.8	5.0	-34.3	0.0	1.0	63.7	50.4	74.0	54.0	-10.3	-3.6	H
		HIGH CHANNEL (5825MHz)													
11.650	9.8	50.3	35.3	38.9	5.0	-34.4	0.0	1.0	60.8	45.8	74.0	54.0	-13.2	-8.2	V
11.650	9.8	52.7	39.6	38.9	5.0	-34.4	0.0	1.0	63.2	50.1	74.0	54.0	-10.8	-3.9	H
		NO OTHER SPURIOUS EMISSIONS 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		

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HARMONICS AND SPURIOUS EMISSIONS (a TURBO MODE)

12/29/03 High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #: 03U2433
Company: HEWLETT PACKARD
EUT Descrip.: 802.11 A/B/G J07H069.01
EUT M/N: NX9100 (HP TRUMAN)
Test Target: FCC
Mode Oper: TX (NORMAL)

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T63 Miteq 646456	Agilent E4446A Analyzer		FCC 15.205

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
		LOW CHANNEL (5760MHz)													
11.520	9.8	44.0	33.1	38.7	5.0	-34.2	0.0	1.0	54.5	43.6	74.0	54.0	-19.5	-10.4	V
11.520	9.8	52.3	37.3	38.7	5.0	-34.2	0.0	1.0	62.8	47.8	74.0	54.0	-11.2	-6.2	H
		HIGH CHANNEL (5800MHz)													
11.600	9.8	45.3	34.1	38.8	5.0	-34.3	0.0	1.0	55.8	44.6	74.0	54.0	-18.2	-9.4	V
11.600	9.8	51.2	36.6	38.8	5.0	-34.3	0.0	1.0	61.7	47.0	74.0	54.0	-12.3	-7.0	H
		NO OTHER SPURIOUS EMISSIONS 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		

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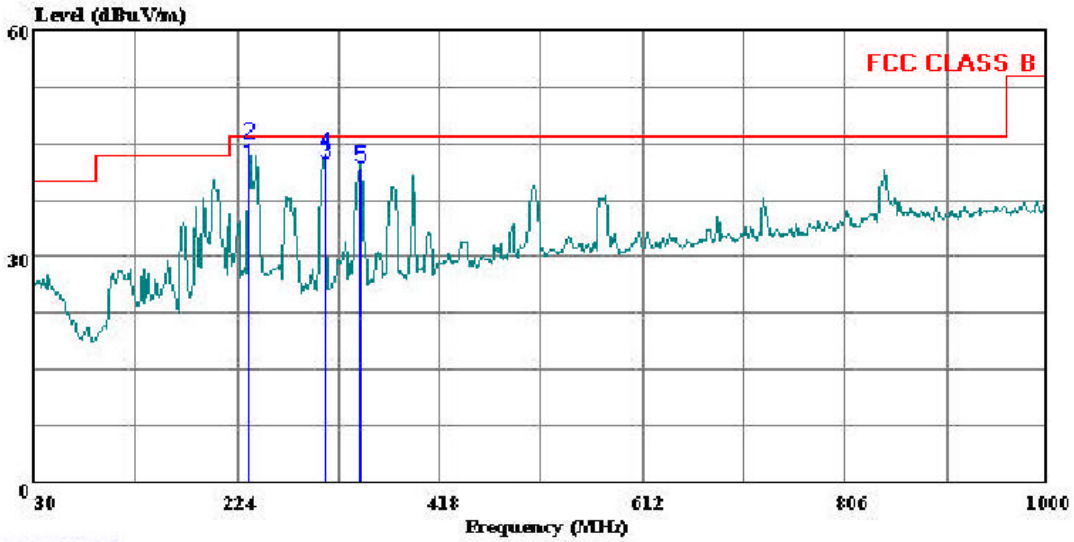
7.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

COMPLIANCE Engineering Services, Inc.
561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 4 File#: RUN 1.EMI Date: 12-23-2003 Time: 16:59:50



Trace: 1 Ref Trace:

