EMC Test Report

Project Number: 3720850

Report Number: 3720850EMC06 **Revision Level:** 0

Client: Hi P (Singapore) Technology PTE LTD

Equipment Under Test: iDEN Cell Phone with Bluetooth

Model: H375i

FCC ID: 2ACUZH375I

Applicable Standards: FCC Part 15, Subpart B, Class B

ICES-003, Issue 5

Report issued on: 2 July 2015

Test Result: Compliant

Tested by: Fabian Nica, Senior Engineering Technician

Reviewed by: David Schramm, EMC/RF/SAR/HAC Manager

Remarks:
This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1 Summary of Test Results

Test	Test Result
FCC Part 15, Subpart B, Class B, Radiated Emissions	Compliant
FCC Part 15, Subpart B, Class B, Conducted Emissions	Compliant

1.1 *Modifications Required to Compliance*

None.

2 General Information

2.1 *Client Information*

Name:	Hi P Electronics PTE LTD
Address:	12 ANG MO KIO STREET 64 #03-02, UE BIZHUB CENTRAL (BLK A)
City, State, Zip, Country:	Singapore 569088

2.2 *Test Laboratory*

Name:	SGS North America, Inc.
Address:	620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country:	Suwanee, GA 30024, USA

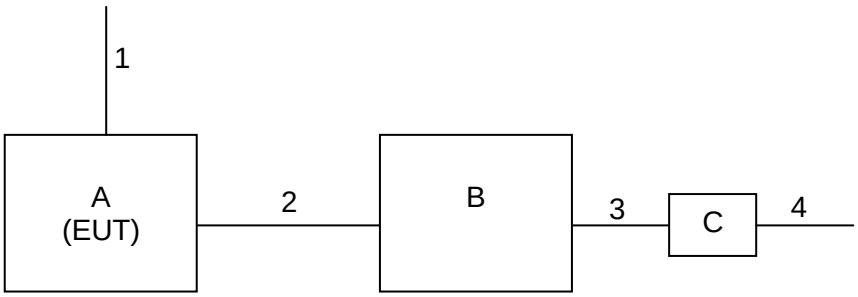
2.3 *General Information of EUT*

Model:	H375i
FCC ID:	2ACUZH375I
Rated Voltage:	3.7V
Test Voltage:	3.7V
Sample Received Date:	31 March 2015
Date of testing:	2 July 2015

2.4 *Operating Modes and Conditions*

The EUT was connected to a laptop. A automation recording/playback software was used to send constant commands to EUT which generated USB traffic between laptop and EUT.

2.5 *EUT Connection Block Diagram*



2.6 *System Configurations*

Device reference	Manufacturer	Description	Model Number	Serial Number
A	Hi P Electronic PTE LTD	iDen Phone	H375i101B32A	364KRE00H2
B	Lenovo	Laptop	T500	Product ID 2241A94
C	Lenovo	Power Supply	92P1156	11S92P1156Z1ZBGF73S902

2.7 *Cable List*

Cable reference	Port Name	Start	End	Cable Length (m)	Ferrite installed?	Shielded?
1	Auxiliary	EUT	Headset	1.10	No	No
2	USB	EUT	Laptop	1.00	No	Yes
3	DC Power	Laptop	Power Supply	1.77	Yes	Yes
4	AC Power	AC Mains	Power Supply	1.00	No	No

3 Radiated Emissions

3.1 *Test Result*

Test Description	Basic Standards	Test Result
Radiated Emissions, Class B	FCC Part 15, Subpart B ANSI C63.4:2009	Compliant

3.2 *Test Method*

Exploratory scans were performed over the frequency range as indicated in the tables below using the max hold function and incorporating a Peak detector and using TILE! software. The final test data was measured using a Quasi-Peak detector below 1GHz and a Peak and Average detector above 1GHz. The receivers resolution bandwidth was set to 120 kHz for measurements taken in the 30MHz to 1GHz frequency range and 1MHz for measurements for 1GHz – 10GHz. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency. The radiated measurements were recorded and compared to the limits indicated in the table below.

