



FCC CFR47 PART 15 SUBPART B

DECLARATION OF CONFORMITY TEST REPORT

FOR

2X2 ACCESS POINT

MODEL NUMBER: A1264

FCC ID: BCGA1264

REPORT NUMBER: 07U11408-16, REVISION A

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Prepared for

APPLE, INC.

1 INFINITE LOOP

CUPERTINO, CA 95014, USA

Prepared by

COMPLIANCE CERTIFICATION SERVICES

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	01/23/08	Initial Issue	F. Ibrahim
A	02/15/08	Added FCC ID	F. Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC
1 INFINITE LOOP
CUPERTINO, CA 95014, USA

EUT DESCRIPTION: 2x2 ACCESS POINT

MODEL: 1264

SERIAL NUMBER: 6F74701KZP8 and 6F75002SZP8

DATE TESTED: JANUARY 21, 2008

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART B	No Non-Compliance Noted

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



FRANK IBRAHIM
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

CAN MING CHUNG
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11 a/b/g/n Access Point.

5.2. TEST CONFIGURATION

The following configuration was investigated during testing:

EUT Configuration	Description
Typical Configuration	EUT was connected to a laptop PC with peripherals.

5.3. MODE(S) OF OPERATION

Mode	Description
Pinging	EUT pinging support laptop PC

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 7.3d1 Auto20070907T0400.

The EUT driver software installed during testing was DutApiClient_UDP.exe, ver.031607.

The test utility software used during testing was m4tool.exe, rev 083107

5.5. MODIFICATIONS

No modifications were made during testing.

5.6. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT & PERIPHERALS

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	Apple	MacBook Pro	AOU257941	DOC
AC Adapter	Apple	A52	NA	DOC
Mouse	Apple	A1152	KY5350QDTU3MA	DOC
Printer	Microline 186	D22300A	AC5C018494A0	DOC