Condition: FCC CLASS B CHAMBER 030306 1185 HORIZONTAL
Test Eng: : NEELESH RAJ
Project #: : 03U2433
Company: : HEWLETT PACKARD
EUT: : 802.11 A/B/G J07H069.01
Model No: : NX9100 (HP TRUMAN)
Configuration: : EUT/AC ADAPTER
Target of Test: : FCC-B
Mode of Operation: TX (WORST CASE)

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HORIZONTAL DATA

Page: 1

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	235.640	QP	29.62	12.46	42.08	46.00	-3.92
2	235.640	Peak	32.51	12.49	45.00	46.00	-1.00
3	308.390	QP	28.27	14.02	42.29	46.00	-3.71
4	308.390	Peak	29.54	14.05	43.59	46.00	-2.41
5	341.370	Peak	26.95	14.97	41.93	46.00	-4.07

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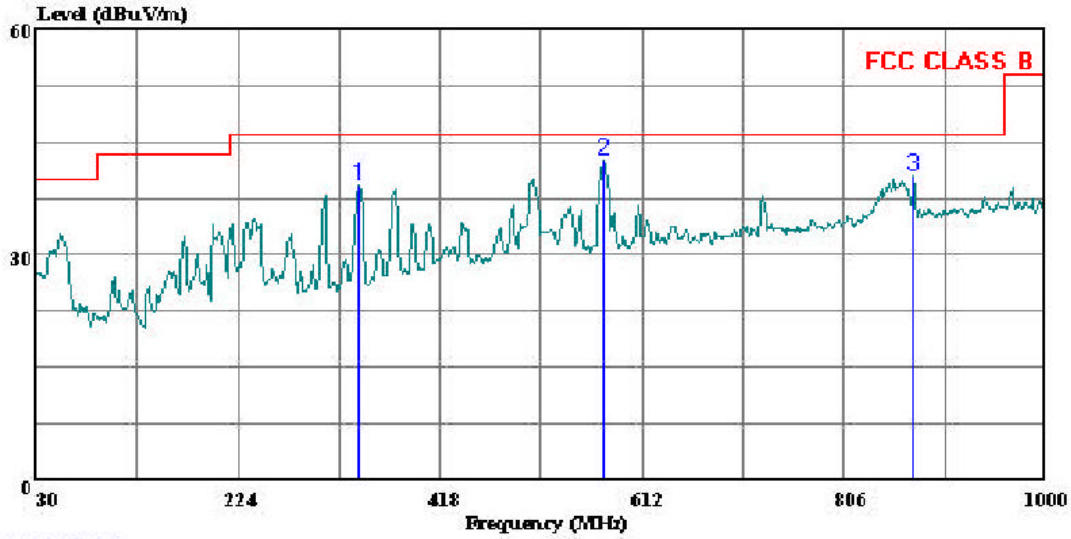
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

COMPLIANCE Engineering Service, Inc.
561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 6 File#: RUN 1.EMI Date: 12-23-2003 Time: 17:10:02



(Audix ATC)

Trace: 5 Ref Trace:

Condition: FCC CLASS B CHAMBER 030306 1185 VERTICAL
Test Eng: : NEELESH RAJ
Project #: : 03U2433
Company: : HEWLETT PACKARD
EUT: : 802.11 A/B/G J07H069.01
Model No: : NX9100 (HP TRUMAN)
Configuration: : EUT/AC ADAPTER
Target of Test: : FCC-B
Mode of Operation: TX (WORST CASE)

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VERTICAL DATA

Page: 1

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	339.430	Peak	24.20	14.93	39.13	46.00	-6.87
2	575.140	Peak	22.77	19.96	42.73	46.00	-3.27
3	872.930	Peak	16.94	23.53	40.47	46.00	-5.53

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7.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

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6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
12.32	53.60	--	44.68	0.00	60.00	50.00	-6.40	-5.32	L1
11.68	52.10	--	44.25	0.00	60.00	50.00	-7.90	-5.75	L1
2.04	43.36	--	33.13	0.00	56.00	46.00	-12.64	-12.87	L1
12.00	48.12	--	39.95	0.00	60.00	50.00	-11.88	-10.05	L2
12.38	47.46	--	38.23	0.00	60.00	50.00	-12.54	-11.77	L2
0.17	50.64	--	41.17	0.00	65.57	55.57	-14.93	-14.40	L2
6 Worst Data									

