



**Compliance Testing, LLC**  
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## Test Report

Prepared for: US Digital Media

Model: College Flash Drive

Description: USB Drives

To

Rule EN 55022

Date of Issue: May 3, 2012

On the behalf of the applicant:

US Digital Media  
1929 W. Lone Cactus Dr.  
Phoenix, AZ 85027

Attention of:

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Project No: p1240001

John Erhard  
Project Test Engineer

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### Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	5/3/12	John Erhard	Original Document



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**ILAC / A2LA**

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009)

The tests results contained within this test report all fall within our scope of accreditation, unless noted below.

Please refer to <http://www.compliancetesting.com/labscope.html> for current scope of accreditation.

Testing Certificate Number: **2152.01**



**FCC OATS Reg, #933597**

**IC Reg. #2044A-1**

**Non-accredited tests contained in this report:**

**N/A**



**Test Summary Table**

<b>Emissions Standards</b>	<b>Pass / Fail N/A</b>	<b>Comments</b>
EN 55022:2010 Radiated Emissions	PASS	
EN 55022:2010 Conducted Emission	PASS	



### Measurement Uncertainty

Measurement Uncertainty ( $U_{lab}$ ) for Compliance Testing is listed in the table below.

Measurement	$U_{lab}$
Conducted Emissions	3.2 dB
Radiated Emissions	5.2 dB

The reported expanded uncertainty  $\pm U_{lab}$ (dB) has been estimated at a 95% confidence level ( $k=2$ ).

$U_{lab}$  is less than or equal to  $U_{CISPR}$  therefore;

- Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit.
- Non-Compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.



## Conditions during Testing

The tests were performed in accordance with EN 55022 - 2010 Clause 8 “General Measurement Conditions” and IEC CISPR 24 clause 6 “Conditions During Testing”

The tests were performed in the frequency bands being investigated, with the EUT in the most susceptible or radiating operating mode consistent with normal applications. The configuration of the test sample has been varied to achieve maximum susceptibility.

If the EUT is a part of a system, or can be connected to auxiliary apparatus, the apparatus shall be tested while connected to the minimum representative configuration of auxiliary apparatus necessary to exercise the ports in a similar manner to that described in EN 55022 - 2010.

If the manufacturer’s specifications specifically require external protection devices or measures which are clearly specified in the user’s manual, the tests were performed with the external protection in place and documented under accessories.

If the EUT has a large number of terminals, a sufficient number were selected to simulate actual operating conditions and to ensure that all the different types of terminations were covered.

The tests were carried out within the ranges of temperature, humidity and pressure specified for the EUT and at the rated supply voltage, unless otherwise indicated in the basic standard.

Environmental Conditions	
Temperature (°C)	Humidity (%)
26.37 C	19.72%

## Summary of Restrictions

1. Revocation of CE mark by the European Authorities can occur at any time if the equipment does not meet or continue to meet the rules.
2. A sample may be requested at any time.
3. Class B ITE is a category of all other ITE which satisfies the Class B ITE limits but not the Class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instruction for use.

## WARNING

This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



### EUT Description

**Model:** College Flash Drive

**Description:** USB Drives

**Firmware:** N/A

**Software:** N/A

**Additional Information:** USB drive model number

U1300X – Standard white capped plastic case

### EUT Operation during Tests

A commercially available software drive imaging package (imageUSB) was utilized for testing as it could write to all drives simultaneously and verify the status of the drive after the completion of the write process.

#### Accessories:

Qty	Description	Mfg	Model	S/N
1	Laptop	HP	G62	N/A
1	USB Hub	D-Link	DUB-17	B10B3A5001217

#### Cables:

Qty	Description	Length (M)	Shielding Y/N	Shielded Hood Y/N	Termination
4	USB	12 in	No	No	N/A

**Modifications:** None





**Conducted Emissions (Powerline)**

**Name of Test:** Conducted Emissions (Powerline)

**Engineer:** John Erhard

**Test Equipment Utilized:** i00123, i00270, i00362, i00379

**Test Date:** 5/1/2012

**Test Procedure**

The EUT power cable was connected to a LISN and the monitored output of the LISN was connected to a transient limiter, which then connected directly to a spectrum analyzer. The conducted emissions from 150 kHz to 30 MHz were measured and compared to the specification limits.