Radiated emissions limit below 1 GHz

Frequency Range	Limits (dBuV/m) Quasi-Peak		Equipment Classification
	3 m	10 m	
30 to 230 MHz	40.5	30	Class B
230 to 1000 MHz	47.5	37	

Frequency Range	Limits (dBuV/m) Quasi-Peak		Equipment Classification
	3 m	10 m	
30 to 230 MHz	50.5	40	Class A
230 to 1000 MHz	57.5	47	

Radiated emissions limit above 1 GHz

Frequency Range	Class A Limits (dBuV/m)		Class B Limits (dBuV/m)	
	FCC	CISPR	FCC	CISPR
1 to 3 GHz	Avg 60 Pk 80	Avg 56 Pk 76	Avg 54 Pk 74	Avg 50 Pk 70
3 to 6 GHz	Avg 60 Pk 80	Avg 60 Pk 80	Avg 54 Pk 74	Avg 54 Pk 74
6 to 40 GHz	Avg 60 Pk 80	No requirement	Avg 54 Pk 74	No requirement

3.3 *Test Site*

10m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions

Temperature:	22.4°C
Relative Humidity:	51.2%
Atmospheric Pressure:	97.6 kPa

3.4 *Test Equipment*

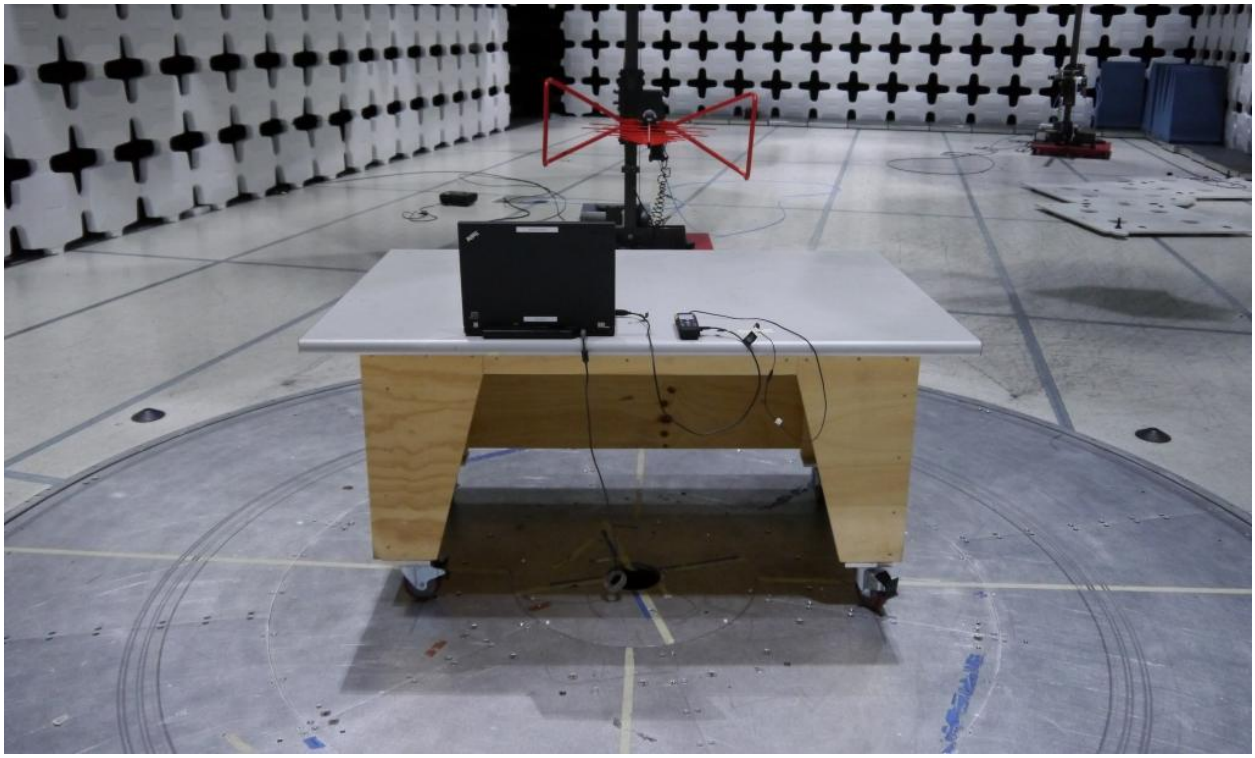
Test Date: 2-Jul-2015 Tester: FRN

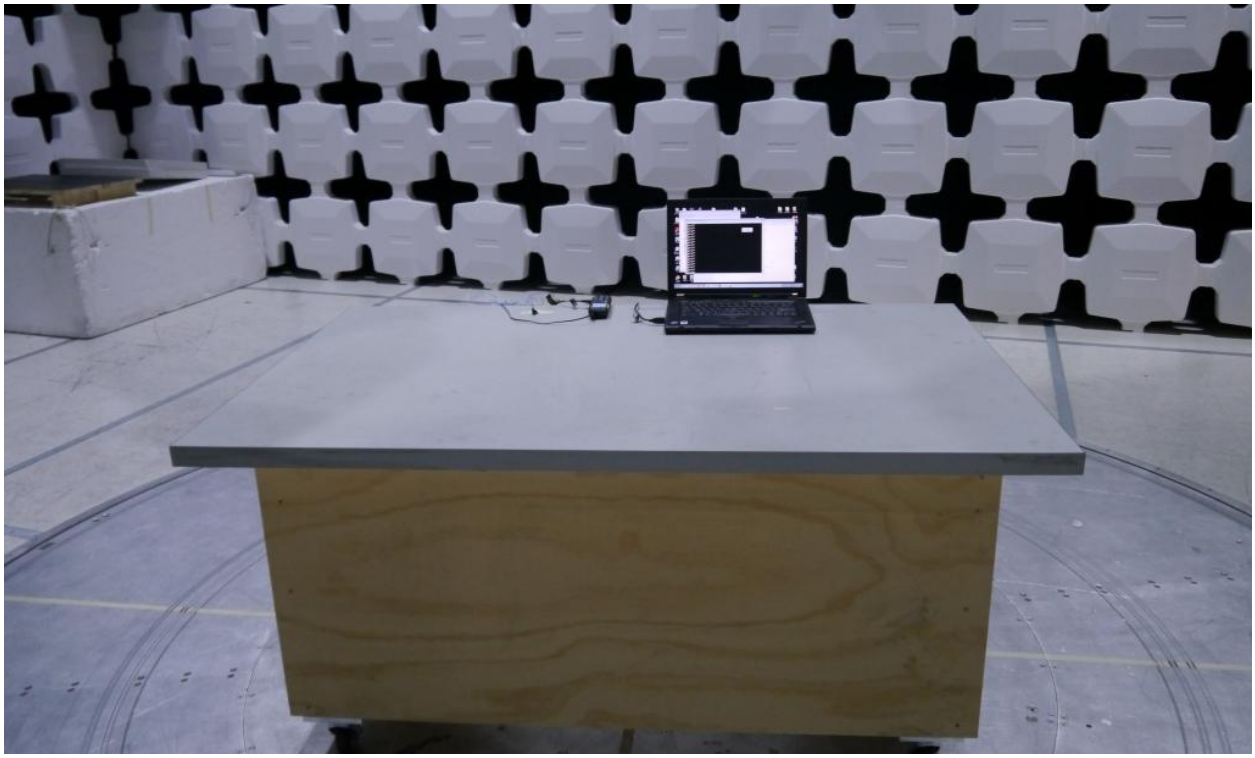
Equipment	Model	Manufacturer	Asset Number	Cal Due Date
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	28-Jul-2015
ANTENNA, BILOG	JB6	SUNOL	B079690	7-Oct-2015
RF CABLE - 7500MM (10KHZ - 18GHZ)	SF106	HUBER&SUHNER	B079711	4-Aug-2015
RF CABLE - 7500MM (10KHZ - 18GHZ)	SF106	HUBER&SUHNER	B079713	4-Aug-2015
RF CABLE	SF106	HUBER&SUHNER	B085892	5-Aug-2015
RF CABLE	300	TRUCORE	B095018	4-Aug-2015
COAXIAL AMPLIFIER	ZKL-2+	MINI-CIRCUIT	B079817	8-Aug-2015

