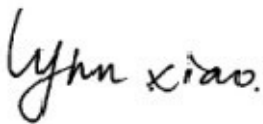

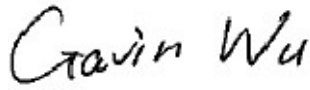




TEST REPORT

Report No.:	EM201300810-1	Application No.:	ZJ00034131
Client:	Harman International Industries, Incorporated		
Address:	8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES		
Sample Description:	USB POWERED WIRELESS CHARGER		
Model:	JBL AUTHENTICS QI		
FCC ID:	APIJBLQI		
Test Specification:	FCC PART 18:2012		
Test Date:	2013-09-20 to 2013-12-11		
Issue Date:	2013-12-11		
Test Result:	<i>Pass.</i>		
Prepared By:	Reviewed By:	Approved By:	
Lynn Xiao / Test Engineer	Jane Cao / Technical manager	Gavin Wu / Manager	
			
Date:2013-12-11	Date:2013-12-11	Date:2013-12-11	
Other Aspects:			
<i>None</i>			
Abbreviations: <i>ok / P = passed; fail / F = failed; n.a. / N = not applicable</i>			
The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.			

DIRECTIONS OF TEST

1. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.
2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

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1. TEST RESULT SUMMARY

FCC PART 18:2012			
Standard	Item	Limit / Severity	Result
FCC PART 18:2012& MP-5:1986	Conducted Emission (150kHz~30MHz)	18.307(a)	PASS
	Radiated Emission (9kHz~30MHz)	18.305(b)	PASS

2. GENERAL DESCRIPTION OF TUT

2.1 APPLICANT

Name: Harman International Industries, Incorporated
 Address: 8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES

2.2 MANUFACTURER

Name: Harman International Industries, Incorporated
 Address: 8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: USB POWERED WIRELESS CHARGER
 Model No.: JBL AUTHENTICS QI
 Trade Name: JBL
 Power supply: USB DC 5V
 Mode: Wireless Charging
 Wireless charging Operation frequency 106kHz
 Sample submitting way: Provided by customer Sampling
 Note: /

2.4 LOCAL SUPPORTIVE INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number
Wireless charge load	ConvenientPower	/	/
adapter	Harman	/	/

3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by EMC Laboratory of Guangzhou GRG Metrology and Test Co., Ltd.

The radiated electromagnetic disturbance item is tested in SGS (Guangzhou).

Add. : 163 Pingyun Rd, West of Huangpu Ave, Guangzhou, 510656, P. R. China

Telephone: +86-20-38699959, 38699960, 38699961

Fax : +86-20-38695185

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC Listed Lab No. 688188
China	CNAS NO.L0446
China	DILAC No.DL175
Canada	Registration No.:8355A-1

3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz~1000MHz	4.2dB
	Vertical	30MHz~1000MHz	4.4dB
Conducted Emission		9kHz~30MHz	3.1 dB

This uncertainty represents an expanded uncertainty factor of $k=2$.

3.4 LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Radiated Emission				
Loop antenna	ETS-LINDGRE N	6502	00042963	2014-04-06
EMI Receiver	R&S	ESIB	100231	2014-04-04
Conducted Emission				
EMI Receiver	R&S	ESCI	100529	2014-07-31
L.I.S.N	SCHWARZBECK	NSLK 8127	8127450	2014-08-05

4. EMISSION TEST

4.1 RADIATED ELECTROMAGNETIC DISTURBANCE MEASUREMENT

4.1.1 LIMITS

Because the device is working in frequency 106 kHz, so we test radiated emission between 9 kHz~30MHz.

Frequency (MHz)	Quasi-peak(dB μ V/m)(distance 300m)	Quasi-peak(dB μ V/m)(distance 10m)
0.009 ~ 30	23.5	$23.5+20\log_{10}(300/10)=53.06$

NOTE: (1) The test distance is 10m. This item is tested in SGS (Guangzhou) in distance 10m. Therefore, it used 10 meters measuring distance and converted limits to judge the EUT compliance with or not.