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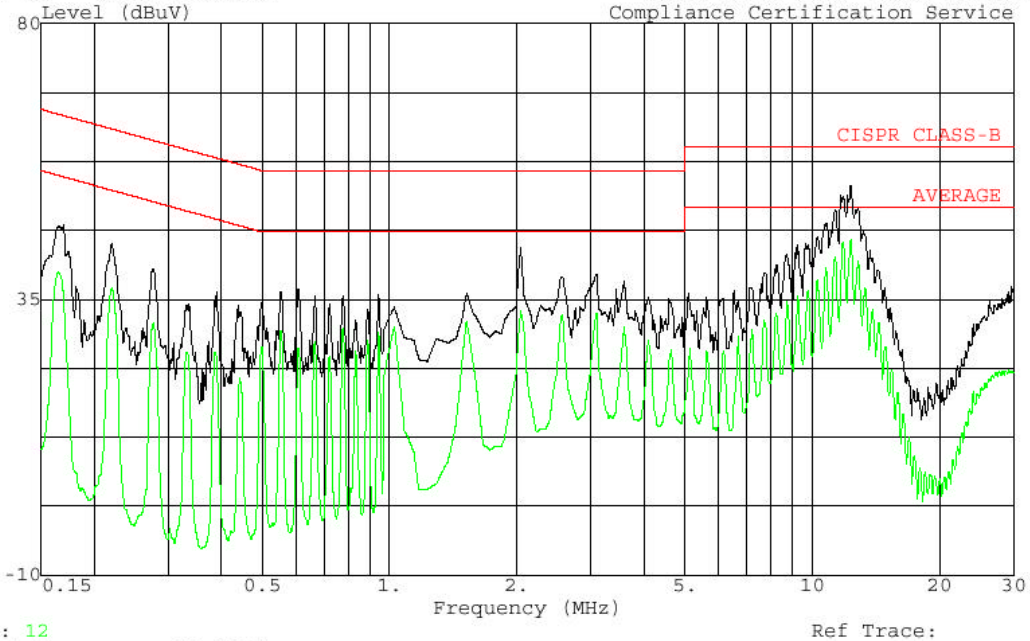
LINE 1 RESULTS

COMPLIANCE Engineering Services, Inc.
561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 14 File#: NEW.EMI Date: 12-31-2003 Time: 14:02:16



Trace: 12 Ref Trace:

Project #	: 03u2433
Test Operator	: NEELESH RAJ
Company	: HP
EUT	: 802.11 A/B/G J07H069.01
Model	: NX9100 (HP TRUMAN)
Configuration	: EUT/AC ADAPTER
Mode of Operation	: TX (WORST CASE)
Target of Test	: CLASS B
Voltage	: 115VAC/60Hz
	: L1(PEAK;BLACK AVG;GREEN)