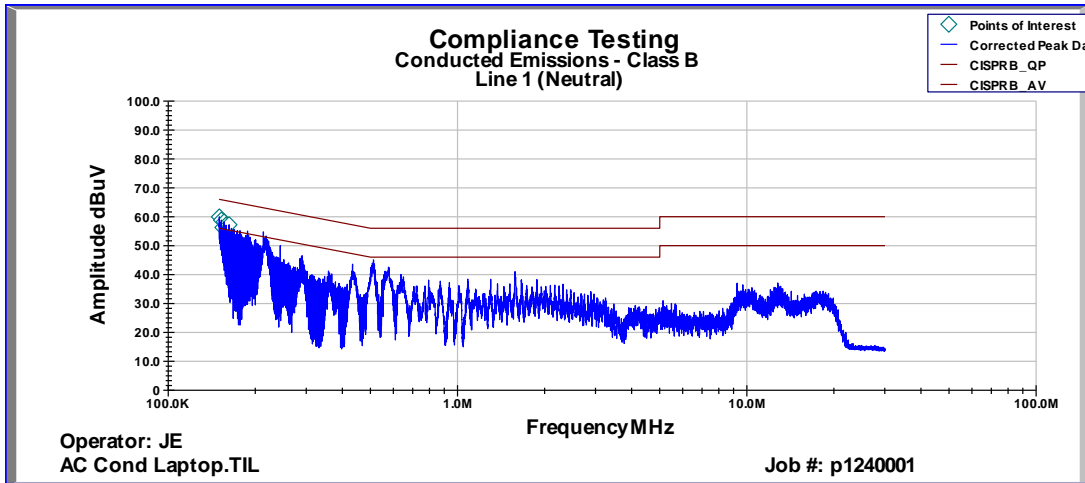
**Test Setup Photos**



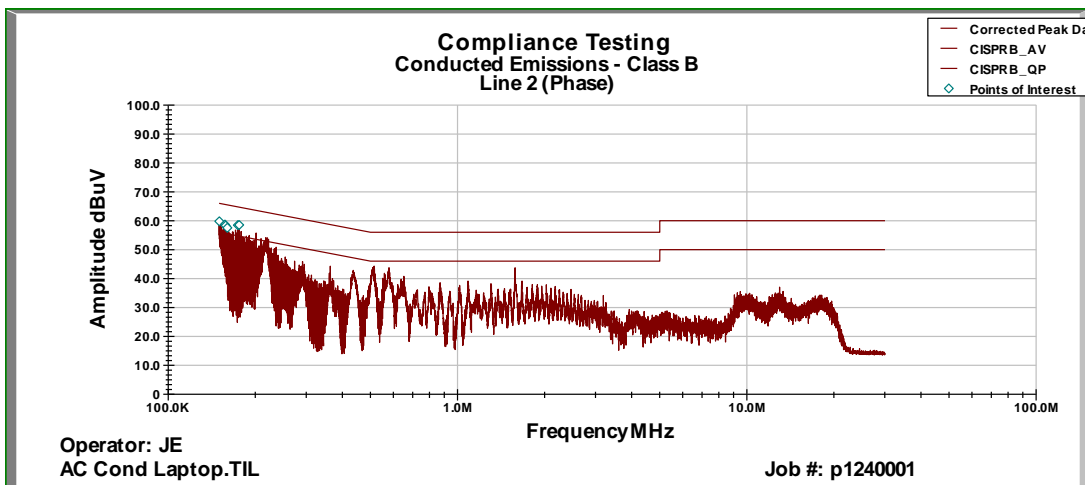


### Laptop AC Conducted Emissions

#### Line 1 Peak Plot



#### Line 2 Peak Plot





**Line 1 Neutral Avg. Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L1 Final Data (dBuV)	Limit (dBuV)	Avg. Margin (dB)
150.82 KHz	27.16	0.29	0.020	10.200	37.675	55.977	-18.301
150.63 KHz	27.81	0.29	0.020	10.200	38.324	55.982	-17.658
150.61 KHz	27.97	0.29	0.020	10.200	38.481	55.983	-17.502
150.16 KHz	29.03	0.30	0.020	10.200	39.545	55.996	-16.450
150.01 KHz	29.16	0.30	0.020	10.200	39.683	56.000	-16.317
150.0 KHz	29.89	0.30	0.020	10.200	40.410	56.000	-15.590

