

TESTING CERTIFICATE



CTK Co., Ltd.
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Certificate No.:
CTK-2014-01527
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1. Client

- Name : Avery Dennison Retail Information Servies, LLC
- Address : 170 Monarch Lane, Miamisburg, Ohio, USA 45342
- Date of Receipt : 2014-02-19

2. Manufacturer

- Name : SEWOO TECH CO., LTD.
- Address : 28-6, Gajangsaneopdong-ro, Osan-si, Gyeonggi-do, Korea

3. Use of Report : For FCC certification

4. Test Sample / Model: Mobile Printer / 9484NP

5. FCC ID: GU6-QUATECH1

6. IC ID: 1502A-QUATECH1

7. Date of Test : 2014-03-11 to 2014-04-04

8. Test Standard(method) used : FCC Part 15 Subpart B

9. Testing Environment: refer to 12 pages to 30 pages

10. Test Results : refer to 13 pages to 31 pages

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Affirmation	Tested by	Approved by
	Jang Bongjoon: (Signature) EMC Test Engineer	Park Young-joon: (Signature) Technical Manager

2014-12-15

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REPORT REVISION HISTORY

Date	Revision	Page No
2014-12-15	Issued (CTK-2014-01527)	All

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1.0 General Product Description

No.	ITEM	APPLICATION	
1	Test Sample	Mobile Printer	
2	Model	9484NP	
3	Variant Model	-	
4	Dimensions (W x L x H)	158 mm X 104 mm X 85 mm	
5	Mobility	<input checked="" type="checkbox"/> Table-top <input type="checkbox"/> Floor-standing <input type="checkbox"/> Built-in <input checked="" type="checkbox"/> Portable	
6	Maximum Clock Frequency	12 MHz	
7	Electrical Ratings	Battery Charger (UE09WCP-084080SPC)	Input: AC 100 V - AC 240 V, 50 Hz / 60 Hz, 400 mA
			Output: DC 8.4 A, 0.8 A
		Battery Charger (STD-08410CV)	Input: AC 100 V - AC 240 V, 47 Hz - 63 Hz, 0.21 A
			Output: DC 8.55 A, 1 A
		EUT	Input: DC 8.4 A, 0.8 A
	Output: -		
	Battery	Lithium-ion DC 7.4 V	
8	Test Voltage / Frequency	Voltage: AC 120 V	
		Frequency: 60 Hz	

1.1 Model Differences

Not applicable

1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable



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1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

Peripheral Devices

[USB/Serial Printing Mode]

Device	Model No.	Serial No.	Manufacturer
Notebook Computer	NT-R60Y	Z9GJ93GS302109B	SAMSUNG ELECTRONICS.
AC/DC Adaptor	AD-6019	BA44-00046A	SAUSUNG ELECTRO-MECHANICS.
USB TO SERIAL	KW-825	-	KANGWON ELECTRONICS.

[Battery Charging Mode: Battery Charger 1]

Device	Model No.	Serial No.	Manufacturer
Battery Charger 1	UE09WCP-084080SPC	-	Dongguan Shilong Fuhua Electronic Co., Ltd.

[Battery Charging Mode: Battery Charger 2]

Device	Model No.	Serial No.	Manufacturer
Battery Charger 2	STD-08410CV	-	Adapter Technology Co., Ltd.

Cable Description

[USB/Serial Printing Mode]

No.	From		To		Type of Cable		
	Device	I/O Port	Device	I/O Port	Length (m)	Shielded or Unshielded	Ferrite Core [Y/N]
1	EUT	SERIAL	USB TO SERIAL	SERIAL	1.2	S	N
2		USB	Notebook Computer	USB	1.2	S	Y
3	USB TO SERIAL	USB	Notebook Computer	USB	1.5	S	N
4	Notebook Computer	DC IN	AC/DC Adaptor	DC OUT	1.2	U	Y
5	AC/DC Adaptor	AC Power	AC Mains	-	1.8	U	N

[Battery Charging Mode: Battery Charger 1]

No.	From		To		Type of Cable		
	Device	I/O Port	Device	I/O Port	Length (m)	Shielded or Unshielded	Ferrite Core [Y/N]
1	EUT	DC IN	Battery Charger 1	DC OUT	1.5	U	N
2	Battery Charger 1	AC POWER	AC Mains	-	1.8	U	N

[Battery Charging Mode: Battery Charger 2]

No.	From		To		Type of Cable		
	Device	I/O Port	Device	I/O Port	Length (m)	Shielded or Unshielded	Ferrite Core [Y/N]
1	EUT	DC IN	Battery Charger 2	DC OUT	1.5	U	N
2	Battery Charger 2	AC POWER	AC Mains	-	1.8	U	N

* Shielded or Unshielded : Unshielded=U, Shielded=S



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1.4 Test Software

- EMC Test V 1.0
- Display Test Patterns - V1.5
- Ping.exe
- 3POS100217
- Not applicable

1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

- USB/Serial Printing Mode
- Battery Charging Mode
 - 1) Battery Charger 1(UE09WCP-084080SPC)
 - 2) Battery Charger 2(STD-08410CV)

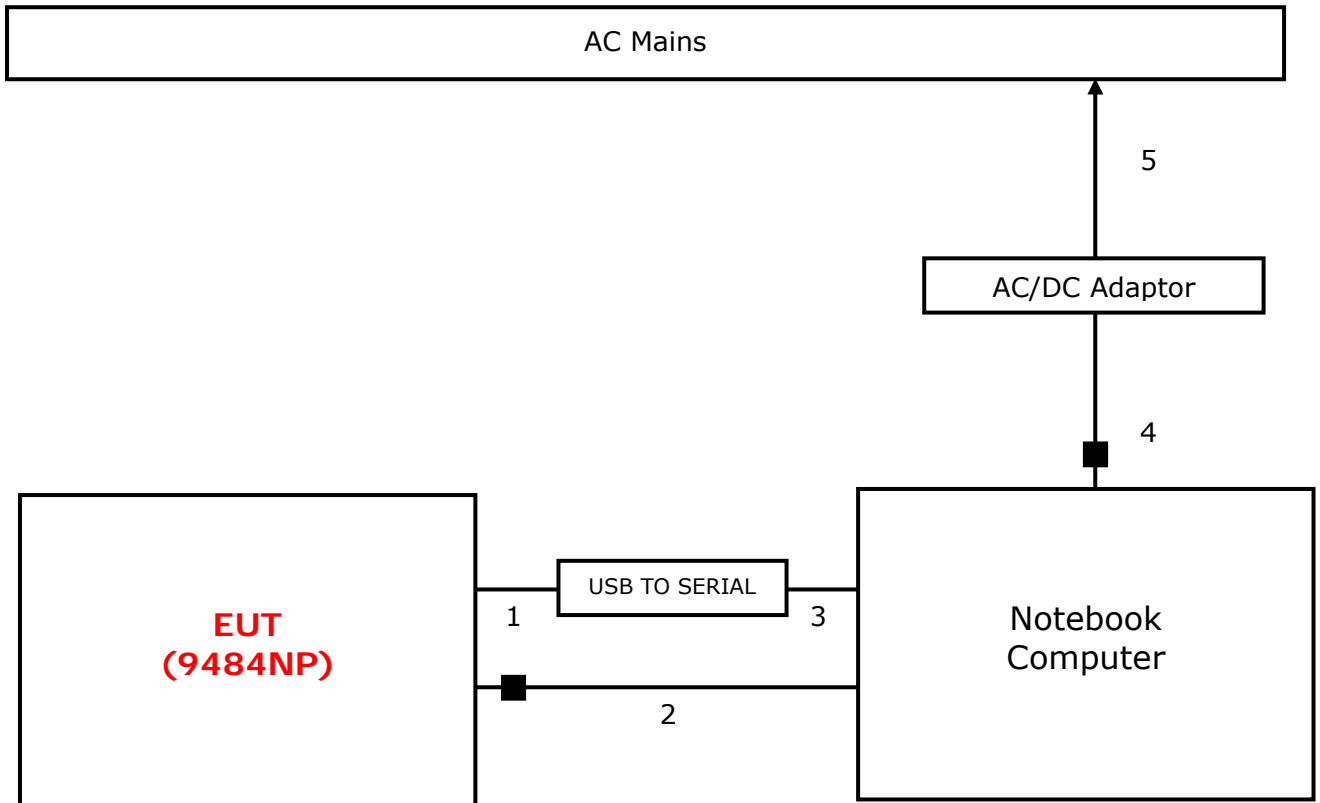


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1.6 Configuration

[USB/Serial Printing Mode]

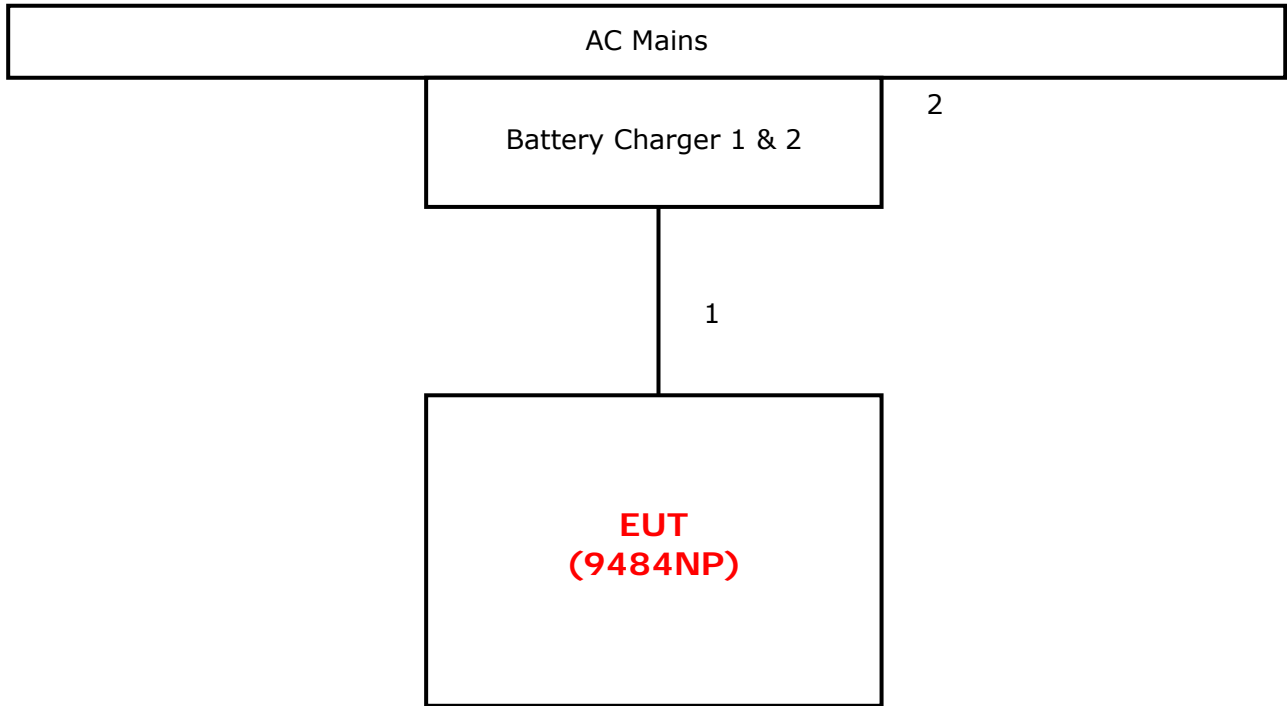




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[Battery Charging Mode: Battery Charger 1&2]





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1.7 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.8 Test Facility

The measurement facility is located at (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yong-in-si, Gyeonggi-do, Korea. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.9 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested.

Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)

Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.