4.1.2 TEST PROCEDURE

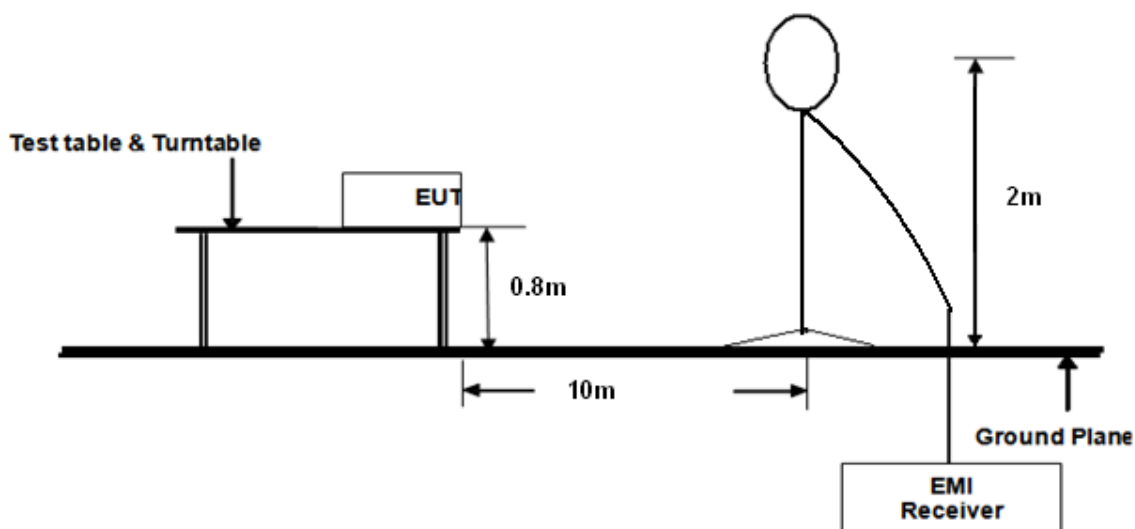
The EUT was placed on a table, which is 0.8meter above ground. Measurements are performed at distance 10.0m with a 0.6m loop antenna as described in 2.2.4 of MP-5. The antenna shall be set at height 2m above the floor.

Below 1GHz:

The bandwidth setting on the test receiver is 200Hz for 9 kHz~150 kHz and 9 kHz from 150 kHz~30MHz. the EUT is tested in a semi-anechoic chamber. The detector is QP.

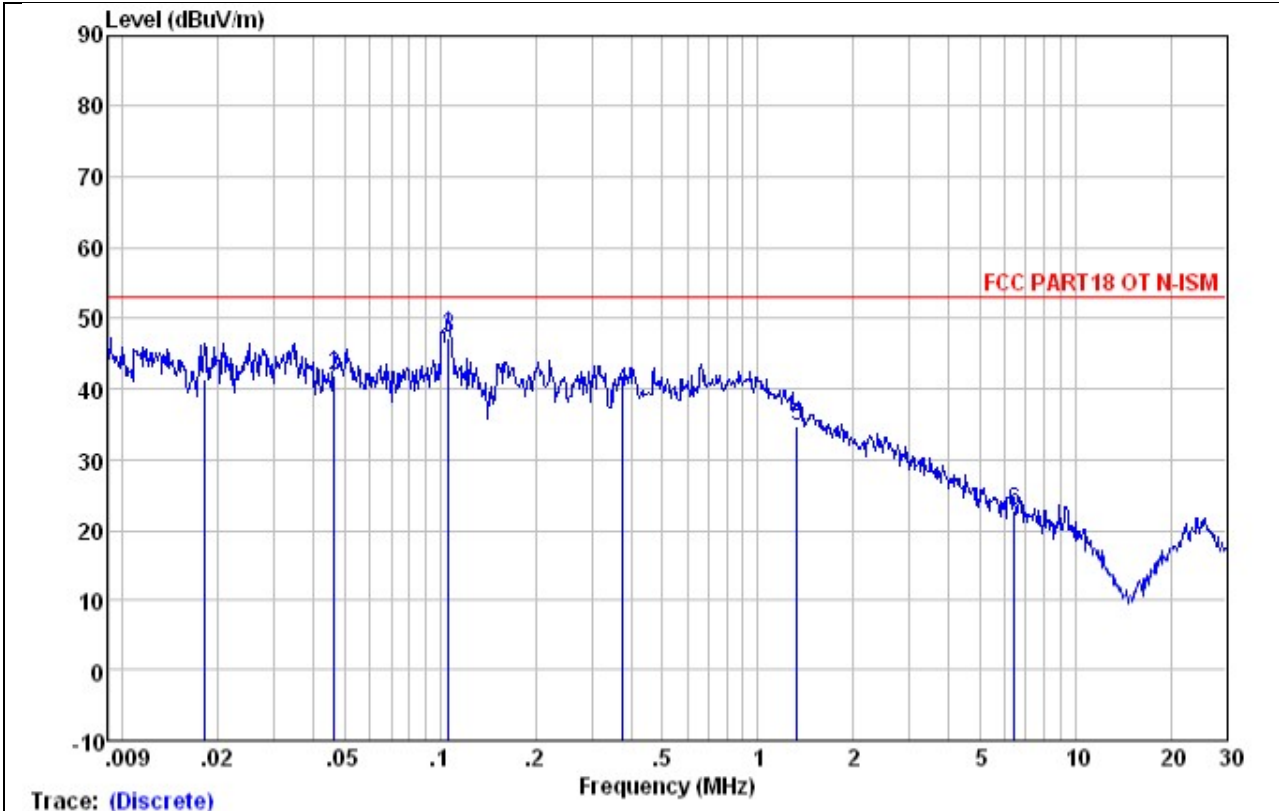
The FCC part 18 regulations test method must be used to find the maximum emission during Radiated Emission test. The worst case was recorded.