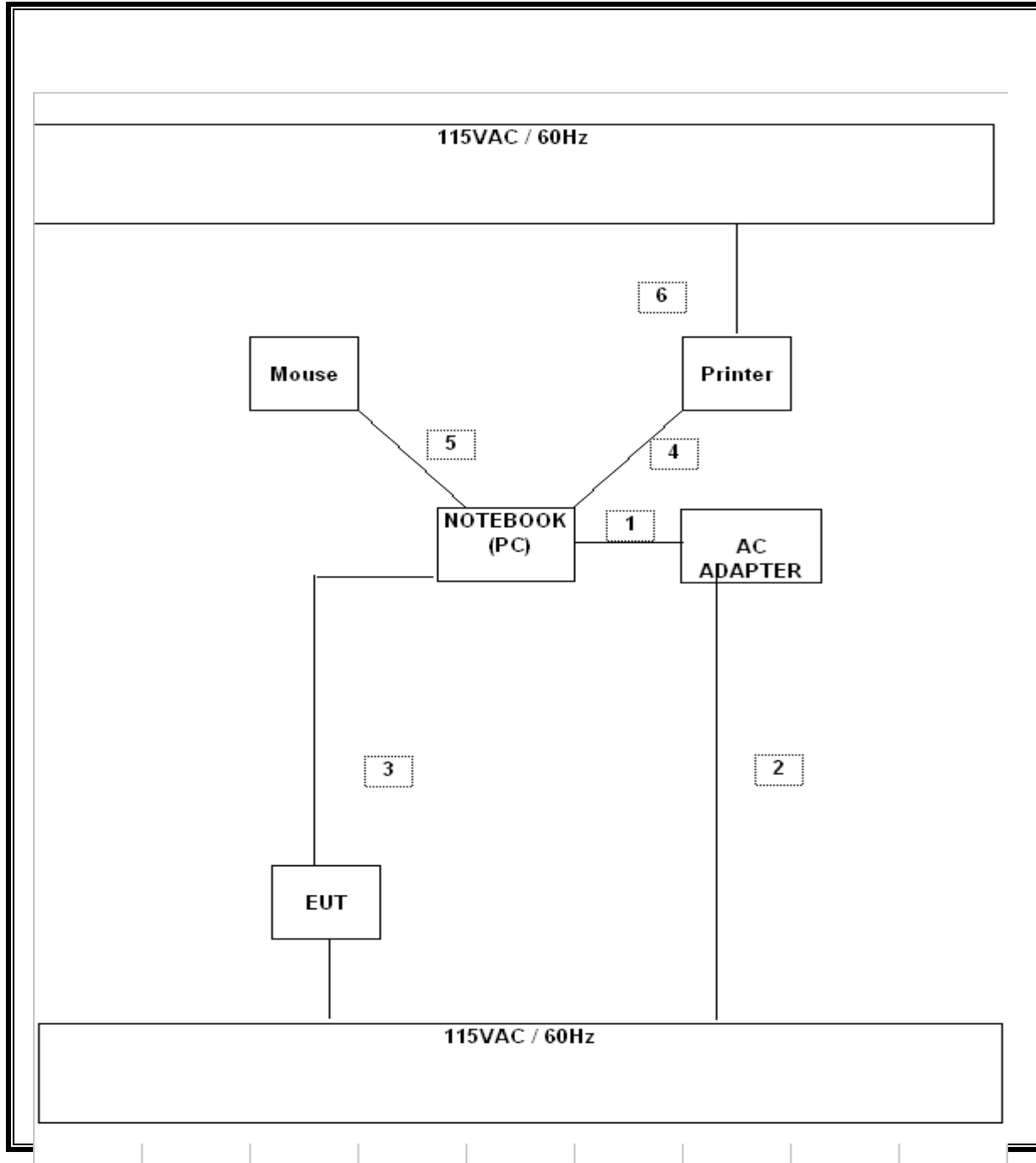
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Unshielded	1.5 m	N/A
2	AC	1	AC	Unshielded	2.0 m	N/A
3	Ethernet	1	RJ45	Unshielded	1.5m	Connected to EUT
4	USB	1	USB	Unshielded	1.5m	Connected to Laptop
5	USB	1	USB	Unshielded	1.5m	Connected to Laptop
6	AC	1	AC	Unshielded	2.0 m	N/A

TEST SETUP

The EUT is installed in a typical configuration. Test software exercised the EUT.

TEST SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	Asset	Cal Date	Cal Due
Power Combiner	HP	11667B	N/A	05/24/07	05/24/08
Attenuators	Weinschel	56-10	N/A	N/A	N/A
Power Meter	Agilent / HP	438A	C01068	11/29/06	09/12/08
Antenna, Horn, 18 GHz	EMCO	3115	C00945	04/15/07	04/15/08
Preamp, 1000MHz	Sonoma	310N	N/A	01/20/07	01/23/09
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	08/03/07	08/03/08
Antenna, Bilog, 2 GHz	Sund Sciences	JB1	C01016	09/28/07	09/28/08
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	02/06/07	06/12/08
EMI Receiver, 2.9 GHz	Agilent / HP	8542E	C00957	02/06/07	06/12/08
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	05/02/06	08/07/08
Power Sensor, 18 GHz	Agilent / HP	8481A	N02784	01/12/07	04/22/08
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	09/15/06	09/15/08
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	10/16/06	01/27/08
Pre-amplifier	Mteq	NSP4000-SP2	C00990	10/11/07	10/11/08
Horn Antenna	ARA	MVH-1826/B	C00980	09/29/07	09/29/08
Horn Antenna	ARA	MVH-2640/B	C00981	04/11/07	04/11/08

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4

The highest clock frequency generated or used in the EUT is 200 MHz; the frequency range was investigated from 30 MHz to 18000 MHz.