Preliminary radiated emissions test were performed Semi-Anechoic Chamber or anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Semi-Anechoic Chamber.




Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-2009 7.3.3, 7.3.4, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.2

Note #1: These results are deemed satisfactory evidence of compliance with ICES-003 of the Canadian Interference-Causing Equipment Regulations.

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1.10 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Registration Number	Logo
USA	FCC	FCC Part 15 & 18 EMI (Electromagnetic Interference / Emission)	805871	
JAPAN	VCCI	VCCI V-3 EMI (Electromagnetic Interference / Emission)	C-986 T-1843 R-3627 G-387	
KOREA	MSIP	EMI (Electromagnetic Interference / Emission) EMS (Electromagnetic Susceptibility / Immunity)	KR0025	

1.11 Measurement Uncertainty

Compliance of the product is based on the measured value.

However, the measurement uncertainty is included for information purposes.

The measurement uncertainties given below are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Measurement Type	Frequency Range	Expanded Uncertainty
Conducted Emission	9 kHz to 150 kHz	2.78 dB (C.L.: Approx. 95 %, $k=2$)
Conducted Emission	150 kHz to 30 MHz	2.70 dB (C.L.: Approx. 95 %, $k=2$)
Disturbance Power	30 MHz to 300 MHz	3.74 dB (C.L.: Approx. 95 %, $k=2$)
Radiated Emission	30 MHz to 1000 MHz	3.66 dB (C.L.: Approx. 95 %, $k=2$)
Radiated Emission	1 GHz Above	4.16 dB (C.L.: Approx. 95 %, $k=2$)

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2.0 EMC Test Regulations/Standards

The tests were performed according to following regulations:

Applied standard	Title	Applied	Test Result
FCC Part 15 Subpart B <input type="checkbox"/> Class A <input checked="" type="checkbox"/> Class B	Conducted Voltage Emissions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MET <input type="checkbox"/> NOT MET
	Radiated Electric Field Emissions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MET <input type="checkbox"/> NOT MET



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3.0 Results of Individual Test

3.1 Conducted Voltage Emissions of Mains ports

Test Date

2014-03-11 - 2014-03-19

Test Location

Shielded Room

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Due Date	Applied
EMI Test Receiver	ESCI7	Rohde & Schwarz	100816	2014-12-06	<input checked="" type="checkbox"/>
LISN	ENV216	Rohde & Schwarz	101235	2014-08-02	<input checked="" type="checkbox"/>
LISN	ENV216	Rohde & Schwarz	101236	2014-08-02	<input checked="" type="checkbox"/>
EMI Test Receiver	ESR7	Rohde & Schwarz	101088	2015-07-29	<input type="checkbox"/>
LISN	ENV216	Rohde & Schwarz	101151	2015-11-07	<input type="checkbox"/>
LISN	ESH3-Z5	Rohde & Schwarz	100207	2015-11-07	<input type="checkbox"/>
EMI Test Receiver	ESCI3	Rohde & Schwarz	100032	2015-02-04	<input checked="" type="checkbox"/>
LISN	ENV216	Rohde & Schwarz	101760	2015-02-03	<input type="checkbox"/>
LISN	ENV4200	Rohde & Schwarz	100042	2015-02-05	<input type="checkbox"/>
LISN	ENV216	Rohde & Schwarz	101150	2015-02-04	<input type="checkbox"/>

Test Software

ESCI7, ESCI3 : EMC32 Ver. 8.50.0

ESR7 : EMC32 Ver. 8.53.0

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Setting

IF Band Width: 9 kHz

Climate Condition

Temperature: (22 ± 1) °C

Relative Humidity: (43 ± 1) %

Atmospheric Pressure: 100 kPa



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Test Result

The requirements are: MET NOT MET

[USB Printing Mode]

Frequency (MHz)	Measured Data (dB μ V)	Margin (dB)	Remark
13.438 500	39.3	10.7	CAverage

[Serial Printing Mode]

Frequency (MHz)	Measured Data (dB μ V)	Margin (dB)	Remark
0.172 500	56.6	8.3	Quasi-peak

[Battery Charging Mode: Battery Charger 1]

Frequency (MHz)	Measured Data (dB μ V)	Margin (dB)	Remark
4.938 000	38.7	17.3	Quasi-peak

[Battery Charging Mode: Battery Charger 2]

Frequency (MHz)	Measured Data (dB μ V)	Margin (dB)	Remark
0.154 500	44.9	20.8	Quasi-peak

The Result is calculated by using the following formula;

* Result = Limit - Margin (Result included the correction factor)

* Correction factor = Cable Loss + Insertion loss of LISN



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Test Data

[USB Printing Mode]
[Line: L1]

Test

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Test Report

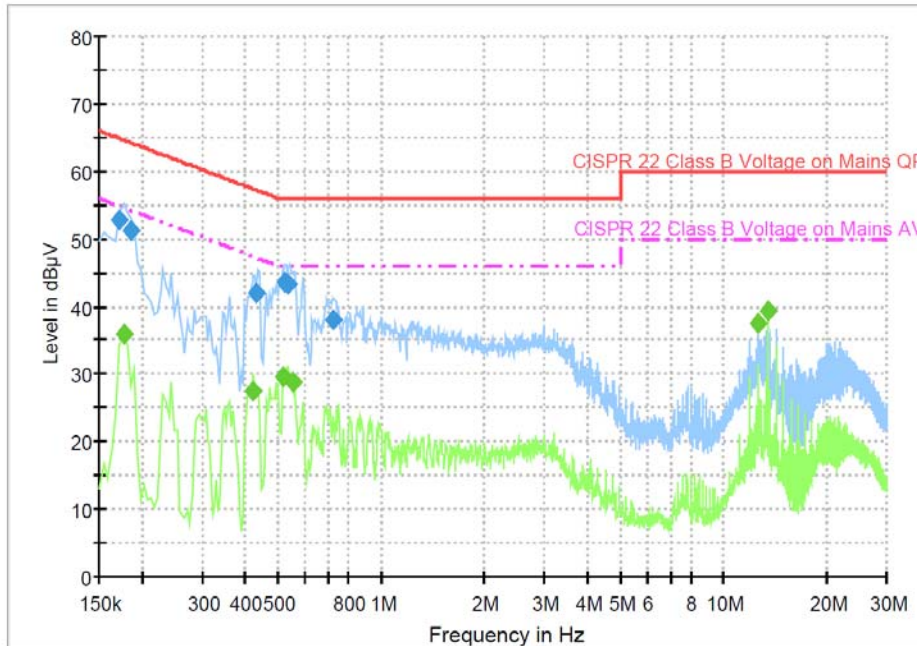
Common Information

Test Model Name: 9484NP
Test Mode: USB MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 3 [ESCI 3]
@ GPIB0 (ADR 23), SN 100032/003, FW 4.42
Signal Path: ESCI 3-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_L1



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Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.172500	52.8	1000.0	9.000	On	L1	9.9	12.0	64.8
0.186000	51.3	1000.0	9.000	On	L1	9.9	12.9	64.2
0.433500	41.9	1000.0	9.000	On	L1	10.1	15.3	57.2
0.523500	43.5	1000.0	9.000	On	L1	10.1	12.5	56.0
0.537000	43.3	1000.0	9.000	On	L1	10.1	12.7	56.0
0.726000	37.9	1000.0	9.000	On	L1	10.0	18.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.177000	36.0	1000.0	9.000	On	L1	9.9	18.7	54.6
0.420000	27.6	1000.0	9.000	On	L1	10.1	19.9	47.4
0.519000	29.6	1000.0	9.000	On	L1	10.1	16.4	46.0
0.550500	28.9	1000.0	9.000	On	L1	10.1	17.2	46.0
12.673500	37.5	1000.0	9.000	On	L1	10.0	12.5	50.0
13.438500	39.3	1000.0	9.000	On	L1	10.0	10.7	50.0

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[Line : Neutral]

Test

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Test Report

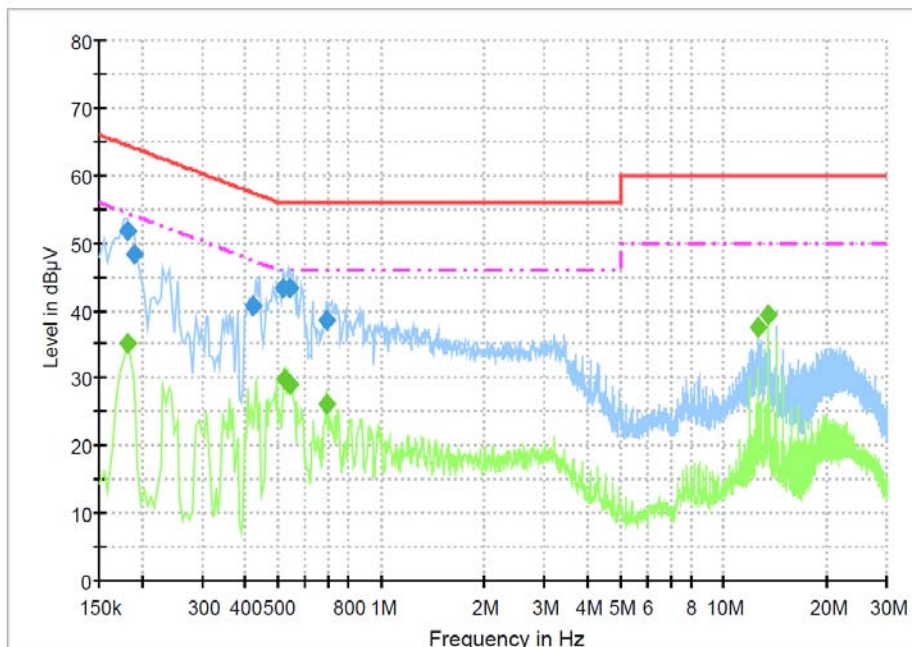
Common Information

Test Model Name: 9484NP
Test Mode: USB MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 3 [ESCI 3]
@ GPIB0 (ADR 23), SN 100032/003, FW 4.42
Signal Path: ESCI 3-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_N



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Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.181500	51.6	1000.0	9.000	On	N	9.9	12.8	64.4
0.190500	48.2	1000.0	9.000	On	N	9.9	15.8	64.0
0.420000	40.6	1000.0	9.000	On	N	10.1	16.9	57.4
0.519000	43.2	1000.0	9.000	On	N	10.1	12.8	56.0
0.541500	43.3	1000.0	9.000	On	N	10.1	12.7	56.0
0.690000	38.5	1000.0	9.000	On	N	10.0	17.5	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.181500	35.2	1000.0	9.000	On	N	9.9	19.2	54.4
0.523500	29.9	1000.0	9.000	On	N	10.1	16.1	46.0
0.541500	29.1	1000.0	9.000	On	N	10.1	16.9	46.0
0.690000	26.2	1000.0	9.000	On	N	10.0	19.8	46.0
12.673500	37.4	1000.0	9.000	On	N	10.0	12.6	50.0
13.438500	39.3	1000.0	9.000	On	N	10.0	10.7	50.0

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[Serial Printing Mode]
[Line: L1]

