ELECTROMAGNETIC EMISSION COMPLIANCE REPORT
FOR FCC CLASS B CERTIFICATION

Test report file number : E02OR-003

Applicant	**: POWEREX CO., LTD.**
Address	**: #301. Gwangmyeong, Jomyeongtaun, 626-3, Cheolsan1-Dong, Gwangmyeong-Si, Gyeonggi-Do, 423-031, Korea**
Manufacturer	**: POWEREX CO., LTD.**
Address	**: #301. Gwangmyeong, Jomyeongtaun, 626-3, Cheolsan1-Dong, Gwangmyeong-Si, Gyeonggi-Do, 423-031, Korea**
Type of Equipment	**: SWITCHING MODE POWER SUPPLY**
FCC ID	**: QOI-201**
Model Name	**: SPC-201**
Multiple Model Name	**: N/A**
Serial number	**: N/A**
Total page of Report	**: 13 pages (including this page)**
Date of Incoming	**: September 26, 2002**
Date of Issuing	**: October 08, 2002**

SUMMARY

The equipment complies with the requirements of **FCC CFR 47 PART 15 SUBPART B, Class B.**

This test report contains only the results of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by: 
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1. VERIFICATION OF COMPLIANCE

-. APPLICANT : POWEREX CO., LTD.
-. ADDRESS : #301. Gwangmyeong, Jomyeongtaun, 626-3, Cheolsan1-Dong, Gwangmyeong-Si, Gyeonggi-Do, 423-031, Korea
-. CONTACT PERSON : Mr. Sang-Jin, Ko / Chief Manager
-. TELEPHONE NO : +82-2-682-9779
-. FCC ID : QOI-201
-. MODEL NO/NAME : SPC-201
-. SERIAL NUMBER : N/A
-. DATE : October 08, 2002

DEVICE TYPE	Internal Power Supplies used with Class B Personal Computer - Unintentional Radiator
E.U.T. DESCRIPTION	SWITCHING MODE POWER SUPPLY
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/1992
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15, SECTION 15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. GENERAL INFORMATION

2.1 Product Description

The POWEREX CO., LTD., Model SPC-201 (referred to as the EUT in this report) is a SWITCHING MODE POWER SUPPLY that is internal power supplies with Class B personal computer. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Metal
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	None
SWITCHING FREQUENCY	66kH
NUMBER OF LAYERS	1 Layer
EXTERNAL CONNECTOR	AC IN

Model Differences

-. The difference(s) compared to the EUT is as follows: none

2.2 Related Submittal(s) / Grant(s)

Original submittal only

2.3 Test System Details

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	FCC ID	Description	Connected to
SPC-201	POWEREX CO., LTD.	QOI-201	SMPS (EUT)	INSIDE PC
Deskpro EXM	COMPAQ	DOC	PC	-
E551	DELL COMPUTER	DOC	MONITOR	PC
P801	N/A	FSUGMZFT	MOUSE	PC
5530KP	BTC	DOC	KEYBOARD	PC
020-0470	CARDINAL	GDE0196	MODEM	PC
SMS-015N	SUNGIL PRECISION CO., LTD.	N/A	SPEAKER	PC

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2.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4/1992. Radiated testing was performed at a distance of 3 meters from EUT to the antenna.

2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on January 18, 2002. (Registration Number: 92819)

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3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN B'D	POWEREX CO., LTD.	N/A	N/A

3.2 EUT exercise Software

After the EUT was installed inside PC, the PC was operated as follows;

The windows program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. This program was included into HOST. Once loaded, this program sequentially exercises each system component in turn. The sequence used is: (1) series of H characters are printed on the monitor until the screen is completely full, (2) copy series of H characters to mass storage device (if one is used), (3) print series of H characters to printer. The complete cycle is repeated continuously.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
SWITCHING MODE POWER SUPPLY (EUT)	N	N/A	1.5 (P)
PC	N	-	1.5 (P)
MONITOR	N	Y	1.5 (P), 1.2 (D)
MOUSE	N/A	N	1.2 (D)
KEYBOARD	N/A	N	1.2 (D)
MODEM	N	Y	1.5 (P), 1.2 (D)
SPEAKER	N/A	Y	1.2 (D)

* The marked "(P)" means the Power Cable and "D" means the I/O Cable.