4.1.3 TEST SETUP



4.1.4 TEST RESULTS

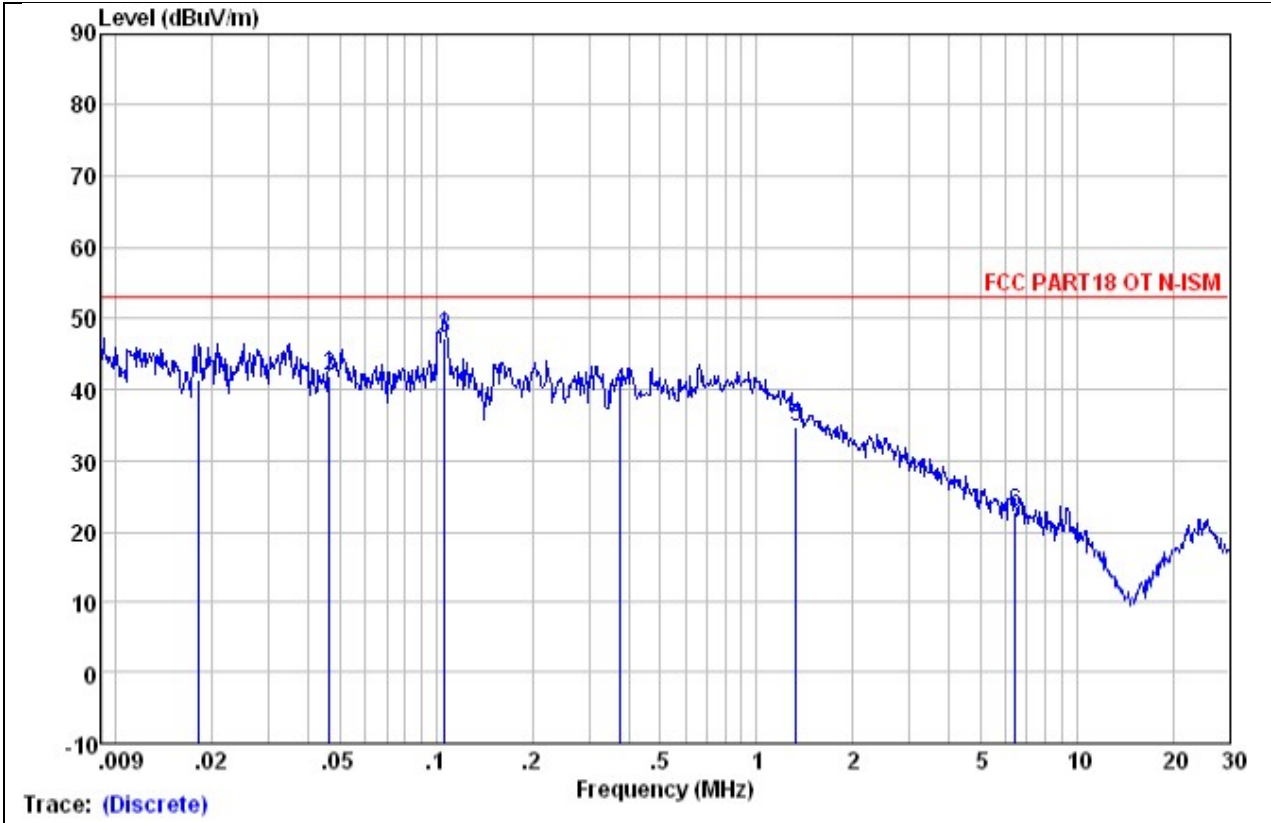
Project No.:	ZJ00034131	Probe:	Vertical
Standard:	(RE)FCC PART 18-QI	Power Source:	
Test item:	Conduction Test	Date:	2013-12-10
Temp./Hum.(%RH):	22/55%RH	Time:	10:00:45
EUT:		Test Result:	Pass
Model:	RE-9K-30M		
Note:			