Test

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Test Report

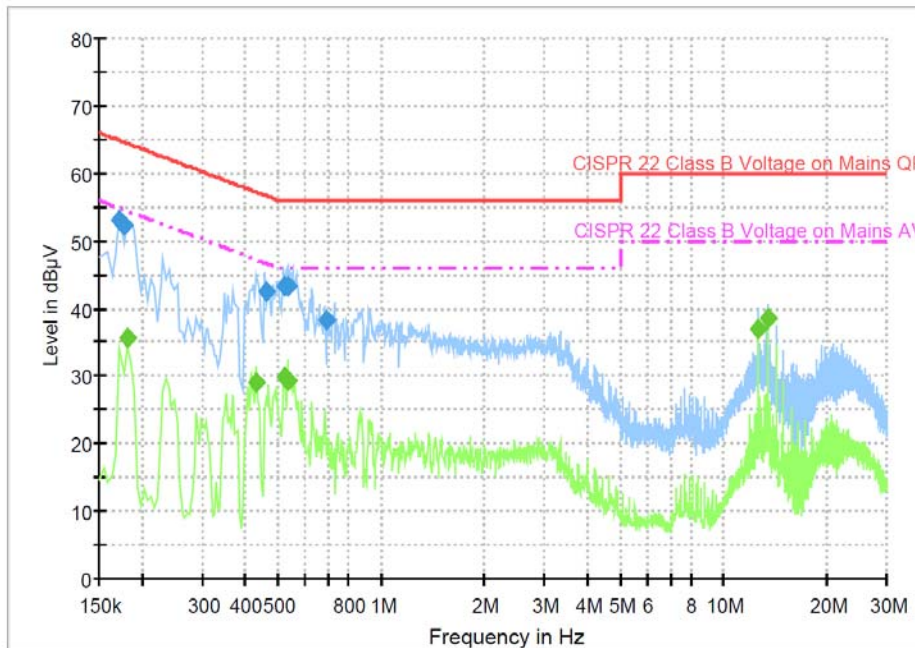
Common Information

Test Model Name: 9484NP
Test Mode: SERIAL MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 3 [ESCI 3]
@ GPIB0 (ADR 23), SN 100032/003, FW 4.42
Signal Path: ESCI 3-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_L1



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Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.172500	53.2	1000.0	9.000	On	L1	9.9	11.6	64.8
0.177000	52.4	1000.0	9.000	On	L1	9.9	12.2	64.6
0.460500	42.4	1000.0	9.000	On	L1	10.1	14.3	56.7
0.523500	43.4	1000.0	9.000	On	L1	10.1	12.6	56.0
0.537000	43.3	1000.0	9.000	On	L1	10.1	12.7	56.0
0.694500	38.3	1000.0	9.000	On	L1	10.0	17.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.181500	35.6	1000.0	9.000	On	L1	9.9	18.8	54.4
0.433500	29.1	1000.0	9.000	On	L1	10.1	18.1	47.2
0.523500	29.8	1000.0	9.000	On	L1	10.1	16.2	46.0
0.537000	29.4	1000.0	9.000	On	L1	10.1	16.6	46.0
12.673500	37.1	1000.0	9.000	On	L1	10.0	12.9	50.0
13.438500	38.4	1000.0	9.000	On	L1	10.0	11.6	50.0

3/19/2014

9:06:39



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[Line: Neutral]

Test

1 / 2

Test Report

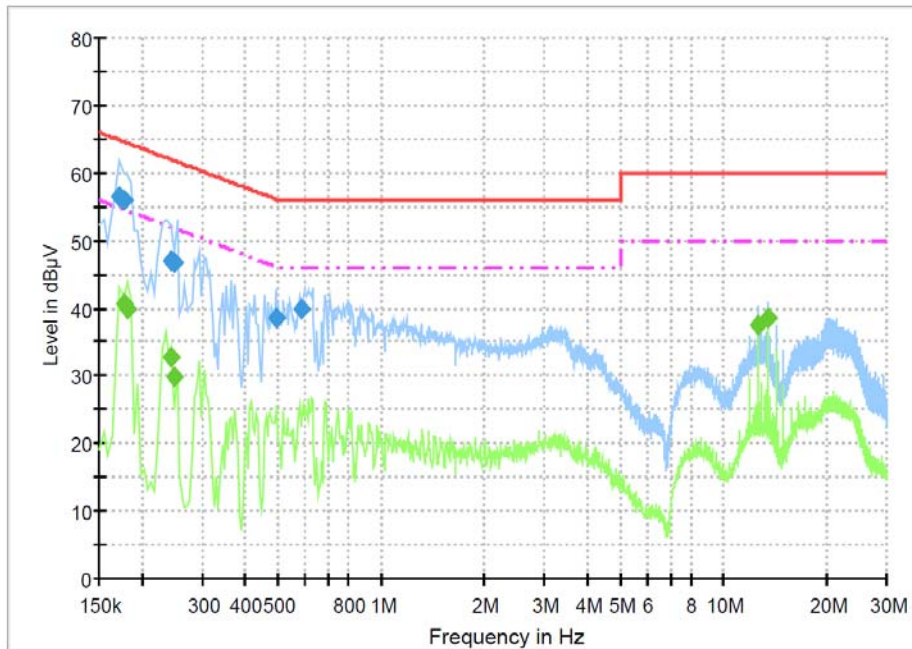
Common Information

Test Model Name: 9484NP
Test Mode: SERIAL MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 3 [ESCI 3]
@ GPIB0 (ADR 23), SN 100032/003, FW 4.42
Signal Path: ESCI 3-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_N



3/19/2014

8:51:32



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Test

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Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.172500	56.6	1000.0	9.000	On	N	9.9	8.3	64.8
0.177000	56.0	1000.0	9.000	On	N	9.9	8.7	64.6
0.244500	47.1	1000.0	9.000	On	N	9.8	14.8	61.9
0.249000	46.6	1000.0	9.000	On	N	9.8	15.2	61.8
0.492000	38.5	1000.0	9.000	On	N	10.1	17.6	56.1
0.586500	39.8	1000.0	9.000	On	N	10.0	16.2	56.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.177000	40.6	1000.0	9.000	On	N	9.9	14.0	54.6
0.181500	39.8	1000.0	9.000	On	N	9.9	14.6	54.4
0.244500	32.7	1000.0	9.000	On	N	9.8	19.2	51.9
0.249000	29.9	1000.0	9.000	On	N	9.8	21.9	51.8
12.673500	37.6	1000.0	9.000	On	N	10.0	12.4	50.0
13.438500	38.6	1000.0	9.000	On	N	10.0	11.4	50.0

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8:51:32



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[Battery Charging Mode: Battery Charger 1]
[Line: L1]

Test

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Test Report

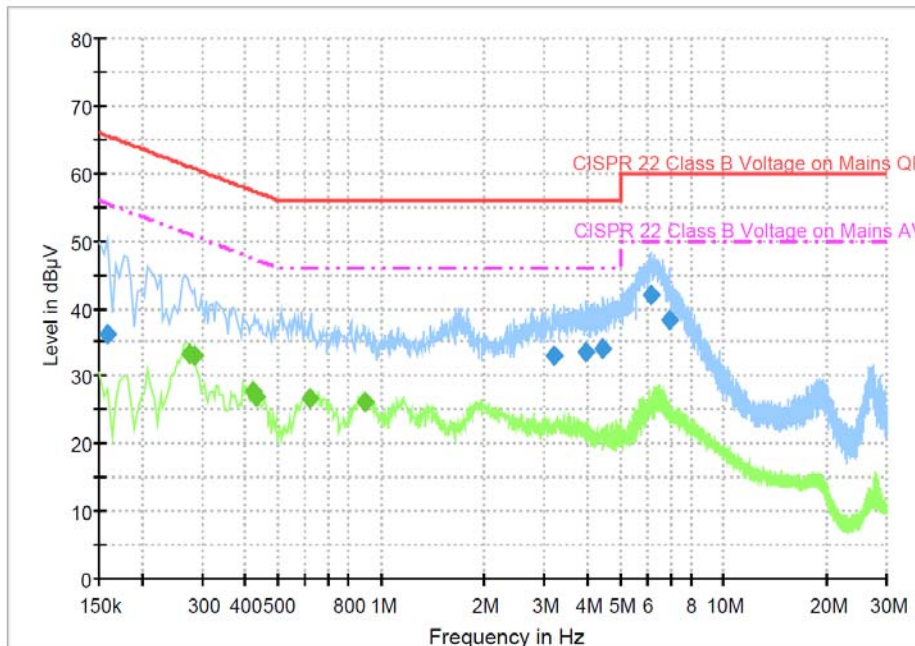
Common Information

Test Model Name: 9484NP
Test Mode: CHARGER MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 7 [ESCI 7]
@ GPIB0 (ADR 20), SN 100816/007, FW 4.42
Signal Path: ESCI 7-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_L1



3/11/2014

10:47:31



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Test

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Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.159000	36.3	1000.0	9.000	On	L1	9.9	29.2	65.5
3.214500	33.1	1000.0	9.000	On	L1	9.9	22.9	56.0
3.948000	33.5	1000.0	9.000	On	L1	9.8	22.5	56.0
4.456500	33.9	1000.0	9.000	On	L1	9.8	22.1	56.0
6.126000	41.9	1000.0	9.000	On	L1	9.6	18.1	60.0
6.967500	38.3	1000.0	9.000	On	L1	9.6	21.7	60.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.276000	33.2	1000.0	9.000	On	L1	9.9	17.7	50.9
0.285000	32.9	1000.0	9.000	On	L1	9.9	17.8	50.7
0.424500	27.7	1000.0	9.000	On	L1	10.1	19.7	47.4
0.433500	26.8	1000.0	9.000	On	L1	10.1	20.3	47.2
0.618000	26.5	1000.0	9.000	On	L1	10.1	19.5	46.0
0.892500	26.2	1000.0	9.000	On	L1	9.9	19.8	46.0

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[Line : Neutral]

Test

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Test Report

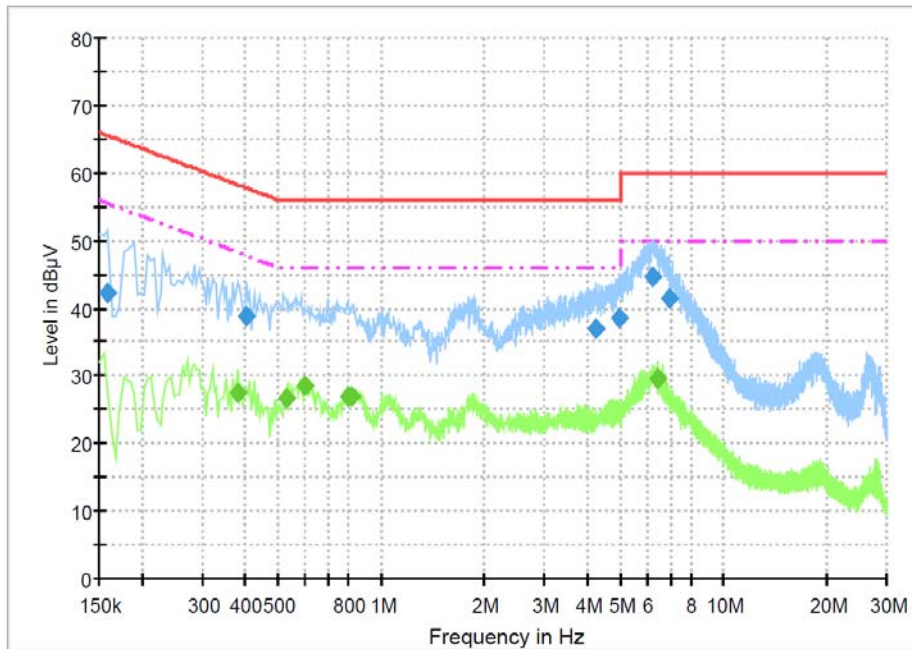
Common Information

Test Model Name: 9484NP
Test Mode: CHARGER MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 7 [ESCI 7]
@ GPIB0 (ADR 20), SN 100816/007, FW 4.42
Signal Path: ESCI 7-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_N