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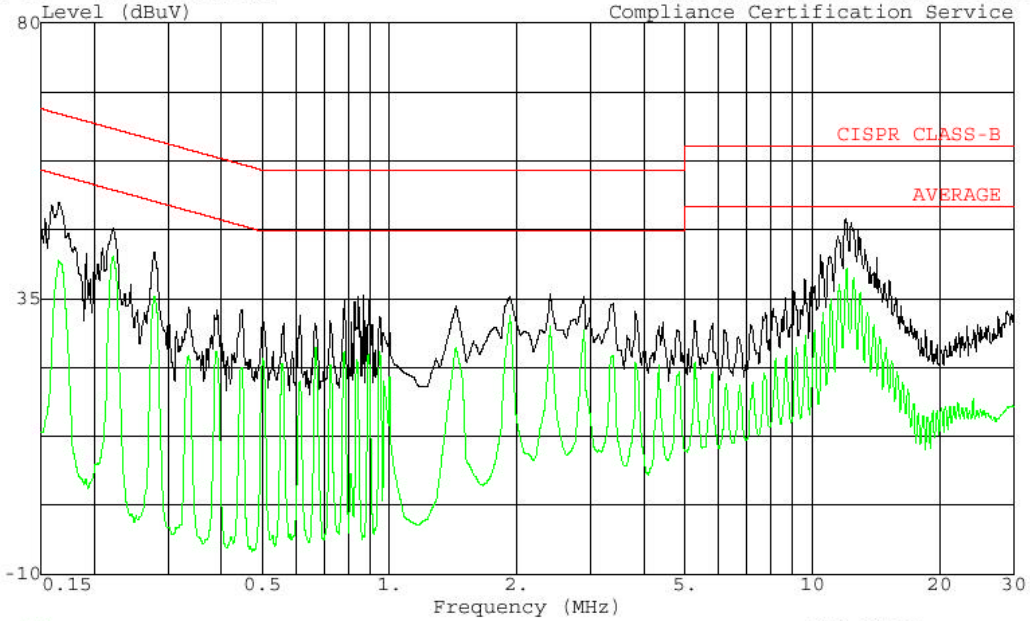
LINE 2 RESULTS

COMPLIANCE Engineering Services, Inc.
561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 21 File#: NEW.EMI Date: 12-31-2003 Time: 14:25:46



Trace: 19 Ref Trace:

Project #	: 03u2433
Test Operator	: NEELESH RAJ
Company	: HP
EUT	: 802.11 A/B/G J07H069.01
Model	: NX9100 (HP TRUMAN)
Configuration	: EUT/AC ADAPTER
Mode of Operation	: TX (WORST CASE)
Target of Test	: CLASS B
Voltage	: 115VAC/60Hz
	: L2(PEAK;BLACK AVG;GREEN)

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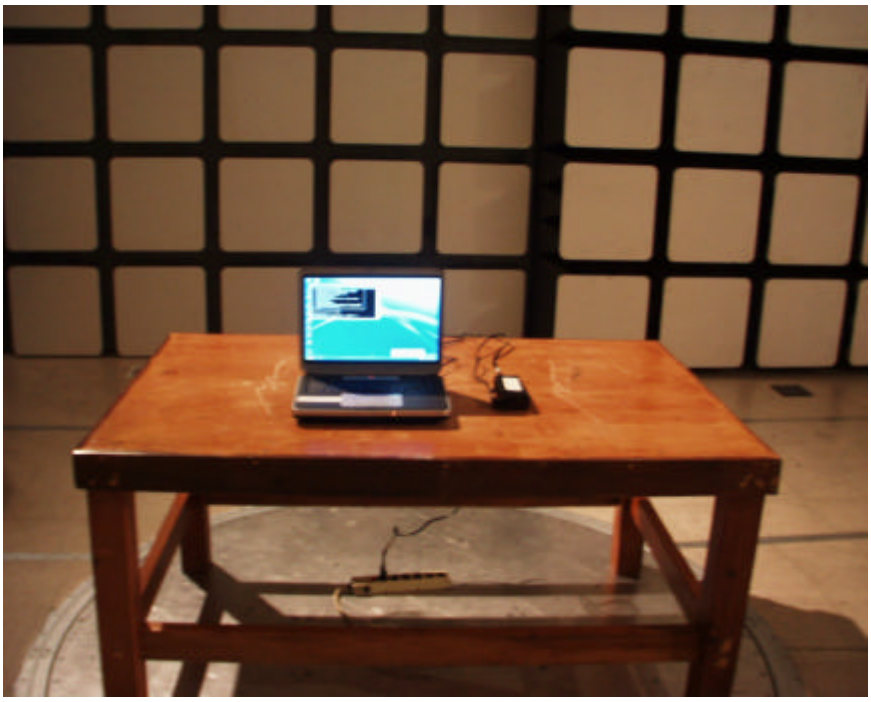
8. SETUP PHOTOS

RADIATED EMISSIONS SETUP

RADIATED FRONT PHOTO



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POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP

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