**Line 2 Phase Avg. Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L2 Final Data (dBuV)	Limit (dBuV)	Avg. Margin (dB)
157.91 KHz	16.02	0.22	0.020	10.200	26.464	55.774	-29.310
154.95 KHz	19.92	0.25	0.020	10.200	30.394	55.859	-25.465
151.02 KHz	28.00	0.29	0.020	10.200	38.506	55.971	-17.464
150.3 KHz	29.59	0.30	0.020	10.200	40.110	55.992	-15.881
150.24 KHz	29.92	0.30	0.020	10.200	40.441	55.993	-15.552
150.11 KHz	30.20	0.30	0.020	10.200	40.719	55.997	-15.278

**Line 1 Neutral QP Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L1 Final Data (dBuV)	Limit (dBuV)	QP Margin (dB)
150.82 KHz	42.720	0.292	0.020	10.200	53.232	65.977	-12.745
150.63 KHz	43.330	0.294	0.020	10.200	53.844	65.982	-12.138
150.61 KHz	43.490	0.294	0.020	10.200	54.004	65.983	-11.979
150.16 KHz	44.330	0.298	0.020	10.200	54.848	65.996	-11.147
150.01 KHz	44.240	0.300	0.020	10.200	54.760	66.000	-11.240
150.0 KHz	45.250	0.300	0.020	10.200	55.770	66.000	-10.230

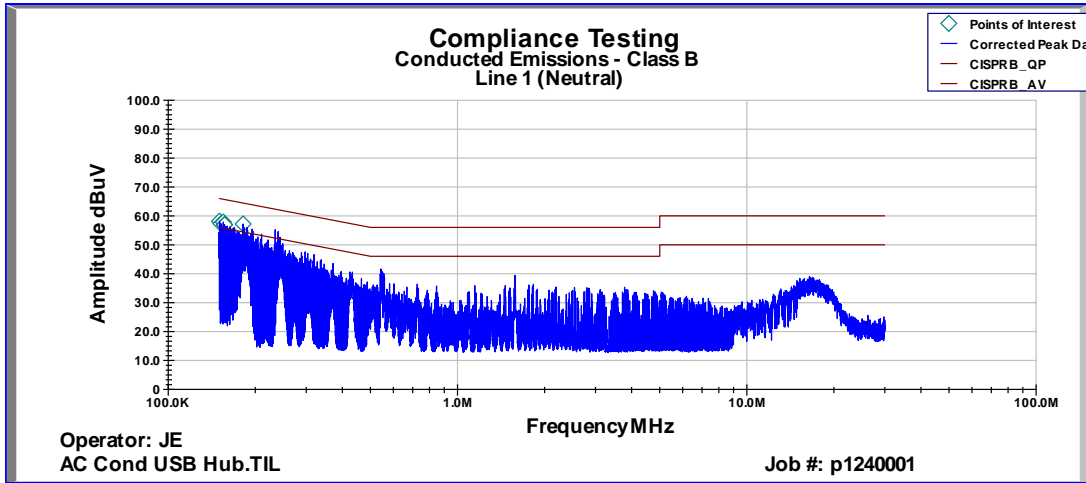
**Line 2 Phase QP Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L2 Final Data (dBuV)	Limit (dBuV)	QP Margin (dB)
157.91 KHz	38.22	0.22	0.020	10.200	48.661	65.774	-17.113
154.95 KHz	39.39	0.25	0.020	10.200	49.861	65.859	-15.998
151.02 KHz	42.79	0.29	0.020	10.200	53.300	65.971	-12.671
150.3 KHz	44.35	0.30	0.020	10.200	54.867	65.992	-11.125
150.24 KHz	44.13	0.30	0.020	10.200	54.648	65.993	-11.346
150.11 KHz	44.63	0.30	0.020	10.200	55.149	65.997	-10.848