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10:41:30



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Test

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Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.159000	42.3	1000.0	9.000	On	N	9.9	23.2	65.5
0.402000	38.8	1000.0	9.000	On	N	10.1	19.0	57.8
4.258500	37.0	1000.0	9.000	On	N	9.8	19.0	56.0
4.938000	38.7	1000.0	9.000	On	N	9.7	17.3	56.0
6.207000	44.6	1000.0	9.000	On	N	9.6	15.4	60.0
6.945000	41.5	1000.0	9.000	On	N	9.6	18.5	60.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.379500	27.6	1000.0	9.000	On	N	10.1	20.7	48.3
0.528000	26.6	1000.0	9.000	On	N	10.1	19.4	46.0
0.595500	28.5	1000.0	9.000	On	N	10.0	17.5	46.0
0.802500	26.9	1000.0	9.000	On	N	9.9	19.1	46.0
0.820500	27.0	1000.0	9.000	On	N	9.9	19.0	46.0
6.432000	29.7	1000.0	9.000	On	N	9.6	20.3	50.0

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10:41:30



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[Battery Charging Mode: Battery Charger 2]
[Line: L1]

Test

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Test Report

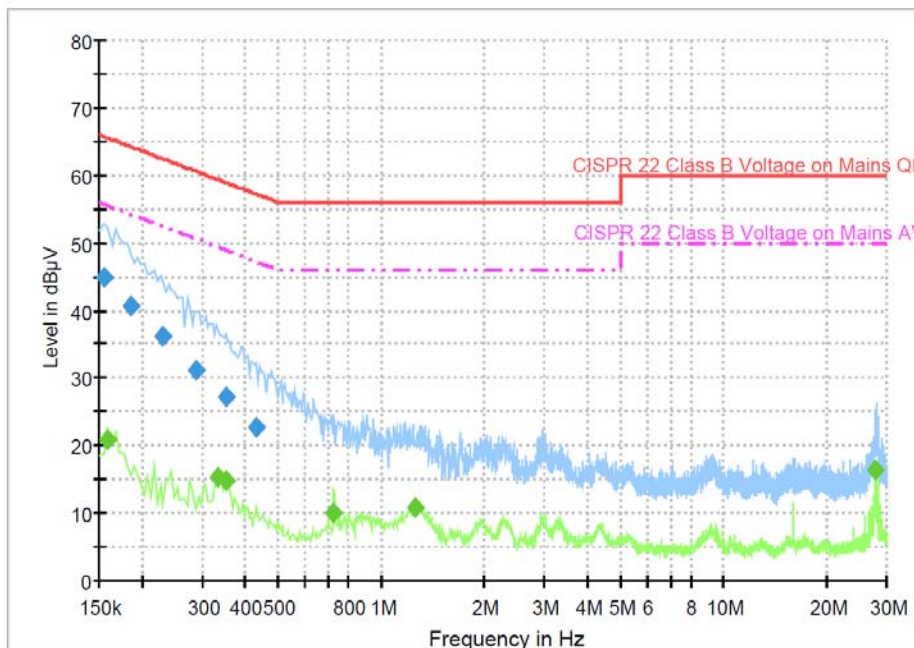
Common Information

Test Model Name: 9484NP
Test Mode: CHARGER MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 7 [ESCI 7]
@ GPIB0 (ADR 20), SN 100816/007, FW 4.42
Signal Path: ESCI 7-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_L1



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11:01:15



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Test

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Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.154500	44.9	1000.0	9.000	On	L1	9.9	20.8	65.8
0.186000	40.6	1000.0	9.000	On	L1	9.9	23.6	64.2
0.231000	36.1	1000.0	9.000	On	L1	9.8	26.3	62.4
0.289500	31.1	1000.0	9.000	On	L1	9.9	29.4	60.5
0.352500	27.2	1000.0	9.000	On	L1	10.1	31.7	58.9
0.433500	22.7	1000.0	9.000	On	L1	10.1	34.4	57.2

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.159000	20.9	1000.0	9.000	On	L1	9.9	34.6	55.5
0.334500	15.3	1000.0	9.000	On	L1	10.1	34.0	49.3
0.352500	14.7	1000.0	9.000	On	L1	10.1	34.2	48.9
0.726000	10.0	1000.0	9.000	On	L1	10.0	36.0	46.0
1.252500	10.8	1000.0	9.000	On	L1	9.8	35.2	46.0
27.802500	16.3	1000.0	9.000	On	L1	9.8	33.7	50.0

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11:01:15



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[Line: Neutral]

Test

1 / 2

Test Report

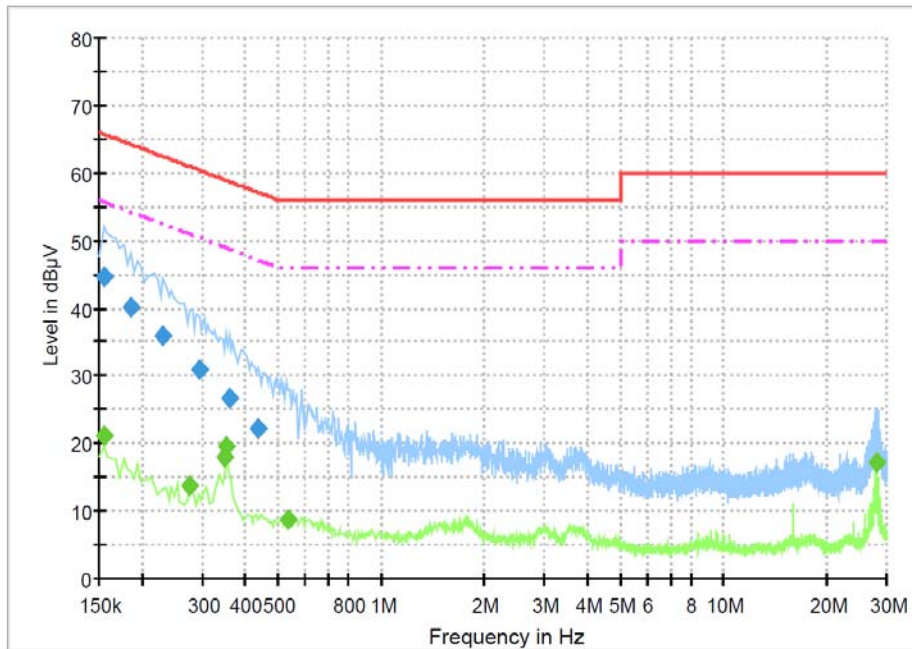
Common Information

Test Model Name: 9484NP
Test Mode: CHARGER MODE
Manufacturer: SEWOO TECH
Tester: JANG, BONG JUN

Hardware Setup: EMI conducted Voltage with ENV216_FO(101235) - [EMI conducted]

Subrange 1
Frequency Range: 150 kHz - 30 MHz
Receiver: ESCI 7 [ESCI 7]
@ GPIB0 (ADR 20), SN 100816/007, FW 4.42
Signal Path: ESCI 7-ENV216 FO(101235)
FW 1.0
Correction Table: 3CE Cable Loss
LISN: ENV216 FO(101235)
Correction Table (Line 0): ENV216_FO_N(101235)
Correction Table (Line 1): ENV216_FO_L1(101235)

3CE_CISPR 22 Class B_N



3/11/2014

10:56:33



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Test

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Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	44.7	1000.0	9.000	On	N	9.9	21.0	65.8
0.186000	40.1	1000.0	9.000	On	N	9.9	24.1	64.2
0.231000	35.8	1000.0	9.000	On	N	9.8	26.6	62.4
0.294000	30.8	1000.0	9.000	On	N	9.9	29.6	60.4
0.361500	26.6	1000.0	9.000	On	N	10.0	32.1	58.7
0.438000	22.2	1000.0	9.000	On	N	10.1	34.9	57.1

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	21.3	1000.0	9.000	On	N	9.9	34.5	55.8
0.276000	13.7	1000.0	9.000	On	N	9.9	37.3	50.9
0.348000	18.0	1000.0	9.000	On	N	10.0	31.0	49.0
0.352500	19.6	1000.0	9.000	On	N	10.0	29.3	48.9
0.532500	8.7	1000.0	9.000	On	N	10.1	37.3	46.0
27.897000	17.3	1000.0	9.000	On	N	9.9	32.7	50.0

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10:56:33



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3.2 Radiated Electric Field Emissions (Below 1 GHz)

Test Date

2014-04-02

Test Location

10 m SAC (test distance : 10 m, 3 m)

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Due Date	Applied
EMI Test Receiver	ESCI7	Rohde & Schwarz	100814	2014-12-06	<input checked="" type="checkbox"/>
Trilog Broadband Antenna	VULB 9161 SE	SCHWARZBECK	9161-4133	2014-06-11	<input checked="" type="checkbox"/>
6dB Attenuator	DNF	Rohde & Schwarz	272.4110.50-2	2014-11-12	<input checked="" type="checkbox"/>
Amplifier	310	Sonoma Instrument Co.	291721	2015-02-06	<input checked="" type="checkbox"/>

Test Software

TOYO EMI software Ver. 5.1.0

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Setting

IF Band Width: 120 kHz

Climate Condition

Temperature: (22 ± 1) °C

Relative Humidity: (43 ± 1) %

Atmospheric Pressure: 99 kPa



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Test Result

The requirements are: MET NOT MET

[USB Printing Mode]

Frequency (MHz)	Measured Data (dB μ V/m)	Margin (dB)	Remark
672.019	39.4	6.6	Quasi-peak

[Serial Printing Mode]

Frequency (MHz)	Measured Data (dB μ V/m)	Margin (dB)	Remark
398.358	40.2	5.8	Quasi-peak

[Battery Charging Mode: Battery Charger 1]

Frequency (MHz)	Measured Data (dB μ V/m)	Margin (dB)	Remark
768.049	40.1	5.9	Quasi-peak

[Battery Charging Mode: Battery Charger 2]

Frequency (MHz)	Measured Data (dB μ V/m)	Margin (dB)	Remark
768.049	42.2	3.8	Quasi-peak

The Result is calculated by using the following formula;