LIMIT

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

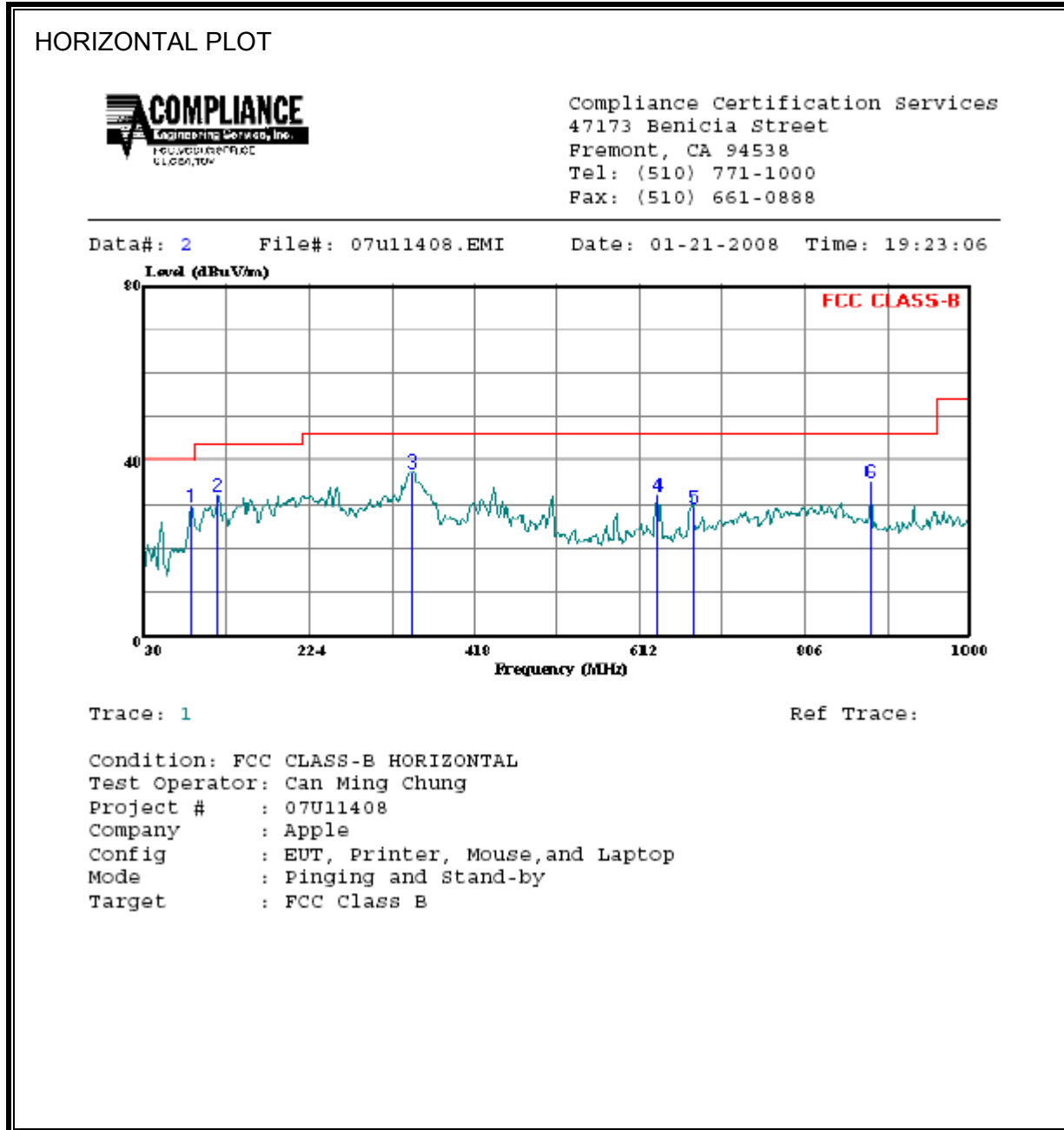
Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB μ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54

Note: The lower limit shall apply at the transition frequency.