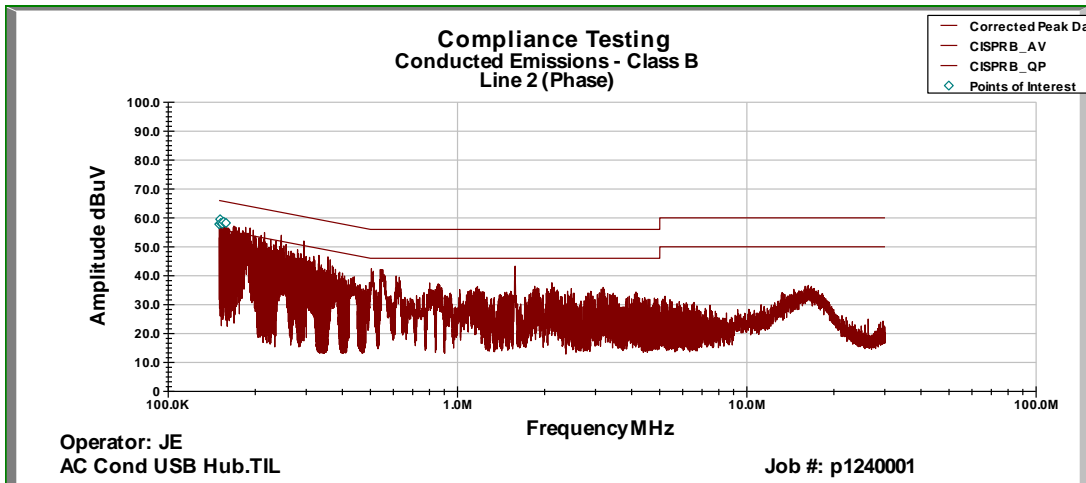


### USB HUB AC Conducted Emissions

#### Line 1 Peak Plot



#### Line 2 Peak Plot





**Line 1 Neutral Avg. Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L1 Final Data (dBuV)	Limit (dBuV)	Avg. Margin (dB)
181.54 KHz	29.48	0.20	0.020	10.100	39.797	55.099	-15.302
156.39 KHz	12.11	0.24	0.020	10.200	22.563	55.817	-33.255
153.37 KHz	12.69	0.27	0.020	10.200	23.180	55.904	-32.724
153.07 KHz	12.68	0.27	0.020	10.200	23.173	55.912	-32.740
152.46 KHz	12.83	0.28	0.020	10.200	23.325	55.930	-32.604
151.91 KHz	12.83	0.28	0.020	10.200	23.331	55.945	-32.615

**Line 2 Phase Avg. Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L2 Final Data (dBuV)	Limit (dBuV)	Avg. Margin (dB)
153.59 KHz	13.06	0.26	0.020	10.200	23.547	55.897	-32.350
152.46 KHz	13.06	0.28	0.020	10.200	23.559	55.930	-32.371
152.06 KHz	12.93	0.28	0.020	10.200	23.426	55.941	-32.515
151.01 KHz	13.79	0.29	0.020	10.200	24.297	55.971	-31.675
150.45 KHz	13.86	0.30	0.020	10.200	24.379	55.987	-31.608
150.15 KHz	13.46	0.30	0.020	10.200	23.979	55.996	-32.017

**Line 1 Neutral QP Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L1 Final Data (dBuV)	Limit (dBuV)	QP Margin (dB)
181.54 KHz	39.510	0.200	0.020	10.100	49.830	65.099	-15.269
156.39 KHz	38.640	0.236	0.020	10.200	49.096	65.817	-16.721
153.37 KHz	38.490	0.266	0.020	10.200	48.976	65.904	-16.927
153.07 KHz	39.570	0.269	0.020	10.200	50.059	65.912	-15.853
152.46 KHz	38.790	0.275	0.020	10.200	49.285	65.930	-16.644
151.91 KHz	39.140	0.281	0.020	10.200	49.641	65.945	-16.305