	ReadAntenna	Cable	Preamp	Limit	Over				
Freq	Level	Factor	Loss	Line	Limit	Remark			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m			
1	0.018	54.08	18.18	0.00	30.77	41.49	53.06	-11.57	QP
2	0.046	59.05	13.66	0.00	30.81	41.90	53.06	-11.16	QP
3	0.106	64.31	13.69	0.03	30.82	47.21	53.06	-5.85	QP
4	0.376	57.22	13.40	0.05	30.83	39.84	53.06	-13.22	QP
5	1.331	52.21	13.50	0.03	30.90	34.84	53.06	-18.22	QP
6	6.424	41.90	11.62	0.15	30.93	22.74	53.06	-30.32	QP

Remark : Level=Read Level + Cable loss
 : + Antenna Factor - Preamp factor

Project No.:	ZJ00034131	Probe:	Horizontal
Standard:	(RE)FCC PART 18-QI	Power Source:	
Test item:	Conduction Test	Date:	2013-10-22
Temp./Hum.(%RH):	22/55%RH	Time:	11:46:42
EUT:		Test Result:	Pass
Model:	RE-9K-30M		
Note:			



	ReadAntenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.018	54.08	18.18	0.00	30.77	41.49	53.06	-11.57 QP
2	0.046	59.05	13.66	0.00	30.81	41.90	53.06	-11.16 QP
3	0.106	64.31	13.69	0.03	30.82	47.21	53.06	-5.85 QP
4	0.376	57.22	13.40	0.05	30.83	39.84	53.06	-13.22 QP
5	1.331	52.21	13.50	0.03	30.90	34.84	53.06	-18.22 QP
6	6.424	41.90	11.62	0.15	30.93	22.74	53.06	-30.32 QP

Remark : Level=Read Level + Cable loss
 : + Antenna Factor - Preamp factor

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS

Frequency range	Limits (dB μ V)	
	Quasi-peak	Average
150kHz ~ 0.5MHz	66~56	56~46
0.5 MHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 150kHz to 0.5MHz.

4.2.2 TEST PROCEDURES

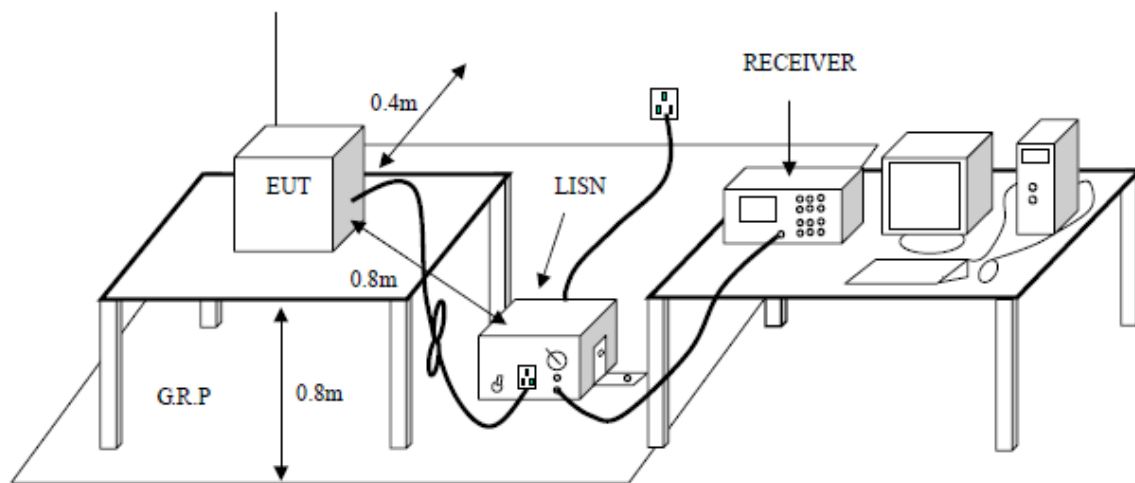
For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

– Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:

- 1) Place the EUT on a table of non-conducting material which is at least 80 cm high.
- 2) All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;
- 3) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.
- 4) I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