RESULTS

No non-compliance noted:

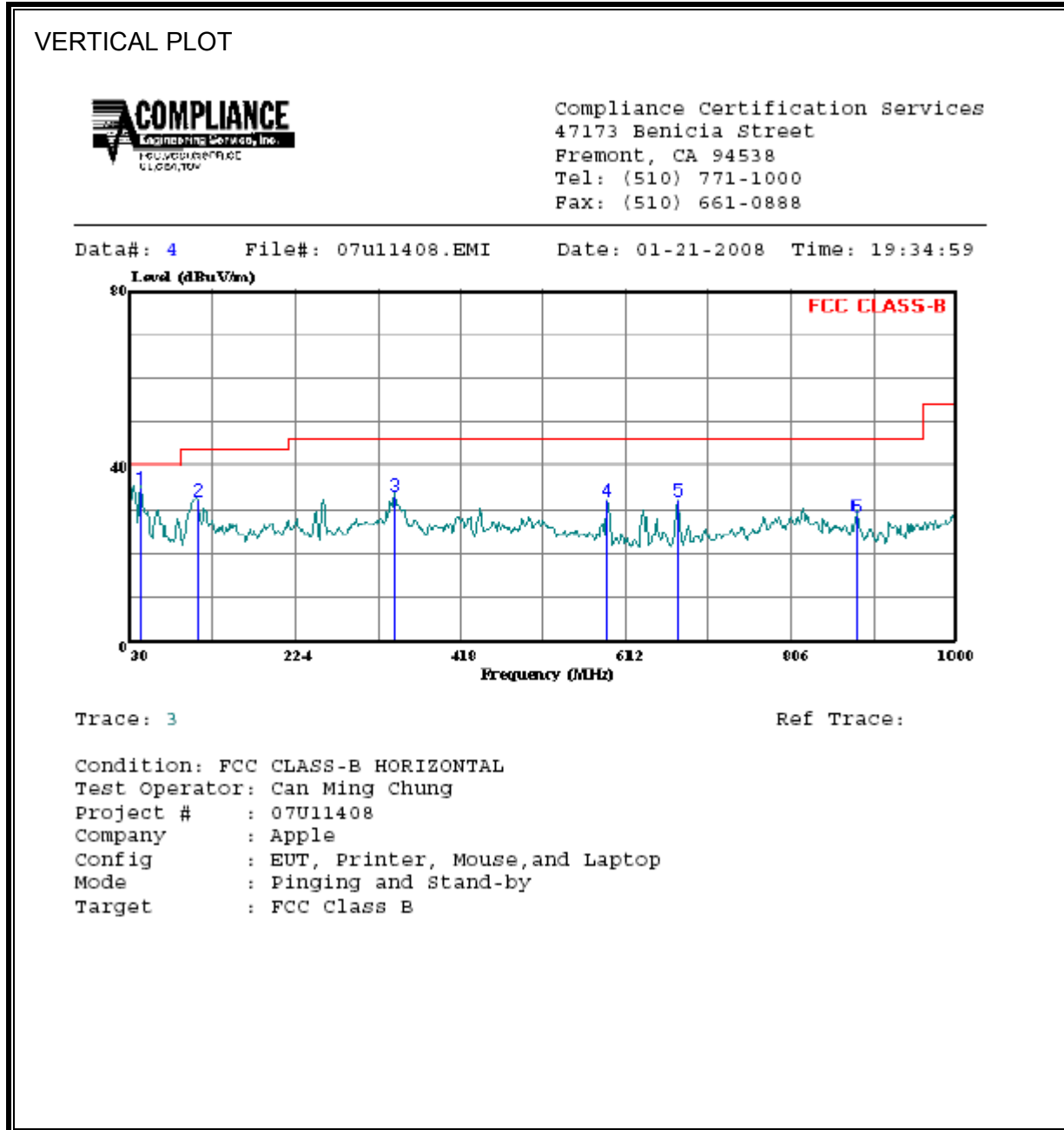
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	85.290	52.80	-22.85	29.95	40.00	-10.05	Peak
2	116.330	49.60	-17.47	32.13	43.50	-11.37	Peak
3	345.250	52.09	-14.74	37.34	46.00	-8.66	Peak
4	633.340	41.62	-9.41	32.21	46.00	-13.79	Peak
5	675.050	38.27	-8.99	29.28	46.00	-16.72	Peak
6	882.630	40.73	-5.49	35.24	46.00	-10.76	Peak