* Result = Reading + Correction factor

* Correction factor = Antenna Factor + Cable Loss + 6 dB attenuator - Amp Gain

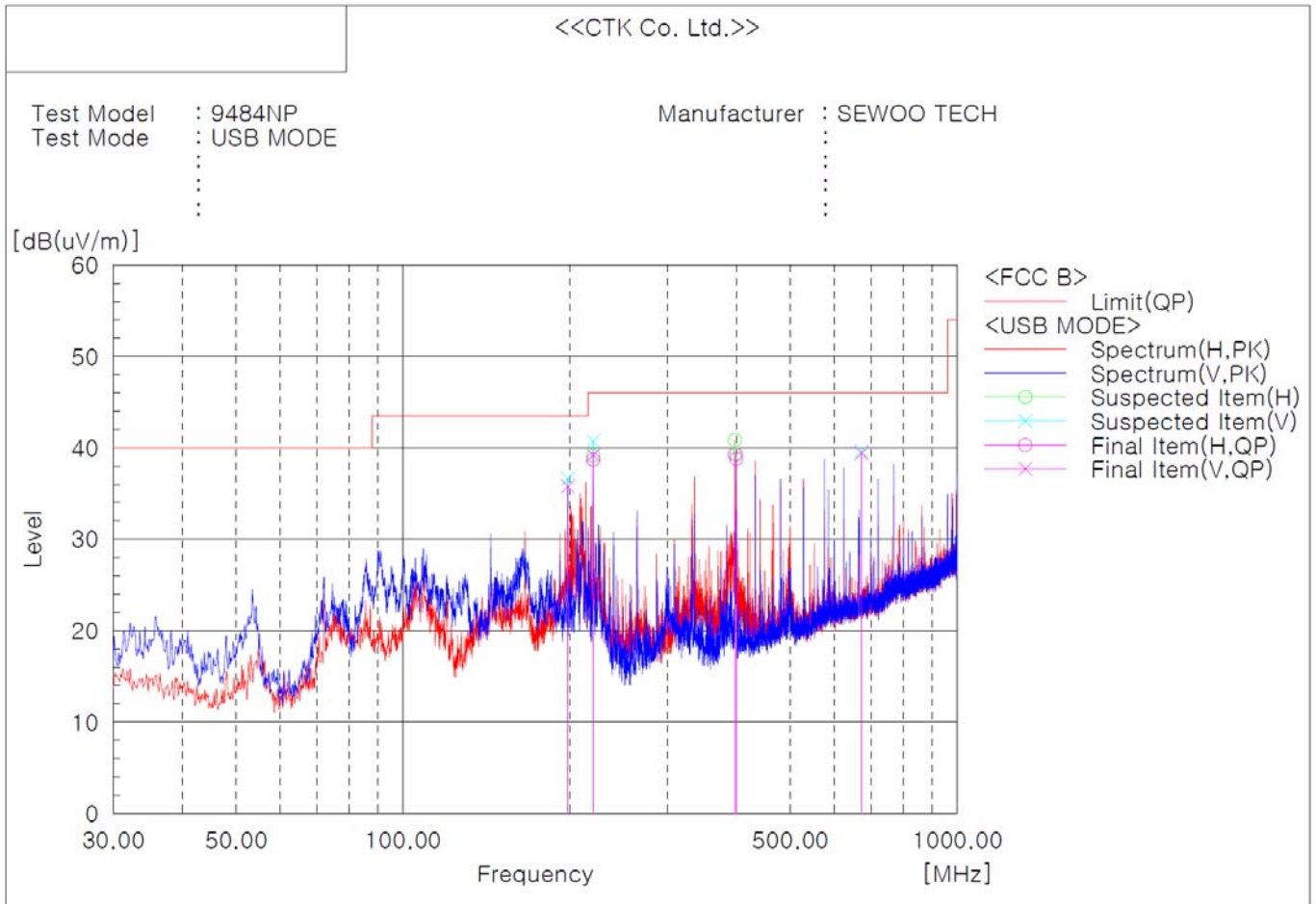


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Test Data

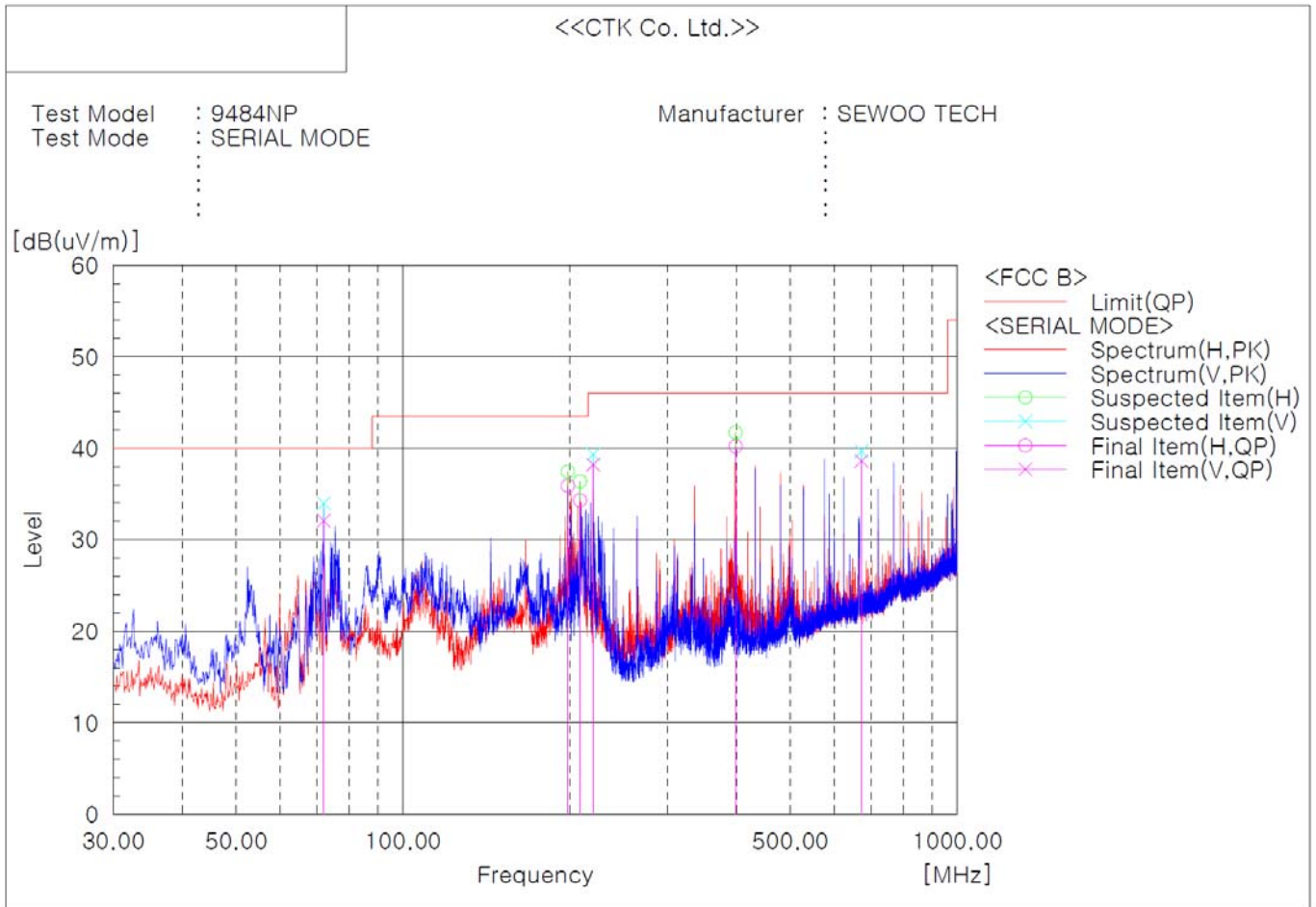
[USB Printing Mode]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	198.416	V	47.0	-11.2	35.8	43.5	7.7	100.0	0.0
2	220.484	V	50.1	-10.9	39.2	46.0	6.8	100.0	290.0
3	220.484	H	49.6	-10.9	38.7	46.0	7.3	207.0	290.0
4	396.903	H	45.8	-6.5	39.3	46.0	6.7	100.0	129.0
5	399.328	H	45.2	-6.4	38.8	46.0	7.2	207.0	290.0
6	672.019	V	40.3	-0.9	39.4	46.0	6.6	100.0	179.0

[Serial Printing Mode]



Final Result

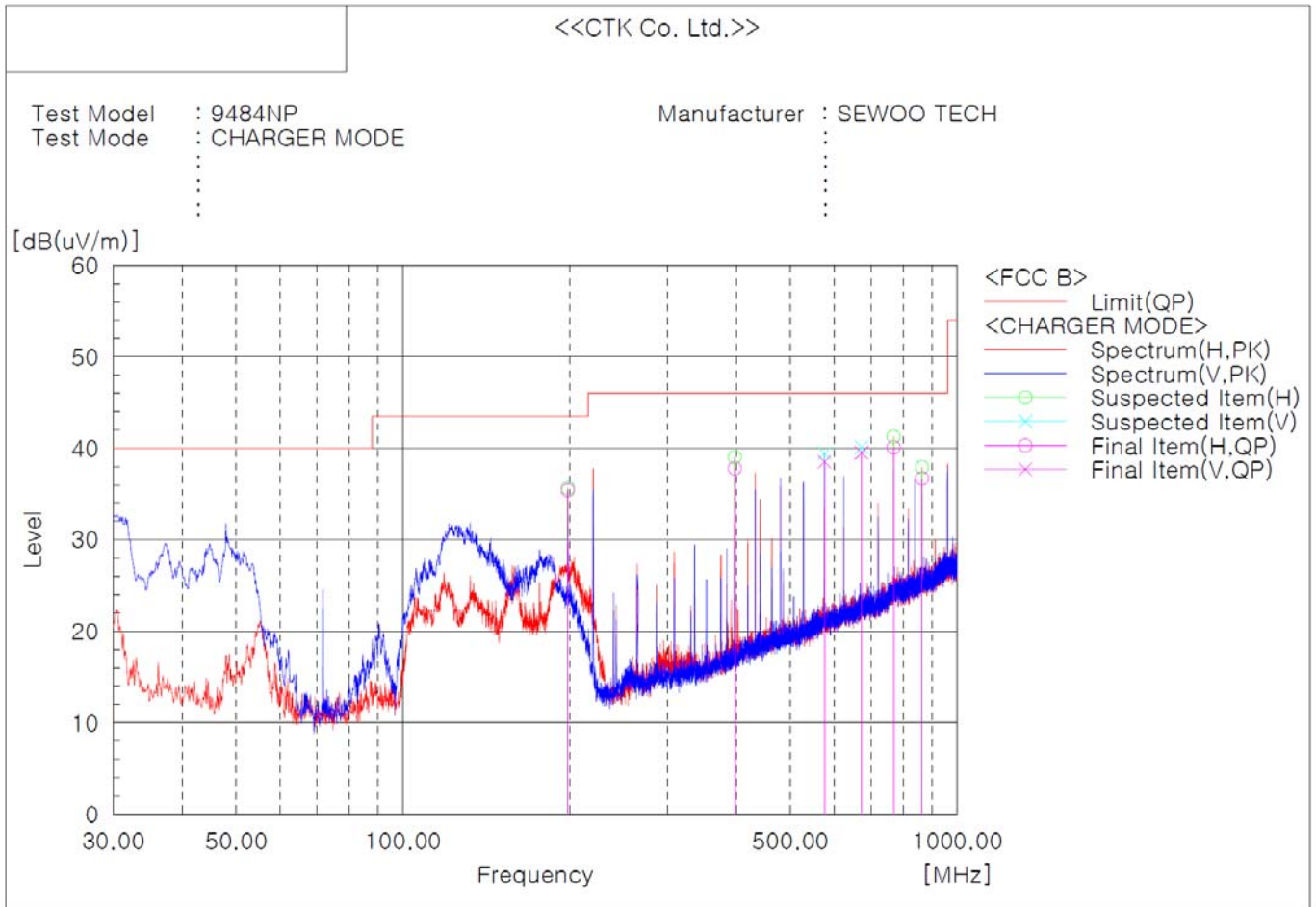
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	71.953	V	47.4	-15.3	32.1	40.0	7.9	100.0	252.0
2	198.416	H	47.1	-11.2	35.9	43.5	7.6	208.0	290.0
3	208.723	H	45.4	-11.1	34.3	43.5	9.2	208.0	290.0
4	220.484	V	49.1	-10.9	38.2	46.0	7.8	100.0	290.0
5	398.358	H	46.6	-6.4	40.2	46.0	5.8	208.0	290.0
6	672.019	V	39.5	-0.9	38.6	46.0	7.4	100.0	178.0



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[Battery Charging Mode: Battery Charger 1]