Note: The calibration period equipment is 1 year.

Software:
“Radiated Emissions” TILE! profile dated 29 June 2014

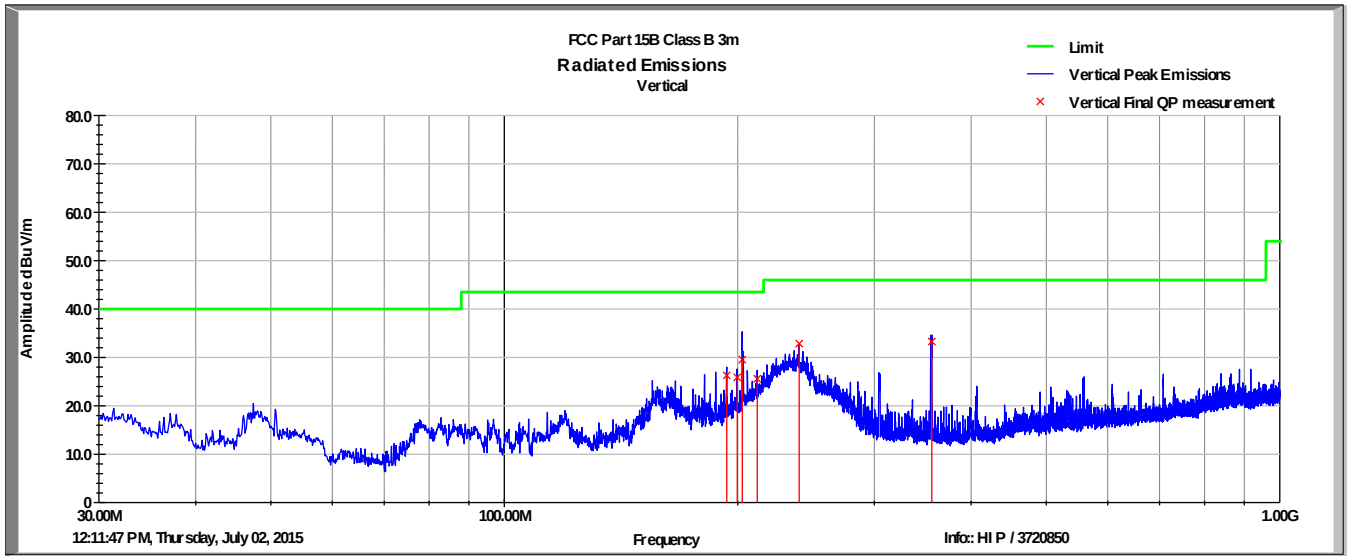
3.5 *Test Setup Photographs*





3.6 *Test Data*

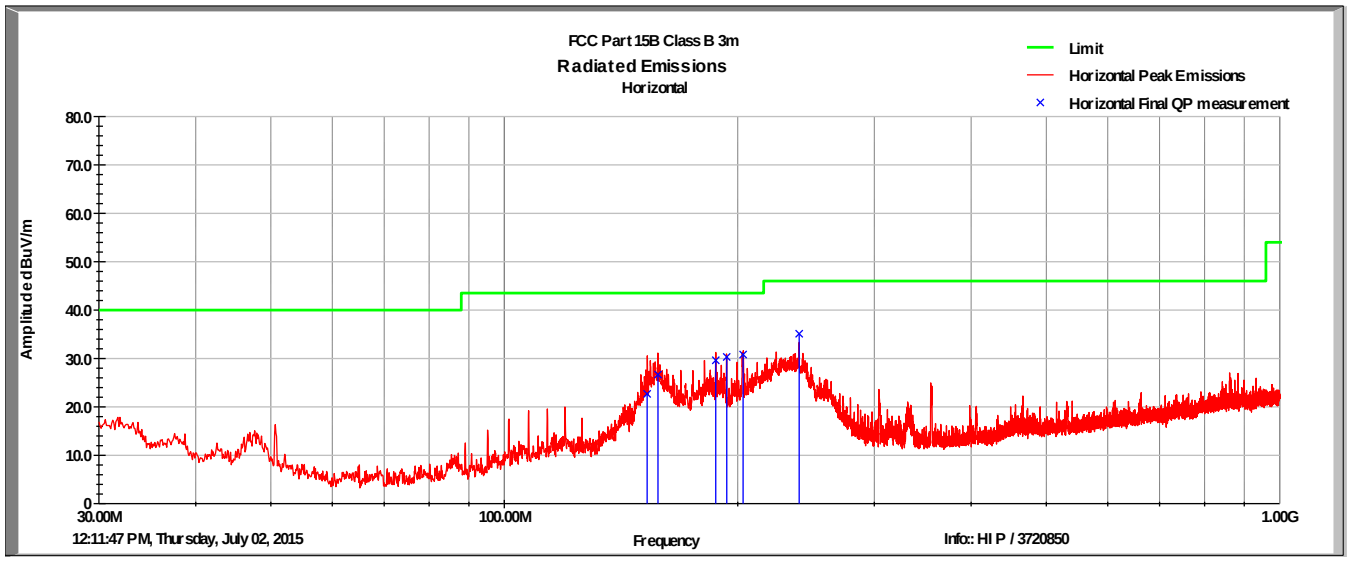
Vertical Radiated Emissions Plot 30-1GHz



Vertical Radiated Emissions Data

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
193.53	44.7	V	66.0	185.0	11.8	1.1	31.4	26.3	43.5	-17.2
199.68	43.2	V	35.0	250.0	12.9	1.1	31.4	25.9	43.5	-17.6
202.75	47.3	V	1.0	232.0	12.3	1.1	31.4	29.5	43.5	-14.0
211.97	44.5	V	50.0	184.0	11.2	1.2	31.3	25.6	43.5	-17.9
240.00	50.6	V	24.0	214.0	12.3	1.3	31.3	32.8	46.0	-13.2
355.93	47.5	V	0.0	149.0	15.4	1.5	31.3	33.3	46.0	-12.7
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

Horizontal Radiated Emissions Plot 30-1GHz



Horizontal Radiated Emissions Data

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
152.82	40.3	H	150.0	120.0	12.8	1.0	31.5	22.7	43.5	-20.8
157.83	44.2	H	149.0	213.0	12.8	1.0	31.5	26.7	43.5	-16.8
187.39	48.6	H	136.0	249.0	11.2	1.1	31.4	29.6	43.5	-13.9
193.54	48.7	H	114.0	100.0	11.8	1.1	31.4	30.3	43.5	-13.2
203.23	48.7	H	128.0	148.0	12.3	1.1	31.3	30.8	43.5	-12.7
240.00	52.8	H	312.0	120.0	12.3	1.3	31.3	35.1	46.0	-10.9
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

4 Conducted Emissions

4.1 *Test Result*

Test Description	Basic Standards	Test Result
Conducted Emissions, Class B	FCC Part 15, Subpart B ANSI C63.4:2009	Compliant

4.2 *Test Method*

With the receivers resolution bandwidth was set to 9 kHz the initial preliminary exploratory scans were performed over the measuring frequency range (0.15MHz to 30MHz) using a max hold mode incorporating a Peak detector and Average detector and using the TILE! software. The final test data was measured using a Quasi-Peak detector and Average detector and compared against the limits indicated in the table below.