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3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
SWITCHING MODE POWER SUPPLY (EUT)	N	N/A	-	N/A
PC	N	N/A	-	N/A
MONITOR	Y	PC END	Y	PC END
MOUSE	N	N/A	Y	PC END
KEYBOARD	N	N/A	Y	PC END
MODEM	N	N/A	Y	BOTH END
SPEAKER	N	N/A	Y	BOTH END

3.5 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

"There were no Modified items during EMI test"

3.6 Configuration of Test System

Line Conducted Test : The EUT was installed inside PC and the power line of the EUT was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emission test was conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 meters open area test site.

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4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Standby	
Exercise the various system components	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Standby	
Exercise the various system components	X

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5. FINAL RESULT OF MEASURMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 Conducted Emission Test

Humidity Level : 53 % Temperature : 21 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107

Type of Test : CLASS B

Result : PASSED BY –2.98 dB at 10.40 MHz

EUT : SWITCHING MODE POWER SUPPLY Date: October 01, 2002

Operating Condition : Exercise the various system components

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Peak (dBuV)		Margin (dB)
		Emission level	Q.P Limits	
0.20	N	50.55	63.61	-13.06
0.33	N	42.40	59.45	-17.05
0.39	N	43.45	57.96	-14.51
10.27	H	48.01	60.00	-11.99
10.40	H	47.97	60.00	-12.03
11.25	N	47.16	60.00	-12.84
Frequency (MHz)	**Line**	**Average (dBuV)**		**Margin (dB)**
		Emission level	**Limits**	
0.20	H	44.55	53.61	-9.06
0.39	N	38.68	47.96	-9.28
0.46	H	35.35	46.60	-11.25
10.27	H	46.95	50.00	-3.05
10.40	H	47.02	50.00	-2.98
11.25	N	43.75	50.00	-6.25

Line Conducted Emission Tabulated Data

Remark : "H": Hot Line, "N": Neutral line, "P": Peak detect

Tested by: Young-Min Choi / Project Engineer

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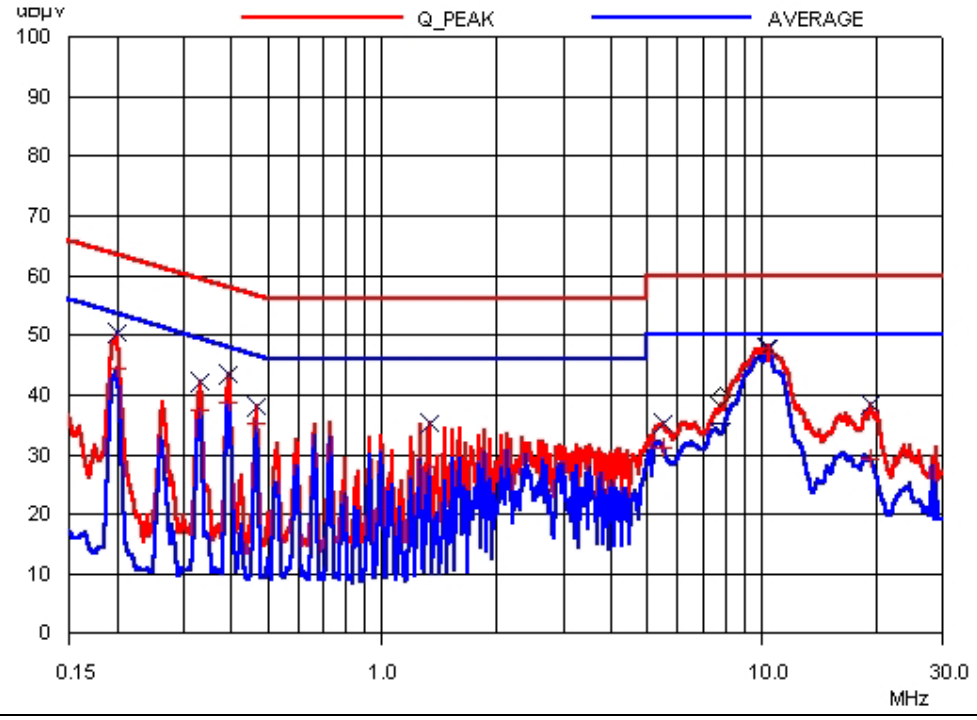
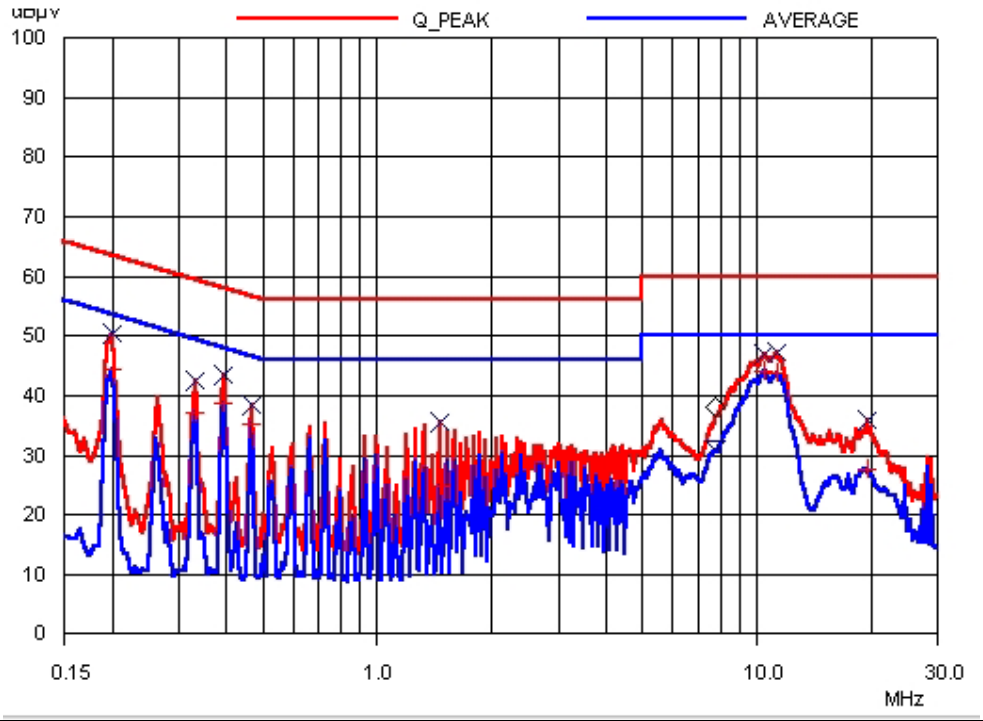