**Line 2 Phase QP Detector**

Frequency	Measured Value (dBuV)	LISN Corr. Factor (dB)	Cable Loss (dB)	Transient Limiter (dB)	L2 Final Data (dBuV)	Limit (dBuV)	QP Margin (dB)
153.59 KHz	38.79	0.26	0.020	10.200	49.274	65.897	-16.623
152.46 KHz	39.90	0.28	0.020	10.200	50.395	65.930	-15.534
152.06 KHz	39.50	0.28	0.020	10.200	49.999	65.941	-15.942
151.01 KHz	39.94	0.29	0.020	10.200	50.450	65.971	-15.521
150.45 KHz	39.42	0.30	0.020	10.200	49.935	65.987	-16.052
150.15 KHz	39.80	0.30	0.020	10.200	50.319	65.996	-15.677



**Radiated Emissions**

**Name of Test:**

Radiated Emissions

**Engineer:** John Erhard

**Test Equipment Utilized:**

i00033, i00267

**Test Date:** 5/2/2012

**Test Setup Photos**





**Measurement Information**

Measurement Distance (D), m =     X     3  
 Frequency of tests, MHz = 30 to 6000

**Note 1:** Worst case of horizontal or vertical.

**Note 2:** The applied correction factors include transducer factors, cable loss, and distance correction.

The EUT meets radiated disturbance limits for:

EN:55022

For ancillary equipment measured on a stand-alone basis limits

<u>Frequency Range</u>	<u>Limit (Quasi-peak)</u>	<u>Limit (Avg)</u>	<u>Limit (Peak)</u>
30MHz to 230MHz	30 dBµV/m @ 10m	N/A	N/A
230MHz to 1000MHz	37 dBµV/m @ 10m	N/A	N/A
1 – 3 GHz	N/A	50 dBµV/m @ 3m	70 dBµV/m @ 3m
3 – 6 GHz	N/A	54 dBµV/m @ 3m	74 dBµV/m @ 3m

**U1300X Radiated Emissions**

<b>Emission Freq (MHz)</b>	<b>Measured Value (dBuV/m)</b>	<b>Corr. Factor (dB)</b>	<b>Corr. Value (dBuV/m)</b>	<b>Limit (dBuV/m)</b>	<b>Margin (dB)</b>	<b>Antenna Polarity (V/H)</b>	<b>Antenna Height (cm)</b>	<b>Turntable Position (deg)</b>
37.100	6.390	16.414	22.804	40.000	-17.196	H	98	296
237.100	10.350	12.787	23.137	47.000	-23.863	H	98	296
272.900	12.370	14.783	27.153	47.000	-19.847	H	98	296
441.850	7.510	18.748	26.258	47.000	-20.742	H	98	296
653.100	5.090	22.525	27.615	47.000	-19.385	H	98	296
832.650	6.370	25.242	31.612	47.000	-15.388	H	98	296

All other emissions in the required measurement range were more than 20dB below the required limits.



### Test Equipment Utilized

Description	Manufacturer	Model Number	CT Asset #	Last Cal Date	Cal Due Date
EMI Receiver	HP	8546A	i00033	12/20/11	12/20/12
Transient Limiter	Com-Power	LIT-930	i00123	Verified on:5/1/12	
Bilog Antenna	Schaffner	CBL6111C	i00267	12/19/11	12/19/13
LISN	FCC	FCC-LISN-50-32-2-01	i00270	9/30/10	9/30/12
Humidity / Temp Meter	Newport	IBTHX-W-5	i00282	11/5/11	11/5/12
Humidity / Temp Meter	Control Company	4189CC	i00355	1/11/12	1/11/13
AC Power Source	Behlman	BL 6000	i00362	Verified on:5/1/2012	
Spectrum Analyzer	Agilent	E7405A	i00379	12/14/11	12/14/12

In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing, these components were tested to verify proper operation.

END OF TEST REPORT