Frequency Range	Class A Limits (dBuV)		Class B Limits (dBuV)	
	FCC	CISPR	FCC	CISPR
0.15 to 0.5 MHz	Avg 66 QP 79		Avg 56 to 46 QP 66 to 56	
0.5 to 5 MHz	Avg 60 QP 73		Avg 46 Pk 56	
5 to 30 MHz	Avg 60 QP 73		Avg 50 Pk 60	

4.3 *Test Site*

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature:	22.1°C
Relative Humidity:	54.7%
Atmospheric Pressure:	97.58 kPa

4.4 *Test Equipment*

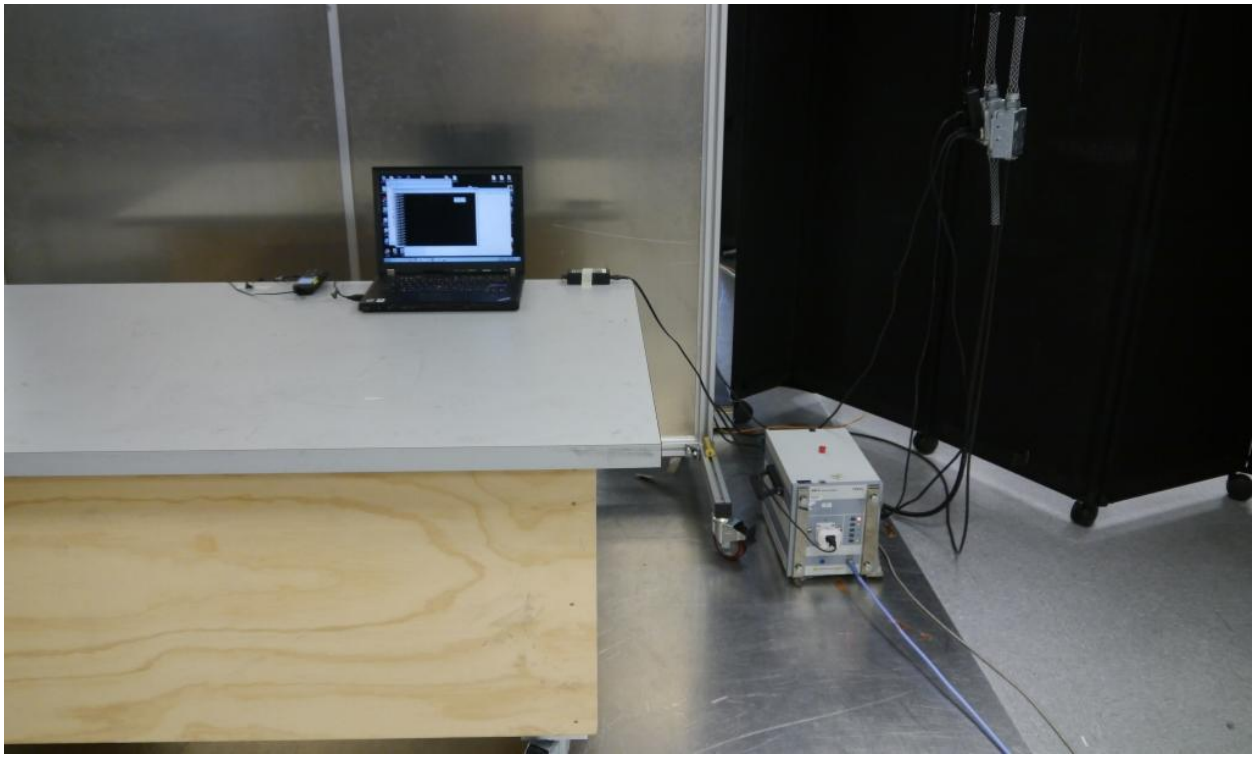
Test Date: 2-Jul-2015 Tester: FRN

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	28-Jul-2015
TWO-LINE V-NETWORK	NNB 51	TESEQ	B085882	23-Sep-2015
17 FT N TYPE COAX CABLE	HS 84133232	HUBER&SUHNER	B079661	4-Aug-2015

Note: The calibration period equipment is 1 year.