Final Result

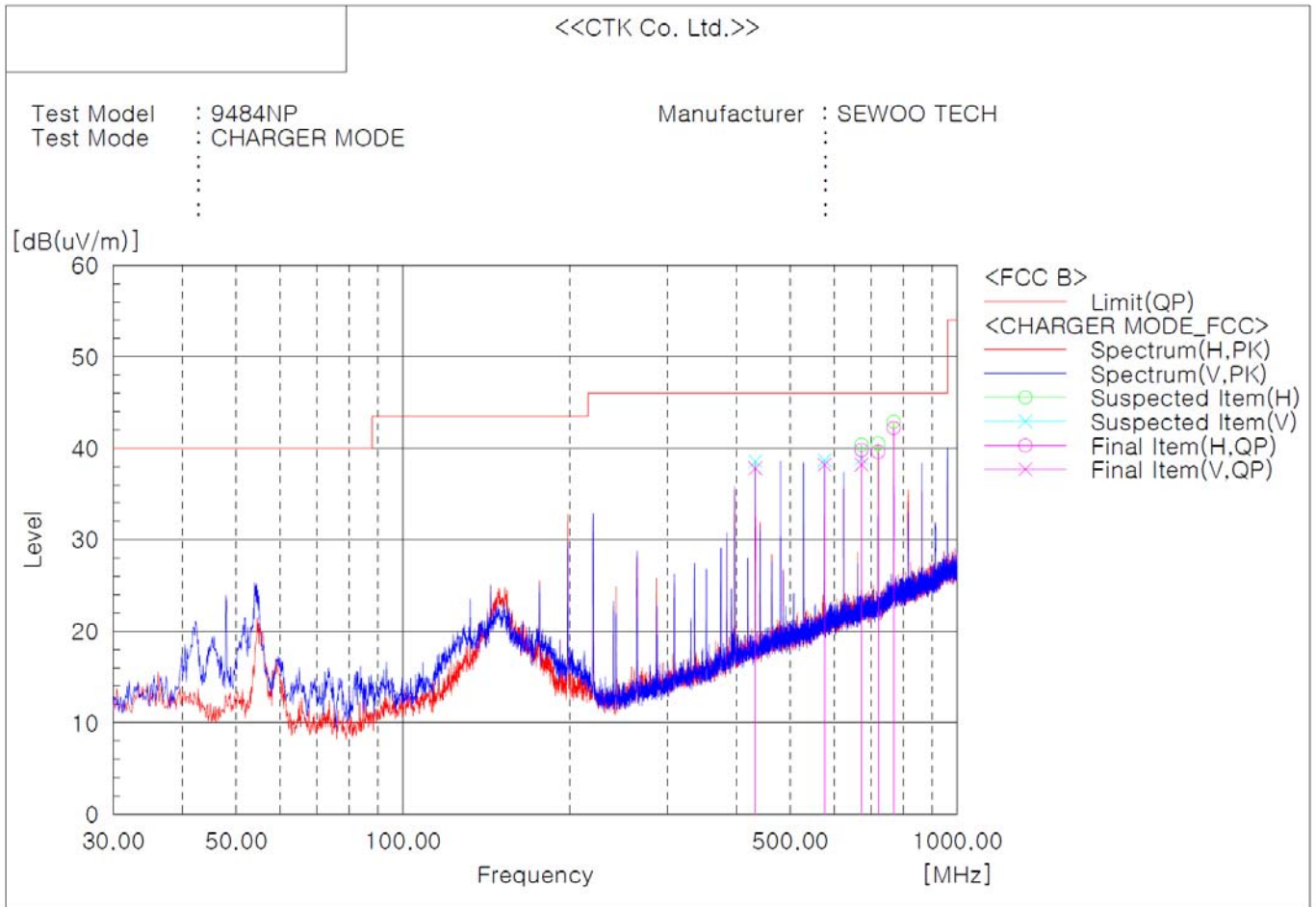
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	198.416	H	46.6	-11.2	35.4	43.5	8.1	100.0	316.0
2	396.903	H	44.3	-6.5	37.8	46.0	8.2	100.0	129.0
3	576.110	V	40.8	-2.3	38.5	46.0	7.5	100.0	0.0
4	672.019	V	40.4	-0.9	39.5	46.0	6.5	100.0	252.0
5	768.049	H	39.0	1.1	40.1	46.0	5.9	100.0	353.0
6	864.079	H	34.0	2.7	36.7	46.0	9.3	100.0	204.0



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[Battery Charging Mode: Battery Charger 2]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	432.065	V	43.3	-5.5	37.8	46.0	8.2	100.0	219.0
2	576.110	V	40.5	-2.3	38.2	46.0	7.8	100.0	107.0
3	672.019	H	40.7	-0.9	39.8	46.0	6.2	100.0	42.0
4	672.019	V	39.1	-0.9	38.2	46.0	7.8	100.0	294.0
5	720.155	H	39.8	-0.2	39.6	46.0	6.4	100.0	267.0
6	768.049	H	41.1	1.1	42.2	46.0	3.8	100.0	42.0

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3.3 Radiated Electric Field Emissions (Above 1 GHz)

Test Date
 Not Applicable

Test Location
 3 m SAC

Test Equipment

Name of Equipment	Model No.	Manufacturer	Serial No.	Due Date	Applied
EMI Test Receiver	ESCI7	Rohde & Schwarz	100816	2015-12-05	<input type="checkbox"/>
Double Ridged Guide Antenna	3117	ETS-Lindgren	154525	2015-07-03	<input type="checkbox"/>
Preamplifier	8449B	Agilent Technologies	3008A02307	2015-10-24	<input type="checkbox"/>

Test Software
 TOYO EMI software Ver. 5.1.0

Frequency Range of Measurement
 1 GHz to 6 GHz

Instrument Setting
 IF Band Width: 1 MHz

Climate Condition
 Temperature:
 Relative Humidity:
 Atmospheric Pressure:

Test Result
 The requirements are: MET NOT MET

Frequency (MHz)	Measured Data (dBμV/m)	Margin (dB)	Remark

The Result is calculated by using the following formula;
 * Result = Reading + Correction factor
 * Correction factor = Antenna Factor + Cable Loss- Amp Gain

Test Data

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APPENDIX A - Test Setup Photos and Configuration



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Conducted Voltage Emissions of Mains Ports

[USB/Serial Printing Mode]

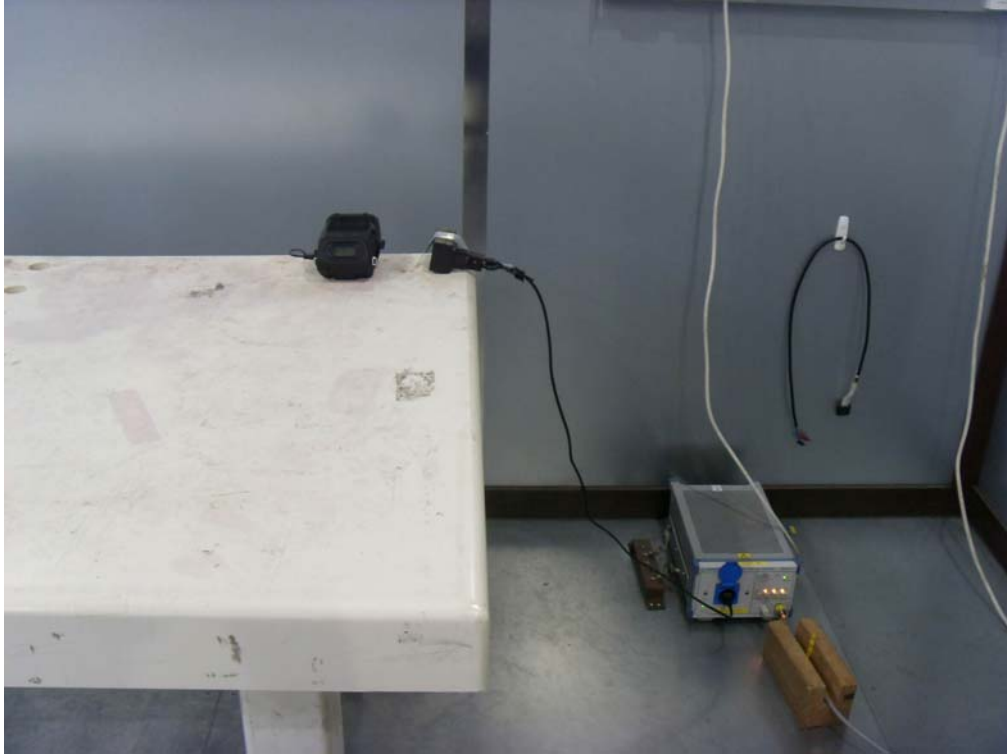




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[Battery Charging Mode: Battery Charger 1&2]



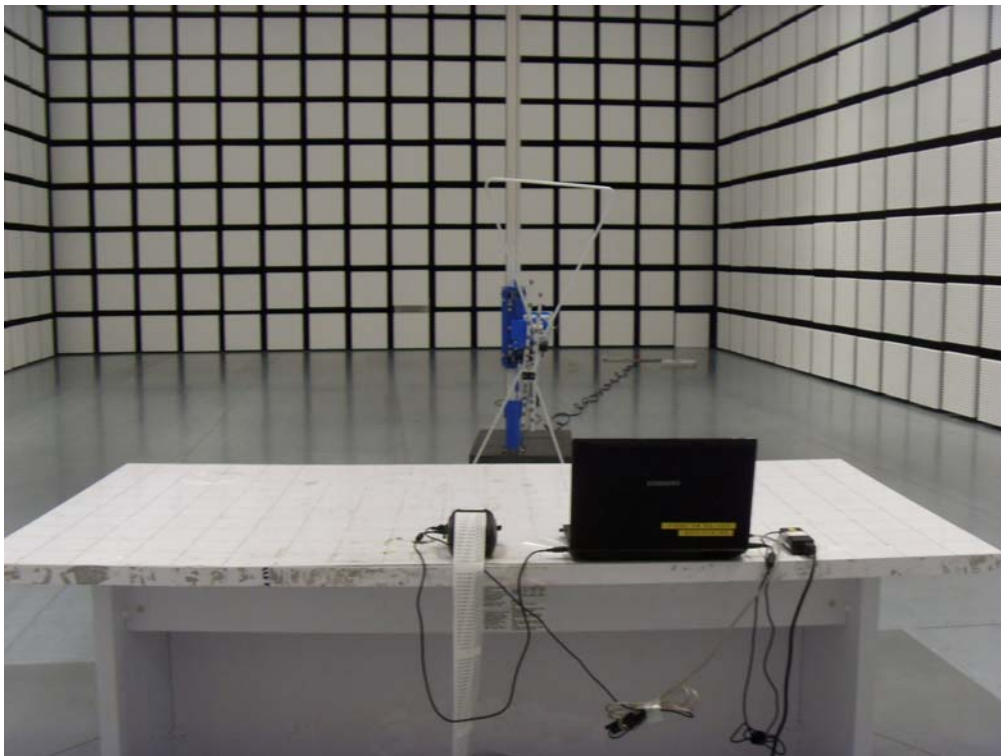
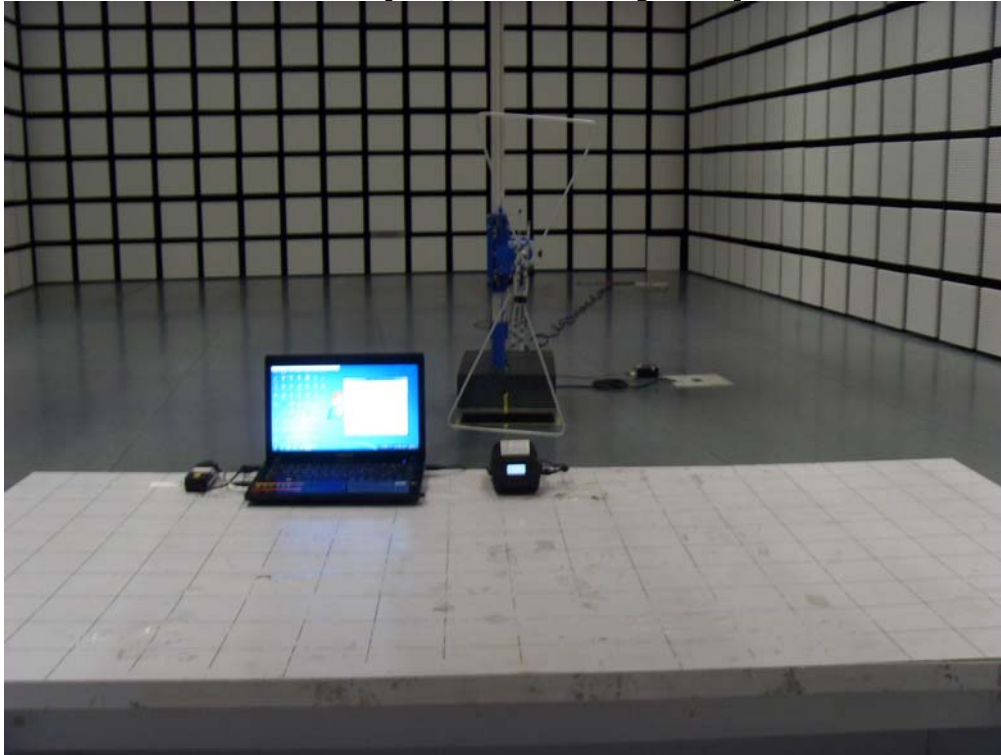