HOT LINE



NEUTRAL LINE

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5.2 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 52 % Temperature : 20 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
Type of Test : CLASS B
Result : PASSED BY –3.13 dB at 75.00 MHz

EUT : SWITCHING MODE POWER SUPPLY Date: October 01, 2002
Operating Condition : Exercise the various system components
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
Distance : 3 Meter

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
75.00	28.80	V	7.07	1.00	36.87	40.00	-3.13
78.55	27.00	V	6.69	1.00	34.69	40.00	-5.31
80.57	27.20	V	6.64	1.01	34.85	40.00	-5.15
86.66	26.70	V	7.83	1.10	35.63	40.00	-4.37
103.34	24.30	H	12.47	1.16	37.93	43.50	-5.57
109.28	23.50	H	12.83	1.20	37.53	43.50	-5.97
128.81	24.50	V	13.03	1.26	38.79	43.50	-4.71
135.20	24.38	V	12.75	1.29	38.42	43.50	-5.08
147.62	22.89	V	13.26	1.34	37.49	43.50	-6.01

Radiated Emissions Tabulated Data

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Young-Min Choi / Project Engineer

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6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+	Meter reading	(dBuV)
+	Cable Loss	(dB)
+	Antenna Factor (Loss)	(dB/meter)
=	Corrected Reading	(dBuV/meter)
-	Specification Limit	(dBuV/meter)
=	dB Relative to Spec	(+/- dB)

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7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	OCT/01	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	APR/02	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3109A05456	APR/02	12MONTH	■
4.	RF preselector	HP	85685A	3107A01264	APR/02	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	APR/02	12MONTH	■
6.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	APR/02	12MONTH	■
7.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	APR/02	12MONTH	■
8.	LISN	EMCO	3825/2	9109-1867 9109-1869	AUG/02	12MONTH	■
9.	Computer System Hard disk drive	HP	98581C 9153C	98543A CMC762Z9153	N/A N/A	N/A N/A	■ ■
10.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
11.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
12.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■

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