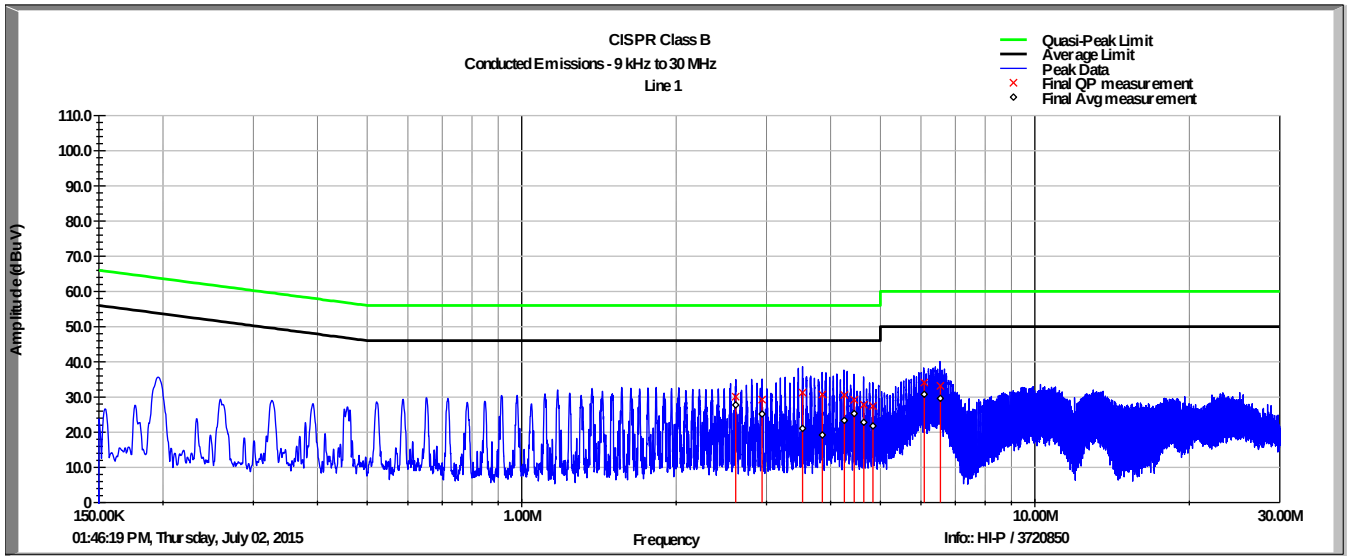
Software:
“Conducted Emissions” TILE! profile dated 22 May 2014