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Radiated Electric Field Emissions (Below 1 GHz)

[USB/Serial Printing Mode]

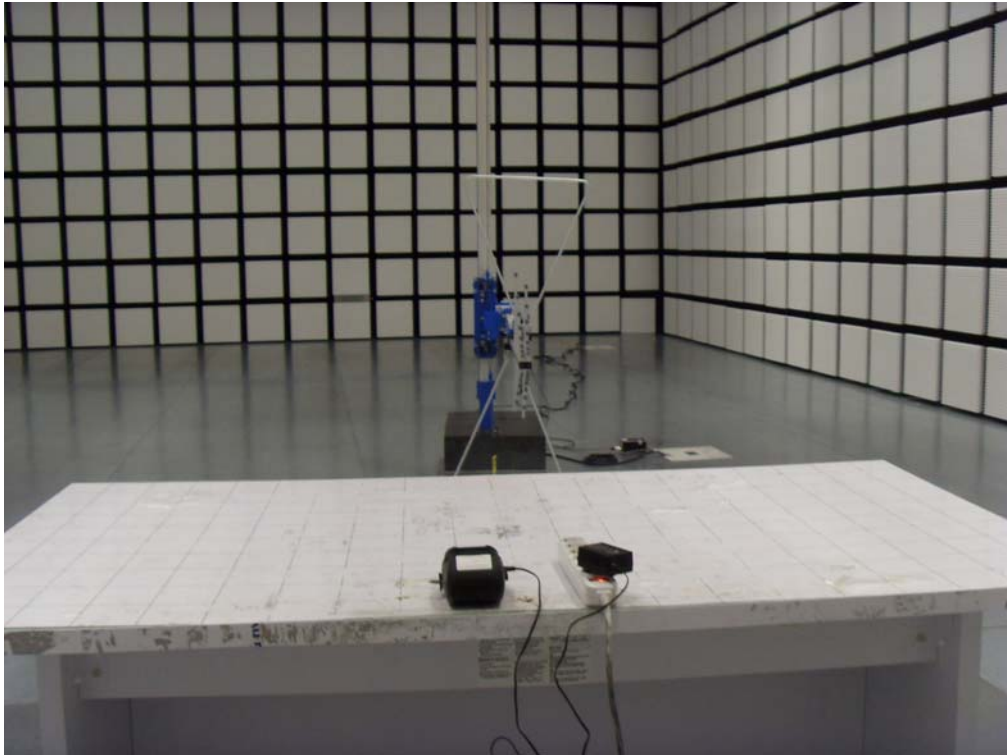
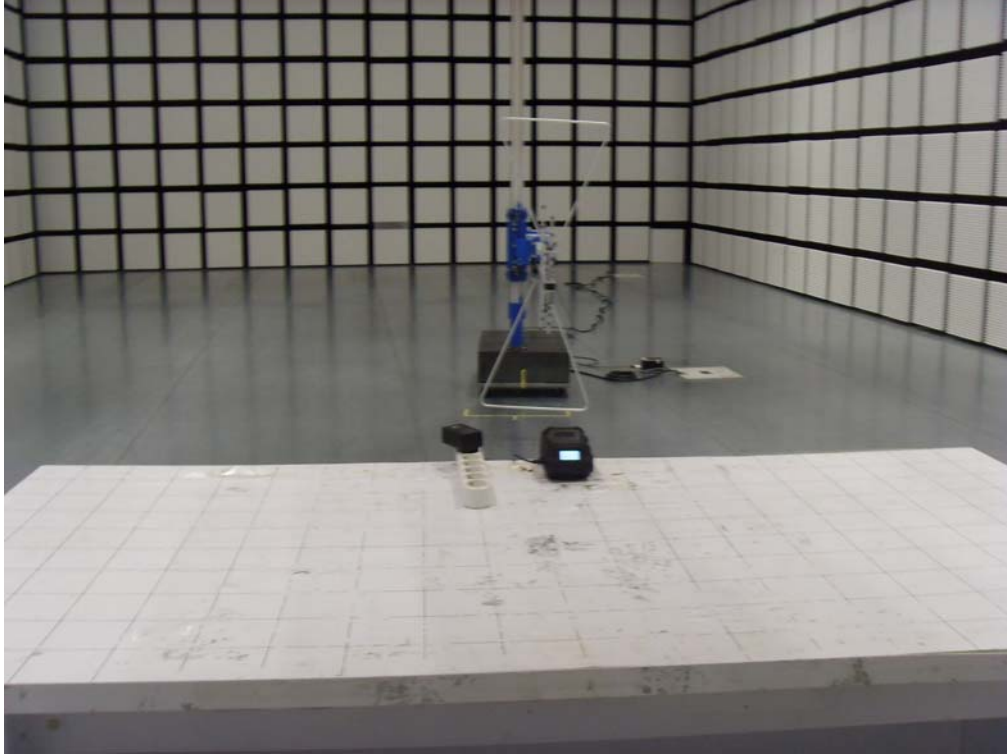




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[Battery Charging Mode: Battery Charger 1&2]





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Radiated Electric Field Emissions (Above 1 GHz)

Not Applicable



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APPENDIX B – EUT Photographs



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EUT External Photographs





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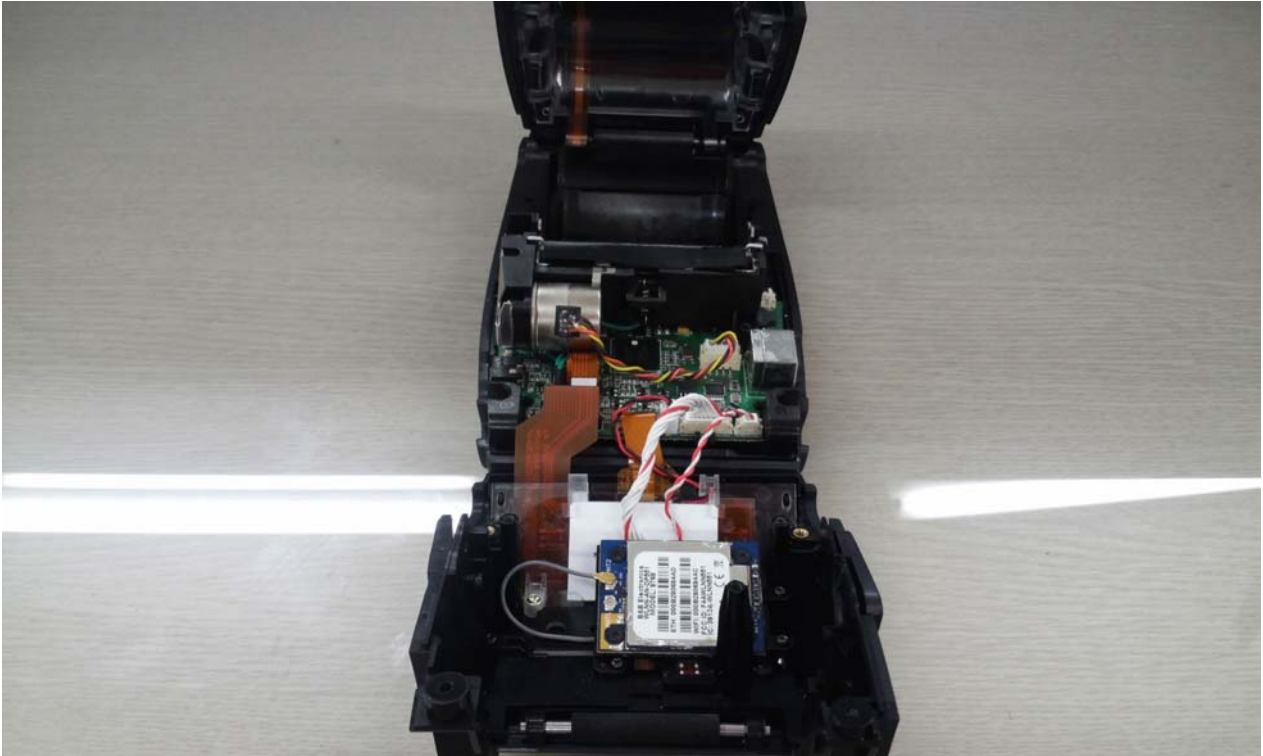