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



VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	42.610	52.43	-17.56	34.87	40.00	-5.13	Peak
2	109.540	51.14	-18.87	32.27	43.50	-11.23	Peak
3	340.400	48.05	-14.97	33.08	46.00	-12.92	Peak
4	589.690	42.24	-10.16	32.08	46.00	-13.92	Peak
5	672.140	41.25	-9.09	32.16	46.00	-13.84	Peak
6	883.600	34.20	-5.49	28.71	46.00	-17.29	Peak

SPURIOUS EMISSIONS ABOVE 1000 MHz (WORST-CASE CONFIGURATION)

High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber																	
Company: Apple																	
Project #: 07U11408																	
Date: 01-21-08																	
Test Engineer: CAN MING CHUNG																	
Configuration: EUT With SUPPORT EQUIPMENTS-LAPTOP, MOUSE, AND PRINTER																	
Mode: Pinging and Stand-by																	
Test Equipment:																	
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit					
T136; M/N: 3117 @3m			T144 Miteq 3008A00931									FCC 15.209					
Hi Frequency Cables																	
2 foot cable			3 foot cable			12 foot cable			HPF		Reject Filter		Peak Measurements REW=VBW=1MHz				
						A-5m Chamber							Average Measurements RBW=1MHz ; VBW=10Hz				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
1.035	3.0	63.0	38.5	27.6	3.0	-39.4	0.0	0.0	54.2	29.7	74	54	-19.8	-24.3	V		
1.619	3.0	50.0	37.9	29.7	3.8	-38.6	0.0	0.0	44.8	32.7	74	54	-29.2	-21.3	V		
4.989	3.0	43.9	30.1	33.8	7.0	-36.5	0.0	0.0	48.3	34.5	74	54	-25.7	-19.5	V		
7.741	3.0	41.1	28.3	35.3	8.6	-36.2	0.0	0.0	48.8	36.0	74	54	-25.2	-18.0	V		
1.049	3.0	57.5	41.0	27.7	3.1	-39.4	0.0	0.0	48.8	32.3	74	54	-25.2	-21.7	H		
1.329	3.0	56.0	35.4	28.7	3.4	-39.0	0.0	0.0	49.0	28.4	74	54	-25.0	-25.6	H		
4.852	3.0	50.6	34.3	33.7	6.9	-36.5	0.0	0.0	54.7	38.4	74	54	-19.3	-15.6	H		
7.731	3.0	40.9	33.5	35.3	8.6	-36.2	0.0	0.0	48.6	41.2	74	54	-25.4	-12.8	H		
Rev. 4.12.7																	
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										

7.2. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

ANSI C63.4

LIMIT

§15.107 (a) Except for Class A digital devices, for equipment 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 μ H/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 band edges.

Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Notes:

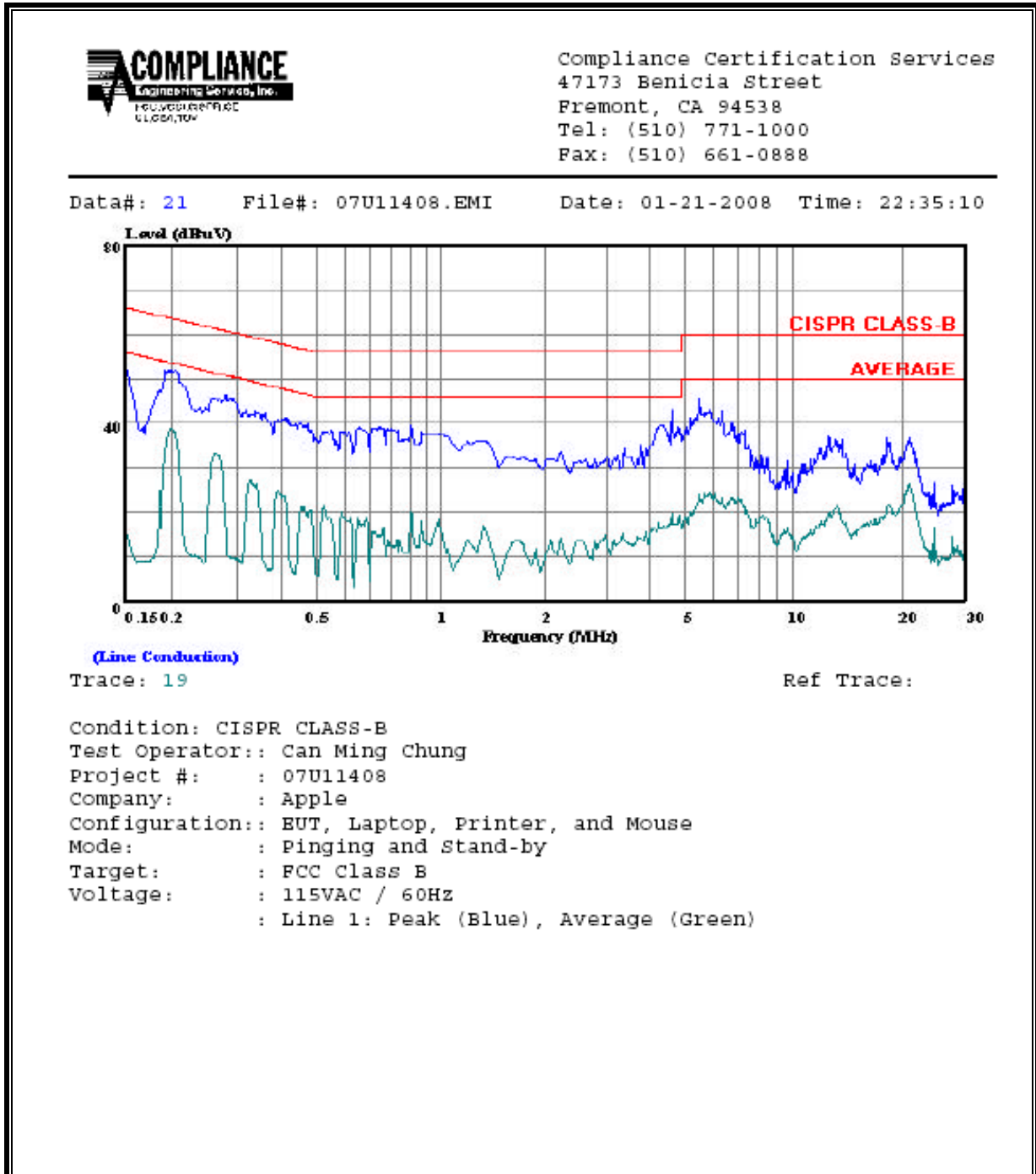
1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

RESULTS

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)										
Freq. (MHz)	Reading			Class (dB)	Limit QP	FCC B		Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)			AV	QP (dB)	AV (dB)		
0.20	51.57	--	38.42	0.00	63.53	53.53	-11.96	-15.11	L1	
0.80	38.28	--	19.75	0.00	56.00	46.00	-17.72	-26.25	L1	
5.59	45.64	--	23.94	0.00	60.00	50.00	-14.36	-26.06	L1	
0.20	52.40	--	40.28	0.00	63.82	53.82	-11.42	-13.54	L2	
0.91	41.09	--	21.62	0.00	56.00	46.00	-14.91	-24.38	L2	
5.96	47.00	--	25.90	0.00	60.00	50.00	-13.00	-24.10	L2	
6 Worst Data										

LINE 1 RESULTS



LINE 2 RESULTS