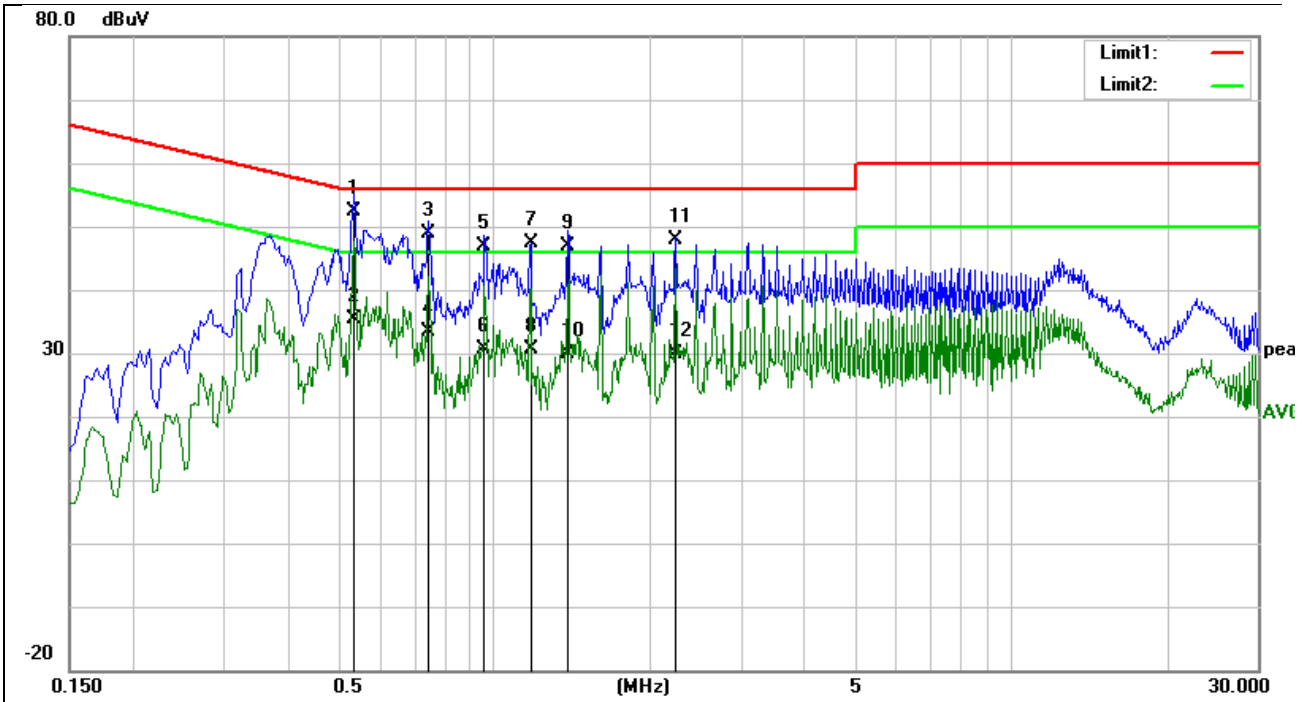
EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