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EUT Internal Photographs

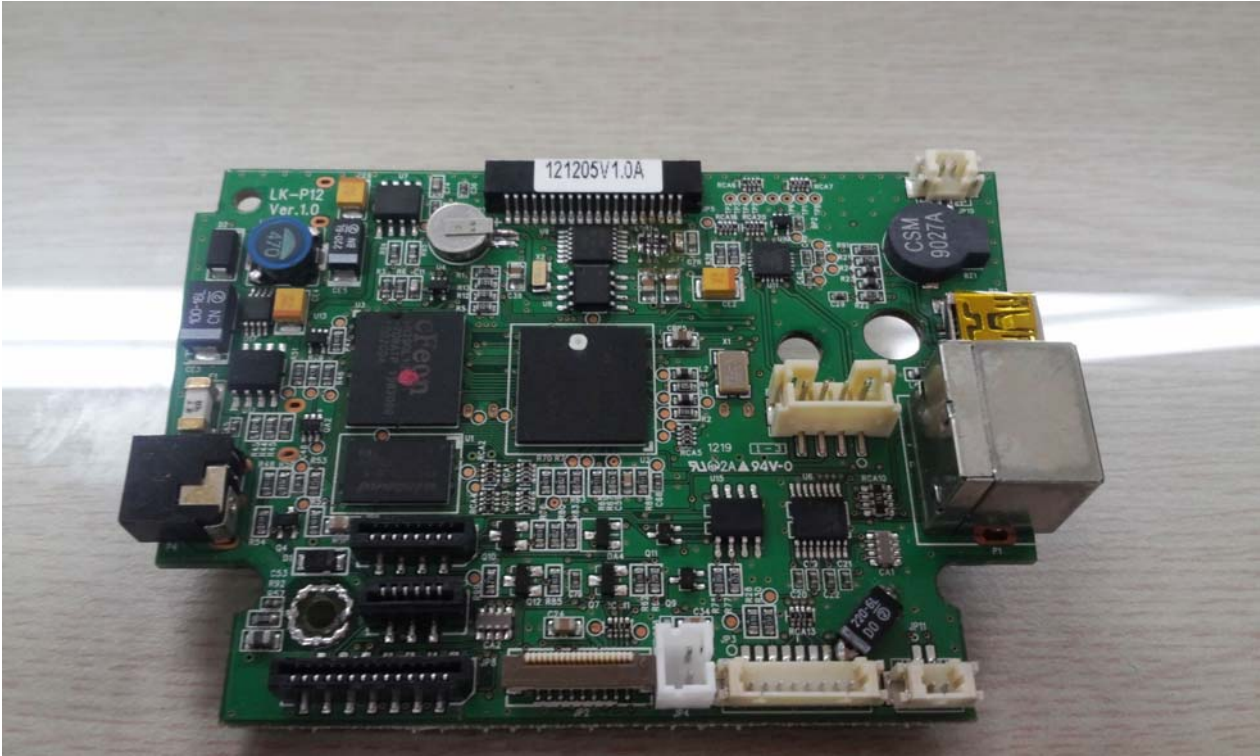




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PCB





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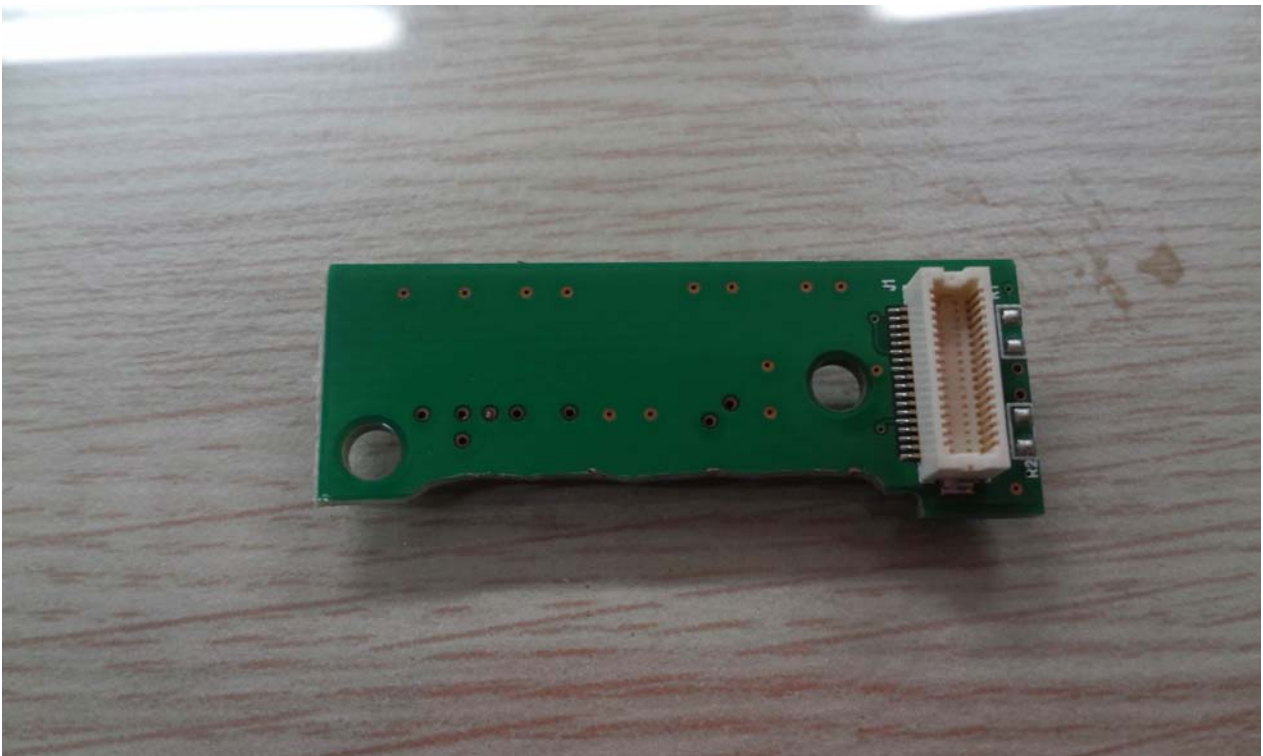
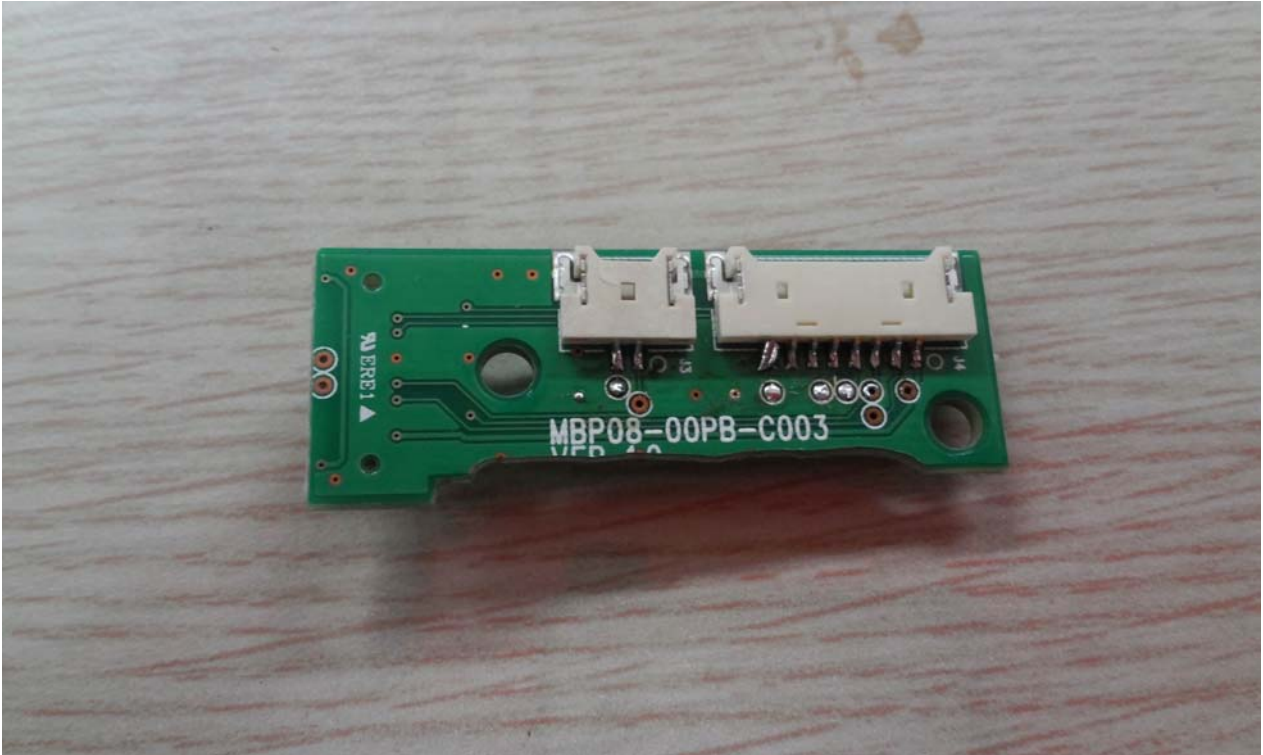
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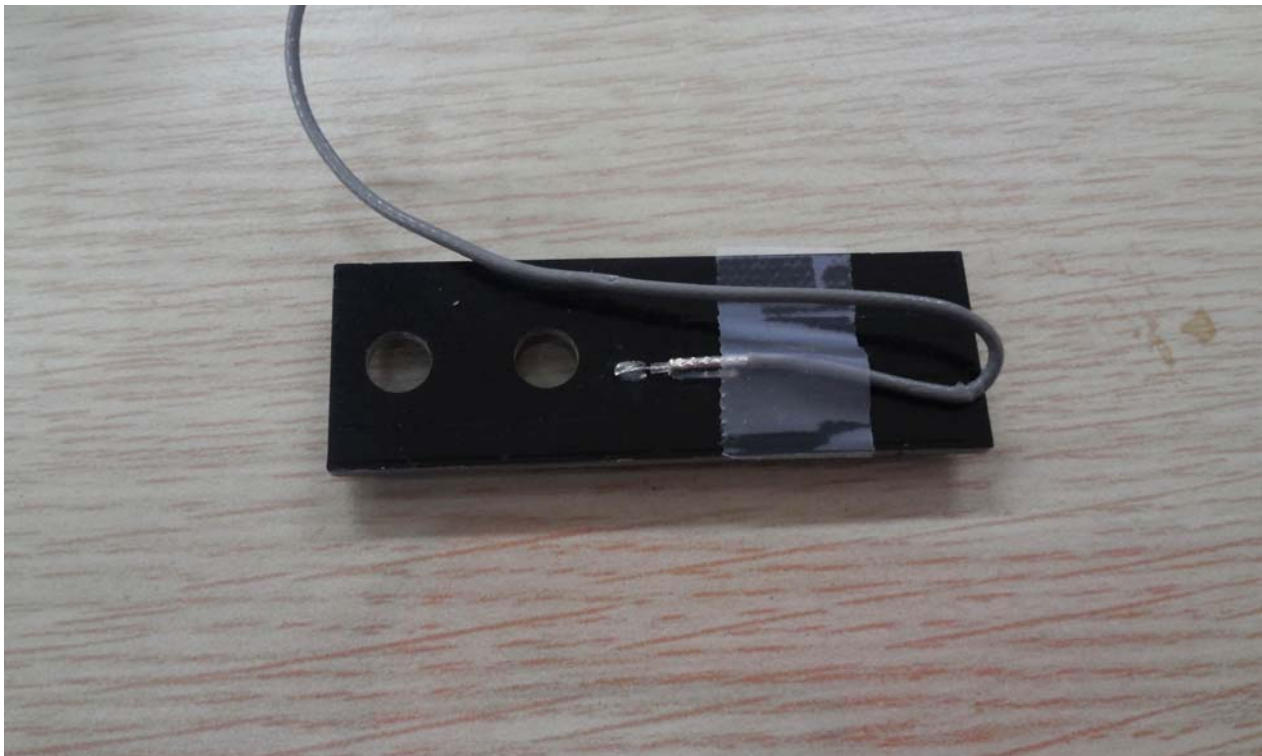
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Battery





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Battery Charger 1





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ADAPTER TECH.
Switching Power Charger/电源适配器/電源供應器
Model (型号/型號): STD-08410CV
Input (輸入/輸入/入力): 100-240V ~ 47-63Hz 0.21A MAX
Output (輸出/輸出/出力): 8.55V 1A 8.55W MAX
Warning: Gebrauch nur an trockenen Orten, Gefahr des elektrischen Schocks, Gebrauch nur im Hausinneren. CAUTION: Risk of electric Shock, dry location use only. Indoor use only.
警告! 仅限室内使用, 小心电击, 干燥地区使用
此产品用于信息技术设备, 仅适用于在海拔2000m以下地区使用
Manufacturer (制造商): 阿达特科技股份有限公司
EFFICIENCY LEVEL

PS E JET
 I/P: AC 100-240V 50/60Hz 18-27VA 0.21A
 O/P: DC 8.55V 1A

LPS

UL US LISTED
I.T.E. POWER SUPPLY
60JJ
E225703

R33154

CCC S&E

CE

TUV R33154

RoHS

EAC

N136

NOM NYCE

中国制造
D/C: 1346
MADE IN CHINA
ID NO. X
XXX

FC

KTLS UXXXXX-XXXXX

품 명: 직류전원장치
 모 델 명: STD-08410CV
 제 품 정 격: (I/P: 100-240V; 47-63Hz; 0.48A)
 (O/P: 8.55V; 1A)
 제 조 자: Adapter Technology Co., Ltd.
 제 조 공 장: BoayYang Electronics Co., Ltd.
 A/S 연 락 처: (주) 일로테크 +82-2-522-1665
 제 조 년 월: 1329
 최 저 스 비 호 용 기 준 만 록 제 품



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Battery Charger 2





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