4.5 *Test Setup Photographs*



4.6 *Test Data*

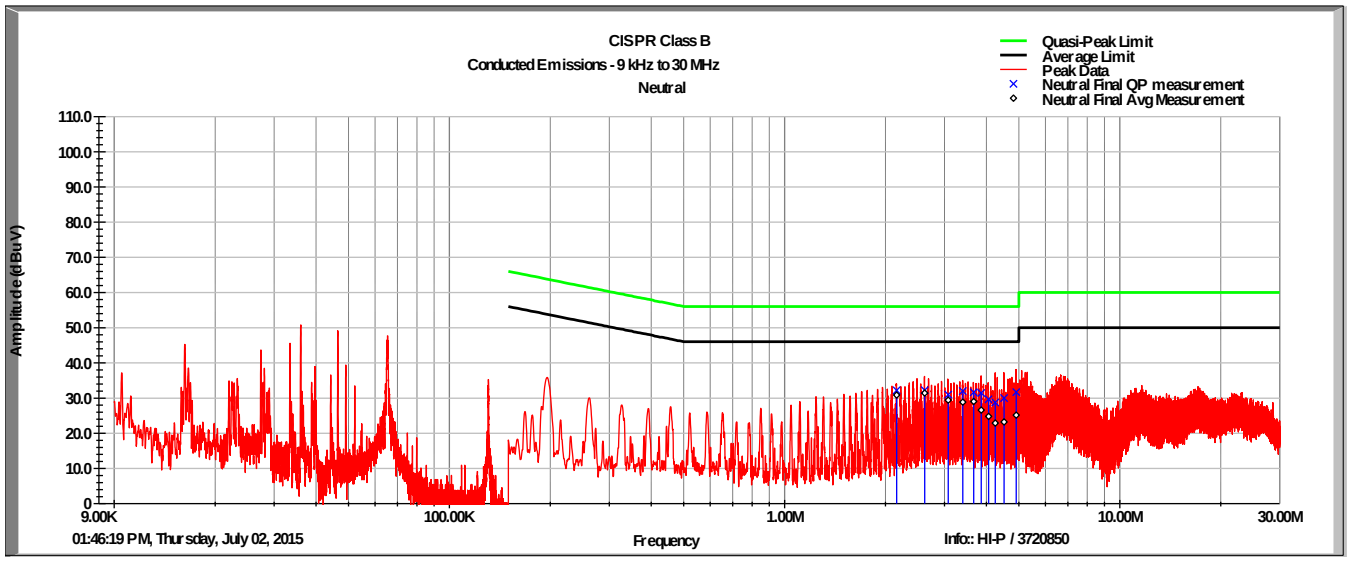
Line 1 Conducted Emissions Plot



Line 1 Conducted Emissions Data

Frequency MHz	QP Value dBuV	QP Limit dBuV	Margin dB	Avg Value dBuV	Avg Limit dBuV	Avg Margin dB
2.613	30.1	56.0	-25.9	27.7	46.0	-18.3
2.941	29.3	56.0	-26.7	25.2	46.0	-20.8
3.526	31.2	56.0	-24.8	21.1	46.0	-24.9
3.854	30.7	56.0	-25.3	19.2	46.0	-26.8
4.253	30.5	56.0	-25.5	23.3	46.0	-22.7
4.446	29.2	56.0	-26.8	25.3	46.0	-20.7
4.642	27.8	56.0	-28.2	22.8	46.0	-23.2
4.837	27.4	56.0	-28.6	21.8	46.0	-24.2
6.087	34.1	60.0	-25.9	30.7	50.0	-19.3
6.544	33.2	60.0	-26.8	29.6	50.0	-20.4

Neutral Conducted Emissions Plot



Neutral Conducted Emissions Data

Frequency MHz	QP Value dBuV	QP Limit dBuV	QP Margin dB	Avg Value dBuV	Avg Limit dBuV	Avg Margin dB
2.159	32.2	56.0	-23.8	30.9	46.0	-15.1
2.618	32.2	56.0	-23.8	31.4	46.0	-14.6
3.078	31.0	56.0	-25.0	29.4	46.0	-16.6
3.402	32.0	56.0	-24.0	28.8	46.0	-17.2
3.665	31.6	56.0	-24.4	29.0	46.0	-17.0
3.860	31.4	56.0	-24.6	26.6	46.0	-19.4
4.061	29.6	56.0	-26.4	24.8	46.0	-21.2
4.253	28.7	56.0	-27.3	22.9	46.0	-23.1
4.516	30.0	56.0	-26.0	23.2	46.0	-22.8
4.909	31.7	56.0	-24.3	25.1	46.0	-20.9

5 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	2 July 2015