4.2.3 TEST SETUP



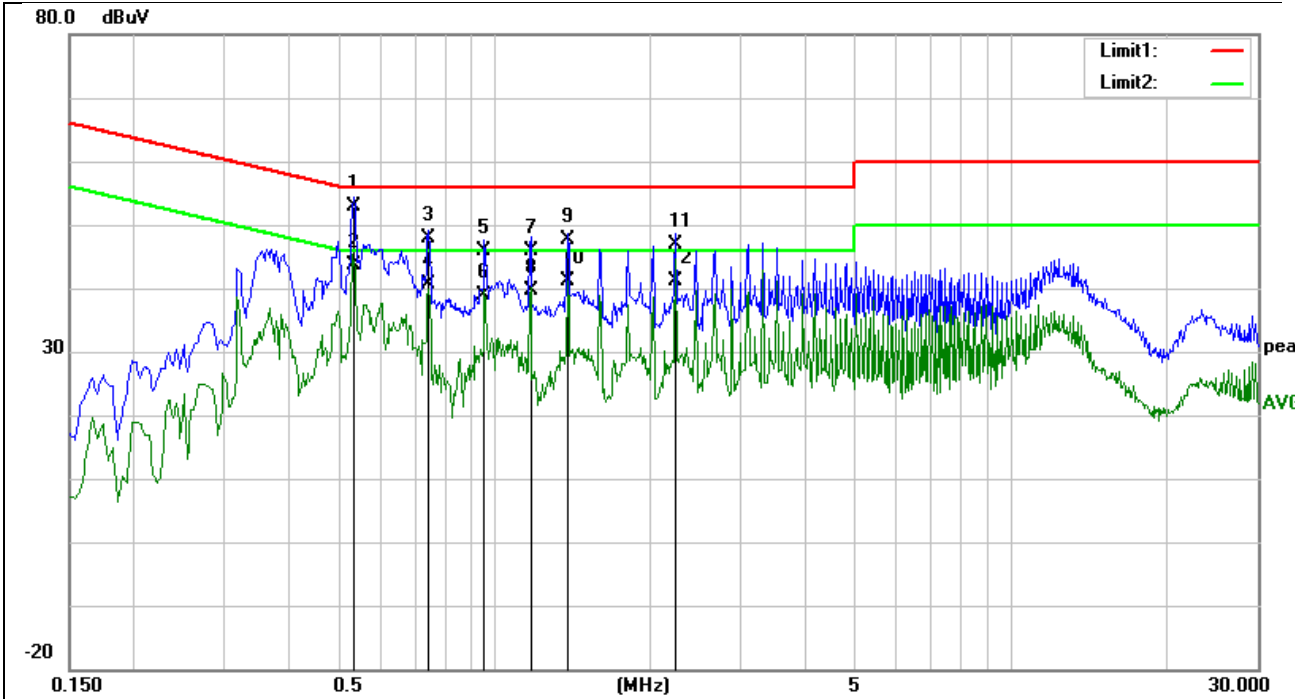
4.2.4 TEST RESULTS

Project No.:	ZJ00034131	Probe:	L1
Standard:	(CE)FCC PART15 class B_QP	Power Source:	AC 120V/60Hz
Test item:	Conduction Test	Date:	2013-10-22
Temp./Hum.(%RH):	23/57%RH	Time:	16:08:07
EUT:	USB POWERED WIRELESS CHARGER		
Model:	JBL AUTHENTICS QI	Test Result:	Pass
Note:	Charging		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.5340	51.80	0.51	52.31	56.00	-3.69	QP
2	0.5340	34.75	0.51	35.26	46.00	-10.74	AVG
3	0.7460	48.44	0.47	48.91	56.00	-7.09	QP
4	0.7460	32.82	0.47	33.29	46.00	-12.71	AVG
5	0.9580	46.30	0.46	46.76	56.00	-9.24	QP
6	0.9580	30.08	0.46	30.54	46.00	-15.46	AVG
7	1.1740	46.86	0.52	47.38	56.00	-8.62	QP
8	1.1740	29.99	0.52	30.51	46.00	-15.49	AVG
9	1.3860	46.47	0.48	46.95	56.00	-9.05	QP
10	1.3860	29.46	0.48	29.94	46.00	-16.06	AVG
11	2.2380	47.30	0.59	47.89	56.00	-8.11	QP
12	2.2380	29.24	0.59	29.83	46.00	-16.17	AVG

Project No.:	ZJ00034131	Probe:	N
Standard:	(CE)FCC PART15 class B_QP	Power Source:	AC 120V/60Hz
Test item:	Conduction Test	Date:	2013-10-22
Temp./Hum.(%RH):	23/57%RH	Time:	16:21:29
EUT:	USB POWERED WIRELESS CHARGER		
Model:	JBL AUTHENTICS QI	Test Result:	Pass
Note:	Charging		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.5340	52.49	0.51	53.00	56.00	-3.00	QP
2	0.5340	43.09	0.51	43.60	46.00	-2.40	AVG
3	0.7460	47.43	0.47	47.90	56.00	-8.10	QP
4	0.7460	40.23	0.47	40.70	46.00	-5.30	AVG
5	0.9580	45.34	0.46	45.80	56.00	-10.20	QP
6	0.9580	38.54	0.46	39.00	46.00	-7.00	AVG
7	1.1740	45.38	0.52	45.90	56.00	-10.10	QP
8	1.1740	39.18	0.52	39.70	46.00	-6.30	AVG
9	1.3860	47.12	0.48	47.60	56.00	-8.40	QP
10	1.3860	40.72	0.48	41.20	46.00	-4.80	AVG
11	2.2380	46.21	0.59	46.80	56.00	-9.20	QP
12	2.2380	40.51	0.59	41.10	46.00	-4.90	AVG

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